

Stock Data

Share Price:	6.00p
Market Cap:	£9.37m*
Shares in issue:	156.1m*

*Post exercise of options, [RNS of 8 Sept 2020](#)

Company Profile

Sector:	Pharmaceuticals
Ticker:	N4P
Exchange:	AIM

Activities

N4 Pharma plc ('N4P', 'the Group') is a specialist pharmaceutical company developing a novel silica nanoparticle delivery system for vaccines and therapeutics for licensing to pharmaceutical and biotech partners. This nanoparticle has the potential to help the delivery of cancer immunotherapy drugs and improve the delivery of viral vaccines. [Nuvec®](#), the Company's lead development is a unique, non-viral adjuvant delivery system that has the potential to revolutionise vaccines and cancer treatments.

1-year Share price performance



Source: [LSE](#)

Past performance is not an indication of future performance.

Turner Pope contact details

Turner Pope Investments (TPI) Ltd
8 Frederick's Place
London
EC2R 8AB
Tel: 0203 657 0050
Email: info@turnerpope.com
Web: www.turnerpope.com

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Barry Gibb
Research Analyst
Tel: 0203 657 0050
barry.gibb@turnerpope.com

Andrew Thacker
Corporate Broking & Sales
Tel: 0203 657 0050
andy.thacker@turnerpope.com

N4 Pharma plc

N4P has announced an update on its COVID-19 proof of concept ('POC') work utilising [Nuvec®](#) loaded with Coronavirus plasmid. Although the single intradermal injection used in the recently completed [stage 3 pre \(initial pilot\) *in vivo* study](#) did not result in a measurable expression of the spike protein, the Group has nevertheless decided to proceed to a full *in vivo* study in order to demonstrate the capability of Nuvec® to generate COVID-19 specific antibodies. This decision has been taken due to the scope of this pilot stage POC work being necessarily narrow, and the expectation that the broader examination will be capable of highlighting Nuvec®'s capabilities as a potential delivery technology for multiple vaccines, specifically including COVID-19 itself.

Moving to a full *in vivo* study

A high level of antibody production is essential for a vaccine to initiate immunity. [Past studies](#) have confirmed that the immune response observed with Nuvec® is sufficient to have produced high levels of antibodies specific for the [standard test antigen Ovalbumin](#) ('OVA'). The levels of antibodies produced, for example, were greater than those of *in vivo*-[jetPEI®](#), an industry standard used to deliver pDNA-OVA in pre-clinical studies. Furthermore, assessing the produced antibody isotypes, it became evident that Nuvec® delivers a robust immune response necessary for an effective vaccine in the field of oncology and virology. Taking this on board and recognising that the current Coronavirus Pandemic provides the ideal opportunity to demonstrate the capabilities of the Group's unique non-viral adjuvant delivery system, the second stage of a three stage plan for its COVID-19 POC research project was undertaken with [Evotec International GmbH](#) ('Evotec'). Transfecting [Human Embryonic Kidney](#) ('HEK') cells of Nuvec® loaded with Coronavirus plasmid *in vitro*, this study was successfully completed on [12 August 2020](#). The project was then moved to its third stage, being a pre *in vivo* study to demonstrate expression of the spike protein in target cells in a murine target.

In the event, the single intradermal injection used in the stage 3 initial pilot pre *in vivo* study did not result in a measurable expression of the spike protein in the target cells of the murine target although, significantly, neither did the positive control. In order to further progress its POC work and after having reviewed the previous positive data, however, N4P's Board has decided to look beyond this surprise outcome by continuing to explore the utility of Nuvec® with the Coronavirus plasmid. This will include additional exploratory studies designed to heighten understanding of the translation potency of the Coronavirus plasmid, including optimisation of Nuvec® plasmid loading. Once this outcome has been incorporated, the Group is expected to complete the design of its proposed full *in vivo* study with a view to obtaining improved results on account of ongoing Nuvec® optimisation work. Its completion in due course is expected to demonstrate the capability of Nuvec® to generate COVID-19 specific antibodies. N4P is now in the process of scoping the program of studies required.

Opportunity for COVID-19 trials collaboration

While N4P's virtual model and contracted laboratories have ensured its testing schedules have not been significantly hindered by the lockdown, the COVID-19 Pandemic has nevertheless provided it with an ideal opportunity to demonstrate how Nuvec® might substantially enhance delivery of a potential Coronavirus vaccine, as well as developments for other viruses that may well surface in the future. Having already demonstrated improved product consistency along with the creation of a significant data pack, the results of the forthcoming full *in vivo*

study should ideally position N4P to commence licensing discussions with prospective partners as it continues to progress its various work streams.

Importantly, the Group's successful £2m gross fundraise announced on [13 May 2020](#) sufficiently bolstered its balance sheet to ensure development work can remain in a 'higher gear'. N4P's anticipated move to a full *in vivo* study in tandem with the continuing relaxation of lockdown restrictions, means TPI considers 2H 2020 operational will be seen to ramp-up somewhat from the c.£75k/month seen during 2019, as POC work is moved forward and the Group also progresses its more recently identified opportunity for [oral delivery](#). Potentially, this could be sufficient to attract participation in a COVID-19 vaccine development programme(s), thereby moving Nuvec® toward its first (partner-dependent) clinical trials collaboration along with demonstration of its GMP scalability.

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