



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 03:50 PM UTC

PDB ID : 1USV / pdb_00001usv
Title : The Structure of the complex between Aha1 and HSP90
Authors : Meyer, P.; Roe, S.M.; Pearl, L.H.
Deposited on : 2003-12-01
Resolution : 2.70 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:

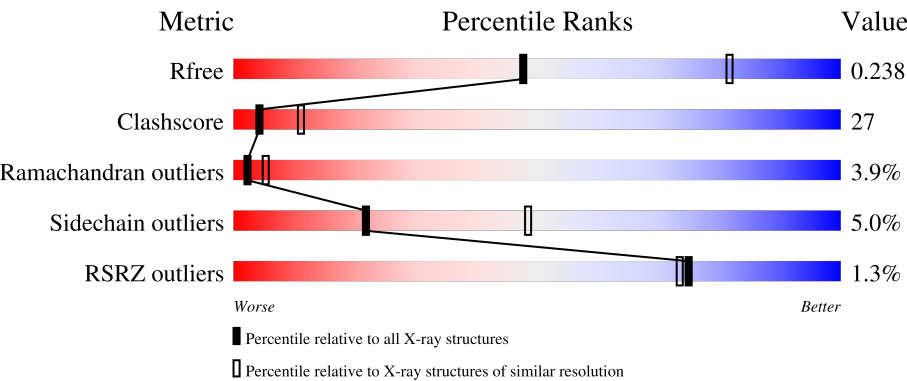
MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.70 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}	180053	3538 (2.70-2.70)
Clashscore	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)
RSRZ outliers	180081	3538 (2.70-2.70)

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	260	52%38%7% .
1	C	260	56%35%5%
1	E	260	50%40%7% .
1	G	260	46%42%7% . 5%
2	B	170	37%43%16%

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Mol	Chain	Length	Quality of chain
2	D	170	45%34%16%
2	F	170	3% 38%35%12%14%
2	H	170	2% 45%33%17%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 12783 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 HEAT SHOCK PROTEIN HSP82.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	251	Total	C	N	O	S	0	0	0
			2080	1345	338	394	3			
1	C	247	Total	C	N	O	S	0	0	0
			2041	1320	332	387	2			
1	E	251	Total	C	N	O	S	0	0	0
			2078	1342	339	394	3			
1	G	248	Total	C	N	O	S	0	0	0
			2050	1325	335	387	3			

- Molecule 2 is a protein called AHA1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	143	Total	C	N	O	S	0	0	0
			1124	719	185	218	2			
2	D	142	Total	C	N	O	S	0	0	0
			1107	707	183	215	2			
2	F	146	Total	C	N	O	S	0	0	1
			1146	735	191	218	2			
2	H	141	Total	C	N	O	S	0	0	0
			1099	703	181	213	2			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	16	Total	O	0	0
			16	16		
3	B	4	Total	O	0	0
			4	4		
3	C	13	Total	O	0	0
			13	13		
3	D	2	Total	O	0	0
			2	2		

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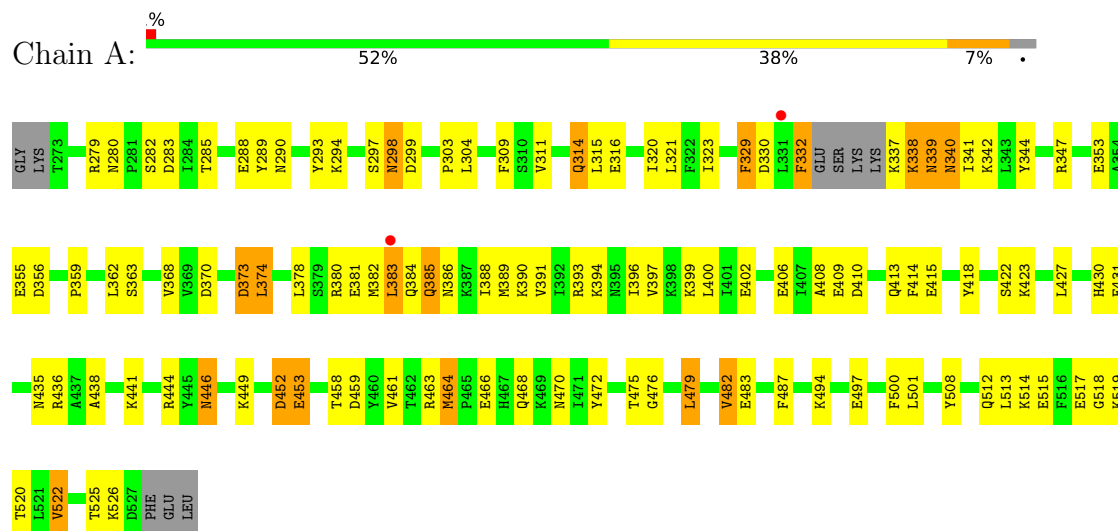
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	E	7	Total 7	O 7	0	0
3	F	2	Total 2	O 2	0	0
3	G	11	Total 11	O 11	0	0
3	H	3	Total 3	O 3	0	0

