



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 15, 2023 – 03:03 PM EDT

PDB ID : 1SKU
Title : E. coli Aspartate Transcarbamylase 240's Loop Mutant (K244N)
Authors : Alam, N.; Stieglitz, K.A.; Caban, M.D.; Gourinath, S.; Tsuruta, H.;
Kantrowitz, E.R.
Deposited on : 2004-03-05
Resolution : 2.60 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

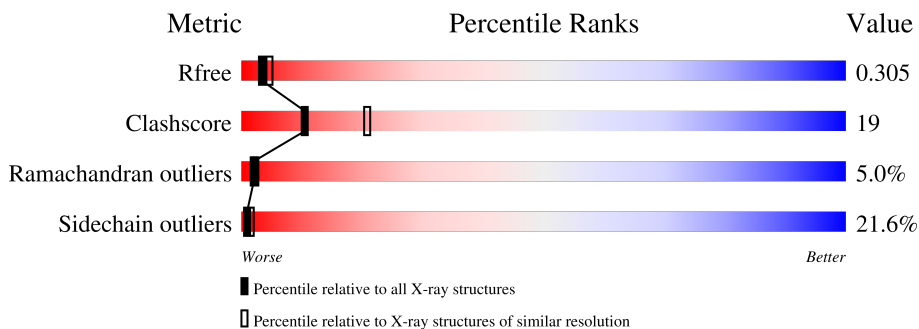
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	310	76% (green), 19% (yellow), 5% (orange), 0% (red), 0% (grey)
1	C	310	73% (green), 24% (yellow), 3% (orange), 0% (red), 0% (grey)
2	B	153	53% (green), 29% (yellow), 12% (orange), 6% (red), 0% (grey)
2	D	153	15% (green), 50% (yellow), 24% (orange), 7% (red), 4% (grey)

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 7229 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 carbamoyltransferase catalytic chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	310	2414	1525	423	457	9	0	0	0
1	C	310	2414	1525	423	457	9	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	244	ASN	LYS	engineered mutation	UNP P0A786
C	244	ASN	LYS	engineered mutation	UNP P0A786

- Molecule 2 is a protein called Aspartate carbamoyltransferase regulatory chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	148	1160	729	205	221	5	0	0	0
2	D	148	1159	729	205	220	5	0	0	0

- Molecule 3 is MALONATE ION (three-letter code: MLI) (formula: C₃H₂O₄).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 7 3 4	0	0
3	C	1	Total C O 7 3 4	0	0

- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total Zn 1 1	0	0
4	D	1	Total Zn 1 1	0	0

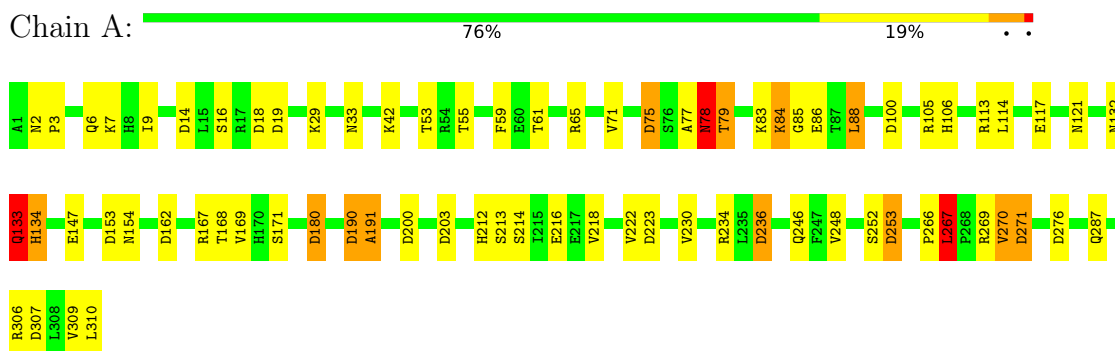
- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	22	Total O 22 22	0	0
5	B	10	Total O 10 10	0	0
5	C	27	Total O 27 27	0	0
5	D	7	Total O 7 7	0	0

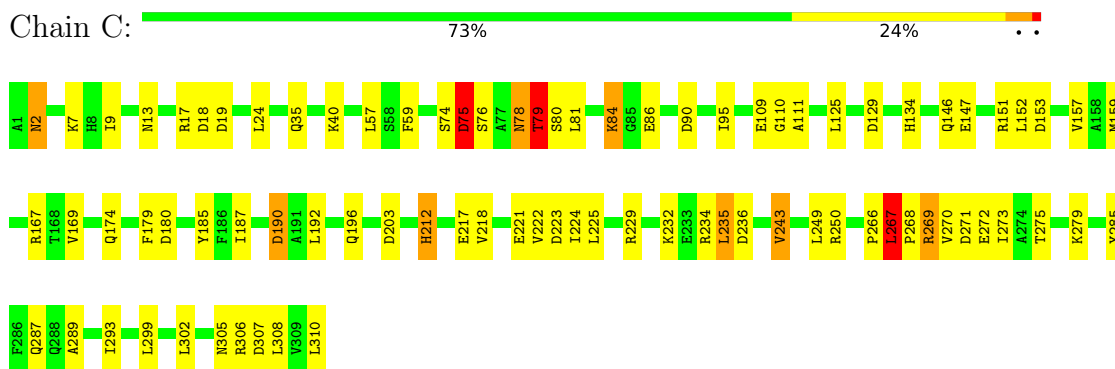
3 Residue-property plots

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. 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. 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.

