What is claimed is:

1. A method of identifying a host cell that produces a desired multi-subunit complex with a greater yield, comprising:

(a) providing a panel of host cells, said panel comprising at least two host cells that each comprise genes that provide for expression of the subunits of the multi-subunit complex;

wherein said at least two host cells are each produced by mating or fusion of two parental cells, wherein each parental cell comprises one or more copies of at least one gene encoding a subunit of said multi-subunit complex;

(b) culturing each said host cell to express the multi-subunit complex, wherein the genes in said at least two host cells provide for differing levels of expression of at least one subunit of said multi-subunit complex;

(c) measuring the yield of the multi-subunit complex produced by each said host cell; and

(d) identifying the host cell that produces a greater yield than another host cell in said panel of host cells as a host cell that produces a desired multi-subunit complex with a greater yield.

2. The method of claim 1, wherein said desired multi-subunit complex comprises a desired antibody, and said genes that provide for expression of the subunits of the multi-subunit complex comprise genes encoding the light chain and heavy chain of said desired antibody.

3. The method of claim 1, wherein the panel of screened cells includes a host cells that express different copy number combinations of the genes that encode the subunits comprising the multi-subunit complex.

4. The method of Claim 3, wherein the panel of host cells includes cells that express up to 15 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

5. The method of Claim 3, wherein the panel of host cells includes cells that express up to 12 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

6. The method of Claim 3, wherein the panel of host cells includes cells that express up to 10 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

7. The method of Claim 3, wherein the panel of host cells includes cells that express up to 8 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

8. The method of Claim 3, wherein the panel of host cells includes cells that express up to 6 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

9. The method of Claim 3, wherein the panel of host cells includes cells that express up to 10 copies of each gene that encode the multi-subunit complex which is an antibody, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

10. The method of any of claims 1-9, wherein the host cells are diploidal yeast cell.

11. The method of Claim 10, wherein said diploidal yeast are Pichia cells.

12. The method of Claim 11, wherein said Pichia are Pichia pastoris cells.

13. The method of claim 10, wherein said diploid yeast cell is a methylotrophic yeast, a yeast of the genus Pichia, *Pichia pastoris, Pichia angusta, Pichia guillermordii, Pichia methanolica, or Pichia inositovera.*

14. A method of identifying a host cell that produces a desired multi-subunit complex with a greater purity, comprising:

(a) providing a panel of host cells, said panel comprising at least two host cells that each comprise genes that provide for expression of the subunits of the multi-subunit complex;

wherein said at least two host cells are each produced by mating or fusion of two parental cells, wherein each parental cell comprises one or more copies of at least one gene encoding a subunit of said multi-subunit complex;

(b) culturing each said host cell to express the multi-subunit complex, wherein the genes in said at least two host cells provide for differing levels of expression of at least one subunit of said multi-subunit complex;

(c) measuring the purity of the multi-subunit complex produced by each said host cell; and

(d) identifying the host cell that produces a greater purity than another host cell in said panel of host cells as a host cell that produces a desired multi-subunit complex with a greater purity.

15. The method of claim 14, wherein said desired multi-subunit complex comprises a desired antibody, and said genes that provide for expression of the subunits of the multi-subunit complex comprise genes encoding the light chain and heavy chain of said desired antibody.

16. The method of claim 15, wherein said purity is determined by measuring the relative proportion of one or more glycosylated antibody chains.

17. The method of claim 16, wherein said one or more glycosylated antibody chains include a glyco-heavy variant.

18. The method of claim 1, wherein the panel of screened cells includes a host cells that express different copy number combinations of the genes that encode the subunits comprising the multi-subunit complex.

19. The method of Claim 14, wherein the panel of host cells includes cells that express up to 15 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

20. The method of Claim 14, wherein the panel of host cells includes cells that express up to 12 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

21. The method of Claim 14, wherein the panel of host cells includes cells that express up to 10 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

22. The method of Claim 14, wherein the panel of host cells includes cells that express up to 8 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

23. The method of Claim 13, wherein the panel of host cells includes cells that express up to 6 copies of each gene that encode the multi-subunit complex, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

24. The method of Claim 14, wherein the panel of host cells includes cells that express up to 10 copies of each gene that encode the multi-subunit complex which is an antibody, and represent substantially all possible copy number combinations of each subunit relative to the other subunit(s).

