Full wwPDB X-ray Structure Validation Report ⓘ

Nov 22, 2021 – 10:05 am GMT

PDB ID	:	7OYV
Title	:	E.coli's putrescine receptor variant PotF/D (4JDF) with mutations E39D F88A S247D in complex with spermidine
Authors	:	Shanmugaratnam, S.; Kroeger, P.; Hocker, B.
Deposited on	:	2021-06-25
Resolution	:	1.90 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 following versions of software and data (see references ⓘ) were used in the production of this report:

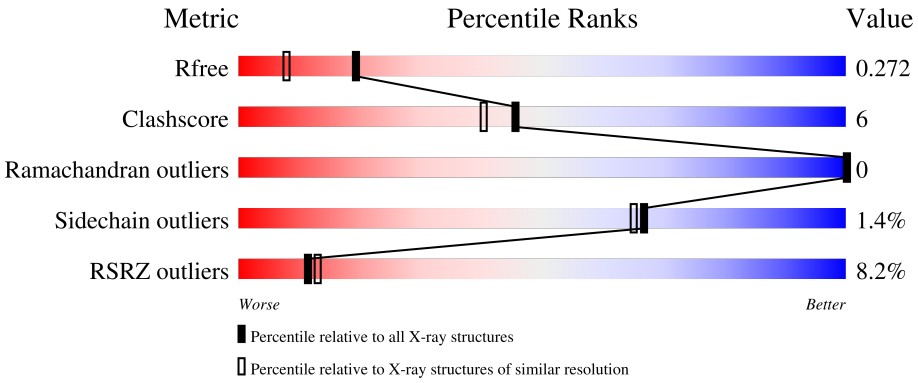
MolProbity	:	4.02b-467
Mogul	:	1.8.4 (270009), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.23.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0267
CCP4	:	7.1.010 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

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	A	352	8% 79% 17%
1	B	352	8% 84% 12%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 5749 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 Putrescine-binding periplasmic protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	341	Total	C	N	O	S	0	8	0
			2725	1751	451	513	10			
1	B	341	Total	C	N	O	S	0	5	0
			2707	1739	447	511	10			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	38	THR	SER	engineered mutation	UNP A0A6S5NLK9
A	87	TYR	SER	engineered mutation	UNP A0A6S5NLK9
A	88	ALA	PHE	engineered mutation	UNP A0A6S5NLK9
A	182	ASP	ALA	engineered mutation	UNP A0A6S5NLK9
A	276	TRP	PHE	engineered mutation	UNP A0A6S5NLK9
A	348	GLN	LEU	engineered mutation	UNP A0A6S5NLK9
A	371	LEU	-	expression tag	UNP A0A6S5NLK9
A	372	GLU	-	expression tag	UNP A0A6S5NLK9
A	373	HIS	-	expression tag	UNP A0A6S5NLK9
A	374	HIS	-	expression tag	UNP A0A6S5NLK9
A	375	HIS	-	expression tag	UNP A0A6S5NLK9
A	376	HIS	-	expression tag	UNP A0A6S5NLK9
A	377	HIS	-	expression tag	UNP A0A6S5NLK9
A	378	HIS	-	expression tag	UNP A0A6S5NLK9
B	38	THR	SER	engineered mutation	UNP A0A6S5NLK9
B	87	TYR	SER	engineered mutation	UNP A0A6S5NLK9
B	88	ALA	PHE	engineered mutation	UNP A0A6S5NLK9
B	182	ASP	ALA	engineered mutation	UNP A0A6S5NLK9
B	276	TRP	PHE	engineered mutation	UNP A0A6S5NLK9
B	348	GLN	LEU	engineered mutation	UNP A0A6S5NLK9
B	371	LEU	-	expression tag	UNP A0A6S5NLK9
B	372	GLU	-	expression tag	UNP A0A6S5NLK9
B	373	HIS	-	expression tag	UNP A0A6S5NLK9
B	374	HIS	-	expression tag	UNP A0A6S5NLK9
B	375	HIS	-	expression tag	UNP A0A6S5NLK9

