Full wwPDB X-ray Structure Validation Report (i)

Dec 22, 2025 – 09:05 am GMT

PDB ID	:	9TM6 / pdb_00009tm6
Title	:	Structure of duck RIG-I (delta CARDs) bound to 31-mer RNA mismatched hairpin with 5'pppG-C blunt end mimicking the influenza A virus vRNA promoter (panhandle) and to ADP.
Authors	:	Cusack, S.; Ivanov, I.
Deposited on	:	2025-12-12
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
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

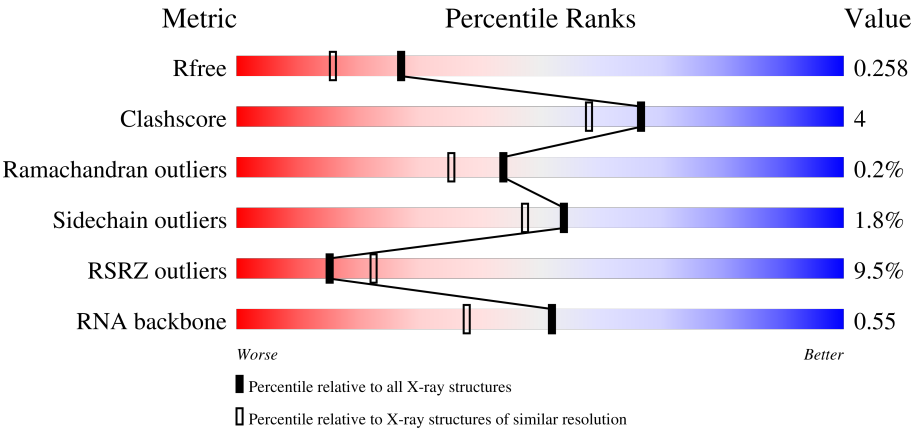
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

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}	164625	1356 (1.98-1.98)
Clashscore	180529	1437 (1.98-1.98)
Ramachandran outliers	177936	1426 (1.98-1.98)
Sidechain outliers	177891	1426 (1.98-1.98)
RSRZ outliers	164620	1356 (1.98-1.98)
RNA backbone	3690	1020 (2.38-1.58)

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	692	9% 87% 10% .
2	R	30	7% 47% 33% 7% 13%

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 6179 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 RNA helicase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	670	Total	C	N	O	S	0	9	0
			5435	3424	941	1031	39			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	375	GLN	GLU	engineered mutation	UNP D3TI84

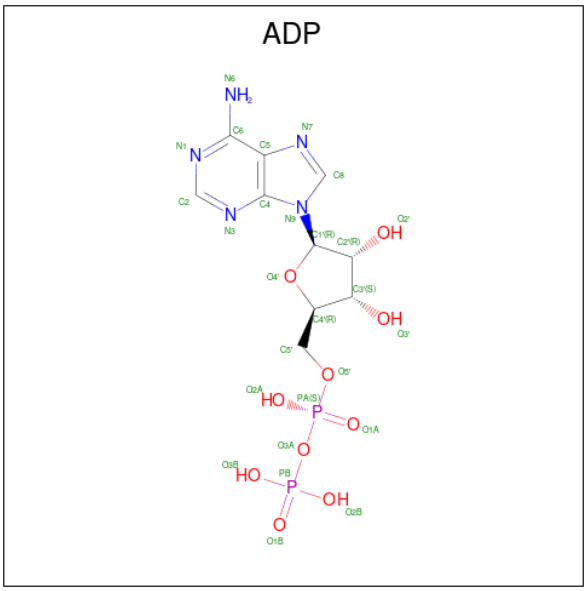
- Molecule 2 is a RNA chain called 31-mer RNA hairpin with 5'pppG-C blunt end mimicking the influenza A virus vRNA promoter (panhandle).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	R	26	Total	C	N	O	P	0	0	0
			554	247	98	183	26			

