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Lottery Tickets, Inc.

No sooner did the shares of Moderna, Inc. (MRNA on the Nasdaq), come to market than they went on sale. Since its Dec. 6 IPO, the Cambridge, Mass., developer of messenger RNA therapies has forfeited one-fourth of its equity value. Nor does Moderna suffer alone. Last year, the Renaissance IPO Index fell by 17.5%, its worst performance since its inception in June 2009. You wonder what welcome wagon awaits the planned IPOs of Uber Technologies, Inc., Slack Technologies, Inc. and Airbnb, Inc.

The rolling-up of the red carpet of liquidity makes for winners and losers alike. Within this varied grouping, colleague Evan Lorenz has analyzed three investment candidates. Each is a biotech business. Two are longs, we think—they are the seemingly hopeless ones. The third is a short, we think—it's the one that Wall Street adores. In each case, the reader will confront the daunting vocabulary that redirected many a would-be doctor to business school.

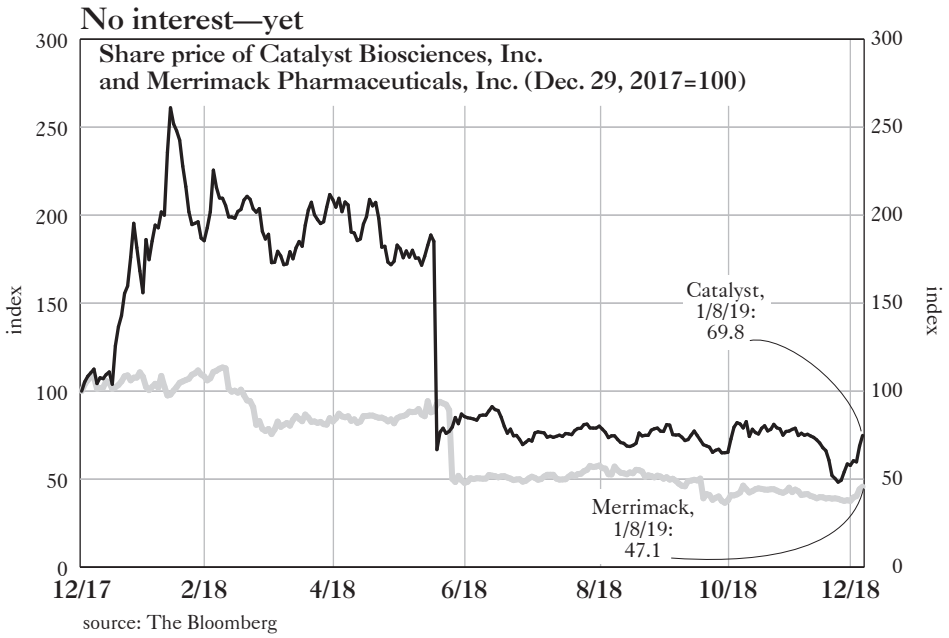
Merrimack Pharmaceuticals, Inc. (MACK) and Catalyst Biosciences, Inc. (CBIO, both on the Nasdaq), our two picks to click, represent extreme examples of the value produced by a liquidity ebb-tide. Each trades for less than net cash, though that fact affords only so much downside protection. The efficacy of the companies' molecules and medications will finally tell the tale, and on that critical question *Grant's* contributes no in-house expertise. With all that said (widows, widowers and orphans may cover their eyes), we are bullish on them.

MACK, which develops cancer therapies, had a November to forget. On the seventh of the month, it disclosed a jump in third-quarter operating loss to $12.3 million from $5.3 million and—worse—the failure of the Phase 2 trial of a prospective lung-cancer treatment candidate called MM-121. Next came the summary firing of around 60% of the work force. A near 60% reduction also describes its post-2017 share price.

At the current price of $4.83 a share, for an overall equity-market cap of $64.2 million, MACK is worth less than its $70 million of net cash (as of the Sept. 30 balance-sheet date). Augmenting that value proposition are contingent value rights with a hypothetical worth of up to $450 million. (A CVR, a kind of lottery ticket, pays off if the product to which it is attached achieves some defined marker of viability.)

In April 2017, MACK sold rights attached to Onivyde, an FDA-approved drug to treat metastatic adenocarcinoma of the pancreas, to Ipsen S.A. The CVRs would pay off if Ipsen wins approval to use Onivyde for its first-line pancreatic treatment (worth $225 million), for small-cell lung cancer ($150 million), or for another cancer indication ($75 million). Ipsen is expected to receive the results from the relevant studies in 2022-23.

