

Industry BlueBook

Diagnostics & Tools

November 2022

The industry's authoritative information resource for
valuations, M&A transactions, and Financings

DASHBOARD^{1,2,3,4,5}

EV MULTIPLES

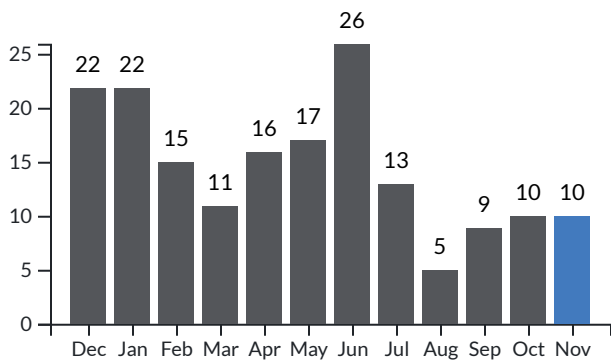
	REVENUE				EBITDA			
	LTM	%Δ	FTM	%Δ	LTM	%Δ	FTM	%Δ
In Vitro Diagnostics	3.6x	1%	4.0x	12%	13.9x	12%	14.5x	12%
Diagnostic Services	2.4x	0%	2.3x	2%	10.8x	1%	10.4x	11%
Life Science Tools	5.0x	NM	5.3x	NM	28.5x	17%	21.5x	7%
In Vivo Diagnostics	4.0x	15%	3.5x	NM	22.6x	11%	14.5x	14%

M&A DEALS & FINANCINGS

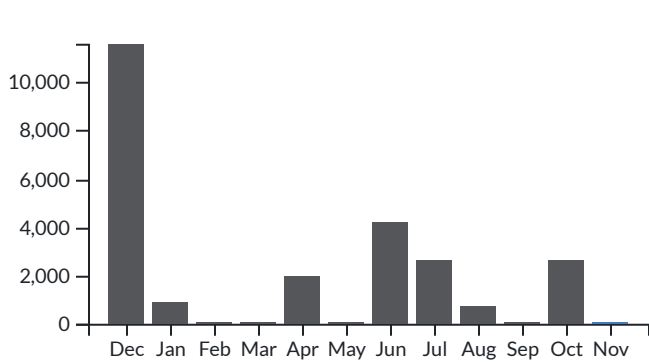
	DEAL COUNT				VOLUME (\$MM)			
	M&A	%Δ	FINANCINGS	%Δ	M&A	%Δ	FINANCINGS	%Δ
In Vitro Diagnostics	2	0%	4	20%	0	NM	40	NM
Diagnostic Services	4	0%	4	25%	41	NM	32	36%
Life Science Tools	3	50%	3	NM	64	NM	35	NM
In Vivo Diagnostics	1	NM	9	13%	0	NM	56	NM

- 1. Enterprise value (EV) equals equity market value (market capitalization) plus debt, plus preferred stock, minus cash and cash equivalents
- 2. Deals counted once in total if included in multiple segments
- 3. LTM = last twelve months; FTM = forward twelve months
- 4. %Δ – percent change month over month
- 5. NM – Not Meaningful

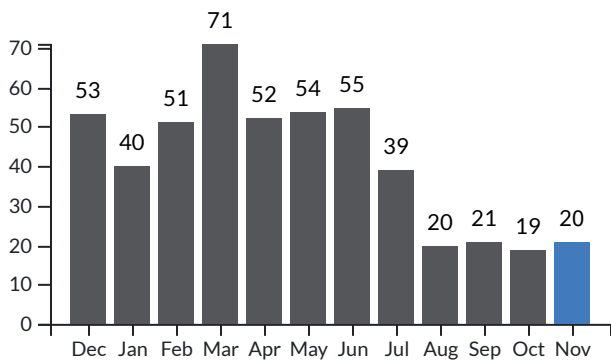
12 Month Deal Count M&A



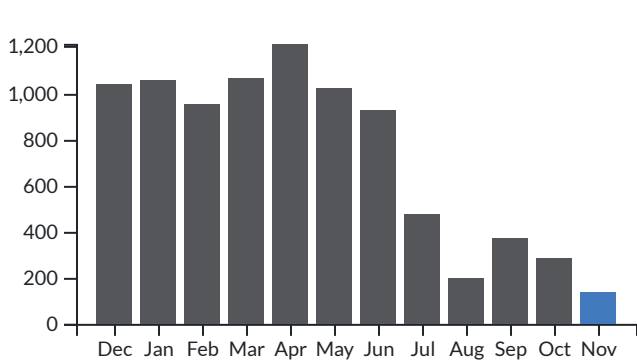
12 Month Volume M&A (\$MM)



