Venture Capital Funding and M&A Quarterly

Biotechnology · Pharmaceuticals
Medical Devices

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Summary

Biotechnology, pharmaceutical and medical device startups raised a total of $2.6 billion in venture-capital funding during the fourth quarter, a 28 percent increase over the previous quarter (see Table 1). The number of companies receiving funding also rose by 28 percent, to 220.

Medical device companies received the most funding out of the three sectors, pulling in $946 million during the quarter and narrowly edging out biotechnology, which accounted for $921 million in new financing. Cardiac applications, particularly those involving minimally invasive heart procedures and implantable diagnostic sensors, were particularly attractive to venture medical-device investors during the quarter.

In biotechnology, some of the most intriguing companies receiving funding are ones aiming to re-wire the immune system or to produce new molecular diagnostics for early detection and measuring the progress of diseases like cancer. Neither area has been traditionally popular with venture investors, both because of the perceived technology risk and, particularly in diagnostics, the difficulty of pricing actual products high enough to recoup investment.

Both biotechnology and devices saw funding rise in the quarter, while new investment in pharmaceutical startups declined slightly to $716 million.

Biotechnology, in fact, had a banner quarter, as venture capital flowing into the sector more than doubled compared to the previous quarter. Eighty-nine biotech startups received funding, an 82 percent increase, topping both medical devices (81 startups) and pharmaceuticals (50 startups).

Funding Activity

Biotechnology

As noted above, some of the most interesting biotech fundings of the quarter involved startups focused on immunology and diagnostics, neither being an area that has received much love from venture investors until recently.

One major immune-related startup funded in the quarter was Bayhill Therapeutics, a Palo Alto, Calif., biotech that raised $21.5 million in an unspecified funding round. The company aims to take on autoimmune disease in a novel way - by introducing “tolerizing” proteins to the immune system in a way that defuses its attack on the body's own tissue. Bayhill's lead experimental therapeutic, which targets multiple sclerosis, has completed a mid-stage, phase II test that seemed generally promising, although the detailed results were still open to interpretation.

Other notable immunology plays in the quarter included Xencor, a developer of antibody drugs against autoimmune disease and cancer that raised $15 million as part of its series E round, and Juvaris BioTherapeutics, a vaccine developer that pulled in a $15.9 million series A round.

The leading diagnostic investment of the quarter goes to Rules Based Medicine, an Austin, Texas biotech aiming to develop blood tests for various conditions by sampling proteins found in blood serum. Its initial goal is to determine whether a given experimental drug is likely to produce serious side effects when tested in large numbers of people. The company raised $25 million in a series A round, although it immediately paid half that sum to its former parent company, Luminex (Nasdaq: LMNX), with whom it's fought over licensing rights for years.

Asuragen, another Austin biotech, raised $18.5 million in a series B round for molecular diagnostics based on micro-RNA molecules, which could potentially serve as blood-based markers for the presence of tumors. Aviir, of Palo Alto, aims to launch a test for diagnosing and determining the prognosis of heart disease later this year; it raised $11.5 million in a series B.

Overall, the largest biotechnology funding in the quarter involved Ambit Biosciences, a San Diego biotech that raised $49.3 million in a series D round. Ambit hopes to produce the next big cancer drug using a “discovery engine” screen for drug candidates that block biochemical messenger proteins called kinases.

Ambit's lead candidate, AC220, is following in the footsteps of one of the earliest and most successful of the new generation of targeted cancer drugs – Gleevec, a Novartis kinase inhibitor that can produce all-but-miraculous remissions in chronic myeloid leukemia. AC220 is currently being tested in an early stage, phase I trial in patients with acute myeloid leukemia.

Next up was Optherion, a New Haven, Conn., biotech that pulled in a huge $37 million series A round. The ophthalmology-focused startup is taking aim at age-related macular degeneration (AMD), a leading cause of vision loss among the elderly, with drugs that regulate an immune-system function known as the alternate complement pathway.

Other notable fundings included Anaptys Biosciences, another San Diego biotech that raised $33.9 million in a series B for antibody drugs, and Tengion, of Norriton, Pa., which drew $33 million in a series C funding for organ-regeneration work.

Pharmaceuticals

One of the most intriguing pharmaceutical startups funded in the quarter was Acceleron Pharma, a Cambridge, Mass. concern aiming to stimulate tissue regeneration with drugs that target various growth factors and other developmental proteins. The company, which raised $31 million in a series C round, has one drug candidate that it hopes will stimulate bone re-growth in cancer patients, and another for boosting muscle mass and strength.

Another recently-funded startup with a regenerative medicine focus was Fate Therapeutics, which raised $12 million in a series A round. While technically classified as a biotech, the Seattle company plans to use traditional non-biotech drugs -- small molecules, that is -- to push normal cells into a primordial, stem-cell state in order to regenerate lost or damaged organs.

Overall, the largest funding among non-biotech drug developers was that of Zosano Pharma, a Fremont, Calif., startup that announced the close of a $90 million in series A funding for needle-free drug patches. (In fact, Zosano announced in mid-November that it had just closed a $45 million financing, bringing its total series A to $90 million. The company didn't disclose when it received the first tranche of that funding.) Zosano's patches are designed to provide time-released dosing of large biological molecules, which normally can't pass through the skin.

