Full wwPDB X-ray Structure Validation Report ⓘ

Jan 16, 2025 – 06:35 am GMT

PDB ID	:	9GJN
Title	:	ERAP1 in complex with 1-[2-(3-oxo-3,4-dihydro-2H-1,4-benzothiazin-4-yl)acetamido]cyclohexane-1-carboxylic acid
Authors	:	Rowland, P.
Deposited on	:	2024-08-22
Resolution	:	1.72 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 1.72 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.
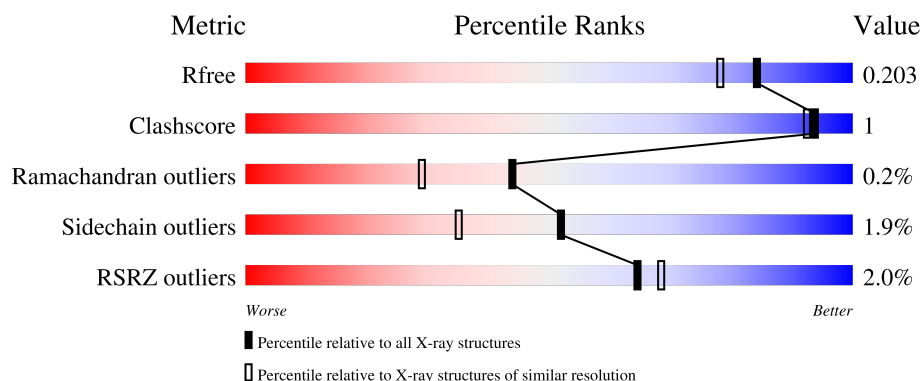
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7106 (1.74-1.70)
Clashscore	180529	7746 (1.74-1.70)
Ramachandran outliers	177936	7654 (1.74-1.70)
Sidechain outliers	177891	7654 (1.74-1.70)
RSRZ outliers	164620	7104 (1.74-1.70)

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 <=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	922	89% · 7%
1	B	922	87% 5% · 7%

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 15811 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 Endoplasmic reticulum aminopeptidase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	855	Total 6984	C 4501	N 1155	O 1295	S 33	0	12	0
1	B	855	Total 6930	C 4467	N 1144	O 1287	S 32	0	3	0

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	70	GLN	ASN	conflict	UNP Q9NZ08
A	154	GLN	ASN	conflict	UNP Q9NZ08
A	414	GLN	ASN	conflict	UNP Q9NZ08
A	511	GLY	-	linker	UNP Q9NZ08
A	512	SER	-	linker	UNP Q9NZ08
A	513	GLY	-	linker	UNP Q9NZ08
A	760	GLN	ASN	conflict	UNP Q9NZ08
A	942	GLU	-	expression tag	UNP Q9NZ08
A	943	ASN	-	expression tag	UNP Q9NZ08
A	944	LEU	-	expression tag	UNP Q9NZ08
A	945	TYR	-	expression tag	UNP Q9NZ08
A	946	PHE	-	expression tag	UNP Q9NZ08
A	947	GLN	-	expression tag	UNP Q9NZ08
B	70	GLN	ASN	conflict	UNP Q9NZ08
B	154	GLN	ASN	conflict	UNP Q9NZ08
B	414	GLN	ASN	conflict	UNP Q9NZ08
B	511	GLY	-	linker	UNP Q9NZ08
B	512	SER	-	linker	UNP Q9NZ08
B	513	GLY	-	linker	UNP Q9NZ08
B	760	GLN	ASN	conflict	UNP Q9NZ08
B	942	GLU	-	expression tag	UNP Q9NZ08
B	943	ASN	-	expression tag	UNP Q9NZ08
B	944	LEU	-	expression tag	UNP Q9NZ08
B	945	TYR	-	expression tag	UNP Q9NZ08
B	946	PHE	-	expression tag	UNP Q9NZ08

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Chain	Residue	Modelled	Actual	Comment	Reference
B	947	GLN	-	expression tag	UNP Q9NZ08

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Zn	0	0
			1	1		
2	B	1	Total	Zn	0	0
			1	1		

- Molecule 3 is 2-[3-(2-HYDROXY-1,1-DIHYDROXYMETHYL-ETHYLAMINO)-PROPYL AMINO]-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: B3P) (formula: $C_{11}H_{26}N_2O_6$).
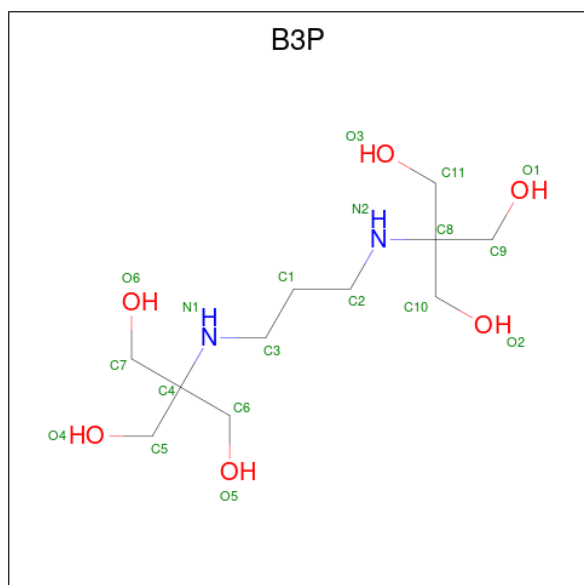
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			19	11	2	6		
3	B	1	Total	C	N	O	0	0
			19	11	2	6		

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).

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

- Molecule 5 is BROMIDE ION (three-letter code: BR) (formula: Br).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	5	Total 5	Br 5	0	0

- Molecule 6 is 1-[2-(3-oxidanylidene-1,4-benzothiazin-4-yl)ethanoylamino]cyclohexane-1-c arboxylic acid (three-letter code: A1IMK) (formula: $C_{17}H_{20}N_2O_4S$) (labeled as "Ligand of Interest" by depositor).

