



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 7, 2024 – 05:59 am GMT

PDB ID : 5NMG
Title : 868 TCR in complex with HLA A02 presenting SLYFNTIAVL
Authors : Rizkallah, P.J.; Cole, D.K.; Fuller, A.; Sewell, A.K.
Deposited on : 2017-04-05
Resolution : 2.75 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 : 1.8.4, CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

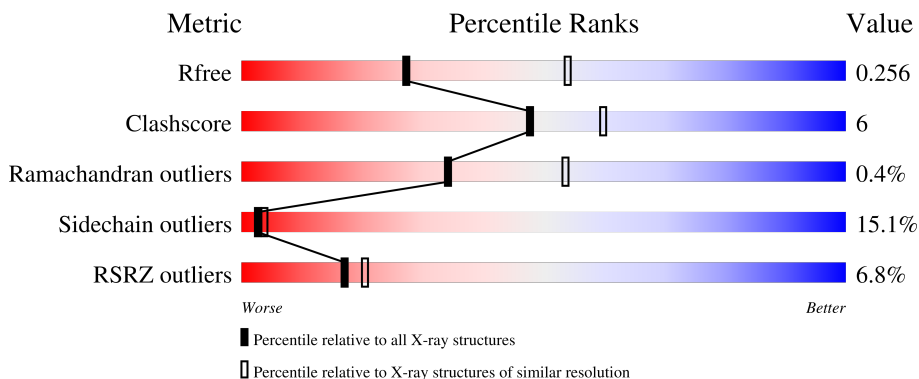
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.75 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.








Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)

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	276	
1	F	276	
2	B	100	
2	G	100	
3	C	9	

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Mol	Chain	Length	Quality of chain
3	H	9	 67% 33%
4	D	200	 4% 78% 20%
4	I	200	 2% 75% 22%
5	E	242	 1% 74% 21% 5%
5	J	242	 1% 76% 19% 5%

2 Entry composition i

There are 9 unique types of molecules in this entry. The entry contains 13554 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 HLA class I histocompatibility antigen, A-2 alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	276	Total	C	N	O	S	0	0	0
			2254	1408	410	427	9			
1	F	276	Total	C	N	O	S	0	0	0
			2254	1408	410	427	9			

- Molecule 2 is a protein called Beta-2-microglobulin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	100	Total	C	N	O	S	0	0	0
			837	533	141	159	4			
2	G	100	Total	C	N	O	S	0	0	0
			837	533	141	159	4			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	0	MET	-	initiating methionine	UNP P61769
G	0	MET	-	initiating methionine	UNP P61769

- Molecule 3 is a protein called Gag protein.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	9	Total	C	N	O	0	0	0
			69	46	10	13			
3	H	9	Total	C	N	O	0	0	0
			69	46	10	13			

- Molecule 4 is a protein called Human T-cell receptor alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	200	Total	C	N	O	S	0	0	0
			1560	976	259	317	8			

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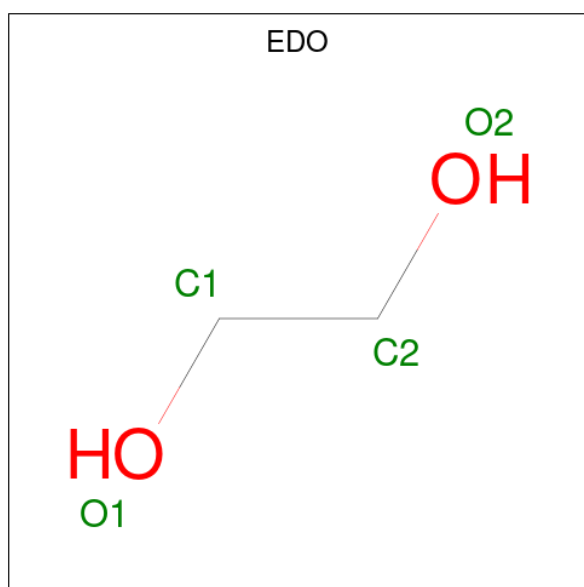
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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	I	200	Total	C	N	O	S	0	0	0
			1560	976	259	317	8			

- Molecule 5 is a protein called Human T-cell Receptor beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	242	Total	C	N	O	S	0	0	0
			1939	1219	337	378	5			
5	J	241	Total	C	N	O	S	0	0	0
			1931	1215	336	375	5			

- Molecule 6 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



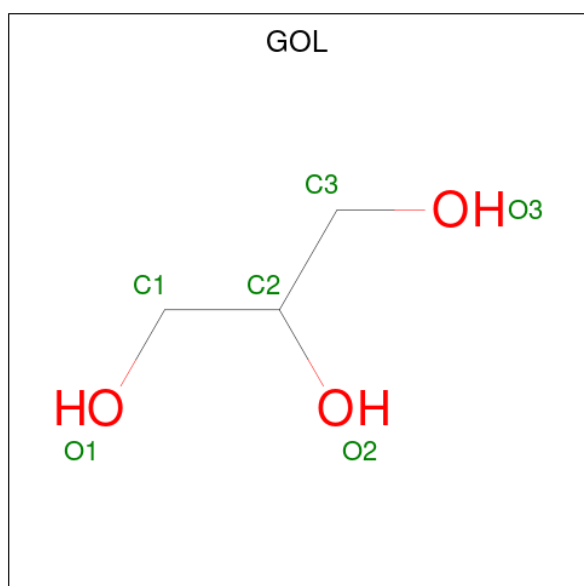
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			4	2	2		
6	A	1	Total	C	O	0	0
			4	2	2		
6	A	1	Total	C	O	0	0
			4	2	2		
6	A	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		
6	C	1	Total	C	O	0	0
			4	2	2		
6	D	1	Total	C	O	0	0
			4	2	2		
6	E	1	Total	C	O	0	0
			4	2	2		
6	E	1	Total	C	O	0	0
			4	2	2		
6	G	1	Total	C	O	0	0
			4	2	2		
6	I	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



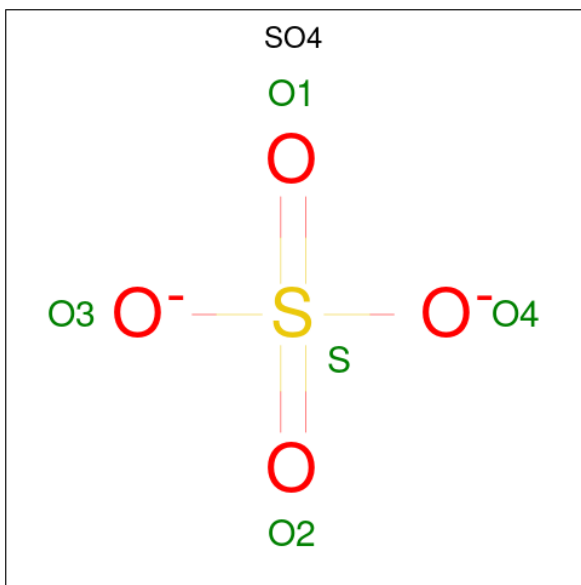
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			6	3	3		

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

- Molecule 8 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total	O S	0	0
			5	4 1		
8	E	1	Total	O S	0	0
			5	4 1		
8	J	1	Total	O S	0	0
			5	4 1		

- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	26	Total	O	0	0
			26	26		
9	B	14	Total	O	0	0
			14	14		
9	C	2	Total	O	0	0
			2	2		
9	D	20	Total	O	0	0
			20	20		

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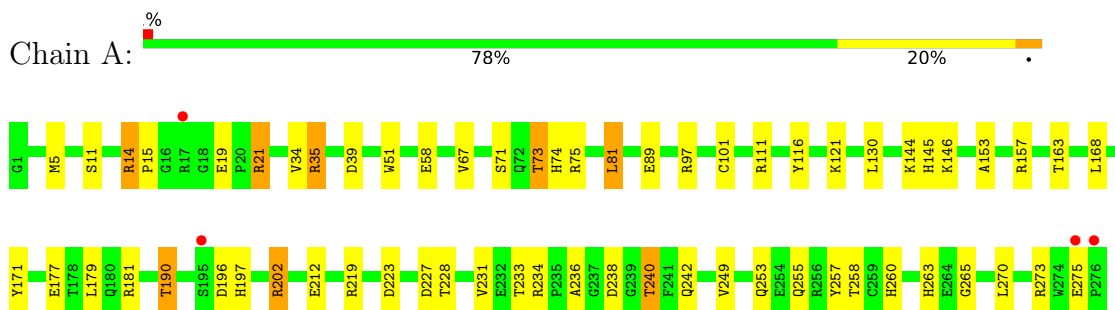
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	E	37	Total 37	O 37	0	0
9	F	7	Total 7	O 7	0	0
9	G	7	Total 7	O 7	0	0
9	H	1	Total 1	O 1	0	0
9	I	13	Total 13	O 13	0	0
9	J	20	Total 20	O 20	0	0

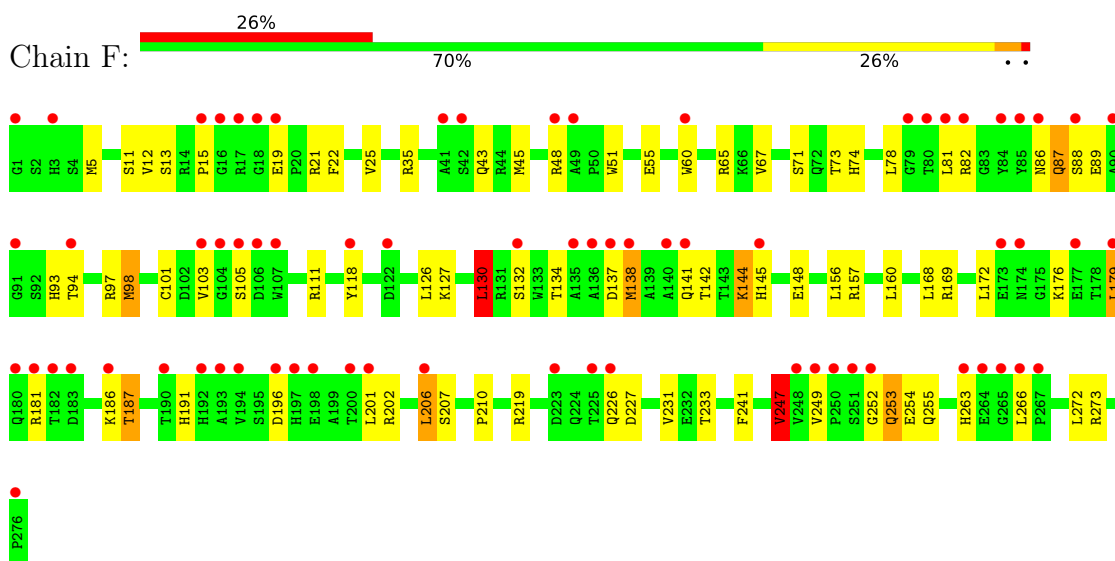
3 Residue-property plots [i](#)

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.

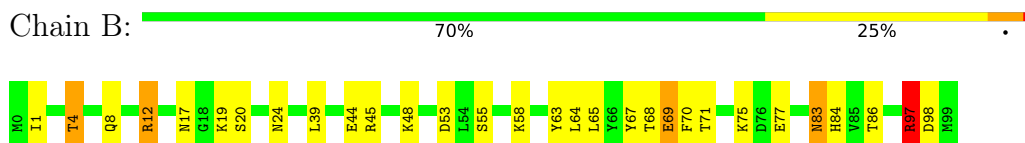
- Molecule 1: HLA class I histocompatibility antigen, A-2 alpha chain



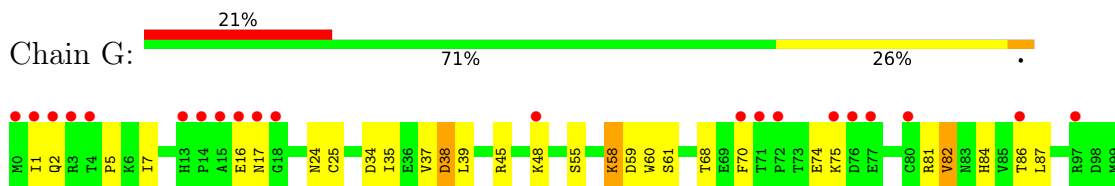
- Molecule 1: HLA class I histocompatibility antigen, A-2 alpha chain



