

Tandem Tipping Point

Xalkori and Zelboraf Prove Efficiency of RxDx Strategy

By Trista Morrison
Editor

For years, the drug industry has known its cost of developing a new product – estimated at \$1.3 billion – is not sustainable. For years, companion diagnostics have been considered as a potential solution to that problem. And for years, the result has been a lot of talk, but very little action.

Until now. Last month’s FDA approval of melanoma drug Zelboraf (vemurafenib, Daiichi Sankyo Co. Ltd. and Roche AG) and lung cancer drug Xalkori (crizotinib, Pfizer Inc.) proved the point: both drugs are targeted, both were approved alongside companion diagnostics, and both advanced from Phase I trials to market in about five years.

While most drugs languish in clinical trials for upwards of a decade, Zelboraf and Xalkori were able to move quickly, largely due to the fact that both were paired with companion diagnostics very early in their clinical development, allowing them to find the right patient population, establish efficacy and present a convincing case to regulators.

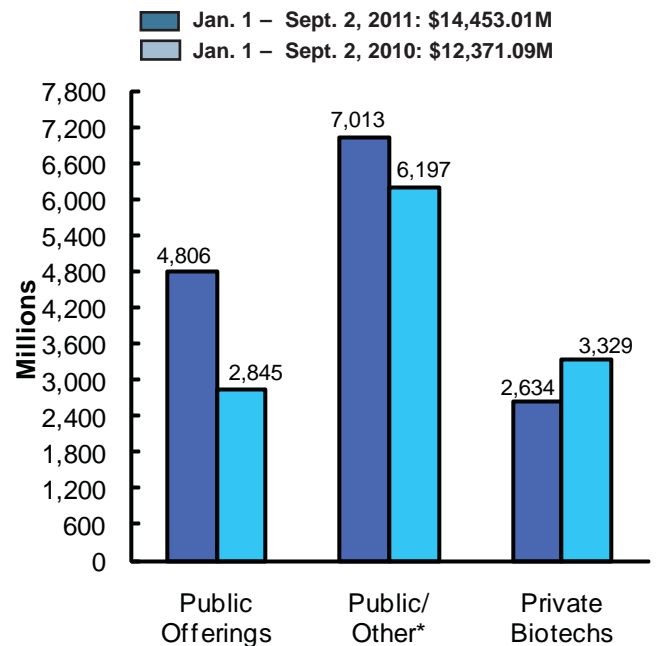
“We’re really at the tipping point of pharmaceutical companies seeking out diagnostics companies earlier in development,” said Kathryn Becker, director of Abbott Molecular Oncology.

It’s been a long time coming.

“If you look back almost a decade ago, to the sequencing of the human genome, people thought things would happen almost immediately,” said Abbott spokesman Don Braakman. “It’s been a longer, more costly process than anticipated.”

Everyone points to Roche’s breast cancer drug Herceptin (trastuzumab) and its accompanying HER2 tests as a shining example of success in personalized medicine, but few have followed in its footsteps.

**Money Raised By Biotech
In 2011 Vs. 2010**



* Includes financings of public biotech firms with the exceptions of public offerings and certain investments from corporate partners.

In some cases, the specific mechanism of a drug is not fully understood early enough in the development process to improve clinical trial stratification. In other cases, the mechanism is known, but drug makers are reluctant to limit their potential market to patients with a specific genetic mutation. In still other cases, drug companies use lab-developed tests to find the right patients in the clinic, but when it comes to translating those tests into an FDA-

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Hear That Activity?

Aging Population, Side Effects Drive Hearing Loss Drug R&D

By **Brian Orelli****BioWorld Insight Contributing Writer**

There are no drugs approved to treat hearing loss or tinnitus – ringing in the ears – but that seems destined to change considering the large amount of activity recently in the relatively new hearing loss treatment space.

Last month, GlaxoSmithKline plc spun out its hearing loss assets into Autifony Therapeutics Ltd. The startup raised £10 million (US\$16.4 million) from venture capital investors to help develop the biotech's voltage-gated ion channel modulators. (See *BioWorld Today*, Aug. 23, 2011.)

Other early stage companies, MedGenesis Therapeutix Inc. and Otonomy Inc., have begun work on hearing loss drugs recently. And at the beginning of last year, Novartis AG inked a preclinical deal with GenVec Inc. to develop treatments for hearing loss and inner ear-related balance disorder using the biotech's gene therapy technology. The entire deal is potentially worth more than \$213 million. (See *BioWorld Today*, Jan. 20, 2010, and June 11, 2010.)

Jonathan Kil, president and CEO of Sound Pharmaceutical Inc., attributes part of the hyperactivity to a better scientific understanding of how hearing works. Using knockout mice, researchers have discovered many proteins responsible for hearing in mammals. Mutations in the microRNA, miR-96, have also been linked to hearing loss. (See *BioWorld International*, April 22, 2009.)

Equally important, Kil said the aging population, which tends to have elevated hearing loss, has contributed to the desire to enter a space that has traditionally been served by medical devices. While hearing loss isn't life threatening, "quality of life issues are becoming more paramount," Kil said.

And it's not just older patients who are experiencing a loss of hearing. National health surveys have found an increase in the incidence of slight hearing loss, which rose from 15 percent of teenagers in the 1990s to 20 percent more recently.

All told, 50 million Americans may have hearing loss that can be classified as a slight loss or worse.

Sound's SPI-1005 is designed to prevent noise induced hearing loss by mimicking and inducing glutathione peroxidase, a protector of oxidative stress that can lead to loss of auditory hair cells. The initial focus is on patients with occupations where hearing loss is prevalent, but Kil hopes that the drug might be used as a treatment to slow the progression of age-related hearing loss eventually. Data from the Phase II trial are expected at the end of the year.

Hearing loss also is caused by drugs that treat other ailments. "Over 200 drugs have ototoxicity as a side effect and many are contraindicated because they become more ototoxic when combined," Kil said.

The same active ingredient in SPI-1005 is being tested for the prevention of ototoxicity by other drugs. Data from a trial testing the alternative formulation, SPI-3005, in patients receiving chemotherapy are expected by the end of next year.

Sound Pharma also is researching ways to regenerate auditory hair cells in patients who already have substantial hearing loss. If basic research plays out in the clinic, RNAi induced reduction of p27 should stimulate cell division of normally dormant epithelial cells within the inner ear. ■

"Over 200 drugs have ototoxicity as a side effect and many are contraindicated because they become more ototoxic when combined."

– Jonathan Kil, president and CEO, Sound Pharmaceutical

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EDITORIAL

Lynn Yoffee: **(404) 262-5408**
Trista Morrison: **(858) 901-4785**
Donald R. Johnston: **(404) 262-5439**
Internet: <http://www.bioworld.com>



*Price Insensitivity***FTC v Lundbeck Could Spur More Aggressive Drug Deals****By Trista Morrison
Editor**

An appellate court ruling could prompt drug companies to more aggressively pursue mergers, acquisitions and product licenses – even in situations where such deals might raise antitrust concerns.

The case in question is *Federal Trade Commission v. Lundbeck Inc.* It represents the first time the FTC has taken a drug company to court over anti-competitive behavior related to deal making – and the FTC lost.

Usually an FTC challenge to a deal results in the companies agreeing to divest their competitive products. Merck & Co. Inc.'s merger with Schering-Plough Corp. required a handful of divestitures including Schering's NK1 receptor antagonists, which were picked up by OPKO Health Inc. And when Roche AG and Genentech Inc. joined forces, each made divestitures, including Roche's human growth hormone releasing factor program. (See *BioWorld Today*, March 10, 2009, and March 13, 2009.)

More rarely, FTC challenges can cause a deal to be abandoned. CSL Ltd. and Talecris Biotherapeutics Inc. dropped their plans for a \$3.1 billion merger rather than fight the FTC over competition in the plasma products field. Talecris was later sold to Grifols SA for \$3.4 billion. (See *BioWorld Today*, June 9, 2009, and June 8, 2010.)

But in the case of Lundbeck, the FTC felt it had a strong enough case to go all the way to trial. And Lundbeck decided not to give in.

