FluoroGold

Cat. No.: F1511492 | Pack size: 5 mg | Storage: Protected from light, Store at -20℃

Overview

FluoroGold (also known as Hydroxystilbamidine) is a cytoplasmic dye and neuronal retrograde tracer. Its key advantages include efficient retrograde axonal transport, excellent dendritic filling, high fluorescence intensity, and strong photostability. This product is widely used for neuronal tracing and histochemical staining. It is compatible with pressure injection, iontophoresis, and other administration methods, works with most routine fixatives, and supports various histological processing such as frozen sections and paraffin sections, providing a reliable tool for neuroscience research.

As a classic tracer in neuroscience, FluoroGold enables precise labeling of neural projection pathways and clear visualization of neuronal networks.It supports studies on neural circuit assembly, mechanisms of nerve injury and repair, and pathogenesis of neurological diseases.With excellent resistance to photobleaching and stable fluorescence performance, it has become an indispensable core reagent for neuronal tracing.

Note: *Performance equivalent to AAT Bioquest Hydroxystilbamidine (17514), Biotium Hydroxystilbamidine (Fluoro-Gold™) (80014).*

Note: *Fluoro-Gold™ is a trademark and registered trademark of Fluorochrome, LLC.*

Applications

Neuronal retrograde tracing, histochemical staining, axonal transport studies, cell transplantation and tissue engineering, pathological model research, etc.

Product Features

1. Low cytotoxicity: Minimal damage to cells, maintaining stable cell viability and physiological status during experiments.

2. High sensitivity and specificity: Clearly labels cytoplasm at low concentrations, reveals fine dendritic branches, with bright fluorescence and low background.

3. Specialized retrograde tracing: Enables retrograde labeling of neural pathways, suitable for both short-range and long-range projections.

4. Long-term stability: Degrades very slowly inside cells, maintains labeling intensity, ideal for long-term tracing experiments.

5. Multicolor compatibility: Minimal spectral overlap with other fluorophores, supports multiplex fluorescence co-labeling experiments.

Product Parameters

1. Ex/Em: 361/536 nm

2. CAS No.: 223769-64-0

Molecular Formula: $C_{18}H_{24}N_4O_7S_2$

Molecular Weight: 472.5

Components

Component	1200 T
FluoroGold	5 mg

Note: *Calculated for pressure injection of 0.1 μL per injection at a working concentration of 4%.*

Precautions

1. For most applications, FluoroGold is used at 2%–4%. For sterile experiments, filter the solution aseptically.

2. FluoroGold is compatible with nearly all fixatives and can also be used without fixation. The most common fixative is 4% paraformaldehyde. Fixatives containing high concentrations of heavy metals (e.g., osmium, mercury) quench fluorescence. High concentrations (> 1%) of glutaraldehyde may increase background fluorescence. Pilot testing is recommended before formal experiments.

3. Tissues labeled with FluoroGold can be processed by standard histological techniques: frozen sections of unfixed tissue (10 μm), frozen sections of fixed tissue (20 μm), or paraffin sections (3-10 μm).

4. For pressure injection via syringe or micropipette, dissolve FluoroGold in distilled water or 0.9% saline. It may also be used as a suspension in 0.2 M neutral phosphate buffer, but suspended particles may clog micropipette tips. For iontophoresis, prepare a 1% solution in 0.1 M acetate buffer (pH 3.3).

5. Injection sites: Almost any structure in the central or peripheral nervous system can be injected for retrograde transport analysis. In the peripheral nervous system, ganglia and peripheral targets can be studied. To label peripheral nerves, cut or injure the nerve, then immerse or inject 5% aqueous FluoroGold. Intact fibers do not significantly take up FluoroGold; fibers must be cut or severely damaged.

6. Protect from light to reduce photobleaching.

7. Briefly centrifuge the product before use.

8. For research use only. Do not store in residential areas.

9. Follow standard laboratory safety protocols for your health and safety.

Instructions for Use

I. Pre-Experiment Preparation

Reagent preparation: Remove the reagent from storage (e.g., 4 ℃) and equilibrate to room temperature (15-25 ℃).

II. Procedure

FluoroGold is water-soluble. Prepare fresh solutions to avoid degradation. For most experiments, 1%-10% is suitable; 4% is recommended for initial use. If necrosis at the injection site or excessive labeling occurs, reduce the concentration.

Note: *Optimal concentration should be determined from literature or pilot tests.*

1. Administration Methods

(1) Crystalline application: Crystals can be applied from micropipette tips.

(2) Iontophoresis: 4–10 s pulses (+5 to +10 μA / 10 min) produce small, discrete injection sites.

(3) Pressure injection: Injection volume 0.05–1 μL, typically 0.1–0.2 μL.

2. Fixation (Optional)

If fixation is needed, use 4% paraformaldehyde in PBS.Deionized water is recommended, as heavy metal ions quench fluorescence; 1% glutaraldehyde increases background.Dehydrate in graded ethanol, then prepare 20–40 μm frozen brain sections.

