

# Development of a *Streptococcus suis* membrane vesicle vaccine

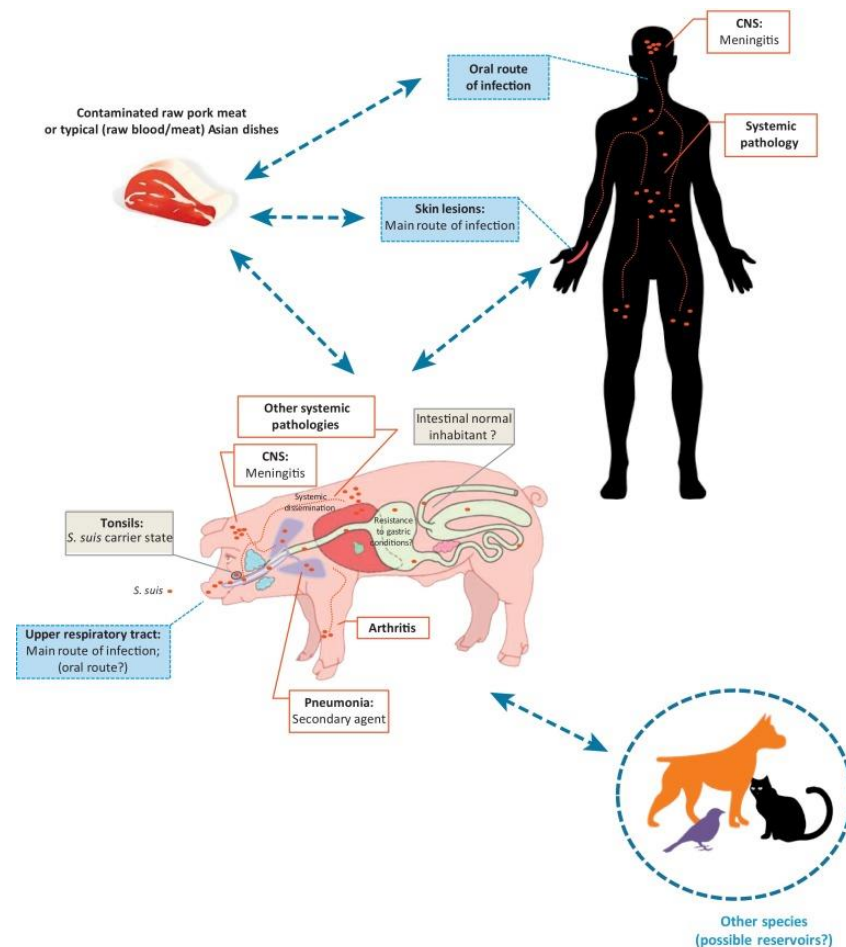
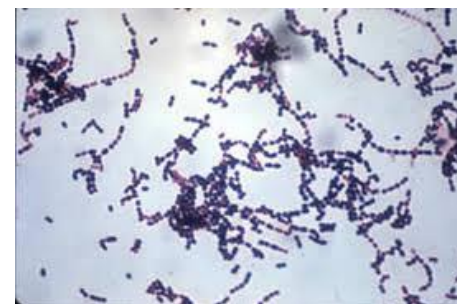
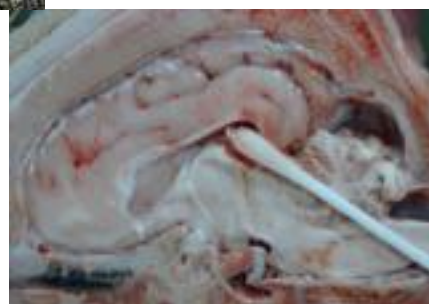
Anders Miki Bojesen, DVM, PhD, Dipl ECPVS,  
Professor

