



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 02:15 PM UTC

PDB ID : 6R2D / pdb_00006r2d
Title : Crystal structure of the SucA domain of Mycobacterium smegmatis KGD after soaking with succinylphosphonate phosphonoethyl ester, followed by temperature increase
Authors : Wagner, T.; Alzari, P.M.; Bellinzoni, M.
Deposited on : 2019-03-15
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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

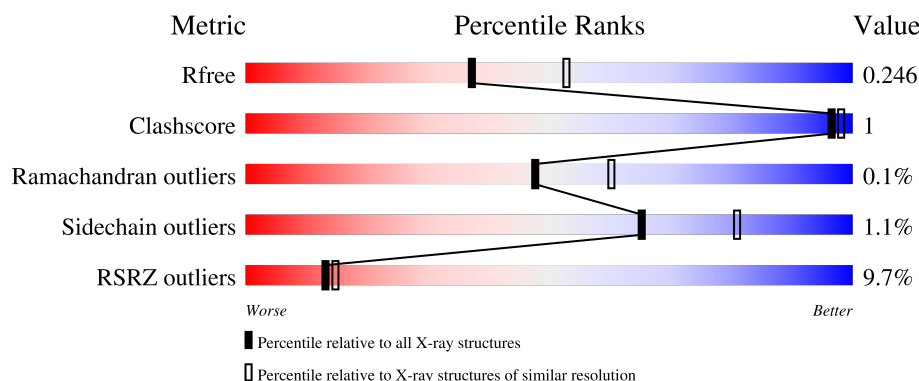
1 Overall quality at a glance

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}	180053	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (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	868	8% 90% • 6%
1	B	868	8% 90% • 6%
1	C	868	11% 88% • 7%
1	D	868	9% 88% 5% 7%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 26221 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.

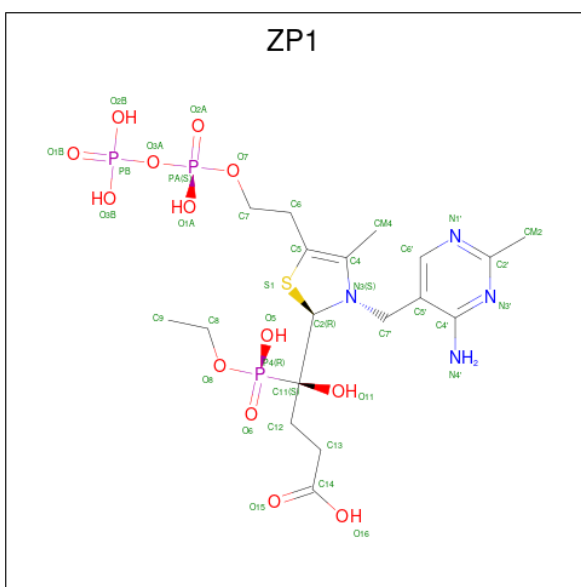
- Molecule 1 is a protein called Multifunctional 2-oxoglutarate metabolism enzyme.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	814	Total	C	N	O	S	0	1	0
			6306	3974	1111	1197	24			
1	B	812	Total	C	N	O	S	0	1	0
			6243	3938	1108	1172	25			
1	C	808	Total	C	N	O	S	0	0	0
			6271	3949	1109	1191	22			
1	D	811	Total	C	N	O	S	0	1	0
			6240	3934	1096	1186	24			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	360	GLY	-	expression tag	UNP A0R2B1
B	360	GLY	-	expression tag	UNP A0R2B1
C	360	GLY	-	expression tag	UNP A0R2B1
D	360	GLY	-	expression tag	UNP A0R2B1

- Molecule 2 is (4 {S})-4-[(2 {R})-3-[(4-azanyl-2-methyl-pyrimidin-5-yl)methyl]-4-methyl-5-[2-[oxidanyl(phosphonooxy)phosphoryl]oxyethyl]-2 {H})-1,3-thiazol-2-yl]-4-[ethoxy(oxidanyl)phosphoryl]-4-oxidanyl-butanoic acid (CCD ID: ZP1) (formula: C₁₈H₃₁N₄O₁₃P₃S).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total 39	C 18	N 4	O 13	P 3	S 1	0	0
2	B	1	Total 39	C 18	N 4	O 13	P 3	S 1	0	0
2	C	1	Total 39	C 18	N 4	O 13	P 3	S 1	0	0
2	D	1	Total 39	C 18	N 4	O 13	P 3	S 1	0	0

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Mg	0	0
			1	1		
3	B	1	Total	Mg	0	0
			1	1		
3	C	1	Total	Mg	0	0
			1	1		
3	D	1	Total	Mg	0	0
			1	1		

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Ca	0	0
			1	1		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	1	Total 1	Ca 1	0	0
4	C	1	Total 1	Ca 1	0	0
4	D	1	Total 1	Ca 1	0	0

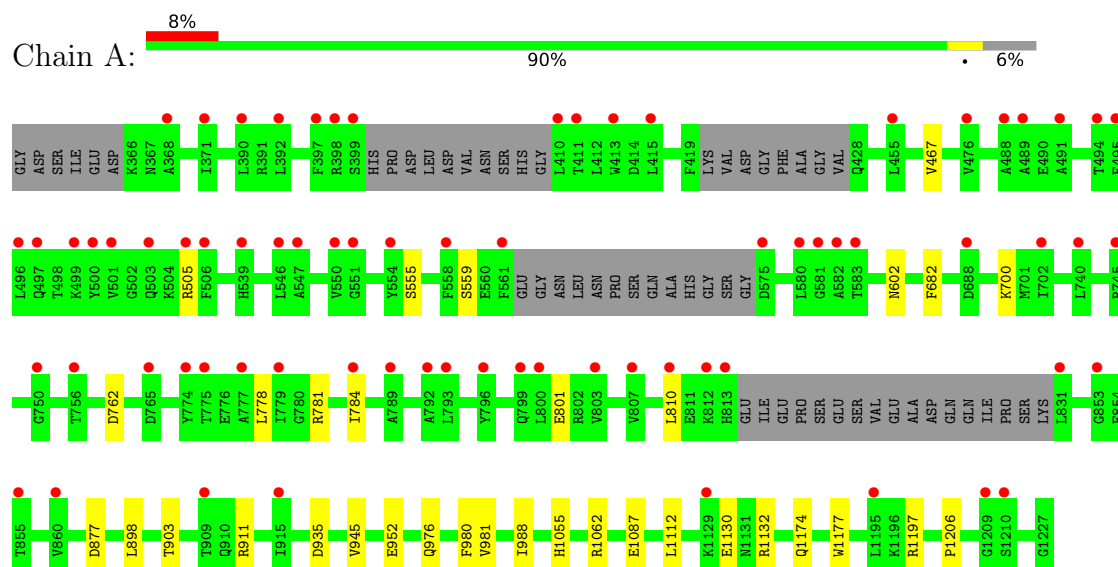
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	256	Total 256	O 256	0	0
5	B	260	Total 260	O 260	0	0
5	C	251	Total 251	O 251	0	0
5	D	230	Total 230	O 230	0	0

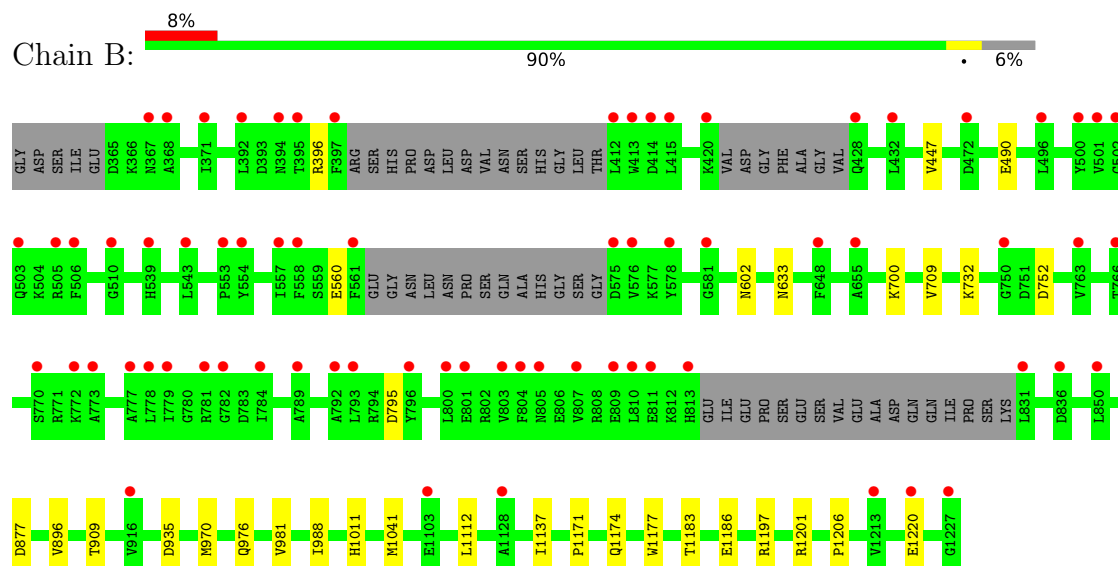
3 Residue-property plots [i](#)

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.