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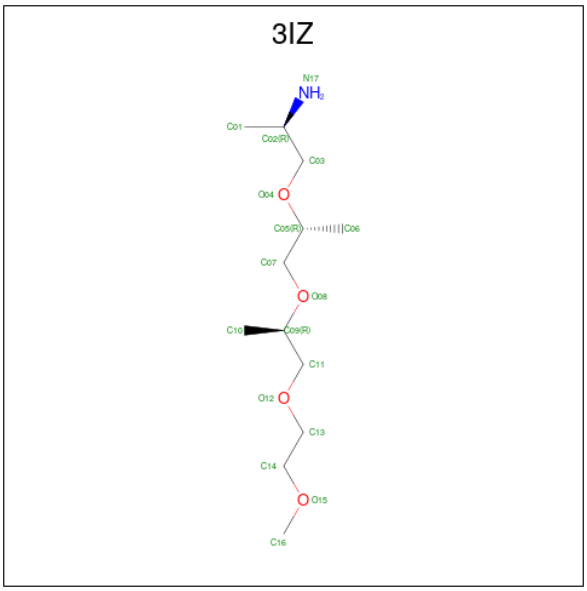
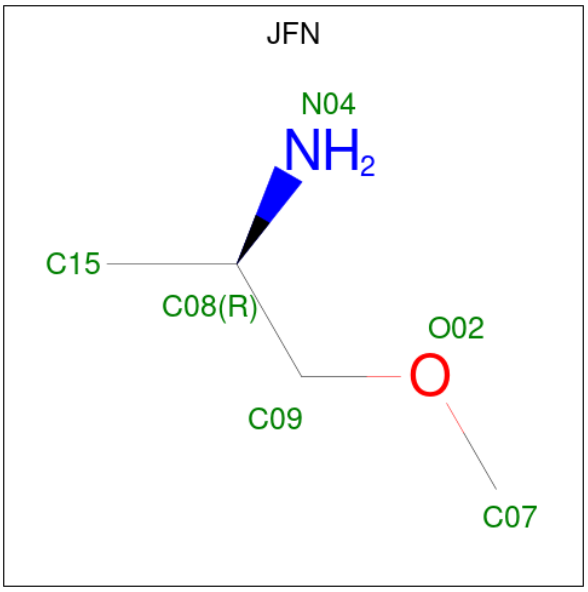
Chain	Residue	Modelled	Actual	Comment	Reference
B	376	HIS	-	expression tag	UNP A0A6S5NLK9
B	377	HIS	-	expression tag	UNP A0A6S5NLK9
B	378	HIS	-	expression tag	UNP A0A6S5NLK9

- Molecule 2 is (2 {R})-1-[(2 {R})-1-[(2 {R})-1-(2-methoxyethoxy)propan-2-yl]oxypropan-2-yl]oxypropan-2-amine (three-letter code: 3IZ) (formula: $C_{12}H_{27}NO_4$).



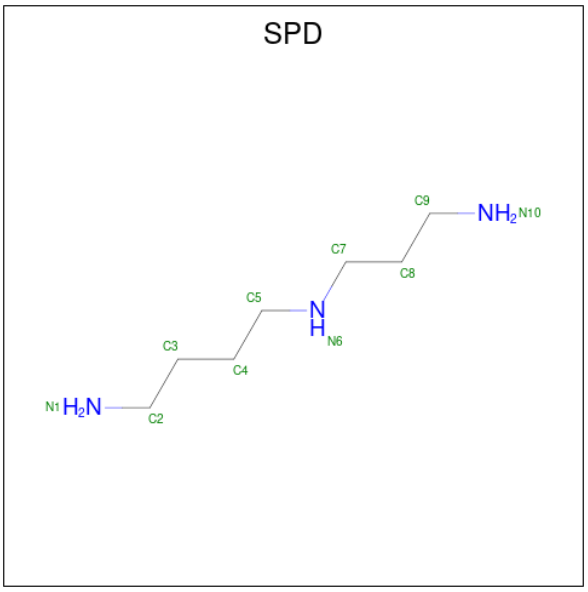
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	17	12	1	4	0	0

- Molecule 3 is (2R)-1-methoxypropan-2-amine (three-letter code: JFN) (formula: $C_4H_{11}NO$).



