



Model development of HPAI H5N1 clade 2.3.4.4b in naïve ferrets.

Leon de Waal
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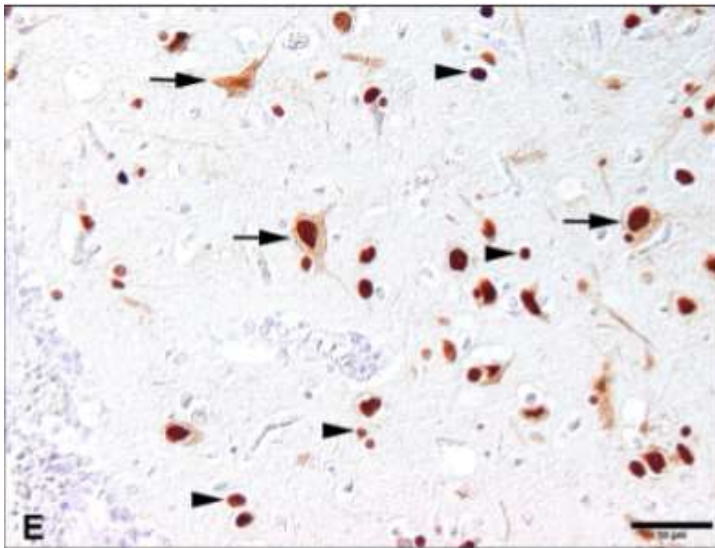
Immunity for Health 2025
Date: 02-Oct-2025

Background

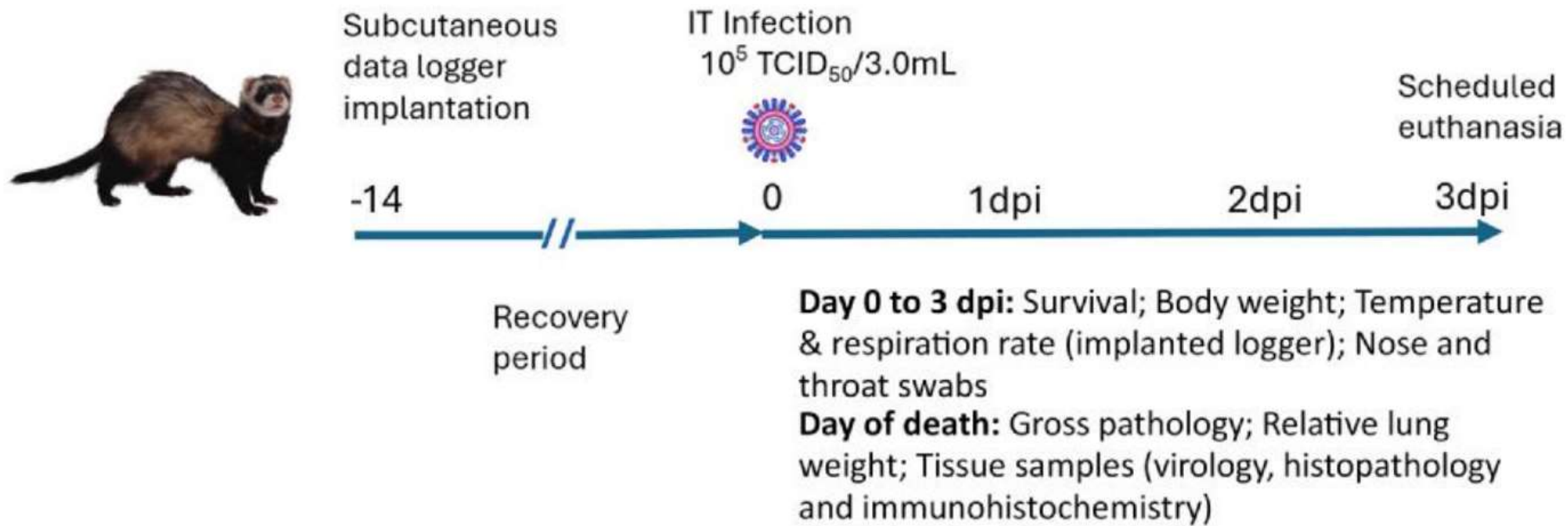
Highly pathogenic avian influenza A virus (HPAIV) H5N1 infection in two European grey seals (*Halichoerus grypus*) with encephalitis

