



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 06:53 AM UTC

PDB ID : 6EQS / pdb_00006eqs
Title : Human Sirt5 in complex with stalled peptidylimide intermediate of inhibitory compound 29
Authors : Pannek, M.; Steegborn, C.
Deposited on : 2017-10-15
Resolution : 1.32 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

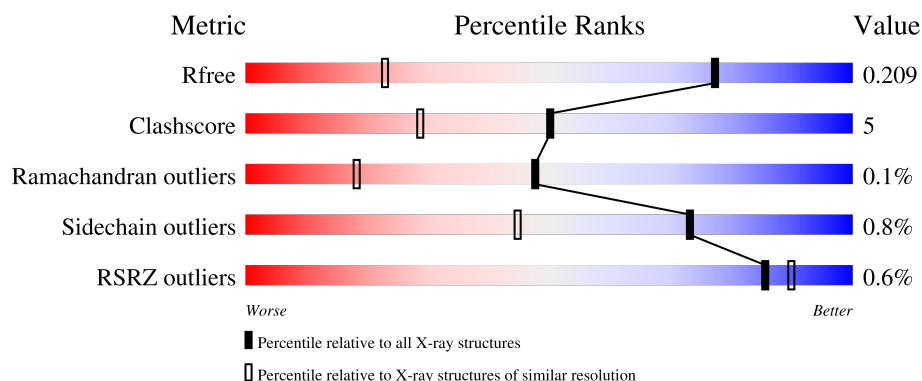
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION




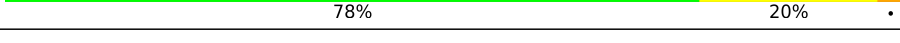
The reported resolution of this entry is 1.32 Å.

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	2531 (1.34-1.30)
Clashscore	190562	2585 (1.34-1.30)
Ramachandran outliers	187476	2528 (1.34-1.30)
Sidechain outliers	187428	2528 (1.34-1.30)
RSRZ outliers	180081	2528 (1.34-1.30)

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	275	
1	B	275	
1	C	275	
1	D	275	

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
4	EDO	B	406	-	-	X	-
5	BU2	A	408	-	-	X	-
5	BU2	B	408[A]	-	-	X	-
5	BU2	B	410	-	-	X	-
5	BU2	D	405	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 10389 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 NAD-dependent protein deacylase sirtuin-5, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	269	Total	C	N	O	S	0	9	0
			2113	1334	387	377	15			
1	B	268	Total	C	N	O	S	0	10	0
			2107	1333	384	376	14			
1	C	274	Total	C	N	O	S	0	6	0
			2136	1351	388	384	13			
1	D	275	Total	C	N	O	S	0	7	0
			2145	1356	389	387	13			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	28	GLY	-	expression tag	UNP Q9NXA8
A	29	ILE	-	expression tag	UNP Q9NXA8
A	30	ASP	-	expression tag	UNP Q9NXA8
A	31	PRO	-	expression tag	UNP Q9NXA8
A	32	PHE	-	expression tag	UNP Q9NXA8
A	33	THR	-	expression tag	UNP Q9NXA8
B	28	GLY	-	expression tag	UNP Q9NXA8
B	29	ILE	-	expression tag	UNP Q9NXA8
B	30	ASP	-	expression tag	UNP Q9NXA8
B	31	PRO	-	expression tag	UNP Q9NXA8
B	32	PHE	-	expression tag	UNP Q9NXA8
B	33	THR	-	expression tag	UNP Q9NXA8
C	28	GLY	-	expression tag	UNP Q9NXA8
C	29	ILE	-	expression tag	UNP Q9NXA8
C	30	ASP	-	expression tag	UNP Q9NXA8
C	31	PRO	-	expression tag	UNP Q9NXA8
C	32	PHE	-	expression tag	UNP Q9NXA8
C	33	THR	-	expression tag	UNP Q9NXA8
D	28	GLY	-	expression tag	UNP Q9NXA8
D	29	ILE	-	expression tag	UNP Q9NXA8
D	30	ASP	-	expression tag	UNP Q9NXA8

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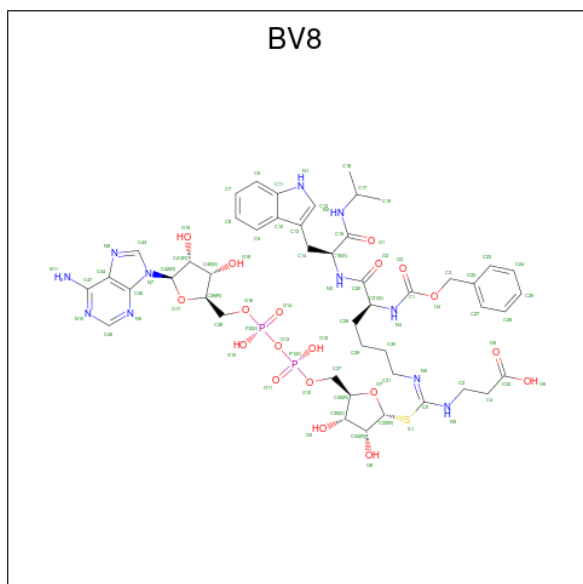
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Chain	Residue	Modelled	Actual	Comment	Reference
D	31	PRO	-	expression tag	UNP Q9NXA8
D	32	PHE	-	expression tag	UNP Q9NXA8
D	33	THR	-	expression tag	UNP Q9NXA8

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Zn 1 1	0	0
2	B	1	Total Zn 1 1	0	0
2	C	1	Total Zn 1 1	0	0
2	D	1	Total Zn 1 1	0	0

- Molecule 3 is 3-[[[({Z})- {C})-[(2 {R},3 {R},4 {S},5 {R})-5-[[[(2 {R},3 {S},4 {R},5 {R})-5-(6-aminopurin-9-yl)-3,4-bis(oxidanyl)oxolan-2-yl]methoxy-oxidanyl-phosphoryl]oxy-oxidanyl-l-phosphoryl]oxymethyl]-3,4-bis(oxidanyl)oxolan-2-yl]sulfanyl- {N})-[(5 {S})-6-[(2 {S})-3-(1 {H})-indol-3-yl)-1-oxidanylidene-1-(propan-2-ylamino)propan-2-yl]amino]-6-oxidanylidene-5-(phenylmethoxycarbonylamino)hexyl]carbonimidoyl]amino]propanoic acid (CCD ID: BV8) (formula: C₄₇H₆₃N₁₁O₁₉P₂S).



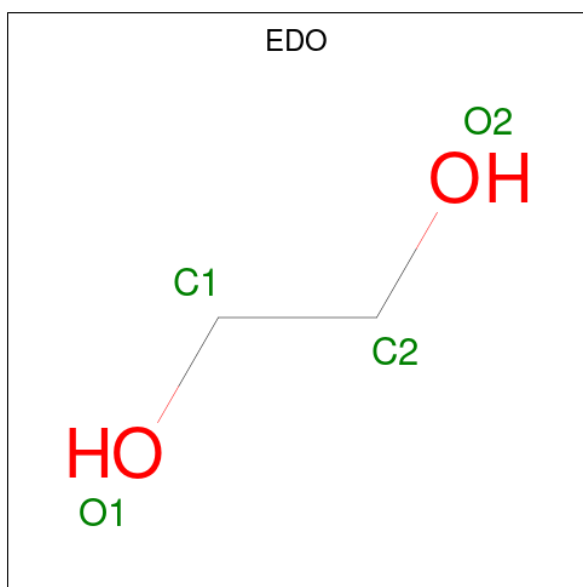
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O P S 160 94 22 38 4 2	0	1

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	B	1	Total	C	N	O	P	S	
			160	94	22	38	4	2	0
3	C	1	Total	C	N	O	P	S	
			160	94	22	38	4	2	0
3	D	1	Total	C	N	O	P	S	
			160	94	22	38	4	2	0

- Molecule 4 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



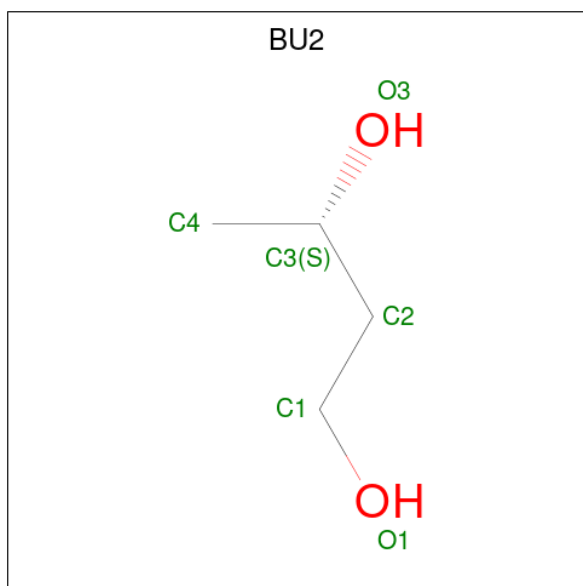
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O		
			8	4	4	0	1
4	A	1	Total	C	O		
			8	4	4	0	1
4	A	1	Total	C	O		
			8	4	4	0	1
4	A	1	Total	C	O		
			4	2	2	0	0
4	A	1	Total	C	O		
			4	2	2	0	0
4	B	1	Total	C	O		
			8	4	4	0	1
4	B	1	Total	C	O		
			8	4	4	0	1
4	B	1	Total	C	O		
			8	4	4	0	1

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	C	1	Total	C	O	0	1
			8	4	4		
4	C	1	Total	C	O	0	0
			4	2	2		
4	C	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	1
			8	4	4		
4	D	1	Total	C	O	0	1
			8	4	4		

- Molecule 5 is 1,3-BUTANEDIOL (CCD ID: BU2) (formula: $C_4H_{10}O_2$).



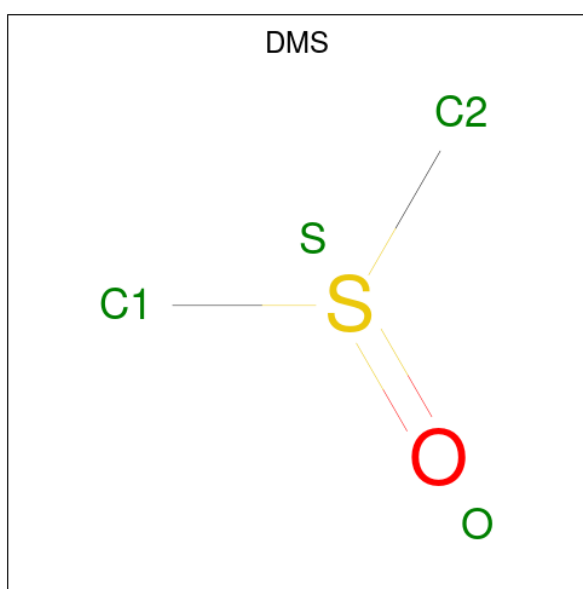
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			6	4	2		
5	A	1	Total	C	O	0	0
			6	4	2		
5	B	1	Total	C	O	0	1
			12	8	4		
5	B	1	Total	C	O	0	0
			6	4	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	O	0	0
			6	4	2		
5	C	1	Total	C	O	0	0
			6	4	2		
5	D	1	Total	C	O	0	0
			6	4	2		
5	D	1	Total	C	O	0	0
			6	4	2		

- Molecule 6 is DIMETHYL SULFOXIDE (CCD ID: DMS) (formula: C_2H_6OS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	A	1	Total	C	O	S	0	0
			4	2	1	1		
6	A	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	294	Total	O	0	0
			294	294		
7	B	288	Total	O	0	0
			288	288		
7	C	255	Total	O	0	0
			255	255		

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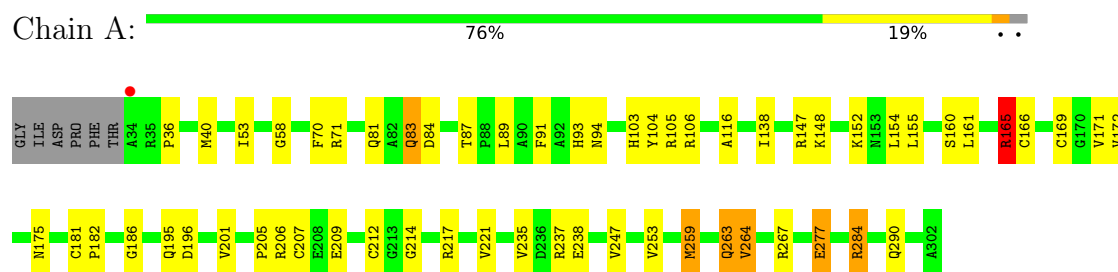
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	D	249	Total 249	O 249	0	0

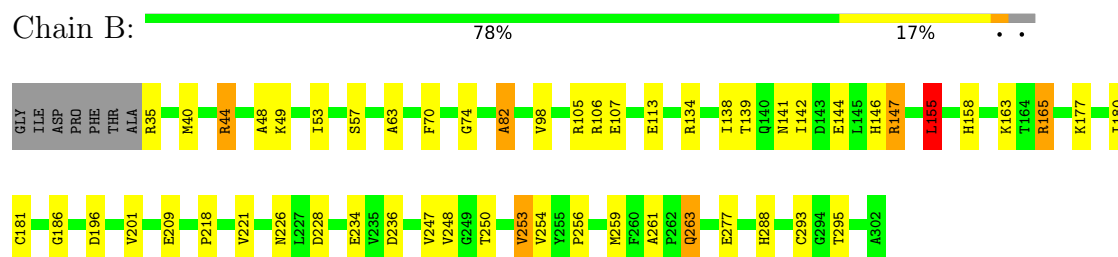
3 Residue-property plots

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.

