Full wwPDB X-ray Structure Validation Report ⓘ

Nov 16, 2026 – 10:29 AM EST

PDB ID	:	9ZBH / pdb_00009zbh
Title	:	Structure of Tyr363 phosphorylated Cbl-b - UbcH5B - Ubiquitin - SPY2 peptide complex
Authors	:	Gajewski, S.; Clifton, C.M.
Deposited on	:	2025-11-20
Resolution	:	2.35 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:

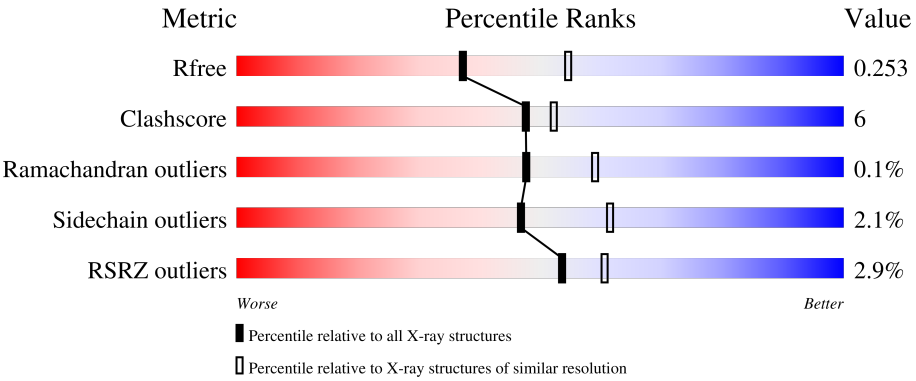
MolProbity	:	4-5-2 with Phenix2.2
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.2
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

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 2.35 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	1596 (2.36-2.36)
Clashscore	190562	1663 (2.36-2.36)
Ramachandran outliers	187476	1646 (2.36-2.36)
Sidechain outliers	187428	1646 (2.36-2.36)
RSRZ outliers	180081	1598 (2.36-2.36)

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	392	3% 85% 13%
1	E	392	2% 88% 11%
1	I	392	5% 82% 14%
1	M	392	3% 85% 12%
2	B	12	17% 83% 17%

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Mol	Chain	Length	Quality of chain
2	F	12	17% 75% 25%
2	J	12	17% 75% 25%
2	N	12	8% 83% 17%
3	C	147	% 89% 11%
3	G	147	90% 10%
3	K	147	3% 86% 14%
3	O	147	% 87% 13%
4	D	81	% 80% 15% 5%
4	H	81	79% 15% 5%
4	L	81	4% 65% 30% 5%
4	P	81	% 77% 17% 5%

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 19577 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 E3 ubiquitin-protein ligase CBL-B.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	387	Total	C	N	O	P	S	0	1	0
			3007	1927	506	552	1	21			
1	E	389	Total	C	N	O	P	S	0	3	0
			3090	1979	527	561	1	22			
1	I	382	Total	C	N	O	P	S	0	0	0
			2964	1896	503	545	1	19			
1	M	383	Total	C	N	O	P	S	0	1	0
			3009	1923	511	554	1	20			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	36	GLY	-	expression tag	UNP Q13191
A	37	SER	-	expression tag	UNP Q13191
A	360	PHE	TYR	engineered mutation	UNP Q13191
E	36	GLY	-	expression tag	UNP Q13191
E	37	SER	-	expression tag	UNP Q13191
E	360	PHE	TYR	engineered mutation	UNP Q13191
I	36	GLY	-	expression tag	UNP Q13191
I	37	SER	-	expression tag	UNP Q13191
I	360	PHE	TYR	engineered mutation	UNP Q13191
M	36	GLY	-	expression tag	UNP Q13191
M	37	SER	-	expression tag	UNP Q13191
M	360	PHE	TYR	engineered mutation	UNP Q13191

- Molecule 2 is a protein called Protein sprouty homolog 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	12	Total	C	N	O	P	0	0	0
			92	52	17	22	1			
2	F	12	Total	C	N	O	P	0	0	0
			92	52	17	22	1			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	J	12	Total	C	N	O	P	0	0	0
			92	52	17	22	1			
2	N	12	Total	C	N	O	P	0	0	0
			95	55	17	22	1			

- Molecule 3 is a protein called Ubiquitin-conjugating enzyme E2 D2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	147	Total	C	N	O	S	0	1	0
			1147	740	190	209	8			
3	G	147	Total	C	N	O	S	0	0	0
			1176	755	202	212	7			
3	K	147	Total	C	N	O	S	0	0	0
			1136	734	187	208	7			
3	O	147	Total	C	N	O	S	0	0	0
			1132	729	189	208	6			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	22	ARG	SER	engineered mutation	UNP P62837
C	85	LYS	CYS	engineered mutation	UNP P62837
G	22	ARG	SER	engineered mutation	UNP P62837
G	85	LYS	CYS	engineered mutation	UNP P62837
K	22	ARG	SER	engineered mutation	UNP P62837
K	85	LYS	CYS	engineered mutation	UNP P62837
O	22	ARG	SER	engineered mutation	UNP P62837
O	85	LYS	CYS	engineered mutation	UNP P62837

- Molecule 4 is a protein called Ubiquitin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	77	Total	C	N	O	S	0	0	0
			580	366	101	112	1			
4	H	77	Total	C	N	O	S	0	0	0
			591	373	100	117	1			
4	L	77	Total	C	N	O	S	0	0	0
			570	361	100	108	1			
4	P	77	Total	C	N	O	S	0	0	0
			564	356	95	112	1			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	-4	GLY	-	expression tag	UNP P0CG48
D	-3	SER	-	expression tag	UNP P0CG48
D	-2	GLY	-	expression tag	UNP P0CG48
D	-1	GLY	-	expression tag	UNP P0CG48
D	0	SER	-	expression tag	UNP P0CG48
H	-4	GLY	-	expression tag	UNP P0CG48
H	-3	SER	-	expression tag	UNP P0CG48
H	-2	GLY	-	expression tag	UNP P0CG48
H	-1	GLY	-	expression tag	UNP P0CG48
H	0	SER	-	expression tag	UNP P0CG48
L	-4	GLY	-	expression tag	UNP P0CG48
L	-3	SER	-	expression tag	UNP P0CG48
L	-2	GLY	-	expression tag	UNP P0CG48
L	-1	GLY	-	expression tag	UNP P0CG48
L	0	SER	-	expression tag	UNP P0CG48
P	-4	GLY	-	expression tag	UNP P0CG48
P	-3	SER	-	expression tag	UNP P0CG48
P	-2	GLY	-	expression tag	UNP P0CG48
P	-1	GLY	-	expression tag	UNP P0CG48
P	0	SER	-	expression tag	UNP P0CG48

- Molecule 5 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	2	Total Zn 2 2	0	0
5	E	2	Total Zn 2 2	0	0
5	I	2	Total Zn 2 2	0	0
5	M	2	Total Zn 2 2	0	0

- Molecule 6 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Ca 1 1	0	0
6	E	1	Total Ca 1 1	0	0
6	I	1	Total Ca 1 1	0	0