25. The method of any of claims 14-24, wherein the host cells are diploidal yeast cells.

26. The method of Claim 25, wherein said diploidal yeast are Pichia cells.

27. The method of Claim 26, wherein said Pichia are Pichia pastoris cells.

28. A method of identifying a host cell that produces a desired multi-subunit complex with a greater yield, comprising:

(a) providing a panel of host cells, said panel comprising at least two host cells that each comprise differing numbers of copies of one or more of the genes that provide for expression of the subunits of the multi-subunit complex;

(b) culturing each said host cell to express the multi-subunit complex;

(c) measuring the yield of the multi-subunit complex produced by each said host cell; and

(d) identifying the host cell that produces a greater yield than another host cell in said panel of host cells as a host cell that produces a desired multi-subunit complex with a greater yield.

29. The method of claim 28, wherein said desired multi-subunit complex comprises a desired antibody, and said genes that provide for expression of the subunits of the multi-subunit complex comprise genes encoding the light chain and heavy chain of said desired antibody.

30. A method of identifying a host cell that produces a desired multi-subunit complex with a greater purity, comprising:

(a) providing a panel of host cells, said panel comprising at least two host cells that each comprise differing numbers of copies of one or more of the genes that provide for expression of the subunits of the multi-subunit complex;

(b) culturing each said host cell to express the multi-subunit complex;

(c) measuring the purity of the multi-subunit complex produced by each said host cell; and

(d) identifying the host cell that produces a greater purity than another host cell in said panel of host cells as a host cell that produces a desired multi-subunit complex with a greater purity.

31. The method of claim 30, wherein said desired multi-subunit complex comprises a desired antibody, and said genes that provide for expression of the subunits of the multi-subunit complex comprise genes encoding the light chain and heavy chain of said desired antibody.

32. The method of claim 31, wherein said purity is determined by measuring the relative proportion of one or more glycosylated antibody chains.

33. The method of claim 32, wherein said one or more glycosylated antibody chains include a glyco-heavy variant.

34. The method of any one of claims 28-33, wherein said host cell is a diploid yeast cell.

35. The method of claim 34, wherein said diploid yeast cell is a methylotrophic yeast, a yeast of the genus Pichia, *Pichia pastoris, Pichia angusta*, *Pichia guillermordii*, *Pichia methanolica*, *or Pichia inositovera.*

36. The method of claim 34 or 35, wherein said panel of host cells is produced by a mating or fusion of haploid cells containing differing numbers of copies of the genes encoding one or more

subunits of said multi-subunit complex, whereby said mating produces diploid cells containing differing numbers of copies of the genes encoding the subunits of said multi-subunit complex.

37. The method of claim 36, wherein said genes that provide for expression of the subunits of the multi-subunit complex are integrated into the genome of said haploid cells.

38. The method of any of claims 28-33, wherein said host cell is a polyploid yeast cell.

39. The method of any one of claims 28-33, wherein said host cell is a tetraploid yeast cell.

40. The method of claim 39, wherein said diploid yeast cell is a methylotrophic yeast, a yeast of the genus Pichia, *Pichia pastoris, Pichia angusta, Pichia guillermordii, Pichia methanolica, or Pichia inositovera.*

41. The method of claim 39 or 40, wherein said panel of host cells is produced by a mating or fusion of diploid cells containing differing numbers of copies of the genes encoding one or more subunits of said multi-subunit complex, whereby said mating produces tetraploid cells containing differing numbers of copies of the genes encoding the subunits of said multi-subunit complex.

42. The method of claim 41, wherein said genes that provide for expression of the subunits of the multi-subunit complex are integrated into the genome of said diploid cells.