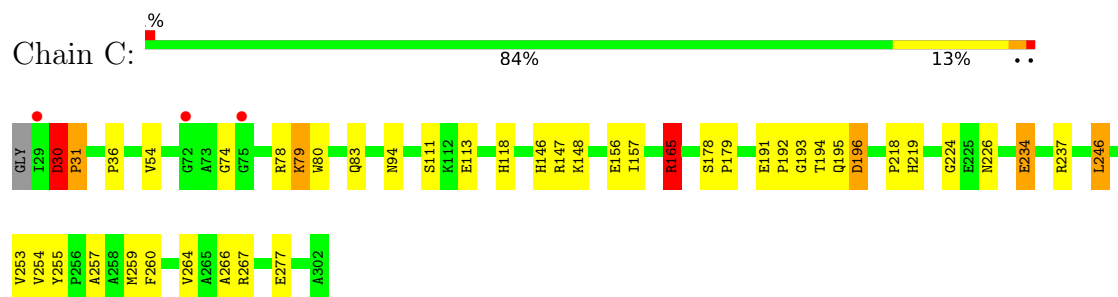
- Molecule 1: NAD-dependent protein deacylase sirtuin-5, mitochondrial



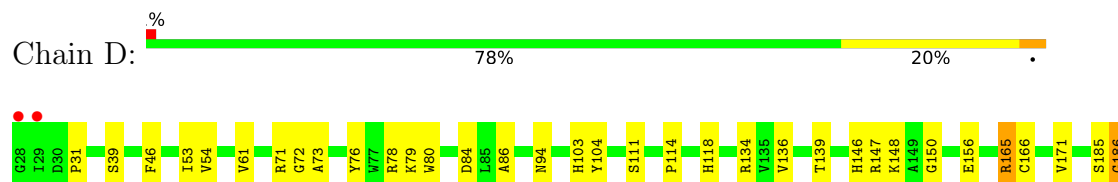
- Molecule 1: NAD-dependent protein deacylase sirtuin-5, mitochondrial



- Molecule 1: NAD-dependent protein deacylase sirtuin-5, mitochondrial



- Molecule 1: NAD-dependent protein deacylase sirtuin-5, mitochondrial





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	40.33Å 55.97Å 123.03Å 97.39° 99.29° 90.52°	Depositor
Resolution (Å)	43.77 – 1.32 43.77 – 1.32	Depositor EDS
% Data completeness (in resolution range)	91.9 (43.77-1.32) 91.8 (43.77-1.32)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.40 (at 1.32Å)	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.160 , 0.209 (Not available) , 0.209	Depositor DCC
R_{free} test set	2388 reflections (0.94%)	wwPDB-VP
Wilson B-factor (Å ²)	15.2	Xtriage
Anisotropy	0.317	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 54.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.000 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.98	EDS
Total number of atoms	10389	wwPDB-VP
Average B, all atoms (Å ²)	22.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 91.69 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.3245e-08. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: EDO, BU2, BV8, DMS, ZN

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	1.89	37/2187 (1.7%)	1.62	16/2964 (0.5%)
1	B	1.83	26/2187 (1.2%)	1.58	21/2965 (0.7%)
1	C	1.88	33/2203 (1.5%)	1.57	19/2990 (0.6%)
1	D	1.91	39/2218 (1.8%)	1.54	22/3009 (0.7%)
All	All	1.88	135/8795 (1.5%)	1.58	78/11928 (0.7%)

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	1
1	B	0	1
1	C	0	2
1	D	0	2
All	All	0	6

All (135) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	234	GLU	CD-OE2	17.85	1.59	1.25
1	C	234	GLU	CD-OE2	10.58	1.45	1.25
1	B	155	LEU	CB-CG	-9.09	1.35	1.53
1	C	192	PRO	C-O	8.97	1.34	1.23
1	C	165	ARG	CZ-NH1	-8.42	1.21	1.32
1	D	72	GLY	C-O	-8.38	1.13	1.24
1	B	53	ILE	CA-C	8.21	1.62	1.52
1	D	234	GLU	CD-OE1	8.11	1.40	1.25
1	D	189	ALA	C-N	8.01	1.42	1.34
1	C	195	GLN	CD-OE1	7.99	1.38	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	30	ASP	CG-OD1	7.95	1.40	1.25
1	D	31	PRO	CA-C	7.72	1.62	1.52
1	B	181	CYS	N-CA	7.63	1.52	1.45
1	A	209	GLU	C-O	7.39	1.32	1.23
1	D	78	ARG	CZ-NH1	7.37	1.43	1.32
1	B	57	SER	CA-C	-7.35	1.43	1.52
1	A	264	VAL	CA-CB	7.33	1.62	1.54
1	B	221	VAL	CA-CB	-7.33	1.45	1.54
1	D	53	ILE	CA-C	7.24	1.61	1.52
1	B	254	VAL	CA-C	-7.18	1.43	1.52
1	C	254	VAL	CA-C	-7.10	1.44	1.52
1	A	81	GLN	C-N	-7.10	1.24	1.33
1	B	165	ARG	CZ-NH1	-7.09	1.22	1.32
1	C	195	GLN	CD-NE2	7.07	1.48	1.33
1	C	157	ILE	N-CA	-7.07	1.38	1.46
1	A	165	ARG	CZ-NH1	-6.99	1.23	1.32
1	C	266	ALA	C-O	-6.97	1.15	1.24
1	D	94	ASN	CA-CB	-6.95	1.44	1.53
1	D	217	ARG	CZ-NH2	-6.89	1.24	1.33
1	D	237	ARG	CA-C	-6.89	1.44	1.52
1	D	165	ARG	CD-NE	-6.83	1.36	1.46
1	B	250	THR	CA-C	6.81	1.60	1.52
1	D	290	GLN	C-O	-6.77	1.15	1.23
1	D	192	PRO	C-O	6.76	1.32	1.23
1	C	78	ARG	CZ-NH1	6.74	1.42	1.32
1	A	212	CYS	CA-C	6.73	1.61	1.52
1	C	30	ASP	N-CA	6.71	1.55	1.46
1	A	161	LEU	N-CA	-6.70	1.38	1.46
1	A	161	LEU	CB-CG	-6.67	1.40	1.53
1	B	74	GLY	C-O	-6.62	1.15	1.24
1	D	190	PRO	C-O	6.61	1.32	1.24
1	A	238	GLU	CD-OE1	-6.57	1.12	1.25
1	B	263	GLN	CB-CG	-6.55	1.32	1.52
1	B	277	GLU	CA-CB	-6.54	1.42	1.53
1	A	84	ASP	CA-CB	6.53	1.63	1.53
1	C	267	ARG	CD-NE	-6.42	1.37	1.46
1	D	165	ARG	NE-CZ	6.36	1.40	1.33
1	A	221	VAL	C-O	6.33	1.30	1.24
1	A	138	ILE	CA-C	-6.26	1.45	1.52
1	B	141	ASN	N-CA	-6.22	1.38	1.45
1	A	91	PHE	C-O	-6.21	1.16	1.24
1	B	253	VAL	CA-CB	-6.20	1.47	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	187	LYS	C-O	-6.11	1.15	1.24
1	D	209	GLU	C-O	6.06	1.31	1.23
1	A	277	GLU	CA-C	-6.00	1.45	1.52
1	A	83[A]	GLN	C-O	-5.98	1.16	1.24
1	A	83[B]	GLN	C-O	-5.98	1.16	1.24
1	C	156	GLU	C-O	5.94	1.31	1.23
1	C	30	ASP	CG-OD2	5.93	1.36	1.25
1	D	156	GLU	C-N	-5.91	1.27	1.34
1	B	218	PRO	CA-C	5.91	1.59	1.52
1	A	217	ARG	C-O	-5.88	1.18	1.24
1	A	263	GLN	CB-CG	-5.83	1.34	1.52
1	A	58	GLY	N-CA	-5.82	1.36	1.45
1	C	111	SER	CB-OG	5.82	1.53	1.42
1	D	171	VAL	CA-C	5.82	1.59	1.52
1	B	146	HIS	C-O	-5.81	1.17	1.24
1	D	104	TYR	N-CA	5.81	1.53	1.46
1	D	226	ASN	CB-CG	-5.78	1.37	1.52
1	D	134	ARG	CZ-NH1	5.77	1.40	1.32
1	A	165	ARG	NE-CZ	5.70	1.39	1.33
1	B	82	ALA	N-CA	-5.69	1.39	1.46
1	A	207	CYS	N-CA	-5.68	1.39	1.46
1	C	246	LEU	CB-CG	-5.68	1.42	1.53
1	D	186	GLY	CA-C	-5.67	1.43	1.51
1	A	195	GLN	C-O	5.66	1.30	1.23
1	D	61	VAL	C-N	5.65	1.41	1.33
1	B	48	ALA	N-CA	-5.64	1.39	1.46
1	A	36	PRO	CA-C	-5.62	1.45	1.52
1	C	193	GLY	N-CA	5.57	1.53	1.45
1	D	277	GLU	CB-CG	-5.57	1.35	1.52
1	C	83	GLN	CD-OE1	5.54	1.34	1.23
1	B	201	VAL	CA-C	5.54	1.59	1.52
1	C	264	VAL	CA-CB	5.52	1.61	1.54
1	C	178	SER	C-O	5.51	1.30	1.25
1	D	139	THR	C-O	-5.51	1.17	1.24
1	D	166	CYS	CA-CB	-5.50	1.45	1.53
1	B	35	ARG	N-CA	5.48	1.56	1.46
1	D	111	SER	N-CA	-5.46	1.38	1.46
1	C	257	ALA	N-CA	5.46	1.52	1.46
1	D	190	PRO	N-CA	-5.45	1.40	1.47
1	B	134	ARG	CZ-NH2	-5.43	1.26	1.33
1	A	172	VAL	CA-CB	-5.43	1.48	1.54
1	C	31	PRO	CA-C	5.43	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	237	ARG	CA-C	-5.43	1.45	1.52
1	C	79	LYS	CA-C	-5.42	1.44	1.52
1	A	264	VAL	CA-C	5.42	1.59	1.52
1	D	199	ILE	CA-C	5.41	1.57	1.53
1	C	234	GLU	CG-CD	5.40	1.65	1.52
1	A	147	ARG	NE-CZ	5.37	1.39	1.33
1	D	277	GLU	CA-C	-5.36	1.45	1.52
1	D	111	SER	CB-OG	5.35	1.52	1.42
1	B	209	GLU	C-O	5.33	1.30	1.23
1	D	73	ALA	N-CA	-5.33	1.39	1.46
1	B	228	ASP	CG-OD1	-5.33	1.15	1.25
1	D	150	GLY	C-O	-5.32	1.16	1.24
1	A	154	LEU	CA-C	-5.28	1.46	1.52
1	B	139	THR	N-CA	-5.26	1.39	1.46
1	A	237	ARG	CD-NE	5.24	1.53	1.46
1	C	54	VAL	N-CA	-5.23	1.39	1.46
1	D	46	PHE	N-CA	5.21	1.52	1.46
1	A	290	GLN	C-O	-5.20	1.17	1.23
1	A	253	VAL	CA-CB	5.18	1.61	1.54
1	D	257	ALA	N-CA	-5.17	1.39	1.46
1	A	166	CYS	CA-CB	-5.15	1.45	1.53
1	B	158	HIS	ND1-CE1	5.14	1.37	1.32
1	A	106	ARG	CD-NE	5.13	1.53	1.46
1	C	78	ARG	CA-CB	5.12	1.62	1.52
1	C	218	PRO	C-O	-5.11	1.18	1.23
1	A	152	LYS	C-O	5.11	1.30	1.23
1	A	277	GLU	CA-CB	-5.10	1.44	1.53
1	B	147	ARG	CZ-NH2	5.09	1.40	1.33
1	D	266	ALA	C-O	-5.09	1.17	1.24
1	A	175	ASN	C-O	-5.07	1.17	1.23
1	A	53	ILE	CA-C	5.07	1.58	1.52
1	A	201	VAL	CA-C	5.07	1.59	1.52
1	C	260	PHE	CA-C	5.05	1.59	1.52
1	B	44	ARG	CG-CD	-5.05	1.37	1.52
1	C	36	PRO	CA-C	-5.05	1.46	1.52
1	C	277	GLU	C-O	-5.03	1.17	1.23
1	A	235	VAL	CA-CB	5.02	1.60	1.54
1	D	86	ALA	N-CA	-5.02	1.40	1.46
1	C	194	THR	CB-OG1	5.02	1.51	1.43
1	D	156	GLU	N-CA	-5.01	1.40	1.46
1	C	179	PRO	CA-C	-5.00	1.42	1.52

All (78) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	191	GLU	CA-C-N	-12.45	108.11	120.31
1	C	191	GLU	C-N-CA	-12.45	108.11	120.31
1	D	191	GLU	CA-C-N	-11.88	108.76	120.52
1	D	191	GLU	C-N-CA	-11.88	108.76	120.52
1	A	147	ARG	CG-CD-NE	-7.83	94.78	112.00
1	D	284	ARG	CG-CD-NE	-7.49	95.53	112.00
1	C	267	ARG	NE-CZ-NH1	-7.36	114.14	121.50
1	D	146	HIS	ND1-CE1-NE2	7.11	115.51	108.40
1	C	267	ARG	NE-CZ-NH2	6.99	125.49	119.20
1	B	142	ILE	CA-C-O	6.98	126.82	119.91
1	D	84	ASP	CA-CB-CG	6.71	119.31	112.60
1	C	83	GLN	CB-CG-CD	-6.69	101.22	112.60
1	A	40	MET	CG-SD-CE	-6.63	86.32	100.90
1	A	237	ARG	NE-CZ-NH2	6.58	125.12	119.20
1	B	106	ARG	O-C-N	6.35	128.85	122.12
1	C	257	ALA	CA-C-O	-6.34	113.83	120.55
1	C	234	GLU	CG-CD-OE1	-6.30	103.91	118.40
1	C	196	ASP	N-CA-CB	6.25	119.25	109.69
1	C	148	LYS	CD-CE-NZ	-6.09	92.40	111.90
1	D	217	ARG	NE-CZ-NH1	-6.07	115.43	121.50
1	A	71	ARG	CG-CD-NE	-6.02	98.75	112.00
1	B	144	GLU	N-CA-C	6.00	120.40	113.38
1	B	201	VAL	CB-CA-C	5.96	119.86	112.04
1	A	116	ALA	CA-C-O	-5.88	113.45	120.10
1	B	158	HIS	ND1-CE1-NE2	5.85	114.25	108.40
1	A	87	THR	O-C-N	5.84	126.02	121.88
1	B	236	ASP	CA-CB-CG	5.82	118.42	112.60
1	B	196	ASP	N-CA-CB	5.82	118.50	109.48
1	A	277	GLU	N-CA-C	5.76	117.72	109.14
1	C	30	ASP	CB-CA-C	5.75	121.50	110.17
1	D	114	PRO	CA-C-O	-5.75	114.89	121.56
1	C	146	HIS	N-CA-C	5.73	117.52	111.28
1	D	146	HIS	CE1-NE2-CD2	-5.71	103.29	109.00
1	D	39	SER	N-CA-C	5.70	118.04	108.23
1	B	177	LYS	CA-C-O	-5.69	114.79	121.16
1	B	98	VAL	N-CA-C	5.68	116.41	110.62
1	B	138	ILE	CB-CA-C	5.66	119.56	111.81
1	D	217	ARG	NE-CZ-NH2	5.62	124.26	119.20
1	B	146	HIS	ND1-CE1-NE2	5.60	114.00	108.40
1	D	234	GLU	CG-CD-OE1	-5.59	105.54	118.40
1	C	118	HIS	CA-CB-CG	5.58	119.38	113.80
1	D	275	ASN	CA-CB-CG	5.56	118.16	112.60
1	B	158	HIS	CE1-NE2-CD2	-5.55	103.45	109.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	248	VAL	O-C-N	-5.54	117.32	123.20
1	A	171	VAL	O-C-N	5.53	128.64	122.61
1	A	214	GLY	N-CA-C	5.50	118.25	111.93
1	D	118	HIS	CA-CB-CG	5.46	119.26	113.80
1	A	160	SER	CA-C-N	5.45	128.12	120.28
1	A	160	SER	C-N-CA	5.45	128.12	120.28
1	D	259	MET	CG-SD-CE	5.42	112.83	100.90
1	C	113	GLU	CG-CD-OE2	5.42	130.86	118.40
1	B	40	MET	CG-SD-CE	-5.42	88.98	100.90
1	D	148	LYS	CD-CE-NZ	-5.42	94.56	111.90
1	C	193	GLY	N-CA-C	-5.36	108.24	115.36
1	D	196	ASP	N-CA-CB	5.35	117.88	109.69
1	B	63	ALA	O-C-N	5.34	127.78	122.12
1	C	146	HIS	ND1-CE1-NE2	5.34	113.74	108.40
1	D	148	LYS	CG-CD-CE	-5.31	99.08	111.30
1	B	138	ILE	CA-C-O	-5.28	114.69	120.97
1	B	105	ARG	N-CA-C	5.28	117.03	111.28
1	A	247	VAL	CB-CA-C	5.26	116.93	111.09
1	B	180	ILE	N-CA-CB	5.26	117.69	110.54
1	D	267	ARG	NE-CZ-NH1	5.25	126.75	121.50
1	D	201[A]	VAL	CB-CA-C	5.24	119.21	112.14
1	D	201[B]	VAL	CB-CA-C	5.24	119.21	112.14
1	C	246	LEU	CB-CG-CD1	5.23	126.40	110.70
1	B	155	LEU	CD1-CG-CD2	-5.21	99.34	110.80
1	B	44	ARG	CB-CG-CD	5.20	123.26	111.30
1	D	234	GLU	OE1-CD-OE2	5.17	135.30	122.90
1	C	259	MET	CG-SD-CE	5.14	112.22	100.90
1	C	74	GLY	N-CA-C	-5.13	108.30	114.66
1	A	155	LEU	CA-CB-CG	5.12	134.22	116.30
1	B	44	ARG	CG-CD-NE	5.11	123.25	112.00
1	A	196	ASP	N-CA-CB	5.08	117.36	109.48
1	A	169	CYS	CA-CB-SG	-5.08	102.72	114.40
1	A	104	TYR	CA-C-O	-5.06	115.51	120.82
1	C	156	GLU	CA-C-O	-5.05	116.56	122.37
1	B	139	THR	CA-C-O	5.02	126.03	120.71

