NPTEL Video Course - Biotechnology - NOC:Metabolic Engineering

Subject Co-ordinator - Prof. Amit Ghosh, Prof. Pinaki Sar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Metabolic Engineering
Lecture 2 - Essence of Metabolic Engineering - Part A
Lecture 3 - Essence of Metabolic Engineering - Part B
Lecture 4 - Essence of Metabolic Engineering - Part C
Lecture 5 - Essence of Metabolic Engineering - Part D
Lecture 6 - Review of Cellular Metabolism - Part A
Lecture 7 - Review of Cellular Metabolism - Part B
Lecture 8 - Review of Cellular Metabolism - Part C
Lecture 9 - Review of Cellular Metabolism - Part D
Lecture 10 - Review of Cellular Metabolism - Part E
Lecture 11 - Review of Cellular Metabolism - Part F
Lecture 12 - Introduction to Metabolic Networks
Lecture 13 - Introduction to Systems Biology
Lecture 14 - Regulatory Networks
Lecture 15 - Reconstruction of Metabolic Networks
Lecture 16 - The Stoichiometric Matrix: Representing Reconstructed Network Mathematically
Lecture 17 - Flux Balance Analysis (FBA)
Lecture 18 - Flux Variability Analysis (FVA) and Flux Coupling (FC)
Lecture 19 - Dynamic Flux Balance Analysis (DFBA) and Gene Deletion Algorithms
Lecture 20 - Optimization in MATLAB
Lecture 21 - Robustness Analysis and Phenotypic Phase Planes
Lecture 22 - Flux Sampling, Optknock and Optstrain
Lecture 23 - Extreme Pathways and Elementary modes
Lecture 24 - 13^C Metabolic Flux Analysis (13^C MFA)
Lecture 25 - 13 C Metabolic Flux Analysis (13C MFA)
Lecture 26 - Advancement in 13 C Metabolic Flux Analysis
Lecture 27 - E.coli core metabolic Network Optimization in MATLAB
Lecture 28 - Application of Metabolic Flux Analysis
Lecture 29 - CRISPR-Cas system and its application in metabolic engineering - Part I

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Lecture 30 - CRISPR-Cas system and its application in metabolic engineering - Part II
Lecture 31 - CRISPR-Cas system and its application in metabolic engineering - Part III
Lecture 32 - CRISPR-Cas system and its application in metabolic engineering - Part IV
Lecture 33 - Examples of pathway manipulations by metabolic engineering - Biofuels
Lecture 34 - Metabolic engineering for biofuel production - Part A
Lecture 35 - Metabolic engineering for biofuel production - Part B
Lecture 36 - Metabolic engineering for biofuel production - Part C
Lecture 37 - Applications of metabolic engineering in amino acids production
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