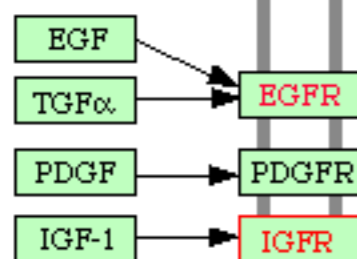


GLIOMA

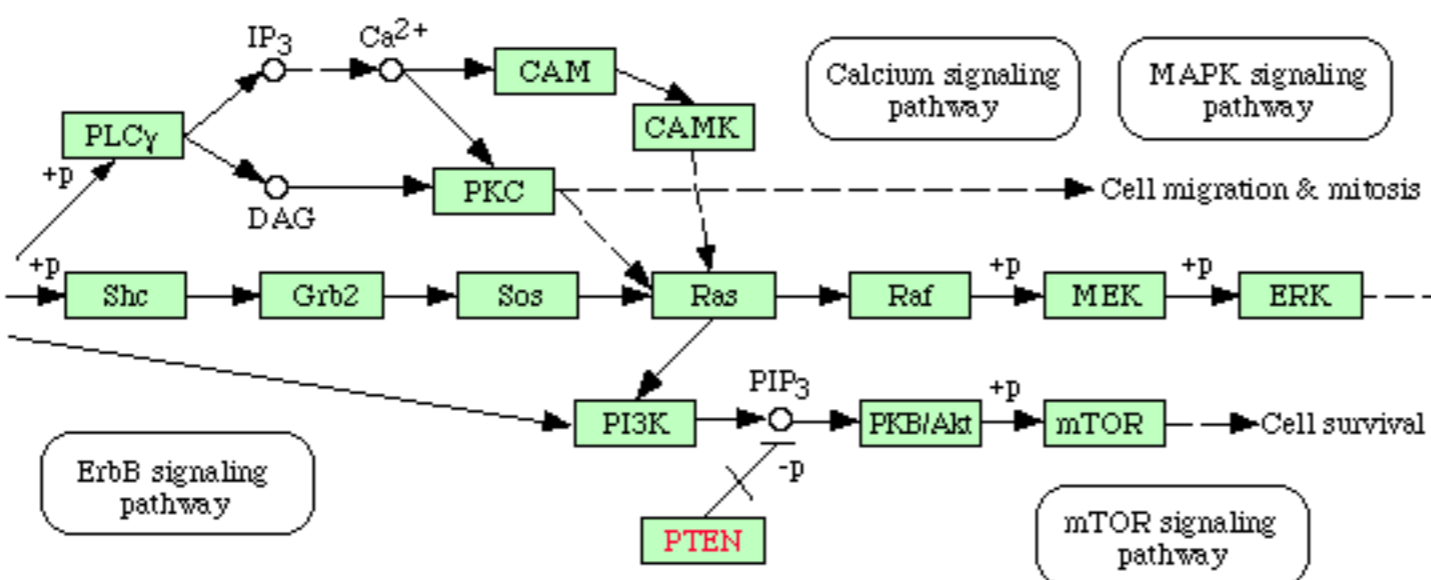
De Novo pathway

Glial progenitor cell



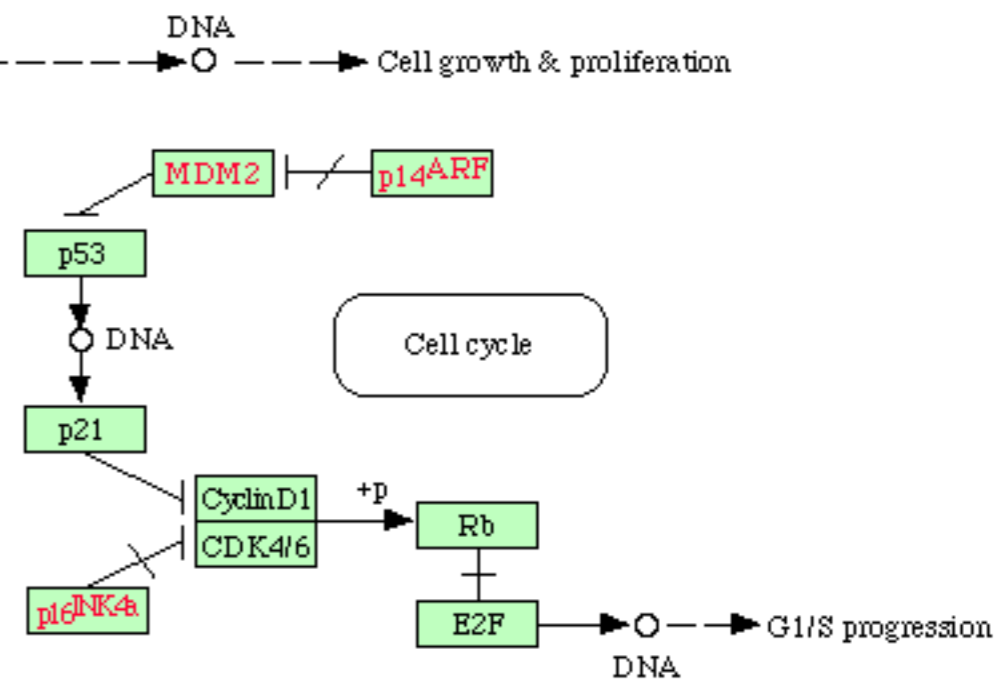
Cytokine-cytokine receptor interaction

Glial progenitor cell



