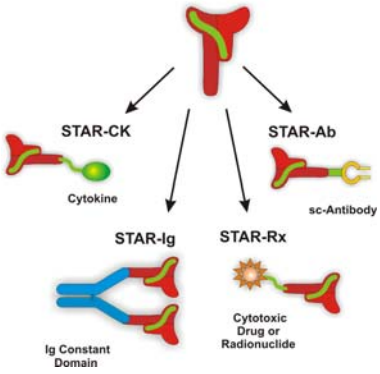
Altor BioScience CORPORATION

Anti-Viral TCR Platform

Altor has created a unique proprietary technology platform for producing biologically active, soluble T-cell antigen receptor (STAR™) molecules derived from disease fighting T-lymphocytes. The resulting STAR™ fusion molecules retain the ability of the native TCR to specifically recognize novel targets on virus-infected or cancerous cells, including antigens generated from intracellular proteins that are not accessible to therapeutic antibodies. With this technology, Altor is able to combine the advantages of cellular immunity in the ability to recognize many different viral or cancer antigens and the advantages of a soluble antibody-like protein to bind infected or diseased cells and direct immune responses against these cells. Altor has published extensively on its STAR™ fusion approach and has been awarded a significant amount of funding from NIH to advance these molecules from concept to clinical testing.

In the area of cancer, Altor's lead STAR™ fusion molecule recognizes a very broad-based tumor antigen from the intracellular protein p53. Altor is currently in Phase II clinical trial in patients with metastatic melanoma using a p53-specific TCR/IL-2 fusion molecule. This fusion, ALT-801, was shown in a Phase I/IIa clinical trial to be well-tolerated, exhibits lower toxicity compared to high-dose IL-2, and provides clinical benefit to patients including tumor shrinkage.

STAR™ Fusion Drugs for Viral Infections: Based on the success of its cancer program and due to the lack of effective preventive vaccines or viral therapies, Altor has taken a similar approach toward developing STAR™ molecules recognizing viral antigens from HIV, HCV, and CMV HIV antigens. These STAR™ molecules are being engineered into various formats as fusion proteins and drug or radioisotope conjugates to deliver viral therapies to diseased tissues. Altor is pursuing continued preclinical development of these STAR™ molecules and will seek partnership opportunities for these and other targets. Altor has established collaborations with leading viral immunologists who have provided Altor with virus-reactive human cytotoxic T-lymphocytes (CTLs) or TCR genes obtained from infected donors. Altor's scientists have produced the corresponding STAR™ fusions and their genetically improved derivatives that are capable of recognizing several different HIV and HCV peptide antigens. The Company is currently evaluating which of these STAR™ fusions has the best reactivity against virally infected cells. Selected fusions will enter into pre-clinical testing and development in 2010.



HIV-specific TCRs. As part of it's HIV TCR effort, Altor has established collaborations with leading HIV T-cell immunologists, including Dr. Bruce Walker at the Partners AIDS Research Center - Massachusetts General Hospital, and Dr. Mark Connors, Head of HIV Immunobiology at the National Institutes of Allergy and Infectious Diseases, National Institutes of Health. These researchers have provided Altor with access to disease-relevant human T-cells and TCRs recognizing many different HIV antigens, including TCRs that likely play a protective immune response in long-term non-progressors. Through these collaborations, Altor has been successful in generating biologically active HIV-specific STAR™ molecules that recognize HIV infected T-cells and T-cells isolated from HIV infected individuals. These revolutionary studies demonstrated the power of the STAR™ technology in monitoring HIV antigen presentation following infection and during disease progression. This information will be invaluable in identifying antigens capable of eliciting long-lasting protective CD8 cellular immune responses for the purpose of improved or expedited vaccine design. To date, Altor has generated a portfolio of STAR™ molecules recognizing nine different HIV antigens (see list of targets below). Additionally, a number of molecules have been engineered to have high-binding affinity and the ability to recognize antigenic variants commonly found during HIV infection. When formatted as antibody-like STAR-IgG1 fusions, these molecules are capable of mediating immune cell killing of target cells bearing the HIV antigens. Altor believes these agents could form the basis of a new treatment strategy of HIV, whereby the STAR™ molecules target the reservoir of HIV-infected cells in patients currently on approved antiviral therapies. Potentially, such a strategy could result in the elimination of viral infection as opposed to suppression of viral replication with continued residual disease as observed with current treatments. Based on the progress made in the HIV TCR project, we have been awarded a Grand Challenges Explorations grant from the Gates foundation and an SBIR grant from NIAID.