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Zn	0	0
			1	1		

- Molecule 4 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

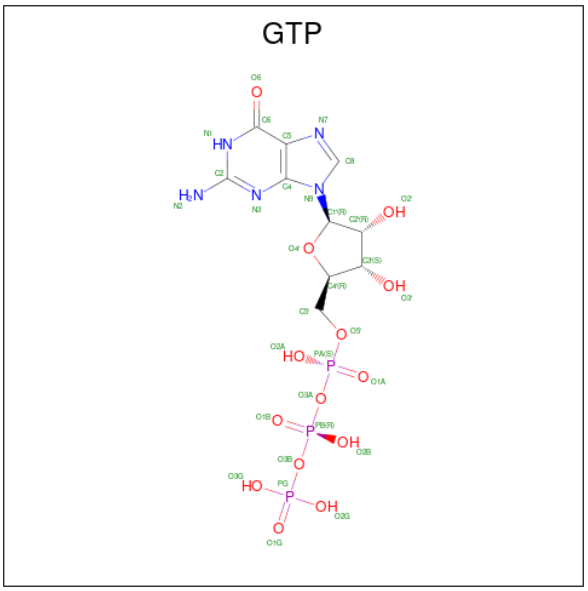
- Molecule 5 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

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

- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Mg	0	0
			1	1		

- Molecule 7 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
7	R	1	Total	C	N	O	P	0	0
			32	10	5	14	3		

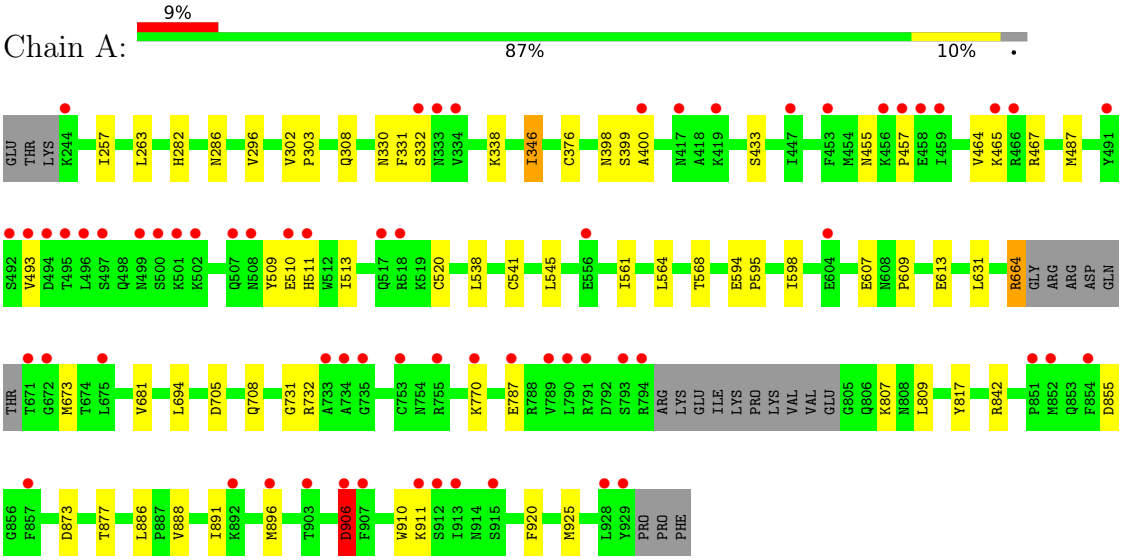
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	117	Total	O	0	0
			117	117		
8	R	11	Total	O	0	0
			11	11		

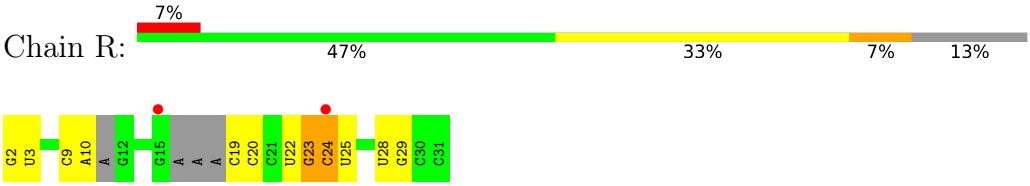
3 Residue-property plots (i)

