



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 11, 2024 – 10:42 PM EDT

PDB ID : 1Y4U
Title : Conformation rearrangement of heat shock protein 90 upon ADP binding
Authors : Huai, Q.; Wang, H.; Liu, Y.; Kim, H.; Toft, D.; Ke, H.
Deposited on : 2004-12-01
Resolution : 2.90 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
Xtriage (Phenix) : 1.20.1
EDS : 2.36.2
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) : 2.36.2

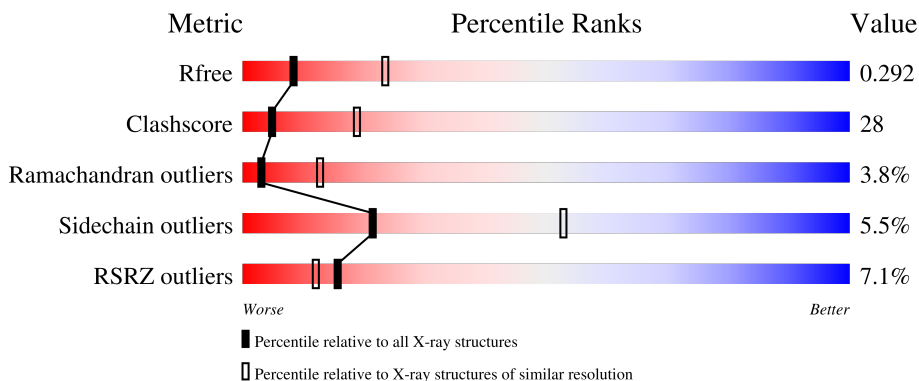
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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 $\leq 5\%$. 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	559	 7% 43% 36% 16%
1	B	559	 5% 45% 31% 19%

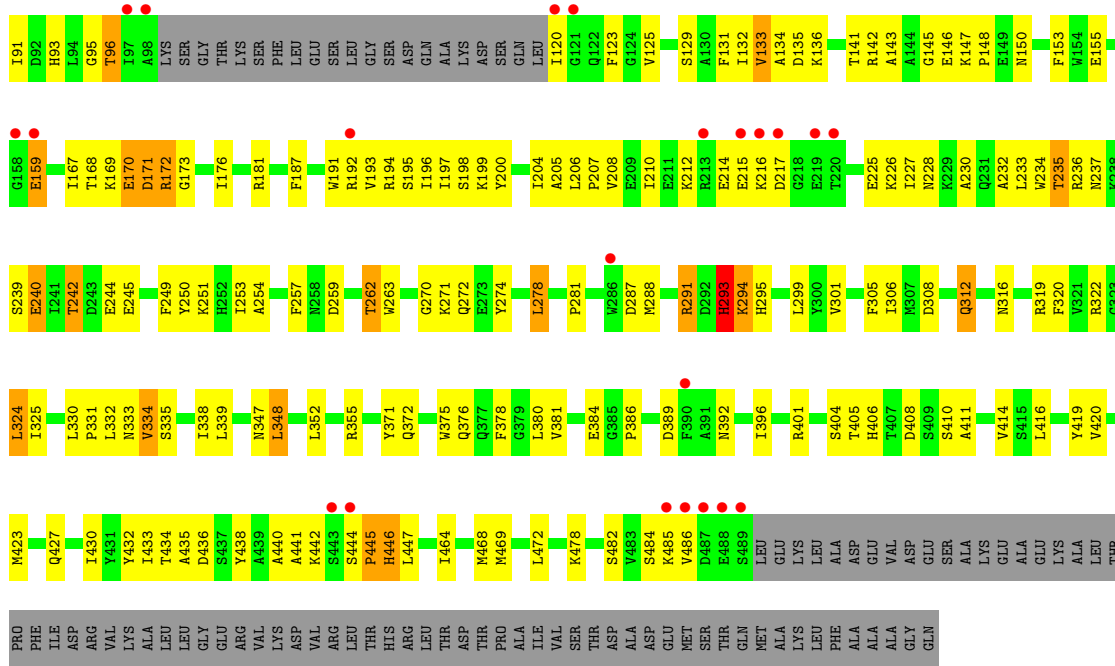
2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 7536 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 Chaperone protein htpG.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	472	3837	2421	660	746	10	0	0	0
1	B	454	3699	2338	634	718	9	0	0	0



4 Data and refinement statistics

Property	Value	Source
Space group	P 4 21 2	Depositor
Cell constants a, b, c, α , β , γ	158.01Å 158.01Å 117.02Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.90 94.04 – 2.81	Depositor EDS
% Data completeness (in resolution range)	(Not available) (50.00-2.90) 83.5 (94.04-2.81)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.76 (at 2.82Å)	Xtrriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.240 , 0.295 0.233 , 0.292	Depositor DCC
R_{free} test set	3219 reflections (9.99%)	wwPDB-VP
Wilson B-factor (Å ²)	60.4	Xtrriage
Anisotropy	0.016	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 47.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	7536	wwPDB-VP
Average B, all atoms (Å ²)	60.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.06% 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

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	0.73	4/3913 (0.1%)	0.98	9/5277 (0.2%)
1	B	0.47	0/3774	0.72	1/5095 (0.0%)
All	All	0.62	4/7687 (0.1%)	0.86	10/10372 (0.1%)

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	4
1	B	0	1
All	All	0	5

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	293	HIS	C-O	29.99	1.80	1.23
1	A	8	GLY	C-N	-16.40	0.96	1.34
1	A	8	GLY	C-O	11.09	1.41	1.23
1	A	10	GLN	C-N	-7.64	1.16	1.34

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	8	GLY	O-C-N	-30.14	74.47	122.70
1	A	293	HIS	O-C-N	-29.82	75.00	122.70
1	A	8	GLY	CA-C-N	18.88	158.73	117.20
1	A	8	GLY	C-N-CA	18.75	168.57	121.70
1	A	8	GLY	CA-C-O	-9.09	104.25	120.60
1	A	13	VAL	N-CA-C	8.84	134.85	111.00
1	A	14	LYS	N-CA-C	8.48	133.91	111.00
1	A	293	HIS	N-CA-C	5.42	125.64	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	293	HIS	N-CA-C	5.29	125.27	111.00
1	A	13	VAL	CB-CA-C	-5.21	101.49	111.40

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	292	ASP	Mainchain
1	A	293	HIS	Mainchain
1	A	8	GLY	Mainchain,Peptide
1	B	371	TYR	Sidechain

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	3837	0	3753	242	0
1	B	3699	0	3612	196	0
All	All	7536	0	7365	411	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 28.

