



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 19, 2016 – 07:09 AM EDT

PDB ID : 5IWI
Title : 1.98A structure of GSK945237 with S.aureus DNA gyrase and singly nicked DNA
Authors : Bax, B.D.; Miles, T.J.
Deposited on : 2016-03-22
Resolution : 1.98 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
<http://wwpdb.org/validation/2016/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:

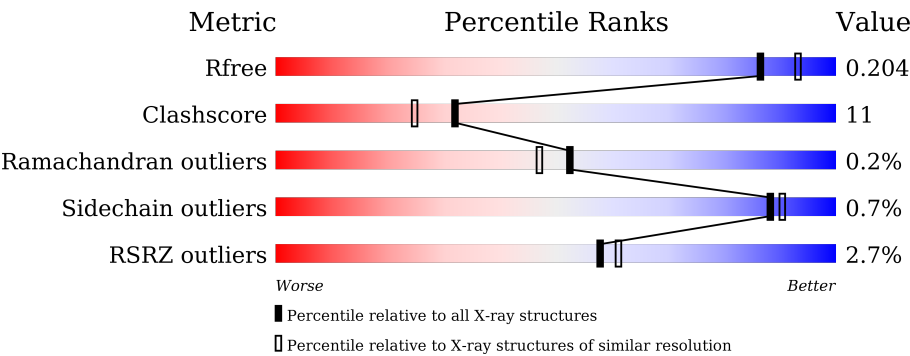
MolProbity : 4.02b-467
Mogul : 1.7.1 (RC1), CSD as537be (2016)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20027790
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20027790

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 1.98 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.



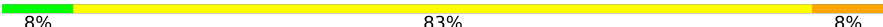
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	91344	8664 (2.00-1.96)
Clashscore	102246	9905 (2.00-1.96)
Ramachandran outliers	100387	9792 (2.00-1.96)
Sidechain outliers	100360	9791 (2.00-1.96)
RSRZ outliers	91569	8679 (2.00-1.96)

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. 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	B	202	<div><div>6%</div><div><div></div><div>77%</div><div>16%</div><div>• 5%</div></div></div>
1	D	202	<div><div>6%</div><div><div></div><div>79%</div><div>14%</div><div>• 6%</div></div></div>
2	A	490	<div><div>2%</div><div><div></div><div>88%</div><div>10%</div><div>•</div></div></div>
2	C	490	<div><div>%</div><div><div></div><div>87%</div><div>11%</div><div>•</div></div></div>
3	E	20	<div><div></div><div><div>35%</div><div>60%</div><div>5%</div></div></div>
4	F	8	<div><div></div><div><div>100%</div></div></div>

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Mol	Chain	Length	Quality of chain
5	G	12	

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
7	GOL	A	503	-	-	-	X
7	GOL	A	504	-	-	-	X
7	GOL	C	503[A]	-	-	-	X
7	GOL	C	503[B]	-	-	-	X
7	GOL	C	504	-	-	-	X
7	GOL	C	505	-	-	-	X

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 14196 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 DNA gyrase subunit B,DNA gyrase subunit B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	192	Total	C	N	O	S	0	27	0
			1709	1067	293	339	10			
1	D	189	Total	C	N	O	S	0	23	0
			1661	1033	291	328	9			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	409	MET	-	expression tag	UNP P66937
B	544	THR	-	linker	UNP P66937
B	545	GLY	-	linker	UNP P66937
D	409	MET	-	expression tag	UNP P66937
D	544	THR	-	linker	UNP P66937
D	545	GLY	-	linker	UNP P66937

- Molecule 2 is a protein called DNA gyrase subunit A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	483	Total	C	N	O	S	0	23	0
			4034	2497	737	782	18			
2	C	481	Total	C	N	O	S	0	30	0
			4091	2531	750	790	20			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	123	PHE	TYR	conflict	UNP Q99XG5
C	123	PHE	TYR	conflict	UNP Q99XG5

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	20	Total	C	N	O	P	0	20	0
			796	377	155	226	38			

- Molecule 4 is a DNA chain called DNA (5'-D(*TP*GP*TP*GP*CP*GP*GP*T*GP*TP*AP*CP*CP*TP*AP*CP*GP*GP*CP*T)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	F	8	Total	C	N	O	P	0	8	0
			328	158	58	98	14			

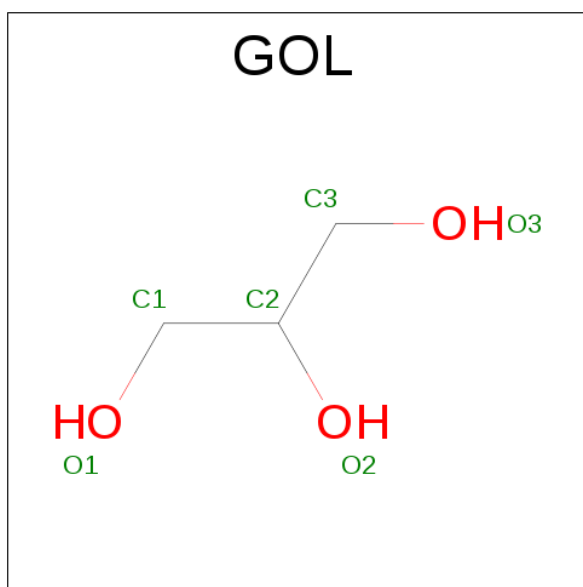
- Molecule 5 is a DNA chain called DNA (5'-D(*TP*GP*TP*GP*CP*GP*GP*T*GP*TP*AP*CP*CP*TP*AP*CP*GP*GP*CP*T)-3').

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	G	12	Total	C	N	O	P	0	12	0
			468	224	84	138	22			

- Molecule 6 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	1	Total	Mn	0	1
			2	2		
6	D	1	Total	Mn	0	1
			2	2		
6	C	1	Total	Mn	0	0
			1	1		