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In vivo model development

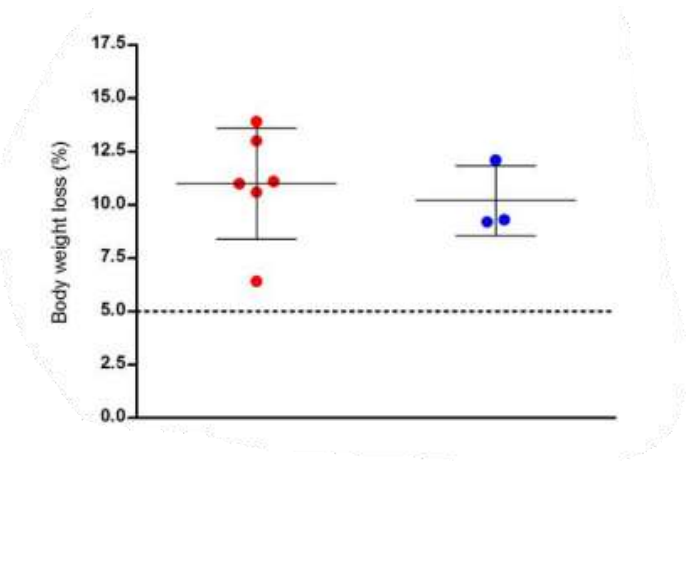


Viruses used:

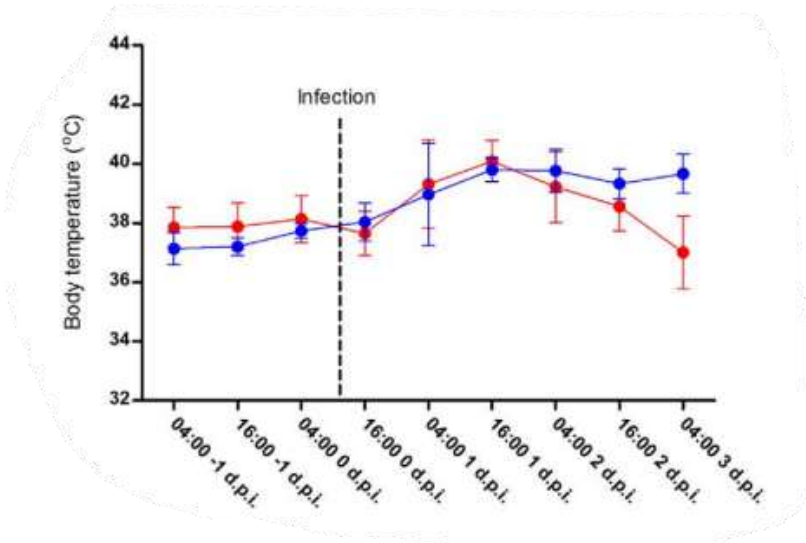
- H5N1 A/grey seal/Netherlands/302603/2023
- H5N1 A/Indonesia/05/2005

