

Full wwPDB X-ray Structure Validation Report (i)

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

We welcome your comments at *validation@mail.wwpdb.org* A user guide is available at https://www.wwpdb.org/validation/2017/XrayValidationReportHelp with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7(2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure: $X\text{-}RAY \, DIFFRACTION$

The reported resolution of this entry is 1.81 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	$egin{array}{c} { m Whole \ archive} \ (\#{ m Entries}) \end{array}$	${f Similar\ resolution}\ (\#{ m Entries,\ resolution\ range}({ m \AA}))$
R_{free}	164625	9242 (1.84-1.80)
Clashscore	180529	1080 (1.82-1.82)
Ramachandran outliers	177936	1073 (1.82-1.82)
Sidechain outliers	177891	1073 (1.82-1.82)
RSRZ outliers	164620	9241 (1.84-1.80)

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

Mol	Chain	Length	Quality of chain	
1	А	195	93%	• 5%
1	В	195	4% 92%	• 5%
1	С	195	93%	• •
1	D	195	93%	• 6%
1	Е	195	8% 91%	• 7%
1	F	195	93%	• 6%



Mol	Chain	Length	Quality of chain	
1	G	195	92%	• 5%
1	Н	195	91%	• 6%
1	Ι	195	94%	•••
1	J	195	3% 91%	• 6%
1	К	195	90%	• 6%
1	L	195	92%	•• 6%
1	М	195	92%	• 7%
1	N	195	90%	• 7%



2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 21681 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.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace			
1	٨	196	Total	С	Ν	0	S	0	ე	0			
1	A	180	1412	893	236	277	6	0	9	0			
1	D	196	Total	С	Ν	0	S	0	1	0			
	D	160	1391	879	238	268	6	0	1	0			
1	С	187	Total	С	Ν	Ο	S	0	1	0			
1	U	107	1417	897	240	274	6	0	1	0			
1	Л	184	Total	С	Ν	0	S	0	0	0			
1	D	104	1393	878	236	273	6	0	0	0			
1	F	181	Total	С	Ν	Ο	S	0	0	0			
1	Ľ	101	1366	863	233	264	6	0	0	0			
1	F	194	Total	С	Ν	0	S	0	1	0			
	Г	104	1382	874	235	267	6	0	1	U			
1	G	С	C	C	185	Total	С	Ν	0	S	0	1	1
1		165	1392	881	234	271	6	0	1	1			
1	Ц	Ц	н	н	184	Total	С	Ν	Ο	\mathbf{S}	0	9	0
1	11	104	1406	888	237	275	6	0	2	0			
1	Т	187	Total	С	Ν	0	\mathbf{S}	0	1	0			
1	L		1418	894	239	279	6	0	1	0			
1	T	184	Total	С	Ν	Ο	\mathbf{S}	0	0	0			
1	0	104	1395	881	235	273	6	0	0	0			
1	K	183	Total	С	Ν	Ο	\mathbf{S}	0	1	0			
1	IX	105	1380	872	235	267	6	0	1	0			
1	T	184	Total	С	Ν	Ο	\mathbf{S}	0	1	0			
1	Ľ	104	1391	881	238	266	6	0	1	0			
1	M	182	Total	С	Ν	0	S	0	0	1			
	IVI	102	1367	862	232	267	6	0	U	T			
1	N	182	Total	С	Ν	0	S	0	2	0			
	1 N	102	1382	875	235	266	6	0	0 2	0			

• Molecule 1 is a protein called ATP-dependent Clp protease proteolytic subunit.

• Molecule 2 is (6S,9aS)-8-(anthracen-9-ylmethyl)-6-[(2S)-butan-2-yl]-4,7-bis(oxidanylidene)-N-[4,4,4-tris(fluoranyl)butyl]-3,6,9,9a-tetrahydro-2H-pyrazino[1,2-a]pyrimidine-1-carboxami de (three-letter code: WBW) (formula: C₃₁H₃₅F₃N₄O₃) (labeled as "Ligand of Interest" by depositor).





Mol	Chain	Residues		Atoms				ZeroOcc	AltConf
0	Δ	1	Total	С	F	Ν	Ο	0	0
2	A	1	41	31	3	4	3	0	0
0	D	1	Total	С	F	Ν	0	0	0
	D	L	41	31	3	4	3	0	0
0	C	1	Total	С	F	Ν	0	0	0
	U	L	41	31	3	4	3	0	0
0	л	1	Total	С	F	Ν	Ο	0	0
	D	L	41	31	3	4	3	0	0
0	F	1	Total	С	F	Ν	Ο	0	0
	Ľ	L	41	31	3	4	3	0	0
0	F	1	Total	С	F	Ν	Ο	0	0
	Ľ	L	41	31	3	4	3	0	0
0	C	1	Total	С	F	Ν	Ο	0	0
	G	L	41	31	3	4	3	0	U
9	Ц	1	Total	С	F	Ν	Ο	0	0
	11	L	41	31	3	4	3	0	0
2	т	1	Total	С	F	Ν	Ο	0	0
	1	L	41	31	3	4	3	0	0
0	т	1	Total	С	F	Ν	Ο	0	0
	J	L	41	31	3	4	3	0	0
0	K	1	Total	С	F	Ν	0	0	0
	n	L	41	31	3	4	3	0	0
0	т	1	Total	С	F	Ν	Ο	0	0
	L	L	41	31	3	4	3	0	0
9	М	1	Total	С	F	Ν	0	0	0
	IVI	L	41	31	3	4	3		
9	N	1	Total	С	F	Ν	0	0	0
	IN		41	31	3	4	3	U	U



• Molecule 3 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula: $C_6H_{14}O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	А	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	В	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	В	1	$\begin{array}{ccc} \text{Total} & \text{C} & \text{O} \\ 8 & 6 & 2 \end{array}$	0	0
3	С	1	$\begin{array}{ccc} \text{Total} & \text{C} & \text{O} \\ 8 & 6 & 2 \end{array}$	0	0
3	D	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	Е	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	F	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	G	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	Н	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	Ι	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	Ι	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0
3	J	1	$\begin{array}{c cc} Total & C & \overline{O} \\ 8 & 6 & 2 \end{array}$	0	0



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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	K	1	$\begin{array}{ccc} \text{Total} & \text{C} & \text{O} \\ 8 & 6 & 2 \end{array}$	0	0
3	L	1	$\begin{array}{ccc} \text{Total} & \text{C} & \text{O} \\ 8 & 6 & 2 \end{array}$	0	0
3	М	1	$\begin{array}{ccc} \text{Total} & \text{C} & \text{O} \\ 8 & 6 & 2 \end{array}$	0	0
3	Ν	1	$\begin{array}{ccc} \text{Total} \text{C} \text{O} \\ 8 6 2 \end{array}$	0	0

• Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	А	134	Total O 134 134	0	0
4	В	128	Total O 128 128	0	0
4	С	106	Total O 106 106	0	0
4	D	81	Total O 81 81	0	0
4	Е	78	Total O 78 78	0	0
4	F	88	Total O 88 88	0	0
4	G	134	Total O 134 134	0	0
4	Н	141	Total O 141 141	0	0
4	Ι	136	Total O 136 136	0	0
4	J	118	Total O 118 118	0	0
4	K	76	Total O 76 76	0	0
4	L	64	$\begin{array}{cc} \text{Total} & \text{O} \\ 64 & 64 \end{array}$	0	0
4	М	89	TotalO8989	0	0
4	Ν	114	Total O 114 114	0	0



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: ATP-dependent Clp protease proteolytic subunit



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4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants	95.41Å 127.08Å 146.10Å	Depositor
a, b, c, α , β , γ	90.00° 95.38° 90.00°	Depositor
Bosolution(Å)	31.89 - 1.81	Depositor
Resolution (A)	31.89 - 1.81	EDS
% Data completeness	99.9 (31.89-1.81)	Depositor
(in resolution range)	99.9 (31.89-1.81)	EDS
R _{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) > 1$	$1.96 (at 1.80 \text{\AA})$	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
D D .	0.212 , 0.226	Depositor
n, n_{free}	0.216 , 0.231	DCC
R_{free} test set	15697 reflections (4.99%)	wwPDB-VP
Wilson B-factor $(Å^2)$	25.1	Xtriage
Anisotropy	0.044	Xtriage
Bulk solvent $k_{sol}(e/A^3), B_{sol}(A^2)$	0.34 , 28.2	EDS
L-test for $twinning^2$	$ < L >=0.49, < L^2>=0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	21681	wwPDB-VP
Average B, all atoms $(Å^2)$	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 3.10% of the height of the origin peak. No significant pseudotranslation is detected.

