



wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 13, 2020 – 01:43 PM BST

PDB ID : 3FHZ
Title : Crystal structure of the arginine repressor from *Mycobacterium tuberculosis* bound with its DNA operator and co-repressor, L-arginine
Authors : Cherney, L.T.; Cherney, M.M.; Garen, C.R.; James, M.N.G.; TB Structural Genomics Consortium (TBSGC)
Deposited on : 2008-12-10
Resolution : 3.27 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.14.4.dev1
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)	:	2.14.4.dev1

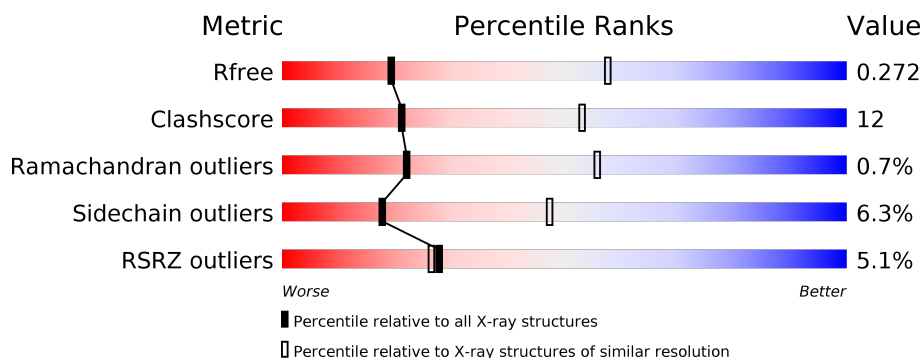
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.27 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	1177 (3.32-3.24)
Clashscore	141614	1044 (3.30-3.26)
Ramachandran outliers	138981	1026 (3.30-3.26)
Sidechain outliers	138945	1025 (3.30-3.26)
RSRZ outliers	127900	1141 (3.32-3.24)

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 on 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	170	<div> <div> <div>0%</div> <div>68%</div> <div>19%</div> <div>• • 9%</div> </div> </div>
1	B	170	<div> <div>4%</div> <div>61%</div> <div>28%</div> <div>5% 5%</div> </div>
1	C	170	<div> <div>2%</div> <div>61%</div> <div>27%</div> <div>6% 6%</div> </div>
1	D	170	<div> <div>5%</div> <div>62%</div> <div>28%</div> <div>8% •</div> </div>
1	E	170	<div> <div>9%</div> <div>72%</div> <div>16%</div> <div>• 9%</div> </div>
1	F	170	<div> <div>6%</div> <div>70%</div> <div>18%</div> <div>• • 9%</div> </div>

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Mol	Chain	Length	Quality of chain
2	G	20	
2	I	20	
2	K	20	
3	H	20	
3	J	20	
3	L	20	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	ARG	B	301	-	-	-	X

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 9454 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 Arginine repressor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	155	Total	C	N	O	S	0	0	0
			1117	685	207	223	2			
1	B	161	Total	C	N	O	S	0	0	0
			1154	708	213	231	2			
1	C	160	Total	C	N	O	S	0	0	0
			1149	705	212	230	2			
1	D	166	Total	C	N	O	S	0	0	0
			1187	730	219	236	2			
1	E	155	Total	C	N	O	S	0	0	0
			1117	685	207	223	2			
1	F	155	Total	C	N	O	S	0	0	0
			1117	685	207	223	2			

- Molecule 2 is a DNA chain called 5'-D(*TP*GP*TP*TP*GP*CP*AP*TP*AP*AP*CP*GP*AP*TP*GP*CP*AP*AP*AP*A)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	G	20	Total	C	N	O	P	0	0	0
			410	197	79	115	19			
2	I	20	Total	C	N	O	P	0	0	0
			410	197	79	115	19			
2	K	20	Total	C	N	O	P	0	0	0
			410	197	79	115	19			

- Molecule 3 is a DNA chain called 5'-D(*TP*TP*TP*TP*GP*CP*AP*TP*CP*GP*TP*TP*AP*TP*GP*CP*AP*AP*CP*A)-3'.