Clinical observations

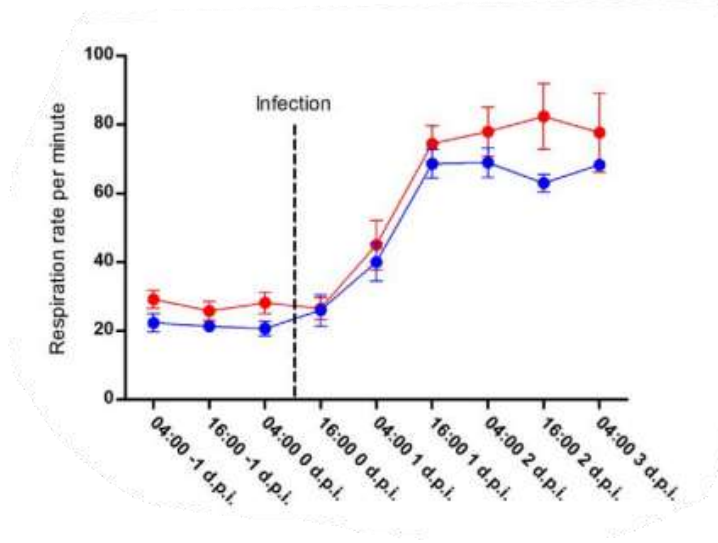
Body weight



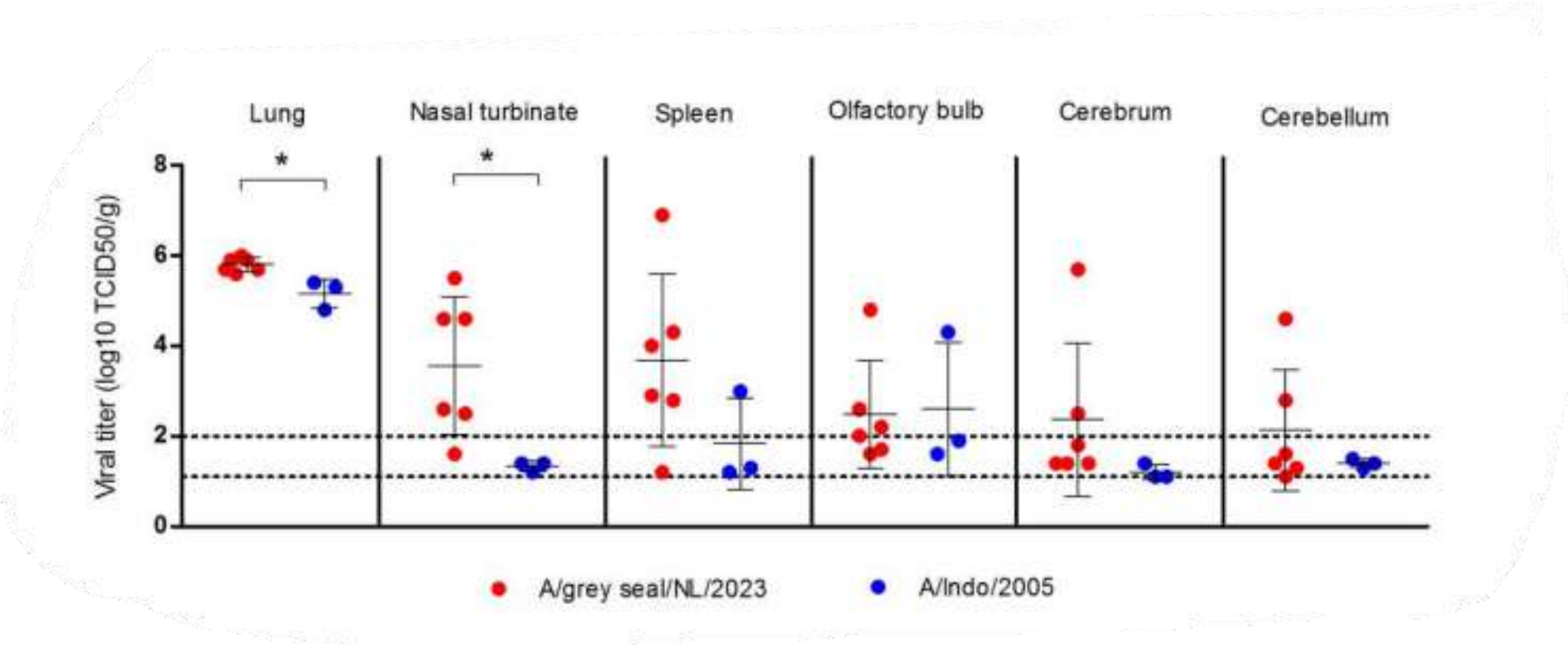
Body temperature



Respiratory rate