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.



¹Intensities estimated from amplitudes.

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: WBW, MPD

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	
	Unam	RMSZ	# Z > 5	RMSZ	# Z > 5
1	А	0.37	0/1436	0.53	0/1946
1	В	0.35	0/1412	0.54	0/1913
1	С	0.32	0/1438	0.50	0/1945
1	D	0.41	0/1411	0.52	0/1909
1	Е	0.40	0/1384	0.51	0/1873
1	F	0.33	0/1403	0.52	0/1901
1	G	0.32	0/1413	0.52	0/1912
1	Н	0.35	0/1427	0.54	0/1932
1	Ι	0.32	0/1439	0.53	0/1947
1	J	0.32	0/1413	0.52	0/1912
1	Κ	0.32	0/1401	0.50	0/1898
1	L	0.36	0/1412	0.51	0/1909
1	М	0.36	0/1385	0.51	0/1875
1	Ν	0.35	0/1406	0.52	0/1903
All	All	0.35	0/19780	0.52	0/26775

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.



Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	А	1412	0	1398	2	0
1	В	1391	0	1370	3	0
1	С	1417	0	1416	3	0
1	D	1393	0	1381	1	0
1	Е	1366	0	1363	2	0
1	F	1382	0	1369	2	0
1	G	1392	0	1378	2	0
1	Н	1406	0	1397	3	0
1	Ι	1418	0	1405	2	0
1	J	1395	0	1385	2	0
1	K	1380	0	1371	4	0
1	L	1391	0	1398	2	0
1	М	1367	0	1352	0	0
1	N	1382	0	1384	2	0
2	А	41	0	0	0	0
2	В	41	0	0	2	0
2	С	41	0	0	0	0
2	D	41	0	0	0	0
2	Е	82	0	0	0	0
2	G	41	0	0	0	0
2	Н	41	0	0	0	0
2	I	41	0	0	0	0
2	J	41	0	0	0	0
2	K	41	0	0	1	0
2	L	41	0	0	2	0
2	M	41	0	0	1	0
2	N	41	0	0	1	0
3	A	8	0	14	0	0
3	B	16	0	28	0	0
3		8	0	14	0	0
<u>う</u>		8	0	14	1	0
<u>う</u>		8 0	0	14		0
う う		ð	0	14	0	0
3	- U Ц	0	0	14	0	0
2 2	T T	0 16	0	14 98	0	0
2 2	1 T	10	0	20	0	0
2 2	J K	0 &	0	14	0	0
2	I	8	0	14	0	0
<u>्</u> र	M	8	0	14	0	0
<u>२</u>	N	8	0	1/1	0	0
	Δ	13/	0	14 0	0	0
<u>4</u>	R	194	0	0	0	0
4	Ц	120	U	0	0	U



Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes			
4	С	106	0	0	0	0			
4	D	81	0	0	0	0			
4	Е	78	0	0	0	0			
4	F	88	0	0	0	0			
4	G	134	0	0	0	0			
4	Н	141	0	0	0	0			
4	Ι	136	0	0	0	0			
4	J	118	0	0	0	0			
4	K	76	0	0	0	0			
4	L	64	0	0	0	0			
4	М	89	0	0	0	0			
4	N	114	0	0	0	0			
All	All	21681	0	19591	26	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 1.

All (26) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom 1	Atom 2	Interatomic	Clash	
Atom-1	Atom-2	distance (\AA)	overlap (Å)	
1:N:49:LEU:O	1:N:52[B]:GLN:HG3	1.94	0.68	
2:L:201:WBW:C17	2:L:201:WBW:C10	2.87	0.53	
1:A:49:LEU:O	1:A:52[B]:GLN:HG3	2.09	0.52	
2:N:201:WBW:C10	2:N:201:WBW:C17	2.88	0.52	
1:G:67:PRO:HA	1:G:97:ALA:HB3	1.93	0.49	
1:N:67:PRO:HA	1:N:97:ALA:HB3	1.95	0.48	
1:H:52[A]:GLN:NE2	1:H:84:ILE:HG22	2.28	0.48	
1:B:25:LEU:HD13	1:B:47:GLN:HE21	1.80	0.47	
2:B:201:WBW:C10	2:B:201:WBW:C17	2.93	0.47	
1:H:42:ASN:HD21	1:I:65:ASN:HD22	1.64	0.46	
1:B:79:ASP:HB3	1:C:115:LEU:HD13	1.99	0.44	
2:M:201:WBW:C10	2:M:201:WBW:C17	2.95	0.44	
1:E:79:ASP:HB3	1:F:115:LEU:HD13	1.98	0.44	
1:A:52[A]:GLN:HE22	2:B:201:WBW:C11	2.31	0.43	
1:I:149:LYS:HE3	1:J:117:ASN:HD22	1.84	0.43	
1:B:67:PRO:HA	1:B:97:ALA:HB3	2.00	0.42	
1:H:67:PRO:HA	1:H:97:ALA:HB3	2.02	0.42	
1:J:149:LYS:HE3	1:K:117:ASN:HD22	1.84	0.42	
1:C:79:ASP:HB3	1:D:115:LEU:HD13	2.01	0.41	
1:L:52:GLN:HE21	1:L:52:GLN:HB3	1.62	0.41	
1:K:63:TYR:HB2	2:K:201:WBW:C72	2.50	0.41	



Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:79:ASP:HB3	1:G:115:LEU:HD13	2.03	0.41
1:K:79:ASP:HB3	1:L:115:LEU:HD13	2.03	0.40
1:K:49:LEU:HD22	2:L:201:WBW:C71	2.51	0.40
1:C:67:PRO:HA	1:C:97:ALA:HB3	2.04	0.40
1:E:150:LEU:HD13	3:E:203:MPD:H52	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
1	А	185/195~(95%)	183~(99%)	2(1%)	0	100	100
1	В	183/195~(94%)	181 (99%)	2(1%)	0	100	100
1	С	184/195~(94%)	181 (98%)	3(2%)	0	100	100
1	D	180/195~(92%)	176 (98%)	4 (2%)	0	100	100
1	Е	177/195~(91%)	173 (98%)	4 (2%)	0	100	100
1	F	181/195~(93%)	179 (99%)	2 (1%)	0	100	100
1	G	182/195~(93%)	180 (99%)	2 (1%)	0	100	100
1	Н	182/195~(93%)	179~(98%)	3(2%)	0	100	100
1	Ι	184/195~(94%)	180 (98%)	4 (2%)	0	100	100
1	J	180/195~(92%)	178 (99%)	2 (1%)	0	100	100
1	Κ	180/195~(92%)	176 (98%)	4 (2%)	0	100	100
1	L	181/195~(93%)	177 (98%)	4 (2%)	0	100	100
1	М	178/195~(91%)	176 (99%)	2 (1%)	0	100	100
1	Ν	180/195~(92%)	177 (98%)	3 (2%)	0	100	100
All	All	2537/2730~(93%)	2496 (98%)	41 (2%)	0	100	100