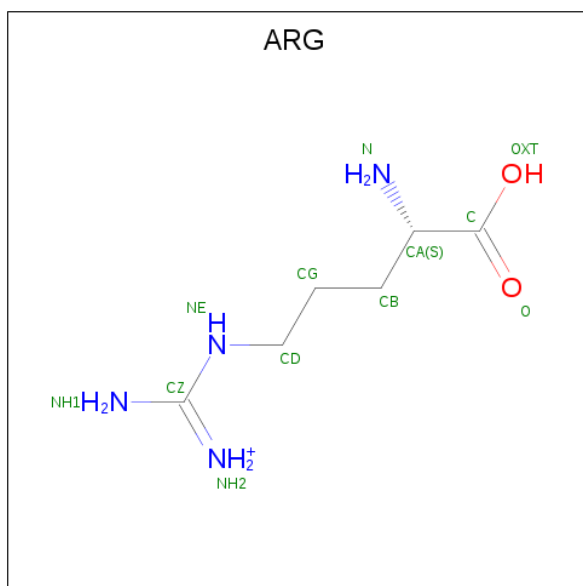
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	H	20	Total	C	N	O	P	0	0	0
			404	196	68	121	19			
3	J	20	Total	C	N	O	P	0	0	0
			404	196	68	121	19			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	L	20	Total	C	N	O	P	0	0	0
			404	196	68	121	19			

- Molecule 4 is ARGinine (three-letter code: ARG) (formula: $C_6H_{15}N_4O_2$).



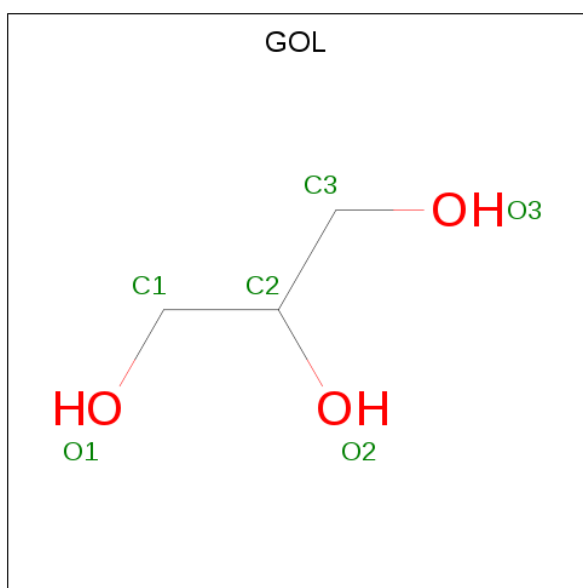
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			12	6	4	2		
4	A	1	Total	C	N		0	0
			4	1	3			
4	B	1	Total	C	N	O	0	0
			12	6	4	2		
4	B	1	Total	C	N		0	0
			4	1	3			
4	C	1	Total	C	N	O	0	0
			12	6	4	2		
4	C	1	Total	C	N		0	0
			4	1	3			
4	D	1	Total	C	N	O	0	0
			12	6	4	2		
4	E	1	Total	C	N	O	0	0
			12	6	4	2		
4	F	1	Total	C	N	O	0	0
			12	6	4	2		

- Molecule 5 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



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

- Molecule 6 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

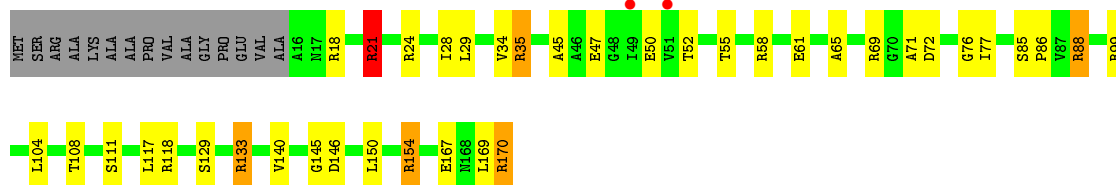
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	6	Total 6	O 6	0	0
7	B	15	Total 15	O 15	0	0
7	C	12	Total 12	O 12	0	0
7	D	16	Total 16	O 16	0	0
7	E	5	Total 5	O 5	0	0
7	F	12	Total 12	O 12	0	0
7	I	1	Total 1	O 1	0	0
7	L	6	Total 6	O 6	0	0

