

# Adaptive evolution of the *C. trachomatis* dominant antigen reveals distinct evolutionary scenarios for B- and T-cell epitopes: worldwide survey

Alexandra Nunes, Paulo J Nogueira, Maria J Borrego, and João P Gomes

Figure S1

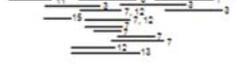
### Serovar B - (TW5)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLKTDVNEKFMGAKPTTTTGNVAPSTLTAREN<sub>2</sub>PAYGRHMQDAEMFTNAACMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGASSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENQ<sub>12</sub>TKV<sub>13</sub>NSGAF<sub>14</sub>PN<sub>15</sub>MSLD<sub>16</sub>Q<sub>17</sub>SV<sub>18</sub>WEL<sub>19</sub>YD<sub>20</sub>TF<sub>21</sub>AW<sub>22</sub>SV<sub>23</sub>GARAAL<sub>24</sub>W<sub>25</sub>CGCATL<sub>26</sub>GF<sub>27</sub>QYA<sub>28</sub>QSK<sub>29</sub>PK<sub>30</sub>VEEL<sub>31</sub>N<sub>32</sub>LCNA<sub>33</sub>A<sub>34</sub>EFT<sub>35</sub>IN<sub>36</sub>KPK<sub>37</sub>Y<sub>38</sub>VG<sub>39</sub>KE<sub>40</sub>FL<sub>41</sub>DL<sub>42</sub>TAG<sub>43</sub>TDAA<sub>44</sub>TG<sub>45</sub>TKDAS<sub>46</sub>ID<sub>47</sub>Y<sub>48</sub>HEW<sub>49</sub>QASL<sub>50</sub>SL<sub>51</sub>Y<sub>52</sub>RL<sub>53</sub>N<sub>54</sub>M<sub>55</sub>FT<sub>56</sub>Y<sub>57</sub>IG<sub>58</sub>V<sub>59</sub>K<sub>60</sub>W<sub>61</sub>S<sub>62</sub>R<sub>63</sub>AS<sub>64</sub>FD<sub>65</sub>AD<sub>66</sub>TIRIA<sub>67</sub>Q<sub>68</sub>PK<sub>69</sub>  
KSA<sub>70</sub>E<sub>71</sub>T<sub>72</sub>I<sub>73</sub>F<sub>74</sub>D<sub>75</sub>V<sub>76</sub>T<sub>77</sub>L<sub>78</sub>N<sub>79</sub>P<sub>80</sub>T<sub>81</sub>I<sub>82</sub>A<sub>83</sub>G<sub>84</sub>AG<sub>85</sub>D<sub>86</sub>V<sub>87</sub>K<sub>88</sub>SA<sub>89</sub>E<sub>90</sub>G<sub>91</sub>QL<sub>92</sub>G<sub>93</sub>DT<sub>94</sub>M<sub>95</sub>Q<sub>96</sub>I<sub>97</sub>SV<sub>98</sub>L<sub>99</sub>QL<sub>100</sub>N<sub>101</sub>K<sub>102</sub>M<sub>103</sub>K<sub>104</sub>S<sub>105</sub>R<sub>106</sub>K<sub>107</sub>SC<sub>108</sub>GI<sub>109</sub>AV<sub>110</sub>GT<sub>111</sub>TV<sub>112</sub>D<sub>113</sub>AD<sub>114</sub>K<sub>115</sub>Y<sub>116</sub>AV<sub>117</sub>TV<sub>118</sub>ET<sub>119</sub>RL<sub>120</sub>ID<sub>121</sub>ERA<sub>122</sub>A<sub>123</sub>H<sub>124</sub>V<sub>125</sub>NA<sub>126</sub>Q<sub>127</sub>FR<sub>128</sub>.



