



## Open position for the LSM call of applications

**Institute:** Faculty of Biology, Genetics Unit

**Subject areas/Research fields:** Genetics, Botany and Plant Science

**Keywords:** Biosynthetic gene cluster; Chromatin; Specialized metabolites; Genome editing;  
Solanaceae

**Name of supervisor:** Prof. Dr. Claude Becker

**Funding:** LSM-CSC, DAAD-GSSP

**Project title:** Sub-functionalization of a biosynthetic gene cluster in Solanaceae

### **Project description:**

Withanolides are defense metabolites produced in many plant species of the Solanaceae family. Besides their anti-microbial and anti-herbivore activity, they have been associated with multiple beneficial properties for human health. Our lab recently identified the biosynthetic gene cluster (BGC) underlying their production. In our model *Physalis grisea*, this BGC underwent a duplication, leading to two sub-clusters that are regulated at the chromatin level for strict tissue-specific expression. We hypothesize that these two sub-clusters modulate the biosynthesis of different compounds in the below- and above-ground organs of the plant. In this project, we will employ whole-genome transcriptional and chromatin analyses to determine the regulatory factors that establish and maintain this sub-functionalization. The project comprises wet-lab and computational work. Candidates should have a training in molecular biology, genetics, or genomics; experience in working with plants is a plus. We offer a collaborative environment in an international and multi-disciplinary team.

**References:**

<https://www.pnas.org/doi/10.1073/pnas.2420164122>

[https://www.cell.com/trends/plant-science/abstract/S1360-1385\(24\)00241-3](https://www.cell.com/trends/plant-science/abstract/S1360-1385(24)00241-3)

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**Research group website:**

<https://www.genetik.bio.lmu.de/research/becker/index.html>

**Apply:** Please send your application through the [online portal](#) of the Graduate School Life Science Munich (LSM)