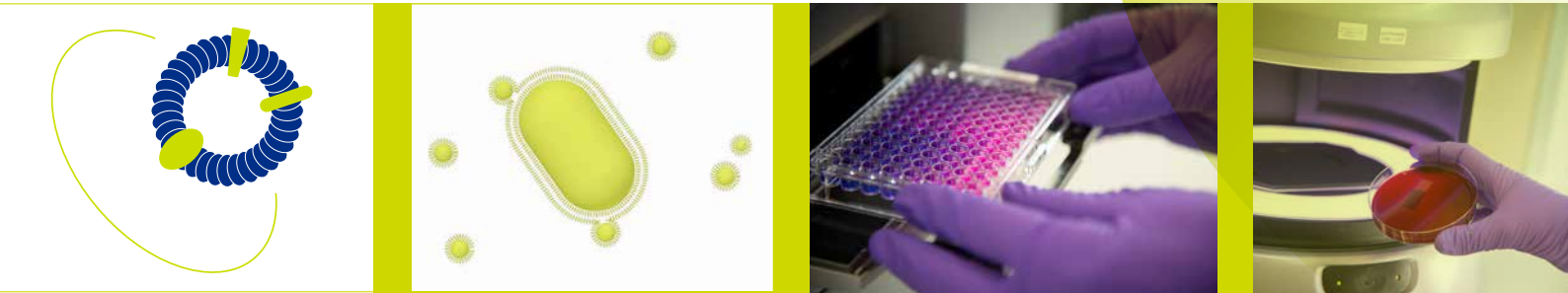




Vaccsheet

# Avacc 3<sup>®</sup>

## Pertussis Outer Membrane Vesicle vaccine



**Avacc 3<sup>®</sup> is Intravacc's vaccine candidate against Pertussis, based on our proprietary OMV based platform.**

### Why an OMV based vaccine against Pertussis?

Avacc 3<sup>®</sup> is a promising concept to improve the efficacy and duration of protection against clinical pertussis or whooping cough. A prime/ boost vaccination strategy with Avacc 3<sup>®</sup> may strengthen the efficacy of the primary acellular pertussis (acP) vaccination series. Moreover, Avacc 3<sup>®</sup> could also replace the acP or whole cell pertussis (wcP) component in multivalent vaccines for infants.

### Produced on Intravacc's safe and well established OMV platform

Avacc 3<sup>®</sup> is based on Intravacc's proprietary OMV platform, which have resulted in vaccine concepts that have been proven to be safe in adults and children.

### Benefits Avacc 3<sup>®</sup>

- Intranasal, as well as parental administration is possible.
- Increased immunogenic properties of antigens in their natural conformation
- Self-adjuvanticity by membrane-bound LOS
- Ability to be taken up by human antigen presenting cells
- Genetic detoxification and improvement of yield and antigen expression as Avacc 3<sup>®</sup> hardly contains intact DNA

- Extended product stability expected
- More protective in mice compared to acP and wcP

### Avacc 3<sup>®</sup> efficacy

- Pertussis OMV are highly protective in a mouse challenge model after intranasal, as well as parental administration (Figure 1).
- High systemic IgG antibody levels, strong IgG-producing plasma cell responses, memory B-cells residing in the spleen and systemic Th1/Th2/Th17-related cytokine responses. Intranasal immunization induces mucosal IgA and Th17-mediated responses without influencing the systemic immunity profile potentially preventing transmission.

### What is the current status?

- Preclinical proof-of-concept demonstrated.

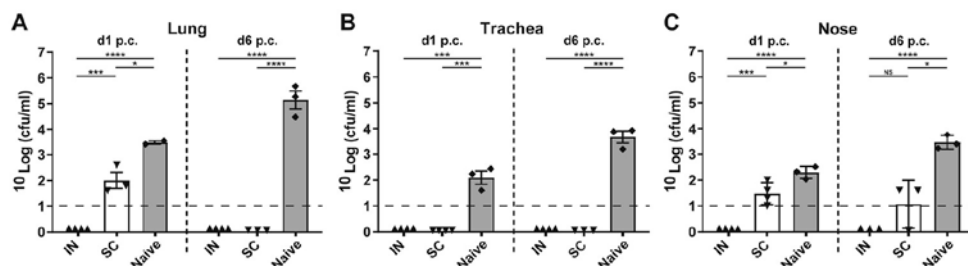
### Avacc 3<sup>®</sup>, what do we offer

- Scalable production process
- Developed assay panel
- Pre-clinical data package

### Licensing or partnering

Avacc 3<sup>®</sup> is available for licensing or partnering. Interested? Our team is happy to discuss all possibilities with you. Please contact us at : [BD@intravacc.nl](mailto:BD@intravacc.nl)

Figure 1. Colonization of the respiratory tract by *B. pertussis*. Naïve and vaccinated mice were challenged with *B. pertussis* ( $2 \times 10^5$  cfu) on day 56 after 2 vaccinations and the number of cfu/ml were subsequently determined on day 1 (d1) and day 6 (d6) post-challenge (p.c.) in (A) lungs, (B) trachea, and (C) nasal lavages (mean with SEM and individual samples). The limit of detection (10 CFU/mL (Log1)) is depicted as horizontal dashed line. Significant differences are indicated by \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , \*\*\*\* $p < 0.0001$  obtained using a *t*-test after log-transformation of data. NS = not significant.