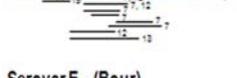
### Serovar D - (UW3)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCATWCDASIMRMGYGDFVDRVLKTDVNEKFMGAKPTTDTGNSAAPSTLTAREN<sub>2</sub>PAYGRHMQDAEMFTNAACMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGATSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENQ<sub>12</sub>TKV<sub>13</sub>KA<sub>14</sub>ES<sub>15</sub>VP<sub>16</sub>N<sub>17</sub>MS<sub>18</sub>FD<sub>19</sub>Q<sub>20</sub>SV<sub>21</sub>WEL<sub>22</sub>YD<sub>23</sub>TF<sub>24</sub>AW<sub>25</sub>SV<sub>26</sub>GARAAL<sub>27</sub>W<sub>28</sub>CGCATL<sub>29</sub>GF<sub>30</sub>QYA<sub>31</sub>QSK<sub>32</sub>PK<sub>33</sub>VEEL<sub>34</sub>N<sub>35</sub>LCNA<sub>36</sub>A<sub>37</sub>EFT<sub>38</sub>IN<sub>39</sub>KPK<sub>40</sub>Y<sub>41</sub>VG<sub>42</sub>KE<sub>43</sub>FL<sub>44</sub>DL<sub>45</sub>TAG<sub>46</sub>TDAA<sub>47</sub>TG<sub>48</sub>TKDAS<sub>49</sub>ID<sub>50</sub>Y<sub>51</sub>HEW<sub>52</sub>QASL<sub>53</sub>SL<sub>54</sub>Y<sub>55</sub>RL<sub>56</sub>N<sub>57</sub>M<sub>58</sub>FT<sub>59</sub>Y<sub>60</sub>IG<sub>61</sub>V<sub>62</sub>K<sub>63</sub>W<sub>64</sub>S<sub>65</sub>R<sub>66</sub>AS<sub>67</sub>FD<sub>68</sub>AD<sub>69</sub>TIRIA<sub>70</sub>Q<sub>71</sub>PK<sub>72</sub>  
SATA<sub>73</sub>I<sub>74</sub>F<sub>75</sub>D<sub>76</sub>V<sub>77</sub>T<sub>78</sub>L<sub>79</sub>N<sub>80</sub>P<sub>81</sub>T<sub>82</sub>I<sub>83</sub>A<sub>84</sub>G<sub>85</sub>AG<sub>86</sub>D<sub>87</sub>V<sub>88</sub>K<sub>89</sub>GA<sub>90</sub>E<sub>91</sub>G<sub>92</sub>QL<sub>93</sub>G<sub>94</sub>DT<sub>95</sub>M<sub>96</sub>Q<sub>97</sub>I<sub>98</sub>SV<sub>99</sub>L<sub>100</sub>QL<sub>101</sub>N<sub>102</sub>K<sub>103</sub>M<sub>104</sub>K<sub>105</sub>S<sub>106</sub>R<sub>107</sub>SC<sub>108</sub>GI<sub>109</sub>AV<sub>110</sub>GT<sub>111</sub>TV<sub>112</sub>D<sub>113</sub>AD<sub>114</sub>K<sub>115</sub>Y<sub>116</sub>AV<sub>117</sub>TV<sub>118</sub>ET<sub>119</sub>RL<sub>120</sub>ID<sub>121</sub>ERA<sub>122</sub>A<sub>123</sub>H<sub>124</sub>V<sub>125</sub>NA<sub>126</sub>Q<sub>127</sub>FR<sub>128</sub>.



### Serovar Da - (TW448)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLETDVNEKFMGAKPTTDTGNSAAPSTLTAREN<sub>2</sub>PAYGRHMQDAEMFTNAACMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGATSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENQ<sub>12</sub>TKV<sub>13</sub>KA<sub>14</sub>ES<sub>15</sub>VP<sub>16</sub>N<sub>17</sub>MS<sub>18</sub>FD<sub>19</sub>Q<sub>20</sub>SV<sub>21</sub>WEL<sub>22</sub>YD<sub>23</sub>TF<sub>24</sub>AW<sub>25</sub>SV<sub>26</sub>GARAAL<sub>27</sub>W<sub>28</sub>CGCATL<sub>29</sub>GF<sub>30</sub>QYA<sub>31</sub>QSK<sub>32</sub>PK<sub>33</sub>VEEL<sub>34</sub>N<sub>35</sub>LCNA<sub>36</sub>A<sub>37</sub>EFT<sub>38</sub>IN<sub>39</sub>KPK<sub>40</sub>Y<sub>41</sub>VG<sub>42</sub>KE<sub>43</sub>FL<sub>44</sub>DL<sub>45</sub>TAG<sub>46</sub>TDAA<sub>47</sub>TG<sub>48</sub>TKDAS<sub>49</sub>ID<sub>50</sub>Y<sub>51</sub>HEW<sub>52</sub>QASL<sub>53</sub>SL<sub>54</sub>Y<sub>55</sub>RL<sub>56</sub>N<sub>57</sub>M<sub>58</sub>FT<sub>59</sub>Y<sub>60</sub>IG<sub>61</sub>V<sub>62</sub>K<sub>63</sub>W<sub>64</sub>S<sub>65</sub>R<sub>66</sub>AS<sub>67</sub>FD<sub>68</sub>AD<sub>69</sub>TIRIA<sub>70</sub>Q<sub>71</sub>PK<sub>72</sub>  
SATA<sub>73</sub>I<sub>74</sub>F<sub>75</sub>D<sub>76</sub>V<sub>77</sub>T<sub>78</sub>L<sub>79</sub>N<sub>80</sub>P<sub>81</sub>T<sub>82</sub>I<sub>83</sub>A<sub>84</sub>G<sub>85</sub>AG<sub>86</sub>D<sub>87</sub>V<sub>88</sub>K<sub>89</sub>GA<sub>90</sub>E<sub>91</sub>G<sub>92</sub>QL<sub>93</sub>G<sub>94</sub>DT<sub>95</sub>M<sub>96</sub>Q<sub>97</sub>I<sub>98</sub>SV<sub>99</sub>L<sub>100</sub>QL<sub>101</sub>N<sub>102</sub>K<sub>103</sub>M<sub>104</sub>K<sub>105</sub>S<sub>106</sub>R<sub>107</sub>SC<sub>108</sub>GI<sub>109</sub>AV<sub>110</sub>GT<sub>111</sub>TV<sub>112</sub>D<sub>113</sub>AD<sub>114</sub>K<sub>115</sub>Y<sub>116</sub>AV<sub>117</sub>TV<sub>118</sub>ET<sub>119</sub>RL<sub>120</sub>ID<sub>121</sub>ERA<sub>122</sub>A<sub>123</sub>H<sub>124</sub>V<sub>125</sub>NA<sub>126</sub>Q<sub>127</sub>FR<sub>128</sub>.



