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# Antibody deals in numbers

The development of antibodies and associated technologies continues to drive high-value deals. We look at recent trends in the field with help from DealForma.

## Biopharma Dealmakers

Antibodies are behind some of the world’s best-selling drugs, and it seems that progress in the field continues to generate big price tags and headlines. Using data provided by DealForma for the period 1 January 2022 to 16 June 2023, we analyzed the deal trends in the field to explore high-value deals and those by deal type.

In 2022, the total potential value for antibody-focused deals reached a new high of \$57.3 billion across 156 deals (Fig. 1). This represents growth of almost 40% from 2021, despite a widely reported economic downturn in the industry. The number of deals, however, was higher in 2020, when a total of 192 deals were made, largely due to additional partnerships being established in response to the coronavirus disease 2019 (COVID-19) pandemic.

Almost 30 of the highest-value deals involving antibody technologies were potentially worth more than \$1 billion, and the top three deals each had a headline value of at least \$5 billion (Table 1). The most valuable of these deals was the potential \$9.3 billion partnership between Merck & Co. and Kelun-Biotech in December 2022 for the development of antibody–drug conjugates (ADCs). The deal saw Merck commit to \$175 million upfront and more than \$9 billion in potential milestone payments to gain rights to exclusively develop and commercialize up to seven pre-clinical ADCs from Kelun-Biotech for the treatment of cancer. This deal was the third in 2022 for the two companies. They also signed an agreement in July for an ADC with an undisclosed target for \$35 million upfront and up to \$901 million in milestones, and one in May for an ADC targeting TROP2 that is in late-stage trials for multiple cancers, in this case for \$47 million upfront and up to \$1.36 billion in milestones.

The second highest value deal was a partnership between Sanofi and IGM Biosciences for the discovery, development and commercialization of immunoglobulin M (IgM) antibody agonists signed in March 2022. Sanofi agreed to pay IGM \$150 million upfront to use its platform technology to identify IgM antibodies, which have ten binding sites compared to the two of conventional IgG antibodies, against three targets in oncology and three in inflammation. If the partnership is successful, IGM may be eligible for up to \$6 billion in milestone payments. In the same month—and the fifth highest value deal since January 2022—Sanofi announced another billion-dollar antibody deal with biotech Adagene for the development of masked monoclonal and bispecific antibodies. Sanofi will use Adagene’s platform to generate antibody drug candidates for an upfront fee of \$17.4 million to Adagene and up to \$2.5 billion in regulatory and commercialization milestones.

The third recent deal worth more than \$5 billion involved Summit Therapeutics, which offered up to \$5 billion to Akesio, including \$500 million upfront, to develop its late-stage bispecific antibody ivonescimab. The antibody works as both a PD-1 blocker and a blood vessel growth inhibitor and is currently being studied in a phase 3 trial as a first-line treatment for non-small-cell lung cancer.

During the period analyzed, more than 60% of deals were signed at the platform discovery phase (Fig. 2), which shows companies’ confidence in securing assets at an earlier stage. With regard to therapeutic area, most deals were signed for antibody technologies and therapeutics with oncology applications, the only other notable therapeutic area was autoimmune disorders. Looking at technology type, most deals were those involving purely antibodies. However, a good proportion of deals involved antibody conjugates such as ADCs, which were the basis for multiple high-value deals noted above. Finally, 65% of deals were development and commercial licenses.