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



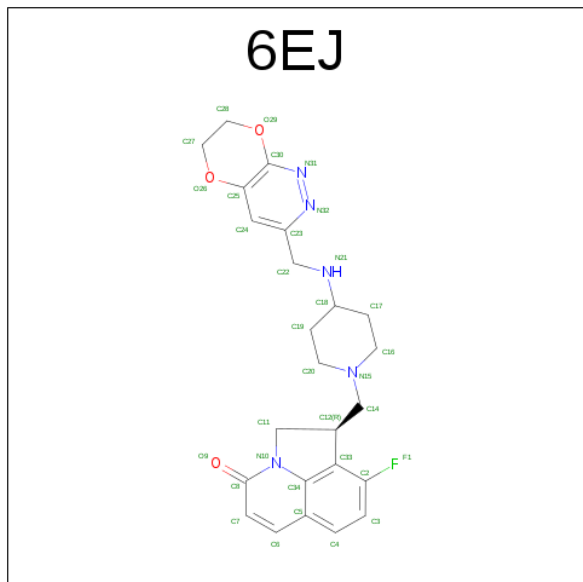
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			6	3	3		
7	A	1	Total	C	O	0	0
			6	3	3		
7	A	1	Total	C	O	0	0
			6	3	3		
7	A	1	Total	C	O	0	0
			6	3	3		
7	A	1	Total	C	O	0	0
			6	3	3		
7	A	1	Total	C	O	0	0
			6	3	3		
7	C	1	Total	C	O	0	0
			6	3	3		
7	C	1	Total	C	O	0	1
			12	6	6		
7	C	1	Total	C	O	0	0
			6	3	3		
7	C	1	Total	C	O	0	0
			6	3	3		

- Molecule 8 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total	Cl	0	0
			1	1		

- Molecule 9 is (1R)-1-[(4-[[[(6,7-dihydro[1,4]dioxino[2,3-c]pyridazin-3-yl)methyl]amino}piperi

din-1-yl)methyl]-9-fluoro-1,2-dihydro-4H-pyrrolo[3,2,1-ij]quinolin-4-one (three-letter code: 6EJ) (formula: C₂₄H₂₆FN₅O₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	E	1	Total	C	F	N	O	0	1
			66	48	2	10	6		

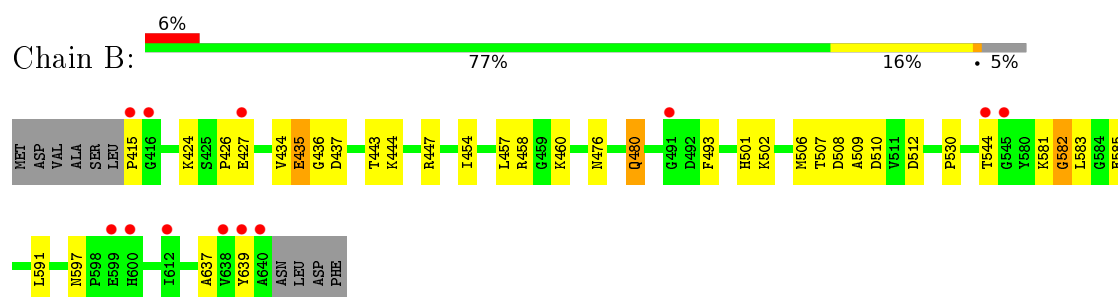
- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	B	94	Total	O	0	4
			98	98		
10	A	341	Total	O	0	4
			345	345		
10	D	56	Total	O	0	3
			59	59		
10	C	355	Total	O	0	4
			358	358		
10	E	49	Total	O	0	3
			52	52		
10	F	21	Total	O	0	0
			21	21		
10	G	34	Total	O	0	4
			38	38		

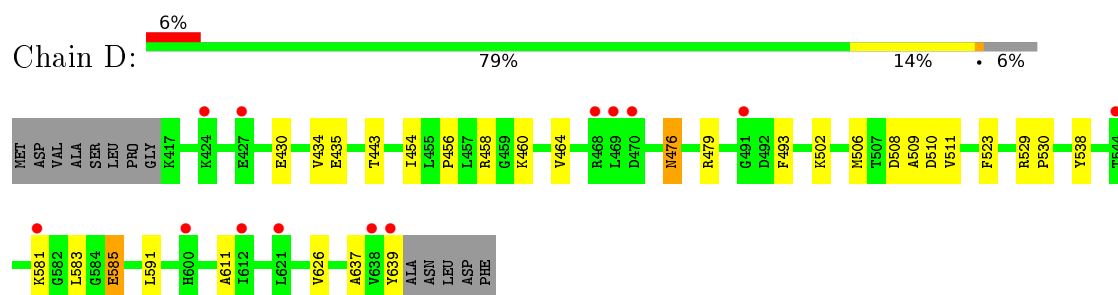
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

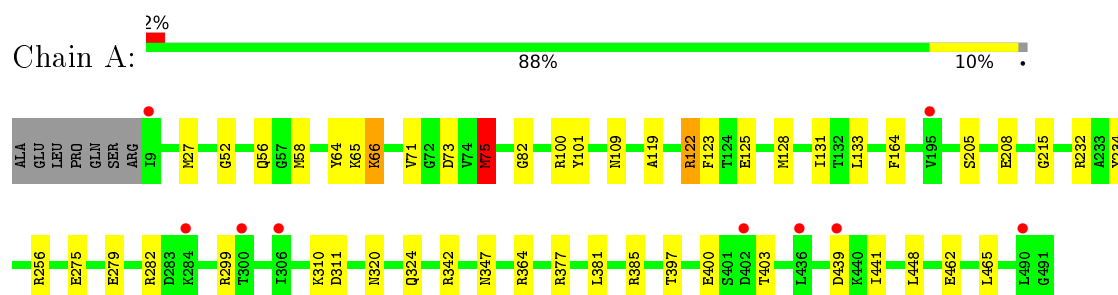
- Molecule 1: DNA gyrase subunit B,DNA gyrase subunit B



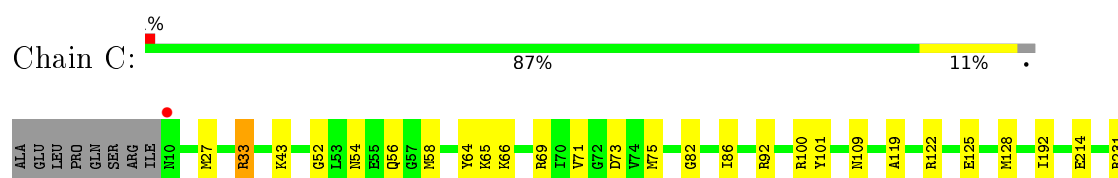
- Molecule 1: DNA gyrase subunit B,DNA gyrase subunit B

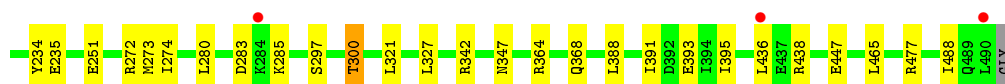


- Molecule 2: DNA gyrase subunit A



- Molecule 2: DNA gyrase subunit A





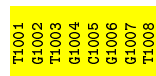
- Molecule 3: DNA (5'-D(*AP*GP*CP*CP*GP*TP*AP*GP*GP*TP*AP*CP*AP*CP*CP*GP*CP*AP*CP*A)-3')

