

Executive Summary

Delancey Street Partners is pleased to present our Outsourced Pharmaceutical Services Sector Review for the year ended 2023. M&A activity in 2023 declined compared to 2022, primarily due to macroeconomic uncertainties and significant challenges in biotech funding, leading to project delays across clinical, commercialization, and contract manufacturing services. Public stock performance suffered in 1H 2023 as a result of these headwinds. Looking ahead, analysts believe the market is poised for recovery in 2024. Two publicly-traded CROs were taken private—Syneos was acquired by a private investor consortium (Elliot Management, Patient Square Capital, and Veritas Capital), and Ergomed was acquired by Permira. Notably, other public companies and sponsor-backed strategics took a measured approach to bolt-on acquisitions, prioritizing the expansion of their capabilities and client base. Simultaneously, privately-held companies continued to attract private equity acquirers.



Topics of Discussion

- DSP Spotlight Trend: The Rise of Cell & Gene Therapies
- Current Industry Trends
- Review of Public Company Stock Performance
- Notable M&A activity

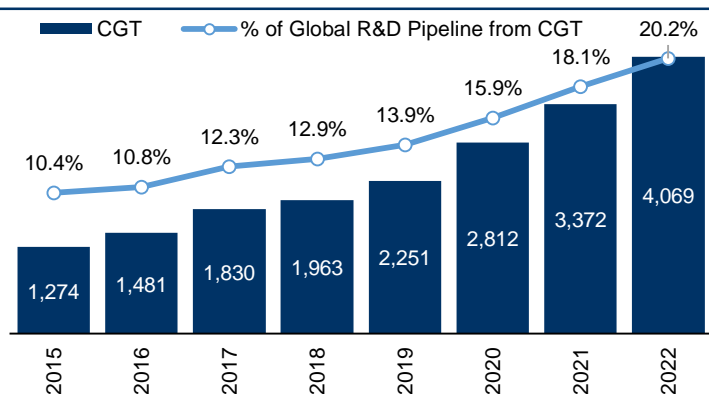
DSP Spotlight Trend: The Rise of Cell & Gene Therapies

In the outsourced pharmaceutical services industry, the advancement of cell and gene therapies (“CGT”) represents a meaningful trend reshaping the landscape of clinical research, drug development, and manufacturing. This year’s sector spotlight takes a closer look at various aspects of CGTs, examining their disruptive potential in the pharma industry and the implications for outsourced service providers who will play a pivotal role in bringing these therapies to market.

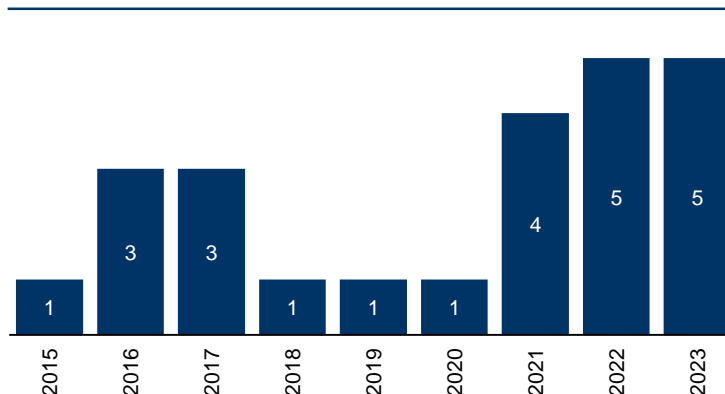
Cell and gene therapies are both classified as regenerative medicines and are considered therapeutic interventions. These products employ genetic and cellular manipulation for therapeutic ends. Cell therapy involves the administration of living cells to replace or repair damaged tissue, while gene therapy involves the introduction, alteration, or correction of genetic material. The significance of CGTs lies in their capacity for highly-targeted personalized treatments, diverging from conventional pharmaceutical approaches. These technologies hold promise for genetic disorders, cancers, and autoimmune diseases, presenting an opportunity for potentially curative outcomes.

Over the past decade, R&D in CGTs has grown markedly, becoming a focal point for drug developers. The approval of five CGTs in 2023 alone not only demonstrates a continued trend of increasing approvals but also serves as evidence of the viability and growth potential of the CGT market. The Economist Group estimates substantial growth in CGTs over the next decade, with projections of up to 100 therapies approved in the U.S. and 70 in the EU by 2031, underscoring the significant wave of therapies on the horizon ⁽¹⁾. This trend aligns with research from the Alliance for Regenerative Medicine (“ARM”), which suggests that as the clinical pipeline matures, CGTs will target diseases with larger patient populations ⁽²⁾.

Global CGT R&D Pipeline (# of modalities) ⁽³⁾



New FDA CGT Approvals (# of approvals) ⁽⁴⁾



DSP Spotlight Trend: The Rise of Cell & Gene Therapy (Cont'd)

As the pharmaceutical landscape shifts towards personalized and targeted therapies, outsourced service providers will need to develop new capabilities to remain competitive and increase market share. This imperative extends across the entire pharmaceutical value chain, from clinical research and manufacturing to commercialization. Notably, the long-term market growth of these service providers is expected to be supported by a burgeoning pipeline of CGT assets. The adoption of CGTs is reshaping value propositions across all segments of the pharma services ecosystem, including:

Clinical Research Organizations (“CROs”)

CGT trials are complex and protracted, with 577 gene therapies currently progressing through Phase I – III trials as of Q4 2023. Notably, around 72% of these therapies remain in the preclinical stages ⁽⁵⁾. Recognizing the evolving landscape, CROs are augmenting their expertise to effectively navigate early-phase, clinical-stage, and post-approval activities unique to CGTs. This requires advanced capabilities encompassing study design, safety testing / assessments, and rare disease patient recruitment, as well as an adept understanding of distinctive regulatory frameworks. In addition, CROs will need to provide comprehensive patient support throughout lengthy five to 15-year follow-up periods. To address this, CROs are expanding their patient engagement, advocacy, and education services to enhance patient retention and optimize study outcomes.

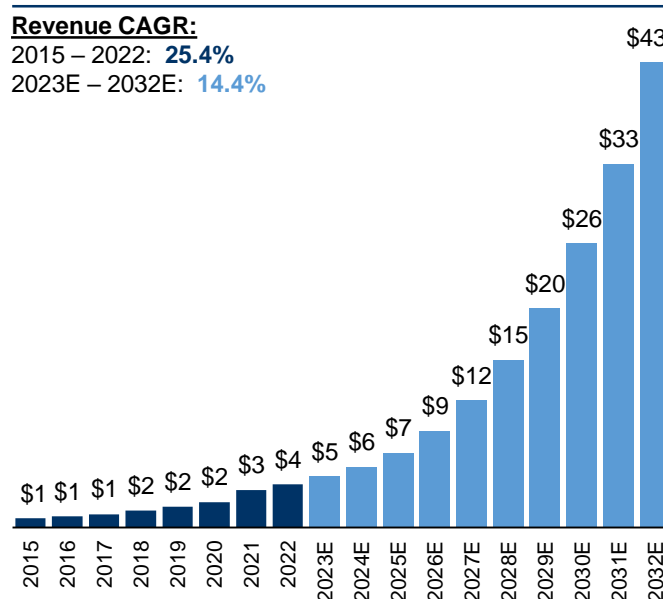
Gene Therapy Pipeline by Clinical Phase ⁽⁵⁾

Global Status	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023
Preclinical	1,515	1,493	1,539	1,522	1,528
Phase I	264	245	240	256	270
Phase II	248	247	260	267	274
Phase III	30	30	30	30	33
Pre-registration	6	7	6	7	6
Total	2,053	2,022	2,075	2,082	2,111

Contract Development & Manufacturing Organizations (“CDMOs”)

CGTs necessitate highly complex manufacturing solutions to meet individual therapy requirements. The market for CGT CDMO services is projected to grow from \$5.0 billion in 2023 to \$43.0 billion in 2032, reflecting a CAGR of 14.4% ⁽³⁾. ISR’s 2023 study reveals that drug developers are primarily engaging with CDMOs to augment in-house CGT manufacturing supply chains. Key outsourced services include process development, scalable manufacturing processes, fill-finish, clinical supply logistics, analytical development, and formulation ⁽⁶⁾.

CGT CDMO Market Growth (\$ in billions) ⁽³⁾



While select biopharma companies are investing in internal manufacturing capacity, the majority of drug developers foresee partnering with two or three CDMOs to address rising demand. Notably, expertise in therapeutic areas and cost-containment remain primary criteria for securing CGT projects from drug developers. High average dosage costs ranging between \$1.0 million and \$2.0 million continue to limit patient access. Costs are further exacerbated by the need for cryogenic temperatures during transportation, as CGTs must be stored and transported at extremely low temperatures to ensure their viability and efficacy ⁽⁶⁾.

Commercialization Services

The integration of CGTs into healthcare systems presents a significant market opportunity for commercialization service providers. Predicting CGT adoption is challenging due to limitations in medical / pharmacy claims data and rare disease diagnosis, necessitating the expertise of commercialization service providers to develop effective product launch, market access, and medical affairs strategies. Moreover, the reimbursement landscape for CGTs is characterized by substantial upfront costs, extended follow-up requirements, and long-term efficacy uncertainties. The potentially curative outcomes of CGTs demand innovative pricing strategies that not only consider upfront costs but also educate payers and providers on how these therapies can lead to long-term cost savings and improved patient outcomes compared to traditional medicines.

Furthermore, current dosage pricing creates barriers to patient access, hampering their ability to benefit from these therapies. As patient registries expand and real-world data becomes accessible, real-world evidence services will be crucial in assessing patient outcomes. As CGT assets gain FDA approval and the market expands, commercialization partners will play an increasingly vital role in developing market access, pricing strategies, and enhancing the patient journey.

DSP Spotlight Trend: The Rise of Cell & Gene Therapy (Cont'd)

CGT Drug Developer Transaction Activity

Pharmaceutical and biopharmaceutical companies are pursuing strategic M&A to secure a competitive edge and fortify their pipelines. As the pharma industry faces impending patent cliffs for several blockbuster drugs, companies are leveraging acquisitions to replenish their portfolios with innovative CGT assets. The select number of CGTs progressing through clinical trials and gaining regulatory approvals presents a unique opportunity for companies to position themselves as leaders in the emerging CGT market. Acquiring CGT assets provides access to cutting-edge therapies at various stages of the drug development lifecycle.

Aside from M&A, start-up funding and IPOs have traditionally been a significant source of capital for new biotechs, enabling them to fund operations through key clinical milestones. However, in 2023, Series A venture funding experienced a notable decline due to investor caution in evaluating high-risk, new modality therapies. Investors increasingly focused on supporting portfolio companies with proven progress.

What This Means

The rise of CGTs is creating significant growth opportunities for pharma services providers. As CGTs continue to reshape the landscape, M&A will be a strategic imperative for pharma services companies to augment therapeutic expertise and broaden their service offerings. As pharmaceutical and biotech companies gravitate toward providers with scale — entities capable of fulfilling a comprehensive suite of needs — acquisition targets offering specialized services required for CGT will garner significant attention.

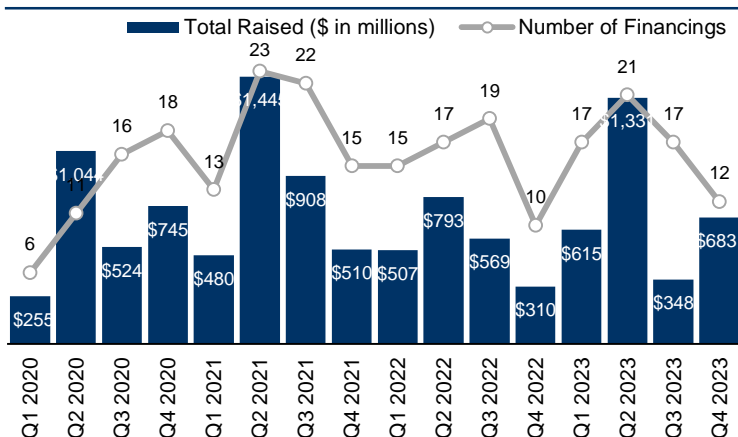
Recent CGT M&A

Date	Target	Acquiror	Value (\$ in millions)
Nov-23	FORGE BIOLOGICS	Ajino-Moto	\$620
Oct-23	Orchard therapeutics	GYOWA KIRIN	\$387
Sep-23	TRAMONTANE TX	Kriya	Undisclosed
Aug-23	serina therapeutics	AGEX THERAPEUTICS	Undisclosed
Jul-23	REGENERON*	DECIBEL THERAPEUTICS	\$213
Jul-23	QUINCE THERAPEUTICS	EryDel	\$485
Jul-23	neoleukin THERAPEUTICS	NEUROGENE	Undisclosed
Jul-23	DTX PHARMA	NOVARTIS	\$1,000
Jul-23	FREQUENCY THERAPEUTICS	KORRO	Undisclosed
June-23	sigilon therapeutics	Lilly	\$37

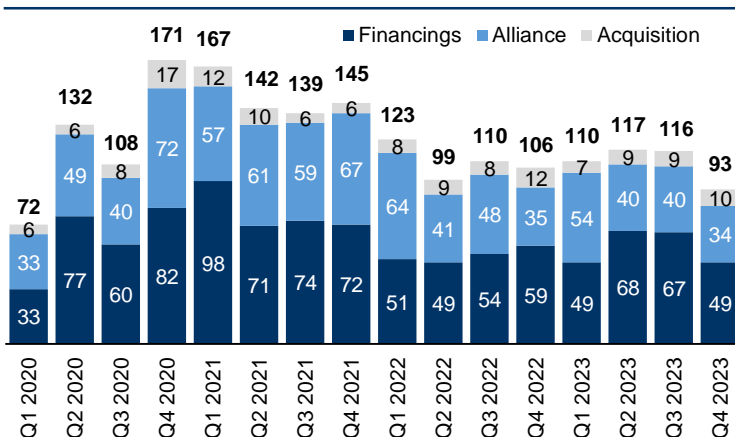
Top 100 CGT Drug Developers



CGT Series A and Seed Funding (5)



Total Number of CGT Transactions by Type (5)



Current Industry Trends

In 2023, the pharmaceutical and biotech industry grappled with challenges stemming from economic uncertainty, inflationary pressures, and rising interest rates, posing obstacles for both drug developers and outsourced pharma services companies. Despite a long-term positive sector outlook, a convergence of factors presented distinctive challenges in 2023:

Biotech Funding

As highlighted in our *2021 Year-in-Review*, a notable trend emerged over the past decade as small pharma and biotechs increasingly opted for independence over acquisitions or in-licensing with larger pharma counterparts. This momentum persisted through 2021 and 2022, fueled by favorable capital markets. However, macroeconomic uncertainties in 2023, including rising interest rates and recessionary concerns, resulted in a decrease in investor interest in public capital markets for biotechs.

