

Immatics answers the call from MD Anderson



Jacob Plieth

It might look like Immatics' lead cancer vaccine project, IMA901, is taking a back seat, but then the private German company can hardly be blamed for jumping at the chance; it has just been chosen by the MD Anderson Cancer Centre to help it develop oncology's latest innovation.

Its new US subsidiary will work on T-cell receptor therapeutics, a field that – were it not for a lack of identified targets – could be the next big thing after CAR-T. Immatics' antigen target discovery technology is a specific focus of today's move, the venture's chief executive, Harpreet Singh, tells *EP Vantage*.

Even so, he says IMA901 is not being de-emphasised, stressing that it remains on course to yield phase III data this year. "We are seizing an opportunity in cell therapy," he states. "MD Anderson approached us and had a vital interest in novel targets."

Engineered T-cell receptors (TCRs) differ from CAR-T in that they use a genetically edited version of a natural receptor, rather than a chimaeric one that uses an antibody motif. Thanks to not being restricted to surface antigens, TCRs "have a target space that's four to five times bigger than CAR-T", says Mr Singh.

However, work on TCRs has lagged CAR-T, partly owing to insufficient knowledge about unique antigen targets ([Big pharma picks Immunocore as a cell therapy player to watch, June 29, 2015](#)).

"We have, in our opinion, the world-leading discovery platform that allows us to access targets. These include neoantigens," says Mr Singh. And in MD Anderson Immatics found a partner with expertise in cell therapy, including manufacturing and clinical infrastructure.

Majority control

This knowhow will be routed through Immatics' new, majority-held subsidiary, Immatics US, backed with \$40m of funding from the German parent, plus a \$20m grant from a Texas state body called [CPRIT](#).

A year ago Immatics closed a €34m (\$39m) series D round, and existing cash "plus further, undisclosed commitments" will fund the subsidiary. Why not just do the deal through Germany? "To access money through the CPRIT mechanism you have to relocate to Houston," says the chief exec.

MD Anderson also has a minority stake, presumably funded thanks to the hospital's windfall from Ziopharm and Intrexon, which licensed its Sleeping Beauty CAR-T system. Mr Singh says the Immatics deal lies entirely outside the scope of that technology.

Work will focus on three technologies licensed from MD Anderson: Actolog, Actengine and Actallo. The first, pioneered by Dr Cassian Yee, is similar to Lion Biotechnologies' tumour infiltrating lymphocyte (TIL) approach, focusing on autologous T cells with their natural TCRs, expanding them and reinfusing into the patient.

The difference is that here T cells specific for Immatics' target are isolated directly from peripheral blood cells, while the TIL approach isolates T cells, with unknown specificity, from tumour cells. Immatics US will use IL-21 for cell expansion, thanks to a Fred Hutchinson patent licensed to MD Anderson.

Engineered TCRs

Meanwhile, Actengine is a typical genetically engineered TCR approach, like Adaptimmune's or Kite Pharma's, using retroviral transfection.

And furthest away in Immatics' timeline is Actallo, a project where large banks of T cells already transfected with the right TCR could be kept on the shelf, ready in case a patient comes in with the right expression pattern. This is based on Dr Laurence Cooper's work with gamma-delta T cells.

Collectis is pioneering an allogeneic CAR-T approach, but is using gene deletion to overcome "transplant rejection". In Immatics' case rejection will be delayed thanks to lymphodepletion, while the possible use of genetic knockout will be considered later.

When it comes to preventing toxicity the group has no immediate plans to employ suicide switches, and Mr

Singh is blunt: “One very simple ‘mechanism’ to reduce the risk for patients is to choose a target that’s not expressed in healthy tissue.”

An Actalog project could be in the clinic in mid-2016, while Actengine could follow in the second half of that year. Immatix US’s funding will continue to be supplied by the German parent, where Mr Singh continues as chief scientific officer, though licensing and collaborations are clearly on the cards.

“We’ve found ourselves in the middle of a new industry, and we’re seeing a lot of attention,” he says.

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