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: RNA helicase



• Molecule 2: 31-mer RNA hairpin with 5'pppG-C blunt end mimicking the influenza A virus vRNA promoter (panhandle)



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	87.86Å 99.59Å 192.22Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	96.11 – 1.98 96.11 – 1.98	Depositor EDS
% Data completeness (in resolution range)	60.5 (96.11-1.98) 60.5 (96.11-1.98)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.02 (at 1.98Å)	Xtriage
Refinement program	REFMAC 5.8.0430	Depositor
R, R_{free}	0.200 , 0.252 0.206 , 0.258	Depositor DCC
R_{free} test set	1760 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å^2)	31.2	Xtriage
Anisotropy	0.052	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.38 , 42.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	6179	wwPDB-VP
Average B, all atoms (Å^2)	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.18% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, GTP, CSO, ADP, ZN, 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	A	0.47	0/5509	0.92	4/7419 (0.1%)
2	R	0.54	0/616	0.88	0/953
All	All	0.48	0/6125	0.91	4/8372 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	770	LYS	CB-CA-C	-6.00	100.65	110.85
1	A	873	ASP	CA-CB-CG	5.76	118.36	112.60
1	A	906	ASP	CB-CA-C	5.64	119.52	109.38
1	A	906	ASP	CA-CB-CG	5.39	117.99	112.60

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	5435	0	5468	37	0
2	R	554	0	283	9	0
3	A	1	0	0	0	0
4	A	27	0	12	0	0
5	A	1	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	A	1	0	0	0	0
7	R	32	0	11	0	0
8	A	117	0	0	0	0
8	R	11	0	0	0	0
All	All	6179	0	5774	43	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 4.

All (43) 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:487:MET:HE2	1:A:541:CYS:HB3	1.66	0.77
1:A:282:HIS:CE1	1:A:286:ASN:ND2	2.68	0.62
1:A:464:VAL:HG11	1:A:613:GLU:HG2	1.81	0.62
1:A:257:ILE:HG23	1:A:282:HIS:CE1	2.37	0.60
1:A:457:PRO:HG3	1:A:731:GLY:O	2.04	0.58
1:A:487:MET:HE1	1:A:545:LEU:HD12	1.88	0.55
1:A:920:PHE:CE1	1:A:925:MET:HG3	2.42	0.54
1:A:664:ARG:HB3	1:A:673:MET:O	2.07	0.54
2:R:19:C:H2'	2:R:20:C:C6	2.43	0.53
1:A:282:HIS:CE1	1:A:286:ASN:HD21	2.26	0.53
2:R:22:U:H2'	2:R:23:G:O4'	2.09	0.53
1:A:911:LYS:HE3	2:R:3:U:H5"	1.90	0.52
1:A:807:LYS:HD3	1:A:896:MET:HB3	1.93	0.51
2:R:24:C:H2'	2:R:25:U:C6	2.46	0.51
1:A:398:ASN:O	1:A:400:ALA:N	2.45	0.50
1:A:487:MET:HE1	1:A:545:LEU:CD1	2.42	0.49
1:A:891:ILE:HB	1:A:910:TRP:CE2	2.47	0.48
1:A:607:GLU:O	1:A:609:PRO:HD3	2.13	0.47
2:R:2:G:H2'	2:R:3:U:O4'	2.14	0.47
1:A:509:TYR:CE2	1:A:513:ILE:HD11	2.50	0.46
1:A:308:GLN:HA	1:A:308:GLN:OE1	2.15	0.45
1:A:510:GLU:OE2	2:R:25:U:O2'	2.34	0.45
1:A:594:GLU:N	1:A:595:PRO:CD	2.81	0.44
2:R:23:G:H2'	2:R:24:C:C6	2.53	0.44
1:A:511:HIS:CD2	2:R:9:C:H1'	2.52	0.43
1:A:631:LEU:HD13	1:A:694:LEU:HD23	2.00	0.43
1:A:673:MET:HE1	1:A:681:VAL:HG21	1.99	0.43
1:A:302:VAL:N	1:A:303:PRO:HD2	2.33	0.43
1:A:263:LEU:CD1	1:A:376:CYS:SG	3.07	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:564:LEU:O	1:A:568:THR:HG23	2.19	0.43
1:A:433:SER:OG	1:A:787:GLU:OE2	2.32	0.42
1:A:708:GLN:NE2	1:A:732:ARG:HB2	2.34	0.42
2:R:28:U:H2'	2:R:29:G:O4'	2.19	0.42
1:A:817:TYR:O	1:A:842:ARG:HD3	2.19	0.42
1:A:296:VAL:HA	1:A:346:ILE:O	2.20	0.41
1:A:906:ASP:OD1	1:A:906:ASP:C	2.64	0.41
1:A:467:ARG:HH11	1:A:467:ARG:HG3	1.86	0.41
1:A:330:ASN:O	1:A:331:PHE:C	2.64	0.41
1:A:594:GLU:HG2	1:A:598:ILE:HD11	2.02	0.40
1:A:877:THR:HA	1:A:886:LEU:O	2.21	0.40
1:A:809:LEU:HD11	1:A:896:MET:HE1	2.02	0.40
1:A:465:LYS:O	1:A:609:PRO:HB2	2.22	0.40
1:A:520:CYS:SG	1:A:538:LEU:HD13	2.62	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	671/692 (97%)	650 (97%)	20 (3%)	1 (0%)	48 41

