

Lymphatic Targeting of Cancer Chemotherapeutics

Overview of Technology:

The lymphatic system is commonly involved in cancer spread, of which regional lymph node metastasis is a universal sign of tumor progression. Clinical studies show that effective control of lymphatic metastasis often improves cancer treatment outcome. However, it has been demonstrated that intravenous anticancer drug administration does not effectively penetrate the lymphatic system without incurring serious systemic side effects.

We have created a drug delivery system based on commonly used medical polymers that harnesses the natural scavenging function of the lymphatic system to allow for controlled and highly targeted release of chemotherapeutics into regional lymph nodes. Uniquely, access to the draining lymphatics is provided by introducing the drug-containing gel matrix at the time of surgical intervention. Thus this approach engages a new class of physicians, the surgical oncologist, in the earliest treatment of potential metastatic spread of the tumour.

Extensive testing using this system to deliver standard chemotherapeutic drugs in an orthotopic lung cancer animal model has demonstrated dramatic reductions in metastatic cancer. Initial animal model studies have also indicated potential effectiveness in the treatment of breast and colon cancer.

Related Publication:

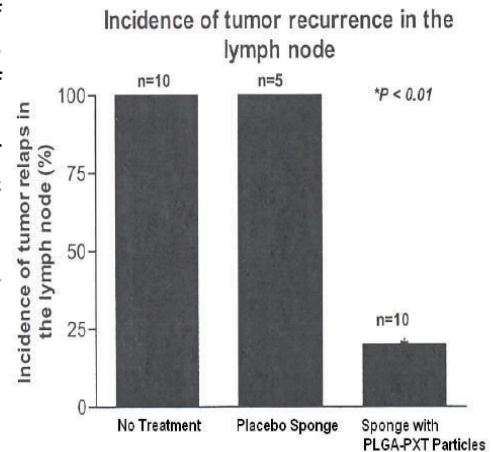
Liu, J., *et al.* Targeting colloidal particulates to thoracic lymph nodes. *Lung Cancer*. **51(3)**, 377-386 (2008)
Liu, J., *et al.* A novel trans-lymphatic drug delivery system: Implantable gelatin sponge impregnated with PLGA-paclitaxel microspheres. *Biomaterials*. **28**, 3236-3244 (2008)

Patent:

PCT/CA2006/001321 - Filed 14 Aug 2006. National phase entry in: US, Europe, Canada, China and India

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Therapeutic efficacy of lymphatic targeting in an orthotopic Rat Lung Cancer Model

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