Latest M&A in the vaccine sector

LONDON, UK----13th June 2013----ExpertREACT. After a relatively quiet period a recent flurry of M&A deals in the vaccine sector provides new case studies to analyse drivers to dealmaking.

In the latter part of the last decade (2005-2010) M&A activity was commonplace in the vaccine sector with notable deals such as Sanofi Pasteur's acquisition of UK-based Acambis in July 2008, AstraZeneca's acquisition of Medimmune in 2007 and more recently, Johnson & Johnson's acquisition of Crucell in 2009/2010. After this period activity certainly *quietened*, especially in terms of deals greater than $1 billion. H{owver, a recent flurry of activity now provides new case studies for those keen to analyse drivers to dealmaking in the vaccine sector.

Looking at current vaccine pipeline activity, the size/value of companies remaining independent and the attractiveness/feasibility of any new vaccine programs within these companies, an often heard perspective is that most of the *"low hanging fruit"* has been already taken by the major players*. Therefore *"quiet*" periods are merely due to nothing attractive being available. Another possibility is that corporate parents of many vaccine divisions may currently place higher emphasis on opportunities in other therapeutic sectors simply overriding any internal proposals focused on the vaccine sector. It is difficult to narrow down on why activity is so sporadic.

Recent M&A deals in the vaccine sector suggest that it could be high stringency levels placed by incumbents* on assessing new deals slowing M&A activity rather than a lack of opportunities *per se*. Other deals suggest major players are looking for effective technology platforms rather than a single vaccine lead program.This **ExpertREACT** will summarise the latest round of activity and raise any relevant observations.

Towards the end of 2012 Takeda Pharmaceutical Company acquired US-based LigoCyte Pharmaceuticals gaining a unique norovirus vaccine program and a virus-like particle (VLP) platform which could spur the development of many of new vaccines **(1)**. The norovirus vaccine is Phase I/II clinical development and if successfully developed could address a significant cause of outbreak and foodborne gastroenteritis, now well-publicised in Western countries. Later in May 2013, Takeda then acquired US-based Inviragen **(2)**, Inc which has expertise in viral vaccines, notably with DENVax: a four strain recombinant viral vaccines for the prevention of dengue infection. Previously in late February 2013 Inviragen itself had announced the initiation of the second stage of an ongoing Phase 2 with DENVax for study in 200 additional children aged 18 months to 11 years **(3).**

With upfront payments only totalling $95 million for both deals, in practical terms Takeda has transformed itself from a stagnant local player in the Japanese domestic market to a vaccine company with global potential and possessing one of the more interesting and diverse R&D pipelines in the industry. Although very early stage, Takeda has the potential to develop new vaccines against respiratory syncytial virus (RSV), influenza, human papilloma virus (HPV), plague/smallpox, rotavirus, dengue and hand, foot and mouth disease (HFMD). One can only conclude that the incumbent major vaccine players* did look at both LigoCyte and Inviragen, but for undisclosed reasons rejected both companies inadvertently allowing their assets to be acquired by an ambitious new competitor.

Reasons for major player rejection of LigoCyte and Inviragen acquisitions would usually centre around two main areas. The first area: uncertain commercial viability, we know has often been cited for a conceptual norovirus vaccine in that mortality is low/non-existent and recommendation/reimbursement uncertain in key market segments. Uncertain commercial viability could also pertain to the Inviragen dengue programme since DENVax is potentially second to market after Sanofi's CYD dengue vaccine currently in phase 3 clinical testing. However, CYD currently has the major weakness that it is has only shown efficacy against three out of the four dengue serotypes. The significance of this is still yet to be borne out by further Phase 3 clinical testing.

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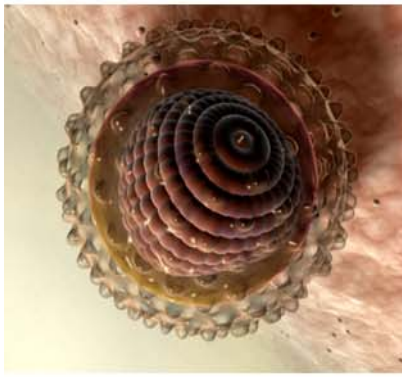

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Another area of deal rejection is most likely related to clinical/technical feasibility, where major players* may not have been fully convinced about the probability of successful development of the lead target vaccine. Again, for example, the proposed mechanism of action associated with norovirus vaccine certainly carries higher risk than a standard approach centred on systemic humoral response rather than complex mucosal-based protection.

However, the recent GSK Biologicals acquisition of Okairos AG in late May 2013 for €250 million **(4)** suggests another dimension influences major player activity. GSK's acquisition is similar to the Ligocyte acquisition in that it is platform based, but this time focused on a T-cell based technology (CD8 responses). It seems from the deal that GSK is focused on strengthening internal programs such as malaria, tuberculosis, HIV but also may reignite work in RSV and HCV. All of these programs have been notoriously difficult to progress due to the mechanism of action required for an effective vaccine - so this is not about a high probability of successful development of the single vaccine. It is more strategic and about complementarity and strengthening internal expertise that could benefit a large part of the pipeline. Similar deals have been done before, especially with adjuvants, for example GSK developed MPL containing AS adjuvant systems from Corixa in May 2005 **(5)**. These systems now are incorporated in many GSK vaccines both pipeline and licensed products.

To summarize, it seems that recent vaccine company deals have been driven largely by the maturity of the acquiring company and the nature of its existing pipeline. New entrants with little vaccine assets, such Takeda appear more focused on building an R&D pipeline quickly picking up programs possibility not meeting the stringent criteria of established players. Whether Takeda can overcome any potential obstacles within these programs remains to be seen. Clearly larger players are more complex in their purchasing patterns where targets need to synergise with internal expertise/current programs. In the case of Takeda, it seems that one man's muck is another man's brass.

*__Top 5 companies:__ GSK Biologicals, Sanofi Pasteur, Merck & Co, Pfizer (Wyeth) and Novartis Vaccines and Diagnostics

References and Notes:

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