



nature biotechnology

VOLUME 19 • NO 12 • DECEMBER 2001

Beaten out of submission

According to database provider Lexis-Nexis, newspaper stories and articles on biotechnology have increased almost 10-fold since 1991. This should be good news for biotechnology journals. But the fact is that most media coverage of biotechnology research originates not from embargoed papers, but from prematurely publicized material never validated by peer review. This trend is becoming more common as scientists forego the time-consuming process of scientific review and opt instead to announce their findings directly on the airwaves, in press releases, at press conferences, or during media interviews.

For those involved in the business of biotechnology this might not matter much. After all, some forms of prepublication of research are probably unavoidable. Publicly traded companies have a duty to inform their stock holders of significant progress in R&D. They often need to release preliminary results to convince investors to part with cash, temporarily inflate stock price, or even to boost market share for a particular product. Likewise, university technology transfer offices need to raise the profile of their research to attract corporate sponsorship and licensing.

But prepublication of preliminary results does raise problems for those who intend to formally present their findings in the scientific literature at a later date. Put simply, researchers that have previously pub-

licized or reported their main results and conclusions elsewhere in press releases, press conferences, or media interviews will find their papers disqualified for publication in *Nature Biotechnology*. There are exceptions to the rule—articles presented to professional colleagues at scientific meetings are not regarded as prepublication. Even in this case, however, authors should be careful not to discuss their data directly with reporters. Not surprisingly, *Nature Biotechnology* also regards the disclosure of data in advertisements as another variety of prepublication.

Given the constant scramble for eyeballs and attention, it is increasingly important to enforce embargoes on papers and ensure that journals that claim to publish original research do indeed do so. Embargoed papers provide research that has been validated by peer review and careful editorial evaluation. By including appropriate caveats and objective presentation, they provide a context for research, which in turn promotes the quality of scientific reporting by journalists. Researchers interested in submitting papers to *Nature Biotechnology* must consider carefully the tradeoffs between rapid public dissemination of their data before submission to the journal. Press releases serve a function for those with a financial stake in biotechnology. But they are no place for the presentation of scientific advances.

Dreams and reality

Now here's a thought. Research biologists really need to train themselves to be utterly unproductive most of the time. If they could only learn to compress their inventive energies into one 12 month period every three or four years, then biotechnology companies that sprang from those inventions might stand a much greater chance of success.

The logic is undeniable. Life science companies will not succeed without spending a lot of money—other people's money. To raise this efficiently, they must trawl the markets at their most giving. The key to success is timing. Public finance markets, in which the vast majority of biotechnology funds is raised, only shine on the life sciences one year in every three or four. Companies must be ready to jump through this "open window" and to make their initial public offerings.

But we must begin at the beginning. Most companies are founded with venture capital, and venture capitalists are likely to be at their most charitable just after an open finance window. That is the time to start a company. Having realized earlier investments at IPO, a VC's coffers will be lined and their spirits more kindly. The founding company that will result from a well-timed generously funded first venture round will have a full 3–4 years of the funding cycle to prepare itself for the reopening of the public finance window.

Working back still further, the ideal time for researchers to make the inventions that provide the technical basis of the company, is in the year or so leading up to biotechnology's open financing window.

The patent lawyers then have time to secure the intellectual property before the company founders need to look for venture capital.

Unfortunately, invention is not predictable (there is no muse of invention, *per se*). Consequently, new corporations drip relatively randomly from the pipeline of knowledge ownership. But the serious upshot of sporadic formation is that companies will differ in their readiness for a subsequent public financing. When the window opens, some companies will have their proxies of maturity—advanced clinical products, pharmaceutical partners, early revenues—shined off and ready to show investors. But many well-managed, reliable companies with potentially dominant intellectual property portfolios may be deemed "too young" to attract public money or, at least, too young to attract it at a good price. The public markets will fund some poor companies that appear to be mature, and will fail to fund deserving adolescents. Suddenly, poorer than companies that did float, the youngsters may not be able to maintain their lead in the field until the next public finance window opens.

Are these mere idle speculations, invoking some capitalist utopia in which second-level uncertainty no longer governs the business cycles? Given the most peculiar of times in which we now live, perhaps, not. It may indeed be exactly the moment for would-be biotech entrepreneurs, and those who would put money in their coffers, to rethink some of the strategies that may have worked in the past. They may not work again, even when the next window opens (if it does).