



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 20, 2026 – 02:56 pm BST

PDB ID : 9RZ1 / pdb_00009rz1
Title : Alpha-Methylacyl-CoA racemase from Mycobacterium tuberculosis in complex with 2-(4-(2-Phenylethoxy)phenylthiol)propanoyl-CoA
Authors : Mojanaga, O.O.; Acharya, K.R.; Lloyd, M.D.
Deposited on : 2025-07-15
Resolution : 2.30 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

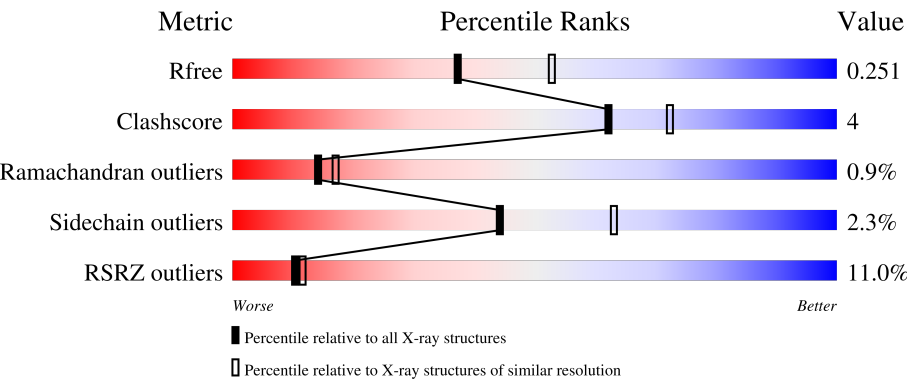
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.015 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.50

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 2.30 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	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

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	364	11% 85%12%..
1	B	364	8% 86%11%..
1	C	364	11% 87%11%.
1	D	364	7% 88%10%..
1	E	364	12% 84%13%..

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Mol	Chain	Length	Quality of chain
1	F	364	14% 85% 12% ...
1	G	364	20% 80% 17% ..
1	H	364	15% 86% 12% ..
1	I	364	6% 88% 10% ..
1	J	364	6% 86% 12% ..
1	K	364	11% 84% 13% ..
1	L	364	10% 86% 12% ..

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 34739 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 Alpha-methylacyl-CoA racemase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	358	Total	C	N	O	S	0	2	0
			2710	1698	485	511	16			
1	B	357	Total	C	N	O	S	0	2	0
			2708	1698	486	508	16			
1	C	359	Total	C	N	O	S	0	2	0
			2714	1702	486	510	16			
1	D	360	Total	C	N	O	S	0	1	0
			2719	1705	487	511	16			
1	E	360	Total	C	N	O	S	0	3	0
			2731	1711	489	515	16			
1	F	360	Total	C	N	O	S	0	1	0
			2719	1705	487	511	16			
1	G	360	Total	C	N	O	S	0	2	0
			2722	1706	487	513	16			
1	H	360	Total	C	N	O	S	0	1	0
			2719	1705	487	511	16			
1	I	360	Total	C	N	O	S	0	2	0
			2722	1706	487	513	16			
1	J	360	Total	C	N	O	S	0	1	0
			2719	1705	487	511	16			
1	K	359	Total	C	N	O	S	0	3	0
			2724	1708	487	513	16			
1	L	360	Total	C	N	O	S	0	1	0
			2719	1705	487	511	16			

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	361	GLY	-	expression tag	UNP O06543
A	362	SER	-	expression tag	UNP O06543
A	363	GLY	-	expression tag	UNP O06543
A	364	CYS	-	expression tag	UNP O06543
B	361	GLY	-	expression tag	UNP O06543

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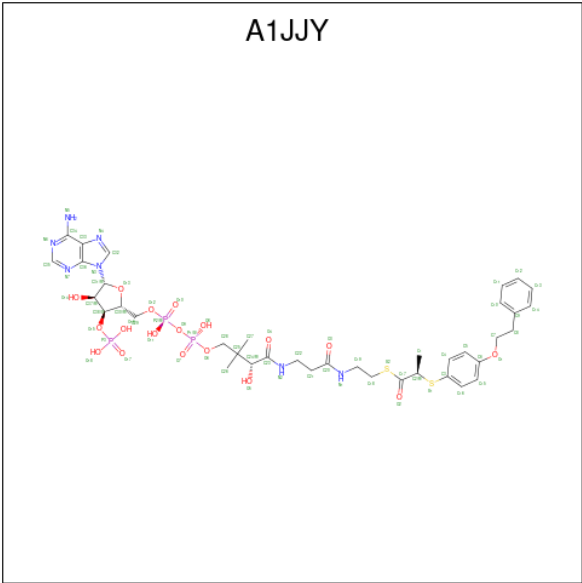
Chain	Residue	Modelled	Actual	Comment	Reference
B	362	SER	-	expression tag	UNP O06543
B	363	GLY	-	expression tag	UNP O06543
B	364	CYS	-	expression tag	UNP O06543
C	361	GLY	-	expression tag	UNP O06543
C	362	SER	-	expression tag	UNP O06543
C	363	GLY	-	expression tag	UNP O06543
C	364	CYS	-	expression tag	UNP O06543
D	361	GLY	-	expression tag	UNP O06543
D	362	SER	-	expression tag	UNP O06543
D	363	GLY	-	expression tag	UNP O06543
D	364	CYS	-	expression tag	UNP O06543
E	361	GLY	-	expression tag	UNP O06543
E	362	SER	-	expression tag	UNP O06543
E	363	GLY	-	expression tag	UNP O06543
E	364	CYS	-	expression tag	UNP O06543
F	361	GLY	-	expression tag	UNP O06543
F	362	SER	-	expression tag	UNP O06543
F	363	GLY	-	expression tag	UNP O06543
F	364	CYS	-	expression tag	UNP O06543
G	361	GLY	-	expression tag	UNP O06543
G	362	SER	-	expression tag	UNP O06543
G	363	GLY	-	expression tag	UNP O06543
G	364	CYS	-	expression tag	UNP O06543
H	361	GLY	-	expression tag	UNP O06543
H	362	SER	-	expression tag	UNP O06543
H	363	GLY	-	expression tag	UNP O06543
H	364	CYS	-	expression tag	UNP O06543
I	361	GLY	-	expression tag	UNP O06543
I	362	SER	-	expression tag	UNP O06543
I	363	GLY	-	expression tag	UNP O06543
I	364	CYS	-	expression tag	UNP O06543
J	361	GLY	-	expression tag	UNP O06543
J	362	SER	-	expression tag	UNP O06543
J	363	GLY	-	expression tag	UNP O06543
J	364	CYS	-	expression tag	UNP O06543
K	361	GLY	-	expression tag	UNP O06543
K	362	SER	-	expression tag	UNP O06543
K	363	GLY	-	expression tag	UNP O06543
K	364	CYS	-	expression tag	UNP O06543
L	361	GLY	-	expression tag	UNP O06543
L	362	SER	-	expression tag	UNP O06543
L	363	GLY	-	expression tag	UNP O06543

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Chain	Residue	Modelled	Actual	Comment	Reference
L	364	CYS	-	expression tag	UNP O06543

- Molecule 2 is 2-(4-(2-Phenylethoxy)phenylthiol)propanoyl-CoA (CCD ID: A1JJY) (formula: C₃₈H₅₂N₇O₁₈P₃S₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	B	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	C	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	D	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	E	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	F	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	G	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	H	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	I	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	J	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	K	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		
2	L	1	Total	C	N	O	P	S	0	0
			68	38	7	18	3	2		

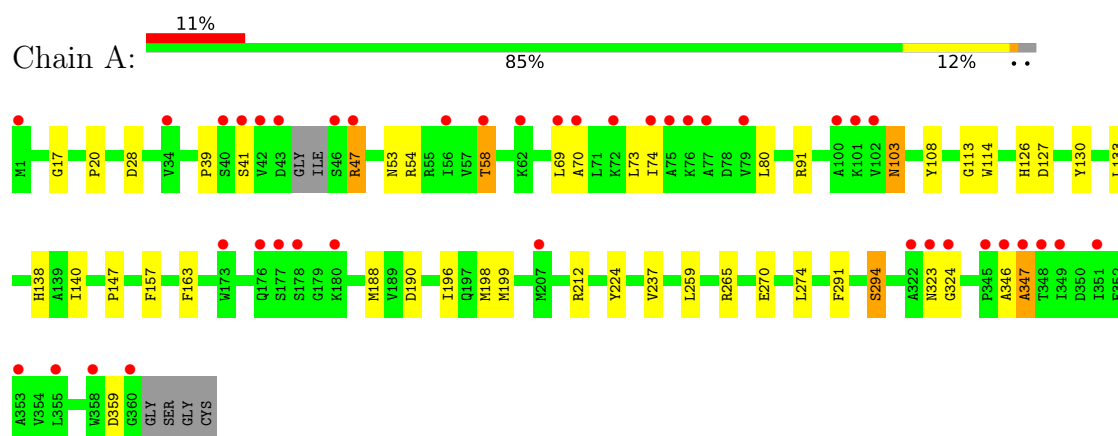
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	106	Total	O	0	0
			106	106		
3	B	117	Total	O	0	0
			117	117		
3	C	103	Total	O	0	0
			103	103		
3	D	126	Total	O	0	0
			126	126		
3	E	102	Total	O	0	0
			102	102		
3	F	103	Total	O	0	0
			103	103		
3	G	106	Total	O	0	0
			106	106		
3	H	94	Total	O	0	0
			94	94		
3	I	109	Total	O	0	0
			109	109		
3	J	115	Total	O	0	0
			115	115		
3	K	115	Total	O	0	0
			115	115		
3	L	100	Total	O	0	0
			100	100		
3	N	1	Total	O	0	0
			1	1		

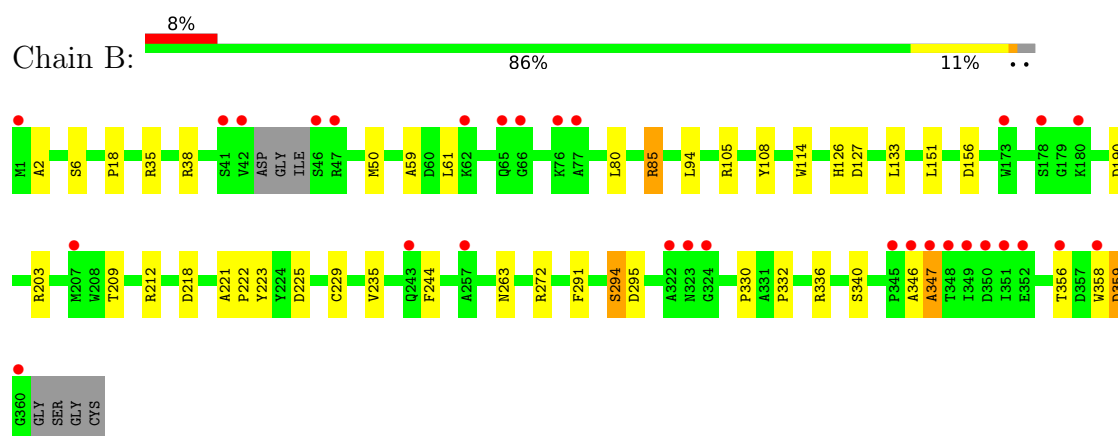
3 Residue-property plots [i](#)

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.

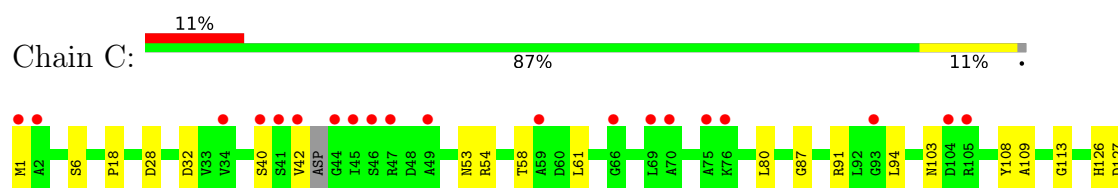
• Molecule 1: Alpha-methylacyl-CoA racemase

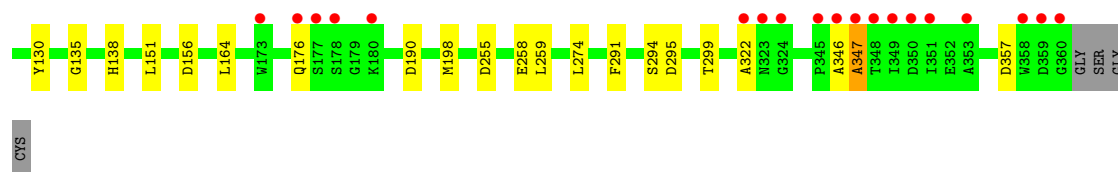


• Molecule 1: Alpha-methylacyl-CoA racemase

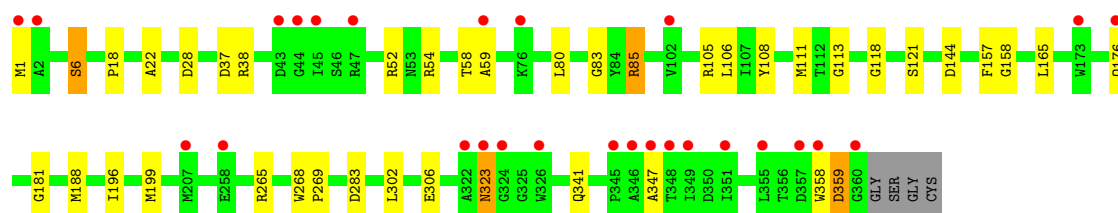
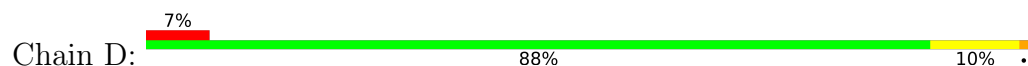


• Molecule 1: Alpha-methylacyl-CoA racemase

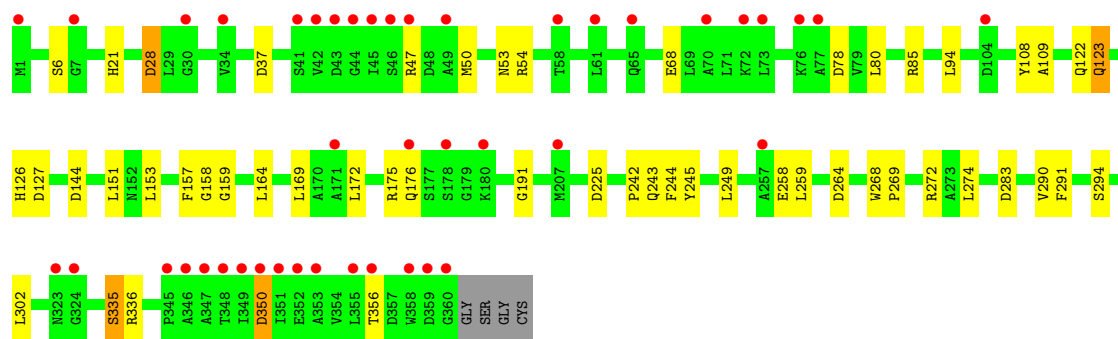
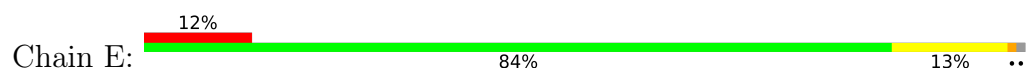




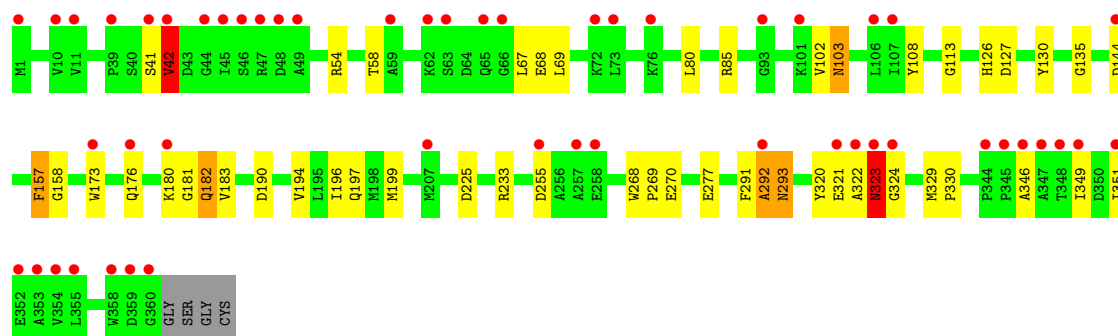
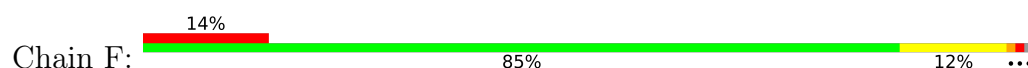
- Molecule 1: Alpha-methylacyl-CoA racemase



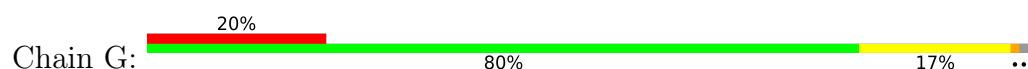
- Molecule 1: Alpha-methylacyl-CoA racemase

