

Pancreatic secretory trypsin inhibitor (PSTI) also known as serine protease inhibitor Kazal-type 1 (SPINK1) or tumor-associated trypsin inhibitor (TATI) is a protein that is encoded by the SPINK1 gene.<sup>[1]</sup> Mutations in SPINK1 has been associated with hereditary pancreatitis and tropical pancreatitis. Trypsinogen is normally created and stored an inactive zymogen of trypsin in the pancreas, but occasionally will autoactivate itself. PSTI serves to cleave prematurely activated trypsin to prevent the enzyme from causing cellular damage to the organ. Without the function of PSTI, the pancreas is subject to repeated episodes of damage.<sup>[2]</sup> It has also been associated with prostate cancer.<sup>[3]</sup> SPINK1 is secreted from pancreatic acinar cells into pancreatic juice. It is thought to function in the prevention of trypsin-catalyzed premature activation of zymogens within the pancreas and the pancreatic duct. Mutations in SPINK1 gene are associated with hereditary pancreatitis and tropical calcific pancreatitis.<sup>[4]</sup> SPINK1 contributes to proliferation and clonal formation of HT29 cells through Beclin1 associated enhanced autophagy.<sup>[5]</sup> High expression of serine protease inhibitor kazal type 1 predicts poor prognosis and promotes the progression and invasion of oral tongue squamous cell carcinoma.<sup>[6]</sup>

**References**

1. Yamamoto T, et al. (1985). *Biochemical and Biophysical Research Communications*. 132 (2): 605–12.
2. Marchbank T, et al. (1998). *Digestion*. 59 (3): 167–74.
3. Pfützer RH, Whitcomb DC (2002). *Pancreatology*. 1 (5): 457–60.
4. Witt H, et al. (2000). *Nature Genetics*. 25 (2): 213–6.
5. Hu,N.A., et al. (2023) *Oncol Res* 30 (2), 89-97.
6. Wang,S., et al. (2024) *Arch Oral Biol* 164, 106003.

**Related products**

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## Genorise® Recombinant Human SPINK1

Catalog Number: GR119219

### Description

**Source:** *E. coli* derived

**Composition:** Met1-Cys79

**Accession #** NP\_001341895.1

**N-terminal Sequence Analysis:** Met

**Structure/Form:** Monomer

**Predicted Molecular Mass:** 9 kDa

### Specifications

**SDS-PAGE:** 9 kDa, reducing conditions

**Activity:**

Measured by its ability to inhibit trypsin cleavage of a fluorogenic peptide substrate, Mca-RPKPVE-Nval-WRK (Dnp)-NH<sub>2</sub>. The IC<sub>50</sub> value is 10 nM, as measured under the described conditions.

**Endotoxin Level:** < 1 EU per 1 µg of the protein by the LAL method.

**Purity:** > 95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation:** Lyophilized from a 0.2 µm filtered PBS with BSA as a carrier protein.

### Preparation and Storage

**Reconstitution:** Reconstitute at 100-500 µg/mL in sterile PBS containing 0.1% human or bovine serum albumin.

**Shipping:** The product is shipped at ambient temperature or in a foam box with ice pads. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage:** Use a manual defrost freezer and avoid repeated freeze thaw cycles.

- 6 months from date of receipt, -20 to -70°C as supplied.
- 1 month, -20 to -70°C under sterile conditions after reconstitution.

### DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

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