

Partnering a key to Nordic life sciences

With a wide range of scientific knowledge and innovation, as well as a steady flow of funds for research, the Nordic region ranks as one of the world's largest and fastest growing areas for life sciences. Partnering is a sure way for Canadian exporters to gain a foothold and profit from this dynamic sector.

"The depth and breadth in life sciences is great," says David Horup, a trade commissioner with the Canadian Embassy in Denmark.

From leading universities and hospitals to the presence of major pharmaceutical and biotechnology companies, Horup says the sector's foundation throughout the region is solid.

"It's a big strength," says Horup, adding that there is especially a lot of potential for Canadian researchers and small biotechnology companies to collaborate with Nordic companies.

While there is some potential for Canadian health life sciences companies to export to the region, Horup says most opportunities involve partnering with the Nordic pharmaceutical and biotechnology industry.



Opportunities to partner with pharmaceutical and biotechnology companies include either commercial partnering, such as the licensing of technology, or partnering in research and development and outsourcing. Several Nordic life sciences research institutions, universities and government health agencies already have collaborative agreements with Canadian institutions,

for example in genomics. Many Nordic companies also have sales and research operations in Canada. "There's a nice complementarity," he says.

Large public investment

The Medicon Valley in the greater Copenhagen and Southern Sweden region is the third-largest life science cluster in Europe. The region's health research institutes and universities, like Sweden's Karolinska Institute and Lund University, are world leaders in life sciences. Like many such institutions, they tend to benefit from being clustered in centres with industry. Their success may also have to do with the high level of government investment in research and development.

Seppo Vihersaari, a trade commissioner with the Canadian Embassy in Finland, says that the Nordic countries spend more than most other countries on R&D, much of it in the field of health life sciences. "Sweden and Finland spend the most overall, about 3.5% of their gross domestic product," says Vihersaari.

The region boasts some 350 biotech companies, the highest number of companies in Europe. Biotech companies there benefit from substantial private and public sector financing. Indeed, many of the established Nordic pharmaceutical companies tend to invest in the region's biotech start ups through seed and venture capital funds. Some of the major pharmaceutical companies include AstraZeneca, Orion Pharma, Novo Nordisk and Lundbeck.

The medical devices industry is also an important part of the Nordic health life sciences sector, with the major focus on plastic disposables, diagnostics and high-end medical electronics. For example, 30% of the world's hearing aids are developed and manufactured there.

Beyond biotech and pharmaceuticals

But life science opportunities go beyond just those in biotech and pharmaceuticals. There has also been strong growth in agri-food and marine biotechnology. "There are some excellent partnering opportunities in these sectors too," notes Horup.

Food production is one of the most significant industries in the region. For example, functional food—food that is enhanced to treat disease or promote health—is the fastest growing segment of the industry, with growth rates of 15 to 20%. In 2003, the **see page 7 – Partnering a key**

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In fact, the Norwegian government has announced a \$4 billion fund for clean energy projects, and has introduced incentives for pellet heaters in response to record electricity prices.

Finding new power

While many new forms of energy are common across the region, some remain unique to certain countries, like Iceland's geothermal power and Finland's nuclear program. Sweden is pursuing a policy of closing nuclear production and Norway has only research facilities for nuclear power.

Wind energy is being developed at a steady pace in many Nordic countries. Denmark is the world leader in the sector, and has supplied wind turbines to many projects in Europe. As research progresses and concerns of land usage gain momentum, new options are being looked at.

One option involves installing wind turbines on oil rigs, essentially creating floating wind farms that are tethered to the seabed. Tidal power projects are also being developed across the region and osmotic power—the harnessing of energy released when fresh and salt water mix—has been introduced by Norway's Statkraft, the largest producer of power in the Nordic region and the second-largest producer of renewable energy in Europe.

Hydrogen also offers attractive, emission-free energy for the transportation sector. The newly formed Scandinavian Hydrogen Highway Partnership, which comprises HyNor (Norway), Hydrogen Link (Denmark) and HyFuture (Sweden), recently had its inaugural meeting. A hydrogen road planned for 2012 has many similarities to Canada's Hydrogen Highway.

Partners in energy

Research institutes in the Nordic region are also forging links with Canadian partners, and industry partnerships are also being established across the Atlantic in areas such as fuel cells, hydrogen production, hydrogen storage and control systems.

Statkraft's cooperation with Hydrogenics, a leading developer of clean energy solutions, is an example of Nordic Canada links.

Three hydrogen fuel cell buses made by Ballard continue to operate in Reykjavik, and Iceland plans to introduce hydrogen-fuelled passenger vehicles as well as explore marine applications for the technology.

Winterbourne says that Norway has been a source of capital for Canadian energy companies, with three of them listing on the Oslo Stock Exchange in the last year. "It's bringing a new dimension to the energy relationship," he adds.

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global market for functional food was worth over \$100 billion and is expected to double by 2010.

The trade commissioner says that Nordic companies have been particularly successful in developing new products within the dairy, non-dairy and cereals sectors. The Öresund area, which comprises southern Sweden and Greater Copenhagen, is a major cluster for functional food research.

In addition to a strong research base in nutraceuticals, nutrigenomics and nanotechnology related to food, opportunities are plentiful in the region's food processing industry, which is often used as a test market for new products.

Canadian exporters may also wish to look to the region's agricultural biotechnology sector for opportunities. The same is true for marine biotechnology. "The region is a global leader, particularly in aquaculture and fish breeding," he says. There is already a good deal of collaboration with Canada, says Horup, such as a Canadian led project to map the genome of the Atlantic salmon.

But there are a number of challenges facing Northern Europe's agri food and fish industry, including new mandatory safety and quality regulations, international trade liberalization, globalization and changing consumer demands.

However, Horup points out that these challenges are being met with innovation and new technologies coming from many companies and institutions across the sector, good news for Canadian exporters looking to find that all-important partner.

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