A1IMK
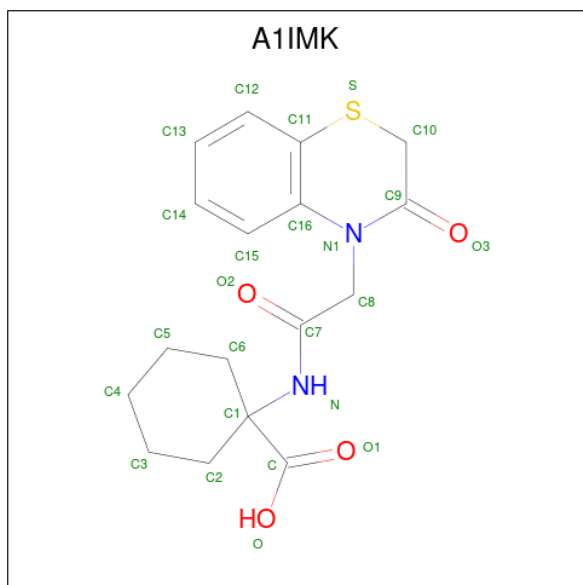
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	A	1	Total 24	C 17	N 2	O 4	S 1	0	0
6	B	1	Total 24	C 17	N 2	O 4	S 1	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	1023	Total 1023	O 1023	0	0
7	B	733	Total 733	O 733	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Endoplasmic reticulum aminopeptidase 1
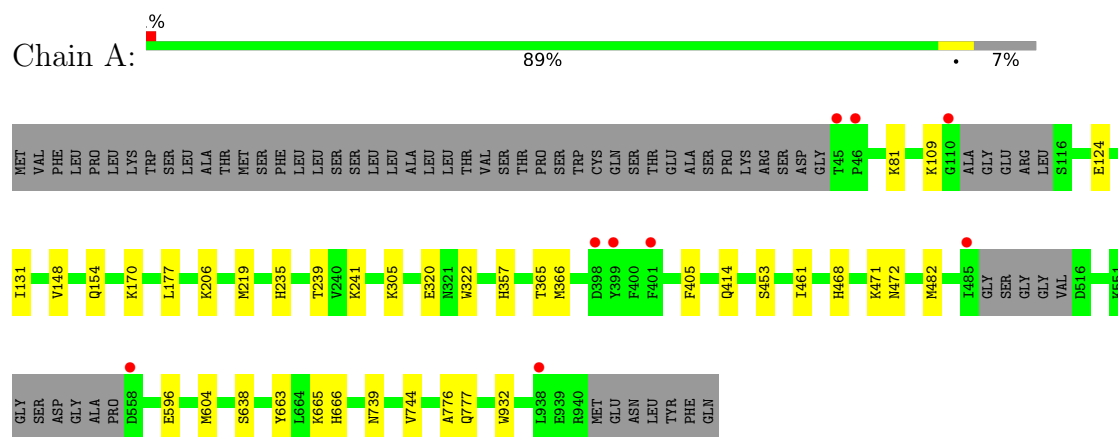
• Molecule 1: Endoplasmic reticulum aminopeptidase 1
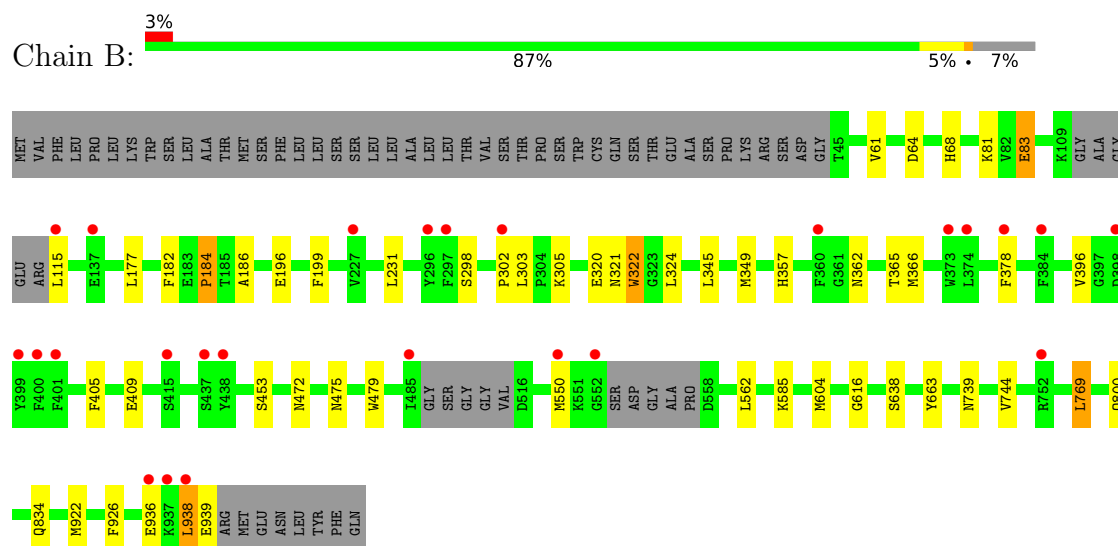
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	57.54Å 145.43Å 112.85Å 90.00° 93.28° 90.00°	Depositor
Resolution (Å)	112.67 – 1.72 112.67 – 1.72	Depositor EDS
% Data completeness (in resolution range)	75.8 (112.67-1.72) 75.8 (112.67-1.72)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.77 (at 1.72Å)	Xtriage
Refinement program	BUSTER 2.11.8 (26-JUL-2023)	Depositor
R, R_{free}	0.169 , 0.208 0.164 , 0.203	Depositor DCC
R_{free} test set	7364 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å^2)	21.6	Xtriage
Anisotropy	0.016	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 49.0	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	15811	wwPDB-VP
Average B, all atoms (Å^2)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.07% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality (i)

5.1   Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: BR, ZN, A1IMK, EDO, B3P

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	0.50	0/7191	0.59	0/9741
1	B	0.42	0/7109	0.56	0/9634
All	All	0.46	0/14300	0.58	0/19375

