H5N1 avian influenza outbreak in migratory waterfowl in China

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Wild birds outbreak in Qinghai Lake in 2005
**Brain**, with numerous nerve and glial cells positive for viral antigen (brown pigments), by immunohistological staining with an anti-H5 polyclonal antibody.

**Pancreas**: with nonsuppurative inflammation (HE stain).
Heart, showing small non-suppurative inflammatory foci with degenerating cardiomyocytes (HE stain)
May 5
Bar-headed goose

May 13
Brown-headed gull

May 24
Great black-headed gull
Great cormorant
Ruddy shelduck

Date of the first large die-off of each species

A B C D

CK/Yamagushi/7/04

627 K in PB2

A B C D

IVPI=3.0
IVPI=3.0  MLD50

A  <0.5
B  >6.0
C  <0.5
D  <0.5

HA, NA, NP
Summary

• We demonstrate that multiple genotypes of H5N1 viruses caused the outbreak among the wild birds at Qinghai Lake.
• It is the bar-headed geese that who took the virus to the Qinghai Lake, From WHERE?
• The fact that viruses with a PB2 mutation associated with human adaptation of avian viruses are circulating in migratory waterfowl is worrisome.
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