

High-value R&D partnerships of 2021

Big pharma dealmaking returns to pre-pandemic levels as companies spend big to develop a range of cancer therapies.

Raveena Bhambra

Overcoming the challenges presented in 2020, big pharma companies have already signed a number of high-value partnerships in 2021, many of them focusing on the development of new therapies for cancer. With the help of DealForma we present the highest-value R&D partnerships signed so far this year.

Of the top ten deals (Table 1) seven were announced at the discovery/platform stage and many followed the common trend of big pharma licensing emerging technology platforms from smaller companies. Eight of the top ten deals were for oncology applications, illustrating the continued popularity of this therapeutic area for partnerships, and a handful of these were for immuno-oncology (IO) therapies. IO deals included Merck & Co.'s potential \$1.8 billion deal with Artiva, which was the third highest-value deal of the year, and saw the big pharma company gain access to two off-the-shelf chimeric antigen receptor

(CAR)-engineered natural killer(NK) cell therapy candidates for solid tumors. Off-the-shelf cell therapies that address the logistical challenges of producing first-generation CAR-T cell therapies are attracting interest, and NK cells could have benefits such as a reduced risk of causing graft-versus-host disease compared with unmodified donor T cells (*Biopharma Dealmakers*, B15-17, September 2020).

Aside from oncology, the other therapeutic areas featured in the top ten deals both involved Takeda. In one of the deals, Takeda licensed Ensoma's Ingenious vector platform technology, which enables in vivo gene modification without the need for prior stem cell collection, to discover candidates for up to five rare disease targets. In the other, Takeda collaborated with Anima Biotech to discover mRNA translation modulators for neurological diseases.

Table 1 | Top ten R&D biopharma therapeutics and platforms partnerships in 2021 by deal value

Seller and buyer, respectively	Date announced	Stage at signing	Total deal value (upfront payment) (\$ million)	Deal summary
BeiGene, Novartis	January 2021	Approved	2,200 (650)	BeiGene signs deal with Novartis to co-develop and commercialize the anti-PD-1 antibody tislelizumab in countries including the USA, Canada and the UK.
QED Therapeutics, Helsinn Group	March 2021	Phase 3	2,000 (n/d)	Helsinn Group partners with the BridgeBio Pharma affiliate QED Therapeutics to develop their FGFR1-3 inhibitor infigratinib for cancer.
Artiva Biotherapeutics, Merck & Co.	January 2021	Platform/discovery	1,881 (30)	Merck signs deal with Artiva to develop and commercialize their two off-the-shelf solid tumor NK-CAR cell therapies at the IND stage.
KSQ Therapeutics, Takeda Pharmaceutical	January 2021	Platform/discovery	1,700 (100)	KSQ Therapeutics partners with Takeda to develop immuno-oncology therapies identified through its CRISPRomics discovery platform.
Loxo Oncology (Eli Lilly), Merus	January 2021	Platform/discovery	1,660 (60)	Using its Biclomics platform Merus aims to discover T cell re-directing antibodies for cancer treatment, which Loxo will take into further development.
Molecular Templates, Bristol Myers Squibb	February 2021	Platform/discovery	1,395 (70)	Harnessing its engineered toxin (ETB) technology, Molecular Templates partners with Bristol Myers Squibb to develop oncology therapeutics.
Ensoma, Takeda Pharmaceutical	February 2021	Platform/discovery	1,350 (100)	Ensoma signs licensing partnership with Takeda allowing it to use its Ingenious vectors to develop therapies for up to five rare disease indications.
Artios Pharma, Novartis	April 2021	Platform/discovery	1,320 (20)	Novartis signs deal with Artios Pharma to identify DDR targets using their discovery platform to combine with its radioligand therapies as potential treatments for cancer.
Anima Biotech, Takeda Pharmaceutical	March 2021	Platform/discovery	1,220 (120)	Takeda collaborates with Anima to discover mRNA translation modulators for neurological diseases using its Translation Control Therapeutics platform.
Biond Biologics, Sanofi	January 2021	Phase 1	1,125 (125)	Biond Biologics partners with Sanofi to develop its humanized IgG4 antagonist antibody targeting the ILT2 receptor to treat solid tumors.

CAR, chimeric antigen receptor; DDR, DNA damage response; FGFR, fibroblast growth factor receptor; IND, investigational new drug; NK, natural killer. The data presented here from DealForma are for drug and discovery platform partnerships involving R&D signed this year through to 9 May 2021 and listed by the largest announced total deal value (disclosed).