Full wwPDB X-ray Structure Validation Report (i)

Jun 12, 2024 – 01:56 PM EDT

PDB ID	:	3PJA
Title	:	Crystal structure of human C3PO complex
Authors	:	Huang, N.; Zhang, H.
Deposited on	:	2010-11-09
Resolution	:	3.00 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 (i) 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 (1)) were used in the production of this report:

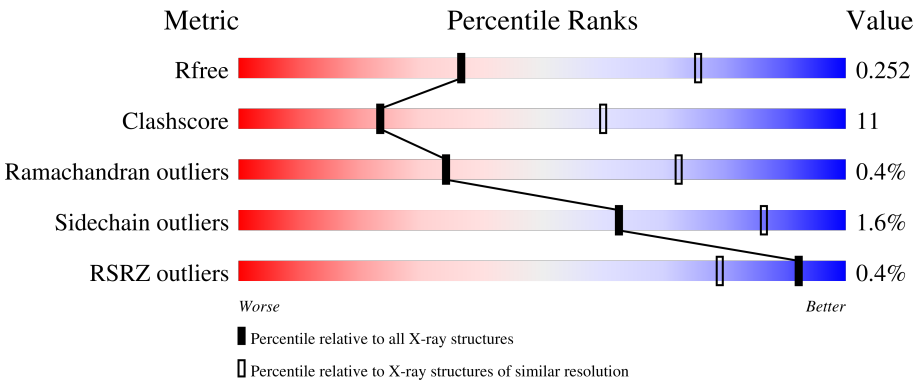
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.20.1
EDS	:	2.36.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.00 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	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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 <=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	228	68% 24% 7%
1	B	228	66% 28% • 5%
1	C	228	% 69% 25% 6%
1	D	228	69% 24% 7%
1	E	228	% 65% 28% • 6%

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Mol	Chain	Length	Quality of chain
1	F	228	68% 25% • 7%
1	G	228	65% 26% • 7%
1	H	228	67% 26% • 5%
1	I	228	72% 19% 8%
2	J	290	% 55% 19% • 24%
2	K	290	58% 17% • 23%
2	L	290	56% 20% • 23%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 21233 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 Translin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	212	1737	1113	300	323	1	0	0	0
1	B	217	1770	1134	306	329	1	0	0	0
1	C	214	1754	1124	303	325	2	0	0	0
1	D	212	1737	1113	300	323	1	0	0	0
1	E	215	1758	1125	304	327	2	0	0	0
1	F	213	1745	1119	301	323	2	0	0	0
1	G	212	1736	1113	299	322	2	0	0	0
1	H	216	1762	1130	304	327	1	0	0	0
1	I	210	1720	1103	296	320	1	0	0	0

- Molecule 2 is a protein called Translin-associated protein X.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	J	219	1756	1116	298	333	9	0	0	0
2	K	222	1788	1137	305	337	9	0	0	0
2	L	223	1793	1140	306	338	9	0	0	0

- Molecule 3 is water.

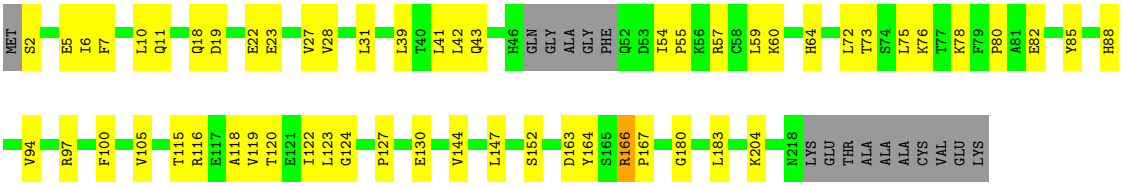
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
3	A	16	16	16	0	0
			Total	O		
3	B	10	10	10	0	0
			Total	O		
3	C	27	27	27	0	0
			Total	O		
3	D	16	16	16	0	0
			Total	O		
3	E	9	9	9	0	0
			Total	O		
3	F	13	13	13	0	0
			Total	O		
3	G	6	6	6	0	0
			Total	O		
3	H	12	12	12	0	0
			Total	O		
3	I	4	4	4	0	0
			Total	O		
3	J	6	6	6	0	0
			Total	O		
3	K	26	26	26	0	0
			Total	O		
3	L	32	32	32	0	0

3 Residue-property plots (i)

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.

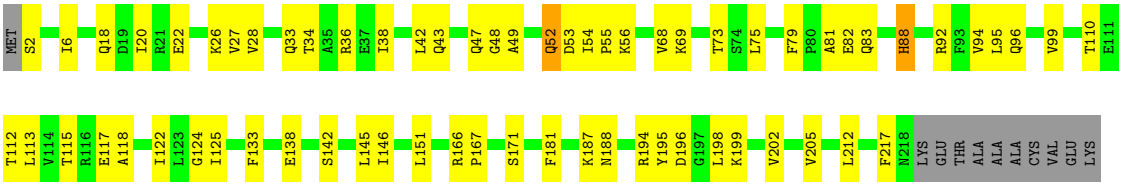
- Molecule 1: Translin

Chain A:



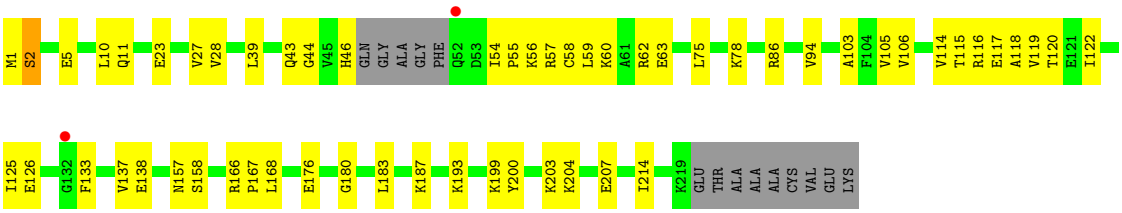
- Molecule 1: Translin

Chain B:



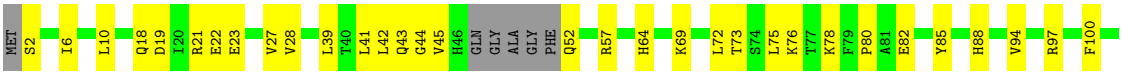
- Molecule 1: Translin

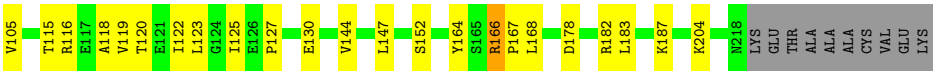
Chain C:



- Molecule 1: Translin

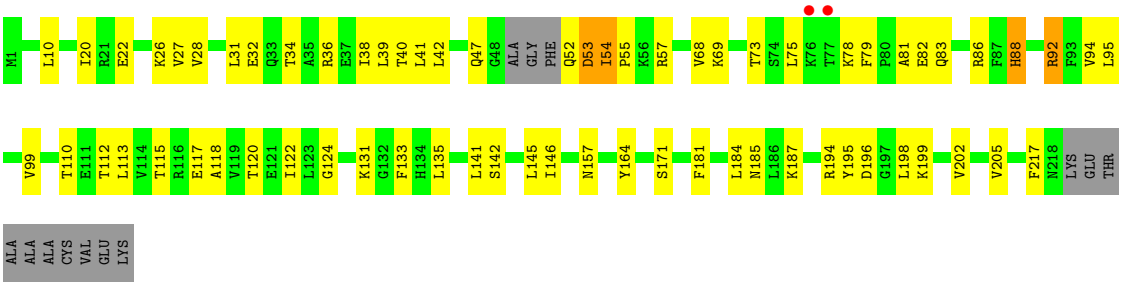
Chain D:





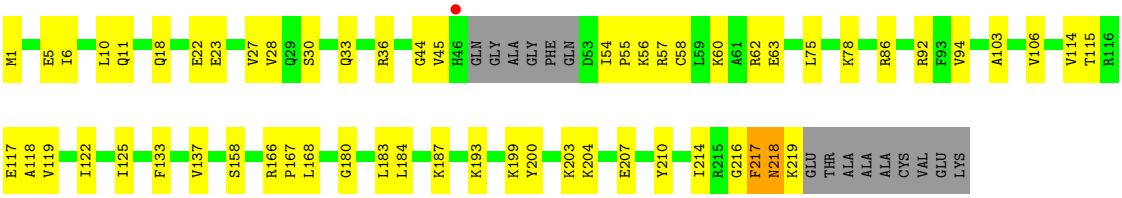
• Molecule 1: Translin

Chain E:



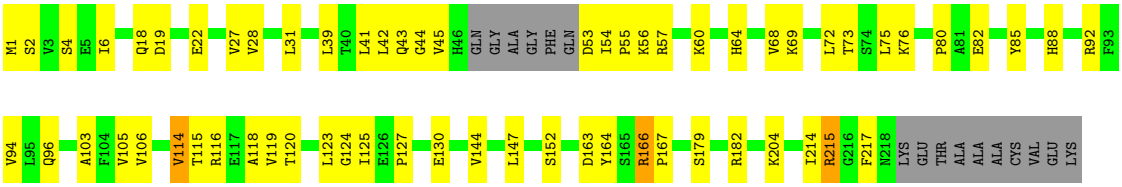
• Molecule 1: Translin

Chain F:



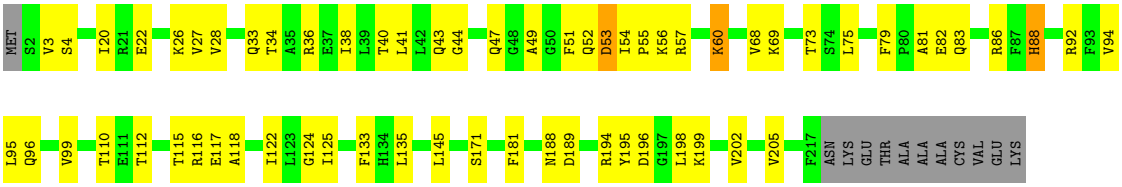
• Molecule 1: Translin

Chain G:



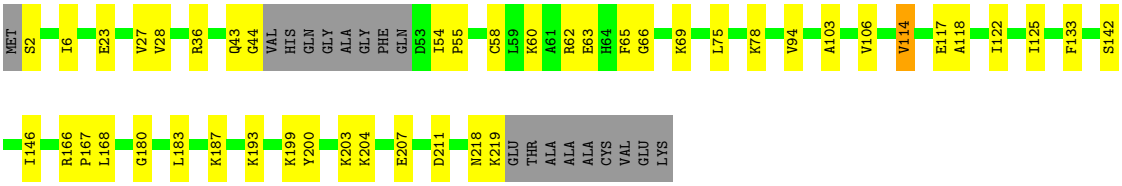
• Molecule 1: Translin

Chain H:



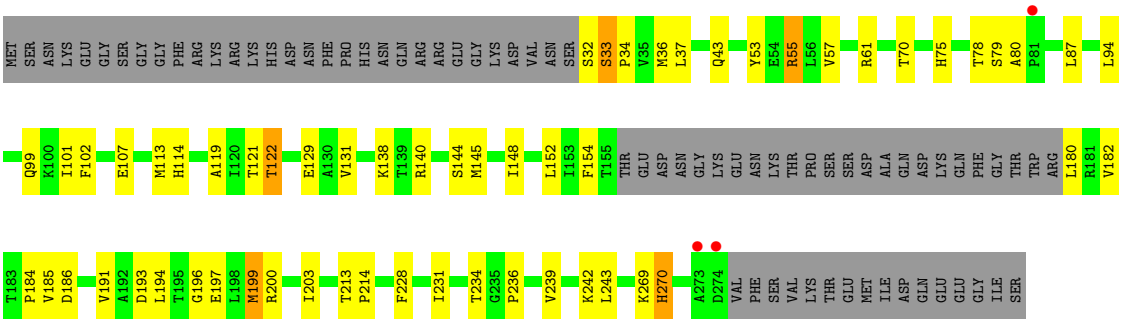
• Molecule 1: Translin

Chain I:



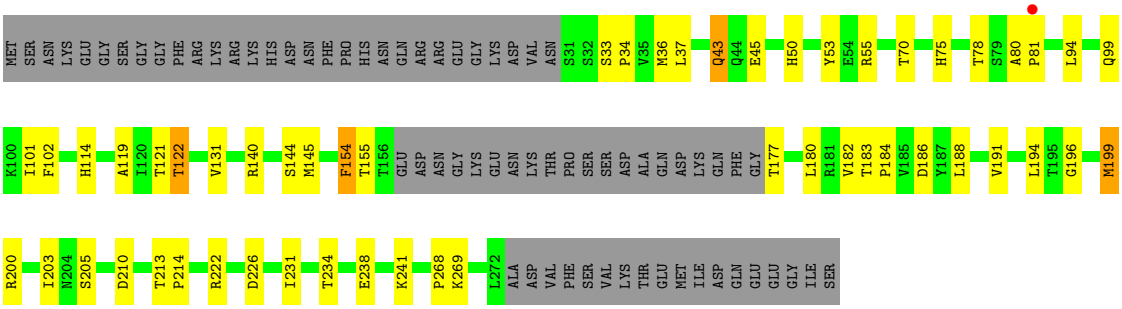
• Molecule 2: Translin-associated protein X

Chain J:



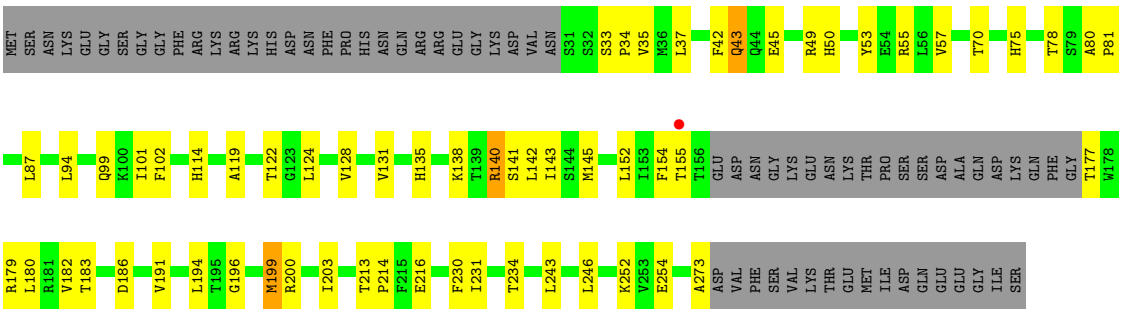
• Molecule 2: Translin-associated protein X

Chain K:



• Molecule 2: Translin-associated protein X

Chain L:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	171.25Å 95.83Å 232.88Å 90.00° 104.58° 90.00°	Depositor
Resolution (Å)	29.92 – 3.00 29.92 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.7 (29.92-3.00) 99.7 (29.92-3.00)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.10 (at 3.00Å)	Xtriage
Refinement program	PHENIX (phenix.refine: dev_555)	Depositor
R, R_{free}	0.206 , 0.254 0.201 , 0.252	Depositor DCC
R_{free} test set	3677 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	64.4	Xtriage
Anisotropy	0.190	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 53.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.002 for 1/2*h-3/2*k,-1/2*h-1/2*k,-1/2*h +1/2*k-l 0.000 for 1/2*h+3/2*k,1/2*h-1/2*k,-1/2*h-1/2*k-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	21233	wwPDB-VP
Average B, all atoms (Å^2)	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.01% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ 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	0.30	0/1768	0.50	2/2386 (0.1%)
1	B	0.29	0/1803	0.46	0/2434
1	C	0.33	0/1785	0.48	0/2407
1	D	0.31	0/1768	0.67	3/2386 (0.1%)
1	E	0.29	0/1789	0.46	0/2413
1	F	0.30	0/1776	0.46	0/2395
1	G	0.29	0/1767	0.50	2/2384 (0.1%)
1	H	0.28	0/1795	0.44	0/2423
1	I	0.29	0/1750	0.44	0/2360
2	J	0.29	0/1785	0.68	5/2403 (0.2%)
2	K	0.30	0/1819	0.57	4/2450 (0.2%)
2	L	0.32	0/1824	0.70	5/2457 (0.2%)
All	All	0.30	0/21429	0.54	21/28898 (0.1%)

There are no bond length outliers.