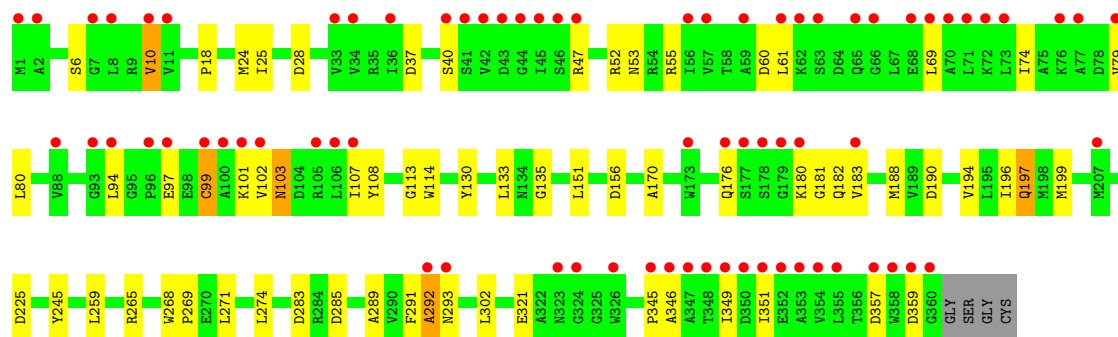


- Molecule 1: Alpha-methylacyl-CoA racemase

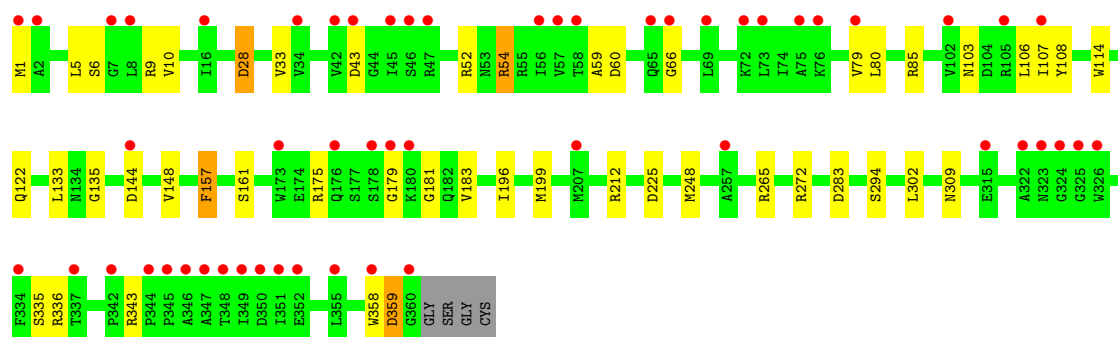
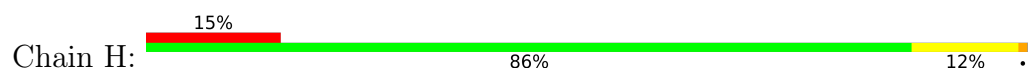


- Molecule 1: Alpha-methylacyl-CoA racemase

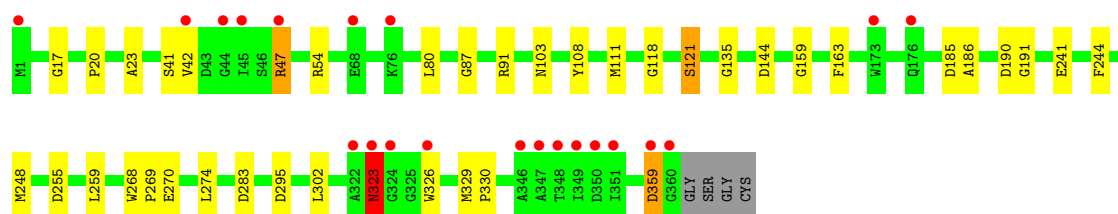
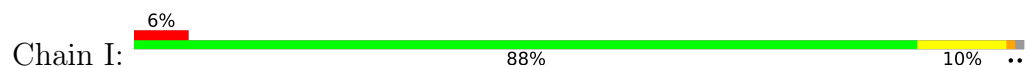




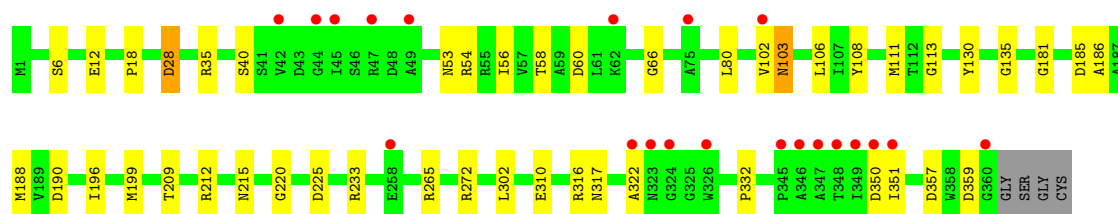
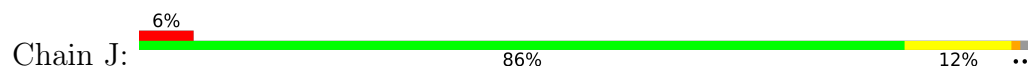
• Molecule 1: Alpha-methylacyl-CoA racemase



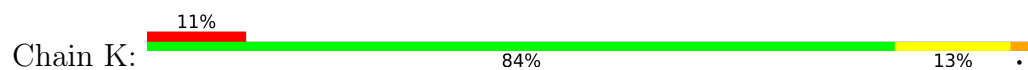
• Molecule 1: Alpha-methylacyl-CoA racemase

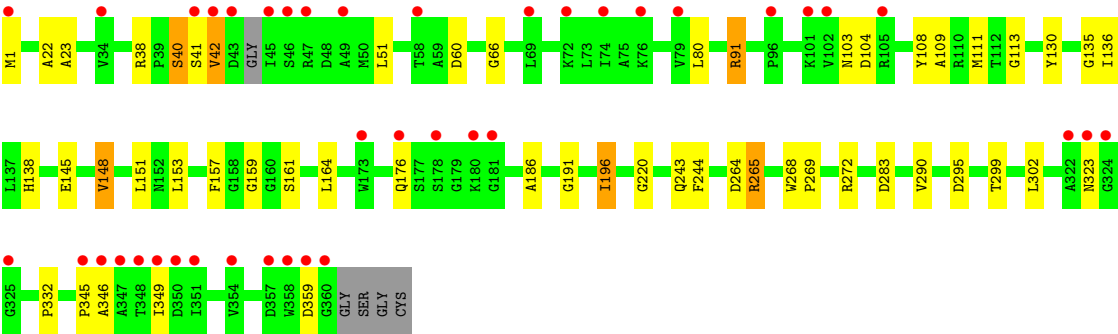


• Molecule 1: Alpha-methylacyl-CoA racemase

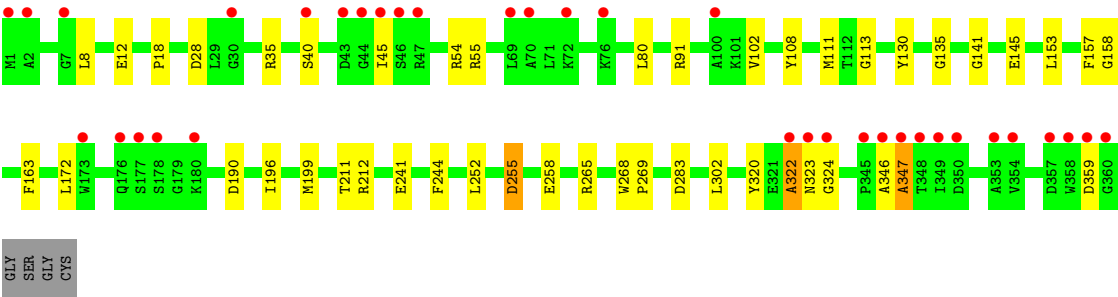
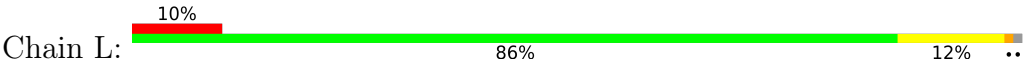


• Molecule 1: Alpha-methylacyl-CoA racemase





● Molecule 1: Alpha-methylacyl-CoA racemase



4 Data and refinement statistics

Property	Value	Source
Space group	I 4 2 2	Depositor
Cell constants a, b, c, α , β , γ	276.86Å 276.86Å 389.85Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	138.81 – 2.30 138.81 – 2.30	Depositor EDS
% Data completeness (in resolution range)	100.0 (138.81-2.30) 99.7 (138.81-2.30)	Depositor EDS
R_{merge}	0.38	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.36 (at 2.29Å)	Xtriage
Refinement program	REFMAC 5.8.0430 (refmacat 0.4.88)	Depositor
R, R_{free}	0.201 , 0.244 0.210 , 0.251	Depositor DCC
R_{free} test set	16809 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å ²)	38.1	Xtriage
Anisotropy	0.290	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 32.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	0.005 for -1/2*h+1/2*k-1/2*l,1/2*h-1/2*k-1/2*l,-h-k 0.010 for -1/2*h-1/2*k+1/2*l,-1/2*h-1/2*k-1/2*l,h-k	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	34739	wwPDB-VP
Average B, all atoms (Å ²)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.62% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: A1JJY

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	0.60	0/2782	1.10	6/3783 (0.2%)
1	B	0.61	0/2774	1.09	5/3772 (0.1%)
1	C	0.61	0/2786	1.06	4/3788 (0.1%)
1	D	0.61	0/2786	1.12	6/3790 (0.2%)
1	E	0.61	0/2804	1.11	8/3814 (0.2%)
1	F	0.61	0/2786	1.10	6/3790 (0.2%)
1	G	0.58	0/2795	1.13	8/3802 (0.2%)
1	H	0.59	0/2786	1.13	8/3790 (0.2%)
1	I	0.59	0/2795	1.08	7/3802 (0.2%)
1	J	0.60	0/2786	1.11	5/3790 (0.1%)
1	K	0.62	0/2799	1.12	6/3806 (0.2%)
1	L	0.62	0/2786	1.11	7/3790 (0.2%)
All	All	0.60	0/33465	1.10	76/45517 (0.2%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2
1	C	0	1
1	E	0	2
1	F	0	1
1	H	0	3
1	J	0	4
1	K	0	1
1	L	0	5
All	All	0	19

There are no bond length outliers.

All (76) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	203	ARG	CB-CA-C	-9.01	95.83	110.79
1	B	203	ARG	N-CA-CB	8.52	122.64	110.12
1	G	283	ASP	CA-CB-CG	6.82	119.42	112.60
1	I	190	ASP	CA-CB-CG	6.78	119.38	112.60
1	G	190	ASP	CA-CB-CG	6.63	119.23	112.60
1	E	283	ASP	CA-CB-CG	6.61	119.21	112.60
1	L	283	ASP	CA-CB-CG	6.56	119.16	112.60
1	G	60	ASP	CA-CB-CG	6.55	119.15	112.60
1	K	283	ASP	CB-CA-C	6.53	122.85	110.51
1	E	28	ASP	CA-CB-CG	6.51	119.11	112.60
1	I	255	ASP	CB-CA-C	6.50	121.63	110.77
1	L	190	ASP	CA-CB-CG	6.41	119.01	112.60
1	K	299	THR	CA-CB-OG1	-6.36	100.06	109.60
1	G	225	ASP	CA-CB-CG	6.34	118.94	112.60
1	E	123	GLN	CB-CA-C	-6.33	99.20	109.72
1	H	28	ASP	CA-CB-CG	6.30	118.91	112.60
1	L	283	ASP	CB-CA-C	6.18	120.64	109.83
1	K	38	ARG	N-CA-CB	6.17	118.29	109.78
1	B	190	ASP	CA-CB-CG	6.16	118.76	112.60
1	I	323	ASN	CB-CA-C	6.14	119.00	110.16
1	F	190	ASP	CA-CB-CG	6.11	118.71	112.60
1	K	264	ASP	CA-CB-CG	6.11	118.71	112.60
1	B	38	ARG	CB-CA-C	6.02	117.01	108.76
1	E	123	GLN	N-CA-CB	5.99	118.87	109.83
1	H	148	VAL	CA-C-O	5.97	123.21	119.51
1	A	190	ASP	CA-CB-CG	5.91	118.51	112.60
1	I	283	ASP	CA-CB-CG	5.91	118.51	112.60
1	E	47	ARG	N-CA-CB	-5.90	101.86	110.53
1	H	309	ASN	CB-CA-C	-5.79	100.79	110.81
1	H	148	VAL	CB-CA-C	5.77	115.73	110.13
1	H	144	ASP	CA-CB-CG	5.75	118.35	112.60
1	I	185	ASP	CA-CB-CG	5.75	118.35	112.60
1	D	144	ASP	CA-CB-CG	5.75	118.34	112.60
1	E	264	ASP	CA-CB-CG	5.72	118.33	112.60
1	F	144	ASP	CA-CB-CG	5.65	118.25	112.60
1	L	28	ASP	CA-CB-CG	5.64	118.24	112.60
1	J	54	ARG	CB-CA-C	-5.64	97.05	109.56
1	F	157	PHE	N-CA-CB	-5.63	100.97	110.49
1	E	37	ASP	CA-CB-CG	5.61	118.21	112.60
1	H	54	ARG	CB-CA-C	-5.58	98.35	109.79
1	K	283	ASP	CA-CB-CG	5.49	118.09	112.60
1	G	197	GLN	N-CA-CB	-5.48	102.06	110.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	L	255	ASP	CA-CB-CG	5.46	118.06	112.60
1	D	283	ASP	CB-CA-C	5.45	121.69	110.40
1	J	190	ASP	CA-CB-CG	5.43	118.03	112.60
1	G	285	ASP	CA-CB-CG	5.41	118.01	112.60
1	D	306	GLU	CB-CA-C	-5.40	100.26	109.65
1	F	323	ASN	CB-CA-C	5.39	121.14	110.42
1	A	147	PRO	CA-C-N	-5.33	118.69	123.33
1	A	147	PRO	C-N-CA	-5.33	118.69	123.33
1	D	38	ARG	CB-CA-C	5.33	116.54	108.86
1	I	144	ASP	CA-CB-CG	5.33	117.93	112.60
1	E	68	GLU	CB-CG-CD	5.31	121.63	112.60
1	J	357	ASP	CA-CB-CG	5.31	117.91	112.60
1	G	357	ASP	CA-CB-CG	5.30	117.90	112.60
1	I	295	ASP	CA-CB-CG	5.29	117.89	112.60
1	J	185	ASP	CA-CB-CG	5.29	117.89	112.60
1	A	54	ARG	CB-CA-C	-5.28	98.65	109.38
1	F	225	ASP	CA-CB-CG	5.27	117.87	112.60
1	L	55	ARG	CB-CA-C	5.24	118.79	109.72
1	A	58	THR	CA-CB-OG1	-5.22	101.77	109.60
1	D	54	ARG	CB-CA-C	-5.21	98.00	109.56
1	C	255	ASP	CB-CA-C	5.19	119.09	110.78
1	F	54	ARG	CB-CA-C	-5.15	98.92	109.38
1	L	211	THR	CA-CB-OG1	-5.14	101.89	109.60
1	A	157	PHE	N-CA-CB	-5.13	101.81	110.49
1	G	99	CYS	CB-CA-C	5.13	119.95	110.56
1	K	104	ASP	CA-CB-CG	5.12	117.72	112.60
1	C	32	ASP	CA-CB-CG	5.10	117.70	112.60
1	B	218	ASP	CA-CB-CG	5.09	117.69	112.60
1	J	28	ASP	CA-CB-CG	5.08	117.68	112.60
1	C	190	ASP	CA-CB-CG	5.07	117.67	112.60
1	D	341	GLN	CB-CA-C	5.04	117.83	109.56
1	H	283	ASP	CA-CB-CG	5.04	117.64	112.60
1	H	157	PHE	CA-CB-CG	-5.02	108.78	113.80
1	C	357	ASP	CA-CB-CG	5.02	117.62	112.60

There are no chirality outliers.

All (19) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	212	ARG	Sidechain
1	B	35	ARG	Sidechain
1	C	54	ARG	Peptide

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Mol	Chain	Res	Type	Group
1	E	350	ASP	Peptide
1	E	54	ARG	Peptide
1	F	233	ARG	Sidechain
1	H	212	ARG	Sidechain
1	H	265	ARG	Sidechain
1	H	54	ARG	Peptide
1	J	212	ARG	Sidechain
1	J	233	ARG	Sidechain
1	J	265	ARG	Sidechain
1	J	322	ALA	Peptide
1	K	265	ARG	Sidechain
1	L	212	ARG	Sidechain
1	L	265	ARG	Sidechain
1	L	322	ALA	Peptide
1	L	54	ARG	Peptide
1	L	91	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2710	0	2646	29	0
1	B	2708	0	2651	22	0
1	C	2714	0	2656	18	0
1	D	2719	0	2663	22	0
1	E	2731	0	2668	24	0
1	F	2719	0	2663	30	0
1	G	2722	0	2661	37	0
1	H	2719	0	2663	21	0
1	I	2722	0	2661	22	0
1	J	2719	0	2663	19	0
1	K	2724	0	2665	28	0
1	L	2719	0	2663	21	0
2	A	68	0	0	1	0
2	B	68	0	0	1	0
2	C	68	0	0	0	0
2	D	68	0	0	1	0
2	E	68	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	68	0	0	3	0
2	G	68	0	0	0	0
2	H	68	0	0	1	0
2	I	68	0	0	0	0
2	J	68	0	0	0	0
2	K	68	0	0	1	0
2	L	68	0	0	1	0
3	A	106	0	0	2	0
3	B	117	0	0	2	0
3	C	103	0	0	1	0
3	D	126	0	0	0	0
3	E	102	0	0	0	0
3	F	103	0	0	3	0
3	G	106	0	0	3	0
3	H	94	0	0	0	0
3	I	109	0	0	3	0
3	J	115	0	0	1	0
3	K	115	0	0	3	0
3	L	100	0	0	1	0
3	N	1	0	0	0	0
All	All	34739	0	31923	271	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 4.

