
COURSE (TITLE): Clinical Biochemistry

LECTURER:

YEAR and SEMESTER: I year/I semester

CREDITS (CFU): 6 CFU

SECTOR (SSD): Clinical Biochemistry (BIO/12)

ACADEMIC YEAR:

ASSESSMENT: Oral exam

LOCATION: Department of Environmental, Biological and Pharmaceutical Science and Technologies, Via Vivaldi 43, 8100, Caserta, Italy.

COURSE OBJECTIVE:

The objective of this course is to provide an overview of the emerging roles of D-amino acids in the mammalian cells and to introduce recent progress in studies of them under health and human disease.

SYLLABUS (overview)

D-amino acids and origin of life; Homochirality; D-Aspartate and D-Serine act as NMDAR modulators; Signal Transduction pathways; D-amino acids metabolism in Aging Brain; D-Serine and D-Aspartate metabolism dysfunction in Psychiatric disorders.

SYLLABUS (Detailed description):

Section I

Determination of D-Amino Acids and Their Distribution in Mammals.

Section II

Physiological Roles of D-Serine in the Central Nervous System. Physiological Functions and Pathophysiology of D-Serine. Serine Racemase. D-Serine in Neurotoxicity, Epilepsy, and Schizophrenia. Abnormal D-Serine Metabolism in Amyotrophic Lateral Sclerosis

Section III

Homeostasis of Free D-Aspartate in Mammalian Cells. Neuromodulatory Activity of D-Aspartate in Mammals. Endocrine Activity of D-Aspartate.

Section IV

D-Amino Acid Residues in Proteins. D-Amino Acid Residues in Proteins Related to Aging and Age-Related Diseases and a New Analysis of the Isomers in Proteins.

Section V

D-Amino Acid Metabolizing Enzyme. D-Amino Acid Oxidase and D-Aspartate Oxidase. Alanine Racemase and D-Amino Acid Oxidase in Aquatic Animals. D-Amino Acids in Fermentative Foods

TEXTBOOKS:

D-Amino Acids: Physiology, Metabolism, and Application. Tohru Yoshimura • Toru Nishikawa • Hiroshi Homma Editors

ADDITIONAL READING:

Scientific research articles provided by the lecturer