Consequently, a surge in demand for funding emerged among biotech companies facing a dwindling pool of funding sources. This capital shortage prompted cautious spending, resulting in pipeline prioritization, restructuring, and bankruptcies. These dynamics led to pipeline cuts and layoffs across the sector, with over 100 biotech companies implementing workforce reductions in 2023.

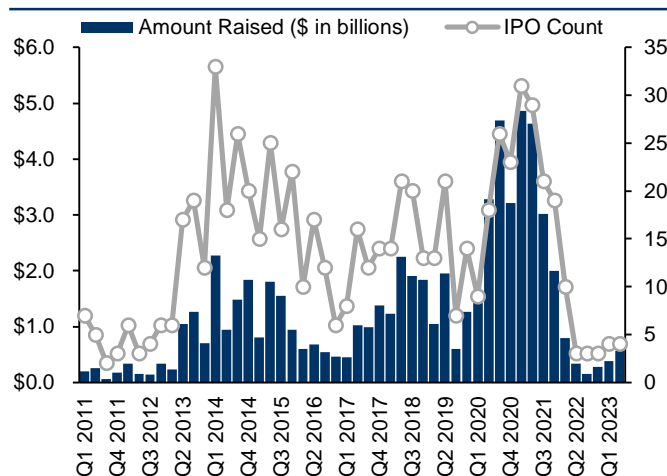
Cash-constrained biotechs introduced project delays. This shift involved discernible cutbacks in spending, encompassing areas such as discretionary commercialization, as well as earlier-phase clinical development and preclinical discovery work. Biotechs conserved resources for assets in Phase II and III stages that are nearest to valuation milestones. This reprioritization had discernible impacts on market demand, notably affecting commercialization service providers. Consequently, data analytics services experienced a downturn, although the demand for real-world evidence in late-stage trials remained stable due to ongoing regulatory requirements.

The repercussions of these changes were felt throughout the supply chain, touching even the equipment manufacturers vital to drug developers and CDMOs, thus presenting challenges for these stakeholders in managing delays and maintaining their operations.

Pharma Services M&A Activity

Funding pressures contributed to a subdued M&A environment for middle market pharma services companies in 2023. A recent report from MM+M cited M&A activity for commercialization services was down ~70.0% in 1H 2023 from the prior year. Throughout 2023, private equity buyers adopted a more selective approach, prioritizing add-on acquisitions to bolster existing portfolio company capabilities. Sellers chose to delay going to market, opting to wait for more favorable conditions and execute on internal initiatives before launching a process. Notable transactions in 2023 tended to be larger, take-private transactions including Permira's take-private of Ergomed and Syneos' take-private by a private investor consortium. Large public companies have recently pointed towards several indicators suggesting a rebound in M&A due to reduced macroeconomic uncertainty. Industry participants expect 2024 M&A activity to outpace 2023.

Biotech IPOs by Quarter ⁽⁷⁾



Recent Market Commentary ⁽⁸⁾

“ I think CROs have been somewhat insulated from other reductions that we've seen in R&D because people are still keen to get through with their Phase II and III developments. Biotechs had a torrid time of it from '22 into '23, funding levels have been down. I do think what we've seen is stabilization in their marketplace from a funding environment perspective.

ICON – Brendan Brennan, CFO
Evercore ISI Conference, 11/29/2023

“ We have seen about 2/3 of large pharma announce in one way or another that they are looking to make some budget cuts, typically focused on short-cycle promotional spending. The business that has been most affected of ours is the consulting and analytics business. A lot of that work flows out of new product launches.

Ultimately, we think it will come back because it involves issues like profiling segmentation, targeting of doctors, launch planning and things of that nature that needs to get done. The clinical trial business is inherently a long-cycle business. It has a lot of momentum.

IQVIA – Ronald Bruehlam, CFO
Evercore ISI Conference, 11/29/2023

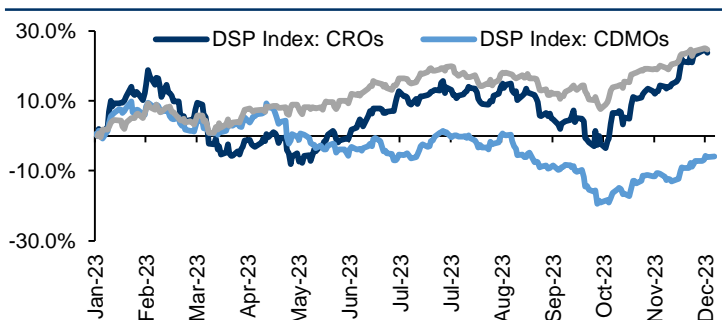
Review of Public Company Stock Performance

In this year's report, we have removed both Syneos and Ergomed from our CRO compset due to their respective take-private transactions and their subsequent delisting. Furthermore, we have added Fortrea (NASDAQ:FTRE) to our CRO compset in recognition of LabCorp's completed spinoff of its CRO division in July 2023. As a result of this spin-off, we have excluded LabCorp (NYSE: LH) from our CRO compset due to the company's focus on diagnostics and exit from pharma services.

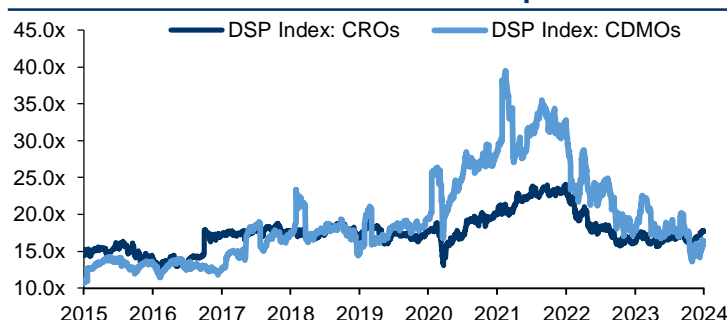
In 2023, CRO stocks outperformed CDMOs, with an average annual return of 23.8% compared to -5.9%. CROs closely tracked the performance of the S&P 500, which had an annual return of 24.7%. The divergence in performance with CDMOs can be attributed to the longer-tail nature of clinical trials favoring CROs, while CDMOs faced challenges related to large fixed expenses and excess manufacturing capacity. Other factors influencing performance of the sector included: (i) lower growth in early-stage pharma services due to significant decreases in biotech funding; (ii) decreases in pharma R&D budgets; and (iii) broader macroeconomic uncertainty in conjunction with rising interest rates. Notably, CRO and CDMO stocks rallied in Q4 2023. This rally was due to two key factors, including: i) increasing clinical trial starts and ii) recovering investment in biotech funding. The biotech funding environment is improving due to lower interest rate expectations, which support increases in small-cap biotech valuations. Both of these developments signal a positive trend for 2024 and have significantly increased investor confidence.

EV / EBITDA multiples for CROs remained relatively stable throughout 2023 following the decline in 2022. In contrast, CDMO valuations declined in 2023, marking the first time they have traded below CROs since 2019, primarily due to their underperformance. Having receded from the peaks in 2020 and 2021, valuations for both subsectors are now trading near pre-pandemic levels. Despite valuations facing short-term headwinds, investors maintain confidence in the favorable long-term industry tailwinds and anticipate positive market growth, which is expected to lead to a recovery in 2024.

One Year Stock Performance (9) (10) (11)








Historical EV / LTM EBITDA Multiple (9) (10) (11)



Comparable Company Analysis: Outsourced Pharma Services (9)

CROs														
Company	Price	30 Day	YTD	Market	Enterprise	2023E	2023E	EV /			EV /			P / E
	12/29/2023	% Change	% Change	Value (\$mm)	Value (\$mm)	Gross % Margin	EBITDA % Margin	LTM	2023E	2024P	LTM	2023E	2024P	2024P
Charles River Laboratories (NYSE:CRL)	\$236.40	19.9%	8.5%	\$12,126.6	\$14,921.4	36.5%	24.8%	3.5x	3.6x	3.5x	15.3x	14.7x	14.2x	21.6x
Fortrea (NASDAQ:FTRE)	34.90	18.2%	15.9%	3,099.1	4,675.5	17.2%	8.7%	1.5x	1.5x	1.5x	17.9x	17.3x	14.8x	24.6x
ICON (LSE:ICON)	283.07	6.0%	45.7%	23,304.3	27,186.3	29.5%	20.6%	3.4x	3.3x	3.1x	17.5x	16.2x	14.9x	19.1x
IQVIA (NYSE:IQV)	231.38	8.2%	12.9%	42,226.9	54,742.9	35.0%	23.9%	3.7x	3.7x	3.5x	20.2x	15.4x	14.4x	20.9x
Medpace (NASDAQ:MEDP)	306.53	12.7%	44.3%	9,405.4	9,473.5	27.7%	19.0%	5.3x	5.0x	4.4x	27.0x	26.4x	23.4x	29.5x
Overall Group Mean		13.0%	25.5%	\$18,032.4	\$22,199.9	29.2%	19.4%	3.5x	3.4x	3.2x	19.6x	18.0x	16.3x	23.1x
Overall Group Median		12.7%	15.9%	12,126.6	14,921.4	29.5%	20.6%	3.5x	3.6x	3.5x	17.9x	16.2x	14.8x	21.6x
Overall Group Max		19.9%	45.7%	42,226.9	54,742.9	36.5%	24.8%	5.3x	5.0x	4.4x	27.0x	26.4x	23.4x	29.5x
Overall Group Min		6.0%	8.5%	\$3,099.1	\$4,675.5	17.2%	8.7%	1.5x	1.5x	1.5x	15.3x	14.7x	14.2x	19.1x
CDMOs														
Catalent (NYSE:CTLT)	\$44.93	13.5%	(0.2%)	\$8,116.2	\$12,864.2	24.4%	14.8%	3.0x	3.0x	2.9x	23.3x	18.6x	17.8x	N.M
EUROAPI (EPA: EAP)	6.33	24.1%	(54.3%)	601.1	782.3	17.3%	9.8%	0.8x	0.7x	0.7x	8.0x	7.3x	6.0x	15.9x
Lonza Group (SWX:LONN)	420.04	22.9%	(7.3%)	31,201.4	32,182.3	36.9%	29.1%	4.8x	4.4x	4.4x	16.2x	15.3x	15.5x	29.8x
Samsung Biologics (KRX: 207940)	586.08	3.9%	(9.9%)	42,007.2	54,470.5	48.2%	39.8%	N.M	N.M	N.M	N.M	N.M	N.M	N.M
Siegfried Holding (SWX:SFZN)	1,020.71	13.1%	53.8%	4,335.4	4,857.1	24.3%	21.0%	3.6x	3.4x	3.2x	14.8x	16.3x	14.9x	24.5x
Thermo Fisher Scientific (NYSE:TMO)	530.79	7.7%	(3.6%)	205,082.6	234,503.6	41.4%	25.3%	5.4x	5.5x	5.5x	21.6x	21.7x	21.5x	23.9x
WuXi AppTec (SHSE:603259)	10.26	(12.7%)	(12.6%)	30,462.6	29,580.8	39.7%	33.1%	5.1x	5.2x	4.3x	16.5x	15.9x	13.0x	17.9x
Overall Group Mean		10.4%	(4.9%)	\$45,972.3	\$52,748.7	33.2%	24.7%	3.8x	3.7x	3.5x	16.7x	15.9x	14.8x	22.4x
Overall Group Median		13.1%	(7.3%)	30,462.6	29,580.8	36.9%	25.3%	4.2x	3.9x	3.8x	16.4x	16.1x	15.2x	23.9x
Overall Group Max		24.1%	53.8%	205,082.6	234,503.6	48.2%	39.8%	5.4x	5.5x	5.5x	23.3x	21.7x	21.5x	29.8x
Overall Group Min		(12.7%)	(54.3%)	\$601.1	\$782.3	17.3%	9.8%	0.8x	0.7x	0.7x	8.0x	7.3x	6.0x	15.9x

