

Stock Data

Share Price	0.43p
Market Capitalisation	£3.58m*
Shares in issue:	832.28m*
52 week high/low	0.95p/0.37p

*Post Placing and Subscription numbers

Company Profile

Sector:	Pharmaceuticals
Ticker:	N4P
Exchange:	AIM

Activities

N4 Pharma plc ('N4 Pharma', 'N4P' or 'the Group') is biotech company developing Nuvec®, its proprietary gene delivery system, to enable advanced therapies for cancer and other diseases. It also has a controlling in Nanogenics Limited., which has developed a lipid and peptide-based system, LipTide®, for delivery of nucleic acids.

www.n4pharma.com

5-year share price performance



Source: [LSE](https://www.lse.com)

Past performance and forecasts are not a reliable indicator of future results.

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N4 Pharma plc

N4 Pharma ("N4P") has raised £1.75m (gross) new funding through an equity placing and subscription ('the Fundraising Shares') priced at 0.40p/share (representing a 5.9% discount to Monday's close). Each placing and subscription share will have one warrant attached, exercisable at 0.8p for a period of three years from the second admission date. 142.78m of the Fundraise Shares have been issued utilising the Group's existing authorities, while 294.72m shares will be issued subject to shareholder approval at a General Meeting to be held in the coming weeks, as will be the issuance and exercise of all warrants. Together with estimated cash-in-hand of c.£0.25m, the net new funds are expected to provide the Group with a runway well into H2 2026. They will be used specifically to advance Nuvec®, its unique and proprietary nanoparticle delivery platform for the development of novel RNA therapeutics, from its preclinical research phase to the point of industry adoption; over the coming year or so, existing proof of concept ('POC') data will be built-out, enhanced and advanced with a goal to position it as a leading platform for gene therapy and cancer treatments. In so doing, N4P is recognising that drug development agreements can only be founded through provision of a comprehensive commercial data-room, based on which it has set a 12-to-18-month objective for signing its first research collaboration with a well-resourced industry player. Success here could then lead to a number of remunerative platform licencing and milestone-based agreements for third party therapeutic projects. Given that the FDA now takes a product-focused, science-based approach to regulating nanotechnology products, there is potential for considerable value creation through adoption of N4P's technology based on the operational advantages it brings and the absence of shortcomings (including off-target effects/immune responses) encountered through existing techniques.

Use of Funds – Focus on Nuvec® is key

After several years of development work it is clear that Nuvec® has strongly differentiating key benefits, in particular for delivering RNA therapeutics (as opposed to DNA vaccines). This has informed the Group's strategy, and the use of the placing proceeds, to focus on Nuvec® as an RNA delivery platform. The most significant value inflection point that N4P can deliver in the short term is commercial partnerships for the highly protected technology, which will strongly validate the platform/investment opportunity and should lead to substantial upward re-rating of its shares.

The detailed use of proceeds will therefore be tightly focused on the work programmes detailed overleaf to validate the key performance benefits of Nuvec® as an RNA delivery platform technology and reach the point of commercialisation (in the form of partnerships and licensing deals) as quickly as possible.

N4P will be able to generate some of the data using its N4 101 asset, therein allowing it to also progress that preclinical programme. Its other preclinical asset, EPC105, which targets scarring post glaucoma surgery, is awaiting the outcome of interactions with the FDA regarding orphan drug designation ('ODD'). When the outcome is known the Company will review the options for taking that programme forward, or monetising it, without distracting from the objective of commercialising the Nuvec® platform.

Use of New Funds Raised	TPI est.
Advance Nuvec®'s platform data packages in preparation for commercialisation & licensing readiness: • Preliminary CMC (Chemistry, Manufacturing and Controls) and a scale-up strategy which is critical to the supply of material to partners and for in-house research; • Dual loading and targeting to demonstrate Nuvec®'s ability to deliver multiple RNAs to specific cells, which strongly differentiates the platform and greatly increases its commercial appeal; • Preliminary in-vivo efficacy and toxicity studies to validate Nuvec®'s safety and effectiveness in preclinical models; and • Biodistribution data confirms where Nuvec® travels in the body and how it is excreted.	£1.30m
Working Capital (including funding IP protection and expenses)	£0.45m
Total	£1.75m

Source: N4P, [RNS of 31 March 2025](#), TPI estimates

Altogether, this is expected to generate quite significant news flow over the coming 12 or so months as different stages are passed and milestones achieved. Business development activities with Big Pharma and large biotechs will be accelerated alongside the generation of data in order to deliver commercial progress at the earliest opportunity.

