N4 Pharma's novel delivery systems, Nuvec® and LipTide®, advance towards commercialisation

27th February 2024: N4 Pharma PLC (AIM: N4P), the pre-clinical stage specialist pharmaceutical company, recently acquired a controlling interest in Nanogenics Limited. Nanogenics has developed a lipid and peptide-based delivery system, LipTide®, which it is using in the formulation of a novel siRNA product – ECP105 – targeting an unmet clinical need in the ophthalmology market.

Alongside its ongoing pre-clinical research into Nuvec® - N4 Pharma's unique novel silica nanoparticle delivery system for cancer treatments, gene therapy and vaccines - Nanogenics has recently signed a contract to start the formulation and sequence selection work to prepare ECP105 for testing in pre-clinical studies at Kings College, London.

ECP105 has been developed for the recovery of post-surgical treatment of glaucoma and it contains a proprietary siRNA sequence to silence the fibrotic gene MRTF-B, which is also responsible for fibrosis of the liver and the lung. Glaucoma patients who have failed to respond to medication need surgery to lower intraocular pressure which causes fibrosis at the surgery site. This fibrosis often leads to failure of the surgery and patients may have to undergo further surgery. ECP105 is intended for injection into the ocular cavity to switch off the gene responsible for the fibrosis. Unlike current off-label treatment using toxic chemotherapy drugs like Mitomycin C, ECP105 is intended for repeat use to prevent the need for further surgery.

Nanogenics has completed an initial proof of concept *in-vivo* study which has demonstrated that a single dose of ECP105 can match the anti-fibrotic effect of Mitomycin C without any cytotoxic side effects. Importantly, this means ECP105 can be dosed repeatedly where necessary. The company will now engage in discussions with the FDA and MHRA to approve a GLP toxicity study and first in human clinical trials.

Pre-clinical work on Nuvec has demonstrated its potential to enable more effective cancer treatments by reducing the ability for tumour escape. Recent studies have shown that Nuvec can bind not only single, butmultiple siRNAs aimed at simultaneously targeting identified pathways responsible for cancer progression after initial treatments. Testing of these with two siRNA (EGFR and PLK1) has shown a positive additive effect after 48 hours of the dual loaded siRNA compared to the single loaded siRNA.

Through its research program with the University of Queensland N4 Pharma is also evaluating the potential of Nuvec to act as an oral delivery system for oligonucleotides including DNA and RNA. Experiments have now confirmed, *in vivo*, the successful oral administration of Nuvec loaded with a DNA plasmid for ovalbumin and demonstrated good ovalbumin expression after two separate doses.

N4 Pharma is continuing its pre-clinical research programme into Nuvec, with further updates on the key areas of siRNA, oral delivery and AAV viral vectors expected in 2024.

Nigel Theobald, CEO of N4 Pharma commented: “Non-viral, non-lipid delivery systems are in high demand in the exciting gene therapy and oncology spaces and we now have two such delivery systems. Nuvec continues to show its versatility as a novel delivery system and with LipTide we are developing our first commercial product which we are aiming to take into phase 1 clinical trials.”

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About N4 Pharma

N4 Pharma is a specialist pharmaceutical company developing novel delivery systems for oncology, gene therapy and vaccines. N4 Pharma’s business model is to partner with companies developing novel antigens in these fields to use Nuvec as the delivery vehicle and to develop its own product for post glaucoma surgery. As these products progress through preclinical and clinical programmes, N4 Pharma will seek to receive upfront payments and ultimately royalty payments once products reach the market.

For more information visit n4pharma.com / https://investors.n4pharma.com/