

WHAT IS CLAIMED IS:

1. An isolated monoclonal antibody that competes for binding to human tau with antibody 16G7.
2. The antibody of claim 1 that binds to the same epitope on human tau as 16G7.
3. The antibody of claim 1, comprising three light chain CDRs as and three heavy chain CDRs of monoclonal antibody 16G7, wherein 16G7 is a mouse antibody characterized by a heavy chain variable region having an amino acid sequence comprising SEQ ID NO: 7 and a light chain variable region having an amino acid sequence comprising SEQ ID NO: 11.
4. The antibody of claim 3, wherein the three heavy chain CDRs are as defined by Kabat/Chothia Composite (SEQ ID NOs: 8, 9, and 10) and the three light chain CDRs are as defined by Kabat/Chothia Composite (SEQ ID NOs: 12, 13, and 14).
5. The antibody of claim 1 that is 16G7 or a chimeric, veneered, or humanized form thereof.
6. The antibody of claim 5, wherein the variable heavy chain has $\geq 85\%$ identity to human sequence.
7. The antibody of claim 5, wherein the variable light chain has $\geq 85\%$ identity to human sequence.
8. The antibody of claim 5, wherein each of the variable heavy chain and variable light chain has $\geq 85\%$ identity to human germline sequence.
9. The antibody of claim 5, wherein the three heavy chain CDRs are as defined by Kabat/Chothia Composite (SEQ ID NOs: 8, 9, and 10) and the three light chain CDRs are as defined by Kabat/Chothia Composite (SEQ ID NOs: 12, 13, and 14); provided that position H31 is occupied by S or G, position H60 is occupied by N or A and position 64 is occupied by K or Q.

10. The antibody of claim 9, wherein CDR-H1 has an amino acid sequence comprising SEQ ID NO: 49.
11. The antibody of claim 9, wherein CDR-H2 has an amino acid sequence comprising SEQ ID NO: 50.
12. The antibody of claim 9, wherein CDR-H2 has an amino acid sequence comprising SEQ ID NO: 51.
13. The antibody of any one of the preceding claims, wherein the antibody is a humanized antibody.
14. The antibody of claim 5, that is a humanized or chimeric 16G7 antibody that specifically binds to human tau, wherein 16G7 is a mouse antibody characterized by a mature heavy chain variable region of SEQ ID NO:7 and a mature light chain variable region of SEQ ID NO: 11.
15. The humanized antibody of claim 14 comprising a humanized mature heavy chain variable region comprising the three heavy chain CDRs of 16G7 and a humanized mature light chain variable region comprising the three light chain CDRs of 16G7.
16. The humanized antibody of claim 15, wherein the CDRs are of a definition selected from the group of Kabat, Chothia, Kabat/Chothia Composite, AbM and Contact.
17. The humanized antibody of claim 16 wherein the humanized mature heavy chain variable region comprises the three Kabat/Chothia Composite heavy chain CDRs of 16G7 (SEQ ID NOs: 8-10) and the humanized mature light chain variable region comprises the three Kabat/Chothia Composite light chain CDRs of 16G7 (SEQ ID NOs: 12-14).
18. The humanized antibody of claim 16 wherein the humanized mature heavy chain variable region comprises the three Kabat heavy chain CDRs of 16G7 (SEQ ID NO:39, SEQ ID NO:9, and SEQ ID NO:10) and the humanized mature light chain variable region comprises the three Kabat light chain CDRs of 16G7 (SEQ ID NOs: 12-14).
19. The humanized antibody of claim 16 wherein the humanized mature heavy chain variable region comprises the three Chothia heavy chain CDRs of 16G7 (SEQ ID NO:40,

SEQ ID NO:41, and SEQ ID NO:10) and the humanized mature light chain variable region comprises the three Chothia light chain CDRs of 16G7 (SEQ ID NOs: 12-14).

20. The humanized antibody of claim 16 wherein the humanized mature heavy chain variable region comprises the three AbM heavy chain CDRs of 16G7 (SEQ ID NO:8, SEQ ID NO:42, and SEQ ID NO:10)) and the humanized mature light chain variable region comprises the three AbM light chain CDRs of 16G7 (SEQ ID NOs: 12-14).

