**What is claimed:**

1. A modified mycoplasma protein M or a functional fragment thereof, having one or more amino acid mutations that increase or maintain thermostability of the mycoplasma protein M or a functional fragment thereof relative to wild-type mycoplasma protein M or a functional fragment thereof.

~~2. The modified mycoplasma protein M or a functional fragment thereof of claim 1, having one or more amino acid mutations that increase thermostability of the mycoplasma protein M or a functional fragment relative to wild-type mycoplasma protein M or a functional fragment thereof.~~

~~3~~2. The modified mycoplasma protein M or a functional fragment thereof of claim 1~~ or 2~~, derived from protein M of *Mycoplasma genitalium* or *Mycoplasma pneumoniae*, optionally ~~.~~

~~4. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-3,~~ being a fragment from about residue 74 to about residue 479 of *M. genitalium* protein M (SEQ ID NO:3) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23).

~~5~~3. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~4~~2, wherein the one or more mutations are not at a residue within 5 Å of the antibody-binding site of protein M (residues 95, 99, 102, 103, 105, 106, 107, 109, 110, 114, 116, 117, 118, 119, 120, 144, 158, 160, 161, 162, 163, 177, 178, 179, 180, 181, 186, 187, 188, 191, 321, 338, 340, 341, 345, 381, 384, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 426, 427, 429, 436, 438, 439, 440, 441, 442, 444, 445, 446, 447, 448, 449, 452, 453, 455, 456, 457, 462, 466) or any of residues 469-479 of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23).

~~6~~4. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~5~~3, wherein the one or more mutations are at residue 78, 81, 83, 84, 85, 89, 90, 91, 92, 93, 94, 96, 97, 100, 101, 108, 111, 112, 113, 122, 123, 125, 126, 127, 128, 130, 131, 133, 134,

136, 137, 139, 141, 142, 146, 147, 148, 149, 150, 153, 154, 155, 156, 164, 167, 170, 175, 176, 184, 185, 189, 192, 193, 196, 198, 201, 202, 204, 205, 206, 207, 209, 211, 215, 218, 220, 224, 225, 226, 227, 231, 232, 234, 235, 236, 237, 239, 241, 243, 244, 245, 246, 247, 249, 250, 252, 253, 254, 255, 256, 257, 258, 259, 264, 269, 270, 272, 274, 275, 276, 279, 282, 284, 286, 287, 288, 291, 297, 299, 300, 302, 303, 304, 305, 307, 308, 309, 310, 311, 313, 317, 318, 319, 320, 322, 326, 327, 329, 331, 332, 333, 335, 337, 342, 343, 347, 348, 351, 354, 355, 357, 358, 359, 360, 361, 362, 363, 367, 369, 370, 371, 372, 373, 374, 375, 378, 385, 399, 400, 401, 402, 405, 406, 407, 408, 409, 411, 413, 414, 417, 418, 419, 424, 428, 434, 435, 443, 450, 459, 460, 463, 464, 465, 468, or any combination thereof of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~7. The modified mycoplasma protein M or a functional fragment thereof of claim 6,~~ wherein the one or more mutations is a mutation listed in Table 4 or any combination thereof, optionally ~~.~~

~~8. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-5,~~ wherein the one or more mutations are at residue 83, 90, 92, 94, 137, 142, 147, 150, 156, 184, 196, 198, 205, 211, 215, 225, 231, 232, 234, 235, 236, 237, 239, 243, 245, 250, 255, 256, 259, 264, 272, 274, 275, 276, 279, 282, 297, 300, 302, 310, 320, 326, 331, 332, 335, 342, 343, 347, 348, 355, 357, 361, 371, 374, 378, 385, 401, 402, 409, 413, 424, 460, 463, 464, 468, or any combination thereof of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~9. The modified mycoplasma protein M or a functional fragment thereof of claim 8,~~ wherein the one or more mutations is a mutation listed in Table 5 or any combination thereof.

