



# Full wwPDB X-ray Structure Validation Report

Feb 27, 2014 – 07:13 AM GMT

PDB ID : 1DK5  
Title : CRYSTAL STRUCTURE OF ANNEXIN 24(CA32) FROM CAPSICUM ANNUUM  
Authors : Hofmann, A.; Proust, J.; Dorowski, A.; Schantz, R.; Huber, R.  
Deposited on : 1999-12-06  
Resolution : 2.80 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.  
We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)  
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

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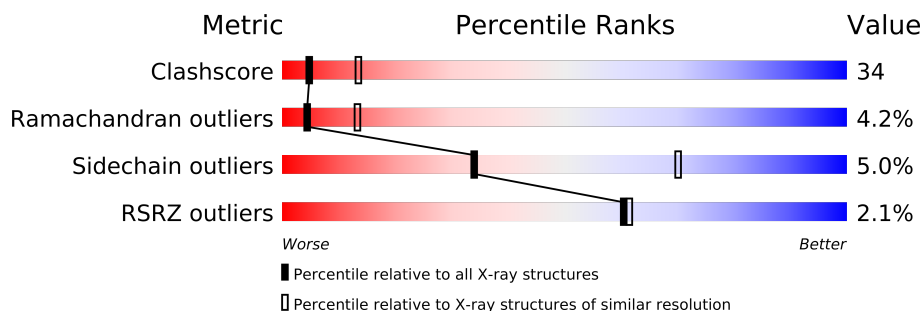
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.15 2013  
Xtriage (Phenix) : dev-1323  
EDS : stable22639  
Percentile statistics : 21963  
Refmac : 5.8.0049  
CCP4 : 6.3.0 (Settle)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : stable22683

# 1 Overall quality at a glance

The reported resolution of this entry is 2.80 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))
Clashscore	79885	2295 (2.80-2.80)
Ramachandran outliers	78287	2252 (2.80-2.80)
Sidechain outliers	78261	2254 (2.80-2.80)
RSRZ outliers	66119	1802 (2.80-2.80)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	322	
1	B	322	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	SO4	A	801	-	X
2	SO4	A	807	-	X
2	SO4	A	808	-	X
2	SO4	A	809	-	X
2	SO4	A	810	-	X
2	SO4	B	818	-	X
2	SO4	B	819	-	X
2	SO4	B	820	-	X
2	SO4	B	821	-	X

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Mol	Type	Chain	Res	Geometry	Electron density
2	SO4	B	822	-	X
2	SO4	B	823	-	X
2	SO4	B	824	-	X
2	SO4	B	825	-	X
2	SO4	B	826	-	X
2	SO4	B	829	-	X
2	SO4	B	831	-	X
2	SO4	B	833	-	X

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 5572 atoms, of which 0 are hydrogen and 0 are deuterium.

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 ANNEXIN 24(CA32).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	316	Total	C	N	O	S	0	0	0
			2550	1603	458	485	4			
1	B	314	Total	C	N	O	S	0	0	0
			2529	1590	450	485	4			

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	EXPRESSION TAG	UNP Q42657
A	2	ALA	-	EXPRESSION TAG	UNP Q42657
A	3	HIS	-	EXPRESSION TAG	UNP Q42657
A	4	HIS	-	EXPRESSION TAG	UNP Q42657
A	5	HIS	-	EXPRESSION TAG	UNP Q42657
A	6	HIS	-	EXPRESSION TAG	UNP Q42657
A	7	HIS	-	EXPRESSION TAG	UNP Q42657
A	8	HIS	-	EXPRESSION TAG	UNP Q42657
B	401	MET	-	EXPRESSION TAG	UNP Q42657
B	402	ALA	-	EXPRESSION TAG	UNP Q42657
B	403	HIS	-	EXPRESSION TAG	UNP Q42657
B	404	HIS	-	EXPRESSION TAG	UNP Q42657
B	405	HIS	-	EXPRESSION TAG	UNP Q42657
B	406	HIS	-	EXPRESSION TAG	UNP Q42657
B	407	HIS	-	EXPRESSION TAG	UNP Q42657
B	408	HIS	-	EXPRESSION TAG	UNP Q42657

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is water.

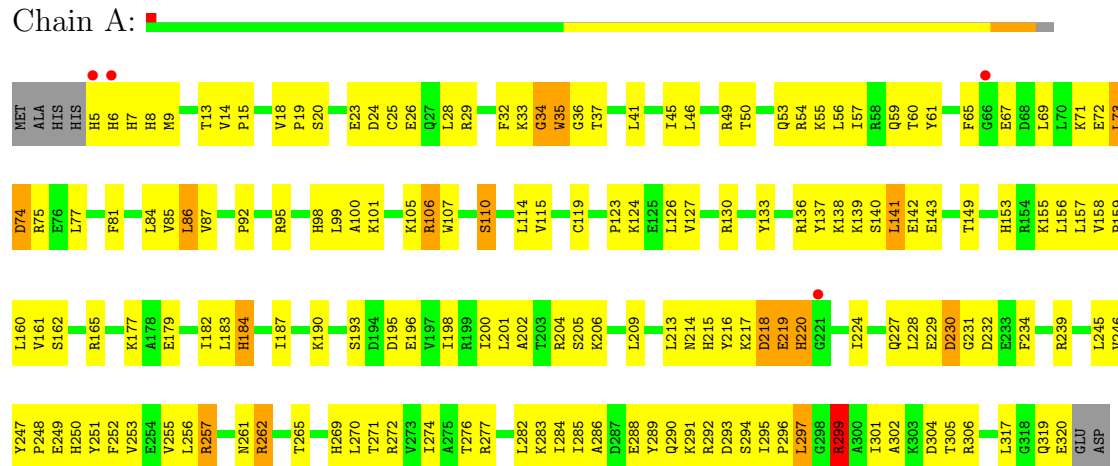
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	181	Total 181	O 181	0	0
3	B	147	Total 147	O 147	0	0

### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

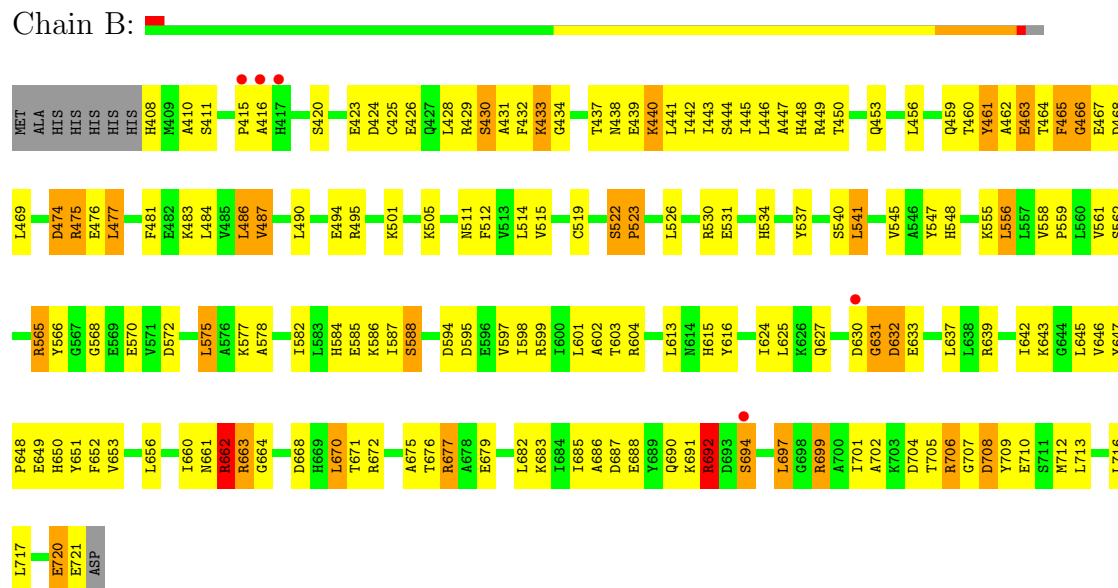
#### • Molecule 1: ANNEXIN 24(CA32)

Chain A:



#### • Molecule 1: ANNEXIN 24(CA32)

Chain B:





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	96.76Å 96.76Å 173.39Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	50.00 – 2.80 24.81 – 2.80	Depositor EDS
% Data completeness (in resolution range)	95.7 (50.00-2.80) 98.4 (24.81-2.80)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.36 (at 2.80Å)	Xtriage
Refinement program	CNS	Depositor
R, $R_{free}$	0.216 , 0.316 0.231 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	DCC
Wilson B-factor (Å <sup>2</sup> )	59.3	Xtriage
Anisotropy	0.419	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 39.7	EDS
Estimated twinning fraction	0.028 for -h,-k,l	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 23367 reflections	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	5572	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.37% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SO4

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	0.83	1/2596 (0.0%)	0.93	5/3506 (0.1%)
1	B	0.81	3/2572 (0.1%)	1.03	12/3473 (0.3%)
All	All	0.82	4/5168 (0.1%)	0.98	17/6979 (0.2%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	110	SER	CB-OG	-21.51	1.14	1.42
1	B	631	GLY	CA-C	9.74	1.67	1.51
1	B	631	GLY	N-CA	6.54	1.55	1.46
1	B	664	GLY	CA-C	5.27	1.60	1.51

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	630	ASP	O-C-N	-7.80	109.94	123.20
1	B	662	ARG	NE-CZ-NH2	7.40	124.00	120.30
1	B	692	ARG	NE-CZ-NH2	7.32	123.96	120.30
1	B	663	ARG	NE-CZ-NH2	7.24	123.92	120.30
1	B	694	SER	N-CA-CB	7.19	121.29	110.50
1	A	297	LEU	CA-CB-CG	6.83	131.00	115.30
1	B	677	ARG	NE-CZ-NH2	6.72	123.66	120.30
1	A	34	GLY	N-CA-C	6.39	129.08	113.10
1	B	672	ARG	NE-CZ-NH2	6.38	123.49	120.30
1	A	306	ARG	NE-CZ-NH2	6.38	123.49	120.30
1	B	720	GLU	N-CA-C	-6.09	94.55	111.00
1	B	699	ARG	NE-CZ-NH2	5.91	123.25	120.30
1	B	630	ASP	CB-CA-C	-5.67	99.06	110.40
1	A	141	LEU	CA-CB-CG	5.41	127.75	115.30
1	A	114	LEU	CA-CB-CG	5.25	127.37	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	630	ASP	CA-C-N	5.09	126.38	116.20
1	B	468	ASP	N-CA-C	-5.08	97.27	111.00

There are no chirality outliers.

There are no planarity outliers.

## 5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2550	0	2551	195	0
1	B	2529	0	2536	160	0
2	A	70	0	0	15	0
2	B	95	0	0	9	0
3	A	181	0	0	16	0
3	B	147	0	0	5	0
All	All	5572	0	5087	355	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 34.

All (355) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:179:GLU:HG2	1:A:200:ILE:HD13	1.15	1.12
1:B:662:ARG:HG3	1:B:663:ARG:H	1.01	1.12
1:B:706:ARG:HD3	1:B:707:GLY:H	1.22	1.04
1:A:239:ARG:HD3	3:A:977:HOH:O	1.58	1.02
1:B:599:ARG:HG2	2:B:826:SO4:O4	1.57	1.01
1:A:140:SER:HB2	1:A:143:GLU:HB2	1.41	0.99
1:A:55:LYS:O	1:A:59:GLN:HG3	1.62	0.98
1:A:179:GLU:HG2	1:A:200:ILE:CD1	1.94	0.97
1:A:69:LEU:O	1:A:73:LEU:HD23	1.68	0.94
1:B:662:ARG:CG	1:B:663:ARG:H	1.80	0.93
1:A:155:LYS:HG2	1:A:198:ILE:HD13	1.49	0.93
1:B:662:ARG:HG3	1:B:663:ARG:N	1.84	0.91

