Full wwPDB X-ray Structure Validation Report (i)

Mar 12, 2024 – 12:14 pm GMT

PDB ID	:	8S0S
Title	:	A fragment-based inhibitor of SHP2
Authors	:	Cleasby, A.; Price, A.
Deposited on	:	2024-02-14
Resolution	:	1.94 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:

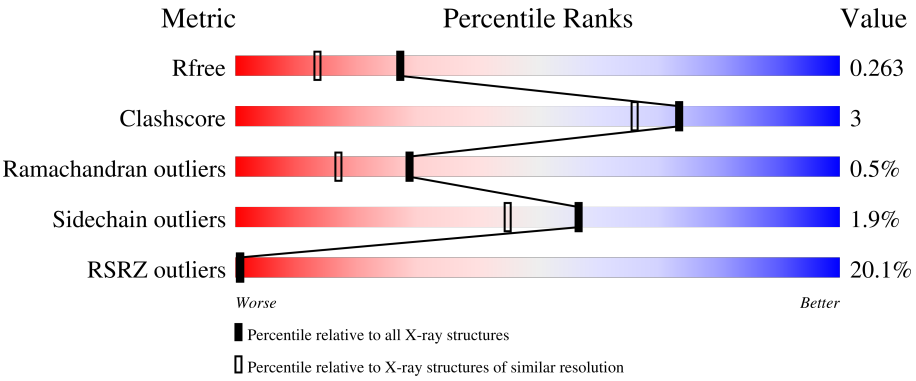
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 1.94 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}	130704	4310 (1.96-1.92)
Clashscore	141614	1023 (1.94-1.94)
Ramachandran outliers	138981	1007 (1.94-1.94)
Sidechain outliers	138945	1007 (1.94-1.94)
RSRZ outliers	127900	4250 (1.96-1.92)

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	537	20% 81% 11% 8%
1	B	537	16% 82% 9% 9%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 8532 atoms, of which 46 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.

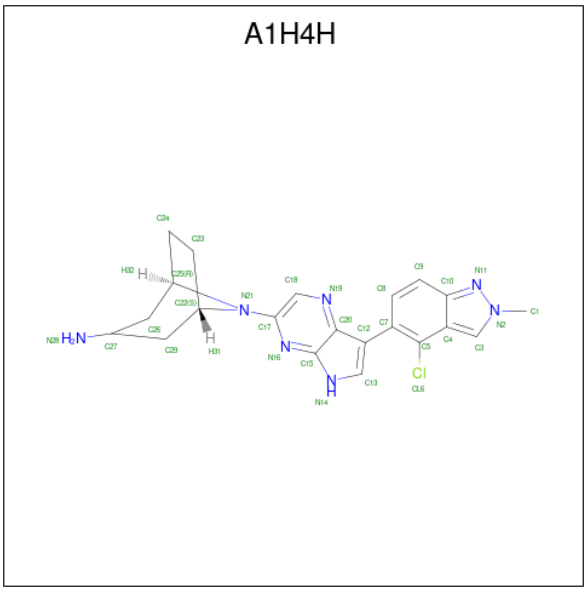
- Molecule 1 is a protein called Tyrosine-protein phosphatase non-receptor type 11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	494	Total	C	N	O	S	0	0	0
			4003	2518	712	755	18			
1	B	489	Total	C	N	O	S	0	1	0
			3966	2495	711	742	18			

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	HIS	-	expression tag	UNP Q06124
A	529	LEU	-	expression tag	UNP Q06124
A	530	GLU	-	expression tag	UNP Q06124
A	531	HIS	-	expression tag	UNP Q06124
A	532	HIS	-	expression tag	UNP Q06124
A	533	HIS	-	expression tag	UNP Q06124
A	534	HIS	-	expression tag	UNP Q06124
A	535	HIS	-	expression tag	UNP Q06124
A	536	HIS	-	expression tag	UNP Q06124
B	0	HIS	-	expression tag	UNP Q06124
B	529	LEU	-	expression tag	UNP Q06124
B	530	GLU	-	expression tag	UNP Q06124
B	531	HIS	-	expression tag	UNP Q06124
B	532	HIS	-	expression tag	UNP Q06124
B	533	HIS	-	expression tag	UNP Q06124
B	534	HIS	-	expression tag	UNP Q06124
B	535	HIS	-	expression tag	UNP Q06124
B	536	HIS	-	expression tag	UNP Q06124

- Molecule 2 is (1R,5S)-8-[7-(4-chloranyl-2-methyl-indazol-5-yl)-5H-pyrrolo[2,3-b]pyrazin-3-yl]-8-azabicyclo[3.2.1]octan-3-amine (three-letter code: A1H4H) (formula: $C_{21}H_{22}ClN_7$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Cl	H	N	0	0
			52	21	1	23	7		
2	B	1	Total	C	Cl	H	N	0	0
			52	21	1	23	7		

- Molecule 3 is water.

