

Supplementary Information:

Supplementary Table 2. Secondary structure (H, alpha-helix; E, beta-sheet; C, coil), solvent accessibility (B, buried; M, medium expose; E, expose), linear and conformational B-cell epitope (E, epitope) prediction of Tis9 protein.

| Residue | Amino acid | Secondary structure | Solvent accessibility | Linear B-cell epitope | Conformational B-cell epitope |
|---------|------------|---------------------|-----------------------|-----------------------|-------------------------------|
| 1 | M | C | E | - | - |
| 2 | L | C | E | - | - |
| 3 | V | E | E | - | - |
| 4 | M | E | E | - | - |
| 5 | S | E | E | - | - |
| 6 | R | E | E | - | - |
| 7 | W | E | M | - | - |
| 8 | I | E | B | - | - |
| 9 | E | C | E | - | - |
| 10 | N | C | E | - | - |
| 11 | T | C | E | - | - |
| 12 | D | C | E | - | - |
| 13 | S | C | E | - | - |
| 14 | V | E | B | - | - |
| 15 | S | E | M | - | - |
| 16 | V | E | B | - | - |
| 17 | I | E | M | - | - |
| 18 | L | E | B | - | - |
| 19 | T | E | M | - | - |
| 20 | E | E | E | - | - |
| 21 | M | C | E | - | - |

Supplementary Table 2 (Continued)

| Residue | Amino acid | Secondary structure | Solvent accessibility | Linear B-cell epitope | Conformational B-cell epitope |
|---------|------------|---------------------|-----------------------|-----------------------|-------------------------------|
| 22 | G | C | E | - | - |
| 23 | R | C | E | - | - |
| 24 | S | C | E | - | - |
| 25 | Y | E | M | - | - |
| 26 | V | E | B | - | - |
| 27 | T | E | M | - | - |
| 28 | L | E | B | - | - |
| 29 | C | E | B | - | - |
| 30 | H | E | E | - | - |
| 31 | Y | C | M | - | - |
| 32 | P | C | M | - | - |
| 33 | P | C | E | - | - |
| 34 | W | C | B | - | - |
| 35 | S | C | M | - | - |
| 36 | L | C | B | - | E |
| 37 | C | C | B | E | E |
| 38 | C | C | B | E | E |
| 39 | G | C | E | E | E |
| 40 | G | C | E | E | E |
| 41 | K | C | E | E | E |
| 42 | T | C | E | E | - |
| 43 | S | C | E | E | - |
| 44 | Q | C | E | E | - |
| 45 | P | C | E | E | - |
| 46 | G | C | M | E | - |

Supplementary Table 2 (Continued)

| Residue | Amino acid | Secondary structure | Solvent accessibility | Linear B-cell epitope | Conformational B-cell epitope |
|---------|------------|---------------------|-----------------------|-----------------------|-------------------------------|
| 47 | Q | E | M | - | - |
| 48 | V | E | B | - | - |
| 49 | W | E | B | - | - |
| 50 | I | E | B | - | - |
| 51 | L | E | B | - | - |
| 52 | D | E | M | - | - |
| 53 | R | C | M | - | - |
| 54 | K | C | E | - | - |
| 55 | H | E | M | - | - |
| 56 | C | E | B | - | - |
| 57 | L | E | B | - | - |
| 58 | E | E | E | - | - |
| 59 | C | C | B | - | - |
| 60 | S | C | E | - | - |
| 61 | E | C | E | - | - |
| 62 | I | H | B | - | - |
| 63 | S | H | M | - | - |
| 64 | E | H | E | - | E |
| 65 | L | H | B | - | - |
| 66 | M | C | M | - | - |
| 67 | T | C | E | E | E |
| 68 | L | C | M | E | - |
| 69 | G | C | E | E | E |
| 70 | Q | C | E | E | E |
| 71 | P | C | E | E | E |
| 72 | T | C | E | E | E |

Supplementary Table 2 (Continued)

| Residue | Amino acid | Secondary structure | Solvent accessibility | Linear B-cell epitope | Conformational B-cell epitope |
|---------|------------|---------------------|-----------------------|-----------------------|-------------------------------|
| 73 | W | H | B | E | - |
| 74 | Q | H | E | E | E |
| 75 | E | H | E | E | E |
| 76 | S | H | B | - | - |
| 77 | A | H | B | - | - |
| 78 | M | H | M | - | - |
| 79 | V | H | B | - | - |
| 80 | I | H | B | - | - |
| 81 | G | H | B | - | - |
| 82 | S | H | E | - | - |
| 83 | W | H | B | - | - |
| 84 | V | H | B | - | - |
| 85 | Q | H | M | - | - |
| 86 | V | H | B | - | - |
| 87 | V | H | B | - | - |
| 88 | T | H | M | - | - |
| 89 | E | C | E | - | E |
| 90 | H | C | E | - | - |
| 91 | G | C | B | - | - |
| 92 | I | E | B | - | - |
| 93 | L | E | B | E | - |
| 94 | H | E | M | E | - |
| 95 | T | C | M | E | E |
| 96 | S | C | E | E | E |
| 97 | T | C | E | E | E |
| 98 | S | C | E | E | E |

Supplementary Table 2 (Continued)

| Residue | Amino acid | Secondary structure | Solvent accessibility | Linear B-cell epitope | Conformational B-cell epitope |
|---------|------------|---------------------|-----------------------|-----------------------|-------------------------------|
| 99 | E | C | E | E | - |
| 100 | R | C | E | E | E |
| 101 | Q | C | E | E | E |
| 102 | A | C | E | E | E |
| 103 | P | C | E | E | E |
| 104 | R | C | E | E | - |
| 105 | R | E | E | E | - |
| 106 | V | E | B | E | - |
| 107 | M | E | M | - | - |
| 108 | W | E | B | - | - |
| 109 | R | E | M | - | - |
| 110 | I | E | B | - | - |
| 111 | S | C | M | - | - |
| 112 | D | C | E | E | - |
| 113 | M | C | M | E | - |
| 114 | A | C | E | E | E |
| 115 | G | C | E | E | E |
| 116 | D | C | E | E | E |
| 117 | R | C | E | E | E |
| 118 | T | C | E | - | - |
| 119 | L | C | E | - | - |