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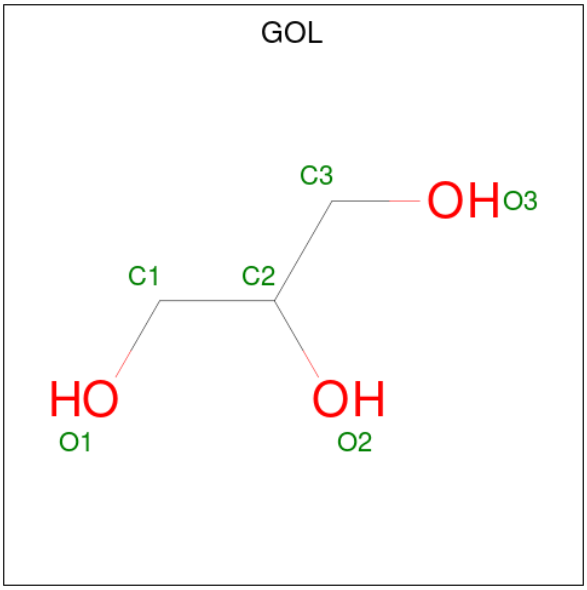
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	M	1	Total Ca 1 1	0	0

- Molecule 7 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	E	1	Total C O 6 3 3	0	0
7	G	1	Total C O 6 3 3	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	16	Total O 16 16	0	0
8	B	2	Total O 2 2	0	0
8	C	16	Total O 16 16	0	0
8	D	9	Total O 9 9	0	0
8	E	42	Total O 42 42	0	0
8	F	1	Total O 1 1	0	0

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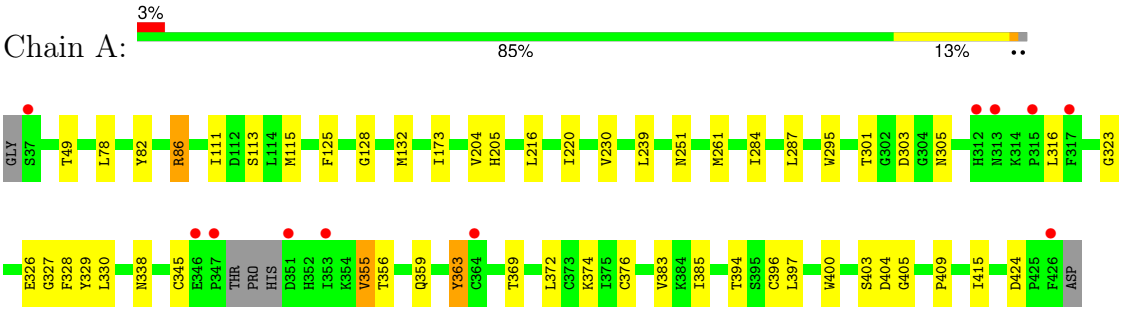
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	G	23	Total O 23 23	0	0
8	H	7	Total O 7 7	0	0
8	I	20	Total O 20 20	0	0
8	J	1	Total O 1 1	0	0
8	K	8	Total O 8 8	0	0
8	L	6	Total O 6 6	0	0
8	M	47	Total O 47 47	0	0
8	N	8	Total O 8 8	0	0
8	O	8	Total O 8 8	0	0
8	P	2	Total O 2 2	0	0

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.

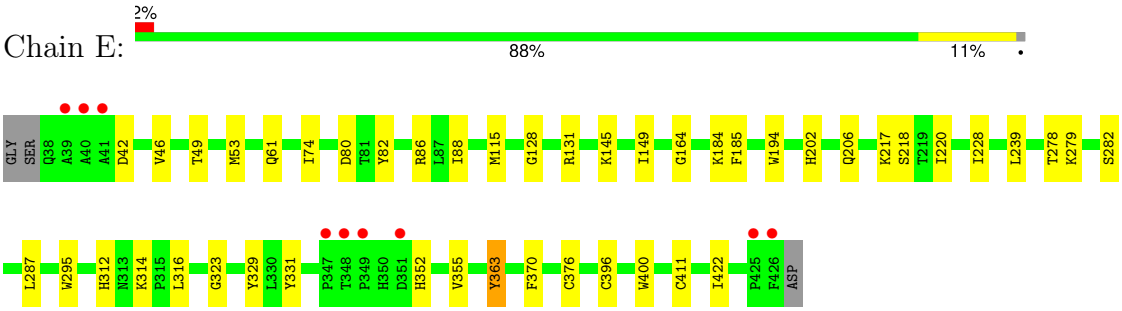
• Molecule 1: E3 ubiquitin-protein ligase CBL-B

Chain A:



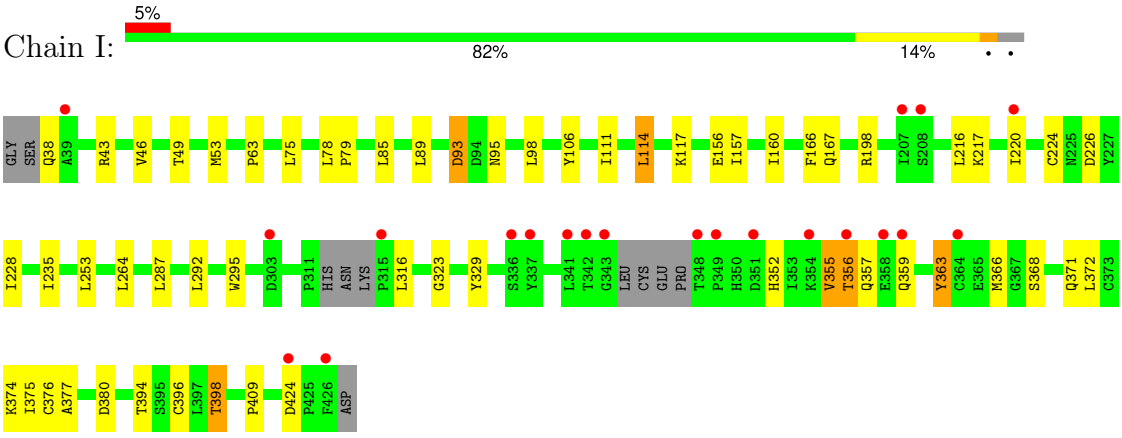
• Molecule 1: E3 ubiquitin-protein ligase CBL-B

Chain E:



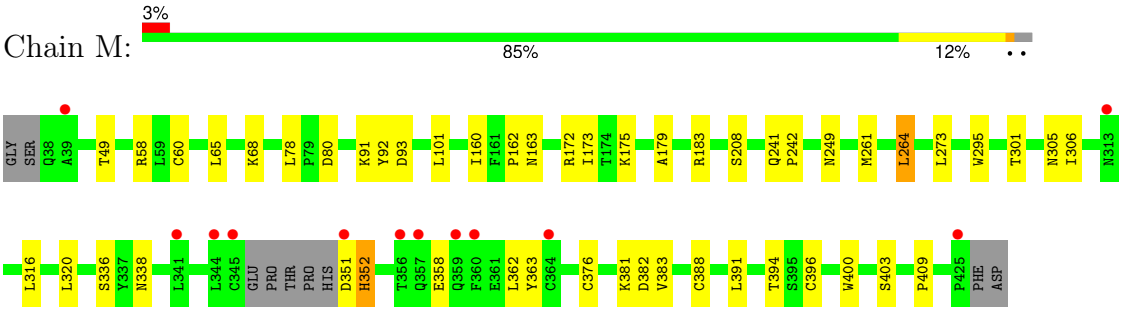
• Molecule 1: E3 ubiquitin-protein ligase CBL-B