There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent side chain 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	Percen	tiles
1	А	148/163~(91%)	146 (99%)	2(1%)	62	50
1	В	142/163~(87%)	140 (99%)	2(1%)	62	50
1	С	148/163~(91%)	146 (99%)	2(1%)	62	50
1	D	146/163~(90%)	145 (99%)	1 (1%)	81	75
1	Ε	143/163~(88%)	141 (99%)	2 (1%)	62	50
1	F	143/163~(88%)	142 (99%)	1 (1%)	81	75
1	G	144/163~(88%)	141 (98%)	3 (2%)	48	32
1	Н	148/163 (91%)	146 (99%)	2 (1%)	62	50
1	Ι	149/163~(91%)	147 (99%)	2 (1%)	65	52
1	J	146/163~(90%)	142 (97%)	4 (3%)	40	22
1	Κ	144/163~(88%)	141 (98%)	3 (2%)	48	32
1	L	145/163~(89%)	142 (98%)	3 (2%)	48	32
1	М	142/163~(87%)	139 (98%)	3 (2%)	48	32
1	Ν	145/163 (89%)	143 (99%)	2 (1%)	62	50
All	All	2033/2282 (89%)	2001 (98%)	32 (2%)	58	45

All (32) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	А	27	ASP
1	А	123	HIS
1	В	27	ASP
1	В	123	HIS
1	С	52	GLN
1	С	123	HIS
1	D	123	HIS
1	Е	27	ASP



Mol	Chain	Res	Type
1	Е	123	HIS
1	F	123	HIS
1	G	27	ASP
1	G	52	GLN
1	G	123	HIS
1	Н	27	ASP
1	Н	123	HIS
1	Ι	27	ASP
1	Ι	123	HIS
1	J	27	ASP
1	J	52	GLN
1	J	57	GLU
1	J	123	HIS
1	Κ	27	ASP
1	Κ	52	GLN
1	Κ	123	HIS
1	L	27	ASP
1	L	52	GLN
1	L	123	HIS
1	М	27	ASP
1	М	52	GLN
1	М	123	HIS
1	Ν	27	ASP
1	N	123	HIS

Sometimes side chains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such side chains are listed below:

Mol	Chain	Res	Type
1	В	47	GLN
1	В	151	ASN
1	D	65	ASN
1	F	117	ASN
1	F	151	ASN
1	G	82	GLN
1	Н	42	ASN
1	Н	117	ASN
1	Н	160	GLN
1	Ι	82	GLN
1	Ι	160	GLN
1	J	35	GLN
1	J	89	GLN
1	J	117	ASN



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Mol	Chain	Res	Type
1	J	160	GLN
1	Κ	117	ASN
1	L	52	GLN
1	L	89	GLN
1	М	89	GLN
1	Ν	89	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

30 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).

Mal	I Type Chain Beg		Tiple	B	Bond lengths			Bond angles		
	туре	Chain	nes	LIIIK	Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z >2
2	WBW	В	201	-	43,45,45	1.63	12 (27%)	58,66,66	2.13	23 (39%)
2	WBW	С	201	-	43,45,45	1.46	9 (20%)	58,66,66	1.89	17 (29%)
2	WBW	Ι	201	-	43,45,45	1.76	14 (32%)	58,66,66	2.35	25 (43%)
3	MPD	K	202	-	7,7,7	0.25	0	9,10,10	0.33	0
2	WBW	D	201	-	$43,\!45,\!45$	1.51	11 (25%)	58,66,66	1.57	11 (18%)
3	MPD	Ι	202	-	7,7,7	0.22	0	9,10,10	0.26	0
2	WBW	L	201	-	43,45,45	1.60	9 (20%)	58,66,66	1.70	15 (25%)



Mal	Tuno	Chain	Dog	Link	B	ond leng	gths	B	Bond ang	gles
	туре	Ullalli	nes		Counts	RMSZ	# Z >2	Counts	RMSZ	# Z > 2
2	WBW	N	201	-	43,45,45	1.44	10 (23%)	58,66,66	1.82	10 (17%)
2	WBW	G	201	-	43,45,45	1.46	6 (13%)	58,66,66	1.67	12 (20%)
2	WBW	М	201	-	43,45,45	1.73	9 (20%)	58,66,66	2.00	18 (31%)
3	MPD	В	202	-	7,7,7	0.25	0	9,10,10	0.40	0
2	WBW	K	201	-	43,45,45	1.42	8 (18%)	58,66,66	1.59	9 (15%)
3	MPD	В	203	-	7,7,7	0.15	0	9,10,10	0.31	0
3	MPD	Ι	203	-	7,7,7	0.24	0	9,10,10	0.28	0
3	MPD	С	202	-	7,7,7	0.22	0	9,10,10	0.31	0
2	WBW	J	201	-	43,45,45	1.78	13 (30%)	58,66,66	1.79	17 (29%)
3	MPD	J	202	-	7,7,7	0.27	0	9,10,10	0.51	0
3	MPD	А	202	-	7,7,7	0.18	0	9,10,10	0.24	0
3	MPD	М	202	-	7,7,7	0.27	0	9,10,10	0.51	0
2	WBW	Н	201	-	43,45,45	0.97	2 (4%)	58,66,66	1.38	6 (10%)
3	MPD	Е	203	-	7,7,7	0.24	0	9,10,10	0.23	0
2	WBW	Е	202	-	43,45,45	1.54	10 (23%)	58,66,66	1.70	10 (17%)
3	MPD	D	202	-	7,7,7	0.25	0	9,10,10	0.28	0
2	WBW	Е	201	-	43,45,45	1.48	7 (16%)	58,66,66	1.32	7 (12%)
3	MPD	Н	202	-	7,7,7	0.23	0	9,10,10	0.35	0
3	MPD	L	202	-	7,7,7	0.24	0	9,10,10	0.26	0
3	MPD	F	201	-	7,7,7	0.25	0	9,10,10	0.27	0
3	MPD	N	202	-	7,7,7	0.25	0	9,10,10	0.30	0
3	MPD	G	202	-	7,7,7	0.24	0	9,10,10	0.30	0
2	WBW	A	201	-	43,45,45	1.63	12 (27%)	58,66,66	1.56	10 (17%)

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	WBW	В	201	-	-	3/22/55/55	0/5/5/5
2	WBW	С	201	-	-	0/22/55/55	0/5/5/5
2	WBW	Ι	201	-	-	1/22/55/55	0/5/5/5
3	MPD	Κ	202	-	-	0/5/5/5	-
2	WBW	D	201	-	-	2/22/55/55	0/5/5/5
3	MPD	Ι	202	-	-	0/5/5/5	-
2	WBW	\mathbf{L}	201	-	-	4/22/55/55	0/5/5/5
2	WBW	Ν	201	-	-	3/22/55/55	0/5/5/5
2	WBW	G	201	-	-	0/22/55/55	0/5/5/5
2	WBW	М	201	-	-	0/22/55/55	0/5/5/5



Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	MPD	В	202	-	-	0/5/5/5	-
2	WBW	K	201	-	-	0/22/55/55	0/5/5/5
3	MPD	В	203	-	-	0/5/5/5	-
3	MPD	Ι	203	-	-	0/5/5/5	-
3	MPD	С	202	-	-	0/5/5/5	-
2	WBW	J	201	-	-	4/22/55/55	0/5/5/5
3	MPD	J	202	-	-	1/5/5/5	-
3	MPD	А	202	-	-	0/5/5/5	-
3	MPD	М	202	-	-	1/5/5/5	-
2	WBW	Н	201	-	-	4/22/55/55	0/5/5/5
3	MPD	Е	203	-	-	0/5/5/5	-
2	WBW	Е	202	-	-	1/22/55/55	0/5/5/5
3	MPD	D	202	-	-	0/5/5/5	-
2	WBW	Е	201	-	-	5/22/55/55	0/5/5/5
3	MPD	Н	202	-	-	0/5/5/5	-
3	MPD	L	202	-	-	0/5/5/5	-
3	MPD	F	201	-	-	0/5/5/5	-
3	MPD	N	202	-	-	0/5/5/5	-
3	MPD	G	202	-	-	0/5/5/5	-
2	WBW	А	201	-	-	4/22/55/55	0/5/5/5

