Full wwPDB X-ray Structure Validation Report (i)

Mar 5, 2026 – 06:38 PM UTC

PDB ID	:	9C15 / pdb_00009c15
Title	:	Crystal structure of the KRAS-p110alpha complex with molecular glue D927
Authors	:	Yan, W.; Czyzyk, D.J.; Simanshu, D.K.
Deposited on	:	2024-05-28
Resolution	:	2.81 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:

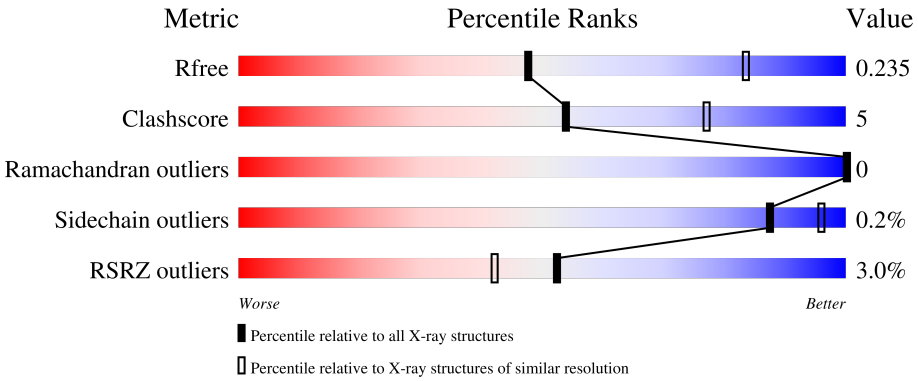
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal 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 (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.81 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	4591 (2.84-2.80)
Clashscore	190562	5010 (2.84-2.80)
Ramachandran outliers	187476	4916 (2.84-2.80)
Sidechain outliers	187428	4918 (2.84-2.80)
RSRZ outliers	180081	4594 (2.84-2.80)

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	965	3% 80% 12% 8%
2	B	170	4% 81% 17% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	IPA	A	1104	-	-	-	X

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 8457 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 Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	888	7071	4522	1195	1291	63	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	104	GLY	-	expression tag	UNP P42336
A	1057	ALA	TRP	engineered mutation	UNP P42336
A	1058	ALA	ILE	engineered mutation	UNP P42336
A	1059	ALA	PHE	engineered mutation	UNP P42336

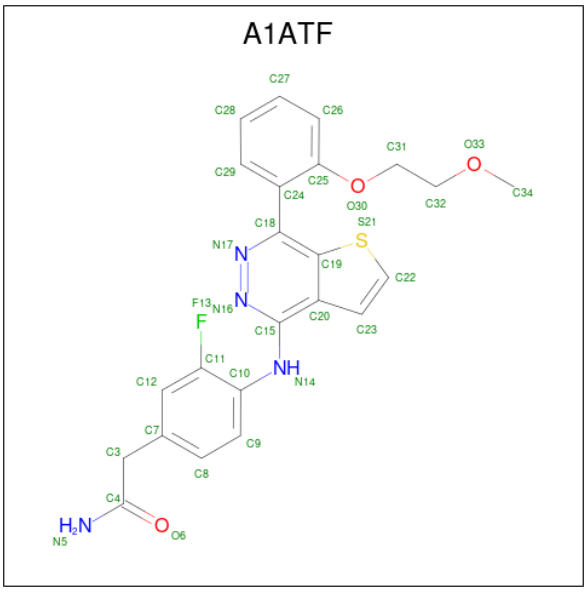
- Molecule 2 is a protein called GTPase KRas.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	167	1274	796	217	255	6	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	0	GLY	-	expression tag	UNP P01116

- Molecule 3 is 2-[3-fluoro-4-({(7P)-7-[2-(2-methoxyethoxy)phenyl]thieno[2,3-d]pyridazin-4-yl}amino)phenyl]acetamide (CCD ID: A1ATF) (formula: $C_{23}H_{21}FN_4O_3S$) (labeled as "Ligand of Interest" by depositor).