12 Month Deal Count Financings

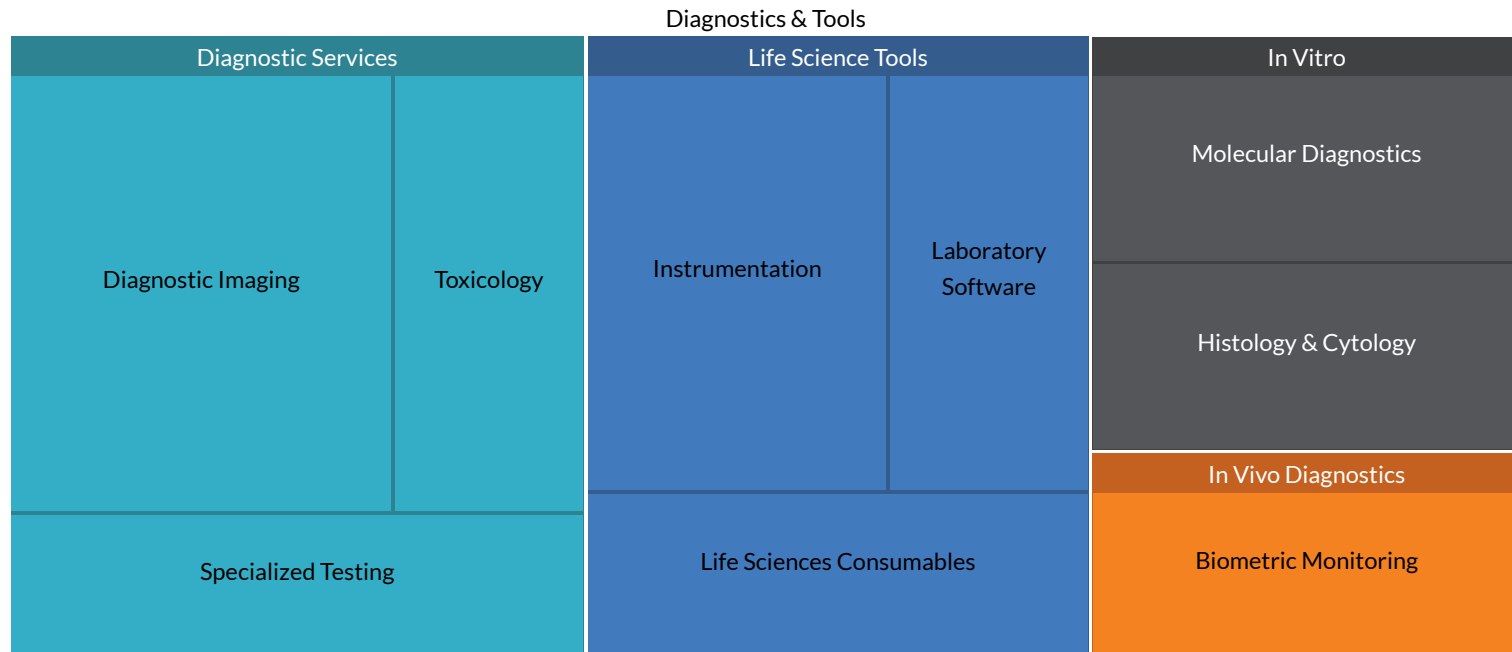


12 Month Volume Financings (\$MM)

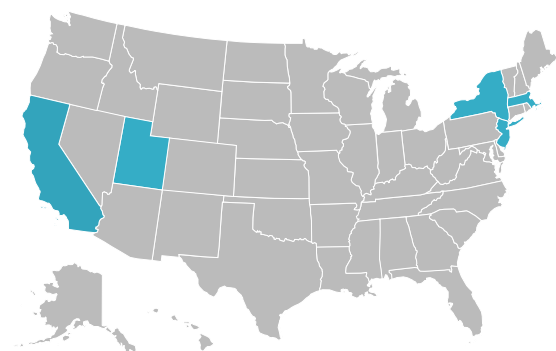


M&A ACTIVITY

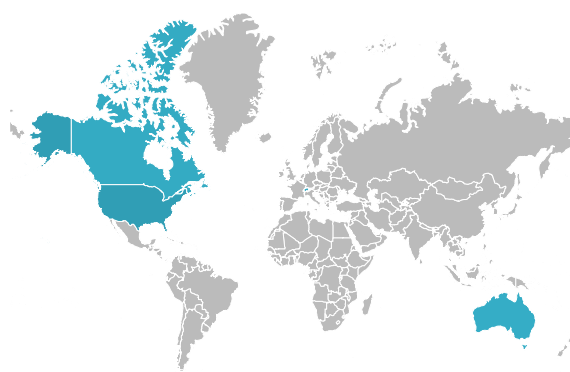
DEALS BY SEGMENT



U.S. DEALS BY STATE



WORLDWIDE DEALS BY COUNTRY



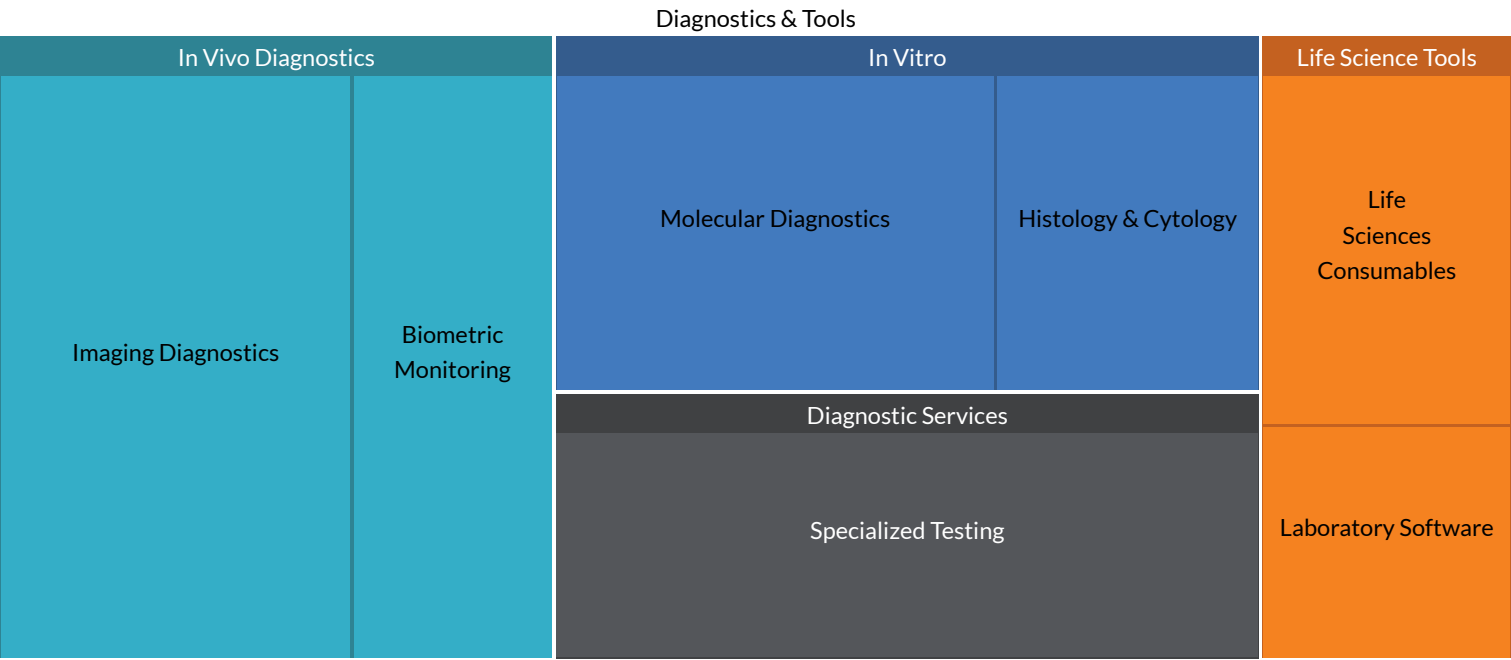
SELECTED TRANSACTIONS

Announced Date Segment		Sub-Segment	Target Company	Geography	Selected Buyers	Size (\$mm)
11/23/2022	Life Science Tools	Instrumentation	Purigen Biosystems, Inc.	United States	Bionano Genomics, Inc. (NasdaqCM:BNGO)	64.0
11/22/2022	In Vitro	Histology & Cytology	Empire Genomics, LLC	United States	Biocare Medical, LLC	-
11/21/2022	Diagnostic Services	Diagnostic Imaging	Four Diagnostic Imaging Clinics located in Alberta	Canada	Canadian Teleradiology Services Inc.	-
11/18/2022	Diagnostic Services	Diagnostic Imaging	PRP Diagnostic Imaging Pty Limited	Australia	UniSuper Limited, IFM Investors Pty Ltd, Host-Plus Pty. Limited	-