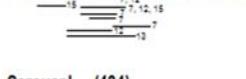
### Serovar E - (Bour)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLKTDVNEKFMGAKPTTDTGNATAPTLTAREN<sub>2</sub>PAYGRHMQDAEMFTNAACMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGASSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENQ<sub>12</sub>ST<sub>13</sub>V<sub>14</sub>KT<sub>15</sub>NS<sub>16</sub>VP<sub>17</sub>N<sub>18</sub>MS<sub>19</sub>LD<sub>20</sub>Q<sub>21</sub>SV<sub>22</sub>WEL<sub>23</sub>YD<sub>24</sub>TF<sub>25</sub>AW<sub>26</sub>SV<sub>27</sub>GARAAL<sub>28</sub>W<sub>29</sub>CGCATL<sub>30</sub>GF<sub>31</sub>QYA<sub>32</sub>QSK<sub>33</sub>PK<sub>34</sub>VEEL<sub>35</sub>N<sub>36</sub>LCNA<sub>37</sub>A<sub>38</sub>EFT<sub>39</sub>IN<sub>40</sub>KPK<sub>41</sub>Y<sub>42</sub>VG<sub>43</sub>QE<sub>44</sub>FL<sub>45</sub>LAL<sub>46</sub>IAG<sub>47</sub>TDAA<sub>48</sub>TG<sub>49</sub>TKDAS<sub>50</sub>ID<sub>51</sub>Y<sub>52</sub>HEW<sub>53</sub>QASL<sub>54</sub>SL<sub>55</sub>Y<sub>56</sub>RL<sub>57</sub>N<sub>58</sub>M<sub>59</sub>FT<sub>60</sub>Y<sub>61</sub>IG<sub>62</sub>V<sub>63</sub>K<sub>64</sub>W<sub>65</sub>S<sub>66</sub>R<sub>67</sub>AS<sub>68</sub>FD<sub>69</sub>AD<sub>70</sub>TIRIA<sub>71</sub>Q<sub>72</sub>PK<sub>73</sub>  
SATA<sub>74</sub>I<sub>75</sub>F<sub>76</sub>D<sub>77</sub>V<sub>78</sub>T<sub>79</sub>L<sub>80</sub>N<sub>81</sub>P<sub>82</sub>T<sub>83</sub>I<sub>84</sub>A<sub>85</sub>G<sub>86</sub>AG<sub>87</sub>D<sub>88</sub>V<sub>89</sub>K<sub>90</sub>SA<sub>91</sub>E<sub>92</sub>G<sub>93</sub>QL<sub>94</sub>G<sub>95</sub>DT<sub>96</sub>M<sub>97</sub>Q<sub>98</sub>I<sub>99</sub>SV<sub>100</sub>L<sub>101</sub>QL<sub>102</sub>N<sub>103</sub>K<sub>104</sub>M<sub>105</sub>K<sub>106</sub>S<sub>107</sub>R<sub>108</sub>SC<sub>109</sub>GI<sub>110</sub>AV<sub>111</sub>GT<sub>112</sub>TV<sub>113</sub>D<sub>114</sub>AD<sub>115</sub>K<sub>116</sub>Y<sub>117</sub>AV<sub>118</sub>TV<sub>119</sub>ET<sub>120</sub>RL<sub>121</sub>ID<sub>122</sub>ERA<sub>123</sub>A<sub>124</sub>H<sub>125</sub>V<sub>126</sub>NA<sub>127</sub>Q<sub>128</sub>FR<sub>129</sub>.



