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Glioma tumor stem cell based models for evaluation of anti-glioma therapeutics

Norman L Lehman
The Ohio State University, USA

Experimental models for anti-glioma therapies are limited by two important factors; appropriate modeling of the blood-brain tumor barrier and modeling of the tumor stem cell component. The latter is important because glioblastoma tumor stem cells are more resistant to chemotherapy and radiation compared to the general population of glioma tumor cells. These problems have been approached using orthotopic xenograft models in rodents. Similar to fetal neural precursors, glioma stem cells can be cultured from tumor samples in the form of neurospheres. Human glioblastoma tumor stem cell neuro spheres can be stereo tactically injected into rodent brains example nude mice which allows for tumor formation. The animals can then be treated with drugs or other anti-glioma modalities allowing close modeling of the blood-brain tumor barrier. Such models have successfully been used to test the efficacy of several experimental therapeutics including with Aurora-A kinase inhibitors in our laboratory. The benefits and limitations of using glioblastoma tumor stem cells compared to conventional tumor models will be discussed.

Biography

Norman L Lehman has completed his MD and PhD from the University of Southern California and Postdoctoral studies from Stanford University School of Medicine. He is currently the Director of Neuropathology at the Ohio State University. He has published more than 50 peer reviewed papers and has served as an Editorial Board Member for *Acta Neuropathologica* and is an Associate Editor for the *Journal of Neuropathology and Experimental Neurology.*

norm.lehman@osumc.edu

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