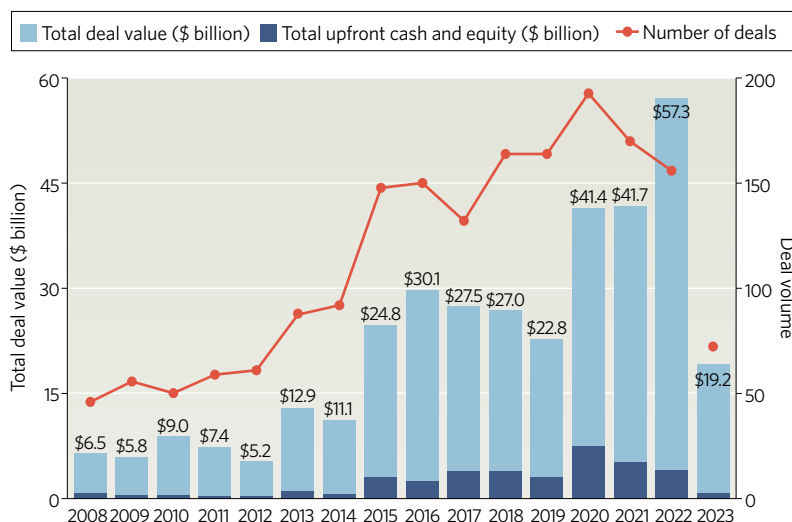
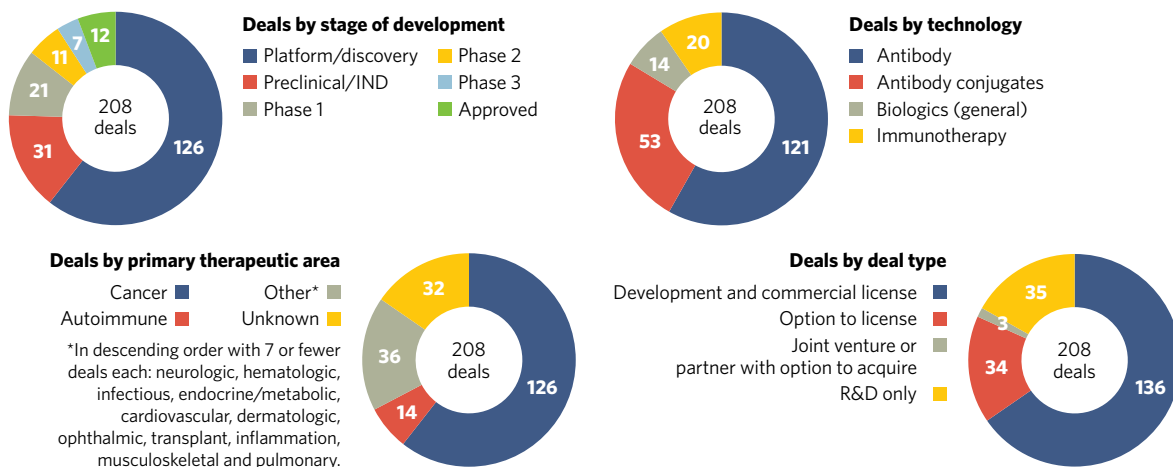


Fig. 1 | R&D partnerships for antibodies, antibody–drug conjugates and immunotherapy. Based on disclosed figures as of 16 June 2023. Source: DealForma database.