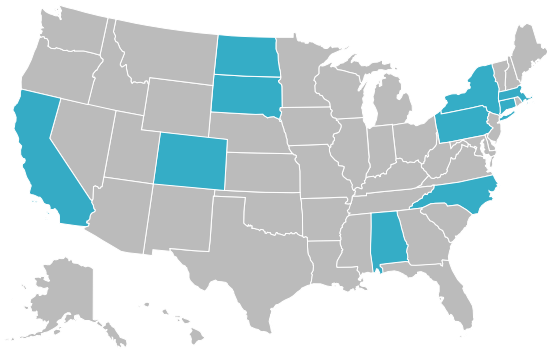
Announced Date Segment		Sub-Segment	Target Company	Geography	Selected Buyers	Size (\$mm)
11/14/2022	Life Science Tools	Lab Software Instrumentation	Neurescence Inc.	Canada	Bruker Corporation (NasdaqGS:BRKR)	-
11/14/2022	Life Science Tools	Consumables	Telix Optimal Tracers, LLC	United States	Telix Pharmaceuticals Limited (ASX:TLX)	-
11/10/2022	In Vivo Diagnostics	Biometric Monitoring	m-Health Solutions Inc.	Canada	ELNA Medical Group Inc.	-
11/7/2022	Diagnostic Services	Toxicology	Laboratory Services MSO, LLC	United States	Avalon GloboCare Corp. (NasdaqCM:ALBT)	40.7
11/7/2022	In Vitro	Molecular	Fluxus, Inc.	United States	Fujirebio Holdings, Inc.	-
11/3/2022	Diagnostic Services	Diagnostic Imaging	RIMED AG	Switzerland	Unilabs Holding AB	-

FINANCINGS

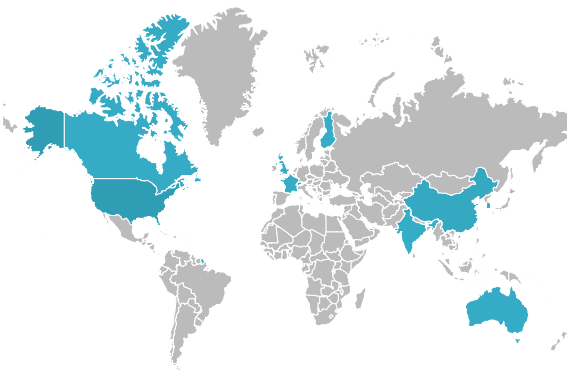
DEALS BY SEGMENT



U.S. DEALS BY STATE



WORLDWIDE DEALS BY COUNTRY



SELECTED TRANSACTIONS						
Closed Date	Segment	Sub-Segment	Target Company	Geography	Selected Investors	Size (\$mm)
11/23/2022	In Vivo Diagnostics	Imaging Diagnostics	Yofo Medical	China	Hefei Xingtai Capital Management Co., Ltd., Shenzhen Deyi Huaying Venture Capital Enterprise (limited partnership)	-
11/23/2022	Diagnostic Services	Specialized Testing	Oral Genome LLC	United States	Undisclosed	0.1
11/22/2022	In Vivo Diagnostics	Imaging Diagnostics	CurveBeam AI, Ltd.	United States	Undisclosed	0.3