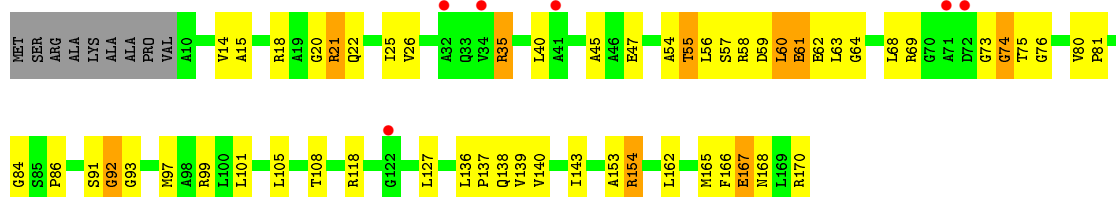
3 Residue-property plots

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.

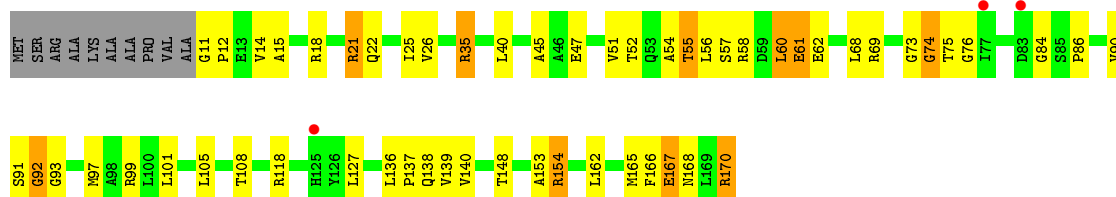
- Molecule 1: Arginine repressor



- Molecule 1: Arginine repressor



- Molecule 1: Arginine repressor

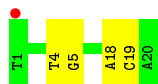
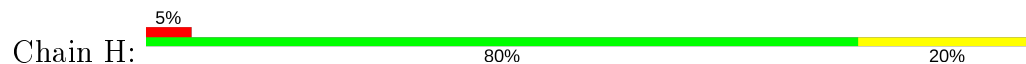


- Molecule 1: Arginine repressor

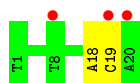
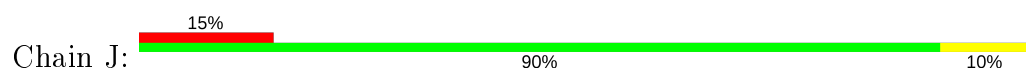




- Molecule 3: 5'-D(*TP*TP*TP*TP*GP*CP*AP*TP*CP*GP*TP*TP*AP*TP*GP*CP*AP*AP*CP*A)-3'



- Molecule 3: 5'-D(*TP*TP*TP*TP*GP*CP*AP*TP*CP*GP*TP*TP*AP*TP*GP*CP*AP*AP*CP*A)-3'



- Molecule 3: 5'-D(*TP*TP*TP*TP*GP*CP*AP*TP*CP*GP*TP*TP*AP*TP*GP*CP*AP*AP*CP*A)-3'



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	63.29Å 152.65Å 163.42Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	44.34 – 3.27 44.34 – 3.27	Depositor EDS
% Data completeness (in resolution range)	97.4 (44.34-3.27) 97.4 (44.34-3.27)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.54 (at 3.25Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.231 , 0.276 0.221 , 0.272	Depositor DCC
R_{free} test set	1246 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	96.9	Xtriage
Anisotropy	0.423	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 66.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	9454	wwPDB-VP
Average B, all atoms (Å ²)	119.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.23% 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: GOL, ACT

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	0.24	0/1126	1.04	13/1528 (0.9%)
1	B	0.24	0/1164	0.98	13/1581 (0.8%)
1	C	0.26	0/1159	1.29	16/1574 (1.0%)
1	D	0.24	0/1198	0.96	13/1628 (0.8%)
1	E	0.28	0/1126	1.39	16/1528 (1.0%)
1	F	0.23	0/1126	1.02	13/1528 (0.9%)
2	G	0.43	0/461	0.96	0/710
2	I	0.42	0/461	0.94	0/710
2	K	0.42	0/461	0.93	0/710
3	H	0.42	0/451	1.04	0/694
3	J	0.42	0/451	1.04	0/694
3	L	0.42	0/451	1.04	0/694
All	All	0.31	0/9635	1.09	84/13579 (0.6%)

There are no bond length outliers.

