



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 28, 2023 – 12:22 pm GMT

PDB ID : 8BCE  
Title : Human Brr2 Helicase Region in complex with C-tail deleted Jab1 and compound 76  
Authors : Vester, K.; Loll, B.; Wahl, M.C.  
Deposited on : 2022-10-15  
Resolution : 2.05 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](mailto: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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.32.1  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.32.1

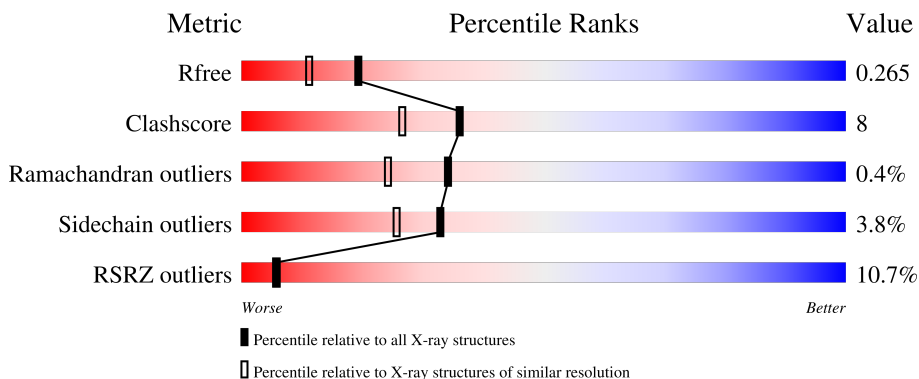
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.05 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))
$R_{free}$	130704	1692 (2.04-2.04)
Clashscore	141614	1773 (2.04-2.04)
Ramachandran outliers	138981	1752 (2.04-2.04)
Sidechain outliers	138945	1752 (2.04-2.04)
RSRZ outliers	127900	1672 (2.04-2.04)

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  $\geq 3$ , 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	B	1747	
2	J	263	

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	5811	-	-	X	-

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 16532 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 U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	B	1719	13822	8833	2366	2551	72	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	390	GLY	-	expression tag	UNP O75643
B	391	ALA	-	expression tag	UNP O75643
B	392	GLU	-	expression tag	UNP O75643
B	393	PHE	-	expression tag	UNP O75643

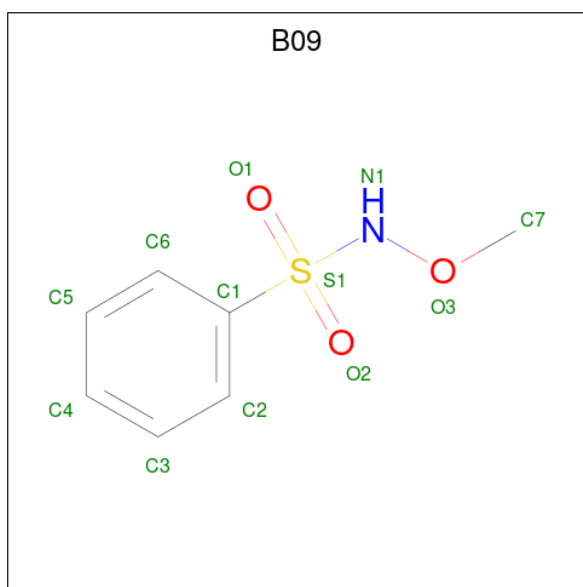
- Molecule 2 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	J	263	2123	1358	365	388	12	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	2058	GLY	-	expression tag	UNP Q6P2Q9
J	2059	PRO	-	expression tag	UNP Q6P2Q9
J	2060	LEU	-	expression tag	UNP Q6P2Q9
J	2061	GLY	-	expression tag	UNP Q6P2Q9
J	2062	SER	-	expression tag	UNP Q6P2Q9
J	2063	MET	-	expression tag	UNP Q6P2Q9

- Molecule 3 is N-methoxybenzenesulfonamide (three-letter code: B09) (formula: C<sub>7</sub>H<sub>9</sub>NO<sub>3</sub>S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
3	B	1	12	7	1	3	1	0	0

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



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

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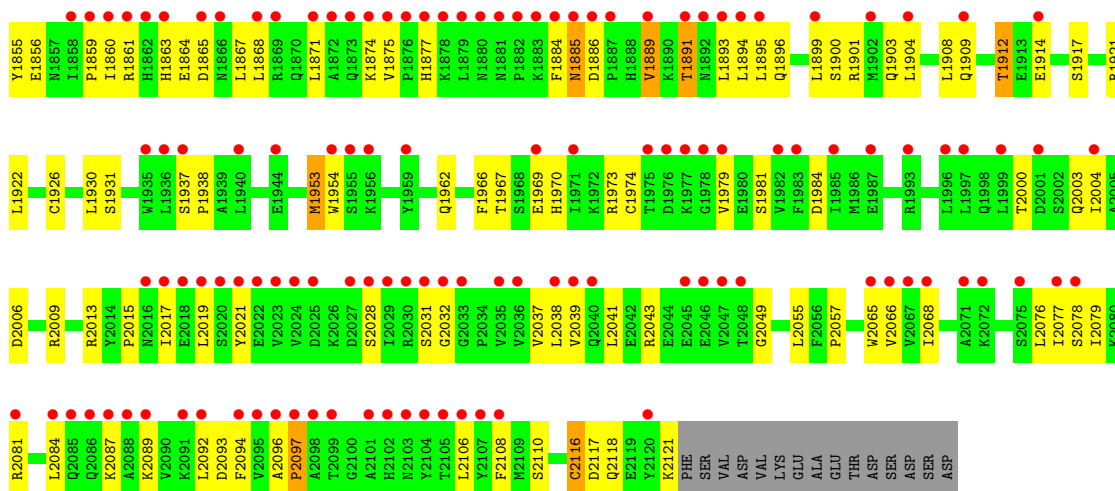
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0
4	B	1	Total C O 4 2 2	0	0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

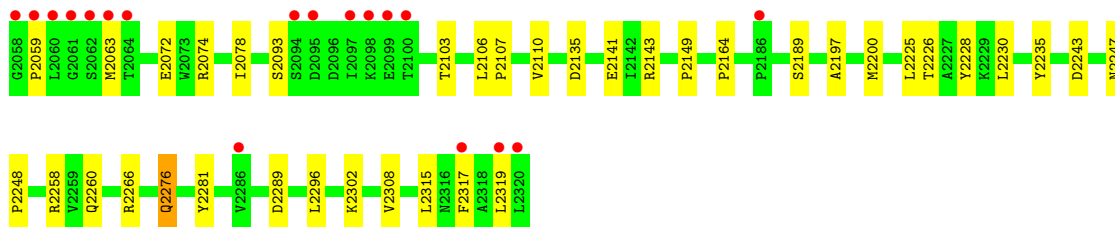
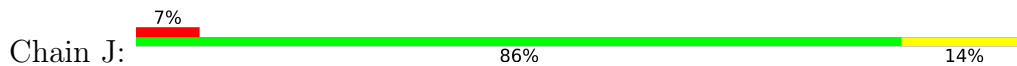
- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	449	Total O 449 449	0	2
5	J	78	Total O 78 78	0	0