RNA Leaders Europe Congress highlights need for non-viral, non-lipid delivery

General agreement emanating from the recent RNA Leaders Europe congress (4 -6 March 2025) in Basel, confirmed that the sector's principal challenge remains the successful development of a safe and effective targeted delivery system. While RNA therapeutics do appear to be 'coming of age', with at least 21 drugs now approved and many more in development, their real potential (which stretches across mRNA, antisense RNA, RNA interference (RNAi), and RNA aptamers as well as micronizing to improve bioavailability, etc.) remains constrained by their chemical and enzymatic instability, and the challenges with targeting these medicines to the right tissues.

RNA Delivery systems that have been approved for RNA delivery to date are reasonably effective, but introduce numerous potentially hazardous patient issues. Viral Vectors, for example, which encapsulate mRNA within the viral particle in order to exploit its natural entry pathways into cells, are considered unsatisfactory due to potential immune responses, risks of oncogenesis, and limitations in scalability and safety, leading to challenges in clinical applications. Lipid Nanoparticles, which facilitate the molecules' entry into cells and protect them from degradation, also come with various off-target effects, poor endosomal escape (release when inside the cell), toxicity from cationic lipids, and difficulty in stable RNA encapsulation. So it was not surprising that one of the Congress' key themes centred on the search for new, non-viral, non-lipid solutions to work with RNA technologies.

Nuvec®'s Key Advantages over Existing Approved RNA Delivery Techniques

Key Benefits	Nuvec®	Viral vectors	Lipid Nanoparticles
Multiple Payloads	✓ Can carry multiple RNAs/DNAs	✗ Limited capacity	✗ Limited capacity
Tissue/Cell Targeting	✓ Effective & controlled uptake	✓ Strong, but risk of immune response	✓ Moderate targeting but risks off-target effects
Manufacturing	✓ Simple, scalable, low-cost	✗ Complex, high-cost	✗ Complex, expensive
Low Immunogenicity & Toxicity	✓ No immune response, safe dosing	✗ High immune response risk	✗ Potential inflammatory effects
Oral Delivery	✓ Proven potential for oral RNA delivery	✗ Limited, mostly injections	✗ Limited, mostly injections
IP Landscape	✓ Broad patent coverage, no disputes	✗ Regulatory hurdles exist	✗ Legal disputes over LNP patents
Development Status	🟡 Preclinical – Advancing to Licensing	✓ Approved	✓ Approved

Source: N4P, Investors Presentation, March 2025

Nuvec® appears to ideally fit this requirement, being an inert silica nanoparticle technology with a unique irregular (spiky) surface structure. Coupled with polyethyleneimine ('PEI'), it simply and effectively traps and protects nucleic acids (such as siRNA/mRNA /DNA) as it travels to the target cells. Although not complete encapsulation, it nevertheless provides sufficient protection for metabolic transfer including oral delivery (an application which, in itself, is a potential 'game changer' given that all existing systems require administration by hospital injection). Moreover, with proof-of-concept data showing that multiple RNA sequences can be delivered by a single particle (for combination therapies), no cytotoxicity issues/complications at the concentrations likely to be used, rapid cellular uptake and endosomal release, localised transfection efficiency, tumour growth suppression, high scalability, formulation stability and low cost of manufacture, Nuvec® appears to offer key advantages while encountering none of the challenges identified with existing techniques.

Nuvec® - Now needs to build-out and enhance data packages to secure license deals

The use of nucleic acids as therapeutics instead of small molecules or biologics is an area of rapidly growing interest and commercial value. RNA is typically a single-strand biopolymer that is vulnerable to hydrolysis and, being highly unstable, requires a delivery system for use in the body as a therapeutic. Still relatively young in its development, the RNA therapeutics market alone was nevertheless valued at US\$13.7bn in 2023 which, according to forecaster [MarketsandMarkets](#), is projected to grow to US\$18bn by 2028.

