

## Toronto Metropolitan University and Sinai Health System

**Commercial opportunity:** Licensing or co-development partnership with digital pathology companies, diagnostic device makers, and women's health leaders.

# ENDOPATH.AI

## AUTOMATIC CLASSIFICATION OF ENDOMETRIAL BIOPSY PATHOLOGY SLIDES

**Sector:** Women's Health / Oncology Diagnostics / Digital Pathology

**Product:** AI-powered classification tool + digital repository

**Market Size:** ~10 Million endometrial biopsies performed worldwide; ~2M performed in the US

**Development Stage:** Prototype (validated algorithm + dataset)

**Inventors:** Dafna Sussman (TMU, iBEST) and Mara Sobel (Sinai Health System)

**Lead Institutions:** Toronto Metropolitan University & Sinai Health System

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### OPPORTUNITY OVERVIEW

Endometrial cancer is the most common gynecologic cancer in women. When detected early, survival exceeds 90%. Yet diagnosis depends on manual review of biopsy slides — a slow, resource-intensive process. Rising caseloads and a global shortage of pathologists create backlogs, delaying diagnosis and heightening patient anxiety. EndoPathAI addresses this critical gap by leveraging AI to automatically classify endometrial biopsy slides as benign, hyperplastic, or neoplastic with accuracy comparable to experienced pathologists (96.39%).

### INNOVATION

1. **AI Algorithm** – A fully automated classification system trained on 1,200 whole slide images (WSIs), the first large-scale digital repository of endometrial biopsy slides.
2. **Workflow Transformation** – Pre-screening to prioritize urgent cases, accelerating pathologist review.
3. **Educational Resource** – Digital repository doubles as a training platform, improving education for the next generation of pathologists.

### APPLICATIONS

- Clinical diagnostics in hospital pathology departments
- AI-powered pathology workflow tools
- Digital pathology education and training platforms
- Women's health and oncology diagnostics
- Centers without specialized gynecology pathologists

### ADVANTAGES

- **96%+ accuracy** comparable to expert pathologists
- **Faster diagnosis** through automated pre-screening
- **Reduced patient anxiety** with shorter wait times
- **Virtual access** to pathology at centers without resources
- **First digital image repository** for endometrial pathology training
- **Scalable integration** into digital pathology platforms worldwide

### TECHNOLOGY & DEVELOPMENT STAGE

- Dataset: 1,200 digitized endometrial biopsy slides (benign, hyperplastic, neoplastic)
- WSIs up to 51,968 x 37,632 pixels; novel preprocessing methods reduce computational burden while preserving diagnostic detail
- Algorithm validated on subsample with 96.39% accuracy; full prospective clinical validation underway
- Development stage: Prototype (algorithm + web portal)