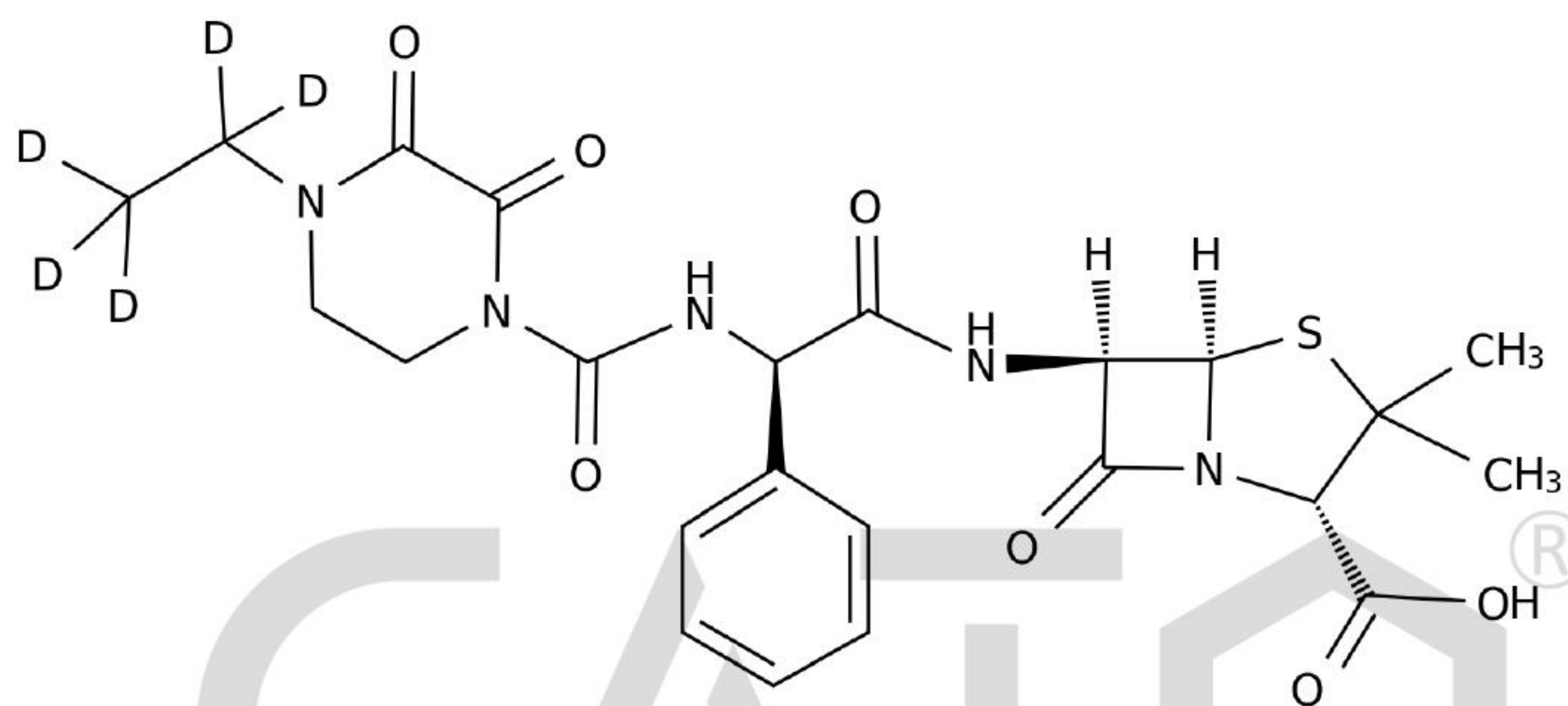


Certificate of Analysis

Reference Material

Product Name:	Piperacillin-d5 (N-ethyl-d5)	Catalogue Number:	C4X-173258
Chemical Name:	N/A	Lot Number:	0505-RE-0003
CAS Number:	N/A	Expiry Date:	Mar 11, 2025
Molecular Formula:	C ₂₃ H ₂₂ D ₅ N ₅ O ₇ S	Storage:	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	522.59		

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White to Off-White Solid
Identification	LCMS&IR&HNMR	Confirmed
Chemical Purity	HPLC	94.8%
Isotopic Purity		99.9%
Residual Solvents	NMR	0.1% ethyl acetate
Optical Rotation		[α] _D ^{25.0} (c=0.14, CH ₃ OH): +151.7°
Assay	qNMR	91.2%

Comment:

Assay was determined by quantitative ¹H-NMR.

Signature:

Prepared by:

Nacy

Reviewed by:

Xenia

Aproved by General manager:

David

Date: Mar 12, 2021

Date: May 10, 2023

Date: May 10, 2023