ErbB signaling pathway

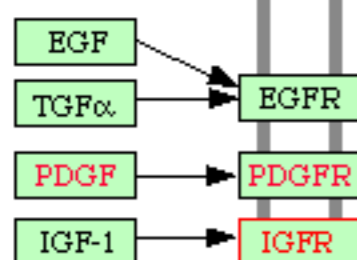
Genetic alterations
 Oncogenes : EGFR, MDM2
 Tumor suppressors : PTEN, INK4a/ARF



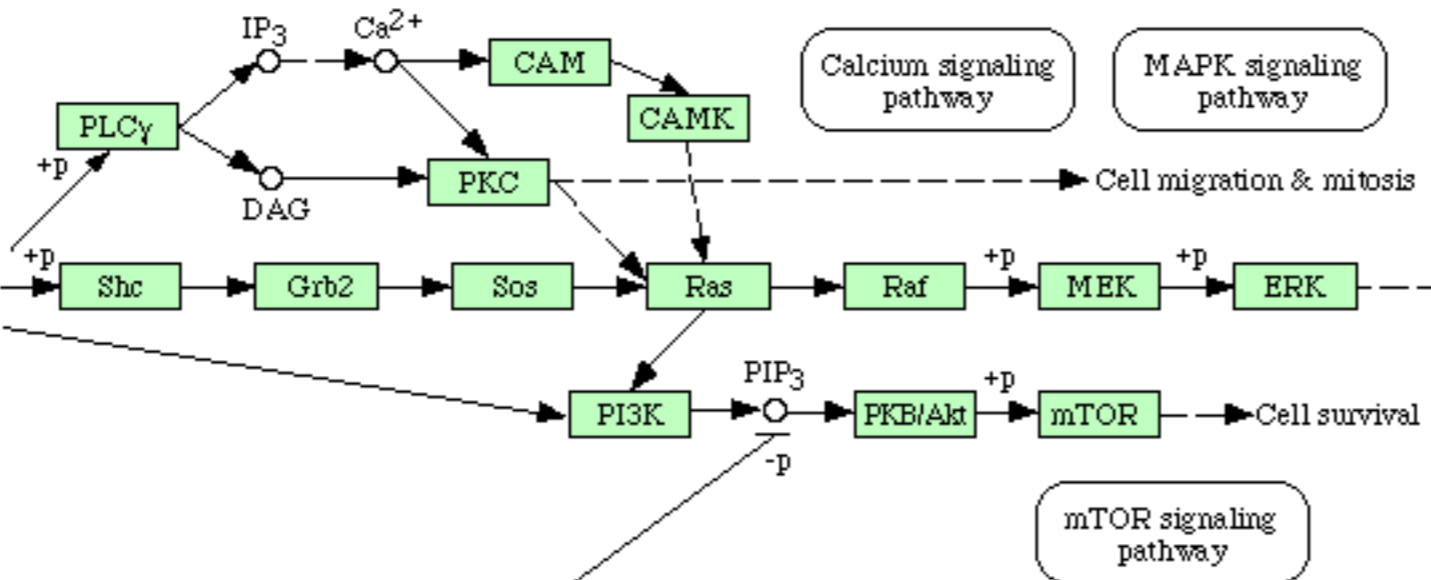
Primary GBM
(Glioblastoma multiforme)

