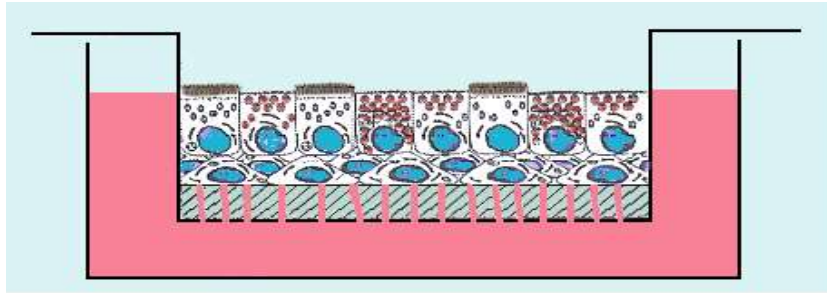
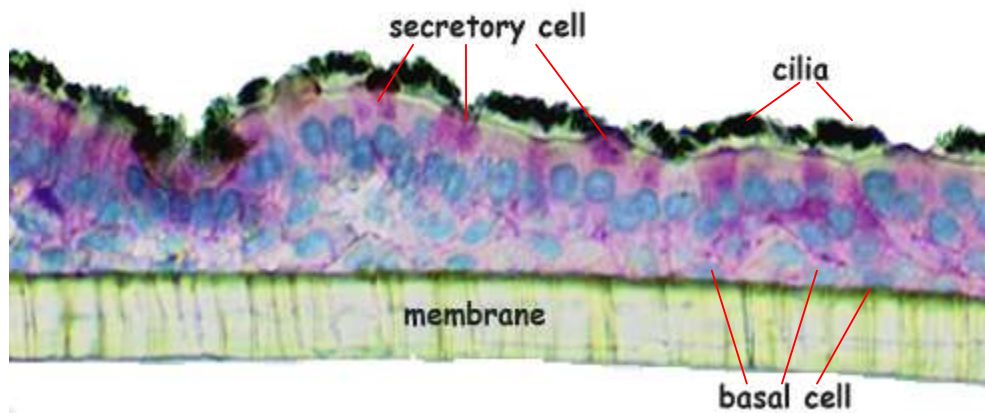


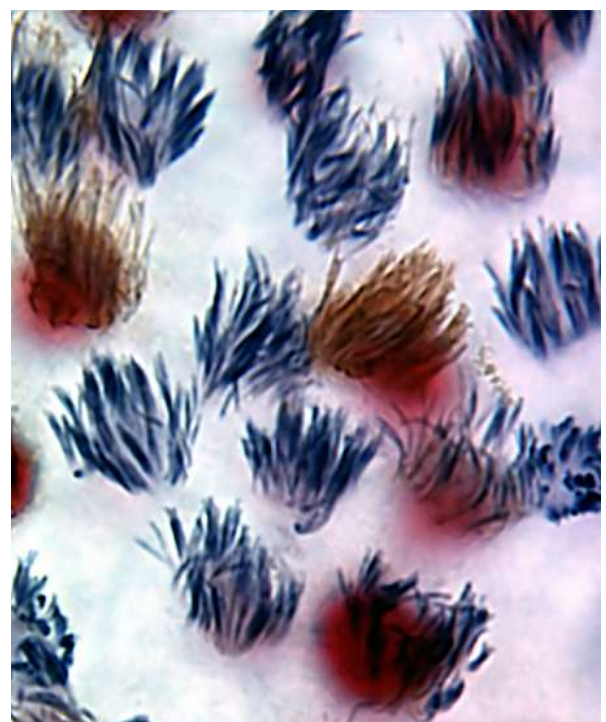
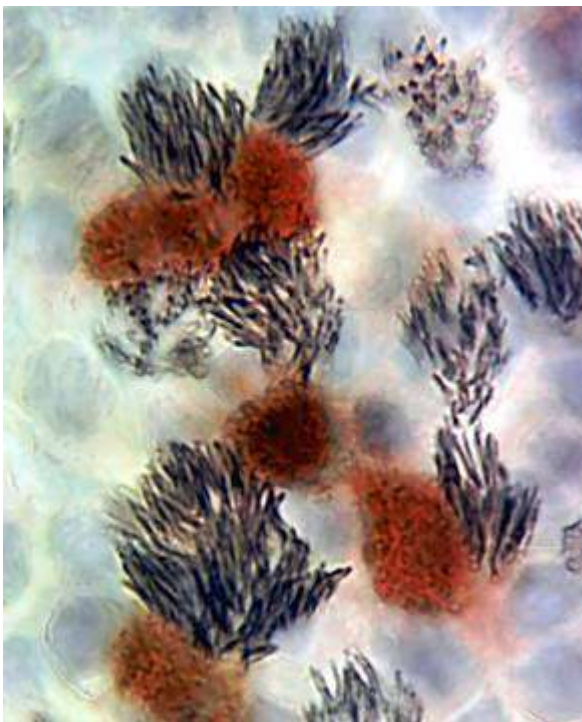
A



B



C



**Fig. 2. Cellular tropism of human and avian influenza A viruses in human airway epithelial cell cultures.**

Human airway epithelial cell cultures are a rare but excellent tissue culture system to study the biology of influenza virus infection. These cultures preserve the physiology of the human respiratory epithelium and are a suitable substrate to study local innate immune responses.

A) Scheme of air-liquid interface cultivation of human tracheobronchial epithelial (HTBE) cells. Non-differentiated cells are seeded on a semipermeable membrane supports (Transwell-Clear, Corning) with the basolateral sides exposed to culture medium (pink) and the apical sides exposed to gaseous phase (5% CO<sub>2</sub> in air) (cyan). After 3-4 weeks of cultivation, the cells differentiate into pseudostratified cultures containing ciliated cells, secretory cells, basal cells and other cell types typical of human airway epithelium.

B) Morphology of differentiated HTBE cultures (cross-section). 6-weeks-old cultures were fixed and immuno-stained for cilia of ciliated cells (dark gray). Secretory cells were identified using Alcian blue (pH 3)-periodic acid-Schiff staining (purple). The cultures were counterstained with hematoxylin (blue), embedded (Crystal Mount, Biomed) and sectioned (5 micrometers). Adapted from: Matrosovich M.N., et al., *J. Virol.* 78:12665-12667 (2004).

C) The cultures were infected with a human virus (left image) or with an avian virus (right image) and double-immunostained for virus antigen (red) and for cilia of ciliated cells (grey). Human viruses preferentially target non-ciliated cells, whereas avian viruses mainly infect ciliated cells (Matrosovich M.N., et al., *Proc. Natl. Acad. Sci. U. S. A.* 101:4620-4624 (2004)). These distinctions in cell tropism may affect innate immune responses elicited by human and avian viruses in human airway epithelium.

Pictures by Mikhail Matrosovich, Institute of Virology, Philipps University, Marburg (WP4).