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BIOMETER™

A quarterly deal report covering the biotechnology industry



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Q3 BIOMETER SHOWS REEMERGENCE OF LATE STAGE DEALS

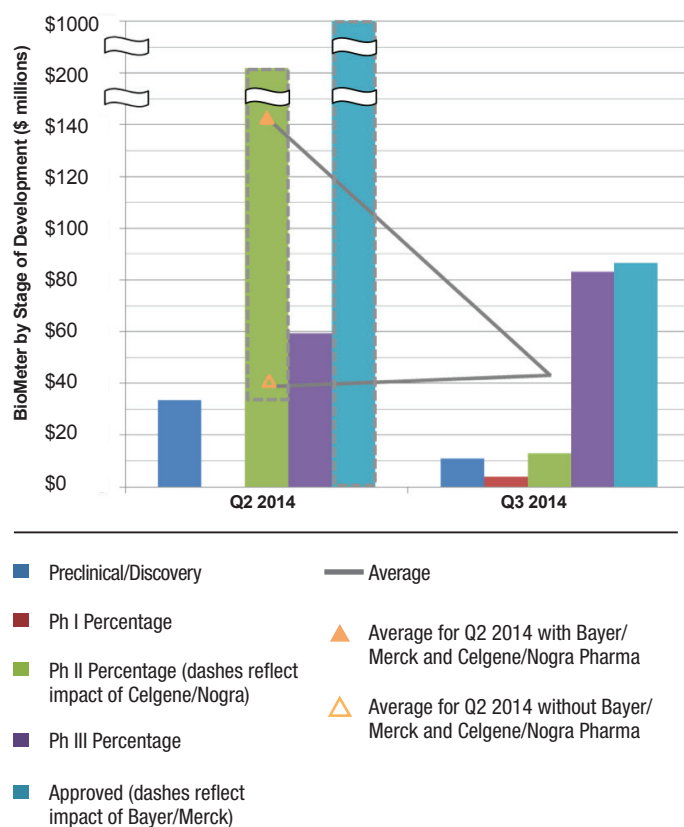
By Stephen B. Thau, Aaron J. Schohn

The average BioMeter value in the third quarter of 2014 was \$43.7 million, an increase from the \$30.4 million value in the same quarter in 2013, and a slight increase from the blockbuster-excluding value of \$41.7 million in the second quarter of 2014. When the two second quarter blockbuster deals (the \$1 billion Merck/Bayer deal for a family of soluble guanylate cyclase modulators, and the \$710 million Celgene/Nogra deal for a Phase 2 Crohn's disease drug) are included, the third quarter BioMeter is down compared to \$143 million in the second quarter.

Leading the way in the third quarter were transactions for Phase 3 and approved products, with average BioMeter values of \$83.3 million and \$86.7 million, respectively. Even more striking this quarter was the number of deals in these categories, with seven announced Phase 3 transactions that disclosed up-front payments, and five announced transactions for approved products that disclosed up-front payments. The BioMeter values, combined with the relatively large numbers of transactions in these categories, are the strongest we've seen since we started reporting quarterly BioMeter values.

After an exceptional second quarter, the BioMeter value for preclinical/discovery transactions returned to a more typical \$10.9 million across four transactions that disclosed up-front payments and stage of development in the quarter. Phase 1 programs continued to have a weak dealmaking quarter, with only one reported transaction with a \$4 million up-front payment. The BioMeter for Phase 2 was also down to \$12.9 million in the third quarter, compared to \$33.1 million in the second quarter of 2014 (excluding Celgene/Nogra, or \$202.3 million including Celgene/

TABLE 1A: BIOMETER VALUES BY STAGE OF DEVELOPMENT AND AVERAGE FOR Q2 AND Q3 2014



Nogra) and \$31.4 million in the third quarter of 2013 (excluding AbbVie/Ablynx, or \$67.3 million including AbbVie/Ablynx). The decline in BioMeter value for Phase 2 compounds existed despite a comparable number of transactions in the third quarter of 2014 compared to the prior quarter and the same quarter in 2013. This may simply reflect a quarterly aberration, but is a trend that we will watch closely.

Overall, the number of transactions reporting up-front payments and stage of development increased in the third quarter compared to the prior quarter, led by gains in the numbers of transactions for Phase 3 and approved products. This was comparable in number to the third quarter of 2013, but with the deal composition shifting in favor of later stages.

The third quarter paints a picture of selective pipeline filling, as pharmaceutical company buyers who have spent several quarters focused on early stage and Phase 2 products have shifted toward commercial and near-commercial products.