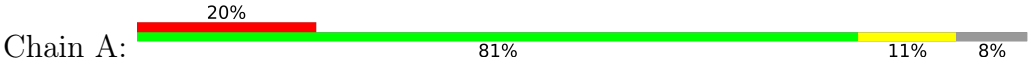
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	243	Total	O	0	0
			243	243		
3	B	216	Total	O	0	0
			216	216		

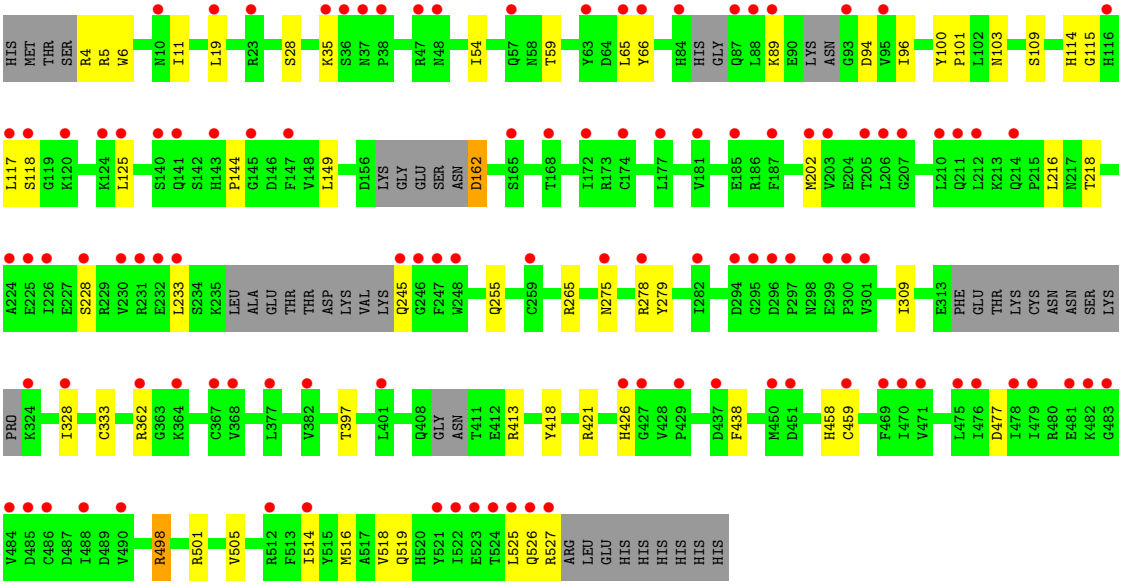
3 Residue-property plots (i)

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: Tyrosine-protein phosphatase non-receptor type 11

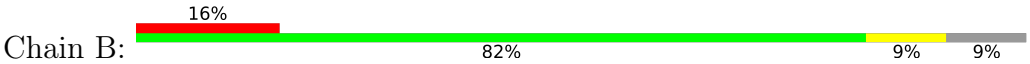
Chain A:

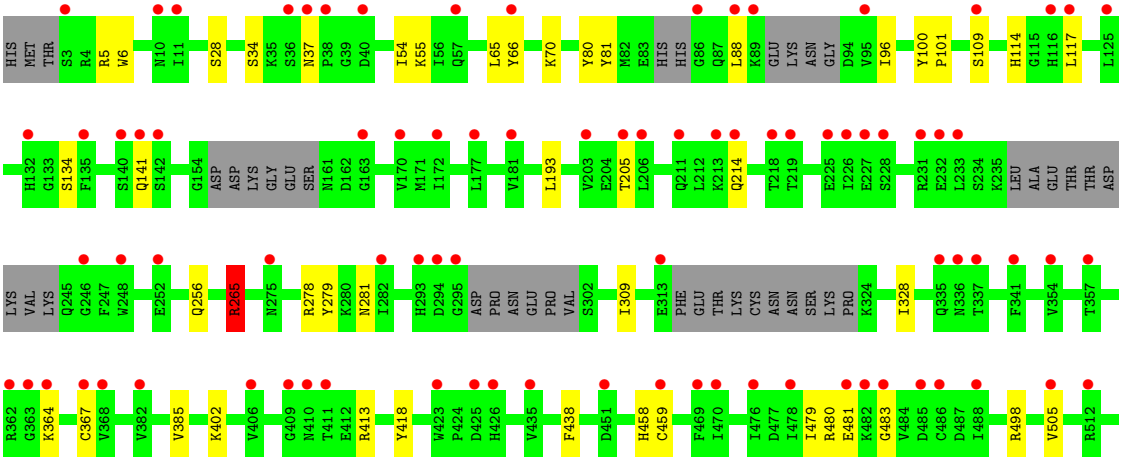


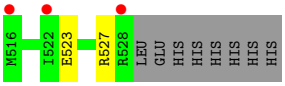


• Molecule 1: Tyrosine-protein phosphatase non-receptor type 11

Chain B:






M516
I522
E523
R527
R528
LEU
GLU
HIS
HIS
HIS
HIS
HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	45.72Å 213.73Å 55.84Å 90.00° 96.96° 90.00°	Depositor
Resolution (Å)	55.44 – 1.94 106.86 – 1.94	Depositor EDS
% Data completeness (in resolution range)	99.7 (55.44-1.94) 99.7 (106.86-1.94)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.19 (at 1.94Å)	Xtriage
Refinement program	REFMAC 5.8.0232	Depositor
R, R_{free}	0.215 , 0.258 0.222 , 0.263	Depositor DCC
R_{free} test set	3958 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	36.2	Xtriage
Anisotropy	0.274	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 48.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8532	wwPDB-VP
Average B, all atoms (Å^2)	47.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.26% 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: A1H4H

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	0.51	0/4083	0.72	3/5504 (0.1%)
1	B	0.51	0/4047	0.70	1/5451 (0.0%)
All	All	0.51	0/8130	0.71	4/10955 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	3
All	All	0	5

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	501	ARG	NE-CZ-NH1	6.64	123.62	120.30
1	A	501	ARG	NE-CZ-NH2	-5.64	117.48	120.30
1	A	498	ARG	NE-CZ-NH1	-5.29	117.66	120.30
1	B	498	ARG	NE-CZ-NH1	-5.04	117.78	120.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	265	ARG	Sidechain
1	A	4	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	B	265	ARG	Sidechain
1	B	480	ARG	Sidechain
1	B	5	ARG	Sidechain

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	4003	0	3929	30	0
1	B	3966	0	3909	23	0
2	A	29	23	0	0	0
2	B	29	23	0	0	0
3	A	243	0	0	1	0
3	B	216	0	0	3	0
All	All	8486	46	7838	53	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 3.

All (53) 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:5:ARG:HB2	1:A:103:ASN:OD1	1.79	0.83
1:B:141:GLN:NE2	3:B:701:HOH:O	2.27	0.66
1:A:11:ILE:HD11	1:A:19:LEU:HD12	1.79	0.65
1:A:65:LEU:HD23	1:A:66:TYR:N	2.15	0.62
1:A:65:LEU:HD23	1:A:65:LEU:C	2.21	0.61
1:A:362:ARG:HH11	1:A:426:HIS:CD2	2.21	0.59
1:A:59:THR:HG21	1:A:426:HIS:CE1	2.38	0.58
1:B:65:LEU:C	1:B:65:LEU:HD23	2.26	0.56
1:B:54:ILE:HD11	1:B:96:ILE:HD13	1.88	0.55
1:A:162:ASP:N	1:A:162:ASP:OD1	2.40	0.54
1:A:397:THR:OG1	1:A:421:ARG:NE	2.35	0.53
1:B:34:SER:OG	1:B:55:LYS:NZ	2.42	0.53
1:A:114:HIS:O	1:A:115:GLY:C	2.48	0.53
1:B:6:TRP:HB3	1:B:101:PRO:HB3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:149:LEU:HD23	1:A:202:MET:HE1	1.92	0.52
1:A:6:TRP:HB3	1:A:101:PRO:HB3	1.92	0.51
1:A:233:LEU:O	1:A:245:GLN:HB3	2.12	0.50
1:B:114:HIS:HB2	1:B:117:LEU:HD12	1.92	0.49
1:A:114:HIS:HB2	1:A:117:LEU:HD12	1.95	0.49
1:A:278:ARG:NH2	1:A:333:CYS:O	2.47	0.48
1:B:193:LEU:C	1:B:193:LEU:HD23	2.34	0.48
1:B:80:TYR:CE1	1:B:281:ASN:ND2	2.82	0.48
1:B:265:ARG:HD3	3:B:794:HOH:O	2.14	0.48
1:B:65:LEU:HD23	1:B:66:TYR:N	2.29	0.47
1:B:81:TYR:CD1	1:B:88:LEU:HB2	2.49	0.47
1:B:37:ASN:ND2	3:B:721:HOH:O	2.49	0.46
1:B:523:GLU:OE2	1:B:527:ARG:NH1	2.49	0.46
1:A:418:TYR:HB3	1:A:438:PHE:CE1	2.51	0.46
1:B:134:SER:HA	1:B:214:GLN:O	2.15	0.46
1:A:309:ILE:HD13	1:A:328:ILE:HG12	1.98	0.46
1:A:65:LEU:C	1:A:65:LEU:CD2	2.85	0.46
1:A:54:ILE:HD11	1:A:96:ILE:HD13	1.97	0.45
1:B:385:VAL:HA	1:B:402:LYS:O	2.16	0.45
1:A:516:MET:HE3	1:A:519:GLN:HE21	1.81	0.45
1:A:525:LEU:O	1:A:526:GLN:C	2.55	0.45
1:B:70:LYS:HD2	1:B:279:TYR:CD1	2.52	0.45
1:A:278:ARG:HG2	1:A:279:TYR:CE2	2.52	0.45
1:B:479:ILE:O	1:B:483:GLY:N	2.48	0.44
1:B:28:SER:HA	1:B:100:TYR:O	2.17	0.44
1:B:309:ILE:HD13	1:B:328:ILE:HG12	1.99	0.44
1:A:255:GLN:OE1	1:A:498:ARG:NH1	2.47	0.43
1:A:275:ASN:N	3:A:707:HOH:O	2.38	0.43
1:B:65:LEU:HD23	1:B:66:TYR:O	2.19	0.43
1:B:109:SER:CB	1:B:256:GLN:HG3	2.48	0.43
1:B:54:ILE:HD11	1:B:96:ILE:CD1	2.49	0.42
1:A:11:ILE:CD1	1:A:19:LEU:HD12	2.47	0.41
1:A:514:ILE:O	1:A:518:VAL:HG23	2.20	0.41
1:A:89:LYS:HA	1:A:94:ASP:O	2.21	0.41
1:B:418:TYR:HB3	1:B:438:PHE:CE1	2.55	0.41
1:A:114:HIS:CB	1:A:117:LEU:HD12	2.51	0.41
1:A:28:SER:HA	1:A:100:TYR:O	2.21	0.41
1:A:125:LEU:HB3	1:A:216:LEU:HD21	2.03	0.41
1:A:114:HIS:CE1	1:A:218:THR:HG21	2.57	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	480/537 (89%)	461 (96%)	16 (3%)	3 (1%)	25 13
1	B	476/537 (89%)	463 (97%)	11 (2%)	2 (0%)	34 24
All	All	956/1074 (89%)	924 (97%)	27 (3%)	5 (0%)	29 17