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	6984	0	6950	15	0
1	B	6930	0	6880	21	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	19	0	26	0	0
3	B	19	0	26	0	0
4	A	32	0	48	1	0
4	B	16	0	24	1	0
5	A	5	0	0	0	0
6	A	24	0	0	0	0
6	B	24	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	1023	0	0	2	0
7	B	733	0	0	1	0
All	All	15811	0	13954	36	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 (36) 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:A:124:GLU:HG2	1:A:131:ILE:HG22	1.80	0.64
1:B:769:LEU:HD13	1:B:800:GLN:HG2	1.86	0.57
1:B:61:VAL:HB	1:B:83:GLU:HG3	1.88	0.55
1:B:196:GLU:HB2	1:B:199:PHE:HD2	1.73	0.53
1:B:475:ASN:ND2	1:B:479:TRP:HE1	2.06	0.53
1:B:616:GLY:HA2	4:B:1006:EDO:H21	1.93	0.51
1:A:320:GLU:HG3	1:A:357:HIS:HB3	1.93	0.50
1:A:776:ALA:HB3	7:A:1118:HOH:O	2.11	0.50
1:B:68:HIS:NE2	1:B:231:LEU:HD11	2.27	0.49
1:B:938:LEU:HD23	1:B:939:GLU:HG3	1.94	0.49
1:A:739:ASN:HA	1:A:744:VAL:HG21	1.94	0.49
1:B:64:ASP:HB2	1:B:81:LYS:HB2	1.95	0.48
1:A:81:LYS:HG2	1:A:148:VAL:HG22	1.95	0.48
1:B:405:PHE:CZ	1:B:604:MET:SD	3.08	0.47
1:A:461:ILE:HG23	1:A:482:MET:CE	2.45	0.47
1:A:932:TRP:CZ3	4:A:1007:EDO:H21	2.50	0.46
1:B:345:LEU:HD11	1:B:396:VAL:HG12	1.97	0.46
1:B:320:GLU:HG3	1:B:357:HIS:HB3	1.98	0.46
1:A:405:PHE:CZ	1:A:604[A]:MET:SD	3.09	0.45
1:B:302:PRO:HG2	1:B:303:LEU:HD12	1.99	0.44
1:A:219:MET:HG2	1:A:239:THR:HG22	1.99	0.43
1:A:468:HIS:HA	1:A:471:LYS:HE2	1.99	0.43
1:A:206:LYS:HD3	1:A:235:HIS:CE1	2.53	0.43
1:B:345:LEU:O	1:B:349:MET:HG2	2.19	0.43
1:A:665:LYS:HE2	1:A:666:HIS:CE1	2.54	0.43
1:B:182:PHE:HA	1:B:186:ALA:HB3	2.01	0.42
1:A:604[B]:MET:HG2	1:A:638:SER:HB2	1.99	0.42
1:B:184:PRO:HD2	7:B:1405:HOH:O	2.19	0.42
1:B:321:ASN:HB2	1:B:324:LEU:O	2.18	0.42
1:B:922:MET:CE	1:B:926:PHE:HB2	2.49	0.42
1:B:739:ASN:HA	1:B:744:VAL:HG21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:365:THR:O	1:A:472:ASN:HA	2.19	0.41
1:B:475:ASN:HD21	1:B:479:TRP:HE1	1.68	0.41
1:B:322:TRP:CD2	1:B:362:ASN:HB3	2.56	0.41
1:B:365:THR:O	1:B:472:ASN:HA	2.21	0.40
1:A:777:GLN:NE2	7:A:1118:HOH:O	2.49	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	A	859/922 (93%)	837 (97%)	21 (2%)	1 (0%)	48	32
1	B	850/922 (92%)	825 (97%)	23 (3%)	2 (0%)	44	29
All	All	1709/1844 (93%)	1662 (97%)	44 (3%)	3 (0%)	44	29

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	453	SER
1	B	453	SER
1	B	184	PRO

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	778/821 (95%)	767 (99%)	11 (1%)	62	48
1	B	769/821 (94%)	751 (98%)	18 (2%)	45	27
All	All	1547/1642 (94%)	1518 (98%)	29 (2%)	52	35

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

Mol	Chain	Res	Type
1	A	109	LYS
1	A	154	GLN
1	A	170	LYS
1	A	177	LEU
1	A	241	LYS
1	A	305	LYS
1	A	322	TRP
1	A	366	MET
1	A	414	GLN
1	A	596	GLU
1	A	663	TYR
1	B	83	GLU
1	B	115	LEU
1	B	177	LEU
1	B	298	SER
1	B	305	LYS
1	B	322	TRP
1	B	366	MET
1	B	378	PHE
1	B	409	GLU
1	B	550	MET
1	B	562	LEU
1	B	585	LYS
1	B	638	SER
1	B	663	TYR
1	B	769	LEU
1	B	834	GLN
1	B	936	GLU
1	B	938	LEU

