Contribution ID: **103** Type: **Short-talk only**

The ancient evolution of gasdermin-mediated immunity

Wednesday, 7 October 2026 09:30 (20 minutes)

Bacteria encode a remarkable diversity of immune systems, including systems that trigger cell death to halt phage infection. Gasdermins, which are best known as executors of inflammatory cell death in animals, are emerging as widespread effectors of bacterial anti-phage defense. Here, we uncover novel bacterial gasdermins and explore how these potent pore-forming proteins have diversified across evolution. By combining comparative genomics with functional and structural analyses, we reveal diverse mechanisms that keep bacterial gasdermins repressed and enable their rapid activation during immune defense. These systems expose both unexpected regulatory strategies and striking evolutionary connections to gasdermin cell death pathways across the tree of life. Our findings reveal bacteria as a rich reservoir of gasdermin diversity and provide a window into how regulated pore-forming cell death has evolved over billions of years.

Reference #1

Reference #2

Reference #3

Author: WEIN, Tanita (Weizmann Institute of Science)

Presenter: WEIN, Tanita (Weizmann Institute of Science)

Session Classification: Novel anti-viral defence systems

Track Classification: Novel anti-viral defence systems