Richard Peters, president and CEO of Merrimack, told dialers-in to the Nov. 7 earnings call that the layoffs and other cost-cutting measures would prolong the life of the company at least through the second half of 2022. "In



source: The Bloomberg

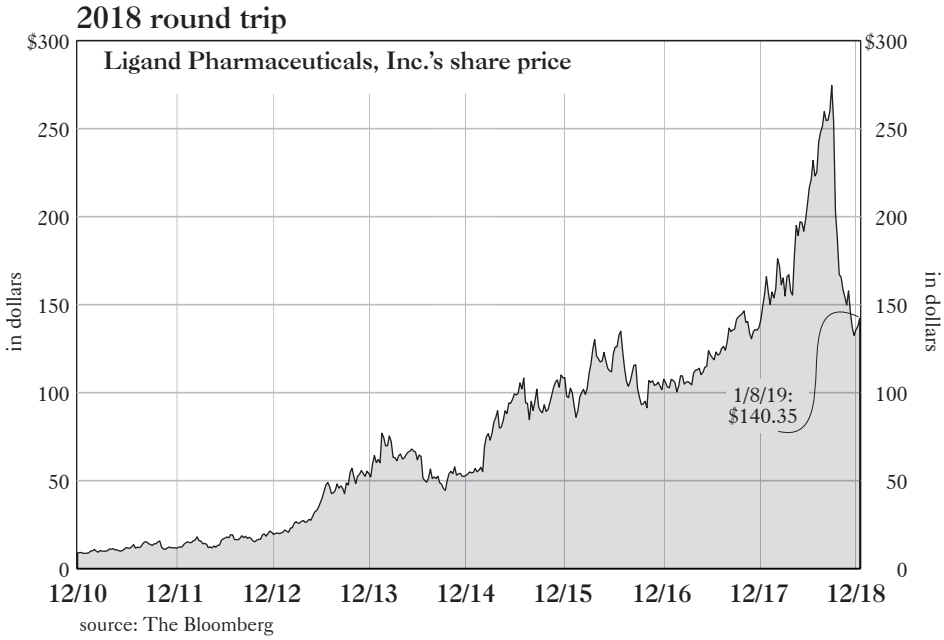
parallel," Peters added, "we have retained external advisers to explore strategic alternatives." Joe Lawler, physician and investor (*and* a former *Grant's* conference speaker), has accumulated an 8.5% position in MACK through his investment vehicle, JFL Capital Management. (MACK insiders have neither been buyers or sellers of their own stock in the last 12 months.)

Catalyst, another biotech company that trades as if the business were worth less than nothing ($113.3 million in market cap vs. $129.2 million in net cash), is developing a pair of drugs to treat hemophilia. Intravenous injection is the standard delivery method for existing clotting factors, but Catalyst's alternative is administered like a flu shot, a potential mercy for the minority of patients whose immune systems attack intravenously injected factors.

When, in June 2018, it came to light that two patients in South Korea had developed antibodies to one of Catalyst's hemophilia drugs, CBIO shares plunged by 63.9% in a day. It seemed that the medication, DalcA, was dead. But it got a stay of execution when further examination revealed that the patients were cousins who shared an uncommon immunological genotype. New studies, designated Phase 2b, will go forward in 2019, management says, while release of Phase 2 data for the second clotting factor, MarzAA, is slated for February. The markets for which DalcA and MarzAA are intended show combined sales in excess of $3 billion.

"Generally speaking," remarks Justin Simon, CBIO shareholder and managing director of Jasper Capital Management, L.P., "purchasing stocks that are trading under cash provides the manager with a compelling asymmetric return profile, which I see as a good idea." As do we, even if the CBIO insiders are stand-offish: In the past 12 months, they sold 143,729 shares for net proceeds of $4.4 million.

Ligand Pharmaceuticals, Inc. (LGND on the Nasdaq), our pick not to click, is an intellectual property licensor to the drug industry—its stock in trade is bright ideas. It dreams them up or acquires them, licenses them, and harvests the royalties, if any. To monetize an idea, of course, someone must fashion a product. It's a transformation that requires money. In the biotech world, that means a receptive stock market. Ligand may thus be viewed as a first derivative of the IPO calendar and a second derivative of the Federal Open Market Committee.



Ligand began life in 1987 as Progenx, Inc., the brain child of serial biotech-entrepreneur Howard Birndorf and the investee of the venture capital aristocrat Kleiner Perkins. It was an auspicious first act, all right, but a long and profitless second act culminated in 2005 with a blight of restated financials and the indignity of a Nasdaq delisting.

The curtain rose on act three in 2007 to reveal a new CEO, John Higgins, installed as a new broom by the activist Daniel Loeb of Third Point LLC. Within a year, Higgins had reduced Ligand's work force to 66 employees from 365 and sawed the massive corporate conference table into little egalitarian ones.

Under Higgins, who remains the chief, LGND no longer develops and markets drugs, but licenses intellectual property to the companies that do, thus avoiding the costs and uncertainties of drug production while retaining an option on the ripe fruits of its ingenuity.

