



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 2, 2025 – 03:28 am GMT

PDB ID : 6I5Z / pdb_00006i5z
Title : Papaver somniferum O-methyltransferase
Authors : Davies, G.J.; Cabry, M.P.; Offen, W.A.
Deposited on : 2018-11-15
Resolution : 3.00 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	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)	:	2.46

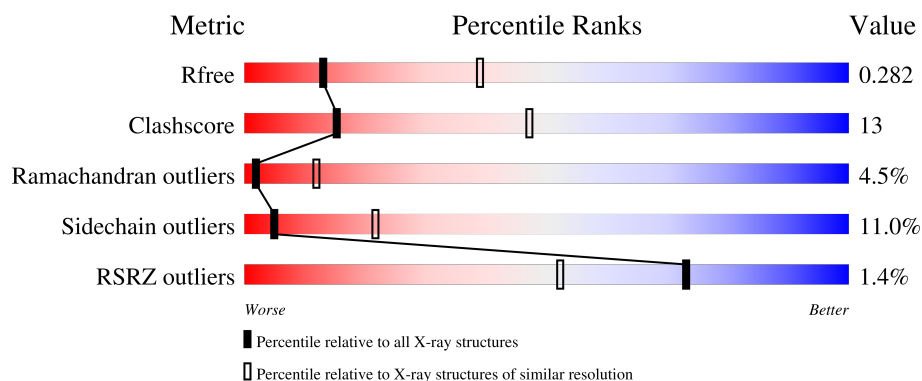
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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	2511 (3.00-3.00)
Clashscore	180529	2866 (3.00-3.00)
Ramachandran outliers	177936	2778 (3.00-3.00)
Sidechain outliers	177891	2781 (3.00-3.00)
RSRZ outliers	164620	2523 (3.00-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	393	52% 31% • • 13%
1	B	393	62% 24% • 11%
1	C	393	63% 22% • 13%
1	D	393	3% 51% 31% 6% 12%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 10191 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.

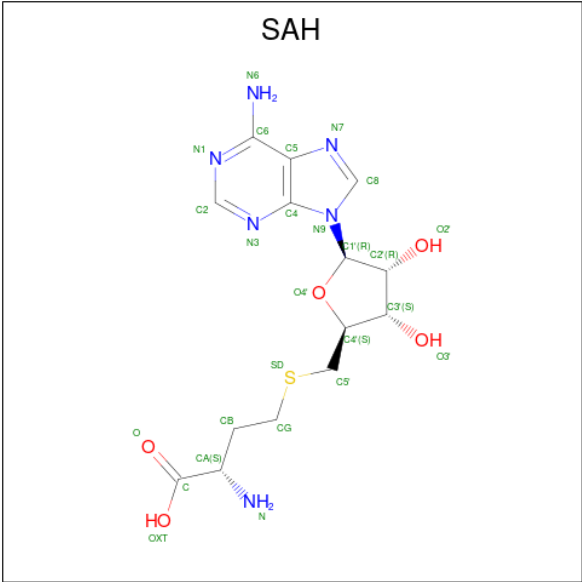
- Molecule 1 is a protein called O-methyltransferase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	342	Total	C	N	O	S	0	0	0
			2560	1654	419	471	16			
1	B	349	Total	C	N	O	S	0	0	0
			2586	1659	430	481	16			
1	C	342	Total	C	N	O	S	0	0	0
			2463	1581	409	456	17			
1	D	347	Total	C	N	O	S	0	0	0
			2503	1604	411	472	16			

There are 12 discrepancies between the modelled and reference sequences:

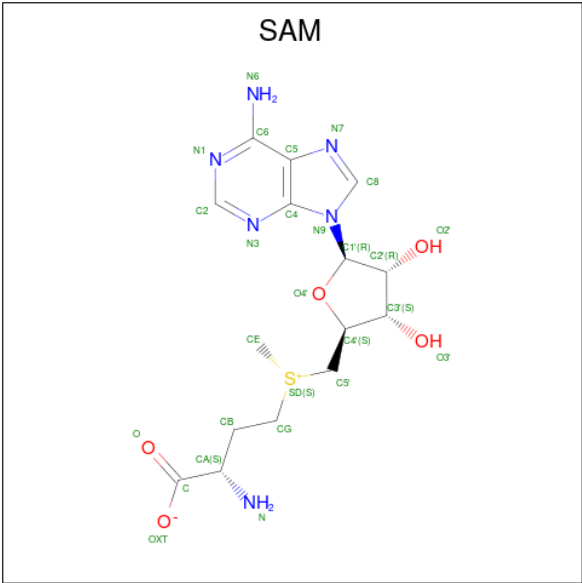
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP I3PLQ5
A	-1	PRO	-	expression tag	UNP I3PLQ5
A	0	ALA	-	expression tag	UNP I3PLQ5
B	-2	GLY	-	expression tag	UNP I3PLQ5
B	-1	PRO	-	expression tag	UNP I3PLQ5
B	0	ALA	-	expression tag	UNP I3PLQ5
C	-2	GLY	-	expression tag	UNP I3PLQ5
C	-1	PRO	-	expression tag	UNP I3PLQ5
C	0	ALA	-	expression tag	UNP I3PLQ5
D	-2	GLY	-	expression tag	UNP I3PLQ5
D	-1	PRO	-	expression tag	UNP I3PLQ5
D	0	ALA	-	expression tag	UNP I3PLQ5

- Molecule 2 is S-ADENOSYL-L-HOMOCYSTEINE (CCD ID: SAH) (formula: C₁₄H₂₀N₆O₅S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			26	14	6	5	1		
2	B	1	Total	C	N	O	S	0	0
			26	14	6	5	1		

- Molecule 3 is S-ADENOSYLMETHIONINE (CCD ID: SAM) (formula: C₁₅H₂₂N₆O₅S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	D	1	Total	C	N	O	S	0	0
			27	15	6	5	1		

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.

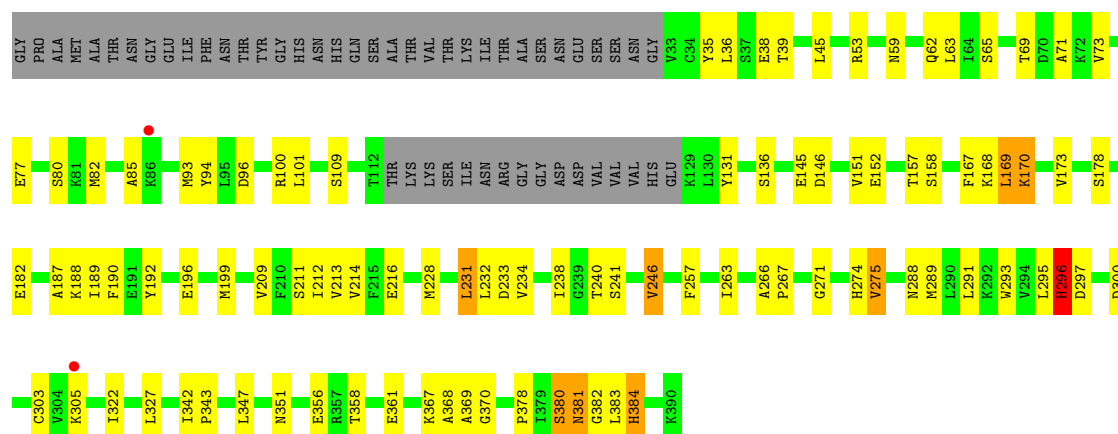
Chain A:

