

# Predicting the Future for Medicon Valley

By Chris Tachibana

**A new global biotechnology scorecard gives the Nordic countries high marks in growth indicators. Denmark earns the number two spot thanks to government support, plenty of patents, and lots of employees in public biotechnology companies**

The United States, Denmark, and Switzerland are the top three countries for biotechnology, according to the 2013 Scientific American World-view Scorecard.

The scorecard is an annual meta-analysis by Scientific American, a US-based science magazine. Since the first scorecard in 2009, Denmark has always been in the top five. In general, the Nordic countries do well against the competition, which is countries in North America, South Africa, Europe, and Asia. In 2013, all Scandinavian countries were in the top 25, with Finland and Sweden at numbers 4 and 5, Norway at 19, and Iceland at 23. Iceland led in a measure of education and workforce, and for the third year in a row, Denmark won the competition for intensity.

Intensity and Education/Workforce were two of six categories used to rank 54 countries in the Scientific American report. The other categories were intellectual property (IP), Enterprise Support, Foundations, and Policy and Stability. The scoring was based on data and indexes from sources such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, and academic reports.

According to the scorecard:

- Scandinavia also runs away with our “entrepreneurship and opportunity” component, with Denmark leading the way, followed by Sweden, Finland and Norway, in order. This metric indicates, among other things, the odds of creating spin-offs from universities or companies. Consequently, a strong score in this component could indicate extremely strong growth in biotechnology ahead.

## How to be intense

Denmark's consistent high ranking is because of stellar scores in intensity. Danish people do not have a reputation for being intense, but this category measures general energy in the biotechnology field. To score intensity, Scientific American analysts used five measures including public biotechnology company employees per capita, and public company revenues – with Denmark scoring highest for both factors. Other contributors to the score were added value and business expenditures on biotechnology R&D, for which the United States earned top scores. Denmark won in the fifth factor: biotechnology patents.

Steen Wadskov-Hansen is a European Patent Attorney and chief operating officer of Budde

Schou, a Scandinavian IP attorney firm. He has a PhD in biotechnology from the Technical University of Denmark and has worked as a research fellow at Chr Hansen. He says,

- I'm not surprised that Medicon Valley scores well. The area around Copenhagen and Southern Sweden has strengths measured by numerous parameters: the number of patent applications, the number of startup companies, and the value extracted from IP filed from universities, says Steen Wadskov-Hansen.

In fact, Denmark and Finland were two of eight countries in second place, after the United States, in the IP category. The Scientific American editors conclude that this category is crucial for biotechnology success and that leaders in this field have successfully addressed IP protection. However, the Medicon Valley countries vary in their IP policies about basic research discoveries. Researchers can immediately develop their findings in Sweden, but in Denmark, universities usually get to decide if they will commercialize discoveries – a policy that is under debate in Denmark, says Steen Wadskov-Hansen. Still, Denmark does submit a high number of technology-focused patent applications.

- Denmark has a history of being good at patents in biotechnology and green energy such as wind, wave and solar power. Also, the country does not have many patents in traditional areas like car manufacturing, so the number of biotechnology patents compared to all patents is high, explains Steen Wadskov-Hansen.

Nordic countries also scored high in Policy and

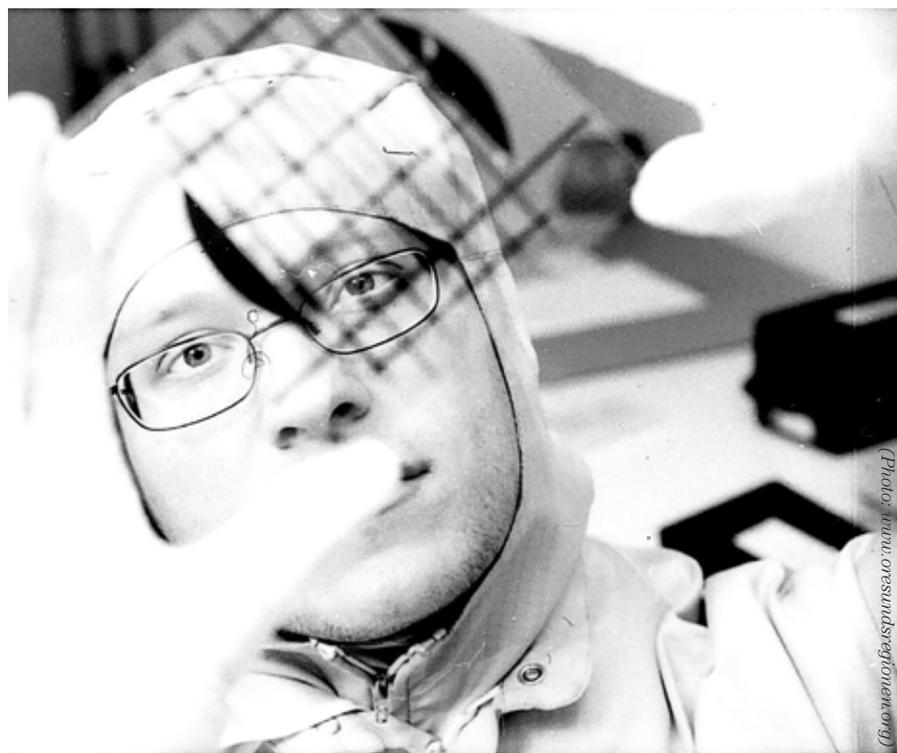
Stability, with Finland on top and Denmark second. This category reflects political stability and government effectiveness, so violence and terrorism are obvious negative factors and regulatory quality and rule of law are positives. Years of government support for biotechnology in policies, funding, and infrastructure development have creating an environment in Scandinavia that attracts established companies and startups. The region also did well in the Foundations category, which contains four components measuring R&D business expenditures, government support, infrastructure quality, and innovation and entrepreneurship opportunity. These factors create a synergistic effect in Medicon Valley, say the scorecard editors:

- For anyone interested in the concept of clustering, this area offers a great example.

## Room for improvement

With highly educated workers who tend to stay in their home country, the Nordic countries scored well in Education/Workforce. However, the United States still attracts the largest number of international students who want to stay and work in the country, giving the US a brain-gain advantage. Education is an area where Medicon Valley could improve to maintain its edge, says Steen Wadskov-Hansen:

- We need to educate people going through universities with courses on IP and how to set up a business and be entrepreneurs. Our students need to learn about the system and to heighten their awareness about





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IP and IP protection.

According to the scorecard, another area where the Nordic countries could improve is capital availability and market opportunities. These factors were measured in the scorecard's Enterprise Support category, with no Nordic countries in the top ten. In fact, biotechnology investment analysts have long noted that although public support of biotechnology is excellent in the Nordic countries, their investors tend to be quite risk averse.

#### **The future looks bright**

Investment in biotechnology is improving in general, however, at least in the United States. The California-based investment firm Burrill & Company found that 2013 already has greater investments than 2012 in companies developing new therapeutics, diagnostics, and tools such as genomics and data analysis.

Steen Wadskov-Hansen is also positive that biotechnology will continue to be strong in Medicon Valley:

- Our universities have a well-founded tradition of biotechnology development and they tend to develop and commercialize their biotechnology inventions. If biotechnology becomes old-fashioned then this will be a weakness, but I see no signs of that happening.

Scientific American Worldview Scorecard:  
[www.saworldview.com/wv/scorecard/](http://www.saworldview.com/wv/scorecard/)

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