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Host-microbial interactions in health and disease. P SPEIGHT¹, B HENDERSON¹, S KRISANAPRAKORNKIT², T NISHIHARA³, L SAMARANAYAKE⁴. (¹University College London, UK¹, Universities of ²Washington, Seattle and ⁴Hong Kong, ³Kyushu Dental College, Japan)

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Cellular microbiology is a new science comprising microbiology, cell biology and molecular biology. Its primary focus is on the interactions between bacteria and host cells which give rise to pathology but which also may maintain health. Recent studies have shown that bacteria can control many aspects of eukaryotic cell behaviour including cell movement and shape, cell proliferation and apoptosis. Oral epithelial cells may produce antimicrobial peptides, including defensins, which are a primary barrier to microorganisms. Defensins may also modulate mucosal inflammation and immunity and may play a key role in maintaining mucosal homeostasis. Other bacterial products may directly regulate or modulate epithelial cell behaviour. Cytolethal distending toxin, for example, appears to interfere with host cell cycle regulatory proteins, suggesting a direct effect on cell proliferation. These toxins may have an important role in a number of disease processes including neoplasia and inflammatory disease such as periodontitis. Similar effects may be mediated by products of fungi. The most common oral fungal pathogen is *Candida Albicans* but the role of this organism is hyperplastic and dysplastic oral lesions and in oral cancer is still much debated. However *Candida Albicans* is also a common commensal and it may also have a role in maintaining mucosal health.

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