

Designed (Agro)chemicals Produced in Cells

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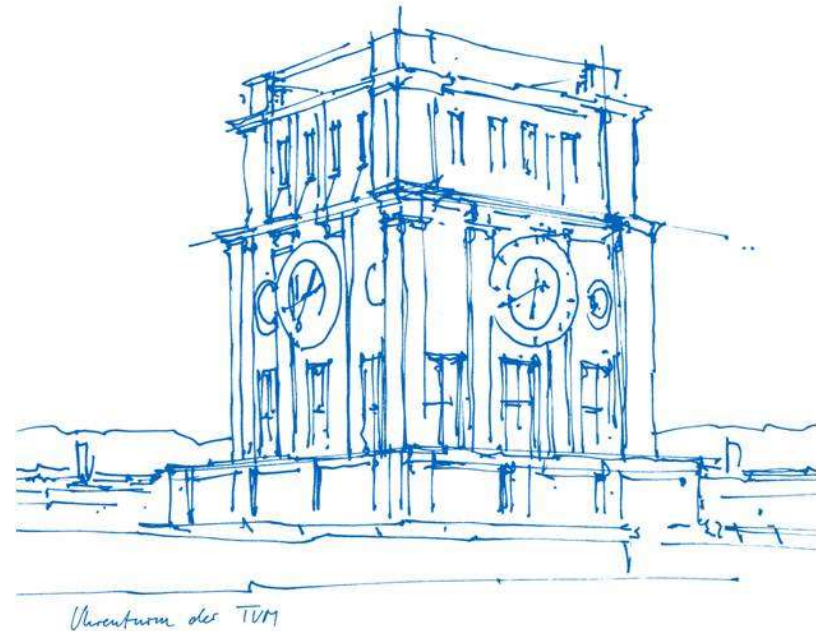
Chair of Synthetic Biotechnology

Brussels, 07.11.2018



WSSB

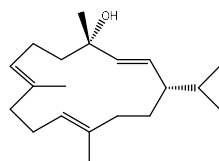
Werner Siemens-Lehrstuhl für
Synthetische Biotechnologie