Closed Date	Segment	Sub-Segment	Target Company	Geography	Selected Investors	Size (\$mm)
11/18/2022	In Vivo Diagnostics	Biometric Monitoring	BioSig Technologies, Inc. (NasdaqCM:BSGM)	United States	Undisclosed	1.5
11/17/2022	In Vivo Diagnostics	Imaging Diagnostics	Subtle Medical	China	3E Bioventures Capital, SFC Capital, Delta Capital, 3E Bioventures Capital, Crista Galli Ventures	20.0
11/17/2022	In Vitro	Molecular	Suzhou Ruixun Biotechnology Co., Ltd.	China	Unifortune Investment Management Limited	2.8
11/17/2022	Life Science Tools	Consumables	transOMIC technologies inc.	United States	Imunon, Inc. (NasdaqCM:IMNN)	0.4
11/15/2022	Diagnostic Services	Specialized Testing	Novigenix SA	Switzerland	Undisclosed	20.0
11/15/2022	In Vitro	Molecular	Untap Ltd	United Kingdom	Saphir Capital Partners SA, Sapphire Capital Partners LLP	1.3
11/14/2022	Life Science Tools	Consumables	Beijing Daxiang Biotech Co., Ltd	China	Proxima Ventures, Shaanxi Shantou Capital Management	14.0
11/11/2022	In Vivo Diagnostics	Imaging Diagnostics	Vexev Pty Ltd	Australia	Blackbird Ventures Pty. Ltd., NeoTribe Ventures	8.5
11/9/2022	In Vitro	Histology & Cytology	Ibex Medical Analytics Ltd.	Israel	Kreos Capital Management (UK) Limited	10.0
11/9/2022	In Vivo Diagnostics	Biometric Monitoring	WearOptimo Pty Ltd	Australia	The Australian National University, Aspen Medical Pty Limited	3.2
11/8/2022	In Vivo Diagnostics	Biometric Monitoring	Cloud DX Inc.	United States	Innovation, Science And Economic Development Canada	3.9
11/8/2022	Life Science Tools	Lab Software	Biocomputing Platforms Ltd	Finland	Jolt Capital SAS	20.2
11/8/2022	Diagnostic Services	Specialized Testing	Sequencing Inc.	United States	Global Founders Capital Management GmbH, Correlation Ventures, L.P., Lerer Hippeau Ventures Management, LLC, Red Sea Ventures, Red Sea Ventures, XRC Labs, Red Antler, LLC, Gaingels, LLC	5.0
11/7/2022	In Vitro	Histology & Cytology	SAS Alara Group	France	Crédit Mutuel Equity	6.0
11/7/2022	Diagnostic Services	Specialized Testing	Rivaara Labs Pvt Ltd.	India	Amicus Capital Partners, Amicus Capital Partners	-
11/2/2022	In Vivo Diagnostics	Imaging Diagnostics	Axial Medical Printing Limited	United Kingdom	Stratasys Ltd. (NasdaqGS:SSYS), Imprimatur Capital Fund Management, Techstart Ventures LLP	15.0
11/2/2022	In Vivo Diagnostics	Imaging Diagnostics	Vuno Inc. (KOSDAQ:A338220)	Korea (Republic of)	Undisclosed	3.5

PUBLIC MARKETS¹

IN VITRO DIAGNOSTICS						
Molecular Diagnostics						
Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Amoy Diagnostics Co., Ltd.	China	1,355	11.0x	8.1x	50.0x	26.7x
Biocartis Group NV (ENXTBR:BCART)	Belgium	203	3.4x	NM	NM	NM
Genomictree Inc.	Korea (Republic of)	72	3.1x	NM	13.4x	NM
Guangdong HybriBio Biotech Co.,Ltd.	Hong Kong	1,161	1.7x	1.5x	3.5x	NM
Immunovia	Sweden	66	NM	14.2x	NM	NM
Qiagen	Netherlands	11,683	5.3x	5.9x	15.5x	16.1x
Sansure Biotech Inc.	China	1,323	1.8x	NM	4.0x	NM
Seegene, Inc.	Korea (Republic of)	806	0.9x	1.7x	2.5x	5.5x
Tellgen Corporation	China	459	4.5x	4.0x	20.3x	11.9x
Todos Medical Ltd.	Israel	53	4.9x	NM	NM	NM
Zhejiang Orient Gene Biotech Co., Ltd. (SHSE:688298)	China	1,791	1.2x	NM	2.9x	NM
Mean		1,725	3.8x	5.9x	14.0x	15.0x
Median		806	3.2x	4.9x	8.7x	14.0x
Microbiology						
Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Accelerate Diagnostics, Inc.	United States	108	8.2x	7.1x	NM	NM
bioMérieux S.A. (ENXTPA:BIM)	France	11,842	3.3x	3.3x	11.9x	13.8x
Meridian Bioscience, Inc.	United States	1,352	4.1x	4.6x	14.3x	NM
OraSure Technologies, Inc. (NasdaqGS:OSUR)	United States	283	0.9x	1.1x	NM	43.5x
Quidel Corporation (NasdaqGS:QDEL)	United States	8,380	2.8x	3.0x	5.7x	11.0x
Sansure Biotech Inc.	China	1,323	1.8x	NM	4.0x	NM
T2 Biosystems, Inc.	United States	53	2.2x	2.1x	NM	NM
Mean		3,334	3.3x	3.5x	9.0x	22.8x
Median		1,323	2.8x	3.1x	8.8x	13.8x
Histology & Cytology						
Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Guangzhou LBP Medicine Science & Technology Co., Ltd.	China	262	3.8x	NM	37.7x	NM
Mean		262	3.8x	NM	37.7x	NM
Median		262	3.8x	NM	37.7x	NM
Hematology & Coagulation						
Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Beijing Succeder Technology Inc.	China	216	6.4x	NM	16.3x	NM
Quotient Sciences	Switzerland	253	6.7x	5.7x	NM	NM
Sysmex Corporation (TSE:6869)	Japan	12,158	4.4x	4.0x	18.0x	15.1x