All (411) 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:293:HIS:O	1:A:293:HIS:C	1.80	1.20
1:A:10:GLN:O	1:A:11:SER:HB2	1.49	1.13
1:B:291:ARG:H	1:B:291:ARG:HD2	1.16	1.04
1:A:242:THR:HG22	1:A:244:GLU:H	1.24	1.01
1:A:293:HIS:O	1:A:294:LYS:N	1.94	0.99
1:B:420:VAL:HA	1:B:423:MET:HE2	1.48	0.95
1:B:86:THR:HB	1:B:89:GLU:HG3	1.49	0.94
1:B:81:ASN:HD22	1:B:81:ASN:H	1.15	0.93
1:A:404:SER:HB3	1:A:414:VAL:HG21	1.50	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:446:HIS:HE1	1:A:485:LYS:HB2	1.33	0.91
1:A:376:GLN:CD	1:B:192:ARG:HH11	1.76	0.88
1:A:376:GLN:HB3	1:B:192:ARG:NH1	1.88	0.88
1:A:295:HIS:HA	1:A:322:ARG:HH12	1.39	0.87
1:B:287:ASP:OD2	1:B:294:LYS:HB3	1.75	0.87
1:B:316:ASN:O	1:B:319:ARG:HG3	1.75	0.87
1:B:125:VAL:O	1:B:129:SER:HB2	1.76	0.86
1:A:242:THR:HB	1:A:245:GLU:HG3	1.58	0.85
1:A:375:TRP:HE1	1:A:412:GLN:HE21	1.20	0.84
1:B:143:ALA:HB3	1:B:146:GLU:HG3	1.60	0.84
1:B:67:VAL:HG11	1:B:197:ILE:HD11	1.59	0.84
1:B:136:LYS:HD2	1:B:155:GLU:OE1	1.78	0.81
1:A:53:ASN:HD22	1:A:56:LEU:HG	1.45	0.81
1:A:376:GLN:HE22	1:B:195:SER:HB3	1.43	0.81
1:A:20:MET:SD	1:B:19:LEU:HD23	2.22	0.80
1:B:242:THR:OG1	1:B:245:GLU:HG3	1.80	0.79
1:B:142:ARG:HB2	1:B:169:LYS:HB3	1.64	0.78
1:A:35:LEU:HD12	1:A:78:ILE:HD12	1.66	0.78
1:B:440:ALA:O	1:B:444:SER:HB3	1.84	0.78
1:B:170:GLU:CD	1:B:170:GLU:H	1.87	0.77
1:A:219:GLU:HG2	1:A:220:THR:H	1.47	0.77
1:B:312:GLN:HG3	1:B:339:LEU:HB3	1.65	0.77
1:B:288:MET:CE	1:B:320:PHE:HB3	2.15	0.76
1:B:291:ARG:H	1:B:291:ARG:CD	1.94	0.76
1:A:411:ALA:HA	1:B:191:TRP:CD1	2.20	0.76
1:A:266:ASN:ND2	1:A:355:ARG:HD3	2.00	0.76
1:A:420:VAL:HA	1:A:423:MET:HE2	1.65	0.76
1:A:219:GLU:HG2	1:A:220:THR:N	2.02	0.75
1:B:446:HIS:HE1	1:B:485:LYS:HG3	1.51	0.75
1:A:443:SER:C	1:A:445:PRO:HD2	2.07	0.75
1:A:335:SER:H	1:A:338:ILE:HD12	1.52	0.74
1:A:376:GLN:HB3	1:B:192:ARG:HH11	1.49	0.74
1:A:129:SER:HA	1:A:132:ILE:HD12	1.71	0.73
1:B:420:VAL:HA	1:B:423:MET:CE	2.19	0.73
1:A:331:PRO:HG2	1:A:334:VAL:HG13	1.70	0.72
1:B:381:VAL:O	1:B:384:GLU:HG2	1.90	0.72
1:A:406:HIS:CD2	1:A:422:ARG:HD2	2.24	0.72
1:A:10:GLN:O	1:A:11:SER:CB	2.26	0.72
1:A:446:HIS:CE1	1:A:485:LYS:HB2	2.22	0.72
1:B:33:ARG:O	1:B:34:GLU:HG2	1.90	0.72
1:A:210:ILE:HB	1:A:227:ILE:HD11	1.72	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:64:ARG:H	1:B:81:ASN:HD21	1.37	0.72
1:A:30:ILE:HD11	1:A:33:ARG:NH2	2.05	0.71
1:A:125:VAL:HA	1:B:19:LEU:HD11	1.73	0.71
1:A:122:GLN:HE21	1:A:255:HIS:CE1	2.08	0.71
1:B:446:HIS:CE1	1:B:485:LYS:HG3	2.26	0.71
1:B:81:ASN:HD22	1:B:81:ASN:N	1.87	0.71
1:B:288:MET:HE1	1:B:320:PHE:HB3	1.73	0.70
1:A:10:GLN:HB2	1:A:99:LYS:HD3	1.73	0.70
1:B:64:ARG:HG3	1:B:64:ARG:HH11	1.57	0.70
1:B:170:GLU:HG2	1:B:171:ASP:H	1.57	0.70
1:B:312:GLN:HG3	1:B:339:LEU:CB	2.21	0.69
1:B:21:ILE:HA	1:B:25:TYR:CG	2.27	0.69
1:A:122:GLN:HE21	1:A:255:HIS:HE1	1.38	0.69
1:A:376:GLN:HE22	1:B:195:SER:CB	2.06	0.68
1:A:172:ARG:HG2	1:A:173:GLY:N	2.08	0.68
1:A:376:GLN:CD	1:B:192:ARG:NH1	2.47	0.68
1:A:15:GLN:NE2	1:B:159:GLU:O	2.28	0.67
1:A:376:GLN:OE1	1:B:192:ARG:NH1	2.27	0.67
1:B:445:PRO:HG2	1:B:447:LEU:HD23	1.76	0.67
1:B:446:HIS:N	1:B:446:HIS:CD2	2.62	0.66
1:A:242:THR:HG22	1:A:244:GLU:N	2.05	0.66
1:A:273:GLU:HB3	1:A:328:SER:HB2	1.77	0.66
1:A:180:LEU:HD12	1:A:188:LEU:HD21	1.78	0.66
1:A:375:TRP:HE1	1:A:412:GLN:NE2	1.92	0.65
1:A:24:LEU:HB3	1:A:132:ILE:CD1	2.26	0.65
1:A:335:SER:N	1:A:338:ILE:HD12	2.11	0.65
1:B:423:MET:HE3	1:B:478:LYS:HD2	1.78	0.65
1:B:294:LYS:O	1:B:294:LYS:HG3	1.97	0.65
1:B:372:GLN:O	1:B:376:GLN:HG3	1.96	0.65
1:B:335:SER:HB2	1:B:338:ILE:H	1.61	0.64
1:B:423:MET:CE	1:B:478:LYS:HD2	2.28	0.64
1:A:19:LEU:HD13	1:B:20:MET:HE3	1.79	0.64