Chain E: 35% 60% 5%



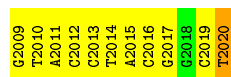
- Molecule 4: DNA (5'-D(*TP*GP*TP*GP*CP*GP*GP*T*GP*TP*AP*CP*CP*TP*AP*CP*GP*GP*CP*T)-3')

Chain F: 100%



- Molecule 5: DNA (5'-D(*TP*GP*TP*GP*CP*GP*GP*T*GP*TP*AP*CP*CP*TP*AP*CP*GP*GP*CP*T)-3')

Chain G: 8% 83% 8%



4 Data and refinement statistics

Property	Value	Source
Space group	P 61	Depositor
Cell constants a, b, c, α , β , γ	92.90 Å 92.90 Å 410.78 Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	18.00 – 1.98 19.90 – 1.98	Depositor EDS
% Data completeness (in resolution range)	99.2 (18.00-1.98) 99.3 (19.90-1.98)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.68 (at 1.97 Å)	Xtriage
Refinement program	REFMAC 5.8.0073	Depositor
R, R_{free}	0.166 , 0.202 0.169 , 0.204	Depositor DCC
R_{free} test set	2759 reflections (2.05%)	DCC
Wilson B-factor (Å ²)	30.0	Xtriage
Anisotropy	0.152	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 48.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.055 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	14196	wwPDB-VP
Average B, all atoms (Å ²)	36.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.36% 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, MN, 6EJ, CL

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	B	0.44	0/1735	0.70	0/2339
1	D	0.46	0/1685	0.71	0/2273
2	A	0.47	0/4082	0.69	3/5487 (0.1%)
2	C	0.47	0/4139	0.69	0/5564
3	E	0.36	0/912	0.77	2/1402 (0.1%)
4	F	0.29	0/366	0.70	0/564
5	G	579.66	4/538 (0.7%)	9.58	12/826 (1.5%)
All	All	115.90	4/13457 (0.0%)	2.14	17/18455 (0.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	G	2020[A]	DT	C4'-C3'	6791.13	69.44	1.53
5	G	2020[B]	DT	C4'-C3'	6791.13	69.44	1.53
5	G	2020[A]	DT	C4'-O4'	6653.22	67.98	1.45
5	G	2020[B]	DT	C4'-O4'	6653.22	67.98	1.45

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	G	2020[A]	DT	O4'-C4'-C3'	-174.12	1.53	106.00
5	G	2020[B]	DT	O4'-C4'-C3'	-174.12	1.53	106.00
5	G	2020[A]	DT	C4'-C3'-C2'	-71.22	39.00	103.10
5	G	2020[B]	DT	C4'-C3'-C2'	-71.22	39.00	103.10
5	G	2020[A]	DT	C1'-O4'-C4'	-44.23	65.86	110.10
5	G	2020[B]	DT	C1'-O4'-C4'	-44.23	65.86	110.10
5	G	2020[A]	DT	C5'-C4'-C3'	-12.26	92.04	114.10
5	G	2020[B]	DT	C5'-C4'-C3'	-12.26	92.04	114.10
5	G	2020[A]	DT	C5'-C4'-O4'	-9.81	90.67	109.30
5	G	2020[B]	DT	C5'-C4'-O4'	-9.81	90.67	109.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	122[A]	ARG	NE-CZ-NH2	-6.08	117.26	120.30
2	A	122[B]	ARG	NE-CZ-NH2	-6.08	117.26	120.30
3	E	10[A]	DT	C1'-O4'-C4'	-5.75	104.35	110.10
3	E	10[B]	DT	C1'-O4'-C4'	-5.75	104.35	110.10
2	A	75	MET	CG-SD-CE	-5.56	91.30	100.20
5	G	2016[A]	DC	C1'-O4'-C4'	-5.07	105.03	110.10
5	G	2016[B]	DC	C1'-O4'-C4'	-5.07	105.03	110.10

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	B	1709	0	1660	54	0
1	D	1661	0	1610	50	0
2	A	4034	0	4047	62	0
2	C	4091	0	4115	64	0
3	E	796	0	397	38	0
4	F	328	0	168	17	0
5	G	468	0	236	38	0
6	B	2	0	0	0	0
6	C	1	0	0	0	0
6	D	2	0	0	0	0
7	A	36	0	48	0	0
7	C	30	0	40	1	0
8	A	1	0	0	0	0
9	E	66	0	0	1	0
10	A	345	0	0	10	0
10	B	98	0	0	3	0
10	C	358	0	0	8	0
10	D	59	0	0	8	0
10	E	52	0	0	1	0
10	F	21	0	0	3	0
10	G	38	0	0	1	0
All	All	14196	0	12321	269	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 11.

