



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 25, 2026 – 02:31 PM EDT

PDB ID : 3BPF / pdb_00003bpf
Title : Crystal Structure of Falcipain-2 with Its inhibitor, E64
Authors : kerr, I.D.; Lee, J.H.; Brinen, L.S.
Deposited on : 2007-12-18
Resolution : 2.90 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

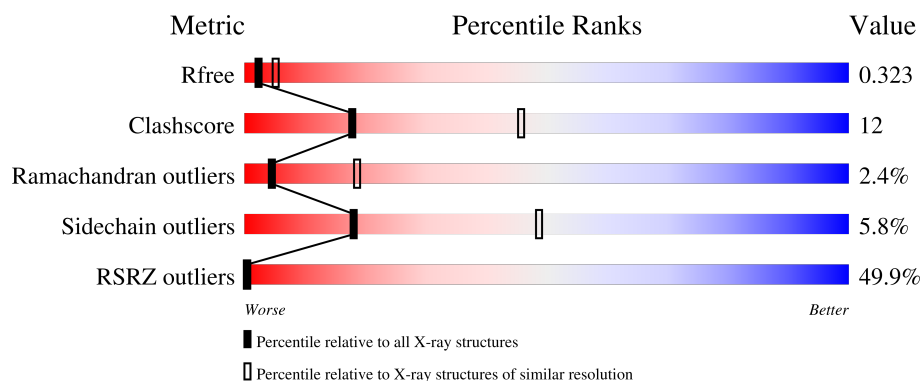
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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}	180053	2481 (2.90-2.90)
Clashscore	190562	2690 (2.90-2.90)
Ramachandran outliers	187476	2623 (2.90-2.90)
Sidechain outliers	187428	2625 (2.90-2.90)
RSRZ outliers	180081	2481 (2.90-2.90)

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	241	59% 65% 25% 8% .
1	B	241	47% 75% 22% .
1	C	241	48% 76% 20% ..
1	D	241	39% 67% 20% . 11%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 7453 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.

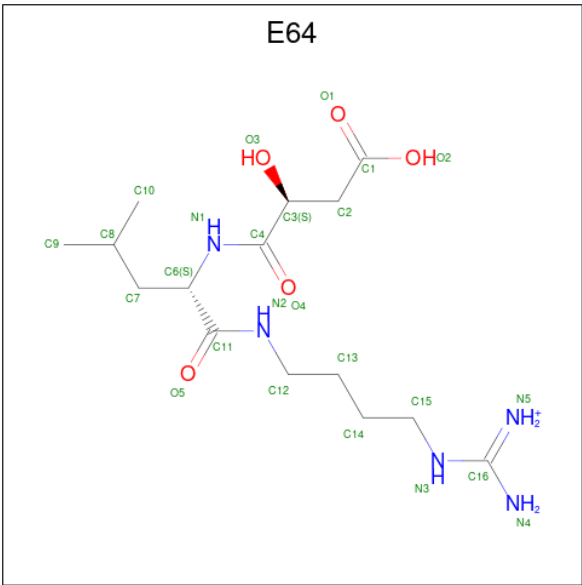
- Molecule 1 is a protein called Cysteine protease falcipain-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	236	Total	C	N	O	S	0	0	0
			1868	1183	308	363	14			
1	B	240	Total	C	N	O	S	0	0	0
			1898	1205	314	365	14			
1	C	234	Total	C	N	O	S	0	0	0
			1847	1174	303	356	14			
1	D	215	Total	C	N	O	S	0	0	0
			1692	1076	275	328	13			

There are 4 discrepancies between the modelled and reference sequences:

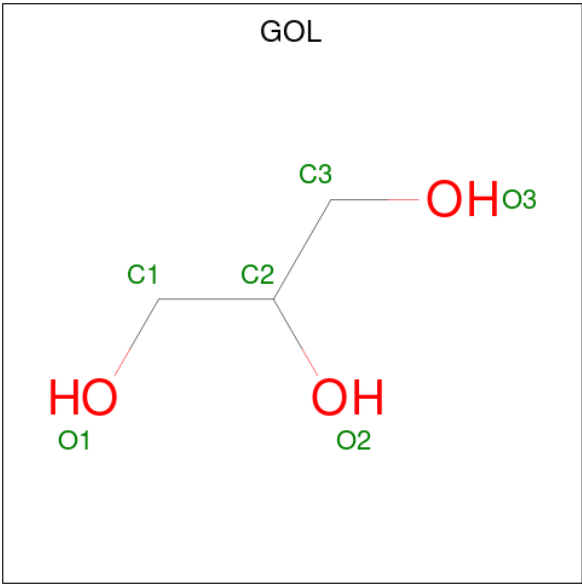
Chain	Residue	Modelled	Actual	Comment	Reference
A	171	GLN	GLU	SEE REMARK 999	UNP Q9NBD4
B	171	GLN	GLU	SEE REMARK 999	UNP Q9NBD4
C	171	GLN	GLU	SEE REMARK 999	UNP Q9NBD4
D	171	GLN	GLU	SEE REMARK 999	UNP Q9NBD4

- Molecule 2 is N-[N-[1-HYDROXYCARBOXYETHYL-CARBONYL]LEUCYLAMINO-BUTYL]-GUANIDINE (CCD ID: E64) (formula: C₁₅H₃₀N₅O₅).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			25	15	5	5		
2	B	1	Total	C	N	O	0	0
			25	15	5	5		
2	C	1	Total	C	N	O	0	0
			25	15	5	5		
2	D	1	Total	C	N	O	0	0
			25	15	5	5		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	C	1	Total	C	O	0	0
			6	3	3		

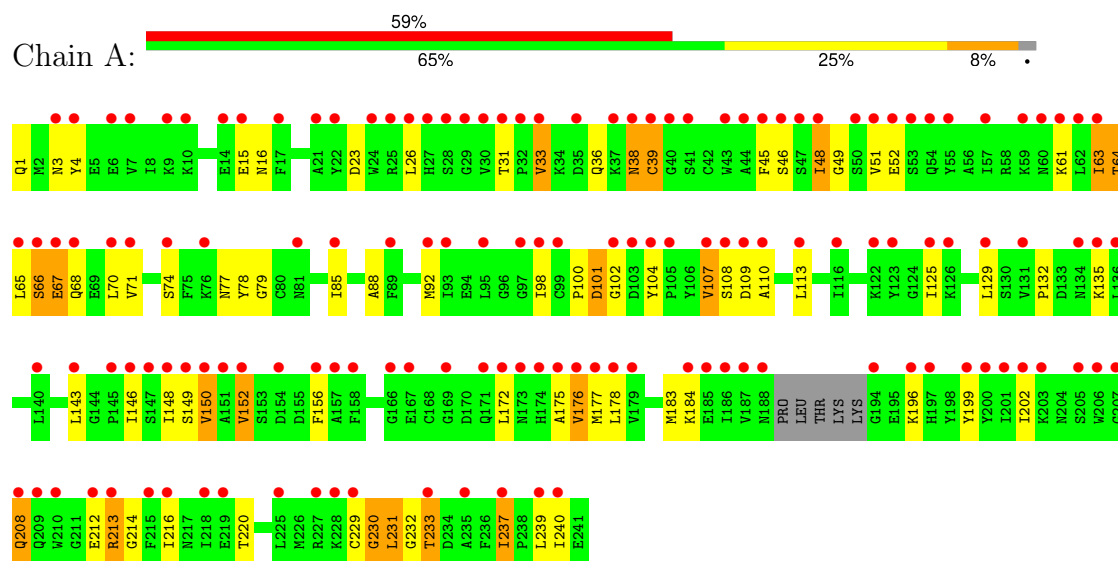
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	10	Total	O	0	0
			10	10		
4	B	13	Total	O	0	0
			13	13		
4	C	15	Total	O	0	0
			15	15		
4	D	4	Total	O	0	0
			4	4		