1:A:433:ILE:CD1	1:A:445:PRO:HG3	2.26	0.64
1:B:435:ALA:HB3	1:B:441:ALA:HB2	1.79	0.64
1:A:32:LEU:HD23	1:A:196:ILE:HG21	1.80	0.64
1:A:377:GLN:NE2	1:B:192:ARG:NH2	2.47	0.63
1:A:388:GLU:HG3	1:A:388:GLU:O	1.98	0.63
1:A:35:LEU:CD1	1:A:78:ILE:HD12	2.28	0.63
1:A:293:HIS:O	1:A:294:LYS:CA	2.45	0.63
1:A:331:PRO:C	1:A:333:ASN:H	2.01	0.63
1:A:440:ALA:O	1:A:444:SER:HB3	1.99	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:423:MET:HG2	1:B:427:GLN:NE2	2.14	0.62
1:A:435:ALA:HB1	1:A:440:ALA:HB3	1.81	0.62
1:B:93:HIS:CE1	1:B:120:ILE:HA	2.35	0.62
1:B:392:ASN:O	1:B:396:ILE:HG13	1.99	0.61
1:A:215:GLU:HA	1:A:220:THR:HA	1.82	0.61
1:A:376:GLN:HG2	1:B:191:TRP:CH2	2.36	0.61
1:B:148:PRO:O	1:B:168:THR:HA	2.01	0.61
1:B:445:PRO:CG	1:B:447:LEU:HD23	2.30	0.61
1:A:191:TRP:CD1	1:B:411:ALA:HA	2.36	0.61
1:B:93:HIS:HE1	1:B:120:ILE:HG23	1.66	0.61
1:A:122:GLN:NE2	1:A:255:HIS:HE1	1.99	0.60
1:A:435:ALA:HB3	1:A:441:ALA:HB2	1.82	0.60
1:B:123:PHE:HE2	1:B:176:ILE:HD11	1.66	0.60
1:A:294:LYS:O	1:A:294:LYS:HG2	2.01	0.60
1:A:419:TYR:CE2	1:A:430:ILE:HG23	2.37	0.60
1:A:51:LEU:H	1:A:51:LEU:HD12	1.67	0.60
1:A:86:THR:HG23	1:A:89:GLU:OE1	2.01	0.59
1:B:272:GLN:NE2	1:B:347:ASN:HB3	2.17	0.59
1:A:299:LEU:HD23	1:A:306:ILE:HG21	1.84	0.59
1:A:306:ILE:HG22	1:A:307:MET:HG2	1.83	0.59
1:A:377:GLN:HE21	1:B:192:ARG:NH2	2.00	0.59
1:B:242:THR:HG23	1:B:245:GLU:OE2	2.01	0.59
1:B:287:ASP:OD2	1:B:294:LYS:CB	2.49	0.59
1:B:331:PRO:O	1:B:334:VAL:HG22	2.02	0.59
1:A:242:THR:CG2	1:A:244:GLU:OE1	2.50	0.59
1:B:153:PHE:HB2	1:B:167:ILE:HD13	1.85	0.59
1:B:404:SER:HB3	1:B:414:VAL:HG21	1.84	0.59
1:A:57:TYR:HD2	1:A:61:GLY:HA2	1.67	0.59
1:B:206:LEU:O	1:B:228:ASN:ND2	2.36	0.59
1:A:355:ARG:HG3	1:A:355:ARG:HH11	1.67	0.59
1:A:87:ARG:O	1:A:91:ILE:HG13	2.03	0.59
1:B:416:LEU:O	1:B:420:VAL:HG23	2.03	0.58
1:A:169:LYS:HG2	1:A:171:ASP:O	2.04	0.58
1:A:460:LEU:HD23	1:A:460:LEU:N	2.18	0.58
1:B:433:ILE:HD13	1:B:445:PRO:HG3	1.85	0.58
1:A:226:LYS:HE3	1:A:228:ASN:O	2.03	0.58
1:A:87:ARG:HA	1:A:152:VAL:HG21	1.86	0.58
1:A:387:ALA:HB3	1:A:467:TRP:CH2	2.38	0.58
1:A:290:ASN:HD21	1:A:292:ASP:HB3	1.67	0.58
1:B:33:ARG:HB2	1:B:200:TYR:CG	2.40	0.57
1:A:331:PRO:O	1:A:334:VAL:HG22	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:290:ASN:ND2	1:A:292:ASP:HB3	2.19	0.57
1:B:444:SER:N	1:B:445:PRO:CD	2.67	0.57
1:A:376:GLN:NE2	1:B:192:ARG:HD2	2.19	0.57
1:B:207:PRO:HA	1:B:228:ASN:HD22	1.70	0.57
1:A:74:ARG:HH11	1:A:74:ARG:HG2	1.69	0.56
1:A:444:SER:N	1:A:445:PRO:HD2	2.20	0.56
1:B:233:LEU:HD23	1:B:249:PHE:CG	2.40	0.56
1:A:376:GLN:NE2	1:B:195:SER:CB	2.68	0.56
1:A:266:ASN:HD22	1:A:355:ARG:HD3	1.71	0.56
1:A:293:HIS:CD2	1:A:294:LYS:H	2.23	0.56
1:B:194:ARG:NH1	1:B:210:ILE:HD13	2.21	0.56
1:B:212:LYS:HD2	1:B:225:GLU:OE2	2.06	0.56
1:B:21:ILE:HA	1:B:25:TYR:HB2	1.87	0.56
1:B:86:THR:HG22	1:B:88:ASP:H	1.69	0.56
1:B:355:ARG:HG2	1:B:355:ARG:HH11	1.71	0.56
1:B:36:ILE:HG22	1:B:204:ILE:CD1	2.36	0.56
1:A:237:ASN:HB2	1:A:240:GLU:HG3	1.89	0.55
1:B:51:LEU:HD21	1:B:332:LEU:HD13	1.88	0.55
1:A:331:PRO:CG	1:A:334:VAL:HG13	2.36	0.55
1:B:244:GLU:CD	1:B:244:GLU:H	2.10	0.55
1:A:86:THR:OG1	1:A:89:GLU:HG3	2.07	0.55
1:A:423:MET:HE1	1:A:478:LYS:HG3	1.88	0.55
1:B:232:ALA:O	1:B:235:THR:HB	2.06	0.55
1:B:281:PRO:HG2	1:B:378:PHE:CZ	2.42	0.55
1:B:205:ALA:HB2	1:B:232:ALA:HA	1.88	0.54
1:B:410:SER:HB3	1:B:438:TYR:CD2	2.42	0.54
1:A:238:LYS:HE2	1:A:265:HIS:O	2.08	0.54
1:A:17:LEU:O	1:A:20:MET:N	2.40	0.54
1:A:262:THR:CG2	1:A:363:LEU:HD13	2.38	0.54
1:B:291:ARG:HD2	1:B:291:ARG:N	2.02	0.54
1:B:419:TYR:CE2	1:B:430:ILE:HG23	2.43	0.54
1:B:324:LEU:C	1:B:324:LEU:HD12	2.28	0.54
