VacZine Analytics
Bringing life to vaccine strategy...

ExpertREACT service

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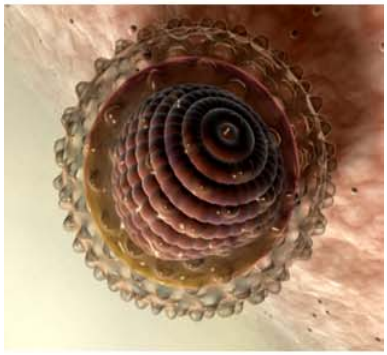
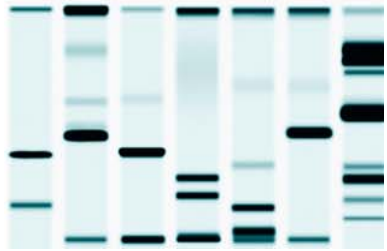
Current vaccine R&D pipeline: is influenza being overdone?





LONDON, UK----03 October 2008----ExpertREACT. After a previous analysis of the commercial R&D vaccine pipeline back in April 2008, again **VacZine Analytics** appraises current activity and reflects on key changes over the past six months. Key observations are that the pipeline is growing but with a disproportionate level of activity focused on influenza vaccines.

The current vaccine pipeline now consists of around 115 projects with an approximate 15-20% increase in number since April 2008 (1). The increase in the pipeline size is mainly due to the entry into the clinic of new programs (Phase I) targeting influenza and global initiatives such as TB. Excluding programs associated with biodefense, line-extensions/reformulations and pandemic flu, GSK Biologicals still maintains the largest vaccine pipeline in the industry closely followed by rival Sanofi Pasteur which gained ACAM-FLU-A™ and ACAM-C-DIFF ™ programs from its completed acquisition of Acambis. Sanofi already had partnerships with Acambis programs based on the ChimeriVAX ™ technology for vaccines targeting diseases within SE Asia such as Japanese Encephalitis (JE) and Dengue. It is still evident that Wyeth and Merck & Co have relatively small R&D pipelines despite market leading revenues.

A large proportion of the current vaccine pipeline activity is directed to the support of the key vaccine franchises such as influenza, meningitis and pediatric vaccines as players continue to protect sales generating positions. Over the last six months a number of pediatric combinations were approved in the US including GSK's Kinrix (DTP-IPV), approved in US for use as booster vaccine in children, and the licensure of Sanofi Pasteur's pediatric combination vaccine, Pentacel (DTP-IPV-Hib) after a lengthy, three year approval process. In meningitis, Novartis pushed ahead with an EU focused strategy on MenACWY-CRM (11-55yrs) and MenB (infants). In order to join the market leader terms of sales revenues, Novartis must ensure on-time filing for both vaccines, especially MenACWY (11-55 yrs) to then build the follow-on case for their differentiating position against Sanofi in infants.

In seasonal influenza the current race to license newer technologies (adjuvants/cell culture) continued. GSK completed Phase III EU/US trials on its novel adjuvant MPL-based "improved flu" program with filings expected in the first half of next year. With the cautious FDA awaiting pivotal data from the potentially more valuable MPL-containing product, Cervarix (bivalent HPV vaccine) it will be interesting whether the regulator's stance differs when considering a novel adjuvant in an older age setting. GSK's pipeline has the highest novel adjuvant "loading" in the industry as the company seeks to define new vaccine performance criteria based on T-cell as well as humoral based responses. Novartis Vaccines, another player keen to leverage their adjuvanted position previously gained from Fluad (MF59) had to suspend a pediatric trial in the EU as more long-term safety/immunogenicity data was required by the EMEA.

In pandemic flu, analysis indicates there are approximately 35 programs including those already approved and within preclinical stages. Novartis withdrew its application for licensing of their pre-pandemic vaccine, Aflunov (June 2008) not being able meet a deadline for supplying more clinical data requested by the agency's Committee for Medicinal Products for Human Use (CHMP). GSK continue to challenge dominant flu supplier Sanofi which has already won multimillion dollar HHS and WHO H5N1 contracts (2) for its H5N1 vaccine. As in seasonal flu, again GSK are using an adjuvanted strategy claiming that AS03 H5N1 vaccine might confer cross-immunity that is maintained with downstream boosting (3).

In the novel vaccine segment, a number of vaccine projects were announced to be ready for clinical testing. Novartis Vaccines, which has the highest proportion of novel projects in the industry, announced plans for *its H.pylori* program to enter Phase I although as of September 2008, the trial was not yet recruiting patients.

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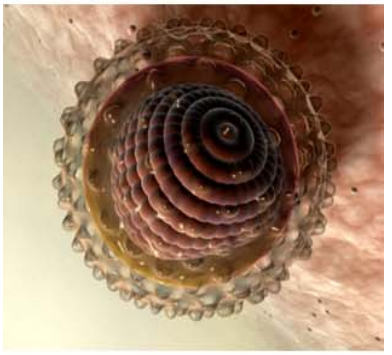
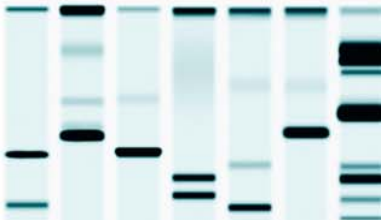
Novartis also plans to progress its *Pseudomonas aureginosa* candidate in a Phase II study within "at risk" ICU patients in collaboration with Intercell AG. The latter acquired Iomai Corporation back in May 2008 to solidify its position over Crucell as the most attractive remain small/mid-tier player. AstraZeneca/Medimmune reaffirmed its commitment to new product development with the announcement of a RSV/PIV candidate in infants which commenced in June 2008. This is a commendable move considering the past history and high complexity of developing a potential RSV vaccine.

In the travel/endemic sector, Sanofi continued its quest to register ChimeriVAX-JE in endemic regions in an effort to outflank the Novartis Ixiaro product which is more focused on the Western traveller's segment. Sanofi started a phase III trial in children in Thailand and the Philippines which began recruitment in August 2008. The company has not yet made clear publically whether it wishes to compete in the Western travelers segment despite having a rapidly growing existing travel franchise.

Looking over company activity in each segment, one surprising observation from this recent analysis is the level of activity in pandemic and seasonal influenza segments with approximately 85 listed programs (preclinical + clinical stages). It is accepted that the market for seasonal influenza is expected to double in volume terms by 2016 (~$6bn, global sales) (4) however, looking at meningitis, *Streptococcus pneumonaie* and the novel vaccine sector e.g. nosocomial/*Staphylococcus aureus*) most future industry growth will be powered from these less competitive, more profitable segments. Bearing in mind these observations it is surprising that many smaller biotech/vaccine players continue to invest influenza vaccines.





References:

1) Vaccine Pipeline Review, October 2008. VacZine Analytics - CAT: VAVS011.

2) Sanofi Pasteur. Corporate Press Release. June 16 2008. Available at: http://198.73.159.214/sanofi-pasteur2/ImageServlet?imageCode=23171&siteCode=SP_CORP. Accessed October 2008.

3) GSK Corporate Presentation. 16th September 2008. Available at: http://www.gsk.com/media/pressreleases/2008/2008_pressrelease_10106.htm. Accessed October 2008.

4) VacZine Analytics, Internal estimates, October 2008.

For more information about this research please visit www.vacZine-analytics.com. Or e-mail us at info@vacZine-analytics.com

About VacZine Analytics:

VacZine Analytics is a new strategic research agency based in the United Kingdom. Its aim is to provide disease and commercial analysis for the vaccine industry and help build the case for developing new vaccines.