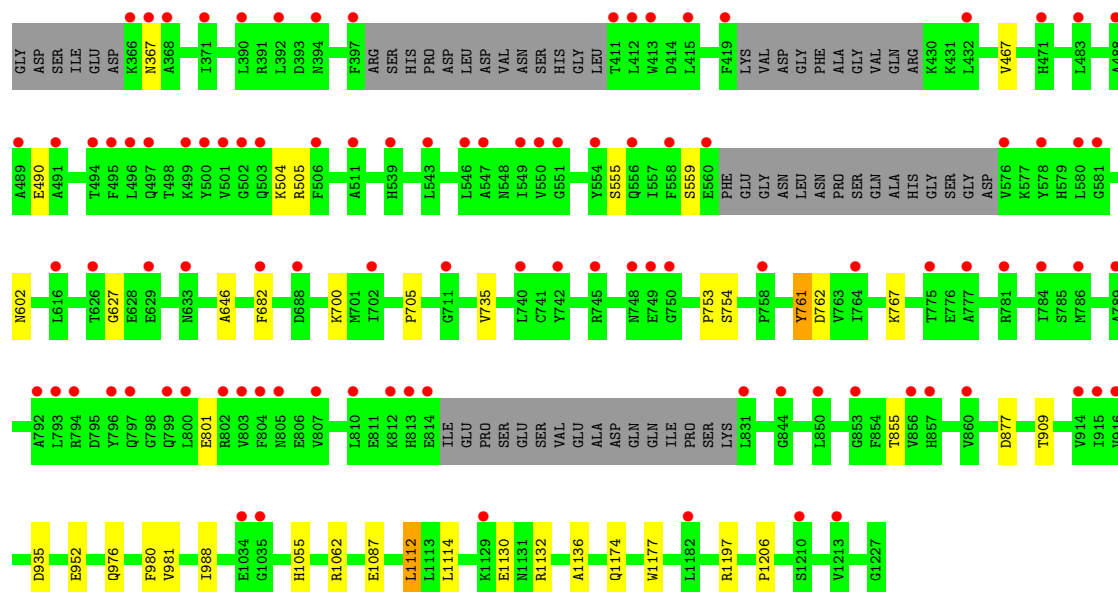
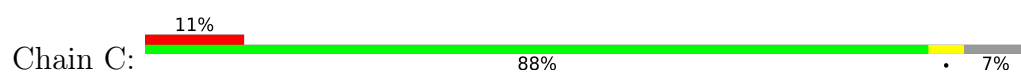
- Molecule 1: Multifunctional 2-oxoglutarate metabolism enzyme



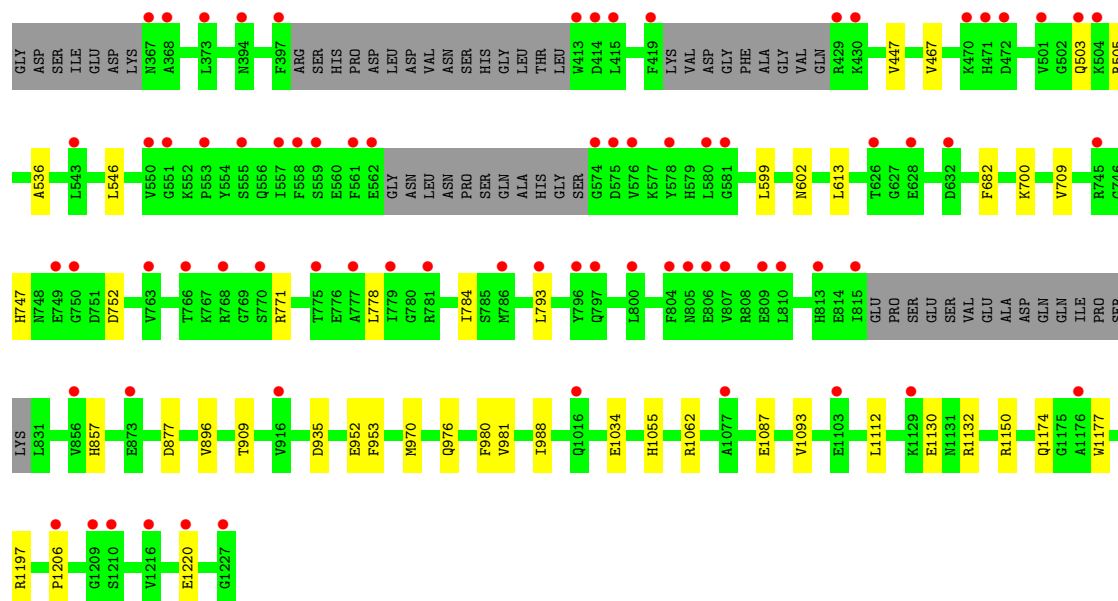
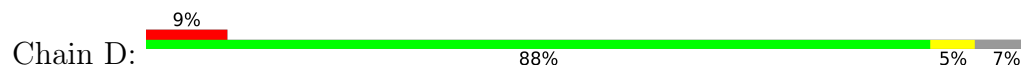
- Molecule 1: Multifunctional 2-oxoglutarate metabolism enzyme



- Molecule 1: Multifunctional 2-oxoglutarate metabolism enzyme



- Molecule 1: Multifunctional 2-oxoglutarate metabolism enzyme



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	80.84Å 83.73Å 160.57Å 99.52° 98.94° 100.81°	Depositor
Resolution (Å)	33.44 – 2.30 33.44 – 2.30	Depositor EDS
% Data completeness (in resolution range)	97.2 (33.44-2.30) 97.2 (33.44-2.30)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.39 (at 2.29Å)	Xtriage
Refinement program	BUSTER 2.10.3	Depositor
R, R_{free}	0.217 , 0.242 0.220 , 0.246	Depositor DCC
R_{free} test set	8614 reflections (4.82%)	wwPDB-VP
Wilson B-factor (Å ²)	47.0	Xtriage
Anisotropy	0.308	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 64.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.000 for -k,-h,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	26221	wwPDB-VP
Average B, all atoms (Å ²)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 22.73 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.3690e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: ZP1, MG, CA

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	0.89	0/6436	1.25	8/8727 (0.1%)
1	B	0.86	0/6373	1.25	7/8649 (0.1%)
1	C	0.87	0/6397	1.26	16/8673 (0.2%)
1	D	0.85	0/6369	1.26	10/8643 (0.1%)
All	All	0.87	0/25575	1.26	41/34692 (0.1%)

There are no bond length outliers.

All (41) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	602	ASN	N-CA-C	6.21	113.81	108.22
1	C	762	ASP	CA-CB-CG	6.12	118.72	112.60
1	D	700	LYS	CA-C-N	6.08	128.71	120.38
1	D	700	LYS	C-N-CA	6.08	128.71	120.38
1	A	700	LYS	CA-C-N	5.98	128.57	120.38
1	A	700	LYS	C-N-CA	5.98	128.57	120.38
1	C	700	LYS	CA-C-N	5.93	128.51	120.38
1	C	700	LYS	C-N-CA	5.93	128.51	120.38
1	B	602	ASN	N-CA-C	5.86	113.49	108.22
1	D	602	ASN	N-CA-C	5.81	113.45	108.22
1	A	602	ASN	N-CA-C	5.76	113.41	108.22
1	C	504	LYS	CA-C-N	5.73	128.54	120.28
1	C	504	LYS	C-N-CA	5.73	128.54	120.28
1	C	367	ASN	CA-C-N	5.71	130.25	120.72
1	C	367	ASN	C-N-CA	5.71	130.25	120.72
1	B	700	LYS	CA-C-N	5.70	128.19	120.38
1	B	700	LYS	C-N-CA	5.70	128.19	120.38
1	D	682	PHE	CA-CB-CG	5.69	119.49	113.80
1	C	627	GLY	CA-C-N	5.66	127.87	120.28
1	C	627	GLY	C-N-CA	5.66	127.87	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	752	ASP	CB-CA-C	5.59	115.47	110.44
1	D	752	ASP	CB-CA-C	5.42	115.32	110.44
1	A	762	ASP	CA-C-N	5.37	128.05	120.42
1	A	762	ASP	C-N-CA	5.37	128.05	120.42
1	A	935	ASP	CA-CB-CG	5.37	117.97	112.60
1	D	877	ASP	CA-CB-CG	5.35	117.95	112.60
1	A	1087	GLU	CB-CG-CD	5.29	121.59	112.60
1	D	935	ASP	CA-CB-CG	5.28	117.88	112.60
1	C	877	ASP	CA-CB-CG	5.25	117.85	112.60
1	D	503	GLN	CA-C-N	5.23	127.55	120.38
1	D	503	GLN	C-N-CA	5.23	127.55	120.38
1	B	795	ASP	N-CA-C	-5.21	105.28	111.69
1	D	953	PHE	CA-CB-CG	5.19	118.99	113.80
1	A	877	ASP	CA-CB-CG	5.18	117.78	112.60
1	C	935	ASP	CA-CB-CG	5.15	117.75	112.60
1	B	935	ASP	CA-CB-CG	5.14	117.74	112.60
1	B	877	ASP	CA-CB-CG	5.14	117.74	112.60
1	C	1087	GLU	CB-CG-CD	5.03	121.15	112.60
1	C	646	ALA	CA-C-N	5.01	127.41	120.29
1	C	646	ALA	C-N-CA	5.01	127.41	120.29
1	C	761	TYR	CA-CB-CG	-5.01	104.88	113.90

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	6306	0	6095	10	0
1	B	6243	0	6013	11	0
1	C	6271	0	6076	14	0
1	D	6240	0	6002	15	0
2	A	39	0	0	0	0
2	B	39	0	0	0	0
2	C	39	0	0	0	0
2	D	39	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
5	A	256	0	0	0	0
5	B	260	0	0	1	0
5	C	251	0	0	2	0
5	D	230	0	0	0	0
All	All	26221	0	24186	49	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 1.