All (269) 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)
2:A:27[B]:MET:HA	2:A:27[B]:MET:CE	1.57	1.33
5:G:2009[B]:DG:C3'	5:G:2010[B]:DT:H71	1.60	1.29
5:G:2009[B]:DG:H3'	5:G:2010[B]:DT:C7	1.61	1.27
10:D:1150[B]:HOH:O	3:E:10[B]:DT:C5'	1.83	1.24
10:D:1150[B]:HOH:O	3:E:10[B]:DT:H5'	1.40	1.11
2:A:27[B]:MET:HE3	2:A:27[B]:MET:HA	1.11	1.08
1:B:585[B]:GLU:O	1:B:585[B]:GLU:OE1	1.69	1.06
1:B:435[A]:GLU:O	1:B:457[A]:LEU:O	1.70	1.06
5:G:2009[B]:DG:C5	5:G:2010[B]:DT:O4	2.11	1.02
5:G:2009[B]:DG:H2'	5:G:2010[B]:DT:C5	1.95	1.01
2:A:66[B]:LYS:HE2	1:D:581[B]:LYS:NZ	1.74	1.01
2:A:66[B]:LYS:HE2	1:D:581[B]:LYS:HZ3	1.23	0.98
2:A:27[B]:MET:HE3	2:A:27[B]:MET:CA	1.94	0.97
2:A:58[B]:MET:HE3	10:A:783:HOH:O	1.64	0.97
2:A:66[A]:LYS:H	2:A:66[A]:LYS:CE	1.80	0.94
1:D:510[B]:ASP:OD2	10:D:1101:HOH:O	1.85	0.93
1:B:508[B]:ASP:CG	1:B:582[B]:GLY:HA2	1.89	0.92
1:B:508[B]:ASP:OD2	1:B:582[B]:GLY:HA2	1.72	0.90
2:A:66[B]:LYS:CE	1:D:581[B]:LYS:NZ	2.33	0.90
1:D:458[B]:ARG:HH12	3:E:11[B]:DA:C5'	1.84	0.90
3:E:2[B]:DG:O6	5:G:2019[B]:DC:N4	2.05	0.90
2:A:27[B]:MET:CE	2:A:27[B]:MET:CA	2.45	0.89
1:B:508[B]:ASP:OD1	1:B:582[B]:GLY:HA2	1.73	0.88
2:A:27[B]:MET:HA	2:A:27[B]:MET:HE2	1.52	0.88
1:D:508[B]:ASP:OD2	1:D:581[B]:LYS:O	1.92	0.88
1:B:581[B]:LYS:HE2	2:C:66[B]:LYS:NZ	1.88	0.88
2:A:66[A]:LYS:HE2	2:A:66[A]:LYS:H	1.39	0.87
5:G:2009[B]:DG:H3'	5:G:2010[B]:DT:H71	0.88	0.87
2:C:58[B]:MET:CE	2:C:65[B]:LYS:HB2	2.05	0.87
2:C:58[B]:MET:HE1	2:C:65[B]:LYS:HB2	1.57	0.85
1:B:639[B]:TYR:CE1	2:A:27[B]:MET:SD	2.70	0.84
5:G:2009[B]:DG:C4	5:G:2010[B]:DT:O4	2.30	0.84
5:G:2010[B]:DT:O5'	5:G:2010[B]:DT:H6	1.60	0.83
1:B:437[B]:ASP:OD1	1:B:458[B]:ARG:NH1	2.12	0.82
1:D:458[B]:ARG:HG3	3:E:9[B]:DG:H2''	1.61	0.82
1:D:458[B]:ARG:HH12	3:E:11[B]:DA:H5'	1.42	0.81
2:C:214[A]:GLU:HG2	2:C:488:ILE:HD12	1.62	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:128:MET:HE1	2:A:133:LEU:HD23	1.63	0.81
1:B:476:ASN:O	1:B:480:GLN:HG2	1.79	0.81
2:A:66[B]:LYS:CE	1:D:581[B]:LYS:HZ3	1.93	0.81
5:G:2009[B]:DG:C4	5:G:2010[B]:DT:C4	2.70	0.79
1:B:415:PRO:HB3	1:B:480:GLN:NE2	1.97	0.79
5:G:2009[B]:DG:C3'	5:G:2010[B]:DT:C7	2.38	0.78
3:E:2[B]:DG:N1	5:G:2019[B]:DC:N3	2.32	0.78
1:B:443[B]:THR:HG22	1:B:591:LEU:HD21	1.67	0.77
1:D:458[B]:ARG:HD2	3:E:10[B]:DT:C1'	2.16	0.76
5:G:2009[B]:DG:H2'	5:G:2010[B]:DT:C6	2.20	0.75
2:A:66[A]:LYS:CD	2:A:66[A]:LYS:H	2.00	0.75
3:E:19[B]:DC:N3	4:F:1002[B]:DG:N1	2.30	0.75
2:C:273[B]:MET:HG3	2:C:274:ILE:N	2.00	0.74
1:B:447:ARG:HD3	1:B:454:ILE:HD11	1.70	0.73
1:D:458[B]:ARG:NH1	3:E:11[B]:DA:H5'	2.03	0.73
1:B:508[B]:ASP:OD2	1:B:582[B]:GLY:CA	2.37	0.72
2:C:73[A]:ASP:OD1	10:C:601:HOH:O	2.07	0.72
2:C:66[A]:LYS:HD3	2:C:66[A]:LYS:N	2.06	0.71
3:E:1[B]:DA:N7	5:G:2020[B]:DT:N3	2.38	0.71
2:C:58[B]:MET:CE	2:C:65[B]:LYS:CB	2.69	0.71
2:C:66[A]:LYS:CE	2:C:66[A]:LYS:H	2.04	0.70
2:A:66[B]:LYS:CE	1:D:581[B]:LYS:HZ1	2.01	0.70
1:B:639[B]:TYR:HE1	2:A:27[B]:MET:CE	2.05	0.70
2:A:73[A]:ASP:OD1	10:C:601:HOH:O	2.10	0.69
1:D:458[B]:ARG:HD2	3:E:10[B]:DT:H1'	1.75	0.69
1:B:510[A]:ASP:OD2	10:B:802:HOH:O	2.10	0.69
5:G:2009[B]:DG:C2'	5:G:2010[B]:DT:C7	2.71	0.69
1:B:581[B]:LYS:HE2	2:C:66[B]:LYS:HZ1	1.56	0.68
2:A:66[A]:LYS:HB3	10:A:737[A]:HOH:O	1.94	0.68
2:A:66[A]:LYS:HD3	2:A:66[A]:LYS:N	2.09	0.68
1:D:443[A]:THR:CG2	1:D:454:ILE:HD12	2.23	0.68
2:C:71:VAL:O	2:C:75:MET:HG3	1.94	0.67
1:B:581[B]:LYS:CE	2:C:66[B]:LYS:NZ	2.58	0.67
1:D:443[A]:THR:HG22	1:D:454:ILE:HD12	1.77	0.67
2:A:66[A]:LYS:CD	2:A:66[A]:LYS:N	2.58	0.67
2:C:231[B]:ARG:O	2:C:235[B]:GLU:HG3	1.95	0.67
2:C:66[A]:LYS:H	2:C:66[A]:LYS:CD	2.08	0.66
2:A:123:PHE:O	1:D:585[A]:GLU:HG2	1.96	0.66
2:C:388:LEU:HD13	2:C:438:ARG:HG2	1.77	0.66
5:G:2009[B]:DG:C6	5:G:2010[B]:DT:O4	2.49	0.65
10:D:1150[B]:HOH:O	3:E:10[B]:DT:H5''	1.73	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:502:LYS:HE3	10:B:813:HOH:O	1.96	0.65
1:B:435[B]:GLU:OE1	1:B:508[B]:ASP:N	2.26	0.65
2:A:73[A]:ASP:HA	2:C:69:ARG:HD2	1.79	0.65
1:D:443[A]:THR:HG22	1:D:454:ILE:CD1	2.27	0.64
1:D:435[A]:GLU:HB2	10:D:1102:HOH:O	1.98	0.64
3:E:13[A]:DA:H2'	3:E:14[A]:DC:C6	2.33	0.64
1:B:509[B]:ALA:HB1	1:B:544:THR:HG22	1.80	0.63
3:E:1[B]:DA:N6	5:G:2020[B]:DT:O4	2.32	0.63
5:G:2009[B]:DG:C2'	5:G:2010[B]:DT:H71	2.29	0.63
1:D:581[B]:LYS:HB2	1:D:585[B]:GLU:OE2	1.98	0.63
1:B:639[B]:TYR:HE1	2:A:27[B]:MET:HE2	1.64	0.63
2:A:128:MET:CE	2:A:133:LEU:HD23	2.28	0.62
