PROJECT TITLE

First-in-Human Porphysome Nanotechnology for Precision Tumour Ablation and Surgical Guidance

PRINCIPAL INVESTIGATOR

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SCIENTIFIC SUMMARY

Porphysomes are a novel nanoparticle-based agent developed at the Princess Margaret Cancer Centre. After injection into the body, Porphysome particles accumulate at high concentrations within cancer cells over 24-48 hours. Upon uptake in tumours and metastases, clinicians can image Porphysomes using PET-imaging and high-resolution optical imaging for the purposes of treatment planning and image-guided cancer surgery. Additionally, when laser light is shone on tumours with Porphysomes, the tumours are destroyed with either heat or chemicals. These light-based therapies permit precise cancer cell ablation/destruction without needing to remove healthy tissues. This multidisciplinary team of scientists and clinicians have tested the safety and effectiveness of Porphysomes in different pre-clinical tumour. The primary goal of this Phase 1 study is to confirm Porphysome safety in patients with an increasing dose. The secondary goal is to demonstrate Porphysome image-guided light-based treatments in each cancer site using site-specific protocols addressing clinical needs for improved surgical precision and tumour ablation.