Laboratory of Virology
Faculty of Veterinary Medicine, UGent

• Welcome - Prof. A. de Kruif, dean

• Introduction about swine influenza and ESNIP - Prof. K. Van Reeth
   followed by Questions & Answers

• Visit Laboratory of Virology (3 groups)
  OR
  Animal clinics (3 groups)
An introduction on

• Influenza in pigs

• The “European Surveillance Network for Influenza in Pigs” - ESNIP
Influenza A virus

- 16 different HAs (H1-H16)
- 9 different NAs (N1-N9)
- H and N determine subtype: eg H1N1, H3N2, H5N1
Influenza virus is host specific!
Influenza research at the Lab of Virology

- “Evidence for the natural transmission of influenza A virus from wild ducks to swine and its potential importance for man.” Pensaert et al., Bull WHO 1981


- “Effect of intratracheal challenge of fattening pigs previously immunised with an inactivated influenza H1N1 vaccine.” Haesebrouck and Pensaert, Vet Microbiol 1986
Swine influenza is important for the swine industry

- 3 different subtypes (H1N1, H3N2, H1N2) are widespread
- virus replicates in respiratory tract (lung) epithelium, ca 1 week
- typical respiratory symptoms and fever, weight loss
  OR no symptoms
- vaccination can prevent disease
Influenza in pigs may have public health implications

Pigs are also susceptible to avian influenza viruses and one fears that they may transmit such viruses to humans. However, many questions remain...
Pig can act as mixing vessel between human and avian influenza viruses

However, it remains unknown whether such “reassortants” may be hazardous for humans.
An introduction on

- Influenza in pigs
- The “European Surveillance Network for Influenza in Pigs” - ESNIP

- 14 participants from 10 European countries (Belgium, Denmark, Czech Republic, France, Germany, Italy, Ireland, The Netherlands, Poland, UK)

- Major realisations:
  - Standardisation/harmonisation of protocols for the diagnosis and characterization of SIV
  - Establishment of virus bank and database
  - Preliminary picture of prevalence of different SIV subtypes in different countries
ESNIP 2 (2006-2008)

- P1: Ghent University (UGent) BELGIUM
- P2: Veterinary Laboratories Agency (VLA) UK
- P3: Centraal Instituut voor Dierziekte Controle - Lelystad (CIDC) THE NETHERLANDS
- P4: Istituto Zooprofilattico Sperimentale della Lombardia e dell’Emilia Romagna (IZSLER) ITALY
- P5: Agence Française de Sécurité Sanitaire des Aliments (AFSSA) FRANCE
- P6: Philipps University (UNIMAR-VIRO) GERMANY
- P7: Merial, Virology Department (Merial) FRANCE
- P8: Laboratorios HIPRA S.A. (HIPRA) SPAIN
- P9: National Diagnostic Veterinary Research Institute (NDVRI) BULGARIA
- P10: The University of Hong Kong (HKU) HONG KONG
- P11: University of Wisconsin-Madison (UW Madison) USA
ESNIP 2 aims

1) To further expand our knowledge of the epidemiology and evolution of influenza viruses in swine

- optimize existing diagnostic techniques
- develop new, more rapid and less expensive techniques
- determine the need to update swine influenza vaccine strains
ESNIP 2 aims

2) To provide insights into the **public health risk** of influenza in swine

Do avian influenza viruses circulate in swine in Europe?  
How much similarity between influenza viruses from swine and those from humans and birds?

*ESNIP group will liaise with human and avian surveillance networks*