



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:57 PM UTC

PDB ID : 6VPL / pdb_00006vpl
Title : TPX2 residues 7-20 fused to Aurora A residues 116-389 with C290 disulfide bonded to compound 7-80, and in complex with AMP-PNP
Authors : Lim, D.C.; Yaffe, M.B.
Deposited on : 2020-02-03
Resolution : 1.86 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

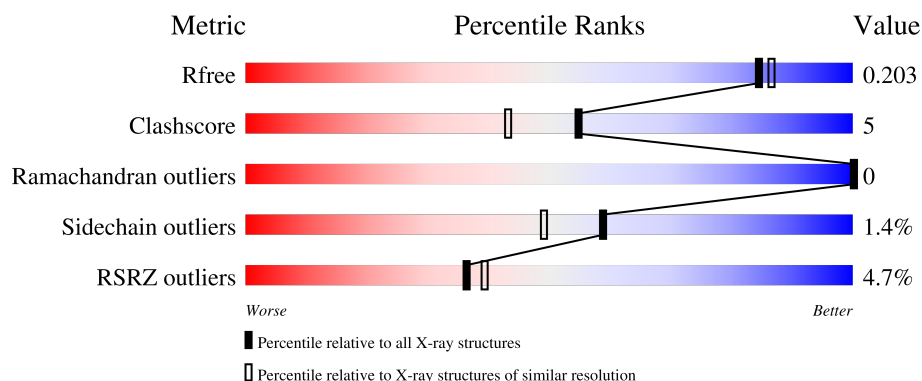
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.86 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	3428 (1.86-1.86)
Clashscore	190562	3579 (1.86-1.86)
Ramachandran outliers	187476	3553 (1.86-1.86)
Sidechain outliers	187428	3553 (1.86-1.86)
RSRZ outliers	180081	3429 (1.86-1.86)

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	292	
1	B	292	

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 5281 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 TPX2 fragment - Aurora A kinase domain fusion.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	277	Total	C	N	O	P	S	0	10	0
			2321	1490	405	417	1	8			
1	B	277	Total	C	N	O	P	S	0	12	0
			2318	1488	400	420	1	9			

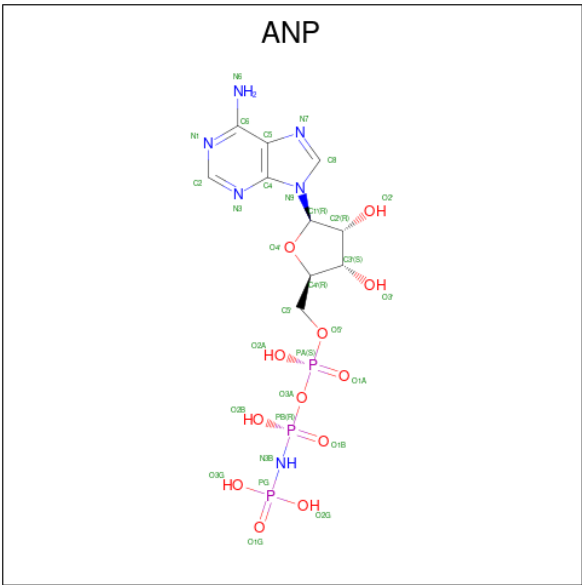
There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	GLY	-	expression tag	UNP Q9ULW0
A	-3	ALA	-	expression tag	UNP Q9ULW0
A	-2	HIS	-	expression tag	UNP Q9ULW0
A	-1	MET	-	expression tag	UNP Q9ULW0
B	-4	GLY	-	expression tag	UNP Q9ULW0
B	-3	ALA	-	expression tag	UNP Q9ULW0
B	-2	HIS	-	expression tag	UNP Q9ULW0
B	-1	MET	-	expression tag	UNP Q9ULW0

- Molecule 2 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

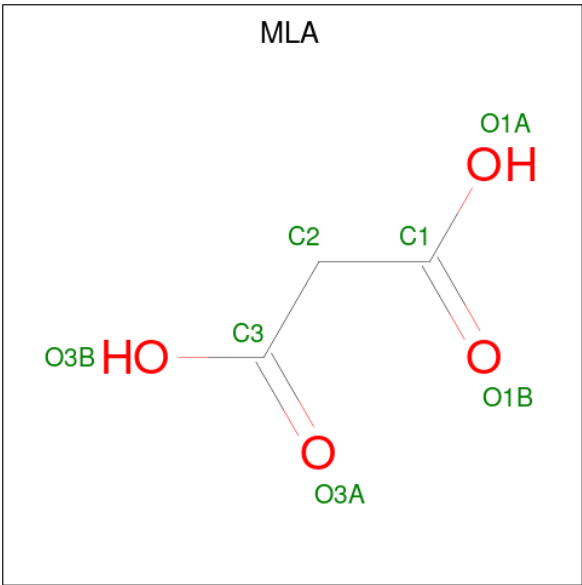
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	3	Total	Mg	0	0
			3	3		
2	B	1	Total	Mg	0	0
			1	1		

- Molecule 3 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: C₁₀H₁₇N₆O₁₂P₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
3	B	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 4 is MALONIC ACID (CCD ID: MLA) (formula: C₃H₄O₄).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			7	3	4		
4	B	1	Total	C	O	0	0
			7	3	4		

- # R7D

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	A	1	Total 28	C 18	F 3	N 3	O 3	S 1	0	0
5	B	1	Total 28	C 18	F 3	N 3	O 3	S 1	0	0

- GOL
-
- The diagram shows the skeletal structure of 1,2,3-propanetriol (glycerol). The carbon backbone is represented by a zigzag line with three vertices labeled C1, C2, and C3 in green. C1 is at the bottom left, C2 is in the middle, and C3 is at the top right. Each carbon is bonded to a hydroxyl group (OH) in red. The OH group on C1 is labeled O1, the OH group on C2 is labeled O2, and the OH group on C3 is labeled O3. The bonds between the carbons and the hydroxyl groups are shown as thin grey lines.

