Full wwPDB X-ray Structure Validation Report ⓘ

Mar 19, 2025 – 05:36 AM EDT

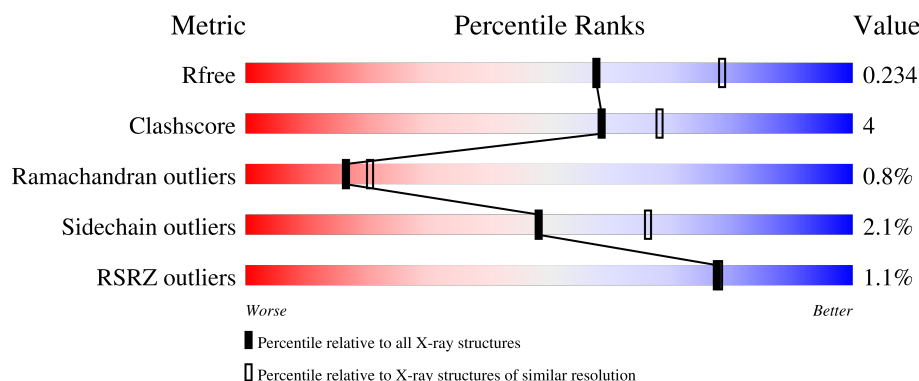|		
PDB ID	:	3Q1L
Title	:	Crystals Structure of Aspartate beta-Semialdehyde Dehydrogenase from Streptococcus pneumoniae with cysteamine bound covalently to Cys 128
Authors	:	Pavlovsky, A.G.; Viola, R.E.
Deposited on	:	2010-12-17
Resolution	:	2.30 Å(reported)

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.234
Clashscore		4
Ramachandran outliers		0.8%
Sidechain outliers		2.1%
RSRZ outliers		1.1%

Worse ... *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	5963 (2.30-2.30)
Clashscore	180529	6698 (2.30-2.30)
Ramachandran outliers	177936	6640 (2.30-2.30)
Sidechain outliers	177891	6640 (2.30-2.30)
RSRZ outliers	164620	5963 (2.30-2.30)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	366	89% 9% ·
1	B	366	2% / 86% 10% · ·
1	C	366	% / 85% 13% · ·
1	D	366	2% / 88% 8% · ·

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	DHL	B	367[A]	-	-	X	-

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 11279 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Aspartate beta-semialdehyde dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	357	Total	C	N	O	S	0	1	0
			2727	1724	459	530	14			
1	B	356	Total	C	N	O	S	0	1	0
			2721	1719	458	530	14			
1	C	360	Total	C	N	O	S	0	0	0
			2751	1739	464	535	13			
1	D	356	Total	C	N	O	S	0	0	0
			2715	1716	457	529	13			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	359	LEU	-	expression tag	UNP Q8DQ00
A	360	GLU	-	expression tag	UNP Q8DQ00
A	361	HIS	-	expression tag	UNP Q8DQ00
A	362	HIS	-	expression tag	UNP Q8DQ00
A	363	HIS	-	expression tag	UNP Q8DQ00
A	364	HIS	-	expression tag	UNP Q8DQ00
A	365	HIS	-	expression tag	UNP Q8DQ00
A	366	HIS	-	expression tag	UNP Q8DQ00
B	359	LEU	-	expression tag	UNP Q8DQ00
B	360	GLU	-	expression tag	UNP Q8DQ00
B	361	HIS	-	expression tag	UNP Q8DQ00
B	362	HIS	-	expression tag	UNP Q8DQ00
B	363	HIS	-	expression tag	UNP Q8DQ00
B	364	HIS	-	expression tag	UNP Q8DQ00
B	365	HIS	-	expression tag	UNP Q8DQ00
B	366	HIS	-	expression tag	UNP Q8DQ00
C	359	LEU	-	expression tag	UNP Q8DQ00
C	360	GLU	-	expression tag	UNP Q8DQ00
C	361	HIS	-	expression tag	UNP Q8DQ00
C	362	HIS	-	expression tag	UNP Q8DQ00
C	363	HIS	-	expression tag	UNP Q8DQ00