The Netherlands-based Intravacc is one of the world's leading organizations with many years of experience in translational vaccinology. As an established independent clinical development and manufacturing organization (CDMO) in the vaccine industry, Intravacc has transferred its technology and know-how world-wide, including oral polio vaccines, measles vaccines, and DPT, Hib and influenza vaccines. Intravacc offers a wide range of expertise and is the bridge between discovery and pilot scale GMP biomanufacturing up to phase I/II clinical trials for partners such as academia, public health organizations (WHO, BMGF), and biotech and pharmaceutical companies.



## Intravacc - innovating vaccines



### Netherlands-based global CDMO

- Founded in 2013
- HQ at Utrecht Science Park Bilthoven
- Private company since 2021
- ~100 FTEs
- Leading OMV company



### State-of-the-art facilities

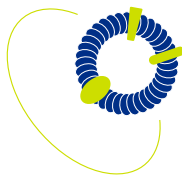
- 1500+ m2 laboratories, incl. BSL-2 & GMP
- GMP certified
- ISO 14001:2015 certified
- In-house QA, QC and QP



### Business focus

- Offering specialized CDMO services
- One-stop-shop for vaccine development
- Platforms & vaccines for partnering
- Bridge between bench- and large-scale manufacturing

## Our proprietary scalable platform technologies



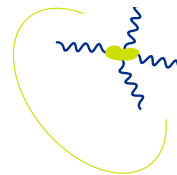
### OMV

- Bacterial
- Viral



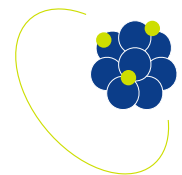
### Cell-based viral

- Vero and HEK293
- Viral (vector)



### Conjugation

- Infectious diseases
- Combination with OMV



### Adjuvant

- OMV
- LPS



### Distinctive technology

- 4 proprietary vaccine platforms
- 11 patent families
- Viral rescue
- Mass spectrometry
- Intranasal vaccine development



### In addition we offer

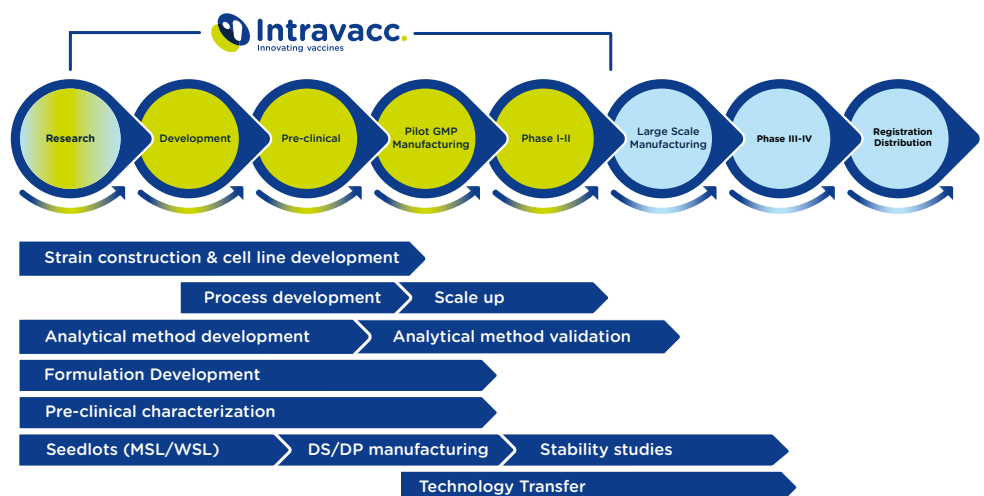
- Medium design
- Higher order structural analysis
- Physiochemical and immunological analysis
- Bench- and pilot-scale GMP



### Stellar track record

- 2 OMV vaccines licensed
- 1 conjugate AMR vaccine licensed
- 3 cell-based viral vaccines licensed
- 300+ scientific publications
- 50+ customers worldwide
- >10 partnerships

## Our services - from discovery to clinical proof of concept



**Disclaimer:** Intravacc assumes no liability or responsibility for any errors or omissions in the information included in this Vaccsheet, including forward looking statements. The information is provided "as is" with no guarantees of completeness, accuracy or timeliness, and without warranties of any kind, expressed or implied.