Immunotherapies and Vaccines for Nontraditional Indications

Lucy J. Sannes, PhD, MBA

Future horizons for immunomodulatory therapies

Novel applications of immunotherapies and vaccines beyond prevention and treatment of infectious diseases and cancer are reviewed. Those discussed typically target molecules not normally targeted by the immune system.

This report:
- Covers a wide range of conditions for which immunotherapies may be effective, including Alzheimer’s disease, addiction, other neurological indications, cardiovascular diseases, hematological disorders, ophthalmic diseases, bone metabolism disorders, type 2 diabetes, among others
- Reviews emerging immunotherapies and vaccines for these indications as well as business considerations for companies active in these markets
- Includes expert interviews
Applications of immunotherapies and vaccines for prevention and treatment of infectious diseases and cancer are well known. Research and development of immunotherapies for other indications has been progressing for many years, although this effort has not received the public attention that the work on infectious disease and cancer immunotherapies and vaccines has.

Immunotherapies being developed or used for treatment of other diseases (i.e., beyond prevention and treatment of infectious diseases and cancer) are the focus of this report. These may work by different mechanisms of action, and available information regarding how these immunotherapies work is presented. Each chapter focuses on one disease or disease category, which include Alzheimer’s disease, cocaine and nicotine addiction, other neurology applications including pain, cardiovascular diseases including thrombosis, hematology/blood disorders, ophthalmology, osteoporosis and other bone metabolism disorders, type 2 diabetes, and other (general) applications of immunotherapies.

For each disease or field covered, *Immunotherapies and Vaccines for Nontraditional Indications* provides information on pathophysiology, epidemiology, and currently available pharmacological treatments. This is followed by a discussion of what is being targeted by immunotherapies and/or vaccines for these diseases, and why immunotherapies may be effective for treatment of these conditions. Immunotherapies and vaccines that are in development or are approved for that particular indication are reviewed, and business considerations for companies that are active in these markets are discussed.

The use of immunotherapies for treatment of these diseases is a very promising field. While it will vary with the different disease indications, some of these immunotherapies and vaccines have a potentially large market opportunity. For example, the current market for Alzheimer’s disease therapies already exceeds $4 billion annually worldwide, and these therapies treat only the symptoms of the disease. This market is likely to grow significantly if more effective therapies become available.

*Immunotherapies and Vaccines for Nontraditional Indications* concludes by providing complete transcripts of interviews with experts from the field, who discuss its progress, challenges, and hurdles.

**About the Author**

Lucy J. Sannes, PhD, MBA, is president of Sannes & Associates, a consulting firm specializing in evaluation and management of the biosciences. Before forming Sannes & Associates, she held management positions at Genetic Systems and Abbott Laboratories in product development, product support, and technical marketing. Dr. Sannes received her PhD in biological chemistry from the University of Michigan and her MBA from Seattle Pacific University.

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In the nearly 35 years since the first process for creating mAbs was introduced, they have remained a centerpiece of the growing biotechnology industry. Thirty therapeutic mAbs have been approved around the world, including 23 in the United States. A number of these drugs have attained blockbuster status, with sales reaching the coveted billion-dollar mark and well beyond. Rituxan, Remicade, Avastin, Herceptin, and Humira alone generated sales of over $4 billion each in 2008, and global sales for this entire sector surpassed $30 billion last year.

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