Chain I:



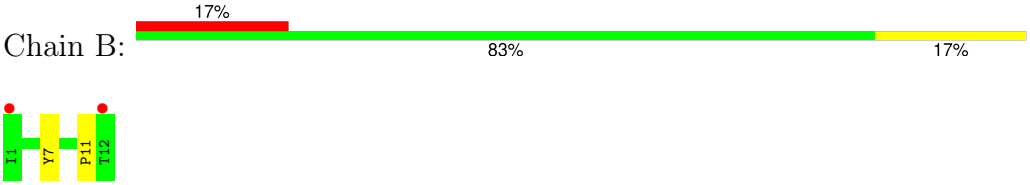
• Molecule 1: E3 ubiquitin-protein ligase CBL-B

Chain M:



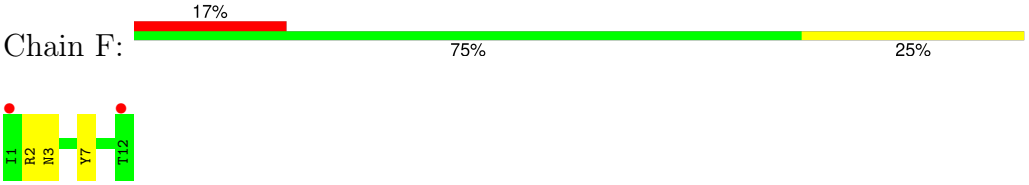
• Molecule 2: Protein sprouty homolog 2

Chain B:



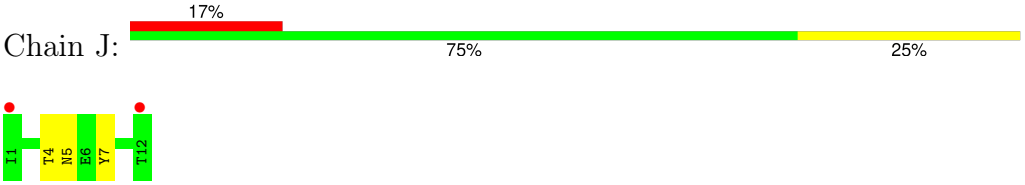
• Molecule 2: Protein sprouty homolog 2

Chain F:



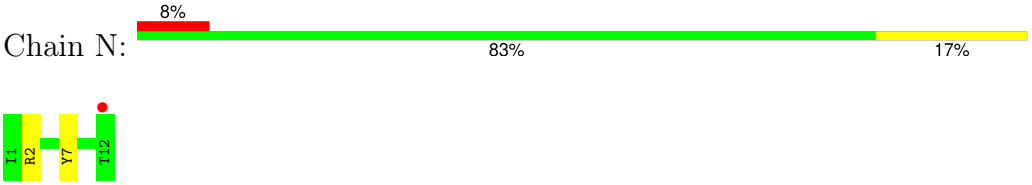
• Molecule 2: Protein sprouty homolog 2

Chain J:



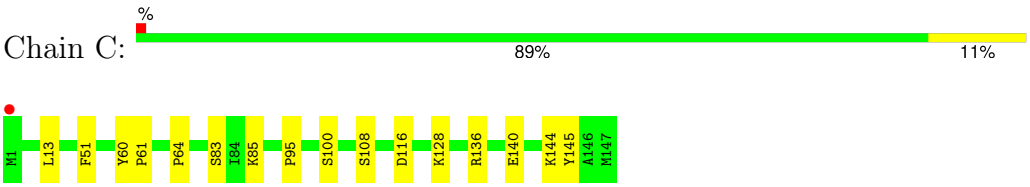
• Molecule 2: Protein sprouty homolog 2

Chain N:



• Molecule 3: Ubiquitin-conjugating enzyme E2 D2

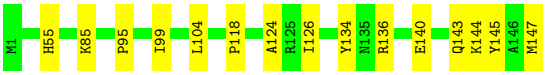
Chain C:



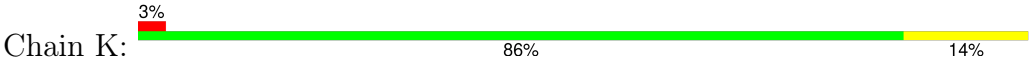
• Molecule 3: Ubiquitin-conjugating enzyme E2 D2

Chain G:



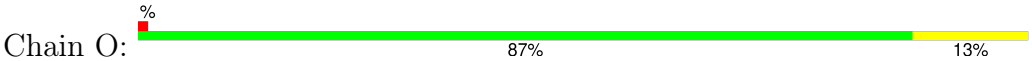


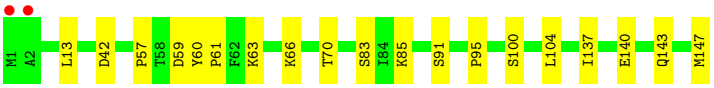
• Molecule 3: Ubiquitin-conjugating enzyme E2 D2



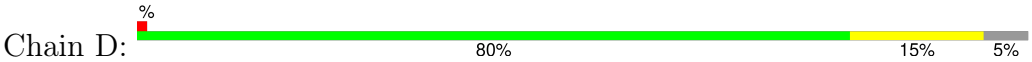


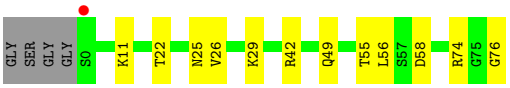
• Molecule 3: Ubiquitin-conjugating enzyme E2 D2



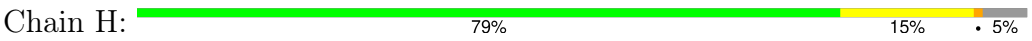


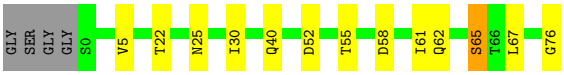
• Molecule 4: Ubiquitin





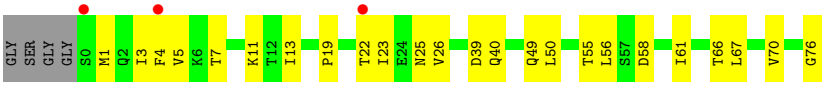
• Molecule 4: Ubiquitin



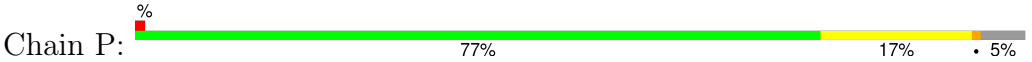


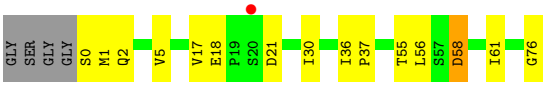
• Molecule 4: Ubiquitin





• Molecule 4: Ubiquitin





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	95.45Å 132.24Å 122.07Å 90.00° 91.95° 90.00°	Depositor
Resolution (Å)	49.29 – 2.35 49.29 – 2.35	Depositor EDS
% Data completeness (in resolution range)	99.8 (49.29-2.35) 99.8 (49.29-2.35)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.28 (at 2.34Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.199 , 0.254 0.198 , 0.253	Depositor DCC
R_{free} test set	6330 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	45.1	Xtriage
Anisotropy	0.313	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 34.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.024 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	19577	wwPDB-VP
Average B, all atoms (Å^2)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.93% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, PTR, GOL, ZN