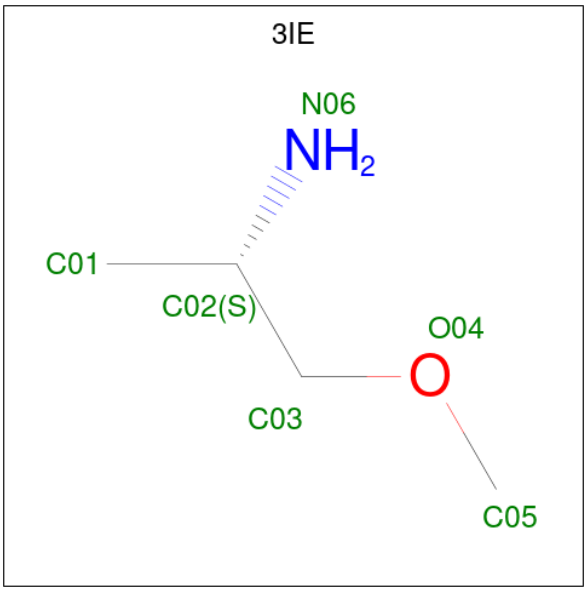
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O 6 4 1 1	0	0
3	A	1	Total C N O 6 4 1 1	0	0
3	B	1	Total C N O 6 4 1 1	0	0
3	B	1	Total C N O 6 4 1 1	0	0
3	B	1	Total C N O 6 4 1 1	0	0

- Molecule 4 is SPERMIDINE (three-letter code: SPD) (formula: $C_7H_{19}N_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C N 10 7 3	0	0
4	B	1	Total C N 10 7 3	0	0

- Molecule 5 is (2 {S})-1-methoxypropan-2-amine (three-letter code: 3IE) (formula: $C_4H_{11}NO$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O 6 4 1 1	0	0

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

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Cl 1 1	0	0
6	B	1	Total Cl 1 1	0	0

- Molecule 7 is water.

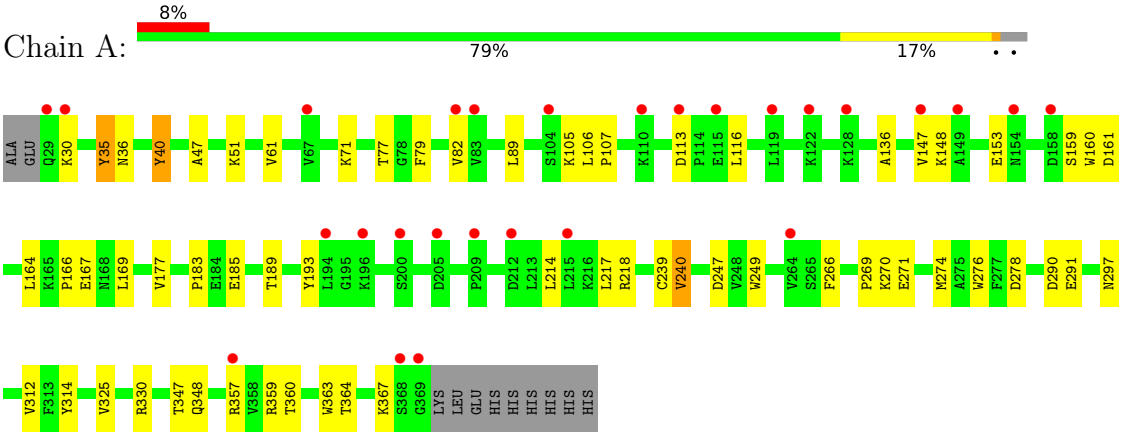
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	112	Total O 115 115	0	3
7	B	112	Total O 115 115	0	3

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.

