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Inflammatory events influencing the chemical induced-squamous cell carcinoma

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The host immune system is regulated by both innate and adaptive immune responses to protect it from the attack of cancer cells. The tumor microenvironment, which is orchestrated by inflammatory cells, affects malignant cells through the production of cytokines, chemokines, growth factors, prostaglandins, reactive oxygen species (ROS) and nitric oxide (NO). However, mechanisms resultant from immune response (i.e. ROS, NO) can be involved with the initiation and promotion of several types of tumor as well as connected to a tumor-specific T cell response. Besides, cancer cells are able to grow by escaping from the attack of immune cells, thus, disrupting the host immune system, which is progressively suppressed as a result of tumor progression and metastasis.

Therefore, inflammatory responses play decisive roles in different stages of tumor development, including initiation, promotion, progression, invasion, and metastasis. Because the tumor microenvironment consists of neoplastic cells and a heterogeneous group of untransformed cell populations, including leukocytes, soluble inflammatory factors, the moment when different cell group act seems to be crucial for defense or susceptibility. Such a complex microenvironment can support tumor growth, protect the tumor from host immunity, encourage therapeutic resistance and provide place for metastasis to occur.

Biography

DDS since 1994, Thais Helena Gasparoto studied immune response against *Candida albicans* in her master's and Ph.D., with more than 10 articles published about this issue. Upon completion of her postdoctoral at the University of Sao Paulo in 2012, she demonstrated aspects of inflammation and inflammasome influencing the beginning and establishment of squamous cell carcinoma. These investigations resulted in several relevant papers and interesting data. She has contributed as collaborated researcher studying the immune response against other oral and systemic infections at the University of Sao Paulo. She also works as collaborator researcher in studies about plant medicines at the same institution.

A novel neurofibromin (NF1) tumour suppressor protein interaction links the neurofibromatosis type 1 (NF-1) and the French Canadian variant of Leigh's syndrome in a unique RNA granule transport complex

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Loss-of-function mutations and deletions in the neurofibromin tumor suppressor gene (*NF1*) cause neurofibromatosis type 1 (NF-1), the most common inherited syndrome of the nervous system in humans, with a birth incidence of 1:3,000. The most visible features of NF-1 are the neoplastic manifestations caused by the loss of Ras-GTPase-activating protein (Ras-GAP) activity mediated through the GAP-related domain (GRD) of neurofibromin (NF1), the protein encoded by NF1. However, the syndrome is also characterized by cognitive dysfunction and a number of developmental abnormalities. The molecular etiology of many of these non-neoplastic phenotypes remains unknown. Here, we show that the tubulin-binding domain (TBD) of NF1 is a binding partner of the leucine-rich pentatricopeptide repeat motif-containing (LRPPRC) protein. These two proteins complex with kinesin 5B, hnRNP A2, staufen1, and myelin basic protein (MBP) mRNA in RNA granules. This interaction is of high interest as it links NF-1 with Leigh's syndrome, French Canadian variant (LSFC), an autosomal recessive neurodegenerative disorder that arises from mutations in the LRPPRC gene. Our studies are focused on how loss or mutation of NF1 and LRPPRC may disrupt the RNA granule transport complex and contribute to the manifestations of NF-1 and LSFC.

Biography

Vedant Arun is the recipient of the prestigious Vanier Canada Graduate Scholarship and has completed his Ph.D. at the age of 26 years from the University of Toronto. He is the scientific advisor of the Neurofibromatosis Society of Ontario and has published more than 25 scientific articles and abtracts on the topic. Apart from his research, Dr. Arun is passionate about his undergraduate teaching commitments and involvement with the Ministry of Health and Long Term Care, Ontario, Canada.