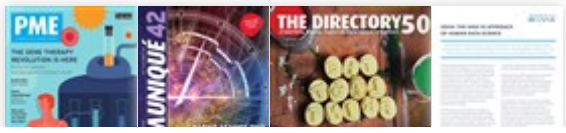

AZ makes gene therapy move with 4DMT alliance

The new partnership will focus on creating an AAV for lung disease

AstraZeneca's push into genetic therapies has stepped up a gear, thanks to a collaboration with 4D Molecular Therapeutics on a new project in chronic lung disease.

The deal between AZ's Medimmune division and the California-based biotech covers the creation and testing of an adeno-associated virus (AAV) based gene therapy, but that's about all that is being revealed. There's no mention by the two companies of the gene or the specific indication being targeted in the programme.

It's the latest in a series of collaborations forged by AZ as it tries to build a position in genetic therapy, although the UK pharma giant's earlier partnering efforts have focused on RNA and oligonucleotide-based drugs to switch off the activity of problem genes and gene-editing using CRISPR technology, rather than vector-based gene transfer.

It's been applying CRISPR to its drug discovery programmes for a few years, and earlier this year presented early data from animal studies showing that a CRISPR-based drug could treat the genetic disease alpha 1 antitrypsin (AAT) deficiency.

It also has a long-running collaboration with Moderna seeking messenger RNA drugs for the treatment of cardiovascular, metabolic and renal diseases as well as selected targets in oncology, and is also working with Ionis on antisense drugs for a range of targets including a nonalcoholic steatohepatitis (NASH) candidate that was the subject of a $300m licensing deal in April.

Last year, AZ also paid €25m upfront in a research deal with German biotech Ethris to develop mRNA drugs for respiratory diseases, including asthma, chronic obstructive pulmonary disease (COPD), and idiopathic pulmonary fibrosis (IPF).

The move towards vector-based gene transfer, while still in its early stages, marks something of a departure from AZ's earlier strategy, which hasn't included much emphasis on advanced therapy medicinal products (ATMPs) such as **gene and cell therapies**, other than indirectly – for example its collaboration pairing a Juno CAR-T therapy with its immune checkpoint inhibitor Imfinzi (durvalumab).

Explaining the move, Roland Kolbeck, who heads up respiratory, inflammation and autoimmunity R&D at MedImmune, said: "Rapid advances in AAV therapy make this a promising tool to advance innovation in chronic lung disease, particularly in areas of high unmet need. This collaboration strategically pairs 4DMT's expertise in AAV with MedImmune's leadership in respiratory science, focused on early intervention and disease modification."

While enormously exciting gene therapy is still very much in its infancy, with just three commercial gene therapies approved in Europe and the US since UniQure's Glybera made its debut in 2012 (only to be **pulled** as a commercial failure last year).

There is a swathe of new candidates are coming through the industry pipeline however, thanks to improvements in the efficiency and specificity of vector delivery, better expression rates in cells and reduced toxicity.