

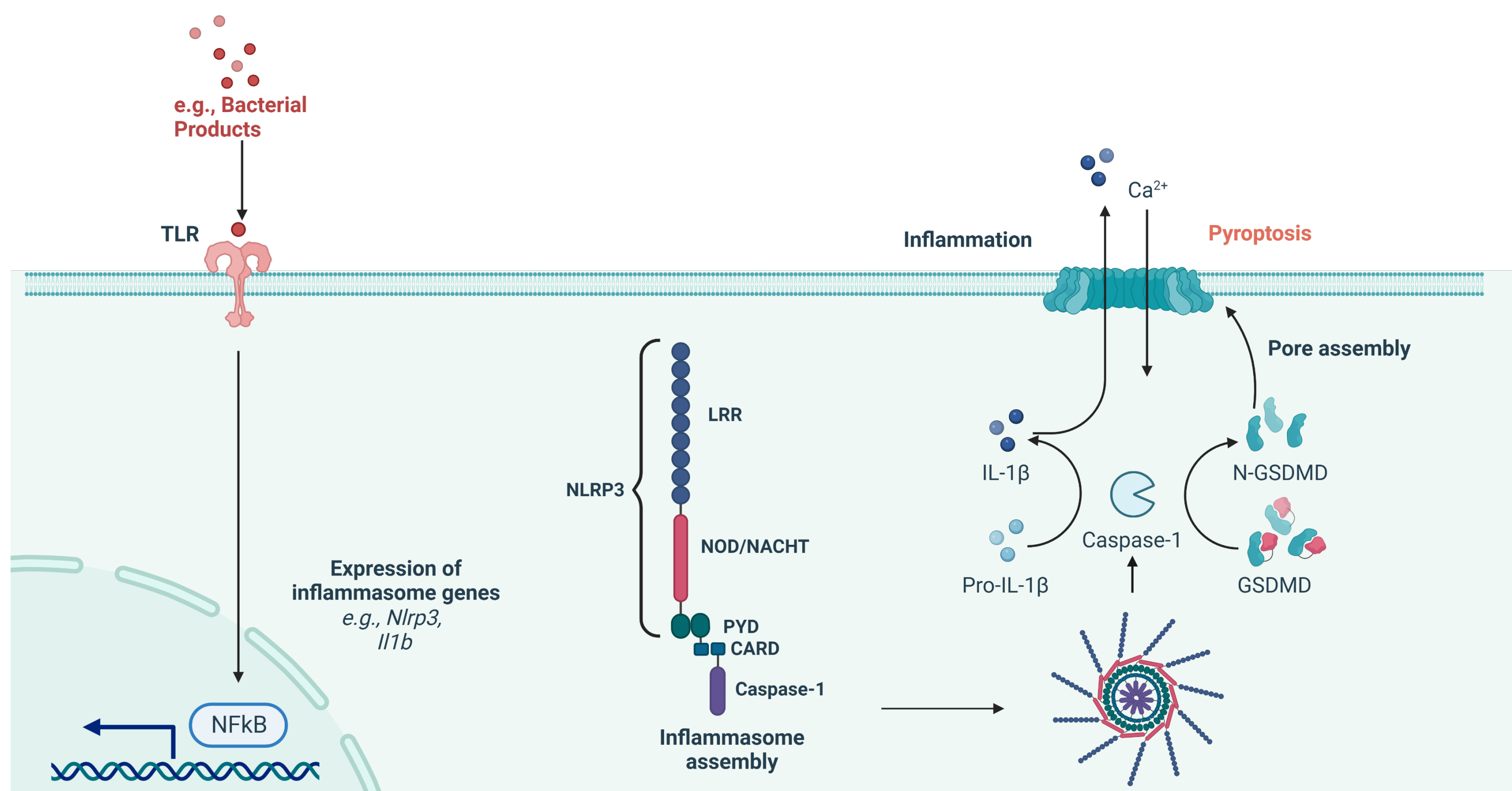
Pyroptosis in Infections and Auto-inflammation laboratory

Proteinscience, Proteomics and Epigenetic Signaling (PPES) research group, Department of Biomedical Sciences