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	166	ARG	NE-CZ-NH1	-16.81	111.89	120.30
1	D	166	ARG	NE-CZ-NH2	16.51	128.56	120.30
2	L	140	ARG	NE-CZ-NH1	-16.25	112.18	120.30
2	J	55	ARG	NE-CZ-NH1	-15.44	112.58	120.30
2	L	140	ARG	NE-CZ-NH2	15.35	127.97	120.30
2	J	55	ARG	NE-CZ-NH2	14.88	127.74	120.30
2	K	140	ARG	NE-CZ-NH2	-9.05	115.78	120.30
2	J	140	ARG	NE-CZ-NH2	-8.68	115.96	120.30
2	K	140	ARG	NE-CZ-NH1	8.35	124.48	120.30
1	G	166	ARG	NE-CZ-NH1	8.19	124.39	120.30
1	G	166	ARG	NE-CZ-NH2	-8.03	116.28	120.30
1	D	166	ARG	CD-NE-CZ	8.03	134.84	123.60
2	J	140	ARG	NE-CZ-NH1	8.02	124.31	120.30
2	L	140	ARG	CD-NE-CZ	7.98	134.77	123.60
1	A	166	ARG	NE-CZ-NH1	7.87	124.24	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	166	ARG	NE-CZ-NH2	-7.76	116.42	120.30
2	L	55	ARG	NE-CZ-NH2	-7.73	116.43	120.30
2	K	55	ARG	NE-CZ-NH2	-7.67	116.47	120.30
2	K	55	ARG	NE-CZ-NH1	7.37	123.98	120.30
2	J	55	ARG	CD-NE-CZ	7.24	133.73	123.60
2	L	55	ARG	NE-CZ-NH1	7.21	123.90	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1737	0	1752	36	0
1	B	1770	0	1781	46	0
1	C	1754	0	1777	63	0
1	D	1737	0	1752	38	0
1	E	1758	0	1775	49	0
1	F	1745	0	1769	50	0
1	G	1736	0	1756	49	0
1	H	1762	0	1775	44	0
1	I	1720	0	1741	33	0
2	J	1756	0	1768	35	0
2	K	1788	0	1801	43	0
2	L	1793	0	1806	49	0
3	A	16	0	0	1	0
3	B	10	0	0	0	0
3	C	27	0	0	0	0
3	D	16	0	0	0	0
3	E	9	0	0	0	0
3	F	13	0	0	0	0
3	G	6	0	0	0	0
3	H	12	0	0	0	0
3	I	4	0	0	0	0
3	J	6	0	0	0	0
3	K	26	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	L	32	0	0	0	0
All	All	21233	0	21253	477	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 11.

