Press Release

The Karl Freudenberg Prize goes to two young scientists, Dr. André Mateus and Dr. Kelvin Anggara

New insights drive research forward

Weinheim, May 2 3, 2022. What precisely do two young scientists – Dr. André Mat eus, a pharmacist , and Dr. Kelvin Anggara, a chemist – have in common? For one, both share a profound passion for scientific and research work. For another, the two s cientists have also studied and gained their doctorates in a wide variety of countries. On Satur day, in recognition of their scientific research, they received the Karl Freudenberg Prize at the Heidelberg Academy of Aaentaentis2g Ain gd7Gzea

be amazing since we could then communicate with cells and influence their behavior. It would represent a major breakthrough in cancer research, for instance."

The chemist used a scanning tunnelling microscope to study the structure of carbohydrates. He has published his results under the title "Identifying the Origin of Local Flexibility in a Carbohydrate Polymer". They show that and how these structures determine the flexibility of carbohydrates. Measuring carbohydrate flexibility is critical to understand how these carbohydrates gain their biochemical properties. The new findings mark the first step towards understanding how to communicate with the cells and influence their activities. This includes understanding the reaction of a cell to a virus or a bacteria. This would be a major breakthrough in cancer research, for example.

Speaking about his enthusiasm for scientific research, pharmacist and award-winner, Dr. André Mateus says: "I'm passionate about crossing the boundaries of the unknown and I love being the first person to make a discovery". What sets the scientist apart is being able to change his perspective and critically examine existing knowledge. An added bonus is his experience gained from working in different countries. Portugal, Uppsala, and Heidelberg count among the scientific milestones on his résumé.

But what is his work all about? Mateus investigated the role of proteins in *Escherichia coli*, a bacterium most commonly responsible for infections of the gastrointestinal tract. He analyzed the impact of removing over 100 proteins (one at a time) from this organism for his research titled, "The functional proteome landscape of *Escherichia coli*". Due to the increase in antibiotic resistance, Mateus used a new technology to study proteins of unknown function. The "thermal proteome profiling" methodology is based on the principle that essential protein interactions influence protein stability. Mateus used the methodology to