Team Members: Andy Wullaert, Bregje Christiaenssen, Silke Mortelmans

Location: S4, Campus Drie Eiken, Contact: andy.wullaert@uantwerpen.be

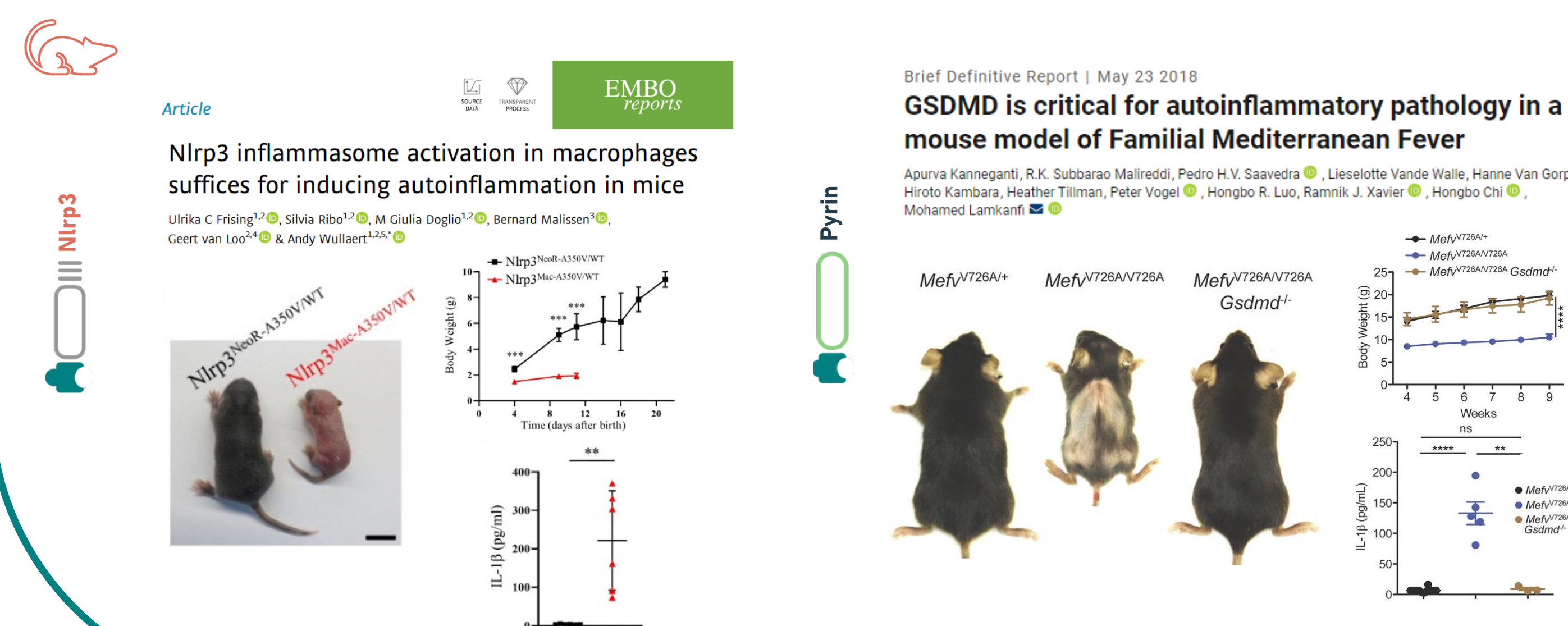
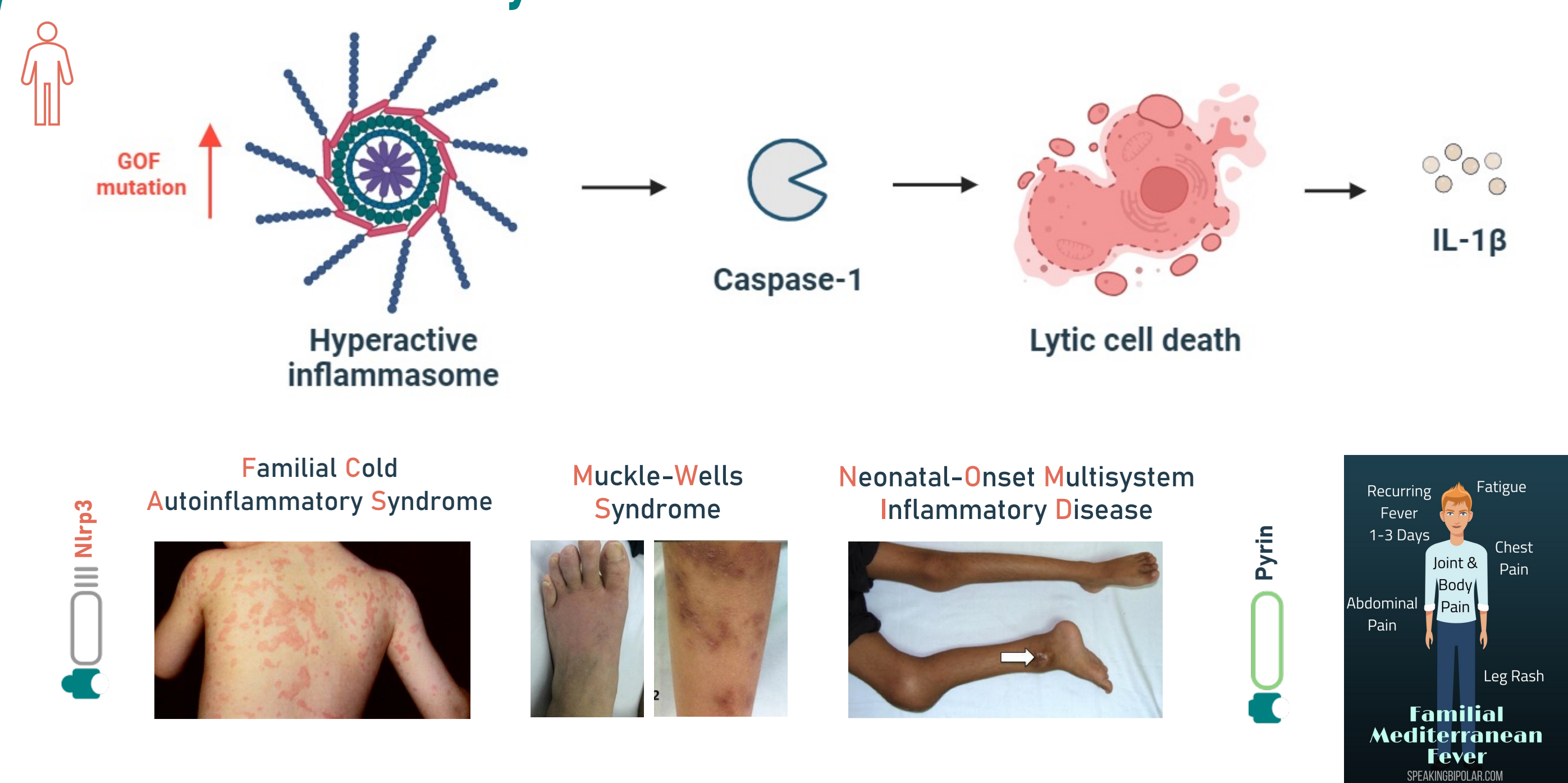
Inflammasomes = Large protein complexes activated by microbial- as well as danger-associated molecular patterns. Activated inflammasomes elicit **pyroptotic cell death**, which releases the pro-inflammatory cytokines IL-1 β and IL-18.



