Development of an Non-inavsive IVD for endometrial cancer screening on high-risk population

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Abstract

Endometrial cancer (EC) is one of the most common cancers in women and is associated with high mortality rates [1]. The current diagnostic process typically involves minimally invasive (pipelle biopsy) or invasive endometrial biopsies to obtain a final diagnosis. However, these traditional methods can cause significant pain and adverse side effects for patients [2].

The recently started ScreenEC national project aims to further develop CYTOMARK®, a non-invasive in vitro diagnostic (IVD) tool for detecting EC based on ELISA method in cervical fluids, in collaboration with the company having introduced it to the market [3].

Our project aims to fabricate, characterize, and validate a new low-cost electrochemical system for the detection of the defined biomarkers at the point of care, avoiding the extra costs in terms of money and time of the current laboratory-based analysis. Based on our preliminary results, we have fabricated devices using consumer inkjet printers. Currently, the devices are being tested for immunosensing functionalizing them with IgG antibodies to compare the performance of different functionalization strategies. Furthermore, this new complex matrix (not yet considered in the clinical field of EC) is being tested optically and electrochemically.

References

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[3] De La Calle, Irene, et al. International Journal of Gynecological Cancer(2024).