Supplementary Online Content


**eAppendix.** Supplemental Methods

**eReferences**

**eFigure.** Correlation between the CSF biomarkers and CSF-Hgb levels in 102 PPMI subjects. CSF α-syn but not AD-related CSF biomarkers showed significant correlation with level of CSF-Hgb (Pearson \( r = 0.3975, P < 0.0001 \)).

This supplementary material has been provided by the authors to give readers additional information about their work.
eAppendix: Supplemental Methods

The MDS-UPDRS was developed in response to a MDS-directed critique of the UPDRS which has weaknesses included a number of ambiguities and the lack of specific instructions for the application of the scale.1,2 Thus, the PPMI study used the MDS-UPDRS to assess disease severity. To classify PD patients into PIGD or TD phenotypes, we used following 11 MDS-UPDRS tremor items: 2.10. Tremor, 3.15a. Postural Tremor RUE, 3.15b. Postural Tremor LUE, 3.16a. Kinetic Tremor RUE, 3.16b. Kinetic Tremor LUE, 3.17a. Rest Tremor RUE, 3.17b. Rest Tremor LUE, 3.17c. Rest Tremor RLE, 3.17d. Rest Tremor LLE. 3.17e. Rest Tremor Lip/jaw, 3.18. Rest Constancy, and following 5 MDS-UPDRS PIGD items: 2.12. Walking Balance, 2.13. Freezing, 3.10. Gait, 3.11. Freezing of Gait, 3.12. Postural Stability.

We calculated mean scores of “11 tremor items” and of “5 PIGD items”. PD patients were assigned to the TD or PIGD phenotypes if the tremor/PIGD ratio score was ≥1.15 or ≤0.9, respectively. If the ratio was between 0.9–1.15, the patient was defined as having an IND phenotype, and patients with a PIGD score of zero were assigned to the TD phenotype. This classification method is based on the previous study,3 and discussion with PD specialists.

eReferences

**eFigure.** Correlation between the CSF biomarkers and CSF-Hgb levels in 102 PPMI subjects. CSF α-syn but not AD-related CSF biomarkers showed significant correlation with level of CSF-Hgb (Pearson $r = 0.3975$, $P < 0.0001$).