● Molecule 2: Pre-mRNA-processing-splicing factor 8





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	100.05Å 119.05Å 188.04Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.51 – 2.05 48.51 – 2.05	Depositor EDS
% Data completeness (in resolution range)	99.0 (48.51-2.05) 99.0 (48.51-2.05)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.02 (at 2.05Å)	Xtrriage
Refinement program	PHENIX 1.20_4459	Depositor
R, $R_{free}$	0.220 , 0.267 0.220 , 0.265	Depositor DCC
$R_{free}$ test set	2096 reflections (1.50%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	39.8	Xtrriage
Anisotropy	0.213	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 45.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	16532	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	63.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.70% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: B09, EDO

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	B	0.46	0/14115	0.64	0/19125
2	J	0.51	0/2190	0.63	0/2981
All	All	0.47	0/16305	0.64	0/22106

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

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	B	13822	0	13969	238	0
2	J	2123	0	2063	21	0
3	B	12	0	9	0	0
4	B	44	0	66	7	0
4	J	4	0	6	0	0
5	B	449	0	0	11	0
5	J	78	0	0	2	0
All	All	16532	0	16113	256	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 8.

All (256) 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)
2:J:2276:GLN:OE1	5:J:2501:HOH:O	1.94	0.86
1:B:1861:ARG:HH21	1:B:1863:HIS:HB2	1.43	0.82
1:B:763:ARG:HH21	1:B:767:GLU:HG3	1.44	0.81
2:J:2200:MET:HE1	2:J:2230:LEU:HD12	1.63	0.80
1:B:993:ILE:HD12	1:B:1091:LEU:HD23	1.64	0.80
1:B:1860:ILE:HD12	1:B:1861:ARG:HG2	1.66	0.76
1:B:421:HIS:NE2	1:B:875:GLU:OE1	2.19	0.76
1:B:1296:PRO:HG2	1:B:1498:LYS:HE3	1.67	0.75
1:B:1707:GLN:HG2	4:B:5802:EDO:H21	1.69	0.75
2:J:2103:THR:HG23	2:J:2260:GLN:HG2	1.69	0.74
1:B:2043:ARG:NH2	1:B:2084:LEU:O	2.19	0.74
1:B:2006:ASP:OD1	1:B:2009:ARG:NH1	2.19	0.72
1:B:1843:ARG:HD2	1:B:1877:HIS:HA	1.71	0.72
1:B:739:ARG:NH1	1:B:740:ASP:OD1	2.23	0.72
1:B:771:ASN:HB3	1:B:774:LEU:HB2	1.70	0.72
1:B:572:ASP:OD2	1:B:1274:ARG:NH1	2.26	0.69
2:J:2093:SER:OG	2:J:2226:THR:HG22	1.95	0.67
1:B:2000:THR:HB	1:B:2003:GLN:HG3	1.77	0.67
1:B:2032:GLY:N	1:B:2096:ALA:O	2.27	0.66
1:B:1142:LYS:NZ	1:B:1167:MET:SD	2.69	0.66
1:B:654:THR:HG21	1:B:676:PHE:O	1.94	0.66
1:B:2015:PRO:HG2	1:B:2116:CYS:SG	2.35	0.66
2:J:2141:GLU:OE2	2:J:2266:ARG:NH2	2.28	0.66
1:B:1271:VAL:HG22	1:B:1279:GLU:HG3	1.78	0.65
2:J:2200:MET:HE3	2:J:2235:TYR:HD1	1.62	0.65
1:B:1298:PRO:HB3	1:B:1515:HIS:CG	2.32	0.65
1:B:1914:GLU:O	1:B:1917:SER:HB2	1.95	0.65
1:B:698:ILE:HD12	1:B:698:ILE:H	1.61	0.64
1:B:2038:LEU:HD21	1:B:2089:LYS:HG3	1.79	0.64
1:B:1594:GLU:OE1	1:B:1594:GLU:N	2.23	0.63
1:B:1158:HIS:HD2	1:B:1172:LYS:HA	1.63	0.62
1:B:436:ARG:HG3	1:B:445:VAL:HG22	1.81	0.62
1:B:1475:ARG:HD2	1:B:1504:LEU:HA	1.79	0.62
1:B:748:LEU:HD11	1:B:780:TYR:HB3	1.82	0.62
1:B:1514:PHE:HB3	1:B:1518:VAL:HG21	1.81	0.62
1:B:1195:ARG:H	4:B:5811:EDO:H12	1.65	0.61
1:B:2078:SER:OG	1:B:2093:ASP:O	2.17	0.61
2:J:2141:GLU:OE1	2:J:2143:ARG:NH2	2.32	0.61
1:B:789:MET:O	1:B:794:ARG:NH2	2.34	0.61
1:B:2078:SER:HB3	1:B:2092:LEU:HD22	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1130:ARG:HG3	1:B:1140:VAL:HG11	1.81	0.60
1:B:1351:PRO:HG3	1:B:1516:PRO:HA	1.82	0.60
1:B:1620:LEU:HD22	1:B:1629:ARG:HG2	1.82	0.60
1:B:1443:LYS:H	1:B:1443:LYS:HD2	1.67	0.60
1:B:1524:GLU:OE1	5:B:5901:HOH:O	2.16	0.59
1:B:1547:TYR:OH	1:B:1588:ARG:NH2	2.35	0.59
1:B:774:LEU:O	1:B:778:LEU:HB2	2.02	0.59
1:B:962:LEU:HD21	1:B:974:LYS:HE3	1.84	0.59
1:B:570:THR:HG22	1:B:572:ASP:H	1.67	0.59
1:B:1903:GLN:NE2	1:B:1904:LEU:O	2.27	0.58
1:B:660:ASP:OD1	1:B:931:ARG:HD3	2.03	0.57
1:B:1113:ASN:O	1:B:1117:MET:HG3	2.03	0.57
1:B:1891:THR:HA	1:B:1894:LEU:HB3	1.85	0.57
1:B:811:SER:OG	1:B:812:THR:N	2.38	0.57
1:B:1861:ARG:CZ	1:B:1864:GLU:HG2	2.35	0.57
1:B:2019:LEU:HD23	1:B:2019:LEU:H	1.69	0.57
1:B:984:LEU:HD23	5:B:6268:HOH:O	2.05	0.56
1:B:1049:LYS:O	1:B:1049:LYS:HD3	2.05	0.56
2:J:2106:LEU:HD12	2:J:2107:PRO:HD2	1.86	0.56
1:B:1498:LYS:HE2	1:B:1498:LYS:H	1.71	0.55
1:B:812:THR:OG1	1:B:813:ALA:N	2.39	0.55
1:B:1886:ASP:HB2	1:B:1889:VAL:HB	1.88	0.55
1:B:1294:LYS:HA	4:B:5811:EDO:H21	1.88	0.55
1:B:1498:LYS:H	1:B:1498:LYS:CE	2.20	0.55
1:B:2006:ASP:HA	1:B:2009:ARG:NH1	2.23	0.54
1:B:894:VAL:HG22	5:B:6034:HOH:O	2.07	0.54