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:257:ARG:HA	1:A:257:ARG:HE	1.37	0.90
1:A:20:SER:OG	1:A:23:GLU:HG3	1.70	0.90
1:A:183:LEU:O	1:A:187:ILE:HG12	1.76	0.86
1:A:296:PRO:HD2	1:A:299:ARG:HG3	1.57	0.85
1:A:7:HIS:CE1	1:A:8:HIS:HB3	2.12	0.84
1:B:475:ARG:HH11	1:B:475:ARG:HG3	1.42	0.84
1:B:441:LEU:O	1:B:445:ILE:HG13	1.77	0.83
1:A:190:LYS:HD2	3:A:1002:HOH:O	1.77	0.83
1:B:408:HIS:O	1:B:683:LYS:HD3	1.79	0.83
1:A:100:ALA:HB1	1:A:141:LEU:HD13	1.60	0.82
1:A:262:ARG:NE	1:A:262:ARG:H	1.78	0.81
1:B:706:ARG:HD3	1:B:707:GLY:N	1.96	0.80
1:B:430:SER:O	1:B:433:LYS:HD2	1.81	0.80
1:A:15:PRO:HD2	1:A:18:VAL:HG12	1.64	0.79
1:A:179:GLU:CG	1:A:200:ILE:HD13	2.08	0.79
1:A:5:HIS:N	1:A:50:THR:HG21	1.97	0.79
1:B:477:LEU:HD11	1:B:486:LEU:HD12	1.65	0.78
1:B:501:LYS:O	1:B:501:LYS:HD2	1.82	0.78
1:B:577:LYS:HG3	1:B:615:HIS:NE2	1.98	0.78
1:B:706:ARG:CD	1:B:707:GLY:H	1.96	0.78
1:A:140:SER:HB2	1:A:143:GLU:CB	2.14	0.78
1:A:230:ASP:CG	1:A:231:GLY:N	2.35	0.77
1:A:153:HIS:HD2	2:A:804:SO4:O1	1.66	0.77
1:B:431:ALA:HA	1:B:438:ASN:OD1	1.85	0.76
1:A:35:TRP:O	1:A:37:THR:N	2.18	0.75
1:A:319:GLN:O	1:A:320:GLU:HG3	1.86	0.75
1:B:701:ILE:O	1:B:705:THR:HB	1.86	0.74
1:A:257:ARG:HA	1:A:257:ARG:NE	2.01	0.74
1:A:9:MET:O	1:A:283:LYS:HB3	1.87	0.74
1:B:420:SER:OG	1:B:423:GLU:HG3	1.87	0.74
1:B:705:THR:HG22	1:B:710:GLU:HB2	1.71	0.73
1:A:155:LYS:HG2	1:A:198:ILE:CD1	2.17	0.73
1:B:613:LEU:HD22	1:B:624:ILE:HG21	1.70	0.73
1:B:565:ARG:NH2	1:B:601:LEU:O	2.22	0.73
1:B:495:ARG:HH11	1:B:676:THR:HA	1.53	0.72
1:A:249:GLU:OE2	1:A:249:GLU:N	2.23	0.72
1:A:214:ASN:O	1:A:217:LYS:HG2	1.89	0.72
1:A:249:GLU:HB2	2:A:806:SO4:S	2.29	0.72
1:B:639:ARG:O	1:B:643:LYS:HB2	1.90	0.72
1:A:165:ARG:NH2	1:A:201:LEU:O	2.23	0.71
1:A:130:ARG:HB3	2:A:808:SO4:O3	1.91	0.71
1:A:177:LYS:HE3	3:A:1073:HOH:O	1.91	0.71

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:187:ILE:HD12	1:A:228:LEU:HD21	1.71	0.70
1:B:441:LEU:CD2	1:B:445:ILE:HD11	2.20	0.70
1:B:565:ARG:NH2	1:B:645:LEU:HD11	2.07	0.70
1:A:5:HIS:N	1:A:50:THR:CG2	2.54	0.70
1:A:130:ARG:NE	2:A:808:SO4:O1	2.25	0.70
1:A:95:ARG:O	1:A:99:LEU:HG	1.92	0.69
1:A:7:HIS:CG	1:A:8:HIS:H	2.10	0.69
1:A:261:ASN:ND2	1:A:262:ARG:HH21	1.90	0.69
1:A:7:HIS:CG	1:A:8:HIS:N	2.59	0.69
1:A:101:LYS:HE3	1:A:105:LYS:HE2	1.74	0.68
1:A:261:ASN:HD22	1:A:262:ARG:HH21	1.41	0.68
1:B:572:ASP:OD2	1:B:575:LEU:HB2	1.94	0.68
1:A:136:ARG:NE	3:A:913:HOH:O	2.25	0.68
1:B:541:LEU:O	1:B:545:VAL:HG23	1.94	0.67
1:B:440:LYS:HD2	1:B:440:LYS:O	1.94	0.67
1:B:415:PRO:HD3	1:B:448:HIS:HB3	1.74	0.67
1:A:69:LEU:O	1:A:72:GLU:HB3	1.94	0.67
1:B:512:PHE:O	1:B:515:VAL:HG22	1.95	0.67
1:A:232:ASP:HB2	2:A:805:SO4:O1	1.94	0.67
1:B:475:ARG:NH1	1:B:475:ARG:HG3	2.05	0.67
1:B:671:THR:OG1	3:B:949:HOH:O	2.13	0.66
1:A:149:THR:HA	2:A:804:SO4:O4	1.96	0.66
1:B:484:LEU:HD13	1:B:671:THR:HG23	1.77	0.66
1:B:511:ASN:HA	1:B:514:LEU:HD12	1.76	0.66
1:A:262:ARG:HE	1:A:262:ARG:H	1.42	0.66
1:A:317:LEU:HG	1:A:317:LEU:O	1.94	0.66
1:A:69:LEU:HD12	1:A:73:LEU:HD22	1.77	0.66
1:A:261:ASN:ND2	1:A:262:ARG:NH2	2.44	0.66
1:A:142:GLU:OE1	2:A:808:SO4:S	2.54	0.65
1:A:140:SER:HB2	1:A:143:GLU:H	1.62	0.65
1:A:69:LEU:HD12	1:A:73:LEU:CD2	2.26	0.65
1:B:469:LEU:O	1:B:469:LEU:HD23	1.97	0.65
1:A:136:ARG:HG3	1:A:137:TYR:CE2	2.30	0.65
1:B:481:PHE:HD2	3:B:1035:HOH:O	1.79	0.64
1:B:459:GLN:O	1:B:463:GLU:HG2	1.97	0.64
1:B:476:GLU:OE2	2:B:833:SO4:O1	2.16	0.64
1:B:650:HIS:NE2	1:B:688:GLU:OE1	2.31	0.64
1:B:477:LEU:CD1	1:B:486:LEU:HD12	2.28	0.64
1:A:28:LEU:HD21	1:A:46:LEU:HD21	1.77	0.64
1:A:37:THR:HG22	1:A:37:THR:O	1.98	0.63
1:A:219:GLU:O	3:A:1150:HOH:O	2.16	0.63
1:A:182:ILE:HG21	1:A:196:GLU:HB3	1.80	0.63

