



**LD Biopharma, Inc.**  
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## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human TFF1 Protein  
**Catalog Number:** hRP-1710  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Members of the trefoil family are characterized by having at least one copy of the trefoil motif, a 40-amino acid domain that contains three conserved disulfides. They are stable secretory proteins expressed in gastrointestinal mucosa. Their functions are not defined, but they may protect the mucosa from insults, stabilize the mucus layer, and affect healing of the epithelium. Human Trefoil Factor-1 (TFF1) gene, which is expressed in the gastric mucosa, may play a role as Stabilizer of the mucous gel overlying the gastrointestinal mucosa that provides a physical barrier against various noxious agents. TFF1 expression was also detected in various tumor samples. Recent data indicated that measurement of urine sample for TFF1 protein concentration could be used as early diagnosis biomarker for pancreatic adenocarcinoma when combined with LYVE-1 and REG1a proteins.

Full-length mature human TFF1 cDNA (25 – 84aa) was constructed by gene synthesis technology with codon optimization and expressed with a human Alpha-Fetal Protein N-terminal domain (AFP<sub>n</sub>)-His-TEV cleavage site (219aa) fusion at its N-terminal. This protein is expressed in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** TFF1 (BCE1; D21S21; HP1.A; HPS2; pNR-2; pS2)  
**Accession Number:** NP\_003216  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

### Key References



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Tomasz P Radon, et al., *Identification of a three-biomarker panel in urine for early detection of pancreatic adenocarcinoma*. Clin Cancer Res. 21 (15). 3512-3521 (2015)

Liu J, et al., *miRNA423-5p regulates cell proliferation and invasion by targeting trefoil factor 1 in gastric cancer cells*. Cancer Lett. 347 (1), 98-104 (2014)

Zurek J et al., *Trefoil factor 1 as a marker of mucosal damage of the gastrointestinal tract in children with sepsis*. Biomarkers 18 (4), 338-342 (2013)

Khan P, et al., *Mitogen- and stress-activated protein kinases 1 and 2 are required for maximal trefoil factor 1 induction*. PLoS ONE 8 (5), E63189 (2013)

Takahashi H, et al., *Expression of the pS2 gene in human gastric cancer cells derived from poorly differentiated adenocarcinoma*. FEBS Lett. 261 (2), 283-286 (1990)

## **Applications**

1. May be used for in vitro TFF1 mediated cancer cell proliferation and invasion pathway regulation study by using this protein either as soluble factor or coated on the culture dish as matrix protein.
2. May be used for protein-protein interaction mapping.
3. Potential biomarker protein for early diagnosis of pancreatic adenocarcinoma with urine sample.
4. As immunogen for specific antibody production.

## **Quality Control**

Purity: > 90% by SDS-PAGE.

## **Recombinant Protein Sequence**

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLLENQLPAFLLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMNKFIIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHHGSENLYFQGEFEAQTETCTVAPRERQNCGFPGVTPSQCANKGCCFDDT  
VRGVPWCFYPNTIDVPPPEEECEF