

# ATTRACT

## Advanced Teaching and TRaining for Adoptive Cell Therapy



**13 Research Positions  
in 6 Different Countries  
Available NOW!!!**

11 PhD Studentships or Early  
Stage Researchers\*  
2 Experienced Researchers\*\*

\* ESR = within 4 years of undergraduate degree award  
\*\* ER = more than 4 years postgraduate research experience

# ATTRACT

For more information please contact Nikki Price at:  
[NPrice@picr.man.ac.uk](mailto:NPrice@picr.man.ac.uk)  
or individual institutions at:

Principle Investigator	Contact email	Institution	Project
Robert Hawkins	<a href="mailto:Rhwkins@picr.man.ac.uk">Rhwkins@picr.man.ac.uk</a>	University of Manchester, UK	Coordinator
Dave Gilham	<a href="mailto:Dgilham@picr.man.ac.uk">Dgilham@picr.man.ac.uk</a>	University of Manchester, UK	Issues related to production of therapeutic T cells
Zelig Eshhar	<a href="mailto:Zelig.eshhar@weizmann.ac.il">Zelig.eshhar@weizmann.ac.il</a>	Weizmann Institute, Israel	Pedical models for adoptive T cell therapy using engineered tumor specific T cells.
Reno Debets	<a href="mailto:Rdebets@erasmusmc.nl">Rdebets@erasmusmc.nl</a>	Erasmus MC, Rotterdam, NL	Novel tumour antigens as targets for receptor-engineered T cells
Claudio Bordignon	<a href="mailto:Claudio.Bordignon@mednet.com">Claudio.Bordignon@mednet.com</a>	Molmed, Milan, Italy	Optimising transduction and function of T cells
Ton Schumacher	<a href="mailto:t.schumacher@nki.nl">t.schumacher@nki.nl</a>	NKI, Amsterdam, NL	Isolation and validation of new TCRs for gene therapy of prostate cancer and melanoma
Thomas Blankenstein	<a href="mailto:tblank@mdc-berlin.de">tblank@mdc-berlin.de</a>	MDC, Berlin, Germany	Improving the safety of gene-modified T cells
Hilrich Ahken	<a href="mailto:hilrich.ahken@uk-koeln.de">hilrich.ahken@uk-koeln.de</a>	University of Cologne, Germany	<b>Gene modified T cell subsets for adoptive transfer</b>
Naomi Taylor	<a href="mailto:naomi.taylor@qimn.crs.fr">naomi.taylor@qimn.crs.fr</a>	CNRS, Montpellier, France	Homing and persistence of gene-modified T cells
Fiona Thistlethwaite	<a href="mailto:fiona.thistlethwaite@christie.nhs.uk">fiona.thistlethwaite@christie.nhs.uk</a>	The Christie, Manchester UK	Clinical Trials of Cell Therapy
Hans Staus	<a href="mailto:hstaus@medsch.ucl.ac.uk">hstaus@medsch.ucl.ac.uk</a>	UCL, London, UK	<b>Isolation and validation of new TCRs for gene therapy of haematological malignancies</b>
Anna Moridino	<a href="mailto:mondino.anna@hsr.it">mondino.anna@hsr.it</a>	San Raffaele, Milan, Italy	Defining the impact of adoptive T cell transplant on immune competence
Paola Allavena	<a href="mailto:paola.allavena@humanitasresearch.it">paola.allavena@humanitasresearch.it</a>	Humanitas, Milan, Italy	Optimization of adoptive T cell therapy by chemokine receptor-directed homing to tumor cells
Alexander Schetfold	<a href="mailto:alexandersc@mltivybiotec.de">alexandersc@mltivybiotec.de</a>	Miltivi, Germany	<b>Isolation, expansion and characterisation of T cells for adoptive immunotherapy</b>
Adrian Abocis *		GE Healthcare, UK	
János Szollosi *		University of Debrecen, Hungary	
Richard Dermitt *		Eden Biosign, UK	

Red indicates Fellowship position is taken



\* Will not host Research Fellow. Will host some courses or workshops.