The story began in 2005, when Ovation Pharmaceuticals Inc. acquired Indocin I.V. (indomethacin for injection) from Merck & Co. Inc. The drug is used to treat patent ductus arteriosus (PDA), a disorder that prevents holes from healing in the hearts of premature infants. A few years later, Deerfield, Ill.-based Ovation also acquired NeoProfen (ibuprofen lysine injection), a drug used for the same condition, from Abbott.

The FTC sued Ovation in 2008, challenging the acquisition of NeoProfen from Abbott on the grounds that the drug was the only available treatment for PDA, other than Indocin I.V. While Merck had previously charged \$77.77 per treatment with Indocin I.V., Ovation was charging \$1,614.44, and the firm had raised the price of NeoProfen 13-fold, to \$1,522.50.

Congress also launched an investigation into what some called price gauging, not just by Ovation but by other acquirers of older drugs for rare diseases. Yet the scandal didn't make Ovation any less attractive to H. Lundbeck A/S, which bought the firm for \$900 million in 2009. (See *BioWorld Today*, July 28, 2008, and Feb. 10, 2009.)

In the end, Lundbeck was right not to worry: The district court dismissed the FTC's case after a bench trial in 2010, and now the Eighth Circuit appellate court has agreed. Why?

As Cooley LLP attorney Howard Morse explained, the FTC failed to prove Indocin I.V. and NeoProfen were in the

same market. Yes, the drugs treat the same disease, but the definition of a market depends on the assumption customers will switch from one product to the other depending on price. Ovation used physician testimony to prove doctors don't factor the cost of treatment into their decisions.

What does that mean for the drug industry? Morse suggested – perhaps more important – is what it doesn't mean. It doesn't mean the FTC will stop scrutinizing drug industry deals. Biotech and pharmaceutical company deals have been a "very active area" for the FTC for 20 years, Morse said, and "that will no doubt continue."

But what the Lundbeck case does show is that defining the market will be key in antitrust cases. Morse noted that drug companies usually try to define a market in as broad of terms as possible, reasoning that their two competitive products, when combined, will hold less market share if the overall market is larger. But in this case, arguing for a very narrow market definition helped Lundbeck establish that the drugs could be considered to serve different markets.

"What this case shows is there may be times when an argument can be made that two competing drugs are in separate markets," Morse said. He cautioned, however, that he "wouldn't go as far as to say every time a drug is [chemically] different, the merger will go through."

Morse also noted that while the FTC has trended away from focusing on markets and has instead emphasized pricing, internal company documents and other factors, the courts are bringing the focus back to the market definition.

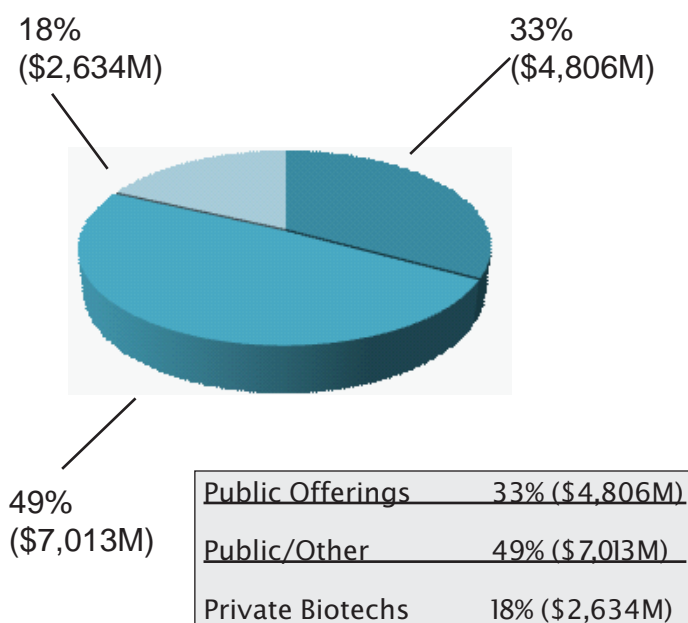
Another interesting point: in this case at least, doctors did not consider price in making their treatment decisions. Despite the pressures of managed care, tiered reimbursement, and other efforts to push prescribers toward lower priced drugs, "doctors are not making choices based on this kind of influence and pressure, but on safety and efficacy," Morse said. ■

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RxDx

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approved diagnostic – well, that’s someone else’s problem.

Even Herceptin was not developed in tandem with a companion diagnostic, Abbott’s Becker noted. But what companies seem to be realizing is that – even beyond the fact that companion diagnostics result in better treatment for patients and more efficiency for the healthcare system – they can also save money in R&D, especially if you incorporate them from the beginning.

That’s what Zelboraf and Xalkori illustrate.

Case Studies in Efficiency

Zelboraf, originally developed by Plexxikon Inc., targets tumors that carry the BRAF V600E mutation. BRAF mutations are thought to occur in about half of melanoma patients and in 8 percent of solid tumors. Plexxikon understood the biology of its drug and approached Roche about developing a companion diagnostic in 2005, even before Zelboraf had entered the clinic.

Roche liked what it saw. In 2006, the big pharma signed on as Plexxikon’s partner in a \$706 million deal and geared up to start human trials. Phase I data showed a stunning 81 percent response rate, prompting the initiation of simultaneous Phase II and Phase III trials in 2009. (See *BioWorld Today*, Oct. 5, 2006, and Sept. 30, 2009.)

By late 2010, Roche had good Phase II data, and in early 2011, the Phase III study was halted early due to strong efficacy. Daiichi Sankyo bought Plexxikon a few months later,

and approval applications were filed. The FDA, seemingly determined not to be the wrench in this well-oiled machine, delivered its approval two months earlier than anticipated. (See *BioWorld Today*, Nov. 8, 2010, May 12, 2011, and Aug. 18, 2011.)

The story of Xalkori’s development is similar. Pfizer scientists discovered the molecule in 2005 and advanced it into the clinic in 2006. Although they knew Xalkori targeted cMET and ALK, it wasn’t until 2007 that researchers identified the EML4-ALK mutation as a cause of non-small cell lung cancer. That finding “allowed us to link the biology to what we were seeing in the clinic,” said Mace Rothenberg, Pfizer’s senior vice president of clinical development and medical affairs in the Oncology Business Unit.

Rothenberg explained that the company had already seen three patients respond well in its Phase I trial. When subsequently tested, all three had the EML4-ALK mutation. Pfizer shifted its focus on Xalkori’s development from cMET to ALK, but since the EML4-ALK mutation only occurs in about 3 percent to 5 percent of non-small cell lung cancer patients, the pharma knew it would need a companion diagnostic.

“Focusing your development on a genetically characterized subset of patients in Phase I is very unusual,” Rothenberg said. But that was Pfizer’s plan. The pharma started evaluating potential diagnostic partners, signing a deal with Abbott in 2009. By 2010, the companies had Phase I/II data showing a nearly 60 percent complete or partial response rate in patients with the EML4-ALK mutation. The FDA approved the drug – again ahead of schedule – based on data from two single-arm Phase II trials. Two confirmatory Phase III trials are underway.

Becker noted that when Pfizer and Abbott first teamed up in 2009, their goal was to see Xalkori and its companion diagnostic approved in 2012. Rothenberg added that the fact that the approval came a year early “shows what can be accomplished when government, academia and industry work together” and “sets the bar” in terms of efficient development of targeted agents.

Beating Standards

That Zelboraf and Xalkori advanced from Phase I in 2006 to FDA approval in 2011 is nothing short of astounding compared to standard drug development timelines.

Vertex Pharmaceutical Inc.’s Incivek (telaprevir), approved earlier this year for hepatitis C, took 20 years and \$4 billion of investment to get to market. Human Genome Sciences Inc.’s lupus drug Benlysta (belimumab), also approved earlier this year, and Dendreon Corp.’s prostate cancer vaccine Provenge (sipuleucel-T), approved last year, each spent more than a decade in the clinic. (See *BioWorld Today*, April 30, 2010, March 11, 2011, and May 24, 2011.)

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WEEK IN REVIEW

Financings

Affinium Pharmaceuticals Inc. raised \$15 million in a Series B financing.

Ardelyx Inc. closed a \$30 million Series B round for its Phase II irritable bowel drug.

