



The best of both worlds Seattle

Seattle has always been a boom-and-bust kind of town. Boeing's success made it an aerospace capital — until the company decided to move its corporate headquarters to Chicago. The software dominance of Microsoft and the rise of the Internet spurred hundreds of dotcom companies — until the bubble burst last year. Now, with local unemployment higher than the national average, the city is turning tentatively to what it hopes is the next big thing.

"Everyone is looking at biotech to be the next saviour," says Ruth Scott, president of the Washington Biotechnology and Biomedical Association. Actually, she acknowledges that biotech has had a long-standing presence in the Pacific Northwest, but it has been relatively quiet; the area lacks 'big pharmaceuticals'. Now the Seattle biotech scene seems to have reached a turning point.

One mark of this is the change in ownership of two of the region's most successful companies. Rosetta Inpharmatics was acquired by Merck last July, and Immunex, the city's biggest biotech company, is being bought by Amgen.

Rosetta's experience may offer some insight into what the future holds for Immunex as Amgen moves in. In some ways, Rosetta is the archetype of a Seattle-based biotech company. It was built on technologies developed at the two main local research institutions: the University of Washington and the Fred Hutchinson Cancer Research Center (known as 'the Hutch').

SILICON ROOTS

Both technologies had some computational genesis: a technique for printing gene-expression arrays from Leroy Hood's University of Washington lab and a bioinformatics approach to analysing expression data from Lee Hartwell's lab at the Hutch. Rosetta was also partly funded by Vulcan Ventures, a venture-capital fund operated by Paul Allen, one of Microsoft's founders.

Lisa Junglov, Rosetta's recruiting manager, says that since Merck acquired the company, it has grown from 180 employees to about 230. Now Rosetta gets lots of unsolicited applications from unemployed IT people, when what it really wants is molecular biologists with some computational skills.

But for younger companies such as Illumigen Biosciences, this climate might be just right. It hired four IT people in its early days — three of whom had been laid off from Internet start-ups. "To a certain degree, the collapse of the dotcom bubble has helped people like us," says Shawn Iadonato, the firm's chief scientific officer.

The company has also been aided by input from two people who played a huge role in sequencing the human genome. Illumigen emerged from

Seattle's biotech hub: the University of Washington (below) and the Hutch (right).



Vancouver's widening horizons

Three graduates of Simon Fraser University (SFU) who left Canada for world-renowned genomics centres are now in leadership positions in Vancouver. They represent early success in reversing Canada's brain drain (see *Naturejobs* 4-5; 14 February 2002).

Francis Ouellette, Steve Jones and Marco Marra are helping the city position itself as a bioinformatics hub in the Can\$300-million (US\$195-million), three-year Genome Canada programme. Genome British Columbia, one of five regional divisions, will get roughly a fifth of that money, with much of it concentrated near Vancouver.

Ouellette spent time at the US National Center for Biotechnology Information before becoming bioinformatics

director at the University of British Columbia's Center for Molecular Medicine and Therapeutics. He has accepted the directorship of a new bioinformatics centre at the university.

Jones left SFU for the Sanger Center in Britain, and is now running Canada's newest graduate-level bioinformatics training programme, at the British Columbia Cancer Agency's Genome Sciences Centre (GSC).

And Marra, director of the GSC, sees even more opportunities appearing, because funding from the Cancer Agency and support from the US National Institutes of Health are abundant. Recruitment emphasizes bioinformatics, gene expression, genotyping and SNP discovery. **P.S.**

Maynard Olson's University of Washington lab, which led the university's part in sequencing the human genome. And Philip Green, who provided the Human Genome Project with bioinformatics expertise, also sits on the company's scientific advisory board.

A more visual example of the dynamics between IT and bioinformatics can be found at the Institute for Systems Biology (ISB), which Hood left the University of Washington to establish two years ago. The institute is in a waterfront building that once housed eight dotcom companies — none of which are still in business.

Hood, like Iadonato, has been able to find IT people in the wake of the collapse, although "probably not enough", he says. The institute has grown from 2 to 170 people in 18 months, and has nine faculty members including chemists, engineers, mathematicians and even an astrophysicist. Hood anticipates that, in addition to more computational biologists, his institute will need more mathematicians in order to flourish.

There are also signs that Immunex's merger may help the whole Seattle biotech area to flourish in the long term, although the short-term indications are less positive. On the downside, the company has drastically scaled back plans for a new research facility and there are rumours that some employees are nervous they may be relocated to Amgen's site in Thousand Oaks, California.

But Immunex has history on its side. It originally emerged from the labs of scientists at the Hutch. And since its inception, it has sprouted several other companies. For example, Immunex co-founder Chris

Henney has since created Icos, which expects to market a Viagra-like drug within a year, and Dendreon, where he currently acts as chairman and chief executive. Both companies are hiring scientists now.

He is in the camp — along with Ruth Scott and others — that believes more companies will emerge from Immunex after the merger. Although the area does not have the venture-capital market of Boston or the Bay, "there's a lot of money in this area which is very Northwest-oriented", he says.

SPIN CITY

Targeted Genetics, yet another Immunex spin-off, is demonstrating how its parent company has been an engine to produce yet more — it is planning to spin out its cell-therapy unit into a company called CellExSys. Perhaps one of the reasons for so many local spin-offs is the reluctance of their employees to go elsewhere. Geoff Roach, senior director of human resources at Targeted Genetics, calls that phenomenon the "emerald handcuffs". People who like the outdoors but still want to live in or near a city are attracted to Seattle, he says.

Newer institutions are also taking advantage of the area's amenities. The ISB has a deck equipped with barbecue grills overlooking Elliot Bay, and ZymoGenetics, a biotech firm in a renovated power plant, beats that by offering its own dock — and employee access to rowing shells.

Don Elmer, managing general partner at Pacific Horizons Ventures, has his own perspective of the scene. Unlike most venture-capital firms, which tend to be located close to areas of dense activity, Elmer's firm follows companies that are quite widely spread out. But this is not a problem, Elmer says, and the reason is environmental. One partner at the firm delights in the scenery he is presented with as he travels to the more far-flung institutes in Montana or British Columbia. Elmer jokes that the approach is akin to the Hudson Bay fur traders making the rounds for beaver pelts.

What he and his partners have found during those rounds is cause for optimism. They are seeing signs that the area's convergence of IT and biotech is creating an improved ability to decide whether to pursue a particular drug candidate or target, thus avoiding "late-stage clinical-trial fiascos". The ability to save money this way is "the promise of computational biology", he says. And the hope of the Seattle biotech scene. ■

Paul Smaglik is editor of *Naturejobs*.

Washington Biotechnology & Biomedical Association

♦ www.wabio.org

Genome British Columbia

♦ www.genomebc.ca



Leroy Hood: seeking mathematicians.



Biotech pioneers: Chris Henney (right) with Martin Simoneti (centre) and David Urdal.