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:428:LEU:O	1:B:431:ALA:HB3	1.99	0.63
1:B:649:GLU:O	1:B:653:VAL:HG23	1.99	0.62
1:A:213:LEU:HD13	1:A:224:ILE:HG21	1.81	0.62
1:B:501:LYS:HG2	1:B:537:TYR:CE2	2.34	0.62
1:A:41:LEU:O	1:A:45:ILE:HG13	1.98	0.62
1:B:683:LYS:NZ	3:B:1074:HOH:O	2.32	0.62
1:A:50:THR:H	1:A:53:GLN:NE2	1.99	0.61
1:A:230:ASP:OD2	1:A:231:GLY:N	2.34	0.61
1:B:577:LYS:HG3	1:B:615:HIS:CE1	2.35	0.61
1:A:297:LEU:HD13	1:A:301:ILE:HD12	1.82	0.61
1:A:6:HIS:CD2	1:A:14:VAL:HG22	2.36	0.61
1:B:710:GLU:O	1:B:710:GLU:HG2	2.00	0.60
1:A:20:SER:N	1:A:23:GLU:OE1	2.30	0.60
1:A:217:LYS:HE2	3:A:1083:HOH:O	2.01	0.60
1:B:646:VAL:O	1:B:648:PRO:HD2	2.01	0.60
1:B:428:LEU:HD13	1:B:445:ILE:HD12	1.84	0.60
1:A:53:GLN:O	1:A:57:ILE:HG13	2.02	0.60
1:A:98:HIS:ND1	2:A:802:SO4:O4	2.33	0.60
1:B:656:LEU:HD13	1:B:697:LEU:HD11	1.83	0.59
1:B:410:ALA:O	1:B:683:LYS:HB2	2.02	0.59
1:A:56:LEU:O	1:A:60:THR:HG23	2.01	0.59
1:B:495:ARG:NH1	1:B:676:THR:HA	2.17	0.59
1:B:511:ASN:O	1:B:515:VAL:HG13	2.02	0.59
1:A:209:LEU:HD21	1:A:245:LEU:HD13	1.84	0.59
1:B:432:PHE:O	1:B:434:GLY:N	2.36	0.59
1:B:720:GLU:C	1:B:721:GLU:OE1	2.42	0.59
1:A:253:VAL:HG21	1:A:288:GLU:HB2	1.85	0.58
1:B:639:ARG:NE	2:B:832:SO4:O2	2.36	0.58
1:A:45:ILE:O	1:A:49:ARG:HG2	2.03	0.58
1:A:155:LYS:NZ	1:A:195:ASP:OD1	2.29	0.58
1:A:9:MET:HG2	1:A:284:ILE:HD11	1.85	0.58
1:A:7:HIS:CE1	1:A:9:MET:HG3	2.38	0.58
1:B:526:LEU:O	1:B:530:ARG:HG3	2.04	0.58
1:B:460:THR:HA	1:B:463:GLU:HG2	1.86	0.57
1:A:209:LEU:CD2	1:A:245:LEU:HD13	2.34	0.57
1:B:613:LEU:HD22	1:B:624:ILE:CG2	2.33	0.57
1:A:206:LYS:HG3	3:A:1030:HOH:O	2.05	0.57
1:A:270:LEU:O	1:A:274:ILE:HG12	2.04	0.57
1:A:124:LYS:HA	1:A:127:VAL:HG12	1.87	0.57
1:B:462:ALA:O	1:B:464:THR:N	2.38	0.56
1:A:249:GLU:O	1:A:253:VAL:HG23	2.04	0.56
1:B:699:ARG:O	1:B:702:ALA:N	2.37	0.56

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:438:ASN:O	1:B:439:GLU:C	2.43	0.56
1:A:165:ARG:NH2	1:A:202:ALA:HA	2.19	0.56
1:B:461:TYR:O	1:B:461:TYR:CD1	2.58	0.56
1:A:71:LYS:HE2	3:A:1166:HOH:O	2.06	0.56
1:A:140:SER:CB	1:A:143:GLU:H	2.19	0.56
1:A:196:GLU:O	1:A:200:ILE:HG13	2.06	0.56
1:B:613:LEU:CD2	1:B:624:ILE:HG21	2.35	0.56
1:A:299:ARG:O	1:A:302:ALA:N	2.39	0.55
1:B:450:THR:OG1	1:B:453:GLN:HG3	2.06	0.55
1:A:87:VAL:O	1:A:95:ARG:HD3	2.07	0.54
1:A:123:PRO:HD2	2:A:813:SO4:O4	2.07	0.54
1:A:317:LEU:CG	1:A:317:LEU:O	2.55	0.54
1:B:483:LYS:O	1:B:487:VAL:HG22	2.07	0.54
1:A:138:LYS:O	1:A:139:LYS:HG3	2.06	0.54
1:A:71:LYS:HA	1:A:74:ASP:OD1	2.08	0.54
1:B:429:ARG:C	1:B:431:ALA:H	2.11	0.54
1:A:69:LEU:CD1	1:A:73:LEU:HD22	2.38	0.54
1:A:50:THR:O	1:A:54:ARG:HG3	2.07	0.54
1:B:566:TYR:CE1	1:B:568:GLY:N	2.76	0.54
1:A:256:LEU:HD13	1:A:297:LEU:HD21	1.91	0.53
1:A:299:ARG:HD2	3:A:907:HOH:O	2.08	0.53
1:A:74:ASP:HA	1:A:86:LEU:HD21	1.90	0.53
1:A:119:CYS:HB3	1:A:245:LEU:HG	1.90	0.53
1:A:205:SER:O	1:A:209:LEU:HB2	2.07	0.53
1:A:304:ASP:O	1:A:305:THR:HG22	2.08	0.53
1:A:126:LEU:O	1:A:126:LEU:HG	2.07	0.53
1:B:558:VAL:O	1:B:562:SER:HB2	2.09	0.53
1:B:613:LEU:HD11	1:B:642:ILE:CG2	2.39	0.53
1:A:87:VAL:HG13	1:A:95:ARG:HG3	1.91	0.53
1:B:687:ASP:O	1:B:690:GLN:HG2	2.09	0.53
1:A:213:LEU:HD13	1:A:224:ILE:CG2	2.39	0.53
1:A:230:ASP:CG	1:A:231:GLY:H	2.12	0.52
1:B:411:SER:HB2	1:B:717:LEU:O	2.10	0.52
1:B:437:THR:C	1:B:438:ASN:HD22	2.11	0.52
1:A:261:ASN:HB3	1:A:262:ARG:NH2	2.23	0.52
1:B:540:SER:O	1:B:541:LEU:C	2.47	0.52
1:A:124:LYS:O	1:A:127:VAL:CG1	2.57	0.52
1:A:130:ARG:HH12	1:A:162:SER:C	2.13	0.52
1:A:155:LYS:HE3	1:A:198:ILE:HD12	1.92	0.52
1:A:269:HIS:CD2	1:A:272:ARG:HH12	2.28	0.52
1:A:153:HIS:CD2	2:A:804:SO4:O1	2.56	0.52
1:B:648:PRO:O	1:B:651:TYR:HB3	2.09	0.52

