

Supplementary Table 1. Raw scores of the cognitive tests of all subjects.

	Control (n=87)	aMCI (n=68)	P-value
Episodic memory			
AVLT-20min DR	7.31 ± 1.94	2.57 ± 1.36	0.000 ^a
LMT-20min DR	4.33 ± 2.19	2.10 ± 1.84	0.000 ^a
ROCFT-20min DR	19.26 ± 5.54	13.06 ± 6.35	0.000 ^a
Information processing speed			
DSST	40.15 ± 9.85	31.60 ± 8.01	0.000 ^a
TMT-A	64.63 ± 19.23	80.40 ± 26.40	0.000 ^a
Stroop-A	26.83 ± 5.46	29.88 ± 8.21	0.006 ^a
Stroop-B	39.68 ± 10.55	44.19 ± 12.26	0.015 ^a
Executive function			
VFT-animal	19.90 ± 5.04	16.75 ± 4.75	0.000 ^a
VFT-supermarket goods	24.91 ± 6.09	21.51 ± 5.56	0.000 ^a
DST-backward	4.80 ± 1.40	4.04 ± 1.18	0.000 ^a
TMT-B	167.94 ± 61.46	213.49 ± 94.09	0.000 ^a
Stroop-C	78.18 ± 21.15	90.51 ± 32.31	0.005 ^a
Similarity	19.07 ± 2.80	15.72 ± 4.17	0.000 ^a
Visuospatial function			
CDT	8.99 ± 1.04	8.34 ± 1.19	0.000 ^a
ROCFT	34.47 ± 3.30	34.19 ± 2.92	0.582 ^a

Data are presented as the mean ± stand deviation (SD).

Abbreviations: aMCI, amnesic mild cognitive impairment; AVLT-20min DR, Auditory Verbal Learning Test-20-minute delayed recall; LMT-20min DR, Logical Memory Test-20-minute delayed recall; CFT-20min DR, Rey-Osterrieth Complex Figure Test-20-minute delayed recall; DSST, Digital Symbol Substitution Test; TMT-A, Trail Making Test-A; Stroop, Stroop Color and Word Test; VFT-animal, Verbal Fluency Test of animals; VFT-supermarket goods, Verbal Fluency Test of supermarket goods; DST, Digit Span Test; TMT-B, Trail Making Test-B; Similarity, Semantic Similarity Test; CDT, Clock Drawing Test; ROCFT, Rey-Osterrieth Complex Figure Test.

^a P-values were obtained by t tests.

Supplementary Table 2. β Coefficients from linear regression models for the relationship of the global cognitive function, four cognitive domains, total grey matter and hippocampus volumes with plasma indicators in aMCI patients.

Indicators	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	β	β	β	β	β	β	β
A β 40	-0.042	-0.314	-0.003	-0.173	0.123	-0.147	-0.148
A β 42	-0.271	0.015	0.055	-0.154	0.056	-0.077	-0.109
T-tau	-0.366	-0.056	-0.153	-0.069	-0.086	-0.213	-0.126
NFL	-0.072	-0.206	0.173	-0.048	-0.081	-0.114	-0.229

Abbreviations: AD, Alzheimer's disease; aMCI, amnesic mild cognitive impairment; A β , amyloid- β ; T-tau, total tau; NFL, neurofilament light.

NOTE. The dependent variable of Model 1 was Mini-Mental State Examination raw score (represented the global cognitive function); the dependent variables of Model 2, Model 3, 4 and 5 were Z scores of episodic memory, information processing speed, executive function, and visuospatial function respectively (represented four major cognitive domains' function) respectively; the dependent variable of Model 6 and 7 were intracranial grey matter and hippocampus volumes respectively. All models were adjusted for age, gender and education years.

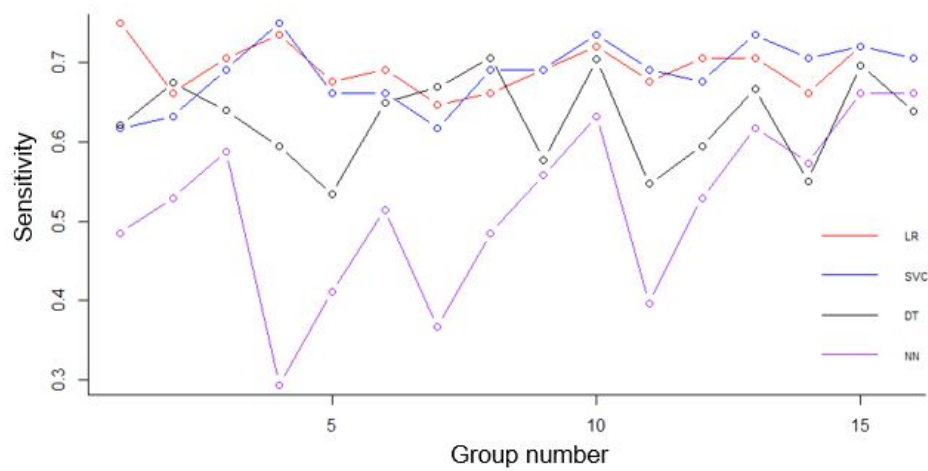
Bolded values indicate $p < 0.05$.