1:B:1501:ALA:HB1	1:B:1506:CYS:HB2	1.89	0.54
1:B:1456:VAL:HG12	1:B:1491:SER:HB2	1.89	0.54
1:B:1236:HIS:ND1	5:B:5905:HOH:O	2.34	0.54
1:B:1867:LEU:O	1:B:1871:LEU:HG	2.08	0.54
1:B:2019:LEU:HD22	1:B:2118:GLN:HE22	1.73	0.54
1:B:1974:CYS:HB3	1:B:1979:VAL:HG23	1.90	0.54
1:B:2021:TYR:OH	1:B:2121:LYS:O	2.27	0.53
1:B:973:ASP:OD1	1:B:975:LYS:HG2	2.09	0.53
1:B:1908:LEU:H	1:B:1908:LEU:HD22	1.73	0.53
2:J:2266:ARG:NE	5:J:2502:HOH:O	2.39	0.53
1:B:1865:ASP:OD1	1:B:1884:PHE:HB3	2.08	0.53
1:B:418:GLN:NE2	5:B:5915:HOH:O	2.41	0.53
1:B:2068:ILE:HG22	1:B:2092:LEU:HD13	1.90	0.53
1:B:1581:ALA:HA	1:B:1586:ARG:HG2	1.90	0.53
1:B:709:TYR:OH	1:B:745:LYS:HD3	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2066:VAL:HG12	1:B:2092:LEU:HD11	1.92	0.52
1:B:822:PRO:HG2	1:B:858:ARG:HG2	1.90	0.52
1:B:1953:MET:SD	1:B:1962:GLN:HG3	2.50	0.52
1:B:748:LEU:HD21	1:B:780:TYR:HD1	1.75	0.52
1:B:1648:ARG:HG3	1:B:1649:SER:N	2.23	0.52
1:B:858:ARG:HE	1:B:861:TYR:HD2	1.58	0.52
1:B:1442:ARG:HA	1:B:1442:ARG:HH11	1.75	0.51
1:B:1871:LEU:O	1:B:1875:VAL:HG13	2.11	0.51
1:B:1846:ILE:HG23	1:B:1895:LEU:HD12	1.93	0.51
1:B:1224:LEU:HD23	1:B:1236:HIS:HB2	1.91	0.51
1:B:1107:LEU:O	1:B:1111:THR:HG23	2.09	0.51
1:B:1066:PHE:CG	1:B:1085:THR:HG21	2.46	0.51
1:B:1313:ARG:NH1	5:B:5919:HOH:O	2.44	0.51
1:B:1822:TYR:O	1:B:1921:ARG:HD2	2.10	0.51
1:B:1967:THR:HG22	1:B:1970:HIS:CE1	2.46	0.51
1:B:1804:ILE:HG12	1:B:1810:VAL:HG12	1.93	0.50
1:B:2068:ILE:O	1:B:2077:ILE:HG13	2.11	0.50
1:B:485:GLN:HE21	1:B:511:ASN:HB2	1.77	0.50
1:B:923:ALA:O	1:B:927:ILE:HD12	2.10	0.50
1:B:461:LEU:HD12	1:B:481:LEU:O	2.12	0.50
1:B:726:HIS:CE1	1:B:844:LEU:HD11	2.47	0.50
1:B:484:ILE:HD11	1:B:501:LEU:HD21	1.93	0.50
1:B:599:LYS:NZ	5:B:5916:HOH:O	2.42	0.50
1:B:598:ARG:HH22	4:B:5809:EDO:C2	2.24	0.50
1:B:2041:LEU:O	1:B:2087:LYS:HA	2.12	0.50
1:B:690:VAL:HG11	1:B:707:ILE:HD13	1.93	0.49
1:B:835:SER:O	1:B:839:GLY:N	2.45	0.49
1:B:1195:ARG:N	4:B:5811:EDO:H12	2.27	0.49
1:B:1139:VAL:O	1:B:1143:ILE:HG13	2.13	0.49
1:B:1953:MET:C	1:B:1954:TRP:HD1	2.16	0.49
1:B:1861:ARG:HH21	1:B:1863:HIS:CB	2.21	0.49
1:B:2037:VAL:HG13	1:B:2092:LEU:HB2	1.95	0.49
1:B:687:GLN:OE1	1:B:689:TYR:OH	2.19	0.48
1:B:2031:SER:OG	1:B:2097:PRO:O	2.31	0.48
1:B:815:LEU:HD22	1:B:819:VAL:HB	1.95	0.48
1:B:967:ASN:OD1	1:B:999:GLN:HG3	2.13	0.48
2:J:2197:ALA:HA	2:J:2200:MET:CE	2.43	0.48
1:B:1013:GLU:OE2	1:B:1016:ARG:NH1	2.47	0.48
1:B:2065:TRP:CD1	1:B:2081:ARG:HG3	2.49	0.48
1:B:1877:HIS:HE1	1:B:1896:GLN:HB2	1.79	0.48
1:B:1040:LEU:O	1:B:1044:VAL:HG13	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1044:VAL:O	2:J:2074:ARG:NH1	2.42	0.47
1:B:2000:THR:O	1:B:2004:ILE:HG23	2.13	0.47
1:B:743:LEU:HD21	1:B:748:LEU:HD22	1.95	0.47
1:B:1909:GLN:O	1:B:1912:THR:OG1	2.27	0.47
1:B:2039:VAL:HG21	1:B:2106:LEU:HD11	1.97	0.47
1:B:1269:ARG:NH1	1:B:1279:GLU:OE1	2.48	0.47
1:B:1295:TYR:OH	1:B:1720:GLU:OE1	2.24	0.47
1:B:1901:ARG:HE	1:B:2055:LEU:HD11	1.80	0.47
1:B:975:LYS:HG3	1:B:976:THR:HG23	1.96	0.47
1:B:1350:ALA:O	1:B:1492:SER:HA	2.15	0.47
1:B:736:ARG:NH1	1:B:773:GLU:HG2	2.29	0.47
1:B:1135:LEU:HD13	1:B:1177:TYR:CD2	2.50	0.47
1:B:2065:TRP:NE1	1:B:2081:ARG:HG3	2.30	0.47
1:B:1456:VAL:HG12	1:B:1490:LEU:O	2.15	0.47
1:B:757:ALA:O	1:B:761:VAL:HG23	2.14	0.47
1:B:1192:PRO:HG3	1:B:1289:LEU:HD11	1.97	0.47
1:B:1661:VAL:O	1:B:1702:CYS:HA	2.14	0.47
2:J:2302:LYS:HD2	2:J:2308:VAL:HG21	1.96	0.46
1:B:832:GLN:NE2	1:B:843:GLU:OE2	2.47	0.46
1:B:933:PRO:HG3	1:B:943:LEU:HD22	1.97	0.46
1:B:1896:GLN:HA	1:B:1899:LEU:HB2	1.98	0.46
1:B:1146:LYS:HB2	1:B:1148:PHE:CD1	2.50	0.46
1:B:2038:LEU:HD11	1:B:2089:LYS:HE3	1.98	0.46
2:J:2164:PRO:HB3	2:J:2296:LEU:HD11	1.98	0.46
1:B:704:MET:O	1:B:708:VAL:HG12	2.16	0.46
1:B:464:VAL:HG13	1:B:467:LEU:HD12	1.98	0.46
1:B:1456:VAL:CG1	1:B:1491:SER:HB2	2.45	0.45
1:B:1456:VAL:O	1:B:1459:ILE:HG23	2.17	0.45
1:B:2013:ARG:CZ	1:B:2049:GLY:HA3	2.46	0.45
2:J:2243:ASP:HB3	2:J:2248:PRO:HB3	1.98	0.45
1:B:1875:VAL:HG21	1:B:1893:LEU:HD23	1.97	0.45
1:B:1864:GLU:HA	1:B:1864:GLU:OE1	2.17	0.45
2:J:2149:PRO:HB3	2:J:2281:TYR:CE1	2.52	0.45
1:B:705:ASN:HA	1:B:708:VAL:HG12	1.99	0.45
1:B:772:LEU:O	1:B:775:LYS:HB3	2.16	0.45
1:B:730:GLU:OE2	1:B:733:LYS:HD2	2.17	0.45
1:B:1051:SER:OG	1:B:1053:GLU:HG2	2.17	0.45
1:B:1567:LYS:O	1:B:1571:LEU:HG	2.17	0.45
1:B:462:LEU:HD11	1:B:466:LYS:HD3	1.98	0.45
1:B:465:GLU:OE1	1:B:465:GLU:N	2.49	0.45
1:B:999:GLN:NE2	5:B:5933:HOH:O	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1900:SER:HB3	1:B:1954:TRP:CZ2	2.51	0.45
