



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 05:42 PM UTC

PDB ID : 1WK8 / pdb_00001wk8
Title : Isoleucyl-tRNA synthetase editing domain complexed with the pre-transfer editing substrate analogue, Val-AMS
Authors : Fukunaga, R.; Yokoyama, S.; RIKEN Structural Genomics/Proteomics Initiative (RSGI)
Deposited on : 2004-05-30
Resolution : 1.70 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	:	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

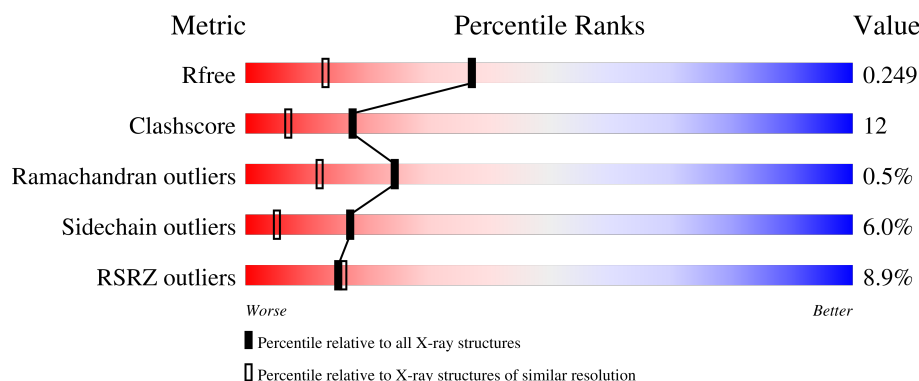
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.70 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	5551 (1.70-1.70)
Clashscore	190562	5924 (1.70-1.70)
Ramachandran outliers	187476	5846 (1.70-1.70)
Sidechain outliers	187428	5846 (1.70-1.70)
RSRZ outliers	180081	5554 (1.70-1.70)

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	194	
1	B	194	

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
2	VMS	B	999	-	-	X	-

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 3205 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.

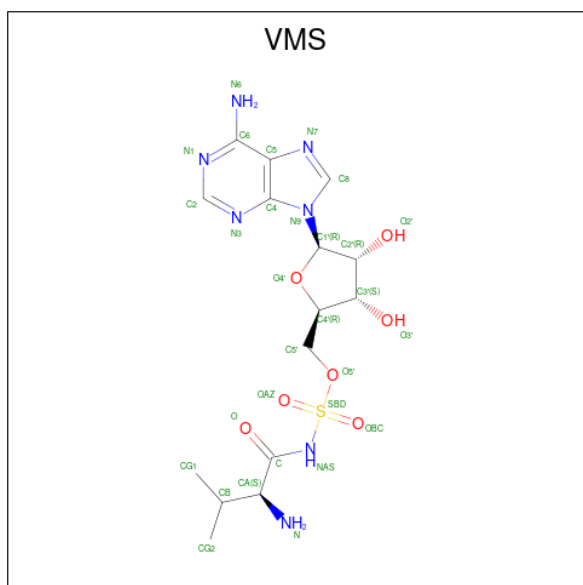
- Molecule 1 is a protein called Isoleucyl-tRNA synthetase.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
1	A	182	Total	C	N	O	0	0	0
			1428	933	231	264			
1	B	187	Total	C	N	O	0	0	0
			1473	963	239	271			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	195	MET	-	initiating methionine	UNP P56690
A	274	PRO	GLN	SEE REMARK 999	UNP P56690
B	195	MET	-	initiating methionine	UNP P56690
B	274	PRO	GLN	SEE REMARK 999	UNP P56690

- Molecule 2 is 5'-O-[N-(L-VALYL)SULPHAMOYL]ADENOSINE (CCD ID: VMS) (formula: $C_{15}H_{23}N_7O_7S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total	C	N	O	S	0	0
			30	15	7	7	1		

