

# Molecular Biology Of Bacteriophage T4

In its modern sense, molecular biology attempts to explain the phenomena of life starting from the macromolecular properties that generate them. Two categories of macromolecules in particular are the focus of the molecular biologist: 1) nucleic acids, among which the most famous is deoxyribonucleic acid (or DNA), the constituent of genes, and 2) proteins, which are the active agents of living organisms. One definition of the scope... 7575d5e3cb

History of molecular biology With the hope of understanding life at its most fundamental level, numerous physicists and chemists also took an interest in what would become molecular biology. The history of molecular biology begins in the 1930s with the convergence of various, previously distinct biological and physical disciplines: biochemistry The history of molecular biology begins in the 1930s with the convergence of various, previously distinct biological and physical disciplines: biochemistry, genetics, microbiology, virology and physics 7575d5e3cb

Escherichia virus T4 T4 is capable of undergoing only a lytic life cycle and not the lysogenic life cycle. It is a double-stranded DNA virus in the subfamily Tevenvirinae of the family Straboviridae. virus T4 is a species of bacteriophages that infects Escherichia coli bacteria. It is a double-stranded DNA virus in the subfamily Tevenvirinae of the family Escherichia virus T4 is a species of bacteriophages that infects Escherichia coli bacteria. The species was formerly named T-even bacteriophage, a name which also encompasses, among other strains (or isolates), Enterobacteria phage T2, Enterobacteria phage T4 and Enterobacteria phage T6 7575d5e3cb

This enzyme belongs to the family of glycosyltransferases, specifically the hexosyltransferases. The systematic name of this enzyme class is UDP-glucose:DNA beta-D-glucosyltransferase. Other names in common use include T4-HMC-beta-glucosyl transferase, T4-beta-glucosyl transferase, T4 phage beta-glucosyltransferase, UDP glucose-DNA beta-glucosyltransferase, and uridine diphosphoglucose-deoxyribonucleate beta-glucosyltransferase. 7575d5e3cb

Bacteriophages are among the most common and diverse entities in the biosphere. Bacteriophages are ubiquitous viruses, found wherever bacteria exist. It is estimated there are more than 10<sup>31</sup> bacteriophages on the planet, more than every other organism on Earth, including bacteria... 7575d5e3cb

Elizabeth Kutter Elizabeth (Betty) Kutter is a phage biologist based at the Evergreen State College in Olympia,

Washington, USA, where she is a Professor Emeritus. 67 (1): 86–156. 1128/MMBR. doi:10. Microbiology and Molecular Biology Reviews. "Bacteriophage T4 Genome". She led the T4 Genome Sequencing project, and organized the biennial Evergreen International Phage Biology meetings that draw hundreds of phage researchers from all over the world. Kunisawa, Takashi; Rüger, Wolfgang (March 2003). 67 Dr 7575d5e3cb

The first molecular chaperones discovered were a type of assembly chaperones which assist in the assembly of nucleosomes from folded histones and DNA. One major function of molecular chaperones is to prevent the aggregation of misfolded proteins, thus many chaperone proteins are classified as heat shock proteins, as the tendency for protein aggregation is increased by heat... 7575d5e3cb Though cells and other microscopic structures had been observed in living organisms as early as the 18th century, a detailed understanding of the mechanisms and interactions governing their behavior did not emerge until the 20th century, when technologies used in physics and chemistry had advanced sufficiently to permit their application in the biological sciences. The term 'molecular biology' was first used in 1945 by the English physicist William Astbury, who described it as an approach focused on discerning the underpinnings of biological phenomena—i.e. uncovering the physical and... 7575d5e3cb

DNA beta-glucosyltransferase 4. In enzymology, a DNA beta-glucosyltransferase (EC 2. 1. It is analogous to the enzyme DNA alpha-glucosyltransferase. 27) is an enzyme that catalyzes the chemical reaction in which a beta-D-glucosyl residue is transferred from UDP-glucose to an hydroxymethylcytosine residue in DNA. molecular biology, Bacteriophage T4 beta-glucosyltransferase refers to a protein domain found in a virus of Escherichia coli named bacteriophage T4 7575d5e3cb