OrbiMed Advisors LLC jumped into the royalty monetization game, raising a \$600 million fund.

Deals

Adimab LLC inked antibody discovery deals with **Biogen Idec Inc.** and **Novo Nordisk A/S.**

Afexa Life Sciences Inc. agreed to a \$77 million acquisition by **Valeant Pharmaceuticals International Inc.**

Synageva BioPharma Corp. signed an orphan disease research deal with **Mitsubishi Tanabe Pharma Corp.**

Zymeworks Inc. signed a \$187 million deal with **Merck & Co. Inc.** for bispecific antibody discovery.

... And More

Aeterna Zentaris Inc.'s AEZS-130 met its endpoint in Phase III as a diagnostic for growth hormone deficiency.

Amsterdam Molecular Therapeutics NV cut costs as it gears up for an extension trial with gene therapy Glybera.

Clavis Pharma ASA expanded its pivotal Phase III trial of elacytarabine in acute myeloid leukemia.

Curacyte AG terminated its Phase III trial of PHP/Hemoximer for distributive shock due to futility.

Cytos Biotechnology Ltd. is reducing its workforce and board to conserve capital.

NuPathe Inc.'s Zelrix (sumatriptan patch) for migraine got an FDA complete response letter.

Oxigene Inc. restructured and delayed a pivotal Zybrestat (fosbretabulin tromethamine) trial.

Pfizer Inc. gained FDA approval of lung cancer drug Xalkori (crizotinib), paired with a diagnostic from Abbott.

WORD ON THE STREET

"The assumption that CVRs were created because big pharma didn't want to take the risk is, honestly, a misnomer."

– *Gino Santini, retired senior vice president of corporate strategy and business development at Eli Lilly and Co.*

"Let's have a war on precancer."

– *Jeffrey Jacob, CEO of Cancer Prevention Pharmaceuticals Inc.*

"They're almost like small children: when you keep them apart they are quiet, but when you put them together . . ."

– *Mace Rothenberg, Pfizer Inc.'s senior vice president of clinical development and medical affairs in the Oncology Business Unit, on how a mutation that places ALK and EML4 side by side results in activation of ALK, causing cancer*

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Public Financing Of Biotechnology: August 2011

I. COMMENCED TRADING IN AUGUST

Company (Symbol)#	Date Filed	Date Comm.	Shares/ Units (M)	Price	Shares Out (M)@	Lead, Other Underwriters	Gross (US\$M)	Post- Offering Market Cap (M)%
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INITIAL OFFERINGS

There were no initial public offerings that commenced in August.

TOTAL: \$0M

NUMBER OF IPOs IN AUGUST: 0

AVERAGE VALUE OF AUGUST IPOs: \$0M

NUMBER OF IPOs IN 2011: 10

TOTAL RAISED IN IPOs IN 2011: \$516.84M

AVERAGE VALUE OF IPOs IN 2011: \$51.68M

Company (Symbol)#	Date Filed	Date Comm.	Shares/ Units (M)	Price	Shares Out (M)@	Lead, Other Underwriters	Gross (US\$M)	Post- Offering Market Cap (M)%
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FOLLOW-ON OFFERINGS

Somaxon Pharmaceuticals Inc. (San Diego; SOMX)	8/3/11	8/3/11	N/A	N/A	N/A	Citadel Securities LLC	\$30	N/A
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TOTAL: \$30M

NUMBER OF FOLLOW-ON OFFERINGS IN AUGUST: 1

AVERAGE VALUE OF AUGUST FOLLOW-ONS: \$30M

NUMBER OF FOLLOW-ON OFFERINGS IN 2011: 57

TOTAL RAISED IN FOLLOW-ONS IN 2011: \$4,288.716M

AVERAGE VALUE OF FOLLOW-ONS IN 2011: \$75.24M

Notes:

Unless otherwise indicated, shares are traded on the Nasdaq exchange.

@ This column reflects the shares outstanding following the offering, when disclosed.

% Market capitalization is calculated based on the offering price.

Currency conversions are based on exchange rates at the time of the deal.

II. FILED AND PENDING

Company (Symbol)#*	Date Filed	Shares/ Units (M)	Price	Shares Out	Lead, Other Underwriters (M)®	Gross (US\$M)
INITIAL OFFERINGS						
Argos Therapeutics Inc. (Durham, N.C.; ARGS)	7/29/11	N/A	N/A	N/A	Lazard Capital Markets Canaccord Genuity (co-lead) Needham & Co. BMO Capital Markets	\$86.25
Clovis Oncology Inc. (Boulder, Colo.; CLVS)	6/23/11	N/A	N/A	N/A	J.P. Morgan Credit Suisse (co-lead) Leerink Swann	\$149.5
Cutanea Life Sciences Inc. (CTNA)	11/5/10	2.35	\$6-\$7	3.9	Brean Murray, Carret & Co. Rodman & Renshaw LLC (co-lead)	\$14.95
Insys Therapeutics Inc. (Phoenix; INRX)	3/30/11	N/A	N/A	N/A	Wells Fargo Securities JMP Securities (co-lead) Oppenheimer & Co.	\$55
Merrimack Pharmaceuticals Inc. (Cambridge, Mass.; MACK)	7/8/11	N/A	N/A	N/A	J.P. Morgan BofA Merrill Lynch Cowen & Co. Oppenheimer & Co.	\$172.5
NewLink Genetics Corp. (NLNK)	12/21/10	N/A	N/A	N/A	Wells Fargo Cowen & Co. (co-lead) Robert W. Baird Canaccord Genuity Needham & Co. LLC	\$86.25
Supernus Pharmaceuticals Inc. (SUPN)	12/23/10	N/A	N/A	N/A	Citibank Barclays Capital (co-lead) Cowen and Co. Stifel Nicolaus Weisel	\$100
FOLLOW-ON OFFERINGS						
Zogenix Inc. (San Diego; ZGNX) ¹	8/25	125	\$3.40	N/A	Leerink Swann LLC Wells Fargo Sec. LLC (co-lead) Stifel Nicolaus & Co. Inc. William Blair & Co. LLC Oppenheimer & Co. Inc.	\$40.8
<p>Notes: # Unless otherwise indicated, shares are traded on the Nasdaq exchange. General shelf registration statements are not included until action is taken on the filing. * Stock symbols for companies seeking to complete IPOs are proposed. ® This column reflects the shares outstanding following the offering, when disclosed. N/A = Not available, applicable or reported.</p> <p>The value of all offerings is based on either the midpoint of the price range listed in the company's SEC filing or the most recent closing stock price before the offering was announced. In some cases, the company has not disclosed the number of shares to be offered or a price range. Then, the value is the maximum aggregate offering price listed in the SEC filing.</p> <p>¹ Zogenix's overallotment option: 1.8M shares.</p>						

Biotech Money Raised By Month In 2011: January - August

Type of financing	Jan	Feb	Mar	Apr	May	June	July	Aug	Total (\$M)
Public offerings	711.7	1,022.6	1,422.9	496.0	601.9	331.6	189.8	30.0	4,806.4
Public/other	923.0	880.6	263.0	138.2	982.4	3,425.3	247.9	153.0	7012.8
Private biotechs	476.0	192.8	176.5	545.6	224.3	496.0	307.5	185.5	2,603.8
Total (\$M)	2,110.0	2,096.0	1,862.2	1,179.7	1,808.6	4,252.8	745.2	368.4	14,423.0

Notes:

Public offerings = Initial, follow-on.

Private biotechs = Financings of private firms.

Public/other = Other financings of public companies, including loans, bridge financings, exercises of warrants, debt offerings, rights offerings, standard private placements, PIPE financings and institutional offerings of registered stock.