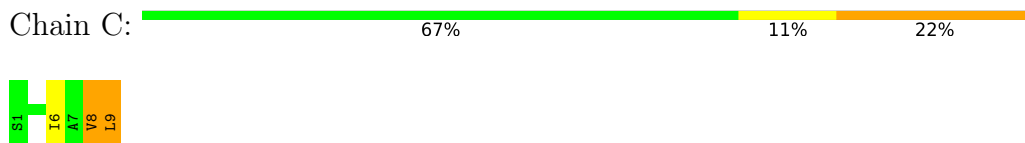
- Molecule 2: Beta-2-microglobulin



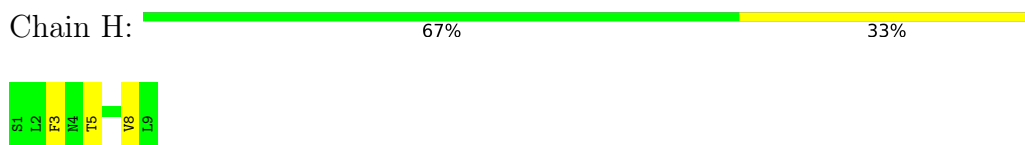
- Molecule 2: Beta-2-microglobulin



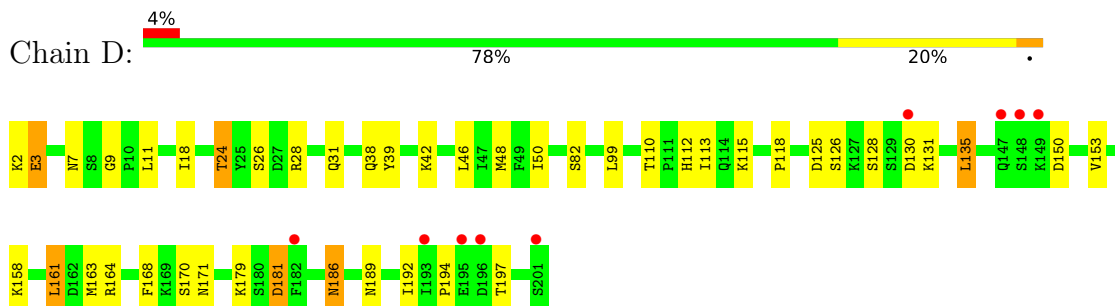
• Molecule 3: Gag protein



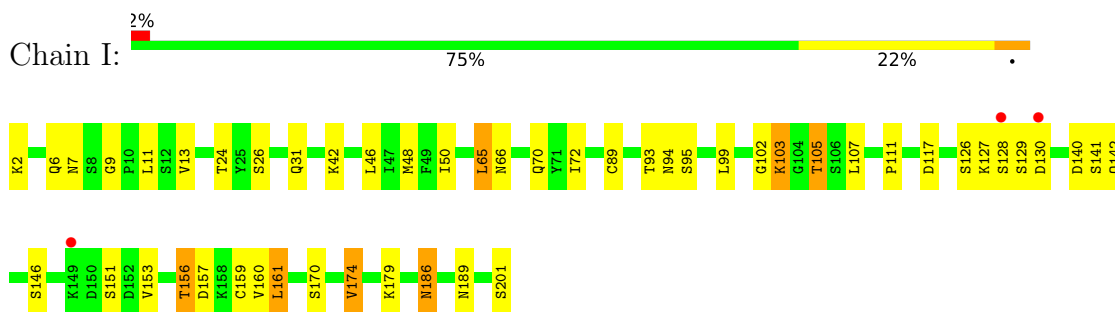
• Molecule 3: Gag protein



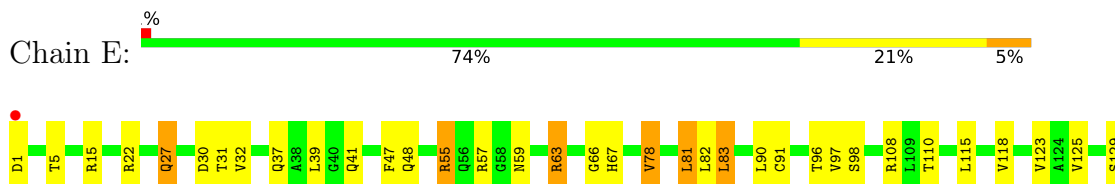
• Molecule 4: Human T-cell receptor alpha chain

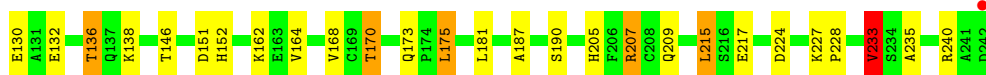


• Molecule 4: Human T-cell receptor alpha chain

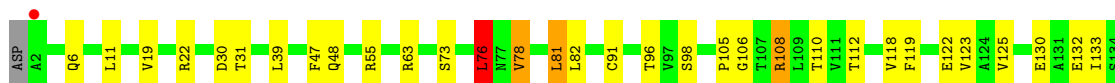
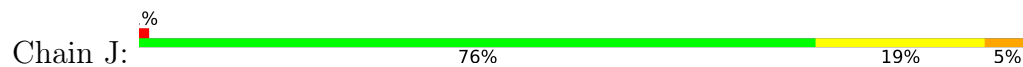


• Molecule 5: Human T-cell Receptor beta chain





- Molecule 5: Human T-cell Receptor beta chain



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	209.36Å 85.11Å 113.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	39.83 – 2.75 39.83 – 2.75	Depositor EDS
% Data completeness (in resolution range)	99.9 (39.83-2.75) 99.9 (39.83-2.75)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.67 (at 2.77Å)	Xtrriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.196 , 0.254 0.201 , 0.256	Depositor DCC
R_{free} test set	2717 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	52.2	Xtrriage
Anisotropy	0.281	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 43.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	13554	wwPDB-VP
Average B, all atoms (Å ²)	61.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.85% 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: EDO, SO4, GOL

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	0.88	3/2320 (0.1%)	1.05	9/3149 (0.3%)
1	F	0.65	0/2320	0.95	8/3149 (0.3%)
2	B	0.88	2/860 (0.2%)	1.04	5/1162 (0.4%)
2	G	0.64	0/860	0.88	0/1162
3	C	1.14	0/69	1.43	0/92
3	H	0.70	0/69	1.05	0/92
4	D	0.86	0/1593	0.96	3/2155 (0.1%)
4	I	0.82	1/1593 (0.1%)	0.98	2/2155 (0.1%)
5	E	0.90	0/1994	1.07	11/2717 (0.4%)
5	J	0.76	0/1986	0.99	7/2706 (0.3%)
All	All	0.81	6/13664 (0.0%)	1.00	45/18539 (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
5	J	0	1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	101	CYS	CB-SG	-6.90	1.70	1.82
2	B	77	GLU	CD-OE1	5.81	1.32	1.25
4	I	89	CYS	CB-SG	-5.33	1.73	1.81
2	B	69	GLU	CG-CD	5.29	1.59	1.51
1	A	177	GLU	CG-CD	5.16	1.59	1.51
1	A	71	SER	CB-OG	-5.13	1.35	1.42