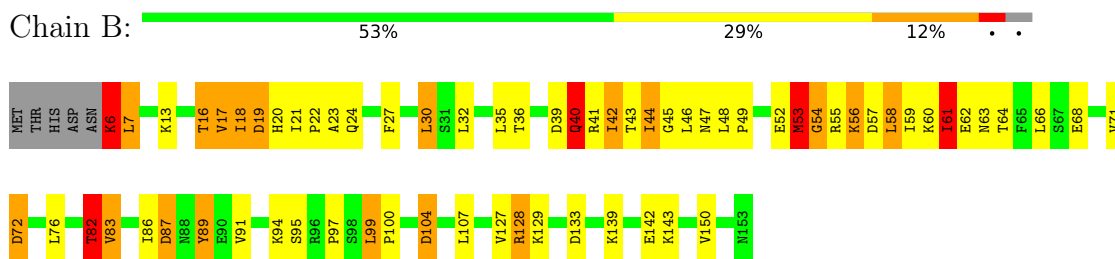
- Molecule 1: Aspartate carbamoyltransferase catalytic chain



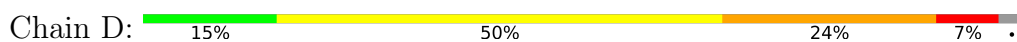
- Molecule 1: Aspartate carbamoyltransferase catalytic chain



- Molecule 2: Aspartate carbamoyltransferase regulatory chain



- Molecule 2: Aspartate carbamoyltransferase regulatory chain



MET	E62	V127
THR	M63	R128
HIS	T64	R129
ASP	F65	R130
ASN		A131
K6	E66	N132
L7	D69	D133
Q8	Q70	I134
V9	V71	A135
E10	D72	L136
A11	Q73	K137
I12	L74	C138
K13	A75	K139
R14	L76	Y140
G15	Y77	C141
T16	A78	E142
V17	P79	K143
I18	Q80	E144
D19	A81	F145
H20	T82	S146
I21	V83	H147
P22	N84	N148
A23	R85	V149
Q24	I86	V150
I25	D87	I151
G26	M88	A152
F27	Y89	M153
K28	E90	
L29	V91	
L30	G93	
S31	K94	
L32	S95	
F33	R96	
K34	P97	
L35	S98	
T36	L99	
E37	P100	
T38	E101	
D39	R102	
Q40	I103	
R41	D104	
I42	N105	
T43	N106	
I44	L107	
G45	V108	
L46	C109	
N47	P110	
L48	M111	
P49		
	I115	
E52	E119	
M53	P120	
G54	V121	
R55	S122	
K56	S123	
D57	S124	
L58	F125	
I59	I61	
I60		
K60		
I61		

4 Data and refinement statistics

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	125.67Å 125.67Å 198.20Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	29.55 – 2.60 31.80 – 2.50	Depositor EDS
% Data completeness (in resolution range)	89.4 (29.55-2.60) 85.4 (31.80-2.50)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.80 (at 2.51Å)	Xtrriage
Refinement program	REFMAC 5.1.24	Depositor
R, R_{free}	0.201 , 0.231 0.303 , 0.305	Depositor DCC
R_{free} test set	1720 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	46.1	Xtrriage
Anisotropy	0.174	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , -2.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.480 for h,-h-k,-l	Xtrriage
F_o, F_c correlation	0.87	EDS
Total number of atoms	7229	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.80% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: MLI, ZN

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	0.54	6/2460 (0.2%)	0.79	21/3339 (0.6%)
1	C	0.39	1/2460 (0.0%)	0.79	16/3339 (0.5%)
2	B	0.54	1/1177 (0.1%)	1.00	13/1590 (0.8%)
2	D	0.57	4/1176 (0.3%)	0.83	4/1590 (0.3%)
All	All	0.50	12/7273 (0.2%)	0.83	54/9858 (0.5%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	C	0	1
2	B	0	2
2	D	0	2
All	All	0	7

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	134	HIS	C-N	14.82	1.62	1.34
2	D	14	ARG	C-N	-7.45	1.19	1.33
1	C	75	ASP	C-N	-6.84	1.18	1.34
1	A	191	ALA	C-N	6.66	1.49	1.34
2	B	83	VAL	C-N	6.56	1.49	1.34
1	A	83	LYS	C-N	-6.42	1.19	1.34
2	D	28	LYS	C-N	-6.25	1.19	1.34
1	A	78	ASN	C-N	-6.17	1.19	1.34
1	A	86	GLU	C-N	-5.74	1.20	1.34
2	D	44	ILE	C-N	-5.37	1.23	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	18	ASP	C-N	5.12	1.45	1.34
2	D	61	ILE	C-N	-5.04	1.22	1.34

