BCHM 421/422 – 2022/23

Project #1 Background: The skin is the first line of defense against environmental toxins and pathogens and provides a containment barrier to prevent excessive loss of water. Barrier function in skin is established and maintained through the regulation of stem cells housed in the bulge of the hair follicle and sebaceous glands, which differentiate and produce the components of barrier. Retinoic acid, the active metabolite of vitamin A plays a key role in regulating the expression of these components. Our lab studies the role of proteins involved in regulating the retinoic acid signalling pathway in various diseases. The aim for this project is to investigate how the skin changes under conditions where vitamin A signalling and metabolism is altered, either genetically or as the result of disease.

Supervisor: Dr. Martin Petkovich

Project title: Vitamin A regulation of skin barrier formation.

Project goals: Evaluate changes in gene expression associated with altered skin barrier function.

Experimental approaches: Transcriptomics, genetic mouse models, retinoic acid treatment, histology, molecular biology.

References:

Szymański, Ł.; Skopek, R.; Palusińska, M.; Schenk, T.; Stengel, S.; Lewicki, S.; Kraj, L.; Kamiński, P.; Zelent, A. Retinoic Acid and Its Derivatives in Skin. *Cells* **2020**, *9*, 2660. https://doi.org/10.3390/cells9122660