All (45) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	224	ASP	CB-CG-OD1	-8.51	110.64	118.30
5	E	47	PHE	CB-CA-C	-7.47	95.46	110.40
5	E	240	ARG	NE-CZ-NH2	7.43	124.01	120.30
5	J	224	ASP	CB-CG-OD1	7.01	124.61	118.30
4	D	161	LEU	CA-CB-CG	7.00	131.39	115.30
4	I	11	LEU	CB-CG-CD1	6.90	122.72	111.00
2	B	12	ARG	NE-CZ-NH1	6.83	123.72	120.30
1	A	101	CYS	CB-CA-C	-6.64	97.12	110.40
2	B	12	ARG	NE-CZ-NH2	-6.62	116.99	120.30
5	J	193	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	A	39	ASP	CB-CG-OD1	6.38	124.04	118.30
1	F	130	LEU	CA-CB-CG	6.31	129.82	115.30
1	A	35	ARG	NE-CZ-NH2	-6.20	117.20	120.30
5	J	108	ARG	NE-CZ-NH1	6.18	123.39	120.30
2	B	69	GLU	OE1-CD-OE2	-6.18	115.89	123.30
5	E	22	ARG	NE-CZ-NH2	6.08	123.34	120.30
4	I	161	LEU	CA-CB-CG	6.06	129.24	115.30
5	E	30	ASP	CB-CG-OD1	6.05	123.74	118.30
5	E	207	ARG	NE-CZ-NH2	5.99	123.29	120.30
5	J	76	LEU	CA-CB-CG	5.93	128.95	115.30
1	F	101	CYS	CB-CA-C	-5.88	98.64	110.40
1	A	39	ASP	CB-CG-OD2	-5.78	113.09	118.30
1	F	65	ARG	NE-CZ-NH1	5.74	123.17	120.30
2	B	97	ARG	NE-CZ-NH1	5.70	123.15	120.30
2	B	64	LEU	CA-CB-CG	5.62	128.22	115.30
1	F	247	VAL	CB-CA-C	-5.45	101.04	111.40
1	A	223	ASP	CB-CG-OD1	5.44	123.20	118.30
5	E	63	ARG	NE-CZ-NH1	5.42	123.01	120.30
5	E	55	ARG	NE-CZ-NH2	-5.42	117.59	120.30
5	E	224	ASP	CB-CG-OD2	5.39	123.16	118.30
1	F	98	MET	CA-CB-CG	5.38	122.45	113.30
4	D	164	ARG	NE-CZ-NH2	-5.37	117.61	120.30
1	A	21	ARG	NE-CZ-NH2	-5.31	117.65	120.30
5	J	30	ASP	CB-CG-OD1	5.29	123.06	118.30
1	A	14	ARG	NE-CZ-NH2	5.21	122.90	120.30
4	D	135	LEU	CA-CB-CG	5.19	127.23	115.30
1	F	48	ARG	NE-CZ-NH1	5.17	122.89	120.30
1	F	65	ARG	NE-CZ-NH2	-5.17	117.72	120.30
5	E	152	HIS	N-CA-CB	5.11	119.81	110.60
5	E	233	VAL	CB-CA-C	5.10	121.10	111.40
1	F	206	LEU	N-CA-C	5.10	124.77	111.00
1	A	227	ASP	CB-CA-C	-5.10	100.21	110.40
5	J	163	GLU	CA-CB-CG	5.04	124.48	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	202	ARG	NE-CZ-NH2	-5.01	117.79	120.30
5	J	225	ARG	NE-CZ-NH2	-5.01	117.79	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	J	106	GLY	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2254	0	2103	32	0
1	F	2254	0	2103	26	0
2	B	837	0	803	12	0
2	G	837	0	803	11	0
3	C	69	0	76	7	0
3	H	69	0	76	1	0
4	D	1560	0	1486	19	0
4	I	1560	0	1486	23	0
5	E	1939	0	1814	26	0
5	J	1931	0	1807	21	0
6	A	16	0	24	1	0
6	B	20	0	30	0	0
6	C	4	0	6	0	0
6	D	4	0	6	0	0
6	E	8	0	12	0	0
6	G	4	0	6	0	0
6	I	4	0	6	0	0
6	J	4	0	6	0	0
7	A	6	0	8	0	0
7	D	6	0	8	0	0
7	E	6	0	8	1	0
8	A	5	0	0	0	0
8	E	5	0	0	0	0
8	J	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	A	26	0	0	2	0
9	B	14	0	0	0	0
9	C	2	0	0	0	0
9	D	20	0	0	0	0
9	E	37	0	0	0	0
9	F	7	0	0	0	0
9	G	7	0	0	0	0
9	H	1	0	0	0	0
9	I	13	0	0	2	0
9	J	20	0	0	0	0
All	All	13554	0	12677	159	0

