

Supplementary Table 1. Cross-sectional association of CSF biomarkers with clinical diagnosis excluding APOE as a covariate.

	Adjusted for T-tau /A β ₄₂	MCI		AD	
		Coefficients	p-values	Coefficients	p-values
α -syn	No	0.050 [(-0.008)- (0.11)]	0.090	0.058 [(-0.009)- (0.12)]	0.089
	Yes	-0.046 [(-0.0)-(0.)]	0.086	-0.064 [(-0.13)-(- 0.003)]	0.041
pS129- α -syn	No	-0.002 [(-0.005)- (0.0002)]	0.074	-0.0003 [(-0.003)- (0.002)]	0.84
	Yes	-0.0007 [(-0.003)- (0.002)]	0.58	0.002 [(-0.001)- (0.005)]	0.25
α -syn -Tau- Mismatch	Yes	-0.20 [(-0.54)- (0.14)]	0.17	-0.33 [(-0.73)- (0.070)]	0.20

Linear regression model is adjusted for age at baseline, and gender. Models with and without T-tau /A β ₁₋₄₂ ratio are listed as indicated in the second column.

Supplementary Table 2. Cross-sectional association of CSF pS129- α -syn values with clinical diagnosis in subjects with HgB<200 ng/ml.

	Adjusted for T-tau /A β ₄₂	MCI		AD	
		Coefficients	p-values	Coefficients	p-values
pS129- α -syn	No	-0.0026 [(-0.005)- (0.0002)]	0.0495	-0.0007 [(-0.004)- (0.001)]	0.65
	Yes	0.0011 [(-0.004)- (0.002)]	0.41	0.0014 [(-0.002)- (0.004)]	0.39

Linear regression model is adjusted for age at baseline, gender, and APOE ϵ 4 presence. Models with and without T-tau /A β ₁₋₄₂ ratio are listed as indicated in the second column.

Supplementary Table 3. Association of baseline CSF pS129- α -syn values with longitudinal clinical changes in subjects with HgB<200 ng/ml. Reported as multivariate regression coefficient [95% confidence interval of coefficient] (p-value).

	Adjusted for T-tau /Aβ₁₋₄₂*time	ADAS- Cog13	Memory composite	Executive function composite	MCI progression to AD
pS129- α -syn	No	0.54 [(-2.62)- (3.71)] (0.74)	-0.55 [(-2.48)- (1.39)] (0.58)	-2.19 [(-4.96)- (0.58)] (0.12)	0.13 [(0.00)- (2.14*10 ⁶)] (0.81)
	Yes	1.70 [(-1.35)- (4.74)] (0.28)	-1.32 [(-3.13)- (0.49)] (0.15)	-3.43 [(-6.0)-(- 0.85)] (0.0093)	676.44 [(0.00)- (41*10 ¹⁰)] (0.48)

Model is adjusted for age at baseline, gender, education, and APOE 4 presence. Models with and without T-tau/A β ₁₋₄₂ ratios are listed as indicated in the second column.

Supplementary Table 4. Association of baseline CSF biomarker values with longitudinal clinical changes excluding APOE as a covariate. Reported as multivariate regression coefficient [95% confidence interval of coefficient] (p-value).

	Adjusted for T-tau /A β ₁₋₄₂ *time	ADAS- Cog13	Memory composite	Executive function composite	MCI progression to AD
α -syn	No	-0.12 [(-0.46)- (0.21)] (0.47)	0.087 [(-0.12)- (0.29)] (0.41)	0.17 [(-0.13)- (0.47)] (0.27)	0.70 [(0.11)-(4.29)] (0.70)
	Yes	-0.59 [(-0.96)-(- 0.23)] (0.002)	0.37 [(0.16)- (0.59)] (0.0008)	0.62 [(0.31)- (0.93)] (0.0001)	0.02 [(0.002)-(0.21)] (0.001)
pS129- α -syn	No	0.39 [(-2.11)- (2.89)] (0.76)	-0.17 [(-1.81)- (1.46)] (0.83)	-1.69 [(-3.72)- (0.33)] (0.10)	0.28 [(7*10 ⁻⁷)-(10 ⁵)] (0.85)
	Yes	1.45 [(-0.88)- (3.80)] (0.22)	-0.93 [(-2.44)- (0.58)] (0.23)	-2.59 [(-4.5)-(-.70)] (0.007)	96 [(1*10 ⁻⁴)-(6*10 ⁷)] (0.50)
α -syn-p-tau ₁₈₁ -Mis	Yes	-0.06 [(-0.11)-(- 0.02)] (0.003)	0.043 [(0.02)- (0.07)] (0.001)	0.07 [(0.03)- (0.10)] (0.0006)	0.66 [(0.51)-(0.85)] (0.001)

Model is adjusted for age at baseline, gender, and education. Models with and without T-tau/A β ₁₋₄₂ ratio are listed as indicated in the second column.