52% 31% 13%

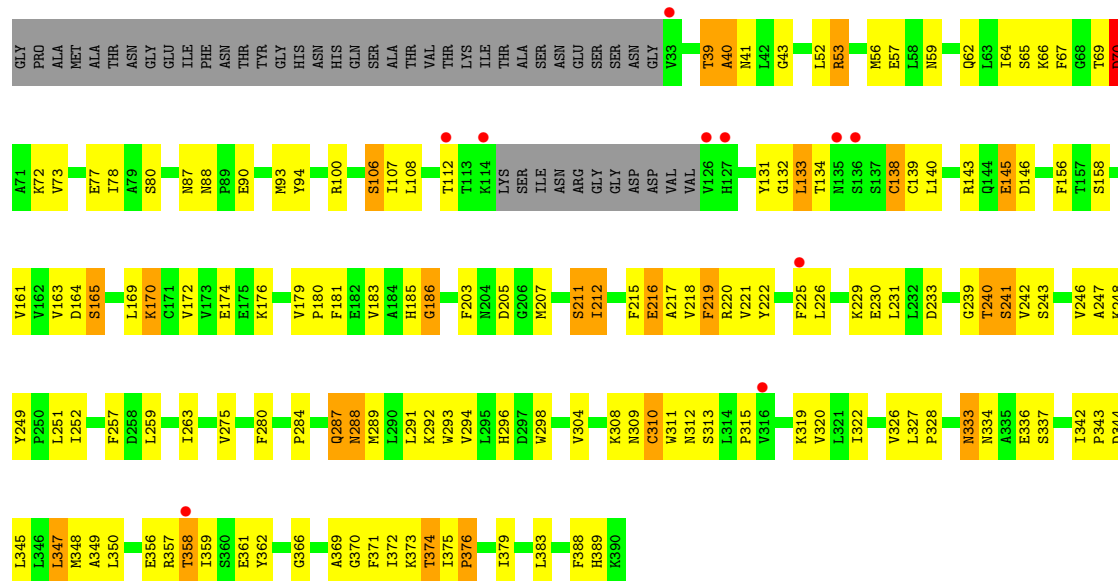
GLY PRD ALA MET ALA THR ASN GLY GLU ILE PHE ASN THR TYR GLY HIS ASN HIS GLN SER GLN THR VAL THR LYS ILE THR SER SER ASN GLU SER SER ASN GLY V93 C94 Y35 T39 K44 L45 I46 C47 I48 P49 L58 N59 V60 F61 Q62 L63 I64 K66 F67 G68 T69 D76 K71 A72 E77 S80 K81 M82 P83 I84 N84 A85 P89 E90 G91 Y94 L95 D96 R97 L98 L99 R100 L101 A104 S105 S106 I107 V110 S111 T112 T195 R198 M199 F203 A208 V209 F210 S211 I212 V213 E216 Y222 D223 G224 F225 L226 D227 M228 K229 E230 L231 G236 G237 I238 E239 T240 S241 V242 V246 Y249 I252 R253 G254 V255 N256 F257 D258 L259 V262 I263 S264 V265 A266 F267 Q268 Y269 F270 G271 V272 E273 H274 V275 M279 E282 G286 Q287 N288 K292 V304 A305 L306 W311 I322 I323 L331 E336 D339 A340 L341 I342 P343 D344 L345 L346 L347 M348 N351 Y358 E361 Y362 L365 F371 I379 I386 E387 F388 H389 K390

Chain B:

Amino Acid	Frequency (%)
GLY	11%
PRO	11%
ALA	11%
MET	11%
ALA	11%
THR	11%
ASN	11%
GLY	11%
GLU	11%
ILE	11%
PHE	11%
ASN	11%
THR	11%
TYR	11%
GLY	11%
HIS	11%
ASN	11%
HIS	11%
GLN	11%
SER	11%
ALA	11%
THR	11%
VAL	11%
THR	11%
LYS	11%
ILE	11%
THR	11%
ALA	11%
SER	11%
ASN	11%
GLU	11%
SER	11%
ASN	11%
GLY	11%
VAL	11%
C34	11%
Y35	11%
E38	11%
T39	11%
L40	11%
M41	11%
T48	11%
P49	11%
L52	11%
R53	11%
V60	11%
L64	11%
S65	11%
R66	11%
F67	11%
G68	11%
T69	11%
D70	11%
S74	11%
A75	11%
S76	11%
E77	11%
I78	11%
A79	11%
S80	11%
K81	11%
M82	11%
K86	11%
A91	11%
Y94	11%
D96	11%
R97	11%
I98	11%
L99	11%
R100	11%
L101	11%
I107	11%
L108	11%
T113	11%
K114	11%
K115	11%
S116	11%
I117	11%
N118	11%
ARG	11%
GLY	11%
ASP	11%
VAL	11%
VAL	11%
H127	11%
L133	11%
T134	11%
N135	11%
C138	11%
Q144	11%
E145	11%
D146	11%
S149	11%
L150	11%
V151	11%
E152	11%
E153	11%
F156	11%
K160	11%
V161	11%
V162	11%
K168	11%
V172	11%
V179	11%
E182	11%
K188	11%
E191	11%
R198	11%
V202	11%
F203	11%
M207	11%
A208	11%
V209	11%
I212	11%
V213	11%
V214	11%
F215	11%
V218	11%
D223	11%
G224	11%
D227	11%
M228	11%
L231	11%
L232	11%
L238	11%
G239	11%
T240	11%
V246	11%
G254	11%
V255	11%
N256	11%
P257	11%
P260	11%
G271	11%
V272	11%
E273	11%
H274	11%
F281	11%
P284	11%
K285	11%
G286	11%
M289	11%
K292	11%
K305	11%
L306	11%
S313	11%
L314	11%
P315	11%
V316	11%
V320	11%
V326	11%
N329	11%
E330	11%
L331	11%
N334	11%
A335	11%
E336	11%
L341	11%
I342	11%
P343	11%
L346	11%
P352	11%
I359	11%
V362	11%
D363	11%
D364	11%
L365	11%
F371	11%
I372	11%
I379	11%
L383	11%
K390	11%



• Molecule 1: O-methyltransferase 1



4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α , β , γ	111.15Å 111.15Å 302.38Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	101.00 – 3.00 100.79 – 3.00	Depositor EDS
% Data completeness (in resolution range)	100.0 (101.00-3.00) 100.0 (100.79-3.00)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.80 (at 3.01Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.203 , 0.289 0.206 , 0.282	Depositor DCC
R_{free} test set	2123 reflections (4.79%)	wwPDB-VP
Wilson B-factor (Å ²)	94.8	Xtriage
Anisotropy	0.083	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 85.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.024 for -h,-k,l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	10191	wwPDB-VP
Average B, all atoms (Å ²)	86.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.11% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SAM, 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	1.13	1/2613 (0.0%)	1.58	9/3551 (0.3%)
1	B	1.17	0/2639	1.54	1/3581 (0.0%)
1	C	1.17	0/2511	1.60	5/3420 (0.1%)
1	D	1.20	1/2554 (0.0%)	1.55	6/3480 (0.2%)
All	All	1.17	2/10317 (0.0%)	1.57	21/14032 (0.1%)

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	C	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	376	PRO	C-O	-5.72	1.17	1.23
1	A	288	ASN	C-O	5.13	1.30	1.23

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	195	THR	CA-CB-OG1	-7.17	98.85	109.60
1	D	376	PRO	CB-CA-C	-6.96	103.04	111.46
1	A	379	ILE	CA-C-O	-6.11	115.51	120.70
1	C	169	LEU	N-CA-C	-6.03	103.67	111.02
1	C	178	SER	CA-C-N	5.98	126.67	122.60
1	C	178	SER	C-N-CA	5.98	126.67	122.60
1	A	358	THR	CB-CA-C	5.81	120.78	109.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	376	PRO	N-CA-C	5.76	119.50	110.80
1	A	142	PRO	CA-C-N	5.69	129.18	120.82
1	A	142	PRO	C-N-CA	5.69	129.18	120.82
1	C	267	PRO	N-CA-C	5.67	119.58	111.13
1	D	358	THR	CA-C-O	-5.65	115.40	121.56
1	D	333	ASN	N-CA-C	-5.46	106.12	112.89
1	B	223	ASP	CA-CB-CG	5.44	118.04	112.60
1	D	347	LEU	N-CA-C	-5.40	105.29	111.07
1	A	216	GLU	CB-CA-C	5.31	119.31	110.81
1	A	263	ILE	N-CA-C	-5.30	105.33	110.42
1	A	104	ALA	CA-C-N	5.21	127.52	120.38
1	A	104	ALA	C-N-CA	5.21	127.52	120.38
1	C	240	THR	CB-CA-C	5.08	119.32	110.68
1	D	356	GLU	CB-CA-C	5.02	118.10	109.51

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	384	HIS	Peptide

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	2560	0	2486	82	0
1	B	2586	0	2449	53	0
1	C	2463	0	2319	54	0
1	D	2503	0	2294	88	0
2	A	26	0	19	2	0
2	B	26	0	19	1	0
3	D	27	0	22	3	0
All	All	10191	0	9608	265	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 13.