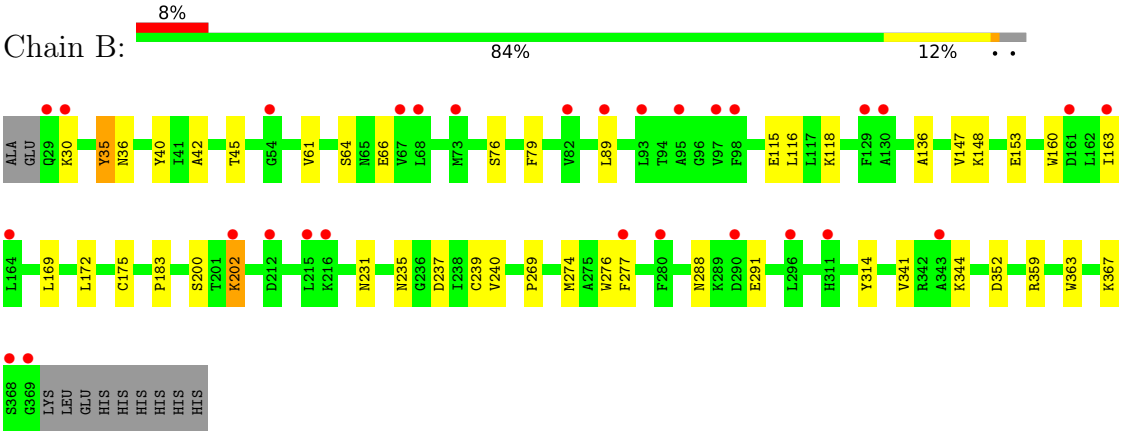
• Molecule 1: Putrescine-binding periplasmic protein

Chain A:



• Molecule 1: Putrescine-binding periplasmic protein

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	73.61Å 122.58Å 190.32Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.58 – 1.90 47.58 – 1.90	Depositor EDS
% Data completeness (in resolution range)	90.9 (47.58-1.90) 90.9 (47.58-1.90)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.95 (at 1.90Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.227 , 0.276 0.225 , 0.272	Depositor DCC
R_{free} test set	2101 reflections (3.38%)	wwPDB-VP
Wilson B-factor (Å^2)	33.1	Xtriage
Anisotropy	0.534	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	(Not available) , (Not available)	EDS
L-test for twinning[2]	$< \|L\| > = 0.40$, $< L^2 > = 0.22$	Xtriage
Estimated twinning fraction	0.054 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.078 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5749	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.67% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: JFN, 3IZ, SPD, 3IE, CL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.37	0/2818	0.57	1/3836 (0.0%)
1	B	0.38	0/2791	0.57	1/3801 (0.0%)
All	All	0.37	0/5609	0.57	2/7637 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	89	LEU	CA-CB-CG	5.69	128.39	115.30
1	B	89	LEU	CA-CB-CG	5.00	126.81	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2725	0	2701	43	0
1	B	2707	0	2673	28	0
2	A	17	0	0	0	0
3	A	12	0	0	0	0
3	B	18	0	0	0	0
4	A	10	0	19	3	0
4	B	10	0	19	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	12	0	0	0	0
5	B	6	0	0	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
7	A	115	0	0	3	0
7	B	115	0	0	4	0
All	All	5749	0	5412	70	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 6.

