

What is tail fiber



Article Overview

A tail fiber is a protein structure on a bacteriophage that recognizes and binds to specific receptors on bacterial cells, initiating viral infection.

Definition and Structure

Tail fibers are protein appendages located at the distal end of a bacteriophage's tail, extending from a structure called the baseplate . They can vary in length and number; for example, the T4 bacteriophage has six long tail fibers (~145 nm) and six short tail fibers (~40 nm), each composed of multiple protein subunits . The distal tip of the long tail fiber, also called the receptor-binding domain, is responsible for recognizing the bacterial host .

Function

The primary function of tail fibers is to enable bacteriophages to recognize and attach to specific receptors on bacterial surfaces, a process known as adsorption . This initial binding is often reversible, allowing the phage to "scan" the bacterial surface for optimal attachment sites before committing to irreversible binding and injecting its DNA . Tail fibers undergo conformational changes upon binding, facilitating the subsequent steps of infection, including penetration of the bacterial cell wall and genome entry .

Host Specificity

Tail fibers are highly specific to particular bacterial receptors, such as lipopolysacch...

Article Content

Mar 02, 2026

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

The crystal structure of a complex between the tail fibre and tail fibre assembly (Tfa) protein of Escherichia coli phage

Jul 24, 2026

Tail Fiber: Types, Functions, and Common Interfaces

A tail fiber, also known as a fiber optic patch cord, consists of a connector on one end and a cut end of the fiber optic

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Bacteriophage Tail Fiber Interaction with Host Surface Receptor

Two types of fibers, six 145 nm long tail fibers (LTFs) and six 40 nm short tail fibers (STFs), are attached to the

Mar 07, 2026

Decoding Fiber Optic Connectivity: Jumper Cables vs. Tail Lines in ...

Tail lines, on the other hand, function as extended network pathways. These longer cables (usually exceeding 30 meters) connect

Apr 07, 2026

Understanding Bacteriophage Tail Fiber

The exact mechanisms of how the tail fiber interacts with the receptor at the molecular/atomic level are critical for engineering

Jan 17, 2026

What Are Tail Fibers and Why Are They Important? [The Truth]

Tail fibers are specialized, needle-like protein structures extending from the baseplate of a bacteriophage that function as sensory

Feb 10, 2026

Viral tail fiber protein | Keywords

Viral fibrous protein part of the virion fiber, which is a thin long rod like structure, unique or multiple, appended to the tail of

Sep 06, 2025

Amino acid residues in the tail fiber differentiate the host ...

The predicted structure of the tail fiber revealed that the two amino acid residues are located on the surface of the tail

Aug 08, 2025

Towards a complete phage tail fiber structure atlas | bioRxiv

Bacteriophages use receptor-binding proteins (RBPs) to adhere to bacterial hosts. Understanding the structure of

May 13, 2026

Tail fiber Definition for Microbiology | Fiveable

Tail fibers determine the host range of a bacteriophage by binding to specific receptors on bacterial cells. They undergo

Apr 03, 2026

Molecular anatomy of the receptor binding module of a ...

Author summary Bacteriophage (phage) T4 belongs to myoviridae, a widely distributed family of viruses on Earth.

Jun 01, 2026

Why are tail fibers important to a virus?

Why are tail fibers important to a virus? The tailed phage T4 encodes a specialized device for this purpose, the long tail

Dec 01, 2025

Fiber cable termination

A fiber pigtail is a single, short, usually tight-buffered, optical fiber that has an optical connector pre-installed on one end and a length

Feb 12, 2026

Fiber tail fiber

They are made up of thin strands of glass or plastic fibers that are used to transmit light signals. The light signals are

Dec 31, 2025

RBPseg: Toward a complete phage tail fiber structure atlas

RBPseg enables accurate modeling of tail fiber structure, providing the first comprehensive tail fiber structure atlas.

Apr 08, 2026

Bacteriophage T4 long tail fiber domains

Bacteriophage T4 initially recognizes its host cells using its long tail fibers. Long tail fibers consist of a phage-proximal

Aug 11, 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

Sep 28, 2025

Evaluating Phage Tail Fiber Receptor-Binding Proteins Using

Evaluating Phage Tail Fiber Receptor-Binding Proteins Using a Luminescent Flow-Through 96-Well Plate Assay

Dec 12, 2025

The function of tail fibers in triggering baseplate expansion of ...

Abstract Normal particles of bacteriophage T4 have six long tail fibers attached to a hexagonal baseplate. T4 particles

Nov 01, 2025

Viral tail fiber assembly ~ ViralZone

Morphogenesis of the T4 tail and tail fibers Petr G Leiman, Fumio Arisaka, Mark J van Raaij, Victor A Kostyuchenko, Anastasia A

Apr 10, 2026

What is a fiber optic jumper? What is a tail line? What's the ...

Optical fiber jumper, also known as optical fiber connector, means that both ends of the optical cable are equipped

Aug 01, 2025

Fiber cable termination

Fiber Optic cable termination is the addition of connectors to each optical fiber in a cable. The fibers need to have connectors fitted

Apr 02, 2026

Functional domains of Acinetobacter bacteriophage tail fibers

Furthermore, phage tail fibers with confirmed, or potential, depolymerase activity, but no functional domain hits, were

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