All (54) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	267	LEU	C-N-CD	10.04	149.47	128.40
1	C	75	ASP	O-C-N	-9.18	108.01	122.70
2	D	14	ARG	O-C-N	-9.05	107.82	123.20
1	A	78	ASN	O-C-N	-8.94	108.39	122.70
2	D	28	LYS	O-C-N	-8.61	108.92	122.70
2	B	89	TYR	C-N-CA	-8.16	101.31	121.70
2	B	54	GLY	O-C-N	8.01	135.52	122.70
2	B	89	TYR	CB-CG-CD2	7.64	125.59	121.00
2	B	89	TYR	CA-C-N	-7.42	100.88	117.20
1	C	268	PRO	CA-N-CD	-6.93	101.80	111.50
1	C	80	SER	O-C-N	-6.80	111.82	122.70
2	B	54	GLY	CA-C-N	-6.25	103.46	117.20
1	C	129	ASP	CB-CG-OD2	6.19	123.87	118.30
2	B	19	ASP	CB-CG-OD2	6.07	123.77	118.30
1	A	162	ASP	CB-CG-OD2	6.06	123.75	118.30
1	A	84	LYS	C-N-CA	5.85	134.59	122.30
2	D	6	LYS	O-C-N	5.71	131.84	122.70
1	C	203	ASP	CB-CG-OD2	5.66	123.39	118.30
2	B	133	ASP	CB-CG-OD2	5.64	123.38	118.30
1	C	80	SER	C-N-CA	5.63	135.77	121.70
2	B	83	VAL	O-C-N	5.60	131.66	122.70
1	C	90	ASP	CB-CG-OD2	5.54	123.29	118.30
1	A	14	ASP	CB-CG-OD2	5.44	123.20	118.30
1	A	100	ASP	CB-CG-OD2	5.43	123.19	118.30
1	A	180	ASP	CB-CG-OD2	5.43	123.18	118.30
1	C	19	ASP	CB-CG-OD2	5.40	123.16	118.30
1	C	153	ASP	CB-CG-OD2	5.36	123.12	118.30
1	A	253	ASP	CB-CG-OD2	5.35	123.12	118.30
1	C	223	ASP	CB-CG-OD2	5.34	123.10	118.30
1	C	307	ASP	CB-CG-OD2	5.34	123.10	118.30
2	B	89	TYR	CA-CB-CG	5.33	123.52	113.40
1	A	153	ASP	CB-CG-OD2	5.33	123.09	118.30
1	A	223	ASP	CB-CG-OD2	5.29	123.06	118.30
1	C	271	ASP	CB-CG-OD2	5.28	123.05	118.30
1	A	307	ASP	CB-CG-OD2	5.27	123.04	118.30
1	A	18	ASP	CB-CG-OD2	5.27	123.04	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	19	ASP	CB-CG-OD2	5.26	123.04	118.30
1	C	75	ASP	CA-C-N	5.25	128.74	117.20
1	A	190	ASP	CB-CG-OD2	5.23	123.01	118.30
1	A	191	ALA	O-C-N	5.23	131.07	122.70
1	A	271	ASP	CB-CG-OD2	5.22	123.00	118.30
1	C	75	ASP	CB-CG-OD2	5.17	122.96	118.30
1	A	276	ASP	CB-CG-OD2	5.13	122.92	118.30
1	A	203	ASP	CB-CG-OD2	5.12	122.91	118.30
1	A	236	ASP	CB-CG-OD2	5.11	122.90	118.30
2	B	39	ASP	CB-CG-OD2	5.11	122.90	118.30
2	B	87	ASP	CB-CG-OD2	5.09	122.88	118.30
1	C	190	ASP	CB-CG-OD2	5.07	122.86	118.30
2	B	104	ASP	CB-CG-OD2	5.06	122.85	118.30
1	A	75	ASP	CB-CG-OD2	5.05	122.84	118.30
1	A	200	ASP	CB-CG-OD2	5.04	122.84	118.30
1	A	78	ASN	CA-C-N	5.03	128.26	117.20
2	D	6	LYS	CA-C-N	-5.01	106.17	117.20
2	B	40	GLN	O-C-N	-5.00	114.69	122.70

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	133	GLN	Mainchain
1	A	78	ASN	Mainchain
2	B	6	LYS	Mainchain
2	B	87	ASP	Mainchain
1	C	75	ASP	Mainchain
2	D	14	ARG	Mainchain
2	D	28	LYS	Mainchain

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	2414	0	2412	21	0
1	C	2414	0	2413	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	1160	0	1185	44	0
2	D	1159	0	1181	185	0
3	A	7	0	2	0	0
3	C	7	0	2	0	0
4	B	1	0	0	0	0
4	D	1	0	0	0	0
5	A	22	0	0	1	0
5	B	10	0	0	3	0
5	C	27	0	0	2	0
5	D	7	0	0	0	0
All	All	7229	0	7195	267	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 19.