All (49) 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:1011:HIS:CD2	1:B:1041[B]:MET:HE1	2.36	0.61
1:A:778:LEU:HB3	1:A:784:ILE:HG12	1.85	0.59
1:C:705:PRO:HG2	1:C:735:VAL:HG13	1.88	0.56
1:D:1093:VAL:HB	1:D:1150:ARG:HG2	1.89	0.55
1:B:1183:THR:O	1:B:1186:GLU:HG2	2.06	0.55
1:B:1011:HIS:HD2	1:B:1041[B]:MET:HE1	1.70	0.54
1:C:981:VAL:HG22	1:C:988:ILE:HD11	1.93	0.51
1:C:754:SER:HB2	1:D:857:HIS:HE2	1.75	0.51
1:D:778:LEU:HB3	1:D:784:ILE:HG12	1.94	0.49
1:C:505:ARG:HB2	5:C:2156:HOH:O	2.14	0.48
1:C:505:ARG:HG2	5:C:2168:HOH:O	2.13	0.48
1:D:771:ARG:HH12	1:D:793:LEU:HD23	1.80	0.47
1:D:981:VAL:HG22	1:D:988:ILE:HD11	1.96	0.47
1:B:981:VAL:HG22	1:B:988:ILE:HD11	1.95	0.46
1:C:1174:GLN:OE1	1:C:1206:PRO:HA	2.16	0.46
1:B:1174:GLN:OE1	1:B:1206:PRO:HA	2.16	0.46
1:C:753:PRO:HB2	1:C:761:TYR:CD2	2.51	0.46
1:A:1174:GLN:OE1	1:A:1206:PRO:HA	2.16	0.46
1:B:396:ARG:HD3	5:B:2356:HOH:O	2.15	0.46
1:B:896:VAL:HG22	1:B:970:MET:HB3	1.98	0.45
1:A:1177:TRP:CD1	1:A:1197:ARG:HD3	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1177:TRP:CD1	1:B:1197:ARG:HD3	2.52	0.45
1:D:546:LEU:HD21	1:D:599:LEU:HD23	1.97	0.45
1:D:1177:TRP:CD1	1:D:1197:ARG:HD3	2.52	0.45
1:C:1177:TRP:CD1	1:C:1197:ARG:HD3	2.52	0.45
1:D:1130:GLU:HB2	1:D:1132:ARG:HG2	1.98	0.45
1:C:1055:HIS:HE1	1:C:1062:ARG:O	1.98	0.45
1:C:1112:LEU:HD22	1:C:1136:ALA:HB3	1.99	0.44
1:A:1130:GLU:HB2	1:A:1132:ARG:HG2	2.01	0.43
1:A:903:THR:O	1:A:911:ARG:HD2	2.19	0.43
1:D:505:ARG:HA	1:D:747:HIS:O	2.18	0.43
1:A:981:VAL:HG22	1:A:988:ILE:HD11	2.00	0.43
1:D:1055:HIS:HE1	1:D:1062:ARG:O	2.03	0.42
1:C:555:SER:O	1:C:559:SER:HB2	2.20	0.42
1:B:447:VAL:HG22	1:B:709:VAL:HG12	2.01	0.42
1:B:633:ASN:O	1:B:732:LYS:HE2	2.20	0.42
1:A:1055:HIS:HE1	1:A:1062:ARG:O	2.03	0.41
1:D:896:VAL:HG22	1:D:970:MET:HB3	2.02	0.41
1:A:898:LEU:O	1:A:945:VAL:HA	2.21	0.41
1:D:952:GLU:HG2	1:D:980:PHE:O	2.20	0.41
1:C:753:PRO:HB2	1:C:761:TYR:CE2	2.56	0.41
1:C:952:GLU:HG2	1:C:980:PHE:O	2.20	0.41
1:C:1130:GLU:HB2	1:C:1132:ARG:HG2	2.02	0.41
1:D:536:ALA:HB3	1:D:613:LEU:HD22	2.03	0.41
1:D:1174:GLN:OE1	1:D:1206:PRO:HA	2.20	0.41
1:A:952:GLU:HG2	1:A:980:PHE:O	2.21	0.41
1:B:1171:PRO:HB3	1:B:1201:ARG:O	2.20	0.41
1:A:555:SER:O	1:A:559:SER:HB2	2.22	0.40
1:D:447:VAL:HG22	1:D:709:VAL:HG23	2.02	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	805/868 (93%)	782 (97%)	22 (3%)	1 (0%)	48	60
1	B	803/868 (92%)	784 (98%)	19 (2%)	0	100	100
1	C	798/868 (92%)	777 (97%)	20 (2%)	1 (0%)	48	60
1	D	802/868 (92%)	783 (98%)	18 (2%)	1 (0%)	48	60
All	All	3208/3472 (92%)	3126 (97%)	79 (2%)	3 (0%)	48	60

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	1034	GLU
1	C	682	PHE
1	A	682	PHE

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	650/726 (90%)	643 (99%)	7 (1%)	65	81
1	B	635/726 (88%)	628 (99%)	7 (1%)	65	81
1	C	648/726 (89%)	639 (99%)	9 (1%)	59	76
1	D	638/726 (88%)	632 (99%)	6 (1%)	70	84
All	All	2571/2904 (88%)	2542 (99%)	29 (1%)	65	81

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	467	VAL
1	A	505	ARG
1	A	781	ARG
1	A	801	GLU
1	A	810	LEU
1	A	976	GLN
1	A	1112	LEU
1	B	490	GLU

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Mol	Chain	Res	Type
1	B	560	GLU
1	B	909	THR
1	B	976	GLN
1	B	1112	LEU
1	B	1137	ILE
1	B	1220	GLU
1	C	467	VAL
1	C	490	GLU
1	C	767	LYS
1	C	801	GLU
1	C	855	THR
1	C	909	THR
1	C	976	GLN
1	C	1112	LEU
1	C	1114	LEU
1	D	467	VAL
1	D	909	THR
1	D	976	GLN
1	D	1087	GLU
1	D	1112	LEU
1	D	1220	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	464	GLN
1	A	503	GLN
1	A	539	HIS
1	A	677	ASN
1	A	976	GLN
1	A	1001	GLN
1	A	1016	GLN
1	B	503	GLN
1	B	539	HIS
1	B	556	GLN
1	B	976	GLN
1	B	985	GLN
1	B	1016	GLN
1	B	1219	GLN
1	C	539	HIS
1	C	1001	GLN
1	C	1219	GLN

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Mol	Chain	Res	Type
1	D	503	GLN
1	D	548	ASN
1	D	556	GLN
1	D	679	GLN
1	D	748	ASN
1	D	976	GLN
1	D	1001	GLN
1	D	1016	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 8 are monoatomic - leaving 4 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	$\# Z > 2$
2	ZP1	D	2001	3	35,40,40	2.94	11 (31%)	48,61,61	1.79	11 (22%)
2	ZP1	A	2001	3	35,40,40	2.70	11 (31%)	48,61,61	1.83	12 (25%)
2	ZP1	C	2001	3	35,40,40	2.61	10 (28%)	48,61,61	1.86	12 (25%)
2	ZP1	B	2001	3	35,40,40	2.68	12 (34%)	48,61,61	1.75	13 (27%)

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	ZP1	D	2001	3	-	4/33/58/58	0/2/2/2
2	ZP1	A	2001	3	-	6/33/58/58	0/2/2/2
2	ZP1	C	2001	3	-	4/33/58/58	0/2/2/2
2	ZP1	B	2001	3	-	4/33/58/58	0/2/2/2

