PROJECT RESUME

The model organism Hydractinia echinata has remarkable capacity for regeneration. It is an invaluable tool to enhance our understanding of stem cells and developmental biology and the capacity of organisms to regenerate. Research into this animal will ultimately lead to advances in regenerative medicine. We are interested in the histone variant H2AX which has roles in DNA repair and also in stem cell development and differentiation. To understand more about the biology of H2AX we will explore the expression and abundance of H2AX in different tissues in Hydractinia and the relationship between the abundance of this protein and the capacity of the animal to regenerate and cope with DNA damage. Of particular interest is the presence of a female germ cell specific variant of H2AX that may play a role in protecting the genome of these progenitor cells.