Its ultimate potential remains constrained, however, by the issues and limiting factors that are still associated with the manufacturing and targeted delivery of RNA therapeutics. Should these be successfully addressed through new research, such as that presented by N4P's Nuvec® technology, the overall market offers scope for significant further expansion. Recognising this potential, the Group's ultimate ambition is to become an industry leading platform used by multiple pharmaceutical partners in gene therapy and cancer treatments, while also advancing its own drug pipeline.

Nuvec®'s POC programme, N4 101, an oral anti-inflammatory product for the treatment of inflammatory bowel disease ('IBD'), was used to showcase the key benefits of its delivery technology where other approaches have been seen to struggle. While displaying no off-target effects, it also demonstrated that: i) it can straightforwardly load multiple RNA therapeutics onto the same particle (in the case of N4 101 an siRNA and an mRNA are loaded); ii) it protects the payload from enzyme degradation; iii) it can be functionalised to target specific cells; (iv) it provides protection of the payload by the silica structure, meaning that delivery into a hostile environment (such as the gut) is possible, potentially allowing for example, treatment of gastrointestinal disorders; and (v) future development opens opportunity for systemic dosing via an oral capsule, thus avoiding repeated hospital visits for injections. Importantly, the efficiency of delivery and efficacy of an siRNA and an mRNA therapeutic used to treat IBD were demonstrably enhanced when delivered by targeted Nuvec® particles compared with untargeted delivery; a Nuvec® formulation dual loaded with both therapeutics at the same time shows equivalent efficacy to the separate treatments.

Drug development research collaborations with large sector players, however, will only ever be based on depth and quality of a comprehensive data package. The presenter must warrant its ability to supply the incoming partner with all materials necessary for their in-house studies along with a thorough understanding of safety and effectiveness, etc. generated through preclinical models, etc. Hence the need for N4P to build upon existing data that it has assembled while undertaking Nuvec® preclinical POC to create a comprehensive commercial data-room. N4P has now assembled a small team of consultants, being industry experts in CMC, translational biology, RNA therapeutics and commercial licensing to support it and maximise the chances of success.

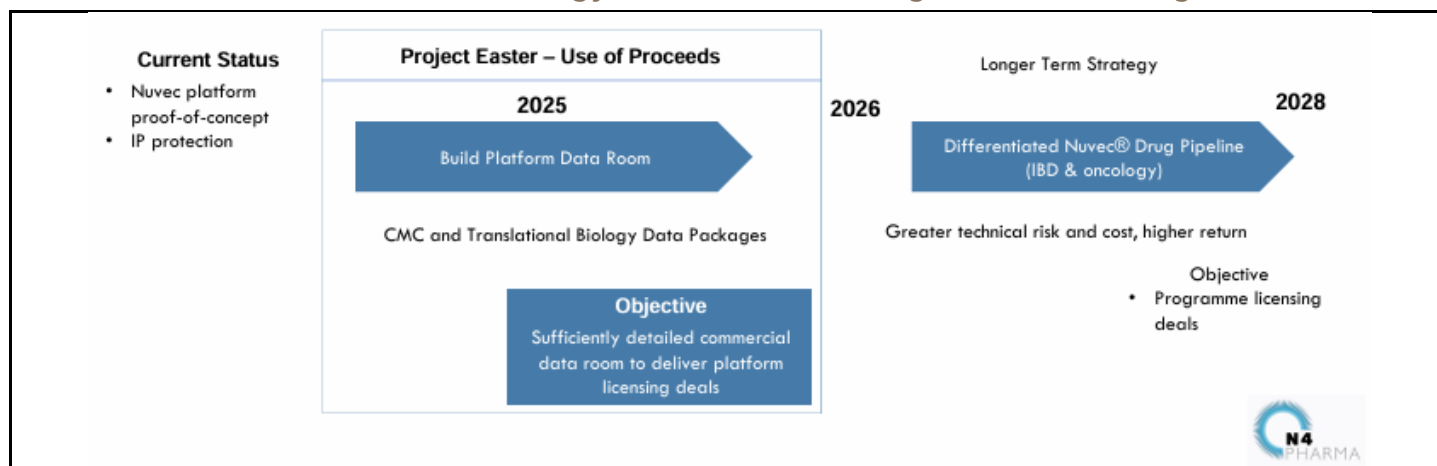
Business strategy – Platform licensing to open door to higher-return programme deals

