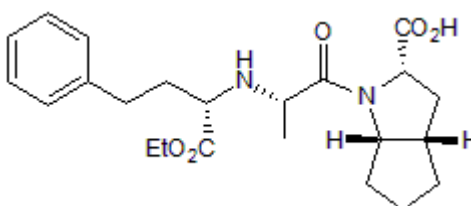


**Product Name:** Ramipril **Catalog No.:** 5250 **Batch No.:** 1  
**CAS Number:** 87333-19-5  
**IUPAC Name:** (2S,3aS,6aS)-1-[(2S)-2-[(1S)-1-(Ethoxycarbonyl)-3-phenylpropyl]amino]-1-oxopropyl]octahydrocyclopenta[b]pyrrole-2-carboxylic acid

**1. PHYSICAL AND CHEMICAL PROPERTIES**

**Batch Molecular Formula:** C<sub>23</sub>H<sub>32</sub>N<sub>2</sub>O<sub>5</sub>  
**Batch Molecular Weight:** 416.51  
**Physical Appearance:** White solid  
**Solubility:** DMSO to 100 mM  
 ethanol to 100 mM  
**Storage:** Store at +4°C  
**Batch Molecular Structure:**



**2. ANALYTICAL DATA**

**HPLC:** Shows 100% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Optical Rotation:** [α]<sub>D</sub> = +39.8 (Concentration = 1, Solvent = 0.1N HCl in ethanol)  
**Microanalysis:**

	Carbon Hydrogen Nitrogen		
Theoretical	66.32	7.74	6.73
Found	66.33	7.53	6.63

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

Non-peptide, competitive angiotensin converting enzyme (ACE) inhibitor (IC<sub>50</sub> = 5 nM). Prodrug which is hydrolyzed in vivo to the active metabolite ramiprilat. Displays protective effects on endothelium against high-glucose induced dysfunction. Exhibits antihypertensive effects.

**Physical and Chemical Properties:**

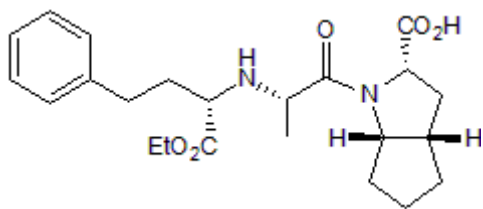
Batch Molecular Formula: C<sub>23</sub>H<sub>32</sub>N<sub>2</sub>O<sub>5</sub>

Batch Molecular Weight: 416.51

Physical Appearance: White solid

**Minimum Purity:** >99%

**Batch Molecular Structure:**



**Storage:** Store at +4°C

**Solubility & Usage Info:**

DMSO to 100 mM  
ethanol to 100 mM

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**References:**

**Stevens et al** (1988) Ramipril inhibition of rabbit (*Oryctolagus cuniculus*) small intestinal brush border membrane angiotensin converting enzyme. *Comp.Biochem.Physiol. C.* **91** 493. PMID: 2905962.

**Levitt et al** (2006) Human physiologically based pharmacokinetic model for ACE inhibitors: ramipril and ramiprilat. *BMC Clin. Pharmacol.* **6** 1. PMID: 16398929.

**Tian et al** (2014) Ramipril protects the endothelium from high glucose-induced dysfunction through CaMKK $\beta$ /AMPK and heme oxygenase-1 activation. *J.Pharmacol.Exp.Ther.* **350** 5. PMID: 24741076.

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**bio-techne.com**

info@bio-techne.com

techsupport@bio-techne.com

**North America**

Tel: (800) 343 7475

**China**

info.cn@bio-techne.com

Tel: +86 (21) 52380373

**Europe Middle East Africa**

Tel: +44 (0)1235 529449

**Rest of World**

www.tocris.com/distributors

Tel: +1 612 379 2956