# Training Programme

This project integrates the expertise of 16 organisations from 6 different member states (UK, France, Italy, Germany, Hungary, Netherlands) and 1 Associated State (Israel). The partners have extensive, detailed and complementary knowledge for the further development of adoptive cell therapy, a skill set that includes European experts in T cell engineering, leading authorities in basic and tumour immunology and organizations well versed in clinical trials including the presence of 4 industry representatives who have the proven track record in the biomanufacture of clinical products.

Within the scope of the network, 13 fellows (10 Early Stage Researchers and 2 Experienced Researchers) will be recruited by their principle host to work on the defined research topic which will contribute to the attainment of their PhD degree or early post doctoral training. The structured training programme which is 36 months (ESR) or 24 months (ER) in duration offers various joint activities which are mandatory for all fellows. In addition, several individual training modules will be implemented. Besides scientific training, various complementary training modules are also offered to equip the fellows with a portfolio of transferable skills.

Training will include courses in research methodologies, immunotherapy background and courses in more general areas such as personal development, ethics, clinical trial design etc. The training programme will operate as a series of onsite and offsite courses and workshops hosted locally within your institution or by an ATTRACT partner site, these may be done on a one to one basis or as a group workshop.

In addition there will be annual summer schools for the ATTRACT fellows and at least one secondment within the ATTACK consortium for several weeks.



## Research Objectives:

The research tasks that configure the foundation of the proposed research training programme are as follows:

**Homing and Persistence:** This is a poorly understood and complex area and is a major area of research. The consortium has expertise in chemokines/chemokine receptors and evaluation of in vivo and in vitro homing. Understanding and manipulating this aspect could have major benefits to the research. An approach that may prove beneficial is the use of virus specific T cells for genetic modification as these may have improved persistence/homing and can be stimulated by vaccines. Novel technology may facilitate their isolation and monitoring.

**Safety:** There are several aspects of safety that can be assessed in animal models. These include the potential for autoimmunity and the potential genotoxicity. This later aspect appears small but there is limited data. This could be very important in the long term if adoptive cell therapy is to be used in early stage cancer.

**Interaction with the Immune System:** Tumours can potentially escape from any targeted therapy by mutation or loss of the target. There is the potential for the immune system to overcome this by the generation of active immunity to other targets following adoptive cell therapy. This is a little studied but important area and the consortia have a number of models in which this can be studied using varied approaches to genetically modifying cells. This type of effect may also be found when other immune cells are modified or when a range of cells are modified using stem cell gene transfer.

**New receptors / Targets:** A particular focus will be the attempts to define new targets / receptors for adoptive cell therapy. This is important as it is not clear if the current targets are optimal. Already it can be seen that toxicity can occur when targets are found on other tissues but the extent of this problem is unclear. Realistic animal models will allow testing of this. Another approach will be the isolation of effective T cells from other immunotherapies (eg vaccine or cytokine trials) and cloning the T cell receptors and/or characterising the target antigen. Evaluation of structural interactions will assist in determining optimal receptors.

**The development of GMP systems:** Different methods of cell transduction/expansion have already been developed by some of the partners. The network will seek to extend this work to GMP systems and evaluate the reproducibility of the approach in terms of effects on homing and survival. GMP methods of virus production will also be investigated. Current methods, although adequate for small scale trials, are suboptimal for future larger trials. Improved methods for the generation of optimal T cells from patients are also important.

**Clinical Trial Design/Monitoring:** This project will allow development and standardisation of assays for monitoring trials to ensure comparable reporting of results. This type of result is key to the critical evaluation of results from different trials potentially using differing conditions. Several partners have key expertise in monitoring by flow cytometry and other key aspects including molecular monitoring e.g. integration site analysis. Similarly the training of clinical researchers in the management of these types of trials which may include chemotherapy and cytokines as well as the adoptive transfer of cells is important. Clinical toxicity is at present uncertain and it is important to have a cohort of well trained clinical researchers to develop such treatments more widely in the future.