The worst 5 of 84 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	35	ARG	NE-CZ-NH1	-18.77	110.92	120.30
1	E	35	ARG	NE-CZ-NH2	17.84	129.22	120.30
1	E	99	ARG	NE-CZ-NH1	-17.23	111.68	120.30
1	C	170	ARG	NE-CZ-NH2	-16.96	111.82	120.30
1	A	21	ARG	NE-CZ-NH2	-16.66	111.97	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1117	0	1138	33	0
1	B	1154	0	1173	46	0
1	C	1149	0	1168	42	0
1	D	1187	0	1212	51	0
1	E	1117	0	1138	28	0
1	F	1117	0	1138	28	0
2	G	410	0	227	8	0
2	I	410	0	227	3	0
2	K	410	0	227	3	0
3	H	404	0	230	4	0
3	J	404	0	230	1	0
3	L	404	0	230	6	0
4	A	16	0	16	1	0
4	B	16	0	16	1	0
4	C	16	0	16	3	0
4	D	12	0	12	0	0
4	E	12	0	12	1	0
4	F	12	0	12	2	0
5	A	4	0	3	0	0
5	B	4	0	3	0	0
6	D	6	0	8	1	0
7	A	6	0	0	0	0
7	B	15	0	0	0	0
7	C	12	0	0	0	0
7	D	16	0	0	0	0
7	E	5	0	0	0	0
7	F	12	0	0	0	0
7	I	1	0	0	0	0
7	L	6	0	0	0	0
All	All	9454	0	8436	215	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 12.

The worst 5 of 215 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:C:93:GLY:HA2	1:E:72:ASP:HB3	1.48	0.94
1:A:88:ARG:HG3	1:A:88:ARG:HH11	1.45	0.82
1:C:137:PRO:O	1:C:154:ARG:HD2	1.80	0.82
1:E:88:ARG:HH11	1:E:88:ARG:HG3	1.45	0.80
1:F:88:ARG:HG3	1:F:88:ARG:HH11	1.44	0.79

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	153/170 (90%)	141 (92%)	12 (8%)	0	100	100
1	B	159/170 (94%)	138 (87%)	19 (12%)	2 (1%)	12	42
1	C	158/170 (93%)	137 (87%)	19 (12%)	2 (1%)	12	42
1	D	164/170 (96%)	140 (85%)	21 (13%)	3 (2%)	8	36
1	E	153/170 (90%)	141 (92%)	12 (8%)	0	100	100
1	F	153/170 (90%)	141 (92%)	12 (8%)	0	100	100
All	All	940/1020 (92%)	838 (89%)	95 (10%)	7 (1%)	22	56

5 of 7 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	74	GLY
1	C	74	GLY
1	D	74	GLY
1	B	92	GLY
1	C	92	GLY

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	113/122 (93%)	107 (95%)	6 (5%)	22	53
1	B	116/122 (95%)	108 (93%)	8 (7%)	15	44
1	C	116/122 (95%)	108 (93%)	8 (7%)	15	44
1	D	119/122 (98%)	110 (92%)	9 (8%)	13	39
1	E	113/122 (93%)	107 (95%)	6 (5%)	22	53
1	F	113/122 (93%)	106 (94%)	7 (6%)	18	48
All	All	690/732 (94%)	646 (94%)	44 (6%)	18	47

5 of 44 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	127	LEU
1	D	55	THR
1	F	88	ARG
1	C	167	GLU
1	D	5	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	168	ASN
1	E	168	ASN
1	F	168	ASN

