Full wwPDB X-ray Structure Validation Report (i)

Jun 16, 2024 – 10:23 AM EDT

PDB ID	:	4Y2H
Title	:	Crystal structure of human protein arginine methyltransferase PRMT6 bound to SAH and an aryl pyrazole inhibitor
Authors	:	Swinger, K.K.; Boriack-Sjodin, P.A.
Deposited on	:	2015-02-09
Resolution	:	2.37 Å(reported)

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

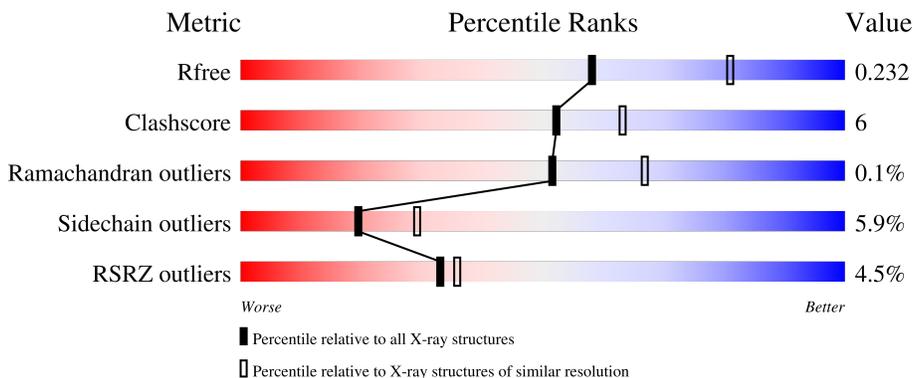|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.37 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.

		Worse					Better	

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	5509 (2.40-2.36)
Clashscore	141614	6082 (2.40-2.36)
Ramachandran outliers	138981	5973 (2.40-2.36)
Sidechain outliers	138945	5975 (2.40-2.36)
RSRZ outliers	127900	5397 (2.40-2.36)

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	352	3% 82% 13% • •
1	B	352	5% 87% 10% •

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 5822 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 Protein arginine N-methyltransferase 6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	337	Total	C	N	O	S	0	2	0
			2680	1697	471	498	14			
1	B	352	Total	C	N	O	S	0	0	0
			2786	1758	496	518	14			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	24	SER	-	expression tag	UNP Q96LA8
A	25	ILE	-	expression tag	UNP Q96LA8
A	26	ALA	-	expression tag	UNP Q96LA8
B	24	SER	-	expression tag	UNP Q96LA8
B	25	ILE	-	expression tag	UNP Q96LA8
B	26	ALA	-	expression tag	UNP Q96LA8

- Molecule 2 is S-ADENOSYL-L-HOMOCYSTEINE (three-letter code: SAH) (formula: $C_{14}H_{20}N_6O_5S$).
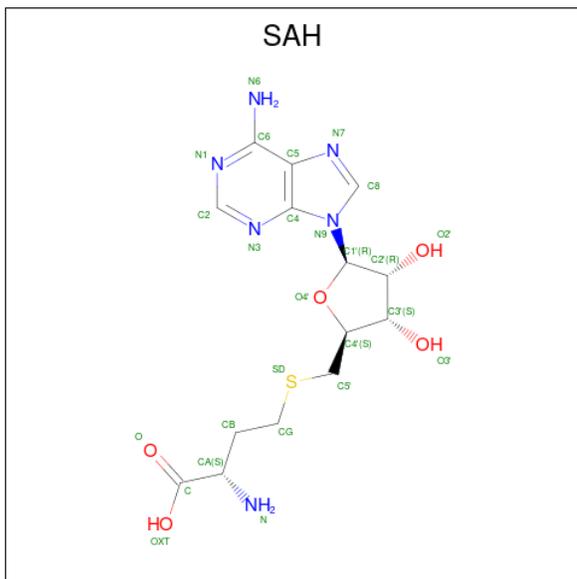
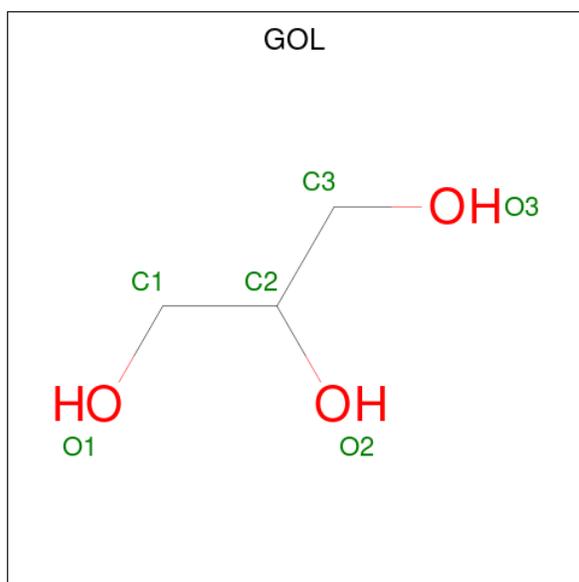| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 26	C 14	N 6	O 5	S 1	0	0
2	B	1	Total 26	C 14	N 6	O 5	S 1	0	0

