GLIOBLASTOMA

Real-time PCR assays

MGMT Methylation Detection Kit

IDH1/2 Mutation Detection Kit

EGFRvIII Detection Kit

EntroGen

Predictive • Preventive • Personalized

GLIOBLASTOMA

MOLECULAR MARKERS IN GLIOBLASTOMA

Glioblastoma (GBM) is the most aggressive and common primary brain cancer found in humans. Secondary GBM makes up about 10% of all glioblastomas and is molecularly distinct from primary GBM. IDH mutations are found mostly in secondary GBM and have been recently shown to carry strong prognostic significance. Furthermore, evidence shows that IDH mutations are tightly associated with MGMT promoter methylation. MGMT promoter methylation leads to increased sensitivity to alkylating agents such as temozolomide and has prognostic significance similar to IDH mutations. EGFRvIII, the most common EGFR mutation in GBM, is found in approximately 60-70% of EGFR-amplified primary GBM tumors and is a potential target for experimental therapies.

AVAILABLE KITS FOR GLIOBLASTOMA

PRODUCT NAME	CAT NO.	INTENDED USE
MGMT Methylation Detection Kit	MGMT-RT44	RUO, CE-IVD†
IDH1/2 Mutation Detection Kit	IDH-RT38	RUO, CE-IVD†
EGFRvIII Detection Kit	EGFRV3-RT42	RUO, CE-IVD†

† Pending

The above kits are polymerase chain reaction (PCR)-based assays that use allele-specific primers in a multiplex reaction to identify the percent of MGMT promoter methylation and presence of EGFRvIII and IDH1/2 mutations (IDH1 codon 132 /100, IDH2 codon 172). The MGMT Methylation Detection Kit works by amplifying the epigenetically silenced MGMT promoter regions after bisulfite treatment of DNA that contains a mixture of methylated and un-methylated MGMT promoters. The IDH1/2 assay works by amplifying mutant-specific sequences in samples that contain a mixture of mutant and wild-type DNA. The EGFRvIII Detection Kit provides reagents for one-step reactions that detect the EGFR mutant in total RNA isolated from tumor biopsies without a separate reverse transcription step. All three assays rely on fluorescent probes for detection. Each reaction contains primer sets and probes for detection of the mutations, as well as an endogenous control gene.

The testing procedure involves the following simple steps:

1. Isolation of DNA or RNA from tumor biopsies, paraffin-embedded sections (FFPE), or fresh frozen tumors. (For the MGMT promoter methylation assay, the extracted DNA first undergoes bisulfite treatment.)
2. Amplification using the provided reagents in the kit.
3. Data analysis and interpretation using the real-time PCR software or provided analysis worksheet*.

*Automated analysis worksheets are available for certain kits and instruments; please contact support@entrogen.com for more information.

EQUIPMENT AND MATERIALS

All kits require a real-time PCR instrument capable of detecting FAM and VIC fluorescent probes. All reagents required for PCR amplification/detection, as well as validated reaction controls are included. Columns and reagents for DNA/RNA isolation and bisulfite treatment are not included.