1:B:93:HIS:CE1	1:B:120:ILE:HG23	2.43	0.54
1:A:293:HIS:CG	1:A:294:LYS:H	2.25	0.53
1:A:367:ASP:OD2	1:A:370:LYS:HG3	2.08	0.53
1:B:210:ILE:HB	1:B:227:ILE:HD11	1.91	0.53
1:A:334:VAL:HA	1:A:338:ILE:HD12	1.90	0.53
1:A:355:ARG:HG3	1:A:355:ARG:NH1	2.22	0.53
1:B:81:ASN:H	1:B:81:ASN:ND2	1.96	0.53
1:A:90:VAL:HG13	1:A:94:LEU:HD12	1.89	0.53
1:A:257:PHE:HE2	1:B:257:PHE:HE2	1.56	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:319:ARG:NH2	1:A:384:GLU:OE2	2.41	0.53
1:A:447:LEU:HD12	1:A:450:LEU:HB2	1.91	0.53
1:A:41:ASP:C	1:A:43:ALA:H	2.11	0.53
1:A:476:ASP:C	1:A:478:LYS:H	2.13	0.53
1:B:234:TRP:CE3	1:B:324:LEU:HD21	2.43	0.53
1:B:408:ASP:HB2	1:B:442:LYS:HZ1	1.74	0.53
1:A:254:ALA:O	1:A:255:HIS:HB2	2.09	0.53
1:A:83:VAL:HG13	1:A:84:GLY:N	2.24	0.52
1:B:64:ARG:HG3	1:B:64:ARG:NH1	2.24	0.52
1:A:125:VAL:HG22	1:B:19:LEU:HD12	1.91	0.52
1:A:1:MET:HG3	1:A:167:ILE:HG22	1.90	0.52
1:A:288:MET:HA	1:A:288:MET:CE	2.40	0.52
1:B:469:MET:HE1	1:B:472:LEU:HB3	1.91	0.52
1:A:53:ASN:ND2	1:A:56:LEU:HG	2.19	0.52
1:A:257:PHE:CE2	1:B:257:PHE:HE2	2.28	0.52
1:A:431:TYR:N	1:A:431:TYR:CD1	2.78	0.52
1:B:135:ASP:HB3	1:B:181:ARG:NH1	2.24	0.52
1:B:226:LYS:NZ	1:B:230:ALA:HB3	2.24	0.52
1:A:13:VAL:O	1:A:17:LEU:HG	2.10	0.52
1:B:33:ARG:O	1:B:33:ARG:HG2	2.09	0.52
1:B:131:PHE:HA	1:B:134:ALA:O	2.10	0.52
1:A:429:LYS:O	1:A:431:TYR:CE1	2.63	0.52
1:A:277:LEU:C	1:A:278:LEU:HD12	2.30	0.51
1:A:376:GLN:CB	1:B:192:ARG:HH11	2.20	0.51
1:B:331:PRO:O	1:B:334:VAL:CG2	2.58	0.51
1:A:431:TYR:HA	1:A:481:GLN:O	2.10	0.51
1:A:274:TYR:CD1	1:A:274:TYR:C	2.84	0.51
1:B:85:MET:HB2	1:B:141:THR:HG21	1.92	0.51
1:A:235:THR:HG22	1:A:235:THR:O	2.09	0.51
1:A:447:LEU:HD12	1:A:447:LEU:O	2.11	0.51
1:A:314:MET:CE	1:A:356:VAL:HG21	2.40	0.51
1:B:33:ARG:HB2	1:B:200:TYR:CD2	2.46	0.51
1:A:19:LEU:HD22	1:B:24:LEU:CD1	2.41	0.50
1:A:424:LYS:HD2	1:A:454:GLY:O	2.11	0.50
1:A:407:THR:C	1:A:409:SER:H	2.14	0.50
1:A:469:MET:HE2	1:A:472:LEU:HB3	1.93	0.50
1:B:50:ALA:HB1	1:B:57:TYR:CE1	2.46	0.50
1:A:215:GLU:HA	1:A:219:GLU:O	2.12	0.50
1:A:250:TYR:OH	1:A:281:PRO:HB3	2.11	0.50
1:A:418:ASP:HB3	1:A:422:ARG:NH2	2.26	0.50
1:B:80:ASP:O	1:B:173:GLY:HA3	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:17:LEU:O	1:B:21:ILE:HG13	2.12	0.50
1:A:331:PRO:C	1:A:333:ASN:N	2.65	0.50
1:B:20:MET:C	1:B:22:HIS:N	2.64	0.50
1:B:141:THR:HA	1:B:169:LYS:HE3	1.94	0.50
1:A:186:GLU:HB2	1:A:192:ARG:HG2	1.94	0.50
1:A:306:ILE:HG22	1:A:307:MET:N	2.27	0.49
1:B:447:LEU:HD12	1:B:447:LEU:O	2.12	0.49
1:A:74:ARG:HG2	1:A:74:ARG:NH1	2.27	0.49
1:A:290:ASN:ND2	1:A:292:ASP:O	2.44	0.49
1:A:376:GLN:CB	1:B:192:ARG:NH1	2.70	0.49
1:A:46:LEU:HD21	1:A:172:ARG:NH1	2.27	0.49
1:A:403:ALA:HB2	1:A:412:GLN:HG2	1.93	0.49
1:B:195:SER:O	1:B:198:SER:HB3	2.11	0.49
1:A:469:MET:HE2	1:A:472:LEU:CB	2.42	0.49
1:B:25:TYR:HA	1:B:132:ILE:HD13	1.94	0.49
1:B:21:ILE:HA	1:B:25:TYR:CB	2.43	0.49
1:B:87:ARG:O	1:B:91:ILE:HG13	2.12	0.49
1:B:125:VAL:O	1:B:129:SER:CB	2.54	0.49
1:A:407:THR:O	1:A:409:SER:N	2.46	0.49
1:B:20:MET:HB3	1:B:25:TYR:CE1	2.48	0.49
1:B:293:HIS:HB2	1:B:295:HIS:ND1	2.27	0.49
1:A:12:GLU:C	1:A:13:VAL:HG23	2.33	0.49
1:B:355:ARG:HG2	1:B:355:ARG:NH1	2.28	0.49
1:A:433:ILE:HG22	1:A:434:THR:N	2.28	0.48
1:B:30:ILE:HD11	1:B:257:PHE:CE1	2.48	0.48
1:A:180:LEU:HD12	1:A:188:LEU:CD2	2.43	0.48
1:A:380:LEU:HD12	1:A:380:LEU:N	2.27	0.48
1:A:17:LEU:O	1:A:18:HIS:C	2.51	0.48
1:B:305:PHE:HZ	1:B:308:ASP:OD1	1.97	0.48
1:A:432:TYR:CZ	1:A:482:SER:HB3	2.49	0.48
1:A:181:ARG:HG2	1:A:181:ARG:HH11	1.78	0.48
1:A:404:SER:OG	1:A:405:THR:N	2.47	0.48
1:A:32:LEU:HD23	1:A:196:ILE:CG2	2.42	0.47
1:A:38:ASN:OD1	1:A:122:GLN:OE1	2.32	0.47