- Molecule 3 is N-{[5-(4-fluorophenyl)-1H-pyrazol-4-yl]methyl}-N-methylethane-1,2-diamine (three-letter code: 49K) (formula: $C_{13}H_{17}FN_4$).
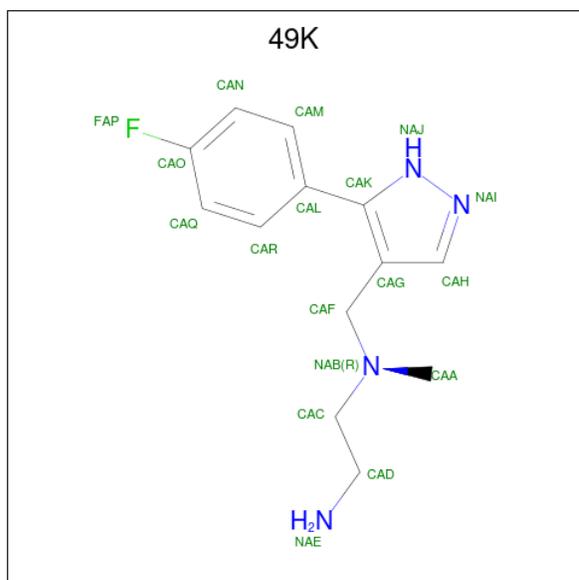
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 18	C 13	F 1	N 4	0	0
3	B	1	Total 18	C 13	F 1	N 4	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

C3

OH O3

C1   C2

HO

O1

OH

O2

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

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	139	Total 139	O 139	0	0
5	B	123	Total 123	O 123	0	0

3 Residue-property plots ⓘ

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

• Molecule 1: Protein arginine N-methyltransferase 6
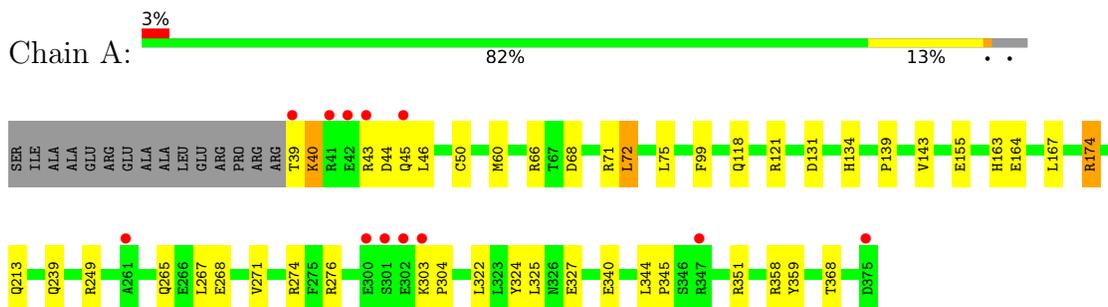
• Molecule 1: Protein arginine N-methyltransferase 6
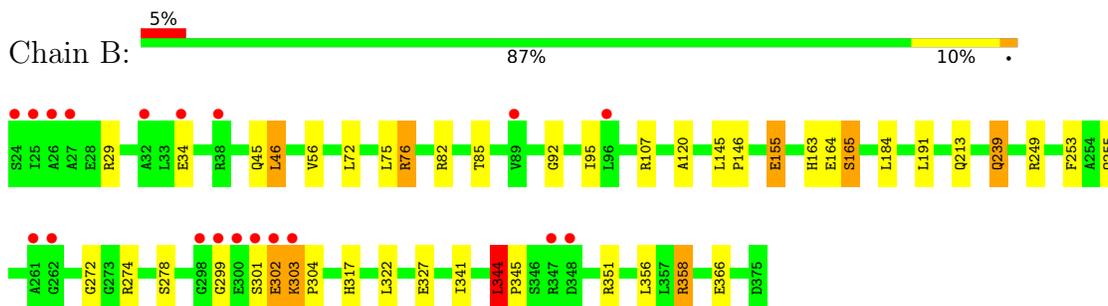
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 43	Depositor
Cell constants a, b, c, α, β, γ	99.97Å 99.97Å 89.49Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	27.74 – 2.37 27.74 – 2.37	Depositor EDS
% Data completeness (in resolution range)	99.9 (27.74-2.37) 100.0 (27.74-2.37)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.11 (at 2.36Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.182 , 0.232 0.182 , 0.232	Depositor DCC
R_{free} test set	1794 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	22.9	Xtriage
Anisotropy	0.024	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 39.4	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.044 for h,-k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5822	wwPDB-VP
Average B, all atoms (Å^2)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.58% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5   Model quality (i)