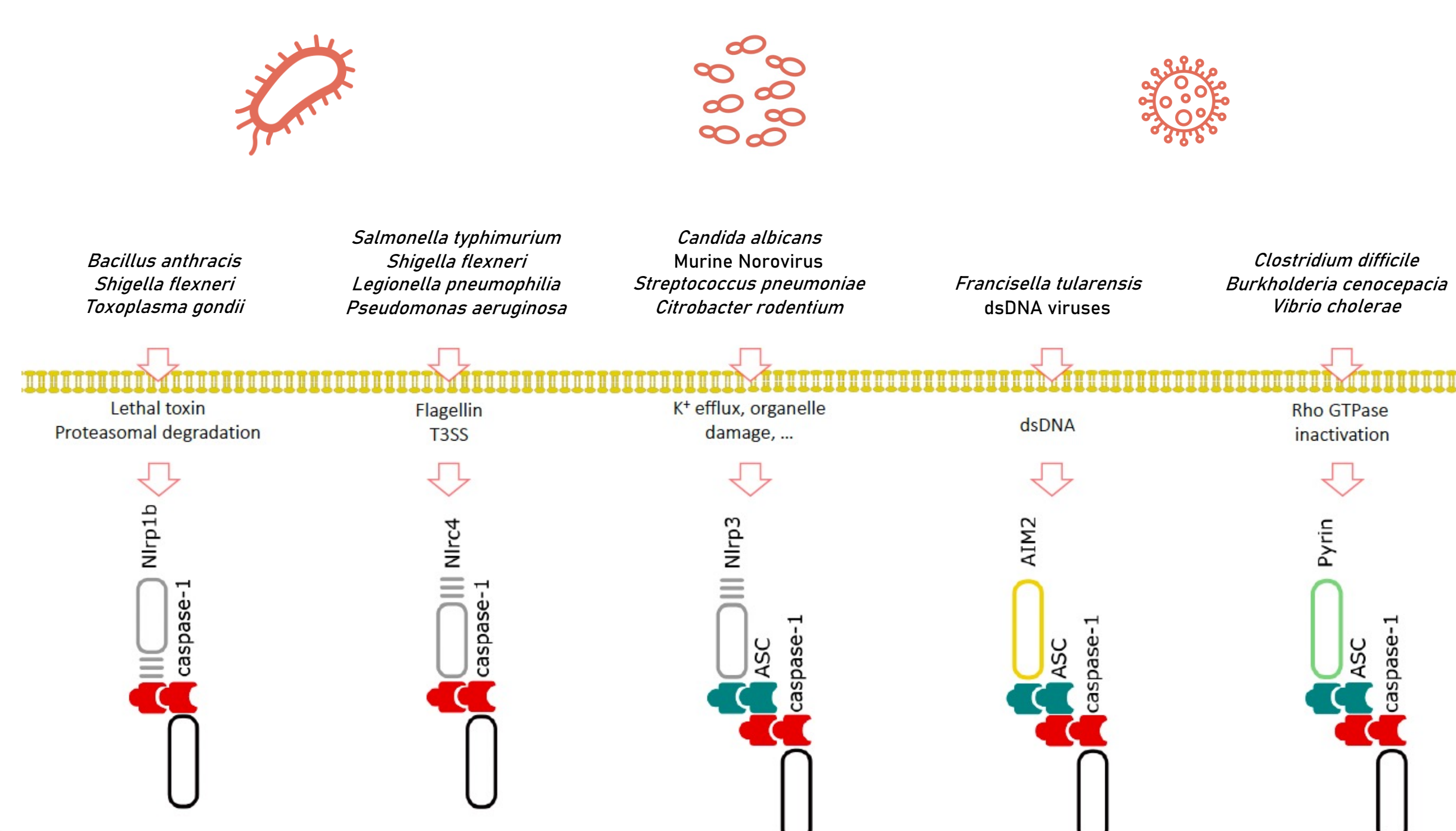
Background. *Nlrp3* inflammasome activation mechanism. The inflammasome consists of a pattern recognition receptor (e.g., NLRP3), which upon activation binds to pro-caspase-1, either independently or with an adaptor protein. Activation of the *Nlrp3* inflammasome occurs in a two-step process: a priming step and an activation step, resulting in the auto-cleavage of caspase-1, processing and release of IL-1 β , and induction of pyroptosis through Gasdermin D (GSDMD) pores.