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:283:LYS:HG3	3:A:856:HOH:O	2.10	0.51
1:B:438:ASN:O	1:B:441:LEU:N	2.39	0.51
1:A:250:HIS:CE1	3:A:992:HOH:O	2.63	0.51
1:A:246:VAL:HG12	1:A:247:TYR:CE1	2.46	0.51
1:B:462:ALA:C	1:B:464:THR:N	2.60	0.51
1:B:519:CYS:SG	1:B:645:LEU:HG	2.50	0.51
1:B:441:LEU:HD22	1:B:445:ILE:HD11	1.93	0.51
1:B:585:GLU:HG3	1:B:586:LYS:N	2.26	0.51
1:B:441:LEU:HD23	1:B:445:ILE:HD11	1.92	0.51
1:B:442:ILE:HG22	1:B:446:LEU:HD12	1.93	0.51
1:A:216:TYR:CE1	1:A:224:ILE:HD13	2.46	0.50
1:A:304:ASP:O	1:A:305:THR:CG2	2.59	0.50
1:B:587:ILE:HG21	1:B:627:GLN:CG	2.41	0.50
1:A:290:GLN:O	1:A:291:LYS:C	2.49	0.50
1:B:682:LEU:HA	1:B:685:ILE:HD12	1.93	0.50
1:B:632:ASP:OD2	1:B:633:GLU:N	2.44	0.50
1:A:136:ARG:HG3	1:A:137:TYR:CD2	2.47	0.50
1:B:660:ILE:N	1:B:660:ILE:HD12	2.26	0.50
1:A:130:ARG:NH1	1:A:162:SER:HA	2.26	0.50
1:A:6:HIS:CD2	1:A:14:VAL:H	2.30	0.50
1:A:124:LYS:O	1:A:127:VAL:HG12	2.12	0.50
1:B:474:ASP:O	1:B:475:ARG:C	2.51	0.49
1:B:578:ALA:O	1:B:582:ILE:HG13	2.12	0.49
1:B:570:GLU:H	1:B:570:GLU:CD	2.16	0.49
1:A:67:GLU:OE2	1:A:72:GLU:OE2	2.30	0.49
1:B:456:LEU:O	1:B:460:THR:HG23	2.12	0.49
1:B:683:LYS:O	1:B:686:ALA:HB3	2.12	0.49
1:A:24:ASP:O	1:A:28:LEU:HB2	2.13	0.49
1:B:494:GLU:HB3	2:B:824:SO4:O4	2.12	0.49
1:B:705:THR:HG21	1:B:713:LEU:HD12	1.94	0.49
1:A:142:GLU:OE1	2:A:808:SO4:O1	2.29	0.49
1:B:490:LEU:HD22	2:B:824:SO4:O4	2.13	0.49
1:A:5:HIS:CD2	3:A:998:HOH:O	2.64	0.49
1:A:133:TYR:HD1	1:A:139:LYS:O	1.96	0.49
1:A:7:HIS:CD2	1:A:8:HIS:H	2.30	0.49
1:B:501:LYS:C	1:B:501:LYS:HD2	2.33	0.49
1:A:84:LEU:HD13	1:A:271:THR:HG23	1.94	0.49
1:A:304:ASP:C	1:A:305:THR:CG2	2.81	0.49
1:A:248:PRO:HG2	1:A:249:GLU:OE2	2.13	0.49
1:A:251:TYR:O	1:A:255:VAL:HG23	2.13	0.49
1:A:124:LYS:HA	1:A:127:VAL:CG1	2.43	0.48
1:B:465:PHE:CD1	1:B:465:PHE:N	2.80	0.48

