

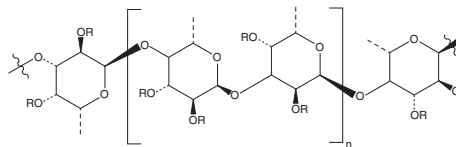
PRODUCT INFORMATION



Fucoidan

Item No. 20357

CAS Registry No.: 9072-19-9
Formal Name: (2S,3S,4S,5S,6R)-4-hydroxy-5-methoxy-2,6-dimethyltetrahydro-2H-pyran-3-yl hydrogen sulfate
Synonyms: Fucan, Sulfated α -L-Fucan
MF: $(C_6H_9O_3SO_3)_n$
Purity: $\geq 85\%$
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥ 4 years
Item Origin: Plant/*Laminaria japonica*



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Fucoidan is supplied as a crystalline solid. Aqueous solutions of fucoidan can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of fucoidan in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Fucoidan is a sulfated polysaccharide that has been found in various brown algae species, including *L. digitata*, *A. nodosum*, *M. pyrifera*, and *F. vesiculosus*, and has diverse biological activities.¹ Fucoidan consists of repeated (1 \rightarrow 3)-L-fucopyranoses or alternating and repeated (1 \rightarrow 3)- and (1 \rightarrow 4)-L-fucopyranoses, as well as R groups composed of sulfate, uronic acid, or fucose groups. It also contains other sugars such as galactose. It has antioxidant activity in ferric reducing and DPPH (Item No. 14805) scavenging assays ($IC_{50}S = 76.8$ and $93.69 \mu\text{g/ml}$, respectively).² Fucoidan inhibits herpes simplex virus 1 (HSV-1) and HSV-2 replication in Vero cells ($IC_{50}S = 2.5$ and $2.6 \mu\text{g/ml}$, respectively).³ It also inhibits thrombin-induced aggregation of isolated human platelets when used at a concentration of $100 \mu\text{g/ml}$.⁴ Fucoidan (4 mg/kg) decreases neutrophil infiltration in a rat model of peptone-induced acute peritonitis. It reduces tumor growth, inhibits angiogenesis, and decreases the number of lung metastases in a 4T1 murine model of breast cancer when administered at doses of 5 and 10 mg/kg .⁵ Formulations containing fucoidan have been used as dietary supplements.

References

1. Luthuli, S., Wu, S., Cheng, Y., *et al.* Therapeutic effects of fucoidan: A review on recent studies. *Mar. Drugs* **17**(9), 487 (2019).
2. Palanisamy, S., Vinosha, M., Marudhupandi, T., *et al.* In vitro antioxidant and antibacterial activity of sulfated polysaccharides isolated from *Spatoglossum asperum*. *Carbohydr. Polym.* **170**, 296-304 (2017).
3. Lee, J.-B., Hayashi, K., Hashimoto, M., *et al.* Novel antiviral fucoidan from sporophyll of *Undaria pinnatifida* (Mekabu). *Chem. Pharm. Bull. (Tokyo)* **52**(9), 1091-1094 (2004).
4. Cumashi, A., Ushakova, N.A., Preobrazhenskaya, M.E., *et al.* A comparative study of the anti-inflammatory, anticoagulant, antiangiogenic, and antiadhesive activities of nine different fucoidans from brown seaweeds. *Glycobiology* **17**(5), 541-552 (2007).
5. Xue, M., Ge, Y., Zhang, J., *et al.* Anticancer properties and mechanisms of fucoidan on mouse breast cancer in vitro and in vivo. *PLoS One* **7**(8), e43483 (2012).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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