**Improving DNA methylation detection on self-collected cervico-vaginal specimens as a follow-up test for HPV-positive women to detect clinically relevant disease**

**Company introduction:**

Self-screen has a long history and track record in translational HPV related science. The company was founded in 2008 to advance the implementation of scientific discoveries in the field of HPV related cancer screening into routine practice. Our dedication is towards the development and clinical application of molecular assays for the early detection of anogenital (pre)cancers, to the benefit of patients and health care programs around the world.

Currently, the company’s main focus is on cervical (pre)cancer screening and prevention. Self-screen has two clinically validated molecular assays on the market. We strive towards full-molecular screening to ensure sensitivity, objectivity, reproducibility and high-throughput possibilities. Our research and development pipeline focuses on extension towards other sample types, such as self-collected specimens or urine, various platforms as well as towards other cancer types.

**Background information**

Self-screen, the company for innovative screening and diagnostic assays

Medical and health care urgency. Every year over 300.000 women around the world are dying unnecessary from cervical cancer. Cervical cancer develops from a persistent HPV-infection. Cervical cancer is the fourth common cancer in women. In 2018, an estimated 570.000 women were diagnosed with the disease worldwide and about 311.000 died from the disease. However, cervical cancer can be effectively prevented by prophylactic HPV Vaccination and cervical screening.

**Self-screen solution**

* Self-Screen offers the best possible molecular tests to identify the women at risk for cervical cancer and its precursor lesions.
* Subsequently Self-screen’s assays can identify the women with progressing premalignant lesions or early stage cancer in need of treatment.

When early diagnosed, cervical cancer is one of the most successfully treatable forms of cancer, as long as it is detected early and managed effectively. Self-screen offers the best-in-class HPV-screenings tests and in addition, a molecular follow up test based on epigenetic markers, that identifies women with progressing premalignant lesions in need of treatment.

**Vision Self-screen**  
Helping health care institutes and treating clinicians to detect cervical cancer or premalignant stages in order to provide all women worldwide with the best prevention solution.

Self-screen develops and validates the best possible tests that help women, clinicians and health care institutes to improve and optimize screening strategies. This involves the increase in participation by self-sampling methodologies, accurate detection of clinically meaningful HPV infections, and novel tests for HPV-positive women to accurately differentiate women who are in need of direct treatment, thereby reducing overtreatment of women with non-progressing disease.

**Internship assignment:**

In 2017 the new population-based cervical cancer screening program by primary HPV DNA testing was introduced in the Netherlands for women aged between 30 to 60 years. Sampling is performed by physician-taken cervical scrapes or self-collected cervico-vaginal sampling (i.e. self-sampling). Triage of HPV-positive women is required to prevent unnecessary colposcopy referrals and overtreatment as most high-risk HPV (hrHPV) infections are transient and not associated with clinically relevant disease (i.e. CIN2, CIN3 and cervical cancer; CIN2+). Currently, HPV-positive women are triaged by liquid-based cytology (LBC) and referred for colposcopy when cytology is abnormal. However, cytology cannot be performed on self-samples, therefore, women with a HPV-positive self-sample still need to go to the physician to have a cervical scrape taken for triage testing.

Changes in host-cell DNA methylation during a persistent transforming hrHPV infection play a central role in cervical carcinogenesis. Methylation levels of promoter regions of host-cell genes with tumor suppressive function increase with increasing CIN grade and are extremely high in cervical cancer. As genetic and epigenetic alterations necessary for cervical cancer progression accumulate over time, high methylation levels were found to be associated with cervical cancer and advanced cervical lesions. This makes methylation assays an ideal triage test for HPV-positive women as it can be used both on cervical scrapes and self-samples and can identify women with cancer and advanced CIN lesions with a high short-term cancer risk who are in need for direct referral to colposcopy and diagnostic follow-up.

Self-screen is the legal manufacturer of multiple commercially available methylation kits commercially available since 2016. The clinical performance of these methylation assays for detection of CIN3+ in triage of HPV-positive women has been successfully validated for both physician-taken and self-collected samples, although in self-samples the sensitivity seemed slightly lower compared to that of physician-taken smears. In this study, it will be investigated if the detection of DNA methylation in self-samples can be improved to achieve a better clinical performance in self-samples. A.T. Hesselink

**Voorwaarden van de stage:**

* Je werkt aan je stageopdracht en je werkt mee in het bedrijf waardoor je een hoop leert over onze manier van werken (o.a. ISO gecertificeerd) en over onze producten.
* De stage kan per 1 februari / 1 maart 2026 voor een periode van minimaal 6 maanden.
* Je ontvangt een stage vergoeding van 358 euro.
* De locatie is Amsterdam en je werkt op kantoor of op 1 van onze drie laboratoria.