TABLE 1B: BIOMETER VALUES BY STAGE OF DEVELOPMENT AND AVERAGE FOR Q3 2013 AND Q3 2014

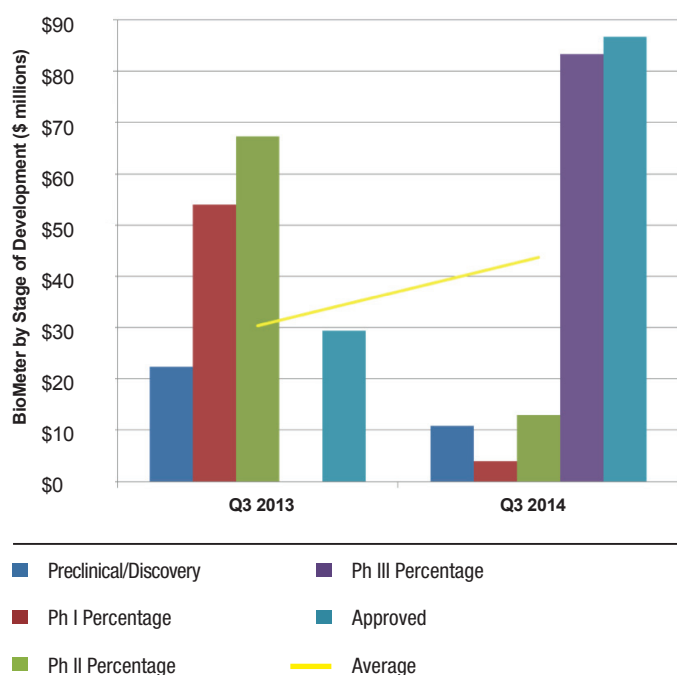


TABLE 2A: NUMBER AND PERCENTAGE OF COLLABORATION AGREEMENT BY STAGE OF DEVELOPMENT FOR Q2 AND Q3 2014

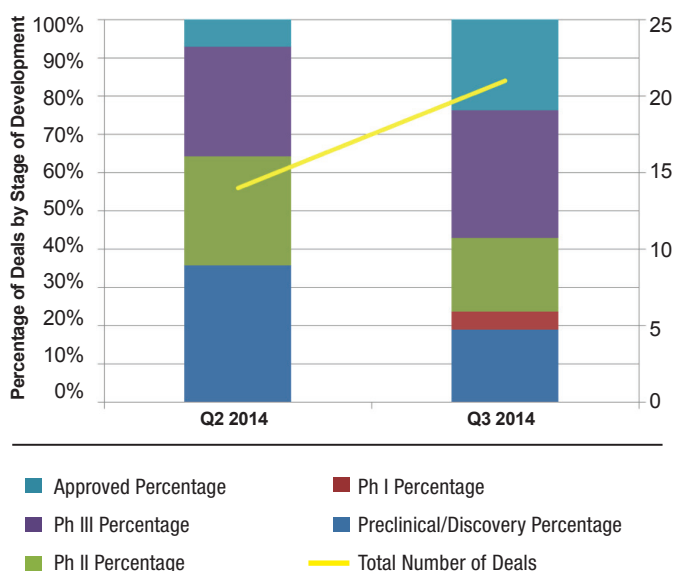
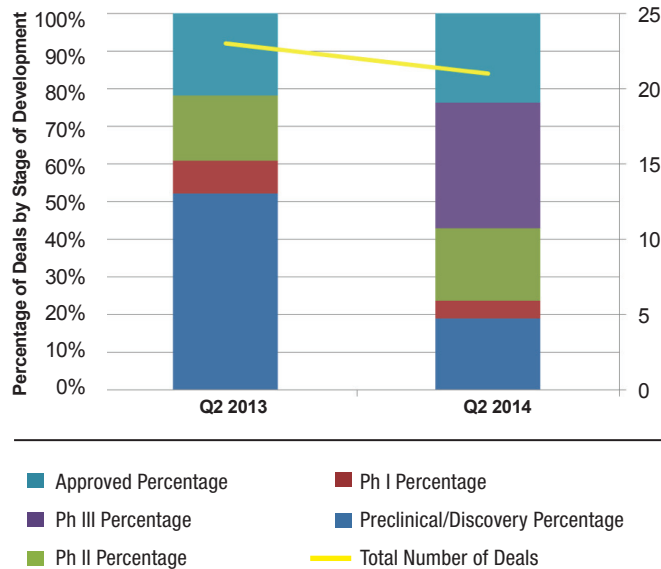


TABLE 2B: NUMBER AND PERCENTAGE OF COLLABORATION AGREEMENT BY STAGE OF DEVELOPMENT FOR Q3 2013 AND Q3 2014



About MoFo BioMeter

The MoFo BioMeter is an index that measures the health of the biotechnology industry. The BioMeter averages up-front payments in licensing, collaboration, and development agreements between biotechnology companies (broadly defined) and companies that pay for commercialization rights. We focus on up-front payments because they are the most concrete representation of the value of a development-stage asset, and also because in an era of constricted venture funding for unapproved therapeutics, up-front payments from collaboration agreements have become an increasingly necessary source of capital for companies to sustain their development efforts. The BioMeter also allows us to measure changes in the industry, or by sector, over time.