1:B:1931:SER:OG	1:B:2079:ILE:HG21	2.17	0.45
1:B:1739:GLU:HG3	1:B:1754:TYR:CE2	2.52	0.44
1:B:607:GLN:O	1:B:607:GLN:HG3	2.17	0.44
2:J:2200:MET:HE3	2:J:2235:TYR:CD1	2.47	0.44
1:B:1498:LYS:HE2	1:B:1498:LYS:HB2	1.74	0.44
1:B:1577:LEU:HD23	1:B:1577:LEU:HA	1.81	0.44
1:B:1607:SER:HA	1:B:1610:LYS:HE2	1.99	0.44
1:B:708:VAL:O	1:B:712:ILE:HG12	2.17	0.44
1:B:1515:HIS:O	1:B:1518:VAL:HG22	2.17	0.44
1:B:573:HIS:CE1	1:B:577:LYS:HD3	2.53	0.44
1:B:1383:GLU:O	1:B:1387:GLU:HG2	2.18	0.44
1:B:694:GLU:HG2	1:B:699:LYS:HB3	1.99	0.44
1:B:752:LEU:HG	1:B:759:THR:HG23	2.00	0.44
1:B:1049:LYS:HE2	2:J:2078:ILE:HD13	1.99	0.44
1:B:1749:GLN:H	1:B:1808:MET:HE3	1.82	0.44
1:B:1045:PRO:HD3	2:J:2317:PHE:CD2	2.52	0.44
1:B:1481:ILE:HD12	1:B:1483:ARG:H	1.82	0.44
1:B:1855:TYR:O	1:B:1856:GLU:HG2	2.18	0.44
1:B:1141:LYS:O	1:B:1145:LYS:HG3	2.17	0.43
1:B:1195:ARG:NH1	1:B:1260:GLU:OE1	2.51	0.43
1:B:1560:ILE:HG13	1:B:1658:ALA:HB2	1.99	0.43
1:B:1678:ASP:OD1	1:B:1710:LYS:HE3	2.18	0.43
1:B:2076:LEU:HD21	1:B:2079:ILE:HB	2.00	0.43
1:B:639:ILE:O	1:B:643:GLN:N	2.52	0.43
1:B:569:LEU:HD23	1:B:569:LEU:HA	1.80	0.43
1:B:1195:ARG:HD3	1:B:1260:GLU:OE2	2.18	0.43
1:B:1524:GLU:HB2	1:B:1701:ARG:HG2	1.99	0.43
1:B:774:LEU:HD23	1:B:774:LEU:HA	1.89	0.43
1:B:446:HIS:HB2	5:B:6220:HOH:O	2.17	0.43
1:B:1331:ILE:HD12	1:B:1354:SER:HB3	2.00	0.43
1:B:1843:ARG:HA	1:B:1846:ILE:HD13	1.99	0.43
1:B:1981:SER:O	1:B:1984:ASP:HB2	2.19	0.43
1:B:639:ILE:HD11	1:B:646:VAL:HB	1.99	0.43
1:B:1515:HIS:NE2	1:B:1721:PRO:HG3	2.34	0.43
2:J:2228:TYR:OH	2:J:2258:ARG:NH2	2.44	0.43
1:B:431:PRO:HA	4:B:5803:EDO:H22	2.00	0.43
1:B:763:ARG:HA	1:B:766:ALA:HB3	2.01	0.43
1:B:1601:LEU:O	1:B:1610:LYS:HD3	2.18	0.43
1:B:575:LEU:HD21	5:B:6107:HOH:O	2.19	0.42
1:B:1228:VAL:CG2	1:B:1263:PRO:HB2	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:575:LEU:HD23	1:B:1218:SER:OG	2.20	0.42
1:B:1595:LYS:HB3	1:B:1595:LYS:HE2	1.95	0.42
1:B:1158:HIS:CD2	1:B:1172:LYS:HA	2.47	0.42
1:B:1627:MET:HE3	1:B:1627:MET:HB3	1.96	0.42
1:B:2081:ARG:H	1:B:2081:ARG:HD2	1.83	0.42
1:B:1600:TYR:HD2	1:B:1631:LEU:HD12	1.85	0.42
1:B:469:LYS:HA	1:B:472:GLN:HG3	2.01	0.42
1:B:1814:ASN:HA	1:B:1817:MET:CE	2.50	0.42
1:B:1937:SER:HB2	1:B:1938:PRO:HD3	2.01	0.42
1:B:2068:ILE:CG2	1:B:2078:SER:HB2	2.50	0.42
1:B:1901:ARG:NE	1:B:2055:LEU:HD11	2.35	0.42
1:B:468:PRO:HB2	1:B:470:TYR:CE1	2.55	0.42
1:B:712:ILE:CD1	1:B:721:VAL:HG21	2.49	0.42
1:B:736:ARG:HG2	1:B:777:LEU:HD21	2.01	0.41
1:B:689:TYR:HE2	1:B:883:LEU:HD12	1.85	0.41
1:B:1967:THR:HG22	1:B:1970:HIS:ND1	2.35	0.41
1:B:1195:ARG:HH11	1:B:1260:GLU:CD	2.24	0.41
1:B:600:GLY:HA3	5:B:6290:HOH:O	2.20	0.41
1:B:1040:LEU:HD13	1:B:1040:LEU:HA	1.79	0.41
1:B:1146:LYS:HB2	1:B:1148:PHE:CE1	2.55	0.41
1:B:1442:ARG:HA	1:B:1442:ARG:HD2	1.59	0.41
1:B:1523:LEU:HD13	1:B:1525:LEU:HB2	2.02	0.41
1:B:1195:ARG:HG3	4:B:5811:EDO:H11	2.03	0.41
1:B:1594:GLU:O	1:B:1598:ILE:HG12	2.20	0.41
1:B:462:LEU:HD11	1:B:466:LYS:HB3	2.01	0.41
1:B:1648:ARG:NH2	1:B:1683:ASP:OD2	2.54	0.41
1:B:2077:ILE:HD13	1:B:2094:PHE:CD2	2.56	0.41
2:J:2107:PRO:HG2	2:J:2110:VAL:HG22	2.02	0.41
1:B:545:ARG:O	1:B:549:GLN:HG3	2.20	0.41
1:B:637:ARG:HD2	1:B:919:TRP:HA	2.02	0.41
1:B:2081:ARG:HD2	1:B:2081:ARG:N	2.35	0.41
1:B:548:VAL:HG13	1:B:587:VAL:HG12	2.03	0.41
1:B:696:LYS:HB2	1:B:696:LYS:HE2	1.86	0.41
1:B:743:LEU:HD23	1:B:743:LEU:HA	1.86	0.41
1:B:1149:PRO:HD2	1:B:1152:ARG:HD2	2.02	0.41
1:B:1523:LEU:CD1	1:B:1525:LEU:HB2	2.51	0.41
1:B:2037:VAL:CG1	1:B:2092:LEU:HB2	2.51	0.41
1:B:858:ARG:HA	1:B:859:PRO:HD3	1.89	0.41
1:B:971:LYS:HB2	1:B:980:GLN:HB3	2.03	0.41
2:J:2319:LEU:HD12	2:J:2319:LEU:HA	1.94	0.41
1:B:1443:LYS:H	1:B:1443:LYS:CD	2.28	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1868:LEU:HD23	1:B:1871:LEU:HD12	2.03	0.40
1:B:1926:CYS:O	1:B:1930:LEU:HG	2.21	0.40
1:B:421:HIS:CE1	1:B:843:GLU:HG3	2.56	0.40
1:B:665:LEU:HB2	1:B:667:VAL:HG23	2.01	0.40
1:B:728:ARG:HG2	1:B:786:HIS:CG	2.57	0.40
1:B:2108:PHE:O	1:B:2117:ASP:HA	2.21	0.40
1:B:699:LYS:HE2	1:B:699:LYS:HB2	1.85	0.40
1:B:1777:SER:HG	1:B:1780:HIS:HD1	1.68	0.40
1:B:1922:LEU:HD23	1:B:1922:LEU:HA	1.90	0.40
1:B:1969:GLU:HG3	1:B:1973:ARG:NH1	2.37	0.40
1:B:1871:LEU:HD23	1:B:1874:LYS:NZ	2.36	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	Percentiles
1	B	1717/1747 (98%)	1649 (96%)	62 (4%)	6 (0%)	41 31
2	J	261/263 (99%)	248 (95%)	12 (5%)	1 (0%)	34 24
All	All	1978/2010 (98%)	1897 (96%)	74 (4%)	7 (0%)	34 24