4:F:1002[B]:DG:H2''	4:F:1003[B]:DT:H72	1.81	0.62
2:C:66[A]:LYS:CD	2:C:66[A]:LYS:N	2.63	0.62
5:G:2009[B]:DG:H2'	5:G:2010[B]:DT:C7	2.29	0.62
5:G:2013[B]:DC:H6	5:G:2013[B]:DC:H5''	1.65	0.62
2:A:66[A]:LYS:HE2	2:A:66[A]:LYS:N	2.14	0.62
1:B:435[B]:GLU:CG	1:B:507[B]:THR:HG22	2.31	0.61
1:D:476[A]:ASN:HA	1:D:479[A]:ARG:HE	1.65	0.60
1:D:443[B]:THR:HG22	1:D:591:LEU:HD21	1.83	0.60
1:B:639[B]:TYR:CE1	2:A:27[B]:MET:CE	2.85	0.60
4:F:1008[B]:DT:O4	10:F:1101:HOH:O	2.16	0.60
2:A:73[B]:ASP:HA	2:C:69:ARG:HD2	1.83	0.60
1:B:581[B]:LYS:HG3	1:B:581[B]:LYS:O	2.00	0.60
3:E:15[A]:DC:H5	10:G:2115:HOH:O	1.84	0.60
3:E:6[B]:DT:H2''	3:E:7[B]:DA:H5''	1.84	0.60
5:G:2009[B]:DG:HO5'	5:G:2009[B]:DG:H8	1.50	0.59
2:C:66[A]:LYS:H	2:C:66[A]:LYS:HD3	1.66	0.59
2:C:273[B]:MET:CE	2:C:327[B]:LEU:HD23	2.32	0.59
2:C:368:GLN:NE2	10:C:604:HOH:O	2.36	0.59
2:A:275[B]:GLU:O	2:A:279[B]:GLU:HG3	2.02	0.58
1:D:458[B]:ARG:HH12	3:E:11[B]:DA:H5''	1.68	0.58
1:D:458[B]:ARG:HD2	3:E:10[B]:DT:O4'	2.03	0.58
2:C:75:MET:HG2	2:C:86:ILE:HD12	1.85	0.58
2:C:297:SER:OG	2:C:300:THR:HG23	2.03	0.58
1:B:424:LYS:O	1:B:426:PRO:HD3	2.03	0.58
2:C:283:ASP:HB2	2:C:285:LYS:HE2	1.86	0.57
1:B:427[B]:GLU:HG2	1:B:501:HIS:CE1	2.39	0.57
5:G:2014[B]:DT:C2'	5:G:2015[B]:DA:O5'	2.53	0.57
2:A:71:VAL:O	2:A:75:MET:HB2	2.06	0.56
1:B:443[B]:THR:CG2	1:B:591:LEU:HD21	2.36	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:458[B]:ARG:NH1	3:E:11[B]:DA:C5'	2.62	0.56
5:G:2009[B]:DG:H3'	5:G:2010[B]:DT:H73	1.76	0.56
1:B:444[A]:LYS:HA	1:B:454:ILE:CD1	2.36	0.55
3:E:14[B]:DC:H2''	3:E:15[B]:DC:H5'	1.87	0.55
1:B:460:LYS:HG3	4:F:1007[B]:DG:H21	1.72	0.55
2:C:58[B]:MET:HE2	2:C:65[B]:LYS:HB3	1.88	0.55
5:G:2010[B]:DT:OP2	5:G:2010[B]:DT:H71	2.06	0.55
2:C:73[A]:ASP:CG	10:C:601:HOH:O	2.43	0.54
3:E:11[B]:DA:H2''	3:E:12[B]:DC:H5''	1.89	0.54
5:G:2010[B]:DT:P	5:G:2010[B]:DT:H71	2.48	0.54
1:B:447:ARG:HD3	1:B:454:ILE:CD1	2.35	0.54
2:C:321:LEU:HB3	2:C:327[B]:LEU:HD12	1.90	0.54
2:A:256:ARG:HD2	10:A:711:HOH:O	2.07	0.54
2:A:58[B]:MET:SD	2:A:65[B]:LYS:HD2	2.48	0.54
2:C:58[B]:MET:HE1	2:C:65[B]:LYS:CB	2.32	0.54
4:F:1006[B]:DG:H2''	4:F:1007[B]:DG:O5'	2.08	0.54
1:B:639[B]:TYR:HE1	2:A:27[B]:MET:SD	2.25	0.54
1:D:626:VAL:HG11	5:G:2017[B]:DG:H3'	1.90	0.53
1:B:415:PRO:HB3	1:B:480:GLN:HE21	1.73	0.53
2:C:43:LYS:NZ	3:E:6[B]:DT:OP1	2.34	0.53
2:A:122[A]:ARG:HD2	2:C:82:GLY:HA2	1.91	0.53
2:A:364:ARG:HB2	2:A:465:LEU:HD11	1.90	0.53
2:C:75:MET:HG2	2:C:86:ILE:CD1	2.39	0.53
1:D:529:ARG:NH2	1:D:611:ALA:HB1	2.24	0.53
4:F:1003[B]:DT:H2''	4:F:1004[B]:DG:C8	2.44	0.53
1:B:581[B]:LYS:CE	2:C:66[B]:LYS:HZ2	2.21	0.53
1:B:435[B]:GLU:HG3	1:B:507[B]:THR:HG22	1.89	0.52
3:E:19[B]:DC:O2	4:F:1002[B]:DG:N2	2.28	0.52
2:A:279[B]:GLU:HG2	2:A:282:ARG:HH12	1.74	0.52
2:C:64:TYR:HB3	2:C:125:GLU:HB3	1.92	0.51
5:G:2010[B]:DT:O5'	5:G:2010[B]:DT:C6	2.52	0.51
2:A:109:ASN:HB3	2:A:119:ALA:HB2	1.92	0.51
3:E:6[B]:DT:C7	10:F:1111:HOH:O	0.82	0.51
5:G:2009[B]:DG:C8	5:G:2010[B]:DT:H73	2.44	0.51
3:E:12[B]:DC:H2''	3:E:13[B]:DA:H5''	1.92	0.51
2:A:397:THR:O	2:A:400[A]:GLU:HG2	2.10	0.51
5:G:2010[B]:DT:H2''	5:G:2011[B]:DA:O5'	2.11	0.51
5:G:2012[A]:DC:H2''	5:G:2013[A]:DC:O5'	2.10	0.51
1:B:444[B]:LYS:HA	1:B:454:ILE:CD1	2.40	0.51
1:D:583[A]:LEU:HD12	10:D:1102:HOH:O	2.10	0.51
2:A:66[B]:LYS:HE3	1:D:581[B]:LYS:HZ1	1.74	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:435[B]:GLU:HG2	1:B:507[B]:THR:HG22	1.92	0.51
2:C:100:ARG:HG3	2:C:101:TYR:CE2	2.45	0.51
2:C:58[B]:MET:HE3	10:C:810:HOH:O	2.11	0.50
5:G:2013[B]:DC:C5'	5:G:2013[B]:DC:H6	2.23	0.50
2:C:235[B]:GLU:CD	10:C:913[B]:HOH:O	2.50	0.50
5:G:2009[B]:DG:N3	5:G:2010[B]:DT:C4	2.80	0.49
5:G:2009[B]:DG:C2'	5:G:2010[B]:DT:C5	2.80	0.49
1:B:457[B]:LEU:O	1:B:458[B]:ARG:HG2	2.13	0.49
1:D:430:GLU:HG2	1:D:502:LYS:HB2	1.95	0.49
1:B:437[B]:ASP:OD1	1:B:437[B]:ASP:N	2.46	0.49
1:D:637:ALA:HB1	2:C:27[A]:MET:HE1	1.94	0.49
1:B:585[B]:GLU:C	1:B:585[B]:GLU:OE1	2.46	0.48
1:D:506:MET:HG2	1:D:583[B]:LEU:HD11	1.95	0.48
2:C:447:GLU:HG3	10:C:811:HOH:O	2.12	0.48
1:D:508[B]:ASP:OD1	1:D:509[B]:ALA:N	2.46	0.48
4:F:1002[B]:DG:H2''	4:F:1003[B]:DT:C7	2.44	0.48
2:C:251:GLU:HB3	7:C:503[A]:GOL:H32	1.95	0.48
1:D:458[B]:ARG:HG3	3:E:9[B]:DG:C2'	2.38	0.48
2:A:100:ARG:HG3	2:A:101:TYR:CE2	2.48	0.48
1:B:493:PHE:CE2	1:B:530:PRO:HB2	2.49	0.48
5:G:2014[B]:DT:H2'	5:G:2015[B]:DA:O5'	2.14	0.48
3:E:7[B]:DA:H2'	3:E:8[B]:DG:C8	2.49	0.47