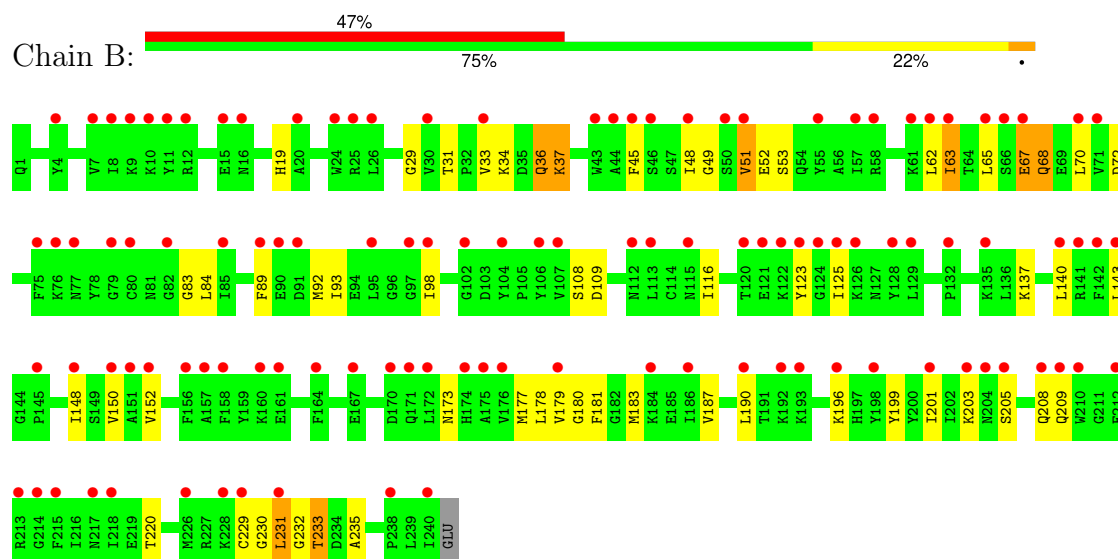
3 Residue-property plots [i](#)

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: Cysteine protease falcipain-2



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4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	143.78Å 167.81Å 177.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	66.67 – 2.90 66.67 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (66.67-2.90) 99.9 (66.67-2.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.20	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.32 (at 2.81Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.275 , 0.325 0.275 , 0.323	Depositor DCC
R_{free} test set	2677 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å ²)	69.8	Xtriage
Anisotropy	0.189	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 137.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.86	EDS
Total number of atoms	7453	wwPDB-VP
Average B, all atoms (Å ²)	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.86% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, E64

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	0.59	0/1909	0.84	1/2572 (0.0%)
1	B	0.51	0/1941	0.76	1/2618 (0.0%)
1	C	0.50	0/1888	0.74	1/2545 (0.0%)
1	D	0.52	0/1728	0.75	0/2330
All	All	0.53	0/7466	0.77	3/10065 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	233	THR	N-CA-C	-5.39	105.09	110.97
1	A	66	SER	N-CA-C	5.35	116.97	108.67
1	C	233	THR	N-CA-C	-5.02	105.45	111.03

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	36	GLN	Peptide

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	1868	0	1774	63	0
1	B	1898	0	1820	37	0
1	C	1847	0	1773	35	0
1	D	1692	0	1613	22	0
2	A	25	0	28	1	0
2	B	25	0	28	0	0
2	C	25	0	28	1	0
2	D	25	0	28	1	0
3	C	6	0	8	0	0
4	A	10	0	0	0	0
4	B	13	0	0	0	0
4	C	15	0	0	0	0
4	D	4	0	0	0	0
All	All	7453	0	7100	155	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 12.