43. The method of any foregoing claim, wherein said identified host cell is used to develop a production culture.

44. The method of any foregoing claim, wherein said host cell is a eukaryotic cell.

45. The method of claim 44, wherein said eukaryotic cell is a yeast cell.

46. The method of claim 45, wherein said parental cells are each haploid, diploid or polyploid yeast cells.

47. The method of claim 45 or 46, wherein said yeast cell is a methylotrophic yeast.

48. The method of claim 47, wherein said methylotrophic yeast is of the genus Pichia.

49. The method of claim 48, wherein said methylotrophic yeast of the genus Pichia is *Pichia pastoris.*

50. The method of claim 48, wherein said methylotrophic yeast of the genus Pichia is selected from the group consisting of: *Pichia angusta*, *Pichia guillermordii*, *Pichia methanolica*, and *Pichia inositovera.*

51. The method of claim 48, wherein said genes that provide for expression of the subunits of the multi-subunit complex are integrated into one or more genomic loci selected from the group consisting of the pGAP, 3' AOX TT, PpURA5, OCH1, AOX1, HIS4, GAP, ARG, and HIS4 TT loci.

52. The method of any one of the foregoing claims, wherein at least one of said genes encoding said subunits of the multi-subunit complex are expressed under control of an inducible or constitutive promoter.

53. The method of claim 52, wherein said inducible promoter is selected from the group consisting of the GAP, CUP1, AOX1, and FLD1 promoters.

54. The method of any one of the foregoing claims, wherein at least one of said genes encoding said subunits of the multi-subunit complex are expressed under control of a promoter selected from the group consisting of: the AOX1, ICL1, glyceraldehyde-3-phosphate dehydrogenase (GAP), FLD1, ADH1, alcohol dehydrogenase II, GAL4, PHO3, PHO5, and Pyk promoters, chimeric promoters derived therefrom, yeast promoters, mammalian promoters, insect promoters, plant promoters, reptile promoters, amphibian promoters, viral promoters, and avian promoters.

55. The method of any one of the foregoing claims, wherein said host cell is a diploid or tetraploid cell.

56. The method of any foregoing claim, wherein said desired multi-subunit complex is purified from said cells or from the culture medium.

57. The method of claim 56, wherein said desired multi-subunit complex is purified from an intracellular component, cytoplasm, nucleoplasm, or a membrane of said cells.

58. The method of claim 56, wherein said host cell secretes said desired multi-subunit complex into the culture medium.

59. The method of claim 58, wherein said desired multi-subunit complex is purified from said culture medium.

60. The method of any one of the foregoing claims, wherein said desired multi-subunit complex is a monospecific or bispecific antibody.

61. The method of any one of the foregoing claims, wherein said at least two host cells comprise differing numbers of copies of a gene encoding a subunit of said multi-subunit complex.

62. The method of claim 61, wherein at least one host cell in said panel comprises at least two copies of said gene encoding at least one subunit of the multi-subunit complex.

63. The method of any one of the foregoing claims, wherein at least one host cell in said panel comprises a gene encoding at least one subunit of the multi-subunit complex whose expression is driven by a different promoter than the promoter that drives the expression of the corresponding gene in a different host cell in said panel.

64. The method of any one of the foregoing claims, wherein at least one host cell in said panel comprises a polycistronic gene comprising more than one sequence encoding a subunit of the multi-subunit complex.

65. The method of any one of the foregoing claims, wherein said desired multi-subunit complex comprises an antibody that specifically binds to IL-6, TNF-alpha, CGRP, PCSK9, or NGF.

66. The method of any one of the foregoing claims, wherein said desired multi-subunit complex comprises a human antibody or a humanized antibody or fragment thereof.

67. The method of claim 66, wherein said humanized antibody is of mouse, rat, rabbit, goat, sheep, or cow origin.

68. The method of claim 66, wherein said humanized antibody is of rabbit origin.

69. The method of any one of the foregoing claims, wherein said desired multi-subunit complex comprises a monovalent, bivalent, or multivalent antibody.

70. The method of any one of the foregoing claims, wherein at least one of said genes that provide for expression of a subunit of said multi-subunit complex in at least one of said host cells in said panel is optimized for expression in said host cell.

71. The method of any one of the foregoing claims, wherein said desired multi-subunit complex comprises a desired antibody and the purity of said desired antibody is assessed by measuring the fraction of the desired antibody produced by said host cell that is non-glycosylated, is contained in antibody complexes having the expected apparent hydrodynamic radius, and / or specifically binds a target of said desired antibody.

