## Project: Engineering robust strains of the industrial yeast Yarrowia lipolytica using CRISPR and GoldenGate approaches.

The project will be to engineer the yeast *Y. lipolytica* using synthetic biology tools for construction of tailor-made chassis strains optimized for synthesis of key precursor molecules for commercially-valuable compounds. The project also involves characterization of new genes/pathways identified as potentially involved in resistance to industrial stress conditions and tolerance to toxic compounds. The work involves utilization of synthetic biology tools recently developed for this yeast i.e. CRISPR and GoldenGate technology. The internship is part of the funded European CHASSY project.

CHASSY (https://chassy.eu) is a new project of academic and industrial partners that will deliver a suite of yeast strains that can serve as platforms for the production of high value oleochemicals and aromatic molecules. This will be achieved by integrating the knowledge gained from systems biology with the engineering tools of synthetic biology, to redesign metabolic pathways in several target yeast species. These redesigned strains, or "chassis", will have optimized levels of core precursors and thus the capacity to act as flexible hosts for biosynthesis of a wide variety of commercially-valuable metabolites.
The project expects to boost technological innovation for European industries to keep their leadership in the food, feed, fuel, cosmetics and pharmaceutical sectors. Furthermore, the project will offer substantial opportunities for additional SMEs in the bio-based sector who wish to develop new microbial cell factories.

**Location: INRA Jouy-en-Josas centre** (10 kms from Versailles, 25 kms from Paris, accessible by train)

**www.micalis.fr/BIMLip**

**contact:**

Dr Tristan Rossignol

Email Addresses: tristan.rossignol@inra.fr