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	399	SER

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	612/625 (98%)	601 (98%)	11 (2%)	54 47

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

Mol	Chain	Res	Type
1	A	332	SER
1	A	338	LYS
1	A	346	ILE
1	A	455	ASN
1	A	493	VAL
1	A	561	ILE
1	A	664	ARG
1	A	705	ASP
1	A	855	ASP
1	A	888	VAL
1	A	906	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	282	HIS
1	A	286	ASN
1	A	355	ASN
1	A	375	GLN
1	A	378	ASN
1	A	398	ASN
1	A	446	ASN
1	A	448	GLN
1	A	455	ASN
1	A	508	ASN
1	A	511	HIS
1	A	591	GLN
1	A	606	ASN
1	A	708	GLN
1	A	726	GLN
1	A	769	GLN
1	A	853	GLN
1	A	919	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	927	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	R	23/30 (76%)	3 (13%)	0

All (3) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	R	10	A
2	R	23	G
2	R	24	C

There are no RNA pucker outliers to report.

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

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	CSO	A	265[B]	1	4,5,7	0.70	0	1,5,8	0.57	0
1	CSO	A	265[A]	1	3,6,7	0.67	0	0,6,8	-	-

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	CSO	A	265[B]	1	-	1/1/4/7	-
1	CSO	A	265[A]	1	-	1/1/5/7	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	265[B]	CSO	N-CA-CB-SG
1	A	265[A]	CSO	N-CA-CB-SG

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 5 ligands modelled in this entry, 3 are monoatomic - leaving 2 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	GTP	R	101	6,2	26,34,34	0.91	1 (3%)	32,54,54	1.42	6 (18%)
4	ADP	A	1002	-	24,29,29	0.67	0	29,45,45	0.79	1 (3%)

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	GTP	R	101	6,2	-	0/18/38/38	0/3/3/3
4	ADP	A	1002	-	-	3/12/32/32	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	R	101	GTP	C6-N1	-2.25	1.34	1.37

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	R	101	GTP	PB-O3B-PG	-3.70	120.12	132.83
7	R	101	GTP	PA-O3A-PB	-3.05	122.36	132.83
7	R	101	GTP	C5-C6-N1	2.99	119.23	113.95
7	R	101	GTP	C8-N7-C5	2.37	107.50	102.99
7	R	101	GTP	C2-N1-C6	-2.30	120.87	125.10
4	A	1002	ADP	C5-C6-N6	2.14	123.61	120.35
7	R	101	GTP	O6-C6-C5	-2.02	120.43	124.37

There are no chirality outliers.