5.1   Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 49K, GOL, SAH

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.50	0/2740	0.69	0/3712
1	B	0.49	0/2847	0.68	2/3854 (0.1%)
All	All	0.49	0/5587	0.68	2/7566 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	344	LEU	CA-CB-CG	9.62	137.41	115.30
1	B	344	LEU	CB-CG-CD1	-5.03	102.45	111.00

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	2680	0	2635	29	0
1	B	2786	0	2743	30	0
2	A	26	0	19	1	0
2	B	26	0	19	1	0
3	A	18	0	17	0	0
3	B	18	0	17	2	0
4	B	6	0	8	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	139	0	0	5	1
5	B	123	0	0	6	1
All	All	5822	0	5458	61	1

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 6.

All (61) 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:29:ARG:NH1	5:B:501:HOH:O	1.83	1.10
1:A:174:ARG:HG2	1:A:174:ARG:HH11	1.35	0.91
1:B:344:LEU:HB2	1:B:345:PRO:HD2	1.52	0.87
1:B:249:ARG:HD3	5:B:600:HOH:O	1.75	0.85
1:A:274:ARG:HD3	5:A:524:HOH:O	1.75	0.85
1:A:71:ARG:NH1	5:A:628:HOH:O	2.10	0.84
1:B:303:LYS:HB3	1:B:304:PRO:CD	2.09	0.81
1:B:274:ARG:HD3	5:B:505:HOH:O	1.83	0.77
1:A:174:ARG:HH11	1:A:174:ARG:CG	2.01	0.74
1:B:303:LYS:HB3	1:B:304:PRO:HD3	1.70	0.73
1:B:344:LEU:HB2	1:B:345:PRO:CD	2.19	0.73
1:B:45:GLN:HG2	5:B:566:HOH:O	1.87	0.72
1:B:302:GLU:O	1:B:303:LYS:HB2	1.88	0.72
1:B:358:ARG:HH11	1:B:358:ARG:HG3	1.57	0.69
1:A:118:GLN:HE22	1:A:121:ARG:HH11	1.41	0.68
1:B:303:LYS:CB	1:B:304:PRO:HD3	2.28	0.64
1:A:163:HIS:O	1:A:164:GLU:HB2	1.97	0.63
1:A:174:ARG:HG2	1:A:174:ARG:NH1	2.10	0.63
1:A:340:GLU:HG2	1:A:358:ARG:HB3	1.82	0.62
1:A:40:LYS:HA	1:A:43:ARG:HG3	1.81	0.62
1:A:68:ASP:OD1	1:A:71:ARG:NH2	2.34	0.60
1:A:71:ARG:HD2	5:A:628:HOH:O	2.01	0.59
1:B:358:ARG:HH11	1:B:358:ARG:CG	2.15	0.58
1:B:299:GLY:C	1:B:301:SER:H	2.08	0.56
1:A:265:GLN:O	1:A:268:GLU:HG2	2.06	0.56
1:B:358:ARG:NH1	1:B:366:GLU:OE1	2.39	0.56
1:B:303:LYS:CB	1:B:304:PRO:CD	2.84	0.56
1:A:75:LEU:HD11	5:A:590:HOH:O	2.06	0.55
1:A:167:LEU:HD23	1:A:267:LEU:HD21	1.88	0.55
1:B:239:GLN:HB2	1:B:322:LEU:HD22	1.90	0.54
1:B:92:GLY:O	1:B:120:ALA:HB2	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:71:ARG:HG3	1:A:99:PHE:CE1	2.44	0.52
1:B:72:LEU:O	1:B:76:ARG:HB2	2.11	0.50
1:A:325:LEU:HD22	1:A:359:TYR:CZ	2.46	0.50
1:A:344:LEU:HB2	1:A:345:PRO:HD2	1.96	0.48
