

MYCN (N-MYC) Gene Amplification by FISH

Indications for Ordering

Prognostic determination in individuals with neuroblastoma or medulloblastoma

Test Description

- Fluorescence in situ hybridization (FISH) analysis using formalin-fixed, paraffin-embedded (FFPE) tissue
- DNA probes
 - MYCN (2p24)
 - CEP2 (control probe)
- 40 cells evaluated from regions of tumor identified on histopathologic review of a matching hematoxylin and eosin stained section

Tests to Consider

Primary Test

[MYCN \(N-MYC\) Gene Amplification by FISH 3001307](#)

Related Test

[Vanillylmandelic Acid \(VMA\) and Homovanillic Acid \(HVA\), Urine 0080470](#)

- Initial test for the diagnosis and monitoring of neuroblastoma

Disease Overview

Incidence – fourth most frequent tumor in children <15 years

Prognostic issues

- Several prognostic factors have been identified in neuroblastoma
 - Individual's age
 - Stage of disease
 - Marker status
- MYCN is amplified in ~25% of neuroblastomas
 - Associated with poor prognosis, advanced stage, and rapid tumor progression
 - Prognosis depends on level of amplification
 - Prognostication independent from clinical/histopathologic findings
- MYCN is amplified in ~5% of medulloblastomas
 - Associated with clinically aggressive tumors
- MYCN amplifications occur in other tumors, but influence on prognosis is not clear

Genetics

Gene – MYCN

Test Interpretation

Results

- Amplified – MYCN:CEP2 ≥ 2.0
 - Predicts poor prognosis
- Nonamplified – MYCN:CEP2 < 2.0

Limitations

Results may be compromised if recommended fixation procedures are not followed