2:C:65[B]:LYS:HE2	2:C:69:ARG:HG2	1.95	0.47
3:E:14[B]:DC:C2'	3:E:15[B]:DC:H5'	2.45	0.47
10:D:1150[B]:HOH:O	3:E:10[B]:DT:H4'	2.12	0.47
3:E:6[B]:DT:H71	10:F:1111:HOH:O	0.76	0.47
1:D:443[B]:THR:CG2	1:D:591:LEU:HD21	2.44	0.47
5:G:2009[B]:DG:C2	5:G:2010[B]:DT:N3	2.82	0.47
1:D:464:VAL:HG21	1:D:523:PHE:HA	1.97	0.46
1:B:508[B]:ASP:OD2	1:B:582[B]:GLY:N	2.48	0.46
5:G:2012[B]:DC:C2	5:G:2013[B]:DC:C5	3.03	0.46
1:B:639[B]:TYR:CD2	2:A:342:ARG:HG2	2.50	0.46
2:C:393[B]:GLU:HG2	10:C:889[B]:HOH:O	2.16	0.46
2:C:58[B]:MET:HE2	2:C:65[B]:LYS:CB	2.40	0.46
3:E:13[B]:DA:H2'	3:E:14[B]:DC:C6	2.51	0.46
1:B:508[B]:ASP:CG	1:B:582[B]:GLY:CA	2.74	0.45
2:A:64:TYR:HB3	2:A:125:GLU:HB3	1.97	0.45
1:B:443[A]:THR:HG22	1:B:454:ILE:HG12	1.98	0.45
1:D:434[B]:VAL:HG23	1:D:456:PRO:HA	1.98	0.45
2:A:122[A]:ARG:HG3	10:A:807:HOH:O	2.16	0.45
2:C:280:LEU:HD23	2:C:285:LYS:HE3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:273[B]:MET:HE1	2:C:327[B]:LEU:HD23	1.98	0.45
1:D:458[B]:ARG:NH1	3:E:10[B]:DT:O3'	2.49	0.45
2:A:27[B]:MET:HE2	2:A:27[B]:MET:CA	2.34	0.45
1:B:581[B]:LYS:O	1:B:582[B]:GLY:O	2.35	0.45
2:A:381:LEU:HD22	2:A:441:ILE:HG23	1.98	0.45
1:D:511[B]:VAL:HG13	10:D:1149:HOH:O	2.16	0.45
1:B:444[A]:LYS:HA	1:B:454:ILE:HD13	1.99	0.45
2:A:205:SER:OG	2:A:208:GLU:HG3	2.16	0.44
2:C:391:ILE:O	2:C:395:ILE:HG12	2.16	0.44
2:C:33:ARG:CZ	4:F:1007[A]:DG:H4'	2.47	0.44
1:B:427[B]:GLU:HG3	10:B:878:HOH:O	2.17	0.44
4:F:1001[A]:DT:H2''	4:F:1002[A]:DG:C8	2.52	0.44
5:G:2013[B]:DC:C6	5:G:2013[B]:DC:C5'	3.00	0.44
1:D:476[A]:ASN:CB	1:D:479[A]:ARG:HH21	2.29	0.44
2:C:234:TYR:O	2:C:347:ASN:HB2	2.18	0.44
2:C:54:ASN:HA	2:C:128:MET:CE	2.48	0.44
1:D:493:PHE:CE1	1:D:530:PRO:HB2	2.53	0.43
2:A:52:GLY:O	2:A:56[B]:GLN:HG3	2.18	0.43
2:C:109:ASN:HB3	2:C:119:ALA:HB2	2.00	0.43
1:D:443[A]:THR:HG21	1:D:454:ILE:HD12	1.97	0.43
1:D:458[B]:ARG:HD3	3:E:10[B]:DT:H4'	1.99	0.43
2:A:462:GLU:HG2	10:A:694:HOH:O	2.17	0.43
3:E:6[A]:DT:H2''	3:E:7[A]:DA:H5''	2.01	0.43
2:A:310:LYS:O	2:A:311:ASP:HB2	2.18	0.43
5:G:2010[B]:DT:C7	5:G:2010[B]:DT:OP2	2.66	0.43
2:A:215:GLY:HA2	2:A:234:TYR:OH	2.18	0.43
1:B:435[A]:GLU:C	1:B:457[A]:LEU:O	2.50	0.43
1:B:506:MET:HG2	1:B:583[A]:LEU:HD11	2.01	0.43
1:D:502:LYS:HG2	1:D:538:TYR:CE1	2.53	0.43
2:A:377:ARG:HG3	2:A:448:LEU:HD11	2.00	0.42
1:D:508[B]:ASP:CG	1:D:581[B]:LYS:O	2.54	0.42
2:A:232[B]:ARG:HD2	10:A:620:HOH:O	2.18	0.42
2:A:320:ASN:HB3	2:A:324:GLN:HE21	1.85	0.42
2:A:66[A]:LYS:HE3	10:A:605:HOH:O	2.20	0.42
2:A:82:GLY:HA2	2:C:122[B]:ARG:HD2	2.01	0.42
3:E:9[A]:DG:H8	3:E:9[A]:DG:H5''	1.83	0.42
1:D:639:TYR:CG	2:C:342[B]:ARG:HG2	2.54	0.42
3:E:10[A]:DT:C2	9:E:101[A]:6EJ:C8	3.03	0.42
2:C:92:ARG:NH2	4:F:1006[A]:DG:OP2	2.46	0.42
2:C:272[A]:ARG:CZ	4:F:1003[A]:DT:H5''	2.49	0.42
2:C:364:ARG:HB2	2:C:465:LEU:HD11	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:385:ARG:NH1	10:A:609:HOH:O	2.52	0.42
2:C:52:GLY:O	2:C:56[B]:GLN:HG3	2.19	0.41
2:C:66[A]:LYS:H	2:C:66[A]:LYS:HE2	1.80	0.41
10:A:613:HOH:O	4:F:1008[B]:DT:C7	2.68	0.41
5:G:2019[B]:DC:C6	5:G:2020[B]:DT:H72	2.55	0.41
2:A:234:TYR:O	2:A:347:ASN:HB2	2.19	0.41
2:C:214[A]:GLU:HG2	2:C:488:ILE:CD1	2.42	0.41
2:C:66[A]:LYS:HE2	2:C:66[A]:LYS:HB2	1.76	0.41
1:B:512:ASP:HB3	4:F:1008[B]:DT:H4'	2.03	0.41
2:A:439:ASP:HB2	10:A:616:HOH:O	2.20	0.41
1:D:476[A]:ASN:CA	1:D:479[A]:ARG:HH21	2.33	0.41
1:D:476[A]:ASN:HA	1:D:479[A]:ARG:HH21	1.85	0.41
2:A:403:THR:HG22	2:C:436:LEU:HD22	2.01	0.41
2:A:75:MET:CE	2:C:122[B]:ARG:HB3	2.50	0.41
2:C:122[A]:ARG:NH2	3:E:9[A]:DG:H5'	2.36	0.41
1:D:434[B]:VAL:HG11	1:D:443[B]:THR:HG21	2.02	0.41
2:C:272[A]:ARG:NH2	4:F:1003[A]:DT:OP1	2.54	0.41
2:C:58[B]:MET:SD	2:C:65[B]:LYS:HD2	2.61	0.41
1:B:434[B]:VAL:O	1:B:436[B]:GLY:N	2.54	0.41
1:B:581[B]:LYS:C	1:B:582[B]:GLY:O	2.58	0.41
10:E:233:HOH:O	4:F:1005[B]:DC:H5	2.04	0.41
1:D:460:LYS:HG3	4:F:1007[A]:DG:H21	1.86	0.41
2:A:131:ILE:HG12	2:A:164:PHE:CE1	2.56	0.40
1:B:637:ALA:HB1	2:A:27[B]:MET:SD	2.61	0.40
1:B:444[A]:LYS:O	1:B:447:ARG:HG2	2.21	0.40
2:C:192:ILE:HG21	2:C:477:ARG:HB2	2.03	0.40
1:D:508[A]:ASP:OD1	1:D:583[A]:LEU:HG	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	217/202 (107%)	200 (92%)	13 (6%)	4 (2%)	11	3
1	D	210/202 (104%)	202 (96%)	8 (4%)	0	100	100
2	A	504/490 (103%)	493 (98%)	11 (2%)	0	100	100
2	C	509/490 (104%)	500 (98%)	8 (2%)	1 (0%)	52	47
All	All	1440/1384 (104%)	1395 (97%)	40 (3%)	5 (0%)	52	39