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	0.38	0/3067	0.55	0/4167
1	E	0.38	0/3161	0.53	0/4288
1	I	0.35	0/3019	0.53	0/4099
1	M	0.40	0/3063	0.56	0/4151
2	B	0.37	0/75	0.53	0/100
2	F	0.41	0/75	0.41	0/100
2	J	0.45	0/75	0.57	0/100
2	N	0.44	0/78	0.48	0/104
3	C	0.37	0/1186	0.51	0/1623
3	G	0.43	0/1212	0.59	0/1652
3	K	0.36	0/1172	0.53	0/1605
3	O	0.32	0/1168	0.49	0/1601
4	D	0.36	0/586	0.57	0/793
4	H	0.43	0/597	0.58	0/805
4	L	0.34	0/576	0.54	0/782
4	P	0.32	0/570	0.55	0/775
All	All	0.37	0/19680	0.54	0/26745

There are no bond length outliers.

There are no bond angle outliers.

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	3007	0	2810	38	0
1	E	3090	0	2938	27	0
1	I	2964	0	2776	33	0
1	M	3009	0	2847	32	0
2	B	92	0	70	1	0
2	F	92	0	70	3	0
2	J	92	0	70	1	0
2	N	95	0	79	1	0
3	C	1147	0	1103	13	0
3	G	1176	0	1159	13	0
3	K	1136	0	1088	14	0
3	O	1132	0	1072	14	0
4	D	580	0	577	12	0
4	H	591	0	608	12	0
4	L	570	0	565	20	0
4	P	564	0	543	12	0
5	A	2	0	0	0	0
5	E	2	0	0	0	0
5	I	2	0	0	0	0
5	M	2	0	0	0	0
6	A	1	0	0	0	0
6	E	1	0	0	0	0
6	I	1	0	0	0	0
6	M	1	0	0	0	0
7	E	6	0	8	0	0
7	G	6	0	8	0	0
8	A	16	0	0	0	0
8	B	2	0	0	0	0
8	C	16	0	0	1	0
8	D	9	0	0	1	0
8	E	42	0	0	0	0
8	F	1	0	0	0	0
8	G	23	0	0	0	0
8	H	7	0	0	0	0
8	I	20	0	0	1	0
8	J	1	0	0	0	0
8	K	8	0	0	0	0
8	L	6	0	0	0	0
8	M	47	0	0	0	0
8	N	8	0	0	0	0
8	O	8	0	0	0	0
8	P	2	0	0	0	0
All	All	19577	0	18391	212	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (212) 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)
4:D:74:ARG:NH1	8:D:101:HOH:O	2.00	0.94
3:G:143:GLN:HE22	3:G:147:MET:HE2	1.42	0.83
1:A:125:PHE:HA	1:A:132:MET:HE3	1.61	0.82
1:M:383:VAL:HB	1:M:394:THR:HG22	1.61	0.82
1:M:301:THR:HG22	1:M:305:ASN:H	1.46	0.81
1:I:198:ARG:NH1	8:I:601:HOH:O	2.08	0.78
4:D:22:THR:HG23	4:D:25:ASN:H	1.50	0.76
3:C:85:LYS:NZ	4:D:76:GLY:O	2.12	0.76
3:G:85:LYS:NZ	4:H:76:GLY:C	2.44	0.75
3:K:85:LYS:HE3	4:L:76:GLY:O	1.87	0.75
1:A:301:THR:HG23	1:A:303:ASP:H	1.52	0.74
3:K:144:LYS:NZ	3:K:145:TYR:OH	2.18	0.74
1:I:376:CYS:HB3	1:I:396:CYS:SG	2.28	0.73
3:C:144:LYS:HD3	3:C:145:TYR:CZ	2.22	0.73
3:C:85:LYS:HZ2	4:D:76:GLY:C	1.96	0.73
4:H:22:THR:HG23	4:H:25:ASN:H	1.53	0.72
3:O:85:LYS:HZ1	4:P:76:GLY:C	1.96	0.72
3:G:143:GLN:HA	3:G:147:MET:HG2	1.70	0.72
4:L:5:VAL:HB	4:L:13:ILE:HD11	1.70	0.72
1:I:366:MET:HE1	4:L:11:LYS:HA	1.70	0.71
1:I:366:MET:HE1	4:L:11:LYS:HG2	1.70	0.71
3:K:10:LEU:HD22	3:K:30:MET:HE1	1.72	0.70
4:H:55:THR:HG23	4:H:58:ASP:H	1.57	0.70
4:D:55:THR:HG23	4:D:58:ASP:H	1.56	0.69
1:I:216:LEU:O	1:I:220:ILE:HG22	1.91	0.69
4:P:58:ASP:N	4:P:58:ASP:OD1	2.24	0.67
1:E:352:HIS:CD2	1:E:422:ILE:HB	2.30	0.67
1:A:49:THR:HG22	1:A:115:MET:HG2	1.77	0.66
1:M:242:PRO:HD2	1:M:249:ASN:HD21	1.61	0.66
1:A:409:PRO:HB3	3:C:95:PRO:HD2	1.76	0.65
4:P:55:THR:HG23	4:P:58:ASP:OD1	1.97	0.65
1:E:128:GLY:O	1:E:131:ARG:HG3	1.97	0.64
3:G:143:GLN:NE2	3:G:147:MET:HE2	2.11	0.64
1:A:363:PTR:HE1	1:A:374:LYS:HE2	1.79	0.64
1:A:376:CYS:HB3	1:A:396:CYS:SG	2.38	0.63
3:O:60:TYR:CD1	3:O:61:PRO:HA	2.34	0.62
1:E:184:LYS:HD3	1:E:185:PHE:CE1	2.34	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:85:LYS:HZ1	4:H:76:GLY:C	2.07	0.62
1:I:359:GLN:O	1:I:363:PTR:HD2	1.98	0.62
3:K:143:GLN:HA	3:K:147:MET:HG3	1.82	0.62
1:M:382:ASP:OD1	1:M:394:THR:HG23	1.99	0.61
1:I:366:MET:CE	4:L:11:LYS:HA	2.30	0.61
1:I:323:GLY:HA3	1:I:329:TYR:CD2	2.36	0.61
1:A:239:LEU:HD13	1:A:287:LEU:HD11	1.82	0.60
1:I:220:ILE:HG13	1:I:228:ILE:HD12	1.82	0.60
3:O:13:LEU:HD11	3:O:100:SER:HB2	1.82	0.60
4:P:56:LEU:CD2	4:P:61:ILE:HB	2.32	0.60
1:E:376:CYS:HB3	1:E:396:CYS:SG	2.42	0.59
1:E:82:TYR:CZ	1:E:86:ARG:HD2	2.36	0.59
3:G:85:LYS:HZ2	4:H:76:GLY:C	2.10	0.59
1:I:156:GLU:HG2	1:I:160:ILE:HD12	1.83	0.59
4:L:4:PHE:HB2	4:L:66:THR:HG22	1.85	0.59
1:A:261:MET:HA	1:A:261:MET:HE2	1.85	0.59
1:I:356:THR:OG1	1:I:357:GLN:N	2.36	0.58