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	459	CYS
1	B	459	CYS
1	A	505	VAL
1	B	505	VAL
1	A	144	PRO

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	440/479 (92%)	431 (98%)	9 (2%)	55 42
1	B	435/479 (91%)	427 (98%)	8 (2%)	59 47
All	All	875/958 (91%)	858 (98%)	17 (2%)	57 45

All (17) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	35	LYS

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Mol	Chain	Res	Type
1	A	109	SER
1	A	118	SER
1	A	162	ASP
1	A	228	SER
1	A	413	ARG
1	A	458	HIS
1	A	477	ASP
1	A	527	ARG
1	B	205	THR
1	B	265	ARG
1	B	278	ARG
1	B	364	LYS
1	B	367	CYS
1	B	413	ARG
1	B	458	HIS
1	B	481	GLU

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	114	HIS
1	A	245	GLN
1	A	519	GLN
1	B	408	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

2 ligands 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	$\#\|Z\| > 2$
2	A1H4H	B	601	-	30,34,34	1.14	3 (10%)	31,52,52	1.76	5 (16%)
2	A1H4H	A	601	-	30,34,34	1.16	4 (13%)	31,52,52	1.72	5 (16%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	A1H4H	B	601	-	-	2/8/37/37	0/7/6/6
2	A1H4H	A	601	-	-	3/8/37/37	0/7/6/6

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	601	A1H4H	C17-N21	3.11	1.41	1.36
2	A	601	A1H4H	C17-N21	2.90	1.40	1.36
2	A	601	A1H4H	C17-N16	2.70	1.36	1.32
2	B	601	A1H4H	C17-N16	2.37	1.35	1.32
2	B	601	A1H4H	C7-C5	2.24	1.42	1.39
2	A	601	A1H4H	C7-C5	2.24	1.42	1.39
2	A	601	A1H4H	C18-N19	2.09	1.35	1.31

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	601	A1H4H	C17-N16-C15	-7.27	112.18	117.65
2	A	601	A1H4H	C17-N16-C15	-7.23	112.21	117.65
2	A	601	A1H4H	C18-N19-C20	-3.50	113.29	116.78
2	B	601	A1H4H	C18-N19-C20	-3.42	113.37	116.78

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	601	A1H4H	C8-C7-C12	-2.43	115.33	119.27
2	A	601	A1H4H	C24-C25-N21	2.29	103.64	102.11
2	A	601	A1H4H	C17-C18-N19	2.23	123.80	121.67
2	B	601	A1H4H	C17-C18-N19	2.16	123.73	121.67
2	A	601	A1H4H	C29-C27-C26	2.10	112.37	110.25
2	B	601	A1H4H	C29-C27-C26	2.05	112.32	110.25

There are no chirality outliers.

