



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 9, 2017 – 10:22 AM EDT

PDB ID : 2FAH
Title : The structure of mitochondrial PEPCK, Complex with Mn and GDP
Authors : Holyoak, T.; Sullivan, S.M.; Nowak, T.
Deposited on : unknown
Resolution : 2.09 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

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20030345
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20030345

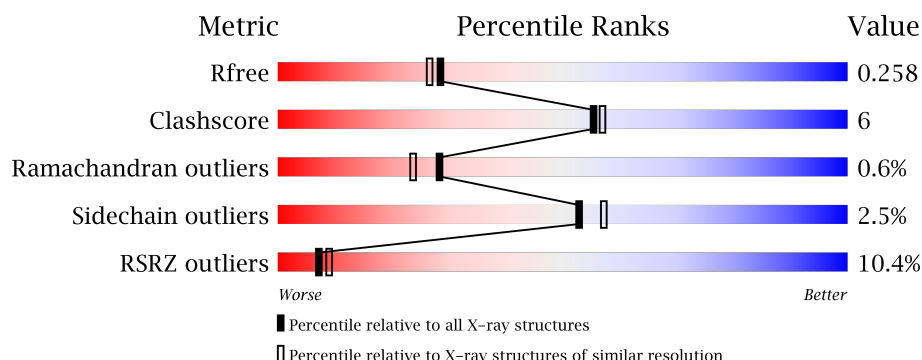
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.09 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}	100719	4243 (2.10-2.10)
Clashscore	112137	4788 (2.10-2.10)
Ramachandran outliers	110173	4740 (2.10-2.10)
Sidechain outliers	110143	4741 (2.10-2.10)
RSRZ outliers	101464	4275 (2.10-2.10)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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 $\leq 5\%$. 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	608	<div> <div>8%</div> <div>87%</div> <div>12%</div> <div>.</div> </div>
1	B	608	<div> <div>14%</div> <div>85%</div> <div>13%</div> <div>.</div> </div>
1	C	608	<div> <div>10%</div> <div>87%</div> <div>13%</div> <div>.</div> </div>
1	D	608	<div> <div>9%</div> <div>88%</div> <div>11%</div> <div>.</div> </div>

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	MN	A	2003	-	-	-	X
2	MN	D	5003	-	-	-	X

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 20770 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 Phosphoenolpyruvate carboxykinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	608	Total	C	N	O	S	0	11	0
			4804	3048	865	858	33			
1	B	608	Total	C	N	O	S	0	13	0
			4786	3039	855	859	33			
1	C	608	Total	C	N	O	S	0	6	0
			4762	3021	857	851	33			
1	D	608	Total	C	N	O	S	0	5	0
			4749	3017	848	851	33			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	129	GLY	-	INSERTION	UNP P21642
A	131	PRO	SER	SEE REMARK 999	UNP P21642
A	233	PRO	ARG	SEE REMARK 999	UNP P21642
A	268	ARG	ALA	SEE REMARK 999	UNP P21642
A	339	GLU	ARG	SEE REMARK 999	UNP P21642
A	502	ARG	SER	SEE REMARK 999	UNP P21642
B	129	GLY	-	INSERTION	UNP P21642
B	131	PRO	SER	SEE REMARK 999	UNP P21642
B	233	PRO	ARG	SEE REMARK 999	UNP P21642
B	268	ARG	ALA	SEE REMARK 999	UNP P21642
B	339	GLU	ARG	SEE REMARK 999	UNP P21642
B	502	ARG	SER	SEE REMARK 999	UNP P21642
C	129	GLY	-	INSERTION	UNP P21642
C	131	PRO	SER	SEE REMARK 999	UNP P21642
C	233	PRO	ARG	SEE REMARK 999	UNP P21642
C	268	ARG	ALA	SEE REMARK 999	UNP P21642
C	339	GLU	ARG	SEE REMARK 999	UNP P21642
C	502	ARG	SER	SEE REMARK 999	UNP P21642
D	129	GLY	-	INSERTION	UNP P21642
D	131	PRO	SER	SEE REMARK 999	UNP P21642
D	233	PRO	ARG	SEE REMARK 999	UNP P21642

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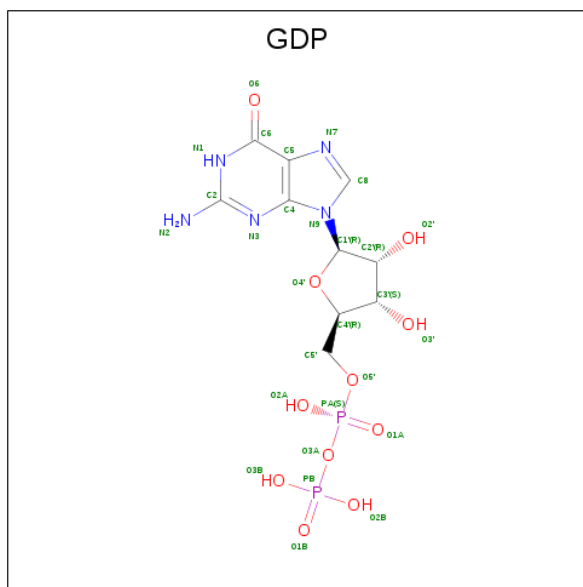
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Chain	Residue	Modelled	Actual	Comment	Reference
D	268	ARG	ALA	SEE REMARK 999	UNP P21642
D	339	GLU	ARG	SEE REMARK 999	UNP P21642
D	502	ARG	SER	SEE REMARK 999	UNP P21642

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	2	Total	Mn	0	0
			2	2		
2	A	2	Total	Mn	0	0
			2	2		
2	D	2	Total	Mn	0	0
			2	2		
2	C	2	Total	Mn	0	0
			2	2		

- Molecule 3 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



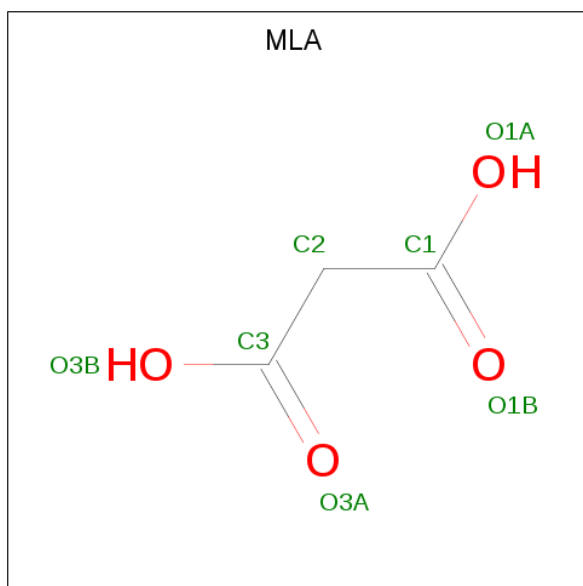
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			28	10	5	11	2		
3	B	1	Total	C	N	O	P	0	0
			28	10	5	11	2		
3	C	1	Total	C	N	O	P	0	0
			28	10	5	11	2		

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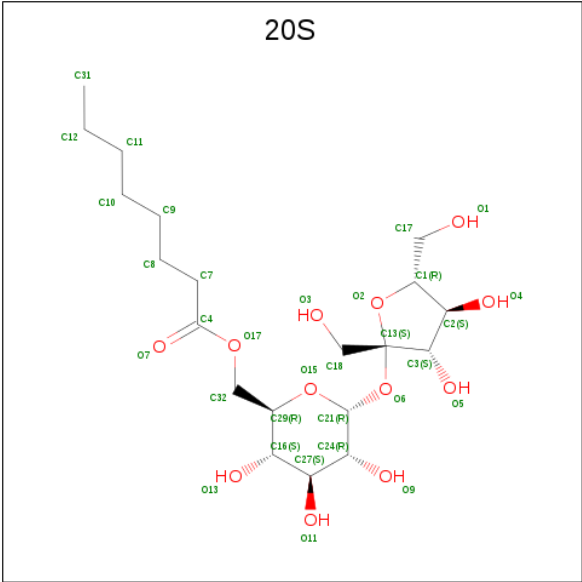
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	D	1	Total	C	N	O	P	0	0
			28	10	5	11	2		

- Molecule 4 is MALONIC ACID (three-letter code: MLA) (formula: $C_3H_4O_4$).