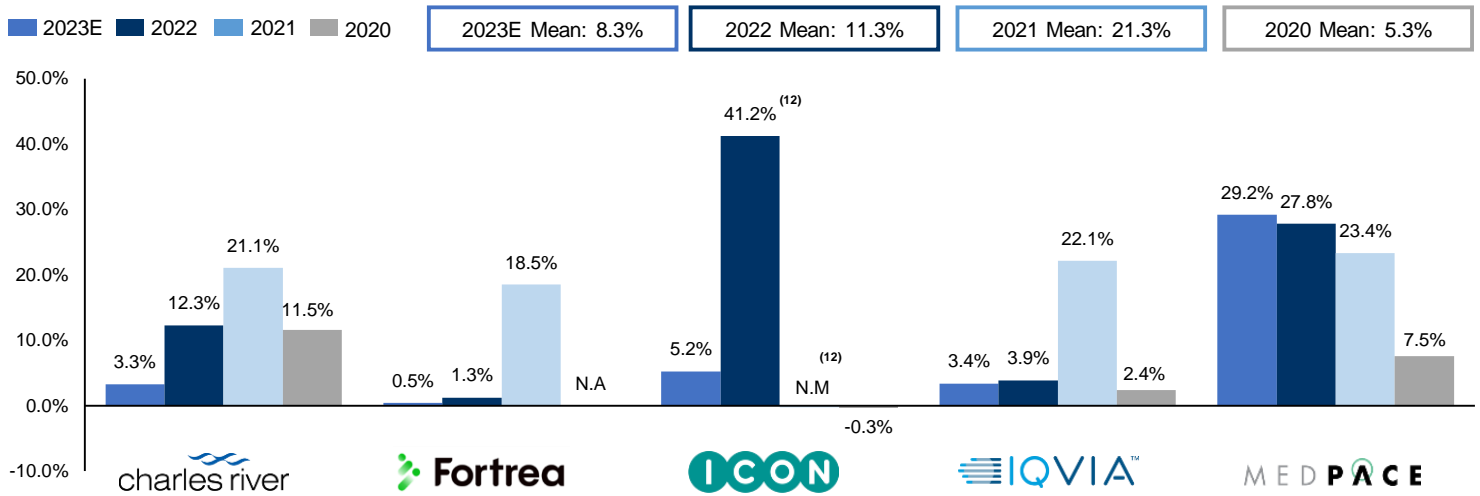
Stock Performance Commentary: CROs

		<ul style="list-style-type: none"> • Stock return of 8.5% • Charles River Laboratories reported revenue growth of 3.8% YoY in Q3 2023; Management cited the DSA segment grew 7.2% YoY, due to increases in pricing and growing clinical trial volumes • The company saw a favorable impact from fewer study cancellations in the Safety Assessment business in Q3 2023 than compared to earlier projections • Management noted signs of improving demand trends. However, pressure on existing client spending has negatively impacted the microbial solutions, discovery services, and manufacturing businesses
Stats		
2023E Sales:	\$4,107mm	
2023E EBITDA:	\$1,017mm	
EBITDA %:	24.8%	
		<ul style="list-style-type: none"> • Stock return of 15.9% • Fortrea began NASDAQ trading on July 3, 2023, following the completion of Labcorp's spin-off of its Contract Research Organization division • Fortrea reported revenue growth of 1.8% YoY in Q3 2023; Management attributed the growth to the recovery of demand for Fortrea's services and several large new wins, accompanied by growing bookings and a strengthened backlog (\$7.1 billion) • Management has underscored the potential for further margin enhancement as they diligently work towards optimizing the cost structure of the legacy infrastructure inherited from the spin-off.
Stats		
2023E Sales:	\$3,111mm	
2023E EBITDA:	\$271mm	
EBITDA %:	8.7%	
		<ul style="list-style-type: none"> • Stock return of 45.7% • ICON reported revenue growth of 5.8% YoY in Q3 2023; Management cited that the growth was a result of accelerated demand for clinical development services, as evidenced by an improved net book-to-bill ratio, which rose to 1.26x, indicating strong future prospects and a healthy pipeline moving into 2024 • The company reported Q3 adjusted EBITDA of \$432.5 million, a 13.9% increase YoY • In Q3 2023, ICON experienced positive momentum with gross business wins totaling \$2,581 million; Furthermore, the company reported a record closing backlog of \$22.2 billion, an increase of 10.0% YoY
Stats		
2023E Sales:	\$8,148mm	
2023E EBITDA:	\$1,675mm	
EBITDA %:	20.6%	
		<ul style="list-style-type: none"> • Stock return of 12.9% • IQVIA reported revenue growth of 4.9% YoY in Q3 2023; Management noted that RFP flow was up 10.0% YoY with growth across all customer segments, supported by improving biotech funding • The company's R&DS revenue grew by 9.2% YoY, and the R&DS backlog reached \$28.8 billion in Q3 2023, indicating an 11.7% YoY growth; Additionally, IQVIA expects approximately \$7.4 billion of their backlog to convert to revenue in the next twelve months, equating to a 25.7% conversion rate • IQVIA achieved record bookings of \$2.6 billion, representing a book-to-bill ratio of 1.24x, which management cites as an indication of a healthy future pipeline lined with new opportunities
Stats		
2023E Sales:	\$14,903mm	
2023E EBITDA:	\$3,565mm	
EBITDA %:	23.9%	
		<ul style="list-style-type: none"> • Stock return of 44.3% • Medpace reported revenue growth of 28.3% YoY in Q3 2023; Management cited net new business awards were \$611.5 million, representing a 29.9% YoY increase, and an ending backlog of \$2.7 billion, a 20.3% increase YoY • On a constant currency basis in Q3 2023, EBITDA rose 2.7% to \$90.2 million (18.3% of revenue), compared to \$89.3 million (23.3% of revenue) in Q3 2022 • Medpace's stock rose by 19.7% on October 24th following reporting a significant earnings beat. Analyst expectations for Medpace's EPS were at \$2.04, with the company surpassing those estimates with a reported EPS of \$2.22, leading to a positive surprise • Medpace stated that it is poised to convert \$1.5 billion of the current backlog into revenue within FY 2024, equating to a 54.3% conversion rate over the next twelve months
Stats		
2023E Sales:	\$1,886mm	
2023E EBITDA:	\$358mm	
EBITDA %:	19.0%	

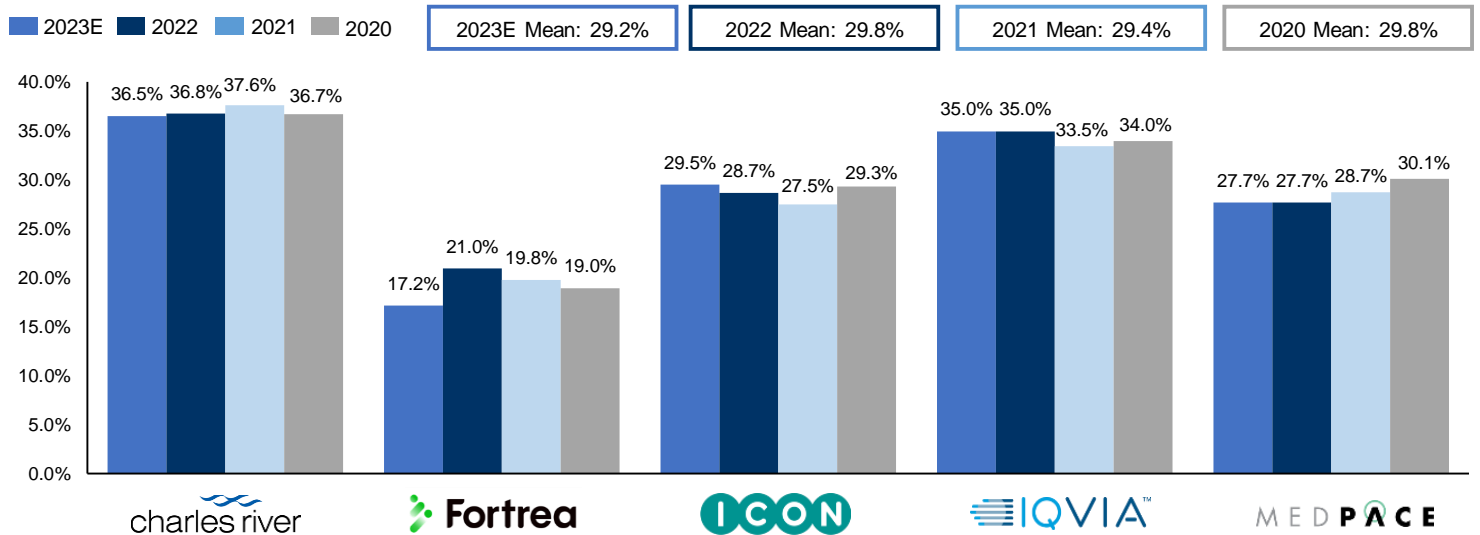
Stock Performance Commentary: CDMOs

		<ul style="list-style-type: none"> • Stock return of -0.2% • Catalent reported revenue decrease of -6.0% YoY in Q3 2023; Management cited headwinds in their biologics segment, along with stagnant growth among their pharma & consumer health segment, which grew 4% YoY in FY Q1 2024 • In Q2 2023 Catalent decreased its full-year forecasts for profit and sales and delayed reporting its quarterly results for the third time. Additionally, management disclosed significant regulatory and productivity challenges at three prominent production facilities, including two of the company's largest contract manufacturing sites. These developments exerted downward pressure on Catalent's stock price
Stats		
2023E Sales:	\$4,263mm	
2023E EBITDA:	\$629mm	
EBITDA %:	14.8%	
		<ul style="list-style-type: none"> • Stock return of -54.3% • EUROAPI reported revenue growth of 2.6% YoY in H1 2023; Management attributed the revenue growth to robust expansion in the CDMO segment, reflecting YoY growth of 9.8% • The company cited a weakened EBITDA margin of 12.6%, down from 14.5% in H1 2022, mainly due to negative impacts from the suspension of prostaglandin production over H1 2023 • In 2023, EUROAPI began to execute its commercial roadmap and key projects for sustainable growth. Notably, the company announced in November 2023 the \$10.8 million acquisition of BiancoGMP to strengthen EUROAPI's expertise in the high-growth oligonucleotide market
Stats		
2023E Sales:	\$1,089mm	
2023E EBITDA:	\$107mm	
EBITDA %:	9.8%	
		<ul style="list-style-type: none"> • Stock return of -7.3% • Lonza reported revenue growth of 5.6% YoY for H1 2023; Management attributed the growth to sustained demand for commercial CDMO services in the Biologics division and strong performance in the Small Molecules division • In H1 2023, the Small Molecules division outperformed expectations and registered YoY sales growth of 36.5% • Management anticipates FY 2023E revenue growth between 3.0% and 5.0%, primarily due to headwinds in the API Solutions and CDMO segments. Key challenges encompass pricing pressure and project delays linked to biotech funding constraints throughout 2023
Stats		
2023E Sales:	\$7,235mm	
2023E EBITDA:	\$2,105mm	
EBITDA %:	29.1%	
		<ul style="list-style-type: none"> • Stock return of -9.9% • Samsung Biologics reported consolidated revenue growth of 18.0% YoY for Q3 2023; Management cited strong performance, attributing it to the revenue contribution from the full operation of Plants 1 through 3 and the successful ramp-up of fully-operational Plant 4. Additionally, the company is currently building Plant 5, which is slated to become operational in April 2025 • The company found success in their CDMO segment, with cumulative contracts surpassing \$11.8 billion, representing a 24.2% increase from 2022
Stats		
2023E Sales:	\$2,794mm	
2023E EBITDA:	\$1,113mm	
EBITDA %:	39.8%	
		<ul style="list-style-type: none"> • Stock return of 53.8% • Siegfried reported revenue of 6.8% YoY for 1H 2023; Management attributed the company's resilience to its diverse product portfolio and robust business model, which serve as effective shields against market headwinds • On May 4, 2023, the company acquired DiNAMIQS, a gene therapy CDMO start-up, aimed at bolstering its viral vector capabilities for cell and gene therapies. This strategic acquisition led to a 3.0% increase in the company's share price • Management estimates mid-single-digit percentage sales growth with a core EBITDA margin above 20% for FY 2023
Stats		
2023E Sales:	\$1,417mm	
2023E EBITDA:	\$297mm	
EBITDA %:	21.0%	
		<ul style="list-style-type: none"> • Stock return of -3.6% • Thermo Fisher Scientific reported a revenue decrease of -1.0% YoY for Q3 2023; Management cited growth was inhibited by the combination of a more difficult macro environment and a resulting caution in customer spend as well as a deterioration in the Chinese economy • Management noted that 51.3% of trailing-twelve month revenue as of Q3 2023 is attributable to its biopharma services and lab products segment, including CDMO services and clinical research • In early Q4 2023, the company announced the \$3.1 billion acquisition of Olink Holding AB (Nasdaq: OLK). Olink's proteomic solutions complement Thermo's capabilities in mass spectrometry and life sciences
Stats		
2023E Sales:	\$42,764mm	
2023E EBITDA:	\$10,810mm	
EBITDA %:	25.3%	
		<ul style="list-style-type: none"> • Stock return of -12.6% • Excluding COVID-19 commercial projects, WuXi AppTec reported YoY revenue growth of 15.7% for Q3 2023 and a 23.4% increase in revenue for the first three quarters of 2023 compared to the same period in 2022; Management cited growth was a result of growing demand in the global CDMO market, indicated by their growing pipeline and expanded customer base • Additionally, WuXi Chemistry's revenue for Q1-Q3 grew by 31.0%, excluding COVID-19 commercial projects, serving as a key growth driver heading into 2024 • Due to lower than expected demand for early-stage drug discovery services, the company stated that revenue from lab service-related businesses will be significantly below their initial estimates
Stats		
2023E Sales:	\$5,640mm	
2023E EBITDA:	\$1,866mm	
EBITDA %:	33.1%	

