

The insider

Southern California

Sun, sea and science? Definitely. Southern California's "Biotech Beach" is finally living up to its name, as researchers flock to San Diego and Los Angeles and the start-ups begin to grow up. *New Scientist* grabbed its bucket and spade and dug out the latest developments

The insider Southern California

A Californian coming of age

San Diego is growing up. But as **Monya Baker** found, the life sciences industry there still has a lot to learn before it can call itself an adult

ADOLESCENCE is a tough time for most, but for San Diego, a city maturing from its carefree youth in blue-sky biotechnology towards the responsibility that comes with a ripening life sciences industry, the growing pains are proving especially difficult to bear.

In June, San Diego experienced the teenage boy's frustration of watching the girl of his dreams walk away with the good-looking college student. In a closely fought contest, the city lost out to San Francisco in its bid to host a major new stem cell research centre, the California Institute for Regenerative Medicine (CIRM). San Francisco swayed the judges with its international transport links, greater numbers of biomedical professionals and better facilities. So while San Diego may draw a portion of the \$3 billion to be made available for stem cell research in California, much of the formal recognition will land 500 miles to the north.

It's not the first time San Diego has found itself second best. Though local firm IDEC Pharmaceuticals discovered the world's first monoclonal antibody treatment for cancer, Rituxan, San Diego failed to claim all the glory.

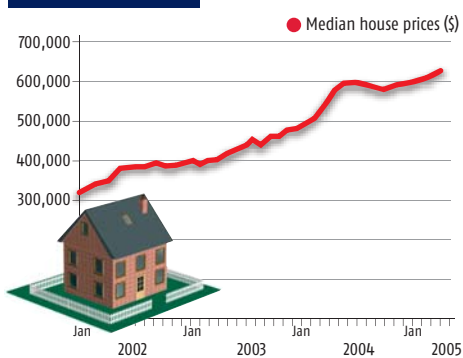
San Francisco partner Genentech helped bring Rituxan to market, and it now takes the bulk of the revenue from the drug's \$1.6 billion in sales last year. San Diego may be a cradle of innovation, goes the common wisdom, but its biotechs need to turn to more established drug firms outside its boundaries to handle development, manufacturing and marketing.

Today the region remains short of drug companies that make money, says Ivor Royston, who co-founded IDEC and now heads Forward Ventures, a San Diego venture-capital firm. "Real products, not just research, but real products that you're selling – that's where San Diego lags behind the Bay Area and the Boston-Cambridge area." Until recently, IDEC was poised to become the region's first independent profitable drug company, but in late 2003 the company merged with Boston-based Biogen. The headquarters ended up in Cambridge, Massachusetts, and San Diego lost the limelight.

But the city is coping with its setbacks. It may have some way to go before it can compare with the grown-ups of the US life sciences industry, Boston and San Francisco, but it is learning fast. Manish Chapekar, a venture capitalist at Montreux Equity Partners, which has been involved in some of San Diego's largest venture financings in recent years, says the city's life sciences industry is no longer juvenile. "My impression had always been 'great research, but too early.' Now, it's come around," he says, and San Diego firms are handling work further along the pipeline.

Recent events underline the shift towards maturity. In June a new San Diego drug company that focuses on development and commercialisation rather than research won the biggest first-round financing for a biotechnology firm in US history – \$78 million.

SAN DIEGO REAL ESTATE



RICHARD CUMMINGS/IONEXY PLANET

Father figure for an industry

IF THE San Diego life sciences industry is an adolescent, its parent is a single company. When Ivor Royston and Howard Birndorf from the University of California, San Diego, set up a firm called Hybritech in 1978 to make monoclonal antibodies, they had no idea it would spawn a biotech hub. Six years later, the company was

bought by Eli Lilly, and its senior managers dispersed.

But none left San Diego: they went on to found a raft of new companies. Birndorf helped Ligand and Neurocrine get off the ground and now heads biotech firm Nanogen, while Royston formed IDEC in 1985, the firm behind cancer treatment Rituxan. Hybritech's

second CEO, David Hale, helped to form Gensia, Viagene and Women First HealthCare, and currently heads CancerVax, which recently went public. Hale reckons that former Hybritech managers have helped start over 70 companies. Without Hybritech the region would have a lot of talent, but not a lot of successes.

Meanwhile, firms built on big ideas and blue-sky research in the 1980s and 1990s are now maturing into public companies with products on the market or in late-stage clinical trials. Since stock market prices bottomed out after the free fall in late 2003, San Diego has produced the second-highest number of US initial public offerings (IPOs) after San Francisco.

This coming of age brings with it some of the problems encountered by San Diego's more established rivals in life sciences. One challenge companies now face is recruiting talent – San Diego is becoming an expensive place to live. The median price of a home in the city was \$608,300 in May 2005, compared with a California average of \$522,590, according to the California Association of Realtors (see Graph, opposite). This is less of an issue for companies at an early stage as they are typically founded by local scientists, but Julie Meier Wright, head of the San Diego Regional Economic Development Corporation, is worried that more established companies will be tempted to site manufacturing facilities in cheaper emerging life science areas, effectively shipping jobs away. As companies mature, she says, they get better at managing from a distance, and they look for cost-saving options such as outsourcing.