All (477) 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:F:103:ALA:HA	1:F:114:VAL:HG21	1.42	1.01
1:G:73:THR:HA	1:G:76:LYS:HE2	1.46	0.97
1:A:73:THR:HA	1:A:76:LYS:HE2	1.46	0.95
1:G:214:ILE:HD11	1:I:211:ASP:HB3	1.50	0.93
1:C:103:ALA:HA	1:C:114:VAL:HG21	1.50	0.93
1:D:73:THR:HA	1:D:76:LYS:HE2	1.48	0.93
1:H:27:VAL:HG21	1:H:75:LEU:HD11	1.48	0.93
1:C:103:ALA:HA	1:C:114:VAL:CG2	2.00	0.91
1:E:27:VAL:HG21	1:E:75:LEU:HD11	1.51	0.91
1:B:52:GLN:O	1:B:52:GLN:HG2	1.70	0.90
2:L:80:ALA:HB1	2:L:81:PRO:HD2	1.54	0.89
2:K:231:ILE:O	2:K:234:THR:HG22	1.73	0.89
1:B:27:VAL:HG21	1:B:75:LEU:HD11	1.52	0.89
1:G:103:ALA:HA	1:G:114:VAL:HG21	1.58	0.85
2:L:231:ILE:O	2:L:234:THR:HG22	1.78	0.84
1:I:103:ALA:HA	1:I:114:VAL:HG21	1.61	0.83
1:I:103:ALA:HA	1:I:114:VAL:CG2	2.09	0.83
1:F:103:ALA:HA	1:F:114:VAL:CG2	2.09	0.82
1:B:47:GLN:HG2	2:K:222:ARG:NH1	1.97	0.79
2:L:155:THR:HG22	2:L:177:THR:HG23	1.66	0.78
1:C:28:VAL:HG13	1:C:94:VAL:HG21	1.66	0.77
1:C:214:ILE:HG22	2:K:268:PRO:HG3	1.65	0.77
1:I:28:VAL:HG13	1:I:94:VAL:HG21	1.67	0.77
1:F:28:VAL:HG13	1:F:94:VAL:HG21	1.66	0.77
1:D:28:VAL:HG13	1:D:94:VAL:HG21	1.67	0.76
1:F:217:PHE:CA	1:F:218:ASN:HB2	2.16	0.76
1:G:39:LEU:O	1:G:43:GLN:HG2	1.86	0.75
1:D:23:GLU:HB3	1:D:78:LYS:HD2	1.69	0.74
1:G:28:VAL:HG13	1:G:94:VAL:HG21	1.69	0.74
1:A:39:LEU:O	1:A:43:GLN:HG2	1.87	0.74
1:D:39:LEU:O	1:D:43:GLN:HG2	1.87	0.74
1:G:103:ALA:HA	1:G:114:VAL:CG2	2.16	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:80:ALA:HB1	2:K:81:PRO:HD2	1.70	0.73
1:A:28:VAL:HG13	1:A:94:VAL:HG21	1.69	0.73
1:E:28:VAL:HG13	1:E:94:VAL:HG21	1.71	0.73
2:L:33:SER:HB2	2:L:34:PRO:HD2	1.70	0.73
1:C:46:HIS:CD2	1:C:157:ASN:HD22	2.06	0.73
1:C:125:ILE:HG23	1:C:133:PHE:O	1.89	0.72
1:C:44:GLY:HA2	1:C:57:ARG:CZ	2.20	0.72
1:D:43:GLN:C	1:D:45:VAL:H	1.94	0.71
1:G:214:ILE:CD1	1:I:211:ASP:HB3	2.20	0.70
2:L:53:TYR:CE1	2:L:119:ALA:HB2	2.26	0.70
1:B:47:GLN:HG2	2:K:222:ARG:HH11	1.53	0.69
1:C:187:LYS:HG2	2:L:50:HIS:CD2	2.27	0.69
1:F:217:PHE:N	1:F:218:ASN:HB2	2.07	0.69
2:J:53:TYR:CE1	2:J:119:ALA:HB2	2.27	0.69
1:F:125:ILE:HG23	1:F:133:PHE:O	1.90	0.69
1:F:187:LYS:HE2	2:K:50:HIS:HD2	1.54	0.69
1:C:1:MET:HE3	2:L:142:LEU:O	1.92	0.69
1:I:125:ILE:HG23	1:I:133:PHE:O	1.93	0.69
2:K:53:TYR:CE1	2:K:119:ALA:HB2	2.28	0.68
1:D:43:GLN:O	1:D:45:VAL:N	2.26	0.68
1:E:54:ILE:HB	1:E:55:PRO:HD3	1.76	0.68
1:D:127:PRO:HD2	1:D:130:GLU:HG3	1.75	0.67
1:B:28:VAL:HG13	1:B:94:VAL:HG21	1.77	0.67
1:B:81:ALA:O	1:B:82:GLU:HB3	1.93	0.67
1:F:106:VAL:HB	1:F:114:VAL:HG22	1.76	0.67
1:G:127:PRO:HD2	1:G:130:GLU:HG3	1.76	0.67
1:A:23:GLU:HB3	1:A:78:LYS:HD2	1.76	0.67
1:H:81:ALA:O	1:H:82:GLU:HB3	1.94	0.67
1:E:81:ALA:O	1:E:82:GLU:HB3	1.94	0.67
1:H:54:ILE:HB	1:H:55:PRO:HD3	1.78	0.66
1:E:185:ASN:ND2	1:E:187:LYS:HD3	2.11	0.65
1:A:127:PRO:HD2	1:A:130:GLU:HG3	1.78	0.65
1:B:92:ARG:O	1:B:96:GLN:HG3	1.96	0.65
1:B:54:ILE:HB	1:B:55:PRO:HD3	1.78	0.65
1:I:54:ILE:N	1:I:55:PRO:HD2	2.12	0.65
1:E:32:GLU:O	1:E:36:ARG:HG2	1.98	0.64
1:E:88:HIS:CE1	1:E:92:ARG:HG3	2.32	0.64
1:B:113:LEU:HD23	1:D:6:ILE:HD11	1.80	0.64
1:C:54:ILE:HB	1:C:55:PRO:HD3	1.80	0.64
1:I:114:VAL:HG12	1:I:118:ALA:HB3	1.79	0.64
1:D:69:LYS:O	1:D:73:THR:HG23	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:116:ARG:HG3	1:H:135:LEU:HD23	1.79	0.64
1:G:106:VAL:HB	1:G:114:VAL:HG22	1.80	0.63
1:E:52:GLN:HB3	1:E:57:ARG:HH21	1.65	0.62
1:F:44:GLY:HA3	1:F:57:ARG:NH2	2.14	0.62
1:A:152:SER:HB2	1:A:204:LYS:HD3	1.81	0.62
1:D:166:ARG:HB2	1:D:167:PRO:HD3	1.82	0.62
1:G:152:SER:HB2	1:G:204:LYS:HD3	1.82	0.62
2:J:231:ILE:O	2:J:234:THR:HG22	2.00	0.61
1:B:187:LYS:HG3	1:D:21:ARG:HH22	1.64	0.61
1:D:152:SER:HB2	1:D:204:LYS:HD3	1.82	0.61
1:A:6:ILE:HD11	1:E:113:LEU:HD23	1.82	0.61
1:G:120:THR:HB	1:G:125:ILE:HG13	1.82	0.61
1:C:10:LEU:HD21	2:L:145:MET:CE	2.30	0.61
1:A:41:LEU:CD1	1:A:60:LYS:HG3	2.31	0.61
1:D:18:GLN:O	1:D:22:GLU:HG2	2.00	0.60
1:H:40:THR:O	1:H:43:GLN:HB3	2.01	0.60
1:I:218:ASN:O	1:I:219:LYS:HD3	2.02	0.60
1:A:18:GLN:O	1:A:22:GLU:HG2	2.00	0.60
1:G:18:GLN:O	1:G:22:GLU:HG2	2.01	0.59
1:F:115:THR:O	1:F:119:VAL:HG23	2.02	0.59
2:J:231:ILE:HG23	2:J:234:THR:HG23	1.84	0.59
1:A:27:VAL:HG11	1:A:75:LEU:HB2	1.84	0.59
1:C:23:GLU:HB3	1:C:78:LYS:HD2	1.85	0.59
1:E:75:LEU:HA	1:E:78:LYS:HG3	1.85	0.59
1:D:27:VAL:HG11	1:D:75:LEU:HB2	1.84	0.58
1:H:34:THR:O	1:H:38:ILE:HG13	2.04	0.58
1:E:34:THR:O	1:E:38:ILE:HG13	2.04	0.58
1:E:52:GLN:HG3	1:E:53:ASP:H	1.67	0.58
1:C:106:VAL:HB	1:C:114:VAL:HG22	1.85	0.58
1:D:115:THR:O	1:D:119:VAL:HG23	2.04	0.58
1:H:47:GLN:HG3	1:H:49:ALA:H	1.69	0.58
1:E:181:PHE:HB3	1:E:195:TYR:CE1	2.39	0.57
1:C:46:HIS:HD2	1:C:157:ASN:HD22	1.53	0.57
1:G:115:THR:O	1:G:119:VAL:HG23	2.04	0.57
2:J:99:GLN:O	2:J:102:PHE:HB3	2.04	0.57
1:A:41:LEU:HD11	1:A:60:LYS:HG3	1.85	0.57
1:H:181:PHE:HB3	1:H:195:TYR:CE1	2.40	0.57
2:J:101:ILE:HG23	2:J:180:LEU:HD23	1.87	0.57
1:A:115:THR:O	1:A:119:VAL:HG23	2.04	0.57
1:B:34:THR:O	1:B:38:ILE:HG13	2.04	0.57
1:C:118:ALA:O	1:C:122:ILE:HG13	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:217:PHE:HA	1:F:218:ASN:HB2	1.85	0.57
1:F:1:MET:HB3	1:F:5:GLU:OE1	2.05	0.56
2:L:101:ILE:HG23	2:L:180:LEU:HD23	1.86	0.56
1:I:23:GLU:HB3	1:I:78:LYS:HD2	1.88	0.56
2:J:144:SER:O	2:J:148:ILE:HG13	2.05	0.56
1:H:44:GLY:O	1:H:47:GLN:HG2	2.05	0.56
1:B:52:GLN:O	1:B:52:GLN:CG	2.46	0.56
1:F:183:LEU:O	2:K:43:GLN:HG3	2.06	0.56
1:C:114:VAL:HG12	1:C:118:ALA:HB3	1.87	0.56
1:C:115:THR:O	1:C:119:VAL:HG23	2.07	0.55
1:G:1:MET:HB2	1:G:4:SER:HB3	1.88	0.55
1:I:65:PHE:O	1:I:69:LYS:HG3	2.07	0.55
1:C:116:ARG:NH2	1:C:137:VAL:HG22	2.21	0.55
2:J:101:ILE:HG21	2:J:152:LEU:HD22	1.88	0.55
2:K:155:THR:HA	2:K:177:THR:HA	1.89	0.55
1:B:82:GLU:HA	1:D:82:GLU:O	2.07	0.55
1:G:27:VAL:HG11	1:G:75:LEU:HB2	1.87	0.55
1:I:58:CYS:O	1:I:62:ARG:HG3	2.06	0.55
1:B:53:ASP:HB2	1:B:56:LYS:HB2	1.88	0.55
1:B:181:PHE:HB3	1:B:195:TYR:CE1	2.41	0.55
1:F:199:LYS:HD2	2:L:203:ILE:HB	1.88	0.55
1:G:106:VAL:CB	1:G:114:VAL:HG22	2.36	0.55
2:J:32:SER:O	2:J:36:MET:HB2	2.07	0.55
2:K:101:ILE:HG23	2:K:180:LEU:HD23	1.88	0.55
1:E:69:LYS:HG3	1:E:124:GLY:HA3	1.88	0.55
1:C:199:LYS:HD2	2:K:203:ILE:HB	1.89	0.55
1:G:182:ARG:O	1:I:36:ARG:HD2	2.07	0.55
1:B:47:GLN:O	1:B:49:ALA:N	2.40	0.55
1:I:118:ALA:O	1:I:122:ILE:HG13	2.07	0.55
1:H:92:ARG:O	1:H:96:GLN:HG3	2.07	0.54
2:L:99:GLN:O	2:L:102:PHE:HB3	2.07	0.54
1:F:58:CYS:O	1:F:62:ARG:HG3	2.08	0.54
1:H:145:LEU:HD13	1:H:194:ARG:HG2	1.90	0.54
1:G:54:ILE:HB	1:G:55:PRO:HD3	1.89	0.54
1:I:166:ARG:HB3	1:I:167:PRO:HD3	1.90	0.54
1:B:138:GLU:HG2	1:B:188:ASN:HD22	1.72	0.54
1:F:23:GLU:HB3	1:F:78:LYS:HD2	1.89	0.54
1:F:54:ILE:O	1:F:57:ARG:HG3	2.07	0.54
1:C:166:ARG:HB3	1:C:167:PRO:HD3	1.90	0.53
1:D:73:THR:HA	1:D:76:LYS:CE	2.32	0.53
1:F:183:LEU:HD11	2:K:36:MET:HE3	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:51:PHE:CE2	1:H:53:ASP:HB3	2.43	0.53
1:C:106:VAL:CB	1:C:114:VAL:HG22	2.39	0.53
1:H:33:GLN:O	1:H:36:ARG:HG2	2.08	0.53
2:L:191:VAL:O	2:L:194:LEU:HB3	2.09	0.53
1:B:187:LYS:HG3	1:D:21:ARG:NH2	2.24	0.53
1:I:2:SER:O	1:I:6:ILE:HG13	2.09	0.53
1:F:184:LEU:HD23	2:K:43:GLN:HB2	1.90	0.53