HCV-specific TCRs. Altor scientists have generated a scTCRs recognizing a peptide derived from the HCV protein NS5 presented in the context of HLA-A*0201. This TCR has been formatted to generate HCV TCR/IFN-α and HCV TCR/IgG1 fusions. The results of our characterization indicate that the binding and functionality of the domains in the fusion proteins are well retained. These fusions are being evaluated *in vitro* and *in vivo* for efficacy. Assuming favorable preclinical results, these HCV-specific TCR agents will be tested for treating patients chronically infected with HCV. Altor is particularly interested in using this diseased-targeted approach to improve the efficacy and reduce toxicity of IFN-α treatment for HCV-infected patients.

CMV-specific TCRs. Similarly, Altor has generated STAR™ molecules specific for two different CMV peptide antigens. These STAR™ molecules formatted as fusions to IgG1, scFv and cytokines molecules exhibit potent activities *in vitro*. They are being evaluated for efficacy *in vivo*. Assuming favorable preclinical results, these CMV-specific TCR agents will be tested for controlling CMV disease in severely immunocompromised patients undergoing transplantation.

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Altor's development of viral-specific STAR™ molecules has been supported in part by grants awarded by NIH and the Gates Foundation.

Altor is seeking partners that will license, complete clinical development and commercialize these products.

The following non-confidential information can be provided and sent as e-mail attachments:

1. Publications:
   - Henrickson, S. E., T. R. Mempel, I. B. Mazo, B. Liu, M. N. Artyomov, H. Zheng, A. Peixoto, M. P. Flynn, B. Senman, T. Junt, H. C. Wong, A. K. Chakraborty, and U. H. von Andrian. 2008. T cell sensing of antigen dose governs interactive behavior with dendritic cells and sets a threshold for T cell activation. Nat Immunol 9:282.
2. Altor White Papers relating to:
   - STAR-Ck Technology
   - STAR-Ck Mechanism of Action
   - STAR Diagnostics
3. Keystone Symposia Poster presented in 2009 on HIV TCRs.

For more information, contact Altor BioScience Corporation at (954) 443-8600, ext. 832 or e-mail deantaylor@altorbioscience.com. Further documentation can be provided upon execution of a confidentiality agreement.

Altor's Anti-Viral TCR Collection

TCR Designation	Viral Protein	Peptide	HLA Restriction	Fusions
HIV TCRs				
AL9	Vpr	AIIRILQQL	A2.1	IL-2, IL-15, IFNα, IgG1, BirA
KF11	Gag p24	KAFSPEVIPMF	B57	IL-2, IL-15, IFNα, IgG1, BirA
SL9	Gag p17	SLYNTVATL	A2.1	IL-15, IgG1, BirA
RK9	Gag p17	RLRPGGKKK	A3	BirA
ISP	Gag p24	ISPRTLNAW	B57	BirA
QW9	Gag p24	QASQEVKNW	B57	BirA
EI8	Gag p24	EIYKRWII	B8	BirA
RY11	Nef	RPQVPLRPMTY	B35	BirA
IVL	RT	IVLPEKDSW	B57	BirA
GY9	Gag p17	GSEELRSLY	A1	BirA
RF10	Nef	RYPLTFGWCF	A24	BirA
IL9	gp160	IPRRIRQGL	B7	BirA
FL8	Nef	FLKEKGGL	B8	BirA
HCV TCRs				
AL9	NS5	ALYDVVTKL	A2.1	IFNα, IgG1, BirA
CMV TCRs				
NV9	pp65	NLVPMVATV	A2.1	IL-2, IgG1, BirA
EM9	IE-1	ELRRKMMYM	B8	BirA