

Peptide and oligo evidence for each of the three examined strains is provided as visualized using the Artemis viewer. Forward and reverse DNA strains are labeled along with each of the six translational reading frames. Vertical black bars represent stop codons, white regions represent DNA features, cyan regions represent protein coding regions, yellow regions represent oligo evidence, and magenta regions represent peptide evidence. Errors are assigned arbitrary numerical values for organization only, and each proposed protein error (along with orthologs from remaining examined strains) is represented on an individual page.

Error 1

Strain: *Y. pestis* CO92
Gene: YPO0089

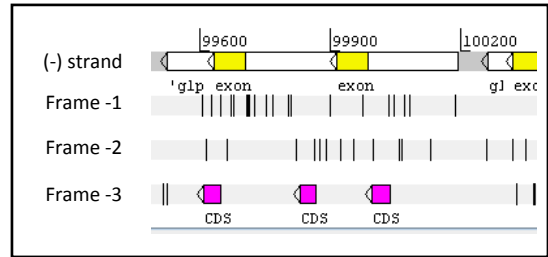
Classification: expressed pseudogene
Boundaries of gene: complement (99525..100193)

Oligo evidence:

attccagacggtgacgttgctgctcaatttgactgtatgccagaaagcgaagtgacgtgatgact
gttatcttctgccactggcattactaaagtgacctgctagaaggtatctatcgtaaaggaatattg

Peptide evidence:

HDGIIAAMQQLGVK
KGNMATTETLLIR
LDGDMQGRLLPR



Proposed sequence (peptide evidence in red): 222aa

APDMYMEKLVVGPAAKGAIDLNLPLEQNLNCNIATALNKPLADLTVITLAKPR**HDGIIAAMQQLGVK**VFAIPDGDVAASILTCMPSEVDVVMYCIGGAPEGVISA AVIR**LDGDMQGRLLPR**H
QVKGDSEDNRRIGEQELLRCKSMGIEAGNVLQLGDMARNDNVIFSATGITKGDLLGEGIYR**KGNMATTETLLIR**GKSRTRIRRIRSTHFLDRKDPALHEFLL

Strain: *Y. pestis* pestoides F
Gene: YPDFS_3814

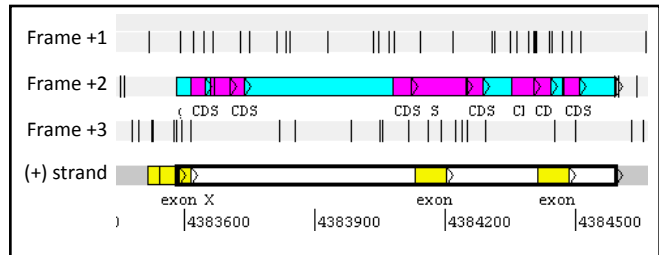
Classification: annotated as glpX
Boundaries of gene: 4383581..4384591

Oligo evidence:

tagaaaggtatagaattcttgcctatattcagtttttctattccgcaatcaacaggtctaaccatgaaa
atattcagtttttctattccgcaatcaacaggtctaaccatgaaaagtgattgacatcgagttttccc
atccagacggtgacgttgctgctcaatttgactgtatgccagaaagcgaagtgacgtgatgact
gttatcttctgccactggcattactaaagtgacctgctagaaggtatctatcgtaaaggaatattg

Peptide evidence:

GDKNAADGAAVQAMR
GNMATTETLLIR
HDGIIAAMQQLGVK
IMLNQVNIDGR
KGNMATTETLLIR
LDGDMQGRLLPR
NAADGAAVQAMR
NDNVIFSATGITK
SMGIEAGNVLQLGDMAR
VFAIPDGDVAASILTCMPSEVDVVMYCIGGAPEGVISA AVIR
VTEAALAGYK



Current sequence (peptide evidence in red): 336aa

MKRELAIEFSR**VTEAALAGYK**WLGR**GDKNAADGAAVQAMR**IMLNQVNIDGRIVIGEGEIDEAPMLFIGEHVGTGGQDAVDIAVDPIEGTRMTAMGQANALAVLAVGDQGTFLHAPDM
YMEKLVVGPAAKGAIDLNLPLEQNLNCNIATALNKPLADLTVITLAKPR**HDGIIAAMQQLGVK**VFAIPDGDVAASILTCMPSEVDVVMYCIGGAPEGVISA AVIR**LDGDMQGRLLPR**HQVKG
DSEDNRRIGEQELLRCKSMGIEAGNVLQLGDMARNDNVIFSATGITKGDLLGEGIYR**KGNMATTETLLIR**GKSRTRIRRIRSTHFLDRKDPALHEFLL

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0089

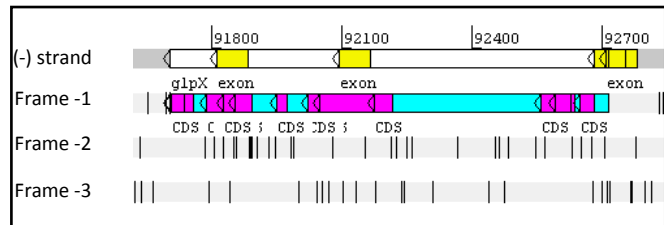
Classification: annotated as glpX
Boundaries of gene: complement (91704..92714)

Oligo evidence:

gttatcttctgccactggcattactaaagtgacctgctagaaggtatctatcgtaaaggaatattg
attccagacggtgacgttgctgctcaatttgactgtatgccagaaagcgaagtgacgtgatgact
atattcagtttttctattccgcaatcaacaggtctaaccatgaaacgtgaattgacatcgagttttccc
atattcagtttttctattccgcaatcaacaggtctaaccatgaaacgtgaattgacatcgagttttccc

Peptide evidence:

ALDGDMMQGR
GDKNAADGAAVQAMR
GDLLGEGIYR
HDGIIAAMQQLGVK
IGEQLLR
IMLNQVNIDGR
KDPALHEFLL
KGNMATTETLLIR
NAADGAAVQAMR
NDNVIFSATGITK
STHFLDRKDPALHEFLL
VFAIPDGDVAASILTCMPSEVDVVMYCIGGAPEGVISA AVIR
VTEAALAGYK



Current sequence (peptide evidence in red): 336aa

MKRELAIEFSR**VTEAALAGYK**WLGR**GDKNAADGAAVQAMR**IMLNQVNIDGRIVIGEGEIDEAPMLFIGEHVGTGGQDAVDIAVDPIEGTRMTAMGQANALAVLAVGDQGTFLHAPDM
YMEKLVVGPAAKGAIDLNLPLEQNLNCNIATALNKPLADLTVITLAKPR**HDGIIAAMQQLGVK**VFAIPDGDVAASILTCMPSEVDVVMYCIGGAPEGVISA AVIR**LDGDMQGRLLPR**HQVKG
DSEDNRR**IGEQLLR**CKSMGIEAGNVLQLGDMARNDNVIFSATGITKGDLLGEGIYR**KGNMATTETLLIR**GKSRTRIRRIRSTHFLDRKDPALHEFLL

Error 2

Strain: *Y. pestis* CO92
Gene: YPO0090

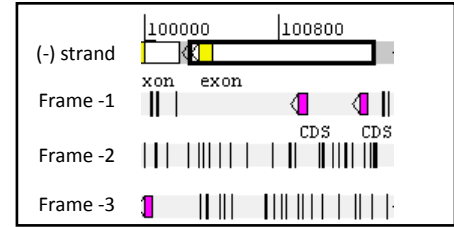
Classification: expressed pseudogene (glpK)
Boundaries of gene: complement (100264..101355)

Oligo evidence:

tacgtgatgaattgaagttgataggcgatgccaccgattctgagtatttcgaccaaagtgaaaaacag

Peptide evidence:

HNTGLVVDPYFSGTK
YIVALDQGTSSR



Proposed sequence (peptide evidence in red): 363aa

MTTENTTQKKYIVALDQGTSSRAVLDHNANIVSVSQRFTQIYPKAGVWEHDPMEIOWATQSSTLIEVLAKAGINSDEIAGIGITNQRETTIVWDKVTGKPVYNAIVWQCRRTADICEKLLK
EGLLEEYIRHNTGLVVDPYFSGTKVKWILDNVEGARERAERGELLFGTVDTWLVWNMTQGRVHVTDYTNASRTMMFNIRTKEWDDRMLKALNIPRAMLPEVRPSSEIYGKTNIGKGGTRI
PIAGIAGDQQAALFGQLCVQPGMAKNTYGTGCFLLMNTGEEAVQSTHGLLTTIACGPRGEVNYALEGAVFIGGASIQWLRDELKLGIDATDSEYFATKVKNSNGVYVVPFTGLGAPYWD

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3813

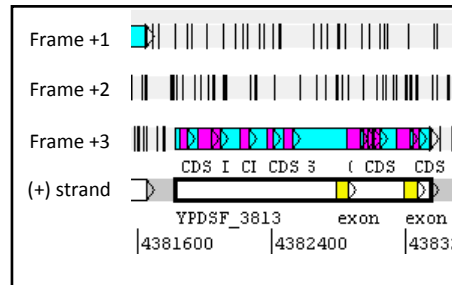
Classification: annotated as hypothetical protein
Boundaries of gene: 4381821..4383344

Oligo evidence:

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ttctgggatgacctcgatgaggtgaagagtaaagcaagcattgaacgcgaattccgtccaggattgaaa

Peptide evidence:

AGINSDEIAGIGITNQ
AGVWEHDPMEIOWATQSSTLIEVLAK
AMLPEVRPSSEIYGK
ATLESIAQTR
DVLDMQADSGAR
EFRPGIETTER
ESTALGAAFLAGLATGFWDLLDEVK
GVNSNHIIR
HNTGLVVDPYFSGTK
NSNGVYVVPFTGLGAPYWDYAR
VHVTDYTNASR
YIVALDQGTSSR



Current sequence (peptide evidence in red): 507aa

MTTENTTQKKYIVALDQGTSSRAVLDHNANIVSVSQRFTQIYPKAGVWEHDPMEIOWATQSSTLIEVLAKAGINSDEIAGIGITNQRETTIVWDKVTGKPVYNAIVWQCRRTADICEKLLK
EGLLEEYIRHNTGLVVDPYFSGTKVKWILDNVEGARERAERGELLFGTVDTWLVWNMTQGRVHVTDYTNASRTMMFNIRTKEWDDRMLKALNIPRAMLPEVRPSSEIYGKTNIGKGGTRI
PIAGIAGDQQAALFGQLCVQPGMAKNTYGTGCFLLMNTGEEAVQSTHGLLTTIACGPRGEVNYALEGAVFIGGASIQWLRDELKLGIDATDSEYFATKVKNSNGVYVVPFTGLGAPYWD
YARGAIFGLTRGVNSNHIIRATLESIAQTRDVLDMQADSGARLKSRLVDGGAVANNFLMQFQADILGTRVERPAIRESTALGAAFLAGLATGFWDLLDEVKSKASIEREFRPGIETTERDIR
YKGWKKAVARARDWEEHDE

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0090

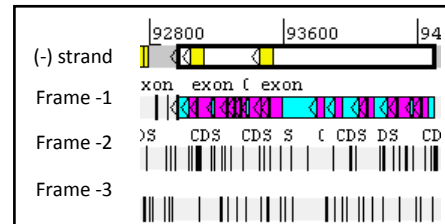
Classification: annotated as glycerol kinase
Boundaries of gene: complement (92967..94490)

Oligo evidence:

ttctgggatgacctcgatgaggtgaagagtaaagcaagcattgaacgcgaattccgtccaggattgaaa
tacgtgatgaattgaagttgataggcgatgccaccgattctgagtatttcgaccaaagtgaaaaacag

Peptide evidence:

AGINSDEIAGIGITNQ
AGVWEHDPMEIOWATQSSTLIEVLAK
AMLPEVRPSSEIYGK
ATLESIAQTR
AVLDHNANIVSVSQR
DVLDMQADSGAR
EFRPGIETTER
ESTALGAAFLAGLATGFWDLLDEVK
GEVNYALEGAVFIGGASIQWLRDELK
GVNSNHIIR
HNTGLVVDPYFSGTK
LIGDATDSEYFATK
LKKEGLEEYIR
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VHVTDYTNASR
YIVALDQGTSSR



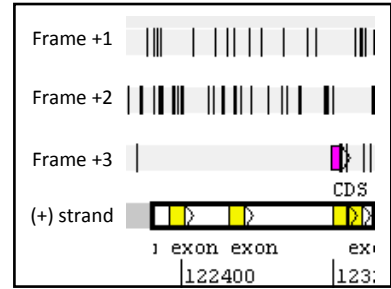
Current sequence (peptide evidence in red): 507aa

MTTENTTQKKYIVALDQGTSSRAVLDHNANIVSVSQRFTQIYPKAGVWEHDPMEIOWATQSSTLIEVLAKAGINSDEIAGIGITNQRETTIVWDKVTGKPVYNAIVWQCRRTADICEKLLK
EGLLEEYIRHNTGLVVDPYFSGTKVKWILDNVEGARERAERGELLFGTVDTWLVWNMTQGRVHVTDYTNASRTMMFNIRTKEWDDRMLKALNIPRAMLPEVRPSSEIYGKTNIGKGGTRI
PIAGIAGDQQAALFGQLCVQPGMAKNTYGTGCFLLMNTGEEAVQSTHGLLTTIACGPRGEVNYALEGAVFIGGASIQWLRDELKLGIDATDSEYFATKVKNSNGVYVVPFTGLGAPYWD
YARGAIFGLTRGVNSNHIIRATLESIAQTRDVLDMQADSGARLKSRLVDGGAVANNFLMQFQADILGTRVERPAIRESTALGAAFLAGLATGFWDLLDEVKSKASIEREFRPGIETTERDIR
YKGWKKAVARARDWEEHDE

Error 3

Strain: *Y. pestis* CO92
Gene: YPO0115

Classification: expressed pseudogene (metB)
Boundaries of gene: Frame+3:122247..123235
Frame+2:123233..123406



Oligo evidence:

```
tttcagctactacaattttattgatttaacagccgcgcacgcatgactattcacgtcgtgtaatcc
ggcggagaaaccgaagttggtcttgattgaaacaccagtaatccattgctacgggttgatattgcc
ttgagctatttacctggcagagctctttggggggtagaaaacctgatcccatgcagcaccatgacc
gcgggtatggcggcagagggcgctattgccgagcattactgatagtttggcgtattccgtgggta
```

Peptide evidence:

FLSALELFTLAESLGG

Proposed sequence (peptide evidence in red):

Frame+3: 330aa

MTRKQATIAVRSGLNDDDEQYGCVVPPIHLSSTYNFIDFNQPRTHDYSRRGNPTRDVVQRALAELEGGAGAVMTSSGMSALHLVCTTFLOPGDLLVAPHDCYGGSYRFLDLSKRGAYRVLFV
DQGDEAALNCALAEKPKLVLIETPSNPLLRVVDIAAICQAARAAGALTVCNDTFLSPALQQPLSLGADLVVHSTKYLNHGSDDVAVAGAVIAKDPPELVVLAWWANNIGVTGAAFDSYLLRGL
RTLSPRMAQQQRNADDIVRYLQQQLVKKLYHPSLPQHPGHEIACRQQSGFGAMLSFELDGDEQVMRR**FLSALELFTLAESLGG**

Frame+2: 58aa

VESLISHAATMTHAGMAAEARIAAGITDSSLRISVGIEDSEDLIADLDHAFQLAVTR

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3792

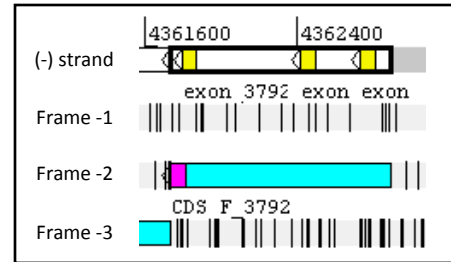
Classification: annotated as cystathionine gamma-synthase
Boundaries of gene: complement (4361729..4362889)

Oligo evidence:

```
gcgggtatggcggcagagggcgctattgccgagcattactgatagtttggcgtattccgtgggta
ggcggagaaaccgaagttggtcttgattgaaacaccagtaatccattgctacgggttgatattgcc
tttcagctactacaattttattgatttaacagccgcgcacgcatgactattcacgtcgtgtaatcc
```

Peptide evidence:

ISVGIEDSEDLIADLDHAFQLAVTR



Current sequence (peptide evidence in red): 386aa

MTRKQATIAVRSGLNDDDEQYGCVVPPIHLSSTYNFIDFNQPRTHDYSRRGNPTRDVVQRALAELEGGAGAVMTSSGMSALHLVCTTFLOPGDLLVAPHDCYGGSYRFLDLSKRGAYRVLFV
DQGDEAALNCALAEKPKLVLIETPSNPLLRVVDIAAICQAARAAGALTVCNDTFLSPALQQPLSLGADLVVHSTKYLNHGSDDVAVAGAVIAKDPPELVVLAWWANNIGVTGAAFDSYLLRGL
RTLSPRMAQQQRNADDIVRYLQQQLVKKLYHPSLPQHPGHEIACRQQSGFGAMLSFELDGDEQVMRR**FLSALELFTLAESLGGVESLISHAATMTHAGMAAEARIAAGITDSSLRISVGI
E** **D** **S** **E** **D** **L** **I** **A** **D** **L** **D** **H** **A** **F** **Q** **L** **A** **V** **T** **R**

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0108

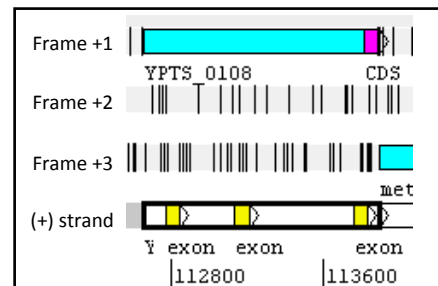
Classification: annotated as cystathionine gamma-synthase
Boundaries of gene: 112651..113892

Oligo evidence:

```
gttgaatgatgacgacgaatacggctgctgtcccccgattcaccttcagactactacaattttatt
ggcggagaaaccgaagttggtcttgattgaaacaccagtaatccattgctacgggttgatattgcc
gcgggtatggcggcagagggcgctattgccgagcattactgatagtttggcgtattccgtgggta
```

Peptide evidence:

ISVGIEDSEDLIADLDHAFQLAVTR



Current sequence (peptide evidence in red): 413aa

MSRCIDVRILCVYSGVTFSRSLVEINMTRKQATIAVRSGLNDDDEQYGCVVPPIHLSSTYNFIDFNQPRTHDYSRRGNPTRDVVQRALAELEGGAGAVMTSSGMSAIHLVCTTFLOPGDLLVA
PHDCYGGSYRFLDLSKRGAYRVLFVDQGDEAALNRALAEKPKLVLIETPSNPLLRVVDIAAICQAARAAGALTVCNDTFLSPALQQPLSLGADLVVHSTKYLNHGSDDVAVAGAVIAKDPPELVV
ELAWWANNIGVTGAAFDSYLLRGLRTLSPRMAQQQRNADDIVRYLQQQLVKKLYHPSLPQHPGHEIACRQQSGFGAMLSFELDGDEQVMRR**FLSALELFTLAESLGGVESLISHAATM
HAGMAAEARIAAGITDSSLRISVGIEDSEDLIADLDHAFQLAVTR**

Error 4

Strain: *Y. pestis* CO92
Gene: YPO0124

Classification: expressed pseudogene (malP)
Boundaries of gene: Frame+2: 134066..134389
Frame+1: 134389..136467

Oligo evidence:

tacattcgatggagtttttaattgctgttgacagctaataacctaataatctgggttgatgaca
tgcatcggatctcattatcaagatctgtccctgagattaccaattggccaataaattccaca

Peptide evidence:

DDFLAALTR
FGLTSAQMTPYQWWEAVSAALAEQLSAQPAPSKPK
HVNYSMEFLIGR
KDDFLAALTR
LTANNLNLGWYDTPVALLAEQQVK
DELAGAFSQGDK
DLFPEYYQLWPNK
DNPALDIAPR
FHNVTNGITPR
FLLAEQNGVEAEKLT

GEAWDLPVLGFR
HFVIKQINAQFK
HNAALAVDVGFGNLVK
KLAELPDYEVIQLNDHTPTIAIPEMLR
LAELPDYEVIQLNDHTPTIAIPEMLR
LKVVFIPIYR
LWQATHQHPFDLTLFNDGK
NIIYAINQVADK
NIIYAINQVADKINNDPIVKDR
PNDNHLAGKR
QCNPALSGLIIDDTLK

QHLNLLHLSLYR
QIRDNPALDIAPR
RAILNTR
RVMGLVINPDAIFDVQIKR
VEWANDLDVLQDLEPYAEDPAFR
VGMFSSDR
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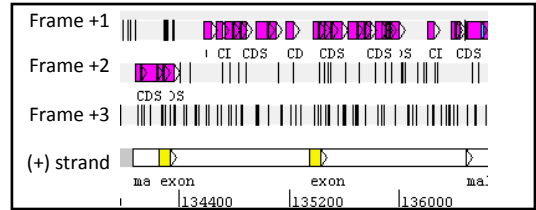
Proposed sequence (peptide evidence in red):

Frame+2: 109aa

MSQPMLK**KDDFLAALTR**QWQRFGLTSAQMTPYQWWEAVSAALAEQLSAQPAPSKPKNVQRHVNYSMEFLIGRLTANNLNLGWYDTPVALLAEQQVKLSDLLEQET

Frame+1: 693aa

DPALNGGLGRLAACFLDSMATVEQPATGYGLNYQYGLFRQSFRECKQEQEAPDNWQRESYPWFRHNAALAVDVGFGNLVKQADGRQLWRPAFTLRGEAWDLPVLGFRNGVTQPLRLWQATHQHPFDLTLFNDGKFLAEQNGVEAEKLTKVLPND
NHLAGKRRLMQQYFQCACSVADILRKHLAGR**KLAELPDYEVIQLNDHTPTIAIPEMLR**VLLDEHQLSWDAAWAITSKTFAYTNHTLMPALECWDKLVRSLLPRHFVIKQINAQFKLVNKQWPGNDEVWAKLAVHHNKQVRMANLCVSGFAVNG
VAQLHSDLIIDKDLFPEYYQLWPNKFHNVTNGITPRRWLKCQNPALSGLIIDDTLKVVEWANDLDVLQDLEPYAEDPAFRQRYQQIKYDNKVLHAHYVRVMGLVINPDAIFDVQIKRHEYKRQHLNLLHLSLYRQIRDNPALDIAPRVLFGAKAAPGYLAKNII
YAINQVADKINNDPIVKDRLKVVFIPIYRVSVAELMIPAAADVSEQISTAGKEASGTGNMGMALNGALVTGLDGANVEIAEQVGDENIFIGHVTVDQVKAILAKGYQPKYKADPHLSILDELAGAFSQGDKQAFDMMMLHSLLEGGDPYLVADFAFASYCQ
AQKQIDALYRDKDEWTRRAILNTRAVGMFSSDRSIRDYQQRIVQAKR



Strain: *Y. pestis* pestoides F
Gene: YPDSF_0052

Classification: glycogen/starch
/alpha-glucan phosphorylase
Boundaries of gene: 62556..64961

Oligo evidence:

tacattcgatggagtttttaattgctgttgacagctaataacctaataatctgggttgatgaca
tgcatcggatctcattatcaagatctgtccctgagattaccaattggccaataaattccaca

Peptide evidence:

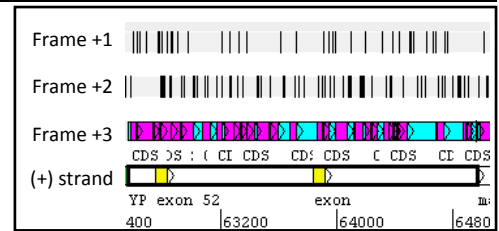
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FHNVTNGITPR
FLLAEQNGVEAEK
GEAWDLPVLGFR
HFVIKQINAQFK
HNAALAVDVGFGNLVK
HVNYSMEFLIGR
INNDPIVKDR
KDDFLAALTR

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LAELPDYEVIQLNDHTPTIAIPEMLR
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LSDLLEQETDPALNGGLGR
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LWQATHQHPFDLTLFNDGK
NIIYAINQVADK
NIIYAINQVADKINNDPIVK
NIIYAINQVADKINNDPIVKDR
PNDNHLAGKR
QHLNLLHLSLYR
QIRDNPALDIAPR
RAILNTR
RVMGLVINPDAIFDVQIK

RVMGLVINPDAIFDVQIKR
SILDELAGAFSQGDK
VEWANDLDVLQDLEPYAEDPAFR
VGMFSSDR
VLLDEHQLSWDAAWAITSK
VLYPNDNHLAGK
VLYPNDNHLAGKR
VMGLVINPDAIFDVQIK
VGLVINPDAIFDVQIKR
VSVaelMIPAAADVSEQISTAGK

Current sequence (peptide evidence in red): 801aa

MSQPMLK**KDDFLAALTR**QWQRFGLTSAQMTPYQWWEAVSAALAEQLSAQPAPSKPKNVQRHVNYSMEFLIGRLTANNLNLGWYDTPVALLAEQQVKLSDLLEQETDPALNGGLGRLAACFLDSMATVEQPATGYGLNYQYGLFRQSFRECKQEQE
APDNWQRESYPWFRHNAALAVDVGFGNLVKQADGRQLWRPAFTLRGEAWDLPVLGFRNGVTQPLRLWQATHQHPFDLTLFNDGKFLAEQNGVEAEKLTKVLPNDNHLAGKRRLMQQYFQCACSVADILRKHLAGR**KLAELPDYEVIQLNDHTP
TIAIPEMLR**VLLDEHQLSWDAAWAITSKTFAYTNHTLMPALECWDKLVRSLLPRHFVIKQINAQFKLVNKQWPGNDEVWAKLAVHHNKQVRMANLCVSGFAVNGVAQLHSDLIIDKDLFPEYYQLWPNKFHNVTNGITPRRWLKCQNPALSGLIIDT
LK**VEWANDLDVLQDLEPYAEDPAFR**QRYQQIKYDNKVLHAHYVR**RVMGLVINPDAIFDVQIK**RHEYKR**QHLNLLHLSLYRQIRDNPALDIAPR**VLFGAKAAPGYLAK**NIIYAINQVADKINNDPIVKDR**LKVVFIPIYRVSVAELMIPAAADVSEQISTAGKEA
SGTGNMGMALNGALVTGLDGANVEIAEQVGDENIFIGHVTVDQVKAILAKGYQPKYKADPHLSILDELAGAFSQGDKQAFDMMMLHSLLEGGDPYLVADFAFASYCQAKQKIDALYRDKDEWTRRAILNTRAVGMFSSDRSIRDYQQRIVQAKR



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3971

Classification: glycogen/starch/alpha-glucan phosphorylase
Boundaries of gene: complement (4411252..4413657)

Oligo evidence:

tgcatcggatctcattatcaagatctgtccctgagattaccaattggccaataaattccaca
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Peptide evidence:

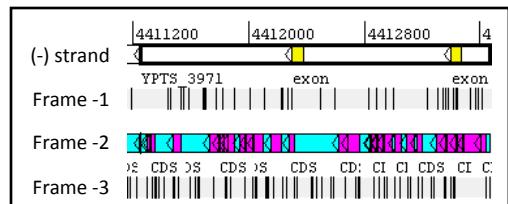
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HNAALAVDVGFGNLVK
HVNYSMEFLIGR
KDDFLAALTR
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LAELPDYEVIQLNDHTPTIAIPEMLR
LKVVFIPIYR

LSDLLEQETDPALNGGLGR
LTANNLNLGWYDTPVALLAEQQVK
LWQATHQHPFDLTLFNDGK
NIIYAINQVADK
NIIYAINQVADKINNDPIVK
NIIYAINQVADKINNDPIVKDR
QHLNLLHLSLYR
QIRDNPALDIAPR
QEQEAPDNWQ
RAILNTR
RVMGLVINPDAIFDVQIKR
SILDELAGAFSQGDK
VEWANDLDVLQDLEPYAEDPAFR
VGMFSSDR

VLLDEHQLSWDAAWAITSK
VLYPNDNHLAGK
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VMGLVINPDAIFDVQIK
VSVaelMIPAAADVSEQISTAGK

Current sequence (peptide evidence in red): 801aa

MSQPMLK**KDDFLAALTR**QWQRFGLTSAQMTPYQWWEAVSAALAEQLSAQPAPSKPKNVQRHVNYSMEFLIGRLTANNLNLGWYDTPVALLAEQQVKLSDLLEQETDPALNGGLGRLAACFLDSMATVEQPATGYGLNYQYGLFRQSFRECKQEQE
APDNWQRESYPWFRHNAALAVDVGFGNLVKQADGRQLWRPAFTLRGEAWDLPVLGFRNGVTQPLRLWQATHQHPFDLTLFNDGKFLAEQNGVEAEKLTKVLPNDNHLAGKRRLMQQYFQCACSVADILRKHLAGR**KLAELPDYEVIQLNDHTP
TIAIPEMLR**VLLDEHQLSWDAAWAITSKTFAYTNHTLMPALECWDKLVRSLLPRHFVIKQINAQFKLVNKQWPGNDEVWAKLAVHHNKQVRMANLCVSGFAVNGVAQLHSDLIIDKDLFPEYYQLWPNKFHNVTNGITPRRWLKCQNPALSGLIIDT
LK**VEWANDLDVLQDLEPYAEDPAFR**QRYQQIKYDNKVLHAHYVR**RVMGLVINPDAIFDVQIK**RHEYKR**QHLNLLHLSLYRQIRDNPALDIAPR**VLFGAKAAPGYLAK**NIIYAINQVADKINNDPIVKDR**LKVVFIPIYRVSVAELMIPAAADVSEQISTAGKEA
SGTGNMGMALNGALVTGLDGANVEIAEQVGDENIFIGHVTVDQVKAILAKGYQPKYKADPHLSILDELAGAFSQGDKQAFDMMMLHSLLEGGDPYLVADFAFASYCQAKQKIDALYRDKDEWTRRAILNTRAVGMFSSDRSIRDYQQRIVQAKR



Error 5

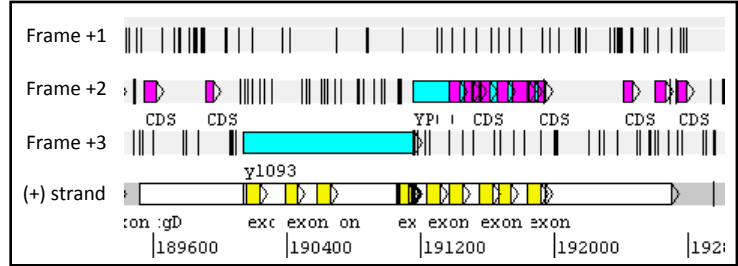
Strain: *Y. pestis* CO92
Gene: YPO0170

Classification: expressed pseudogene
Boundaries of gene: Frame+2, Region 1: 189506..190051
Frame+2, Region 2: 192011..192694

Oligo evidence:
NA

Peptide evidence:

IIAFHNAFHGR
NTFDQVILPVYAPAQFIPVK
HGLFVQALQSINSK
LAPSLVIELEDIQQGMAR



Proposed sequence (peptide evidence in red):

Region 1: 182aa

VGSVMTDKLAVNR**NTFDQVILPVYAPAQFIPVK**GKGSRVWDQQGTEYIDFAGGIAVTALGHCHPALVSALHQQGETLWHTSNVFTNEPALRLAQKLIATFADRFFANS~~GAEANEAA~~FKLARHYAIERHSPYKTK**IIAFHNAFHGR**TLFTVSVGGQPKYSDGFGPKPADIIHVPFNDLAAV

Region 2: 227aa

KAVMDDHTCAVVLEPIQGEGGITSATPEFLQGVRLCDQHNALLVFDEVQSGMGRSGKLF~~SYMHY~~**VTPDILTAKALGGGFPISAMLTTEEIASVMTVGTHGTTYGGNPLACAVAEALD**VINTPEVLNGIEQR**HGLFVQALQSINSK**YDVFSDIRGMGLLIGAE~~LTAKYR~~QAREFLAAAAANGLMILNAGPDVLR**LAPSLVIELEDIQQGMAR**LEKAMASVIKG

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0098

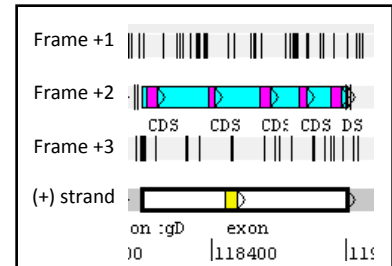
Classification: annotated as argD
Boundaries of gene: 117983..119200

Oligo evidence:

atatcatcatgtcccgtttaatgatctggcggcagtgaaagcggatgatgatcacacctgtgccgt

Peptide evidence:

IIAFHNAFHGR
LFSYMHYGVTPDILTAK
HGLFVQALQSINSK
LAPSLVIELEDIQQGMAR
NTFDQVILPVYAPAQFIPVK



Current sequence (peptide evidence in red): 405aa

MTDKLAVNR**NTFDQVILPVYAPAQFIPVK**GKGSRVWDQQGTEYIDFAGGIAVTALGHCHPALVSALHQQGETLWHTSNVFTNEPALRLAQKLIATFADRFFANS~~GAEANEAA~~FKLARHYAIERHSPYKTK**IIAFHNAFHGR**TLFTVSVGGQPKYSDGFGPKPADIIHVPFNDLAAVKAVMDDHTCAVVLEPIQGEGGITSATPEFLQGVRLCDQHNALLVFDEVQSGMGRSGK**LFSYMHYGVTPDILTAK**ALGGGFPISAMLTTEEIASVMTVGTHGTTYGGNPLACAVAEALD**VINTPEVLNGIEQRHGLFVQALQSINSK**YDVFSDIRGMGLLIGAE~~LTAKYR~~QAREFLAAAAANGLMILNAGPDVLR**LAPSLVIELEDIQQGMAR**LEKAMASVIKG

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3924

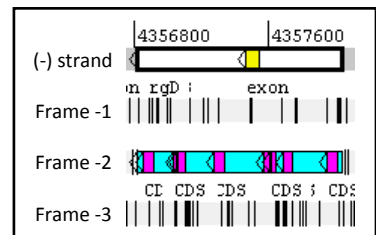
Classification: annotated as argD
Boundaries of gene: complement (4356817..4358034)

Oligo evidence:

atatcatcatgtcccgtttaatgatctggcggcagtgaaagcggatgatgatcacacctgtgccgt

Peptide evidence:

HGLFVQALQSINSK
IIAFHNAFHGR
LAPSLVIELEDIQQGMAR
LFSYMHYGVTPDILTAK
NTFDQVILPVYAPAQFIPVK
TLFTVSVGGQPK
VFFANS~~GAEANEAA~~FKLARHYAIERHSPYKTK**IIAFHNAFHGR**TLFTVSVGGQPKYSDGFGPKPADIIHVPFNDLAAVKAVMDDHTCAVVLEPIQGEGGITSATPEFLQGVRLCDQHNALLVFDEVQSGMGRSGK**LFSYMHYGVTPDILTAK**ALGGGFPISAMLTTEEIASVMTVGTHGTTYGGNPLACAVAEALD**VINTPEVLNGIEQRHGLFVQALQSINSK**YDVFSDIRGMGLLIGAE~~LTAKYR~~QAREFLAAAAANGLMILNAGPDVLR**LAPSLVIELEDIQQGMAR**LEKAMASVIKG



Current sequence (peptide evidence in red): 405aa

MTDKLAVNR**NTFDQVILPVYAPAQFIPVK**GKGSRVWDQQGTEYIDFAGGIAVTALGHCHPALVSALHQQGETLWHTSNVFTNEPALRLAQKLIATFADR**VFFANS**~~GAEANEAA~~FKLARHYAIERHSPYKTK**IIAFHNAFHGR**TLFTVSVGGQPKYSDGFGPKPADIIHVPFNDLAAVKAVMDDHTCAVVLEPIQGEGGITSATPEFLQGVRLCDQHNALLVFDEVQSGMGRSGK**LFSYMHYGVTPDILTAK**ALGGGFPISAMLTTEEIASVMTVGTHGTTYGGNPLACAVAEALD**VINTPEVLNGIEQRHGLFVQALQSINSK**YDVFSDIRGMGLLIGAE~~LTAKYR~~QAREFLAAAAANGLMILNAGPDVLR**LAPSLVIELEDIQQGMAR**LEKAMASVIKG

Error 6

Strain: *Y. pestis* CO92
Gene: YPO0188

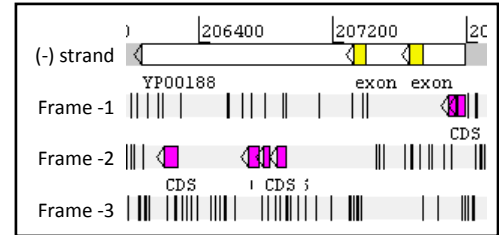
Classification: expressed pseudogene
Boundaries of gene: Frame -1: complement (207454..207981)
Frame -2: complement (206063..207457)

Oligo evidence:

tgttatcgacggtgaccgcgaatatcgccagttggaggccgaactcaggctccaatgaaaaaatgat
taccttggtattaattcccatgaccgcgattccttgatcctattatcgataagatttgcattatgaa

Peptide evidence:

MIVFSSLQIRRGTRVLLDNATATINPGQK
ADESPLQHMSR
DYLGGYGFQGDQVTDPTAR
LLAGTLEPQSGEIALSK
LSTELAAIEAQLADSALYDIAR



Proposed sequence (peptide evidence in red):

Frame-1: 176aa

MIVFSSLQIRRGTRVLLDNATATINPGQK VGLVGKNGCGKSTLLALLKGELSADGGNVTFPNNWALAWVNQETPALDIPAIEYVIDGDREYRQLEAELQAANEKNDGHAIATVHGKLDIAIHA
WTIQSRAASLLHGLGFSQEKLQQPVRFSFGGWRMRLNLAQALVCRSDLLLLDEP

Frame-2: 464aa

TNHLDLDAVIWLEKWLKSYTGTLVLISHDRDFLDPIIDKILHIEQQLTNEYTGNYSFFERQRATKLSQQQSMYQHQQEKVAHLQSYIDRFRAQATKAKQAQSRKMLERMELIAPAHVDNPFH
FSFRTPESLPDPLLRMDKVSAGYGENTVLQSIKLNLPVGSRIQLLGRNGAGKSTLIKLLAGTLEPQSGEIALSKGIKLG YFAQHLEFLRADESPLQHMSRLAPKESEQQLRDYLG GYGFQGDQV
TDPTARFSGGEKARLVLALIIWQRPNLLLLDEPTNHLDLDMRQALTEALIDFEGALVVVSHDRHLLRSTTDDLYLVHDGKVEQFDGLEDYQQWLVDSDRQQSQSQDNPAKELSGNSAQQRK
DQKRRDAEFRTQTQPLRKQIMTLEKQMDK LSTELAAIEAQLADSALYDIAR KADLTQCLLQQTQVKSLEETEMQWLDVQEQLEILTKEFSADADI

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0114

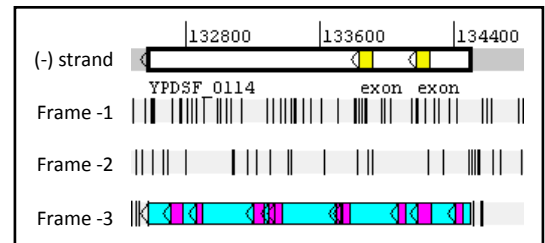
Classification: putative ABC transporter ATP-binding protein
Boundaries of gene: complement (132570..134492)

Oligo evidence:

tactctggtattaattcccatgaccgcgattccttgatcctattatcgataagatttgcattatgaa
tgttatcgacggtgaccgcgaatatcgccagttggaggccgaactcaggctccaatgaaaaaatgat

Peptide evidence:

AASLLHGLGFSQEK
ADESPLQHMSR
AIEYVIDGDREYRQLEAELQAANEK
DYLGGYGFQGDQVTDPTAR
ELSGNSAQQR
LGYFAQHLEFLR
LSQQQSMYQHQQEK
LSTELAAIEAQLADSALYDIAR
VAHLQSYIDR
VLLDNATATINPGQK



Current sequence (peptide evidence in red): 640aa

MIVFSSLQIRRGTRVLLDNATATINPGQK VGLVGKNGCGKSTLLALLKGELSADGGNVTFPNNWALAWVNQETPALDIPAIEYVIDGDREYRQLEAELQAANEKNDGHAIATVHGKLDIAIHA
WTIQSRAASLLHGLGFSQEKLQQPVRFSFGGWRMRLNLAQALVCRSDLLLLDEPTNHLDLDAVIWLEKWLKSYTGTLVLISHDRDFLDPIIDKILHIEQQLTNEYTGNYSFFERQRATKLSQQQ
SMYQHQQEKVAHLQSYIDRFRAQATKAKQAQSRKMLERMELIAPAHVDNPFHFSFRTPESLPDPLLRMDKVSAGYGENTVLQSIKLNLPVGSRIQLLGRNGAGKSTLIKLLAGTLEPQSGEIA
LSKGKILGYFAQHLEFLRADESPLQHMSRLAPKESEQQLRDYLG GYGFQGDQVTDPTARFSGGEKARLVLALIIWQRPNLLLLDEPTNHLDLDMRQALTEALIDFEGALVVVSHDRHLLRST
TDDLYLVHDGKVEQFDGLEDYQQWLVDSDRQQSQSQDNPAKELSGNSAQQRKDKQRRDAEFRTQTQPLRKQIMTLEKQMDK LSTELAAIEAQLADSALYDIAR KADLTQCLLQQTQVKS
KLEETEMQWLDVQEQLEILTKEFSADADI

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3908

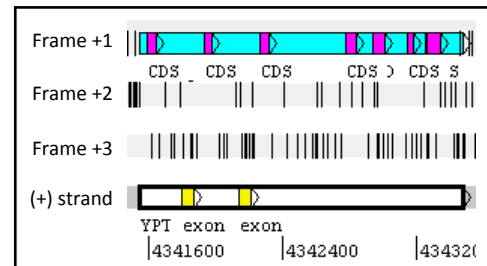
Classification: putative ABC transporter ATP-binding protein
Boundaries of gene: 4341544..4343466

Oligo evidence:

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taccttggtattaattcccatgaccgcgattccttgatcctattatcgataagatttgcattatgaa

Peptide evidence:

AASLLHGLGFSQEK
DYLGGYGFQGDQVTDPTAR
ELSGNSAQQR
LSQQQSMYQHQQEK
LSTELAAIEAQLADSALYDIAR
QALTEALIDFEGALVVVSHDR
QMDKLSTELAAIEAQLADSALYDIAR
VLLDNATATINPGQK



Current sequence (peptide evidence in red): 640aa

MIVFSSLQIRRGTRVLLDNATATINPGQK VGLVGKNGCGKSTLLALLKGELSADGGNVTFPNNWALAWVNQETPALDIPAIEYVIDGDREYRQLEAELQAANEKNDGHAIATVHGKLDIAIHA
WTIQSRAASLLHGLGFSQEKLQQPVRFSFGGWRMRLNLAQALVCRSDLLLLDEPTNHLDLDAVIWLEKWLKSYTGTLVLISHDRDFLDPIIDKILHIEQQLTNEYTGNYSFFERQRATKLSQQQ
SMYQHQQEKVAHLQSYIDRFRAQATKAKQAQSRKMLERMELIAPAHVDNPFHFSFRTPESLPDPLLRMDKVSAGYGENTVLQSIKLNLPVGSRIQLLGRNGAGKSTLIKLLAGTLEPQSGEIA
LSKGKILGYFAQHLEFLRADESPLQHMSRLAPKESEQQLRDYLG GYGFQGDQVTDPTARFSGGEKARLVLALIIWQRPNLLLLDEPTNHLDLDMRQALTEALIDFEGALVVVSHDRHLLRST
TDDLYLVHDGKVEQFDGLEDYQQWLVDSDRQQSQSQDNPAKELSGNSAQQRKDKQRRDAEFRTQTQPLRKQIMTLEKQMDK LSTELAAIEAQLADSALYDIAR KADLTQCLLQQTQVKS
KLEETEMQWLDVQEQLEILTKEFSADADI

Error 7

Strain: Y. pestis CO92
Gene: YPO0247

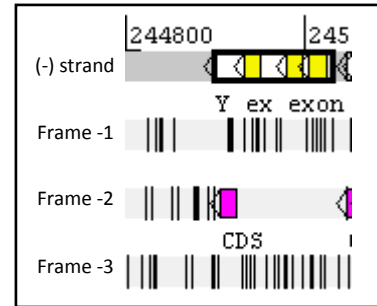
Classification: expressed pseudogene
Boundaries of gene: complement (245195..245725)

Oligo evidence:

agatggaacaataatagaagatgatgtaatgattggtgcaggtagcctcattactccaggtaaacgctta
tcaagtcatcattggggcacgttcaaatatccaagacggtagtgtgctacatgttaccaccaatctgag
ggtaaacgagtcgatgatagatcgagtgatcattggcaatgtatttttagtgatgatgctag

Peptide evidence:

QIRPLTPELEGLLYSAGNYVR



Proposed sequence (peptide evidence in red): 176aa

IRPYLHHSPTLGKRVIMDRSSVIIGNVILGDDVSVWPLVAIRGDVNQVIIGARSNIQDGSVLHVTHQSEHNPEGYPLIIGEDVTIGHKAMLHGCTIGNRVLVGMGSILLDGTIIEDDMIGAGSLI
TPGKRLVSGYLVGSPAK**QIRPLTPELEGLLYSAGNYVR**WKDDYLAESK

Strain: Y. pestis pestoides F
Gene: YPDSF_0170

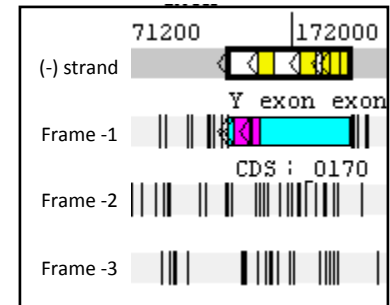
Classification: hypothetical protein
Boundaries of gene: complement (171706..172248)

Oligo evidence:

agatggaacaataatagaagatgatgtaatgattggtgcaggtagcctcattactccaggtaaacgctta
tcaagtcatcattggggcacgttcaaatatccaagacggtagtgtgctacatgttaccaccaatctgag
ggtaaacgagtcgatgatagatcgagtgatcattggcaatgtatttttagtgatgatgctag
ctctatccgaccttctctcatcattcaccgacttaggtaaacgagtcgatgatagatcgagtg

Peptide evidence:

QIRPLTPELEGLLYSAGNYVR
LVSGYLVGSPAK



Current sequence (peptide evidence in red): 180aa

MCDSIRPYLHHSPTLGKRVIMDRSSVIIGNVILGDDVSVWPLVAIRGDVNQVIIGARSNIQDGSVLHVTHQSEHNPEGYPLIIGEDVTIGHKAMLHGCTIGNRVLVGMGSILLDGTIIEDDMIG
AGSLITPGKRL**LVSGYLVGSPAKQIRPLTPELEGLLYSAGNYVR**WKDDYLAESK

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_3851

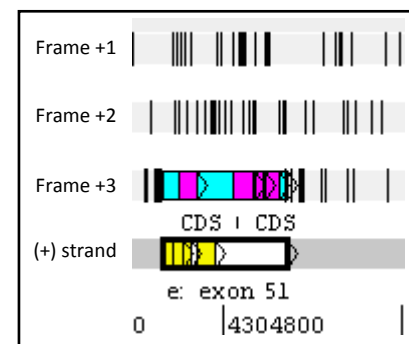
Classification: hexapptide repeat-containing transferase
Boundaries of gene: 4304535..4305077

Oligo evidence:

ctctatccgaccttctctcatcattcaccgacttaggtaaacgagtcgatgatagatcgagtg
ggtaaacgagtcgatgatagatcgagtgatcattggcaatgtatttttagtgatgatgctag
tcaagtcatcattggggcacgttcaaatatccaagacggtagtgtgctacatgttaccaccaatctgag

Peptide evidence:

LVSGYLVGSPAK
QIRPLTPELEGLLYSAGNYVR
SSVIIGNVILGDDVSVWPLVAIR
VLVGMGSILLDGTIIEDDMIGAGSLIAPGKR



Current sequence (peptide evidence in red): 180aa

MCDSIRPYLHHSPTLGKRVIMDR**SSVIIGNVILGDDVSVWPLVAIR**GDVNQVIIGARSNIQDGSVLHVTHQSEHNPEGYPLIIGEDVTIGHKAMLHGCTIGNR**VLVGMGSILLDGTIIEDDMIG**
AGSLIAPGKRLVSGYLVGSPAKQIRPLTPELEGLLYSAGNYVRWKDDYLAESK

Error 8

Strain: *Y. pestis* CO92
Gene: YPO0414

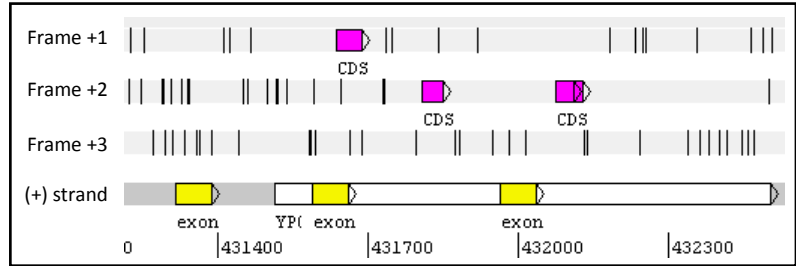
Classification: expressed pseudogene
Boundaries of gene: Frame+1: 431515..431733
Frame+2: 431735..432502

Oligo evidence:

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atcacagcagggtcgttttagtcagttatccggcgggtgctcgctcctatatgacggggattggtcagttg

Peptide evidence:

DGLTQGDIGELLGLAR
ASNAHVADTFR
ASNAHVADTFRQENSVR
ILPSLASLSISSR



Proposed sequence (peptide evidence in red):

Frame+1: 74aa

MIKEKPAVKEKPLSSNDEYKYPGNSMSEEELLARVAWFYYH**DGLTQGDIGELLGLAR**LKVSRLLEKGRQSGVI

Frame+2: 255aa

INSRYEGCLELENTLQQHFGLKHIR**ILPSLASLSISSR**LIGIAAHLMLIQPQQLLAVGFGETTMCALQHLSGFASQQVRLVTLSSGGVGSYMTGIGQLDAACQVSIIPAPLR**ASNAHVADTFRQENSVR**RDVMLAACAAADIAVVGIGSVNQKKEATILRSGYISEGEQLMFSRKGAVGDILGYFIQADGALVPMQIHQELIGISLADLTTIPTVIGVAGGVEKADVIVAALRGRYVNALVTDEVTARAIINLL

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3217

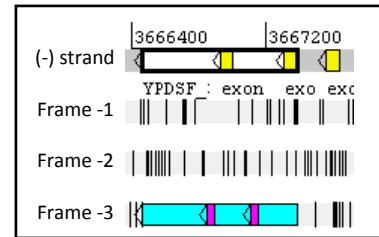
Classification: transcriptional repressor
Boundaries of gene: complement (3666459..3667379)

Oligo evidence:

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atgagtgaagaggaactgctcgctcgctgctggtttattatcacgatggttaacacaaggggata

Peptide evidence:

ASNAHVADTFR
ILPSLASLSISSR



Current sequence (peptide evidence in red): 306aa

MSEEELLARVAWFYYHDGLTQGDIGELLGLARLKVSRLLEKGRQSGVIRVQINSRYEGCLELENTLQQHFGLKHIR**ILPSLASLSISSR**LIGIAAHLMLIQPQQLLAVGFGETTMCALQHLSGFASQQVRLVTLSSGGVGSYMTGIGQLDAACQVSIIPAPLR**ASNAHVADTFRQENSVR**RDVMLAACAAADIAVVGIGSVNQKKEATILRSGYISEGEQLMFSRKGAVGDILGYFIQADGALVPMQIHQELIGISLADLTTIPTVIGVAGGVEKADVIVAALRGRYVNALVTDEVTARAIINLL

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0577

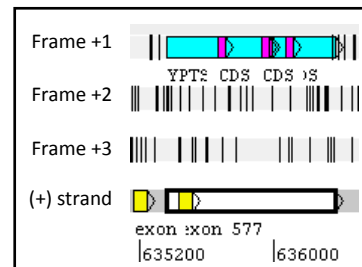
Classification: DeoR family transcriptional regulator
Boundaries of gene: 635362..636357

Oligo evidence:

atgagtgaagaggaactgctcgctcgctgctggtttattatcacgatggttaacacaaggggata

Peptide evidence:

ASSAHVADTFR
ASSAHVADTFRQENSVR
ILPSLASLSISSR
SGYISEGEQLMFSR



Current sequence (peptide evidence in red): 331aa

MIKEKPAVKEKPLSSNDEYKYPGNSMSEEELLARVAWFYYHDGLTQGDIGELLGLARLKVSRLLEKGRQSGVIRVQINSRYEGCLELENTLQQHFGLKHIR**ILPSLASLSISSR**LIGIAAHLMLIQPQQLLAVGFGETTMCALQHLSGFASQQVRLVTLSSGGVGSYMTGIGQLDAACQVSIIPAPLR**ASSAHVADTFRQENSVR**RDVMLAACAAADIAVVGIGSVNQKKEATILR**SGYISEGEQLMFSR**RKGAVGDILGYFIQADGALVPMQIHQELIGISLADLTTIPTVIGVAGGVEKADVIVAALRGRYVNALVTDEVTARAIINLL

Error 9

Strain: Y. pestis CO92
Gene: YPO0437

Classification: expressed pseudogene (deoA)
Boundaries of gene: Frame+3: 458100:458630
Frame+2: 458633..459511

Oligo evidence:

tattttccggatgataatgcttccgcaaaattattatgttggtggtgattatcgccaaaccagct
ggcggcagaggttgctgctgcccacaccttagggaataacacgccagaagaacgccagtgattat

Peptide evidence:

DITATVDSIPLITASILAK
YDSYLPVATLSKPVFAEQGTGIITAMDTR

Proposed sequence (peptide evidence in red):

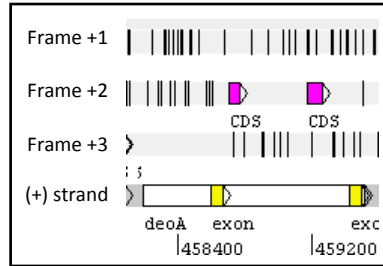
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Frame+3: 177aa

MHSRLKACCV AISESACGR LSSHIPVKQGDALFLAQEIIRKKRDGQPLSEEEIRFFINGIRDNVVSEGQIAALAMTIYFHDMSMPERVALTMAMRDSGTVLNWKS LNLNGPLVDKHSTGGVG
DVTSLMLGPMVAACGGYVPMISGRGLGHTGGTLDKLEAIPGDFIFPDDNAFRKI

Frame+2: 292aa

VGVAIIQTSSLAPADKRFYATR **DITATVDSIPLITASILAK** KLAEGLDALVMDVKVSGAFMPTYLSADLAQAI VGVANGAGCKTTALLTDMNQVLASSAGNGVEVREAVRFLTGEYRNPR L
LEVTMALCVEMLLSGGLAHDEADARAKLQAVLDNGKAAEVFGRMVAAQKGPADFVER **YDSYLPVATLSKPVFAEQGTGIITAMDTR** ALGMAVVALGGRRRATDPIDYSVGLTEMARLGT R
VDGQQPLAVIHANNEDDWQAAEVVRAAITLGNNTPEETPVYRRITE



Strain: Y. pestis pestoides F
Gene: YPDSF_3196

Classification: annotated as deoA
Boundaries of gene: complement (3639439..3640854)

Oligo evidence:

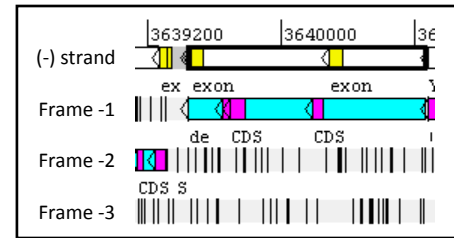
ggcggcagaggttgctgctgcccacaccttagggaataacacgccagaagaacgccagtgattat
tattttccggatgataatgcttccgcaaaattattcagaatgttggtggtgattatcgccaaacc

Peptide evidence:

ALGMAVVALGGGR
DITATVDSIPLITASILAK
YDSYLPVATLSKPVFAEQGTGIITAMDTR

Current sequence (peptide evidence in red): 471aa

MHSRLKACCV AISESACGR LSSHIPVKQGDALFLAQEIIRKKRDGQPLSEEEIRFFINGIRDNVVSEGQIAALAMTIYFHDMSMPERVALTMAMRDSGTVLNWKS LNLNGPLVDKHSTGGVG
DVTSLMLGPMVAACGGYVPMISGRGLGHTGGTLDKLEAIPGDFIFPDDNAFRKI QNVGVAIIQTSSLAPADKRFYATR **DITATVDSIPLITASILAK** KLAEGLDALVMDVKVSGAFMPTYSL
SADLAQAI VGVANGAGCKTTALLTDMNQVLASSAGNGVEVREAVRFLTGEYRNPR LLEVTMALCVEMLLSGGLAHDEADARAKLQAVLDNGKAAEVFGRMVAAQKGPADFVER **YDSYLP**
VATLSKPVFAEQGTGIITAMDTR ALGMAVVALGGRRRATDPIDYSVGLTEMARLGT RVDGQQPLAVIHANNEDDWQAAEVVRAAITLGNNTPEETPVYRRITE



Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_0604

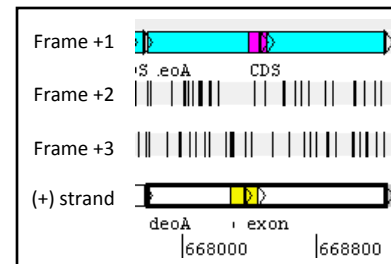
Classification: annotated as deoA
Boundaries of gene: 667792..669207

Oligo evidence:

tattttccggatgataatgcttccgcaaaattattcagaatgttggtggtgattatcgccaaacc
ataagctttttacgcgaccgcgatattcggcaacagtgattctattccattgattacgcctctat

Peptide evidence:

DITATVDSIPLITASILAK
KLAEGLDALVMDVK



Current sequence (peptide evidence in red): 471aa

MHCRLKACRVAISACGR LSSHIVKQGDALFLAQEIIRKKRDGQPLSEEEIRFFINGIRDNVVSEGQIAALAMTIYFHDMSMPERVALTMAMRDSGTVLNWKS LNLNGPLVDKHSTGGVG
DVTSLMLGPMVAACGGYVPMISGRGLGHTGGTLDKLEAIPGDFIFPDDNAFRKI QNVGVAIIQTSSLAPADKRFYATR **DITATVDSIPLITASILAK** KLAEGLDALVMDVKVSGAFMPTYSL
SADLAQAI VGVANGAGCKTTALLTDMNQVLASSAGNGVEVREAVRFLTGEYRNPR LLEVTMALCVEMLLSGGLAHDEADARAKLQAVLDNGKAAEVFGRMVAAQKGPVDFVER YDSYLP
VATLSKPVFAEQGTGIITAMDTRALGMAVVALGGRRRATDPIDYSVGLTEMARLGT RVDGQQPLAVIHANNEDDWQAAEVVRAAITLGNNTPEETPVYRRITE