Sustainable Terpenoids vs Extraction from Natural Sources



Nicotiana glauca
woodland Tobacco

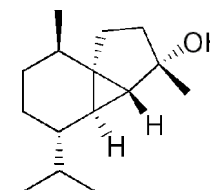


α -Cedrantriol

Insect deterrent



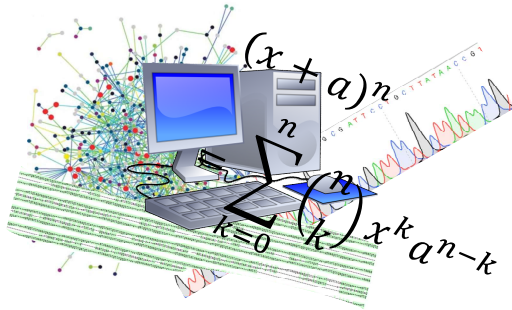
Piper cubeba
Tailed pepper



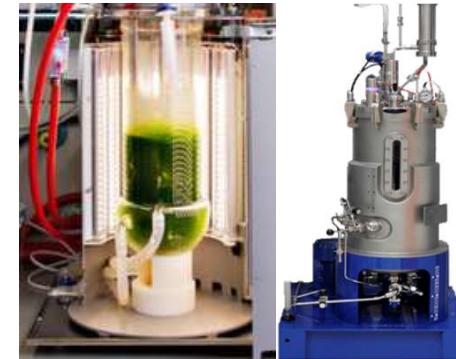
Cubebol

Potent cooling agent / insect deterrent

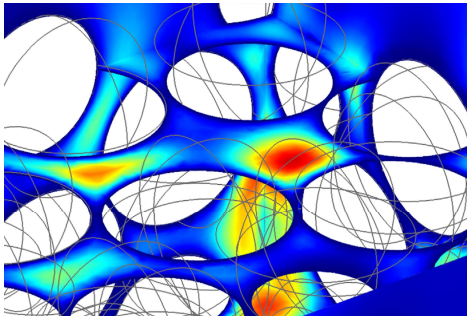
Bioinformatics



Bioprocess Engineering

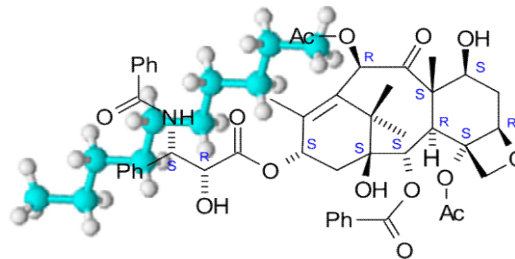


Systems Biotechnology

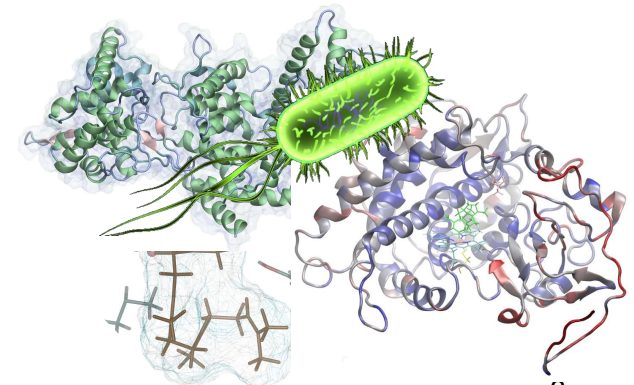


Synthetic Biotechnology

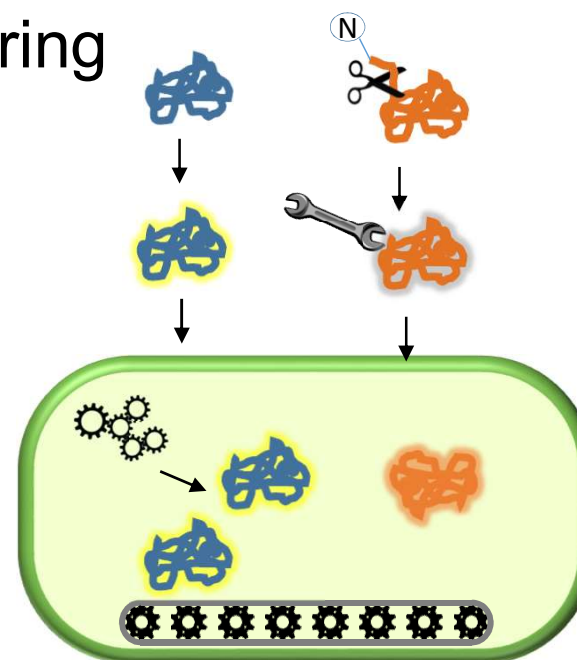
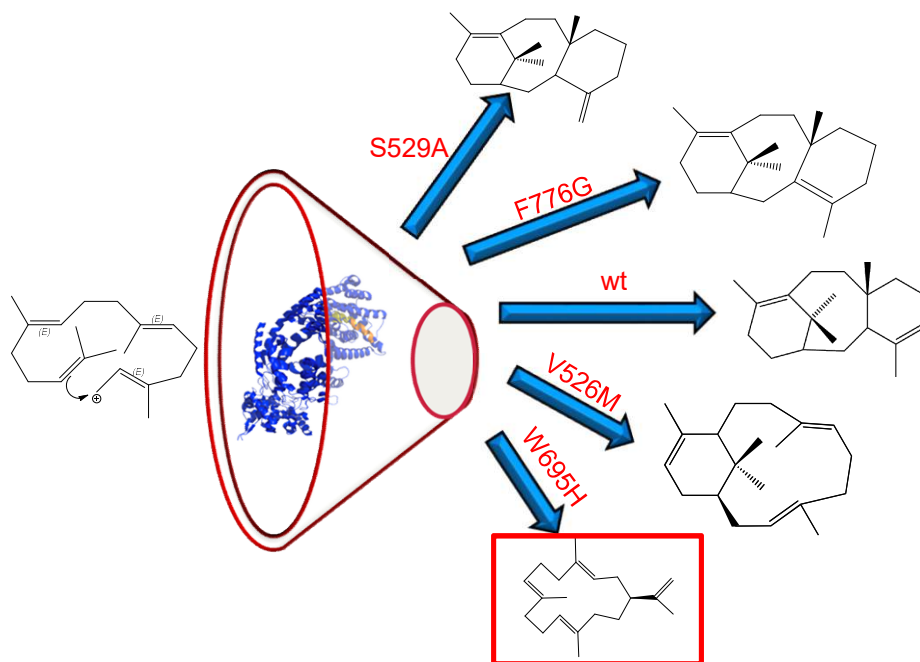
Chemistry



