FITC-Dextran (MW 4000)

Cat. No.: HY-128868A

CAS No.: 60842-46-8

Target: Fluorescent Dye

Pathway: Others

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)

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SOLVENT & SOLUBILITY

In Vitro	H_2O : 16.67 mg/mL (Need ultrasonic) DMSO : 12.5 mg/mL (ultrasonic and warming and heat to 60°C)
In Vivo	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (Infinity mM); Clear solution; Need ultrasonic 2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: 1.67 mg/mL (Infinity mM); Clear solution; Need ultrasonic 3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: 1.67 mg/mL (Infinity mM); Suspended solution; Need ultrasonic 4. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: 1.67 mg/mL (Infinity mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description	FITC-Dextran (MW 4000) is a fluorescent probe for fluorescein isothiocyanate (FITC) dextran (Ex=495 nm; Em=525 nm). FITC-Dextran (MW 4000) can be used as a marker to reveal heat shock-induced cell damage and to study the early and late stages of apoptosis. FITC-Dextran (MW 4000) can also be used for cell permeability studies, such as blood-brain barrier permeability and determination of the extent of blood-brain barrier disruption[1][2][3].
In Vitro	Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs). Labeling of cells[1]: For use with apoptotic HeLa cells and human peripheral blood mononuclear cells (PBMC) (viable HeLa and PBMC can not be stained by FITC-Dextran). 1. Incubate cells at 43.5°C for 1 hour and at 37°C for 8 hours to induce apoptosis. 2. Suspend the cells in 100 µL of medium, and mix in Q-prep tubes with 10 µL of propidium iodide (PI), 10 µL of FITC-Dextran (MW 4000) (the final concentration of PI and FITC-Dextran (MW 4000) is 7.5 µM and 1.13 µM, respectively). 3. Incubate cells for 25 min at room temperature in the dark. 4. Take the labeled cells with 3 mL of medium and centrifuge for 10 min at 500 g.

	5. Take centrifuged cells with 1 mL of medium and use flow cytometry or fluorescence microscopy analyze (PI: Ex=500 nm, Em=600 nm; FITC-Dextran (MW 4000): Ex=495 nm, Em=525 nm). Paracellular permeability measurement[4] 1. Add FITC-dextran (0.1 mg/mL) to the basal media in the transwell chamber. 2. Collect media from the transwell insert after 15 min. 3. Measure the fluorescence signal (Ex=485 nm, Em=538 nm). 4. Calculate FITC-dextran concentration based on fluorescence intensity. 5. Calculate permeability. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs). For intestinal barrier function assay[5] 1. Fast mice for 4 h. 2. Orally gavage mice with FITC-Dextran MW 4000 (0.6 mg/g). 3. Measure fluorescence intensity of plasma in 4 h (excitation nm/emission 520 nm). MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Metab. 2022 Sep;4(9):1138-1149.
- Nat Commun. 2024 Jan 19;15(1):613.
- Brain Behav Immun. 2023 Feb 27;S0889-1591(23)00050-8.
- Adv Sci (Weinh). 2021 Aug 16;e2101912.
- Biomaterials. 1 June 2022, 121608.

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REFERENCES

[1]. Moumaris M, et al. Fluorescein isothiocyanate-dextran can track apoptosis and necrosis induced by heat shock of peripheral blood mononuclear cells and HeLa cells[J]. Open Biological Sciences Journal, 2015, 1(1).

[2]. Okabayashi K, et al. Cdc42 activates paracellular transport in polarised submandibular gland cells. Arch Oral Biol. 2021 Dec;132:105276.

[3]. Yu W, et al. ACE2 contributes to the maintenance of mouse epithelial barrier function. Biochem Biophys Res Commun. 2020 Dec 17;533(4):1276-1282.

[4]. Natarajan R, et al. Fluorescein Isothiocyanate (FITC)-Dextran Extravasation as a Measure of Blood-Brain Barrier Permeability. Curr Protoc Neurosci. 2017 Apr 10;79:9.58.1-9.58.15.

[5]. Eriksson I, et al. Analysis of Lysosomal pH by Flow Cytometry Using FITC-Dextran Loaded Cells. Methods Mol Biol. 2017;1594:179-189.

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