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

- Molecule 5 is BETA-D-FRUCTOFURANOSYL 6-O-OCTANOYL-ALPHA-D-GLUCOPYRANOSIDE (three-letter code: 20S) (formula: $C_{20}H_{36}O_{12}$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	C	O	0	0
			32	20	12		
5	D	1	Total	C	O	0	0
			32	20	12		

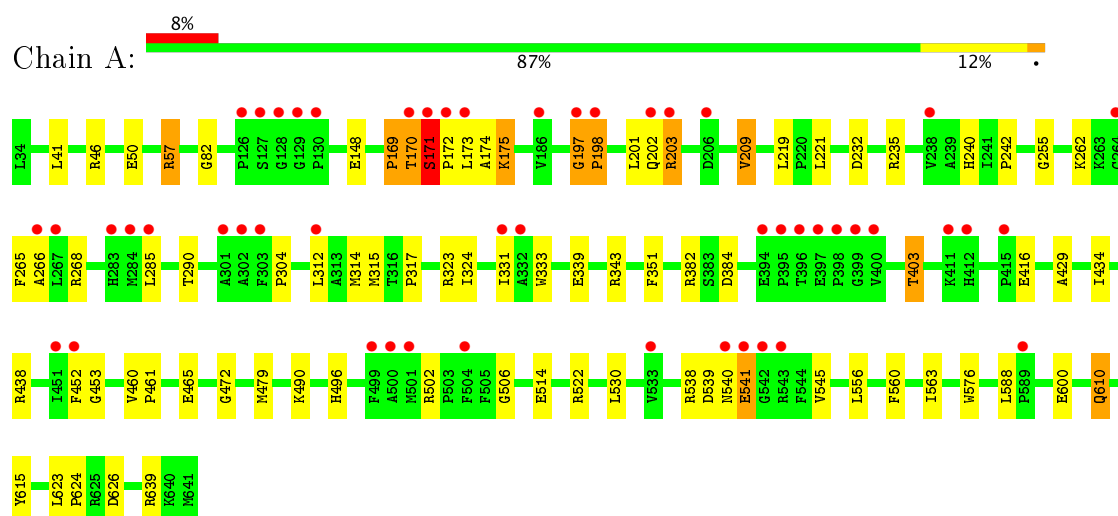
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	384	Total	O	0	0
			384	384		
6	B	305	Total	O	0	0
			305	305		
6	C	417	Total	O	0	0
			417	417		
6	D	344	Total	O	0	0
			344	344		

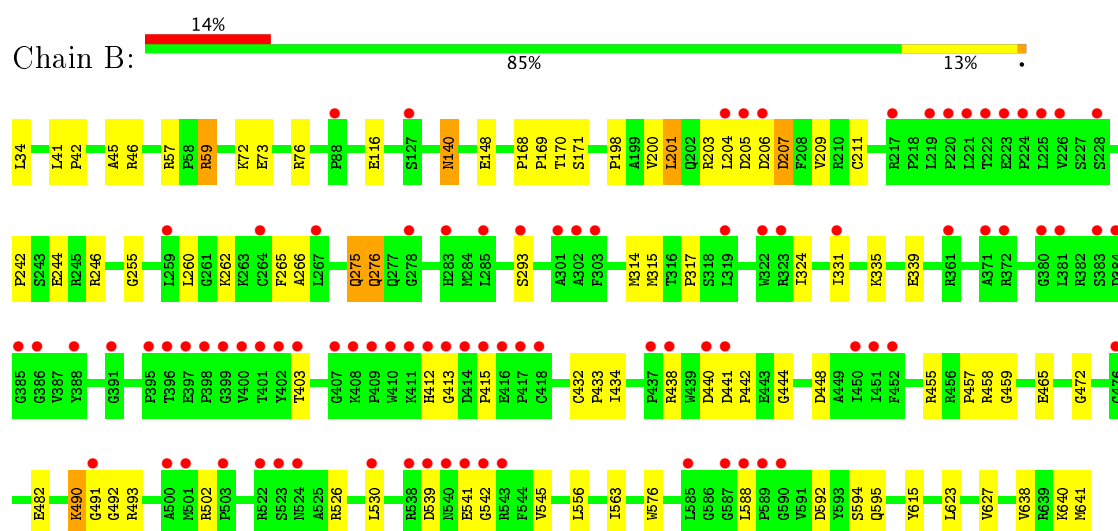
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

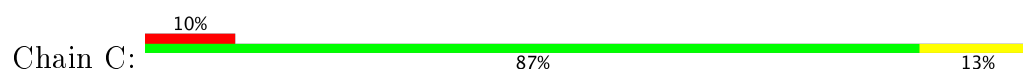
• Molecule 1: Phosphoenolpyruvate carboxykinase