72. The method of any one of the foregoing claims, wherein said desired multi-subunit complex comprises a desired antibody and the yield of said desired antibody is assessed by determining the amount of desired antibody produced by said host cell discounting any product-associated variants that are glycosylated, contained in antibody complexes other than complexes

having the expected apparent hydrodynamic radius, and / or that fail to specifically bind to the target of said desired antibody.

73. A method of recombinantly producing a desired multi-subunit complex, comprising:

(a) providing a host cell comprising one or more genes encoding each subunit of the multi-subunit complex, wherein said host cell is identified by the method of any one of the foregoing claims as a host cell that produces a desired multi-subunit complex with a greater yield and / or purity; and

(b) culturing said host cell to express said multi-subunit complex.

74. The method of claim 73, wherein said desired multi-subunit complex comprises a desired antibody.

75. The method of claim 74 further comprising purification of said desired antibody.

76. The method of claim 74 or 75, wherein said host cell produces an antibody titer of at least 100 mg / L, at least 150 mg / L, at least 200 mg / L, at least 250 mg / L, at least 300 mg / L, between 100 and 300 mg / L, between 100 and 500 mg / L, between 100 and 1000 mg / L, at least 1000 mg / L, at least 1250 mg/liter, at least 1500 mg/liter, 1750 mg/liter, 2000 mg/liter, or more.

77. The method of any one of the foregoing claims, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 20 generations.

78. The method of any one of the foregoing claims, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 50 generations.

79. The method of any one of the foregoing claims, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 100 generations.

80. The method of any one of the foregoing claims, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 500 generations.

81. The method of any one of the foregoing claims, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 1000 generations.

82. The method of any one of the foregoing claims, wherein the gene copies encoding at least one of the subunits of said multi-subunit complex are integrated into two or more loci.

83. The method of any one of the foregoing claims, wherein the gene copies encoding at least one of the subunits of said multi-subunit complex are integrated into three or more loci.

84. The method of claim 82 or 83, wherein each locus contains no more than 5 copies of a given subunit.

85. The method of claim 82 or 83, wherein each locus contains no more than 4 copies of a given subunit.

86. The method of claim 82 or 83, wherein each locus contains no more than 3 copies of a given subunit.

87. A host cell identified by the method of any of claims 1 to 86 as a host cell that produces a desired multi-subunit complex with a greater yield and / or purity, wherein said host cell is produced by mating or fusion of two parental cells, wherein each parental cell comprises one or more copies of at least one gene encoding a subunit of said multi-subunit complex.

88. The host cell of claim 77, wherein at least one copy of each of two different genes each encoding a subunit of said multi-subunit complex are integrated into the same locus of two homologous chromosomes of said host cell.

89. The host cell of claim 87 or 88 which is a diploid or tetraploid cell of the genus Pichia.

90. The host cell of claim 89 which is a *Pichia pastoris* cell.

91. A diploid or tetraploid yeast culture derived from the host cell of any one of claims 87-90.

92. The host cell of any of claims 87-91, wherein at least one of the genes that provide for expression of said desired multi-subunit complex are integrated into genome of said host cell.

93. The host cell of any of claims 87-92, wherein at least one of the genes that provide for expression of said desired multi-subunit complex are contained on one or more extrachromosomal elements, plasmids, or artificial chromosomes.

94. The host cell of any one of claims 87-93, wherein said desired multi-subunit complex comprises a desired antibody.

95. The host cell of claim 94, wherein said host cell comprises more copies of the gene that provide for the expression of the light chain of said desired antibody than copies of the gene that provide for expression of the heavy chain of said desired antibody.

96. The host cell of claim 94, wherein said host cell comprises more copies of the gene that provide for the expression of the heavy chain of said desired antibody than copies of the gene that provide for expression of the light chain of said desired antibody.

97. The host cell of claim 94, wherein said host cell comprises a number of copies of the gene that provide for the expression of the light chain of said desired antibody that is equal to the

number of copies of the gene that provide for expression of the heavy chain of said desired antibody.

98. The host cell of claim 94 which comprises from 1-10 copies of a gene encoding the light chain of said desired antibody and from 1-10 copies of a gene encoding the heavy chain of said desired antibody.

