

Perfect growth conditions for research

A newly established research group in the Division of Microbiology at the University of Salzburg has chosen an Infinite® M200 PRO microplate reader for monitoring cell growth of microaerophilic bacteria in its work to investigate the pathogen *Helicobacter pylori*.

Univ-Prof Dr Silja Wessler's group at the University of Salzburg, Austria, is researching a wide range of cellular signal transduction pathways initiated by the interaction of host cells with pathogens like *Helicobacter pylori*, *Campylobacter jejuni*, *Shigella flexneri* and *Listeria monocytogenes*. In 2012, the group was approached by Tecan to be an early beta tester of the new Gas Control Module (GCM™) that was available for the Infinite M200 PRO, and the instrument's potential was soon very clear, as Silja Wessler, Professor in Microbiology, explained: "We soon saw how much we would be able to do with this equipment and bought a system almost straightaway. Our main aim is to understand the cellular interactions of *H. pylori*, looking at how signaling pathways are regulated, leading to inflammatory and mitogenic responses, and how this interference with cellular responders eventually leads to carcinogenesis in gastric cancer. We use a variety of techniques for our work, including culturing of microaerophilic organisms, immunofluorescence, cytokine ELISAs, reporter gene assays and cell migration assays and, because the Tecan reader is so flexible, we can use it for virtually all of our experiments."



The Wessler group at the University of Salzburg

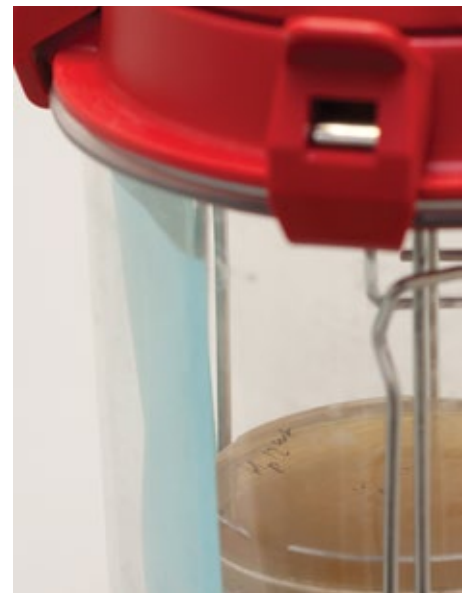
With much of the group's work revolving around the microaerophilic bacteria *H. pylori*, the ability to adapt atmospheric conditions within the reader has been a huge advantage, as Silja described: "We needed a way of culturing and incubating bacteria under microaerophilic conditions, as well as for monitoring migration of host cells in a defined atmosphere. We had previously relied on putting the cultivated plates or small volume liquid cultures into microaerophilic jars, using chemicals to create the correct atmosphere for the bacteria. Now, we simply suspend the cells in the relevant media for each bacterium, pipette them into 96-well plates in very small volumes, usually 200 µl, and begin to measure for growth. We can create the exact atmosphere each bacteria needs, for example, 5 % oxygen concentration for *H. pylori*, 7 % for *Campylobacter jejuni*. This is helpful too in our cell biology assays, where we are working with tumor cells that also thrive in a special environment."

"The Infinite M200 PRO has also been invaluable for a collaboration we currently have with a research group at the ETH in

Zurich, testing antimicrobial peptides they have created on the growth of *Escherichia coli* and *Staphylococcus aureus*. We started the project counting colony forming units which is really intensive work, but now measure growth using the Tecan reader which has made the project manageable and saved us a great deal of time."

Technician Peter Thelesklaf added: "This instrument is very practical to work with every day; the i-control™ software is flexible and it is easy to create new programs

"The Tecan reader is so flexible; we can use it for virtually all of our experiments."



The GCM eliminates the need for microaerophilic jars

when required. It is very useful to be able to react to the real situation that faces you; I can change parameters whenever I need to."

Silja concluded: "The collaboration with Tecan has been very fruitful and helpful for our group; there was a clear gap in our equipment before we had the Infinite M200 PRO, but now we have everything we need for our research."

To find out more on Tecan's microplate readers and the GCM module, visit www.tecan.com/infinitezoopro

To find out more about the group at the University of Salzburg, visit www.uni-salzburg.at