All (132) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	М	201	WBW	C17-N3	-4.95	1.41	1.46
2	М	201	WBW	O1-C2	-4.07	1.15	1.23
2	А	201	WBW	C6-N7	-3.85	1.31	1.35
2	А	201	WBW	O1-C2	-3.70	1.16	1.23
2	J	201	WBW	O1-C2	-3.61	1.16	1.23
2	Ι	201	WBW	O1-C2	-3.60	1.16	1.23
2	J	201	WBW	C6-N7	-3.55	1.32	1.35
2	Ι	201	WBW	C21-C30	-3.43	1.34	1.41
2	J	201	WBW	C74-C30	-3.42	1.35	1.42
2	J	201	WBW	C21-C30	-3.38	1.34	1.41
2	В	201	WBW	C21-C30	-3.32	1.34	1.41
2	J	201	WBW	C30-C29	-3.30	1.37	1.43
2	Ι	201	WBW	C21-C22	-3.30	1.34	1.41
2	L	201	WBW	C23-C22	-3.26	1.35	1.42
2	Е	202	WBW	C74-C30	-3.25	1.35	1.42
2	G	201	WBW	O1-C2	-3.21	1.17	1.23
2	L	201	WBW	C21-C30	-3.17	1.35	1.41



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Mol	Chain	Res	Type	Atoms	Z	$\operatorname{Observed}(\operatorname{\AA})$	Ideal(Å)
2	Ι	201	WBW	C74-C30	-3.16	1.35	1.42
2	Ε	201	WBW	O1-C2	-3.16	1.17	1.23
2	G	201	WBW	C4-N3	-3.14	1.41	1.47
2	А	201	WBW	C30-C29	-3.11	1.37	1.43
2	В	201	WBW	C21-C22	-3.07	1.35	1.41
2	Ι	201	WBW	C23-C22	-3.04	1.36	1.42
2	С	201	WBW	O1-C2	-3.01	1.17	1.23
2	L	201	WBW	C30-C29	-3.01	1.37	1.43
2	С	201	WBW	C23-C22	-3.01	1.36	1.42
2	М	201	WBW	C30-C29	-2.99	1.37	1.43
2	D	201	WBW	O1-C2	-2.97	1.17	1.23
2	С	201	WBW	C30-C29	-2.96	1.37	1.43
2	А	201	WBW	C21-C30	-2.95	1.35	1.41
2	Ι	201	WBW	C4-N3	-2.95	1.41	1.47
2	В	201	WBW	C74-C30	-2.91	1.36	1.42
2	Ε	202	WBW	C30-C29	-2.88	1.37	1.43
2	Ε	202	WBW	C6-N7	-2.88	1.32	1.35
2	Ν	201	WBW	C8-N7	-2.88	1.42	1.47
2	Ε	201	WBW	C22-C27	-2.86	1.37	1.43
2	В	201	WBW	C71-C29	-2.85	1.35	1.41
2	Ε	202	WBW	O1-C2	-2.84	1.17	1.23
2	G	201	WBW	C23-C22	-2.82	1.36	1.42
2	В	201	WBW	C23-C22	-2.81	1.36	1.42
2	Ν	201	WBW	C74-C30	-2.80	1.36	1.42
2	J	201	WBW	C23-C22	-2.78	1.36	1.42
2	K	201	WBW	O1-C2	-2.76	1.18	1.23
2	Ν	201	WBW	C6-N7	-2.71	1.32	1.35
2	С	201	WBW	C21-C30	-2.71	1.36	1.41
2	В	201	WBW	O1-C2	-2.70	1.18	1.23
2	N	201	WBW	C21-C30	-2.70	1.36	1.41
2	K	201	WBW	C4-N3	-2.69	1.42	1.47
2	М	201	WBW	C74-C30	-2.68	1.36	1.42
2	Ι	201	WBW	C8-C31	-2.65	1.47	1.52
2	K	201	WBW	C23-C22	-2.65	1.36	1.42
2	L	201	WBW	O1-C2	-2.63	1.18	1.23
2	J	201	WBW	F41-C38	-2.62	1.23	1.33
2	В	201	WBW	C4-N3	-2.60	1.42	1.47
2	А	201	WBW	C74-C30	-2.60	1.36	1.42
2	K	201	WBW	C21-C30	-2.60	1.36	1.41
2	D	201	WBW	C22-C27	-2.59	1.38	1.43
2	D	201	WBW	C23-C22	-2.58	1.37	1.42
2	D	201	WBW	C74-C30	-2.57	1.37	1.42



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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	201	WBW	C6-N7	-2.57	1.32	1.35
2	Ε	201	WBW	C2-N3	-2.56	1.28	1.37
2	L	201	WBW	C22-C27	-2.55	1.38	1.43
2	Ν	201	WBW	C23-C22	-2.52	1.37	1.42
2	D	201	WBW	C8-C31	-2.52	1.47	1.52
2	Ι	201	WBW	O33-C6	-2.51	1.17	1.23
2	Ι	201	WBW	C30-C29	-2.51	1.38	1.43
2	J	201	WBW	C4-N3	-2.51	1.42	1.47
2	L	201	WBW	C31-N19	-2.50	1.29	1.35
2	Ε	202	WBW	C4-N3	-2.50	1.42	1.47
2	D	201	WBW	C2-N3	-2.49	1.29	1.37
2	А	201	WBW	C8-N7	-2.47	1.43	1.47
2	В	201	WBW	C30-C29	-2.46	1.38	1.43
2	Ε	202	WBW	C22-C27	-2.45	1.38	1.43
2	Ν	201	WBW	O1-C2	-2.45	1.18	1.23
2	М	201	WBW	C23-C22	-2.43	1.37	1.42
2	В	201	WBW	C8-C31	-2.41	1.47	1.52
2	М	201	WBW	C2-N3	-2.41	1.29	1.37
2	Ε	201	WBW	C30-C29	-2.37	1.38	1.43
2	L	201	WBW	C2-N3	-2.36	1.29	1.37
2	С	201	WBW	F41-C38	-2.36	1.24	1.33
2	Ι	201	WBW	F41-C38	-2.36	1.24	1.33
2	М	201	WBW	C4-N3	-2.36	1.42	1.47
2	В	201	WBW	C6-N7	-2.35	1.33	1.35
2	А	201	WBW	C4-N3	-2.34	1.42	1.47
2	М	201	WBW	C22-C27	-2.34	1.38	1.43
2	Ε	202	WBW	C8-C31	-2.32	1.47	1.52
2	А	201	WBW	C22-C27	-2.32	1.38	1.43
2	Ι	201	WBW	C22-C27	-2.31	1.38	1.43
2	Ε	201	WBW	C8-N7	-2.31	1.43	1.47
2	G	201	WBW	C30-C29	-2.31	1.38	1.43
2	D	201	WBW	C30-C29	-2.29	1.38	1.43
2	Ι	201	WBW	C71-C29	-2.28	1.36	1.41
2	Ε	202	WBW	C8-N7	-2.28	1.43	1.47
2	J	201	WBW	F42-C38	-2.27	1.24	1.33
2	Ν	201	WBW	C22-C27	-2.27	1.38	1.43
2	G	201	WBW	C74-C30	-2.26	1.37	1.42
2	C	201	WBW	C71-C29	-2.24	1.36	1.41
2	Ε	201	WBW	C23-C22	-2.23	1.37	1.42
2	D	201	WBW	C21-C22	-2.22	1.37	1.41
2	Ε	202	WBW	C17-N3	-2.21	1.44	1.46
2	С	201	WBW	C74-C30	-2.20	1.37	1.42