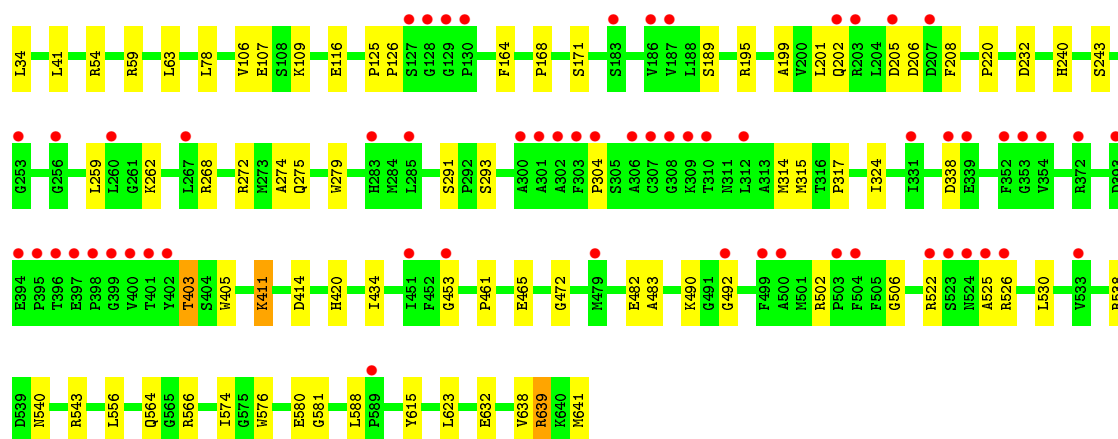


• Molecule 1: Phosphoenolpyruvate carboxykinase

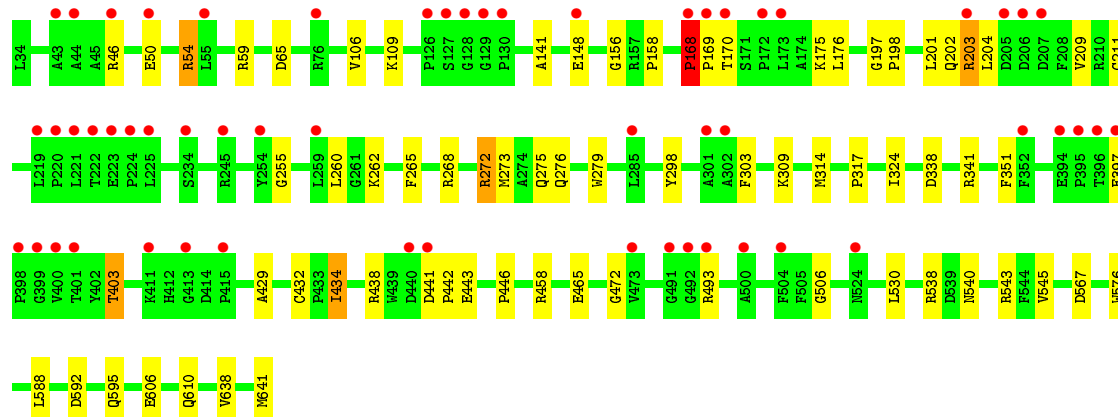
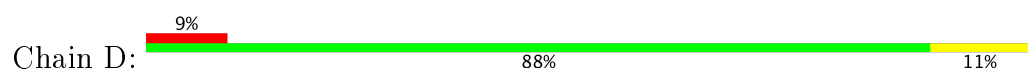


• Molecule 1: Phosphoenolpyruvate carboxykinase





• Molecule 1: Phosphoenolpyruvate carboxykinase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	74.59Å 90.85Å 103.34Å 64.23° 73.74° 71.18°	Depositor
Resolution (Å)	32.81 – 2.09 32.80 – 2.09	Depositor EDS
% Data completeness (in resolution range)	94.7 (32.81-2.09) 84.1 (32.80-2.09)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.29 (at 2.10Å)	Xtriage
Refinement program	CNS, REFMAC	Depositor
R, R_{free}	0.187 , 0.234 0.221 , 0.258	Depositor DCC
R_{free} test set	6406 reflections (5.03%)	DCC
Wilson B-factor (Å ²)	24.8	Xtriage
Anisotropy	0.218	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 46.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	20770	wwPDB-VP
Average B, all atoms (Å ²)	16.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 16.66% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GDP, 20S, MLA, MN

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	0.52	0/4975	0.64	0/6766
1	B	0.49	0/4969	0.62	1/6761 (0.0%)
1	C	0.52	0/4923	0.63	1/6697 (0.0%)
1	D	0.50	0/4905	0.61	1/6677 (0.0%)
All	All	0.51	0/19772	0.62	3/26901 (0.0%)

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

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	502	ARG	NE-CZ-NH2	-5.86	117.37	120.30
1	C	639	ARG	NE-CZ-NH2	-5.70	117.45	120.30
1	D	168	PRO	C-N-CD	-5.58	108.33	120.60

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	169	PRO	Peptide
1	A	170	THR	Peptide

5.2 Too-close contacts ⓘ

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	4804	0	4708	63	0
1	B	4786	0	4688	61	0
1	C	4762	0	4663	48	0
1	D	4749	0	4629	54	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
3	A	28	0	12	0	0
3	B	28	0	12	0	0
3	C	28	0	12	0	0
3	D	28	0	12	1	0
4	A	7	0	2	0	0
4	B	14	0	4	1	0
4	C	7	0	2	1	0
4	D	7	0	2	0	0
5	C	32	0	30	1	0
5	D	32	0	30	2	0
6	A	384	0	0	9	0
6	B	305	0	0	9	0
6	C	417	0	0	13	0
6	D	344	0	0	10	0
All	All	20770	0	18806	224	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 6.

