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Biography

Birgit Wiltschi studied biochemistry at Graz University of Technology in Graz, Austria, where she earned her PhD in 2002. From 2002 to 2005 she was a postdoctoral scientist at the Membrane Biochemistry Department of the Max Planck Institute of Biochemistry in Martinsried in Germany. In 2005, Birgit Wiltschi became a senior scientist in the Molecular Biotechnology group at the same institution and in 2010 she changed to the Institute of Biology II & BIOS - Centre for Biological Signalling Studies of the Albert-Ludwigs-University of Freiburg, Germany, as a group leader. Since November 2011 she has been the head of the Synthetic Biology Group at the Austrian Centre of Industrial Biotechnology – acib GmbH. Her research focusses on protein engineering with non-canonical amino acids in industrial biotechnology.

Abstract title:**Engineering of proteins with non-canonical amino acids in industrial biotechnology****Abstract**

Non-canonical amino acids are not encoded by the genetic code, but they can participate in protein translation under controlled conditions. Most of the non-canonical amino acids carry unusual side chains such that their translation into a target protein sequence can provoke structural, chemical, or functional modifications normally not found in nature. Non-canonical amino acids with bioorthogonal reactive handles are of particular interest because they facilitate the selective conjugation with other molecules at a pre-defined position in the protein. This results in the directed chemical modification of proteins with superior control.

The engineering of proteins with non-canonical amino acids has gained increasing popularity in the academic environment. However, the method faces specific challenges upon upscaling, which still hamper its industrial application. In my contribution, I will highlight the challenges of the method in industrial biotechnology and discuss possible approaches to meet them.