UNIVERSITY OF COPENHAGEN

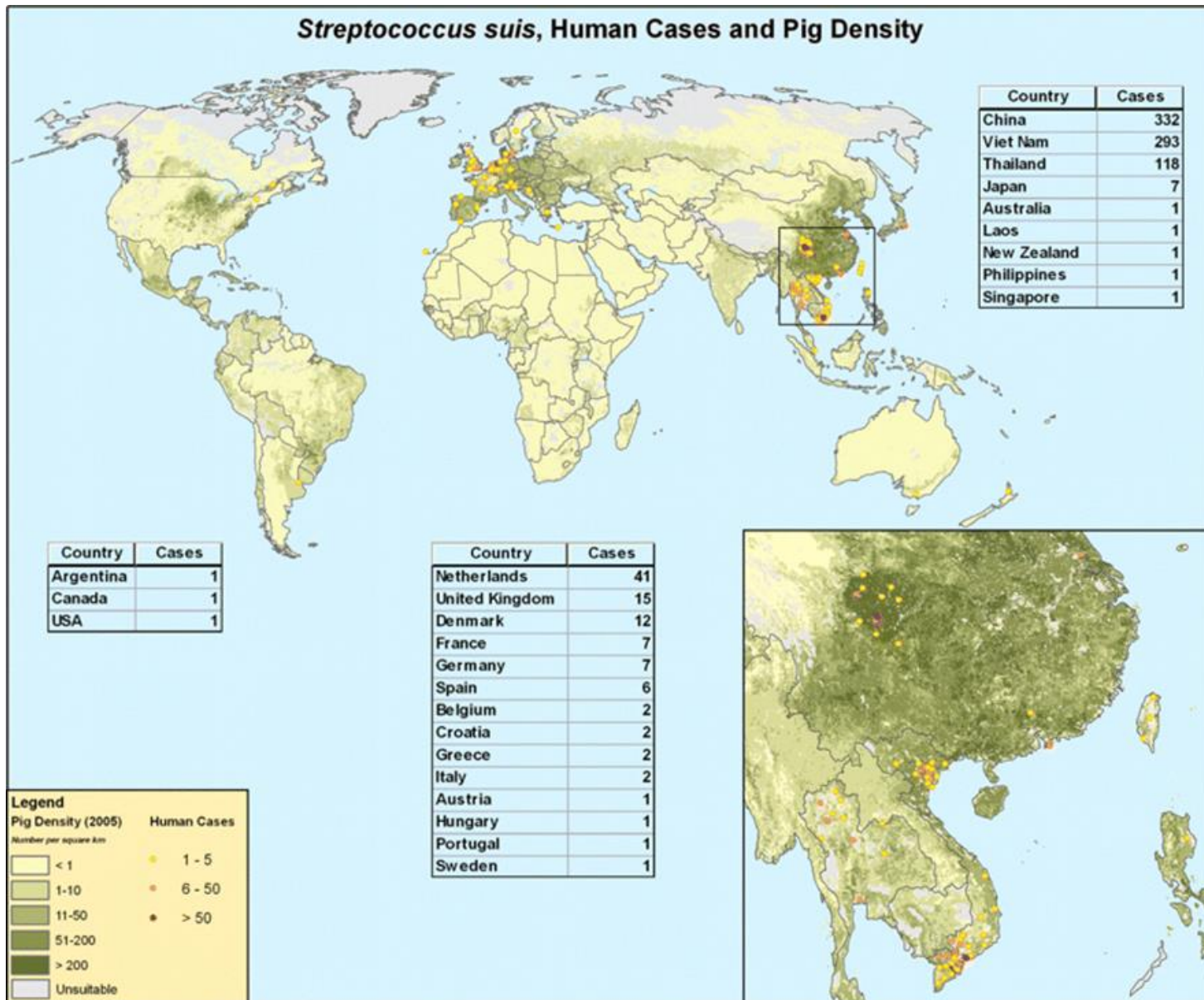


# *Streptococcus suis*

- Gram-positive bacterium
- Common in healthy pigs
- Systemic disease/meningitis
- Zoonotic



