



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 10, 2023 – 01:17 pm GMT

PDB ID : 2BGC
Title : PrfA-G145S, a constitutive active mutant of the Transcriptional Regulator In L.monocytogenes
Authors : Eiting, M.; Hagelueken, G.; Schubert, W.-D.; Heinz, D.W.
Deposited on : 2004-12-20
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 : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (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

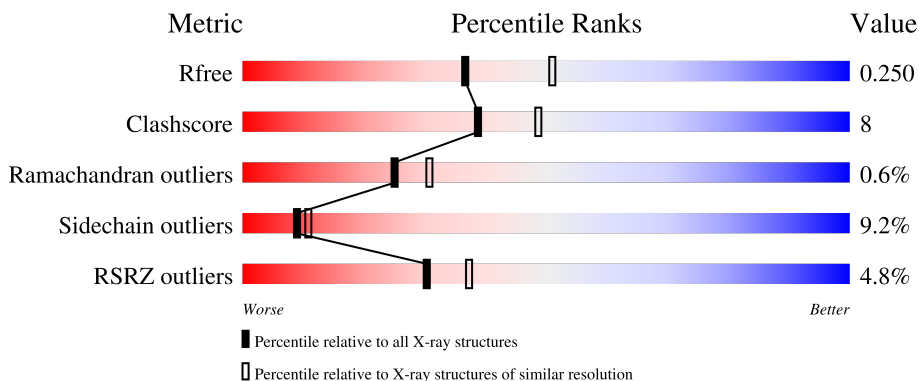
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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}	130704	5042 (2.30-2.30)
Clashscore	141614	5643 (2.30-2.30)
Ramachandran outliers	138981	5575 (2.30-2.30)
Sidechain outliers	138945	5575 (2.30-2.30)
RSRZ outliers	127900	4938 (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	238	 7% (poor fit), 78% (0-1 outliers), 16% (2 outliers), 5% (3+ outliers)
1	B	238	 82% (0-1 outliers), 16% (2 outliers), 2% (3+ outliers)
1	D	238	 11% (poor fit), 70% (0-1 outliers), 21% (2 outliers), 5% (3+ outliers)
1	E	238	 84% (0-1 outliers), 14% (2 outliers), 2% (3+ outliers)
1	F	238	 7% (poor fit), 76% (0-1 outliers), 20% (2 outliers), 3% (3+ outliers)

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Mol	Chain	Length	Quality of chain
1	G	238	 81% 16% ..
1	H	238	 10% 63% 26% 5% 6%
1	I	238	 % 82% 14% ..

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 15644 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.

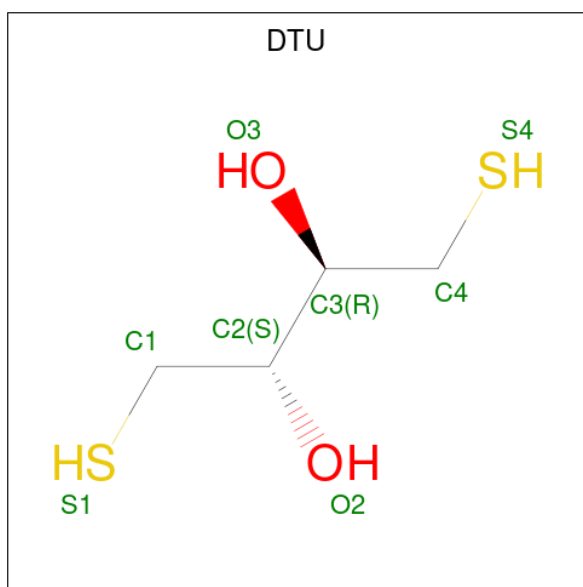
- Molecule 1 is a protein called PRFA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	235	1916	1251	299	358	8	0	0	0
1	B	237	1932	1260	302	362	8	0	0	0
1	D	227	1859	1216	289	346	8	0	0	0
1	E	237	1930	1258	302	362	8	0	0	0
1	F	236	1924	1255	301	360	8	0	0	0
1	G	235	1916	1251	299	358	8	0	0	0
1	H	224	1838	1204	285	341	8	0	0	0
1	I	236	1924	1255	301	360	8	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

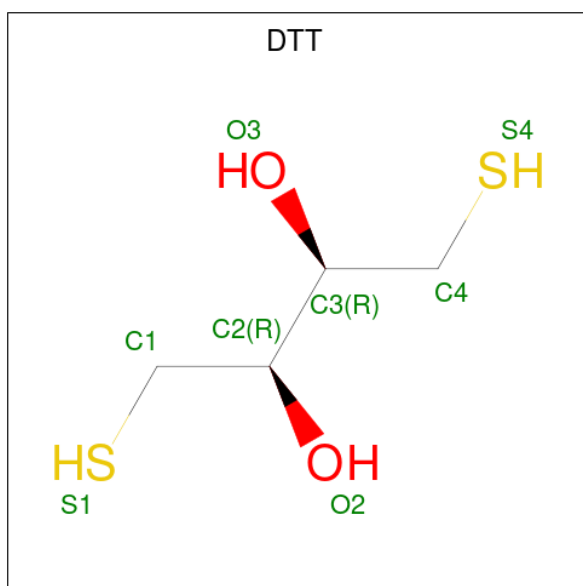
Chain	Residue	Modelled	Actual	Comment	Reference
A	145	SER	GLY	engineered mutation	UNP P22262
B	145	SER	GLY	engineered mutation	UNP P22262
D	145	SER	GLY	engineered mutation	UNP P22262
E	145	SER	GLY	engineered mutation	UNP P22262
F	145	SER	GLY	engineered mutation	UNP P22262
G	145	SER	GLY	engineered mutation	UNP P22262
H	145	SER	GLY	engineered mutation	UNP P22262
I	145	SER	GLY	engineered mutation	UNP P22262

- Molecule 2 is (2R,3S)-1,4-DIMERCAPTOBUTANE-2,3-DIOL (three-letter code: DTU) (formula: C₄H₁₀O₂S₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
2	A	1	8	4	2	2	0	0

- Molecule 3 is 2,3-DIHYDROXY-1,4-DITHIOBUTANE (three-letter code: DTT) (formula: $C_4H_{10}O_2S_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
3	F	1	8	4	2	2	0	0