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:7:HIS:HE1	1:A:9:MET:HG3	1.76	0.48
1:A:293:ASP:HB3	1:A:295:ILE:HG13	1.95	0.48
1:A:282:LEU:HD12	1:A:285:ILE:HB	1.95	0.48
1:A:256:LEU:HD23	1:A:256:LEU:HA	1.63	0.48
1:A:75:ARG:HE	1:A:75:ARG:HB2	1.44	0.48
1:A:158:VAL:N	1:A:159:PRO:HD2	2.29	0.48
1:B:459:GLN:O	1:B:462:ALA:HB3	2.13	0.48
1:B:660:ILE:HD11	1:B:670:LEU:HG	1.95	0.48
1:A:156:LEU:HD13	1:A:160:LEU:HD12	1.96	0.48
1:A:74:ASP:O	1:A:74:ASP:CG	2.52	0.48
1:B:461:TYR:HD1	1:B:461:TYR:O	1.96	0.48
1:A:26:GLU:N	3:A:857:HOH:O	2.47	0.48
1:B:425:CYS:SG	1:B:461:TYR:HB2	2.54	0.47
1:A:304:ASP:C	1:A:305:THR:HG23	2.34	0.47
1:A:157:LEU:O	1:A:161:VAL:HG13	2.14	0.47
1:A:126:LEU:HD21	1:A:161:VAL:O	2.14	0.47
1:B:460:THR:HA	1:B:463:GLU:CG	2.44	0.47
1:A:214:ASN:HA	1:A:217:LYS:CD	2.45	0.47
1:B:505:LYS:HE2	1:B:505:LYS:HB3	1.62	0.47
1:A:61:TYR:CD1	1:A:61:TYR:O	2.67	0.47
1:B:431:ALA:O	1:B:437:THR:HG23	2.15	0.47
1:A:5:HIS:HD2	3:A:998:HOH:O	1.98	0.47
1:B:565:ARG:NH2	1:B:645:LEU:CD1	2.78	0.47
1:B:441:LEU:O	1:B:445:ILE:CG1	2.57	0.47
1:B:461:TYR:C	1:B:461:TYR:CD1	2.89	0.47
1:A:86:LEU:O	1:A:87:VAL:C	2.52	0.47
1:A:249:GLU:HB2	2:A:806:SO4:O1	2.15	0.46
1:A:81:PHE:O	1:A:85:VAL:HG23	2.15	0.46
1:B:425:CYS:O	1:B:426:GLU:C	2.54	0.46
1:A:41:LEU:HD23	1:A:41:LEU:O	2.15	0.46
1:A:290:GLN:O	1:A:294:SER:N	2.38	0.46
1:B:594:ASP:O	1:B:597:VAL:N	2.47	0.46
1:B:662:ARG:CG	1:B:663:ARG:N	2.52	0.46
1:A:49:ARG:HA	1:A:53:GLN:NE2	2.31	0.46
1:B:599:ARG:NE	2:B:826:SO4:O3	2.48	0.46
1:B:484:LEU:HD22	1:B:713:LEU:CD2	2.46	0.46
1:A:156:LEU:O	1:A:156:LEU:HD22	2.16	0.46
1:B:708:ASP:OD1	1:B:708:ASP:N	2.49	0.46
1:A:32:PHE:CE2	1:A:72:GLU:HG2	2.52	0.45
1:A:256:LEU:HD13	1:A:297:LEU:CD2	2.46	0.45
1:A:18:VAL:HA	1:A:19:PRO:HD3	1.80	0.45
1:B:697:LEU:HD22	1:B:701:ILE:HG13	1.98	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:495:ARG:NH1	1:B:675:ALA:O	2.48	0.45
1:B:437:THR:C	1:B:438:ASN:ND2	2.69	0.45
1:B:709:TYR:O	1:B:713:LEU:HG	2.16	0.45
1:B:512:PHE:CE1	1:B:637:LEU:HD23	2.51	0.45
1:B:587:ILE:HG21	1:B:627:GLN:HG3	1.99	0.45
1:B:445:ILE:O	1:B:449:ARG:HG2	2.16	0.45
1:A:297:LEU:HD13	1:A:301:ILE:CD1	2.45	0.45
1:B:462:ALA:O	1:B:463:GLU:C	2.55	0.45
1:A:142:GLU:OE2	2:A:808:SO4:O2	2.34	0.45
1:A:286:ALA:O	1:A:289:TYR:HB3	2.16	0.45
1:B:428:LEU:HD23	1:B:469:LEU:HD11	1.99	0.45
1:A:29:ARG:HG2	1:A:65:PHE:CZ	2.52	0.45
1:B:555:LYS:HG2	1:B:598:ILE:CD1	2.47	0.45
1:A:261:ASN:CB	1:A:262:ARG:NH2	2.79	0.45
1:B:587:ILE:HG22	1:B:588:SER:N	2.32	0.45
1:A:218:ASP:O	1:A:219:GLU:C	2.56	0.44
1:A:115:VAL:HG13	1:A:119:CYS:SG	2.57	0.44
1:B:429:ARG:NH1	1:B:465:PHE:CG	2.86	0.44
1:B:474:ASP:O	1:B:476:GLU:N	2.49	0.44
1:A:69:LEU:CD1	1:A:73:LEU:CD2	2.94	0.44
1:A:155:LYS:HE3	1:A:193:SER:O	2.17	0.44
1:B:661:ASN:O	1:B:704:ASP:OD1	2.36	0.44
1:A:218:ASP:HB2	1:A:219:GLU:H	1.51	0.44
1:B:447:ALA:HB2	1:B:712:MET:CE	2.48	0.43
1:B:420:SER:OG	1:B:423:GLU:CG	2.62	0.43
1:B:603:THR:OG1	2:B:826:SO4:O4	2.36	0.43
1:A:140:SER:HB3	1:A:142:GLU:OE1	2.17	0.43
1:A:119:CYS:O	1:A:206:LYS:HE2	2.19	0.43
1:A:142:GLU:HB2	1:A:158:VAL:HG13	2.00	0.43
1:A:257:ARG:NH2	1:A:289:TYR:OH	2.51	0.43
1:A:182:ILE:CG2	1:A:196:GLU:HB3	2.48	0.43
1:A:289:TYR:O	1:A:292:ARG:HB3	2.19	0.43
1:B:429:ARG:O	1:B:431:ALA:N	2.44	0.43
1:B:428:LEU:CD1	1:B:445:ILE:HD12	2.48	0.43
1:B:555:LYS:HG2	1:B:598:ILE:HD13	2.00	0.43
1:B:464:THR:HG21	1:B:465:PHE:CZ	2.53	0.43
1:B:424:ASP:O	1:B:428:LEU:HB2	2.19	0.43
1:B:461:TYR:O	1:B:465:PHE:HD1	2.02	0.43
1:A:49:ARG:HG2	1:A:49:ARG:HH11	1.84	0.43
1:B:625:LEU:HD23	1:B:625:LEU:HA	1.71	0.43
1:B:716:LEU:HA	1:B:716:LEU:HD23	1.82	0.42
1:B:531:GLU:O	1:B:534:HIS:HB2	2.19	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:106:ARG:HG2	1:A:107:TRP:NE1	2.34	0.42
1:A:35:TRP:C	1:A:37:THR:H	2.15	0.42
1:A:130:ARG:CZ	2:A:808:SO4:O1	2.68	0.42
1:B:575:LEU:HD11	1:B:604:ARG:CZ	2.49	0.42
1:B:652:PHE:CE2	1:B:677:ARG:CZ	3.02	0.42
1:A:216:TYR:OH	1:A:227:GLN:OE1	2.38	0.42
1:A:156:LEU:HB2	1:A:234:PHE:HE1	1.85	0.42
1:A:33:LYS:NZ	3:A:921:HOH:O	2.46	0.42
1:A:142:GLU:OE1	1:A:142:GLU:N	2.44	0.42
1:B:466:GLY:O	2:B:823:SO4:O1	2.38	0.42
1:A:60:THR:HG22	3:A:920:HOH:O	2.18	0.42
1:B:556:LEU:O	1:B:559:PRO:HG2	2.20	0.42
1:A:289:TYR:CE2	1:A:297:LEU:HA	2.55	0.41
1:B:475:ARG:NH1	1:B:475:ARG:CG	2.78	0.41
1:B:697:LEU:O	1:B:701:ILE:HG13	2.20	0.41
1:B:541:LEU:HD13	1:B:561:VAL:HB	2.02	0.41
1:A:140:SER:CB	1:A:143:GLU:HB2	2.30	0.41
1:B:522:SER:O	1:B:523:PRO:C	2.59	0.41
1:A:276:THR:O	1:A:277:ARG:HD2	2.20	0.41
1:B:432:PHE:C	1:B:434:GLY:H	2.24	0.41
1:A:293:ASP:O	1:A:294:SER:HB2	2.20	0.41
1:B:456:LEU:HD21	3:B:1104:HOH:O	2.19	0.41
1:B:565:ARG:NH2	1:B:602:ALA:HA	2.35	0.41
1:A:218:ASP:O	1:A:219:GLU:O	2.38	0.41
1:B:599:ARG:HG2	2:B:826:SO4:S	2.56	0.41
1:A:25:CYS:O	1:A:26:GLU:C	2.57	0.41
1:B:679:GLU:HG3	3:B:938:HOH:O	2.21	0.41
1:B:697:LEU:HD22	1:B:701:ILE:HD11	2.03	0.41
1:B:646:VAL:HG12	1:B:647:TYR:CD1	2.55	0.41
1:B:547:TYR:HD2	1:B:548:HIS:CE1	2.38	0.41
1:A:130:ARG:NH1	1:A:162:SER:C	2.74	0.41
1:B:484:LEU:CD1	1:B:671:THR:HG23	2.48	0.41
1:A:209:LEU:HA	1:A:209:LEU:HD12	1.87	0.41
1:B:660:ILE:CD1	1:B:660:ILE:N	2.84	0.41
1:A:184:HIS:CD2	1:A:220:HIS:ND1	2.89	0.41
1:A:130:ARG:NE	2:A:808:SO4:S	2.90	0.40
1:B:420:SER:HG	1:B:423:GLU:HG3	1.83	0.40
1:B:691:LYS:O	1:B:692:ARG:C	2.59	0.40
1:A:7:HIS:ND1	1:A:8:HIS:N	2.68	0.40
1:B:584:HIS:HB2	1:B:616:TYR:CE1	2.56	0.40
1:A:179:GLU:OE2	1:A:204:ARG:NH2	2.39	0.40
1:B:425:CYS:O	1:B:428:LEU:N	2.54	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:92:PRO:HG3	1:A:95:ARG:NH1	2.36	0.40
1:A:215:HIS:HA	1:A:218:ASP:OD2	2.20	0.40
1:B:595:ASP:O	1:B:599:ARG:HB2	2.22	0.40
1:A:183:LEU:HA	1:A:183:LEU:HD23	1.88	0.40
1:A:248:PRO:O	1:A:252:PHE:HD2	2.05	0.40
1:A:74:ASP:HB2	1:A:77:LEU:HD21	2.04	0.40
1:B:720:GLU:HG2	1:B:721:GLU:H	1.87	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	314/322 (98%)	276 (88%)	27 (9%)	11 (4%)	6	18
1	B	312/322 (97%)	253 (81%)	44 (14%)	15 (5%)	4	10
All	All	626/644 (97%)	529 (84%)	71 (11%)	26 (4%)	4	13

