



NICHOLE OWEN

OHSU, Molecular and Medical Genetics PhD candidate

Degrees:

B.S. Genetics and Cell Biology, Washington State University

B.S. Microbiology, Washington State University

Scholar Donors:

Leslie and Mark Workman

About the Scholar:

Nichole is investigating the mechanism of radial formation, a unique chromosome aberration that occurs in the cells of Fanconi anemia and Bloom Syndrome patients. They occur as a result of DNA damage that is improperly repaired in these cells, but not much is known about how they are formed or what their fate is when they occur spontaneously. More precisely, she is pinpointing the problematic lesion that results in radial formation and is using a variety of immunofluorescence and cytogenetic techniques to track radial formation in an effort to understand where and how DNA repair goes awry.

Benefits to Society:

Fanconi anemia and Bloom Syndrome are genome instability disorders resulting from mutations in DNA repair genes. They are commonly known as cancer predisposition disorders because the genome instability often leads to cancer early in life, especially blood cancers and solid tumors of the head and neck. Understanding the mechanism of radial formation will allow us to better understand the genome instability that is a hallmark of these disorders, and may direct an approach toward effective therapy.

Awards and Honors:

NIH Molecular Hematology Training Grant

Publications and Posters:

PUBLICATIONS

Articles (Peer Reviewed)

1. Murdoch B, **Owen N**, Shirley S, Crumb S, Broman KW, Hassold : Multiple loci contribute to genome-wide recombination levels in male mice. *Mamm Genome*. 21(11-12):550-555, 2010.

2. Murdoch B*, **Owen N***, Stevense M, Smith H, Nagaoka S, Hassold T, McKay M, Xu H, Fu J, Revenkova E, Jessberger R, and Hunt P: Altered cohesin gene dosage affects mammalian meiotic chromosome structure and behavior. *PLoS Genet*. 9(2):e1003241, 2013.

*Co-first authors.

Posters

1. **Owen N**, Hanlon Newell A, Ziaie N, Moses R, Olson SB: Characterization of interstrand crosslink induced radials in BLM-deficient cells. Presented at the Rare Disorders Research Consortium, OHSU Research Week, May 2012, Portland, Oregon.