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09 April 2019

N4 Pharma Plc
("N4 Pharma" or the "Company")

Nuvec® Research update

N4 Pharma Plc (AIM: N4P), the specialist pharmaceutical company developing Nuvec®, a novel delivery system for vaccines and cancer treatments, provides an update on the development of Nuvec®.

University of Adelaide collaboration

The Company has received the first results of its collaboration with the University of Adelaide ("UoA"), details of which were first announced on 02 October 2018. Under the collaboration, the UoA has been investigating the potential of Nuvec® to increase the efficacy of the UoA's novel cytolytic DNA vaccine. Initial work on this commenced in mid-February 2019.

The initial tests were undertaken using two DNA antigens. The first results have shown an inconsistency in efficacy between the *in-vitro* data they have generated and the results of their initial *in-vivo* work. Whilst the *in-vitro* tests for both antigens produced a positive response, these results were not replicated in the initial *in-vivo* tests. In light of these findings, the Company will be working with the UoA to scope a further series of experiments, seeking to optimise the dose and administration of Nuvec® for use in the *in-vivo* tests.

Once the UoA has been able to demonstrate a positive response in both the *in-vitro* and *in-vivo* tests, they will be able to move to the next phase of research, which will entail undertaking tests with the cytolytic vaccine itself.

Further mRNA research

The Company has been undertaking *in-vivo* studies to investigate responses to different doses of Nuvec® with the standard test antigen, Ovalbumin ("OVA") mRNA. As announced in October 2018, previous studies indicated

that the Nuvec® particles have a clear adjuvant effect to help deliver a level of response. However, in two subsequent studies the tests have not managed to replicate those results. Similar to the UoA study, there was an inconsistency in efficacy between the *in-vitro* data and the findings of the *in-vivo* studies.

Following these latest findings, the contract research organisation which undertook the latest study has recommended a number of options for any repeat tests. The Company's technical team is currently assessing these proposals, together with analysing the differences between these two recent studies and earlier *in-vivo* studies to understand what may have caused the variances.

Additional studies with other antigens are also being planned to further investigate the properties of Nuvec®. The results of these tests should provide the Company with a more meaningful understanding of the full potential of Nuvec®.

Process improvement and move to GMP manufacture readiness

In line with the Company's process improvement plans, it has started progressing the scale up work for the Nuvec® particle and has made improvements to the manufacturing process. In particular, the Company has been evaluating the use of lyophilisation. If successful, it will provide a simpler scalable process for the manufacturing of Nuvec®.

Next steps

Nuvec® has consistently demonstrated the ability to bind both DNA and mRNA and to improve delivery *in-vitro*. However, in light of the inconsistent *in-vivo* test results, the Company is reviewing all the data from both *in-vitro* and *in-vivo* studies to date, to seek to resolve the inconsistent *in-vivo* results. The immediate focus of the Company will be to develop a series of experiments to determine the reasons for these inconsistent *in-vivo* results. A further update will be provided once this review is complete.

Nigel Theobald, CEO of N4 Pharma commented:

"As we begin working with new antigens, it is important to investigate the required optimisation work to make sure that the dose, vaccine regime and concentration of Nuvec® is in the correct proportions to allow good *in-vivo* transfection. Each new antigen we work with will require this before we begin *in-vivo* studies. We need to ensure we can replicate the *in-vitro* successes and efficacy *in-vivo* before moving to the next stage of each study. Such findings are not unusual for any research and development work and it is important to get it right before more expensive *in-vivo* studies are commissioned.

"The board and its technical team are defining the experiments to achieve these objectives as we fully digest the data to date and expect to be in a position to set these out in the coming weeks."

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About N4 Pharma

N4 Pharma is a specialist pharmaceutical company developing a novel delivery system for vaccines and cancer treatments using its unique silica nanoparticle delivery system called Nuvec®.

N4 Pharma's business model is to partner with companies developing novel antigens for vaccines and cancer treatments to use Nuvec® as the delivery vehicle to get their antigen into cells to express the protein needed for the required immunity. As these products progress through pre clinical and clinical programs, N4 Pharma will seek to receive up front payments, milestone payments and ultimately royalty payments once products reach the market.

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