All (265) 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:C:378:PRO:HB3	1:C:384:HIS:NE2	1.92	0.83
1:D:292:LYS:NZ	3:D:401:SAM:OXT	2.11	0.82
1:A:199:MET:HE2	1:A:203:PHE:CZ	2.17	0.79
1:D:288:ASN:H	1:D:288:ASN:HD22	1.34	0.76
1:D:288:ASN:HD22	1:D:288:ASN:N	1.85	0.74
1:D:326:VAL:HG11	1:D:359:ILE:HG12	1.70	0.73
1:C:246:VAL:HG11	1:C:271:GLY:HA3	1.68	0.73
1:A:268:GLN:OE1	1:A:268:GLN:HA	1.91	0.71
1:A:100:ARG:NH2	1:D:327:LEU:HD21	2.07	0.70
1:D:374:THR:O	1:D:376:PRO:HD3	1.91	0.70
1:B:198:ARG:O	1:B:202:VAL:HG23	1.92	0.69
1:D:215:PHE:O	1:D:218:VAL:N	2.25	0.69
1:A:249:TYR:O	1:A:252:ILE:HG22	1.93	0.69
1:A:262:VAL:O	1:A:265:VAL:HG12	1.94	0.68
1:A:322:ILE:HB	1:A:386:ILE:HB	1.76	0.67
1:D:185:HIS:O	1:D:186:GLY:C	2.36	0.66
1:A:347:LEU:O	1:A:351:ASN:N	2.29	0.65
1:A:230:GLU:HG3	1:A:253:ARG:CG	2.26	0.65
1:A:62:GLN:HA	1:A:141:VAL:HG13	1.79	0.65
1:A:311:TRP:CE2	1:A:390:LYS:HD3	2.33	0.64
1:B:203:PHE:O	1:B:207:MET:HG3	1.98	0.64
1:B:285:LYS:HA	1:B:313:SER:O	1.98	0.64
1:A:199:MET:HE2	1:A:203:PHE:CE1	2.32	0.63
1:D:249:TYR:O	1:D:251:LEU:N	2.30	0.63
1:A:77:GLU:O	1:A:80:SER:CB	2.46	0.63
1:B:214:VAL:O	1:B:218:VAL:HG23	1.99	0.63
1:C:228:MET:HE3	1:C:288:ASN:HB2	1.81	0.63
1:C:367:LYS:O	1:C:369:ALA:N	2.32	0.63
1:D:288:ASN:H	1:D:288:ASN:ND2	1.96	0.63
1:A:223:ASP:O	1:A:225:PHE:N	2.31	0.62
1:D:293:TRP:O	3:D:401:SAM:HE3	2.00	0.61
1:D:242:VAL:O	1:D:243:SER:C	2.43	0.61
1:C:367:LYS:O	1:C:370:GLY:N	2.33	0.61
1:D:143:ARG:NH2	1:D:146:ASP:OD2	2.28	0.61
1:A:97:ARG:HA	1:A:100:ARG:HD3	1.81	0.61
1:D:64:ILE:CG2	1:D:133:LEU:HD12	2.31	0.60
1:A:64:ILE:CB	1:A:133:LEU:HD11	2.30	0.60
1:A:256:ASN:HB3	1:A:274:HIS:ND1	2.17	0.59
1:D:65:SER:C	1:D:67:PHE:H	2.09	0.59
1:C:234:VAL:HB	1:C:291:LEU:CD2	2.32	0.59
1:A:151:VAL:HG12	1:A:152:GLU:N	2.17	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:72:LYS:HA	1:D:131:TYR:O	2.03	0.59
1:C:228:MET:HE1	1:C:231:LEU:HD22	1.85	0.58
1:D:161:VAL:O	1:D:165:SER:OG	2.21	0.58
1:D:179:VAL:O	1:D:180:PRO:C	2.45	0.58
1:C:263:ILE:HG23	1:C:274:HIS:HB3	1.86	0.58
1:D:225:PHE:HB2	1:D:249:TYR:CE2	2.39	0.58
1:D:52:LEU:HG	1:D:56:MET:HE2	1.86	0.57
1:D:345:LEU:O	1:D:348:MET:N	2.36	0.57
1:C:342:ILE:HB	1:C:343:PRO:HD3	1.87	0.57
1:D:326:VAL:HG11	1:D:359:ILE:CG1	2.34	0.57
1:A:230:GLU:OE1	1:A:286:GLY:HA2	2.05	0.56
1:B:82:MET:HE1	1:B:95:LEU:CD1	2.35	0.56
1:D:53:ARG:NH1	1:D:158:SER:O	2.38	0.56
1:A:159:ASP:OD1	1:A:198:ARG:NH2	2.38	0.56
1:D:225:PHE:HB2	1:D:249:TYR:CZ	2.40	0.56
1:B:228:MET:HE1	1:B:231:LEU:HD22	1.87	0.56
1:D:311:TRP:C	1:D:313:SER:H	2.13	0.55
1:B:305:LYS:O	1:B:306:LEU:C	2.49	0.55
1:C:192:TYR:CZ	1:C:196:GLU:HG3	2.41	0.55
1:D:294:VAL:O	1:D:298:TRP:HD1	1.90	0.55
1:A:254:GLY:N	1:A:271:GLY:O	2.38	0.54
1:A:94:TYR:O	1:A:97:ARG:HB2	2.07	0.54
1:D:212:ILE:O	1:D:216:GLU:HG3	2.07	0.54
1:C:378:PRO:HB3	1:C:384:HIS:CD2	2.43	0.54
1:C:77:GLU:O	1:C:80:SER:HB3	2.08	0.54
1:B:156:PHE:HE1	1:B:203:PHE:CZ	2.26	0.53
1:A:228:MET:HE3	1:A:252:ILE:HD11	1.90	0.53
1:B:77:GLU:O	1:B:80:SER:CB	2.56	0.53
1:C:380:SER:O	1:C:381:ASN:C	2.52	0.53
1:C:96:ASP:O	1:C:100:ARG:HB2	2.10	0.52
1:B:227:ASP:OD1	1:B:227:ASP:N	2.38	0.52
1:D:90:GLU:HB3	1:D:94:TYR:CD2	2.44	0.52
1:D:229:LYS:O	1:D:252:ILE:HA	2.10	0.52
1:A:69:THR:O	1:A:70:ASP:C	2.53	0.52
1:A:159:ASP:O	1:A:162:VAL:HG12	2.10	0.52
1:A:246:VAL:HG22	1:A:252:ILE:HG23	1.92	0.52
1:A:342:ILE:HB	1:A:343:PRO:HD3	1.91	0.52
1:D:64:ILE:HG21	1:D:133:LEU:HD12	1.91	0.52
1:A:59:ASN:O	1:A:60:VAL:C	2.53	0.51
1:B:35:TYR:O	1:B:39:THR:HG23	2.10	0.51
1:C:59:ASN:O	1:C:63:LEU:HD13	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:265:VAL:O	1:A:265:VAL:HG22	2.10	0.51
1:B:82:MET:HE1	1:B:95:LEU:HD11	1.92	0.51
1:A:311:TRP:CE2	1:A:390:LYS:CD	2.93	0.51
1:B:179:VAL:HG23	1:B:352:PRO:CD	2.40	0.51
1:C:212:ILE:O	1:C:216:GLU:HG3	2.09	0.51