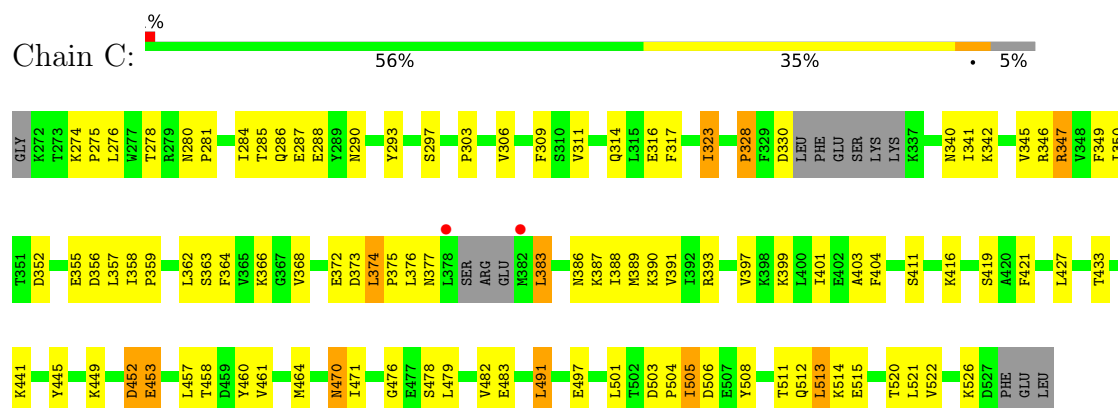
3 Residue-property plots

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

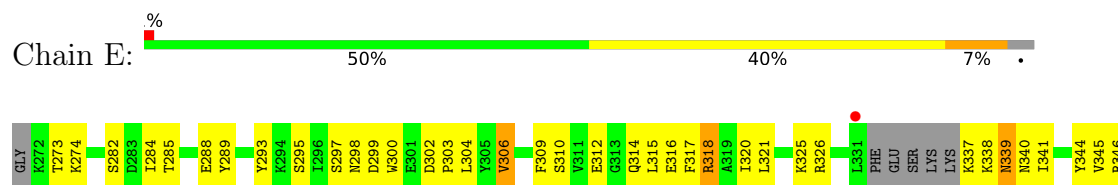
• Molecule 1: HEAT SHOCK PROTEIN HSP82

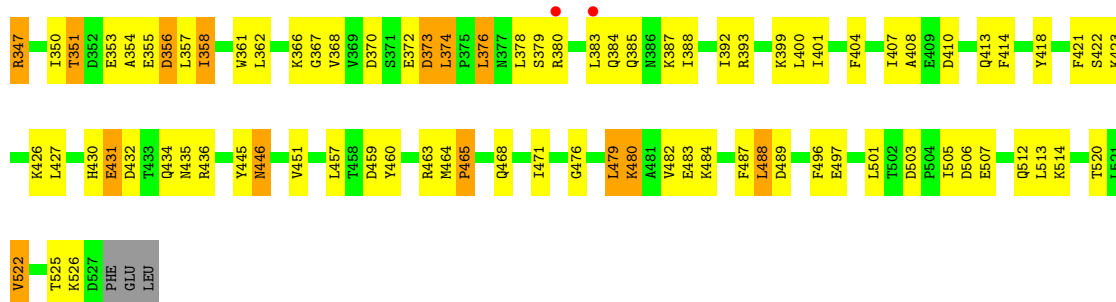


• Molecule 1: HEAT SHOCK PROTEIN HSP82

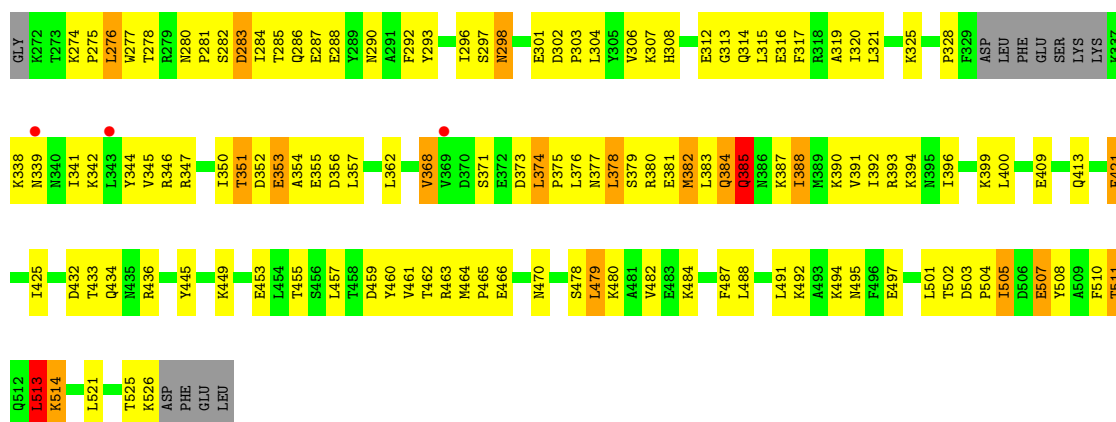


• Molecule 1: HEAT SHOCK PROTEIN HSP82

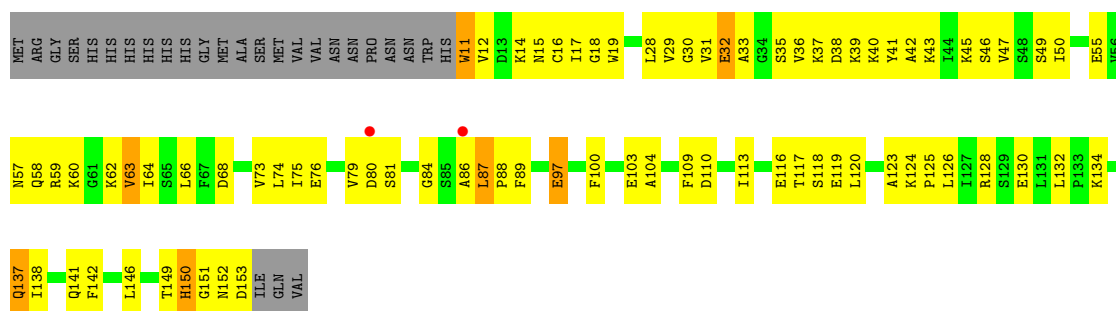




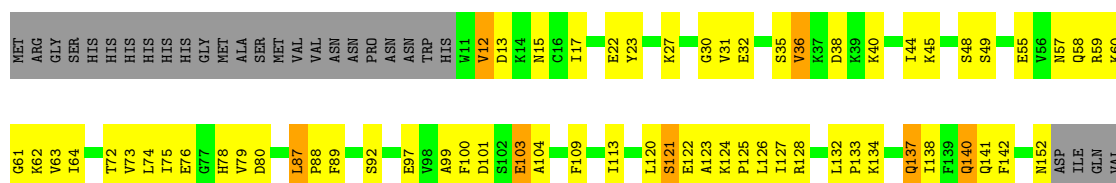
• Molecule 1: HEAT SHOCK PROTEIN HSP82



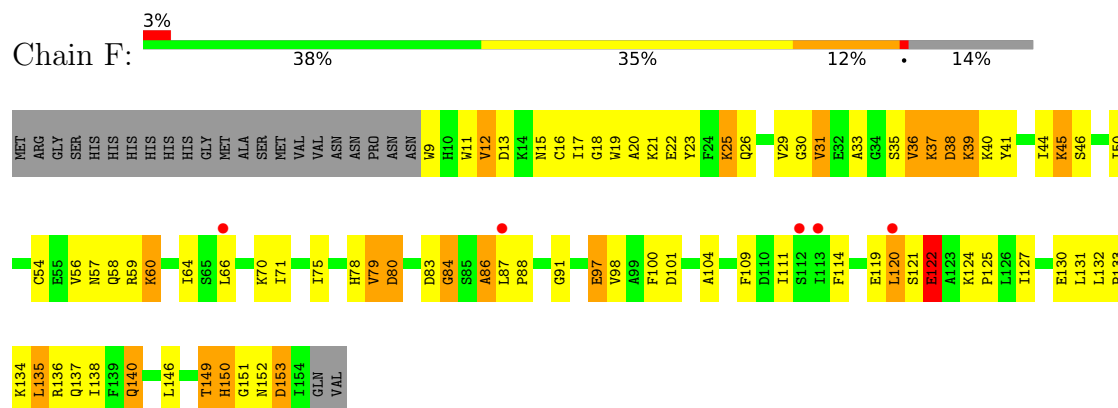
• Molecule 2: AHA1



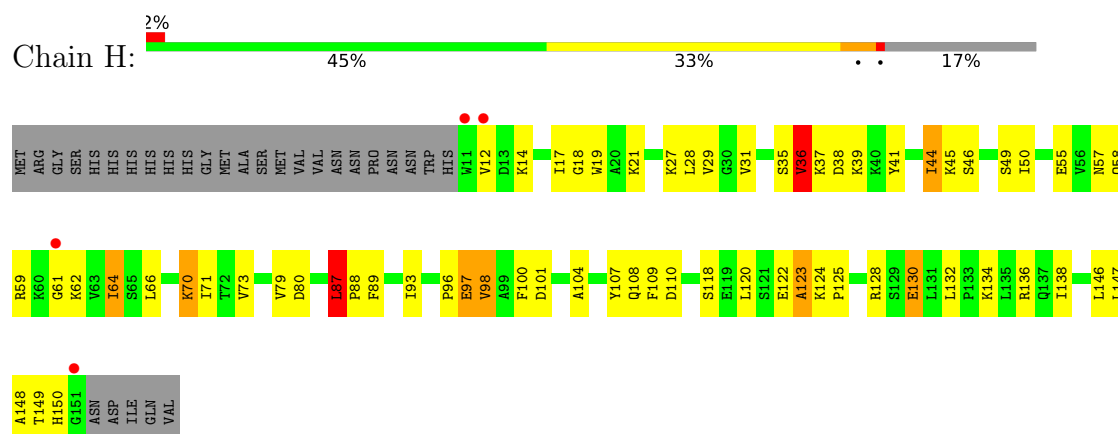
• Molecule 2: AHA1



- Molecule 2: AHA1



- Molecule 2: AHA1



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	58.40Å 207.93Å 84.45Å 90.00° 97.68° 90.00°	Depositor
Resolution (Å)	34.26 – 2.70 34.26 – 2.70	Depositor EDS
% Data completeness (in resolution range)	97.8 (34.26-2.70) 97.8 (34.26-2.70)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.85 (at 2.68Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.229 , 0.298 (Not available) , 0.238	Depositor DCC
R_{free} test set	2720 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å ²)	51.6	Xtriage
Anisotropy	0.444	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 39.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	12783	wwPDB-VP
Average B, all atoms (Å ²)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.81% 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

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	0.53	0/2124	0.97	8/2867 (0.3%)
1	C	0.54	0/2083	1.00	6/2811 (0.2%)
1	E	0.50	0/2121	0.96	8/2862 (0.3%)
1	G	0.49	0/2093	0.98	9/2825 (0.3%)
2	B	0.44	0/1144	1.00	8/1537 (0.5%)
2	D	0.47	0/1125	0.97	4/1510 (0.3%)
2	F	0.45	1/1169 (0.1%)	0.87	4/1573 (0.3%)
2	H	0.45	0/1117	1.01	6/1499 (0.4%)
All	All	0.50	1/12976 (0.0%)	0.97	53/17484 (0.3%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	153	ASP	C-N	-5.66	1.25	1.33

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	431	GLU	N-CA-C	8.82	124.17	113.41
2	B	84	GLY	N-CA-C	8.34	117.80	110.21
1	E	451	VAL	N-CA-C	7.72	119.41	111.00
1	G	421	PHE	N-CA-C	7.54	120.53	110.88
1	G	502	THR	N-CA-C	7.29	122.34	113.38
2	D	99	ALA	N-CA-C	7.04	120.43	109.52
1	E	431	GLU	N-CA-C	7.03	122.53	113.88
2	B	97	GLU	N-CA-C	6.84	119.89	108.13
1	C	352	ASP	N-CA-C	-6.74	103.43	112.94
2	D	97	GLU	N-CA-C	6.61	119.11	107.61
2	H	87	LEU	CA-C-N	6.59	126.50	119.85
2	H	87	LEU	C-N-CA	6.59	126.50	119.85
1	C	377	ASN	N-CA-C	6.45	117.64	108.54
1	C	421	PHE	N-CA-C	6.45	122.03	112.94
1	C	323	ILE	CA-C-N	6.38	126.36	119.78

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	323	ILE	C-N-CA	6.38	126.36	119.78
1	A	494	LYS	N-CA-C	-6.32	105.14	112.92
2	H	64	ILE	N-CA-C	6.25	116.44	108.82
1	A	466	GLU	N-CA-C	6.06	119.51	111.75
1	E	522	VAL	N-CA-C	5.99	116.49	107.80
1	E	446	ASN	N-CA-C	-5.99	100.86	110.14
1	G	382	MET	N-CA-C	-5.93	105.31	112.54
1	G	507	GLU	N-CA-C	-5.93	104.82	111.28
1	E	488	LEU	N-CA-C	5.89	117.50	111.14
1	G	511	THR	N-CA-C	-5.83	105.01	111.71
1	A	402	GLU	N-CA-C	-5.79	104.88	111.07
2	F	97	GLU	N-CA-C	5.68	117.69	108.26
2	B	63	VAL	N-CA-C	-5.68	100.24	108.36
1	E	496	PHE	N-CA-C	-5.64	100.51	109.59
1	A	464	MET	N-CA-C	5.62	118.53	108.47
2	H	97	GLU	N-CA-C	5.61	117.78	108.13
2	D	49	SER	N-CA-C	5.57	116.98	108.52
1	G	510	PHE	N-CA-C	5.52	119.28	112.54
1	G	409	GLU	N-CA-C	-5.50	106.73	113.50
2	H	70	LYS	N-CA-C	-5.48	99.96	108.90
2	H	98	VAL	N-CA-C	-5.48	98.03	107.24
2	F	25	LYS	N-CA-C	-5.44	105.35	111.28
2	F	135	LEU	N-CA-C	-5.42	105.38	111.28
2	B	64	ILE	N-CA-C	5.39	116.67	108.80
1	E	512	GLN	N-CA-C	-5.37	106.23	112.89
1	A	482	VAL	N-CA-C	5.36	117.79	111.09
2	D	32	GLU	N-CA-C	5.36	116.94	108.96
1	G	368	VAL	N-CA-C	5.32	116.39	108.46
1	A	383	LEU	N-CA-C	-5.29	107.38	113.88
1	C	427	LEU	N-CA-C	-5.28	105.61	111.36
2	B	49	SER	N-CA-C	5.28	117.77	108.75
2	B	37	LYS	N-CA-C	5.25	116.69	110.97
1	G	432	ASP	N-CA-C	5.17	117.00	109.71
2	B	75	ILE	N-CA-C	5.13	116.11	108.46
1	E	421	PHE	N-CA-C	5.11	119.06	112.41
2	F	70	LYS	N-CA-C	-5.11	100.38	109.06
1	A	522	VAL	N-CA-C	5.09	115.36	107.78
2	B	32	GLU	N-CA-C	5.08	117.11	109.23

There are no chirality outliers.

There are no planarity outliers.

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	2080	0	2083	96	0
1	C	2041	0	2044	99	0
1	E	2078	0	2087	119	0
1	G	2050	0	2057	124	0
2	B	1124	0	1132	79	0
2	D	1107	0	1120	58	0
2	F	1146	0	1147	81	0
2	H	1099	0	1114	55	0
3	A	16	0	0	0	0
3	B	4	0	0	0	0
3	C	13	0	0	1	0
3	D	2	0	0	0	0
3	E	7	0	0	1	0
3	F	2	0	0	0	0
3	G	11	0	0	0	0
3	H	3	0	0	0	0
All	All	12783	0	12784	690	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 27.

