Are TAM receptors friends or foes in glioblastoma?

Yunxiang Zhou

Yali Wang

Hailong Chen

Yanyan Xu

Yi Luo

Yongchuan Deng

Jianmin Zhang

Anwen Shao

Video Byte

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Abstract

The TAM subfamily of receptor kinases has been implicated in tumor development and progression. Their roles in efferocytosis, regulation of immune cells, secretion of inflammatory factors, and epithelial-to-mesenchymal transition make them key players in tumor development and progression. But TAM signaling is not always beneficial to tumor growth. In glioblastoma (GBM), the most prevalent and lethal primary brain tumor in adults it appears that TAM receptors may also have anti-tumor effects. While upregulation of TAM signaling is usually associated with GBM development, progression, and poor prognosis, TAM receptors may also activate pathways that trigger anti-tumor immune responses and their immunosuppressive role in the tumor microenvironment may obstruct GBM progression. This has led researchers to propose the “Janus-faced TAM Hypothesis” - in which TAM receptors have a dual role in GBM driving GBM immune escape and therapy resistance while also having the potential to activate immune cells and inhibit tumor angiogenesis. Further study will help researchers to better understand this complex pathway pinpointing its role in glioblastoma progression to improve therapeutic targets for the disease.