Error 10

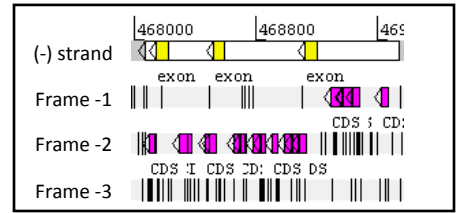
Strain: *Y. pestis* CO92
Gene: YPO0446

Classification: expressed pseudogene
Boundaries of gene: Frame-1: complement (469162..469731)
Frame-2: complement (468068..469165)

Oligo evidence:
gccaccacatcatcgattacaagatgagggaaggtagaattctcgagggaactttactgaatac
gatacgggtcaactggcgtcggtgatcagttccgtgacaacatggatgacagcaaaacggttgggaag
aaaccagacatgctgctgctggacgaaccaaccacttggatcagaatctgctgctgctgagcgtc

Peptide evidence:

DEVYALYADPDADFDK	HDYEGTVVAITHDR	SIEKELEWVR
EQGELEAIQSHDGHNLNQLER	IDDLTFALPK	TLGAEALEPHR
ESVEEAVGEVVKR	IGNFELPSR	TWVEEVSGGQDIMK
LDEVYALYADPDADFDK	KSIEKELEWVR	YFLDNVAGWILELDR
LDEVYALYADPDADFDKLAKE	LLIDDLTFALPK	YFLDNVAGWILELDRGEGIPWEGNYSSWLEQK
NISLSFFPGA	LLQVGGNMLLDEPTNLDIETLR	
FEELNSVEYQKR	MLLDEPTNLDIETLR	
FLHDYEGTVVAITHDR	NETSELFIPIPGPR	
GAIVGIIPNGAGK	RNETSELFIPIPGPR	
GEGIPWEGNYSSWLEQK	RTLGAEALEPHR	



Proposed sequence (peptide evidence in red):

Frame-1: 190aa

MAQYVYTMHRVGKVVPPKRHLIK**NISLSFFPGA**KIGVLGNSGKSTLLRIMAGLDTEIEGEARPLGKIGYLPQEPKLNLEQTVR**ESVEEAVGEVVKRALTR**LDEVYALYADPDADFDKLAKE**EQGELEAIQSHDGHNLNQLER**AADALRPPWDAKIANLSGGERRRVAICRLLLEKPDMLLDEPT

Frame-2: 365aa

NHLDAESVAVLER**FLHDYEGTVVAITHDR**YFLDNVAGWILELDR**GEGIPWEGNYSSWLEQK**NARLAQEAASAEARR**KSIEKELEWVR**QNPKRQAKGKARLAR**FEELNSVEYQKR**NETSELFIPIPGPR**LGDKVLEVEHLSKSYGDR**LLIDDLTFALPK**GAIVGIIPNGAGK**STLFRMLSGQEQPDSGTISLGDVQLASVDQFRDNMDDSK**TWVEEVSGGQDIMK**IGNFELPSR**AYVGRFNF**KGVDDQKRIKIGELSGGERGRIHLAK**LLQVGGNMLLDEPTNLDIETLR**ALLENALLEFPGCAMVISHDRWFLDRIATHIIDYQDEGKVEFFEGNFTYEYEWK**RRTLGAEALEPHR**IKYKMTK

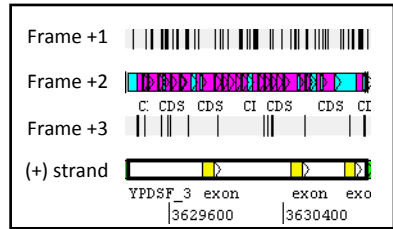
Strain: *Y. pestis* pestoides F
Gene: YPDSF_3187

Classification: putative ABC transporter ATP-binding protein
Boundaries of gene: 3629306..3630973

Oligo evidence:
actctggaaaaaccagacatgctgctgctggacgaaccaaccaaccacttggatcagaatctgtggcc
gatacgggtgcaactggcgtcggtgatcagttccgtgacaacatggatgacagcaaaacggttgggaag
gccaccacatcatcgattacaagatgagggaaggtagaattctcgagggaactttactgaatac

Peptide evidence:

ALTRLDEVYALYADPDADFDKLAKE	IGELSGGER	MVLGIISYSR
DEVYALYADPDADFDK	IGNFELPSR	NETSELFIPIPGPR
DNVAGWILELDR	IGVLGNSGK	NISLSFFPGA
DNVAGWILELDRGEGIPWEGNYSSWLEQK	IGYLPQEPK	RNETSELFIPIPGPR
EQGELEAIQSHDGHNLNQLER	IMAGLDTEIEGEARPLGKIG	RTLGAEALEPHR
ESVEEAVGEVK	KSIEKELEWVR	SIEKELEWVR
ESVEEAVGEVVKR	LAQEAASAEAR	TLGAEALEPHR
FEELNSVEYQKR	LDEVYALYADPDADFDK	TWVEEVSGGQDIMK
FEELNSVEYQKR	LDEVYALYADPDADFDKLAKE	VLEVEHLSK
FLHDYEGTVVAITHDR	LGDKVLEVEHLSK	YFLDNVAGWILELDR
GAIVGIIPNGAGK	LHDYEGTVVAITHDR	YFLDNVAGWILELDRGEGIPWEGNYSSWLEQK
GEGIPWEGNYSSWLEQK	LLIDDLTFALPK	
HDYEGTVVAITHDR	MLLEKPDMLLDEPTNHLDAESVAVLER	
IANLSGGER	LLQVGGNMLLDEPTNLDIETLR	
IDDLTFALPK	MLSGQEQPDSGTISLGDVQLASVDQFR	



Current sequence (peptide evidence in red): 555aa

VAQYVYTMHRVGKVVPPKRHLIK**NISLSFFPGA**KIGVLGNSGKSTLLR**IMAGLDTEIEGEARPLGKIGYLPQEPKLNLEQTVRESVEEAVGEVVKRALTR**LDEVYALYADPDADFDKLAKE**EQGELEAIQSHDGHNLNQLER**AADALRPPWDAKIANLSGGERRRVAICR**LLLEKPDMLLDEPTNHLDAESVAVLER**FLHDYEGTVVAITHDR**YFLDNVAGWILELDRGEGIPWEGNYSSWLEQK**NARLAQEAASAEARR**KSIEKELEWVR**QNPKRQAKGKARLAR**FEELNSVEYQKR**NETSELFIPIPGPR**LGDKVLEVEHLSKSYGDR**LLIDDLTFALPK**GAIVGIIPNGAGK**STLFRMLSGQEQPDSGTISLGDVQLASVDQFRDNMDDSK**TWVEEVSGGQDIMK**IGNFELPSR**AYVGRFNF**KGVDDQKRI**IGELSGGER**GRIHLAK**LLQVGGNMLLDEPTNLDIETLR**ALLENALLEFPGCAMVISHDRWFLDRIATHIIDYQDEGKVEFFEGNFTYEYEWK**RRTLGAEALEPHR**IKYKMTK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0612

Classification: putative ABC transporter ATP-binding protein
Boundaries of gene: complement (677816..679483)

Oligo evidence:
attacaagatgagggaaggtagaattctcgagggaacttactgaatacgaagagtgaagaaacg
gccaccacatcatcgattacaagatgagggaaggtagaattctcgagggaacttactgaatac
gatacgggtcaactggcgtcggtgatcagttccgtgacaacatggatgacagcaaaacggttgggaag
actctggaaaaaccagacatgctgctgctggacgaaccaaccaaccacttggatcagaatctgtggcc

Peptide evidence:

DEVYALYADPDADFDK	KSIEKELEWVR	SIEKELEWVR
EQGELEAIQSHDGHNLNQLER	LAQEAASAEAR	TLGAEALEPHR
ESVEEAVGEVK	LDEVYALYADPDADFDK	TWVEEVSGGQDIMK
ESVEEAVGEVVKR	LDEVYALYADPDADFDKLAKE	VLEVEHLSK
FEELNSVEYQKR	LLIDDLTFALPK	YFLDNVAGWILELDR
FEELNSVEYQKR	MLLEKPDMLLDEPTNHLDAESVAVLER	YFLDNVAGWILELDRGEGIPWEGNYSSWLEQK
FLHDYEGTVVAITHDR	LLQVGGNMLLDEPTNLDIETLR	
GAIVGIIPNGAGK	MLSGQEQPDSGTISLGDVQLASVDQFR	
GEGIPWEGNYSSWLEQK	NETSELFIPIPGPR	
HDYEGTVVAITHDR	NISLSFFPGA	
IGELSGGER	RIGELSGGER	
IGNFELPSR	RNETSELFIPIPGPR	
IGYLPQEPK	RTLGAEALEPHR	



Current sequence (peptide evidence in red): 555aa

VAQYVYTMHRVGKVVPPKRHLIK**NISLSFFPGA**KIGVLGNSGKSTLLRIMAGLDTEIEGEARPLGKIGYLPQEPKLNLEQTVRESVEEAVGEVVKRALTR**LDEVYALYADPDADFDKLAKE**EQGELEAIQSHDGHNLNQLER**AADALRPPWDAKIANLSGGERRRVAICR**LLLEKPDMLLDEPTNHLDAESVAVLER**FLHDYEGTVVAITHDR**YFLDNVAGWILELDR**GEGIPWEGNYSSWLEQK**NARLAQEAASAEARR**KSIEKELEWVR**QNPKRQAKGKARLAR**FEELNSVEYQKR**NETSELFIPIPGPR**LGDKVLEVEHLSKSYGDR**LLIDDLTFALPK**GAIVGIIPNGAGK**STLFRMLSGQEQPDSGTISLGDVQLASVDQFRDNMDDSK**TWVEEVSGGQDIMK**IGNFELPSR**AYVGRFNF**KGVDDQKRI**RIGELSGGER**GRIHLAK**LLQVGGNMLLDEPTNLDIETLR**ALLENALLEFPGCAMVISHDRWFLDRIATHIIDYQDEGKVEFFEGNFTYEYEWK**RRTLGAEALEPHR**IKYKMTK

Error 11

Strain: *Y. pestis* CO92
Gene: YPO0674

Classification: expressed pseudogene
Boundaries of gene: Frame+3: 735996..737525
Frame+2: 737525..738337

Oligo evidence:

ttttactgcttcatatgaaaaagtgaaggcggacaagtggttatgccatacctcgggattttgca
actgtttgatacttactcgaacaggcggtaagagcagattttgatcccttatttcatctccgcacat

Peptide evidence:

QRQPSNRAPAASAGKK

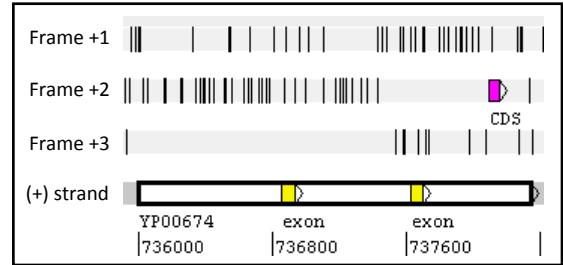
Proposed sequence (peptide evidence in red):

Frame3: 510aa

MSISLIQPERDLFSYQPYWAECYGTAPFLPMSREEMDILGWDS CDIIVITGDAYVDHPSFGMAIVGRMLEAQGFRVGGIAQPDWTKHDFMRLGEPNLFVGVTAGNMDSMINRYTADRKL
RHDDAYTPDNQSGKRPRDRATLVYSQRCKEAYSHVPVLLGGIEASLRRIAHYDYWSDTVRRSVIVDAKADMLVYNGERPLVEVAHRLAAGEKITDIQDVRNTVVMRKTPLPGWSGVDSTRL
DKPGRIEAI PNYPYGEDLP CATDDISIPEAKPITVRAAKPKPWEKTYVLLPSYEKVKADKVL YAHTSRILHHTETNPGCARALMQKHGDRYIWINPPAIPLSTEEMDSV FALPYQRVPHPSYKSPIP
AYDMIRFSINIMRGYGGCSFCSITEHEGRIIQRSSEDSIIEIEIIRDKVPFGFTGIISDLGGPTANMYMLRCQSPRAEQTCRRASCVYPEICPHMDTNHQPTISLYRRARDLKGIKKILIASGVRYD
LAVEDPRYIKELASH

Frame2: 271aa

HVGGYLKIAPEHTEEGPLSKMMKPGMGSYQRFKELFDTSYKQAGKEQYLIPYFISAHPGTEDKDMVNLALWLKKNRFRDLQVQNFYPSPLANSTTMYTGNKPLAKVDYKSEEVVVPKGD
RQRRLHKALLRYHDPANWPMRLSALEDMLQLHLIGARRECLVPAPTLLEEQRARRALRHHTPALT KHTSITRQRQPSNRAPAASAGKKAPT VANGTSSAHSTSANQSTSANQSTAAHSTLA
TKKSAGKTGVNKA AVNKPSAGSRGKNRQK



Strain: *Y. pestis* pestoides F
Gene: YPDSF_0458/YPDSF_0459

Classification: Both genes annotated as hypothetical proteins
Boundaries of gene: YPDSF_0458 Frame+1: 517558..519087
YPDSF_0459 Frame+3: 519087..519902

Oligo evidence:

ttttactgcttcatatgaaaaagtgaaggcggacaagtggttatgccatacctcgggattttgca
actgtttgatacttactcgaacaggcggtaagagcagattttgatcccttatttcatctccgcacat

Peptide evidence:

KILIASGVR

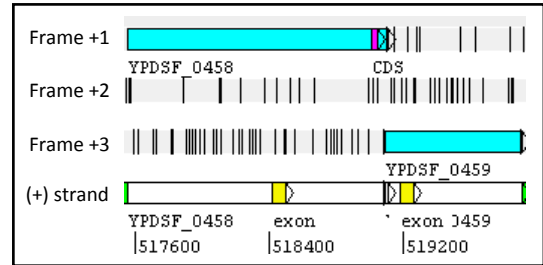
Current sequence (peptide evidence in red):

Frame+1: 510aa (YPDSF_0458)

MSISLIQPERDLFSYQPYWAECYGTAPFLPMSREEMDILGWDS CDIIVITGDAYVDHPSFGMAIVGRMLEAQGFRVGGIAQPDWTKHDFMRLGEPNLFVGVTAGNMDSMINRYTADRKL
RHDDAYTPDNQSGKRPRDRATLVYSQRCKEAYSHVPVLLGGIEASLRRIAHYDYWSDTVRRSVIVDAKADMLVYNGERPLVEVAHRLAAGEKITDIQDVRNTVVMRKTPLPGWSGVDSTRL
DKPGRIEAI PNYPYGEDLP CATDDISIPEAKPITVRAAKPKPWEKTYVLLPSYEKVKADKVL YAHTSRILHHTETNPGCARALMQKHGDRYIWINPPAIPLSTEEMDSV FALPYQRVPHPSYKSPIP
AYDMIRFSINIMRGYGGCSFCSITEHEGRIIQRSSEDSIIEIEIIRDKVPFGFTGIISDLGGPTANMYMLRCQSPRAEQTCRRASCVYPEICPHMDTNHQPTISLYRRARDLKGIKKILIASGVRYD
LAVEDPRYIKELASH

Frame+3: 271aa (YPDSF_0459)

HVGGYLKIAPEHTEEGPLSKMMKPGMGSYQRFKELFDTSYKQAGKEQYLIPYFISAHPGTEDKDMVNLALWLKKNRFRDLQVQNFYPSPLANSTTMYTGNKPLAKVDYKSEEVVVPKGD
RQRRLHKALLRYHDPANWPMRLSALEDMLQLHLIGARRECLVPAPTLLEEQRARRALRHHTPALT KHTSITRQRQPSNRAPAASAGKKAPT VANGTSSAHSTSANQSTSANQSTAAHSTLA
TKKSAGKTGVNKA AVNKPSAGSRGKNRQK



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3529

Classification: annotated as hypothetical protein
Boundaries of gene: complement (3934430..3936793)

Oligo evidence:

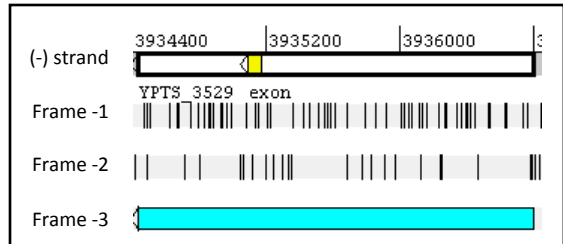
actgtttgatacttactcgaacaggcggtaagagcagattttgatcccttatttcatctccgcacat

Peptide evidence:

NA

Current sequence (peptide evidence in red): 787aa

MSISLIQPERDLFSYQPYWAECYGTAPFLPMSREEMDILGWDS CDIIVITGDAYVDHPSFGMAIVGRMLEAQGFRVGGIAQPDWTKHDFMRLGEPNLFVGVTAGNMDSMINRYTADRKL
RHDDAYTPDNQSGKRPRDRATLVYSQRCKEAYSHVPVLLGGIEASLRRIAHYDYWSDTVRRSVIVDAKADMLVYNGERPLVEVAHRLAAGEKITDIQDVRNTVVMRKTPLPGWSGVDSTRL
DKPGRIEAI PNYPYGEDLP CATDDISIPEAKPITVRAAKPKPWEKTYVLLPSYEKVKADKVL YAHTSRILHHTETNPGCARALMQKHGDRYIWINPPAIPLSTEEMDSV FALPYQRVPHPSYKSPIP
AYDMIRFSINIMRGYGGCSFCSITEHEGRIIQRSSEDSIIEIEIIRDKVPFGFTGIISDLGGPTANMYMLRCQSPRAEQTCRRASCVYPEICPHMDTNHQPTISLYRRARDLKGIKKILIASGVRYD
LAVEDPRYIKELASHHVGGYLKIAPEHTEEGPLSKMMKPGMGSYQRFKELFDTSYKQAGKEQYLIPYFISAHPGTEDKDMVNLALWLKKNRFRDLQVQNFYPSPLANSTTMYTGNKPLAKV
DYKSEEVVVPKGDQRRLHKALLRYHDPANWPMRLSALEDMLQLHLIGARRECLVPAPTLLEEQRARRALRHHTPALT KHTSITRQRQPSNRAPAASAGKKAPT VANGTSSAHSTSANQST
SANQSTSANQSTAAHSMLATKKSAGKTGVNKA AVNKPSAGSRGKNRQK



Error 12

Strain: *Y. pestis* CO92
Gene: YPO1195

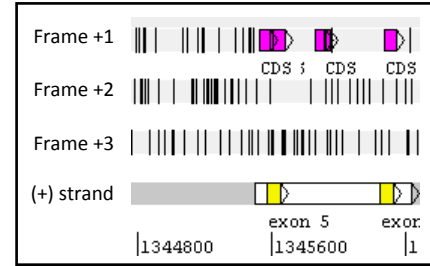
Classification: expressed pseudogene
Boundaries of gene: 1345498..1346430

Oligo evidence:

ggcagataacgctcggtaggctctaaaattgataccgaaggtccttgctgggcaatattattgtgcag
atcatcctggaagtactctgaaagctcaccgaacatcccgcttgcttaacccgtattccgccac

Peptide evidence:

DLATANLNR
IDTEGSLLGNIIQVLEANGIK
IFAVAAIMLSASSGISHAAD
LVWLSPAPANNTWTIAVR
VGSKIDTEGSLLGNIIQVLEANGIK
AHPNIPALLNPVFATLDGPTLQK



Proposed sequence (peptide evidence in red): 310aa

MALFLTRSRI**FAVAAIMLSASSGISHAAD**NVR**VGSKIDTEGSLLGNIIQVLEANGIK**TTNKSQLGATKVVVRGAIAGEIDIYPEYTGNGAFFFSDEQDPAWKSAKAGYEKVKALDYENK**LVWL**
SPAPANNTWTIAVRKDLATANLNR**LDL**LGGK**WINGGGQF**KLAASAEFIERPDALPAFQQAYGFTLNQDQLSLAGGDTAVTIKAAAEQISGVNAAMAYGTDGPVAALGLQTL**EDTKGVQPI**
YAPAPIIREVTLKAHPNIPALLNPVFATLDGPTLQKLNARIAVEGQDAK**VAANYL**KDNGFIK**N**

Strain: *Y. pestis* pestoides F
Gene: YPDSF_2500

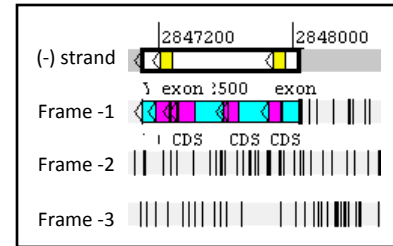
Classification: annotated as hypothetical protein
Boundaries of gene: complement (2847097..2848029)

Oligo evidence:

atcatcctggaagtactctgaaagctcaccgaacatcccgcttgcttaacccgtattccgccac
ggcagataacgctcggtaggctctaaaattgataccgaaggtccttgctgggcaatattattgtgcag

Peptide evidence:

AAAEQISGVNAAMAYGTDGPVAALGLQTL**EDTK**
AHPNIPALLNPVFATLDGPTLQK
DLATANLNR
GVQPIYAPAPIIR
IDTEGSLLGNIIQVLEANGIK
LVWLSPAPANNTWTIAVR
VGSKIDTEGSLLGNIIQVLEANGIK



Current sequence (peptide evidence in red): 310aa

MALFLTRSRI**FAVAAIMLSASSGISHAAD**NVR**VGSKIDTEGSLLGNIIQVLEANGIK**TTNKSQLGATKVVVRGAIAGEIDIYPEYTGNGAFFFSDEQDPAWKSAKAGYEKVKALDYENK**LVWL**
SPAPANNTWTIAVRKDLATANLNR**LDL**LGGK**WINGGGQF**KLAASAEFIERPDALPAFQQAYGFTLNQDQLSLAGGDTAVTIKAAAEQISGVNAAMAYGTDGPVAALGLQTL**EDTKGVQPI**
YAPAPIIREVTLKAHPNIPALLNPVFATLDGPTLQKLNARIAVEGQDAK**VAANYL**KDNGFIK**N**

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1324

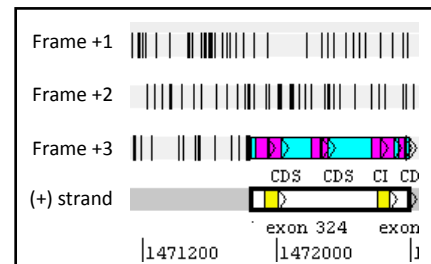
Classification: substrate-binding region of ABC-type glycine betaine transport system
Boundaries of gene: 1471848..1472780

Oligo evidence:

ggcagataacgctcggtaggctctaaaattgataccgaaggtccttgctgggcaatattattgtgcag
atcatcctggaagtactctgaaagctcaccgaacatcccgcttgcttaacccgtattccgccac

Peptide evidence:

AHPNIPALLNPVFATLDGPTLQK
DLATANLNR
GVQPIYAPAPIIR
IDTEGSLLGNIIQVLEANGIK
IFAVAAIMLSASSGISHAAD
KDLATANLNR
KVAANYLK
LVWLSPAPANNTWTIAVR



Current sequence (peptide evidence in red): 310aa

MALFLTRSRI**FAVAAIMLSASSGISHAAD**NVR**VGSKIDTEGSLLGNIIQVLEANGIK**TTNKSQLGATKVVVRGAIAGEIDIYPEYTGNGAFFFSDEQDPAWKSAKAGYEKVKALDYENK**LVWL**
SPAPANNTWTIAVRKDLATANLNR**LDL**LGGK**WINGGGQF**KLAASAEFIERPDALPAFQQAYGFTLNQDQLSLAGGDTAVTIKAAAEQISGVNAAMAYGTDGPVAALGLQTL**EDTKGVQPI**
YAPAPIIREVTLKAHPNIPALLNPVFATLDGPTLQKLNARIAVEGQDAK**VAANYL**KDNGFIK**N**

Error 13

Strain: *Y. pestis* CO92
Gene: YPO1219

Classification: expressed pseudogene
Boundaries of gene: Frame-2: complement (1377956..1379881)
Frame-3: complement (1377192..1377956)

Oligo evidence:

agcattggccgacagatacaatcatggttcggggctgacatTTTTTatgtaaccaattatgtaaaaaat
aaggttgagtacattacagaagatgataaaacctctatgagaggcaactaaaaaccagtgactattatt

Peptide evidence:

HALTNIANGLQQR
LRPDVYIEKPR



Proposed sequence (peptide evidence in red):

Frame-2: 642aa

MQNNSSTHSAANITRYFWLFIIVLLMTVGLYAYNYTNAYLTKK**HALTNIANGLQQR**IDDYRYHTYQIYDLVNNPIKASEPPPVQETRL**LRPDVYIEKPR**RKTDIAIFGNHEPATLTMALQISD
YLDNLWGPQNDTYSMYLNGQDNSLLITTTQALKEVTSRFKESYLTAFAESRRAEMLQVNTLDERESFSLRKLRFQNAFYFTLRITFNRPGLHATVIAFDLPINDLIPPNMARSNFLQDPK
VPLNEGATPEDIAATSVSLNGSWVEFSAPLANVTLKIIYRVPVSHLIDLLINNFWLILANIVLLALTLAAFYVRHQYGRPSADVTGQLEAQRLLSQEIITNLPQGLLIYDFSNSTVIASNKIAENLLP
HLNLQKIATMAEQHHGVIQGTVNNEVEIHMFRSQSPETYLFLNDQDKEVLVNNKQQARREYDKNLQARKMLHNLGIELGQPVHHSLSQLVRTLQDITDLQQQHDIKTKLVEQSATILE
LIDNITLLTKLETQDWQTEQQVFSLSLTLIDNLLDLLPSINRKGLENLNFHVSVDQIYLGDEKVLRLKLSLLNYSIVTTAYGKITLNVDPHEPGHPEQLVIQIMDTGAGISDDEIGNLNYPFLSQALA
DRYNHGSGLTFF

Frame-3: 255aa

LCNLQCKLNGQLEIRSKVDIGTRYIRTLTIAVKNEQDQTEKLLDGVTVLLDITSEEVRSIITILLSNFGANCILTDERLPGRDYDVTITDNPQHYDNYTLAADAETGFHQLQNNYIRANYNLSSA
VIDSILLIERRILSEQSQKVEYITEDDINLYERQLKTSDYSLFVETVPVDLKKLYTELQSQDLSLQTVHRLKGVFAMNLNLVGLKQLCETLEQHIADGDRLKIENSISQIDFFITRLLQEGNP

Strain: *Y. pestis* pestoides F

Classification: hypothetical protein

Gene: YPDSF_2473

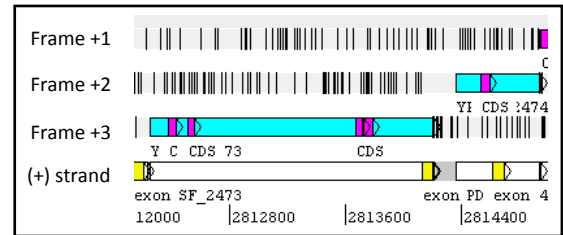
Boundaries of gene: YPDSF_2473: 2812245..2814197
YPDSF_2474: 2814365..2814937

Oligo evidence:

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aaggttgagtacattacagaagatgataaaacctctatgagaggcaactaaaaaccagtgactattatt

Peptide evidence:

HALTNIANGLQQR
LVEQSATILELIDNITLLTK
LRPDVYIEKPR
TLQDITDLQQQHDIK
ANYNLSSAVIDSILLIER



Current sequence (peptide evidence in red): YPDSF_2473: 650aa

MQNNSSTHSAANITRYFWLFIIVLLMTVGLYAYNYTNAYLTKK**HALTNIANGLQQR**IDDYRYHTYQIYDLVNNPIKASEPPPVQETRL**LRPDVYIEKPR**RKTDIAIFGNHEPATLTMALQISD
YLDNLWGPQNDTYSMYLNGQDNSLLITTTQALKEVTSRFKESYLTAFAESRRAEMLQVNTLDERESFSLRKLRFQNAFYFTLRITFNRPGLHATVIAFDLPINDLIPPNMARSNFLQDPK
VPLNEGATPEDIAATSVSLNGSWVEFSAPLANVTLKIIYRVPVSHLIDLLINNFWLILANIVLLALTLAAFYVRHQYGRPSADVTGQLEAQRLLSQEIITNLPQGLLIYDFSNSTVIASNKIAENLLP
HLNLQKIATMAEQHHGVIQGTVNNEVEIHMFRSQSPETYLFLNDQDKEVLVNNKQQARREYDKNLQARKMLHNLGIELGQPVHHSLSQLVRTLQDITDLQQQHDIKTKLVEQSATILE
LIDNITLLTKLETQDWQTEQQVFSLSLTLIDNLLDLLPSINRKGLENLNFHVSVDQIYLGDEKVLRLKLSLLNYSIVTTAYGKITLNVDPHEPGHPEQLVIQIMDTGAGISDDEIGNLNYPFLSQALA
DRYNHGSGLTFFVYVTVYVKN

YPDSF_2474: 190 aa

LLNSFGANCILTDERLPGRDYDVTITDNPQHYDNYTLAADAETGFHQLQNNYIR**ANYNLSSAVIDSILLIER**RILSEQSQKVEYITEDDINLYERQLKTSDYSLFVETVPVDLKKLYTELQSQDLSLQTVHRLKGVFAMNLNLVGLKQLCETLEQHIADGDRLKIENSISQIDFFITRLLQEGNP

Strain: *Y. pseudotuberculosis* PB1/+

Classification: phosphotransfer intermediate protein in two-component regulatory system with RcsBC

Gene: YPTS_1347

Boundaries of gene: complement (1503527..1506220)

Oligo evidence:

aaggttgagtacattacagaagatgataaaacctctatgagaggcaactaaaaaccagtgactattatt

Peptide evidence:

ANYNLSSAVIDSILLIER
HALTNIANGLQQR
ILSEQSQK
LETQDWQTEQQVFSLSLTLIDNLLDLLPSINRK
LMLHNLGIELGQPVHHSLSQLV
LRPDVYIEKPR
LVEQSATILELIDNITLLTK
REYDKNLQAR



Current sequence (peptide evidence in red): 897aa

MQNNSSTHSAANITRYFWLFIIVLLMTVGLYAYNYTNAYLTKK**HALTNIANGLQQR**IDDYRYHTYQIYDLVNNPIKASEPPPVQETRL**LRPDVYIEKPR**RKTDIAIFGNHEPATLTMALQISD
YLDNLWGPQNDTYSMYLNGQDNSLLITTTQALKEVTSRFKESYLTAFAESRRAEMLQVNTLDERESFSLRKLRFQNAFYFTLRITFNRPGLHATVIAFDLPINDLIPPNMARSNFLQDPK
VPLNEGATPEDIAATSVSLNGSWVEFSAPLANVTLKIIYRVPVSHLIDLLINNFWLILANIVLLALTLAAFYVRHQYGRPSADVTGQLEAQRLLSQEIITNLPQGLLIYDFSNSTVIASNKIAENLLP
HLNLQKIATMAEQHHGVIQGTVNNEVEIHMFRSQSPETYLFLNDQDKEVLVNNKQQAR**REYDKNLQARKLMLHNLGIELGQPVHHSLSQLVRTLQDITDLQQQHDIKTKLVEQSATILE**
LIDNITLLTKLETQDWQTEQQVFSLSLTLIDNLLDLLPSINRKGLENLNFHVSVDQIYLGDEKVLRLKLSLLNYSIVTTAYGKITLNVDPHEPGHPEQLVIQIMDTGAGISDDEIGNLNYPFLSQALA
DRYNHGSGLTFFLCNLQCKKLNQLEIRSKVDIGTRYIRTLTIAVKNEQDQTEKLLDGVTVLLDITSEEVRSIITILLSNFGANCILTDERLPGRDYDVTITDNPQHYDNYTLAADAETGFHQLQ
NNYIR**ANYNLSSAVIDSILLIER**RILSEQSQKVEYITEDDINLYERQLKTSDYSLFVETVPVDLKKLYTELQSQDLSLQTVHRLKGVFAMNLNLVGLKQLCETLEQHIADGDRLKIENSISQIDFF
ITRLLQEGNP

Error 14

Strain: *Y. pestis* CO92
Gene: YPO1337

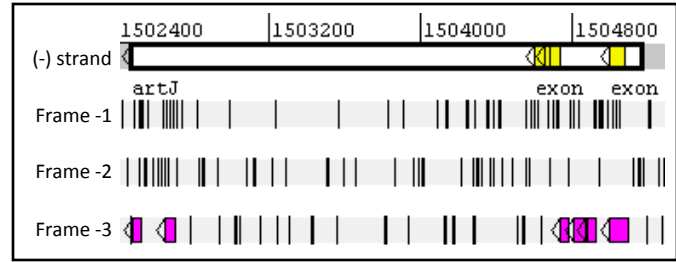
Classification: expressed pseudogene
Boundaries of gene: region 1: complement (1504641..1505183)
region 2: complement (1502469..1502774)

Oligo evidence:

tccacttatatccaccaacggcccaaatattgatccaccgttttactcaggattagcttctgctataac
taaacatcctgaaattcagaccgtgtcttatgactgtcaacgacggatgaaagtgatccacttatatct
acctaccgccattgaatctatggatgccaataacgaaatcgttgcttggatgatggatctggcaaaag

Peptide evidence:

FAASATYPPFESMDANNEIVGFMDLAK
KIGMENGTTTHQK
QVAFTQPYANSAIWIAPK
SKQVAFTQPYANSAIWIAPK
ADGTYQAINDK
DGVFGDTAVVNEWLK
IDGVFGDTAVVNEWLK



Proposed sequence (peptide evidence in red):

Region 1: 181aa

MKNSDRSLSMKLLLATLLSGMAFSATAAETLRFAASATYPPFESMDANNEIVGFMDLAKALCKQMEANCTFTNQAFDSLIPALFKRYDAVISGMDITPERSKQVAFTQPYANSAIWIAP
KGKFTFADLKGKIGMENGTTTHQKYLQDKHPEIQTVSYDCQRRMKSDPLISPPTAQY

Region 2: 102aa

MGVDPHYCTVRYNDSYQNAIIDLNKGRIDGVFGDTAVVNEWLKTNPNLASVGEHVTDPQYFGTGLGIIVRPDNIALLTKLNKAIDAVKADGTYQAINDKWFPQ

Strain: *Y. pestis* pestoides F
Gene: YPDSF_2359

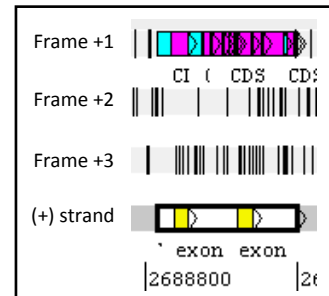
Classification: hypothetical protein
Boundaries of gene: 268865..268956

Oligo evidence:

acctaccgccattgaatctatggatgccaataacgaaatcgttgcttggatgatggatctggcaaaag
ataaacatcctgaaattcagaccgtgtcttatgacagctaccagaatgccatcattgatctgaaaaatgg

Peptide evidence:

ADGTYQAINDK
FAASATYPPFESMDANNEIVGFMDLAK
GKFTFADLK
GKKIGMEN
IDGVFGDTAVVNEWLK
KIGMENGTTTHQK
QVAFTQPYANSAIWIAPK
RYDAVISGMDITPER
SKQVAFTQPYANSAIWIAPK
TNPNLASVGEHVTDPQYFGTGLGIIVRPDNIALLTK
YLQDKHPEIQTVSYDSYQNAIIDLK



Current sequence (peptide evidence in red): 243aa

MKLLLATLLSGMAFSATAAETLRFAASATYPPFESMDANNEIVGFMDLAKALCKQMEANCTFTNQAFDSLIPALFKRYDAVISGMDITPERSKQVAFTQPYANSAIWIAPKGKFTFADL
KGKIGMENGTTTHQKYLQDKHPEIQTVSYDSYQNAIIDLNKGRIDGVFGDTAVVNEWLKTNPNLASVGEHVTDPQYFGTGLGIIVRPDNIALLTKLNKAIDAVKADGTYQAINDKWFPQ

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1464

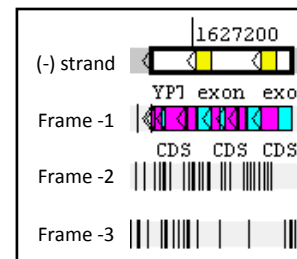
Classification: cationic amino acid ABC transporter, periplasmic binding protein
Boundaries of gene: complement (1626984..1627715)

Oligo evidence:

ataaacatcctgaaattcagaccgtgtcttatgacagctaccagaatgccatcattgatctgaaaaatgg
acctaccgccattgaatctatggatgccaataacgaaatcgttgcttggatgatggatctggcaaaag

Peptide evidence:

ADGTYQAINDK
ADGTYQAINDKWFPQ
DGVFGDTAVVNEWLK
FAASATYPPFESMDANNEIVGFMDLAK
IDGVFGDTAVVNEWLK
KIGMENGTTTHQK
QVAFTQPYANSAIWIAPK
RYDAVISGMDITPER
SKQVAFTQPYANSAIWIAPK
TNPNLASVGEHVTDPQYFGTGLGIIVRPDNIALLTK



Current sequence (peptide evidence in red): 243aa

MKLLLATLLSGMVFSAATAAETLRFAASATYPPFESMDANNEIVGFMDLAKALCKQMEANCTFTNQAFDSLIPALFKRYDAVISGMDITPERSKQVAFTQPYANSAIWIAPKGKFTFADL
KGKIGMENGTTTHQKYLQDKHPEIQTVSYDSYQNAIIDLNKGRIDGVFGDTAVVNEWLKTNPNLASVGEHVTDPQYFGTGLGIIVRPDNIALLTKLNKAIDAVKADGTYQAINDKWFPQ

Error 15

Strain: *Y. pestis* CO92
Gene: YPO1584

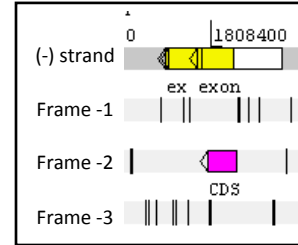
Classification: expressed pseudogene
Boundaries of gene: complement (1808243..1808536)

Oligo evidence:

tacctgtcttctatggatcaaccacaagaagatgcgttggtgatagaacgctctggcttacgaccgatg
accgatgtgcacgccaattaataatattagaagctggattgctaaaattgagctcatcagagagcc

Peptide evidence:

LHYLSSMDQPQEDALVDR



Proposed sequence (peptide evidence in red): 98aa

MDRNNEVIQTHPVVGGWDISTVDVYDAMMIR**LHYLSSMDQPQEDALVDR**TLWLTTDVARQLINILEAGIAKIESSESLSIILCNCHRIKDRSGGHRTR

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1861

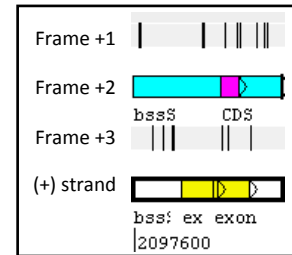
Classification: annotated as BssS
Boundaries of gene: 2097596..2097892

Oligo evidence:

tacctgtcttctatggatcaaccacaagaagatgcgttggtgatagaacgctctggcttacgaccgatg
accgatgtgcacgccaattaataatattagaagctggattgctaaaattgagctcatcagagagcc

Peptide evidence:

QLINILEAGIAK



Current sequence (peptide evidence in red): 98aa

MDRNNEVIQTHPVVGGWDISTVDVYDAMMIR**LHYLSSMDQPQEDALVDR**TLWLTTDVAR**QLINILEAGIAK**IESSESLSIILCNCHRIKDRSGGHRTR

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2572

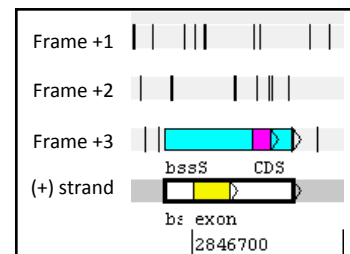
Classification: annotated as BssS
Boundaries of gene: 2846646..2846900

Oligo evidence:

tgtagatgtgtacgatgctatgatgatacgtcttcattacgtcttctctatggagcaaccacaagaagat

Peptide evidence:

QLINILEAGIAK



Current sequence (peptide evidence in red): 84aa

MDRNNEVIQTHPVVGGWDISTVDVYDAMMIR**LHYLSSMEQPQEDALVDR**TLWLTTDVAR**QLINILEAGIAK**IESSEYLDMDHRKH

Error 16

Strain: *Y. pestis* CO92
Gene: YPO1684

Classification: expressed pseudogene
Boundaries of gene: Frame+3:1919412..1921514
Frame+1: 1921498..1922043

Oligo evidence:

ttttatggtgacgattttgtccaaactgctttctcaactctatgtgaacaatgccaatgatcct
atgtcgaatgtcaccacgacgccaatgcttatacagaccagcctattctgacttaagaagatctga

Peptide evidence:

YSTTDNNTSGTVSVGNAATGETR

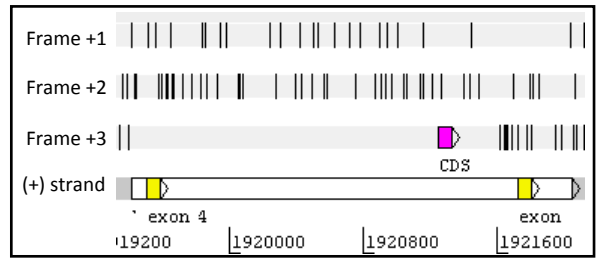
Proposed sequence (peptide evidence in red):

Frame+3: 701aa

MKSIQKDCNYLVRFAVSDSFIRDNSFRLLAIFMVTIFVPNTAFSFLYVNNANDPGCYVIADGGFTGVTNSDQNCYTLSSLNINNTGGQLFVGGKGGIAGKPSFIATPWTGTFITAVGTSNVATAYGFVQSNAGAFING
DTYVKGGLFLNKRKATNLAPATISSTSDAVVGSQLYTVIQDGTTRYFHANSVNPQDSVPAGQDAIIVGATVNVNNGIGIGISSAVVGPSAVGGIAGPNTQATGIASALGAGSQAHSQSLALGAGATASQANSIAL
GASSVTVVGAESDYSAYGLTAPQTSVGEVGMGTAAQGNRKITGVAAGSADYDVVNVVAQLTAVGDKVEQNTADITSLGGRVTNVEGGMTRITNGGGIKYFHTHSTEPSVAGSDDSVAIGPNAQASGTTSIAMGAGSTA
QGAQSLALGAGAAASQANSIALGASSVTVVGAESDYSAYGLTAPQTSVGEVGMGTAAQGNRKITGVAAGSADYDVVNVVAQLTAVGDKVQNTADITSLDGRVTNVEGEMASITNGGGVYFHTHSTESDSVAGSDDS
AIGPNAQASGTASVAGSGKTLASGNNGAVAIGDAASVSAEGSVALGQGSADNNGRAESYTGK**YSTTDNNTSGTVSVGNAATGETR**TVSNVADGREAMDAVNLRQLDGAMA AVGDTVSLGQNGTDGMFQVNNNSG
QAKPSVTGTDAMAGGGRLRWVWQPQYRDGYGQQDGGGKQHRAGGQLSGGS

Frame+1: 182aa

MRWRGGAGSVASGSHSTAMGTGSKATAANSTALGANSVADRENSVSVGSVGNRQLTNIIVGTVQGTDAVNLDQLNHSMNSVNTDANAYTDQRYALKEDLKKQDSTLSAGIAGAMAMASLTQPYPGASMATIG
AASRYGQSALSUVGSSISDSGRWVSKLQASNTQDGMGVGVGVGYQW



Strain: *Y. pestis* pestoides F
Gene: YPDSF_1763 / YPDSF_1764

Classification: YPDSF_1763 annotated as surface protein
YPDSF_1764 annotated as hypothetical protein
Boundaries of gene: YPDSF_1764 Frame-2: complement (1988312..1990522)
YPDSF_1763 Frame-1: complement (1987891..1988436)

Oligo evidence:

ttttatggtgacgattttgtccaaactgctttctcaactctatgtgaacaatgccaatgatcct
atgtcgaatgtcaccacgacgccaatgcttatacagaccagcctattctgacttaagaagatctga

Peptide evidence:

VDQNTADITSLDGR
YSTTDNNTSGTVSVGNAATGETR
EAMDAVNLR
KITGVAAGSADYDAVNVAQLTAVGDKVDQNTADITSLDGR
TVSNVADGREAMD AVNLR
DQNTADITSLDGR
ATAANSTALGANSVADRENSVSVGSVGNR

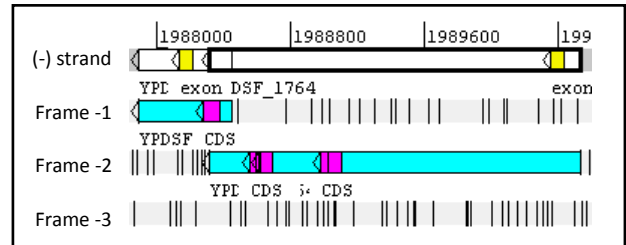
Current sequence (peptide evidence in red):

Frame-2: 721aa (YPDSF_1764)

MKSIQKDCNYLVRFAVSDSFIRDNSFRLLAIFMVTIFVPNTAFSFLYVNNANDPGCYVIADGGFTGVTNSDQNCYTLSSLNINNTGGQLFVGGKGGIAGKPSFIATPWTGTFITAVGTSNVATAYGFVQSNAGAFING
DTYVKGGLFLNKRKATNLAPATISSTSDAVVGSQLYTVIQDGTTRYFHANSVNPQDSVPAGQDAIIVGATVNVNNGIGIGISSAVVGPSAVGGIAGPNTQATGIASALGAGSQAHSQSLALGAGATASQANSIAL
GASSVTVVGAESDYSAYGLTAPQTSVGEVGMGTAAQGNRKITGVAAGSADYDVVNVVAQLTAVGDKVEQNTADITSLGGRVTNVEGGMTRITNGGGIKYFHTHSTEPSVAGSDDSVAIGPNAQASGTTSIAMGAGSTA
QGAQSLALGAGAAASQANSIALGASSVTVVGAESDYSAYGLTAPQTSVGEVGMGTAAQGNRKITGVAAGSADYDAVNVAQLTAVGDKVDQNTADITSLDGRVTNVEGEMASITNGGGVYFHTHSTESDSVAGSDDS
AIGPNAQASGTASVAGSGKTLASGNNGAVAIGDAASVSAEGSVALGQGSADNNGRAESYTGK**YSTTDNNTSGTVSVGNAATGETR**TVSNVADGREAMD AVNLRQLDGAMA AVGDTVSLGQNGTDGMFQVNNNSG
QAKPSVTGTDAMAGGGQQDGGKQHRAGGQLSGGS

Frame-1: 182aa (YPDSF_1763)

MRWRGGAGSVASGSHSTAMGTGSKATAANSTALGANSVADRENSVSVGSVGNRQLTNIIVGTVQGTDAVNLDQLNHSMNSVNTDANAYTDQRYALKEDLKKQDSTLSAGIAGAMAMASLTQPYPGASMATIG
AASRYGQSALSUVGSSISDSGRWVSKLQASNTQDGMGVGVGVGYQW



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2473

Classification: annotated as YadA domain-containing protein
Boundaries of gene: 2740553..2743195

Oligo evidence:

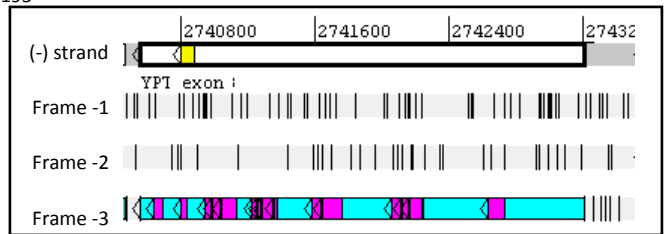
atgtcgaatgtcaccacgacgccaatgcttatacagaccagcctattctgacttaagaagatctga

Peptide evidence:

ATAANSTALGANSVADR	ITGVAAGSAGYDAVNVTQLTAVGNK
ATAANSTALGANSVADRENSVSVGSVGNR	KATNLAPATVSSSTSDAVVGSQLYTVIQDGT
ATNLAPATVSSSTSDAVVGSQLYTVIQDGT	KITGVAAGSAGYDAVNVTQLTAVGNK
EAMDAVNLR	PSATGTDAMAGGAGSVASGSHSTAMGTGSK
ENSVSVGSVGNR	TVSNVADGR
GAESYTGK	VTNVEGEMTSITNGGGVK
GQSALSVGVSSISDSGR	VTNVEGEMTSITNGGGIK
ITGVAAGSADYDAVNVAQLTAVGDKVDQNTADITSLDGR	YSALKEDLKK
	YSTTDNNTSGTVSVGNAATGETR

Current sequence (peptide evidence in red): 880aa

MKSIQKDCNYLARFAVSDSFIRDNSFRLLAIFMVTIFPGTAFSELYVNNANDPGCYAVVDNLLNFKGRITGIVTNIHICNTLLEANLNTNGGQLFVGGQGLPGYAPTPTWTGTFITAVGTSNVATAYGFVQKNG
AFINGDTYVQGLFLNKRKATNLAPATVSSSTSDAVVGSQLYTVIQDGTTRYFHANSVNPQDSVPAGQDAIIVGATVNVNNGIGIGINSVAVGPSAVGGIAGPNTQATGTASTALGAGTQAQAQSLALGAGAVTR
QVNSIALGASSVTVVGAQGSYAYGLPTTQASVEVGEIGTAQGNRKITGVAAGSAGYDAVNVTQLTAVGNKVDQNTADITSLDGRVTNVEGEMTSITNGGGIKYFHTHSTEPSVAGSDDSVAIGPNAQASGTTSIAMG
AGSTAQAQSLALGAGAAASQANSIALGASSVTVVGAESNYSAYGLTASQTSVGEVGMGTAAQGNRKITGVAAGSADYDAVNVAQLTAVGDKVDQNTADITSLDGRVTNVEGEMTSITNGGGVYFHTHSTEPSVAS
GSDSVAIGPNAQASGTASVAGSGKTLASGNNGAVAIGDAASVSAEGSVALGQGSADNNGRAESYTGK**YSTTDNNTSGTVSVGNAATGETR**TVSNVADGREAMD AVNLRQLDGAMA AVGDTVSLGQNGTDGMFQV
NNNSGQAKPSATGTDAMAGGAGSVASGSHSTAMGTGSKATAANSTALGANSVADRENSVSVGSVGNRQLTNIIVGTVQGTDAVNLDQLNHSMNSVNTDANAYTDQRYALKEDLKKQDSTLSAGIAGAMAMASLT
QPYPGASMATIG AASRYGQSALSUVGSSISDSGRWVSKLQASNTQDGMGVGVGVGYQW



Error 17

Strain: *Y. pestis* CO92
Gene: YPO1726

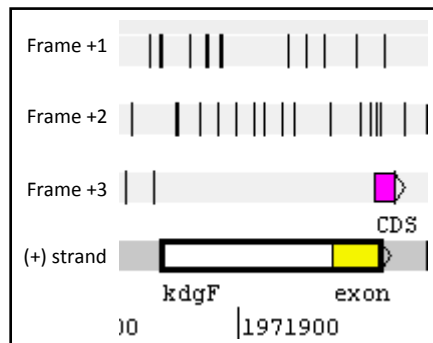
Classification: expressed pseudogene
Boundaries of gene: 1971786..1972133

Oligo evidence:

gcacggtcagatcgttgaagacaacagcatcttgattgatactttacgcctaaacgggatgattt

Peptide evidence:

DDFETVNNIV



Proposed sequence (peptide evidence in red): 116aa

MKMFFINDETPWEELGNGIKRKVMTWSDLEMMVCVHFKEGAIGVAHKHDIHDQIAYVAAGSFEVEIEGQKRILKAGDAYRAVKNEMHGAVSLEDNSILIDTFTPKR**DDFETVNNIV**

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1722

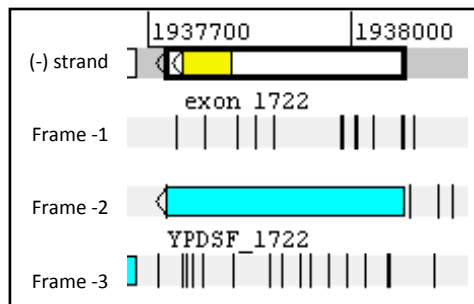
Classification: hypothetical protein
Boundaries of gene: complement (1937726..1938076)

Oligo evidence:

gcacggtcagatcgttgaagacaacagcatcttgattgatactttacgcctaaacgggatgattt

Peptide evidence:

NA



Current sequence (peptide evidence in red): 116aa

MKMFFINDETPWEELGNGIKRKVMTWSDLEMMVCVHFKEGAIGVAHKHDIHDQIAYVAAGSFEVEIEGQKRILKAGDAYRAVKNEMHGAVSLEDNSILIDTFTPKR**DDFETVNNIV**

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2429

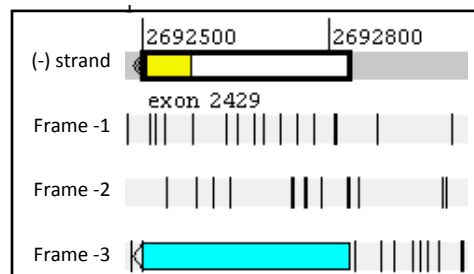
Classification: cupin 2 domain-containing protein
Boundaries of gene: complement (2692499..2692831)

Oligo evidence:

gcacggtcagatcgttgaagacaacagcatcttgattgatactttacgcctaaacgggatgattt

Peptide evidence:

NA



Current sequence (peptide evidence in red): 110aa

MKMFFINDETPWEALGNGIKRKVMTWSDLEMMVCVHFKEGAIGVAHKHDIHDQIAYVAAGSFEVEIEGQKRILKAGDAYRAVKNEMHGAVSLEDNSILIDTFTPKR**DDFL**

Error 18

Strain: *Y. pestis* CO92
Gene: YPO1728

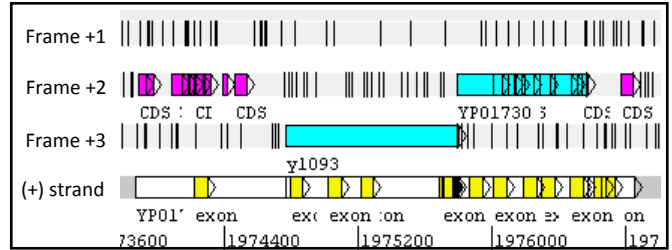
Classification: expressed pseudogene with 2 insertions
Boundaries of gene: Region1: 1973867..1974682
Region2: 1976642..1976842

Oligo evidence:

Gagtgatgattgatcgtggctcataccagcctgaagacttccggtgcagatttgcagaaacaaa
aagtgatcacttttccgctgctgacactatcgcttagatggctaccggatgatagttgttag
accggatgatagttttagatattccgctgaccctattgtcaaaatcgcgtaccagtgtagtaaa

Peptide evidence:

ALNGYDDVAAETR
GLDLLLIPDEPGEK
IANELGLSSTTVSR
LLELGHQR
LQGYVQTMSEAGLMPLAGYLQK
QNPFALGR
RVDALIVAHTQPEDFR
VLNNSTFLEMISWIGIELGK
VLNNSTFLEMISWIGIELGKR
YQSLIHLVETR
ELQVLWQPEIGEGETDGVNR



Proposed sequence (peptide evidence in red):

Region1: 272aa

MSLKKIANELGLSSTTVSRALNGYDDVAAETRERIIDAARKLGYQPNLSARLKMGRDIAIALAYPSRPRVLNNSTFLEMISWIGIELGKRGDLLLIPDEPGEKQYQSLIHLVETRRVDALIVAHTQ
PEDFRLQYLQKQNFPPALGRSHLPKYAWFDFDNHAGASLAVKRLLELGHQRIAFVSTDAISYVDQRLQGYVQTMSEAGLMPLAGYLQKADPTRPGGYLAASRLLALEVPPTAITDCNM
LGDGVASALDKAGLLGGEGISLI

Region2: 66aa

AYDGLPDDSLLDIAVTPIVQNRTRTSVKGKQIASMICDLLGGKDPKELQVLWQPEIGEGETDGVNRG

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1392

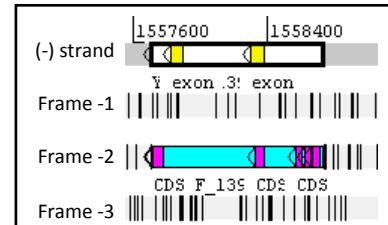
Classification: hypothetical protein
Boundaries of gene: complement (1557701..1558717)

Oligo evidence:

accggatgatagttttagatattccgctgaccctattgtcaaaatcgcgtaccagtgtagtaaa
gagtgatgattgatcgtggctcataccagcctgaagacttccggtgcagatttgcagaaacaaa

Peptide evidence:

ELQVLWQPEIGEGETDGVNR
IANELGLSSTTVSR
RLGYQPNLSAR
ALNGYDDVAAETR
RVDALIVAHTQPEDFR



Current sequence (peptide evidence in red): 338aa

MSLKKIANELGLSSTTVSRALNGYDDVAAETRERIIDAARKLGYQPNLSARLKMGRDIAIALAYPSRPRVLNNSTFLEMISWIGIELGKRGDLLLIPDEPGEKQYQSLIHLVETRRVDALIVAHTQ
PEDFRLQYLQKQNFPPALGRSHLPKYAWFDFDNHAGASLAVKRLLELGHQRIAFVSTDAISYVDQRLQGYVQTMSEAGLMPLAGYLQKADPTRPGGYLAASRLLALEVPPTAITDCNM
LGDGVASALDKAGLLGGEGISLIAYDGLPDDSLLDIAVTPIVQNRTRTSVKGKQIASMICDLLGGKDPKELQVLWQPEIGEGETDGVNRG

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1729

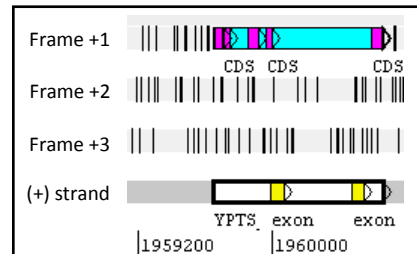
Classification: LacI family transcription regulator
Boundaries of gene: 1959643..1960659

