

Monoclonal Antibodies

INDUSTRY SUMMARY

COGENT VALUATION identified **Monoclonal Antibodies** publicly traded companies, IPOs, and recent M&A transactions within the Monoclonal Antibodies industry, which provides a basis for market and transaction pricing that can be used by your firm in estimating market sentiment and its impact on your firm's value. Over the last year since September 30, 2016, the median 52-week share price return of the Monoclonal Antibodies industry was 4.3%. Between September 30, 2015 and September 30, 2017, the median EV/Revenue multiple decreased from 5.8 to 4.0. This industry is not profitable and all other valuation multiples based on profitability metrics were not meaningful. The median revenue growth and EBITDA margins for the industry for the quarter were 0.0% and -291.8%, respectively.

Public Company Key Statistics

Median 52-Week
Return

4.3%

Median 3-Year CAGR
Return

-23.2%

Median EV/Revenue
Multiple

4.0x

Comparable Public Company Market Price Returns as of September 30, 2017

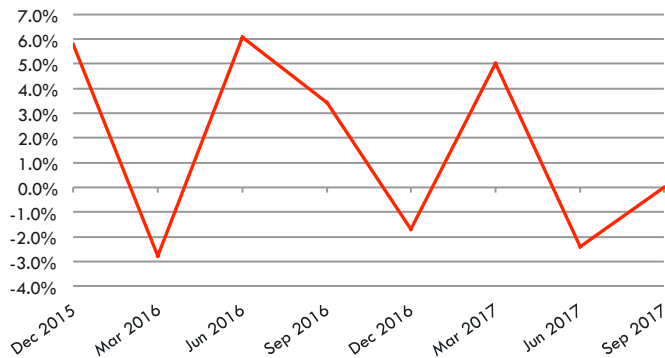
	YTD	3 Month	1 Year	2 Year	3 Year	2016	2015	2014
Alder Biopharmaceuticals, Inc.	-41.1%	7.0%	-62.6%	-38.9%	-1.1%	-37.0%	13.5%	N/A
AVEO Pharmaceuticals, Inc.	575.9%	64.4%	310.1%	73.7%	48.7%	-57.1%	50.0%	-54.1%
Celldex Therapeutics, Inc.	-19.2%	15.8%	-29.2%	-47.9%	-39.6%	-77.4%	-14.1%	-24.6%
Halozyme Therapeutics, Inc.	75.8%	35.5%	43.8%	13.7%	24.0%	-43.0%	79.6%	-35.6%
Immunomedics, Inc.	280.9%	58.3%	330.2%	185.1%	55.5%	19.5%	-36.0%	4.3%
Infinity Pharmaceuticals, Inc.	-1.5%	-15.3%	-14.7%	-60.3%	-53.7%	-82.8%	-53.5%	22.3%
Omeros Corporation	117.9%	8.6%	93.7%	40.5%	19.3%	-36.9%	-36.5%	119.5%
OncoMed Pharmaceuticals, Inc.	-41.4%	35.7%	-60.5%	-47.8%	-38.0%	-65.8%	3.6%	-26.3%
PDL BioPharma, Inc.	59.9%	37.2%	1.2%	-17.9%	-23.2%	-40.1%	-54.1%	-8.6%
Peregrine Pharmaceuticals, Inc.	45.5%	-26.2%	4.3%	-33.7%	-30.9%	-73.6%	-15.8%	0.0%
Repligen Corporation	24.3%	-7.5%	26.9%	17.3%	24.4%	8.9%	42.9%	45.2%
Sorrento Therapeutics, Inc.	-65.3%	-15.0%	-78.0%	-55.0%	-27.8%	-43.7%	-13.5%	24.3%
XOMA Corporation	365.6%	181.1%	114.1%	14.3%	-38.4%	-84.1%	-63.0%	-46.7%
Median of Industry Public Companies	45.5%	15.8%	4.3%	-17.9%	-23.2%	-43.7%	-14.1%	-4.3%

Multiple year periods are calculated as the average annual return.