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	435[A]	GLU
1	B	435[B]	GLU
1	B	582[A]	GLY
1	B	582[B]	GLY
2	C	33	ARG

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	B	180/168 (107%)	178 (99%)	2 (1%)	80	82
1	D	175/168 (104%)	171 (98%)	4 (2%)	58	57
2	A	437/423 (103%)	433 (99%)	4 (1%)	84	86
2	C	446/423 (105%)	445 (100%)	1 (0%)	95	96
All	All	1238/1182 (105%)	1227 (99%)	11 (1%)	88	86

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	480	GLN
1	B	597	ASN
2	A	66[A]	LYS
2	A	66[B]	LYS
2	A	75	MET
2	A	299	ARG

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Mol	Chain	Res	Type
1	D	476[A]	ASN
1	D	476[B]	ASN
1	D	585[A]	GLU
1	D	585[B]	GLU
2	C	300	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	480	GLN
1	B	501	HIS
1	B	597	ASN
2	A	324	GLN
2	A	368	GLN
2	A	390	HIS
2	C	334	ASN
2	C	368	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](#)

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 6 are monoatomic - leaving 13 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	$\# Z > 2$
7	GOL	A	501	-	5,5,5	0.29	0	5,5,5	0.66	0
7	GOL	A	502	-	5,5,5	0.25	0	5,5,5	0.59	0
7	GOL	A	503	-	5,5,5	0.16	0	5,5,5	0.32	0
7	GOL	A	504	-	5,5,5	0.28	0	5,5,5	0.26	0
7	GOL	A	505	-	5,5,5	0.30	0	5,5,5	0.38	0
7	GOL	A	506	-	5,5,5	0.27	0	5,5,5	0.38	0
7	GOL	C	502	-	5,5,5	0.29	0	5,5,5	0.28	0
7	GOL	C	503[A]	-	5,5,5	0.22	0	5,5,5	0.29	0
7	GOL	C	503[B]	-	5,5,5	0.20	0	5,5,5	0.24	0
7	GOL	C	504	-	5,5,5	0.39	0	5,5,5	0.33	0
7	GOL	C	505	-	5,5,5	0.28	0	5,5,5	0.79	0
9	6EJ	E	101[A]	-	31,38,38	0.85	1 (3%)	33,55,55	1.19	5 (15%)
9	6EJ	E	101[B]	-	31,38,38	0.86	1 (3%)	33,55,55	1.32	5 (15%)

