Questions for Biotechs
Genocea Biosciences
Jessica Flechtner; Email: jessica.flechtner@genocea.com

Jessica Flechtner is the Vice President of Research of Genocea

How and when did your company start, and where are you located?
Genocea is headquartered in Cambridge, Massachusetts, and was founded in 2006, with functional laboratories in the spring of 2007. The foundation of the company is a technology that was optimized over more than 10 years in the academic setting by scientific co-founder Darren Higgins, Ph.D., Professor of Microbiology and Molecular Genetics at Harvard Medical School. The objective of our technology is the rapid identification of protective T-cell antigens for use in human vaccines.

How many employees do you have, and how do you find/attract them?
We have 35 employees. We believe that our unique story within the vaccine space, the potential to make significant advances in global health and the culture we’ve developed at the company focused on innovation, teamwork and the pursuit of excellence in all areas, have made Genocea a highly desirable place to work.

What are the main focus and platform technology(ies) of your company?
Genocea is focused on developing safe and effective therapeutic and prophylactic vaccines incorporating cell-mediated immunity and offering a comprehensive approach that we believe will result in accelerated vaccine discovery. Unlike today’s “trial and error” approach to vaccine development, Genocea employs a proprietary process of antigen expression, high-throughput human T-cell screening, and correlation with natural immunity and clinical protection that has resulted in preclinical validation of three vaccine candidates in approximately one year.

Can you provide a short overview of your product pipeline?
Genocea has demonstrated preclinical proof-of-concept with vaccine candidates for herpes simplex virus type 2 (HSV-2), Streptococcus pneumoniae and Chlamydia trachomatis, infections that affect hundreds of millions of people worldwide. Our lead candidate is a HSV-2 therapeutic vaccine, potentially targeting more than 500 million patients worldwide, and for which we expect to begin clinical development in early 2011. Following that, we expect to launch clinical trials on vaccine candidates for the prevention of Streptococcus pneumoniae, Chlamydia trachomatis, and HSV-2 infection in late 2012. We have also begun work in partnership with the US Military on a vaccine to combat malaria.

Who is your competition and what advantage(s) do your products/technology offer?
Major players in the global vaccine market such as GSK, Novartis and Sanofi-Pasteur have traditionally focused vaccine development on diseases involving B-cell immunity. Our unique technology enables the development of vaccines targeting T-cell responses, opening up a relatively untapped cadre of diseases for which T cells are thought to play a role in protection. In addition, we believe that our approach enables more rapid and lower-risk development of these vaccines through comprehensive antigen expression, human screening, correlation with natural immunity and early evidence of human clinical protection.

What were the “highlights” in your recent development of vaccines/immunotherapeutics?
Over the past year, we:
• Achieved preclinical proof-of-concept with all three of our vaccine candidates,
• Filed multiple patent applications to protect our intellectual property,
• In-licensed additional intellectual property further protecting our product pipeline,
• In-licensed an adjuvant with demonstrated human safety and T-cell responses, and
• Added critical expertise and leadership to our senior management team and scientific advisory board.

What have been the most critical problems in developing products in your field, and how can your company’s technology help overcome these problems?
As mentioned, traditional vaccine development has been focused on diseases with which protection is associated with B cell responses. We believe our unique and comprehensive approach enables Genocea to speed the discovery of protective T-cell antigens that can be successfully incorporated into vaccines, ultimately expanding the scope of targeted diseases while reducing the time and cost associated with vaccine discovery and potentially increasing the likelihood of success in humans.

What is your company’s value proposition?
Our technology can be of significant value to major pharmaceutical companies and ultimately to patients because we can unlock heretofore intractable diseases, and we can do so rapidly.

What business development strategy do you pursue?
Genocea is the first and only company to offer a comprehensive, lower-risk approach to vaccine antigen discovery based on natural, protective T-cell responses made by humans. Through in-house and licensing efforts, we have assembled a broad patent portfolio that protects our unique discovery process. As a result of this, we have successfully raised $26 million from the investment community and secured more than $5 million in grant funding. We have already partnered several of our programs and are continuing partnering efforts where appropriate.

How does your company attract partners?
We believe the power and uniqueness of our platform is attractive to
global vaccine developers looking for (A) accelerated vaccine discovery, 
(B) the ability to target previously untapped markets, and/or (C) those 
seeking a higher likelihood of vaccine development success compared 
to traditional methodologies. In addition, our technology also enables 
the discovery of antigens that induce T-cell responses for the treatment 
or prevention of diseases such as cancer and autoimmune conditions. 
The technology also has application in general and/or prognostic mar-
ket s for these conditions. For all of these reasons, we believe Genocea 
to be an extremely attractive potential partner.

Who are your most important partners? 
Since 2008, we have been developing our pneumococcal vaccine can-
didate in collaboration with PATH and Richard Malley, M.D., from Children’s 
Hospital Boston. In December 2009, we also received a grant from the 
University of Pittsburgh Medical Center’s (UPMC) Sexually Transmitted 
Infections (STI) Cooperative Research Center for the development of 
vaccines for Chlamydia trachomatis, following a $12.5 million grant to 
UPMC from the National Institutes of Health. In April 2010, we entered 
into a Cooperative Research and Development Agreement (CRADA) 
with the Naval Medical Research Center (NMRC) for the development of 
a vaccine against Plasmodium falciparum for the prevention of malaria 
and were awarded $2.7 million from the US Army Medical Research and 
Material Command (USAMRMC). There continues to be significant inter-
est in our vaccine programs, and we intend to maintain efforts to attract 
additional partners for the development of our vaccine candidates.

How do you balance performing work in-house vs out-sourcing? 
With funding from our investors and our partners, we continue to suc-
cessfully pursue significant discovery and development efforts in house. 
Where appropriate and most cost effective, we are outsourcing to quali-
fied vendors; thus far, our outsourcing has primarily involved our clinical 
and manufacturing activities.

What are your product development goals for the next three years? 
Over the next three years, we expect to have Phase 2 data from our 
HSV-2 therapeutic vaccine program, and clinical trial work begun on 
our prophylactic pneumococcal, chlamydia, and herpes vaccines. In 
addition, we hope to have achieved animal proof-of-concept with our 
malaria program and initiated antigen discovery and preclinical proof of 
concept on additional disease targets.

For more information, please visit: www.genocea.com