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Chain	Residue	Modelled	Actual	Comment	Reference
C	364	HIS	-	expression tag	UNP Q8DQ00
C	365	HIS	-	expression tag	UNP Q8DQ00
C	366	HIS	-	expression tag	UNP Q8DQ00
D	359	LEU	-	expression tag	UNP Q8DQ00
D	360	GLU	-	expression tag	UNP Q8DQ00
D	361	HIS	-	expression tag	UNP Q8DQ00
D	362	HIS	-	expression tag	UNP Q8DQ00
D	363	HIS	-	expression tag	UNP Q8DQ00
D	364	HIS	-	expression tag	UNP Q8DQ00
D	365	HIS	-	expression tag	UNP Q8DQ00
D	366	HIS	-	expression tag	UNP Q8DQ00

- Molecule 2 is 2-AMINO-ETHANETHIOL (three-letter code: DHL) (formula: C_2H_7NS).
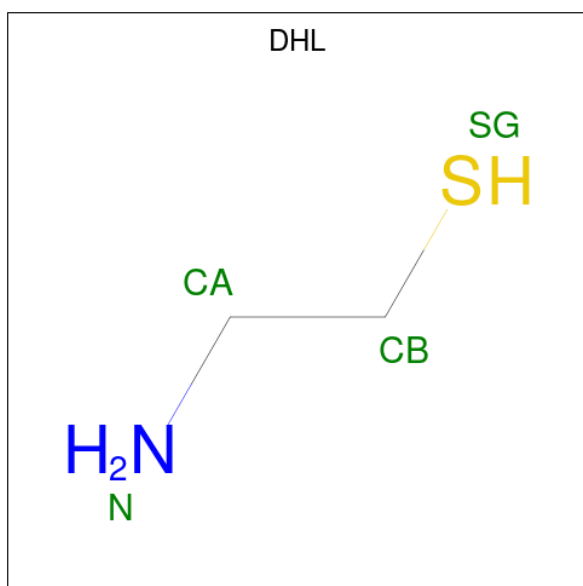
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total 8	C 4	N 2	S 2	0	1
2	B	1	Total 8	C 4	N 2	S 2	0	1
2	C	1	Total 4	C 2	N 1	S 1	0	0
2	D	1	Total 4	C 2	N 1	S 1	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	113	Total 113	O 113	0	0
3	B	75	Total 75	O 75	0	0
3	C	87	Total 87	O 87	0	0
3	D	66	Total 66	O 66	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Aspartate beta-semialdehyde dehydrogenase
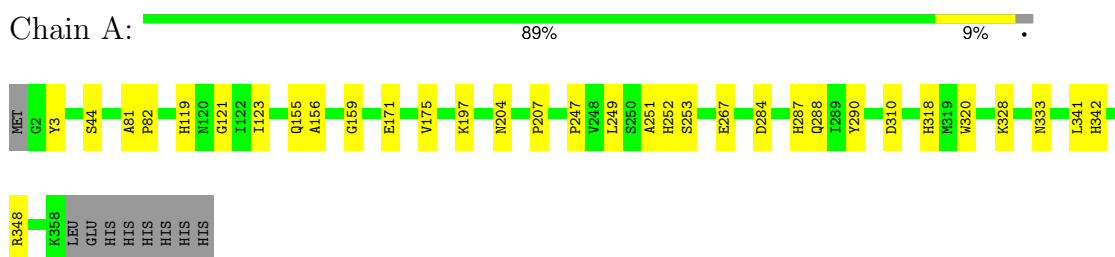
Chain A:

- Molecule 1: Aspartate beta-semialdehyde dehydrogenase

Chain B:

- Molecule 1: Aspartate beta-semialdehyde dehydrogenase

Chain C:

- Molecule 1: Aspartate beta-semialdehyde dehydrogenase

Chain D:
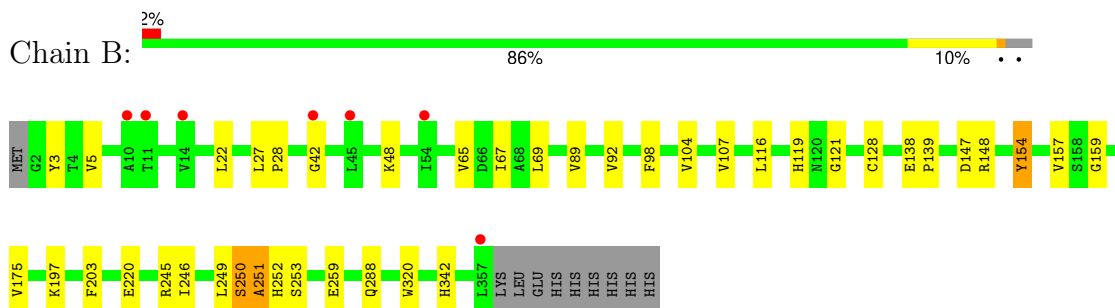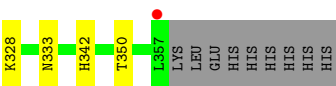
4 Data and refinement statistics ⓘ
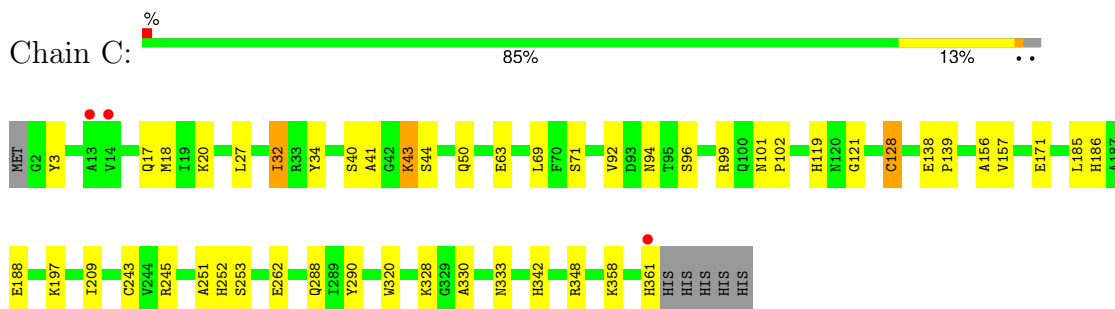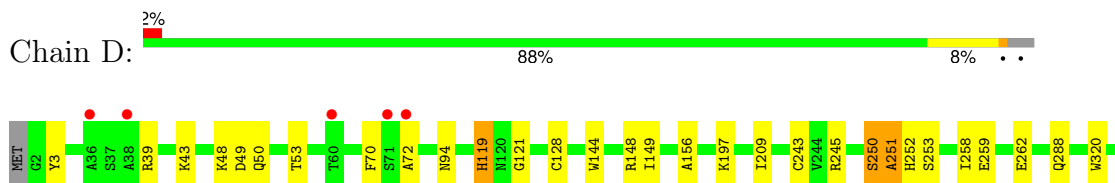
Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	72.61Å 78.84Å 244.55Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	23.00 – 2.30 23.00 – 2.30	Depositor EDS
% Data completeness (in resolution range)	85.6 (23.00-2.30) 85.5 (23.00-2.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.06	Depositor
$< I/\sigma(I) >$ [1]	2.31 (at 2.27Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.194 , 0.242 0.189 , 0.234	Depositor DCC
R_{free} test set	2704 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	40.8	Xtriage
Anisotropy	0.138	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 34.2	EDS
L-test for twinning [2]	$< |L| > = 0.47, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	11279	wwPDB-VP
Average B, all atoms (Å^2)	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.59% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: DHL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.45	0/2779	0.58	0/3775
1	B	0.41	0/2770	0.56	0/3764
1	C	0.44	0/2801	0.56	0/3805
1	D	0.42	0/2764	0.54	0/3756
All	All	0.43	0/11114	0.56	0/15100