All (26) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	34	GLY
1	A	36	GLY
1	A	219	GLU
1	B	416	ALA
1	B	433	LYS
1	B	467	GLU
1	B	662	ARG
1	A	229	GLU
1	A	230	ASP
1	B	430	SER
1	B	444	SER
1	B	466	GLY
1	B	631	GLY

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Mol	Chain	Res	Type
1	B	632	ASP
1	A	218	ASP
1	B	463	GLU
1	B	475	ARG
1	A	184	HIS
1	A	220	HIS
1	A	299	ARG
1	B	565	ARG
1	A	86	LEU
1	A	106	ARG
1	B	692	ARG
1	B	694	SER
1	B	443	ILE

### 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	271/276 (98%)	262 (97%)	9 (3%)	50	85
1	B	269/276 (98%)	251 (93%)	18 (7%)	23	55
All	All	540/552 (98%)	513 (95%)	27 (5%)	34	70

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	THR
1	A	35	TRP
1	A	73	LEU
1	A	74	ASP
1	A	110	SER
1	A	257	ARG
1	A	262	ARG
1	A	265	THR
1	A	299	ARG
1	B	440	LYS
1	B	461	TYR
1	B	465	PHE

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Mol	Chain	Res	Type
1	B	474	ASP
1	B	477	LEU
1	B	486	LEU
1	B	487	VAL
1	B	522	SER
1	B	523	PRO
1	B	541	LEU
1	B	556	LEU
1	B	575	LEU
1	B	588	SER
1	B	668	ASP
1	B	670	LEU
1	B	697	LEU
1	B	706	ARG
1	B	708	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	53	GLN
1	A	111	ASN
1	A	153	HIS
1	A	214	ASN
1	A	215	HIS
1	A	261	ASN
1	B	427	GLN
1	B	453	GLN
1	B	548	HIS
1	B	614	ASN
1	B	690	GLN

