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Original article in Finnish by Noona Backgren HS with photos by Anton Kunnas

In Medicon Valley, located on the border between Denmark and Sweden, the lessons of Silicon Valley are successfully applied. Now, a large project is working on finding a solution to the declining birth rates.

In the beginning, there was a bridge. The same bridge that lent its name to the TV series *Bron/Broen*.

In the 1990s, as construction began on the 16-kilometer link between Copenhagen in Denmark and Malmö in Sweden, it sparked dreams of cross-border collaboration between universities and companies. Representatives from the University of Copenhagen, Danish pharmaceutical companies Novo Nordisk and Lundbeck, Sweden's Lund University, and the pharmaceutical giant AstraZeneca sat together at a table. This was the beginning of the organization now known as the Medicon Valley Alliance (MVA), an umbrella organization for over 300 members, including pharmaceutical and biotech companies, universities, hospitals, and municipalities from both sides of the bridge.

"We refer to this as the 'triple helix,'" says Niels Abel Bonde, Executive Vice President of Novo Nordisk, referring to an innovation model where universities, industry, and the public sector work closely together. This model has succeeded in Silicon Valley in the United States - and it has also quietly turned the Denmark-Sweden border region into Scandinavia's own "Silicon Valley": Medicon Valley.

As a person responsible for global marketing at Novo Nordisk, Bonde is used to discussing anti-obesity medications, but today, he sits down in the company's Søborg office to talk about women's health and infertility. Similar themes have recently been hot topics in Finland, as falling birth rates and population issues became a focus with a new demographic study published on October 10.

"Women's health and fertility-impacting conditions, like endometriosis, have long been overlooked in research and drug development," Bonde says. He's not here to present a new fertility drug. Instead, he describes cross-border collaborations among Danish and Swedish universities, pharmaceutical companies, and hospitals addressing global issues - fertility being one of many. Medicon Valley's mission spans scientific research and billion-dollar business.

Abel Bonde is the chairman of the MVA board. Not all companies operating in the Medicon Valley area are members of the MVA, but the most significant ones are. Europe's most valuable company by market cap, Novo Nordisk, has been spotlighted for its breakthrough Ozempic and Wegovy drugs, though Denmark's small size masks its role as a major hub for pharmaceuticals and biotech. Out of the top 20 companies on the Danish stock exchange, six are in the life sciences, including pharmaceutical firms like Lundbeck, ALK-Abelló, and

Zealand Pharma, as well as biotech companies like Novonesis and Genmab. Also, Bavarian Nordic has been in the spotlight recently for inventing a M-pox vaccine.

One of MVA's largest projects currently focuses on reproductive health. Named ReproUnion, this initiative received 6.7 million euros in funding from the European Union last year. Collaborating with Ferring, a company specializing in reproductive medicine, the project also involves the University of Copenhagen and the universities of Lund and Malmö in Sweden. Infertility is not just a Finnish issue - it's a challenge faced by most countries worldwide. In Denmark, nearly one in nine children is born as a result of fertility treatments, yet infertility research has been underfunded for years. In ReproUnion, the pharmaceutical company Ferring also participates as a funder.

The idea behind ReproUnion is to take a broad approach to infertility: it's not just about women, as male infertility is an equally significant issue.

It's not only a matter of biology and medicine, as involuntary childlessness and related treatments often lead to significant stress, anxiety, and depression. Additionally, all of this impacts the sex life.

As part of the large-scale project, a biobank containing data on 5,000 Danish and Swedish couples experiencing involuntary childlessness is being created.

Since this topic is highly relevant in Finland as well, it's best to let a person with extensive knowledge about infertility and its treatment speak on the matter.

When Henriette Svarre Nielsen talks about the Nordic fertility crisis, a look of frustration mixed with self-respect occasionally crosses her face.

"Men could be given the same infertility hormones as women, but for some reason, that's not done," she says.

Svarre Nielsen knows what she's talking about. She is a professor at the Faculty of Health Sciences at the University of Copenhagen, specializing in women's diseases and obstetrics. She leads a unit that studies pregnancy loss.

In addition, Svarre Nielsen is the chief physician at the fertility unit at Hvidovre University Hospital.

She clearly wants to highlight that the discussion around fertility and the declining birthrate typically revolves around women, even though it shouldn't be the case.

"Infertility is just as common in men as it is in women. In men, infertility is typically caused by low sperm count or poor quality," she says.

"Additionally, in about a third of cases, the cause of infertility cannot be pinpointed."

According to Svarre Nielsen, new medications are often tested on men, but ultimately, they are given to women.

"Birth control pills were developed for men as well. But they developed side effects like mood swings and skin problems. The pills were never brought to market."

So, men developed similar side effects to women?

"Yes. But the idea was that women would tolerate the symptoms better."

Svarre Nielsen strongly believes that infertility shouldn't only be treated by developing new and more effective fertility treatments. Going through these treatments is often very burdensome, especially for women.

"We need to look more broadly at women's biology and microbiomes, the total collection of bacteria living in the body. This is what we are studying now. We want to understand how improving women's health could also improve their fertility."

Svarre Nielsen mentions that studies have shown that women who have experienced multiple miscarriages also tend to have more cardiovascular diseases, autoimmune disorders, and diabetes. Additionally, miscarriages are more common in women who have vaginal dysbiosis, meaning an imbalance in their bacterial flora with too few lactobacilli.

Svarre Nielsen hopes that women's fertility can be improved by affecting their microbiomes. This research is part of the ReproUnion project.

At the same time, Svarre Nielsen stresses that understanding a woman’s biology is a crucial aspect of the fertility crisis discussion.

"It needs to be talked about."

"We’ve repeated this narrative in Western countries that the most important thing is to get a great job and succeed. TV shows and social media fuel the idea that there is a perfect life and a perfect man out there," she says.

"It’s also important to repeat that having children should be done when it is possible. I always tell my children to start a family when they’re young."

The article also includes insights from Professor Jukka Rantanen of the University of Copenhagen, Professor Eva Elmerstig from Malmö University, as well as Jan Preutzfeldt, Ferring’s Country Director for Denmark, and Kelle Moley, Ferring’s Global Vice President of Clinical and Translational R&D, Reproductive Medicine & Maternal Health.