2:J:228:PHE:HB3	2:J:243:LEU:HD21	1.91	0.53
2:J:55:ARG:HH21	2:J:107:GLU:CD	2.12	0.53
1:D:42:LEU:HD11	1:D:105:VAL:HG23	1.90	0.52
1:G:42:LEU:HD11	1:G:105:VAL:HG23	1.91	0.52
1:E:69:LYS:HG3	1:E:124:GLY:CA	2.39	0.52
2:J:33:SER:CB	2:J:34:PRO:HD2	2.39	0.52
1:F:216:GLY:O	2:L:273:ALA:HB3	2.10	0.52
1:G:179:SER:O	1:G:182:ARG:HB3	2.10	0.52
1:B:145:LEU:HD13	1:B:194:ARG:HG2	1.92	0.52
1:E:145:LEU:HD13	1:E:194:ARG:HG2	1.91	0.52
1:C:58:CYS:O	1:C:62:ARG:HG3	2.09	0.52
2:K:196:GLY:O	2:K:199:MET:HG3	2.09	0.52
1:A:82:GLU:O	1:E:82:GLU:HA	2.10	0.52
1:C:183:LEU:O	2:L:43:GLN:HG3	2.10	0.52
1:C:203:LYS:O	1:C:207:GLU:HG3	2.09	0.52
1:A:118:ALA:O	1:A:122:ILE:HG13	2.09	0.52
1:A:180:GLY:O	1:A:183:LEU:HB2	2.10	0.52
1:C:11:GLN:HG2	2:L:230:PHE:CE2	2.45	0.52
1:C:116:ARG:O	1:C:120:THR:HG23	2.09	0.52
2:L:33:SER:O	2:L:37:LEU:HG	2.10	0.52
1:H:69:LYS:HG3	1:H:124:GLY:CA	2.40	0.51
2:J:191:VAL:O	2:J:194:LEU:HB3	2.09	0.51
1:F:166:ARG:HB3	1:F:167:PRO:HD3	1.91	0.51
2:L:243:LEU:HD12	2:L:246:LEU:HD23	1.93	0.51
2:K:155:THR:HG22	2:K:177:THR:OG1	2.10	0.51
1:C:168:LEU:HD12	1:C:168:LEU:N	2.25	0.51
1:H:69:LYS:HG3	1:H:124:GLY:HA3	1.90	0.51
2:L:140:ARG:HD2	2:L:216:GLU:OE1	2.10	0.51
1:F:18:GLN:O	1:F:22:GLU:HG3	2.10	0.51
1:H:51:PHE:O	1:H:52:GLN:HG2	2.10	0.51
2:J:196:GLY:O	2:J:199:MET:HG3	2.10	0.51
2:K:78:THR:C	2:K:80:ALA:H	2.13	0.51
1:D:72:LEU:HD12	1:D:123:LEU:O	2.11	0.51
1:E:81:ALA:CB	1:E:131:LYS:HD2	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:118:ALA:O	1:F:122:ILE:HG13	2.09	0.51
2:J:145:MET:HE1	2:J:184:PRO:HA	1.93	0.51
2:K:191:VAL:O	2:K:194:LEU:HB3	2.10	0.51
1:A:73:THR:HA	1:A:76:LYS:CE	2.30	0.51
1:B:69:LYS:HG3	1:B:124:GLY:HA3	1.91	0.51
1:I:117:GLU:H	1:I:117:GLU:CD	2.12	0.51
2:J:78:THR:C	2:J:80:ALA:H	2.15	0.51
1:B:69:LYS:HG3	1:B:124:GLY:CA	2.41	0.51
1:G:43:GLN:C	1:G:45:VAL:H	2.14	0.51
1:H:52:GLN:O	1:H:54:ILE:N	2.44	0.50
2:L:196:GLY:O	2:L:199:MET:HG3	2.11	0.50
1:E:81:ALA:C	1:E:83:GLN:H	2.15	0.50
1:F:27:VAL:HG11	1:F:75:LEU:HB2	1.93	0.50
1:G:41:LEU:HD21	1:G:60:LYS:HE3	1.93	0.50
1:G:166:ARG:HB2	1:G:167:PRO:HD3	1.94	0.50
1:E:39:LEU:O	1:E:40:THR:C	2.48	0.50
1:B:81:ALA:C	1:B:83:GLN:H	2.15	0.50
1:C:214:ILE:HD12	1:H:55:PRO:HB2	1.93	0.50
1:E:157:ASN:HD21	2:L:254:GLU:CD	2.15	0.50
1:I:66:GLY:HA2	1:I:69:LYS:HD2	1.94	0.50
1:I:27:VAL:HG11	1:I:75:LEU:HB2	1.94	0.50
2:J:33:SER:HB2	2:J:34:PRO:HD2	1.93	0.50
1:F:168:LEU:N	1:F:168:LEU:HD12	2.27	0.50
2:K:154:PHE:O	2:K:177:THR:HA	2.11	0.50
1:A:42:LEU:HD11	1:A:105:VAL:HG23	1.94	0.49
1:H:53:ASP:HB2	1:H:56:LYS:HB2	1.94	0.49
1:H:88:HIS:O	1:H:92:ARG:HB2	2.12	0.49
2:J:70:THR:HG21	2:J:94:LEU:HD21	1.94	0.49
1:H:81:ALA:C	1:H:83:GLN:H	2.16	0.49
1:I:168:LEU:N	1:I:168:LEU:HD12	2.26	0.49
1:A:73:THR:HG22	1:A:76:LYS:NZ	2.28	0.49
1:D:182:ARG:O	1:F:36:ARG:HD2	2.12	0.49
1:F:187:LYS:HG3	2:K:50:HIS:CD2	2.48	0.49
1:H:196:ASP:O	1:H:199:LYS:HE2	2.13	0.49
1:F:183:LEU:HD11	2:K:36:MET:CE	2.43	0.49
1:C:103:ALA:HA	1:C:114:VAL:HG23	1.91	0.49
1:E:196:ASP:O	1:E:199:LYS:HE2	2.13	0.49
1:I:199:LYS:HD2	2:J:203:ILE:HB	1.94	0.49
1:A:166:ARG:HB2	1:A:167:PRO:HD3	1.95	0.49
1:G:119:VAL:HG12	1:G:123:LEU:HD12	1.94	0.49
1:G:43:GLN:O	1:G:45:VAL:N	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:46:HIS:CD2	1:C:157:ASN:ND2	2.79	0.49
1:B:33:GLN:O	1:B:36:ARG:HB3	2.13	0.48
1:G:69:LYS:HG3	1:G:124:GLY:HA3	1.94	0.48
1:B:212:LEU:O	1:B:217:PHE:HD1	1.96	0.48
1:H:20:ILE:HG12	1:H:79:PHE:CD1	2.48	0.48
1:B:125:ILE:HG23	1:B:133:PHE:O	2.13	0.48
1:C:27:VAL:HG11	1:C:75:LEU:HB2	1.96	0.48
1:C:1:MET:HE1	2:L:143:ILE:HA	1.96	0.48
1:F:117:GLU:CD	1:F:117:GLU:H	2.15	0.48
1:H:51:PHE:HE2	1:H:53:ASP:HB3	1.78	0.48
2:J:145:MET:CE	2:J:184:PRO:HA	2.43	0.48
1:G:85:TYR:HA	1:G:88:HIS:HB2	1.95	0.48
1:D:120:THR:HB	1:D:125:ILE:HG13	1.96	0.48
1:H:47:GLN:NE2	1:H:49:ALA:HB3	2.29	0.48
2:K:145:MET:CE	2:K:184:PRO:HA	2.43	0.48
1:A:55:PRO:O	1:A:59:LEU:HG	2.14	0.48
1:C:86:ARG:HH21	2:L:183:THR:HB	1.78	0.48
2:K:238:GLU:O	2:K:241:LYS:HB2	2.14	0.48
1:C:1:MET:HE1	2:L:135:HIS:CE1	2.49	0.48
1:G:45:VAL:CG2	1:G:57:ARG:HD2	2.43	0.48
1:H:125:ILE:HG23	1:H:133:PHE:O	2.14	0.48
1:D:85:TYR:HA	1:D:88:HIS:HB2	1.96	0.47
1:E:171:SER:HA	1:E:205:VAL:HG11	1.96	0.47
1:G:2:SER:O	1:G:6:ILE:HG23	2.13	0.47
2:K:70:THR:HG21	2:K:94:LEU:HD21	1.96	0.47
1:E:164:TYR:CE1	1:E:217:PHE:CE1	3.02	0.47
1:B:88:HIS:O	1:B:92:ARG:HB2	2.14	0.47
1:F:199:LYS:HE2	1:F:200:TYR:CE1	2.49	0.47
2:K:33:SER:O	2:K:37:LEU:HG	2.15	0.47
1:A:85:TYR:HA	1:A:88:HIS:HB2	1.96	0.47
1:C:137:VAL:HG21	2:L:45:GLU:CD	2.35	0.47
1:F:180:GLY:O	1:F:183:LEU:HB2	2.15	0.47
1:H:171:SER:HA	1:H:205:VAL:HG11	1.97	0.47
1:B:2:SER:O	1:B:6:ILE:HG13	2.15	0.47
1:B:196:ASP:O	1:B:199:LYS:HE2	2.14	0.47
1:H:95:LEU:O	1:H:99:VAL:HG23	2.15	0.47
1:I:199:LYS:HE2	1:I:200:TYR:CE1	2.50	0.47
2:J:94:LEU:HD13	2:J:131:VAL:HG12	1.95	0.47
2:K:194:LEU:O	2:K:194:LEU:HD22	2.15	0.47
1:A:80:PRO:HB2	1:A:82:GLU:OE2	2.14	0.47
1:C:106:VAL:CG1	1:C:114:VAL:HG22	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:72:LEU:HD12	1:A:123:LEU:O	2.16	0.46
1:G:73:THR:HA	1:G:76:LYS:CE	2.32	0.46
1:H:41:LEU:HD21	1:H:60:LYS:HB3	1.97	0.46
1:B:34:THR:HG21	1:B:68:VAL:HG23	1.97	0.46
1:C:106:VAL:HG11	1:C:114:VAL:HG22	1.97	0.46
1:D:2:SER:O	1:D:6:ILE:HG23	2.15	0.46
1:D:118:ALA:O	1:D:122:ILE:HG13	2.15	0.46
1:F:218:ASN:HB3	1:F:219:LYS:H	1.53	0.46
1:H:34:THR:HG21	1:H:68:VAL:HG23	1.96	0.46
2:K:94:LEU:HD13	2:K:131:VAL:HG12	1.97	0.46
2:L:80:ALA:HB1	2:L:81:PRO:CD	2.37	0.46
1:B:110:THR:O	1:B:112:THR:HG23	2.16	0.46
1:F:106:VAL:CB	1:F:114:VAL:HG22	2.44	0.46
1:G:163:ASP:OD2	1:G:166:ARG:HG3	2.16	0.46
2:K:33:SER:HB2	2:K:34:PRO:HD2	1.97	0.46
1:B:171:SER:HA	1:B:205:VAL:HG11	1.98	0.46
1:F:45:VAL:HG22	1:F:45:VAL:O	2.15	0.46
1:F:217:PHE:HA	1:F:218:ASN:CB	2.46	0.46
1:A:10:LEU:HD13	1:E:141:LEU:HD21	1.97	0.46
1:C:204:LYS:HB2	1:C:204:LYS:HE3	1.64	0.46
1:H:52:GLN:O	1:H:52:GLN:HG3	2.16	0.46
1:C:214:ILE:CG2	2:K:268:PRO:HG3	2.43	0.46
1:E:78:LYS:HE3	1:E:78:LYS:HB3	1.83	0.46
1:A:144:VAL:O	1:A:147:LEU:HB3	2.16	0.46
1:E:42:LEU:HD23	1:E:42:LEU:HA	1.57	0.46
1:E:120:THR:HG22	1:E:135:LEU:HB2	1.98	0.46
1:I:180:GLY:O	1:I:183:LEU:HB2	2.15	0.46
1:I:187:LYS:HE2	2:J:61:ARG:HH22	1.81	0.46
2:J:78:THR:O	2:J:79:SER:HB2	2.15	0.46
1:E:34:THR:HG21	1:E:68:VAL:HG23	1.98	0.46
1:I:203:LYS:O	1:I:207:GLU:HG3	2.16	0.46
1:H:28:VAL:HG13	1:H:94:VAL:HG21	1.98	0.46
1:E:95:LEU:O	1:E:99:VAL:HG23	2.15	0.45
1:E:118:ALA:O	1:E:122:ILE:HG13	2.17	0.45
1:C:117:GLU:CD	1:C:117:GLU:H	2.17	0.45
1:E:185:ASN:HD21	1:E:187:LYS:HD3	1.80	0.45
1:F:56:LYS:HE3	1:F:60:LYS:NZ	2.31	0.45
2:L:70:THR:HG21	2:L:94:LEU:HD21	1.98	0.45
1:C:10:LEU:HD21	2:L:145:MET:HE1	1.97	0.45
1:I:43:GLN:HA	1:I:44:GLY:HA2	1.60	0.45
2:L:213:THR:HB	2:L:214:PRO:HD3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:ILE:HB	1:A:55:PRO:HD3	1.98	0.45
1:A:2:SER:HA	1:A:5:GLU:CD	2.37	0.45
1:B:43:GLN:OE1	2:K:226:ASP:HB3	2.17	0.45
1:B:198:LEU:O	1:B:202:VAL:HG23	2.17	0.45
1:D:23:GLU:CB	1:D:78:LYS:HD2	2.45	0.45
1:D:144:VAL:O	1:D:147:LEU:HB3	2.17	0.45
1:E:22:GLU:O	1:E:26:LYS:HD3	2.16	0.45
2:K:205:SER:HB2	2:K:210:ASP:HB3	1.99	0.45
2:K:213:THR:HB	2:K:214:PRO:HD3	1.97	0.45