Oligo evidence:

gagtgatgattgatcgtggctcataccagcctgaagacttccggtgcagatttgcagaaacaaa
accggatgatagttttagatattccgctgaccctattgtcaaaatcgcgtaccagtgtagtaaa

Peptide evidence:

ALNGYDDVAAETR
ELQVLWQPEIGEGETDGVNR
IANELGLSSTTVSR
VLNNSTFLEMISWIGIELGK
YQSLIHLVETR



Current sequence (peptide evidence in red): 338aa

MSLKKIANELGLSSTTVSRALNGYDDVAAETRERIIDAARKLGYQPNLSARLKMGRDIAIALAYPSRPRVLNNSTFLEMISWIGIELGKRGDLLLIPDEPGEKQYQSLIHLVETRRVDALIVAHTQ
PEDFRLQYLQKQNFPPALGRSHLPKYAWFDFDNHAGASLAVKRLLELGHQRIAFVSTDAISYVDQRLQGYVQTMSEAGLMPLAGYLQKADPTRPGGYLAASRLLALEVPPTAITDCNM
LGDGVASALDKAGLLGGEGISLIAYDGLPDDSLLDIAVTPIVQNRTRTSVKGKQIASMICDLLGGKDPKELQVLWQPEIGEGETDGVNRG

Error 19

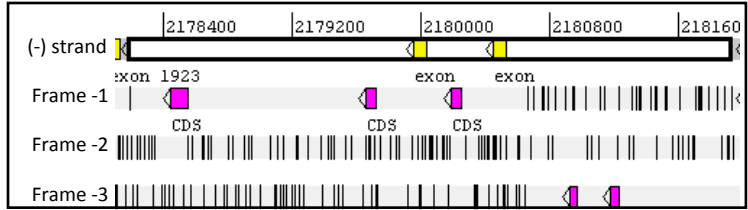
Strain: *Y. pestis* CO92
Gene: YPO1923
Oligo evidence:

Classification: expressed pseudogene
Boundaries of gene: Frame-3: complement (2180652..2182037)
Frame-1: complement (2178187..2180649)

aaccacaactggtgacttatctgtagaataaagggtgatatacgggatattttctctggtgattatcc
taatgatggcattgccatcacccctgacctgccagaataaaaaactattattgataaagtcattgaatc

Peptide evidence:

LIDYLNQILELLPTR
RTGIKFDPVYTK
LLQESIINALPFAVIR
SAQSLMLLDDIISAK
TLSGGNPAVELQLLQSLLESNLQDAVTLTQLYR



Proposed sequence (peptide evidence in red):

Frame-3: 462aa

MHTPIIWCNSLRRTFFLLRGRFSRLRTVLYCLLLISGQLHASLMTGRQCGDTGQPLTIHSIANSYNDDLLTPATDRQSSRRTVKVGVVMDANTPFVFNRRDNDNAIEGIVADYLKIIDASQSLFQMIGYCDYGLVNLNALENGQ
IDLMAGTPMLAQPLIASHAFTNRHVEVRSKNWDPTKRTHPETVAIVNNEPLSPEFLFNHADRIVAYPNLQGLLAVAYGNADVFNANATSANYLIDQLQLTLQIRNFAPYHPAPYSFLARESNGKIDYLNQILELLP
TRATGDIQQRWFGSKHHYNIDAKLLLTQEQLSWIQHHPVVTYIAPLDLAPLIFDRRTGEMAGFSVDLIDIIARRTGKIFDPVYTKDTGEGVRSFKAGKVDLLPIAVRNGQYGNLYSSIAQSLWGIMTREDRMDINNV
GDLAGKRVGIQAGSASSIISNPLLAQRITFVEAPDT

Frame-1: 820aa

TLVRWLQKQKVDVAVKNNMTANYLSAQNFSPNIKTAVAVAGEEPLMMAFAIRPDLPELKTIDKIVIESIPPEEFDNLTEWSTFKPKPISFDESSLNELLMIALKISSGLLVFGLYLCYLVFNKRRQAKLLHARLLQQESIIN
ALPFAVIRTAGSELAVYNSHFADVHSDKLYDMLNQTHEPAHWPMTPSPLDREIDKYCRSVLLNRKPLQVLDLVEIKGDIRDFLWIIPLNNAEQGLGGWLDISQRKTVERQLEAARVEAESANRKTSTFLATISHELRTPM
YAIMGELLEIRSNRPVEKDTLVTVSKSAQSLMLLDDIISAKIEAGQLSIHPTAVDFHQEMERMFYQPIANERLRFSGWLDHIPPMLMADMLRVRQVMGNLLGNALFKTEQGSVSDITWEPSEDEQHGVMNIDI
TDTGIGISPAQAATLFPQFSQANEGKSPRFGGSGGLWICHQLIHKMGKIALESQLGKGTSLITLPLNIATADDLAQDAAIHTVDDERLNQLRNLRLVDDLPANRQLLQQLAFIGIEQVVTVAENGAKACQLQHNN
FDVVITDCSMPVMDGYELAAHIRQDPALKDLVIGCTADAREESAARCIDAGMNACMIKPVADTLQATLLRDKDIVSQISNTNHSQSTEDNDRGGNQSNLSEKNTAQENAPAIHSTTTISVNRLLAAQNKLRSLSGGN
PAVELQLLQSLLESNLQDAVTLTQLYRQLCVEDEDVVTVDTAETVDTADTVEDGETRGPSTVGRHSTAGSDHIPHADIYKQMASLVHRIKGSVQLIDAQELVASCVKFESQ

Strain: *Y. pestis* pestoides F

Classification: signal transduction histidine kinase
Boundaries of gene: 1352820..1356821

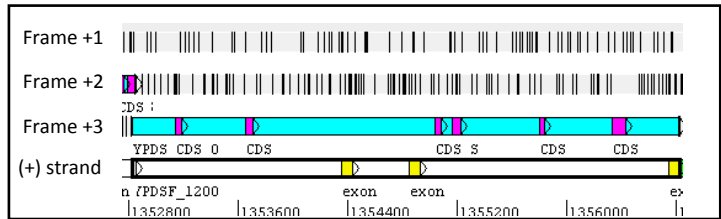
Gene: YPDFS_1200

Oligo evidence:

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aaccacaactggtgacttatctgtagaataaagggtgatatacgggatattttctctggtgattatcc

Peptide evidence:

LIDYLNQILELLPTR
SAQSLMLLDDIISAK
DDNAIEGIVADYK
ILVDDLPANR
TKSTFLATISHEL
TLSGGNPAVELQLLQSLLESNLQDAVTLTQLYR



Current sequence (peptide evidence in red): 1333aa

MHTPIIWCNSLRRTFFLLRGRFSRWSFLRTVLYCLLLISGQLHASLMTGRQCGDTGQPLTIHSIANSYNDDLLTPATDRQSSRRTVKVGVVMDANTPFVFNRRDNDNAIEGIVADYLKIIDASQSLFQMIGYCDYGLVNL
ALENGQIDLMAGTPMLAQPLIASHAFTNRHVEVRSKNWDPTKRTHPETVAIVNNEPLSPEFLFNHADRIVAYPNLQGLLAVAYGNADVFNANATSANYLIDQLQLTLQIRNFAPYHPAPYSFLARESNGKIDYLNQILELLP
TRATGDIQQRWFGSKHHYNIDAKLLLTQEQLSWIQHHPVVTYIAPLDLAPLIFDRRTGEMAGFSVDLIDIIARRTGKIFDPVYTKDTGEGVRSFKAGKVDLLPIAVRNGQYGNLYSSIAQSLWGIMTREDR
MDINNVGDLAGKRVGIQAGSASSIISNPLLAQRITFVEAPDTMTLVRWLQKQKVDVAVKNNMTANYLSAQNFSPNIKTAVAVAGEEPLMMAFAIRPDLPELKTIDKIVIESIPPEEFDNLTEWSTFKPKPISFDESSLNELL
MIALKISSGLLVFGLYLCYLVFNKRRQAKLLHARLLQQESIINALPFAVIRTAGSELAVYNSHFADVHSDKLYDMLNQTHEPAHWPMTPSPLDREIDKYCRSVLLNRKPLQVLDLVEIKGDIRDFLWIIPLNNAEQGLL
GWLDSQRKTVERQLEAARVEAESANRKTSTFLATISHELRTPMYAIMGELLEIRSNRPVEKDTLVTVSKSAQSLMLLDDIISAKIEAGQLSIHPTAVDFHQEMERMFYQPIANERLRFSGWLDHIPPMLMADML
RVRQVMGNLLGNALFKTEQGSVSDITWEPSEDEQHGVMNIDI
TDTGIGISPAQAATLFPQFSQANEGKSPRFGGSGGLWICHQLIHKMGKIALESQLGKGTSLITLPLNIATADDLAQDAAIHTVDDERLNQLRNLRL
ILVDDLPANRQLLQQLAFIGIEQVVTVAENGAKACQLQHNNFDVVITDCSMPVMDGYELAAHIRQDPALKDLVIGCTADAREESAARCIDAGMNACMIKPVADTLQATLLRDKDIVSQISNTNHSQSTEDNDRGGN
QSNLSEKNTAQENAPAIHSTTTISVNRLLAAQNKLRSLSGGNPAVELQLLQSLLESNLQDAVTLTQLYRQLCVEDEDVVTVDTAETVDTADTVEDGETRGPSTVGRHSTAGSDHIPHADIYKQMASLVHRIKGSVQ
LIDAQELVASCVKFESQLHAQNKAAMTHGADCLALFIESNQLLVTLSIQPKAATEDSPQ

Strain: *Y. pseudotuberculosis* PB1/+

Classification: histidine kinase

Gene: YPTS_1971

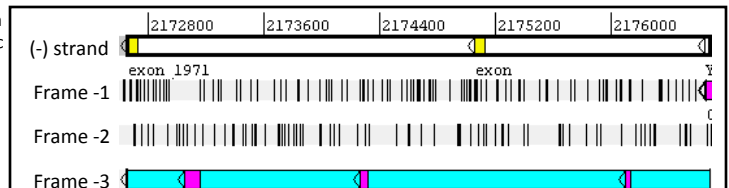
Boundaries of gene: complement (2172650..2176678)

Oligo evidence:

atcfaatcagttattagtcacataattctcaatataagccgctactgaagactgccacaataa
taatgatggcattgccatcacccctgacctgccagaataaaaaactattattgataaagtcattgaatc

Peptide evidence:

SAQSLMLLDDIISAK
SKNWDPTKR
TLSGGNPAVELQLLQSLLESNLQDAVTLTQLYR



Current sequence (peptide evidence in red): 1342aa

MHTPIIWCNSLRRTFFLLRARFLRARFSRWSFFLRTVLCCLLLISGQLHASLMTGRQCGDTGQPLTIHSIANSYNDDLLTPATDRQSSRRTVKVGVVMDANTPFVFNRRDNDNAIEGIVADYL
KIIDASQSLFQMIGYCDYGLVNLNALENGQIDLMAGTPMLAQPLIASHAFTNRHVEVRSKNWDPTKRTHPETVAIVNNEPLSPEFLFNHADRIVAYPNLQGLLAVAYGNADVFNANATS
ANYLIDQLQLTLQIRNFAPYHPAPYSFLARESNGKIDYLNQILELLPTRATGDIQQRWFGSKHHYNIDAKLLLTQEQLSWIQHHPVVTYIAPLDLAPLIFDRRTGEMAGFSVDLIDIIARRTG
KIFDPVYTKDTGEGVRSFKAGKVDLLPIAVRNGQYGNLYSSIAQSLWGIMTREDRMDINNVGDLAGKRVGIQAGSASSIISNPLLAQRITFVEAPDTMTLVRWLQKQKVDVAVKNNM
TANYLSAQNFSPNIKTAVAVAGEEPLMMAFAIRPDLPELKTIDKIVIESIPPEEFDNLTEWSTFKPKPISFDESSLNELLMIALKISSGLLVFGLYLCYLVFNKRRQAKLLHARLLQQESIINALPFA
VFIRTASGELAVYNSHFADVHSDKLYDMLNQTHEPAHWPMTPSPLDREIDKYCRSVLLNRKPLQVLDLVEIKGDIRDFLWIIPLNNAEQGLGGWLDISQRKTVERQLEAARVEAESANRKTST
FLATISHELRTPMYAIMGELLEIRSNRPVEKDTLVTVSKSAQSLMLLDDIISAKIEAGQLSIHPTAVDFHQEMERMFYQPIANERLRFSGWLDHIPPMLMADMLRVRQVMGNLLGN
ALFKTEQGSVSDITWEPSEDEQHGVMNIDI
TDTGIGISPAQAATLFPQFSQANEGKSPRFGGSGGLWICHQLIHKMGKIALESQLGKGTSLITLPLNIATADDLAQDAAIHTVDDERLNQL
RNLRLVDDLPANRQLLQQLAFIGIEQVVTVAENGAKACQLQHNNFDVVITDCSMPVMDGYELAAHIRQDPALKDLVIGCTADAREESAARCIDAGMNACMIKPVADTLQATLLRDKDIV
SQIANNTNHSSTEDNDRGGNQSNLSEKNTAQENAPAIHSTTTISVNRLLAAQNKLRSLSGGNPAVELQLLQSLLESNLQDAVTLTQLYRQLCVEDEDVVTVDTAETVDTADTVEDG
ETRGPSTVGRHSTAGSDHIPHADIYKQMASLVHRIKGSVQLIDAQELVASCVKFESQLHAQNKAAMTHGADCLALFIESNQLLVTLSIQPKAATEDSPQ

Error 20

Strain: *Y. pestis* CO92
Gene: YPO1967

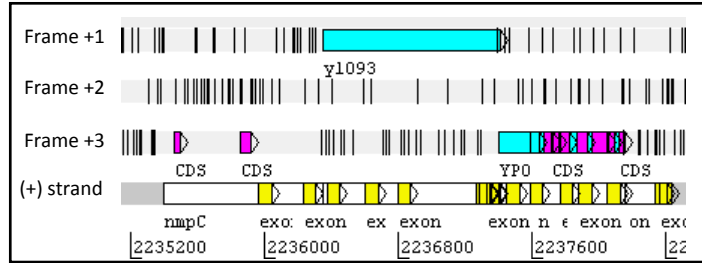
Classification: expressed pseudogene
Boundaries of gene: 2235390..2236337

Oligo evidence:

tgatggttgcgtttgcttttaattatcaaaacattcagggcagcggcgtcagtttgcagggcagc
ccaataaccagtttgagaatggatccgccctctcttgaacgaacggtgcaatagtgatccacacca

Peptide evidence:

NDNFFGLVEGLKVAQAQYQGR



Proposed sequence (peptide evidence in red): 315aa

MKNIAMALAATLGIIIPALSSAAEIYNKDGKLDYGRVAAKYLFKKQSNEDATYVRIGFKGETKINSQLTGFQWEYNIAANNTESSQGDKGNKTRLGFAGLKLADYGSFDYGRNYGVVYDVLV
YTDMLPEFGGDSMAATDNYMTARSTGLATYRNDNFFGLVEGLKVAQAQYQGRNEDGDVTRNERSIQKANGDGFGLSFNYQNIQGGSGVSFAGAYSSNRTEGQKELVNSAAGDKAQAWAT
GLKYDANQAYIAAMYGETLNMTYPKRLIANKTQNVELVAQYQFENGIRPSLVNTNGAIVHTQRLKSDPGGNLSS

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1156

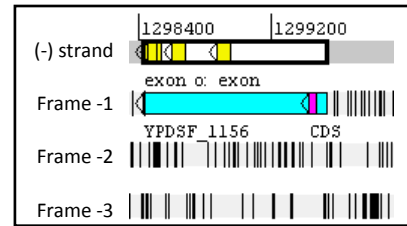
Classification: hypothetical protein
Boundaries of gene: complement (1298434..1299516)

Oligo evidence:

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tggtgattataagattaatttattggataacgataagaacccattggccttgaatacggatgatgtt
aataccagtttgagaatggatccgccctctcttgcctacatacaatctaaaggaaggatctggcggg
tgatggttgcgtttgcttttaattatcaaaacattcagggcagcggcgtcagtttgcagggcagc

Peptide evidence:

NA



Current sequence (peptide evidence in red): 360aa

MKNIAMALAATLGIIIPALSSAAEIYNKDGKLDYGRVAAKYLFKKQSNEDATYVRIGFKGETKINSQLTGFQWEYNIAANNTESSQGDKGNKTRLGFAGLKLADYGSFDYGRNYGVVYDVLV
YTDMLPEFGGDSMAATDNYMTARSTGLATYRNDNFFGLVEGLKVAQAQYQGRNEDGDVTRNERSIQKANGDGFGLSFNYQNIQGGSGVSFAGAYSSNRTEGQKELVNSAAGDKAQAWAT
GLKYDANQAYIAAMYGETLNMTYPKRLIANKTQNVELVAQYQFENGIRPSLAYIQSKGDLAVGDTDLVKYAEIGVYTHFNKNMYTYVDYKINLLDNDKNPLGLNTDDVVAVNLTYRF

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2016

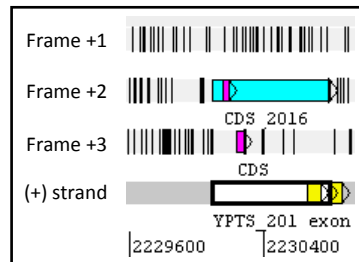
Classification: porin
Boundaries of gene: 2230091..2230789

Oligo evidence:

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Peptide evidence:

NA



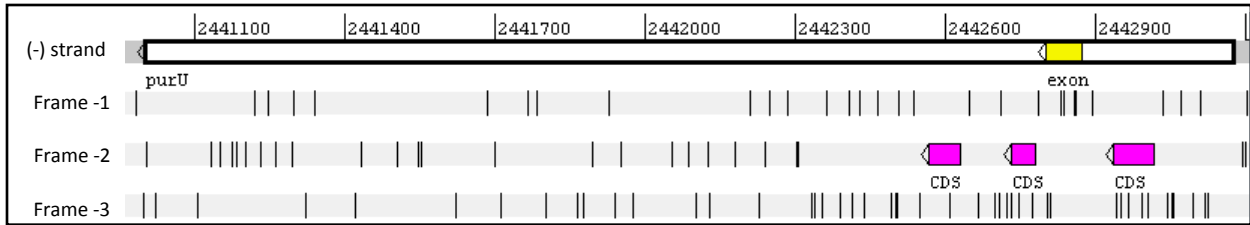
Current sequence (peptide evidence in red): 232aa

MKNIAMALAATLGIIIPALSSAAEIYNKDGKLDYGRVAAKYLFKKQSNEDATYVRIGFKGETKINSQLTGFQWEYNIAANNTESSQGDKGNKTRLGFAGLKLADYGSFDYGRNYGVVYDVLV
YTDMLPEFGGDSMAATDNYMTARSTGLATYRNDNFFGLVEGLKVAQAQYQGRNEDGDVTRNERSIQKANGDGFGLSFNYQNIQGGSGVSFAGAYSSNRTEGQKQVSTTDEK

Error 21

Strain: Y. pestis CO92
Gene: YPO2171

Classification: expressed pseudogene (purU)
Boundaries of gene: complement (2442302..2443171)



Oligo evidence:

gacttattaatgaagagtgcttatggcttagatgtagaaattcggcagtcattggaacatgatg

Peptide evidence:

FDIPFHLVSHEGLTR
FPYQIINHHSFLPAFIGAR
TELEGIFNDTLLADLDDALPEGTNR

Proposed sequence (peptide evidence in red): 289aa

MPHQNVQKKVLRITICPDAKGLIAKITNICYKHQLNIVQNNFVDHLTGRFFMRTELEGIFNDTLLADLDDALPEGTNRRLHVAGRRRIIIMVTKEAHCLGDLMLKMSAYGGLDVEIAAVIGNHD
ALQNLVERFDIPFHLVSHEGLTREQHDQQLIEKIEQYQPDYVVLAKYMRVLTAFVQRFPYQIINHHSFLPAFIGARPYHQAYERGVIIGATAHYVNDLDEGPIIMQDVINVDHSYTAEDM
MRAGR DVEKNVLSSALYRSLIILCNCHRIKGRSGGHRTR

Strain: Y. pestis pestoides F
Gene: YPDSF_0963

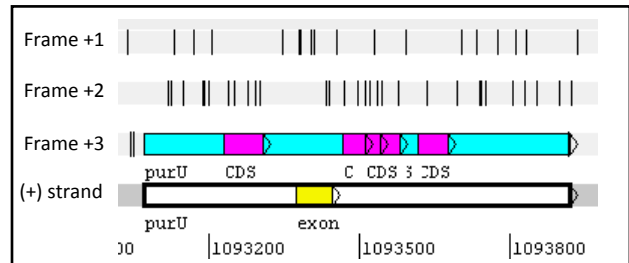
Classification: annotated as purU
Boundaries of gene: 1093071..1093919

Oligo evidence:

gacttattaatgaagagtgcttatggcttagatgtagaaattcggcagtcattggaacatgatg

Peptide evidence:

IEQYQPDYVVLAK
EQHDQQLIEK
FDIPFHLVSHEGLTR
FPYQIINHHSFLPAFIGAR
TELEGIFNDTLLADLDDALPEGTNR



Current sequence (peptide evidence in red): 282aa

MPHQNVQKKVLRITICPDAKGLIAKITNICYKHQLNIVQNNFVDHLTGRFFMRTELEGIFNDTLLADLDDALPEGTNRRLHVAGRRRIIIMVTKEAHCLGDLMLKMSAYGGLDVEIAAVIGNHD
ALQNLVERFDIPFHLVSHEGLTREQHDQQLIEKIEQYQPDYVVLAKYMRVLTAFVQRFPYQIINHHSFLPAFIGARPYHQAYERGVIIGATAHYVNDLDEGPIIMQDVINVDHSYTAEDM
MRAGR DVEKNVLSSALYRVLAQRVYVYGNRTVIL

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_2163

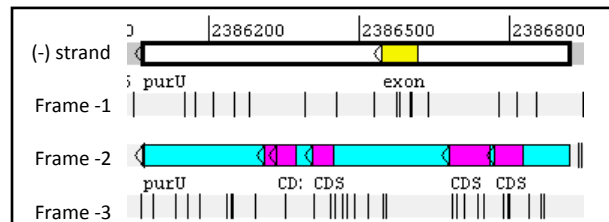
Classification: annotated as purU
Boundaries of gene: complement (2386069..2386917)

Oligo evidence:

gacttattaatgaagagtgcttatggcttagatgtagaaattcggcagtcattggaacatgatg

Peptide evidence:

FPYQIINHHSF
FPYQIINHHSFLPAFIGAR
HQLNIVQNNFVDHLTGR
IEQYQPDYVVLAK
TELEGIFNDTLLADLDDALPEGTNR



Current sequence (peptide evidence in red): 282aa

MPHQNVQKKVLRITICPDAKGLIAKITNICYKHQLNIVQNNFVDHLTGRFFMRTELEGIFNDTLLADLDDALPEGTNRRLHVAGRRRIIIMVTKEAHCLGDLMLKMSAYGGLDVEIAAVIGNHD
ALQNLVERFDIPFHLVSHEGLTREQHDQQLIEKIEQYQPDYVVLAKYMRVLTAFVQRFPYQIINHHSFLPAFIGARPYHQAYERGVIIGATAHYVNDLDEGPIIMQDVINVDHSYTAEDM
MRAGR DVEKNVLSSALYRVLAQRVYVYGNRTVIL

Error 22

Strain: *Y. pestis* CO92
Gene: YPO2249

Classification: expressed pseudogene
Boundaries of gene: Frame+1: 2524378..2526162
Frame+2: 2526215..2526436

Oligo evidence:

aacacgagtgatattattagcgagggaagtgtttcaacattaatcaggtgccgtaagtacttt
ataacacaaggcagtcaccgaactgccagcatgacgaattactgaattaaacggcagttacgctc

Peptide evidence:

QVIMDKVLVHHALTTLEVLIFILVIVGVYEVILKGLR

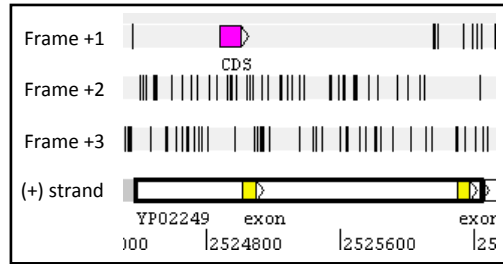
Proposed sequence (peptide evidence in red):

Frame+1: 594aa

MENHVHSALICASRLIRLAGLNPMDIETFSQKVAIDTSVKTTLASLQRYIVQFSQTASVRFKIRKQALEKIRQEQLPLAFDRDQGNFILLARMNEQQVLLQYADDKKPQMLSYSQSLADMWGG
MILCCSHSRFDIRWFIPPLRRHRKPLMQVLLSLLQLFALISPLFFQVIMDKVLVHHALTTLEVLIFILVIVGVYEVILKGLREYIFHTTTTRVDILLGGKLFQHLIRLPLSYFKQRHVGNIVARVRELD
NIRDFITGSALTLCDVVFTLVLFVIMWCISPLLLIILSTLPFYLLAVMTTRPLQKKVEALCGFAAQNGAFLTETVSGVETVKSALALEPRMRQRWESQTRDFAQANFQVQNLQNLSSQAAQLL
QKVAGALVIVIGAYHVMVSVLSIGQLIAFNMLALQALMPMSKLVLDWQQSIRAQVGLKLISDILSLPVEPADPAAPHPAISGNILLKNVAFRYRPDLPVLHDLNLSIRAGEHIGLVGPSGSG
KSTVARLLQRLYNTEQGVITIDGYPINHLSPEYLRQVGVVMQESYLFNRTVRENIAHSRPTATLTVVNAASLAGANAFILALRESPDLNF

Frame+2: 108aa

VLTPLFWRYANPRILIFDEATSALDDESQSEIQKNMARIANRTVITIAHRLSTVRHCHRIAVITQGRVTELASHDELLQNGSYARLWQQQVHFVNQNKSTLTKTSPL



Strain: *Y. pestis* pestoides F
Gene: YPDSF_0885 / YPDSF_0886

Classification: YPDSF_0885 annotated as RTX toxin ABC transporter ATP binding/permease subunits.
YPDSF_0886 annotated as hypothetical protein
Boundaries of gene: YPDSF_0886 Frame-2: complement(1010123..1011907)
YPDSF_0885 Frame-1: complement(1009849..1010175)

Oligo evidence:

aacacgagtgatattattagcgagggaagtgtttcaacattaatcaggtgccgtaagtacttt
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Peptide evidence:

NA

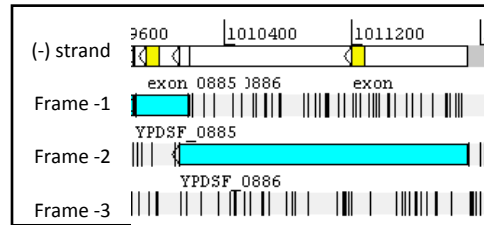
Current sequence (peptide evidence in red):

Frame-2: 594aa (YPDSF_0886)

MENHVHSALICASRLIRLAGLNPMDIETFSQKVAIDTSVKTTLASLQRYIVQFSQTASVRFKIRKQALEKIRQEQLPLAFDRDQGNFILLARMNEQQVLLQYADDKKPQMLSYSQSLADMWGG
MILCCSHSRFDIRWFIPPLRRHRKPLMQVLLSLLQLFALISPLFFQVIMDKVLVHHALTTLEVLIFILVIVGVYEVILKGLREYIFHTTTTRVDILLGGKLFQHLIRLPLSYFKQRHVGNIVARVRELD
NIRDFITGSALTLCDVVFTLVLFVIMWCISPLLLIILSTLPFYLLAVMTTRPLQKKVEALCGFAAQNGAFLTETVSGVETVKSALALEPRMRQRWESQTRDFAQANFQVQNLQNLSSQAAQLL
QKVAGALVIVIGAYHVMVSVLSIGQLIAFNMLALQALMPMSKLVLDWQQSIRAQVGLKLISDILSLPVEPADPAAPHPAISGNILLKNVAFRYRPDLPVLHDLNLSIRAGEHIGLVGPSGSG
KSTVARLLQRLYNTEQGVITIDGYPINHLSPEYLRQVGVVMQESYLFNRTVRENIAHSRPTATLTVVNAASLAGANAFILALRESPDLNF

Frame-1: 108aa (YPDSF_0885)

VLTPLFWRYANPRILIFDEATSALDDESQSEIQKNMARIANRTVITIAHRLSTVRHCHRIAVITQGRVTELASHDELLQNGSYARLWQQQVHFVNQNKSTLTKTSPL



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2239

Classification: type I secretion system ATPase
Boundaries of gene: 2465281..2467428

Oligo evidence:

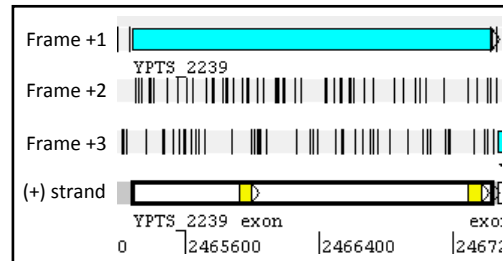
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ataacacaaggcagtcaccgaactgccagcatgacgaattactgaattaaacggcagttacgctc

Peptide evidence:

NA

Current sequence (peptide evidence in red): 715aa

MENHVHSALICASRLIRLAGLNPMDIETFSQKVAIDTSVKTTLASLQRYIVQFSQTASVRFKIRKQALEKIRQEQLPLAFDRDQGNFILLARMNEQQVLLQYADDKKPQMLSYSQSLADMWGG
MILCCSHSRFDIRWFIPPLRRHRKPLMQVLLSLLQLFALISPLFFQVIMDKVLVHHALTTLEVLIFILVIVGVYEVILKGLREYIFHTTTTRVDILLGGKLFQHLIRLPLSYFKQRHVGNIVARVRELD
NIRDFITGSALTLCDVVFTLVLFVIMWCISPLLLIILSTLPFYLLAVMTTRPLQKKVEALCGFAAQNGAFLTETVSGVETVKSALALEPRMRQRWESQTRDFAQANFQVQNLQNLSSQAAQLL
QKVAGALVIVIGAYHVMVSVLSIGQLIAFNMLALQALMPMSKLVLDWQQSIRAQVGLKLISDILSLPVEPADPAAPHPAISGNILLKNVAFRYRPDLPVLHDLNLSIRAGEHIGLVGPSGSG
KSTVARLLQRLYNTEQGVITIDGYPINHLSPEYLRQVGVVMQESYLFNRTVRENIAHSRPTATLTVVNAASLAGANAFILALPLGYDTVLSEGGSSSGGQRQRIARTLLANPRILIFDEATS
ALDDESQSEIQKNMARIANRTVITIAHRLSTVRHCHRIAVITQGRVTELASHDELLQNGSYARLWQQQVHFVNQNKSTLTKTSPP



Error 23

Strain: *Y. pestis* CO92
Gene: YPO2398

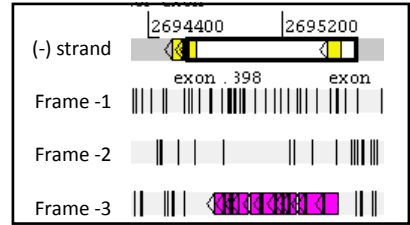
Classification: expressed pseudogene
Boundaries of gene: 2694609..2695628

Oligo evidence:

actgccgcccgctaatagtcgcttaattggcgaaaatacaacctttactgttccaatgatggtcgccct
gcctgtagcgtctcaggatgagcaacaggcacaggctgaagcactactgtcaacgacggatgaaaagtga

Peptide evidence:

DTPTMVTISISQK
EGIVINLAELR
GEYLHGTNADFGIGLR
IGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPR
IPNPTWPTANIR
KNYLAEGITLPSVVPAGPDNPMGQFALR
LIGENTTFTVPNDGRPLEAIAADYK
LRPDDIEALFNSVPK
LSAGRGEYLHGTNADFGIGLR
NYLAEGITLPSVVPAGPDNPMGQFALR
RYVEVHQPLSR
VSDDDPQTMPIAIGSGLQK
VIVYPIGIGQLGR
VQIINEPVK
YVEVHQPLSR



Proposed sequence (peptide evidence in red): 339aa

MKRALTLIGMLFATCLAGSLTAANANEYPLPPANSRLIGENTTFTVPNDGRPLEAIAADYKIGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPREGIVINLAELRLYYYPKGQNKVIVYPIGIGQLGRDPTMVTISISQKIPNPTWPTANIRKNYLAEGITLPSVVPAGPDNPMGQFALRLSAGRGEYLHGTNADFGIGLRVSSGCIRLRPDDIEALFNSVPKGTRVQIINEPVKYAVEPDGKRYVEVHQPLSRVSDDDPQTMPIAIGSGLQKFINDSQTDAKAVQDAIVRRSGMPTIVTVGEASTQQAPTVPASQDEQQAQAEALLSTTDEK

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0750

Classification: hypothetical protein
Boundaries of gene: 847913..848932

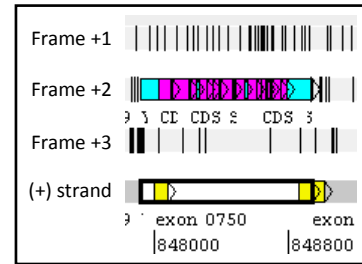
Oligo evidence:

actgccgcccgctaatagtcgcttaattggcgaaaatacaacctttactgttccaatgatggtcgccct
gcctgtagcgtctcaggatgagcaacaggcacaggctgaagcactactgtcaacgacggatgaaaagtga

Peptide evidence:

DTPTMVTISISQK
EGIVINLAELR
FINDSQTDAK
GEYLHGTNADFGIGLR
IGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPR
IPNPTWPTANIR
KNYLAEGITLPSVVPAGPDNPMGQFALR
LIGENTTFTVPNDGRPLEAIAADYK
LRPDDIEALFNSVPK
LSAGRGEYLHGTNADFGIGLR
NYLAEGITLPSVVPAGPDNPMGQFALR

RYVEVHQPLSR
VSDDDPQTMPIAIGSGLQK
VIVYPIGIGQLGR
VQIINEPVKYAVEPDGKR
YAVEPDGKR
YVEVHQPLSR



Current sequence (peptide evidence in red): 339aa

MKRALTLIGMLFATCLAGSLTAANANEYPLPPANSRLIGENTTFTVPNDGRPLEAIAADYKIGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPREGIVINLAELRLYYYPKGQNKVIVYPIGIGQLGRDPTMVTISISQKIPNPTWPTANIRKNYLAEGITLPSVVPAGPDNPMGQFALRLSAGRGEYLHGTNADFGIGLRVSSGCIRLRPDDIEALFNSVPKGTRVQIINEPVKYAVEPDGKRYVEVHQPLSRVSDDDPQTMPIAIGSGLQKFINDSQTDAKAVQDAIVRRSGMPTIVTVGEASTQQAPTVPASQDEQQAQAEALLSTTDEK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2382

Classification: ErfK/YbiS/YcfS/YnhG family protein
Boundaries of gene: complement (2641423..2642487)

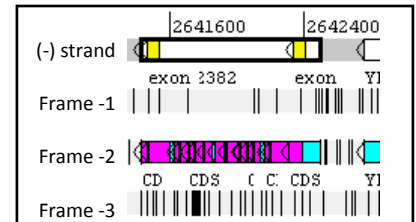
Oligo evidence:

gtctcaggatgagcaacaggcacaggctgaagcactacaaccgacagaagctcagtgatgcctaagctg
actgccgcccgctaatagtcgcttaattggcgaaaatacaacctttactgttccaatgatggtcgccct

Peptide evidence:

DTPTMVTISISQK
EGIVINLAELR
FINDSQTDAK
GEYLHGTNADFGIGLR
IGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPR
IPNPTWPTANIR
IPNPTWPTANIRK
KNYLAEGITLPSVVPAGPDNPMGQFALR
LIGENTTFTVPNDGRPLEAIAADYK
LRPDDIEALFNSVPK
LSAGRGEYLHGTNADFGIGLR
LVQPGPVYSENN
NYLAEGITLPSVVPAGPDNPMGQFALR

RYVEVHQPLSR
SGMPTIVTVGEASTQQAPTVPASQDEQQAQAEALQPTESVMPK
VSDDDPQTMPIAIGSGLQK
VIVYPIGIGQLGR
VQIINEPVKYAVEPDGKR
YLAEGITLPSVVPAGPDNPMGQFALR
YVEVHQPLSR



Current sequence (peptide evidence in red): 354aa

MKRALTLIGMLFATCLAGSLTAANANEYPLPPANSRLIGENTTFTVPNDGRPLEAIAADYKIGLLGMLEANPGTDPYLPLPGSVLTIPNQMLLPDTPREGIVINLAELRLYYYPKGQNKVIVYPIGIGQLGRDPTMVTISISQKIPNPTWPTANIRKNYLAEGITLPSVVPAGPDNPMGQFALRLSAGRGEYLHGTNADFGIGLRVSSGCIRLRPDDIEALFNSVPKGTRVQIINEPVKYAVEPDGKRYVEVHQPLSRVSDDDPQTMPIAIGSGLQKFINDSQTDAKAVQDAIVRRSGMPTIVTVGEASTQQAPTVPASQDEQQAQAEALQPTESVMPKLVQPGPVYSENN

Error 24

Strain: *Y. pestis* CO92
Gene: YPO2412

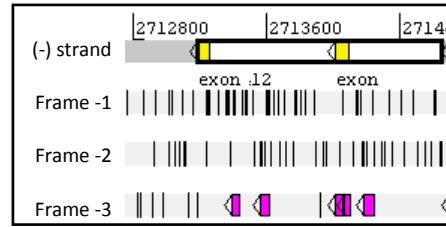
Classification: expressed pseudogene
Boundaries of gene: complement (2713182..2714645)

Oligo evidence:

tttcagcatttctactatcggcagcaacctaaagcaagtcaacaattagcggattatgttattgccgc
ctgaatttgatgatttagcggcgttaccgccagattggggaaaaacacctcgagatctctgttccagctg

Peptide evidence:

DSQDNDLLTGLLSLMIK
LQQESIDDDQR
EFLASEALHHLGIPTSR
FGHFEHFYR
QVQQLADYVIAR



Proposed sequence (peptide evidence in red): 487aa

MKPRMEYAPEFDNSYARQLSGFYTRLQPTPLKGARLLYHKSPLAQELGLDAHWFTEPKTAVWAGEALLPGMEPLAQVYSGHQFGMWAGQLGDGRGILLGEQRLNDGRYMDWHLKGAG
LTPYSRMGDGRAVLRVIREFLASEALHHLGIPTSRALTIIVTSDHPIYREQTERGAMLLRVAESHIRFGHFEHFYRQQPKQVQQLADYVIARHWPQVWGHQECYRLWFTDVVERTARLMA
HW#TVGFAHGVMMNTDNMSILGITMDYGPFGFLDDYVPGYICNHSDHQGRYAYDNQPAVALWNLHRLGHALSGLMSADQLQALEAYEPALMVAYGEQMRRAKLGFLERDSQDNDLLTG
LLSLMIKEGRDYTRFRLLSEVEVHSAQSPLRDDFIDRAAFDDWYRRYRSRLQQESIDDDQRQQSMKAANPKYILRNYLAQQAITQAEKDDIQPLRHLQALQQPFTDQPEFDDLAALPPD
WGHKLEISCS

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0737

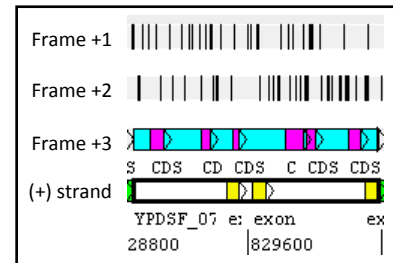
Classification: annotated as hypothetical protein
Boundaries of gene: 828912..830375

Oligo evidence:

tttcagcatttctactatcggcagcaacctaaagcaagtcaacaattagcggattatgttattgccgc
gcaaacctcgggtttgctcatgggtgatgaataccgataatgtcaattctggcattactatggat
ctgaatttgatgatttagcggcgttaccgccagattggggaaaaacacctcgagatctctgttccagctg

Peptide evidence:

DSQDNDLLTGLLSLMIK
EFLASEALHHLGIPTSR
LGHALSGLMSADQLQALEAYEPALMVAYGEQMR
LLYHKSPLAQELGLDAHWFTEPK
NYLAQQAITQAEKDDIQPLR
QVQQLADYVIAR



Current sequence (peptide evidence in red): 487aa

MKPRMEYAPEFDNSYARQLSGFYTRLQPTPLKGARLLYHKSPLAQELGLDAHWFTEPKTAVWAGEALLPGMEPLAQVYSGHQFGMWAGQLGDGRGILLGEQRLNDGRYMDWHLKGAG
LTPYSRMGDGRAVLRVIREFLASEALHHLGIPTSRALTIIVTSDHPIYREQTERGAMLLRVAESHIRFGHFEHFYRQQPKQVQQLADYVIARHWPQVWGHQECYRLWFTDVVERTARLMA
HWQTVGFAHGVMMNTDNMSILGITMDYGPFGFLDDYVPGYICNHSDHQGRYAYDNQPAVALWNLHRLGHALSGLMSADQLQALEAYEPALMVAYGEQMRRAKLGFLERDSQDNDLLT
GLLSLMIKEGRDYTRFRLLSEVEVHSAQSPLRDDFIDRAAFDDWYRRYRSRLQQESIDDDQRQQSMKAANPKYILRNYLAQQAITQAEKDDIQPLRHLQALQQPFTDQPEFDDLAALPPD
WGHKLEISCS

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2396

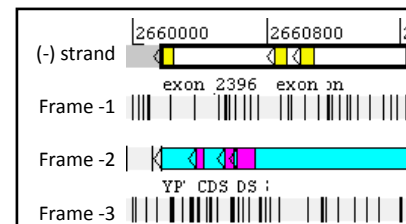
Classification: annotated as hypothetical protein
Boundaries of gene: complement (2660170..2661633)

Oligo evidence:

tttcagcatttctactatcggcagcaacctaaagcaagtcaacaattagcggattatgttattgccgc
gcaaacctcgggtttgctcatgggtgatgaataccgataatgtcaattctggcattactatggat
ctgaatttgatgatttagcggcgttaccgccagattggggaaaaacacctcgagatctctgttccagctg

Peptide evidence:

DSQDNDLLTGLLSLMIK
LGHALSGLMSADQLQALEAYEPALMVAYGEQMR
LQQESIDDDQR



Current sequence (peptide evidence in red): 487aa

MKPRMEYAPEFDNSYARQLSGFYTRLQPTPLKGARLLYHKSPLAQELGLDAHWFTEPKTAVWAGEALLPGMEPLAQVYSGHQFGMWAGQLGDGRGILLGEQRLNDGRYMDWHLKGAG
LTPYSRMGDGRAVLRVIREFLASEALHHLGIPTSRALTIIVTSDHPIYREQTERGAMLLRVAESHIRFGHFEHFYRQQPKQVQQLADYVIARHWPQVWGHQECYRLWFTDVVERTARLMA
HWQTVGFAHGVMMNTDNMSILGITMDYGPFGFLDDYVPGYICNHSDHQGRYAYDNQPAVALWNLHRLGHALSGLMSADQLQALEAYEPALMVAYGEQMRRAKLGFLERDSQDNDLLT
GLLSLMIKEGRDYTRFRLLSEVEVHSAQSPLRDDFIDRAAFDDWYRRYRSRLQQESIDDDQRQQSMKAANPKYILRNYLAQQAITQAEKDDIQPLRHLQALQQPFTDQPEFDDLAALPPD
WGHKLEISCS

Error 25

Strain: *Y. pestis* CO92
Gene: YPO2570

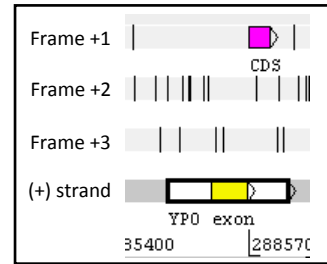
Classification: expressed pseudogene
Boundaries of gene: 288536..2885790

Oligo evidence:

gtcagtgctgaagtcgatcatgttgacctcggttccgcaaaaggtacgccaagcgatatctttatcgta

Peptide evidence:

DIAEQLVAQAVGGK



Proposed sequence (peptide evidence in red): 84aa

MKITVVCNGNLGTSLMMEISIKSILKELAVSAEVDHVDLGSAGKTPSDIFIGTKDIAEQLVAQAVGGKIVALDNMIDKKARACP

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1977

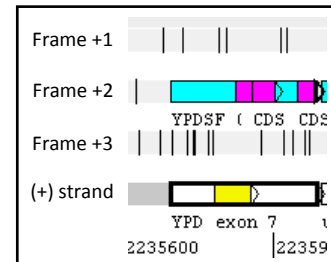
Classification: hypothetical protein
Boundaries of gene: 2235695..2235982

Oligo evidence:

gtcagtgctgaagtcgatcatgttgacctcggttccgcaaaaggtacgccaagcgatatctttatcgta

Peptide evidence:

DIAEQLVAQAVGGK
GTPSDIFIGTKDIAEQLVAQAVGGK
LSAALTELGAL



Current sequence (peptide evidence in red): 95aa

MKITVVCNGNLGTSLMMEISIKSILKELAVSAEVDHVDLGSAGKTPSDIFIGTKDIAEQLVAQAVGGKIVALDNMIDKKAMKERLSAALTELGAL

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2695

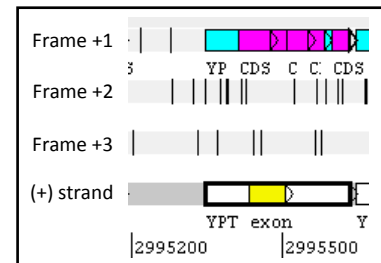
Classification: phosphotransferase system lactose/cellobiose-specific IIB subunit
Boundaries of gene: 2995345..2995632

Oligo evidence:

gtcagtgctgaagtcgatcatgttgacctcggttccgcaaaaggtacgccaagcgatatctttatcgta

Peptide evidence:

DIAEQLVAQAVGGK
GTPSDIFIGTKDIAEQLVAQAVGGK
IVALDNMIDKK
LSAALTELGAL
SILKELAVSAEVDHVDLGSAGK



Current sequence (peptide evidence in red): 95aa

MKITVVCNGNLGTSLMMEISIKSILKELAVSAEVDHVDLGSAGKTPSDIFIGTKDIAEQLVAQAVGGKIVALDNMIDKKAMKERLSAALTELGAL

Error 26

Strain: Y. pestis CO92
Gene: YPO2644

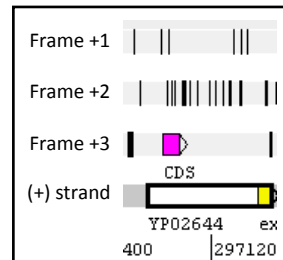
Classification: expressed pseudogene
Boundaries of gene: 2970789..2971556

Oligo evidence:

gggtggtgttcgcgctcaagagattgaggagcattgggttaaacatcaccctttgaaggtatcaat

Peptide evidence:

VFGVAMALERNPLIVEAIKCAGYDVVCHGWR



Proposed sequence (peptide evidence in red): 255aa

VWITIAPFVTHMSMESLYEGTRAGFWRIHQEFVSRGLPMT**VFGVAMALERNPLIVEAIKCAGYDVVCHGWR**WLHYQHVDQTEREHMQRAIKILHDLFGQPPAGWYTGRDSPNTRRLV
VENGHLLYDSDYYGDDLFWFSQVRGVDGSTTPHLVVPYTLDANDMRFASAQGFNSSEQFYTYLKDSFDVLYAEGETAPKMMMSVGMHCRLLGRPGRFRALQRFLDYIQQHERVWVCRQEQ
IAEHVWKHHPFEGINGR

Strain: Y. pestis pestoides F
Gene: YPDSF_1628

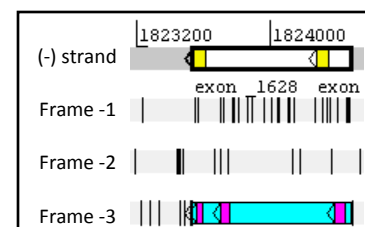
Classification: annotated as hypothetical protein
Boundaries of gene: complement (1823526..1824476)

Oligo evidence:

aaataacgttctacatggcggatgctgaacaattcttccgatattatcggtgagcagttat
gggtggtgttcgcgctcaagagattgaggagcattgggttaaacatcaccctttgaaggtatcaat

Peptide evidence:

DSFDVLYAEGETAPK
DLAGYGGQPPVANWPGQAR
RQEIAEHVVK



Current sequence (peptide evidence in red): 316aa

MHETELNHDIYPR**DLAGYGGQPPVANWPGQAR**IAVQFVLNIEEGAENNVLHGDAGSEQFLSDIIGADSYDRHMSMESLYEGTRAGFWRIHQEFVSRGLPMTVFGVAMALERNPLIVEAI
KCAGYDVVCHGWRWLHYQHVDQTEREHMQRAIKILHDLFGQPPAGWYTGRDSPNTRRLVVENGHLLYDSDYYGDDLFWFSQVRGVDGSTTPHLVVPYTLDANDMRFASAQGFNSSE
QFYTYLK**DSFDVLYAEGETAPK**MMSVGMHCRLLGRPGRFRALQRFLDYIQQHERVWVCR**RQEIAEHVVK**HHPFEGINGR

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_3080

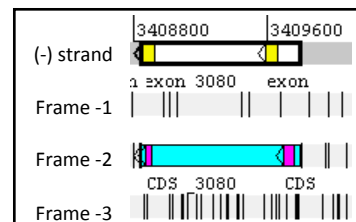
Classification: annotated as urate catabolism protein
Boundaries of gene: complement (3408841..3409791)

Oligo evidence:

aaataacgttctacatggcggatgctgaacaattcttccgatattatcggtgagcagttat
gggtggtgttcgcgctcaagagattgaggagcattgggttaaacatcaccctttgaaggtatcaat

Peptide evidence:

DLAGYGGQPPVANWPGQAR
RQEIAEHVVK



Current sequence (peptide evidence in red): 316aa

MHETELNHDIYPR**DLAGYGGQPPVANWPGQAR**IAVQFVLNIEEGAENNVLHGDAGSEQFLSDIIGADSYDRHMSMESLYEGTRAGFWRIHQEFVSRGLPMTVFGVAMALERNPLIVEAI
KCAGYDVVCHGWRWLHYQHVDQTEREHMQRAIKILHDLFGQPPAGWYTGRDSPNTRRLVVENGHLLYDSDYYGDDLFWFSQVRGVDGSTTPHLVVPYTLDANDMRFASAQGFNSSE
QFYTYLK**DSFDVLYAEGETAPK**MMSVGMHCRLLGRPGRFRALQRFLDYIQQHERVWVCR**RQEIAEHVVK**HHPFEGINGR

Error 27

Strain: *Y. pestis* CO92
Gene: YPO2698

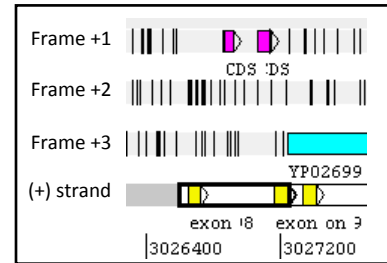
Classification: expressed pseudogene
Boundaries of gene: 3026599..3027255

Oligo evidence:

ttagaaccaccggtaacattagccagccagcaacggattggggcttagctgatcgctaattcatcatg
tgttaatccagtggcgatgccaccgacctattgcgacctggggataatgtgccttctgccgctaaa

Peptide evidence:

DITIPVMYGGEVGPLADVAR
LVVAPGSVIGGSQTGIYPLATPGGW
PVMYGGEVGPLADVAR



Proposed sequence (peptide evidence in red): 218aa

VQRARCYLLGESAVVLELEPPVTLASQRIWGLADRLIHHADILEVIPGMNNLTLLLADPHNTALDAIERLQRWWEESLIPESRDITIPVMYGGEVGPLADVARHTGM SERQVVECHAG
ARYIVYFLGFQPGFSYLGGMPEQLATPRRADPRLVVAPGSVIGGSQTGIYPLATPGGW+LIGRTSLALFNPVAMPPTLLRPGDNVRFPLKEGVC

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1573

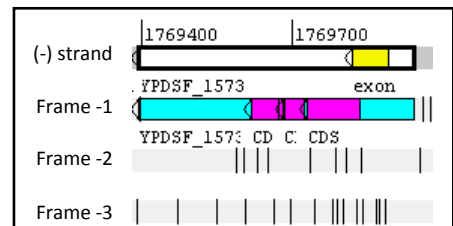
Classification: hypothetical protein
Boundaries of gene: complement (1769395..1769940)

Oligo evidence:

ttagaaccaccggtaacattagccagccagcaacggattggggcttagctgatcgctaattcatcatg

Peptide evidence:

DITIPVMYGGEVGPLADVAR
LIHHADILEVIPGMNNLTLLLADPHNTALDAIER
PVMYGGEVGPLADVAR
WWEESLIPESR



Current sequence (peptide evidence in red): 181aa

VQRARCYLLGESAVVLELEPPVTLASQRIWGLADRLIHHADILEVIPGMNNLTLLLADPHNTALDAIERLQRWWEESLIPESRDITIPVMYGGEVGPLADVARHTGM SERQVVECHAG
ARYIVYFLGFQPGFSYLGGMPEQLATPRRADPRLVVAPGSVIGGSQTGIYPLATPGGW

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3023

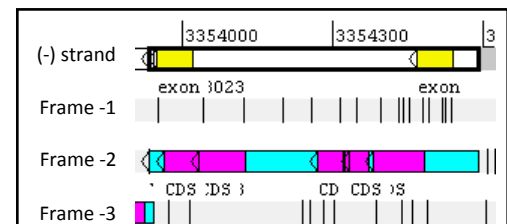
Classification: allophanate hydrolase subunit 1
Boundaries of gene: complement (3353932..3354588)

Oligo evidence:

tgttaatccagtggcgatgccaccgacctattgcgacctggggataatgtgccttctgccgctaaa
ttagaaccaccggtaacattagccagccagcaacggattggggcttagctgatcgctaattcatcatg

Peptide evidence:

DITIPVMYGGEVGPLADVAR
IPVMYGGEVGPLADVAR
LIHHADILEVIPGMNNLTLLLADPHNTALDAIER
LVVAPGSVIGGSQTGIYPLATPGGWQLIGR
PVMYGGEVGPLADVAR
TSLALFNPVAMPPTLLRPGDNVR
WWEESLIPESR



Current sequence (peptide evidence in red): 218aa

VQRARCYLLGESAVVLELEPPVTLASQRIWGLADRLIHHADILEVIPGMNNLTLLLADPHNTALDAIERLQRWWEESLIPESRDITIPVMYGGEVGPLADVARHTGM SERQVVECHAG
ARYIVYFLGFQPGFSYLGGMPEQLATPRRADPRLVVAPGSVIGGSQTGIYPLATPGGWQLIGRTSLALFNPVAMPPTLLRPGDNVRFPLKEGVC

Error 28

Strain: Y. pestis CO92
Gene: YPO2909

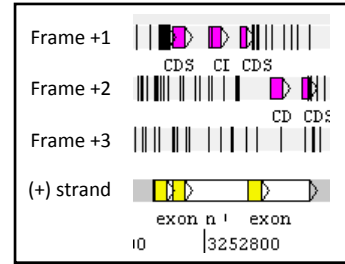
Classification: expressed pseudogene
Boundaries of gene: Frame+1: 3252487..3253062
Frame+2:3253064..3253420

Oligo evidence:

acataaggctagatcggttacatcatgagtaaaagattcataaaaaagaagggttagcattagtctctat
ttaaaactattgatgatctatcaggtgatttggatttcagtcggttgattcaacacgccttgaaggt
aaaaatccgcccgggtgggttggactcagttcacctgatcaatgtttattgactgaaattaagtttggc

Peptide evidence:

EGLALVSMAR
EGLASGLKEQFTLLPLYFAHMR
EQFTLLPLYFAHMR
GSYVDGHQLIFR
TIDDLSGDFGISVGVQIHALK
AVQSGIVEPR
GDIDAVIWNQEIVPSEYLQSIK



Proposed sequence (peptide evidence in red):

Frame+1: 192aa

MPGNIRLDRIYIMSKRFIKK**EGLALVSMARYLIGERSGNRLKTIDDLSGDFGISVGVQIHALK**VLEADGAIVVERRRNGTRLLDLNMTLLLQADLGNMVCAMPLPYTKLY**EGLASGLKEQFTLLPLYFAHMR**GAEVRIECLIDGVYDMAVVSHLAAKNYLKQEKVTLALNLGR**GSYVDGHQLIFRR**GEQKK

Frame+2: 118aa

IRRVGFDSRSPDQCLLTEIKFAGQPIERVELSYSNCIPHILIR**GDIDAVIWNQEIVPSEYLQSIK**LQGDERYIQASQAVILIRPDNYPIKLLLERGINQTQLLRHQR**AVQSGIVEPRY**

Strain: Y. pestis pestoides F
Gene: YPDSF_2255

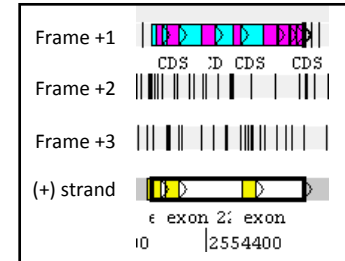
Classification: hypothetical protein
Boundaries of gene: 2554072..2554971

Oligo evidence:

acataaggctagatcggttacatcatgagtaaaagattcataaaaaagaagggttagcattagtctctat
ttaaaactattgatgatctatcaggtgatttggatttcagtcggttgattcaacacgccttgaaggt
aaaaatccgcccgggtgggttggactcagttcacctgatcaatgtttattgactgaaattaagtttggc

Peptide evidence:

EGLALVSMAR
LYEGLASGLKEQFTLLPLYFAHMR
TIDDLSGDFGISVGVQIHALK
AVQSGIVEPR
GDIDAVIWNQEIVPSEYLQSIK
GINQTQLLR
GSYVDGHQLIFR
YIQASQAVILIRPDNYPIK



Current sequence (peptide evidence in red): 299aa

MSKRFIKK**EGLALVSMARYLIGERSGNRLKTIDDLSGDFGISVGVQIHALK**VLEADGAIVVERRRNGTRLLDLNMTLLLQADLGNMVCAMPLPYTKLY**EGLASGLKEQFTLLPLYFAHMR**GAEVRIECLIDGVYDMAVVSHLAAKNYLKQEKVTLALNLGR**GSYVDGHQLIFRR**GEQKKIRRVGFDSRSPDQCLLTEIKFAGQPIERVELSYSNCIPHILIR**GDIDAVIWNQEIVPSEYLQSIK**LQGDERYIQASQAVILIRPDNYPIKLLLERGINQTQLLRHQR**AVQSGIVEPRY**