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

All (159) 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)
5:J:203:ARG:O	5:J:203:ARG:NE	2.07	0.87
2:B:17:ASN:HD21	2:B:97:ARG:HH22	1.25	0.84
2:B:17:ASN:HD21	2:B:97:ARG:NH2	1.76	0.82
4:D:38:GLN:HE22	5:E:37:GLN:HE22	1.29	0.80
2:B:4:THR:HA	2:B:86:THR:HG21	1.64	0.77
4:I:7:ASN:O	4:I:105:THR:HB	1.85	0.77
2:G:59:ASP:O	2:G:61:SER:N	2.17	0.75
1:A:74:HIS:CE1	1:A:97:ARG:NH1	2.55	0.74
5:J:11:LEU:HD13	5:J:19:VAL:HG21	1.68	0.74
2:B:17:ASN:ND2	2:B:97:ARG:HH22	1.86	0.73
1:A:238:ASP:OD1	1:A:240:THR:HG22	1.91	0.71
2:B:17:ASN:ND2	2:B:97:ARG:NH2	2.38	0.70
5:J:160:ASN:HD21	5:J:204:ASN:ND2	1.89	0.70
5:J:160:ASN:HD21	5:J:204:ASN:HD22	1.38	0.69
1:A:190:THR:HG22	1:A:202:ARG:HB3	1.75	0.69
4:I:31:GLN:HE22	4:I:94:ASN:HD22	1.40	0.68
1:A:163:THR:OG1	4:D:31:GLN:NE2	2.28	0.67
1:F:74:HIS:CE1	1:F:97:ARG:NH1	2.64	0.66
4:I:13:VAL:CG2	4:I:107:LEU:HD11	2.26	0.65
1:A:74:HIS:CE1	1:A:97:ARG:HH11	2.15	0.64
1:A:73:THR:HG21	3:C:6:ILE:HG23	1.79	0.63
1:A:234:ARG:HE	1:A:242:GLN:HE21	1.45	0.63
4:I:186:ASN:C	4:I:186:ASN:HD22	2.02	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:123:VAL:HG23	5:E:233:VAL:HG22	1.80	0.63
1:F:22:PHE:CD2	1:F:71:SER:HB2	2.34	0.62
4:I:13:VAL:HG21	4:I:107:LEU:HD11	1.80	0.62
2:B:83:ASN:HD22	2:B:84:HIS:H	1.48	0.62
1:A:249:VAL:HG22	1:A:257:TYR:CZ	2.35	0.62
4:D:186:ASN:HD22	4:D:186:ASN:C	2.03	0.61
1:F:187:THR:HG21	1:F:272:LEU:HD21	1.82	0.61
1:A:97:ARG:HE	3:C:6:ILE:HD11	1.65	0.61
4:D:3:GLU:OE1	4:D:26:SER:OG	2.18	0.61
4:D:50:ILE:HD12	4:D:50:ILE:N	2.14	0.60
4:D:38:GLN:HE22	5:E:37:GLN:NE2	1.97	0.60
4:D:194:PRO:O	4:D:197:THR:HG23	2.02	0.60
4:I:102:GLY:C	4:I:103:LYS:O	2.33	0.59
5:J:6:GLN:NE2	5:J:105:PRO:O	2.36	0.58
5:E:1:ASP:HA	5:E:27:GLN:HG3	1.85	0.58
1:A:97:ARG:NE	3:C:6:ILE:HD11	2.19	0.58
1:F:176:LYS:O	1:F:179:LEU:O	2.22	0.57
1:A:234:ARG:HH11	2:B:8:GLN:NE2	2.03	0.57
4:I:2:LYS:N	9:I:401:HOH:O	2.37	0.57
4:I:111:PRO:HG3	4:I:160:VAL:HG21	1.87	0.56
1:A:234:ARG:HE	1:A:242:GLN:NE2	2.01	0.56
4:D:39:TYR:HB2	4:D:42:LYS:HG3	1.88	0.56
5:J:132:GLU:OE2	5:J:140:THR:HG22	2.06	0.56
5:J:133:ILE:HD13	5:J:139:ALA:HB2	1.88	0.56
4:D:113:ILE:CD1	4:D:171:ASN:ND2	2.69	0.56
4:I:31:GLN:HE22	4:I:94:ASN:ND2	2.03	0.55
1:A:190:THR:HG21	2:B:98:ASP:OD2	2.06	0.55
4:I:156:THR:HG23	4:I:157:ASP:O	2.07	0.55
5:E:123:VAL:CG2	5:E:233:VAL:HG22	2.37	0.54
4:D:113:ILE:HD11	4:D:171:ASN:ND2	2.23	0.54
5:J:76:LEU:HD12	5:J:76:LEU:O	2.08	0.54
5:E:132:GLU:O	5:E:136:THR:HB	2.08	0.53
5:E:48:GLN:HE21	5:E:55:ARG:HD2	1.73	0.53
1:A:5:MET:HB2	1:A:168:LEU:HD13	1.92	0.52
5:J:132:GLU:O	5:J:136:THR:HB	2.09	0.52
5:E:175:LEU:HD22	5:E:187:ALA:HB3	1.91	0.52
1:F:51:TRP:CH2	1:F:179:LEU:HD11	2.45	0.52
3:C:8:VAL:HB	5:E:96:THR:HG22	1.92	0.52
4:D:38:GLN:NE2	5:E:37:GLN:HE22	2.04	0.51
2:G:25:CYS:HB2	2:G:39:LEU:HD11	1.92	0.51
4:I:65:LEU:HD22	4:I:66:ASN:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:48:GLN:HE21	5:J:55:ARG:HD2	1.76	0.50
1:A:97:ARG:NH1	1:A:116:TYR:HE1	2.09	0.50
5:E:66:GLY:C	5:E:67:HIS:CG	2.84	0.50
5:E:207:ARG:NH1	5:E:209:GLN:OE1	2.44	0.50
1:A:35:ARG:HG3	2:B:53:ASP:OD2	2.12	0.50
2:B:24:ASN:HD22	2:B:67:TYR:HB3	1.76	0.50
1:A:15:PRO:HG2	1:A:89:GLU:O	2.12	0.50
2:G:2:GLN:HB3	2:G:86:THR:HG22	1.95	0.49
2:G:34:ASP:O	2:G:35:ILE:HG23	2.12	0.49
1:A:153:ALA:HB3	6:A:302:EDO:H12	1.95	0.49
1:F:25:VAL:HG21	2:G:55:SER:OG	2.13	0.49
1:A:121:LYS:HE2	2:B:1:ILE:HD13	1.95	0.48
1:A:249:VAL:HG22	1:A:257:TYR:CE2	2.48	0.48
3:C:8:VAL:HG12	5:E:97:VAL:HG22	1.95	0.48
2:G:38:ASP:OD2	2:G:45:ARG:HD2	2.13	0.48
5:J:123:VAL:HG21	5:J:210:VAL:HG13	1.95	0.48
5:J:136:THR:HG22	5:J:138:LYS:H	1.78	0.48
1:F:187:THR:CG2	1:F:272:LEU:HD11	2.44	0.47
1:A:238:ASP:OD1	1:A:240:THR:CG2	2.61	0.47
4:D:181:ASP:O	4:D:181:ASP:CG	2.52	0.47
1:F:87:GLN:HG2	1:F:93:HIS:CE1	2.49	0.47
1:A:258:THR:HG23	1:A:260:HIS:NE2	2.30	0.47
1:F:206:LEU:O	1:F:241:PHE:O	2.33	0.47
1:A:145:HIS:HB2	9:A:426:HOH:O	2.14	0.47
1:A:275:GLU:HA	1:A:275:GLU:OE2	2.15	0.47
4:D:112:HIS:CE1	4:I:70:GLN:OE1	2.68	0.47
5:E:205:HIS:ND1	7:E:303:GOL:H31	2.29	0.46
5:J:125:VAL:HG23	5:J:235:ALA:HB3	1.97	0.46
4:D:186:ASN:HB2	4:D:189:ASN:ND2	2.30	0.46
1:F:81:LEU:HD13	1:F:118:TYR:CD1	2.50	0.46
2:G:24:ASN:HD22	2:G:24:ASN:N	2.13	0.46
4:D:7:ASN:ND2	4:D:9:GLY:H	2.13	0.46
1:F:187:THR:CG2	1:F:272:LEU:HD21	2.44	0.46
5:E:125:VAL:HG23	5:E:235:ALA:HB3	1.96	0.46
5:E:136:THR:HG22	5:E:138:LYS:H	1.81	0.46
4:I:93:THR:HG22	4:I:94:ASN:N	2.30	0.46
1:F:5:MET:HB2	1:F:168:LEU:HD13	1.96	0.46
5:J:78:VAL:HG22	5:J:81:LEU:HD13	1.97	0.46
2:G:5:PRO:HD3	2:G:84:HIS:CD2	2.50	0.46
5:E:15:ARG:HG3	5:E:83:LEU:HD13	1.99	0.45
1:A:15:PRO:CG	1:A:89:GLU:O	2.64	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:138:MET:O	1:F:142:THR:HG23	2.17	0.45
3:H:3:PHE:CE2	3:H:5:THR:O	2.69	0.45
4:I:156:THR:HG22	4:I:174:VAL:H	1.81	0.45
5:J:119:PHE:CD2	5:J:185:ARG:NE	2.84	0.45
4:D:118:PRO:HB2	4:D:197:THR:HG22	1.97	0.45
5:J:110:THR:HG21	5:J:150:PRO:HB3	1.97	0.45
4:I:127:LYS:O	4:I:129:SER:N	2.49	0.45
1:A:130:LEU:HB2	1:A:157:ARG:HG3	1.99	0.44
2:G:17:ASN:ND2	2:G:74:GLU:HB3	2.32	0.44
2:G:58:LYS:HA	2:G:58:LYS:CE	2.46	0.44
1:F:191:HIS:CE1	1:F:254:GLU:OE2	2.70	0.44
4:D:125:ASP:HB3	4:D:128:SER:O	2.18	0.44
1:A:81:LEU:CD1	3:C:9:LEU:HD23	2.48	0.44
5:E:215:LEU:HD22	5:E:228:PRO:HG2	2.00	0.43
4:I:7:ASN:ND2	4:I:9:GLY:H	2.16	0.43
1:A:51:TRP:CZ3	1:A:171:TYR:HB3	2.53	0.43
5:E:96:THR:HG22	5:E:96:THR:O	2.18	0.43
1:F:22:PHE:CG	1:F:71:SER:HB2	2.53	0.43
1:F:186:LYS:HD3	1:F:207:SER:HB2	2.00	0.43
5:E:175:LEU:CD2	5:E:187:ALA:HB3	2.48	0.43
4:I:6:GLN:OE1	4:I:103:LYS:O	2.36	0.43
5:E:63:ARG:O	5:E:78:VAL:HA	2.19	0.43
1:A:81:LEU:HD13	3:C:9:LEU:HD23	2.01	0.43
1:F:127:LYS:HD3	1:F:132:SER:OG	2.19	0.42
1:F:191:HIS:HE1	1:F:254:GLU:OE2	2.01	0.42
5:J:63:ARG:O	5:J:78:VAL:HA	2.18	0.42
5:J:151:ASP:CG	5:J:151:ASP:O	2.57	0.42
4:I:50:ILE:HG21	4:I:72:ILE:HD11	2.01	0.42
5:J:78:VAL:HG22	5:J:81:LEU:CD1	2.50	0.42
1:A:14:ARG:NH1	9:A:403:HOH:O	2.53	0.42
5:E:78:VAL:HG22	5:E:81:LEU:CD1	2.50	0.42
1:F:130:LEU:HG	1:F:157:ARG:HG3	2.01	0.42
5:E:78:VAL:HG22	5:E:81:LEU:HD13	2.02	0.42
1:F:187:THR:HG23	1:F:272:LEU:HD11	2.02	0.41
5:J:159:VAL:HG22	5:J:164:VAL:HG11	2.01	0.41
4:I:117:ASP:OD2	5:J:135:HIS:CE1	2.74	0.41
5:E:217:GLU:HA	5:E:227:LYS:HZ3	1.84	0.41
4:I:50:ILE:CG2	4:I:72:ILE:HD11	2.50	0.41
2:B:55:SER:HB3	2:B:63:TYR:CZ	2.55	0.41
5:E:175:LEU:O	5:E:175:LEU:HD23	2.20	0.41
1:F:210:PRO:O	1:F:263:HIS:HE1	2.04	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:31:GLN:NE2	4:I:94:ASN:HD22	2.14	0.41
1:F:141:GLN:HE22	1:F:144:LYS:HE2	1.85	0.41
4:D:163:MET:HE3	4:D:168:PHE:CD1	2.55	0.41
2:G:7:ILE:HD13	2:G:82:VAL:HG13	2.03	0.40
5:E:170:THR:HB	5:E:190:SER:HB2	2.03	0.40
1:A:236:ALA:HB3	1:A:240:THR:HG22	2.03	0.40
4:D:24:THR:HG21	4:I:142:GLN:CD	2.42	0.40
4:I:141:SER:HB2	9:I:408:HOH:O	2.22	0.40
1:F:13:SER:HB3	1:F:78:LEU:HD13	2.04	0.40
1:F:55:GLU:O	1:F:60:TRP:CZ3	2.74	0.40
1:F:201:LEU:HB2	1:F:247:VAL:HG23	2.02	0.40
1:F:252:GLY:O	1:F:254:GLU:N	2.54	0.40
1:A:263:HIS:CD2	1:A:265:GLY:H	2.39	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	274/276 (99%)	264 (96%)	9 (3%)	1 (0%)	34	53
1	F	274/276 (99%)	260 (95%)	12 (4%)	2 (1%)	22	39
2	B	98/100 (98%)	98 (100%)	0	0	100	100
2	G	98/100 (98%)	95 (97%)	2 (2%)	1 (1%)	15	27
3	C	7/9 (78%)	6 (86%)	1 (14%)	0	100	100
3	H	7/9 (78%)	6 (86%)	1 (14%)	0	100	100
4	D	198/200 (99%)	190 (96%)	8 (4%)	0	100	100
4	I	198/200 (99%)	191 (96%)	5 (2%)	2 (1%)	15	27
5	E	240/242 (99%)	231 (96%)	9 (4%)	0	100	100
5	J	239/242 (99%)	229 (96%)	10 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	1633/1654 (99%)	1570 (96%)	57 (4%)	6 (0%)	34	53