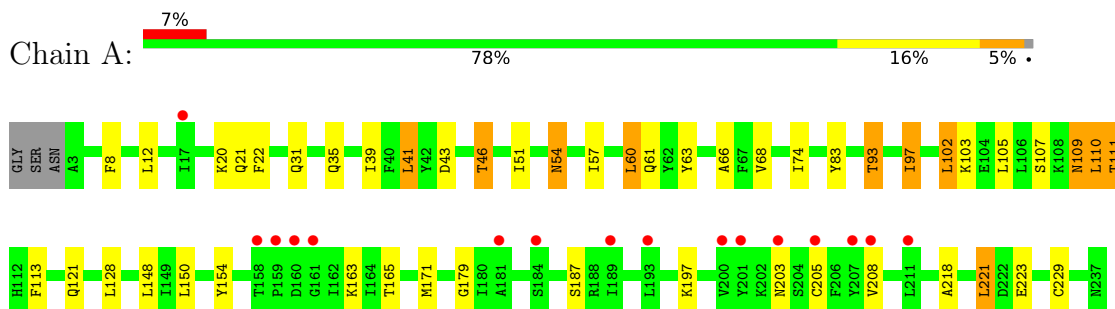
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	35	Total O 35 35	0	0
4	B	69	Total O 69 69	0	0
4	D	31	Total O 31 31	0	0
4	E	64	Total O 64 64	0	0
4	F	32	Total O 32 32	0	0
4	G	77	Total O 77 77	0	0
4	H	30	Total O 30 30	0	0
4	I	51	Total O 51 51	0	0

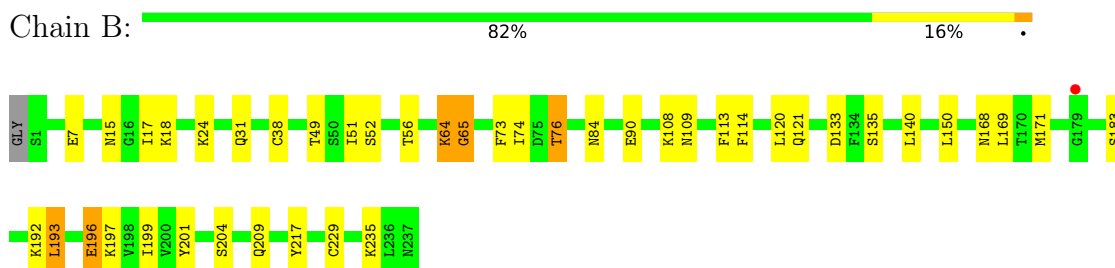
3 Residue-property plots [i](#)

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.

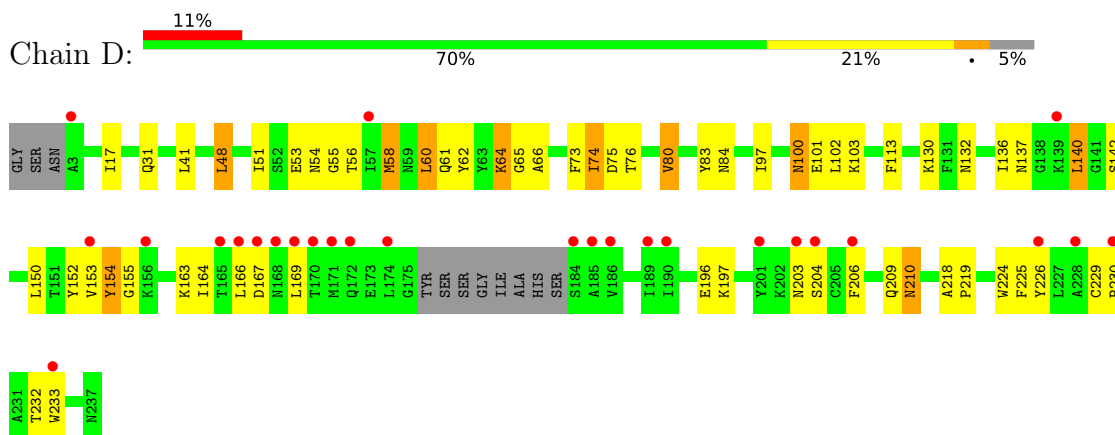
- Molecule 1: PRFA



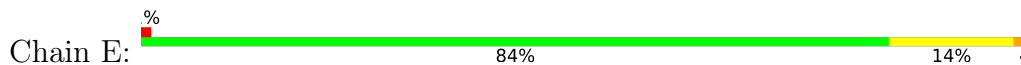
- Molecule 1: PRFA

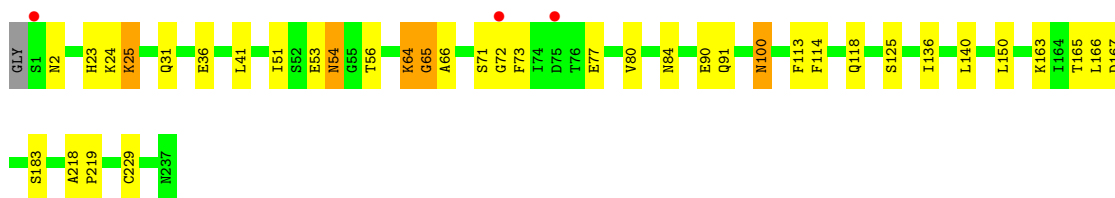


- Molecule 1: PRFA

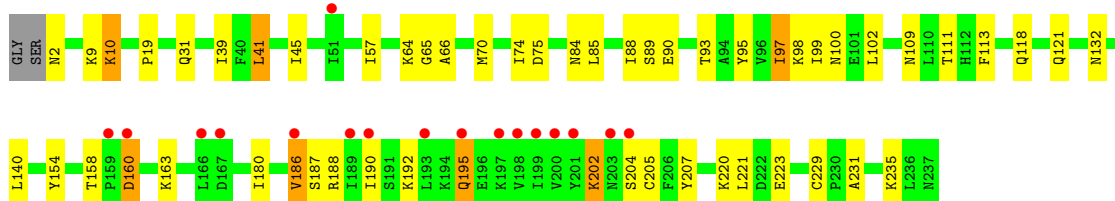
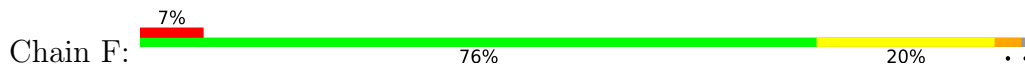


- Molecule 1: PRFA

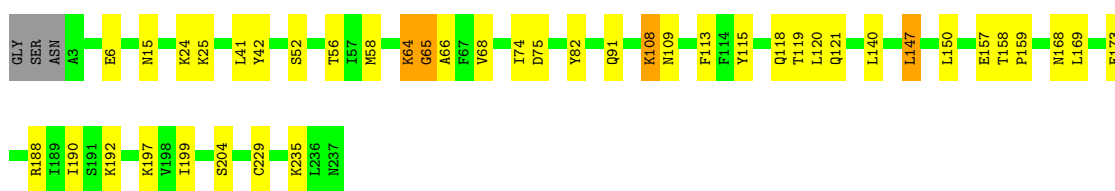
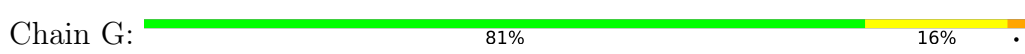




