CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP130464

Project Title:
Requirement for Ascl1 in Gliomagenesis

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas Southwestern Medical Center

Lay Summary:

Malignant gliomas in both the adult and pediatric populations are among the most aggressive and lethal of all solid tumors. Since current therapies are not sufficient to stop these tumors, new targeted therapies are needed. An emerging theme in cancer biology is that stem/progenitor cell populations are responsible for propagating tumor growth. The proposed studies will use a mouse model and human tumor tissue to investigate the role of a transcription regulatory protein, Ascl1, found normally in development of the nervous system but is found aberrantly in many brain tumors. The function of this factor and the pathways controlled by this factor will be determined in glioblastoma formation and progression. We have the tools to specifically mark the Ascl1 cells in vivo in models of glioblastoma to follow them as they progress to frank tumor. The cells will be isolated for molecular and biochemical experiments that will provide the means to identify novel targets required for tumor growth. The strength and uniqueness of the current research proposal is that we are applying our extensive knowledge of Ascl1 function in development to directly and prospectively elucidate its role in the context of cancer development. This approach, combined with the use of both a robust mouse model and a resource of human tumor tissue, will lead to new insights into the biology of glioma development. The impact for brain tumor research is the ability to access a window into molecular mechanisms and growth requirements of these highly proliferative tumor cells that can be exploited to develop new therapeutic targets or define new diagnostic markers for neural cancers.