Mol	Chain	Res	Type	Atoms	Z	$\operatorname{Observed}(\operatorname{\AA})$	Ideal(Å)
2	М	201	WBW	C6-N7	-2.20	1.33	1.35
2	А	201	WBW	C2-N3	-2.20	1.30	1.37
2	В	201	WBW	O33-C6	-2.19	1.18	1.23
2	J	201	WBW	F40-C38	-2.19	1.24	1.33
2	С	201	WBW	C4-N3	-2.18	1.43	1.47
2	Ι	201	WBW	C26-C27	-2.16	1.36	1.41
2	С	201	WBW	C22-C27	-2.16	1.39	1.43
2	Κ	201	WBW	C2-N3	-2.16	1.30	1.37
2	Ν	201	WBW	C30-C29	-2.16	1.39	1.43
2	А	201	WBW	C17-N3	-2.15	1.44	1.46
2	Κ	201	WBW	C30-C29	-2.15	1.39	1.43
2	В	201	WBW	C22-C27	-2.12	1.39	1.43
2	Н	201	WBW	C22-C27	-2.11	1.39	1.43
2	J	201	WBW	C26-C27	-2.11	1.36	1.41
2	Ι	201	WBW	F42-C38	-2.11	1.25	1.33
2	Κ	201	WBW	C8-C31	-2.11	1.48	1.52
2	L	201	WBW	C21-C22	-2.10	1.37	1.41
2	N	201	WBW	C21-C22	-2.10	1.37	1.41
2	А	201	WBW	F42-C38	-2.10	1.25	1.33
2	N	201	WBW	C8-C31	-2.09	1.48	1.52
2	G	201	WBW	C21-C30	-2.09	1.37	1.41
2	Н	201	WBW	C30-C29	-2.08	1.39	1.43
2	Е	202	WBW	C23-C22	-2.08	1.38	1.42
2	А	201	WBW	C23-C22	-2.07	1.38	1.42
2	D	201	WBW	C21-C30	-2.06	1.37	1.41
2	Κ	201	WBW	C74-C30	-2.05	1.38	1.42
2	D	201	WBW	C4-N3	-2.05	1.43	1.47
2	Е	201	WBW	O33-C6	-2.04	1.18	1.23
2	J	201	WBW	C21-C22	-2.04	1.37	1.41
2	J	201	WBW	C71-C29	-2.04	1.37	1.41
2	L	201	WBW	C9-C8	-2.00	1.50	1.54

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All (190) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Ζ	$\mathbf{Observed}(^{o})$	$Ideal(^{o})$
2	N	201	WBW	C35-N34-C2	8.22	128.49	120.84
2	Е	202	WBW	C35-N34-C2	7.75	128.05	120.84
2	М	201	WBW	C35-N34-C2	5.83	126.26	120.84
2	Н	201	WBW	C35-N34-C2	5.72	126.16	120.84
2	Ι	201	WBW	C35-N34-C2	5.38	125.85	120.84
2	В	201	WBW	F42-C38-C37	-5.25	93.44	112.82
2	Ι	201	WBW	C29-C28-C27	-4.98	114.71	121.92



Mol	Chain	Res	Type	Atoms	Ζ	$Observed(^{o})$	$Ideal(^{o})$
2	А	201	WBW	C35-N34-C2	4.94	125.43	120.84
2	С	201	WBW	F41-C38-C37	-4.85	94.92	112.82
2	Ι	201	WBW	C23-C22-C21	-4.63	116.47	122.97
2	Ι	201	WBW	O32-C31-N19	4.50	127.81	122.49
2	М	201	WBW	C20-N19-C31	4.45	123.88	119.73
2	В	201	WBW	C23-C22-C21	-4.43	116.75	122.97
2	Ι	201	WBW	F42-C38-C37	-4.41	96.52	112.82
2	Κ	201	WBW	O32-C31-N19	4.26	127.52	122.49
2	М	201	WBW	O32-C31-N19	4.17	127.42	122.49
2	В	201	WBW	C29-C28-C27	-4.12	115.96	121.92
2	J	201	WBW	F42-C38-C37	-4.10	97.69	112.82
2	D	201	WBW	C35-N34-C2	4.07	124.62	120.84
2	В	201	WBW	C35-N34-C2	4.07	124.62	120.84
2	J	201	WBW	C74-C30-C21	-4.04	117.30	122.97
2	Κ	201	WBW	O32-C31-C8	-4.02	111.62	119.95
2	L	201	WBW	C36-C35-N34	-3.99	100.81	112.21
2	Ι	201	WBW	C74-C30-C21	-3.90	117.50	122.97
2	L	201	WBW	C74-C30-C21	-3.86	117.55	122.97
2	С	201	WBW	O32-C31-N19	3.86	127.05	122.49
2	L	201	WBW	C35-N34-C2	3.81	124.38	120.84
2	В	201	WBW	O32-C31-N19	3.76	126.93	122.49
2	С	201	WBW	C5-C4-N3	-3.75	99.27	111.61
2	М	201	WBW	O32-C31-C8	-3.69	112.29	119.95
2	Ι	201	WBW	O32-C31-C8	-3.66	112.36	119.95
2	Κ	201	WBW	C5-C4-N3	-3.56	99.88	111.61
2	М	201	WBW	C17-C18-N19	-3.56	106.49	111.02
2	В	201	WBW	C74-C30-C21	-3.55	117.99	122.97
2	Ν	201	WBW	O32-C31-N19	3.49	126.61	122.49
2	D	201	WBW	C23-C22-C21	-3.47	118.09	122.97
2	С	201	WBW	C35-N34-C2	3.43	124.03	120.84
2	С	201	WBW	F42-C38-F41	3.42	118.98	106.43
2	Е	201	WBW	C5-C4-N3	-3.42	100.36	111.61
2	Н	201	WBW	C5-C4-N3	-3.41	100.38	111.61
2	Е	202	WBW	C5-C4-N3	-3.40	100.41	111.61
2	В	201	WBW	F42-C38-F41	3.40	118.92	106.43
2	С	201	WBW	O32-C31-C8	-3.39	112.92	119.95
2	Ν	201	WBW	O32-C31-C8	-3.33	113.04	119.95
2	G	201	WBW	O32-C31-N19	3.32	126.41	122.49
2	А	201	WBW	O32-C31-C8	-3.30	113.10	119.95
2	D	201	WBW	C5-C4-N3	-3.27	100.84	111.61
2	Ι	201	WBW	C71-C29-C28	-3.26	116.66	122.00
2	G	201	WBW	C35-N34-C2	3.26	123.87	120.84



