

Takeda forges another neuroscience deal as Abbvie dips a toe



[Amy Brown](#)



Takeda's appetite for risk in early stage neuroscience could make it one to watch.

Biopharma investors still in snooze mode after the US public holiday got a wake-up call from the neuroscience space today, with two notable research collaborations unveiled.

Takeda confirmed its commitment to the CNS with a broad deal with the oligonucleotide researcher Wave Life Sciences, while Abbvie and Voyager forged an agreement around vectorised antibodies in neurodegenerative conditions. The Abbvie/Voyager deal aims to increase therapeutic activity within the brain, and has echoes of a deal that Takeda sealed with Denali Therapeutics only last month.

That transaction saw the Japanese pharma giant buy options to three of Denali's preclinical programmes, including two in Alzheimer's disease, for \$40m up front and \$110m in equity, against targets including BACE1/Tau and Trem2.

While that relies on Denali's antibody transport vehicle technology, the deal Abbvie and Voyager announced today comes at the blood/brain barrier crossing problem from a different angle: the partners will seek to develop gene therapies consisting of vectors to deliver monoclonal antibodies to the brain directed against Tau, for the treatment of Alzheimer's and other neurodegenerative diseases.

Voyager is already active in seeking to treat CNS conditions by delivery of genes encoding production of disease-specific proteins - VY-AADC01 for example seeks to produce an enzyme that allows for conversion of levodopa to dopamine in the brain of Parkinson's patients. However, Abbvie is not a huge neurology player and today's early-stage deal is a surprising move.

For \$69m up front Abbvie has bought itself the option to license the vectorised Tau antibody programme after phase I; work is currently all preclinical.

Genetically defined

Takeda, however, is making no secret of its interest in new mechanisms in neurology. Its transaction is broad, and effectively gives the Japanese pharma company opt-in rights over a large portion of Wave's pipeline.

Takeda has bought the option to co-develop and co-commercialise Wave's existing programmes in Huntington's disease, amyotrophic lateral sclerosis, frontotemporal dementia and spinocerebellar ataxia type 3. An additional six, unspecified preclinical projects are up for grabs within the next four years, targeting

conditions including Alzheimer's and Parkinson's diseases.

Considering that only the Huntington's work is in the clinic, the terms look generous even for such an expansive collaboration. Takeda will hand over a \$110m up-front fee and \$60m under an equity investment, and has pledged to spend at least \$60m on researching the preclinical candidates, over the next four years.

Further up-front and milestone payments will be made by Takeda should it opt into any individual programme – pending proof of mechanism – though costs and profits will be shared equally from that point. Wave has retained co-commercialisation rights in the US.

Takeda will have been encouraged to take this step by significant progress in nucleic acid research over the past few years, yielding approval for the likes of Biogen's Spinraza, for the rare childhood illness spinal muscular atrophy, and Sarepta's Duchenne drug Exondys 51.

Wave's USP is its ability to create "stereopure" oligonucleotides that can target dysfunctional or disease-promoting proteins. For example, its Huntington's projects, WVE-120101 and WVE-120102, target single nucleotide polymorphisms on the mutant huntingtin gene, a specificity that should mean that they only knock down mutant forms of the huntingtin protein (*[Therapy focus - Antisense projects raise Huntington's hopes, 15 December 2017](#)*).

Data are due early next year on these candidates, and should start to give an indication of the potential of Wave's technology, and the value of this deal to Takeda.

But by partnering with Denali and now Wave the Japanese company has signalled that it is comfortable investing in pioneering neuroscience – notably, both of these young companies launched their IPOs in the last 14 months. Takeda is becoming one to watch in this space, and clearly has the budget to take some early-stage risks.

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