



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 21, 2025 – 12:30 PM JST

PDB ID : 8K6I
Title : LnaB-Actin-PRU_b ternary complex
Authors : Chen, T.T.; Ouyang, S.Y.
Deposited on : 2023-07-25
Resolution : 3.19 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.21
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.004 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

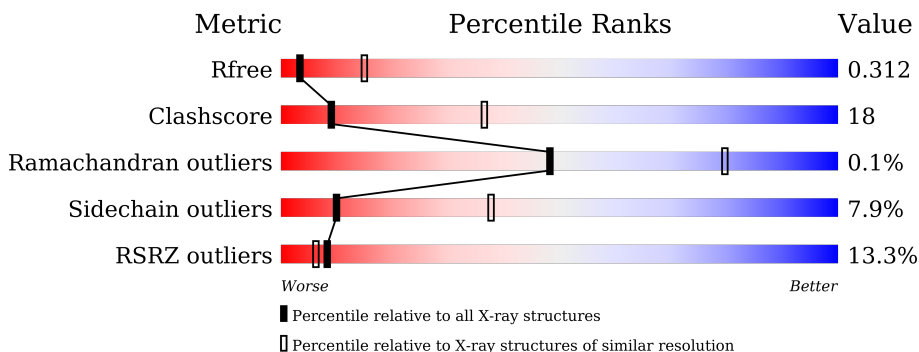
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.19 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}	164625	1370 (3.20-3.20)
Clashscore	180529	1497 (3.20-3.20)
Ramachandran outliers	177936	1479 (3.20-3.20)
Sidechain outliers	177891	1478 (3.20-3.20)
RSRZ outliers	164620	1371 (3.20-3.20)

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	375	 8% 64% 31% 6%
1	B	375	 12% 69% 27% 6%
2	C	352	 14% 58% 32% 6%
2	D	352	 22% 56% 38% 6%
3	E	78	 % 58% 37% 5%
3	F	78	 4% 64% 32% 6%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 12512 atoms, of which 9 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 Actin gamma 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	366	Total	C	N	O	S	0	0	0
			2855	1812	479	543	21			
1	B	371	Total	C	N	O	S	0	0	0
			2889	1832	486	549	22			

- Molecule 2 is a protein called Legionella effector LnaB.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	331	Total	C	N	O	S	0	0	0
			2687	1715	440	527	5			
2	D	345	Total	C	N	O	S	0	0	0
			2799	1786	459	549	5			

- Molecule 3 is a protein called ubiquitin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	78	Total	C	N	O	S	0	0	0
			611	383	107	120	1			
3	F	77	Total	C	N	O	S	0	0	0
			608	381	106	120	1			

There are 4 discrepancies between the modelled and reference sequences:

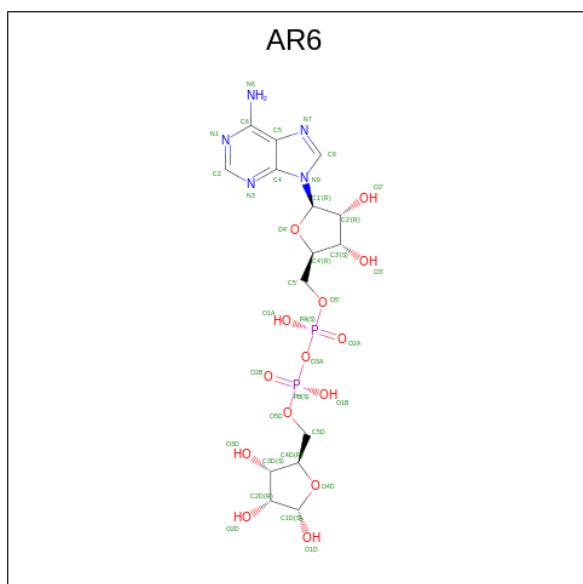
Chain	Residue	Modelled	Actual	Comment	Reference
E	-1	GLY	-	expression tag	UNP P0CG48
E	0	SER	-	expression tag	UNP P0CG48
F	-1	GLY	-	expression tag	UNP P0CG48
F	0	SER	-	expression tag	UNP P0CG48

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	O	P	0	0
			5	4	1		

- Molecule 5 is [(2R,3S,4R,5R)-5-(6-AMINOPURIN-9-YL)-3,4-DIHYDROXY-OXOLAN-2-YL]METHYL [HYDROXY-[(2R,3S,4R,5S)-3,4,5-TRIHYDROXYOXOLAN-2-YL]METHOXY]PHOSPHORYL] HYDROGEN PHOSPHATE (three-letter code: AR6) (formula: C₁₅H₂₃N₅O₁₄P₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	D	1	Total	C	H	O	P	0	0
			23	5	9	8	1		

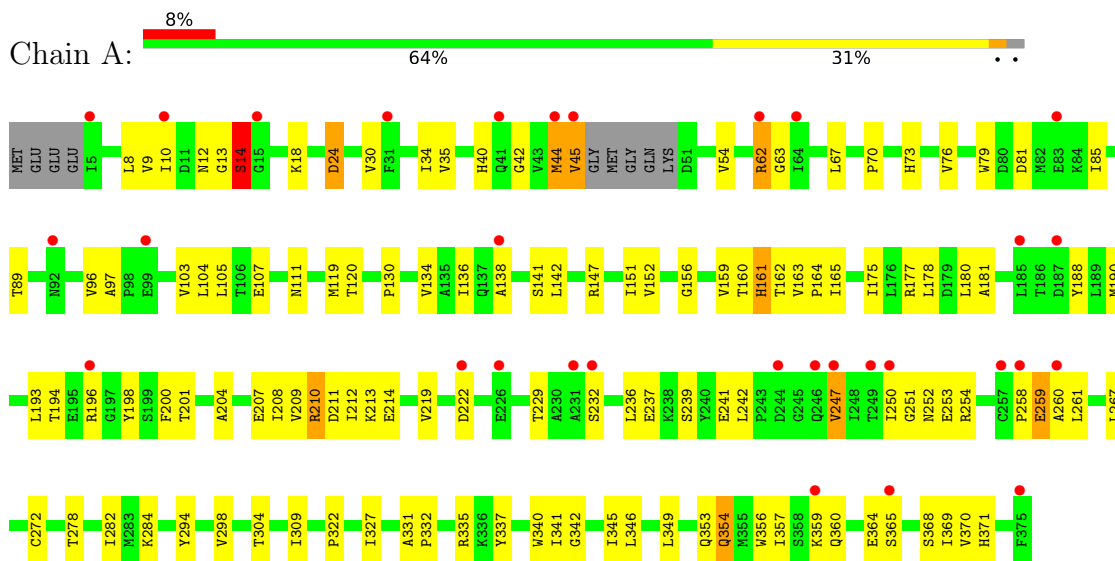
- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	9	Total O 9 9	0	0
6	B	10	Total O 10 10	0	0
6	C	5	Total O 5 5	0	0
6	D	9	Total O 9 9	0	0
6	F	2	Total O 2 2	0	0

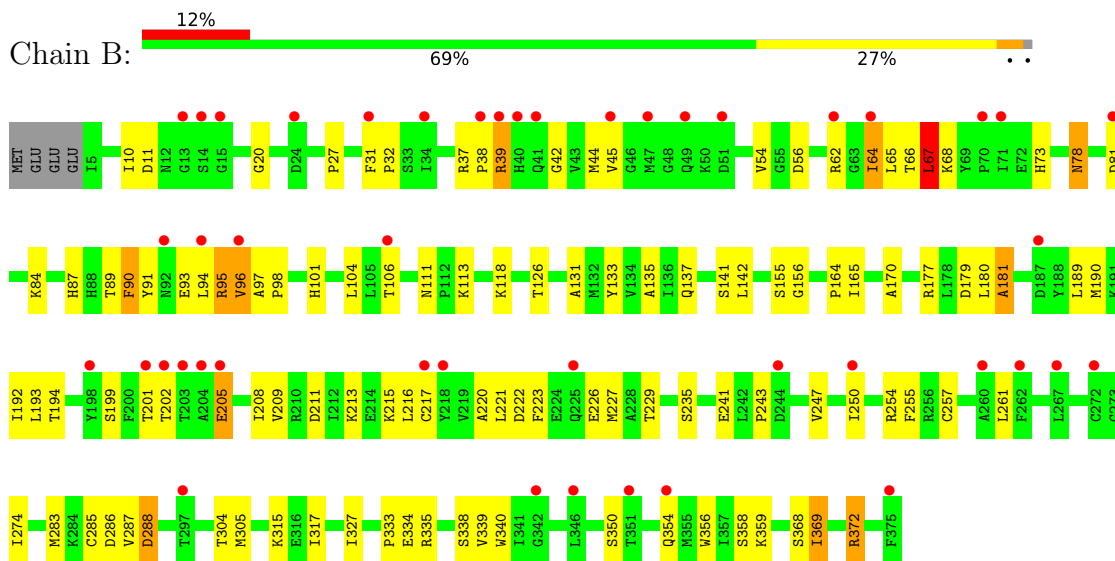
3 Residue-property plots i

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.