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

Mol	Chain	Res	Type
1	A	150	HIS

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Mol	Chain	Res	Type
1	A	666	HIS
1	A	730	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 23 ligands modelled in this entry, 7 are monoatomic - leaving 16 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	$\#\|Z\| > 2$
4	EDO	B	1005	-	3,3,3	0.21	0	2,2,2	0.42	0
4	EDO	A	1003	-	3,3,3	0.31	0	2,2,2	0.44	0
3	B3P	B	1002	-	18,18,18	0.43	0	21,23,23	1.80	3 (14%)
4	EDO	A	1010	-	3,3,3	0.35	0	2,2,2	0.19	0
4	EDO	A	1005	-	3,3,3	0.28	0	2,2,2	0.16	0
4	EDO	B	1004	-	3,3,3	0.26	0	2,2,2	0.23	0
4	EDO	A	1007	-	3,3,3	0.33	0	2,2,2	0.26	0
4	EDO	A	1004	-	3,3,3	0.32	0	2,2,2	0.21	0
4	EDO	A	1009	-	3,3,3	0.48	0	2,2,2	0.14	0
4	EDO	A	1008	-	3,3,3	0.41	0	2,2,2	0.08	0
4	EDO	B	1003	-	3,3,3	0.38	0	2,2,2	0.44	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
6	A1IMK	B	1007	-	26,26,26	0.47	0	32,37,37	0.81	1 (3%)
4	EDO	A	1006	-	3,3,3	0.15	0	2,2,2	0.41	0
3	B3P	A	1002	-	18,18,18	0.45	0	21,23,23	1.85	3 (14%)
6	A1IMK	A	1016	-	26,26,26	0.53	0	32,37,37	0.83	1 (3%)
4	EDO	B	1006	-	3,3,3	0.27	0	2,2,2	0.51	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	B	1005	-	-	0/1/1/1	-