Other Financings Of Public Biotechnology Companies: August 2011

TOTAL: \$152.951M

Company (Location)	Type Of Financing	Number Of Shares, Units Or Warrants (M)	Amount Raised (M)	Investors; Placement Agents; Details (Date)
Agenus Inc. (Lexington, Mass.)	Private placement of common stock	13.735	\$7	Agenus raised \$7M by placing 13.73M shares at 51 cents each (8/15)
Evolva Holding SA (Reinach, Switzerland)	Standby equity distribution agreement	N/A	CHF0.5 (\$0.635)	Evolva entered a SEDA with YA Global Master SPV Ltd., which has committed to provide up to CHF30M (\$38.1M) in equity financing over 36 months, with an initial advance of CHF500,000 in exchange for Evolva shares (8/16)
Fibrocell Science Inc. (Exton, Pa.)	Private placement	41.25	\$22.8	Fibrocell raised \$22.8M through a placement of 41.4M shares for 55 cents apiece; Rodman & Renshaw LLC and Gleacher & Co. Sec. Inc. acted as joint lead placement agents, with John Carris Investments LLC acting as co-placement agent (8/4)
Furiex Pharmaceuticals Inc. (Morrisville, N.C.)	Loan	N/A	\$15	Furiex secured a \$15M loan from MidCap Financial and Silicon Valley Bank (8/22)
Genfit SA (Lille, France)	Standby equity distribution agreement	N/A	(up to \$7.2M)	Genfit secured a standby equity distribution agreement with YA Global Master SPV Ltd. in which it can draw down up to \$7.2M over two years (8/25)
Lipoxen plc (London)	Investment and private placement	110.65; 1.55	£12.8 (\$20.9); £1.6 (\$2.62)	Lipoxen raised \$20.9M through an investment from SynBio LLC, and it privately placed 1.5M shares with Serum Institute to raise an additional \$2.62M (8/8)
Lorus Therapeutics Inc. (Toronto)	Private placement of units	5.5U	C\$2.2 (\$2.2)	Lorus completed an offering of 5.5M units – each comprising one common share and one common share purchase warrant – priced at C40 cents apiece, for gross proceeds of \$2.2M (8/16)

Top Private Financings Of Public Companies: 2011

Company	Month	Amount Raised
Amgen Inc.	June	\$3B
Endo Pharmaceuticals Holdings Inc.	May	\$900M
Valeant Pharmaceuticals International Inc.	February	\$650M
Dendreon Corp.	January	\$620M
Bavarian Nordic A/S	May	\$124.9M
LifeCycle Pharma A/S	January	\$79M
Pharmacyclics Inc.	June	\$57.1M
Icagen Inc.	July	\$49.8M
Vivus Inc.	August	\$45.8M
Intercell AG	February	\$45.4M

Company (Location)	Type Of Financing	Number Of Shares, Units Or Warrants (M)	Amount Raised (M)	Investors; Placement Agents; Details (Date)
NeurogesX Inc. (San Mateo, Calif.)	Loan	N/A	\$20	NeurogesX received a loan from Hercules Technology Growth Capital Inc. (8/10)
NuPathe Inc. (Conshohocken, Pa.)	Common stock purchase agreement	0.0715	\$0.5	NuPathe raised \$500,000 by offering 70,721 shares for \$7.07 apiece (8/4)
PharmaGap Inc. (Ottawa, Ont.)	Private placement of units	5.5U	\$0.496	PharmaGap raised \$496,405 through the offering of 5.5M units, with each unit containing one common share and one warrant to purchase a common share at 14 cents with a two-year warrant term (8/5)
Somaxon Pharmaceuticals Inc. (San Diego)	Term loan agreement	N/A	\$15	Somaxon received \$15M through a term loan from Oxford Finance Corp. and Silicon Valley Bank (8/4)
Vivus Inc. (Mountain View, Calif.)	Registered direct offering	6.9S	\$45.8	Vivus priced the offering of 6.9M shares at \$6.65 each for gross proceeds of \$45.8M (8/24)

Notes:

This chart does not include real estate or manufacturing plant financings, or debt deals done to replace existing debt. Loan money is included in the total only when it is drawn down, if disclosed.

** Denotes the date the item ran in *BioWorld International*. Currency conversions are based on exchange rates at the time of the deal.

The date indicated refers to the *BioWorld Today* issue in which the news item can be found.

N/A = Not applicable; ND = Not disclosed.

Venture Capital And Other Investments In Private Biotechnology Companies: August 2011

TOTAL: \$185.48M

Company	Location	Date	Amt. (M)	Details
Affinium Pharmaceuticals Inc.	Austin, Texas	8/30	\$15	Affinium raised \$15M in a follow-on Series A financing; investors were SV Life Sciences, Genesis Capital Partners and Forward Ventures, as well as Ontario Emerging Technologies Fund
Autifony Therapeutics Ltd.	London	8/23	£10 (\$16.4)	Autifony received \$16.4M from venture capital investors, including Imperial Innovations plc and SV Life Sciences
CoLucid Pharmaceuticals Inc.	Durham, N.C.	8/31	\$7.5	CoLucid raised \$7.5M of a planned \$9.5M convertible note financing from its existing investors; participating investors included Pappas Ventures, Domain Associates, Care Capital, Pearl Street Venture Funds and Triathlon Medical Ventures
Embera NeuroTherapeutics Inc.	Shreveport, La.	8/16	\$4.5	Embera closed a \$4.5M round in a continuation of its Series A financings; investors were Louisiana Ventures LP, Louisiana Fund I and Themelios Ventures, as well as private investors
Enobia Pharma Inc.	Montreal	8/11	\$40	Enobia raised \$40M in a Series D round with Banc of America Merrill Lynch acting as exclusive placement agent
Jennerex Inc.	San Francisco	8/12	\$8.6	Jennerex completed a private placement of \$8.6M
Mirna Therapeutics Inc.	Austin, Texas	8/24	\$1.5	Mirna closed a \$1.5M equity round with participation from several existing shareholders
Mission Therapeutics Ltd.	London	8/25	£6 (\$9.8)	Mission raised \$9.8M in its first round from Sofinova Partners, Imperial Innovations, SR One and the Roche Venture Fund

Top Financings Of Private Companies: 2011

Company	Month	Amount Raised
H3 Biomedicine	January	\$200M
Symphogen	January	\$131M
Tesaro	June	\$101M
Asclletis	April	\$100M
Intrexon	June	\$100M
Circassia	April	\$98M
Merrimack	April	\$77M
Advanced Accelerator Applic.	July	\$57.4M
Sangart	April	\$50M
Chimerix	February	\$45M
Revanche	June	\$45M
Ultragenyx	June	\$45M

Company	Location	Date	Amt. (M)	Details
OncoCyte Corp.	Alameda, Calif.	8/25	\$10	OncoCyte received \$4M in cash and \$6M in BioTime Inc. common shares through the financing
Proteon Therapeutics Inc.	Waltham, Mass.	8/15	\$15.2	Proteon raised \$15.2M in the Series C round
Pulmatrix Inc.	Lexington, Mass.	8/16	\$14	Pulmatrix pulled in another \$14M in a Series B round from 2009; investors were Polaris Venture Partners, 5AM Ventures, Arch Venture Partners and Novartis Venture Fund
SironRX Therapeutics Inc.	Cleveland	8/17	\$3.4	SironRX closed a \$3.4M Series A investments led by North Coast Angel Fund; additional investors were the Cleveland Clinic, JumpStart Inc., Glengary LLC, Ohio Tech Angel Fund III, Early Stage Partners, X Gen Ltd. and Fletcher Spaght Investments
Spinifex Pharmaceuticals Pty. Ltd.	Victoria, Australia	8/24	A\$6.25 (\$6.58)	Spinifex closed a \$6.58M expanded Series B round; investors were GBS Venture Partners, Brandon Capital, Uniseed and Uniquist
Thetis Pharmaceuticals LLC	Rocky Hill, Conn.	8/24	\$1.5	Thetis received \$1.5M in seed funding from Connecticut Innovations, Stonehenge Partners and angel investors
To-BBB Technologies BV	Leiden, the Netherlands	8/30	€1.8 (\$2.6)	To-BBB closed a \$2.6M second close of its Series B round, which was supported by a consortium of informal investors
Tube Pharmaceuticals GmbH	Vienna	8/9	€1 (\$1.4)	Tube raised \$1.4M in a seed funding round
Vantia Therapeutics Ltd.	London	8/23	£8 (\$13.1)	Vantia raised \$13.1M through funding from Novo Ventures and SV Life Sciences to form the new company KalVista Pharmaceuticals Ltd.
Yaupon Therapeutics Inc.	Radnor, Pa.	8/15	\$14.4	Yaupon raised \$14.4M in a Series D round; investors were Vivo Ventures, Palo Alto Investors, Burril & Co. and Aperture Venture Partners

Notes:

Currency conversions are based on exchange rates at the time of the deal.