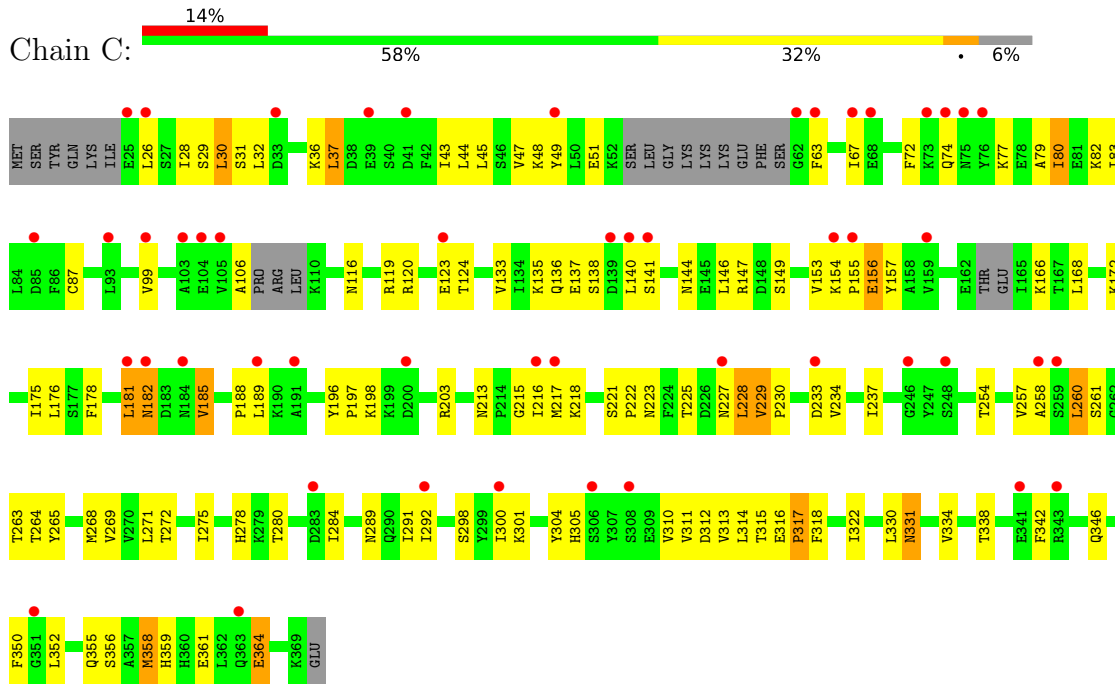
- Molecule 1: Actin gamma 1



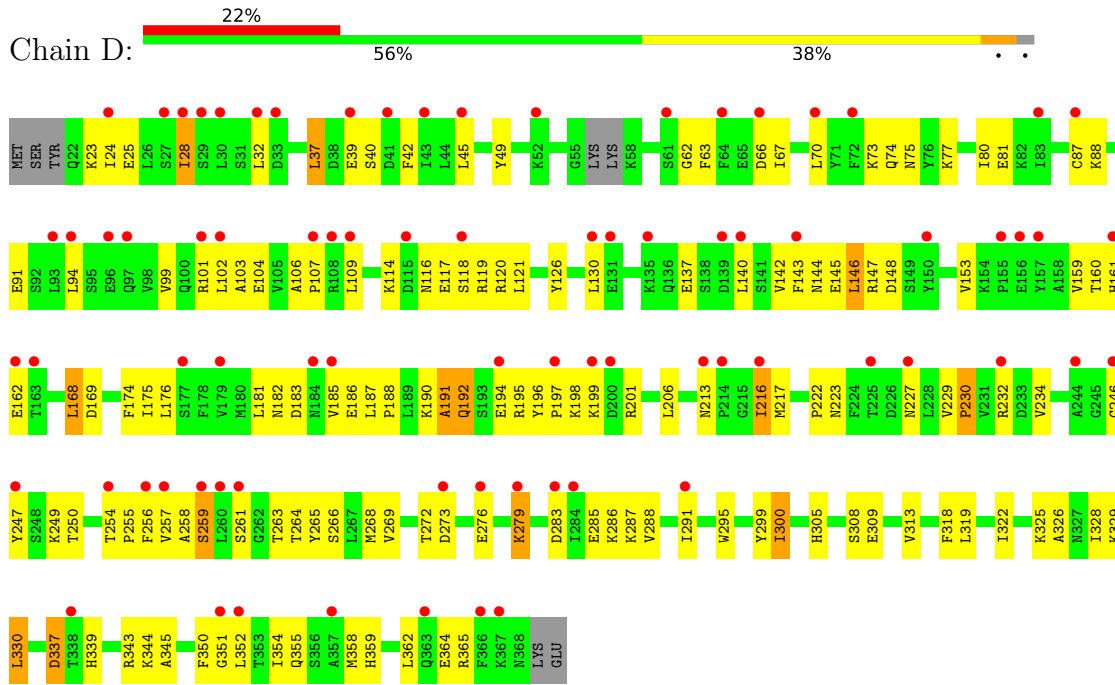
- Molecule 1: Actin gamma 1



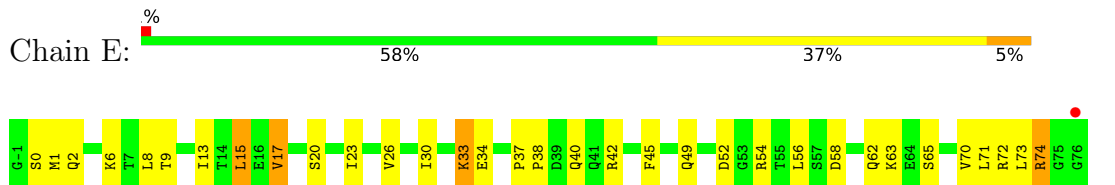
- Molecule 2: Legionella effector LnaB



• Molecule 2: Legionella effector LnaB



• Molecule 3: ubiquitin



• Molecule 3: ubiquitin



4 Data and refinement statistics

Property	Value	Source
Space group	P 2 21 21	Depositor
Cell constants a, b, c, α , β , γ	57.38Å 165.31Å 224.65Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.33 – 3.19 41.33 – 3.19	Depositor EDS
% Data completeness (in resolution range)	91.2 (41.33-3.19) 91.3 (41.33-3.19)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.32 (at 3.18Å)	Xtrriage
Refinement program	PHENIX (1.19.2_4158: ???)	Depositor
R, R_{free}	0.292 , 0.315 0.291 , 0.312	Depositor DCC
R_{free} test set	4822 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	32.7	Xtrriage
Anisotropy	0.690	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 37.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.82	EDS
Total number of atoms	12512	wwPDB-VP
Average B, all atoms (Å ²)	24.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 52.07 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.1223e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: AR6, PO4

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	1.17	0/2917	1.04	7/3952 (0.2%)
1	B	1.13	0/2952	1.03	4/3998 (0.1%)
2	C	1.03	0/2737	1.11	18/3692 (0.5%)
2	D	1.01	2/2853 (0.1%)	1.06	11/3851 (0.3%)
3	E	1.10	0/617	0.95	3/829 (0.4%)
3	F	1.01	0/614	0.97	0/824
All	All	1.09	2/12690 (0.0%)	1.05	43/17146 (0.3%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	230	PRO	N-CD	-6.90	1.38	1.47
2	D	40	SER	CA-CB	-5.17	1.45	1.52

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	181	LEU	N-CA-C	-8.83	87.16	111.00
2	C	137	GLU	N-CA-C	-8.45	88.19	111.00
2	C	228	LEU	CA-CB-CG	8.40	134.61	115.30
2	C	258	ALA	N-CA-C	-8.07	89.21	111.00
1	A	45	VAL	N-CA-CB	7.84	128.76	111.50
2	C	37	LEU	CA-CB-CG	7.52	132.60	115.30
2	D	191	ALA	N-CA-C	-7.41	91.01	111.00
1	B	95	ARG	N-CA-C	7.40	130.98	111.00
2	C	260	LEU	N-CA-C	-7.37	91.09	111.00
1	A	42	GLY	N-CA-C	-7.17	95.18	113.10
1	A	284	LYS	N-CA-C	-7.10	91.82	111.00
2	D	217	MET	N-CA-C	-6.84	92.54	111.00
1	A	24	ASP	N-CA-C	6.76	129.25	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	216	ILE	N-CA-C	-6.58	93.25	111.00
3	E	45	PHE	N-CA-C	-6.57	93.26	111.00
1	A	14	SER	N-CA-C	-6.28	94.06	111.00
2	D	259	SER	N-CA-C	6.24	127.85	111.00
2	D	337	ASP	CB-CA-C	-6.11	98.18	110.40
3	E	58	ASP	N-CA-C	-6.03	94.71	111.00
2	C	182	ASN	CB-CA-C	-6.03	98.35	110.40
2	C	30	LEU	CA-CB-CG	5.96	129.01	115.30
2	C	331	ASN	N-CA-C	-5.92	95.03	111.00
1	B	67	LEU	N-CA-C	5.62	126.18	111.00
3	E	74	ARG	N-CA-C	-5.61	95.86	111.00
2	C	138	SER	N-CA-C	5.60	126.11	111.00
2	C	298	SER	N-CA-CB	-5.56	102.16	110.50
2	D	116	ASN	CB-CA-C	-5.54	99.32	110.40
2	D	146	LEU	N-CA-C	-5.52	96.09	111.00
2	D	114	LYS	N-CA-C	-5.51	96.11	111.00
1	B	180	LEU	N-CA-C	-5.47	96.22	111.00
1	B	44	MET	N-CA-C	-5.41	96.39	111.00
2	D	345	ALA	N-CA-C	-5.32	96.64	111.00
2	C	146	LEU	CA-CB-CG	5.32	127.53	115.30
2	C	263	THR	N-CA-C	-5.29	96.70	111.00
2	D	118	SER	N-CA-C	-5.27	96.77	111.00
2	D	192	GLN	CB-CA-C	5.24	120.87	110.40
1	A	111	ASN	C-N-CD	5.21	139.34	128.40
2	C	156	GLU	N-CA-CB	-5.21	101.23	110.60
2	C	213	ASN	N-CA-C	-5.20	96.97	111.00
1	A	63	GLY	N-CA-C	-5.18	100.15	113.10
2	C	261	SER	CB-CA-C	-5.11	100.40	110.10
2	C	364	GLU	N-CA-C	-5.07	97.31	111.00
2	D	62	GLY	N-CA-C	-5.04	100.49	113.10

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	2855	0	2826	93	0
1	B	2889	0	2863	80	0
2	C	2687	0	2679	106	0
2	D	2799	0	2796	155	0
3	E	611	0	637	14	0
3	F	608	0	634	18	0
4	C	5	0	0	0	0
5	D	14	9	9	0	0
6	A	9	0	0	0	0
6	B	10	0	0	0	0
6	C	5	0	0	0	0
6	D	9	0	0	0	0
6	F	2	0	0	0	0
All	All	12503	9	12444	450	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 18.

