

Divided into two tail fibers



Overview

Bacteriophage T4 has two sets of tail fibers, long tail fibers that are the initial receptor binding proteins and short tail fibers that bind subsequently and trigger the infection process including: an opening of the base of the tail, contraction of the outer sheath. Bacteriophage T4 has two sets of tail fibers, long tail fibers that are the initial receptor binding proteins and short tail fibers that bind subsequently and trigger the infection process including: an opening of the base of the tail, contraction of the outer sheath. In this paper, we introduce RBPseg, a method that combines monomeric 23 ESMfold predictions with a novel sigmoid distance pair (sDp) protein segmentation technique. These segments are then predicted in parallel using AF2M and assembled into a 26 full fiber model. We demonstrate that. Order of dsDNA bacteriophages with an external tail structure. Includes the Podoviridae, Siphoviridae and Myoviridae. Also includes the type VI secretion system, R-type pyocins, the. Tail fibers, a major class of RBPs, are elongated and flexible trimeric proteins, making their full-length structures difficult to resolve experimentally. Advances in deep learning-based protein structure prediction, such as AlphaFold2-multimer (AF2M) and ESMFold, provide opportunities for studying. At the far end of the tail are one or more receptor binding proteins (the tail fibers), also described as adhesins.



Article Content

Jul 19, 2025

The small genome, virulent, non-contractile tailed bacteriophages that ...

Tailed bacteriophages are among the most abundant organisms on Earth (Hambly and Suttle, 2005; Hendrix, 2003; Suttle, 2005; Wilhelm et al., 2002). These viruses have traditionally

Jan 17, 2026

Long Noncontractile Tail Machines of Bacteriophages

In this chapter, we describe the structure, assembly, function, and evolution of the long, noncontractile tail of the siphophages, which comprise ~60% of the phages on earth.

Aug 24, 2025

What Are Tail Fibers and Why Are They Important?

Tail fiber proteins can also be used as biosensing molecules to detect particular bacterial pathogens. Studying tail fibers contributes to fundamental research into host-pathogen interactions,

Jul 29, 2025

Tail Fiber: Types, Functions, and Common Interfaces

Similar to fiber optic jumpers, tail fibers are classified into single-mode and multimode types, differing in color, wavelength, and transmission distances. Generally, multimode tail fibers are

Jul 06, 2025

Chapter 7. Bacteriophages – Microbial Biotechnology:

It then hijacks the host cell to replicate, transcribe, and translate the necessary viral components (capsomeres, sheath, base plates, tail fibers, and viral enzymes) for

Aug 04, 2025

Overview of the Nervous System (Section 2, Chapter 1) Neuroscience ...

The corpus callosum is a collection of nerve fibers that connect the two hemispheres. The corpus callosum is divided into rostrum (head), body, the most rostrally part is the genu (knee) with

Jan 07, 2026

Type 1 and type 2 muscle fibers (article) | Khan Academy

Skeletal muscle fibers are specialized cells that enable the contraction and movement of the body. They can be broadly categorized into type 1 (slow-twitch) and type 2 (fast-twitch) fibers. These two types

Aug 28, 2025

2 Tail fiber function and structure

Structurally these viruses have a prolate icosahedral capsid (the head) attached at one vertex to a long protein infection promoting structure (the tail) (Figure 2-1). At

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Divisions of the Autonomic Nervous System | Anatomy

The nervous system can be divided into two functional parts: the somatic nervous system and the autonomic nervous system. The major differences between the

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Anatomy of the Spinal Cord (Section 2, Chapter 3) Neuroscience

The white matter is divided into the dorsal (or posterior) column (or funiculus), lateral column and ventral (or anterior) column (Figure 3.8). The anterior white commissure resides in the center of the spinal

Oct 28, 2025

Comprehensive Guide to Fiber Optic Pigtails | Gezhi Photonics

Dive into the world of fiber optic pigtails, their types, applications, and splicing methods. Enhance your network's performance with Gezhi Photonics. Keywords: Fiber Optic Pigtails, Fiber

Jun 30, 2025

One-Tailed and Two-Tailed Hypothesis Tests Explained

Learn how the choice between one and two-tailed hypothesis tests impacts the detectable effects, statistical power, and potential errors.

Jul 31, 2025

How Do Spindle Fibres Divide Genetic Material?

How do spindle fibres divide genetic material? Spindle fibers, primarily composed of microtubules, are dynamic protein structures that orchestrate the precise segregation of

Jun 13, 2026

2 1 Towards a complete phage tail fiber structure atlas.

24 This method segments the tail fiber sequences into smaller fractions, preserving domain 25 boundaries. These segments are then predicted in parallel using AF2M and assembled into a 26 full

Jul 17, 2025

Phage tail fibre assembly proteins employ a modular structure to drive ...

Despite the wide occurrence of Tfa proteins, their functional mechanism has not been elucidated. Here, we investigate the tail fibre and Tfa of Escherichia coli phage Mu.

Nov 20, 2025

Structural and functional differentiation in T2 bacteriophage

Abstract Particles of T2 bacteriophage and T2 ghosts have been disjoined into several component parts by treating them to cycles of alternate freezing and thawing. The distinguishable components are:

Oct 27, 2025

What are the types of skeletal muscle fibers?

Skeletal muscle fibers can be divided into two types, called slow-twitch (or type I) muscle fibers and fast-twitch (or type II) muscle fibers.

Apr 04, 2026

The Cell Cycle and Mitosis – Fundamentals of Cell Biology

The cell cycle is divided up into four separate phases based on the primary event that is taking place in that stage: G 1 (gap or growth 1) phase: This is the “gap”

Sep 10, 2025

Determination of the three-dimensional structure of bacteriophage Mu ...

In this study, we have determined the structure of the alternative tail fiber subunit, gp52, and compared it with other tail fibers. The results revealed that Mu phage employs different structural

Aug 15, 2025

Functions and properties related to the tail fibers of bacteriophage T4 ...

It is shown that adsorbability of T4 is regularly correlated with the extended state of the tail fibers, suggesting that in T4 fiber extension is a necessary condition for adsorption. Furthermore the

Oct 10, 2025

Understanding Bacteriophage Tail Fiber

In this review, we comprehensively summarize how the tail fibers of the T4 phage recognize host surface receptors at single-molecule and atomic levels.

Mar 27, 2026

RBPseg: Toward a complete phage tail fiber structure atlas

Here, we introduce RBPseg, a method that combines monomeric ESMFold predictions with a structural-based domain identification approach, to divide tail

Feb 20, 2026

Chapter 20965

The Podoviridae tail is generally comprised of two different proteins – a dodecameric protein that interacts with the portal protein (also called, confusingly, the head-to-tail connector in some phages),

Jan 26, 2026

Understanding Bacteriophage Tail Fiber Interaction with

In this review, we comprehensively summarize how the tail fibers of the T4 phage recognize host surface receptors at single-molecule and atomic levels.

Jul 25, 2025

10.2 Skeletal Muscle – Anatomy and Physiology

Figure 1. The Three Connective Tissue Layers. Bundles of muscle fibers, called fascicles, are covered by the perimysium. Muscle fibers are covered by the

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