1:D:358:THR:HG23	1:D:361:GLU:H	1.76	0.51
1:D:39:THR:O	1:D:41:ASN:N	2.44	0.51
1:A:345:LEU:HD12	1:A:348:MET:CE	2.41	0.51
1:A:163:VAL:O	1:A:166:PHE:HB2	2.11	0.50
1:A:279:MET:HE3	1:A:306:LEU:HD22	1.93	0.50
1:B:228:MET:HE1	1:B:231:LEU:HD13	1.93	0.50
1:D:77:GLU:O	1:D:80:SER:OG	2.15	0.50
1:D:342:ILE:HB	1:D:343:PRO:CD	2.42	0.50
1:B:78:ILE:HG22	1:B:82:MET:HE3	1.93	0.50
1:B:256:ASN:HD22	1:B:274:HIS:CE1	2.29	0.50
1:B:342:ILE:N	1:B:343:PRO:HD2	2.27	0.50
1:D:288:ASN:N	1:D:288:ASN:ND2	2.53	0.50
1:A:225:PHE:HB2	1:A:249:TYR:CE2	2.47	0.50
1:A:262:VAL:O	1:A:265:VAL:CG1	2.60	0.50
1:D:39:THR:C	1:D:41:ASN:H	2.20	0.50
1:D:373:LYS:CB	1:D:389:HIS:HB2	2.41	0.50
1:B:160:LYS:HA	1:C:167:PHE:CZ	2.47	0.49
1:D:280:PHE:O	1:D:309:ASN:ND2	2.45	0.49
1:C:59:ASN:ND2	1:C:62:GLN:HB3	2.27	0.49
1:D:145:GLU:CD	1:D:145:GLU:H	2.20	0.49
1:D:225:PHE:CB	1:D:249:TYR:CE2	2.95	0.49
1:D:289:MET:SD	1:D:310:CYS:SG	2.92	0.49
1:D:248:LYS:C	1:D:249:TYR:CD1	2.90	0.49
1:B:334:ASN:OD1	1:B:334:ASN:N	2.42	0.49
1:A:148:VAL:HG13	1:A:209:VAL:HG22	1.94	0.49
1:B:254:GLY:O	1:B:272:VAL:HA	2.13	0.49
1:D:169:LEU:O	1:D:170:LYS:C	2.55	0.49
1:C:182:GLU:HG2	1:C:187:ALA:O	2.12	0.48
1:C:234:VAL:HB	1:C:291:LEU:HD23	1.95	0.48
1:A:48:ILE:HB	1:A:49:PRO:HD3	1.95	0.48
1:A:263:ILE:O	1:A:265:VAL:N	2.46	0.48
1:B:94:TYR:O	1:B:97:ARG:N	2.44	0.48
1:A:44:LYS:O	1:A:48:ILE:HG12	2.13	0.48
1:A:64:ILE:CB	1:A:133:LEU:CD1	2.91	0.48
1:B:49:PRO:HG3	1:C:45:LEU:O	2.13	0.48
1:C:297:ASP:OD1	1:C:351:ASN:ND2	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:64:ILE:HG22	1:D:133:LEU:HD12	1.94	0.48
1:A:236:GLY:HA3	1:A:256:ASN:ND2	2.28	0.48
1:B:188:LYS:HB2	1:B:191:GLU:HG3	1.94	0.48
1:D:311:TRP:O	1:D:313:SER:N	2.47	0.48
1:D:371:PHE:CD2	1:D:388:PHE:HB3	2.49	0.48
1:A:222:TYR:CE2	1:A:224:GLY:HA3	2.49	0.48
1:B:341:LEU:HB3	1:C:101:LEU:HD13	1.96	0.48
1:C:146:ASP:OD1	1:C:146:ASP:N	2.47	0.47
1:A:238:ILE:O	1:A:269:TYR:HE2	1.96	0.47
1:D:180:PRO:HG2	1:D:349:ALA:HA	1.94	0.47
1:C:214:VAL:HG13	1:C:383:LEU:HD21	1.95	0.47
1:B:65:SER:O	1:B:68:GLY:N	2.44	0.47
1:B:134:THR:O	1:B:135:ASN:C	2.56	0.47
1:B:246:VAL:HG11	1:B:271:GLY:HA3	1.96	0.47
1:D:211:SER:O	1:D:212:ILE:C	2.57	0.47
1:C:59:ASN:HD21	1:C:62:GLN:CB	2.28	0.47
1:D:371:PHE:HD2	1:D:388:PHE:C	2.22	0.47
1:A:168:LYS:HE3	1:A:183:VAL:HG12	1.96	0.47
1:A:257:PHE:HA	1:A:275:VAL:O	2.15	0.47
1:B:331:LEU:HD22	1:B:341:LEU:HD11	1.95	0.47
1:D:138:CYS:C	1:D:140:LEU:H	2.23	0.47
1:D:239:GLY:O	1:D:241:SER:N	2.48	0.47
1:A:340:ALA:C	1:A:343:PRO:HD2	2.40	0.47
1:B:149:SER:O	1:B:209:VAL:HG11	2.15	0.47
1:D:215:PHE:O	1:D:217:ALA:N	2.48	0.47
1:A:267:PRO:HG2	1:A:269:TYR:CZ	2.50	0.46
1:B:215:PHE:O	1:B:218:VAL:N	2.48	0.46
1:D:231:LEU:HA	1:D:288:ASN:O	2.15	0.46
1:A:65:SER:C	1:A:67:PHE:H	2.23	0.46
1:A:253:ARG:NH2	1:A:273:GLU:OE1	2.49	0.46
1:A:159:ASP:O	1:A:162:VAL:CG1	2.64	0.46
1:D:156:PHE:HE1	1:D:203:PHE:CZ	2.33	0.46
1:B:326:VAL:HG11	1:B:359:ILE:HG13	1.96	0.46
1:C:188:LYS:O	1:C:189:ILE:C	2.59	0.46
1:D:308:LYS:CE	1:D:369:ALA:HA	2.46	0.46
1:A:259:LEU:HD21	2:A:401:SAH:C6	2.46	0.46
1:B:331:LEU:HD13	1:C:100:ARG:HG2	1.96	0.46
1:A:154:LEU:C	1:A:156:PHE:N	2.72	0.46
1:A:222:TYR:CZ	1:A:224:GLY:HA3	2.51	0.46
1:C:380:SER:O	1:C:382:GLY:N	2.49	0.46
1:C:257:PHE:HA	1:C:275:VAL:O	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:257:PHE:HD1	1:A:275:VAL:O	1.99	0.45
1:A:263:ILE:C	1:A:265:VAL:H	2.24	0.45
1:C:93:MET:HG3	1:C:94:TYR:N	2.30	0.45
1:C:358:THR:HG23	1:C:361:GLU:H	1.80	0.45
1:A:97:ARG:NH2	1:D:344:ASP:OD1	2.49	0.45
1:B:95:LEU:O	1:B:99:LEU:HG	2.17	0.45
1:B:292:LYS:O	2:B:401:SAH:N	2.49	0.45
1:A:35:TYR:O	1:A:39:THR:HB	2.16	0.45
1:D:240:THR:O	1:D:241:SER:C	2.60	0.45
1:A:151:VAL:O	1:A:152:GLU:C	2.59	0.45
1:C:295:LEU:C	1:C:297:ASP:H	2.25	0.45
1:A:292:LYS:HB3	2:A:401:SAH:HN2	1.82	0.45