1:A:291:ARG:HG2	1:A:291:ARG:HH11	1.78	0.47
1:B:278:LEU:N	1:B:278:LEU:HD12	2.29	0.47
1:A:19:LEU:HD22	1:B:24:LEU:HD11	1.94	0.47
1:B:444:SER:N	1:B:445:PRO:HD2	2.29	0.47
1:B:16:LEU:HG	1:B:17:LEU:N	2.29	0.47
1:A:140:ARG:HH11	1:A:167:ILE:HD12	1.80	0.47
1:A:262:THR:HG21	1:A:363:LEU:HD13	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:293:HIS:NE2	1:A:311:GLU:OE2	2.46	0.47
1:A:421:SER:O	1:A:423:MET:N	2.47	0.47
1:B:288:MET:HE3	1:B:320:PHE:HB3	1.94	0.47
1:A:50:ALA:HB1	1:A:57:TYR:HE1	1.78	0.47
1:A:211:GLU:HB2	1:A:224:TRP:CZ3	2.49	0.47
1:A:57:TYR:CD2	1:A:61:GLY:HA2	2.46	0.47
1:A:210:ILE:CB	1:A:227:ILE:HD11	2.42	0.47
1:B:389:ASP:OD1	1:B:392:ASN:HB2	2.15	0.47
1:A:335:SER:H	1:A:338:ILE:CD1	2.26	0.47
1:B:464:ILE:HG12	1:B:464:ILE:O	2.15	0.47
1:A:87:ARG:CA	1:A:152:VAL:HG21	2.44	0.47
1:B:74:ARG:HG2	1:B:74:ARG:HH11	1.80	0.47
1:B:187:PHE:HA	1:B:193:VAL:HG22	1.96	0.46
1:A:219:GLU:CG	1:A:220:THR:H	2.21	0.46
1:A:429:LYS:HB2	1:A:431:TYR:CZ	2.50	0.46
1:A:210:ILE:CG2	1:A:227:ILE:HD11	2.44	0.46
1:B:147:LYS:HB2	1:B:150:ASN:ND2	2.31	0.46
1:A:433:ILE:CG2	1:A:434:THR:N	2.78	0.46
1:A:433:ILE:HD13	1:A:445:PRO:HG3	1.96	0.46
1:B:187:PHE:HA	1:B:193:VAL:CG2	2.45	0.46
1:B:335:SER:HB2	1:B:338:ILE:HG13	1.98	0.46
1:B:240:GLU:H	1:B:240:GLU:HG2	1.58	0.46
1:B:281:PRO:HG2	1:B:378:PHE:HZ	1.81	0.46
1:A:85:MET:HB2	1:A:141:THR:HG21	1.98	0.46
1:B:36:ILE:HG22	1:B:204:ILE:HD12	1.98	0.46
1:A:197:ILE:HG23	1:A:208:VAL:HG11	1.98	0.46
1:A:389:ASP:OD1	1:A:392:ASN:ND2	2.49	0.46
1:B:199:LYS:O	1:B:199:LYS:HG2	2.16	0.46
1:B:404:SER:OG	1:B:405:THR:N	2.49	0.46
1:B:25:TYR:O	1:B:26:SER:C	2.54	0.45
1:A:206:LEU:O	1:A:228:ASN:OD1	2.34	0.45
1:B:49:ARG:HB3	1:B:56:LEU:CD1	2.46	0.45
1:B:251:LYS:HE3	1:B:259:ASP:OD1	2.16	0.45
1:A:86:THR:O	1:A:89:GLU:N	2.49	0.45
1:B:20:MET:HE3	1:B:24:LEU:HD12	1.99	0.45
1:B:181:ARG:HG2	1:B:181:ARG:HH11	1.81	0.45
1:A:147:LYS:CG	1:A:148:PRO:HD2	2.47	0.45
1:A:331:PRO:HD2	1:A:334:VAL:CG1	2.46	0.45
1:A:472:LEU:HD22	1:A:480:PHE:CE1	2.52	0.45
1:B:237:ASN:O	1:B:240:GLU:HG2	2.16	0.45
1:B:272:GLN:HE22	1:B:347:ASN:C	2.20	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:16:LEU:HD13	1:B:16:LEU:HA	1.99	0.45
1:A:24:LEU:HB3	1:A:132:ILE:HD11	1.99	0.45
1:A:219:GLU:CG	1:A:220:THR:N	2.75	0.45
1:B:301:VAL:HG23	1:B:306:ILE:HG13	1.98	0.45
1:A:94:LEU:HB3	1:A:154:TRP:CE2	2.52	0.45
1:A:234:TRP:CE3	1:A:324:LEU:HD21	2.52	0.45
1:A:303:ARG:HA	1:A:326:ASP:OD2	2.17	0.45
1:B:253:ILE:HG13	1:B:254:ALA:N	2.31	0.45
1:A:41:ASP:C	1:A:43:ALA:N	2.70	0.44
1:A:14:LYS:O	1:A:15:GLN:C	2.56	0.44
1:A:302:GLN:O	1:A:303:ARG:HB3	2.17	0.44
1:A:331:PRO:O	1:A:333:ASN:N	2.51	0.44
1:B:145:GLY:O	1:B:146:GLU:HG2	2.17	0.44
1:A:383:LYS:O	1:A:386:PRO:HD2	2.18	0.44
1:B:270:GLY:O	1:B:271:LYS:C	2.55	0.44
1:B:331:PRO:HB2	1:B:333:ASN:OD1	2.18	0.44
1:A:140:ARG:NH1	1:A:167:ILE:HD12	2.32	0.44
1:A:196:ILE:O	1:A:199:LYS:HB3	2.17	0.44
1:A:314:MET:HE2	1:A:321:VAL:HB	2.00	0.44
1:A:71:LYS:HA	1:A:188:LEU:HD13	1.98	0.44
1:A:317:TYR:CD1	1:A:385:GLY:HA3	2.53	0.44
1:B:226:LYS:HE3	1:B:228:ASN:O	2.17	0.44
1:A:415:SER:HB3	1:A:418:ASP:CG	2.37	0.44
1:B:133:VAL:HG11	1:B:187:PHE:CE1	2.53	0.44
1:B:294:LYS:HG3	1:B:322:ARG:NH2	2.33	0.44
1:B:301:VAL:CG1	1:B:332:LEU:HD23	2.48	0.44
1:A:373:THR:O	1:A:376:GLN:HB2	2.18	0.43
1:A:443:SER:C	1:A:445:PRO:CD	2.81	0.43
1:A:122:GLN:C	1:A:124:GLY:H	2.20	0.43
1:A:331:PRO:CD	1:A:334:VAL:HG13	2.48	0.43
1:B:445:PRO:HB2	1:B:446:HIS:H	1.61	0.43
1:A:7:ARG:NH1	1:A:91:ILE:HD13	2.34	0.43
1:A:122:GLN:C	1:A:124:GLY:N	2.71	0.43
1:A:423:MET:O	1:A:424:LYS:C	2.56	0.43
1:B:226:LYS:HZ1	1:B:230:ALA:HB3	1.83	0.43
1:A:444:SER:N	1:A:445:PRO:CD	2.81	0.43