All (3) torsion outliers are listed below:

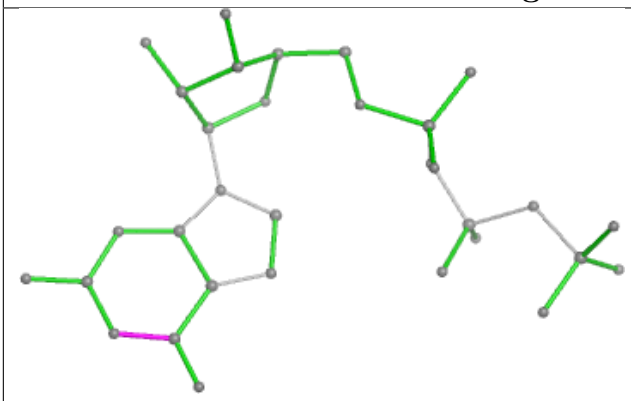
Mol	Chain	Res	Type	Atoms
4	A	1002	ADP	PA-O3A-PB-O1B
4	A	1002	ADP	PA-O3A-PB-O2B
4	A	1002	ADP	PA-O3A-PB-O3B

There are no ring outliers.

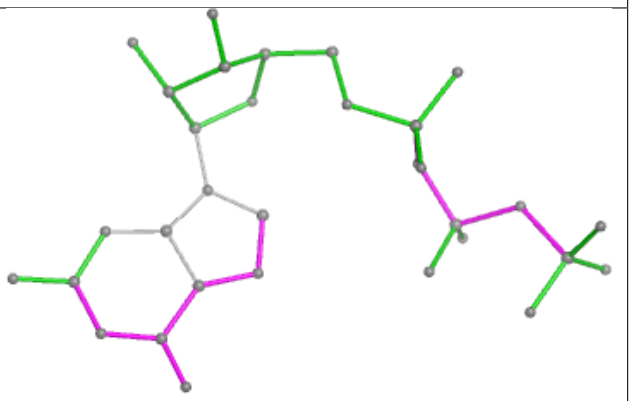
No monomer is involved in short contacts.

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 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.

