Supplementary Table 2. Association between blood p-tau and tau pathology

P-tau biomarker/ technology type	Cohort details	Diagnostic accuracy of plasma/serum P-tau (AUC-ROC analyses)	Notes and Interpretation	Accuracy of plasma/serum P-tau to identify increased amyloid pathology (AUC for Aβ+ vs Aβ-)	Association with *in vivo* amyloid pathology	Association with *in vivo* tau pathology
P-tau181						
Surface Plasmon Resonance (Serum) *(Shekhar et al., 2016)*	113 participants: 39 AD, 37 MCI, 37 CU	• AD *vs* CU: 0.812 • MCI *vs* CU: 0.634	• Serum P-tau181 ↑ in AD *vs* MCI and CU			
Simoa (Plasma) *(Tatebe et al., 2017)*	• Cohort 1 (n=35): 20 AD, 15 controls • Cohort 2 (n=42): 22 controls, 20 Down syndrome (6 with Aβ PET) • Cohort 3 (n=11): 8 AD, 1 PD, 2 VaD	Cohort 1: AD *vs* controls: 0.786	• Plasma P-tau181 ↑ in AD and Down syndrome *vs* controls		Cohort 2: Plasma P-tau181 ↑ in an Aβ+ individual (n=1) versus those with less Aβ PET	Cohort 3: Correlation of plasma P-tau181 and CSF P-tau181: r= **0.673**
Simoa (Plasma) *(Thomas K. Karikari et al., 2020)*	• Discovery cohort (n=37): 18 CU elderly, 19 AD dementia • TRIAD (n=226): ➢ 113 CU older adults: 91 Aβ-, 22 Aβ+ ➢ 27 Aβ- CU young adults ➢ 45 MCI: 17 Aβ-, 28 Aβ+ ➢ 33 AD: 31 Aβ+, 2 Aβ- ➢ 8 FTD: all Aβ- • BioFINDER-2 cohort (n=763): ➢ 337 CU older adults ➢ 191 MCI ➢ 126 AD ➢ 18 bvFTD or primary progressive aphasia (PPA) ➢ 36 PD or multiple systems atrophy (MSA) ➢ 12 VaD ➢ 21 progressive supranuclear palsy (PSP) or corticobasal syndrome (CBS) • Primary care cohort (n=105): 72 CU older adults, 11 CU young adults, 12 MCI, 10 AD	• Discovery cohort: AD *vs* CU: 0.901 (AUC= 0.959 when using serum) • Primary care cohort: AD *vs*: ➢ CU young adults: 1.00 ➢ CU elderly: 0.844 ➢ MCI: 0.550 • TRIAD cohort: Aβ+ AD *vs*: ➢ FTD: 1.00 ➢ Aβ- CU young: 0.994 ➢ Aβ- CU older adults: 0.982 ➢ Aβ+ CU older adults: 0.939 ➢ Aβ- MCI: 0.875 ➢ Aβ+ MCI: 0.849 Aβ+ MCI *vs*: ➢ Aβ- CU young: 0.922 ➢ Aβ- CU elderly: 0.864 ➢ Aβ+ CU elderly:0.641 Aβ+ CU elderly *vs* Aβ- CU young: 0.899 • BioFINDER-2 cohort: Aβ+ AD *vs*: ➢ Aβ- CU: 0.902 ➢ Aβ- MCI: 0.865 ➢ VaD: 0.921 ➢ PSP/CBS: 0.885 ➢ bvFTD/PPA: 0.828 ➢ PD/MSA: 0.819	• Discovery: in this biomarker characterised cohort, plasma and serum P-tau181↑ in AD *vs* CU • In primary care cohort, P-tau181 ↑ in MCI and AD *vs* CU • TRIAD cohort: Plasma P-tau181 ↑ in: ➢ Aβ+ AD *vs* all other diagnostic groups ➢ Aβ+ CU older adults, Aβ+ and Aβ- MCI *vs* Aβ- CU older adults, CU young adults and FTD • BioFINDER-2 cohort: Plasma P-tau181 ↑ in: ➢ Aβ+ AD *vs* all other diagnostic groups ➢ Aβ+ MCI *vs* Aβ- CU, Aβ- MCI, PD/MSA, VaD and PSP/CBS ➢ Aβ+ CU *vs* Aβ- CU and Aβ- MCI	TRIAD cohort: • All: 0.881 • Non-demented (Young + CU elderly + MCI): 0.797 • CU (Young + CU elderly): 0.793 • CU elderly: 0.772 • MCI: 0.742	• Discovery cohort: Correlation of CSF Aβ42 and: ➢ Plasma P-tau181: r= **-0.594** ➢ Serum P-tau181: r= **-0.683** • TRIAD cohort: Correlation of plasma P-tau181 and: CSF Aβ42 in: ➢ All subjects: r= **-0.361** Aβ PET SUVR in: ➢ All subjects: r= **0.634** ➢ Aβ+ subjects: r= **0.445** ➢ Aβ- subjects: r= **0.289** ➢ CU: r= **0.405** ➢ MCI: r= **0.365** ➢ AD: r= 0.271 ➢ FTD: r= 0.048	• Discovery cohort: Correlation of CSF P-tau181 and: ➢ Plasma P-tau181: r= **0.706** ➢ Serum P-tau181: r= **0.794** • TRIAD cohort: Correlation of plasma P-tau181 and: CSF P-tau181 (Simoa): r= **0.568** CSF P-tau181 (LUMIPULSE): r= **0.550** Tau PET SUVR (Braak I-VI) in: ➢ All subjects: r= **0.539** ➢ Aβ+ subjects: r= **0.628** ➢ Aβ- subjects: r= **0.164** ➢ CU: r= 0.143 ➢ MCI: r= **0.399** ➢ AD: r= 0.225 ➢ FTD: r= 0.048 Tau PET SUVR: ➢ Braak I-II: r= **0.564** ➢ Braak III-IV: r= **0.529** ➢ Braak V-VI: r= **0.456** • BioFINDER-2 cohort: Correlation of plasma P-tau181 and Tau PET SUVR in Aβ+ subjects: ➢ Braak I-II: r= **0.445** ➢ Braak III-IV: r= **0.488** ➢ Braak V-VI: r= **0.446**

Simoa (Serum) *(Benussi et al., 2020)*	417 participants: 291 FTLD¶, 63 AD, 63 CU ¶FTLD included 134 bvFTD, 48 avPPA, 27 svPPA, 51 CBS, 31 PSP	• AD *vs* FTLD: 0.930 • Mild AD (MMSE≥19) *vs* Mild FTLD (FTLD with an FTLD-modified CDR≤5): 0.907	• Serum P-tau181 ↑ in AD *vs* all FTLD subgroups and CU			
Simoa (Plasma) *(O'Connor et al., 2020)*	70 participants: Familial AD (FAD) 27 non-carriers, 19 symptomatic, and 24 presymptomatic mutation carriers	• Symptomatic *vs* Non-carriers: 0.93 • Presymptomatic carriers *vs* Non-carriers: 0.86	Plasma P-tau181 ↑ in symptomatic and presymptomatic carriers *vs* non-carriers			
Simoa (Plasma) *(Lantero Rodriguez et al., 2020)*	115 participants: Longitudinal blood collections with clinical evaluation at 8 (n=111), 4 (n=100) and 2 (n=87) years prior to death followed by neuropathological assessment • Non-ADs included 4R tauopathies, cerebral amyloid angiopathy, FTD, Lewy body dementia, vascular dementia • AD pathology group included AD without co-pathology, AD with cerebral amyloid angiopathy, AD with Lewy body pathology and AD with TDP43 