All (44) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2001	ZP1	P4-O8	9.54	1.72	1.57
2	D	2001	ZP1	P4-O8	9.54	1.72	1.57
2	D	2001	ZP1	PA-O3A	-9.53	1.49	1.59
2	B	2001	ZP1	P4-O8	8.87	1.71	1.57
2	C	2001	ZP1	P4-O8	8.82	1.71	1.57
2	C	2001	ZP1	PA-O3A	-7.29	1.51	1.59
2	A	2001	ZP1	PA-O3A	-7.22	1.51	1.59
2	B	2001	ZP1	PA-O3A	-5.86	1.53	1.59
2	B	2001	ZP1	P4-O5	-5.36	1.46	1.56
2	D	2001	ZP1	P4-O5	-4.85	1.47	1.56
2	A	2001	ZP1	C4-N3	4.44	1.48	1.36
2	B	2001	ZP1	C4-N3	4.27	1.47	1.36
2	D	2001	ZP1	C4-N3	4.20	1.47	1.36
2	D	2001	ZP1	PA-O7	4.19	1.75	1.59
2	C	2001	ZP1	PA-O7	4.16	1.75	1.59
2	B	2001	ZP1	PA-O7	3.96	1.74	1.59
2	A	2001	ZP1	PA-O7	3.86	1.74	1.59
2	C	2001	ZP1	C4-N3	3.72	1.46	1.36
2	C	2001	ZP1	P4-O5	-3.52	1.49	1.56
2	A	2001	ZP1	P4-O5	-3.35	1.50	1.56
2	A	2001	ZP1	C2-N3	3.25	1.50	1.46
2	C	2001	ZP1	C2-N3	3.10	1.49	1.46
2	B	2001	ZP1	C2-N3	2.94	1.49	1.46
2	C	2001	ZP1	C7'-N3	2.82	1.51	1.46
2	C	2001	ZP1	C4'-N3'	2.79	1.38	1.35
2	B	2001	ZP1	C6-C7	2.71	1.59	1.51
2	B	2001	ZP1	C7'-N3	2.58	1.50	1.46
2	A	2001	ZP1	C4'-N3'	2.57	1.38	1.35
2	D	2001	ZP1	C6-C7	2.54	1.58	1.51
2	A	2001	ZP1	C6-C7	2.53	1.58	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	2001	ZP1	C2-N3	2.45	1.49	1.46
2	B	2001	ZP1	O11-C11	-2.45	1.41	1.43
2	A	2001	ZP1	O11-C11	-2.41	1.41	1.43
2	D	2001	ZP1	C7'-N3	2.31	1.50	1.46
2	B	2001	ZP1	C4'-N3'	2.31	1.38	1.35
2	B	2001	ZP1	O16-C14	-2.30	1.23	1.30
2	A	2001	ZP1	CM4-C4	2.28	1.53	1.49
2	D	2001	ZP1	C4'-N3'	2.22	1.38	1.35
2	C	2001	ZP1	C6-C7	2.20	1.57	1.51
2	B	2001	ZP1	O7-C7	-2.16	1.36	1.44
2	A	2001	ZP1	C7'-N3	2.16	1.50	1.46
2	D	2001	ZP1	O7-C7	-2.01	1.36	1.44
2	D	2001	ZP1	PB-O3B	-2.00	1.47	1.54
2	C	2001	ZP1	O7-C7	-2.00	1.36	1.44

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	2001	ZP1	C5'-C7'-N3	5.46	121.35	113.14
2	A	2001	ZP1	C5'-C7'-N3	5.26	121.05	113.14
2	D	2001	ZP1	C5'-C7'-N3	5.05	120.73	113.14
2	D	2001	ZP1	O8-P4-O6	-4.67	106.89	115.44
2	B	2001	ZP1	C5'-C7'-N3	4.63	120.11	113.14
2	C	2001	ZP1	O8-P4-O6	-4.50	107.19	115.44
2	A	2001	ZP1	O8-P4-O6	-4.46	107.27	115.44
2	B	2001	ZP1	O8-P4-O6	-4.27	107.61	115.44
2	C	2001	ZP1	S1-C2-N3	-3.51	104.01	106.91
2	B	2001	ZP1	C13-C12-C11	3.42	122.19	114.43
2	D	2001	ZP1	C13-C12-C11	3.38	122.10	114.43
2	A	2001	ZP1	S1-C2-N3	-3.36	104.14	106.91
2	C	2001	ZP1	C13-C12-C11	3.31	121.95	114.43
2	C	2001	ZP1	CM4-C4-N3	3.26	122.92	119.89
2	A	2001	ZP1	C13-C12-C11	3.22	121.74	114.43
2	B	2001	ZP1	O3A-PA-O2A	3.02	119.79	110.70
2	B	2001	ZP1	CM4-C4-N3	2.99	122.67	119.89
2	A	2001	ZP1	CM4-C4-N3	2.94	122.63	119.89
2	A	2001	ZP1	P4-C11-O11	2.93	109.95	104.90
2	D	2001	ZP1	O3A-PA-O2A	2.89	119.39	110.70
2	C	2001	ZP1	O3A-PA-O2A	2.83	119.21	110.70
2	C	2001	ZP1	P4-C11-O11	2.75	109.64	104.90
2	A	2001	ZP1	O16-C14-C13	2.65	122.38	114.00
2	C	2001	ZP1	O16-C14-C13	2.65	122.37	114.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	2001	ZP1	O16-C14-C13	2.64	122.36	114.00
2	D	2001	ZP1	O1A-PA-O3A	2.64	114.41	107.27
2	D	2001	ZP1	CM4-C4-N3	2.61	122.32	119.89
2	D	2001	ZP1	S1-C2-N3	-2.58	104.78	106.91
2	B	2001	ZP1	S1-C2-N3	-2.57	104.79	106.91
2	D	2001	ZP1	O16-C14-C13	2.38	121.53	114.00
2	A	2001	ZP1	O5-P4-O6	2.37	117.12	111.17
2	D	2001	ZP1	P4-C11-O11	2.34	108.94	104.90
2	B	2001	ZP1	P4-C11-O11	2.33	108.92	104.90
2	B	2001	ZP1	O5-P4-O6	2.32	117.02	111.17
2	A	2001	ZP1	O1A-PA-O3A	2.30	113.49	107.27
2	A	2001	ZP1	O3A-PA-O2A	2.30	117.61	110.70
2	D	2001	ZP1	O5-P4-O6	2.28	116.91	111.17
2	A	2001	ZP1	N4'-C4'-N3'	-2.28	113.96	117.03
2	C	2001	ZP1	N4'-C4'-N3'	-2.24	114.01	117.03
2	A	2001	ZP1	O3B-PB-O2B	2.16	115.88	107.80
2	C	2001	ZP1	O1A-PA-O3A	2.15	113.10	107.27
2	D	2001	ZP1	C12-C11-C2	-2.15	104.64	109.67
2	B	2001	ZP1	C12-C11-C2	-2.15	104.65	109.67
2	B	2001	ZP1	N4'-C4'-N3'	-2.13	114.15	117.03
2	B	2001	ZP1	O1A-PA-O3A	2.13	113.03	107.27
2	C	2001	ZP1	O15-C14-C13	-2.11	116.40	123.09
2	B	2001	ZP1	O7-PA-O2A	-2.09	100.64	108.94
2	C	2001	ZP1	O5-P4-O6	2.07	116.38	111.17

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	2001	ZP1	C8-O8-P4-O5
2	B	2001	ZP1	C8-O8-P4-O5
2	C	2001	ZP1	C8-O8-P4-O5
2	D	2001	ZP1	C8-O8-P4-O5
2	A	2001	ZP1	P4-C11-C12-C13
2	B	2001	ZP1	P4-C11-C12-C13
2	C	2001	ZP1	P4-C11-C12-C13
2	D	2001	ZP1	P4-C11-C12-C13
2	A	2001	ZP1	C2-C11-C12-C13
2	B	2001	ZP1	C2-C11-C12-C13
2	C	2001	ZP1	C2-C11-C12-C13
2	D	2001	ZP1	C2-C11-C12-C13
2	A	2001	ZP1	O11-C11-C12-C13