All (690) 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:G:280:ASN:HD22	1:G:283:ASP:HB2	1.13	1.11
1:G:380:ARG:HG2	1:G:381:GLU:H	1.23	1.03
1:C:390:LYS:HA	1:C:393:ARG:HH12	1.25	0.98
1:C:386:ASN:HD22	1:C:389:MET:H	1.05	0.97
2:F:78:HIS:HB2	2:F:86:ALA:HB1	1.47	0.95
2:F:11:TRP:HE1	1:G:280:ASN:HB2	1.33	0.92
2:F:91:GLY:HA2	2:F:114:PHE:HD1	1.34	0.92
1:A:342:LYS:HB2	1:A:368:VAL:HG22	1.52	0.91
2:F:12:VAL:HG12	2:F:13:ASP:H	1.35	0.91
2:D:140:GLN:HE21	2:D:140:GLN:HA	1.36	0.90
1:E:407:ILE:HG23	1:E:413:GLN:HG2	1.51	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:91:GLY:HA2	2:F:114:PHE:CD1	2.08	0.87
2:D:58:GLN:HG2	2:D:63:VAL:HG22	1.55	0.87
1:C:505:ILE:N	1:C:505:ILE:HD12	1.89	0.87
1:E:464:MET:HE3	1:E:468:GLN:HE21	1.40	0.86
1:A:464:MET:HG2	1:A:468:GLN:NE2	1.90	0.86
1:A:390:LYS:HE2	1:A:394:LYS:HE3	1.57	0.85
2:H:29:VAL:HG22	2:H:46:SER:HA	1.58	0.85
1:G:503:ASP:OD1	1:G:504:PRO:HD2	1.76	0.85
1:E:350:ILE:HG22	1:E:351:THR:HG22	1.60	0.84
1:C:505:ILE:HD12	1:C:505:ILE:H	1.44	0.83
2:B:39:LYS:HD2	2:B:86:ALA:HB2	1.61	0.82
2:B:117:THR:H	2:B:120:LEU:HD12	1.43	0.82
1:G:503:ASP:OD2	1:G:505:ILE:HD13	1.80	0.82
1:C:511:THR:HG22	1:C:512:GLN:HE21	1.45	0.82
2:F:35:SER:O	2:F:36:VAL:HG23	1.81	0.81
1:C:386:ASN:ND2	1:C:389:MET:H	1.78	0.81
1:G:374:LEU:HD12	1:G:375:PRO:HD2	1.63	0.80
2:F:39:LYS:HB3	2:F:80:ASP:HB3	1.64	0.80
2:F:11:TRP:NE1	1:G:280:ASN:HB2	1.98	0.79
1:A:386:ASN:HD22	1:A:389:MET:H	1.29	0.79
1:C:503:ASP:CG	1:C:505:ILE:HD13	2.07	0.79
1:C:390:LYS:HA	1:C:393:ARG:NH1	1.99	0.78
2:F:86:ALA:O	2:F:88:PRO:HD3	1.83	0.78
1:G:280:ASN:ND2	1:G:283:ASP:HB2	1.96	0.78
1:C:355:GLU:O	1:C:356:ASP:HB2	1.84	0.78
2:B:19:TRP:CG	2:B:150:HIS:HE2	2.03	0.77
1:C:287:GLU:HA	1:C:290:ASN:HD22	1.50	0.77
1:C:355:GLU:HG3	1:C:356:ASP:H	1.47	0.77
1:A:459:ASP:HB3	1:A:463:ARG:HH12	1.48	0.76
1:C:386:ASN:HD21	1:C:388:ILE:HB	1.50	0.76
2:F:15:ASN:HD22	2:F:16:CYS:H	1.32	0.76
1:A:378:LEU:HB2	1:A:383:LEU:HB2	1.68	0.76
1:C:505:ILE:H	1:C:505:ILE:CD1	1.99	0.75
2:D:134:LYS:O	2:D:137:GLN:HG3	1.88	0.74
1:G:355:GLU:C	1:G:357:LEU:H	1.93	0.74
2:H:17:ILE:HG13	2:H:21:LYS:HE3	1.70	0.74
1:C:314:GLN:HE21	2:D:64:ILE:HB	1.52	0.73
1:A:315:LEU:HD22	1:A:391:VAL:CG1	2.18	0.73
1:A:381:GLU:O	1:A:385:GLN:HG2	1.87	0.73
2:H:104:ALA:O	2:H:136:ARG:HD3	1.87	0.73
2:D:35:SER:HB3	2:D:38:ASP:OD2	1.89	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:449:LYS:HD2	1:C:497:GLU:HB2	1.72	0.72
2:D:87:LEU:H	2:D:87:LEU:HD23	1.55	0.72
2:H:58:GLN:O	2:H:59:ARG:HD2	1.89	0.72
1:C:383:LEU:HD21	1:C:389:MET:HE3	1.71	0.72
2:B:58:GLN:HG2	2:B:63:VAL:HG13	1.71	0.71
1:G:287:GLU:CD	1:G:287:GLU:H	1.99	0.71
1:E:346:ARG:HA	1:E:347:ARG:CZ	2.20	0.71
2:B:39:LYS:HE2	2:B:81:SER:H	1.56	0.71
1:G:479:LEU:HD13	1:G:479:LEU:O	1.90	0.71
1:A:355:GLU:O	1:A:356:ASP:HB2	1.89	0.70
2:B:134:LYS:O	2:B:137:GLN:HG3	1.91	0.70
1:E:318:ARG:HH11	1:E:318:ARG:HG2	1.54	0.70
1:C:471:ILE:HB	1:C:521:LEU:HD23	1.72	0.70
1:E:315:LEU:HD11	1:E:388:ILE:HD12	1.72	0.70
1:C:460:TYR:CE2	1:C:471:ILE:HG23	2.26	0.70
1:G:350:ILE:HG22	1:G:351:THR:HG22	1.72	0.70
1:G:507:GLU:O	1:G:511:THR:HG23	1.93	0.69
2:B:12:VAL:O	2:B:14:LYS:HG3	1.93	0.69
2:F:33:ALA:HB2	2:F:131:LEU:HB2	1.74	0.68
2:F:15:ASN:ND2	2:F:16:CYS:H	1.91	0.68
2:F:38:ASP:C	2:F:40:LYS:H	1.99	0.68
2:B:30:GLY:HA2	2:B:43:LYS:NZ	2.08	0.68
1:C:513:LEU:O	1:C:514:LYS:HB2	1.94	0.68
2:F:131:LEU:O	2:F:135:LEU:HG	1.94	0.68
1:G:513:LEU:O	1:G:514:LYS:HB2	1.93	0.68
2:D:140:GLN:HA	2:D:140:GLN:NE2	2.09	0.67
1:E:423:LYS:NZ	1:E:503:ASP:OD1	2.27	0.67
1:E:376:LEU:HD12	1:E:376:LEU:H	1.60	0.67
1:E:501:LEU:HB3	1:E:506:ASP:HB3	1.75	0.67
2:F:132:LEU:N	2:F:133:PRO:HD2	2.10	0.67
1:G:390:LYS:HG3	1:G:393:ARG:NH2	2.09	0.67
1:A:329:PHE:CG	1:A:330:ASP:N	2.63	0.66
2:B:116:GLU:HA	2:B:120:LEU:HD12	1.75	0.66
2:F:40:LYS:HD3	2:F:79:VAL:HG13	1.76	0.66
2:F:134:LYS:O	2:F:138:ILE:HG13	1.96	0.66
1:G:377:ASN:O	1:G:378:LEU:HD23	1.95	0.66
2:F:37:LYS:H	2:F:37:LYS:CD	2.08	0.66
1:E:464:MET:HE3	1:E:468:GLN:NE2	2.10	0.66
1:G:380:ARG:HG2	1:G:381:GLU:N	2.04	0.66
1:A:378:LEU:HD13	1:A:383:LEU:HA	1.77	0.66
1:C:357:LEU:O	1:C:393:ARG:HG3	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:386:ASN:HD21	1:A:388:ILE:HB	1.61	0.65
1:E:487:PHE:CG	1:E:525:THR:HG22	2.31	0.65
1:C:311:VAL:O	1:C:316:GLU:HA	1.96	0.65
1:C:374:LEU:HD12	1:C:375:PRO:HD2	1.77	0.65
1:G:280:ASN:O	1:G:284:ILE:HG13	1.96	0.65
1:G:281:PRO:C	1:G:283:ASP:H	2.05	0.65
2:B:39:LYS:HE2	2:B:80:ASP:HA	1.79	0.65
2:F:80:ASP:HA	2:F:86:ALA:H	1.61	0.65
1:G:356:ASP:O	1:G:393:ARG:HD3	1.97	0.64
1:G:320:ILE:O	1:G:320:ILE:HG23	1.97	0.64
1:G:315:LEU:HD13	2:H:66:LEU:HD11	1.80	0.64
1:G:356:ASP:OD2	1:G:384:GLN:HG2	1.97	0.64
1:G:503:ASP:OD1	1:G:504:PRO:CD	2.44	0.64
1:E:427:LEU:O	1:E:430:HIS:HB2	1.97	0.64
2:F:29:VAL:HG13	2:F:45:LYS:O	1.98	0.64
1:G:342:LYS:HB3	1:G:344:TYR:HE2	1.62	0.64
2:F:133:PRO:O	2:F:137:GLN:HG3	1.97	0.64
1:C:511:THR:HG22	1:C:512:GLN:NE2	2.12	0.63
1:E:346:ARG:HH22	1:E:376:LEU:HD11	1.64	0.63
2:F:15:ASN:ND2	2:F:16:CYS:N	2.47	0.63
2:H:58:GLN:HG3	2:H:62:LYS:O	1.98	0.63
1:C:359:PRO:HG2	1:C:362:LEU:HD12	1.81	0.63
1:E:273:THR:HG22	1:E:274:LYS:H	1.63	0.63
1:A:315:LEU:HD22	1:A:391:VAL:HG12	1.80	0.62
2:B:15:ASN:HD22	2:B:16:CYS:H	1.46	0.62
1:A:452:ASP:O	1:A:453:GLU:HB3	1.99	0.62
2:B:149:THR:C	2:B:151:GLY:H	2.06	0.62
1:G:313:GLY:C	1:G:315:LEU:H	2.07	0.62
1:G:392:ILE:O	1:G:396:ILE:HG13	1.98	0.62
1:E:351:THR:HG23	1:E:354:ALA:HB2	1.81	0.62
1:G:449:LYS:HD2	1:G:497:GLU:HB2	1.80	0.62
1:A:356:ASP:OD2	1:A:384:GLN:HB3	1.99	0.62
1:A:464:MET:CE	1:A:519:LYS:HE2	2.30	0.62
1:E:340:ASN:OD1	1:E:366:LYS:HE2	2.00	0.62
2:F:75:ILE:HD12	2:F:75:ILE:O	2.00	0.62
1:A:339:ASN:O	1:A:339:ASN:CG	2.43	0.61
1:E:379:SER:O	1:E:383:LEU:HB3	2.00	0.61
1:A:315:LEU:HD22	1:A:391:VAL:HG11	1.83	0.61
1:E:318:ARG:HG2	1:E:318:ARG:NH1	2.14	0.61
1:A:464:MET:HE1	1:A:519:LYS:HE2	1.81	0.61
1:G:277:TRP:CE3	1:G:368:VAL:HG11	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:286:GLN:HG3	1:C:290:ASN:HD21	1.64	0.61
2:B:55:GLU:HG2	2:B:57:ASN:HD21	1.64	0.61
2:F:15:ASN:HD22	2:F:16:CYS:N	1.96	0.61
2:D:120:LEU:O	2:D:122:GLU:N	2.34	0.61
2:H:37:LYS:HG3	2:H:38:ASP:N	2.15	0.61
1:C:293:TYR:CD2	1:C:303:PRO:HD3	2.36	0.60
2:B:124:LYS:HB2	2:B:125:PRO:HD3	1.84	0.60
1:C:470:ASN:HB3	1:C:520:THR:O	2.00	0.60
1:A:526:LYS:HE3	1:C:526:LYS:NZ	2.15	0.60
2:F:111:ILE:HG21	2:F:124:LYS:HG2	1.84	0.60
2:H:98:VAL:HA	2:H:107:TYR:HE2	1.66	0.60
1:G:445:TYR:O	1:G:455:THR:HG22	2.02	0.60
1:E:401:ILE:CD1	1:E:435:ASN:HB3	2.32	0.60
1:A:293:TYR:CD2	1:A:303:PRO:HD3	2.36	0.60
2:B:30:GLY:HA2	2:B:43:LYS:HZ2	1.66	0.60
2:B:47:VAL:HA	2:B:73:VAL:HG12	1.83	0.60
1:E:289:TYR:CD2	1:E:306:VAL:HG21	2.37	0.60
1:E:408:ALA:HA	1:E:414:PHE:CD2	2.37	0.60
1:G:347:ARG:HD3	1:G:347:ARG:N	2.16	0.60
1:A:386:ASN:ND2	1:A:388:ILE:HB	2.16	0.59
2:B:117:THR:N	2:B:120:LEU:HD12	2.15	0.59
2:F:80:ASP:HB2	2:F:84:GLY:HA2	1.83	0.59
1:A:294:LYS:HD2	1:A:299:ASP:O	2.01	0.59
1:A:384:GLN:O	1:A:385:GLN:HB3	2.01	0.59
1:C:340:ASN:ND2	1:C:366:LYS:HG2	2.17	0.59
1:G:387:LYS:HE3	1:G:391:VAL:HG23	1.85	0.59
1:G:457:LEU:O	1:G:461:VAL:HG23	2.02	0.59
1:G:505:ILE:O	1:G:508:TYR:HB3	2.03	0.59
1:A:337:LYS:HE2	1:A:339:ASN:CG	2.28	0.59
2:B:57:ASN:HB3	2:B:59:ARG:CZ	2.32	0.59
2:B:87:LEU:HD12	2:B:87:LEU:H	1.68	0.59
1:E:383:LEU:HD22	1:E:384:GLN:HG3	1.84	0.59
2:H:87:LEU:O	2:H:87:LEU:HD12	2.02	0.59
2:F:119:GLU:O	2:F:120:LEU:HG	2.03	0.59
1:G:304:LEU:HD11	1:G:413:GLN:HG2	1.83	0.59
2:D:15:ASN:ND2	2:D:17:ILE:HG22	2.18	0.58
1:E:482:VAL:HG23	1:E:483:GLU:N	2.16	0.58
1:G:505:ILE:HD12	1:G:505:ILE:N	2.18	0.58
1:C:501:LEU:HB3	1:C:506:ASP:HB3	1.85	0.58
1:E:320:ILE:O	1:E:321:LEU:HD23	2.03	0.58
1:G:362:LEU:HD13	1:G:400:LEU:HD13	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:15:ASN:ND2	2:B:16:CYS:H	2.00	0.58
2:B:134:LYS:O	2:B:138:ILE:HG13	2.03	0.58
2:D:152:ASN:C	2:D:152:ASN:HD22	2.10	0.58
2:F:44:ILE:HA	2:F:75:ILE:HG22	1.86	0.58
2:H:17:ILE:O	2:H:21:LYS:HG3	2.04	0.58
2:F:79:VAL:O	2:F:86:ALA:HB2	2.03	0.58
1:A:500:PHE:C	1:A:501:LEU:HD23	2.28	0.58
1:G:320:ILE:HG22	1:G:368:VAL:HG12	1.86	0.58
2:H:64:ILE:C	2:H:64:ILE:HD12	2.29	0.58
1:A:449:LYS:HD2	1:A:497:GLU:HB2	1.86	0.57
2:B:57:ASN:HB3	2:B:59:ARG:NE	2.18	0.57
2:F:64:ILE:HD12	2:F:64:ILE:O	2.03	0.57
1:G:287:GLU:CD	1:G:287:GLU:N	2.61	0.57
1:G:378:LEU:HB3	1:G:382:MET:SD	2.44	0.57
2:H:109:PHE:CD2	2:H:132:LEU:HD22	2.39	0.57
1:G:286:GLN:HG3	1:G:290:ASN:HD21	1.69	0.57
1:E:309:PHE:CZ	1:E:399:LYS:HG3	2.38	0.57
2:F:124:LYS:HB2	2:F:125:PRO:HD3	1.86	0.57
1:C:503:ASP:OD2	1:C:504:PRO:HD2	2.05	0.57
1:E:297:SER:O	1:E:298:ASN:HB2	2.04	0.57
1:G:355:GLU:C	1:G:357:LEU:N	2.61	0.57
2:B:36:VAL:N	2:B:41:TYR:CE1	2.71	0.57
2:B:50:ILE:HG22	2:B:50:ILE:O	2.02	0.57
2:F:149:THR:HG22	2:F:149:THR:O	2.05	0.57
1:G:320:ILE:CG2	1:G:368:VAL:HG12	2.35	0.56
1:G:487:PHE:CG	1:G:525:THR:HG22	2.40	0.56
2:H:35:SER:C	2:H:36:VAL:HG22	2.30	0.56
1:C:478:SER:O	1:C:482:VAL:HG22	2.05	0.56
2:D:133:PRO:O	2:D:137:GLN:HG2	2.04	0.56
2:H:87:LEU:HD13	2:H:120:LEU:HD23	1.86	0.56
2:H:35:SER:O	2:H:36:VAL:HG22	2.05	0.56
2:H:58:GLN:C	2:H:59:ARG:HD2	2.31	0.56
2:F:130:GLU:O	2:F:134:LYS:HG2	2.06	0.56
1:G:297:SER:O	1:G:298:ASN:HB2	2.06	0.56
1:A:337:LYS:HE2	1:A:339:ASN:OD1	2.05	0.56
2:D:13:ASP:HB3	2:D:57:ASN:OD1	2.05	0.56
1:E:337:LYS:NZ	1:E:338:LYS:HB2	2.20	0.56
1:E:460:TYR:CE2	1:E:471:ILE:HG23	2.41	0.56
1:G:292:PHE:O	1:G:296:ILE:HG12	2.06	0.56
1:A:320:ILE:HG23	1:A:320:ILE:O	2.07	0.55
1:A:508:TYR:O	1:A:512:GLN:HG2	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:276:LEU:HD11	1:G:284:ILE:CG2	2.36	0.55
1:C:355:GLU:O	1:C:356:ASP:CB	2.54	0.55
1:C:340:ASN:HD21	1:C:366:LYS:HE2	1.70	0.55
1:A:378:LEU:HD13	1:A:382:MET:O	2.07	0.55
2:B:117:THR:C	2:B:119:GLU:H	2.13	0.55
1:G:277:TRP:HA	1:G:308:HIS:NE2	2.22	0.55
1:G:346:ARG:HA	1:G:347:ARG:HH21	1.71	0.55
1:E:357:LEU:O	1:E:357:LEU:HG	2.06	0.55
1:G:351:THR:OG1	1:G:352:ASP:N	2.40	0.55
1:E:445:TYR:CE2	1:E:501:LEU:HD22	2.42	0.55
2:B:55:GLU:HG2	2:B:57:ASN:ND2	2.21	0.55
2:F:57:ASN:HB2	2:F:64:ILE:CD1	2.37	0.55