All (5) torsion outliers are listed below:

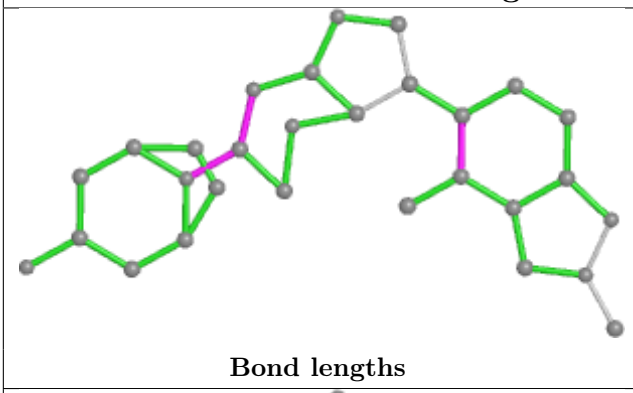
Mol	Chain	Res	Type	Atoms
2	A	601	A1H4H	N16-C17-N21-C25
2	B	601	A1H4H	N16-C17-N21-C25
2	A	601	A1H4H	C18-C17-N21-C25
2	B	601	A1H4H	C18-C17-N21-C25
2	A	601	A1H4H	C13-C12-C7-C5

There are no ring outliers.

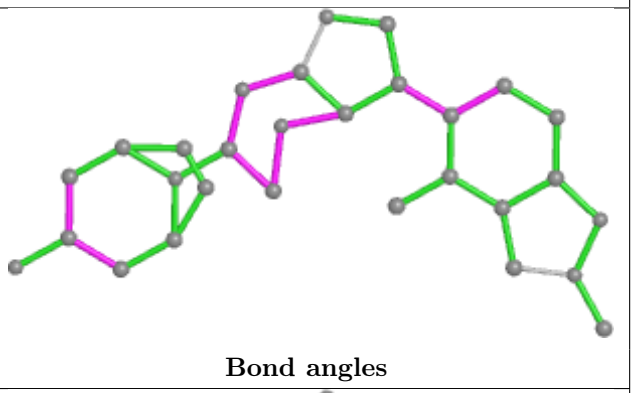
No monomer is involved in short contacts.

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.