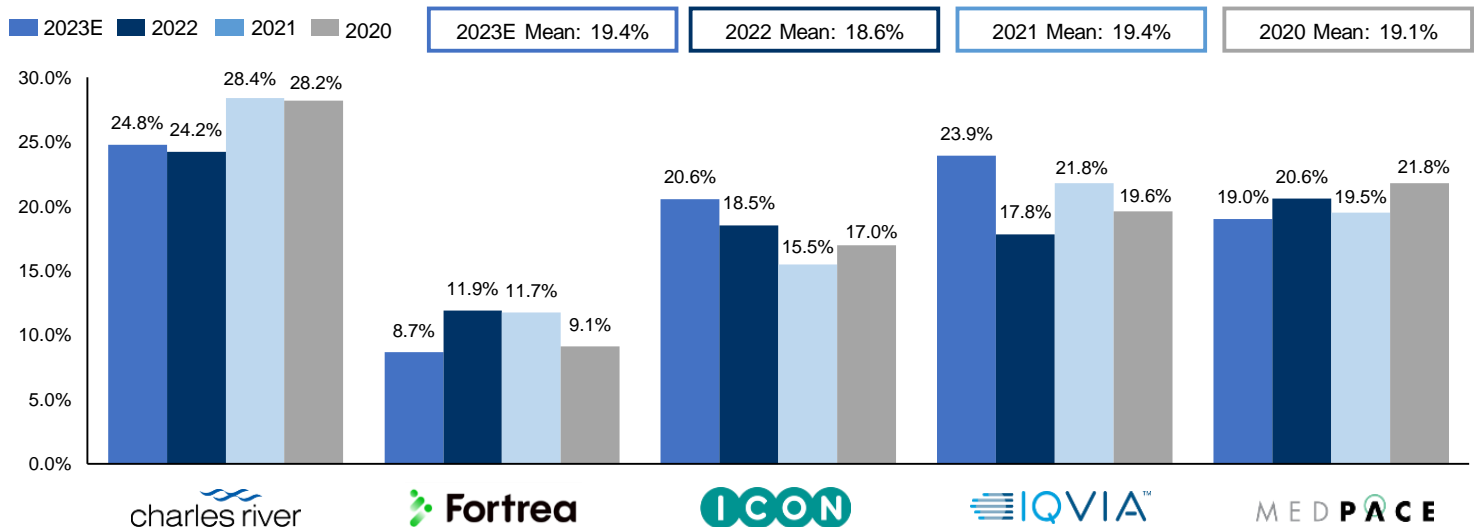
Revenue Growth of CROs ⁽⁹⁾ ⁽¹²⁾



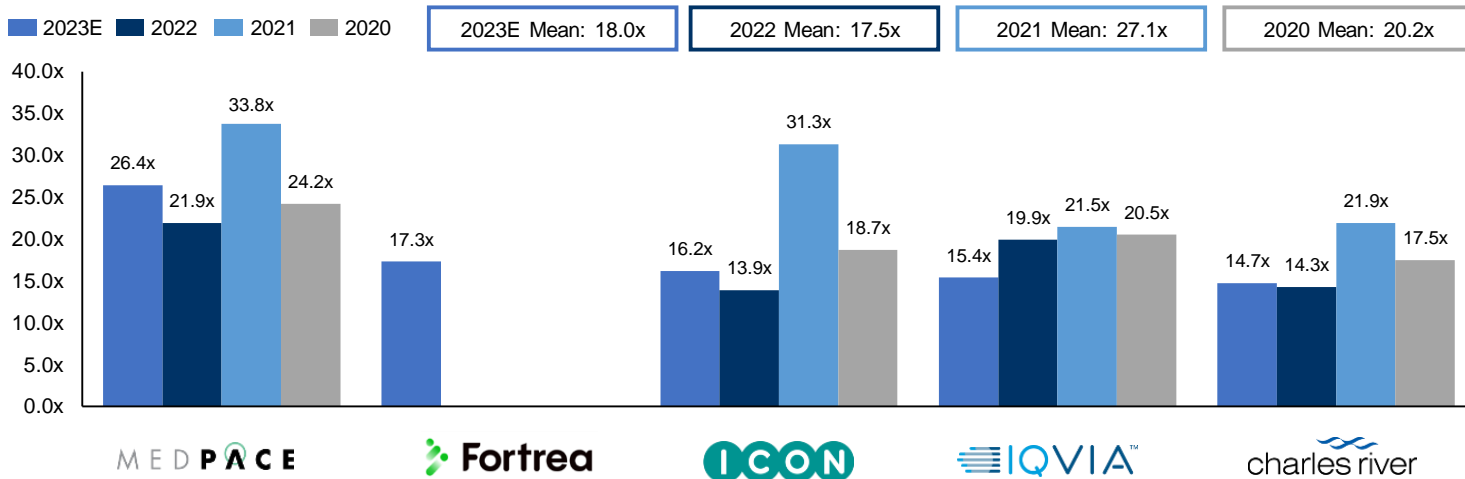
Gross Profit Margins of CROs ⁽⁹⁾



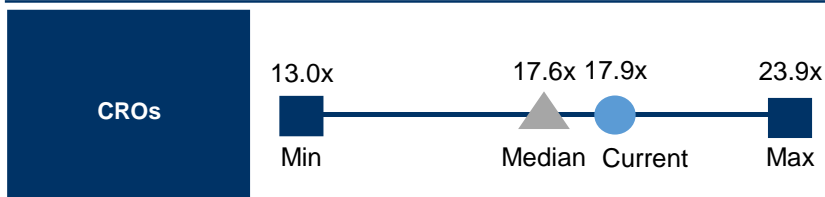
EBITDA Margins of CROs ⁽⁹⁾



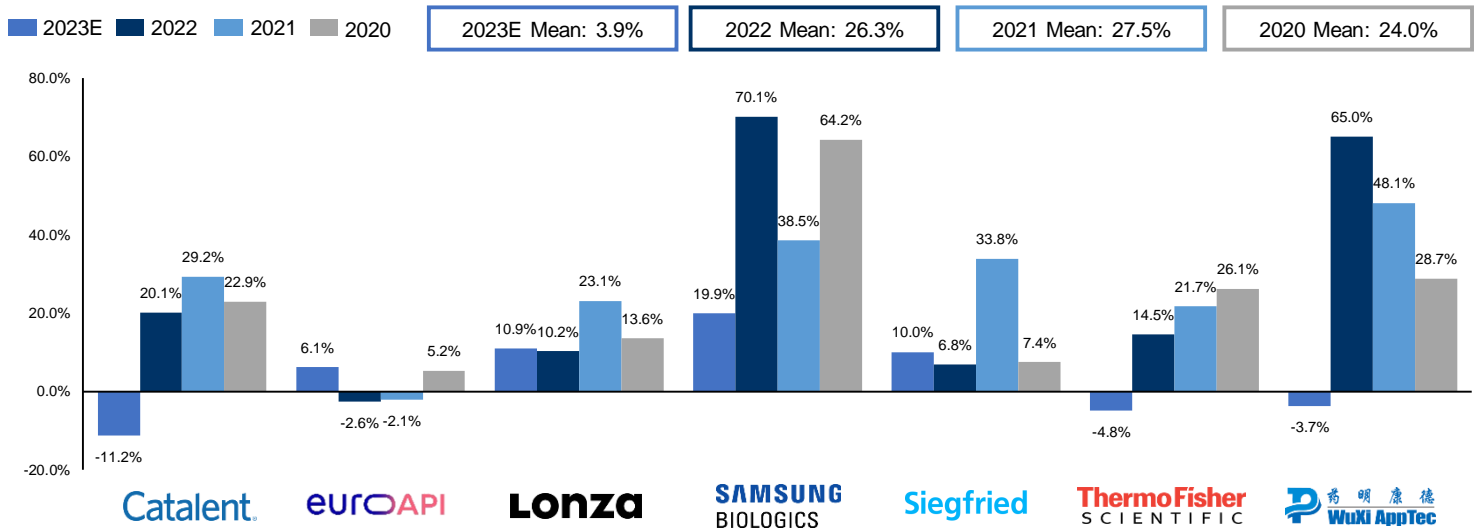
EV / EBITDA of CROs ⁽⁹⁾ ⁽¹³⁾



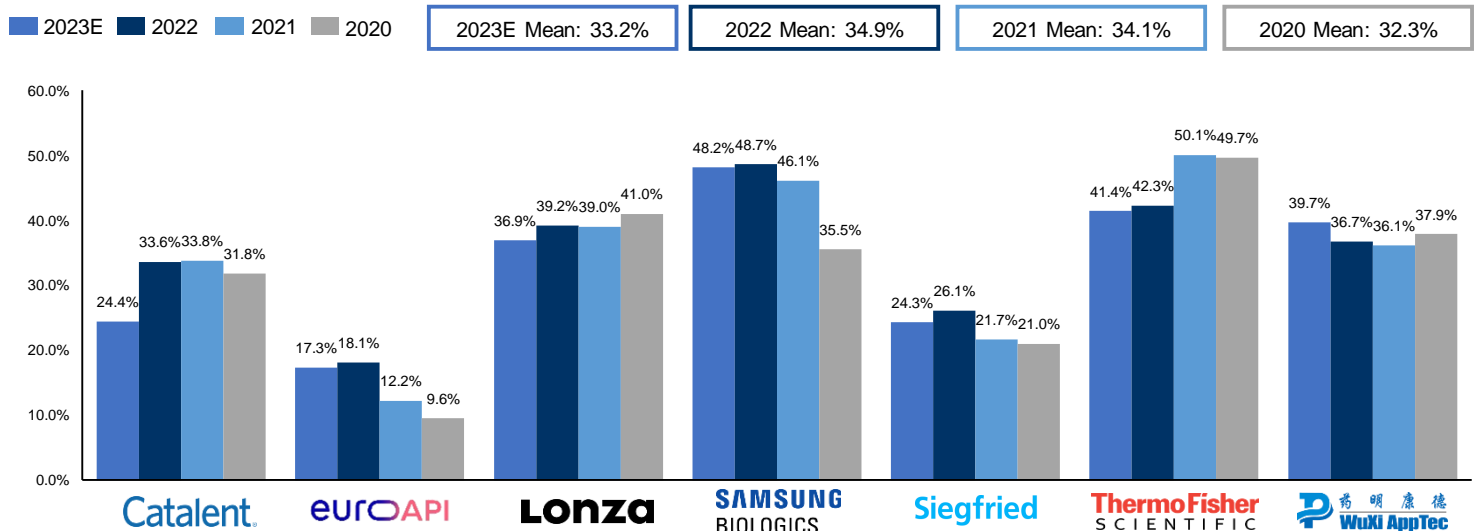
CRO 5-Year Trading Statistics (Median EV / LTM EBITDA) ⁽⁹⁾ ⁽¹⁰⁾



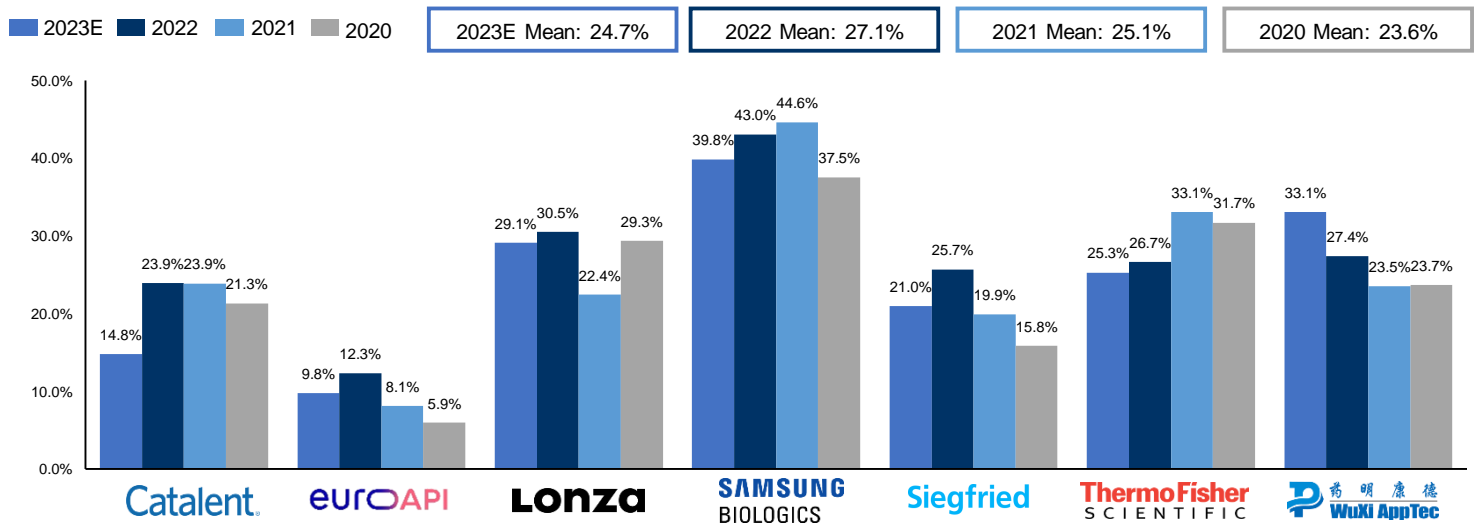
Revenue Growth of CDMOs (9)



