

Hilldale Lecture Series 2022

Division of Biological Sciences presents:

Hao Wu, Ph.D.

Asa and Patricia Springer
Professor of Structural Biology
Professor of Biological Chemistry
And Molecular Pharmacology



Wednesday, April 6, 2022

10:30-11:30 AM

1335 HSLC

Health Sciences Learning Center

1111 Highland Avenue

Inflammasomes at the crossroads of basic science and therapeutic translation

Dr. Hao Wu is a world-renowned leader in the field of structural immunology. Using multidisciplinary structural biology approaches, including protein crystallography, cryo-electron microscopy, biochemistry, cell imaging, and biophysics, she showed that many innate immune receptors assemble large oligomeric intracellular signaling complexes, or “signalosomes,” to induce the activation of caspases, kinases and ubiquitin ligases. Her work established a new paradigm for signal transduction that involves higher-order protein assemblies, for precise temporal and spatial control of enzyme activation, signal amplification, and reduction of biological noise. Such mechanistic understanding leads to translational research that would help curtailing cancers, autoimmune diseases, and inflammatory disorders.

Dr. Hao Wu's Hilldale lecture will focus on NLRP3 and its downstream signaling molecule gasdermins. Both form large protein assemblies that control the innate immunity of broad immune cells and tissues in responses to bacteria/virus infections and danger/stress signals. They play crucial roles in diverse inflammatory/autoimmune diseases and cancer and are recently connected to severe COVID-19. Dr. Wu will describe the structural basis dictating the formation of NLRP3 inflammasome and gasdermin transmembrane protein pore, how they are regulated by diverse caspases and kinases, and how gasdermin pore gates the selective secretion of cytokines. Furthermore, her group discovered that an FDA-approved drug blocks the gasdermin D (GSDMD) pore formation and developed a small molecule that activates GSDMD and promotes anti-tumor immunity.

A gentle request: Kindly minimize the chance of bringing chemical deodorants and pod-type detergents to the seminar room.

Sponsored by the McArdle Laboratory for Cancer Research (Cancer Biology Seminar) with financial support from the Hilldale Lecture Fund.

Free Public Lecture followed by an Informal Reception in the HSLC Atrium

Join by Zoom: <https://uwmadison.zoom.us/j/95629175029>