Menlo Park, Calif.-based Cogentus Pharmaceuticals was the runner-up, pulling in $62.5 million in a series C round. Cogentus is developing combined formulations of existing drugs designed to reduce side effects.

Medical Devices

Devices for measuring or repairing the heart dominated venture funding in the fourth quarter. For instance, Menlo Park, Calif.-based Evalve, a device maker developing minimally invasive devices and methods for repairing damaged valves in the heart, raised $60 million in a series D round. Evalve is pushing into a potentially crowded market; it faces at least two other startups whose valve-repair systems are at a comparable stage of development.

Two of those competitors, it turns out, were also funded in the quarter. One is Cardiac Dimensions of Kirkland, Wash., which raised $35.5 million in a series D round for its own minimally invasive mitral-valve repair system. Mitralign, a Tewksbury, Mass., startup that raised $24 million in a series C round, is doing much the same thing.

Other intriguing cardiac technologies blessed by venture capital in the quarter include a physical restraint for failing hearts developed by Acorn Cardiovascular of St. Paul, Minn., which raised $21.6 million in an unspecified round; implantable wireless heart sensors from CardioMEMS of Atlanta, which raised $33 million in a series E round; and dissolvable stents produced by TriReme Medical of Pleasanton, Calif., which raised $15.6 million in a series C.

Pelikan Technologies, a Palo Alto, Calif., device startup aiming to improve diabetes management via "smart" glucose-testing devices, racked up the largest funding in the quarter with an $89 million series F. Only $69 million of that figure, however, represents venture equity financing; the remaining $20 million consists of venture debt.

Table 1

Venture Funding Activity– 4th Quarter 2007

Industry **Click Industry For Detail** ($25 Subscription Req'd)	**Total Amount Funded**	**% Change Vs. Prior Quarter**	**Number of Companies Funded**	**% Change vs. Prior Quarter**
Biotechnology	$921 Million	+ 103 %	89	+ 82 %
Pharmaceuticals	$716 Million	- 7 %	50	+ 6 %
Medical Devices	$946 Million	+ 20 %	81	+ 7 %
Total	**$2.58 Billion**	**+ 28 %**	**220**	**+ 28 %**

M&A Activity

Merger and acquisition activity fell off slightly during the fourth quarter, declining nine percent to $2.1 billion across all three life-science sectors (see Table 2 for details). At the same time, however, the 17 deals that took place represented a 21 percent jump in transactions over the previous quarter. Those data are skewed by the fact that no financial terms were reported in almost half these deals – 8 of the 17.

Few of the deals were particularly pulse-quickening. The Japanese pharmaceutical giant Astellas Pharma (TYO: 4503) did agree to snap up the Santa Monica, Calif., biotech Agensys for $387 million, plus up to $150 million in milestone payments. For that sum, the pharma picked up a company that, more than a decade after its founding, apparently still has no drugs in human testing. (Every pipeline is promising until it is put to the test.)

Similarly, the largest "medical device" combination involved kidney-dialysis provider Fresenius Medical Care (NYSE: FMS) paying $190 million to buy up a smaller dialysis provider, Renal Solutions. The orthopedics device maker N Spine also sold itself to the Swiss conglomerate Synthes (SWX: SYST.VX) for $30 million plus up to an additional $45 million in milestone payments.

In fact, the increasingly common trend of splitting life-science acquisitions into upfront payments and future milestone outlays greatly skews the apparent valuation of some deals. Seattle's Illumigen Biosciences, for instance, sold itself to Cubist Pharmaceuticals (Nasdaq: CBST) in December for the announced total of up to $341.5 million – apparently the second-largest life-science acquisition in the quarter. The actual cash value of that deal, however, was only $9 million; the remainder consists of potential milestone and royalty payments that may never materialize if Illumigen's experimental hepatitis drug doesn't pan out.

Table 2

Venture M&A Activity– 4th Quarter 2007

Industry **Click Industry For Detail** ($25 Subscription Req'd)	**M&A Transaction Amounts**	**% Change Vs. Prior Quarter**	**M&A Number of Transactions**	**% Change vs. Prior Quarter**
Biotechnology	$804 Million	+ 44 %	7	+ 40 %
Pharmaceuticals	$926 Million	- 47 %	2	- 75 %
Medical Devices	$390 Million	N/A	8	+ 300 %
Total	**$2.1 Billion**	**- 9 %**	**17**	**+ 21 %**

Notes

This report was prepared by David Hamilton and the staff of VentureDeal, LLC.

The information sources used were the VentureDeal.com database. VentureDeal is a venture capital database that provides the latest information about venture-backed technology companies, venture capital firms and transactions in the United States.

The database obtains transaction and company information from a wide variety of reputable public and private sources. While this report is free of charge, users may view the individual transactions supporting the totals herein by subscribing to VentureDeal for $25 and clicking on the relevant Industry category of their choice.