

**Phil Marsh**

### **The Microbial Ecology of Dental Plaque Biofilms in Health and Disease**

Dental plaque is the biofilm found naturally on the tooth surface, which forms part of the resident microflora of the mouth. The resident microflora of all sites in the body confers benefit to the host by helping to prevent colonisation by exogenous (and often pathogenic) micro-organisms and by contributing to the normal development of the physiology and immune system of the host.

Molecular studies have shown that the resident oral microflora has a diverse composition, especially in plaque biofilms. Once formed, the composition of this microflora remains relatively constant over time (microbial homeostasis). On occasions, however, microbial homeostasis breaks down and disease can occur. The biofilms associated with periodontal diseases have a markedly different composition than those found at healthy sites, with increases in the proportions of Gram negative and proteolytic bacteria. Some of these bacteria are also found in health, but in very low numbers.

The talk will review the intimate relationship between the host and its resident microflora, and describe how an appreciation of the basic principles of microbial ecology can help explain the role of plaque biofilms in both health and disease. An understanding of these principles could lead to novel strategies to prevent further episodes of disease.