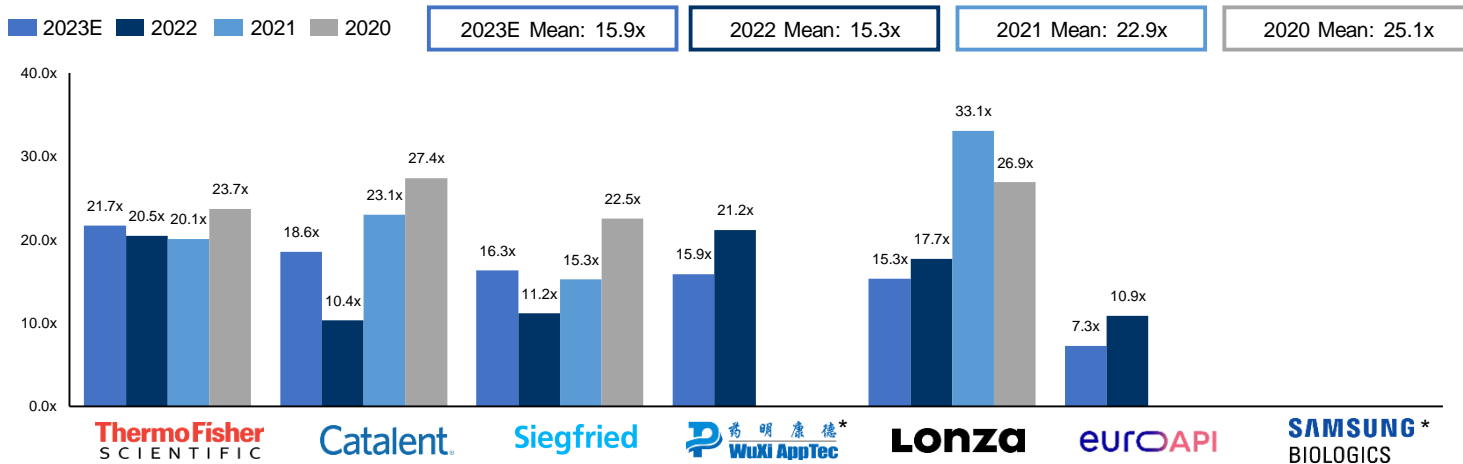
Gross Profit Margins of CDMOs (9)



EBITDA Margins of CDMOs (9)

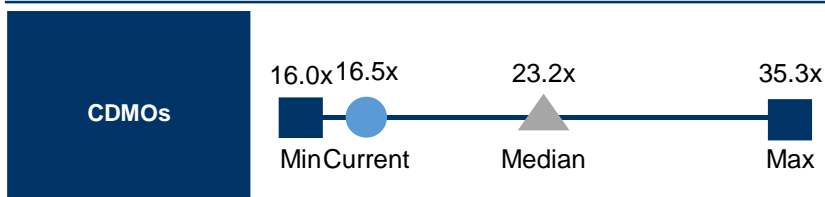


EV / EBITDA of CDMOs (9) (14) (15)



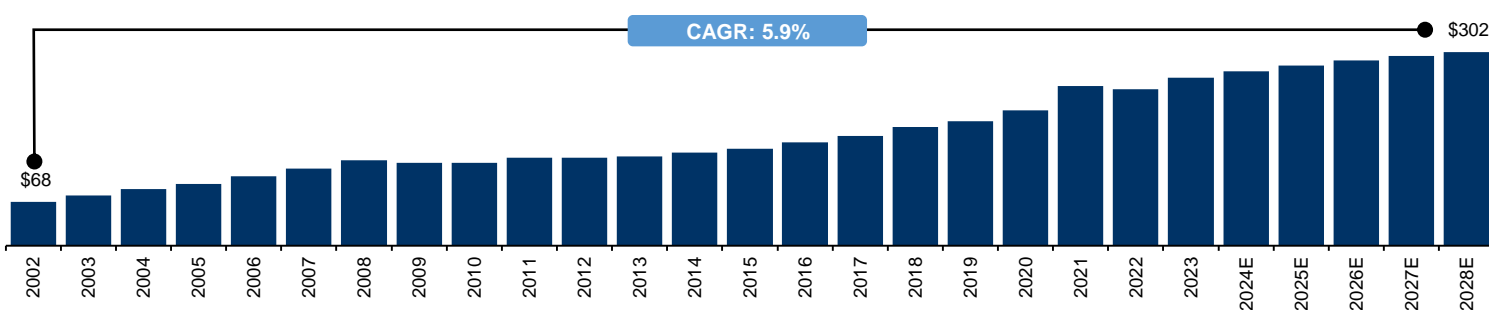
(*) Certain calculated EV / EBITDA multiples were considered to be outliers and not meaningful within the context of other CDMO peers

CDMO 5-Year Trading Statistics (Median EV / LTM EBITDA) (9) (11)

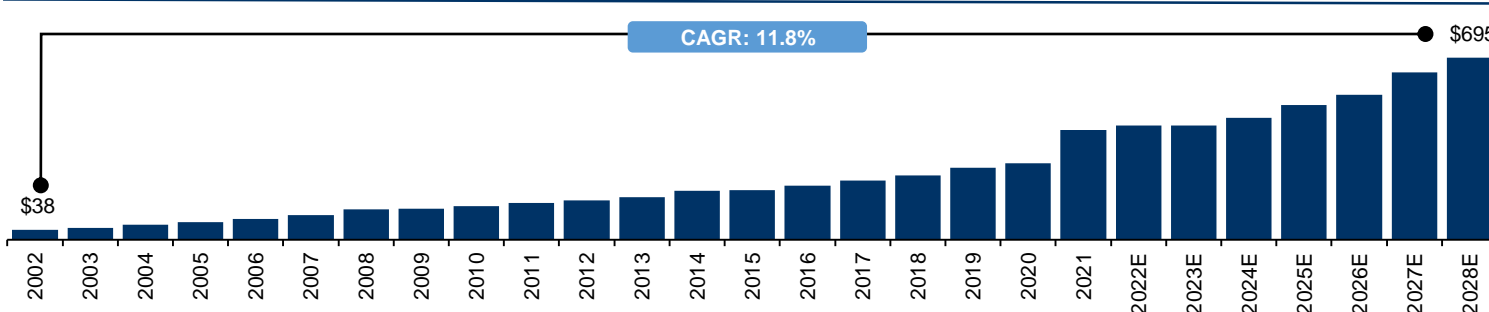


Industry Data

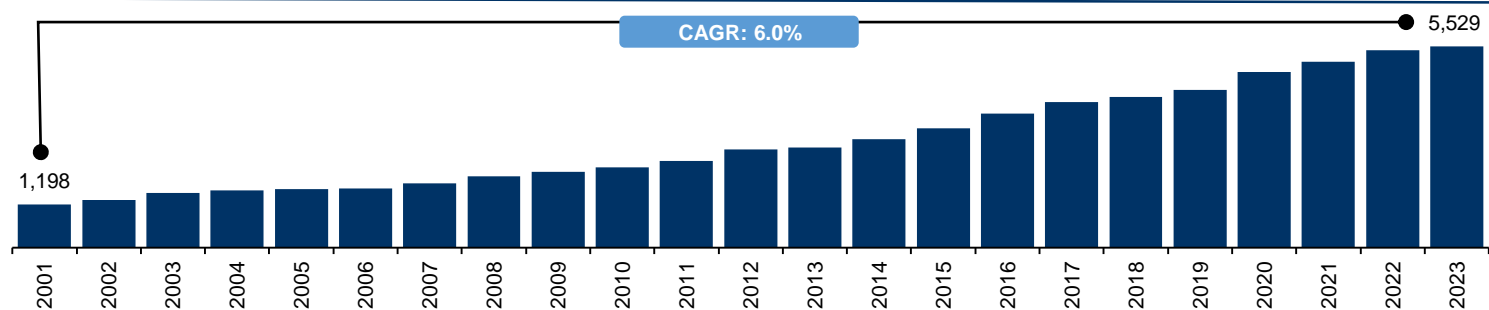
Drug R&D Spend by the Top 500 Pharma and Biotech Companies (\$ in billions) ⁽¹⁶⁾



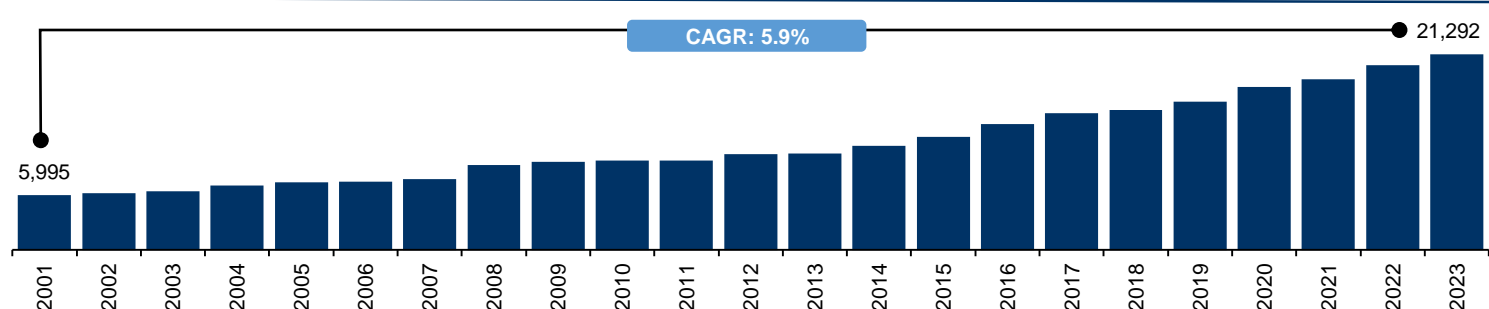
Biotech Drug Sales (\$ in billions) ⁽¹⁶⁾



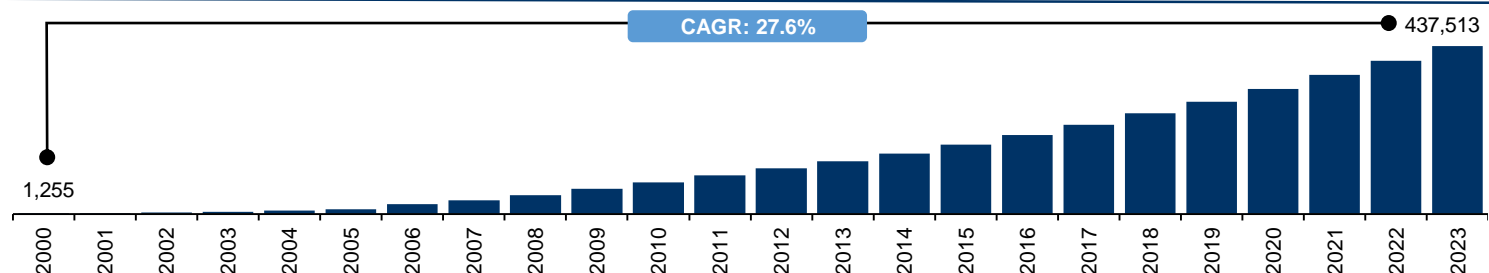
Number of Pharma Companies with Active Pipelines ⁽¹⁵⁾



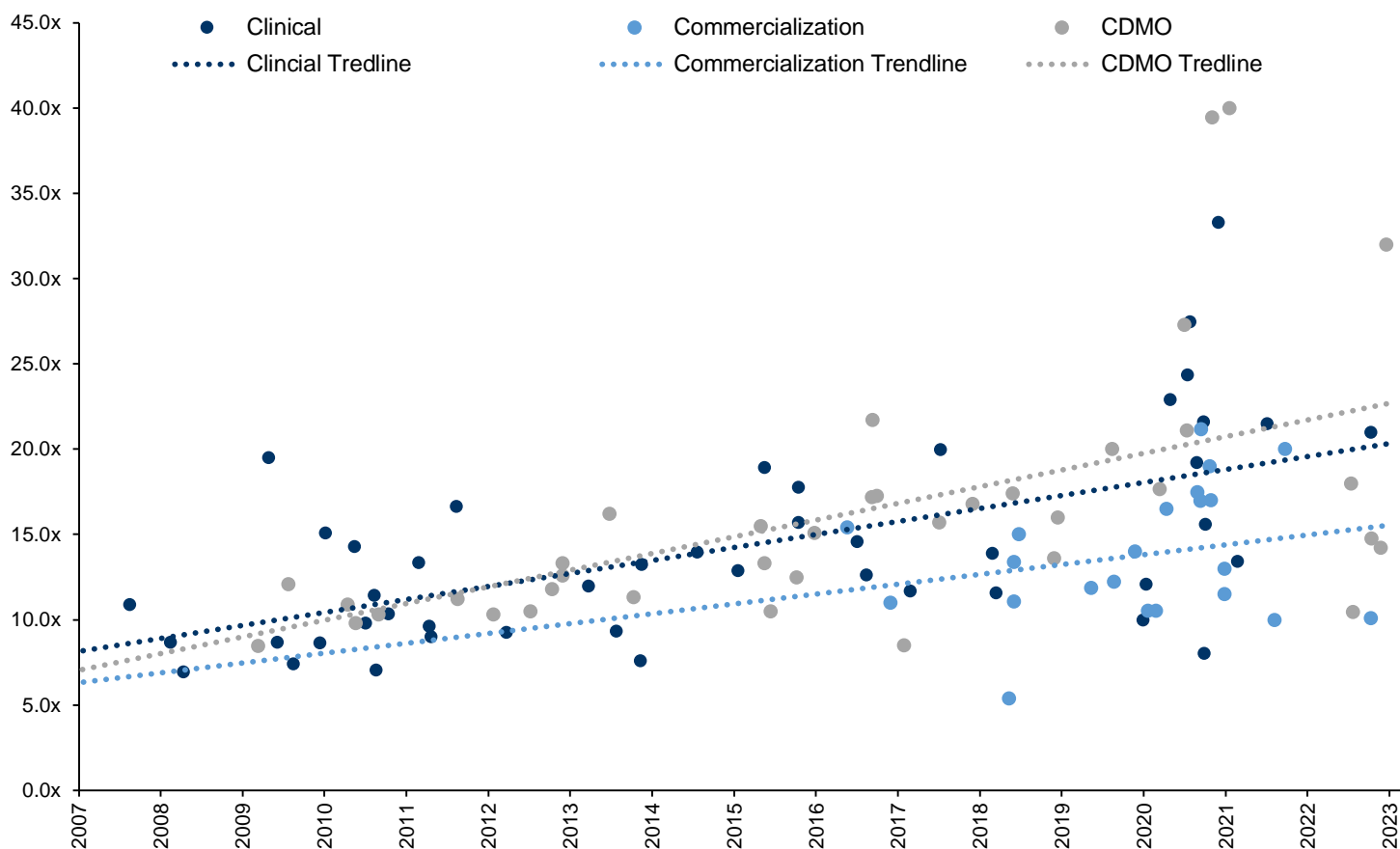
Number of Drugs in Global R&D Pipeline ⁽¹⁴⁾