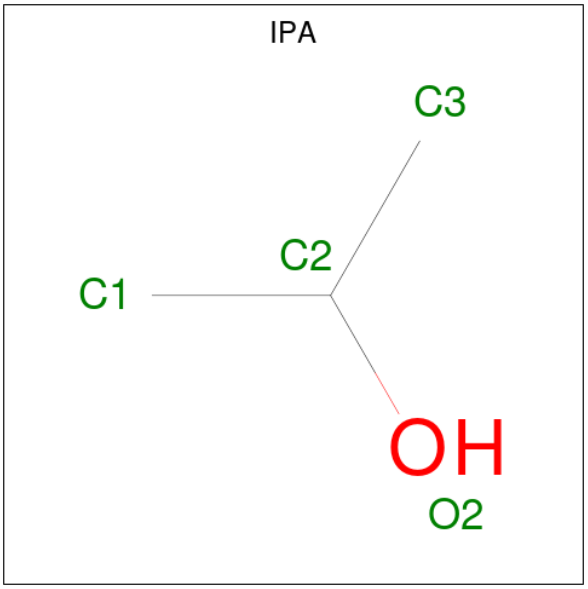


Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
3	A	1	Total	C	F	N	O	S	0	0
			32	23	1	4	3	1		

- Molecule 4 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

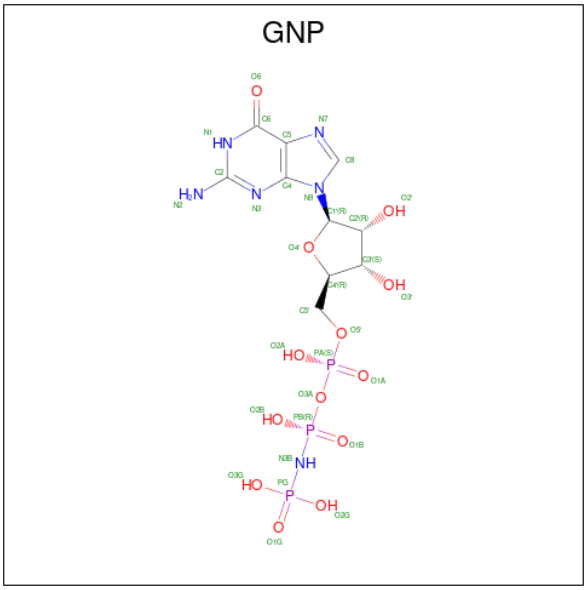
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Mg	0	0
			1	1		
4	B	1	Total	Mg	0	0
			1	1		

- Molecule 5 is ISOPROPYL ALCOHOL (CCD ID: IPA) (formula: C_3H_8O).



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

- Molecule 6 is PHOSPHOAMINOPHOSPHONIC ACID-GUANYLATE ESTER (CCD ID: GNP) (formula: $C_{10}H_{17}N_6O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C N O P 32 10 6 13 3	0	0

- Molecule 7 is water.

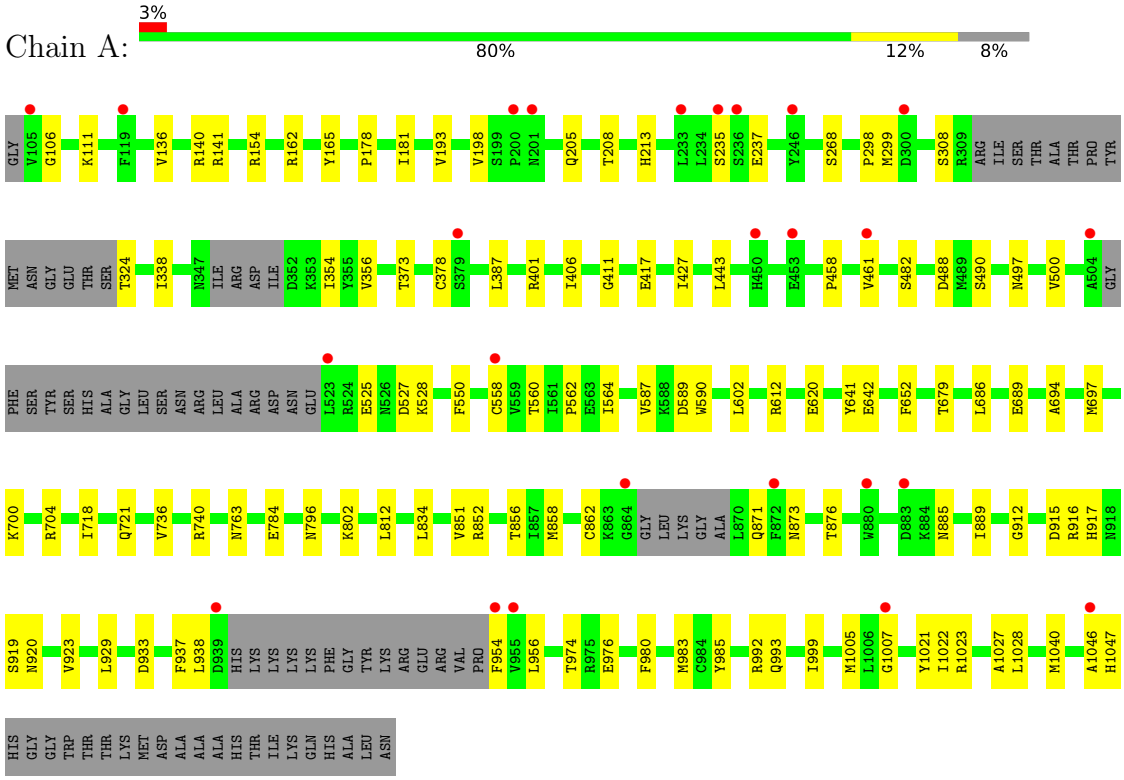
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	35	Total O 35 35	0	0
7	B	3	Total O 3 3	0	0