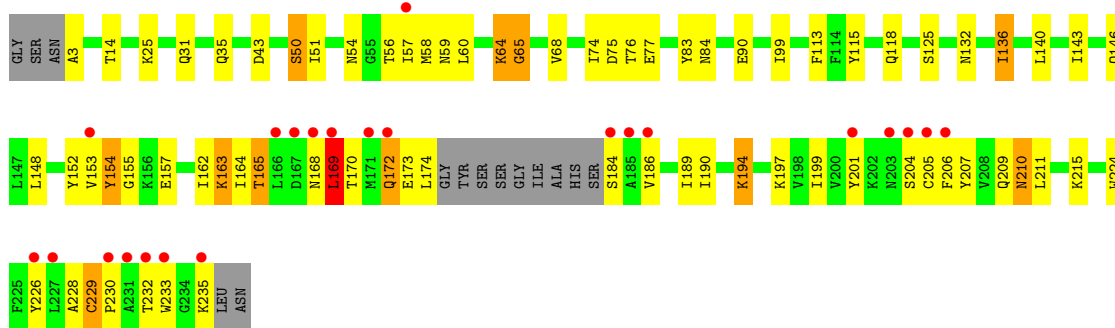
● Molecule 1: PRFA



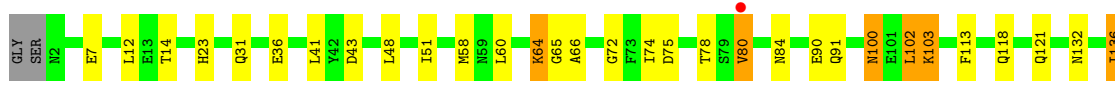
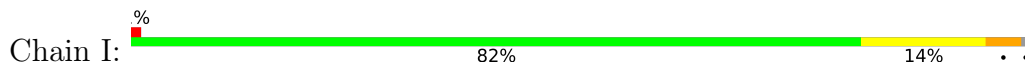
● Molecule 1: PRFA



● Molecule 1: PRFA



● Molecule 1: PRFA





4 Data and refinement statistics i

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	117.25Å 100.24Å 189.56Å 90.00° 90.33° 90.00°	Depositor
Resolution (Å)	182.57 – 2.30 37.32 – 2.30	Depositor EDS
% Data completeness (in resolution range)	95.6 (182.57-2.30) 93.9 (37.32-2.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.19 (at 2.29Å)	Xtrriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.195 , 0.268 0.211 , 0.250	Depositor DCC
R_{free} test set	4648 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	40.6	Xtrriage
Anisotropy	0.587	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 30.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.467 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	15644	wwPDB-VP
Average B, all atoms (Å ²)	51.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.28% 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 i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: DTT, DTU, PR3

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	0.82	0/1951	0.79	2/2632 (0.1%)
1	B	1.01	2/1965 (0.1%)	0.85	2/2651 (0.1%)
1	D	0.86	0/1891	0.81	1/2549 (0.0%)
1	E	1.02	2/1965 (0.1%)	0.85	1/2651 (0.0%)
1	F	0.82	1/1959 (0.1%)	0.74	0/2643
1	G	0.98	2/1951 (0.1%)	0.84	2/2632 (0.1%)
1	H	0.90	0/1870	0.80	1/2522 (0.0%)
1	I	1.01	1/1959 (0.1%)	0.87	4/2643 (0.2%)
All	All	0.93	8/15511 (0.1%)	0.82	13/20923 (0.1%)

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	1
1	D	0	1
1	E	0	1
1	F	0	1
1	G	0	1
1	H	0	2
1	I	0	1
All	All	0	8

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	223	GLU	CG-CD	6.41	1.61	1.51
1	E	65	GLY	N-CA	6.39	1.55	1.46
1	B	196	GLU	CB-CG	-6.03	1.40	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	38	CYS	CB-SG	-5.66	1.72	1.81
1	I	65	GLY	N-CA	5.52	1.54	1.46
1	G	65	GLY	N-CA	5.52	1.54	1.46
1	G	68	VAL	CA-CB	5.44	1.66	1.54
1	E	65	GLY	CA-C	-5.29	1.43	1.51

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	65	GLY	N-CA-C	-8.99	90.62	113.10
1	I	65	GLY	N-CA-C	-8.16	92.69	113.10
1	G	65	GLY	N-CA-C	-6.78	96.14	113.10
1	B	65	GLY	N-CA-C	-6.65	96.47	113.10
1	H	65	GLY	N-CA-C	-6.58	96.66	113.10
1	A	221	LEU	CB-CG-CD1	5.98	121.16	111.00
1	B	133	ASP	CB-CG-OD2	-5.88	113.00	118.30
1	I	48	LEU	CA-CB-CG	5.60	128.18	115.30
1	A	221	LEU	CA-CB-CG	5.56	128.09	115.30
1	D	48	LEU	CA-CB-CG	5.56	128.08	115.30
1	I	150	LEU	CB-CG-CD1	5.11	119.68	111.00
1	G	147	LEU	CB-CG-CD1	5.07	119.61	111.00
1	I	102	LEU	CA-CB-CG	5.03	126.88	115.30

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	64	LYS	Peptide
1	D	64	LYS	Peptide
1	E	64	LYS	Peptide
1	F	64	LYS	Peptide
1	G	64	LYS	Peptide
1	H	229	PR3	Mainchain
1	H	64	LYS	Peptide
1	I	64	LYS	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	1916	0	1914	29	0
1	B	1932	0	1935	23	0
1	D	1859	0	1864	40	0
1	E	1930	0	1928	23	0
1	F	1924	0	1920	36	0
1	G	1916	0	1914	17	0
1	H	1838	0	1843	59	0
1	I	1924	0	1920	33	0
2	A	8	0	10	0	0
3	F	8	0	10	1	0
4	A	35	0	0	1	0
4	B	69	0	0	1	0
4	D	31	0	0	1	0
4	E	64	0	0	2	0
4	F	32	0	0	3	0
4	G	77	0	0	0	0
4	H	30	0	0	1	0
4	I	51	0	0	4	0
All	All	15644	0	15258	230	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 8.