All (271) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:259:LEU:HD22	1:G:274:LEU:HD13	1.51	0.89
1:I:118:GLY:O	1:I:121:SER:OG	2.04	0.75
1:F:69:LEU:HD13	1:F:351:ILE:HG23	1.70	0.74
1:K:196:ILE:HG13	1:L:153:LEU:HD21	1.70	0.74
1:E:80:LEU:HD23	1:E:108:TYR:CE2	2.24	0.72
1:I:80:LEU:HD23	1:I:108:TYR:CE2	2.26	0.70
1:F:80:LEU:HD22	1:F:108:TYR:CE1	2.27	0.69
1:A:91:ARG:NH2	2:A:401:A1JJY:O18	2.26	0.68
1:B:80:LEU:HD23	1:B:108:TYR:CE2	2.29	0.68
1:H:79:VAL:HG22	1:H:107:ILE:HB	1.74	0.68
1:C:61:LEU:HD22	1:C:94:LEU:HD11	1.73	0.67
1:B:291:PHE:O	1:B:294:SER:HB3	1.94	0.67
1:K:40:SER:OG	3:K:501:HOH:O	2.12	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:198:MET:HE1	2:D:401:A1JJY:C4	2.26	0.66
1:G:265:ARG:NH2	3:G:503:HOH:O	2.28	0.65
1:D:80:LEU:HD23	1:D:108:TYR:CE2	2.32	0.64
2:L:401:A1JJY:O7	3:L:501:HOH:O	2.15	0.64
1:F:291:PHE:O	1:F:293:ASN:N	2.31	0.64
1:F:80:LEU:CD2	1:F:108:TYR:CE1	2.82	0.63
1:K:80:LEU:HD23	1:K:108:TYR:CE2	2.34	0.63
1:G:183:VAL:HB	1:H:335:SER:HB3	1.83	0.61
1:G:80:LEU:HD23	1:G:108:TYR:CE2	2.37	0.60
1:A:270:GLU:HG3	3:A:578:HOH:O	2.01	0.60
1:K:138:HIS:HD2	3:K:530:HOH:O	1.84	0.60
1:K:332:PRO:HG3	1:L:163:PHE:O	2.02	0.60
1:I:270:GLU:HG3	3:I:591:HOH:O	2.01	0.59
1:B:346:ALA:O	1:B:347:ALA:O	2.21	0.58
1:C:259:LEU:HD22	1:C:274:LEU:HD13	1.84	0.58
1:G:346:ALA:HB3	3:G:519:HOH:O	2.03	0.58
1:E:245:TYR:CE2	1:E:249:LEU:HD11	2.39	0.58
1:H:80:LEU:HD23	1:H:108:TYR:CE2	2.39	0.58
1:E:259:LEU:HD22	1:E:274:LEU:HD13	1.86	0.58
1:I:326:TRP:HD1	3:I:570:HOH:O	1.86	0.58
1:F:69:LEU:HD13	1:F:351:ILE:CG2	2.34	0.57
1:A:80:LEU:HD23	1:A:108:TYR:CE2	2.39	0.57
1:C:138:HIS:HD2	3:C:558:HOH:O	1.87	0.57
1:H:225:ASP:OD2	1:H:272:ARG:NH1	2.37	0.57
1:K:60:ASP:O	1:K:66:GLY:HA3	2.05	0.57
1:A:138:HIS:HD2	3:A:518:HOH:O	1.87	0.56
1:J:220:GLY:O	1:J:272:ARG:NH2	2.38	0.56
1:I:17:GLY:O	1:I:20:PRO:HD2	2.05	0.56
1:L:80:LEU:HD23	1:L:108:TYR:CE2	2.39	0.56
1:D:118:GLY:O	1:D:121:SER:OG	2.13	0.56
1:K:91:ARG:NH2	2:K:401:A1JJY:O18	2.39	0.55
1:F:85:ARG:HD3	2:F:401:A1JJY:O10	2.06	0.55
1:G:61:LEU:HD13	1:G:94:LEU:CD1	2.36	0.55
1:D:1:MET:O	1:D:6:SER:OG	2.23	0.55
1:D:105:ARG:HH11	1:D:105:ARG:HG2	1.71	0.55
1:E:85:ARG:NH1	1:E:122:GLN:O	2.37	0.54
1:J:80:LEU:HD23	1:J:108:TYR:CE2	2.42	0.54
1:K:159:GLY:O	1:K:191:GLY:HA3	2.08	0.54
1:J:113:GLY:HA3	1:J:130:TYR:CE1	2.42	0.54
1:A:259:LEU:HD22	1:A:274:LEU:HD13	1.90	0.54
1:F:85:ARG:CD	2:F:401:A1JJY:O10	2.55	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:79:VAL:HG22	1:G:107:ILE:HB	1.88	0.54
1:L:323:ASN:CG	1:L:324:GLY:H	2.16	0.54
1:K:145:GLU:OE1	1:L:145:GLU:OE1	2.27	0.53
1:G:259:LEU:CD2	1:G:274:LEU:HD13	2.33	0.53
1:B:105:ARG:NH1	3:B:503:HOH:O	2.42	0.53
1:F:255:ASP:HB2	3:F:599:HOH:O	2.09	0.52
1:D:37:ASP:O	1:D:58:THR:HA	2.09	0.52
1:K:196:ILE:HG23	1:K:196:ILE:O	2.08	0.52
1:A:346:ALA:O	1:A:347:ALA:C	2.52	0.52
1:A:346:ALA:O	1:A:347:ALA:O	2.28	0.52
1:E:336:ARG:NH2	1:F:180:LYS:HB2	2.24	0.52
1:H:60:ASP:O	1:H:66:GLY:HA3	2.10	0.52
1:G:55:ARG:HD2	1:G:349:ILE:HD13	1.92	0.51
1:K:346:ALA:HB3	3:K:508:HOH:O	2.09	0.51
1:A:196:ILE:HG12	1:A:199:MET:HB2	1.92	0.51
1:F:196:ILE:HG23	1:F:196:ILE:O	2.10	0.51
1:D:268:TRP:N	1:D:269:PRO:CD	2.73	0.51
1:K:243[A]:GLN:CD	1:K:243[A]:GLN:H	2.19	0.51
1:C:80:LEU:HD12	1:C:108:TYR:CE2	2.45	0.50
1:K:111:MET:HE3	1:K:186:ALA:O	2.11	0.50
1:D:80:LEU:CD2	1:D:108:TYR:CE2	2.94	0.50
1:F:181:GLY:O	1:F:182:GLN:HB3	2.10	0.50
1:G:113:GLY:HA2	1:G:188:MET:HB2	1.93	0.50
1:J:28:ASP:HA	1:J:53:ASN:ND2	2.27	0.50
1:B:85:ARG:HD2	2:B:401:A1JJY:O10	2.12	0.50
1:D:28:ASP:CG	1:D:52:ARG:HH21	2.19	0.49
1:B:80:LEU:CD2	1:B:108:TYR:CE2	2.95	0.49
2:H:401:A1JJY:C26	2:H:401:A1JJY:O4	2.60	0.49
1:A:28:ASP:HA	1:A:53:ASN:ND2	2.28	0.49
1:C:295:ASP:CG	1:D:85:ARG:HH22	2.20	0.49
1:K:244:PHE:CD1	1:K:295:ASP:HB3	2.48	0.49
1:B:114:TRP:CZ3	1:B:133:LEU:HD22	2.48	0.49
1:C:135:GLY:HA2	1:D:302:LEU:O	2.13	0.49
1:F:329:MET:HE3	1:F:330:PRO:HD2	1.95	0.48
1:I:87:GLY:O	1:I:91:ARG:HG3	2.12	0.48
1:C:291:PHE:O	1:C:294:SER:HB3	2.12	0.48
1:I:302:LEU:O	1:J:135:GLY:HA2	2.13	0.48
1:L:255:ASP:HB2	1:L:258:GLU:HG2	1.93	0.48
1:A:114:TRP:CZ3	1:A:133:LEU:HD22	2.48	0.48
1:B:229:CYS:SG	1:B:235:VAL:HG13	2.53	0.48
1:L:80:LEU:CD2	1:L:108:TYR:CE2	2.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:401:A1JJY:O4	2:F:401:A1JJY:C26	2.61	0.48
1:G:196:ILE:HG12	1:G:199:MET:HB2	1.94	0.48
1:G:345:PRO:HA	3:G:524:HOH:O	2.14	0.48
1:J:196:ILE:HG12	1:J:199:MET:HB2	1.96	0.48
1:J:310:GLU:OE2	3:J:501:HOH:O	2.20	0.48
1:I:323:ASN:OD1	1:I:323:ASN:N	2.40	0.48
1:K:220:GLY:O	1:K:272:ARG:NH2	2.47	0.48
1:E:291:PHE:O	1:E:294:SER:HB3	2.13	0.47
1:H:157:PHE:HA	1:H:161:SER:OG	2.14	0.47
1:K:135:GLY:HA2	1:L:302:LEU:O	2.14	0.47
1:A:47:ARG:CB	1:A:47:ARG:HH11	2.28	0.47
1:C:176:GLN:CD	1:D:176:GLN:HG2	2.40	0.47
1:B:61:LEU:HD22	1:B:94:LEU:HD11	1.95	0.47
1:F:196:ILE:HG12	1:F:199:MET:HB2	1.97	0.47
1:E:109:ALA:HB1	1:E:164:LEU:HD11	1.96	0.47
1:F:102:VAL:O	1:F:103:ASN:HB2	2.14	0.47
1:G:28:ASP:HA	1:G:53:ASN:ND2	2.29	0.47
1:E:153:LEU:HD21	1:F:196:ILE:HG13	1.97	0.47
1:G:291:PHE:O	1:G:292:ALA:C	2.58	0.47
1:K:80:LEU:CD2	1:K:108:TYR:CE2	2.96	0.47
1:B:223:TYR:OH	1:B:263:ASN:ND2	2.41	0.47
1:F:270:GLU:HG3	3:F:504:HOH:O	2.15	0.47
1:K:302:LEU:O	1:L:135:GLY:HA2	2.15	0.47
1:G:114:TRP:CZ3	1:G:133:LEU:HD22	2.49	0.46
1:F:113:GLY:HA3	1:F:130:TYR:CE1	2.50	0.46
1:G:28:ASP:CG	1:G:52:ARG:HH21	2.22	0.46
1:G:268:TRP:N	1:G:269:PRO:CD	2.77	0.46
1:E:336:ARG:HG2	1:E:336:ARG:HH11	1.81	0.46
1:D:358:TRP:O	1:D:359:ASP:HB2	2.16	0.46
1:E:335:SER:HG	1:F:183:VAL:H	1.64	0.46
2:E:401:A1JJY:O4	2:E:401:A1JJY:C27	2.63	0.46
1:D:106:LEU:O	1:D:181:GLY:HA3	2.15	0.46
1:G:80:LEU:CD2	1:G:108:TYR:CE2	2.99	0.46
1:I:41:SER:HB3	3:I:602:HOH:O	2.15	0.46
1:G:170:ALA:HA	1:H:5:LEU:HD21	1.96	0.46
1:G:176:GLN:HE21	1:G:176:GLN:HA	1.80	0.46
1:D:265:ARG:HG2	1:D:268:TRP:CH2	2.51	0.46
1:E:243[B]:GLN:HG2	1:E:244:PHE:CD1	2.50	0.46
1:H:358:TRP:O	1:H:359:ASP:HB2	2.16	0.46
1:F:268:TRP:N	1:F:269:PRO:CD	2.79	0.45
1:G:302:LEU:O	1:H:135:GLY:HA2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:153:LEU:HD21	1:L:196:ILE:HG13	1.97	0.45
1:C:259:LEU:CD2	1:C:274:LEU:HD13	2.46	0.45
1:F:113:GLY:HA3	1:F:130:TYR:CZ	2.52	0.45
1:L:8:LEU:HD11	1:L:172:LEU:HD11	1.99	0.45
1:C:346:ALA:O	1:C:347:ALA:C	2.59	0.45
1:I:259:LEU:HD22	1:I:274:LEU:HD13	1.98	0.45
1:J:60:ASP:O	1:J:66:GLY:HA3	2.17	0.45
1:J:316:ARG:O	1:J:317:ASN:C	2.60	0.45
1:A:103:ASN:OD1	1:A:103:ASN:C	2.60	0.45
1:D:18:PRO:HB2	1:D:111:MET:HG2	1.98	0.45
1:A:163:PHE:O	1:B:332:PRO:HG3	2.16	0.45
1:I:329:MET:HE3	1:I:330:PRO:HD2	1.99	0.45
1:K:113:GLY:HA3	1:K:130:TYR:CZ	2.52	0.45
1:G:113:GLY:HA3	1:G:130:TYR:CE1	2.52	0.45
1:I:111:MET:HE3	1:I:186:ALA:O	2.17	0.45
1:L:18:PRO:HB2	1:L:111:MET:CG	2.47	0.45
1:G:69:LEU:HD13	1:G:351:ILE:HG21	1.99	0.44
1:L:113:GLY:HA3	1:L:130:TYR:CE1	2.53	0.44
1:A:91:ARG:HD2	1:E:242:PRO:HB3	1.99	0.44
1:B:336:ARG:HG2	1:B:336:ARG:HH11	1.83	0.44
1:I:47:ARG:HH11	1:I:47:ARG:HB3	1.82	0.44
1:K:109:ALA:HB1	1:K:164:LEU:HD11	1.98	0.44
1:D:196:ILE:HG12	1:D:199:MET:HB2	2.00	0.44
1:G:10:VAL:HG22	1:G:79:VAL:HB	1.99	0.44
1:I:268:TRP:N	1:I:269:PRO:CD	2.79	0.44
1:J:18:PRO:HG3	1:J:188:MET:HE2	1.98	0.44
1:A:47:ARG:HH11	1:A:47:ARG:HB3	1.82	0.44
1:A:113:GLY:HA2	1:A:188:MET:HB2	1.99	0.44
1:J:111:MET:HE3	1:J:186:ALA:O	2.18	0.44
1:A:138:HIS:O	1:A:212:ARG:HD3	2.17	0.44
1:B:244:PHE:HB3	1:B:295:ASP:O	2.18	0.44
1:C:346:ALA:O	1:C:347:ALA:O	2.35	0.44
1:G:245:TYR:OH	1:G:271:LEU:HD11	2.18	0.44
1:L:12:GLU:O	1:L:35:ARG:HA	2.17	0.44
1:D:157:PHE:O	1:D:158:GLY:C	2.60	0.44
1:E:159:GLY:O	1:E:191:GLY:HA3	2.18	0.44
1:C:28:ASP:HA	1:C:53:ASN:ND2	2.32	0.44
1:H:10:VAL:HB	1:H:33:VAL:HG22	1.99	0.44
1:E:78:ASP:OD1	1:E:175:ARG:NH2	2.29	0.43
1:I:80:LEU:CD2	1:I:108:TYR:CE2	2.97	0.43
1:I:241:GLU:HB2	1:I:244:PHE:CD2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:17:GLY:O	1:A:20:PRO:HD2	2.19	0.43
1:E:169:LEU:HD23	1:E:172:LEU:HD12	1.99	0.43
1:G:74:ILE:HD13	1:G:99:CYS:SG	2.58	0.43
1:G:102:VAL:O	1:G:103:ASN:HB2	2.18	0.43
1:G:194:VAL:O	1:G:197:GLN:HB2	2.19	0.43
1:J:225:ASP:OD2	1:J:272:ARG:NH1	2.52	0.43
1:L:320:TYR:CE2	1:L:322:ALA:HB2	2.53	0.43
1:F:67:LEU:HD12	1:F:67:LEU:O	2.19	0.43
1:F:346:ALA:HB3	3:F:558:HOH:O	2.18	0.43
1:G:180:LYS:HB2	1:H:336:ARG:NH2	2.33	0.43
1:H:175:ARG:O	1:H:179:GLY:N	2.48	0.43
1:E:268:TRP:N	1:E:269:PRO:CD	2.81	0.43
1:G:135:GLY:HA2	1:H:302:LEU:O	2.19	0.43
1:H:106:LEU:O	1:H:181:GLY:HA3	2.17	0.43
1:I:159:GLY:O	1:I:191:GLY:HA3	2.18	0.43
1:E:28:ASP:HA	1:E:53:ASN:ND2	2.34	0.43
1:G:97:GLU:HA	1:G:97:GLU:OE2	2.18	0.43
1:G:181:GLY:O	1:G:182:GLN:HB3	2.19	0.43
1:J:35:ARG:HD3	1:J:56:ILE:CD1	2.49	0.43
1:E:123:GLN:NE2	1:F:292:ALA:O	2.52	0.43
1:K:113:GLY:HA3	1:K:130:TYR:CE1	2.54	0.43
1:I:135:GLY:HA2	1:J:302:LEU:O	2.18	0.42
1:K:51:LEU:O	1:K:345:PRO:HB3	2.19	0.42
1:B:330:PRO:HB2	3:B:579:HOH:O	2.19	0.42
1:C:18:PRO:HB3	1:C:156:ASP:O	2.19	0.42
1:A:113:GLY:HA3	1:A:130:TYR:CE1	2.54	0.42
1:K:157:PHE:HA	1:K:161:SER:OG	2.18	0.42
1:J:12:GLU:O	1:J:35:ARG:HA	2.20	0.42
1:L:157:PHE:O	1:L:158:GLY:C	2.62	0.42
1:L:346:ALA:O	1:L:347:ALA:O	2.37	0.42
1:K:22:ALA:O	1:K:23:ALA:C	2.61	0.42
1:L:268:TRP:N	1:L:269:PRO:CD	2.83	0.42
1:A:73:LEU:O	1:A:74:ILE:C	2.61	0.42
1:C:126:HIS:O	1:C:127:ASP:C	2.63	0.42
1:G:113:GLY:HA3	1:G:130:TYR:CZ	2.55	0.42
1:I:23:ALA:HB3	1:I:54:ARG:NH2	2.35	0.42
1:A:80:LEU:CD2	1:A:108:TYR:CE2	3.03	0.42
1:C:87:GLY:O	1:C:91:ARG:HG3	2.19	0.42
1:H:114:TRP:CZ3	1:H:133:LEU:HD22	2.55	0.42
1:I:163:PHE:O	1:J:332:PRO:HG3	2.20	0.42
1:A:69:LEU:O	1:A:70:ALA:C	2.61	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:323:ASN:O	1:A:324:GLY:C	2.63	0.41
1:B:126:HIS:O	1:B:127:ASP:C	2.63	0.41
1:B:346:ALA:O	1:B:347:ALA:C	2.63	0.41
1:J:102:VAL:O	1:J:103:ASN:HB2	2.19	0.41
1:A:39:PRO:C	1:A:41:SER:H	2.28	0.41
1:B:18:PRO:HB3	1:B:156:ASP:O	2.19	0.41
1:D:105:ARG:HG2	1:D:105:ARG:NH1	2.35	0.41
1:E:126:HIS:O	1:E:127:ASP:C	2.63	0.41
1:I:80:LEU:HD23	1:I:108:TYR:CD2	2.54	0.41
1:B:221:ALA:HA	1:B:222:PRO:HD3	1.94	0.41
1:E:21:HIS:HD2	1:E:50:MET:HE2	1.85	0.41
1:H:358:TRP:O	1:H:359:ASP:CB	2.67	0.41
1:K:268:TRP:N	1:K:269:PRO:CD	2.82	0.41
1:B:2:ALA:HB3	1:B:340:SER:HB3	2.02	0.41
1:F:194:VAL:O	1:F:197:GLN:HB2	2.21	0.41
1:H:196:ILE:HG12	1:H:199:MET:HB2	2.03	0.41
1:K:148:VAL:HG21	1:L:141:GLY:HA2	2.01	0.41
1:G:18:PRO:HB3	1:G:156:ASP:O	2.20	0.41
1:G:25:ILE:O	1:G:28:ASP:HB2	2.20	0.41
1:B:358:TRP:O	1:B:359:ASP:CB	2.68	0.41
1:D:83:GLY:HA2	1:D:111:MET:O	2.20	0.41
1:G:289:ALA:O	1:G:292:ALA:HB2	2.21	0.41
1:H:28:ASP:CG	1:H:52:ARG:HH21	2.26	0.41
1:C:109:ALA:HB1	1:C:164:LEU:HD11	2.03	0.41
1:E:157:PHE:O	1:E:158:GLY:C	2.61	0.41
1:F:320:TYR:CE2	1:F:322:ALA:HB2	2.55	0.41
1:F:323:ASN:CG	1:F:324:GLY:N	2.79	0.41
1:G:24:MET:HE2	1:G:24:MET:HB3	1.92	0.41
1:L:241:GLU:HB2	1:L:244:PHE:CD2	2.55	0.41
1:B:225:ASP:OD2	1:B:272:ARG:NH1	2.53	0.41
1:H:80:LEU:CD2	1:H:108:TYR:CE2	3.03	0.41
1:K:136:ILE:HG12	1:K:196:ILE:HD12	2.02	0.41
1:F:126:HIS:O	1:F:127:ASP:C	2.63	0.41
1:F:157:PHE:O	1:F:158:GLY:C	2.64	0.41
1:H:1:MET:HE2	1:H:343:ARG:CZ	2.50	0.41
1:A:126:HIS:O	1:A:127:ASP:C	2.63	0.41
1:A:224:TYR:HA	1:A:237:VAL:O	2.21	0.41
1:E:225:ASP:OD2	1:E:272:ARG:NH1	2.54	0.41
1:F:42:VAL:HG11	1:F:58:THR:HG21	2.03	0.41
1:J:106:LEU:O	1:J:181:GLY:HA3	2.20	0.41
1:C:113:GLY:HA3	1:C:130:TYR:CE1	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:113:GLY:HA2	1:D:188:MET:HB2	2.03	0.40
1:I:54:ARG:HH11	1:I:54:ARG:HG2	1.86	0.40
1:J:209:THR:HG22	1:J:215:ASN:OD1	2.21	0.40
1:A:198:MET:HE3	1:B:50:MET:HE1	2.03	0.40
1:D:22:ALA:O	1:D:165:LEU:HD21	2.21	0.40
1:L:252:LEU:HD23	1:L:252:LEU:HA	1.90	0.40
1:E:302:LEU:O	1:F:135:GLY:HA2	2.21	0.40
1:A:28:ASP:HA	1:A:53:ASN:HD22	1.86	0.40
1:D:323:ASN:HD22	1:D:323:ASN:N	2.19	0.40
1:E:94:LEU:HD23	1:E:94:LEU:HA	1.78	0.40
1:A:291:PHE:O	1:A:294:SER:HB3	2.22	0.40
1:H:85:ARG:NH2	1:H:122:GLN:O	2.52	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	356/364 (98%)	330 (93%)	23 (6%)	3 (1%)	16	20
1	B	355/364 (98%)	334 (94%)	17 (5%)	4 (1%)	11	13
1	C	357/364 (98%)	339 (95%)	14 (4%)	4 (1%)	11	13
1	D	359/364 (99%)	332 (92%)	24 (7%)	3 (1%)	16	20
1	E	361/364 (99%)	336 (93%)	24 (7%)	1 (0%)	36	46
1	F	359/364 (99%)	329 (92%)	24 (7%)	6 (2%)	7	7
1	G	360/364 (99%)	329 (91%)	26 (7%)	5 (1%)	9	9
1	H	359/364 (99%)	336 (94%)	20 (6%)	3 (1%)	16	20
1	I	360/364 (99%)	343 (95%)	15 (4%)	2 (1%)	21	27
1	J	359/364 (99%)	342 (95%)	15 (4%)	2 (1%)	21	27