** Denotes the date the item ran in *BioWorld International*.

The date indicated refers to the *BioWorld Today* issue in which the news item can be found.

ND = Not disclosed.

Milestone Payments From Corporate Partners: August 2011

TOTAL: \$65.7M

YEAR TO DATE: \$362.53M

Company (Location)	Partner (Location)	Amt. (M)	Details (Date)
Affymax Inc. (Palo Alto, Calif.)	Takeda Pharmaceutical Co. Ltd. (Osaka, Japan)	\$10	For the acceptance and filing of a new drug application for peginesatide by the FDA (8/11)
Ariad Pharmaceuticals Inc. (Cambridge, Mass.)	Merck and Co. Inc. (Whitehouse Station, N.J.)	\$25	For the European Medicines Agency's acceptance for review of the MAA for ridaforolimus in metastatic soft-tissue or bone sarcomas (8/19)
Evotec AG (Hamburg, Germany)	Boehringer Ingelheim GmbH (Ingelheim, Germany)	€4 (\$5.7)	For the identification and selection of a compound to advance into preclinical development within an oncology program (8/19)
MAP Pharmaceuticals Inc. (Mountain View, Calif.)	Allergan Inc. (Irvine, Calif.)	\$20	For the FDA's acceptance of an NDA for Levadex, an orally inhaled migraine drug (8/3)
Nabi Biopharmaceuticals Inc. (Rockville, Md.)	Fresenius USA Manufacturing Inc. (Walnut Creek, Calif.)	\$5	For the first commercial sale of Phoslyra (8/17)

Notes:

Currency conversions are based on exchange rates at the time of the deal.

The date indicated refers to the *BioWorld Today* issue in which the news item can be found.

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RxDx

Continued from page 4

Incivek, Benlysta and Provenge are not examples where a companion diagnostic would have been relevant, but they illustrate the significant time and expense required to get new drugs to market.

When it comes to targeted drugs and companion diagnostics, codevelopment of the two might not just be faster and cheaper – it might be required.

Last year, an FDA panel recommended the agency postpone its decision regarding approval of ChemGenex Pharmaceuticals Ltd.'s Omapro (omacetaxine) for chronic myeloid leukemia patients with the T315I genetic mutation until a diagnostic test for that mutation was also available. The biotech had used a variety of assays to detect the mutation during clinical trials, but such assays can't be used as diagnostics. (See *BioWorld Today*, March 23, 2010.)

ChemGenex later decided to drop its focus on the T315I mutation and pursue approval in the broader population of CML patients who have failed prior treatments. (See *BioWorld Today*, July 15, 2010.)

Earlier this year, the FDA released a draft guidance laying out a tentative regulatory pathway for companion diagnostics. Although separate divisions will review companion diagnostics and drugs, the agency plans to conduct the reviews simultaneously, as it did for both Zelboraf and Xalkori. The guidance also noted that, in some cases, the

drug may be approved ahead of the diagnostic, but the agency's preference appears to be for co-development.

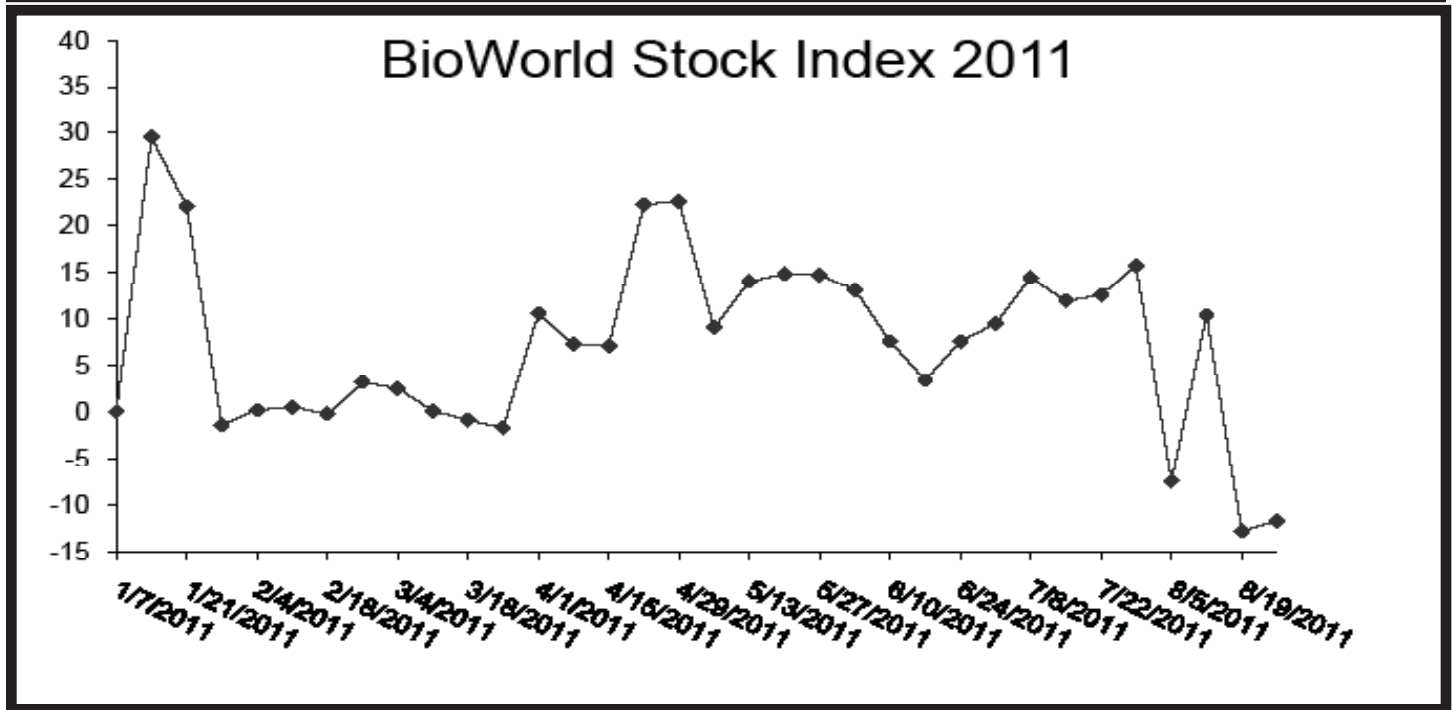
Becker noted that having the FDA's support and guidance was "a big piece" of what allowed the review of Pfizer's Xalkori and Abbott's companion diagnostic ALK test to progress so quickly. The FDA worked closely with both Abbott and Pfizer to "help us navigate this new path," she said.

In the past, diagnostics companies and drug companies developed their products individually because the "process wasn't in place" to bring them together, Becker said. But with the FDA guidance and some examples that prove the system can work, "I think we'll see more and more partnerships [between drug developers and device makers] occurring earlier and earlier," she predicted. ■