All (230) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:31:GLN:HE21	1:B:84:ASN:HD21	1.15	0.94
1:H:74:ILE:H	1:I:121:GLN:HE22	1.21	0.85
1:D:153:VAL:O	1:D:154:TYR:CD2	2.34	0.81
1:F:75:ASP:HB3	1:G:118:GLN:NE2	1.97	0.79
1:H:190:ILE:O	1:H:194:LYS:NZ	2.15	0.79
1:B:31:GLN:HE22	1:B:51:ILE:H	1.33	0.77
1:F:109:ASN:OD1	1:F:111:THR:HG22	1.85	0.76
1:I:172:GLN:NE2	1:I:176:TYR:CE1	2.53	0.76
1:B:31:GLN:HE21	1:B:84:ASN:ND2	1.84	0.76
1:F:9:LYS:HE2	1:F:10:LYS:HZ2	1.50	0.75
1:A:109:ASN:HD21	1:A:111:THR:HG23	1.50	0.75
1:D:153:VAL:O	1:D:154:TYR:CG	2.39	0.75
1:H:75:ASP:HB3	1:I:118:GLN:NE2	2.02	0.75
1:I:31:GLN:HE21	1:I:84:ASN:HD21	1.33	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:31:GLN:HE22	1:A:51:ILE:HG22	1.52	0.73
1:H:75:ASP:HB3	1:I:118:GLN:HE22	1.51	0.73
1:F:186:VAL:HG12	1:F:186:VAL:O	1.89	0.73
1:A:110:LEU:HD12	1:A:110:LEU:C	2.09	0.73
1:F:31:GLN:NE2	1:F:84:ASN:HD21	1.89	0.70
1:F:2:ASN:N	4:F:2001:HOH:O	2.25	0.70
1:H:125:SER:HB3	1:I:80:VAL:HG22	1.72	0.70
1:A:31:GLN:NE2	1:A:51:ILE:HG22	2.07	0.70
1:F:74:ILE:H	1:G:121:GLN:HE22	1.39	0.70
1:F:121:GLN:HE22	1:G:74:ILE:H	1.40	0.70
1:B:15:ASN:HD21	1:B:108:LYS:NZ	1.89	0.69
1:A:46:THR:HG22	1:A:63:TYR:HB2	1.74	0.69
1:G:115:TYR:O	1:G:119:THR:HG23	1.93	0.69
1:H:132:ASN:HD22	1:I:60:LEU:HD21	1.57	0.69
1:F:31:GLN:HE21	1:F:84:ASN:HD21	1.40	0.69
1:H:210:ASN:HD22	1:H:210:ASN:C	1.97	0.68
1:I:168:ASN:OD1	1:I:169:LEU:N	2.28	0.67
1:F:75:ASP:HB3	1:G:118:GLN:HE21	1.60	0.66
1:A:223:GLU:OE1	4:A:2034:HOH:O	2.14	0.65
1:B:192:LYS:HE3	1:B:196:GLU:OE1	1.96	0.65
1:D:76:THR:H	1:E:118:GLN:HE22	1.44	0.65
1:E:72:GLY:HA2	1:E:80:VAL:HG13	1.79	0.65
1:B:15:ASN:HD21	1:B:108:LYS:HZ1	1.42	0.65
1:A:103:LYS:NZ	1:B:114:PHE:CD2	2.65	0.64
1:I:100:ASN:HD22	1:I:100:ASN:H	1.43	0.64
1:B:73:PHE:HB2	1:B:76:THR:HG22	1.80	0.63
1:H:76:THR:H	1:I:118:GLN:HE22	1.47	0.63
1:A:121:GLN:HE22	1:B:74:ILE:H	1.46	0.62
1:F:31:GLN:HE21	1:F:84:ASN:ND2	1.97	0.62
1:D:80:VAL:HG22	1:E:125:SER:HB3	1.80	0.62
1:I:23:HIS:ND1	1:I:91:GLN:NE2	2.49	0.61
1:B:31:GLN:NE2	1:B:84:ASN:HD21	1.93	0.60
1:B:168:ASN:N	4:B:2052:HOH:O	2.24	0.60
1:I:100:ASN:H	1:I:100:ASN:ND2	1.99	0.60
1:D:100:ASN:HD22	1:D:101:GLU:N	2.00	0.60
1:E:73:PHE:O	1:E:77:GLU:HA	2.00	0.60
1:A:109:ASN:ND2	1:A:111:THR:HG23	2.16	0.60
1:H:75:ASP:CB	1:I:118:GLN:NE2	2.65	0.60
1:H:50:SER:HB2	1:H:60:LEU:HD11	1.85	0.59
1:D:31:GLN:HE21	1:D:84:ASN:HD21	1.50	0.59
1:H:31:GLN:HE21	1:H:84:ASN:HD21	1.50	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:220:LYS:NZ	1:G:82:TYR:O	2.35	0.59
1:I:74:ILE:HD11	1:I:103:LYS:HB3	1.85	0.59
1:F:41:LEU:O	1:F:66:ALA:HA	2.03	0.58
1:A:163:LYS:HE2	1:A:205:CYS:SG	2.43	0.58
1:H:51:ILE:HG22	1:H:57:ILE:HG12	1.84	0.58
1:F:9:LYS:CE	1:F:10:LYS:HZ2	2.16	0.58
1:H:3:ALA:HB1	1:H:115:TYR:HD1	1.67	0.58
1:E:31:GLN:HE21	1:E:84:ASN:HD21	1.53	0.57
1:A:109:ASN:C	1:A:109:ASN:HD22	2.08	0.57
1:E:31:GLN:HE22	1:E:51:ILE:H	1.50	0.57
1:H:64:LYS:HD3	1:H:153:VAL:HG12	1.86	0.56
1:H:154:TYR:CD1	1:H:154:TYR:N	2.71	0.56
1:F:202:LYS:HB3	1:F:207:TYR:CE1	2.40	0.56
1:F:195:GLN:HA	1:F:195:GLN:HE21	1.70	0.56
1:H:172:GLN:HE21	1:H:172:GLN:C	2.09	0.56
1:I:132:ASN:O	1:I:136:ILE:HD13	2.05	0.56
1:D:41:LEU:O	1:D:66:ALA:HA	2.05	0.55
1:B:64:LYS:HG2	1:B:65:GLY:N	2.22	0.55
1:G:52:SER:OG	1:G:56:THR:HB	2.07	0.55
1:H:74:ILE:H	1:I:121:GLN:NE2	2.00	0.55
1:H:164:ILE:CD1	1:H:169:LEU:HB3	2.37	0.55
1:H:190:ILE:HD12	1:H:194:LYS:NZ	2.22	0.55
1:I:23:HIS:CE1	1:I:91:GLN:HE22	2.25	0.55
1:F:10:LYS:HD3	1:F:10:LYS:N	2.22	0.54