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	K	358/364 (98%)	334 (93%)	19 (5%)	5 (1%)	9	9
1	L	359/364 (99%)	336 (94%)	21 (6%)	2 (1%)	21	27
All	All	4302/4368 (98%)	4020 (93%)	242 (6%)	40 (1%)	14	17

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	347	ALA
1	B	347	ALA
1	B	359	ASP
1	C	347	ALA
1	D	347	ALA
1	F	41	SER
1	F	103	ASN
1	G	103	ASN
1	G	292	ALA
1	H	359	ASP
1	I	359	ASP
1	K	103	ASN
1	A	103	ASN
1	A	359	ASP
1	H	59	ALA
1	J	103	ASN
1	K	359	ASP
1	C	151	LEU
1	C	322	ALA
1	D	59	ALA
1	F	292	ALA
1	F	323	ASN
1	G	101	LYS
1	J	359	ASP
1	L	347	ALA
1	L	359	ASP
1	B	151	LEU
1	C	103	ASN
1	D	359	ASP
1	F	182	GLN
1	K	151	LEU
1	K	323	ASN
1	B	59	ALA
1	F	42	VAL

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Mol	Chain	Res	Type
1	G	151	LEU
1	G	359	ASP
1	H	103	ASN
1	I	103	ASN
1	E	151	LEU
1	K	42	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	276/277 (100%)	271 (98%)	5 (2%)	51	70
1	B	275/277 (99%)	270 (98%)	5 (2%)	51	70
1	C	276/277 (100%)	269 (98%)	7 (2%)	42	60
1	D	276/277 (100%)	273 (99%)	3 (1%)	65	81
1	E	278/277 (100%)	270 (97%)	8 (3%)	37	55
1	F	276/277 (100%)	267 (97%)	9 (3%)	33	50
1	G	277/277 (100%)	270 (98%)	7 (2%)	42	60
1	H	276/277 (100%)	270 (98%)	6 (2%)	45	65
1	I	277/277 (100%)	271 (98%)	6 (2%)	45	65
1	J	276/277 (100%)	271 (98%)	5 (2%)	51	70
1	K	278/277 (100%)	267 (96%)	11 (4%)	28	42
1	L	276/277 (100%)	272 (99%)	4 (1%)	59	76
All	All	3317/3324 (100%)	3241 (98%)	76 (2%)	44	63

All (76) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	47	ARG
1	A	58	THR
1	A	140	ILE
1	A	265	ARG

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Mol	Chain	Res	Type
1	A	294	SER
1	B	6	SER
1	B	85	ARG
1	B	209	THR
1	B	294	SER
1	B	356	THR
1	C	1	MET
1	C	6	SER
1	C	40	SER
1	C	42	VAL
1	C	58	THR
1	C	258	GLU
1	C	299	THR
1	D	6	SER
1	D	85	ARG
1	D	323	ASN
1	E	6	SER
1	E	144	ASP
1	E	176	GLN
1	E	258	GLU
1	E	290	VAL
1	E	335	SER
1	E	350	ASP
1	E	356	THR
1	F	42	VAL
1	F	68	GLU
1	F	173	TRP
1	F	176	GLN
1	F	277	GLU
1	F	293	ASN
1	F	321	GLU
1	F	323	ASN
1	F	349	ILE
1	G	6	SER
1	G	10	VAL
1	G	37	ASP
1	G	40	SER
1	G	47	ARG
1	G	293	ASN
1	G	321	GLU
1	H	6	SER
1	H	9	ARG

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Mol	Chain	Res	Type
1	H	43	ASP
1	H	183	VAL
1	H	248	MET
1	H	294	SER
1	I	42	VAL
1	I	47	ARG
1	I	121	SER
1	I	248	MET
1	I	323	ASN
1	I	359	ASP
1	J	6	SER
1	J	40	SER
1	J	58	THR
1	J	350	ASP
1	J	351	ILE
1	K	1	MET
1	K	40	SER
1	K	41	SER
1	K	42	VAL
1	K	91	ARG
1	K	148	VAL
1	K	176	GLN
1	K	196	ILE
1	K	265	ARG
1	K	290	VAL
1	K	349	ILE
1	L	40	SER
1	L	45	ILE
1	L	102	VAL
1	L	199	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (45) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	116	GLN
1	A	138	HIS
1	A	176	GLN
1	A	197	GLN
1	A	263	ASN
1	A	286	HIS
1	A	327	GLN
1	B	176	GLN

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Mol	Chain	Res	Type
1	B	263	ASN
1	B	327	GLN
1	C	138	HIS
1	C	176	GLN
1	C	327	GLN
1	D	65	GLN
1	D	176	GLN
1	D	282	HIS
1	D	323	ASN
1	E	138	HIS
1	E	176	GLN
1	E	263	ASN
1	F	282	HIS
1	F	286	HIS
1	G	138	HIS
1	G	176	GLN
1	G	282	HIS
1	G	286	HIS
1	H	116	GLN
1	H	197	GLN
1	H	282	HIS
1	H	286	HIS
1	H	309	ASN
1	H	323	ASN
1	I	138	HIS
1	I	176	GLN
1	I	263	ASN
1	I	282	HIS
1	J	122	GLN
1	J	286	HIS
1	J	308	HIS
1	J	323	ASN
1	K	138	HIS
1	K	293	ASN
1	K	327	GLN
1	L	122	GLN
1	L	176	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

12 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	$\# Z > 2$
2	A1JJY	K	401	-	66,72,72	0.65	1 (1%)	89,104,104	1.12	8 (8%)
2	A1JJY	J	401	-	66,72,72	0.53	0	89,104,104	1.04	8 (8%)
2	A1JJY	G	401	-	66,72,72	0.60	1 (1%)	89,104,104	0.86	5 (5%)
2	A1JJY	D	401	-	66,72,72	0.57	1 (1%)	89,104,104	0.92	6 (6%)
2	A1JJY	E	401	-	66,72,72	0.77	3 (4%)	89,104,104	1.00	6 (6%)
2	A1JJY	B	401	-	66,72,72	0.64	1 (1%)	89,104,104	0.74	2 (2%)
2	A1JJY	L	401	-	66,72,72	0.63	1 (1%)	89,104,104	0.90	5 (5%)
2	A1JJY	I	401	-	66,72,72	0.68	1 (1%)	89,104,104	0.87	6 (6%)
2	A1JJY	A	401	-	66,72,72	0.58	1 (1%)	89,104,104	0.95	6 (6%)
2	A1JJY	F	401	-	66,72,72	0.62	2 (3%)	89,104,104	1.11	9 (10%)
2	A1JJY	H	401	-	66,72,72	0.94	3 (4%)	89,104,104	0.82	3 (3%)
2	A1JJY	C	401	-	66,72,72	0.56	1 (1%)	89,104,104	0.85	5 (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	A1JJY	K	401	-	-	6/64/81/81	0/5/5/5
2	A1JJY	J	401	-	-	16/64/81/81	0/5/5/5
2	A1JJY	G	401	-	-	7/64/81/81	0/5/5/5
2	A1JJY	D	401	-	-	7/64/81/81	0/5/5/5
2	A1JJY	E	401	-	-	20/64/81/81	0/5/5/5
2	A1JJY	B	401	-	-	14/64/81/81	0/5/5/5
2	A1JJY	L	401	-	-	15/64/81/81	0/5/5/5
2	A1JJY	I	401	-	-	8/64/81/81	0/5/5/5
2	A1JJY	A	401	-	-	9/64/81/81	0/5/5/5
2	A1JJY	F	401	-	-	25/64/81/81	0/5/5/5
2	A1JJY	H	401	-	-	8/64/81/81	0/5/5/5
2	A1JJY	C	401	-	-	7/64/81/81	0/5/5/5

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	401	A1JJY	O2-C17	4.11	1.26	1.20
2	H	401	A1JJY	C2-S1	4.03	1.90	1.83
2	E	401	A1JJY	C2-S1	3.52	1.89	1.83
2	I	401	A1JJY	O2-C17	3.18	1.25	1.20
2	H	401	A1JJY	C17-S2	2.58	1.83	1.75
2	L	401	A1JJY	O2-C17	2.52	1.24	1.20
2	E	401	A1JJY	O2-C17	2.51	1.24	1.20
2	F	401	A1JJY	O2-C17	2.49	1.24	1.20
2	G	401	A1JJY	O2-C17	2.42	1.24	1.20
2	B	401	A1JJY	O2-C17	2.38	1.24	1.20
2	D	401	A1JJY	O2-C17	2.34	1.24	1.20
2	K	401	A1JJY	O2-C17	2.33	1.24	1.20
2	E	401	A1JJY	P3-O15	2.28	1.63	1.59
2	A	401	A1JJY	O2-C17	2.28	1.24	1.20
2	C	401	A1JJY	O2-C17	2.17	1.24	1.20
2	F	401	A1JJY	P3-O15	2.06	1.63	1.59

All (69) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	401	A1JJY	O15-P3-O17	-5.43	88.45	109.39
2	A	401	A1JJY	O8-P1-O7	4.20	133.00	112.24
2	F	401	A1JJY	P2-O9-P1	3.92	146.29	132.83
2	J	401	A1JJY	C26-C25-C28	-3.85	101.95	108.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	401	A1JJY	C18-S2-C17	3.65	112.73	101.75
2	J	401	A1JJY	O18-P3-O16	3.63	121.51	107.64
2	J	401	A1JJY	C26-C25-C24	3.57	115.01	108.82
2	F	401	A1JJY	O8-P1-O7	3.37	128.89	112.24
2	K	401	A1JJY	O6-C28-C25	-3.31	105.22	110.55
2	L	401	A1JJY	O8-P1-O7	3.29	128.50	112.24
2	I	401	A1JJY	O8-P1-O7	3.20	128.08	112.24
2	D	401	A1JJY	O8-P1-O7	3.19	128.01	112.24
2	K	401	A1JJY	O18-P3-O17	3.16	123.04	110.68
2	B	401	A1JJY	C7-C8-C9	3.10	120.44	113.00
2	D	401	A1JJY	P2-O9-P1	2.92	142.85	132.83
2	E	401	A1JJY	C19-N1-C20	2.88	128.18	122.84
2	K	401	A1JJY	O6-P1-O7	-2.83	98.00	109.07
2	B	401	A1JJY	O16-P3-O17	2.82	121.73	110.68
2	F	401	A1JJY	O14-C37-C38	2.82	119.16	111.17
2	E	401	A1JJY	O14-C37-C38	2.78	119.05	111.17
2	H	401	A1JJY	C1-C2-S1	2.72	116.40	108.69
2	D	401	A1JJY	C26-C25-C28	2.66	112.57	108.23
2	C	401	A1JJY	C1-C2-S1	2.64	116.19	108.69
2	F	401	A1JJY	C26-C25-C28	-2.64	103.93	108.23
2	J	401	A1JJY	O8-P1-O7	2.59	125.02	112.24
2	L	401	A1JJY	O8-P1-O6	-2.58	95.77	107.75
2	G	401	A1JJY	O8-P1-O7	2.56	124.91	112.24
2	E	401	A1JJY	O16-P3-O17	-2.56	100.67	110.68
2	G	401	A1JJY	O18-P3-O17	2.55	120.67	110.68
2	C	401	A1JJY	O18-P3-O16	2.54	117.36	107.64
2	I	401	A1JJY	C1-C2-S1	2.54	115.90	108.69
2	A	401	A1JJY	C27-C25-C28	-2.53	104.11	108.23
2	C	401	A1JJY	O8-P1-O7	2.53	124.72	112.24
2	I	401	A1JJY	O15-P3-O17	-2.47	99.87	109.39
2	A	401	A1JJY	O8-P1-O6	-2.45	96.39	107.75
2	G	401	A1JJY	O6-C28-C25	-2.43	106.64	110.55
2	L	401	A1JJY	C7-C8-C9	2.43	118.83	113.00
2	G	401	A1JJY	O2-C17-S2	-2.42	120.55	123.80
2	F	401	A1JJY	C27-C25-C28	2.40	112.14	108.23
2	F	401	A1JJY	O14-C37-C31	-2.34	102.21	110.02
2	C	401	A1JJY	O8-P1-O6	-2.33	96.94	107.75
2	K	401	A1JJY	O16-P3-O17	2.31	119.73	110.68
2	D	401	A1JJY	O2-C17-S2	-2.31	120.70	123.80
2	F	401	A1JJY	O12-P2-O10	2.29	118.00	109.07
2	I	401	A1JJY	C37-C31-N3	2.28	119.08	113.30
2	F	401	A1JJY	C1-C2-S1	2.26	115.10	108.69

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	401	A1JJY	O6-C28-C25	-2.24	106.95	110.55
2	F	401	A1JJY	C26-C25-C24	2.24	112.70	108.82
2	E	401	A1JJY	O18-P3-O16	2.24	116.18	107.64
2	K	401	A1JJY	O8-P1-O7	2.23	123.27	112.24
2	I	401	A1JJY	C26-C25-C28	2.23	111.86	108.23
2	A	401	A1JJY	C37-C31-N3	2.22	118.94	113.30
2	J	401	A1JJY	C27-C25-C24	2.21	112.66	108.82
2	D	401	A1JJY	O18-P3-O17	2.17	119.16	110.68
2	E	401	A1JJY	C26-C25-C28	2.15	111.73	108.23
2	L	401	A1JJY	C27-C25-C28	-2.13	104.76	108.23
2	J	401	A1JJY	O16-P3-O15	-2.12	96.48	105.99
2	A	401	A1JJY	P2-O9-P1	-2.12	125.56	132.83
2	J	401	A1JJY	O18-P3-O17	-2.11	102.40	110.68
2	G	401	A1JJY	O16-P3-O17	-2.10	102.46	110.68
2	J	401	A1JJY	O16-P3-O17	2.10	118.89	110.68
2	A	401	A1JJY	O14-C37-C38	2.10	117.12	111.17
2	K	401	A1JJY	O16-P3-O15	2.08	115.30	105.99
2	H	401	A1JJY	C22-C21-C20	2.07	115.80	112.36
2	L	401	A1JJY	O18-P3-O16	2.05	115.46	107.64
2	I	401	A1JJY	O14-C37-C31	2.04	116.85	110.02
2	D	401	A1JJY	O15-P3-O17	-2.03	101.56	109.39
2	H	401	A1JJY	O8-P1-O7	2.03	122.27	112.24
2	K	401	A1JJY	C26-C25-C28	2.02	111.53	108.23

There are no chirality outliers.