4	EDO	A	1003	-	-	0/1/1/1	-
3	B3P	B	1002	-	-	2/28/28/28	-
4	EDO	A	1010	-	-	0/1/1/1	-
4	EDO	A	1005	-	-	0/1/1/1	-
4	EDO	B	1004	-	-	0/1/1/1	-
4	EDO	A	1007	-	-	1/1/1/1	-
4	EDO	A	1004	-	-	0/1/1/1	-
4	EDO	A	1009	-	-	0/1/1/1	-
4	EDO	A	1008	-	-	0/1/1/1	-
4	EDO	B	1003	-	-	0/1/1/1	-
6	A1IMK	B	1007	-	-	0/15/38/38	0/3/3/3
4	EDO	A	1006	-	-	0/1/1/1	-
3	B3P	A	1002	-	-	1/28/28/28	-
6	A1IMK	A	1016	-	-	0/15/38/38	0/3/3/3
4	EDO	B	1006	-	-	1/1/1/1	-

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1002	B3P	C3-N1-C4	6.67	125.54	116.08
3	B	1002	B3P	C3-N1-C4	6.38	125.13	116.08
3	A	1002	B3P	C2-N2-C8	3.88	121.59	116.08
3	B	1002	B3P	C2-N2-C8	3.87	121.57	116.08
6	B	1007	A1IMK	C7-C8-N1	-3.04	103.33	112.41
6	A	1016	A1IMK	C7-C8-N1	-2.94	103.61	112.41
3	A	1002	B3P	C7-C4-C5	-2.09	105.62	110.04
3	B	1002	B3P	C7-C4-C6	-2.09	105.63	110.04

There are no chirality outliers.
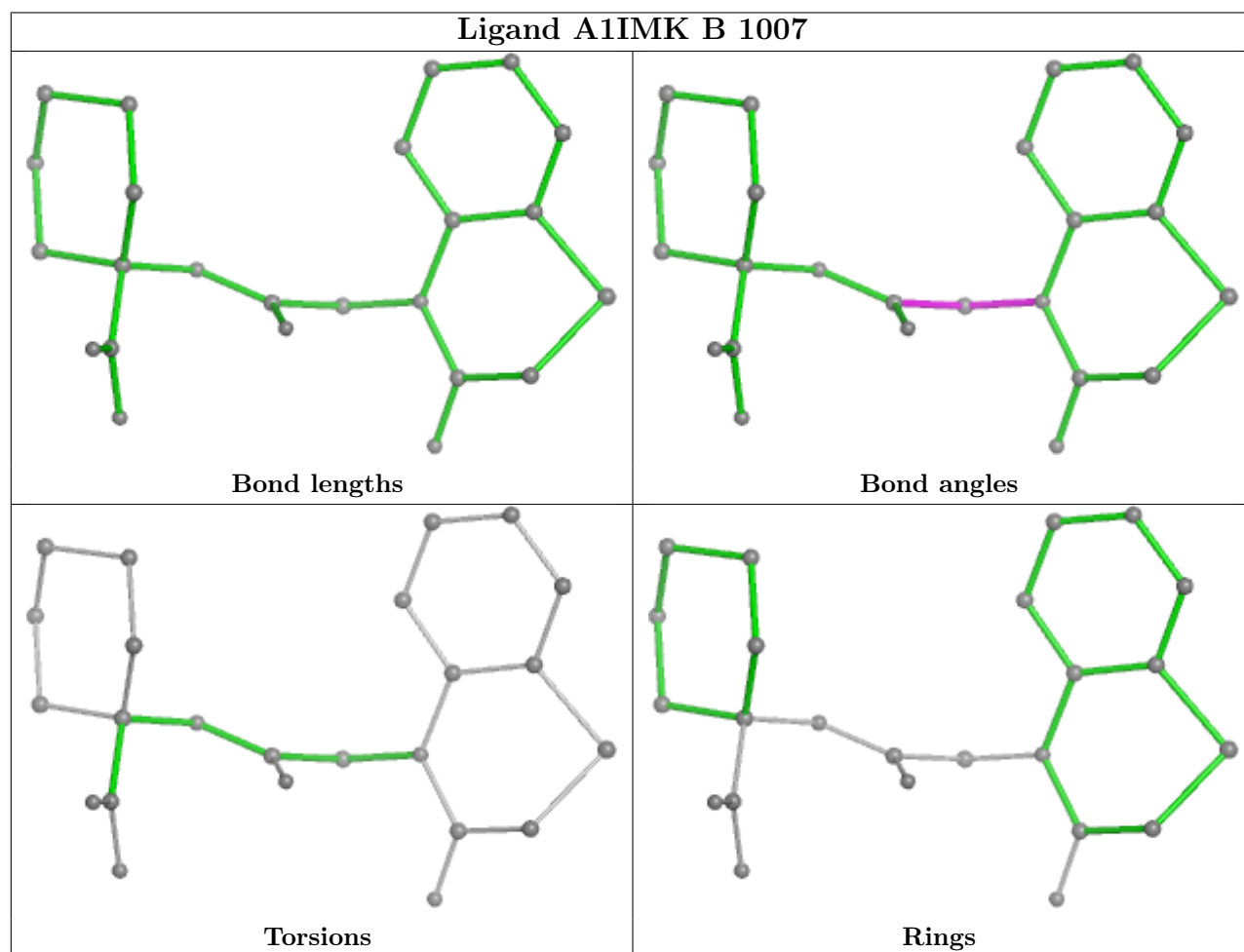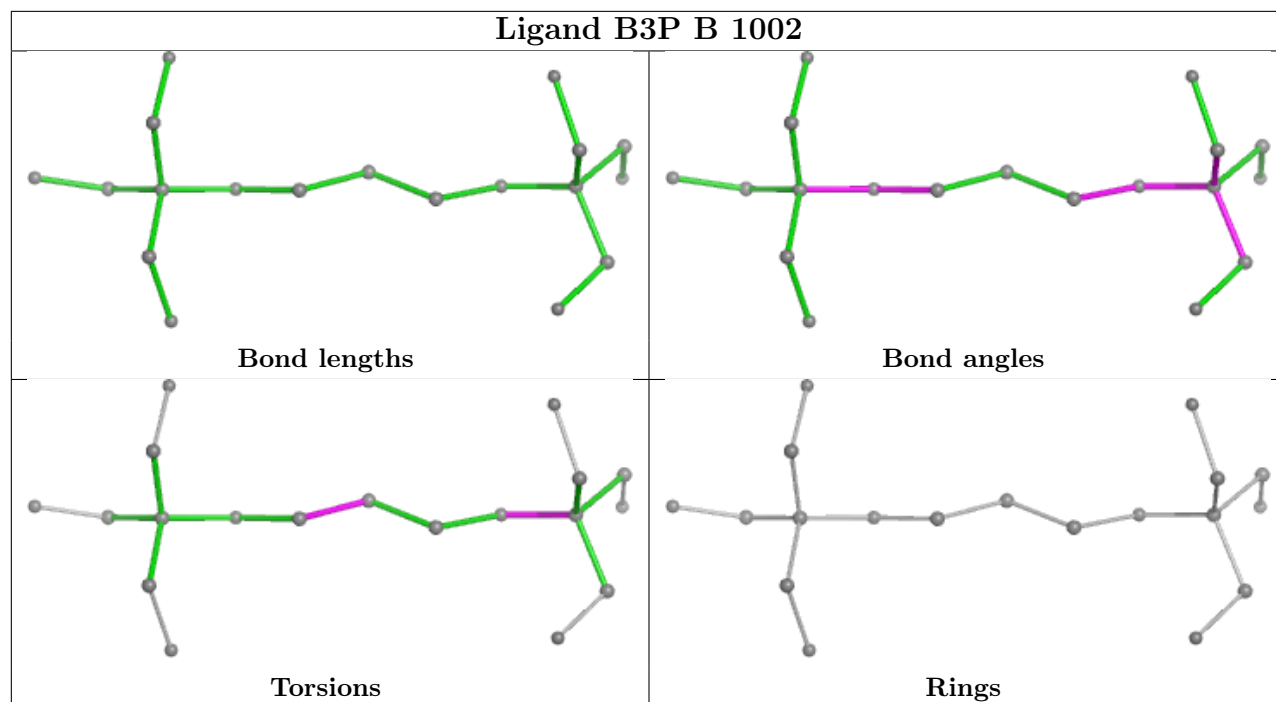
All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	1006	EDO	O1-C1-C2-O2
3	B	1002	B3P	C6-C4-N1-C3
4	A	1007	EDO	O1-C1-C2-O2
3	A	1002	B3P	C7-C4-C5-O4
3	B	1002	B3P	C3-C1-C2-N2