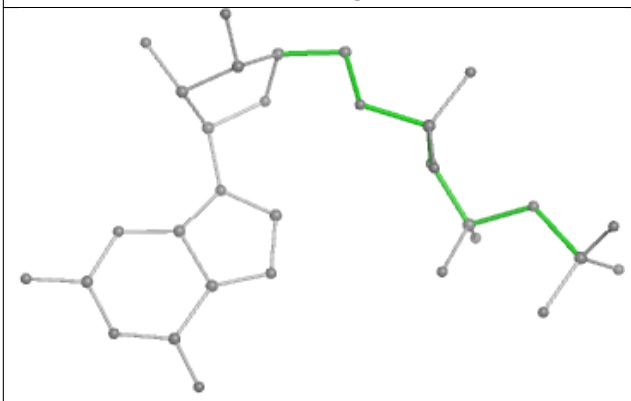
Ligand GTP R 101



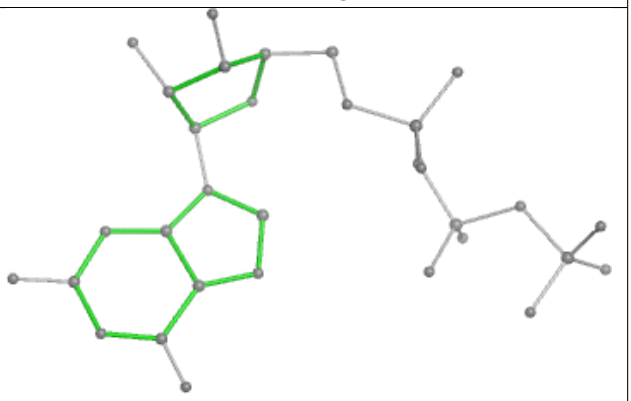
Bond lengths



Bond angles

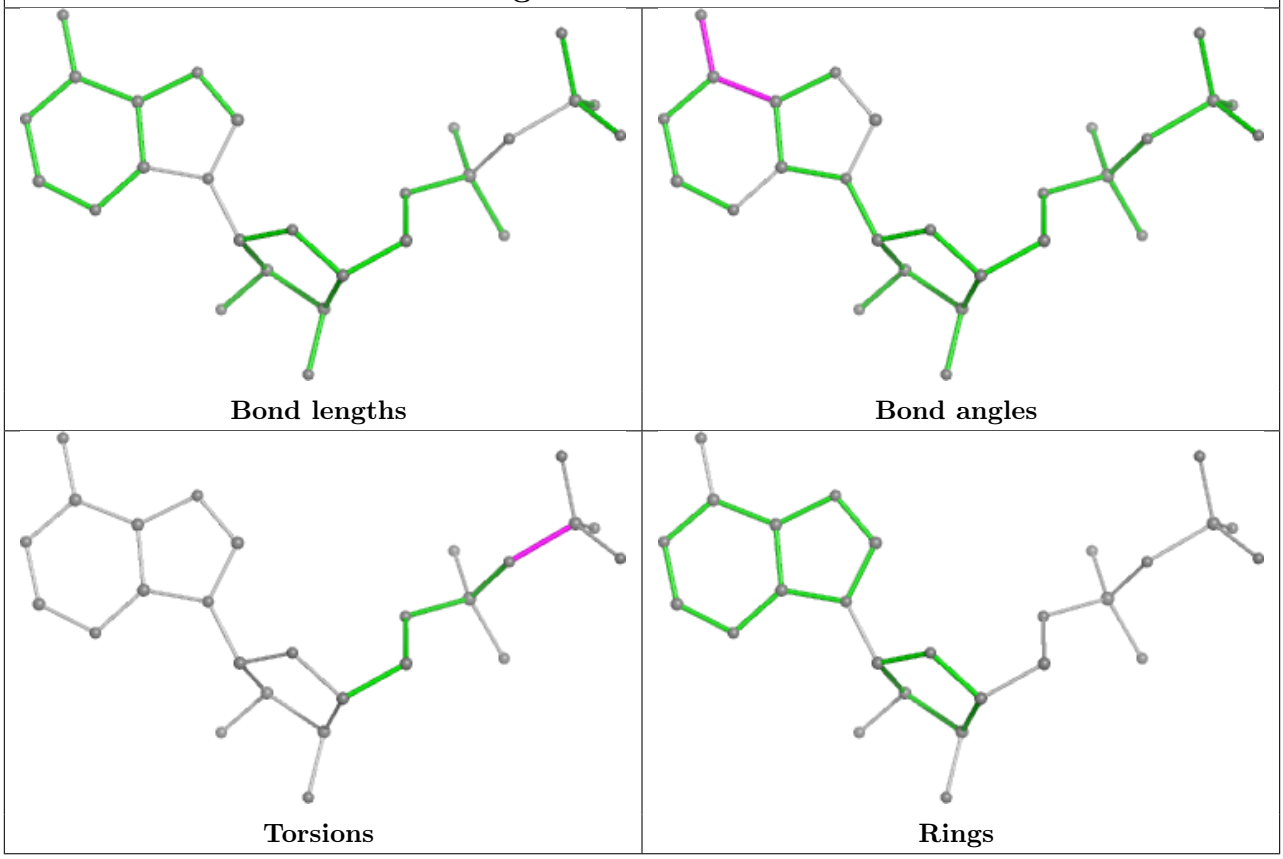


Torsions



Rings

Ligand ADP A 1002



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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	669/692 (96%)	0.53	64 (9%)	15	22	10, 35, 63, 118	8 (1%)
2	R	26/30 (86%)	0.41	2 (7%)	21	30	23, 45, 118, 139	0
All	All	695/722 (96%)	0.52	66 (9%)	15	22	10, 35, 69, 139	8 (1%)

