Collaborations, consulting and partnerships with industry (Sunil Laxman Lab at inStem)

Our laboratory collaborates with companies and institutes interested in our expertise in systems and synthetic biology, metabolic engineering, yeast and microbial engineering, mass spectrometry based metabolomics, and cellular research. Collaborations/partnerships can include strategic consulting in these areas: microbial systems engineering related to metabolism, and larger-scale research collaborations. Our approach is consultative and customizable.

We can offer:

- State-of-the-art knowledge of mass spectrometry based small molecule analysis and metabolomics (including tracer/isotope based flux).
- Extensive expertise in the cell biology of desiccation, cryo-preservation, stress tolerance and extended cell preservation (applicable to microbial, mammalian and plant cells).
- Knowhow and ability to extensively engineer yeast strains (not restricted to *S. cerevisiae*)
- The ability to generate yeasts with unique properties/characteristics (**aroma production, fermentation ability/efficiency, making unusual metabolic intermediates, and flocculation**). This has wide applications in the fermentation, ethanol, and food industries.
- **Chemical** analysis of fermentation products (ranging from ethanol content, pH, concentration specific compounds), and the presence of different yeasts, moulds and bacteria.
- **Improving metabolic efficiencies in cells**
- Strategic expertise in analyzing and optimizing yeasts, by both **natural techniques** (isolation, selection, breeding, genome shuffling, directed evolution), or genetic modification and manipulation (**engineering)**.
- Consultive expertise in genome sequencing analysis or metabolomics of yeasts.
- Optimizing fermentation processes, using medium scale (1-4 liter) batch or fed-batch fermentors.
- Basic consultancy on mass spectrometry based proteomics (primarily methodology design, approaches and analysis).
- Technology transfer

For further information and questions, please contact Dr. Sunil Laxman at:

sunil@instem.res.in