~~10~~5. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~5~~3, wherein the one or more mutations are at residue 150, 196, 198, 201, 205, 224, 232, 237, 274, 282, 342, 355, 373, 400, 402, 407, 409, 413, 135, or any combination thereof of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), ~~.~~

~~11. The modified mycoplasma protein M or a functional fragment thereof of claim 10,~~ wherein the one or more mutations are at residues selected from:

a) 237;

b) 232;

c) 282;

d) 150, 196, 198, 400, 402, 407, 409;

e) 413, 435;

f) 373, 400;

g) 402, 407, 409, 413;

h) 342;

i) 150, 196, 198, 232, 237, 282, 342, 373, 400, 402, 407, 409, 413, 435;

j) 274;

k) 150, 196, 198, 232, 237, 342, 400, 402, 407, 409;

l) 373, 413, 435;

m) 205;

n) 355;

o) 150, 196, 198, 342, 373, 400, 402, 407, 409;

p) 150, 196, 198, 232, 237, 342, 373, 400, 402, 407, 409;

q) 201, 224;

r) 150, 196, 198, 201, 224, 232, 237, 342, 400, 402, 407, 409;

s) 150, 196, 198, 232, 237, 342, 390, 400, 402, 407, 409, 444;

t) 150, 196, 198, 201, 205, 224, 232, 237, 274, 342, 355, 400, 402, 407, 409; or

u) 150, 196, 198, 232, 237, 342, 391, 400, 402, 407, 409

of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~12. The modified mycoplasma protein M or a functional fragment thereof of claim 11,~~ wherein the one or more mutations are selected from:

a) F237T;

b) S232Q;

c) Q282D;

d) S150E, S196R, S198P, V400I, N402I, K407P, S409V;

e) L413I, T435I;

f) V373I, V400I;

g) N402L, K407P, S409V, L413I;

h) A342V;

i) S150E, S196R, S198P, S232Q, F237T, Q282D, A342V, V373I, V400I, N402I, K407P, S409V, L413I, T435I;

j) N274D;

k) S150E, S196R, S198P, S232Q, F237T, A342V, V400I, N402I, K407P, S409V;

l) V373I, L413I, T435I;

m) A205P;

n) T355D;

o) T355P;

p) S150E, S196R, S198P, A342V, V373I, V400I, N402I, K407P, S409V;

q) 150, 196, 198, 232, 237, 342, 373, 400, 402, 407, 409;

r) S201C, A224C;

s) S150E, S196R, S198P, S201C, A224C, S232Q, F237T, A342V, V400I, N402I, K407P, S409V;

t) S150E, S196R, S198P, S232Q, F237T, A342V, F390E, V400I, N402I, K407P, S409V Y444K;

u) S150E, S196R, S198P, S201C, A205P, A224C, S232Q, F237T, N274D, A342V, T355P, V400I, N402I, K407P, S409V; or

v) S150E, S196R, S198P, S232Q, F237T, A342V, A391P, V400I, N402I, K407P, S409V

of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23).

~~13~~6. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~5~~3, wherein the one or more mutations are at residues 155, 203, 243, 248, and 358 of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~,~~

~~14. The modified mycoplasma protein M or a functional fragment thereof of claim 13,~~ wherein the one or more mutations are A155E, K203R, H243T, V248Q, and A358V of *M. pneumoniae* protein M (SEQ ID NO:23).

~~15~~7. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~5~~3, wherein the one or more mutations are at residues selected from:

a) 468;

b) 150;

c) 147;

d) 272;

e) 355;

f) 276,277,279;

g) 300;

h) 378;

i) 156;

j) 232;

k) 245;

l) 276;

m) 225; or

n) 310

of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~16. The modified mycoplasma protein M or a functional fragment thereof of claim 15,~~ wherein the one or more mutations are selected from:

a) R468Q;

b) S150E;

c) H147F;

d) S272G;

e) T355G;

f) S276E,Q277L,N279R;

g) N300Q;

h) N378Y;

i) S156K;

j) S232L;

k) A245Q;

l) S276D;

m) K225P; or

n) V310E

of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23).

~~17~~8. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-16, wherein the modified mycoplasma protein M or a functional fragment thereof is further modified to remove one or more glycosylation sites or to add one or more glycosylation sites.

~~18. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-16, wherein the modified mycoplasma protein M or a functional fragment thereof is further modified to add one or more glycosylation sites.~~

~~19~~9. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-4, further comprising one or more mutations that enhance the affinity of the modified mycoplasma protein M or a functional fragment thereof to antibodies, optionally ~~.~~

~~20. The modified mycoplasma protein M or a functional fragment thereof of claim 19,~~ wherein the one or more mutations are at residue 95, 102, 103, 106, 107, 114, 116, 160, 161, 162, 163, 181, 186, 321, 381, 384, 389, 390, 391, 396, 397, 426, 429, 436, 438, 439, 441, 442, 447, 448, 449, 452, 453, 455, 456, 462, or 466, or any combination thereof of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~21. The modified mycoplasma protein M or a functional fragment thereof of claim 20,~~ wherein the one or more mutations is a mutation listed in Table 6 or any combination thereof, optionally ~~.~~

~~22. The modified mycoplasma protein M or a functional fragment thereof of claim 19,~~ wherein the one or more mutations are at residue 95, 103, 116, 186, 321, 389, 429, 442, or 466, or any combination thereof of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~23. The modified mycoplasma protein M or a functional fragment thereof of claim 22,~~ wherein the one or more mutations is a mutation listed in Table 7 or any combination thereof.