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2727	0	2733	26	0
1	B	2721	0	2719	28	0
1	C	2751	0	2753	27	0
1	D	2715	0	2716	21	0
2	A	8	0	12	3	0
2	B	8	0	12	5	0
2	C	4	0	6	0	0
2	D	4	0	6	1	0
3	A	113	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	75	0	0	0	0
3	C	87	0	0	0	0
3	D	66	0	0	0	0
All	All	11279	0	10957	94	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (94) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:119:HIS:HD2	1:D:121:GLY:H	1.12	0.92
1:C:119:HIS:HD2	1:C:121:GLY:H	1.12	0.90
1:C:156:ALA:H	1:C:252:HIS:HD2	1.30	0.79
1:A:119:HIS:HD2	1:A:121:GLY:H	1.28	0.78
1:A:3:TYR:OH	1:A:342:HIS:HD2	1.67	0.76
1:A:156:ALA:H	1:A:252:HIS:HD2	1.33	0.75
1:C:197:LYS:H	1:D:288:GLN:HE22	1.35	0.74
1:A:156:ALA:H	1:A:252:HIS:CD2	2.05	0.74
1:B:119:HIS:HD2	1:B:121:GLY:H	1.38	0.71
1:D:156:ALA:H	1:D:252:HIS:CD2	2.10	0.70
1:A:288:GLN:HE22	1:B:197:LYS:H	1.42	0.68
1:D:156:ALA:H	1:D:252:HIS:HD2	1.39	0.68
1:B:245:ARG:HH22	2:B:367[A]:DHL:HN2	1.44	0.65
1:C:156:ALA:H	1:C:252:HIS:CD2	2.14	0.65
1:D:119:HIS:HD2	1:D:121:GLY:N	1.93	0.63
1:D:148:ARG:HG2	1:D:259:GLU:HB2	1.83	0.61
1:C:119:HIS:HD2	1:C:121:GLY:N	1.92	0.60
1:D:119:HIS:CD2	1:D:121:GLY:H	2.05	0.59
1:C:119:HIS:CD2	1:C:121:GLY:H	2.04	0.58
1:B:119:HIS:CD2	1:B:121:GLY:H	2.21	0.57
1:A:3:TYR:OH	1:A:342:HIS:CD2	2.55	0.56
1:C:186:HIS:HE1	1:C:188:GLU:OE1	1.88	0.56
1:C:288:GLN:HE22	1:D:197:LYS:H	1.53	0.56
1:C:361:HIS:H	1:C:361:HIS:CD2	2.25	0.55
1:A:328:LYS:NZ	1:A:333:ASN:HD22	2.05	0.55
1:B:3:TYR:OH	1:B:342:HIS:HD2	1.88	0.55
1:A:204:ASN:O	1:A:247:PRO:HD3	2.07	0.54
1:A:197:LYS:H	1:B:288:GLN:HE22	1.54	0.53
1:B:220:GLU:OE2	2:B:367[A]:DHL:HB3	2.08	0.53
1:C:43:LYS:HE2	1:C:44:SER:H	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:267:GLU:H	1:A:267:GLU:CD	2.14	0.51
1:C:253:SER:HB3	1:C:320:TRP:CZ2	2.46	0.50
1:D:245:ARG:HH12	2:D:367:DHL:HN2	1.59	0.50
1:A:249:LEU:HB2	3:A:432:HOH:O	2.11	0.50
1:B:107:VAL:HG21	1:B:116:LEU:CD2	2.41	0.50
1:C:69:LEU:HD23	1:C:92:VAL:HB	1.93	0.50
1:D:253:SER:HB3	1:D:320:TRP:CZ2	2.46	0.49
1:B:252:HIS:NE2	2:B:367[A]:DHL:SG	2.79	0.49
1:B:107:VAL:HG21	1:B:116:LEU:HD23	1.95	0.48
1:B:3:TYR:OH	1:B:342:HIS:CD2	2.65	0.48
1:A:342:HIS:HE1	1:C:342:HIS:O	1.95	0.48
1:B:159:GLY:HA3	2:B:367[A]:DHL:HA3	1.94	0.48
1:A:155:GLN:NE2	2:A:367[B]:DHL:HA2	2.28	0.48
1:A:159:GLY:HA3	2:A:367[B]:DHL:HA3	1.96	0.47