pathology	Using plasma collected 8 years prior to death and post-mortem diagnosis: • AD *vs* Non-AD: 0.974 • AD *vs* controls: 0.921 • AD *vs* mixed AD: 0.573 • Mixed AD *vs* Non-AD: 0.901 • Mixed AD *vs* Controls: 0.841	• Clinical diagnosis at all 3 timepoints: Plasma P-tau181 ↑ in AD *vs* controls • Neuropathological diagnosis at all 3 timepoints: Plasma P-tau181 ↑ in AD *vs* controls and non-AD			At all 3 timepoints: Plasma P-tau181 ↑ in Braak V-VI *vs* Braak I-II
Simoa (Plasma) *(T. K. Karikari et al., 2020)*	1177 participants from the ADNI cohort: • Baseline diagnosis: ➢ 400 Cognitively unimpaired (CU): 268 Aβ-, 68 Aβ+ ➢ 558 MCI: 277 Aβ-, 209 Aβ+ ➢ 219 AD: 41 Aβ-, 137 Aβ+	Aβ+ AD *vs* • Aβ- CU: 0.853 • Aβ+ CU: 0.855 • Aβ- MCI: 0.838	At baseline, plasma P-tau181 ↑ in: • Aβ+ CU, Aβ+ MCI, Aβ+ and Aβ- AD *vs* Aβ- CU • Aβ+ MCI and Aβ+ AD *vs* Aβ+ CU • Aβ+ MCI *vs* Aβ- MCI • Aβ+ AD *vs* Aβ- AD	• CU: 0.704 • MCI: 0.799 • AD: 0.703	Correlation of plasma P-tau181 and: • CSF Aβ42: r= **-0.39** • Aβ PET SUVR: r= **0.42** Regression (adjusted for age, gender and diagnosis), association of plasma P-tau181 and: CSF Aβ42 in: • All subjects: t= **-8.27** • CU: t= **-3.13** • MCI: t= **-7.51** • AD (all Aβ+): t= -1.27 Aβ PET SUVR in: All subjects: t= **10.39** CU: t= **3.46** MCI: t= **10.14** AD: t= 0.73	Correlation of plasma P-tau181 and: • CSF P-tau181: r= **0.36** • Tau PET SUVR: r= **0.26** Regression (adjusted for age, gender and diagnosis), association of plasma P-tau181 and: CSF P-tau181 in: • All subjects: t= **8.78** • CU: t= **3.09** • MCI: t= **7.71** • AD: t= **2.98** Tau PET SUVR in: All subjects: t= **4.08** CU: t= **2.06** MCI: t= **3.71**
Simoa (Plasma) *(Chong et al., 2021)*	200 participants: • 43 CU: 38 Aβ- and 5 Aβ+ • 91 CIND (cognitive impairment no dementia): 62 Aβ- and 29 Aβ+ • 44 AD: 14 Aβ-, 30 Aβ+ • 22 VaD: 19 Aβ-, 3 Aβ+	Aβ+ AD *vs* Aβ- VaD: • P-tau181: 0.844 • P-tau181/Aβ42 ratio: 0.903	Plasma P-tau181, P-tau181/t-Tau ratio and P-tau181/Aβ42 ratio ↑ in: • Aβ+ AD *vs* Aβ- CU, Aβ- AD and Aβ- VaD • Aβ+ CIND *vs* Aβ- CU and Aβ- CIND	• All: ➢ P-tau181: 0.840 ➢ P-tau181/Aβ42 ratio: 0.889 • Nondemented (CU+CIND): ➢ P-tau181: 0.807 ➢ P-tau181/Aβ42 ratio: 0.866	Correlation of Aβ PET SUVR and plasma: • P-tau181: r= **0.417** • P-tau181/Aβ42 ratio: r= **0.460** Regression (adjusted for age, gender, education, *APOE* ε4 and	