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	165	ARG	Sidechain
1	B	165	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	C	165	ARG	Sidechain
1	C	234	GLU	Sidechain
1	D	165	ARG	Sidechain
1	D	255	TYR	Sidechain

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	2113	0	2106	21	0
1	B	2107	0	2110	27	1
1	C	2136	0	2118	12	0
1	D	2145	0	2127	19	1
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	160	0	0	0	0
3	B	160	0	0	9	0
3	C	160	0	0	3	0
3	D	160	0	0	2	0
4	A	32	0	47	6	0
4	B	32	0	45	4	0
4	C	16	0	23	1	0
4	D	16	0	24	0	0
5	A	12	0	19	9	0
5	B	24	0	40	13	0
5	C	6	0	9	0	0
5	D	12	0	20	4	0
6	A	8	0	12	0	0
7	A	294	0	0	9	2
7	B	288	0	0	10	2
7	C	255	0	0	3	1
7	D	249	0	0	7	2
All	All	10389	0	8700	96	5

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (96) 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:D:103:HIS:NE2	5:D:405:BU2:HC11	1.73	1.01
5:B:408[B]:BU2:O1	5:B:408[B]:BU2:O3	1.63	0.98
1:B:295[B]:THR:HG23	7:B:509:HOH:O	1.70	0.92
1:B:234:GLU:OE2	7:B:501:HOH:O	1.91	0.88
3:B:402[A]:BV8:C8	7:B:728:HOH:O	2.28	0.81
4:A:403[A]:EDO:O1	4:A:404[A]:EDO:H22	1.81	0.81
1:D:248:VAL:HG13	1:D:293[B]:CYS:SG	2.20	0.80
1:A:94:ASN:OD1	7:A:501:HOH:O	1.99	0.79
1:D:103:HIS:NE2	5:D:405:BU2:C1	2.46	0.78
1:A:263:GLN:OE1	3:D:402[B]:BV8:O3	2.03	0.77
3:B:402[A]:BV8:C9	7:B:728:HOH:O	2.35	0.74
4:B:404[B]:EDO:O2	4:B:406:EDO:O1	2.04	0.74
1:C:165:ARG:HH11	1:C:219:HIS:HD1	1.39	0.70
4:A:403[A]:EDO:O1	4:A:404[A]:EDO:C2	2.39	0.69
1:C:94:ASN:OD1	7:C:501:HOH:O	2.11	0.68
1:D:76:TYR:OH	7:D:501:HOH:O	2.08	0.67
1:B:248:VAL:HG13	1:B:293[B]:CYS:SG	2.35	0.66
1:B:295[B]:THR:HG22	7:B:587:HOH:O	1.94	0.66
1:C:30:ASP:HB3	1:C:31:PRO:HD3	1.77	0.66
1:B:263:GLN:NE2	3:C:402[A]:BV8:O3	2.29	0.65
1:D:196:ASP:OD1	7:D:502:HOH:O	2.15	0.65
1:B:155:LEU:HD21	1:B:234:GLU:CD	2.23	0.63
1:D:185:SER:CB	7:D:585:HOH:O	2.49	0.61
1:D:186:GLY:HA2	5:D:405:BU2:HC22	1.82	0.61
5:B:409:BU2:HC22	1:C:253:VAL:O	2.01	0.60
1:C:30:ASP:HB3	1:C:31:PRO:CD	2.33	0.58
1:B:147:ARG:HH12	1:B:163:LYS:NZ	2.00	0.58
3:B:402[A]:BV8:C8	7:B:646:HOH:O	2.51	0.58
1:A:259[A]:MET:HE3	1:D:224:GLY:HA2	1.86	0.58
1:D:263[B]:GLN:HG3	7:D:624:HOH:O	2.04	0.57
1:A:181:CYS:HB2	5:A:408:BU2:HC43	1.86	0.56
5:A:408:BU2:HC12	7:A:696:HOH:O	2.06	0.55
1:D:248:VAL:CG1	1:D:293[B]:CYS:SG	2.94	0.55
1:A:70:PHE:HE1	7:A:750:HOH:O	1.88	0.55
1:A:182:PRO:HD2	5:A:408:BU2:HC43	1.89	0.55
1:C:219:HIS:NE2	4:C:404:EDO:H21	2.24	0.53
1:B:259[B]:MET:HE3	1:C:224:GLY:HA2	1.90	0.52
1:B:226:ASN:ND2	5:B:409:BU2:HC21	2.25	0.52
5:A:408:BU2:HC12	7:A:506:HOH:O	2.09	0.52
1:B:247[B]:VAL:HG21	1:B:261:ALA:CB	2.40	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:79:LYS:HE3	1:D:80:TRP:CZ2	2.46	0.51
1:B:186:GLY:H	4:B:406:EDO:H11	1.76	0.51
3:B:402[A]:BV8:C9	7:B:646:HOH:O	2.58	0.51
1:A:89:LEU:HD11	1:A:93:HIS:NE2	2.27	0.50
5:A:408:BU2:C1	7:A:506:HOH:O	2.58	0.50
1:B:155:LEU:HD21	1:B:234:GLU:OE2	2.11	0.49
1:C:255:TYR:CE1	3:C:402[D]:BV8:C23	2.95	0.49
1:C:79:LYS:HE3	1:C:80:TRP:CZ2	2.49	0.48
1:B:113:GLU:OE2	7:B:502:HOH:O	2.20	0.48
1:C:196:ASP:OD1	7:C:502:HOH:O	2.20	0.48
1:A:205:PRO:HA	5:A:408:BU2:HC21	1.97	0.47
1:B:107:GLU:CD	4:B:406:EDO:H21	2.39	0.47
4:A:403[A]:EDO:HO1	4:A:404[A]:EDO:H22	1.77	0.47
1:D:185:SER:HB3	7:D:585:HOH:O	2.11	0.47
1:D:79:LYS:HE3	1:D:80:TRP:CE2	2.50	0.46
1:A:206[B]:ARG:H	5:A:408:BU2:C2	2.28	0.46
1:D:71:ARG:NH2	1:D:277:GLU:OE2	2.49	0.46
1:B:247[B]:VAL:CG2	1:B:261:ALA:CB	2.92	0.46
1:A:182:PRO:HD2	5:A:408:BU2:C4	2.46	0.46
1:A:277:GLU:HB2	7:A:693:HOH:O	2.16	0.46
1:A:284[B]:ARG:NH1	7:A:502:HOH:O	2.25	0.46
1:B:70:PHE:CD1	5:B:408[A]:BU2:HC41	2.51	0.46
1:B:256:PRO:O	1:B:259[B]:MET:SD	2.73	0.46
3:B:402[B]:BV8:O15	5:B:410:BU2:HC11	2.16	0.45
1:B:147:ARG:HH12	1:B:163:LYS:HZ2	1.64	0.45
1:B:186:GLY:H	4:B:406:EDO:C1	2.29	0.45
1:A:206[A]:ARG:H	5:A:408:BU2:C2	2.29	0.44
1:D:267:ARG:HD2	7:D:713:HOH:O	2.16	0.44
1:B:247[B]:VAL:CG2	1:B:261:ALA:HB2	2.47	0.44
1:A:83[B]:GLN:HE21	1:A:83[B]:GLN:C	2.25	0.44
1:B:247[B]:VAL:HG22	1:B:261:ALA:HB2	1.99	0.44
1:B:263:GLN:HG2	1:C:226:ASN:OD1	2.18	0.44
1:B:70:PHE:HA	5:B:408[A]:BU2:HC43	1.99	0.44
3:C:402[A]:BV8:C20	3:C:402[A]:BV8:O4	2.65	0.44
1:D:147[A]:ARG:HG3	7:D:564:HOH:O	2.17	0.43
1:A:105:ARG:HE	4:A:403[B]:EDO:H11	1.82	0.43
1:B:82:ALA:HB2	5:B:408[A]:BU2:HC12	1.99	0.43
1:B:288:HIS:HB2	7:B:652:HOH:O	2.18	0.43
3:B:402[A]:BV8:O15	5:B:410:BU2:HC11	2.19	0.43
3:B:402[B]:BV8:O15	5:B:410:BU2:C1	2.67	0.43
1:A:264:VAL:HA	1:A:267[B]:ARG:HH21	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:402[A]:BV8:O3	3:B:402[A]:BV8:C20	2.67	0.42
1:B:70:PHE:CE1	5:B:408[A]:BU2:HC41	2.55	0.42
1:A:165:ARG:HD2	7:A:537:HOH:O	2.20	0.42
1:B:226:ASN:HD22	5:B:409:BU2:HC21	1.83	0.41
3:D:402[B]:BV8:O4	3:D:402[B]:BV8:C20	2.68	0.41
1:A:148:LYS:NZ	7:A:505:HOH:O	2.43	0.41
1:C:147[A]:ARG:HG3	7:C:680:HOH:O	2.20	0.41
1:D:54:VAL:HG22	1:D:136[A]:VAL:CG1	2.50	0.41
5:B:408[B]:BU2:HC12	7:B:524:HOH:O	2.21	0.41
3:B:402[A]:BV8:O15	5:B:410:BU2:C1	2.68	0.41
1:A:259[A]:MET:HE2	1:A:259[A]:MET:HB2	1.76	0.41
1:A:103:HIS:NE2	4:A:406:EDO:H12	2.36	0.40
1:A:186:GLY:H	4:A:406:EDO:C1	2.33	0.40
1:D:187:LYS:O	5:D:405:BU2:HC21	2.20	0.40
1:D:54:VAL:HG23	1:D:242:CYS:HB3	2.03	0.40

All (5) 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)
7:B:547:HOH:O	7:D:729:HOH:O[1_455]	1.75	0.45
7:A:608:HOH:O	7:C:696:HOH:O[1_444]	1.76	0.44
7:A:580:HOH:O	7:A:768:HOH:O[1_455]	1.87	0.33
1:B:234:GLU:OE1	7:B:785:HOH:O[1_655]	2.11	0.09
1:D:147[A]:ARG:NH2	7:D:748:HOH:O[1_655]	2.12	0.08

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	276/275 (100%)	273 (99%)	3 (1%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	276/275 (100%)	273 (99%)	3 (1%)	0	100	100
1	C	278/275 (101%)	274 (99%)	3 (1%)	1 (0%)	30	9
1	D	280/275 (102%)	277 (99%)	3 (1%)	0	100	100
All	All	1110/1100 (101%)	1097 (99%)	12 (1%)	1 (0%)	48	18

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	30	ASP

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	223/219 (102%)	219 (98%)	4 (2%)	51	15
1	B	224/219 (102%)	220 (98%)	4 (2%)	51	15
1	C	225/219 (103%)	224 (100%)	1 (0%)	84	64
1	D	226/219 (103%)	226 (100%)	0	100	100
All	All	898/876 (102%)	889 (99%)	9 (1%)	73	36

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	259[A]	MET
1	A	259[B]	MET
1	A	284[A]	ARG
1	A	284[B]	ARG
1	B	44	ARG
1	B	49	LYS
1	B	155	LEU
1	B	253	VAL
1	C	246	LEU

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	263	GLN
1	B	283	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 ⓘ