Number of Registered Studies ⁽¹⁵⁾



M&A Transactions: Regression Analysis ⁽⁹⁾ ⁽¹⁹⁾



All Outsourced Pharma Services (107 Transactions)

Metric	Mean	Median
EV	\$1,799.6	\$425.0
EV / LTM Revenue	3.1x	2.2x
EV / LTM EBITDA	14.9x	13.4x
LTM Revenue	\$1,623.5	\$212.8
LTM EBITDA	\$125.7	\$36.9

Clinical Research Services (46 Transactions)

Metric	Mean	Median
EV	\$2,304.8	\$301.1
EV / LTM Revenue	2.4x	2.1x
EV / LTM EBITDA	14.2x	13.1x
LTM Revenue	\$2,651.6	\$113.0
LTM EBITDA	\$160.8	\$20.0

Commercialization Services (22 Transactions)

Metric	Mean	Median
EV	\$1,032.3	\$320.0
EV / LTM Revenue	2.6x	2.4x
EV / LTM EBITDA	13.8x	13.2x
LTM Revenue	\$440.6	\$32.1
LTM EBITDA	\$84.9	\$21.0

CDMOs (39 Transactions)






Metric	Mean	Median
EV	\$1,636.7	\$780.0
EV / LTM Revenue	4.3x	3.1x
EV / LTM EBITDA	16.0x	14.2x
LTM Revenue	\$529.8	\$369.8
LTM EBITDA	\$105.2	\$55.4

Notable M&A Activity ⁽⁵⁾

In the past few years, Outsourced Pharmaceutical Services companies have actively used M&A to acquire additional capabilities and specialized expertise. Multiple mega mergers, acquisitions, and take-privates have occurred leading to consolidation in the industry. Several noteworthy transactions included:

- 2023:** Permira take private of Ergomed
- 2023:** Consortium of Private Equity take private of Syneos Health
- 2023:** Labcorp completes spinoff of its CRO operations into an independent, publicly traded company, Fortrea
- 2021:** Clayton, Dubilier & Rice's acquisition of UDG Healthcare
- 2021:** EQT Private Equity and Goldman Sachs Asset Management's acquisition of Parexel
- 2021:** ICON's acquisition of PRA Health Sciences
- 2021:** Thermo Fisher's acquisition of PPD
- 2020:** Arsenal Capital Partners' acquisition of Cello Health (Pharma Value Demonstration)
- 2020:** Clayton, Dubilier & Rice's acquisition of Huntsworth
- 2017:** Merger of INC Research and inVentiv Health, forming Syneos Health
- 2017:** Pamplona take private of PAREXEL
- 2016:** Merger of Quintiles and IMS Health, forming IQVIA
- 2015:** Labcorp's acquisition of Covance

Representative transactions that were made by each of the large public and private Outsourced Pharmaceutical Services companies in 2023 are detailed below:

Company Name	# of 2023 Transactions	Description
	-	<ul style="list-style-type: none"> • No identified disclosed acquisitions in 2023
	-	<ul style="list-style-type: none"> • No identified disclosed acquisitions in 2023
	1	<ul style="list-style-type: none"> • Panacea Pharma – Pharmacovigilance services • Announced take-private transaction for \$886.0 million in an all-cash offer by Permira, a private equity firm
	1	<ul style="list-style-type: none"> • BioTelemetry – Medical imaging and cardiac safety monitoring services
	1	<ul style="list-style-type: none"> • BianoGMP (\$10.8 million) – CDMO focused on oligonucleotide developments, complex chemistry, and conjugation of peptides and lipids

Notable M&A Activity (cont'd) ⁽⁵⁾

Company Name	# of 2023 Transactions	Description
 Fortrea	-	<ul style="list-style-type: none"> Spun off from Labcorp into an independent, publicly traded company with the first day of trading on Nasdaq on July 7, 2023 No identified disclosed acquisitions in 2023
 IQVIA™	5	<ul style="list-style-type: none"> Farmacja – Multi-channel communication services for pharmacists and pharmaceutical technicians Benchmark Research – Site management for vaccine clinical trials CCT Research – U.S.-based clinical research site network QualityMetric – Scientifically validated general health disease specific surveys and advanced analytics services Metrika Business Intellegence – Oncology research and post-launch consulting services for pharmaceutical, biotech, and healthcare organizations
 Lonza	1	<ul style="list-style-type: none"> Synaffix (\$170.0 million) – Clinical-stage technology platform for the development of antibody-drug conjugates
 MEDPACE	-	<ul style="list-style-type: none"> No identified disclosed acquisitions in 2023
 patheon ThermoFisher SCIENTIFIC	-	<ul style="list-style-type: none"> No identified disclosed acquisitions in 2023 related to ThermoFisher's CDMO business
 PPD® ThermoFisher SCIENTIFIC	1	<ul style="list-style-type: none"> CorEvitas (\$912.5 million) – Real-world evidence services for medical treatments and therapies
 SAMSUNG BIOLOGICS	-	<ul style="list-style-type: none"> No identified disclosed acquisitions in 2023
 Siegfried	1	<ul style="list-style-type: none"> DiNAMIQS – CDMO specializing in viral vectors for cell and gene therapies
 Syneos. Health	-	<ul style="list-style-type: none"> Announced on May 10, 2023 Syneos Health would be taken private by consortium of private equity investors for all-cash offer of \$7.1 billion No identified disclosed acquisitions in 2023
 药明康德 WuXi AppTec	-	<ul style="list-style-type: none"> No identified disclosed acquisitions in 2023

Recent M&A and Strategic Commentary: CROs



"We've done a lot of M&A. As I said earlier we've completed over 65 deals. We've done 25 since 2012, spending almost \$5.0 billion. We're very disciplined in our approach and the returns that we look for. I think that our integration capabilities have been enhanced and improved dramatically."

"We're not interested in just getting larger for the sake of getting large. We are interested in being able to support our clients in a more robust way and having them not needing to go outside and validating other providers. So what you see is our clients are using a smaller number of research partners and it's all about speed. There's somewhere between 500 and 700 new companies created every year by venture capitalists. The remaining 10 large pharmaceutical companies are increasingly accelerating their outsourcing needs."

- **James Foster, Chairman, CEO and President**
J.P Morgan Healthcare Conference, 1/9/24

"2024 and 2025 might be a little bit slower growth than we've historically seen. You've seen this in some of the analyst reports as well. I think we think it's going to be about a 4% to 5% growth year across the industry. We're starting to go into a solid market, but not at the growth that we typically see, which is high single digits."



"That being said, like many of the analysts say, we believe that this market will continue to grow at those high single-digit rates as we go out in the out years because we continue to have a huge amount of innovation on the product side. There is an opportunity in the industry for a midsized CRO. So somebody who's not the largest CRO to be more innovative, but be it that goldilocks size, where we're just big enough but not too big to really service this industry."

- **Thomas Pike, CEO and President**
J.P Morgan Healthcare Conference, 1/10/24

"In terms of M&A, we're back in the market now. We announced a small acquisition just recently with BioTel, an imaging group and a cardiovascular monitoring group, and that's relatively modest from a revenue point of view, but it brought us back into the M&A space. We're keen to continue that momentum, whether it be around sites and patients, as I talked about how important that is for our business. M&A could also be around the late phase, lab services segment of our business."



"Our central lab is an area that's been doing well over the last few years, mid-teens in terms of growth. And while it's not a huge part of our business, it is an area that we think could potentially benefit from more scale. We are also looking at data and analytics. Obviously, it's always an area that we're looking to improve our business on. M&A will be our key priority. We're #3 in the marketplace, but there's a big gap between us and #2."

- **Steve Cutler, CEO and Director**
J.P Morgan Healthcare Conference, 1/9/24

"We have made acquisitions in patient services. We've also been putting money into medical affairs. Valuations of some assets definitely have started to come down. People are still expecting big dollars for some of the higher quality companies, and it's been stickier. The private markets tend to adjust more slowly than the public market."



"There's still a lot of PE money sloshing around that can make selected acquisitions difficult to do. We have to have a large funnel to get down to those acquisitions we can do. We've walked away from more than a few due to our valuation concerns. We're getting that PE is willing to spend more, and we're just not going to spend that much. Valuation expectations are coming down, but slowly."

- **Ronald Bruehlman, Executive VP & CFO**
Evercore ISI HealthCONx Conference 11/29/23

Recent M&A and Strategic Commentary: CDMOs

Catalent

“When you think about the dynamic for outsourcing, the industry is exposed to uncertainty more than ever in terms of funding and the cost of capital for new drugs. The way you gain agility and flexibility is to keep your infrastructure light and to use outsourcing. Outsourcing will continue to increase because of these dynamics. More importantly, outsourcing will continue to go towards the bigger players. We have seen way more business going to the big players than the small players. When you combine more outsourcing and the importance of scale together, we’re going to see good demand.”

- **Alessandro Maselli, CEO**
J.P Morgan Healthcare Conference, 1/8/24

Lonza

“We operate in an industry with strong market growth, which is focused on innovation, and this is driven by the development of new technologies and the constant discovery of new molecules. As demonstrated by multiple market surveys, the CDMO market primarily competes based on quality, expertise and reputation, while price remains less important for the selection of a trusted long-term CDMO partner.”

“Given our complete end-to-end value chain offering, we do not see a significant need for large inorganic investments. However, we continue to consider strategically relevant bolt-on acquisitions if they are of high-quality and of clear technological or commercial benefits. We’re investing in our future growth through an attractive portfolio of organic growth projects. ”

- **Philippe Deecke, CFO**
J.P Morgan Healthcare Conference, 1/10/24

Siegfried

“M&A is difficult to predict. M&A is always on at Siegfried and that means we continue to look at targets. We continue to do the due diligence where we think that there might be something interesting and attractive to us. We want to grow through M&A.”

“We would be interested to add drug product delivery systems because together with our development capabilities and manufacturing capacities, that would create a very attractive offering to our customers. Antibody drug conjugates, which would be a bridge between the small molecule and the large molecule world, is something we actually would add to our portfolio, most likely through M&A.”

- **Wolfgang Wienand, CEO**
H1 2023 Earnings Call, 8/17/23

ThermoFisher
SCIENTIFIC

“We serve a fragmented industry with many targets. We look at the targets that are uniquely the right fit in Thermo Fisher. Most of the deals that we do are midsized deals with \$50 – \$500 million in revenue. Occasionally, we do large deals. There’s just not that many of them and you can only do them periodically. With the equity market coming back down in the middle of the year, it opened up an opportunity for us to be able to generate really good returns for our shareholders and take the uncertainty of where valuations were going to trade for Sellers.”

“When I think about capital deployment, we closed \$4 billion in acquisitions. The Binding Site and CorEvitas, great additions, performing incredibly well in their first year of ownership. We announced the \$3.0 billion acquisition of Olink, which is on track to close middle of this year.”

- **Marc Casper, CEO**
J.P Morgan Healthcare Conference, 1/9/2024

Select New Private Equity Backed Platforms

In addition to strategic M&A activity, a number of privately-held outsourced pharmaceutical services companies attracted first-time institutional capital from private equity investors resulting in the formation of new platforms. The following are examples of companies that received private equity capital for the first time in 2023:

Financial Sponsor	Portfolio Company	Classification	Business Description
 WARBURG PINCUS		CDMO	Sterile contract manufacturing solutions, parenteral delivery systems and customized support services to the pharma and biotech industries
		CDMO	CDMO providing formulation development, analytical and stability testing, as well as aseptic fill-finish manufacturing services focused on large molecule therapeutics
		Clinical	Clinical research site platform serving patients, pharmaceutical sponsors and contract research organizations across multiple therapeutic areas
		Clinical	Clinical research site network specializing in infectious disease, CNS, gastroenterology, cardiovascular, metabolic, and general medicine
		CDMO	CDMO focused on sterile injectables, including panning development to commercial production across blow-fill-seal and multi format vial streams
		Clinical	CRO providing outsourced clinical trial support across the entire clinical development timeline to emerging biotech and established pharmaceutical companies
		Commercialization	Healthcare engagement agency providing marketing and strategic communications services to pharmaceutical manufacturers and biotech companies
		Other	Strategy, M&A, digital transformation, cybersecurity, IT quality and regulatory compliance consulting services to life sciences and healthcare organizations
		CDMO	Manufacturer of APIs for use in inhalation therapies
	 SPECTRUM	Commercialization	Marketing and communications services for the pharmaceutical, biotech, and broader life science industries
		Clinical	Clinical development, trial management, and pharmacovigilance services for pharmaceutical, biotechnology, and generics companies
		Clinical	CRO specializing in conducting Phase I-IV clinical trials across more than 40 therapeutic areas




M&A Transaction Case Study – Syneos Taken Private by an Investment Consortium

- On May 10, 2023, Syneos Health, Inc. announced that it entered into a definitive agreement to be acquired by a consortium of private investment firms comprised of Elliot Management, Patient Square Capital, and Veritas Capital
- The total enterprise value implied by the private equity firms' offer was \$7.1 billion
- The \$43.00 per share offer represented an 11.8% premium over the May 9, 2023 closing price
- The transaction closed on September 28, 2023

