Table S1. A comparison between different biosensor techniques for tau detection.

Signal transduction	Analytical method(A)	Sensor platform	Target	Linear detection range	Limit of detection(C)	Sample tested	Label	Ref.
Optical	BLI	Streptavidin interface probe sensor	Tau441	2-55 nM	6.7 nM (8.02 pM)	Buffer and FBS	Label-free	[37]
	Spectrophotometry/ Interferometry	Nanopore sensor with integrated microfluidic network	T-Tau	15.6-2000 pg/mL	15.6 pg/mL in buffer (0.284pM)	Buffer and CSF	Label-free	[38]
	LSPR	Resonance-based immunochip	T-Tau	10-100000 pg/mL	10 pg/mL (0.15 pM)	Buffer	Label-free	[40]
	SPR	Surface plasmon resonance coupled to carbon nanostructures	T-Tau	125-1000 pM	125 pM	Buffer and aCSF(D)	Label-free	[38]
	Interferometry	**Two Fabry-Perot interferometers**	**T-Tau**	**12.5 µg/mL to 10 pg/mL in buffer 12.5 µg/mL to 10 pg/mL in serum**	**0.18 pM in buffer 0.18 pM in serum**	**Buffer and Human serum**	**Label-free**	**This work**
Electrochemical	CV and EIS	Anti-Tau antibodies on polycrystalline Au surface	Tau441	10-100 µg/mL	10 µg/mL	Buffer	Label-free	[41]
	DPV	Aptamer-antibody-sandwich	Tau381	0.5-100 pM	0.42 pM in PBS (0.50 pM)	Human serum diluted 1/100	Label-free	[42]
	DPV	Neutral charged immunosensor	T-Tau	0.968-454 pM	0.968 pM	Human serum	Label-free	[43]
	CV and EIS	Aptasensor	Tau381	1-100 pM	0.7 pM	Human serum diluted 1/100	Label-free	[44]
	DVP and EIS	GO/pPG/anti-Tau nanoimmunosensor(B)	T-Tau	0.25-250 nM	150 pM	CSF and human serum	Label-free	[45]
Potentiometric	FET	Transistor-based biosensor	T-Tau	1-10 pM	1 pM in buffer and cell culture media, 10 pM in aCSF	Buffer, cell culture and aCSF	Label-free	[19]

(A) Abbreviations: BLI = Biolayer interferometry; LSPR = Localized surface plasmon resonance; SPR = Surface plasmon resonance; CV = Cyclic voltammetry; EIS = Electrochemical impedance spectroscopy; DPV = Differential pulse voltammetry; FET = Field effect transistor. (B) Abbreviations: GO = Graphene oxide; pPG = poly (propyleneglycol). (C) Conversion to molarity was carried out by assuming a mean tau molecular weight of 55KDa. (D) Abbreviation: aCSF = artificial cerebral spinal fluid.