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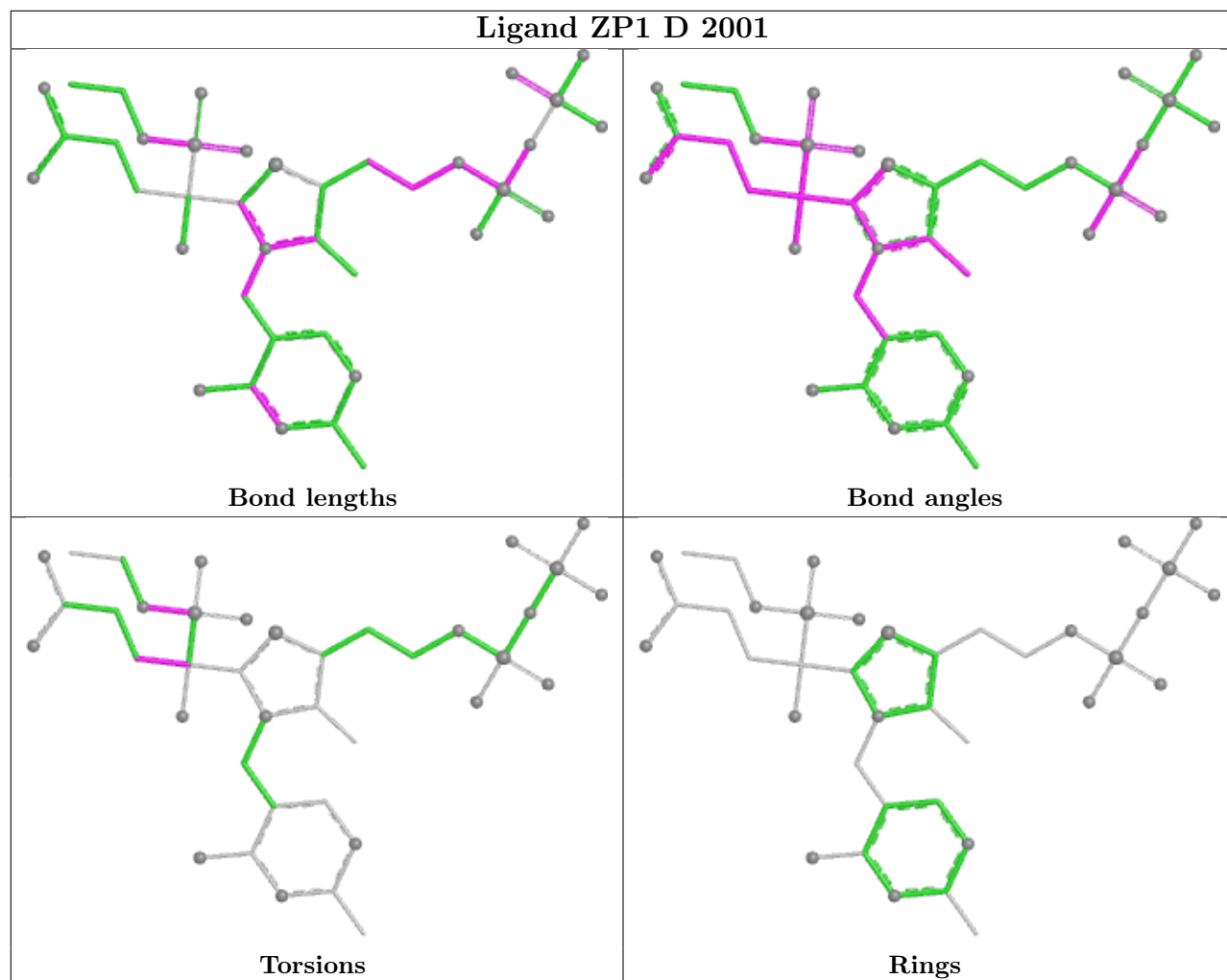
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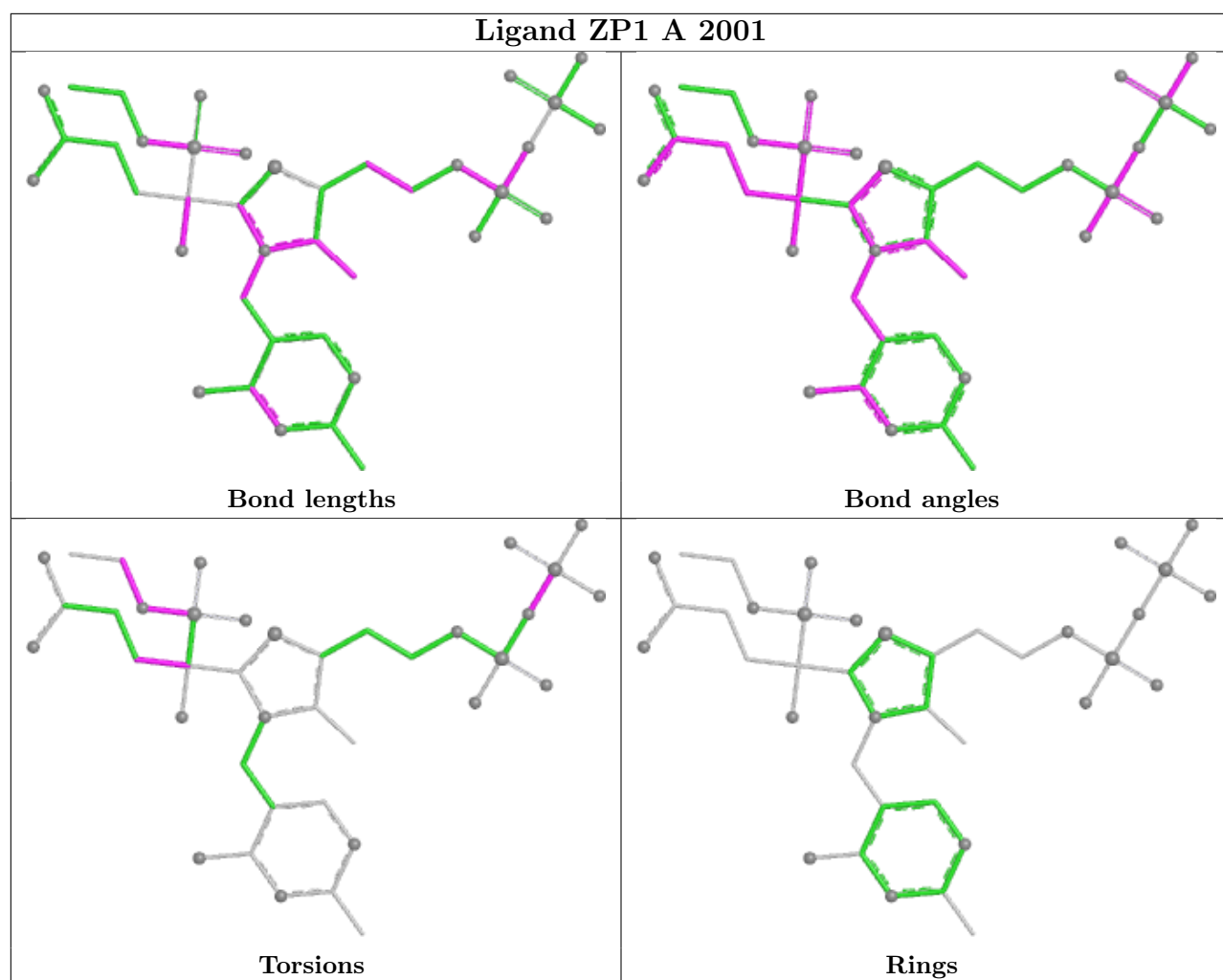
Mol	Chain	Res	Type	Atoms
2	B	2001	ZP1	O11-C11-C12-C13
2	C	2001	ZP1	O11-C11-C12-C13
2	D	2001	ZP1	O11-C11-C12-C13
2	A	2001	ZP1	PA-O3A-PB-O3B
2	A	2001	ZP1	C9-C8-O8-P4

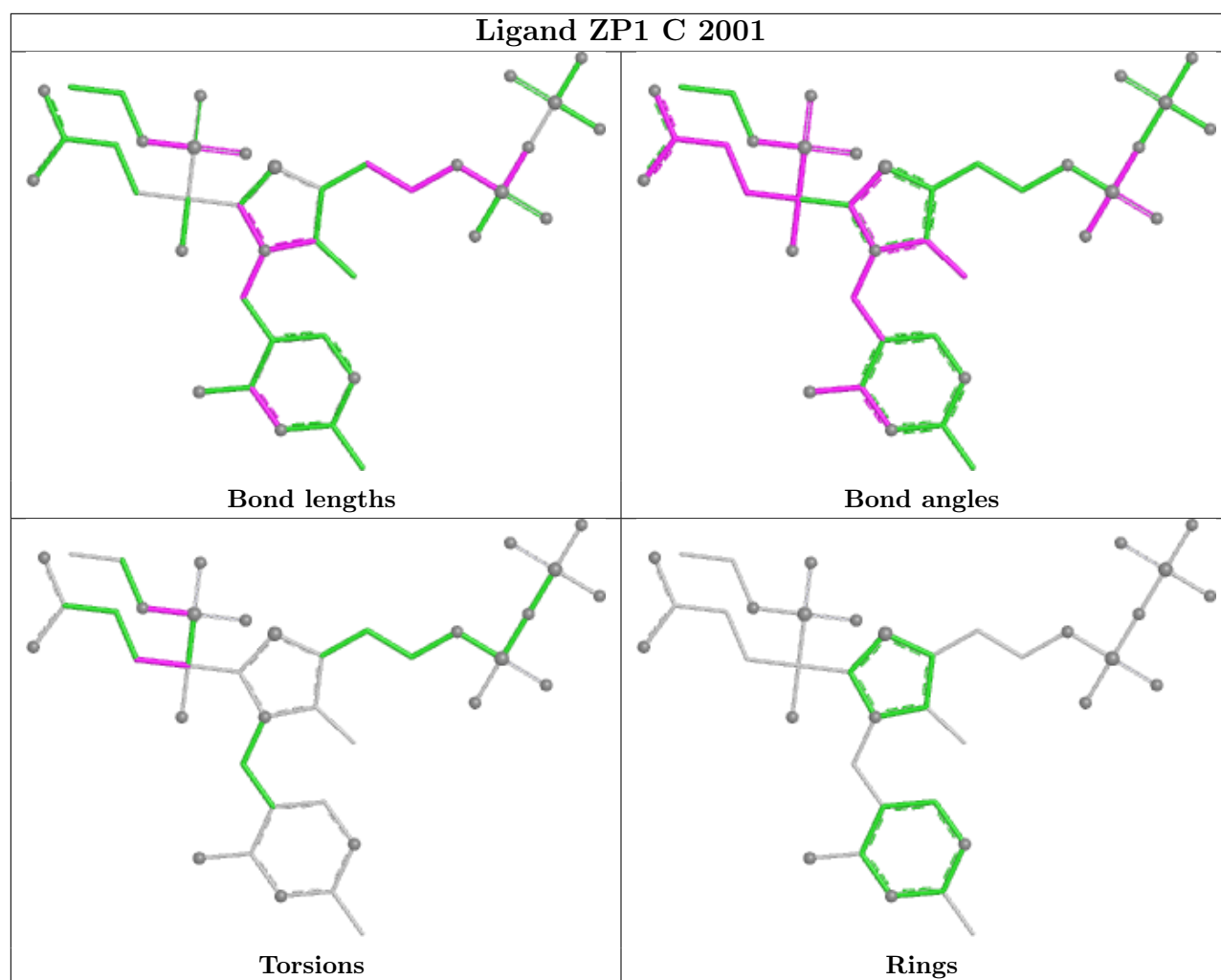
There are no ring outliers.