1:A:119:HIS:HD2	1:A:121:GLY:N	2.05	0.47
1:C:18:MET:CE	1:C:71:SER:HB3	2.44	0.47
1:C:328:LYS:NZ	1:C:333:ASN:HD22	2.12	0.47
1:A:310:ASP:OD1	1:A:318:HIS:HE1	1.98	0.47
1:B:154:TYR:HB3	1:B:246:ILE:HD13	1.96	0.47
1:A:123:ILE:HD13	1:A:341:LEU:HD11	1.96	0.47
1:A:253:SER:HB3	1:A:320:TRP:CZ2	2.50	0.46
1:D:70:PHE:O	1:D:94:ASN:HB2	2.14	0.46
1:C:96:SER:HA	1:C:99:ARG:HG3	1.98	0.46
1:C:128:CYS:SG	1:C:252:HIS:HE1	2.39	0.45
1:B:98:PHE:HB3	1:B:104:VAL:HG21	1.98	0.45
1:C:32:ILE:HD11	1:C:34:TYR:CE1	2.52	0.45
1:B:69:LEU:HD23	1:B:92:VAL:HB	1.99	0.44
1:B:154:TYR:CD2	1:B:154:TYR:N	2.85	0.44
1:C:197:LYS:H	1:D:288:GLN:NE2	2.11	0.44
1:B:138:GLU:N	1:B:139:PRO:HD2	2.32	0.44
1:C:101:ASN:HA	1:C:102:PRO:HD3	1.90	0.44
1:D:128:CYS:SG	1:D:252:HIS:HE1	2.40	0.44
1:B:245:ARG:HH12	2:B:367[A]:DHL:CA	2.30	0.44
1:A:284:ASP:OD2	1:A:287:HIS:HD2	2.00	0.44
1:D:250:SER:O	1:D:251:ALA:HB3	2.18	0.44
1:C:3:TYR:OH	1:C:342:HIS:HD2	2.00	0.44
1:D:3:TYR:OH	1:D:342:HIS:HD2	2.00	0.44
1:B:157:VAL:HG22	1:B:249:LEU:HA	1.99	0.44
1:C:138:GLU:N	1:C:139:PRO:HD2	2.32	0.44
1:B:253:SER:HB3	1:B:320:TRP:CZ2	2.53	0.43
1:A:171:GLU:O	1:A:175:VAL:HG23	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:209:ILE:HD12	1:D:243:CYS:HB3	1.99	0.43
1:D:328:LYS:HZ1	1:D:333:ASN:HD22	1.65	0.43
1:B:250:SER:O	1:B:251:ALA:HB3	2.18	0.43
1:C:171:GLU:HB3	1:C:185:LEU:HD13	2.01	0.43
1:B:175:VAL:HG11	1:B:203:PHE:CE2	2.54	0.43
1:A:207:PRO:HG3	1:B:320:TRP:CD1	2.54	0.42
1:B:22:LEU:HD23	1:B:22:LEU:HA	1.90	0.42
1:B:5:VAL:HG22	1:B:67:ILE:HB	2.00	0.42
1:B:27:LEU:HD12	1:B:28:PRO:HD2	2.00	0.42
1:A:252:HIS:HE1	2:A:367[B]:DHL:SG	2.43	0.42
1:A:119:HIS:CD2	1:A:121:GLY:H	2.19	0.42
1:D:328:LYS:HZ1	1:D:333:ASN:ND2	2.18	0.42
1:C:209:ILE:HD12	1:C:243:CYS:HB3	2.02	0.42
1:D:149:ILE:HG12	1:D:258:ILE:HG22	2.02	0.42
1:A:81:ALA:HB3	1:A:82:PRO:HD3	2.02	0.41
1:C:157:VAL:HA	1:C:245:ARG:HD2	2.01	0.41
1:C:17:GLN:HE22	1:C:20:LYS:HE3	1.86	0.41
1:B:148:ARG:HG2	1:B:259:GLU:HB2	2.02	0.41
1:D:144:TRP:HD1	1:D:262:GLU:HG3	1.85	0.41
1:B:65:VAL:O	1:B:89:VAL:HG22	2.20	0.41
1:A:342:HIS:CE1	1:C:342:HIS:O	2.74	0.41
1:A:328:LYS:HZ1	1:A:333:ASN:HD22	1.69	0.40
1:D:328:LYS:NZ	1:D:333:ASN:HD22	2.19	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	356/366 (97%)	342 (96%)	13 (4%)	1 (0%)	37	47
1	B	355/366 (97%)	332 (94%)	20 (6%)	3 (1%)	16	20