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
7	GOL	A	501	-	-	0/4/4/4	0/0/0/0
7	GOL	A	502	-	-	0/4/4/4	0/0/0/0
7	GOL	A	503	-	-	0/4/4/4	0/0/0/0
7	GOL	A	504	-	-	0/4/4/4	0/0/0/0
7	GOL	A	505	-	-	0/4/4/4	0/0/0/0
7	GOL	A	506	-	-	0/4/4/4	0/0/0/0
7	GOL	C	502	-	-	0/4/4/4	0/0/0/0
7	GOL	C	503[A]	-	-	0/4/4/4	0/0/0/0
7	GOL	C	503[B]	-	-	0/4/4/4	0/0/0/0
7	GOL	C	504	-	-	0/4/4/4	0/0/0/0
7	GOL	C	505	-	-	0/4/4/4	0/0/0/0
9	6EJ	E	101[A]	-	-	0/9/34/34	0/5/6/6
9	6EJ	E	101[B]	-	-	0/9/34/34	0/5/6/6

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	E	101[B]	6EJ	C5-C34	-2.26	1.37	1.42
9	E	101[A]	6EJ	C30-N31	2.23	1.34	1.32

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	E	101[B]	6EJ	C3-C2-C33	-2.58	121.92	124.16
9	E	101[A]	6EJ	C3-C2-C33	-2.26	122.20	124.16
9	E	101[B]	6EJ	O26-C25-C30	2.11	123.51	121.90
9	E	101[A]	6EJ	O26-C25-C24	2.31	120.05	116.69
9	E	101[A]	6EJ	C5-C34-N10	2.41	124.26	122.39
9	E	101[A]	6EJ	C6-C7-C8	2.47	123.99	120.00
9	E	101[A]	6EJ	C12-C11-N10	2.50	107.49	104.04
9	E	101[B]	6EJ	C6-C7-C8	2.64	124.26	120.00
9	E	101[B]	6EJ	C5-C34-N10	2.69	124.48	122.39
9	E	101[B]	6EJ	C12-C11-N10	2.99	108.17	104.04

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	C	503[A]	GOL	1	0
9	E	101[A]	6EJ	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	B	192/202 (95%)	0.24	12 (6%) 23 27	25, 38, 59, 96	0
1	D	189/202 (93%)	0.45	13 (6%) 20 23	28, 43, 66, 82	0
2	A	483/490 (98%)	-0.16	9 (1%) 70 73	22, 32, 50, 78	0
2	C	481/490 (98%)	-0.23	4 (0%) 87 89	22, 31, 46, 71	0
3	E	20/20 (100%)	-0.34	0 100 100	22, 29, 47, 48	1 (5%)
4	F	8/8 (100%)	-0.36	0 100 100	25, 30, 42, 45	0
5	G	12/12 (100%)	-0.39	0 100 100	23, 34, 40, 45	1 (8%)
All	All	1385/1424 (97%)	-0.05	38 (2%) 58 61	22, 34, 55, 96	2 (0%)

All (38) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	640	ALA	10.0
1	D	581[A]	LYS	6.5
1	B	416	GLY	5.6
1	B	639[A]	TYR	5.0
1	D	638	VAL	5.0
1	B	415	PRO	4.9
1	D	491	GLY	4.8
1	D	544	THR	4.7
2	C	490	LEU	3.9
1	B	638[A]	VAL	3.8
1	B	544	THR	3.8
1	D	424	LYS	3.7
1	B	491	GLY	3.6
1	B	612	ILE	3.6
1	D	612	ILE	3.6
2	A	9	ILE	3.5
1	B	545	GLY	3.1

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Mol	Chain	Res	Type	RSRZ
1	D	469	LEU	3.1
1	D	470[A]	ASP	3.1
2	C	436	LEU	2.9
1	D	468[A]	ARG	2.8
1	B	427[A]	GLU	2.8
2	A	436	LEU	2.6
1	D	427[A]	GLU	2.5
2	A	402[A]	ASP	2.5
2	C	284	LYS	2.4
2	A	490	LEU	2.4
1	D	600	HIS	2.4
2	C	10	ASN	2.3
1	B	600	HIS	2.3
1	D	639	TYR	2.2
2	A	439	ASP	2.2
1	B	599[A]	GLU	2.1
1	D	621	LEU	2.1
2	A	195	VAL	2.1
2	A	300	THR	2.1
2	A	284	LYS	2.0
2	A	306	ILE	2.0

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 ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
7	GOL	C	504	6/6	0.83	0.22	6.14	46,56,58,65	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
7	GOL	A	503	6/6	0.91	0.13	5.62	53,59,59,62	0
7	GOL	A	504	6/6	0.92	0.15	2.15	48,51,52,54	0
7	GOL	C	503[B]	6/6	0.93	0.14	2.12	40,41,42,43	6
7	GOL	C	505	6/6	0.87	0.11	2.04	40,53,57,59	0
7	GOL	C	503[A]	6/6	0.93	0.14	2.04	40,44,47,49	6
7	GOL	A	501	6/6	0.90	0.12	1.98	51,54,58,59	0
9	6EJ	E	101[A]	33/33	0.96	0.14	1.40	32,35,45,45	33
7	GOL	A	502	6/6	0.94	0.12	1.35	30,44,45,47	0
9	6EJ	E	101[B]	33/33	0.96	0.14	1.02	29,31,34,35	33
7	GOL	A	506	6/6	0.91	0.13	0.84	46,62,67,70	0
8	CL	A	507	1/1	0.99	0.12	0.30	39,39,39,39	0
7	GOL	C	502	6/6	0.95	0.10	0.27	27,42,48,48	0
6	MN	C	501	1/1	0.98	0.14	0.14	75,75,75,75	0
6	MN	D	1001[B]	1/1	0.98	0.08	-0.70	26,26,26,26	1
6	MN	D	1001[A]	1/1	0.98	0.08	-0.77	32,32,32,32	1
6	MN	B	701[B]	1/1	0.99	0.06	-1.19	33,33,33,33	1
6	MN	B	701[A]	1/1	0.99	0.06	-1.21	24,24,24,24	1
7	GOL	A	505	6/6	0.85	0.35	-	61,67,74,74	0

6.5 Other polymers [i](#)

There are no such residues in this entry.