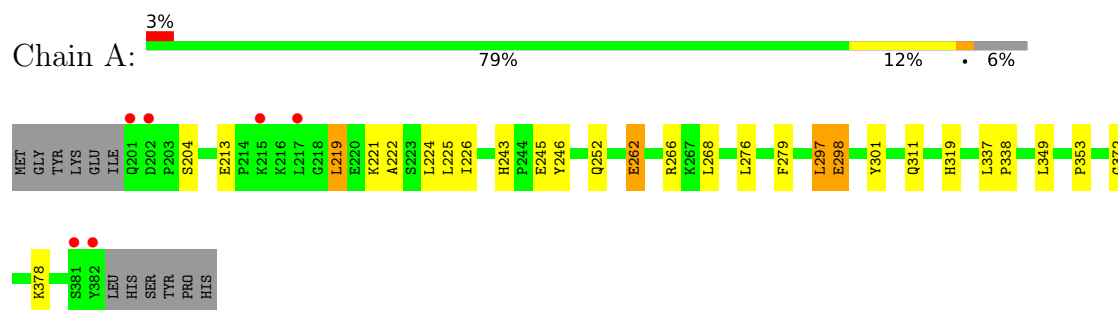
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	168	Total	O	0	0
			168	168		
3	B	106	Total	O	0	0
			106	106		

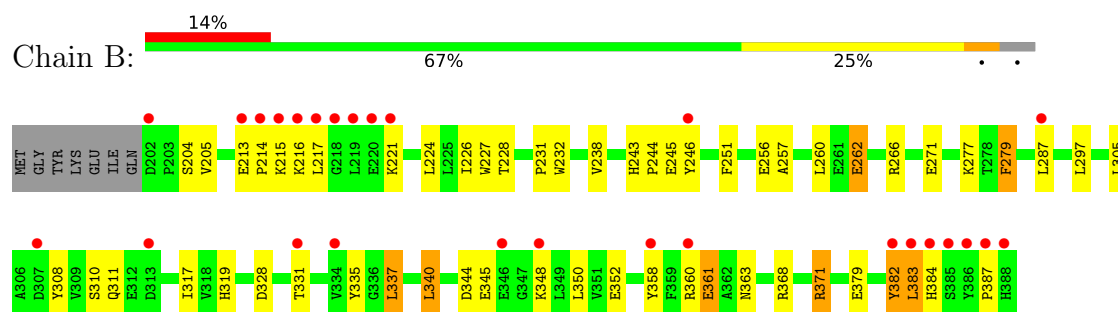
3 Residue-property plots [i](#)

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: Isoleucyl-tRNA synthetase



• Molecule 1: Isoleucyl-tRNA synthetase



4 Data and refinement statistics

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	102.00Å 102.00Å 84.88Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	45.62 – 1.70 45.62 – 1.70	Depositor EDS
% Data completeness (in resolution range)	99.6 (45.62-1.70) 99.6 (45.62-1.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.87 (at 1.65Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.206 , 0.249 0.207 , 0.249	Depositor DCC
R_{free} test set	2741 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å ²)	26.0	Xtriage
Anisotropy	0.054	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 51.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	3205	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.35% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: VMS

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	0.84	0/1466	1.11	5/1995 (0.3%)
1	B	0.82	0/1515	1.12	6/2062 (0.3%)
All	All	0.83	0/2981	1.11	11/4057 (0.3%)

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	204	SER	N-CA-C	-8.44	98.03	110.52
1	B	224	LEU	N-CA-C	-6.29	100.25	110.20
1	B	262	GLU	N-CA-C	6.08	118.41	111.11
1	A	224	LEU	N-CA-C	-5.97	100.76	110.20
1	B	371	ARG	CG-CD-NE	-5.61	99.67	112.00
1	B	371	ARG	NE-CZ-NH1	-5.56	115.94	121.50
1	B	205	VAL	N-CA-C	5.47	116.91	108.44
1	B	204	SER	N-CA-C	-5.25	102.75	110.52
1	A	337	LEU	CA-C-N	5.25	125.16	119.76
1	A	337	LEU	C-N-CA	5.25	125.16	119.76
1	A	262	GLU	N-CA-C	5.10	117.23	111.11

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	1428	0	1437	16	0
1	B	1473	0	1475	54	0
2	B	30	0	23	11	0
3	A	168	0	0	2	2
3	B	106	0	0	10	0
All	All	3205	0	2935	73	2

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 12.

