Cincinnati Children's | Innovation Ventures

Cervical screening testing and risk stratification

Novel method for screening potentially high-risk infections

Brief Description of Technology

Singe Cell RNA sequencing of HPV16 cells enables improved detection of cervical carcinogenesis risk

TECHNOLOGY ID

2023-1206

BUSINESS OPPORTUNITY

Exclusive License or Sponsored Research

TECHNOLOGY TYPE

Diagnostic

PATENT INFORMATION

Provisional Filed

LEARN MORE

Innovation Ventures
partnering@cchmc.org
1.513.636.4285

innovation.cincinnatichildrens.org

Technology Overview

Researchers at Cincinnati Children's have developed an advanced cervical screening test designed to identify patients at a heightened risk of cervical cancer due to HPV16 infection. This novel method leverages single-cell RNA sequencing to detect specific subpopulations of keratinocytes reprogrammed by HPV16. These keratinocytes exhibit overexpression of the ELF3/ESE-1 transcription factor, which is consistent through various stages of carcinogenesis, including neoplasias and HPV-positive head and neck cancers. By identifying these high-risk cells, the test enables more precise risk stratification and personalized patient care.

Applications

Cervical Cancer Screening: Enhances current screening programs by adding a layer of risk stratification for HPV16 positive patients.

HPV Diagnostic Tests: Integrates into existing HPV testing frameworks to improve accuracy and patient outcomes.

Cancer Prevention Programs: Supports public health initiatives aimed at reducing the burden of HPV-related cancers.

Advantages

Early Identification: Detects high-risk patients who might be missed by conventional HPV16 tests.

Targeted Monitoring: Facilitates closer follow-up and early therapeutic interventions for identified high-risk individuals.

Comprehensive Detection: Captures previously unidentified populations at higher risk for cervical and other HPV-related cancers.

Market Overview

Infection with high-risk human papillomavirus (HPV) types is responsible for 5% of all cancers worldwide, notably cervical and oropharyngeal cancers. HPV16, the most prevalent type, poses a significant risk due to its persistence in keratinocytes. Early and accurate identification of high-risk patients can significantly reduce the incidence of cancer through closer monitoring and targeted therapeutic interventions.

Detailed description is published in Nature Communications | (2023) 14:1975

Investigator Overview

Susanne Wells Mary Bedard Tadadzwa Chihanga