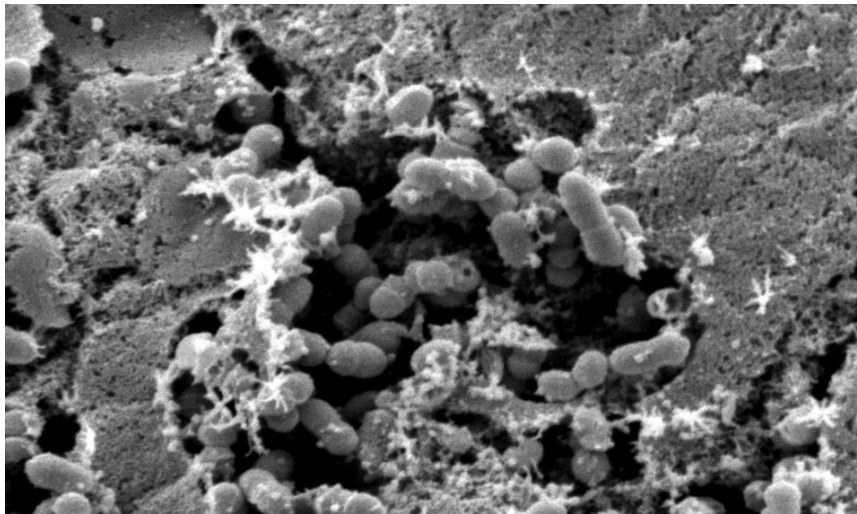
# Pigs and human *S. suis* infections



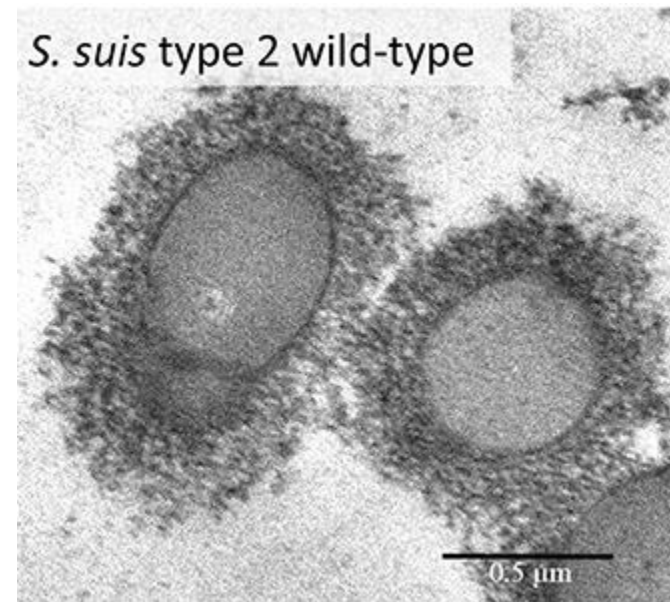


# Why and how do systemic infections occur?

- Several “essential” virulence factors have been proposed
- Methods to test pathogenicity remain controversial
- No current vaccines provide broad protection

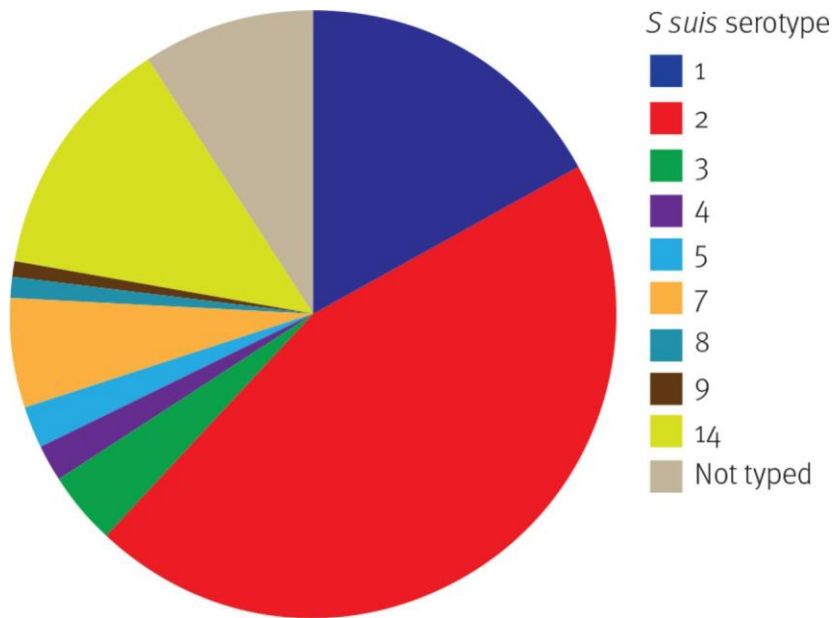


[//journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0030187](https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0030187)