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 [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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	$\# Z > 2$
4	ARG	A	302	-	3,3,11	1.50	0	3,3,13	1.09	0
4	ARG	C	200	-	7,11,11	0.25	0	6,13,13	0.62	0
4	ARG	B	200	-	7,11,11	0.24	0	6,13,13	0.29	0
4	ARG	F	200	-	7,11,11	0.30	0	6,13,13	0.37	0
4	ARG	D	200	-	7,11,11	0.28	0	6,13,13	0.28	0
6	GOL	D	500	-	5,5,5	0.32	0	5,5,5	0.34	0
5	ACT	B	401	-	1,3,3	1.50	0	0,3,3	0.00	-
4	ARG	C	300	-	3,3,11	1.49	0	3,3,13	1.09	0
4	ARG	A	200	-	7,11,11	0.22	0	6,13,13	0.32	0
5	ACT	A	400	-	1,3,3	1.42	0	0,3,3	0.00	-
4	ARG	E	200	-	7,11,11	0.25	0	6,13,13	0.27	0
4	ARG	B	301	-	3,3,11	1.48	0	3,3,13	1.13	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
4	ARG	C	200	-	-	1/7/11/11	-
4	ARG	B	200	-	-	0/7/11/11	-
4	ARG	F	200	-	-	1/7/11/11	-
4	ARG	D	200	-	-	0/7/11/11	-
6	GOL	D	500	-	-	0/4/4/4	-
4	ARG	A	200	-	-	0/7/11/11	-
4	ARG	E	200	-	-	0/7/11/11	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	F	200	ARG	CA-CB-CG-CD
4	C	200	ARG	NE-CD-CG-CB

There are no ring outliers.

6 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	200	ARG	3	0
4	B	200	ARG	1	0
4	F	200	ARG	2	0
6	D	500	GOL	1	0
4	A	200	ARG	1	0
4	E	200	ARG	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	155/170 (91%)	0.17	2 (1%) 77 76	62, 103, 151, 184	0
1	B	161/170 (94%)	0.30	6 (3%) 41 39	62, 96, 148, 196	0
1	C	160/170 (94%)	0.28	3 (1%) 66 64	64, 98, 149, 204	0
1	D	166/170 (97%)	0.24	8 (4%) 30 29	64, 95, 164, 197	0
1	E	155/170 (91%)	0.74	16 (10%) 6 6	69, 111, 164, 194	0
1	F	155/170 (91%)	0.32	11 (7%) 16 16	65, 109, 164, 183	0
2	G	20/20 (100%)	0.38	1 (5%) 28 27	124, 160, 201, 207	0
2	I	20/20 (100%)	0.89	4 (20%) 1 1	127, 166, 198, 208	0
2	K	20/20 (100%)	-0.36	0 100 100	118, 150, 190, 199	0
3	H	20/20 (100%)	0.48	1 (5%) 28 27	117, 162, 177, 190	0
3	J	20/20 (100%)	0.94	3 (15%) 2 2	123, 166, 191, 192	0
3	L	20/20 (100%)	-0.38	0 100 100	106, 152, 178, 178	0
All	All	1072/1140 (94%)	0.34	55 (5%) 28 26	62, 106, 173, 208	0

The worst 5 of 55 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	43	LEU	5.8
3	J	20	DA	4.8
1	D	6	ALA	4.4
1	E	49	ILE	3.9
1	E	170	ARG	3.9

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	ARG	B	301	4/12	0.79	0.75	59,98,105,124	0
4	ARG	C	300	4/12	0.82	0.58	61,64,85,104	0
6	GOL	D	500	6/6	0.82	0.42	109,117,123,147	0
4	ARG	A	302	4/12	0.84	0.56	59,67,79,112	0
4	ARG	F	200	12/12	0.88	0.54	58,80,109,113	0
5	ACT	B	401	4/4	0.89	0.34	73,74,96,123	0
4	ARG	C	200	12/12	0.95	0.40	63,83,105,109	0
4	ARG	A	200	12/12	0.95	0.27	65,79,90,105	0
5	ACT	A	400	4/4	0.95	0.70	91,99,103,112	0
4	ARG	D	200	12/12	0.95	0.47	52,76,95,109	0
4	ARG	B	200	12/12	0.97	0.32	37,67,77,83	0
4	ARG	E	200	12/12	0.98	0.29	56,69,79,91	0

6.5 Other polymers [i](#)

There are no such residues in this entry.