

NIHR GOSH BRC Vacation Studentship

PROGRESS FORM – VACATION STUDENT - 2018

Student's name:	Viola Lough
Primary supervisor:	Dr Bajaj-Elliott, Mona
Subsidiary supervisor (where applicable):	Dr Lizzy Rivers
Project title(s):	Investigating Pryn-mediated Inflammasome activation in Wiscott-Aldrich Syndrome (WAS)

Summary

What are you trying to do in this studentship?

Wiscott-Aldrich Syndrome (WAS) is a rare genetic disease characterised by recurrent infections and inflammation, eczema and platelet abnormalities. Patients often also present with autoimmunity (for example irritable bowel disorder or arthritis) and have an increased incidence of cancer. The disease is caused by a deficiency in Wiscott-Aldrich Syndrome protein (WASp), a protein involved in the functioning of the actin cytoskeleton in haematopoietic cells, and so is required for a variety of functions in these blood cells.

Previous research in the lab has shown WASp deficiency affects the function of the NLRP3 inflammasome. The inflammasome is a multi-protein complex that synthesises mature IL-1 β and IL-18; molecules that mediate local and systemic inflammation. Cells lacking WASp have been shown to display enhanced inflammasome activation and IL-1 β production.

We wanted to examine WASp deficiency in the context of another type of inflammasome: the pyrin inflammasome, which senses the presence of certain bacteria, to investigate the hypothesis that over-activation of the pyrin inflammasome contributes to the chronic inflammation and infection seen in WAS.

Why is this research important?

Currently, no studies have examined the pyrin inflammasome in WAS – particularly in the context of IL-18. This research is providing new insights into the pathophysiology of WAS, which in turn may lead to the development of novel treatments and therapeutic markers.

Value of Your Experience

Please comment on the value of your experience undertaking this NIHR GOSH BRC vacation studentship.

I have really enjoyed my time at the ICH. Mona ensured I was always busy but allowed me to have a lot of independence, and Lizzy and David were very patient and always on hand to show me new techniques. Overall I have gained not only novel research skills, but also experience in being an independent worker and in making decisions to help guide my research.