Today's new funding enables N4P to enter a relatively low-technical risk 12 to 18 months phase of development of its data packs, during which the differentiating aspects of the Nuvec® platform are expected to be firmly established while the Group will be actively building its business development pipeline. Its technology/IP remains highly protected across the major international territories and no competitive threats to the mesoporous silica matrix

structure have been identified. Given that there are presently over 80 key enterprises active in the RNA therapies space, each of which almost inevitably share an interest in trialling new/safer delivery modalities, N4P expects a positive reaction when marketing Nuvec® with a comprehensive data room. This is expected to result in the signing of at least one commercial deal, initially likely to take the form of a research collaboration during this period, before evolving into a fee-based platform licensing and milestone deal, under which N4P will supply critical material to its partner for in-house translational studies. This of course will represent a significant value-inflection point for the Group.

Being non-exclusive, such early success is likely to generate similar transactions from various other interested parties. The momentum created would then likely permit N4P to move to its stated longer-term strategy of advancing its own differentiated Nuvec® pipeline (which is presently in IBD and oncology) forward into Phase 1 clinical trials. Such a move entails greater technical risk and costs, although multiple 'big ticket' transaction suggests the potential rewards more than justify such a move. This will be a strategic decision for the Board in future. By this time of course, large Pharma or Biotech may well have noted the significance of the Nuvec® technology to development across the RNA space and seek to acquire before N4P's longer-term planning is able to commence.

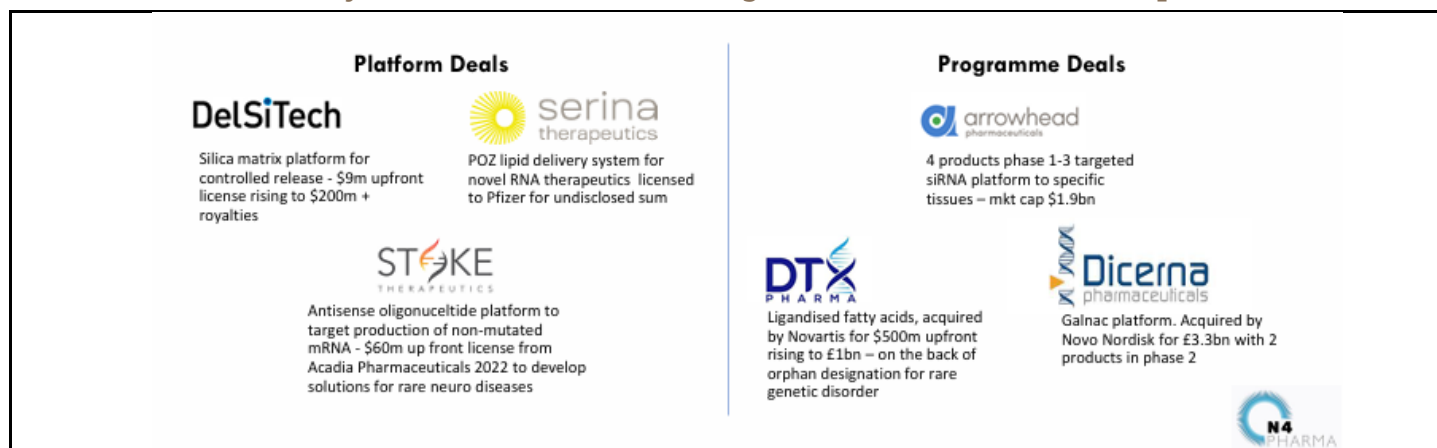
N4P Business Strategy – Platform and Programme Licensing



Source: N4P, Investors Presentation, March 2025

The image below provides a snapshot of recent platform and programme deals struck in the RNA space by large pharma/biotech, which clearly reflect the fact that the technology is presently 'hot' and innovative industry players successfully developing novel solutions are being closely watched.

