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**Chemical Approaches to Modulate the Anti-Tumor Immune Response**

The potential to harness the innate ability of the human immune system to selectively seek and destroy cancer cells represents a powerful anti-cancer therapeutic strategy. This strategy has recently materialized to afford both FDA approved immunotherapeutic drugs in addition to promising therapies currently being evaluated in clinical trials including anti-tumor vaccines, adoptive cell transfer therapies, and immunomodulatory checkpoint inhibitors. Although these immunotherapies can potentially serve to quite effectively complement and in certain ways improve on the current standards of care including cytotoxic chemotherapeutics, their ability to completely eradicate solid tumors and confer long term increases in patient survival has been limited. Such limitations arise in large part, due to a number of complex tumor evasion mechanisms combined with difficulties in our ability to discriminate the cancer cell surface from that of normal healthy cells to affect selective tumor targeting.

For the above reasons, the overarching goal of the Rullo Laboratory is to devise, adapt and apply specific chemical strategies to diversify, expand, and advance the current immunotherapeutic arsenal while equipping it with the capacity to more effectively combat the obstacles imposed by the tumor and its extracellular microenvironment. Towards this end, we are currently developing chemical tools and strategies to probe unique molecular signatures of the cancer cell surface and aspects of the tumor microenvironment, and exploit them for recognition by a combination of host immunological machinery and chemical/biologic immunotherapeutics. This seminar will focus on the evolution of the current chemical immunology program, from fundamental research in the development of antibody recruiting small molecule immunomodulators against metastatic cancer.

Professor Anthony Rullo joined the Dept. of Pathology and Molecular Medicine at McMaster University after his postdoctoral fellowship at Yale University. He completed his PhD at U of T in Organic Chemistry and Chemical Biology. His Chemical Immunology Research Program at McMaster is focused on combining the tools of organic chemistry and immunobiology to develop new molecular approaches capable of interrogating and modulating the intricate host immune-cancer cell interactome.

For more information, visit his bio [HERE](#)