				• CIND: ➢ P-tau181: 0.820 ➢ P-tau181/Aβ42 ratio: 0.891 • Demented (AD+VaD): ➢ P-tau181: 0.868 ➢ P-tau181/Aβ42 ratio: 0.932 • AD: ➢ P-tau181: 0.906 ➢ P-tau181/Aβ42 ratio: 0.969	diagnosis), association of Aβ PET SUVR and plasma: • P-tau181: β= **0.116** • P-tau181/Aβ42 ratio: β= **0.127**	
Simoa (Plasma) *(Keshavan et al., 2021)*	441 participants: • 359 Aβ-, 82 Aβ+ • 410 CU, 7 MCI, 24 prior neurological conditions		Plasma P-tau181 ↑ in Aβ+ group	• All subjects: ➢ Plasma P-tau181: 0.707 (0.778)[#] ➢ Plasma Aβ42/Aβ40 and P-tau181: 0.696 (0.776)[#] ➢ LC-MS Plasma Aβ42/Aβ40 and Simoa Plasma P-tau181: 0.826 (0.851)[#] ➢ LC-MS Plasma composite and Simoa Plasma P-tau181: 0.829 (0.850)[#] • CU: ➢ Plasma P-tau181: 0.720 (0.784)[#] [#] AUC after adjustment for age, gender and APOE		
Meso Scale Discovery (MSD) (Plasma) *(Mielke et al., 2018)*	269 participants: • 172 CU: 100 Aβ- and 72 Aβ+ • 57 MCI: 29 Aβ- and 28 Aβ+ • 40 AD: 2 Aβ- and 38 Aβ+		Plasma P-tau181 ↑ in: • Aβ+ AD *vs* Aβ+ and Aβ- CU • Aβ+ MCI *vs* Aβ- CU	• All: 0.803 • Nondemented (CU+MCI): 0.750 • CU: 0.704 • MCI: 0.852	Regression (adjusted for age, gender and APOE), association of Aβ PET SUVR and plasma P-tau181 in: • All subjects: β= **0.23** • CU: β= **0.10** • MCI: β= **0.17** • AD: β= **0.20**	Correlation of Tau PET SUVR and plasma P-tau181 in: • Aβ+ subjects only: r= **0.580** • Aβ- subjects only: r= 0.018 • Aβ+ CU: r= **0.287** • Aβ- CU: r= -0.057 • Aβ+ MCI: r= **0.437** • Aβ- MCI: r= 0.284 • Aβ+ AD: r= 0.125 Regression (adjusted for age, gender and APOE), association of Tau PET SUVR and plasma P-tau181 in: • All subjects: β= **0.19** • CU: β= 0.02 • MCI: β= **0.13** • AD: β= **0.18**
MSD (Plasma) *(Janelidze et al., 2020)*	• Cohort 1 (n=182): ➢ 64 CU: 26 Aβ-, 38 Aβ+ ➢ 28 Aβ+ MCI ➢ 38 Aβ+ AD ➢ 52 non-AD diseases[¶] • Cohort 2 (n=344):	• Cohort 1: AD *vs* non-AD: 0.94 • Neuropathology cohort: AD *vs* non-AD: 0.854	• Neuropathology cohort: Plasma P-tau181 ↑ in AD *vs* non-AD • Cohort 1: Plasma P-tau181 ↑ in:	• Cohort 1: 0.79 • Cohort 2: ➢ P-tau181: 0.81 ➢ P-tau181 and Aβ42/Aβ40 ratio: 0.84	• Cohort 1: Regression (adjusted for age and gender), association of Aβ PET SUVR and plasma P-tau181 in: ➢ All subjects: β= **0.54** ➢ Aβ+ subjects: β= **0.38** ➢ Aβ- subjects: β= 0.17	• Cohort 1: Regression (adjusted for age and gender), plasma P-tau181 and: CSF P-tau181 in: ➢ All subjects: β= **0.73** ➢ Aβ+ subjects: β= **0.73**