All (224) 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:A:197:GLY:H	1:A:198:PRO:HD3	1.06	1.06
1:D:209:VAL:HG21	1:D:265:PHE:CE2	1.93	1.02
1:D:170:THR:HG22	6:D:6251:HOH:O	1.60	1.01
1:B:209:VAL:HG21	1:B:265:PHE:CE2	2.00	0.96
1:A:197:GLY:H	1:A:198:PRO:CD	1.81	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:169:PRO:HG2	1:D:203:ARG:NH1	1.84	0.92
1:B:198:PRO:HA	1:B:201[A]:LEU:HD22	1.52	0.89
1:A:57:ARG:HG2	1:A:57:ARG:HH21	1.38	0.88
1:A:197:GLY:N	1:A:198:PRO:HD3	1.90	0.85
1:B:455:ARG:HB2	1:B:482:GLU:HG2	1.59	0.84
1:A:172:PRO:HB2	1:A:173:LEU:HA	1.64	0.80
1:A:209[B]:VAL:HG21	1:A:265:PHE:CE2	2.17	0.79
1:D:441:ASP:OD2	1:D:442:PRO:HD2	1.85	0.76
1:A:514[B]:GLU:HG2	1:A:624:PRO:HG3	1.67	0.76
1:A:416:GLU:HG3	6:A:2356:HOH:O	1.85	0.75
1:A:172:PRO:CB	1:A:173:LEU:HA	2.18	0.74
1:D:209:VAL:HG21	1:D:265:PHE:CD2	2.22	0.74
1:A:57:ARG:CG	1:A:57:ARG:HH21	2.02	0.73
1:D:50:GLU:O	1:D:54:ARG:HD3	1.87	0.73
1:D:403:THR:HG22	6:D:6005:HOH:O	1.89	0.71
1:D:158:PRO:HD2	6:D:6140:HOH:O	1.91	0.70
1:B:206:ASP:O	1:B:207:ASP:HB3	1.91	0.70
1:B:41:LEU:O	1:B:46:ARG:HD2	1.91	0.70
1:B:314:MET:HA	1:B:434:ILE:HD11	1.73	0.69
1:B:541:GLU:H	1:B:542:GLY:HA2	1.56	0.69
1:C:291[A]:SER:OG	1:C:293:SER:OG	2.10	0.69
1:C:54:ARG:HD2	6:C:6209:HOH:O	1.92	0.69
5:C:6003:20S:H181	5:C:6003:20S:H312	1.74	0.68
1:D:141:ALA:O	6:D:6122:HOH:O	2.11	0.68
1:B:59:ARG:HH11	1:B:59:ARG:CG	2.06	0.68
1:D:638:VAL:O	1:D:641:MET:HG2	1.94	0.67
4:C:4003:MLA:O1B	6:C:6273:HOH:O	2.11	0.67
1:B:72:LYS:O	1:B:76[A]:ARG:HG3	1.94	0.67
1:A:82:GLY:HA2	6:A:2008:HOH:O	1.95	0.67
1:A:626:ASP:OD1	6:A:2323:HOH:O	2.13	0.66
1:B:317:PRO:HG3	1:B:324:ILE:HG12	1.77	0.66
1:D:170:THR:HG23	1:D:442:PRO:HB3	1.78	0.65
1:D:458:ARG:NH2	1:D:540[B]:ASN:OD1	2.29	0.65
5:D:6002:20S:H181	5:D:6002:20S:H312	1.77	0.65
1:B:140[A]:ASN:ND2	1:B:140[A]:ASN:H	1.95	0.65
1:B:293[A]:SER:OG	6:B:6182:HOH:O	2.10	0.65
1:B:244[A]:GLU:HG2	1:B:246:ARG:HE	1.62	0.65
1:C:502[B]:ARG:NH1	6:C:6195:HOH:O	2.30	0.64
1:C:107:GLU:OE2	1:C:502[B]:ARG:NH1	2.24	0.63
1:B:276[A]:GLN:HG3	6:B:6294:HOH:O	1.97	0.63
1:D:209:VAL:CG2	1:D:265:PHE:CE2	2.76	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:197:GLY:N	1:A:198:PRO:CD	2.52	0.63
1:A:221:LEU:CD1	1:C:220:PRO:HD3	2.29	0.63
1:A:317:PRO:HG3	1:A:324:ILE:HG12	1.80	0.62
1:D:46:ARG:O	1:D:50:GLU:HG2	1.99	0.62
1:D:203:ARG:HD3	1:D:203:ARG:N	2.14	0.62
1:A:339:GLU:HG2	1:B:457:PRO:HB2	1.83	0.61
1:A:171:SER:CB	1:A:172:PRO:HA	2.30	0.61
1:C:580:GLU:O	6:C:6341:HOH:O	2.16	0.61
1:B:59:ARG:HH11	1:B:59:ARG:HG2	1.64	0.61
1:B:638:VAL:O	1:B:641:MET:HG2	2.01	0.61
1:A:539:ASP:HB3	1:A:545:VAL:HG22	1.83	0.61
1:D:169:PRO:HG2	1:D:203:ARG:HH12	1.64	0.61
1:D:175:LYS:HE3	1:D:273:MET:CE	2.31	0.60
1:D:314:MET:HA	1:D:434[B]:ILE:HD11	1.82	0.60
1:A:169:PRO:O	1:A:203:ARG:HG3	2.02	0.59
1:C:526:ARG:HD3	1:D:458:ARG:HH12	1.67	0.59
1:C:639:ARG:NH2	6:C:6298:HOH:O	2.36	0.58
1:A:343:ARG:HH12	1:A:438:ARG:HH22	1.52	0.57
1:A:472:GLY:HA3	1:A:530:LEU:HD12	1.85	0.57
1:C:59:ARG:HD2	6:C:6328:HOH:O	2.03	0.57
1:D:317:PRO:HG3	1:D:324[A]:ILE:HG12	1.87	0.57
1:B:209:VAL:HG21	1:B:265:PHE:CD2	2.40	0.56
1:C:314:MET:HA	1:C:434:ILE:HD11	1.87	0.56
1:A:171:SER:CB	1:A:172:PRO:CA	2.83	0.56
1:D:472:GLY:HA3	1:D:530:LEU:HD12	1.86	0.56
1:D:606:GLU:HG3	1:D:610:GLN:HE21	1.70	0.56
1:A:290:THR:HB	1:A:323:ARG:HB3	1.86	0.56
1:D:198:PRO:O	1:D:201:LEU:HB2	2.06	0.56
1:B:244[B]:GLU:OE2	6:B:6133:HOH:O	2.17	0.55
1:C:581:GLY:HA2	6:C:6235:HOH:O	2.06	0.55
1:D:175:LYS:HE3	1:D:273:MET:HE2	1.86	0.55
1:A:496:HIS:NE2	1:A:610[A]:GLN:NE2	2.54	0.55
1:B:200:VAL:HG23	6:B:6083:HOH:O	2.07	0.55
1:D:65:ASP:O	1:D:197:GLY:HA2	2.07	0.55
1:B:455:ARG:CB	1:B:482:GLU:HG2	2.31	0.55
1:A:403:THR:HG22	6:A:2025:HOH:O	2.07	0.54
1:A:203:ARG:HH21	1:A:203:ARG:HB3	1.73	0.54
1:B:45:ALA:HB2	1:B:204:LEU:HD11	1.90	0.54
1:B:168:PRO:HB3	1:B:440:ASP:O	2.08	0.54
1:D:465:GLU:HB3	1:D:576:TRP:HB2	1.90	0.54
1:D:338:ASP:HB3	6:D:6321:HOH:O	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:541:GLU:N	1:B:542:GLY:HA2	2.20	0.53
1:A:46:ARG:O	1:A:50:GLU:HG2	2.08	0.53
1:A:639:ARG:NH2	6:A:2101:HOH:O	2.41	0.53
1:D:538:ARG:HA	1:D:543:ARG:O	2.09	0.53
1:D:59:ARG:NH2	1:D:156:GLY:O	2.41	0.53
1:A:171:SER:HB3	1:A:172:PRO:CA	2.38	0.53
1:C:472:GLY:HA3	1:C:530:LEU:HD12	1.91	0.53
1:A:343:ARG:HH12	1:A:438:ARG:NH2	2.06	0.53
1:A:221:LEU:HD12	1:C:220:PRO:HD3	1.90	0.53
1:B:441:ASP:OD2	1:B:442:PRO:HD2	2.09	0.53
1:B:335:LYS:HG3	6:B:6248:HOH:O	2.09	0.52
1:C:199:ALA:HA	1:C:202:GLN:HE21	1.74	0.52
1:C:465:GLU:HB3	1:C:576:TRP:HB2	1.92	0.52
1:B:140[A]:ASN:HD22	1:B:140[A]:ASN:H	1.56	0.52
1:C:168:PRO:O	1:C:171:SER:HB3	2.10	0.51
1:C:411:LYS:HE2	1:C:414:ASP:OD2	2.10	0.51
1:D:317:PRO:HG3	1:D:324[B]:ILE:HG23	1.92	0.51
1:C:106:VAL:HG11	1:C:109:LYS:HD2	1.91	0.51
1:D:432:CYS:SG	1:D:434[A]:ILE:HD13	2.51	0.51
1:A:514[B]:GLU:HG3	6:A:2382:HOH:O	2.11	0.51
1:B:465:GLU:HB3	1:B:576:TRP:HB2	1.91	0.50
1:C:482:GLU:HB3	1:C:492:GLY:HA2	1.94	0.50
1:C:638:VAL:O	1:C:641:MET:HG2	2.12	0.49
1:A:171:SER:HB2	1:A:172:PRO:HA	1.93	0.49
1:B:448:ASP:HB3	1:B:563:ILE:HG21	1.94	0.49
1:B:491:GLY:HA2	6:B:6190:HOH:O	2.12	0.49
1:A:209[B]:VAL:HG21	1:A:265:PHE:CD2	2.47	0.49