All (66) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	496	LEU	6.0
1	A	459	ILE	5.0
1	A	511	HIS	4.5
1	A	671	THR	4.3
1	A	497	SER	4.3
1	A	400	ALA	3.9
1	A	493	VAL	3.9
1	A	518	ARG	3.8
1	A	507	GLN	3.5
1	A	789	VAL	3.5
1	A	495	THR	3.4
1	A	458	GLU	3.4
1	A	793	SER	3.3
1	A	896	MET	3.3
1	A	456	LYS	3.3
1	A	500	SER	3.1
1	A	502	LYS	3.1
1	A	911	LYS	3.0
1	A	928	LEU	3.0
1	A	906	ASP	2.9
1	A	790	LEU	2.9
1	A	791	ARG	2.8
1	A	733	ALA	2.8
1	A	929	TYR	2.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	854	PHE	2.7
1	A	912	SER	2.7
1	A	794	ARG	2.7
1	A	491	TYR	2.6
1	A	672	GLY	2.6
1	A	913	ILE	2.6
1	A	332	SER	2.6
1	A	770	LYS	2.6
1	A	734	ALA	2.6
1	A	494	ASP	2.6
1	A	466	ARG	2.5
1	A	501	LYS	2.5
1	A	892	LYS	2.5
2	R	15	G	2.4
1	A	334	VAL	2.4
1	A	857	PHE	2.4
1	A	907	PHE	2.4
1	A	333	ASN	2.4
1	A	499	ASN	2.4
1	A	508	ASN	2.4
1	A	492	SER	2.4
1	A	419	LYS	2.3
1	A	465	LYS	2.3
1	A	915	SER	2.3
1	A	753	CYS	2.3
1	A	735	GLY	2.3
1	A	417	ASN	2.2
1	A	453	PHE	2.2
2	R	24	C	2.2
1	A	851	PRO	2.2
1	A	787	GLU	2.2
1	A	447	ILE	2.2
1	A	510	GLU	2.1
1	A	755	ARG	2.1
1	A	604	GLU	2.1
1	A	457	PRO	2.1
1	A	556	GLU	2.1
1	A	244	LYS	2.1
1	A	903	THR	2.1
1	A	675	LEU	2.0
1	A	517	GLN	2.0
1	A	852	MET	2.0

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, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	CSO	A	265[A]	7/8	0.93	0.07	28,30,37,38	7
1	CSO	A	265[B]	6/8	0.93	0.07	25,26,27,27	6

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

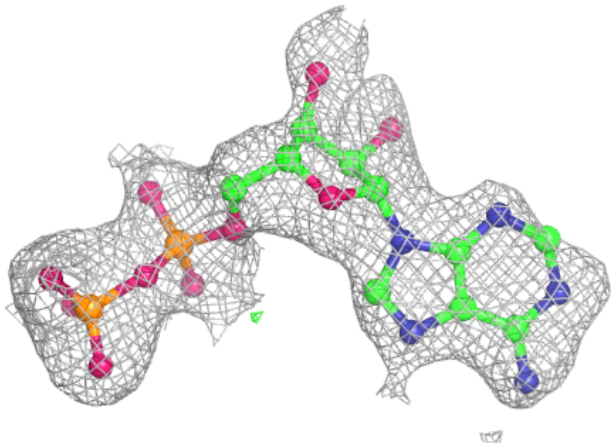
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

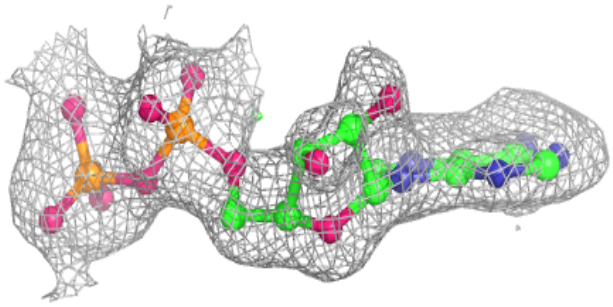
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	MG	A	1004	1/1	0.89	0.09	50,50,50,50	0
4	ADP	A	1002	27/27	0.93	0.10	36,58,62,63	0
7	GTP	R	101	32/32	0.96	0.07	24,30,67,68	0
5	CL	A	1003	1/1	0.99	0.04	44,44,44,44	1
3	ZN	A	1001	1/1	1.00	0.01	20,20,20,20	0

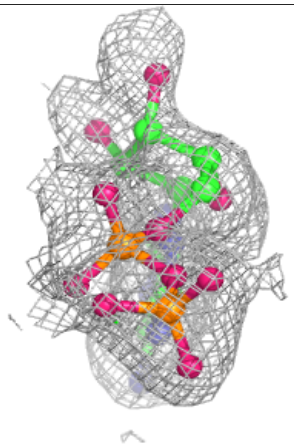
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around ADP 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)