1:E:323:GLY:HA3	1:E:329:TYR:CD2	2.38	0.58
3:O:85:LYS:NZ	4:P:76:GLY:O	2.37	0.58
1:M:261:MET:HB3	1:M:264:LEU:HD22	1.85	0.57
1:A:355:VAL:HG12	1:A:424:ASP:O	2.04	0.57
1:E:363:PTR:O2P	1:E:363:PTR:HE1	2.05	0.56
3:K:122:GLU:O	3:K:126:ILE:HG13	2.05	0.56
4:P:56:LEU:HD23	4:P:61:ILE:HB	1.86	0.56
1:A:323:GLY:HA3	1:A:329:TYR:CD2	2.40	0.56
3:K:43:SER:O	3:K:46:GLN:HG2	2.05	0.56
1:I:253:LEU:HD22	1:I:316:LEU:HD23	1.88	0.56
1:A:301:THR:HG22	1:A:305:ASN:H	1.71	0.55
1:I:49:THR:O	1:I:53:MET:HG3	2.06	0.55
3:C:13:LEU:HD21	3:C:100:SER:HB2	1.89	0.55
3:G:136:ARG:O	3:G:140:GLU:HG3	2.06	0.55
1:M:381:LYS:HD3	1:M:391:LEU:HB2	1.89	0.55
1:M:91:LYS:HE3	1:M:163:ASN:O	2.08	0.55
4:P:1:MET:N	4:P:17:VAL:O	2.39	0.54
1:M:376:CYS:HB3	1:M:396:CYS:SG	2.47	0.54
1:A:82:TYR:CZ	1:A:86:ARG:HD3	2.44	0.53
1:M:242:PRO:HD2	1:M:249:ASN:ND2	2.23	0.53
4:P:18:GLU:N	4:P:21:ASP:OD2	2.30	0.53
1:M:295:TRP:CD2	1:M:316:LEU:HD22	2.44	0.53
1:E:49:THR:HG22	1:E:115:MET:HE3	1.91	0.52
1:I:117:LYS:NZ	1:I:224:CYS:O	2.38	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:400:TRP:CE3	3:O:95:PRO:HG3	2.44	0.52
1:E:202:HIS:CE1	1:E:206:GLN:HG3	2.44	0.52
2:J:4:THR:HG22	2:J:5:ASN:O	2.09	0.52
1:E:239:LEU:HD13	1:E:287:LEU:HD11	1.92	0.52
4:L:5:VAL:HB	4:L:13:ILE:CD1	2.39	0.52
3:G:118:PRO:HB3	3:G:124:ALA:HB2	1.91	0.52
1:I:46:VAL:HG11	1:I:89:LEU:HD11	1.92	0.52
1:E:88:ILE:HG12	1:E:164:GLY:HA2	1.92	0.51
1:M:301:THR:HG22	1:M:305:ASN:N	2.22	0.51
1:I:409:PRO:HB3	3:K:95:PRO:HD2	1.91	0.51
3:K:85:LYS:HE3	4:L:76:GLY:C	2.34	0.51
1:E:82:TYR:OH	1:E:86:ARG:HD2	2.11	0.51
1:M:80:ASP:OD2	2:N:2:ARG:NH1	2.43	0.51
4:H:5:VAL:HG21	4:H:30:ILE:HD11	1.93	0.50
1:A:261:MET:HG3	1:A:284:ILE:HD12	1.93	0.50
1:I:75:LEU:O	1:I:79:PRO:HG2	2.11	0.50
1:I:372:LEU:HD11	1:I:377:ALA:C	2.37	0.50
1:A:49:THR:HG22	1:A:115:MET:CG	2.42	0.49
1:M:351:ASP:O	1:M:352:HIS:HB2	2.12	0.49
3:O:59:ASP:OD1	3:O:59:ASP:N	2.43	0.49
1:M:183:ARG:HG2	1:M:183:ARG:HH11	1.77	0.49
4:D:55:THR:HG22	4:D:58:ASP:CG	2.38	0.49
1:E:145:LYS:HE2	1:E:149:ILE:HD11	1.93	0.49
1:A:356:THR:HG23	1:A:359:GLN:H	1.77	0.49
1:A:330:LEU:O	1:A:338:ASN:HB2	2.13	0.48
1:I:53:MET:CE	1:I:78:LEU:HD22	2.43	0.48
1:A:204:VAL:HG12	1:A:205:HIS:CD2	2.48	0.48
1:E:220:ILE:HG12	1:E:228:ILE:HD12	1.95	0.48
1:E:400:TRP:CE3	3:G:95:PRO:HG3	2.49	0.48
1:I:355:VAL:HG12	1:I:424:ASP:O	2.14	0.48
3:C:64:PRO:O	8:C:201:HOH:O	2.20	0.48
3:O:143:GLN:HA	3:O:147:MET:HE3	1.96	0.47
1:A:400:TRP:CE3	3:C:95:PRO:HG3	2.48	0.47
4:H:55:THR:HG22	4:H:58:ASP:CG	2.39	0.47
1:M:160:ILE:C	1:M:162:PRO:HD3	2.39	0.47
1:M:273:LEU:HB3	1:M:306:ILE:HD12	1.96	0.47
4:L:55:THR:H	4:L:58:ASP:HB2	1.79	0.47
1:A:125:PHE:CE2	1:A:132:MET:HG2	2.50	0.47
1:A:385:ILE:HG23	1:A:415:ILE:HG23	1.96	0.47
4:H:62:GLN:O	4:H:65:SER:OG	2.33	0.47
1:I:43:ARG:NH2	1:I:98:LEU:HD22	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:136:ARG:O	3:C:140:GLU:HG3	2.15	0.47
4:L:56:LEU:HB3	4:L:61:ILE:HB	1.96	0.47
1:A:383:VAL:HB	1:A:394:THR:HG22	1.96	0.47
1:A:369:THR:HG23	1:A:372:LEU:HB2	1.96	0.47
1:A:173:ILE:HD11	1:A:230:VAL:HG23	1.96	0.46
1:A:82:TYR:CE2	1:A:86:ARG:HD3	2.49	0.46
1:A:327:GLY:HA2	1:A:330:LEU:HD21	1.97	0.46
1:A:328:PHE:CD2	2:B:11:PRO:HB2	2.50	0.46
1:M:295:TRP:CE2	1:M:316:LEU:HD22	2.51	0.46
1:E:312:HIS:C	1:E:314:LYS:H	2.23	0.46
3:G:55:HIS:HE1	1:M:68:LYS:HG2	1.80	0.46
4:H:22:THR:HG22	4:H:25:ASN:HB2	1.97	0.46
1:A:128:GLY:HA3	1:A:132:MET:CE	2.46	0.46
4:L:13:ILE:HD12	4:L:13:ILE:C	2.40	0.45
1:M:362:LEU:H	1:M:362:LEU:HD12	1.82	0.45
1:M:403:SER:O	3:O:63:LYS:NZ	2.48	0.45
3:C:60:TYR:CD1	3:C:61:PRO:HA	2.52	0.45
1:I:235:ILE:HD13	1:I:292:LEU:HB3	1.99	0.45
1:A:397:LEU:HD11	1:A:415:ILE:HD13	1.99	0.45
1:I:371:GLN:HG3	1:I:380:ASP:OD1	2.16	0.44
4:L:22:THR:HG23	4:L:25:ASN:H	1.82	0.44
4:D:25:ASN:O	4:D:29:LYS:HG3	2.18	0.44
4:H:61:ILE:HD12	4:H:67:LEU:HD21	1.99	0.44
1:I:53:MET:HE2	1:I:53:MET:HB3	1.64	0.44
