Surge in ADC Deals Drives Oncology Dealmaking

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In recent years, antibody-drug conjugates (ADCs) have increasingly become more prominent in dealmaking in the life sciences sector, as leading industry players look to gain access to the transformative drug modalities. Notably, there was a marked increase in ADC deal volume from 2022 to 2023, with ADCs being the key drivers of several high-profile deals, particularly focused on oncology indications in the discovery and preclinical phases of development.

Introduction

ADCs are a class of therapeutic agents composed of a monoclonal antibody and cytotoxic payload, covalently attached via a chemical linker. These precision therapies can selectively target cancer cells while sparing healthy tissues, reducing off-targets effects commonly seen with conventional chemotherapeutics. ADCs are not a new technology, having been on the market now for over a decade. The first US approval was Pfizer's Mylotarg® (gemtuzumab ozogamicin) in 2000 for the treatment of acute myeloid leukemia; however, the drug was later withdrawn from the market in 2010 due to a confirmatory trial failure. The ADC era truly began from 2011 when several candidates entered the market, with some of the earliest successful entrants known to be Seagen, a subsidiary of Pfizer, and Takeda's Adcetris (brentuximab vedotin) and Roche's Kadcyla (trastuzumab emtansine).

In recent years, pharma interest in ADCs has significantly ramped up with a flurry of new drugs reaching the market. The development of next-generation ADCs which leverage novel, innovative linker technologies and conjugation methods has been key in revitalizing interest in this space. The assets have also demonstrated strong commercial potential, with blockbuster medicines such as Gilead Sciences' Trodelvy (sacituzumab govitecan) and Daiichi Sankyo and AstraZeneca's Enhertu (trastuzumab deruxtecan) driving billion-dollar sales in the oncology space. The uptick in interest can also be attributed to the fact that ADCs still maintain their value post patent expiry and due to being biologics, will be less likely to be affected by the US Inflation Reduction Act (IRA), factors which are currently challenging the growth of key industry players. Therefore, it is no surprise that ADCs have emerged as a key technology in the life sciences sector which in turn has led to the announcement of several high-profile deals driven by these modalities.

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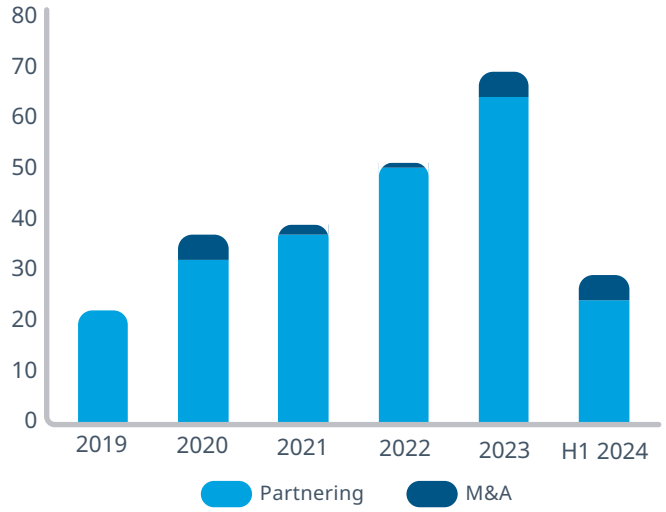
Early-stage partnerships drive ADC dealmaking

Figure 1 shows the number of mergers and acquisitions (M&A) and partnering deals involving ADC modalities and technologies announced between 2019 and the first half of 2024.

Figure 1: Number of ADC deals by deal type, 2019–H1 2024

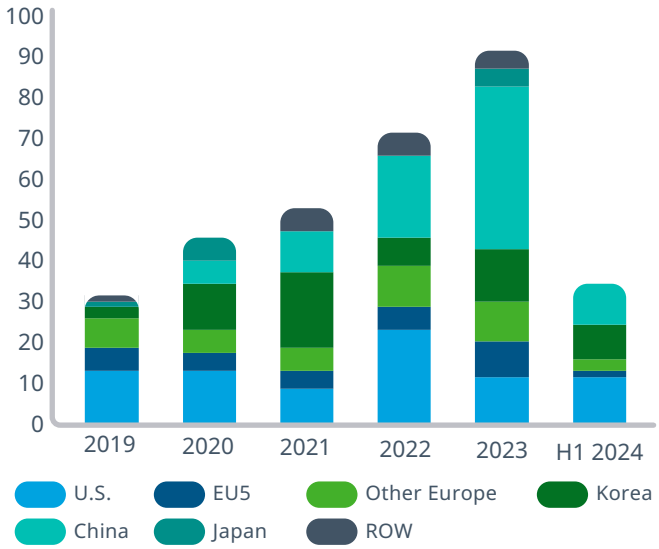


Source: IQVIA Pharma Deals.
(M&A deals: mergers, business acquisitions and divestments; Partnering deals: licensing, collaborative R&D, co-development, option to license and rights).