1:C:2:SER:HB3	1:C:5:GLU:HB2	1.99	0.45
1:E:110:THR:O	1:E:112:THR:HG23	2.16	0.45
1:G:144:VAL:O	1:G:147:LEU:HB3	2.17	0.45
2:J:269:LYS:O	2:J:270:HIS:HB2	2.16	0.45
1:B:95:LEU:O	1:B:99:VAL:HG23	2.16	0.45
1:E:164:TYR:HE1	1:E:217:PHE:CZ	2.35	0.45
2:J:129:GLU:CD	2:J:193:ASP:HB3	2.37	0.45
1:E:20:ILE:HG12	1:E:79:PHE:CD1	2.52	0.45
1:F:54:ILE:HB	1:F:55:PRO:HD3	1.99	0.45
1:F:210:TYR:O	1:F:214:ILE:HG22	2.16	0.45
1:H:22:GLU:O	1:H:26:LYS:HD3	2.17	0.45
2:L:94:LEU:HD13	2:L:131:VAL:HG12	1.98	0.45
1:C:187:LYS:CG	2:L:50:HIS:CD2	2.99	0.44
1:G:80:PRO:HB2	1:G:82:GLU:OE2	2.17	0.44
1:G:164:TYR:HD1	1:G:217:PHE:CD2	2.35	0.44
1:C:39:LEU:O	1:C:43:GLN:HG2	2.18	0.44
1:A:116:ARG:O	1:A:120:THR:HG23	2.18	0.44
1:I:54:ILE:H	1:I:55:PRO:HD2	1.80	0.44
1:I:60:LYS:O	1:I:63:GLU:HB2	2.18	0.44
2:J:213:THR:HB	2:J:214:PRO:HD3	1.99	0.44
1:B:138:GLU:HG2	1:B:188:ASN:ND2	2.33	0.44
1:D:80:PRO:HB2	1:D:82:GLU:OE2	2.17	0.44
1:D:6:ILE:O	1:D:10:LEU:HG	2.17	0.44
1:E:31:LEU:HB3	1:E:94:VAL:HG11	1.99	0.44
1:H:110:THR:O	1:H:112:THR:HG23	2.17	0.44
1:C:199:LYS:HE2	1:C:200:TYR:CE1	2.52	0.44
1:F:86:ARG:HH21	2:K:183:THR:HB	1.82	0.44
1:G:56:LYS:HD2	1:G:56:LYS:N	2.33	0.44
1:A:7:PHE:HZ	1:E:181:PHE:CE1	2.35	0.44
1:F:6:ILE:HD13	2:K:144:SER:HA	1.98	0.44
1:G:215:ARG:HB3	1:G:217:PHE:HE1	1.83	0.44
1:H:53:ASP:O	1:H:57:ARG:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:22:GLU:O	1:B:26:LYS:HD3	2.18	0.43
1:C:1:MET:HE2	2:L:141:SER:OG	2.19	0.43
1:C:43:GLN:HA	1:C:44:GLY:HA3	1.38	0.43
1:E:115:THR:HB	1:E:117:GLU:OE1	2.19	0.43
1:A:41:LEU:O	1:A:57:ARG:HD3	2.18	0.43
1:A:163:ASP:OD2	1:A:166:ARG:HG3	2.18	0.43
1:C:180:GLY:O	1:C:183:LEU:HB2	2.17	0.43
2:L:78:THR:C	2:L:80:ALA:H	2.22	0.43
1:G:45:VAL:HG12	1:G:45:VAL:O	2.18	0.43
1:C:105:VAL:HG12	1:C:106:VAL:N	2.33	0.43
1:E:75:LEU:HB2	1:E:133:PHE:HE2	1.82	0.43
1:C:1:MET:CE	2:L:135:HIS:HE1	2.31	0.43
1:G:106:VAL:HG21	1:G:114:VAL:HG13	2.00	0.43
1:A:11:GLN:HB2	1:E:184:LEU:HD23	2.01	0.43
2:J:182:VAL:HG13	2:J:186:ASP:HB2	2.01	0.43
1:F:60:LYS:O	1:F:63:GLU:HB2	2.19	0.43
2:J:75:HIS:CE1	2:J:200:ARG:HB3	2.53	0.43
1:B:73:THR:HG22	1:B:73:THR:O	2.19	0.43
2:K:99:GLN:O	2:K:102:PHE:HB3	2.19	0.43
1:C:1:MET:CE	2:L:135:HIS:CE1	3.02	0.42
1:C:1:MET:CE	2:L:143:ILE:HA	2.48	0.42
1:G:92:ARG:O	1:G:96:GLN:HG3	2.18	0.42
1:G:119:VAL:O	1:G:123:LEU:HD12	2.19	0.42
1:H:118:ALA:O	1:H:122:ILE:HG13	2.19	0.42
2:J:194:LEU:HD22	2:J:194:LEU:O	2.18	0.42
1:B:20:ILE:HG12	1:B:79:PHE:CD1	2.54	0.42
1:C:11:GLN:OE1	2:L:234:THR:HG21	2.18	0.42
1:D:41:LEU:O	1:D:57:ARG:HD3	2.19	0.42
1:H:3:VAL:HG12	1:H:4:SER:N	2.33	0.42
1:G:114:VAL:HG12	1:G:118:ALA:HB3	2.01	0.42
2:L:199:MET:HE3	2:L:252:LYS:HB2	2.00	0.42
1:A:124:GLY:HA2	3:A:258:HOH:O	2.19	0.42
1:G:41:LEU:O	1:G:57:ARG:HD3	2.19	0.42
1:G:68:VAL:HG11	1:G:123:LEU:HD23	2.02	0.42
1:H:115:THR:HB	1:H:117:GLU:OE1	2.20	0.42
1:C:116:ARG:HD2	2:L:42:PHE:CE1	2.55	0.42
1:C:176:GLU:HG2	2:L:35:VAL:HG21	2.02	0.42
1:F:137:VAL:HG21	2:K:45:GLU:OE2	2.20	0.42
1:F:193:LYS:HB2	1:F:193:LYS:HE3	1.65	0.42
1:I:106:VAL:HB	1:I:114:VAL:HG22	2.01	0.42
2:J:185:VAL:HG22	2:J:236:PRO:HG2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:118:ALA:O	1:B:122:ILE:HG13	2.19	0.42
1:F:11:GLN:OE1	2:K:234:THR:HG21	2.20	0.42
2:L:194:LEU:HD22	2:L:194:LEU:O	2.19	0.42
1:A:97:ARG:O	1:A:100:PHE:HB3	2.20	0.42
1:D:97:ARG:O	1:D:100:PHE:HB3	2.19	0.42
1:E:20:ILE:HG12	1:E:79:PHE:CE1	2.54	0.42
1:E:39:LEU:C	1:E:41:LEU:N	2.72	0.42
2:J:33:SER:O	2:J:37:LEU:HG	2.20	0.42
2:K:145:MET:HE1	2:K:184:PRO:HA	2.01	0.42
2:L:75:HIS:CE1	2:L:200:ARG:HB3	2.55	0.42
1:B:151:LEU:HD23	1:B:151:LEU:HA	1.88	0.41
1:F:203:LYS:O	1:F:207:GLU:HG3	2.20	0.41
1:H:73:THR:O	1:H:73:THR:HG22	2.20	0.41
1:H:145:LEU:CD1	1:H:194:ARG:HG2	2.50	0.41
2:K:75:HIS:CE1	2:K:200:ARG:HB3	2.54	0.41
2:K:182:VAL:HG13	2:K:186:ASP:HB2	2.02	0.41
1:I:193:LYS:HE3	1:I:193:LYS:HB2	1.68	0.41
2:J:121:THR:HG23	2:J:122:THR:N	2.36	0.41
1:F:106:VAL:HB	1:F:114:VAL:CG2	2.48	0.41
1:G:1:MET:O	1:G:2:SER:C	2.59	0.41
1:G:53:ASP:OD1	1:G:56:LYS:HD3	2.20	0.41
1:H:198:LEU:O	1:H:202:VAL:HG23	2.20	0.41
1:B:115:THR:HB	1:B:117:GLU:OE1	2.21	0.41
1:C:56:LYS:O	1:C:59:LEU:HB3	2.20	0.41
2:J:53:TYR:O	2:J:57:VAL:HG23	2.19	0.41
2:K:121:THR:HG23	2:K:122:THR:N	2.35	0.41
1:H:188:ASN:OD1	1:H:189:ASP:N	2.53	0.41
2:J:87:LEU:HD21	2:J:138:LYS:HG2	2.02	0.41
1:B:145:LEU:CD1	1:B:194:ARG:HG2	2.51	0.41
1:E:145:LEU:CD1	1:E:194:ARG:HG2	2.50	0.41
1:E:198:LEU:O	1:E:202:VAL:HG23	2.21	0.41
2:L:53:TYR:O	2:L:57:VAL:HG23	2.20	0.41
1:C:1:MET:HE3	2:L:142:LEU:C	2.41	0.41
1:D:45:VAL:HG23	1:D:57:ARG:HD2	2.03	0.41
1:E:73:THR:HG22	1:E:73:THR:O	2.20	0.41
2:K:155:THR:HG22	2:K:177:THR:HG23	2.02	0.41
2:L:124:LEU:O	2:L:128:VAL:HG23	2.20	0.41
1:C:1:MET:HB2	1:C:2:SER:H	1.51	0.41
1:C:116:ARG:HD2	2:L:42:PHE:HE1	1.86	0.41
1:C:125:ILE:CG2	1:C:126:GLU:N	2.83	0.41
1:D:164:TYR:N	1:D:164:TYR:CD2	2.89	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:178:ASP:O	1:D:182:ARG:HG3	2.20	0.41
1:E:10:LEU:HD23	1:E:10:LEU:HA	1.93	0.41
1:E:83:GLN:OE1	1:E:86:ARG:HD3	2.21	0.41
1:F:204:LYS:HB2	1:F:204:LYS:HE3	1.63	0.41
1:H:51:PHE:O	1:H:52:GLN:CG	2.68	0.41
1:I:54:ILE:N	1:I:55:PRO:CD	2.81	0.41
1:I:142:SER:O	1:I:146:ILE:HG13	2.21	0.41
2:K:269:LYS:HE2	2:K:269:LYS:HB3	1.82	0.41
2:L:87:LEU:HD21	2:L:138:LYS:HG2	2.02	0.41
1:B:38:ILE:O	1:B:42:LEU:HG	2.20	0.40
1:D:168:LEU:H	1:D:168:LEU:HD12	1.86	0.40
1:G:72:LEU:HD12	1:G:123:LEU:O	2.22	0.40
1:G:164:TYR:N	1:G:164:TYR:CD2	2.88	0.40
1:I:204:LYS:HE3	1:I:204:LYS:HB2	1.63	0.40
2:J:129:GLU:OE1	2:J:197:GLU:HG2	2.21	0.40
2:L:101:ILE:HG21	2:L:152:LEU:HD22	2.02	0.40
1:F:10:LEU:HD23	2:K:188:LEU:HG	2.03	0.40
1:G:31:LEU:HD21	1:G:72:LEU:HD21	2.03	0.40
1:H:95:LEU:HD11	1:H:125:ILE:HD11	2.03	0.40
2:J:239:VAL:O	2:J:242:LYS:HB2	2.21	0.40
1:C:60:LYS:O	1:C:63:GLU:HB2	2.21	0.40
1:D:52:GLN:HA	1:D:52:GLN:OE1	2.21	0.40
1:D:116:ARG:O	1:D:120:THR:HG23	2.22	0.40
1:E:142:SER:O	1:E:146:ILE:HG13	2.22	0.40
1:B:18:GLN:OE1	1:D:187:LYS:HE3	2.22	0.40
1:B:166:ARG:N	1:B:167:PRO:CD	2.85	0.40
1:C:138:GLU:HG3	2:L:49:ARG:NH1	2.36	0.40
1:C:193:LYS:HB2	1:C:193:LYS:HE3	1.68	0.40
1:F:6:ILE:O	1:F:10:LEU:HD13	2.22	0.40
1:G:116:ARG:O	1:G:120:THR:HG23	2.21	0.40
1:A:31:LEU:HD12	1:A:31:LEU:HA	1.90	0.40
1:A:164:TYR:N	1:A:164:TYR:CD2	2.87	0.40
1:B:142:SER:O	1:B:146:ILE:HG13	2.21	0.40
1:F:30:SER:O	1:F:33:GLN:HB3	2.21	0.40
2:L:182:VAL:HG13	2:L:186:ASP:HB2	2.03	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	208/228 (91%)	199 (96%)	9 (4%)	0	100	100
1	B	215/228 (94%)	205 (95%)	9 (4%)	1 (0%)	29	68
1	C	210/228 (92%)	201 (96%)	8 (4%)	1 (0%)	29	68
1	D	208/228 (91%)	198 (95%)	9 (4%)	1 (0%)	29	68
1	E	211/228 (92%)	195 (92%)	13 (6%)	3 (1%)	11	43
1	F	209/228 (92%)	201 (96%)	7 (3%)	1 (0%)	29	68
1	G	208/228 (91%)	195 (94%)	12 (6%)	1 (0%)	29	68
1	H	214/228 (94%)	205 (96%)	8 (4%)	1 (0%)	29	68
1	I	206/228 (90%)	193 (94%)	13 (6%)	0	100	100
2	J	215/290 (74%)	200 (93%)	13 (6%)	2 (1%)	17	55
2	K	218/290 (75%)	207 (95%)	11 (5%)	0	100	100
2	L	219/290 (76%)	206 (94%)	13 (6%)	0	100	100
All	All	2541/2922 (87%)	2405 (95%)	125 (5%)	11 (0%)	34	72

