Drug Delivery Technology - Developing a New Generation of Vaccines

Description: “Over the past year, excitement within the industry has been growing as companies start to recognize the potential of vaccines. New insights into immunobiology and delivery systems may allow the development of better vaccines and vaccines for a wider range of diseases than was previously possible. The market looks set to explode over the next 5-10 years as a raft of new products based on these new technologies are developed and launched.” - Dr Sara Sleigh

Vaccination is recognized as a cost-effective medical strategy. Vaccines, alongside antibiotics and improved hygiene standards, have been responsible for a steady decrease in morbidity and mortality from infectious diseases worldwide since their introduction early in the 20th century. Currently available vaccines prevent up to 3 million deaths each year and 750,000 children avoid serious disability. Despite this high level of success, almost 7 million children under 5 years old still die each year from infections.

Conventional vaccines have been based on live attenuated, or killed, viruses or bacteria, or recombinant proteins from these organisms. The design of live attenuated vaccines depended to some extent on serendipity and resulted in low success rates; both live attenuated and killed vaccines require handling live pathogens and are associated with safety problems. Vaccines based on recombinant protein antigens are not highly immunogenic, proteins can be difficult to manufacture and may have stability issues.

Recent scientific advances have increased our understanding of immunobiology and now allow the more rational design of vaccines. These advances include new delivery technologies that will improve the safety and immunogenicity of traditional vaccines as well as introducing entirely new methods of vaccine delivery such as DNA vaccines. It is largely through the development of new delivery methods that companies are now aiming to tackle infectious diseases that have evaded vaccine manufacture in the past, develop vaccines for potential diseases related to bioterrorism and launch the new category of therapeutic vaccines.

Vaccines are a vibrant area of pharmaceutical development. The activity in the marketplace has grown steadily over the past few years and looks set to continue and increase in the near future. This report describes the role of new delivery technologies in this rapidly growing field.

Use the incisive analysis, commentary, opinions and forecasts provided in this note to:

- gain an in-depth understanding of the technology landscape for vaccines and vaccine delivery technologies including immune potentiators, adjuvant delivery systems, delivery of DNA vaccines, delivery to the mucosal system and skin, needle-free delivery and single shot vaccines

- assess the options available for delivering DNA vaccines now & in the future

- assess the potential of mucosal delivery options for emerging products

- gauge the current & future technology requirements of manufacturers developing the new generation of vaccines

- analyze how the market is evolving & the influence that delivery may have on the development of prophylactic vaccines for complex and emerging infectious diseases, biodefense vaccines and therapeutic vaccines

- identify key pharma & delivery specialists focusing on the improved delivery of prophylactic and therapeutic vaccines

Eight Questions This Note Answers:

1. How will the delivery technology drivers change in the vaccine arena during the next decade and beyond?

2. What are the key delivery technologies and devices approved and under development in the vaccines
3. When are products and devices which utilize these key delivery technologies likely to reach the market?

4. Which delivery technologies and agents are likely to win in the near-term and the long-term, and why?

5. Which companies are the winners in each technology category?

6. How are delivery technologies evolving to meet the demands of vaccine manufacturers who are now targeting emerging diseases, biodefense and therapeutic vaccines?

7. Where are the market opportunities now and in the future?

8. What do we predict will be the value of the vaccines delivery market each year until 2012, in 2015 and in 2020?

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