Of 47 ligands modelled in this entry, 4 are monoatomic - leaving 43 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	BU2	D	405	-	5,5,5	1.47	0	5,5,5	2.57	2 (40%)
4	EDO	A	404[B]	-	3,3,3	0.85	0	2,2,2	2.03	1 (50%)
4	EDO	A	403[A]	-	3,3,3	1.24	1 (33%)	2,2,2	0.68	0
4	EDO	B	404[B]	-	3,3,3	0.38	0	2,2,2	0.59	0
6	DMS	A	410	-	3,3,3	0.52	0	3,3,3	1.73	1 (33%)
4	EDO	C	405	-	3,3,3	0.80	0	2,2,2	0.41	0
4	EDO	A	406	-	3,3,3	1.26	0	2,2,2	1.17	0
5	BU2	C	406	-	5,5,5	0.91	0	5,5,5	1.73	2 (40%)
6	DMS	A	411	-	3,3,3	0.38	0	3,3,3	1.96	1 (33%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	BV8	A	402[A]	-	85,86,86	1.77	19 (22%)	110,122,122	1.62	24 (21%)
4	EDO	B	407	-	3,3,3	0.50	0	2,2,2	0.78	0
4	EDO	A	403[B]	-	3,3,3	1.16	0	2,2,2	0.56	0
3	BV8	B	402[A]	-	85,86,86	2.05	19 (22%)	110,122,122	2.10	26 (23%)
5	BU2	B	410	-	5,5,5	0.90	0	5,5,5	0.96	0
3	BV8	C	402[A]	-	85,86,86	2.02	19 (22%)	110,122,122	1.64	22 (20%)
3	BV8	A	402[B]	-	85,86,86	2.30	19 (22%)	110,122,122	1.85	28 (25%)
4	EDO	C	404	-	3,3,3	0.94	0	2,2,2	0.32	0
3	BV8	D	402[B]	-	85,86,86	2.29	22 (25%)	110,122,122	1.67	21 (19%)
4	EDO	B	405[A]	-	3,3,3	0.66	0	2,2,2	0.10	0
4	EDO	D	403[A]	-	3,3,3	0.76	0	2,2,2	0.57	0
3	BV8	C	402[D]	-	85,86,86	1.93	21 (24%)	110,122,122	1.69	23 (20%)
5	BU2	B	408[A]	-	5,5,5	0.45	0	5,5,5	1.18	1 (20%)
3	BV8	B	402[B]	-	85,86,86	1.73	19 (22%)	110,122,122	1.70	25 (22%)
4	EDO	A	407	-	3,3,3	0.79	0	2,2,2	0.68	0
5	BU2	D	406	-	5,5,5	0.68	0	5,5,5	2.09	2 (40%)
4	EDO	B	406	-	3,3,3	1.37	0	2,2,2	0.73	0
4	EDO	B	403[A]	-	3,3,3	1.27	0	2,2,2	0.54	0
4	EDO	B	405[B]	-	3,3,3	0.84	0	2,2,2	0.98	0
4	EDO	D	403[B]	-	3,3,3	0.88	0	2,2,2	0.57	0
4	EDO	A	405[A]	-	3,3,3	0.89	0	2,2,2	0.15	0
3	BV8	D	402[C]	-	85,86,86	2.23	26 (30%)	110,122,122	1.73	25 (22%)
4	EDO	D	404[A]	-	3,3,3	0.81	0	2,2,2	0.24	0
4	EDO	C	403[A]	-	3,3,3	1.63	1 (33%)	2,2,2	1.06	0
5	BU2	B	408[B]	-	5,5,5	0.56	0	5,5,5	2.85	2 (40%)
5	BU2	A	409	-	5,5,5	1.52	1 (20%)	5,5,5	1.69	1 (20%)
4	EDO	A	404[A]	-	3,3,3	0.42	0	2,2,2	0.99	0
5	BU2	A	408	-	5,5,5	1.03	0	5,5,5	3.65	1 (20%)
4	EDO	B	403[B]	-	3,3,3	0.85	0	2,2,2	0.37	0
4	EDO	A	405[B]	-	3,3,3	0.35	0	2,2,2	0.71	0
5	BU2	B	409	-	5,5,5	0.65	0	5,5,5	1.37	0
4	EDO	C	403[B]	-	3,3,3	0.82	0	2,2,2	0.48	0
4	EDO	B	404[A]	-	3,3,3	0.34	0	2,2,2	0.49	0
4	EDO	D	404[B]	-	3,3,3	0.44	0	2,2,2	1.34	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
5	BU2	D	405	-	-	0/3/3/3	-
4	EDO	A	404[B]	-	-	0/1/1/1	-
4	EDO	A	403[A]	-	-	0/1/1/1	-
4	EDO	B	404[B]	-	-	1/1/1/1	-
4	EDO	C	405	-	-	1/1/1/1	-
4	EDO	A	406	-	-	1/1/1/1	-
5	BU2	C	406	-	-	3/3/3/3	-
3	BV8	A	402[A]	-	-	3/63/101/101	0/7/7/7
4	EDO	B	407	-	-	1/1/1/1	-
4	EDO	A	403[B]	-	-	0/1/1/1	-
3	BV8	B	402[A]	-	-	3/63/101/101	0/7/7/7
5	BU2	B	410	-	-	3/3/3/3	-
3	BV8	C	402[A]	-	-	7/63/101/101	0/7/7/7
3	BV8	A	402[B]	-	-	3/63/101/101	0/7/7/7
4	EDO	C	404	-	-	0/1/1/1	-
3	BV8	D	402[B]	-	-	4/63/101/101	0/7/7/7
4	EDO	B	405[A]	-	-	0/1/1/1	-
4	EDO	D	403[A]	-	-	0/1/1/1	-
3	BV8	C	402[D]	-	-	3/63/101/101	0/7/7/7
5	BU2	B	408[A]	-	-	1/3/3/3	-
3	BV8	B	402[B]	-	-	3/63/101/101	0/7/7/7
4	EDO	A	407	-	-	1/1/1/1	-
5	BU2	D	406	-	-	2/3/3/3	-
4	EDO	B	406	-	-	0/1/1/1	-
4	EDO	B	403[A]	-	-	0/1/1/1	-
4	EDO	B	405[B]	-	-	0/1/1/1	-
4	EDO	D	403[B]	-	-	0/1/1/1	-
4	EDO	A	405[A]	-	-	1/1/1/1	-
3	BV8	D	402[C]	-	-	2/63/101/101	0/7/7/7
4	EDO	D	404[A]	-	-	0/1/1/1	-
4	EDO	C	403[A]	-	-	0/1/1/1	-
5	BU2	B	408[B]	-	-	2/3/3/3	-
5	BU2	A	409	-	-	0/3/3/3	-
4	EDO	A	404[A]	-	-	1/1/1/1	-
5	BU2	A	408	-	-	1/3/3/3	-
4	EDO	B	403[B]	-	-	1/1/1/1	-
4	EDO	A	405[B]	-	-	0/1/1/1	-
5	BU2	B	409	-	-	1/3/3/3	-
4	EDO	C	403[B]	-	-	0/1/1/1	-
4	EDO	B	404[A]	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	D	404[B]	-	-	1/1/1/1	-

All (167) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	402[B]	BV8	P2-O13	11.42	1.71	1.59
3	B	402[A]	BV8	C10-C11	-8.77	1.30	1.41
3	A	402[B]	BV8	C10-C11	-8.62	1.30	1.41
3	D	402[C]	BV8	P2-O13	8.58	1.68	1.59
3	A	402[B]	BV8	C10-C13	-8.56	1.30	1.44
3	B	402[A]	BV8	C10-C13	-8.29	1.30	1.44
3	C	402[A]	BV8	P2-O13	-7.90	1.51	1.59
3	D	402[C]	BV8	P1-O13	-7.61	1.51	1.59
3	C	402[D]	BV8	P2-O13	-7.57	1.51	1.59
3	A	402[B]	BV8	P2-O13	6.58	1.66	1.59
3	D	402[B]	BV8	C10-C13	-6.46	1.33	1.44
3	B	402[B]	BV8	C10-C13	-6.34	1.33	1.44
3	C	402[A]	BV8	C10-C11	-6.29	1.33	1.41
3	A	402[B]	BV8	O17-C42	5.99	1.55	1.42
3	D	402[B]	BV8	C10-C11	-5.98	1.34	1.41
3	A	402[A]	BV8	O17-C42	5.74	1.55	1.42
3	D	402[C]	BV8	C10-C13	-5.64	1.34	1.44
3	C	402[D]	BV8	C10-C11	-5.45	1.34	1.41
3	B	402[A]	BV8	C6-C11	-5.35	1.31	1.39
3	D	402[C]	BV8	C10-C11	-5.26	1.34	1.41
3	A	402[B]	BV8	C6-C11	-5.25	1.31	1.39
3	A	402[B]	BV8	C9-C10	-5.15	1.32	1.39
3	C	402[D]	BV8	C10-C13	-5.13	1.35	1.44
3	B	402[A]	BV8	P2-O13	-4.83	1.54	1.59
3	C	402[A]	BV8	P1-O13	4.76	1.64	1.59
3	C	402[A]	BV8	C11-N1	-4.72	1.30	1.37
3	D	402[B]	BV8	O17-C39	-4.52	1.35	1.45
3	D	402[C]	BV8	C5-S1	-4.51	1.65	1.75
3	D	402[B]	BV8	C3-C22	-4.25	1.40	1.50
3	B	402[B]	BV8	C10-C11	-4.23	1.36	1.41
3	C	402[A]	BV8	C45-N7	-4.23	1.28	1.37
3	B	402[A]	BV8	C9-C10	-4.21	1.33	1.39
3	C	402[D]	BV8	C11-N1	-4.19	1.31	1.37
3	C	402[A]	BV8	C10-C13	-4.12	1.37	1.44
3	A	402[A]	BV8	P2-O13	3.94	1.63	1.59
3	A	402[A]	BV8	C33-S1	-3.89	1.76	1.81
3	D	402[C]	BV8	O8-C34	3.86	1.52	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	402[A]	BV8	C8-C9	3.80	1.45	1.38
3	A	402[A]	BV8	C10-C13	-3.80	1.37	1.44
3	D	402[B]	BV8	C6-C11	-3.74	1.33	1.39
3	D	402[C]	BV8	C33-C34	3.64	1.59	1.52
3	D	402[B]	BV8	C45-N7	-3.63	1.30	1.37
3	A	402[B]	BV8	C45-N7	-3.59	1.30	1.37
3	D	402[C]	BV8	C6-C11	-3.58	1.33	1.39
3	D	402[B]	BV8	P1-O12	-3.56	1.38	1.55
3	D	402[B]	BV8	C11-N1	-3.55	1.32	1.37
3	B	402[B]	BV8	C12-N1	-3.53	1.31	1.37
3	A	402[B]	BV8	C11-N1	-3.53	1.32	1.37
3	C	402[D]	BV8	C9-C10	-3.50	1.34	1.39
3	A	402[A]	BV8	C28-C21	3.46	1.61	1.53
3	C	402[D]	BV8	C46-N10	3.44	1.40	1.33
3	C	402[A]	BV8	C6-C11	-3.41	1.34	1.39
3	C	402[A]	BV8	C44-N8	-3.37	1.32	1.39
3	D	402[B]	BV8	O3-C1	3.37	1.27	1.21
3	D	402[C]	BV8	O17-C39	-3.29	1.37	1.45
3	A	402[A]	BV8	C46-N10	3.28	1.39	1.33
3	C	402[D]	BV8	C6-C11	-3.25	1.34	1.39
3	A	402[A]	BV8	C45-N7	-3.24	1.31	1.37
3	C	402[A]	BV8	C44-C47	-3.21	1.32	1.41
5	A	409	BU2	C4-C3	3.21	1.64	1.51
3	B	402[B]	BV8	C12-C13	-3.19	1.32	1.36
3	B	402[B]	BV8	C6-C11	-3.17	1.34	1.39
3	C	402[A]	BV8	C28-C21	3.15	1.60	1.53
3	C	402[D]	BV8	C28-C21	3.11	1.60	1.53
3	C	402[D]	BV8	P1-O13	3.09	1.62	1.59
3	D	402[B]	BV8	P1-O11	-3.09	1.40	1.50
3	B	402[B]	BV8	C9-C10	-3.08	1.35	1.39
3	D	402[C]	BV8	C11-N1	-3.05	1.32	1.37
3	A	402[A]	BV8	C46-N9	3.02	1.39	1.33
3	C	402[D]	BV8	C45-N7	-3.00	1.31	1.37
3	D	402[C]	BV8	O7-C33	3.00	1.48	1.43
3	A	402[A]	BV8	C14-C13	2.94	1.55	1.50
3	A	402[A]	BV8	C9-C10	-2.92	1.35	1.39
3	B	402[B]	BV8	P2-O13	-2.89	1.56	1.59
3	D	402[C]	BV8	C47-N11	2.84	1.41	1.34
3	B	402[B]	BV8	O8-C34	-2.82	1.36	1.43
3	C	402[D]	BV8	C43-N8	2.82	1.37	1.31
3	A	402[A]	BV8	C4-C32	2.80	1.57	1.50
3	A	402[A]	BV8	C12-N1	-2.79	1.32	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	402[C]	BV8	C45-N7	-2.78	1.31	1.37
3	C	402[A]	BV8	C47-N10	-2.78	1.28	1.35
3	B	402[A]	BV8	C46-N9	2.77	1.38	1.33
3	A	402[A]	BV8	C6-C11	-2.76	1.35	1.39
3	B	402[B]	BV8	O7-C33	-2.74	1.39	1.43
3	B	402[B]	BV8	C43-N7	-2.74	1.32	1.37
3	C	402[A]	BV8	C9-C10	-2.74	1.35	1.39
3	C	402[A]	BV8	C14-C13	2.72	1.55	1.50
3	B	402[A]	BV8	P1-O13	2.72	1.62	1.59
3	A	402[A]	BV8	P1-O12	-2.71	1.42	1.55
3	D	402[B]	BV8	C41-C42	-2.71	1.45	1.53
3	D	402[C]	BV8	P1-O11	-2.70	1.41	1.50
3	A	402[B]	BV8	C41-C42	-2.69	1.45	1.53
3	D	402[C]	BV8	O3-C1	2.69	1.26	1.21
3	B	402[A]	BV8	C47-N11	2.68	1.41	1.34
3	C	402[D]	BV8	C46-N9	2.68	1.38	1.33
3	A	402[B]	BV8	C28-C21	2.67	1.59	1.53
3	D	402[C]	BV8	C9-C10	-2.65	1.35	1.39
3	D	402[B]	BV8	C24-C23	-2.65	1.34	1.38
3	A	402[B]	BV8	C14-C13	-2.64	1.45	1.50
3	B	402[B]	BV8	C15-C16	-2.63	1.46	1.52
3	C	402[A]	BV8	C12-N1	-2.61	1.33	1.37
3	B	402[A]	BV8	O4-C3	-2.60	1.40	1.45
4	C	403[A]	EDO	O2-C2	-2.57	1.29	1.42
3	D	402[C]	BV8	C14-C13	2.56	1.55	1.50
3	A	402[A]	BV8	C14-C15	2.56	1.59	1.53
3	C	402[D]	BV8	C21-N4	2.55	1.51	1.45
3	B	402[B]	BV8	C43-N8	2.55	1.36	1.31
3	A	402[A]	BV8	C5-S1	-2.54	1.69	1.75
3	A	402[B]	BV8	C43-N7	-2.53	1.33	1.37
3	D	402[C]	BV8	C41-C42	-2.53	1.45	1.53
3	B	402[B]	BV8	O1-C16	-2.52	1.18	1.23
3	B	402[A]	BV8	C12-N1	-2.50	1.33	1.37
3	D	402[B]	BV8	C47-N11	2.49	1.40	1.34
3	B	402[A]	BV8	C12-C13	-2.48	1.33	1.36
3	A	402[A]	BV8	C3-C22	-2.48	1.44	1.50
3	A	402[B]	BV8	O7-C33	-2.48	1.39	1.43
3	D	402[C]	BV8	C25-C24	-2.47	1.32	1.38
3	A	402[A]	BV8	C41-C42	-2.46	1.45	1.53
3	C	402[A]	BV8	C3-C22	-2.46	1.44	1.50
3	C	402[D]	BV8	C12-N1	-2.44	1.33	1.37
3	C	402[A]	BV8	C43-N8	2.44	1.36	1.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	402[B]	BV8	P2-O15	-2.43	1.44	1.55
3	D	402[C]	BV8	C3-C22	-2.43	1.44	1.50
3	C	402[D]	BV8	C44-C47	-2.42	1.34	1.41
3	C	402[A]	BV8	P1-O12	-2.41	1.44	1.55
3	A	402[B]	BV8	C33-S1	-2.38	1.78	1.81
3	A	402[B]	BV8	C3-C22	-2.35	1.45	1.50
3	C	402[D]	BV8	C44-N8	-2.34	1.34	1.39
3	B	402[A]	BV8	C43-N8	2.33	1.36	1.31
3	C	402[D]	BV8	C3-C22	-2.33	1.45	1.50
3	D	402[C]	BV8	C46-N9	2.32	1.38	1.33
3	D	402[B]	BV8	C14-C13	2.30	1.54	1.50
3	B	402[A]	BV8	O8-C34	-2.29	1.37	1.43
3	D	402[C]	BV8	O7-C36	2.29	1.50	1.45
3	D	402[C]	BV8	O17-C42	2.28	1.47	1.42
3	B	402[B]	BV8	C3-C22	-2.27	1.45	1.50
3	B	402[A]	BV8	C46-N10	2.25	1.37	1.33
3	D	402[B]	BV8	C9-C10	-2.25	1.36	1.39
3	A	402[B]	BV8	C45-N9	-2.23	1.30	1.34
3	C	402[D]	BV8	C5-S1	-2.23	1.70	1.75
3	B	402[A]	BV8	C15-C16	-2.22	1.47	1.52
3	D	402[C]	BV8	P1-O12	-2.20	1.45	1.55
3	B	402[B]	BV8	C28-C21	2.19	1.58	1.53
3	B	402[B]	BV8	C23-C22	-2.19	1.34	1.38
3	B	402[B]	BV8	P2-O15	-2.18	1.45	1.55
3	D	402[B]	BV8	O7-C33	-2.17	1.39	1.43
3	B	402[B]	BV8	C46-N9	2.17	1.37	1.33
3	C	402[D]	BV8	C12-C13	-2.15	1.33	1.36
3	B	402[A]	BV8	C28-C21	2.15	1.58	1.53
3	B	402[A]	BV8	C4-C32	2.14	1.55	1.50
4	A	403[A]	EDO	O2-C2	2.13	1.53	1.42
3	D	402[B]	BV8	C14-C15	2.13	1.58	1.53
3	A	402[B]	BV8	C46-N10	2.12	1.37	1.33
3	D	402[B]	BV8	O6-C32	-2.10	1.23	1.30
3	D	402[B]	BV8	P2-O15	-2.08	1.45	1.55
3	B	402[A]	BV8	C3-C22	-2.08	1.45	1.50
3	B	402[B]	BV8	C16-N2	-2.08	1.29	1.34
3	A	402[B]	BV8	O3-C1	2.08	1.25	1.21
3	D	402[C]	BV8	C4-C32	2.07	1.55	1.50
3	C	402[A]	BV8	C46-N10	2.07	1.37	1.33
3	C	402[A]	BV8	C7-C6	-2.07	1.35	1.38
3	D	402[B]	BV8	C46-N9	2.07	1.37	1.33
3	C	402[D]	BV8	C14-C13	2.06	1.54	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	402[A]	BV8	C16-N2	-2.05	1.29	1.34
3	D	402[B]	BV8	O17-C42	2.03	1.46	1.42
3	D	402[C]	BV8	C14-C15	2.01	1.57	1.53
3	C	402[D]	BV8	O6-C32	-2.01	1.24	1.30