All (155) 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:67:GLU:O	1:A:71:VAL:HG23	1.63	0.97
1:C:129:LEU:HD23	1:C:239:LEU:HD11	1.41	0.97
1:A:129:LEU:HD22	1:A:239:LEU:HD11	1.61	0.82
1:C:174:HIS:CD2	1:C:176:VAL:HG13	2.21	0.76
1:D:83:GLY:O	1:D:84:LEU:HD23	1.87	0.75
1:A:129:LEU:CD2	1:A:237:ILE:HG23	2.21	0.70
1:C:7:VAL:HG21	1:C:129:LEU:HD22	1.75	0.68
1:A:129:LEU:HD21	1:A:237:ILE:HG23	1.75	0.68
1:C:108:SER:OG	1:C:109:ASP:N	2.21	0.68
1:B:63:ILE:HG21	1:B:123:TYR:CE1	2.29	0.68
1:C:21:ALA:HB2	1:C:182:GLY:HA2	1.77	0.67
1:B:48:ILE:HD12	1:B:49:GLY:N	2.11	0.66
1:B:183:MET:HE2	1:B:196:LYS:HB3	1.77	0.66
1:A:183:MET:HE2	1:A:184:LYS:C	2.22	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:23:ASP:HB3	1:A:26:LEU:HD12	1.77	0.65
1:B:199:TYR:HA	1:B:220:THR:HG22	1.78	0.65
1:A:178:LEU:HD23	1:A:202:ILE:HD13	1.79	0.64
1:A:113:LEU:HD21	1:C:31:THR:HA	1.79	0.64
1:D:72:ASP:OD2	1:D:112:ASN:ND2	2.31	0.63
1:B:33:VAL:HG13	1:B:208:GLN:HG2	1.80	0.63
1:A:178:LEU:HD23	1:A:202:ILE:CD1	2.28	0.62
1:C:177:MET:HE2	1:C:179:VAL:HG12	1.80	0.62
1:A:143:LEU:HB3	1:A:237:ILE:HD13	1.80	0.62
1:C:107:VAL:HG12	1:C:110:ALA:HB3	1.81	0.62
1:C:61:LYS:NZ	1:C:63:ILE:HD11	2.14	0.62
1:A:107:VAL:O	1:A:107:VAL:HG23	2.01	0.61
1:A:48:ILE:HD11	1:A:98:ILE:HD13	1.83	0.61
1:C:21:ALA:CB	1:C:182:GLY:HA2	2.31	0.59
1:C:174:HIS:HD2	1:C:176:VAL:HG13	1.68	0.58
1:B:33:VAL:CG1	1:B:208:GLN:HG2	2.34	0.58
1:D:151:ALA:HB3	1:D:229:CYS:HB3	1.86	0.58
1:A:199:TYR:HA	1:A:220:THR:HG22	1.85	0.58
1:A:33:VAL:HG11	1:A:214:GLY:HA3	1.86	0.57
1:B:148:ILE:HD11	1:B:178:LEU:HD13	1.85	0.57
1:A:31:THR:HG22	1:D:113:LEU:HD21	1.86	0.56
1:B:29:GLY:O	1:B:53:SER:OG	2.16	0.56
1:A:150:VAL:HG23	1:A:229:CYS:O	2.06	0.55
1:A:202:ILE:HB	1:A:216:ILE:HG23	1.88	0.54
1:B:140:LEU:HD11	1:B:179:VAL:C	2.32	0.54
1:B:70:LEU:HD11	1:B:92:MET:HE3	1.89	0.54
1:D:39:CYS:O	1:D:41:SER:N	2.40	0.54
1:B:150:VAL:HG23	1:B:229:CYS:HB2	1.91	0.53
1:B:33:VAL:HG22	1:B:34:LYS:O	2.08	0.53
1:D:85:ILE:O	1:D:88:ALA:HB3	2.09	0.53
1:A:107:VAL:HG23	1:A:110:ALA:HB3	1.91	0.53
1:B:108:SER:OG	1:B:109:ASP:N	2.35	0.52
1:B:183:MET:HE2	1:B:196:LYS:CB	2.39	0.52
1:D:86:ASN:N	1:D:86:ASN:OD1	2.40	0.52
1:A:108:SER:OG	1:A:109:ASP:N	2.41	0.52
1:D:52:GLU:OE2	1:D:64:THR:HA	2.09	0.52
1:A:70:LEU:HD12	1:A:74:SER:HB2	1.92	0.52
1:A:149:SER:HB2	1:A:172:LEU:HD22	1.92	0.52
1:A:208:GLN:HB3	1:A:213:ARG:HG2	1.90	0.52
1:A:4:TYR:HA	1:A:129:LEU:HD12	1.92	0.51
1:A:101:ASP:OD1	1:A:102:GLY:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:36:GLN:HG2	1:B:205:SER:O	2.10	0.51
1:A:74:SER:OG	1:A:77:ASN:ND2	2.41	0.51
1:C:39:CYS:SG	1:C:41:SER:OG	2.69	0.51
1:D:44:ALA:HB1	1:D:67:GLU:HB2	1.93	0.51
1:A:199:TYR:CA	1:A:220:THR:HG22	2.40	0.51
1:A:183:MET:HE3	1:A:196:LYS:CB	2.41	0.50
1:D:158:PHE:O	1:D:159:TYR:C	2.53	0.50
1:B:19:HIS:O	1:B:137:LYS:NZ	2.38	0.50
1:A:46:SER:CB	1:A:175:ALA:HB1	2.42	0.50
1:A:33:VAL:HG22	1:A:208:GLN:HG2	1.94	0.50
1:B:48:ILE:HA	1:B:92:MET:HE1	1.92	0.50
1:D:88:ALA:O	1:D:92:MET:HG3	2.12	0.50
1:A:15:GLU:HB3	1:A:16:ASN:C	2.37	0.49
1:C:74:SER:OG	1:C:77:ASN:ND2	2.39	0.49
1:A:176:VAL:CG2	1:A:202:ILE:HD12	2.43	0.49
1:C:139:ALA:CB	1:C:146:ILE:HD11	2.42	0.49
1:C:107:VAL:CG1	1:C:110:ALA:HB3	2.42	0.49
1:A:156:PHE:CZ	1:A:216:ILE:HD13	2.47	0.49
1:D:93:ILE:HG22	1:D:94:GLU:N	2.26	0.49
1:C:50:SER:HB2	1:C:147:SER:OG	2.12	0.49
1:B:181:PHE:HA	1:B:201:ILE:HD12	1.94	0.49
1:A:150:VAL:HG23	1:A:229:CYS:HB2	1.94	0.48
1:A:230:GLY:O	1:A:231:LEU:C	2.55	0.48
1:C:45:PHE:CE2	1:C:67:GLU:HG3	2.49	0.48
1:C:177:MET:HE2	1:C:179:VAL:CG1	2.42	0.48
1:C:61:LYS:HZ1	1:C:63:ILE:HD11	1.78	0.48
1:C:191:THR:O	1:C:193:LYS:N	2.47	0.48
1:A:85:ILE:O	1:A:88:ALA:HB3	2.13	0.47
1:A:176:VAL:HG21	1:A:202:ILE:HD12	1.96	0.47
1:B:148:ILE:HG22	1:B:235:ALA:HA	1.95	0.47
1:C:108:SER:HG	1:C:109:ASP:H	1.59	0.47
1:A:129:LEU:HD23	1:A:237:ILE:HG23	1.96	0.47
1:A:172:LEU:HD11	1:A:233:THR:OG1	2.14	0.47
1:B:177:MET:HE3	1:B:203:LYS:HD3	1.96	0.47
1:A:70:LEU:HD21	1:A:92:MET:HE2	1.97	0.47
1:D:91:ASP:O	1:D:95:LEU:HD12	2.15	0.46
1:C:31:THR:HB	1:C:32:PRO:HD2	1.97	0.46
1:D:36:GLN:NE2	2:D:242:E64:O2	2.48	0.46
1:D:232:GLY:O	1:D:233:THR:C	2.59	0.46
1:C:209:GLN:H	1:C:209:GLN:CD	2.21	0.46
1:D:178:LEU:HA	1:D:202:ILE:HG22	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:183:MET:HE3	1:A:196:LYS:HA	1.99	0.45
1:A:23:ASP:CB	1:A:26:LEU:HD12	2.46	0.45
1:A:49:GLY:HA3	1:A:177:MET:SD	2.56	0.45
1:A:132:PRO:HG2	1:A:135:LYS:HB2	1.98	0.45
1:C:62:LEU:C	1:C:62:LEU:HD23	2.41	0.45
1:C:48:ILE:HD12	1:C:67:GLU:HA	1.98	0.45
1:A:152:VAL:HG22	1:A:156:PHE:CD2	2.51	0.45
1:D:46:SER:CB	1:D:175:ALA:HB1	2.47	0.45
1:B:83:GLY:O	1:B:84:LEU:HD23	2.17	0.45
1:D:65:LEU:HA	1:D:100:PRO:HA	1.99	0.45
1:A:68:GLN:O	1:A:71:VAL:N	2.50	0.44
1:B:148:ILE:HG22	1:B:235:ALA:CB	2.47	0.44
1:B:51:VAL:CG2	1:B:65:LEU:HD12	2.47	0.44
1:B:152:VAL:HG22	1:B:173:ASN:OD1	2.17	0.44
1:B:230:GLY:O	1:B:231:LEU:C	2.59	0.44
1:A:229:CYS:O	1:A:231:LEU:N	2.51	0.44
1:A:66:SER:HB2	1:A:104:TYR:HB3	1.99	0.44
1:C:129:LEU:HD12	1:C:130:SER:C	2.43	0.43
1:A:212:GLU:O	1:A:213:ARG:C	2.60	0.43
1:A:125:ILE:HA	1:A:240:ILE:HG22	2.00	0.43
1:A:38:ASN:O	1:A:39:CYS:HB2	2.18	0.43
1:A:36:GLN:NE2	2:A:242:E64:O2	2.51	0.43
1:B:68:GLN:HE22	1:B:72:ASP:CG	2.27	0.43
1:D:153:SER:O	1:D:155:ASP:N	2.52	0.43
1:B:140:LEU:HD21	1:B:180:GLY:N	2.34	0.43
1:A:52:GLU:OE2	1:A:64:THR:HG22	2.20	0.42
1:C:187:VAL:HA	1:C:194:GLY:HA2	2.02	0.42
1:B:45:PHE:CE1	1:B:67:GLU:HG3	2.54	0.42
1:D:42:CYS:HB2	1:D:175:ALA:HB3	2.01	0.42
1:B:209:GLN:OE1	1:B:209:GLN:N	2.52	0.42
1:B:49:GLY:HA3	1:B:177:MET:HE2	2.02	0.42
1:A:183:MET:HE3	1:A:196:LYS:HB3	2.02	0.42
1:B:65:LEU:HD22	1:B:98:ILE:O	2.19	0.42
1:B:181:PHE:CA	1:B:201:ILE:HD12	2.50	0.42
1:C:92:MET:HB3	1:C:92:MET:HE2	1.80	0.42
1:B:89:PHE:O	1:B:93:ILE:HD12	2.20	0.41
1:C:62:LEU:O	1:C:63:ILE:HD13	2.21	0.41
1:D:74:SER:OG	1:D:77:ASN:ND2	2.53	0.41
1:C:177:MET:HE2	1:C:177:MET:HB3	1.95	0.41
1:A:52:GLU:HG2	1:A:63:ILE:O	2.20	0.41
1:A:78:TYR:O	1:A:79:GLY:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:73:CYS:HB3	1:D:95:LEU:HD21	2.01	0.41
1:C:65:LEU:HA	1:C:100:PRO:HA	2.02	0.41
1:A:45:PHE:CZ	1:A:67:GLU:HG3	2.55	0.41
1:C:85:ILE:O	1:C:88:ALA:HB3	2.21	0.41
1:C:139:ALA:HB3	1:C:146:ILE:HD11	2.02	0.41
1:C:139:ALA:HB1	1:C:146:ILE:HD11	2.03	0.41
1:C:149:SER:OG	2:C:242:E64:H103	2.21	0.41
1:B:230:GLY:O	1:B:232:GLY:N	2.53	0.40
1:A:146:ILE:O	1:A:148:ILE:HG23	2.21	0.40
1:A:38:ASN:OD1	1:A:38:ASN:C	2.59	0.40
1:A:52:GLU:OE2	1:A:64:THR:HA	2.20	0.40
1:A:100:PRO:O	1:A:102:GLY:N	2.55	0.40
1:A:230:GLY:O	1:A:232:GLY:N	2.53	0.40
1:B:31:THR:HG21	1:B:52:GLU:HB3	2.02	0.40
1:B:36:GLN:HG3	1:B:37:LYS:N	2.36	0.40
1:B:93:ILE:HD12	1:B:125:ILE:HD11	2.04	0.40
1:A:65:LEU:HA	1:A:100:PRO:HA	2.03	0.40
1:A:178:LEU:HD23	1:A:202:ILE:HD11	2.00	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	232/241 (96%)	205 (88%)	20 (9%)	7 (3%)	3	14
1	B	238/241 (99%)	217 (91%)	18 (8%)	3 (1%)	9	32
1	C	230/241 (95%)	198 (86%)	28 (12%)	4 (2%)	7	26
1	D	209/241 (87%)	172 (82%)	29 (14%)	8 (4%)	2	10
All	All	909/964 (94%)	792 (87%)	95 (10%)	22 (2%)	4	18