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_2980

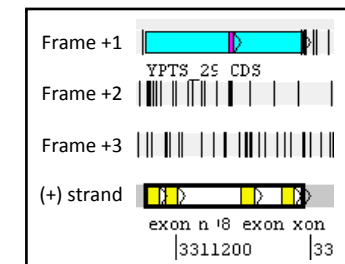
Classification: hypothetical protein
Boundaries of gene: 3311014..3311946

Oligo evidence:

acataaggctagatcggttacatcatgagtaaaagattcataaaaaagaagggttagcattagtctctat
ttaaaactattgatgatctatcaggtgatttggatttcagtcggttgattcaacacgccttgaaggt
aaaaatccgcccgggtgggttggactcagttcacctgatcaatgtttattgactgaaattaagtttggc
tatcttatcccccagataactatccgatcaagctactgctggaagaggcattaaccaaacacagttta

Peptide evidence:

VTLALNLGR



Current sequence (peptide evidence in red): 310aa

LPGNIRLDRIYIMSKRFIKKEGLALVSMARYLIGERSGNRLKTIDDLSGDFGISVGVQIHALKLEADGAIVVERRRNGTRLLDLNMTLLLQADLGNMVCAMPLPYTKLYEGLASGLKEQFTLLPLYFAHMRGAEVRIECLIDGVYDMAVVSHLAAKNYLKQEK**VTLALNLGR**GSYVDGHQLIFRRGEQKKIRRVGFDSRSPDQCLLTEIKFAGQPIERVELSYSNCIPHILIRGDIDAVIWNQEIVPSEYLQSIKLGQDERYIQASQAVILIRPDNYPIKLLLERGINQTQLLRHQR**AVQSGIVEPRY**

Error 29

Strain: *Y. pestis* CO92
Gene: YPO3207

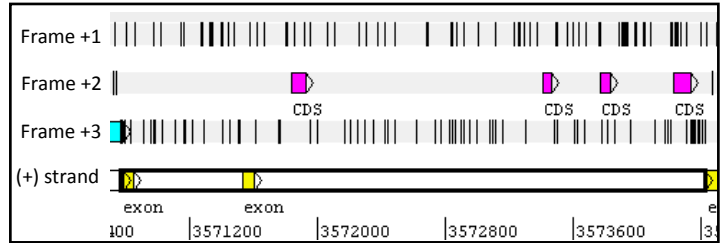
Classification: expressed pseudogene
Boundaries of gene: 3570770..3574477

Oligo evidence:

aacacaacacgtacagcaatatcagcagcaacagggtcgttggagcaagatgtaacagcactacc
aatttgagcctactgtgaaaaacattaactcattacagggcgaatggaagatagatttactgcccga

Peptide evidence:

IVPLDNLITQQQQLSGLAGQIQQLR
LQQQAELAQQNAEK
SSELTLLQQQSEQLLAQLK
TSIDSLFLDEGFGTLDAETLDTALDALDSLNASGK



Proposed sequence (peptide evidence in red): 1235aa

MKILSLRLKNINSLQGEWKIDFTAEPFASNGLFAITGPTGAGKTTLLDAICLALYHQTPRLIVTPSQNELMTRHTAESLAEVEFDVKGIRYRAFVWSQRRARNSPDGNLQAPKVELALCENKILADKVRDKLDMIAAITGLDF
GRFTKSMMLSSGQFAAFNLADANDRAELLELEFGTDIYGRSLSERVFEKHKQAKIDLDALHQRASGIELLNEEQRLALAQIDALSQQEQQLSKEQLVTVNQINWLTGWQQQQHVQQYQQQQLVVEQEYQALPG
LQRLARSEPAEKLRPLQRERDRSQKDLQQTQRITALAQQQQYLAQLTPTLQAVEQATAARQQQLNQHEQETLIEQRIVPLDNLITQQQQLSGLAGQIQQLRAKEQQNSQQLALNEQKLLQTHQRLQQLADYA
NLHAHHQHWEKHLPLWHEQFRQLLQQQQAQSEQLHQQTLLATLQQQATTLSAQEKQQQVALAEARAQASYLQKLLVLEQQQPSAQLRQQLNEFNEQRQICQLAALSPLAQIQALYDKQQQFFAQ
QQQLKQLEQLTEKRQLYQQQKQHLVDEALLEREKQIVTLEAERAKLQPGDACPLCGAVEHPAITAYQAVKPSSETAVRVAKLRLQVEQLYETGTELRTQVASMQQHQQRIEQELQDHRQQLAAYQQRWQTLAQPL
SLAFTLNEPDALALWLEQHEQQEQACQLKLYEYERLTQQYQQAQKIDLTQLEQRQEQHQQLALITERQKNAQQTYQLQSQYHQQEAALIAQQQVNLHHTLTELSSLVDPADQQQDWLAQREEECQRWQQHQQE
QQRLTIEQKLTLETRIENRRHLQECIDQLSALSQRQQAETLLQQQIQQRALFGEDIVAERVQRRLRQQQAELAQQNAEKALQQQAQSNLRLSGELTGLEQQCQQYQQRATTTQAEELQALSTSEFADETALTAAL
LSEERQHLQQLQQLNERRRQAQIRLQQAAREILDQHLQPCQGVGDKSSELTLLQQQSEQLLAQLKTTTLRQGLERNQLESDDTRRRHNQRTLFEQIERSQQQYDDWSYLNQLIGSKEGDKFRKFAQGLTLDHLVYLAN
NQLSRLHGRYLLQRKTTDALELQVVDTWQADAIRDTRTSLGGESFLVSLALALALSDLVSHKTSIDSLFLDEGFGTLDAETLDTALDALDSLNASGKTIGVISHVEAMKDRIPVQIKVKKVNGLVGVCRRMKSPLSPPTA
QY

Strain: *Y. pestis* pestoides F
Gene: YPDSF_2840

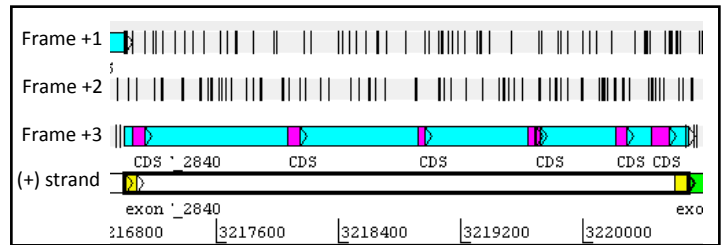
Classification: hypothetical protein
Boundaries of gene: 3216993..3220682

Oligo evidence:

aatttgagcctactgtgaaaaacattaactcattacagggcgaatggaagatagatttactgcccga
cagataaaagtgaaaaaagttaacgggttagcgctagcggcttggataatgcctccgagtcactcaag

Peptide evidence:

ALQQAQSQLNR
IDFTAEPFASNGLFAITGPTGAGK
IVPLDNLITQQQQLSGLAGQIQQLR
KFAQGLTLDHLVYLANQLSR
LQQQAELAQQNAEK
TQVASMQQHQQR
TSIDSLFLDEGFGTLDAETLDTALDALDSLNASGK



Current sequence (peptide evidence in red): 1229aa

MKILSLRLKNINSLQGEWKIDFTAEPFASNGLFAITGPTGAGKTTLLDAICLALYHQTPRLIVTPSQNELMTRHTAESLAEVEFDVKGIRYRAFVWSQRRARNSPDGNLQAPKVELALCENKILADKVRDKLDMIAAITGLDF
GRFTKSMMLSSGQFAAFNLADANDRAELLELEFGTDIYGRSLSERVFEKHKQAKIDLDALHQRASGIELLNEEQRLALAQIDALSQQEQQLSKEQLVTVNQINWLTGWQQQQHVQQYQQQQLVVEQEYQALPG
LQRLARSEPAEKLRPLQRERDRSQKDLQQTQRITALAQQQQYLAQLTPTLQAVEQATAARQQQLNQHEQETLIEQRIVPLDNLITQQQQLSGLAGQIQQLRAKEQQNSQQLALNEQKLLQTHQRLQQLADYA
NLHAHHQHWEKHLPLWHEQFRQLLQQQQAQSEQLHQQTLLATLQQQATTLSAQEKQQQVALAEARAQASYLQKLLVLEQQQPSAQLRQQLNEFNEQRQICQLAALSPLAQIQALYDKQQQFFAQ
QQQLKQLEQLTEKRQLYQQQKQHLVDEALLEREKQIVTLEAERAKLQPGDACPLCGAVEHPAITAYQAVKPSSETAVRVAKLRLQVEQLYETGTELRTQVASMQQHQQRIEQELQDHRQQLAAYQQRWQTLAQPL
SLAFTLNEPDALALWLEQHEQQEQACQLKLYEYERLTQQYQQAQKIDLTQLEQRQEQHQQLALITERQKNAQQTYQLQSQYHQQEAALIAQQQVNLHHTLTELSSLVDPADQQQDWLAQREEECQRWQQHQQE
QQRLTIEQKLTLETRIENRRHLQECIDQLSALSQRQQAETLLQQQIQQRALFGEDIVAERVQRRLRQQQAELAQQNAEKALQQQAQSNLRLSGELTGLEQQCQQYQQRATTTQAEELQALSTSEFADETALTAAL
LSEERQHLQQLQQLNERRRQAQIRLQQAAREILDQHLQPCQGVGDKSSELTLLQQQSEQLLAQLKTTTLRQGLERNQLESDDTRRRHNQRTLFEQIERSQQQYDDWSYLNQLIGSKEGDKFRKFAQGLTLDHLVYLAN
NQLSRLHGRYLLQRKTTDALELQVVDTWQADAIRDTRTSLGGESFLVSLALALALSDLVSHKTSIDSLFLDEGFGTLDAETLDTALDALDSLNASGKTIGVISHVEAMKDRIPVQIKVKKVNGLVGVRDLNFRVNDQ

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0956

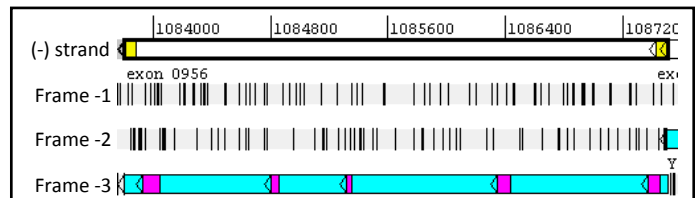
Classification: SMC domain-containing protein
Boundaries of gene: complement (1083806..1087495)

Oligo evidence:

cagataaaagtgaaaaaagttaacgggttagcgctagcggcttggataatgcctccgagtcactcaag
aatttgagcctactgtgaaaaacattaactcattacagggcgaatggaagatagatttactgcccga

Peptide evidence:

IDFTAEPFASNGLFAITGPTGAGK
IVPLDNLITQQQQLSGLAGQIQQLR
LQQQAELAQQNAEK
LTQQYQQAQK
TSIDSLFLDEGFGTLDAETLDTALDALDSLNASGK



Current sequence (peptide evidence in red): 1229aa

MKILSLRLKNINSLQGEWKIDFTAEPFASNGLFAITGPTGAGKTTLLDAICLALYHQTPRLIVTPSQNELMTRHTAESLAEVEFDVKGIRYRAFVWSQRRARNSPDGNLQAPKVELALCENKILADKVRDKLDMIAAITGLDF
GRFTKSMMLSSGQFAAFNLADANDRAELLELEFGTDIYGRSLSERVFEKHKQAKIDLDALHQRASGIELLNEEQRLALAQIDALSQQEQQLSKEQLVTVNQINWLTGWQQQQHVQQYQQQQLVVEQEYQALPG
LQRLARSEPAEKLRPLQRERDRSQKDLQQTQRITALAQQQQYLAQLTPTLQAVEQATAARQQQLNQHEQETLIEQRIVPLDNLITQQQQLSGLAGQIQQLRAKEQQNSQQLALNEQKLLQTHQRLQQLADYA
NLHAHHQHWEKHLPLWHEQFRQLLQQQQAQSEQLHQQTLLATLQQQATTLSAQEKQQQVALAEARAQASYLQKLLVLEQQQPSAQLRQQLNEFNEQRQICQLAALSPLAQIQALYDKQQQFFAQ
QQQLKQLEQLTEKRQLYQQQKQHLVDEALLEREKQIVTLEAERAKLQPGDACPLCGAVEHPAITAYQAVKPSSETAVRVAKLRLQVEQLYETGTELRTQVASMQQHQQRIEQELQDHRQQLAAYQQRWQTLAQPL
SLAFTLNEPDALALWLEQHEQQEQACQLKLYEYERLTQQYQQAQKIDLTQLEQRQEQHQQLALITERQKNAQQTYQLQSQYHQQEAALIAQQQVNLHHTLTELSSLVDPADQQQDWLAQREEECQRWQQHQQE
QQRLTIEQKLTLETRIENRRHLQECIDQLSALSQRQQAETLLQQQIQQRALFGEDIVAERVQRRLRQQQAELAQQNAEKALQQQAQSNLRLSGELTGLEQQCQQYQQRATTTQAEELQALSTSEFADETALTAAL
LSEERQHLQQLQQLNERRRQAQIRLQQAAREILDQHLQPCQGVGDKSSELTLLQQQSEQLLAQLKTTTLRQGLERNQLESDDTRRRHNQRTLFEQIERSQQQYDDWSYLNQLIGSKEGDKFRKFAQGLTLDHLVYLAN
NQLSRLHGRYLLQRKTTDALELQVVDTWQADAIRDTRTSLGGESFLVSLALALALSDLVSHKTSIDSLFLDEGFGTLDAETLDTALDALDSLNASGKTIGVISHVEAMKDRIPVQIKVKKVNGLVGVRDLNFRVNDQ

Error 30

Strain: Y. pestis CO92

Gene: YPO3370

Oligo evidence:

gtggagggtattgagcgttataacaacctcaataaagtgaaccaatgaatcggcgctggagcgtttag
aatcccaagtttatcaatacctcacacaacatggcctgagttatcaccactgtgggaacaaggttatt

Peptide evidence:

QRPDIPVILTDGTGYLFPETYR
YNNLNKVEPMNR

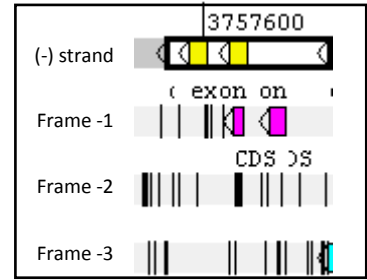
Proposed sequence (peptide evidence in red):

Frame-1: 154aa

VSQFNLSLNLALPKAKQAAALVLVNGQLEHLTAQERVSWALDNLPGFEVLSSSFQIAAVCLHLVTR**QRPDIPVILTDGTGYLFPETYR**FIDDLTEKLQNLQVFRAAHSPAWQEARYGKLWEQ
GVEGIER**YNNLNKVEPMNR**RALEALGAQTWFA

Frame-3: 90aa

GLRREQSGGRSQLPVLALQRGIFKLLPIIDWDRQVYQYLTHGLSYHPLWEQGYLSVGDTHTRKWEPGMSEETRRFFGLKRECLHEG



Strain: Y. pestis pestoides F

Gene: YPDSF_2989 / YPDSF_2990

Oligo evidence:

gtggagggtattgagcgttataacaacctcaataaagtgaaccaatgaatcggcgctggagcgtttag
aatcccaagtttatcaatacctcacacaacatggcctgagttatcaccactgtgggaacaaggttatt

Peptide evidence:

AAHSPAWQEAR
QRPDIPVILTDGTGYLFPETYR
KWEPGMSEETR
QVYQYLTHGLSYHPLWEQGYLSVGDTHTR

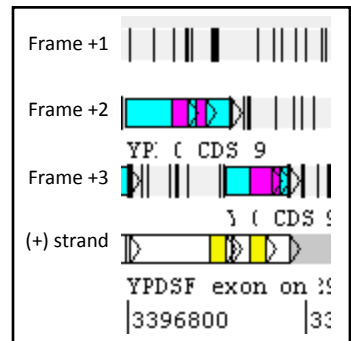
Current sequence (peptide evidence in red):

Frame2: 154aa

VSQFNLSLNLALPKAKQAAALVLVNGQLEHLTAQERVSWALDNLPGFEVLSSSFQIAAVCLHLVTR**QRPDIPVILTDGTGYLFPETYR**FIDDLTEKLQNLQVFR**AAHSPAWQEAR**YGKLWEQ
GVEGIER**YNNLNKVEPMNR**RALEALGAQTWFA

Frame3: 90aa

GLRREQSGGRSQLPVLALQRGIFKLLPIIDWDRQVYQYLTHGLSYHPLWEQGYLSVGDTHTRKWEPGMSEETRRFFGLKRECLHEG



Strain: Y. pseudotuberculosis PB1/+

Gene: YPTS_0794

Oligo evidence:

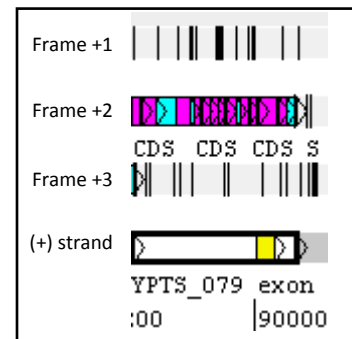
gtttatcaatacctcacacaacatggcctgagttatcaccactgtgggagcaaggttactatctctgc

Peptide evidence:

AAHSPAWQEAR
AKQAAALVLVNGQLEHLTAQER
ALEALGAQTWFAGLR
KWEPGMSEETR
KWEPGMSEETR
LLPIIDWDR
LQLNLQVFR
LWEQVEGIER
QAAALVLVNGQLEHLTAQER
QRPDIPVILTDGTGYLFPETYR
QVYQYLTHGLSYHPLWEQGYLSVGDTHTR
RALEALGAQTWFAGLR
SQFNLSLNLALPK
SQLPVLALQR
YLTQHGLSYHPLWEQGYLSVGDTHTR
YNTLNKVEPMNR
YNTLNKVEPMNR

Current sequence (peptide evidence in red): 244aa

VSQFNLSLNLALPKAKQAAALVLVNGQLEHLTAQERVSWALDNLPGFEVLSSSFQIAAVCLHLVTR**QRPDIPVILTDGTGYLFPETYR**FIDDLTEKLQNLQVFR**AAHSPAWQEAR**YGKLWEQ
GVEGIER**YNTLNKVEPMNR**RALEALGAQTWFAGLRREQSGGRSQLPVLALQRGIFKLLPIIDWDRQVYQYLTHGLSYHPLWEQGYLSVGDTHTRKWEPGMSEETRRFFGLKRECLHEG



Error 31

Strain: *Y. pestis* CO92
Gene: YPO3544

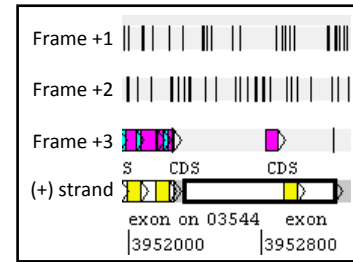
Classification: expressed pseudogene
Boundaries of gene: 3952284..3953225

Oligo evidence:

ctaacggaagctgattacggttatggactacgctagtcgctttgatccgggtatgtgacgcattcca

Peptide evidence:

AGFATTQEAYDEAVGTLFSALDR



Proposed sequence (peptide evidence in red): 313aa

MGRWWRYKWITFHPSLTTDGGQAGPQGGKFNAEAHRYHLYVSLACPWAHRALLMRTLKGLLESLISVSVVHPLMQENGWTFSSDFPAATGDALYHLDYLYQLYLRAPDYSGRVTVPLWDKQQQTVVSNESADIIRMFNNAFDVGAAGDYPTALRNDIDDINGWVYDQVNNGVYK**AGFATTQEAYDEAVGTLFSALDR**LEQLIGQHRYLTGNQLTEADLRLWTTLVRFDPVYVTHFKCDKRRISDYPNLYGFLRDIYQMPGIAETVDFAHIRTHYYRSHGTSILMGLSLSAHSKTCWWSHMIGRIALYKN

Strain: *Y. pestis pestoides* F
Gene: YPDSF_0353

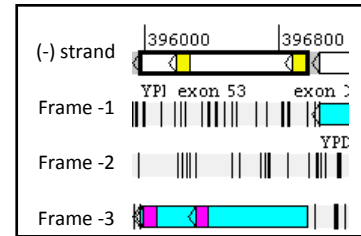
Classification: hypothetical protein
Boundaries of gene: complement (395973..396959)

Oligo evidence:

ctaacggaagctgattacggttatggactacgctagtcgctttgatccgggtatgtgacgcattcca
ctcatcaatggcgtctggaagacgtttggtacgacaccaatcgaccggtggcattccaacgctcaa

Peptide evidence:

AGFATTQEAYDEAVGTLFSALDR
SHGTINPYGIISIGPQQNLEPHDR



Current sequence (peptide evidence in red): 328aa

MGQLINGVWKDVWYDTQSTGGHFKRSTAQFRNWVTTDGGQAGPQGGKFNAEAHRYHLYVSLACPWAHRALLMRTLKGLLESLISVSVVHPLMQENGWTFSSDFPAATGDALYHLDYLYQLYLRAPDYSGRVTVPLWDKQQQTVVSNESADIIRMFNNAFDVGAAGDYPTALRNDIDDINGWVYDQVNNGVYK**AGFATTQEAYDEAVGTLFSALDR**LEQLIGQHRYLTGNQLTEADLRLWTTLVRFDPVYVTHFKCDKRRISDYPNLYGFLRDIYQMPGIAETVDFAHIRTHYYR**SHGTINPYGIISIGPQQNLEPHDR**ANRFV

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3674

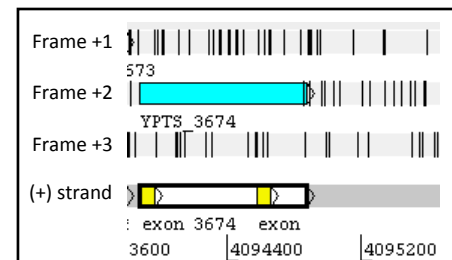
Classification: putative glutathione S-transferase
Boundaries of gene: 4093874..4094860

Oligo evidence:

ctcatcaatggcgtctggaagacgtttggtacgacaccaatcgaccggtggcattccaacgctcaa
ctaacggaagctgattacggttatggactacgctagtcgctttgatccgggtatgtgacgcattcca

Peptide evidence:

NA



Current sequence (peptide evidence in red): 328aa

MGQLINGVWKDVWYDTQSTGGHFKRSTAQFRNWVTTDGGQAGPQGGKFNAEAHRYHLYVSLACPWAHRALLMRTLKGLLESLISVSVVHPLMQENGWTFSSDFPAATGDALYHLDYLYQLYLRAPDYSGRVTVPLWDKQQQTVVSNESADIIRMFNNAFDVGAAGDYPTALRNDIDDINGWVYDQVNNGVYK**AGFATTQEAYDEAVGTLFSALDR**LEQLIGQHRYLTGNQLTEADLRLWTTLVRFDPVYVTHFKCDKRRISDYPNLYGFLRDIYQMPGIAETVDFAHIRTHYYRSHGTINPYGIISIGPQQNLEPHDRANRFV

Error 32

Strain: Y. pestis CO92
Gene: YPO3687

Classification: expressed pseudogene
Boundaries of gene: Frame+1: 4122382..4123473
Frame+3:4123473..4123850

Oligo evidence:
aacatggggccgttgattaattggctggtctggagaaagtagaagagcagcgtaaaagatgcgcttgaga
tcaatgaatgctcggtttcgaccgagttggcccttctggtggttaagagctgcctaggtctgta

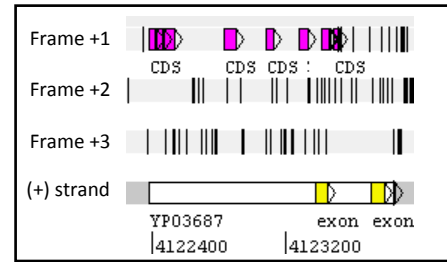
Peptide evidence:
EPIGVVAAITPWNFPLAMLTR
FYIQDAIYDEFVNR
KISFTGSTNVGK
PAQNPLQHQR
QHDGIYHIGYFVGGK
VEEHVKDALEK
VEEHVKDALEKGGGR
WAVISSSQR
WSQAQEQFDVYNPATGELVAR

Sequence (peptide evidence in red):
Frame+1: 377aa

MPAQNPLQHQR**QHDGIYHIGYFVGGKWSQAQEQFDVYNPATGELVAR**VAKSGKQETEAAIKAASEAFPWRKTPAKQRAEILQRWYLLIMEHQQSLAELMVSEQGKPLKEALVEVAYAA
SFIQWFSEQAQRANGEEIIPSAKEGARILATRE**EPIGVVAAITPWNFPLAMLTR**KLGPALAAAGCTGLIKPANNTPLSAFALLALAEQAGVPAGVLNGVVDGTHAISDAIMASSDVR**KISFTGSTNV**
GKTLMRNAAATMKRISMELGGNAPYIVFDDADLEAAVAGAMACKFRNAGQVCVGNR**FYIQDAIYDEFVNR**LAAEVKLLKVGNGMDKDVNMGPLINLAGLEK**VEEHVKDALEKGGRLLA**
GGIAMRWAVISSSQR

Frame+3: 125aa

HRHALGGNFFQPTVIADANEQMKVASEETFGPLAACFRFSTEA EIQRANNTPFGLAAYFYTQNLQRVFRVSEALESGMIGVNECSVSTELAPFGGVKESGLGREGSVLGLDEFMEVKTLLH
GNL



Error 102

Strain: Y. pestis pestoides F
Gene: YPDSF_0294 and 0295

Classification: YPDSF_0294 annotated as hypothetical protein
error: YPDSF_0295 annotated as succinate-semialdehyde dehydrogenase, upstream start site
Boundaries of gene: YPDSF_0294 Frame+1: 338206..339339
YPDSF_0295 Frame+3: 339336..339674

Oligo evidence:
aacatggggccgttgattaattggctggtctggagaaagtagaagagcagcgtaaaagatgcgcttgaga
tcaatgaatgctcggtttcgaccgagttggcccttctggtggttaagagctgcctaggtctgta

Peptide evidence:
DVMNMGPLINLAGLEK KISFTGSTNVGK
ISFTGSTNVGK QHDGIYHIGYFVGGK
VEEHVKDALEK WAVISSSQR
VGNMGMDKDVNMGPLINLAGLEK ANNTPFGLAAYFYTQ
WSQAQEQFDVYNPATGELVAR ANNTPFGLAAYFYTQNLQR
EPIGVVAAITPWNFPLAMLTR FSTEA EIQR
FYIQDAIYDEFVNR HALGGNFFQPTVIADANEQMK

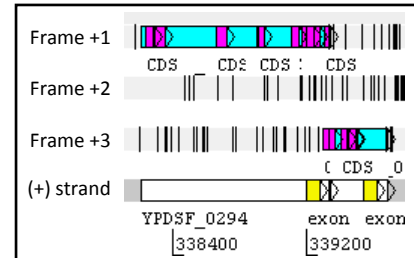
Proposed sequence (peptide evidence in red):
Frame+1: 377aa (YPDSF_0294)

MPAQNPLQHQR**QHDGIYHIGYFVGGKWSQAQEQFDVYNPATGELVAR**VAKSGKQETEAAIKAASEAFPWRKTPAKQRAEILQRWYLLIMEHQQSLAELMVSEQGKPLKEALVEVAYAA
SFIQWFSEQAQRANGEEIIPSAKEGARILATRE**EPIGVVAAITPWNFPLAMLTR**KLGPALAAAGCTGLIKPANNTPLSAFALLALAEQAGVPAGVLNGVVDGTHAISDAIMASSDVR**KISFTGSTNV**
GKTLMRNAAATMKRISMELGGNAPYIVFDDADLEAAVAGAMACKFRNAGQVCVGNR**FYIQDAIYDEFVNR**LAAEVKLLK**VGNMGMDKDVNMGPLINLAGLEK****VEEHVKDALEKGGRLLA**
GGIAMRWAVISSSQR

Frame+3: 125aa (YPDSF_0295)

Current sequence underlined

HR**HALGGNFFQPTVIADANEQMK**VASEETFGPLAACFR**FSTEA EIQRANNTPFGLAAYFYTQNLQR**VFRVSEALESGMIGVNECSVSTELAPFGGVKESGLGREGSVLGLDEFMEVKTLLH
GNL



Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_3731

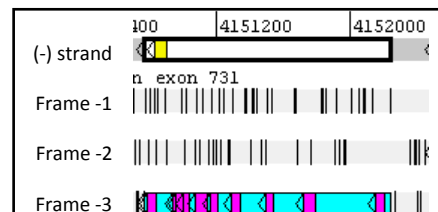
Classification: annotated as succinic semialdehyde dehydrogenase
Boundaries of gene: complement (4150763..4152232)

Oligo evidence:
tcaatgaatgctcggtttcgaccgagttggcccttctggtggttaagagctgcctaggtctgta

Peptide evidence:
ANNTPFGLAAYFYTQ
ANNTPFGLAAYFYTQNLQR
EGSVLGLDEFMEVK
EPIGVVAAITPWNFPLAMLTR
FSTEA EIQR
FYIQDAIYDEFVNR
HALGGNFFQPTVIADANEQMK
ISFTGSTNVGK
QHDGIYHIGYFVGGK
VEEHVKDALEK

Current sequence (peptide evidence in red): 489aa

MPAQNPLQHQR**QHDGIYHIGYFVGGKWSQAQEQFDVYNPATGELVAR**VAKSGKQETEAAIKAASEAFPWRKTPAKQRAEILQRWYLLIMEHQQSLAELMVSEQGKPLKEALVEVAYAA
SFIQWFSEQAQRANGEEIIPSAKEGARILATRE**EPIGVVAAITPWNFPLAMLTR**KLGPALAAAGCTGLIKPANNTPLSAFALLALAEQAGVPAGVLNGVVDGTHAISDAIMASSDVR**KISFTGSTNV**
GKTLMRNAAATMKRISMELGGNAPYIVFDDADLEAAVAGAMACKFRNAGQVCVGNR**FYIQDAIYDEFVNR**LAAEVKLLKVGNGMDKDVNMGPLINLAGLEK**VEEHVKDALEKGGRLLA**
GGHR**HALGGNFFQPTVIADANEQMK**VASEETFGPLAACFR**FSTEA EIQRANNTPFGLAAYFYTQNLQR**VRSRVSEALESGMIGVNECSVSTELAPFGGVKESGLGREGSVLGLDEFMEVKTLLH
HLGNL



Error 33

Strain: Y. pestis CO92
Gene: YPO3723

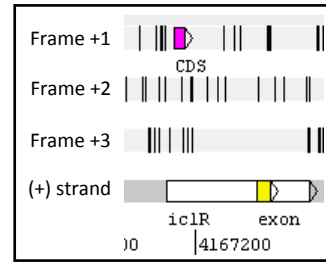
Classification: expressed pseudogene (icLR)
Boundaries of gene: Frame+1: 4167025:4167291
Frame+3:4167294:4167869

Oligo evidence:

acataaaaaggggttcacgcttacaccagcacaccgtaccaatccaaccagcctgaaagaaaatcta

Peptide evidence:

AATQNTPAATGQVQSLTR



Proposed sequence (peptide evidence in red):

Frame+1: 89aa

MALPIPIKRGKKPK**AATQNTPAATGQVQSLTR**GLKLEIYSESDGNVALTDLAQQAGLPNSTHRLTTMQQGFVRQVGDGLGLWTMGA

Frame+3: 191aa

HAFIVGSSFLQSRNLLAMVHPMLRRLMDESGETVNLAVLDHSDYQAIIDQVQCTALMRMSAPIGGKLPMHASGAGKAFSLTLPDDQLVQLLHKKGLHAYTQHTRTNPTSLKENLALIRKQGYSDDEEHALGLRCAIAACLFDEHHEFAAISISGPISRITDDRVTGALVIHAAKEITQSYGGGTGVK

Strain: Y. pestis pestoides F
Gene: YPDSF_0176

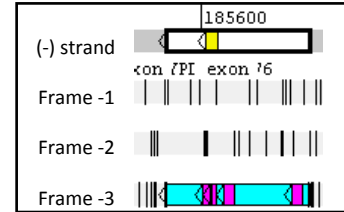
Classification: transcriptional repressor IclR
Boundaries of gene: complement (185391..186233)

Oligo evidence:

acataaaaaggggttcacgcttacaccagcacaccgtaccaatccaaccagcctgaaagaaaatcta

Peptide evidence:

AATQNTPAATGQVQSLTR
GLHAYTQHTR
MSAPIGGKLPMHASGAGK
TNPTSLKENLALIR



Current sequence (peptide evidence in red): 280aa

MALPIPIKRGKKPK**AATQNTPAATGQVQSLTR**GLKLEIYSESDGNVALTDLAQQAGLPNSTHRLTTMQQGFVRQVGDGLGLWTMGAHAFIVGSSFLQSRNLLAMVHPMLRRLMDESGETVNLAVLDHSDYQAIIDQVQCTALMRMSAPIGGKLPMHASGAGKAFSLTLPDDQLVQLLHKK**GLHAYTQHTRTNPTSLKENLALIR**KQGYSDDEEHALGLRCAIAACLFDEHHEFAAISISGPISRITDDRVTGALVIHAAKEITQSYGGGTGVK

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_3840

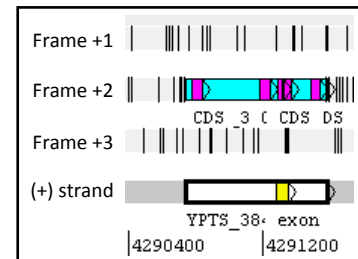
Classification: transcriptional repressor IclR
Boundaries of gene: 4290734..4291576

Oligo evidence:

acataaaaaggggttcacgcttacaccagcacaccgtaccaatccaaccagcctgaaagaaaatcta

Peptide evidence:

AATQNTPAATGQVQSLTR
GLHAYTQHTR
ITDDRVTGALVIHAAK
MSAPIGGKLPMHASGAGK
TNPTSLKENLALIR



Current sequence (peptide evidence in red): 280aa

MALPIPIKRGKKPK**AATQNTPAATGQVQSLTR**GLKLEIYSESDGNVALTDLAQQAGLPNSTHRLTTMQQGFVRQVGDGLGLWTMGAHAFIVGSSFLQSRNLLAMVHPMLRRLMDESGETVNLAVLDHSDYQAIIDQVQCTALMRMSAPIGGKLPMHASGAGKAFSLTLPDDQLVQLLHKK**GLHAYTQHTRTNPTSLKENLALIR**KQGYSDDEEHALGLRCAIAACLFDEHHEFAAISISGPISRITDDRVTGALVIHAAKEITQSYGGGTGVK

Error 34

Strain: *Y. pestis* CO92
Gene: YPO3775

Classification: expressed pseudogene with 2 insertions
Boundaries of gene: Frame-2, region 1: complement (4238744..4239223)
Frame-2, region 2: complement (4236482..4236784)

Oligo evidence:

aattagctctggctgccgaacttcgctgccggtattttgcattgctgtagcccatgagcgtttat
tattcctgttcagcagctattgttgaaactgatgctccctatttattgccaaggattgaatcctaaa

Peptide evidence:

IPVQQLLETDAPYLLPR

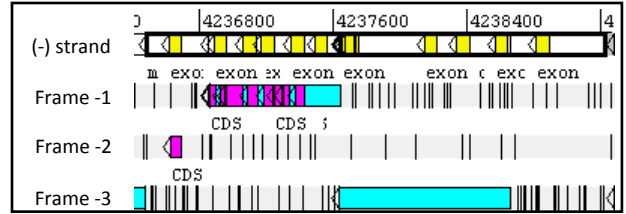
Proposed sequence (peptide evidence in red):

Region1: 162aa

MFDIGVNLTSVQFAKDYHQVVNRAKEAGVLGILITGDADES LAAQTLAAEYPGYCWSTTGVHPHHASSWQDSVEQKIRTLAATASVVGIGECGLDFNRNFSTPAQQEVAFTAQLALAAELS
LPVFLHCRDAHERFIDLLVPWLDKIPAAVHCHFTGNSD

Region2: 100aa

ELDACLALGLSIGITGWVCDERRGLDLRALLPRIPVQQLLETDAPYLLPRDLNPKPASRRNEPCFLPHIVQQVAAWRQEDPNWLGQKTDENARRVRLV



Strain: *Y. pestis* pestoides F
Gene: YPDSF_3392

Classification: DNase TatD
Boundaries of gene: complement (3894442..3895224)

Oligo evidence:

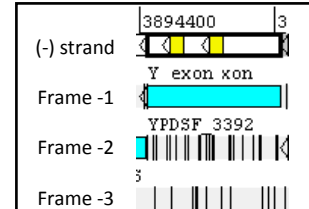
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aattagctctggctgccgaacttcgctgccggtattttgcattgctgtagcccatgagcgtttat

Peptide evidence:

NA

Current sequence (peptide evidence in red): 260aa

MFDIGVNLTSVQFAKDYHQVVNRAKEAGVLGILITGDADES LAAQTLAAEYPGYCWSTTGVHPHHASSWQDSVEQKIRTLAATASVVGIGECGLDFNRNFSTPAQQEVAFTAQLALAAELS
LPVFLHCRDAHERFIDLLVPWLDKIPAAVHCHFTGNSDELDAACLALGLSIGITGWVCDERRGLDLRALLPRIPVQQLLETDAPYLLPRDLNPKPASRRNEPCFLPHIVQQVAAWRQEDPNWL
GQKTDENARRVRLV



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0277

Classification: DNase TatD
Boundaries of gene: 301522..302304

Oligo evidence:

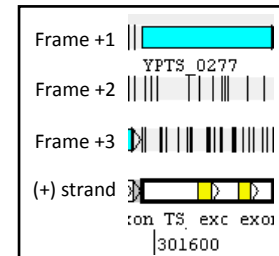
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Peptide evidence:

NA

Current sequence (peptide evidence in red): 260aa

MFDIGVNLTSVQFAKDYHQVVNRAKEAGVLGILITGDADES LAAQTLAAEYPGYCWSTTGVHPHHASSWQDSVEQKIRTLAATASVVAIGECGLDFNRNFSTPAQQEVAFTAQLALAAELS
LPVFLHCRDAHERFIDLLVPWLDKIPAAVHCHFTGNSGELDAACLALGLSIGITGWVCDERRGLDLRALLPRIPVQQLLETDAPYLLPRDLNPKPASRRNEPCFLPHIVQQVAAWRQEDPNWL
GQKTDENARRVRLV



Error 35

Strain: Y. pestis CO92
Gene: YPO3870

Classification: expressed pseudogene
Boundaries of gene: Frame+1: 4345237..4345503
Frame+3: 4345506..4345661
Frame+2: 4345661..4346731

Oligo evidence:

taagttccacctcactttatgctccatcgatctggctccaatagtttcatatgttgtagtagctgta
tcaacaagaagcagcattcagtggtgcaaatagaagagttggaatccctggtttaaccttggaaacgagc

Peptide evidence:

IYHGV AHTTGGPEQR
LIYHGV AHTTGGPEQR
AELAAHEMIKPVAQR

Proposed sequence (peptide evidence in red):

Frame+1: 90aa

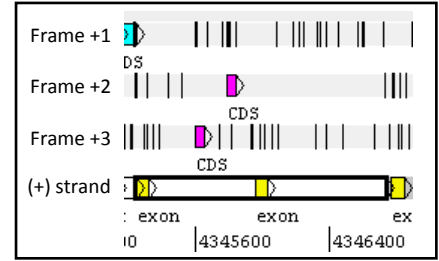
MMLSSTSLYAAIDLGSNSFHMLLVREVAGSIQTLARIKRVRLAAGLDNQNHLSQEAMERGWQCLKLFSERLQDIPLDQIRVVATATLR

Frame+3: 52aa

ASNADEFRLRTATEILGCPQIVISGEEEARLIYHGV AHTTGGPEQRLVVDIGG

Frame+2: 356aa

GSTELVTGNGAQANILVLSMGCVTWLERYFGDRHLAKENFERAELAAHEMIKPVAQRFREHWQVCGASGTVQALQEIMVAQGMDELITLAKLQQLKQRAIQCGKLEELIPLGLTERA
LVFPGSLILIAIFQELSIESMTLAGGALREGLVYGMLHLPVEQDIRRRLRLNLQRRYLLDTEQAKRVSLADNFFLQVEKEWHLDGRCREFLQNACLIHEIGLSVDFKHAPQHAAYLIRNLDPG
FTPQAKLLSALLQNSDITDLSLLNQNALPADMAQHLCRLLRLAIIFSSRRRDDTLPVRLRADNNALYVLPQGWLEQHPYRAEALEQESHWQSYVQVWPLLEELS



Strain: Y. pestis pestoides F
Gene: YPDSF_3488

Classification: guanosine pentaphosphate phosphohydrolase
Boundaries of gene: 4001302..4002798

Oligo evidence:

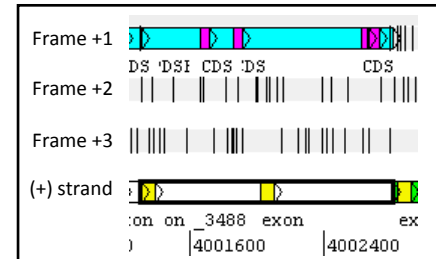
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Peptide evidence:

AELAAHEMIKPVAQR
LIYHGV AHTTGGPEQR
LRADNNALYVLPQGWLEQHPYR
RRDRTLPAVR

Current sequence (peptide evidence in red): 498aa

MMLSSTSLYAAIDLGSNSFHMLLVREVAGSIQTLARIKRVRLAAGLDNQNHLSQEAMERGWQCLKLFSERLQDIPLDQIRVVATATLRLASNADEFRLRTATEILGCPQIVISGEEEARLIYHGV
AHTTGGPEQRLVVDIGGGSTELVTGNGAQANILVLSMGCVTWLERYFGDRHLAKENFERAELAAHEMIKPVAQRFREHWQVCGASGTVQALQEIMVAQGMDELITLAKLQQLKQRA
IQCGKLEELIPLGLTERALVFPVSGSLILIAIFQELSIESMTLAGGALREGLVYGMLHLPVEQDIRRRLRLNLQRRYLLDTEQAKRVSLADNFFLQVEKEWHLDGRCREFLQNACLIHEIGLSVDFK
HAPQHAAYLIRNLDPGFTPQAKLLSALLQNSDITDLSLLNQNALPADMAQHLCRLLRLAIIFSSRRRDDTLPVRLRADNNALYVLPQGWLEQHPYRAEALEQESHWQSYVQVWPLLEELS



Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_0176

Classification: guanosine pentaphosphate phosphohydrolase
Boundaries of gene: complement (190347..191843)

Oligo evidence:

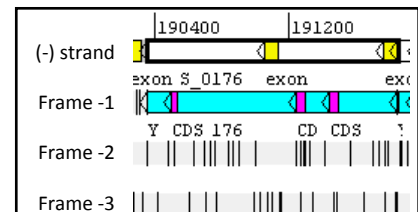
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tcaacaagaagcagcattcagtggtgcaaatagaagagttggaatccctggtttaaccttggaaacgagc

Peptide evidence:

AELAAHEMIKPVAQR
LIYHGV AHTTGGPEQR
RRDRTLPAVR

Current sequence (peptide evidence in red): 498aa

MMLSSTSLYAAIDLGSNSFHMLLVREVAGSIQTLARIKRVRLAAGLDNQNHLSQEAMERGWQCLKLFSERLQDIPLDQIRVVATATLRLASNADEFRLRTATEILGCPQIVISGEEEARLIYHGV
AHTTGGPEQRLVVDIGGGSTELVTGNGAQANILVLSMGCVTWLERYFGDRHLAKENFERAELAAHEMIKPVAQRFREHWQVCGASGTVQALQEIMVAQGMDELITLAKLQQLKQRA
IQCGKLEELIPLGLTERALVFPVSGSLILIAIFQELSIESMTLAGGALREGLVYGMLHLPVEQDIRRRLRLNLQRRYLLDTEQAKRVSLADNFFLQVEKEWHLDGRCREFLQNACLIHEIGLSVDFK
HAPQHAAYLIRNLDPGFTPQAKLLSALLQNSDITDLSLLNQNALPADMAQHLCRLLRLAIIFSSRRRDDTLPVRLRADNNALYVLPQGWLEQHPYRAEALEQESHWQSYVQVWPLLEELS



Error 36

Strain: *Y. pestis* C092
Gene: YPO4052

Classification: expressed pseudogene
Boundaries of gene: Frame-3: complement (4571292..4571510)
Frame-2: complement (4569557..4571290)

Oligo evidence:

ctgatcgactcggattggctgcaaaactggcgatcctcaattctgaattctttgaccgagtggttca
actgtagtcaccagcagtaattgacgaccaacaaccgtaattgacctcaacaatacataaataat

Peptide evidence:

GIHAQNQPAQQAQAGQR

Proposed sequence (peptide evidence in red):

Frame-3: 74aa
MIIVTAGHVDHGKTTLLQAITGVNADRLPEEKQRGMTIDLGYAYWPLDGRIMGFIDVPGHEKFLANMLAGGG



Frame-2: 578aa

GIDHALLVACDDGVMAQTREHLAILRLSGRPALTVALTKADRVDDERIAQVHQQLQELVAQGWSAEQISLFVTAAVTERGIGELREHLAQCHQQRDPKGRQLRRFRLAIDRVFSVKGAGL
VVTGTALAGQVAVGDTLWLTGGDCPVRVRGIHAQNQPAQQAQAGQRRIALNISGDISKQINRGDWLLAQPLPPVDRVLVTVADTPLQHWQPLHLYHGARHITGRFSLGHGQLIDD
QQPLIDHQIINNQSTSGHSSQILAELLLDSPLWLVENDRVILRDIGAKKTLGGARVIHLAVPSRGKRQPAYLAWLTAQAQSDREVLDLHLAQGPVSVRTFSWARQLTDNEMAALLAAT
DTVVAGDIALSHPHAQQAQQTLLHVLALYHQHGDQLGLGRARLRMALPTLDEGVVFRLLIDNLLAEGALHNTRGWLHLPEHGLAFTEQEIQGWQQAAPYFVDDPWVWRDLAELQA
AEGEMRSLRKAQQLGYITAVVTDRIYLSQRIQLADLVRELDNRQGSVSAADFRDLRIGRKLAIQILEFFDRSGFTRRRRNGHILRDSGLFSATGS

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0040

Classification: selenocysteinyl-tRNA-specific translation factor
Boundaries of gene: 48255..50207

Oligo evidence:

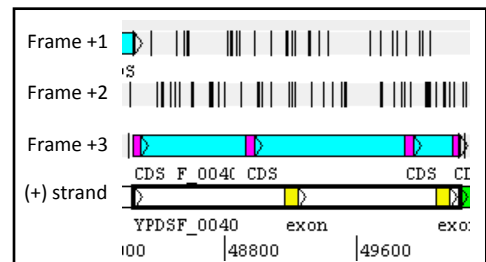
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Peptide evidence:

MIIVTAGHVDHGK
DLAELQAAEGEMR
DSGLFSATGS
GIHAQNQPAQQAQAGQR

Current sequence (peptide evidence in red): 650aa

MIIVTAGHVDHGKTTLLQAITGVNADRLPEEKQRGMTIDLGYAYWPLDGRIMGFIDVPGHEKFLANMLAGGGGIDHALLVACDDGVMAQTREHLAILRLSGRPALTVALTKADRVDD
RIAQVHQQLQELVAQGWSAEQISLFVTAAVTERGIGELREHLAQCHQQRDPKGRQLRRFRLAIDRVFSVKGAGLVVTGTALAGQVAVGDTLWLTGGDCPVRVRGIHAQNQPAQQAQAG
QRRIALNISGDISKQINRGDWLLAQPLPPVDRVLVTVADTPLQHWQPLHLYHGARHITGRFSLGHGQLIDDQQPLIDHQIINNQSTSGHSSQILAELLLDSPLWLVENDRVILRDIGAK
KTLGGARVIHLAVPSRGKRQPAYLAWLTAQAQSDREVLDLHLAQGPVSVRTFSWARQLTDNEMAALLAATDTVVAGDIALSHPHAQQAQQTLLHVLALYHQHGDQLGLGRARLRM
ALPTLDEGVVFRLLIDNLLAEGALHNTRGWLHLPEHGLAFTEQEIQGWQQAAPYFVDDPWVWRDLAELQAAEGEMRSLRKAQQLGYITAVVTDRIYLSQRIQLADLVRELDNRQGSVSA
ADFRDLRIGRKLAIQILEFFDRSGFTRRRRNGHILRDSGLFSATGS



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_4155

Classification: selenocysteinyl-tRNA-specific translation factor
Boundaries of gene: 4640810..4642783

Oligo evidence:

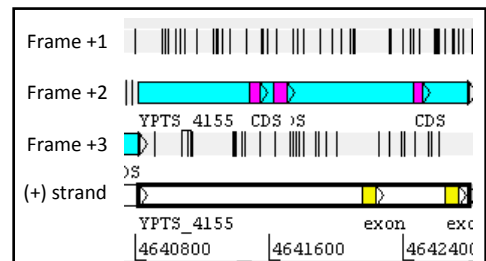
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Peptide evidence:

DLAELQAAEGEMR
GIHAQNQPAQQAQAGQR
VLVTVADTPLQHWQPLHLYHGAR

Current sequence (peptide evidence in red): 657aa

MIIVTAGHVDHGKTTLLQAITGVNADRLPEEKQRGMTIDLGYAYWPLDGRIMGFIDVPGHEKFLANMLAGVGGIDHALLVACDDGVMAQTREHLAILRLSGRPALTVALTKADRVDD
IAQVHQQLQELVAQGWSAEQISLFVTAAVTERGIGELREHLAQCHQQRDPKGRQLRRFRLAIDRVFSVKGAGLVVTGTALAGQVAVGDTLWLTGGDCPVRVRGIHAQNQPAQQAQAGQ
RIALNISGDISKQINRGDWLLAQPLPPVDRVLVTVADTPLQHWQPLHLYHGARHITGRFSLGHGQLIDDQQPLIDHQIINNQSTSGHSSQILAELLLDSPLWLVENDRVIL
RDIGAKKTLGGARVIHLAVPSRGKRQPAYLAWLTAQAQSDREVLDLHLAQGPVSVRTFSWARQLTDNEMAALLAATDTVVAGDIALSHSHAQQAQQTLLHVLALYHQHGDQLGLGR
ARLRMALPTLDEGVVFRLLIDNLLAEGALHNTRGWLHLPEHGLAFTEQEIQGWQQAAPYFVDDPWVWRDLAELQAAEGEMRSLRKAQQLGYITAVVTDRIYLSQRIQLADLVRELDNR
QGSVSAADFRDLRIGRKLAIQILEFFDRSGFTRRRRNGHILRDSGLFSATGS



Error 37

Strain: *Y. pestis* CO92
Gene: YPO2267

Classification: expressed pseudogene
Boundaries of gene: Frame+1: 2549308.. 2549508
Frame+3: 2549517.. 2550239

Oligo evidence:

gaagaacagattggggccgctattggcacgaaggcacgaaataagcgtaatatcagctccaccaagc

Peptide evidence:

LHISQPPLSQIQILEEQIGAR
RHEISVISVSPK

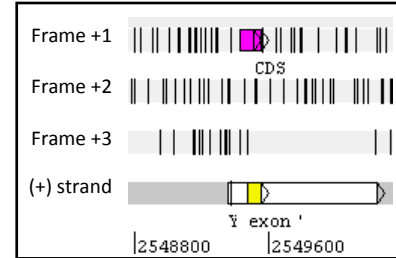
Proposed sequence (peptide evidence in red): current sequence underlined

Frame+1: 84aa

LSNLIIANNTFKISMSIELRHLRYFIAVAEELHFGRAAER**LHISQPPLSQIQILEEQIGAR**LLARRHEISVISVSPKRESSF

Frame+3: 240aa

NKRNISLTQAGKLFKESYQILAQVNSATEKAAACLHRGESGVLTIGFTSSAPLINVVSKNLRTFRQIYPQVHIKMQEVSTKQQIEALLDGRDLGIMRNTRLPEALQYRLLREPLVAVVHEDHPLASLNGSVKFFSSLDKQPFVFFSREVTALYDEFFLLTRAGITPYITQEVGEAMTIIGLVSSGLGVSILPASFRRVNV DGVKYLSDLEADATTEMWLVNHKHRPMPPLQKHCSV



Strain: *Y. pestis* pestoides F
Gene: YPDSF_0866

Classification: annotated as transcriptional regulator LYSR-type
Boundaries of gene: complement(986074..986952)

Oligo evidence:

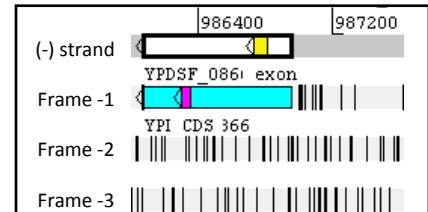
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Peptide evidence:

EVGTALYDEFFLLTR

Current sequence (peptide evidence in red): 292aa

MSIELRHLRYFIAVAEELHFGRAAERLHISQPPLSQIQILEEQIGARLLARNKRNISLTQAGKLFKESYQILAQVNSATEKAAACLHRGESGVLTIGFTSSAPLINVVSKNLRTFRQIYPQVHIKMQEVSTKQQIEALLDGRDLGIMRNTRLPEALQYRLLREPLVAVVHEDHPLASLNGSVKFFSSLDKQPFVFFSR**EVGTALYDEFFLLTR**AGITPYITQEVGEAMTIIGLVSSGLGVSILPASFRRVNV DGVKYLSDLEADATTEMWLVNHKHRPMPPLQKHCSV



Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 38

Strain: *Y. pestis* CO92
Gene: YPO3436

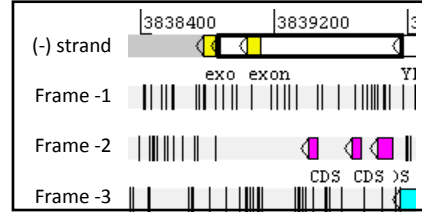
Classification: expressed pseudogene
Boundaries of gene: complement (3838850..3839971)

Oligo evidence:

tgatgttgaacaagactggaccgctttttgtcccactgattctgtaaatgaattatatcaggctacagct

Peptide evidence:

EKYQGFNVEFPTGR
ELGQVAHVQPVALTELVANAWDAGASR
KLPDADEILTVLSAR
LPDADEILTVLSAR



Proposed sequence (peptide evidence in red): 373aa

MRPPMSEQLQNSLFEDDYLLR**ELGQVAHVQPVALTELVANAWDAGASR**VDLVLPTDIGGILTVTDDGHGMTPEQFKRWMTLRYTREKYQGFNVEFPTGRTARPRKAYGRNGIGRHGL
LCFADEYEVKTWRDGIATFVVGTGAGSSPFVCRSETEEKHIGSGTRLQVQVTR**KLPDADEILTVLSAR**FIHDPEFEVRVNGKLRPFTEIDGRISEETLCLSAGRHAHVIVIDSTRLNHSSLHQGIAF
WVQHRVLVGTSPWAVGQIANFDGRTRFARRYKIVDTEGFESDVEQDWTAFCTDSVNELYQATAEHIRDVAQRLAVEFEITSSEDALMQNRSELATLGQGARGLVAEFTTAVAQEHPTVS
PDVNDG

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3246

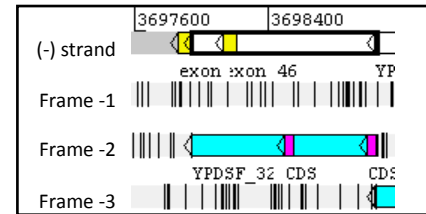
Classification: hypothetical protein
Boundaries of gene: complement (3697940..3699049)

Oligo evidence:

tgatgttgaacaagactggaccgctttttgtcccactgattctgtaaatgaattatatcaggctacagct

Peptide evidence:

PLQNSLFEDDYLLR
KLPDADEILTVLSAR



Current sequence (peptide evidence in red): 369aa

MSEQ**PLQNSLFEDDYLLR**ELGQVAHVQPVALTELVANAWDAGASRVDLVLPTDIGGILTVTDDGHGMTPEQFKRWMTLRYTREKYQGFNVEFPTGRTARPRKAYGRNGIGRHGLLCFAD
EYEVKTWRDGIATFVVGTGAGSSPFVCRSETEEKHIGSGTRLQVQVTR**KLPDADEILTVLSAR**FIHDPEFEVRVNGKLRPFTEIDGRISEETLCLSAGRHAHVIVIDSTRLNHSSLHQGIAFVWQ
HRLVGTSPWAVGQIANFDGRTRFARRYKIVDTEGFESDVEQDWTAFCTDSVNELYQATAEHIRDVAQRLAVEFEITSSEDALMQNRSELATLGQGARGLVAEFTTAVAQEHPTVSPDVN
DG

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 39

Strain: *Y. pestis* CO92
Gene: YPO3679

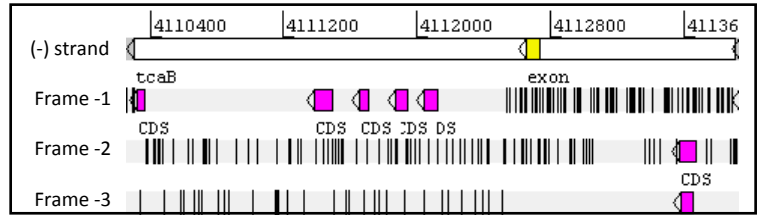
Classification: expressed pseudogene (tcaB)
Boundaries of gene: Frame -3: complement (4112526..4113893)
Frame-1: complement (4110301..4112526)

Oligo evidence:

ctcatagataaattgaaatagaatatttccatataatgaattgtagccagcactattgtattcaata

Peptide evidence:

NISTHFSSDNFLHGWN SYNKR
HNLNLDGQPLHLPLFATPVDPK
IASAALNGESLVPLGLSAVLDTAPNVFGLADGGSR
IH YIQASQLLGPRPNLNSSHQWENIK
LLLQSLSDIILHIR
QDNEAMTLFLFQQQQK



Proposed sequence (peptide evidence in red):

Frame-3: 458aa

MPTSTVLNKNESRRDALVNYLAKNVS GDEKIKTAEQLYQYLLD TKIGHEVKTSP IAEAISSLQIYNRCVDGEENDLHEKNISTHFSSDNFLHGWN SYNKRYARWAGKEKLMYYAADYIDPT
LRYNKTELFNTFEQINSRLTEKSVKALQSYLISYEKLAQIDTIKELYVENIKTHFFLGKTRSPCYYWRSGEQLSNDSSHLLRWSEWKKVNCNINGTEEKFFINLSWHRSSLYDWINKFSIRT
DKDETTEKYHNRVYKNDNTWSELINMDIGFKLSTSTEVITLPPFFVNQDGNAAKEEVENLFLTNGTSIKRIESRLHG YINGHIKLCNDDGISFEIAEKLINGDNGTIGEVKIIENEKIISTINNEK
GENKKNLIDKFEIRIFPYNELVASTIVFNRIKPEEKIIDELDDKISLLSPNSLPLKEKFQTSVDELLSYNTQK

