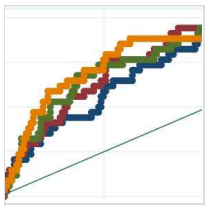

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Sample Collection and Measurement of Serum Neurofilament Light (NfL)

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ABSTRACT

This protocol details the steps for the preparation of serum from human blood samples and the measurement of NfL concentration using the NF-Light Advantage kit on the HD-X Analyzer (Quanterix, Billerica, MA).

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EXTERNAL LINK

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KEYWORDS

Parkinson's disease, Blood, Serum, Neurofilament Light (NfL), Prognostic Modelling Biomarkers, ASAPCRN

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MATERIALS TEXT

BD Vacutainer™ SST™ II Advance Tubes
https://www.fishersci.co.uk/shop/products/vacutainer-sst-ii-advance-tubes/12927696

Simoa® NF-light Advantage Kit
https://www.quanterix.com/simoa-assay-kits/nf-light/

HD-X Analyzer (Quanterix, Billerica, MA)
https://www.quanterix.com/instruments/simoa-hd-x-analyzer/

SAFETY WARNINGS

Venepuncture, the handling and transport of blood has the potential to expose research and clinical personnel, and other professionals to blood borne pathogens. Those performing a venepuncture, handling or disposing clinical waste must be trained, competent and adhere to local health & safety policies, risk assessments and standard operating procedures.

BEFORE STARTING

Check the planned procedure is covered by existing Research Ethics Committee approval and other required approvals.
Check that you have the correct personal protective equipment, supplies and consumables.

Blood Sample Collection and Serum Preparation 1h 10m

1 At enrolment, collect 10 mL of venous blood from each participant in Serum Separator Tubes (SST): https://www.fishersci.co.uk/shop/products/vacutainer-sst-ii-advance-tubes/12927696 30m

> Venepuncture and the handling of blood has the potential to expose research and clinical personnel to blood borne pathogens. In order to minimise risk, personnel performing a venepuncture must have received appropriate training and deemed competent. Institutional health & safety policies, risk assessments and standard operating procedures must be followed.

2  15m

Within 1 hour of collection, centrifuge the SSTs at 2,500g for 15 minutes at room temperature

3 Print cryogenic labels / barcodes and apply to cryotubes: https://www.brady.co.uk/labels 10m

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4 Aliquot approx. **-0.5 mL** serum into labelled cryotubes, box and/or rack then store at **-80 °C** . 15m

Measurement of Serum NfL Concentration

5 Measure serum NfL concentration using the Simoa® NF-light Advantage Kit for HD-1 / HD-X following the manufacturers instructions : https://www.quanterix.com/wp-content/uploads/2020/12/NF-light-Data-Sheet-HD-1%E2%88%95HD-X-2.pdf
This kit is a digital immunoassay for the quantitative determination of NfL in serum, plasma and CSF.

***The measurement of serum NfL concentration is performed blinded to clinical diagnosis.**

6 Run on the HD-X Analyzer (Quanterix, Billerica, MA), a fully automated Simoa® bead-based immunoassay platform: https://www.quanterix.com/instruments/simoa-hd-x-analyzer/

Key References

Gisslén M, Price RW, Andreasson U, *et al.* Plasma Concentration of the Neurofilament Light Protein (NFL) is a Biomarker of CNS Injury in HIV Infection: A Cross-Sectional Study. EBioMedicine 2016;3:135–40. doi:10.1016/j.ebiom.2015.11.036

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