1:A:362:TYR:HA	1:A:365:LEU:HD12	1.99	0.45
1:B:232:LEU:HD23	1:B:289:MET:HG2	1.98	0.45
1:C:53:ARG:NH1	1:C:158:SER:OG	2.49	0.45
1:D:56:MET:O	1:D:59:ASN:N	2.36	0.44
1:D:181:PHE:CD1	1:D:181:PHE:C	2.95	0.44
1:B:362:TYR:O	1:B:365:LEU:HB2	2.16	0.44
1:A:84:ASN:CB	1:D:174:GLU:OE2	2.66	0.44
1:A:182:GLU:O	1:A:185:HIS:O	2.35	0.44
1:D:145:GLU:CD	1:D:145:GLU:N	2.76	0.44
1:B:38:GLU:CD	1:B:41:ASN:HD22	2.26	0.44
1:C:228:MET:HE3	1:C:288:ASN:CB	2.47	0.44
1:A:279:MET:HG3	1:A:306:LEU:HD13	1.99	0.44
1:B:232:LEU:O	1:B:289:MET:HA	2.18	0.44
1:D:53:ARG:HA	1:D:56:MET:HE3	1.99	0.43
1:D:108:LEU:HD23	1:D:132:GLY:O	2.17	0.43
1:D:163:VAL:O	1:D:164:ASP:C	2.61	0.43
1:D:257:PHE:HA	1:D:275:VAL:O	2.18	0.43
1:D:233:ASP:HB2	1:D:242:VAL:CG1	2.47	0.43
1:B:286:GLY:O	1:B:315:PRO:HD3	2.19	0.43
1:D:259:LEU:HD21	3:D:401:SAM:C6	2.48	0.43
1:B:48:ILE:HG22	1:C:45:LEU:HD13	2.00	0.43
1:A:344:ASP:OD2	1:D:100:ARG:NH2	2.51	0.43
1:C:238:ILE:HA	1:C:266:ALA:HB2	2.01	0.43
1:D:366:GLY:HA2	1:D:388:PHE:CD2	2.54	0.43
1:D:219:PHE:O	1:D:220:ARG:C	2.62	0.43
1:A:99:LEU:O	1:A:100:ARG:C	2.62	0.43
1:A:159:ASP:CG	1:A:198:ARG:HH22	2.27	0.43
1:A:331:LEU:HD22	1:A:341:LEU:HD11	2.01	0.43
1:C:169:LEU:O	1:C:170:LYS:C	2.61	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:56:MET:O	1:D:57:GLU:C	2.62	0.43
1:D:65:SER:O	1:D:67:PHE:N	2.48	0.43
1:B:38:GLU:CD	1:C:136:SER:HA	2.44	0.43
1:B:285:LYS:HE3	1:B:285:LYS:HB3	1.81	0.43
1:C:295:LEU:O	1:C:297:ASP:N	2.51	0.43
1:B:108:LEU:HD12	1:B:108:LEU:HA	1.86	0.42
1:C:73:VAL:CG1	1:C:77:GLU:CB	2.96	0.42
1:C:295:LEU:HD12	1:C:322:ILE:CG2	2.48	0.42
1:B:343:PRO:O	1:B:346:LEU:HB2	2.19	0.42
1:C:233:ASP:OD2	1:C:241:SER:OG	2.35	0.42
1:C:296:HIS:ND1	1:C:356:GLU:OE2	2.52	0.42
1:A:339:ASN:CG	1:D:40:ALA:HB2	2.44	0.42
1:B:153:GLU:O	1:B:156:PHE:HB3	2.19	0.42
1:B:179:VAL:HG13	1:B:182:GLU:HB2	2.00	0.42
1:D:106:SER:C	1:D:108:LEU:H	2.27	0.42
1:D:211:SER:OG	1:D:292:LYS:NZ	2.27	0.42
1:A:179:VAL:O	1:A:180:PRO:C	2.62	0.42
1:A:154:LEU:C	1:A:156:PHE:H	2.28	0.42
1:A:230:GLU:OE2	1:A:253:ARG:NH1	2.50	0.42
1:D:328:PRO:HG2	1:D:336:GLU:HG3	2.02	0.42
1:C:232:LEU:HD23	1:C:289:MET:HE2	2.02	0.42
1:C:300:ASP:HA	1:C:303:CYS:HB2	2.02	0.42
1:A:292:LYS:HG3	1:A:323:ILE:HB	2.01	0.42
1:D:319:LYS:HD3	1:D:389:HIS:CE1	2.55	0.42
1:B:257:PHE:CE2	1:B:284:PRO:HD2	2.55	0.41
1:D:343:PRO:O	1:D:347:LEU:HG	2.20	0.41
1:A:48:ILE:HB	1:A:49:PRO:CD	2.50	0.41
1:A:59:ASN:O	1:A:61:PHE:N	2.53	0.41
1:A:358:THR:HG22	1:A:361:GLU:HG3	2.01	0.41
1:A:58:LEU:HB3	1:A:82:MET:HE2	2.02	0.41
1:B:66:LYS:C	1:B:68:GLY:H	2.27	0.41
1:C:35:TYR:O	1:C:39:THR:HG23	2.21	0.41
1:D:69:THR:O	1:D:70:ASP:C	2.64	0.41
1:D:287:GLN:HA	1:D:315:PRO:CG	2.51	0.41
1:D:357:ARG:HD2	1:D:362:TYR:CE1	2.55	0.41
1:A:230:GLU:HG3	1:A:253:ARG:HG3	2.00	0.41
1:B:286:GLY:O	1:B:314:LEU:HD12	2.20	0.41
1:D:106:SER:C	1:D:108:LEU:N	2.79	0.41
1:A:83:PRO:C	1:A:85:ALA:H	2.28	0.41
1:A:211:SER:O	1:A:212:ILE:C	2.63	0.41
1:C:109:SER:O	1:C:131:TYR:HA	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:151:VAL:O	1:C:152:GLU:C	2.63	0.41
1:A:97:ARG:HE	1:D:344:ASP:CG	2.29	0.41
1:A:347:LEU:O	1:A:351:ASN:C	2.64	0.41
1:A:371:PHE:CG	1:A:388:PHE:HB3	2.56	0.41
1:B:379:ILE:N	1:B:383:LEU:O	2.50	0.41
1:C:347:LEU:O	1:C:351:ASN:C	2.64	0.41
1:D:156:PHE:HE1	1:D:203:PHE:CE1	2.39	0.41
1:D:379:ILE:HB	1:D:383:LEU:O	2.21	0.41
1:D:88:ASN:OD1	1:D:88:ASN:C	2.64	0.41
1:B:209:VAL:O	1:B:212:ILE:HB	2.20	0.40
1:C:82:MET:HB2	1:C:85:ALA:HB3	2.04	0.40
1:C:168:LYS:O	1:C:169:LEU:C	2.63	0.40
1:D:230:GLU:O	1:D:288:ASN:ND2	2.54	0.40
1:B:365:LEU:HD23	1:B:365:LEU:HA	1.92	0.40
1:A:231:LEU:HB2	1:A:252:ILE:HD11	2.03	0.40
1:C:274:HIS:C	1:C:275:VAL:HG23	2.47	0.40
1:B:179:VAL:HG23	1:B:352:PRO:HD3	2.03	0.40
1:C:69:THR:C	1:C:71:ALA:N	2.77	0.40
1:D:39:THR:O	1:D:43:GLY:N	2.46	0.40

