

Life Sciences in Luxembourg

A New Kid on the Block



Luxembourg wants to become a major player in health sciences and biomedicine. Let's look at the ambitious plans of a country that, until the beginning of this century, found itself so far removed from science and research that it didn't even miss a university.

“The same ideas, one must believe, recur in men's minds not once or twice but again and again”, wrote the Greek philosopher Aristotle in his book “On the Heavens”. Biomedical and biological research are predicted to experience high increases in economic value. Hence, we're not too surprised to see the Grand Duchy of Luxembourg embarking on the road to become a major player in biomedicine and biotechnology.

Of course, Luxembourg is not the first country to aim at making capital from the growing health market. What makes Luxembourg's ambitious plans so specific, however, is the fact that, until the beginning of this century, the country did not even have a university, not to mention any noteworthy research in biology or biomedicine. Instead, Luxembourg's economy was dominated by agriculture, coal mining and the steel industry until the 1960s, when the financial sector began to flourish, compensating for the decline in the steel industry. Due to the financial sector, today, the Grand Duchy is able to boast the highest Gross Domestic Product.

Just hatched

Nevertheless, the government started out to re-model the country's economy into a “dynamic and competitive knowledge-based economy” capable of sustainable economic growth with the development of The Luxembourg Health Sciences and Technologies Plan. One part of this plan encompasses the development of health and biomedical sciences research domains.

In 2003, Luxembourg founded its first and only university. Today, more than 4,000 students populate the campus. In 2005, a bachelor course in biology was established; a masters course in systems biology started this year. The government and the university founded two major research sites: the In-

tegrated BioBank of Luxembourg IBBL and the Centre for Systems Biomedicine.

The university, together with Luxembourg's national research centres Santé, Gabriel Lippmann and Henri Tudor, announced three strategic partnerships with US research institutions: the Translational Genomics Research Institute (TGen) in Phoenix, the Institute for Systems Biology (ISB) in Seattle and the Partnership for Personalised Medicine (PPM). Obviously, one does not want to start out with peanuts. All

according to Hewitt, has received too little attention in the past. Biospecimen research at IBBL will be headed by Fay Betsou, who formerly worked at the Biobanque de Picardie in France.

Potent partners

A pilot project is already being conducted between the CRP Santé, the IBBL and Leland Hartwell, director of the Fred Hutchinson Center for Cancer Research in Seattle, one of the founders of the PPM.

The scientists want to identify biomarkers that will help in the early diagnosis of patients with lung cancer. “They will also look for proteins that would indicate whether a particular drug would be best for a particular patient, which is the aim of personalised medicine,” wrote Hewitt.

The second main pillar of Luxembourg's prospective biomedical research is the Centre for Systems Biomedicine that is located at the University and directed by Rudi Balling (see interview). The partnership with the Institute for Systems Biology has been set up to take a closer look at personal genomes and

proteomes via a systems approach, in order to identify biomarkers and to gain further insight into the development of certain diseases.

Altogether, Luxembourg appears to be undertaking an interesting experiment. At least, money won't prove a serious obstacle since the government offered €140 million for their efforts in health science. And as smart as Luxembourg is in creating business, it will surely seek to rapidly commercialise the scientific results.

These results, however, first have to be generated. That's why it seems appropriate to end with another citation from the grand Aristotle, “For the things we have to learn before we can do, we learn by doing.”

Let's see what will be learnt in Luxembourg.

KARIN HOLLRICHER



85 nations. 3 languages. One university

projects outlined by the partners are intended to develop new diagnostics and therapies, mainly within the field of personalised medicine.

The IBBL, led by biobank expert Robert Hewitt, is collecting and analysing patients' samples needed to search for diagnostic biomarkers. Hewitt, who formerly worked at the biobank in Singapore, is quite enthusiastic about the new institution. In an email to *Lab Times* he wrote, “The biobank will not be just another biobankIt will be exceptionally well planned, staffed and funded. This will allow it to provide the best possible support for biomedical research.” TGen is helping to build up the infrastructure. Hewitt especially focuses on finding the best possible ways of ensuring sample quality, an area of great importance that,