Mean	4,209	5.8x	4.8x	17.1x	15.1x
Median	253	6.4x	4.8x	17.1x	15.1x

DIAGNOSTIC SERVICES

Diagnostic Imaging

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV
Akumin Inc. (TSX:AKU)	United States	1,728	2.3x	2.3x	10.1x	10.3x
Centro de Imagem Diagnósticos S.A.	Brazil	642	3.1x	NM	33.0x	NM
Integral Diagnostics Limited (ASX:IDX)	Australia	579	2.4x	2.0x	11.5x	9.4x
Medica Group Plc (LSE:MGP)	United Kingdom	222	2.6x	2.5x	12.8x	11.3x
RadNet, Inc. (NasdaqGM:RDNT)	United States	2,623	1.9x	1.8x	8.8x	12.4x
Mean		1,159	2.5x	2.2x	15.2x	10.8x
Median		642	2.4x	2.2x	11.5x	10.8x

Specialized Testing

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV
Adaptive Biotechnologies Corporation	United States	837	5.0x	4.0x	NM	NM
BGI Genomics Co., Ltd.	China	2,538	2.9x	NM	15.1x	NM
BioNexus Gene Lab Corporation	Malaysia	181	16.0x	NM	NM	NM
Burning Rock Biotech Limited	China	131	1.6x	1.5x	NM	NM
CareDx, Inc (NasdaqGM:CDNA)	United States	439	1.4x	1.3x	NM	NM
Castle Biosciences, Inc. (NasdaqGM:CSTL)	United States	369	3.0x	2.3x	NM	NM
Exact Sciences	United States	9,775	4.9x	4.4x	NM	NM
Fulgent Genetics, Inc.	United States	223	0.3x	0.9x	0.6x	NM
Invitae Corporation	United States	1,887	3.6x	3.7x	NM	NM
MDxHealth SA	Belgium	89	2.8x	1.6x	NM	NM
Myriad Genetics, Inc. (NasdaqGS:MYGN)	United States	1,520	2.3x	2.2x	107.0x	NM
Natera, Inc.	United States	4,378	5.6x	4.7x	NM	NM
NeoGenomics, Inc.	United States	1,584	3.2x	3.0x	NM	NM
Progenity, Inc. (NasdaqGM:PROG)	United States	149	NM	NM	NM	NM
Veracyte, Inc. (NasdaqGM:VCYT)	United States	1,837	6.5x	5.8x	NM	NM
Mean		1,729	4.2x	2.9x	40.9x	NM
Median		837	3.1x	2.7x	15.1x	NM

General Chemistry

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV
Diagnósticos da América S.A. (BOVESPA:DASA3)	Brazil	3,855	1.6x	1.4x	11.5x	7.3x
Dr. Lal PathLabs Limited (BSE:539524)	India	2,458	9.9x	8.8x	41.2x	34.9x
Guangzhou Kingmed Diagnostics Group Co., Ltd.	China	4,227	1.9x	2.1x	7.4x	8.0x
H.U. Group Holdings, Inc.	Japan	1,264	0.6x	0.7x	3.2x	4.0x
Instituto Hermes Pardini S.A.	Brazil	664	1.7x	1.6x	8.9x	7.2x
Integrated Diagnostics Holdings plc	Jersey	454	2.1x	2.8x	5.9x	7.5x
LabCorp	United States	27,289	1.8x	1.8x	7.9x	10.6x