21. The humanized antibody of claim 16 wherein the humanized mature heavy chain variable region comprises the three Contact heavy chain CDRs of 16G7 (SEQ ID NO:46-48)) and the humanized mature light chain variable region comprises the three Contact light chain CDRs of 16G7 (SEQ ID NO:43-45).

22. The humanized antibody of any one of claims 14-21 comprising a humanized mature heavy chain variable region having an amino acid sequence at least 90% identical to any one of SEQ ID NO:15-27 and a humanized mature light chain variable region having an amino acid sequence at least 90% identical to any one of SEQ ID NO: 28-30.

23. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H5 is occupied by Q, H7 is occupied by P, H9 is occupied by S, H10 is occupied by V, H11 is occupied L, H12 is occupied by V, H13 is occupied by R, H20 is occupied by L, H40 is occupied by R, H48 is occupied by I, H66 is occupied by K, H67 is occupied by A, H69 is occupied by L, H71 is occupied by V, H73 is occupied by I, H75 is occupied by S, H80 is occupied by V, H82a is occupied by T, H82b is occupied by S, H83 is occupied by T, and H85 is occupied by E.

24. The humanized antibody of claim 23, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H40, H48, H66, H67, H69, H71, H73, H75, H80, H82a, H82b, H83, and H85 in the VH region are occupied by, E, Q, P, S, V, L, V, R, L, R, I, K, A, L, V, I, S, V, T, S, T, and E, respectively.

25. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H5 is occupied by Q, H7 is occupied by P, H9 is occupied by S, H10 is occupied by V, H11 is occupied by L, H12 is

occupied by V, H13 is occupied by R, H20 is occupied by L, H48 is occupied by I, H69 is occupied by L, H71 is occupied by V, H82a is occupied by T, H82b is occupied by S, H83 is occupied by T, and H85 is occupied by E.

26. The humanized antibody of claim 25, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H48, H69, H71, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, P, S, V, L, V, R, L, I, L, V, T, S, T, and E, respectively.

27. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H5 is occupied by Q, H11 is occupied by L, H12 is occupied by V, H20 is occupied by L, H48 is occupied by I, H69 is occupied by L, H71 is occupied by V, H82a is occupied by T, H82b is occupied by S, H83 is occupied by T, and H85 is occupied by E.

28. The humanized antibody of claim 27, provided positions H1, H5, H11, H12, H20, H48, H69, H71, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, L, V, L, I, L, V, T, S, T, and E, respectively.

29. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H12 is occupied by V, H31 is occupied by G, H40 is occupied by R, H48 is occupied by I, H60 is occupied by A, H69 is occupied by L, H73 is occupied by I, and H83 is occupied by T.

30. The humanized antibody of claim 29, provided positions H1, H12, H31, H40, H48, H60, H69, H73, and H83 in the VH region are occupied by are occupied by E, V, G, R, I, A, L, I, and T, respectively.

31. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H12 is occupied by V, H40 is occupied by R, H48 is occupied by I, H69 is occupied by L, H73 is occupied by I, and H83 is occupied by T.

32. The humanized antibody of claim 31, provided positions H1, H12, H40, H48, H69, H73, and H83 in the VH region are occupied by are occupied by E, V, R, I, L, I, and T, respectively.

33. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H12 is occupied by V, H40 is occupied by R, H48 is occupied by I, H66 is occupied K, H67 is occupied by A, H69 is occupied by L, H71 is occupied by V, H73 is occupied by I, and H83 is occupied by T.

34. The humanized antibody of claim 33, provided positions H1, H12, H40, H48, H66, H67, H69, H71, H73, and H83 in the VH region are occupied by are occupied by E, V, R, I, K, A, L, V, I, and T, respectively.

35. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by E, H12 is occupied by V, H40 is occupied by R, H48 is occupied by I, H69 is occupied by L, H73 is occupied by I, and H83 is occupied by T.

36. The humanized antibody of claim 35, provided positions H1, H12, H40, H48, H69, H73, and H83 in the VH region are occupied by are occupied by E, V, R, I, L, I, and T, respectively.

37. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H7 is occupied by P, H71 is occupied by V, and H73 is occupied by I.

38. The humanized antibody of claim 37, provided positions H7, H71, and H73 in the VH region are occupied by are occupied by P, V, and I, respectively.

39. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: H31 is occupied by G and H60 is occupied by A.

40. The humanized antibody of claim 39, provided positions H31 and H60 in the VH region are occupied by G and A, respectively.

41. The humanized antibody of claim 22 wherein at least one of the following positions is occupied by the amino acid as specified: H1 is occupied by Q or E, H5 is occupied by V or Q, H7 is occupied by S or P, H9 is occupied by A or S, H10 is occupied by E or V, H11 is occupied V or L, H12 is occupied by K or V, H13 is occupied by K or R, H20 is occupied by V or L, H31 is occupied by G or S, H37 is occupied by V or A, H 38 is occupied by R or K, H40 is occupied by A or R, H48 is occupied by M or I, H60 is occupied by A or N, H64 is occupied by Q or K, H66 is occupied by R or K, H67 is occupied by V or A, H69 is occupied by M or L, H71 is occupied by R or V, H73 is occupied by T or I, H75 is occupied by I, S, or A, H80 is occupied by M or V, H82a is occupied by S or T, H82b is occupied by R or S, H83 is occupied by R or T, and H85 is occupied by D or E.

42. The humanized antibody of claim 41, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H37, H38, H40, H48, H66, H67, H69, H71, H73, H75, H80, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, P, S, V, L, V, R, L, A, K, R, I, K, A, L, V, I, S, V, T, S, T, and E, respectively.

43. The humanized antibody of claim 41, provided positions H1, H5, H11, H12, H20, H48, H69, H71, H75, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, L, V, L, I, L, V, A, T, S, T, and E, respectively.

44. The humanized antibody of claim 41, provided positions H1, H12, H40, H48, H66, H67, H69, H71, H73, and H83 in the VH region are occupied by E, V, R, I, K, A, L, V, I, and T, respectively.

45. The humanized antibody of claim 41, provided positions H1, H12, H31, H40, H48, H60, H66, H67, H69, H71, H73, and H83 in the VH region are occupied by E, V, G, R, I, A, K, A, L, V, I, and T, respectively.

46. The humanized antibody of claim 41, provided positions H1, H12, H40, H48, H69, H73, and H83 in the VH region are occupied by E, V, R, I, L, I, and T, respectively.

47. The humanized antibody of claim 41, provided positions H1, H12, H31, H40, H48, H60, H66, H67, H69, H71, H73, and H83 in the VH region are occupied by Q, V, G, R, I, A, K, A, L, V, I, and T, respectively.

48. The humanized antibody of claim 41, provided positions H1, H7 and H73 in the VH region are occupied by Q, P, V and I, respectively.

49. The humanized antibody of claim 41, provided positions H1, H12, H31, H40, H48, H60, H64, H69, H73, and H83 in the VH region are occupied by, E, V, G, R, I, A, Q, L, I, and T, respectively.

50. The humanized antibody of claim 41, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H48, H69, H71, H75, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, P, S, V, L, V, R, L, I, L, V, A, T, S, T, and E.

51. The humanized antibody of claim 41, provided positions H1, H5, H11, H12, H20, H48, H66, H67, H69, H71, H73, H75, H82a, H82b, H83, and H85 in the VH region are occupied by , E, Q, L, V, L, I, K, A, L, V, I, S, T, S, T, and E.

52. The humanized antibody of claim 41, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H38, H40, H48, H66, H67, H69, H71, H73I, H75, H80, H82a, H82b, H83, and H85 in the VH region are occupied by E, Q, P, S, V, L, V, R, L, K, R, I, K, A, L, V, I, S, V, T, S, T, and E, respectively.

53. The humanized antibody of claim 41, provided positions H1, H5, H7, H9, H10, H11, H12, H13, H20, H40, H48, H66, H67, H69, H71, H73, H75, H80, H82a, H82b, H83, and H85 in the VH region are occupied by Q, P, S, V, L, V, R, L, R, I, K, A, L, V, I, S, V, T, S, T, and E, respectively.