There are no symmetry-related clashes.

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	338/393 (86%)	288 (85%)	35 (10%)	15 (4%)	2	12
1	B	345/393 (88%)	299 (87%)	39 (11%)	7 (2%)	6	29
1	C	338/393 (86%)	286 (85%)	44 (13%)	8 (2%)	5	25
1	D	343/393 (87%)	248 (72%)	63 (18%)	32 (9%)	0	2
All	All	1364/1572 (87%)	1121 (82%)	181 (13%)	62 (4%)	2	12

All (62) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	60	VAL
1	A	110	VAL
1	A	224	GLY
1	B	91	ALA
1	C	170	LYS
1	C	190	PHE
1	C	368	ALA
1	D	170	LYS
1	D	176	LYS
1	D	219	PHE
1	D	221	VAL
1	D	240	THR
1	D	312	ASN
1	A	70	ASP
1	A	155	LEU
1	B	60	VAL
1	B	284	PRO
1	C	381	ASN
1	D	66	LYS
1	D	139	CYS
1	D	186	GLY
1	D	207	MET
1	D	216	GLU
1	D	241	SER
1	D	247	ALA
1	D	287	GLN
1	D	334	ASN
1	D	372	ILE
1	D	374	THR
1	A	59	ASN
1	A	91	ALA
1	A	106	SER
1	A	208	ALA
1	A	264	SER
1	B	70	ASP
1	B	135	ASN
1	C	145	GLU
1	D	40	ALA
1	D	222	TYR
1	D	284	PRO
1	A	66	LYS
1	A	72	LYS

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Mol	Chain	Res	Type
1	B	371	PHE
1	C	293	TRP
1	C	296	HIS
1	D	70	ASP
1	D	87	ASN
1	D	370	GLY
1	D	39	THR
1	D	107	ILE
1	D	375	ILE
1	A	89	PRO
1	A	100	ARG
1	A	151	VAL
1	B	224	GLY
1	D	106	SER
1	D	205	ASP
1	D	212	ILE
1	C	275	VAL
1	D	304	VAL
1	D	246	VAL
1	D	320	VAL

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	261/333 (78%)	229 (88%)	32 (12%)	4	18
1	B	255/333 (77%)	218 (86%)	37 (14%)	2	13
1	C	238/333 (72%)	223 (94%)	15 (6%)	15	45
1	D	237/333 (71%)	212 (90%)	25 (10%)	5	23
All	All	991/1332 (74%)	882 (89%)	109 (11%)	5	22

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	39	THR

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Mol	Chain	Res	Type
1	A	46	ILE
1	A	63	LEU
1	A	70	ASP
1	A	77	GLU
1	A	89	PRO
1	A	95	LEU
1	A	101	LEU
1	A	107	ILE
1	A	112	THR
1	A	134	THR
1	A	138	CYS
1	A	155	LEU
1	A	157	THR
1	A	165	SER
1	A	169	LEU
1	A	172	VAL
1	A	178	SER
1	A	191	GLU
1	A	195	THR
1	A	209	VAL
1	A	213	VAL
1	A	223	ASP
1	A	226	LEU
1	A	240	THR
1	A	241	SER
1	A	242	VAL
1	A	282	GLU
1	A	304	VAL
1	A	336	GLU
1	A	358	THR
1	A	390	LYS
1	B	52	LEU
1	B	53	ARG
1	B	64	ILE
1	B	70	ASP
1	B	74	SER
1	B	76	SER
1	B	101	LEU
1	B	107	ILE
1	B	108	LEU
1	B	113	THR
1	B	117	ILE

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Mol	Chain	Res	Type
1	B	127	HIS
1	B	133	LEU
1	B	138	CYS
1	B	144	GLN
1	B	146	ASP
1	B	151	VAL
1	B	160	LYS
1	B	162	VAL
1	B	168	LYS
1	B	172	VAL
1	B	198	ARG
1	B	207	MET
1	B	227	ASP
1	B	238	ILE
1	B	240	THR
1	B	246	VAL
1	B	260	PRO
1	B	281	GLU
1	B	285	LYS
1	B	316	VAL
1	B	320	VAL
1	B	329	ASN
1	B	336	GLU
1	B	359	ILE
1	B	363	ASP
1	B	372	ILE
1	C	36	LEU
1	C	38	GLU
1	C	65	SER
1	C	157	THR
1	C	173	VAL
1	C	199	MET
1	C	209	VAL
1	C	211	SER
1	C	213	VAL
1	C	231	LEU
1	C	246	VAL
1	C	296	HIS
1	C	305	LYS
1	C	327	LEU
1	C	380	SER
1	D	53	ARG

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Mol	Chain	Res	Type
1	D	62	GLN
1	D	70	ASP
1	D	73	VAL
1	D	78	ILE
1	D	93	MET
1	D	112	THR
1	D	133	LEU
1	D	134	THR
1	D	138	CYS
1	D	145	GLU
1	D	165	SER
1	D	172	VAL
1	D	183	VAL
1	D	211	SER
1	D	226	LEU
1	D	263	ILE
1	D	288	ASN
1	D	291	LEU
1	D	296	HIS
1	D	310	CYS
1	D	322	ILE
1	D	333	ASN
1	D	337	SER
1	D	350	LEU

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	381	ASN
1	B	41	ASN
1	B	201	GLN
1	B	256	ASN
1	C	333	ASN
1	D	84	ASN
1	D	256	ASN
1	D	268	GLN
1	D	288	ASN

5.3.3 RNA ⓘ

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](#)

3 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	SAM	D	401	-	24,29,29	0.78	0	23,42,42	1.19	2 (8%)
2	SAH	A	401	-	24,28,28	1.60	5 (20%)	25,40,40	2.44	9 (36%)
2	SAH	B	401	-	24,28,28	1.41	3 (12%)	25,40,40	1.85	10 (40%)

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	SAM	D	401	-	-	1/12/33/33	0/3/3/3
2	SAH	A	401	-	-	5/11/31/31	0/3/3/3
2	SAH	B	401	-	-	5/11/31/31	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	SAH	O-C	3.98	1.34	1.22
2	B	401	SAH	O-C	3.73	1.33	1.22
2	A	401	SAH	C2'-C1'	-3.06	1.49	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	SAH	OXT-C	-2.78	1.21	1.30
2	A	401	SAH	OXT-C	-2.68	1.21	1.30
2	A	401	SAH	C5-N7	-2.67	1.30	1.39
2	A	401	SAH	C5-C4	2.22	1.46	1.40
2	B	401	SAH	C5-C4	2.13	1.46	1.40

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	SAH	C5'-SD-CG	6.40	121.46	102.27
2	A	401	SAH	CB-CA-C	4.80	121.72	110.30
2	A	401	SAH	OXT-C-O	-4.45	113.97	124.09
2	B	401	SAH	C1'-N9-C4	-4.03	119.56	126.64
3	D	401	SAM	O4'-C1'-C2'	-3.40	101.96	106.93
2	A	401	SAH	C4-C5-N7	-3.32	105.94	109.40
2	B	401	SAH	C5'-SD-CG	3.10	111.57	102.27
2	A	401	SAH	O4'-C4'-C5'	-2.85	101.50	108.83
2	B	401	SAH	N3-C2-N1	-2.77	124.35	128.68
3	D	401	SAM	C5-C6-N6	2.72	124.48	120.35
2	A	401	SAH	N3-C2-N1	-2.69	124.47	128.68
2	A	401	SAH	C2-N1-C6	2.55	123.11	118.75
2	B	401	SAH	CB-CG-SD	-2.55	107.60	113.31
2	A	401	SAH	OXT-C-CA	2.54	122.02	113.38
2	B	401	SAH	O4'-C4'-C5'	-2.34	102.80	108.83
2	B	401	SAH	OXT-C-CA	2.32	121.30	113.38
2	B	401	SAH	OXT-C-O	-2.32	118.82	124.09
2	B	401	SAH	CB-CA-N	2.26	116.09	110.17
2	A	401	SAH	C5-C6-N6	2.23	123.74	120.35
2	B	401	SAH	C2-N1-C6	2.19	122.50	118.75
2	B	401	SAH	C4-C5-N7	-2.02	107.30	109.40