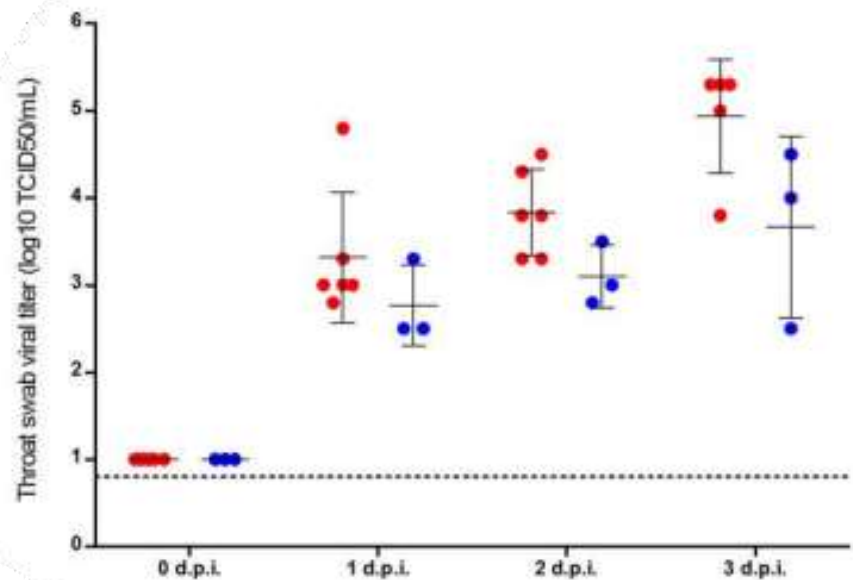


- A/grey seal/NL/2023
- A/Indo/2005

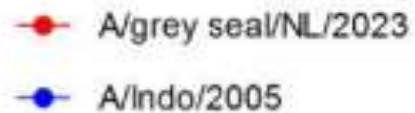
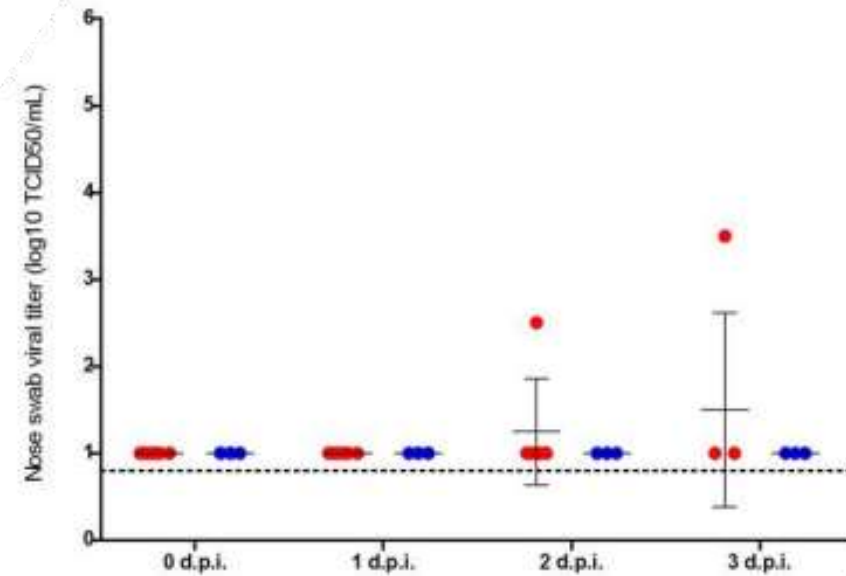