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1007	EDO	1	0
4	B	1006	EDO	1	0

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 then 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.

Ligand B3P B 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand A1IMK B 1007

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P A 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand A1IMK A 1016

Bond lengths

Bond angles

Torsions

Rings
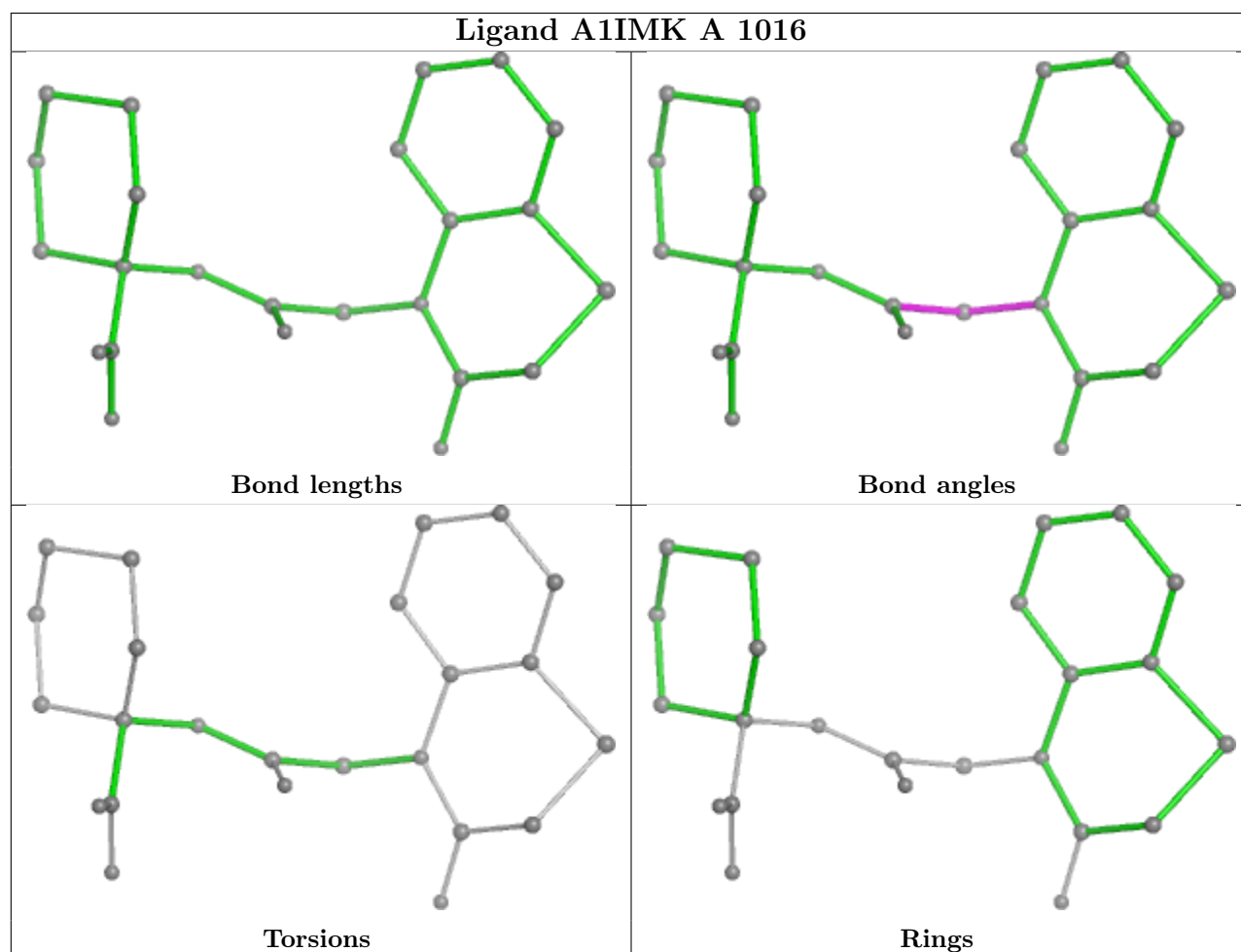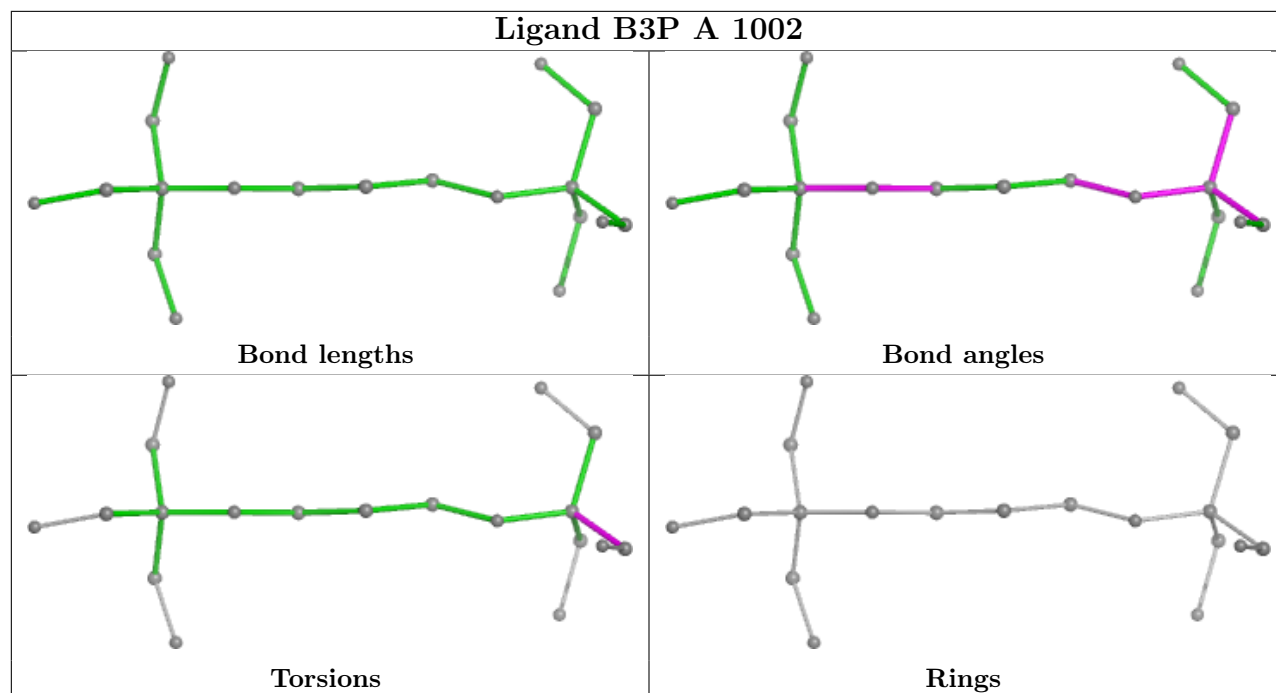
5.7 Other polymers ⓘ

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 (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	855/922 (92%)	-0.39	9 (1%)	77	81	10, 19, 35, 57	12 (1%)
1	B	855/922 (92%)	0.11	25 (2%)	54	58	17, 28, 42, 76	3 (0%)
All	All	1710/1844 (92%)	-0.14	34 (1%)	64	68	10, 24, 39, 76	15 (0%)