All (142) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	A1JJY	O1-C7-C8-C9
2	B	401	A1JJY	O1-C7-C8-C9
2	B	401	A1JJY	C29-O12-P2-O9
2	D	401	A1JJY	C29-O12-P2-O10
2	D	401	A1JJY	O12-C29-C30-O13
2	D	401	A1JJY	O12-C29-C30-C38
2	E	401	A1JJY	O1-C7-C8-C9
2	E	401	A1JJY	C18-C19-N1-C20
2	E	401	A1JJY	C2-C17-S2-C18
2	E	401	A1JJY	O2-C17-S2-C18
2	E	401	A1JJY	C19-C18-S2-C17
2	E	401	A1JJY	C23-C24-C25-C26
2	E	401	A1JJY	C23-C24-C25-C27
2	E	401	A1JJY	C23-C24-C25-C28

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Mol	Chain	Res	Type	Atoms
2	E	401	A1JJY	C28-O6-P1-O7
2	E	401	A1JJY	C28-O6-P1-O8
2	E	401	A1JJY	C28-O6-P1-O9
2	F	401	A1JJY	C23-C24-C25-C26
2	F	401	A1JJY	C23-C24-C25-C27
2	F	401	A1JJY	C23-C24-C25-C28
2	F	401	A1JJY	O5-C24-C25-C27
2	F	401	A1JJY	O5-C24-C25-C28
2	F	401	A1JJY	C38-O15-P3-O17
2	G	401	A1JJY	C20-C21-C22-N2
2	H	401	A1JJY	C18-C19-N1-C20
2	I	401	A1JJY	C20-C21-C22-N2
2	I	401	A1JJY	C28-O6-P1-O7
2	J	401	A1JJY	C20-C21-C22-N2
2	J	401	A1JJY	C23-C24-C25-C26
2	J	401	A1JJY	C23-C24-C25-C27
2	J	401	A1JJY	C23-C24-C25-C28
2	J	401	A1JJY	C28-O6-P1-O7
2	J	401	A1JJY	C28-O6-P1-O8
2	L	401	A1JJY	C20-C21-C22-N2
2	L	401	A1JJY	C28-O6-P1-O7
2	L	401	A1JJY	C29-O12-P2-O9
2	A	401	A1JJY	O12-C29-C30-O13
2	F	401	A1JJY	O12-C29-C30-O13
2	F	401	A1JJY	O12-C29-C30-C38
2	H	401	A1JJY	C15-C6-O1-C7
2	H	401	A1JJY	C5-C6-O1-C7
2	L	401	A1JJY	O12-C29-C30-O13
2	D	401	A1JJY	C15-C6-O1-C7
2	D	401	A1JJY	C5-C6-O1-C7
2	I	401	A1JJY	C5-C6-O1-C7
2	I	401	A1JJY	C15-C6-O1-C7
2	L	401	A1JJY	C7-C8-C9-C10
2	A	401	A1JJY	C20-C21-C22-N2
2	E	401	A1JJY	C20-C21-C22-N2
2	F	401	A1JJY	C20-C21-C22-N2
2	H	401	A1JJY	C20-C21-C22-N2
2	K	401	A1JJY	C20-C21-C22-N2
2	E	401	A1JJY	C5-C6-O1-C7
2	E	401	A1JJY	C15-C6-O1-C7
2	F	401	A1JJY	C15-C6-O1-C7
2	F	401	A1JJY	C5-C6-O1-C7

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Mol	Chain	Res	Type	Atoms
2	E	401	A1JJY	O5-C24-C25-C26
2	E	401	A1JJY	O5-C24-C25-C27
2	F	401	A1JJY	O5-C24-C25-C26
2	J	401	A1JJY	O5-C24-C25-C27
2	B	401	A1JJY	C7-C8-C9-C14
2	L	401	A1JJY	C7-C8-C9-C14
2	L	401	A1JJY	C5-C6-O1-C7
2	L	401	A1JJY	C15-C6-O1-C7
2	A	401	A1JJY	C38-O15-P3-O17
2	B	401	A1JJY	C38-O15-P3-O17
2	A	401	A1JJY	O2-C17-C2-S1
2	B	401	A1JJY	O2-C17-C2-S1
2	C	401	A1JJY	O2-C17-C2-S1
2	D	401	A1JJY	O2-C17-C2-S1
2	E	401	A1JJY	O2-C17-C2-S1
2	F	401	A1JJY	O2-C17-C2-S1
2	G	401	A1JJY	O2-C17-C2-S1
2	H	401	A1JJY	O2-C17-C2-S1
2	I	401	A1JJY	O2-C17-C2-S1
2	J	401	A1JJY	O2-C17-C2-S1
2	K	401	A1JJY	O2-C17-C2-S1
2	L	401	A1JJY	O2-C17-C2-S1
2	K	401	A1JJY	C5-C6-O1-C7
2	A	401	A1JJY	C29-O12-P2-O9
2	F	401	A1JJY	C29-O12-P2-O9
2	K	401	A1JJY	C15-C6-O1-C7
2	C	401	A1JJY	P1-O9-P2-O11
2	F	401	A1JJY	P2-O9-P1-O8
2	B	401	A1JJY	C7-C8-C9-C10
2	B	401	A1JJY	C29-O12-P2-O10
2	B	401	A1JJY	C29-O12-P2-O11
2	F	401	A1JJY	C29-O12-P2-O10
2	L	401	A1JJY	C29-O12-P2-O11
2	E	401	A1JJY	O5-C24-C25-C28
2	J	401	A1JJY	C17-C2-S1-C3
2	J	401	A1JJY	O5-C24-C25-C28
2	L	401	A1JJY	C17-C2-S1-C3
2	F	401	A1JJY	O1-C7-C8-C9
2	B	401	A1JJY	C5-C6-O1-C7
2	F	401	A1JJY	C26-C25-C28-O6
2	F	401	A1JJY	C27-C25-C28-O6
2	B	401	A1JJY	C15-C6-O1-C7

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Mol	Chain	Res	Type	Atoms
2	F	401	A1JJY	P2-O9-P1-O7
2	F	401	A1JJY	P1-O9-P2-O10
2	H	401	A1JJY	P1-O9-P2-O11
2	I	401	A1JJY	P1-O9-P2-O11
2	I	401	A1JJY	O12-C29-C30-O13
2	B	401	A1JJY	C8-C7-O1-C6
2	E	401	A1JJY	O12-C29-C30-O13
2	D	401	A1JJY	C26-C25-C28-O6
2	H	401	A1JJY	C26-C25-C28-O6
2	J	401	A1JJY	P1-O9-P2-O10
2	F	401	A1JJY	P1-O9-P2-O12
2	L	401	A1JJY	C8-C7-O1-C6
2	C	401	A1JJY	C38-O15-P3-O17
2	C	401	A1JJY	C20-C21-C22-N2
2	B	401	A1JJY	O12-C29-C30-O13
2	B	401	A1JJY	C38-O15-P3-O16
2	F	401	A1JJY	C38-O15-P3-O16
2	F	401	A1JJY	C38-O15-P3-O18
2	G	401	A1JJY	C29-O12-P2-O9
2	G	401	A1JJY	C38-O15-P3-O16
2	G	401	A1JJY	C38-O15-P3-O18
2	J	401	A1JJY	C28-O6-P1-O9
2	L	401	A1JJY	C28-O6-P1-O9
2	A	401	A1JJY	C21-C22-N2-C23
2	C	401	A1JJY	O12-C29-C30-O13
2	G	401	A1JJY	O12-C29-C30-O13
2	A	401	A1JJY	P1-O9-P2-O11
2	C	401	A1JJY	P1-O9-P2-O10
2	J	401	A1JJY	P1-O9-P2-O11
2	J	401	A1JJY	C29-O12-P2-O10
2	L	401	A1JJY	C29-O12-P2-O10
2	H	401	A1JJY	O12-C29-C30-O13
2	J	401	A1JJY	O12-C29-C30-O13
2	K	401	A1JJY	O12-C29-C30-O13
2	J	401	A1JJY	C7-C8-C9-C10
2	A	401	A1JJY	C1-C2-S1-C3
2	B	401	A1JJY	C1-C2-S1-C3
2	C	401	A1JJY	C1-C2-S1-C3
2	E	401	A1JJY	C1-C2-S1-C3
2	F	401	A1JJY	C1-C2-S1-C3
2	G	401	A1JJY	C1-C2-S1-C3
2	I	401	A1JJY	C1-C2-S1-C3

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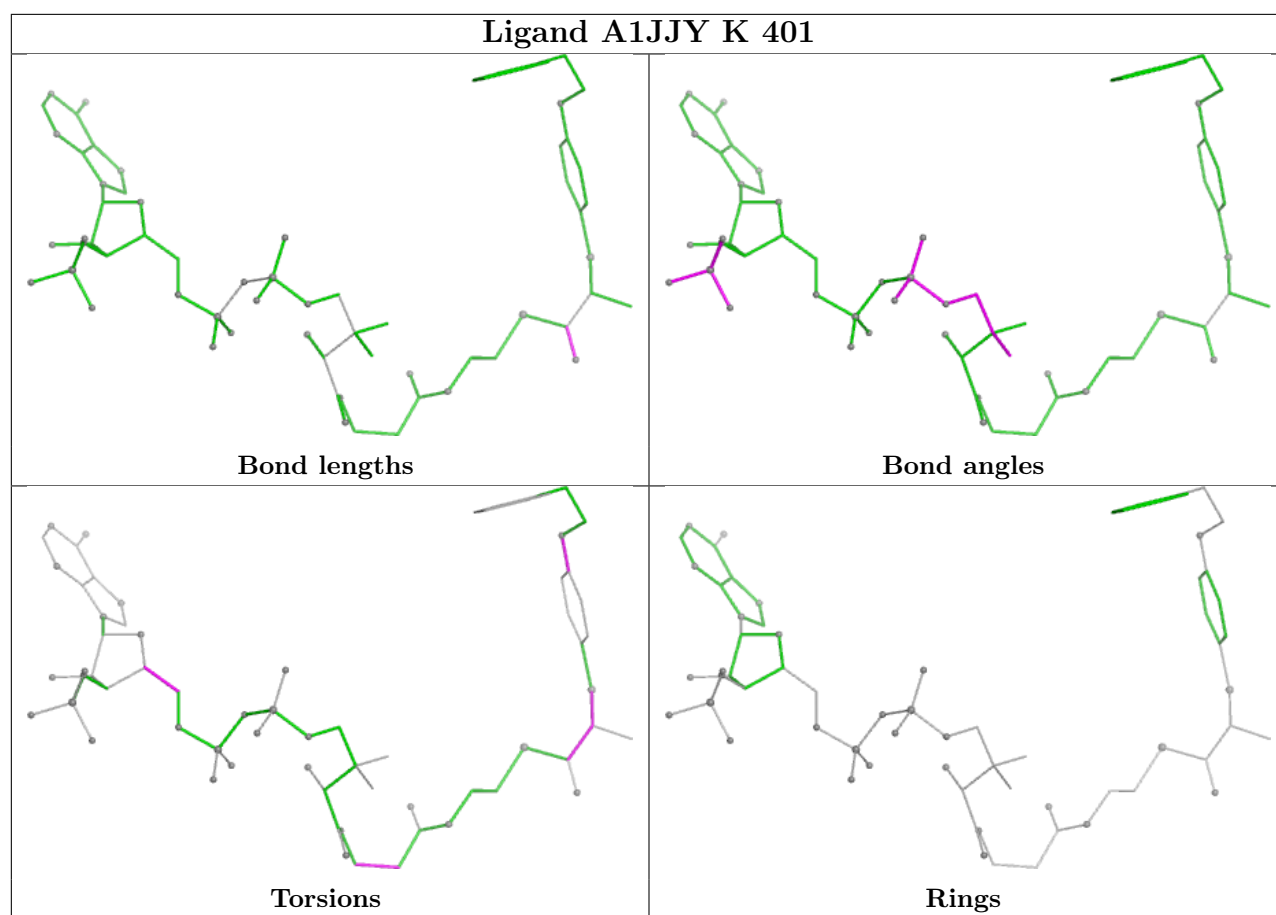
Mol	Chain	Res	Type	Atoms
2	K	401	A1JJY	C1-C2-S1-C3
2	L	401	A1JJY	C1-C2-S1-C3

There are no ring outliers.

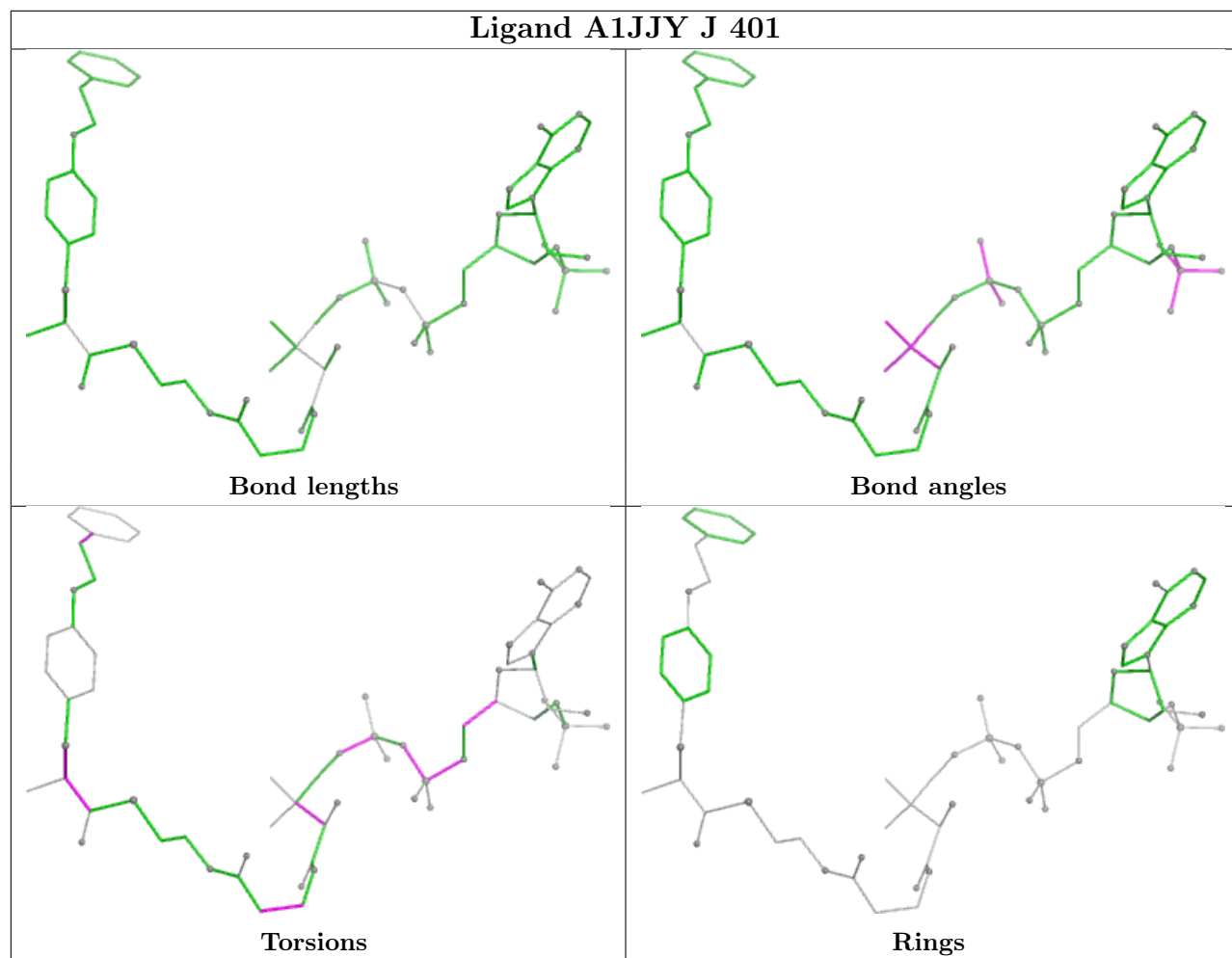
8 monomers are involved in 10 short contacts:

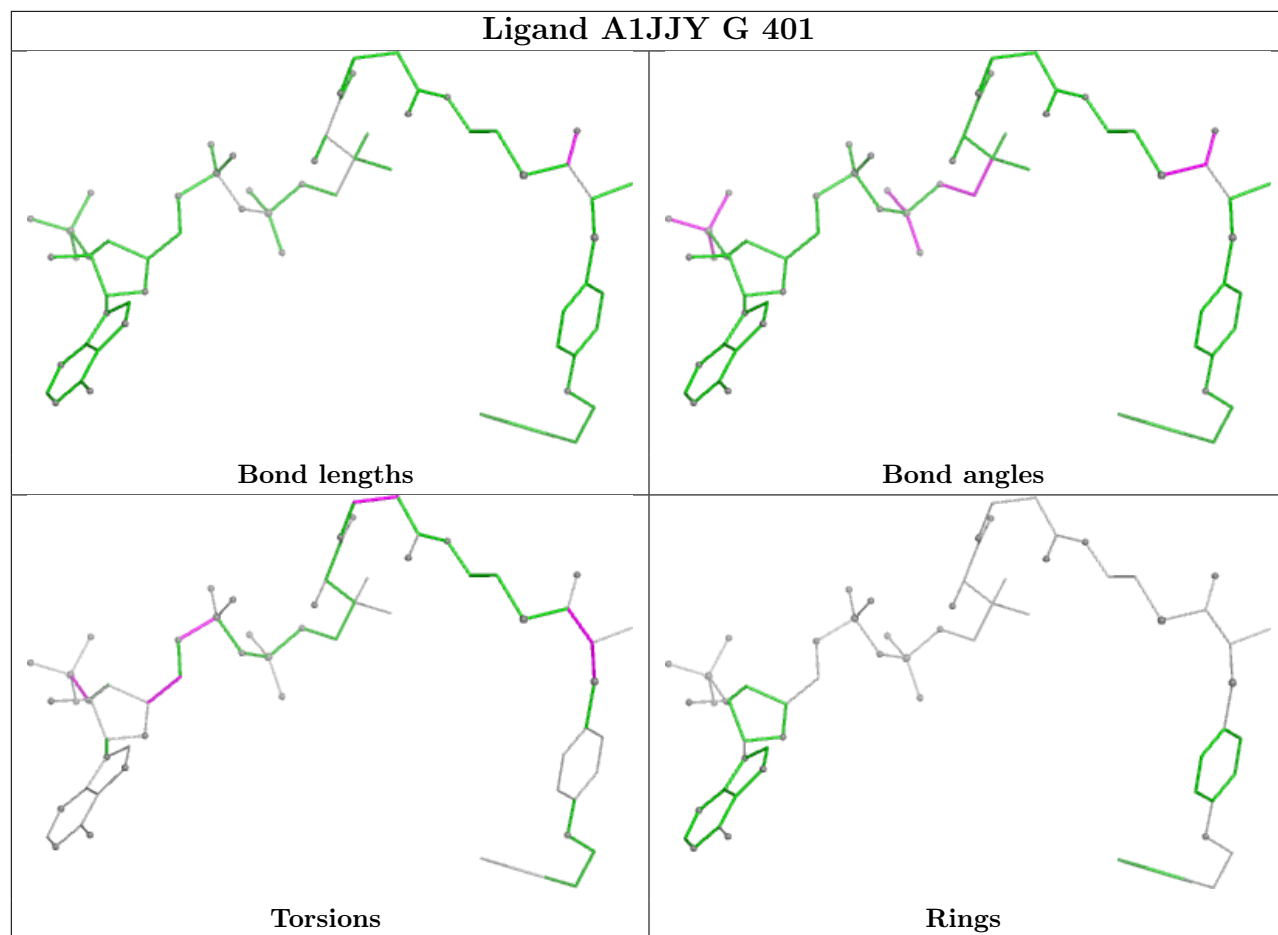
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	K	401	A1JJY	1	0
2	D	401	A1JJY	1	0
2	E	401	A1JJY	1	0
2	B	401	A1JJY	1	0
2	L	401	A1JJY	1	0
2	A	401	A1JJY	1	0
2	F	401	A1JJY	3	0
2	H	401	A1JJY	1	0

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.

