The research in the Nothnick Laboratory focuses on the physiology and pathophysiology of the uterus/endometrium with the primary focusing being endometriosis. Endometriosis is a chronic disease in which endometrial tissue grows ectopically, is characterized by pelvic pain and infertility and affects over 70 million women world-wide. One of the reasons for its high prevalence is that the disease is usually diagnosed only after it has established. An additional clinical shortcoming is that the majority of treatments for the disease rely on the induction of a hypo-estrogenic state, which is associated with unwanted side effects and negative impacts on bone health. Clearly, both better diagnostic tools and treatment options are warranted.

microRNAs have emerged as critical post-transcriptional regulators of gene expression that are fundamental for development and function of many organ systems. Recent reports have suggested that miRNAs are mis-expressed in endometriosis. While these reports have laid the initial groundwork to examine the potential role of miRNAs in the pathophysiology of the disease, they have provided no functional evidence demonstrating a role for miRNAs in the development of endometriosis. To fill this gap in our knowledge, we are currently examining the mechanisms by which miR-451 contributes to the pathology of the disease using in vitro and in vivo models. Secondary interests focus on the regulation and function of microRNAs in the decidualization process and endometrial infertility.

This seminar will provide an overview of the female disease endometriosis, focusing on pathogenesis, diagnosis and treatment. Dr. Nothnick will review the emerging role of microRNAs in the pathogenesis and the potential utility of miR-451a in diagnosis and possible treatment of the disease.