**Supplementary Table 1.** The limit of detection (LoD), analytical range, intra-assay (repeatability) and inter-assay (reproducibility) of the IMR assay to detect total α-synuclein and neurofilament light chain (NFL).

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| --- | --- | --- | --- |
| Biomarker  | Total α-synuclein | NFL | References |
| Repeatability(Intra-assay) | Sample 1: 8.6%Sample 2: 8.5%  | Sample 1: 13.8%Sample 2: 11.0% | CLSI EP-5-A3 |
| Reproducibility(Inter-assay) | Sample 1: 2.67% Sample 2: 0.53%  | Sample 1: 1.89%Sample 2: 1.31% | CLSI EP-5-A3 |
| LoD (pg/ml) | 0.0014 | 0.00018 | CLSI EP17-A2 |
| Analytical range(pg/ml) | 0.0014 -1020 | 0.001-1000 | ICH Q2 (R1) |
| Specificity | No significant interference with:Hemoglobin, bilirubin, intra lipid, uric acid, rheumatoid factor, albumin, acetylsalicylic acid, ascorbic acid, ampicillin sodium, quetiapine fumarate, galantamine hydrobromide, rivastigmine hydrogen tartrate, donepezil hydrochloride, or memantine hydrochloride |  |