

# HOST-MICROBE INTERACTIONS IN CHEMOTHERAPY-INDUCED ORAL MUCOSITIS

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## **Keywords:**

Oral mucositis, *in vitro*, chemotherapy, patients, host-microbe interactions

## **Introduction & Objectives**

More and more evidence is emerging that microbiota are involved in the development and severity of oral mucositis, an inflammation and ulceration of the mucosa after chemotherapy. It is known that the microbiome is changed during mucositis and that chemotherapy is often complicated with local and even systemic infections. But still little is known about the role of oral commensals in the onset, development, and duration of oral mucositis. In this study, we want to explore the role of host-microbe interactions in chemotherapy-induced oral mucositis by means of an *in-house* developed *in vitro* model.

## **Materials & Methods**

The model consists of a 24-well Transwell™ plate with removable inserts in which a reconstructed biofilm, derived from an oral swab or saliva of cancer patients or healthy donors, is co-cultured with epithelial monolayer cells in presence or absence of chemotherapeutics. A wound scratch assay is performed to evaluate the effect of microbiota on the healing of epithelial cells exposed to chemotherapeutics.

## **Results & Discussion**

We show that oral microbiota have an overall negative impact on wound closure of oral epithelial cells, irrespective of the presence of chemotoxic agents. Quantification of the biofilm cell numbers showed that the effect of 5-FU varied according to the type of oral sample used and that there is interindividual variability. We further show shifts in the microbial community of the reconstructed biofilm after chemotherapy treatment. This *in vitro* model will help us to further characterise the pathobiology of mucositis and to develop new treatment strategies.

**Theme:** The gut and beyond