Faculty Project Information

Development of a New HPV Diagnosis Platform to support the Cervical Cancer Elimination Initiative

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Research Field:	Biomedical Science/Global Health

Brief Description

The primary objective of this project is to develop a novel HPV detection and diagnosis platform to accelerate cervical cancer elimination efforts in alignment with the WHO 90-70-90 targets. By increasing access to high-performance screening, enabling early and accurate detection of high-risk HPV types, and ensuring timely treatment, the project aims to reduce cervical cancer incidence and mortality. Specifically, it focuses on improving screening coverage to at least 70% of women by the ages of 35 and 45, while creating scalable and sustainable solutions for underserved and resource-limited settings.

Theoretically, this project offers insights into the application of advanced diagnostic technologies in global health, particularly in areas where infrastructure and resources are limited. It also contributes to understanding the spatial epidemiology of HPV prevalence and the socio-demographic determinants of cervical cancer in low- and middle-income countries.Practically, the project demonstrates how cutting-edge technologies such as point-of-care testing and cloud-based data systems can be integrated into existing healthcare frameworks to achieve large-scale health targets.

The lessons learned from this project could inform future implementations of advanced

diagnostics for other diseases, from a logistical, financial, and clinical perspective. The project exhibits innovation by utilizing a next-generation HPV detection platform that combines portability, affordability, and advanced AI diagnostic capabilities. Unlike traditional lab-based HPV testing, the proposed platform supports same-day diagnosis and triage, reducing delays in screening and follow-up care. A key innovation lies in its real-time data connectivity, which allows centralized monitoring of screening programs, identification of missed populations, and better targeting of vaccination campaigns. Moreover, its integration with mobile clinics and community health workers ensures equitable access to marginalized populations, addressing systemic gaps in cervical cancer prevention and treatment. Key collaborations between the public sector (DKU) and the private sector (Shanghai Annealing Biotechnology Co., Ltd, China - a precision diagnostic company) will play a crucial role in ensuring the project's feasibility.

Expected Outcome(s)

- A detailed research report summarizing findings and insights
- At least one accepted or published research paper in a peer-reviewed journal or conference
- Development of intellectual property (e.g., patents or trademarks) for innovative solutions or technologies
- Enhanced collaborations and networks for future research and development

Requirements for Student Applicants

- Prior research experience related to global health or molecular biosciences
- Motivation to contribute to larger goals, such as societal impact, innovation