54. The humanized antibody of claim 41, provided positions H7, H71, and H73 in the VH region are occupied by P, V, and I, respectively.

55. The humanized antibody of claim 41, provided position H71 in the VH region is occupied by V.

56. The humanized antibody of claim 41, provided positions H1, H7, H71, and H73 in the VH region are occupied by E, P, V, and I.

57. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: L4 is occupied by L, L9 is occupied by S, L15 is occupied by V, L22 is occupied by S, and L43 is occupied by S.

58. The humanized antibody of claim 57, provided positions L4, L9, L15, L22, and L43 in the VL region are occupied by L, S, V, S, and S, respectively.

59. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: L4 is occupied by L, L9 is occupied by S, L15 is occupied by V, L18 is occupied by K, L19 is occupied by V, L21 is occupied by M, L22 is occupied by S, and L43 is occupied by S.

60. The humanized antibody of claim 59, provided positions L4, L9, L15, L18, L19, L21, L22, and L43 in the VL region are occupied by L, S, V, K, V, M, S, and S, respectively.

61. The humanized antibody of claim 22, wherein at least one of the following positions is occupied by the amino acid as specified: L4 is occupied by M or L, L9 is occupied by D or S, L15 is occupied by L or V, L18 is occupied by R or K, L19 is occupied by A or V, L21 is occupied by I or M, L22 is occupied by N or S, L43 is occupied by P or S, and L48 is occupied by I or M.

62. The humanized antibody of claim 61, provided positions L4, L9, L15, L18, L19, L21, L22, and L43 in the VL region are occupied by L, S, V, K, V, M, S, and S, respectively.

63. The humanized antibody of claim 22, provided positions L4, L9, L15, L22, and L43 in the VL region are occupied by L, S, V, S, and S, respectively.

64. The humanized antibody of claim 63, provided positions L4, L9, L15, L18, L19, L21, L22, and L43 in the VL region are occupied by L, S, V, K, V, M, S, and S, respectively.

65. The humanized antibody of claim 22, comprising a mature heavy chain variable region having an amino acid sequence at least 95% identical to any one of SEQ ID NO:

15-27 and a mature light chain variable region having an amino acid sequence at least 95% identical to any one of SEQ ID NO: 28-30.

66. The humanized antibody of claim 65, comprising a mature heavy chain variable region having an amino acid sequence at least 98% identical to any one of SEQ ID NO: 15-27 and a mature light chain variable region having an amino acid sequence at least 98% identical to any one of SEQ ID NO: 28-30.

67. The humanized antibody of claim 66 wherein the mature heavy chain variable region has an amino acid sequence of any of SEQ ID NO:15-27 and the mature light chain variable region has an amino acid sequence of any one of SEQ ID NO:28-30.

68. The humanized antibody of claim 67 wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:15 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

69. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:15 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

70. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:15 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

71. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:16 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

72. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:16 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

73. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:16 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

74. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:17 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

75. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:17 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

76. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:17 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

77. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:18 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

78. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:18 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

79. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:18 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

80. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:19 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

81. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:19 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

82. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:19 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

83. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:20 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

84. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:20 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

85. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:20 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

86. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:21 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

87.. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:21 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

88. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:21 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

89. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:22 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

90. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:22 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

91. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:22 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

92. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:23 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

93. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:23 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

94. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:23 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

95. The humanized antibody of claim 67 wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:24 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

96. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:24 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

97. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:24 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

98. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:25 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

99. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:25 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

100. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:25 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

101. The humanized antibody of claim 67 wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:26 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

102. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:26 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

103. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:26 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

104. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:27 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:28.

105. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:27 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:29.

106. The humanized antibody of claim 67, wherein the mature heavy chain variable region has an amino acid sequence of SEQ ID NO:27 and the mature light chain variable region has an amino acid sequence of SEQ ID NO:30.