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

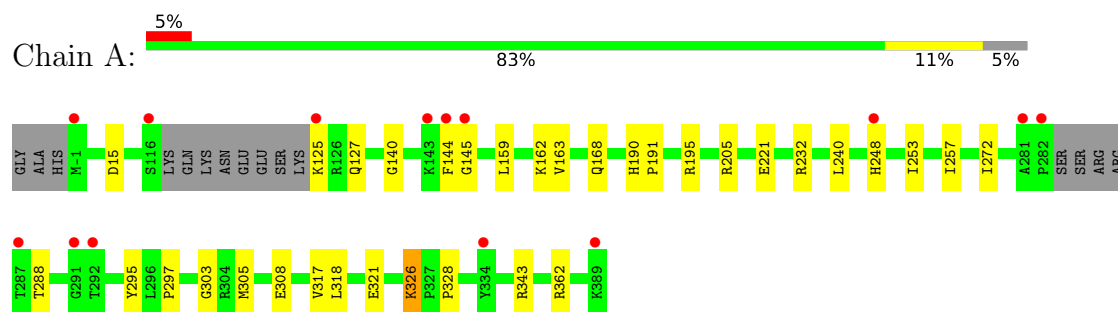
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	238	Total	O	0	0
			238	238		
7	B	262	Total	O	0	0
			262	262		

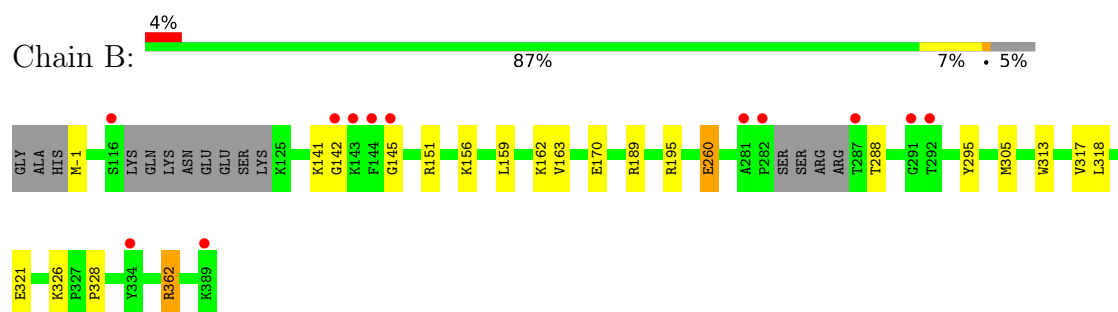
3 Residue-property plots

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: TPX2 fragment - Aurora A kinase domain fusion



- Molecule 1: TPX2 fragment - Aurora A kinase domain fusion



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	50.64Å 85.56Å 152.93Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.07 – 1.86 48.07 – 1.86	Depositor EDS
% Data completeness (in resolution range)	99.8 (48.07-1.86) 99.8 (48.07-1.86)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.37 (at 1.86Å)	Xtriage
Refinement program	PHENIX 1.17.1 _3660	Depositor
R, R_{free}	0.167 , 0.201 0.169 , 0.203	Depositor DCC
R_{free} test set	2000 reflections (3.52%)	wwPDB-VP
Wilson B-factor (Å ²)	23.4	Xtriage
Anisotropy	0.135	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 41.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	5281	wwPDB-VP
Average B, all atoms (Å ²)	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.63% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: ANP, TPO, GOL, MG, R7D, MLA

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	0.28	0/2409	0.50	0/3249
1	B	0.30	0/2414	0.51	0/3255
All	All	0.29	0/4823	0.51	0/6504

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	2321	0	2309	29	0
1	B	2318	0	2301	20	0
2	A	3	0	0	0	0
2	B	1	0	0	0	0
3	A	31	0	13	3	0
3	B	31	0	13	3	0
4	A	7	0	2	0	0
4	B	7	0	2	0	0
5	A	28	0	0	0	0
5	B	28	0	0	0	0
6	B	6	0	8	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	238	0	0	10	0
7	B	262	0	0	7	0
All	All	5281	0	4648	45	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 5.

