

PRESS RELEASE – ADAPT IMMUNE

Investigators to Present Preliminary Findings for Adaptimmune's Gene Engineered T Cells in Myeloma at the Annual American Society of Hematology Meeting on Monday 10 December

Abstracts Published in Today's Issue of the Journal Blood

(Oxford, UK and Philadelphia, PA) 16 November, 2012. Adaptimmune announces the publication of dual abstracts in today's issue of the *Journal Blood*, which report preliminary results from an early phase study using patients' own T cells that have been genetically altered to attack multiple myeloma (MM) cells. Lead investigators for the study will be presenting the data on December 10th at the annual meeting of the American Society of Hematology (ASH).

The trial was designed as a single arm open label extension study where patients are given standard of care (autologous stem cell transplant) in conjunction with modified T cells. The critical step in this new approach is that the infused T cells have been genetically engineered to carry receptors that help the T cells recognize and attack a tumor, while sparing healthy tissue.

Study objectives are to evaluate the safety, bioactivity and anti-tumor effect of infusion of patients' own T cells that have been genetically modified to express a high affinity T cell receptor (TCR) specific for a type of tumor antigen (protein) known as a cancer testis antigen (CT antigen). The target CT antigens in the study are NY-ESO-1 and LAGE-1.

The initial six patient phase is complete and patients have reached a minimum of six month follow-up for assessment of tumor response to the treatment. Based on the encouraging preliminary results, which will be reported at the conference, the study has been extended to a target enrollment of 26 patients. To date, infusion of modified T cells have been well tolerated. The data to be reported at the ASH meeting demonstrates prolonged persistence of modified T cells, homing of the cells to marrow (the site of tumor), and suggests anti-tumor activity.

Multiple myeloma is a hematologic cancer localized to the bone marrow. With standard therapy, long-term response rates are low, and the median survival for patients with this disease is three to five years.

The clinical trial focuses on this unmet medical need and includes patients who have received prior treatment for their myeloma or who have disease considered to be high risk, and who are eligible for an autologous stem cell transplant (auto-SCT). Auto-SCT is the transplant of a patient's own stem cells, which is a standard of care for treatment of multiple myeloma in the U.S. Infusion of the gene modified T cells occurs just following auto SCT.

Presentations at the ASH meeting will be made on Monday, December 10, in non-overlapping sessions.

Dr. Aaron Rapoport, the Chair of the clinical study, will present abstract 472 entitled "Adoptive Transfer of Gene-Modified T-Cells Engineered to Express High-Affinity TCRs for Cancer Testis Antigens (CTAs) NY-ESO-1 or Lage-1, in MM Patients Post Auto-SCT".

Dr. Michael Kalos, the lead correlative scientist on the study, will present abstract 755 entitled “Prolonged T Cell Persistence, Homing to Marrow and Selective Targeting of Antigen Positive Tumor in Multiple Myeloma Patients Following Adoptive Transfer of T Cells Genetically Engineered to Express an Affinity-Enhanced T Cell Receptor against the Cancer Testis Antigens.”

In addition, Dr. Carl June, study sponsor and recipient of the 2012 prestigious Ernest Beutler Award for major translational advances, will present data from the study at the Beutler Lecture, also on Monday.

“I am very pleased to speak about this promising study at ASH this year,” says Dr. June. “Adaptimmune’s technology is an important component of the next generation of cancer therapies predicated on harnessing the power of the T cell.”

“From a clinical perspective, I am encouraged by these preliminary findings which will enable us to continue to evaluate T cell therapy for myeloma, and I look forward to the opportunity to present the data for review in a national forum,” says Dr. Rapoport.

Despite the preliminary nature of the study, we have learned a lot already from our careful and integrated analyses of blood, marrow and serum in these patients,” says Dr. Kalos. “This allows us to correlate the engraftment, cytokine production and also changes in target tumor antigen over time, and to demonstrate anti-tumor activity of the infused cells in vivo”.

