



Paenibacillus azotofixans FISH probe

Cat. No.: LBGF-0426-GF148

This product is for research use only and is not intended for diagnostic use.

PRODUCT INFORMATION

Product Overview	Specifically targeting <i>Paenibacillus azotofixans</i> , this probe is used to study this nitrogen-fixing bacterium in soil. It assists in evaluating its potential as a plant growth-promoting rhizobacterium.
Target	Microbial FISH Probes
Target Organism	<i>Paenibacillus azotofixans</i>
Taxonomic Level	Species
In Silico Coverage	The theoretical coverage of this probe is optimized during the design phase using the most current rRNA databases (e.g., SILVA, RDP). However, final in-silico coverage and specificity parameters are confirmed upon completion of the specific probe sequence synthesis and preliminary testing.
Probe Types	1. Standard DNA Oligonucleotide Probes 2. Double Labeling Probes
Probe Design Tool	Database used for design (e.g., SILVA TestProbe, RDP, or ProbeBase). https://www.arb-silva.de/documentation/release-1381/
Target Region	16S RNA
Fluorophore	Cyanine 3, FITC, TR-equivalent or Red Fluorophore, Green Fluorophore.
Purity	≥85% (HPLC purified)

Size	30T/50T
Form	Lyophilized powder or stabilized liquid (in TE buffer).
Concentration	Typically supplied at 50 pmol/μL or 100 pmol/μL (Customizable).
Shipping	Shipped at ambient temperature (lyophilized) or on blue ice (liquid).
Storage	Recommended long-term storage at -20°C in the dark.
Light Sensitivity	Store in the dark. Minimize exposure to ambient light during experiments.
Specificity	Validated against the SILVA/RDP databases.
Documentation Included	1. Certificate of Analysis (COA) 2. Safety Data Sheet (SDS) 3. A standard Hybridization Protocol.
Applications	1. <i>In Situ</i> Species Identification: Enables the precise, culture-independent identification of the target organism directly within complex biological or environmental matrices. 2. Spatial Architecture Mapping: Visualizes the physical organization and "biogeography" of microbial communities, revealing how the target species interacts with its surrounding environment. 3. Absolute Quantification: Provides a reliable method for the direct counting of individual cells, offering a more accurate population assessment than DNA-based sequencing or PCR. 4. Biofilm Structure Analysis: Characterizes the structural arrangement and co-aggregation patterns of the target species within multispecies biofilms or clinical plaque samples. 5. Host-Microbe Interaction Studies: Maps the localization and infiltration of specific microbes within host tissues, including mucosal surfaces, epithelial layers, and intracellular environments. 6. Longitudinal Population Monitoring: Tracks shifts in the abundance of the target species over time in response to external stimuli, such as antibiotic treatment or dietary changes.
Regulation Status	For research use only (RUO)
Product Features	1. High Taxonomic Specificity: Engineered using advanced thermodynamic modeling to ensure exclusive binding to the target 16S or 23S rRNA sequences with zero cross-reactivity to non-target species. 2. Superior Signal-to-Noise Ratio: Optimized probe chemistry and high-intensity fluorophore conjugation provide bright, distinct signals even in samples with high background autofluorescence. 3. Culture-Independent Detection: Directly detects and quantifies organisms in their natural state, bypassing the biases and time requirements associated with traditional cultivation methods. 4. Broad Sample Compatibility: Fully validated for use across a diverse range of sample types, including FFPE tissue sections, fresh clinical smears, environmental filters, and compl

ex biofilms.

5. Dual-Labeling Capability: Compatible with multi-color FISH protocols, enabling the simultaneous visualization and spatial mapping of multiple different species in a single sample.