All (34) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	401	PHE	5.6
1	A	401	PHE	4.4
1	A	399	TYR	4.2
1	B	938	LEU	4.0
1	B	374	LEU	3.6
1	B	485	ILE	3.3
1	A	110	GLY	3.2
1	B	438	TYR	3.1
1	B	400	PHE	3.1
1	B	115	LEU	3.1
1	A	45	THR	3.0
1	B	399	TYR	3.0
1	B	437	SER	3.0
1	B	373	TRP	2.9
1	B	398	ASP	2.6
1	B	378	PHE	2.6
1	B	937	LYS	2.3
1	B	360	PHE	2.3
1	B	550	MET	2.3
1	A	938	LEU	2.2
1	B	384	PHE	2.2
1	B	752	ARG	2.2
1	B	415	SER	2.1
1	A	485	ILE	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	302	PRO	2.1
1	B	552	GLY	2.1
1	B	936	GLU	2.1
1	B	297	PHE	2.1
1	A	558	ASP	2.1
1	B	227	VAL	2.1
1	A	46	PRO	2.0
1	B	296	TYR	2.0
1	B	137	GLU	2.0
1	A	398	ASP	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 monosaccharides 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. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	EDO	A	1008	4/4	0.81	0.15	36,36,37,37	0
4	EDO	B	1006	4/4	0.82	0.15	41,41,41,42	0
4	EDO	B	1004	4/4	0.88	0.14	37,38,38,38	0
4	EDO	A	1006	4/4	0.89	0.11	28,30,32,33	0
4	EDO	A	1010	4/4	0.89	0.14	32,33,33,34	0
3	B3P	B	1002	19/19	0.90	0.11	37,40,42,43	0
3	B3P	A	1002	19/19	0.92	0.09	25,27,28,29	0
4	EDO	B	1003	4/4	0.92	0.10	26,26,27,28	0
6	A1IMK	A	1016	24/24	0.93	0.08	18,21,29,32	0
6	A1IMK	B	1007	24/24	0.93	0.09	26,30,35,37	0
4	EDO	B	1005	4/4	0.94	0.08	28,29,29,30	0
4	EDO	A	1009	4/4	0.95	0.08	21,22,23,23	0