	➢ 219 CU: 126 Aβ-, 93 Aβ+ ➢ 125 MCI: 44 Aβ-, 81 Aβ+ • Neuropathology cohort (n=63): 16 AD, 47 non-AD‡ ¶Non-AD diseases included 11 PD, 17 PDD, 6 PSP, 6 DLB, 6 CBS, 2 SD and 4 bvFTD ‡Non-AD group included 14 controls without a major neuropathological diagnosis, 1 amyotrophic lateral sclerosis, 1 corticobasal degeneration, 2 dementia with unspecified etiology, 1 FTD, 3 MCI, 1 multiple sclerosis, 15 PD, 2 parkinsonism, 1 primary lateral sclerosis, 2 PSP, 2 vascular cognitive impairment, 1 vascular dementia, 1 vascular parkinsonism		➢ Aβ+ CU, Aβ+ MCI and Aβ+ AD *vs* Aβ- CU and non-AD diseases ➢ Aβ+ MCI and Aβ+ AD *vs* Aβ+ CU • Cohort 2: Plasma P-tau181 ↑ in: ➢ Aβ+ MCI and Aβ+ CU *vs* Aβ- MCI and Aβ-CU ➢ Aβ+ MCI *vs* Aβ+ CU		• Cohort 2: Regression (adjusted for age and gender), association of Aβ PET SUVR and plasma P-tau181 in: ➢ All subjects: β= **0.53** ➢ Aβ+ subjects: β= **0.45** ➢ Aβ- subjects: β= 0.03	➢ Aβ- subjects: β= 0.12 Tau PET SUVR (Braak I-IV) in: ➢ All subjects: β= **0.71** ➢ Aβ+ subjects: β= **0.69** ➢ Aβ- subjects: β= 0.11 Tau PET SUVR (Braak I-II) in: ➢ All subjects: β= **0.63** ➢ Aβ+ subjects: β= **0.58** ➢ Aβ- subjects: β= 0.22 Tau PET SUVR (Braak III-IV) in: ➢ All subjects: β= **0.71** ➢ Aβ+ subjects: β= **0.69** ➢ Aβ- subjects: β= 0.10 Tau PET SUVR (Braak V-VI) in: ➢ All subjects: β= **0.65** ➢ Aβ+ subjects: β= **0.63** ➢ Aβ- subjects: β= 0.08 • Cohort 2: Regression (adjusted for age and gender), association of plasma P-tau181 and CSF P-tau181 in: ➢ All subjects: β= **0.52** ➢ Aβ+ subjects: β= **0.56** ➢ Aβ- subjects: β= 0.10
MSD (Plasma) *(Thijssen et al., 2020)*	• Cohort 1 (n=362)¶: ➢ 69 CU: 29 Aβ-, 11 Aβ+ ➢ 47 MCI: 21 Aβ-, 18 Aβ+ ➢ 56 AD: 0 Aβ-, 51 Aβ+ ➢ 190 FTLD‡ • Cohort 2 (n=42): Aβ+ MCI/Mild AD ¶Autopsy-confirmed cohort: Of the 362 subjects, there are 82 with autopsy-confirmed diagnosis: 15 AD, 52 FTLD-tau,15 FTLD-TAR DNA-binding protein (FTLD-TDP) ‡FTLD included 39 CBS (16 Aβ-, 3 Aβ+), 48 PSP (6 Aβ-, 0 Aβ+), 50 bvFTD (10 Aβ-, 3 Aβ+), 27 nfvPPA (5 Aβ-, 2 Aβ+), 26 svPPA (8 Aβ-, 2 Aβ+)	• Cohort 1: Clinical AD *vs* FTLD: 0.894 • Autopsy-confirmed cohort: AD *vs* FTLD-tau + FTLD-TDP: 0.878	• Cohort 1: Plasma P-tau181 ↑ in AD *vs* all other diagnostic groups • Autopsy-confirmed cohort: Plasma P-tau181 ↑ in AD *vs* FTLD-tau and FTLD-TDP	Cohort 1: • All: 0.914 • CU: 0.859 • MCI: 0.944	Cohort 1: Regression, association of Aβ PET SUVR and plasma P-tau181: β= **0.75**	• Cohort 1: Regression, association of plasma P-tau181 and: CSF P-tau181 in: ➢ All subjects: β= **0.51** ➢ AD and MCI: β= **0.41** ➢ FTLD: β= **0.49** Tau PET SUVR: β= **0.73** • Autopsy-confirmed cohort: Plasma P-tau181 ↑ in Braak V-VI *vs* Braak 0, I-II and III-IV • Cohort 2: Correlation of Tau PET SUVR and plasma P-tau181: r= **0.33**
