

Plasma Neurofilament Light Chain (NfL)

Test Name	Neurofilament Light Chain
Abbreviation	Plasma NfL
CPT code	83520
Methodology	Chemiluminescent enzyme immunoassay (CLEIA)
Intended Use	Quantification of NfL in plasma to assist in the clinical assessment of neurological disorders.
Test requirements	<p><u>Specimen Type:</u> EDTA-plasma</p> <p><u>Minimum volume:</u> 0.5 mL</p> <p><u>Preferred volume:</u> 5 mL</p> <p><u>Rejection criteria:</u> grossly hemolytic, icteric, or lipemic</p>
Specimen collection	<ul style="list-style-type: none"> Overnight fasting recommended 5 mL EDTA lavender-top tubes Within an hour of collection spin, aliquot, and freeze plasma. Ship frozen on dry-ice.
Specimen stability	<p>Store frozen (-80 – -70°C preferred)</p> <p>Sample should be frozen until transport, avoid freeze/thaws.</p>
Test schedule	Once a week
TAT	1 – 3 days
Reference range	<p>Age group</p> <p>20 – 29 (≤ 8.4 ng/L)</p> <p>30 – 39 (≤ 11.4 ng/L)</p> <p>40 – 49 (≤ 15.4 ng/L)</p> <p>50 – 59 (≤ 20.8 ng/L)</p> <p>60 – 69 (≤ 28.0 ng/L)</p> <p>70 – 79 (≤ 37.9 ng/L)</p> <p>≥ 80 (≤ 51.2 ng/L)</p>
Limitations	<ul style="list-style-type: none"> This is a laboratory developed test, its performance was determined by Neurocode USA Inc. It has not been cleared or approved by the Food and Drug Administration. Elevated NfL is not a disease specific factor and may be caused by a neurodegenerative disease or traumatic brain injury. Results should be used in conjunction with clinical signs and symptoms. NfL levels measured in the evening may be more than 10% lower than those measured in the morning (Benedict et al 2020). Higher levels of NfL can occur in patients with a history of stroke, atrial fibrillation, myocardial infarction, chronic kidney disease, pregnancy, and diabetes. Lower levels may be found in person who are obese (BMI ≥ 30) (Syrjanen et al 2022).
References	<ul style="list-style-type: none"> Yuan A, et al. Neurofilaments and Neurofilament Proteins in Health and Disease. Cold Spring Harb Perspect Biol. 2017 Apr 3;9(4):a018309. Gaetani L, et al. Neurofilament light chain as a biomarker in neurological disorders. J Neurol Neurosurg Psychiatry. 2019 Aug;90(8):870-881.

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| | <ul style="list-style-type: none">• Thebault S, Booth RA, Freedman MS. Blood Neurofilament Light Chain: The Neurologist's Troponin? <i>Biomedicines</i>. 2020; 8(11):523.• Yuan A, Nixon RA. Neurofilament Proteins as Biomarkers to Monitor Neurological Diseases and the Efficacy of Therapies. <i>Front Neurosci</i>. 2021 Sep 27;15:689938.• Syrjanen JA, et al. Associations of amyloid and neurodegeneration plasma biomarkers with comorbidities. <i>Alzheimer's & Dementia</i>. 2022 Jun;18(6):1128-40.• O'Bryant SE, et al. Medical comorbidities and ethnicity impact plasma Alzheimer's disease biomarkers: important considerations for clinical trials and practice. <i>Alzheimer's & Dementia</i>. 2023 Jan;19(1):36-43.• Benedict C, et al. Effects of acute sleep loss on diurnal plasma dynamics of CNS health biomarkers in young men. <i>Neurol</i>. 2020 Mar 17;94(11):e1181-9. |
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