Full wwPDB X-ray Structure Validation Report (i)

May 22, 2020 – 04:28 pm BST

PDB ID	:	2XO6
Title	:	DEINOCOCCUS RADIODURANS ISDRA2 TRANSPOSASE Y132F MUTANT COMPLEXED WITH LEFT END RECOGNITION AND CLEAVAGE SITE
Authors	:	Hickman, A.B.; James, J.A.; Barabas, O.; Pasternak, C.; Ton-Hoang, B.; Chandler, M.; Sommer, S.; Dyda, F.
Deposited on	:	2010-08-09
Resolution	:	1.90 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 (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

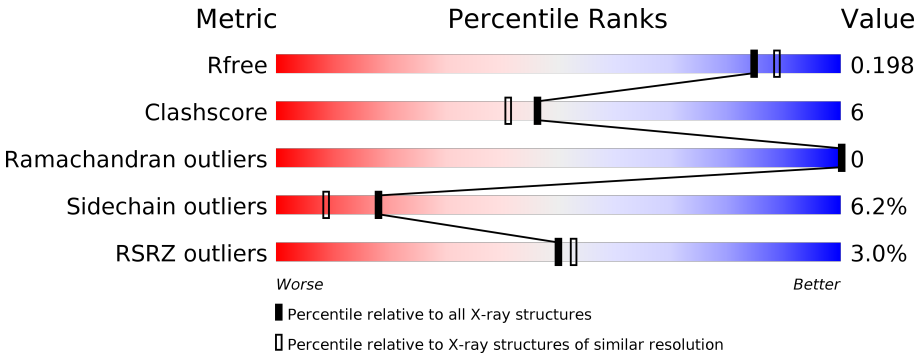
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

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 <=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	140	3% 80% 12%
1	D	140	4% 75% 15% 9%
2	B	27	52% 33% 15%
2	E	27	70% 26%
3	C	6	67% 33%
3	F	6	67% 17% 17%

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 3871 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 TRANSPOSASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	134	Total	C	N	O	S	0	0	0
			1078	694	188	190	6			
1	D	128	Total	C	N	O	S	0	0	0
			1031	664	179	182	6			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	132	PHE	TYR	engineered mutation	UNP O83028
D	132	PHE	TYR	engineered mutation	UNP O83028

- Molecule 2 is a DNA chain called DRA2 TRANSPOSASE LEFT END RECOGNITION SEQUENCE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	27	Total	C	N	O	P	0	0	0
			547	262	98	161	26			
2	E	27	Total	C	N	O	P	0	0	0
			547	262	98	161	26			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	6	Total	C	N	O	P	0	0	0
			122	60	21	36	5			
3	F	6	Total	C	N	O	P	0	0	0
			122	60	21	36	5			

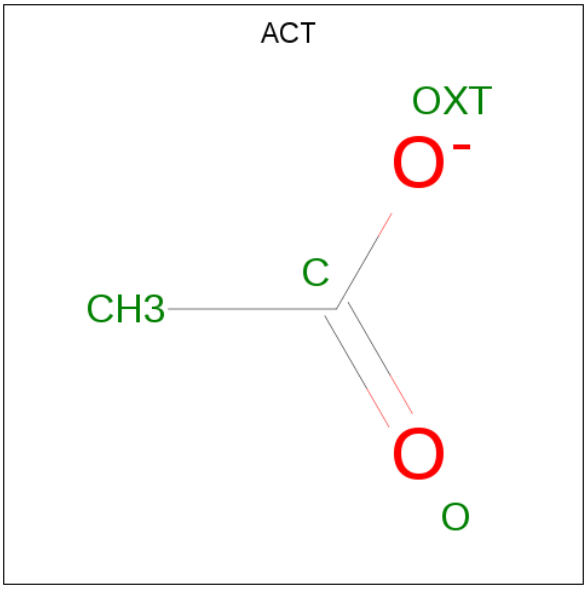
- Molecule 4 is CADMIUM ION (three-letter code: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	5	Total Cd 5 5	0	3
4	D	3	Total Cd 3 3	0	2
4	E	1	Total Cd 1 1	0	1

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total Mg 1 1	0	0
5	A	3	Total Mg 3 3	0	3
5	D	1	Total Mg 1 1	0	1
5	E	3	Total Mg 3 3	0	2

- Molecule 6 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



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

- Molecule 7 is water.