Medicover AB (publ) (OM:MCOV B)	Sweden	2,975	2.0x	1.8x	12.0x	11.6x
Metropolis Healthcare Limited (NSEI:METROPOLIS)	India	944	6.5x	6.0x	26.3x	23.2x
Quest Diagnostics Incorporated	United States	21,346	2.1x	2.4x	7.9x	12.0x
Sonic Healthcare Limited	Australia	11,918	1.9x	2.2x	6.4x	9.6x
Thyrocare Technologies Limited	India	399	6.4x	5.7x	22.8x	20.9x
Mean		6,483	3.2x	3.1x	13.5x	13.1x
Median		2,717	1.9x	2.1x	8.4x	10.1x

LIFE SCIENCE TOOLS

Laboratory Software

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV
Precigen, Inc. (NasdaqGS:PGEN)	United States	399	3.4x	16.0x	NM	NM
Schrödinger, Inc. (NasdaqGS:SDGR)	United States	905	5.3x	4.4x	NM	NM
Simulations Plus, Inc.	United States	697	12.9x	11.4x	39.0x	33.9x
SyntekaBio, Inc.	Korea (Republic of)	65	NM	NM	NM	NM
Mean		517	7.2x	10.6x	39.0x	33.9x
Median		548	5.3x	11.4x	39.0x	33.9x

Life Sciences Consumables

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV
Abcam plc	United Kingdom	3,818	9.0x	7.7x	36.1x	23.2x
Abnova (Taiwan) Corporation	Taiwan (Province of China)	62	4.8x	NM	29.3x	NM
Adaptive Biotechnologies Corporation	United States	837	5.0x	4.0x	NM	NM
Avantor, Inc.	United States	20,918	2.7x	2.8x	12.7x	13.4x
Bio-Techne	United States	13,479	12.1x	10.9x	35.8x	27.9x
Bioneer Corporation	Korea (Republic of)	613	3.6x	NM	28.5x	NM
Borosil Limited (BSE:543212)	India	589	5.0x	NM	32.4x	NM
Collectis S.A.	France	82	3.5x	1.7x	NM	NM
Genscript Biotech Corporation	China	4,728	8.0x	6.7x	NM	NM
Guangzhou Jet Bio-Filtration Co., Ltd.	China	557	5.6x	5.3x	21.4x	NM
Guerbet SA	France	475	0.6x	0.6x	6.6x	4.5x
NKMAX CO., Ltd.	Korea (Republic of)	487	54.8x	NM	NM	NM
Porton Pharma Solutions Ltd. (SZSE:300363)	China	2,976	3.4x	3.1x	10.0x	9.2x
Qiagen	Netherlands	11,683	5.3x	5.9x	15.5x	16.1x
Repligen Corporation (NasdaqGS:RGEN)	United States	9,775	12.2x	12.5x	34.9x	42.2x
Twist Bioscience Corporation (NasdaqGS:TWST)	United States	1,137	5.6x	4.3x	NM	NM
Vitrolife AB (publ) (OM:VITR)	Sweden	2,530	9.3x	7.6x	28.7x	22.6x
Viva Biotech Holdings	China	723	2.2x	NM	13.2x	NM
Mean		4,193	8.5x	5.6x	23.5x	19.9x
Median		987	5.1x	5.3x	28.5x	19.3x

Instrumentation

Company Name	Geography	Enterprise Value	xRevenue		xEBITDA	
		(\$mm)	LTM EV	FTM EV	LTM EV	FTM EV

Bruker Corporation (NasdaqGS:BRKR)	United States	10,450	4.2x	4.1x	18.4x	17.6x
10x Genomics, Inc.	United States	4,069	8.1x	6.9x	NM	NM
AnHui Wanyi Science and Technology Co., Ltd.	China	448	4.8x	NM	80.0x	NM
Berkeley Lights, Inc.	United States	114	1.4x	1.2x	NM	NM
Biotage AB (publ) (OM:BIOT)	Sweden	1,120	7.8x	6.7x	30.8x	24.0x
Harvard Bioscience, Inc.	United States	158	1.3x	1.4x	30.4x	11.3x
Illumina, Inc.	United States	35,829	7.6x	7.5x	54.3x	48.2x
Mettler-Toledo International Inc.	United States	34,619	8.9x	8.9x	28.4x	26.6x
NanoString Technologies, Inc.	United States	347	2.6x	2.2x	NM	NM
Pacific Biosciences of California, Inc.	United States	2,545	18.6x	17.3x	NM	NM
Quanterix Corporation (NasdaqGM:QTRX)	United States	192	1.8x	1.8x	NM	NM
Standard BioTools Inc.	United States	339	3.1x	NM	NM	NM
Waters Corporation	United States	21,776	7.4x	7.3x	21.2x	21.3x
Mean		8,616	6.0x	5.9x	37.6x	24.8x
Median		1,120	4.8x	6.7x	30.4x	22.6x