All (70) 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:A:167:GLU:OE2	7:A:601:HOH:O	2.01	0.78
1:B:30:LYS:HD2	1:B:291:GLU:OE2	1.86	0.75
1:A:274:MET:HE3	1:A:347:THR:HA	1.72	0.71
1:A:113:ASP:HB3	1:A:116:LEU:HB2	1.71	0.71
1:B:237:ASP:OD2	7:B:601:HOH:O	2.09	0.71
1:A:278:ASP:OD2	4:A:504:SPD:H52	1.92	0.69
1:A:325:VAL:O	1:A:330:ARG:NH2	2.28	0.66
1:B:116:LEU:HD22	1:B:277:PHE:HE1	1.59	0.66
1:A:274:MET:HE1	1:A:348:GLN:HB2	1.81	0.63
1:B:148:LYS:HE3	1:B:153:GLU:HA	1.83	0.61
1:B:231:ASN:O	1:B:235:ASN:ND2	2.33	0.60
1:B:163:ILE:HD12	1:B:240:VAL:HG12	1.83	0.59
1:B:36:ASN:O	1:B:61:VAL:HA	2.02	0.58
1:A:30:LYS:HD2	1:A:291:GLU:OE2	2.03	0.58
1:B:363:TRP:CE2	1:B:367:LYS:HD2	2.41	0.56
1:A:105:LYS:O	1:A:297:ASN:ND2	2.41	0.54
1:B:288:ASN:HB3	1:B:291:GLU:OE1	2.08	0.54
1:A:359:ARG:HD2	7:A:644:HOH:O	2.07	0.53
1:B:314:TYR:OH	4:B:504:SPD:H21	2.11	0.51
1:B:175[B]:CYS:HB3	1:B:239[B]:CYS:HB2	1.92	0.50
1:B:183:PRO:HB3	1:B:363:TRP:CG	2.45	0.50
1:A:160:TRP:CE2	1:A:269:PRO:HG2	2.46	0.49
1:A:107:PRO:HD2	1:A:297:ASN:OD1	2.11	0.49
1:B:200:SER:OG	1:B:202:LYS:HE2	2.12	0.49
1:A:47:ALA:O	1:A:51:LYS:HG3	2.12	0.49
1:A:360:THR:O	1:A:364:THR:HG23	2.12	0.49
1:A:136:ALA:HB3	1:A:276:TRP:CH2	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:161:ASP:OD1	1:A:193:TYR:OH	2.21	0.49
1:A:249:TRP:CZ2	1:A:266:PHE:HB3	2.49	0.48
1:A:214:LEU:O	1:A:218:ARG:N	2.46	0.48
1:A:71:LYS:HB3	1:A:77:THR:HG22	1.95	0.48
1:A:164:LEU:HD11	1:A:189:THR:HG22	1.96	0.47
1:B:35:TYR:HB2	1:B:79:PHE:CG	2.50	0.47
1:A:169:LEU:HD11	1:A:177:VAL:HG11	1.96	0.47
1:B:341:VAL:HG13	1:B:344:LYS:HE3	1.97	0.47
1:A:357[A]:ARG:HG3	1:B:76:SER:OG	2.15	0.46
1:B:172:LEU:HD13	1:B:240:VAL:HG21	1.98	0.46
1:A:183:PRO:HB3	1:A:363:TRP:CG	2.51	0.46
1:A:106:LEU:HD23	1:A:297:ASN:ND2	2.32	0.45
1:A:35:TYR:HB2	1:A:79:PHE:CG	2.52	0.45
1:B:160:TRP:CE2	1:B:269:PRO:HG2	2.51	0.45
1:B:200:SER:OG	1:B:202:LYS:HG2	2.17	0.45
1:A:106:LEU:HA	1:A:297:ASN:HD21	1.80	0.45
1:A:147:VAL:HG23	1:A:239[B]:CYS:SG	2.56	0.44
1:A:363:TRP:NE1	1:A:367:LYS:HD2	2.33	0.44
1:A:177:VAL:HG22	1:A:240:VAL:HG23	1.98	0.44
1:A:36:ASN:O	1:A:61:VAL:HA	2.17	0.44
1:B:35:TYR:HB2	1:B:79:PHE:CD1	2.52	0.43
1:A:159:SER:OG	1:A:271:GLU:OE2	2.30	0.43
1:A:247:ASP:OD1	4:A:504:SPD:N1	2.40	0.43
1:B:274[A]:MET:SD	7:B:656:HOH:O	2.61	0.43
1:A:169:LEU:HD22	1:A:217:LEU:HD22	2.01	0.42
1:B:115:GLU:HA	1:B:118:LYS:HE3	2.01	0.42
1:A:177:VAL:HG22	1:A:240:VAL:CG2	2.49	0.42
1:A:35:TYR:HB3	1:A:82:VAL:HG12	2.02	0.41
1:A:166:PRO:HD2	7:A:601:HOH:O	2.20	0.41
1:A:312:VAL:HG23	1:A:314:TYR:HB2	2.01	0.41
1:A:148:LYS:HE3	1:A:153:GLU:HG2	2.03	0.41
1:A:159:SER:HB2	1:A:270:LYS:HE2	2.02	0.41
1:B:359:ARG:HD2	7:B:651:HOH:O	2.21	0.41
1:A:364:THR:HG22	7:B:655:HOH:O	2.20	0.41
1:A:40:TYR:HD1	1:A:40:TYR:HA	1.81	0.41
1:A:274:MET:HE1	1:A:348:GLN:CB	2.50	0.41
1:B:169:LEU:HD12	1:B:169:LEU:HA	1.85	0.41
1:B:64[A]:SER:HB2	1:B:66:GLU:HG2	2.03	0.41
1:B:147:VAL:HG23	1:B:239[B]:CYS:SG	2.61	0.41
1:B:136:ALA:HB3	1:B:276:TRP:CH2	2.56	0.40
1:B:42:ALA:HB3	1:B:45:THR:OG1	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:185:GLU:OE1	1:A:274:MET:HG2	2.21	0.40
1:A:276:TRP:CG	4:A:504:SPD:H91	2.57	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	A	347/352 (99%)	339 (98%)	8 (2%)	0	100	100
1	B	344/352 (98%)	335 (97%)	9 (3%)	0	100	100
All	All	691/704 (98%)	674 (98%)	17 (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 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	296/298 (99%)	292 (99%)	4 (1%)	67	65
1	B	293/298 (98%)	288 (98%)	5 (2%)	60	57
All	All	589/596 (99%)	580 (98%)	9 (2%)	67	62

