# **PRODUCT** INFORMATION



## **TAK-599**

Item No. 23696

CAS Registry No.:	400827-46-5	HO	
Formal Name:	4-[2-[[(6R,7R)-2-carboxy-7-[[(2Z)-2-	Ť	
	(ethoxyimino)-2-[5-(phosphonoamino)-1,2,4-	ON N S N	$\sqrt{-}$
	thiadiazol-3-yl]acetyl]amino]-8-oxo-5-thia-		, N <sup>+</sup>
	1-azabicyclo[4.2.0]oct-2-en-3-yl]thio]-4-		
	thiazolyl]-1-methyl-pyridinium, monoacetate		
MF:	$C_{22}H_{22}N_8O_8PS_4 \bullet C_2H_3O_2$	N H	
FW:	744.7	} <u> </u>	
Purity:	≥98%	N S • CH <sub>3</sub> C	0 <sub>2</sub> -
UV/Vis.:	λ <sub>max</sub> : 246 nm	Y	
Supplied as:	A crystalline solid	N_OH	
Storage:	-20°C	H <sup>×</sup> <sup>×</sup> P <sup>×</sup>	
Stability:	≥4 years	О ОН	

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

#### Laboratory Procedures

TAK-599 is supplied as a crystalline solid. A stock solution may be made by dissolving the TAK-599 in the solvent of choice, which should be purged with an inert gas. TAK-599 is soluble in the organic solvent DMSO at a concentration of approximately 5 mg/ml.

TAK-599 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, TAK-599 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. TAK-599 has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

#### Description

TAK-599 is a prodrug of T-91825, a cephalosporin antibiotic.<sup>1</sup> In vitro, TAK-599 inhibits growth of S. pneumoniae, S. aureus, methicillin-resistant S. aureus (MRSA), E. coli, and K. pneumoniae (MICs = 0.008-2 mg/L).<sup>2</sup> It is rapidly converted to T-91825 in rats and monkeys.<sup>1</sup> TAK-599 has bacteriostatic effects in mice infected with S. pneumoniae, S. aureus, MRSA, E. coli, or K. pneumoniae when administered at doses ranging from 0.2-234 mg/kg per day and also decreases the number of CFUs in a mouse model of thigh infection.<sup>2</sup> It exhibits a protective effect against systemic infection by clinical MRSA isolates in mice  $(ED_{50}s = 1.08 - 4.81 \text{ mg/kg}).^3$ 

#### References

- 1. Ishikawa, T., Matsunaga, N., Tawada, H., et al. TAK-599, a novel N-phosphono type prodrug of anti-MRSA cephalosporin T-91825: Synthesis, physicochemical and pharmacological properties. Bioorg. Med. Chem. 11(11), 2427-2437 (2003).
- 2. Andes, D. and Craig, W.A. Pharmacodynamics of a new cephalosporin, PPI-0903 (TAK-599), active against methicillin-resistant Staphylococcus aureus in murine thigh and lung infection models: Identification of an in vivo pharmacokinetic-pharmacodynamic target. Antimicrob. Agents Chemother. 50(4), 1376-1383 (2006).
- 3. lizawa, Y., Nagai, J., Ishikawa, T., et al. In vitro antimicrobial activity of T-91825, a novel anti-MRSA cephalosporin, and in vivo anti-MRSA activity of its prodrug, TAK-599. J. Infect. Chemother. 10(3), 146-156 (2004).

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

#### SAFFTY 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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