



Prof. Dr. Dr. med. Annelies Zinkernagel is both a physician and a scientist working as a professor at the University of Zurich. She wears two hats, one as the Director of the Department of Infectious Diseases and Hospital Epidemiology at the University Hospital of Zurich, where she attends to patients and oversees the clinicians in her department. Wearing the other hat, she is Professor and Chair of Infectious Diseases and Hospital Epidemiology, where she runs a research lab and teaches students and medical doctors. Annelies' research interest is understanding the pathophysiology of infectious diseases, specifically how to improve treatment as well

as how to prevent bacterial infections. Using patient samples, she studies how bacteria behave inside patients and how bacteria and host cells (human) interact at a microscopic level.

Annelies grew up in Switzerland and was always interested in science. She studied medicine in Switzerland at the Universities of Lausanne and Zurich. After becoming board certified first in internal medicine and then infectious diseases, Annelies went to California, USA, eager to learn more about the interplay between host and pathogens. She worked at the University of California San Diego and the Burnham Institute for Medical Research, where she earned a PhD.

Since returning to Switzerland, Annelies has been working at the University Hospital Zurich researching, attending to patients and teaching at both the University of Zurich and the ETH Zurich. Annelies has received numerous awards and fellowships, is an active member of multiple national and international scientific organizations and is currently the first female president of the European Society of Clinical Microbiology and Infectious Diseases.

Annelies is also the mother to two children and, in her free time, she enjoys hiking and skiing.

An interview with Annelies Zinkernagel:

The biggest challenge women physician -research scientists face today is...

... organizing yourself and prioritizing your time. I think this is true for all physicians and researchers alike but may be even more important for women. Working as a physician in a hospital means being on call and working nights/weekend on a rotating basis in addition to the usual patient clinics. Working as a researcher means teaching students, spending time in the lab, and writing grant applications to secure funding. As a physician – research scientist at a university hospital, good organization is critical to balance all of these demands while still making time for family life and other interests outside of work.

I chose a physician-scientist career because...

...I am keen to understand the pathophysiology of infectious diseases focusing on the bacterial species *Staphylococcus aureus* and *Streptococcus ssp.* It is amazing that despite the fact that humans are colonized with at least as many bacteria as our own eukaryotic cells, we only rarely succumb to infections. I find it fascinating to learn more about why and how we get sick so that better prevention and treatment methods can be developed.



If I weren't a scientist, I would be...

...a physician. And, if I weren't a physician, I would be a scientist! I am extremely grateful that I get to combine the best of two worlds as a physician-scientist.

What I like most about being part of the NCCR AntiResist project...

...The goal of the NCCR AntiResist project to create new approaches in antibiotic research to improve patients' treatment is directly in line with my research focus on infectious diseases. The NCCR provides a bigger platform for collaboration, exchange of knowledge and the opportunity for more public outreach and awareness.



What I am most proud of...

... supporting and guiding young physician- scientist to pursue their own paths and become excellent doctors/scientists/teachers and to excel in their research. Two outstanding young scientists who worked together with me have already been promoted to professors and are now leading their own research groups.

My top three papers or exciting discoveries...

...focus on studying patient samples to characterize how bacteria behave in the host, with the aim of fine-tuning future therapeutic options.

1. Huemer, Markus et al. "Molecular reprogramming and phenotype switching in *Staphylococcus aureus* lead to high antibiotic persistence and affect therapy success." *Proceedings of the National Academy of Sciences of the United States of America* vol. 118,7 (2021): e2014920118. doi:10.1073/pnas.2014920118
2. Dengler Haunreiter, Vanina et al. "In-host evolution of *Staphylococcus epidermidis* in a pacemaker-associated endocarditis resulting in increased antibiotic tolerance." *Nature communications* vol. 10,1 1149. 8 Mar. 2019, doi:10.1038/s41467-019-09053-9
3. Vulin, Clément et al. "Prolonged bacterial lag time results in small colony variants that represent a sub-population of persisters." *Nature communications* vol. 9,1 4074. 4 Oct. 2018, doi:10.1038/s41467-018-06527-0.

Did you have a role model or inspiration growing up?

My mother was also a physician. She was a great role model showing me every day that it is possible to be a fantastic doctor and family person.

What is your wish for girls studying science in school today?

Dare to pursue your dreams and do what you are interested in and love!