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	253	GLN
2	G	60	TRP
1	A	197	HIS
4	I	128	SER
4	I	103	LYS
1	F	15	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	232/232 (100%)	206 (89%)	26 (11%)	6	10
1	F	232/232 (100%)	185 (80%)	47 (20%)	1	1
2	B	95/95 (100%)	78 (82%)	17 (18%)	2	2
2	G	95/95 (100%)	83 (87%)	12 (13%)	4	7
3	C	8/8 (100%)	6 (75%)	2 (25%)	0	1
3	H	8/8 (100%)	7 (88%)	1 (12%)	4	7
4	D	178/178 (100%)	153 (86%)	25 (14%)	3	5
4	I	178/178 (100%)	154 (86%)	24 (14%)	4	5
5	E	211/211 (100%)	178 (84%)	33 (16%)	2	3
5	J	210/211 (100%)	178 (85%)	32 (15%)	3	4
All	All	1447/1448 (100%)	1228 (85%)	219 (15%)	3	4

All (219) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	SER

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Mol	Chain	Res	Type
1	A	19	GLU
1	A	21	ARG
1	A	34	VAL
1	A	58	GLU
1	A	67	VAL
1	A	73	THR
1	A	75	ARG
1	A	81	LEU
1	A	111	ARG
1	A	144	LYS
1	A	146	LYS
1	A	179	LEU
1	A	181	ARG
1	A	190	THR
1	A	196	ASP
1	A	212	GLU
1	A	219	ARG
1	A	228	THR
1	A	231	VAL
1	A	233	THR
1	A	240	THR
1	A	253	GLN
1	A	255	GLN
1	A	270	LEU
1	A	273	ARG
2	B	4	THR
2	B	12	ARG
2	B	19	LYS
2	B	20	SER
2	B	39	LEU
2	B	44	GLU
2	B	45	ARG
2	B	48	LYS
2	B	58	LYS
2	B	65	LEU
2	B	68	THR
2	B	69	GLU
2	B	70	PHE
2	B	71	THR
2	B	75	LYS
2	B	83	ASN
2	B	97	ARG

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Mol	Chain	Res	Type
3	C	8	VAL
3	C	9	LEU
4	D	2	LYS
4	D	3	GLU
4	D	11	LEU
4	D	18	ILE
4	D	24	THR
4	D	28	ARG
4	D	46	LEU
4	D	48	MET
4	D	82	SER
4	D	99	LEU
4	D	110	THR
4	D	115	LYS
4	D	126	SER
4	D	130	ASP
4	D	131	LYS
4	D	135	LEU
4	D	150	ASP
4	D	153	VAL
4	D	158	LYS
4	D	161	LEU
4	D	170	SER
4	D	179	LYS
4	D	181	ASP
4	D	186	ASN
4	D	192	ILE
5	E	5	THR
5	E	27	GLN
5	E	31	THR
5	E	32	VAL
5	E	39	LEU
5	E	41	GLN
5	E	57	ARG
5	E	59	ASN
5	E	78	VAL
5	E	81	LEU
5	E	82	LEU
5	E	83	LEU
5	E	90	LEU
5	E	91	CYS
5	E	98	SER

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Mol	Chain	Res	Type
5	E	108	ARG
5	E	110	THR
5	E	115	LEU
5	E	118	VAL
5	E	129	SER
5	E	130	GLU
5	E	136	THR
5	E	146	THR
5	E	151	ASP
5	E	162	LYS
5	E	164	VAL
5	E	168	VAL
5	E	170	THR
5	E	173	GLN
5	E	175	LEU
5	E	181	LEU
5	E	215	LEU
5	E	233	VAL
1	F	11	SER
1	F	12	VAL
1	F	19	GLU
1	F	21	ARG
1	F	35	ARG
1	F	43	GLN
1	F	45	MET
1	F	67	VAL
1	F	73	THR
1	F	82	ARG
1	F	86	ASN
1	F	87	GLN
1	F	88	SER
1	F	89	GLU
1	F	94	THR
1	F	98	MET
1	F	103	VAL
1	F	105	SER
1	F	111	ARG
1	F	126	LEU
1	F	130	LEU
1	F	134	THR
1	F	137	ASP
1	F	138	MET