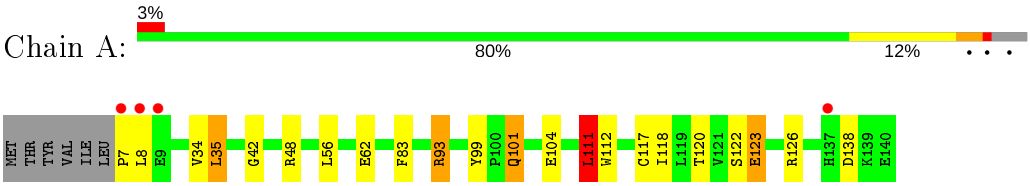
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	103	Total O 103 103	0	0
7	B	86	Total O 86 86	0	0
7	C	12	Total O 12 12	0	0
7	D	106	Total O 106 106	0	0
7	E	81	Total O 81 81	0	0
7	F	15	Total O 15 15	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

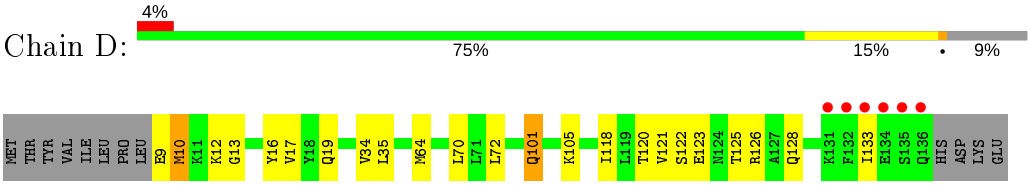
• Molecule 1: TRANSPOSASE

Chain A:



• Molecule 1: TRANSPOSASE

Chain D:

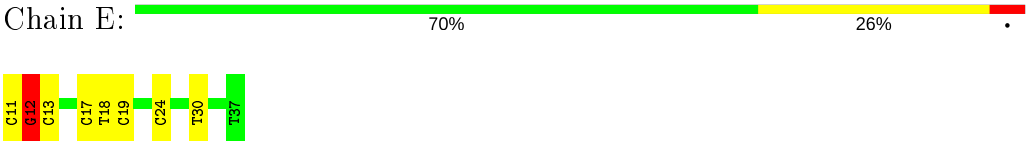


• Molecule 2: DRA2 TRANSPOSASE LEFT END RECOGNITION SEQUENCE

Chain B:

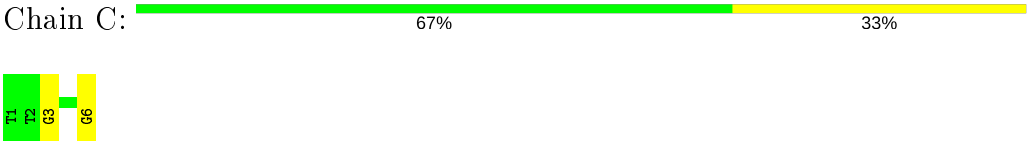
• Molecule 2: DRA2 TRANSPOSASE LEFT END RECOGNITION SEQUENCE

Chain E:



• Molecule 3: 5'-D(*TP*TP*GP*AP*TP*G)-3'

Chain C:



• Molecule 3: 5'-D(*TP*TP*GP*AP*TP*G)-3'

Chain F:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	50.31Å 86.92Å 128.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	30.00 – 1.90 22.96 – 1.90	Depositor EDS
% Data completeness (in resolution range)	98.8 (30.00-1.90) 99.5 (22.96-1.90)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	5.50 (at 1.90Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.180 , 0.209 0.165 , 0.198	Depositor DCC
R_{free} test set	904 reflections (2.02%)	wwPDB-VP
Wilson B-factor (Å^2)	26.8	Xtriage
Anisotropy	0.252	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 47.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	3871	wwPDB-VP
Average B, all atoms (Å^2)	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.69% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: MG, ACT, CD

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	1.00	0/1103	1.02	2/1492 (0.1%)
1	D	1.09	0/1054	1.02	1/1426 (0.1%)
2	B	1.35	4/612 (0.7%)	1.16	3/942 (0.3%)
2	E	1.48	6/612 (1.0%)	1.16	2/942 (0.2%)
3	C	1.49	1/136 (0.7%)	1.01	0/209
3	F	1.37	0/136	1.08	1/209 (0.5%)
All	All	1.21	11/3653 (0.3%)	1.07	9/5220 (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
2	B	0	3
2	E	0	3
All	All	0	6

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	12	DG	N9-C4	-9.18	1.30	1.38
2	E	12	DG	C2-N2	-7.05	1.27	1.34
2	B	15	DC	N1-C2	6.65	1.46	1.40
2	E	12	DG	C2-N3	-6.61	1.27	1.32
3	C	6	DG	C6-O6	5.82	1.29	1.24
2	B	17	DC	C2-O2	5.69	1.29	1.24
2	E	13	DC	N1-C2	-5.62	1.34	1.40
2	E	17	DC	N1-C2	5.44	1.45	1.40
2	E	17	DC	C4-C5	5.40	1.47	1.43
2	B	15	DC	C4-N4	5.27	1.38	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	11	DC	C2-O2	5.14	1.29	1.24