2:F:3:ASN:HD21	3:O:66:LYS:CB	2.31	0.44
4:L:50:LEU:HD11	4:L:67:LEU:HD22	1.99	0.44
1:M:92:TYR:CD2	1:M:101:LEU:HB2	2.52	0.44
1:E:49:THR:O	1:E:53:MET:HG3	2.18	0.44
1:A:403:SER:O	1:A:404:ASP:HB2	2.18	0.44
1:E:80:ASP:CG	2:F:2:ARG:HH22	2.25	0.44
4:L:39:ASP:OD1	4:L:40:GLN:HG2	2.18	0.44
1:A:295:TRP:CD2	1:A:316:LEU:HD22	2.53	0.43
4:H:52:ASP:N	4:H:52:ASP:OD1	2.51	0.43
1:E:295:TRP:CD2	1:E:316:LEU:HD22	2.53	0.43
1:M:183:ARG:HG2	1:M:183:ARG:NH1	2.33	0.43
1:A:49:THR:HG21	1:A:111:ILE:HG23	2.00	0.43
3:C:108:SER:OG	4:D:42:ARG:NH1	2.52	0.43
1:M:173:ILE:HB	1:M:179:ALA:HB2	2.00	0.43
4:P:1:MET:HG2	4:P:2:GLN:N	2.34	0.43
3:K:72:ARG:HD2	3:K:145:TYR:CE1	2.53	0.43
3:G:99:ILE:HD12	3:G:99:ILE:HA	1.78	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:99:ILE:HD12	3:K:99:ILE:HA	1.85	0.42
3:C:85:LYS:NZ	4:D:76:GLY:C	2.73	0.42
4:L:3:ILE:C	4:L:4:PHE:HD1	2.27	0.42
1:E:61:GLN:HG2	3:O:70:THR:O	2.19	0.42
1:A:216:LEU:O	1:A:220:ILE:HG22	2.20	0.42
3:C:51:PHE:CD2	1:I:63:PRO:HB3	2.55	0.42
4:D:55:THR:HG22	4:D:58:ASP:OD2	2.20	0.42
3:G:144:LYS:HE3	3:G:145:TYR:CZ	2.55	0.42
1:I:372:LEU:O	1:I:374:LYS:NZ	2.34	0.42
3:K:117:ASP:O	4:L:76:GLY:C	2.62	0.42
1:A:400:TRP:CE2	1:A:405:GLY:HA3	2.55	0.42
3:G:126:ILE:HG22	3:G:134:TYR:HB2	2.02	0.42
4:P:56:LEU:HD21	4:P:61:ILE:HB	2.01	0.42
1:E:194:TRP:CZ2	1:E:217:LYS:HB2	2.55	0.42
1:E:363:PTR:HE2	1:E:370:PHE:HD2	1.85	0.42
1:M:409:PRO:HB3	3:O:95:PRO:HD2	2.01	0.42
4:P:5:VAL:HG21	4:P:30:ILE:HD11	2.02	0.42
3:C:116:ASP:OD1	3:C:128:LYS:NZ	2.54	0.41
1:I:217:LYS:NZ	1:I:226:ASP:HA	2.35	0.41
4:L:7:THR:OG1	4:L:11:LYS:HB2	2.20	0.41
1:M:175:LYS:HE2	1:M:241:GLN:OE1	2.20	0.41
1:M:338:ASN:HD22	1:M:338:ASN:HA	1.70	0.41
1:E:42:ASP:O	1:E:46:VAL:HG23	2.20	0.41
1:E:411:CYS:O	4:H:40:GLN:HG3	2.21	0.41
1:M:320:LEU:HD23	1:M:320:LEU:HA	1.89	0.41
4:P:36:ILE:HG13	4:P:37:PRO:HD2	2.01	0.41
1:A:132:MET:HE2	1:A:132:MET:HB2	1.93	0.41
1:A:383:VAL:HB	1:A:394:THR:CG2	2.51	0.41
1:E:80:ASP:OD1	2:F:2:ARG:NH2	2.53	0.41
1:E:282:SER:HA	1:E:331:TYR:HB2	2.02	0.41
1:I:295:TRP:CE2	1:I:316:LEU:HD22	2.56	0.41
1:I:106:TYR:HE2	1:I:157:ILE:HD12	1.85	0.41
4:L:23:ILE:HD13	4:L:23:ILE:HA	1.88	0.41
1:A:363:PTR:OH	4:D:11:LYS:HE2	2.21	0.41
1:I:114:LEU:HA	1:I:114:LEU:HD23	1.76	0.41
1:M:78:LEU:HD23	1:M:78:LEU:HA	1.89	0.41
3:O:57:PRO:HD2	3:O:60:TYR:HB2	2.03	0.41
1:E:115:MET:HE3	1:E:115:MET:HB2	1.93	0.41
1:I:394:THR:O	1:I:398:THR:HG23	2.21	0.41
1:A:78:LEU:HD23	1:A:78:LEU:HA	1.87	0.40
1:I:166:PHE:O	1:I:167:GLN:NE2	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:369:THR:CG2	1:A:372:LEU:HB2	2.51	0.40
1:M:60:CYS:HA	1:M:65:LEU:CD1	2.51	0.40
1:M:172:ARG:NH2	1:M:388:CYS:HA	2.37	0.40
4:D:26:VAL:HG21	4:D:56:LEU:HD21	2.02	0.40
1:I:95:ASN:OD1	3:O:42:ASP:HA	2.22	0.40
3:K:43:SER:HB2	3:K:111:CYS:SG	2.61	0.40
4:L:1:MET:HE2	4:L:19:PRO:HD3	2.04	0.40
1:M:358:GLU:O	1:M:362:LEU:HD12	2.20	0.40
3:K:38:MET:HE2	3:K:38:MET:HB3	2.00	0.40
3:K:101:LYS:HD2	4:L:70:VAL:HG12	2.03	0.40
3:O:137:ILE:HA	3:O:140:GLU:HG3	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	383/392 (98%)	374 (98%)	9 (2%)	0	100	100
1	E	389/392 (99%)	376 (97%)	13 (3%)	0	100	100
1	I	375/392 (96%)	361 (96%)	13 (4%)	1 (0%)	36	43
1	M	379/392 (97%)	363 (96%)	14 (4%)	2 (0%)	24	27
2	B	9/12 (75%)	9 (100%)	0	0	100	100
2	F	9/12 (75%)	9 (100%)	0	0	100	100
2	J	9/12 (75%)	9 (100%)	0	0	100	100
2	N	9/12 (75%)	9 (100%)	0	0	100	100
3	C	146/147 (99%)	144 (99%)	2 (1%)	0	100	100
3	G	145/147 (99%)	140 (97%)	5 (3%)	0	100	100
3	K	145/147 (99%)	140 (97%)	5 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	O	145/147 (99%)	138 (95%)	7 (5%)	0	100	100
4	D	75/81 (93%)	72 (96%)	3 (4%)	0	100	100
4	H	75/81 (93%)	75 (100%)	0	0	100	100
4	L	75/81 (93%)	74 (99%)	1 (1%)	0	100	100
4	P	75/81 (93%)	74 (99%)	1 (1%)	0	100	100
All	All	2443/2528 (97%)	2367 (97%)	73 (3%)	3 (0%)	48	59