2:F:71:ILE:HD12	2:F:98:VAL:HG21	1.88	0.55
1:G:274:LYS:HB2	1:G:278:THR:OG1	2.07	0.55
1:A:311:VAL:O	1:A:316:GLU:HA	2.07	0.54
1:E:418:TYR:O	1:E:422:SER:HB3	2.06	0.54
1:E:320:ILE:C	1:E:321:LEU:HD23	2.32	0.54
1:A:304:LEU:HB3	1:A:323:ILE:O	2.07	0.54
1:A:394:LYS:NZ	2:B:68:ASP:OD1	2.32	0.54
2:D:87:LEU:HD23	2:D:87:LEU:N	2.22	0.54
2:B:28:LEU:O	2:B:31:VAL:HG23	2.07	0.54
1:C:342:LYS:HB2	1:C:368:VAL:HG22	1.90	0.54
1:E:378:LEU:C	1:E:383:LEU:HD12	2.33	0.54
1:G:513:LEU:O	1:G:514:LYS:CB	2.55	0.54
2:B:15:ASN:ND2	2:B:16:CYS:N	2.56	0.54
2:H:61:GLY:O	2:H:62:LYS:HG3	2.08	0.54
1:C:387:LYS:HZ1	1:C:391:VAL:HG21	1.73	0.54
1:E:460:TYR:CE1	1:E:497:GLU:HB3	2.42	0.54
1:E:476:GLY:HA3	1:E:482:VAL:CG1	2.38	0.54
1:G:345:VAL:HG11	1:G:376:LEU:HD21	1.90	0.54
1:A:362:LEU:HD22	1:A:400:LEU:HD13	1.90	0.54
1:A:406:GLU:HA	1:A:409:GLU:OE2	2.08	0.54
2:H:19:TRP:CG	2:H:150:HIS:HE2	2.26	0.54
2:B:59:ARG:O	2:B:60:LYS:HB2	2.08	0.53
1:E:346:ARG:HA	1:E:347:ARG:NH1	2.22	0.53
2:F:120:LEU:O	2:F:122:GLU:N	2.39	0.53
1:A:408:ALA:HA	1:A:414:PHE:CD2	2.43	0.53
1:E:356:ASP:O	1:E:393:ARG:NH1	2.41	0.53
1:G:421:PHE:O	1:G:425:ILE:HG12	2.08	0.53
2:B:12:VAL:HB	2:B:58:GLN:HB2	1.90	0.53
1:G:276:LEU:HD11	1:G:284:ILE:HG21	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:50:ILE:HG22	2:F:50:ILE:O	2.09	0.53
2:F:54:CYS:SG	2:F:146:LEU:HD21	2.49	0.53
1:G:313:GLY:C	1:G:315:LEU:N	2.66	0.53
1:G:342:LYS:HB3	1:G:344:TYR:CE2	2.43	0.53
2:D:45:LYS:HD2	2:D:76:GLU:CD	2.34	0.53
1:G:494:LYS:O	1:G:495:ASN:HB3	2.08	0.53
1:C:355:GLU:HG3	1:C:356:ASP:N	2.21	0.53
1:E:337:LYS:HZ2	1:E:338:LYS:HB2	1.72	0.53
1:E:476:GLY:HA3	1:E:482:VAL:HG13	1.91	0.53
1:A:353:GLU:O	1:A:353:GLU:HG3	2.09	0.53
1:A:373:ASP:O	1:A:374:LEU:HB3	2.09	0.52
2:B:66:LEU:HA	2:B:100:PHE:CD2	2.44	0.52
1:C:373:ASP:O	1:C:374:LEU:CB	2.55	0.52
1:C:393:ARG:CZ	1:C:393:ARG:HB3	2.39	0.52
2:D:40:LYS:HZ3	2:D:122:GLU:HB3	1.74	0.52
2:F:12:VAL:HG12	2:F:13:ASP:N	2.14	0.52
2:H:17:ILE:HG23	2:H:18:GLY:N	2.24	0.52
1:G:308:HIS:HD2	1:G:319:ALA:O	1.92	0.52
2:H:134:LYS:O	2:H:138:ILE:HG13	2.10	0.52
2:D:78:HIS:HA	2:D:88:PRO:HA	1.91	0.52
1:G:505:ILE:HD12	1:G:505:ILE:H	1.75	0.52
1:C:501:LEU:HB3	1:C:506:ASP:CB	2.39	0.52
1:G:304:LEU:CD1	1:G:413:GLN:HG2	2.40	0.52
1:C:461:VAL:HA	1:C:464:MET:SD	2.50	0.52
1:A:344:TYR:O	1:A:370:ASP:HA	2.10	0.52
2:B:45:LYS:HB2	2:B:76:GLU:HG3	1.91	0.52
1:E:338:LYS:O	1:E:339:ASN:HB2	2.10	0.52
1:E:376:LEU:HD12	1:E:376:LEU:N	2.23	0.52
1:A:461:VAL:O	1:A:464:MET:HB2	2.10	0.51
1:A:461:VAL:HA	1:A:464:MET:SD	2.50	0.51
1:E:378:LEU:O	1:E:383:LEU:HD12	2.10	0.51
2:B:39:LYS:CG	2:B:80:ASP:HA	2.40	0.51
1:E:378:LEU:HB3	1:E:383:LEU:HB2	1.91	0.51
2:H:28:LEU:O	2:H:31:VAL:HG23	2.11	0.51
1:A:436:ARG:HD3	1:A:513:LEU:HA	1.93	0.51
1:C:513:LEU:HD13	1:C:521:LEU:HD11	1.92	0.51
2:F:22:GLU:O	2:F:25:LYS:HB3	2.10	0.51
1:G:315:LEU:HD11	1:G:388:ILE:HD12	1.92	0.51
1:G:478:SER:O	1:G:482:VAL:HG22	2.10	0.51
1:A:463:ARG:HG3	1:A:463:ARG:HH11	1.75	0.51
2:D:48:SER:OG	2:D:72:THR:HG22	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:109:PHE:CD2	2:D:132:LEU:HD22	2.46	0.51
1:E:302:ASP:O	1:E:325:LYS:HE3	2.10	0.51
1:E:357:LEU:O	1:E:358:ILE:HB	2.11	0.51
1:G:275:PRO:O	1:G:277:TRP:N	2.44	0.51
1:C:293:TYR:HD2	1:C:303:PRO:HD3	1.75	0.51
1:C:508:TYR:O	1:C:511:THR:HB	2.11	0.51
2:B:39:LYS:CE	2:B:80:ASP:HA	2.39	0.51
1:C:445:TYR:CE2	1:C:501:LEU:HD22	2.45	0.51
1:A:378:LEU:HD12	1:A:383:LEU:CD1	2.41	0.51
1:C:479:LEU:O	1:C:483:GLU:HB2	2.10	0.51
1:E:346:ARG:NH2	1:E:376:LEU:HD11	2.24	0.51
1:G:281:PRO:HG2	1:G:282:SER:H	1.76	0.51
2:B:109:PHE:CG	2:B:132:LEU:HD22	2.46	0.50
2:D:134:LYS:O	2:D:138:ILE:HG13	2.11	0.50
1:E:312:GLU:HA	1:E:316:GLU:HG2	1.92	0.50
2:F:44:ILE:HG23	2:F:44:ILE:O	2.10	0.50
1:A:381:GLU:HB3	1:A:385:GLN:CD	2.37	0.50
2:B:117:THR:C	2:B:119:GLU:N	2.68	0.50
2:D:23:TYR:CZ	2:D:27:LYS:HD2	2.47	0.50
2:F:31:VAL:O	2:F:44:ILE:HG22	2.11	0.50
2:H:12:VAL:O	2:H:14:LYS:HG3	2.10	0.50
2:B:103:GLU:O	2:B:104:ALA:C	2.53	0.50
2:B:110:ASP:C	2:B:110:ASP:OD1	2.53	0.50
1:E:299:ASP:OD2	1:E:300:TRP:N	2.44	0.50
2:F:100:PHE:CD1	2:F:101:ASP:N	2.79	0.50
2:B:15:ASN:ND2	2:B:17:ILE:H	2.09	0.50
2:B:39:LYS:HG3	2:B:80:ASP:HA	1.92	0.50
1:E:315:LEU:HD12	1:E:373:ASP:OD2	2.12	0.50
1:G:285:THR:OG1	1:G:288:GLU:HG3	2.12	0.50
1:E:304:LEU:HB2	1:E:325:LYS:HB3	1.94	0.50
1:E:310:SER:HB2	1:E:318:ARG:HG3	1.93	0.50
2:F:9:TRP:NE1	1:G:280:ASN:HA	2.27	0.50
1:A:309:PHE:CZ	1:A:399:LYS:HG3	2.47	0.50
2:D:141:GLN:O	2:D:142:PHE:C	2.55	0.50
1:E:526:LYS:NZ	3:E:2006:HOH:O	2.40	0.50
2:H:130:GLU:HA	2:H:130:GLU:OE1	2.12	0.50
1:E:285:THR:OG1	1:E:288:GLU:HB2	2.12	0.49
1:E:350:ILE:HG22	1:E:351:THR:N	2.26	0.49
1:G:387:LYS:HE2	2:H:66:LEU:O	2.12	0.49
1:A:476:GLY:HA3	1:A:482:VAL:CG1	2.42	0.49
1:C:386:ASN:ND2	1:C:388:ILE:HB	2.21	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:339:ASN:ND2	1:E:353:GLU:HB3	2.27	0.49
1:G:301:GLU:OE1	1:G:325:LYS:HD2	2.11	0.49
1:E:388:ILE:O	1:E:392:ILE:HG13	2.11	0.49
2:F:37:LYS:H	2:F:37:LYS:HD2	1.76	0.49
2:B:11:TRP:HE3	2:B:11:TRP:HA	1.77	0.49
1:E:383:LEU:C	1:E:383:LEU:HD23	2.37	0.49
2:D:35:SER:O	2:D:36:VAL:HG23	2.13	0.49
2:B:15:ASN:HD22	2:B:16:CYS:N	2.11	0.49
1:E:320:ILE:O	1:E:320:ILE:HG23	2.13	0.49
2:B:89:PHE:CD1	2:B:89:PHE:C	2.91	0.49
1:G:293:TYR:CD2	1:G:303:PRO:HD3	2.48	0.49
1:A:452:ASP:O	1:A:453:GLU:CB	2.61	0.49
1:C:503:ASP:OD1	1:C:505:ILE:HD13	2.12	0.49
1:E:520:THR:HG22	1:E:522:VAL:HG23	1.95	0.49
1:G:280:ASN:HB3	1:G:283:ASP:HB2	1.95	0.49
2:B:68:ASP:OD2	2:B:97:GLU:HG3	2.13	0.48
1:C:275:PRO:HG2	1:C:278:THR:CG2	2.43	0.48
2:D:103:GLU:O	2:D:104:ALA:C	2.56	0.48
2:F:18:GLY:O	2:F:21:LYS:HB2	2.12	0.48
2:F:19:TRP:CE3	2:F:146:LEU:HD13	2.48	0.48
1:G:321:LEU:HD11	1:G:396:ILE:HG23	1.95	0.48
1:G:488:LEU:HB3	1:G:492:LYS:HE3	1.95	0.48
1:C:285:THR:HG23	1:C:288:GLU:OE1	2.13	0.48
1:C:479:LEU:O	1:C:479:LEU:HD13	2.13	0.48
1:C:314:GLN:NE2	2:D:64:ILE:HB	2.24	0.48
1:G:460:TYR:C	1:G:460:TYR:CD2	2.91	0.48
2:D:79:VAL:HG12	2:D:80:ASP:N	2.27	0.48
1:E:501:LEU:HB3	1:E:506:ASP:CB	2.43	0.48
1:A:459:ASP:HB3	1:A:463:ARG:NH1	2.25	0.48
1:C:387:LYS:NZ	1:C:391:VAL:CG2	2.76	0.48
2:D:59:ARG:O	2:D:61:GLY:N	2.47	0.48
2:B:60:LYS:C	2:B:62:LYS:N	2.71	0.48
2:B:149:THR:C	2:B:151:GLY:N	2.72	0.48
2:B:149:THR:O	2:B:151:GLY:N	2.47	0.48
1:E:344:TYR:HB2	1:E:370:ASP:HB2	1.96	0.48
2:H:17:ILE:CG2	2:H:18:GLY:N	2.76	0.48
2:H:35:SER:O	2:H:41:TYR:CE1	2.67	0.48
2:B:11:TRP:HA	2:B:11:TRP:CE3	2.47	0.48
2:F:38:ASP:C	2:F:40:LYS:N	2.67	0.48
2:F:57:ASN:HB2	2:F:64:ILE:HD11	1.96	0.48
1:A:470:ASN:OD1	1:A:520:THR:HB	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:452:ASP:O	1:C:453:GLU:HB3	2.13	0.48
1:E:339:ASN:N	1:E:339:ASN:HD22	2.11	0.48
1:E:312:GLU:HA	1:E:316:GLU:CG	2.43	0.48
1:G:286:GLN:HG3	1:G:290:ASN:ND2	2.29	0.48
2:H:29:VAL:CG2	2:H:46:SER:HA	2.38	0.48
1:C:503:ASP:O	1:C:506:ASP:N	2.43	0.48
2:F:104:ALA:O	2:F:136:ARG:HD3	2.13	0.47
1:A:378:LEU:HD12	1:A:383:LEU:HD12	1.95	0.47
2:B:19:TRP:CZ3	2:B:146:LEU:HA	2.49	0.47
2:F:134:LYS:HA	2:F:137:GLN:CD	2.39	0.47
1:G:308:HIS:CD2	1:G:320:ILE:HB	2.49	0.47
1:A:280:ASN:OD1	1:A:282:SER:HB2	2.14	0.47
2:D:58:GLN:CG	2:D:63:VAL:HG22	2.34	0.47
1:E:480:LYS:HB2	1:E:480:LYS:NZ	2.30	0.47
2:F:149:THR:O	2:F:150:HIS:CG	2.68	0.47
2:H:124:LYS:HB2	2:H:125:PRO:HD3	1.96	0.47
1:A:427:LEU:HD23	1:A:427:LEU:HA	1.68	0.47
1:C:513:LEU:O	1:C:514:LYS:CB	2.63	0.47
1:G:464:MET:HE3	1:G:470:ASN:O	2.14	0.47
2:H:61:GLY:C	2:H:62:LYS:HG3	2.40	0.47
1:E:314:GLN:H	1:E:314:GLN:CD	2.14	0.47
2:F:22:GLU:O	2:F:23:TYR:C	2.57	0.47
2:B:16:CYS:O	2:B:17:ILE:C	2.55	0.47
2:B:33:ALA:HB3	2:B:42:ALA:HB3	1.96	0.47
2:F:23:TYR:O	2:F:26:GLN:HB3	2.14	0.47
2:F:79:VAL:O	2:F:80:ASP:HB3	2.13	0.47
1:A:430:HIS:CE1	1:A:508:TYR:HD2	2.33	0.47
2:B:116:GLU:HA	2:B:120:LEU:CD1	2.43	0.47
1:C:457:LEU:O	1:C:460:TYR:HB3	2.15	0.47
2:D:152:ASN:C	2:D:152:ASN:ND2	2.73	0.47
2:B:152:ASN:O	2:B:153:ASP:C	2.57	0.47
1:A:463:ARG:HG3	1:A:463:ARG:NH1	2.30	0.47
1:C:346:ARG:O	1:C:347:ARG:HB2	2.15	0.47
2:D:35:SER:O	2:D:36:VAL:CB	2.63	0.47
2:F:151:GLY:O	2:F:153:ASP:N	2.48	0.47
1:C:393:ARG:NH1	1:C:393:ARG:HB3	2.29	0.47
2:H:96:PRO:HD2	2:H:108:GLN:O	2.15	0.47
1:G:445:TYR:CE2	1:G:501:LEU:HD22	2.50	0.46
1:C:355:GLU:C	1:C:357:LEU:H	2.22	0.46
1:C:476:GLY:HA3	1:C:482:VAL:CG1	2.46	0.46
1:E:320:ILE:HG22	1:E:368:VAL:HB	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:491:LEU:N	1:G:491:LEU:HD22	2.30	0.46
2:H:12:VAL:O	2:H:12:VAL:HG12	2.15	0.46
2:F:19:TRP:CZ3	2:F:146:LEU:HD13	2.51	0.46
2:F:83:ASP:O	2:F:84:GLY:C	2.57	0.46
1:A:479:LEU:CD2	1:A:483:GLU:HG3	2.46	0.46
2:F:66:LEU:HA	2:F:100:PHE:CD2	2.51	0.46
1:G:338:LYS:HG2	1:G:353:GLU:HB3	1.98	0.46
1:C:387:LYS:NZ	1:C:391:VAL:HG21	2.30	0.46
1:G:316:GLU:O	1:G:317:PHE:HB3	2.15	0.46
1:E:317:PHE:CD1	1:E:317:PHE:C	2.94	0.46
1:E:378:LEU:HB3	1:E:383:LEU:CB	2.44	0.46
2:B:123:ALA:O	2:B:126:LEU:HB3	2.16	0.46
1:C:491:LEU:N	1:C:491:LEU:HD22	2.31	0.46
2:D:121:SER:C	2:D:123:ALA:H	2.23	0.46
1:G:284:ILE:HG22	1:G:285:THR:N	2.30	0.46
2:B:60:LYS:C	2:B:62:LYS:H	2.23	0.46
1:E:432:ASP:O	1:E:436:ARG:HB2	2.15	0.46
2:F:39:LYS:O	2:F:79:VAL:HA	2.16	0.46
1:G:352:ASP:N	1:G:352:ASP:OD1	2.49	0.46
1:G:478:SER:C	1:G:480:LYS:H	2.23	0.46
1:A:446:ASN:O	1:A:500:PHE:HB2	2.15	0.45
1:A:501:LEU:HD23	1:A:501:LEU:N	2.31	0.45
1:A:513:LEU:O	1:A:514:LYS:HB2	2.16	0.45
1:C:349:PHE:O	1:C:350:ILE:HD13	2.16	0.45
2:F:45:LYS:HG2	2:F:46:SER:N	2.30	0.45
2:F:56:VAL:C	2:F:57:ASN:HD22	2.23	0.45
1:C:340:ASN:HD21	1:C:366:LYS:CE	2.28	0.45
1:G:281:PRO:C	1:G:283:ASP:N	2.72	0.45
2:H:50:ILE:HG12	2:H:71:ILE:HG12	1.98	0.45
2:B:45:LYS:N	2:B:74:LEU:O	2.45	0.45
2:B:60:LYS:O	2:B:62:LYS:N	2.50	0.45
1:C:328:PRO:HD2	1:C:330:ASP:O	2.16	0.45
2:D:124:LYS:HB2	2:D:125:PRO:HD3	1.97	0.45
1:E:361:TRP:HD1	1:E:431:GLU:OE1	1.99	0.45
1:E:434:GLN:OE1	2:F:97:GLU:HB3	2.16	0.45
1:E:487:PHE:CD2	1:E:525:THR:HG22	2.50	0.45
1:G:312:GLU:HA	1:G:316:GLU:HG2	1.97	0.45
2:H:31:VAL:O	2:H:44:ILE:HG22	2.16	0.45
1:A:381:GLU:HB3	1:A:385:GLN:OE1	2.16	0.45
1:A:436:ARG:HG2	1:A:513:LEU:HD23	1.98	0.45
