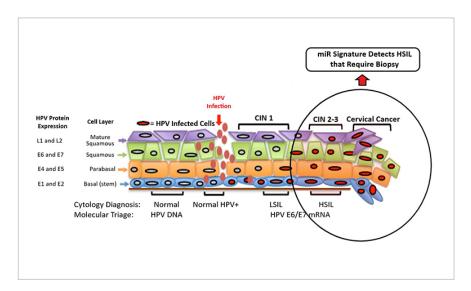
# Molecular Biomarkers of High-Grade HPV Epithelial Cell Lesions

### ID# 2020-5140





miR Signatures Diagnose HSIL Cytology

## **Technology Summary**

MicroRNAs (miRs) are particularly promising markers of disease due to their long-term stability and bioavailability in serum, urine, and saliva. This technology utilizes a set of miRs as diagnostic biomarkers to identify high-grade squamous intraepithelial lesions (HSIL) in Pap smears of exfoliated cervical cells, with higher sensitivity than conventional Pap screening protocols. The researchers are actively developing this technology to show that this diagnostic miR signature is also detectable in urine samples.

## Application & Market Utility

Cervical cancer is the fourth leading cause of cancer death worldwide, with over 528,000 cases diagnosed annually. Current cervical cancer screening programs rely on the Pap smear, which requires that a medical professional directly sample the uterine cervix with a cytology-brush via an invasive speculum exam for diagnosis by a cytopathologist. While organized Pap screening protocols have significantly decreased the morbidity and mortality associated with cervical cancer, the incidence of cervical cancer in low-resource settings remains unchanged, as lack of access to medical expertise, high costs, and time constraints prevent women from being screened. A urine-based screening test for HSIL would be a non-invasive option that could broaden access to life-saving cervical cancer screening in both low-resource medical settings and also kits for at-home use.

### **Next Steps**

Seeking research collaboration and licensing partners.





Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.