Recently Struck Platform and Programme Deals in the RNS Space



Source: N4P, Investors Presentation, March 2025

Funding now appears sufficient to support work programmes well into H2 2026

N4P is a highly efficient, virtual biotech company. Despite its ongoing workload, FY2024's operational burn was broadly unchanged from the c.£0.1m/month (net of R&D tax credit) registered during FY2023. Together with an estimated cash balance of c.£0.25m held at this time, N4P is now thought to have sufficient resources to support planned operations well into H2 2026.

Substantial news flow expected from both Nuvec® and the Group's pipeline & partnerships

N4P will work proactively to create a much wider understanding amongst investors of the potential of the Nuvec® platform in the valuable RNA therapeutics market to raise the profile of this exciting investment opportunity. It will also communicate regularly with the market on technical and commercial progress and anticipates regular positive newsflow. N4P's two novel and complementary, patent protected non-viral delivery technologies are also expected to deliver important advances over the coming 36 or so months. Aside from scheduled work on the Nuvec® Platform, based on projected expenditure, N4P's existing therapeutic pipeline and development partnership is also expected to reach certain of additional key valuation inflection points during the current and coming period, realistically including:

- Nuvec® research collaborations with biotech and academia
- Nuvec® ongoing technical updates, conference presentations
- N4 101 pre-clinical development progress
- Nuvec® platform licensing deal(s)
- ECP105 Orphan Drug Designation response from FDA (unlocks regulatory and commercial pricing benefits)

N4 101 – Orally delivery RNA treatment for IBD to replace regular injections

N4 101 is an orally delivered inflammation inhibitor for IBD, designed to showcase the key benefits of the Nuvec® delivery technology. The capsule contains Nuvec® dual loaded with two RNA sequences, one to reduce production of a protein associated with inflammation and the other to promote the body's own anti-inflammatory response, for local delivery to the GI tract. N4 101 also has an additional targeting element chemically added to the Nuvec® particle's surface which is aimed at specifically targeting macrophages responsible for the inflammation.

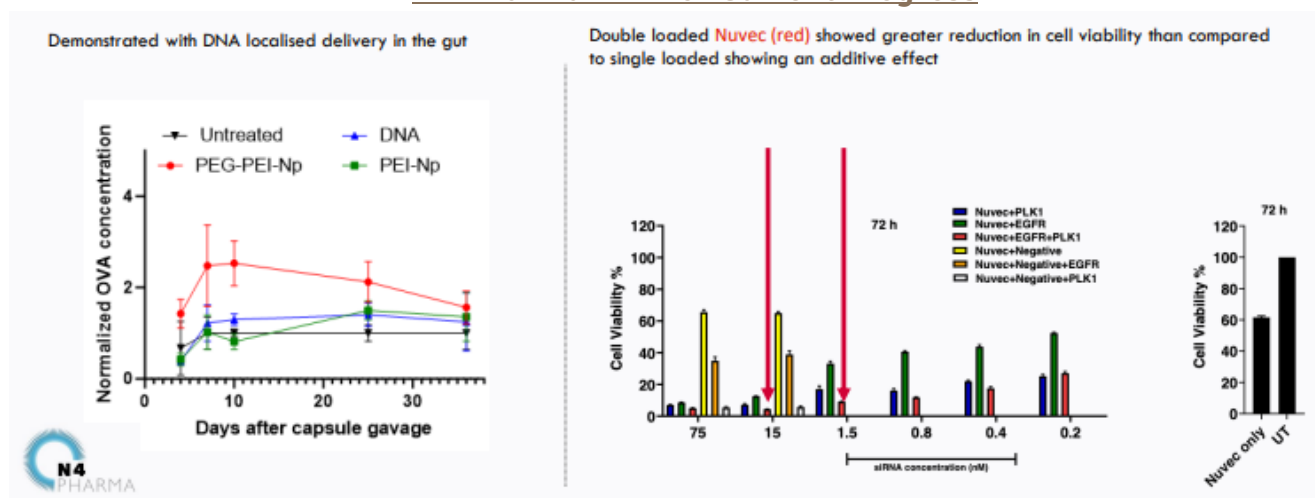
In vitro experiments used mouse-extracted cells to establish the ability of Nuvec® delivered to its RNA cargoes to (i) Reduce the production of TNF-alpha which is a chemical produced by the immune systems that causes inflammation; and (ii) Increase the expression of IL-10 (a molecule that has an anti-inflammatory role). In the treatment of an inflammatory condition (such as IBD) a reduction in TNF-alpha production and an increase in IL-10 is desirable. A patent has already been filed in order to protect the clear advantages Nuvec® introduces for targeting and dual loading. N4P also presently awaits ethics committee approval to build on the strong *in vitro* data prior to commencing *in vivo* studies in an appropriate animal model at the University of Queensland early in 2025.