Notably, there was a revival in ADC M&A dealmaking in 2023 despite persistent headwinds dampening overall M&A activity in the biopharma sector. Companies were willing to sign multi-billion-dollar transactions to takeover ADC specialists, particularly those with candidates in late-stage development or technology platforms with the potential to produce whole pipelines. This momentum has continued into 2024 with already the same number of M&As announced in just H1 2024 compared to 2023. After a steady increase in the number of partnering deals from 2019 to 2021, the ADC dealmaking space witnessed an uptick in partnering activity in 2022 and 2023, with 50 and 64 deals announced, respectively. Improved linker and payload technologies as well as multi-targeted ADCs were prominent drivers of these deals.

In 2023, over 90% of ADC partnering deals were focused on oncology indications, primarily for the treatment of breast, lung and ovarian malignancies, and approximately 70% of partnering deals involved an ADC or ADC technology in the discovery or preclinical development phase. These deals commanded high deal values, with 16 partnering deals having a total potential deal value of over $1 billion USD, compared to only 9 deals in 2022 and 3 deals in 2021. Figure 2 shows the number of ADC partnering deals by territory of the out-licensing company. Interestingly, licensors based in China and Korea represented nearly 60% of partnering deals in 2023, having recently emerged as a leading force in ADC research and development as they look to secure their positions in this lucrative market. On the other hand, companies which in-licensed ADCs were mainly based in the US and Europe, accounting for over 55% of partnering deals in 2023.

Figure 2: ADC partnering deals by territory of principal company, 2019–H1 2024



Source: IQVIA Pharma Deals.
(Principal company: the company that owns the product; Partnering deals: licensing, collaborative R&D, co-development, option to license and rights).

Key M&A deals

Several established pharma companies chose M&A as a way to access ADC modalities and technologies in 2023. So far, the largest M&A deal driven by ADC assets on the Pharma Deals database is Pfizer's acquisition of Seagen announced in March 2023, at a 33% premium and total enterprise value of $43 billion. Through the acquisition, which was completed in December 2023, Pfizer gained access to Seagen's ADC technology as well as its portfolio of marketed medicines across solid tumors and hematologic malignancies, including

three ADCs: Adcetris® (brentuximab vedotin), Padcev® (enfortumab vedotin) and Tivdak® (tisotumab vedotin). With several ADCs already in its pipeline, AbbVie also joined the M&A dealmaking spree in 2023 by purchasing ImmunoGen in November for a 95% premium and total equity value of approximately $10.1 billion, gaining access to its US FDA-approved ADC Elahere (mirvetuximab soravtansine-gynx), for the treatment of platinum-resistant ovarian cancer and a pipeline of investigational ADCs.

Big pharma interest in ADC M&A showed no signs of abating in H1 2024. Johnson & Johnson (J&J) kicked off the year by purchasing ADC specialist Ambrx Biopharma in a $2 billion transaction, for access to Ambrx's synthetic biology technology platform for next generation ADCs including ARX517 for metastatic castration-resistant prostate cancer. Announcing its first business acquisition to date, Genmab agreed to buy ProfoundBio in April for $1.8 billion, picking up worldwide rights to three of ProfoundBio's ADC candidates currently in clinical development. Its lead asset, rinatabart sesutecan (Rina-S), is a next-generation, potential best-in-class Topo1 ADC targeting folate receptor alpha (FRα) in Phase II/III development for the treatment of ovarian cancer and other solid tumors, that could compete with AbbVie's Elahere if approved. Other notable ADC acquisitions in H1 2024 include Merck & Co.'s $208 million purchase of preclinical startup Abceutics and its payload-binding selectivity enhancer technology.

Key partnering deals

Despite the recent resurgence in M&A deal activity, pharma companies still preferred to enter partnering deals with innovative companies, often relying on them to carry out the initial stages of development, and only taking over once the asset has been sufficiently de-risked. Table 1 shows notable high-valued ADC partnering deals announced in 2023 and H1 2024 selected from the IQVIA Pharma Deals platform. As licensing and collaborative deals have been included in the analysis, the total deal value is unlikely to be wholly realized in most cases, which is dependent on achieving specified development and clinical milestones. As such, any publicly disclosed upfront payments are shown as they offer a much better gauge of deal terms.

