Three years after going back to the drawing board with its cancer immunotherapy TroVax, Oxford BioMedica has found itself with another avenue to explore. Its stable of four Sanofi-partnered ophthalmology gene-therapy drugs is beginning to turn out promising clinical results: the French drugmaker recently exercised its option for two in orphan indications, a $3m transaction that encouraged the UK biotech to undertake a fundraising approaching three quarters of its current market capitalisation.

Oxford BioMedica is now fully funded until early 2014, a period that should see the entire ophthalmological programme report early to mid-stage data, as well as important mid-stage data emerging on the unpartnered Parkinson’s disease drug ProSavin. Getting Sanofi on board with the two small eye drugs was as important as the fundraising in securing the company’s future, company executives believe.

“People have been cautious about gene therapy, and until they go clinical there’s an unknown safety element,” Stuart Naylor, the group’s chief scientific officer, tells EP Vantage. “By having a platform that is now actually in the clinical setting and now developing safety data both in the eye and the brain there’s a huge de-risking element.”

Eyeing opportunity

Sanofi’s decision to go all in with StarGen and UshStat, for Stargardt disease and Usher syndrome, was good news for a company with only early-stage assets and a dwindling cash supply – Oxford ended April with a miniscule £9m ($14m). The two genetic conditions with onset in childhood would seem to be right in the gene therapy sweet spot - Oxford uses its lentiviral gene delivery technology LentiVector to transport corrected versions of the ABCR gene to treat Stargardt disease and MYO7A for Usher syndrome.

Stargardt disease and Usher syndrome being tiny indications and in the red-hot area of ophthalmology no doubt made exercising the option for $3m an easier decision for Sanofi. If there had been hesitation from the French drug maker partnering the two, which have US and European orphan designation, would have been no trouble, the company contends (Therapeutic focus - Eyecare products in demand in market dominated by few, March 23, 2012).

“We could sell what we have like hot cakes,” says Oxford's chief executive, John Dawson. “(Ophthalmology) is an interesting place to be and everybody wants to have a share of it. Because of that the values are getting more significant than they have been in the past.”

The bigger gamble, no doubt, is RetinoStat, a LentiVector treatment for wet age-related macular degeneration, a wider indication that if successful in the clinic and with the regulator would have to take on incumbents like Lucentis, Avastin and Eylea.

Like the antibodies and kinase inhibitors, RetinoStat inhibits the growth of blood vessels that leak and cause eyesight to diminish, but does so by using the LentiVector technology to deliver two anti-angiogenic genes to cells in the retina. The hope is to create a one-time therapy rather than the frequent injections required by the anti-vascular endothelial growth factor drugs; given that Eylea and Lucentis are locked in a fight over bimonthly vs monthly dosing, an alternative that required only a single procedure would be compelling indeed.

Further results are due later in the year. Should they be persuasive enough for Sanofi to exercise its option later this year or early next, this would lead to a much bigger payday – Mr Dawson would not state the exact amount, but described it as between $10m and $30m.

The payoff

On the back of Sanofi’s decision, Oxford also elected to make a partly underwritten share offering slated to raise up to £16m, as compared with a £21m market capitalisation on the day before the announcement. The
Fundraising will provide $4m to back the ophthalmology programme and extends the cash runway by a year to early 2014.

By then, Mr Dawson hopes the company will have provided sufficient data for Sanofi to have made a decision on RetinoStat, advanced data on the orphan eye drugs, remedial work achieved for Trovax and have completed enough mid-stage work for the Parkinson’s disease drug ProSavin to have begun partnership talks in earnest.

The latter two have been in the clinic for years – TroVax having been sent back for more work and ProSavin having entered its first phase I/II trial in 2007. As Sanofi handed back rights to TroVax in 2009 after a failed renal cancer trial, this project is unlikely to pick up any partners without further validation (Event – FDA to decide fate of Oxford Biomedica’s Trovax, May 5, 2009). Cardiff University initiated a phase II trial this week in colorectal cancer.

ProSavin, which seeks to induce production of dopamine in the brain, would seem to be a promising partnership prospect, in that a steady supply of endogenous dopamine has the potential to prevent one of the biggest side effects of current therapy, the movement disorders caused by peaks and troughs of levodopa treatment. Yet ProSavin remains unpartnered, even though Parkinson’s is an unmet medical need. Oxford is in the process of refining the dose in bridging studies to optimise treatment for a proof-of-concept trial.

“We have multiple partners that have been looking at us and tracking the clinical data and are wanting to see more and more proof of concept as we go along, wanting some kind of higher-level data that they can see through a successful phase II,” Mr Naylor says. “Data from bridging studies at higher dose may catalyze some action.”

It will be necessary to partner ProSavin after that, Mr Dawson says: “We’re very clear in our belief that we are not able to afford tasks internally from there.”

For now, fortune has smiled a bit on Oxford BioMedica, which has placed itself in an attractive area of drug partnering. Gene therapy still remains a mostly unproven technology, however; the group has another two years to prove its worth.