1:C:362:LEU:O	1:C:364:PHE:N	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:320:ILE:HG22	1:G:368:VAL:CG1	2.47	0.45
1:G:393:ARG:O	1:G:394:LYS:C	2.60	0.45
1:A:381:GLU:C	1:A:383:LEU:H	2.25	0.45
1:C:460:TYR:CD2	1:C:471:ILE:HG23	2.51	0.45
2:D:58:GLN:HE21	2:D:63:VAL:HG22	1.82	0.45
2:D:100:PHE:CE1	2:D:101:ASP:HB3	2.52	0.45
1:E:503:ASP:OD2	1:E:505:ILE:HG12	2.16	0.45
1:G:314:GLN:CD	2:H:64:ILE:HB	2.42	0.45
1:A:441:LYS:NZ	1:A:517:GLU:OE1	2.48	0.45
1:C:373:ASP:O	1:C:374:LEU:HB3	2.16	0.45
2:F:41:TYR:HB3	2:F:78:HIS:CE1	2.51	0.45
2:H:87:LEU:HA	2:H:88:PRO:HD3	1.77	0.45
1:E:427:LEU:HD23	1:E:427:LEU:HA	1.81	0.45
2:F:30:GLY:O	2:F:31:VAL:C	2.59	0.45
1:G:374:LEU:HD12	1:G:375:PRO:CD	2.40	0.45
2:H:89:PHE:CD1	2:H:89:PHE:C	2.94	0.45
2:B:117:THR:O	2:B:119:GLU:N	2.49	0.45
1:E:341:ILE:HD13	1:E:367:GLY:N	2.31	0.45
1:G:378:LEU:HD23	1:G:382:MET:HE1	1.98	0.45
1:A:314:GLN:HB2	2:B:66:LEU:HD21	1.99	0.45
2:B:141:GLN:O	2:B:142:PHE:C	2.59	0.45
1:C:383:LEU:HD23	1:C:389:MET:HG2	1.99	0.45
2:F:11:TRP:HE1	1:G:280:ASN:CB	2.17	0.45
2:F:111:ILE:CG2	2:F:124:LYS:HG2	2.45	0.45
2:H:79:VAL:O	2:H:87:LEU:HD12	2.17	0.45
1:C:457:LEU:O	1:C:461:VAL:HG23	2.17	0.45
1:E:457:LEU:O	1:E:460:TYR:HB3	2.17	0.45
2:F:132:LEU:N	2:F:133:PRO:CD	2.80	0.45
1:A:332:PHE:CE1	1:A:423:LYS:HD3	2.52	0.44
1:E:418:TYR:CZ	1:E:422:SER:HB2	2.52	0.44
1:A:340:ASN:ND2	1:A:363:SER:O	2.50	0.44
2:B:126:LEU:O	2:B:130:GLU:HB2	2.17	0.44
2:H:70:LYS:HG3	2:H:96:PRO:HA	1.99	0.44
1:E:326:ARG:HG2	1:E:326:ARG:HH21	1.82	0.44
1:C:471:ILE:HB	1:C:521:LEU:CD2	2.45	0.44
2:B:32:GLU:O	2:B:134:LYS:NZ	2.48	0.44
1:C:276:LEU:HD11	1:C:284:ILE:HD13	1.98	0.44
1:E:338:LYS:O	1:E:339:ASN:CB	2.66	0.44
1:E:355:GLU:O	1:E:356:ASP:HB2	2.17	0.44
1:G:280:ASN:HD22	1:G:283:ASP:CB	2.05	0.44
1:A:526:LYS:HE3	1:C:526:LYS:HZ3	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:40:LYS:HB3	2:B:126:LEU:HD22	1.99	0.44
1:C:460:TYR:HE1	1:C:497:GLU:HG2	1.83	0.44
1:C:501:LEU:HD13	1:C:506:ASP:HB3	2.00	0.44
1:E:404:PHE:O	1:E:407:ILE:N	2.51	0.44
2:H:122:GLU:C	2:H:125:PRO:HD2	2.42	0.44
1:A:410:ASP:OD1	1:A:413:GLN:HB2	2.18	0.44
1:A:487:PHE:CD1	1:A:525:THR:HG22	2.53	0.44
2:B:16:CYS:C	2:B:18:GLY:N	2.74	0.44
2:D:35:SER:O	2:D:36:VAL:HB	2.17	0.44
2:F:59:ARG:O	2:F:60:LYS:HB2	2.18	0.44
1:G:505:ILE:H	1:G:505:ILE:CD1	2.30	0.44
1:C:284:ILE:HG22	1:C:285:THR:N	2.33	0.43
2:D:128:ARG:HA	2:D:132:LEU:HG	1.99	0.43
1:G:346:ARG:HA	1:G:347:ARG:NH2	2.33	0.43
1:A:309:PHE:CE1	1:A:399:LYS:HG3	2.53	0.43
1:C:376:LEU:O	1:E:285:THR:HA	2.18	0.43
1:C:460:TYR:CE1	1:C:497:GLU:HG2	2.53	0.43
2:D:12:VAL:HG23	2:D:13:ASP:N	2.33	0.43
2:D:48:SER:OG	2:D:72:THR:CG2	2.66	0.43
2:D:79:VAL:O	2:D:87:LEU:HD23	2.18	0.43
1:E:293:TYR:C	1:E:295:SER:H	2.25	0.43
1:E:315:LEU:HD21	1:E:388:ILE:HG23	1.99	0.43
1:E:376:LEU:H	1:E:376:LEU:CD1	2.30	0.43
1:E:506:ASP:O	1:E:507:GLU:C	2.61	0.43
2:H:79:VAL:HG23	2:H:87:LEU:HD11	2.00	0.43
2:D:44:ILE:HG23	2:D:73:VAL:HB	2.00	0.43
1:E:326:ARG:HG2	1:E:326:ARG:NH2	2.34	0.43
2:H:44:ILE:HG13	2:H:73:VAL:HB	1.99	0.43
2:H:128:ARG:HA	2:H:132:LEU:HG	2.00	0.43
1:A:297:SER:C	1:A:298:ASN:ND2	2.75	0.43
1:A:378:LEU:HD22	1:A:382:MET:HB3	2.00	0.43
1:A:435:ASN:O	1:A:436:ARG:C	2.60	0.43
2:B:87:LEU:HD12	2:B:87:LEU:N	2.31	0.43
2:B:87:LEU:HA	2:B:88:PRO:HD3	1.83	0.43
1:E:284:ILE:HG22	1:E:285:THR:N	2.33	0.43
1:G:315:LEU:HD22	1:G:391:VAL:HG11	2.00	0.43
1:G:434:GLN:OE1	2:H:97:GLU:HB3	2.19	0.43
2:H:123:ALA:O	2:H:124:LYS:C	2.62	0.43
2:F:109:PHE:CG	2:F:132:LEU:HD22	2.53	0.43
2:B:39:LYS:CD	2:B:86:ALA:HB2	2.41	0.43
2:B:128:ARG:HA	2:B:132:LEU:CD1	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:113:ILE:HG21	2:D:120:LEU:HD13	2.01	0.43
1:G:525:THR:O	1:G:526:LYS:HD3	2.18	0.43
2:F:11:TRP:CE2	1:G:280:ASN:HB2	2.53	0.43
2:F:17:ILE:O	2:F:21:LYS:HG2	2.19	0.43
1:G:459:ASP:HB3	1:G:463:ARG:HH12	1.84	0.43
1:A:520:THR:HG22	1:A:522:VAL:HG23	2.01	0.43
1:C:358:ILE:HG13	1:C:359:PRO:HD2	2.00	0.43
1:C:374:LEU:HD21	1:C:389:MET:HE2	2.00	0.43
1:E:345:VAL:HG23	1:E:350:ILE:HG13	2.01	0.43
1:G:346:ARG:C	1:G:347:ARG:HD3	2.43	0.43
2:B:35:SER:C	2:B:36:VAL:HG23	2.44	0.43
1:C:311:VAL:HG21	1:C:317:PHE:CE2	2.54	0.43
1:C:397:VAL:O	1:C:401:ILE:HG13	2.18	0.43
1:E:273:THR:HG22	1:E:274:LYS:N	2.30	0.43
1:A:515:GLU:CD	2:B:128:ARG:HH21	2.27	0.43
2:F:140:GLN:HE21	2:F:140:GLN:HA	1.84	0.43
1:A:342:LYS:HD2	1:A:368:VAL:HG22	2.01	0.42
1:A:418:TYR:O	1:A:422:SER:HB3	2.19	0.42
2:D:79:VAL:CG1	2:D:80:ASP:N	2.81	0.42
1:G:317:PHE:HB2	1:G:371:SER:HA	2.01	0.42
1:G:380:ARG:CG	1:G:381:GLU:H	2.03	0.42
2:H:39:LYS:HE2	2:H:80:ASP:HB3	2.01	0.42
2:H:100:PHE:CD1	2:H:101:ASP:N	2.87	0.42
2:D:75:ILE:CD1	2:D:127:ILE:HD13	2.49	0.42
1:G:466:GLU:OE2	1:G:466:GLU:HA	2.18	0.42
1:G:505:ILE:N	1:G:505:ILE:CD1	2.82	0.42
2:H:17:ILE:CG1	2:H:21:LYS:HE3	2.44	0.42
1:A:359:PRO:HG2	1:A:362:LEU:HD12	2.02	0.42
2:B:113:ILE:CG2	2:B:116:GLU:HB2	2.49	0.42
1:C:457:LEU:HG	3:C:2006:HOH:O	2.18	0.42
1:E:358:ILE:HD11	1:E:362:LEU:HB3	2.01	0.42
1:A:285:THR:OG1	1:A:288:GLU:HG3	2.19	0.42
2:D:30:GLY:O	2:D:31:VAL:C	2.62	0.42
1:E:459:ASP:HB3	1:E:463:ARG:HH12	1.84	0.42
2:F:127:ILE:HG23	2:F:131:LEU:HD23	2.00	0.42
1:A:518:GLY:HA2	2:B:128:ARG:CZ	2.49	0.42
1:E:372:GLU:O	1:E:373:ASP:O	2.38	0.42
1:G:283:ASP:C	1:G:284:ILE:HG13	2.44	0.42
1:A:314:GLN:HE21	1:A:314:GLN:HB3	1.50	0.42
1:C:286:GLN:HG3	1:C:290:ASN:ND2	2.32	0.42
2:D:15:ASN:HD21	2:D:17:ILE:CG2	2.32	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:40:LYS:HA	2:B:79:VAL:HA	2.00	0.42
2:D:89:PHE:CD1	2:D:89:PHE:C	2.97	0.42
1:E:339:ASN:ND2	1:E:339:ASN:N	2.67	0.42
1:G:286:GLN:O	1:G:290:ASN:CG	2.63	0.42
1:G:373:ASP:O	1:G:374:LEU:O	2.37	0.42
1:G:385:GLN:NE2	1:G:385:GLN:C	2.78	0.42
2:H:55:GLU:HG2	2:H:57:ASN:OD1	2.20	0.42
1:A:342:LYS:HD2	1:A:368:VAL:CG2	2.49	0.42
1:E:488:LEU:O	1:E:489:ASP:C	2.62	0.42
2:F:19:TRP:O	2:F:20:ALA:C	2.62	0.42
1:G:292:PHE:HE2	1:G:296:ILE:HG21	1.84	0.42
1:G:292:PHE:CE2	1:G:296:ILE:HG21	2.54	0.42
1:C:387:LYS:HZ1	1:C:391:VAL:CG2	2.33	0.42
2:D:15:ASN:HA	2:D:55:GLU:HG2	2.01	0.42
2:F:100:PHE:CG	2:F:101:ASP:N	2.88	0.42
2:D:61:GLY:C	2:D:62:LYS:HG3	2.44	0.42
2:D:132:LEU:N	2:D:133:PRO:HD2	2.35	0.42
1:E:513:LEU:O	1:E:514:LYS:HB2	2.20	0.42
2:F:131:LEU:O	2:F:131:LEU:HD12	2.20	0.42
2:H:19:TRP:CZ3	2:H:146:LEU:HD12	2.55	0.42
1:G:274:LYS:H	1:G:274:LYS:HG2	1.66	0.41
2:H:100:PHE:CE1	2:H:101:ASP:HB3	2.55	0.41
2:B:29:VAL:HG22	2:B:46:SER:HA	2.02	0.41
1:C:372:GLU:OE2	1:C:372:GLU:HA	2.20	0.41
1:C:403:ALA:O	1:C:404:PHE:C	2.62	0.41
1:E:362:LEU:HD13	1:E:400:LEU:HD12	2.02	0.41
1:E:435:ASN:O	1:E:436:ARG:C	2.62	0.41
1:E:464:MET:O	1:E:465:PRO:O	2.38	0.41
2:F:37:LYS:H	2:F:37:LYS:HD3	1.80	0.41
1:A:470:ASN:O	1:A:472:TYR:CE1	2.74	0.41
2:D:40:LYS:NZ	2:D:122:GLU:HB3	2.35	0.41
1:E:293:TYR:CD2	1:E:303:PRO:HD3	2.55	0.41
1:E:393:ARG:HH11	1:E:393:ARG:HB2	1.86	0.41
1:G:338:LYS:H	1:G:338:LYS:HD2	1.84	0.41
1:G:433:THR:HG22	1:G:436:ARG:HH12	1.85	0.41
2:B:58:GLN:HG2	2:B:63:VAL:CG1	2.46	0.41
1:E:289:TYR:HD2	1:E:320:ILE:HD11	1.85	0.41
1:E:361:TRP:CZ3	1:E:362:LEU:HD21	2.55	0.41
2:F:87:LEU:O	2:F:88:PRO:C	2.62	0.41
1:A:321:LEU:CD1	1:A:396:ILE:HG23	2.50	0.41
2:B:59:ARG:HD2	2:B:59:ARG:N	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:275:PRO:HG2	1:C:278:THR:HG23	2.03	0.41
1:C:280:ASN:OD1	1:C:280:ASN:C	2.63	0.41
1:E:315:LEU:HD12	1:E:315:LEU:HA	1.83	0.41
1:E:401:ILE:HD11	1:E:435:ASN:HB3	2.03	0.41
1:A:347:ARG:HE	1:A:347:ARG:HB2	1.68	0.41
1:A:438:ALA:O	1:A:441:LYS:HB2	2.21	0.41
1:A:444:ARG:HG2	1:A:444:ARG:HH11	1.85	0.41
2:D:74:LEU:HD23	2:D:92:SER:HB3	2.01	0.41
1:E:426:LYS:HE2	1:E:506:ASP:OD1	2.20	0.41
2:F:9:TRP:CD1	1:G:280:ASN:HA	2.56	0.41
1:G:320:ILE:O	1:G:320:ILE:CG2	2.66	0.41
1:G:387:LYS:O	1:G:388:ILE:C	2.63	0.41
2:H:39:LYS:O	2:H:79:VAL:HA	2.21	0.41
1:A:338:LYS:C	1:A:340:ASN:H	2.28	0.41
1:A:289:TYR:O	1:A:290:ASN:C	2.63	0.41
1:A:378:LEU:CB	1:A:383:LEU:HB2	2.42	0.41
1:A:393:ARG:O	1:A:397:VAL:HG23	2.21	0.41
1:C:309:PHE:CZ	1:C:399:LYS:HG3	2.55	0.41
2:D:22:GLU:HG3	2:D:23:TYR:N	2.34	0.41
1:E:479:LEU:O	1:E:483:GLU:HB2	2.21	0.41
1:G:307:LYS:HE3	1:G:399:LYS:CD	2.51	0.41
2:H:147:LEU:C	2:H:149:THR:H	2.29	0.41
1:A:279:ARG:NH2	1:A:283:ASP:O	2.50	0.41
1:A:378:LEU:HD22	1:A:382:MET:O	2.21	0.41
2:B:79:VAL:HG13	2:B:89:PHE:HE2	1.86	0.41
2:B:149:THR:HG22	2:B:150:HIS:N	2.36	0.41
1:C:358:ILE:CG1	1:C:359:PRO:HD2	2.50	0.41
1:C:383:LEU:CD2	1:C:389:MET:HG2	2.51	0.41
1:C:399:LYS:HD3	1:C:399:LYS:HA	1.92	0.41
2:D:121:SER:C	2:D:123:ALA:N	2.78	0.41
2:D:132:LEU:O	2:D:133:PRO:C	2.63	0.41
1:E:337:LYS:HE3	1:E:337:LYS:HB3	1.95	0.41
1:E:387:LYS:HA	1:E:387:LYS:HD2	1.90	0.41
1:G:464:MET:O	1:G:465:PRO:C	2.62	0.41
2:D:120:LEU:O	2:D:121:SER:C	2.62	0.41
1:C:383:LEU:CD2	1:C:389:MET:HE3	2.46	0.40
1:C:515:GLU:CD	2:D:128:ARG:HH21	2.28	0.40
2:D:15:ASN:HD21	2:D:17:ILE:HG22	1.85	0.40
2:D:58:GLN:HA	2:D:62:LYS:O	2.21	0.40
1:E:316:GLU:O	1:E:317:PHE:HB3	2.21	0.40
1:E:410:ASP:HB3	1:E:413:GLN:HB3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:460:TYR:CD2	1:E:471:ILE:HG23	2.57	0.40
1:A:321:LEU:HD11	1:A:396:ILE:HG23	2.02	0.40
2:D:40:LYS:HB3	2:D:126:LEU:HD22	2.03	0.40
1:E:293:TYR:C	1:E:295:SER:N	2.79	0.40
1:E:482:VAL:CG2	1:E:483:GLU:N	2.83	0.40
1:G:292:PHE:C	1:G:292:PHE:CD2	2.99	0.40
1:G:462:THR:HG22	1:G:462:THR:O	2.21	0.40
1:C:491:LEU:H	1:C:491:LEU:CD2	2.34	0.40
1:C:503:ASP:HA	1:C:504:PRO:HD3	1.98	0.40
1:E:373:ASP:O	1:E:374:LEU:HB3	2.20	0.40
2:H:79:VAL:HG23	2:H:87:LEU:CD1	2.51	0.40
1:C:345:VAL:HG12	1:C:346:ARG:HG3	2.04	0.40
1:E:289:TYR:CD2	1:E:320:ILE:HD11	2.56	0.40
1:E:309:PHE:CE1	1:E:399:LYS:HG3	2.57	0.40
1:E:356:ASP:CG	1:E:384:GLN:HA	2.47	0.40
1:E:487:PHE:CD1	1:E:525:THR:HG22	2.56	0.40
1:G:277:TRP:HA	1:G:308:HIS:CE1	2.56	0.40
1:G:351:THR:HG21	1:G:354:ALA:HB2	2.03	0.40
2:H:19:TRP:CE3	2:H:146:LEU:HD12	2.57	0.40
2:H:93:ILE:HA	2:H:110:ASP:O	2.22	0.40
1:A:390:LYS:CE	1:A:394:LYS:HE3	2.41	0.40
2:F:11:TRP:CE3	2:F:58:GLN:NE2	2.89	0.40
1:G:341:ILE:CG2	1:G:357:LEU:HD21	2.52	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	247/260 (95%)	219 (89%)	21 (8%)	7 (3%)	4 9
1	C	241/260 (93%)	214 (89%)	19 (8%)	8 (3%)	3 7

