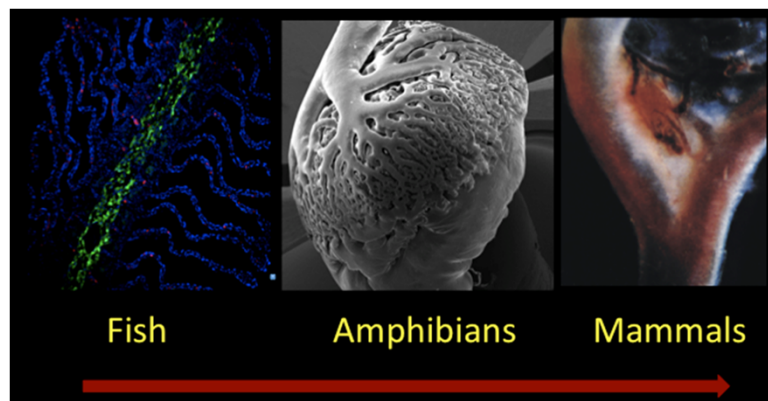




Evolutionary trends in arterial O₂ chemosensing

Professor William K. Milsom,
University of British Columbia, Canada

Animals respond to low oxygen levels, but the arterial chemoreceptors responsible for sensing low oxygen and their associated reflexes are not well understood in lower vertebrates. In fish, O₂ chemoreceptors are widely dispersed throughout the gills, able to sense the O₂ in both water and blood, and generate cardiovascular and respiratory reflexes. In amphibians and reptiles, the receptors lie along the blood vessels derived from the ancestral branchial arches and have more specific roles. The receptors on the carotid artery are involved in regulating O₂ uptake at the lungs, while those on the pulmonary artery and aorta are more involved in regulating O₂ transport to the tissues. In mammals, the receptors on the pulmonary artery have disappeared, while those on the aorta primarily generate cardiovascular reflexes. The phylogenetic trend appears to be a reduction in the number of chemosensory areas from fish to reptiles to mammals and a change (specialization) in the allocation of duties for each.



Tuesday March 5th at 16.30
Lecture hall G2 (mathematics)