1:A:39:THR:OG1	1:A:40:LYS:N	2.46	0.47
1:B:358:ARG:CG	1:B:358:ARG:NH1	2.77	0.47
1:B:85:THR:HG22	1:B:107:ARG:HB2	1.96	0.47
1:A:139:PRO:O	1:A:143[B]:VAL:HG13	2.15	0.46
1:A:71:ARG:HG3	1:A:99:PHE:CZ	2.52	0.45
1:A:118:GLN:NE2	1:A:121:ARG:HH11	2.12	0.45
1:A:351:ARG:NH1	5:A:638:HOH:O	2.45	0.45
1:B:163:HIS:O	1:B:164:GLU:HB2	2.16	0.44
2:A:401:SAH:H4'	2:A:401:SAH:HG1	1.76	0.44
1:B:299:GLY:C	1:B:301:SER:N	2.70	0.43
1:B:155:GLU:CD	3:B:402:49K:H17	2.22	0.43
1:B:317:HIS:NE2	3:B:402:49K:NAB	2.67	0.43
1:B:165:SER:OG	1:B:351:ARG:HA	2.19	0.43
1:A:239:GLN:HB3	1:A:322:LEU:HD22	2.01	0.42
1:A:71:ARG:NH1	1:A:72:LEU:HD13	2.35	0.42
1:A:60:MET:HB3	1:A:66:ARG:CZ	2.50	0.42
1:A:174:ARG:CG	1:A:174:ARG:NH1	2.71	0.42
1:B:191:LEU:HB3	1:B:253:PHE:CZ	2.54	0.42
1:A:44:ASP:OD2	1:A:351:ARG:NH2	2.53	0.41
1:A:322:LEU:HD23	1:A:324:TYR:OH	2.20	0.41
1:B:303:LYS:HA	5:B:623:HOH:O	2.20	0.41
2:B:401:SAH:H4'	2:B:401:SAH:HG1	1.90	0.41
1:B:145:LEU:HA	1:B:146:PRO:HD3	1.94	0.41
1:B:46:LEU:HD13	5:B:558:HOH:O	2.19	0.41
1:A:303:LYS:HA	1:A:304:PRO:HD3	1.78	0.41
1:B:272:GLY:HA3	1:B:341:ILE:O	2.21	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:545:HOH:O	5:B:521:HOH:O[2_654]	2.09	0.11

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	337/352 (96%)	328 (97%)	9 (3%)	0	100	100
1	B	350/352 (99%)	339 (97%)	10 (3%)	1 (0%)	41	53
All	All	687/704 (98%)	667 (97%)	19 (3%)	1 (0%)	51	67

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	303	LYS

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	284/293 (97%)	269 (95%)	15 (5%)	22	34
1	B	293/293 (100%)	274 (94%)	19 (6%)	17	24
All	All	577/586 (98%)	543 (94%)	34 (6%)	19	29

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	LYS
1	A	45	GLN
1	A	46	LEU
1	A	50	CYS
1	A	72	LEU

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Mol	Chain	Res	Type
1	A	131	ASP
1	A	134	HIS
1	A	155	GLU
1	A	174	ARG
1	A	213	GLN
1	A	249	ARG
1	A	271	VAL
1	A	276	ARG
1	A	327	GLU
1	A	368	THR
1	B	34	GLU
1	B	46	LEU
1	B	56	VAL
1	B	75	LEU
1	B	76	ARG
1	B	82	ARG
1	B	95	ILE
1	B	155	GLU
1	B	165	SER
1	B	184	LEU
1	B	213	GLN
1	B	239	GLN
1	B	255	GLN
1	B	278	SER
1	B	302	GLU
1	B	327	GLU
1	B	344	LEU
1	B	356	LEU
1	B	358	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	118	GLN
1	B	255	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