All (267) 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)
2:D:59:ILE:CD1	2:D:59:ILE:CG1	1.75	1.61
1:C:267:LEU:HD11	1:C:289:ALA:CB	1.51	1.37
1:A:75:ASP:HB3	1:A:78:ASN:ND2	1.45	1.28
1:C:267:LEU:CD1	1:C:289:ALA:HB2	1.73	1.17
2:D:21:ILE:HB	2:D:57:ASP:O	1.47	1.14
2:D:85:ARG:HB2	2:D:92:VAL:HG23	1.29	1.13
2:B:30:LEU:HD22	2:D:27:PHE:CE2	1.84	1.12
2:B:35:LEU:HB2	2:B:60:LYS:HE3	1.17	1.07
2:D:19:ASP:HA	2:D:58:LEU:HD11	1.31	1.07
2:D:30:LEU:CD1	2:D:59:ILE:HD12	1.88	1.04
2:B:6:LYS:N	2:D:89:TYR:HH	1.54	1.04
2:B:35:LEU:CB	2:B:60:LYS:HE3	1.88	1.03
1:C:75:ASP:CG	1:C:79:THR:HB	1.79	1.03
2:D:30:LEU:HD13	2:D:59:ILE:HD12	1.40	1.03
2:D:20:HIS:HA	2:D:56:LYS:HD3	1.41	1.00
2:D:46:LEU:HA	2:D:57:ASP:HB3	1.43	0.98
1:A:75:ASP:CB	1:A:78:ASN:ND2	2.27	0.98
1:A:75:ASP:HB3	1:A:78:ASN:HD21	0.97	0.97
1:A:75:ASP:CB	1:A:78:ASN:HD21	1.76	0.97
1:C:267:LEU:CD1	1:C:289:ALA:CB	2.40	0.92
2:D:13:LYS:HD2	2:D:14:ARG:H	1.32	0.92
2:D:44:ILE:HG23	2:D:59:ILE:HB	1.50	0.92
2:B:30:LEU:HD22	2:D:27:PHE:HE2	1.28	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:75:ASP:OD2	1:C:79:THR:HB	1.69	0.90
2:D:20:HIS:CA	2:D:56:LYS:HE2	2.02	0.90
2:D:20:HIS:HA	2:D:56:LYS:CD	2.01	0.90
2:D:13:LYS:HG3	2:D:62:GLU:HB2	1.53	0.89
2:D:20:HIS:HA	2:D:56:LYS:HE2	1.53	0.89
2:D:82:THR:HA	2:D:96:ARG:HA	1.56	0.88
2:D:7:LEU:O	2:D:8:GLN:HG2	1.74	0.88
2:D:20:HIS:CB	2:D:56:LYS:HE2	2.04	0.87
1:C:267:LEU:HD11	1:C:289:ALA:HB2	0.88	0.85
1:C:78:ASN:O	1:C:79:THR:O	1.96	0.84
2:D:20:HIS:HA	2:D:56:LYS:CE	2.08	0.83
2:D:13:LYS:HE2	2:D:63:ASN:OD1	1.80	0.82
2:D:72:ASP:O	2:D:100:PRO:HD3	1.77	0.82
2:D:19:ASP:CA	2:D:58:LEU:HD11	2.09	0.82
2:D:30:LEU:CD1	2:D:59:ILE:CD1	2.57	0.81
2:D:82:THR:HG22	2:D:96:ARG:HG2	1.60	0.81
1:A:133:GLN:NE2	1:A:168:THR:HA	1.95	0.80
2:D:13:LYS:HD2	2:D:14:ARG:N	1.96	0.80
2:B:36:THR:HG21	2:D:27:PHE:CD2	2.17	0.79
1:C:75:ASP:OD2	1:C:79:THR:CB	2.30	0.79
2:D:38:THR:OG1	2:D:42:ILE:HD11	1.84	0.77
2:D:20:HIS:HB2	2:D:81:ALA:HA	1.67	0.77
2:D:21:ILE:CB	2:D:57:ASP:O	2.32	0.76
2:D:21:ILE:O	2:D:56:LYS:HG2	1.85	0.75
2:D:23:ALA:HA	2:D:57:ASP:OD1	1.87	0.75
2:D:152:ALA:O	2:D:153:ASN:CG	2.25	0.74
2:D:59:ILE:CD1	2:D:59:ILE:CB	2.66	0.72
2:D:65:PHE:HB2	2:D:85:ARG:HH12	1.54	0.72
2:D:34:LYS:O	2:D:35:LEU:HD23	1.89	0.72
2:B:36:THR:HG21	2:D:27:PHE:CG	2.25	0.71
2:B:71:VAL:HG21	2:B:83:VAL:HG21	1.73	0.71
1:A:133:GLN:HE21	1:A:168:THR:HA	1.55	0.70
2:D:41:ARG:NH1	2:D:43:THR:HG22	2.08	0.68
2:D:18:ILE:HB	2:D:82:THR:O	1.93	0.68
2:D:44:ILE:HG22	2:D:58:LEU:O	1.92	0.68
2:D:110:PRO:HD3	2:D:150:VAL:HG13	1.74	0.68
2:D:23:ALA:HB2	2:D:55:ARG:HB2	1.75	0.67
2:D:13:LYS:NZ	2:D:63:ASN:HD21	1.93	0.67
2:D:17:VAL:HG13	2:D:60:LYS:HA	1.77	0.66
2:D:9:VAL:O	2:D:10:GLU:HB2	1.96	0.65
2:D:83:VAL:HB	2:D:95:SER:O	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:87:ASP:C	2:D:87:ASP:OD2	2.36	0.64
2:D:49:PRO:HB3	2:D:54:GLY:O	1.98	0.64
2:D:128:ARG:HG3	2:D:128:ARG:O	1.97	0.64
2:D:45:GLY:N	2:D:58:LEU:O	2.31	0.63
2:B:27:PHE:HZ	2:D:31:SER:HB3	1.63	0.63
1:C:267:LEU:HD11	1:C:289:ALA:HB1	1.72	0.63
1:C:109:GLU:OE1	2:D:111:ASN:ND2	2.28	0.63
2:D:10:GLU:C	2:D:12:ILE:HD12	2.19	0.62
1:C:192:LEU:HD21	1:C:235:LEU:HD21	1.80	0.62
2:B:30:LEU:CD2	2:D:27:PHE:CE2	2.75	0.62
2:D:19:ASP:HA	2:D:58:LEU:CD1	2.21	0.62
1:A:133:GLN:CG	1:A:167:ARG:O	2.48	0.62
2:D:89:TYR:O	2:D:90:GLU:HB2	2.00	0.62
2:D:15:GLY:HA2	2:D:64:THR:H	1.65	0.61
2:D:84:ASN:HD22	2:D:94:LYS:HB3	1.66	0.61
2:D:10:GLU:OE2	2:D:10:GLU:HA	2.00	0.61
2:D:14:ARG:O	2:D:62:GLU:HA	2.01	0.60
2:B:6:LYS:N	2:D:89:TYR:OH	2.30	0.60
2:D:102:ARG:HG3	2:D:104:ASP:OD1	2.01	0.60
2:D:13:LYS:CG	2:D:62:GLU:HB2	2.29	0.60
2:D:71:VAL:O	2:D:74:LEU:HD12	2.01	0.60
2:D:135:ALA:HA	2:D:145:PHE:O	2.01	0.60
2:D:18:ILE:HD11	2:D:21:ILE:CG1	2.32	0.60
2:D:110:PRO:HG2	2:D:145:PHE:CG	2.37	0.59
2:D:125:PHE:HD2	2:D:136:LEU:HB2	1.64	0.59
1:A:133:GLN:OE1	1:A:171:SER:HB2	2.02	0.59
1:A:61:THR:HG23	5:A:5216:HOH:O	2.03	0.59