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	1859	PRO
2	J	2059	PRO
1	B	1885	ASN
1	B	2028	SER
1	B	2057	PRO
1	B	2097	PRO
1	B	768	GLN

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	1538/1560 (99%)	1479 (96%)	59 (4%)	33	26
2	J	236/236 (100%)	227 (96%)	9 (4%)	33	26
All	All	1774/1796 (99%)	1706 (96%)	68 (4%)	33	26

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	455	PHE
1	B	469	LYS
1	B	482	ASN
1	B	487	LYS
1	B	489	TYR
1	B	495	THR
1	B	510	THR
1	B	519	ARG
1	B	532	ASN
1	B	607	GLN
1	B	759	THR
1	B	763	ARG
1	B	791	ARG
1	B	792	VAL
1	B	795	THR
1	B	796	LEU
1	B	812	THR
1	B	863	THR
1	B	954	LEU
1	B	984	LEU
1	B	992	TYR
1	B	999	GLN
1	B	1009	LEU
1	B	1038	GLN
1	B	1040	LEU
1	B	1049	LYS
1	B	1071	LYS

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Mol	Chain	Res	Type
1	B	1113	ASN
1	B	1124	GLN
1	B	1126	MET
1	B	1139	VAL
1	B	1244	LYS
1	B	1313	ARG
1	B	1371	SER
1	B	1400	ARG
1	B	1414	THR
1	B	1435	LEU
1	B	1443	LYS
1	B	1498	LYS
1	B	1507	SER
1	B	1523	LEU
1	B	1566	ARG
1	B	1586	ARG
1	B	1605	SER
1	B	1648	ARG
1	B	1710	LYS
1	B	1762	ARG
1	B	1772	ASN
1	B	1807	GLU
1	B	1831	LEU
1	B	1885	ASN
1	B	1889	VAL
1	B	1891	THR
1	B	1912	THR
1	B	1953	MET
1	B	1966	PHE
1	B	2017	ILE
1	B	2110	SER
1	B	2116	CYS
2	J	2063	MET
2	J	2072	GLU
2	J	2135	ASP
2	J	2189	SER
2	J	2225	LEU
2	J	2247	ASN
2	J	2276	GLN
2	J	2289	ASP
2	J	2315	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such

sidechains are listed below:

Mol	Chain	Res	Type
1	B	532	ASN

### 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 monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

13 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
4	EDO	B	5808	-	3,3,3	0.56	0	2,2,2	0.57	0
4	EDO	B	5805	-	3,3,3	0.50	0	2,2,2	0.54	0
4	EDO	B	5812	-	3,3,3	0.59	0	2,2,2	0.54	0
4	EDO	J	2401	-	3,3,3	0.53	0	2,2,2	1.12	0
4	EDO	B	5807	-	3,3,3	0.56	0	2,2,2	0.37	0
4	EDO	B	5809	-	3,3,3	0.55	0	2,2,2	0.85	0
4	EDO	B	5804	-	3,3,3	0.42	0	2,2,2	1.11	0
4	EDO	B	5810	-	3,3,3	0.64	0	2,2,2	0.28	0
3	B09	B	5801	-	11,12,12	1.42	3 (27%)	13,16,16	3.42	4 (30%)
4	EDO	B	5802	-	3,3,3	0.33	0	2,2,2	0.82	0
4	EDO	B	5806	-	3,3,3	0.44	0	2,2,2	0.80	0
4	EDO	B	5803	-	3,3,3	0.43	0	2,2,2	0.78	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	EDO	B	5811	-	3,3,3	0.42	0	2,2,2	0.18	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
4	EDO	B	5808	-	-	0/1/1/1	-
4	EDO	B	5805	-	-	0/1/1/1	-
4	EDO	B	5812	-	-	1/1/1/1	-
4	EDO	J	2401	-	-	1/1/1/1	-
4	EDO	B	5807	-	-	0/1/1/1	-
4	EDO	B	5809	-	-	1/1/1/1	-
4	EDO	B	5804	-	-	1/1/1/1	-
4	EDO	B	5810	-	-	0/1/1/1	-
3	B09	B	5801	-	-	0/6/10/10	0/1/1/1
4	EDO	B	5802	-	-	0/1/1/1	-
4	EDO	B	5806	-	-	1/1/1/1	-
4	EDO	B	5803	-	-	1/1/1/1	-
4	EDO	B	5811	-	-	0/1/1/1	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	5801	B09	O1-S1	2.82	1.46	1.43
3	B	5801	B09	O2-S1	2.38	1.46	1.43
3	B	5801	B09	C1-S1	2.32	1.80	1.76

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	5801	B09	O2-S1-O1	-10.66	106.45	119.55
3	B	5801	B09	O1-S1-C1	4.41	113.40	107.97
3	B	5801	B09	C7-O3-N1	3.08	112.97	109.72
3	B	5801	B09	C1-S1-N1	2.02	111.54	107.27

There are no chirality outliers.

All (6) torsion outliers are listed below:

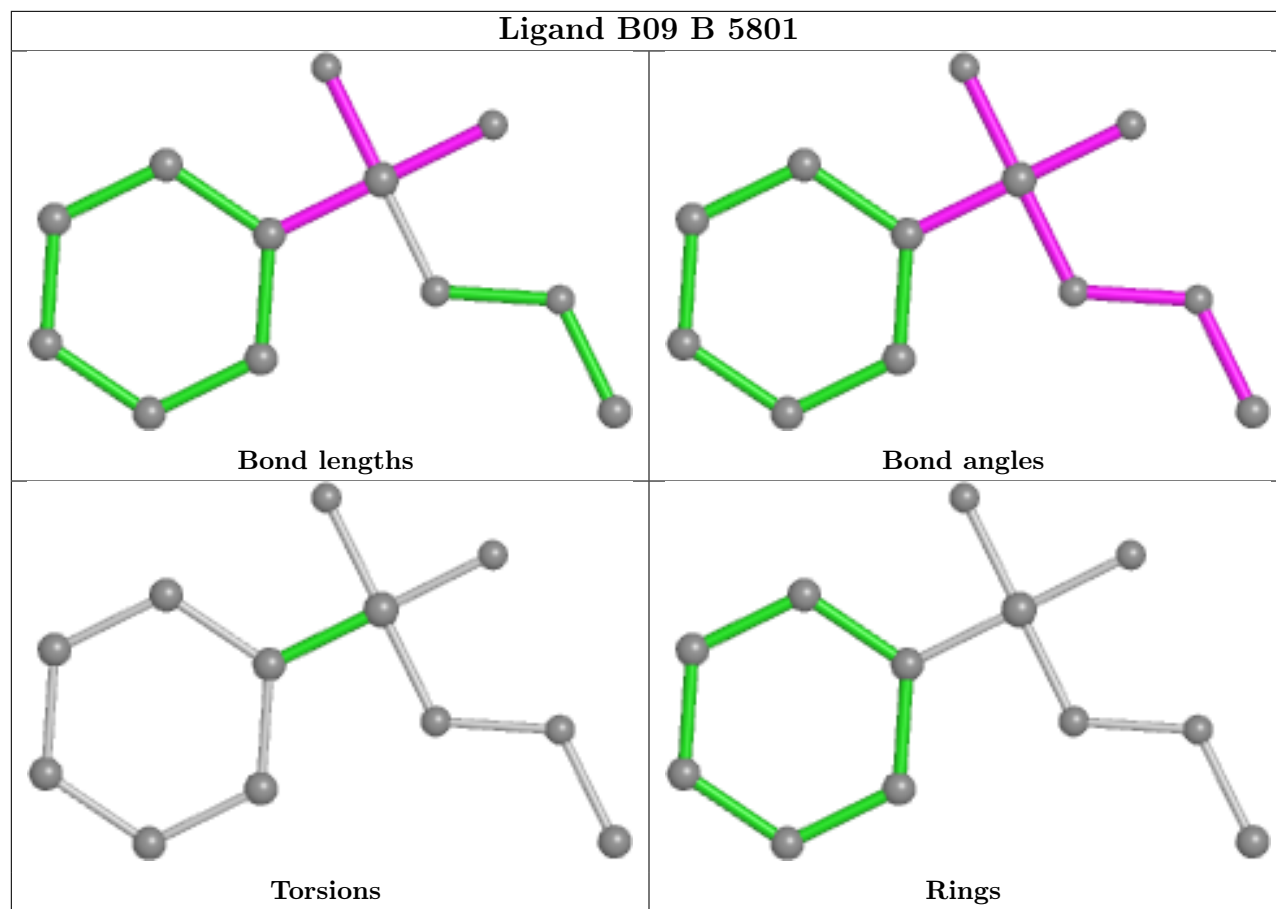
Mol	Chain	Res	Type	Atoms
4	B	5804	EDO	O1-C1-C2-O2
4	B	5812	EDO	O1-C1-C2-O2
4	B	5806	EDO	O1-C1-C2-O2
4	J	2401	EDO	O1-C1-C2-O2
4	B	5809	EDO	O1-C1-C2-O2
4	B	5803	EDO	O1-C1-C2-O2

There are no ring outliers.