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	48	GLY
1	C	2	SER
1	D	44	GLY
1	E	53	ASP
1	F	218	ASN
1	G	44	GLY
1	H	53	ASP
2	J	270	HIS
1	E	92	ARG
1	E	54	ILE
2	J	113	MET

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	192/202 (95%)	190 (99%)	2 (1%)	76	91
1	B	194/202 (96%)	192 (99%)	2 (1%)	76	91
1	C	194/202 (96%)	193 (100%)	1 (0%)	88	96
1	D	192/202 (95%)	189 (98%)	3 (2%)	62	86
1	E	194/202 (96%)	192 (99%)	2 (1%)	76	91
1	F	193/202 (96%)	190 (98%)	3 (2%)	62	86
1	G	192/202 (95%)	188 (98%)	4 (2%)	53	82
1	H	193/202 (96%)	190 (98%)	3 (2%)	62	86
1	I	190/202 (94%)	189 (100%)	1 (0%)	88	96
2	J	197/260 (76%)	191 (97%)	6 (3%)	41	75
2	K	201/260 (77%)	196 (98%)	5 (2%)	47	79
2	L	201/260 (77%)	195 (97%)	6 (3%)	41	75
All	All	2333/2598 (90%)	2295 (98%)	38 (2%)	62	86

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	ASP
1	A	64	HIS
1	B	52	GLN
1	B	88	HIS
1	C	158	SER
1	D	19	ASP
1	D	64	HIS
1	D	183	LEU
1	E	47	GLN
1	E	88	HIS
1	F	92	ARG
1	F	158	SER
1	F	217	PHE
1	G	19	ASP