~~24~~10. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~4~~3, further comprising one or more mutations that reduce the affinity of the modified mycoplasma protein M or a functional fragment thereof to antibodies, optionally ~~.~~

~~25. The modified mycoplasma protein M or a functional fragment thereof of claim 19,~~ wherein the one or more mutations are at residue 390 and/or 444 of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues of *M. pneumoniae* protein M (SEQ ID NO:23), optionally ~~.~~

~~26. The modified mycoplasma protein M or a functional fragment thereof of claim 25,~~ wherein the one or more mutations is 390E and/or Y444K.

~~27~~11. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~26~~10, further comprising a secretion peptide at the N-terminus.

~~28~~12. A polynucleotide encoding the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~27~~11.

~~29. The polynucleotide of claim 28, operably linked to a promoter.~~

~~30. The polynucleotide of claim 29, wherein the promoter is a bacterial promoter.~~

~~31. The polynucleotide of claim 29, wherein the promoter is a mammalian promoter.~~

~~32. The polynucleotide of any one of claims 28-31, wherein the polynucleotide is codon optimized for expression in bacteria, such as *E. coli*.~~

~~33. The polynucleotide of any one of claims 28-31, wherein the polynucleotide is codon optimized for expression in a mammalian cell, such as a human cell.~~

~~34. The polynucleotide of any one of claims 28-31, wherein the polynucleotide is codon optimized for expression in both bacteria, such as *E. coli*, and a mammalian cell, such as a human cell.~~

~~35~~13. A vector comprising the polynucleotide of ~~any one of claims 28-34~~claim 12.

~~36. The vector of claim 35, wherein the vector is a bacterial vector.~~

~~37. The vector of claim 35, wherein the vector is a mammalian vector.~~

~~38~~14. A transformed cell comprising the polynucleotide of ~~any one of claims 28-34~~claim 12 and/or the vector of ~~any one of claims 35-37~~claim 13.

~~39. The transformed cell of claim 38, which is a bacterial cell, such as *E. coli*.~~

~~40. The transformed cell of claim 38, which is a mammalian cell, such as a human cell.~~

~~41. The transformed cell of any one of claims 38-40, wherein the polynucleotide is stably incorporated into the genome of the cell.~~

~~42~~15. Use of mycoplasma protein M, or a functional fragment or derivative thereof, in the manufacture of a medicament for~~A method of~~ inhibiting neutralization of a heterologous agent by neutralizing antibodies ~~upon administration of the heterologous agent to a subject, comprising administering to the subject an effective amount of mycoplasma protein M or a functional fragment or derivative thereof, thereby inhibiting neutralization of the heterologous agent~~, optionally wherein the heterologous agent is a nucleic acid delivery vector, a gene editing complex, a protein or a nucleic acid.

~~43. The method of claim 42, wherein the heterologous agent is a nucleic acid delivery vector.~~

~~44. The method of claim 43, wherein the nucleic acid delivery vector is a viral vector.~~

~~45. The method of claim 44, wherein the viral vector is an adeno-associated virus, retrovirus, lentivirus, poxvirus, alphavirus, baculovirus, vaccinia virus, herpes virus, Epstein-Barr virus, or adenovirus vector.~~

~~46. The method of claim 43, wherein the nucleic acid delivery vector is a non-viral vector.~~

~~47. The method of claim 46, wherein the non-viral vector is a plasmid, liposome, electrically charged lipid, nucleic acid-protein complex, or biopolymer.~~

~~48. The method of claim 42, wherein the heterologous agent is a gene editing complex.~~

~~49. The method of claim 48, wherein the gene editing complex is a CRISPR complex.~~

~~50. The method of claim 42, wherein the heterologous agent is a protein or nucleic acid.~~

~~51. The method of claim 50, wherein the protein is an enzyme.~~

~~52. The method of claim 50, wherein the nucleic acid is an antisense nucleic acid or a inhibitory RNA.~~

~~53. The method of any one of claims 42-52, wherein the effective amount of protein M is an amount sufficient to inhibit neutralization by at least about 50%, 60%, 70%, 80%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98, 99%, 99.5%, or 99.9%.~~