1:A:540:ASN:HA	1:A:541:GLU:CD	2.33	0.48
1:A:465:GLU:HB3	1:A:576:TRP:HB2	1.96	0.48
1:B:627:VAL:HA	6:B:6224:HOH:O	2.14	0.48
1:C:232:ASP:OD1	6:C:6267:HOH:O	2.20	0.48
1:B:541:GLU:HB2	1:B:542:GLY:HA2	1.96	0.48
1:D:272:ARG:O	1:D:276:GLN:HG2	2.14	0.48
1:B:198:PRO:HA	1:B:201[B]:LEU:HD22	1.97	0.47
1:C:538:ARG:HA	1:C:543:ARG:O	2.14	0.47
1:D:202:GLN:HB3	1:D:203:ARG:HD3	1.96	0.47
1:D:351:PHE:CE2	1:D:429:ALA:HA	2.50	0.47
1:B:171:SER:HB2	1:B:442:PRO:HA	1.96	0.47
1:A:219:LEU:HD22	1:C:220:PRO:HD2	1.96	0.47
1:A:175:LYS:HG3	1:A:333:TRP:CZ3	2.49	0.47
1:B:198:PRO:HA	1:B:201[A]:LEU:CD2	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:169:PRO:HG2	1:D:203:ARG:CZ	2.43	0.47
1:D:176:LEU:HD11	1:D:203:ARG:HG2	1.96	0.46
1:D:592:ASP:O	1:D:595:GLN:HB2	2.14	0.46
1:A:315:MET:HE1	1:A:556:LEU:HD12	1.96	0.46
1:D:438:ARG:HD3	6:D:6314:HOH:O	2.16	0.46
1:B:592[B]:ASP:OD2	1:B:594:SER:OG	2.24	0.46
1:C:240:HIS:CE1	1:C:268:ARG:HD2	2.50	0.46
1:A:242:PRO:HG3	6:A:2175:HOH:O	2.14	0.46
1:B:34:LEU:HD12	1:B:73:GLU:CD	2.35	0.46
1:C:403:THR:HG22	6:C:6205:HOH:O	2.16	0.46
1:C:483:ALA:HB3	1:C:490:LYS:O	2.17	0.45
1:D:175:LYS:HE3	1:D:273:MET:HE1	1.97	0.45
1:A:171:SER:HB3	1:A:172:PRO:C	2.36	0.45
1:B:472:GLY:HA3	1:B:530:LEU:HD12	1.98	0.45
1:A:600:GLU:HB3	6:A:2182:HOH:O	2.16	0.45
1:C:205:ASP:CG	1:C:206:ASP:H	2.19	0.45
1:D:545:VAL:HG11	1:D:595:GLN:HB3	1.97	0.45
1:A:268:ARG:O	1:A:506:GLY:HA3	2.16	0.45
1:C:317:PRO:HG3	1:C:324:ILE:HG12	1.97	0.45
1:A:57:ARG:NH2	1:A:57:ARG:HG2	2.15	0.45
1:C:461:PRO:HG2	1:C:574:ILE:HD11	1.99	0.45
1:C:632:GLU:OE1	6:C:6222:HOH:O	2.20	0.44
1:A:172:PRO:HA	1:A:174:ALA:H	1.82	0.44
1:D:298:TYR:HB2	1:D:446:PRO:O	2.17	0.44
1:A:314:MET:HA	1:A:434[B]:ILE:HD11	1.99	0.44
1:B:482:GLU:HB2	1:B:492:GLY:O	2.18	0.44
1:C:268:ARG:O	1:C:506:GLY:HA3	2.18	0.44
1:D:324[B]:ILE:HD12	1:D:434[B]:ILE:HD12	1.98	0.44
1:D:324[B]:ILE:HD11	1:D:434[B]:ILE:CD1	2.47	0.44
1:C:63:LEU:HD21	1:C:201:LEU:HD11	1.98	0.44
1:D:567:ASP:OD2	6:D:6261:HOH:O	2.21	0.44
1:B:438:ARG:NH2	1:B:444:GLY:O	2.50	0.44
1:D:209:VAL:HG21	1:D:265:PHE:CZ	2.47	0.44
1:A:240:HIS:CE1	1:A:268:ARG:HD2	2.52	0.44
1:C:78:LEU:HD21	6:C:6225:HOH:O	2.18	0.44
1:D:175:LYS:HE2	1:D:279:TRP:CZ2	2.53	0.43
1:A:502[A]:ARG:NH2	6:A:2039:HOH:O	2.52	0.43
1:C:208:PHE:N	6:C:6353:HOH:O	2.50	0.43
1:C:615:TYR:HB3	1:C:623:LEU:HD22	2.00	0.43
1:C:338:ASP:OD1	1:D:493:ARG:HA	2.18	0.43
1:A:452:PHE:HB3	1:A:479:MET:SD	2.59	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:458:ARG:HG2	1:B:459:GLY:N	2.34	0.43
1:D:106:VAL:HG11	1:D:109:LYS:HD2	2.01	0.43
1:B:315:MET:HE1	1:B:556:LEU:HD12	2.00	0.43
1:C:315:MET:HE1	1:C:556:LEU:HD12	2.00	0.43
1:A:172:PRO:HB2	1:A:173:LEU:CA	2.42	0.43
1:A:221:LEU:HG	1:C:220:PRO:CD	2.48	0.43
1:B:432:CYS:HA	1:B:433:PRO:HD3	1.88	0.43
1:A:266:ALA:HB3	1:A:331:ILE:HD13	2.01	0.42
1:B:491:GLY:HA2	1:B:492:GLY:HA2	1.62	0.42
1:B:412:HIS:HA	1:B:413:GLY:HA2	1.79	0.42
1:B:242:PRO:HG3	6:B:6223:HOH:O	2.19	0.42
1:B:640:LYS:HE3	4:B:6001:MLA:HC22	2.02	0.42
1:C:34:LEU:N	6:C:6413:HOH:O	2.51	0.42
1:C:522:ARG:HB3	1:C:525:ALA:HB2	2.01	0.42
1:D:397:GLU:HG3	6:D:6345:HOH:O	2.18	0.42
1:A:460:VAL:HA	1:A:461:PRO:HD3	1.96	0.42
1:D:341:ARG:HD2	6:D:6075:HOH:O	2.18	0.42
1:C:41:LEU:HD23	1:C:201:LEU:HD21	2.02	0.42
1:D:268:ARG:O	1:D:506:GLY:HA3	2.20	0.42
3:D:5000:GDP:H3'	6:D:6164:HOH:O	2.18	0.42
1:A:351:PHE:CE2	1:A:429:ALA:HA	2.55	0.42
1:C:189:SER:HB2	1:C:259:LEU:HD21	2.01	0.42
1:C:564:GLN:OE1	1:C:566:ARG:NH1	2.53	0.42
1:A:232:ASP:OD2	1:A:235[B]:ARG:NE	2.32	0.42
1:B:262:LYS:O	1:B:266:ALA:HB3	2.19	0.42
1:D:303:PHE:HB2	1:D:309:LYS:HG3	2.01	0.42
1:B:211:CYS:HB3	1:B:260:LEU:HD12	2.02	0.42
1:A:41:LEU:HD23	1:A:201:LEU:HD21	2.00	0.42
1:C:405:TRP:CZ2	1:C:420:HIS:HD2	2.38	0.42
1:B:266:ALA:HB3	1:B:331:ILE:HD13	2.02	0.41
1:B:42:PRO:HG2	1:B:204:LEU:HD11	2.01	0.41
5:D:6002:20S:H29	5:D:6002:20S:H172	2.01	0.41
1:A:285:LEU:HD21	1:A:312:LEU:HD23	2.02	0.41
1:B:539:ASP:HB3	1:B:545:VAL:HG22	2.02	0.41
1:A:148:GLU:HB3	1:A:235[A]:ARG:HH22	1.86	0.41
1:C:304:PRO:HD3	1:C:453:GLY:O	2.20	0.41
1:B:545:VAL:HG11	1:B:595:GLN:HB3	2.02	0.41
1:A:382:ARG:HB2	1:A:384:ASP:OD1	2.21	0.41
1:B:275:GLN:HE21	1:B:275:GLN:HB3	1.78	0.41
1:B:491:GLY:CA	6:B:6190:HOH:O	2.68	0.41
1:B:59:ARG:CG	1:B:59:ARG:NH1	2.74	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:285:LEU:HD12	1:A:285:LEU:C	2.42	0.41
1:A:304:PRO:HD3	1:A:453:GLY:O	2.21	0.41
1:A:560:PHE:HA	1:A:563:ILE:HD12	2.03	0.41
1:A:615:TYR:HB3	1:A:623:LEU:HD22	2.03	0.41
1:B:200:VAL:HG12	1:B:204:LEU:HD23	2.03	0.41
1:C:164:PHE:HA	1:C:195:ARG:O	2.21	0.41
1:B:441:ASP:HA	1:B:442:PRO:HD2	1.76	0.40
1:B:490:LYS:HE3	1:B:490:LYS:HA	2.04	0.40
1:C:125:PRO:HA	1:C:126:PRO:HD3	1.98	0.40
1:C:274:ALA:HB1	1:C:279:TRP:O	2.22	0.40
1:D:211:CYS:HB3	1:D:260:LEU:HD12	2.04	0.40
1:B:615:TYR:HB3	1:B:623:LEU:HD22	2.04	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	617/608 (102%)	597 (97%)	14 (2%)	6 (1%)	18	12
1	B	619/608 (102%)	596 (96%)	19 (3%)	4 (1%)	28	24
1	C	612/608 (101%)	597 (98%)	14 (2%)	1 (0%)	51	52
1	D	611/608 (100%)	591 (97%)	17 (3%)	3 (0%)	32	28
All	All	2459/2432 (101%)	2381 (97%)	64 (3%)	14 (1%)	28	24