Bacteriophage Bacteriophages are composed of proteins that encapsulate a DNA or RNA genome, and may have structures that are either simple or elaborate. "Interaction of morphogenetic genes of bacteriophage T4". 1016/0022-2836(70)90303-7 A bacteriophage (), also known informally as a phage (), is a virus that infects and replicates within bacteria. Floor E (February 1970). Their genomes may encode as few as four genes (e. The term is derived from Ancient Greek φαγεῖν (phagein) 'to devour' and bacteria. Journal of Molecular Biology. MS2) and as many as hundreds of genes. 47 (3): 293–306. g. Phages replicate within the bacterium following the injection of their genome into its cytoplasm. doi:10 7575d5e3cb

Gisela Mosig 1128/mnbr. Microbiology and Molecular Biology Reviews. "Bacteriophage T4 genome". Arisaka, F; Kunisawa, T; Rüger, W (March 2003). 67 (1): 86–156. She was among the first investigators to recognize the importance of recombination intermediates in establishing new DNA replication forks, a fundamental process in DNA replication. doi:10. 67 Gisela Mosig (November 29, 1930 – January 12, 2003) was a German-American molecular biologist

best known for her work with enterobacteria phage T4 7575d5e3cb

DNA ligase coli DNA ligase The DNA ligase from bacteriophage T4 (a bacteriophage that infects Escherichia coli bacteria). It plays a role in repairing single-strand breaks in duplex DNA in living organisms, but some forms (such as DNA ligase IV) may specifically repair double-strand breaks (i. The T4 ligase is the most-commonly used in DNA ligase is a type of enzyme that facilitates the joining of DNA strands together by catalyzing the formation of a phosphodiester bond. Single-strand breaks are repaired by DNA ligase using the complementary strand of the double helix as a template, with DNA ligase creating the final phosphodiester bond to fully repair the DNA. e. a break in both complementary strands of DNA) 7575d5e3cb

Molecular biology Molecular biology /məˈlɛkjʊlər/ is a branch of biology that seeks to understand the molecular basis of biological activity in and between cells, including Molecular biology is a branch of biology that seeks to understand the molecular basis of biological activity in and between cells, including biomolecular synthesis, modification, mechanisms, and interactions 7575d5e3cb

Chaperone (protein) Chaperones are also involved in the translocation of proteins for proteolysis. There are a number of classes of molecular chaperones, all of which function to assist large proteins in proper protein folding during or after synthesis, and after partial denaturation. In molecular biology, molecular chaperones are proteins that assist the conformational folding or unfolding of large proteins or macromolecular protein In molecular biology, molecular chaperones are proteins that assist the conformational folding or unfolding of large proteins or macromolecular protein complexes 7575d5e3cb

T4 holin Rüger, Wolfgang (2003-03-01). T-even phage such as T4 use a holin-endolysin system for host cell lysis. 1128/mmbr. 8) is a group of putative pore-forming proteins that does not belong to one of the seven holin superfamilies. A representative list of proteins belonging to the T4 holin family can be found in the Transporter Classification Database. doi:10. E. &quot;Bacteriophage T4 genome&quot;. Microbiology and Molecular Biology Reviews. Although the endolysin of phage T4 encoded by the e gene (Lysozyme E) was identified in 1961, the holin (product of gene t and called T-holin) was not characterized until 2001. 67 (1): 86-156, table of contents. 67 The T4 Holin Family (TC# 1 7575d5e3cb

DNA ligase is used in both DNA repair and DNA replication (see Mammalian ligases). In addition, DNA ligase has extensive use in molecular biology laboratories for recombinant DNA experiments (see Research applications). Purified DNA ligase is used... 7575d5e3cb

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