10-SEP-2010

Research Officer

Royal Adelaide Hospital Cancer Centre

Investigators:
Prof. Michael P. Brown, Director, Royal Adelaide Hospital Cancer Clinical Trials Unit
A/Prof. Eva Bezak, Director, Royal Adelaide Hospital Medical Physics Department

A 2-year position commencing early 2011

An exciting opportunity exists for a junior postdoctoral scientist to bring his/her skills to bear in projects that involve biodistribution and treatment studies using a novel radioimmunotherapy called APOMAB® in murine tumour models. APOMAB® is a novel dead cell tumour targeting platform for cancer therapy.

Please direct enquiries to michael.brown@health.sa.gov.au. A job and person specification is available on request.

The efficacy and safety of antibody-based therapies for cancer depend on tumour-selective expression of the target structure. Targets that are stably expressed in a wide variety of tumour types are advantageous. The potency of antibody-based therapies may be enhanced by tumour-selective delivery of therapeutically active molecules (1). Currently, many antibody-based therapies for cancer are directed against cell surface antigens. In contrast, we have discovered a novel, ubiquitously expressed, and high-abundance target, the La/SSB antigen, to be overexpressed in malignant cells and to be available for binding to its specific APOMAB® monoclonal antibody after treatment of the malignant cells with DNA-damaging apoptotic stimuli (2). In the syngeneic EL4 murine model of lymphoma, preferential and dose-dependent tumour uptake of APOMAB® was observed after DNA-damaging cytotoxic chemotherapy and was associated with ‘induction’ of the target antigen (3, 4). EL4 lymphoma uptake of APOMAB® increased with time after chemotherapy and correlated with tumour markers of late apoptosis (3). Moreover, when armed with a therapeutic radionuclide such as Yttrium-90 (90Y), APOMAB® promoted tumour uptake of itself (5). Tumour accumulation of radiolabelled APOMAB® was accelerated by delaying its administration until 24 hours after chemotherapy when other organ uptake was least. In its effects on tumour growth delay in the lymphoma model, and in syngeneic and xenogeneic murine carcinoma models, 90Y-APOMAB® synergised with chemotherapy. No significant adverse effects of this radioimmunotherapy were observed in these animal models indicating that it had a favourable therapeutic ratio (6). We believe that these properties mark APOMAB® as a platform technology to deliver different modalities of anti-cancer treatment to nearby viable cancer cells such as β- and α-emitting radionuclides and nanoparticles (7, 8).