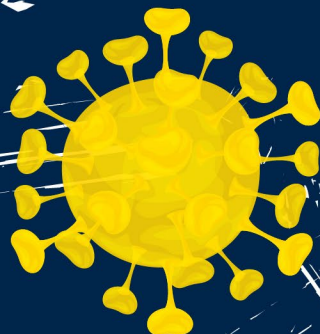


CROI ICAR

CROI Affiliated Event for
Italian Young Investigators

AWARDS 2024



CHAIRS:

F. Kirchhoff

(Ulm, Germany, EU)

D. Margolis

(Chapel Hill, North Carolina, USA)



Denver, Colorado

March 4th, 2024

h 06.00 - 07.30 pm

CROI 31st CONFERENCE ON
Retroviruses and Opportunistic Infections
MARCH 3-6 2024 DENVER, COLORADO

ICAR 16th NATIONAL CONGRESS
Italian Conference on AIDS and Antiviral Research
JUNE 19-21 ROME, ITALY



CROI ICAR CROI Affiliated Event for Italian Young Investigators

AWARDS 2024



CHAIRS: **F. Kirchhoff** (Ulm, Germany, EU), **D. Margolis** (Chapel Hill, North Carolina, USA)

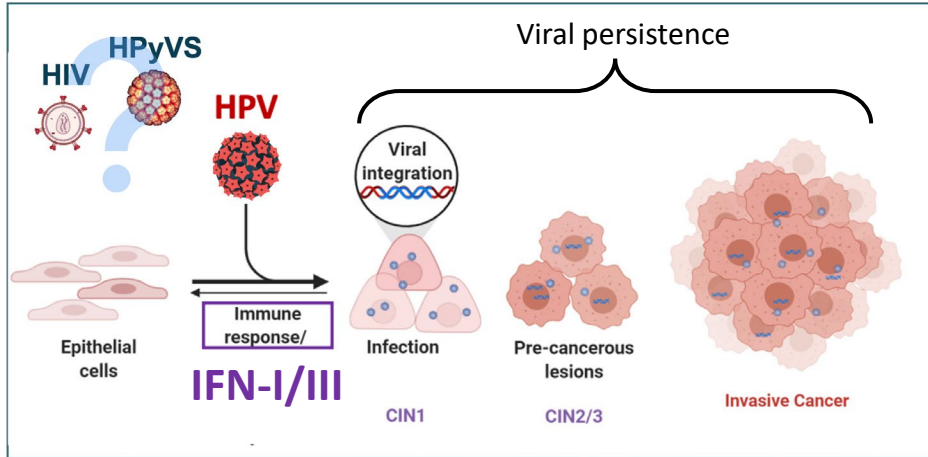
Synergistic Effects of HIV, HPV, and Polyomaviruses on Interferon Response in Male Anal Mucosa

Matteo Fracella

PhD student

Department of Molecular Medicine, Laboratory of Virology, Sapienza University of Rome, Italy

BACKGROUND



Dysregulation of Interferon (IFN) pathways

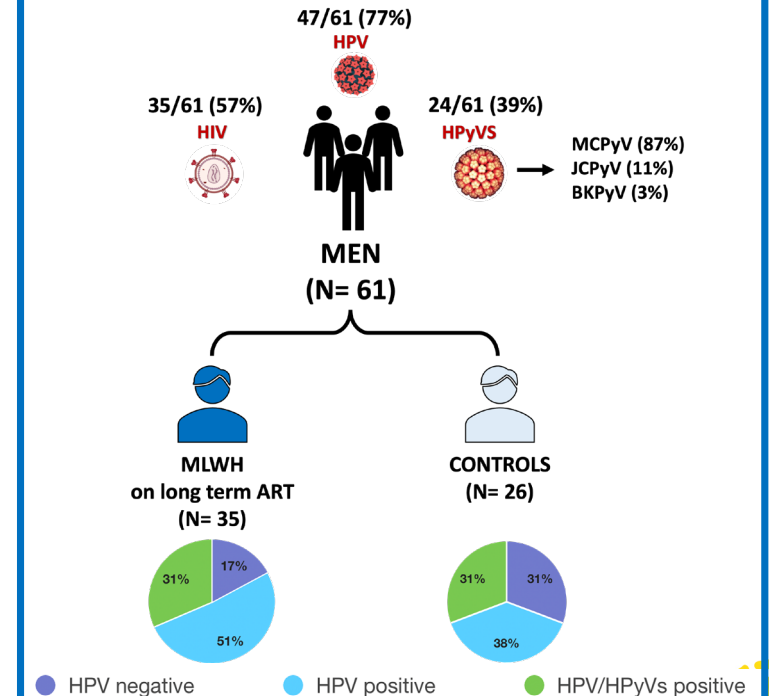
In vitro studies

- ❖ Alteration of Toll-like Receptors (TLRs)
- ❖ Alteration of IFN-I and IFN-III activation