Image created with Biorender.

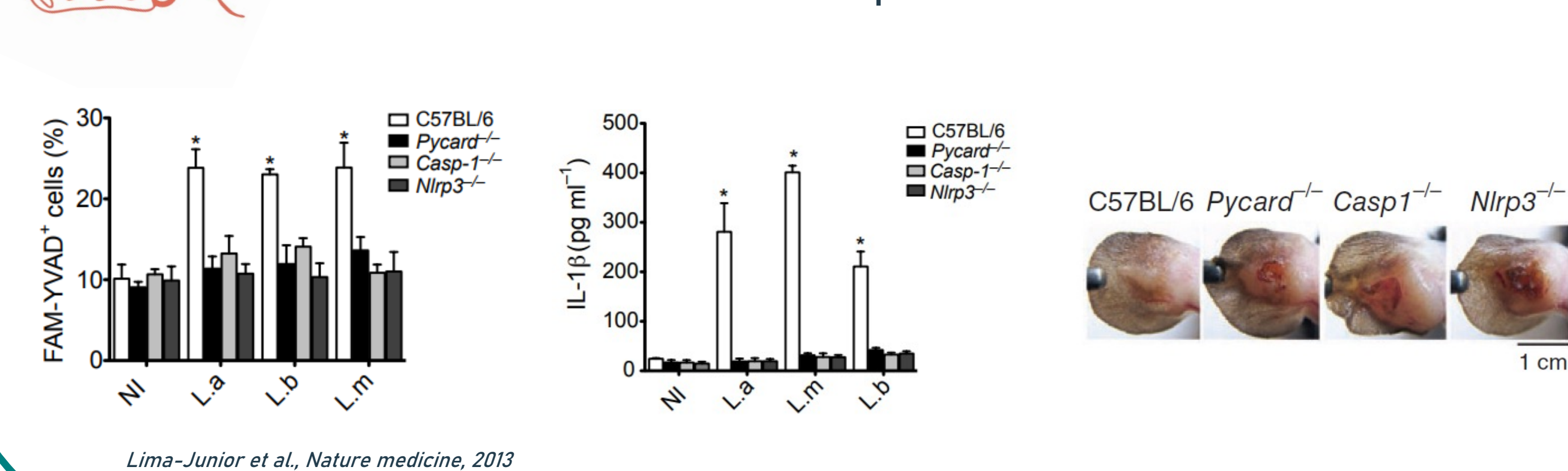
Gain-of-function mutations in inflammasomes cause Autoinflammatory Diseases in humans and mouse models



Inflammasomes are involved in various infections



Inflammasome activation is reported in cutaneous leishmaniasis



Techniques to evaluate the role of cell death and cytokine release in infections and autoinflammatory diseases

Mammalian and microbial cell culture

Cell death analysis

LDH assay

Real-time imaging

Western blot

(multiplex) ELISA

Evaluation of infection

Bioluminescent imaging

Quantitative PCR

Histological analysis

Extra immunological analyses

Flow cytometry

Cell sorting