1:B:214:GLU:HB3	1:B:216:LYS:HE3	1.99	0.43
1:B:438:TYR:CZ	1:B:442:LYS:HD2	2.54	0.43
1:A:319:ARG:NH2	1:A:381:VAL:HG13	2.34	0.43
1:B:31:PHE:CG	1:B:32:LEU:N	2.86	0.43
1:B:274:TYR:CD1	1:B:274:TYR:C	2.92	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:ARG:HB3	1:A:224:TRP:CZ3	2.54	0.43
1:B:432:TYR:O	1:B:482:SER:HA	2.19	0.43
1:A:12:GLU:O	1:A:13:VAL:HG23	2.17	0.43
1:A:273:GLU:HB3	1:A:328:SER:CB	2.48	0.43
1:A:415:SER:HB3	1:A:418:ASP:OD1	2.19	0.43
1:B:194:ARG:HH21	1:B:225:GLU:CD	2.22	0.43
1:A:432:TYR:CD1	1:A:432:TYR:C	2.92	0.43
1:B:18:HIS:O	1:B:20:MET:N	2.52	0.43
1:B:49:ARG:HG2	1:B:49:ARG:HH11	1.84	0.43
1:B:375:TRP:CE2	1:B:401:ARG:HB2	2.54	0.43
1:A:263:TRP:HB3	1:A:279:TYR:CD2	2.53	0.42
1:A:324:LEU:HD12	1:A:324:LEU:C	2.39	0.42
1:B:469:MET:CE	1:B:472:LEU:HD23	2.49	0.42
1:B:325:ILE:HD12	1:B:352:LEU:HD11	2.00	0.42
1:B:330:LEU:HD23	1:B:331:PRO:HD2	1.99	0.42
1:B:348:LEU:O	1:B:352:LEU:HG	2.18	0.42
1:A:47:ARG:O	1:A:50:ALA:HB3	2.19	0.42
1:A:12:GLU:O	1:A:13:VAL:CG2	2.67	0.42
1:A:125:VAL:HG23	1:B:18:HIS:NE2	2.34	0.42
1:A:314:MET:HE1	1:A:356:VAL:HG21	2.00	0.42
1:A:372:GLN:O	1:A:376:GLN:HG3	2.20	0.42
1:B:194:ARG:NH2	1:B:225:GLU:CD	2.72	0.42
1:B:226:LYS:O	1:B:226:LYS:HG3	2.18	0.42
1:B:262:THR:HG22	1:B:263:TRP:H	1.84	0.42
1:A:95:GLY:HA2	1:A:162:TYR:CE2	2.54	0.42
1:A:370:LYS:O	1:A:373:THR:HB	2.19	0.42
1:A:73:LYS:HB2	1:A:75:THR:HG23	2.01	0.42
1:A:127:PHE:O	1:A:130:ALA:HB3	2.19	0.42
1:A:261:LEU:HD12	1:A:281:PRO:O	2.20	0.42
1:A:472:LEU:HD22	1:A:480:PHE:HE1	1.85	0.42
1:B:420:VAL:HG13	1:B:423:MET:CE	2.49	0.42
1:A:234:TRP:HA	1:A:265:HIS:CE1	2.55	0.42
1:A:273:GLU:CB	1:A:328:SER:HB2	2.48	0.42
1:A:331:PRO:HD2	1:A:334:VAL:HG13	2.01	0.42
1:B:20:MET:O	1:B:22:HIS:N	2.53	0.42
1:B:406:HIS:ND1	1:B:406:HIS:O	2.53	0.42
1:A:30:ILE:O	1:A:33:ARG:N	2.53	0.41
1:A:406:HIS:HD2	1:A:422:ARG:HD2	1.81	0.41
1:B:35:LEU:HD22	1:B:176:ILE:CD1	2.50	0.41
1:B:170:GLU:CG	1:B:171:ASP:H	2.29	0.41
1:B:386:PRO:HG2	1:B:468:MET:HG3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:206:LEU:HD12	1:A:207:PRO:HD2	2.02	0.41
1:A:13:VAL:HG12	1:A:14:LYS:N	2.32	0.41
1:A:375:TRP:CZ3	1:A:379:GLY:HA2	2.55	0.41
1:A:416:LEU:HD23	1:A:416:LEU:HA	1.82	0.41
1:B:65:VAL:HG13	1:B:208:VAL:HA	2.03	0.41
1:B:406:HIS:O	1:B:406:HIS:CG	2.72	0.41
1:A:168:THR:O	1:A:168:THR:CG2	2.67	0.41
1:A:319:ARG:CZ	1:A:381:VAL:HG13	2.51	0.41
1:A:406:HIS:HB2	1:A:456:GLU:OE1	2.21	0.41
1:A:419:TYR:CD2	1:A:430:ILE:HG23	2.55	0.41
1:B:250:TYR:OH	1:B:281:PRO:HB3	2.21	0.41
1:B:322:ARG:HD3	1:B:322:ARG:HA	1.64	0.41
1:A:86:THR:O	1:A:87:ARG:C	2.59	0.41
1:B:74:ARG:HG2	1:B:74:ARG:NH1	2.36	0.41
1:A:14:LYS:HB3	1:A:15:GLN:H	1.54	0.41
1:A:17:LEU:O	1:A:19:LEU:N	2.53	0.41
1:A:155:GLU:O	1:A:156:SER:HB2	2.21	0.41
1:A:156:SER:C	1:A:158:GLY:H	2.24	0.41
1:A:288:MET:HA	1:A:288:MET:HE3	2.03	0.41
1:A:378:PHE:O	1:A:379:GLY:C	2.58	0.41
1:A:418:ASP:O	1:A:421:SER:HB2	2.20	0.41
1:B:469:MET:HE1	1:B:472:LEU:HD23	2.03	0.41
1:A:300:TYR:CE1	1:A:324:LEU:HD22	2.56	0.41
1:A:181:ARG:HG2	1:A:181:ARG:NH1	2.36	0.40
1:B:196:ILE:O	1:B:197:ILE:C	2.57	0.40
1:A:51:LEU:HD12	1:A:51:LEU:N	2.34	0.40
1:A:333:ASN:O	1:A:334:VAL:O	2.40	0.40
1:B:82:GLY:O	1:B:172:ARG:HD2	2.22	0.40
1:B:446:HIS:CD2	1:B:446:HIS:H	2.39	0.40
1:A:354:LYS:HB2	1:A:354:LYS:HE3	1.84	0.40
1:B:95:GLY:O	1:B:96:THR:C	2.60	0.40
1:A:284:ALA:HA	1:A:285:PRO:HD3	1.94	0.40
1:B:312:GLN:HG3	1:B:339:LEU:HB2	2.00	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	468/559 (84%)	386 (82%)	60 (13%)	22 (5%)	2	8
1	B	450/559 (80%)	397 (88%)	40 (9%)	13 (3%)	4	18
All	All	918/1118 (82%)	783 (85%)	100 (11%)	35 (4%)	3	13