All (208) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	408	BU2	C1-C2-C3	7.78	134.98	114.08
3	A	402[B]	BV8	N10-C46-N9	-7.25	117.60	128.58
3	B	402[A]	BV8	C14-C13-C10	-7.11	113.03	126.70
3	B	402[A]	BV8	N10-C46-N9	-6.92	118.11	128.58
3	B	402[B]	BV8	N10-C46-N9	-6.87	118.18	128.58
3	A	402[A]	BV8	N10-C46-N9	-6.80	118.29	128.58
3	B	402[A]	BV8	C10-C13-C12	6.65	112.96	106.16
3	A	402[B]	BV8	C13-C12-N1	-6.11	103.60	110.31
3	B	402[A]	BV8	C9-C10-C11	6.00	125.06	118.84
5	B	408[B]	BU2	O1-C1-C2	-5.81	92.28	111.34
3	A	402[B]	BV8	C14-C13-C10	-5.74	115.66	126.70
3	B	402[A]	BV8	C13-C12-N1	-5.66	104.10	110.31
3	D	402[B]	BV8	N10-C46-N9	-5.56	120.17	128.58
3	D	402[C]	BV8	C24-C23-C22	5.32	128.09	120.61
3	D	402[C]	BV8	N10-C46-N9	-5.14	120.80	128.58
3	C	402[D]	BV8	O4-C1-N4	4.99	121.11	110.45
3	B	402[B]	BV8	C44-C45-N9	-4.78	120.13	126.72
3	C	402[D]	BV8	C24-C23-C22	4.65	127.15	120.61
3	C	402[A]	BV8	N10-C46-N9	-4.62	121.60	128.58
5	D	405	BU2	O1-C1-C2	4.51	126.14	111.34
3	A	402[B]	BV8	C10-C13-C12	4.47	110.74	106.16
3	D	402[B]	BV8	O4-C1-N4	4.44	119.95	110.45
3	C	402[D]	BV8	C27-C22-C23	-4.31	111.82	118.23
3	B	402[A]	BV8	C44-C45-N9	-4.18	120.96	126.72
3	D	402[B]	BV8	O4-C1-O3	-4.18	116.25	124.26
3	C	402[A]	BV8	N7-C43-N8	-4.12	108.08	113.94
3	A	402[A]	BV8	C14-C13-C12	-4.12	118.93	126.97
3	C	402[D]	BV8	N10-C46-N9	-4.08	122.40	128.58
3	C	402[A]	BV8	C44-C45-N7	4.06	110.23	105.81
3	D	402[B]	BV8	C13-C12-N1	-4.00	105.91	110.31
3	C	402[A]	BV8	C44-C45-N9	-3.95	121.28	126.72
3	D	402[C]	BV8	O4-C3-C22	3.92	118.91	109.40
3	D	402[B]	BV8	N7-C43-N8	-3.88	108.43	113.94
3	D	402[B]	BV8	O12-P1-O13	-3.87	96.81	107.27

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	402[B]	BV8	C28-C21-N4	-3.86	103.26	110.91
3	D	402[C]	BV8	C13-C12-N1	-3.79	106.14	110.31
3	D	402[C]	BV8	O12-P1-O11	3.79	130.09	112.44
3	C	402[D]	BV8	C17-N2-C16	-3.79	118.84	123.21
3	D	402[C]	BV8	C25-C26-C27	3.78	124.91	120.24
3	D	402[C]	BV8	O4-C1-N4	3.78	118.54	110.45
3	C	402[A]	BV8	C8-C7-C6	-3.76	115.60	120.24
3	C	402[A]	BV8	C28-C21-N4	-3.73	103.53	110.91
3	B	402[A]	BV8	C6-C11-C10	-3.71	118.59	122.19
3	A	402[A]	BV8	C31-N5-C5	3.71	124.09	117.92
3	C	402[A]	BV8	C31-N5-C5	3.69	124.05	117.92
3	A	402[B]	BV8	C31-N5-C5	3.66	124.00	117.92
3	B	402[A]	BV8	C28-C21-N4	-3.64	103.70	110.91
3	A	402[A]	BV8	C10-C13-C12	3.63	109.87	106.16
3	B	402[A]	BV8	C14-C15-N3	-3.60	103.77	110.64
3	A	402[B]	BV8	C44-C45-N7	3.59	109.72	105.81
3	B	402[A]	BV8	C14-C13-C12	3.55	133.89	126.97
3	A	402[A]	BV8	O12-P1-O13	3.55	116.87	107.27
3	A	402[A]	BV8	C44-C45-N7	3.53	109.66	105.81
3	C	402[D]	BV8	C25-C26-C27	3.50	124.56	120.24
3	C	402[D]	BV8	N7-C43-N8	-3.48	109.00	113.94
3	C	402[D]	BV8	O4-C1-O3	-3.47	117.60	124.26
3	C	402[D]	BV8	C31-N5-C5	3.44	123.64	117.92
3	B	402[B]	BV8	C46-N10-C47	3.41	124.34	118.73
3	C	402[A]	BV8	O13-P2-O14	-3.38	100.54	110.70
3	B	402[A]	BV8	C45-C44-N8	-3.37	106.73	110.58
3	A	402[B]	BV8	C14-C13-C12	3.37	133.53	126.97
3	D	402[B]	BV8	O12-P1-O11	3.35	128.05	112.44
3	B	402[B]	BV8	C47-C44-C45	3.35	121.75	117.18
3	D	402[C]	BV8	C14-C13-C12	-3.30	120.53	126.97
5	D	405	BU2	C1-C2-C3	3.30	122.94	114.08
6	A	411	DMS	O-S-C2	3.29	122.95	106.49
3	C	402[D]	BV8	C13-C12-N1	-3.24	106.75	110.31
3	B	402[A]	BV8	O3-C1-N4	-3.24	119.55	124.86
3	D	402[C]	BV8	N7-C43-N8	-3.23	109.35	113.94
3	C	402[A]	BV8	O12-P1-O13	3.20	115.93	107.27
3	C	402[A]	BV8	C45-C44-N8	-3.20	106.93	110.58
3	C	402[D]	BV8	O12-P1-O13	3.18	115.88	107.27
3	D	402[B]	BV8	C14-C13-C12	-3.16	120.81	126.97
5	D	406	BU2	C1-C2-C3	-3.12	105.68	114.08
3	A	402[A]	BV8	C18-C17-N2	3.11	116.49	109.80
3	C	402[D]	BV8	C44-C45-N9	-3.11	122.44	126.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	402[B]	BV8	C14-C15-N3	-3.10	104.72	110.64
3	B	402[A]	BV8	C46-N10-C47	3.10	123.82	118.73
3	B	402[A]	BV8	C46-N9-C45	3.09	119.37	111.83
3	B	402[B]	BV8	C46-N9-C45	3.07	119.33	111.83
3	D	402[B]	BV8	C24-C23-C22	3.07	124.92	120.61
3	C	402[A]	BV8	C11-C10-C13	3.02	110.21	107.17
3	B	402[A]	BV8	N7-C43-N8	-3.01	109.67	113.94
3	A	402[B]	BV8	C46-N9-C45	3.00	119.16	111.83
3	B	402[B]	BV8	C10-C13-C12	3.00	109.22	106.16
3	B	402[A]	BV8	C9-C10-C13	-2.94	129.47	133.85
3	C	402[D]	BV8	C8-C7-C6	-2.93	116.63	120.24
3	C	402[D]	BV8	C44-C45-N7	2.92	109.00	105.81
3	D	402[C]	BV8	C27-C22-C23	-2.91	113.91	118.23
3	B	402[A]	BV8	C45-N7-C42	-2.90	119.84	126.63
3	B	402[B]	BV8	C14-C15-N3	-2.89	105.12	110.64
3	C	402[D]	BV8	C47-C44-C45	2.87	121.10	117.18
3	B	402[B]	BV8	C45-C44-N8	-2.87	107.30	110.58
3	A	402[A]	BV8	C45-C44-N8	-2.86	107.31	110.58
3	A	402[B]	BV8	O12-P1-O13	2.86	115.00	107.27
3	B	402[A]	BV8	C3-O4-C1	2.85	122.35	115.93
3	A	402[A]	BV8	O17-C42-N7	-2.85	102.61	108.09
3	D	402[C]	BV8	C21-C20-N3	-2.85	110.55	116.63
3	B	402[A]	BV8	C47-C44-C45	2.85	121.06	117.18
3	B	402[B]	BV8	C19-C17-C18	2.84	118.66	111.55
5	A	409	BU2	C1-C2-C3	-2.83	106.47	114.08
3	B	402[B]	BV8	N9-C45-N7	2.83	131.97	127.17
4	A	404[B]	EDO	O2-C2-C1	-2.83	90.87	112.39
3	B	402[B]	BV8	C14-C13-C12	-2.81	121.48	126.97
3	C	402[A]	BV8	C47-C44-C45	2.81	121.02	117.18
3	C	402[D]	BV8	C14-C13-C12	-2.81	121.49	126.97
3	A	402[B]	BV8	C46-N10-C47	2.81	123.34	118.73
6	A	410	DMS	O-S-C2	2.81	120.53	106.49
3	D	402[B]	BV8	C44-C45-N9	-2.80	122.86	126.72
3	A	402[B]	BV8	O17-C42-N7	-2.79	102.74	108.09
3	D	402[B]	BV8	C31-N5-C5	2.74	122.47	117.92
5	C	406	BU2	O3-C3-C4	-2.71	97.79	109.45
3	D	402[C]	BV8	C25-C24-C23	-2.71	116.90	120.24
3	C	402[A]	BV8	C17-N2-C16	-2.70	120.09	123.21
3	B	402[B]	BV8	C45-N7-C42	-2.69	120.34	126.63
3	C	402[A]	BV8	O4-C1-N4	2.66	116.15	110.45
3	D	402[B]	BV8	C28-C21-N4	-2.64	105.68	110.91
3	A	402[A]	BV8	C19-C17-N2	-2.63	104.13	109.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	402[A]	BV8	O4-C3-C22	2.63	115.79	109.40
3	A	402[A]	BV8	O15-P2-O14	2.63	124.66	112.44
3	C	402[D]	BV8	O13-P2-O14	-2.62	102.82	110.70
3	A	402[A]	BV8	O3-C1-N4	-2.62	120.57	124.86
3	D	402[C]	BV8	C31-N5-C5	2.61	122.26	117.92
3	B	402[B]	BV8	N7-C43-N8	-2.61	110.24	113.94
3	A	402[B]	BV8	C44-C45-N9	-2.61	123.13	126.72
5	D	406	BU2	O3-C3-C4	-2.60	98.28	109.45
3	A	402[A]	BV8	C46-N9-C45	2.59	118.16	111.83
3	D	402[C]	BV8	C44-C45-N7	2.58	108.63	105.81
3	A	402[B]	BV8	O15-P2-O14	2.58	124.46	112.44
3	D	402[B]	BV8	C8-C7-C6	-2.56	117.08	120.24
3	A	402[B]	BV8	C9-C10-C13	-2.53	130.08	133.85
3	B	402[B]	BV8	C3-O4-C1	2.53	121.61	115.93
3	A	402[B]	BV8	O2-C20-N3	-2.52	118.44	122.96
3	B	402[B]	BV8	C4-C2-N6	2.51	117.33	112.00
3	D	402[B]	BV8	C20-C21-N4	-2.50	104.34	111.11
3	A	402[B]	BV8	O13-P1-O11	-2.50	103.18	110.70
3	A	402[A]	BV8	C9-C10-C11	2.48	121.41	118.84
3	A	402[A]	BV8	C46-N10-C47	2.47	122.80	118.73
3	D	402[B]	BV8	C21-N4-C1	2.47	127.08	120.93
3	A	402[B]	BV8	C9-C10-C11	2.47	121.40	118.84
3	B	402[A]	BV8	C45-N7-C43	2.47	108.33	105.74
3	C	402[D]	BV8	C25-C24-C23	-2.46	117.20	120.24
3	A	402[B]	BV8	C17-N2-C16	-2.46	120.37	123.21
3	C	402[A]	BV8	C26-C25-C24	-2.44	116.53	119.87
3	C	402[D]	BV8	C45-C44-N8	-2.44	107.79	110.58
3	D	402[C]	BV8	C8-C7-C6	-2.42	117.25	120.24
3	B	402[A]	BV8	C44-N8-C43	2.42	107.26	103.45
3	C	402[A]	BV8	C19-C17-N2	-2.42	104.59	109.80
3	A	402[A]	BV8	O13-P2-O14	-2.42	103.43	110.70
3	D	402[C]	BV8	C44-C45-N9	-2.42	123.39	126.72
3	D	402[C]	BV8	O3-C1-N4	-2.41	120.91	124.86
3	D	402[C]	BV8	C17-N2-C16	-2.41	120.43	123.21
3	C	402[A]	BV8	C44-N8-C43	2.40	107.23	103.45
3	A	402[B]	BV8	O13-P2-O14	-2.38	103.54	110.70
3	D	402[B]	BV8	C45-N7-C43	2.37	108.22	105.74
3	B	402[A]	BV8	C4-C2-N6	2.36	117.02	112.00
3	C	402[D]	BV8	C14-C15-N3	-2.35	106.16	110.64
3	A	402[A]	BV8	C14-C13-C10	2.34	131.20	126.70
3	B	402[B]	BV8	O4-C3-C22	2.34	115.08	109.40
3	D	402[B]	BV8	C14-C13-C10	2.34	131.19	126.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	402[B]	BV8	C45-N7-C43	2.31	108.17	105.74
3	B	402[B]	BV8	C8-C7-C6	-2.31	117.39	120.24
3	D	402[C]	BV8	O2-C20-C21	2.30	125.29	120.48
3	C	402[D]	BV8	O3-C1-N4	-2.29	121.10	124.86
3	B	402[B]	BV8	C10-C11-N1	-2.29	105.61	107.52
3	D	402[C]	BV8	C14-C13-C10	2.29	131.09	126.70
3	A	402[B]	BV8	C45-C44-N8	-2.28	107.97	110.58
3	B	402[B]	BV8	O1-C16-N2	2.28	127.04	122.96
3	B	402[A]	BV8	N9-C45-N7	2.28	131.05	127.17
3	D	402[B]	BV8	C44-C45-N7	2.28	108.30	105.81
3	A	402[A]	BV8	C44-C45-N9	-2.27	123.59	126.72
3	D	402[B]	BV8	C46-N9-C45	2.27	117.38	111.83
3	B	402[A]	BV8	O4-C1-N4	2.27	115.31	110.45
3	B	402[B]	BV8	C3-C22-C27	2.27	125.87	120.64
3	A	402[B]	BV8	C21-N4-C1	2.26	126.56	120.93
3	A	402[A]	BV8	O4-C1-N4	2.26	115.28	110.45
3	A	402[A]	BV8	C11-C10-C13	-2.25	104.89	107.17
3	A	402[B]	BV8	C8-C7-C6	-2.24	117.48	120.24
5	C	406	BU2	C4-C3-C2	-2.24	98.71	112.98
5	B	408[A]	BU2	O3-C3-C2	-2.22	99.76	109.56
3	D	402[B]	BV8	C3-O4-C1	2.22	120.92	115.93
3	A	402[B]	BV8	C40-C41-C42	2.22	105.66	101.46
3	A	402[A]	BV8	C40-C41-C42	2.20	105.63	101.46
3	A	402[B]	BV8	C19-C17-N2	-2.18	105.10	109.80
3	B	402[B]	BV8	O4-C1-N4	2.18	115.12	110.45
3	A	402[A]	BV8	C21-N4-C1	2.17	126.33	120.93
3	C	402[A]	BV8	C14-C15-N3	-2.17	106.50	110.64
3	C	402[D]	BV8	O17-C42-N7	-2.16	103.93	108.09
3	B	402[A]	BV8	C10-C11-N1	2.16	109.32	107.52
3	D	402[C]	BV8	C10-C13-C12	2.16	108.37	106.16
3	C	402[A]	BV8	C10-C13-C12	-2.16	103.95	106.16
5	B	408[B]	BU2	C1-C2-C3	-2.15	108.31	114.08
3	C	402[A]	BV8	O17-C42-C41	-2.13	102.05	106.62
3	A	402[B]	BV8	O3-C1-N4	-2.10	121.43	124.86
3	C	402[A]	BV8	C41-C42-N7	2.09	118.50	113.30
3	D	402[C]	BV8	C45-C44-N8	-2.09	108.19	110.58
3	D	402[C]	BV8	O4-C1-O3	-2.09	120.26	124.26
3	B	402[A]	BV8	O4-C3-C22	2.09	114.46	109.40
3	A	402[B]	BV8	C41-C42-N7	2.09	118.49	113.30
3	D	402[B]	BV8	O17-C42-N7	-2.08	104.10	108.09
3	A	402[B]	BV8	C20-C21-N4	-2.07	105.51	111.11
3	D	402[C]	BV8	C29-C28-C21	-2.06	107.46	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	402[D]	BV8	C14-C13-C10	2.05	130.63	126.70
3	B	402[B]	BV8	O7-C36-C35	2.03	109.19	105.15
3	A	402[A]	BV8	O13-P1-O11	-2.03	104.60	110.70
3	B	402[B]	BV8	C13-C12-N1	-2.03	108.08	110.31
3	A	402[A]	BV8	O2-C20-N3	-2.02	119.33	122.96
3	D	402[C]	BV8	C46-N10-C47	2.01	122.04	118.73

