

Supplementary table 2: Overview of potential biochemical biomarkers in Parkinson disease^{1,2,3}

| Biomarker | Findings in Parkinson disease | Comments |
|-------------------------------------|-------------------------------|--|
| Blood, serum or plasma | | |
| Brain-derived neurotrophic factor | ↓ | Decreased levels in early disease stages, may increase with disease progression; within patients higher levels have been associated with more severe motor and cognitive dysfunction. |
| Insulin-like growth factor 1 | ↑ | More-severe motor and cognitive dysfunction in PD subjects with higher levels compared to those with lower levels |
| Uric acid | ↓ | Reduced risk of Parkinson disease with high levels; negative correlation between urate serum levels and severity of motor and non-motor dysfunction. |
| α-synuclein | ↑/= | Inconsistent results between studies may reflect methodological differences |
| epidermal growth factor | ↓ | Increased risk for cognitive impairment in PD patients with lower levels compared with patients with higher levels |
| APOA1 | ↓ | Associations between low levels and increased risk for Parkinson disease; earlier age at disease onset and more-severe motor abnormalities with lower levels compared to patients with higher levels |
| Cerebrospinal fluid | | |
| Total α-synuclein | ↓ | Considerable overlap of total α-synuclein levels between patients with Parkinson disease and controls (sensitivity of 88% and specificity of 40% in separating patients with Parkinson disease from controls ⁴) |
| Phosphorylated α-synuclein | ↑ | Potentially more specific than total α-synuclein levels |
| A-synuclein oligomers | ↑ | Potentially more specific than total α-synuclein levels |
| Protein deglycase DJ-1 | ↓ | Reduced levels seem to be stable across disease stages |
| Glucocerebrosidase (Gcase) activity | ↓ | Overlap with levels in controls |
| Amyloid-β1-42 | ↓ | More severe non-motor dysfunction in patients with lower levels compared to patients with higher levels |
| total tau | ↓ | More-severe non-motor dysfunction in patients with increased total tau/amyloid-β1-42 and total tau/α-synuclein ratios compared to those with normal ratios |
| Phosphorylated tau | ↓ | Alzheimer Disease-like CSF pattern has been associated with cognitive dysfunction |
| Neurofilament light chain | = | Increased levels in multiple system atrophy and progressive supranuclear palsy compared with Parkinson disease ⁵ |
| faeces | | |
| Microbiota | altered | Significant differences of gut microbiota composition in patients with Parkinson disease compared with controls, the specific differences in taxa between studies have been inconsistent as are the association between changes in microbiota and clinical variables. Short chain fatty acids levels (one of the main metabolic product of gut microbiota) are decreased in patients with Parkinson disease versus controls. |

References

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