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.

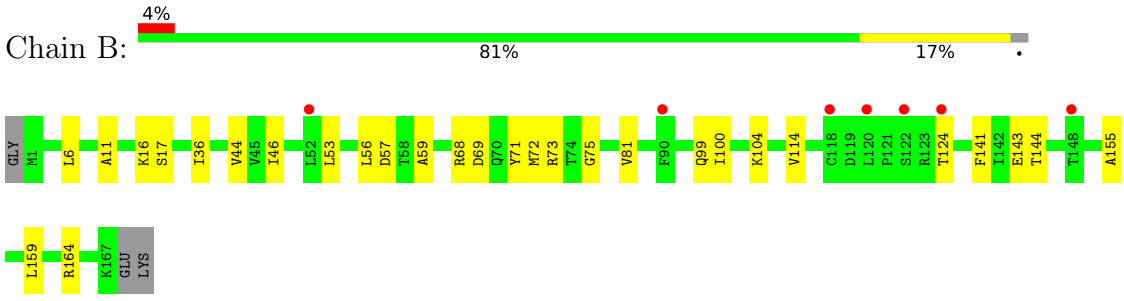
• Molecule 1: Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit alpha isoform

Chain A:



• Molecule 2: GTPase KRas

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	58.30Å 126.39Å 112.94Å 90.00° 105.11° 90.00°	Depositor
Resolution (Å)	45.54 – 2.81 45.54 – 2.81	Depositor EDS
% Data completeness (in resolution range)	98.2 (45.54-2.81) 98.1 (45.54-2.81)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.51 (at 2.81Å)	Xtriage
Refinement program	PHENIX 1.18_3845	Depositor
R, R_{free}	0.203 , 0.234 0.206 , 0.235	Depositor DCC
R_{free} test set	1891 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	68.3	Xtriage
Anisotropy	0.457	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 47.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.022 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8457	wwPDB-VP
Average B, all atoms (Å^2)	81.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.06% 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: A1ATF, MG, IPA, GNP

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	0.24	0/7227	0.42	0/9794
2	B	0.27	0/1294	0.42	0/1756
All	All	0.24	0/8521	0.42	0/11550