Frame-1: 741aa

NNVKLNAFNGSYGIYLWELFFHIPLASMRFLNEQRFDLAQHWLKYLFNSAGYRDGNGNLLKEGDNLYWNILPQQDTAWDKNTLIQATDDPDVIAMQDPMQYKLAIFMRTLDIISQGD
QAYRQLERDTLAEAKIH YIQASQLLGPRPNLNSSHQWENIKLAEESRQLENSHFLPPYNELLSYWDKLEIRLYNLRHNLNLDGQPLHLPLFATPVDPKALQRQH GAGNGINSSEQIATAQTSL
YRFP LLIERAKSAVSAVIQFGNSLQSVLERQDNEAMTLFLFQQQQKVLQHTKDIQNNNIQVLQASLEATDSLKSAAEQRRKH YKELLNNGISSDEQLAINIRIASAALNGESLVPLGLSAVLDTA
PNVFLADGGSRWGAIQAVGWGMQSMAMALETTAGVRDAKANYSRRAQEWTLQKQDQADKIEQLAHQYTSVQEQLNMAQKQLNLAELEQGHADALYQMSTRFTGKELYNWM
AGRLSGLYQLFDATQPLCLMAKAALEKVDKAKTDGLFIRSGWVNDLYQG LLAGEDLQNLQKLENVWLMEEQRALEVERTVSLAQHYQQLSDHKFNLAIEIVTGYMAQDKDQKTGNEQDF
VELKNGTLTSLSIKGLNLVEDYPETMHLGDIRRIKQISVSLPALLGPYQDVQATLDYAGENTHLAKGCTALAIRGMNDSGQFLDFNDGKYLPEFEGIDISDKGTLVLRFPNATSKQKLLLQSLSD
IILHIRYTIRS

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0286

Classification: annotated as toxin subunit
Boundaries of gene: 326124..329717

Oligo evidence:

ctcatagataaattgaaatagaatatttccatataatgaattgtagccagcactattgtattcaata
agcctgccattaaaagaaaaattcaaacatcagtgatgagtactcagttataacaccccaaaaaata

Peptide evidence:

IHYIQASQLLGPRPNLNSSHQWENIK
LLLQSLSDIILHIR
SAVSAVIQFGNSLQSVLER



Current sequence (peptide evidence in red): 1197aa

MPTSTVLNKNESRRDALVNYLAKNVS GDEKIKTAEQLYQYLLD TKIGHEVKTSP IAEAISSLQIYNRCVDGEENDLHEKNISTHFSSDNFLHGWN SYNKRYARWAGKEKLMYYAADYIDPT
LRYNKTELFNTFEQINSRLTEKSVKALQSYLISYEKLAQIDTIKELYVENIKTHFFLGKTRSPCYYWRSGEQLSNDSSHLLRWSEWKKVNCNINGTEEKFFINLSWHRSSLYDWINKFSIRT
DKDETTEKYHNRVYKNDNTWSELINMDIGFKLSTSTEVITLPPFFVNQDGNAAKEEVENLFLTNGTSIKRIESRLHG YINGHIKLCNDDGISFEIAEKLINGDNGTIGEVKIIENEKIISTINNEK
GENKKNLIDKFEIRIFPYNELVASTIVFNRIKPEEKIIDELDDKISLLSPNSLPLKEKFQTSVDELLSYNTQKNNVKLNAFNGSYGIYLWELFFHIPLASMRFLNEQRFDLAQHWLKYLFNSAGYRD
GNGNLLKEGDNLYWNILPQQDTAWDKNTLIQATDDPDVIAMQDPMQYKLAIFMRTLDIISQGDQAYRQLERDTLAEAKIH YIQASQLLGPRPNLNSSHQWENIKLAEESRQLENSHFLP
PYNELLSYWDKLEIRLYNLRHNLNLDGQPLHLPLFATPVDPKALQRQH GAGNGINSSEQIATAQTSYRFP LLIERAKSAVSAVIQFGNSLQSVLERQDNEAMTLFLFQQQQKVLQHTKDIQ
NNNIQVLQASLEATDSLKSAAEQRRKH YKELLNNGISSDEQLAINIRIASAALNGESLVPLGLSAVLDTAPNVFGLADGGSRWGAIQAVGWGMQSMAMALETTAGVRDAKANYSRRAQ
EWTQKQDQADKIEQLAHQYTSVQEQLNMAQKQLNLAELEQGHADALYQMSTRFTGKELYNWMAGRLSGLYQLFDATQPLCLMAKAALEKVDKAKTDGLFIRSGWVNDLYQG LLAGE
DLQNLQKLENVWLMEEQRALEVERTVSLAQHYQQLSDHKFNLAIEIVTGYMAQDKDQKTGNEQDFVELKNGTLTSLSIKGLNLVEDYPETMHLGDIRRIKQISVSLPALLGPYQDVQATLDY
AGENTHLAKGCTALAIRGMNDSGQFLDFNDGKYLPEFEGIDISDKGTLVLRFPNATSKQKLLLQSLSDIILHIRYTIRS

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 40

Strain: *Y. pestis* CO92
Gene: YPMT1.89

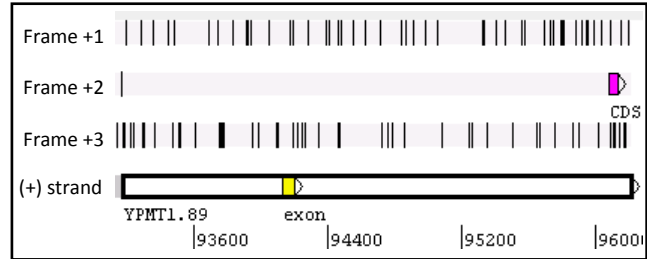
Classification: expressed pseudo gene annotated as similar to DNA polymerase III subunit alpha
Boundaries of gene: 93170..96208

Oligo evidence:

gcgcttactaccaagagtttgctacacaccaccggctctgagcaccgctgtatgtgatcgctctg

Peptide evidence:

DQAEIMGNLVIDAVK



Proposed sequence (peptide evidence in red): 1013aa

MKALMVRTDFSLGESALKAENAVKIARDAGYAVISADSMNIASVIPLQRAAGDDMAVICGVKLVVDDPTYEHRARLAKESERCMEVLRDRSYCF TALIKNEQGYRDVCELMTLANKREQ
FYFVPRRLALDQLAAAYAKGNIILLTSDIGSVFQRRDFAKIIGTLVTAGGRDNFYSVVYPHTPFYDQINVRAMKVASALKIEPVAFYPAYEAVDDADIKDIAHMVTNNIKIDQPHRLRIPHQRD
NAVNGRRHLLLEALKAFSVRMDVPVTAAMASTTQDTIIEACTWRWHELPPALPKMADDEPATLMKLAVALGRKRLTTKEFGYTPPASEHRVYVDRKLYEMDTLRLGFCGYFLMVRDLMN
HSRETGIPVGPGRGSSAGSLVAWCIGITNVDPIRHGLLFERFINPERLDPADLDFSQARRHEVIEYLNERYGEDYVAGIPNFTYLGAASALRDTARIYGVDAADMVSKFKNLEDDSLLEEL
REQLASLDKYATKYPEAFKAACKLQSLMRGFGRHAAGMIVAGVPLVERTPVELRGNARCIADFDRYCEAMGLIKLDVGLATLDDLDSAKRYIKESTGEDINLDAIPLDDRKVLDFGAAGYTQG
VFQLESGPMRLLKDLGGGIEPMSFKTVVATTALFRPGPIQSGMLDDYVSVAKGFMAPQSLHVPVDELTAETNGVILYQEQTMNATRLLAGFTMAEADGVRKAIGKKDMEKMKSMGKEFV
VQAQAGWIDVEMEDGTTQRIHRAEHFKCEDGALRTVEEALAGVLPMAAVRVTGSQPLSETKAKEIWDAFEKNGAYQFNKSHPVAYSLSYQSMWLKTHYPAEFFAAALTILGEDKHQ
GLVKDALTYGIHVLPPDVNVSSNRIERTLEDGSQLYAPFSAVKGCSSENGCQAIMRAREKVGKGFESLEQFEEAVEKRACACNSRVRESLQKVGAFASIEPGSLPATDPERLDRDQAEIMGNLV
IDAVKASRPFEMNPKRSAEVNVLMTMAEMGL

Strain: *Y. pestis* pestoides F plasmid
Gene: YPDFS_4091

Classification: annotated as DNA polymerase III
Boundaries of gene: complement (62215..65739)

Oligo evidence:

gcgcttactaccaagagtttgctacacaccaccggctctgagcaccgctgtatgtgatcgctctg
Tactgatgacacgatgctggctgaaatgggtctgggagacgacctgatacggccaagcattggcattaa
ggctactcatggagaacggctacgacacttaaggcgaagtgtctactgaggcatttgcgatgg

Peptide evidence:

NA



Current sequence (peptide evidence in red): 1174aa

MKALMVRTDFSLGESALKAENAVKIARDAGYAVISADSMNIASVIPLQRAAGDDMAVICGVKLVVDDPTYEHRARLAKESERCMEVLRDRSYCF TALIKNEQGYRDVCELMTLANKREQ
FYFVPRRLALDQLAAAYAKGNIILLTSDIGSVFQRRDFAKIIGTLVTAGGRDNFYSVVYPHTPFYDQINVRAMKVASALKIEPVAFYPAYEAVDDADIKDIAHMVTNNIKIDQPHRLRIPHQRD
NAVNGRRHLLLEALKAFSVRMDVPVTAAMASTTQDTIIEACTWRWHELPPALPKMADDEPATLMKLAVALGRKRLTTKEFGYTPPASEHRVYVDRKLYEMDTLRLGFCGYFLMVRDLMN
HSRETGIPVGPGRGSSAGSLVAWCIGITNVDPIRHGLLFERFINPERLDPADLDFSQARRHEVIEYLNERYGEDYVAGIPNFTYLGAASALRDTARIYGVDAADMVSKFKNLEDDSLLEEL
REQLASLDKYATKYPEAFKAACKLQSLMRGFGRHAAGMIVAGVPLVERTPVELRGNARCIADFDRYCEAMGLIKLDVGLATLDDLDSAKRYIKESTGEDINLDAIPLDDRKVLDFGAAGYTQG
VFQLESGPMRLLKDLGGGIEPMSFKTVVATTALFRPGPIQSGMLDDYVSVAKGFMAPQSLHVPVDELTAETNGVILYQEQTMNATRLLAGFTMAEADGVRKAIGKKDMEKMKSMGKEFV
VQAQAGWIDVEMEDGTTQRIHRAEHFKCEDGALRTVEEALAGVLPMAAVRVTGSQPLSETKAKEIWDAFEKNGAYQFNKSHPVAYSLSYQSMWLKTHYPAEFFAAALTILGEDKHQ
GLVKDALTYGIHVLPPDVNVSSNRIERTLEDGSQLYAPFSAVKGCSSENGCQAIMRAREKVGKGFESLEQFEEAVEKRACACNSRVRESLQKVGAFASIEPGSLPATDPERLDRDQAEIMGNLV
IDAVKASRPFEMNPKRSAEVNVLMTMAEMGLGDDLIRPSIGIKPKIMVILDNANGNDGRTGYFMENGYDDFKAKLLTAGDLRMGDLYVTGVCKKVKDKEKDYTKDEIGQTFDMREEI
NLVRPTYVLTGSRATSLFNKSKPSDLVGRKEYPELVDVTFYGFNPILYFRPEEGEKLEAILEVAETISK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 41

Strain: Y. pestis CO92
Gene: YPCO_2638.5

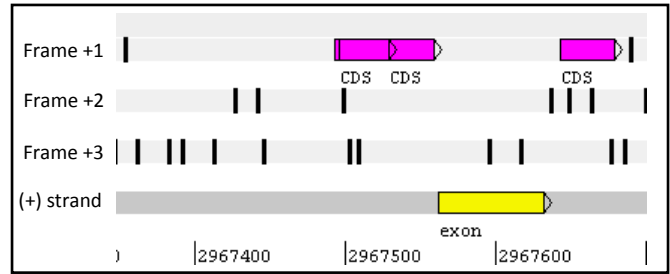
Classification: novel gene
Boundaries of gene: 2967439..2967690

Oligo evidence:

acaccaaatacagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

LNDPNSSAIQR
QLAASVLAQANK
SLAGSALSQR
TLNDPNSSAIQR



Proposed sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALT**QLAASVLAQANK**DRK

Error 75

Strain: Y. pestis pestoides F
Gene: YPDFS_2615.5

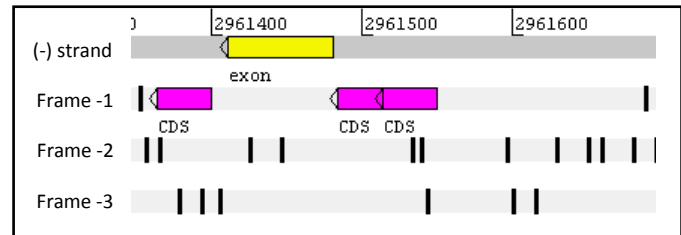
Classification: novel gene
Boundaries of gene: complement(2961352..2961603)

Oligo evidence:

acaccaaatacagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

QLAASVLAQANK
TLNDPNSSAIQR
SLAGSALSQR



Proposed sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALT**QLAASVLAQANK**DRK

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_1189

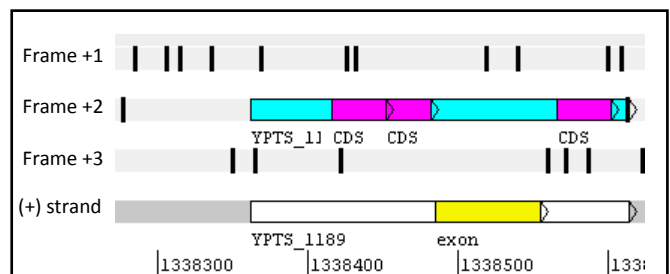
Classification: annotated as hypothetical protein
Boundaries of gene: 1338362..1338613

Oligo evidence:

acaccaaatacagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

QLAASVLAQANK
SLAGSALSQR
TLNDPNSSAIQR



Current sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALT**QLAASVLAQANK**DRK

Error 42

Strain: *Y. pestis* CO92
Gene: YPO1506.5

Classification: novel gene
Boundaries of gene: 1710711..1710884

Oligo evidence:

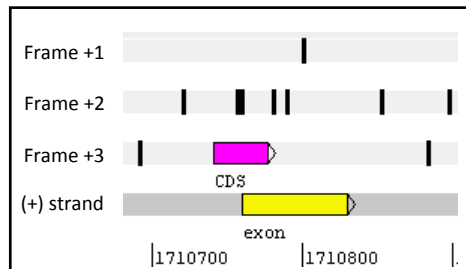
atatttctattgctcgctatagccgcttaactcaatttagtctgttatcattttgttttacacaac

Peptide evidence:

SLVGFDDISIAR

Proposed sequence (peptide evidence in red): 57aa

LQDNTVSTLRS**SLVGFDDISIAR**YSRLNLNLCYHFVFTTTIPAIRVLKATHHPTAPP



Error lacking threshold of evidence

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1470.5

Classification: novel gene
Boundaries of gene: complement (1655404..1655577)

Oligo evidence:

atatttctattgctcgctatagccgcttaactcaatttagtctgttatcattttgttttacacaac

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 57aa

LQDNTVSTLRS**SLVGFDDISIAR**YSRLNLNLCYHFVFTTTIPAIRVLKATHHPTAPP



Error lacking threshold of evidence

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1631.5

Classification: novel gene
Boundaries of gene: 1828938..1829111

Oligo evidence:

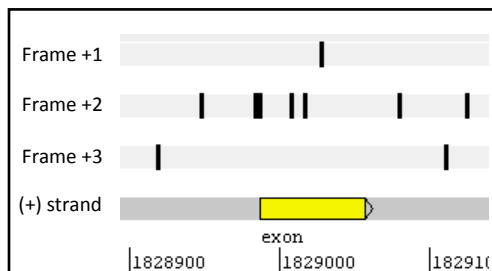
atatttctattgctcgctatagccgcttaactcaatttagtctgttatcattttgttttacacaac

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 57aa

LQDNTVSTLRS**SLVGFDDISIAR**YSRLNLNLCYHFVFTTTIPAIRVLKATHHPTAPP



Error 43

Strain: *Y. pestis* CO92
Gene: YPO2180.5

Classification: novel gene
Boundaries of gene: 2455494..2455703

Oligo evidence:

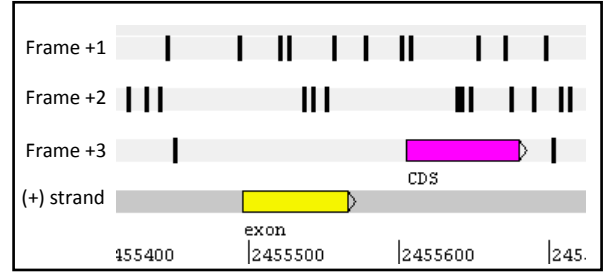
ggttctatgtttatcacggctctgagcttaactattcttaggtatgattttcgtgatttaaatacacaaa

Peptide evidence:

MIVIIAIWVVFNDVKITLSLLINK

Proposed sequence (peptide evidence in red): 69aa

VVLCFITALSLTILRYDFRDLNHKNIKLPFSIHFLRMIVIIAIWVVFNDVKITLSLLINKKHFNGIG



Error lacking threshold of evidence

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0955.5

Classification: novel gene
Boundaries of gene: complement(1081169..1081375)

Oligo evidence:

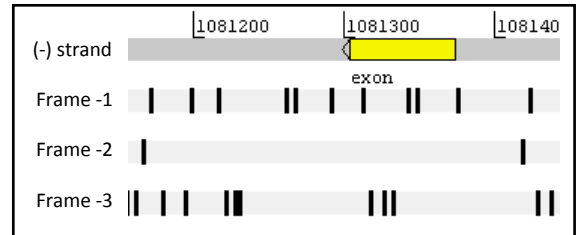
ggttctatgtttatcacggctctgagcttaactattcttaggtatgattttcgtgatttaaatacacaaa

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 69aa

VVLCFITALSLTILRYDFRDLNHKNIKLPFSIHFLRMIVIIAIWVVFNDVKITLSLLINKKHFNGIG



Error lacking threshold of evidence

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2171.5

Classification: novel gene
Boundaries of gene: 2397290..2397496

Oligo evidence:

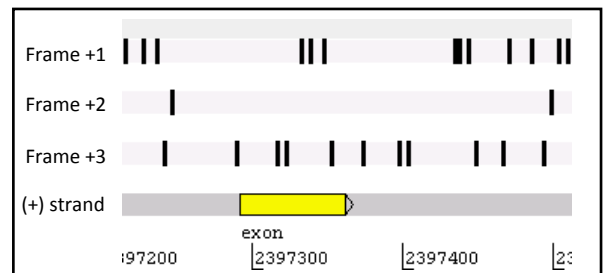
ggttctatgtttatcacggctctgagcttaactattcttaggtatgattttcgtgatttaaatacacaaa

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 69aa

VVLCFITALSLTILRYDFRDLNHKNIKLPFSIHFLRMIVIIAIWVVFNDVKITLSLLINKKHFNEIG



Error 44

Strain: *Y. pestis* CO92
Gene: YPO199.5

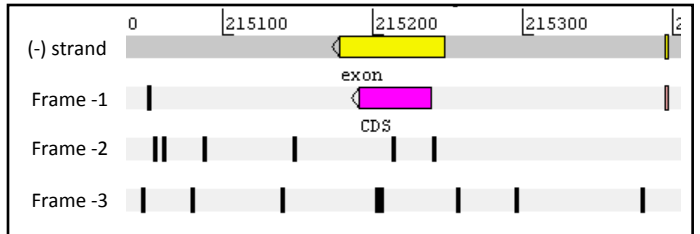
Classification: novel gene
Boundaries of gene: complement(215050..215436)

Oligo evidence:

attattaaaaaagctcctggtttttgcttcgtaaacacgtgataaatccccctgttgactactggc

Peptide evidence:

KAPGFLLRKHVINPPR



Proposed sequence (peptide evidence in red): 128aa

VTSKPLVKRTRQTLRSAELGFFGVVYTRVHTPRFCGHASNAGLLLATFMLRGLRTSWLIVAIHK**KAPGFLLRKHVINPPR**LHYWQRTRTQNFMADYLRQCQEIYSITRITMPVAADVLSGNPRSEYS

Error lacking threshold of evidence

Strain: *Y. pestis* pestoides F
Gene: YPDSF_124.5

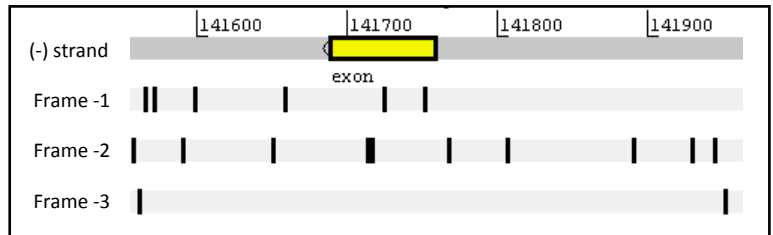
Classification: novel gene
Boundaries of gene: complement(141564..141947)

Oligo evidence:

attattaaaaaagctcctggtttttgcttcgtaaacacgtgataaatccccctgttgactactggc

Peptide evidence:

NA



Proposed sequence (peptide evidence in red): 128aa

VTSKPLVKRTRQTLRSAELGFFGVVYTRVHTPRFCGHASNAGLLLATFMLRGLRTSWLIVAIKKAPGFLLRKHVINPPRLHYWQRTRTQNFMADYLRQCQEIYSITRITMPVAADVLSGNPRSEYS

Error lacking threshold of evidence

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3897.5

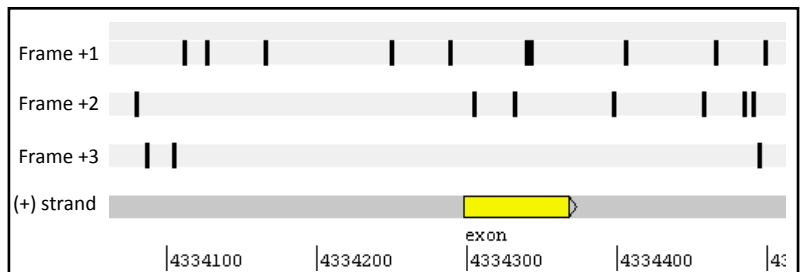
Classification: novel gene
Boundaries of gene: 4334109..4334492

Oligo evidence:

attattaaaaaagctcctggtttttgcttcgtaaacacgtgataaatccccctgttgactactggc

Peptide evidence:

NA



Proposed sequence (peptide evidence in red): 128aa

VTSKPLVKRTRQTLRSAELGFFGVVYTRVHTPRFCGHASNAGLLLATFMLRGLRTSWLIVAIKKAPGFLLRKHVINPPRLHYWQRTRTQNFMADYLRQCQEIYSITRITMPVAADVLSGNPRSEYS

Error 45

Strain: *Y. pestis* CO92
Gene: YPO1651.5

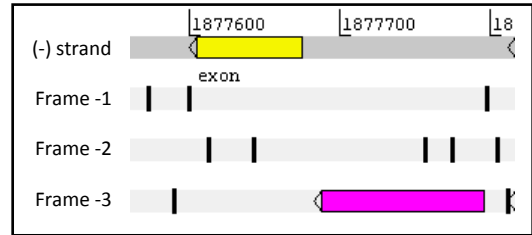
Classification: novel gene
Boundaries of gene: complement (1877589..1877807)

Oligo evidence:

ggtcagtagcctttgtaccgccaggctccttaactctctcagcatgttatatcccctactgattacctc

Peptide evidence:

RIQTL~~SLAVILAIVNALIFNMPMFNMPMDNMPMDNA~~



Proposed sequence (peptide evidence in red): 72a

LGHKRIQTL~~SLAVILAIVNALIFNMPMFNMPMDNMPMDNA~~PMRQWSVRFVPPGSLTLLSMLYPLLITSF~~FGM~~

Error lacking threshold of evidence

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1795

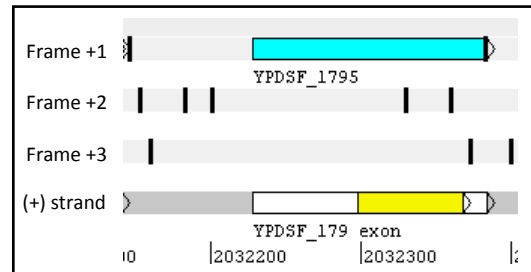
Classification: annotated as hypothetical protein/upstream start site
Boundaries of gene: 2032150..2032383

Oligo evidence:

ggtcagtagcctttgtaccgccaggctccttaactctctcagcatgttatatcccctactgattacctc

Peptide evidence:

NA



Proposed sequence (peptide evidence in red): 77aa

Current sequence underlined

LGHKRIQTL~~SLAVILAIVNALIFNIP~~MFNMPMDNMPMDNMPMDNAPMRQWSVRFVPPGSLTLLSMLYPLLITSF~~FGM~~

Error lacking threshold of evidence

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2499.5

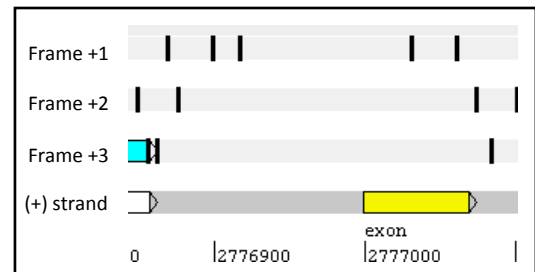
Classification: novel gene
Boundaries of gene: 2776866..2777084

Oligo evidence:

ggtcagtagcctttgtaccgccaggctccttaactctctcagcatgttatatcccctactgattacctc

Peptide evidence:

NA



Proposed sequence (peptide evidence in red): 72aa

LGHKRIQTL~~SLAVILAIVNALIFNIP~~MFNMPMDNMPMDNMPMDNAPMRQWSVRFVPPGSLTLLSMLYPLLITSF~~FGM~~

Error 47

Strain: Y. pestis CO92
Gene: YPO2654.5

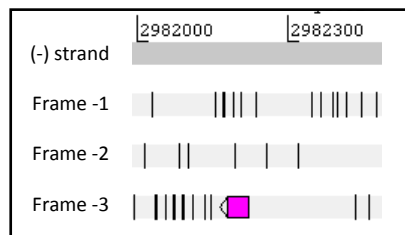
Classification: novel gene
Boundaries of gene: complement(2982147..2982344)

Oligo evidence:
NA

Peptide evidence:

DAAAFNLHLNSQHK

Proposed sequence (peptide evidence in red): 65aa
LPVSVVGVKISKITGNITLFTVSSLVRQMKMLGAHLDALAK**DAAAFNLHLNSQHK**NNTDNFSGDNT



Strain: Y. pestis pestoides F
Gene: YPDSF_1618

Classification: annotated as hypothetical protein
Boundaries of gene: 1812608..1812946

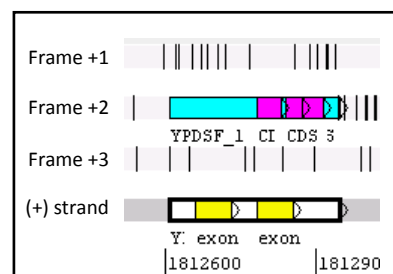
Oligo evidence:

cagtcaactttgagaacagcataagacatggcaatcaagctataatgcgttgcaatagagctggaac
aaactcaatcggcgaatacactaccggaacagcattcactggtcaggcaaatgaaatgctgggggcac

Peptide evidence:

DAAAFNLHLNSQHK
MLGAHLDALAK
KLNTANTLPEQHSLVR

Current sequence (peptide evidence in red): 112aa
MTMRELEVQFLKAMSELQSTFEKQHK**TWQSSYNALQYELEQSK**ARESALRVKNEMLLR**KLNTANTLPEQHSLVR**QMKMLGAHLDALAK**DAAAFNLHLNSQHK**NNTDNFSGDNT



Strain: Y. pseudotuberculosis
Gene: YPTS_3068

Classification: annotated as hypothetical protein
Boundaries of gene: 3397910..3398248

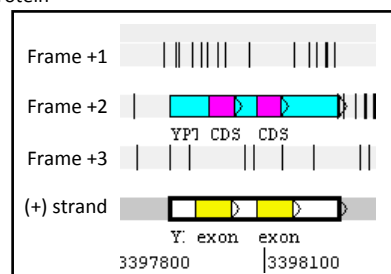
Oligo evidence:

cagtcaactttgagaacagcataagacatggcaatcaagctataatgcgttgcaatagagctggaac
aaactcaatcggcgaatacactaccggaacagcattcactggtcaggcaaatgaaatgctgggggcac

Peptide evidence:

KLNTANTLPEQHSLVR
TWQSSYNALQYELEQSK

Current sequence (peptide evidence in red): 112aa
MTMRELEVQFLKAMSELQSTFEKQHK**TWQSSYNALQYELEQSK**ARESALRVKNEMLLR**KLNTANTLPEQHSLVR**QMKMLGAHLDALAK**DAAAFNLHLNSQHK**NNTDNFSGDNT



Error 88

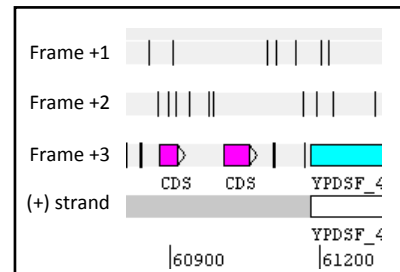
Strain: *Y. pestis* pestoides F plasmid MT
Gene: YPDSF_4088.5

Classification: novel gene
Boundaries of gene: 60858..61109

Oligo evidence:
NA

Peptide evidence:

HIQEAI EYALSK
SVWSTPDVPEHHATQIR



Proposed sequence (peptide evidence in red): 83aa

MKSHPNK**HIQEAI EYALSK**GWVWVVPAGKSAHCFCKLRGDKSGEHTSHHRS**SVWSTPDVPEHHATQIR**QAVDQCGRINQMSKK

Error 48

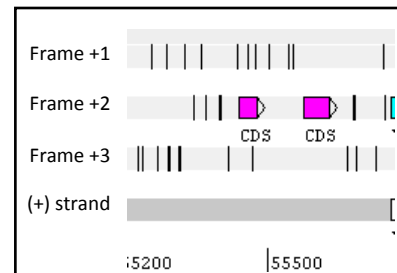
Strain: *Y. pestis* CO92 plasmid MT
Gene: YPMT1.53c.5

Classification: novel gene
Boundaries of gene: 55421..55672

Oligo evidence:
NA

Peptide evidence:

HIQEAI EYALSK
SVWSTPDVPEHHATQIR



Proposed sequence (peptide evidence in red): 83aa

MKSHPNK**HIQEAI EYALSK**GWVWVVPAGKSAHCFCKLRGDKSGEHTSHHRS**SVWSTPDVPEHHATQIR**QAVDQCGRINQMSKK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 49

Strain: Y. pestis CO92
Gene: YPO0099

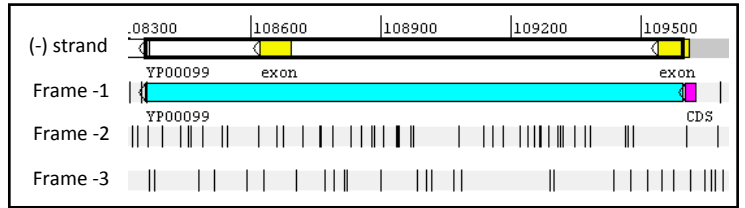
Classification: upstream start site
Boundaries of gene: complement (108358..109674)

Oligo evidence:

atattagaacaaaatggttggggaaggcgctgtaacttcgggttattccacaacgttcatactgctctt
aagtcataatacgctatgacgcttcccccttgaaaagtgtgcaatttctctggcgataatctctat

Peptide evidence:

DAVEYIR



Proposed sequence (peptide evidence in red): 438aa

MMGITERGMSSNQIFRRDAVEYIRTKWLGKALLTSGYSTTFIAALCAIFLVLLITLIYGYTRRINVNGEVISQPHNIFSPQQGFITKKWVEVGDIVRKGQHLYQIDVSRRTTFSGNVSLNSLEAINNQLSQIDSIINNTQKNKELTLLNLRQQLAQYQKAHKKSQELVDNAGKGMDDMRRTMASYGYRQGLITKDQLTNQRSLFYQQQNAFQSLNTQLIQESLQIAKLESEISTRASDFDNDISQYLFQKGDLRQLAEVDASGMILLINSPSDGKIENMSVTQGQMVNVNDSLVLQTPSDNPPYCLVLWVPPNSVPYINTGDKVNIRYDAFPFEKFGQFPGRISISNVPVSQQEIASYNIAPRLPNGGLIEPYKVIVALDDIHFRYQSKPLMLSNGLKANVTFLFKRPLYQWMLSPFYDIKKSVTGPVNE

Strain: Y. pestis pestoides F
Gene: YPDSF_3807

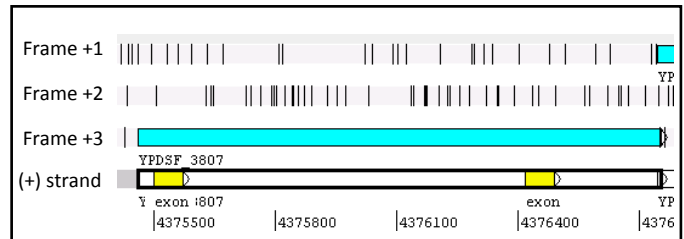
Classification: annotated as hypothetical protein
Boundaries of gene: 4375437..4376750

Oligo evidence:

atattagaacaaaatggttggggaaggcgctgtaacttcgggttattccacaacgttcatactgctctt
aagtcataatacgctatgacgcttcccccttgaaaagtgtgcaatttctctggcgataatctctat

Peptide evidence:

NA



Current sequence (peptide evidence in red): 430aa

MSSNQIFRRDAVEYIRTKWLGKALLTSGYSTTFIAALCAIFLVLLITLIYGYTRRINVNGEVISQPHNIFSPQQGFITKKWVEVGDIVRKGQHLYQIDVSRRTTFSGNVSLNSLEAINNQLSQIDSIINNTQKNKELTLLNLRQQLAQYQKAHKKSQELVDNAGKGMDDMRRTMASYGYRQGLITKDQLTNQRSLFYQQQNAFQSLNTQLIQESLQIAKLESEISTRASDFDNDISQYLFQKGDLRQLAEVDASGMILLINSPSDGKIENMSVTQGQMVNVNDSLVLQTPSDNPPYCLVLWVPPNSVPYINTGDKVNIRYDAFPFEKFGQFPGRISISNVPVSQQEIASYNIAPRLPNGGLIEPYKVIVALDDIHFRYQSKPLMLSNGLKANVTFLFKRPLYQWMLSPFYDIKKSVTGPVNE

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_0094

Classification: annotated as secretion protein HlyD family protein
Boundaries of gene: 98853..100169

Oligo evidence:

aagtcataatacgctatgacgcttcccccttgaaaagtgtgcaatttctctggcgataatctctat
tattagaacaaaatggttggggaaggcgctgtaacttcgggttattccacaacgttcatactgctctt

Peptide evidence:

NA



Current sequence (peptide evidence in red): 430aa

MSSNQIFRRDAVEYIRTKWLGKALLTSGYSTTFIAALCAIFLVLLITLIYGYTRRINVNGEVISQPHNIFSPQQGFITKKWVEVGDIVRKGQHLYQIDVSRRTTFSGNVSLNSLEAINNQLSQIDSIINNTQKNKELTLLNLRQQLAQYQKAHKKSQELVDNAGKGMDDMRRTMASYGYRQGLITKDQLTNQRSLFYQQQNAFQSLNTQLIQESLQIAKLESEISTRASDFDNDISQYLFQKGDLRQLAEVDASGMILLINSPSDGKIENMSVTQGQMVNVNDSLVLQTPSDNPPYCLVLWVPPNSVPYINTGDKVNIRYDAFPFEKFGQFPGRISISNVPVSQQEIASYNIAPRLPNGGLIEPYKVIVALDDIHFRYQSKPLMLSNGLKANVTFLFKRPLYQWMLSPFYDIKKSVTGPVNE

Error 50

Strain: Y. pestis CO92
Gene: YPO0453

Classification: upstream start site
Boundaries of gene: 478173..478562

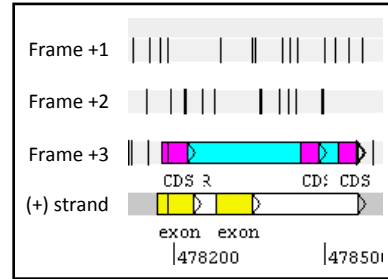
Oligo evidence:

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agcactggttgacctttgtcgcgctgttgcacaaacgcgattacacaagaatcttcatctgcctttactgca

Peptide evidence:

SQLGAGIATITR
SWLEAQLLANKR
TKQFLTDEKQVSDSLNR

Proposed sequence (peptide evidence in red): 130aa
Current annotation is underlined



MTKQFLTDEKQVSDSLNRQTAGNPYSAADPALSAEDNQHWLSFVALLQNAITQDLHLPLLQLMLTPDERTALGTRVRIIEELMRGELSQRELKSQLGAGIATITRGSNSLKTAPPQLKSWLEAQLLANKR

Strain: Y. pestis pestoides F
Gene: YPDFS_3181

Classification: annotated as Trp operon repressor
Boundaries of gene: complement (3620475..3620873)

Oligo evidence:

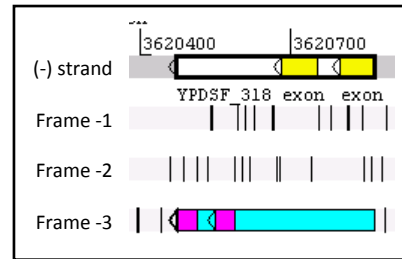
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Peptide evidence:

SQLGAGIATITR
SWLEAQLLANKR

Current sequence (peptide evidence in red): 130aa

MTKQFLTDEKQVSDSLNRQTAGNPYSAADPALSAEDNQHWLSFVALLQNAITQDLHLPLLQLMLTPDERTALGTRVRIIEELMRGELSQRELKSQLGAGIATITRGSNSLKTAPPQLKSWLEAQLLANKR



Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_0618

Classification: annotated as Trp operon repressor
Boundaries of gene: 687936..688334

Oligo evidence:

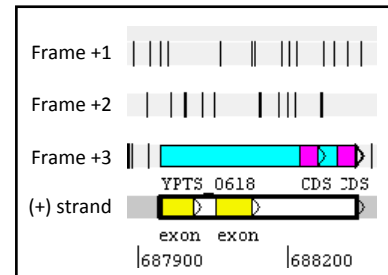
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agcactggttgacctttgtcgcgctgttgcacaaacgcgattacacaagaatcttcatctgcctttactgca

Peptide evidence:

SQLGAGIATITR
SWLEAQLLANKR

Current sequence (peptide evidence in red): 130aa

MTKQFLTDEKQVSDSLNRQTAGNPYSAADPALSAEDNQHWLSFVALLQNAITQDLHLPLLQLMLTPDERTALGTRVRIIEELMRGELSQRELKSQLGAGIATITRGSNSLKTAPPQLKSWLEAQLLANKR



Error 1

Strain: *Y. pestis pestoides* F
Gene: YPDSF_0112 / YPDSF_0111

Classification: expressed pseudogene
Boundaries of gene: Frame-2: complement (130808..131353)
Frame -1: complement (130372..130806)

Oligo evidence:

acatgcgctgaacaacgctggccagcagcagaaatccagctattagcgaataataataatcaatccgctg
aaactcaatgcagcaggctgaattgctcattttcatgatccagcagaacaacctccgagcagcaattag

Peptide evidence:

HEALSGFALMPELGR
NPDVSAVHTYVYSK

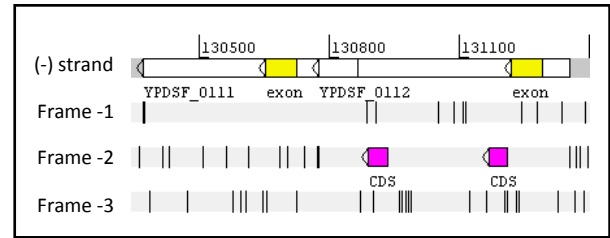
Proposed sequence (peptide evidence in red):

Frame-2: 182aa

MQRILVIRIDFLGDMVCTTALLHALKQRWPAAEIHVLANKYNQSVLAR**NPDVSAVHTYVYSK**QCERNQRPGRMLALFDRLALIWRRLRGFDLLIPNGGMNKNSIQFAKQLNVADRRWH
TAETEFDDRNPEHVATRP**IRHEALSGFALMPELGR**VDIETLKLHVYPEPQLQAKWQADLGGK

Frame-1: 145aa

DRPRVGLFISNKSQRRWSWDKWRQLALKLNAQAELLIFHDPAEQPSEQQLAGLTARCLSTPSTDLLMAAMSQDLVLISADSAPVHIGSALQIPVVALFESRPEKYLRWYPLGVRHVLVHAG
PQVEDIHVDAVESAAARSLTTD



Strain: *Y. pestis* CO92
Gene: YPO0186

Classification: annotated as putative sugar transferase
Boundaries of gene: 203866..204846

Oligo evidence:

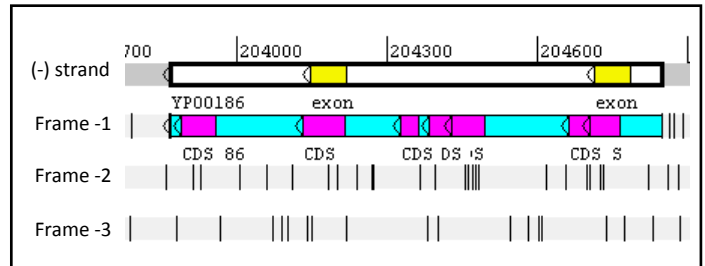
acatgcgctgaacaacgctggccagcagcagaaatccagctattagcgaataataataatcaatccgctg
aaactcaatgcagcaggctgaattgctcattttcatgatccagcagaacaacctccgagcagcaattag

Peptide evidence:

HEALSGFALMPELGR
HVLVHAGPQVEDIHVDAVESAAR
LHVYPEPQLQAK
LNAQAELLIFHDPAEQPSEQQLAGLTAR
NPDVSAVHTYVYSK
WHTAETEFDDRNPEHVATRP
WPAAEIHVLANKYNQSVLAR

Current sequence (peptide evidence in red): 326aa

MQRILVIRIDFLGDMVCTTALLHALKQR**WPAAEIHVLANKYNQSVLAR****NPDVSAVHTYVYSK**QCERNQRPGRMLALFDRLALIWRRLRGFDLLIPNGGMNKNSIQFAKQLNVADRRWH
TAETEFDDRNPEHVATRP**IRHEALSGFALMPELGR**VDIETLKLHVYPEPQLQAKWQADLGGKDRPRVGLFISNKSQRRWSWDKWRQLALK**LNAQAELLIFHDPAEQPSEQQLAGLTAR**CL
STPSTDLLMAAMSQDLVLISADSAPVHIGSALQIPVVALFESRPEKYLRWYPLGVR**HVLVHAGPQVEDIHVDAVESAAR**SLTTD



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3910

Classification: annotated as glycosyl transferase family protein
Boundaries of gene: 4344683..4345663

Oligo evidence:

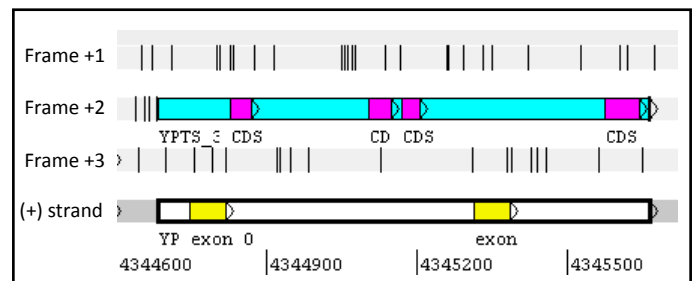
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Peptide evidence:

HEALSGFALMPELGR
HVLVHAGPQVEDIHVDAVESAAR
LHVYPEPQLQAK
NPDVSAVHTYVYSK

Current sequence (peptide evidence in red): 326aa

MQRILVIRIDFLGDMVCTTALLHALKQRWPAAEIHVLANKYNQSVL**TRNPDVSAVHTYVYSK**QCERNPRPGRMLALFDRLALIWRRLRGFDLLIPNGGMNKNSIQFAKQLNVADRRWH
AETEFDDRNPEHVATRP**IRHEALSGFALMPELGR**VDIETLKLHVYPEPQLQAKWRADLGEKDRPRVGLFISNKSQRRWSWDKWRQLALKLNAQAELLIFHDPAEQPSEQQLAGLTARCLST
PSTDLLMAAMSQDLVLISADSAPVHIGSALQIPVVALFESRPEKYLRWYPLGVR**HVLVHAGPQVEDIHVDAVESAAR**SLTTD



Error 52

Strain: *Y. pestis pestoides* F
Gene: YPDSF_0343 / YPDSF_0344

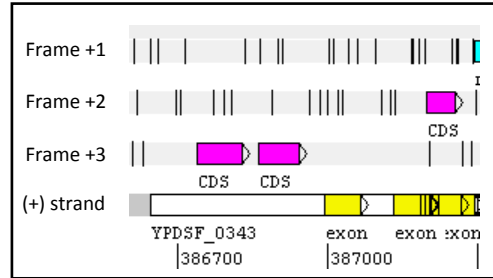
Classification: expressed pseudogene/frameshift
Boundaries of gene: Frame+3: 386646..387149
Frame+2: 387149.. 387298

Oligo evidence:

```
atataagtaattcaattaatgataagtcggtaaaccaattggattgatgtatttccgggatg  
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aaagtggtagacacccgcttacatgttggctgttcatttcagaagcggctaaaggtattgataat  
ttgctggttccatttcagaagcggctaaaggtattgataaattgtagacaaagcttggattaaactg
```

Peptide evidence:

```
AGAEVLFFAPDKPQLHVINHITGEIVAER  
GLITPLSAADPEVLDALIVLGGFGAAK  
VVTTPAYMLAGSISEAAK
```



Proposed sequence (peptide evidence in red):

Frame+3: 168aa
MKTVGVLVSGCVLDGAEIHESVLTMLALDR**AGAEVLFFAPDKPQLHVINHITGEIVAER**NVLVESARIAR**GLITPLSAADPEVLDALIVLGGFGAAK**NLCDFAIKGGECVPEPDLYKLIQLMH
KSGKPIGLMCISPVMPLKLLGKPIRLTIGNDPDTIDAIEIMGG

Frame+2: 49aa
EHVICPADDVVIDLEN**VVTTPAYMLAGSISEAAK**GIDKLVTKVLDLTE

Strain: *Y. pestis* CO92
Gene: YPO3553

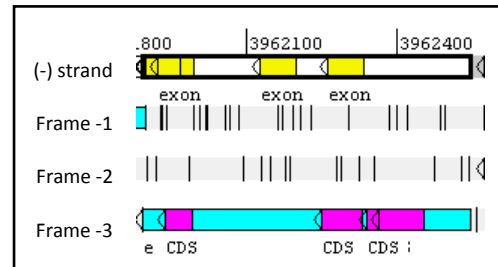
Classification: annotated as isoprenoid biosynthesis protein with
amidotransferase-like domain
Boundaries of gene: 3961893..3962546

Oligo evidence:

```
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ataaagtaattcaattaatgataagtcggtaaaccaattggattgatgtatttccgggatg  
aaagtggtagacacccgcttacatgttggctgttcatttcagaagcggctaaaggtattgataat  
ttgctggttccatttcagaagcggctaaaggtattgataaattgtagacaaagcttggattaaactg
```

Peptide evidence:

```
AGAEVLFFAPDKPQLHVINHITGEIVAER  
GLITPLSAADPEVLDALIVPGGFGAAK  
NVLVESAR  
VVTTPAYMLAGSISEAAK
```



Current sequence (peptide evidence in red): 217aa

MKTVGVLVSGCVLDGAEIHESVLTMLALDR**AGAEVLFFAPDKPQLHVINHITGEIVAER**NVLVESARIAR**GLITPLSAADPEVLDALIVPGGFGAAK**NLCDFAIKGGECVPEPDLYKLIQLMH
KSGKPIGLMCISPVMPLKLLGKPIRLTIGNDPDTIDAIEIMGG**EHVICPADDVVIDLENK****VVTTPAYMLAGSISEAAK**GIDKLVTKVLDLTE

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3683

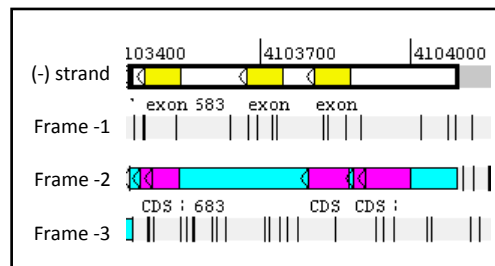
Classification: annotated as isoprenoid biosynthesis protein with amidotransferase-like domain
Boundaries of gene: 4103437..4104090

Oligo evidence:

```
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atataagtaattcaattaatgataagtcggtaaaccaattggattgatgtatttccgggatg  
aaagtggtagacacccgcttacatgttggctgttcatttcagaagcggctaaaggtattgataat
```

Peptide evidence:

```
AGAEVLFFAPDKPQLHVINHITGEIVAER  
GIDKLVTK  
GLITPLSAADPEVLDALIVPGGFGAAK  
NVLVESAR  
VVTTPAYMLAGSISEAAK
```



Current sequence (peptide evidence in red): 217aa

MKTVGVLVSGCVLDGAEIHESVLTMLALDR**AGAEVLFFAPDKPQLHVINHITGEIVAER**NVLVESARIAR**GLITPLSAADPEVLDALIVPGGFGAAK**NLCDFAIKGGECVPEPDLYKLIQLMH
KSGKPIGLMCISPVMPLKLLGKPIRLTIGNDPDTIDAIEIMGG**EHVICPADDVVIDLENK****VVTTPAYMLAGSISEAAK****GIDKLVTKVLDLTE**

Error 53

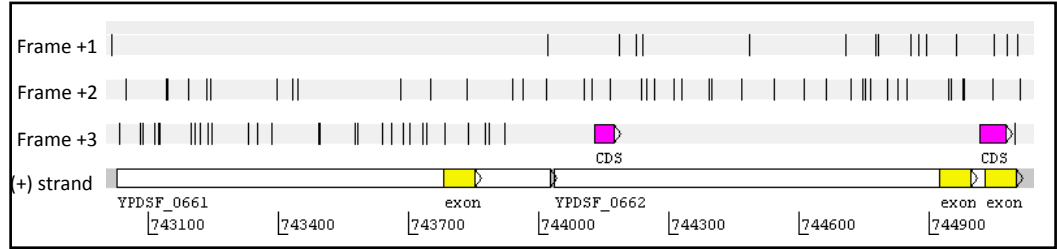
Strain: *Y. pestis pestoides F*
 Gene: YPDSF_0661/YPDSF_0662
 Oligo evidence:

Classification: expressed pseudogene
 Boundaries of gene: Frame+1:743029..743982
 Frame+3: 743994..745100

actaactttatggagtacttctacgattacgactactggaagtggcgcaggtgattgatttctctct
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 agcagccggtacaaggtagcctgacgcttccccatggggaagccgagtgctaactcgctatctcgaata

Peptide evidence:

FHGAVVDHVGHIDTR
 DMVDQQPVQGSLLAPWGSR



Proposed sequence (peptide evidence in red):

Frame+1: 318aa

MSKFPPLSAKVSALLHGADYNPEQWENYPIIDKDIAMMKQAKCNVMSVGFISWVKLEPSEGEYNFSLWDELIEKLYAAGIHIFLATPSGARPAWMSQKYPEVLRVGRDRVPALHGGRRHNHCMTSPVYRQKVRQINQ
 KLAERYAHPAVIGWHISNEYGGECHCSQKFRWLQDRYQTLNLDNEAWWSAFWSHTYSDWSQIESPAPQGEVSIHGLNLDWRRFNNTAQVTEFCSEEAKPLKAANPELPTTNFMMEFYDYDYWKLAVQIDFIS
 WDSYPMWHREKDETQLACYTAMYHDLMLRMLKQGRPFVLMESTPS

Frame+3: 368aa

ATNWQPTSKLKKPGMHILSSLQAVAHGADAVQYFQWRKSRGSVEK**FHGAVVDHVGHIDTR**VGREVSELGRILEAMSPVMGSKVDADVAIIFDWESRWAMDDAEGPRNCGLEYEKVAEHYRPFWERGIAVDIINAD
 CDLSGYKLVIAFMLYVMEVREGFAERATRFVEQGGQFVATYWSGIVNESDLCHLGGFPGLRPLLGIWSEEIDCLADGESNQVQLAGNKAGLQGPYQAIHCLDIHLEGATAVARYRDFDYADRAAVTVNFVGEKAWY
 VASRNDAAFQRDFFMNIAEELNLRALDQTQFPYGVTAHRRRTDGESEFIVVENYSNDSKSLVLPAYVR**DMVDQQPVQGSLLAPWGSR**VLTRYLE

Strain: *Y. pestis C092*
 Gene: YPO0852

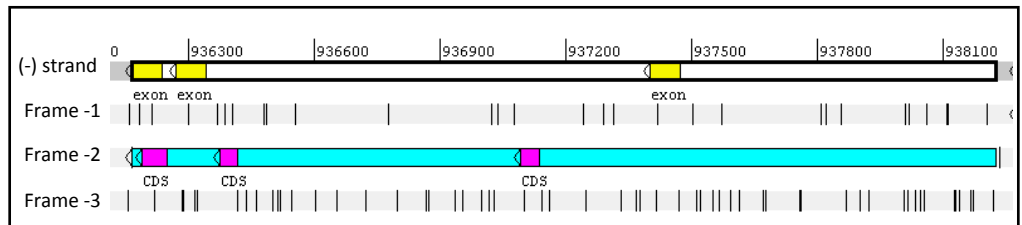
Classification: annotated as putative beta-galactosidase
 Boundaries of gene: 936164..938224

Oligo evidence:

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 ctaccctgtaccgatggtagagtgaaattatctggttagaaaactacagtaatagacagcaaatcgct
 agcagccggtacaaggtagcctgacgcttccccatggggaagccgagtgctaactcgctatctcgaata

Peptide evidence:

DFFMNIAEELNLR
 DMVDQQPVQGSLLAPWGSR
 FHGAVVDHVGHIDTR



Current sequence (peptide evidence in red): 686aa

MSKFPPLSAKVSALLHGADYNPEQWENYPIIDKDIAMMKQAKCNVMSVGFISWVKLEPSEGEYNFSLWDELIEKLYAAGIHIFLATPSGARPAWMSQKYPEVLRVGRDRVPALHGGRRHNHCMTSPVYRQKVRQINQ
 KLAERYAHPAVIGWHISNEYGGECHCSQKFRWLQDRYQTLNLDNEAWWSAFWSHTYSDWSQIESPAPQGEVSIHGLNLDWRRFNNTAQVTEFCSEEAKPLKAANPELPTTNFMMEFYDYDYWKLAVQIDFIS
 WDSYPMWHREKDETQLACYTAMYHDLMLRMLKQGRPFVLMESTPSATNWQPTSKLKKPGMHILSSLQAVAHGADAVQYFQWRKSRGSVEK**FHGAVVDHVGHIDTR**VGREVSELGRILEAMSPVMGSKVDADVAI
 FDWESRWAMDDAEGPRNCGLEYEKVAEHYRPFWERGIAVDIINADCDLSGYKLVIAFMLYVMEVREGFAERATRFVEQGGQFVATYWSGIVNESDLCHLGGFPGLRPLLGIWSEEIDCLADGESNQVQLAGNKAGL
 QGPYQAIHCLDIHLEGATAVARYRDFDYADRAAVTVNFVGEKAWYVASRNDAAFQR**DFFMNIAEELNLR**ALDQTQFPYGVTAHRRRTDGESEFIVVENYSNDSKSLVLPAYVR**DMVDQQPVQGSLLAPWGSR**VLTRYLE

Strain: *Y. pseudotuberculosis PB1/+*
 Gene: YPTS_3219

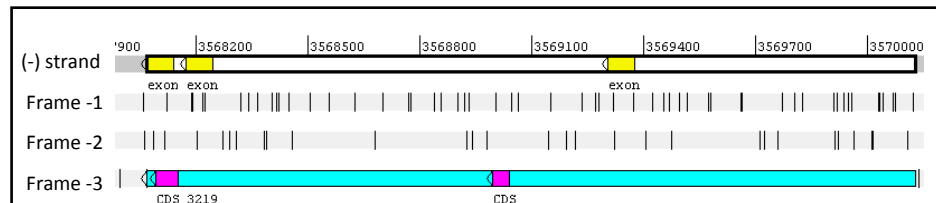
Classification: annotated as glycoside hydrolase family 42 protein
 Boundaries of gene: 3568067..3570127

Oligo evidence:

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 agcagccggtacaaggtagcctgacgcttccccatggggaagccgagtgctaactcgctatctcgaata

Peptide evidence:

DMVDQQPVQGSLLAPWGSR
 FHGAVVDHVGHIDTR



Current sequence (peptide evidence in red): 686aa

MSKFPPLSAKVSALLHGADYNPEQWENYPIIDKDIAMMKQAKCNVMSVGFISWVKLEPSEGEYNFSLWDELIEKLYAAGIHIFLATPSGARPAWMSQKYPEVLRVGRDRVPALHGGRRHNHCMTSPVYRQKVRQINQ
 KLAERYAHPAVIGWHISNEYGGECHCSQKFRWLQDRYQTLNLDNEAWWSAFWSHTYSDWSQIESPAPQGEVSIHGLNLDWRRFNNTAQVTEFCSEEAKPLKAANPELPTTNFMMEFYDYDYWKLAVQIDFIS
 WDSYPMWHREKDETQLACYTAMYHDLMLRMLKQGRPFVLMESTPSATNWQPTSKLKKPGMHILSSLQAVAHGADAVQYFQWRKSRGSVEK**FHGAVVDHVGHIDTR**VGREVSELGRILEAMSPVMGSKVDADVAI
 FDWESRWAMDDAEGPRNCGLEYEKVAEHYRPFWERGIAVDIINADCDLSGYKLVIAFMLYVMEVREGFAERATRFVEQGGQFVATYWSGIVNESDLCHLGGFPGLRPLLGIWSEEIDCLADGESNQVQLAGNKAGL
 QGPYQAIHCLDIHLEGATAVARYRDFDYADRAAVTVNFVGEKAWYVASRNDAAFQR**DFFMNIAEELNLR**ALDQTQFPYGVTAHRRRTDGESEFIVVENYSNDSKSLVLPAYVR**DMVDQQPVQGSLLAPWGSR**VLTRYLE

