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Author	Emelie Barkenäs	
Title (English)	Automation of a solid-phase proximity ligation assay for biodefense applications	
Title (Swedish)		
Abstract	<p>The extent of devastation caused by a biological warfare attack is highly correlated to the time from release to detection. As a step towards lowering the detection time the international project TWOBIAAS was launched. Here, the main goal is to develop an automated, specific and sensitive combined detection and identification instrument capable of identifying a biological threat within an hour. The identification unit is comprised of a sample preparation module, an amplification module and a detection module and utilizes a proximity ligation assay in combination with circle-to-circle amplification in order to detect a biological threat. This thesis describes the automation of the sample preparation steps of the assay and the integration with the downstream units. The functionality of the sample preparation module was verified by subjecting it to biological samples in a laboratory and at a real-life location. The results showed that the sample preparation module was capable of preparing a sample collected in a complex environment with the same results as a sample prepared in a laboratory.</p>	
Keywords	Biological warfare, proximity ligation assay, real-life location trial, automated pathogen detection, air samples, liquid handling robot	
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