All (73) 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:243:HIS:HD2	1:B:245:GLU:H	1.20	0.89
1:A:243:HIS:HD2	1:A:245:GLU:H	1.29	0.79
2:B:999:VMS:N7	3:B:1066:HOH:O	2.16	0.78
1:B:371:ARG:NH1	1:B:379:GLU:OE1	2.22	0.73
1:B:348:LYS:HE3	3:B:1105:HOH:O	1.91	0.70
1:B:228:THR:HA	2:B:999:VMS:H5'1	1.74	0.69
1:B:226:ILE:HD11	1:B:317:ILE:HG22	1.73	0.69
1:B:243:HIS:CD2	1:B:245:GLU:H	2.09	0.67
2:B:999:VMS:H3	3:B:1033:HOH:O	1.95	0.67
1:B:266:ARG:NH1	1:B:271:GLU:OE2	2.28	0.66
1:B:331:THR:HG22	3:B:1081:HOH:O	1.94	0.65
1:B:308:TYR:OH	1:B:331:THR:HG21	1.96	0.65
1:B:371:ARG:HH12	1:B:379:GLU:CD	2.06	0.64
1:B:231:PRO:HD2	1:B:363:ASN:HD21	1.61	0.64
1:B:262:GLU:OE1	1:B:266:ARG:NE	2.28	0.63
1:B:244:PRO:HB3	1:B:305:LEU:HD13	1.82	0.62
1:B:221:LYS:O	1:B:256:GLU:HG3	2.01	0.61
1:A:268:LEU:HD11	1:A:378:LYS:HE2	1.83	0.61
1:A:221:LYS:HB3	1:A:221:LYS:NZ	2.16	0.60
1:B:214:PRO:HD2	1:B:215:LYS:HE2	1.83	0.59
1:A:262:GLU:OE2	1:A:266:ARG:NH2	2.34	0.59
1:B:358:TYR:HB3	1:B:361:GLU:HG3	1.84	0.58
1:B:228:THR:OG1	2:B:999:VMS:OAZ	2.19	0.58
1:A:297:LEU:HD22	1:A:301:TYR:CZ	2.40	0.56
1:A:252:GLN:OE1	1:A:276:LEU:HD11	2.05	0.55
1:A:298:GLU:HG2	1:A:338:PRO:HG3	1.88	0.55
1:B:382:TYR:O	1:B:383:LEU:O	2.25	0.54
1:B:310:SER:HB3	2:B:999:VMS:C2	2.38	0.54
1:B:328:ASP:OD1	2:B:999:VMS:HG13	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:215:LYS:C	1:B:217:LEU:H	2.17	0.53
1:A:298:GLU:CD	1:A:298:GLU:H	2.17	0.52
1:B:279:PHE:N	1:B:279:PHE:CD1	2.77	0.52
1:B:308:TYR:OH	1:B:331:THR:CG2	2.57	0.52
1:B:335:TYR:HB2	1:B:337:LEU:HD22	1.92	0.52
1:B:310:SER:H	2:B:999:VMS:C2	2.21	0.52
1:B:246:TYR:CE1	1:B:311:GLN:HB2	2.45	0.52
1:B:215:LYS:N	1:B:215:LYS:HD3	2.27	0.50
1:B:217:LEU:HD11	1:B:287:LEU:HD11	1.91	0.50
1:B:226:ILE:HD11	1:B:317:ILE:CG2	2.40	0.50
1:A:372:GLY:HA3	3:A:501:HOH:O	2.11	0.49
1:B:352:GLU:CD	3:B:1095:HOH:O	2.56	0.48
1:B:360:ARG:HH21	1:B:360:ARG:HG3	1.79	0.48
1:B:246:TYR:CZ	1:B:311:GLN:HB2	2.49	0.47
1:B:227:TRP:CD1	2:B:999:VMS:H4'	2.49	0.47
1:B:297:LEU:HD21	1:B:340:LEU:HG	1.97	0.47
2:B:999:VMS:NAS	2:B:999:VMS:HG21	2.30	0.47
1:B:383:LEU:O	1:B:384:HIS:HB2	2.16	0.46
1:A:213:GLU:HB2	3:A:517:HOH:O	2.15	0.46
1:A:246:TYR:CE1	1:A:311:GLN:HB3	2.51	0.46
1:A:262:GLU:OE2	1:A:266:ARG:NE	2.44	0.45
1:B:228:THR:CB	2:B:999:VMS:OAZ	2.65	0.45
1:B:226:ILE:CD1	1:B:317:ILE:HG22	2.46	0.45
1:B:226:ILE:HD13	1:B:317:ILE:HB	1.98	0.44
1:B:215:LYS:C	1:B:217:LEU:N	2.75	0.44
1:B:256:GLU:OE2	3:B:1037:HOH:O	2.21	0.44
1:A:221:LYS:HB3	1:A:221:LYS:HZ3	1.80	0.44
1:B:232:TRP:H	1:B:363:ASN:HD22	1.66	0.44
1:A:219:LEU:HB3	1:A:222:ALA:HB2	2.00	0.44
1:B:262:GLU:OE1	1:B:266:ARG:NH2	2.51	0.44
1:B:215:LYS:HD3	1:B:215:LYS:H	1.83	0.43
1:B:344:ASP:HB3	1:B:350:LEU:HD21	2.01	0.43
1:B:215:LYS:H	1:B:215:LYS:CD	2.31	0.42
1:B:232:TRP:H	1:B:363:ASN:ND2	2.18	0.42
1:B:251:PHE:O	1:B:257:ALA:HA	2.19	0.42
1:B:368:ARG:HG3	3:B:1030:HOH:O	2.19	0.42
1:B:382:TYR:H	1:B:382:TYR:HD1	1.67	0.42
1:B:360:ARG:HD2	3:B:1042:HOH:O	2.19	0.42
1:B:214:PRO:HG3	3:B:1011:HOH:O	2.20	0.42
1:B:310:SER:N	2:B:999:VMS:N1	2.46	0.42
1:A:243:HIS:CD2	1:A:245:GLU:H	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:226:ILE:HD12	1:A:226:ILE:C	2.45	0.41
1:B:238:VAL:HG12	1:B:340:LEU:HD12	2.02	0.41
1:B:277:LYS:NZ	3:B:1016:HOH:O	2.55	0.40

