IN brief

Google for genomes

In May, Google Genomics launched a preview of its application programming interface (API) that allows DNA sequence storage on Google's cloud infrastructure. Earlier in February, the Mountain View, California–based search giant began its foray into healthcare with the launch of Google Genomics, a web-based and user-friendly application for the easy importing, online storing, searching, analysis and sharing of genomic data. In the same month, Google also joined the Global Alliance for Genomics and Health, a partnership of more than 175 international organizations seeking to advance human health through the design and implementation of common protocols to ensure responsible, secure and effective sharing of genomic data. Google Genomics provides software to store, process, explore and share massive genomic datasets using Google's infrastructure. "We're aiming to provide capabilities that are complementary to the efforts of organizations like NCBI [National Center for Biotechnology Information] and EBI [European Bioinformatics Institute]," says Jonathan Bingham, product manager at Google Genomics. In fact, NCBI, EBI and Google have all implemented the draft API of the Global Alliance for Genomics and Health, allowing the same software to access data stored at any of the three locations. Google is also collaborating with Harvard Medical School genetics professor George Church on the Personal Genome Project, a nonprofit effort launched in 2008 to make the genome sequences and medical histories of 1,000,000 people public and searchable. Google's data-mining tools may open up "relevant huge new markets in wellness and precision medicine," says Church, through "encouraging truly shareable data from properly consented people/patients." *Karl Gruber*

IN their words

"It's still a bit creepy for many people. At meetings, people talk about vampires. [But parabiosis or the joining of two circulatory systems] opens the possibility that we can try to isolate additional factors" from blood, **"and they have effects on the whole body."** Neuroscientist Tony Wyss-Coray of Stanford University in California, who led one of three recent studies showing that blood from young mice rejuvenates older mice. (*Science Now* 4 May 2014)

"These technologies do not just pose a risk to individual buildings or cities, but if cleverly deployed, can reduce our population by significant percentages." Carmine Nigro, FBI agent, speaking at MIT's synthetic biology conference on May 1 in Cambridge, Massachusetts. (*New York Times* 9 May 2014)

Taiwan biotech buoyed by colossal financings

The latest signs of Taiwan's bourgeoning biotech industry came in May, when Taipei-based Medigen saw its market capitalization break the $2-billion mark, more than doubling its mid-March valuation, and Taipei's PharmaEngine's stock price spiked on reports of successful phase 3 results in for its nanoliposomal formulation of the cancer drug irinotecan. The number of biotech companies listed in Taiwan has nearly doubled from 44 in 2009 to 83 in 2013. Over the same period, capitalization jumped nearly fourfold, from $5.87 billion in 2009 to $21.13 billion in 2013, according to Biotech and Pharmaceutical Industry Promotion Office data released in March 2014. "Taiwan is becoming the regional finance center for small to medium biotech companies," says Hong-Jen Chang, chairman and CEO of Taipei-based YFY Biotech Management. "It's the best place to get money. There are opportunities here."

Different people cite different factors for Taiwan's biotech rise, including generous government funding, wise regulatory revamping and warming relations with the Chinese mainland—all developments with deep roots. "It doesn't just happen overnight," says Johnsee Lee, chairman of the Development Center for Biotechnology (DCB).

The trend 10 years ago was for drugs discovered abroad to be brought to Taiwan for cheap phase 2 and 3 trials. But an increasing number of drugs originating in Taiwan make it all the way through early stages and into clinical studies here and elsewhere. Support from the government has enabled this change. For more than 15 years, the Taiwanese government has been pouring $100–200 million a year into the biotech sector, says Lee. With this support, DCB has funded various preclinical and clinical R&D programs, including that of an anti-cancer drug targeting mTORC1 and mTORC2. These programs have been licensed to four Taiwanese companies (Standard Chemical, Yung Shin Pharm, China Chemical & Pharmaceutical and Synmosa Biopharma) and due to start phase 1 trials in Taiwan this month, and in the US soon after.

The easing of profitability restrictions on those hoping to list on the stock exchange in 1999 also helped immature but innovative companies get cash to develop their pipelines. The fruits of those policies could be seen last December when investors poured NT$3 billion ($99 million) into the Taipei-based Taiwan Liposome Company in its second public offering. The money will be used to develop three products—a long-acting local anesthetic, a lipid-based arthritis treatment delivery system formulation for use on small joints (TLC599)

Travel images/Alamy

Taiwan's warming relations with the Chinese mainland is one factor that has helped promote the biotech industry's rise.

Erratum: In Their Words

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In the version of this article initially published, a headshot of Floyd Romesberg incorrectly appeared next to a quote from Tony Wyss-Coray. The error has been corrected in the PDF version of the article.