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	22	DG	O5'-P-OP2	-7.79	98.69	105.70
2	B	31	DC	O4'-C4'-C3'	-5.95	102.12	104.50
1	A	111	LEU	CB-CG-CD2	5.86	120.96	111.00
1	D	10	MET	CG-SD-CE	-5.51	91.38	100.20
2	E	12	DG	N3-C4-N9	-5.42	122.75	126.00
3	F	2	DT	O5'-P-OP2	-5.33	100.90	105.70
2	B	15	DC	C3'-C2'-C1'	5.30	108.86	102.50
2	E	12	DG	C4-N9-C1'	-5.21	119.73	126.50
1	A	48	ARG	NE-CZ-NH2	-5.05	117.78	120.30

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	16	DA	Sidechain
2	B	28	DA	Sidechain
2	B	30	DT	Sidechain
2	E	12	DG	Sidechain
2	E	24	DC	Sidechain
2	E	30	DT	Sidechain

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	1078	0	1091	17	0
1	D	1031	0	1046	17	0
2	B	547	0	306	9	2
2	E	547	0	304	3	2
3	C	122	0	71	1	0
3	F	122	0	71	1	0
4	A	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	3	0	0	0	0
4	E	1	0	0	0	0
5	A	3	0	0	0	0
5	B	1	0	0	0	0
5	D	1	0	0	0	0
5	E	3	0	0	0	0
6	D	4	0	3	0	0
7	A	103	0	0	0	0
7	B	86	0	0	0	0
7	C	12	0	0	1	0
7	D	106	0	0	2	0
7	E	81	0	0	1	0
7	F	15	0	0	0	0
All	All	3871	0	2892	40	2

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 (40) 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:D:101:GLN:HE21	1:D:101:GLN:H	1.12	0.91
1:A:101:GLN:H	1:A:101:GLN:HE21	1.32	0.77
1:A:126:ARG:HD3	1:D:123:GLU:OE2	1.88	0.72
2:E:12:DG:H4'	7:E:2002:HOH:O	1.93	0.67
1:D:34:VAL:HG11	7:D:2020:HOH:O	1.98	0.63
1:D:19:GLN:HG3	7:D:2003:HOH:O	2.00	0.60
1:A:56:LEU:HD11	1:A:83:PHE:HB2	1.83	0.60
1:D:101:GLN:NE2	1:D:101:GLN:H	1.93	0.58
3:C:3:DG:N7	7:C:2005:HOH:O	2.32	0.58
1:D:101:GLN:N	1:D:101:GLN:HE21	1.94	0.58
1:A:123:GLU:HG3	1:D:126:ARG:NH2	2.19	0.57
2:B:24:DC:H2"	2:B:25:DT:H72	1.87	0.56
2:E:18:DT:H2'	2:E:19:DC:C6	2.44	0.52
1:D:10:MET:HG2	1:D:17:VAL:CG1	2.39	0.52
1:A:101:GLN:NE2	1:A:101:GLN:H	2.02	0.51
1:A:93:ARG:HG3	2:B:26:DT:H1'	1.93	0.51
2:B:18:DT:H2'	2:B:19:DC:C6	2.47	0.50
1:A:62:GLU:HG3	1:D:133:ILE:O	2.13	0.49
2:B:11:DC:H5'	2:B:11:DC:C6	2.48	0.49
2:B:24:DC:H2"	2:B:25:DT:C7	2.43	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:120:THR:O	1:D:122:SER:HB3	2.14	0.47
1:A:122:SER:HB3	1:D:121:VAL:HA	1.96	0.46
1:D:12:LYS:HG2	1:D:17:VAL:HG22	1.98	0.46
1:A:111:LEU:HD13	1:A:112:TRP:CZ2	2.51	0.46
1:D:125:THR:OG1	1:D:128:GLN:HG3	2.16	0.45
1:A:122:SER:HB3	1:D:120:THR:O	2.16	0.45
1:D:13:GLY:HA3	1:D:16:TYR:CE2	2.52	0.45
2:B:24:DC:C2'	2:B:25:DT:H72	2.46	0.45
1:A:101:GLN:O	1:A:104:GLU:HG2	2.17	0.44
2:E:11:DC:H2'	2:E:12:DG:C8	2.53	0.44
2:B:28:DA:N3	2:B:28:DA:H2'	2.32	0.43
1:A:42:GLY:HA3	1:A:99:TYR:OH	2.18	0.43
1:D:70:LEU:HG	1:D:72:LEU:HD23	2.02	0.42
1:A:138:ASP:N	1:A:138:ASP:OD2	2.48	0.41
1:A:34:VAL:HG23	1:A:35:LEU:HD13	2.01	0.41
1:A:101:GLN:N	1:A:101:GLN:HE21	2.09	0.41
3:F:2:DT:H2'	3:F:3:DG:C8	2.55	0.41
2:B:30:DT:H2'	2:B:31:DC:C6	2.56	0.41
1:A:117:CYS:HA	1:D:17:VAL:O	2.20	0.41
2:B:11:DC:H5'	2:B:11:DC:H6	1.86	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:11:DC:N3	2:E:12:DG:N2[2_565]	2.14	0.06
2:B:11:DC:O2	2:E:12:DG:N2[2_565]	2.17	0.03

