

Bioprospecting of natural products in fungi

- Synthetic biology
- Molecular and functional genetics
- Identification and expression of cryptic secondary metabolite gene clusters
- Regulation of secondary metabolites

Natural products are an inestimable source of active compounds. Fungi have the capacity to produce very diverse spectra of chemicals that can be potentially used as therapeutics, or for biological control of plant pests. With the beginning of the genomic era, secondary metabolite biosynthetic pathways can be predicted by genome mining. These pathways can be isolated and heterologously expressed in amenable organisms to identify new metabolites. Such an approach is more powerful than stochastically trying to activate chemical biosynthesis in lab conditions.

The isolation and structure elucidation of new chemicals can be theoretically used to assign a function to these molecules and to understand their ecological meaning. This approach is not only suitable to increase knowledge about chemical diversity, but can be exploited to uncover the natural role of concealed secondary metabolites.

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