All (35) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	11	SER
1	A	14	LYS
1	A	15	GLN
1	A	17	LEU
1	A	293	HIS
1	A	294	LYS
1	A	334	VAL
1	A	422	ARG
1	B	17	LEU
1	B	18	HIS
1	B	159	GLU
1	B	217	ASP
1	B	293	HIS
1	B	294	LYS
1	B	484	SER
1	A	9	PHE
1	A	13	VAL
1	A	58	GLU
1	A	101	GLY
1	A	287	ASP
1	A	408	ASP
1	A	421	SER
1	A	448	GLU
1	B	19	LEU
1	B	58	GLU

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Mol	Chain	Res	Type
1	B	215	GLU
1	B	486	VAL
1	A	160	GLY
1	B	96	THR
1	B	445	PRO
1	A	82	GLY
1	A	332	LEU
1	A	18	HIS
1	A	50	ALA
1	A	445	PRO

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	416/488 (85%)	395 (95%)	21 (5%)	24	57
1	B	401/488 (82%)	377 (94%)	24 (6%)	19	49
All	All	817/976 (84%)	772 (94%)	45 (6%)	21	53

All (45) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	GLU
1	A	64	ARG
1	A	128	TYR
1	A	168	THR
1	A	171	ASP
1	A	215	GLU
1	A	228	ASN
1	A	231	GLN
1	A	239	SER
1	A	273	GLU
1	A	288	MET
1	A	308	ASP
1	A	319	ARG