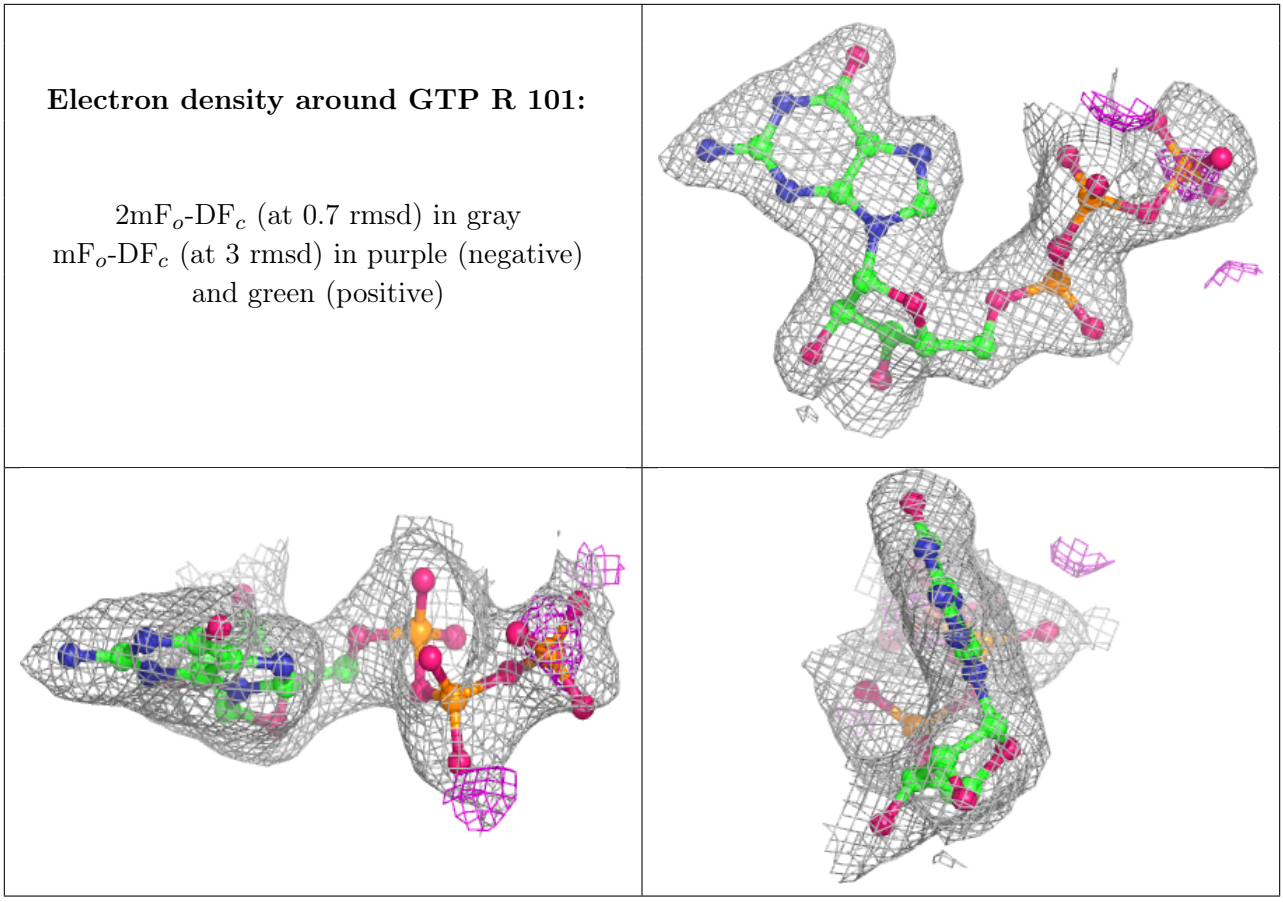






Electron density around GTP R 101:

$2mF_o$-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

There are no such residues in this entry.