1:F:160:ASP:OD2	1:F:202:LYS:NZ	2.41	0.54
1:D:153:VAL:C	1:D:154:TYR:CG	2.82	0.54
1:D:210:ASN:C	1:D:210:ASN:HD22	2.12	0.54
1:I:31:GLN:HE22	1:I:51:ILE:H	1.56	0.53
1:G:64:LYS:HG3	1:G:65:GLY:N	2.23	0.53
1:H:51:ILE:CG2	1:H:57:ILE:HG12	2.38	0.53
1:I:36:GLU:HB3	1:I:72:GLY:HA3	1.90	0.53
1:H:172:GLN:O	1:H:172:GLN:NE2	2.40	0.53
1:E:163:LYS:HE3	1:E:165:THR:HG22	1.91	0.52
1:G:168:ASN:HD22	1:G:173:GLU:HG3	1.74	0.52
1:I:229:PR3:HB2	1:I:232:THR:HB	1.92	0.51
1:H:143:ILE:HG22	1:H:174:LEU:HD21	1.93	0.51
1:E:23:HIS:ND1	1:E:91:GLN:NE2	2.56	0.51
1:H:197:LYS:NZ	1:H:197:LYS:HA	2.25	0.51
1:A:43:ASP:HB3	1:A:93:THR:HG23	1.93	0.51
1:A:74:ILE:H	1:B:121:GLN:HE22	1.59	0.51
1:E:72:GLY:CA	1:E:80:VAL:HG13	2.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:163:LYS:NZ	1:H:165:THR:OG1	2.35	0.51
1:A:179:GLY:HA3	1:B:135:SER:O	2.11	0.50
1:B:64:LYS:CG	1:B:65:GLY:N	2.74	0.50
1:F:109:ASN:OD1	1:F:111:THR:CG2	2.58	0.50
1:G:6:GLU:OE2	1:G:42:TYR:OH	2.15	0.50
1:H:75:ASP:CB	1:I:118:GLN:HE22	2.22	0.50
1:D:150:LEU:O	1:D:154:TYR:HB2	2.12	0.50
1:H:155:GLY:HA2	1:H:163:LYS:HZ2	1.77	0.50
1:F:19:PRO:HB3	1:F:95:TYR:CZ	2.47	0.49
1:D:74:ILE:HD11	1:D:102:LEU:HD23	1.95	0.49
1:I:74:ILE:HG23	4:I:2018:HOH:O	2.13	0.49
1:D:100:ASN:HD22	1:D:100:ASN:C	2.14	0.49
1:D:150:LEU:HD13	1:D:169:LEU:HD21	1.94	0.49
1:F:45:ILE:HD12	1:F:154:TYR:HE1	1.77	0.49
1:A:97:ILE:CD1	1:A:105:LEU:HD12	2.43	0.49
1:F:187:SER:HA	4:F:2029:HOH:O	2.12	0.49
1:D:164:ILE:HG22	1:D:164:ILE:O	2.12	0.49
1:A:154:TYR:O	1:A:165:THR:OG1	2.27	0.49
1:H:60:LEU:HD13	1:H:83:TYR:CE1	2.48	0.49
1:H:31:GLN:NE2	1:H:51:ILE:HG12	2.28	0.48
1:A:110:LEU:C	1:A:110:LEU:CD1	2.79	0.48
1:H:210:ASN:C	1:H:210:ASN:ND2	2.67	0.48
1:H:74:ILE:N	1:I:121:GLN:HE22	2.00	0.48
1:F:132:ASN:HD22	1:G:58:MET:HG2	1.79	0.48
1:H:211:LEU:O	1:H:215:LYS:HG3	2.14	0.48
1:B:201:TYR:CZ	1:B:204:SER:HA	2.49	0.47
1:H:3:ALA:HB3	1:H:118:GLN:HE22	1.79	0.47
1:A:171:MET:CE	1:A:187:SER:HA	2.45	0.47
1:F:65:GLY:HA2	4:F:2007:HOH:O	2.14	0.47
1:E:64:LYS:HG2	1:E:65:GLY:N	2.30	0.47
1:D:64:LYS:HG2	1:D:65:GLY:N	2.29	0.47
1:D:140:LEU:HD23	1:D:140:LEU:HA	1.82	0.47
1:B:52:SER:OG	1:B:56:THR:HB	2.15	0.47
1:H:211:LEU:CD2	1:H:215:LYS:HD3	2.45	0.47
1:E:24:LYS:O	1:E:25:LYS:HB2	2.15	0.46
1:D:53:GLU:C	1:D:55:GLY:H	2.19	0.46
1:B:24:LYS:HZ2	1:B:90:GLU:CD	2.19	0.46
1:H:184:SER:N	4:H:2030:HOH:O	2.48	0.46
1:A:46:THR:CG2	1:A:63:TYR:HB2	2.45	0.45
1:B:193:LEU:HB3	1:B:199:ILE:HG12	1.98	0.45
1:A:21:GLN:HE22	1:A:93:THR:HG22	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:73:PHE:HB3	1:E:118:GLN:HE21	1.81	0.45
1:H:31:GLN:NE2	1:H:51:ILE:CG1	2.79	0.45
1:H:140:LEU:C	1:H:140:LEU:HD13	2.37	0.45
1:D:61:GLN:HG2	1:D:62:TYR:O	2.16	0.45
1:F:231:ALA:O	1:F:235:LYS:HG2	2.17	0.45
1:A:8:PHE:O	1:A:12:LEU:HG	2.17	0.45
1:H:211:LEU:HD23	1:H:215:LYS:HD3	1.98	0.45
1:H:153:VAL:HG12	1:H:153:VAL:O	2.17	0.45
1:F:188:ARG:O	1:F:192:LYS:HB2	2.17	0.45
3:F:1238:DTT:O3	3:F:1238:DTT:S1	2.75	0.44
1:A:41:LEU:O	1:A:66:ALA:HA	2.17	0.44
1:E:36:GLU:HG2	1:E:72:GLY:HA3	2.00	0.44
1:E:65:GLY:HA2	4:E:2013:HOH:O	2.17	0.44
1:H:226:TYR:HB2	1:H:233:TRP:CD1	2.52	0.44
1:I:103:LYS:CE	4:I:2021:HOH:O	2.65	0.44
1:D:136:ILE:HG23	1:D:137:ASN:ND2	2.33	0.44
1:I:41:LEU:O	1:I:66:ALA:HA	2.17	0.44
1:F:180:ILE:HG21	1:F:186:VAL:HG23	2.00	0.44
1:E:54:ASN:ND2	1:E:56:THR:OG1	2.47	0.44
1:H:75:ASP:H	1:I:118:GLN:NE2	2.16	0.44
1:H:75:ASP:H	1:I:118:GLN:HE21	1.65	0.43
1:H:136:ILE:CD1	1:I:58:MET:SD	3.06	0.43
1:A:148:LEU:HD13	1:A:218:ALA:HB3	1.99	0.43