Royalties from marketed drugs (79% of third-quarter revenues), sales of pharmaceutical materials (15%), and one-time license or milestone fees (5%) constitute the company's three main revenue streams. Of the 39 employees on the payroll one year ago (Higgins kept swinging the ax), 25 worked in R&D. Ligand earns royalties on 18 marketed drugs and holds licenses on 160 products at various stages of development.

Higgins calls the 178 products currently being marketed or researched "shots on goal." Opportunities in the pipeline of possibilities break down thus: 53% in the preclinical stage; 19% in Phase 1 trials; 20% in Phase 2 trials; 7% in Phase 3 trials or in the process of applying for new-drug status. Of these goal-directed pucks, 36% relate to Capitsol, a modified sugar that improves drug delivery and absorption; 34% to OmniAB, which makes human antibodies using genetically modified chickens and rodents; and 12% to SUREtechnology, a platform to discover, develop and manufacture recombinant proteins. Miscellaneous IP accounts for the remainder.

"If all of the 160 products under development were to hit every milestone," Lorenz relates, "Ligand would receive $2.5 billion, a fair portion of the current $3 billion market cap. The blow-out third-quarter results are a measure of the vitality that Higgins has brought to Ligand: sales up by 37% to $45.7 million, and adjusted earnings higher by 91% to $1.32 per share."

Bulls—in error, we think—see no end to it. Thus, a Dec. 20 rave from Craig-Hallum Capital Group LLC:

We believe that over the long run LGND is capable of generating long-term annual top-line growth of >20% (with potential fluctuations due to

the impact of one-time milestone payments) with >60% operating margins driven by ongoing success with already commercialized products and new contributions via royalty streams generated by products currently in the latter stages of clinical development.

Fluctuations there have certainly been. From year-end 2017 through September, LGND's share price doubled to $274.49. Next came a 50% pullback, so that the stock ended 2018 almost exactly where it had started, at $140 and change. "We'll say it: We think the shares' precipitous drop as of late is disconnected from reality," wrote Joseph Pantginis, who rates LGND a buy for H.C. Wainwright & Co., last month. Based on consensus estimates, LGND trades at 21.4 times adjusted 2018 earnings.

Our contention is that Ligand's shots are not so sure of the net as the Street would have it. A glance at short interest—31.5% of the float—would suggest either that this view has already persuaded the mass of investors or that there are Ligand convertible bonds issued and outstanding. The convertible-bond interpretation is the correct one (arbitrageurs hedge the bonds, which have a face value of $777 million, by selling short the common). Despite such hedging activity, lots of LGND shares are available to borrow. Of the seven analysts on the case, six say buy, none says sell. The convertibles are Ligand's only debt, and there is more cash on the balance sheet than there are converts.

Higgins's 178 "shots on goal" fly from fewer figurative sticks than you might suppose. Thus Promacta, which Novartis markets to boost platelet counts, generated 77% of third-quarter royalty income. Kyprolis, which is marketed by Amgen to treat multiple myeloma, accounted for 17%. The remaining 16 marketed drugs chipped in just 6% and that percentage is dwindling.

"Drugs aren't annuities," Lorenz observes. "Over time, they lose protection and face competition. Patents on Capitsol begin expiring in 2025, those on Promacta in 2021 and on Kyprolis in 2025. Based on the performance of its lead earners, and barring an accession of new blockbusters, Ligand may see declining royalty revenues after 2021."

Still, analysts covering Novartis project revenues for Promacta over a decade or more. Amgen analysts do the same for Kyprolis. Very well, suggests Justin Simon, who is short LGND via Jasper Capital Management: Give Ligand the benefit of the doubt. Take the revenue from estimated future material sales (mostly Capitsol to licensees) and add the expectations for approved drugs. Discount the figures at a generous 6% rate and add in the value of net operating loss carryforwards ($388 million of federal NOLs as of Dec. 31, 2017). Include net cash on the books and Ligand's stake in Viking Therapeutics, Inc. (VKTX on the Nasdaq, of which more later). The grand total yields a net present value of just $20 a share. Clearly, most of the value in LGND consists in hope for the future.

Ligand identifies six candidates for future drug-sale stardom. Only two of those designates, Zulresso and Sparsentan, have advanced to Phase 3 testing, or are applying for new-drug status. Zulresso, a medicine developed by Sage Therapeutics, Inc. (SAGE on the Nasdaq) to treat postpartum depression, is likely to begin earning royalty income this year.

Zulresso may prove a tough sell. For one thing, the patient receives it intravenously over the course of two and a half days and runs a remote, if nontrivial, chance of passing out. For another, there's the treetop price. Given its limited market, Zulresso will command $20,000 to $35,000 per course of treatment according to Sage chief business officer Michael Cloonan speaking on a Nov. 6 conference call.

