**Supplementary materials**

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| **eTable 1.** Multiple linear regression analysis for the interaction between Aβ deposition and LDL-C for tau deposition controlling statin use as an additional covariate |
| 　 | 　 | 　 | Coefficients | t | *P* value |
| 　 | 　 | 　 | B | SE | β | 　 | 　 |
| Dependent variable: Tau depositiona | 　 | 　 | 　 | 　 | 　 |
|  Global Aβ deposition | 0.149 | 0.378 | 0.084 | 0.393 | 0.695 |
|  LDL-C | -0.009 | 0.005 | -0.363 | -1.613 | 0.109 |
|  Global Aβ deposition x LDL-C | 0.006 | 0.003 | 0.589 | 1.988 | 0.049 |
| **Notes:** Multiple linear regression model included age, gender, education, APOE ε4 positivity, VRSnoDLP, and statin use as covariates. a F for the model=7.776; adjusted R2=0.316.**Abbreviations:** Aβ, beta-amyloid; LDL-C, low density lipoprotein cholesterol; APOE, apolipoprotein; VRSnoDLP, vascular risk score reflecting vascular risk burden other than dyslipidemia.  |

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| **eTable 2.** Multiple linear regression analysis for the interaction between Aβ deposition and LDL-C for tau deposition with time gap as an additional covariate |
| 　 | 　 | 　 | Coefficients | t | *P* value |
| 　 | 　 | 　 | B | SE | β | 　 | 　 |
| Dependent variable: Tau depositiona | 　 | 　 | 　 | 　 | 　 |
|  Global Aβ deposition | 0.141 | 0.381 | 0.079 | 0.369 | 0.713 |
|  LDL-C | -0.009 | 0.005 | -0.369 | -1.621 | 0.108 |
|  Global Aβ deposition x LDL-C | 0.006 | 0.003 | 0.595 | 1.995 | 0.048 |
| **Notes:** Multiple linear regression model included age, gender, education, APOE ε4 positivity, VRSnoDLP, and time gap as covariates. a F for the model=7.781; adjusted R2=0.316.**Abbreviations:** Aβ, beta-amyloid; LDL-C, low density lipoprotein cholesterol; APOE, apolipoprotein; VRSnoDLP, vascular risk score reflecting vascular risk burden other than dyslipidemia.  |

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| **eTable 3.** Multiple linear regression analysis for the interaction between Aβ deposition and other lipids for tau deposition |
| 　 | 　 | 　 | Coefficients | t | *P* value |
| 　 | 　 | 　 | B | SE | β | 　 | 　 |
| Dependent variable: Tau retention | 　 | 　 | 　 | 　 | 　 |
| TC | Global Aβ retention | 0.035 | 0.562 | 0.020 | 0.063 | 0.950 |
| TC | -0.006 | 0.005 | -0.272 | -10188 | 0.237 |
| Global Aβ retention x TCa | 0.005 | 0.003 | 0.568 | 1.491 | 0.139 |
| HDL-C | Global Aβ retention | 0.599 | 0.528 | 0.337 | 1.133 | 0.259 |
| HDL-cholesterol | -0.005 | 0.015 | -0.084 | -0.349 | 0.727 |
| Global Aβ retention x HDL-Cb | 0.005 | 0.010 | 0.185 | 0.478 | 0.633 |
| TG | Global Aβ retention | 1.291 | 0.319 | 0.726 | 4.042 | 0.000 |
| TG | 0.005 | 0.003 | 0.379 | 1.421 | 0.158 |
| Global Aβ retention x TGc | -0.004 | 0.002 | -0.501 | -1.605 | 0.111 |
| **Notes:** Multiple linear regression model included age, gender, education, APOE ε4 positivity, and VRSnoDLP as covariates. a F for the model=8.445; adjusted R2=0.311.b F for the model=8.020; adjusted R2=0.341c F for the model=8.476; adjusted R2=0.312**Abbreviations:** Aβ, beta-amyloid; TC, total cholesterol, HDL-C, high density lipoprotein cholesterol; TG, triglyceride; APOE, apolipoprotein; VRSnoDLP, vascular risk score reflecting vascular risk burden other than dyslipidemia.  |

**eFigure 1.** Multiple linear regression plots showing moderating effects of LDL-C on the relationships between Aβ and tau deposition.



Note: For the purpose of demonstration, participants were divided top 50% LDL-C and the bottom 50% LDL-C subgroups. Multiple linear regression model included Aβ, LDL-cholesterol subgroup, and their interaction term as independent variables; tau retention as dependent variable; and age, gender, education, APOE ε4 positivity, and VRSnoDLP as covariates. Statistical significance was observed with the interaction term between Aβ deposition and LDL-C (p < 0.05), as detailed in the manuscript.

Abbreviations: Aβ, beta-amyloid; APOE, apolipoprotein; LDL-C, low density lipoprotein cholesterol; VRSnoDLP, vascular risk score reflecting vascular risk burden other than dyslipidemia.