4	EDO	A	1007	4/4	0.95	0.08	32,32,32,33	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
4	EDO	A	1005	4/4	0.96	0.07	21,22,23,23	0
4	EDO	A	1003	4/4	0.96	0.05	17,18,20,21	0
4	EDO	A	1004	4/4	0.98	0.05	22,23,24,24	0
5	BR	A	1013	1/1	0.98	0.10	31,31,31,31	0
2	ZN	A	1001	1/1	0.99	0.03	16,16,16,16	0
5	BR	A	1014	1/1	0.99	0.10	40,40,40,40	0
5	BR	A	1015	1/1	0.99	0.23	48,48,48,48	0
2	ZN	B	1001	1/1	0.99	0.02	25,25,25,25	0
5	BR	A	1012	1/1	0.99	0.05	28,28,28,28	0
5	BR	A	1011	1/1	1.00	0.02	20,20,20,20	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 B3P B 1002:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
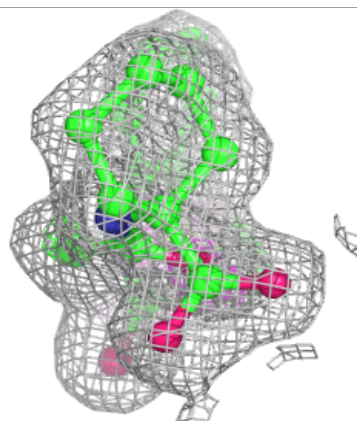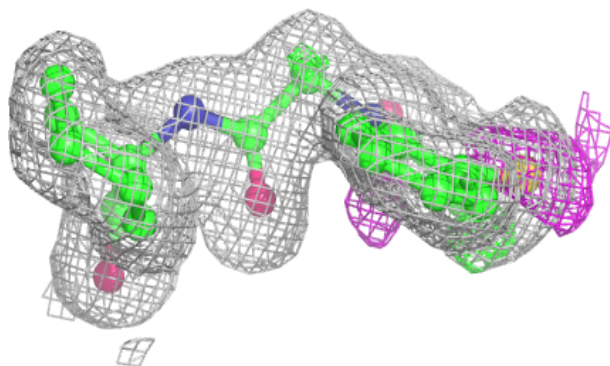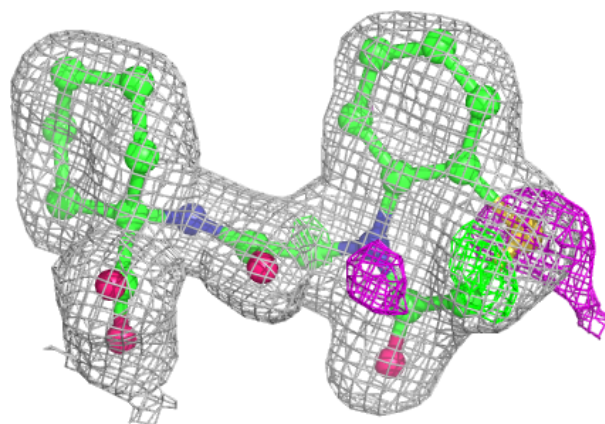mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)
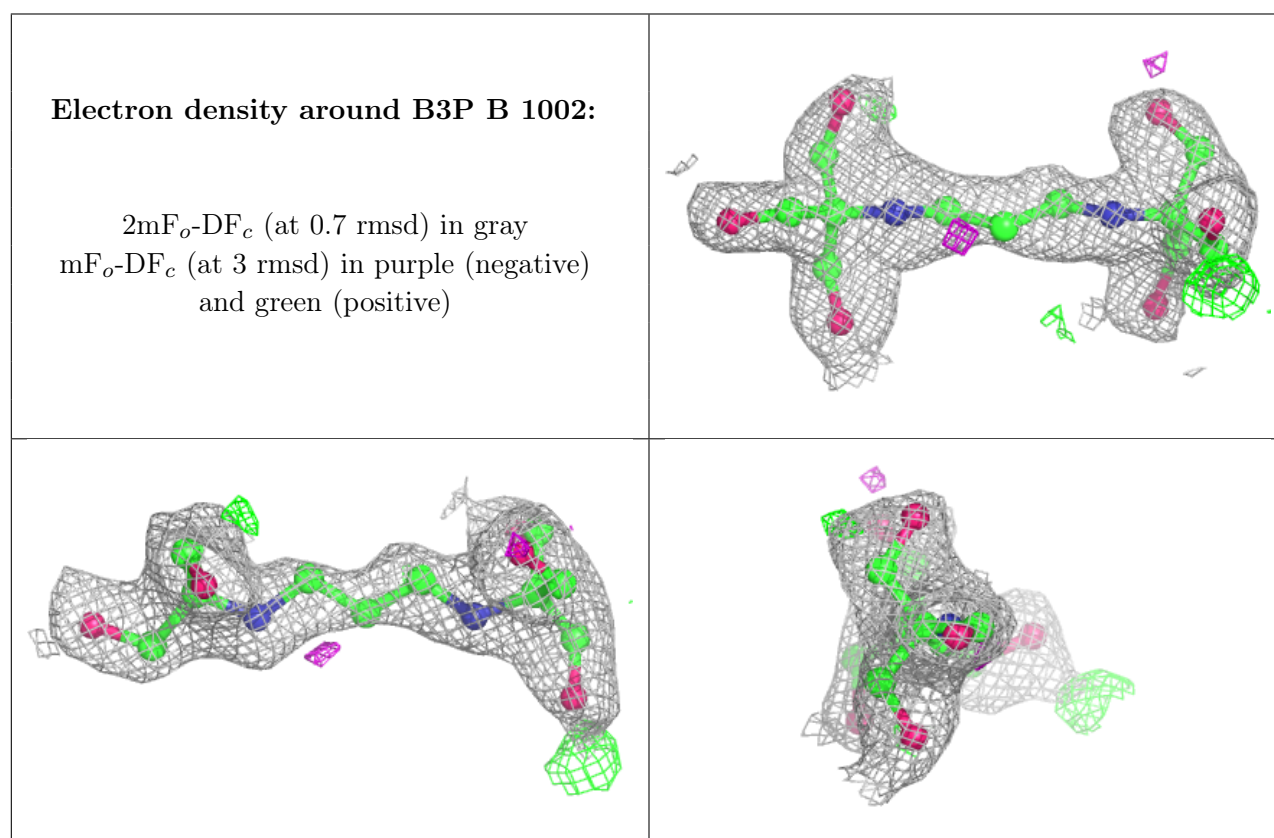
Electron density around B3P A 1002:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
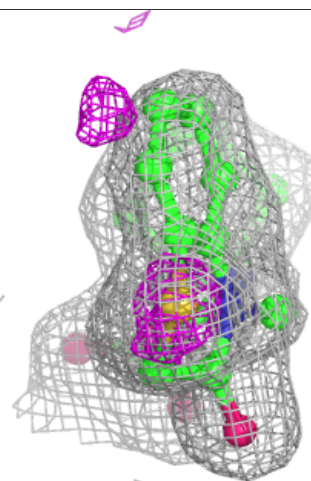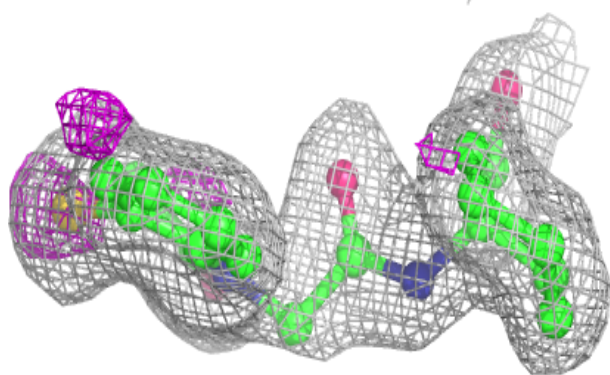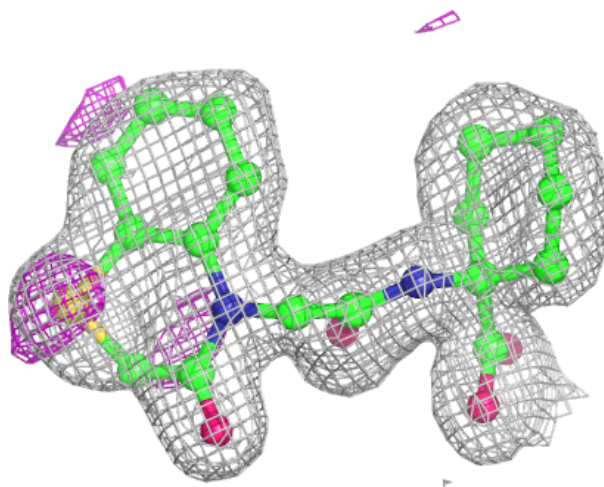mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
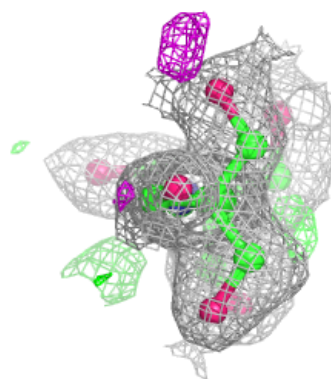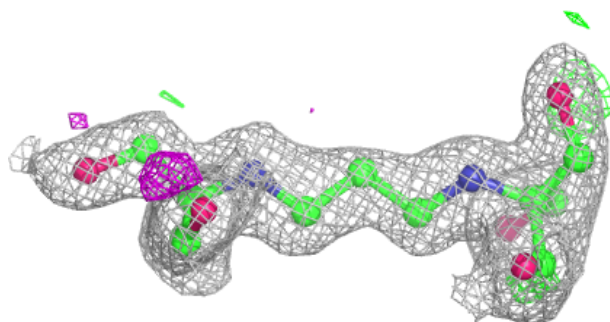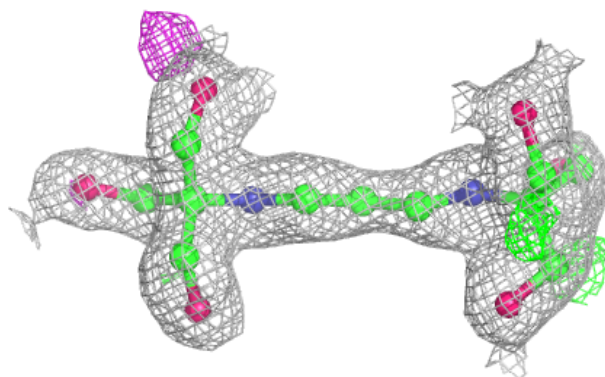
Electron density around A1IMK A 1016:

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

Electron density around A1IMK B 1007:

$2mF_o$-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.