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	408	BU2	C1-C2-C3-C4
5	B	408[A]	BU2	O1-C1-C2-C3
5	B	408[B]	BU2	O1-C1-C2-C3
5	B	409	BU2	O1-C1-C2-C3
5	B	410	BU2	O1-C1-C2-C3
5	B	410	BU2	C1-C2-C3-C4
5	C	406	BU2	O1-C1-C2-C3
5	D	406	BU2	C1-C2-C3-C4
3	D	402[B]	BV8	C20-C21-N4-C1
4	A	404[A]	EDO	O1-C1-C2-O2
4	A	407	EDO	O1-C1-C2-O2
4	B	404[B]	EDO	O1-C1-C2-O2
5	B	410	BU2	C1-C2-C3-O3
5	C	406	BU2	C1-C2-C3-O3
4	A	405[A]	EDO	O1-C1-C2-O2
3	B	402[B]	BV8	P2-O13-P1-O10
5	C	406	BU2	C1-C2-C3-C4
5	D	406	BU2	C1-C2-C3-O3
3	D	402[B]	BV8	O4-C1-N4-C21
4	C	405	EDO	O1-C1-C2-O2
3	C	402[A]	BV8	C13-C14-C15-N3
3	C	402[D]	BV8	C28-C29-C30-C31
5	B	408[B]	BU2	C1-C2-C3-O3
3	B	402[A]	BV8	P2-O13-P1-O10
3	B	402[A]	BV8	C28-C29-C30-C31
3	C	402[A]	BV8	C13-C14-C15-C16
3	C	402[A]	BV8	C20-C21-N4-C1
3	B	402[B]	BV8	C28-C29-C30-C31
3	C	402[A]	BV8	O3-C1-N4-C21
3	C	402[A]	BV8	O4-C1-N4-C21
3	D	402[C]	BV8	N4-C21-C28-C29

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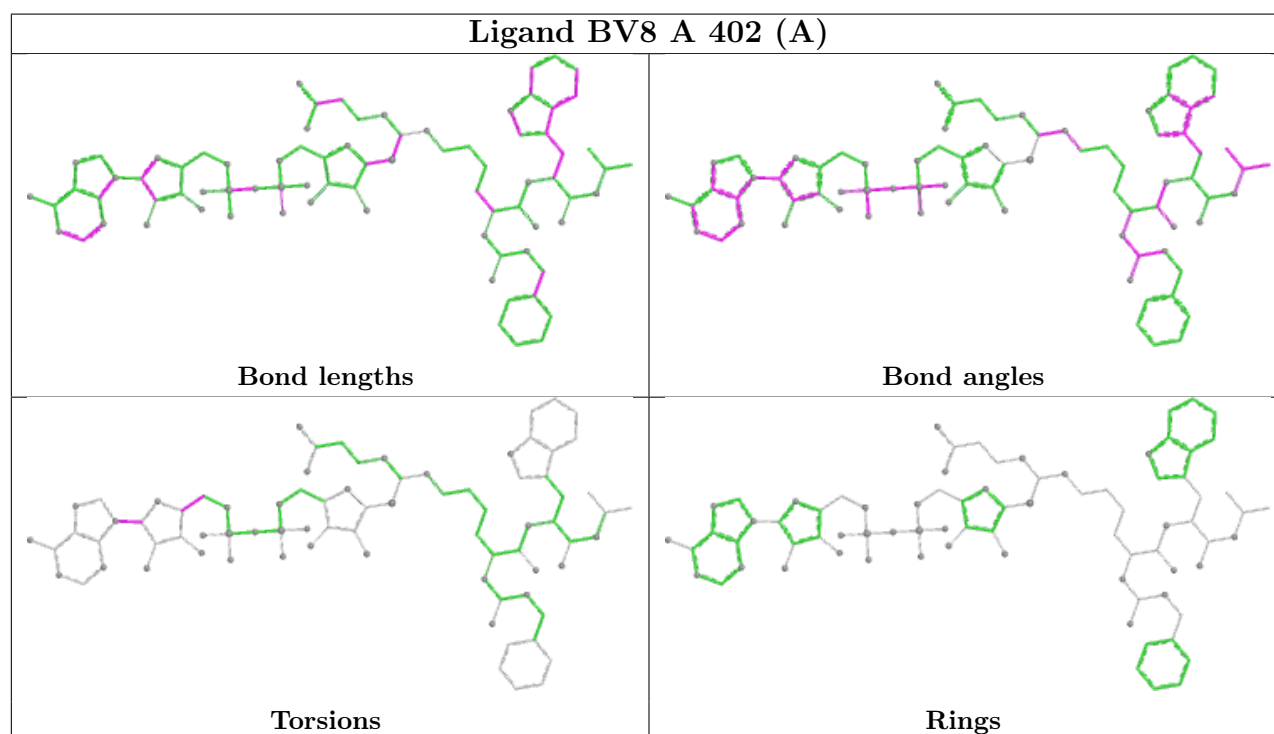
Mol	Chain	Res	Type	Atoms
3	D	402[B]	BV8	O3-C1-N4-C21
4	A	406	EDO	O1-C1-C2-O2
4	B	403[B]	EDO	O1-C1-C2-O2
4	B	407	EDO	O1-C1-C2-O2
4	D	404[B]	EDO	O1-C1-C2-O2
3	A	402[A]	BV8	O16-C38-C39-O17
3	B	402[A]	BV8	O7-C36-C37-O10
3	A	402[B]	BV8	C41-C42-N7-C43
3	C	402[A]	BV8	C28-C29-C30-C31
3	B	402[B]	BV8	O7-C36-C37-O10
3	C	402[D]	BV8	O7-C36-C37-O10
3	A	402[A]	BV8	C41-C42-N7-C45
3	A	402[B]	BV8	O16-C38-C39-O17
3	D	402[C]	BV8	C28-C29-C30-C31
3	A	402[A]	BV8	C41-C42-N7-C43
3	C	402[D]	BV8	C41-C42-N7-C43
3	D	402[B]	BV8	C41-C42-N7-C43
3	A	402[B]	BV8	C41-C42-N7-C45
3	C	402[A]	BV8	O7-C36-C37-O10

There are no ring outliers.

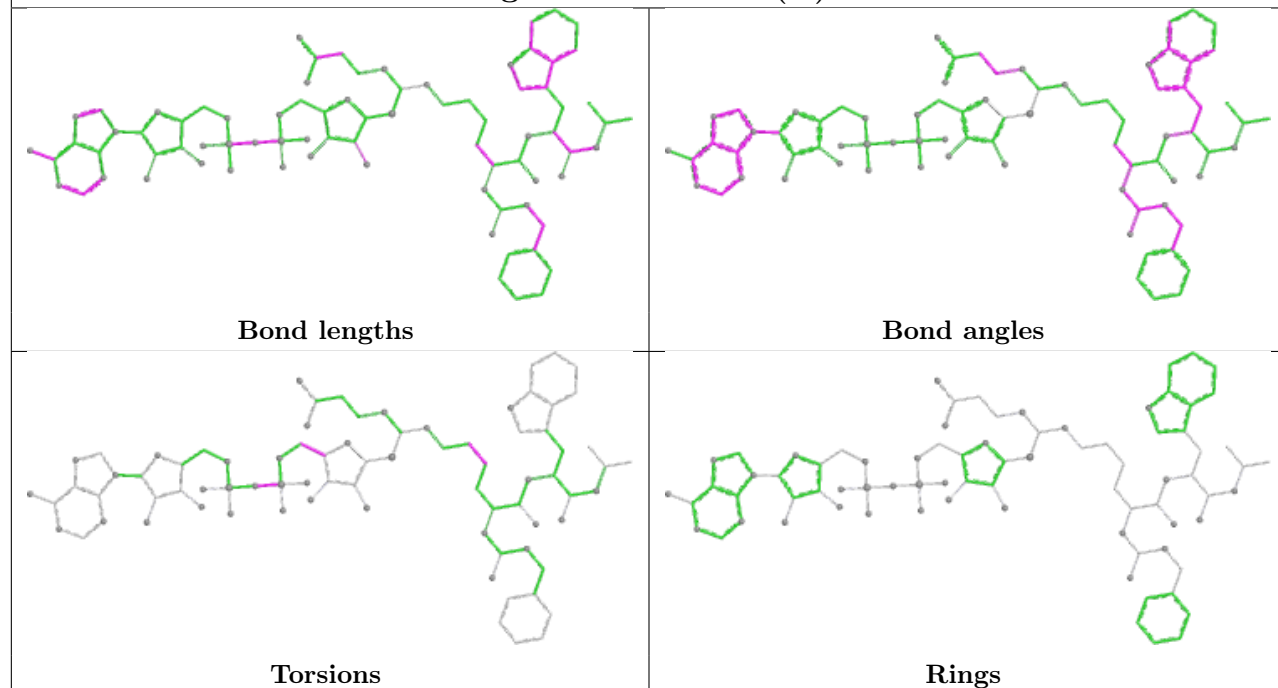
18 monomers are involved in 47 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	D	405	BU2	4	0
4	A	403[A]	EDO	3	0
4	B	404[B]	EDO	1	0
4	A	406	EDO	2	0
4	A	403[B]	EDO	1	0
3	B	402[A]	BV8	7	0
5	B	410	BU2	4	0
3	C	402[A]	BV8	2	0
4	C	404	EDO	1	0
3	D	402[B]	BV8	2	0
3	C	402[D]	BV8	1	0
5	B	408[A]	BU2	4	0
3	B	402[B]	BV8	2	0
4	B	406	EDO	4	0
5	B	408[B]	BU2	2	0
4	A	404[A]	EDO	3	0
5	A	408	BU2	9	0
5	B	409	BU2	3	0

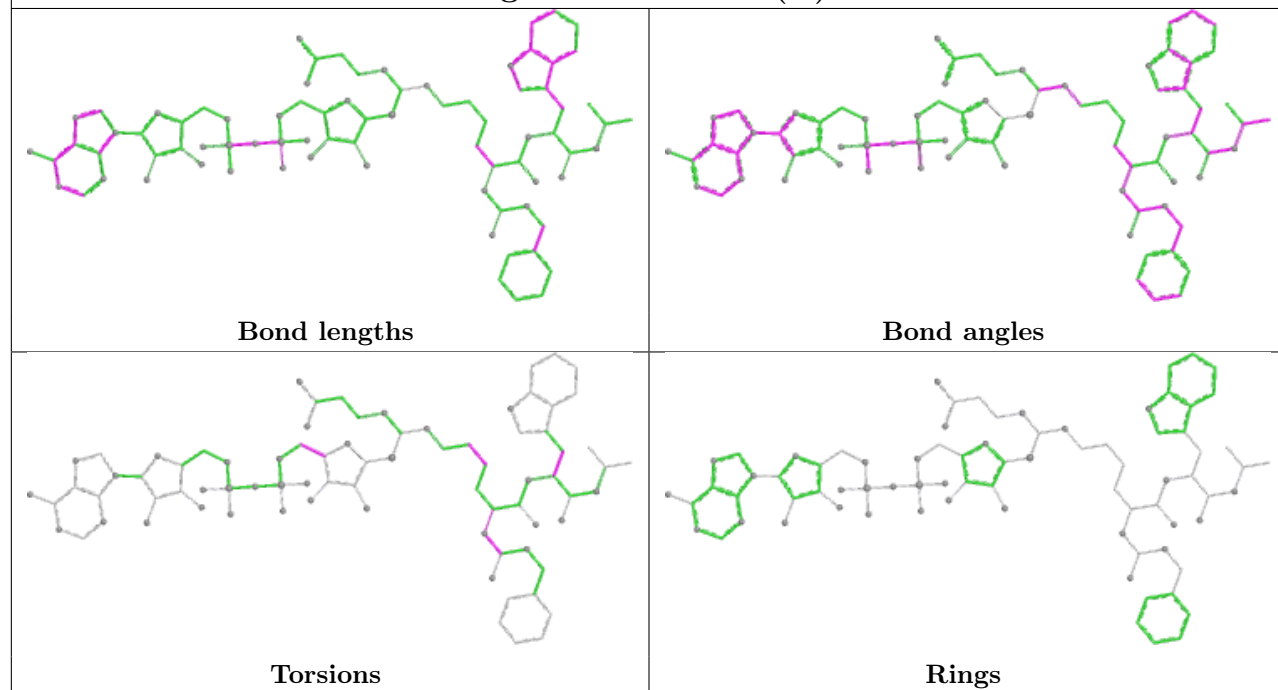
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.



