Journal of Health and Medical Research

Abstract

Characterization of Bidirectional Cellular Reprogramming of Tumour Cells and Stromal Cells in Rhabdomyosarcoma

Shanlin Tong

Karolinska Institutet, Department of Oncology-Pathology

Abstract:

Tumour microenvironment plays an important role in controlling tumour growth, metastasis and response to therapy. These aspects are well studied in epithelial tumour biology, but less described in mesenchymal lineage derived soft tissue sarcomas (STS). One significantly under researched STS type is rhabdomyosarcoma (RMS), which is the most common STS in children. This study focuses on how paediatric RMS regulate the behaviour of its adjacent stromal cells as well as how the sarcoma associated fibroblasts (SAF) affect the behaviour of cancer cells. We aimed to investigate the crosstalk between RMS and stromal cells to understand the mechanisms of potential therapeutic relevance, including the use of a combination of indirect co-culture system of RMS cells with SAF. Other methods will include the use of immunotaining to identify candidate biomarkers in patient material. The indirect co-culture system had shown naive BJ fibroblasts were activated by RD tumour cells with a higher proliferation in BJ fibroblast. RD tumour cells became more migrative after exposing to activated BJ fibroblast. We also identified CTGF inducing a higher proliferation in tumour cells, suggesting its oncogenic contribution to RMS development. PDGFRa blockage showed inhibition in the proliferation of SAF and mono-cultured RUCH2 tumour cells as well as FUCH fibroblasts, suggesting its therapeutic potential in blocking paracrine fibroblast activation. It also inhibits autocrine singling in both SAF and tumour proliferation. In summary, the study demonstrated the "pseudo-tumour like" response in activated SAF might play a significant role in promoting tumour growth and metastasis.

Biography:

Shanlin has completed his master degree in biomedicine at the age of 25 years from Karolinska Institute. His research focuses on translational and experimental studies on cellular crosstalk. Cellular crosstalk in tumors often has a significant impact on tumor growth and treatment response, and ultimately, patient overall survival. The importance of cellular crosstalk in sarcoma is, however, largely unknown. We explore the role of infiltrating non-malignant cells in human soft-tissue sarcoma (STS) with a focus on pediatric rhabdomyosarcoma (RMS).

Clinical Pediatrics and Pediatric Cardiology, July 20, London Uk

Citation: Shanlin Tong, Characterization of Bidirectional Cellular Reprogramming of Tumour Cells and Stromal Cells in Rhabdomyosarcoma, Clinical Pediatrics and Pediatric Cardiology, July 20, London Uk