Virology - Swabs

Throat

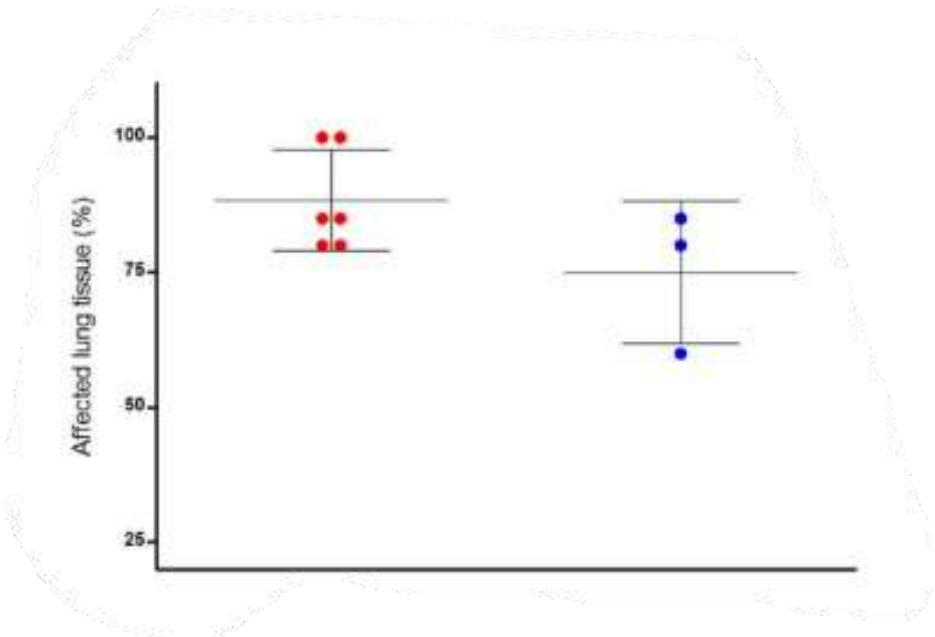


Nose

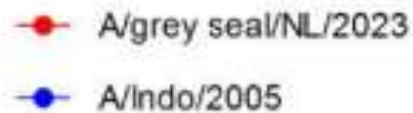
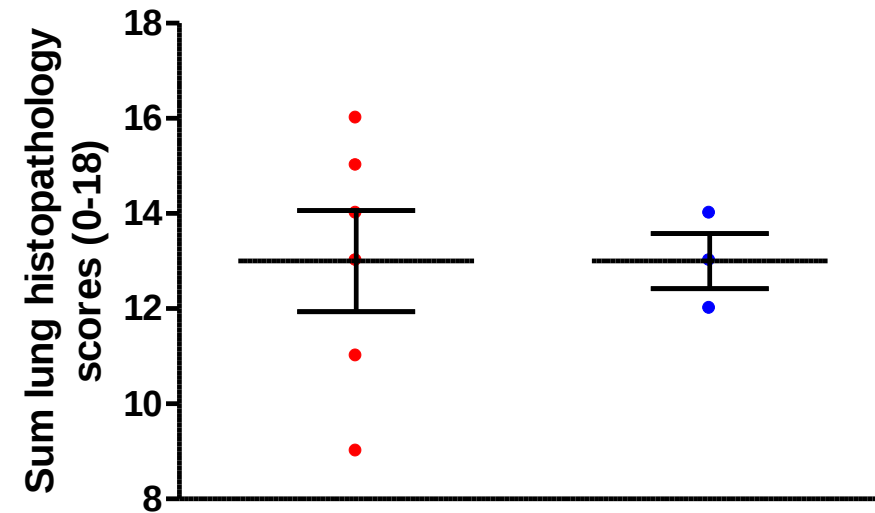


Pathology

Gross lesions



SUM lung histopathology scores



Conclusions

- H5N1 A/grey seal/Netherlands/602203/2023 (A/GS) can infect and replicate in (lungs of) ferrets
- H5N1 A/GS is more pathogenic than historical H5N1 A/Indo
- Replication of H5N1 A/GS more obvious in extra-respiratory organs and upper respiratory tract than historical H5N1 A/Indo
- Ferrets infected with H5N1 A/GS provide a window of opportunity to investigate new intervention strategies to prevent infection and/or disease with a relevant H5 pandemic strain

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