THOROUGH CHARACTERIZATION OF THE EFFECTS OF DIFFERENTIAL GENE EXPRESSION OF AN AUTOIMMUNITY-ASSOCIATED GENE

**Project extent:** Research project, 30 hp.

**Project type:** Experimental.

**Supervisor:** Johanna Dahlqvist, MD, PhD. Department of Medical Sciences, Uppsala University, and Unit of Rheumatology, Uppsala University Hospital.  
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**Location:** Rudbecklaboratoriet, Uppsala.

**For whom:** Student in biology/biomedicine/medicine/biomedical engineering/biomedical laboratory science or equivalent, with some experience of experimental work, such as cell culture.

**When:** Autumn 2023.

**Project description:** The BACH2 gene locus has been associated with multiple autoimmune disorders. The role of BACH2 in differentiation of B cells and T regulatory cells has been well established, but little is known about its function in endothelial cells. In this project, the functional impact of differential BACH2 expression in endothelial cells will be investigated, with a special focus on the potentially gene regulatory function of disease-associated genetic variants.

The experimental work includes cell culture, CRISPR/Cas9 and gene overexpression technologies, quantitative RT-PCR, RNA sequencing and flow cytometry among other methods. Initially, the supervisor and student will work side-by-side, eventually the student will work independently in the laboratory.