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

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	7071	0	6865	63	0
2	B	1274	0	1196	17	0
3	A	32	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	8	0	16	1	0
6	B	32	0	13	0	0
7	A	35	0	0	2	0
7	B	3	0	0	0	0
All	All	8457	0	8090	80	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 (80) 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:852:ARG:HE	5:A:1104:IPA:H32	1.42	0.84
1:A:411:GLY:HA3	1:A:417:GLU:HA	1.66	0.77
1:A:338:ILE:HG21	1:A:356:VAL:HG21	1.72	0.70
1:A:356:VAL:HG12	1:A:406:ILE:HG12	1.80	0.63
1:A:154:ARG:NH2	1:A:694:ALA:O	2.29	0.62
1:A:923:VAL:HG22	1:A:929:LEU:HD12	1.81	0.60
1:A:587:VAL:HA	1:A:590:TRP:HB2	1.84	0.59
1:A:602:LEU:O	1:A:612:ARG:NH2	2.35	0.59
1:A:193:VAL:HG22	1:A:208:THR:HG22	1.84	0.58
1:A:992:ARG:NH1	1:A:1027:ALA:O	2.37	0.58
1:A:980:PHE:HA	1:A:983:MET:HE2	1.87	0.57
2:B:11:ALA:O	2:B:16:LYS:NZ	2.36	0.57
1:A:856:THR:HG22	1:A:858:MET:H	1.70	0.56
1:A:178:PRO:HD2	1:A:181:ILE:HD12	1.86	0.56
1:A:558:CYS:HB2	1:A:564:ILE:HG21	1.88	0.56
2:B:68:ARG:HA	2:B:71:TYR:CE2	2.41	0.55
2:B:75:GLY:O	2:B:104:LYS:NZ	2.37	0.55
2:B:124:THR:HG22	2:B:124:THR:O	2.07	0.55
1:A:812:LEU:HD13	1:A:1005:MET:HE3	1.90	0.54
1:A:802:LYS:NZ	7:A:1208:HOH:O	2.40	0.53
1:A:937:PHE:HD1	1:A:938:LEU:HG	1.73	0.53
2:B:17:SER:OG	2:B:57:ASP:OD2	2.26	0.53
1:A:1023:ARG:HG2	1:A:1028:LEU:HD12	1.89	0.53
1:A:324:THR:HG23	1:A:482:SER:HB3	1.91	0.52
2:B:6:LEU:HD11	2:B:53:LEU:HD22	1.91	0.52
1:A:999:ILE:HG12	1:A:1022:ILE:HD11	1.92	0.52
1:A:612:ARG:NH1	1:A:642:GLU:OE1	2.41	0.52
2:B:46:ILE:HG22	2:B:164:ARG:HH12	1.76	0.51
1:A:401:ARG:NH1	1:A:458:PRO:O	2.31	0.51
1:A:858:MET:O	1:A:862:CYS:N	2.40	0.50
1:A:700:LYS:HE3	1:A:704:ARG:NH2	2.27	0.50
1:A:198:VAL:HG11	1:A:205:GLN:HE21	1.76	0.50
1:A:700:LYS:HE3	1:A:704:ARG:HH22	1.77	0.49
1:A:373:THR:HG22	1:A:387:LEU:HD21	1.93	0.49
1:A:527:ASP:HB2	1:A:550:PHE:CZ	2.48	0.48
1:A:106:GLY:O	1:A:111:LYS:NZ	2.43	0.48
1:A:136:VAL:HG13	1:A:686:LEU:HD11	1.95	0.48
1:A:140:ARG:NH2	1:A:689:GLU:OE2	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:993:GLN:NE2	7:A:1206:HOH:O	2.36	0.47
1:A:141:ARG:HG3	1:A:308:SER:HA	1.97	0.46
1:A:461:VAL:HG21	1:A:679:THR:HB	1.98	0.46
1:A:915:ASP:O	1:A:920:ASN:ND2	2.48	0.46
2:B:44:VAL:HG12	2:B:46:ILE:HG13	1.97	0.46
1:A:1046:ALA:O	1:A:1047:HIS:C	2.59	0.46
1:A:917:HIS:CE1	1:A:919:SER:HB2	2.51	0.45
2:B:56:LEU:HD23	2:B:71:TYR:HB2	1.98	0.45
2:B:72:MET:HE1	2:B:99:GLN:HG2	1.98	0.45
1:A:162:ARG:HH22	1:A:299:MET:HA	1.82	0.45
1:A:641:TYR:OH	1:A:1007:GLY:N	2.49	0.45
1:A:956:LEU:HA	1:A:956:LEU:HD23	1.77	0.45
2:B:6:LEU:HD23	2:B:159:LEU:HD23	1.99	0.45
1:A:488:ASP:OD2	1:A:490:SER:OG	2.30	0.44
2:B:36:ILE:HA	2:B:59:ALA:HB2	1.99	0.44
1:A:213:HIS:HB2	1:A:268:SER:HB3	2.00	0.44
1:A:298:PRO:HB3	1:A:697:MET:HG3	2.00	0.44
1:A:974:THR:HG22	1:A:976:GLU:H	1.83	0.44
1:A:763:ASN:HB2	1:A:784:GLU:HG2	2.00	0.44
2:B:144:THR:HG21	2:B:155:ALA:HB2	1.99	0.44
2:B:81:VAL:HG22	2:B:114:VAL:HB	2.00	0.43
1:A:885:ASN:HB3	1:A:889:ILE:HG22	2.00	0.43
1:A:796:ASN:O	1:A:852:ARG:NH2	2.51	0.43
1:A:834:LEU:HD21	1:A:851:VAL:HG21	1.99	0.43
1:A:873:ASN:HB2	1:A:876:THR:HG23	1.99	0.43
1:A:525:GLU:HA	1:A:528:LYS:HB3	2.00	0.43
1:A:497:ASN:HA	1:A:500:VAL:HG12	2.00	0.43
1:A:718:ILE:HA	1:A:721:GLN:HB3	1.99	0.42
2:B:69:ASP:O	2:B:73:ARG:HG3	2.19	0.42
1:A:736:VAL:O	1:A:740:ARG:HG3	2.19	0.42
1:A:154:ARG:HD3	1:A:165:TYR:CG	2.55	0.42
1:A:912:GLY:HA3	1:A:1021:TYR:CE2	2.54	0.42
1:A:620:GLU:HG2	1:A:652:PHE:CD1	2.54	0.42
1:A:427:ILE:HD11	1:A:443:LEU:HD22	2.02	0.42
1:A:560:THR:O	1:A:562:PRO:HD3	2.19	0.42
1:A:985:TYR:CE1	1:A:1040:MET:HG2	2.54	0.42
1:A:235:SER:C	1:A:237:GLU:H	2.27	0.42
2:B:141:PHE:HZ	2:B:143:GLU:HG3	1.85	0.42
2:B:72:MET:HE3	2:B:100:ILE:HA	2.02	0.41
1:A:916:ARG:NH1	1:A:933:ASP:O	2.52	0.41
1:A:354:ILE:HG23	1:A:378:CYS:HB3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:589:ASP:OD1	1:A:589:ASP:N	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	876/965 (91%)	839 (96%)	37 (4%)	0	100	100
2	B	165/170 (97%)	155 (94%)	10 (6%)	0	100	100
All	All	1041/1135 (92%)	994 (96%)	47 (4%)	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	759/873 (87%)	757 (100%)	2 (0%)	86	95
2	B	132/149 (89%)	132 (100%)	0	100	100
All	All	891/1022 (87%)	889 (100%)	2 (0%)	87	96