5 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	#$|Z| > 2$
3	49K	A	402	-	18,19,19	3.14	4 (22%)	18,25,25	1.12	1 (5%)
2	SAH	B	401	-	24,28,28	1.17	1 (4%)	25,40,40	1.47	5 (20%)
3	49K	B	402	-	18,19,19	3.33	3 (16%)	18,25,25	1.04	2 (11%)
2	SAH	A	401	-	24,28,28	1.14	2 (8%)	25,40,40	1.76	8 (32%)
4	GOL	B	403	-	5,5,5	0.24	0	5,5,5	0.49	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	49K	A	402	-	-	2/10/11/11	0/2/2/2
2	SAH	B	401	-	-	4/11/31/31	0/3/3/3
3	49K	B	402	-	-	3/10/11/11	0/2/2/2
2	SAH	A	401	-	-	3/11/31/31	0/3/3/3
4	GOL	B	403	-	-	0/4/4/4	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	402	49K	CAL-CAK	-12.16	1.35	1.49
3	A	402	49K	CAL-CAK	-11.55	1.35	1.49
3	B	402	49K	NAI-NAJ	-4.88	1.27	1.37
3	B	402	49K	CAK-CAG	-3.98	1.34	1.41
3	A	402	49K	CAK-CAG	-3.97	1.34	1.41
2	B	401	SAH	C5-C4	2.92	1.48	1.40
2	A	401	SAH	C5-C4	2.82	1.48	1.40
3	A	402	49K	CAF-CAG	2.77	1.56	1.51
3	A	402	49K	NAI-NAJ	-2.59	1.32	1.37
2	A	401	SAH	C2-N3	2.11	1.35	1.32

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	SAH	N3-C2-N1	-3.57	123.11	128.68
2	B	401	SAH	N3-C2-N1	-3.08	123.86	128.68
2	A	401	SAH	CB-CA-C	-3.04	103.07	110.30
2	A	401	SAH	CB-CA-N	-2.95	102.45	110.17
2	B	401	SAH	O4'-C1'-C2'	-2.89	102.70	106.93
2	A	401	SAH	CB-CG-SD	-2.82	106.99	113.31
2	A	401	SAH	OXT-C-CA	2.64	122.38	113.38
3	B	402	49K	CAF-CAG-CAH	-2.51	123.56	127.48
2	B	401	SAH	C2-N1-C6	2.36	122.78	118.75
3	B	402	49K	CAL-CAK-NAJ	2.36	124.81	120.78
2	A	401	SAH	OXT-C-O	-2.36	118.74	124.09
2	A	401	SAH	C2-N1-C6	2.31	122.70	118.75
2	A	401	SAH	C4-C5-N7	-2.30	107.00	109.40
3	A	402	49K	CAF-CAG-CAH	-2.19	124.07	127.48
2	B	401	SAH	CB-CG-SD	-2.04	108.73	113.31
2	B	401	SAH	N6-C6-N1	2.03	122.79	118.57

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	SAH	N-CA-CB-CG
2	A	401	SAH	C-CA-CB-CG
2	B	401	SAH	N-CA-CB-CG
2	B	401	SAH	C-CA-CB-CG
3	B	402	49K	NAJ-CAK-CAL-CAM
3	B	402	49K	NAJ-CAK-CAL-CAR
3	A	402	49K	NAJ-CAK-CAL-CAM

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Mol	Chain	Res	Type	Atoms
3	A	402	49K	NAJ-CAK-CAL-CAR
2	A	401	SAH	C4'-C5'-SD-CG
3	B	402	49K	CAD-CAC-NAB-CAF
2	B	401	SAH	C4'-C5'-SD-CG
2	B	401	SAH	OXT-C-CA-N

There are no ring outliers.

3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	401	SAH	1	0
3	B	402	49K	2	0
2	A	401	SAH	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 SAH B 401