Perhaps the biggest impediment to Zulresso's runaway success may turn out to be a Sage-developed competitor. Phase 3 results of SAGE-217, which targets postpartum depression and other major depressive disorders and on which Ligand has no license, are due in the first half of 2019. If 217 does come to market, it will be not only cheaper than Zulresso, but far more convenient—you just swallow it.

Martin Shkreli's old firm, Retrophin, Inc., is the one developing Sparsentan, a medicine to treat kidney disorders. Phase 3 test results are expected in the second half of 2020. If approved, at peak sales Sparsentan could prove a $1 billion-plus per year drug for the 10 years of Ligand's royalty agreement, Simon estimates. Charitably discount those anticipated revenues at the same 6% rate, he says. Assume 100% margins (there are no incremental costs with incremental royalty income), a 23% tax rate and—voilà!—Sparsentan could be worth $10 per share to LGND today. It's not nothing, but even those ten dollars, added to the previously mentioned $20, still leave a lot of value to justify the current share price of $140.35.

Not a few of Higgins's shots on goal would have to originate from center ice or beyond. Slightly more than half the 160 products under development are 10 years away from commercialization—if they ever make it to the pharmacy. Nor are the milestones evenly distributed among licensors. Viking Therapeutics, Inc. represents $1.54 billion in potential milestone payments, Roivant Sciences Ltd., $528 million. Together, they make up $2.07 billion, or 83% of the theoretical $2.5 billion total.

Viking, for purposes of financial reporting, is a kind of Ligand first cousin. Brian Lian founded the firm in 2012 after an inspirational meeting with Higgins, who donated Lian's first office space. Today, Ligand is Viking's third-largest stockholder—it owns 8.5% of the shares—and Ligand COO Matthew Foehr sits on Viking's board. Viking boasts a $609 million market cap and net cash balance of $304.2 million but produces no revenue. Nor, given the regulatory status of its principal products (still in Phase 2b study) is any substantial revenue in sight. Possibly, Mr. Market will prove hospitable to a Viking secondary offering at some future date, but it's not likely to be tomorrow.

Vivek Ramaswamy, who started Roivant in 2014 while still in his 20s, hit the hat trick of youth, inspiration and bull markets. His founding thesis was that some of the most promising potential drugs were languishing on the shelves of established pharma and biotech companies. He raised more than $3 billion, including $1.1 billion from SoftBank Group Corp.'s Vision Fund (*Grant's*, Nov. 30, 2018), to fund more than a dozen standalone companies, all of which share the nomenclatural signifier "vant." Asked why he named each of his five sons "George," former heavyweight boxing champion George Foreman replied, "so they would always have something in common." Ramaswamy's companies share another characteristic, besides those four letters—none has ever commercialized a single drug.

In March, Roivant licensed Ligand's RVT-1502, a glucagon receptor antago-

nist (GRA) to treat diabetes. To paraphrase a Jan. 3 Goldman Sachs report: The mechanism behind how GRAs work is well known, and so are such deleterious side effects as weight gain and liver dysfunction. In June Roivant laid off 10% of its work force.

"There are other curious elements within Ligand's pipeline," Lorenz observes. "Listed among the top six pipeline assets is the well-traveled lasofoxifene, a drug now licensed to Sermonix Pharmaceuticals, LLC ($45 million in potential milestone payments) to treat breast and ovarian cancer. Pfizer, Inc. and Ligand began developing the molecule as long ago as 1991. Pfizer handed back the rights to Ligand in 2011 around the time the Food and Drug Administration warned that the drug may put patients at a higher risk for death. Ligand turned around and licensed the drug to Chiva Pharmaceutical, Inc.; 12 months later, in October 2012, rights for lasofoxifene reverted to Ligand following arbitration 'relating to payments due under the License Agreement', according to Ligand's 2012 10-K report. (Lorenz asked LGND investor relations what caused the payment issue; by press time he had received no response.) Sermonix purchased the U.S. rights to oral lasofoxifene in 2015, the worldwide rights in 2017.

"Still more curious," Lorenz goes on, "is the fact that the business address Sermonix lists on its website is a mail box in a UPS Store. Azure Biotech, Inc., which also licenses lasofoxifene from Ligand (to treat vulvovaginal atrophy rather than cancer) doesn't list an address on its website; Bloomberg reports a residential address in Portland, Ore. Chiva ($100 million in potential milestone payments) is licensing two potential drugs from Ligand: Pradefovir for hepatitis B and MB07133 for hepatocellular carcinoma. Click the 'contact us' link on Chiva's website and you will see a residential address in Los Altos Hills, Calif. Search the web for 'Totem Brand Strategy,' a telemarketing firm, and you will see it lives with Chiva."

Over the last year, insiders sold 325,024 Ligand shares for net proceeds of $69.7 million; no insiders purchased any shares. We say it speaks well of them.

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