In vivo studies

- ❖ Polyviral interactions (HIV, HPyVS)
- ❖ HPV immune evasion strategies

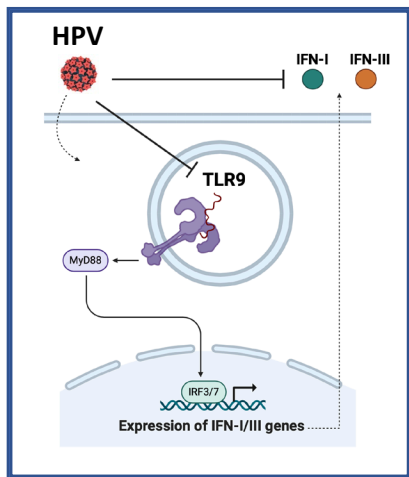
COHORT STUDY



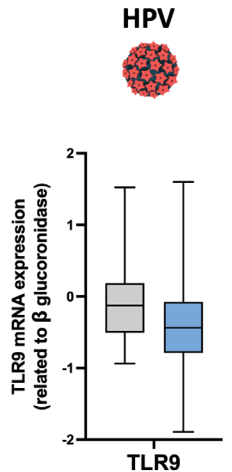
RESULTS

Expression levels of TLR9 gene in cells from anal brushings

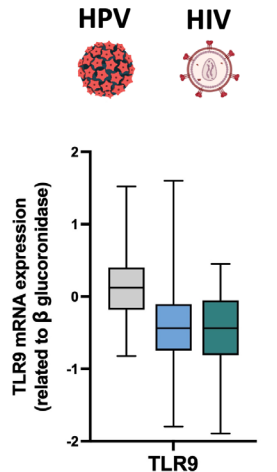
TLR9 (in vitro studies)



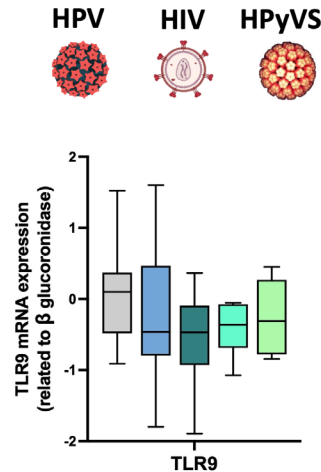
Created with BioRender
(<https://www.biorender.com>)



HPV negative
HPV positive

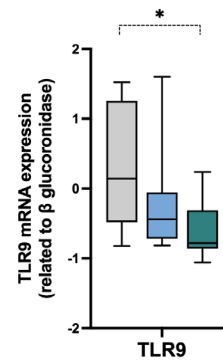


HPV/HIV negative
HPV positive
HPV/HIV positive



HPV/HIV/HPyVs negative
HPV positive only
HPV/HIV positive
HPV/HPyVs positive
HPV/HIV/HPyVs positive

Low-grade Squamous Intraepithelial Lesion (LSIL)



NOSIL/HPV/HIV negative
LSIL/HPV positive
LSIL/HPV/HIV positive

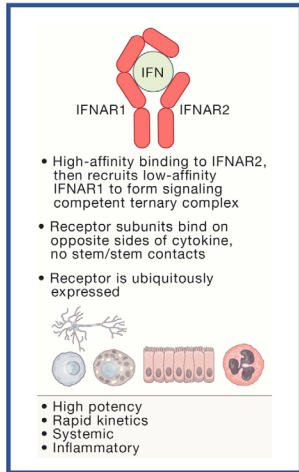
*p<.05, **p<.01



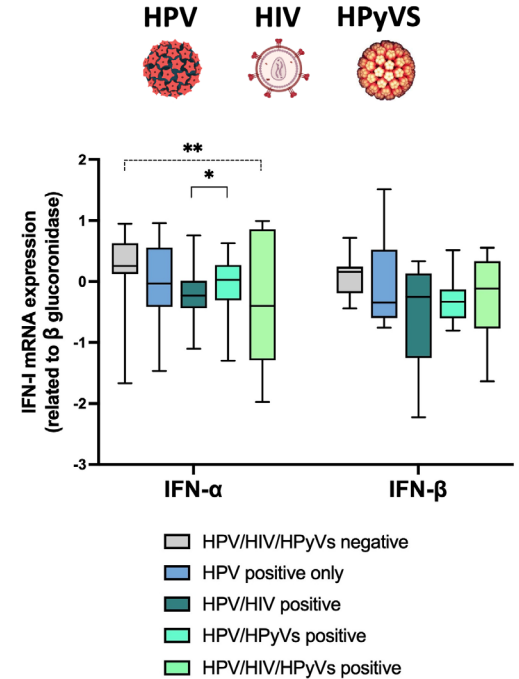
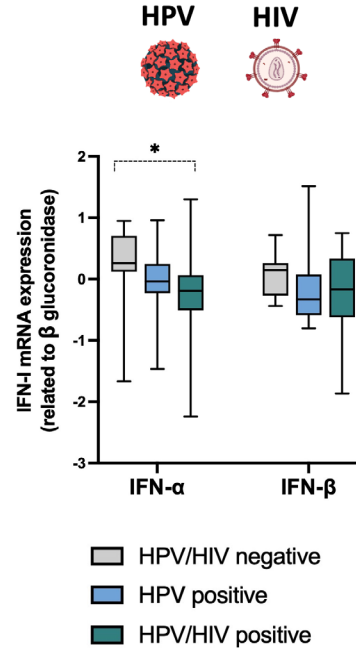
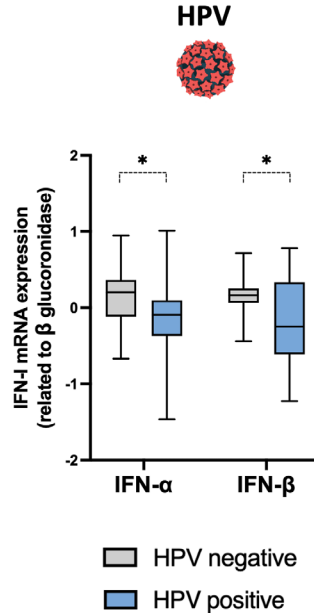
RESULTS