Bond lengths

Bond angles

Torsions

Rings

Ligand SAH A 401

Bond lengths

Bond angles

Torsions

Rings
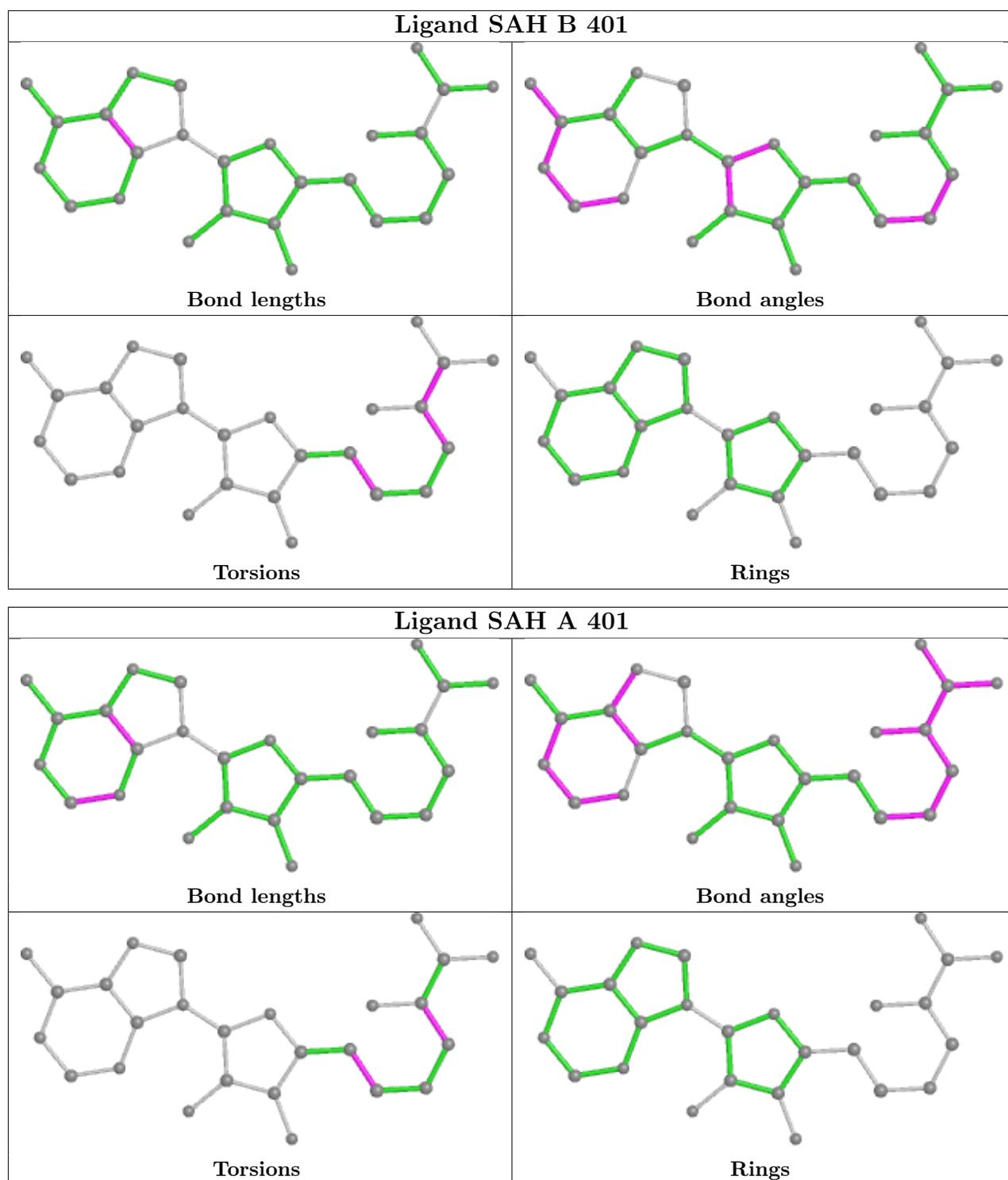
5.7 Other polymers ⓘ

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, 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(Å²)	Q<0.9
1	A	337/352 (95%)	-0.05	12 (3%)	42	46	11, 18, 45, 62	0
1	B	352/352 (100%)	0.11	19 (5%)	25	28	14, 21, 43, 94	0
All	All	689/704 (97%)	0.03	31 (4%)	33	36	11, 20, 44, 94	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	302	GLU	7.6
1	B	301	SER	5.7
1	B	24	SER	5.6
1	B	303	LYS	5.2
1	B	300	GLU	4.8
1	B	299	GLY	4.2
1	A	39	THR	4.0
1	B	26	ALA	4.0
1	B	261	ALA	3.7
1	A	302	GLU	3.6
1	A	41	ARG	3.4
1	A	300	GLU	3.2
1	A	303	LYS	3.2
1	A	42	GLU	3.2
1	B	27	ALA	3.2
1	B	262	GLY	3.2
1	B	34	GLU	2.9
1	A	301	SER	2.8
1	A	43	ARG	2.8
1	B	298	GLY	2.6
1	A	375	ASP	2.6
1	A	261	ALA	2.6
1	B	348	ASP	2.5
1	B	32	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	25	ILE	2.5
1	A	45	GLN	2.4
1	A	347	ARG	2.4
1	B	96	LEU	2.4
1	B	38	ARG	2.1
1	B	347	ARG	2.0
1	B	89	VAL	2.0