All (450) 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:B:354:GLN:CG	2:D:350:PHE:HZ	1.33	1.39
1:B:354:GLN:HG2	2:D:350:PHE:CZ	1.63	1.30
2:D:229:VAL:HG22	2:D:230:PRO:CD	1.67	1.24
1:B:354:GLN:CG	2:D:350:PHE:CZ	2.24	1.19
2:C:182:ASN:ND2	3:F:70:VAL:HG21	1.60	1.15
2:D:272:THR:HG23	2:D:322:ILE:CD1	1.77	1.14
2:D:229:VAL:HG22	2:D:230:PRO:HD2	1.16	1.09
1:B:221:LEU:HD11	1:B:315:LYS:HG3	1.33	1.05
2:D:160:THR:HG23	2:D:162:GLU:H	1.21	1.05
2:C:182:ASN:HD21	3:F:70:VAL:HG21	0.88	1.03
1:B:354:GLN:HG3	2:D:350:PHE:HZ	1.21	1.03
2:D:153:VAL:CG1	2:D:269:VAL:HG12	1.86	1.03
2:D:272:THR:HG23	2:D:322:ILE:HD12	1.36	1.03
2:C:229:VAL:HG22	2:C:230:PRO:HD2	1.39	1.02
1:A:353:GLN:O	1:A:356:TRP:HD1	1.41	1.02
1:A:332:PRO:O	1:A:335:ARG:HG3	1.60	1.00
2:D:94:LEU:HD21	2:D:99:VAL:HG13	1.40	1.00
1:B:354:GLN:HG2	2:D:350:PHE:HZ	0.99	1.00
2:D:261:SER:OG	2:D:264:THR:HG23	1.62	0.99
1:B:220:ALA:HB1	1:B:226:GLU:HG3	1.44	0.99
2:D:153:VAL:HG11	2:D:269:VAL:HG12	1.47	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:229:VAL:CG2	2:D:230:PRO:CD	2.42	0.97
2:D:213:ASN:ND2	2:D:223:ASN:HB2	1.79	0.95
2:C:28:ILE:HD13	2:C:350:PHE:HE1	1.32	0.94
1:A:250:ILE:HG22	1:A:254:ARG:HG3	1.50	0.92
2:C:331:ASN:OD1	2:C:331:ASN:O	1.89	0.90
2:C:172:LYS:HZ2	2:C:301:LYS:HE3	1.41	0.86
2:C:80:ILE:HD11	2:C:106:ALA:HB1	1.56	0.86
2:D:185:VAL:HG11	2:D:269:VAL:HG11	1.57	0.85
2:C:140:LEU:HD12	2:C:141:SER:OG	1.77	0.85
2:D:185:VAL:CG1	2:D:269:VAL:HG11	2.06	0.85
2:D:199:LYS:NZ	2:D:201:ARG:HB3	1.91	0.85
2:C:172:LYS:NZ	2:C:301:LYS:HE3	1.92	0.84
2:C:313:VAL:HG23	2:C:314:LEU:HD12	1.59	0.84
1:B:354:GLN:HG2	2:D:350:PHE:CE1	2.12	0.84
2:D:186:GLU:HG3	2:D:190:LYS:HE3	1.60	0.83
1:B:286:ASP:OD1	1:B:287:VAL:N	2.12	0.82
2:C:28:ILE:HG21	2:C:49:TYR:HB2	1.61	0.82
2:C:156:GLU:HG2	2:C:157:TYR:N	1.94	0.81
2:D:181:LEU:HD22	2:D:266:SER:HB3	1.61	0.81
2:C:87:CYS:SG	2:C:99:VAL:HG22	2.21	0.81
2:D:87:CYS:O	2:D:91:GLU:HG3	1.81	0.80
2:D:159:VAL:O	2:D:160:THR:HG22	1.82	0.80
2:D:94:LEU:HD21	2:D:99:VAL:CG1	2.10	0.80
2:D:153:VAL:HG22	2:D:273:ASP:OD2	1.82	0.79
2:C:28:ILE:HD13	2:C:350:PHE:CE1	2.15	0.79
2:D:263:THR:HG22	2:D:263:THR:O	1.80	0.79
2:D:199:LYS:HZ3	2:D:201:ARG:HB3	1.45	0.79
1:A:103:VAL:O	1:A:356:TRP:HZ3	1.66	0.78
1:B:213:LYS:HA	1:B:217:CYS:SG	2.24	0.77
1:B:354:GLN:HG3	2:D:350:PHE:CZ	2.08	0.77
1:B:286:ASP:OD1	1:B:287:VAL:HG22	1.84	0.77
1:B:227:MET:SD	1:B:255:PHE:HE1	2.09	0.76
2:D:229:VAL:CG2	2:D:230:PRO:HD3	2.16	0.76
1:A:353:GLN:O	1:A:356:TRP:CD1	2.34	0.76
1:A:44:MET:O	1:A:45:VAL:HG23	1.84	0.75
2:D:87:CYS:O	2:D:91:GLU:CG	2.35	0.75
2:C:140:LEU:CD1	2:C:141:SER:OG	2.35	0.75
2:D:222:PRO:HG2	2:D:352:LEU:HD21	1.68	0.74
2:C:257:VAL:CG2	2:C:305:HIS:HA	2.18	0.74
2:D:213:ASN:HD22	2:D:223:ASN:HB2	1.50	0.74
1:B:250:ILE:HG12	1:B:254:ARG:HG3	1.70	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:229:VAL:CG2	2:D:230:PRO:HD2	2.07	0.73
1:A:151:ILE:HD12	1:A:164:PRO:HG3	1.71	0.72
1:B:10:ILE:HD12	1:B:89:THR:HG21	1.71	0.72
2:C:140:LEU:HD12	2:C:141:SER:CB	2.21	0.71
2:C:182:ASN:CG	2:C:182:ASN:O	2.24	0.71
2:C:182:ASN:O	2:C:182:ASN:OD1	2.09	0.71
2:C:257:VAL:HG21	2:C:305:HIS:HA	1.73	0.71
2:D:351:GLY:O	2:D:355:GLN:HB2	1.91	0.70
1:A:190:MET:HG2	1:A:200:PHE:HB3	1.74	0.70
2:D:191:ALA:O	2:D:192:GLN:HG2	1.91	0.69
2:D:160:THR:HG23	2:D:161:HIS:N	2.06	0.68
2:D:140:LEU:HD21	2:D:168:LEU:HD12	1.74	0.68
2:D:283:ASP:HB2	2:D:286:LYS:HB2	1.74	0.67
2:C:26:LEU:C	2:C:26:LEU:HD12	2.14	0.67
1:B:131:ALA:HB1	1:B:356:TRP:HB3	1.77	0.66
2:D:160:THR:HG23	2:D:162:GLU:N	2.03	0.66
2:C:182:ASN:HB2	3:F:42:ARG:NH2	2.11	0.66
2:D:199:LYS:HZ3	2:D:201:ARG:CB	2.08	0.66
1:A:353:GLN:HA	1:A:356:TRP:CD1	2.29	0.66
2:C:310:VAL:O	2:C:313:VAL:HG22	1.96	0.66
1:B:222:ASP:O	1:B:226:GLU:HG2	1.96	0.65
2:D:199:LYS:NZ	2:D:201:ARG:CB	2.60	0.65
2:C:154:LYS:NZ	2:C:178:PHE:HA	2.11	0.65
1:B:229:THR:O	1:B:229:THR:HG22	1.95	0.65
2:C:278:HIS:CB	2:C:284:ILE:HD12	2.26	0.65
2:D:23:LYS:HD3	2:D:24:ILE:HG13	1.79	0.65
2:D:140:LEU:HD22	2:D:143:PHE:CD2	2.32	0.64
1:A:353:GLN:HA	1:A:356:TRP:NE1	2.13	0.64
2:D:28:ILE:HG23	2:D:45:LEU:HG	1.79	0.64
2:C:135:LYS:HG2	2:C:168:LEU:HD22	1.78	0.64
2:D:272:THR:HG23	2:D:322:ILE:HD11	1.77	0.63
2:D:213:ASN:ND2	2:D:223:ASN:CB	2.58	0.63
1:B:20:GLY:HA2	1:B:94:LEU:HD11	1.80	0.63
2:C:26:LEU:HD12	2:C:26:LEU:O	1.98	0.63
1:B:104:LEU:HD12	1:B:133:TYR:HB3	1.80	0.63
2:D:329:LYS:HG2	2:D:330:LEU:N	2.14	0.63
2:C:278:HIS:HB2	2:C:284:ILE:HD12	1.79	0.63
2:C:28:ILE:CD1	2:C:350:PHE:CE1	2.82	0.63
1:A:103:VAL:O	1:A:356:TRP:CZ3	2.51	0.62
1:A:213:LYS:HE3	1:A:214:GLU:HG2	1.80	0.62
2:D:272:THR:CG2	2:D:322:ILE:CD1	2.68	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:31:SER:HB3	2:C:45:LEU:HD21	1.82	0.62
2:D:213:ASN:HD22	2:D:223:ASN:CB	2.11	0.62
1:B:37:ARG:HB3	1:B:38:PRO:HD2	1.82	0.62
1:B:190:MET:CE	1:B:202:THR:HG22	2.30	0.62
2:D:247:TYR:HA	2:D:250:THR:HB	1.81	0.62
2:D:263:THR:O	2:D:263:THR:CG2	2.46	0.62
1:B:89:THR:O	1:B:94:LEU:HB3	1.99	0.61
1:B:201:THR:OG1	1:B:205:GLU:HB2	1.99	0.61
2:D:257:VAL:HG13	2:D:258:ALA:H	1.65	0.61
2:D:272:THR:CG2	2:D:322:ILE:HD12	2.22	0.61
2:C:156:GLU:HG2	2:C:157:TYR:H	1.65	0.60
1:A:353:GLN:HA	1:A:356:TRP:HE1	1.67	0.60
1:A:34:ILE:HD11	1:A:67:LEU:HD13	1.82	0.60
2:D:329:LYS:HG2	2:D:330:LEU:H	1.67	0.60
2:D:232:ARG:HG3	2:D:234:VAL:HG13	1.84	0.60
2:C:361:GLU:HA	2:C:364:GLU:HG2	1.83	0.60
2:D:254:THR:CG2	2:D:308:SER:HB2	2.31	0.59
2:D:254:THR:HG21	2:D:308:SER:HB2	1.82	0.59
3:E:42:ARG:HD2	3:E:72:ARG:HG3	1.83	0.59
1:A:196:ARG:NE	1:A:253:GLU:OE2	2.34	0.59
1:A:353:GLN:C	1:A:356:TRP:HD1	2.04	0.59
2:D:216:ILE:HG12	2:D:300:ILE:HG22	1.85	0.59
2:D:337:ASP:CG	2:D:337:ASP:O	2.36	0.59
1:B:39:ARG:HD2	1:B:66:THR:HG21	1.84	0.59
1:A:188:TYR:HD1	1:A:267:LEU:CD2	2.16	0.58
1:A:70:PRO:HG2	1:A:85:ILE:HD11	1.85	0.58
2:D:259:SER:HA	2:D:309:GLU:OE2	2.04	0.58
2:C:278:HIS:O	2:C:284:ILE:CD1	2.52	0.57
1:A:44:MET:O	1:A:45:VAL:CG2	2.52	0.57
2:C:74:GLN:HE22	2:C:254:THR:HA	1.69	0.57
2:C:67:ILE:HD11	2:C:82:LYS:HD2	1.85	0.57
2:D:264:THR:OG1	2:D:313:VAL:HG11	2.04	0.57
2:C:156:GLU:OE1	2:C:156:GLU:N	2.25	0.57
2:C:140:LEU:HD12	2:C:141:SER:N	2.19	0.57
2:C:175:ILE:HD12	2:C:176:LEU:HD12	1.86	0.57
2:D:121:LEU:CD2	2:D:344:LYS:O	2.53	0.57
1:B:190:MET:HE3	1:B:202:THR:HG22	1.87	0.57
1:B:221:LEU:HD11	1:B:315:LYS:CG	2.22	0.57
2:D:186:GLU:CG	2:D:190:LYS:HE3	2.33	0.56
1:B:32:PRO:HD2	1:B:56:ASP:OD1	2.06	0.56
1:B:64:ILE:HB	1:B:65:LEU:HD22	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:352:LEU:HD23	2:C:355:GLN:NE2	2.21	0.56
2:C:182:ASN:CB	3:F:42:ARG:NH2	2.69	0.56
1:A:142:LEU:HD13	1:A:152:VAL:HG23	1.88	0.56
2:D:343:ARG:O	2:D:344:LYS:HB2	2.06	0.56
1:A:188:TYR:HD1	1:A:267:LEU:HD23	1.71	0.56
1:B:241:GLU:HG2	1:B:247:VAL:HG22	1.87	0.56
2:D:185:VAL:HG12	2:D:269:VAL:HG11	1.84	0.56