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	SAH	C-CA-CB-CG
2	A	401	SAH	C4'-C5'-SD-CG
2	A	401	SAH	O4'-C4'-C5'-SD
2	A	401	SAH	C3'-C4'-C5'-SD
2	B	401	SAH	N-CA-CB-CG
2	B	401	SAH	C-CA-CB-CG
2	A	401	SAH	CA-CB-CG-SD

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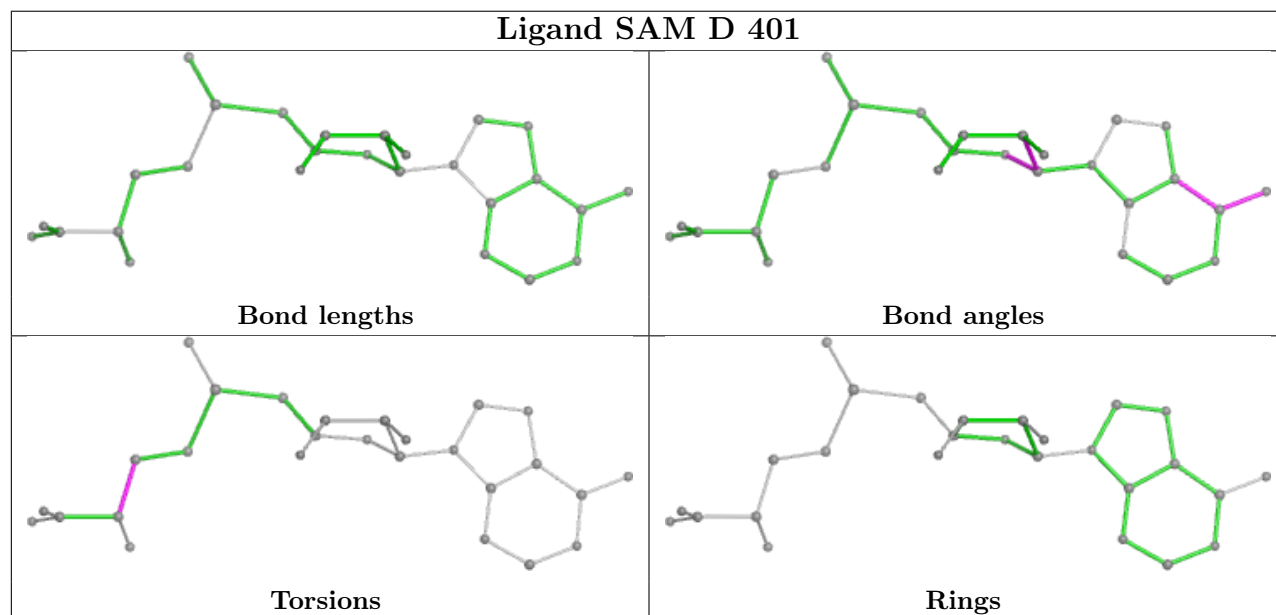
Mol	Chain	Res	Type	Atoms
2	B	401	SAH	O-C-CA-CB
2	B	401	SAH	OXT-C-CA-CB
2	B	401	SAH	CB-CG-SD-C5'
3	D	401	SAM	N-CA-CB-CG

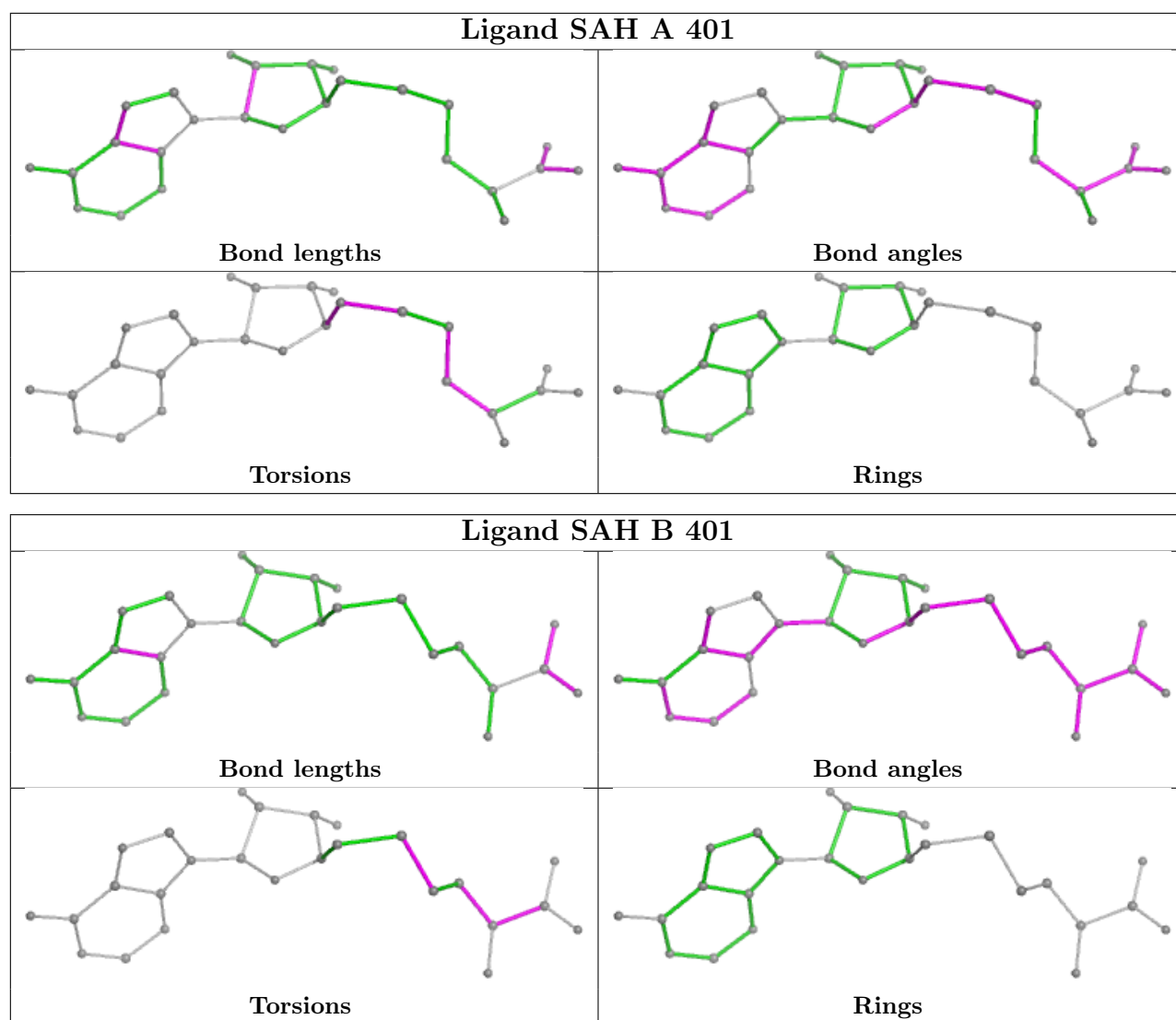
There are no ring outliers.

