

# PRODUCT INFORMATION



## TYK2 (human, recombinant)

Item No. 33745

### Overview and Properties

**Synonyms:** JTK1, Non-receptor Tyrosine Protein Kinase, Tyrosine Kinase 2  
**Source:** Active recombinant human N-terminal His-tagged TYK2 expressed in insect cells  
**Amino Acids:** 871-1,187  
**Uniprot No.:** P29597  
**Molecular Weight:** 38 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥6 months  
**Purity:** ≥90% estimated by SDS-PAGE  
**Supplied in:** 45 mM Tris, pH 8.0, with 125 mM sodium chloride, 2.4 mM potassium chloride, 0.045% Tween 20, 50-500 mM imidazole, and 10% glycerol

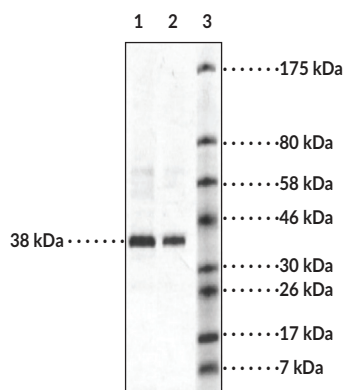
### Protein

**Concentration:** *batch specific* mg/ml

**Bioactivity:** See figures for details

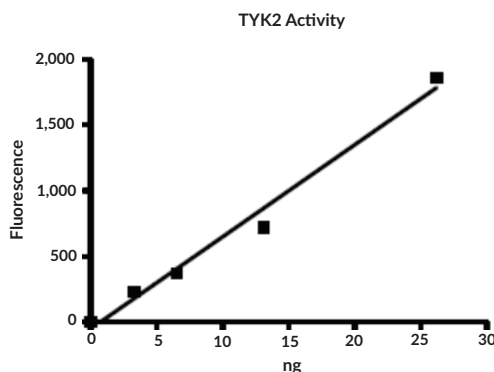
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: TYK2 (4 µg)  
Lane 2: TYK2 (2 µg)  
Lane 3: MW Markers

SDS-PAGE Analysis of TYK2.



TYK2 incubated with 0.2 mM ATP in plate coated with poly(Glu-Tyr, 4:1) substrate for 1h at room temperature. Europium-labeled anti-phospho-Tyr antibody was added and incubated for 1h at room temperature. Time-resolved fluorescence was measured using development solution that displays excitation/emission maxima of 330 and 620 nm, respectively.

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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## Description

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Tyrosine kinase 2 (TYK2) is a member of the JAK family of non-receptor tyrosine kinases that has a key role in cytokine signaling.<sup>1,2</sup> It is composed of an N-terminal FERM homology domain, which mediates protein-protein interactions, a Src-homology 2 (SH2) domain, a catalytically inactive pseudokinase domain, and a catalytically active C-terminal kinase domain.<sup>1</sup> TYK2 is expressed by a variety of immune cells, including T and B cells, dendritic cells, mast cells, and macrophages, where it associates with numerous cytokine receptor chains, including IFNARI, IL-12Rβ1, IL-10R2, gp130, and IL-13Rα1, to mediate STAT-dependent cytokine signaling.<sup>1-3</sup> TYK2 is activated by its phosphorylation, which is induced by ligand-bound cytokine receptors *via* JAK1 or JAK2-mediated transactivation, and is inhibited by suppressor of cytokine signaling (SOCS) proteins.<sup>3</sup> TYK2 has roles in numerous immunological processes, including inflammatory and autoimmune diseases, pathogen defense, and allergy, as well as tumor surveillance and cancer.<sup>1,3</sup> TYK2 SNPs have been identified in patients with acute myeloid leukemia, and TYK2 polymorphisms have been associated with systemic lupus erythematosus (SLE) and multiple sclerosis in humans.<sup>1</sup> Cayman's TYK2 (human, recombinant) protein can be used for enzyme activity assays.

## References

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1. Strobl, B., Stoiber, D., Sexl, V., *et al.* Tyrosine kinase 2 (TYK2) in cytokine signalling and host immunity. *Front. Biosci. (Landmark Ed.)* **16(9)**, 3214-3232 (2011).
2. Garrido-Trigo, A. and Salas, A. Molecular structure and function of janus kinases: Implications for the development of inhibitors. *J. Crohns Colitis* **14(Suppl 2)**, S713-S724 (2020).
3. Karjalainen, A., Shoebri, S., Kronic, M., *et al.* TYK2 in tumor immunosurveillance. *Cancers (Basel)* **12(1)**, 150 (2020).