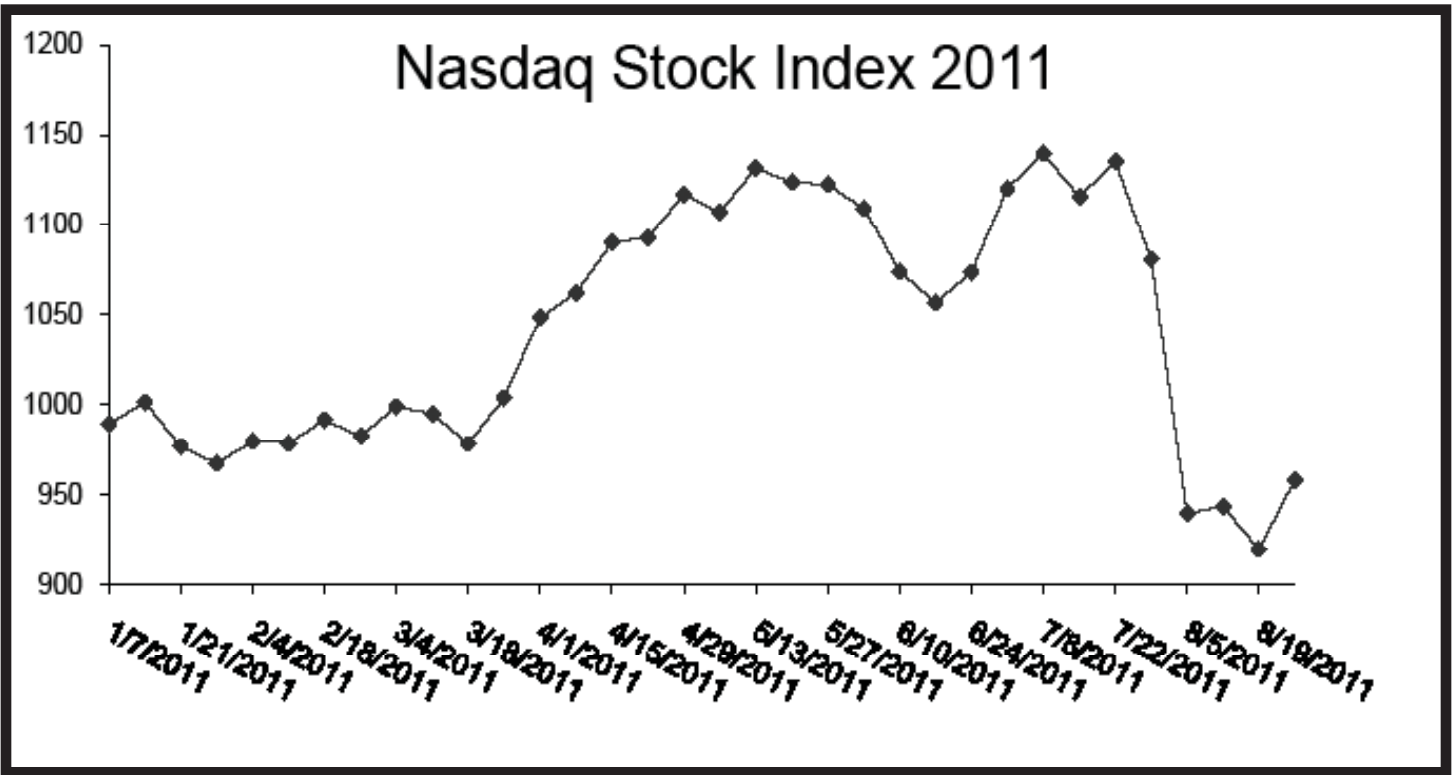
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These graphs compare the performance of the biotech stocks for all of 2011 using two different measures. The BioWorld Stock Indicator measures the average percent change year to date in the 206 U.S. biotech and biotech-related stocks that are covered weekly in *BioWorld Insight*. The Friday closing price of each stock on the list is compared either to its 2010 closing price (12/31/10) or its IPO price (if the stock started trading in 2011), and expressed as a percent change. Then the percent changes for all stocks on the list are added and subsequently divided by the total number of stocks listed. The Nasdaq Biotech Index comprises 128 biotech securities that are listed on Nasdaq. The companies must have a minimum market cap of \$200M to be included on the list. The index is market-value weighted, with the representation of each stock in the index being proportional to its closing price times the total number of shares outstanding, relative to the total market value of the index.



The Week's Biggest Gainers and Losers

10 BIGGEST U.S. WINNERS FOR THE WEEK

(By Percent)		(By Dollars)	
Avax Tech	33.33	Regeneron Pharma	8.97
Talon Thera	31.51	Alexion Pharma	2.21
Accentia Biopharma	31.43	Ligand Pharma	1.80
Entremed	30.95	United Therap	1.54
Novavax	24.29	Optimer Pharma	1.31
Regeneron Pharma	16.07	Celgene	1.04
Optimer Pharma	15.27	InterMune	1.00
MannKind	14.45	QLT Inc.	0.70
Ligand Pharma	14.43	Pharma Prdt Dev	0.68
QLT Inc.	10.89	Alkermes	0.63

10 BIGGEST U.S. LOSERS FOR THE WEEK

(By Percent)		(By Dollars)	
Alseres	-66.67	Sagent Pharma	-2.90
NuPathe	-30.49	Acorda Therap	-1.72
BG Medicine	-23.69	BG Medicine	-1.49
Telik	-15.79	Genomic Health	-1.45
Pacira Pharma	-15.55	Pacira Pharma	-1.35
Oxis International	-14.29	Ironwood Pharma	-1.29
Bio-path Holdings	-13.16	NuPathe	-1.11
Sagent Pharma	-12.56	Dendreon	-0.91
CorMedix	-12.26	Pharmasset	-0.90
Tengion	-11.83	Alimera Sciences	-0.88

BioWorld Stock Report For Public Biotechnology Companies

Company	Symbol	Close 8/26	Close 9/2	%Change		Vol (000)
				WK	YTD	
3S Bio	SSRX	13.07	12.97	-0.77	-13.42	344
Aastrom Biosci	ASTM	2.47	2.58	4.45	0.78	1163
Acadia Pharma	ACAD	1.26	1.3	3.17	5.69	888
Accentia Biopharma	ABPI	0.35	0.46	31.43	-38.67	676
Access Pharma	ACCP	1.99	2	0.50	-18.37	41
AcelRx Pharma	ACRX	3.11	3.1	-0.32	-31.87	22
Achillion	ACHN	5.56	5.56	0.00	36.95	2627
Acorda Therap	ACOR	26.02	24.3	-6.61	-11.67	1660
Adamis	ADMP	0.2	0.19	-5.00	-7.32	168
Adolor	ADLR	2.09	2.22	6.22	79.03	696
Adventrx Pharma	ANX	0.88	0.95	7.95	-63.60	8277
Aegerion Pharma	AEGR	14.07	14.05	-0.14	-0.85	309
AEterna Zentaris	AEZS	1.82	1.93	6.04	10.29	8731
Affymax	AFFY	4.5	4.35	-3.33	-34.59	1517
Agenus	AGEN	0.51	0.49	-3.92	-51.49	2753
Albany Molecular	AMRI	3.45	3.27	-5.22	-44.39	476
Alexion Pharma	ALXN	54.68	56.89	4.04	-29.46	5543
Alexza Pharma	ALXA	1.24	1.23	-0.81	-2.38	2038
Alimera Sciences	ALIM	7.74	6.86	-11.37	-32.81	495
Alkermes	ALKS	15.93	16.56	3.95	34.63	4828
Allos Therapeutics	ALTH	1.75	1.64	-6.29	-64.50	1850
Alnylam Pharma	ALNY	6.76	6.52	-3.55	-34.01	1038
Alseres	ALSE	0.09	0.03	-66.67	-76.92	100
AMAG Pharma	AMAG	13.97	13.58	-2.79	-25.26	621
Amarin	AMRN	10.66	10.83	1.59	30.64	8130
Amgen	AMGN	54.08	54.1	0.04	-2.58	27289
Amicus	FOLD	4.27	3.8	-11.01	-20.67	255
Ampliphi Biosci	APHB	0.17	0.18	5.88	-28.00	72
Amylin Pharma	AMLN	10.5	10.63	1.24	-28.61	5510
Anacor Pharma	ANAC	4.89	4.8	-1.84	-10.61	281
Anthera Pharma	ANTH	5.5	5	-9.09	2.67	457
Ardea Biosciences	RDEA	14.9	15.13	1.54	-42.43	707
Arena Pharma	ARNA	1.3	1.26	-3.08	-26.32	6984
Ariad Pharma	ARIA	9.25	9.32	0.76	79.92	15117
ArQule	ARQL	4.29	4.11	-4.20	-29.02	1463
Array BioPharma	ARRY	2.17	2.16	-0.46	-27.52	1318
Aryx	ARYX	0.01	0.01	0.00	-96.30	167
Auxilium Pharma	AUXL	17.11	16.4	-4.15	-22.68	3163
Avanir	AVNR	2.63	2.68	1.90	-33.17	12237
Avax Tech	AVXT	0.03	0.04	33.33	-11.11	122
AVEO Pharma	AVEO	16.29	15.91	-2.33	8.23	1314
AVI BioPharma	AVII	1.16	1.09	-6.03	-49.54	6413
Bellus Health	BLUS	0.06	0.06	0.00	-61.29	17
BG Medicine	BGMD	6.29	4.8	-23.69	-42.17	130
BioCryst Pharma	BCRX	2.72	2.91	6.99	-43.27	2201
Biodel	BIOD	1.21	1.17	-3.31	-39.06	1589
Biodelivery Sci	BDSI	3.43	3.33	-2.92	-10.00	292
Biogen Idec	BIIB	92.29	91.58	-0.77	37.10	6513
BioMarin Pharma	BMRN	28.07	28.57	1.78	5.15	4436
Bio-path Holdings	BPTH	0.38	0.33	-13.16	-8.33	26
BioSante Pharma	BPAX	2.36	2.52	6.78	51.81	13199
Cadence Pharma	CADX	6.28	6.13	-2.39	-18.70	1048
Cardiome	CRME	3.69	3.61	-2.17	-44.89	721
Cardiovascular Bio	CVBT	0.28	0.29	3.57	-14.71	615