~~54. The method of any one of claims 42-53, wherein the effective amount of protein M is an amount sufficient to produce a ratio of protein M to total immunoglobulin in the subject of about 0.5:1 to about 8:1, *e.g.*, about 2:1 on a molar basis.~~

~~55. The method of any one of claims 42-54, wherein the protein M or a functional fragment or derivative thereof is administered to the subject prior to administration of the heterologous agent.~~

~~56. The method of any one of claims 42-54, wherein the protein M or a functional fragment or derivative thereof is administered to the subject concurrently with administration of the heterologous agent.~~

~~57. The method of claim 56, wherein the heterologous agent is combined with the protein M or a fragment or derivative thereof prior to administration to the subject.~~

~~58~~16. The ~~method~~ use of ~~any one of claims 42-57~~claim 15, wherein the protein M or a functional fragment or derivative thereof is from *Mycoplasma genitalium*, *Mycoplasma pneumoniae,* or *Mycoplasma penetrans*, optionally ~~.~~

~~59. The method of any one of claims 42-58,~~ wherein the protein M or a functional fragment or derivative thereof is a protein M fragment, optionally ~~.~~

~~60. The method of claim 59,~~ wherein the protein M functional fragment comprises amino acid residues 17-537, 37-556, 37-482, 37-468, 37-442, 74-468, 74-479, 74-482, 74-468, 74-442, or 74-556 of *M. genitalium* protein M (SEQ ID NO:1) or the equivalent residues from another protein M.

~~61~~17. The ~~method~~ use of any one of claims ~~42-60~~15-16, wherein the protein M or a functional fragment or derivative thereof is the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~24~~11.

~~62. The method of any one of claims 42-61, wherein the protein M or a functional fragment or derivative thereof is administered to the subject more than once.~~

~~63. The method of claim 62, wherein the protein M or a functional fragment or derivative thereof is administered to the subject each time the heterologous agent is administered to the subject.~~

~~64. The method of claim 62 or 63, wherein the same protein M or a functional fragment or derivative thereof is administered each time.~~

~~65. The method of claim 62 or 63, wherein a different protein M or a functional fragment or derivative thereof is administered each time.~~

~~66. The method of any one of claims 42-65, further comprising administering to the subject an additional treatment for reducing antibody concentration in the subject.~~

~~67. The method of claim 66, wherein the additional treatment is plasmaphereses, administration of an antibody digesting enzyme such as IdeS or IdeZ, splenectomy, chemotherapy, immunotherapy, or radiation therapy.~~

~~68. The method of claim 66 or 67, wherein the additional treatment is administered before, during, and/or after administration of the protein M or a functional fragment or derivative thereof.~~

~~69~~18. Use of a) a nucleic acid delivery vector encoding the polypeptide or functional nucleic acid, and (b) an effective amount of mycoplasma protein M, or a functional fragment or

derivative thereof, in the manufacture of a medicament for~~A method of~~ expressing a polypeptide or functional nucleic acid in a subject.~~, comprising administering to the subject (a) a nucleic acid delivery vector encoding the polypeptide or functional nucleic acid, and (b) an effective amount of mycoplasma protein M or a functional fragment or derivative thereof, thereby expressing the polypeptide or functional nucleic acid in the subject~~.

~~70~~19. ~~A method of treating a disorder in a subject in need thereof, wherein the disorder is treatable by expressing a polypeptide or functional nucleic acid in the subject, comprising administering to the subject~~ Use of (a) a therapeutically effective amount of a nucleic acid delivery vector encoding the polypeptide or functional nucleic acid, and (b) an effective amount of mycoplasma protein M or a functional fragment or derivative thereof, in the manufacture of a medicament for treating a disorder in a subject in need thereof, wherein the disorder is treatable by expressing a polypeptide or functional nucleic acid in the subject~~ thereby treating the disorder in the subject~~.

~~71~~20. ~~A method of editing a gene in a subject, comprising administering to the subject~~Use of (a) an effective amount of a gene editing complex, and (b) an effective amount of mycoplasma protein M or a functional fragment or derivative thereof, in the manufacture of a medicament for gene therapy~~thereby expressing the polypeptide or functional nucleic acid in the subject~~.

~~72~~21. ~~A method of treating an autoimmune disease in a subject in need thereof, comprising administering to the subject~~ Use of a therapeutically effective amount of mycoplasma protein M or a functional fragment or derivative thereof in the manufacture of a medicament for treating an autoimmune disease~~, thereby treating the autoimmune disease~~.

~~73~~22. ~~A method of treating a disorder associated with excess antibodies in a subject in need thereof, comprising administering to the subject~~Use of a therapeutically effective amount of mycoplasma protein M or a functional fragment or derivative thereof in the manufacture of a medicament for~~, thereby~~ treating ~~the~~ a disorder associated with excess antibodies.