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	247/260 (95%)	207 (84%)	33 (13%)	7 (3%)	4	9
1	G	244/260 (94%)	200 (82%)	34 (14%)	10 (4%)	2	5
2	B	141/170 (83%)	111 (79%)	27 (19%)	3 (2%)	5	15
2	D	140/170 (82%)	121 (86%)	15 (11%)	4 (3%)	3	9
2	F	144/170 (85%)	102 (71%)	25 (17%)	17 (12%)	0	0
2	H	139/170 (82%)	117 (84%)	18 (13%)	4 (3%)	3	9
All	All	1543/1720 (90%)	1291 (84%)	192 (12%)	60 (4%)	2	5

All (60) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	385	GLN
1	A	453	GLU
1	C	341	ILE
2	D	36	VAL
2	D	121	SER
1	E	373	ASP
2	F	36	VAL
2	F	120	LEU
2	F	152	ASN
1	G	276	LEU
1	G	328	PRO
1	G	374	LEU
1	G	513	LEU
2	H	36	VAL
2	B	150	HIS
1	C	297	SER
1	C	363	SER
2	D	12	VAL
1	E	380	ARG
2	F	45	LYS
2	F	121	SER
2	F	149	THR
1	G	385	GLN
1	G	514	LYS
2	B	38	ASP
1	C	328	PRO
1	C	513	LEU
2	D	60	LYS
1	E	465	PRO

