

SEPTINTOJI TARPTAUTINĖ KONFERENCIJA

THE 7th INTERNATIONAL CONFERENCE

2026 m. liepos mėn. 7-10 d., Vilniaus universitetas, LIETUVA

7th-10th of July, 2026, Vilnius University, LITHUANIA

**EVOLIUCINĖ MEDICINA:
ŽMOGAUS RAIDOS PERSPEKTYVOS IR SVEIKATA
BESIKEIČIANČIOJE APLINKOJE**

**EVOLUTIONARY MEDICINE:
PERSPECTIVES ON HUMAN DEVELOPMENT AND HEALTH
CONSEQUENCES IN A CHANGING ENVIRONMENT**

Rengėjas:

Vilniaus universiteto Medicinos ir sveikatos mokslų
Doktorantūros mokykla, VU Medicinos fakultetas

Organized by

the Doctoral School of Medicine and Health sciences
at Vilnius University, VU Faculty of Medicine

INTERNATIONAL SCIENTIFIC COMMITTEE

Karolis AŽUKAITIS (Vilnius University, Lithuania)
Noël CAMERON (Loughborough University, UK)
Janet CARTON (University College Dublin, Ireland)
Dalius JATUŽIS (Vilnius University, Lithuania)
Maria KACZMAREK (Adam Mickiewicz University, Poland)
Sylvia KIRCHENGAST (University of Vienna, Austria)
Lawrence M. SCHELL (University at Albany, S.U.N.Y, USA)
Wojciech ŚLUSARCZYK (Nicolaus Copernicus University in Torun, Poland)
Janina TUTKUVIENĖ (Vilnius University, Lithuania)
Aistis ŽALNORA (Vilnius University, Lithuania)

LOCAL ORGANIZING COMMITTEE

(Faculty of Medicine, Vilnius University)

Chair:

Janina TUTKUVIENĖ

Conference booklet coordinator:

Rūta MORKŪNIENĖ

Conference Secretary:

Eglė Marija JAKIMAVIČIENĖ

Members:

Justina ALČAUSKAITĖ
Arūnas BARKUS
Elvin Francišek BOGDZEVIČ
Ramunė ČEPULIENĖ
Airida DOSINAITĖ
Rasa JANULIONIENĖ
Kristupas KURMINAS
Rūta MORKŪNIENĖ
Laura NEDZINSKIENĖ
Juozapas RYLIŠKIS
Evita ŠEIKOVAITĖ
Mindaugas SMETANINAS
Eglė STUKAITĖ-RUIBIENĖ
Sofija ŠESTAK
Renata ŠIMKŪNAITĖ-RIZGELIENĖ
Rūta VOSYLIŪTĖ
Violeta ŽALGEVIČIENĖ

THE INVISIBLE ECOSYSTEM BEHIND CERVICAL CANCER

Guoda ZUKIENE, Vilius RUDAITIS

Clinic of Obstetrics and Gynaecology, Faculty of Medicine, Institute of Clinical Medicine, Vilnius University, Lithuania

Contact e-mail: guoda.zukiene@mf.vu.lt

In 2008, the Nobel Prize in Physiology or Medicine was awarded to Harald zur Hausen for proving that human papillomavirus (HPV) infection is the necessary cause of cervical cancer.

Yet an important mystery remains unsolved. Although HPV is required for cervical cancer to develop, most women clear the virus naturally and never develop disease. Only a minority of infections persist and progress to cervical precancer or cancer. Why does HPV remain in some women while disappearing in others?

The answer may lie in an invisible ecosystem: the vaginal microbiome. Traditionally, *Lactobacillus* bacteria have been considered guardians of the vaginal environment. However, not all *Lactobacillus* species appear equally protective. Some women have asymptomatic bacterial vaginosis characterised by the near absence of *Lactobacillus* and a highly diverse microbiome dominated by anaerobic bacteria. Whether such microbial communities contribute to HPV persistence remains unclear.

This doctoral thesis investigates the relationship between the vaginal microbiome, persistent HPV infection, and cervical dysplasia. Using shotgun metagenomic sequencing, which provides greater resolution than 16S ribosomal RNA gene sequencing approach used in most previous studies, we will compare the microbiomes of healthy women and women with HPV-associated cervical lesions.

The goal is not simply to identify which microorganisms are present, but to determine whether specific microbial communities may serve as biomarkers of HPV persistence and disease progression. Such findings could improve risk stratification, support more personalised microbiome-targeted interventions, including probiotic therapies and selective antimicrobial approaches.

Keywords: cervical cancer, cervical dysplasia, human papillomavirus, vaginal microbiome, women's health