San Diego plans to compete by training workers in biomanufacturing and offering incentives to employees who move to the region. "The only thing that makes any of us feel better is that San Francisco has continued to be competitive in the biotech arena even though their cost of housing is even higher," says Gail Naughton, dean of

business at San Diego State University.

But San Diego has other selling points. The high density of companies in the region should encourage executives and researchers from outside to take up jobs there, says Drew Senyei of Enterprise Partners Venture Capital, because even if the original company fails, there will be plenty of other opportunities. The region claims around 500 life sciences companies within a 45-minute drive of one another.

It is this proximity that feeds what San Diegans in the industry regard as their

"There are 500 life science companies within 45 minutes of each other"

unique way of working together, and it is a critical mass that could one day help San Diego overtake its rivals. The region's sense of community was exemplified by the CIRM proposal. "Everyone in the region got together and threw in their all," says Joe Panetta, CEO of BIOCOM, the life sciences industry association in the region. The effort may have failed, but the community still expects the work to pay off, says Meier Wright. "The very process of writing what was a highly disciplined proposal gave us a lot of raw material that can be used to tap into other efforts," she says.

San Francisco may have won this round, but it shouldn't take its victory for granted. Another city by the ocean is rapidly emerging as an experienced contender. ●

San Diego firms are starting to walk tall, as blue-sky research gives way to public companies selling products

Monya Baker is a freelance writer based in San Francisco

The insider Southern California

Ripe for investment

Does the life sciences industry in the Los Angeles region have what it takes to copy the success of its neighbours, asks **Stacy Lawrence**

IF IT was situated anywhere else in the US, the Los Angeles life sciences industry might get a bit more recognition. But unfortunately for the biotech and pharmaceutical companies located there, they happen to sit between two of the US's leading life sciences hubs – the San Francisco Bay Area and San Diego. So they face some hefty local competition in terms of recruitment, investment and acclaim.

Considering that LA hosts the world's largest biotechnology firm, Amgen, its status as little brother in California is difficult to comprehend. Amgen pulls the region up to second in the nation when it comes to public biotech company revenues and R&D spending, according to a recent report by consultancy Ernst & Young.

But Amgen's presence has yet to translate into an entrepreneurial environment like San Diego or San Francisco, where investors are keen to support young companies. In fact, when Amgen started its own venture capital arm with a \$100 million fund last year, it placed the headquarters in biotech-focused San Diego rather than the LA area.

"There have been some spin-outs from Amgen, but nowhere near the number you have seen come out of Genentech in the Bay Area," notes Tracy Lefteroff, a PriceWaterhouseCoopers life sciences analyst. Instead of starting up close to home, researchers and executives are moving out of the region to set up their companies, he says, because the area has fewer alternative

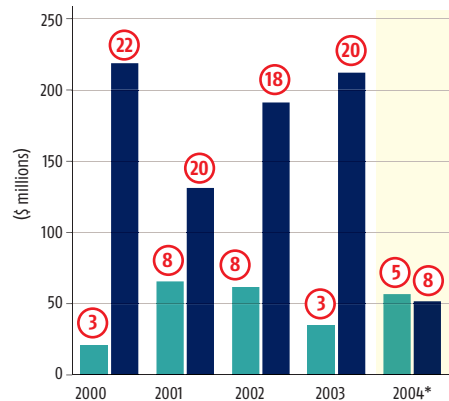
job opportunities if the venture fails.

With fewer start-ups, the relative dearth of venture capital continues to be a problem for emerging life sciences companies in the area. After several stable years, last year venture capital for life sciences companies in the region was cut by half, from \$270 million the previous year to \$136 million, according to Dow Jones VentureOne and Ernst & Young. In the same period, life sciences venture investment in the Bay Area increased by 20 per cent, and in San Diego by 43 per cent.

LA's lack of venture capital funding despite regional potential is bemoaned in a recent issue of the newsletter *SoCalBio Synergies*, produced by the area's life sciences industry group, the Southern California Biomedical

VENTURE CAPITAL INVESTMENT IN LA LIFE SCIENCES

● Biopharmaceuticals ● Medical devices
Number of funding rounds (10)



*Venture capital invested in 2004 was significantly lower because fewer medical device firms floated onto the stock markets in the LA region. Venture capitalists usually pump funding into a firm prior to a flotation to improve its prospects

SOURCE: DOW JONES VENTURE ONE/ERNST & YOUNG

A HUB FOR MEDICAL DEVICES

The Los Angeles region may be behind when it comes to drug discovery and development, but it is a national hub for medical device companies. Unlike biopharmaceutical firms, medical device firms tend to be less reliant on the venture capital and university technology transfer that is so scarce in the region, and consequently they have thrived.

"In San Diego and the Bay Area you find companies more focused on R&D and whose products are still in the clinic," notes Rich Mejia, Ernst & Young director of life sciences for

southern California. "In the Los Angeles region, companies tend to be more mature and product-oriented."