1:D:130:LYS:NZ	4:D:2023:HOH:O	2.51	0.43
1:D:226:TYR:CD1	1:D:233:TRP:CE3	3.06	0.43
1:D:226:TYR:HB2	1:D:233:TRP:CG	2.53	0.43
1:E:36:GLU:HB3	1:E:72:GLY:HA3	2.00	0.43
1:H:31:GLN:HE22	1:H:51:ILE:CG1	2.31	0.43
1:D:17:ILE:HD13	1:D:97:ILE:HG12	1.99	0.43
1:D:153:VAL:O	1:D:154:TYR:CB	2.66	0.43
1:G:24:LYS:O	1:G:25:LYS:HB2	2.18	0.43
1:A:21:GLN:HE22	1:A:93:THR:CG2	2.31	0.43
1:D:164:ILE:O	1:D:164:ILE:CG2	2.66	0.43
1:D:224:TRP:C	1:D:226:TYR:H	2.21	0.43
1:D:31:GLN:HE22	1:D:51:ILE:H	1.66	0.43
1:A:171:MET:HE1	1:A:187:SER:HA	2.00	0.43
1:B:31:GLN:HE22	1:B:51:ILE:N	2.10	0.43
1:E:41:LEU:O	1:E:66:ALA:HA	2.18	0.43
1:F:163:LYS:HE3	1:F:205:CYS:SG	2.59	0.42
1:H:77:GLU:HG2	1:H:99:ILE:HG23	2.00	0.42
1:H:64:LYS:CG	1:H:65:GLY:N	2.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:61:GLN:HG2	1:D:62:TYR:N	2.34	0.42
1:D:230:PRO:O	1:D:233:TRP:HB3	2.19	0.42
1:H:136:ILE:HD11	1:I:58:MET:HB2	2.02	0.42
1:D:100:ASN:C	1:D:100:ASN:ND2	2.72	0.42
1:I:31:GLN:HE21	1:I:84:ASN:ND2	2.09	0.42
1:D:58:MET:HG3	1:E:136:ILE:HD11	2.00	0.42
1:E:100:ASN:H	1:E:100:ASN:ND2	2.17	0.42
1:I:74:ILE:CD1	1:I:103:LYS:HB3	2.48	0.42
1:H:201:TYR:HE2	1:H:206:PHE:CE1	2.38	0.42
1:D:154:TYR:CG	1:D:166:LEU:HD13	2.54	0.42
1:F:9:LYS:HE2	1:F:10:LYS:NZ	2.28	0.42
1:H:168:ASN:O	1:H:169:LEU:C	2.57	0.42
1:H:155:GLY:CA	1:H:163:LYS:O	2.67	0.42
1:D:103:LYS:HG3	1:E:114:PHE:CZ	2.55	0.42
1:E:31:GLN:HE21	1:E:84:ASN:ND2	2.18	0.42
1:B:49:THR:OG1	1:B:84:ASN:HB2	2.20	0.41
1:F:45:ILE:HD12	1:F:154:TYR:CE1	2.55	0.41
1:F:202:LYS:O	1:F:207:TYR:HE1	2.03	0.41
1:H:163:LYS:HB3	1:H:207:TYR:CE1	2.55	0.41
1:I:195:GLN:NE2	4:I:2040:HOH:O	2.51	0.41
1:D:80:VAL:HG21	4:E:2029:HOH:O	2.21	0.41
1:B:140:LEU:HD12	1:B:217:TYR:CE1	2.55	0.41
1:G:190:ILE:HG23	1:G:199:ILE:HD11	2.02	0.41
1:H:14:THR:O	1:H:14:THR:CG2	2.68	0.41
1:I:103:LYS:NZ	4:I:2021:HOH:O	2.44	0.41
1:G:158:THR:HB	1:G:159:PRO:HD2	2.03	0.41
1:A:97:ILE:HD11	1:A:102:LEU:HA	2.02	0.41
1:F:45:ILE:CG1	1:F:89:SER:HB3	2.51	0.41
1:F:45:ILE:HG12	1:F:89:SER:HB3	2.02	0.41
1:F:97:ILE:HG13	1:F:98:LYS:N	2.35	0.41
1:G:15:ASN:HD21	1:G:108:LYS:NZ	2.18	0.41
1:H:157:GLU:OE2	1:H:162:ILE:CD1	2.69	0.41
1:H:224:TRP:O	1:H:228:ALA:HB3	2.21	0.41
1:D:60:LEU:HD13	1:D:83:TYR:CE1	2.56	0.41
1:D:73:PHE:HB3	1:E:118:GLN:NE2	2.36	0.41
1:D:218:ALA:N	1:D:219:PRO:CD	2.84	0.41
1:F:186:VAL:O	1:F:190:ILE:HD12	2.21	0.41
1:H:14:THR:O	1:H:14:THR:HG22	2.21	0.41
1:H:194:LYS:HZ1	1:H:199:ILE:HD11	1.85	0.41
1:D:132:ASN:O	1:D:136:ILE:HB	2.21	0.41
1:A:60:LEU:HD13	1:A:83:TYR:CD2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:132:ASN:ND2	1:G:58:MET:HG2	2.36	0.40
1:A:20:LYS:HG3	1:A:22:PHE:CE1	2.57	0.40
1:G:41:LEU:O	1:G:66:ALA:HA	2.20	0.40
1:H:31:GLN:HE22	1:H:51:ILE:HG12	1.87	0.40
1:A:54:ASN:ND2	1:A:54:ASN:C	2.75	0.40
1:H:64:LYS:HD3	1:H:153:VAL:CG1	2.52	0.40
1:H:226:TYR:O	1:H:230:PRO:HD3	2.21	0.40
1:B:24:LYS:NZ	1:B:90:GLU:CD	2.75	0.40
1:D:155:GLY:HA2	1:D:163:LYS:O	2.22	0.40
1:E:218:ALA:N	1:E:219:PRO:CD	2.84	0.40
1:H:201:TYR:CE2	1:H:206:PHE:CE1	3.10	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	232/238 (98%)	220 (95%)	12 (5%)	0	100	100
1	B	234/238 (98%)	227 (97%)	6 (3%)	1 (0%)	34	42
1	D	222/238 (93%)	200 (90%)	16 (7%)	6 (3%)	5	3
1	E	234/238 (98%)	228 (97%)	6 (3%)	0	100	100
1	F	233/238 (98%)	226 (97%)	6 (3%)	1 (0%)	34	42
1	G	232/238 (98%)	226 (97%)	5 (2%)	1 (0%)	34	42
1	H	219/238 (92%)	204 (93%)	13 (6%)	2 (1%)	17	20
1	I	233/238 (98%)	225 (97%)	8 (3%)	0	100	100
All	All	1839/1904 (97%)	1756 (96%)	72 (4%)	11 (1%)	25	31