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	871	GLN
1	A	954	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	205	GLN
1	A	444	ASN
1	A	556	HIS
1	A	738	GLN
1	A	759	HIS
1	A	796	ASN
1	A	873	ASN
2	B	70	GLN
2	B	94	HIS

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 6 ligands modelled in this entry, 2 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	$\#\|Z\|>2$
5	IPA	A	1104	-	3,3,3	0.11	0	3,3,3	0.10	0
5	IPA	A	1103	-	3,3,3	0.53	0	3,3,3	0.31	0
6	GNP	B	501	4	34,34,34	1.32	5 (14%)	47,54,54	0.67	0
3	A1ATF	A	1101	-	35,35,35	1.44	5 (14%)	40,48,48	1.51	8 (20%)

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
6	GNP	B	501	4	-	3/18/38/38	0/3/3/3
3	A1ATF	A	1101	-	-	4/17/17/17	0/4/4/4

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	501	GNP	PB-O3A	4.57	1.64	1.59
3	A	1101	A1ATF	C20-C15	4.54	1.49	1.42
3	A	1101	A1ATF	C19-S21	-3.73	1.67	1.73
6	B	501	GNP	PB-O1B	3.23	1.51	1.46
6	B	501	GNP	PG-N3B	3.06	1.71	1.63
3	A	1101	A1ATF	C20-C19	3.03	1.46	1.41
3	A	1101	A1ATF	N17-N16	2.90	1.41	1.34
6	B	501	GNP	PG-O1G	2.88	1.50	1.46
3	A	1101	A1ATF	C18-C19	2.71	1.48	1.42
6	B	501	GNP	PB-O2B	-2.17	1.51	1.56