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Mol	Chain	Res	Type
1	A	324	LEU
1	A	361	GLU
1	A	388	GLU
1	A	437	SER
1	A	446	HIS
1	A	460	LEU
1	A	472	LEU
1	A	473	THR
1	B	16	LEU
1	B	58	GLU
1	B	81	ASN
1	B	133	VAL
1	B	170	GLU
1	B	171	ASP
1	B	172	ARG
1	B	235	THR
1	B	236	ARG
1	B	239	SER
1	B	240	GLU
1	B	242	THR
1	B	262	THR
1	B	278	LEU
1	B	291	ARG
1	B	299	LEU
1	B	312	GLN
1	B	324	LEU
1	B	334	VAL
1	B	348	LEU
1	B	380	LEU
1	B	434	THR
1	B	436	ASP
1	B	446	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	4	GLN
1	A	53	ASN
1	A	122	GLN
1	A	203	HIS
1	A	228	ASN
1	A	255	HIS

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Mol	Chain	Res	Type
1	A	266	ASN
1	A	290	ASN
1	A	347	ASN
1	A	376	GLN
1	A	412	GLN
1	B	81	ASN
1	B	93	HIS
1	B	150	ASN
1	B	203	HIS
1	B	228	ASN
1	B	231	GLN
1	B	255	HIS
1	B	266	ASN
1	B	272	GLN
1	B	283	GLN
1	B	446	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 [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	10:GLN	C	11:SER	N	1.16
1	A	8:GLY	C	9:PHE	N	0.96

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	472/559 (84%)	0.47	37 (7%) 13 10	34, 66, 101, 101	0
1	B	454/559 (81%)	0.41	29 (6%) 19 15	19, 46, 99, 101	0
All	All	926/1118 (82%)	0.44	66 (7%) 16 12	19, 57, 101, 101	0

All (66) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	13	VAL	12.2
1	A	488	GLU	9.6
1	B	487	ASP	9.5
1	A	489	SER	8.7
1	A	12	GLU	8.5
1	B	486	VAL	8.5
1	B	18	HIS	7.0
1	A	11	SER	6.9
1	B	98	ALA	6.7
1	A	289	TRP	6.4
1	A	10	GLN	6.3
1	B	17	LEU	5.8
1	B	25	TYR	5.8
1	A	487	ASP	5.3
1	B	120	ILE	5.3
1	B	97	ILE	4.9
1	B	485	LYS	4.6
1	B	19	LEU	4.4
1	A	17	LEU	4.3
1	B	489	SER	4.2
1	B	215	GLU	4.0
1	B	488	GLU	3.9
1	A	122	GLN	3.7
1	A	486	VAL	3.6

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Mol	Chain	Res	Type	RSRZ
1	A	291	ARG	3.6
1	A	20	MET	3.3
1	A	484	SER	3.3
1	A	444	SER	3.1
1	B	443	SER	3.0
1	B	216	LYS	3.0
1	A	120	ILE	3.0
1	B	213	ARG	2.9
1	B	286	TRP	2.8
1	A	51	LEU	2.8
1	B	159	GLU	2.8
1	B	220	THR	2.8
1	B	24	LEU	2.8
1	A	3	GLY	2.8
1	A	14	LYS	2.7
1	B	20	MET	2.7
1	B	16	LEU	2.7
1	A	292	ASP	2.7
1	A	1	MET	2.7
1	B	192	ARG	2.7
1	A	449	LEU	2.6
1	A	431	TYR	2.6
1	A	485	LYS	2.5
1	B	217	ASP	2.5
1	B	121	GLY	2.5
1	A	2	LYS	2.4
1	A	443	SER	2.4
1	A	286	TRP	2.4
1	A	450	LEU	2.3
1	A	102	THR	2.3
1	A	455	ILE	2.3
1	A	257	PHE	2.3
1	A	334	VAL	2.3
1	B	219	GLU	2.3
1	A	16	LEU	2.2
1	B	390	PHE	2.2
1	A	290	ASN	2.2
1	A	288	MET	2.2
1	A	21	ILE	2.1
1	B	158	GLY	2.1
1	B	444	SER	2.1
1	A	293	HIS	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 monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.