



# *fermentation*



*Special Issue Reprint*

## **Fermentation Processes**

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Fermentation processes play a crucial role in the biotechnology, food, and pharmaceutical industries. This Reprint focuses on recent advances in modeling, optimization, and control strategies applied to fermentation systems. The accurate modeling of microbial kinetics and metabolic pathways allows for the better understanding and prediction of process dynamics; optimization techniques, including machine learning and evolutionary algorithms, enable the identification of ideal operational conditions to maximize yield and productivity; advanced control strategies ensure robust performance under varying conditions. The integration of these approaches contributes to improved efficiency, reduced costs, and higher product quality. This Reprint presents cutting-edge research and novel methodologies that push the boundaries of fermentation technology.



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