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	1101	A1ATF	C12-C11-C10	-3.33	120.02	123.43
3	A	1101	A1ATF	C19-S21-C22	3.32	95.63	91.24
3	A	1101	A1ATF	C25-C24-C18	-3.22	118.67	123.28
3	A	1101	A1ATF	C19-C18-N17	-2.98	117.76	121.68
3	A	1101	A1ATF	C10-N14-C15	-2.74	121.25	129.28
3	A	1101	A1ATF	C24-C18-N17	2.64	121.04	116.34
3	A	1101	A1ATF	C9-C10-C11	2.56	120.03	117.23
3	A	1101	A1ATF	F13-C11-C10	2.13	120.24	117.59

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	B	501	GNP	PB-N3B-PG-O1G
6	B	501	GNP	PG-N3B-PB-O1B
3	A	1101	A1ATF	C19-C18-C24-C25
6	B	501	GNP	C5'-O5'-PA-O3A
3	A	1101	A1ATF	C31-C32-O33-C34
3	A	1101	A1ATF	O30-C31-C32-O33
3	A	1101	A1ATF	N17-C18-C24-C25

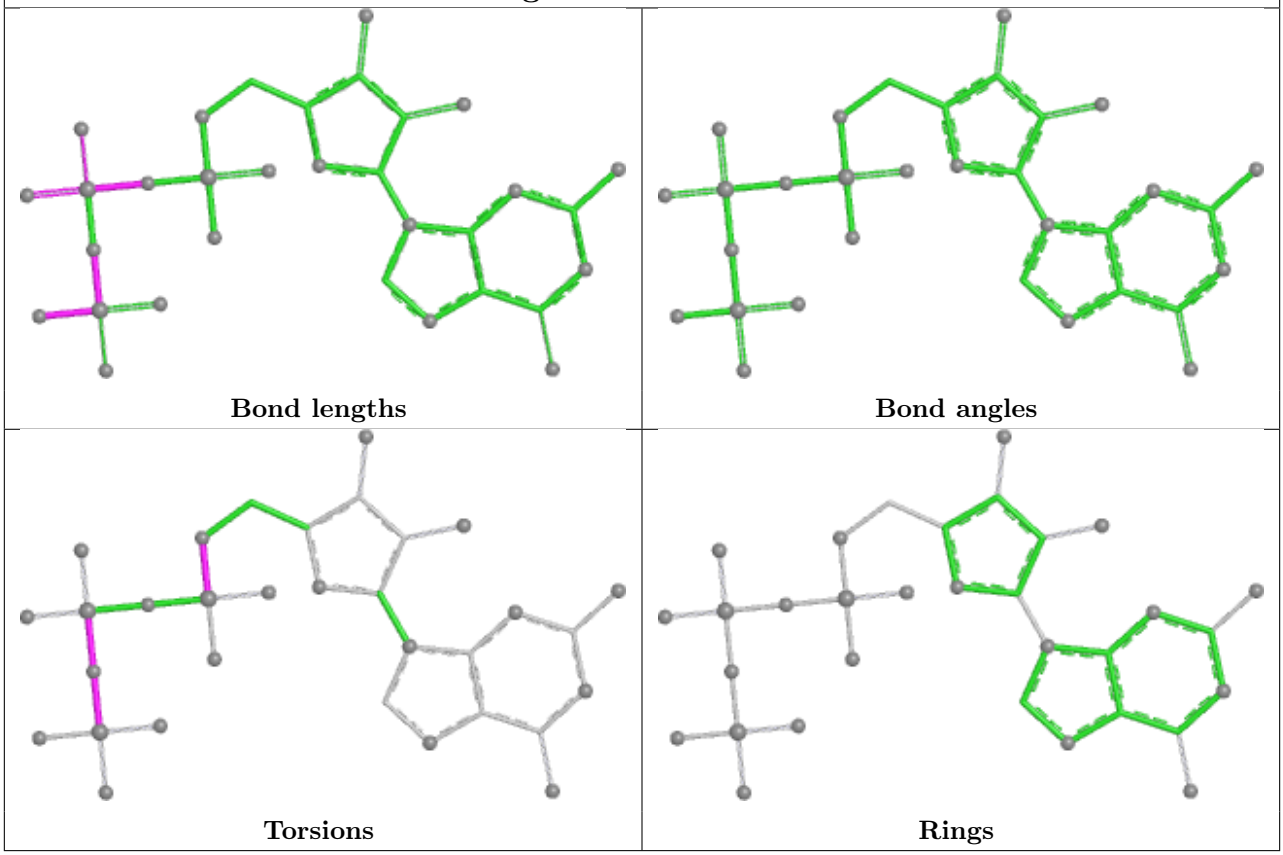
There are no ring outliers.