<https://www.frontiersin.org/articles/10.3389/fmicb.2018.00545/full>

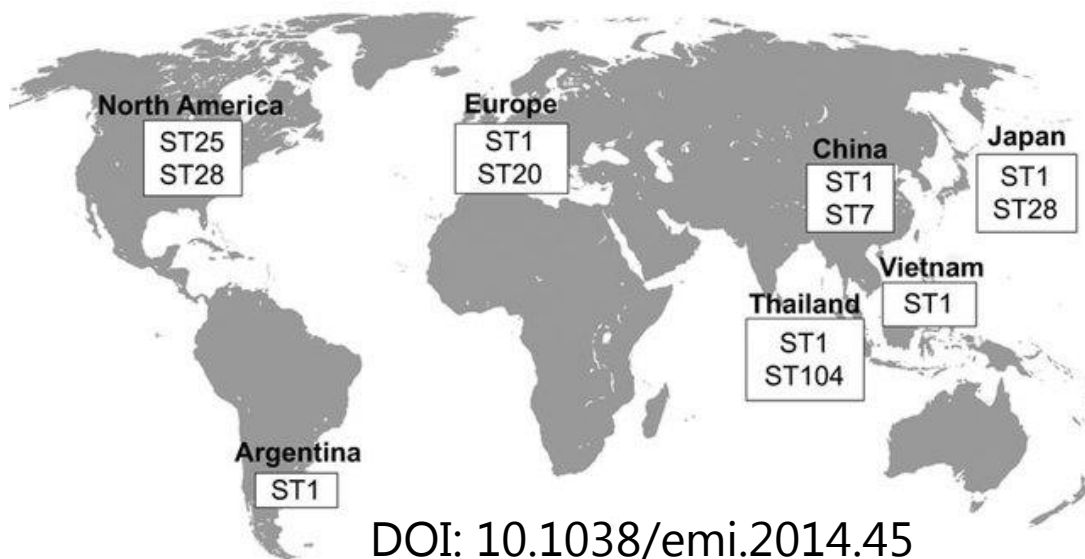
# Prevention by vaccination –how to focus?