2:C:229:VAL:HG22	2:C:230:PRO:CD	2.25	0.55
2:C:355:GLN:HA	2:C:358:MET:HG2	1.88	0.55
2:D:229:VAL:HG23	2:D:230:PRO:HD3	1.86	0.55
3:F:13:ILE:HD12	3:F:33:LYS:HD3	1.87	0.55
2:D:24:ILE:O	2:D:24:ILE:HG22	2.07	0.55
1:A:188:TYR:CD1	1:A:267:LEU:CD2	2.90	0.55
2:D:264:THR:O	2:D:268:MET:HG2	2.07	0.55
2:C:182:ASN:HD22	3:F:42:ARG:HH21	1.55	0.55
2:C:312:ASP:HA	2:C:315:THR:OG1	2.07	0.55
1:B:221:LEU:HD21	1:B:315:LYS:NZ	2.21	0.55
2:C:149:SER:O	2:C:153:VAL:HB	2.07	0.55
2:C:278:HIS:HB2	2:C:284:ILE:CD1	2.37	0.55
2:D:88:LYS:HA	2:D:91:GLU:HG3	1.88	0.55
2:D:182:ASN:OD1	2:D:186:GLU:OE2	2.24	0.55
2:C:257:VAL:HG23	2:C:304:TYR:O	2.06	0.54
2:D:117:GLU:HA	2:D:120:ARG:HB2	1.89	0.54
1:A:35:VAL:HA	1:A:54:VAL:HG22	1.88	0.54
1:A:156:GLY:O	1:A:181:ALA:HB1	2.07	0.54
2:C:77:LYS:HA	2:C:80:ILE:HG22	1.89	0.54
2:D:191:ALA:O	2:D:192:GLN:CG	2.55	0.54
2:C:222:PRO:HG2	2:C:352:LEU:HD21	1.89	0.54
2:C:264:THR:HB	2:C:314:LEU:HD11	1.88	0.54
2:C:229:VAL:CG2	2:C:230:PRO:HD2	2.27	0.54
2:D:142:VAL:HB	2:D:287:LYS:HB3	1.88	0.54
2:D:201:ARG:CZ	2:D:258:ALA:HB1	2.37	0.54
2:D:142:VAL:HG22	2:D:291:ILE:HD11	1.90	0.54
2:C:197:PRO:HB3	3:F:76:GLY:OXT	2.07	0.54
2:D:87:CYS:O	2:D:91:GLU:HG2	2.06	0.53
1:A:332:PRO:HD2	1:A:335:ARG:HG2	1.91	0.53
1:B:305:MET:HG2	1:B:335:ARG:HG3	1.91	0.53
2:C:47:VAL:HG23	2:C:346:GLN:NE2	2.23	0.53
2:D:229:VAL:CG1	2:D:232:ARG:NH1	2.71	0.53
2:D:322:ILE:HA	2:D:325:LYS:HG2	1.89	0.53
1:B:73:HIS:HB3	1:B:177:ARG:NH2	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:MET:CE	1:A:134:VAL:HG21	2.39	0.53
1:A:151:ILE:HD13	1:A:282:ILE:HG13	1.90	0.53
2:D:140:LEU:HD22	2:D:143:PHE:HD2	1.73	0.53
1:A:62:ARG:HG3	1:A:67:LEU:HD11	1.90	0.53
1:A:331:ALA:HB1	1:A:335:ARG:HD3	1.90	0.53
2:D:140:LEU:CD2	2:D:143:PHE:CE2	2.91	0.53
1:B:189:LEU:HA	1:B:192:ILE:HG12	1.90	0.53
3:F:8:LEU:HD11	3:F:70:VAL:HG13	1.91	0.53
2:D:256:PHE:HB2	2:D:309:GLU:CD	2.30	0.52
1:B:11:ASP:HA	1:B:106:THR:OG1	2.10	0.52
2:C:29:SER:HA	2:C:32:LEU:HD12	1.92	0.52
2:C:144:ASN:HA	2:C:147:ARG:HD3	1.92	0.52
2:D:159:VAL:O	2:D:160:THR:CG2	2.53	0.52
1:B:87:HIS:O	1:B:91:TYR:HB2	2.09	0.52
2:C:135:LYS:CG	2:C:168:LEU:HD22	2.40	0.52
2:D:32:LEU:O	2:D:101:ARG:NH2	2.42	0.52
2:D:201:ARG:NH1	2:D:258:ALA:HB1	2.24	0.52
2:C:265:TYR:O	2:C:269:VAL:HG23	2.10	0.52
2:D:99:VAL:O	2:D:103:ALA:HB3	2.10	0.52
2:D:117:GLU:OE1	2:D:117:GLU:N	2.42	0.52
2:D:198:LYS:HB3	2:D:246:GLY:HA2	1.92	0.52
2:D:229:VAL:CG1	2:D:232:ARG:HH12	2.22	0.52
1:A:10:ILE:HD12	1:A:89:THR:HG21	1.91	0.52
2:D:261:SER:HA	2:D:305:HIS:NE2	2.25	0.52
2:D:25:GLU:HB3	2:D:49:TYR:HE1	1.75	0.52
1:A:119:MET:HE3	1:A:134:VAL:HG21	1.92	0.51
2:D:142:VAL:HG21	2:D:287:LYS:O	2.10	0.51
2:D:160:THR:CG2	2:D:162:GLU:H	2.10	0.51
1:A:259:GLU:C	1:A:261:LEU:H	2.13	0.51
1:B:189:LEU:HD11	1:B:250:ILE:HD11	1.92	0.51
2:D:73:LYS:HG3	2:D:75:ASN:HB2	1.92	0.51
2:D:146:LEU:HD22	2:D:291:ILE:HD12	1.90	0.51
2:D:256:PHE:HE1	2:D:259:SER:HB2	1.74	0.51
1:A:162:THR:HG21	1:A:278:THR:HA	1.92	0.51
1:A:8:LEU:HD12	1:A:103:VAL:HG22	1.92	0.51
1:A:190:MET:HG3	1:A:209:VAL:HG21	1.93	0.51
1:A:360:GLN:O	1:A:364:GLU:HG2	2.11	0.51
1:B:211:ASP:O	1:B:215:LYS:HB2	2.10	0.51
1:A:107:GLU:HB3	1:A:134:VAL:HG11	1.92	0.51
1:A:188:TYR:CD1	1:A:267:LEU:HD23	2.45	0.51
2:D:195:ARG:NH1	2:D:198:LYS:NZ	2.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:218:LYS:O	2:C:221:SER:HB2	2.10	0.51
2:D:77:LYS:O	2:D:81:GLU:HG2	2.10	0.51
1:B:369:ILE:HG13	1:B:372:ARG:HH21	1.76	0.51
2:D:140:LEU:HD22	2:D:143:PHE:CE2	2.45	0.51
2:D:256:PHE:CE1	2:D:259:SER:HB2	2.46	0.51
2:D:153:VAL:CG2	2:D:273:ASP:OD2	2.57	0.50
2:C:203:ARG:HD3	3:F:74:ARG:NH1	2.26	0.50
2:D:121:LEU:HD21	2:D:344:LYS:O	2.12	0.50
2:D:263:THR:HG22	2:D:295:TRP:CH2	2.46	0.50
1:A:345:ILE:O	1:A:349:LEU:HG	2.11	0.50
2:C:217:MET:CE	2:C:234:VAL:HG21	2.42	0.50
1:A:120:THR:OG1	1:A:370:VAL:HG11	2.12	0.50
1:A:18:LYS:HG2	1:A:30:VAL:HG13	1.93	0.50
1:B:32:PRO:CD	1:B:56:ASP:OD1	2.60	0.50
1:B:189:LEU:O	1:B:193:LEU:HB2	2.12	0.49
2:D:257:VAL:HG13	2:D:258:ALA:N	2.26	0.49
2:C:153:VAL:HG12	2:C:154:LYS:HG2	1.93	0.49
2:D:326:ALA:HB3	2:D:328:ILE:HG12	1.94	0.49
2:C:47:VAL:O	2:C:51:GLU:HB2	2.13	0.49
1:A:136:ILE:HG22	1:A:138:ALA:H	1.77	0.49
2:D:147:ARG:NE	2:D:160:THR:OG1	2.46	0.49
2:C:278:HIS:O	2:C:284:ILE:HD12	2.12	0.49
2:D:196:TYR:N	2:D:197:PRO:CD	2.76	0.49
3:F:26:VAL:O	3:F:30:ILE:HG13	2.12	0.49
1:B:156:GLY:O	1:B:181:ALA:HB1	2.12	0.49
2:C:278:HIS:O	2:C:284:ILE:HD13	2.13	0.49
2:C:156:GLU:CG	2:C:157:TYR:N	2.73	0.49
2:C:43:ILE:O	2:C:47:VAL:HG22	2.13	0.48
3:E:42:ARG:HB2	3:E:70:VAL:O	2.13	0.48
2:C:268:MET:HE2	2:C:322:ILE:HD12	1.95	0.48
1:A:76:VAL:HG21	1:A:79:TRP:CZ2	2.48	0.48
3:F:33:LYS:HG3	3:F:34:GLU:HG2	1.95	0.48
2:C:316:GLU:HG3	2:C:317:PRO:HD2	1.95	0.48
2:D:74:GLN:HG2	2:D:119:ARG:HH12	1.78	0.48
3:F:30:ILE:HG22	3:F:36:ILE:HD12	1.95	0.48
2:C:79:ALA:O	2:C:83:ILE:HG12	2.12	0.48
2:C:133:VAL:HA	2:C:136:GLN:HG2	1.94	0.48
2:D:182:ASN:O	2:D:183:ASP:HB2	2.13	0.48
2:C:124:THR:HG23	2:C:215:GLY:HA3	1.95	0.48
1:A:208:ILE:HG21	1:A:242:LEU:HD22	1.96	0.48
2:C:47:VAL:HG21	2:C:342:PHE:CE2	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:140:LEU:CD2	2:D:143:PHE:HE2	2.27	0.48
1:A:79:TRP:HH2	1:A:119:MET:HG2	1.79	0.48
1:B:227:MET:SD	1:B:255:PHE:CE1	2.99	0.48
2:C:182:ASN:ND2	3:F:70:VAL:CG2	2.53	0.47
2:D:159:VAL:C	2:D:160:THR:HG22	2.33	0.47
1:A:79:TRP:CH2	1:A:119:MET:HG2	2.49	0.47
2:C:196:TYR:O	2:C:198:LYS:N	2.45	0.47
2:D:263:THR:HG22	2:D:295:TRP:HH2	1.78	0.47
1:A:152:VAL:HG22	1:A:298:VAL:HB	1.97	0.47
1:A:188:TYR:CD1	1:A:267:LEU:HD21	2.50	0.47
2:D:337:ASP:O	2:D:337:ASP:OD1	2.33	0.47
3:E:6:LYS:HB2	3:E:6:LYS:HE2	1.58	0.47
1:A:219:VAL:HG22	1:A:258:PRO:CB	2.44	0.47
1:B:194:THR:HA	1:B:199:SER:HA	1.96	0.47
2:D:249:LYS:HD2	2:D:249:LYS:HA	1.69	0.47
1:B:189:LEU:HB2	1:B:257:CYS:SG	2.54	0.47
2:D:142:VAL:HA	2:D:145:GLU:HG2	1.95	0.47
1:B:62:ARG:HE	1:B:67:LEU:HD11	1.80	0.46
1:B:223:PHE:O	1:B:227:MET:HG2	2.14	0.46
2:C:268:MET:O	2:C:272:THR:HG23	2.16	0.46
2:D:216:ILE:HG12	2:D:300:ILE:CG2	2.45	0.46
1:A:340:TRP:C	1:A:342:GLY:H	2.19	0.46
1:B:42:GLY:HA2	1:B:45:VAL:HB	1.95	0.46
2:C:225:THR:HG22	2:C:225:THR:O	2.15	0.46
1:A:73:HIS:HB3	1:A:177:ARG:NH2	2.30	0.46
1:A:103:VAL:HG12	1:A:104:LEU:N	2.29	0.46
1:B:229:THR:O	1:B:229:THR:CG2	2.63	0.46
2:D:160:THR:OG1	2:D:161:HIS:N	2.45	0.46
2:C:47:VAL:HG21	2:C:342:PHE:HE2	1.81	0.46
1:B:215:LYS:HE3	1:B:215:LYS:HB3	1.81	0.46
2:D:182:ASN:HA	2:D:186:GLU:OE1	2.16	0.46
2:D:355:GLN:HG3	2:D:359:HIS:CE1	2.51	0.46
3:F:61:ILE:CG2	3:F:67:LEU:HD21	2.46	0.46
1:A:10:ILE:HG23	1:A:105:LEU:HD23	1.98	0.46
2:C:223:ASN:HD21	2:C:227:ASN:HB3	1.80	0.46
1:B:190:MET:HE1	1:B:202:THR:HG22	1.98	0.46
2:C:316:GLU:HG2	2:C:318:PHE:CD1	2.51	0.46
3:E:23:ILE:HG12	3:E:54:ARG:O	2.16	0.46
1:A:142:LEU:HD22	1:A:165:ILE:HD13	1.98	0.45