All (45) 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:260:GLU:OE1	7:B:701:HOH:O	2.04	0.76
1:A:248[B]:HIS:ND1	1:A:308:GLU:OE1	2.20	0.74
1:B:260:GLU:OE2	7:B:702:HOH:O	2.08	0.70
1:A:195:ARG:NH2	7:A:703:HOH:O	2.24	0.70
3:B:601:ANP:O1B	7:B:703:HOH:O	2.10	0.69
1:A:205[A]:ARG:NH1	7:A:704:HOH:O	2.29	0.66
1:A:321[B]:GLU:OE1	1:B:295:TYR:OH	2.13	0.66
1:A:240:LEU:HD12	1:A:272:ILE:HD11	1.78	0.65
1:A:321[A]:GLU:OE1	1:B:295:TYR:OH	2.19	0.61
1:B:317:VAL:HG13	1:B:328:PRO:HD2	1.84	0.59
1:A:308:GLU:O	7:A:702:HOH:O	2.17	0.58
1:A:305[B]:MET:HG3	7:A:895:HOH:O	2.04	0.57
1:B:-1[A]:MET:HG3	1:B:170:GLU:CD	2.30	0.56
1:A:295:TYR:OH	1:B:321[A]:GLU:OE2	2.13	0.56
1:B:362[A]:ARG:HG2	1:B:362[A]:ARG:HH11	1.70	0.55
1:A:257:ILE:HG22	1:A:318:LEU:HD11	1.91	0.53
1:A:221:GLU:HG2	1:A:232:ARG:HH21	1.74	0.53
1:A:221:GLU:HG2	1:A:232:ARG:NH2	2.24	0.53
1:A:317:VAL:HG13	1:A:328:PRO:HD2	1.90	0.52
1:B:145:GLY:HA3	1:B:163:VAL:O	2.11	0.50
3:B:601:ANP:O3G	7:B:704:HOH:O	2.18	0.50
1:A:125:LYS:NZ	7:A:716:HOH:O	2.43	0.50
1:A:295:TYR:OH	1:B:321[B]:GLU:OE2	2.17	0.50
1:A:145:GLY:HA3	1:A:163:VAL:O	2.13	0.49
1:B:162:LYS:NZ	3:B:601:ANP:HNB1	2.11	0.48
1:A:140:GLY:HA3	3:A:602:ANP:H4'	1.94	0.48
1:B:362[A]:ARG:HH11	1:B:362[A]:ARG:CG	2.27	0.48
1:A:195:ARG:NE	7:A:705:HOH:O	2.30	0.48
1:A:326:LYS:NZ	7:A:717:HOH:O	2.45	0.47
1:B:141:LYS:HE3	1:B:142:GLY:O	2.14	0.47
1:A:343:ARG:NH1	7:A:721:HOH:O	2.47	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:162:LYS:NZ	3:A:602:ANP:HNB1	2.15	0.45
1:B:326:LYS:HE3	7:B:761:HOH:O	2.16	0.45
1:A:15:ASP:OD1	1:A:127:GLN:NE2	2.43	0.44
1:B:151:ARG:HD3	1:B:156:LYS:HD2	2.00	0.44
1:A:195:ARG:HD2	7:A:719:HOH:O	2.17	0.44
1:A:162:LYS:HZ2	3:A:602:ANP:HNB1	1.64	0.43
1:A:144:PHE:HA	1:A:168:GLN:NE2	2.34	0.43
1:A:303:GLY:HA2	1:B:305:MET:SD	2.58	0.43
1:A:190:HIS:CG	1:A:191:PRO:HD2	2.54	0.42
1:B:189:ARG:HD2	7:B:948:HOH:O	2.19	0.42
1:B:362[A]:ARG:HG2	1:B:362[A]:ARG:NH1	2.35	0.41
1:A:253:ILE:HG23	7:A:702:HOH:O	2.21	0.40
1:A:297:PRO:HB3	1:B:313:TRP:CG	2.56	0.40
1:B:195:ARG:NH1	7:B:726:HOH:O	2.54	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	280/292 (96%)	275 (98%)	5 (2%)	0	100	100
1	B	281/292 (96%)	276 (98%)	5 (2%)	0	100	100
All	All	561/584 (96%)	551 (98%)	10 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	254/257 (99%)	250 (98%)	4 (2%)	55	44
1	B	256/257 (100%)	250 (98%)	6 (2%)	44	30
All	All	510/514 (99%)	500 (98%)	10 (2%)	59	36

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	159	LEU
1	A	326	LYS
1	A	362[A]	ARG
1	A	362[B]	ARG
1	B	159	LEU
1	B	260	GLU
1	B	318[A]	LEU
1	B	318[B]	LEU
1	B	362[A]	ARG
1	B	362[B]	ARG

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

Mol	Chain	Res	Type
1	A	168	GLN
1	A	223	GLN
1	B	146	ASN
1	B	386	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	TPO	A	288	1	8,10,11	1.71	1 (12%)	10,14,16	1.88	1 (10%)
1	TPO	B	288	1	8,10,11	1.78	1 (12%)	10,14,16	1.74	1 (10%)

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
1	TPO	A	288	1	-	1/9/11/13	-
1	TPO	B	288	1	-	1/9/11/13	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	288	TPO	P-O1P	3.75	1.62	1.50
1	A	288	TPO	P-O1P	3.69	1.61	1.50

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	288	TPO	P-OG1-CB	-5.14	109.37	123.33
1	B	288	TPO	P-OG1-CB	-4.73	110.47	123.33

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	288	TPO	O-C-CA-CB
1	B	288	TPO	O-C-CA-CB

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 11 ligands modelled in this entry, 4 are monoatomic - leaving 7 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	$\# Z > 2$
3	ANP	B	601	2	33,33,33	0.99	5 (15%)	45,52,52	0.77	1 (2%)
5	R7D	B	605	1	29,29,29	1.58	4 (13%)	39,40,40	1.05	3 (7%)
5	R7D	A	606	1	29,29,29	1.65	4 (13%)	39,40,40	1.14	5 (12%)
3	ANP	A	602	2	33,33,33	0.99	4 (12%)	45,52,52	0.91	2 (4%)
4	MLA	B	603	-	6,6,6	1.52	0	7,7,7	1.02	0
6	GOL	B	602	-	5,5,5	0.96	0	5,5,5	1.08	0
4	MLA	A	603	-	6,6,6	1.48	0	7,7,7	1.04	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
3	ANP	B	601	2	-	4/18/38/38	0/3/3/3
5	R7D	B	605	1	-	0/29/29/29	0/2/2/2
5	R7D	A	606	1	-	2/29/29/29	0/2/2/2
3	ANP	A	602	2	-	7/18/38/38	0/3/3/3
4	MLA	B	603	-	-	0/4/4/4	-
6	GOL	B	602	-	-	2/4/4/4	-
4	MLA	A	603	-	-	4/4/4/4	-