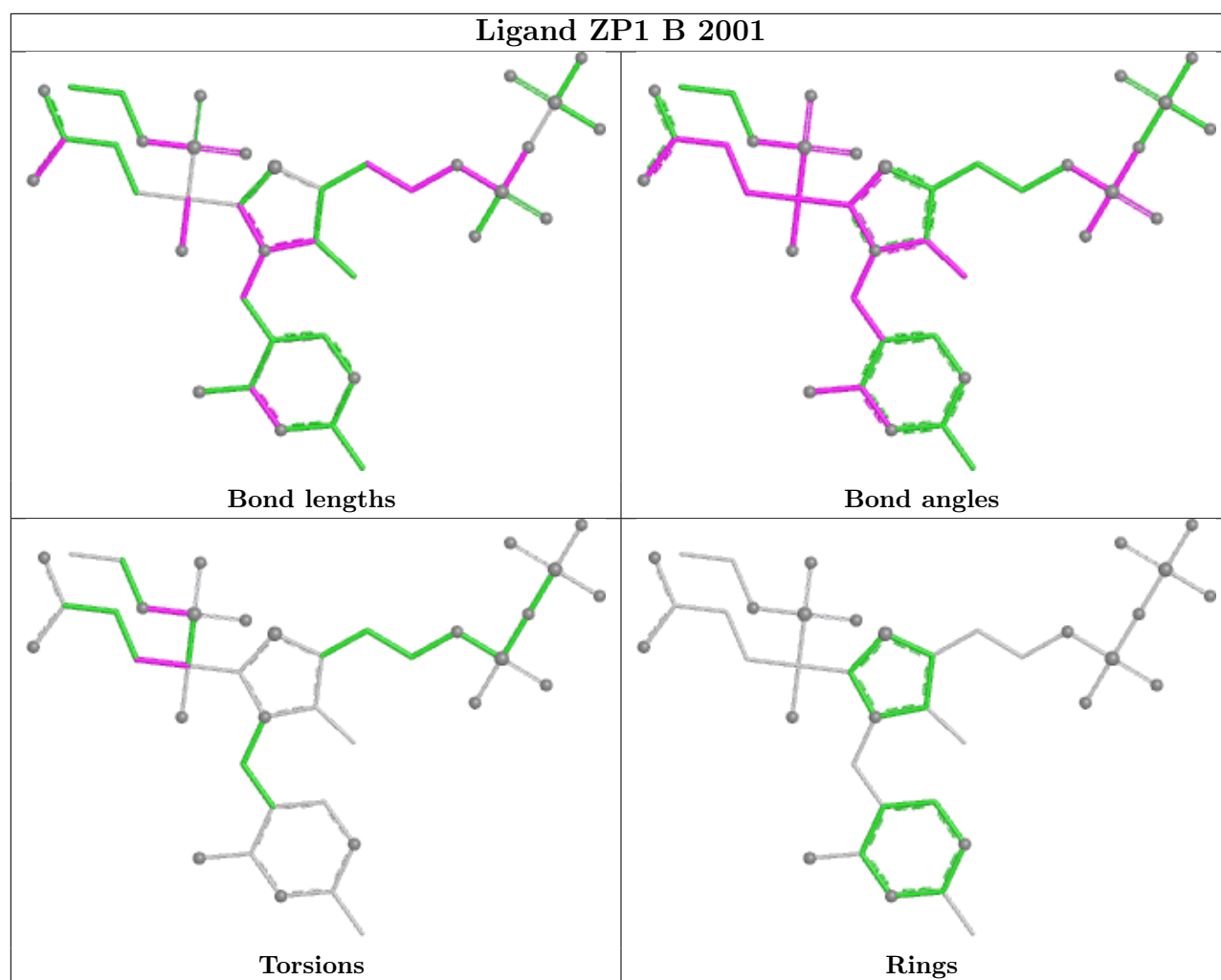
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









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	814/868 (93%)	0.70	72 (8%) 15 17	29, 54, 87, 121	1 (0%)
1	B	812/868 (93%)	0.67	71 (8%) 16 17	30, 55, 90, 123	1 (0%)
1	C	808/868 (93%)	0.79	99 (12%) 8 9	36, 56, 90, 121	0
1	D	811/868 (93%)	0.76	74 (9%) 15 16	31, 56, 88, 116	1 (0%)
All	All	3245/3472 (93%)	0.73	316 (9%) 13 15	29, 56, 89, 123	3 (0%)

All (316) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	581	GLY	5.9
1	D	574	GLY	5.6
1	C	506	PHE	5.3
1	B	810	LEU	5.1
1	D	807	VAL	5.1
1	C	810	LEU	5.0
1	D	810	LEU	5.0
1	D	501	VAL	4.9
1	C	560	GLU	4.8
1	C	500	TYR	4.8
1	B	561	PHE	4.6
1	A	506	PHE	4.6
1	A	750	GLY	4.6
1	C	413	TRP	4.5
1	D	413	TRP	4.4
1	D	561	PHE	4.4
1	B	368	ALA	4.3
1	A	561	PHE	4.3
1	A	399	SER	4.3
1	B	394	ASN	4.2
1	B	558	PHE	4.2

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Mol	Chain	Res	Type	RSRZ
1	B	501	VAL	4.2
1	A	784	ILE	4.1
1	C	800	LEU	4.1
1	C	581	GLY	4.1
1	A	575	ASP	4.0
1	D	558	PHE	4.0
1	D	367	ASN	4.0
1	A	792	ALA	4.0
1	C	411	THR	4.0
1	D	397	PHE	3.9
1	D	575	ASP	3.9
1	A	740	LEU	3.9
1	A	547	ALA	3.9
1	B	807	VAL	3.9
1	A	411	THR	3.9
1	D	368	ALA	3.8
1	C	775	THR	3.8
1	C	367	ASN	3.8
1	B	371	ILE	3.8
1	B	813	HIS	3.7
1	C	804	PHE	3.7
1	C	633	ASN	3.7
1	C	1210	SER	3.6
1	D	562	GLU	3.6
1	B	800	LEU	3.6
1	C	503	GLN	3.6
1	C	501	VAL	3.6
1	A	500	TYR	3.5
1	C	495	PHE	3.5
1	D	800	LEU	3.5
1	A	688	ASP	3.5
1	A	796	TYR	3.5
1	D	809	GLU	3.5
1	C	558	PHE	3.5
1	D	916	VAL	3.4
1	C	489	ALA	3.4
1	C	412	LEU	3.4
1	C	831	LEU	3.4
1	C	814	GLU	3.4
1	B	804	PHE	3.4
1	D	770	SER	3.4
1	D	815	ILE	3.3

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Mol	Chain	Res	Type	RSRZ
1	B	809	GLU	3.3
1	A	554	TYR	3.3
1	D	1220	GLU	3.3
1	C	551	GLY	3.3
1	D	394	ASN	3.3
1	A	503	GLN	3.3
1	C	792	ALA	3.3
1	A	581	GLY	3.3
1	B	502	GLY	3.3
1	A	909	THR	3.3
1	C	546	LEU	3.2
1	B	575	ASP	3.2
1	A	803	VAL	3.2
1	C	750	GLY	3.2
1	C	793	LEU	3.2
1	D	472	ASP	3.2
1	A	775	THR	3.2
1	D	626	THR	3.2
1	B	1227	GLY	3.1
1	A	476	VAL	3.1
1	A	799	GLN	3.1
1	A	390	LEU	3.1
1	C	796	TYR	3.1
1	D	543	LEU	3.1
1	B	500	TYR	3.1
1	B	811	GLU	3.1
1	C	1213	VAL	3.1
1	D	553	PRO	3.1
1	A	580	LEU	3.1
1	A	1210	SER	3.0
1	A	398	ARG	3.0
1	C	483	LEU	3.0
1	A	702	ILE	3.0
1	C	494	THR	3.0
1	A	497	GLN	3.0
1	A	765	ASP	3.0
1	A	810	LEU	3.0
1	D	793	LEU	3.0
1	D	775	THR	3.0
1	D	559	SER	3.0
1	A	853	GLY	3.0
1	B	750	GLY	3.0