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Mol	Chain	Res	Type
2	F	38	ASP
2	F	122	GLU
2	H	123	ALA
1	A	340	ASN
1	A	374	LEU
2	B	118	SER
1	C	374	LEU
1	E	339	ASN
1	E	347	ARG
1	E	374	LEU
2	F	79	VAL
1	G	379	SER
1	G	384	GLN
2	H	118	SER
2	H	148	ALA
1	A	380	ARG
1	C	453	GLU
2	F	80	ASP
2	F	86	ALA
2	F	150	HIS
1	G	298	ASN
1	A	338	LYS
1	C	411	SER
2	F	31	VAL
2	F	39	LYS
2	F	60	LYS
1	G	388	ILE
1	E	358	ILE
2	F	84	GLY
1	A	341	ILE
2	F	12	VAL

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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	232/240 (97%)	220 (95%)	12 (5%)	21	47
1	C	227/240 (95%)	211 (93%)	16 (7%)	14	34
1	E	232/240 (97%)	221 (95%)	11 (5%)	23	51
1	G	228/240 (95%)	213 (93%)	15 (7%)	15	36
2	B	125/149 (84%)	122 (98%)	3 (2%)	43	72
2	D	123/149 (83%)	119 (97%)	4 (3%)	33	63
2	F	126/149 (85%)	123 (98%)	3 (2%)	43	72
2	H	122/149 (82%)	115 (94%)	7 (6%)	18	43
All	All	1415/1556 (91%)	1344 (95%)	71 (5%)	22	48

