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‘The race is on’: China’s I-Mab gets boost from AbbVie to develop a new cancer immunotherapy

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Reprints

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HONG KONG — In November 2014, a little less than six years ago, Chinese scientist Jingwu Zang set up his own drug company, Third Venture Biopharma. The former head of China R&D for GlaxoSmithKline wanted to develop innovative biologics that can treat various cancers and autoimmune diseases.

A domestic merger, a slew of in-licensing deals, and a Nasdaq listing later, the Shanghai-based biotech — now called I-Mab Biopharma — is hanging on to one of its self-discovered drug assets, a highly coveted anti-CD47 monoclonal antibody, as its ticket into a global race for the next class of promising cancer immunotherapies.

Trailing behind development of a CD47 drug from Forty Seven, which Gilead acquired earlier this year, I-Mab had been looking for months for a powerful ally to help even the odds. Forty Seven's CD47 drug magrolimab has reached Phase 2 and I-Mab is hoping a global partner can help speed up its own program.

Now it's got one.

I-Mab has signed a global collaboration deal with U.S. drug maker AbbVie to develop lemzoparlimab, I-Mab's homegrown cancer immunotherapy, the companies announced Friday.

"The race is on," Zang, I-Mab's founder and honorary chairman, told STAT. "Who's gonna win this race really depends on the innovative nature of the molecule."

The I-Mab therapy, which is also called TJC4, is currently in Phase 1 development in the U.S., and is paired with Merck's Keytruda for solid tumors and Biogen and Genentech's Rituxan for non-Hodgkin lymphoma in ongoing studies. I-Mab is also planning to launch Phase 1/2 trials in China for hematologic malignancies, such as relapsed or refractory acute myeloid leukemia and myelodysplastic syndromes.

Under the terms of the deal, AbbVie gets to develop and commercialize TJC4 outside of China, and will partner with I-Mab in conducting further global clinical trials to assess the drug's efficacy in multiple cancer types and in combination with other assets under AbbVie's portfolio, including liquid tumor therapy Venclexta.

For the exclusive right to I-Mab's promising early stage asset, AbbVie is paying I-Mab $180 million upfront in addition to $20 million as a milestone payment tied to its Phase 1 clinical data. The bulk of the deal, up to $1.74 billion, hinges on whether TJC4 can continue its success by hitting certain clinical-development, regulatory-approval, and commercial milestones. If the drug is commercialized, Abbvie will also pay I-Mab tiered royalties on global net sales outside of China.

"Cancer is the second-leading cause of death globally and the need for novel cancer therapies has never been more acute," Thomas Hudson, AbbVie's senior vice president of R&D and chief scientific officer, said in a statement. "The addition of I-Mab's novel CD47 programs complement our global clinical strategy in hematology and immuno-oncology."

Compared to Gilead's $4.9 billion payout for Forty Seven, some see this deal as a bargain for AbbVie.

"At $180 million up front, I think that AbbVie potentially got a steal here. This is a potentially differentiated asset in a space that Gilead wrote a nearly $5 billion check [for] earlier this year," Brad Loncar, CEO of Loncar Investments, told STAT.

"In terms of CD47, we'll see other deals like it this year. This is now a well-defined space that large oncology players need to be active in," Loncar added.

Anti-CD47 therapies represent one of the hottest areas in cancer drug development. Similar to how PD-1/PD-L1 drugs work, anti-CD47 drugs interfere with the action of the CD47 protein on the surface of cancer cells, which sends out a "do not eat me" signal to avoid being eaten by the patient's immune cells such as macrophages.

By blocking this signal and disrupting this immune evasion pathway, anti-CD4 drugs should enable the immune cells to hunt down and destroy tumor cells.

"CD47 is a very exciting target, and this is highlighted by the recent acquisition of Forty Seven by Gilead for $4.9 billion, just for one Phase 2 molecule," Zang said. "So you can imagine how much attention is already focused on this particular target, because the field has a consensus that CD47 is the most promising immuno-oncology target after PD-1/PD-L1."

After Gilead's deal for Forty Seven, several big pharmas came calling about TJC4, said Zang. They were looking for a second, differentiated CD47 candidate and found TJC4 interesting because of its safety data.

The company knew that a global partner could help maximize TJC4's potential, and even speed things up a little.

We chose AbbVie for a few reasons, Zang said.

"One is that they are very strong in the oncology therapeutic area, with deep expertise and excellent track record, and we can learn a lot from them to facilitate global clinical development."

Abbvie is also very strong in the biologics space, as highlighted by Humira, and it can help optimize the antibody drug, the I-Mab founder said.

Finally, the companies have established trust and chemistry throughout the process. "This is very important to us because we're looking for a long-term partnership," he said.

"We don't want to do a simple out-licensing [deal], giving away our innovative molecule to a big pharma," Zang said. "We've always wanted to work together where we can focus on our strength in China to bring the molecule through the clinical development and to the market, but globally, we choose to work with a big pharma because their strengths are commercialization and late-stage clinical development."

One of the problems with first generation anti-CD47 antibodies is that they tend to bind to red blood cells, which causes side effects such as anemia.

But I-Mab claims that unlike with other CD47s in development, TJC4 is designed to minimize binding to red blood cells while maintaining its anti-tumor activity and is therefore safer for patients. The company recently completed its Phase 1 dose escalation trial in the U.S. and is expected to share its findings soon.

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