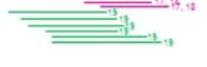
### Serovar L1 - (440)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLQTDVNEKFMGAKPTATTGNAAAPSTCTAREN<sub>2</sub>PAYGRHMQDAEMFTNAAYMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGATSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENQ<sub>12</sub>ST<sub>13</sub>V<sub>14</sub>KK<sub>15</sub>DA<sub>16</sub>VP<sub>17</sub>N<sub>18</sub>MS<sub>19</sub>LD<sub>20</sub>Q<sub>21</sub>SV<sub>22</sub>WEL<sub>23</sub>YD<sub>24</sub>TF<sub>25</sub>AW<sub>26</sub>SV<sub>27</sub>GARAAL<sub>28</sub>W<sub>29</sub>CGCATL<sub>30</sub>GF<sub>31</sub>QYA<sub>32</sub>QSK<sub>33</sub>PK<sub>34</sub>VEEL<sub>35</sub>N<sub>36</sub>LCNA<sub>37</sub>A<sub>38</sub>EFT<sub>39</sub>IN<sub>40</sub>KPK<sub>41</sub>Y<sub>42</sub>VG<sub>43</sub>QE<sub>44</sub>FL<sub>45</sub>DL<sub>46</sub>TAG<sub>47</sub>TDAA<sub>48</sub>TG<sub>49</sub>TKDAS<sub>50</sub>ID<sub>51</sub>Y<sub>52</sub>HEW<sub>53</sub>QASL<sub>54</sub>SL<sub>55</sub>Y<sub>56</sub>RL<sub>57</sub>N<sub>58</sub>M<sub>59</sub>FT<sub>60</sub>Y<sub>61</sub>IG<sub>62</sub>V<sub>63</sub>K<sub>64</sub>W<sub>65</sub>S<sub>66</sub>R<sub>67</sub>AS<sub>68</sub>FD<sub>69</sub>AD<sub>70</sub>TIRIA<sub>71</sub>Q<sub>72</sub>PK<sub>73</sub>  
LATA<sub>74</sub>I<sub>75</sub>F<sub>76</sub>D<sub>77</sub>V<sub>78</sub>T<sub>79</sub>L<sub>80</sub>N<sub>81</sub>P<sub>82</sub>T<sub>83</sub>I<sub>84</sub>A<sub>85</sub>G<sub>86</sub>AG<sub>87</sub>D<sub>88</sub>V<sub>89</sub>K<sub>90</sub>KA<sub>91</sub>E<sub>92</sub>G<sub>93</sub>QL<sub>94</sub>G<sub>95</sub>DT<sub>96</sub>M<sub>97</sub>Q<sub>98</sub>I<sub>99</sub>SV<sub>100</sub>L<sub>101</sub>QL<sub>102</sub>N<sub>103</sub>K<sub>104</sub>M<sub>105</sub>K<sub>106</sub>S<sub>107</sub>R<sub>108</sub>SC<sub>109</sub>GI<sub>110</sub>AV<sub>111</sub>GT<sub>112</sub>TV<sub>113</sub>D<sub>114</sub>AD<sub>115</sub>K<sub>116</sub>Y<sub>117</sub>AV<sub>118</sub>TV<sub>119</sub>ET<sub>120</sub>RL<sub>121</sub>ID<sub>122</sub>ERA<sub>123</sub>A<sub>124</sub>H<sub>125</sub>V<sub>126</sub>NA<sub>127</sub>Q<sub>128</sub>FR<sub>129</sub>.