99. The host cell of claim 94, wherein the respective number of copies of the gene encoding the heavy chain of said desired antibody and the number of copies of the gene encoding the light chain of said desired antibody in said host cell are: 2 and 2, 2 and 3, 3 and 3, 3 and 4, 3 and 5, 4 and 3, 4 and 4, 4 and 5, 4 and 6, 5 and 4, 5 and 5, 5 and 6, or 5 and 7.

100. The host cell of claim 94, wherein the respective number of copies of the gene encoding the heavy chain of said desired antibody and the number of copies of the gene encoding the light chain of said desired antibody in said host cell are: 2 and 1, 3 and 1, 4 and 1, 5 and 1, 6 and 1, 7 and 1, 8 and 1, 9 and 1, 10 and 1, 1 and 2, 2 and 2, 3 and 2, 4 and 2, 5 and 2, 6 and 2, 7 and 2, 8 and 2, 9 and 2, 10 and 2, 1 and 3, 2 and 3, 3 and 3, 4 and 3, 5 and 3, 6 and 3, 7 and 3, 8 and 3, 9 and 3, 10 and 3, 1 and 4, 2 and 4, 3 and 4, 4 and 4, 5 and 4, 6 and 4, 7 and 4, 8 and 4, 9 and 4, 10 and 4, 1 and 5, 2 and 5, 3 and 5, 4 and 5, 5 and 5, 6 and 5, 7 and 5, 8 and 5, 9 and 5, 10 and 5, 1 and 6, 2 and 6, 3 and 6, 4 and 6, 5 and 6, 6 and 6, 7 and 6, 8 and 6, 9 and 6, 10 and 6, 1 and 7, 2 and 7, 3 and 7, 4 and 7, 5 and 7, 6 and 7, 7 and 7, 8 and 7, 9 and 7, 10 and 7, 1 and 8, 2 and 8, 3 and 8, 4 and 8, 5 and 8, 6 and 8, 7 and 8, 8 and 8, 9 and 8, 10 and 8, 1 and 9, 2 and 9, 3 and 9, 4 and 9, 5 and 9, 6 and 9, 7 and 9, 8 and 9, 9 and 9, 10 and 9, 1 and 10, 2 and 10, 3 and 10, 4 and 10, 5 and 10, 6 and 10, 7 and 10, 8 and 10, 9 and 10, 10 and 10.

101. The host cell of any one of claims 87-100, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 20 generations.

102. The host cell of any one of claims 87-100, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 50 generations.

103. The host cell of any one of claims 87-100, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 100 generations.

104. The host cell of any one of claims 87-100, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 500 generations.

105. The host cell of any one of claims 87-100, wherein the copy number of the genes encoding the desired multi-subunit complex and/or the yield of said desired multi-subunit complex is stable for 1000 generations.

106. The host cell of any one of claims 87-105, wherein the gene copies encoding at least one of the subunits of said multi-subunit complex are integrated into two or more loci.

107. The host cell of any one of claims 87-105, wherein the gene copies encoding at least one of the subunits of said multi-subunit complex are integrated into three or more loci.

108. The host cell of claim 106 or 107, wherein each locus contains no more than 5 copies of a given subunit.

109. The host cell of claim 104 or 105, wherein each locus contains no more than 4 copies of a given subunit.

110. The host cell of claim 106 or 107, wherein each locus contains no more than 3 copies of a given subunit.

111. The yeast culture of claim 91 which is grown in a production medium.

112. The culture of claim 111 wherein said production medium is a minimal medium.

113. The culture of claim 112 wherein said minimal medium lacks selective agents.

114. The culture of claim 112 wherein said minimal medium lacks pre-formed amino acids or other complex biomolecules.

115. The culture of claim 91, which is grown to a high cell density.

116. The culture of claim 115, wherein said high cell density is at least 50 g/L.

117. The culture of claim 115, wherein said high cell density is at least 100 g/L.

118. The culture of claim 115, wherein said high cell density is at least 300 g/L.

119. The culture of claim 115, wherein said high cell density is at least 400 g/L.

120. The culture of claim 115, wherein said high cell density is at least 500 g/L.

121. The culture of claim 115, wherein said high cell density is at least 750 g/L.

122. The culture of claim 91, wherein the yeast cells are cultured for at least 20 doublings and maintain high levels of expression of said desired multi-subunit complex after said at least 20 doublings.