Only Minneapolis, Minnesota, has more medical device companies, according to a recently released assessment of life sciences centres in the US by the Milken Institute, an economic think tank based in Santa Monica, California. Almost 27,000 people are employed in this sector in and around LA, the largest number for any US metropolitan area.

Major medical device companies like Advanced Medical Optics, Edwards Lifesciences, and Baxter

are among the most prominent in the region, and their presence tends to encourage new companies, according to Tracy Lefteroff of PriceWaterhouseCoopers.

Venture capitalist Charles Warden is one investor who is taking note. He specialises in investment in medical device companies and describes the Los Angeles region as an enormous opportunity. And last year, he moved from Boston to Orange County to take advantage of the strong medical device community and abundant talent.

“The scarcity of local smart money can make it difficult for LA start-ups to develop new ideas”

Association (SoCalBio). It points out that the six counties of Greater Los Angeles are home to only seven venture capital firms that actively invest in the life sciences industry, and that just five of these are interested in early-stage deals. “This scarcity of local smart money can make it difficult for start-ups to develop new ideas. It can also make them vulnerable to cherry-picking by venture capital firms from the Bay Area or East Coast,” it adds.

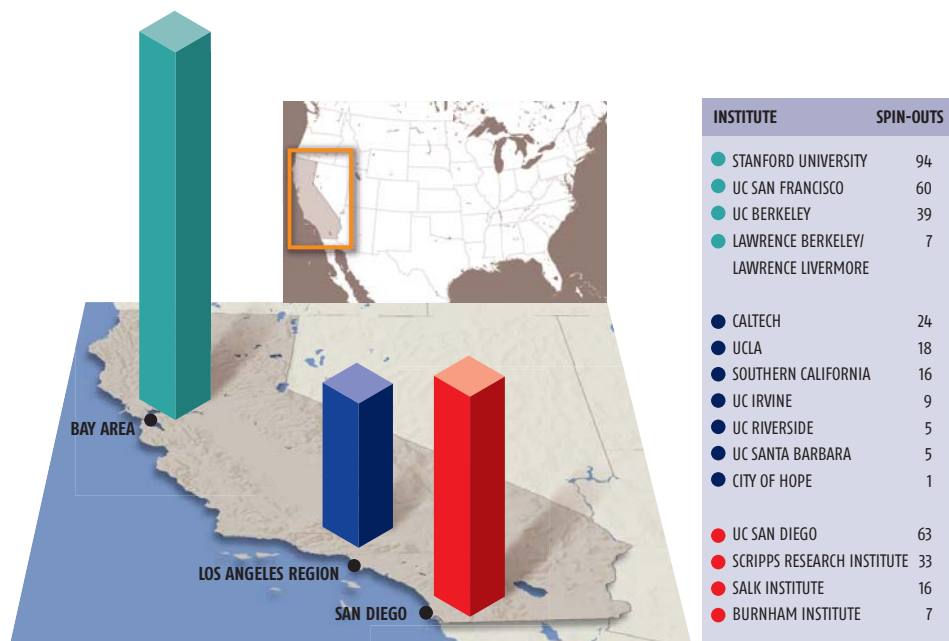
SoCalBio is working to make investment in the life sciences more appealing both to companies running regional employee pension programmes and wealthy individual investors. It hopes to announce in the next few months that a local pension programme is willing to devote a small percentage of its funds to LA life sciences companies.

Local and state governments are also focusing on driving the life sciences industry in the LA region. Improving technology transfer and lowering business costs are at the heart of a 10-year plan for the LA area issued by the California governor’s office last year.

But a lack of funding isn’t the only difficulty for start-up companies: there are simply fewer ideas to invest in, according to SoCalBio founder Ahmed Enany. The University of Southern California (USC) and the University of California, Los Angeles (UCLA), have done a poor job of commercialising their research, he argues. UCLA has produced only 18 biomedical spin-offs, while the USC has generated 16. In comparison, the University of California, San Diego (UCSD), and the University of California, San Francisco (UCSF), have yielded more than 60 biomedical companies each, and Stanford University is a clear winner with 94 firms (see Chart).

This is despite the fact that UCLA gets the seventh largest amount of university funding nationwide from the National Institutes of Health, and is second only to UCSF in California. “That’s what goes in, but you see a disparity in terms of what comes out,” notes Enany. “Stanford doesn’t get as much NIH

BIOMED COMPANIES FOUNDED BY CALIFORNIA UNIVERSITIES



money, yet they spin out many more companies.” In the last decade, technology transfer has improved at UCLA, more so at USC and the California Institute of Technology, but it needs to go further, he says.

The Los Angeles region’s scarcity of spin-offs, major life sciences companies and venture capital mean the industry looks quite

different from that in San Diego and the Bay Area. While it watches its neighbours grow from strength to strength, the region has a number of hurdles to tackle if it wants to copy their success. ●

Stacy Lawrence is a freelance writer based in San Francisco