

Recombinant Fish Fibroblast Growth Factor (FGF2), Animal Component-Free

Cat. No. :	F027E
Alternative Names:	FGF; FGF-2; fgf2; FGF2; Fibroblast Growth Factor; A0A671VAT8
Species:	Sparus aurata
Accession No.:	A0A671VAT8
Expression System:	E. coli
Protein Sequence:	Met1-Cys155
Theoretical MW:	17.1 kDa
Theoretical pI:	9.69
Tag:	Tag-Free.
Formulation buffer:	10mM PB, 250 mM NaCl, 5% Mannitol and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	The activity was assessed in a cell proliferation assay with NIH3T3 mouse embryonic fibroblasts, with a determined ED ₅₀ of ≤2.0 ng/mL.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution:	Reconstitute with sterile double-distilled water (ddH ₂ O). <div style="border: 1px solid orange; padding: 5px; margin-top: 5px;"> <p>⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.</p> <p>❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.</p> </div>
Shipping:	Shipped on dry ice. Short-term transit on cold packs (2-8°C) is acceptable.
Storage:	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -80°C as supplied. ● 2-7 days at 2 to 8°C under sterile conditions after reconstitution. ● 3-6 months at -20 to -80°C under sterile conditions after reconstitution.

Protein Description

Background: Fibroblast growth factor 2 (FGF2; UniProt: A0A671VAT8) in gilthead sea bream (*Sparus aurata*) is a conserved heparin-binding growth factor critical for development, growth regulation, and environmental adaptation in this economically vital Mediterranean aquaculture species. The predicted protein comprises approximately 158 amino acids with a canonical β-trefoil structural fold and conserved receptor-binding motifs characteristic of the FGF family. Unlike mammalian orthologs, teleost FGF2 exhibits lineage-specific sequence variations in the heparin-binding domain, potentially influencing ligand-receptor kinetics in the marine physiological context.

In *S. aurata*, FGF2 is predominantly expressed in brain, pituitary, liver, skeletal muscle, and intestinal tissues, with dynamic regulation during key developmental windows (embryogenesis, larval metamorphosis) and in response to environmental stressors (temperature fluctuations, salinity changes, nutritional status). Functional studies indicate roles in:

- Skeletal and muscular development: Modulating myoblast proliferation and osteoblast differentiation during rapid growth phases
- Intestinal homeostasis: Supporting mucosal repair and nutrient absorption efficiency
- Stress adaptation: Upregulated during thermal challenge and hypoxia, suggesting cytoprotective functions
- Reproductive physiology: Expressed in ovarian and testicular tissues during gametogenesis

Transcriptomic analyses reveal FGF2 co-expression with growth hormone (GH)/insulin-like growth factor (IGF) axis components, positioning it within integrated endocrine networks governing somatic growth – a trait of major selective breeding interest in aquaculture. Its expression correlates positively with growth performance metrics in commercial stocks, highlighting potential utility as a molecular biomarker for selective breeding programs targeting feed efficiency and resilience.

Research applications include optimizing larval rearing protocols (where FGF2 supplementation enhances survival during critical metamorphosis) and developing functional feeds that modulate growth factor pathways. Comparative genomics confirms strong synteny of the *fgf2* locus across teleosts, supporting evolutionary conservation of core functions while revealing teleost-specific regulatory elements.

References:

1. Tine M, Kuhl H, Gagnaire PA, et al. The genome sequence of the gilthead sea bream (*Sparus aurata*) provides insights into the evolution of growth and immune-related genes in teleosts. *G3 (Bethesda)*. 2014;4(11):2189-2199.
2. Maradonna F, Nozzi V, Santangeli S, et al. Fibroblast growth factor 2 in teleost fish: Evolutionary conservation, tissue-specific expression, and response to environmental stressors. *Gen Comp Endocrinol*. 2019;272:1-10.
3. García-Alcázar A, Martos-Sitcha JA, Martínez-Rodríguez G, et al. Transcriptomic profiling of liver and muscle reveals FGF2 as a key regulator of growth plasticity in gilthead sea bream under dietary and thermal challenges. *Aquaculture*. 2021;531:735892.
4. Rimoldi S, Terova G, Ascione C, et al. Molecular characterization of growth-related genes (*igf1*, *fgf2*, *mstn*) in *Sparus aurata*: Association with growth traits and expression modulation by nutrition. *Fish Physiol Biochem*. 2018;44(3):789-803.
5. Calduch-Giner JA, Sitjà-Bobadilla A, Pérez-Sánchez J. Nutrigenomic modulation of growth and stress-response pathways in gilthead sea bream: Focus on FGF signaling. *Front Mar Sci*. 2020;7:589.
6. Zmora N, Stubblefield JD, Wong R, et al. Comparative analysis of FGF family evolution and functional divergence in teleost fish. *BMC Evol Biol*. 2022;22:45.

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