

Regeneron helps make Sanofi VelocImmune to its 'weak' pipeline

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03-Dec-2007 - Last updated on 19-Jul-2008 at 12:52 GMT

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Sanofi-Aventis recently admitted it needed to increase the number of biotech compounds in its pipeline and now, true to its word, the French pharma heavyweight has signed a big antibody deal with US biotech Regeneron.

Sanofi has increased its stake in Regeneron from 4 per cent to around 19 per cent at a cost of \$312m (€211m). On top of that, the French firm has committed up to \$810m to a research collaboration between the two firms. That money includes up to \$250m in milestone payments starting when any drug reaches blockbuster status. Back at its September R&D day, Sanofi admitted it was 'weak' in the biotech arena and analysts have been critical of its pipeline, especially in the near term. Sanofi will be hoping its quick response will allay any worries investors may have. The deal is set to run for at least five years, with Sanofi retaining an option to extend it by a further three years if it wishes. Although Sanofi will fund all development costs, should a drug be successful, Regeneron will then reimburse half that money from its share of subsequent profits. In the US, those profits will be shared equally and everywhere else, profits will be split on a pre-determined sliding scale with Sanofi's share ranging from 65 per cent to 55 per cent. The alliance will centre on using Regeneron's 'VelociSuite' technology to find therapeutic antibodies, including the popular VelocImmune technology that has already attracted a range of licensee's and partners, including big industry players like AstraZeneca and Bayer. The first therapeutic antibody to enter clinical development under the collaboration targets the Interleukin-6 receptor (IL-6R), and has started trials in rheumatoid arthritis. The second is expected to be an antibody to Delta-like ligand-4 (Dll4), which is currently slated to start its clinical development in 2008. MAbs are produced by inducing an immune response in animal cells, typically from a mouse. First-generation MAbs were limited by side effects and a tendency to lose efficacy over time. Since then, there has been a progressive effort by scientists to make the antibodies more human culminating in the generation of genetically engineered mice that produce fully-human antibodies. Regeneron's VelocImmune is one such technology. The company states that its mouse cells can produce antibodies faster than other techniques, increasing research efficiency. The VelocImmune mouse is created by replacing variable regions of mouse immune system genes with corresponding human variable sequences. Unlike other technologies, where mice make antibodies with human constant regions, the VelocImmune mice have intact constant regions and therefore their immune system appears identical to normal mice. This avoids problems caused by incomplete genetic controls potentially resulting in inefficient antibody production. Problems can also be created if the antigen target of the MAbs is very similar in mice and in humans because the mice may produce two sets of antibodies: the MAb required and another antibody to target their own antigens. However, Regeneron technology can prevent mice antigens from being produced by deactivating the relevant mice genes. Sanofi has paid \$26 per Regeneron share, which was over 50 per cent higher than Regeneron's closing price before the deal was struck. Although Sanofi hasn't gone as far as an acquisition yet, it looks like if they do, it won't be