

TRANSLATED FROM FINNISH

Johanna Ivaska's speech at the prize award ceremony for the Finnish Science Prize 2025 May 20th in Helsinki. The prize is the most prestigious national science prize in Finland and is awarded biannually.

Honourable Minister, esteemed colleagues, ladies and gentlemen,

It's about 20 degrees below zero, there's a metre of snow on the ground, and dusk is falling over the Tulppio wilderness in Koillismaa as I tumble down a riverbank slope with my backpack. One of my skis breaks at the tip. Fortunately, I'm not alone. A more experienced fellow scout helps me up, digs out an empty plastic bottle that once held spirit fuel from her backpack's side pocket, and with a knife, cleverly fashions a temporary ski tip. We continue our journey – slowly, but steadily. The lessons I learned on these scouting trips – teamwork, creative problem-solving, ingenuity, and perseverance – are the same ones that have brought me here today.

I accept the Finnish Science Prize with the deepest gratitude and humility.

I want to warmly thank the Ministry of Education and Culture and the Academy of Finland for this recognition. This prize does not feel like a personal achievement alone – but above all, as recognition for all the people and institutions with whom I've had the privilege to conduct research as part of the Finnish scientific community. Science is not a solo pursuit. Behind every result (even if the insight may come from an individual) there are people: teams, collaborators, mentors – and supporters, who make all the difference. Without them, I would not be here.

First, I want to thank my research group. Over the years, my Cell Adhesion and Cancer Research group has included over 60 talented researchers. You are the heart of this work. For 22 years, we've transferred red culture medium from one bottle to another and marveled under the microscope at the complexity and beauty of living cells – but also their terrifying ability to turn deadly. Your intelligence, creativity, and resilience have taken us further than I ever dreamed. It's a privilege to do research with you.

I want to thank my supervisors and mentors – Professors Jyrki Heino, Peter Parker, and Olli Kallioniemi. You have guided me gently, yet always intellectually challenged me and pushed me in the right direction.

To my supervisors and colleagues at VTT, the University of Turku, the Turku Bioscience Centre, and the Cancer Foundation Finland – thank you for providing me with top-tier research infrastructure and creating environments where I could focus on research and even take bold steps into unexplored directions. A big thank you to our current Academy of Finland Centre of Excellence – at BarrierForce we have a phenomenal team.

As a researcher, I am part of a large international scientific family. Thank you to all my international collaborators and friends – without you, the most important breakthroughs would not have been possible.

This work would also be impossible without the constant encouragement of my family – thank you.

I believe Finland is a wonderful place to be a researcher. Here, in the happiest and wisest country in the world, science and evidence-based knowledge are truly valued.

While elsewhere the news is often filled with disregard for science and a dismissal of facts, we Finns are fortunate. We live in a country where science is trusted. In a country where political decision-making acknowledges and respects the role of science in shaping the future.

Still, it's crucial that both policymakers and the general public remember that high-quality research takes time. It requires perseverance, resilience, and trust. Every scientific breakthrough, every innovation, every product that ends up in a consumer's hands, is the result of decades of quiet, diligent work and a long chain of small insights. There are no shortcuts.

My own research focuses on cancer – specifically on how cancer cells move and spread.

Beyond being a biological challenge, cancer is a human tragedy. In Finland, over 300,000 people are currently living with or have survived cancer. Every one of them is someone's mother, father, child, or loved one.

Our research group investigates how cancer cells detach from the original tumor and invade the surrounding tissue. It's this ability to spread that makes cancer so dangerous. We aim to understand which molecules control cell movement and how we might stop that movement.

We have identified several previously unknown regulators of cancer cell migration and found that their levels can predict patient outcomes. This gives us confidence that we're on the right path and that these molecules may become drug targets – entirely new ways to prevent cancer from spreading.

However, it's important to emphasize that we do basic research. We don't develop drugs, diagnose diseases, or treat patients. We generate new knowledge – and without it, no new medicines or diagnostics can be created.

For me, knowledge itself is the value and beauty of science. Every result raises ten new questions, and each small clue leads us closer to major insights – it's true detective work.

Many people ask me: "Don't you get frustrated? Don't the failures wear you down?"

It's true that science is full of waiting, uncertainty, and disappointment. But it's also endlessly fascinating. On the best days – the ones not filled with reporting or administrative tasks – we're driven by curiosity, wonder, and collaboration. And occasionally, there are moments when everything clicks into place – and the shared joy of discovery is unforgettable. It is an incredible feeling to find something no one in the world has ever known before.

I could say a lot about science funding and policy, but here I want to highlight just one crucial point:

We must take care of young researchers.

They are the future of science. They are smart, brave, and enthusiastic – but the instability of science policy makes their situation difficult. If we want Finland to continue producing world-class science in 10 or 20 years, we must give them a chance to succeed.

That means fair and predictable funding. It means mentorship and guidance. It means listening to their ideas – and giving them room to grow.

I was fortunate to receive support at the beginning of my career. I hope we can ensure the same opportunity for today's early-career researchers.

We live in a time when the amount of knowledge produced by science is exploding. New technologies have opened up a true grail of information. But this also increases the risk of losing sight of the big picture. Who still takes the time – or dares – to ask what it all really means?

The fundamentals haven't changed. The cell is the basic unit of life, and understanding it remains central. Again and again, the history of science has shown that a well-designed, even simple, experiment can lead to insights that fundamentally change our understanding of life – why we get sick, and what keeps us healthy.

That's why cutting-edge research requires not only the best tools, but also enough time to think and read. Unfortunately, time for thinking has become critically endangered in today's academic world.

To our government, the Academy of Finland, and university leaderships, I want to repeat a quote from Nobel laureate Sir Timothy Hunt, who recently visited Finland:

"To the policymakers in the front row I say this: Your job is to identify the best scientists, give them as much money as you can, and then leave them alone. Discoveries and innovations will follow eventually."

Finally, I want to return to where I started – not to the Tulppio wilderness, though I do long for it – but to gratitude.

Thank you to everyone who has been on this journey with me: colleagues, mentees, family. Thank you to Finland's universities and research institutions. Thank you to the Academy of Finland, the European Research Council, and to the Finnish and international foundations that have funded our work.

Thank you to Finland – for the freedom to think, to ask difficult questions, and to search for answers. For valuing science.

Encouraged by this award, we continue with enthusiasm. We continue to ask questions. We continue to listen. We continue to learn – with perseverance, creativity, and together.

Warmest thanks.