107. The antibody of any one of claims 1-5 wherein the antibody is a chimeric antibody.

108. The antibody of any one of claims 1-5, wherein the antibody is a veneered antibody.

109. The antibody of any one of claims 1-108 that is an intact antibody.

110. The antibody of any one of claims 1-108 that is a binding fragment.

111. The antibody of claim 110, wherein the binding fragment is a single-chain antibody, Fab, or Fab'2 fragment.

112. The antibody of any one of claims 1-108 that is a Fab fragment, or single chain Fv.

113. The antibody of any one of the preceding claims, wherein the isotype is human IgG1.

114. The humanized antibody of any one of claims 14-106 and 108-113, wherein the mature light chain variable region is fused to a light chain constant region and the mature heavy chain variable region is fused to a heavy chain constant region.

115. The humanized antibody of claim 114, wherein the heavy chain constant region is a mutant form of a natural human heavy chain constant region which has reduced binding to a Fcγ receptor relative to the natural human heavy chain constant region.

116. The humanized antibody of claim 114 or 115, wherein the heavy chain constant region is of IgG1 isotype.

117. The antibody of any one of the preceding claims having at least one mutation in the constant region.

118. The antibody of claim 117, wherein the mutation reduces complement fixation or activation by the constant region.

119. The antibody of claim 118 having a mutation at one or more of positions 241, 264, 265, 270, 296, 297, 318, 320, 322, 329 and 331 by EU numbering.

120. The antibody of claim 119 having alanine at positions 318, 320 and 322.

121. The antibody of any one of claims 1-115 wherein the isotype is of human IgG2 or IgG4 isotype.

122. The antibody of any one of claims 1-121, wherein the antibody is at least 95% w/w pure.

123. The antibody of any preceding claim, wherein the antibody is conjugated to a therapeutic, cytotoxic, cytostatic, neurotrophic, or neuroprotective agent.

124. A pharmaceutical composition comprising an antibody as defined in any of claims 1-123 and a pharmaceutically-acceptable carrier.

125. A nucleic acid encoding the heavy chain and/or light chain of an antibody as described in any one of claims 1-124.

126. A recombinant expression vector comprising a nucleic acid of claim 125.

127. A host cell transformed with the recombinant expression vector of claim 126.

128. A method of humanizing a mouse antibody, the method comprising:

(a) selecting one or more acceptor antibodies;

(b) identifying the amino acid residues of the mouse antibody to be retained;

(c) synthesizing a nucleic acid encoding a humanized heavy chain comprising CDRs of the mouse antibody heavy chain and a nucleic acid encoding a humanized light chain comprising CDRs of the mouse antibody light chain; and

(d) expressing the nucleic acids in a host cell to produce a humanized antibody;

wherein the mouse antibody is 16G7, wherein 16G7 is characterized by a mature heavy chain variable region of SEQ ID NO: 7 and a mature light chain variable region of SEQ ID NO:11.

129. A method of producing a humanized, chimeric, or veneered antibody, the method comprising:

(a) culturing cells transformed with nucleic acids encoding the heavy and light chains of the antibody, so that the cells secrete the antibody; and

(b) purifying the antibody from cell culture media;

wherein the antibody is a humanized, chimeric, or veneered form of 16G7.

130 A method of producing a cell line producing a humanized, chimeric, or veneered antibody, the method comprising:

(a) introducing a vector encoding heavy and light chains of an antibody and a selectable marker into cells;

(b) propagating the cells under conditions to select for cells having increased copy number of the vector;

(c) isolating single cells from the selected cells; and

(d) banking cells cloned from a single cell selected based on yield of antibody;

wherein the antibody is a humanized, chimeric, or veneered form of 16G7.

131. The method of claim 130 further comprising propagating the cells under selective conditions and screening for cell lines naturally expressing and secreting at least 100 mg/L/10⁶ cells/24 h.

132. A method of inhibiting or reducing aggregation of tau in a subject having or at risk of developing a tau-mediated amyloidosis, comprising administering to the subject an effective regime of the antibody of any one of claims 1-123, thereby inhibiting or reducing aggregation of tau in the subject.

133. The method of claim 132, wherein the antibody is a humanized version of 16G7.

134. A method of treating or effecting prophylaxis of a tau-related disease in a subject, comprising administering an effective regime of an antibody as defined by any one of claims 1 - 124 and thereby treating or effecting prophylaxis of the disease.

