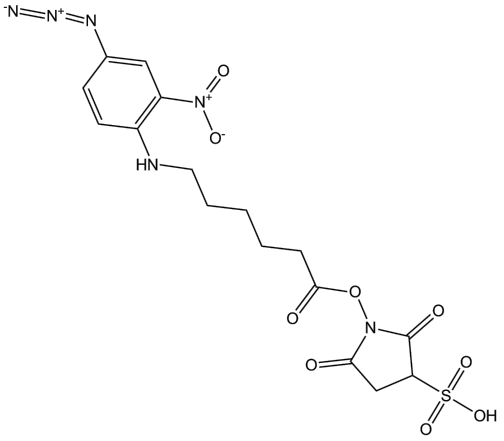
Product Data Sheet

Product Name: Sulfo-SANPAH
Cat. No.: GD21201

Chemical Properties

Cas. No.	102568-43-4		
Formula	$C_{16}H_{18}N_6O_9S$	M.Wt	470.41
Solubility	60mg/mL in DMSO (Need ultrasonic)	Storage	-20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

This plan only provides a guide, please modify it to meet your specific needs.

1. Solution Preparation

(1) Working solution: Weigh the solid and prepare the required working concentration with Milli-Q water or other suitable buffer.

Note: Store solids at -20°C or -80°C protected from light. Please adjust the optimal working concentration according to the actual situation or refer to the literature to set the gradient concentration yourself to explore. The working fluid must be prepared and used immediately.

Caution: Product has not been fully validated for medical applications. For research use only.
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2.Using Sulfo-SANPAH for extracellular matrix protein-polyacrylamide conjugation[1] (from the literature, for reference only)

(1)In HBS buffer, dilute the selected extracellular matrix protein (e.g., collagen) to a final concentration of 100μg/mL, preparing the necessary volume of working solution.

(2) Remove all buffer from the polyacrylamide culture dish.

(3) Dilute Sulfo-SANPAH in Milli-Q water to 0.5mg/mL. Immediately use a pipette to evenly spread about 5mL of the solution over the surface of the polyacrylamide gel. Since Sulfo-SANPAH hydrolyzes rapidly in water, this step must be completed quickly.

(4) Open the culture dish lid and expose the polyacrylamide dish to 365nm ultraviolet light for 10min to activate the Sulfo-SANPAH. After treatment, the polyacrylamide should appear a deep orange color.

(5) Thoroughly wash the polyacrylamide gel three times with HBS buffer to remove any unreacted Sulfo-SANPAH.

(6) Directly add the protein solution to the surface of the polyacrylamide, ensuring the liquid completely covers the gel. Transfer the dish to a 37°C incubator, incubate overnight or for at least 2-3 hours.

(7) After incubating with the protein solution, wash once with HBS and replace with fresh HBS.

(8) Incubate the treated polyacrylamide gel in HBS at 37°C overnight or for at least 2-3 hours to stabilize the protein conjugation.

(9) The treated culture dish can be stored at 4°C, sealed with parafilm or plastic wrap for several weeks.

Note:The choice of extracellular matrix protein (fibronectin, collagen, laminin, etc.) should be based on the target cell line and tested for compatibility. Always ensure aseptic techniques are used throughout the process to prevent contamination.

References:

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[1] Millar-Haskell C S, Gleghorn J P. A Large-format Polyacrylamide Gel with Controllable Matrix Mechanics for Mammalian Cell Culture and Conditioned Media Production[J]. Bio-protocol, 2023, 13(17).

Background

Sulfo-SANPAH is a primary amine-nitrophenyl azide crosslinker[1]. Sulfo-SANPAH is a heterobifunctional crosslinker with one end containing a phenyl azide group and the other end featuring an amine-reactive N-hydroxysuccinimide ester, with an arm length of 18.2 A[2]. Sulfo-SANPAH is photosensitive and can form covalent bonds between proteins or other biomolecules upon activation with ultraviolet light[3]. Sulfo-SANPAH can be used for crosslinking cell surface proteins, and it is highly soluble in water. For instance, Sulfo-SANPAH can be employed to facilitate the covalent bonding of cell adhesion proteins to the surface of culture mediums, thereby studying cell migration and interactions with the extracellular matrix[4].

References:

[1] Hong Y, Krsko P, Libera M. Protein surface patterning using nanoscale PEG hydrogels[J]. Langmuir, 2004, 20(25): 11123-11126.
[2] Uckun F M, Evans W E, Forsyth C J, et al. Biotherapy of B-cell precursor leukemia by targeting genistein to CD19-associated tyrosine kinases[J]. Science, 1995, 267(5199): 886-891.
[3] Kumai J, Sasagawa S, Horie M, et al. A novel method for polyacrylamide gel preparation using N-hydroxysuccinimide-acrylamide ester to study cell-extracellular matrix mechanical interactions[J]. Frontiers in Materials, 2021, 8: 637278.
[4]Millar-Haskell C S, Gleghorn J P. A Large-format Polyacrylamide Gel with Controllable Matrix Mechanics for Mammalian Cell Culture and Conditioned Media Production[J]. Bio-protocol, 2023, 13(17).