1 monomer is involved in 1 short contact:

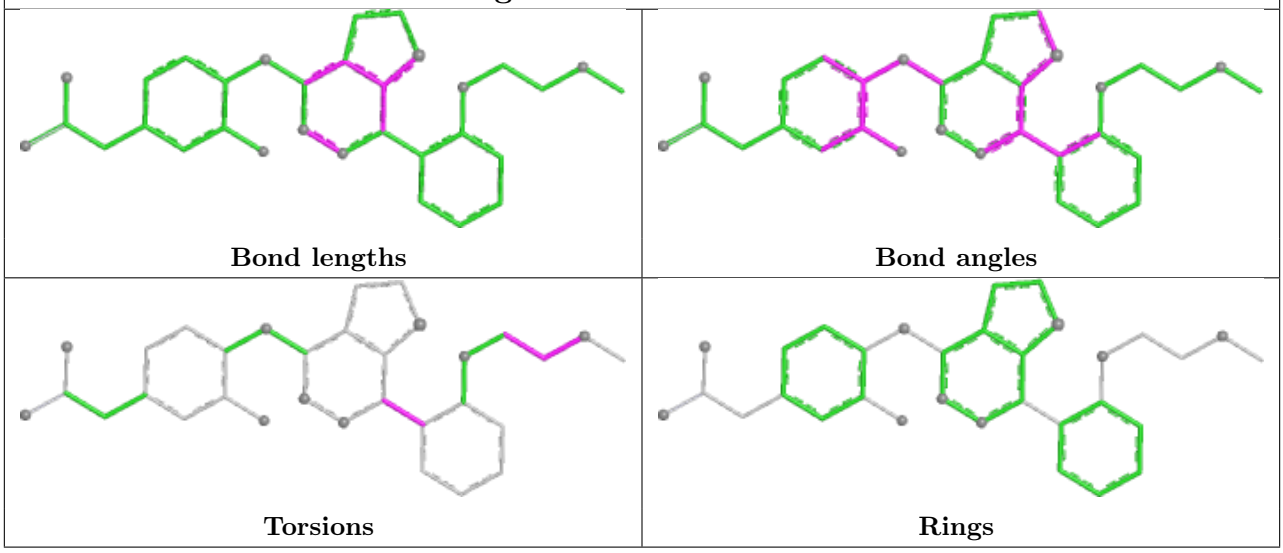
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1104	IPA	1	0

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 GNP B 501



Ligand A1ATF A 1101



5.7 Other polymers

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	888/965 (92%)	0.12	25 (2%) 55 44	37, 69, 123, 192	0
2	B	167/170 (98%)	0.76	7 (4%) 40 32	79, 127, 156, 172	0
All	All	1055/1135 (92%)	0.22	32 (3%) 52 42	37, 75, 140, 192	0

All (32) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	954	PHE	4.5
1	A	872	PHE	3.8
1	A	864	GLY	3.7
2	B	90	PHE	3.5
1	A	1046	ALA	3.4
1	A	558	CYS	3.2
1	A	450	HIS	3.1
1	A	955	VAL	2.7
1	A	883	ASP	2.7
1	A	233	LEU	2.6
2	B	52	LEU	2.6
1	A	236	SER	2.6
1	A	523	LEU	2.6
2	B	120	LEU	2.6
2	B	148	THR	2.5
1	A	504	ALA	2.4
1	A	200	PRO	2.4
1	A	105	VAL	2.4
1	A	461	VAL	2.3
1	A	453	GLU	2.3
1	A	880	TRP	2.3
1	A	246	TYR	2.3
1	A	235	SER	2.3
1	A	300	ASP	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	122	SER	2.2
1	A	201	ASN	2.2
1	A	1007	GLY	2.2
1	A	119	PHE	2.2
1	A	379	SER	2.2
2	B	118	CYS	2.1
2	B	124	THR	2.1
1	A	939	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)

