

CHOP Research Institute Summer Scholars Program



Janis K Burkhardt, Ph.D.

Pathology and Laboratory Medicine

Basic Research: Research most often conducted in a laboratory setting that is designed to enhance our scientific knowledge base (does not involve human subjects)

Cytoskeletal Control of the Immune Response

My laboratory studies the cell biological mechanisms that mediate communication between cells of the immune system. By understanding how signaling events and changes in cellular architecture work together to regulate defense against tumors and pathogens, we hope to help patients with mutations in relevant proteins, and improve vaccines and immunotherapies.

- **Potential summer research project:**

Virtually every aspect of T cell function requires regulated changes in the actin cytoskeleton, and mutations in key actin regulatory proteins leads to fatal immunodeficiency disease. Projects involve manipulating specific actin regulatory proteins in T cells, and asking how this affects their activation, migration, or effector function.

- **Students will learn one or more of the following techniques:**

- (1) Molecular manipulation of protein expression in tissue culture cells and biochemical analysis using protein gels and immunoblots;
- (2) Analysis of protein dynamics in living cells by high speed confocal or TIRF microscopy; and
- (3) Analysis of T cell migration in response to chemotactic cues.

Please click [here](#) to learn more about Dr. Burkhardt