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

Mol	Chain	Res	Type
1	A	35	TYR
1	A	40	TYR
1	A	240	VAL
1	A	290	ASP
1	B	35	TYR
1	B	40	TYR
1	B	202	LYS
1	B	352[A]	ASP
1	B	352[B]	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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)

Of 13 ligands modelled in this entry, 2 are monoatomic - leaving 11 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

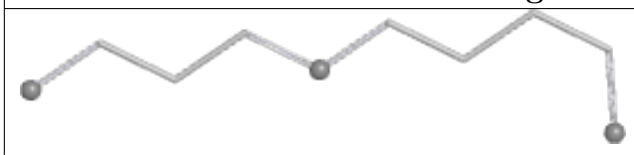
There are no ring outliers.

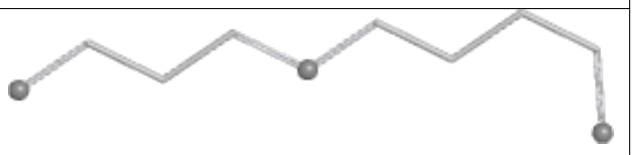
No monomer is involved in short contacts.

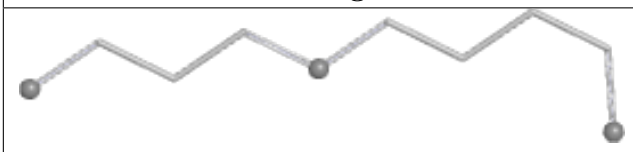
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is

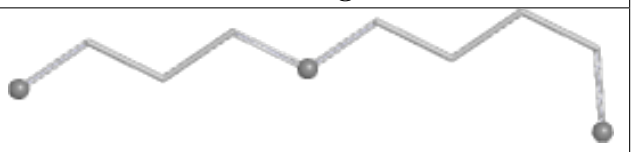
within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question 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.