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	606	R7D	CAM-CAN	-5.32	1.39	1.50
5	B	605	R7D	CAM-CAN	-5.21	1.39	1.50
5	A	606	R7D	CBF-CBC	-4.46	1.40	1.49
5	B	605	R7D	CAY-CAA	-4.04	1.40	1.52
5	A	606	R7D	CAY-CAA	-3.98	1.40	1.52
5	B	605	R7D	CBF-CBC	-3.91	1.41	1.49
5	B	605	R7D	CAP-NAO	2.85	1.40	1.34
5	A	606	R7D	CAP-NAO	2.77	1.40	1.34
3	B	601	ANP	PG-O1G	2.76	1.50	1.46
3	A	602	ANP	PG-O1G	2.74	1.50	1.46
3	A	602	ANP	PB-O1B	2.67	1.50	1.46
3	A	602	ANP	PG-N3B	2.58	1.70	1.63
3	B	601	ANP	PG-N3B	2.55	1.70	1.63
3	B	601	ANP	PB-O1B	2.47	1.49	1.46
3	B	601	ANP	PB-O3A	-2.30	1.56	1.59
3	A	602	ANP	PB-O3A	-2.07	1.56	1.59
3	B	601	ANP	PB-N3B	2.07	1.68	1.63

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	606	R7D	CXA-CE-SD	-2.78	111.03	114.16
5	B	605	R7D	CXA-CE-SD	-2.73	111.08	114.16
5	B	605	R7D	CAQ-CAP-NAO	-2.51	119.45	123.42
5	A	606	R7D	CAM-NAL-CX	-2.48	118.89	122.29
5	A	606	R7D	CE-CXA-NX	-2.46	107.78	111.28
5	B	605	R7D	CAP-NAO-CAN	2.45	120.85	117.41
3	A	602	ANP	C3'-C2'-C1'	2.27	105.76	101.46
5	A	606	R7D	CAP-NAO-CAN	2.26	120.58	117.41
3	A	602	ANP	O2B-PB-O3A	2.23	112.09	104.64
5	A	606	R7D	CAQ-CAP-NAO	-2.18	119.97	123.42
3	B	601	ANP	C3'-C2'-C1'	2.17	105.56	101.46

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	602	ANP	PB-N3B-PG-O1G
3	A	602	ANP	PG-N3B-PB-O1B
3	A	602	ANP	PA-O3A-PB-O2B
3	A	602	ANP	C5'-O5'-PA-O1A
3	A	602	ANP	C5'-O5'-PA-O3A

Continued on next page...

Continued from previous page...