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

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

## 6.3　Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4　Ligands ⓘ

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

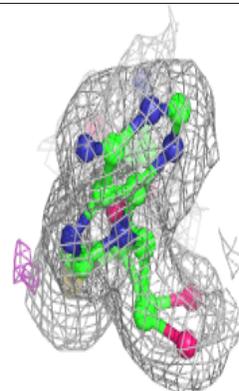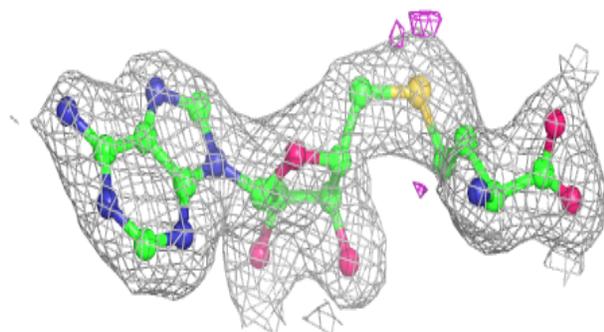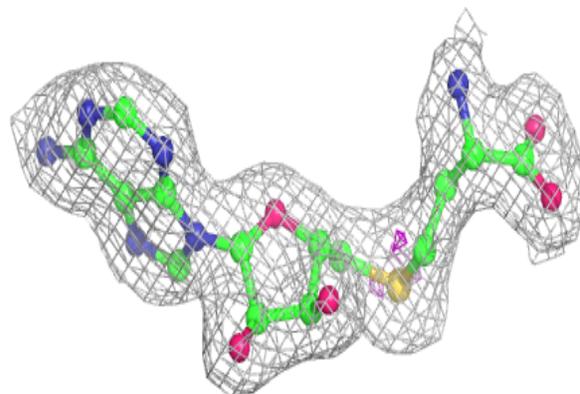| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
3	49K	A	402	18/18	0.92	0.13	11,12,14,14	0
3	49K	B	402	18/18	0.93	0.13	17,18,19,20	0
4	GOL	B	403	6/6	0.96	0.14	22,25,26,30	0
2	SAH	B	401	26/26	0.97	0.14	15,17,19,19	0
2	SAH	A	401	26/26	0.97	0.15	14,15,17,17	0

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.

WORLDWIDE
wwPDB
PROTEIN DATA BANK

Electron density around SAH B 401:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
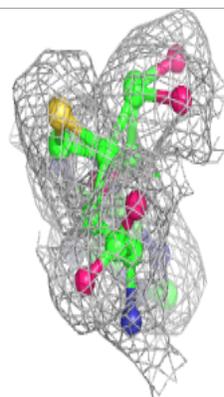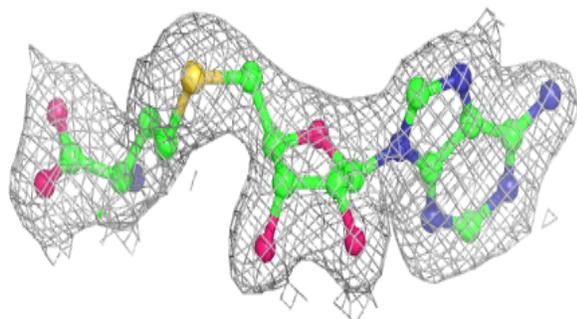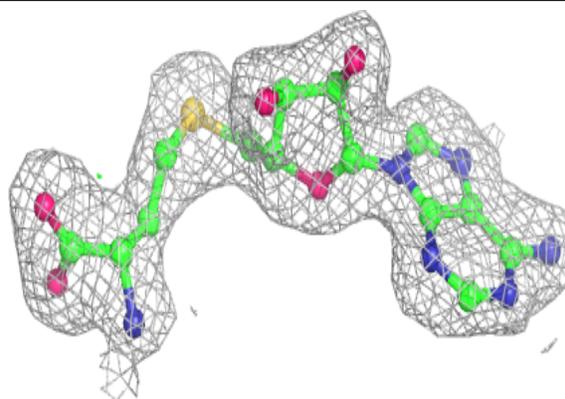
Electron density around SAH A 401:

$2mF_o-DF_c$ (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.