



Searching for micro weapons factories

Storm-van der Chijs prize winner Barbara Terlouw searches bacteria for new antibiotics.

Bacteria and fungi compete for food and manufacture antibiotics as weapons in that battle. We use the antibiotics to combat pathogenic bacteria, but these bacteria are increasingly becoming resistant. PhD candidate Barbara Terlouw (Bioinformatics) uses computer techniques to search the DNA of bacteria for new antibiotics.

‘Proteins are the workhorses in all living cells,’ explains Terlouw. ‘So it is actually the proteins making the antibiotics in bacteria that produce antibiotics.’ The proteins are like micro weapons factories. ‘A protein functions like a production line where the various parts (domains) of the protein each add a component to jointly build an antibiotic.’ Last month, Terlouw won a Storm-van der Chijs stipend for her research, alongside co-winner Katherine Barragán-Fonseca. The prize aims to help talented female PhD candidates in their scientific careers. Terlouw wants to use the stipend of 1500 euros to attend two international conferences in her field.

Uncharted territory

Terlouw focuses on Actinobacteria, a group of bacteria that is the source of two thirds of the antibiotics in use today. Modern techniques show that these bacteria can do a lot more than we realized. Terlouw wants to explore this uncharted territory. ‘I go through large databases of DNA codes to determine for each protein domain which piece of antibiotic it adds. I’ve also written a machine-learning tool to train computers to predict what those pieces will be for each protein domain.’ She eventually wants to be able to predict what as yet unknown antibiotic a bacterium can make based on its DNA code. ^{ss}