135. A method of claim 134 wherein the tau-related disease is Alzheimer's disease, Down's syndrome, mild cognitive impairment, primary age-related tauopathy, postencephalitic parkinsonism, posttraumatic dementia or dementia pugilistica, Pick's disease,

type C Niemann-Pick disease, supranuclear palsy, frontotemporal dementia, frontotemporal lobar degeneration, argyrophilic grain disease, globular glial tauopathy, amyotrophic lateral sclerosis/parkinsonism dementia complex of Guam, corticobasal degeneration (CBD), dementia with Lewy bodies, Lewy body variant of Alzheimer disease (LBVAD), or progressive supranuclear palsy (PSP).

136. A method of claim 135 wherein the tau-related disease is Alzheimer's disease.

137. The method of claim 136, wherein the patient is an ApoE4 carrier.

138. A method of reducing aberrant transmission of tau comprising administering an effective regime of an antibody as defined in any of claims 1-124 and thereby reducing transmission of tau.

139. A method of inducing phagocytosis of tau comprising administering an effective regime of an antibody as defined in any of claims 1-124 and thereby inducing phagocytosis of tau.

140. A method of inhibiting tau aggregation or deposition comprising administering an effective regime of an antibody as defined in any of claims 1-124 thereby inhibiting tau aggregation or deposition.

141. A method of inhibiting formation of tau tangles comprising administering an effective regime of an antibody as defined in any of claims 1-124.

142. A method of detecting tau protein deposits in a subject having or at risk of a disease associated with tau aggregation or deposition, comprising administering to a subject an antibody defined by any one of claims 1-124, and detecting the antibody bound to tau in the subject.

143. A method of claim 142, wherein the disease associated with tau aggregation or deposition is Alzheimer's disease, Down's syndrome, mild cognitive impairment, primary age-related tauopathy, postencephalitic parkinsonism, posttraumatic dementia or dementia pugilistica, Pick's disease, type C Niemann-Pick disease, supranuclear palsy,

frontotemporal dementia, frontotemporal lobar degeneration, argyrophilic grain disease, globular glial tauopathy, amyotrophic lateral sclerosis/parkinsonism dementia complex of Guam, corticobasal degeneration (CBD), dementia with Lewy bodies, Lewy body variant of Alzheimer disease (LBVAD), or progressive supranuclear palsy (PSP).

144. A method of claim 142, wherein the antibody is administered by intravenous injection into the body of the subject.

145. A method of claim 142, wherein the antibody is administered directly to the brain of the subject by intracranial injection or by drilling a hole through the skull of the subject.

147. A method of claim 142, wherein the antibody is labeled.

148. A method of claim 147, wherein the antibody is labeled with a fluorescent label, a paramagnetic label, or a radioactive label.

149. A method of claim 148, wherein the radioactive label is detected using positron emission tomography (PET) or single-photon emission computed tomography (SPECT).

150. A method of measuring efficacy of treatment in a subject being treated for a disease associated with tau aggregation or deposition, comprising

(a) measuring a first level of tau protein deposits in the subject prior to treatment by administering to a subject an antibody defined by any one of claims 1-124, and detecting a first amount of the antibody bound to tau in the subject,

(b) administering the treatment to the subject,

(c) measuring a second level of tau protein deposits in the subject after treatment by administering to a subject the antibody, and detecting the antibody bound to tau in the subject,

wherein a decrease in the level of tau protein deposits indicates a positive response to treatment.

151. A method of measuring efficacy of treatment in a subject being treated for a disease associated with tau aggregation or deposition, comprising

(a) measuring a first level of tau protein deposits in the subject prior to treatment by administering to a subject an antibody defined by any one of claims 1-124, and detecting a first amount of antibody bound to tau in the subject,

(b) administering the treatment to the subject,

(c) measuring a second level of tau protein deposits in the subject after treatment by administering to a subject the antibody, and detecting a second amount of antibody bound to tau in the subject,

wherein no change in the level of tau protein deposits or a small increase in tau protein deposits indicates a positive response to treatment.