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	I	93	ASP
1	M	93	ASP
1	M	352	HIS

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	305/350 (87%)	299 (98%)	6 (2%)	48	63
1	E	322/350 (92%)	317 (98%)	5 (2%)	55	70
1	I	301/350 (86%)	288 (96%)	13 (4%)	26	34
1	M	309/350 (88%)	304 (98%)	5 (2%)	55	70
2	B	7/10 (70%)	7 (100%)	0	100	100
2	F	7/10 (70%)	7 (100%)	0	100	100
2	J	7/10 (70%)	7 (100%)	0	100	100
2	N	8/10 (80%)	8 (100%)	0	100	100
3	C	123/131 (94%)	122 (99%)	1 (1%)	73	84
3	G	129/131 (98%)	128 (99%)	1 (1%)	73	84
3	K	121/131 (92%)	119 (98%)	2 (2%)	53	68
3	O	119/131 (91%)	116 (98%)	3 (2%)	42	55

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	D	60/70 (86%)	59 (98%)	1 (2%)	53 68
4	H	66/70 (94%)	65 (98%)	1 (2%)	57 72
4	L	58/70 (83%)	56 (97%)	2 (3%)	32 43
4	P	57/70 (81%)	55 (96%)	2 (4%)	32 42
All	All	1999/2244 (89%)	1957 (98%)	42 (2%)	47 61

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	86	ARG
1	A	113	SER
1	A	251	ASN
1	A	326	GLU
1	A	345	CYS
1	A	355	VAL
3	C	83	SER
4	D	49	GLN
1	E	74	ILE
1	E	218	SER
1	E	278	THR
1	E	279	LYS
1	E	355	VAL
3	G	104	LEU
4	H	65	SER
1	I	38	GLN
1	I	85	LEU
1	I	93	ASP
1	I	111	ILE
1	I	114	LEU
1	I	264	LEU
1	I	287	LEU
1	I	352	HIS
1	I	355	VAL
1	I	356	THR
1	I	368	SER
1	I	375	ILE
1	I	398	THR
3	K	102	VAL
3	K	104	LEU
4	L	26	VAL
4	L	49	GLN

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Mol	Chain	Res	Type
1	M	49	THR
1	M	58	ARG
1	M	208	SER
1	M	264	LEU
1	M	336	SER
3	O	83	SER
3	O	91	SER
3	O	104	LEU
4	P	0	SER
4	P	58	ASP

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	83	GLN
1	A	165	GLN
1	A	170	ASN
1	A	205	HIS
1	A	294	GLN
1	A	401	GLN
3	C	46	GLN
1	E	241	GLN
1	E	274	GLN
1	E	350	HIS
1	E	352	HIS
2	F	3	ASN
3	G	7	HIS
3	G	143	GLN
2	J	3	ASN
4	L	62	GLN
1	M	165	GLN
1	M	338	ASN
1	M	379	ASN
1	M	401	GLN
3	O	46	GLN
4	P	25	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

8 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	PTR	B	7	2	15,16,17	1.22	2 (13%)	17,22,24	0.63	0
1	PTR	I	363	1	15,16,17	1.16	1 (6%)	17,22,24	0.70	0
1	PTR	A	363	1	15,16,17	1.11	1 (6%)	17,22,24	1.00	1 (5%)
2	PTR	N	7	2	15,16,17	1.20	1 (6%)	17,22,24	0.57	0
2	PTR	J	7	2	15,16,17	1.28	1 (6%)	17,22,24	0.65	0
1	PTR	E	363	1	15,16,17	1.05	1 (6%)	17,22,24	0.73	0
1	PTR	M	363	1	15,16,17	1.29	1 (6%)	17,22,24	0.63	0
2	PTR	F	7	2	15,16,17	1.32	1 (6%)	17,22,24	0.86	1 (5%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PTR	B	7	2	-	1/10/11/13	0/1/1/1
1	PTR	I	363	1	-	0/10/11/13	0/1/1/1
1	PTR	A	363	1	-	0/10/11/13	0/1/1/1
2	PTR	N	7	2	-	0/10/11/13	0/1/1/1
2	PTR	J	7	2	-	0/10/11/13	0/1/1/1
1	PTR	E	363	1	-	0/10/11/13	0/1/1/1
1	PTR	M	363	1	-	0/10/11/13	0/1/1/1
2	PTR	F	7	2	-	0/10/11/13	0/1/1/1

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	M	363	PTR	OH-CZ	-4.62	1.30	1.40
2	F	7	PTR	OH-CZ	-4.55	1.30	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	J	7	PTR	OH-CZ	-4.24	1.31	1.40
1	I	363	PTR	OH-CZ	-4.23	1.31	1.40
2	N	7	PTR	OH-CZ	-4.15	1.31	1.40
1	A	363	PTR	OH-CZ	-3.74	1.32	1.40
1	E	363	PTR	OH-CZ	-3.66	1.32	1.40
2	B	7	PTR	OH-CZ	-3.48	1.32	1.40
2	B	7	PTR	P-OH	2.12	1.63	1.59

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	7	PTR	O3P-P-OH	2.71	113.32	105.32
1	A	363	PTR	O2P-P-OH	2.46	112.60	105.32

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	7	PTR	CE1-CZ-OH-P

There are no ring outliers.