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IN CASE YOU MISSED IT...

THE CONVERGENCE OF LIFE SCIENCES AND HIGH TECH

By Van Ellis and Mika Mayer

Over the past decade, the life sciences have evolved dramatically by integrating technologies from a variety of other scientific disciplines. The application of computational sciences and supercomputing to the life sciences kick-started the genomics revolution in the 1990s. This interdisciplinary approach has also given rise more recently to substantial innovation in bioinformatics, nanobiology and tissue engineering.

The merger of the life sciences with other science disciplines continues to open new doors for improving health care. Today, the miniaturization of sensors, antennae and other electronics together with innovations in telecom and Internet-based applications is paving the way for a convergence of the high tech and life sciences fields.

High tech giants and Silicon Valley

startups have ventured — on their own — into apps, Internet-connected medical devices, and wearable devices featuring a wide array of health-related functionalities. There are smart glasses, vital sign monitors, sleep monitors and wristband fitness trackers, to name just a few. These wearable technologies are being developed to track everything from heart rate and body temperature, to analyte concentrations. They are designed to engage the unengaged, and are being widely heralded as a transformative step for health care.

The industry's hope is that these wearable devices will open the door to dramatically improving the field of health care by empowering people to have more information about their health, and to more directly control their health in everyday life. In the fitness field alone, the integration of wireless devices, applications and 24/7 connectivity have already captured the attention of consumers, with that market segment has already reached hundreds of millions of dollars in sales.

At the same time, big pharmaceuticals have successfully applied big data to

implement highly targeted marketing strategies. These data-driven marketing strategies generate higher value from commercialization investments and help to match patients to the most appropriate drugs. With this success on the marketing front, big pharmaceuticals are now accelerating their investments in big data and advanced technology at the R&D level as a means for mapping the body for disease and for opening new frontiers for diagnosing, monitoring and treating diseases. Already, big pharmaceuticals and academic research hospitals are partnering to develop and launch data-sharing platforms for clinical trial data sets. By applying advanced analytics to big data, the industry hopes to streamline the R&D process and reduce the cost of innovation.

The high tech and life sciences industries have each found success on their own on the other's traditional turf. Collaborations between the two present the opportunity to integrate high tech companies' big data and pharmaceutical companies' products in dramatically new ways by capitalizing on their relative strengths. Silicon Valley alone has proved it can do remarkable

things with miniaturized sensors, software, electronics, and data collection and analysis. Big pharmaceuticals have substantial expertise in the R&D and regulatory aspects needed to bring a health product to the market.

While collaboration creates opportunity, the differing cultures of the high tech and pharmaceutical industries present unique issues and challenges on both the legal and business fronts. For example, the two industries, and the lobbying groups supporting them, often have different (and sometimes clashing) views on patent protection. With the speed of technological development and advancement, the implicit reliance on software and complex algorithms, and the current backlash regarding patent troll litigation, high tech companies often rely heavily on first market advantage and trade secret protection rather than

patents. In contrast, big pharmaceuticals spends millions of dollars putting together complex patent strategies to protect their products for as long as possible, in as many countries where it makes sense.

The two industries often approach potential downstream patent hurdles differently as well. Big pharmaceuticals constantly scour the patent landscape and literature, in an effort to ensure their products can come to market with little to no risk of patent infringement litigation. Some high tech companies take the opposite approach to pre-product clearance searches — choosing not to do them altogether, and instead relying upon litigation and marketplace factors to reach business conclusions.

Further, the collection and sharing of personal data from wearable and/or Internet-connected devices have led many to ask who owns the data, and

what can be done with it? As many have noticed, there is a need to maintain patient information and address data ownership, sharing, and security in ways not previously considered.

Convergent technologies have now hit the scene as the first wave in a movement toward integrating historically separate industries and disciplines. The integration of these technologies promises to make health care more accessible to consumers, to reduce health care errors, to make medicine more personalized, and improve health outcomes and health care efficiency. With this new wave comes new and interesting legal and business issues that need to be considered, from patents to privacy. Now, it's time for the legal field to evolve, and catch up with the underlying technology it seeks to protect.

This article appeared in the *Daily Journal* on August 27, 2014.

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