All (22) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	39	CYS
1	C	163	ILE
1	C	192	LYS
1	D	154	ASP
1	A	101	ASP
1	A	213	ARG
1	A	230	GLY
1	B	231	LEU
1	C	231	LEU
1	D	40	GLY
1	D	208	GLN
1	D	231	LEU
1	A	61	LYS
1	A	231	LEU
1	B	37	LYS
1	B	190	LEU
1	C	160	LYS
1	D	39	CYS
1	D	159	TYR
1	D	165	ASP
1	D	134	ASN
1	A	150	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	201/206 (98%)	186 (92%)	15 (8%)	12	37
1	B	205/206 (100%)	196 (96%)	9 (4%)	25	59
1	C	200/206 (97%)	191 (96%)	9 (4%)	24	58
1	D	183/206 (89%)	170 (93%)	13 (7%)	13	40
All	All	789/824 (96%)	743 (94%)	46 (6%)	18	49

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	GLN
1	A	3	ASN
1	A	33	VAL
1	A	38	ASN
1	A	48	ILE
1	A	51	VAL
1	A	63	ILE
1	A	64	THR
1	A	67	GLU
1	A	107	VAL
1	A	152	VAL
1	A	176	VAL
1	A	208	GLN
1	A	233	THR
1	A	237	ILE
1	B	51	VAL
1	B	62	LEU
1	B	63	ILE
1	B	67	GLU
1	B	68	GLN
1	B	116	ILE
1	B	143	LEU
1	B	187	VAL
1	B	233	THR
1	C	51	VAL
1	C	64	THR
1	C	90	GLU
1	C	108	SER
1	C	112	ASN
1	C	120	THR
1	C	125	ILE
1	C	209	GLN
1	C	233	THR
1	D	31	THR
1	D	33	VAL
1	D	51	VAL
1	D	67	GLU
1	D	86	ASN
1	D	90	GLU
1	D	103	ASP
1	D	120	THR
1	D	154	ASP
1	D	181	PHE

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Mol	Chain	Res	Type
1	D	202	ILE
1	D	216	ILE
1	D	241	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3	ASN
1	A	208	GLN
1	B	68	GLN
1	B	112	ASN
1	B	188	ASN
1	C	38	ASN
1	C	54	GLN
1	C	217	ASN
1	D	27	HIS
1	D	68	GLN
1	D	173	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

5 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	$\# Z > 2$
2	E64	C	242	1	24,24,24	0.70	0	27,30,30	0.83	1 (3%)
2	E64	D	242	1	24,24,24	0.72	0	27,30,30	0.77	2 (7%)
3	GOL	C	243	-	5,5,5	0.38	0	5,5,5	0.24	0
2	E64	B	242	1	24,24,24	0.66	0	27,30,30	0.79	0
2	E64	A	242	1	24,24,24	0.61	0	27,30,30	0.83	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
2	E64	C	242	1	-	16/29/29/29	-
2	E64	D	242	1	-	8/29/29/29	-
3	GOL	C	243	-	-	1/4/4/4	-
2	E64	B	242	1	-	8/29/29/29	-
2	E64	A	242	1	-	10/29/29/29	-

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	242	E64	O1-C1-C2	-2.11	116.38	122.84
2	D	242	E64	C8-C7-C6	-2.02	109.99	115.40
2	D	242	E64	O1-C1-C2	-2.02	116.65	122.84

There are no chirality outliers.

All (43) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	242	E64	O3-C3-C4-O4
2	A	242	E64	O3-C3-C4-N1
2	B	242	E64	O3-C3-C4-O4
2	B	242	E64	O3-C3-C4-N1
2	C	242	E64	O3-C3-C4-O4
2	C	242	E64	O3-C3-C4-N1

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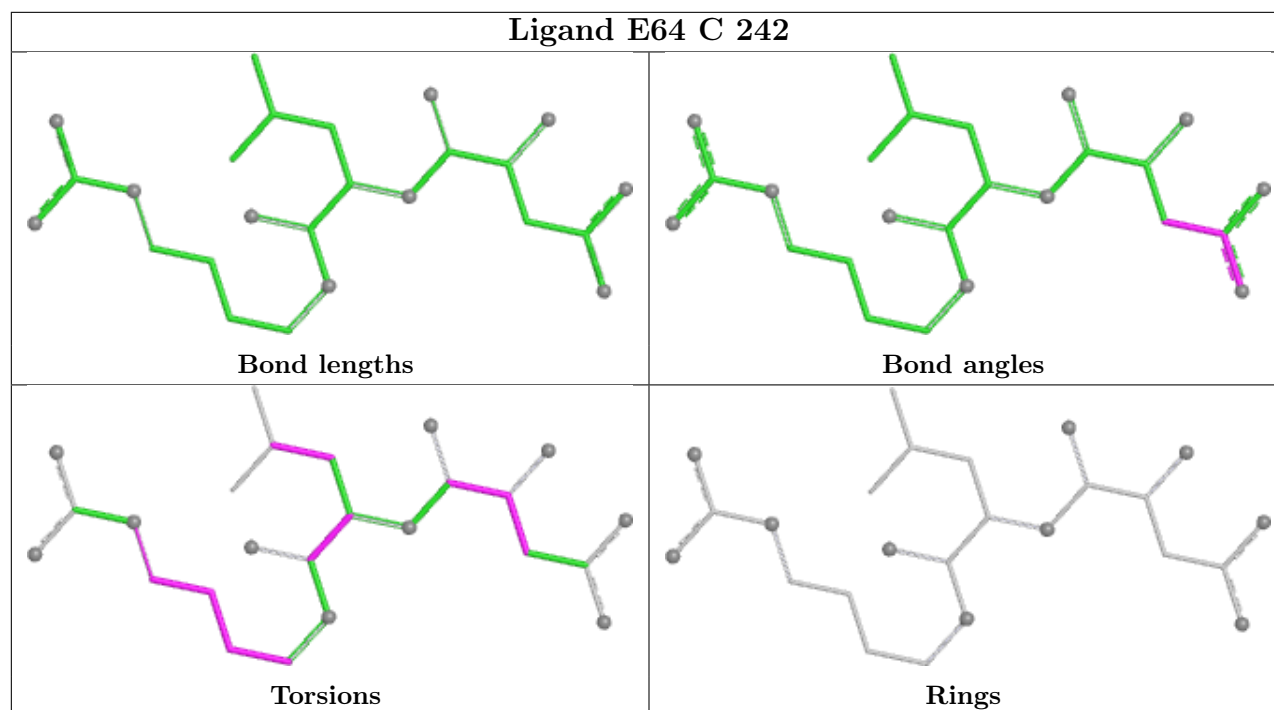
Mol	Chain	Res	Type	Atoms
2	D	242	E64	O3-C3-C4-O4
2	A	242	E64	C11-C6-C7-C8
2	A	242	E64	N1-C6-C7-C8
2	B	242	E64	C13-C14-C15-N3
2	D	242	E64	N1-C6-C7-C8
2	A	242	E64	N2-C12-C13-C14
2	D	242	E64	C11-C6-C7-C8
2	C	242	E64	N2-C12-C13-C14
2	C	242	E64	C6-C7-C8-C10
2	C	242	E64	C6-C7-C8-C9
2	B	242	E64	C12-C13-C14-C15
2	C	242	E64	C12-C13-C14-C15
2	D	242	E64	C13-C14-C15-N3
2	A	242	E64	C12-C13-C14-C15
2	C	242	E64	C1-C2-C3-O3
2	D	242	E64	O3-C3-C4-N1
2	B	242	E64	C11-C6-C7-C8
3	C	243	GOL	O1-C1-C2-O2
2	D	242	E64	C2-C3-C4-O4
2	A	242	E64	C2-C3-C4-N1
2	D	242	E64	C2-C3-C4-N1
2	B	242	E64	N1-C6-C7-C8
2	C	242	E64	O5-C11-C6-C7
2	C	242	E64	C1-C2-C3-C4
2	C	242	E64	C13-C14-C15-N3
2	C	242	E64	N2-C11-C6-C7
2	D	242	E64	N2-C12-C13-C14
2	A	242	E64	C2-C3-C4-O4
2	B	242	E64	C2-C3-C4-O4
2	C	242	E64	C2-C3-C4-O4
2	B	242	E64	C2-C3-C4-N1
2	C	242	E64	C2-C3-C4-N1
2	A	242	E64	O2-C1-C2-C3
2	C	242	E64	O5-C11-C6-N1
2	C	242	E64	C14-C15-N3-C16
2	C	242	E64	N2-C11-C6-N1
2	A	242	E64	O1-C1-C2-C3

There are no ring outliers.