Current therapies for IBD which target TNF-alpha inhibition are effective but come with numerous issues, including tolerability, non-response and immune sensitivity. Antibody therapeutics, known as TNF-alpha inhibitors, presently offer the best treatment and represented c.78% of the market in 2022 even if regular, inconvenient injections somewhat reduce patient compliance. As a result, the trend is shifting toward preferred oral treatment in the form of Janus Kinase inhibitors ('JAKs'), even though the product's lack of tissue selectivity can result in toxicity issues in other organs.

The global market for IBD, comprising over 8m suffers and split principally into two different conditions (Crohn's disease and ulcerative colitis), was valued at US\$20.4bn in 2023 and is projected to expand by a CAGR of 3.9% to over US\$27.6bn by 2030, according to a report published by Grand View Research. Oral administration can provide a cost-effective method to deliver nucleic acid therapies with improved levels of patient compliance. With the Company now focusing tightly on delivering the nearest term value infection point of commercial deals for the Nuvec® platform, it will utilise the N4 101 asset wherever possible to generate useful data for both the commercial

data-room and to advance N4 101 towards the clinic, although the exact timing of a future IND filing cannot be known at this time.

N4 Pharma - N4 101 Current Progress



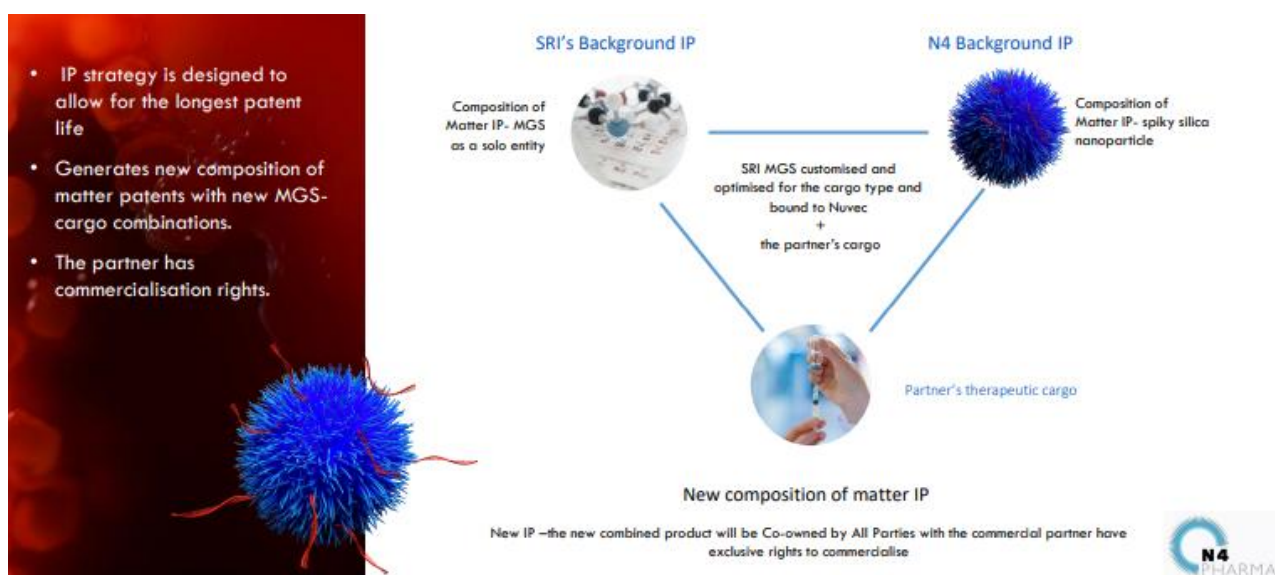
Source: N4 Pharma, Investor Presentation October 2024

N4 101 therefore represents an efficient use of the Group's limited shareholder capital to both advance a commercially valuable and proprietary pre-clinical asset towards the clinic (or joint venturing), as well as providing a vehicle to continue to build out the detailed data package required to secure meaningful partnering deals on a shorter timescale.