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	170	THR
1	B	207	ASP
1	D	168	PRO

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Mol	Chain	Res	Type
1	A	255	GLY
1	B	255	GLY
1	D	255	GLY
1	A	171	SER
1	A	198	PRO
1	C	262	LYS
1	D	262	LYS
1	A	262	LYS
1	B	415	PRO
1	A	197	GLY
1	B	169	PRO

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	509/499 (102%)	493 (97%)	16 (3%)	45	48
1	B	509/499 (102%)	489 (96%)	20 (4%)	37	37
1	C	503/499 (101%)	495 (98%)	8 (2%)	68	74
1	D	500/499 (100%)	488 (98%)	12 (2%)	54	59
All	All	2021/1996 (101%)	1965 (97%)	56 (3%)	53	52

All (56) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	57	ARG
1	A	171	SER
1	A	175	LYS
1	A	202	GLN
1	A	203	ARG
1	A	209[A]	VAL
1	A	209[B]	VAL
1	A	403	THR
1	A	490	LYS
1	A	522	ARG

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Mol	Chain	Res	Type
1	A	538[A]	ARG
1	A	538[B]	ARG
1	A	541	GLU
1	A	588	LEU
1	A	610[A]	GLN
1	A	610[B]	GLN
1	B	57	ARG
1	B	59	ARG
1	B	116	GLU
1	B	140[A]	ASN
1	B	140[B]	ASN
1	B	148	GLU
1	B	170	THR
1	B	201[A]	LEU
1	B	201[B]	LEU
1	B	203	ARG
1	B	205	ASP
1	B	275	GLN
1	B	276[A]	GLN
1	B	276[B]	GLN
1	B	339	GLU
1	B	403	THR
1	B	490	LYS
1	B	493	ARG
1	B	526	ARG
1	B	588	LEU
1	C	116	GLU
1	C	243	SER
1	C	272	ARG
1	C	275	GLN
1	C	403	THR
1	C	411	LYS
1	C	540	ASN
1	C	588	LEU
1	D	54	ARG
1	D	148	GLU
1	D	168	PRO
1	D	203	ARG
1	D	204	LEU
1	D	272	ARG
1	D	275	GLN
1	D	403	THR

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Mol	Chain	Res	Type
1	D	434[A]	ILE
1	D	434[B]	ILE
1	D	443	GLU
1	D	588	LEU

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

Mol	Chain	Res	Type
1	A	85	HIS
1	A	117	GLN
1	A	135	ASN
1	A	275	GLN
1	A	311	ASN
1	A	412	HIS
1	B	117	GLN
1	B	135	ASN
1	B	202	GLN
1	B	275	GLN
1	B	311	ASN
1	B	524	ASN
1	C	135	ASN
1	C	202	GLN
1	C	275	GLN
1	C	311	ASN
1	C	540	ASN
1	D	85	HIS
1	D	135	ASN
1	D	140	ASN
1	D	275	GLN
1	D	311	ASN
1	D	412	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 [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 8 are monoatomic - leaving 11 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	GDP	A	2000	2	25,30,30	1.19	3 (12%)	26,47,47	2.27	6 (23%)
4	MLA	A	2001	2	0,6,6	0.00	-	0,7,7	0.00	-
3	GDP	B	3000	2	25,30,30	1.05	2 (8%)	26,47,47	2.02	6 (23%)
4	MLA	B	3001	2	0,6,6	0.00	-	0,7,7	0.00	-
4	MLA	B	6001	-	0,6,6	0.00	-	0,7,7	0.00	-
3	GDP	C	4000	2	25,30,30	1.25	2 (8%)	26,47,47	2.08	6 (23%)
4	MLA	C	4003	2	0,6,6	0.00	-	0,7,7	0.00	-
5	20S	C	6003	-	33,33,33	1.38	3 (9%)	46,46,46	2.07	4 (8%)
3	GDP	D	5000	2	25,30,30	1.41	3 (12%)	26,47,47	2.15	6 (23%)
4	MLA	D	5001	2	0,6,6	0.00	-	0,7,7	0.00	-
5	20S	D	6002	-	33,33,33	1.37	3 (9%)	46,46,46	2.07	4 (8%)

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	GDP	A	2000	2	-	0/12/32/32	0/3/3/3
4	MLA	A	2001	2	-	0/0/4/4	0/0/0/0
3	GDP	B	3000	2	-	0/12/32/32	0/3/3/3
4	MLA	B	3001	2	-	0/0/4/4	0/0/0/0
4	MLA	B	6001	-	-	0/0/4/4	0/0/0/0
3	GDP	C	4000	2	-	0/12/32/32	0/3/3/3
4	MLA	C	4003	2	-	0/0/4/4	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	20S	C	6003	-	-	0/22/61/61	0/2/2/2
3	GDP	D	5000	2	-	0/12/32/32	0/3/3/3
4	MLA	D	5001	2	-	0/0/4/4	0/0/0/0
5	20S	D	6002	-	-	0/22/61/61	0/2/2/2

