

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Biological Inorganic Chemistry

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Metal Ions In Biological Systems
Lecture 2 - Metallobiosite structures
Lecture 3 - Biomolecular structure and molecular biology component
Lecture 4 - Structures of nucleic acids
Lecture 5 - Coordination Chemistry in action
Lecture 6 - Coordination of peptide building blocks
Lecture 7 - Occurrence and availability
Lecture 8 - Potential ligands of different types
Lecture 9 - Metal ion insertion
Lecture 10 - Organic cofactors and siderophores
Lecture 11 - Introduction
Lecture 12 - CD and Raman spectroscopy
Lecture 13 - EPR
Lecture 14 - NMR and X-ray
Lecture 15 - Electrochemical methods
Lecture 16 - Metal ion assimilation
Lecture 17 - Transport of metal ions in bacteria and plants
Lecture 18 - Transport of metal ions in fungi and mammals
Lecture 19 - Homeostasis in bacteria and plants
Lecture 20 - Homeostasis in fungi and mammals
Lecture 21 - Transport across membranes
Lecture 22 - Ion channels and ion pumps
Lecture 23 - (K⁺) channels
Lecture 24 - (Na⁺) channels
Lecture 25 - (Na⁺)-(K⁺) ATPase
Lecture 26 - (Mg²⁺) dependent enzymes and kinases
Lecture 27 - Phosphatases and enolases
Lecture 28 - Photoreception and enzymes
Lecture 29 - (Ca²⁺) transporting, binding and sensor proteins

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- Lecture 30 - Cell signaling by (Ca²⁺) binding and sensing
- Lecture 31 - Functions of iron ions and iron ion proteins
- Lecture 32 - Heme proteins for (O₂) transport and storage
- Lecture 33 - Activators of (O₂) and electron transport proteins
- Lecture 34 - Iron-sulfur proteins
- Lecture 35 - Mononuclear and dinuclear non-heme enzymes
- Lecture 36 - Oxygen transport and SOD activity
- Lecture 37 - Type 1 blue copper proteins
- Lecture 38 - Type 2 non-blue copper proteins
- Lecture 39 - Type 3 dinuclear copper proteins
- Lecture 40 - Multicopper and mixed-copper enzymes
- Lecture 41 - Coordination chemistry and function of zinc ions
- Lecture 42 - Carbonic anhydrase and lyases
- Lecture 43 - Carboxypeptidase and metalloproteinases
- Lecture 44 - Alcohol dehydrogenase and Beta-lactamase
- Lecture 45 - Redox catalysis by manganese ions
- Lecture 46 - Redox catalysis by manganese ions
- Lecture 47 - Catalysis by manganese and cobalt ions
- Lecture 48 - Cobalt ion dependent proteins and enzymes
- Lecture 49 - Nickel proteins and enzymes
- Lecture 50 - More nickel ion bearing enzymes
- Lecture 51 - Carbon, hydrogen and oxygen
- Lecture 52 - Nitrogen and Silicon
- Lecture 53 - Phosphorus
- Lecture 54 - Sulfur and Selenium
- Lecture 55 - Chlorine and Iodine
- Lecture 56 - Brain and blood-brain barrier (BBB)
- Lecture 57 - Zinc and copper ions
- Lecture 58 - Iron ions
- Lecture 59 - Metal ion based drugs and metallotherapeutics
- Lecture 60 - Chemotherapy, radiotherapy and contrast agents