“We are tremendously pleased with the emerging clinical data in our myeloma programme,” says Dominic Smethurst, Medical Director at Adaptimmune. “We are working with a world class team of investigators, who are very engaged with ensuring the clinical advancement of this technology.”

Additional study details and contact information for patients interested in finding out more about participation can be found at clinicaltrials.gov, under trial identifier number NCT01352286.

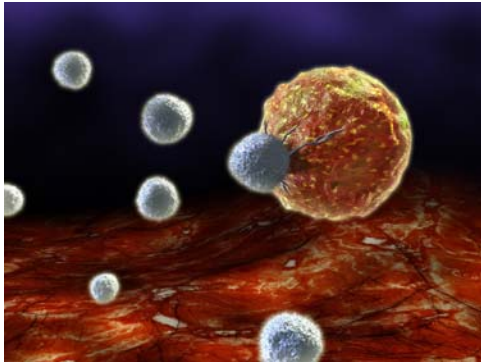
Dr. Carl H. June at the University of Pennsylvania (UPenn) Abramson Cancer Center and Dr. Aaron Rapoport of the University of Maryland Marlene and Stewart Greenebaum Cancer Center, developed the study. Dr. June is the regulatory sponsor (FDA representative) for the study, Dr. Rapoport is the lead clinical investigator at the University of Maryland and protocol Chair, and Dr. Michael Kalos is the Director of the Translational and Correlative Sciences Laboratory at UPenn, and leads the correlative analyses for the study. Other investigators include Dr. Edward Stadtmauer who is the lead clinical investigator at the UPenn Abramson Cancer Center, and Dr. Dan Vogl who is a sub-investigator also at UPenn. Adaptimmune Ltd is the financial sponsor and owns the core T cell receptor technology. T cell manufacturing is performed at the Clinical Cell and Vaccine Production Facility at the University of Pennsylvania directed by Dr. Bruce Levine.

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Images:



T cell (blue) killing a tumor cell (red)



Adaptimmune laboratory – Scientist cloning a TCR



Adaptimmune laboratory – Scientists growing research cells



Adaptimmune laboratory – Scientists growing a cell therapy product

Notes for editors

About Adaptimmune

Adaptimmune is focused on the use of T cell therapy to treat HIV and cancer. It aims to utilize the body's own machinery – the T lymphocyte cell – to target and destroy cancerous or infected cells.

Established in July 2008 with a research base in Oxford, UK and clinical base in Philadelphia, US, Adaptimmune was set up to develop unique T cell receptor engineering technology for adoptive T cell therapy exclusively licensed from Immunocore Ltd (formerly Avidex/MediGene). Specifically, Adaptimmune makes use of the body's ability to recognize infected or cancerous cells by enhancing the power of the T cell receptor (TCR) on killer T cells. All cells, including cancerous cells, will typically present small parts or peptides of internal proteins on their surface as part of the natural protein processing pathway. This offers a "molecular fingerprint" of the protein called an epitope for killer T-cells from the immune system to identify and destroy. However, since cancer proteins are usually derived from self proteins against which naturally selected TCRs in the body do not respond, the Adaptimmune technology uniquely enhances the natural TCR affinity to these cancer-specific epitopes enabling targeted killing of the cancer cells.

Adaptimmune has undertaken significant preclinical development with a number of pipeline TCRs to demonstrate their potency and specificity in vitro. The TCR in the current myeloma study specifically recognizes two cancer testis antigen targets: NY-ESO-1₁₅₇₋₁₆₅ and LAGE-1 (HLA A2; SLLMWITQC), and was engineered using Adaptimmune's proprietary TCR engineering platform. Myeloma is the lead indication for the therapy, with related trials in melanoma and sarcoma also recruiting patients and further trials in ovarian and hepatic cancer scheduled to open in 2013. <http://www.adaptimmune.com>