4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	5809	EDO	1	0
4	B	5802	EDO	1	0
4	B	5803	EDO	1	0
4	B	5811	EDO	4	0

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



## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	B	1719/1747 (98%)	0.45	194 (11%) <b>5</b>   <b>5</b>	26, 55, 128, 176	0
2	J	263/263 (100%)	0.12	18 (6%) <b>17</b>   <b>18</b>	30, 50, 108, 178	0
All	All	1982/2010 (98%)	0.41	212 (10%) <b>6</b>   <b>6</b>	26, 54, 128, 178	0

All (212) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	603	ARG	12.0
2	J	2061	GLY	11.2
1	B	1936	LEU	9.6
1	B	2038	LEU	9.3
1	B	404	ALA	8.9
2	J	2098	LYS	8.9
1	B	2033	GLY	8.7
1	B	1869	ARG	8.5
2	J	2060	LEU	8.4
1	B	575	LEU	7.9
1	B	2036	VAL	7.7
1	B	2028	SER	7.7
1	B	2077	ILE	7.6
1	B	1886	ASP	7.0
1	B	755	GLY	6.8
1	B	2102	HIS	6.8
1	B	761	VAL	6.7
1	B	1868	LEU	6.7
1	B	1866	ASN	6.5
1	B	757	ALA	6.4
1	B	1940	LEU	6.4
1	B	1878	LYS	6.1
1	B	2040	GLN	6.0
1	B	1978	GLY	6.0

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	2106	LEU	5.8
1	B	2068	ILE	5.8
1	B	2120	TYR	5.7
1	B	1889	VAL	5.7
1	B	2072	LYS	5.6
2	J	2062	SER	5.5
1	B	2101	ALA	5.5
1	B	1893	LEU	5.4
2	J	2320	LEU	5.4
1	B	860	GLN	5.4
1	B	760	GLU	5.3
1	B	752	LEU	5.2
1	B	1880	ASN	5.2
1	B	1859	PRO	5.2
1	B	456	GLY	5.2
1	B	2095	VAL	5.1
1	B	1876	PRO	5.1
1	B	2104	TYR	5.1
1	B	2023	VAL	5.0
1	B	1165	ILE	5.0
1	B	2020	SER	4.8
1	B	1877	HIS	4.8
2	J	2097	ILE	4.8
1	B	2092	LEU	4.7
1	B	1584	ILE	4.7
1	B	1863	HIS	4.7
1	B	2032	GLY	4.6
1	B	2097	PRO	4.6
1	B	1956	LYS	4.5
1	B	1959	TYR	4.4
1	B	574	GLN	4.4
2	J	2095	ASP	4.4
1	B	2098	ALA	4.3
1	B	2031	SER	4.3
1	B	2035	VAL	4.3
2	J	2099	GLU	4.3
1	B	2087	LYS	4.2
1	B	457	SER	4.2
1	B	2021	TYR	4.2
1	B	1861	ARG	4.1
1	B	1902	MET	4.1
2	J	2319	LEU	4.1

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	1858	ILE	4.1
1	B	1954	TRP	4.1
1	B	782	PHE	4.0
1	B	1483	ARG	4.0
1	B	1600	TYR	4.0
1	B	1875	VAL	3.9
1	B	1843	ARG	3.9
1	B	766	ALA	3.9
1	B	2024	VAL	3.9
1	B	753	ARG	3.8
2	J	2058	GLY	3.8
1	B	1865	ASP	3.8
1	B	2091	LYS	3.8
1	B	2107	TYR	3.7
1	B	1983	PHE	3.7
1	B	758	SER	3.7
1	B	1860	ILE	3.7
2	J	2100	THR	3.7
1	B	861	TYR	3.7
1	B	779	PRO	3.6
1	B	1614	LEU	3.6
2	J	2094	SER	3.6
1	B	769	CYS	3.6
1	B	1977	LYS	3.5
1	B	2027	ASP	3.5
1	B	2019	LEU	3.5
2	J	2063	MET	3.5
1	B	2103	ASN	3.5
1	B	1871	LEU	3.5
1	B	764	THR	3.4
1	B	805	HIS	3.4
1	B	1872	ALA	3.4
1	B	806	ILE	3.4
1	B	1141	LYS	3.4
1	B	1881	ASN	3.4
1	B	1155	ASP	3.4
1	B	2017	ILE	3.3
1	B	1885	ASN	3.3
1	B	2075	SER	3.3
1	B	1593	THR	3.2
2	J	2064	THR	3.2
1	B	1164	LEU	3.2

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	1971	ILE	3.2
1	B	1895	LEU	3.2
1	B	2078	SER	3.2
1	B	756	SER	3.2
1	B	576	CYS	3.2
1	B	1139	VAL	3.2
1	B	780	TYR	3.2
1	B	1937	SER	3.1
1	B	2025	ASP	3.1
1	B	454	PRO	3.1
1	B	571	GLY	3.1
1	B	2046	GLU	3.1
1	B	2039	VAL	3.1
1	B	2096	ALA	3.0
1	B	2108	PHE	3.0
1	B	709	TYR	3.0
1	B	573	HIS	3.0
1	B	2066	VAL	3.0
1	B	1891	THR	2.9
1	B	2105	THR	2.9
1	B	2071	ALA	2.9
1	B	762	LEU	2.9
1	B	458	GLU	2.9
1	B	482	ASN	2.9
1	B	1840	THR	2.9
1	B	2086	GLN	2.9
1	B	2029	ILE	2.9
1	B	2016	ASN	2.8
1	B	1976	ASP	2.8
1	B	2022	GLU	2.8
1	B	2047	VAL	2.8
1	B	1592	CYS	2.8
1	B	1598	ILE	2.8
2	J	2059	PRO	2.8
1	B	2089	LYS	2.8
1	B	453	LYS	2.7
1	B	1993	ARG	2.7
1	B	2030	ARG	2.7
1	B	1904	LEU	2.7
1	B	1862	HIS	2.7
1	B	2004	ILE	2.7
1	B	1874	LYS	2.6