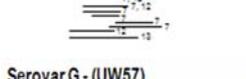
### Serovar L2 - (434)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLQTDVNEKFMGAKPTTATGNAAAPSTCTAREN<sub>2</sub>PAYGRHMQDAEMFTNAAYMALNWD<sub>17</sub>DFV<sub>18</sub>FCTLGATSGYLKGN<sub>19</sub>SASF<sub>10</sub>  
NLVGLFGD<sub>11</sub>NENH<sub>12</sub>AT<sub>13</sub>V<sub>14</sub>SD<sub>15</sub>SK<sub>16</sub>LV<sub>17</sub>PN<sub>18</sub>MS<sub>19</sub>LD<sub>20</sub>Q<sub>21</sub>SV<sub>22</sub>WEL<sub>23</sub>YD<sub>24</sub>TF<sub>25</sub>AW<sub>26</sub>SV<sub>27</sub>GARAAL<sub>28</sub>W<sub>29</sub>CGCATL<sub>30</sub>GF<sub>31</sub>QYA<sub>32</sub>QSK<sub>33</sub>PK<sub>34</sub>VEEL<sub>35</sub>N<sub>36</sub>LCNA<sub>37</sub>A<sub>38</sub>EFT<sub>39</sub>IN<sub>40</sub>KPK<sub>41</sub>Y<sub>42</sub>VG<sub>43</sub>QE<sub>44</sub>FL<sub>45</sub>DL<sub>46</sub>KAG<sub>47</sub>TDGV<sub>48</sub>TG<sub>49</sub>TKDAS<sub>50</sub>ID<sub>51</sub>Y<sub>52</sub>HEW<sub>53</sub>QASL<sub>54</sub>SL<sub>55</sub>Y<sub>56</sub>RL<sub>57</sub>N<sub>58</sub>M<sub>59</sub>FT<sub>60</sub>Y<sub>61</sub>IG<sub>62</sub>V<sub>63</sub>K<sub>64</sub>W<sub>65</sub>S<sub>66</sub>R<sub>67</sub>AS<sub>68</sub>FD<sub>69</sub>AD<sub>70</sub>TIRIA<sub>71</sub>Q<sub>72</sub>PK<sub>73</sub>  
SATT<sub>74</sub>V<sub>75</sub>F<sub>76</sub>D<sub>77</sub>V<sub>78</sub>T<sub>79</sub>L<sub>80</sub>N<sub>81</sub>P<sub>82</sub>T<sub>83</sub>I<sub>84</sub>A<sub>85</sub>G<sub>86</sub>AG<sub>87</sub>D<sub>88</sub>V<sub>89</sub>K<sub>90</sub>KA<sub>91</sub>SA<sub>92</sub>E<sub>93</sub>G<sub>94</sub>QL<sub>95</sub>G<sub>96</sub>DT<sub>97</sub>M<sub>98</sub>Q<sub>99</sub>I<sub>100</sub>SV<sub>101</sub>L<sub>102</sub>QL<sub>103</sub>N<sub>104</sub>K<sub>105</sub>M<sub>106</sub>K<sub>107</sub>S<sub>108</sub>R<sub>109</sub>SC<sub>110</sub>GI<sub>111</sub>AV<sub>112</sub>GT<sub>113</sub>TV<sub>114</sub>D<sub>115</sub>AD<sub>116</sub>K<sub>117</sub>Y<sub>118</sub>AV<sub>119</sub>TV<sub>120</sub>ET<sub>121</sub>RL<sub>122</sub>ID<sub>123</sub>ERA<sub>124</sub>A<sub>125</sub>H<sub>126</sub>V<sub>127</sub>NA<sub>128</sub>Q<sub>129</sub>FR<sub>130</sub>.