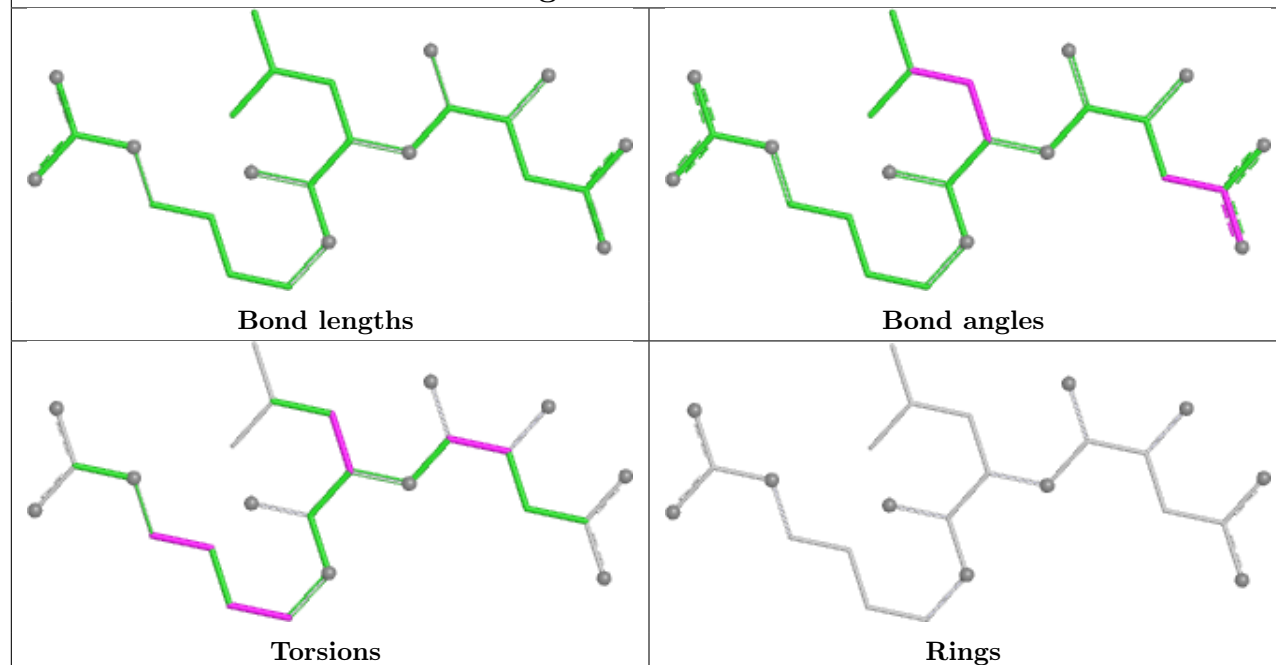
3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	242	E64	1	0
2	D	242	E64	1	0
2	A	242	E64	1	0

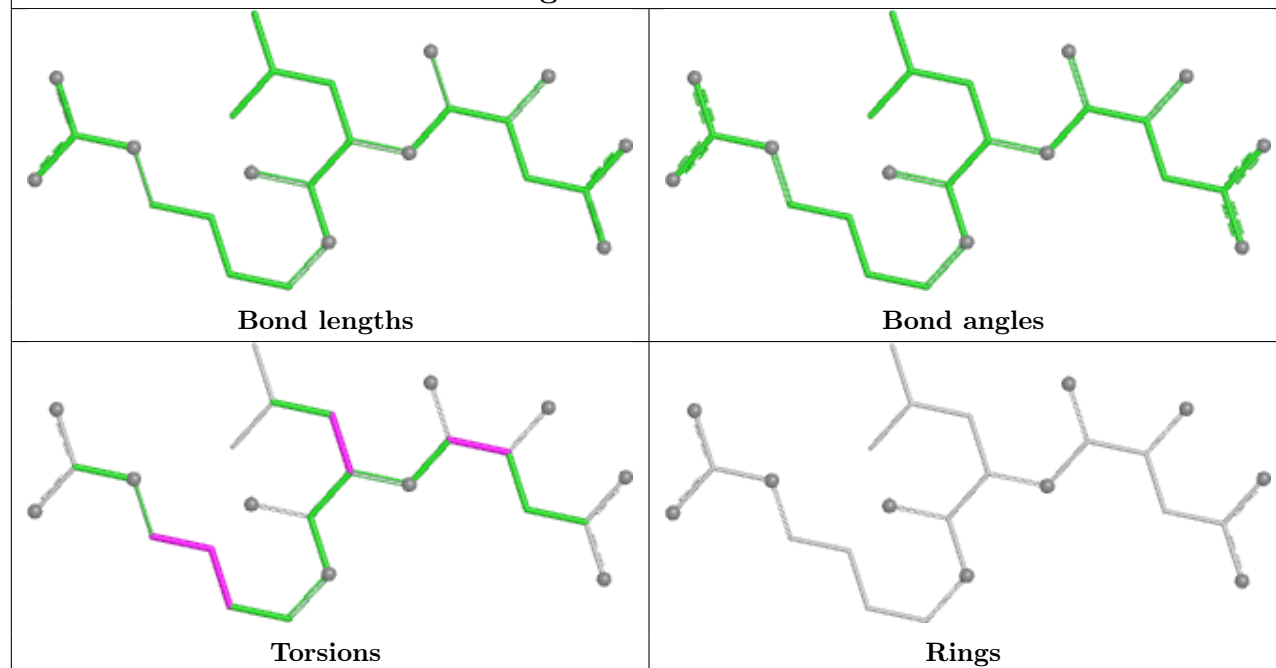
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

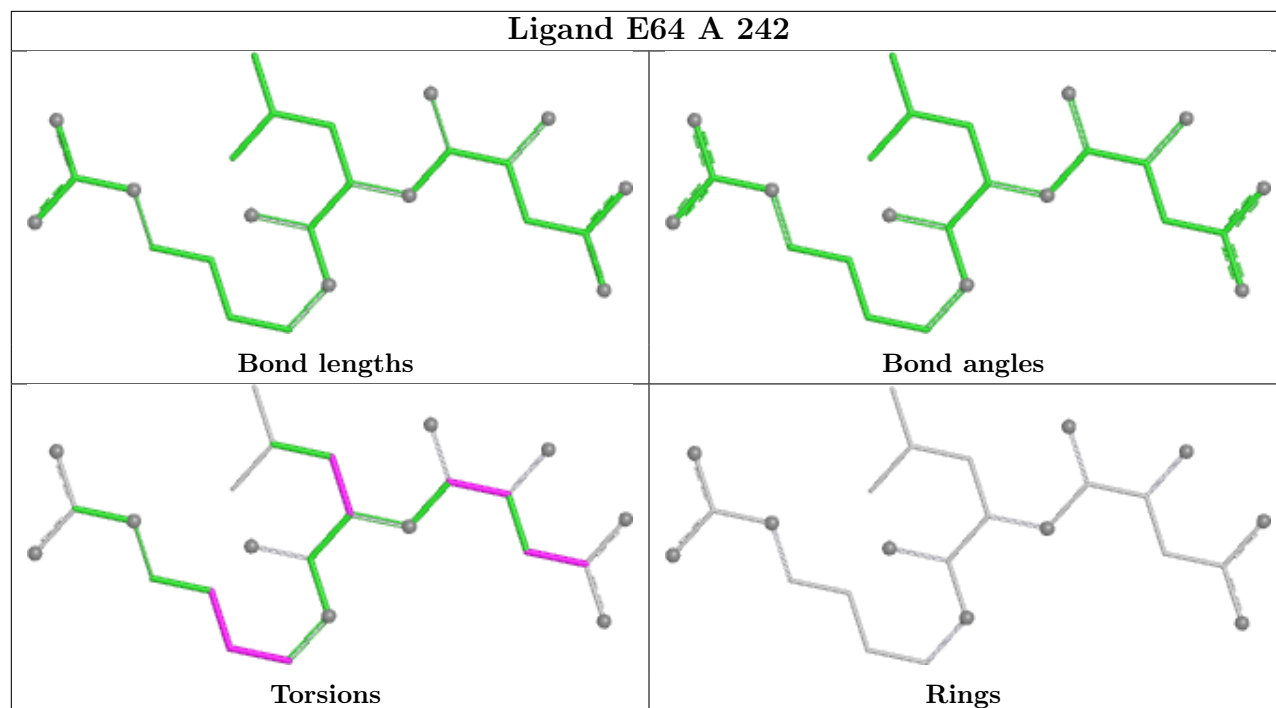


Ligand E64 D 242



Ligand E64 B 242





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	236/241 (97%)	2.47	141 (59%) 0 0	36, 73, 80, 85	24 (10%)
1	B	240/241 (99%)	2.27	113 (47%) 0 0	34, 78, 89, 94	47 (19%)
1	C	234/241 (97%)	2.29	115 (49%) 0 0	36, 73, 76, 87	52 (22%)
1	D	215/241 (89%)	2.47	93 (43%) 0 0	33, 68, 96, 115	66 (30%)
All	All	925/964 (95%)	2.37	462 (49%) 0 0	33, 74, 89, 115	189 (20%)

