

# 22

 Jan  
2026

Thursday

## LECTURE

10:30 - 11:30 + 30 min. Q&amp;A

## MEET AND EAT\*

12:30 - 14:00



# Beyond the Cellular Boundary: The Expanding World of Protein Degradation



## BIOGRAPHY

Life depends on the constant, selective degradation of proteins, a process as vital as their synthesis. The discovery of the ubiquitin–26S proteasome pathway revolutionized our understanding of regulated protein degradation. Yet, an equally powerful system operates in parallel: the 20S proteasome, a self-sufficient catalytic core that functions without ubiquitin or ATP. Remarkably, nearly half of cellular proteasomes exist in this free form, yet their mechanisms and physiological roles have remained elusive.

In this talk, I will present our recent findings that illuminate the distinct roles of the 20S proteasome. Through systematic substrate profiling, we identified endogenous targets enriched in RNA- and DNA-binding proteins with intrinsically disordered regions, many localized to the nucleus and stress granules. We also discovered a new family of protein modulators, which we term Catalytic Core Regulators (CCRs), that selectively tune 20S proteasomal activity. Extending these insights beyond the cell, we characterized the circulating 20S proteasome in blood. This uncapped complex displays unique post-translational modifications, enhanced caspase-like activity, and enrichment in immunoproteasome subunits—hallmarks of adaptation to extracellular conditions. Together, our studies redefine the 20S proteasome as a versatile and autonomous degradation system, essential for safeguarding proteostasis across both intracellular and extracellular environments, with broad implications for stress adaptation, immune function, and disease.

## SPEAKER

## Prof Michal Sharon

Full Professor at the Department of Biomolecular Sciences,  
The Weizmann Institute of Science, Rehovot, Israel

## HOST:

Department of Infection and Immunity (LIH)  
University of Luxembourg

## RESPONSIBLE SCIENTIST:

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\* Please note that registration is mandatory for meeting after presentation by sending an email to [michelle.roderes@lih.lu](mailto:michelle.roderes@lih.lu)

## Location:

House of BioHealth  
Big conference room at the ground floor  
29, rue Henri Koch,  
L-4354 Esch-sur-Alzette