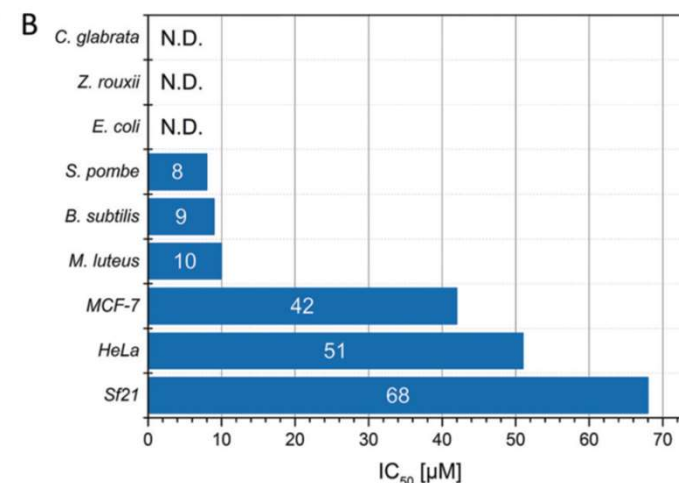
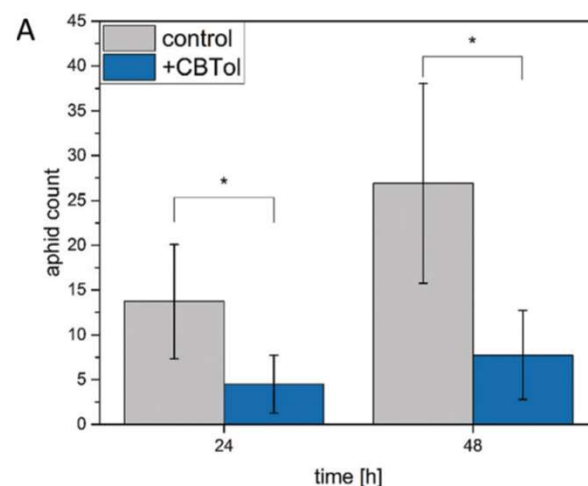
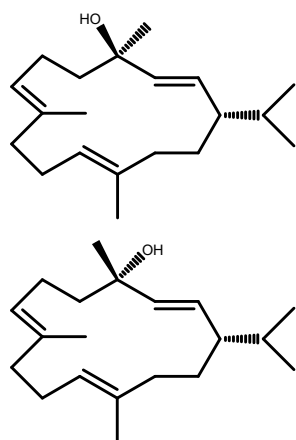
Biocatalyst Engineering



Enzyme engineering - Host engineering

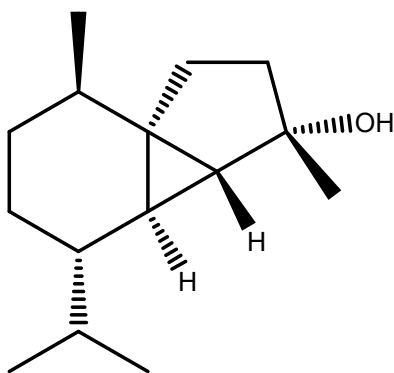


Cembrantriene-ol - Insect deterrents



Mischko, W., M. Hirte, S. Roehrer, H. Engelhardt, N. Mehlmer, M. Minceva and T. Brück (2018). "Modular biomanufacturing for a sustainable production of terpenoid-based insect deterrents." Green Chemistry

Cubebol – Cooling Agent



Mischko, W., M. Hirte, M. Fuchs, N. Mehlmer and T. B. Bruck (2018). "Identification of sesquiterpene synthases from the Basidiomycota *Coniophora puteana* for the efficient and highly selective beta-copaene and cubebol production in *E. coli*." Microb Cell Fact **17**(1): 164.