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Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
2	Ε	202	WBW	C23-C22-C21	-3.25	118.41	122.97
2	В	201	WBW	F42-C38-F40	3.24	118.35	106.43
2	Ι	201	WBW	C30-C21-C22	-3.23	115.31	120.01
2	С	201	WBW	C36-C35-N34	-3.21	103.04	112.21
2	В	201	WBW	C18-C17-N3	3.20	118.06	112.59
2	J	201	WBW	O32-C31-C8	-3.19	113.32	119.95
2	G	201	WBW	O32-C31-C8	-3.18	113.36	119.95
2	М	201	WBW	C23-C22-C21	-3.14	118.56	122.97
2	G	201	WBW	C5-C4-N3	-3.12	101.33	111.61
2	В	201	WBW	O32-C31-C8	-3.10	113.51	119.95
2	Ι	201	WBW	C5-C4-N3	-3.10	101.41	111.61
2	Н	201	WBW	C17-C18-N19	-3.07	107.11	111.02
2	L	201	WBW	C20-C21-C22	3.07	125.28	119.81
2	L	201	WBW	C74-C30-C29	3.05	121.83	117.89
2	Ε	201	WBW	C23-C22-C21	-3.05	118.69	122.97
2	Ν	201	WBW	C74-C30-C21	-3.04	118.70	122.97
2	М	201	WBW	C36-C35-N34	-3.04	103.53	112.21
2	М	201	WBW	C46-C9-C8	3.04	117.28	110.46
2	G	201	WBW	C23-C22-C21	-3.03	118.72	122.97
2	Ι	201	WBW	F42-C38-F40	3.01	117.48	106.43
2	А	201	WBW	O32-C31-N19	3.00	126.03	122.49
2	Ι	201	WBW	C20-N19-C31	3.00	122.52	119.73
2	В	201	WBW	C9-C8-C31	-2.99	104.61	110.81
2	Ι	201	WBW	C18-C17-N3	2.98	117.70	112.59
2	Ε	202	WBW	C17-C18-N19	-2.97	107.24	111.02
2	Ι	201	WBW	C9-C8-C31	-2.92	104.76	110.81
2	Ι	201	WBW	C21-C22-C27	2.92	123.10	119.48
2	А	201	WBW	C5-C4-N3	-2.91	102.01	111.61
2	А	201	WBW	C36-C35-N34	-2.91	103.90	112.21
2	М	201	WBW	C9-C8-C31	-2.91	104.79	110.81
2	D	201	WBW	C36-C35-N34	-2.89	103.96	112.21
2	J	201	WBW	C5-C4-N3	-2.88	102.12	111.61
2	С	201	WBW	F42-C38-F40	2.88	117.00	106.43
2	Κ	201	WBW	C36-C35-N34	-2.87	103.99	112.21
2	J	201	WBW	F42-C38-F41	2.85	116.92	106.43
2	Κ	201	WBW	C29-C28-C27	-2.84	117.81	121.92
2	В	201	WBW	C5-C4-N3	-2.81	102.37	111.61
2	D	201	WBW	O32-C31-C8	-2.80	114.15	119.95
2	Е	201	WBW	C35-N34-C2	2.80	123.44	120.84
2	L	201	WBW	C5-C4-N3	-2.78	102.46	111.61
2	Ι	201	WBW	C21-C30-C29	2.77	122.91	119.48
2	В	201	WBW	C28-C29-C30	2.77	122.22	119.26



Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
2	Ι	201	WBW	C28-C29-C30	2.76	122.22	119.26
2	С	201	WBW	O1-C2-N34	-2.75	116.16	123.53
2	G	201	WBW	C36-C35-N34	-2.74	104.37	112.21
2	G	201	WBW	C9-C8-C31	-2.73	105.15	110.81
2	Ι	201	WBW	F42-C38-F41	2.73	116.45	106.43
2	М	201	WBW	C29-C28-C27	-2.72	117.98	121.92
2	А	201	WBW	C29-C28-C27	-2.71	118.00	121.92
2	Κ	201	WBW	C74-C30-C21	-2.70	119.18	122.97
2	С	201	WBW	F40-C38-C37	-2.70	102.85	112.82
2	D	201	WBW	C17-C18-N19	-2.69	107.59	111.02
2	Е	201	WBW	C29-C28-C27	-2.69	118.03	121.92
2	J	201	WBW	F42-C38-F40	2.66	116.21	106.43
2	В	201	WBW	F41-C38-C37	-2.65	103.01	112.82
2	D	201	WBW	O32-C31-N19	2.65	125.62	122.49
2	L	201	WBW	C46-C9-C10	-2.65	105.08	111.78
2	J	201	WBW	C23-C22-C21	-2.63	119.27	122.97
2	G	201	WBW	C74-C30-C21	-2.63	119.27	122.97
2	С	201	WBW	C29-C28-C27	-2.63	118.12	121.92
2	D	201	WBW	C37-C36-C35	-2.62	107.90	112.46
2	Ν	201	WBW	C29-C28-C27	-2.61	118.14	121.92
2	Ν	201	WBW	C37-C36-C35	-2.61	107.92	112.46
2	А	201	WBW	C74-C30-C21	-2.61	119.31	122.97
2	J	201	WBW	C29-C28-C27	-2.60	118.15	121.92
2	D	201	WBW	C29-C28-C27	-2.59	118.17	121.92
2	Ν	201	WBW	C23-C22-C21	-2.58	119.35	122.97
2	J	201	WBW	O32-C31-N19	2.57	125.53	122.49
2	G	201	WBW	C71-C29-C28	-2.55	117.81	122.00
2	Ε	202	WBW	C74-C30-C21	-2.55	119.39	122.97
2	J	201	WBW	C46-C9-C8	2.53	116.15	110.46
2	Ε	202	WBW	O32-C31-C8	-2.52	114.72	119.95
2	Ι	201	WBW	F41-C38-C37	-2.51	103.53	112.82
2	М	201	WBW	C5-C4-N3	-2.50	103.36	111.61
2	K	201	WBW	C20-N19-C31	2.50	122.06	119.73
2	С	201	WBW	C9-C8-C31	-2.49	105.65	110.81
2	Ι	201	WBW	C20-C21-C30	2.46	124.20	119.81
2	L	201	WBW	$C29-C28-C2\overline{7}$	-2.46	118.36	121.92
2	G	201	WBW	C26-C27-C28	-2.45	117.99	122.00
2	K	201	WBW	C23-C22-C21	-2.45	119.54	122.97
2	G	201	WBW	C29-C28-C27	-2.42	118.42	121.92
2	L	201	WBW	C20-C21-C30	-2.42	115.51	119.81
2	В	201	WBW	C46-C9-C8	2.41	115.87	110.46
2	L	201	WBW	C37-C36-C35	-2.40	108.28	112.46

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Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
2	J	201	WBW	F41-C38-C37	-2.40	103.94	112.82
2	J	201	WBW	C35-N34-C2	2.40	123.07	120.84
2	Е	202	WBW	C29-C28-C27	-2.40	118.45	121.92
2	В	201	WBW	C23-C22-C27	2.39	120.98	117.89
2	В	201	WBW	C71-C29-C28	-2.38	118.10	122.00
2	J	201	WBW	C21-C30-C29	2.38	122.42	119.48
2	В	201	WBW	C46-C9-C10	-2.38	105.77	111.78
2	М	201	WBW	O1-C2-N34	-2.37	117.19	123.53
2	N	201	WBW	C46-C9-C8	2.37	115.78	110.46
2	Н	201	WBW	C74-C30-C21	-2.36	119.65	122.97
2	Е	201	WBW	C71-C29-C28	-2.35	118.14	122.00
2	J	201	WBW	C9-C8-N7	2.33	115.68	111.76
2	Ι	201	WBW	C28-C27-C22	2.33	121.75	119.26
2	G	201	WBW	F41-C38-C37	-2.29	104.34	112.82
2	J	201	WBW	C17-C18-N19	-2.29	108.11	111.02
2	Е	202	WBW	C36-C35-N34	-2.29	105.67	112.21
2	K	201	WBW	C46-C9-C10	-2.28	106.00	111.78
2	N	201	WBW	C46-C9-C10	-2.27	106.02	111.78
2	Ι	201	WBW	F40-C38-C37	-2.27	104.43	112.82
2	Ι	201	WBW	C10-C9-C8	2.27	115.71	111.48
2	М	201	WBW	C71-C29-C28	-2.24	118.33	122.00
2	В	201	WBW	C21-C22-C27	2.24	122.26	119.48
2	М	201	WBW	C9-C8-N7	2.23	115.52	111.76
2	С	201	WBW	C46-C9-C8	2.23	115.47	110.46
2	D	201	WBW	C74-C30-C21	-2.23	119.84	122.97
2	М	201	WBW	C26-C27-C28	-2.22	118.36	122.00
2	Ε	201	WBW	C26-C27-C28	-2.22	118.37	122.00
2	А	201	WBW	C20-N19-C31	2.21	121.79	119.73
2	С	201	WBW	F42-C38-C37	-2.21	104.66	112.82
2	Ι	201	WBW	F40-C38-F41	2.19	114.50	106.43
2	L	201	WBW	C23-C22-C21	-2.18	119.91	122.97
2	М	201	WBW	F41-C38-C37	-2.18	104.76	112.82
2	В	201	WBW	C17-C18-N19	-2.17	108.25	111.02
2	А	201	WBW	C23-C22-C21	-2.17	119.92	122.97
2	L	201	WBW	C20-N19-C31	-2.16	117.72	119.73
2	A	201	WBW	C17-C18-N19	-2.16	108.27	111.02
2	С	201	WBW	C23-C22-C21	-2.15	119.95	122.97
2	В	201	WBW	C30-C21-C22	-2.15	116.89	120.01
2	С	201	WBW	C20-N19-C31	2.14	121.72	119.73
2	В	201	WBW	F40-C38-C37	-2.14	104.92	112.82
2	L	201	WBW	C9-C8-N7	-2.13	108.18	111.76
2	D	201	WBW	C21-C22-C27	2.13	122.12	119.48