2:D:126:ALA:O	2:D:136:LEU:HA	2.02	0.59
2:D:20:HIS:HB3	2:D:56:LYS:HE2	1.85	0.59
2:D:107:LEU:HD13	2:D:136:LEU:HD13	1.83	0.59
2:B:35:LEU:HD13	2:B:60:LYS:HG3	1.84	0.59
2:D:84:ASN:HB3	2:D:94:LYS:HB3	1.83	0.59
2:D:17:VAL:HG13	2:D:59:ILE:O	2.03	0.59
2:D:73:GLN:HE22	2:D:103:ILE:HG12	1.68	0.59
2:B:35:LEU:CB	2:B:60:LYS:CE	2.76	0.58
2:D:22:PRO:HB2	2:D:25:ILE:HG13	1.84	0.58
2:B:71:VAL:HG21	2:B:83:VAL:CG2	2.32	0.58
2:D:21:ILE:HG22	2:D:57:ASP:HB2	1.85	0.58
2:D:125:PHE:CD2	2:D:136:LEU:HB2	2.38	0.58
2:D:35:LEU:O	2:D:38:THR:HG23	2.03	0.58
2:D:20:HIS:CG	2:D:56:LYS:HE2	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:72:ASP:HA	2:D:98:SER:H	1.70	0.57
1:C:75:ASP:OD2	1:C:79:THR:CG2	2.53	0.57
1:A:78:ASN:O	1:A:79:THR:CB	2.51	0.57
2:D:20:HIS:CA	2:D:56:LYS:HD3	2.26	0.56
2:D:15:GLY:HA3	2:D:62:GLU:O	2.05	0.56
2:D:18:ILE:HD11	2:D:21:ILE:HG12	1.88	0.56
1:A:212:HIS:CD2	1:A:218:VAL:HG12	2.40	0.56
2:D:43:THR:O	2:D:60:LYS:HG3	2.05	0.56
2:D:21:ILE:CG2	2:D:57:ASP:HB2	2.36	0.56
2:D:46:LEU:O	2:D:48:LEU:HD12	2.05	0.56
2:D:44:ILE:HA	2:D:59:ILE:HA	1.87	0.55
2:B:128:ARG:HG3	5:B:5194:HOH:O	2.06	0.55
2:B:55:ARG:O	2:B:56:LYS:HB2	2.07	0.55
2:D:83:VAL:O	2:D:94:LYS:HA	2.05	0.55
2:D:19:ASP:OD1	2:D:58:LEU:HD21	2.06	0.55
1:C:2:ASN:HD21	1:C:302:LEU:HD12	1.72	0.54
2:B:16:THR:O	2:B:17:VAL:HG12	2.08	0.54
2:D:77:TYR:O	2:D:79:PRO:HD3	2.07	0.54
2:D:85:ARG:CB	2:D:92:VAL:HG23	2.19	0.54
2:D:10:GLU:O	2:D:12:ILE:HD12	2.08	0.53
2:D:41:ARG:HB2	2:D:62:GLU:OE2	2.09	0.53
2:B:47:ASN:HA	2:B:56:LYS:HG2	1.91	0.53
2:D:43:THR:O	2:D:43:THR:OG1	2.24	0.53
2:D:62:GLU:O	2:D:64:THR:N	2.42	0.53
2:D:104:ASP:O	2:D:105:ASN:HB2	2.09	0.53
2:D:61:ILE:HG23	2:D:64:THR:HB	1.90	0.53
2:D:62:GLU:O	2:D:63:ASN:C	2.44	0.53
2:D:59:ILE:HG21	2:D:59:ILE:HD13	1.92	0.52
2:D:18:ILE:HD13	2:D:59:ILE:HG23	1.92	0.52
2:D:90:GLU:O	2:D:91:VAL:HG23	2.09	0.52
2:D:47:ASN:H	2:D:57:ASP:CG	2.13	0.52
2:D:84:ASN:HB3	2:D:94:LYS:CB	2.40	0.52
2:D:135:ALA:HB1	2:D:144:GLU:CG	2.40	0.52
2:D:79:PRO:HB2	2:D:80:GLN:HE22	1.74	0.51
2:D:83:VAL:O	2:D:83:VAL:HG12	2.10	0.51
2:D:85:ARG:HB2	2:D:92:VAL:CG2	2.20	0.51
2:D:104:ASP:HB3	2:D:123:SER:O	2.11	0.51
2:D:141:CYS:O	2:D:142:GLU:HB2	2.08	0.51
2:D:130:ARG:HG2	2:D:133:ASP:O	2.09	0.51
2:D:129:LYS:HG3	2:D:134:ILE:HD13	1.93	0.51
2:D:9:VAL:O	2:D:10:GLU:CB	2.57	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:GLN:HG3	1:A:167:ARG:O	2.10	0.50
2:D:15:GLY:O	2:D:16:THR:HB	2.11	0.50
2:B:60:LYS:O	2:B:61:ILE:HB	2.10	0.50
2:D:152:ALA:O	2:D:153:ASN:OD1	2.29	0.50
2:B:35:LEU:HB3	2:B:60:LYS:HD2	1.95	0.49
2:D:7:LEU:O	2:D:8:GLN:CG	2.53	0.49
2:D:136:LEU:HD11	2:D:150:VAL:HB	1.95	0.49
2:D:52:GLU:OE1	2:D:56:LYS:NZ	2.45	0.49
2:D:64:THR:O	2:D:64:THR:HG22	2.12	0.49
1:C:157:VAL:HG12	1:C:224:ILE:HD13	1.93	0.49
2:D:20:HIS:HB3	2:D:80:GLN:O	2.12	0.49
2:D:119:GLU:OE1	2:D:120:PRO:HD2	2.13	0.49
2:B:18:ILE:HG21	2:B:82:THR:H	1.77	0.49
1:C:110:GLY:HA3	2:D:140:TYR:HB3	1.94	0.49
1:C:266:PRO:O	5:C:5170:HOH:O	2.20	0.49
2:D:28:LYS:HA	2:D:31:SER:OG	2.13	0.48
2:D:61:ILE:CG2	2:D:64:THR:HB	2.42	0.48
1:C:267:LEU:CD1	1:C:289:ALA:HB1	2.35	0.48
2:B:35:LEU:HB3	2:B:60:LYS:CD	2.43	0.48
2:B:59:ILE:HG12	2:B:60:LYS:HG2	1.96	0.48
2:D:17:VAL:CG2	2:D:60:LYS:HB3	2.43	0.48
2:D:47:ASN:O	2:D:48:LEU:HG	2.14	0.48
2:D:108:VAL:O	2:D:150:VAL:HG12	2.14	0.48
2:D:73:GLN:NE2	2:D:103:ILE:HG12	2.29	0.48
2:D:41:ARG:NH1	2:D:42:ILE:N	2.62	0.48
2:D:19:ASP:O	2:D:20:HIS:HB2	2.14	0.47
2:D:29:LEU:CD2	2:D:33:PHE:CD1	2.98	0.47
1:C:76:SER:N	5:C:5191:HOH:O	2.47	0.47
1:C:185:TYR:CG	1:C:218:VAL:HG21	2.50	0.47
2:B:30:LEU:HD23	2:B:36:THR:HG23	1.96	0.47
2:D:30:LEU:HD22	2:D:44:ILE:CD1	2.44	0.47
2:B:40:GLN:OE1	2:B:63:ASN:HB3	2.15	0.47
2:D:23:ALA:O	2:D:24:GLN:HB2	2.13	0.47
2:B:107:LEU:HD22	2:B:150:VAL:HG11	1.97	0.47
2:D:59:ILE:CD1	2:D:59:ILE:HG21	2.44	0.46
2:D:79:PRO:HG2	2:D:80:GLN:NE2	2.30	0.46
2:D:81:ALA:O	2:D:82:THR:HG23	2.14	0.46