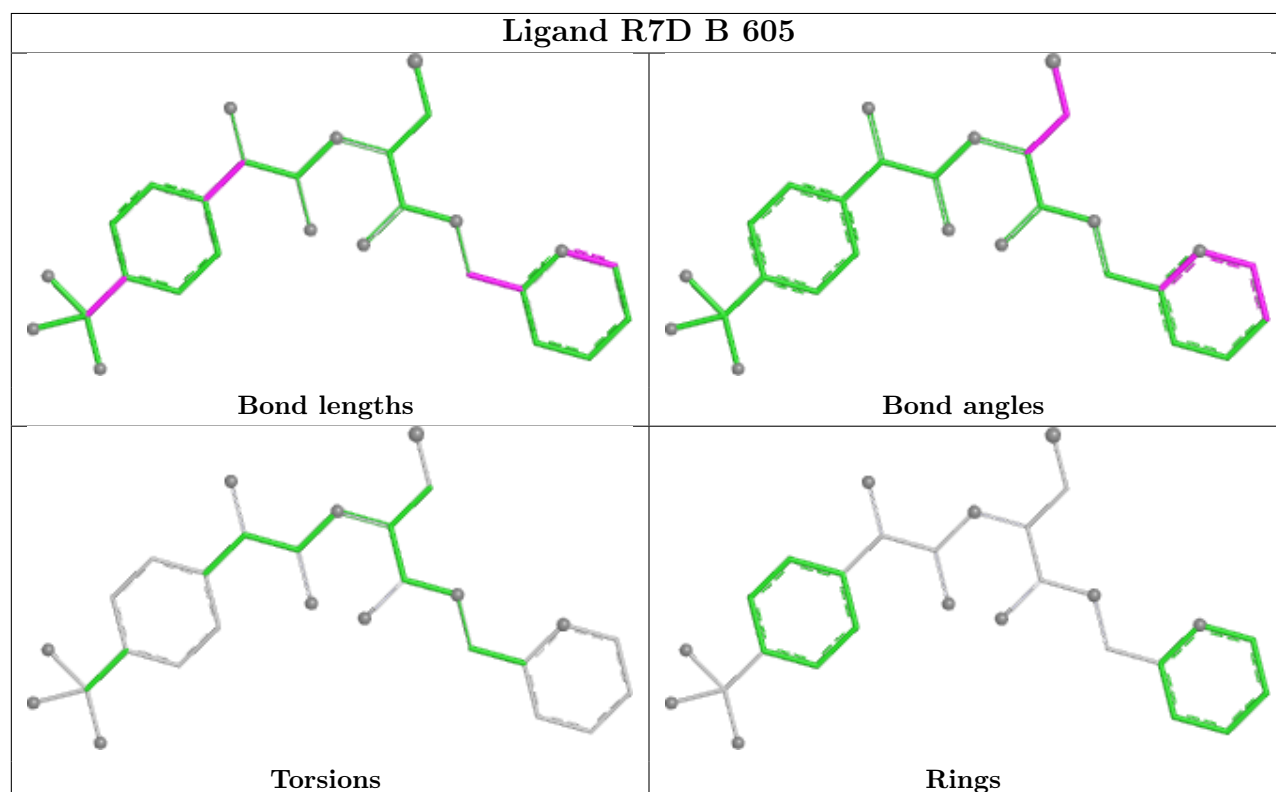
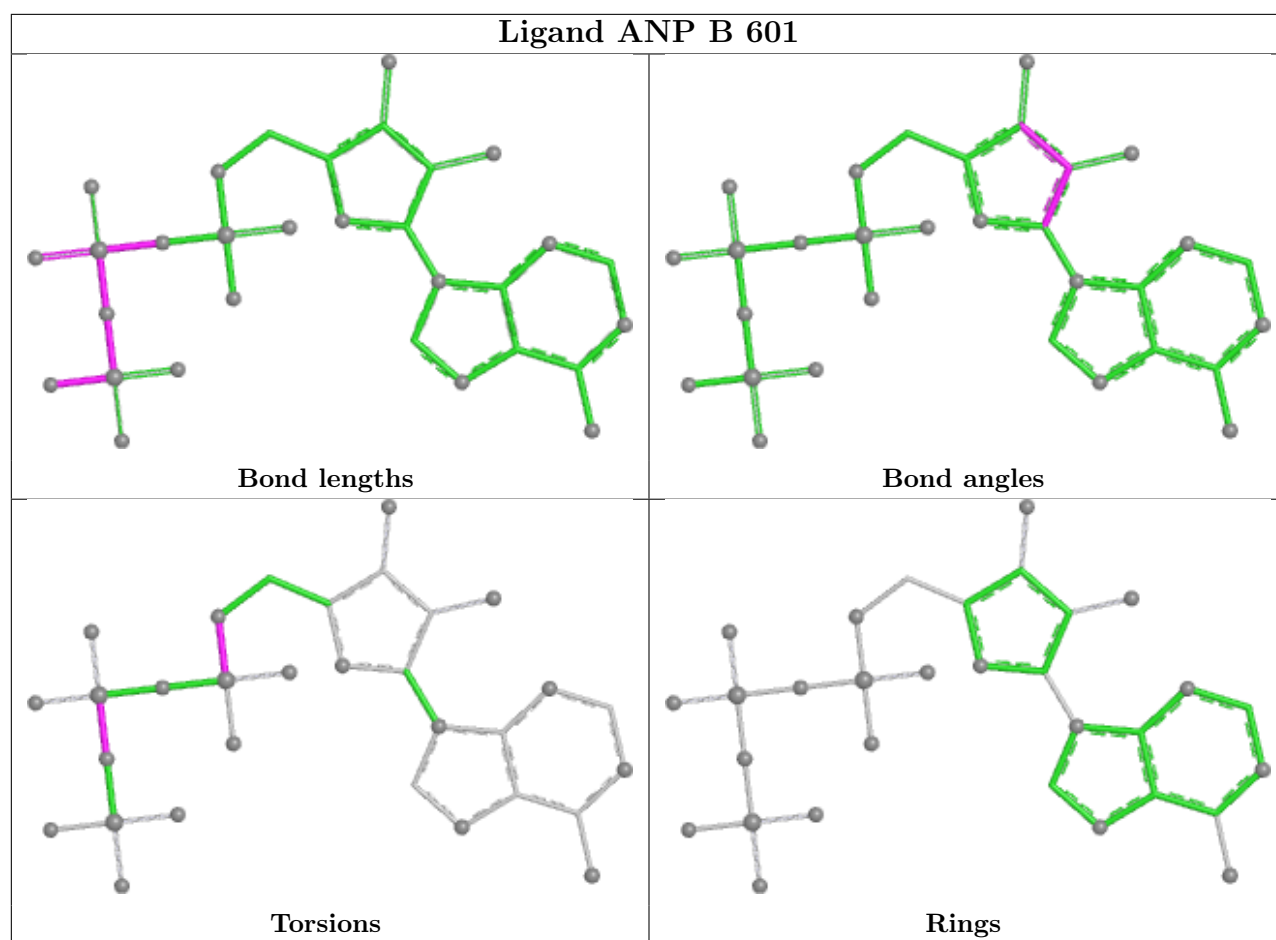
Mol	Chain	Res	Type	Atoms
3	B	601	ANP	PG-N3B-PB-O1B
3	B	601	ANP	C5'-O5'-PA-O2A
5	A	606	R7D	OAZ-CAA-CAB-NX
5	A	606	R7D	OAZ-CAA-CAB-OAD
6	B	602	GOL	C1-C2-C3-O3
6	B	602	GOL	O2-C2-C3-O3
3	A	602	ANP	C5'-O5'-PA-O2A
3	B	601	ANP	C5'-O5'-PA-O1A
3	B	601	ANP	C5'-O5'-PA-O3A
4	A	603	MLA	C1-C2-C3-O3A
4	A	603	MLA	C1-C2-C3-O3B
4	A	603	MLA	O1A-C1-C2-C3
4	A	603	MLA	O1B-C1-C2-C3
3	A	602	ANP	O4'-C4'-C5'-O5'