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Mol	Chain	Res	Type	RSRZ
1	C	419	PHE	2.9
1	C	789	ALA	2.9
1	C	745	ARG	2.9
1	C	748	ASN	2.9
1	B	796	TYR	2.9
1	D	414	ASP	2.9
1	D	430	LYS	2.9
1	C	390	LEU	2.9
1	C	580	LEU	2.9
1	C	860	VAL	2.9
1	A	494	THR	2.9
1	B	397	PHE	2.9
1	B	831	LEU	2.9
1	D	797	GLN	2.9
1	B	420	LYS	2.8
1	A	491	ALA	2.8
1	C	777	ALA	2.8
1	D	471	HIS	2.8
1	A	800	LEU	2.8
1	B	432	LEU	2.8
1	B	766	THR	2.8
1	D	503	GLN	2.8
1	B	557	ILE	2.8
1	C	626	THR	2.8
1	B	414	ASP	2.8
1	A	410	LEU	2.8
1	C	554	TYR	2.8
1	B	576	VAL	2.8
1	D	763	VAL	2.8
1	D	581	GLY	2.7
1	B	801	GLU	2.7
1	A	546	LEU	2.7
1	D	796	TYR	2.7
1	A	501	VAL	2.7
1	B	916	VAL	2.7
1	B	779	ILE	2.7
1	B	836	ASP	2.7
1	C	432	LEU	2.7
1	C	578	TYR	2.7
1	C	397	PHE	2.7
1	C	497	GLN	2.7
1	C	807	VAL	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	855	THR	2.7
1	C	805	ASN	2.7
1	A	551	GLY	2.7
1	A	779	ILE	2.7
1	C	784	ILE	2.7
1	B	413	TRP	2.7
1	B	792	ALA	2.7
1	A	558	PHE	2.7
1	D	1210	SER	2.7
1	C	781	ARG	2.7
1	D	1016	GLN	2.6
1	D	804	PHE	2.6
1	C	803	VAL	2.6
1	C	702	ILE	2.6
1	D	580	LEU	2.6
1	C	799	GLN	2.6
1	D	1103	GLU	2.6
1	C	711	GLY	2.6
1	D	813	HIS	2.6
1	C	415	LEU	2.6
1	D	777	ALA	2.6
1	B	763	VAL	2.6
1	B	803	VAL	2.6
1	A	371	ILE	2.6
1	B	770	SER	2.6
1	A	539	HIS	2.6
1	C	1129	LYS	2.6
1	B	1103	GLU	2.6
1	B	777	ALA	2.6
1	D	550	VAL	2.6
1	D	1216	VAL	2.6
1	C	371	ILE	2.6
1	C	742	TYR	2.5
1	C	392	LEU	2.5
1	C	502	GLY	2.5
1	D	470	LYS	2.5
1	C	857	HIS	2.5
1	C	915	ILE	2.5
1	B	554	TYR	2.5
1	A	392	LEU	2.5
1	C	366	LYS	2.5
1	C	547	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	813	HIS	2.5
1	C	539	HIS	2.5
1	B	428	GLN	2.5
1	B	503	GLN	2.5
1	D	419	PHE	2.5
1	A	807	VAL	2.5
1	C	1035	GLY	2.5
1	C	394	ASN	2.4
1	A	488	ALA	2.4
1	A	789	ALA	2.4
1	A	397	PHE	2.4
1	A	413	TRP	2.4
1	B	793	LEU	2.4
1	B	578	TYR	2.4
1	D	745	ARG	2.4
1	C	368	ALA	2.4
1	C	758	PRO	2.4
1	D	1209	GLY	2.4
1	C	576	VAL	2.4
1	C	764	ILE	2.4
1	C	812	LYS	2.4
1	B	415	LEU	2.4
1	B	496	LEU	2.4
1	B	789	ALA	2.4
1	D	1227	GLY	2.4
1	C	549	ILE	2.4
1	B	805	ASN	2.3
1	A	582	ALA	2.3
1	D	766	THR	2.3
1	A	495	PHE	2.3
1	C	850	LEU	2.3
1	B	472	ASP	2.3
1	A	774	TYR	2.3
1	D	504	LYS	2.3
1	B	655	ALA	2.3
1	B	1128	ALA	2.3
1	C	794	ARG	2.3
1	B	539	HIS	2.3
1	C	914	VAL	2.3
1	D	856	VAL	2.3
1	B	392	LEU	2.3
1	D	805	ASN	2.3

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Mol	Chain	Res	Type	RSRZ
1	D	555	SER	2.3
1	D	628	GLU	2.3
1	D	873	GLU	2.3
1	B	367	ASN	2.3
1	C	786	MET	2.3
1	C	488	ALA	2.3
1	A	583	THR	2.3
1	B	1220	GLU	2.3
1	C	556	GLN	2.3
1	B	1213	VAL	2.3
1	C	856	VAL	2.3
1	D	781	ARG	2.2
1	C	629	GLU	2.2
1	D	779	ILE	2.2
1	C	916	VAL	2.2
1	B	781	ARG	2.2
1	B	510	GLY	2.2
1	C	749	GLU	2.2
1	A	777	ALA	2.2
1	A	1129	LYS	2.2
1	C	797	GLN	2.2
1	B	773	ALA	2.2
1	A	415	LEU	2.2
1	A	793	LEU	2.2
1	B	553	PRO	2.2
1	C	499	LYS	2.2
1	C	813	HIS	2.2
1	A	489	ALA	2.2
1	C	511	ALA	2.2
1	A	831	LEU	2.2
1	B	850	LEU	2.2
1	D	557	ILE	2.2
1	D	429	ARG	2.2
1	D	1206	PRO	2.2
1	A	812	LYS	2.2
1	B	772	LYS	2.2
1	C	1034	GLU	2.2
1	A	1209	GLY	2.2
1	A	496	LEU	2.1
1	C	740	LEU	2.1
1	C	1182	LEU	2.1
1	A	550	VAL	2.1

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Mol	Chain	Res	Type	RSRZ
1	D	749	GLU	2.1
1	D	750	GLY	2.1
1	A	756	THR	2.1
1	B	505	ARG	2.1
1	C	802	ARG	2.1
1	D	373	LEU	2.1
1	C	471	HIS	2.1
1	C	550	VAL	2.1
1	C	853	GLY	2.1
1	A	505	ARG	2.1
1	A	1195	LEU	2.1
1	B	778	LEU	2.1
1	D	415	LEU	2.1
1	C	688	ASP	2.1
1	B	506	PHE	2.1
1	A	745	ARG	2.1
1	D	768	ARG	2.1
1	C	543	LEU	2.1
1	A	915	ILE	2.1
1	D	578	TYR	2.1
1	A	860	VAL	2.1
1	B	648	PHE	2.1
1	C	844	GLY	2.1
1	A	499	LYS	2.0
1	D	1129	LYS	2.0
1	D	786	MET	2.0
1	D	1077	ALA	2.0
1	A	455	LEU	2.0
1	C	496	LEU	2.0
1	B	784	ILE	2.0
1	D	576	VAL	2.0
1	B	782	GLY	2.0
1	D	551	GLY	2.0
1	C	682	PHE	2.0
1	B	395	THR	2.0
1	D	806	GLU	2.0
1	A	368	ALA	2.0
1	C	491	ALA	2.0
1	D	1176	ALA	2.0
1	B	412	LEU	2.0
1	B	543	LEU	2.0
1	C	616	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	D	632	ASP	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

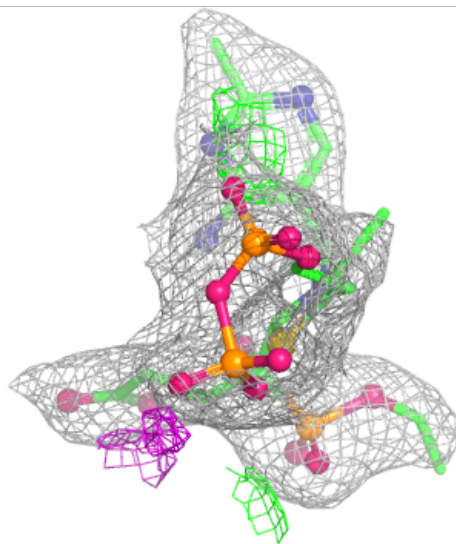
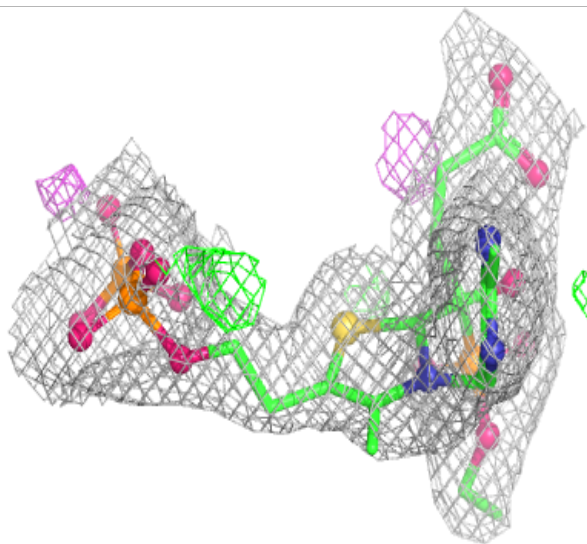
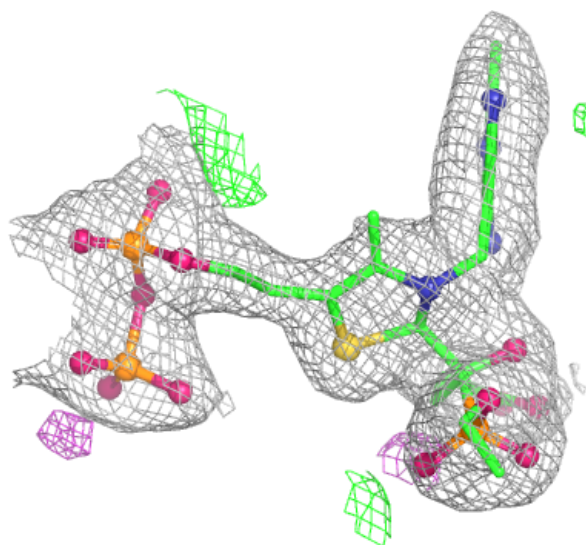
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	ZP1	B	2001	39/39	0.95	0.10	34,42,54,57	0
2	ZP1	C	2001	39/39	0.95	0.11	36,44,61,63	0
2	ZP1	A	2001	39/39	0.96	0.09	34,44,59,60	0
2	ZP1	D	2001	39/39	0.96	0.10	34,44,58,62	0
3	MG	B	2002	1/1	0.98	0.05	36,36,36,36	0
3	MG	D	2002	1/1	0.98	0.04	40,40,40,40	0
4	CA	B	2003	1/1	0.98	0.04	60,60,60,60	0
3	MG	A	2002	1/1	0.99	0.08	37,37,37,37	0
4	CA	A	2003	1/1	0.99	0.04	54,54,54,54	0
3	MG	C	2002	1/1	0.99	0.07	35,35,35,35	0
4	CA	C	2003	1/1	0.99	0.09	51,51,51,51	0
4	CA	D	2003	1/1	0.99	0.03	58,58,58,58	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

