# PRODUCT INFORMATION

## FHIT (human, recombinant)

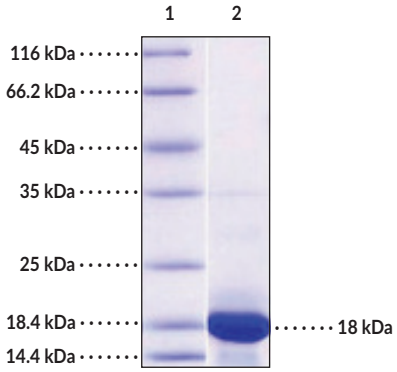
*Item No. 35510*

### Overview and Properties

| | |
|---|---|
| **Synonyms:** | $Ap_3Aase$, $Ap_3A$ Hydrolase, *Bis*(5'-adenosyl)-Triphosphatase, Diadenosine 5',5"-$P_1$,$P_3$-Triphosphate Hydrolase, Dinucleosidetriphosphatase, FRA3B, Fragile Histidine Triad Protein |
| **Source:** | Recombinant human C-terminal His-tagged FHIT expressed in *E. coli* |
| **Amino Acids:** | 1-147 (full length) |
| **Uniprot No.:** | P49789 |
| **Molecular Weight:** | 17.7 kDa |
| **Storage:** | -80°C (as supplied) |
| **Stability:** | ≥1 year |
| **Purity:** | ≥85% estimated by SDS-PAGE |
| **Supplied in:** | Lyophilized from sterile 50 mM Tris, pH 8.0, with 10% glycerol |

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

### Image




**Lane 1:** MW Markers
**Lane 2:** FHIT

**SDS-PAGE Analysis of FHIT.** This protein has a calculated molecular weight of 17.7 kDa. It has an apparent molecular weight of approximately 18 kDa by SDS-PAGE under reducing conditions.

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## Description

Fragile histidine triad diadenosine triphosphatase (FHIT) is a hydrolase and tumor suppressor.[1-3] It contains a His-x-His-x-His motif that hydrolyzes diadenosine triphosphate ($Ap_3A$), as well as $Ap_4A$ and ATP.[1] FHIT is expressed in spleen, brain, kidney, lung, and liver and localizes to the plasma membrane, nucleus, mitochondria, and cytoplasm.[4-6] It is involved in tumor suppression and genome stability.[2] Overexpression of *FHIT* induces apoptosis in lung cancer cells and reduces tumor growth in lung cancer mouse xenograft models.[7] Homozygous or heterozygous loss of *FHIT* expression is prevalent in several cancers, and the *FHIT* gene contains a common fragile site, *FRA3B*, that is a translocation breakpoint associated with hereditary kidney cancer.[3] Cayman's FHIT (human, recombinant) protein consists of 153 amino acids and has a calculated molecular weight of 17.7 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 18 kDa.

## References


1. Lima, C.D., Klein, M.G., and Hendrickson, W.A. Structure-based analysis of catalysis and substrate definition in the HIT protein family. *Science* **278(5336)**, 286-290 (1997).
2. Waters, C.E., Saldivar, J.C., Hosseini, S.A., *et al.* The *FHIT* gene product: Tumor suppressor and genome "caretaker". *Cell. Mol. Life Sci.* **71(23)**, 4577-4587 (2014).
3. Pekarsky, Y., Palamarchuk, A., Huebner, K., *et al. FHIT* as tumor suppressor: Mechanisms and therapeutic opportunities. *Cancer Biol. Ther.* **1(3)**, 232-236 (2002).
4. Golebiowski, F., Kowara, R., and Pawelczyk, T. Distribution of Fhit protein in rat tissues and its intracellular localization. *Mol. Cell. Biochem.* **266(1-2)**, 49-55 (2001).
5. Costas, M.J., Cameselle, J.C., and Sillero, A. Mitochondrial location of rat liver dinucleoside triphosphatase. *J. Biol. Chem.* **261(5)**, 2064-2067 (1986).
6. Sillero, M.A., Villalba, R., Moreno, A., *et al.* Dinucleosidetriphosphatase from rat liver. Purification and properties. *Eur. J. Biochem.* **76(2)**, 331-337 (1977).
7. Ji, L., Fang, B., Yen, N., *et al.* Induction of apoptosis and inhibition of tumorigenicity and tumor growth by adenovirus vector-mediated fragile histidine triad (*FHIT*) gene overexpression. *Cancer Res.* **59(14)**, 3333-3339 (1999).



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