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	132/140 (94%)	129 (98%)	3 (2%)	0	100 100
1	D	126/140 (90%)	126 (100%)	0	0	100 100
All	All	258/280 (92%)	255 (99%)	3 (1%)	0	100 100

There are no Ramachandran outliers to report.

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	115/122 (94%)	107 (93%)	8 (7%)	15 7
1	D	110/122 (90%)	104 (94%)	6 (6%)	21 12
All	All	225/244 (92%)	211 (94%)	14 (6%)	18 9

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	PRO
1	A	8	LEU
1	A	35	LEU
1	A	93	ARG
1	A	101	GLN
1	A	111	LEU
1	A	118	ILE
1	A	123	GLU
1	D	9	GLU
1	D	35	LEU
1	D	64	MET
1	D	101	GLN
1	D	105	LYS
1	D	118	ILE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	19	GLN
1	A	32	HIS
1	A	101	GLN
1	D	101	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no carbohydrates in this entry.

5.6 Ligand geometry

Of 18 ligands modelled in this entry, 17 are monoatomic - leaving 1 for Mogul analysis.

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	ACT	D	1138	-	1,3,3	1.83	0	0,3,3	0.00	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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, 95^{th} 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	134/140 (95%)	0.10	4 (2%) 50 53	14, 25, 52, 74	0
1	D	128/140 (91%)	0.06	6 (4%) 31 34	14, 23, 51, 88	0
2	B	27/27 (100%)	-0.30	0 100 100	15, 26, 37, 49	0
2	E	27/27 (100%)	-0.34	0 100 100	17, 25, 40, 44	0
3	C	6/6 (100%)	-0.55	0 100 100	22, 24, 32, 32	0
3	F	6/6 (100%)	-0.57	0 100 100	24, 26, 30, 30	0
All	All	328/346 (94%)	-0.01	10 (3%) 50 53	14, 25, 50, 88	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	7	PRO	8.4
1	D	135	SER	6.4
1	D	134	GLU	4.3
1	D	132	PHE	3.8
1	D	136	GLN	3.5
1	D	133	ILE	3.4
1	A	8	LEU	3.4
1	D	131	LYS	2.8
1	A	137	HIS	2.5
1	A	9	GLU	2.1

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates (i)

There are no carbohydrates 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, 95^{th} 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	CD	A	1006	1/1	0.38	0.12	175,175,175,175	0
6	ACT	D	1138	4/4	0.90	0.25	49,49,50,51	0
5	MG	D	1137[B]	1/1	0.93	0.06	41,41,41,41	1
4	CD	D	1004[A]	1/1	0.93	0.06	53,53,53,53	1
5	MG	A	1143[B]	1/1	0.97	0.06	27,27,27,27	1
4	CD	A	1007[A]	1/1	0.97	0.06	43,43,43,43	1
5	MG	E	1001	1/1	0.98	0.07	27,27,27,27	0
5	MG	E	1038[B]	1/1	0.99	0.08	20,20,20,20	1
5	MG	B	1001	1/1	0.99	0.07	28,28,28,28	0
5	MG	A	1142[B]	1/1	0.99	0.09	36,36,36,36	1
4	CD	D	1002[A]	1/1	0.99	0.08	28,28,28,28	1
4	CD	A	1001	1/1	0.99	0.05	26,26,26,26	0
4	CD	A	1004[A]	1/1	0.99	0.09	22,22,22,22	1
5	MG	E	1039[B]	1/1	1.00	0.12	34,34,34,34	1
4	CD	E	1002[A]	1/1	1.00	0.12	17,17,17,17	1
4	CD	D	1001	1/1	1.00	0.05	25,25,25,25	0
4	CD	A	1002[A]	1/1	1.00	0.08	32,32,32,32	1
5	MG	A	1141[B]	1/1	1.00	0.08	16,16,16,16	1

6.5 Other polymers (i)

There are no such residues in this entry.