3 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	401	SAM	3	0
2	A	401	SAH	2	0
2	B	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 than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	342/393 (87%)	-0.47	3 (0%) 81 63	40, 73, 104, 126	26 (7%)
1	B	349/393 (88%)	-0.34	4 (1%) 77 58	46, 85, 121, 148	27 (7%)
1	C	342/393 (87%)	-0.34	2 (0%) 85 71	52, 86, 116, 157	25 (7%)
1	D	347/393 (88%)	-0.10	10 (2%) 54 32	41, 86, 122, 139	43 (12%)
All	All	1380/1572 (87%)	-0.31	19 (1%) 73 52	40, 83, 118, 157	121 (8%)

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	126	VAL	8.0
1	D	33	VAL	6.3
1	A	33	VAL	5.3
1	D	112	THR	5.2
1	D	114	LYS	5.0
1	B	86	LYS	4.7
1	B	118	ASN	4.3
1	C	86	LYS	4.2
1	D	136	SER	3.1
1	D	127	HIS	2.9
1	D	225	PHE	2.7
1	A	129	LYS	2.6
1	C	305	LYS	2.4
1	D	316	VAL	2.4
1	B	117	ILE	2.2
1	A	67	PHE	2.2
1	B	115	LYS	2.1
1	D	358	THR	2.1
1	D	135	ASN	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](#)

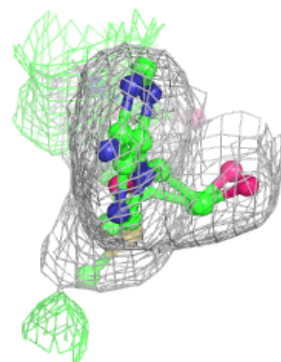
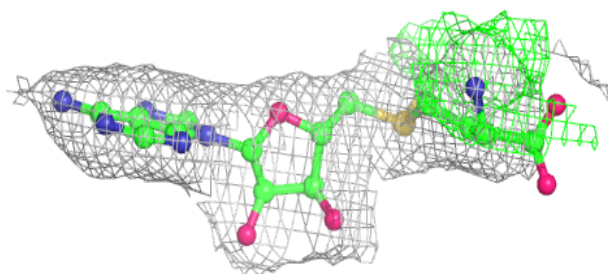
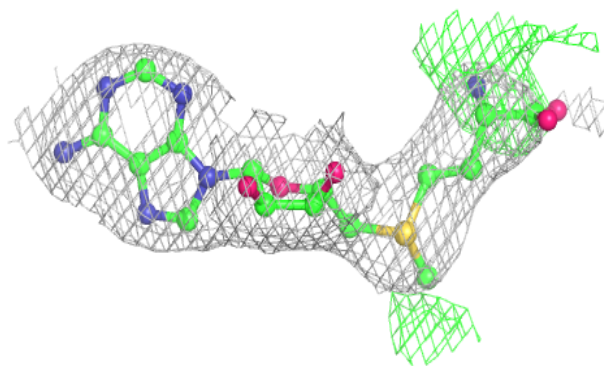
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	SAM	D	401	27/27	0.90	0.14	53,62,90,93	5
2	SAH	B	401	26/26	0.94	0.08	70,81,89,92	0
2	SAH	A	401	26/26	0.94	0.08	58,64,82,106	0

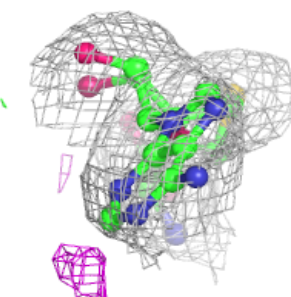
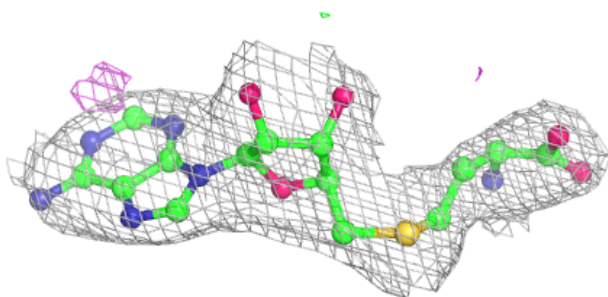
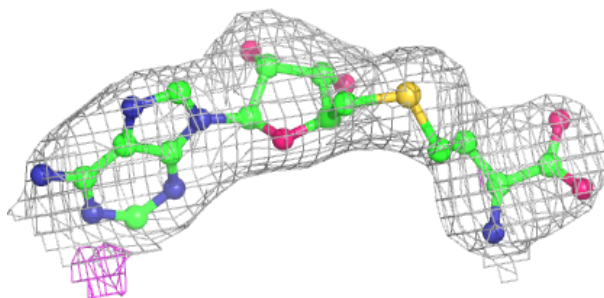
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

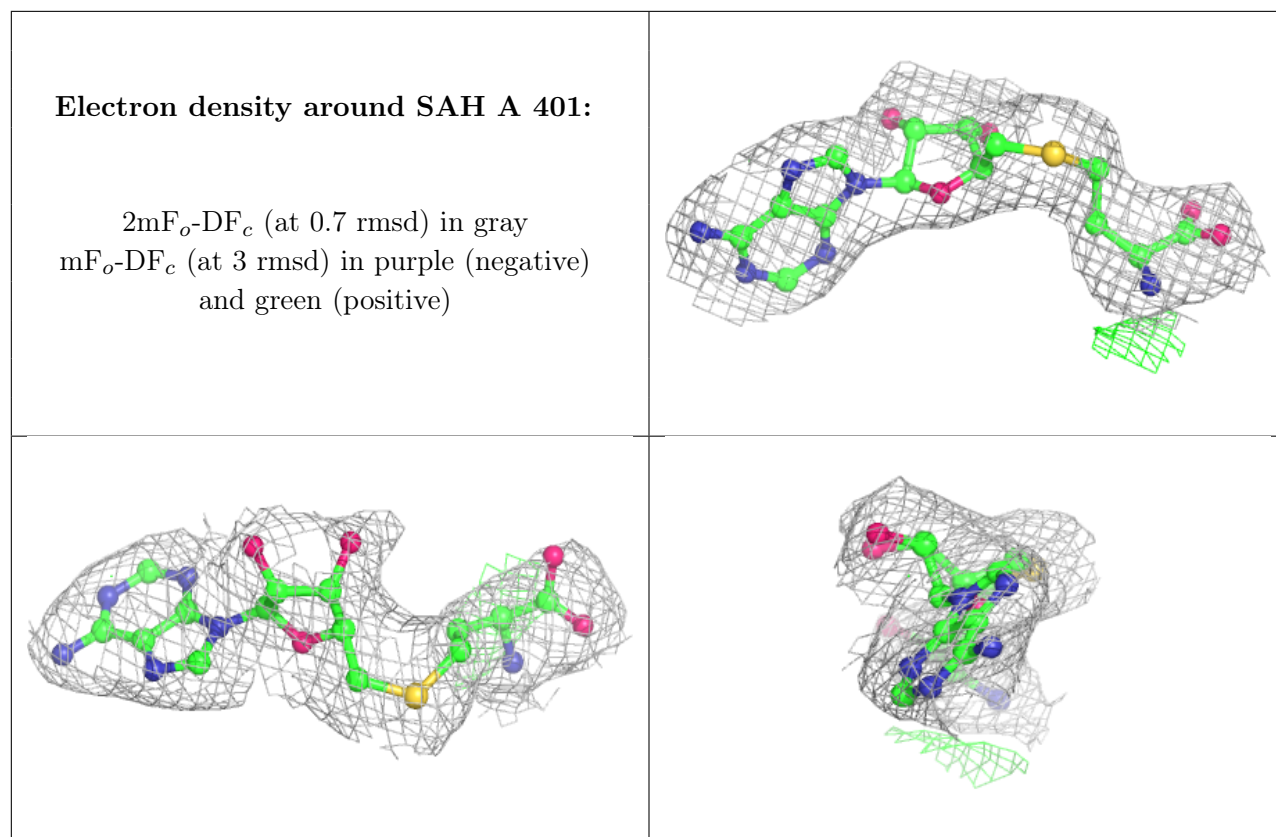
Electron density around SAM D 401:

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

**Electron density around SAH 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)





6.5 Other polymers [i](#)

There are no such residues in this entry.