All (71) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	298	ASN
1	A	314	GLN
1	A	329	PHE
1	A	332	PHE
1	A	339	ASN
1	A	373	ASP
1	A	415	GLU
1	A	446	ASN
1	A	452	ASP
1	A	458	THR
1	A	475	THR
1	A	479	LEU
2	B	11	TRP
2	B	87	LEU
2	B	137	GLN
1	C	274	LYS
1	C	281	PRO
1	C	306	VAL
1	C	323	ILE
1	C	347	ARG
1	C	383	LEU
1	C	416	LYS
1	C	419	SER
1	C	433	THR

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Mol	Chain	Res	Type
1	C	441	LYS
1	C	452	ASP
1	C	458	THR
1	C	470	ASN
1	C	491	LEU
1	C	505	ILE
1	C	522	VAL
2	D	87	LEU
2	D	103	GLU
2	D	137	GLN
2	D	140	GLN
1	E	282	SER
1	E	306	VAL
1	E	318	ARG
1	E	351	THR
1	E	356	ASP
1	E	376	LEU
1	E	385	GLN
1	E	446	ASN
1	E	479	LEU
1	E	480	LYS
1	E	484	LYS
2	F	37	LYS
2	F	122	GLU
2	F	140	GLN
1	G	283	ASP
1	G	302	ASP
1	G	306	VAL
1	G	339	ASN
1	G	351	THR
1	G	353	GLU
1	G	378	LEU
1	G	383	LEU
1	G	385	GLN
1	G	453	GLU
1	G	479	LEU
1	G	484	LYS
1	G	505	ILE
1	G	513	LEU
1	G	521	LEU
2	H	27	LYS
2	H	36	VAL

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Mol	Chain	Res	Type
2	H	44	ILE
2	H	45	LYS
2	H	49	SER
2	H	87	LEU
2	H	130	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (53) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	298	ASN
1	A	314	GLN
1	A	384	GLN
1	A	385	GLN
1	A	386	ASN
1	A	395	ASN
1	A	405	ASN
1	A	413	GLN
1	A	446	ASN
1	A	468	GLN
2	B	15	ASN
2	B	57	ASN
2	B	58	GLN
2	B	94	ASN
2	B	152	ASN
1	C	290	ASN
1	C	314	GLN
1	C	340	ASN
1	C	384	GLN
1	C	386	ASN
1	C	405	ASN
1	C	430	HIS
1	C	512	GLN
2	D	140	GLN
2	D	152	ASN
1	E	280	ASN
1	E	339	ASN
1	E	384	GLN
1	E	385	GLN
1	E	395	ASN
1	E	405	ASN
1	E	413	GLN
1	E	468	GLN

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Mol	Chain	Res	Type
2	F	15	ASN
2	F	26	GLN
2	F	57	ASN
2	F	78	HIS
2	F	94	ASN
2	F	108	GLN
2	F	150	HIS
2	F	152	ASN
1	G	280	ASN
1	G	286	GLN
1	G	290	ASN
1	G	308	HIS
1	G	377	ASN
1	G	384	GLN
1	G	385	GLN
1	G	405	ASN
1	G	413	GLN
2	H	15	ASN
2	H	78	HIS
2	H	94	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

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 [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	251/260 (96%)	-0.27	2 (0%) 82 81	22, 44, 81, 114	0
1	C	247/260 (95%)	-0.36	2 (0%) 82 81	19, 40, 67, 87	0
1	E	251/260 (96%)	-0.16	3 (1%) 76 75	25, 45, 89, 120	0
1	G	248/260 (95%)	0.05	3 (1%) 76 75	22, 51, 97, 115	0
2	B	143/170 (84%)	0.09	2 (1%) 73 72	25, 56, 95, 103	0
2	D	142/170 (83%)	0.06	0 100 100	30, 56, 95, 101	0
2	F	146/170 (85%)	0.56	5 (3%) 48 44	38, 80, 109, 114	0
2	H	141/170 (82%)	0.08	4 (2%) 55 51	41, 59, 92, 109	0
All	All	1569/1720 (91%)	-0.04	21 (1%) 75 73	19, 50, 98, 120	0

All (21) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	331	LEU	4.5
1	C	382	MET	3.0
2	H	11	TRP	2.9
1	E	331	LEU	2.8
2	F	112	SER	2.7
1	G	369	VAL	2.6
1	C	378	LEU	2.4
1	A	383	LEU	2.3
1	G	343	LEU	2.2
2	F	87	LEU	2.1
2	H	151	GLY	2.1
2	F	113	ILE	2.1
2	H	12	VAL	2.1
2	F	66	LEU	2.1
2	H	61	GLY	2.1
2	F	120	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	380	ARG	2.0
2	B	80	ASP	2.0
2	B	86	ALA	2.0
1	E	383	LEU	2.0
1	G	339	ASN	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 oligosaccharides 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.