**Table 1 | Top 10 antibody deals by total disclosed deal value since January 2022**

Licensor + licensee	Date announced	Total deal value (\$million)	Summary
Kelun-Biotech + Merck & Co.	Dec 2022	9,475	Merck signs deal with Kelun-Biotech for the exclusive, worldwide rights to develop and commercialize multiple preclinical antibody-drug conjugate (ADC) therapies with an exclusive option to license additional ADCs for the treatment of cancer. Kelun-Biotech also has the option to develop and commercialize certain ADCs in China, Macau and Hong Kong. Kelun-Biotech will receive \$175 million up front, and up to \$9.3 billion in milestones.
IGM Biosciences + Sanofi	Mar 2022	6,265	Sanofi partners with IGM Biosciences to gain worldwide rights to develop agonists for three cancer and three immunology/inflammation targets by applying IGM's antibody technology platform. For the cancer targets, IGM will research and develop all three targets through the approval of the first BLA [biologics license application]. For the immunology targets, IGM will continue the development through phase 1 for up to two constructs. Sanofi will be responsible for all further development. IGM will receive \$150 million up front and is eligible to receive up to \$6.015 billion in regulatory and commercial milestones.
Akeso Biopharma + Summit Therapeutics	Dec 2022	5,000	Summit Therapeutics gains rights from Akeso to develop and commercialize ivonescimab (AK112), a PD-1/VEGF bispecific antibody for the treatment of cancer including non-small-cell lung cancer in the US, Canada, Europe and Japan. Akeso will retain rights to ivonescimab for the rest of the world including China. Through the deal, Akeso will receive \$500 million up front and is eligible for up to \$4.5 billion in development and commercial milestones.
Immunome + AbbVie	Jan 2023	2,800	Immunome signs research partnership with AbbVie to discover and develop multiple antibody targets from patients with three tumor types using Immunome's discovery engine against cancer. AbbVie has the exclusive, worldwide option to license the development and commercialization of up to ten antibody-target pairs. Immunome will receive \$30 million up front and \$70 million in platform access fees.
Adagene + Sanofi	Mar 2022	2,518	Sanofi partners with Adagene to develop and commercialize antibodies for the treatment of cancer by utilizing Adagene's SAFEbody precision masking technology. Adagene retains the ability to advance Sanofi's two initial antibody candidates, followed by an option for two additional candidates. Adagene will receive \$17.5 million up front and is eligible for up to \$2.5 billion in development, regulatory and commercial milestones, plus tiered royalties.
CytomX Therapeutics + Regeneron	Nov 2022	2,030	Regeneron signs deal with CytomX to develop and commercialize antibody-based immunotherapies by combining CytomX's Probody platform and biologic masking expertise with Regeneron's Veloci-Bi bispecific antibody platform for the treatment of cancer. CytomX will receive \$30 million up front and is eligible for up to \$2 billion in target nomination fees, development, regulatory and commercial milestones, plus single-digit to low-teen tiered royalties.
Bliss Biopharmaceutical + Eisai	May 2022	2,000	Eisai signs research partnership with Bliss to co-develop BB-1701, an ADC targeting human epidermal growth factor receptor 2 (HER2) for the treatment of cancer. Eisai has an exclusive, worldwide (excluding China) option to license the development and commercialization of BB-1701. BlissBio will receive an undisclosed upfront payment and option exercise fees and is eligible for up to \$2 billion in development and commercial milestones.
Synaffix + Amgen	Jan 2023	2,000	Amgen is to develop ADCs by using Synaffix's antibody conjugation technology platforms GlycoConnect and HydraSpace and select toxSYN linker payloads for one ADC program against cancer. Amgen retains an exclusive option to license for four extra programs. Amgen will be responsible for the R&D, development, and commercialization of the ADCs. Synaffix is eligible for up to \$2 billion in upfront and milestones.
Zymeworks + Jazz Pharmaceuticals	Oct 2022	1,763	Jazz Pharmaceuticals acquires exclusive, worldwide rights (excluding Asia/Pacific regions) to develop and commercialize Zymeworks' Zanidatamab, a HER2-targeted bispecific antibody for the treatment of biliary tract cancer. Zymeworks will receive \$50 million up front and is eligible for up to \$525 million in regulatory milestones and up to \$862.5 million in commercial milestones, plus 10-20% of tiered royalties.
MacroGenics + Gilead	14/10/2022 (Phase 1)	1,760	Gilead partners with MacroGenics for the development of MGD024, a bispecific antibody, and two additional bispecific therapies using MacroGenics' DART platform with a worldwide option to license MGD024 for the treatment of some blood cancers, including acute myeloid leukemia and myelodysplastic syndromes. MacroGenics will receive \$60 million up front and is eligible for up to \$1.7 billion in development and commercial milestones.



**Fig. 2 | Number of licensing deals for antibodies, ADCs and immunotherapies from 1 January 2022 to 16 June 2023.** Categorized by stage of development, technology, therapeutic area and deal type. Source: DealForma database.