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Mol	Chain	\mathbf{Res}	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
2	Ν	201	WBW	C17-C18-N19	-2.11	108.34	111.02
2	М	201	WBW	C20-N19-C18	-2.10	112.15	115.69
2	J	201	WBW	C71-C29-C28	-2.10	118.56	122.00
2	М	201	WBW	C30-C21-C22	-2.08	116.99	120.01
2	L	201	WBW	C46-C9-C8	-2.07	105.80	110.46
2	L	201	WBW	C20-N19-C18	2.07	119.16	115.69
2	Е	202	WBW	C26-C27-C28	-2.05	118.64	122.00
2	J	201	WBW	C30-C21-C22	-2.04	117.04	120.01
2	С	201	WBW	C74-C30-C21	-2.04	120.11	122.97
2	Е	202	WBW	C71-C29-C28	-2.04	118.66	122.00
2	В	201	WBW	C74-C30-C29	2.01	120.49	117.89
2	Е	201	WBW	C28-C29-C30	2.01	121.41	119.26
2	Н	201	WBW	C23-C22-C21	-2.01	120.15	122.97
2	Н	201	WBW	C36-C35-N34	-2.01	106.47	112.21
2	Ι	201	WBW	O1-C2-N34	-2.00	118.17	123.53

There are no chirality outliers.

Mol	Chain	Res	Type	Atoms
2	L	201	WBW	N7-C8-C9-C10
2	Н	201	WBW	N34-C35-C36-C37
2	J	201	WBW	N34-C35-C36-C37
2	В	201	WBW	N34-C35-C36-C37
2	Ν	201	WBW	C36-C35-N34-C2
2	L	201	WBW	C11-C10-C9-C46
2	L	201	WBW	С11-С10-С9-С8
2	А	201	WBW	C36-C37-C38-F42
2	Н	201	WBW	C36-C37-C38-F42
2	J	201	WBW	C36-C37-C38-F40
2	J	201	WBW	C36-C37-C38-F42
2	Ι	201	WBW	N34-C35-C36-C37
2	N	201	WBW	С11-С10-С9-С8
2	Е	202	WBW	C36-C35-N34-C2
2	А	201	WBW	C36-C37-C38-F41
2	Н	201	WBW	C36-C37-C38-F41
2	J	201	WBW	C36-C37-C38-F41
2	Е	201	WBW	C11-C10-C9-C46
3	J	202	MPD	O2-C2-C3-C4
3	М	202	MPD	O2-C2-C3-C4
2	L	201	WBW	C31-C8-C9-C46
2	Ν	201	WBW	C11-C10-C9-C46

All (33) torsion outliers are listed below:



Mol	Chain	Res	Type	Atoms
2	Н	201	WBW	C36-C37-C38-F40
2	Е	201	WBW	C31-C8-C9-C10
2	Ε	201	WBW	N7-C8-C9-C10
2	Е	201	WBW	N7-C8-C9-C46
2	D	201	WBW	С11-С10-С9-С8
2	А	201	WBW	N34-C35-C36-C37
2	А	201	WBW	C36-C37-C38-F40
2	D	201	WBW	C11-C10-C9-C46
2	В	201	WBW	С11-С10-С9-С8
2	В	201	WBW	C36-C37-C38-F42
2	Е	201	WBW	C36-C35-N34-C2

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There are no ring outliers.

6 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	В	201	WBW	2	0
2	L	201	WBW	2	0
2	N	201	WBW	1	0
2	М	201	WBW	1	0
2	K	201	WBW	1	0
3	Е	203	MPD	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

























































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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	$\langle RSRZ \rangle$	# RSRZ > 2	$OWAB(Å^2)$	Q<0.9
1	А	186/195~(95%)	0.16	11 (5%) 29 28	10, 21, 40, 56	3 (1%)
1	В	186/195~(95%)	0.11	7 (3%) 44 44	16, 22, 35, 49	1 (0%)
1	С	187/195~(95%)	0.44	13 (6%) 24 22	16, 25, 39, 53	1 (0%)
1	D	184/195~(94%)	0.82	15 (8%) 19 17	25, 31, 42, 54	0
1	Ε	181/195~(92%)	0.99	16 (8%) 17 15	26, 33, 44, 51	0
1	F	184/195~(94%)	0.58	14 (7%) 21 19	13, 29, 47, 52	1 (0%)
1	G	185/195~(94%)	0.27	13 (7%) 24 22	12, 23, 43, 54	1 (0%)
1	Н	184/195~(94%)	0.14	11 (5%) 29 27	9, 21, 37, 52	2(1%)
1	Ι	187/195~(95%)	0.07	9 (4%) 36 35	13, 20, 35, 49	1 (0%)
1	J	184/195~(94%)	0.26	5 (2%) 56 55	19, 24, 35, 48	0
1	K	183/195~(93%)	0.76	12 (6%) 26 24	18, 31, 40, 49	1 (0%)
1	L	184/195~(94%)	0.99	22 (11%) 10 9	20, 33, 46, 57	1 (0%)
1	М	182/195~(93%)	0.64	7 (3%) 44 44	22, 31, 43, 49	0
1	Ν	182/195~(93%)	0.31	9 (4%) 36 34	12, 24, 39, 50	2 (1%)
All	All	2579/2730~(94%)	0.46	164 (6%) 27 25	9, 26, 42, 57	14 (0%)

All (164) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	Κ	3	LEU	6.1
1	Н	3	LEU	5.1
1	С	10	THR	4.9
1	G	17	ALA	4.7
1	G	18	TYR	4.7
1	Κ	18	TYR	4.5
1	Е	18	TYR	4.4
1	А	8	ILE	4.3