**Serotype 2 –sequence type 1**



<http://dx.doi.org/10.1136/vr.k4181>

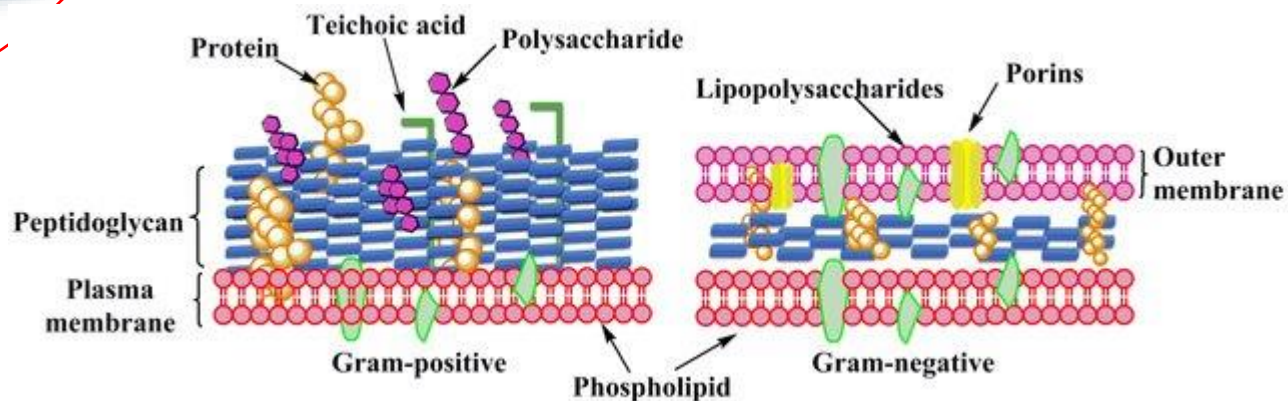
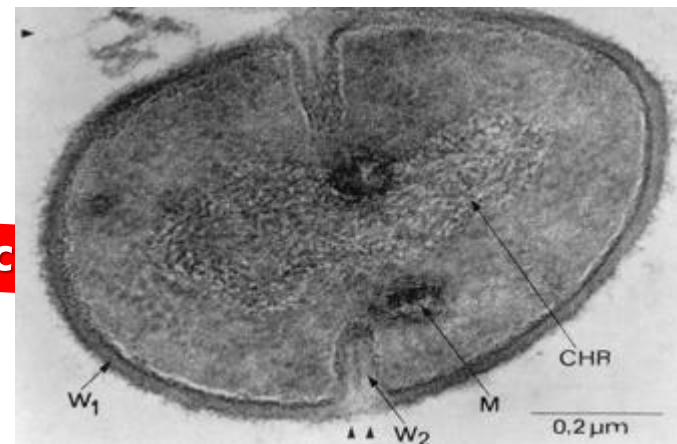
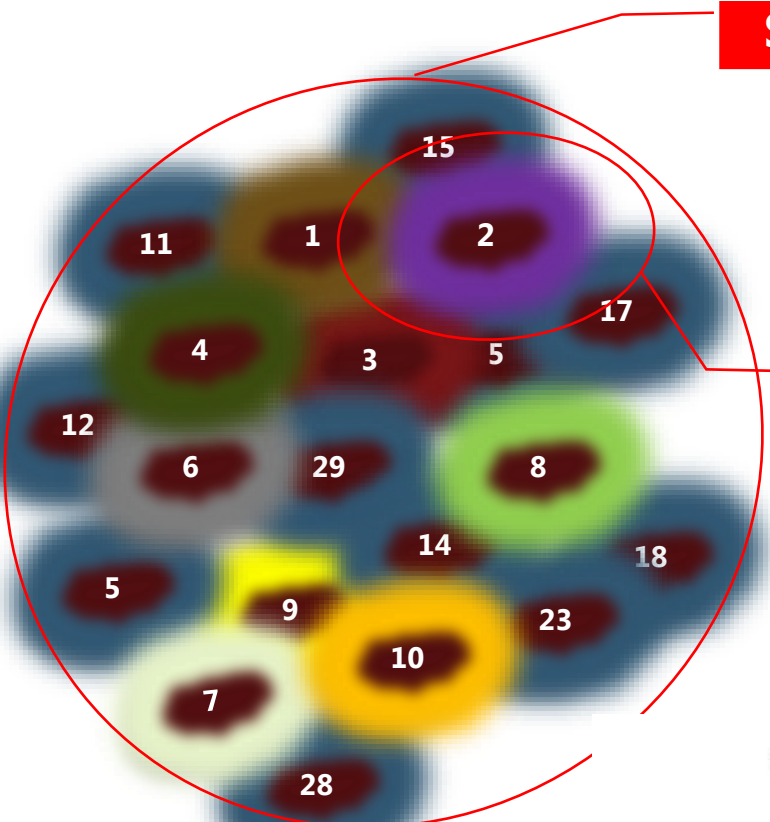


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# Modes of prevention by vaccination