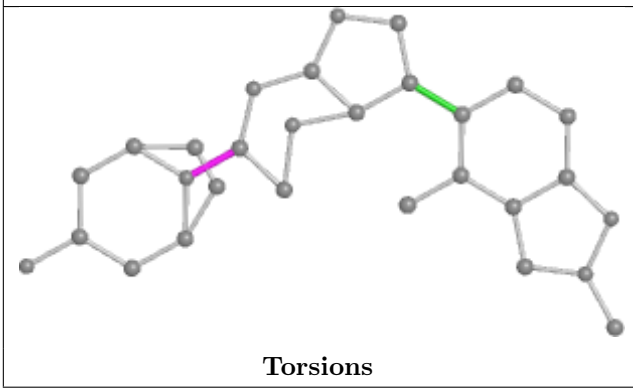
Ligand A1H4H B 601



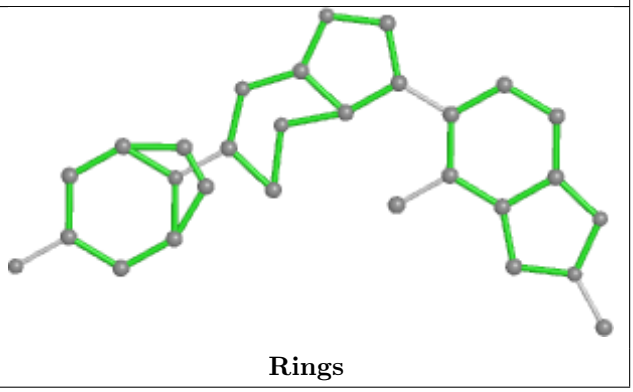
Bond lengths



Bond angles

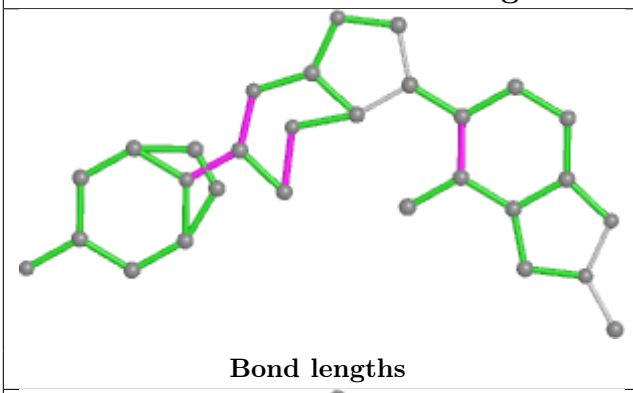


Torsions

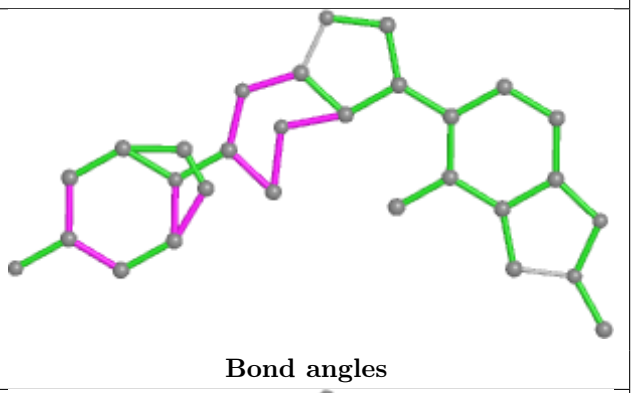


Rings

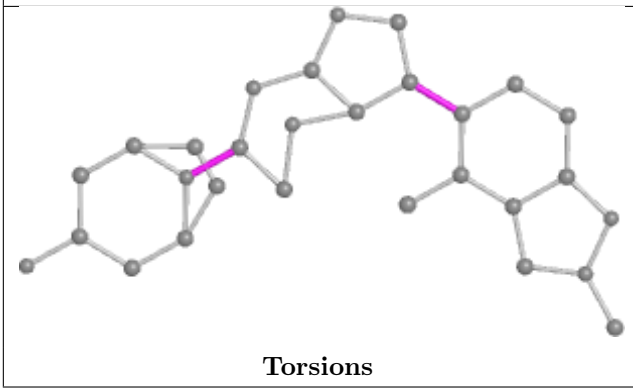
Ligand A1H4H A 601



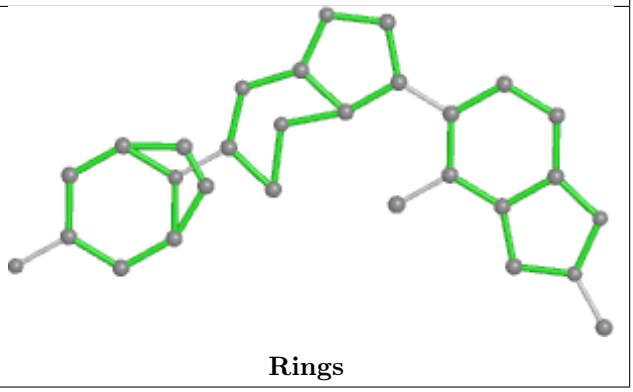
Bond lengths



Bond angles



Torsions



Rings

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	494/537 (91%)	1.36	110 (22%)	0	0	22, 44, 82, 105	0
1	B	489/537 (91%)	1.35	88 (17%)	1	1	23, 45, 76, 100	0
All	All	983/1074 (91%)	1.36	198 (20%)	1	1	22, 45, 79, 105	0

All (198) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	525	LEU	8.3
1	B	294	ASP	8.0
1	B	426	HIS	7.6
1	B	36	SER	6.6
1	A	38	PRO	5.9
1	A	36	SER	5.8
1	A	526	GLN	5.8
1	B	225	GLU	5.6
1	B	38	PRO	5.4
1	B	367	CYS	5.3
1	A	246	GLY	5.3
1	B	11	ILE	5.2
1	A	300	PRO	5.1
1	A	296	ASP	5.1
1	B	226	ILE	5.1
1	B	293[A]	HIS	5.0
1	B	295	GLY	5.0
1	B	177	LEU	4.9
1	B	109	SER	4.6
1	B	3	SER	4.6
1	B	206	LEU	4.5
1	B	246	GLY	4.4
1	A	226	ILE	4.3
1	A	485	ASP	4.3