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	6003	20S	C11-C10	-5.63	1.19	1.51
5	D	6002	20S	C11-C10	-5.39	1.20	1.51
5	C	6003	20S	C12-C11	-3.36	1.27	1.51
5	D	6002	20S	C12-C11	-3.33	1.27	1.51
3	A	2000	GDP	O4'-C1'	2.10	1.44	1.41
3	B	3000	GDP	C5-C4	2.42	1.46	1.40
3	A	2000	GDP	C5-C4	2.89	1.47	1.40
3	D	5000	GDP	O4'-C1'	2.93	1.45	1.41
3	C	4000	GDP	C5-C4	3.11	1.47	1.40
3	A	2000	GDP	C6-C5	3.13	1.47	1.41
3	B	3000	GDP	C6-C5	3.36	1.47	1.41
3	D	5000	GDP	C5-C4	3.54	1.48	1.40
5	C	6003	20S	O17-C4	3.69	1.44	1.33
3	C	4000	GDP	C6-C5	3.82	1.48	1.41
5	D	6002	20S	O17-C4	3.98	1.45	1.33
3	D	5000	GDP	C6-C5	4.01	1.49	1.41

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	2000	GDP	C6-C5-C4	-5.38	115.50	120.84
3	C	4000	GDP	C6-C5-C4	-5.00	115.87	120.84
3	A	2000	GDP	N3-C2-N1	-4.56	120.79	127.46
3	D	5000	GDP	C5-C6-N1	-4.25	117.43	123.48
3	B	3000	GDP	C6-C5-C4	-4.09	116.78	120.84
3	D	5000	GDP	C6-C5-C4	-3.99	116.88	120.84
3	C	4000	GDP	N3-C2-N1	-3.81	121.90	127.46
3	D	5000	GDP	N3-C2-N1	-3.81	121.90	127.46
3	B	3000	GDP	N3-C2-N1	-3.70	122.05	127.46
3	B	3000	GDP	C5-C6-N1	-3.51	118.49	123.48
3	A	2000	GDP	C5-C6-N1	-3.20	118.93	123.48
3	D	5000	GDP	C4-C5-N7	-2.93	106.58	109.41
3	A	2000	GDP	C1'-N9-C4	-2.92	121.59	126.64
3	C	4000	GDP	C5-C6-N1	-2.86	119.42	123.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	6003	20S	O17-C4-O7	-2.65	116.97	123.55
3	C	4000	GDP	C4-C5-N7	-2.21	107.28	109.41
3	B	3000	GDP	C4-C5-N7	-2.21	107.28	109.41
5	D	6002	20S	O17-C4-O7	-2.08	118.38	123.55
5	C	6003	20S	O17-C4-C7	2.65	119.61	111.90
5	D	6002	20S	O17-C4-C7	2.69	119.74	111.90
3	C	4000	GDP	C6-N1-C2	4.26	122.19	116.06
3	B	3000	GDP	C6-N1-C2	4.45	122.47	116.06
3	D	5000	GDP	C2-N3-C4	4.53	120.45	115.16
3	B	3000	GDP	C2-N3-C4	4.90	120.88	115.16
3	A	2000	GDP	C2-N3-C4	4.95	120.94	115.16
3	A	2000	GDP	C6-N1-C2	5.25	123.62	116.06
3	C	4000	GDP	C2-N3-C4	5.31	121.36	115.16
5	C	6003	20S	C12-C11-C10	5.36	167.83	115.40
3	D	5000	GDP	C6-N1-C2	5.36	123.77	116.06
5	D	6002	20S	C12-C11-C10	5.40	168.23	115.40
5	D	6002	20S	C11-C10-C9	11.37	173.07	114.45
5	C	6003	20S	C11-C10-C9	11.52	173.82	114.45

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	6001	MLA	1	0
4	C	4003	MLA	1	0
5	C	6003	20S	1	0
3	D	5000	GDP	1	0
5	D	6002	20S	2	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

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(Å ²)	Q<0.9
1	A	608/608 (100%)	0.55	50 (8%) 12 16	9, 15, 19, 25	0
1	B	608/608 (100%)	0.81	88 (14%) 3 4	11, 15, 19, 26	0
1	C	608/608 (100%)	0.65	60 (9%) 8 10	12, 15, 19, 25	0
1	D	608/608 (100%)	0.57	56 (9%) 10 12	11, 15, 19, 24	0
All	All	2432/2432 (100%)	0.65	254 (10%) 7 9	9, 15, 19, 26	0

All (254) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	398	PRO	7.8
1	B	400	VAL	7.5
1	A	396	THR	6.6
1	B	222	THR	6.6
1	C	396	THR	6.4
1	C	399	GLY	6.3
1	A	398	PRO	6.0
1	B	401	THR	5.9
1	D	395	PRO	5.9
1	B	409	PRO	5.8
1	D	396	THR	5.8
1	B	399	GLY	5.7
1	D	222	THR	5.6
1	D	491	GLY	5.5
1	B	224	PRO	5.5
1	B	542	GLY	5.5
1	D	492	GLY	5.4
1	D	169	PRO	5.3
1	A	170	THR	5.1
1	C	397	GLU	5.0
1	C	398	PRO	5.0

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Mol	Chain	Res	Type	RSRZ
1	B	412	HIS	4.9
1	B	540	ASN	4.9
1	C	524	ASN	4.8
1	B	396	THR	4.8
1	B	221	LEU	4.8
1	C	128	GLY	4.7
1	A	173	LEU	4.7
1	A	395	PRO	4.7
1	C	130	PRO	4.7
1	B	413	GLY	4.6
1	A	197	GLY	4.6
1	A	542	GLY	4.6
1	C	338	ASP	4.6
1	C	395	PRO	4.6
1	A	397	GLU	4.6
1	D	400	VAL	4.6
1	B	402	TYR	4.5
1	B	397	GLU	4.5
1	D	128	GLY	4.5
1	D	223	GLU	4.5
1	D	205	ASP	4.5
1	B	415	PRO	4.4
1	B	416	GLU	4.4
1	D	203	ARG	4.3
1	A	540	ASN	4.3
1	D	224	PRO	4.3
1	D	398	PRO	4.3
1	B	381	LEU	4.3
1	B	441	ASP	4.2
1	B	440	ASP	4.1
1	A	399	GLY	4.1
1	B	403	THR	4.0
1	B	543	ARG	4.0
1	A	589	PRO	4.0
1	B	587	GLY	4.0
1	C	522	ARG	4.0
1	C	302	ALA	3.9
1	B	438	ARG	3.9
1	A	400	VAL	3.9
1	B	219	LEU	3.9
1	D	413	GLY	3.8
1	A	285	LEU	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	383	SER	3.8
1	B	206	ASP	3.8
1	D	207	ASP	3.8
1	D	254[A]	TYR	3.8
1	C	523	SER	3.7
1	D	126	PRO	3.7
1	D	130	PRO	3.7
1	A	198	PRO	3.7
1	C	129	GLY	3.7
1	A	504	PHE	3.7
1	B	541	GLU	3.6
1	D	173	LEU	3.6
1	A	128	GLY	3.6
1	B	371	ALA	3.6
1	D	397	GLU	3.6
1	D	129	GLY	3.5
1	A	394	GLU	3.5
1	A	172	PRO	3.5
1	C	352	PHE	3.5
1	B	220	PRO	3.5
1	B	411	LYS	3.5
1	B	414	ASP	3.5
1	B	226	VAL	3.5
1	C	301	ALA	3.5
1	C	127	SER	3.5
1	B	407	GLY	3.4
1	C	309[A]	LYS	3.4
1	B	418	CYS	3.4
1	D	399	GLY	3.4
1	D	301	ALA	3.4
1	B	395	PRO	3.4
1	A	543	ARG	3.4
1	C	303	PHE	3.3
1	B	500	ALA	3.3
1	B	302	ALA	3.3
1	A	202	GLN	3.2
1	B	380	GLY	3.2
1	D	127	SER	3.2
1	A	301	ALA	3.2
1	B	452	PHE	3.2
1	D	245	ARG	3.2
1	B	589	PRO	3.2