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	154	TYR
1	D	167	ASP
1	H	169	LEU
1	B	169	LEU
1	G	169	LEU
1	H	186	VAL
1	D	54	ASN
1	D	203	ASN
1	D	204	SER
1	D	225	PHE
1	F	186	VAL

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	210/212 (99%)	187 (89%)	23 (11%)	6 7
1	B	212/212 (100%)	198 (93%)	14 (7%)	16 22
1	D	204/212 (96%)	186 (91%)	18 (9%)	10 12
1	E	212/212 (100%)	199 (94%)	13 (6%)	18 25
1	F	211/212 (100%)	189 (90%)	22 (10%)	7 8
1	G	210/212 (99%)	195 (93%)	15 (7%)	14 19
1	H	202/212 (95%)	172 (85%)	30 (15%)	3 3
1	I	211/212 (100%)	192 (91%)	19 (9%)	9 11
All	All	1672/1696 (99%)	1518 (91%)	154 (9%)	9 11

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	35	GLN
1	A	39	ILE
1	A	41	LEU
1	A	46	THR
1	A	54	ASN

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Mol	Chain	Res	Type
1	A	57	ILE
1	A	60	LEU
1	A	61	GLN
1	A	68	VAL
1	A	93	THR
1	A	97	ILE
1	A	102	LEU
1	A	107	SER
1	A	109	ASN
1	A	110	LEU
1	A	111	THR
1	A	113	PHE
1	A	128	LEU
1	A	150	LEU
1	A	197	LYS
1	A	203	ASN
1	A	208	VAL
1	A	221	LEU
1	B	7	GLU
1	B	17	ILE
1	B	18	LYS
1	B	76	THR
1	B	109	ASN
1	B	113	PHE
1	B	120	LEU
1	B	150	LEU
1	B	171	MET
1	B	183	SER
1	B	193	LEU
1	B	197	LYS
1	B	209	GLN
1	B	235	LYS
1	D	48	LEU
1	D	56	THR
1	D	58	MET
1	D	60	LEU
1	D	74	ILE
1	D	75	ASP
1	D	80	VAL
1	D	100	ASN
1	D	113	PHE
1	D	140	LEU

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Mol	Chain	Res	Type
1	D	142	SER
1	D	152	TYR
1	D	196	GLU
1	D	197	LYS
1	D	206	PHE
1	D	209	GLN
1	D	210	ASN
1	D	232	THR
1	E	2	ASN
1	E	25	LYS
1	E	53	GLU
1	E	54	ASN
1	E	71	SER
1	E	90	GLU
1	E	100	ASN
1	E	113	PHE
1	E	140	LEU
1	E	150	LEU
1	E	166	LEU
1	E	167	ASP
1	E	183	SER
1	F	10	LYS
1	F	39	ILE
1	F	41	LEU
1	F	57	ILE
1	F	70	MET
1	F	85	LEU
1	F	88	ILE
1	F	90	GLU
1	F	93	THR
1	F	97	ILE
1	F	99	ILE
1	F	100	ASN
1	F	102	LEU
1	F	113	PHE
1	F	118	GLN
1	F	140	LEU
1	F	158	THR
1	F	160	ASP
1	F	195	GLN
1	F	202	LYS
1	F	204	SER

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Mol	Chain	Res	Type
1	F	221	LEU
1	G	75	ASP
1	G	91	GLN
1	G	108	LYS
1	G	109	ASN
1	G	113	PHE
1	G	120	LEU
1	G	140	LEU
1	G	147	LEU
1	G	150	LEU
1	G	157	GLU
1	G	188	ARG
1	G	192	LYS
1	G	197	LYS
1	G	204	SER
1	G	235	LYS
1	H	25	LYS
1	H	35	GLN
1	H	43	ASP
1	H	50	SER
1	H	54	ASN
1	H	56	THR
1	H	58	MET
1	H	59	ASN
1	H	68	VAL
1	H	90	GLU
1	H	113	PHE
1	H	136	ILE
1	H	146	GLN
1	H	148	LEU
1	H	152	TYR
1	H	154	TYR
1	H	163	LYS
1	H	165	THR
1	H	169	LEU
1	H	170	THR
1	H	172	GLN
1	H	173	GLU
1	H	189	ILE
1	H	194	LYS
1	H	204	SER
1	H	205	CYS

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Mol	Chain	Res	Type
1	H	209	GLN
1	H	210	ASN
1	H	232	THR
1	H	235	LYS
1	I	7	GLU
1	I	12	LEU
1	I	14	THR
1	I	43	ASP
1	I	64	LYS
1	I	75	ASP
1	I	78	THR
1	I	80	VAL
1	I	90	GLU
1	I	100	ASN
1	I	102	LEU
1	I	103	LYS
1	I	113	PHE
1	I	136	ILE
1	I	140	LEU
1	I	150	LEU
1	I	168	ASN
1	I	220	LYS
1	I	235	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (81) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	21	GLN
1	A	31	GLN
1	A	54	ASN
1	A	109	ASN
1	A	112	HIS
1	A	121	GLN
1	A	123	GLN
1	A	132	ASN
1	A	195	GLN
1	A	203	ASN
1	B	4	GLN
1	B	15	ASN
1	B	31	GLN
1	B	59	ASN
1	B	61	GLN

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Mol	Chain	Res	Type
1	B	91	GLN
1	B	109	ASN
1	B	118	GLN
1	B	121	GLN
1	B	123	GLN
1	D	4	GLN
1	D	31	GLN
1	D	100	ASN
1	D	123	GLN
1	D	137	ASN
1	D	195	GLN
1	D	203	ASN
1	D	209	GLN
1	D	210	ASN
1	E	15	ASN
1	E	31	GLN
1	E	54	ASN
1	E	59	ASN
1	E	91	GLN
1	E	100	ASN
1	E	118	GLN
1	E	123	GLN
1	E	132	ASN
1	E	168	ASN
1	F	4	GLN
1	F	21	GLN
1	F	31	GLN
1	F	35	GLN
1	F	59	ASN
1	F	100	ASN
1	F	118	GLN
1	F	121	GLN
1	F	132	ASN
1	F	146	GLN
1	F	195	GLN
1	G	15	ASN
1	G	59	ASN
1	G	61	GLN
1	G	109	ASN
1	G	118	GLN
1	G	121	GLN
1	G	123	GLN

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Mol	Chain	Res	Type
1	G	168	ASN
1	H	31	GLN
1	H	35	GLN
1	H	59	ASN
1	H	100	ASN
1	H	112	HIS
1	H	118	GLN
1	H	132	ASN
1	H	172	GLN
1	H	209	GLN
1	H	210	ASN
1	I	15	ASN
1	I	21	GLN
1	I	31	GLN
1	I	59	ASN
1	I	91	GLN
1	I	100	ASN
1	I	118	GLN
1	I	121	GLN
1	I	123	GLN
1	I	132	ASN
1	I	146	GLN
1	I	195	GLN
1	I	209	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	PR3	I	229	1	6,7,9	1.05	1 (16%)	3,7,9	3.77	1 (33%)
1	PR3	G	229	1	6,7,9	0.80	0	3,7,9	3.48	1 (33%)
1	PR3	D	229	1	6,7,9	0.71	0	3,7,9	3.76	2 (66%)
1	PR3	B	229	1	8,9,9	0.90	0	5,9,9	2.27	2 (40%)
1	PR3	H	229	1	6,7,9	1.32	1 (16%)	3,7,9	4.32	3 (100%)
1	PR3	F	229	1	6,7,9	0.82	0	3,7,9	3.70	2 (66%)
1	PR3	A	229	1	6,7,9	0.93	0	3,7,9	4.00	2 (66%)
1	PR3	E	229	1	6,7,9	1.00	0	3,7,9	4.33	2 (66%)

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
1	PR3	I	229	1	-	0/2/6/8	-
1	PR3	G	229	1	-	0/2/6/8	-
1	PR3	D	229	1	-	2/2/6/8	-
1	PR3	B	229	1	-	2/5/8/8	-
1	PR3	H	229	1	-	1/2/6/8	-
1	PR3	F	229	1	-	0/2/6/8	-
1	PR3	A	229	1	-	0/2/6/8	-
1	PR3	E	229	1	-	0/2/6/8	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	229	PR3	O-C	2.68	1.30	1.19
1	I	229	PR3	CB-SG	-2.17	1.74	1.81