Mol	Chain	Res	Type	RSRZ
1	С	17	ALA	4.2
1	Ν	17	ALA	4.2
1	А	194	THR	4.1
1	D	3	LEU	4.1
1	D	193	GLU	4.1
1	В	3	LEU	4.0
1	В	193	GLU	4.0
1	М	18	TYR	4.0
1	Н	17	ALA	4.0
1	С	3	LEU	4.0
1	Е	17	ALA	3.9
1	F	17	ALA	3.9
1	F	3	LEU	3.9
1	F	8	ILE	3.9
1	N	18	TYR	3.9
1	L	18	TYR	3.8
1	Ι	10	THR	3.8
1	В	15	GLU	3.8
1	Е	192	PRO	3.8
1	М	8	ILE	3.8
1	С	109	LYS	3.8
1	G	7	VAL	3.8
1	А	3	LEU	3.7
1	G	3	LEU	3.7
1	М	17	ALA	3.7
1	Ι	3	LEU	3.6
1	М	3	LEU	3.6
1	А	16	ARG	3.6
1	N	8	ILE	3.6
1	L	8	ILE	3.5
1	N	193	GLU	3.5
1	L	16	ARG	3.5
1	K	8	ILE	3.5
1	А	193	GLU	3.5
1	D	18	TYR	3.5
1	С	9	GLU	3.5
1	G	192	PRO	3.4
1	J	128	GLY	3.5
1	Е	8	ILE	3.4
1	F	7	VAL	3.4
1	L	192	PRO	3.4
1	F	193	GLU	3.4



Mol	Chain	Res	Type	RSRZ	
1	С	18	TYR	3.4	
1	L	189	VAL	3.3	
1	J	18	TYR	3.3	
1	М	192	PRO	3.3	
1	F	18	TYR	3.3	
1	Ν	192	PRO	3.2	
1	Е	4	ILE	3.2	
1	L	15	GLU	3.2	
1	Κ	17	ALA	3.2	
1	L	3	LEU	3.1	
1	С	15	GLU	3.1	
1	L	110	GLY	3.1	
1	С	193	GLU	3.0	
1	G	9	GLU	3.0	
1	С	8	ILE	3.0	
1	Н	8	ILE	3.0	
1	Е	189	VAL	3.0	
1	D	189	VAL	2.9	
1	D	17	ALA	2.9	
1	F	191	VAL	2.9	
1	Н	16	ARG	2.9	
1	D	8	ILE	2.8	
1	G	16	ARG	2.8	
1	Ι	193	GLU	2.8	
1	Н	9	GLU	2.8	
1	J	8	ILE	2.8	
1	В	192	PRO	2.7	
1	N	191	VAL	2.7	
1	L	17	ALA	2.7	
1	G	8	ILE	2.7	
1	Κ	52	GLN	2.7	
1	L	57	GLU	2.7	
1	A	17	ALA	2.7	
1	D	182	GLU	2.7	
1	A	18	TYR	2.6	
1	D	7	VAL	2.6	
1	Е	190	MET	2.6	
1	Н	192	PRO	2.6	
1	Ι	15	GLU	2.6	
1	Е	158	THR	2.6	
1	Е	191	VAL	2.6	
1	С	192	PRO	2.6	



Mol	Chain	Res	Type	RSRZ
1	А	4	ILE	2.6
1	D	9	GLU	2.6
1	L	85	LYS	2.5
1	Н	18	TYR	2.5
1	K	192	PRO	2.5
1	Н	4	ILE	2.5
1	J	9	GLU	2.5
1	F	16	ARG	2.5
1	F	192	PRO	2.5
1	L	4	ILE	2.5
1	Е	110	GLY	2.5
1	С	57	GLU	2.5
1	В	8	ILE	2.5
1	D	6	THR	2.5
1	L	167	LYS	2.4
1	Ι	128	GLY	2.4
1	F	4	ILE	2.4
1	С	7	VAL	2.4
1	Е	159	GLY	2.4
1	G	191	VAL	2.4
1	L	109	LYS	2.3
1	Ν	4	ILE	2.3
1	Е	114	ALA	2.3
1	Н	7	VAL	2.3
1	Ι	18	TYR	2.3
1	В	9	GLU	2.3
1	Ι	8	ILE	2.3
1	А	9	GLU	2.3
1	K	56	SER	2.3
1	D	154	LEU	2.3
1	D	157	ARG	2.2
1	F	91	ILE	2.2
1	G	6	THR	2.2
1	K	53	ALA	2.2
1	L	184	GLY	2.2
1	L	130	GLN	2.2
1	Е	156	GLU	2.2
1	N	57	GLU	2.2
1	F	6	THR	2.2
1	Е	157	ARG	2.2
1	G	189	VAL	2.2
1	K	98	SER	2.2



Mol	Chain	Res	Type	RSRZ
1	D	49	LEU	2.2
1	D	190	MET	2.2
1	М	182	GLU	2.2
1	Е	155	SER	2.2
1	G	98	SER	2.1
1	С	191	VAL	2.1
1	J	191	VAL	2.1
1	М	4	ILE	2.1
1	K	190	MET	2.1
1	L	157	ARG	2.1
1	Е	186	ILE	2.1
1	G	4	ILE	2.1
1	Н	54	GLN	2.1
1	K	16	ARG	2.1
1	В	191	VAL	2.1
1	F	189	VAL	2.1
1	Ι	9	GLU	2.1
1	F	128	GLY	2.1
1	D	191	VAL	2.0
1	L	7	VAL	2.0
1	Ι	17	ALA	2.0
1	L	87	ASP	2.0
1	А	191	VAL	2.0
1	Н	182	GLU	2.0
1	Κ	189	VAL	2.0
1	L	53	ALA	2.0
1	L	120	VAL	2.0
1	L	191	VAL	2.0
1	N	7	VAL	2.0
1	A	190	MET	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.



6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	$B-factors(A^2)$	Q<0.9
3	MPD	М	202	8/8	0.70	0.26	40,40,41,41	0
3	MPD	J	202	8/8	0.74	0.24	36,36,36,37	0
3	MPD	Ι	203	8/8	0.82	0.16	38,39,39,39	0
3	MPD	В	203	8/8	0.84	0.16	40,40,40,40	0
2	WBW	D	201	41/41	0.84	0.14	43,47,48,48	0
2	WBW	Е	201	41/41	0.84	0.15	52,52,53,53	0
2	WBW	K	201	41/41	0.84	0.15	44,47,48,48	0
2	WBW	Е	202	41/41	0.85	0.13	48,49,51,51	0
2	WBW	М	201	41/41	0.85	0.15	$50,\!51,\!53,\!54$	0
2	WBW	Н	201	41/41	0.85	0.13	37,41,42,43	0
2	WBW	N	201	41/41	0.86	0.13	43,46,47,48	0
2	WBW	J	201	41/41	0.87	0.12	35,37,38,39	0
2	WBW	В	201	41/41	0.87	0.12	33,35,38,39	0
3	MPD	K	202	8/8	0.87	0.19	40,40,40,40	0
2	WBW	L	201	41/41	0.87	0.14	51,52,55,56	0
2	WBW	А	201	41/41	0.88	0.12	36,38,40,40	0
3	MPD	F	201	8/8	0.88	0.15	34,35,35,35	0
2	WBW	Ι	201	41/41	0.89	0.11	31,32,35,36	0
2	WBW	G	201	41/41	0.89	0.11	38,41,42,43	0
3	MPD	L	202	8/8	0.89	0.14	39,40,40,40	0
2	WBW	С	201	41/41	0.89	0.11	33,38,38,39	0
3	MPD	D	202	8/8	0.91	0.13	34,34,35,35	0
3	MPD	Е	203	8/8	0.91	0.13	37,37,37,37	0
3	MPD	N	202	8/8	0.91	0.11	$27,\!27,\!28,\!28$	0
3	MPD	С	202	8/8	0.92	0.11	30,30,30,30	0
3	MPD	В	202	8/8	0.93	0.10	26,26,26,26	0
3	MPD	Ι	202	8/8	0.93	0.10	26,26,26,26	0
3	MPD	Н	202	8/8	0.94	0.10	28,28,28,29	0
3	MPD	A	202	8/8	0.94	0.13	33,33,33,34	0
3	MPD	G	202	8/8	0.95	0.09	29,29,29,29	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.





















































6.5 Other polymers (i)

There are no such residues in this entry.

