T-Cell Immunotherapy targeting EBV, for Lymphomas, Nasopharyngeal Carcinomas, and a subset of Gastric Carcinomas

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Description:

T-Cell Immunotherapy for Lymphomas, Nasopharyngeal Carcinomas, and a subset of Gastric Carcinomas

Available For: Exclusive licensing

Summary

This patented T cell receptor (TCR) gene therapy generates LMP2-specific T cell populations of the treatment of EBV-associated lymphomas, gastric cancer and nasopharyngeal carcinomas (NPC). We are currently in pre-clinical testing, and we plan to enter a Phase 1/2a study in 2011.

Latent membrane protein-2 (LMP2) is an Epstein Barr Virus (EBV)-derived antigen and is expressed in approximately 40% of lymphomas, 10% gastric carcinomas and virtually all poor prognosis undifferentiated non-keratinising nasopharyngeal carcinomas (NPC). TCR-gene transfer efficiently generates LMP2 expressing tumour cells in vitro and in vivo. We are currently planning a Phase I/IIa clinical trial in patients.

The Technology and its Advantages

T-cell immunotherapies typically use vaccines, peptides, or autologous therapies, to target disease caused by EBV. Having worked on other targets, we have developed T-Cell Receptor (TCR) gene transfer that has the potential to form a more effective immunotherapy.

TCR gene transfer will allow us to rapidly and reliably convert patient T cells into LMP2-specific CTL and Th cells with high frequency and avidity.

TCR gene transfer is not dependent on competence of patients own immune system: it is possible to direct T cells against target antigens even when the patients own repertoire lacks T cells that can recognise the selected target antigen. In the past years, we and several other groups have demonstrated the feasibility of retroviral TCR gene transfer in preclinical models, and this has been extended to clinical trials in melanoma patients. By combining TCR gene transfer and targeting LMP2, our technology produces high frequency and high avidity T cells both CTL and Th types and anti-tumour activity.

Market Opportunity

Latent membrane protein-2 (LMP2) is an Epstein Barr Virus (EBV)-derived antigen and it expressed in some of the lymphomas as well as in nasopharyngeal (NPC) and gastric carcinomas. Most importantly LMP2 is present in nearly all poorly differentiated and undifferentiated non-keratinising NPCs which have poor prognosis and are refractory to treatment. We have developed a T cell receptor (TCR) gene therapy to

generate LMP2-specific T cell populations for the treatment of EBV-associated lymphomas and NPCs. We are working to demonstrate that TCR-gene transfer efficiently generates LMP2 expressing tumour cells, and confirming the resulting anti-tumour activity.

Intellectual Property Status

Patent application submitted on 29th September 2009. No. 0917090.3

Further Information

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