CLAIMS

1. A method of measuring p217+ tau peptides in a sample, comprising:
    a. contacting the sample with a capture antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 32, 33, and 34, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs:35, 36, and 37, respectively, to capture the p217+ tau peptides in the sample, and
    b. contacting the captured p217+ tau peptides from (a) with at least one of a detection antibody selected from
        i. an antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 12, 13, and 14, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs: 15, 16, and 17, respectively, and
        ii. an antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 2, 3, and 4, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs: 5, 6, and 7, respectively,

    to thereby measure at least one of an amount of the p217+ tau peptides and an amount of long p217+ tau peptides, respectively.

2. The method of claim 1, comprising contacting the captured p217+ tau peptides with both detection antibodies to thereby measure the amount of the p217+ tau peptides and the amount of long p217+ tau peptides, respectively, and determining a ratio of the amount of the long p217+ tau peptides to the amount of p217+ tau peptides.

3. The method of claim 2, further comprising
    (i) determining an amount of short p217+ tau peptides via subtracting the amount of the long p217+ tau peptides from the amount of the p217+ tau peptides, and

(ii) determining a ratio of the amount of the short p217+ tau peptides to the amount of p217+ tau peptides, or a ratio of the amount of the long p217+ tau peptides to the amount of short p217+ tau peptides.

4. The method of any one of claims 1 to 3, wherein the sample is a biological sample from a subject selected from the group consisting of blood, brain homogenate, or cerebral spinal fluid (CSF) from the subject.

5. The method of claim 4, wherein the biological sample is blood.

6. The method of claim 4, wherein the biological sample is CSF.

7. The method of claim 4, further comprising fractionating the biological sample using reverse phase high-performance liquid chromatography (rpHPLC) prior to contacting the sample with the capture antibody.

8. The method of claim 4, further comprising determining of the subject suffers from a tauopathy or is at risk of developing a tauopathy comprising comparing at least one of the:
    a. amount of the p217+ tau peptides,
    b. amount of the long p217+ tau peptides, and
    c. amount of the short p217+ tau peptides,
    from the subject with a corresponding baseline value,
    wherein an increase in the amount as compared to the baseline value indicates the subject suffers from or is at risk from suffering from a tauopathy.

9. The method of claim 4, further comprising determining the effectiveness of a treatment of a tauopathy in the subject comprising comparing at least one of:
    a. amount of the p217+ tau peptides,
    b. amount of the long p217+ tau peptides, and
    c. amount of the short p217+ tau peptides,
    from the subject with a corresponding baseline value,

wherein a decrease in the amount as compared to the baseline value indicates the treatment is effective.

10. The method of any one of claims 1 to 9, wherein the capture antibody is conjugated to a bead, and wherein the detection antibody is biotinylated.

11. The method of any of claims 1 to 10, wherein the lower limit of quantification of the method is about 40 fg/ml of the p217+ tau peptides and the lower limit of detection of the method is about 2 fg/ml of the p217+ tau peptides.

12. The method of any one of claims 8 to 11, wherein the tauopathy is selected from the group consisting of familial Alzheimer's disease, sporadic Alzheimer's disease, frontotemporal dementia with parkinsonism linked to chromosome 17 (FTDP-17), progressive supranuclear palsy, corticobasal degeneration, Pick's disease, progressive subcortical gliosis, tangle only dementia, diffuse neurofibrillary tangles with calcification, argyrophilic grain dementia, amyotrophic lateral sclerosis parkinsonism-dementia complex, Down syndrome, Gerstmann-Sträussler-Scheinker disease, Hallervorden-Spatz disease, inclusion body myositis, Creutzfeld-Jakob disease, multiple system atrophy, Niemann-Pick disease type C, prion protein cerebral amyloid angiopathy, subacute sclerosing panencephalitis, myotonic dystrophy, non-Guamanian motor neuron disease with neurofibrillary tangles, postencephalitic parkinsonism, chronic traumatic encephalopathy, and dementia pugulistica (boxing disease).

13. The method of claim 12, wherein the tauopathy is Alzheimer's disease.

14. The method of claim 12, wherein the tauopathy is progressive supranuclear palsy.

15. The method of any one of claims 1 to 14, wherein the capture antibody comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 32, 33, and 34, respectively, and immunoglobulin light chain

LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 35, 36, and 37, respectively.

16. The method of any one of claims 1 to 15, wherein the antibody of (b)(i) comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 2, 3, and 4, respectively; and immunoglobulin light chain LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 5, 6, and 7, respectively.

17. The method of any one of claims 1 to 16, wherein the antibody of (b)(ii) comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 12, 13, and 14, respectively; and immunoglobulin light chain LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 15, 16, and 17, respectively.

18. A kit comprising:
    a. a capture antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 32, 33, and 34, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs: 35, 36, and 37, respectively; and
    b. at least one detection antibody comprising
        i. an antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 12, 13, and 14, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs: 15, 16, and 17, respectively, or
        ii. an antibody comprising an immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 comprising the polypeptide sequences of SEQ ID NOs: 2, 3, and 4, respectively, and an immunoglobulin light chain LCDR1, LCDR2, and LCDR3 comprising the polypeptide sequences of SEQ ID NOs: 5, 6, and 7, respectively.

19. The kit of claim 18, wherein the capture antibody comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 32, 33, and 34, respectively, and immunoglobulin light chain LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 35, 36, and 37, respectively.

20. The kit of claim 18 or 19, wherein

    a. a first detection antibody comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 12, 13, and 14, respectively; and immunoglobulin light chain LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 15, 16, and 17, respectively; and
    b. a second detection antibody comprises immunoglobulin heavy chain HCDR1, HCDR2, and HCDR3 having the polypeptide sequences of SEQ ID NOs: 2, 3, and 4, respectively; and immunoglobulin light chain LCDR1, LCDR2, and LCDR3 having the polypeptide sequences of SEQ ID NOs: 5, 6, and 7, respectively.