Company	Symbol	Close 8/26	Close 9/2	%Change		Vol (000)
				WK	YTD	
Catalyst Pharma	CPRX	1.23	1.31	6.50	36.46	48
Celgene	CELG	57.3	58.34	1.82	-1.83	14628
Cell Therapeutics	CTIC	1.14	1.19	4.39	219.89	15028
Celldex Therap	CLDX	2.82	2.76	-2.13	-33.81	1082
CEL-SCI	CVM	0.39	0.39	0.00	-53.14	1177
Cephalon	CEPH	80.63	80.61	-0.02	29.68	20418
Cerus	CERS	2.08	2.02	-2.88	-18.55	1759
Chelsea Therap	CHTP	3.77	4.09	8.49	-46.11	2349
Cleveland Biolabs	CBLI	2.31	2.24	-3.03	-68.85	681
Codexis	CDXS	5.92	5.6	-5.41	-47.17	992
Columbia Labs	CBRX	2.07	2.09	0.97	-4.57	2576
CombiMatrix	CBMX	2.58	2.51	-2.71	12.56	24
Complete Genomics	GNOM	8.96	8.41	-6.14	12.58	1309
Compugen	CGEN	3.5	3.64	4.00	-26.91	177
Corcept	CORT	2.76	2.6	-5.80	-33.67	705
CorMedix	CRMD	1.06	0.93	-12.26	-47.16	58
Cornerstone Therap	CRTX	7.85	7.5	-4.46	32.74	116
Cubist Pharma	CBST	32.28	32.9	1.92	52.46	4107
CRIS	CRIS	3	2.88	-4.00	42.57	1582
Cytokinetics	CYTK	1.11	1.11	0.00	-46.89	744
CytRx	CYTR	0.35	0.35	0.00	-65.00	4520
Dara Biosciences	DARA	2.13	1.99	-6.57	-40.95	128
Dendreon	DNDN	11.87	10.96	-7.67	-69.05	22982
DepoMed	DEPO	5.72	5.88	2.80	-9.26	3607
DiaDexus	DDXS	0.3	0.3	0.00	3.45	18
Discovery Labs	DSCO	2.02	2.09	3.47	-37.24	518
DURECT	DRRX	1.48	1.44	-2.70	-59.44	2069
DUSA Pharma	DUSA	4.41	3.95	-10.43	60.57	601
Dyax	DYAX	1.42	1.42	0.00	-32.06	2220
Dynavax	DVAX	2.22	2.19	-1.35	-29.35	6062
Emergent BioSol	EBS	16.91	16.68	-1.36	-29.56	1380
Emisphere Tech	EMIS	0.81	0.81	0.00	-65.82	48
Endocyte	ECYT	10.86	10.72	-1.29	38.68	847
Entremed	ENMD	1.26	1.65	30.95	-67.52	127
Enzo Biochem	ENZ	2.89	2.68	-7.27	-50.64	548
Enzon Pharma	ENZN	7.94	8.22	3.53	-32.62	3212
Epicept	EPCT	0.44	0.4	-9.09	-52.94	175
Exelixis	EXEL	6.44	6.81	5.75	-20.72	6731
Flamel Tech	FLML	4.6	4.5	-2.17	-35.34	107
Forest Labs	FRX	33.31	33.1	-0.63	3.53	12381
Furiex Pharma	FURX	15.29	14.44	-5.56	-0.07	147
Genex Biotech	GNBT	0.1	0.1	0.00	-66.09	5124
Genomic Health	GHDX	24.08	22.63	-6.02	3.43	367
GenVec	GNVC	2.76	2.75	-0.36	382.46	182
Geron	GERN	2.52	2.64	4.76	-49.33	9393
Gilead Sciences	GILD	38.73	38.82	0.23	7.06	27649
GTx	GTXI	3.41	3.35	-1.76	21.38	737
Harvard Bio	HBIO	4.39	4.04	-7.97	-0.49	353
Human Genome	HGSI	12.63	11.93	-5.54	-50.70	19481
Idenix Pharma	IDIX	5.5	5.23	-4.91	4.81	1606
Idera Pharma	IDRA	1.82	1.71	-6.04	-41.03	12
ImmunoGen	IMGN	10.39	10.49	0.96	11.36	2837
Immunomedics	IMMU	3.66	3.92	7.10	8.89	3211
Incyte	INCY	14.68	14.64	-0.27	-12.70	5856

