Product Data Sheet

Product Name: Ramiprilat
Cat. No.: GC10694

Chemical Properties

Cas. No.	87269-97-4		
Chemical Name	(2S,3aS,6aS)-1-[(2S)-2-[[(1S)-1-carboxy-3-phenylpropyl]amino]-1-oxopropyl]octahydro-cyclopenta[b]pyrrole-2-carboxylic acid		
SMILES	O=C([C@H](C)N[C@H](C(O)=O)CCC1=CC=CC=C1)N2[C@]3([H])[C@](CCC3)([H])C[C@H]2C(O)=O		
Formula	$C_{21}H_{28}N_2O_5$	M.Wt	388.5
Solubility	≤1mg/ml in ethanol;10mg/ml in DMSO;10mg/ml in dimethyl formamide	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Ramiprilat		

Background

pKi= 9.08 in human heart

Ramiprilat is an angiotensin-converting enzyme (ACE) inhibitor.

ACE inhibitors help relax blood vessels and prevent an enzyme from producing angiotensin II, a substance narrowing blood vessels and releasing hormones that can raise blood pressure.

In vitro: Pretreatment with ramiprilat could significantly attenuate the recovery of B2 kinin receptors in while increasing that from membranes lacking caveolin, and such effect was not because of the inhibition of bradykinin degradation. Ramiprilat could also decrease [3H]bradykinin binding to CR membranes. In addition, ramiprilat treatment led to reactivation of the B2 receptor in bradykinin-stimulated cells [1].

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In vivo: In previous animal study, when compared with the control rats, diabetic rats showed decreased creatinine clearance rate, increased urinary protein excretion and blood pressure, as well as development of tubulointerstitial fibrosis, glomerulosclerosis, and inflammatory cell infiltration. Furthermore, the blocking angiotensin II with ramipril (the prodrug of ramiprilat) was able to significantly improve all of these parameters [2].

Clinical trial: Previous study showed that ramipril at 10 mg/day could significantly reduce the incidence of MI, stroke or death from cardiovascular causes in patients who were at increased risk for the development of ischaemic cardiovascular events [3].

References:

[1] T. Benzing, I. Fleming, A. Blaukat, et al. Angiotensin-converting enzyme inhibitor ramiprilat interferes with the sequestration of the B2 kinin receptor within the plasma membrane of native endothelial cells. Circulation 99(15), 2034-2040 (1999).
[2] Li C, Yang CW, Park CW, Ahn HJ, Kim WY, Yoon KH, Suh SH, Lim SW, Cha JH, Kim YS, Kim J, Chang YS, Bang BK. Long-term treatment with ramipril attenuates renal osteopontin expression in diabetic rats. Kidney Int. 2003 Feb;63(2):454-63.
[3] Warner GT, Perry CM. Ramipril: a review of its use in the prevention of cardiovascular outcomes. Drugs. 2002;62(9):1381-405.

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