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Mol	Chain	Res	Type	RSRZ
1	B	481	GLU	4.3
1	B	205	THR	4.2
1	A	177	LEU	4.1
1	B	451	ASP	4.0
1	B	86	GLY	4.0
1	A	301	VAL	4.0
1	B	362	ARG	4.0
1	A	37	ASN	3.9
1	B	232	GLU	3.9
1	A	521	TYR	3.8
1	A	225	GLU	3.8
1	B	248	TRP	3.7
1	A	19	LEU	3.7
1	A	117	LEU	3.7
1	A	295	GLY	3.6
1	B	57	GLN	3.6
1	A	294	ASP	3.6
1	A	248	TRP	3.5
1	A	88	LEU	3.5
1	B	313	GLU	3.5
1	B	485	ASP	3.5
1	A	523	GLU	3.5
1	B	410	ASN	3.4
1	B	364	LYS	3.4
1	A	522	ILE	3.4
1	A	231	ARG	3.4
1	B	89	LYS	3.3
1	A	299	GLU	3.3
1	B	486	CYS	3.3
1	B	476	ILE	3.3
1	B	231	ARG	3.3
1	B	88	LEU	3.3
1	A	488	ILE	3.2
1	A	116	HIS	3.2
1	A	141	GLN	3.2
1	A	259	CYS	3.2
1	B	337	THR	3.1
1	A	48	ASN	3.1
1	B	37	ASN	3.1
1	A	57	GLN	3.1
1	A	10	ASN	3.1
1	A	140	SER	3.1

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Mol	Chain	Res	Type	RSRZ
1	B	141	GLN	3.1
1	A	212	LEU	3.1
1	A	451	ASP	3.1
1	B	95	VAL	3.1
1	B	181	VAL	3.1
1	A	118	SER	3.0
1	A	124	LYS	3.0
1	B	218	THR	3.0
1	A	527	ARG	3.0
1	A	66	TYR	3.0
1	B	483	GLY	3.0
1	B	214	GLN	3.0
1	A	245	GLN	3.0
1	A	275	ASN	2.9
1	B	368	VAL	2.9
1	B	488	ILE	2.9
1	A	232	GLU	2.9
1	A	481	GLU	2.9
1	A	484	VAL	2.9
1	A	211	GLN	2.9
1	A	168	THR	2.9
1	B	459	CYS	2.9
1	B	528	ARG	2.9
1	A	483	GLY	2.8
1	A	429	PRO	2.8
1	A	368	VAL	2.8
1	B	211	GLN	2.8
1	B	409	GLY	2.8
1	A	426	HIS	2.8
1	A	437	ASP	2.8
1	B	233	LEU	2.7
1	A	165	SER	2.7
1	A	205	THR	2.7
1	A	35	LYS	2.7
1	B	482	LYS	2.7
1	A	512	ARG	2.7
1	A	427	GLY	2.7
1	A	476	ILE	2.7
1	A	524	THR	2.7
1	A	228	SER	2.7
1	B	142	SER	2.7
1	A	382	VAL	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	117	LEU	2.7
1	A	486	CYS	2.7
1	B	163	GLY	2.6
1	B	125	LEU	2.6
1	A	478	ILE	2.6
1	B	228	SER	2.6
1	A	87	GLN	2.6
1	B	227	GLU	2.6
1	A	203	VAL	2.6
1	A	125	LEU	2.6
1	B	522	ILE	2.6
1	B	275	ASN	2.6
1	A	207	GLY	2.5
1	A	147	PHE	2.5
1	A	328	ILE	2.5
1	A	482	LYS	2.5
1	A	247	PHE	2.5
1	B	116	HIS	2.5
1	B	213	LYS	2.5
1	B	357	THR	2.5
1	B	363	GLY	2.4
1	A	450	MET	2.4
1	A	95	VAL	2.4
1	A	490	VAL	2.4
1	B	170	VAL	2.4
1	A	120	LYS	2.4
1	A	214	GLN	2.4
1	A	202	MET	2.4
1	A	206	LEU	2.4
1	A	297	PRO	2.4
1	A	224	ALA	2.4
1	B	505	VAL	2.4
1	A	233	LEU	2.4
1	B	516	MET	2.4
1	B	382	VAL	2.4
1	B	335	GLN	2.4
1	B	512	ARG	2.4
1	A	367	CYS	2.4
1	A	23	ARG	2.3
1	B	66	TYR	2.3
1	A	47	ARG	2.3
1	A	181	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	230	VAL	2.3
1	B	406	VAL	2.3
1	A	143	HIS	2.3
1	A	469	PHE	2.3
1	B	10	ASN	2.3
1	B	252	GLU	2.3
1	A	187	PHE	2.3
1	A	174	CYS	2.3
1	A	93	GLY	2.3
1	A	362	ARG	2.3
1	B	282	ILE	2.3
1	A	210	LEU	2.3
1	A	65	LEU	2.2
1	A	63	TYR	2.2
1	B	140	SER	2.2
1	A	471	VAL	2.2
1	A	84	HIS	2.2
1	B	341	PHE	2.2
1	B	469	PHE	2.2
1	B	435	VAL	2.2
1	B	478	ILE	2.2
1	A	364	LYS	2.2
1	A	278	ARG	2.2
1	A	459	CYS	2.2
1	A	172	ILE	2.1
1	A	282	ILE	2.1
1	B	425	ASP	2.1
1	A	89	LYS	2.1
1	A	377	LEU	2.1
1	B	40	ASP	2.1
1	B	354	VAL	2.1
1	B	219	THR	2.1
1	A	470	ILE	2.1
1	B	470	ILE	2.1
1	B	135	PHE	2.1
1	B	411	THR	2.1
1	A	401	LEU	2.1
1	B	203	VAL	2.1
1	A	185	GLU	2.1
1	A	479	ILE	2.1
1	A	514	ILE	2.1
1	B	172	ILE	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	475	LEU	2.1
1	A	324	LYS	2.1
1	B	336	ASN	2.0
1	A	145	GLY	2.0
1	B	423	TRP	2.0
1	B	132	HIS	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 monosaccharides in this entry.

