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I did my PhD (Pharmacology) in Dr. Schulz lab, University of Alberta 2012. In 2013 I joined Dr. Hendzel lab to pursue my postdoctoral fellowship. I am also a registered clinical pharmacist (Alberta College of Pharmacy). My research in the Hendzel lab was funded by both Alberta Cancer Foundation & Alberta Innovates Health Solutions Clinician Fellowships.

My postdoctoral work in the Hendzel lab has further broaden my expertise and exposed me to state-of-the-art imaging and structural methods including; live-cell imaging, super-resolution microscopy and NMR spectroscopy. Through combination of these techniques, I discovered that the chromatin-bound protein, RYBP, is extracted from the chromatin during DNA repair.

This paper provides a novel mechanism by which cancer cells can be more sensitized to both radiation and chemotherapy. I discovered that the protein, RYBP inhibits the homologous recombination DNA damage repair. Thereby, breast cancer cells that express high levels of RYBP are more sensitive to DNA-damaging agents including radiation and PARP inhibitors. Moreover, the paper unraveled the mechanism at the molecular level by which RYBP hinders DNA repair. The effects of RYBP were found to be mediated by its ubiquitin (Ub)-binding domain (the NZF-domain), which preferentially binds K63-linked Ub. It is worth noting that the DNA repair factors, RAP80, BRCA1 and Rad51 recruit to DNA damage sites by their interaction with K63-linked Ub. Therefore, RYBP competes with DNA repair proteins for ubiquitin chains at DNA damage sites, and precluding efficient DNA repair (Cell Reports; 22: 383-395, 2018).

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