



NEOVACS, developing the next generation of immunotherapies

NEOVACS is a public French biotechnology company, which is developing a novel active immunotherapy technology platform: the Kinoid technology. This innovative technology represents today three product candidates in development, the Kinoids.

The two most advanced Kinoids have the potential to be the next generation of treatment for chronic inflammatory diseases, after monoclonal antibodies.

The target market for the Kinoids in development is estimated to be worth at least \$16 bn, based on current sales of biologics for immunology and inflammation in the major pharmaceutical markets (source Datamonitor).

A novel mechanism of action which enjoys significant competitive advantages:

A Kinoid is a conjugate of an inactivated cytokine to a carrier protein which acts is to stimulate the immune system to produce anti-cytokine antibodies in order to neutralize the pathologic cytokine.

Neovacs' Kinoids have significant **competitive advantages** when compared with the existing biologics currently used to treat chronic inflammatory diseases:

- High efficacy due to the fact that the anticytokine antibodies are polyclonal, and thus bind multiple epitopes on the target.
- Long-lived efficacy, since the antibodies to the Kinoid are "self", thus avoiding the development of resistance.
- Excellent tolerance
- High convenience due to low frequency of administration: A typical annual treatment is expected to require 3 to 4 IM injections, leading to an excellent treatment compliance
- Low cost of goods: An annual treatment would require the administration of 1 mg of protein, versus 1 gram in the case of adalimumab of example.

Neovacs' current portfolio consists of three drug-candidates, one has recently demonstrated clinical proof of concept:

- **The TNF-Kinoid** in a phase IIa study in Rheumatoid Arthritis. The results are expected Q2 2011.
- **The TNF-Kinoid** is also being developed for the treatment of Crohn's Disease. The full phase I/II clinical results were published last December 8th, 2010. The results are very promising, indeed 43% of the patients treated were in clinical remission, at 12 weeks. Neovacs has



initiated a phase II randomized double-blind study in Europe in Crohn's Disease; first results are expected in Q2 2011.

- **The IFN α -Kinoid** is currently in a Phase I/II clinical trial in lupus patients.
- **The VEGF-Kinoid** is in preclinical development; It has been successfully tested in animal models of Age Related Macular Degeneration (AMD) and certain cancers.

In principle, The Kinoid technology can be applied to any cytokine target. However, to manage its risk Neovacs has initially chosen to develop its technology to validated or well-established targets, including TNF and IFN α . The indications targeted by our drug candidates correspond to areas of considerable unmet medical need, notably lupus and Crohn's Disease.

Neovacs strategy is to develop drug candidates based on its patented Kinoid technology, with a focus on inflammatory diseases. In the midterm, the Company intends to forge partnerships with players in the pharmaceutical and biotech industry with the financial capacity and the expertise to manage late stage clinical trials as well as the requisite regulatory and sales and marketing resources.

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