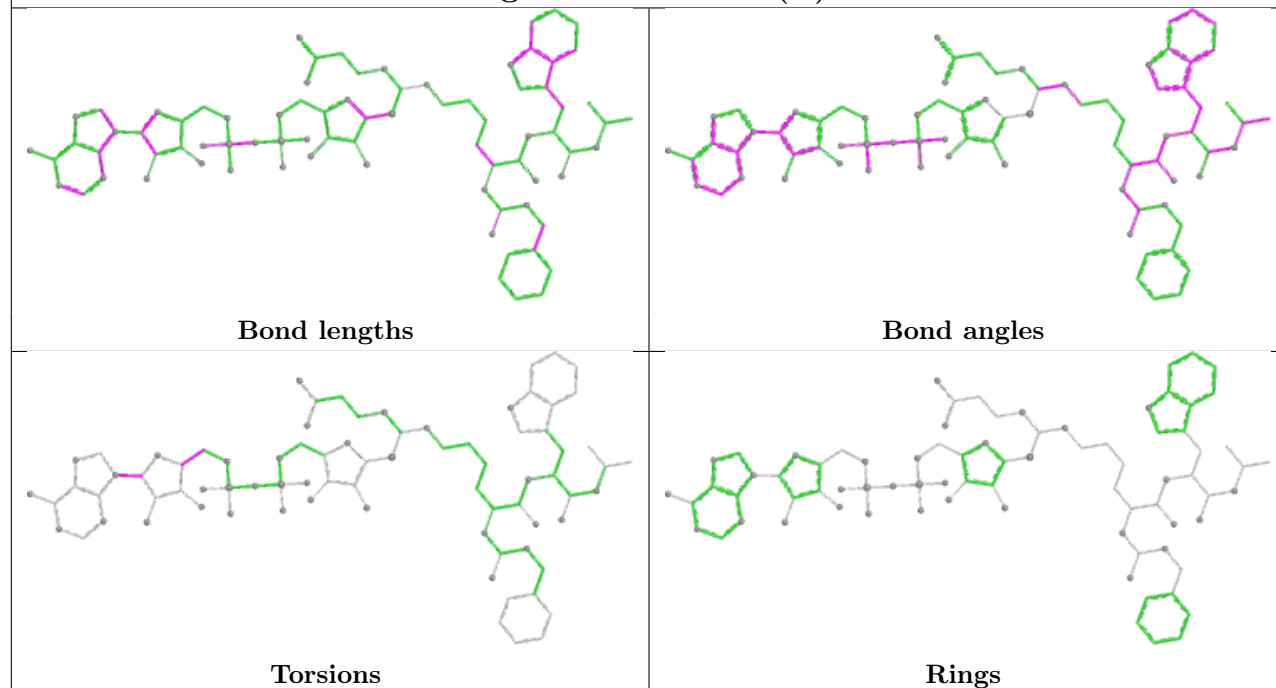
Ligand BV8 B 402 (A)



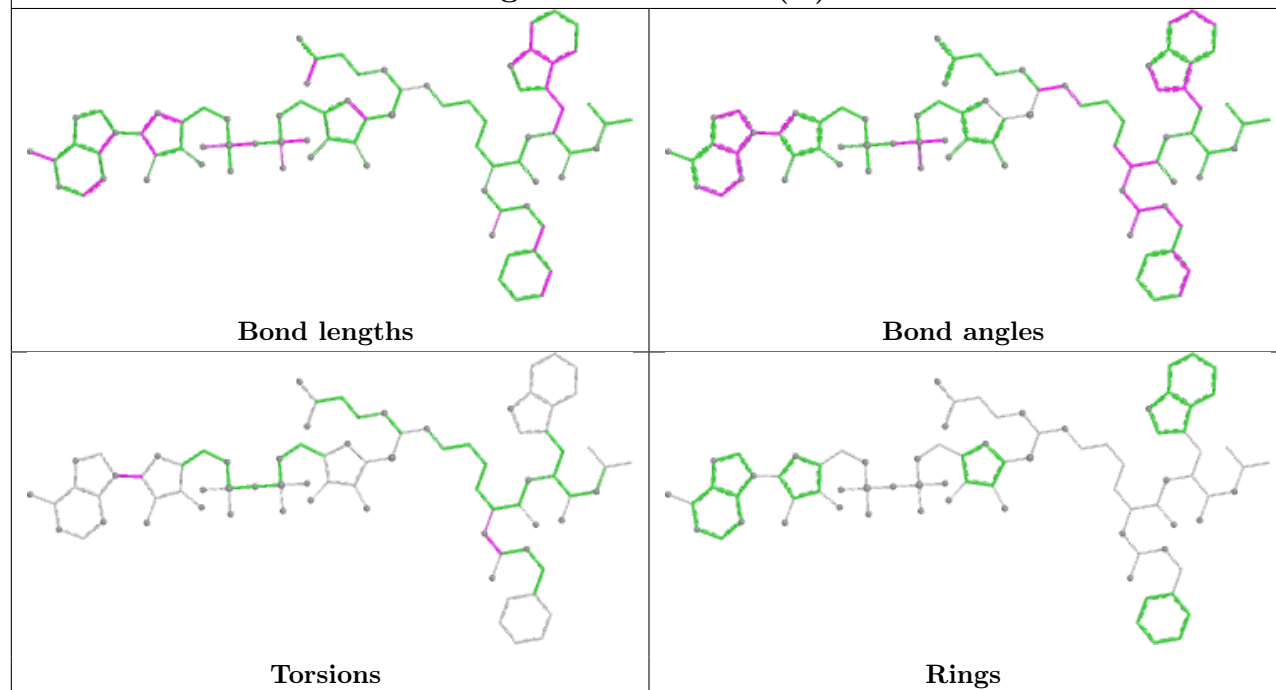
Ligand BV8 C 402 (A)



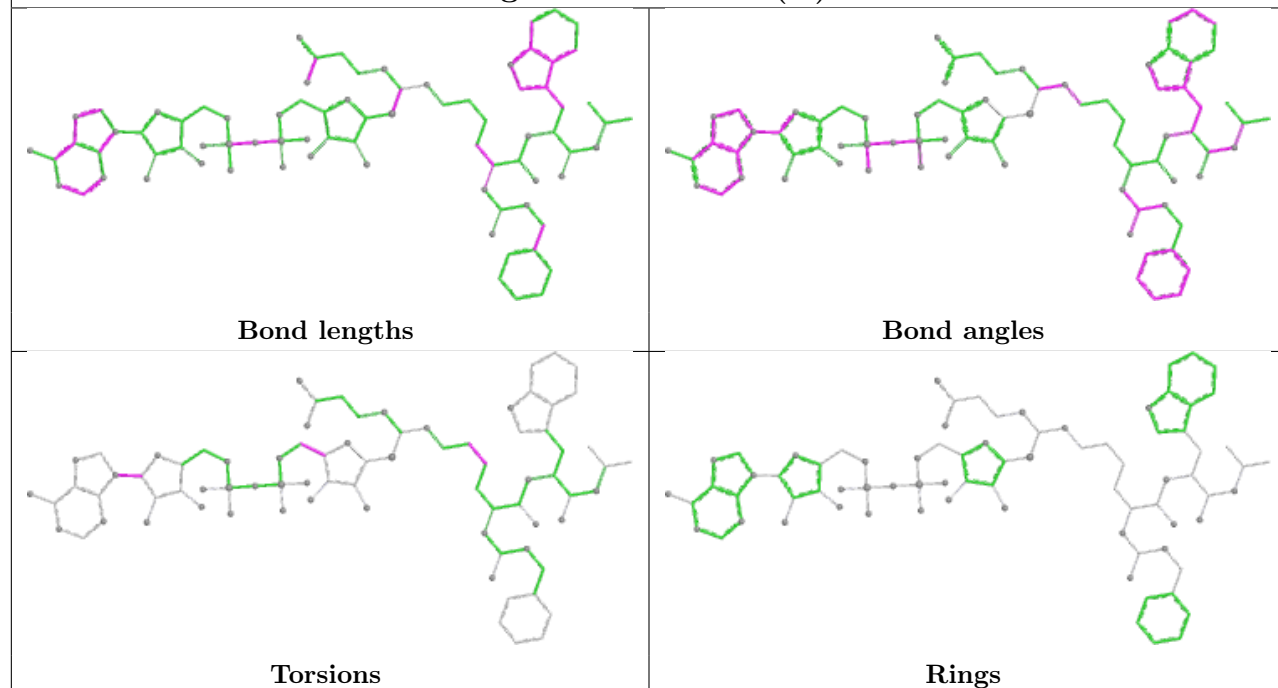
Ligand BV8 A 402 (B)



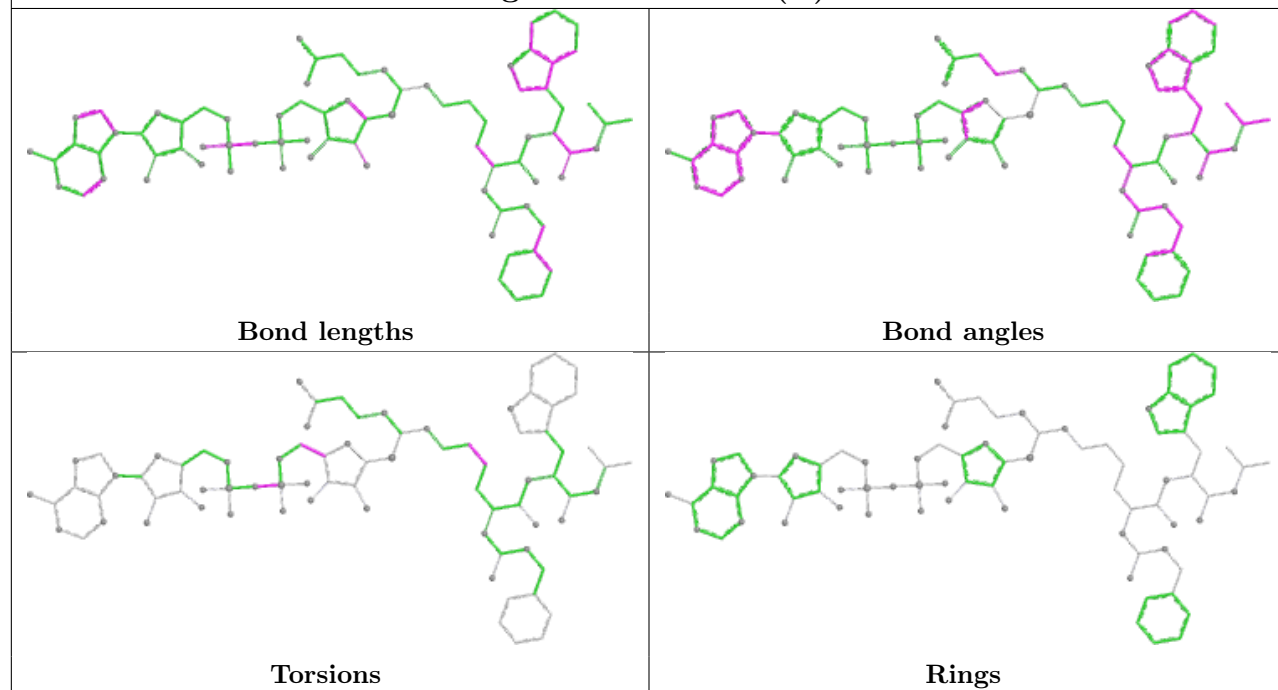
Ligand BV8 D 402 (B)

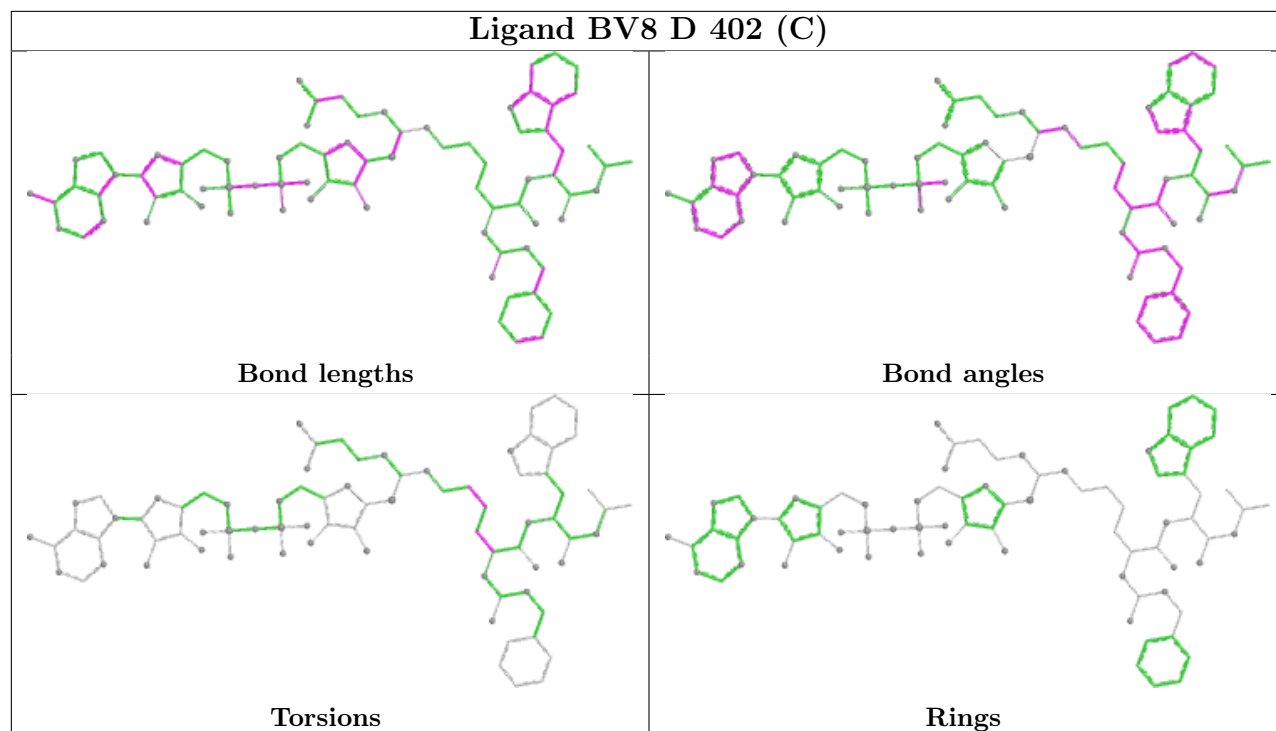


Ligand BV8 C 402 (D)



Ligand BV8 B 402 (B)





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	269/275 (97%)	-0.28	1 (0%) 88 92	7, 16, 30, 63	9 (3%)
1	B	268/275 (97%)	-0.25	0 100 100	8, 16, 31, 76	10 (3%)
1	C	274/275 (99%)	-0.04	3 (1%) 78 83	7, 19, 42, 97	6 (2%)
1	D	275/275 (100%)	-0.06	2 (0%) 84 88	8, 18, 41, 113	7 (2%)
All	All	1086/1100 (98%)	-0.16	6 (0%) 85 90	7, 17, 37, 113	32 (2%)