3. Histochemical Processing (Optional)

Labeled tissues can be processed by standard histology methods, including frozen or fixed tissue protocols.

4. Combined Labeling (Optional)

FluoroGold-labeled sections can be used with secondary markers: autoradiography, HRP histochemistry, immunohistochemistry, and other fluorescent tracers.

5. Coverslipping (Optional)

Sections may be mounted with mounting medium after experimentation.

6. Detection & Imaging

Observe directly with fluorescence microscopy or confocal laser microscopy using filters Ex: 361 nm, Em: 536 nm.

III. Interpretation of Results

Qualitative analysis (microscopy):

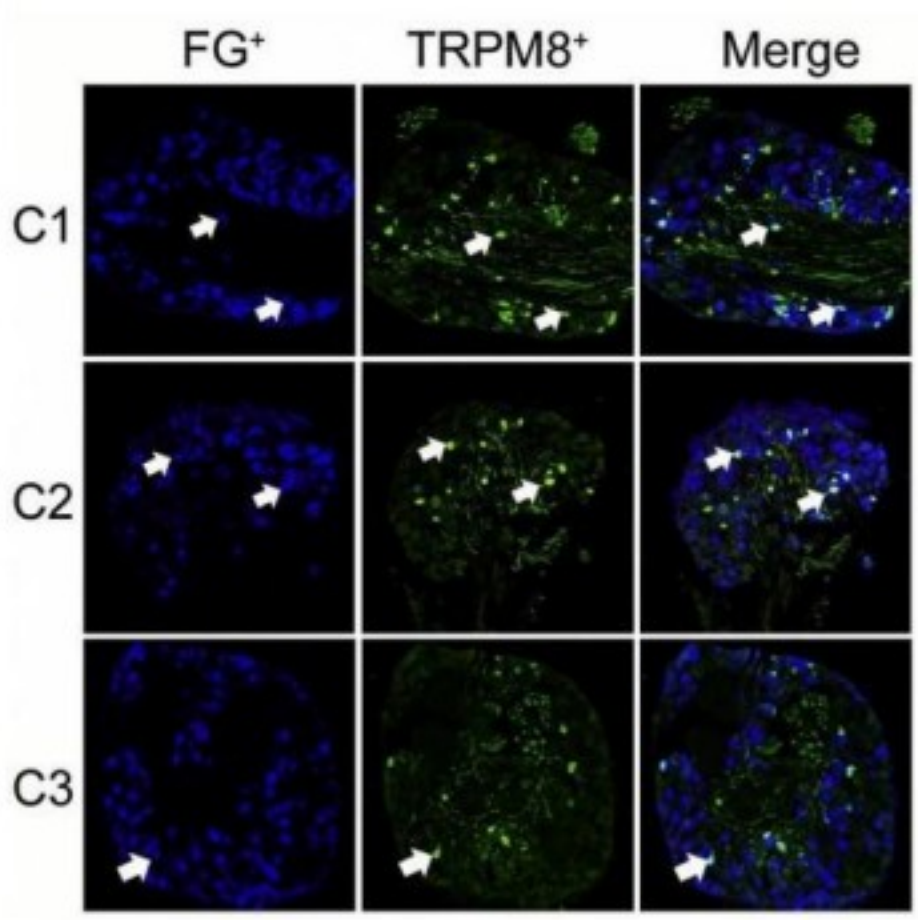

Figure 1. FluoroGold staining of cutaneous neuronsNormal tracing result: FluoroGold is taken up by cutaneous nerve terminals, transported retrogradely along axons to neuronal somata, labeling neurons innervating the skin region.

Note: *Image adapted from reference: A topical Chinese herbal inhibits pruritus and skin inflammation via neural TRPM8 in atopic dermatitis (doi: 10.1016/j.phymed.2025.156524.).*

FAQ

1. Q: I see necrosis at the injection site using 5% FluoroGold. Why?

A: Caused by excessively high tracer concentration. Test a concentration gradient to determine the optimal working concentration.

2. Q: Background fluorescence is very high even at the recommended concentration. Why?

A: Check if high-concentration glutaraldehyde was used for fixation. If so, switch to 4% paraformaldehyde and retest.

Specifications

Attribute	Value
Synonyms	Hydroxystilbamidine bis(methanesulfonate) | 2-Hydroxystilbene-4,4′-dicarboxamidine bis(methanesulfonate) | Fluoro-Gold | Hydroxystilbamidine
Specifications & Purity	BioReagent,sterile,for microscopy,Biological Stain,for fluorescence analysis
Stability And Storage	Store at -20 ℃ long term (60 months). Store in the dark. Storage Conditions Protected from light,Store at -20℃
Shipped In	Ice chest + Ice pads This product requires cold chain shipping. Ground and other economy services are not available.

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