

## Vantage™ Report

Patient Information	Provisional Diagnosis	Specimen	Provider Information
<b>Name:</b> Jane Doe <b>DOB:</b> 01/01/1990 <b>Sex Assigned at Birth:</b> Female <b>MRN:</b> 11xx22xx33	<b>Diagnosis:</b> Central Nervous System Neoplasm  <b>ICD10:</b> C71.9	<b>Type:</b> CSF  <b>Collected Date:</b> 05/14/2026 <b>Received Date:</b> 05/15/2026 <b>Specimen ID:</b> Van-Pos-CNS	<b>Ordering Provider:</b> Provider Test  <b>Institution:</b> Belay Diagnostics

### RESULT SUMMARY

**POSITIVE - Methylation of the *MGMT* promoter was detected.**

### ACTIONABILITY SUMMARY

#### Therapeutic Implications per NCCN

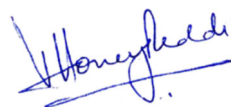
Methylation of the *MGMT* promoter silences *MGMT*, making the tumor more sensitive to treatment with alkylating agents (PMID: 15758010, PMID: 11070098). Clinical correlation is required.

#### Prognostic Implications per NCCN

*MGMT* promoter methylation is strongly associated with *IDH* mutations and genome-wide epigenetic changes in high-grade gliomas (PMID: 26061753). *MGMT* promoter methylation is particularly useful in treatment decisions for older adult patients with high-grade gliomas (grades 3–4) (PMID: 24380758, PMID: 22578793).

#### Diagnostic Implications per WHO

Among central nervous system neoplasms, *MGMT* promoter methylation is detectable in the majority of oligodendrogliomas (PMID:15455350). The *MGMT* gene is transcriptionally silenced by promoter methylation in approximately 40-50% of *IDH*-wildtype glioblastomas (PMID:24120142; PMID:10029064; PMID:15758010; PMID:22294349). Although H3 G34-mutant diffuse hemispheric gliomas show widespread DNA hypomethylation, *MGMT* is often methylated (PMID:23079654; PMID:28966033; PMID:30101054).



Honey V Reddi, Ph.D., FACMG, Laboratory Director

### TEST DETAILS

#### Methods and Limitations

The Vantage™ *MGMT* Promoter Methylation Assay utilizes a quantitative PCR (qPCR) followed by high-resolution melt analysis (HRM) using the EpiMelt *MGMT* kit (MethylDetect) after enzymatic conversion (NEBNext Enzymatic Methyl-seq, New England Biolabs) on a portion of the library generated in the Summit™ workflow. Methylated and unmethylated melting temperature peaks are evaluated using the

LightCycler® 480 Software v.1.5.1 (Roche LifeScience). Qualitative results are reported as "Negative - Unmethylated", "Positive - Methylated", or "Indeterminate - Results were equivocal". Specimens with results above the validated 25% methylated control are interpreted as "Positive". Specimens with results between unmethylated and methylated control are interpreted as "Indeterminate".

#### Disclaimers

This test was developed, and its performance characteristics determined by Belay Diagnostics Laboratory (CLIA# 14D2302605), which is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) as qualified to perform high complexity testing. This test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). This test may be used for clinical purposes. However, the results of this test do not establish a diagnosis and should not be used alone for diagnosis or patient care decisions or otherwise replace the judgment of a treating physician and must always be interpreted in the context of all relevant clinical and pathological data.

#### Actionability References

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For Test Purposes Only