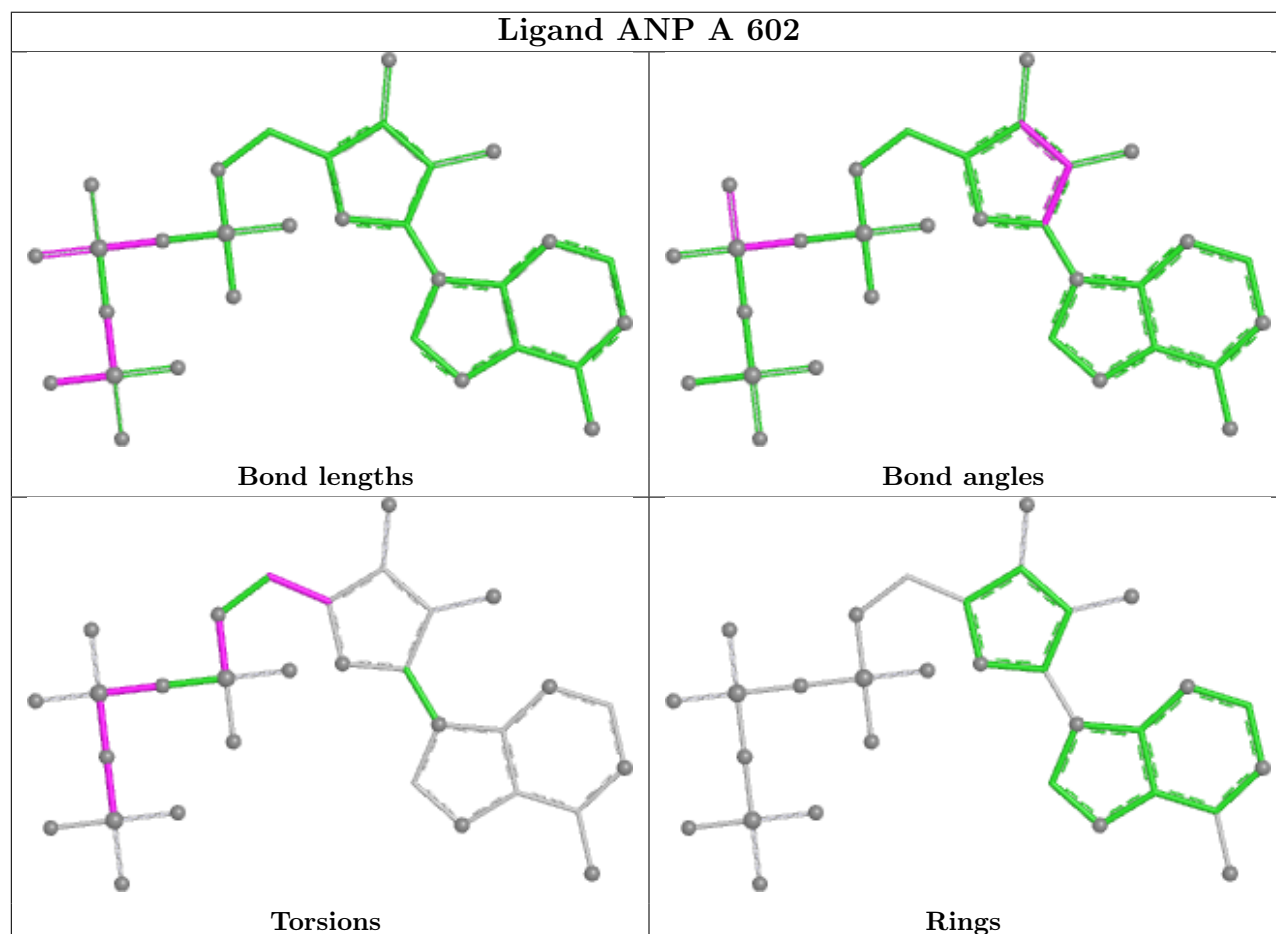
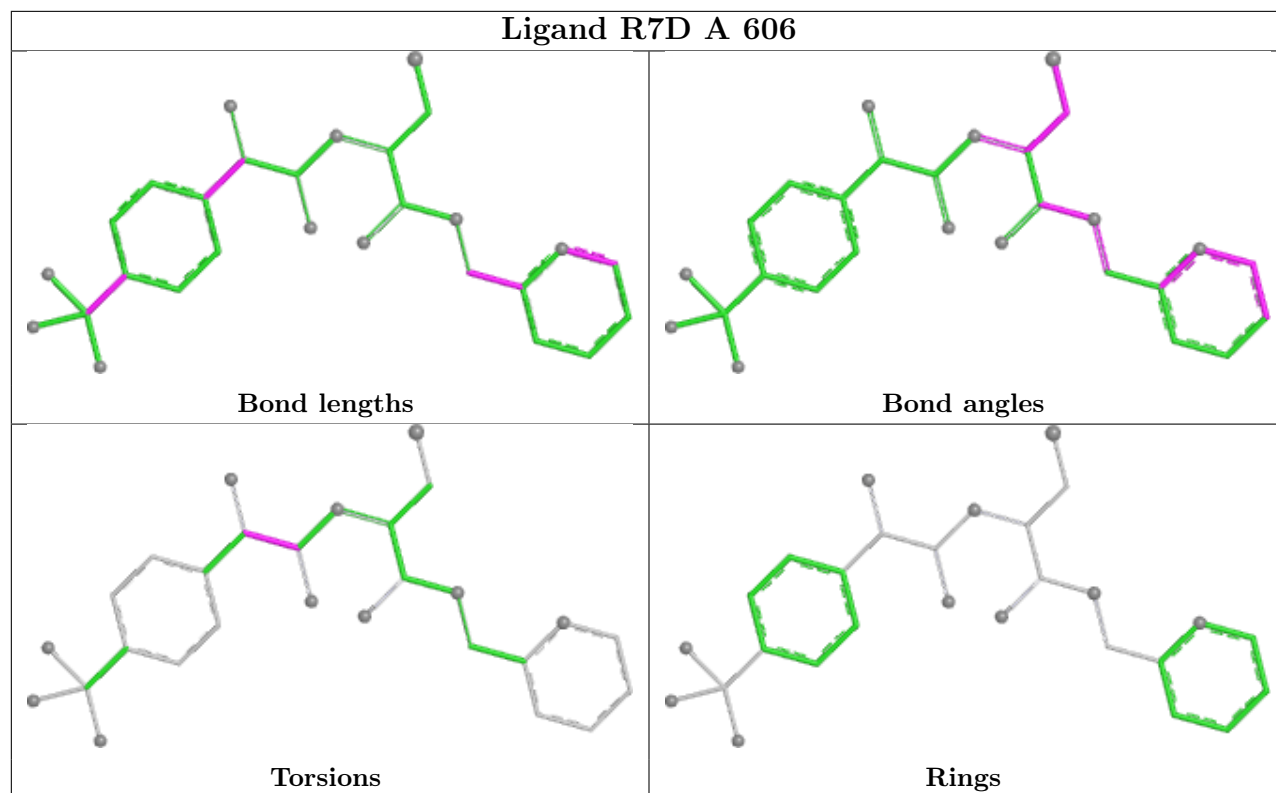
There are no ring outliers.

