



Foto: Mikael Wallerstedt

Tove Fall

Biobanks are a prerequisite for biological research

It is thanks to samples from biobanks that Tove Fall can investigate what changes when a person goes from being healthy to getting diabetes or cardiovascular disease. Biobanks provide researchers with new tools for obtaining information on how diseases can be prevented and treated.

“When we collect a sample from a sick person, it’s difficult to know if what we see has caused the disease or is a consequence of the disease. The biobank functions as a time machine. We can look at samples taken up to 20 years back from the same person and see what’s different from samples donated by other people.”

Tove Fall is a Professor of molecular epidemiology at Uppsala University and leads research projects on why some people get diabetes and cardiovascular disease and others do not. The driving force for her is to understand how these diseases occur, and she hopes to both find better treatments, as well as methods to prevent the diseases.

Important to understand slight variations

To understand the mechanisms behind diabetes, Tove Fall and her research colleagues investigate and map the effects of proteins, degradation products and gene varieties in blood samples.

“How sensitive you are to insulin radically affects the levels of many substances in the blood. It’s important to understand how and why these substances vary, in order to understand why a person becomes insensitive to insulin, and what effects this has on health.”

If a person becomes insensitive to insulin, the risk of other illnesses also increases. This means it is important to know what happens in the body when a person starts becoming insulin resistant.

The intestinal flora might be key

An important part of Tove Fall’s research is to investigate whether a person’s intestinal flora affects the risk of developing diabetes or cardiovascular disease. The researchers examine

what bacteria were present in the person’s intestinal flora and then compare this with the degree of atherosclerosis. Then Tove Fall uses stool samples from the unique SCAPIS study.

It is also from there she obtains blood samples for the diabetes project.

“We have identified an interesting link between levels of bile acids in the blood and the development of diabetes, a link we will continue looking into. The intestinal flora probably has an effect on this connection.”

The goal is to prevent and protect

When Tove Fall and her colleagues find substances in the blood or microorganisms in the intestinal flora that can affect the course of the disease, they collaborate with other researchers who work on understanding the disease mechanisms, with the end goal to eventually develop drugs.

“We have published quite a bit in scientific journals, but there’s a long process before this leads to something a doctor can use in treatment. We try to identify interesting molecules

that other researchers can work on with us.”

Biobanks are a prerequisite for biological research

To gain access to samples for her research, Tove Fall has received help from Uppsala Biobank and the Regional Biobank Center in Lund (RBC Syd). She thinks both biobanks and the Regional Biobank Centers do an impressive job with the logistics around tests.

“If not for all this infrastructure, I would basically be on square one. It wouldn’t be possible to do what we do without the biobanks. Biobanks are valuable for virtually all biological research and give us researchers completely new opportunities. It’s great to be a researcher today.”

