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# Polymer films for the locoregional delivery of anticancer drugs in lung tumors

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## Abstract

Systemic delivery of anticancer drugs subjects the patient to a number of severe side effects that often limit the doses administrable to the patient or lead to the interruption of the therapy. Surgical intervention offers a unique opportunity for the local delivery of anticancer drugs, maximizing the tumor exposure to chemotherapeutic agents and ultimately reducing the toxic effects on healthy tissues and organs. Liquid, semisolid and solid formulations have been proposed for the administration and release of anticancer drugs in surgical settings.

Malignant pleural mesothelioma is a rare tumor of the respiratory system related to asbestos exposure. In current clinical practice, the best survival data in the treatment of mesothelioma were observed after multimodal treatment comprising chemotherapy, radiotherapy and surgery. Nevertheless, local recurrence of the tumour remains a major problem. Recently, we proposed a locoregional treatment approach based on polysaccharide based film implants. The films produced, containing hyaluronate or chitosan as main component, were loaded with cisplatin (0.5% w/w) and pemetrexed (2% w/w). Drug delivery devices were provided with mechanical properties and adhesion to biological surfaces suitable for use during surgical intervention. Preliminary experiment in an orthotopic rat tumor model of malignant pleural mesothelioma demonstrated that tumor recurrence could be prevented using cisplatin-loaded hyaluronate films, or by the association of those films with cisplatin-loaded chitosan films or pemetrexed-loaded hyaluronate films.

Polysaccharide films appear to be promising drug delivery platform for the locoregional administration of anticancer drugs during lung cancer surgery.

## Biography

Fabio Sonvico has completed his Ph.D with a co-tutorial project from the University of Parma (Italy) and the University of Paris South (France). Since February 2012, he is Senior Lecturer at the Graduate School of Pharmacy of the University of Technology Sydney (Australia). He has published more than 30 papers in international journals on advanced drug delivery topics and he is also author of 4 book chapters and 3 patents focusing on innovative drug delivery systems.