O045 - THE PROTECTIVE ROLE OF TYPE-I INTERFERONS AXIS ACTIVATION IN THE VULVOVAGINAL CANDIDIASIS MODEL (ID 785)

Topic
AS22. Innate immunity as a first-line against viruses, bacteria and fungi

Authors
Kenno S. [1], Pedretti N. [2], Spaggiari L. [3], Ardizzoni A. [1], Comar M. [4], Campisciano G. [5], Wheeler R. [6], Pericolini E. [1]

Affiliations
1 - Department of Surgical, Medical, Dental and Morphological Sciences with Interest in Transplant, Oncological and Regenerative Medicine, University of Modena and Reggio Emilia, Modena, Italy, 2 - Department of Clinical, Medical, Surgical and Health Sciences, University of Trieste, Italy, Trieste, Italy, 3 - Clinical and Experimental Medicine PhD Program, University of Modena and Reggio Emilia, Modena, Italy, 4 - Department of Medical Sciences, University of Trieste, Italy, Trieste, Italy, 5 - Institute for Maternal and Child Health, IRCCS, Burlo Garofolo, Trieste, Italy, 6 - Molecular & Biomedical Sciences, The University of Maine, USA, Orono, United States of America

Background and Aims
Previously, in an in-vitro model of epidermoid carcinoma A431 cells line, we observed that the commensal Candida albicans Ca4314 strain up-regulates the type I interferons pathway in comparison to the vulvovaginal candidiasis-associated strain Ca1887. Here, we aim to test the protective role of type I interferons pathway activation in reducing fungal proliferation and inflammasome involvement.

Methods
We co-cultured A431 cells with Ca4314 and Ca1887 strains for 1.5h, then we measured the expression of interferon regulatory factor 3 (IRF3). Further, we blocked the type I interferons pathway by ?-IFNAR Ab. Fungal shedding was evaluated on exfoliated and loosely-adherent cells after 24h of co-incubation. Separately, the supernatants were analyzed for Lactate Dehydrogenase assay (LDH) release and inflammasome markers production.

Results
We observed significantly higher intracellular expression of IRF3 in A431 cells co-incubated with Ca4314 compared to Ca1887. The analysis of colony forming units showed greater shedding of Ca1887 compared to Ca4314. The ?-IFNAR Ab increased shedding of Ca4314 but this effect was not observed with Ca1887. LDH analysis showed a high level of cell damage induced by Ca1887, in contrast to Ca4314. Finally, we found increased inflammasome markers production in supernatant isolated from Ca1887 compared to those from Ca4314.

Conclusions
Our findings suggest a model in which type I interferons axis activation protects the epithelial cells from damage induced by Candida, limiting fungal shedding and inflammasome involvement. Taken together, our data suggest that modulation of the type I interferons pathway may regulate the pathogenic impact of Candida during vaginal infection.