"The role of extracellular vesicles in host-microbiome interactions and their implication in colorectal cancer"

*Fusobacterium nucleatum* and *Parvimonas micra* are anaerobic bacteria commonly found in the human oral cavity. Interestingly, both microbes are opportunistic pathogens, capable of migrating elsewhere in the body, where they have been associated with a variety of human diseases, such as colorectal cancer (CRC). Despite recent research analyzing the roles that these oncomicrobes (*i.e.*, microbial pathogens associated with the development of cancer) play in CRC, the mechanisms by which *F. nucleatum* and *P. micra* are associated with CRC pathogenesis remains largely unknown. In effect, in my research I am interested in the potential impact of extracellular vesicles (EVs) in the development and progression of CRC. EVs are membrane-bound vesicles that are released from both eukaryotic and bacterial cells and serve a variety of functions in the host via the transfer of their bioactive cargo (*e.g.*, RNA and proteins) between cells. For instance, EVs are found to play integral roles in cell-cell communication, as well as in the development of certain diseases, such as CRC. In the case of CRC, it is possible that EVs derived from both cancer cells and oncomicrobes, such as *F. nucleatum* and *P. micra*, may serve important roles in CRC progression, such as by facilitating interactions between the host and the microbiome. I propose to study these effects by first assessing if EVs derived from colon cancer cells impact the growth of known oncomicrobes, and in turn, assessing if EVs derived from these oncomicrobes impact the cytokine response of colon cancer cells.