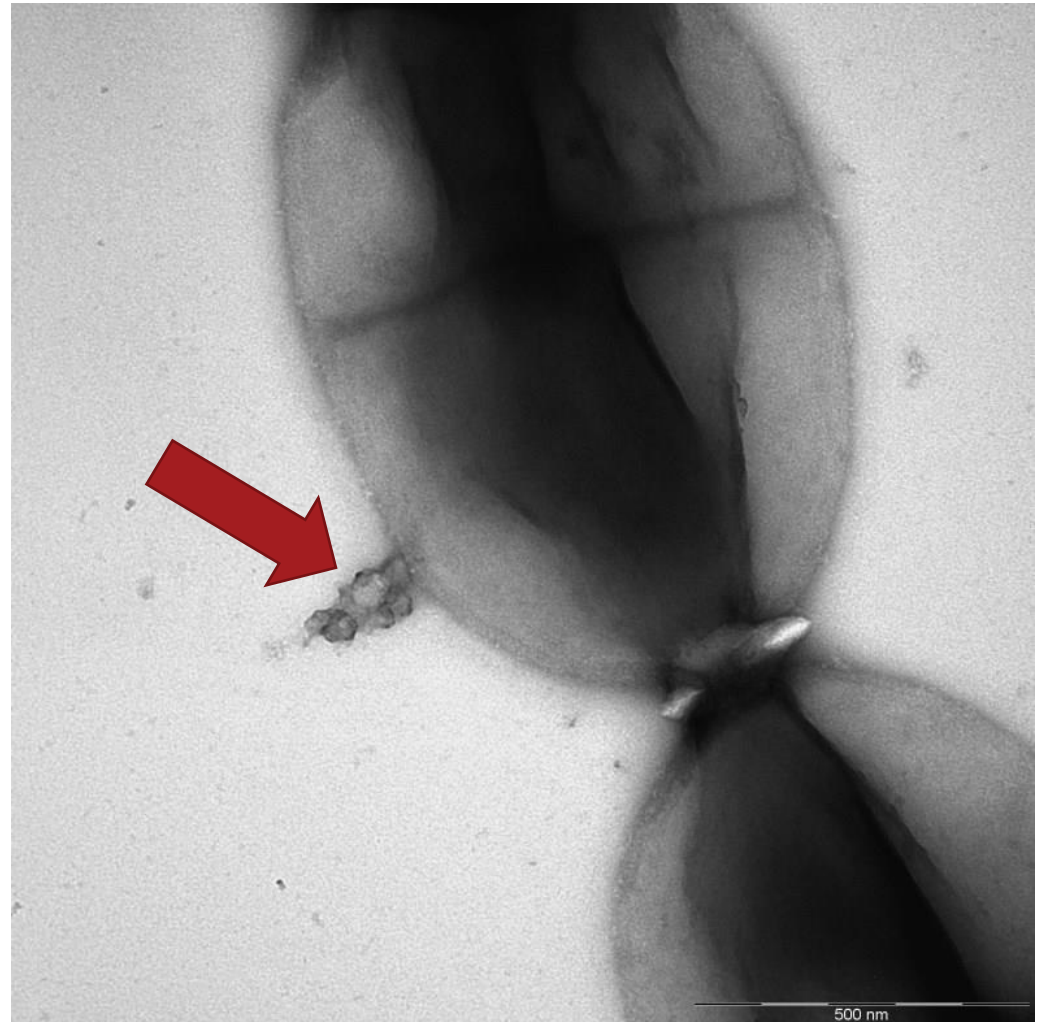
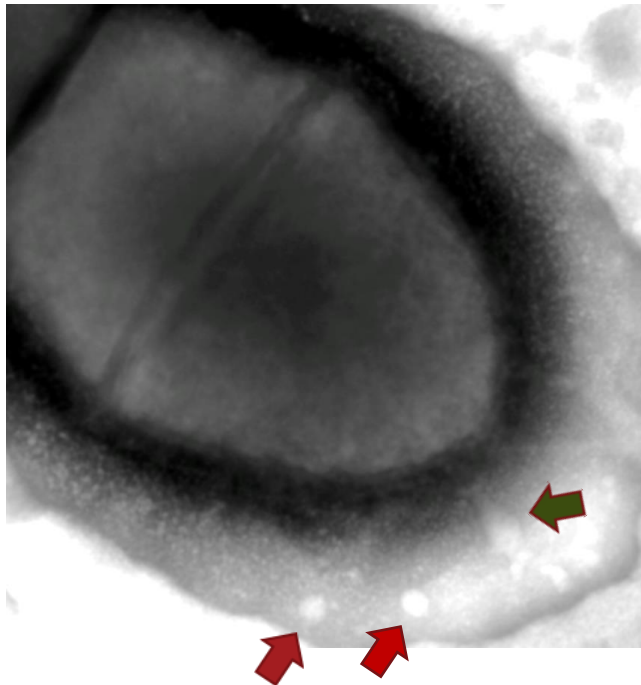
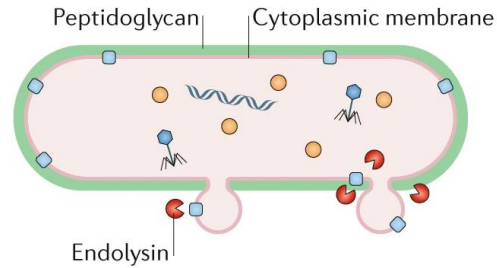
**Serotype-independent**