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Mol	Chain	Res	Type
1	G	64	HIS
1	G	114	VAL
1	G	215	ARG
1	H	60	LYS
1	H	86	ARG
1	H	88	HIS
1	I	114	VAL
2	J	33	SER
2	J	43	GLN
2	J	114	HIS
2	J	122	THR
2	J	154	PHE
2	J	199	MET
2	K	43	GLN
2	K	114	HIS
2	K	122	THR
2	K	154	PHE
2	K	199	MET
2	L	43	GLN
2	L	114	HIS
2	L	122	THR
2	L	154	PHE
2	L	179	ARG
2	L	199	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	47	GLN
1	C	43	GLN
1	C	46	HIS
1	D	29	GLN
1	E	88	HIS
1	E	185	ASN
1	F	185	ASN
2	K	50	HIS
2	L	50	HIS
2	L	135	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 (i)

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

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	212/228 (92%)	-0.62	0	100	100	34, 66, 106, 124	0
1	B	217/228 (95%)	-0.67	0	100	100	34, 67, 109, 139	0
1	C	214/228 (93%)	-0.62	2 (0%)	84	63	30, 56, 97, 141	0
1	D	212/228 (92%)	-0.60	0	100	100	35, 65, 103, 133	0
1	E	215/228 (94%)	-0.44	2 (0%)	84	63	39, 73, 112, 154	0
1	F	213/228 (93%)	-0.54	1 (0%)	91	75	33, 67, 120, 169	0
1	G	212/228 (92%)	-0.54	0	100	100	49, 77, 110, 136	0
1	H	216/228 (94%)	-0.57	0	100	100	40, 73, 116, 141	0
1	I	210/228 (92%)	-0.49	0	100	100	49, 83, 132, 162	0
2	J	219/290 (75%)	-0.44	3 (1%)	75	49	43, 79, 130, 174	0
2	K	222/290 (76%)	-0.61	1 (0%)	91	75	36, 61, 103, 139	0
2	L	223/290 (76%)	-0.65	1 (0%)	92	79	31, 51, 94, 150	0
All	All	2585/2922 (88%)	-0.57	10 (0%)	92	79	30, 69, 114, 174	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	J	274	ASP	3.6
1	E	77	THR	2.8
2	J	81	PRO	2.4
1	E	76	LYS	2.2
1	C	52	GLN	2.2
2	L	155	THR	2.2
2	J	273	ALA	2.1
1	C	132	GLY	2.1
1	F	46	HIS	2.0
2	K	81	PRO	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.