

Overview to the field with illustrating examples; Methods for metabolic characterization: genome, transcriptome, proteome, metabolome, fluxome; Comprehensive models for cellular reactions; Regulation of metabolic pathways; Metabolic flux analysis; Applications of metabolic flux analysis; Methods for the experimental determination of metabolic fluxes by isotope labelling; Metabolic control analysis; Metabolic design: gene amplification, gene-disruption, randomized and targeted strain development; Metabolic Engineering in Practice: actual examples from research and industrial biotechnology

Texts:

1. G. Stephanopoulos, A. Aristidou and J. Nielsen, Metabolic Engineering Principles and Methodologies, Academic Press, 1998.
2. S. Y. Lee and E. T. Papoutsakis, Metabolic Engineering, Marcel Dekker, New York, 1999.

References:

1. David Fell, Understanding the Control of Metabolism, Portland Press, London, 1997.
2. R. Heinrich and S. Schuster, The Regulation of Cellular Systems, Chapman & Hall, 1996.
3. E. O. Voit, Computational Analysis of Biochemical Systems, Cambridge University Press, 2000.