123. The culture of 91, wherein the yeast cells are cultured for at least 50 doublings and maintain high levels of expression of said desired multi-subunit complex after said at least 50 doublings.

124. The culture of claim 91, wherein the yeast cells are cultured for at least 100 doublings and maintain high levels of expression of said desired multi-subunit complex after said at least 100 doublings.

125. The culture of any one of claims 122-124, wherein said desired multi-subunit complex comprises a desired antibody.

126. A culture medium containing a stable diploid Pichia yeast culture derived from a cell produced according to the method of any one of claims 1 to 86, wherein the culture medium comprises expression levels of said desired multi-subunit complex which are at least about 50 mg/liter, 100 mg/liter, 500 mg/liter or 1000 mg/liter, 1500 mg/liter or more.

127. A culture medium containing a stable diploid Pichia pastoris yeast culture derived from a cell produced according to the method of any one of claims 1-86 that expresses said desired multi-subunit complex into a culture medium wherein the cell density of said diploid cells in said culture are at least about 50 g/L, 100 g/L, 300 g/L, 400 g/L, 500 g/L, 700 g/L, or more.

128. The culture medium of claim 126 or 127, wherein said desired multi-subunit complex comprises a desired antibody.

129. The method or composition of any one of the foregoing claims, wherein at least one subunit of said desired multi-subunit complex comprises a secretion signal.

130. The method or composition of claim 129, wherein said desired multi-subunit complex comprises a desired antibody.

131. The method or composition of claim 129 or 130, wherein the secretion signal comprises a polypeptide selected from the group consisting of: chicken lysozyme (CLY) signal peptide; CLY-L8; S. cerevisiae invertase (SUC2) signal peptide; MF-alpha (Prepro); MF-alpha (Pre)-apv; MF-alpha (Pre)-apv-SLEKR; MF-alpha (Prepro)-(EA)3; αF signal peptide; KILM1 signal peptide; repressible acid phosphatase (PHO1) signal peptide; A. niger GOX signal peptide; Schwanniomyces occidentalis glucoamylase gene (GAM1) signal peptide; human serum albumin (HSA) signal peptide with pro-sequence; human serum albumin (HSA) signal peptide without

pro-sequence; ISN signal peptide; IFN signal peptide; HGH signal peptide; phytohaemagglutinin (PHA); Silkworm lysozyme; Human lysozyme (LYZ1); activin receptor type-1; activin type II receptor; P. pastoris immunoglobulin binding protein (PpBiP); human antibody 3D6 light chain leader; and any combination thereof.

132. The method or composition of any one of the foregoing claims, wherein said parental cells are each haploid, diploid or polyploid yeast cells.

133. A method of recombinantly producing a desired multi-subunit complex, comprising:

(a) providing a host cell comprising between two and ten copies of a gene encoding each subunit of said desired multi-subunit complex; and

(b) culturing said host cell to express said genes encoding each subunit of said desired multi-subunit complex,

wherein said host cell produced by mating or fusion of two parental cells, wherein each parental cell comprises one or more copies of a gene encoding one or more subunits of said multi-subunit complex.

134. A method of recombinantly producing a desired multi-subunit complex, comprising:

(a) providing a host cell comprising between two and ten copies of a gene encoding each subunit of said desired multi-subunit complex; and

(b) culturing said host cell to express said genes encoding each subunit of said desired multi-subunit complex.

135. The method of claim 133 or 134, wherein at least one copy of each of two different genes each encoding a subunit of said multi-subunit complex are integrated into the same locus of two homologous chromosomes of said host cell.

136. The method of any one of claims 133-135, wherein said desired multi-subunit complex comprises a desired antibody.

137. The method of any one of claims 133-136, wherein said host cell is a eukaryotic cell.

138. The method of claim 137, wherein said eukaryotic cell is a yeast cell.

139. The method of claim 138, wherein said yeast cell is a methylotrophic yeast.

140. The method of claim 139, wherein said methylotrophic yeast is of the genus Pichia.

141. The method of claim 140, wherein said methylotrophic yeast of the genus Pichia is *Pichia pastoris.*

142. The method of claim 140, wherein said methylotrophic yeast of the genus Pichia is selected from the group consisting of: *Pichia angusta*, *Pichia guillermordii*, *Pichia methanolica*, and *Pichia inositovera.*

143. The method of claim 140, wherein at least one of said genes that provide for expression of the subunits of said multi-subunit complex are integrated into one or more genomic loci selected from the group consisting of the pGAP locus and the HIS4 TT locus.