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	358/366 (98%)	340 (95%)	14 (4%)	4 (1%)	12	13
1	D	354/366 (97%)	336 (95%)	14 (4%)	4 (1%)	12	13
All	All	1423/1464 (97%)	1350 (95%)	61 (4%)	12 (1%)	16	20

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	40	SER
1	C	41	ALA
1	D	48	LYS
1	D	72	ALA
1	A	251	ALA
1	B	42	GLY
1	B	48	LYS
1	B	251	ALA
1	C	251	ALA
1	D	43	LYS
1	D	251	ALA
1	C	330	ALA

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	294/302 (97%)	291 (99%)	3 (1%)	73	85
1	B	293/302 (97%)	288 (98%)	5 (2%)	56	72
1	C	296/302 (98%)	285 (96%)	11 (4%)	29	43
1	D	292/302 (97%)	285 (98%)	7 (2%)	44	61
All	All	1175/1208 (97%)	1149 (98%)	26 (2%)	48	65

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	44	SER
1	A	290	TYR
1	A	348	ARG
1	B	128[A]	CYS
1	B	128[B]	CYS
1	B	147	ASP
1	B	154	TYR
1	B	250	SER
1	C	27	LEU
1	C	32	ILE
1	C	43	LYS
1	C	50	GLN
1	C	63	GLU
1	C	94	ASN
1	C	128	CYS
1	C	262	GLU
1	C	290	TYR
1	C	348	ARG
1	C	358	LYS
1	D	39	ARG
1	D	49	ASP
1	D	50	GLN
1	D	53	THR
1	D	119	HIS
1	D	250	SER
1	D	350	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	17	GLN
1	A	114	HIS
1	A	119	HIS
1	A	155	GLN
1	A	252	HIS
1	A	287	HIS
1	A	288	GLN
1	A	318	HIS
1	A	333	ASN
1	A	342	HIS
1	B	114	HIS
1	B	119	HIS
1	B	198	HIS

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Mol	Chain	Res	Type
1	B	287	HIS
1	B	288	GLN
1	B	318	HIS
1	B	333	ASN
1	B	342	HIS
1	C	17	GLN
1	C	50	GLN
1	C	119	HIS
1	C	186	HIS
1	C	252	HIS
1	C	287	HIS
1	C	288	GLN
1	C	318	HIS
1	C	333	ASN
1	C	342	HIS
1	C	361	HIS
1	D	94	ASN
1	D	119	HIS
1	D	252	HIS
1	D	287	HIS
1	D	288	GLN
1	D	318	HIS
1	D	333	ASN
1	D	342	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

6 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
2	DHL	D	367	1	2,3,3	0.42	0	1,2,2	0.65	0
2	DHL	B	367[A]	1	2,3,3	0.60	0	1,2,2	0.70	0
2	DHL	A	367[A]	1	2,3,3	0.48	0	1,2,2	0.30	0
2	DHL	C	367	1	2,3,3	0.63	0	1,2,2	0.42	0
2	DHL	B	367[B]	1	2,3,3	0.59	0	1,2,2	0.41	0
2	DHL	A	367[B]	1	2,3,3	0.54	0	1,2,2	0.71	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	DHL	D	367	1	-	1/1/1/1	-
2	DHL	B	367[A]	1	-	0/1/1/1	-
2	DHL	A	367[A]	1	-	1/1/1/1	-
2	DHL	C	367	1	-	1/1/1/1	-
2	DHL	B	367[B]	1	-	0/1/1/1	-
2	DHL	A	367[B]	1	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	367[A]	DHL	N-CA-CB-SG
2	C	367	DHL	N-CA-CB-SG
2	D	367	DHL	N-CA-CB-SG

There are no ring outliers.

3 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	367	DHL	1	0
2	B	367[A]	DHL	5	0
2	A	367[B]	DHL	3	0

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	357/366 (97%)	-0.60	0	100	100	22, 36, 51, 60	1 (0%)
1	B	356/366 (97%)	-0.12	7 (1%)	64	66	20, 48, 95, 106	1 (0%)
1	C	360/366 (98%)	-0.45	3 (0%)	82	83	26, 38, 60, 78	0
1	D	356/366 (97%)	-0.14	6 (1%)	69	69	26, 46, 88, 97	0
All	All	1429/1464 (97%)	-0.33	16 (1%)	77	78	20, 41, 80, 106	2 (0%)

All (16) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	13	ALA	3.3
1	B	357	LEU	3.2
1	B	10	ALA	3.0
1	D	36	ALA	3.0
1	B	14	VAL	2.7
1	B	42	GLY	2.7
1	D	72	ALA	2.6
1	D	357	LEU	2.6
1	B	54	ILE	2.4
1	D	60	THR	2.3
1	B	11	THR	2.3
1	D	38	ALA	2.3
1	C	14	VAL	2.3
1	D	71	SER	2.2
1	C	361	HIS	2.1
1	B	45	LEU	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å²)	Q<0.9
2	DHL	D	367	4/4	0.29	0.33	56,56,58,60	0
2	DHL	A	367[B]	4/4	0.30	0.38	34,34,35,36	4
2	DHL	A	367[A]	4/4	0.30	0.38	38,38,39,40	4
2	DHL	B	367[B]	4/4	0.64	0.23	44,44,45,45	4
2	DHL	B	367[A]	4/4	0.64	0.23	42,42,43,43	4
2	DHL	C	367	4/4	0.70	0.24	52,54,54,54	0

6.5 Other polymers ⓘ

There are no such residues in this entry.