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Mol	Chain	Res	Type
1	F	144	LYS
1	F	145	HIS
1	F	148	GLU
1	F	156	LEU
1	F	160	LEU
1	F	169	ARG
1	F	172	LEU
1	F	179	LEU
1	F	181	ARG
1	F	187	THR
1	F	196	ASP
1	F	202	ARG
1	F	219	ARG
1	F	226	GLN
1	F	227	ASP
1	F	231	VAL
1	F	233	THR
1	F	247	VAL
1	F	249	VAL
1	F	253	GLN
1	F	255	GLN
1	F	266	LEU
1	F	273	ARG
2	G	1	ILE
2	G	16	GLU
2	G	37	VAL
2	G	38	ASP
2	G	48	LYS
2	G	58	LYS
2	G	68	THR
2	G	70	PHE
2	G	75	LYS
2	G	81	ARG
2	G	82	VAL
2	G	87	LEU
3	H	8	VAL
4	I	24	THR
4	I	26	SER
4	I	42	LYS
4	I	46	LEU
4	I	48	MET
4	I	65	LEU

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Mol	Chain	Res	Type
4	I	95	SER
4	I	99	LEU
4	I	105	THR
4	I	126	SER
4	I	130	ASP
4	I	140	ASP
4	I	146	SER
4	I	151	SER
4	I	153	VAL
4	I	156	THR
4	I	159	CYS
4	I	161	LEU
4	I	170	SER
4	I	174	VAL
4	I	179	LYS
4	I	186	ASN
4	I	189	ASN
4	I	201	SER
5	J	22	ARG
5	J	31	THR
5	J	39	LEU
5	J	47	PHE
5	J	73	SER
5	J	76	LEU
5	J	78	VAL
5	J	81	LEU
5	J	82	LEU
5	J	91	CYS
5	J	96	THR
5	J	98	SER
5	J	108	ARG
5	J	112	THR
5	J	118	VAL
5	J	122	GLU
5	J	130	GLU
5	J	136	THR
5	J	140	THR
5	J	151	ASP
5	J	153	VAL
5	J	163	GLU
5	J	166	SER
5	J	181	LEU

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Mol	Chain	Res	Type
5	J	185	ARG
5	J	191	ARG
5	J	193	ARG
5	J	203	ARG
5	J	210	VAL
5	J	215	LEU
5	J	232	ILE
5	J	240	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (52) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	74	HIS
1	A	87	GLN
1	A	114	HIS
1	A	174	ASN
1	A	242	GLN
1	A	255	GLN
1	A	263	HIS
2	B	8	GLN
2	B	17	ASN
2	B	24	ASN
2	B	83	ASN
4	D	7	ASN
4	D	31	GLN
4	D	70	GLN
4	D	112	HIS
4	D	171	ASN
4	D	186	ASN
5	E	18	GLN
5	E	27	GLN
5	E	29	HIS
5	E	37	GLN
5	E	48	GLN
5	E	152	HIS
5	E	182	ASN
5	E	218	ASN
1	F	32	GLN
1	F	74	HIS
1	F	86	ASN
1	F	87	GLN
1	F	141	GLN

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Mol	Chain	Res	Type
1	F	191	HIS
1	F	192	HIS
1	F	255	GLN
1	F	263	HIS
2	G	8	GLN
2	G	24	ASN
2	G	42	ASN
2	G	84	HIS
4	I	7	ASN
4	I	70	GLN
4	I	94	ASN
4	I	147	GLN
4	I	186	ASN
4	I	189	ASN
5	J	6	GLN
5	J	29	HIS
5	J	41	GLN
5	J	48	GLN
5	J	101	GLN
5	J	135	HIS
5	J	204	ASN
5	J	205	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

22 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
6	EDO	B	101	-	3,3,3	0.66	0	2,2,2	0.37	0
6	EDO	J	301	-	3,3,3	0.41	0	2,2,2	0.43	0
7	GOL	E	303	-	5,5,5	0.40	0	5,5,5	0.60	0
6	EDO	E	302	-	3,3,3	0.48	0	2,2,2	0.43	0
6	EDO	A	303	-	3,3,3	0.50	0	2,2,2	0.27	0
6	EDO	C	301	-	3,3,3	0.36	0	2,2,2	0.30	0
6	EDO	G	101	-	3,3,3	0.51	0	2,2,2	0.19	0
6	EDO	A	302	-	3,3,3	1.07	0	2,2,2	0.85	0
8	SO4	J	302	-	4,4,4	0.37	0	6,6,6	0.14	0
6	EDO	B	104	-	3,3,3	0.54	0	2,2,2	0.48	0
6	EDO	A	301	-	3,3,3	0.67	0	2,2,2	0.47	0
8	SO4	E	304	-	4,4,4	0.41	0	6,6,6	0.85	0
6	EDO	E	301	-	3,3,3	0.54	0	2,2,2	0.13	0
6	EDO	B	105	-	3,3,3	0.53	0	2,2,2	0.20	0
7	GOL	A	305	-	5,5,5	0.60	0	5,5,5	0.39	0
6	EDO	A	304	-	3,3,3	0.44	0	2,2,2	0.55	0
6	EDO	I	301	-	3,3,3	0.56	0	2,2,2	0.14	0
6	EDO	B	102	-	3,3,3	0.49	0	2,2,2	0.25	0
6	EDO	B	103	-	3,3,3	0.86	0	2,2,2	0.63	0
6	EDO	D	301	-	3,3,3	0.73	0	2,2,2	0.74	0
8	SO4	A	306	-	4,4,4	0.30	0	6,6,6	0.24	0
7	GOL	D	302	-	5,5,5	0.87	0	5,5,5	1.02	0

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
6	EDO	B	101	-	-	1/1/1/1	-
6	EDO	J	301	-	-	1/1/1/1	-
7	GOL	E	303	-	-	0/4/4/4	-
6	EDO	E	302	-	-	1/1/1/1	-
6	EDO	A	303	-	-	0/1/1/1	-
6	EDO	C	301	-	-	0/1/1/1	-
6	EDO	G	101	-	-	1/1/1/1	-
6	EDO	A	302	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	EDO	B	104	-	-	0/1/1/1	-
6	EDO	A	301	-	-	1/1/1/1	-
6	EDO	E	301	-	-	0/1/1/1	-
6	EDO	B	105	-	-	1/1/1/1	-
7	GOL	A	305	-	-	0/4/4/4	-
6	EDO	A	304	-	-	1/1/1/1	-
6	EDO	I	301	-	-	1/1/1/1	-
6	EDO	B	102	-	-	1/1/1/1	-
6	EDO	B	103	-	-	1/1/1/1	-
6	EDO	D	301	-	-	1/1/1/1	-
7	GOL	D	302	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	D	302	GOL	C1-C2-C3-O3
7	D	302	GOL	O2-C2-C3-O3
6	A	301	EDO	O1-C1-C2-O2
6	B	101	EDO	O1-C1-C2-O2
6	B	103	EDO	O1-C1-C2-O2
6	B	105	EDO	O1-C1-C2-O2
6	D	301	EDO	O1-C1-C2-O2
6	E	302	EDO	O1-C1-C2-O2
6	G	101	EDO	O1-C1-C2-O2
6	J	301	EDO	O1-C1-C2-O2
6	A	304	EDO	O1-C1-C2-O2
6	B	102	EDO	O1-C1-C2-O2
6	I	301	EDO	O1-C1-C2-O2