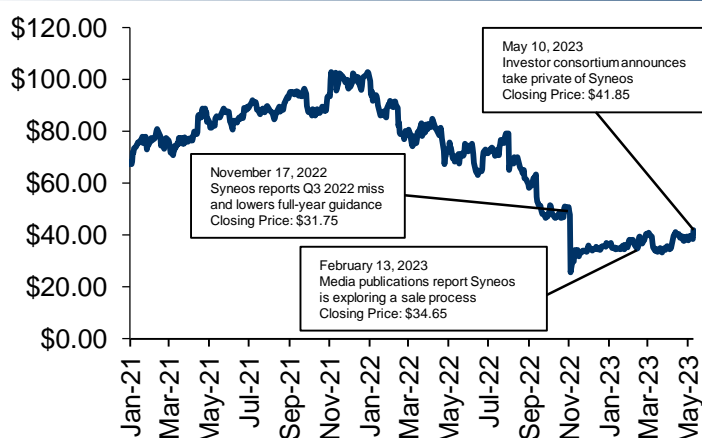
Situation Overview

- Syneos was formed in 2017 when INC Research acquired inVentive Health for an enterprise value of \$4.6 billion. With a combined enterprise value of approximately \$7.4 billion, the new company positioned itself as a Top 3 CRO, offering a comprehensive suite of clinical and commercial services to the biopharma industry
- Between 2018 and 2019, Syneos faced challenges in its commercial solutions business, marked by cancellations and lower bookings that resulted in diminished growth and visibility, contributing to the company's stock underperforming compared to its peers
- Syneos was historically undervalued relative to other publicly traded CROs due to limited therapeutic diversity beyond oncology, greater exposure to small and mid-cap biopharma ("SMID"), and repeated 2022 estimate misses
- In February 2023, media reports speculated about a potential sale process for Syneos, indicating a diverse group of buyers, including both strategic and private equity sponsors

Transaction Overview (as of 9/28/2023 Close)

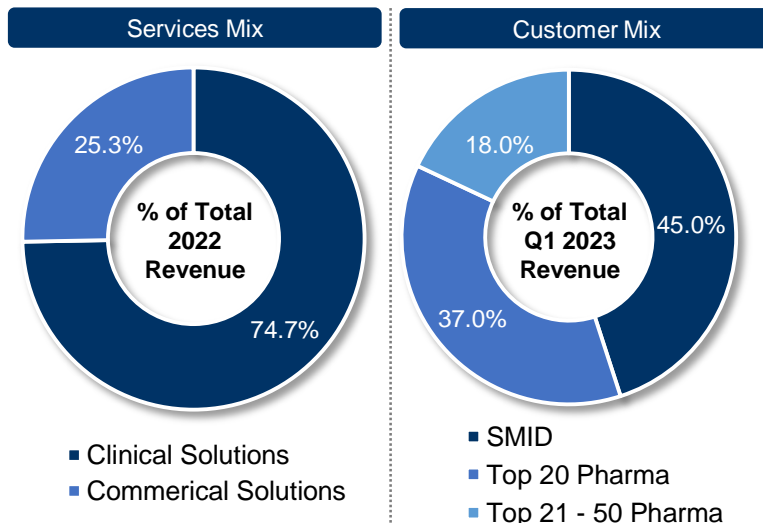
Target	
Buyers	  
Transaction Structure	All-Cash
Share Price (\$)	\$43.00
Premium (%)	11.8%
Enterprise Value	\$7.1 billion
2023E EBITDA Multiple	10.1x
Announcement Date	May 10, 2023
Completion Date	September 28, 2023

Syneos (NASDAQ:SYNH) Stock Price Performance



Syneos Overview

- Syneos is a fully-integrated CRO offering clinical, medical affairs communications, and commercialization services to biotechnology and pharmaceutical companies
- The company serves a diverse clientele, with 45.0% from SMIDs, 37.0% from top 20 pharma companies, and 18.0% from top 21-50 pharma companies
- The company is headquartered in Morrisville, NC and employs approximately 28,000 people across operations on six continents
- LTM June 2023 Revenue: \$5,419 million
- LTM June 2023 EBITDA: \$588 million
- LTM June 2023 EBITDA Margin: 10.8%



M&A Transaction Case Study – Ergomed Taken Private by Permira

- On September 4, 2023, Permira announced the establishment of Eden AcquisitionCo Ltd., a newly incorporated company, with the primary objective of facilitating the take-private of Ergomed
- The offer price of \$16.48 per share, representing a 23.3% premium over the closing price of \$13.37 as of September 1, 2023, implied a total enterprise value of \$878.5 million
- The purchase price implies an EV to EBITDA multiple of approximately 22.4x for FY 2023E
- The directors of Ergomed unanimously recommend that shareholders vote in favor of the transaction
- The transaction was completed on November 13, 2023

Strategic Rationale for the Transaction

- Permira believes Ergomed is a differentiated platform in the pharma services sector with a strong track record in the pharmacovigilance (“PV”) segment
- Permira recognizes that Ergomed has built a strong PV business with an excellent reputation for medical and scientific expertise, as well as a specialized CRO business, which is well-positioned to compete in attractive therapeutic areas against mid-sized and large CROs
- Permira intends to i) make substantial organic investments in commercial expansion technological innovation and ii) provide additional capital to pursue transformative M&A

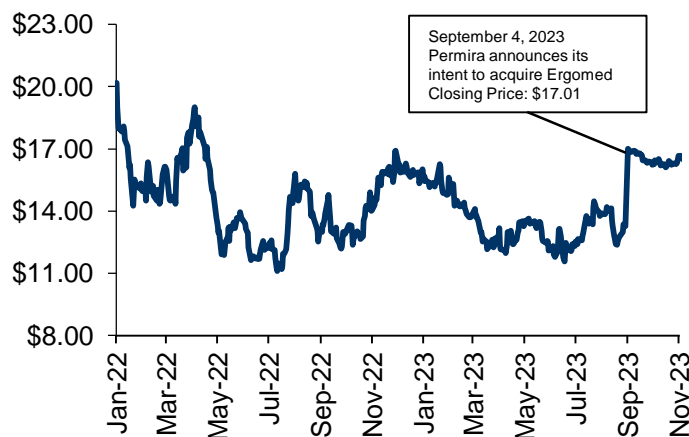
Permira Overview

- Permira is a global private equity firm founded in 1985. The firm is based in London, United Kingdom
- In 2023, Permira concluded its eighth flagship buyout fund, Permira VIII, with total capital commitments reaching €16.7 billion
- With a team of over 470 professionals across 15 offices in Europe, the United States, and Asia, Permira has undertaken approximately 300 investments, focusing on key sectors such as healthcare, technology, consumer, and service industries

Transaction Overview (as of 11/14/2023 Close)

Target	ERGOMED
Buyer	PERMIRA
Transaction Structure	All-Cash
Share Price (\$)	\$16.48
Premium (%)	23.3%
Enterprise Value	\$878.5 million
2023E EBITDA Multiple	22.4x
Announcement Date	September 4, 2023
Completion Date	November 14, 2023

Ergomed (AIM:ERGO) Stock Price Performance



Ergomed Overview

- Ergomed is a provider of clinical trial planning, management, and monitoring and pharmacovigilance services
- With a strong track record in complex oncology, CNS, hematology, and rare diseases, Ergomed serves a diverse clientele, including small and mid-cap biopharma companies and top 20 pharma companies
- Over the past five years, Ergomed has reported a CAGR of 22.95% in revenue, reaching \$193 million in 2023, up from \$69 million in 2018
- LTM June 2023 Revenue: \$193 million
- LTM June 2023 EBITDA: \$30 million
- LTM June 2023 EBITDA Margin: 15.8%

Select M&A Transactions

Date	Target (Seller)	Acquiror	Target Business Description
12/13/24	Translational Testing and Training Laboratories	Veranex (Summit Partners)	Preclinical evaluation services in the United States
12/12/23	Adivo Associates	Herspiegel Consulting (DFW Capital Partners)	Global healthcare strategy and marketing consultancy specialized in communications, market monitoring, and channel analytics services
12/6/23	ClinMedica Research	Velocity Clinical Research (GHO Capital)	Clinical trial site network based in Poland for cardiology trials, as well as a broad range of therapeutic areas involving ambulatory medicine
12/6/23	Clinres Farmacija	ProPharma Group (Odyssey Partners)	Clinical development services to biotechnology, pharmaceutical, and medical device companies in the areas of cardiology, oncology, pulmonology, and neurology
12/6/23	ClinMedica Research	Velocity Clinical Research (GHO Capital)	Clinical trial site network based in Poland for or cardiology trials, as well as a broad range of therapeutic areas involving ambulatory medicine
11/28/23	Aventine Consulting	Prime Global Medical (Levine Leichtman)	Market access and payer communications services
11/20/23	CrowdPharm	Spectrum Science (Knox Lane)	Healthcare marketing services for pharmaceutical and biopharmaceutical companies
11/8/23	IntegriChain (Accel-KKR)	Nordic Capital	Pharmaceutical technology, data, consulting, and outsourcing solutions designed for market access
10/23/23	AllStripes Research	PicnicHealth	Technology platform that generates deep data insights to accelerate rare disease research and drug development
10/16/23	Impact Research Institute	Velocity Clinical Research (GHO Capital)	Clinical trial site network for medical discoveries for NAFLD such as diabetes, obesity, high blood pressure, and high cholesterol
10/16/23	Instat Clinical Research	Veristat (Windrose Health Investors)	Biometric clinical research services, including data management and statistical services for clinical drug development
10/11/23	Healthware Group (FDI)	Eversana (Water Street & JLL)	Full-service agency and innovation consultancy for product launches
10/10/23	Formedix	Certara (NASDAQ:CERT)	Clinical data interchange standards consortium software solutions and consultancy services for clinical data management and biostatistics operations
10/10/23	Panacea Pharma Projects	Ergomed plc (Permira)	Pharmacovigilance, regulatory affairs, quality assurance, auditing, and other support services
10/4/23	Eximia Clinical Research	VSS Capital Partners	Multi-site, clinical research site network for the pharma industry
10/2/23	QualityMetric (Vesey Capital Partners)	IQVIA (NYSE: IQV)	Consulting and analytics services for healthcare and life sciences clients
9/26/23	co.faktor GmbH	Cytel (Astorg & Nordic Capital)	Commercialization consulting services including market access, medical communications, and patient relations
9/25/23	VersaTrial	Florence Healthcare (Insight Partners)	Technology-enabled clinical trial site engagement platform
9/21/23	Breakthrough Medicines (Deerfield Management)	SK Pharmteco	CDMO focused on discovery and commercialization of cell and gene therapies, viral vector production, analytical testing, and cell bioprocessing
9/21/23	Glenmark Life Sciences	Nirma Limited	Contract development and manufacturing of APIs used in therapeutic segments such as cardiovascular disease, central nervous system disorders, and diabetes
9/20/23	ABL Europe	Oxford Biomedica plc (LSE:OXB)	CDMO with specialized expertise in the development and manufacturing of gene therapies, oncolytic viruses, and vaccine candidates
9/13/23	Elite BioPharma Consulting	Danforth Advisors (Avesi Partners)	Regulatory and drug development consulting services for pharmaceutical, biotechnology and medical device companies
9/13/23	Argot Partners	Danforth Advisors (Avesi Partners)	Strategic communications consulting services for life sciences companies
9/13/23	KX Advisors	BGB Group (TPG)	Strategy consulting for biopharma, medical device, digital health, and diagnostic companies
9/13/23	Langhua Pharmaceutical	Viva Biotech	CDMO focused on API and intermediates for products across multiple therapeutic areas
9/7/23	Govise	Framework Solutions (WestView Capital Partners)	Provider of commercial / promotional services for pharmaceutical, biotech, and medical device companies
9/7/23	CIRON	Cerba HealthCare	Development of specialized assays and R&D services from preclinical drug discovery to phase IV clinical stage drug development
9/6/23	CREO	Grant Avenue Capital Partners	Strategy, M&A, digital transformation, cybersecurity, IT quality and regulatory compliance consulting services to life sciences and healthcare organizations
9/5/23	Courante Oncology	Harvest Integrated Research Organization (FC Capital)	Full-service CRO specializing in oncology product development
9/4/23	Ergomed plc (AIM:ERGO)	Permira	Clinical development, trial management, and pharmacovigilance services for pharmaceutical, biotechnology, and generics companies
8/29/23	BianoGMP	EUROAPI (Paris:EAPI)	CDMO focused on oligonucleotide developments, complex chemistry, and conjugation of peptides and lipids
8/28/23	CRO Kottmann	RQM+ (Linden Capital Partners)	CRO specializing in medical devices, in vitro diagnostics (IVDs), and pharmaceuticals
8/15/23	NDA Group	SSI Strategy (Amulet Capital Partners)	Regulatory and drug development consulting services for U.S. and European life sciences companies
8/14/23	Populi	Definitive Healthcare (Nasdaq: DH)	Healthcare market intelligence platform analyzing patients, consumers, and healthcare provider data
8/14/23	CorEvitas (Audax Private Equity)	Thermo Fisher Scientific (NYSE: TMO)	Real-world evidence services for medical treatments and therapies
8/9/23	Bamboo Medical Communications	Aptitude Health (Linden Capital Partners)	Medical communications and marketing services for life sciences companies
8/7/23	Worldwide Clinical Trials (The Jordan Company)	Kohlberg & Company	Phase I-IV clinical trials and real-world evidence studies
8/1/23	NuChem Sciences (AmorChem)	Sygnature Discovery	Standalone and integrated discovery services in chemistry, biochemistry, in vitro biology, structural biology, and in vivo pharmacology
8/1/23	eClinical Technology Suite	Sitero	Advanced technology suite designed to manage the end-to-end clinical trial lifecycle

Select M&A Transactions (Cont'd)

