

# PRODUCT INFORMATION



## Cystathionine $\gamma$ -Lyase (human, recombinant)

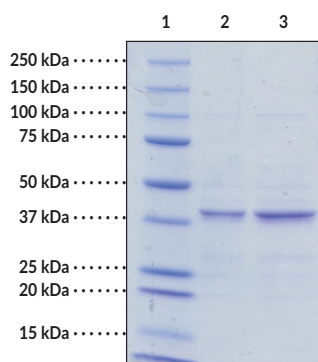
Item No. 10329

### Overview and Properties

|                           |  |
|---------------------------|--|
| <b>Synonyms:</b>          | CGL, CTH, Cystathionase  |
| <b>Source:</b>            | Recombinant protein expressed in <i>E. coli</i>  |
| <b>Amino Acids:</b>       | 1-405 (full-length)  |
| <b>Uniprot No.:</b>       | P32929   |
| <b>Molecular Weight:</b>  | 44.5kDa  |
| <b>Storage:</b>           | -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein  |
| <b>Stability:</b>         | ≥1 year  |
| <b>Purity:</b>            | ≥70% estimated by SDS-PAGE   |
| <b>Supplied in:</b>       | 70mM Tris, pH 8.0, with 150mM sodium chloride, 20% Glycerol, and 10 $\mu$ M PLP  |
| <b>Protein</b>            |  |
| <b>Concentration:</b>     | <i>batch specific</i> mg/ml  |
| <b>Activity:</b>          | <i>batch specific</i> U/ml   |
| <b>Specific Activity:</b> | <i>batch specific</i> U/mg   |
| <b>Unit Definition:</b>   | One unit is defined as the amount of enzyme required to produce 1 nmol of TNB per minute at 30°C in 50 mM Tris, pH 8.6, 20 $\mu$ M pyridoxal-5' phosphate, and 3 mM L-cystathionine substrate. |

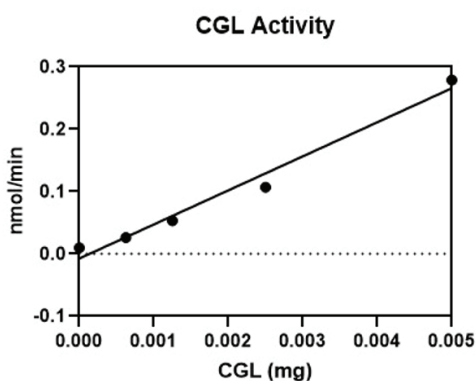
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: MW Markers  
Lane 2: CGL (2  $\mu$ g)  
Lane 3: CGL (4  $\mu$ g)

Representative gel image shown; actual purity may vary between each batch.



One unit is defined as the amount of enzyme required to produce 1 nmol of TNB per minute at 30°C in 50 mM Tris, pH 8.6, 20  $\mu$ M pyridoxal-5' phosphate, and 3 mM L-cystathionine substrate.

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.

WARRANTY AND LIMITATION OF REMEDY  
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## Description

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Transsulfuration and reverse transsulfuration comprise part of the metabolic interconversion of the sulfur-containing amino acids cysteine and methionine.<sup>1</sup> Reverse transsulfuration is catalyzed by the enzymes cystathionine  $\beta$ -synthase (CBS) and cystathionine  $\gamma$ -lyase (CGL) in fungi and mammals.<sup>1</sup> Specifically, CGL catalyzes the conversion of cystathionine to cysteine in a pyridoxal-5'-phosphate-dependant reaction.<sup>2</sup> At elevated levels, homocysteine is an independent risk factor for cardiovascular diseases and other complex disorders.<sup>2</sup> The mammalian transsulfuration pathway is one of two major metabolic routes for homocysteine removal. Besides homocysteine removal, transsulfuration contributes significantly to the intracellular cysteine pool.<sup>2</sup> Cysteine is used for biosynthesis of glutathione, and is also the primary substrate for H<sub>2</sub>S biosynthesis. CGL is one of two major enzymes that catalyzes the formation of H<sub>2</sub>S from cysteine.<sup>2</sup> H<sub>2</sub>S generation is a biological gasotransmitter, a neuromodulator, a vasodilator, and plays an important role in inflammation.<sup>2</sup>

## References

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1. Steegborn, C., Clausen, T., Sondermann, P., *et al.* Kinetics and inhibition of recombinant human cystathionine  $\gamma$ -lyase. Toward the rational control of transsulfuration. *J. Biol. Chem.* **274**(18), 12675-12684 (1999).
2. Zhu, W., Lin, A., and Banerjee, R. Kinetic properties of polymorphic variants and pathogenic mutants in human cystathionine  $\gamma$ -lyase. *Biochemistry* **47**, 6226-6232 (2008).

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