All (2) 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)
3:A:555:HOH:O	3:A:555:HOH:O[7_645]	1.86	0.34
3:A:421:HOH:O	3:A:467:HOH:O[4_564]	2.16	0.04

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	180/194 (93%)	176 (98%)	4 (2%)	0	100	100
1	B	185/194 (95%)	177 (96%)	6 (3%)	2 (1%)	11	3
All	All	365/388 (94%)	353 (97%)	10 (3%)	2 (0%)	24	12

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	383	LEU
1	B	216	LYS

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	148/159 (93%)	140 (95%)	8 (5%)	20	6
1	B	153/159 (96%)	143 (94%)	10 (6%)	15	4
All	All	301/318 (95%)	283 (94%)	18 (6%)	17	5

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	219	LEU
1	A	225	LEU
1	A	279	PHE
1	A	297	LEU
1	A	298	GLU
1	A	319	HIS
1	A	349	LEU
1	A	353	PRO
1	B	213	GLU
1	B	260	LEU
1	B	279	PHE
1	B	319	HIS
1	B	337	LEU
1	B	340	LEU
1	B	345	GLU
1	B	361	GLU
1	B	382	TYR
1	B	387	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	243	HIS
1	A	311	GLN
1	A	320	GLN
1	B	243	HIS
1	B	252	GLN
1	B	363	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

1 ligand is 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	VMS	B	999	-	31,32,32	2.69	8 (25%)	44,48,48	1.91	12 (27%)

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	VMS	B	999	-	-	6/22/39/39	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	999	VMS	OBC-SBD	9.31	1.50	1.42
2	B	999	VMS	OAZ-SBD	9.00	1.50	1.42
2	B	999	VMS	O5'-SBD	-4.53	1.50	1.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	999	VMS	C5-N7	-3.19	1.33	1.39
2	B	999	VMS	C-NAS	-2.45	1.33	1.37
2	B	999	VMS	C8-N9	-2.31	1.33	1.37
2	B	999	VMS	SBD-NAS	2.22	1.63	1.59
2	B	999	VMS	C4-N9	-2.03	1.33	1.37