Company	Symbol	Close 8/26	Close 9/2	%Change WK	%Change YTD	Vol (000)
Infinity Pharma	INFI	7.12	6.89	-3.23	13.88	374
Inhibifex	INHx	3.17	3.16	-0.32	17.47	1828
InterMune	ITMN	24.01	25.01	4.16	-32.24	3767
Ironwood Pharma	IRWD	12.99	11.7	-9.93	13.04	1236
ISIS Pharma	ISIS	7.12	6.95	-2.39	-31.53	3724
Keryx Biopharma	KERX	3.7	3.85	4.05	-17.56	6709
Labopharm	DDSSF	0.28	0.28	0.00	-70.53	825
Lexicon	LXRx	1.31	1.23	-6.11	-17.45	3799
Ligand Pharma	LGND	12.47	14.27	14.43	60.16	1154
MannKind	MNKD	2.56	2.93	14.45	-63.96	4165
Map Pharma	MAPP	12.4	12.77	2.98	-23.35	1314
Maxygen	MAXY	5.54	5.35	-3.43	35.79	588
MDRna	MRNA	0.2	0.21	5.00	-86.27	10481
Metabolix Inc.	MBLx	5.23	4.93	-5.74	-58.57	1382
Micromet	MITI	4.63	4.38	-5.40	-47.04	2158
Momenta Pharma	MNTA	16.35	16.13	-1.35	7.39	3575
Myrexix	MYRX	2.72	2.77	1.84	-34.82	609
Myriad Genetics	MYGN	19.28	18.62	-3.42	-18.80	2998
Nabi Biopharma	NABI	1.8	1.82	1.11	-68.89	2335
Nanogen	NGEN	0.01	0.01	0.00	17.65	332
Nektar Therap	NKTR	5.64	5.31	-5.85	-59.03	3968
Neurocrine Biosci	NBIX	6.05	5.81	-3.97	-24.45	1758
NeurogesX	NGSX	1.73	1.74	0.58	-72.47	137
NovaBay	NBY	0.86	0.85	-1.16	-49.10	126
Novavax	NVAX	1.4	1.74	24.29	-31.76	9397
NPS Pharma	NPSP	7.1	6.93	-2.39	-13.59	3682
NuPathe	PATH	3.64	2.53	-30.49	-72.08	8503
Omeros	OMER	3.62	3.89	7.46	-53.47	249
OncoGenex Pharma	OGXI	11.04	10.72	-2.90	-34.83	161
Oncothyreon	ONTY	7.13	7.15	0.28	118.65	2723
Onyx Pharma	ONXX	31.94	31.3	-2.00	-15.29	4192
Opko Health	OPK	4.02	4.01	-0.25	8.09	3944
Optimer Pharma	OPTR	8.58	9.89	15.27	-14.00	5071
OraSure Tech	OSUR	7.27	6.86	-5.64	14.91	755
Orexigen	OREX	1.3	1.42	9.23	-82.60	1433
Osiris Thera	OSIR	5.27	5.01	-4.93	-36.90	272
Oxis International	OXIS	0.07	0.06	-14.29	-55.56	153
Pacific Biosciences	PACB	6	5.95	-0.83	-62.60	2880
Pacira Pharma	PCRX	8.68	7.33	-15.55	4.42	627
Pain Therapeutics	PTIE	4.69	4.48	-4.48	-33.03	2399
Palatin Tech	PTN	0.74	0.7	-5.41	-45.74	480
Panacos Pharma	PANC	0.01	0.01	0.00	0.00	36
Peregrine Pharma	PPHM	1.38	1.27	-7.97	-42.27	2992
Pharma Prdt Dev	PPDI	30.47	31.15	2.23	13.23	6162
Pharmacyclics	PCYC	11.45	11.03	-3.67	76.76	2426
Pharmasset	VRUS	65.1	64.2	-1.38	46.11	1818
Pharmos	PARS	0.1	0.1	0.00	0.00	14
Poniard Pharma	PARD	0.17	0.16	-5.88	-72.41	468
Pozen	POZN	2.85	2.9	1.75	-55.86	1021
Progenics Pharma	PGNX	5.94	5.52	-7.07	2.03	542
Protalix Biothera	PLX	4.74	4.81	1.48	-51.80	710
Protein Design	PDLI	5.75	5.8	0.87	-6.75	8012
Qiagen	QGEN	15.12	14.75	-2.45	-24.16	7236
QLT Inc.	QLTI	6.43	7.13	10.89	-0.42	3833
Raptor Pharma	RPTP	4.58	4.27	-6.77	17.31	691
Regeneron Pharma	REGN	55.81	64.78	16.07	94.07	9522
Repligen	RGEN	3.32	3.31	-0.30	-29.98	98
Rexahn Pharma	RNN	0.95	0.93	-2.11	-19.13	984
Rigel Pharma	RIGL	7.58	7.18	-5.28	-5.53	1264
Rosetta Genomics	ROSG	1.52	1.38	-9.21	45.26	41
Rxi Pharma	RXII	1.01	1.05	3.96	-60.23	1828
Sagent Pharma	SGNT	23.09	20.19	-12.56	5.21	426
Sangamo Biosci	SGMO	4.95	5.19	4.85	-24.34	2431
Santarus	SNTS	3.11	3.09	-0.64	-6.08	1847
Savient Pharma	SVNT	4.02	3.83	-4.73	-65.89	5975
SciClone Pharma	SCLN	4.62	4.24	-8.23	0.00	1440
Seattle Genetics	SGEN	16.66	16.75	0.54	9.19	10142
Sequenom	SQNM	5.73	5.59	-2.44	-31.33	6390
SIGA Tech	SIGA	5.44	5.1	-6.25	-63.47	1950
Somaxon Pharma	SOMX	0.94	0.94	0.00	-70.72	911
Spectrum Pharma	SPPI	8.31	8.16	-1.81	15.25	4154
Sucampo Pharma	SCMP	3.15	3.13	-0.63	-18.28	130
SuperGen	SUPG	2.1	2.04	-2.86	-22.73	1722
Synta Pharma	SNTA	3.97	3.84	-3.27	-37.25	526
Talon Thera	TLON	0.73	0.96	31.51	100.00	778
Targacept	TRGT	15.73	15.44	-1.84	-42.15	2114
Telik	TELK	0.38	0.32	-15.79	-60.25	238
Tengion	TNGN	0.93	0.82	-11.83	-70.07	737
Theravance	THRX	18.33	17.68	-3.55	-30.80	1565
Titan Pharma	TTNP	1.52	1.53	0.66	25.41	272

Company	Symbol	Close 8/26	Close 9/2	%Change WK	%Change YTD	Vol (000)
Transcept Pharma	TSPT	2.79	2.86	2.51	-62.12	1104
Transgenomic	TBIO	1.3	1.32	1.54	85.92	212
Tranzyme	TZYM	3.1	3.12	0.65	-22.00	239
Trimeris	TRMS	1.97	1.99	1.02	-18.44	285
Trinity Biotech	TRIB	10.49	10.12	-3.53	14.48	98
Trius Therap	TSRX	6.69	6.11	-8.67	69.02	240
Unigene	UGNE	0.93	0.9	-3.23	34.33	196
United Therap	UTHR	40.07	41.61	3.84	-34.30	7738
Vanda Pharma	VNDA	5.91	5.66	-4.23	-39.66	568
Ventrus Biosciences	VTUS	9.56	9.43	-1.36	42.45	111
Vermillion	VRML	2.59	2.6	0.39	-64.96	199
Vertex Pharma	VRTX	45.26	44.59	-1.48	26.17	8547
Vical	VICL	3.23	3.31	2.48	61.46	5562
ViroPharma	VPHM	18.66	18.61	-0.27	5.74	5666
Vivus	VVUS	7.39	7.68	3.92	-19.41	7536
XenoPort	XNPT	6.74	6.76	0.30	-21.94	1990
Zalicus Inc	ZLCS	1.52	1.44	-5.26	-11.66	3817
Zogenix	ZGNX	3.33	3.39	1.80	-40.21	258

LONDON STOCK EXCHANGE

Company	Symbol	8/26	9/2	%WK	%YTD	Volume
Antisoma	ASM	2.15	2.178	1.30	-93.40	1653
Ark Therapeutics	AKT	3.85	3.755	-2.47	-73.27	469
Asterand	ATD	8.5	4	-52.94	-78.49	4068
Oxford Biomedica	OXB	6.012	5.6	-6.85	-50.22	3541
Phytopharm	PYM	7.02	6.75	-3.85	-37.73	178
Puricore	PURI	19	21.5	13.16	60.45	96
Renovo Group	RNVO	15.025	15.5	3.16	-46.37	121
SkyePharma	SKP	50.4	53	5.16	-38.34	32
Vernalis plc	VER	38	35.75	-5.92	-58.91	63

Note: Prices are denoted in pence.

TORONTO STOCK EXCHANGE

Company	Symbol	8/26	9/2	%WK	%YTD	Volume
Adherex Technol	AHX	0.04	0.71650	0.01455	56	64
Allon Therap	NPC	0.35	0.35	0.00	9.37	21
BELLUS Health	BLU	0.05	0.06	20.00	-66.67	402
Bioniche Life Sci	BNC	0.68	0.66	-2.94	17.86	233
Cangene	CNJ	1.3	1.42	9.23	-72.16	28
Isotechnika	ISA	0.12	0.13	8.33	-21.21	58
Lorus Therap	LOR	0.38	0.34	-10.53	423.08	19
Medicago	MDG	0.64	0.69	7.81	2.99	620
MethylGene	MYG	0.3	0.28	-6.67	0.00	217
Oncolytics Biotech	ONC	3.73	3.68	-1.34	33.82	286
Protox Therap	PRX	0.42	0.43	2.38	-49.41	94
Resverlogix	RVX	1.32	1.47	11.36	-39.26	682
SemBioSys Gen	SBS	0.07	0.08	14.29	-60.00	86
Tekmira Pharma	TKM	1.86	2.03	9.14	118.28	46
Thallion Pharma	TLN	0.12	0.13	8.33	18.18	285
Theratechnologies	TH	3.67	3.87	5.45	-12.64	118
YM BioSciences	YM	1.79	1.87	4.47	28.97	67

Note: Prices are denoted in Canadian dollars.

NOTES:

Trading volumes for Nasdaq, Amex and NYSE are recorded as the total number of shares traded (in thousands) on a weekly basis (cumulative Monday through Friday); the weekly and YTD % changes are from IPO completion, where applicable.

Average Percent Change Week: -1.09%

Range: -66.67% to +33.33%; Number Of Companies: 206 (does not include LSE or TSX; not market weighted)

Average Percent Change YTD: -13.32%

Range: -86.27% to +382.46%; Number Of Companies: 206 (does not include LSE or TSX; not market weighted)