~~74. The method of claim 73, wherein the disorder associated with excess antibodies is multiple myeloma, monoclonal gammopathy of undetermined significance (MGUS), or Waldenstrom macroglobulinemia.~~

~~75~~23. ~~A method of acutely inhibiting antibodies in a subject in need thereof, comprising administering to the subject~~Use of a therapeutically effective amount of mycoplasma protein M or a functional fragment or derivative thereof~~, thereby~~ in the manufacture of a medicament for acutely inhibiting antibodies.

~~76. The method of claim 75, wherein the subject has cytokine release syndrome or an acute autoimmune attack, such as severe autoimmune vasculitis with sudden onset.~~

~~77~~24. The ~~method~~ use of any one of claims ~~69-76~~18-23, wherein the protein M or a functional fragment or derivative thereof is the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~27~~11.

~~78. The method of any one of claims 42-77, wherein the mycoplasma protein M or a functional fragment or derivative thereof is administered to the subject by a route selected from oral, rectal, transmucosal, intranasal, inhalation, buccal (*e.g.*, sublingual), vaginal, intrathecal, intraocular, intravitreal, intracochlear, transdermal, intraendothelial, *in utero* (or *in ovo*), parenteral (*e.g.*, intravenous, subcutaneous, intradermal, intracranial, intramuscular [including administration to skeletal, diaphragm and/or cardiac muscle], intrapleural, intracerebral, and intraarticular), topical (*e.g.*, to both skin and mucosal surfaces, including airway surfaces, and transdermal administration), intralymphatic, and the like, as well as direct tissue or organ injection (*e.g.*, to liver, eye, skeletal muscle, cardiac muscle, diaphragm muscle or brain).~~

~~79. The method of any one of claims 42-77, wherein the mycoplasma protein M or a functional fragment or derivative thereof is administered to a skeletal muscle, a smooth muscle, the heart, the diaphragm, the airway epithelium, the liver, the kidney, the spleen, the pancreas, the skin, the lung, the ear, or the eye.~~

~~80. The method of any one of claims 42-79, wherein the mycoplasma protein M or a functional fragment or derivative thereof is administered to a diseased tissue or organ.~~

~~81. The method of any one of claims 42-80, wherein the subject is a human.~~

~~82~~25. A method of isolating a compound comprising an antibody light chain variable region and/or heavy chain variable region from a sample, the method comprising contacting the compound with the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~27~~ 11 attached to a solid support, then eluting the compound from the modified mycoplasma protein M or a functional fragment thereof.

~~83. The method of claim 82, wherein the compound comprising an antibody light chain variable region and/or heavy chain variable region is an antibody or an antigen-binding fragment thereof.~~

~~84. The method of claim 82 or 83, wherein the solid support is a bead or particle.~~

~~85. The method of any one of claims 82-84, wherein the solid support comprises agarose, polyacrylamide, dextran, cellulose, polysaccharide, nitrocellulose, silica, alumina, aluminum oxide, titania, titanium oxide, zirconia, styrene, polyvinyldifluoride nylon, copolymer of styrene and divinylbenzene, polymethacrylate ester, derivatized azlactone polymer or copolymer, glass, or cellulose.~~

~~86. The method of any one of claims 82-85, wherein the compound is eluted by a change in pH.~~

~~87. The modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-27, attached to a solid support.~~

~~88~~26. A method of performing an immunoassay, the method comprising using the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~27~~ 11 to bind a

compound comprising an antibody light chain variable region and/or heavy chain variable region.

~~89. The method of claim 88, wherein the immunoassay is selected from radio-immunoassays (RIA), enzyme-linked immunosorbent assays (ELISA) assays, enzyme immunoassays (EIA), sandwich assays, gel diffusion precipitation reactions, immunodiffusion assays, agglutination assays, immunofluorescence assays, fluorescence activated cell sorting (FACS) assays, immunohistochemical assays, protein A immunoassays, protein G immunoassays, protein L immunoassays, biotin/avidin assays, biotin/streptavidin assays, immunoelectrophoresis assays, precipitation/flocculation reactions, immunoblots (Western blot; dot/slot blot); immunodiffusion assays; liposome immunoassay, chemiluminescence assays, library screens, expression arrays, immunoprecipitation, competitive binding assays, and immunohistochemical staining.~~

~~90~~27. A kit comprising the modified mycoplasma protein M or a functional fragment thereof of any one of claims 1-~~27~~ 11~~or 87~~.