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	E	303	GOL	1	0
6	A	302	EDO	1	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	276/276 (100%)	-0.05	4 (1%) 75 82	26, 43, 81, 101	0
1	F	276/276 (100%)	1.16	71 (25%) 0 0	70, 92, 127, 146	0
2	B	100/100 (100%)	-0.16	0 100 100	28, 41, 61, 82	0
2	G	100/100 (100%)	1.15	21 (21%) 1 0	78, 91, 111, 132	0
3	C	9/9 (100%)	0.31	0 100 100	25, 32, 37, 44	0
3	H	9/9 (100%)	0.38	0 100 100	71, 75, 89, 95	0
4	D	200/200 (100%)	0.11	9 (4%) 33 39	26, 50, 102, 119	0
4	I	200/200 (100%)	-0.07	3 (1%) 73 81	33, 52, 91, 113	0
5	E	242/242 (100%)	-0.23	2 (0%) 86 90	23, 43, 73, 93	0
5	J	241/242 (99%)	-0.10	3 (1%) 79 85	40, 59, 87, 105	0
All	All	1653/1654 (99%)	0.21	113 (6%) 17 20	23, 55, 106, 146	0

All (113) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	G	0	MET	7.1
1	F	276	PRO	6.6
5	J	242	ASP	6.6
1	F	17	ARG	6.0
2	G	1	ILE	6.0
1	F	138	MET	5.7
1	F	15	PRO	5.5
4	I	128	SER	5.4
2	G	75	LYS	5.4
1	F	266	LEU	4.9
1	F	90	ALA	4.8
1	F	137	ASP	4.6
2	G	3	ARG	4.6

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Mol	Chain	Res	Type	RSRZ
2	G	15	ALA	4.6
5	J	241	ALA	4.5
1	F	105	SER	4.4
1	F	267	PRO	4.3
4	D	196	ASP	4.2
1	F	1	GLY	4.2
1	F	197	HIS	4.1
1	F	135	ALA	4.1
5	J	2	ALA	4.0
1	F	84	TYR	3.8
1	F	225	THR	3.7
1	F	136	ALA	3.7
1	F	16	GLY	3.7
1	F	180	GLN	3.7
4	I	130	ASP	3.6
1	F	141	GLN	3.6
1	F	86	ASN	3.6
1	F	106	ASP	3.5
1	F	85	TYR	3.4
1	F	196	ASP	3.4
1	F	18	GLY	3.3
2	G	80	CYS	3.3
1	F	81	LEU	3.3
4	I	149	LYS	3.2
1	F	94	THR	3.2
5	E	242	ASP	3.2
4	D	149	LYS	3.0
1	F	252	GLY	3.0
1	F	251	SER	3.0
1	F	107	TRP	2.9
5	E	1	ASP	2.9
2	G	97	ARG	2.9
1	F	41	ALA	2.9
2	G	14	PRO	2.9
1	F	80	THR	2.8
1	F	60	TRP	2.8
1	F	226	GLN	2.8
2	G	48	LYS	2.8
1	F	194	VAL	2.8
1	F	88	SER	2.8
1	F	104	GLY	2.7
1	A	17	ARG	2.7

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Mol	Chain	Res	Type	RSRZ
1	F	265	GLY	2.7
1	F	192	HIS	2.7
4	D	193	ILE	2.7
2	G	17	ASN	2.6
1	F	200	THR	2.6
1	F	179	LEU	2.6
1	F	79	GLY	2.6
1	F	182	THR	2.6
1	F	183	ASP	2.6
1	F	264	GLU	2.6
4	D	148	SER	2.5
1	F	250	PRO	2.5
4	D	130	ASP	2.5
2	G	70	PHE	2.5
1	F	193	ALA	2.4
4	D	201	SER	2.4
1	F	223	ASP	2.4
1	F	82	ARG	2.4
1	F	263	HIS	2.3
1	A	195	SER	2.3
4	D	182	PHE	2.3
1	F	118	TYR	2.3
1	F	103	VAL	2.3
2	G	4	THR	2.3
1	F	186	LYS	2.3
2	G	2	GLN	2.3
2	G	71	THR	2.3
1	F	91	GLY	2.3
2	G	76	ASP	2.3
1	F	249	VAL	2.3
1	A	276	PRO	2.2
1	F	42	SER	2.2
1	F	177	GLU	2.2
4	D	195	GLU	2.2
1	F	206	LEU	2.2
1	F	181	ARG	2.2
2	G	72	PRO	2.2
1	F	198	GLU	2.2
1	F	49	ALA	2.2
1	F	140	ALA	2.2
1	F	145	HIS	2.1
2	G	86	THR	2.1

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Mol	Chain	Res	Type	RSRZ
1	F	132	SER	2.1
1	F	174	ASN	2.1
1	F	3	HIS	2.1
2	G	18	GLY	2.1
1	F	122	ASP	2.1
2	G	16	GLU	2.1
2	G	13	HIS	2.1
2	G	77	GLU	2.1
1	F	201	LEU	2.1
1	F	248	VAL	2.0
1	F	19	GLU	2.0
1	F	190	THR	2.0
4	D	147	GLN	2.0
1	A	275	GLU	2.0
1	F	48	ARG	2.0
1	F	173	GLU	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
6	EDO	G	101	4/4	0.69	0.26	77,79,80,81	0
7	GOL	D	302	6/6	0.76	0.20	57,63,65,66	0
7	GOL	A	305	6/6	0.77	0.25	69,79,82,85	0
6	EDO	A	302	4/4	0.83	0.30	41,42,52,52	0
6	EDO	B	103	4/4	0.85	0.28	40,44,49,51	0
6	EDO	B	104	4/4	0.85	0.18	61,65,68,69	0
6	EDO	B	105	4/4	0.85	0.29	65,66,66,66	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
6	EDO	E	302	4/4	0.86	0.19	72,73,73,74	0
6	EDO	I	301	4/4	0.88	0.23	71,75,75,76	0
6	EDO	D	301	4/4	0.90	0.33	43,52,52,53	0
6	EDO	B	102	4/4	0.90	0.24	50,53,55,56	0
6	EDO	B	101	4/4	0.90	0.23	39,40,42,42	0
8	SO4	A	306	5/5	0.91	0.23	93,94,102,103	0
6	EDO	A	303	4/4	0.93	0.13	51,57,63,66	0
6	EDO	E	301	4/4	0.93	0.25	61,66,69,69	0
6	EDO	J	301	4/4	0.94	0.19	41,44,47,49	0
6	EDO	A	301	4/4	0.94	0.19	40,45,50,55	0
8	SO4	E	304	5/5	0.94	0.16	57,62,67,72	0
7	GOL	E	303	6/6	0.95	0.13	60,62,63,65	0
6	EDO	A	304	4/4	0.97	0.18	53,54,56,57	0
6	EDO	C	301	4/4	0.98	0.20	29,29,30,30	0
8	SO4	J	302	5/5	0.99	0.14	45,46,47,48	5

6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.