

## Afrikaanse paardenpest (APP) kunnen we vaccineren tegen APP??

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November 2011, Lelystad

## Vac.Dev.: Applications in AHS control

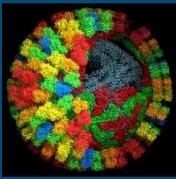
vaccination



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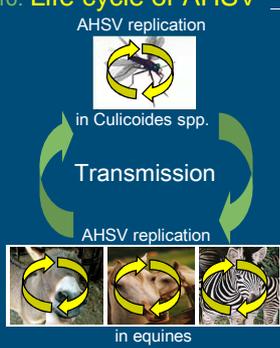
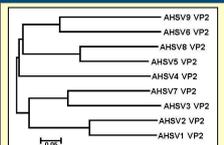
Introductie  
Vaccins  
Vaccinontwikkeling  
Conclusie




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## Intro: Life cycle of AHSV

AHSV replication  
in *Culicoides* spp.  
Transmission  
AHSV replication  
in equines

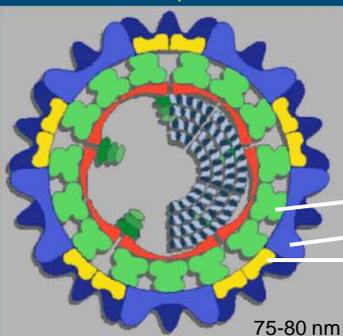
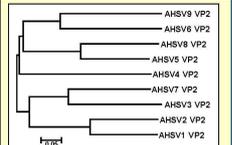

AFRICAN HORSE SICKNESS

VIRUS  
PRESENT  
INCIDENT  
SUSPECTED

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AHSV is infectious, NOT contagious

## Intro: Orbivirus (schematic view)

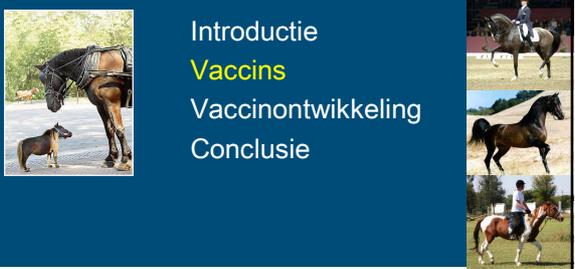
VP7  
VP2  
VP5

75-80 nm

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Vac.Dev.: **Criteria for vaccines (general)**

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**Afrikaanse paardenpest (APP)**  
kunnen we vaccineren tegen APP??

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Vac.Dev.: **Criteria for vaccines (general)**

Efficacy  
Safety  
DIVA  
Costs

synthetic subunit DNA vector inactivated heterologous MLV virus

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Goal: **Vector vaccine**

ARTICLE IN PRESS

Vaccine

NDV-system

???

A Modified Vaccinia Ankara Virus (MVA) Vaccine Expressing African Horse Sickness Virus (AHSV) VP2 Protects Against AHSV Challenge in an IFNAR<sup>-/-</sup> Mouse Model

Javier Castillo-Olivares<sup>1\*</sup>, Eva Calvo-Pinilla<sup>2</sup>, Isabel Casanova<sup>2</sup>, Katarzyna Bachanek-Bankowska<sup>3</sup>, Rachael Chiam<sup>4</sup>, Sushila Maan<sup>5</sup>, Jose Maria Nieto<sup>6</sup>, Javier Ortega<sup>6</sup>, Peter Paul Clement Mertens<sup>7</sup>

Induction of Antibody Responses to African Horse Sickness Virus (AHSV) in Ponies after Vaccination with Recombinant Modified Vaccinia Ankara (MVA)

Rachael Chiam<sup>1,2\*</sup>, Emma Sharp<sup>3</sup>, Sushila Maan<sup>4</sup>, Shujing Rao<sup>5,6</sup>, Peter Mertens<sup>7</sup>, Barbara Blackclaw<sup>8</sup>, Nick Davis-Poynter<sup>9</sup>, James Wood<sup>9</sup>, Javier Castillo-Olivares<sup>1,2\*</sup>

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Goal: **dead vaccine**

**Development of inactivated AHS vaccine**

- Production (costs)
- Inactivation (safety)
- Adjuvant (efficacy)
- Trials

**VP2-subunit vaccine**

The protective efficacy of a recombinant VP2-based African horsesickness subunit vaccine candidate is determined by adjuvant

M. Scablon<sup>1</sup>, J.T. Pawelek<sup>2</sup>, J.A. Vercroon<sup>3</sup>, A.A. van Dijk<sup>4,5\*</sup>

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Vac.Dev.: **Criteria for vaccines (adverse effects)**

Technical Bulletin  
**MONTANIDE™ PET GEL A**  
Innovative polymeric adjuvant for companion animals

DELTA MUNE  
is Unique designs for animal health.

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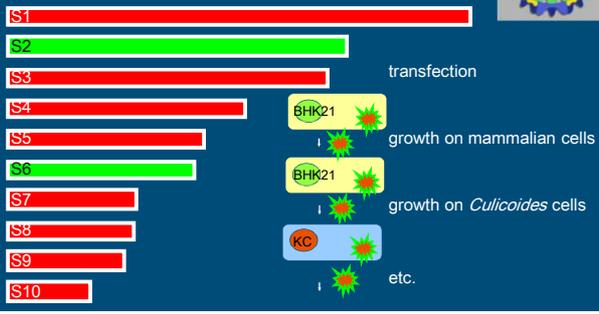
Goal: **modified-live vaccine**

Vaccine development by genetic modification of AHSV to introduce:




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Vac.Dev.: **"Tailor made synthetic" orbivirus**

S1  
S2  
S3  
S4  
S5  
S6  
S7  
S8  
S9  
S10

transfection  
BHK21  
growth on mammalian cells  
BHK21  
growth on *Culicoides* cells  
KC  
etc.

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**"Serotyped" orbivirus**

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Intro: **High risk and high impact**

- Quick AHS spread is foreseen
- Transmission by endemic *Culicoides spp.??*
- AHS control is difficult
  - Vector-borne disease
  - I&R system
  - (Inter)national movements
- No suitable vaccine**



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**CVI-team**

Piet van Rijn

**Development of diagnostics**

- Jan Boonstra
- Franz Daus
- Mieke Maris-Veldhuis
- Julliette Ketelaar
- Eline Verheij

**Vaccine development**

- René van Gennip
- Sandra van de Water
- Miriam Tacken
- Femke Feenstra




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Thank you for your interest




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November 2011, Lelystad

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Willen - de eigenaar

Mogen - de overheid

Moeten - de EU

Kunnen - de onderzoeker