

First-void urine as a liquid biopsy for monitoring infection and vaccination



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Vaccinopolis
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First-void urine (FVU) What, why?

FVU = Initial stream of urine

Captures impurities lining the urethra opening including transudated antibodies and biomarker-containing mucus and debris from exfoliated cells originating from female genital organs

✓ *Non-invasive - Preferred - Home-based sampling - Strategy to reach un(der)-screened women*

Human papillomavirus (HPV)

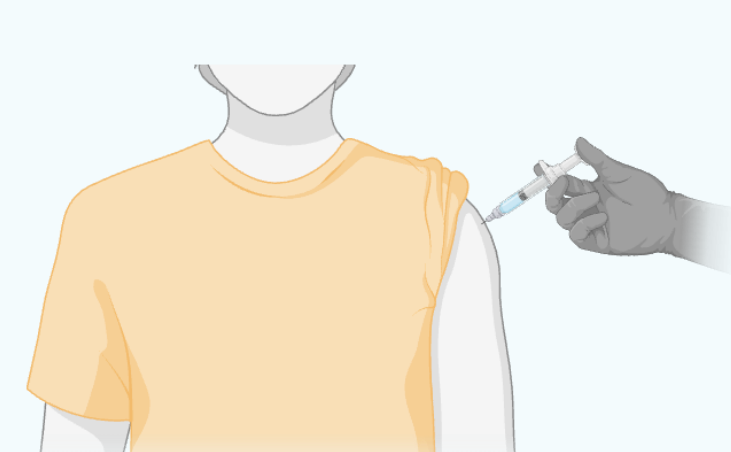


dsDNA virus

Sexually transmitted infection

Oncogenic virus
→ Cervical cancer, anal cancer, penile cancer, vulvar cancer, etc.

HPV Primary prevention

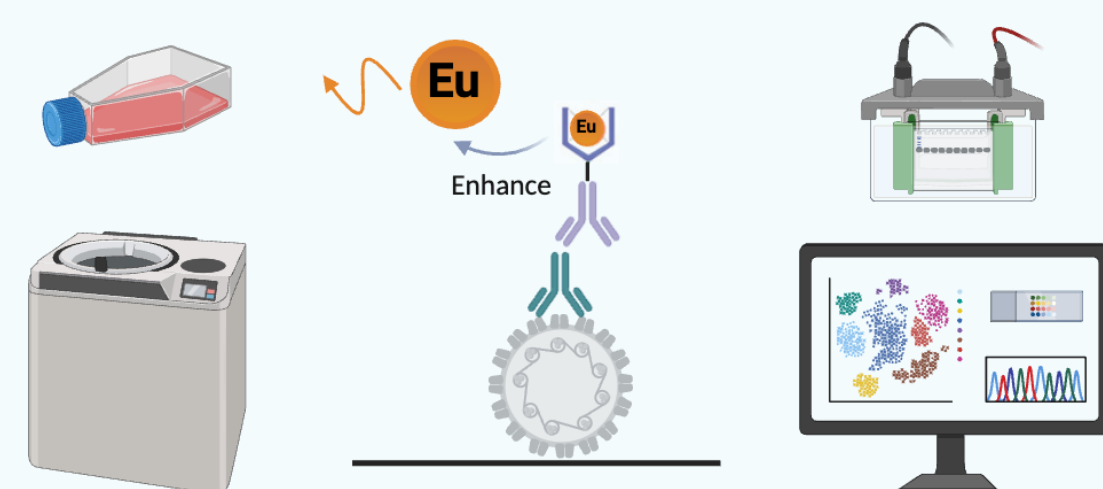


HPV vaccination induces a potent HPV-specific antibody response

Currently HPV vaccination programs are using blood sampling for follow-up

- ? We are evaluating the use of **FVU as a non-invasive sample of HPV-specific antibodies** at the site of infection
- ? And assessing if vaccinating women at an older age could reduce re-infection and transmission to the sexual partner using FVU

Lab techniques: Cell culture, bacterial culture, SDS-PAGE, western blot, ultracentrifugation, ELISA, infection assays, etc.



HPV Secondary prevention



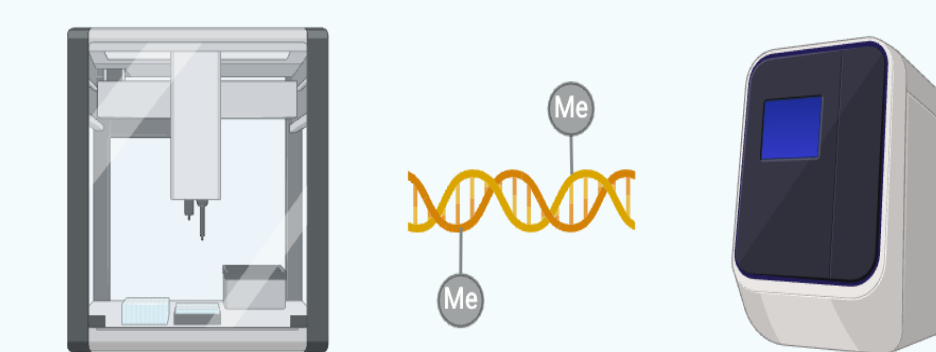
HPV-based cervical cancer screening offers self-sampling opportunities

