5A18NP1D28M1B3 – A representative recombinant from infection with 5A18NP1, the parental strain. Silent cassettes 3, 6, 7, 9, 11, and 12 appear to be used.

Variants recovered from animals infected with *ruvA* mutant

ruvA1D28M1S4 – 12 siblings, One large recombination with vls5 from VR-I to VR-VI

ruvA1D28M2J1 – 9 siblings, 3 untemplated codon changes but no templated changes

ruvA1D28M2J3 – 8 siblings, same untemplated changes as in ruvA1D28M2J01 + one large intermittent recombination with vls2 from VR-III to VR-VI
ruvA1D28M3J2 – 38 siblings, One large intermittent recombination from VR-I to VR-VI with silent cassette vls5

ruvA1D28M3S2 – 13 siblings, One large intermittent recombination from VR-IV to VR-V as in ruvA1D28M3J02 + 2nd recombination with vls2

ruvA1D28M4J5– 8 siblings, One large intermittent recombination with vls4 from VR-IV to VR-VI

ruvA1D28M5H1– 13 siblings, One large intermittent recombination with vls4 from VR-IV to VR-VI

ruvA1D28M6B2 – 10 siblings, One large intermittent recombination with vls2 from VR-III to VR-VI
Variants recovered from animals infected with *ruvB* mutant

- **Animal 1-*ruvB***
  - *ruvB1D28M1S5* – 4 siblings. Recombination with *vls4* from IR1 to IR6
  - *ruvB1D28M1H4* – 9 siblings. Recombination with *vls8* from VR3 to VR6
  - *ruvB1D28M1B7* – Recombination with *vls2* from VR3 to VR6

- **Animal 2-*ruvB***
  - *ruvB1D28M2B2* – 4 siblings, Recombination with *vls5* from VR5 to VR6
  - *ruvB1D28M2J1* – 10 siblings, Recombination with *vls5* from VR5 to VR6

- **Animal 3-*ruvB***
  - *ruvB1D28M3S5* – 7 siblings. Recombination with *vls2* from VR3 to VR6, additional recombinations with *vls8* and *vls3*