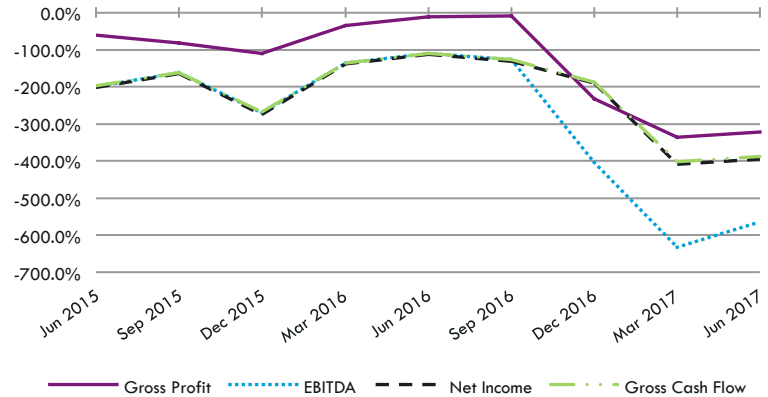
■ Highest Return
 ■ Lowest Return
 ■ Median Return

Industry Revenue Growth and Profit Margins for the Past Two Years

Median Quarterly Revenue Growth of All Monoclonal Antibodies Companies



Median Gross Profit, EBITDA, Net Income, and Gross Cash Flow Margins



Industry Initial Public Offerings—Industry: Monoclonal Antibodies (dollars in millions, except share prices)

Offer Date	Company Name	Offer Price	Shares Offered	Amount Raised	Total Assets	Debt	LTM Revenues	LTM EBITDA	LTM Net Income	LTM Cash Flows
7/25/17	Celltrion Healthcare Co., Ltd.	\$36.69	24.6	\$35.0	\$24.8	\$14.7	\$693.1	(\$45.2)	(\$48.9)	(\$43.0)
5/12/16	Oncobiologics, Inc.	\$6.00	5.8	\$37.1	\$44.4	\$0.2	\$3.3	(\$6.4)	(\$6.6)	(\$6.4)
4/14/16	GeNeuro SA	\$14.63	2.5	\$70.5	\$98.5	\$0.0	\$2.8	(\$13.6)	(\$31.3)	(\$13.5)
3/22/16	Corvus Pharmaceuticals, Inc.	\$15.00	4.7	\$158.4	\$116.8	\$20.8	\$0.0	(\$55.2)	(\$57.1)	(\$53.7)
2/2/16	BeiGene, Ltd.	\$24.00	6.6	\$21.2	N/A	N/A	\$5.5	\$1,390.9	\$1,158.0	\$1,391.1
12/10/14	ALTEOGEN Inc.	\$23.53	0.9	\$145.8	\$344.4	\$114.1	\$6.2	(\$22.6)	(\$35.7)	(\$18.1)
	Median of all IPOs	nm	nm	\$53.8	\$98.5	\$14.7	\$3.9	(\$18.1)	(\$33.5)	(\$15.8)

Multiple year periods are calculated as the average annual return.


■ Highest Return
 ■ Lowest Return
 ■ Median Return


Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions)

Transaction Date	Target	Acquirer	Transaction Size	% Bought
8/23/17	U-Protein Express BV	Astellas Pharma Inc.	\$1,401.6	100%
12/20/16	Ganymed Pharma	Polpharma SA Pharmaceutical	\$3.5	100%
6/30/16	EPIRUS Biopharmaceuticals	OSE Pharma SA	\$34.4	100%
5/31/16	Effimune SA	Acorda Therapeutics, Inc.	\$341.6	100%
4/18/16	Biotie Therapies Corp.	Shire Pharmaceuticals	\$5,907.0	100%
1/22/16	Dyax Corp.	Ligand Pharmaceuticals	\$178.0	100%
9/23/17	AxioMx Inc.	Abcam Plc	\$45.2	100%
10/30/15	BioNovion B.V.	Aduro Netherlands	\$60.1	100%
9/11/15	PacificGMP, Inc.	Abzena Inc.	\$8.4	100%
6/1/15	X-BODY, Inc.	Juno Therapeutics, Inc.	\$42.8	100%