The largest partnering deal of 2023 driven by ADC candidates by total potential deal value was Merck & Co.'s agreement to pay $5.5 billion upfront for three of Daiichi Sankyo's exatecan derivative (DXd) ADCs for cancer. The staggering upfront fee consisted

Table 1: Selected ADC partnering deals, 2023–H1 2024

DATE ANNOUNCED	TOTAL DEAL VALUE	UPFRONT PAYMENT	PRINCIPAL COMPANY*	PARTNERING COMPANY†	INTEREST AREA
20th October 2023	$22 billion	$5.5 billion	Daiichi Sankyo	Merck & Co.	DXd ADC candidates: patritumab deruxtecan (HER3-DXd), ifinatamab deruxtecan (I-DXd) and raludotatug deruxtecan (R-DXd)
11th December 2023	$8.4 billion	$1.3 billion	Systimmune	Bristol Myers Squibb	BL-B01D1, a potential EGFRxHER3 bispecific ADC
20th December 2023	$1.71 billion	$185 million	Hansoh Pharma	GSK	HS-20093, a B7-H3 targeted ADC utilizing a clinically validated topoisomerase inhibitor (TOPOi) payload
2nd January 2024	$1 billion	Undisclosed	MediLink Therapeutics	Roche	ADC candidate YL211, targeting c-Mesenchymal epithelial transition factor (c-Met) against solid tumors
2nd April 2024	$899 million	$50 million	Sutro Biopharma	Ipsen	STRO-003, an ROR1-targeting ADC in preclinical development

Source: IQVIA Pharma Deals.
*Principal company: the company that owns the product. †Partnering Company: the company that assists the originator company in developing the product, that pays to obtain rights to the product, or that pays to obtain a controlling interest in the product.

of $4 billion cash and $1.5 billion in continuation payments over the next 24 months, with the potential of additional payments of up to $16.5 billion contingent upon the achievement of future sales milestones, for a total potential consideration of up to an eye-watering $22 billion. After AstraZeneca bought rights to Daiichi's Enhertu in 2019 and Dato-DXd in 2020, Merck is hopeful that its three new Daiichi assets will similarly generate multi-billion-dollar revenue over the next decade, as it prepares for its post-Keytruda future.

A flurry of ADC partnering deals were announced towards the end of 2023. BMS handed over $800 million upfront and up to $500 million in contingent near-term payments to SystImmune for ex-China rights to BL-B01D1, a potentially first-in-class EGFRxHER3 bispecific ADC being investigated in non-small cell lung cancer (NSCLC) and breast cancer. GSK similarly turned to China to add further ADCs to its portfolio, paying $185 million upfront and the promise of $1.525 billion in success-based milestones to Hansoh Pharma for ex-China rights to HS-20093, a B7-H3 targeted ADC with a clinically validated topoisomerase inhibitor (TOPOi) payload. The deal came only two months after the companies signed their first partnership together, with GSK paying $85 million for HS-20089, a B7-H4 targeted ADC in Phase II clinical trials in China.

Partnering activity remained upbeat in the first half of 2024, with a continued focus on Chinese licensors. In January, Roche signed a deal worth up to $1 billion with China-based MediLink Therapeutics to develop next-generation ADC candidate, YL211, which targets c-Mesenchymal epithelial transition factor (c-Met) for the treatment of solid tumors. The deal came shortly after MediLink's collaboration with BioNTech in October 2023, also worth up to $1 billion, for the development of a next generation ADC against human epidermal growth factor receptor-3 (HER-3). Entering the ADC race for the first time, in April, Ipsen paid Sutro Biopharma $50 million upfront for a global license to STRO-003. This ADC targets the receptor tyrosine kinase-like orphan receptor 1 (ROR1) tumor antigen which is known to be overexpressed in several cancers, including solid tumors and hematological malignancies.

Outlook

Showing no signs of slowing down, the ADC market is poised for substantial growth in coming years, primarily driven by the continued uptake of marketed blockbusters such as Enhertu and Trodelvy. There are also several new generation ADCs in late-stage development that are demonstrating improved specificity and cytotoxicity, which if they reach the market, have potential to drive further growth. An example of this is AstraZeneca and Daiichi Sankyo's datopotamab deruxtecan (Dato-DXd) for previously treated metastatic HR-positive, HER2-negative breast cancer, which is currently under US FDA review with approval expected in the first quarter of 2025.

ADCs are expected to remain prominent in the oncology dealmaking landscape in H2 2024 and beyond. An early example of this in H2 2024 is Ipsen's $1 billion pact with Foreseen Biotechnology for FS001, a preclinical ADC which leverages a cleavable linker coupled to a Topo1 inhibitor which has already demonstrated first-in-class potential in multidrug-resistant cancer models. Despite the many recent advances in ADC innovation, further improvements to the design and engineering of these drugs will likely be a key focus of deals, with companies looking to optimize features such as toxicity profiles and tumor specificity.

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