Immunomagnetic reduction (IMR) (Plasma) *(Yang et al., 2018)*	73 participants: 23 CU, 29 MCI due to AD, 21 very mild AD	• MCI due to AD *vs* HC: 0.855 • MCI due to AD *vs* very mild AD: 0.777	Plasma P-tau181 ↑ in: • very mild AD and MCI due to AD *vs* CU • very mild AD *vs* MCI due to AD			

P-tau217 (and P-tau181)						
MSD (Plasma) *(Palmqvist et al., 2020)*	• Neuropathology cohort (n=81): 47 non-AD, 34 AD • BioFINDER-2 cohort (n=699): ➢ 301 CU: 224 Aβ-, 77 Aβ+ ➢ 178 MCI: 86 Aβ-, 92 Aβ+ ➢ 121 AD: all Aβ+ ➢ 99 other neurodegenerative diseases: 45 PD/PDD/MSA (8 Aβ+, 37 Aβ-), 21 PSP/CBS (1 Aβ+, 20 Aβ-), 12 VaD (2 Aβ+, 10 Aβ-), 21 bvFTD/PPA (4 Aβ+, 17 Aβ-) • Autosomal-Dominant AD registry (n=622): *PSEN1* E208A mutation: ➢ 106 CI carriers ➢ 259 CU carriers ➢ 257 non-carriers	• Neuropathology cohort: AD *vs* non-AD: ➢ P-tau217: 0.89 ➢ P-tau217/Aβ42 ratio: 0.90 ➢ P-tau217/t-tau ratio: 0.88 ➢ P-tau181: 0.72 • BioFINDER-2 cohort (n=699): Aβ+ AD *vs* all other neurodegenerative diseases: ➢ P-tau217: 0.96 ➢ P-tau217/Aβ42 ratio: 0.94 ➢ P-tau217/t-tau ratio: 0.93 ➢ P-tau181: 0.81 Aβ+ AD *vs* Aβ- MCI: ➢ P-tau217: 0.97 Aβ+ AD *vs* Aβ- CU: ➢ P-tau217: 0.98	• Neuropathology cohort: Plasma P-tau217 ↑ in AD *vs* non-AD • BioFINDER-2 cohort: Plasma P-tau217 ↑ in: ➢ Aβ+ AD *vs* all other diagnostic groups ➢ Aβ+ MCI *vs* Aβ- CU, Aβ- MCI, bvFTD/PPA, PD/PDD/MSA and PSP/CBS ➢ Aβ+ CU *vs* Aβ- CU, Aβ- MCI and PD/PDD/MSA • Autosomal-Dominant AD: Plasma P-tau217 levels in mutation carriers were significantly different (↑) from noncarriers at age 24.9, about 20 years before mutation carriers' median age of MCI onset.	BioFINDER-2 cohort: • P-tau217: 0.87 • P-tau181: 0.76		• Neuropathology cohort: Correlation of NFT density score and plasma P-tau217 in: ➢ AD only: r= **0.64** ➢ Non-AD: r= 0.15 • BioFINDER-2 cohort: Correlation of: Tau PET SUVR (Braak I-II) and: ➢ Plasma P-tau217: r= **0.59** ➢ Plasma P-tau181: r= **0.52** Tau PET SUVR (inferior temporal cortex) and: ➢ Plasma P-tau217: r= **0.54** ➢ Plasma P-tau181: r= **0.45** Tau PET SUVR (Braak I-IV) and: ➢ Plasma P-tau217: r= **0.57** ➢ Plasma P-tau181: r= **0.47** Tau PET SUVR (Braak V-VI) and: ➢ Plasma P-tau217: r= **0.44** ➢ Plasma P-tau181: r= **0.35**
