Nanopillar-Enhanced Jones Tubes

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BRIEF DESCRIPTION

This technology introduces a novel Jones tube design utilizing nanopillars to significantly reduce biofilm formation, enhancing patient comfort and safety.

FULL DESCRIPTION

A conjunctivocystorhinostomy tube, often referred to as a Jones tube, is a small glass or synthetic tube surgically implanted to treat severe tear drainage problems—specifically, when the normal tear ducts (canaliculi) are blocked or damaged. The tube creates a new drainage pathway from the conjunctival sac (the inner surface of the eyelid) directly into the nasal cavity, bypassing the obstructed tear ducts. This allows tears to drain properly and prevents chronic tearing (epiphora). This technology pertains to an innovative design of Jones tubes made from polymerized materials featuring nanopillars. These nanopillars, either inherently hydrophilic or made so through oxygen plasma exposure, are engineered to prevent bacterial adhesion and subsequent biofilm formation. This advancement addresses the limitations of traditional glass or Pyrex Jones tubes by offering a solution that minimizes biofilm buildup, potentially reducing the need for tube removal or replacement and thereby enhancing patient comfort and reducing treatment costs.

SUGGESTED USES

- Medical devices for ophthalmology, specifically in the treatment of tear drainage system obstructions.
- Hospital and clinical settings for the implementation of safer, more comfortable procedures.
- Manufacturing of advanced medical devices focused on infection control and patient comfort.

ADVANTAGES

- Reduces biofilm formation through the use of nanopillar technology.
- Decreases the necessity for tube removal or replacement, lowering patient discomfort and procedure costs.
- Enhances patient comfort by using materials less prone to causing irritation compared to traditional glass or Pyrex.
- Potentially reduces the risk of infections associated with biofilm buildup on Jones tubes.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Other
- **Materials & Chemicals**
  - Nanomaterials
- **Medical**
  - Devices
  - Disease: Ophthalmology and Optometry

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