Expression levels of IFN-I genes in cells from anal brushings

IFN-I



Lazear HM et al. Immunity, 2019



*p<.05, **p<.01



RESULTS

Expression levels of IFN-III genes in cells from anal brushings

IFN-III

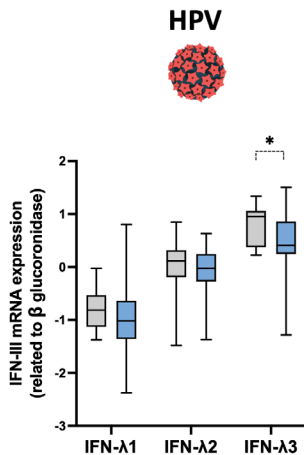


- High-affinity binding to IFNLR1, then recruits low-affinity IL-10R β to form signaling competent ternary complex
- Less cytokine surface exposed, more stem-stem contacts in receptor
- Receptor preferentially expressed on epithelial cells (and some immune cells, e.g., neutrophils)

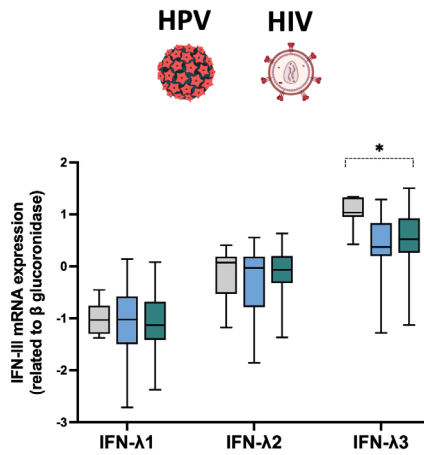


- Lower potency
- Slower kinetics
- Anatomic barriers
- Less inflammatory

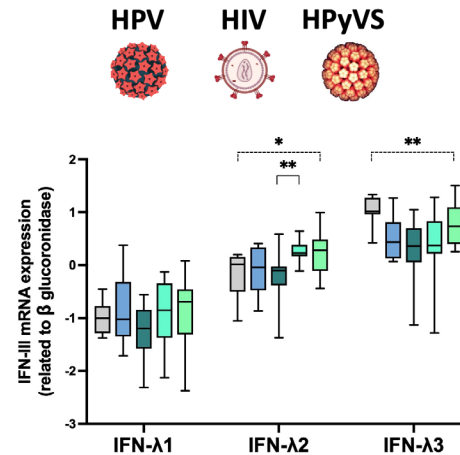
Lazear HM et al. Immunity, 2019



□ HPV negative
■ HPV positive



□ HPV/HIV negative
■ HPV positive
■ HPV/HIV positive

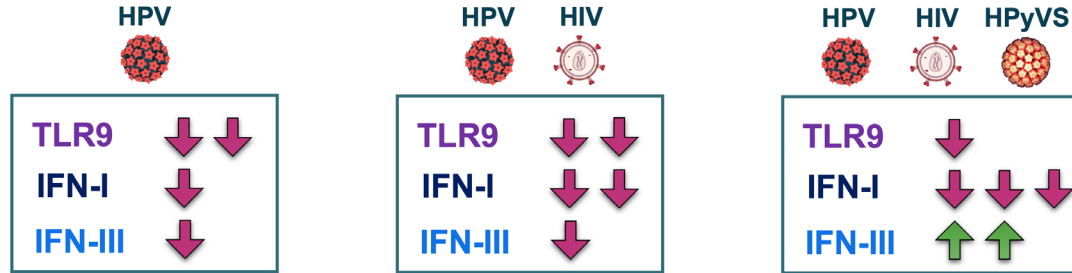


□ HPV/HIV/HPyVs negative
■ HPV positive only
■ HPV/HIV positive
■ HPV/HPyVs positive
■ HPV/HIV/HPyVs positive

*p<.05, **p<.01



CONCLUSION



**PRESENCE OF POLYOMAVIRUSES
(MCPyV, BKPyV, JCPyV)
IN MALE ANAL MUCOSA**



**SYNERGISTIC EFFECTS OF HIV, HPV, and HPYVs
ON INTERFERON RESPONSE
IN MALE ANAL MUCOSA**



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UNIVERSITÀ DI ROMA

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