

# PRODUCT INFORMATION



## Renin (human, recombinant)

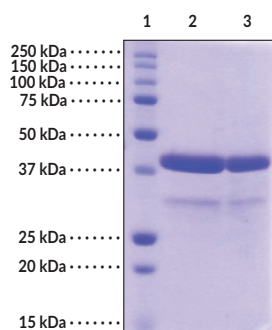
Item No. 10006217

### Overview and Properties

<b>Source:</b>	Active recombinant human renin expressed in HEK293 cells
<b>Amino Acids:</b>	67-406 (full length mature protein)
<b>Uniprot No.:</b>	P00797
<b>Molecular Weight:</b>	40 kDa
<b>Storage:</b>	-80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
<b>Stability:</b>	≥1 year
<b>Purity:</b>	≥85% estimated by SDS-PAGE
<b>Supplied in:</b>	50 mM Tris, pH 8.0, with 150 mM NaCl and 5% glycerol
<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 that will liberate 1.0 nmol of EDANS per minute at 37°C in 50 mM Tris-HCl, pH 8.0, containing 100 nM NaCl, and 10 μM of the fluorescent peptide Arg-Glu(EDANS)-Ile-His-Pro-Phe-His-Leu-Val-Ile-His-Thr-Lys(dabcyl)-Arg. Renin is diluted with 50 mM Tris-HCl, pH 8.0, containing 100 nM NaCl before assaying in a final assay volume of 205 μl with a fluorescence microplate reader using an excitation wavelength of 340 nm and emission wavelength of 485 nm.

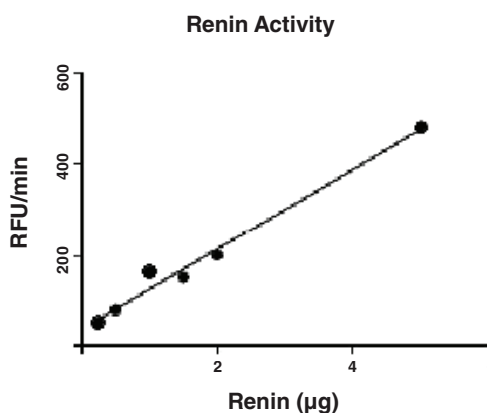
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



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

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



**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**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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Renin is an aspartyl protease glycoprotein, a member of the aspartic acid protease family, and a hormone.<sup>1</sup> It is a single-chain polypeptide in which the N- and C-terminal portions contain an aspartate residue responsible for its catalytic activity. It is formed from prorenin, a zymogen found primarily in the juxtaglomerular cells in the kidney, by proteolytic removal of its autoinhibitory domain.<sup>2,3</sup> Renin catalyzes the conversion of angiotensinogen to angiotensin I, which is the first and rate-limiting step of the renin-angiotensin system (RAS) responsible for regulating blood pressure.<sup>3</sup> When blood pressure is low, renin secretion is increased and the RAS is activated, which increases arterial vasoconstriction and sodium resorption to maintain blood pressure at homeostatic levels.<sup>4</sup> Deletion or substitution of the leucine in position 16 of *REN*, the gene encoding renin, that reduce or eliminate renin biosynthesis are associated with multiple inflammatory diseases, including chronic kidney failure and early-onset hyperuricemia.<sup>5</sup> Cayman's Renin (human, recombinant) protein can be used for enzyme assay and Western blot applications.

## References

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1. Mukoyama, M. and Nakao, K. Hormones of the Kidney. *Endocrinology*. Melmed S. and Conn P.M., *Humana Press* (2005).
2. Persson, P.B. Renin: Origin, secretion and synthesis. *J. Physiol.* **552(Pt 3)**, 667-671 (2003).
3. Patel, S., Rauf, A., Khan, H., *et al.* Renin-angiotensin-aldosterone (RAAS): The ubiquitous system for homeostasis and pathologies. *Biomed. Pharmacother.* **94**, 317-325 (2017).
4. Cartledge, S. and Lawson, N. Aldosterone and renin measurements. *Ann. Clin. Biochem.* **37( Pt 3)**, 262-278 (2000).
5. Živná, M., Hůlková, H., Matignon, M., *et al.* Dominant renin gene mutations associated with early-onset hyperuricemia, anemia, and chronic kidney failure. *Am. J. Hum. Genet.* **85(2)**, 204-213 (2009).

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