Comparative Placentation: Tuesday 3rd July, 09.00

Viviparity and the development of a placenta are two of the major reasons for the success of the vertebrates in colonising all habitats, both terrestrial and aquatic. The placenta is an apposition of fetal to maternal tissue which has two main functions: to maximise oxygen and nutrient acquisition from the mother, but to minimise immunological rejection by the maternal immune system. These competing drives have resulted in an organ of uniquely varied cellular structure across species whereas all other organs such as the eye or the kidney for example, are remarkably uniform in this respect. This lecture will provide a brief overview of the range of structure compared to that of the human and rodent, with which most of the participants will be familiar.

The reasons for the range of placental structures and their evolution presents a fascinating scientific puzzle. They are also of immediate medical and agricultural relevance since in man and animals impaired placental growth produces a weakened neonate and has also recently been shown to be associated with an increased incidence of cardiovascular, metabolic and other diseases in later life. Comparative placental studies facilitate an understanding of what factors control this impaired growth in humans and also allow a more informed selection of valid animal models.

Practicals will demonstrate experiments with rodent placental structure and participants will also visit our large animal facility and see how we deal with a detailed investigation of sheep placenta.

*Dr Peter Wooding*