3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	I	363	PTR	1	0
1	A	363	PTR	2	0
1	E	363	PTR	2	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 14 ligands modelled in this entry, 12 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
7	GOL	G	201	-	5,5,5	1.32	1 (20%)	5,5,5	0.84	0
7	GOL	E	504	-	5,5,5	1.03	0	5,5,5	1.53	1 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	GOL	G	201	-	-	2/4/4/4	-
7	GOL	E	504	-	-	4/4/4/4	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	201	GOL	O2-C2	-2.15	1.37	1.43

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	E	504	GOL	C3-C2-C1	-2.66	102.04	111.80

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	E	504	GOL	C1-C2-C3-O3
7	E	504	GOL	O2-C2-C3-O3
7	E	504	GOL	O1-C1-C2-C3
7	G	201	GOL	C1-C2-C3-O3
7	E	504	GOL	O1-C1-C2-O2
7	G	201	GOL	O1-C1-C2-O2

There are no ring outliers.

No monomer is involved in short contacts.

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	386/392 (98%)	0.03	11 (2%) 55 61	28, 47, 77, 115	1 (0%)
1	E	388/392 (98%)	-0.07	9 (2%) 61 66	26, 46, 72, 98	3 (0%)
1	I	381/392 (97%)	0.21	21 (5%) 30 36	34, 54, 83, 112	0
1	M	382/392 (97%)	-0.01	12 (3%) 51 58	27, 46, 75, 103	1 (0%)
2	B	11/12 (91%)	0.88	2 (18%) 3 3	44, 57, 75, 88	0
2	F	11/12 (91%)	0.62	2 (18%) 3 3	41, 47, 71, 73	0
2	J	11/12 (91%)	0.91	2 (18%) 3 3	44, 56, 71, 84	0
2	N	11/12 (91%)	0.16	1 (9%) 15 17	36, 45, 57, 67	0
3	C	147/147 (100%)	-0.21	1 (0%) 84 87	28, 41, 64, 78	1 (0%)
3	G	147/147 (100%)	-0.34	0 100 100	30, 36, 54, 64	0
3	K	147/147 (100%)	0.12	4 (2%) 56 63	36, 51, 77, 100	0
3	O	147/147 (100%)	0.17	2 (1%) 73 78	38, 55, 79, 85	0
4	D	77/81 (95%)	-0.01	1 (1%) 75 79	35, 50, 72, 85	0
4	H	77/81 (95%)	-0.26	0 100 100	30, 45, 64, 72	0
4	L	77/81 (95%)	0.37	3 (3%) 43 49	39, 59, 86, 87	0
4	P	77/81 (95%)	0.31	1 (1%) 75 79	41, 59, 85, 88	0
All	All	2477/2528 (97%)	0.03	72 (2%) 53 60	26, 48, 79, 115	6 (0%)

All (72) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	347	PRO	5.3
1	M	345	CYS	5.2
1	M	351	ASP	4.6
1	I	343	GLY	4.4
1	I	348	THR	4.3

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Mol	Chain	Res	Type	RSRZ
1	I	426	PHE	3.8
1	A	351	ASP	3.7
1	E	426	PHE	3.7
1	I	351	ASP	3.7
1	M	357	GLN	3.7
2	F	12	THR	3.6
2	J	12	THR	3.6
1	A	313	ASN	3.6
2	F	1	ILE	3.4
1	E	348	THR	3.4
1	A	346	GLU	3.4
4	L	0	SER	3.4
4	D	0	SER	3.3
2	B	12	THR	3.3
1	M	356	THR	3.2
1	A	426	PHE	3.1
1	I	349	PRO	3.0
1	I	356	THR	3.0
1	I	341	LEU	3.0
3	K	20	GLN	3.0
1	I	39	ALA	2.9
2	B	1	ILE	2.9
1	M	364	CYS	2.8
1	M	341	LEU	2.8
1	I	220	ILE	2.7
2	N	12	THR	2.7
1	M	359	GLN	2.7
1	A	37	SER	2.7
1	E	349	PRO	2.6
3	K	1	MET	2.6
1	E	41	ALA	2.6
1	A	364	CYS	2.5
3	K	19	ALA	2.5
1	M	425	PRO	2.5
2	J	1	ILE	2.4
1	E	351	ASP	2.4
1	I	342	THR	2.4
3	C	1	MET	2.4
1	I	337	TYR	2.4
1	M	313	ASN	2.4
1	A	353	ILE	2.4
1	A	317	PHE	2.4

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Mol	Chain	Res	Type	RSRZ
3	O	1	MET	2.4
1	I	315	PRO	2.3
4	L	4	PHE	2.3
1	M	344	LEU	2.3
1	I	207	ILE	2.3
1	M	360	PHE	2.3
1	A	315	PRO	2.3
4	L	22	THR	2.3
4	P	20	SER	2.2
1	E	425	PRO	2.2
3	K	17	PRO	2.2
1	I	358	GLU	2.2
1	I	359	GLN	2.2
1	E	39	ALA	2.2
1	E	347	PRO	2.1
1	I	208	SER	2.1
1	M	39	ALA	2.1
1	I	354	LYS	2.1
1	I	303	ASP	2.1
1	I	424	ASP	2.1
1	I	336	SER	2.1
3	O	2	ALA	2.0
1	E	40	ALA	2.0
1	A	312	HIS	2.0
1	I	364	CYS	2.0

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	PTR	A	363	16/17	0.94	0.11	56,78,82,82	0
1	PTR	E	363	16/17	0.95	0.08	52,64,72,73	0
1	PTR	I	363	16/17	0.95	0.08	57,68,74,75	0
1	PTR	M	363	16/17	0.95	0.09	54,69,84,84	0
2	PTR	J	7	16/17	0.97	0.07	41,44,48,49	0
2	PTR	B	7	16/17	0.97	0.07	39,40,49,50	0
2	PTR	F	7	16/17	0.98	0.05	36,38,42,43	0
2	PTR	N	7	16/17	0.98	0.06	35,38,40,41	0

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	GOL	E	504	6/6	0.89	0.14	41,48,50,52	0
7	GOL	G	201	6/6	0.94	0.14	41,46,49,52	0
6	CA	A	503	1/1	0.96	0.18	53,53,53,53	0
6	CA	I	503	1/1	0.96	0.17	68,68,68,68	0
6	CA	M	503	1/1	0.98	0.14	59,59,59,59	0
5	ZN	M	502	1/1	0.99	0.02	41,41,41,41	0
5	ZN	A	501	1/1	0.99	0.03	57,57,57,57	0
6	CA	E	503	1/1	0.99	0.12	56,56,56,56	0
5	ZN	A	502	1/1	0.99	0.04	39,39,39,39	0
5	ZN	E	501	1/1	0.99	0.02	47,47,47,47	0
5	ZN	I	501	1/1	0.99	0.03	56,56,56,56	0
5	ZN	M	501	1/1	0.99	0.03	53,53,53,53	0
5	ZN	E	502	1/1	1.00	0.02	39,39,39,39	0
5	ZN	I	502	1/1	1.00	0.03	45,45,45,45	0

6.5 Other polymers (i)

There are no such residues in this entry.