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	229	PR3	CE-SD-SG	7.06	126.94	102.58
1	H	229	PR3	CE-SD-SG	6.58	125.28	102.58
1	I	229	PR3	CE-SD-SG	6.16	123.85	102.58
1	F	229	PR3	CE-SD-SG	5.92	123.01	102.58
1	G	229	PR3	CE-SD-SG	5.88	122.88	102.58
1	A	229	PR3	CE-SD-SG	5.84	122.74	102.58
1	D	229	PR3	CE-SD-SG	5.60	121.91	102.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	229	PR3	CE-SD-SG	4.01	121.91	103.45
1	A	229	PR3	CB-SG-SD	3.47	112.82	103.82
1	D	229	PR3	CB-SG-SD	3.30	112.37	103.82
1	B	229	PR3	CB-SG-SD	2.84	111.18	103.82
1	H	229	PR3	CA-CB-SG	-2.75	102.78	114.55
1	F	229	PR3	CB-SG-SD	2.33	109.86	103.82
1	H	229	PR3	CB-SG-SD	2.28	109.73	103.82
1	E	229	PR3	CB-SG-SD	2.01	109.03	103.82

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	D	229	PR3	N-CA-CB-SG
1	B	229	PR3	CE-SD-SG-CB
1	B	229	PR3	CZ-CE-SD-SG
1	D	229	PR3	CA-CB-SG-SD
1	H	229	PR3	CA-CB-SG-SD

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	I	229	PR3	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	DTU	A	1238	-	7,7,7	0.73	0	4,8,8	1.21	0
3	DTT	F	1238	-	7,7,7	0.78	0	4,8,8	0.74	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
2	DTU	A	1238	-	-	4/8/8/8	-
3	DTT	F	1238	-	-	0/8/8/8	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1238	DTU	S1-C1-C2-O2
2	A	1238	DTU	S1-C1-C2-C3
2	A	1238	DTU	C2-C3-C4-S4
2	A	1238	DTU	O3-C3-C4-S4

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	1238	DTT	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

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	234/238 (98%)	0.28	16 (6%) 17 22	32, 55, 84, 101	0
1	B	236/238 (99%)	-0.35	1 (0%) 92 95	30, 41, 61, 92	0
1	D	226/238 (94%)	0.44	27 (11%) 4 6	35, 54, 112, 132	0
1	E	236/238 (99%)	-0.24	3 (1%) 77 81	30, 41, 64, 94	0
1	F	235/238 (98%)	0.27	17 (7%) 15 20	33, 54, 85, 102	0
1	G	234/238 (98%)	-0.34	0 100 100	30, 41, 59, 74	0
1	H	223/238 (93%)	0.44	23 (10%) 6 9	31, 54, 108, 119	0
1	I	235/238 (98%)	-0.25	2 (0%) 84 88	30, 41, 64, 90	0
All	All	1859/1904 (97%)	0.03	89 (4%) 30 37	30, 47, 86, 132	0

All (89) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	186	VAL	9.5
1	H	185	ALA	8.3
1	D	185	ALA	6.9
1	H	233	TRP	6.8
1	H	226	TYR	6.7
1	D	184	SER	6.5
1	A	160	ASP	6.3
1	D	165	THR	5.7
1	F	204	SER	5.6
1	D	201	TYR	5.4
1	H	57	ILE	5.4
1	F	159	PRO	5.2
1	H	227	LEU	5.1
1	D	166	LEU	4.9
1	H	168	ASN	4.9
1	D	172	GLN	4.8

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Mol	Chain	Res	Type	RSRZ
1	A	193	LEU	4.6
1	E	1	SER	4.5
1	F	193	LEU	4.5
1	D	230	PRO	4.5
1	H	205	CYS	4.3
1	F	201	TYR	4.3
1	H	230	PRO	4.1
1	D	169	LEU	4.0
1	D	171	MET	4.0
1	H	186	VAL	4.0
1	F	166	LEU	4.0
1	H	172	GLN	4.0
1	F	189	ILE	4.0
1	A	161	GLY	3.8
1	H	166	LEU	3.8
1	A	200	VAL	3.6
1	F	195	GLN	3.6
1	D	204	SER	3.5
1	A	203	ASN	3.5
1	D	189	ILE	3.5
1	H	232	THR	3.5
1	H	203	ASN	3.5
1	F	203	ASN	3.4
1	D	170	THR	3.4
1	A	205	CYS	3.3
1	D	167	ASP	3.3
1	D	203	ASN	3.2
1	F	186	VAL	3.1
1	E	75	ASP	3.1
1	H	153	VAL	3.0
1	A	189	ILE	3.0
1	H	169	LEU	3.0
1	D	206	PHE	2.9
1	A	208	VAL	2.8
1	F	200	VAL	2.8
1	H	231	ALA	2.8
1	A	184	SER	2.8
1	H	201	TYR	2.8
1	I	80	VAL	2.8
1	D	233	TRP	2.7
1	D	139	LYS	2.7
1	D	174	LEU	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	17	ILE	2.6
1	D	57	ILE	2.6
1	A	159	PRO	2.5
1	D	156	LYS	2.5
1	D	153	VAL	2.5
1	A	201	TYR	2.5
1	F	199	ILE	2.5
1	H	167	ASP	2.5
1	E	72	GLY	2.4
1	A	211	LEU	2.4
1	F	51	ILE	2.4
1	A	207	TYR	2.4
1	D	3	ALA	2.4
1	F	198	VAL	2.3
1	D	228	ALA	2.3
1	H	171	MET	2.3
1	F	160	ASP	2.3
1	F	190	ILE	2.3
1	H	184	SER	2.3
1	D	168	ASN	2.2
1	A	158	THR	2.2
1	F	197	LYS	2.2
1	A	181	ALA	2.2
1	D	190	ILE	2.2
1	I	167	ASP	2.2
1	H	235	LYS	2.2
1	H	206	PHE	2.1
1	D	226	TYR	2.1
1	B	179	GLY	2.1
1	H	204	SER	2.1
1	F	167	ASP	2.1

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	PR3	H	229	8/10	0.62	0.17	103,105,107,107	0
1	PR3	D	229	8/10	0.72	0.13	92,94,98,99	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
1	PR3	I	229	8/10	0.74	0.15	52,62,80,84	0
1	PR3	E	229	8/10	0.76	0.21	50,61,80,82	0
1	PR3	F	229	8/10	0.84	0.12	62,65,81,86	0
1	PR3	A	229	8/10	0.91	0.10	60,64,84,87	0
1	PR3	B	229	10/10	0.93	0.10	40,48,65,66	0
1	PR3	G	229	8/10	0.94	0.09	37,41,59,64	0

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(\AA^2)	Q<0.9
2	DTU	A	1238	8/8	0.87	0.29	51,52,53,54	8
3	DTT	F	1238	8/8	0.91	0.12	80,81,85,88	0

6.5 Other polymers [i](#)

There are no such residues in this entry.