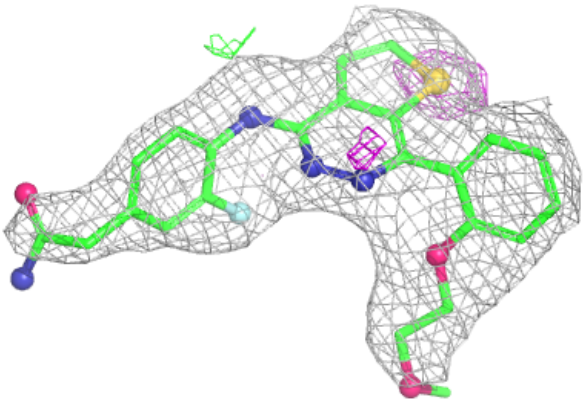
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

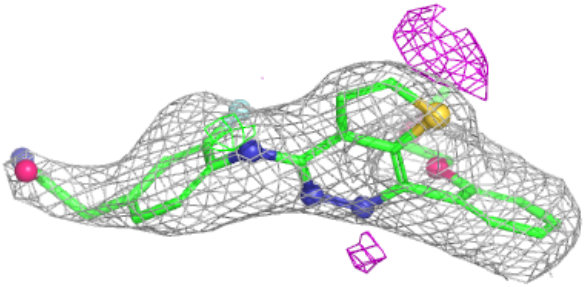
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	IPA	A	1104	4/4	0.77	0.45	66,90,118,121	0
5	IPA	A	1103	4/4	0.84	0.19	44,54,64,69	0
4	MG	A	1102	1/1	0.84	0.23	72,72,72,72	0
3	A1ATF	A	1101	32/32	0.89	0.14	68,85,100,121	0
6	GNP	B	501	32/32	0.92	0.11	81,113,144,148	0
4	MG	B	502	1/1	0.93	0.10	93,93,93,93	0

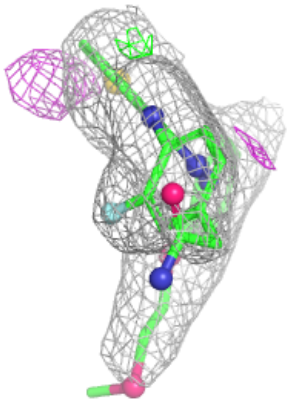
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1ATF A 1101:

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

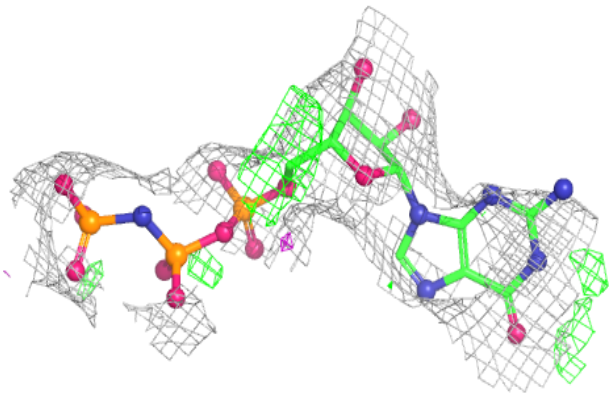


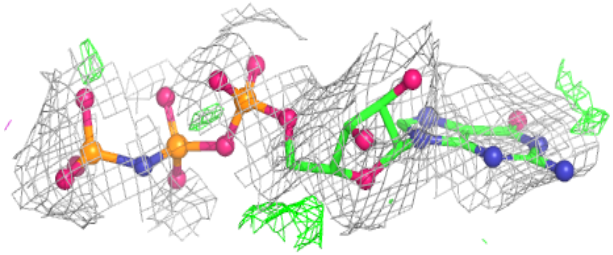


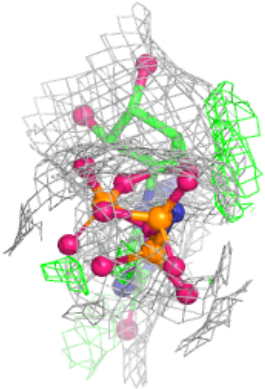


Electron density around GNP B 501:

$2mF_o$-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.