MSD (Plasma) *(Brickman et al. 2021)*	Washington Heights-Inwood Columbia Aging Project • Neuropathology cohort (n=113): ➢ 33 High AD neuropathological change (ADNC) ➢ 80 all other groups (not AD, low AD, intermediate ADNC) • Clinical cohort (n=300)¶: ➢ 169 CU ➢ 131 AD No biomarker status; based on clinical assessment ¶A subset of the clinical cohort has received amyloid PET (n=40): 8Aβ+, 32 Aβ-	• Neuropathology cohort: High ADNC *vs* all other groups: All participants (n=112): ➢ P-tau217: 0.84 ➢ P-tau181: 0.77 Non-Hispanic White (n=52): ➢ P-tau217: 0.75 ➢ P-tau181: 0.65 Non-Hispanic Black (n=31): ➢ P-tau217: 0.96 ➢ P-tau181: 0.94 Hispanic (n=29): ➢ P-tau217: 0.85 ➢ P-tau181: 0.82 • Clinical cohort: AD *vs* CU: All participants (n=297): ➢ P-tau217: 0.63 ➢ P-tau181: 0.61 Non-Hispanic White (n=100): ➢ P-tau217: 0.71	• Neuropathology cohort: Plasma P-tau217 and P-tau181 ↑ in higher ADNC *vs* all other groups • Clinical cohort: Plasma P-tau217 and P-tau181 ↑ in AD *vs* CU • Subset of amyloid PET cohort: Plasma P-tau217 and P-tau181 ↑ in Aβ+ *vs* Aβ- groups	• P-tau217: 0.84 • P-tau181: 0.82	Correlation of Aβ PET SUVR and plasma: • P-tau217: r= **0.48** • P-tau181: r= **0.26**	

		➢ P-tau181: 0.69 Non-Hispanic Black (n=98): ➢ P-tau217: 0.68 ➢ P-tau181: 0.63 Hispanic (n=100): ➢ P-tau217: 0.52 ➢ P-tau181: 0.51				
IP-MS (LC-MS/MS) *(Barthélemy, Horie, Sato, & Bateman, 2020)*	• Tau SILK Discovery cohort (n=34): ➢ 9 young controls (Aβ-, CDR=0) ➢ 8 elderly controls (Aβ-, CDR=0) ➢ 2 non-AD MCI (Aβ-, CDR=0.5) ➢ 5 preclinical AD (Aβ+, CDR=0) ➢ 8 AD-MCI (Aβ+, CDR=0.5) ➢ 2 AD-moderate (Aβ+, CDR=1) • Aβ SILK Validation cohort (n=92) ➢ 31 elderly controls (Aβ-, CDR=0) ➢ 11 non-AD MCI (Aβ-, CDR=0.5) ➢ 20 preclinical AD (Aβ+, CDR=0) ➢ 24 AD-MCI (Aβ+, CDR=0.5) ➢ 6 AD-moderate (Aβ+, CDR=1)		• Discovery cohort: Plasma P-tau217 ↑ in: ➢ Preclinical AD, AD-MCI and AD-moderate *vs* controls Plasma P-tau181 ↑ in: ➢ Preclinical AD, AD-MCI and AD-moderate *vs* controls • Validation cohort: Plasma P-tau217 ↑ in: ➢ Preclinical AD, AD-MCI and AD-moderate *vs* controls Plasma P-tau181 ↑ in: ➢ AD-MCI and AD-moderate *vs* controls	• Discovery cohort: All subjects: ➢ P-tau217: 0.99 ➢ P-tau181: 0.95 • Validation cohort: All subjects: ➢ P-tau217: 0.93 ➢ P-tau181: 0.72 CDR=0 only: ➢ P-tau217: 0.86 ➢ P-tau181: 0.67 CDR=0.5 only: ➢ P-tau217: 0.93 ➢ P-tau181: 0.68	Validation cohort: In all subjects, correlation of Aβ PET and: • Plasma P-tau217: r=**0.67** • Plasma P-tau181: r=**0.26**	• Discovery cohort: Correlation of: ➢ Plasma P-tau217 and CSF P-tau217 in all subjects: r=**0.78** ➢ Plasma P-tau181 and CSF P-tau181 in all subjects: r=**0.68** • Validation cohort: Correlation of: ➢ Plasma P-tau217 and CSF P-tau217 in all subjects: r=**0.70** ➢ Plasma P-tau181 and CSF P-tau181 in all subjects: r=0.21