2 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	601	ANP	3	0
3	A	602	ANP	3	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 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	276/292 (94%)	-0.16	14 (5%) 33 36	11, 25, 51, 76	10 (3%)
1	B	276/292 (94%)	-0.21	12 (4%) 40 43	11, 22, 49, 79	12 (4%)
All	All	552/584 (94%)	-0.18	26 (4%) 36 39	11, 24, 50, 79	22 (3%)

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	287	THR	4.7
1	A	282	PRO	3.5
1	B	282	PRO	3.4
1	B	281	ALA	3.3
1	A	281	ALA	3.3
1	B	389	LYS	3.2
1	A	125	LYS	3.2
1	B	144	PHE	3.1
1	B	334	TYR	3.0
1	A	389	LYS	3.0
1	A	145	GLY	2.9
1	B	143	LYS	2.9
1	B	145	GLY	2.9
1	A	248[A]	HIS	2.8
1	A	144	PHE	2.7
1	A	291	GLY	2.5
1	A	116	SER	2.5
1	B	116	SER	2.5
1	A	-1	MET	2.5
1	B	292	THR	2.5
1	B	291	GLY	2.4
1	A	334	TYR	2.4
1	B	287	THR	2.4
1	A	143	LYS	2.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	292	THR	2.3
1	B	142	GLY	2.1

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	TPO	B	288	11/12	0.91	0.13	26,35,40,41	0
1	TPO	A	288	11/12	0.94	0.15	23,30,32,34	0

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.

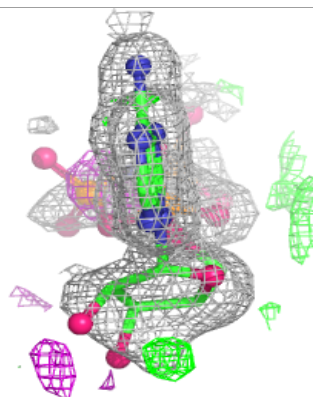
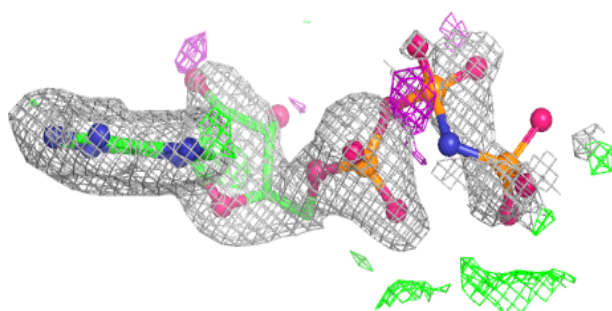
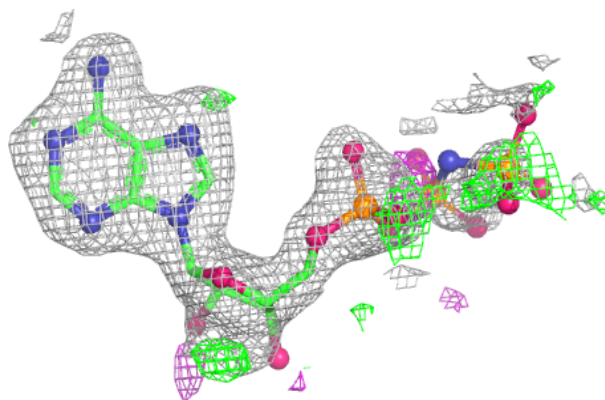
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	GOL	B	602	6/6	0.79	0.19	41,53,60,62	0
3	ANP	A	602	31/31	0.81	0.17	18,48,95,97	31
3	ANP	B	601	31/31	0.84	0.17	17,53,76,80	31
2	MG	B	604	1/1	0.85	0.22	63,63,63,63	0
2	MG	A	604	1/1	0.86	0.20	56,56,56,56	0
4	MLA	B	603	7/7	0.87	0.11	32,37,54,58	0
4	MLA	A	603	7/7	0.90	0.09	38,43,45,50	0
5	R7D	B	605	28/28	0.93	0.12	25,38,74,75	0
5	R7D	A	606	28/28	0.94	0.10	24,41,55,59	0
2	MG	A	605	1/1	0.97	0.06	42,42,42,42	0
2	MG	A	601	1/1	0.99	0.12	38,38,38,38	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.

