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Produktinformation

- Forschungsprodukte & Biochemikalien
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- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

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See the following pages for more information!

Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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PRODUCT INFORMATION

GDP-L-Fucose Synthase (human, recombinant)

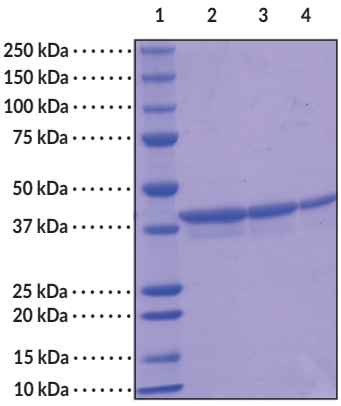
Item No. 26695

Overview and Properties

Synonyms:	GDP-4-keto-6-deoxy-D-Mannose-3,5-Epimerase-4-Reductase, Protein FX, Red Cell NADP(H)-Binding Protein, Short-Chain Dehydrogenase/Reductase Family 4E Member 1, Tissue Specific Transplantation Antigen P35B, TSTA3
Source:	Recombinant N-terminal histidine-tagged GDP-L-fucose synthase purified from *E. coli*
Amino Acids:	2-321
Uniprot No.:	Q13630
Molecular Weight:	37.98 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	***batch specific*** (≥90% estimated by SDS-PAGE)
Supplied in:	50 mM HEPES, pH 8.0, with 150 mM sodium chloride and 10% glycerol
Protein Concentration:	***batch specific*** mg/ml

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

Image



Lane 1: MW Markers
Lane 2: GDP-L-Fucose Synthase (8 µg)
Lane 3: GDP-L-Fucose Synthase (4 µg)
Lane 4: GDP-L-Fucose Synthase (2 µg)

Representative gel image shown; actual purity may vary between each batch.

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PRODUCT INFORMATION

Description

GDP-L-Fucose synthase, encoded by the gene *TSTA3*, is an NADP(H)-binding protein that catalyzes the final step in the synthesis of GDP-L-fucose from GDP-D-mannose.[1,2] It converts GDP-4-keto-6-deoxy-D-mannose to GDP-L-fucose *via* a two-step reaction consisting of epimerization followed by NADPH-dependent reduction. GDP-L-Fucose synthase exists as a homodimer and is comprised of an N-terminal NADPH-binding domain and a C-terminal substrate-binding domain. *TSTA3*$^{-/-}$ mice exhibit increases in colonic inflammation, dysplasia, and epithelial permeability, which are reversed following addition of fucose to the diet.[3] These mice also exhibit alterations in gut microflora and increased bacterial burden in colon transluminal tissue and feces when fed a normal diet *versus* a fucose-supplemented diet, and the colonic effects of *TSTA3* deletion can be reversed following administration of antibiotics. GDP-L-Fucose synthase has been identified as an autoantigen that can be recognized by CD4$^+$ T cells derived from patients with multiple sclerosis.[4] Expression of GDP-L-fucose synthase in primary tumor tissue samples from patients with esophageal squamous cell carcinoma (ESCC) positively correlates with increased clinical stage, lymph node metastasis, and poor prognosis.[5]

References

1. Tonetti, M., Sturla, L., Bisso, A., *et al.* Synthesis of GDP-L-fucose by the human FX protein. *J. Biol. Chem.* **271(44)**, 27274-27279 (1996).
2. Zhou, H., Sun, L., Li, J., *et al.* The crystal structure of human GDP-L-fucose synthase. *Acta Biochim. Biophys. Sin. (Shanghai)* **45(9)**, 720-725 (2013).
3. Wang, Y., Huang, D., Chen, K.-Y., *et al.* Fucosylation deficiency in mice leads to colitis and adenocarcinoma. *Gastroenterology* **152(1)**, 193-205 (2017).
4. Planas, R., Santos, R., Tomas-Ojer, P., *et al.* GDP-L-fucose synthase is a CD4$^+$ T cell-specific autoantigen in DRB3*02:02 patients with multiple sclerosis. *Sci. Transl. Med.* **10(462)**, eaat4301 (2018).
5. Yang, J., Kong, P., Yang, J., *et al.* High TSTA3 expression as a candidate biomarker for poor prognosis of patients with ESCC. *Technol. Cancer Res. Treat.* **17,** 1533033818781405 (2018).

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