



INTERDISCIPLINARY GRADUATE PROGRAM IN

MOLECULAR AND CELLULAR BIOLOGY

DISSERTATION SEMINAR



**Targeting unique oxidative
metabolism of clonogenic
multiple myeloma cells for
therapy**

Jeanine Schibler
PhD Candidate

Friday, June 3, 2016
11:00 a.m.
2117 Medical Education Research
Facility (MERF)

Targeting unique oxidative metabolism of clonogenic multiple myeloma cells for therapy

Jeanine's research focuses on understanding redox mechanisms in multiple myeloma (MM), an incurable hematological malignancy. Specifically, Jeanine has spent her thesis work uncovering the differences in oxidative metabolism of MM stem-like cells compared to bulk tumor cells. She discovered that MM stem-like cells, characterized by low expression of the surface marker CD138, have lower steady-state reactive oxygen species (ROS). In addition, the stem-like cells have increased glucose uptake, which is further increased by culturing of cells in hypoxic conditions. Retrospective analysis of MM patient data showed high expression of a panel of glycolytic genes correlated with poor patient outcome. Treatment of MM cells with either a mitochondrial targeted agent, decyl-triphenylphosphonium (10-TPP), or a glycolytic inhibitor, 2-deoxy-D-glucose (2-DG), caused a significant increase in ROS in the stem-like population. Notably, the combination of 10-TPP and 2-DG induced cleavage of caspase-3 and caused significant clonogenic killing in human MM cell lines. Together, this research proposes a novel combination of agents for targeting the metabolism of the clonogenic stem-like cells with a goal of improving patient outcome.

Jeanine Schibler Biographical Sketch

Jeanine grew up in Pleasanton, California, the eldest of three girls. Jeanine received her Bachelors in Biology at St. Mary's College of California in 2010. While presenting her undergraduate research at the Drosophila Research Conference, she heard a talk by faculty from the University of Iowa. This convinced her to apply, and in 2011 she joined the Molecular and Cellular Biology Program at the University of Iowa and experienced her first Midwest winter. From there Jeanine joined the Goel lab to complete her thesis work on the redox biology of cancer stem cells in multiple myeloma. Upon graduation, Jeanine plans to continue her career in California pursuing a job in teaching.

In her free time, Jeanine enjoys spending time cooking, reading, and exploring the Midwest. Jeanine is also a member of the Newman Center at the University of Iowa and has been involved in the graduate group during her time in Iowa City.

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