SRI International collaboration to commence third-party marketing around mid-2025

First established in April 2024, this collaboration seeks to develop an improved delivery platform for nucleotide therapies by combining the key advantages of N4P's Nuvec® nanoparticle (including protection of nucleic acid cargos from enzymatic breakdown and its ability to carry high/complex payloads), with improved cellular targeting through utilisation of SRI's Fox 3 Molecular Guidance System™ targeting peptide ('MGS'). The first stage of this collaboration demonstrated that a particle (or compound) created by the combination of the two technologies can be directed and exclusively taken-up into target cells whereupon it delivers the desired biological effects, i.e., knockdown (or reduction) of the production of a specific protein.

SRI/N4 Pharma Intellectual Property Strategy



Source: N4 Pharma, Investor Presentation October 2024

The ability to target different tissue types represents a key differentiator to competing nucleic acid delivery approaches, such as that presently offers through the N-acetylgalactosamine ('GalNAc') platform, or the more advanced lipid nanoparticles/viral particles. Although it is widely used in gene silencing therapies to deliver siRNA, GalNAc can only target hepatocytes (primary cells in the liver), while modifying lipid or viral particles in order to target specific tissues is far from straightforward or routine at the present time.

With over 50 MGSs available, SRI is able to target a variety of cell types and can deliver an array of molecules, including nucleic acids, proteins and nanoparticles. Supporting data is now being collected from a range of additional MGS combinations for assessment. Subject to a satisfactory outcome, initial presentations to major pharma players to propose joint development projects and/or licensing are expected to commence.

ECP105 - Targeting an unmet clinical need in the ophthalmology market

Early in 2024, N4P acquired a controlling interest, through a subscription for new ordinary shares, in Nanogenics Limited, a company with a complementary lipid and peptide-based delivery system called LipTide®, which it is presently using to develop a novel siRNA product that targets an unmet clinical need in the ophthalmology market.

Failure rates post-glaucoma surgery due to fibrosis can be as high as 50% over the subsequent 5 years. Current treatments to prevent fibrosis (e.g. mitomycin C ('MMC')) are unlicensed and introduce severe risk of side effects. ECP105, which consists of a siRNA sequence that silences MRTF-β, a gene implicated in the promotion of fibrosis, has been encapsulated by the LipTide® delivery system to address this unmet need. In so doing, it potentially provides a simple and effective anti-fibrotic therapy to maximise surgical success in glaucoma by reducing post-surgical scarring without exposing patients to the risk of cytotoxic medication.

Glaucoma, a chronic, progressive eye disease characterised by damage to the optic nerve, currently affects 80 million people worldwide. Driven by population ageing, this has been projected to rise to nearly 112 million by 2040. It is estimated that 300,000 Glaucoma Filtration Surgeries (trabeculectomy) presently take place worldwide annually; other procedures similarly lead to scarring. Treatments are said to typically cost around US\$6,500 per surgery, compared with application of ECP105 that is expected to be in the range of just US\$600 to US\$1,000. Replacing the use of off-label MMC, this implies a market size of US\$180m to US\$300m per annum with opportunity for repeats should there be a need for further surgery.

A pilot in vivo study conducted by London's King's College that demonstrated ECP105 to have activity comparable to microfluidic formulation. Delivered to the eye by a single subconjunctival injection (LipTide® with 25ug MRTF siRNA) in a rabbit model, treatment led to a doubling in bleb survival and matching the current gold-standard MMC treatment. Crucially, no adverse side effects were observed. Currently N4P is in discussion with the FDA regarding orphan drug designation (ODD) for ECP 105 which, if granted, would give seven years exclusivity in the USA on the product post authorisation, along with potential tax credits, eligibility for grants and an accelerated approval process. Given that the Board has taken the decision to focus its limited resources on delivering a significant value uplift for shareholders through commercial progress with Nuvec®, however, it will await the outcome of discussions with the FDA before reviewing options for extracting value from ECP 105 without distracting N4P, and today's use of proceeds, from its principal goal.

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