All (462) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	167	GLU	12.3
1	D	4	TYR	11.8
1	D	171	GLN	11.0
1	D	142	PHE	10.3
1	A	167	GLU	9.6
1	D	219	GLU	9.5
1	C	126	LYS	9.1
1	C	219	GLU	9.0
1	D	122	LYS	8.9
1	D	227	ARG	8.6
1	D	208	GLN	8.5
1	B	198	TYR	8.2
1	D	213	ARG	8.0
1	C	4	TYR	7.9
1	D	161	GLU	7.9
1	D	170	ASP	7.8
1	D	61	LYS	7.7
1	A	6	GLU	7.7
1	B	193	LYS	7.7
1	B	167	GLU	7.6
1	C	192	LYS	7.5

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Mol	Chain	Res	Type	RSRZ
1	C	195	GLU	7.3
1	D	222	GLU	7.2
1	A	188	ASN	7.1
1	D	135	LYS	7.0
1	D	141	ARG	6.9
1	D	5	GLU	6.8
1	D	9	LYS	6.7
1	D	160	LYS	6.7
1	D	8	ILE	6.6
1	A	228	LYS	6.6
1	B	164	PHE	6.5
1	B	170	ASP	6.4
1	B	61	LYS	6.4
1	B	120	THR	6.3
1	D	223	SER	6.3
1	C	196	LYS	6.2
1	C	142	PHE	6.2
1	D	138	GLU	6.2
1	D	10	LYS	6.2
1	A	63	ILE	6.2
1	B	214	GLY	6.1
1	A	147	SER	6.1
1	C	78	TYR	6.1
1	B	9	LYS	6.1
1	B	196	LYS	6.0
1	A	98	ILE	6.0
1	A	14	GLU	5.9
1	C	75	PHE	5.8
1	B	11	TYR	5.7
1	A	28	SER	5.7
1	D	220	THR	5.5
1	D	6	GLU	5.4
1	B	158	PHE	5.4
1	D	34	LYS	5.3
1	C	10	LYS	5.3
1	A	89	PHE	5.3
1	C	117	ASP	5.3
1	C	163	ILE	5.2
1	B	122	LYS	5.2
1	C	184	LYS	5.2
1	A	175	ALA	5.2
1	C	122	LYS	5.1

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Mol	Chain	Res	Type	RSRZ
1	D	63	ILE	5.1
1	C	169	GLY	5.1
1	A	70	LEU	5.0
1	D	228	LYS	5.0
1	D	126	LYS	4.9
1	B	204	ASN	4.9
1	A	51	VAL	4.9
1	B	192	LYS	4.8
1	C	63	ILE	4.8
1	B	150	VAL	4.7
1	D	60	ASN	4.7
1	D	164	PHE	4.7
1	C	43	TRP	4.7
1	C	59	LYS	4.6
1	C	170	ASP	4.6
1	D	157	ALA	4.6
1	C	185	GLU	4.6
1	A	81	ASN	4.6
1	A	122	LYS	4.6
1	C	9	LYS	4.6
1	D	201	ILE	4.6
1	B	121	GLU	4.6
1	C	37	LYS	4.5
1	A	202	ILE	4.5
1	B	152	VAL	4.5
1	D	168	CYS	4.5
1	B	186	ILE	4.4
1	B	210	TRP	4.4
1	B	125	ILE	4.4
1	A	179	VAL	4.4
1	B	171	GLN	4.4
1	C	193	LYS	4.4
1	C	116	ILE	4.4
1	A	123	TYR	4.4
1	A	134	ASN	4.3
1	A	65	LEU	4.3
1	C	228	LYS	4.3
1	A	176	VAL	4.3
1	D	212	GLU	4.3
1	A	50	SER	4.3
1	B	142	PHE	4.3
1	C	138	GLU	4.3

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Mol	Chain	Res	Type	RSRZ
1	A	105	PRO	4.2
1	A	146	ILE	4.2
1	D	62	LEU	4.1
1	C	166	GLY	4.1
1	A	187	VAL	4.1
1	B	63	ILE	4.1
1	D	59	LYS	4.1
1	A	215	PHE	4.1
1	D	178	LEU	4.1
1	C	123	TYR	4.1
1	B	228	LYS	4.1
1	A	10	LYS	4.0
1	C	104	TYR	4.0
1	B	209	GLN	4.0
1	D	21	ALA	4.0
1	B	10	LYS	4.0
1	B	143	LEU	4.0
1	C	135	LYS	4.0
1	A	201	ILE	4.0
1	A	48	ILE	3.9
1	A	213	ARG	3.9
1	D	181	PHE	3.9
1	D	240	ILE	3.9
1	C	65	LEU	3.9
1	B	85	ILE	3.9
1	B	205	SER	3.9
1	A	135	LYS	3.9
1	A	150	VAL	3.9
1	A	46	SER	3.9
1	A	99	CYS	3.8
1	B	90	GLU	3.8
1	C	67	GLU	3.8
1	B	7	VAL	3.8
1	A	47	SER	3.8
1	C	118	ARG	3.8
1	A	110	ALA	3.8
1	C	6	GLU	3.7
1	C	149	SER	3.7
1	A	152	VAL	3.7
1	D	30	VAL	3.7
1	D	20	ALA	3.7
1	A	178	LEU	3.7

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Mol	Chain	Res	Type	RSRZ
1	A	239	LEU	3.7
1	C	204	ASN	3.7
1	A	169	GLY	3.7
1	D	156	PHE	3.7
1	B	190	LEU	3.7
1	C	157	ALA	3.7
1	A	25	ARG	3.7
1	D	137	LYS	3.7
1	A	184	LYS	3.7
1	B	76	LYS	3.7
1	A	4	TYR	3.7
1	B	126	LYS	3.7
1	B	113	LEU	3.6
1	B	97	GLY	3.6
1	A	55	TYR	3.6
1	A	43	TRP	3.6
1	B	240	ILE	3.6
1	C	205	SER	3.6
1	C	79	GLY	3.6
1	B	65	LEU	3.6
1	B	213	ARG	3.6
1	C	51	VAL	3.6
1	A	136	LEU	3.6
1	C	113	LEU	3.6
1	A	30	VAL	3.5
1	C	71	VAL	3.5
1	C	165	ASP	3.5
1	C	81	ASN	3.5
1	D	163	ILE	3.5
1	C	152	VAL	3.5
1	A	66	SER	3.5
1	B	75	PHE	3.4
1	A	206	TRP	3.4
1	A	85	ILE	3.4
1	B	106	TYR	3.4
1	C	200	TYR	3.4
1	B	175	ALA	3.4
1	C	98	ILE	3.4
1	D	57	ILE	3.4
1	A	140	LEU	3.4
1	C	39	CYS	3.4
1	A	41	SER	3.4