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	29	ILE	6.2
1	D	29	ILE	5.5
1	A	34	ALA	3.0
1	D	28	GLY	2.3
1	C	75	GLY	2.2
1	C	72	GLY	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(Å ²)	Q<0.9
4	EDO	B	407	4/4	0.81	0.13	51,55,55,92	0
4	EDO	C	405	4/4	0.81	0.15	33,41,42,58	0
4	EDO	A	407	4/4	0.84	0.12	32,37,46,55	0
5	BU2	A	409	6/6	0.84	0.14	38,51,56,60	0
5	BU2	C	406	6/6	0.84	0.17	32,41,48,50	0
5	BU2	D	406	6/6	0.84	0.14	44,56,64,82	0
6	DMS	A	411	4/4	0.85	0.15	56,71,83,86	0
5	BU2	B	410	6/6	0.88	0.12	32,39,50,57	0
4	EDO	C	404	4/4	0.88	0.14	55,57,68,73	0
5	BU2	A	408	6/6	0.89	0.11	29,35,44,59	0
5	BU2	D	405	6/6	0.89	0.14	32,43,71,110	0
4	EDO	A	405[A]	4/4	0.89	0.14	30,36,42,46	4
4	EDO	A	405[B]	4/4	0.89	0.14	20,27,32,34	4
6	DMS	A	410	4/4	0.90	0.14	51,54,67,79	0
4	EDO	B	405[B]	4/4	0.91	0.13	27,29,41,42	4
4	EDO	A	404[B]	4/4	0.91	0.17	16,18,20,25	4
4	EDO	A	404[A]	4/4	0.91	0.17	13,22,25,33	4
4	EDO	B	405[A]	4/4	0.91	0.13	33,43,46,49	4
4	EDO	B	404[B]	4/4	0.92	0.10	15,22,26,29	4
4	EDO	B	404[A]	4/4	0.92	0.10	26,32,34,35	4
5	BU2	B	409	6/6	0.92	0.11	31,39,44,51	0
5	BU2	B	408[B]	6/6	0.93	0.10	25,27,28,34	6
5	BU2	B	408[A]	6/6	0.93	0.10	21,24,31,43	6
4	EDO	A	406	4/4	0.94	0.10	24,29,29,60	0
4	EDO	D	404[B]	4/4	0.95	0.07	28,29,30,34	4
4	EDO	B	406	4/4	0.95	0.08	26,27,29,58	0
4	EDO	D	404[A]	4/4	0.95	0.07	22,23,25,27	4
4	EDO	D	403[B]	4/4	0.96	0.08	16,19,20,22	4
4	EDO	D	403[A]	4/4	0.96	0.08	10,10,12,13	4
3	BV8	A	402[B]	80/80	0.97	0.06	5,9,34,46	80
3	BV8	B	402[A]	80/80	0.97	0.07	14,19,38,51	80
3	BV8	B	402[B]	80/80	0.97	0.07	7,11,33,40	80
4	EDO	A	403[A]	4/4	0.97	0.06	6,7,9,12	4
4	EDO	A	403[B]	4/4	0.97	0.06	15,16,21,28	4
4	EDO	C	403[A]	4/4	0.97	0.07	13,14,15,17	4
4	EDO	C	403[B]	4/4	0.97	0.07	10,11,15,15	4
3	BV8	A	402[A]	80/80	0.97	0.06	13,19,33,39	80
4	EDO	B	403[B]	4/4	0.98	0.10	10,12,14,20	4
4	EDO	B	403[A]	4/4	0.98	0.10	10,10,10,13	4
3	BV8	D	402[C]	80/80	0.99	0.04	9,17,24,36	80
3	BV8	C	402[A]	80/80	0.99	0.05	8,13,24,32	80

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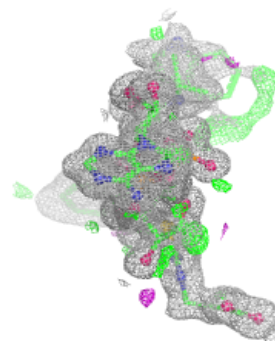
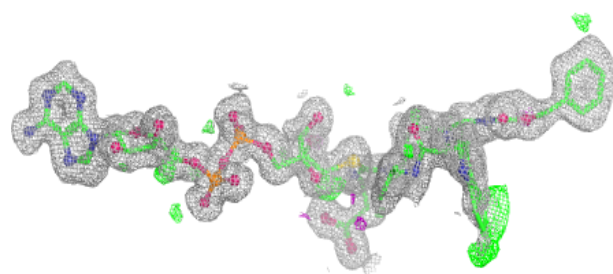
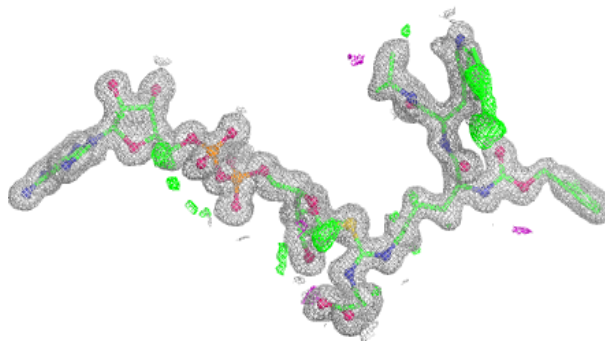
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	BV8	C	402[D]	80/80	0.99	0.05	7,18,24,28	80
3	BV8	D	402[B]	80/80	0.99	0.04	8,12,19,24	80
2	ZN	D	401	1/1	1.00	0.03	17,17,17,17	0
2	ZN	A	401	1/1	1.00	0.01	15,15,15,15	0
2	ZN	B	401	1/1	1.00	0.03	16,16,16,16	0
2	ZN	C	401	1/1	1.00	0.01	19,19,19,19	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.

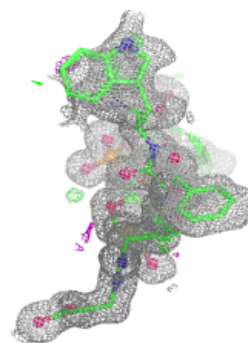
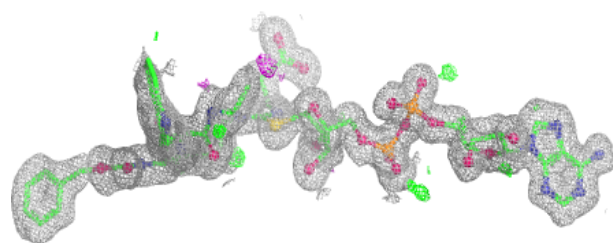
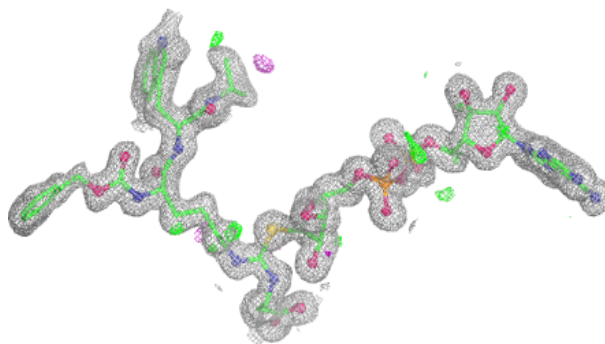
Electron density around BV8 A 402 (B):

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

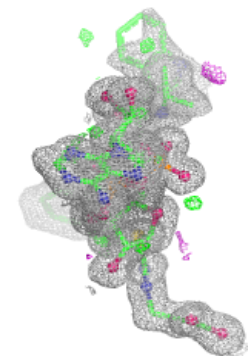
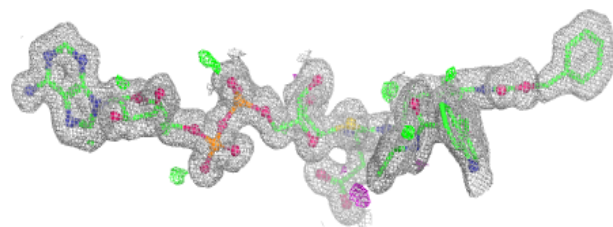
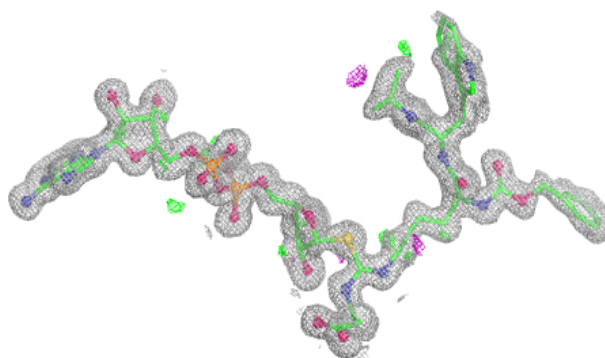


Electron density around BV8 B 402 (A):

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

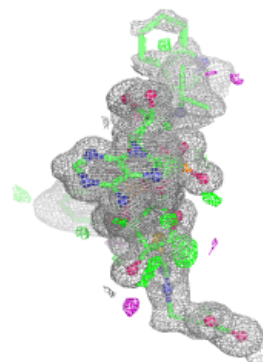
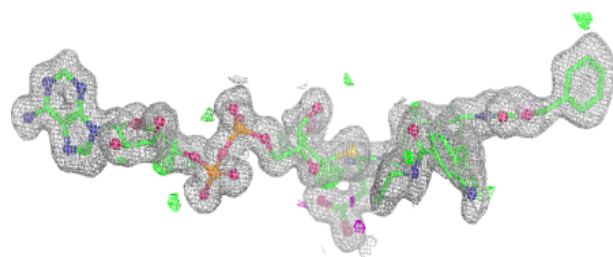
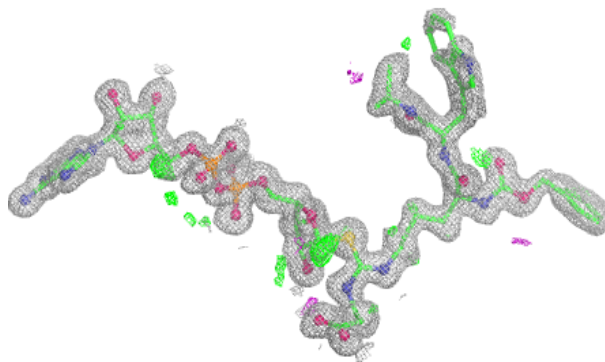
**Electron density around BV8 B 402 (B):**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

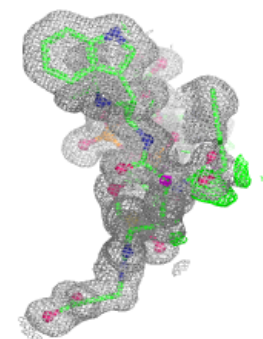
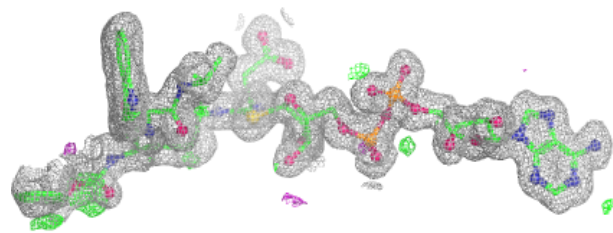
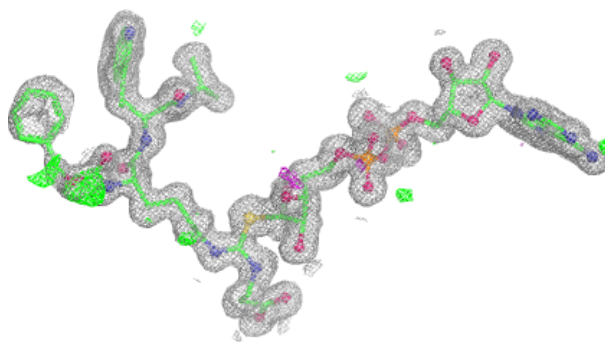


Electron density around BV8 A 402 (A):

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

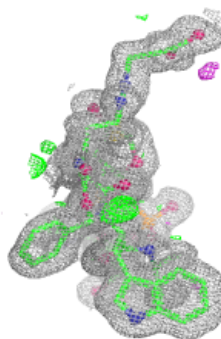
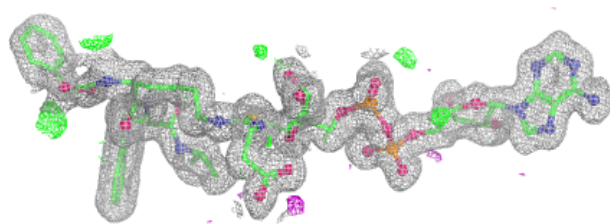
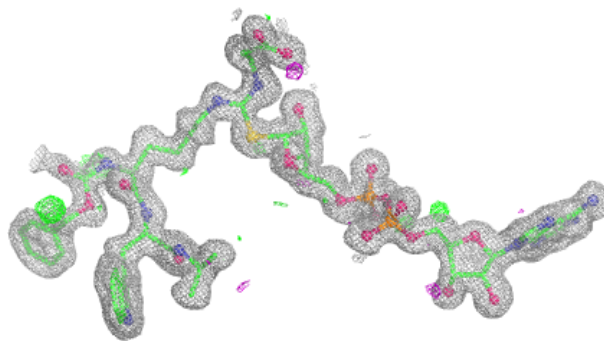
**Electron density around BV8 D 402 (C):**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

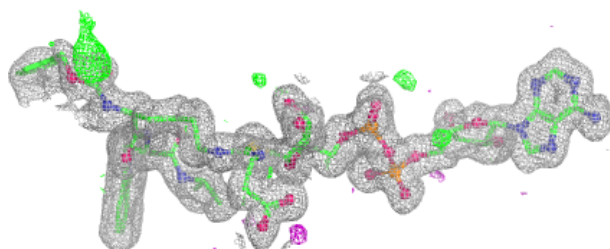
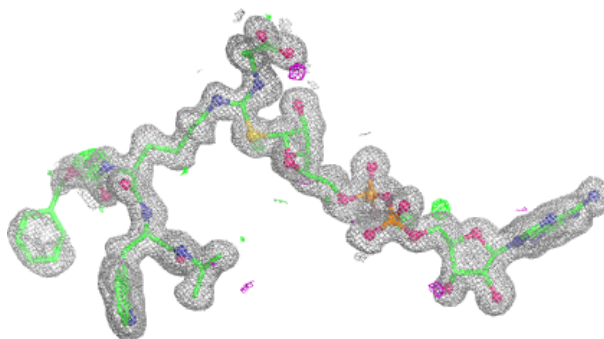


Electron density around BV8 C 402 (A):

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

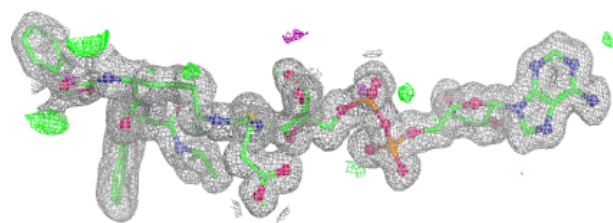
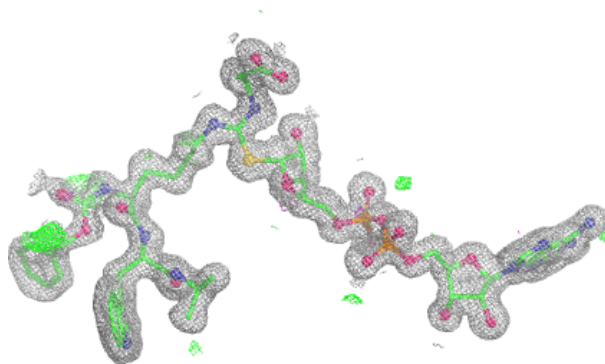
**Electron density around BV8 C 402 (D):**

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



Electron density around BV8 D 402 (B):

$2mF_o-DF_c$ (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.