# Multiplex immunoassay for quantification of antigens of diphtheria, tetanus and acellular pertussis in human combined DTaP vaccines

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### Organisation

**Name of the organisation** Sciensano
**Department** Quality of vaccines and blood products
**Country** Belgium
**Geographical Area** Brussels Region


### Partners and collaborations

VAC2VAC

## SCOPE OF THE METHOD

| | |
|---|---|
| **The Method relates to** | Human health |
| **The Method is situated in** | Basic Research |
| **Type of method** | In vitro - Ex vivo |

## DESCRIPTION

### Method keywords

immunology
multiplex
antibody
luminex
IgG

### Scientific area keywords

DTaP
vaccine
immunoassay
quality control

### Method description

The multiplex immunoassay is based on the Luminex technology and allows the detection of diphtheria, tetanus and acellular pertussis antigens of human combined vaccines in the same run. As potency test of these vaccines are currently performed on animal through challenge and/or serological assays, the use of such in-vitro method for the quality control of DTaP vaccines would significantly reduce the number of used animals.

### Lab equipment

- Luminex Magpix;
- Luminex 200 or equivalent;
- Incubator 37°C;
- Fridge;
- Centrifuge;
- Ultrasonic bath.

### Method status

Still in development

## PROS, CONS & FUTURE POTENTIAL

### Advantages

- Allows quantification of several antigens in one run;
- Reduce/abolish the number of animals used for the quality control of vaccines.

### Challenges

Reading time (+/-45min) for one plate compared to an ELISA plate (instantaneous).

### Modifications

The method was developed on adsorbed antigens and final vaccine formulation but a desorption step could be required for some vaccines.

### Future & Other applications

Development was performed on vaccines from two manufacturers but could be expanded for the use on vaccines from other manufacturers.

## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

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