Supplementary Table 3. The accuracy of 16 models from different machine learning algorithms for individual identification of aMCI.

Groups	Model inputs	LR	SVC	DT	NN
1	Basic model	65.81%	66.45%	65.56%	55.48%
2	A β 40	64.52%	67.74%	69.03%	67.74%
3	A β 42	68.39%	70.32%	67.44%	69.03%
4	T-tau	65.16%	67.10%	58.12%	58.06%
5	NFL	64.52%	69.68%	62.75%	61.94%
6	A β 40 + A β 42	68.39%	69.03%	66.91%	66.45%
7	A β 40 + t-tau	63.23%	66.45%	64.03%	63.87%
8	A β 40 + NFL	66.45%	70.97%	64.65%	69.03%
9	A β 42 + t-tau	67.74%	69.68%	65.65%	68.39%
10	A β 42 + NFL	70.97%	74.19%	72.96%	73.55%
11	NFL + t-tau	64.52%	69.03%	60.85%	61.29%
12	A β 40 + A β 42 + t-tau	69.68%	69.03%	63.92%	66.45%
13	A β 40 + A β 42 + NFL	70.32%	72.90%	69.82%	70.32%
14	A β 40 + t-tau + NFL	67.10%	73.55%	63.59%	70.97%
15	A β 42 + t-tau + NFL	70.32%	72.26%	72.50%	74.19%
16	A β 40+A β 42+t-tau+NFL	70.32%	72.26%	69.03%	72.26%

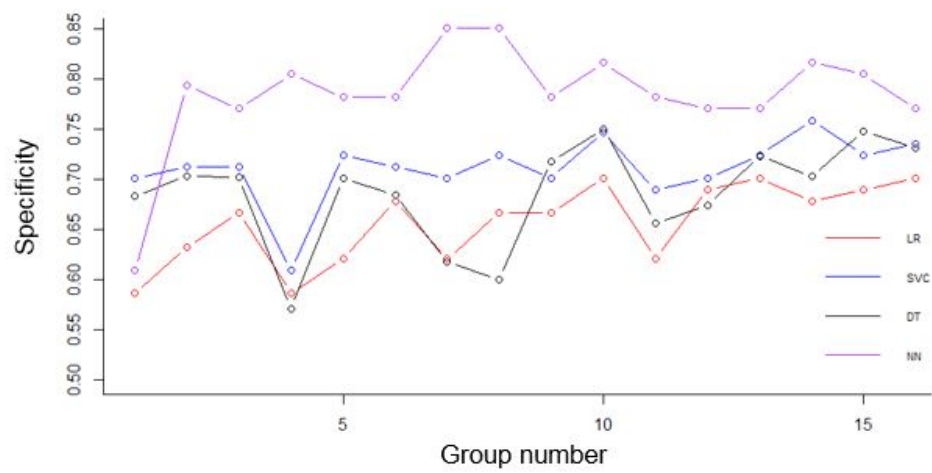
Abbreviations: aMCI, amnesic mild cognitive impairment; LR, logistics regression; SVC, support vector classifier; DT, decision tree; NN, neural network; A β , amyloid- β ; T-tau, total tau; NFL, neurofilament light.

NOTE. The basic model represents the accuracy of clinical features (age, gender and education years) and hippocampal volume without any plasma indicators. The rest models added any combinations of plasma indicators on the basic model.



Supplementary Figure 1. The scatterplot of the sensitivity of 16 models using four machine learning algorithms.

Abbreviations: LR, logistics regression; SVC, support vector classifier; DT, decision tree; NN, neural network.



Supplementary Figure 2. The scatterplot of the specificity of 16 models using four machine learning algorithms.

Abbreviations: LR, logistics regression; SVC, support vector classifier; DT, decision tree; NN, neural network.