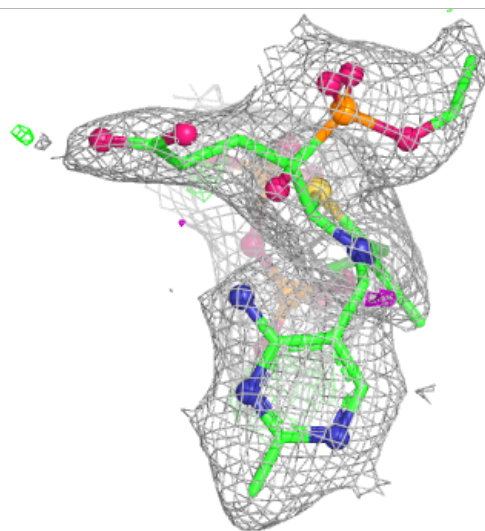
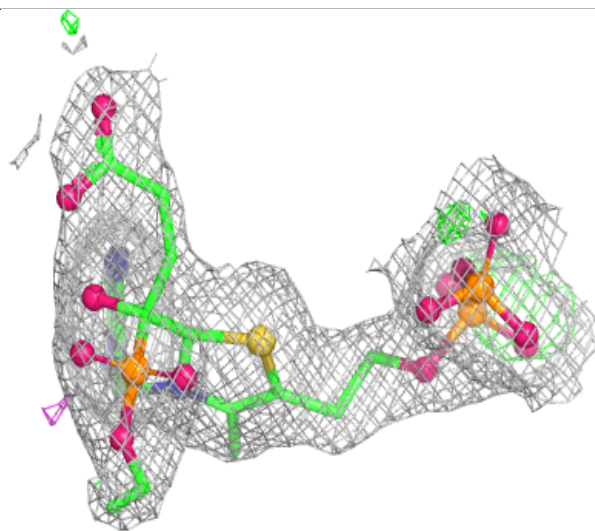
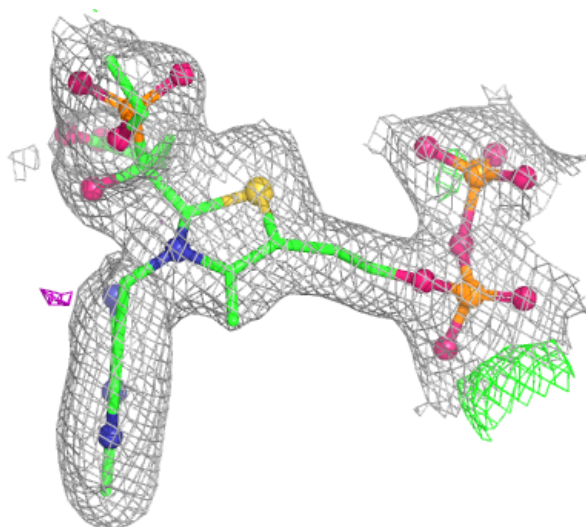
Electron density around ZP1 B 2001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



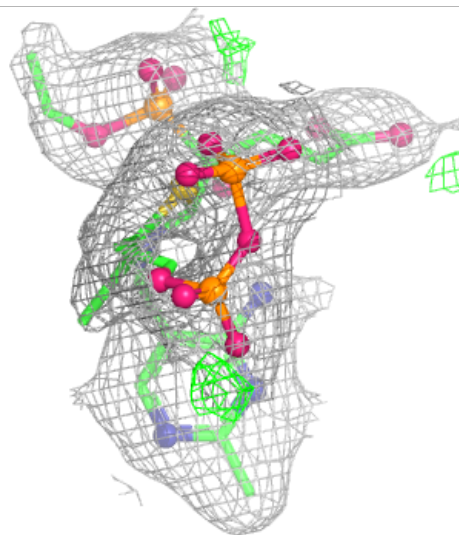
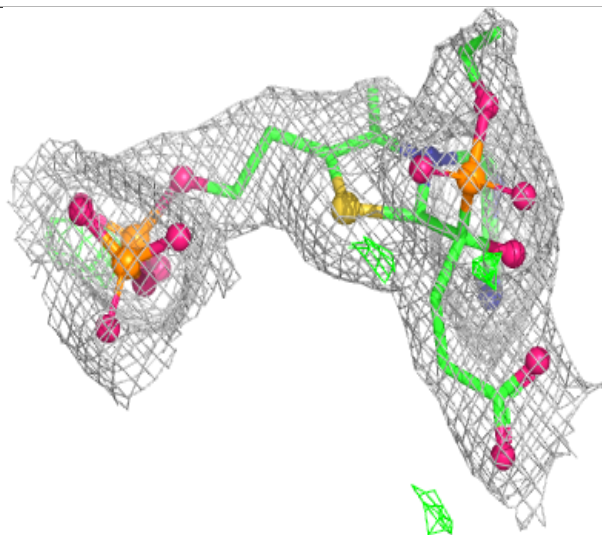
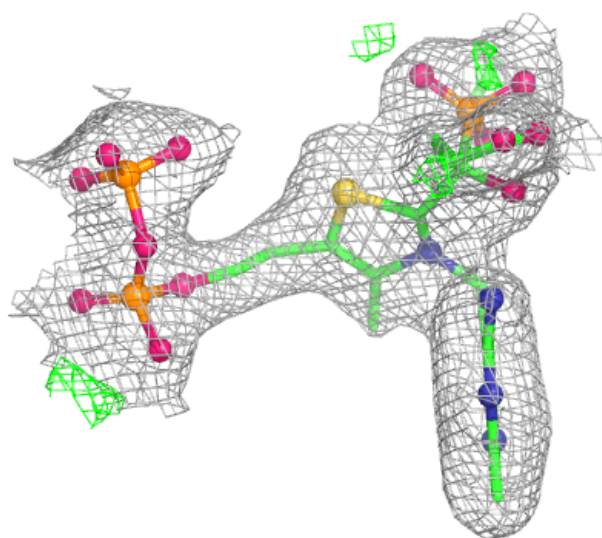
Electron density around ZP1 C 2001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



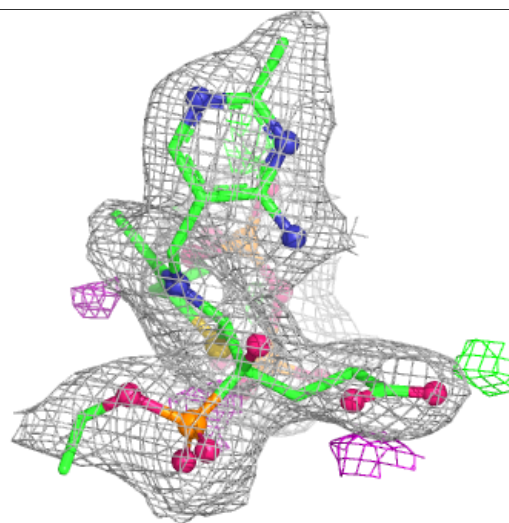
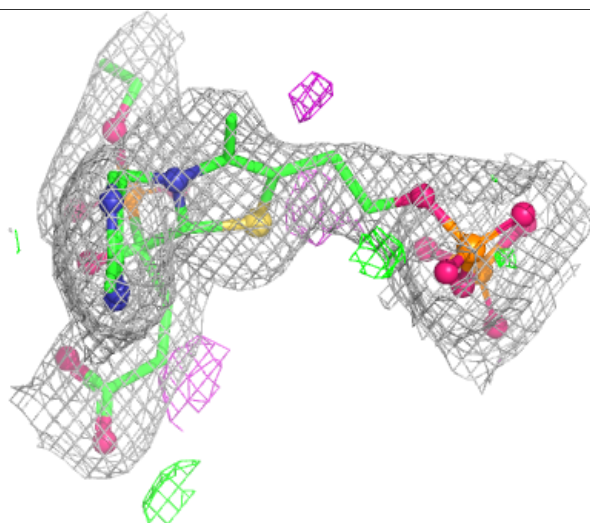
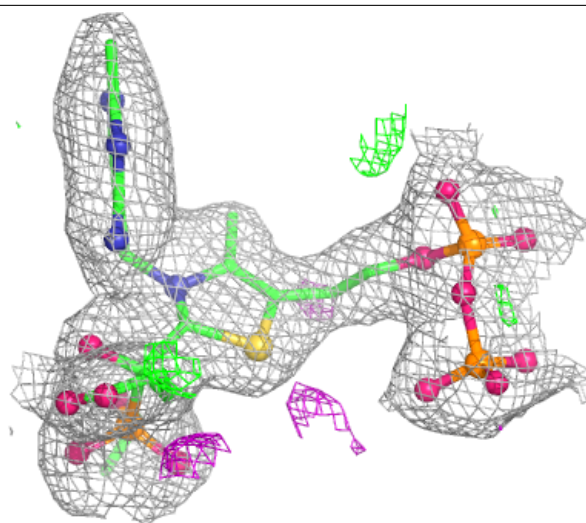
Electron density around ZP1 A 2001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around ZP1 D 2001:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



6.5 Other polymers [i](#)

There are no such residues in this entry.