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Mol	Chain	Res	Type	RSRZ
1	B	451	ILE	3.2
1	C	504	PHE	3.1
1	B	225	LEU	3.1
1	C	285	LEU	3.1
1	C	307	CYS	3.1
1	D	43	ALA	3.1
1	C	500	ALA	3.1
1	D	170	THR	3.1
1	B	223	GLU	3.1
1	B	523	SER	3.0
1	A	331	ILE	3.0
1	C	202	GLN	3.0
1	A	541	GLU	3.0
1	B	267	LEU	3.0
1	B	588	LEU	3.0
1	C	205	ASP	3.0
1	B	410	TRP	2.9
1	D	411	LYS	2.9
1	A	499	PHE	2.9
1	D	220	PRO	2.9
1	C	401	THR	2.9
1	C	203	ARG	2.9
1	B	293[A]	SER	2.9
1	A	283	HIS	2.8
1	A	303	PHE	2.8
1	A	171	SER	2.8
1	D	206	ASP	2.8
1	C	267	LEU	2.8
1	B	491	GLY	2.8
1	A	302	ALA	2.8
1	B	228	SER	2.8
1	A	411	LYS	2.8
1	B	391	GLY	2.8
1	C	207	ASP	2.8
1	C	400	VAL	2.8
1	D	234	SER	2.8
1	D	168	PRO	2.8
1	A	412	HIS	2.8
1	B	384	ASP	2.7
1	B	385	GLY	2.7
1	A	267	LEU	2.7
1	C	331	ILE	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	259	LEU	2.7
1	C	372	ARG	2.7
1	C	339	GLU	2.7
1	B	538	ARG	2.7
1	D	394	GLU	2.6
1	A	130	PRO	2.6
1	C	310	THR	2.6
1	C	353	GLY	2.6
1	A	415	PRO	2.6
1	B	524	ASN	2.6
1	D	44	ALA	2.6
1	C	304	PRO	2.6
1	D	46	ARG	2.6
1	D	493	ARG	2.5
1	C	283	HIS	2.5
1	B	88	PRO	2.5
1	D	285	LEU	2.5
1	C	186	VAL	2.5
1	C	354	VAL	2.5
1	B	386	GLY	2.5
1	B	388	TYR	2.5
1	B	437	PRO	2.5
1	C	253	GLY	2.5
1	B	319	LEU	2.5
1	A	533	VAL	2.5
1	A	284	MET	2.4
1	C	312	LEU	2.4
1	C	533	VAL	2.4
1	B	264	CYS	2.4
1	B	331	ILE	2.4
1	B	205	ASP	2.4
1	C	402	TYR	2.4
1	D	221	LEU	2.4
1	B	301	ALA	2.4
1	B	590	GLY	2.4
1	C	525	ALA	2.4
1	B	361	ARG	2.4
1	D	401	THR	2.4
1	D	524	ASN	2.3
1	C	479	MET	2.3
1	B	539	ASP	2.3
1	B	323	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
1	D	219	LEU	2.3
1	B	417	PRO	2.3
1	A	332	ALA	2.3
1	B	285	LEU	2.3
1	C	260	LEU	2.3
1	C	503	PRO	2.3
1	A	127	SER	2.3
1	B	278	GLY	2.3
1	A	203	ARG	2.3
1	B	283	HIS	2.3
1	C	589	PRO	2.3
1	D	76	ARG	2.3
1	B	303	PHE	2.3
1	C	187	VAL	2.3
1	C	393	ASP	2.3
1	C	451	ILE	2.3
1	A	501	MET	2.2
1	D	302	ALA	2.2
1	D	500	ALA	2.2
1	A	452	PHE	2.2
1	C	526	ARG	2.2
1	B	408	LYS	2.2
1	C	453	GLY	2.2
1	D	415	PRO	2.2
1	B	322	TRP	2.2
1	C	183	SER	2.2
1	A	451	ILE	2.2
1	B	476	GLY	2.2
1	D	148	GLU	2.2
1	A	186	VAL	2.2
1	B	217	ARG	2.2
1	C	300	ALA	2.2
1	C	306	ALA	2.2
1	C	499	PHE	2.2
1	D	504	PHE	2.2
1	C	308	GLY	2.2
1	B	127	SER	2.2
1	A	238	VAL	2.1
1	B	259	LEU	2.1
1	D	352	PHE	2.1
1	A	264	CYS	2.1
1	C	394	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	312	LEU	2.1
1	A	500	ALA	2.1
1	D	172	PRO	2.1
1	A	129	GLY	2.1
1	B	503	PRO	2.1
1	D	441	ASP	2.1
1	D	473	VAL	2.1
1	A	266	ALA	2.1
1	B	372	ARG	2.1
1	C	492	GLY	2.1
1	A	206	ASP	2.0
1	D	440	ASP	2.0
1	B	522	ARG	2.0
1	A	126	PRO	2.0
1	B	450	ILE	2.0
1	B	501	MET	2.0
1	B	585	LEU	2.0
1	D	225	LEU	2.0
1	D	50	GLU	2.0
1	B	204	LEU	2.0
1	B	530	LEU	2.0
1	D	55	LEU	2.0
1	C	256	GLY	2.0

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(\AA^2)	Q<0.9
2	MN	A	2003	1/1	0.97	0.40	15.63	21,21,21,21	1
2	MN	D	5003	1/1	0.94	0.41	6.19	14,14,14,14	1
4	MLA	D	5001	7/7	0.90	0.25	0.68	27,30,32,32	0
4	MLA	A	2001	7/7	0.87	0.24	0.63	34,36,38,38	0
4	MLA	B	3001	7/7	0.89	0.21	0.31	27,27,29,29	0
5	20S	D	6002	32/32	0.96	0.13	0.05	11,15,19,20	0
5	20S	C	6003	32/32	0.95	0.12	-0.44	8,12,18,18	0
4	MLA	B	6001	7/7	0.90	0.14	-0.45	30,32,34,36	0
3	GDP	D	5000	28/28	0.94	0.12	-0.61	16,18,23,24	0
3	GDP	B	3000	28/28	0.97	0.13	-0.70	15,18,18,19	0
3	GDP	C	4000	28/28	0.97	0.16	-0.90	9,11,13,14	0
4	MLA	C	4003	7/7	0.95	0.19	-1.29	21,21,26,30	0
3	GDP	A	2000	28/28	0.98	0.10	-1.46	9,11,14,15	0
2	MN	C	4001	1/1	0.99	0.11	-2.58	9,9,9,9	0
2	MN	B	3002	1/1	0.96	0.10	-3.16	28,28,28,28	1
2	MN	D	5002	1/1	0.92	0.08	-4.51	38,38,38,38	1
2	MN	C	4002	1/1	0.97	0.40	-	9,9,9,9	1
2	MN	B	3003	1/1	0.95	0.26	-	23,23,23,23	1
2	MN	A	2002	1/1	0.99	0.12	-	15,15,15,15	1

6.5 Other polymers [i](#)

There are no such residues in this entry.