6.4 Ligands (i)

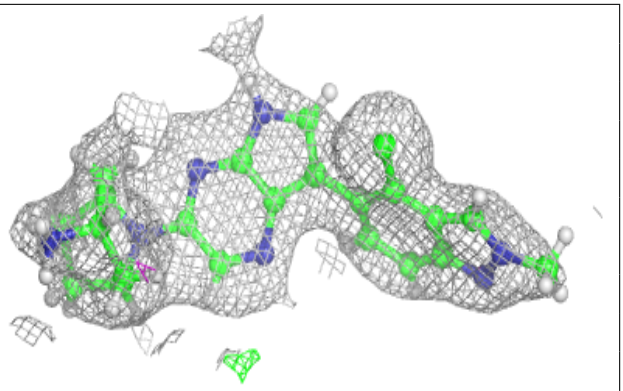
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

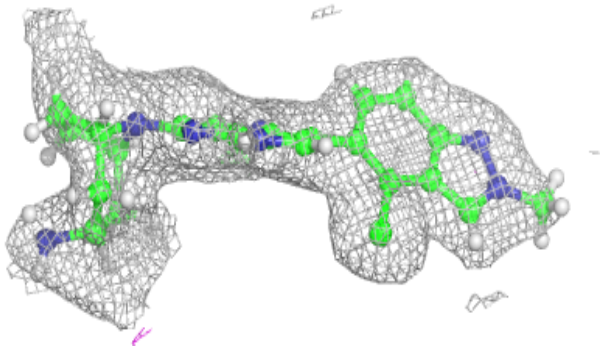
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	A1H4H	B	601	29/29	0.86	0.17	27,38,46,49	52
2	A1H4H	A	601	29/29	0.87	0.17	34,43,54,56	0

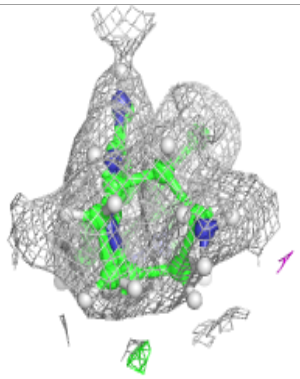
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1H4H 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)

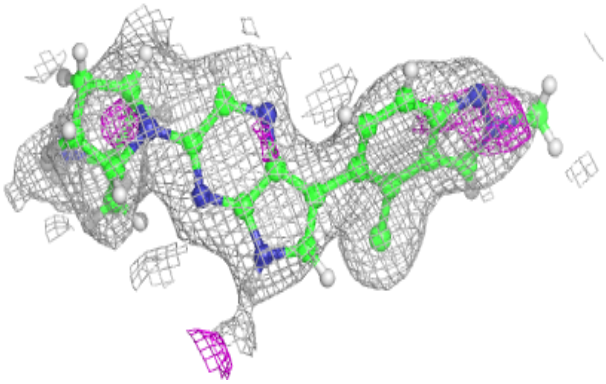


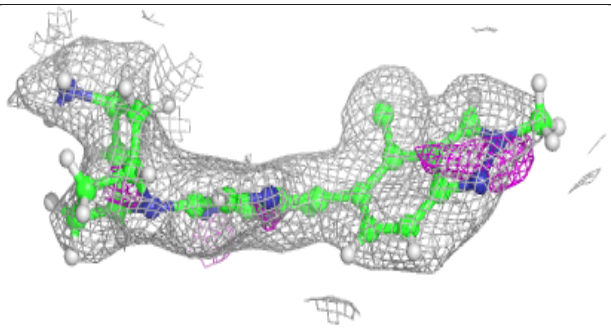


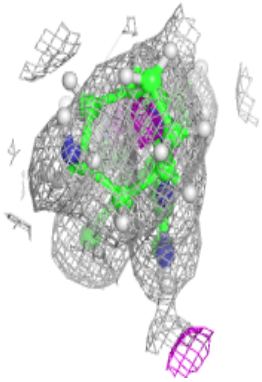


Electron density around A1H4H A 601:

$2mF_o$-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.