Ligand SPD A 504

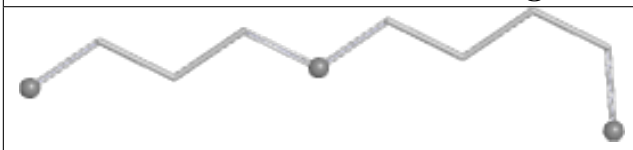

Bond lengths

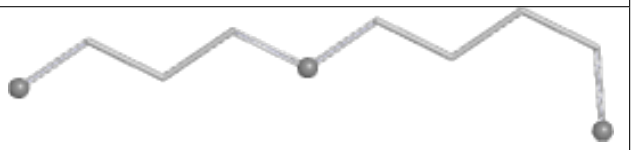

Bond angles

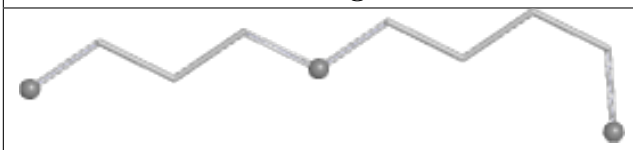

Torsions

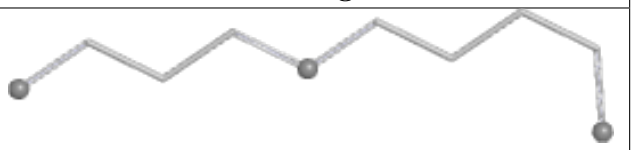

Rings

Ligand SPD B 504


Bond lengths


Bond angles


Torsions


Rings

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^{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	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	341/352 (96%)	0.85	27 (7%)	12	14	26, 37, 50, 73	0
1	B	341/352 (96%)	0.88	29 (8%)	10	12	26, 35, 48, 76	0
All	All	682/704 (96%)	0.86	56 (8%)	11	13	26, 36, 49, 76	0

All (56) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	368[A]	SER	5.1
1	B	369	GLY	5.0
1	B	368	SER	4.5
1	A	29	GLN	4.0
1	A	215	LEU	4.0
1	A	369	GLY	3.8
1	B	212	ASP	3.8
1	B	98	PHE	3.7
1	B	82	VAL	3.4
1	A	30	LYS	3.3
1	B	30	LYS	3.2
1	B	202	LYS	3.2
1	B	130	ALA	3.1
1	B	277	PHE	3.1
1	B	29	GLN	3.1
1	A	209	PRO	3.0
1	B	129	PHE	2.8
1	B	54	GLY	2.8
1	B	215	LEU	2.8
1	B	343	ALA	2.7
1	A	357[A]	ARG	2.7
1	B	296	LEU	2.7
1	A	115	GLU	2.7
1	A	200	SER	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	68	LEU	2.6
1	B	67	VAL	2.6
1	B	216	LYS	2.5
1	A	104	SER	2.5
1	B	161	ASP	2.4
1	A	264	VAL	2.4
1	A	110	LYS	2.4
1	B	164	LEU	2.3
1	B	290	ASP	2.3
1	B	93	LEU	2.3
1	B	311	HIS	2.3
1	B	280	PHE	2.3
1	B	73	MET	2.2
1	A	147	VAL	2.2
1	A	67	VAL	2.2
1	A	205	ASP	2.2
1	A	119	LEU	2.2
1	A	212	ASP	2.2
1	A	82	VAL	2.2
1	B	89	LEU	2.2
1	B	97	VAL	2.2
1	A	194	LEU	2.1
1	B	163	ILE	2.1
1	A	149	ALA	2.1
1	B	95	ALA	2.1
1	A	154	ASN	2.1
1	A	158	ASP	2.1
1	A	83	VAL	2.0
1	A	128	LYS	2.0
1	A	196	LYS	2.0
1	A	113	ASP	2.0
1	A	122	LYS	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)

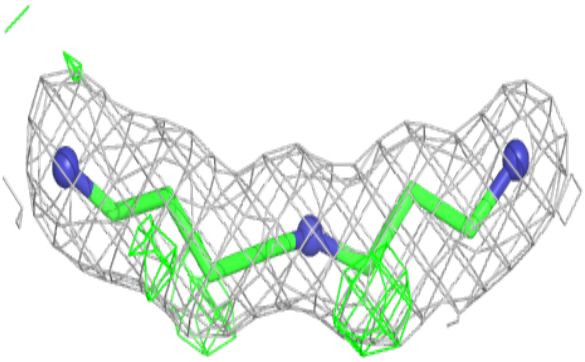
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