Lab/Biobank Equipment

Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
BICO Group AB (publ) (OM:BICO)	Sweden	570	2.6x	2.7x	NM	68.8x
Sartorius Aktiengesellschaft (XTRA:SRT)	Germany	26,681	6.4x	5.9x	19.6x	17.4x
Stratec SE	Germany	1,079	3.9x	3.5x	18.9x	14.6x
Tecan Group Ltd. (SWX:TECN)	Switzerland	5,308	4.7x	4.4x	25.9x	21.5x
Mean		8,410	4.4x	4.1x	21.4x	30.6x
Median		3,194	4.3x	3.9x	19.6x	19.4x

IN VIVO DIAGNOSTICS

Biometric Monitoring

Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Biotricity, Inc.	United States	67	7.9x	5.0x	NM	NM
Contec Medical Systems Co.,Ltd	China	1,459	15.9x	NM	87.8x	NM
Guangdong Transtek Medical Electronics Co., Ltd	China	221	1.1x	NM	NM	NM
iRhythm Technologies, Inc.	United States	3,209	8.4x	6.9x	NM	NM
TaiDoc Technology Corporation	Taiwan (Province of China)	470	1.6x	2.2x	3.5x	5.7x
Zhejiang Starry Pharmaceutical Co.,Ltd. (SHSE:603520)	China	1,160	4.0x	3.5x	21.0x	14.9x
Mean		1,098	6.5x	4.4x	37.4x	10.3x
Median		815	5.9x	4.2x	21.0x	10.3x

Imaging Diagnostics

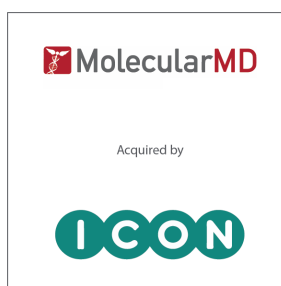
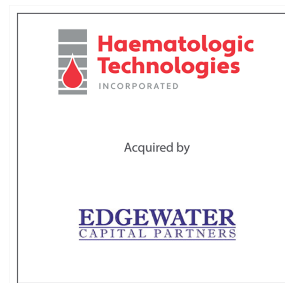
Company Name	Geography	Enterprise Value (\$mm)	xRevenue		xEBITDA	
			LTM EV	FTM EV	LTM EV	FTM EV
Siemens Healthineers AG (XTRA:SHL)	Germany	74,189	3.3x	3.2x	17.4x	16.8x

4DMedical Limited	Australia	65	NM	19.7x	NM	NM
Detection Technology Oyj	Finland	262	2.8x	2.2x	22.6x	14.2x
iRay Technology Company Limited	China	4,416	21.3x	16.3x	59.6x	36.7x
Kromek Group plc	United Kingdom	59	4.1x	2.8x	NM	NM
Nano-X Imaging Ltd. (NasdaqGM:NNOX)	Israel	445	57.4x	26.3x	NM	NM
Ray Co., Ltd.	Korea (Republic of)	241	2.9x	2.0x	53.9x	8.4x
SonoScape Medical Corp.	China	2,787	11.2x	11.0x	54.0x	42.0x
Varex Imaging Corporation (NasdaqGS:VREX)	United States	1,212	1.4x	1.4x	9.5x	8.1x
Mean		9,297	13.1x	9.4x	36.2x	21.0x
Median		445	3.7x	3.2x	38.2x	15.5x

1. NM - Not Meaningful

RECENT CROSSTREE TRANSACTIONS

Crosstree Capital Partners provides mergers and acquisitions and financing advisory services exclusively to leading Health Sciences companies. Since inception, the firm has been a consistent leader within our focus areas, closing more than 100 successful transactions with companies ranging from private equity-backed consolidators to Fortune 500 publicly-traded companies. In the process, we have represented clients on five continents, and roughly 35% of our transactions have been cross-border.



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