MSc project

Title: Microcontainers for oral drug delivery

Description:
When administering drugs, the oral route is the most preferred by patients. The digestive system presents several challenges as, for example, the low gastric pH, the presence of enzymes in the stomach and intestine and the intestinal barrier and all these can reduce the therapeutic effect of the drug. Capsules and tablets are commonly used dosage forms in the clinic. Nevertheless, in these drug delivery systems (DDS), the drug is released in all directions entailing an unavoidable loss of the drug in the intestinal lumen. Microcontainers (Fig. 1) are micro-fabricated cylindrical reservoirs filled with drug. The microcontainers can be used as a multi-particulate system with a unidirectional release due to their geometry.
The aim of the project is to load a peptide drug into the microcontainers and *in vitro* characterise the loaded drug (Fig. 2 top). Moreover, to protect the drug from the harsh gastric environment and/or to facilitate the systemic absorption of the drug, a coating is deposited on top of the microcontainers (Fig. 2 bottom).

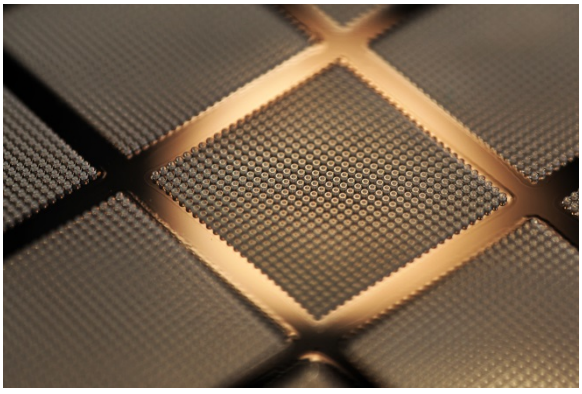

Figure 1: Picture of microcontainers

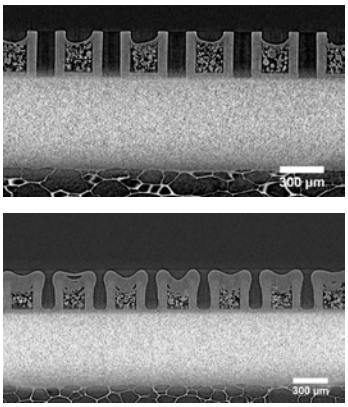

Figure 2: X-Ray micro computed tomography of loaded (top) and loaded and coated (bottom) microcontainers.

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Allowed no of students per report: 1

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