### 5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

33 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	SO4	A	801	-	4,4,4	0.74	0	6,6,6	0.37	0
2	SO4	A	802	-	4,4,4	0.48	0	6,6,6	0.35	0
2	SO4	A	803	-	4,4,4	0.34	0	6,6,6	0.17	0
2	SO4	A	804	-	4,4,4	0.31	0	6,6,6	0.24	0
2	SO4	A	805	-	4,4,4	0.45	0	6,6,6	0.56	0
2	SO4	A	806	-	4,4,4	0.73	0	6,6,6	0.16	0
2	SO4	A	807	-	4,4,4	1.00	0	6,6,6	0.20	0
2	SO4	A	808	-	4,4,4	0.77	0	6,6,6	0.25	0
2	SO4	A	809	-	4,4,4	1.07	0	6,6,6	0.21	0
2	SO4	A	810	-	4,4,4	0.88	0	6,6,6	0.18	0
2	SO4	A	811	-	4,4,4	0.98	0	6,6,6	0.41	0
2	SO4	A	812	-	4,4,4	1.11	0	6,6,6	0.22	0
2	SO4	A	813	-	4,4,4	0.48	0	6,6,6	0.27	0
2	SO4	A	814	-	4,4,4	1.08	0	6,6,6	0.14	0
2	SO4	B	815	-	4,4,4	0.34	0	6,6,6	0.36	0
2	SO4	B	816	-	4,4,4	1.42	0	6,6,6	0.22	0
2	SO4	B	817	-	4,4,4	0.61	0	6,6,6	0.33	0
2	SO4	B	818	-	4,4,4	1.33	0	6,6,6	0.21	0
2	SO4	B	819	-	4,4,4	1.14	0	6,6,6	0.13	0
2	SO4	B	820	-	4,4,4	0.87	0	6,6,6	0.18	0
2	SO4	B	821	-	4,4,4	1.08	0	6,6,6	0.17	0
2	SO4	B	822	-	4,4,4	1.22	0	6,6,6	0.24	0
2	SO4	B	823	-	4,4,4	1.14	0	6,6,6	0.32	0
2	SO4	B	824	-	4,4,4	0.78	0	6,6,6	0.37	0
2	SO4	B	825	-	4,4,4	0.82	0	6,6,6	0.45	0
2	SO4	B	826	-	4,4,4	0.74	0	6,6,6	0.21	0
2	SO4	B	827	-	4,4,4	0.77	0	6,6,6	0.22	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	SO4	B	828	-	4,4,4	0.57	0	6,6,6	0.26	0
2	SO4	B	829	-	4,4,4	0.96	0	6,6,6	0.27	0
2	SO4	B	830	-	4,4,4	0.86	0	6,6,6	0.08	0
2	SO4	B	831	-	4,4,4	1.14	0	6,6,6	0.19	0
2	SO4	B	832	-	4,4,4	1.02	0	6,6,6	0.23	0
2	SO4	B	833	-	4,4,4	2.44	4 (100%)	6,6,6	0.80	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	SO4	A	801	-	-	0/0/0/0	0/0/0/0
2	SO4	A	802	-	-	0/0/0/0	0/0/0/0
2	SO4	A	803	-	-	0/0/0/0	0/0/0/0
2	SO4	A	804	-	-	0/0/0/0	0/0/0/0
2	SO4	A	805	-	-	0/0/0/0	0/0/0/0
2	SO4	A	806	-	-	0/0/0/0	0/0/0/0
2	SO4	A	807	-	-	0/0/0/0	0/0/0/0
2	SO4	A	808	-	-	0/0/0/0	0/0/0/0
2	SO4	A	809	-	-	0/0/0/0	0/0/0/0
2	SO4	A	810	-	-	0/0/0/0	0/0/0/0
2	SO4	A	811	-	-	0/0/0/0	0/0/0/0
2	SO4	A	812	-	-	0/0/0/0	0/0/0/0
2	SO4	A	813	-	-	0/0/0/0	0/0/0/0
2	SO4	A	814	-	-	0/0/0/0	0/0/0/0
2	SO4	B	815	-	-	0/0/0/0	0/0/0/0
2	SO4	B	816	-	-	0/0/0/0	0/0/0/0
2	SO4	B	817	-	-	0/0/0/0	0/0/0/0
2	SO4	B	818	-	-	0/0/0/0	0/0/0/0
2	SO4	B	819	-	-	0/0/0/0	0/0/0/0
2	SO4	B	820	-	-	0/0/0/0	0/0/0/0
2	SO4	B	821	-	-	0/0/0/0	0/0/0/0
2	SO4	B	822	-	-	0/0/0/0	0/0/0/0
2	SO4	B	823	-	-	0/0/0/0	0/0/0/0
2	SO4	B	824	-	-	0/0/0/0	0/0/0/0
2	SO4	B	825	-	-	0/0/0/0	0/0/0/0
2	SO4	B	826	-	-	0/0/0/0	0/0/0/0
2	SO4	B	827	-	-	0/0/0/0	0/0/0/0
2	SO4	B	828	-	-	0/0/0/0	0/0/0/0
2	SO4	B	829	-	-	0/0/0/0	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	SO4	B	830	-	-	0/0/0/0	0/0/0/0
2	SO4	B	831	-	-	0/0/0/0	0/0/0/0
2	SO4	B	832	-	-	0/0/0/0	0/0/0/0
2	SO4	B	833	-	-	0/0/0/0	0/0/0/0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	833	SO4	O4-S	2.88	1.57	1.47
2	B	833	SO4	O2-S	2.52	1.55	1.47
2	B	833	SO4	O3-S	2.26	1.55	1.47
2	B	833	SO4	O1-S	2.01	1.53	1.47

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	316/322 (98%)	-0.32	4 (1%) 74 75	24, 50, 72, 73	0
1	B	314/322 (97%)	-0.25	5 (1%) 68 69	25, 50, 72, 73	0
All	All	630/644 (97%)	-0.28	9 (1%) 60 72	24, 50, 72, 73	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	5	HIS	6.5
1	A	6	HIS	5.5
1	B	417	HIS	3.3
1	A	66	GLY	2.7
1	B	415	PRO	2.7
1	B	630	ASP	2.6
1	B	694	SER	2.6
1	B	416	ALA	2.5
1	A	221	GLY	2.1

### 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 carbohydrates 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. 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, 95<sup>th</sup> 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	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
2	SO4	A	807	5/5	0.55	192.00	72,72,72,72	0
2	SO4	B	831	5/5	0.44	22.43	72,72,72,72	0
2	SO4	B	818	5/5	0.42	20.35	72,72,72,72	0
2	SO4	B	833	5/5	0.45	11.86	64,64,64,64	0
2	SO4	A	809	5/5	0.32	8.55	68,71,72,72	0
2	SO4	B	826	5/5	0.51	7.87	72,72,72,72	0
2	SO4	B	824	5/5	0.33	7.35	71,72,72,72	0
2	SO4	B	819	5/5	0.42	7.01	68,69,72,72	0
2	SO4	A	808	5/5	0.30	6.82	72,72,72,72	0
2	SO4	B	820	5/5	0.32	5.98	68,72,72,72	0
2	SO4	B	821	5/5	0.34	5.45	71,72,72,72	0
2	SO4	B	829	5/5	0.27	3.53	69,71,72,72	0
2	SO4	B	822	5/5	0.24	2.76	69,72,72,72	0
2	SO4	B	823	5/5	0.49	2.71	72,72,72,72	0
2	SO4	A	801	5/5	0.27	2.30	69,70,72,72	0
2	SO4	B	825	5/5	0.23	2.25	69,72,72,72	0
2	SO4	A	810	5/5	0.44	2.07	71,72,72,72	0
2	SO4	B	827	5/5	0.25	1.99	66,67,70,72	0
2	SO4	B	830	5/5	0.29	1.81	72,72,72,72	0
2	SO4	A	814	5/5	0.45	1.70	70,72,72,72	0
2	SO4	A	811	5/5	0.32	1.66	72,72,72,72	0
2	SO4	B	832	5/5	0.21	1.54	72,72,72,72	0
2	SO4	A	806	5/5	0.22	0.97	69,69,72,72	0
2	SO4	A	812	5/5	0.32	0.32	72,72,72,72	0
2	SO4	B	828	5/5	0.17	0.03	63,64,68,70	0
2	SO4	A	813	5/5	0.15	-0.35	64,69,71,71	0
2	SO4	A	803	5/5	0.13	-0.48	56,58,61,64	0
2	SO4	A	805	5/5	0.11	-0.83	64,67,67,71	0
2	SO4	A	804	5/5	0.10	-1.15	42,44,49,52	0
2	SO4	A	802	5/5	0.12	-1.27	56,63,68,68	0
2	SO4	B	815	5/5	0.09	-2.19	41,42,46,47	0
2	SO4	B	817	5/5	0.09	-3.62	56,68,70,72	0
2	SO4	B	816	5/5	0.50	-	72,72,72,72	0

## 6.5 Other polymers ⓘ

There are no such residues in this entry.