Nano-Functionalised Implants for the Regenerative Treatment of Spinal Cord and Nerve Lesions (Nano4Neuro)

Nano-medicine can potentially help with the daunting task of treating spinal cord injuries and peripheral nerve lesions. The proposed project will utilise nanostructured resorbable implant tubes, enabling us to bridge lesion gaps in nervous tissue. The implants will contain RNAi nanotherapeutics to prevent scar formation and enable axon path-finding and regeneration. Special focus will be placed on siRNA nanoparticle formation including novel cell targeting labels in conjunction with the macro-implant. The nanotherapeutics technology is a cross-sectional technology that could easily be applied to other medical indications.

LYMPHONANOCARRIERS FOR THE TREATMENT OF METASTATIC CANCER (LYMPHOTARG)

Inhibiting cancer cell invasion and metastasis has become a top priority in cancer research. The lymphatic system is particularly important for the process of cancer cell dispersion. The LYMPHOTARG project proposes to develop specifically targeted anticancer treatments, by associating anticancer drug to specific nanostructures composed of lipids and polymers, which have a specific affinity for the lymph nodes. In this way, we expect to prevent the process of metastatic spreading through lymphatic vessels. The final goal is to reach the preclinical evaluation stage with one of these novel nanocarrier systems.