### Serovar F - (IC-Cal3)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLKTDVNEKFMG<sub>1</sub>EALGASGNTTSL<sub>2</sub>SKL<sub>3</sub>VERT<sub>4</sub>N<sub>5</sub>PAY<sub>6</sub>GKHM<sub>7</sub>QDAEM<sub>8</sub>FT<sub>9</sub>NAA<sub>10</sub>CMT<sub>11</sub>L<sub>12</sub>N<sub>13</sub>WD<sub>14</sub>RF<sub>15</sub>V<sub>16</sub>FCTLGATSGYLKGN<sub>17</sub>SASF<sub>18</sub>  
NLVGLFGD<sub>19</sub>GV<sub>20</sub>NAT<sub>21</sub>PA<sub>22</sub>AD<sub>23</sub>SIP<sub>24</sub>W<sub>25</sub>QL<sub>26</sub>N<sub>27</sub>Q<sub>28</sub>SV<sub>29</sub>WEL<sub>30</sub>YD<sub>31</sub>TF<sub>32</sub>AW<sub>33</sub>SV<sub>34</sub>GARAAL<sub>35</sub>W<sub>36</sub>CGCATL<sub>37</sub>GF<sub>38</sub>QYA<sub>39</sub>QSK<sub>40</sub>PK<sub>41</sub>VEEL<sub>42</sub>N<sub>43</sub>LCNA<sub>44</sub>A<sub>45</sub>EFT<sub>46</sub>IN<sub>47</sub>KPK<sub>48</sub>Y<sub>49</sub>VG<sub>50</sub>QE<sub>51</sub>FL<sub>52</sub>DL<sub>53</sub>TAG<sub>54</sub>TDAA<sub>55</sub>TG<sub>56</sub>TKDAS<sub>57</sub>ID<sub>58</sub>Y<sub>59</sub>HEW<sub>60</sub>QASL<sub>61</sub>SL<sub>62</sub>Y<sub>63</sub>RL<sub>64</sub>N<sub>65</sub>M<sub>66</sub>FT<sub>67</sub>Y<sub>68</sub>IG<sub>69</sub>V<sub>70</sub>K<sub>71</sub>W<sub>72</sub>S<sub>73</sub>R<sub>74</sub>AS<sub>75</sub>FD<sub>76</sub>S<sub>77</sub>D<sub>78</sub>TIRIA<sub>79</sub>Q<sub>80</sub>PK<sub>81</sub>  
LV<sub>82</sub>TP<sub>83</sub>V<sub>84</sub>D<sub>85</sub>I<sub>86</sub>T<sub>87</sub>L<sub>88</sub>N<sub>89</sub>P<sub>90</sub>T<sub>91</sub>I<sub>92</sub>A<sub>93</sub>G<sub>94</sub>CG<sub>95</sub>SV<sub>96</sub>AG<sub>97</sub>ANTE<sub>98</sub>GQ<sub>99</sub>IS<sub>100</sub>DT<sub>101</sub>M<sub>102</sub>Q<sub>103</sub>I<sub>104</sub>SV<sub>105</sub>L<sub>106</sub>QL<sub>107</sub>N<sub>108</sub>K<sub>109</sub>M<sub>110</sub>K<sub>111</sub>S<sub>112</sub>R<sub>113</sub>SC<sub>114</sub>GI<sub>115</sub>AV<sub>116</sub>GT<sub>117</sub>TV<sub>118</sub>D<sub>119</sub>AD<sub>120</sub>K<sub>121</sub>Y<sub>122</sub>AV<sub>123</sub>TV<sub>124</sub>ET<sub>125</sub>RL<sub>126</sub>ID<sub>127</sub>ERA<sub>128</sub>A<sub>129</sub>H<sub>130</sub>V<sub>131</sub>NA<sub>132</sub>Q<sub>133</sub>FR<sub>134</sub>.



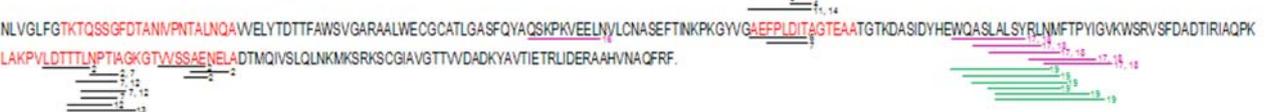
### Serovar G - (UW57)