 USA

 International

 Highest

 Lowest

 Median

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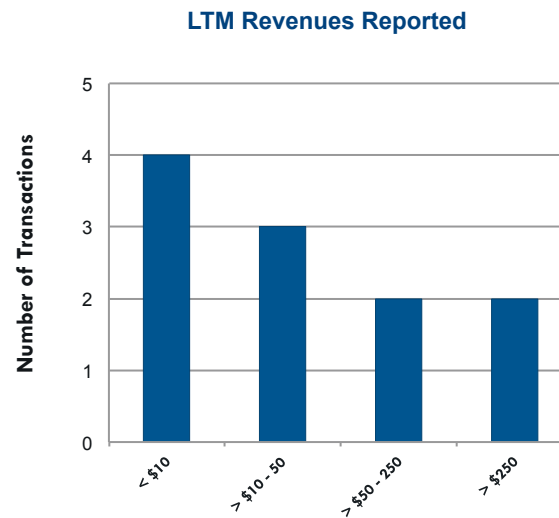
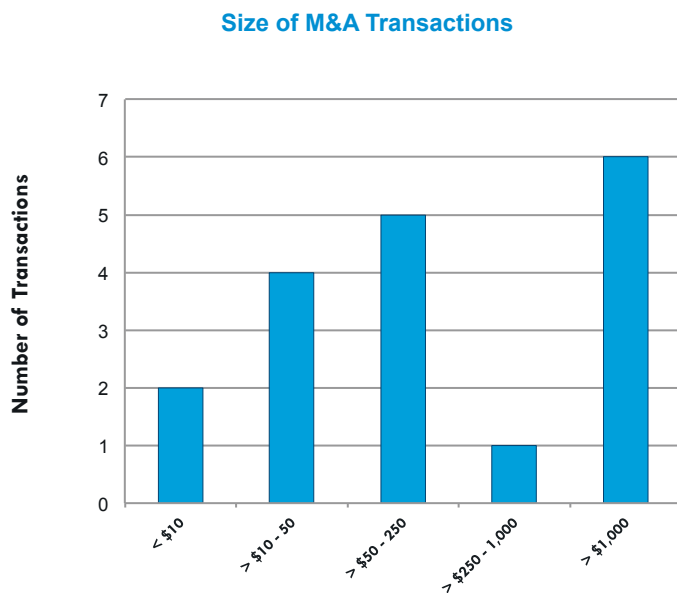
Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions)

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Transaction Date	Target	Acquirer	Transaction Size	% Bought
3/12/15	KBI Biopharma Inc.	JSR Corporation	\$100.0	100%
3/3/15	SuppreMol GmbH	Baxter International Inc.	\$223.9	100%
9/23/14	CFR Pharmaceuticals	Abbott Investments	\$2,659.3	73%
4/30/14	Shanghai PrimeGene	R&D Systems China	\$18.8	100%
12/31/13	Santarus, Inc.	Salix Pharmaceuticals	\$2,154.4	100%
8/2/12	Human Genome Sciences Inc.	GlaxoSmithKline plc	\$3,682.2	100%
4/18/12	Epitomics, Inc.	Abcam Plc	\$153.9	100%
3/5/12	Micromet, Inc.	Amgen Inc.	\$1,016.4	100%
Median of the 18 M&A Transaction Targets			\$166.0	100%

USA
 International
 Highest
 Lowest
 Median

Recent Merger and Acquisition Transactions for a Majority Stake (dollars in millions) as of September 30, 2017



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Definitions of Financial Terms Used in this Quarterly Industry Update: Enterprise Value (EV): Market Value of Equity + Market Value of Debt —Cash Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA): Profitability metric sometimes also referred to as operating profit or operating earnings.

Gross Cash Flows: Net Income + Depreciation and Amortization Expense Latest Twelve Months (LTM): Financial information is as of the latest twelve months through the date of this Quarterly Industry Update.

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