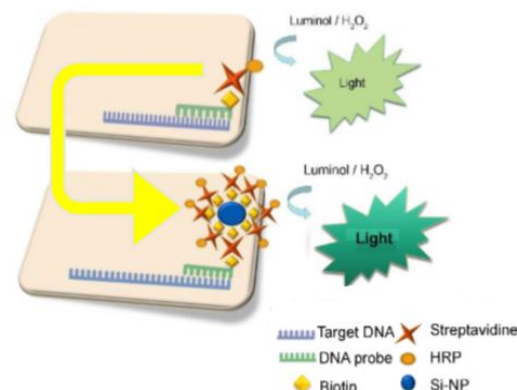


Nanoparticle Enhanced Dot Blot Diagnostic Method - Campylobacter spp

INRAE >
> **transfert**

INRAE

la science pour la vie, l'humain, la terre



Description

Cost-effective, functionalized biotin silica nanoparticles (Si-NP) are coupled to a paper based DNA blot test to improve sensitivity of Campylobacter nucleic acid detection.

Equally applicable to DNA extracted using existing methods and insensitive to DNA polymerase inhibitors, this test is functional in various food matrices.

Not only does the probe enable a higher sensitivity of detection, the amount detected can also be quantified.

Type of expected transfer

License or License Option Agreement with R&D program

Advantages

- Adaptable to the detection of any food born pathogen
- Improved sensitivity (30 fold chemiluminescent readout)
- Detection levels of 3pg/microL of DNA (600 bacterial cells)
- Time reduction when compared with PCR
- Insensitive to DNA Polymerase inhibitors or food matrices

Possible applications

- Three possible solutions could be developed:
 - Reagent kit for end-users with lab equipment
 - Lab-in-a-box with necessary equipment
 - Lab-on-the-chip based biosensor for on-site testing

Key words

Enhanced Dot Blot, Diagnosis, Campylobacter, Food Safety, Silica nanoparticles, multiplex bacterial detection

TRL Scale

1 2 3 4 **5** 6 7 8 9

Development level

Randomized tests already carried out on chicken carcasses Patent (FR2005578) filed by INRAE
Article published in Biosensors and Bioelectronics <https://doi.org/10.1016/j.bios.2020.112689>

Laboratories:

MICA, University of Udine, ISA, UCBL

Researchers:

Jasmina VIDIC (INRAE), Nalini RAMARAO (INRAE), Carole CHAIX-BAUVAIS (CNRS)

Contact:

Austin Showalter
Implementation Officer
Austin.showalter@inrae.fr
+33 646 545 215

Date: 23-11-2020