1:A:266:PRO:O	1:A:267:LEU:HB2	2.15	0.46
2:D:20:HIS:CA	2:D:56:LYS:CE	2.78	0.46
2:D:125:PHE:CD2	2:D:136:LEU:HD12	2.51	0.46
2:D:18:ILE:HD11	2:D:21:ILE:HG13	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:37:GLU:H	2:D:37:GLU:HG2	1.43	0.46
2:D:69:ASP:O	2:D:73:GLN:HG2	2.16	0.46
2:B:35:LEU:HB3	2:B:60:LYS:HE3	1.90	0.45
2:B:48:LEU:HD23	2:B:49:PRO:HD2	1.97	0.45
1:A:132:ASN:HD21	2:B:142:GLU:CD	2.19	0.45
2:D:147:HIS:O	2:D:151:LEU:HB2	2.16	0.45
1:C:2:ASN:HD21	1:C:302:LEU:CD1	2.30	0.45
2:D:19:ASP:CG	2:D:58:LEU:HD21	2.37	0.45
2:D:52:GLU:HG2	2:D:53:MET:N	2.32	0.45
2:B:6:LYS:HD2	2:B:6:LYS:C	2.36	0.45
1:C:75:ASP:OD2	1:C:79:THR:HG21	2.16	0.45
2:D:13:LYS:HZ1	2:D:63:ASN:HD21	1.62	0.45
2:D:130:ARG:NH1	2:D:133:ASP:OD1	2.49	0.45
2:B:44:ILE:HG23	2:B:45:GLY:N	2.31	0.45
2:B:59:ILE:CG1	2:B:60:LYS:HG2	2.47	0.45
1:C:9:ILE:HG21	1:C:299:LEU:HD21	1.98	0.45
1:C:75:ASP:O	1:C:76:SER:C	2.52	0.45
1:C:269:ARG:HD3	1:C:273:ILE:HB	1.98	0.45
2:D:73:GLN:OE1	2:D:102:ARG:O	2.34	0.45
2:D:100:PRO:O	2:D:127:VAL:HG11	2.16	0.45
2:B:17:VAL:HG21	2:B:59:ILE:O	2.17	0.45
2:D:82:THR:CG2	2:D:96:ARG:HG2	2.38	0.45
1:C:110:GLY:O	2:D:115:ILE:HG21	2.17	0.45
2:D:83:VAL:O	2:D:95:SER:N	2.50	0.45
2:D:19:ASP:OD2	2:D:20:HIS:ND1	2.50	0.45
2:D:57:ASP:OD1	2:D:57:ASP:N	2.50	0.45
2:D:59:ILE:CD1	2:D:59:ILE:CG2	2.94	0.45
1:A:84:LYS:HD3	1:A:84:LYS:HA	1.86	0.45
2:D:41:ARG:HH11	2:D:42:ILE:N	2.15	0.45
1:C:152:LEU:HD13	1:C:179:PHE:CZ	2.53	0.44
2:B:139:LYS:NZ	5:B:5185:HOH:O	2.50	0.44
2:B:72:ASP:O	2:B:100:PRO:HD3	2.18	0.44
2:D:40:GLN:O	2:D:42:ILE:HD12	2.18	0.44
2:B:23:ALA:HA	2:B:56:LYS:HD3	1.98	0.44
2:B:53:MET:HA	2:B:53:MET:CE	2.47	0.44
1:C:111:ALA:HA	2:D:115:ILE:HG12	2.00	0.44
1:C:13:ASN:HD21	1:C:174:GLN:NE2	2.16	0.44
2:D:22:PRO:O	2:D:57:ASP:OD1	2.36	0.44
1:A:75:ASP:CG	1:A:78:ASN:HD21	2.20	0.43
2:D:105:ASN:O	2:D:106:VAL:HG13	2.18	0.43
2:B:19:ASP:HB3	2:B:58:LEU:HG	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:17:VAL:HG13	2:D:60:LYS:CA	2.45	0.43
2:D:74:LEU:HB2	2:D:97:PRO:HB3	2.00	0.43
2:D:41:ARG:CZ	2:D:43:THR:HG22	2.48	0.43
2:D:138:CYS:HB3	2:D:141:CYS:SG	2.58	0.43
2:D:13:LYS:NZ	2:D:63:ASN:ND2	2.65	0.43
1:A:133:GLN:HG2	1:A:167:ARG:HB2	1.99	0.43
2:B:30:LEU:HD22	2:D:27:PHE:CD2	2.45	0.43
2:D:27:PHE:H	2:D:46:LEU:HD13	1.83	0.43
2:D:61:ILE:HG21	2:D:64:THR:CG2	2.48	0.43
2:D:18:ILE:CD1	2:D:59:ILE:HG23	2.49	0.43
2:D:19:ASP:O	2:D:81:ALA:HA	2.19	0.43
2:D:84:ASN:HA	2:D:94:LYS:HA	2.00	0.43
1:A:113:ARG:HB2	5:B:5213:HOH:O	2.18	0.42
2:B:20:HIS:O	2:B:20:HIS:ND1	2.49	0.42
1:C:212:HIS:ND1	1:C:212:HIS:N	2.68	0.42
2:D:18:ILE:O	2:D:58:LEU:CD1	2.68	0.42
2:D:17:VAL:HG22	2:D:60:LYS:HB3	2.01	0.42
2:D:40:GLN:OE1	2:D:62:GLU:OE1	2.37	0.42
2:D:103:ILE:CG2	2:D:106:VAL:HG23	2.50	0.42
2:B:55:ARG:O	2:B:56:LYS:CB	2.67	0.42
1:C:81:LEU:HB3	1:C:86:GLU:HG2	2.02	0.42
1:C:125:LEU:HD23	1:C:299:LEU:HD23	2.02	0.42
2:D:102:ARG:NE	2:D:124:SER:OG	2.50	0.42
1:A:88:LEU:CD2	1:A:106:HIS:HE2	2.33	0.41
1:A:133:GLN:HG2	1:A:167:ARG:O	2.20	0.41
1:C:78:ASN:C	1:C:79:THR:O	2.58	0.41
2:D:149:VAL:HG12	2:D:150:VAL:N	2.35	0.41
2:D:87:ASP:O	2:D:88:ASN:HB2	2.19	0.41
2:D:10:GLU:O	2:D:12:ILE:CD1	2.69	0.41
2:D:35:LEU:O	2:D:38:THR:CG2	2.67	0.41
2:B:30:LEU:CD2	2:B:36:THR:HG23	2.51	0.41
2:D:73:GLN:HE22	2:D:103:ILE:CG1	2.32	0.41
2:D:129:LYS:HB2	2:D:129:LYS:HE3	1.81	0.41
1:A:55:THR:HG21	1:A:134:HIS:CE1	2.56	0.41
2:D:30:LEU:CD1	2:D:59:ILE:HD11	2.48	0.41
2:D:132:ASN:ND2	2:D:132:ASN:N	2.69	0.40
2:B:30:LEU:HB3	2:D:27:PHE:CE2	2.57	0.40
2:B:42:ILE:HG23	2:B:43:THR:N	2.36	0.40
2:D:25:ILE:HD12	2:D:77:TYR:O	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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	308/310 (99%)	276 (90%)	22 (7%)	10 (3%)	4	6
1	C	308/310 (99%)	283 (92%)	18 (6%)	7 (2%)	6	11
2	B	146/153 (95%)	104 (71%)	30 (20%)	12 (8%)	1	1
2	D	146/153 (95%)	102 (70%)	28 (19%)	16 (11%)	0	0
All	All	908/926 (98%)	765 (84%)	98 (11%)	45 (5%)	2	2

