

Scope of FEMS YR Thematic Issue accompanying ISSY38

- **Molecular mechanisms of eukaryotic cells using yeast:** This section focuses on discoveries in how yeast helps unravel the molecular and regulatory networks of eukaryotic cells. From understanding gene expression and signal transduction to dissecting protein functions and interactions, yeast remains a central model for exploring fundamental cellular processes in more complex organisms.
- **Yeast screens:** Highlighting the role of yeast in high-throughput screening technologies, this area features research that advances genetic screening, synthetic biology, and drug discovery. Novel techniques that leverage yeast's genetic tractability for functional genomics and phenotypic analyses are showcased.
- **Metabolism and metabolomics:** Yeast continues to be a powerful tool in understanding metabolic pathways and regulation. This section features research into metabolic flux, energy regulation, and the application of metabolomics for metabolic engineering, with a focus on improving industrial processes and creating sustainable bio-based products.
- **Yeast as molecular factories:** Yeast is widely used as a bioengineering platform for the production of pharmaceuticals, biofuels, and other valuable compounds. Articles in this section highlight innovations in strain engineering, synthetic biology, and systems biology, emphasizing how yeast is harnessed to optimize production efficiency and yield in biotechnological applications.
- **Fermentation, food, and beverages:** Yeast's essential role in the food and beverage industry is explored in depth. Studies cover its use in traditional and industrial fermentation processes, particularly in the production of beer, wine, and spirits, as well as novel applications in food biotechnology, offering new insights into flavor development, fermentation efficiency, and microbial interactions in these industries.
- **Yeast in population and evolution models:** Yeast provides a model for studying population dynamics, evolution, and speciation. This section presents research on how yeast populations adapt to environmental pressures, evolve over time, and develop genetic diversity. It also touches on ecological modeling, providing a better understanding of evolutionary mechanisms.
- **Humanized yeast in health research:** Humanized yeast models offer insights into human biology and disease. Articles in this section focus on how yeast is engineered to express human proteins and pathways, enabling researchers to study disease mechanisms, drug efficacy, and toxicity in a simplified eukaryotic system. This area highlights yeast's growing importance in the fields of personalized medicine, pharmacogenomics, and therapeutic development.