Breakthrough for preclinical vaccine vectors

New adenovirus serotype exceeds all expectations in first preclinical vaccination tests.

Munich, 21 December 2015 - Ad19a, the latest in adenoviral (AV) gene vector innovations, has generated first data in preclinical vaccination tests – with most promising results. It demonstrated its ability to elicit robust immune response against a genetically coded antigen in a rodent model. Together with a new production cell line which caters to special requirements of complex gene vectors, this system addresses several challenges of modern vaccination R&D. Hopes are high that it will pave the way to create preventative vaccinations as well as new cancer therapies that will benefit a big segment of the population**.**

Virus technologies are a prime tool for targeted and highly controlled gene expression in mammalian cells and a hot candidate for modern vaccination R&D. Traditional vaccines are built from inactive or attenuated elements of a pathogen. Viral vectors on the other hand work as DNA or RNA transporters to reprogram a patient's cells in order to produce a particular antigen and present it directly to the immune system.

This methods favors a cell-mediated immune response which fortifies the vaccination success. It also increases the medical potential as it can help fight established disease or cancers as a new form of therapy, on top of serving as a preventative measure. From a commercial standpoint, viral vectors can help eliminate complex manufacturing processes of classic vaccines and avoid secondary and tertiary structural deviations that are common in synthetic antigen production.

A recent press release (October 28[th,] 2015) described the successful development of a virus production cell line that addressed the challenges of virus vectors carrying aggressive gene targets such as bacterial or viral antigen markers. The first product from this cell line, carried by the new Ad19a serotype, has now been tested in mouse experiments as a vaccination gene vector. The results have exceeded all expectations.

After application of the Ad19a vector, scientists from a German and Danish collaboration could detect a high number of activated T-cells, a clear indication that Ad19a was able to elicit strong cellular immune response. Most importantly, this response was at least as high as response from classical viral vectors. This means that prior data, most often generated with the help of Ad5 or Ad2 vector systems, could be translated into this new system without the danger of losing immunization efficiencies.

Pre-acquired immunities against AV serotypes do exist in any population and in some areas the rate against Ad5 exceeds 80%. As a more exotic serotype, A19a has a low prevalence in the human population and on top it has a high tissue preference towards antigen presenting human dendritic cells. This means that the Ad19a vector could be applied to almost any potential patient and would necessitate much lower titers to work efficiently in humans – a big factor in making future treatments both accessible and affordable for the general population.

First clinical applications of this new vector system may be expected as soon as 2017.

About SIRION Biotech www.SIRION-Biotech.com

SIRION Biotech started in Munich in 2007 with the idea of developing next generation viral vectors for research, gene therapy and vaccines. This required the assembly of an all-encompassing, novel viral vector platform. Both, designing de novo viral vectors and the subsequent creation of custom cell models will pave the way for superior compound development in the life sciences. SIRION's technologies have been validated in over 500 single projects with more than 150 academic and industrial partners.

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