**Serotype-specific**



# *S. suis* Cytoplasmic Membrane Vesicles

## Gram-positive bacteria

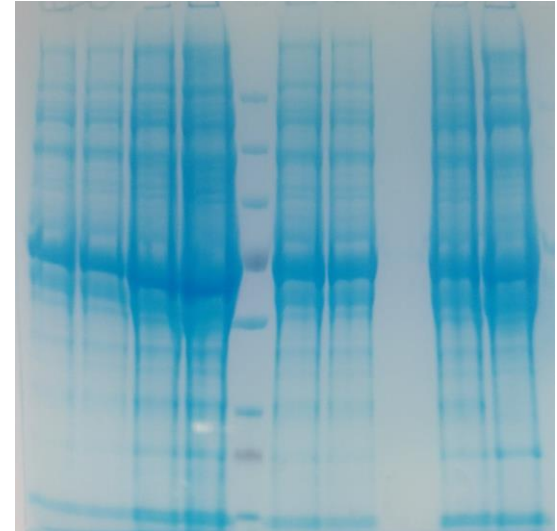
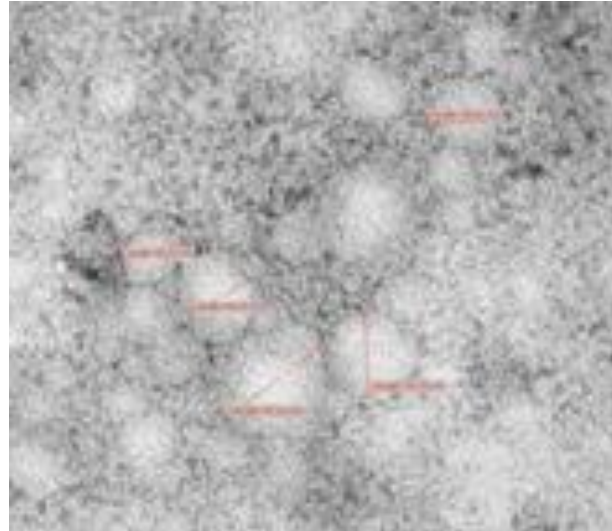
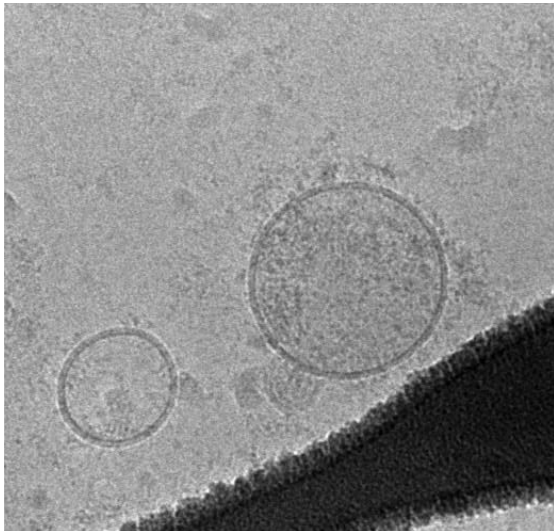




# CMV extraction protocol - optimization



Zofia Magnowska  
Assistant Professor







# Next step -pilot vaccine trial in pigs

- **Vaccine toxicity?**
- **Plus / minus adjuvant**
- **Aerosol challenge**
- **Post mortem lesion score**



 **vaccines** 

Article

## Hydrostatic Filtration Enables Large-Scale Production of Outer Membrane Vesicles That Effectively Protect Chickens against *Gallibacterium anatis*

Fabio Antenucci, Homa Arak, Jianyang Gao, Toloe Allahgadry, Ida Thofner and Anders Miki Bojesen \*

Department of Veterinary and Animal Sciences, University of Copenhagen, DK-1870 Frederiksberg C, Denmark; fante@sund.ku.dk (F.A.); homaarak@gmail.com (H.A.); 648291851a@gmail.com (J.C.); toloe@sund.ku.dk (T.A.); icient@sund.ku.dk (I.T.)

\* Correspondence: miki@sund.ku.dk

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