1:A:160:THR:HB	1:A:178:LEU:HB3	1.98	0.45
1:A:241:GLU:HG2	1:A:247:VAL:HG22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:357:ILE:HG23	1:A:369:ILE:HD13	1.97	0.45
2:D:175:ILE:HG23	2:D:295:TRP:CE3	2.51	0.45
3:E:26:VAL:HG21	3:E:56:LEU:HD21	1.98	0.45
1:B:31:PHE:HB2	1:B:56:ASP:OD1	2.16	0.45
2:C:28:ILE:HG22	2:C:28:ILE:O	2.17	0.45
3:E:33:LYS:HG3	3:E:34:GLU:HG2	1.96	0.45
1:B:78:ASN:HB3	1:B:81:ASP:HB2	1.97	0.45
1:B:213:LYS:O	1:B:217:CYS:HB2	2.16	0.45
2:C:44:LEU:HB3	2:C:346:GLN:HG2	1.97	0.45
2:C:72:PHE:CE2	2:C:334:VAL:HA	2.51	0.45
1:A:159:VAL:HG22	1:A:160:THR:N	2.30	0.45
2:D:37:LEU:HD21	2:D:42:PHE:HD1	1.81	0.45
2:C:289:ASN:OD1	2:C:331:ASN:OD1	2.35	0.45
2:D:126:TYR:O	2:D:130:LEU:HD13	2.17	0.45
1:B:133:TYR:HE2	1:B:135:ALA:HB2	1.81	0.45
1:B:68:LYS:HD2	1:B:81:ASP:OD2	2.16	0.45
1:B:97:ALA:HA	1:B:98:PRO:HD3	1.82	0.45
1:B:164:PRO:O	1:B:170:ALA:HA	2.16	0.45
2:D:300:ILE:H	2:D:300:ILE:HG13	1.59	0.45
1:A:237:GLU:HG2	1:A:251:GLY:HA3	1.99	0.45
2:D:32:LEU:C	2:D:101:ARG:HH21	2.20	0.45
3:F:13:ILE:HD13	3:F:30:ILE:HG23	1.99	0.44
1:A:96:VAL:HG22	1:A:97:ALA:N	2.32	0.44
1:B:209:VAL:O	1:B:209:VAL:HG12	2.17	0.44
3:E:40:GLN:HG3	3:E:72:ARG:O	2.18	0.44
1:A:9:VAL:HG12	1:A:104:LEU:HB3	1.98	0.44
2:D:106:ALA:HA	2:D:109:LEU:HG	1.99	0.44
2:C:119:ARG:HE	2:C:123:GLU:HG3	1.82	0.44
1:A:229:THR:HG22	1:A:236:LEU:HD11	1.99	0.44
1:A:250:ILE:HG22	1:A:254:ARG:CG	2.36	0.44
1:A:252:ASN:OD1	1:A:253:GLU:N	2.50	0.44
1:B:208:ILE:HD13	1:B:243:PRO:HD2	1.99	0.44
2:D:175:ILE:HG22	2:D:176:LEU:HD23	2.00	0.44
2:D:254:THR:HA	2:D:255:PRO:HD3	1.79	0.44
2:D:337:ASP:HB2	2:D:339:HIS:CE1	2.53	0.44
1:A:161:HIS:CD2	1:A:177:ARG:HB2	2.53	0.44
3:E:15:LEU:HD22	3:E:26:VAL:HG13	2.00	0.44
1:B:27:PRO:HG3	1:B:340:TRP:CG	2.52	0.44
1:B:54:VAL:HG21	1:B:84:LYS:HB3	2.00	0.44
2:D:352:LEU:O	2:D:355:GLN:HB3	2.16	0.44
1:A:130:PRO:HA	1:A:359:LYS:HE2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:190:MET:O	1:A:194:THR:HG23	2.18	0.44
1:A:353:GLN:CA	1:A:356:TRP:CD1	3.00	0.44
2:C:278:HIS:HB3	2:C:284:ILE:HD12	1.99	0.44
2:D:146:LEU:C	2:D:148:ASP:H	2.20	0.44
1:A:304:THR:HA	1:A:309:ILE:HD13	2.00	0.43
2:D:358:MET:O	2:D:362:LEU:HB2	2.18	0.43
1:A:103:VAL:CG1	1:A:104:LEU:N	2.81	0.43
1:A:160:THR:N	1:A:178:LEU:O	2.35	0.43
1:A:163:VAL:HG13	1:A:175:ILE:HG12	2.00	0.43
2:D:153:VAL:CG1	2:D:269:VAL:CG1	2.77	0.43
2:C:260:LEU:HD12	2:C:260:LEU:HA	1.84	0.43
1:B:93:GLU:O	1:B:94:LEU:C	2.54	0.43
1:A:196:ARG:NH2	1:A:252:ASN:HD21	2.16	0.43
1:B:113:LYS:H	1:B:113:LYS:HG3	1.39	0.43
2:C:181:LEU:HD21	2:C:185:VAL:HB	1.99	0.43
1:A:239:SER:HB3	1:A:247:VAL:HG12	2.00	0.43
1:A:204:ALA:O	1:A:207:GLU:HG2	2.18	0.43
1:A:252:ASN:OD1	1:A:252:ASN:C	2.56	0.43
2:C:140:LEU:HD11	2:C:141:SER:OG	2.15	0.43
2:C:203:ARG:HG3	3:F:74:ARG:HD2	2.01	0.43
2:C:356:SER:O	2:C:359:HIS:HB2	2.19	0.43
1:A:193:LEU:HD22	1:A:198:TYR:HD2	1.83	0.43
1:A:370:VAL:HG23	1:A:371:HIS:N	2.33	0.43
1:B:221:LEU:HD21	1:B:315:LYS:HZ1	1.84	0.43
1:A:35:VAL:HG21	1:A:81:ASP:HB3	2.01	0.42
1:B:155:SER:OG	1:B:304:THR:HG23	2.19	0.42
2:C:63:PHE:O	2:C:67:ILE:HG12	2.18	0.42
2:C:154:LYS:HZ1	2:C:178:PHE:HA	1.83	0.42
2:C:358:MET:HG3	2:C:359:HIS:N	2.33	0.42
1:B:137:GLN:HA	1:B:339:VAL:HG13	2.01	0.42
2:C:116:ASN:O	2:C:120:ARG:HG3	2.18	0.42
2:D:63:PHE:O	2:D:67:ILE:HG12	2.19	0.42
2:D:120:ARG:HB3	2:D:216:ILE:O	2.18	0.42
2:D:265:TYR:HE1	2:D:318:PHE:HZ	1.67	0.42
1:B:287:VAL:HG23	1:B:288:ASP:OD1	2.19	0.42
2:D:299:TYR:CD2	2:D:305:HIS:HD2	2.37	0.42
3:E:26:VAL:O	3:E:30:ILE:HG13	2.18	0.42
3:E:40:GLN:HG2	3:E:71:LEU:HB3	2.00	0.42
1:A:180:LEU:HD21	1:A:260:ALA:O	2.19	0.42
2:D:39:GLU:HG2	2:D:109:LEU:HB3	2.00	0.42
1:A:341:ILE:HG21	1:A:341:ILE:HD13	1.72	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:333:PRO:HD2	1:B:334:GLU:OE1	2.20	0.42
2:C:300:ILE:HD13	2:C:300:ILE:HG21	1.69	0.42
2:D:88:LYS:HA	2:D:91:GLU:CG	2.49	0.42
2:D:195:ARG:HH11	2:D:198:LYS:NZ	2.18	0.42
1:B:118:LYS:HD2	1:B:118:LYS:HA	1.90	0.42
1:B:283:MET:C	1:B:285:CYS:H	2.22	0.42
2:C:257:VAL:CG2	2:C:304:TYR:O	2.68	0.42
2:C:275:ILE:HD12	2:C:322:ILE:HG22	2.01	0.42
1:B:20:GLY:HA2	1:B:94:LEU:CD1	2.48	0.42
1:B:216:LEU:O	1:B:217:CYS:SG	2.74	0.42
1:B:261:LEU:HB3	1:B:274:ILE:HD13	2.02	0.42
2:D:276:GLU:HA	2:D:279:LYS:HD3	2.02	0.42
2:D:285:GLU:HA	2:D:288:VAL:HG12	2.02	0.42
1:A:354:GLN:H	1:A:354:GLN:HG2	1.53	0.42
3:F:61:ILE:HG23	3:F:67:LEU:HD21	2.02	0.42
1:A:337:TYR:O	1:A:341:ILE:HG13	2.20	0.41
1:B:90:PHE:CD2	1:B:98:PRO:HG3	2.54	0.41
2:C:271:LEU:HD21	2:C:291:ILE:HG21	2.02	0.41
2:D:261:SER:HB3	2:D:313:VAL:HG21	2.02	0.41
3:F:1:MET:HG3	3:F:17:VAL:HG23	2.02	0.41
1:A:208:ILE:O	1:A:212:ILE:HG13	2.20	0.41
2:D:70:LEU:O	2:D:73:LYS:HG2	2.20	0.41
1:A:294:TYR:O	1:A:327:ILE:HA	2.21	0.41
1:B:221:LEU:HD21	1:B:315:LYS:HZ2	1.86	0.41
2:D:175:ILE:HA	2:D:175:ILE:HD13	1.85	0.41
2:D:77:LYS:HG2	2:D:80:ILE:HD12	2.02	0.41
2:D:147:ARG:HA	2:D:174:PHE:CZ	2.55	0.41
1:A:44:MET:H	1:A:44:MET:HG3	1.57	0.41
2:C:257:VAL:HG21	2:C:305:HIS:CA	2.46	0.41
2:D:117:GLU:HA	2:D:120:ARG:HD2	2.03	0.41
2:D:229:VAL:HG11	2:D:232:ARG:NH1	2.35	0.41
1:A:353:GLN:C	1:A:356:TRP:CD1	2.89	0.41
1:B:142:LEU:HD22	1:B:165:ILE:HD13	2.01	0.41
2:C:292:ILE:CD1	2:C:330:LEU:HD11	2.50	0.41
2:C:175:ILE:HD12	2:C:176:LEU:CD1	2.49	0.41
2:C:334:VAL:HG13	2:C:334:VAL:O	2.20	0.41
2:D:187:LEU:N	2:D:188:PRO:HD2	2.35	0.41
2:D:283:ASP:OD1	2:D:287:LYS:HE2	2.21	0.41
3:E:15:LEU:HD23	3:E:17:VAL:HG13	2.02	0.41
1:A:219:VAL:HG22	1:A:258:PRO:HB3	2.02	0.41
1:B:96:VAL:HB	1:B:101:HIS:CE1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:25:GLU:HB3	2:D:49:TYR:CE1	2.55	0.41
2:D:91:GLU:HA	2:D:94:LEU:HB3	2.01	0.41
3:E:40:GLN:HG2	3:E:72:ARG:N	2.35	0.41
3:E:63:LYS:HE2	3:E:63:LYS:HB2	1.89	0.41
1:A:142:LEU:HG	1:A:147:ARG:HB3	2.03	0.40
1:A:219:VAL:HG22	1:A:258:PRO:HB2	2.02	0.40
1:A:247:VAL:H	1:A:247:VAL:HG23	1.60	0.40
1:B:359:LYS:HE3	1:B:359:LYS:HB2	1.85	0.40
2:C:119:ARG:HD2	2:C:119:ARG:HA	1.77	0.40
1:B:133:TYR:CE2	1:B:135:ALA:HB2	2.57	0.40
1:A:13:GLY:O	1:A:14:SER:C	2.59	0.40
2:C:154:LYS:HZ3	2:C:178:PHE:HA	1.85	0.40
2:C:313:VAL:HG23	2:C:314:LEU:CD1	2.40	0.40
2:D:350:PHE:CE1	2:D:354:ILE:CD1	3.04	0.40
3:E:37:PRO:HA	3:E:38:PRO:HD3	1.97	0.40
1:A:210:ARG:HE	1:A:210:ARG:HB2	1.76	0.40
2:C:215:GLY:HA2	2:C:301:LYS:HA	2.02	0.40
2:D:106:ALA:N	2:D:107:PRO:HD2	2.36	0.40
2:D:313:VAL:O	2:D:319:LEU:HD12	2.21	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	362/375 (96%)	332 (92%)	30 (8%)	0	100	100
1	B	369/375 (98%)	340 (92%)	28 (8%)	1 (0%)	37	69
2	C	323/352 (92%)	302 (94%)	20 (6%)	1 (0%)	37	69
2	D	341/352 (97%)	310 (91%)	31 (9%)	0	100	100
3	E	76/78 (97%)	68 (90%)	8 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	F	75/78 (96%)	71 (95%)	4 (5%)	0	100	100
All	All	1546/1610 (96%)	1423 (92%)	121 (8%)	2 (0%)	48	80