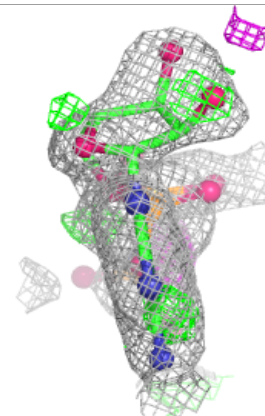
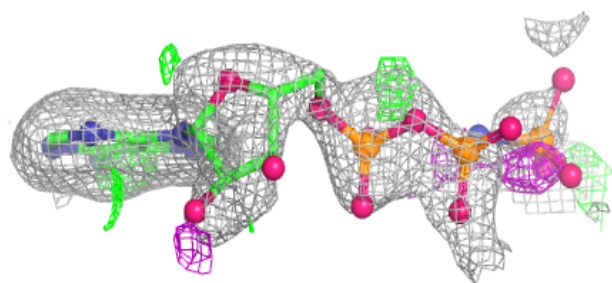
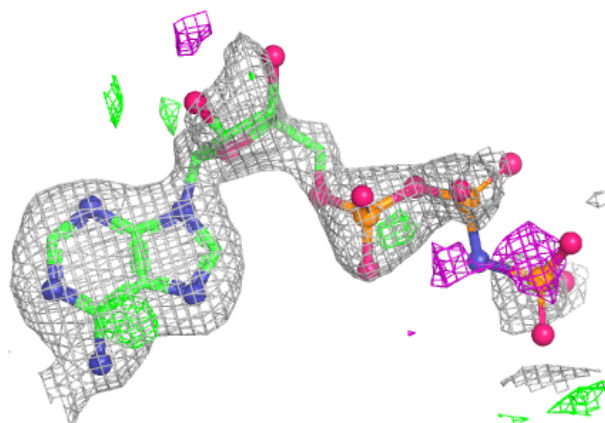
Electron density around ANP A 602:

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



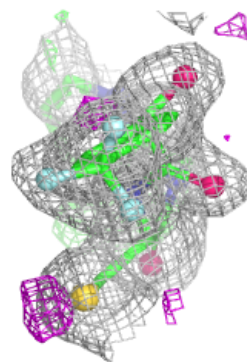
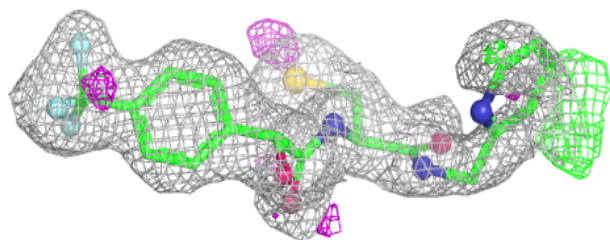
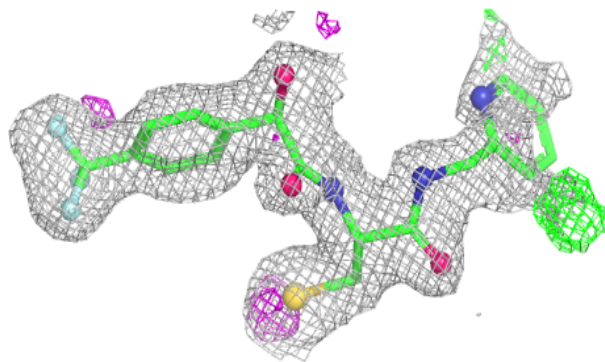
Electron density around ANP B 601:

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

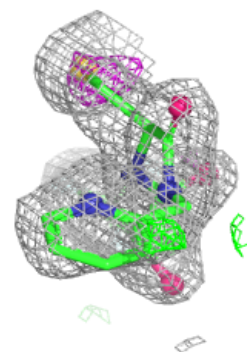
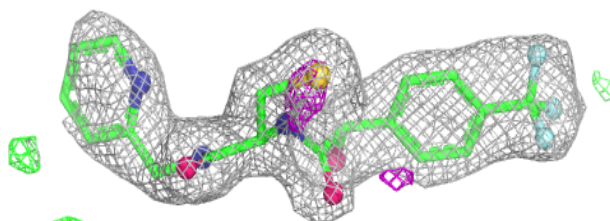
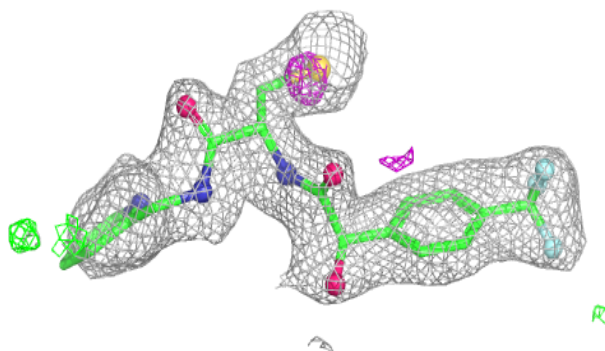


Electron density around R7D B 605:

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

**Electron density around R7D A 606:**

$2mF_o-DF_c$ (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.