All (45) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	85	GLY
1	A	133	GLN
2	B	17	VAL
2	B	56	LYS
1	C	79	THR
1	C	243	VAL
1	C	267	LEU
2	D	9	VAL
2	D	10	GLU
2	D	41	ARG
2	D	63	ASN
2	D	88	ASN
2	D	90	GLU
2	D	131	ALA
1	A	191	ALA
2	B	53	MET
2	B	61	ILE
2	B	62	GLU
1	C	84	LYS
1	C	270	VAL
2	D	8	GLN
2	D	13	LYS

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Mol	Chain	Res	Type
2	D	34	LYS
2	D	91	VAL
1	A	79	THR
1	A	270	VAL
1	C	249	LEU
1	A	77	ALA
2	B	82	THR
2	B	99	LEU
1	C	2	ASN
2	D	64	THR
2	D	89	TYR
2	D	151	LEU
1	A	3	PRO
2	B	54	GLY
2	B	7	LEU
2	B	57	ASP
2	B	97	PRO
2	D	106	VAL
1	A	230	VAL
2	B	22	PRO
1	A	267	LEU
1	A	9	ILE
2	D	93	GLY

5.3.2 Protein sidechains [i](#)

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	261/261 (100%)	221 (85%)	40 (15%)	2	4
1	C	261/261 (100%)	214 (82%)	47 (18%)	1	2
2	B	132/137 (96%)	97 (74%)	35 (26%)	0	1
2	D	132/137 (96%)	84 (64%)	48 (36%)	0	0
All	All	786/796 (99%)	616 (78%)	170 (22%)	1	1