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	181	ALA
2	C	155	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	310/318 (98%)	289 (93%)	21 (7%)	13	43
1	B	313/318 (98%)	291 (93%)	22 (7%)	12	42
2	C	306/326 (94%)	288 (94%)	18 (6%)	16	48
2	D	319/326 (98%)	301 (94%)	18 (6%)	17	50
3	E	69/69 (100%)	53 (77%)	16 (23%)	0	3
3	F	69/69 (100%)	55 (80%)	14 (20%)	1	5
All	All	1386/1426 (97%)	1277 (92%)	109 (8%)	10	38

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	12	ASN
1	A	14	SER
1	A	24	ASP
1	A	40	HIS
1	A	44	MET
1	A	62	ARG
1	A	141	SER
1	A	161	HIS
1	A	201	THR

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Mol	Chain	Res	Type
1	A	210	ARG
1	A	211	ASP
1	A	222	ASP
1	A	232	SER
1	A	247	VAL
1	A	259	GLU
1	A	272	CYS
1	A	322	PRO
1	A	346	LEU
1	A	354	GLN
1	A	365	SER
1	A	368	SER
1	B	39	ARG
1	B	64	ILE
1	B	67	LEU
1	B	78	ASN
1	B	90	PHE
1	B	95	ARG
1	B	96	VAL
1	B	111	ASN
1	B	126	THR
1	B	141	SER
1	B	179	ASP
1	B	205	GLU
1	B	235	SER
1	B	288	ASP
1	B	317	ILE
1	B	327	ILE
1	B	338	SER
1	B	350	SER
1	B	358	SER
1	B	368	SER
1	B	369	ILE
1	B	372	ARG
2	C	30	LEU
2	C	36	LYS
2	C	37	LEU
2	C	48	LYS
2	C	80	ILE
2	C	166	LYS
2	C	185	VAL
2	C	188	PRO

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Mol	Chain	Res	Type
2	C	189	LEU
2	C	228	LEU
2	C	229	VAL
2	C	233	ASP
2	C	237	ILE
2	C	280	THR
2	C	311	VAL
2	C	317	PRO
2	C	338	THR
2	C	358	MET
2	D	28	ILE
2	D	37	LEU
2	D	66	ASP
2	D	102	LEU
2	D	104	GLU
2	D	137	GLU
2	D	144	ASN
2	D	168	LEU
2	D	169	ASP
2	D	194	GLU
2	D	206	LEU
2	D	216	ILE
2	D	227	ASN
2	D	279	LYS
2	D	300	ILE
2	D	330	LEU
2	D	364	GLU
2	D	365	ARG
3	E	0	SER
3	E	1	MET
3	E	2	GLN
3	E	8	LEU
3	E	9	THR
3	E	13	ILE
3	E	15	LEU
3	E	17	VAL
3	E	20	SER
3	E	33	LYS
3	E	49	GLN
3	E	52	ASP
3	E	62	GLN
3	E	65	SER

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Mol	Chain	Res	Type
3	E	73	LEU
3	E	74	ARG
3	F	3	ILE
3	F	9	THR
3	F	12	THR
3	F	13	ILE
3	F	15	LEU
3	F	17	VAL
3	F	18	GLU
3	F	22	THR
3	F	25	ASN
3	F	43	LEU
3	F	44	ILE
3	F	52	ASP
3	F	55	THR
3	F	73	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	353	GLN
1	A	354	GLN
1	B	92	ASN
1	B	111	ASN
1	B	161	HIS
1	B	314	GLN
2	C	293	ASN
2	C	355	GLN
2	D	74	GLN
2	D	213	ASN
2	D	227	ASN
2	D	339	HIS
3	E	25	ASN
3	E	40	GLN
3	E	62	GLN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	PO4	C	401	-	4,4,4	1.17	0	6,6,6	0.63	0
5	AR6	D	401	-	14,14,39	1.04	0	20,21,60	1.24	2 (10%)

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
5	AR6	D	401	-	-	2/6/22/54	0/1/1/4

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	401	AR6	O1B-PB-O2B	3.22	123.28	110.68
5	D	401	AR6	C1D-C2D-C3D	2.32	105.20	102.30

There are no chirality outliers.

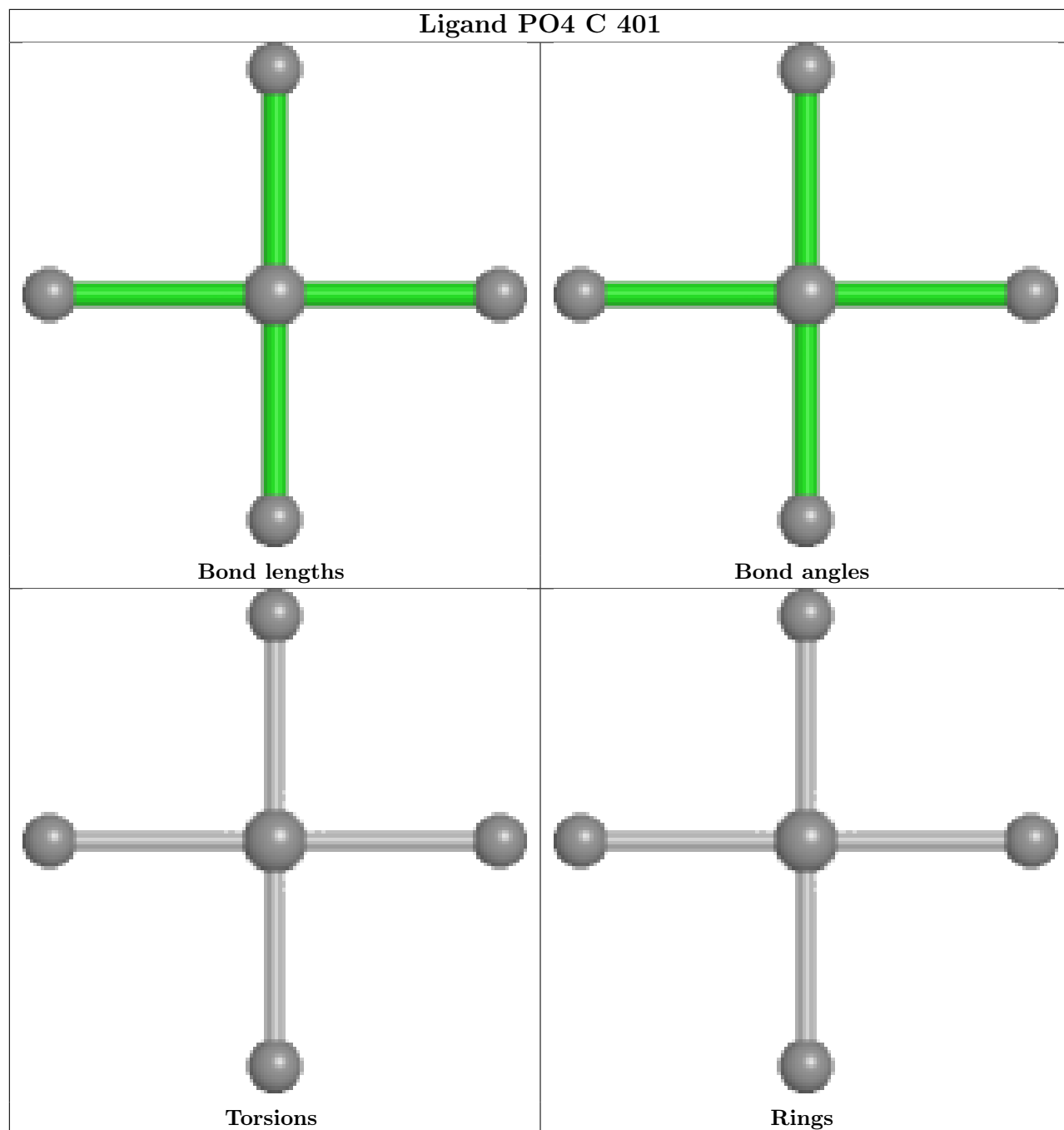
All (2) torsion outliers are listed below:

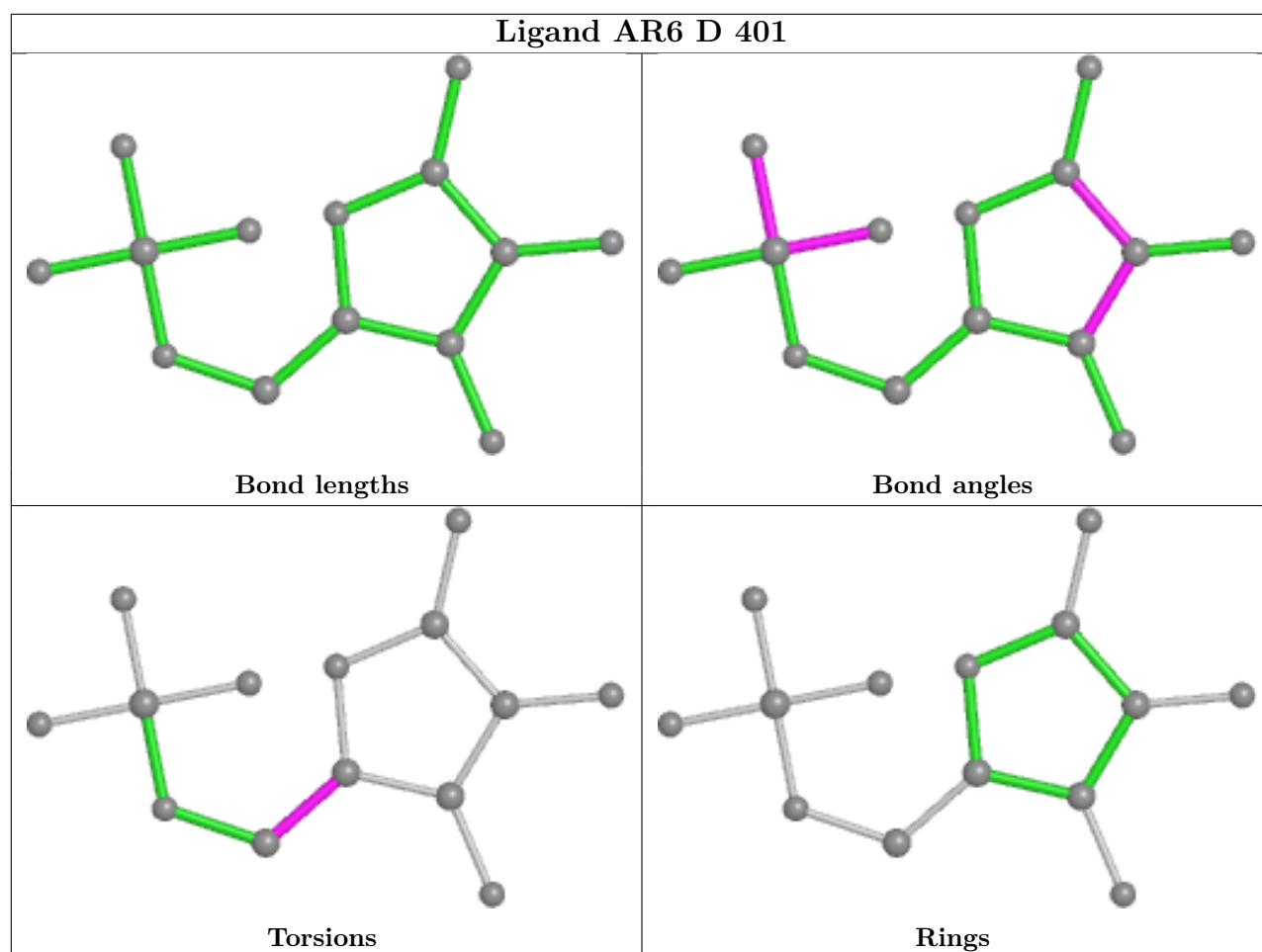
Mol	Chain	Res	Type	Atoms
5	D	401	AR6	O4D-C4D-C5D-O5D
5	D	401	AR6	C3D-C4D-C5D-O5D

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





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	366/375 (97%)	0.99	31 (8%) 18 12	5, 14, 37, 50	0
1	B	371/375 (98%)	1.02	45 (12%) 10 7	5, 17, 41, 77	0
2	C	331/352 (94%)	1.26	50 (15%) 6 5	8, 25, 50, 66	0
2	D	345/352 (98%)	1.36	79 (22%) 2 2	12, 31, 54, 67	0
3	E	78/78 (100%)	0.62	1 (1%) 74 60	11, 21, 35, 41	0
3	F	77/78 (98%)	0.76	3 (3%) 44 30	14, 25, 38, 50	0
All	All	1568/1610 (97%)	1.11	209 (13%) 8 6	5, 22, 48, 77	0

All (209) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	202	THR	7.7
1	B	15	GLY	5.2
1	A	250	ILE	5.0
1	B	39	ARG	4.9
2	D	227	ASN	4.8
2	D	247	TYR	4.7
2	C	217	MET	4.6
2	C	155	PRO	4.6
1	A	64	ILE	4.5
2	D	157	TYR	4.5
2	D	61	SER	4.4
2	D	200	ASP	4.1
2	D	161	HIS	4.1
2	C	216	ILE	3.8
1	B	217	CYS	3.7
1	B	51	ASP	3.7
2	C	140	LEU	3.7
2	C	200	ASP	3.7
2	C	182	ASN	3.7

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Mol	Chain	Res	Type	RSRZ
2	C	105	VAL	3.6
2	D	216	ILE	3.6
3	E	76	GLY	3.5
1	A	41	GLN	3.5
1	A	365	SER	3.5
2	D	155	PRO	3.3
1	B	70	PRO	3.3
1	B	203	THR	3.2
2	C	191	ALA	3.2
2	D	213	ASN	3.2
1	A	226	GLU	3.2
2	D	45	LEU	3.2
2	D	101	ARG	3.1
1	B	71	ILE	3.1
2	C	25	GLU	3.1
1	B	201	THR	3.1
2	D	351	GLY	3.1
1	A	31	PHE	3.1
2	D	162	GLU	3.1
2	D	256	PHE	3.1
1	A	5	ILE	3.1
2	D	283	ASP	3.0
2	C	306	SER	3.0
1	A	44	MET	3.0
1	A	257	CYS	3.0
1	A	359	LYS	3.0
2	C	154	LYS	3.0
2	C	93	LEU	3.0
2	D	33	ASP	3.0
1	A	258	PRO	2.9
2	D	197	PRO	2.9
2	D	257	VAL	2.9
1	B	244	ASP	2.9
1	B	205	GLU	2.9
2	D	72	PHE	2.9
2	C	343	ARG	2.9
2	D	93	LEU	2.9
2	C	351	GLY	2.9
2	D	28	ILE	2.9
2	D	39	GLU	2.9
1	A	222	ASP	2.9
1	B	45	VAL	2.8

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Mol	Chain	Res	Type	RSRZ
2	D	27	SER	2.8
2	D	244	ALA	2.8
2	D	94	LEU	2.8
1	B	62	ARG	2.8
2	C	123	GLU	2.8
2	C	103	ALA	2.8
2	D	102	LEU	2.7
3	F	75	GLY	2.7
2	D	163	THR	2.7
1	A	187	ASP	2.6
2	C	99	VAL	2.6
1	A	10	ILE	2.6
2	D	179	VAL	2.6
1	B	41	GLN	2.6
2	C	73	LYS	2.6
2	D	30	LEU	2.6
1	B	204	ALA	2.6
1	B	47	MET	2.6
2	D	115	ASP	2.6
2	D	150	TYR	2.5
2	C	141	SER	2.5
2	C	227	ASN	2.5
2	C	292	ILE	2.5
1	B	354	GLN	2.5
1	B	94	LEU	2.5
2	C	181	LEU	2.5
1	A	83	GLU	2.5
2	D	276	GLU	2.5
1	B	106	THR	2.5
2	D	64	PHE	2.5
1	A	260	ALA	2.5
1	B	34	ILE	2.5
2	D	338	THR	2.5
2	D	41	ASP	2.5
3	F	76	GLY	2.5
2	D	260	LEU	2.5
2	D	29	SER	2.5
2	C	139	ASP	2.5
2	C	184	ASN	2.5
1	B	297	THR	2.4
2	C	62	GLY	2.4
2	C	189	LEU	2.4