MKKLLKSVLFAALSSASSLQALPVGNPAPESLMIDGILWEGFGGDPDCPCTTWCDASIMRMGYGDFVDRVLKTDVNEKFMG<sub>1</sub>EALGASGNTTSL<sub>2</sub>SKL<sub>3</sub>VERT<sub>4</sub>N<sub>5</sub>PAY<sub>6</sub>GKHM<sub>7</sub>QDAEM<sub>8</sub>FT<sub>9</sub>NAA<sub>10</sub>CMT<sub>11</sub>L<sub>12</sub>N<sub>13</sub>WD<sub>14</sub>RF<sub>15</sub>V<sub>16</sub>FCTLGATSGYL<sub>17</sub>RGN<sub>18</sub>SASF<sub>19</sub>  
NLVGLFGD<sub>20</sub>ENAT<sub>21</sub>OPA<sub>22</sub>TSIP<sub>23</sub>W<sub>24</sub>QL<sub>25</sub>N<sub>26</sub>Q<sub>27</sub>SV<sub>28</sub>WEL<sub>29</sub>YD<sub>30</sub>TF<sub>31</sub>AW<sub>32</sub>SV<sub>33</sub>GARAAL<sub>34</sub>W<sub>35</sub>CGCATL<sub>36</sub>GF<sub>37</sub>QYA<sub>38</sub>QSK<sub>39</sub>PK<sub>40</sub>VEEL<sub>41</sub>N<sub>42</sub>LCNA<sub>43</sub>A<sub>44</sub>EFT<sub>45</sub>IN<sub>46</sub>KPK<sub>47</sub>Y<sub>48</sub>VG<sub>49</sub>QE<sub>50</sub>FL<sub>51</sub>LAL<sub>52</sub>TAG<sub>53</sub>TDAA<sub>54</sub>TG<sub>55</sub>TKDAS<sub>56</sub>ID<sub>57</sub>Y<sub>58</sub>HEW<sub>59</sub>QASL<sub>60</sub>SL<sub>61</sub>Y<sub>62</sub>RL<sub>63</sub>N<sub>64</sub>M<sub>65</sub>FT<sub>66</sub>Y<sub>67</sub>IG<sub>68</sub>V<sub>69</sub>K<sub>70</sub>W<sub>71</sub>S<sub>72</sub>R<sub>73</sub>AS<sub>74</sub>FD<sub>75</sub>S<sub>76</sub>N<sub>77</sub>TIRIA<sub>78</sub>Q<sub>79</sub>PK<sub>80</sub>  
LAK<sub>81</sub>P<sub>82</sub>V<sub>83</sub>D<sub>84</sub>I<sub>85</sub>T<sub>86</sub>L<sub>87</sub>N<sub>88</sub>P<sub>89</sub>T<sub>90</sub>I<sub>91</sub>A<sub>92</sub>G<sub>93</sub>CG<sub>94</sub>SV<sub>95</sub>WA<sub>96</sub>AN<sub>97</sub>SE<sub>98</sub>GQ<sub>99</sub>IS<sub>100</sub>DT<sub>101</sub>M<sub>102</sub>Q<sub>103</sub>I<sub>104</sub>SV<sub>105</sub>L<sub>106</sub>QL<sub>107</sub>N<sub>108</sub>K<sub>109</sub>M<sub>110</sub>K<sub>111</sub>S<sub>112</sub>R<sub>113</sub>SC<sub>114</sub>GI<sub>115</sub>AV<sub>116</sub>GT<sub>117</sub>TV<sub>118</sub>D<sub>119</sub>AD<sub>120</sub>K<sub>121</sub>Y<sub>122</sub>AV<sub>123</sub>TV<sub>124</sub>ET<sub>125</sub>RL<sub>126</sub>ID<sub>127</sub>ERA<sub>128</sub>A<sub>129</sub>H<sub>130</sub>V<sub>131</sub>NA<sub>132</sub>Q<sub>133</sub>FR<sub>134</sub>.



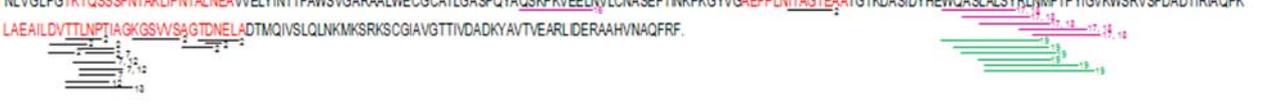
### Serovar A - (Har13)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTSDVAGLEKDPVANVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSGFDTANLQAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAKPVLDTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



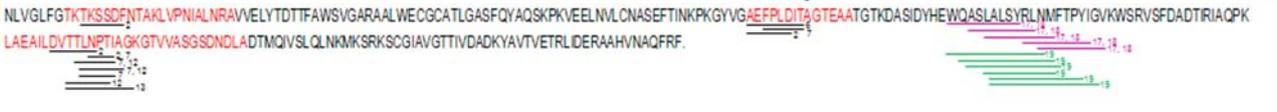
### Serovar C - (TW3)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTSDVAGLQNDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSSFNTAKLIPNTALNEAVELYINTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



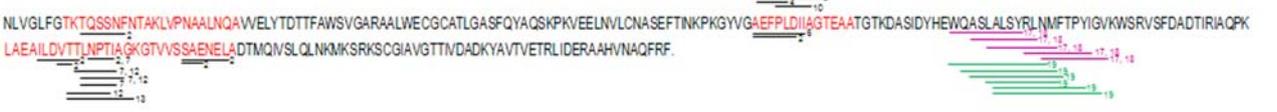
### Serovar H - (UW4)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTNDADLQNDPKTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSDFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



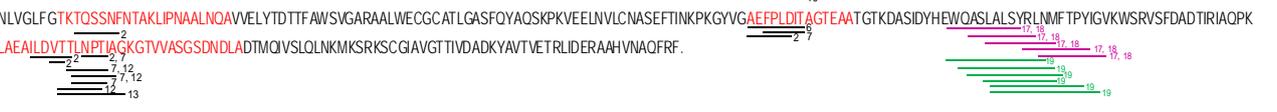
### Serovar I - (UW12)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTKDVAAGLENDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



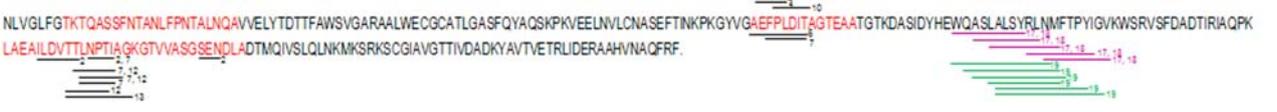
### Serovar Ia - (U4168)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTKDIAGLENDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