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Mol	Chain	Res	Type	RSRZ
1	B	184	LYS	3.4
1	B	208	GLN	3.4
1	C	206	TRP	3.3
1	D	136	LEU	3.3
1	B	71	VAL	3.3
1	D	229	CYS	3.3
1	B	89	PHE	3.3
1	C	214	GLY	3.3
1	B	57	ILE	3.3
1	C	235	ALA	3.3
1	C	31	THR	3.3
1	A	74	SER	3.3
1	A	95	LEU	3.3
1	B	58	ARG	3.3
1	C	54	GLN	3.3
1	C	107	VAL	3.3
1	B	135	LYS	3.2
1	A	62	LEU	3.2
1	B	62	LEU	3.2
1	A	15	GLU	3.2
1	D	199	TYR	3.2
1	A	216	ILE	3.2
1	B	115	ASN	3.2
1	B	45	PHE	3.2
1	B	8	ILE	3.2
1	C	106	TYR	3.2
1	C	156	PHE	3.1
1	B	201	ILE	3.1
1	A	235	ALA	3.1
1	A	45	PHE	3.1
1	C	77	ASN	3.1
1	A	177	MET	3.1
1	A	52	GLU	3.1
1	C	201	ILE	3.1
1	B	141	ARG	3.1
1	C	151	ALA	3.1
1	C	164	PHE	3.1
1	D	226	MET	3.1
1	A	208	GLN	3.1
1	C	125	ILE	3.1
1	A	196	LYS	3.1
1	C	76	LYS	3.1

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Mol	Chain	Res	Type	RSRZ
1	D	76	LYS	3.1
1	B	4	TYR	3.0
1	B	50	SER	3.0
1	A	29	GLY	3.0
1	A	218	ILE	3.0
1	B	12	ARG	3.0
1	A	225	LEU	3.0
1	C	84	LEU	3.0
1	A	31	THR	3.0
1	A	44	ALA	3.0
1	B	26	LEU	3.0
1	A	22	TYR	3.0
1	B	128	TYR	3.0
1	D	204	ASN	3.0
1	B	44	ALA	3.0
1	A	57	ILE	3.0
1	B	102	GLY	3.0
1	A	7	VAL	3.0
1	D	150	VAL	3.0
1	B	123	TYR	2.9
1	C	110	ALA	2.9
1	C	190	LEU	2.9
1	D	24	TRP	2.9
1	A	200	TYR	2.9
1	B	212	GLU	2.9
1	C	85	ILE	2.9
1	B	67	GLU	2.9
1	B	217	ASN	2.9
1	B	179	VAL	2.9
1	B	174	HIS	2.9
1	D	180	GLY	2.9
1	A	104	TYR	2.9
1	A	154	ASP	2.9
1	A	158	PHE	2.9
1	A	205	SER	2.9
1	A	116	ILE	2.9
1	C	210	TRP	2.8
1	A	185	GLU	2.8
1	B	95	LEU	2.8
1	B	98	ILE	2.8
1	A	53	SER	2.8
1	C	34	LYS	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	24	TRP	2.8
1	A	212	GLU	2.8
1	D	159	TYR	2.8
1	B	151	ALA	2.8
1	C	216	ILE	2.8
1	D	225	LEU	2.8
1	B	160	LYS	2.8
1	B	226	MET	2.8
1	A	108	SER	2.8
1	A	149	SER	2.8
1	A	126	LYS	2.7
1	A	102	GLY	2.7
1	A	194	GLY	2.7
1	B	66	SER	2.7
1	D	132	PRO	2.7
1	C	48	ILE	2.7
1	A	97	GLY	2.7
1	D	166	GLY	2.7
1	A	32	PRO	2.7
1	D	33	VAL	2.7
1	A	203	LYS	2.7
1	C	114	CYS	2.7
1	D	78	TYR	2.7
1	D	155	ASP	2.7
1	B	156	PHE	2.7
1	C	93	ILE	2.7
1	B	55	TYR	2.7
1	D	55	TYR	2.7
1	B	30	VAL	2.7
1	C	94	GLU	2.7
1	B	79	GLY	2.6
1	D	233	THR	2.6
1	A	67	GLU	2.6
1	A	143	LEU	2.6
1	B	48	ILE	2.6
1	A	199	TYR	2.6
1	B	140	LEU	2.6
1	A	148	ILE	2.6
1	D	133	ASP	2.6
1	A	166	GLY	2.6
1	B	238	PRO	2.6
1	C	7	VAL	2.6

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Mol	Chain	Res	Type	RSRZ
1	C	150	VAL	2.6
1	D	65	LEU	2.6
1	C	183	MET	2.6
1	A	210	TRP	2.6
1	B	43	TRP	2.6
1	A	207	GLY	2.6
1	A	33	VAL	2.6
1	B	107	VAL	2.6
1	B	16	ASN	2.6
1	C	172	LEU	2.5
1	D	22	TYR	2.5
1	A	240	ILE	2.5
1	B	148	ILE	2.5
1	A	157	ALA	2.5
1	A	60	ASN	2.5
1	B	77	ASN	2.5
1	A	59	LYS	2.5
1	A	93	ILE	2.5
1	A	38	ASN	2.5
1	D	37	LYS	2.5
1	A	92	MET	2.5
1	A	172	LEU	2.5
1	B	70	LEU	2.5
1	C	102	GLY	2.5
1	B	24	TRP	2.5
1	B	104	TYR	2.5
1	C	198	TYR	2.5
1	C	68	GLN	2.5
1	C	32	PRO	2.4
1	C	108	SER	2.4
1	A	219	GLU	2.4
1	D	210	TRP	2.4
1	A	9	LYS	2.4
1	A	54	GLN	2.4
1	A	26	LEU	2.4
1	C	62	LEU	2.4
1	D	26	LEU	2.4
1	D	51	VAL	2.4
1	C	215	PHE	2.4
1	C	88	ALA	2.4
1	C	70	LEU	2.4
1	D	7	VAL	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	172	LEU	2.4
1	C	18	ASP	2.3
1	C	41	SER	2.3
1	D	66	SER	2.3
1	A	197	HIS	2.3
1	B	91	ASP	2.3
1	C	52	GLU	2.3
1	D	218	ILE	2.3
1	A	61	LYS	2.3
1	A	151	ALA	2.3
1	C	44	ALA	2.3
1	C	56	ALA	2.3
1	B	80	CYS	2.3
1	A	27	HIS	2.3
1	C	66	SER	2.3
1	C	141	ARG	2.3
1	C	100	PRO	2.3
1	A	40	GLY	2.3
1	C	83	GLY	2.3
1	B	161	GLU	2.3
1	A	113	LEU	2.3
1	D	165	ASP	2.3
1	B	203	LYS	2.3
1	C	73	CYS	2.3
1	B	46	SER	2.3
1	B	176	VAL	2.3
1	D	145	PRO	2.3
1	C	144	GLY	2.3
1	C	103	ASP	2.2
1	C	57	ILE	2.2
1	D	118	ARG	2.2
1	A	131	VAL	2.2
1	B	51	VAL	2.2
1	D	29	GLY	2.2
1	B	129	LEU	2.2
1	C	225	LEU	2.2
1	B	145	PRO	2.2
1	C	168	CYS	2.2
1	C	45	PHE	2.2
1	A	186	ILE	2.2
1	D	179	VAL	2.2
1	A	39	CYS	2.2

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Mol	Chain	Res	Type	RSRZ
1	C	11	TYR	2.2
1	D	174	HIS	2.2
1	A	103	ASP	2.2
1	A	233	THR	2.2
1	C	55	TYR	2.2
1	C	158	PHE	2.2
1	D	11	TYR	2.2
1	C	222	GLU	2.2
1	D	110	ALA	2.2
1	D	116	ILE	2.1
1	A	71	VAL	2.1
1	B	124	GLY	2.1
1	D	214	GLY	2.1
1	B	215	PHE	2.1
1	D	140	LEU	2.1
1	A	229	CYS	2.1
1	C	80	CYS	2.1
1	C	240	ILE	2.1
1	A	68	GLN	2.1
1	A	174	HIS	2.1
1	C	105	PRO	2.1
1	A	76	LYS	2.1
1	A	17	PHE	2.1
1	B	157	ALA	2.1
1	C	20	ALA	2.1
1	A	107	VAL	2.1
1	A	145	PRO	2.1
1	B	112	ASN	2.1
1	C	127	ASN	2.1
1	A	129	LEU	2.1
1	D	207	GLY	2.1
1	D	239	LEU	2.1
1	C	191	THR	2.1
1	D	75	PHE	2.1
1	A	227	ARG	2.1
1	B	25	ARG	2.1
1	C	58	ARG	2.1
1	B	20	ALA	2.1
1	D	216	ILE	2.1
1	A	209	GLN	2.1
1	D	209	GLN	2.1
1	C	226	MET	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	33	VAL	2.1
1	B	132	PRO	2.1
1	A	173	ASN	2.1
1	B	231	LEU	2.1
1	B	82	GLY	2.1
1	A	21	ALA	2.1
1	A	125	ILE	2.1
1	D	67	GLU	2.1
1	A	3	ASN	2.0
1	A	109	ASP	2.0
1	A	237	ILE	2.0
1	B	15	GLU	2.0
1	A	37	LYS	2.0
1	A	171	GLN	2.0
1	B	229	CYS	2.0
1	D	143	LEU	2.0
1	C	115	ASN	2.0
1	A	156	PHE	2.0
1	D	83	GLY	2.0
1	B	218	ILE	2.0
1	A	35	ASP	2.0