Four out of ten Flemish women are not reached by clinician-based screening for cervical cancer

- ? We are evaluating the **clinical performance of HPV DNA and epigenetic markers in FVU** for respectively screening and triage of cervical neoplasia
- ? And investigating if **home-based FVU self-sampling** is the solution to increase the screening attendance (www.ScreenUrSelf.be)

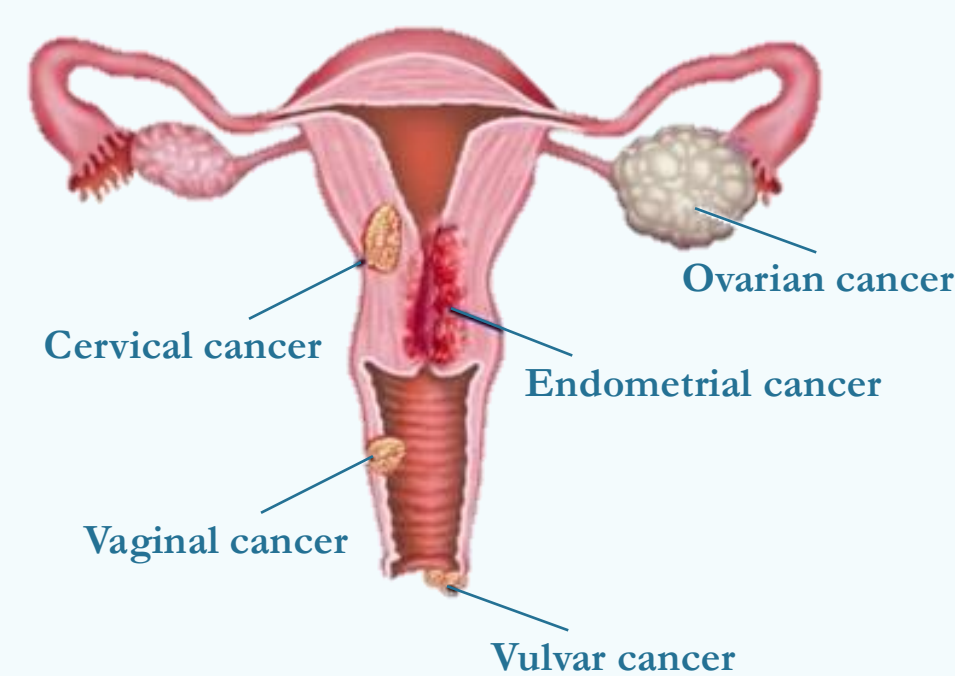
Lab techniques: DNA extraction, qPCR, methylation-specific qPCR, etc.

Clinical trials: clinic, population-based

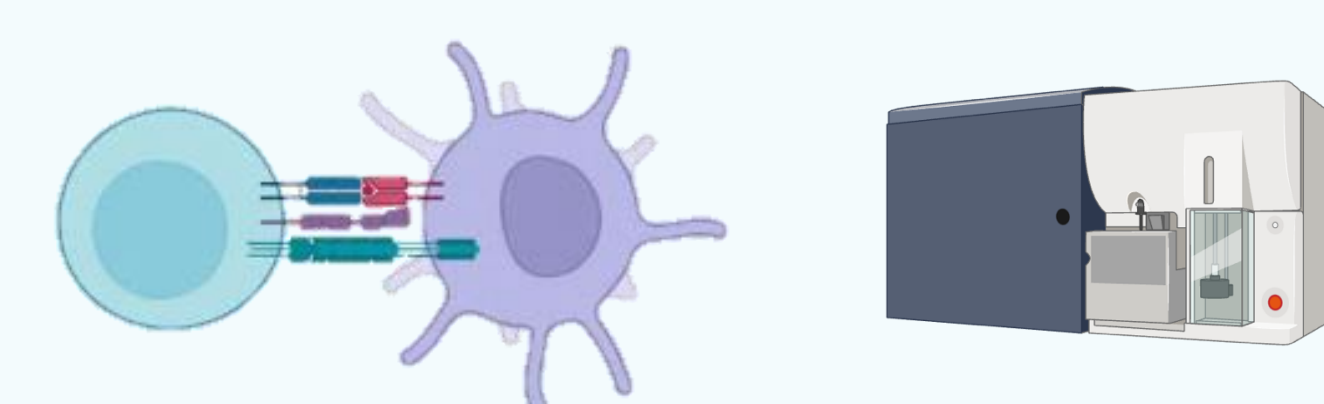


Beyond HPV

Screening of female genital cancers via FVU



Evaluating immune responses towards *Chlamydia trachomatis* via FVU



Lab techniques: PBMC isolation, FACS, etc.



Who are we? Where do we work?

- We are an enthusiastic team consisting of 1 PI, 2 postdocs, 6 PhD students, 2 project managers, 1 lab technician, and 1 administrative coordinator.
- We are privileged to be working in Vaccinopolis, a unique building equipped with multiple laboratories (BSL2-3) and clinical trial units.