P-tau231 (and P-tau181)						
Simoa (Plasma) (Ashton et al., 2021)	• Discovery cohort (n=38): 18 CU elderly, 20 AD dementia • TRIAD (n=313): ➢ 32 Aβ- CU young adults ➢ 159 CU elderly: 128 Aβ-, 31 Aβ+ ➢ 54 MCI: 11 Aβ-, 43 Aβ+ ➢ 42 AD: all Aβ+ ➢ 26 Non-AD¶: all Aβ- • Primary care cohort (n=190): ➢ 8 young adults ➢ 131 CU elderly ➢ 17 MCI ➢ 34 AD • Neuropathology cohort (n=47): 11 non-AD‡, 36 AD ¶Non-AD included 10 FTD, 1 PPA, 1 CBD, 2 PSP, 10 VCI, 1 hippocampal sclerosis, 1 CAA ‡Non-AD included included 3 PSP, 3 FTLD, 2 LBD, 2 VaD, 1 CAA	• Discovery cohort: AD *vs* CU P-tau231: 0.942 • TRIAD cohort: Aβ+ AD *vs* Aβ- non-AD: ➢ P-tau231: 0.93 ➢ P-tau181: 0.94 Aβ+ AD *vs* Aβ- CU elderly: ➢ P-tau231: 0.92 ➢ P-tau181: 0.94 Aβ+ AD *vs* Aβ+ CU elderly: ➢ P-tau231: 0.67 ➢ P-tau181: 0.79 Aβ+ AD *vs* Aβ- MCI: ➢ P-tau231: 0.88 ➢ P-tau181: 0.86 Aβ+ AD *vs* Aβ+ MCI: ➢ P-tau231: 0.72 ➢ P-tau181: 0.76 • Primary care cohort: AD *vs* CU elderly: P-tau231: 0.75	• Discovery: in this biomarker characterised cohort, plasma P-tau231 ↑ in AD *vs* CU • TRIAD cohort: Plasma P-tau231 ↑ in: ➢ Aβ+ AD *vs* all other diagnostic groups ➢ Aβ+ CU elderly and Aβ+ MCI *vs* Aβ- CU elderly, Aβ- MCI, Aβ- non-AD and Aβ- CU young adults • Primary care cohort: Plasma P-tau231 ↑ in: ➢ AD *vs* young and CU elderly ➢ MCI vs young • Neuropathology cohort: Plasma P-tau231 ↑ in AD vs non-AD	TRIAD cohort: • CU (elderly): ➢ P-tau231: 0.83 ➢ P-tau181: 0.77 • MCI: ➢ P-tau231: 0.80 ➢ P-tau181: 0.75	TRIAD cohort: Correlation of plasma P-tau231 and: • CSF Aβ42: r= **-0.404** • Aβ PET SUVR: r= **0.623** Change in plasma P-tau231 and P-tau181 as a function of Aβ PET quartiles: • Plasma P-tau231 ↑ from Q2-Q4 Aβ PET, while P-tau181 ↑ Q4 Aβ PET	• TRIAD cohort: Correlation of plasma P-tau231 and: ➢ CSF P-tau231: r= **0.591** ➢ Tau PET SUVR: r= **0.523** Plasma P-tau231 and P-tau181 ↑ in Braak V-VI *vs* Braak 0, I-II and III-IV. Plasma P-tau231 and P-tau181 ↑ in Braak III-IV *vs* Braak 0 and I-II. Plasma P-tau231, but not P-tau181, ↑ in Braak I-II *vs* Braak 0. • Neuropathology cohort: Plasma P-tau231 ↑ in Braak V-VI *vs* Braak I-II

		MCI: P-tau231: 0.63 • Neuropathology cohort: AD *vs* non-AD: ➢ P-tau231: 0.997 ➢ P-tau181: 0.929				

Significant correlation coefficients (p<0.05) are in red font.

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