Error 54

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0663

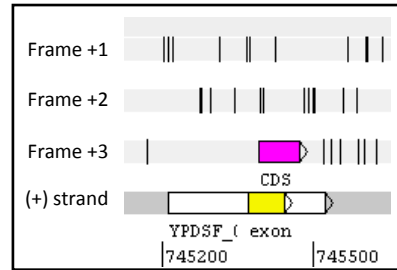
Classification: expressed pseudogene
Boundaries of gene: 745212..745523

Oligo evidence:

ggtaaacgatctctccaaggttaattctgaagcgctacaacaacgcggggcattaggcgttattattctt

Peptide evidence:

VNSEALQQAGALGVIIIGQEVHAIFGK



Proposed sequence (peptide evidence in red): 103aa

MISLKSFMHYFSPKPTPSFTDEEKQAEMLLHYLGGKENIKNIDACITRLRVTVNDLSK**VNSEALQQAGALGVIIIGQEVHAIFGK**QSDNLRKILDEHFSQS

Strain: *Y. pestis* CO92
Gene: YPO0851

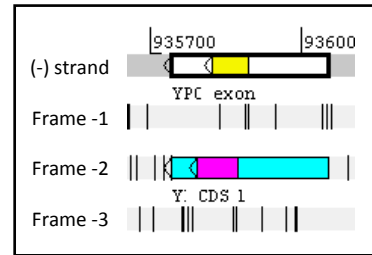
Classification: annotated as PTS transport protein (partial)
Boundaries of gene: 935741..936052

Oligo evidence:

ggtaaacgatctctccaaggttaattctgaagcgctacaacaacgcggggcattaggcgttattattctt

Peptide evidence:

VNSEALQQAGALGVIIIGQEVHAIFGK



Current sequence (peptide evidence in red): 103aa

MISLKSFMHYFSPKPTPSFTDEEKQAEMLLHYLGGKENIKNIDACITRLRVTVNDLSK**VNSEALQQAGALGVIIIGQEVHAIFGK**QSDNLRKILDEHFSQS

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3218

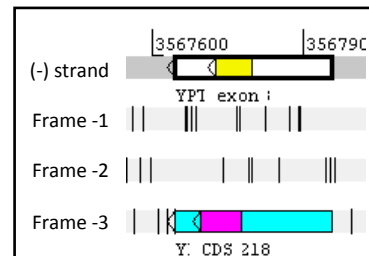
Classification: annotated as PTS system transporter subunit E11B
Boundaries of gene: 3567644..3567955

Oligo evidence:

ggtaaacgatctctccaaggttaattctgaagcgctacaacaacgcggggcattaggcgttattattctt

Peptide evidence:

VNSEALQQAGALGVIIIGQEVHAIFGK



Current sequence (peptide evidence in red): 103aa

MISLKSFMHYFSPKPTPSFTDEEKQAEMLLHYLGGKENIKNIDACITRLRVTVNDLSK**VNSEALQQAGALGVIIIGQEVHAIFGK**QSDNLRKILDEHFSQS

Error 55

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0859

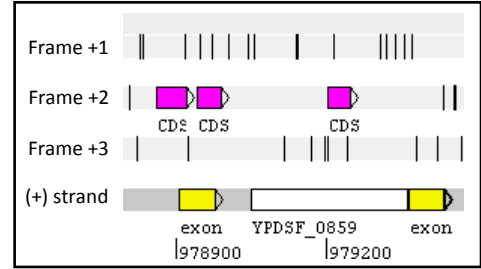
Classification: expressed pseudogene/upstream start site
Boundaries of gene: 978809..979435

Oligo evidence:

tacagtgggttaaacagtaggagactccggcaaatatgtgaactggttggtgcgccgtcagataacaa
ttttgactgtatgtgatcacaaaagcgaatgtcgacaaatatacatcacggtttgtgatgcagagta

Peptide evidence:

AQLVSNNAQGAALGAIQWVK
VGAFDGPDAVDAVK
YVELVGAPSDNNAATR



Proposed sequence (peptide evidence in red): 208aa

LPVFIINAELNQSGLAK**AQLVSNNAQGAALGAIQWVK**TVGDSGKY**YVELVGAPSDNNAATR**RANGYSSVLSQYPDLKRVGKEVANWDR**TQ**GYNKMQSMLQAN**PD**IKGVISGNDE**MALGAI**
AALKEAGKIDQVKVGAFDGPDAVDAVKAGTLAYTVLQPVAVFSAKAIEQADN**FLKTGKTGARGEKQLFDCMLITKANVDKYTSPFVMSE**

Strain: *Y. pestis* CO92
Gene: YPO2285

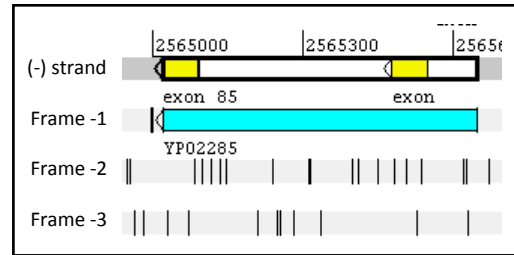
Classification: annotated as putative ribose-binding periplasmic protein (partial)
Boundaries of gene: 2565022..2565645

Oligo evidence:

tacagtgggttaaacagtaggagactccggcaaatatgtgaactggttggtgcgccgtcagataacaa
ttttgactgtatgtgatcacaaaagcgaatgtcgacaaatatacatcacggtttgtgatgcagagta

Peptide evidence:

NA



Current sequence (peptide evidence in red): 208aa

LPVFIINAELNQSGLAK**AQLVSNNAQGAALGAIQWVK**TVGDSGKY**YVELVGAPSDNNAATR**RANGYSSVLSQYPDLKRVGKEVANWDR**TQ**GYNKMQSMLQAN**PD**IKGVISGNDE**MALGAI**
AALKEAGKIDQVKVGAFDGPDAVDAVKAGTLAYTVLQPVAVFSAKAIEQADN**FLKTGKTGARGEKQLFDCMLITKANVDKYTSPFVMSE**

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2281

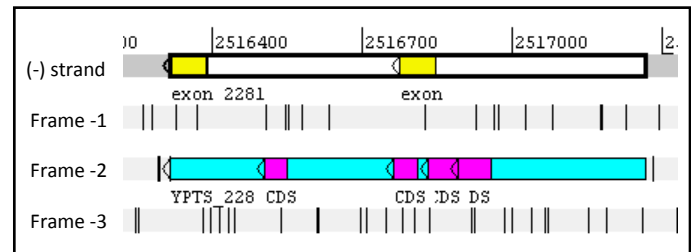
Classification: annotated as periplasmic binding protein/LacI transcriptional regulator
Boundaries of gene: 2516314..2517264

Oligo evidence:

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ttttgactgtatgtgatcacaaaagcgaatgtcgacaaatatacatcacggtttgtgatgcagagta

Peptide evidence:

AIAANIPVFIINAELNQSGLAK
AQLVSNNAQGAALGAIQWVK
VGAFDGPDAVDAVK
YVELVGAPSDNNAATR



Current sequence (peptide evidence in red): 316aa

MFNSKHFLLLVAMTFATVFSTASWANNGLMTIIINDPSNPYWFTEGLVAKATAEKMGYSATVSAHKGDTNTESQLIDITAITNKSKAIIIDPANADGSIGSVK**AIAANIPVFIINAELNQSGLAK**
AQLVSNNAQGAALGAIQWVKTVGDSGKY**YVELVGAPSDNNAATR**RANGYSSVLSQYPDLKRVGKEVANWDR**TQ**GYNKMQSMLQAN**PD**IKGVISGNDE**MALGAI**
AALKEAGKIDQVKVGAFDGPDAVDAVKAGTLAYTVLQPVAVFSAKAIEQADN**FLKTGKTGARGEKQLFDCMLITKANVDKYTSPFVMSE**

Error 56

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1048/1049

Classification: expressed pseudogene
Boundaries of gene: frame-2: complement (1180811..1180966)
frame-1: complement (1180366..1180815)

Oligo evidence:

tacgtcaatgactcagctctaagaaatttagaatacataaatggatgtatggttgctaggtttgggggct
caccgttgcaagatcttaatcagatcagctccaagctattattggtcaggaagcgcctttggcggtgta
tctggaaccggttgatttccgtggacatttagtgacagttgtgggcccattgtcggggtgaagccgc

Peptide evidence:

FGGTVVNVK
GHLVTVVGPIVGVEAGK

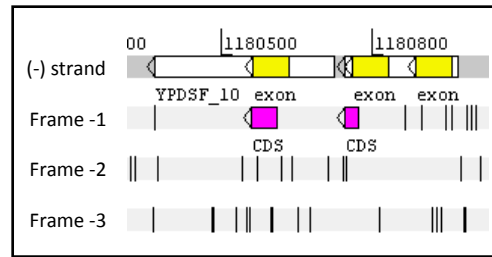
Proposed sequence (peptide evidence in red):

frame-2: 52aa

MAMNNTSMTQSKKFRNHKWMYGLGLGALLSGCVTIPPAIQGTTATPLQDLN

frame-1: 149aa

LIRSAPKLFIGQEAR**FGGTVVNVK**NEPNRTRLEIASVPLDSGARPILEGPSQGRVIAYVDGFLEPVDFR**GHLVTVVGPIVGVEAGK**IGMTPYNFVVIKATGYKRWHIAQQVIIPPTFGPWGYRPADMWGPWPGWYNGPAEIQTIVTD



Strain: *Y. pestis* CO92
Gene: YPO2073

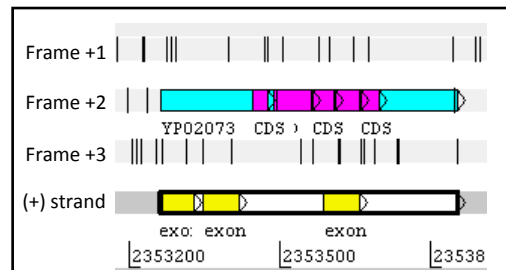
Classification: annotated as putative lipoprotein
Boundaries of gene: 2353262..2353849

Oligo evidence:

tacgtcaatgactcagctctaagaaatttagaatacataaatggatgtatggttgctaggtttgggggct
acgataccgctgccattcaggaacgacggcgacaccgttgcaagatcttaatctgatcagatcagctc
tctggaaccggttgatttccgtggacatttagtgacagttgtgggcccattgtcggggtgaagccgc

Peptide evidence:

FGGTVVNVK
GHLVTVVGPIVGVEAGK
IGMTPYNFVVIK
LEIASVPLDSGARPILEGPSQGR
TRLEIASVPLDSGARPILEGPSQGR
VIAYVDGFLEPVDFR



Current sequence (peptide evidence in red): 195aa

MTQSKKFRNHKWMYGLGLGALLSGCVTIPPAIQGTTATPLQDLN**LIRSAPKLFIGQEARFGGTVVNVK**NEPNRTRLEIASVPLDSGARPILEGPSQGRVIAYVDGFLEPVDFR**GHLVTVVGPIVGVEAGKIGMTPYNFVVIK**ATGYKRWHIAQQVIIPPTFGPWGYRPADMWGPWPGWYNGPAEIQTIVTD

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2117

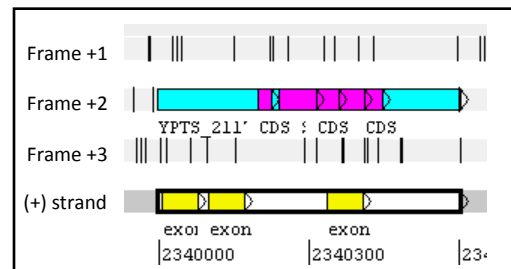
Classification: annotated as Slp family outer membrane lipoprotein
Boundaries of gene: 2339996..2340601

Oligo evidence:

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acgataccgctgccattcaggaacgacggcgacaccgttgcaagatcttaatctgatcagatcagctc
tctggaaccggttgatttccgtggacatttagtgacagttgtgggcccattgtcggggtgaagccgc

Peptide evidence:

FGGTVVNVK
GHLVTVVGPIVGVEAGK
IGMTPYNFVVIK
TRLEIASVPLDSGARPILEGPSQGR
VIAYVDGFLEPVDFR



Current sequence (peptide evidence in red): 201aa

MAMNNTSMTQSKKFRNHKWMYGLGLGALLSGCVTIPPAIQGTTATPLQDLN**LIRSAPKLFIGQEARFGGTVVNVK**NEPNRTRLEIASVPLDSGARPILEGPSQGRVIAYVDGFLEPVDFR**GHLVTVVGPIVGVEAGKIGMTPYNFVVIK**ATGYKRWHIAQQVIIPPTFGPWGYRPADMWGPWPGWYNGPAEIQTIVTD

Error 57

Strain: *Y. pestis pestoides F*
Gene: YPDSF_1279 / YPDSF_12780

Classification: expressed pseudogene
Boundaries of gene: Frame-3: complement (1444935..1445204)
Frame-2: complement (1444409..1444939)

Oligo evidence:

aataaacatgacagctggagcttctatgagctttcaattgtacgtcgccgattgttctgggcatggg
gccaacgcttgctgaacacatgggggtcaaagctaaatcacgccaacaaatgggatgctggcctcg
tattcaagtactgacacaaaaaggtaacgaagccagtttactaagccagaagatttacaggtaagaag

Peptide evidence: KGNEGQFTKPEDLQGK
KGNEGQFTKPEDLQGKK
KNNPELLAAVNNAIAEMQK
KTNDALAVAGPAFAR
KVGVLGGSNYEQWLR
KYDFSTPYTVSGIQVLTK
NNPELLAAVNNAIAEMQK
VGVGLGGSNYEQWLR
YDFSTPYTVSGIQVLTK

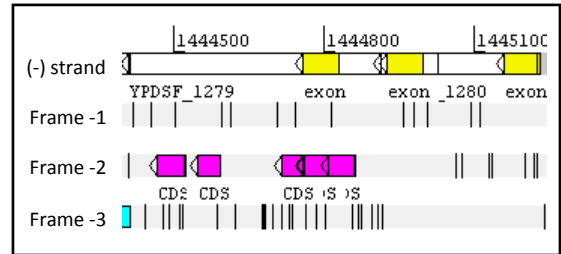
Proposed sequence (peptide evidence in red):

Frame-3: 90aa

MSFSIVRRRIVLGMVAVALATGLNVKSYAAGDLEQVKQRGLTIVGLEGTYPFQSGEDGKLTGFEVDFANALAEHMGVKAKITPTKW

Frame-2: 176aa

GMLASLESKRIDVAINQVTISDERKK**KYDFSTPYTVSGIQVLTKKGNEGQFTKPEDLQGKKVGVGLGGSNYEQWLR**ENLKDVIDIRYDDPTKYQDLRVGRTDAILVDRLAALDLVKK**TNDALAVAGPAFARQESGVAMRKNNPELLAAVNNAIAEMQK**DGTLAKISEKYFGADVTQ



Strain: *Y. pestis C092*
Gene: YPO1846

Classification: annotated as flhY
Boundaries of gene: 2090975..2091775

Oligo evidence:

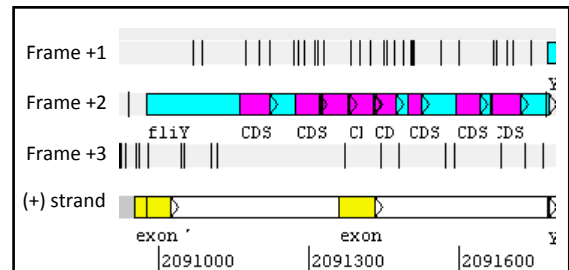
aataaacatgacagctggagcttctatgagctttcaattgtacgtcgccgattgttctgggcatggg
tattcaagtactgacacaaaaaggtaacgaagccagtttactaagccagaagatttacaggtaagaag

Peptide evidence:

KGNEGQFTKPEDLQGK
KGNEGQFTKPEDLQGKK
KNNPELLAAVNNAIAEMQK
KTNDALAVAGPAFAR
KYDFSTPYTVSGIQVLTK
LTGFEVDFANALAEHMGVK
NNPELLAAVNNAIAEMQK
RIDVAINQVTISDER
TYDDPTK
VGVGLGGSNYEQWLR
YDFSTPYTVSGIQVLTK

Current sequence (peptide evidence in red): 266aa

MSFSIVRRRIVLGMVAVALATGLNVKSYAAGDLEQVKQRGLTIVGLEGTYPFQSGEDGK**LTGFEVDFANALAEHMGVKAKITPTKW**DGMLASLESKRIDVAINQVTISDERKK**KYDFSTPYTVSGIQVLTKKGNEGQFTKPEDLQGKKVGVGLGGSNYEQWLR**ENLKDVIDIR**TYDDPTK**YQDLRVGRTDAILVDRLAALDLVKK**TNDALAVAGPAFARQESGVAMRKNNPELLAAVNNAIAEMQK**DGTLAKISEKYFGADVTQ



Strain: *Y. pseudotuberculosis PB1/+*
Gene: YPTS_1847

Classification: annotated as cystine transporter subunit
Boundaries of gene: 2076110..2076910

Oligo evidence:

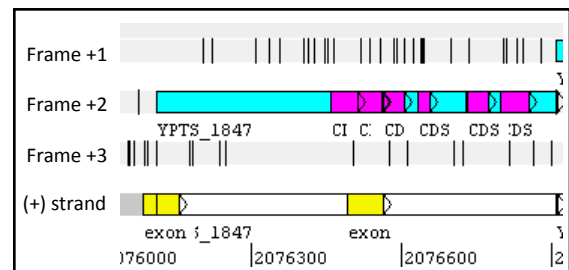
aataaacatgacagctggagcttctatgagctttcaattgtacgtcgccgattgttctgggcatggg
tattcaagtactgacacaaaaaggtaacgaagccagtttactaagccagaagatttacaggtaagaag

Peptide evidence:

KGNEGQFTKPEDLQGK
KGNEGQFTKPEDLQGKK
KNNPELLAAVNNAIAEMQK
KTNDALAVAGPAFAR
KVGVLGGSNYEQWLR
KYDFSTPYTVSGIQVLTK
TNDALAVAGPAFAR
TYDDPTK
VGVGLGGSNYEQWLR

Current sequence (peptide evidence in red): 266aa

MSFSIVRRRIVLGMVAVALATGLNVKSYAAGDLEQVKQRGLTIVGLEGTYPFQSGEDGKLTGFEVDFANALAEHMGVKAKITPTKW**DGMLASLESKRIDVAINQVTISDERKKKYDFSTPYTVSGIQVLTKKGNEGQFTKPEDLQGKKVGVGLGGSNYEQWLR**ENLKDVIDIR**TYDDPTK**YQDLRVGRTDAILVDRLAALDLVKK**TNDALAVAGPAFARQESGVAMRKNNPELLAAVNNAIAEMQK**DGTLAKISEKYFGADVTQ



Error 58

Strain: *Y. pestis pestoides* F
Gene: YPDSF_1364 / YPDSF_1365

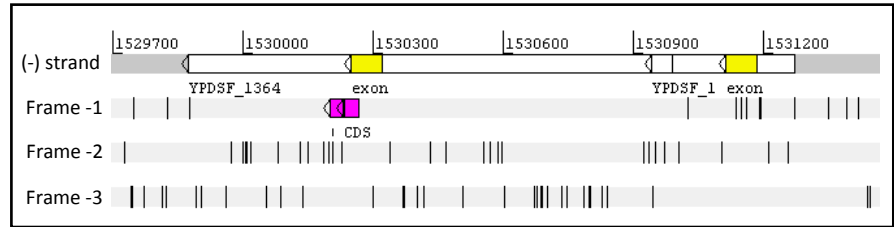
Classification: expressed pseudogene
Boundaries of gene: Frame-3: complement (1530987..1531292)
Frame-1: complement (1529950..1530987)
Frame-2: complement (1529726..1529950)

Oligo evidence:

tatttattgccatttggcagataaactgccgctaacaaggataaagccgcattatcggtttatc
aaattcgcgagcagttgtagataccccacacagttgttccctgtttgccgactcttggatcaaat

Peptide evidence:

AKDLLVAIER
DSLDAQIIVVR



Proposed sequence (peptide evidence in red):

Frame-3: 102aa

MFLFSESDMELLMDPSIWAGLLTLVVLEIVLGDINLVFIALLADKLPKQRDKARIIGLSLALIMRLGLLSVISWMVTLTTPLFVSGAFNFAGRDILLVGG

Frame-1: 347aa

MFLLFKATTELHERLEGNQHNDGANRGYASFWAVVQIVILDAVFLSDAVITAVGMVNDLPIMMTAVVIAMGVMLLASKSLTRFVNEHPTVVVLCFLMIGLSLIAEGFGFHIPKGYLAAIGFSILIELFNQIARRNFIKHESRLPRRQRTAEAIIRLMGGRQQEQQSGDPQQAVPTEAFEEERYMISGVLTASRSLRSMTPRTEISWVDCNRSQAEIREQLLDPHSLFPVCR**DSLDAQIIGVVR**AKDLLVAIERGESICDFAATTPPIVVPDMDVINLLGVLRLKAKGRLVVNDEFGVVQGLVTPLDVLEIAIAGEFPDEDETPDIIADGDGWLKGG

Frame-2: 74aa

ADLHLEQALDCQTLVSPADYASLAGLLSHSGHMPTAGDVIELHNLRFQIMDVSDYRIELVRITKLSNELEE

Strain: *Y. pestis* CO92

Gene: YPO1759

Classification: annotated as putative membrane protein yoaE

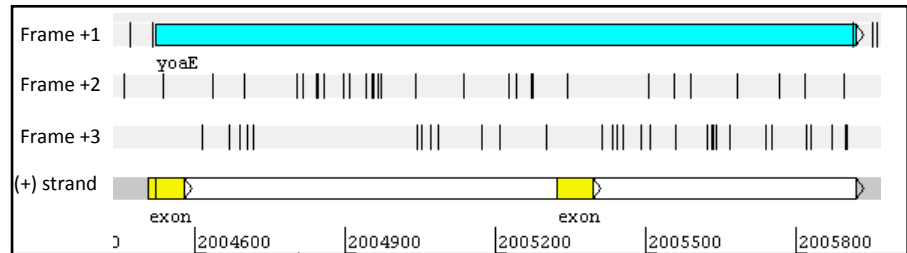
Boundaries of gene: 2004523..2005917

Oligo evidence:

ggtagattagagattgttctgggcattgatcatcgcttggggctgttgcggtcattcatggatggt
aaattcgcgagcagttgtagataccccacacagttgttccctgtttgccgactcttggatcaaat

Peptide evidence:

NA



Current sequence (peptide evidence in red): 464aa

LFWALIMRLGLLSVISWMVTLTTPLFVSGAFNFAGRDILLVGGFLFLFKATTELHERLEGNQHNDGANRGYASFWAVVQIVILDAVFLSDAVITAVGMVNDLPIMMTAVVIAMGVMLLASKSLTRFVNEHPTVVVLCFLMIGLSLIAEGFGFHIPKGYLAAIGFSILIELFNQIARRNFIKHESRLPRRQRTAEAIIRLMGGRQQEQQSGDPQQAVPTEAFEEERYMISGVLTASRSLRSMTPRTEISWVDCNRSQAEIREQLLDPHSLFPVCR**DSLDAQIIGVVR**AKDLLVAIERGESICDFAATTPPIVVPDMDVINLLGVLRLKAKGRLVVNDEFGVVQGLVTPLDVLEIAIAGEFPDEDETPDIIADGDGWLKGGADLHLEQALDCQTLVSPADYASLAGLLSHSGHMPTAGDVIELHNLRFQIMDVSDYRIELVRITKLSNELEE

Strain: *Y. pseudotuberculosis* PB1/+

Gene: YPTS_1759

Classification: annotated as integral membrane protein TerC

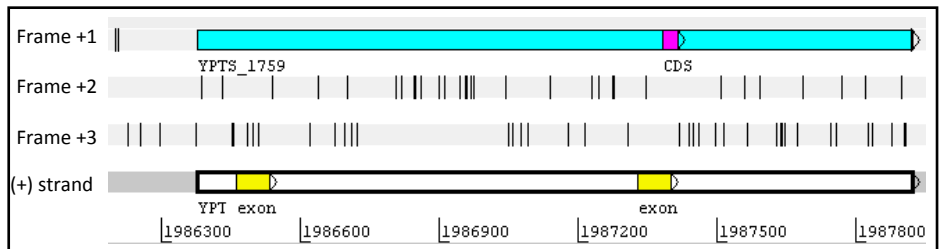
Boundaries of gene: 1986376..1987920

Oligo evidence:

tatttattgccatttggcagataaactgccgctaacaaggataaagccgcattatcggtttatc
aaattcgcgagcagttgtagataccccacacagttgttccctgtttgccgactcttggatcaaat

Peptide evidence:

DSLDAQIIVVR



Current sequence (peptide evidence in red): 514aa

MELLMDPSIWAGLLTLVVLEIVLGDINLVFIALLADKLPKQRDKARIIGLSLALIMRLGLLSVISWMVTLTTPLFVSGAFNFAGRDILLVGGFLFLFKATTELHERLEGNQHNDGANRGYASFWAVVQIVILDAVFLSDAVITAVGMVNDLPIMMTAVVIAMGVMLLASKSLTRFVNEHPTVVVLCFLMIGLSLIAEGFGFHIPKGYLAAIGFSILIELFNQIARRNFIKHESRLPRRQRTAEAIIRLMGGRQQEQQSGDPQQAVPTEAFEEERYMISGVLTASRSLRSMTPRTEISWVDCNRSQAEIREQLLDPHSLFPVCR**DSLDAQIIGVVR**AKDLLVAIERGESICDFAATTPPIVVPDMDVINLLGVLRLKAKGRLVVNDEFGVVQGLVTPLDVLEIAIAGEFPDEDETPDIIADGDGWLKGGADLHLEQALDCQTLVSPADYASLAGLLSHSGHMPTAGDVIELHNLRFQIMDVSDYRIELVRITKLSNELEE

Error 59

Strain: *Y. pestis* pestoides F

Gene: YPDSF_1421 / YPDSF_1422 / YPDSF_1423

Classification: expressed pseudogene

Boundaries of gene: Frame+1: 1596334..1597083

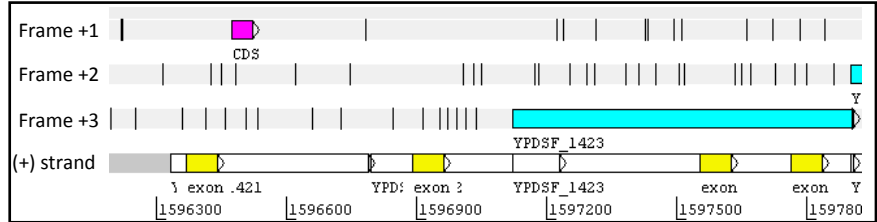
Frame+3: 1597083..1597907

Oligo evidence:

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atatttctatcttctctgggttcatgccttgaagaagtgtatttactctagaaggggttcaac
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aactggccacctctctgggggaatcagcaaaaagtggccacctctctgggggaatcagcaaaaagt
atcaggtgaatttcagaattagtcggttatgtgatcgtatctcgtattgtgggatggccgaattgtt
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Peptide evidence:

STLMAILSGAHNHYR



Proposed sequence (peptide evidence in red):

Frame+1: 250aa

MSSIPPSRLEMRNISISFSGFHALQEVDFTLEGGSTHALIGANGAGK**STLMAILSGAHNHYR**GEIFIDGQPIDIHSPRQARQHGIHVVQQEVDVALIPTLSVAENIMLDELADRGHLFNWPQLY
RQAEALLEQLELKNVRQRLESCTLA+KQQVLLARALSHQCRFLILDEPTAPLDQEEARLFRVRRRLQSEGIVFISHRIHELREVCQQLTVLRDGRVSHDMEGMSGEQIVKMLGHTLED
I

Frame+3: 274aa

FPPRRAAVSSKTRLSKTLKPKLLSVSGLHDQYKLRDISLTHQGEILGIAGLAGAGKTELCKALFGDTPSTLERGELSGKAWRPRSPDRSVAQGLALVPEERRKEGIFIDEGIPMNLVAADDSFS
RWSLFSRRQELS WAKELIERLGIRTSSPQQKLAHLSGGNQKQVAHLSGGNQKVAIGKWLRGDAQVLIFDEPTKGVDIKAKQDLFSLIDQLAQKGGIHYASGEFSELVGLCDRIVLWDGRI
VAELNAAEVDDEETLLLFSTGGTPQ

Strain: *Y. pestis* CO92

Gene: YPO1554

Classification: pseudo gene

Boundaries of gene: Frame-2: complement (1769183.. 1769932)

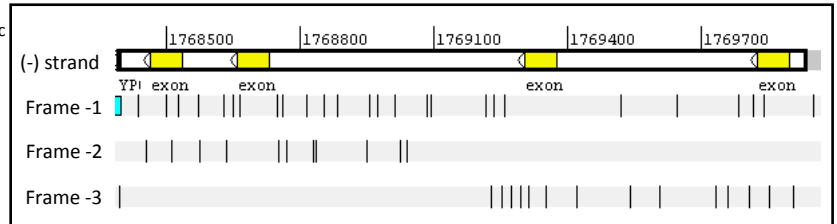
Frame-2: complement (1768392.. 1769183)

Oligo evidence:

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tcattcccaacaaaaactggccacctctctgggggaatcagcaaaaagtggccattgttaaatggc
atcaggtgaatttcagaattagtcggttatgtgatcgtatctcgtattgtgggatggccgaattgtt
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Peptide evidence:

NA



Current sequence (peptide evidence in red):

Frame-2: 250aa

MSSIPPSRLEMRNISISFSGFHALQEVDFTLEGGSTHALIGANGAGKSTLMAILSGAHNHYRGEIFIDGQPIDIHSPRQARQHGIHVVQQEVDVALIPTLSVAENIMLDELADRGHLFNWPQLY
RQAEALLEQLELKNVRQRLESCTLAEQKQVLLARALSHQCRFLILDEPTAPLDQEEARLFRVRRRLQSEGIVFISHRIHELREVCQQLTVLRDGRVSHDMEGMSGEQIVKMLGHTLED
I

Frame-3: 264aa

FPPRRAAVSSKTRLSKTLKPKLLSVSGLHDQYKLRDISLTHQGEILGIAGLAGAGKTELCKALFGDTPSTLERGELSGKAWRPRSPDRSVAQGLALVPEERRKEGIFIDEGIPMNLVAADDSFS
RWSLFSRRQELS WAKELIERLGIRTSSPQQKLAHLSGGNQKQVAIGKWLRGDAQVLIFDEPTKGVDIKAKQDLFSLIDQLAQKGGIHYASGEFSELVGLCDRIVLWDGRIVAEELNAAEVDDEE
TLLLFSTGGTPQ

Strain: *Y. pseudotuberculosis* PB1/+

Gene: YPTS_1677

Classification: annotated as ABC transporter-like protein

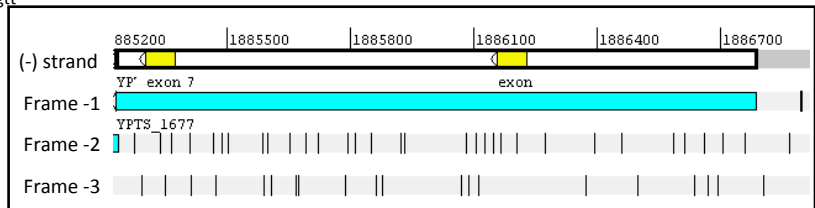
Boundaries of gene: 1885230..1886786

Oligo evidence:

```
cgctcgtcgtcgtccttcaatctgagggcatcgccattgtctttatttcgaccgtattcatgaactgc
atcaggtgaatttcagaattagtcggttatgtgatcgtatctcgtattgtgggatggccgaattgtt
```

Peptide evidence:

NA



Current sequence (peptide evidence in red): 518aa

MSSIPPSRLEMRNISISFSGFHALQEVDFTLEGGSTHALIGANGAGKSTLMAILSGAHNHYRGEIFIDGQPIDIHSPRQARQHGIHVVQQEVDVALIPTLSVAENIMLDELADRGHLFNWPQLY
RQAEALLEQLELKNVRQRLESCTLAEQKQVLLARALSHQCRFLILDEPTAPLDQEEARLFRVRRRLQSEGIVFISHRIHELREVCQQLTVLRDGRVSHDMEGMSGEQIVKMLGHTLED
IFPPRRAAVSSKTRLSKTLKPKLLSVSGLHDQYKLRDISLTHQGEILGIADLAGAGKTELCKALFGDTPSTLERGELSGKAWRPRSPDRSVAQGLALVPEERRKEGIFIDEGIPMNLVAAD
DDSFWSLFSRRQELS WAKELIERLGIRTSSPQQKLAHLSGGNQKQVAIGKWLRGDAQVLIFDEPTKGVDIKAKQDLFSLIDQLAQKGGIHYASGEFSELVGLCDRIVLWDGRIVAEELNAAE
VDDEETLLLFSTGGTPQ

Error 60

Strain: *Y. pestis pestoides* F
Gene: YPDSF_1980 / YPDSF_1981

Classification: expressed pseudogene
Boundaries of gene: Frame-1: complement(2238436..2238726)
Frame-3: complement(2238138..2238434)

Oligo evidence:

cagtgaagtcgatcaaatgctacttcaattccccatcatggcgggtggcagcagattattgcctga
ggacaagggtgtttgcaggttctaccctacaaggtgatgaattgtcgcccgattggcactaaaaat

Peptide evidence:

LMFASDLHGSLPATER

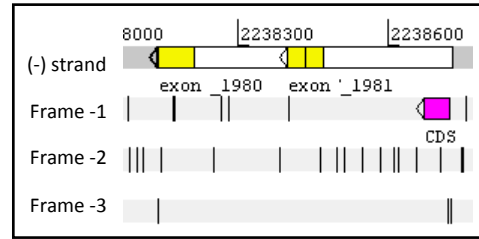
Proposed sequence (peptide evidence in red):

Frame-1: 97aa

MKLMFASDLHGSLPATERVLAIFDHSGAQWLVLGDLNHGPRNALPEGYQPAAVAESLNAYKPAAVAESLNAYKDSIIAVRGNCDEVDQMLLQFP

Frame-3: 98aa

IMAGWQQIIMPETRLFLTHGHLYHLGALPPLRHGDVLAYGHTLHPQAQWQGDIIICFNPGSVSIPKGEYPASYGMLDKGVLQVLTQGDEIVARLALKN



Strain: *Y. pestis* CO92
Gene: YPO2780

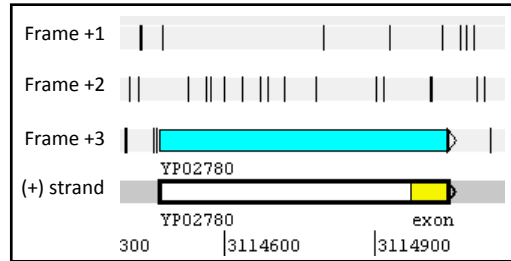
Classification: annotated as phosphodiesterase
Boundaries of gene: 3114471..3115046

Oligo evidence:

ggacaagggtgtttgcaggttctaccctacaaggtgatgaattgtcgcccgattggcactaaaaat

Peptide evidence:

NA



Current sequence (peptide evidence in red): 191aa

LLLTVMVRYRPRNVFWRFSFDHSGAQWLVLGDLNHGPRNALPEGYQPAAVAESLNAYKPAAVAESLNAYKDSIIAVRGNCDEVDQMLLQFPIMAGWQQIIMPETRLFLTHGHLYHPGALPPLRHGDVLAYGHTLHPQAQWQGDIIICFNPGSVSIPKGEYPASYGMLDKGVLQVLTQGDEIVARLALKN

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2698

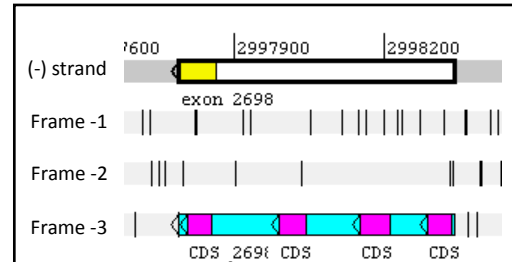
Classification: annotated as phosphodiesterase
Boundaries of gene: 2997788..2998339

Oligo evidence:

ggacaagggtgtttgcaggttctaccctacaaggtgatgaattgtcgcccgattggcactaaaaat

Peptide evidence:

GVLQVLTQGDEIVAR
LFLTHGHLYHPGALPPLR
LMFASDLHGSLPATER
NALPEGYQPAAVAESLNAYK



Current sequence (peptide evidence in red): 183aa

MKLMFASDLHGSLPATERVLAIFDHSGAQWLVLGDLNHGPRNALPEGYQPAAVAESLNAYKDSIIAVRGNCDEVDQMLLQFPIMAGWQQIIMPETRLFLTHGHLYHPGALPPLRHGDVLAYGHTLHPQAQWQGDIIICFNPGSVSIPKGEYPASYGMLDKGVLQVLTQGDEIVARLALKN

Error 61

Strain: *Y. pestis* pestoides F
Gene: YPDFS_2565

Classification: expressed pseudogene
Boundaries of gene: Frame-1: complement(2913694..2914515)
Frame-3: complement(2913453..2913683)

Oligo evidence:

tttcaaaagcagatggaagtgggaacgggatgtttccaacaattgcgcaaggtagaaaatctatcatag
aagtagcctcaaaacctggaaagtggtagaacctaactatggccagagattaccgatgctgtattgg

Peptide evidence:

FPSTVNAAEVAK

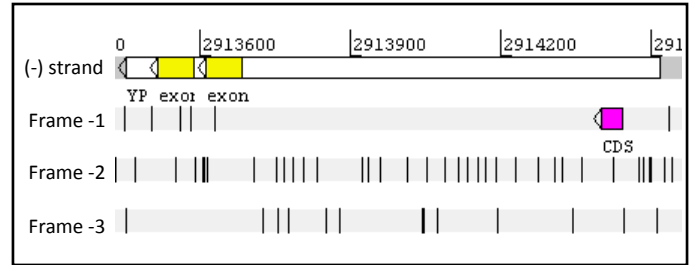
Proposed sequence (peptide evidence in red):

Frame-1: 274aa

MNYQNDDLRIKEIKELPPVALLEK**FPSTVNAAEVAK**TRNAIHNILRAQDDRLVVIGPCSIHDTQAAKEYAARLLALREELQGELEVVMRVYFEKPRTTVGWKGGLINDPHMDNSYDINEGLR
LARELLVEINDSGLPAAGEFLDMITPQYLADLMSWGAIGARTTESQVHRELASGLSCLPVGFKNGTDGTIKVAIDAINAASAPHCLSVTKWGHSAIVNTAGNGDCHILRGGKEPNYSSKHVN
AVKEGLIKAGLEPQIMIDFSHANSCKQ

Frame-3: 76aa

FQKQMEVGTDVCQQAQGEKSIIGVMIESHLVEGSQNLESGEPLTYGQSITDACIGWKDTEALLRQLAGAVRARRQ



Strain: *Y. pestis* CO92

Gene: YPO1130

Classification: pseudogene

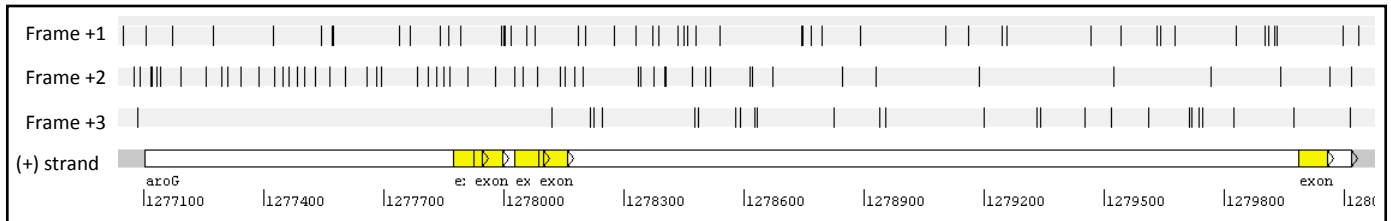
Boundaries of gene: Frame+3: 1277103..1280114

Oligo evidence:

ctggaacccagattatgatcgattcagccacgctaacagttgcaaacagtttcaaaagcagatggaag
tttcaaaagcagatggaagtgggaacgggatgtttccaacaattgcgcaaggtagaaaatctatcatag
agcacaacctggaaagtggtagaacctaactattgtcaacgacggatgaaagtgatcactatata
tcacttatctccaccaacggccaatattgatccaccgttttactcaggattagcttctgctataac

Peptide evidence:

NA



Current sequence (peptide evidence in red):

Frame+3: 338aa

MNYQNDDLRIKEIKELPPVALLEKFPSTVNAAEVAKTRNAIHNILRAQDDRLVVIGPCSIHDTQAAKEYAARLLALREELQGELEVVMRVYFEKPRTTVGWKGGLINDPHMDNSYDINEGLR
LARELLVEINDSGLPAAGEFLDMITPQYLADLMSWGAIGARTTESQVHRELASGLSCLPVGFKNGTDGTIKVAIDAINAASAPHCLSVTKWGHSAIVNTAGNGDCHILRGGKEPNYSSKHVN
AVKEGLIKAGLEPQIMIDFSHANSCKQFQKQMEVGTDVCQQAQGEKSIIGVMIESHLVEGSQNLESGEPLTYCQRMRKSDPLISPPTAQY

Strain: *Y. pseudotuberculosis* PB1/+

Gene: YPTS_1243

Classification: annotated as phospho-2-dehydro-3-deoxyheptonate aldolase

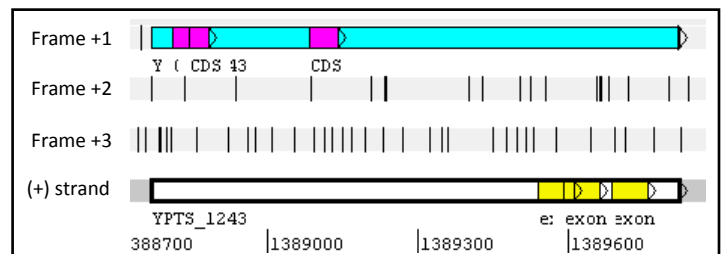
Boundaries of gene: 1388767..1389819

Oligo evidence:

ctggaacccagattatgatcgattcagccacgctaacagttgcaaacagtttcaaaagcagatggaag
tttcaaaagcagatggaagtgggaacgggatgtttccaacaattgcgcaaggtagaaaatctatcatag
aagtagcctcaaaacctggaaagtggtagaacctaactatggccagagattaccgatgctgtattgg

Peptide evidence:

ELPPVALLEKFPSTVNAAEVAK
FPSTVNAAEVAK
GLINDPHMDNSYDINEGLR



Current sequence (peptide evidence in red): 350aa

MNYQNDDLRIKEIK**ELPPVALLEKFPSTVNAAEVAK**TRNAIHNILRAQDDRLVVIGPCSIHDTQAAKEYAARLLALREELQGELEVVMRVYFEKPRTTVGWKGGLINDPHMDNSYDINEGLR
LARELLVEINDSGLPAAGEFLDMITPQYLADLMSWGAIGARTTESQVHRELASGLSCLPVGFKNGTDGTIKVAIDAINAASAPHCLSVTKWGHSAIVNTAGNGDCHILRGGKEPNYSSKHVN
AVKEGLIKAGLEPQIMIDFSHANSCKQFQKQMEVGTDVCQQAQGEKSIIGVMIESHLVEGSQNLESGEPLTYGQSITDACIGWKDTEALLRQLAGAVRARRQ

Error 62

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3023/ YPDSF_3024

Classification: expressed pseudogene
Boundaries of gene: 3430740..3431348
Frame-2: complement (3430565..3430735)

Oligo evidence:

aaagtctgaaatgataaaaccctatgttcttgctgggataacgaccgatgaaattgatcggtatgcc
tgccgttaccgaatcgggatacgcactgctgacgcctggcctgaaggcactggcgaatacgaagccatc

Peptide evidence:

AVRPGATLGDIGASIQQLAEGAGFSVVR

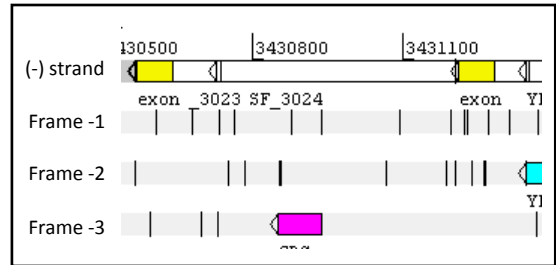
Proposed sequence (peptide evidence in red):

Frame-3: 203aa

MTEVKIHSPAIEIMARAAGQAAAKVLEMIPYVLAGITDDEIDRLCHDYIVNELKVIPANIGYHGTRTVCTSVNHVVCHGIPSDKLLKNGDIVNIDVAIIKEGWYGDTSRMYFVGEPVRAKRLVDITYQSMVAGIKAVRPGATLGDIGASIQQLAEGAGFSVVR EYCGHGVGQEYHTAPQVLHYGIAQTGMLLKPGMIFTI

Frame-2: 56aa

MINAGKAATSVLSDGWTVTVKDRSLSAQWEHTIAVTESGYDLLTPWPEGTEYEAI



Strain: *Y. pestis* CO92
Gene: YPO3337

Classification: annotated as methionine aminopeptidase
Boundaries of gene: 3723448..3724233

Oligo evidence:

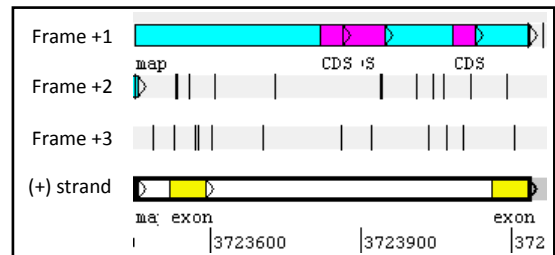
aaagtctgaaatgataaaaccctatgttcttgctgggataacgaccgatgaaattgatcggtatgcc
tgccgttaccgaatcgggatacgcactgctgacgcctggcctgaaggcactggcgaatacgaagccatc

Peptide evidence:

AATSVLSDGWTVTVK
AVRPGATLGDIGASIQQLAEGAGFSVVR
RLVDITYQSMVAGIK

Current sequence (peptide evidence in red): 261aa

MTEVKIHSPAIEIMARAAGQAAAKVLEMIPYVLAGITDDEIDRLCHDYIVNELKVIPANIGYHGTRTVCTSVNHVVCHGIPSDKLLKNGDIVNIDVAIIKEGWYGDTSRMYFVGEPVRAKRLVDITYQSMVAGIKAVRPGATLGDIGASIQQLAEGAGFSVVR EYCGHGVGQEYHTAPQVLHYGIAQTGMLLKPGMIFTI EPIEMINAGKAATSVLSDGWTVTVKDRSLSAQWEHTIAVTESGYDLLTPWPEGTEYEAI



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0829

Classification: annotated as methionine aminopeptidase, type I
Boundaries of gene: 933532..934317

Oligo evidence:

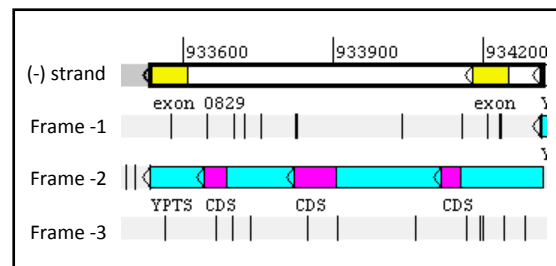
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tgccgttaccgaatcgggatacgcactgctgacgcctggcctgaaggcactggcgaatacgaagccatc

Peptide evidence:

AATSVLSDGWTVTVK
AVRPGATLGDIGASIQQLAEGAGFSVVR
VIPANIGYHGTR

Current sequence (peptide evidence in red): 261aa

MTEVKIHSPAIEIMARAAGQAAAKVLEMIPYVLAGITDDEIDRLCHDYIVNELKVIPANIGYHGTRTVCTSVNHVVCHGIPSDKLLKNGDIVNIDVAIIKEGWYGDTSRMYFVGEPVRAKRLVDITYQSMVAGIKAVRPGATLGDIGASIQQLAEGAGFSVVR EYCGHGVGQEYHTAPQVLHYGIAQTGMLLKPGMIFTI EPIEMINAGKAATSVLSDGWTVTVKDRSLSAQWEHTIAVTESGYDLLTPWPEGTEYEAI



Error 63

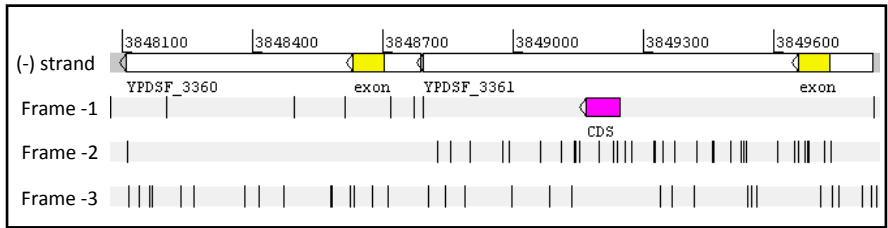
Strain: *Y. pestis pestoides F*
Gene: YPDSF_3360 / YPDSF_3361
Oligo evidence:

Classification: expressed pseudogene
Boundaries of gene: Frame-1: complement(3848809..3849825)
Frame-2: complement(3848108..3848809)

cagtatgtcgataatgtactgaacaaagcatcagatacttatcacggtgataaacctagccattgctgg
ttatcgaattacactctgccacgtgatggttattacggcaaaaaaggatcgtactcaagccttataag

Peptide evidence:

HGEYGKPMGALWESTFEQQPPFFATK



Proposed sequence (peptide evidence in red): 572aa

Frame-1: 339aa

MKKRALLLSMSVLAMLYIPAGQAAEIDRLTVVKQYVDNVLNKASDTHGDKPSPLLADGVDPRTGQQMEWIFPDGRRVLSNFSQQNLMRVMGSLSESGDPQYQKRAEDIVRYHFQNYQDNSGLLYWGGHRRFVDLTKLQPEGPSEKEKVELKNAYPYDLMFVSDSDATTRFIRGFVNAHVYDWRILETSRHGEYGKPMGALWESTFEQQPPFFATKGLSFLNAGNDLIYSASLLYKQQDQGALVWAKRLADQYVLPDAKTGLGVYQFTQALKREEPTDDADTHSKFGDRAQRQFGPEFGPTALEGNMMLKGRSTSTLYSENALMQLQLGKDLGG

Frame-2: 233aa

QGDDLKWTVDGLKAFKAGYGYNEQDNTFRPMIANGQDLSNYTLPRDGYGKKGSVLKPYPYKAGNEFLISYARAYAVDNDPLLWKVARGIASDQGLGDIGSAPGKEMKVKLDTTNSDPYALFALLDLYNASQVAEYRSLAEKVADNIIKTRYIDGFFMASPDRQYADVDAIEPYALLALEASLRNKQAVAPFLNGAGFTGAYLMADGSARISTRDNELFLNNGVETLQPNGRK

Strain: *Y. pestis CO92*
Gene: YPO3994

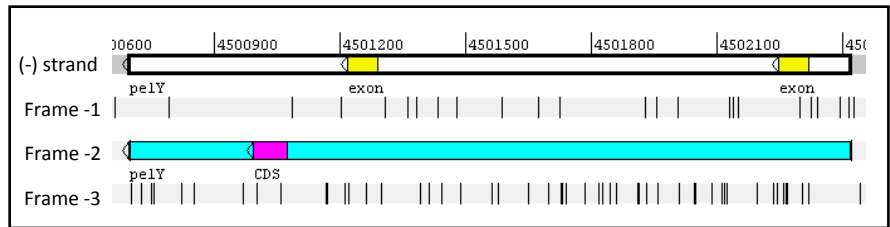
Classification: annotated as periplasmic pectate lyase precursor
Boundaries of gene: 4500698..4502416

Oligo evidence:

cagtatgtcgataatgtactgaacaaagcatcagatacttatcacggtgataaacctagccattgctgg
ttatcgaattacactctgccacgtgatggttattacggcaaaaaaggatcgtactcaagccttataag

Peptide evidence:

DTTNSDPYALFALLDLYNASQVAEYR



Current sequence (peptide evidence in red): 572aa

MKKRALLLSMSVLAMLYIPAGQAAEIDRLTVVKQYVDNVLNKASDTHGDKPSPLLADGVDPRTGQQMEWIFPDGRRVLSNFSQQNLMRVMGSLSESGDPQYQKRAEDIVRYHFQNYQDNSGLLYWGGHRRFVDLTKLQPEGPSEKEKVELKNAYPYDLMFVSDSDATTRFIRGFVNAHVYDWRILETSRHGEYGKPMGALWESTFEQQPPFFATKGLSFLNAGNDLIYSASLLYKQQDQGALVWAKRLADQYVLPDAKTGLGVYQFTQALKREEPTDDADTHSKFGDRAQRQFGPEFGPTALEGNMMLKGRSTSTLYSENALMQLQLGKDLGGQDDLKWTVDGLKAFKAGYGYNEQDNTFRPMIANGQDLSNYTLPRDGYGKKGSVLKPYPYKAGNEFLISYARAYAVDNDPLLWKVARGIASDQGLGDIGSAPGKEMKVKLDTTNSDPYALFALLDLYNASQVAEYRSLAEKVADNIIKTRYIDGFFMASPDRQYADVDAIEPYALLALEASLRNKQAVAPFLNGAGFTGAYLMADGSARISTRDNELFLNNGVETLQPNGRK

Strain: *Y. pseudotuberculosis PB1/+*
Gene: YPTS_4050

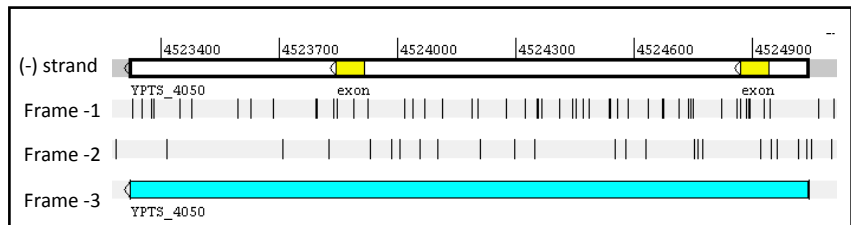
Classification: annotated as periplasmic pectate lyase
Boundaries of gene: 4523321..4525039

Oligo evidence:

cagtatgtcgataatgtactgaacaaagcatcagatacttatcacggtgataaacctagccattgctgg
ttatcgaattacactctgccacgtgatggttattacggcaaaaaaggatcgtactcaagccttataag

Peptide evidence:

NA



Current sequence (peptide evidence in red): 572aa

MKKRALLLSMSVLAMLYIPAGQAAEIDRLTVVKQYVDNVLNKASDTHGDKPSPLLADGVDPRTGQQMEWIFPDGRRVLSNFSQQNLMRVMGSLSESGDPQYQKRAEDIVRYHFQNYQDNSGLLYWGGHRRFVDLTKLQPEGPSEKEKVELKNAYPYDLMFVSDSDATTRFIRGFVNAHVYDWRILETSRHGEYGKPMGALWESTFEQQPPFFATKGLSFLNAGNDLIYSASLLYKQQDQGALVWAKRLADQYVLPDAKTGLGVYQFTQALKREEPTDDADTHSKFGDRAQRQFGPEFGPTALEGNMMLKGRSTSTLYSENALMQLQLGKDLGGQDDLKWTVDGLKAFKAGYGYNEQDNTFRPMIANGQDLSNYTLPRDGYGKKGSVLKPYPYKAGNEFLISYARAYAVDNDPLLWKVARGIASDQGLGDIGSAPGKEMKVKLDTTNSDPYALFALLDLYNASQVAEYRSLAEKVADNIIKTRYIDGFFMASPDRQYADVDAIEPYALLALEASLRNKQAVAPFLNGAGFTGAYLMADGSARISTRDNELFLNNGVETLQPNGRK

Error 64

Strain: *Y. pestis pestoides F*
 Gene: YPDSF_3740 / YPDSF_3741

Classification: expressed pseudogene/ frameshift
 Boundaries of gene Frame+3: 4298835..4299173
 Frame+2: 4299179..4299652

Oligo evidence:

aaaccgctgaggaagctatTTTgcccacgtctggcccgcgaagccttgaatccattgggtaaaact
 ttgggtaaaactggaaattcatccagatgtgagatatttctgctgacctgacccgatagaacgctcaaggcc
 aagtctgggtgaaagagggtttgtttaccacccctctgtgtaaacgactggaagaagtgggt
 ttggctgggctggcgcttcaccgttcaatccttcacaacctgatacattacaactacggccaccgcccac

Peptide evidence:

FSSPELMLEALRASGSQLITMAMK
 NAQGRRSAGERGVCCFTDPVLCKRLEEVGCAAVMPLGSP

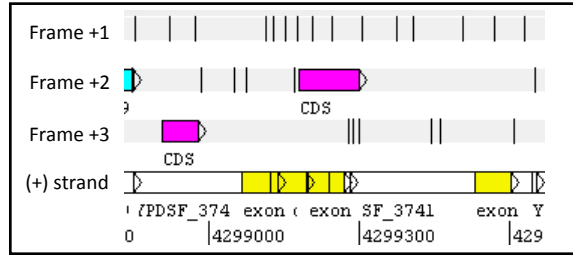
Proposed sequence (peptide evidence in red):

Frame3: 109aa

MLKIADTTFTSRLFTGTGK**FSSPELMLEALRASGSQLITMAMK**RVDLQSGNDAILAPLRQLGVRLPNTSGAKTAEFAARLAREALNTHVWVLEIHPDVRYLLPD

Frame2: 156aa

NAQGRRSAGERGVCCFTDPVLCKRLEEVGCAAVMPLGSPIGSNLGLRTRDFLQIIIEQSKVPVVVDAGIGAPSHALEALELGADAVLVNTAIAVAHSPVQMAHAFRLAVESGERARLA
 GLGASPFNPSPDPTLQLRATATSPLTGFLSQLEEQDHV



Strain: *Y. pestis CO92*
 Gene: YPO3742

Classification: annotated as thiazole synthase ThiG
 Boundaries of gene: 4194309..4195124

Oligo evidence:

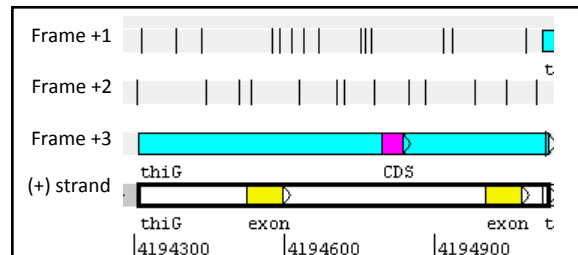
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 ttggctgggctggcgcttcaccgttcaatccttcacaacctgatacattacaactacggccaccgcccac

Peptide evidence:

TRDFLQIIIEQSK

Current sequence (peptide evidence in red): 271aa

MLKIADTTFTSRLFTGTGK**FSSPELMLEALRASGSQLITMAMK**RVDLQSGNDAILAPLRQLGVRLPNTSGAKTAEFAARLAREALNTHVWVLEIHPDVRYLLPDPIETLKAAEVLVKEGFV
 VLPYCGADPVLCKRLEEVGCAAVMPLGSPIGSNLGLR**TRDFLQIIIEQSK**VPVVVDAGIGAPSHALEALELGADAVLVNTAIAVAHSPVQMAHAFRLAVESGERARLAGLGASPFNPSPDPTL
 QLRATATSPLTGFLSQLEEQDHV



Strain: *Y. pseudotuberculosis PB1/+*
 Gene: YPTS_0307

Classification: annotated as thiazole synthase
 Boundaries of gene: complement (340282..341097)

Oligo evidence:

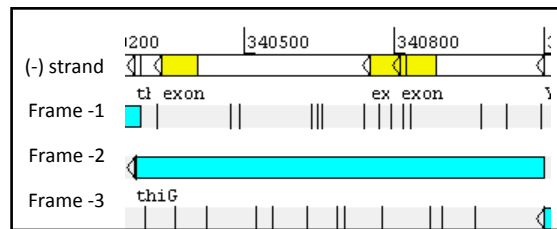
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Peptide evidence:

NA

Current sequence (peptide evidence in red): 271aa

MLKIADTTFTSRLFTGTGK**FSSPELMLEALRASGSQLITMAMK**RVDLQSGNDAILAPLRQLGVRLPNTSGAKTAEFAARLAREALNTHVWVLEIHPDVRYLLPDPIETLKAAEVLVKEGFV
 VLPYCGADPVLCKRLEEVGCAAVMPLGSPIGSNLGLRTRDFLQIIIEQSKVPVVVDAGIGAPSHALEALELGADAVLVNTAIAVAHSPVQMAHAFRLAVESGERARLAGLGASPFNPSPDPTL
 QLRATATSPLTGFLSQLEEQDHV



Error 65

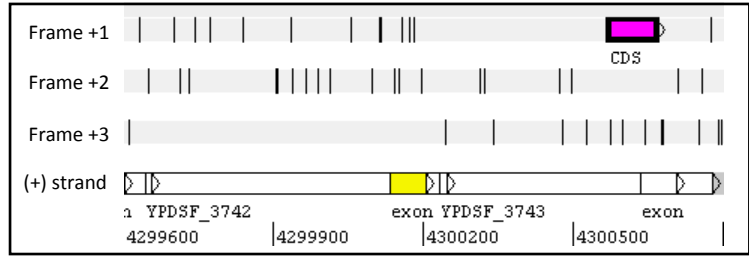
Strain: *Y. pestis* pestoides F
Gene: YPDSF_3742/YPDSF_3743

Classification: expressed pseudogene
Boundaries of gene: Frame3: 4299630..4300193
Frame1: 4300198..4300776

Oligo evidence:
ggcagaagatgaatatactgaattaaaggcgtgggattagatggcgtgatggtttatcaggataaccta

Peptide evidence:

DNVIPVAINNVSAGSKTQPGGYADDHPELEQF



Proposed sequence (peptide evidence in red):

Frame3: 188aa

LRSKTMSDFNQWQLDWDISLTINSKPADVERALNAIKPTREDLMALISPAALAYLEPMAKQAQQLTRQRFGNTVSFYVPLYSNLCANDCTYCGFSMSNRIKRTLDEAEIIRECEAIK
ALGFEHLLVTGEHQTKVGMDFYRRHLPTIRSRFSSLMMEVQPLAEDEYTELKALGLDGMVMVYQ

Frame1: 192aa

TYHPATYQQHHLRGHKQDFHWRLATPDLRGRAGIDKIGLGLIGLSNSWRDCYMLAEHLFYLQQTWQTRYISIFPRLRPCAGGIEPASIMSEPQLLQLICAFRLFAPDVLSLSTRESPFFR
DNVIPVAINNVSAGSKTQPGGYADDHPELEQFAPHDNRSPEQVAQALTKAGLQPVWKDWDSHLGRSLR

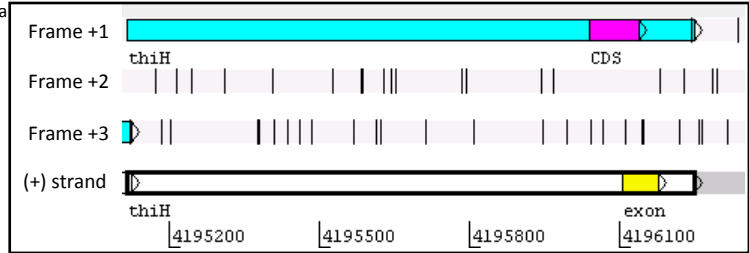
Strain: *Y. pestis* CO92
Gene: YPO3743

Classification: annotated as thiH
Boundaries of gene: 4195117..4196247

Oligo evidence:
tgccgatgatcatcccgaactggaacaatttcgccccatgataaccgctccccggaacaggtcgcaaaa

Peptide evidence:

DNVIPVAINNVSAGSKTQPGGYADDHPELEQF



Current sequence (peptide evidence in red): 376aa

MSEDFNQWQLDWDISLTINSKPADVERALNAIKPTREDLMALISPAALAYLEPMAKQAQQLTRQRFGNTVSFYVPLYSNLCANDCTYCGFSMSNRIKRTLDEAEIIRECEAIKALGFE
HLLLVTEHQTKVGMDFYRRHLPTIRSRFSSLMMEVQPLAEDEYTELKALGLDGMVMVYQETYHPATYQQHHLRGHKQDFHWRLATPDLRGRAGIDKIGLGLIGLSNSWRDCYMLAEHL
FYLQQTWQTRYISIFPRLRPCAGGIEPASIMSEPQLLQLICAFRLFAPDVLSLSTRESPFFRDNVIPVAINNVSAGSKTQPGGYADDHPELEQFAPHDNRSPEQVAQALTKAGLQPVWKDW
DSHLGRSLR

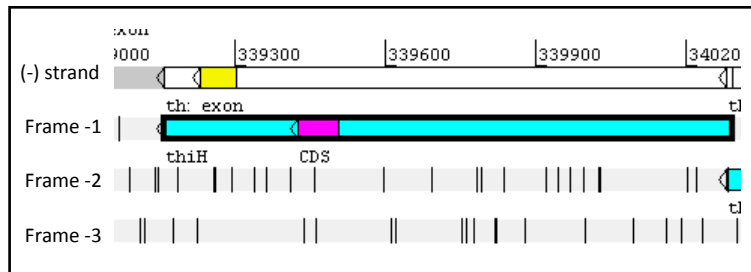
Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0306

Classification: annotated as thiamine biosynthesis protein ThiH
Boundaries of gene: complement (339159..340289)

Oligo evidence:
tgccgatgatcatcccgaactggaacaatttcgccccatgataaccgctccccggaacaggtcgcaaaa

Peptide evidence:

LRPCAGGIEPASIMSEPQLLQLICAF



Current sequence (peptide evidence in red): 376aa

MSEDFNQWQLDWDISLTINSKPADVERALNAIKPTREDLMALISPAALAYLEPMAKQAQQLTRQRFGNTVSFYVPLYSNLCANDCTYCGFSMSNRIKRTLDEAEIIRECEAIKALGFE
HLLLVTEHQTKVGMDFYRRHLPTIRSRFSSLMMEVQPLAEDEYTELKALGLDGMVMVYQETYHPATYQQHHLRGHKQDFHWRLATPDLRGRAGIDKIGLGLIGLSNSWRDCYMLAEHL
FYLQQTWQTRYISIFPRLRPCAGGIEPASIMSEPQLLQLICAFRLFAPDVLSLSTRESPFFRDNVIPVAINNVSAGSKTQPGGYADDHPELEQFAPHDNRSPEQVAQALTKAGLQPVWKDW
DSHLGRSLR

Errors 66/67

Strain: Y. pestis pestoides F
Gene: YPDSF_3897/ YPDSF_3896

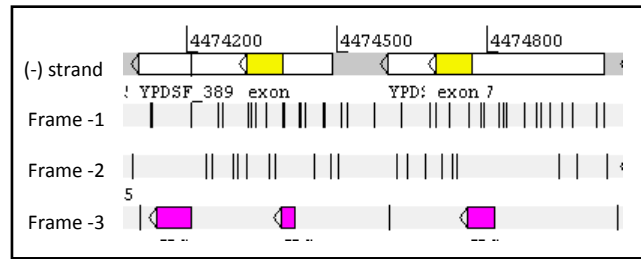
Classification: expressed pseudogenes
Boundaries of gene: complement (4474104..4475030)

Oligo evidence:

ttaagggggcaactaccggtgtggcattgatcttcgtgaatagcgtatggcgaaaatgtgattgtattaa
aggcattgctaccgtgatcatcaccttaggtagcgtggcgtatggctcagtgaacaaggtaaaggttaa

Peptide evidence:

QQLTADKIDTQPIEAIK
AAQILHDK
FAHAAAAIAVTRPGAQPSIPWR



Proposed sequence (peptide evidence in red): 308aa

METGKLVVLSINADHILNIEQFPRPGETVIGQQYNVAFGGKGANQAVAAGRSGADIAFIACVGGDDIGERVRRQLTADKIDTQPIEAIK GATTGVALIFVNSDGENVIGINAGANSAVTPEYL
RRYQQQVIDADALLMQLE+PLD TVIAAAK LAKHQ TQVILNPAPARKLPDELLTVDMITPNETEAE RL TGIHIEQDDAAKAAQILHDKGIATVIITLGSRGVWVLS EQGKGLVAGFKVNAV
DTIAAGDTFNGALLTALLEGQSM DVAVRFAHAAAAIAVTRPGAQPSIPWR AEIDSLQERV

Strain: Y. pestis CO92
Gene: YPO0008

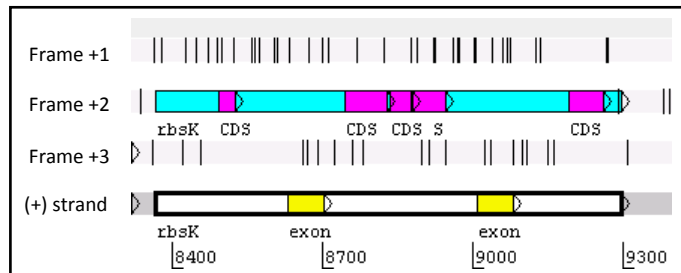
Classification: annotated as rbsK
Boundaries of gene: 8366..9292

Oligo evidence:

ttaagggggcaactaccggtgtggcattgatcttcgtgaatagcgtatggcgaaaatgtgattgtattaa
aggcattgctaccgtgatcatcaccttaggtagcgtggcgtatggctcagtgaacaaggtaaaggttaa

Peptide evidence:

FAHAAAAIAVTRPGAQPSIPWR
GANQAVAAGR
KLPDELLTVDMITPNETEAEER
QHQTQVILNPAPAR
YQQQVIDADALLMQLESPLD TVIAAAK



Current sequence (peptide evidence in red): 308aa

METGKLVVLSINADHILNIEQFPRPGETVIGQQYNVAFGGKGANQAVAAGRSGADIAFIACVGGDDIGERVRRQLTADKIDTQPIEAIK GATTGVALIFVNSDGENVIGINAGANSAVTPEYL
RRYQQQVIDADALLMQLESPLD TVIAAAK LAKHQ TQVILNPAPARKLPDELLTVDMITPNETEAE RL TGIHIEQDDAAKAAQILHDKGIATVIITLGSRGVWVLS EQGKGLVAGFKVNAV
DTIAAGDTFNGALLTALLEGQSM DVAVRFAHAAAAIAVTRPGAQPSIPWR AEIDSLQERV

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_4163

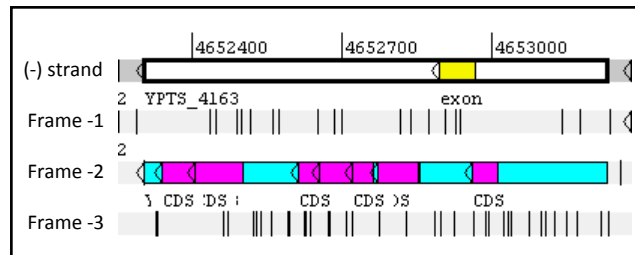
Classification: annotated as ribokinase
Boundaries of gene: 4652302..4653228

Oligo evidence:

ttaagggggcaactaccggtgtggcattgatcttcgtgaatagcgtatggcgaaaatgtgattgtattaa

Peptide evidence:

FAHAAAAIAVTRPGAQPSIPWR
KLPDELLTVDMITPNETEAEER
LTGIHIEQDDAAK
QHQTQVILNPAPAR
QQLTADKIDTQPIEAIK
RYQQQVIDADALLMQLESPLD TVIAAAK
VNAVDTIAAGDTFNGALLTALLEGQSM DAAVR
YQQQVIDADALLMQLESPLD TVIAAAK



Current sequence (peptide evidence in red): 308aa

METGKLVVLSINADHILNIEQFPRPGETVIGQQYNVAFGGKGANQAVAAGRSGADIAFIACVGGDDIGERVRRQLTADKIDTQPIEAIK GATTGVALIFVNSDGENVIGINAGANSAVTPEYL
RRYQQQVIDADALLMQLESPLD TVIAAAK LAKHQ TQVILNPAPARKLPDELLTVDMITPNETEAE RL TGIHIEQDDAAKAAQILHDKGIATVIITLGSRGVWVLS EQGKGLVAGFKVNAV
DTIAAGDTFNGALLTALLEGQSM DAAVRFAHAAAAIAVTRPGAQPSIPWR AEIDSLQERV

Error 68

Strain: *Y. pestis pestoides F*
Gene: YPDSF_0150.5

Classification: novel gene
Boundaries of gene: 156733..156909

Oligo evidence:

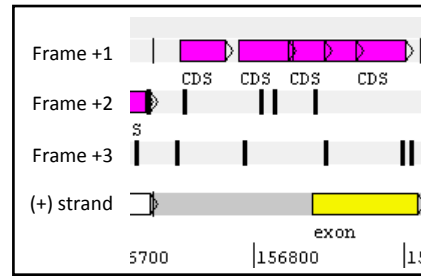
tagagcgtgaggatactcctgctgctggtatgggtcaactggtttcctacatgggttaaagttgagga

Peptide evidence:

GMVNLVSYMVK
HKATLIGLGLR
IGHTVEREDTPAVR
RIGHTVER
RIGHTVEREDTPAVR
VTQTKSSIGR

Proposed sequence (peptide evidence in red): 59aa

MAKTIK**VTQTKSSIGRLPKHKATLIGLGLRRIGHTVEREDTPAVRGMVNLVSYMVKVEE**



Strain: *Y. pestis CO92*
Gene: YPO0227

Classification: annotated as rpmD
Boundaries of gene: 230222..230401

Oligo evidence:

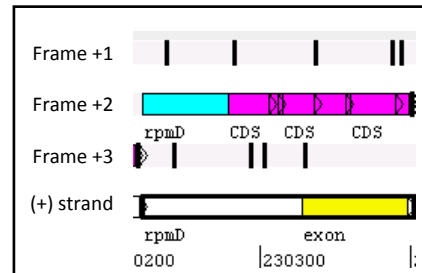
tagagcgtgaggatactcctgctgctggtatgggtcaactggtttcctacatgggttaaagttgagga

Peptide evidence:

GMVNLVSYMVK
GMVNLVSYMVKVEE
HKATLIGLGL
HKATLIGLGLR
IGHTVER
IGHTVEREDTPAVR
MVNLVSYMVK
RIGHTVER
RIGHTVEREDTPAVR

Current sequence (peptide evidence in red): 59aa

MAKTIK**VTQTKSSIGRLPKHKATLIGLGLRRIGHTVEREDTPAVRGMVNLVSYMVKVEE**



Strain: *Y. pseudotuberculosis PB1/+*
Gene: YPTS_3872

Classification: annotated as 50S ribosomal protein L30
Boundaries of gene: complement (4319871..4320050)

Oligo evidence:

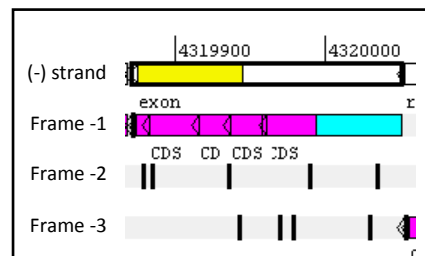
tagagcgtgaggatactcctgctgctggtatgggtcaactggtttcctacatgggttaaagttgagga

Peptide evidence:

GMVNLVSYMVK
GMVNLVSYMVKVEE
HKATLIGLGLR
IGHTVEREDTPAVR
RIGHTVER
RIGHTVEREDTPAVR

Current sequence (peptide evidence in red): 59aa

MAKTIK**VTQTKSSIGRLPKHKATLIGLGLRRIGHTVEREDTPAVRGMVNLVSYMVKVEE**



Error 70

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1419.5

Classification: novel gene
Boundaries of gene: complement (1594488..1594703)

Oligo evidence:

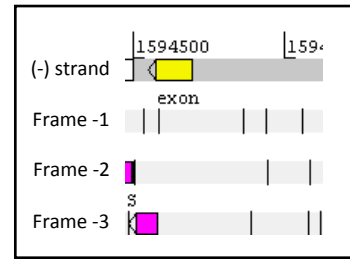
ttacaccgctcttattccccacttacgtatcccaggcagatcacgaagttccccgtcactttaaccgc

Peptide evidence:

CETFANRVEGMGR

Proposed sequence (peptide evidence in red): 71aa

MGQLFILAPVPTGMRCTCSDYGAAGMANTRYTALISPLTYPRQIRSFVTFNRCETFANRVEGMGRNLNHGA



Error lacking threshold of evidence

Strain: *Y. pestis* CO92
Gene: YPO1556.5

Classification: novel gene
Boundaries of gene: 1771564..1771779

Oligo evidence:

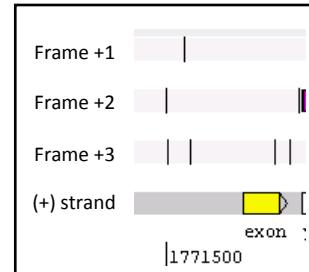
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Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 71aa

MGQLFILAPVPTGMRCTCSDYGAAGMANTRYTALISPLTYPRQIRSFVTFNRCETFANRVEGMGRNLNHGA



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1679

Classification: annotated as hypothetical protein
Boundaries of gene: 1888418..1888633

Oligo evidence:

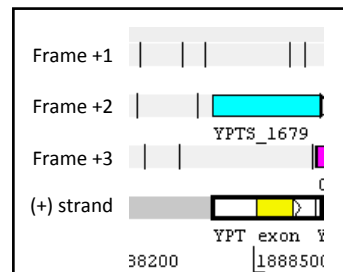
ttacaccgctcttattccccacttacgtatcccaggcagatcacgaagttccccgtcactttaaccgc

Peptide evidence:

NA

Current sequence (peptide evidence in red): 71aa

MGQLFILAPVPTGMRCTCSDYGAAGMANTRYTALISPLTYPRQIRSFVTFNRCETFANRVEGMGRNLNHGA



Error 71

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1512.5

Classification: novel gene
Boundaries of gene: complement (1710507..1710755)

Oligo evidence:

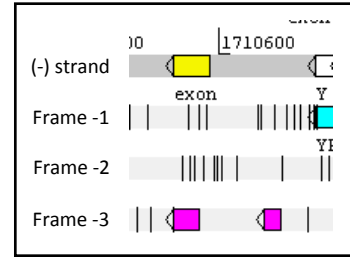
gtactgagctaaaaaatattaatctataaacggactgattgatctgtttgtaacgagcagttcagaatc

Peptide evidence:

HIVNSIDGAK
SINGLIDLFTSSSES

Proposed sequence (peptide evidence in red): 82aa

MDRDHIASIVKKHIVNSIDGAK EHEIDLQKSMADYGASSLDIVSVVSGVMRELKIKIPRTELKNIK SINGLIDLFTSSSES



Strain: *Y. pestis* CO92
Gene: YPO1462

Classification: annotated as putative acyl carrier protein
Boundaries of gene: 1654210..1654458

Oligo evidence:

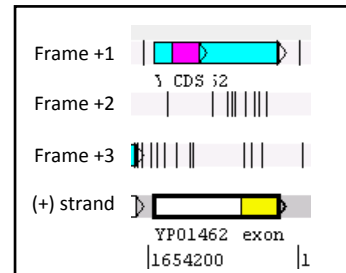
gtactgagctaaaaaatattaatctataaacggactgattgatctgtttgtaacgagcagttcagaatc

Peptide evidence:

HIVNSIDGAKEHEIDLQK

Current sequence (peptide evidence in red): 82aa

MDRDHIASIVKKHIVNSIDGAKEHEIDLQKSMADYGASSLDIVSVVSGVMRELKIKIPRTELKNIK SINGLIDLFTSSSES



Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1587

Classification: annotated as putative acyl carrier protein
Boundaries of gene: 1773856..1774104

Oligo evidence:

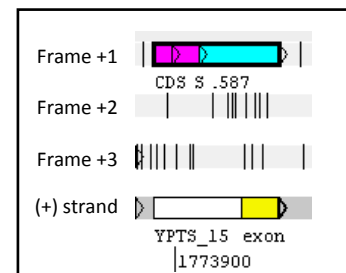
gtactgagctaaaaaatattaatctataaacggactgattgatctgtttgtaacgagcagttcagaatc

Peptide evidence:

HIVNSIDGAKEHEIDLQK
MDRDHIASIVKK

Current sequence (peptide evidence in red): 82aa

MDRDHIASIVKKHIVNSIDGAKEHEIDLQKSMADYGASSLDIVSVVSGVMRELKIKIPRTELKNIK SINGLIDLFTSSSES



Error 72

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1707.5

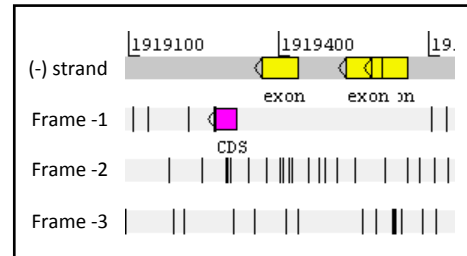
Classification: novel gene
Boundaries of gene: complement (1919272..1919697)

Oligo evidence:

tcaatttctgaacagggatataataatgaccaagagctgtttaatacacttcaccgttaacctcaact
ttcaccgtttaacctcaactccacagcgaacgagttaacaagcacactcctgagcaattactgtctg
atttctcataaatttaagatagccgctgattctgagatcagaattccaactgcagatgacttatatc

Peptide evidence:

LTFSPDNASFSWQ



Proposed sequence (peptide evidence in red): 141aa

LLVKFKNRHAVAFNQFLNRDIIMTKSLFNHLRSTSTANELTKHTPEQLLWVAQGCMLEGLPDQFYEFIECIQCQTEDGKQRLDISHKFKIAADSEYQNFQPADDLYPAQCIEQALEGKQ
WSKARLTFSPDNASFSWQ

Strain: *Y. pestis* CO92
Gene: YPO0791

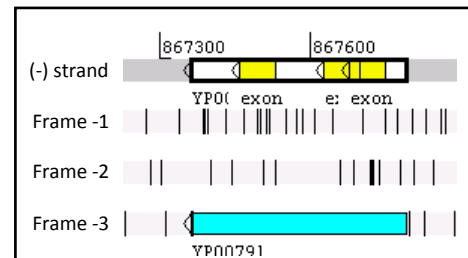
Classification: annotated as hypothetical protein
Boundaries of gene: complement(867363..867788)

Oligo evidence:

tcaatttctgaacagggatataataatgaccaagagctgtttaatacacttcaccgttaacctcaact
ttcaccgtttaacctcaactccacagcgaacgagttaacaagcacactcctgagcaattactgtctg
atttctcataaatttaagatagccgctgattctgagatcagaattccaactgcagatgacttatatc

Peptide evidence:

NA



Current sequence (peptide evidence in red): 141aa

LLVKFKNRHAVAFNQFLNRDIIMTKSLFNHLRSTSTANELTKHTPEQLLWVAQGCMLEGLPDQFYEFIECIQCQTEDGKQRLDISHKFKIAADSEYQNFQPADDLYPAQCIEQALEGKQ
WSKARLTFSPDNASFSWQ

Error 98

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_3161

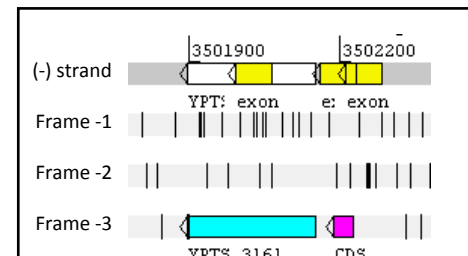
Classification: upstream start site
Boundaries of gene: complement (3501896..3502321)

Oligo evidence:

tcaatttctgaacagggatataataatgaccaagagctgtttaatacacttcaccgttaacctcaact
ttcaccgtttaacctcaactccacagcgaacgagttaacaagcacactcctgagcaattactgtctg
atttctcataaatttaagatagccgctgattctgagatcagaattccaactgcagatgacttatatc

Peptide evidence:

LTSTSTANELTK



Proposed sequence (peptide evidence in red): 141aa

LLVKFKNRHAVAFNQFLNRDIIMTKSLFNHLRSTSTANELTKHTPEQLLWVAQGCMLEGLPDQFYEFIECIQCQTEDGKQRLDISHKFKIAADSEYQNFQPADDLYPAQCIEQALEGKQ
WSKARLTFSPDNASFSWQ

Error 74

Strain: *Y. pestis* pestoides F
Gene: YPDSF_2438.5

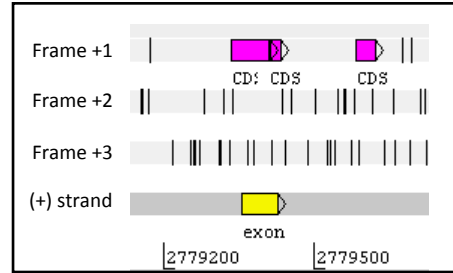
Classification: novel gene
Boundaries of gene: 2779318..2779680

Oligo evidence:

tttcttgcttctgacaccatactgattacgcttcccagcttacatcaacaacatattgatcttatt

Peptide evidence:

DISLYLASQNIK
HIDLIWR
ITVGYHSFLLPDTHTDYAFPAYINK



Proposed sequence (peptide evidence in red): 120aa

MTSAIKIT**VGYHSFLLPDTHTDYAFPAYINK**HIDLIWR~~YIENNDKIEELSSNPFSKGR~~TAVLVKAKFLSSELKEFKLKTGIIGYPFDMKDISLYLASQNIKITLCTEFKRNGTLVNSLPS

Strain: *Y. pestis* CO92
Gene: YPO1255

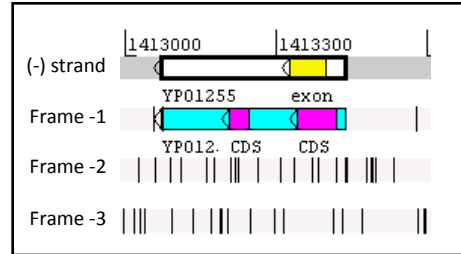
Classification: annotated as hypothetical protein
Boundaries of gene: complement (1413073..1413522)

Oligo evidence:

tttcttgcttctgacaccatactgattacgcttcccagcttacatcaacaacatattgatcttatt

Peptide evidence:

AKFLSSELKEFK
ITVGYHSFLLPDTHTDYAFPAYINK



Current sequence (peptide evidence in red): 120 aa

MTSAIKIT**VGYHSFLLPDTHTDYAFPAYINK**HIDLIWR~~YIENNDKIEELSSNPFSKGR~~TAVLVK**AKFLSSELKEFK**LKTGIIGYPFDMKDISLYLASQNIKITLCTEFKRNGTLVNSLPS

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1381

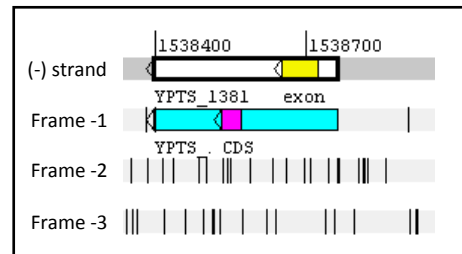
Classification: annotated as hypothetical protein
Boundaries of gene: complement (1538397..1538801)

Oligo evidence:

tttcttgcttctgacaccatactgattacgcttcccagcttacatcaacaacatattgatcttatt

Peptide evidence:

AKFLSSELKEFK



Current sequence (peptide evidence in red): 120aa

MTSAIKITVGYHSFLLPDTHTDYAFPAYINKHIDLIWR~~YIENNDKIEELSSNPFSKGR~~TAVLVK**AKFLSSELKEFK**LKTGIIGYPFDMKDISLYLASQNIKITLCTEFKRNGTLVNSLPS

Error 75

Strain: Y. pestis pestoides F
Gene: YPDFS_2615.5

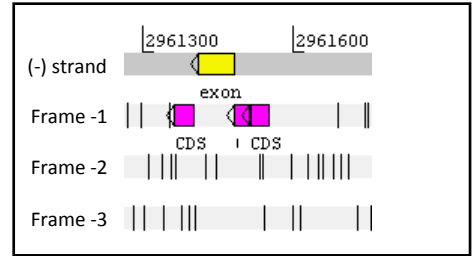
Classification: novel gene
Boundaries of gene: complement (2961352..2961603)

Oligo evidence:

acaccaaatcagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

QLAASVLAQANK
TLNDPNSSAIQR
SLAGSALSQR



Proposed sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALTK**QLAASVLAQANK**DRK

Error 41

Strain: Y. pestis C092
Gene: YPO2638.5

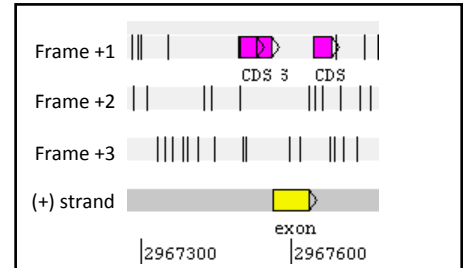
Classification: novel gene
Boundaries of gene: 2967439..2967690

Oligo evidence:

acaccaaatcagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

LNDPNSSAIQR
QLAASVLAQANK
SLAGSALSQR
TLNDPNSSAIQR



Proposed sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALTK**QLAASVLAQANK**DRK

Strain: Y. pseudotuberculosis
Gene: YPTS_1189

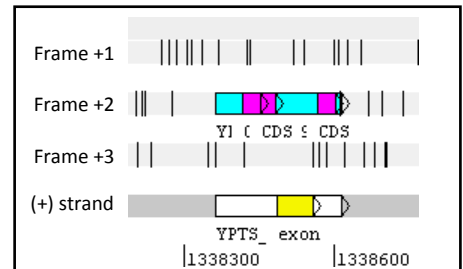
Classification: annotated as hypothetical protein
Boundaries of gene: 1338362..1338613

Oligo evidence:

acaccaaatcagacaagtggggaaatggagcataaagcatctgctgcactcgataatccacgttccagtg

Peptide evidence:

QLAASVLAQANK
SLAGSALSQR
TLNDPNSSAIQR



Current sequence (peptide evidence in red): 83aa

MSKNTKQTSQKVASIAAK**TLNDPNSSAIQRSLAGSALSQR**GTPNQTSQKEMEHKASAALDNPRSSALTK**QLAASVLAQANK**DRK

Error 76

Strain: *Y. pestis* pestoides F
Gene: YPDFS_2706.5

Classification: novel gene
Boundaries of gene: 3072771..3073109

Oligo evidence:

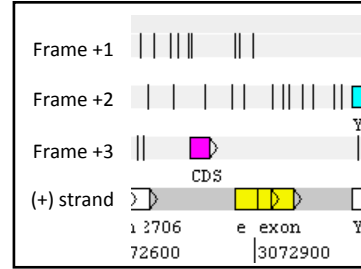
agaagcatgaagaatcgtaaagaacgtcccctcttgatggtcgttaccggctgggaaaaagccgctg
cgtaccggctgggaaaaagccgctgcctatgaacaaatcgcccagatctgaaatcgttattgagaaaa

Peptide evidence:

MITHSPHTIASR

Proposed sequence (peptide evidence in red): 112aa

MITHSPHTIASRTEICIGCFVPGVLGGFEVRSMKNRKERPLLMVVRTGWKEAAAYEQIRPVSEIVIEKNGQSRPVNQAFFWNDLQDTSIDFSQKAVDLFFSKKGTLSACHPI



Strain: *Y. pestis* CO92
Gene: YPO2820

Classification: annotated as hypothetical protein
Boundaries of gene: 3149886..3150224

Oligo evidence:

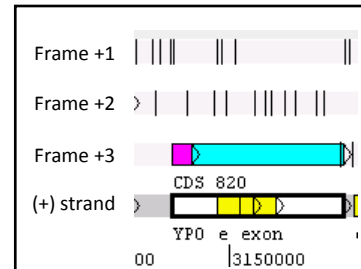
agaagcatgaagaatcgtaaagaacgtcccctcttgatggtcgttaccggctgggaaaaagccgctg
cgtaccggctgggaaaaagccgctgcctatgaacaaatcgcccagatctgaaatcgttattgagaaaa

Peptide evidence:

MITHSPHTIASR

Current sequence (peptide evidence in red): 112aa

MITHSPHTIASRTEICIGCFVPGVLGGFEVRSMKNRKERPLLMVVRTGWKEAAAYEQIRPVSEIVIEKNGQSRPVNQAFFWNDLQDTSIDFSQKAVDLFFSKKGTLSACHPI



Error 101

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1089

Classification: **error**: annotated as hypothetical protein; upstream start site
Boundaries of gene: complement (1229284..1229619)

Oligo evidence:

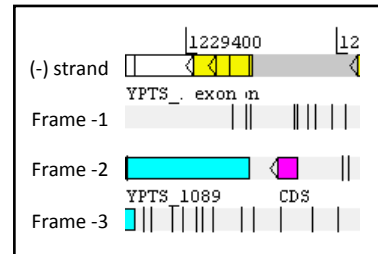
agaagcatgaagaatcgtaaagaacgtcccctcttgatggtcgttaccggctgggaaaaagccgctg
cgtaccggctgggaaaaagccgctgcctatgaacaaatcgcccagatctgaaatcgttattgagaaaa

Peptide evidence:

MITHSPHTIASR

Proposed sequence (peptide evidence in red): 112aa (existing sequence underlined)

MITHSPHTIASRTEICIGCFVPGVLGGFEVRSMKNRKERPLLMVVRTGWKEAAAYEQIRPVSEIVIEKNGQSRPVNQAFFWNDLQDTSIDFSQKAVDLFFSKKGTLSACHPI



Error 78

Strain: Y. pestis pestoides F
Gene: YPDFS_3634.5

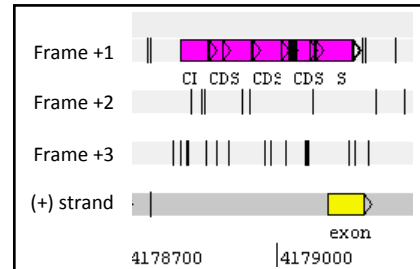
Classification: novel gene
Boundaries of gene: 4178749..4179174

Oligo evidence:

attctcaacgtgatctcggaaagttcgtgctttggccccgatagaaaaaacataaatttaccgtgcat

Peptide evidence:

ALTANALVGFSTCISESSCFGPDR
ALTANALVGFSTCISESSCFGPDRK
APDVWTNNSFVR
DTSIWGASYNTLYDQAMY
DTSIWGASYNTLYDQAMYYTTGK
DTSIWGASYNTLYDQAMYYTTGKR
EWTGDNVEGMHSGMIINK
FHSGQVDGK
FHSGQVDGKPYFCIEAFKPSTTITACSVK
VYYAPDVWTNN
VYYAPDVWTNNSFVR
YAPDVWTNNSFVR
YYAPDVWTNNSFVR



Proposed sequence (peptide evidence in red): 141aa

MRYLLSLSVFLIVSLNPAFAEWTDGDNVEGMHSGMIINKFHSGQVDGKPYFCIEAFKPSTTITACSVKDTSIWGASYNTLYDQAMYYTTGKRIRVYYAPDVWTNNSFVRALTANALVGFSTCISESSCFGPDRKHKHFTVH

Strain: Y. pestis CO92
Gene: YPO0337

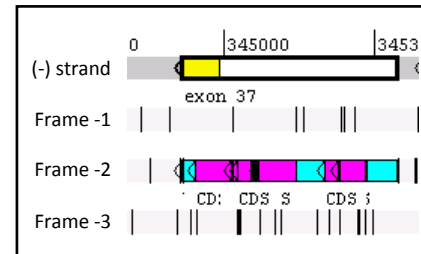
Classification: annotated as hypothetical protein
Boundaries of gene: complement (344915..345340)

Oligo evidence:

attctcaacgtgatctcggaaagttcgtgctttggccccgatagaaaaaacataaatttaccgtgcat

Peptide evidence:

ALTANALVGFSTCISESSCFGPDR
APDVWTNNSFVR
DTSIWGASYNTLYDQAMYYTTGK
DTSIWGASYNTLYDQAMYYTTGKR
EWTGDNVEGMHSGMIINK
FHSGQVDGK
IRVYYAPDVWTNNSFVR
VYYAPDVWTNN
VYYAPDVWTNNSFVR
WTDGDNVEGMHSGMIINK
YAPDVWTNNSFVR
YYAPDVWTNNSFVR



Current sequence (peptide evidence in red): 141aa

MRYLLSLSVFLIVSLNPAFAEWTDGDNVEGMHSGMIINKFHSGQVDGKPYFCIEAFKPSTTITACSVKDTSIWGASYNTLYDQAMYYTTGKRIRVYYAPDVWTNNSFVRALTANALVGFSTCISESSCFGPDRKHKHFTVH

Strain: Y. pseudotuberculosis PB1/+
Gene: YPTS_0416

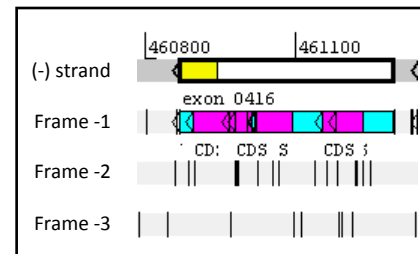
Classification: annotated as hypothetical protein
Boundaries of gene: complement (460869..461294)

Oligo evidence:

attctcaacgtgatctcggaaagttcgtgctttggccccgatagaaaaaacataaatttaccgtgcat

Peptide evidence:

ALTANALVGFSTCISESSCFGPDR
APDVWTNNSFVR
DTSIWGASYNTLYDQAMYYTTGK
DTSIWGASYNTLYDQAMYYTTGKR
EWTGDNVEGMHSGMIINK
FHSGQVDGK
VYYAPDVWTNN
VYYAPDVWTNNSFVR



Current sequence (peptide evidence in red): 141aa

MRYLLSLSVFLIVSLNPAFAEWTDGDNVEGMHSGMIINKFHSGQVDGKPYFCIEAFKPSTTITACSVKDTSIWGASYNTLYDQAMYYTTGKRIRVYYAPDVWTNNSFVRALTANALVGFSTCISESSCFGPDRKHKHFTVH

Error 96

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0106.5

Classification: novel gene
Boundaries of gene: 111739..111900

Oligo evidence:

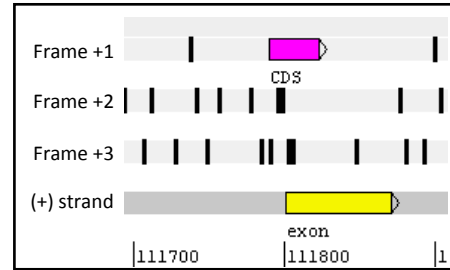
tgataatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

KIIIDNMLFYR

Proposed sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL



Error79

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3794.5

Classification: novel gene
Boundaries of gene: complement (4363721..4363882)

Oligo evidence:

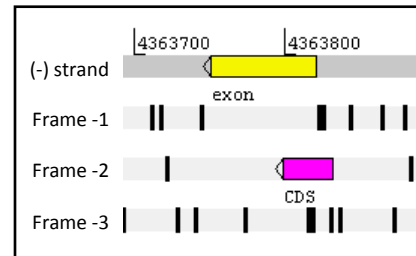
tgataatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

KIIIDNMLFYR

Proposed sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL



Strain: *Y. pestis* CO92
Gene: YPO0113

Classification: annotated as hypothetical protein
Boundaries of gene: 121254..121415

Oligo evidence:

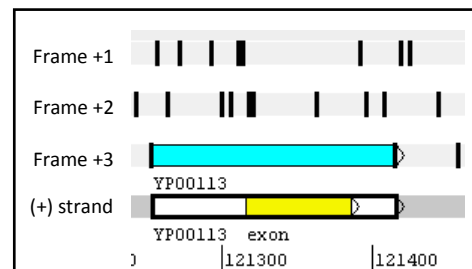
tgataatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

NA

Current sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL



Error 80

Strain: *Y. pestis* pestoides F
Gene: YPDFS_3804.5

Classification: novel gene
Boundaries of gene: 4374258..4374419

Oligo evidence:

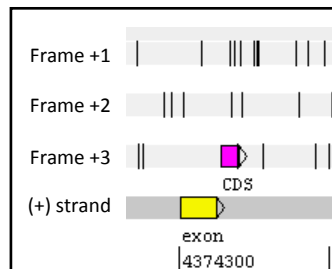
ccgatagcgtcatggcaacgatcaaagccactccagcggtagttgtactacggagaaaacagcagcctct

Peptide evidence:

KPHQDVNELSQ

Proposed sequence (peptide evidence in red): 53aa

VACSDFACSEIAHADTDSVMATIKATPAVVVLRKQQLCIKK**KPHQDVNELSQ**



Error lacking threshold of evidence

Strain: *Y. pestis* CO92
Gene: YPO0101.5

Classification: novel gene
Boundaries of gene: complement (110692..110853)

Oligo evidence:

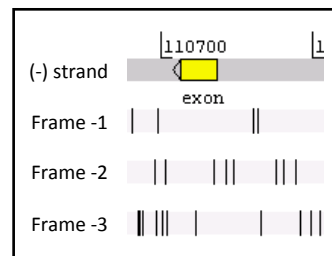
ccgatagcgtcatggcaacgatcaaagccactccagcggtagttgtactacggagaaaacagcagcctct

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 53aa

VACSDFACSEIAHADTDSVMATIKATPAVVVLRKQQLCIKK**KPHQDVNELSQ**



Error lacking threshold of evidence

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0095.5

Classification: novel gene
Boundaries of gene: complement (101187..101348)

Oligo evidence:

tataaatttatggatatatgctgttttctacagtgagtttttgggttcgaactgtcacatatctttcc

Peptide evidence:

NA

Proposed sequence (peptide evidence in red): 53aa

VACSDFACSEIAHADTDSVMATIKATPAVVVLRKQQLCIKK**KPHQDVNELSQ**



Error 81

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0215.5

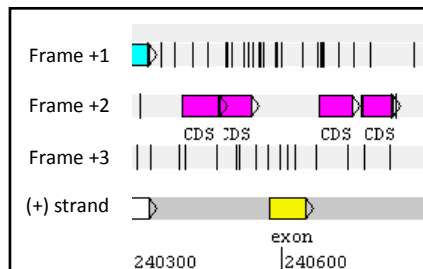
Classification: novel gene
Boundaries of gene: 240335..240820

Oligo evidence:

cgatggtgttataatgaaatgattagaaaaaatgtaatccccccaacataataccgtttggaatgat

Peptide evidence:

DDDSVVFYATDSFDPEVSMK
KLTSSFEEFINGLVEEDDLE
LTSSFEEFINGLVEEDDLE
TLGYSFPEAFVSHYLSFNNGGVPLR
AWWACDDGCEPLEIAAFKPFK



Proposed sequence (peptide evidence in red): 161aa

MKNPCQNCEKNIDLSDIKSVEK**TLGYSFPEAFVSHYLSFNNGGVPLRAWWACDDGCEPLEIAAFKPFKYHKMTNDNPNSLIDGCYNEMIRKNVIPSNIIPFGNDWGGNFFCLNKDDDSVVFYA**
TDSFDPEVSMKNHDVLQKLTSSFEEFINGLVEEDDLE

Strain: *Y. pestis* CO92
Gene: YP03610

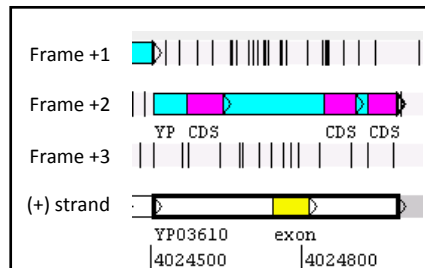
Classification: annotated as hypothetical protein
Boundaries of gene: 4024505..4024990

Oligo evidence:

cgatggtgttataatgaaatgattagaaaaaatgtaatccccccaacataataccgtttggaatgat

Peptide evidence:

DDDSVVFYATDSFDPEVSMK
LTSSFEEFINGLVEEDDLE
TLGYSFPEAFVSHYLSFNNGGVPLR



Current sequence (peptide evidence in red): 161aa

MKNPCQNCEKNIDLSDIKSVEK**TLGYSFPEAFVSHYLSFNNGGVPLRAWWACDDGCEPLEIAAFKPFKYHKMTNDNPNSLIDGCYNEMIRKNVIPSNIIPFGNDWGGNFFCLNKDDDSVVFYA**
TDSFDPEVSMKNHDVLQKLTSSFEEFINGLVEEDDLE

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 82

Strain: *Y. pestis* pestoides F
Gene: YPDSF_0388.5

Classification: novel gene
Boundaries of gene: 441966..442397

Oligo evidence:

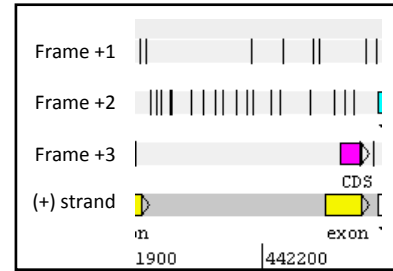
ggaatcagaagcgcgacatgaaattcaaaaaattctggctgaatcgccttacgacgatagctttataca

Peptide evidence:

ILAESPYDDSLYT

Proposed sequence (peptide evidence in red): 143aa

VRFADMLLSIAEIQKKVDEMALRAGLPRHSVNLCTEPIGEGTPYITFENMNYIYISERGYEFSRRVTKSLDELWIMSELAKAAAFQYELDRHVEGRDGRRIAFPKFIELMANMNSAWESE
ARHEIQK**ILAESPYDDSLYT**



Strain: *Y. pestis* CO92
Gene: YPO0602

Classification: annotated as hypothetical protein
Boundaries of gene: 660010..660441

Oligo evidence:

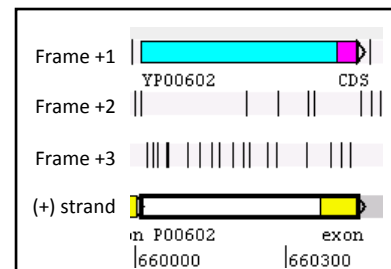
ggaatcagaagcgcgacatgaaattcaaaaaattctggctgaatcgccttacgacgatagctttataca

Peptide evidence:

ILAESPYDDSLYT

Current sequence (peptide evidence in red): 143aa

VRFADMLLSIAEIQKKVDEMALRAGLPRHSVNLCTEPIGEGTPYITFENMNYIYISERGYEFSRRVTKSLDELWIMSELAKAAAFQYELDRHVEGRDGRRIAFPKFIELMANMNSAWESE
ARHEIQK**ILAESPYDDSLYT**



Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 83

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDF_4024

Classification: frameshift
Boundaries of gene: Frame+1: 68530..68769
Frame+3: 68769..69833

Oligo evidence:

atggattctctgttgcagcagttcaataagcccaaatgttgatcctaaatgggtgtgggattata
agaaagaaatggctgaacattggaaaatgcacgtaagagacttggctcagctcaacgatgttttggga
ctaataacacacagatcataaattcagcaactgacaaccgttagataaacttgacaaacagagttga

Peptide evidence:

LGVGLYPAKPILR
LPPRGPQGPEK
EMAETLENARK
ETLAQSNVDLDAAK
ETLAQSNVDLDAAKK
TDRENSVSIHESLNR
KETLAQSNVDLDAAKK
SSQALAIKSGYR
TTLEAEEHANKK

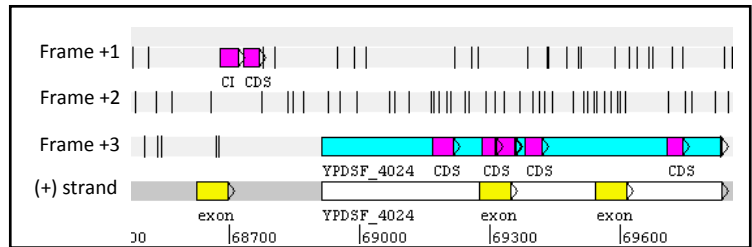
Proposed sequence (peptide evidence in red):

Frame+1: 79aa

MTKDFKISVSAALISALFSSPYAFAEEPEDGSDGIPRLSAVQISPNVDPK**LGVGLYPAKPILR**QENPK**LPPRGPQGPEK**

Frame+3: 356aa

RARLAEAIQPVVLGAGGLNARAKDPYSIAIGATAEAAKPAIAVSGSMATGVDSVAIGPLSKALGDSAVTYGVSSAQKDGVAIGAKASASDTGVAVGFNSKVDAQNSVAIGHSSHVAAD
HGYSIAIGDHSK**TDRENSVSIHESLNR**QLTHLAAGTEDTDAVNVAQLKK**EMAETLENARK**ETLAQSNVDLDAAKKHSNSVAR**TTLEAEEHANKK**SAETLVSAKVYADSNSSQTLKTANSYT
DVTVSNSTKATRESNQYTDHKFSQLDNRLDKLRVDKGLASSAALNSLFQPYGVGKVNFTAGVGGYRSSQALAIKSGYRVNESVAFKAGVAYAGSSNVMYNASFNIEW



Strain: *Y. pestis* CO92

Gene: YPCD1.87c/ YPCD1.88c

Classification: YPCD1.88c

YPCD1.87c putative yadA yopA invasive pseudogene

Boundaries of gene: complement (60568..61632)

Oligo evidence:

agaaagaaatggctgaacattggaaaatgcacgtaagagacttggctcagctcaacgatgttttggga
ctaataacacacagatcataaattcagcaactgacaaccgttagataaacttgacaaacagagttga

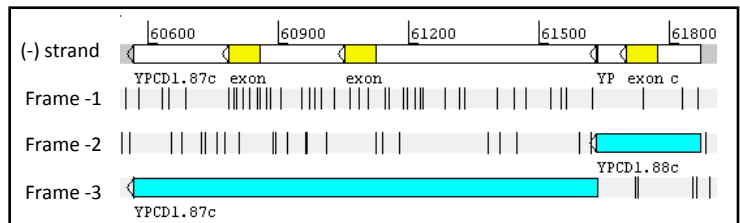
Peptide evidence:

NA

Current sequence (peptide evidence in red):

YPCD1.88c 79aa

MTKDFKISVSAALISALFSSPYAFAEEPEDGSDGIPRLSAVQISPNVDPK**LGVGLYPAKPILR**QENPK**LPPRGPQGPEK**



YPCD1.87c 355aa

KRARLAEAIQPVVLGAGGLNARAKDPYSIAIGATAEAAKPAIAVSGSMATGVDSVAIGPLSKALGDSAVTYGVSSAQKDGVAIGAKASASDTGVAVGFNSKVDAQNSVAIGHSSHVAAD
HGYSIAIGDHSKTDRENSVSIHESLNRQLTHLAAGTEDTDAVNVAQLKK**EMAETLENARK**ETLAQSNVDLDAAKKHSNSVAR**TTLEAEEHANKK**SAETLVSAKVYADSNSSQTLKTANSYT
DVTVSNSTKATRESNQYTDHKFSQLDNRLDKLRVDKGLASSAALNSLFQPYGVGKVNFTAGVGGYRSSQALAIKSGYRVNESVAFKAGVAYAGSSNVMYNASFNIEW

Strain: *Y. pseudotuberculosis* PB1/+

Gene: YPTS_4238

Classification: annotated as YadA domain-containing protein

Boundaries of gene: complement(23493..24791)

Oligo evidence:

atggattctctgttgcagcagttcaataagcccaaatgttgatcctaaatgggtgtgggattata
agaaagaaatggctgaacattggaaaatgcacgtaagagacttggctcagctcaacgatgttttggga
tatgcagacagcaattctctcacactaaaaactgcaaatagctataccgatgtgactgtaagtagtt
ctaataacacacagatcataaattcagcaactgacaaccgttagataaacttgacaaacagagttga

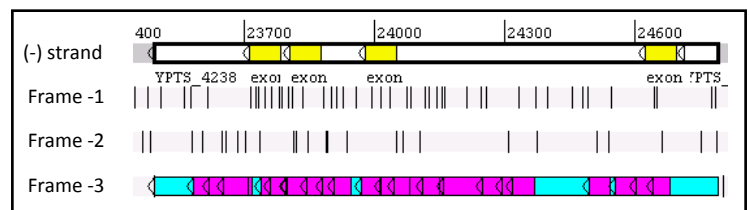
Peptide evidence:

AISESNQYTDHK
ALGDSAVTYGASSTAQK
ALGDSAVTYGASSTAQKDGVAIGAR
ASASDTGVAVGFNSK
DNDAVNVAQLKK
EMAETLENAR
ENSVSIHESLNR
ETLAQSNVDLDAAK
GLASSAALNSLFQPYGVGK
KAISESNQYTDHK
KAISESNQYTDHKFSQLDNLR
LAEAIQPVVLGGLDAR
LGVGLYPAKPILR
LSAVQISPNVDPK
QENPKLPPRGPQGPEK

QLTHLAAGTKDNDAVNVAQLKK
SSQALAIKSGYR
TANSYTDVTVSSSTK
TANSYTDVTVSSSTKK
TDRENSVSIHESLNR
TTLEAEEHANKK
TTLEAEEHANKKSAELVSAK
VDAQNSVAIGHSSHVAADHGYSIAIGDLSK
VDKGLASSAALNSLFQPYGVGK
VNFTAGVGGYR
VYADSNSSHTLK

Current sequence (peptide evidence in red): 432aa

MTKDFKISVSAALISALFSSPYAFAEEPEDGNDGIPRL**LSAVQISPNVDPK**LGVGLYPAKPILRQENPK**LPPRGPQGPEK**KRARLAEAIQPVVLGGLDARAKGHSIAIGATAEAAKPAIAVAVGAG
SIATGVNSVAIGPLSK**ALGDSAVTYGASSTAQKDGVAIGARASASDTGVAVGFNSKVDAQNSVAIGHSSHVAADHGYSIAIGDLSK**TDRENSVSIHESLNRQLTHLAAGTKDNDAVNVAQLK
KEMAETLENARKETLAQSNVDLDAAKKHSNSVAR**TTLEAEEHANKKSAELVSAK**VYADSNSSHTLKANSYTDVTVSSSTKK**KAISESNQYTDHKFSQLDNRLDKLRVDKGLASSAALNSL**
FQPYGVGKVNFTAGVGGYRSSQALAIKSGYRVNESVAFKAGVAYAGSSNVMYNASFNIEW



Error 84

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDFS_4001.5

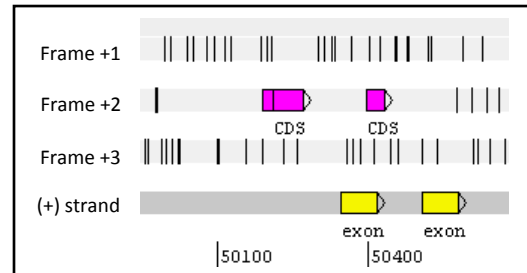
Classification: novel gene
Boundaries of gene: 50030..50578

Oligo evidence:

tgttttctgtattagattgtgatatagagtatgtttcatagggaaaaaacagtgagggaatataga
tgatcatctctaaatctgagttggaggaattgagtcgcaatcctgcatcaagaatgtattatgggatg

Peptide evidence:

DSEGNIEFYDPK
SGSILSTLEELWQAVGIVYR
VGIEPLKSGSILSTLEELWQAVGIVYR



Proposed sequence (peptide evidence in red): 182aa

MFIKDTYNMRALCTALEQSAPDTIINTSKEENNSYYCATAHLLRDTVCSLVNRR**VGIEPLKSGSILSTLEELWQAVGIVYR**LYEWQHVSDIDTNFKKLPNNSDFGLVFSVLDCDIEYVFIGKK**DSEG**
NIEFYDPKNSLLIENDDIKKYLYDEDFHRFCIMLIISKSELEELSRESCDQECIMG

Strain: *Y. pestis* CO92
Gene: YPCD1.19c

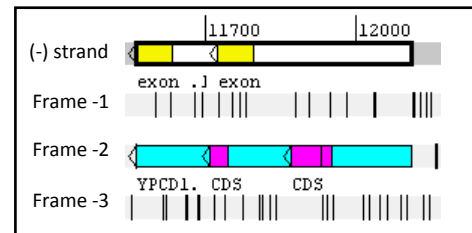
Classification: annotated as putative virulence determinant protein
Boundaries of gene: complement (11562..12110)

Oligo evidence:

tgttttctgtattagattgtgatatagagtatgtttcatagggaaaaaacagtgagggaatataga
tgatcatctctaaatctgagttggaggaattgagtcgcaatcctgcatcaagaatgtattatgggatg

Peptide evidence:

DSEGNIEFYDPK
SGSILSTLEELWQAVGIVYR
VGIEPLKSGSILSTLEELWQAVGIVYR



Current sequence (peptide evidence in red): 182aa

MFIKDTYNMRALCTALEQSAPDTIINTSKEENNSYYCATAHLLRDTVCSLVNRR**VGIEPLKSGSILSTLEELWQAVGIVYR**LYEWQHVSDIDTNFKKLPNNSDFGLVFSVLDCDIEYVFIGKK**DSEG**
NIEFYDPKNSLLIENDDIKKYLYDEDFHRFCIMLIISKSELEELSRESCDQECIMG

