Pseudo Natural Products

Herbert Waldmann

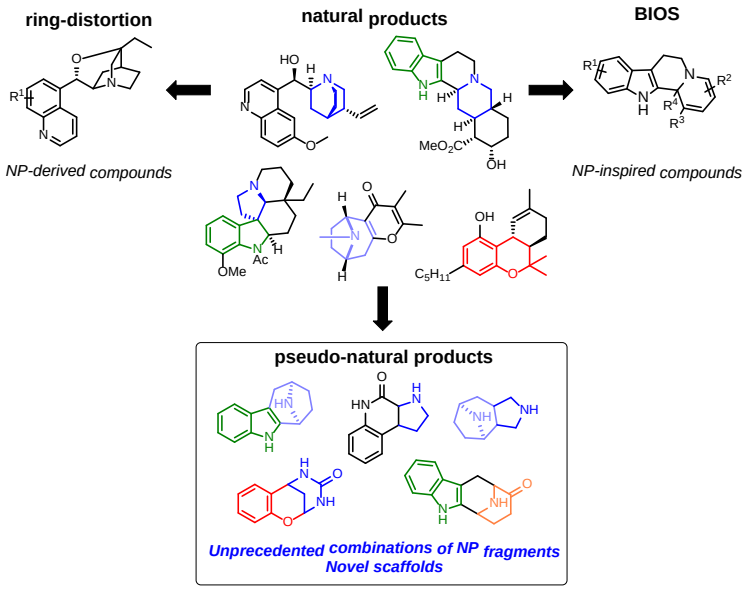
Max-Planck-Institut für molekulare Physiologie, Department of Chemical Biology, Otto-Hahn-Str. 11, D-44227 Dortmund, Germany, and TU Dortmund, Chemie und Chemische Biologie

Herbert.waldmann@mpi-dortmund.mpg.de

Natural products have provided inspiration for chemical biology and medicinal chemistry research. However, their often complex structure, and, therefore, demanding synthesis as well as their frequent unavailability, hamper their application.

This raises the fundamental question whether the particular structural and biological properties of natural products can be translated to structurally less demanding compounds, readily accessible by chemical synthesis and yet still endowed with pronounced bioactivity.

The lecture will describe a logic for the simplification of natural product structure by means of “Biology Oriented Synthesis” (BIOS) and its evolution into the “Pseudo Natural Product” (PNP) concept. Application of natural product inspired compound collections designed and synthesized following these principles in cell-based phenotypic assays and subsequent identification of the cellular target proteins demonstrate that the BIOS and PNPs may enable innovation in both chemical biology and medicinal chemistry research.



H. Waldmann et al., *Nat. Chem.* **2018**, *10*, 1103-1111