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

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	GOL	C	243	6/6	0.56	0.18	123,124,124,124	0
2	E64	B	242	25/25	0.79	0.33	76,79,80,81	7

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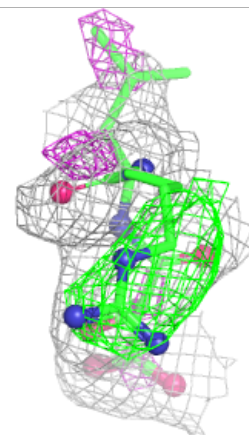
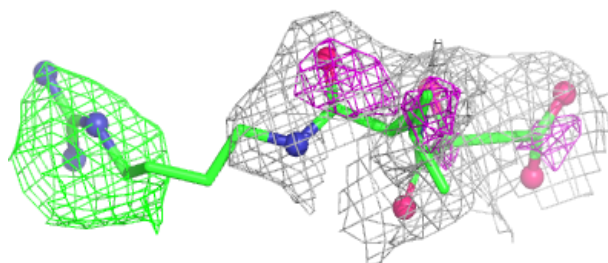
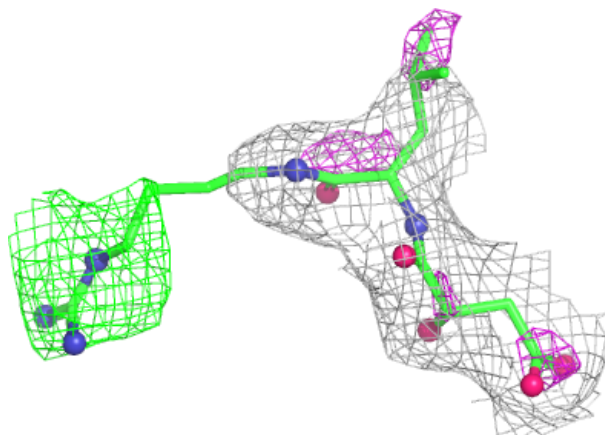
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	E64	C	242	25/25	0.82	0.15	79,83,87,87	0
2	E64	A	242	25/25	0.85	0.15	69,72,80,80	0
2	E64	D	242	25/25	0.86	0.16	69,72,78,79	0

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.

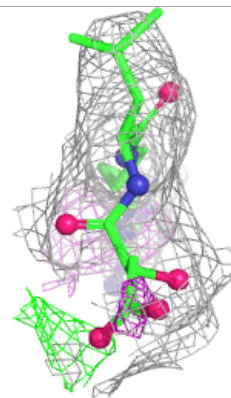
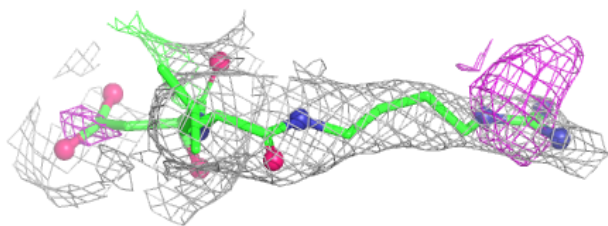
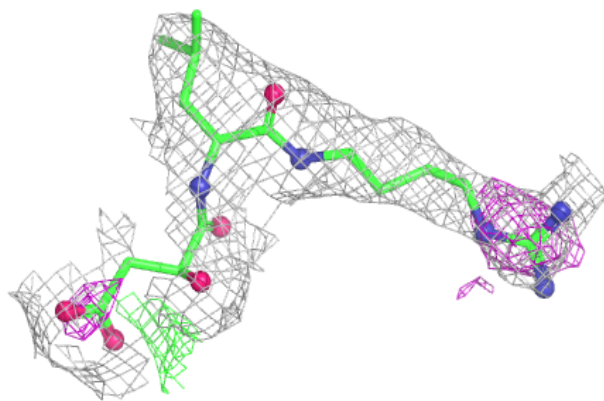
Electron density around E64 B 242:

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



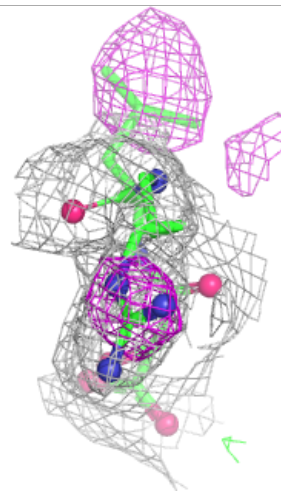
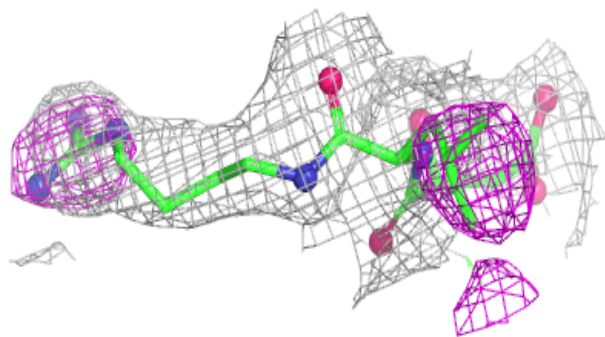
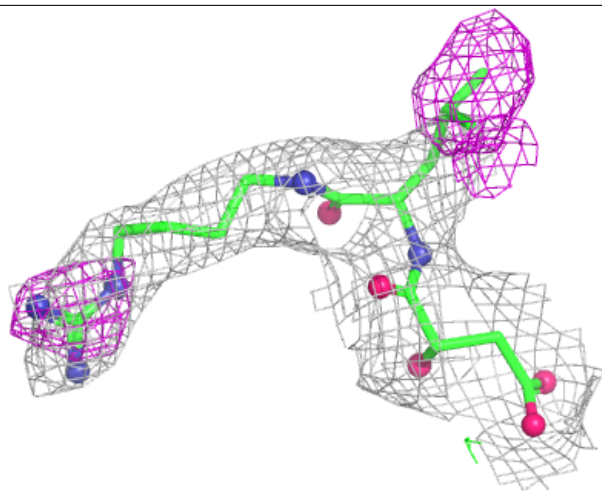
Electron density around E64 C 242:

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



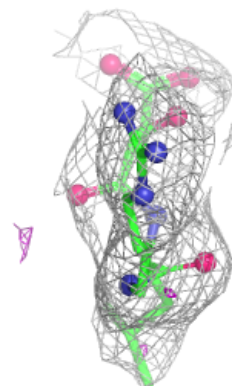
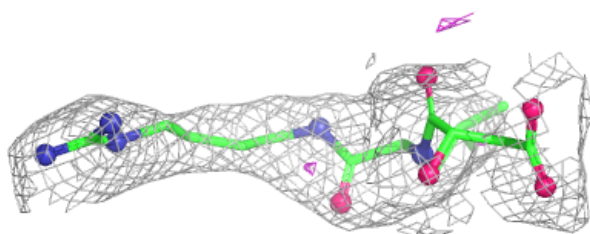
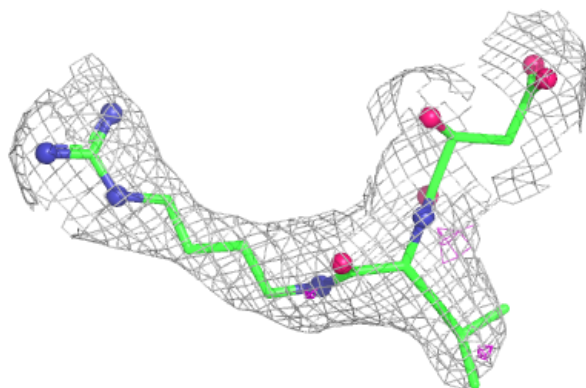
Electron density around E64 A 242:

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



Electron density around E64 D 242:

$2mF_o-DF_c$ (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.