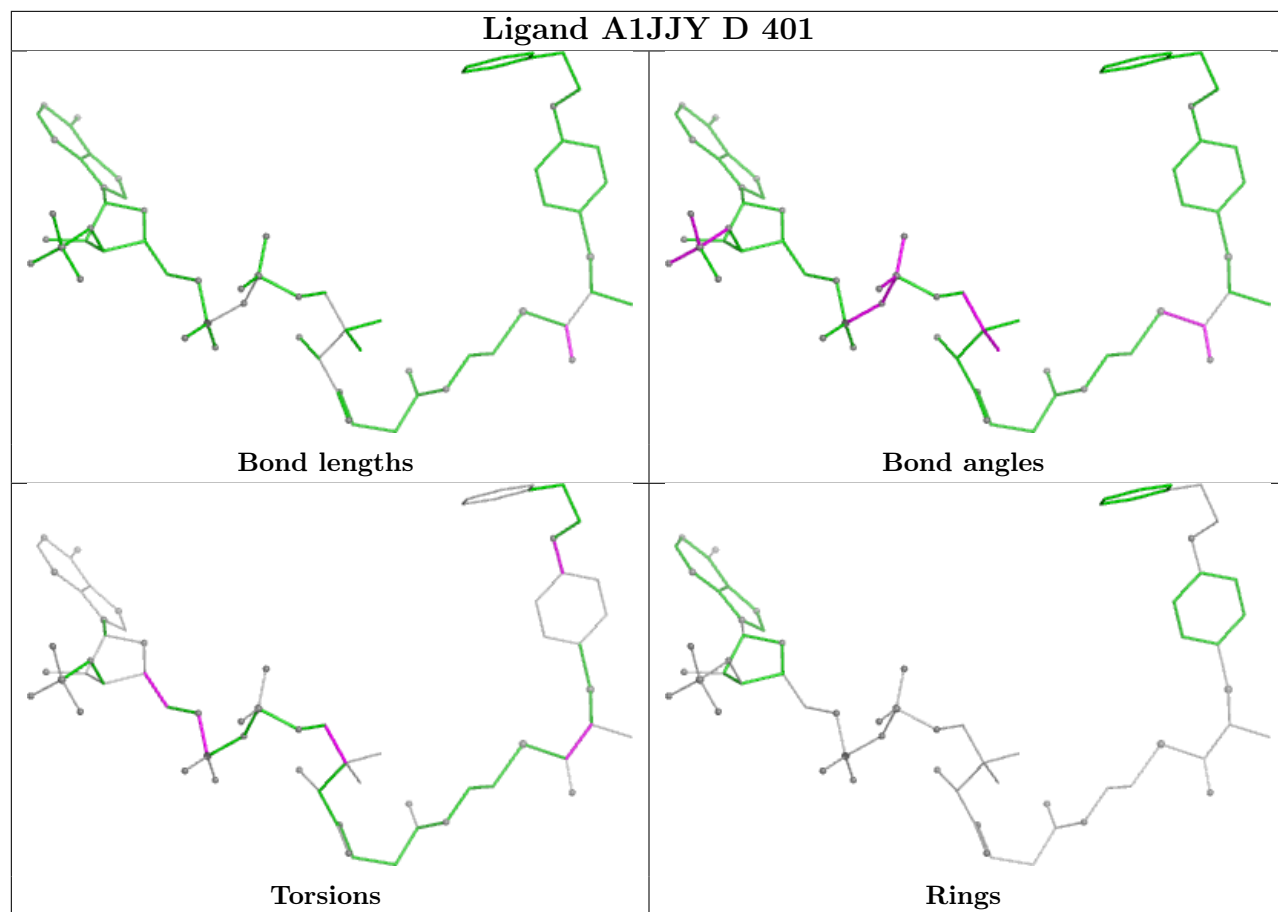


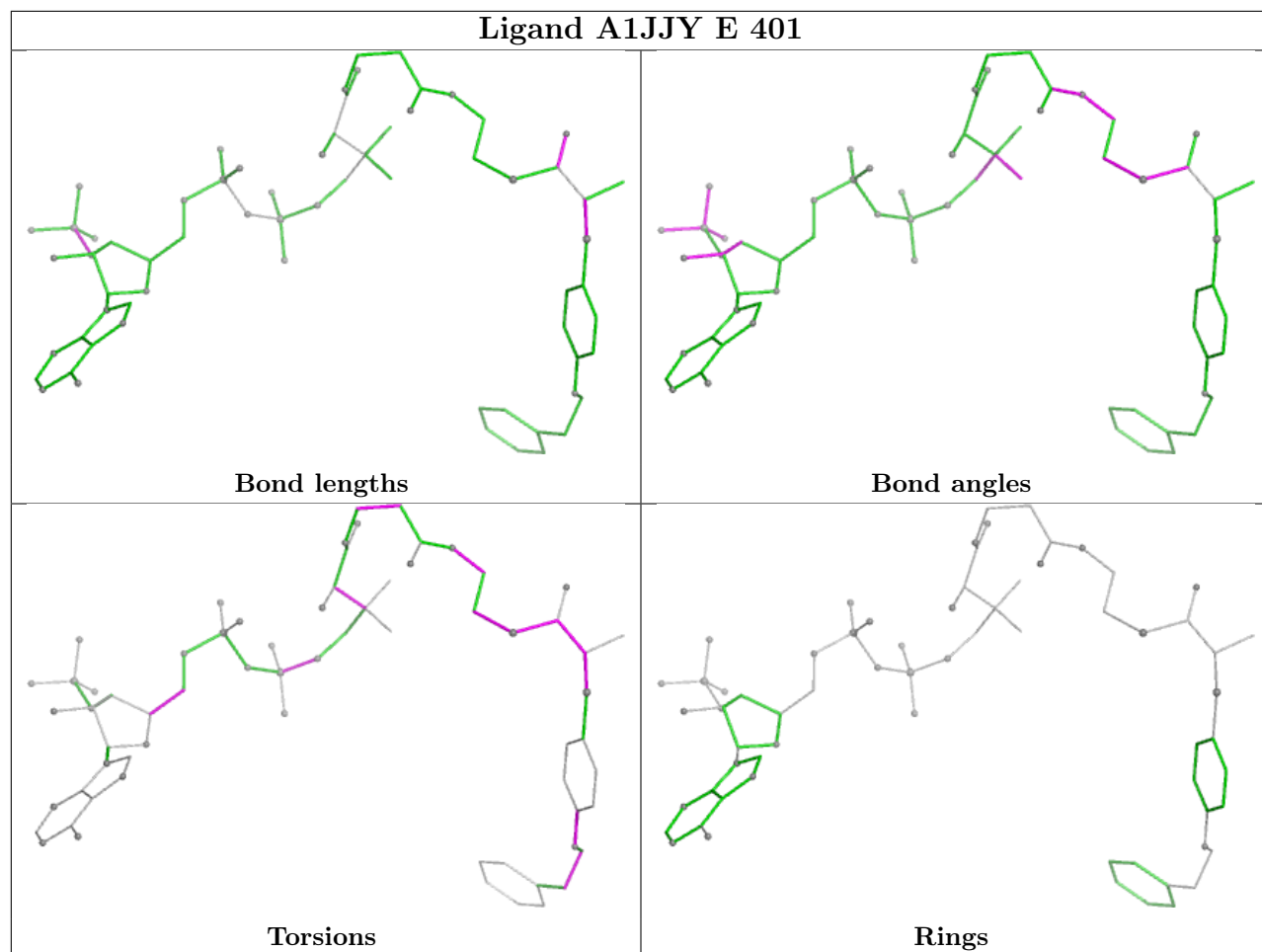
Ligand A1JJY J 401

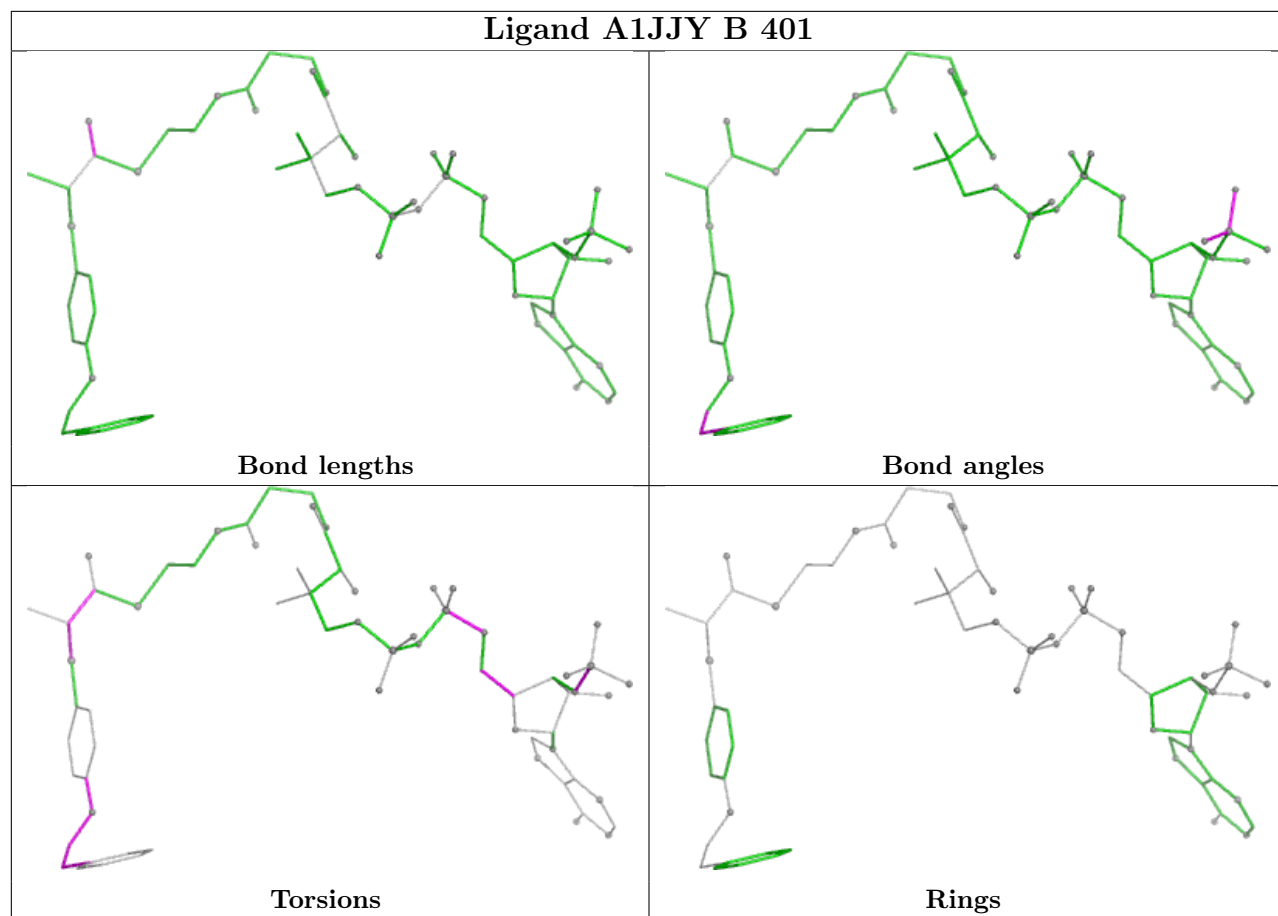


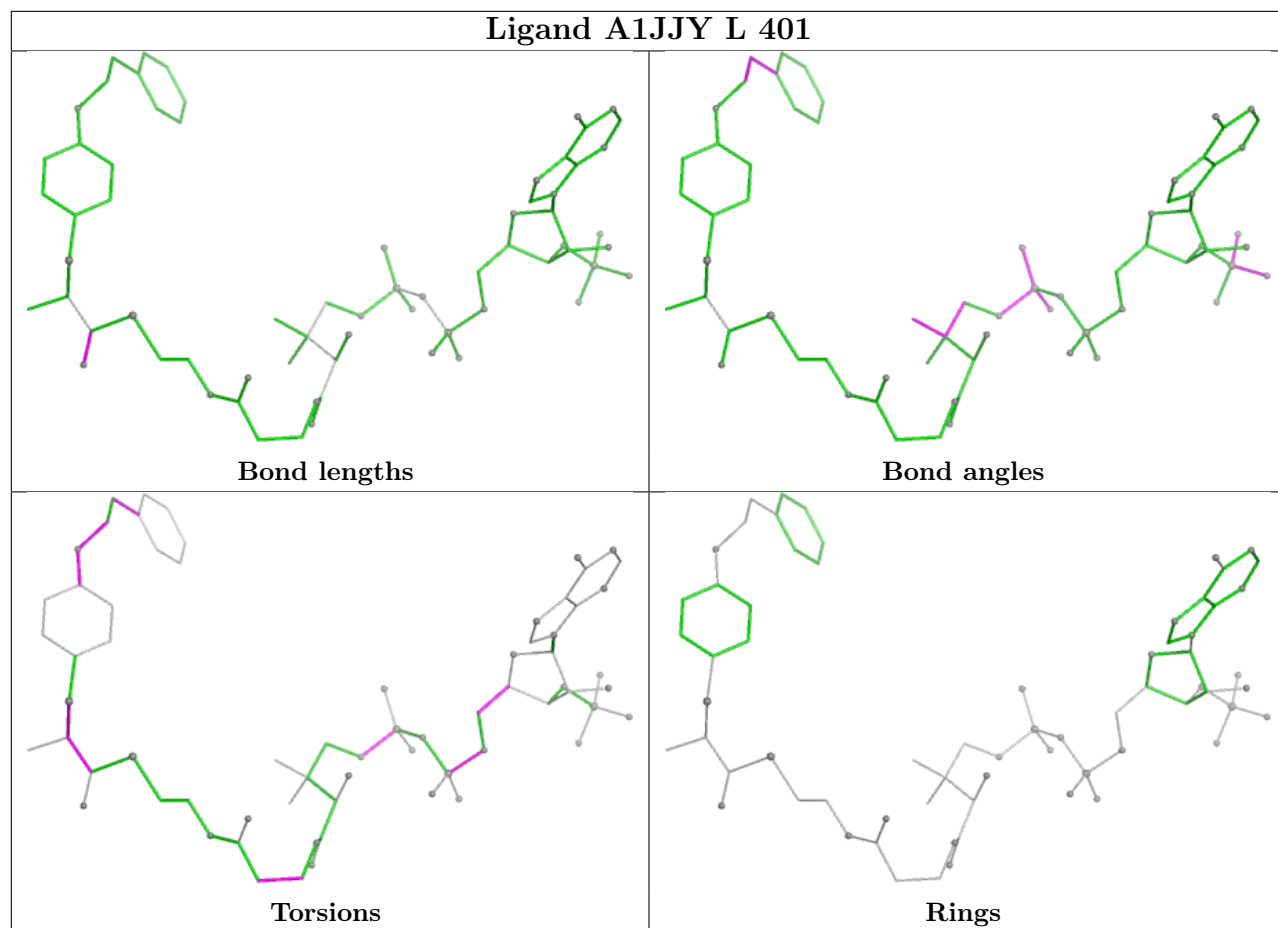


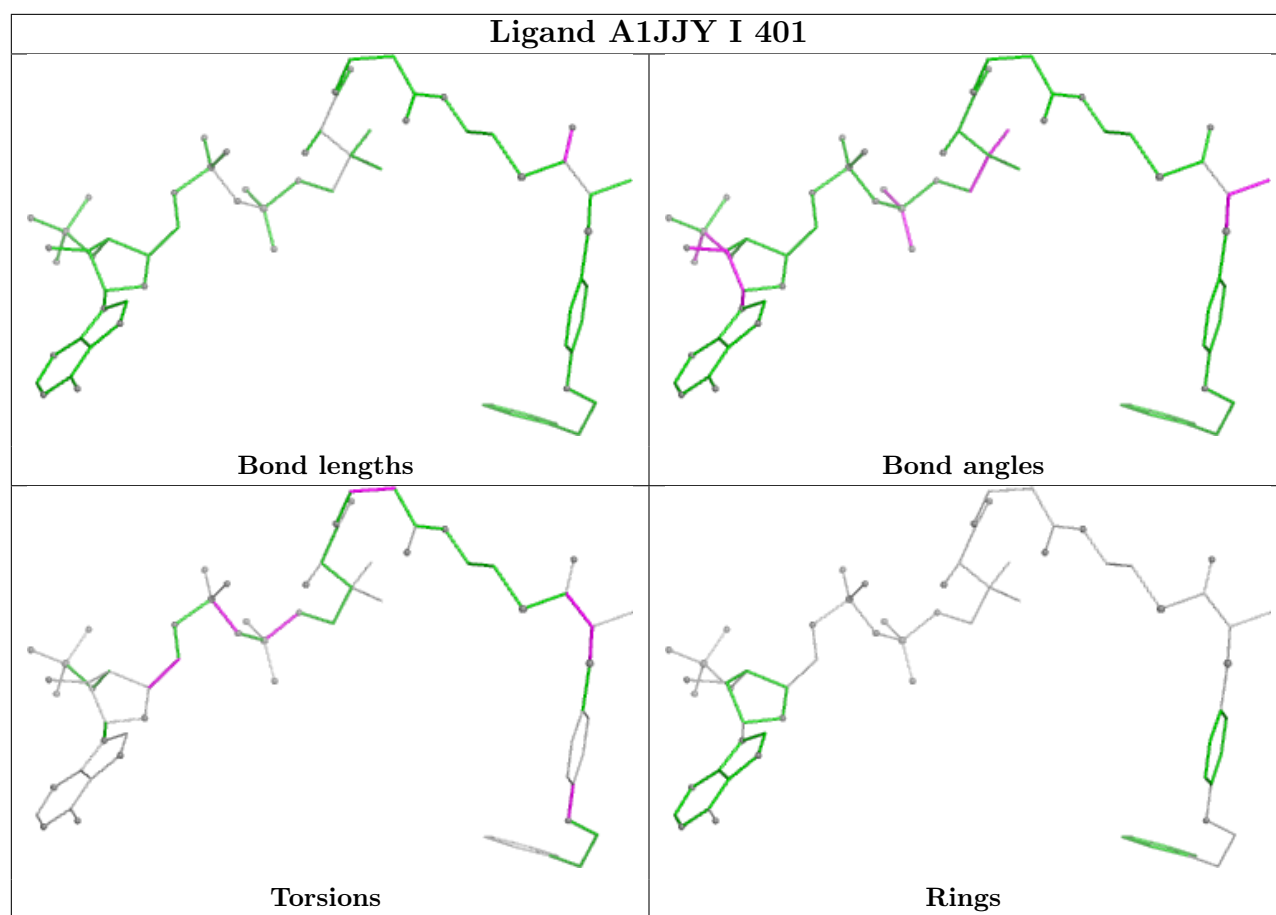
Ligand A1JJY D 401



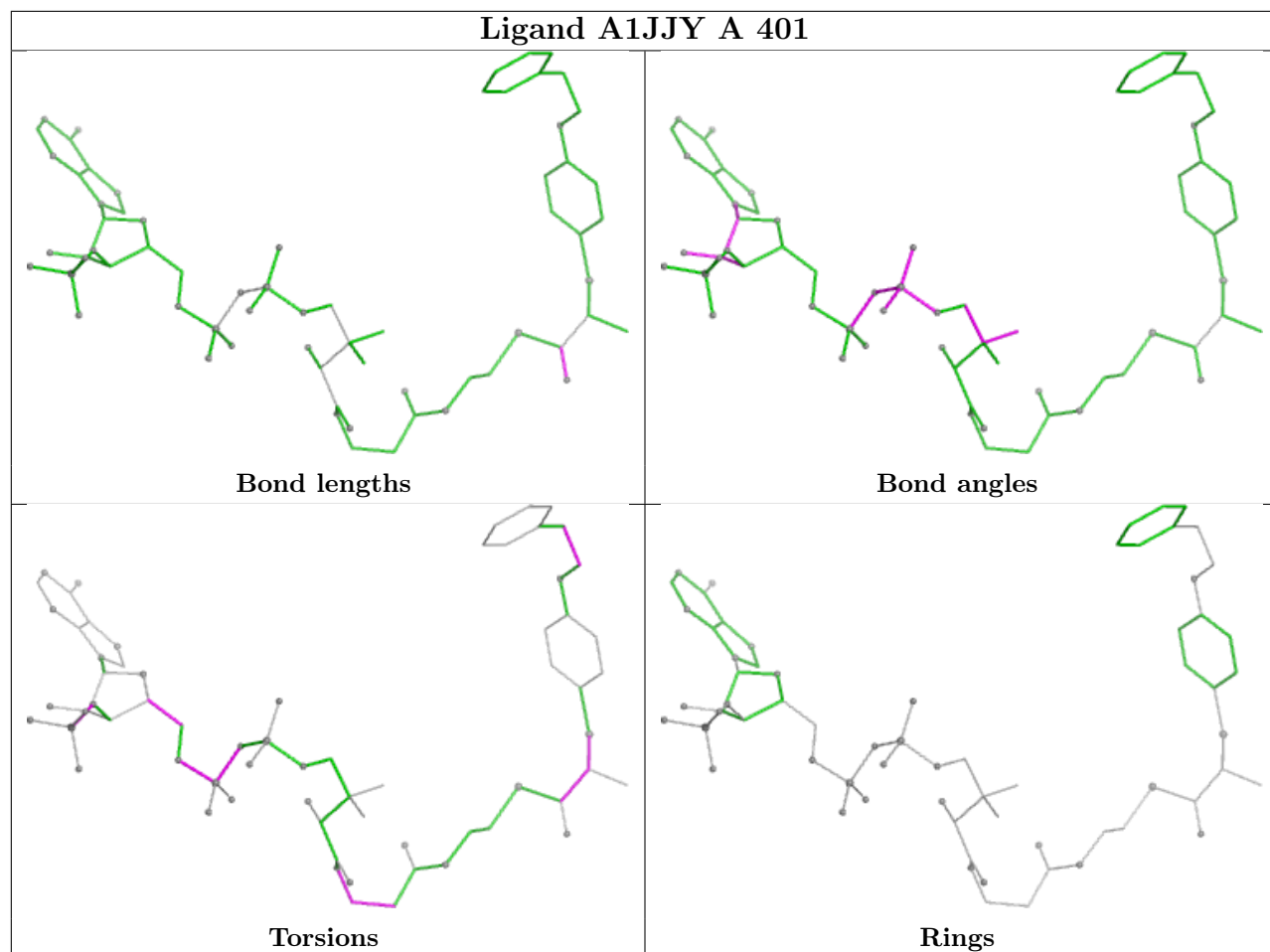


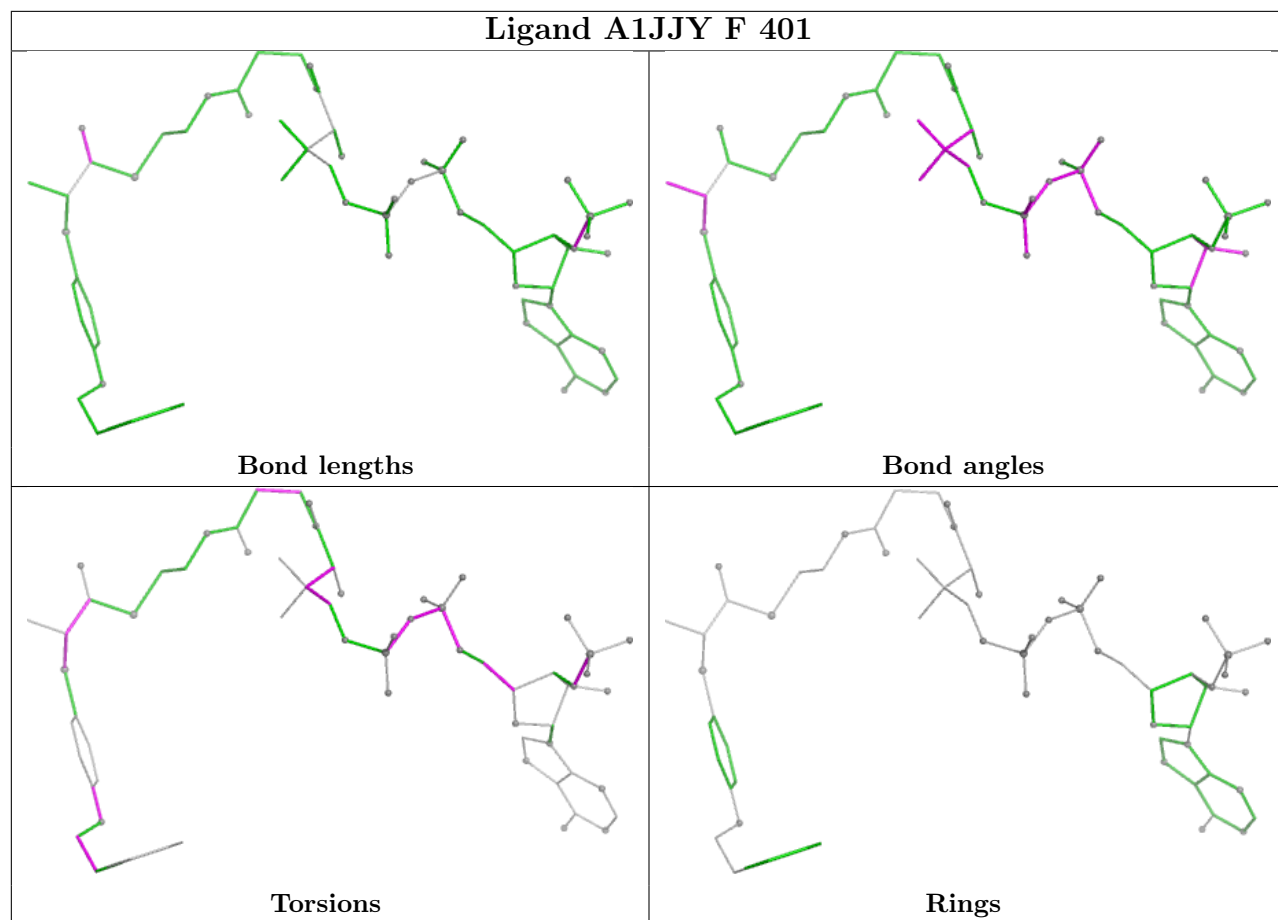




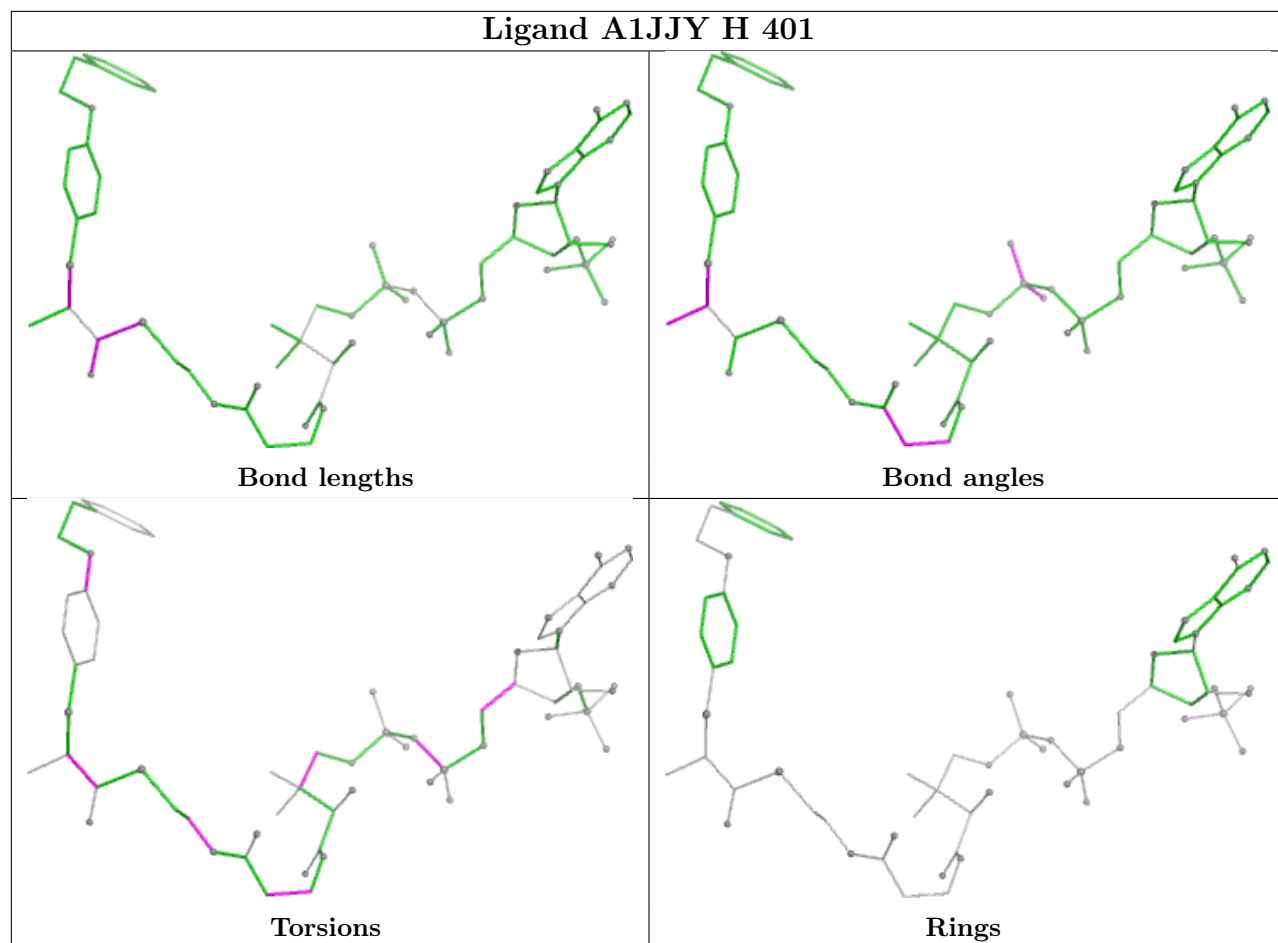


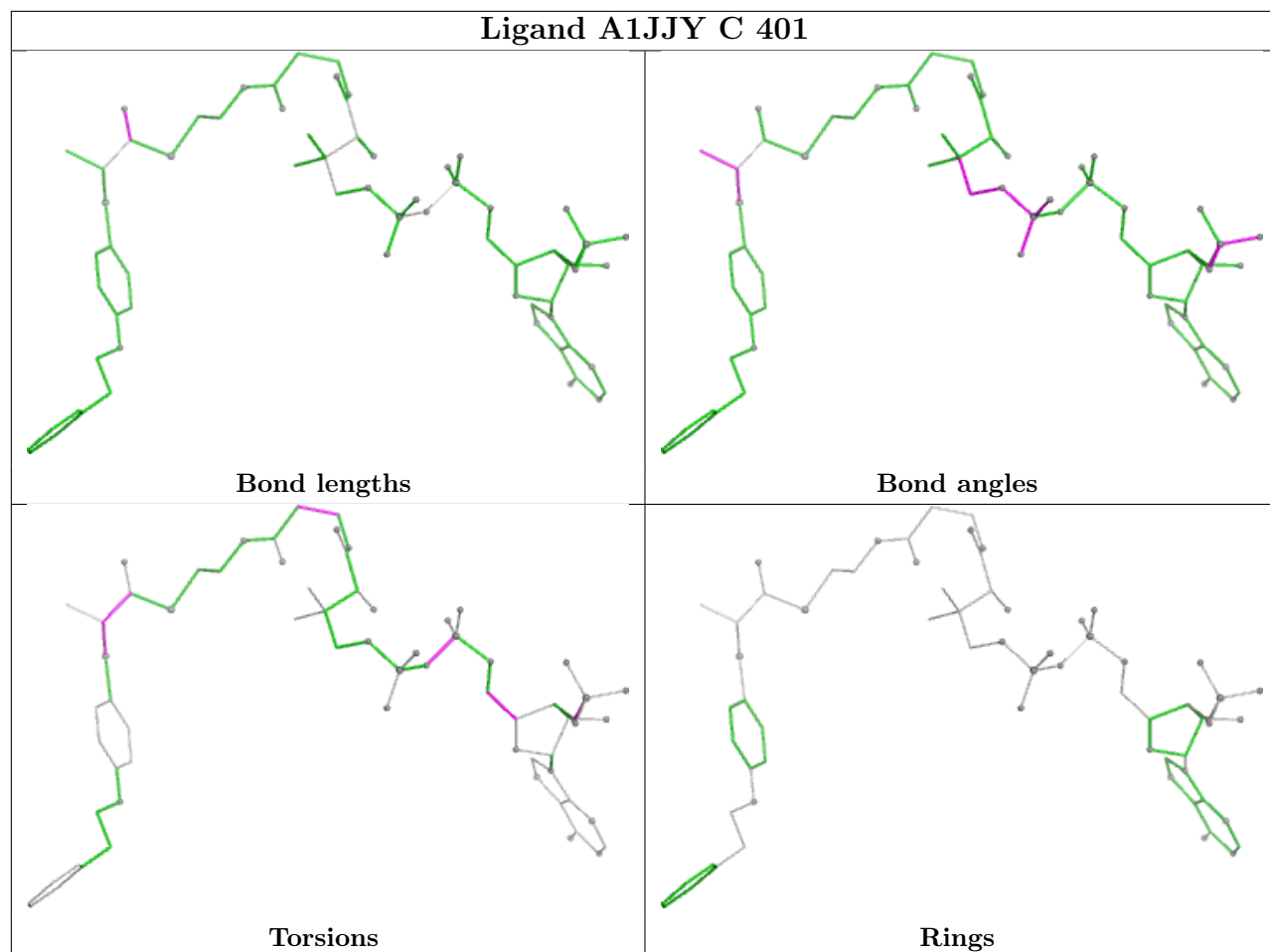
Ligand A1JJY A 401





Ligand A1JJY H 401





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	358/364 (98%)	0.54	41 (11%)	9 10	24, 43, 90, 137	2 (0%)
1	B	357/364 (98%)	0.36	30 (8%)	17 18	17, 41, 89, 127	2 (0%)
1	C	359/364 (98%)	0.45	39 (10%)	10 12	25, 42, 89, 129	2 (0%)
1	D	360/364 (98%)	0.39	27 (7%)	20 22	24, 41, 84, 128	1 (0%)
1	E	360/364 (98%)	0.50	43 (11%)	9 10	15, 43, 93, 123	3 (0%)
1	F	360/364 (98%)	0.65	51 (14%)	6 7	25, 45, 94, 128	1 (0%)
1	G	360/364 (98%)	0.82	74 (20%)	2 3	26, 47, 103, 132	2 (0%)
1	H	360/364 (98%)	0.63	54 (15%)	5 6	26, 45, 104, 130	1 (0%)
1	I	360/364 (98%)	0.36	21 (5%)	29 31	28, 42, 82, 123	2 (0%)
1	J	360/364 (98%)	0.34	21 (5%)	29 31	25, 41, 83, 131	1 (0%)
1	K	359/364 (98%)	0.51	40 (11%)	10 11	21, 42, 93, 126	3 (0%)
1	L	360/364 (98%)	0.51	35 (9%)	13 15	26, 43, 86, 131	1 (0%)
All	All	4313/4368 (98%)	0.50	476 (11%)	10 11	15, 43, 92, 137	21 (0%)