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	999	VMS	C5-C4-N3	-5.22	119.53	126.72
2	B	999	VMS	N1-C2-N3	-4.79	121.33	128.58
2	B	999	VMS	N3-C4-N9	3.82	133.67	127.17
2	B	999	VMS	O5'-C5'-C4'	3.72	114.20	107.57
2	B	999	VMS	C2-N3-C4	3.61	120.65	111.83
2	B	999	VMS	N9-C8-N7	-3.15	109.47	113.94
2	B	999	VMS	C2'-C3'-C4'	-3.04	96.73	102.61
2	B	999	VMS	C5-N7-C8	2.80	107.85	103.45
2	B	999	VMS	C4-C5-N7	-2.58	107.63	110.58
2	B	999	VMS	C4-N9-C8	2.41	108.27	105.74
2	B	999	VMS	O5'-SBD-OAZ	-2.08	99.20	105.48
2	B	999	VMS	O4'-C4'-C3'	-2.05	101.08	105.15

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	999	VMS	O-C-CA-CB
2	B	999	VMS	NAS-C-CA-CB
2	B	999	VMS	C-NAS-SBD-OAZ
2	B	999	VMS	C-NAS-SBD-OBC
2	B	999	VMS	O4'-C4'-C5'-O5'
2	B	999	VMS	C3'-C4'-C5'-O5'

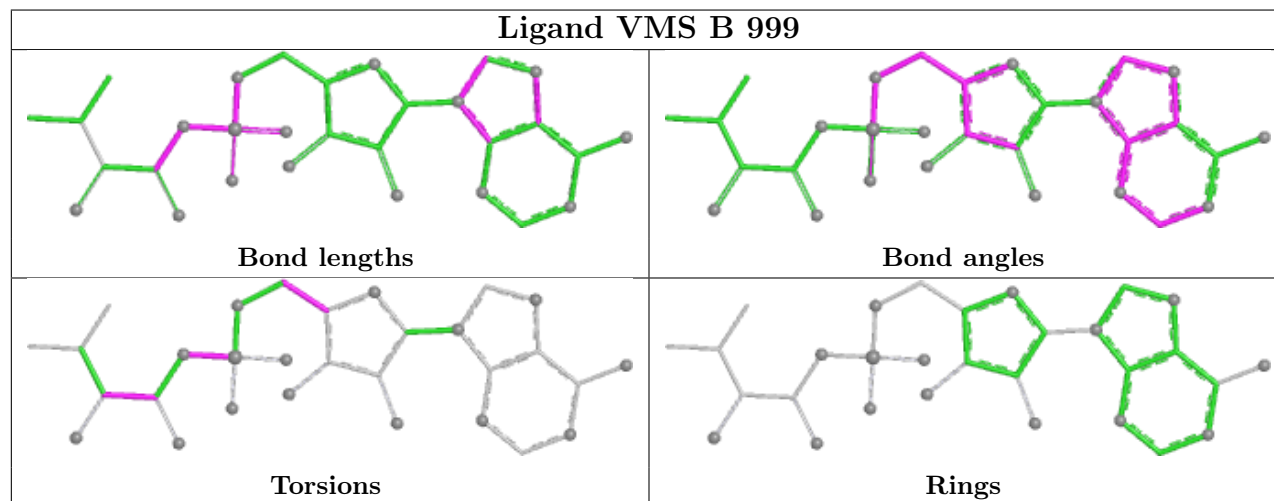
There are no ring outliers.

1 monomer is involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	999	VMS	11	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

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(Å ²)	Q<0.9
1	A	182/194 (93%)	0.21	6 (3%) 49 53	23, 32, 56, 82	0
1	B	187/194 (96%)	0.88	27 (14%) 6 5	24, 40, 71, 89	0
All	All	369/388 (95%)	0.55	33 (8%) 15 16	23, 34, 68, 89	0

