EU cofin Project Annual Report 2018
The EU projects that receive co-finance from the top sectors must submit an annual report on their technical and financial progress. This format is to be used for reporting the technical progress. The report must be submitted by 15 February 2019 to Hans van der Kolk

General information	
TKI Number of the project	AF-EU-18023 LOGIC (eerder AF-EU-17019)
Title	Nano-array lateral flow diagnostics for the rapid detection of antibiotics in food
project leader WR (e-mail address)	marjo.koets@wur.nl
Address project website	www.logic-multiplex.com
Start date	01-06-2017
End date	31-05-2020

Short description/aim project (this information can be published on a website of the TKI/Topsectors)

Cheap effective realtime multi-target antibiotic residue screening is not currently available for the food industry. The simultaneous detection of antibiotic residues would be a major advantage for the industry reducing time and cost of analysis for positive release to market and avoiding expensive recalls thereafter. The aim of the LOGIC project is to develop a prototype kit for multi-analyte antibiotic screening that is suitable for use in both the seafood and honey industries. WFBR will develop the microarray lateral flow immunoassays for the detection of antibiotic residues of 4 drug families, nitrofurans, tetracyclines, nitroimidazoles and chloramphenicol.

Planning and progress Is the project going according to plan? Are there any substantive bottlenecks? If yes, please explain with a brief description of the current situation

Milestone 3.1, report of the updated literature search on rapid multi-analyte diagnostics and Milestone 3.2, description of the optimal parameters of ultra-low volume dispensing, have been accomplished.
Task of the work package is the development of the multi-analyte lateral flow immunoassay which will be developed for the various target analytes as single-analyte tests first. The specific reagents (antibodies and conjugates of drugs with carrier proteins) to construct these assays are to be developed in WP1 and will be obtained from project partner Xenobics. However the production and the availability of these reagents are delayed and in this reporting period materials for 2 of the 7 targets have been received. Chloramphenicol and AMOZ antibodies and antibiotics–HRP and BSA conjugates have been received from Xenobics. Work has been started on the development of single-plex lateral flow tests for both antibiotics. Several assay set ups are investigated but initially a generic assay layout was commenced. Two reaction principles were chosen, and for both nanoparticle detection conjugates were prepared. Lateral flow microarray test were made and experiments were started to investigate the binding performance of the primary antibodies in a lateral flow assay format. Reagents for the other targets are scheduled for 2019.

The structural dynamics of the multiplex assay and the ability of multiplexing, experiments have been started to determine the influence of several assay parameters as spot volume, concentration range capture molecules and pore size nitrocellulose. Work has been focused on the reconstitution of dried carbon detection particles and the release from the (various) materials into the nitrocellulose membrane. For the one-site lateral flow assays, the detection carbon particles will be in a dry format and by adding sample and/or buffer the carbon particles will dissolve again. Three methods were investigated: release from various types of conjugate release pads, direct application of the particles to the nitrocellulose membrane and a "tube-format". The efficiency and the influence of additives on the release were investigated. The experiments were performed with

a single-plex model assay since assay-specific antibodies and conjugates are limited.

Highlights and deliverables in 2018 / so far (this information can be published on a website of the TKIs/Topsectors)
N/A

Number of delivered products in 2018 (in an appendix, please provide the titles and/or description of the products or a link to the products on public websites)			
Academic articles	Reports	Articles in journals	Introductions/workshops

Appendix: Names of the products or a link to the products on a public website

www.logic-multiplex.com

https://www.wur.nl/nl/Onderzoek-Resultaten/Topsectoren/show/AF-EU-17019-LOGIC.htm