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Cancer promotes an angiogenic and proinflammatory cytokine response in the host microenvironment for the development of tumorigenesis

Stromal cells and growth factors play important roles during tumor initiation and progression. Growth factors not only mediate normal biological processes such as development and tissue repair but also tumorigenesis by contributing to proliferation and transformation in neoplastic cells. This study investigated the host angiogenic and pro-inflammatory cytokines during tumor initiation and progression in heterotopic xenografts of eGFP-MIAPaCa-2 tumors growing in RAGxCγ double mutant mice. The time-to-tumor progression revealed significant host cytokine responses initiated by the cancer cells in order for them to establish neo-vasculature for tumor growth. Here, cancer cells maneuver multiple hosts circulating angiogenic and pro-inflammatory cytokines by significantly reducing host angiostatic and pro-inflammatory cytokines that restrain tumor development and increasing those that are needed. Oseltamivir phosphate (OP) monotherapy when tumor volume reached 100-200mm3 revealed a reversal in some of the anti-angiogenic and pro-inflammatory cytokines in preventing tumor growth. The data signify several important cytokines as potential biomarkers for therapy. The findings identify for the first time how cancer cells surreptitiously use multiple host cytokines for tumor initiation and progression, all of which can be targeted by OP monotherapy.

Biography

For the past 37 years, Dr Szewczuk is Full Professor of Immunology and Medicine at Queen's University, Kingston, ON Canada. Prior to Queen's, he was Professor of Mucosal Immunology and Pathology at McMaster University, Hamilton, ON, Canada. He did his Postdoctoral training in cellular immunology at Cornell University Medical College, New York city, USA. Dr Szewczuk's recent research has focused on the role of glycosylation in receptor activation with a particular focus of TOLL-like, nerve growth factor Trk, EGFR and insulin receptors. He has discovered a novel receptor-signaling platform and its targeted translation in multistage tumorigenesis.

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