Date	Target (Seller)	Acquiror	Target Business Description
7/27/23	AMCR Institute	Headlands Research (KKR)	Clinical research site network specialized in metabolic and endocrine disorders
7/18/23	The Clinical Research Institute	NAMSA (Archimed)	CRO specializing in medical devices
7/18/23	Accel Research Sites	Alcanza Clinical Research (Martis Capital)	Network of 22 sites includes eight clinical research units and 14 embedded sites strategically placed in healthcare settings across the Southeast U.S.
7/17/23	DSG	Signant Health (Genstar Capital)	Electronic data capture and direct data capture technology within a unified eClinical suite, for site-based and decentralized clinical trials
7/6/23	Devana Solutions	RealTime Software Solutions (LLR Partners)	SaaS provider specializing in clinical trial workflow and analytics solutions
6/30/23	Farmacia	IQVIA (NYSE: IQV)	Multi-channel communication services for pharmacists and pharmaceutical technicians
6/26/23	Packaging Compliance Labs	SV Health Investors	Healthcare packaging engineering, validation testing, and contract packaging services to medical device and pharmaceutical end markets
6/20/23	Robling Medical	SV Health Investors	Contract manufacturing services including design and development, regulatory support, packaging, and supply chain management services
6/20/23	Drug Interaction Solutions	Certara (NASDAQ:CERT)	Subscription-based software of drug-drug interactions to support pharmaceutical scientists in assessing drug safety
6/12/23	Scinopsis	Veristat (Windrose Health Investors)	Medical writing and regulatory consulting services for the biopharmaceutical industry
6/9/23	Comac Medical	EdgeCap Partners	CRO providing outsourced clinical trial support across the entire clinical development timeline to emerging biotech and established pharmaceutical companies
6/1/23	CCT Research	IQVIA (NYSE: IQV)	Clinical research site
6/1/23	4Pharma	BC Platforms	CRO providing medical research services to pharmaceutical, biotechnology, and medical device companies
5/31/23	Centricity Research	Trinity Hunt Partners	CRO specializing in conducting Phase I-IV clinical trials across more than 40 therapeutic areas
5/31/23	Synaffix	Lonza Group AG (SWX: LONN)	Clinical-stage technology platform for the development of antibody-drug conjugates
5/23/23	Cilatus Biopharma Consulting	ProductLife Group (21 Invest France)	End-to-end strategy consulting and operational management services for biopharma technical operations
5/22/23	Alliance Clinical Networks	Amulet Capital Partners	Clinical research site platform serving patients, pharmaceutical sponsors, and contract research organizations across multiple therapeutic areas
5/19/23	Canyon Labs	MedVenture Health	Laboratory testing, validation, consulting, and advisory services for the medical device, pharmaceutical, and nutraceutical markets
5/18/23	AMC Research	Flourish Research (NMS Capital)	Clinical research site based in Charlotte, North Carolina focused on Alzheimer's and related dementias
5/18/23	Central Research Associates	Flourish Research (NMS Capital)	Research site conducting Phase II-IV clinical trials across various therapeutic areas including cardiology / metabolics, pediatrics, orthopedics, and women's health
5/11/24	Beghou Consulting	Varsity Healthcare Partners	Sales and marketing analytics consulting for the pharmaceutical and biotech industries
5/10/23	JSS Medical Research (Desjardins Capital)	Genesis Drug Discovery & Development	Pre- and post-approval clinical development services for pharma, biotech, and medical device companies
5/8/23	BioPharma Solutions Business	Advent International & Warburg Pincus	Sterile contract manufacturing solutions, parenteral delivery systems and customized support services to the pharma and biotech industries
5/4/23	Minds + Assembly	Amulet Capital Partners	Full-service, design-centric agency and commercialization services across a range of therapeutic categories, including rare diseases, oncology, CNS, and dermatology
5/4/23	Clinvest Research	Headlands Research (KKR)	Clinical research site focused on chronic diseases and conditions such as headache and migraine, arthritis and chronic pain, and diabetes
5/4/23	DINAMIQS	Siegfried (SWX:SFZN)	Development and manufacturing of viral vectors for cell and gene therapies
4/27/23	Benchmark Research	IQVIA (NYSE: IQV)	Site management organization for vaccine clinical trials
4/27/23	Inke	Keensight Capital	Manufacturer of APIs for use in inhalation therapies
4/18/23	Pyramid Laboratories	Audax Private Equity	CDMO providing formulation development, analytical and stability testing, as well as aseptic fill-finish manufacturing services focused on large molecule therapeutics
4/17/23	CMIC CMO	Dai Nippon Printing	Formulation development, investigational drug manufacturing, and commercial production for solid, semi-solid, and injectable dosage forms
4/12/23	Cpharm	PharmaLex	Pharmacovigilance, medical information, and patient program services for Australian and New Zealand-based clients
4/12/23	Makara Health	Precision Medicine Group (Blackstone)	Medical communications services including medical education, learning and development, brand and promotion, public relations, and patient education
4/12/23	Atlas Clinical Research	BPOC	Clinical research site network specializing in infectious disease, CNS, gastroenterology, cardiovascular, metabolic, and general medicine
4/11/23	Accelemed Research Institute	The IMA Group (Centre Partners)	Operator of multi-therapeutic clinical trial sites focused on cardio metabolic and GI diseases
4/4/23	The MYND Group	Fingerpaint (Knox Lane)	Strategic market access services for pharmaceutical and biologic companies
4/4/23	NovaCina	Bridgewest Group	CDMO focused on sterile injectables, including panning development to commercial production across blow-fill-seal and multi format vial streams
3/31/23	Daicel Corporation (TSE:4202)	Bionorica	Contract development and manufacturing services for pharmaceutical companies
3/29/23	PharmaForce International	SAI MedPartners (Northlane Capital Partners)	Market intelligence firm focused on analyzing the sales, marketing, market access, and medical affairs activities of leading pharmaceutical and biotech companies
3/27/23	SUAZIO	NAMSA (Archimed)	Strategic consulting and global market research services to medical device and in-vitro diagnostics developers

Select M&A Transactions (Cont'd)

Date	Target (Seller)	Acquiror	Target Business Description
3/27/23	Clinical Consulting	Labquality	Clinical trial services for pharmaceuticals, biotech, and medical device companies
3/24/23	Agilis Consulting Group	Kymanox (WestView Capital Partners)	Regulatory consulting services for drug delivery devices, medical devices, and complex medical technologies
3/21/23	PharmaHEALTHLabs	Fingerpaint (Knox Lane)	Healthcare communications agency specializing in the oncology and biologics markets
5/4/23	Supreme Optimization	Trinity Hunt Partners	Digital marketing services for the life sciences industry, including web development and design, digital strategy, paid advertising, and social media
3/13/23	Sixsense Strategy Group	Herspiegel Consulting (DFW Capital Partners)	Medical affairs launch support services
3/9/23	Mpirik	Tempus	Data-driven patient screening, automated care coordination, and clinical research services
3/1/23	ONIX Life Sciences	Framework Solutions (WestView Capital Partners)	Regulatory consulting services for life science companies, including eCTD submissions, publishing, and eCTD lifecycle management facilitates client submissions
3/1/23	CROMSOURCE	ClinChoice	CRO specializing in clinical operations and development services
2/22/23	Ascel Health	OPEN Health (Astorg)	Life science consulting services including commercial strategy, market access, and commercial excellence
2/17/23	BlueprintNYC	Eureka Equity Partners	Healthcare engagement agency providing marketing and strategic communications services to pharmaceutical manufacturers and biotech companies
2/15/23	Mesmerize Media (The Beekman Group)	MJH Life Sciences (BDT Capital Partners)	Point of care marketing services for patient education and consumer engagement
2/9/23	Giotto Compliance	RQM+ (Linden Capital Partners)	AI platform for filing regulatory reports and filings for medical device and in vitro diagnostics manufacturers
2/7/23	Spectrum Science Communications	Knox Lane	Marketing and communications services for the pharmaceutical, biotech, and broader life science industries
2/7/23	OKRA.ai	Envision Pharma Group (GHO Capital)	Commercialization, RWE and data analytics services for the pharmaceutical and life sciences industry
2/2/23	Anteris Medical and Anteris Helvetia	Kymanox (WestView Capital Partners)	Development and commercialization services for combination products, medical devices, and in-vitro diagnostic products
1/25/23	Digital Lab Consulting	ProPharma Group (Odyssey Partners)	Digital transformation advisory services for life sciences companies
1/18/23	Synetic Life Sciences	Lucid Group (ICG)	Management consulting services for the life sciences industry
1/18/23	Snapdragon Chemistry	Cambrex (Permira)	Chemical process development services for a broad range of emerging and established biopharma customers
1/9/23	EastHORN	Novotech (TPG)	CRO offering clinical, medical and regulatory services for biotechs and mid-size pharma companies
1/9/23	Alcedis GmbH	Huma Therapeutics	Digital clinical trial services including patient recruitment and end-to-end research
1/5/23	Metrika Business Intelligence	IQVIA (NYSE: IQV)	Oncology research and post-launch consulting services for pharmaceutical, biotech, and healthcare organizations
1/5/23	J-Pac Medical	Life Science Outsourcing (PPC Enterprises)	Manufacturing, packaging and sterilization services to for medical device and diagnostic companies
1/4/23	Fulcrum Research Group	SAI MedPartners (Northlane Capital Partners)	Primary market research services for the healthcare and biopharma markets
1/4/23	Vyasa	Certara (NASDAQ:CERT)	Software which enables life sciences organizations to perform predictions on bio-medical information

Representative Healthcare Transaction Experience

 **ACKLEY**
machine corporation

has been acquired by

 **R-V INDUSTRIES INC.**

a portfolio company of

 **PROSPECT CAPITAL**

Advisor to Seller

 **Azer Scientific**
Group. Connect. Drive Change. The World.

has combined with

 **Electron Microscopy Sciences**

a portfolio company of

 **INVERNESS GRAHAM**

Advisor to Azer

 **ARCUS MEDICA**

has been acquired by

 **W₂O**

a portfolio company of

 **N M C**
NEW MOUNTAIN CAPITAL LLC

Advisor to Seller

 **ALEGIS**

has been acquired by

 **MEDNAX**
NATIONAL MEDICAL GROUP

Advisor to Seller

 **Biotix**

a portfolio company of

 **FERBER, FREEMAN & COMPANY** and  **GROTECH VENTURES**

has been acquired by

 **METTLER TOLEDO**

Advisor to Seller

 **DECO**

has been acquired by

 **MedData**

a portfolio company of

 **FRAZIER HEALTHCARE PARTNERS and the edgewater funds**

Advisor to Seller

 **deerfield**

has received an investment from

 **the edgewater funds**

Advisor to Deerfield

 **EXECUPHARM**

has been acquired by

 **PAREXEL**

Advisor to Seller

 **Emmes**

has completed a majority recapitalization with

 **BEHRMAN CAPITAL**

Advisor to Emmes

 **GEO**
The GEO Group, Inc.
(NYSE: GEO)

has divested

 **GEO Care**

in a Management Buyout

Advisor to Independent Committee Fairness Opinion

 **GLOBO**

has completed a growth equity financing with

 **VSS**

Advisor to GLOBO

 **hcpro**

a division of

 **Simplify Compliance**

a portfolio company of

 **LEEDS | Equity Partners**

has been acquired by

 **AHIMA**
American Health Information Management Association

Advisor to Seller

 **HealthStrategiesGroup**

has been acquired by

 **WATER STREET**

Advisor to Seller

 **Herspiegel Consulting**

has received an investment from

 **DFW CAPITAL PARTNERS**

Advisor to Herspiegel

 **KPS LIFE**

has completed a senior debt financing with

 **Santander**

Advisor to KPS Life

 **Onsite Innovations**
Smarter Healthcare at Work™

has been acquired by

 **PIVOT HEALTH SOLUTIONS**

a portfolio company of

 **CI CAPITAL PARTNERS**

Advisor to Seller

 **pyxa SOLUTIONS**

has merged with

 **red nucleus**

a portfolio company of

 **RENOVUS CAPITAL**

Advisor to Pyxa

 **TROEMNER**

has been acquired by

 **METTLER TOLEDO**

Advisor to Seller

 **usp**

has acquired

 **pharmatech associates**

Advisor to Buyer

 **WORKFORCE SOLUTIONS GROUP**

has been acquired by

 **CROSS COUNTRY HEALTHCARE**

Advisor to Seller

Appendix

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8. Company press releases, websites, investor presentations, and public filings
9. CapIQ and public company filings (10-Ks, 10-Qs, and investor presentations)
10. DSP CRO Index includes: Charles River Laboratories, Fortrea, ICON, IQVIA, and Medpace. The multiples also include public outsourced pharma companies that have been acquired / taken private (Ergomed, Parexel, PPD, Syneos Health, UDG Healthcare) or merged into the entities above (PRA Health Sciences, Qunitles, IMS Health, INC Research)
11. DSP CDMO Index includes: Catalent, EUROAPI, Lonza, Siegfired, Thermo Fisher Scientific, WuXi AppTec
12. On July 2, 2021, ICON completed the acquisition of PRA Health Sciences. ICON's revenue growth of 96.0% and 41.2% for FY 2021 and 2022 reflect the pro forma combined revenue of the two entities and have been excluded from the mean revenue growth calculation for the compset for 2022 and 2021
13. Based on stock prices as of 12/29/2023. Fortrea commenced trading on July 3, 2023. Therefore, there is no historical data for preceding fiscal years is accessible for EV / EBITDA for Fortrea
14. EUROAPI was listed on the Euronext N.V. stock exchange on May 6, 2022. Therefore, there is no historical data available for EV / EBITDA for EUROAPI
15. Samsung Biologics was excluded from the chart and mean EV / EBITDA calculation due to its consistently elevated valuation compared to its CDMO peers. This is evident in Samsung Biologics' EV / EBITDA multiple of 36.0x in 2023 and 50.0x in 2022. Furthermore, WuXi AppTec has also been excluded from the chart and mean EV / EBITDA calculation for 2019 through 2021 due to its elevated valuation of 47.1x in 2021 and 62.3x in 2020. WuXi AppTec has been included for 2022 and 2023 given that the company is trading more in-line with its CDMO peers
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