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_4264

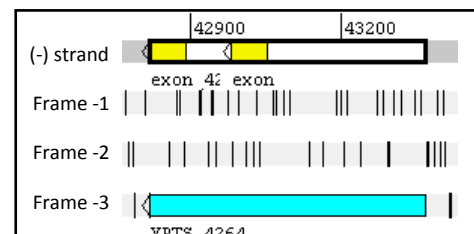
Classification: annotated as yop targeting protein YopK, YopQ
Boundaries of gene: complement(42819..43367)

Oligo evidence:

Tgttttctgtattagattgtgatatagagtatgtttcatagggaaaaaacagtgagggaatataga
tgatcatctctaaatctgagttggaggaattgagtcgcaatcctgcatcaagaatgtattatgggatg

Peptide evidence:

NA



Current sequence (peptide evidence in red): 182aa

MFIKDTYNMRALCTALEQSAPDTIINTSKEENNSYYCATAHLLRDTVCSLVNRRVGIEPLKSGSILSTLEELWQAVGIVYRLYEWQHVSDIDTNFKKLPNNSDFGLVFSVLDCDIEYVFIGKK**DSEG**
NIEFYDPKNSLLIENDDIKKYLYDENFHRFCIMLIISKSELEELSRESCDQECIMG

Error 85

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDSF_3943.5

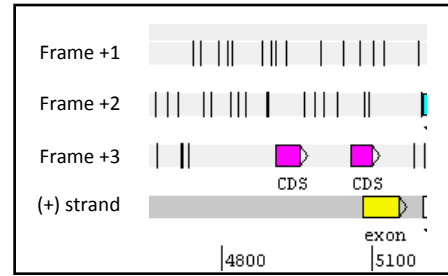
Classification: novel gene
Boundaries of gene: 4758..5186

Oligo evidence:

tgagaacgtagcaaggagatagcgaactttacgactggtgagcttggtcagttaccagcagaaact

Peptide evidence:

LTLGPIILGFGSGPEAR
HLSLDELNVENVSK



Proposed sequence (peptide evidence in red): 142aa

VINTTFTELLPKIASHFGLDKLSQDEYGLCELIINDRVVIMLRADDEILNRL**LTLGPIILGFGSGPEAR**SAASQLFFCYSINALNKDGPFAWSEELGLIAFK**HLSLDELNVENVSK**EIANFYDWLSLVSLP
AETAPSYSIYSIG

Strain: *Y. pestis* CO92
Gene: YPCD1.73c

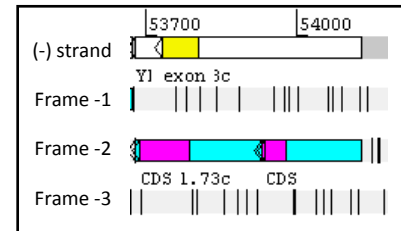
Classification: annotated as hypothetical protein
Boundaries of gene: complement(53679..54128)

Oligo evidence:

tgagaacgtagcaaggagatagcgaactttacgactggtgagcttggtcagttaccagcagaaact

Peptide evidence:

EIANFYDWLSLVSLPAETQQELPLHTQSTQSVK
LTLGPIILGFGSGPE
LTLGPIILGFGSGPEAR



Current sequence (peptide evidence in red): 149aa

VINTTFTELLPKIASHFGLDKLSQDEYGLCELIINDRVVIMLRADDEILNRL**LTLGPIILGFGSGPEAR**SAASQLFFCYSINALNKDGPFAWSEELGLIAFK**HLSLDELNVENVSK**EIANFYDWLSLVSLP
AETQQELPLHTQSTQSVKWG

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_4225

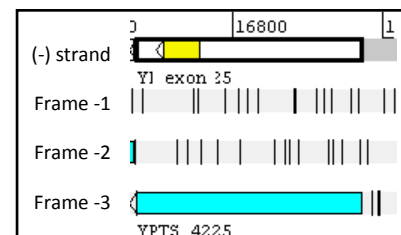
Classification: annotated as hypothetical protein
Boundaries of gene: complement(16608..17057)

Oligo evidence:

tgagaacgtagcaaggagatagcgaactttacgactggtgagcttggtcagttaccagcagaaact

Peptide evidence:

NA



Current sequence (peptide evidence in red): 149aa

VINTTFTELLPKIASHFGLDKLSQDEYGLCELIINDRVVIMLRADDEILNRL**LTLGPIILGFGSGPEAR**SAASQLFFCYSINALNKDGPFAWSEELGLIAFK**HLSLDELNVENVSK**EIANFYDWLSLVSLP
AETQQELPLHTQSTQSVKWG

Error 86

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDFS_3969.5

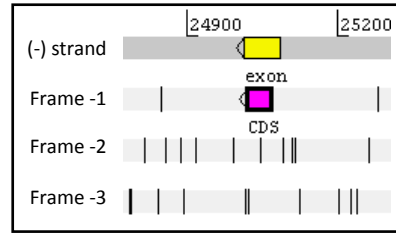
Classification: novel gene
Boundaries of gene: complement (24847..25242)

Oligo evidence:

agttcgagaggttcagcgactcatttcgaacaggtaacctacctttattctttctataaaactgaat

Peptide evidence:

THFETGNLPLFFSIK



Proposed sequence (peptide evidence in red): 131aa

VSRIIALIISFLLVGCATPPMPAQRIVGEVRMSRPLSRIAHIDVSMFGLYEGKRVQR**THFETGNLPLFFSIK**LNPAQRGEGELYLRSTLSFPERGVQAVAQQKLTGKNKVVLMIPKTCYPNCQLPNTR

Strain: *Y. pestis* CO92
Gene: YPCD1.48

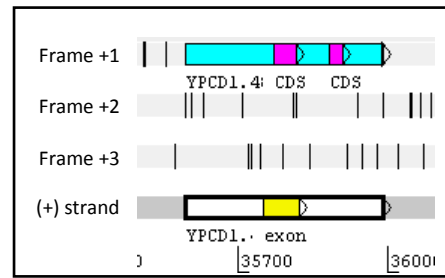
Classification: annotated as needle complex outer membrane lipoprotein precursor
Boundaries of gene: 35593..35988

Oligo evidence:

agttcgagaggttcagcgactcatttcgaacaggtaacctacctttattctttctataaaactgaat

Peptide evidence:

GVQAVAQQK
THFETGNLPLFFSIK



Current sequence (peptide evidence in red): 131aa

VSRIIALIISFLLVGCATPPMPAQRIVGEVRMSRPLSRIAHIDVSMFGLYEGKRVQR**THFETGNLPLFFSIK**LNPAQRGEGELYLRSTLSFPERGVQAVAQQKLTGKNKVVLMIPKTCYPNCQLPNTR

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_4293

Classification: annotated as type III secretion system chaperone YscW
Boundaries of gene: 68527..68922

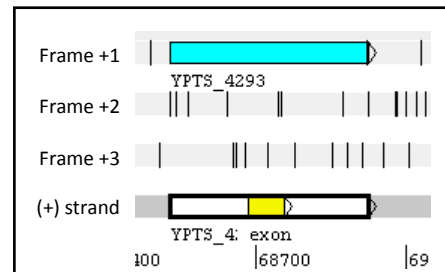
Oligo evidence:

agttcgagaggttcagcgactcatttcgaacaggtaacctacctttattctttctataaaactgaat

Peptide evidence:

NA

NA



Current sequence (peptide evidence in red): 131aa

VSRIIALIISFLLVGCATPPMPAQRIVGEVRMSRPLSRIAHIDVSMFGLYEGKRVQR**THFETGNLPLFFSIK**LNPAQRGEGELYLRSTLSFPERGVQAVAQQKLTGKNKVVLMIPKTCYPNCQLPNTR

Error 87

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDFS_4020.5

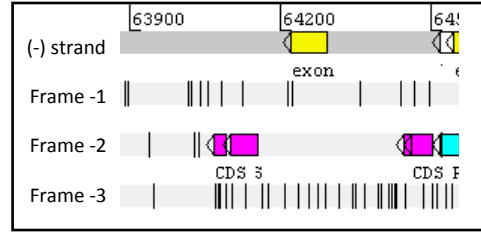
Classification: novel gene
Boundaries of gene: complement (64025..64498)

Oligo evidence:

atgaagtttcagtataataagcaacaattcctttaactcagtatgtctcggaattaaggcaagtttaaa

Peptide evidence:

GIPNFSNELETSMGLLR
KLSNSFK
MNLQNNLYSILEK
MNLQNNLYSILEKVESLK



Proposed sequence (peptide evidence in red): 154aa

MNLQNNLYSILEKVESLKNIKMLDKNNGEFTYIEGDYFSDLTDSLNIYEIKYLTFENFDFFSNGKPNEVSVKATNSFNSVCLGKASLNSLDVERKELTVQFTYSMVFDASKGIPNFSNELETS
MGLLRIPKLSNSFKDKGIEHNYVN

Error 100

Strain: *Y. pestis* CO92
Gene: YPCD1.91.5

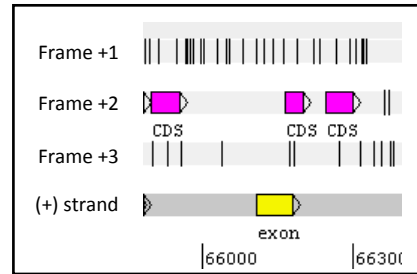
Classification: novel gene
Boundaries of gene: 65900..66361

Oligo evidence:

atgaagtttcagtataataagcaacaattcctttaactcagtatgtctcggaattaaggcaagtttaaa

Peptide evidence:

ASLNSLDVERK
GIPNFSNELETSMGLLR
MNLQNNLYSILEKVESLK



Current sequence (peptide evidence in red): 154aa

MNLQNNLYSILEKVESLKNIKMLDKNNGEFTYIEGDYFSDLTDSLNIYEIKYLTFENFDFFSNGKPNEVSVKATNSFNSVCLGKASLNSLDVERKELTVQFTYSMVFDASKGIPNFSNELETS
MGLLRIPKLSNSFKDKGIEHNYVN

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_4242

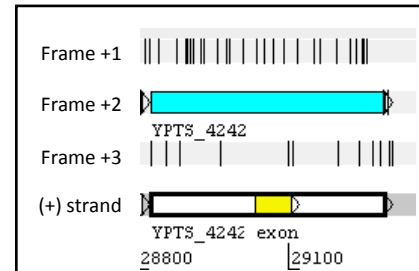
Classification: annotated as hypothetical protein
Boundaries of gene: 28826..29290

Oligo evidence:

atgaagtttcagtataataagcaacaattcctttaactcagtatgtctcggaattaaggcaagtttaaa

Peptide evidence:

ASLNSLDVERK
GIPNFSNELETSMGLLR
MNLQNNLYSILEKVESLK



Current sequence (peptide evidence in red): 154aa

MNLQNNLYSILEKVESLKNIKMLDKNNGEFTYIEGNYFSDLTDSLNIYEIKYLTFENFDFFSNGKPNEVSVKATNSFNSVCLGKASLNSLDVERKELTVQFTYSMVFDASKGIPNFSNELETS
MGLLRIPKLSNSFKDKGIEHNYVN

Error 88

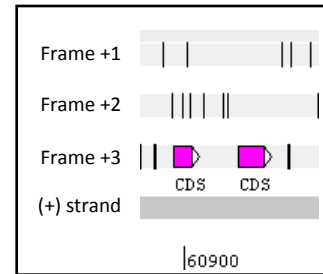
Strain: *Y. pestis* pestoides F plasmid MT
Gene: YPDSF_4088.5

Classification: novel gene
Boundaries of gene: 60858..61109

Oligo evidence:
NA

Peptide evidence:

HIQEAI EYALSK
SVWSTPDVPEHHATQIR



Proposed sequence (peptide evidence in red): 83aa

MKSHPNK**HIQEAI EYALSK**GWVWVPAGKSAHCFCKLRGDKSGEHTSHHRS**SVWSTPDVPEHHATQIR**QAVDQCGRINQMSSK

Error 48

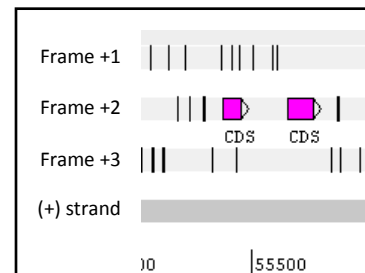
Strain: *Y. pestis* CO92 plasmid MT
Gene: YPMT1.53c.5

Classification: novel gene
Boundaries of gene: 55421..55672

Oligo evidence:
NA

Peptide evidence:

HIQEAI EYALSK
SVWSTPDVPEHHATQIR



Proposed sequence (peptide evidence in red): 83aa

MKSHPNK**HIQEAI EYALSK**GWVWVPAGKSAHCFCKLRGDKSGEHTSHHRS**SVWSTPDVPEHHATQIR**QAVDQCGRINQMSSK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 89

Strain: Y. pestis pestoides F plasmid MT
Gene: YPDSF_4138.5

Classification: novel gene
Boundaries of gene: complement (125215..125541)

Oligo evidence:

cctgacggctacagagtattgtactcagtgaggagataatgtaataacagcacacgcaatactatcccaca

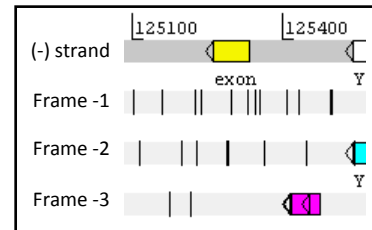
Peptide evidence:

EVISGIIHFKEK
HIESEPK
HIESEPKEVISGIIHFKEK
HIESEPKEVISGIIHFKEK

Proposed sequence (peptide evidence in red): 108aa

MAIVIQYTRTRVTKCIDDIASHLR**HIESEPKEVISGIIHFKEK**VSDFPLGCQVCPPELLKIGCAKYRECNTPDGYRVLYSVEDNVITAHAILSHRQDIQNLLFKRLIRI

(-) strand



Strain: Y. pestis CO92 plasmid MT
Gene: YPMT1.69

Classification: annotated as hypothetical protein
Boundaries of gene: 70690..71016

Oligo evidence:

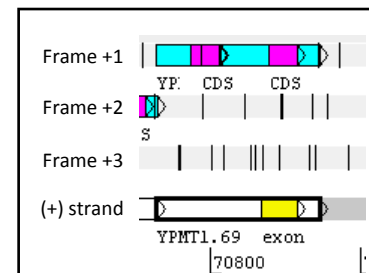
cctgacggctacagagtattgtactcagtgaggagataatgtaataacagcacacgcaatactatcccaca

Peptide evidence:

EVISGIIHFKEK
HIESEPKEVISGIIHFKEK
HIESEPKEVISGIIHFKEK
VLYSVEDNVITAHAILSHR

Current sequence (peptide evidence in red): 108aa

MAIVIQYTRTRVTKCIDDIASHLR**HIESEPKEVISGIIHFKEK**VSDFPLGCQVCPPELLKIGCAKYRECNTPDGYR**VLYSVEDNVITAHAILSHR**QDIQNLLFKRLIRI



Strain: Y. pseudotuberculosis PB1/+
Gene: no ortholog

Error 90

Strain: *Y. pestis* pestoides F
Gene: YPDSF_1005

Classification: frameshift
Boundaries of gene: Frame-2 1141715..1142086
Frame-3:1141443..1141703

Oligo evidence:

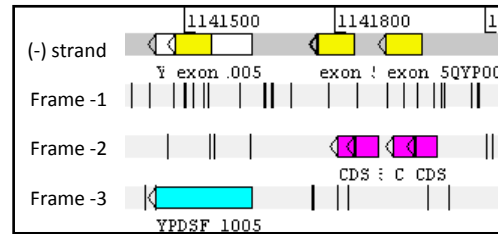
atgactaactgggatgattttatgggacatgggctgattttgttggggtgatgacagagattgccatt
ggcttccttgagcatalcgttcctacacgtaaaacatgtactcagattttagtctggcgtactgttcaa
caggcgtgaaagaattcctttgcttgatttgaactcctcacgggatcgtctactgttctgtgtaa

Peptide evidence:

EFSLPGFVTPHGYR
LAFLEHIVPTR
NIEHTEAFMASGVK
LVTDAAIPTVYAVK

Proposed sequence (peptide evidence in red):

Current annotation is underlined



Frame-2: 124aa

MNKYIANEKMPLLIPAAAGFDAKLSMTEK**NIEHTEAFMASGVKEFSLPGFVTPHGYR**LLVSVNGEHYRLVTDAAIPETVYAVK**LAFLEHIVPTR**KTCTQILVWRTVQPQHDSAVHGLPQEFFRH
F

Frame-3: 87aa

LTQYSIVSDSEQTNEGRRFWERMIAWAIQAEGHYVYVSVNGSEEDRPLTFMTNWDDFYGTWADFCWGDDRDCHCHRLFVISTEQLH

Strain: *Y. pestis* CO92
Gene: YPO2124

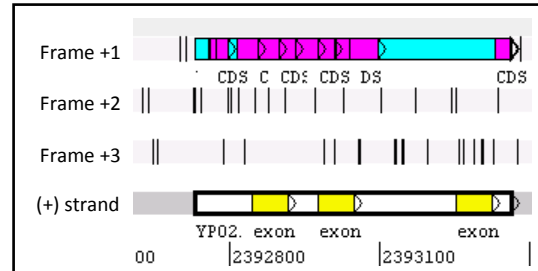
Classification: annotated as hypothetical protein
Boundaries of gene: 2392729..2393361

Oligo evidence:

caggcgtgaaagaattcctttgcttgatttgaactcctcacgggatcgtctactgttctgtgtaa
ggcttccttgagcatalcgttcctacacgtaaaacatgtactcagattttagtctggcgtactgttcaa
atgactaactgggatgattttatgggacatgggctgattttgttggggtgatgacagagattgccatt

Peptide evidence:

EFSLPGFVTPHGYR
LAFLEHIVPTR
LFVISTEQLH
LLVSVNGEHYR
LVTDAAIPTVYAVK
MPLLIIPAAAGFDAK
NIEHTEAFMASGVK
NIEHTEAFMASGVKEFSLPGFVTPHGYR
PAAGFDAK
PLLIPAAAGFDAK
TCTQILVWRTVQPQHDSAVHGLPQEFFR
TVQPQHDSAVHGLPQEFFR



Current sequence (peptide evidence in red): 210aa

MNKYIANEK**MPLLIIPAAAGFDAKLSMTEK****NIEHTEAFMASGVKEFSLPGFVTPHGYR**LLVSVNGEHYRLVTDAAIPETVYAVK**LAFLEHIVPTR**KTCTQILVWRTVQPQHDSAVHGLPQEFFRH
FLTQYSIVSDSEQTNEGRRFWERMIAWAIQAEGHYVYVSVNGSEEDRPLTFMTNWDDFYGTWADFCWGDDRDCHCHRLFVISTEQLH

Strain: *Y. pseudotuberculosis* PB1/+
Gene: no ortholog

Error 91

Strain: *Y. pestis* pestoides F
Gene: YPDSF_2750.5

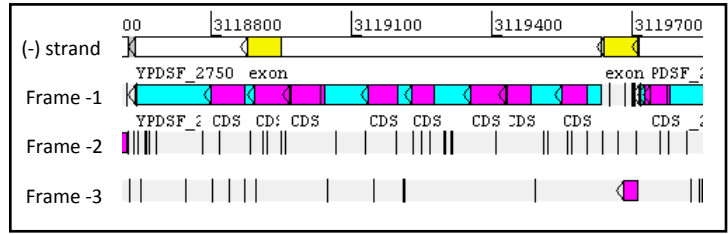
Classification: frameshift
Boundaries of gene: frame-3: complement (3119589..3119711)
frame-1: complement (3118639..3119631)

Oligo evidence:

tgattaataatagtttctggcaaggtaaacgggttttgaacaggccatactgggtttaaagggtgctg
aatatgccgaaggttgaactttggtcctaacgatgctgatctactcagtaaaaaacattgttgaaca

Peptide evidence:

MINNSFWQGK
AIRPWQHVLEPLSGYLLLAQK
LYTDGAEYAEGWNFPGNDADATPVK
RLLFAPPTVPSLFETAR
YWEGEGASWQLDGNAPHEAHYLK
EFQPEIVFHMAAQPLVR
ENEAMGGYDPYSNSK
ENEAMGGYDPYSNSK
LSYSEPVETYSTNVMGTVYLLEAIR
NPHAIRPWQHVLEPLSGYLLLAQK
NSFFNPANYGQHGTA VATVR



Proposed sequence (peptide evidence in red):

Frame-3: 41aa

MINNSFWQGKRVFVTGHTGFKGGWLSLWLQTMGATVKGYSLPPPRCLAYLRPHELPTGCRKRSVIFVIKNTY

Frame-1: 331aa

MVANHGGNGK**RLLFAPPTVPSLFETAR**VADGMQSEIGDIRDQNKLLSIREFQPEIVFHMAAQPLVRLSYSEPVETYSTNVMGTVYLLEAIRHVGGVKAVVNITSDKCYDNKEWIWGYRENE
AMGGYDPYSNSKGCAELVTSSYRNSFFNPANYGQHGTA VATVRAGNVIGGGDWALDRIVPDILRAFEQSQPVIIIRNPHAIRPWQHVLEPLSGYLLLAQKLYTDGAEYAEGWNFPGNDADA
TPVKNIVEQMVKY**YWEGEGASWQLDGNAPHEAHYLK**DCSKAKMQLGWHPRWNLNTTLEYIVGWKHKNWLSGTMHEYSITEINNYMNTK

Strain: *Y. pestis* CO92
Gene: YPO3114

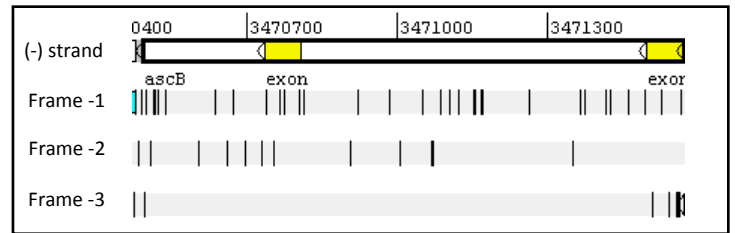
Classification: annotated as pseudogene
Boundaries of gene: frame-2: complement (3471347..3471568)
frame-3: complement (3470493..3471437)

Oligo evidence:

tgattaataatagtttctggcaaggtaaacgggttttgaacaggccatactgggtttaaagggtgctg
aatatgccgaaggttgaactttggtcctaacgatgctgatctactcagtaaaaaacattgttgaaca

Peptide evidence:

NA



Current sequence (peptide evidence in red):

Frame-2: 41aa

MINNSFWQGKRVFVTGHTGFKGGWLSLWLQTMGATVKGYSLPPPRCLAYLRPHELPTGCRKRSVIFVIKNTY

Frame-3: 316aa

PTVPSLFETARVADGMQSEIGDIRDQNKLLSIREFQPEIVFHMAAQPLVRLSYSEPVETYSTNVMGTVYLLEAIRHVGGVKAVVNITSDKCYDNKEWIWGYRENEAMGGYDPYSNSK
GCAELVTSSYRNSFFNPANYGQHGTA VATVRAGNVIGGGDWALDRIVPDILRAFEQSQPVIIIRNPHAIRPWQHVLEPLSGYLLLAQKLYTDGAEYAEGWNFPGNDADATPVKNIVEQMVKYWGE
GASWQLDGNAPHEAHYLKDCSKAKMQLGWHPRWNLNTTLEYIVGWKHKNWLSGTMHEYSITEINNYMNTK

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1043

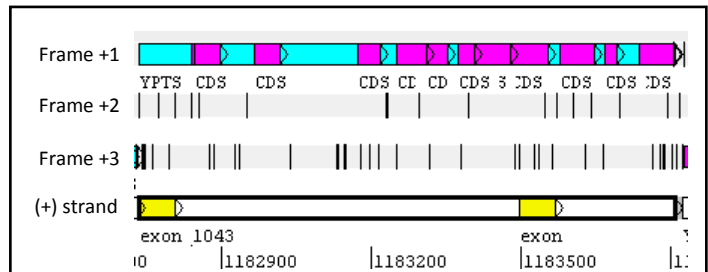
Classification: annotated as CDP-glucose 4,6-dehydratase
Boundaries of gene: 1182733..1183806

Oligo evidence:

tgattaataatagtttctggcaaggtaaacgggttttgaacaggccatactgggtttaaagggtgctg
aatatgccgaaggttgaactttggtcctaacgatgctgatctactcagtaaaaaacattgttgaaca

Peptide evidence:

AFEQSQPVIIIR
AGNVIGGGDWALDR
EFQPEIVFHMAAQPLVR
ENEAMGGYDPYSNSK
GYSLTPPTVPSLFETAR
LYTDGAEYAEGWNFPGNDADATPVK
MQLGWHPR
NPHAIRPWQHVLEPLSGYLLLAQK
NSFFNPANYGQHGTA VATVR
NWLSTDMHEYSITEINNYMNTK
VKGYSLTPPTVPSLFETAR
YWEGEGASWQLDGNAPHEAHYLK



Current sequence (peptide evidence in red): 357aa

MINNSFWQGKRVFVTGHTGFKGGWLSLWLQTMGAK**VKGYSLTPPTVPSLFETAR**VADGMQSEIGDIRDQNKLLSIREFQPEIVFHMAAQPLVRLSYSEPVETYSTNVMGTVYLLEAIRHV
GGVAVVNITSDKCYDNKEWIWGYRENEAMGGYDPYSNSK
GCAELVTSSYRNSFFNPANYGQHGTA VATVRAGNVIGGGDWALDRIVPDILRAFEQSQPVIIIRNPHAIRPWQHVLEPLSG
YLLLAQKLYTDGAEYAEGWNFPGNDADATPVKNIVEQMVKY**YWEGEGASWQLDGNAPHEAHYLK**DCSKAKMQLGWHPRWNLNTTLEYIVGWKHKNWLSGTMHEYSITEINNYMNTK

Error 92

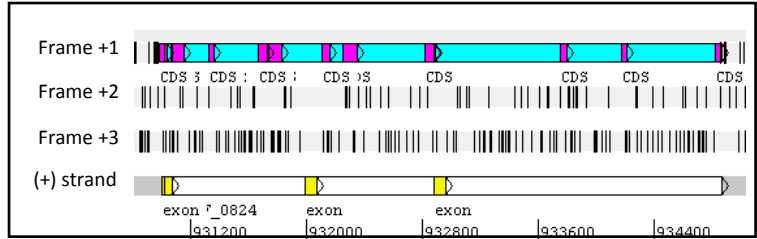
Strain: *Y. pestis* pestoides F
Gene: YPDSF_0824
Oligo evidence:

Classification: upstream start site
Boundaries of gene: 930796..934863

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tgttggcaaccaacgctggcagaaaagctcaactcagctcggggtatcaaatatgttatcgatccggc
caagagttaccggtgctgtaacgcccttctgctatccccggctcggctattcaaaaagcccc

Peptide evidence:

FSQHFNNAPIIEVSGR SVHTAALTGLLSHIGQK
GVIGHTQPR SVHTAALTGLLSHIGQKDVKE
ILQTIEQLSV TNLASVILQMTSLGLGDIAAFPVEAPDKR
INNPDAIQAITHEIEAIAIAMQR VTPLETGLLEALER
KINNPDAIQAITHEIEAIAIAMQR YRPIVDDADDVDRDQLQAIFDAVDELGR
LLLLNIPSPIK
LPIEPIQSASANQR
SSLTALSTQLGELMLR



Proposed sequence (peptide evidence in red): 1295aa

Current annotation is underlined

MKSSLTALSTQLGELMLRDQQRIRRLHSARKINNPDAIQAITHEIEAIAIAMQRVTRRAACPAISYPDNLVPSQKQDIYNAIRDHQVIIVAGETGSGKTTQPKICLELGRGVKGVIGHTQPRRLAARTVANRIADELDTSLGGCVGYKFRNDQVQVNTLV
KLMTDGIILAEIQDRLLMQDYDTLIDEAHERLSNIDFGLYRELLPKRPDLKVIITADIPQRFSQHFNNAPIIEVSGRTPYVEVRYRPIVDDADDVDRDQLQAIFDAVDELGRRESAGDILIFMSGEREIRDADALIKQLPHTVEVPLVYARLSNSEQNRVFSQSH
GRRIVLATNVAETSLVPGIKYVIDPGTARISRYFRKVRQLPIEPIQSASANQRKGRGCRVSDGICIRLYSEQDFLSRPEFTDPEILRNLASVILQMTSLGLGDIAAFPVEAPDKRNIQDGVRLLEELGAIQTASNGHQQLTLPGRQLAQLVDPRLARMVLOA
QKSGCVRRELMITSALSIDQPRERPVKQASDEKHRRFADKDSDFLAFVNLWDYLKEQQKLSAQRFRKCRSDYLNLRVREWQDIYTLRQVVKELGIPVNSVAADYRSVHTAALTGLLSHIGQKDVKEQFTGARNARFAIFPGSGLFKPKPKVWVMAEL
VETSRLWGRARIAARIEPEWIEPLAQHLVHHYSDPHWEKAQAVMASEKVTFLGPIVTERKINYGPIIDPLLCRELFIRHGLVGDWQTRHAFFRMLNKLAEVEELEHKSRRRDLVDEDTLNFYDQIRGRDVISALHFDSSWWKQASQTKPELLNFEKTMLIKE
GANKVNPDPYPNFVYQGLKRLRYFQEPGTDADGVTYHPIPLNQIHEQGFWDQIPGIRRELIALKSLPKPVRNFVAPNYADAFALARVTPLETGLLEALERLRMTGVTVSRDSWQLDQVDPHLKITFRVLDKKNRILREGKDLAALKLQLEKVKQETL
SAVADDGIEQNNLHIWISFGDLPCYEQRRGGYEVKAYPALVDEKDSVAIRLFDTESQQQAMWQGTTRRLNINIPSPIKYLHEKLPNKSGLGYFNFTYGNVMDLDDCIACGVDKLVAHQHGGPVVQEAADARLQEKVRAELNDTVVIAKQVEQILTVFSIN
KRLKGRIDISLVALSDIAKLAGLRYGFTVSNGWKRLPDLTRYLKAIERRELEKLAVDPHDRDAQMLRIEHVQVQVWQWLNKLPKRQDQEEVKEVRWMIELRVSFLAQQLGTPYPVSDKRLIQTIEQLSV

Error 99

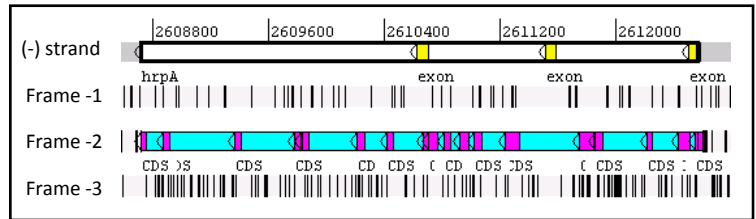
Strain: *Y. pestis* CO92
Gene: YPO2322
Oligo evidence:

Classification: upstream start site
Boundaries of gene: complement (2608715..2612602)

tccactcaacttggtgagttgatgctcctgaccaacagcgcttcagcgtcggtcatatagcgcacgaa
tgttggcaaccaacgctggcagaaaagctcaactcagctcggggtatcaaatatgttatcgatccggc
caagagttaccggtgctgtaacgcccttctgctatccccggctcggctattcaaaaagcccc

Peptide evidence:

DILVDDDELTFNFYDQR SSLTALSTQLGELMLR
ELMITSALSIDQPR SVHTAALTGLLSHIGQK
FADKDSDFLAFVNLWDYLK SVHTAALTGLLSHIGQKDVKEQFTGAR
FSQHFNNAPIIEVSGR TNLASVILQMTSLGLGDIAAFPVEAPDKR
GVIGHTQPR VREWQDIYTLQR
IEHVQVWQWQLNK VTLFGLPIVTER
ILQTIEQLSV VTPLETGLLEALER
INNPDAIQAITHEIEAIAIAMQR YRPIVDDADDVDRDQLQAIFDAVDELGR
KINNPDAIQAITHEIEAIAIAMQR
LLLLNIPSPIK
NFVAPNYADAFALAR



Proposed sequence (peptide evidence in red): 1295aa Current annotation is underlined

VKSSLTALSTQLGELMLRDQQRIRRLHSARKINNPDAIQAITHEIEAIAIAMQRVTRRAACPAISYPDNLVPSQKQDIYNAIRDHQVIIVAGETGSGKTTQPKICLELGRGVKGVIGHTQPRRLAARTVANRIADELDTSLGGCVGYKFRNDQVQVNTLV
KLMTDGIILAEIQDRLLMQDYDTLIDEAHERLSNIDFGLYRELLPKRPDLKVIITADIPQRFSQHFNNAPIIEVSGRTPYVEVRYRPIVDDADDVDRDQLQAIFDAVDELGRRESAGDILIFMSGEREIRDADALIKQLPHTVEVPLVYARLSNSEQNRVFSQSH
GRRIVLATNVAETSLVPGIKYVIDPGTARISRYFRKVRQLPIEPIQSASANQRKGRGCRVSDGICIRLYSEQDFLSRPEFTDPEILRNLASVILQMTSLGLGDIAAFPVEAPDKRNIQDGVRLLEELGAIQTASNGHQQLTLPGRQLAQLVDPRLARMVLOA
QKSGCVRRELMITSALSIDQPRERPVKQASDEKHRRFADKDSDFLAFVNLWDYLKEQQKLSAQRFRKCRSDYLNLRVREWQDIYTLRQVVKELGIPVNSVAADYRSVHTAALTGLLSHIGQKDVKEQFTGARNARFAIFPGSGLFKPKPKVWVMAEL
VETSRLWGRARIAARIEPEWIEPLAQHLVHHYSDPHWEKAQAVMASEKVTFLGPIVTERKINYGPIIDPLLCRELFIRHGLVGDWQTRHAFFRMLNKLAEVEELEHKSRRRDLVDEDTLNFYDQIRGRDVISALHFDSSWWKQASQTKPELLNFEKTMLIKE
GANKVNPDPYPNFVYQGLKRLRYFQEPGTDADGVTYHPIPLNQIHEQGFWDQIPGIRRELIALKSLPKPVRNFVAPNYADAFALARVTPLETGLLEALERLRMTGVTVSRDSWQLDQVDPHLKITFRVLDKKNRILREGKDLAALKLQLEKVKQETL
SAVADDGIEQNNLHIWISFGDLPCYEQRRGGYEVKAYPALVDEKDSVAIRLFDTESQQQAMWQGTTRRLNINIPSPIKYLHEKLPNKSGLGYFNFTYGNVMDLDDCIACGVDKLVAHQHGGPVVQEAADARLQEKVRAELNDTVVIAKQVEQILTVFSIN
KRLKGRIDISLVALSDIAKLAGLRYGFTVSNGWKRLPDLTRYLKAIERRELEKLAVDPHDRDAQMLRIEHVQVQVWQWLNKLPKRQDQEEVKEVRWMIELRVSFLAQQLGTPYPVSDKRLIQTIEQLSV

Strain: *Y. pseudotuberculosis* PB1/+

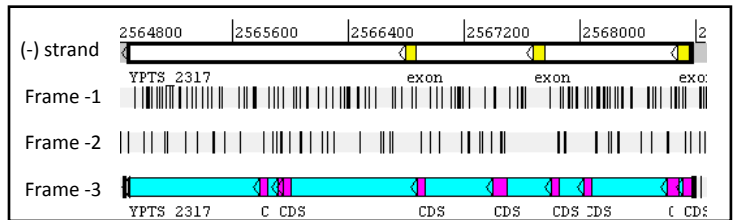
Classification: ATP-dependent helicase HrpA
Boundaries of gene: complement (256482..2568769)

Gene: YPTS_2317
Oligo evidence:

tccactcaacttggtgagttgatgctcctgaccaacagcgcttcagcgtcggtcatatagcgcacgaa
tgttggcaaccaacgctggcagaaaagctcaactcagctcggggtatcaaatatgttatcgatccggc
caagagttaccggtgctgtaacgcccttctgctatccccggctcggctattcaaaaagcccc

Peptide evidence:

EGKDLAALKLQLEK SSLTALSTQLGELMLR
FSQHFNNAPIIEVSGR SVHTAALTGLLSHIGQK
INNPDAIQAITHEIEAIAIAMQR TNLASVILQMTSLGLGDIAAFPVEAPDKR
KINNPDAIQAITHEIEAIAIAMQR VTPLETGLLEALER
QNLPHTEVPLYAR
RMTGVTVSR



Current sequence (peptide evidence in red): 1295aa

VKSSLTALSTQLGELMLRDQQRIRRLHSARKINNPDAIQAITHEIEAIAIAMQRVTRRAACPAISYPDNLVPSQKQDIYNAIRDHQVIIVAGETGSGKTTQPKICLELGRGVKGVIGHTQPRRLAARTVANRIADELDTSLGGCVGYKFRNDQVQVNTLV
KLMTDGIILAEIQDRLLMQDYDTLIDEAHERLSNIDFGLYRELLPKRPDLKVIITADIPQRFSQHFNNAPIIEVSGRTPYVEVRYRPIVDDADDVDRDQLQAIFDAVDELGRRESAGDILIFMSGEREIRDADALIKQLPHTVEVPLVYARLSNSEQNRVFSQSH
GRRIVLATNVAETSLVPGIKYVIDPGTARISRYFRKVRQLPIEPIQSASANQRKGRGCRVSDGICIRLYSEQDFLSRPEFTDPEILRNLASVILQMTSLGLGDIAAFPVEAPDKRNIQDGVRLLEELGAIQTASNGHQQLTLPGRQLAQLVDPRLARMVLOA
QKSGCVRRELMITSALSIDQPRERPVKQASDEKHRRFADKDSDFLAFVNLWDYLKEQQKLSAQRFRKCRSDYLNLRVREWQDIYTLRQVVKELGIPVNSVAADYRSVHTAALTGLLSHIGQKDVKEQFTGARNARFAIFPGSGLFKPKPKVWVMAEL
VETSRLWGRARIAARIEPEWIEPLAQHLVHHYSDPHWEKAQAVMASEKVTFLGPIVTERKINYGPIIDPLLCRELFIRHGLVGDWQTRHAFFRMLNKLAEVEELEHKSRRRDLVDEDTLNFYDQIRGRDVISALHFDSSWWKQASQTKPELLNFEKTMLIKE
GANKVNPDPYPNFVYQGLKRLRYFQEPGTDADGVTYHPIPLNQIHEQGFWDQIPGIRRELIALKSLPKPVRNFVAPNYADAFALARVTPLETGLLEALERLRMTGVTVSRDSWQLDQVDPHLKITFRVLDKKNRILREGKDLAALKLQLEKVKQETL
SAVADDGIEQNNLHIWISFGDLPCYEQRRGGYEVKAYPALVDEKDSVAIRLFDTESQQQAMWQGTTRRLNINIPSPIKYLHEKLPNKSGLGYFNFTYGNVMDLDDCIACGVDKLVAHQHGGPVVQEAADARLQEKVRAELNDTVVIAKQVEQILTVFSIN
KRLKGRIDISLVALSDIAKLAGLRYGFTVSNGWKRLPDLTRYLKAIERRELEKLAVDPHDRDAQMLRIEHVQVQVWQWLNKLPKRQDQEEVKEVRWMIELRVSFLAQQLGTPYPVSDKRLIQTIEQLSV

Error 93

Strain: *Y. pestis* pestoides F plasmid CD
Gene: YPDSF_3996

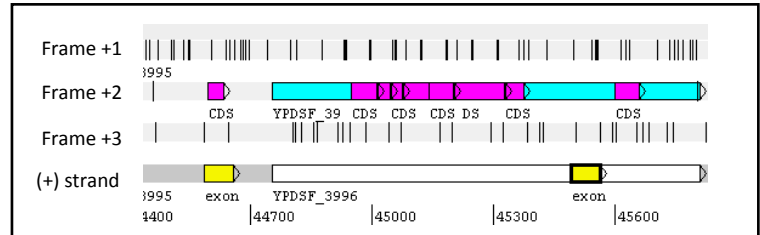
Classification: upstream start site YopM
Boundaries of gene: 44576..45805

Oligo evidence:

aaatccaagaatgtatctaactctttttgcaagaaccattacgtcattctctaatttaactgagatg
cagcaatgaataagatccttatgcgatttaccctctcactggaagaacttaatgtagtaataaag

Peptide evidence:

ALSDLPLLEYLEGVSNNQLEK
ALSDLPLLEYLEGVSNNQLEKLPQLQNSSFLK
IIDVDNNSLK
KLPDLPLSLESIVAGNNILEELPELQNLPLFTTIYADNNSLK
KLPDLPPSLEFIAAGNNQLEELPELQNLPLFTAIYADNNSLK
LPELQNSSFLK
TLPDLPPSLEALNVR
PELQNLPLFTAIYADNNSLK
LIASFNHLAEVPELPQNLK
NVSNTFLQEPLR



Proposed sequence (peptide evidence in red): 409aa
Current annotation is underlined

MFINPRNNVSNTFLQEPLRHSSNLTMPVEAENVKSKTEYYNAWSEWERNAPPNGEQREMAVSRRLDCLDRQAHELELNNLGLSSLPPELPPHLESVASCNSLTPELPELQSLKSLVDNNSLKALSDDLPLLEYLEGVSNNQLEKLPQLQNSSFLKIIDVDNNSLKLPDLPPSLEFIAAGNNQLEELPELQNLPLFTAIYADNNSLKLPDLPLSLESIVAGNNILEELPELQNLPLFTTIYADNNSLKTLPLPPSLEALNVRDNYLTDLPPELQSLTFLDVSSEIFSGSELPPNLYLNASSEIRSLCDLPPSLEELNVSNNKLIELPALPPRLERLIASFNHLAEVPELPQNLKQLHVEYNPLREFPDIPESVEDLRMNSERVVDPYEFAHETTDKLEDDVFE

Strain: *Y. pestis* CO92 plasmid CD
Gene: YPCD1.26c

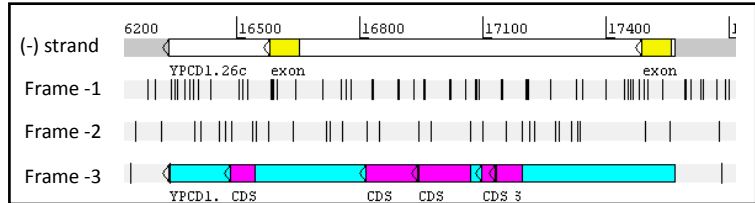
Classification: annotated as YopM
Boundaries of gene: complement (16336..17565)

Oligo evidence:

aaatccaagaatgtatctaactctttttgcaagaaccattacgtcattctctaatttaactgagatg
cagcaatgaataagatccttatgcgatttaccctctcactggaagaacttaatgtagtaataaag

Peptide evidence:

ALSDLPLLEYLEGVSNNQLEK
KLPDLPLSLESIVAGNNILEELPELQNLPLFTTIYADNNSLK
KLPDLPPSLEFIAAGNNQLEELPELQNLPLFTAIYADNNSLK
LIASFNHLAEVPELPQNLK
LPELQNSSFLK



Current sequence (peptide evidence in red): 409aa

MFINPRNNVSNTFLQEPLRHSSNLTMPVEAENVKSKTEYYNAWSEWERNAPPNGEQREMAVSRRLDCLDRQAHELELNNLGLSSLPPELPPHLESVASCNSLTPELPELQSLKSLVDNNSLKALSDDLPLLEYLEGVSNNQLEKLPQLQNSSFLKIIDVDNNSLKLPDLPPSLEFIAAGNNQLEELPELQNLPLFTAIYADNNSLKLPDLPLSLESIVAGNNILEELPELQNLPLFTTIYADNNSLKTLPLPPSLEALNVRDNYLTDLPPELQSLTFLDVSSEIFSGSELPPNLYLNASSEIRSLCDLPPSLEELNVSNNKLIELPALPPRLERLIASFNHLAEVPELPQNLKQLHVEYNPLREFPDIPESVEDLRMNSERVVDPYEFAHETTDKLEDDVFE

Strain: *Y. pseudotuberculosis* PB1/+ plasmid
Gene: YPTS_4270

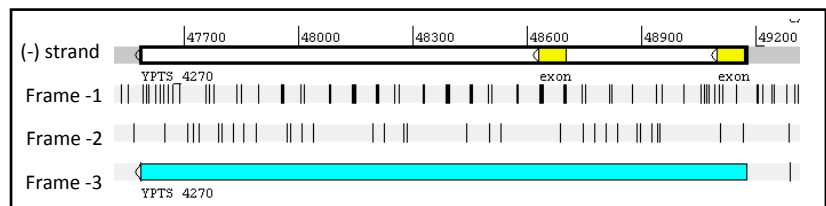
Classification: annotated as YopM
Boundaries of gene: complement(47586.. 49175)

Oligo evidence:

aaatccaagaatgtatctaactctttttgcaagaaccattacgtcattctctaatttaactgagatg
ataataacaatcgaaggcattatcgatttaccctctcactggaatatcttagtagtaataaag

Peptide evidence:

NA



Current sequence (peptide evidence in red): 529aa

MFINPRNNVSNTFLQEPLRHSSNLTMPVEAENVKSKTEYYNAWSEWERNAPPNGEQREMAVSRRLDCLDRQAHELELNNLGLSSLPPELPPHLESVASCNSLTPELPELQSLKSLQVNNLKLALPDLPPSLKLVHRENDLTDLPPELQSLSLRVDNNSLKALSDDLPPSLEYLTASSNKLEELPELQNLPLFLAAIYADNNSLLETLPDLPPSLKLVHRENDLTDLPPELQSLSLQVNNLKLALSDDLPPSLEYLTASSNKLEELPELQNLPLFLAAIYADNNSLLETLPDLPPHLEILVASYNSLTPELPELQSLKSLRVDNNSLKALSDDLPPSLEYLTASSNKLEELPELQNLPLFLAAIYADNNSLLETLPDLPPSLKLVHRENDLTDLPPELQSLTFLDVSSEIFSGSELPPNLYLDASSNEIRSLCDLPPSLVDLNVKSNQSELPALPPLHLERLIASFNHLAEVPELPQNLKQLHVEYNALREFPDIPESLEELEMDSERVVDYEFAHETTDKLEDDVFE

Error 94

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_1064
Oligo evidence:

Classification: pseudogene
Boundaries of gene: frame+3:1206042..1207007
frame +2 1207007..1207696

gggcgagtgcctgggaaaaagataaaaactacgacatcacatattgcacaccaatgatcatcatggtca
tccgtaatggcgaattaacattggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaa
ttaaactggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaaagctgatggcactcg
taatatggcgcgtttattatagcctcctcaatagaacgttcaggagctgactttgccgtaatgagtggt
tgcaggtgatatacattataaagatgtctcaaggttcaacccttggtaatacgtggtttacgttgat

Peptide evidence:

HSPDLAEQYQPK

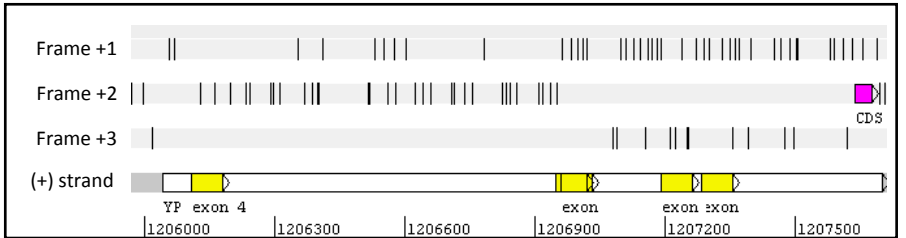
Proposed sequence (peptide evidence in red): 551aa

Frame+3:

MRFSLTTLGALAVSLALAPGWASAWEKDKTYDITILHTNDHHGHFWQNEQGEYGLAAQKTVVDEIRKQVAAKGGSLLLSGGDINTGVPESDLQDAEPDFRGMNLVGYDAMAIGNHEFDNPLSVLRQKEKWAQKFP
LLSANIYQKGTQRLFKPYALFDKQGIKIAVLGLTDDTPKVSSPENVVDIEFRVPAVEAKHVVEQLRKTEKPDIIIAATHMGHYDDGKHGNSAPGDVEMARSLPAGYLDMIVGGHSQNPVCMASENHRQVDYVPGSPC
VPDRQNGTWIVQAEHWGKYVGRADFFRNGELTLVNYQLIPINLKKK

Frame+2:

IEKADGTREHVYFTQIEAQDPTMLKLLTPFEERGAQLGVRIGSVNGRLEGDRNKVRFEQTNMARLLASQIERSGADFAVMSGGVDRDSIGAGDITYKDLVKVQPFNGTLVYVDMKGSEVEKYLAVVANKQPDGSGAY
AQFANVSLVADGGQVSNVKIQGEPLDPNKTYRMATLNFNALGGDGYPRIDNSPSYVNTGFIDAELVKYIEK**HSPDLAEQYQPK**GEIVYNQ



Strain: *Y. pestis* pestoides F
Gene: YPDSF_2730/ YPDSF_2729/ YPDSF_2728

Classification: annotated as 5'-nucleotidase/2' 3'-cyclic phosphodiesterase
Boundaries of gene: YPDSF_2730 complement(3096680..3096937)
YPDSF_2729 complement(3095899..3096867)
YPDSF_2728 complement(3095282..3095905)

Oligo evidence:

gggcgagtgcctgggaaaaagataaaaactacgacatcacatattgcacaccaatgatcatcatggtca
tccgtaatggcgaattaacattggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaa
ttaaactggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaaagctgatggcactcg
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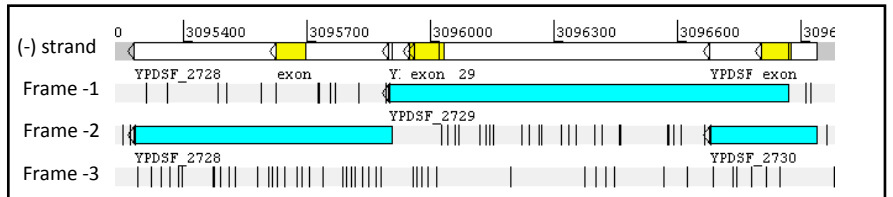
Peptide evidence:

NA

Current sequence (peptide evidence in red):

YPDSF_2730 85aa

MRFSLTTLGALAVSLALAPGWASAWEKDKTYDITILHTNDHHGHFWQNEQGEYGLAAQKTVVDEIRKQVAAKGGSLLLSGGDY



YPDSF_2729 322 aa

MPGKIKLLTSPYCTPMIIMVTSKTSKVSMLLHRKPWWMKFVNKWPQKEEAYCYSRAVIINTGVPESDLQDAEPDFRGMNLVGYDAMAIGNHEFDNPLSVLRQKEKWAQKFP
LLSANIYQKGTQRLFKPYALFDKQGIKIAVLGLTDDTPKVSSPENVVDIEFRVPAVEAKHVVEQLRKTEKPDIIIAATHMGHYDDGKHGNSAPGDVEMARSLPAGYLDMIVGGHSQNPVCMASENHRQVDYVPGSPCVPDRQNGTWIVQAEHWGKYVGRADFFRNGELTLVNYQLIPINLKKLRLMALASTSFIPKRLRTPQC

YPDSF_2728 207 aa

MLKLLTPFEERGAQLGVRIGSVNGRLEGDRNKVRFEQTNMARLLASQIERSGADFAVMSGGVDRDSIGAGDITYKDLVKVQPFNGTLVYVDMKGSEVEKYLAVVANKQPDGSGAYAQFANVSLVADGGQVSNVKIQ
GEPLDPNKTYRMATLNFNALGGDGYPRIDNSPSYVNTGFIDAELVKYIEKHSPDLAEQYQLKGEIVYNQ

Strain: *Y. pestis* CO92
Gene: YPO3090

Classification: annotated as pseudogene
Boundaries of gene: frame-2: complement (3448532..3448783)
frame-1: complement (3447817..3448530)
frame-2: complement (3447128..3447817)

Oligo evidence:

gggcgagtgcctgggaaaaagataaaaactacgacatcacatattgcacaccaatgatcatcatggtca
tccgtaatggcgaattaacattggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaa
ttaaactggtcaactaccagttatccccgatcaattaaagaaaaaattgagaaaagctgatggcactcg
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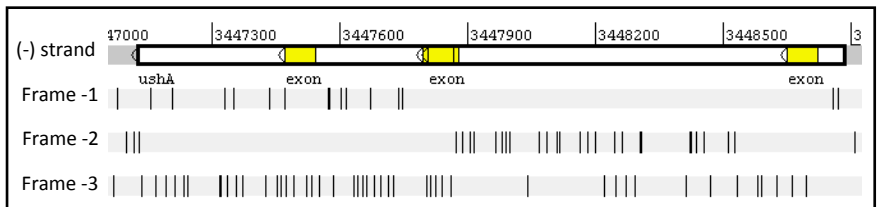
Peptide evidence:

NA

Current sequence (peptide evidence in red):

Frame-2: 84aa

MRFSLTTLGALAVSLALAPGWASAWEKDKTYDITILHTNDHHGHFWQNEQGEYGLAAQKTVVDEIRKQVAAKGGSLLLSGGD



Frame-1: 238aa

INTGVPESDLQDAEPDFRGMNLVGYDAMAIGNHEFDNPLSVLRQKEKWAQKFP
LLSANIYQKGTQRLFKPYALFDKQGIKIAVLGLTDDTPKVSSPENVVDIEFRVPAVEAKHVVEQLRKTEKPDIIIAATHMGHYDDGKHGNSAPGDVEMARSLPAGYLDMIVGGHSQNPVCMASENHRQVDYVPGSPCVPDRQNGTWIVQAEHWGKYVGRADFFRNGELTLVNYQLIPINLKKK

Frame-2: 229aa

IEKADGTREHVYFTQIEAQDPTMLKLLTPFEERGAQLGVRIGSVNGRLEGDRNKVRFEQTNMARLLASQIERSGADFAVMSGGVDRDSIGAGDITYKDLVKVQPFNGTLVYVDMKGSEVEKYLAVVANKQPDGSGAY
AQFANVSLVADGGQVSNVKIQGEPLDPNKTYRMATLNFNALGGDGYPRIDNSPSYVNTGFIDAELVKYIEKHSPDLAEQYQLKGEIVYNQ

Error 95

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_2214.5

Classification: novel gene
Boundaries of gene: 2440905..2441096

Oligo evidence:

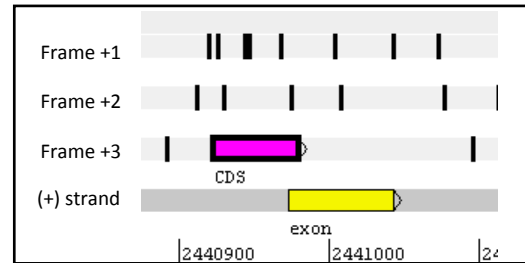
tagtcggctgctgttcaacaaagcagcgcgatagataaagaggggaatacattgtatgcctatattttgta

Peptide evidence:

LNKKISVITIGYIAISFSR

Proposed sequence (peptide evidence in red): 63aa

LLRYIGLNKKISVITIGYIAISFSRLLFNKAAIDKEGNTLYAYILLTRKIYVSYQLTSITYII



Error lacking threshold of evidence

Strain: *Y. pestis* pestoides F
Gene: YPDFS_0911.5

Classification: novel gene
Boundaries of gene: complement (1035790..1035981)

Oligo evidence:

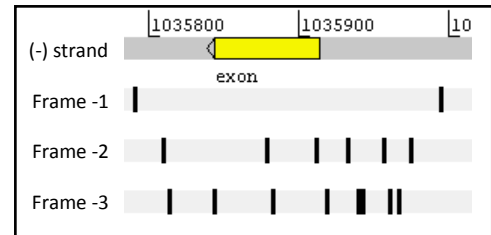
tagtcggctgctgttcaacaaagcagcgcgatagataaagaggggaatacattgtatgcctatattttgta

Peptide evidence:

NA

Current sequence (peptide evidence in red): 63aa

LLRYIGLNKKISVITISYIAISFSRLLFNKAAIDKEGNTLYAYILLTRKIYVSYQLTSITYII



Error lacking threshold of evidence

Strain: *Y. pestis* CO92
Gene: YPO222.5

Classification: novel gene
Boundaries of gene: 2500177..2500368

Oligo evidence:

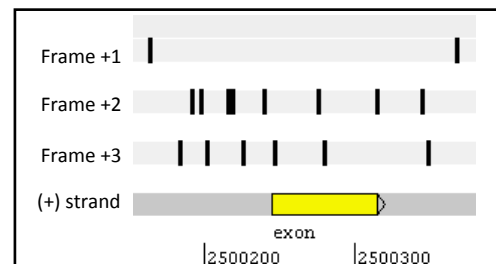
tagtcggctgctgttcaacaaagcagcgcgatagataaagaggggaatacattgtatgcctatattttgta

Peptide evidence:

NA

Current sequence (peptide evidence in red): 63aa

LLRYIGLNKKISVITISYIAISFSRLLFNKAAIDKEGNTLYAYILLTRKIYVSYQLTSITYII



Error 96

Strain: *Y. pseudotuberculosis* PB1/+
Gene: YPTS_0106.5

Classification: novel gene
Boundaries of gene: 111739..111900

Oligo evidence:

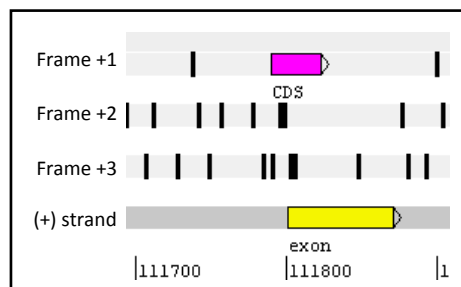
tgataaatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

KIIIDNMLFYR

Proposed sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL



Error 79

Strain: *Y. pestis* pestoides F
Gene: YPDSF_3794.5

Classification: novel gene
Boundaries of gene: complement (4363721..4363882)

Oligo evidence:

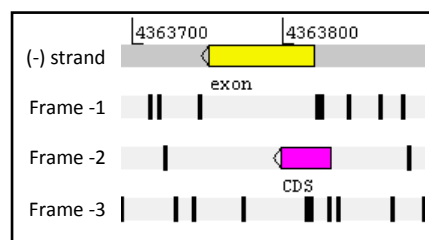
tgataaatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

KIIIDNMLFYR

Proposed sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL



Strain: *Y. pestis* CO92
Gene: YP00113

Classification: annotated as hypothetical protein
Boundaries of gene: 121254..121415

Oligo evidence:

tgataaatgctttttatcgagatatacatggaggatggtatgtgagaatattctatacaaatatgct

Peptide evidence:

NA

Current sequence (peptide evidence in red): 53aa

VISNHLKTYIPIIRSSKIIIDNMLFYRDIHGGMVCENILIQYVDIAKTILEL