All (170) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ASN
1	A	6	GLN
1	A	7	LYS
1	A	16	SER
1	A	29	LYS
1	A	33	ASN
1	A	42	LYS
1	A	53	THR
1	A	59	PHE
1	A	65	ARG
1	A	71	VAL
1	A	88	LEU
1	A	105	ARG
1	A	114	LEU
1	A	117	GLU
1	A	121	ASN
1	A	133	GLN
1	A	147	GLU
1	A	154	ASN
1	A	169	VAL
1	A	180	ASP
1	A	190	ASP
1	A	213	SER
1	A	214	SER
1	A	216	GLU
1	A	222	VAL
1	A	234	ARG
1	A	236	ASP
1	A	246	GLN
1	A	248	VAL
1	A	252	SER
1	A	253	ASP
1	A	267	LEU
1	A	269	ARG
1	A	270	VAL
1	A	271	ASP
1	A	287	GLN
1	A	306	ARG
1	A	309	VAL
1	A	310	LEU
2	B	6	LYS
2	B	7	LEU
2	B	13	LYS

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Mol	Chain	Res	Type
2	B	16	THR
2	B	18	ILE
2	B	21	ILE
2	B	24	GLN
2	B	30	LEU
2	B	32	LEU
2	B	40	GLN
2	B	41	ARG
2	B	42	ILE
2	B	44	ILE
2	B	46	LEU
2	B	52	GLU
2	B	53	MET
2	B	58	LEU
2	B	61	ILE
2	B	64	THR
2	B	66	LEU
2	B	68	GLU
2	B	72	ASP
2	B	76	LEU
2	B	82	THR
2	B	86	ILE
2	B	89	TYR
2	B	91	VAL
2	B	94	LYS
2	B	95	SER
2	B	99	LEU
2	B	104	ASP
2	B	127	VAL
2	B	128	ARG
2	B	129	LYS
2	B	143	LYS
1	C	7	LYS
1	C	17	ARG
1	C	18	ASP
1	C	24	LEU
1	C	35	GLN
1	C	40	LYS
1	C	57	LEU
1	C	59	PHE
1	C	74	SER
1	C	78	ASN

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Mol	Chain	Res	Type
1	C	79	THR
1	C	84	LYS
1	C	95	ILE
1	C	134	HIS
1	C	146	GLN
1	C	147	GLU
1	C	151	ARG
1	C	159	MET
1	C	167	ARG
1	C	169	VAL
1	C	180	ASP
1	C	187	ILE
1	C	190	ASP
1	C	196	GLN
1	C	212	HIS
1	C	217	GLU
1	C	221	GLU
1	C	222	VAL
1	C	225	LEU
1	C	229	ARG
1	C	232	LYS
1	C	234	ARG
1	C	235	LEU
1	C	236	ASP
1	C	243	VAL
1	C	250	ARG
1	C	269	ARG
1	C	272	GLU
1	C	275	THR
1	C	279	LYS
1	C	285	TYR
1	C	287	GLN
1	C	293	ILE
1	C	305	ASN
1	C	306	ARG
1	C	308	LEU
1	C	310	LEU
2	D	6	LYS
2	D	7	LEU
2	D	10	GLU
2	D	13	LYS
2	D	18	ILE

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Mol	Chain	Res	Type
2	D	25	ILE
2	D	28	LYS
2	D	29	LEU
2	D	32	LEU
2	D	34	LYS
2	D	37	GLU
2	D	39	ASP
2	D	41	ARG
2	D	43	THR
2	D	52	GLU
2	D	53	MET
2	D	56	LYS
2	D	57	ASP
2	D	58	LEU
2	D	59	ILE
2	D	60	LYS
2	D	61	ILE
2	D	64	THR
2	D	68	GLU
2	D	69	ASP
2	D	72	ASP
2	D	76	LEU
2	D	84	ASN
2	D	86	ILE
2	D	91	VAL
2	D	92	VAL
2	D	94	LYS
2	D	96	ARG
2	D	99	LEU
2	D	102	ARG
2	D	106	VAL
2	D	108	VAL
2	D	122	SER
2	D	127	VAL
2	D	128	ARG
2	D	130	ARG
2	D	132	ASN
2	D	133	ASP
2	D	136	LEU
2	D	139	LYS
2	D	149	VAL
2	D	150	VAL

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Mol	Chain	Res	Type
2	D	151	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	8	HIS
1	A	41	HIS
1	A	78	ASN
1	A	132	ASN
1	A	133	GLN
1	A	212	HIS
1	A	297	GLN
2	B	47	ASN
1	C	41	HIS
1	C	126	ASN
1	C	174	GLN
1	C	196	GLN
1	C	297	GLN
2	D	24	GLN
2	D	40	GLN
2	D	47	ASN
2	D	63	ASN
2	D	73	GLN
2	D	80	GLN
2	D	84	ASN
2	D	113	ASN
2	D	132	ASN
2	D	147	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

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
3	MLI	A	311	-	6,6,6	1.95	2 (33%)	7,7,7	1.18	1 (14%)
3	MLI	C	312	-	6,6,6	2.27	2 (33%)	7,7,7	1.00	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
3	MLI	A	311	-	-	2/4/4/4	-
3	MLI	C	312	-	-	4/4/4/4	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	312	MLI	C1-C2	3.83	1.57	1.51
3	A	311	MLI	C1-C3	3.08	1.55	1.51
3	C	312	MLI	C1-C3	2.82	1.55	1.51
3	A	311	MLI	C1-C2	2.79	1.55	1.51

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	311	MLI	O7-C2-C1	2.02	120.98	114.54

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	312	MLI	C3-C1-C2-O7
3	C	312	MLI	C3-C1-C2-O6
3	A	311	MLI	C2-C1-C3-O9
3	C	312	MLI	C2-C1-C3-O9
3	A	311	MLI	C2-C1-C3-O8
3	C	312	MLI	C2-C1-C3-O8

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	3
2	D	2
1	C	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	134:HIS	C	135:PRO	N	1.62
1	A	78:ASN	C	79:THR	N	1.19
1	A	83:LYS	C	84:LYS	N	1.19
1	D	14:ARG	C	15:GLY	N	1.19
1	D	28:LYS	C	29:LEU	N	1.19
1	C	75:ASP	C	76:SER	N	1.18

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.