All (476) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	360	GLY	8.4
1	A	346	ALA	7.7
1	J	360	GLY	7.5
1	H	346	ALA	7.0
1	F	346	ALA	6.9
1	A	360	GLY	6.8
1	D	346	ALA	6.6
1	C	346	ALA	6.5
1	H	360	GLY	6.4
1	C	360	GLY	6.1
1	F	42	VAL	6.1

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Mol	Chain	Res	Type	RSRZ
1	B	42	VAL	5.8
1	K	346	ALA	5.7
1	K	45	ILE	5.7
1	F	360	GLY	5.7
1	L	45	ILE	5.5
1	J	45	ILE	5.3
1	K	324	GLY	5.1
1	B	346	ALA	5.1
1	E	349	ILE	5.1
1	L	346	ALA	5.0
1	J	346	ALA	5.0
1	A	347	ALA	5.0
1	G	346	ALA	4.8
1	L	360	GLY	4.7
1	E	360	GLY	4.7
1	F	45	ILE	4.6
1	H	45	ILE	4.6
1	D	347	ALA	4.6
1	H	322	ALA	4.6
1	G	351	ILE	4.5
1	L	324	GLY	4.5
1	E	42	VAL	4.5
1	G	102	VAL	4.5
1	K	360	GLY	4.5
1	D	360	GLY	4.4
1	D	45	ILE	4.4
1	G	347	ALA	4.3
1	I	346	ALA	4.3
1	G	45	ILE	4.3
1	G	360	GLY	4.3
1	A	349	ILE	4.3
1	F	349	ILE	4.2
1	G	101	LYS	4.2
1	B	347	ALA	4.2
1	K	42	VAL	4.2
1	K	347	ALA	4.2
1	B	46	SER	4.1
1	L	323	ASN	4.1
1	C	42	VAL	4.1
1	A	324	GLY	4.1
1	I	45	ILE	4.1
1	G	178	SER	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	46	SER	4.0
1	C	45	ILE	4.0
1	G	293	ASN	4.0
1	F	345	PRO	3.9
1	H	34	VAL	3.9
1	C	323	ASN	3.9
1	I	360	GLY	3.9
1	K	345	PRO	3.8
1	L	349	ILE	3.8
1	F	351	ILE	3.8
1	F	347	ALA	3.8
1	J	324	GLY	3.8
1	G	97	GLU	3.7
1	K	180	LYS	3.7
1	B	351	ILE	3.7
1	H	324	GLY	3.7
1	G	72	LYS	3.7
1	B	345	PRO	3.7
1	E	351	ILE	3.7
1	K	349	ILE	3.7
1	A	42	VAL	3.7
1	G	10	VAL	3.6
1	F	49	ALA	3.6
1	I	47	ARG	3.6
1	E	58	THR	3.6
1	J	42	VAL	3.6
1	D	348	THR	3.6
1	F	180	LYS	3.6
1	I	323	ASN	3.6
1	G	42	VAL	3.6
1	H	345	PRO	3.6
1	D	323	ASN	3.5
1	I	42	VAL	3.5
1	D	351	ILE	3.5
1	F	348	THR	3.5
1	A	180	LYS	3.5
1	D	324	GLY	3.5
1	G	93	GLY	3.5
1	I	176	GLN	3.5
1	G	324	GLY	3.5
1	I	351	ILE	3.5
1	F	176	GLN	3.5

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Mol	Chain	Res	Type	RSRZ
1	C	44	GLY	3.4
1	F	324	GLY	3.4
1	H	349	ILE	3.4
1	E	346	ALA	3.4
1	F	47	ARG	3.4
1	I	324	GLY	3.4
1	E	45	ILE	3.4
1	G	107	ILE	3.4
1	B	41	SER	3.4
1	A	69	LEU	3.4
1	G	357	ASP	3.4
1	E	324	GLY	3.4
1	H	1	MET	3.3
1	L	46	SER	3.3
1	A	76	LYS	3.3
1	L	30	GLY	3.3
1	A	43	ASP	3.3
1	F	323	ASN	3.3
1	G	69	LEU	3.3
1	G	100	ALA	3.3
1	G	1	MET	3.3
1	H	207	MET	3.3
1	H	323	ASN	3.3
1	K	350	ASP	3.3
1	A	351	ILE	3.3
1	E	1	MET	3.3
1	L	180	LYS	3.3
1	C	347	ALA	3.2
1	J	347	ALA	3.2
1	A	207	MET	3.2
1	D	102	VAL	3.2
1	F	62	LYS	3.2
1	J	345	PRO	3.2
1	A	176	GLN	3.2
1	C	1	MET	3.2
1	G	354	VAL	3.2
1	B	76	LYS	3.2
1	I	349	ILE	3.2
1	B	47	ARG	3.2
1	E	323	ASN	3.2
1	G	11	VAL	3.2
1	L	347	ALA	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	173	TRP	3.2
1	G	358	TRP	3.2
1	H	358	TRP	3.2
1	G	345	PRO	3.2
1	G	63	SER	3.1
1	G	34	VAL	3.1
1	G	176	GLN	3.1
1	C	349	ILE	3.1
1	G	62	LYS	3.1
1	L	348	THR	3.1
1	G	352	GLU	3.1
1	F	46	SER	3.1
1	G	41	SER	3.1
1	K	41	SER	3.1
1	C	350	ASP	3.1
1	F	44	GLY	3.1
1	C	345	PRO	3.1
1	L	177	SER	3.1
1	C	324	GLY	3.1
1	A	345	PRO	3.1
1	E	178	SER	3.0
1	C	176	GLN	3.0
1	C	66	GLY	3.0
1	K	43	ASP	3.0
1	L	47	ARG	3.0
1	I	1	MET	3.0
1	A	348	THR	3.0
1	B	356	THR	3.0
1	F	101	LYS	3.0
1	G	76	LYS	3.0
1	F	66	GLY	3.0
1	J	351	ILE	3.0
1	E	47	ARG	3.0
1	H	7	GLY	3.0
1	H	179	GLY	3.0
1	F	1	MET	3.0
1	G	292	ALA	3.0
1	K	49	ALA	3.0
1	F	11	VAL	3.0
1	H	355	LEU	3.0
1	F	76	LYS	3.0
1	H	47	ARG	3.0

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Mol	Chain	Res	Type	RSRZ
1	F	258	GLU	3.0
1	G	173	TRP	3.0
1	L	345	PRO	3.0
1	G	99	CYS	2.9
1	C	177	SER	2.9
1	B	323	ASN	2.9
1	H	180	LYS	2.9
1	D	44	GLY	2.9
1	B	358	TRP	2.9
1	G	94	LEU	2.9
1	H	8	LEU	2.9
1	L	353	ALA	2.9
1	A	34	VAL	2.9
1	E	348	THR	2.9
1	K	58	THR	2.9
1	E	207	MET	2.9
1	D	345	PRO	2.9
1	G	96	PRO	2.9
1	C	49	ALA	2.9
1	L	173	TRP	2.9
1	H	16	ILE	2.9
1	K	1	MET	2.9
1	E	347	ALA	2.8
1	L	322	ALA	2.8
1	A	1	MET	2.8
1	G	179	GLY	2.8
1	F	207	MET	2.8
1	A	56	ILE	2.8
1	I	348	THR	2.8
1	F	144	ASP	2.8
1	G	350	ASP	2.8
1	H	144	ASP	2.8
1	B	1	MET	2.8
1	E	180	LYS	2.8
1	K	76	LYS	2.8
1	H	351	ILE	2.8
1	E	345	PRO	2.8
1	F	352	GLU	2.8
1	G	73	LEU	2.8
1	G	353	ALA	2.8
1	A	47	ARG	2.8
1	K	47	ARG	2.8

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Mol	Chain	Res	Type	RSRZ
1	H	42	VAL	2.8
1	K	102	VAL	2.8
1	D	349	ILE	2.7
1	F	107	ILE	2.7
1	D	176	GLN	2.7
1	E	176	GLN	2.7
1	L	44	GLY	2.7
1	D	322	ALA	2.7
1	G	56	ILE	2.7
1	L	359	ASP	2.7
1	H	46	SER	2.7
1	A	62	LYS	2.7
1	I	173	TRP	2.7
1	C	47	ARG	2.7
1	B	257	ALA	2.7
1	F	354	VAL	2.7
1	L	69	LEU	2.7
1	D	59	ALA	2.7
1	A	101	LYS	2.7
1	A	323	ASN	2.7
1	B	348	THR	2.7
1	C	76	LYS	2.7
1	G	207	MET	2.7
1	J	326	TRP	2.7
1	J	49	ALA	2.6
1	J	322	ALA	2.6
1	L	43	ASP	2.6
1	K	348	THR	2.6
1	G	47	ARG	2.6
1	B	65	GLN	2.6
1	C	173	TRP	2.6
1	G	323	ASN	2.6
1	C	348	THR	2.6
1	G	44	GLY	2.6
1	C	46	SER	2.6
1	E	46	SER	2.6
1	E	72	LYS	2.6
1	H	72	LYS	2.6
1	H	173	TRP	2.6
1	C	104	ASP	2.6
1	D	207	MET	2.6
1	E	44	GLY	2.6

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Mol	Chain	Res	Type	RSRZ
1	H	105	ARG	2.6
1	A	75	ALA	2.6
1	D	2	ALA	2.6
1	F	292	ALA	2.6
1	A	358	TRP	2.6
1	A	72	LYS	2.6
1	G	65	GLN	2.5
1	F	355	LEU	2.5
1	H	2	ALA	2.5
1	H	326	TRP	2.5
1	A	41	SER	2.5
1	A	178	SER	2.5
1	C	41	SER	2.5
1	D	76	LYS	2.5
1	G	180	LYS	2.5
1	B	207	MET	2.5
1	E	43	ASP	2.5
1	G	59	ALA	2.5
1	L	72	LYS	2.5
1	H	348	THR	2.5
1	K	358	TRP	2.5
1	G	79	VAL	2.5
1	H	73	LEU	2.5
1	G	359	ASP	2.5
1	K	325	GLY	2.5
1	H	176	GLN	2.5
1	D	358	TRP	2.5
1	I	326	TRP	2.5
1	E	355	LEU	2.5
1	L	357	ASP	2.5
1	F	39	PRO	2.5
1	G	348	THR	2.4
1	H	337	THR	2.4
1	C	358	TRP	2.4
1	D	355	LEU	2.4
1	H	69	LEU	2.4
1	F	322	ALA	2.4
1	G	66	GLY	2.4
1	G	40	SER	2.4
1	G	177	SER	2.4
1	G	183	VAL	2.4
1	K	101	LYS	2.4

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Mol	Chain	Res	Type	RSRZ
1	F	359	ASP	2.4
1	A	77	ALA	2.4
1	C	70	ALA	2.4
1	C	322	ALA	2.4
1	E	30	GLY	2.4
1	F	59	ALA	2.4
1	H	344	PRO	2.4
1	L	7	GLY	2.4
1	G	33	VAL	2.4
1	G	36	ILE	2.4
1	G	61	LEU	2.4
1	F	65	GLN	2.4
1	G	105	ARG	2.4
1	K	323	ASN	2.4
1	A	353	ALA	2.4
1	F	257	ALA	2.4
1	J	44	GLY	2.4
1	B	180	LYS	2.4
1	C	180	LYS	2.4
1	C	34	VAL	2.4
1	H	57	VAL	2.4
1	J	102	VAL	2.4
1	K	96	PRO	2.3
1	A	322	ALA	2.3
1	C	75	ALA	2.3
1	E	353	ALA	2.3
1	G	70	ALA	2.3
1	I	322	ALA	2.3
1	E	356	THR	2.3
1	F	41	SER	2.3
1	H	178	SER	2.3
1	G	88	VAL	2.3
1	G	349	ILE	2.3
1	K	354	VAL	2.3
1	D	47	ARG	2.3
1	G	355	LEU	2.3
1	H	352	GLU	2.3
1	C	359	ASP	2.3
1	H	350	ASP	2.3
1	J	323	ASN	2.3
1	J	350	ASP	2.3
1	H	76	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	I	44	GLY	2.3
1	A	58	THR	2.3
1	C	105	ARG	2.3
1	A	79	VAL	2.3
1	G	57	VAL	2.3
1	K	34	VAL	2.3
1	L	354	VAL	2.3
1	E	104	ASP	2.3
1	G	77	ALA	2.3
1	L	1	MET	2.3
1	L	100	ALA	2.3
1	L	40	SER	2.3
1	E	34	VAL	2.3
1	E	76	LYS	2.3
1	L	350	ASP	2.3
1	E	7	GLY	2.3
1	F	358	TRP	2.3
1	L	178	SER	2.3
1	E	65	GLN	2.3
1	F	106	LEU	2.2
1	G	106	LEU	2.2
1	J	47	ARG	2.2
1	B	352	GLU	2.2
1	J	75	ALA	2.2
1	H	58	THR	2.2
1	B	178	SER	2.2
1	F	173	TRP	2.2
1	C	351	ILE	2.2
1	H	102	VAL	2.2
1	F	255	ASP	2.2
1	K	359	ASP	2.2
1	F	344	PRO	2.2
1	I	68	GLU	2.2
1	H	65	GLN	2.2
1	K	176	GLN	2.2
1	C	2	ALA	2.2
1	H	75	ALA	2.2
1	G	326	TRP	2.2
1	K	69	LEU	2.2
1	A	102	VAL	2.2
1	G	43	ASP	2.2
1	D	1	MET	2.2

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Mol	Chain	Res	Type	RSRZ
1	F	93	GLY	2.2
1	K	72	LYS	2.2
1	H	347	ALA	2.2
1	L	2	ALA	2.2
1	K	46	SER	2.2
1	D	173	TRP	2.2
1	K	79	VAL	2.2
1	E	352	GLU	2.2
1	G	68	GLU	2.2
1	A	100	ALA	2.2
1	G	46	SER	2.2
1	F	73	LEU	2.1
1	G	71	LEU	2.1
1	J	349	ILE	2.1
1	B	350	ASP	2.1
1	F	48	ASP	2.1
1	H	43	ASP	2.1
1	H	79	VAL	2.1
1	I	76	LYS	2.1
1	B	243[A]	GLN	2.1
1	A	40	SER	2.1
1	A	70	ALA	2.1
1	B	322	ALA	2.1
1	G	2	ALA	2.1
1	H	257	ALA	2.1
1	E	73	LEU	2.1
1	G	8	LEU	2.1
1	J	62	LYS	2.1
1	K	74	ILE	2.1
1	L	76	LYS	2.1
1	D	43	ASP	2.1
1	I	350	ASP	2.1
1	D	326	TRP	2.1
1	E	358	TRP	2.1
1	F	10	VAL	2.1
1	K	173	TRP	2.1
1	G	7	GLY	2.1
1	H	325	GLY	2.1
1	A	177	SER	2.1
1	B	77	ALA	2.1
1	C	178	SER	2.1
1	E	49	ALA	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	257	ALA	2.1
1	F	63	SER	2.1
1	I	347	ALA	2.1
1	A	355	LEU	2.1
1	H	315	GLU	2.1
1	J	258	GLU	2.1
1	B	349	ILE	2.1
1	D	357	ASP	2.1
1	H	56	ILE	2.1
1	B	173	TRP	2.1
1	H	334	PHE	2.1
1	C	93	GLY	2.1
1	H	66	GLY	2.1
1	K	181	GLY	2.1
1	J	348	THR	2.1
1	K	178	SER	2.1
1	B	62	LYS	2.1
1	C	59	ALA	2.1
1	K	322	ALA	2.1
1	F	321	GLU	2.1
1	C	69	LEU	2.1
1	E	61	LEU	2.1
1	H	107	ILE	2.1
1	K	357	ASP	2.1
1	B	66	GLY	2.1
1	B	324	GLY	2.1
1	L	358	TRP	2.1
1	C	353	ALA	2.0
1	E	70	ALA	2.0
1	E	77	ALA	2.0
1	L	70	ALA	2.0
1	K	351	ILE	2.0
1	K	105	ARG	2.0
1	C	40	SER	2.0
1	D	258	GLU	2.0
1	E	41	SER	2.0
1	E	171	ALA	2.0
1	F	353	ALA	2.0
1	L	176	GLN	2.0
1	E	350	ASP	2.0
1	E	359	ASP	2.0
1	I	359	ASP	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	74	ILE	2.0
1	H	342	PRO	2.0
1	F	72	LYS	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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
2	A1JJY	E	401	68/68	0.90	0.17	44,68,138,144	0
2	A1JJY	H	401	68/68	0.90	0.16	49,68,123,125	0
2	A1JJY	F	401	68/68	0.94	0.12	31,56,103,109	0
2	A1JJY	A	401	68/68	0.94	0.13	32,57,120,129	0
2	A1JJY	G	401	68/68	0.95	0.13	32,58,111,116	0
2	A1JJY	B	401	68/68	0.95	0.12	30,53,114,118	0
2	A1JJY	L	401	68/68	0.95	0.12	30,49,135,148	0
2	A1JJY	I	401	68/68	0.96	0.10	28,51,110,114	0
2	A1JJY	J	401	68/68	0.96	0.12	30,50,134,140	0
2	A1JJY	K	401	68/68	0.96	0.11	31,51,123,131	0
2	A1JJY	C	401	68/68	0.96	0.11	33,56,122,135	0
2	A1JJY	D	401	68/68	0.97	0.10	30,48,100,111	0

6.5 Other polymers [i](#)

There are no such residues in this entry.