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Mol	Chain	Res	Type	RSRZ
2	C	159	VAL	2.4
1	B	250	ILE	2.4
1	B	346	LEU	2.4
2	C	308	SER	2.4
2	D	259	SER	2.4
2	D	24	ILE	2.4
2	D	156	GLU	2.4
1	B	40	HIS	2.4
1	B	225	GLN	2.4
1	A	185	LEU	2.4
2	D	140	LEU	2.4
2	D	214	PRO	2.4
2	D	118	SER	2.4
2	D	177	SER	2.4
1	A	99	GLU	2.4
1	A	249	THR	2.4
2	D	130	LEU	2.3
1	B	375	PHE	2.3
2	C	248	SER	2.3
1	B	24	ASP	2.3
2	D	139	ASP	2.3
1	B	96	VAL	2.3
2	D	232	ARG	2.3
2	C	341	GLU	2.3
2	D	352	LEU	2.3
1	A	375	PHE	2.3
2	D	366	PHE	2.3
1	A	138	ALA	2.3
1	B	260	ALA	2.3
2	C	33	ASP	2.3
2	D	284	ILE	2.3
2	C	49	TYR	2.3
3	F	73	LEU	2.3
1	B	187	ASP	2.2
1	B	38	PRO	2.2
1	B	351	THR	2.2
2	D	87	CYS	2.2
2	D	107	PRO	2.2
2	D	254	THR	2.2
2	D	83	ILE	2.2
2	C	63	PHE	2.2
2	D	143	PHE	2.2

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Mol	Chain	Res	Type	RSRZ
2	D	363	GLN	2.2
2	D	52	LYS	2.2
2	D	70	LEU	2.2
2	C	300	ILE	2.2
1	B	81	ASP	2.2
1	B	92	ASN	2.2
2	C	233	ASP	2.2
2	D	108	ARG	2.2
2	D	367	LYS	2.2
1	B	198	TYR	2.2
1	B	267	LEU	2.2
1	A	231	ALA	2.2
2	C	258	ALA	2.2
1	A	15	GLY	2.2
2	D	291	ILE	2.2
2	D	246	GLY	2.2
2	C	39	GLU	2.2
2	C	68	GLU	2.2
2	D	96	GLU	2.2
1	B	31	PHE	2.2
2	D	261	SER	2.2
1	A	244	ASP	2.2
2	D	97	GLN	2.2
1	B	342	GLY	2.1
1	B	262	PHE	2.1
2	D	279	LYS	2.1
2	C	259	SER	2.1
2	D	185	VAL	2.1
2	D	66	ASP	2.1
1	B	49	GLN	2.1
2	C	74	GLN	2.1
1	A	196	ARG	2.1
1	A	45	VAL	2.1
2	D	32	LEU	2.1
1	A	247	VAL	2.1
1	A	232	SER	2.1
1	B	218	TYR	2.1
2	C	67	ILE	2.1
2	C	76	TYR	2.1
2	C	41	ASP	2.1
2	C	283	ASP	2.1
2	C	246	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
2	D	225	THR	2.1
1	B	14	SER	2.1
2	D	273	ASP	2.1
2	D	109	LEU	2.1
2	D	131	GLU	2.1
1	A	62	ARG	2.0
1	B	64	ILE	2.0
2	D	135	LYS	2.0
2	D	357	ALA	2.0
1	A	246	GLN	2.0
1	A	92	ASN	2.0
2	C	75	ASN	2.0
2	C	85	ASP	2.0
2	D	194	GLU	2.0
2	D	199	LYS	2.0
2	C	363	GLN	2.0
2	C	26	LEU	2.0
2	D	184	ASN	2.0
2	C	104	GLU	2.0
2	D	43	ILE	2.0
1	B	13	GLY	2.0
1	B	272	CYS	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](#)

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.

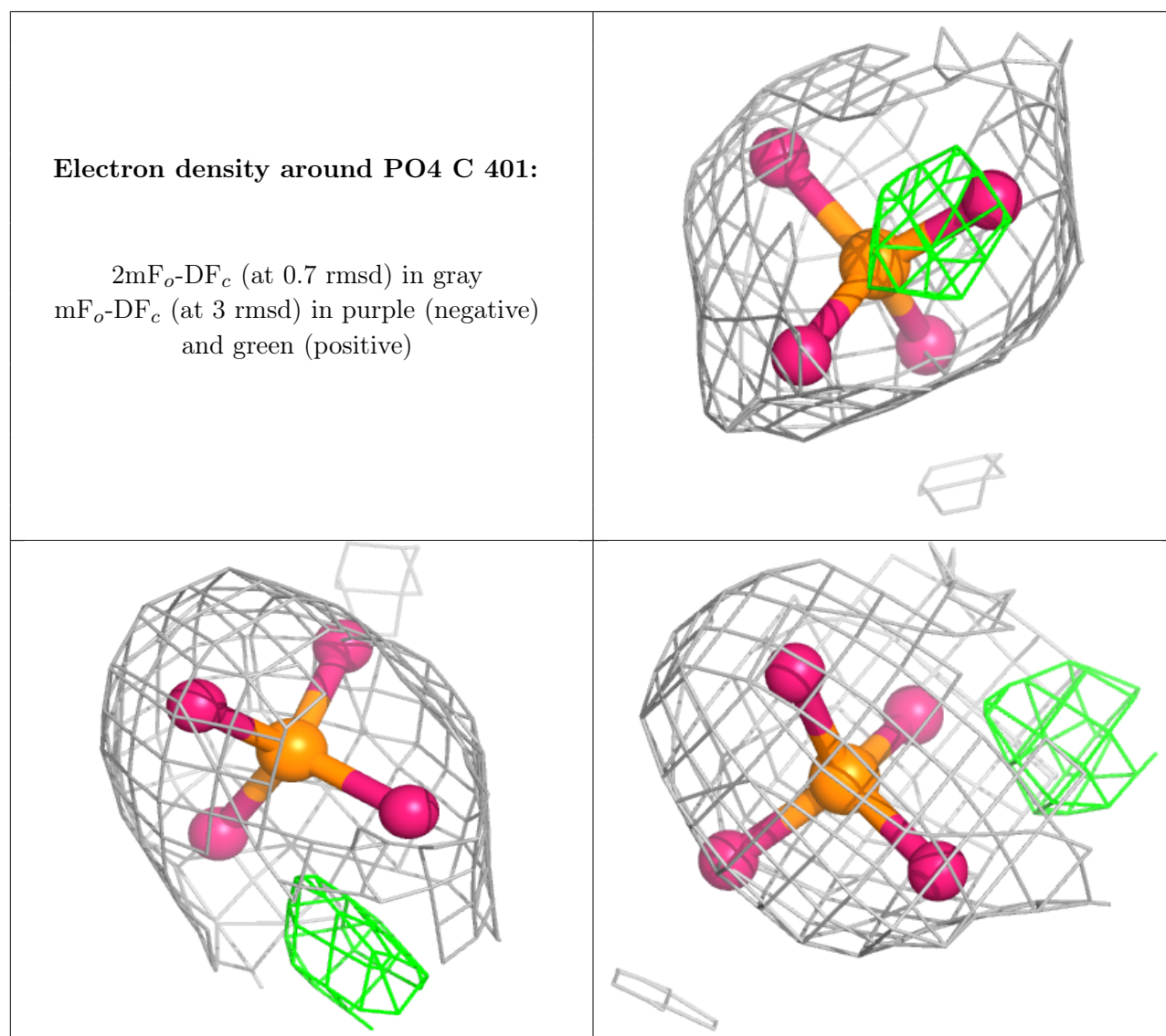
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	PO4	C	401	5/5	0.77	0.19	28,48,63,66	0

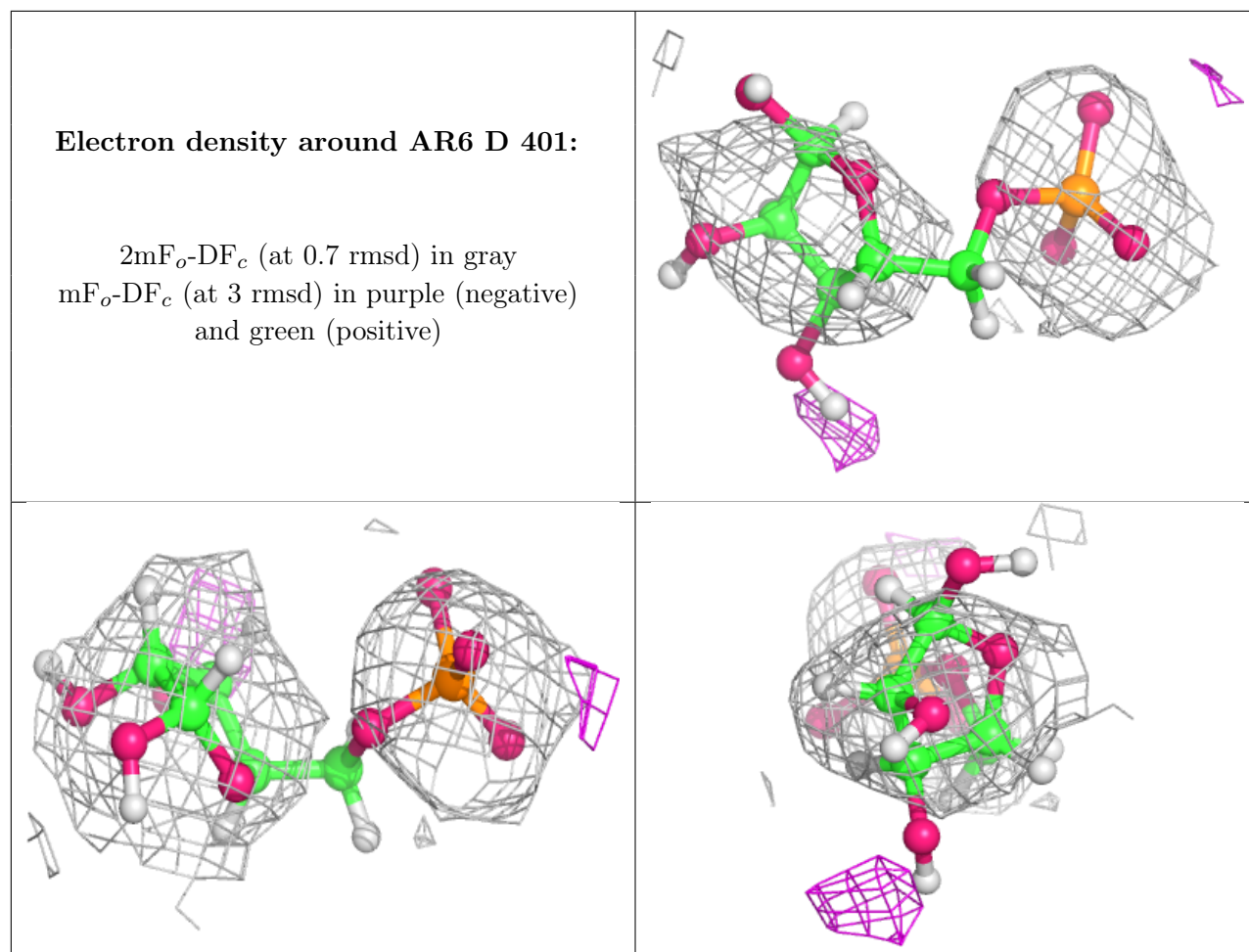
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
5	AR6	D	401	14/36	0.79	0.25	30,44,70,70	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.





6.5 Other polymers [i](#)

There are no such residues in this entry.