All (33) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	382	TYR	5.6
1	A	382	TYR	4.0
1	B	287	LEU	3.9
1	B	383	LEU	3.8
1	B	386	TYR	3.5
1	A	202	ASP	3.5
1	B	384	HIS	3.3
1	B	215	LYS	3.3
1	A	201	GLN	3.1
1	B	213	GLU	2.9
1	B	214	PRO	2.9
1	A	217	LEU	2.8
1	B	202	ASP	2.7
1	A	381	SER	2.6
1	B	331	THR	2.6
1	B	217	LEU	2.6
1	B	388	HIS	2.5
1	B	385	SER	2.5
1	B	358	TYR	2.4
1	B	387	PRO	2.4
1	B	220	GLU	2.4
1	B	313	ASP	2.3
1	B	221	LYS	2.3
1	B	348	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	218	GLY	2.2
1	B	346	GLU	2.2
1	B	216	LYS	2.2
1	B	334	VAL	2.1
1	B	360	ARG	2.1
1	B	219	LEU	2.1
1	B	246	TYR	2.1
1	B	307	ASP	2.1
1	A	215	LYS	2.1

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](#)

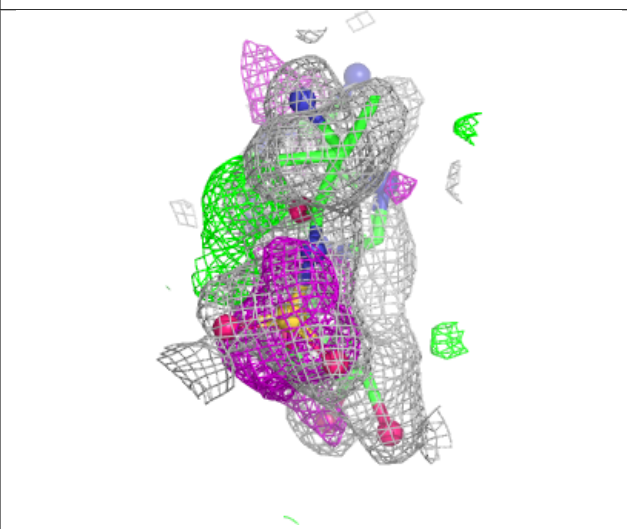
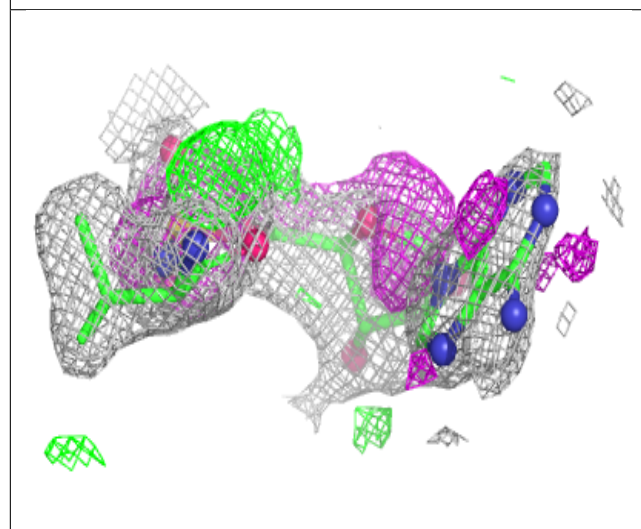
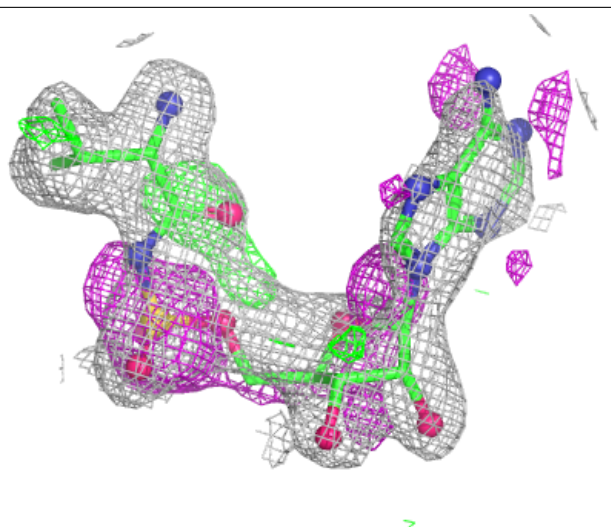
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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
2	VMS	B	999	30/30	0.82	0.17	29,57,81,90	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 VMS B 999:

$2mF_o-DF_c$ (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.