

## Chapter 5 – Microbial Metabolism

**Metabolism** - Sum of all chemical reactions that happen within the cell.

- Synthesis, store and utilize that energy

### Pathways of Metabolism

#### **Catabolism**

- The breakdown of molecules (Hydrolytic reactions in which produces ATP)
- Degradative
- Hydrolysis
- Exergonic Reactions → Produces energy → ATP production

#### **Anabolism**

- The Synthesis of larger molecules from smaller ones. (Dehydration reactions that use ATP)
- Biosynthetic
- Dehydration → Lose H<sub>2</sub>O
- Endergonic Reactions → use energy → By releasing the last phosphate in ATP → 3 PO<sub>4</sub><sup>-</sup> turns into 2 PO<sub>4</sub><sup>-</sup> → ADP

\*LEGEND: ~ = Unstable bond

### Two Key Players in Metabolism

#### **1) ATP**

- Considered the cells currency because you can save it, use it, or even exchange it.
- Principle form of energy in all organisms
- Immediately available

#### **2) Enzyme**

- Acts as a biological catalyst for speeding up chemical reactions → By lowering the activation energy → Increase the likelihood of the reaction
- Remain unchanged after a reaction
- Influenced by various factors in our genetic makeup

### Enzyme Components

#### **1) Apoenzyme**

- Protein portion
- Inactive

#### **2) Cofactor**

- Nonprotein component
  - Inorganic Molecules → Ca<sup>+</sup>, Fe<sup>+</sup>, Mg, Mn<sup>+</sup>

# Microbiology Chapter 5 Test Microbial Metabolism

**Pommerville**



## **Microbiology Chapter 5 Test Microbial Metabolism:**

*Fundamentals of Microbiology* Jeffrey C. Pommerville, 2021-03-15 *Fundamentals of Microbiology* Twelfth Edition is designed for the introductory microbiology course with an emphasis in the health sciences **Fundamentals of Microbiology** Jeffrey C. Pommerville, 2014-12 Ideal for health science and nursing students *Fundamentals of Microbiology* Body Systems Edition Third Edition retains the engaging student friendly style and active learning approach for which award winning author and educator Jeffrey Pommerville is known Highly suitable for non science majors the fully revised and updated third edition of this bestselling text contains new pedagogical elements and an established learning design format that improves comprehension and retention and makes learning more enjoyable Unlike other texts in the field *Fundamentals of Microbiology* Body Systems Edition takes a global perspective on microbiology and infectious disease and supports students in self evaluation and concept absorption Furthermore it includes real life examples to help students understand the significance of a concept and its application in today s world whether to their local community or beyond New information pertinent to nursing and health sciences has been added while many figures and tables have been updated revised and or reorganized for clarity Comprehensive yet accessible the Third Edition is an essential text for non science majors in health science and nursing programs taking an introductory microbiology course Provided by publisher *Fundamentals of Microbiology* Pommerville, 2017-05-08 Pommerville s *Fundamentals of Microbiology* Eleventh Edition makes the difficult yet essential concepts of microbiology accessible and engaging for students initial introduction to this exciting science

**Microbiology: An Introduction, Global Edition** Gerard Tortora, Gerard J. Tortora, Berdell R. Funke, Christine L. Case, Derek Weber, Warner B. Bair, 2024-10-11 For pre nursing allied health students and mixed majors courses Connect microbiology to future healthcare careers Tortora Case Bair Weber Funke s *Microbiology An Introduction* delivers an exceptionally clear presentation of complex topics a careful balance of concepts and applications and pedagogically superior art The trusted clinical focus and student friendly narrative help students understand why microbiology is relevant to their future healthcare careers The 14th Edition deepens the clinical focus and integrates SARS CoV 2 and COVID 19 coverage Updates include innovative microbiology research revised immunology chapters and an extensive diversity equity and inclusion review

**Microbiology** George A. Wistreich, David W. Smith, 1988 **Food Microbiology** Karl R. Matthews, Kalmia E. Kniel, Faith J. Critzer, 2024-12-24 Leading textbook presenting all aspects of food microbiology *Food Microbiology An Introduction* presents the basics of microorganisms that impact food safety and quality the roles of beneficial microbes food safety regulations and proper practices for safe and healthy foods throughout all aspects of the supply chain This Fifth Edition has been updated to reflect advances in research and technology and threats to the global food supply while retaining the pedagogy and structure that students and professors appreciate Written in a clear and easy to understand style the book is divided into four sections Part I introduces the fundamentals of food microbiology including a

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**Microbiology** Daniel V. Lim,1998 Introductory biology textbook for undergraduates with a fundamental background in biology and chemistry Color illustrations Rumen Ecosystem, The; The Microbial Metabolism and Its Regulation □□□□,1990 Fundamentals of Microbiology I. Edward Alcamo,1994 Microbiology Steve K. Alexander,Dennis Strete,2001 With more than 400 high quality colour photographs of common microorganisms and their appearance after stains and tests this comprehensive photographic atlas is an essential tool for success in your microbiology laboratory Abstracts on Hygiene ,1973 Textbook of Diagnostic Microbiology Connie R. Mahon,George Manuselis,2000 This 2nd Edition offers students a comprehensive approach to the essential information they need in identifying etiologic agents of infectious diseases New content has been added on emerging viral pathogens newly recognized parasitic agents emerging resistance and emerging technologies Pedagogical features include tables procedures case studies and illustrations Information is presented to beginning level students in a logical approach to microbiology progressing from core principles and concepts to systematic identification of etiologic agents of infectious disease A saleable instructor s CD ROM is also available

**Study Guide to Accompany Pelczar, Chan, and Krieg: Microbiology** Noel R. Krieg,Michael Joseph Pelczar,1986 **Rypins' Basic Sciences Review** Harold Rypins,1993 Biological Science ; an Inquiry Into Life Biological Sciences Curriculum Study,1963 Microbiology for the Health Sciences Marcus M. Jensen,Donald N. Wright,Richard A. Robison,1997 Appropriate for courses in Microbiology for the Health Sciences A complete clinically oriented overview of basic medical microbiology this book provides a taxonomic approach to organism presentation using a pathogen oriented sequence that provides an understanding of the microbe in its setting regardless of

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