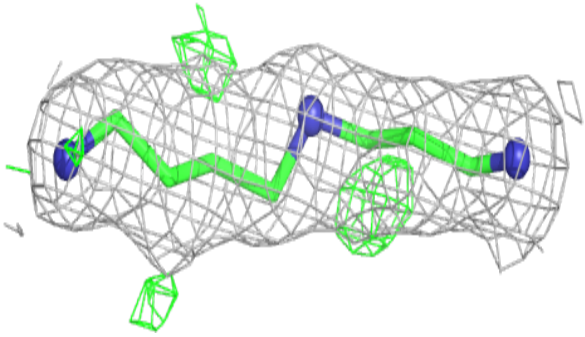
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	JFN	B	502	6/6	0.55	0.27	43,46,48,48	0
5	3IE	A	505	6/6	0.62	0.30	43,47,49,50	0
3	JFN	A	502	6/6	0.64	0.33	48,50,55,55	0
2	3IZ	A	501	17/17	0.65	0.25	41,44,50,52	0
3	JFN	A	503	6/6	0.67	0.28	52,55,58,58	0
3	JFN	B	501	6/6	0.72	0.22	44,50,54,56	0
3	JFN	B	503	6/6	0.85	0.14	44,47,49,51	0
5	3IE	B	505	6/6	0.87	0.19	42,45,46,47	0
5	3IE	A	506	6/6	0.92	0.21	43,47,47,49	0
4	SPD	B	504	10/10	0.92	0.27	26,28,29,30	0
4	SPD	A	504	10/10	0.93	0.21	28,29,32,34	0
6	CL	A	507	1/1	0.99	0.14	34,34,34,34	0
6	CL	B	506	1/1	0.99	0.16	31,31,31,31	0

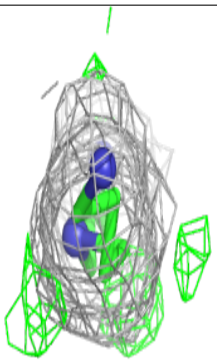
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around SPD B 504:

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

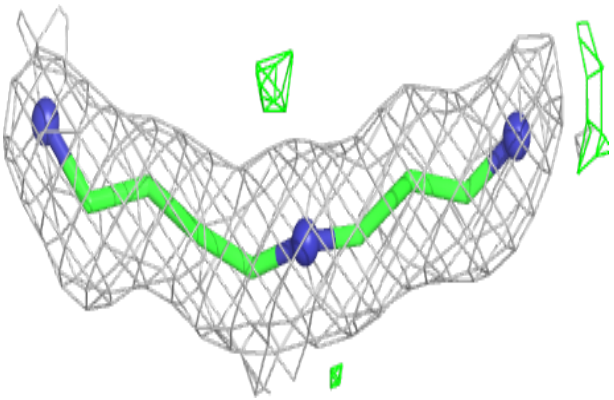


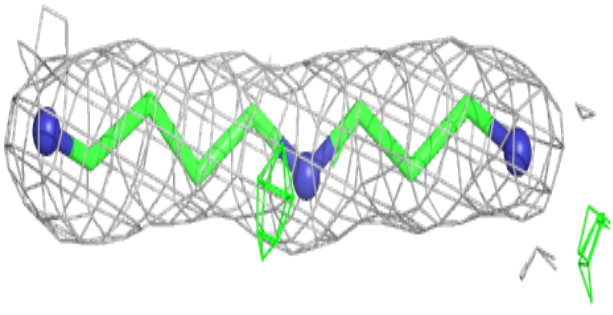


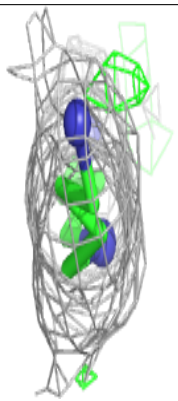


Electron density around SPD A 504:

$2mF_o$-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.