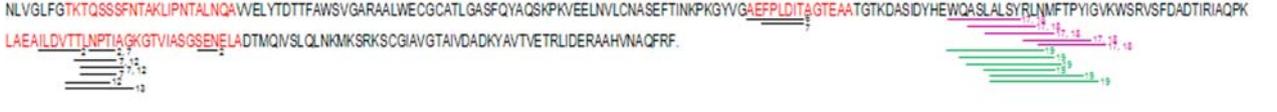
### Serovar J - (UW36)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTSDVAGLQNDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



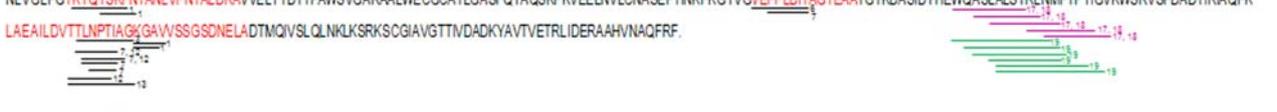
### Serovar Ja - (UA795)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTVSDVAGLQNDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



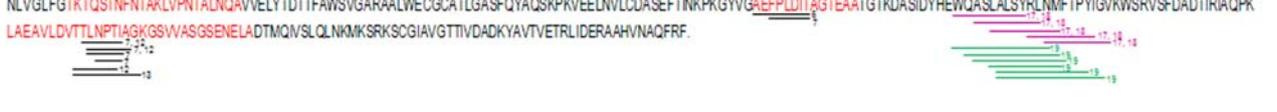
### Serovar K - (UW31)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAPTTSDVAGLQNDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAILDVTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



### Serovar L3 - (404)

MKLLKSVLFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPDCPCTTWCDASIMRMYGYGDFVDRVLKTDVNEKFMGAAEPTTSDTAGLNDPTTNVARNPAYGKHMQDAEMFTNAAAYMALNIWDRFDVFCITLGGATTGKGNLSASF  
NLVGLFGTKTQSSNFNTAKLIPNIALNRAVELYDTTFAWSVGARAALWEGCATLGASFOYAQSKPKVEELNVLNASEFTINKPKGYVGAEPFLDITAGTEAATGKDA SIDYHEWQASLSALSYRLNMFPTPIYGVKWSRVSFADTIRIAQPK  
LAEAVLDTTLNPTIAGKGTWSSAENELADTMQIVSLQLNKMKSRSKCGIAVGTIVDADKYAVTVETRLIDERAHVNAQFRF.



**Figure S1. MOMP antigenic regions.** Outline of all B- and T-cell core epitopes mapped for the 17 baseline prototype strains representing the *C. trachomatis* genotypes. Amino acid residues belonging to constant domains of the protein are in black, while residues encompassing the variable surface-exposed domains are in red. The B-, CTL-, and Th-cell epitopes are underlined in black, purple, and

**green, respectively.** 1- Batteiger BE (1996), *Infect Immun* 64:542-547; 2- Zhong GM, Brunham RC (1991), *Infect Immun* 59:1141-1147; 3- Zhong , et al. (1990) *Infect Immun* 58:1450-1455; 4- Hayes, et al. (1990) *J Gen Microbiol* 136:1559-1566; 5- Stagg, et al. (1993) *Immunol* 79:1-9; Pal (1993) *J Gen Microbiol* 139:1565-1 570; Batteiger, et al. (1996) *Infect Immun* 64:2839-2841; 8- Arno, et al. (1998) *J Infect Dis* 178: 1713-1718; 9- Villeneuve, et al. (1994) *Microbiol* 140:2481-2487; 10- Qu, et al. (1993) *Infect Immun* 61:1365-1370; 11- Morrison, et al. (1992) In: *Sexually transmitted diseases*. NY: Raven Press. pp. 57–84; 12- Peterson, et al. (1991) *Infect Immun* 59:4147-4153; 13- Su, et al. (1990) *Infect Immun* 58:1017-1025; 14- Su H, Caldwell HD (1992) *J Exp Med* 175:227-235; 15- Colan, et al. (1988) *Mol Microbiol* 2:673-679; 16- Holland, et al. (1997) *Clin Exp Immunol* 107:44-49; 17- Kim, et al. (1999) *J Immunol* 162:6855-6866; 18- Kim SK, DeMars R (2001) *Curr Opin Immunol* 13:429-436; 19- Ortiz, et al. (1996) *J Immunol* 157:4554-4567.