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	1882	PRO	2.6
1	B	1894	LEU	2.6
1	B	1841	LYS	2.6
1	B	701	PHE	2.6
1	B	2094	PHE	2.5
1	B	2045	GLU	2.5
1	B	459	GLU	2.5
1	B	1982	VAL	2.4
1	B	1147	ASN	2.4
1	B	1599	PRO	2.4
1	B	2099	THR	2.4
1	B	605	TYR	2.4
1	B	1914	GLU	2.4
1	B	1873	GLN	2.4
1	B	1909	GLN	2.4
1	B	1879	LEU	2.3
1	B	1975	THR	2.3
1	B	754	GLU	2.3
1	B	1892	ASN	2.3
1	B	777	LEU	2.3
1	B	1883	LYS	2.3
1	B	1152	ARG	2.3
1	B	1515	HIS	2.3
1	B	751	PHE	2.3
1	B	1996	LEU	2.3
1	B	2065	TRP	2.3
1	B	2018	GLU	2.3
1	B	2085	GLN	2.2
1	B	1999	LEU	2.2
1	B	2084	LEU	2.2
1	B	2088	ALA	2.2
1	B	1587	GLN	2.2
1	B	2001	ASP	2.2
1	B	601	GLY	2.2
1	B	1997	LEU	2.2
1	B	1168	PRO	2.2
1	B	1969	GLU	2.2
1	B	1987	GLU	2.2
1	B	1935	TRP	2.2
1	B	748	LEU	2.2
1	B	759	THR	2.2
1	B	1828	THR	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	746	ASP	2.1
1	B	1979	VAL	2.1
1	B	2081	ARG	2.1
1	B	2048	THR	2.1
1	B	1985	ILE	2.1
1	B	1899	LEU	2.1
1	B	1887	PRO	2.1
1	B	1944	GLU	2.1
1	B	1884	PHE	2.1
1	B	1145	LYS	2.1
1	B	796	LEU	2.1
1	B	602	GLU	2.1
2	J	2286	VAL	2.1
1	B	1597	LEU	2.0
1	B	2067	VAL	2.0
1	B	572	ASP	2.0
2	J	2186	PRO	2.0
1	B	403	LEU	2.0
2	J	2317	PHE	2.0
1	B	1955	SER	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<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

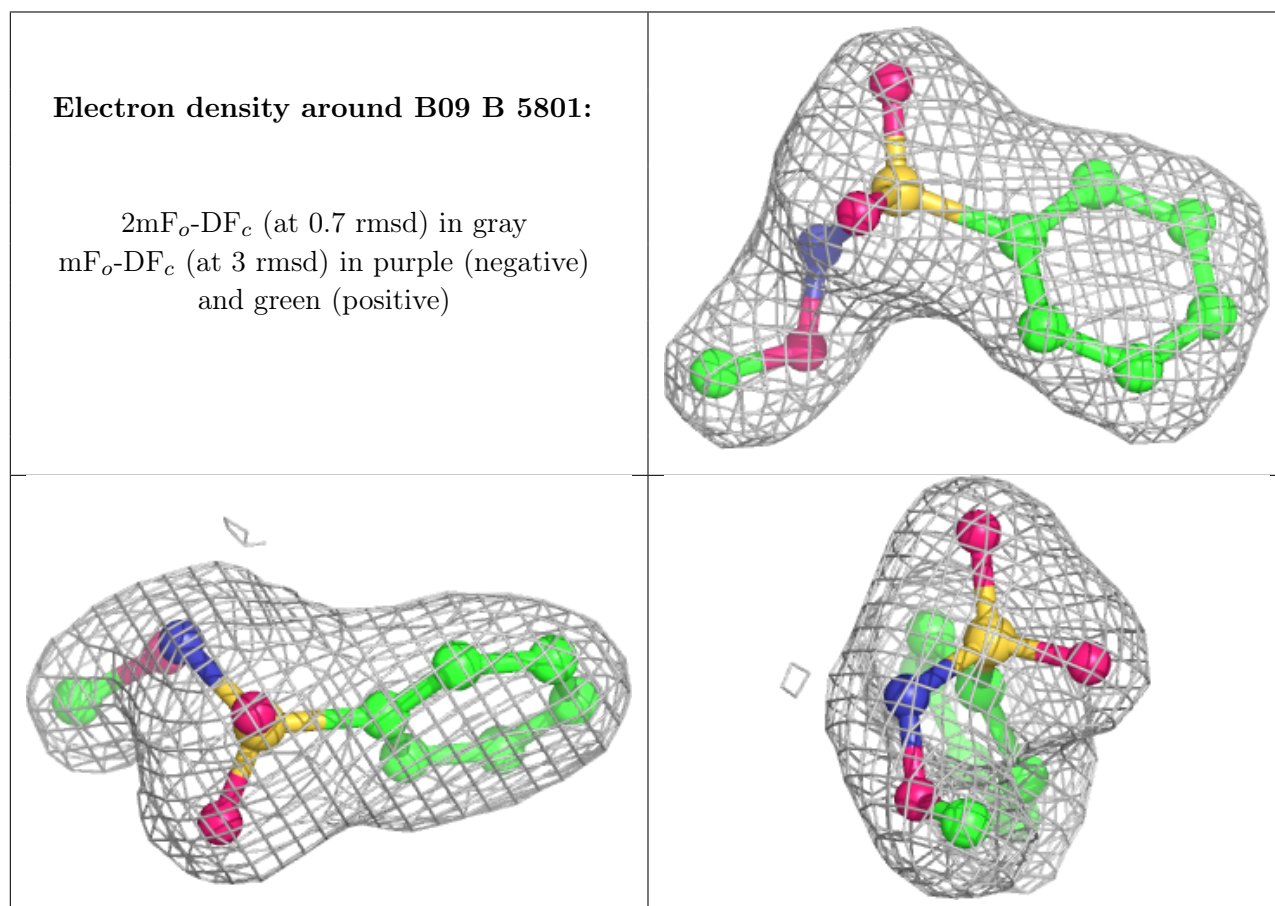
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	EDO	B	5805	4/4	0.78	0.20	64,64,64,65	0
4	EDO	B	5808	4/4	0.80	0.20	49,50,54,55	0
4	EDO	B	5810	4/4	0.82	0.12	53,56,57,63	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	EDO	B	5802	4/4	0.84	0.18	38,40,48,49	0
4	EDO	B	5807	4/4	0.85	0.13	59,59,60,68	0
4	EDO	J	2401	4/4	0.85	0.12	42,46,49,51	0
4	EDO	B	5811	4/4	0.86	0.15	47,52,52,55	0
4	EDO	B	5809	4/4	0.86	0.11	32,40,41,44	0
4	EDO	B	5803	4/4	0.87	0.14	54,55,61,67	0
4	EDO	B	5812	4/4	0.92	0.09	42,50,54,57	0
4	EDO	B	5804	4/4	0.94	0.23	48,48,49,50	0
4	EDO	B	5806	4/4	0.95	0.18	56,59,60,64	0
3	B09	B	5801	12/12	0.97	0.11	37,44,46,46	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.