144. The method of any one of claims 133-143, wherein at least one of said genes encoding said desired multi-subunit complex are expressed under control of an inducible or constitutive promoter.

145. The method of claim 144, wherein said inducible promoter is selected from the group consisting of the GAP, AOX1, CUP1, and FLD1 promoters.

146. The method of any one of claims 133-145, wherein at least one of said genes encoding said desired antibody light chain and / or heavy chain are expressed under control of a promoter selected from the group consisting of: the AOX1, ICL1, glyceraldehyde-3-phosphate dehydrogenase (GAP), FLD1, ADH1, alcohol dehydrogenase II, GAL4, PHO3, PHO5, and Pyk

promoters, chimeric promoters derived therefrom, yeast promoters, mammalian promoters, insect promoters, plant promoters, reptile promoters, amphibian promoters, viral promoters, and avian promoters.

147. The method of any one of claims 133-146, wherein said host cell is a diploid or tetraploid cell.

148. The method of any one of claims 133-147, wherein said host cell secretes said desired antibody into the culture medium.

149. The method of any one of claims 133-148, wherein said desired antibody is a monospecific or bispecific antibody.

150. The method of any one of claims 133-149, wherein said desired antibody specifically binds to IL-6, TNF-alpha, CGRP, PCSK9, or NGF.

151. The method of any one of claims 133-150, wherein said desired antibody is a human antibody or a humanized antibody or fragment thereof.

152. The method of claim 151, wherein said humanized antibody is of rabbit origin.

153. The method of any one of claims 133-152, wherein said desired multi-subunit complex comprses a monovalent, bivalent, or multivalent antibody.

154. The method of any one of claims 133-153, wherein at least one of said copies of a gene encoding a subunit of said desired multi-subunit complex is optimized for expression in said host cell.

155. The method of any one of claims 133-154, wherein said desired multi-subunit complex comprises a desired antibody and the number of copies of a gene encoding the light chain of said desired antibody is greater than or equal to said number of copies of a gene encoding the heavy chain of said desired antibody.

156. The method of any one of claims 133-155, which produces a greater yield of said desired multi-subunit complex than a strain containing a single copy of each gene encoding a subunit of said desired multi-subunit complex.

157. The method of any one of claims 133-156, which produces a greater purity of said desired multi-subunit complex than a strain containing a single copy of each gene encoding a subunit of said desired multi-subunit complex.

158. The method of claim 157, wherein desired multi-subunit complex comprises a desired antibody and said purity is determined by measuring the mass of glycosylated heavy and/or light chain polypeptides as a percentage of total mass of heavy and/or light chain polypeptides.

159. The method of any one of claims 133-158, wherein at least one subunit of said desired multi-subunit complex comprises a secretion signal.

160. The method of claim 159, wherein the secretion signal comprises a polypeptide selected from the group consisting of: chicken lysozyme (CLY) signal peptide; CLY-L8; S. cerevisiae invertase (SUC2) signal peptide; MF-alpha (Prepro); MF-alpha (Pre)-apv; MF-alpha (Pre)-apv-SLEKR; MF-alpha (Prepro)-(EA)3; αF signal peptide; KILM1 signal peptide; repressible acid phosphatase (PHO1) signal peptide; A. niger GOX signal peptide; Schwanniomyces occidentalis glucoamylase gene (GAM1) signal peptide; human serum albumin (HSA) signal peptide with pro-sequence; human serum albumin (HSA) signal peptide without pro-sequence; ISN signal peptide; IFN signal peptide; HGH signal peptide; phytohaemagglutinin (PHA); Silkworm lysozyme; Human lysozyme (LYZ1); activin receptor type-1; activin type II receptor; P. pastoris immunoglobulin binding protein (PpBiP); human antibody 3D6 light chain leader; and any combination thereof.

CLAIMS

1. An invention not claimed in any divisional application.