Secondary pathway

Glial progenitor cell

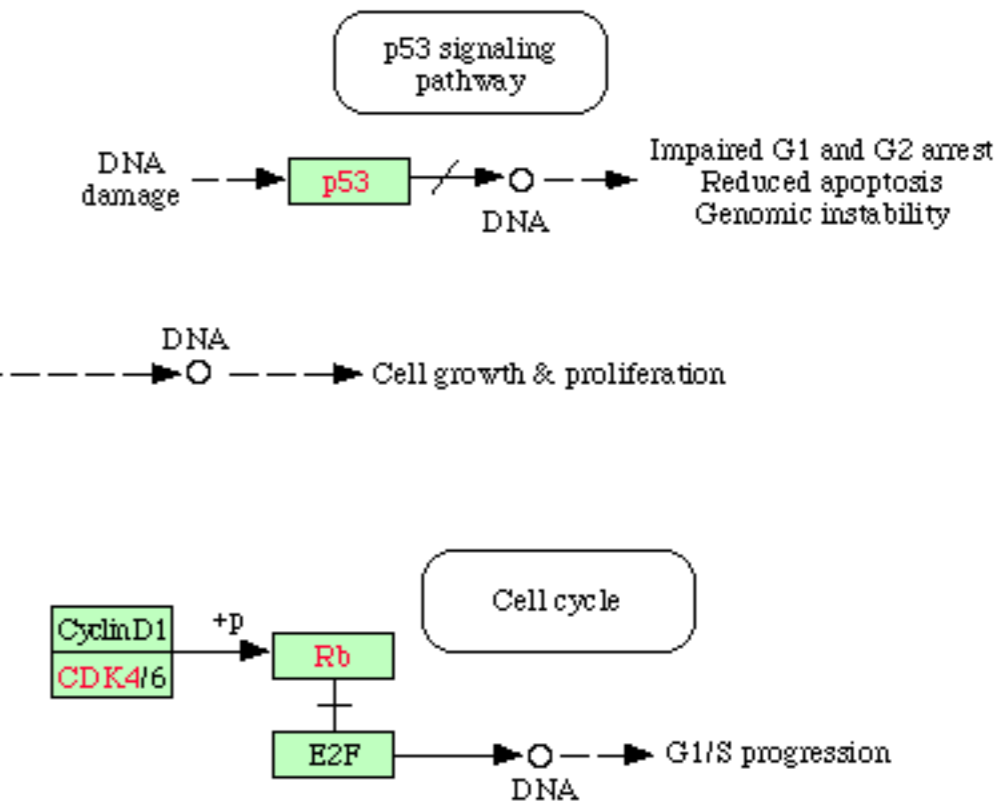


Glial progenitor cell



PTEN

Genetic alterations
 Oncogenes : PDGF, PDGFR, CDK4
 Tumor suppressors : p53, Rb, PTEN



Low-grade glioma
(WHO Grade II)

Anaplastic astrocytoma
(WHO Grade III)

Secondary GBM
(WHO Grade IV)