Targeting a Kinase Pathway to Treat Cancer

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Technology description

Executive Summary

There is a tremendous need for effective, nontoxic therapies to treat patients with glioblastoma, the most common and lethal malignant primary brain tumors. With current therapies (e.g. temozolomide and bevacizumab) life expectancy is about 15 months. MSU research results indicate that the proliferation and invasion of glioblastoma is blocked by a small molecule kinase inhibitor which disrupts multiple signaling pathways. This inhibitor therefore might drastically improve current treatment options and reduce undesired side effects.

Description of Technology

MSU researchers have demonstrated that a mixed-lineage kinase (MLK) inhibitor potently reduces viability in multiple human glioma lines. The tested MLK inhibitor blocks invasion and dissemination of human glioma cells in a 3D tumor spheroid invasion assay. Since this inhibitor blocks kinase signals through glioma-associated growth factors and cytokines to multiple mitogen-activated protein kinases (MAPKs), it may be effective in treating multiple classes of glioma.

Application area

Cancer therapeutic

Advantages

Potent glioblastoma treatment
May treat multiple classes of glioma
Avoids potential for drug resistance response
Reduces undesired side effects

Institution

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