

Function of butterfly-shaped tail fiber



AI Overview

A butterfly-shaped tail fiber is an optical fiber with a flat, ribbon-like design that allows multiple fibers to be organized in parallel for efficient data transmission and easy connection.

Structure and Design

Butterfly-shaped fibers, also known as ribbon fiber optic cables, feature a flat, wing-like profile with multiple fibers arranged in parallel within a single ribbon. This design resembles a butterfly when viewed in cross-section, which is why it is called "butterfly-shaped". The flat configuration allows for high-density fiber packing, making it ideal for applications where space is limited, such as data centers, telecommunications networks, and Fiber to the Home (FTTH) installations.

Applications

These fibers are commonly used in telecommunication networks, LAN/WAN systems, CATV, and high-speed data transmission. The design supports efficient splicing and termination, enabling multiple fibers to be connected simultaneously, which reduces installation time and improves reliability. Butterfly-shaped fibers are also used in microstructured optical fibers (MOFs) for sensing applications, where the unique geometry enhances mechanical and optical properties.

Connection Methods

Butterfly-shaped fibers can be connected using several methods:...

Article Content

Jun 07, 2026

Phage fibers and spikes: a nanoscale Swiss army knife for host ...

Phages recognize a suitable host with receptor-binding proteins (RBPs), such as tail or head fibers, tailspikes, or the

Jul 17, 2026

(PDF) Molecular Anatomy of the Receptor Binding Module of a ...

Organization of the bacteriophage T4 long tail fiber. (A) A structural model of bacteriophage T4 virion showing the

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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

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The Function of Bacteriophage Tail Fibers: Infection and Replication

Bacteriophage tail fibers are ****critical protein structures**** that enable viruses to infect bacteria by recognizing and binding to host cell

Oct 25, 2025

(PDF) Understanding Bacteriophage Tail Fiber Interaction with Host ...

Structure-function knowledge of tail fibers will pave the way for reprogramming phage host range and will bring future

May 14, 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

Sep 17, 2025

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

May 17, 2026

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

The correlation of an unstable baseplate and increased ease of contraction with the reduced requirement for tail fiber

May 24, 2026

Targeting mechanisms of tailed bacteriophages

Tailed phages use a broad range of receptor-binding proteins, such as tail fibres, tail spikes and the central tail spike,

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Butterfly "tails" might be part of an escape tactic

Tail-like extensions on some butterfly wings may be more than just stylish. These break-away parts may help them

May 18, 2026

Major tail proteins of bacteriophages of the order Caudovirales

These hollow elongated protein structures, present in most bacteriophages of the order Caudovirales, connect the DNA

Nov 04, 2025

Flexible Motion of T7 bacteriophage Tail Fibers Suggest a ...

T7 bacteriophages are a group of dsDNA viruses, which infect E. coli bacteria. T7 virions are comprised of an icosahedral protein

Oct 04, 2025

Functional domains of Acinetobacter bacteriophage tail

Six phage tail fibers had no domain hits present, although their function as depolymerases

Mar 29, 2026

Bacteriophage Tail Fibers, Tailspikes and Host Cell Receptor ...

Tail fibers and tailspikes are mainly beta-structured, but structurally highly diverse. Mutation of bacteriophage receptor

Feb 25, 2026

Understanding Bacteriophage Tail Fiber

Structure-function knowledge of tail fibers will pave the way for reprogramming phage host range and will bring future benefits

May 08, 2026

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

These proteins, referred to as Tfa (tail fibre assembly) proteins, are encoded in diverse phage and prophage

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Phage Proteins Required for Tail Fiber Assembly Also Bind

The complicated nature of fiber structures necessitates the participation of intra- or intermolecular chaperones for their

Jun 08, 2026

Nearly complete structure of bacteriophage DT57C reveals

Our results provide a complete atomic structure of a T5-like phage, provide insights into the process of DNA ejection

Sep 13, 2025

Butterfly inspired functional materials

We then concerned about the applications, combining the modified butterfly wing and the fabricated replicas. The

Aug 25, 2025

Why are tail fibers important to a virus? - WisdomAnswer

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

Oct 15, 2025

The Function of Bacteriophage Tail Fibers: Infection and Replication

Bacteriophage tail fibers are **elongated protein structures** protruding from the **tail sheath** of bacteriophages (viruses that infect

Aug 04, 2025

Butterfly -shaped optical fiber optical cable

Butterfly-shaped optical fiber cables are a popular type of fiber optic cable that is commonly used for data transmission in

Dec 19, 2025

Long Noncontractile Tail Machines of Bacteriophages

In this chapter, we describe the structure, assembly, function, and evolution of the long, noncontractile tail of the

Aug 10, 2025

Understanding Bacteriophage Tail Fiber Interaction with Host ...

The host range of a phage is primarily determined by phage tail fibers (or spikes), which initially mediate reversible

May 13, 2026

What Are Tail Fibers and Why Are They Important?

The primary function of tail fibers is to enable bacteriophages to recognize and bind to specific receptors on the

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