Full wwPDB X-ray Structure Validation Report ⓘ

Jun 24, 2024 – 04:14 PM EDT

PDB ID	:	7C0Q
Title	:	a Legionella pneumophila effector Lpg2505
Authors	:	Chen, T.T.; Han, A.D.; Luo, Z.Q.; McCloskey, A.; Perri, K.
Deposited on	:	2020-05-01
Resolution	:	2.60 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:

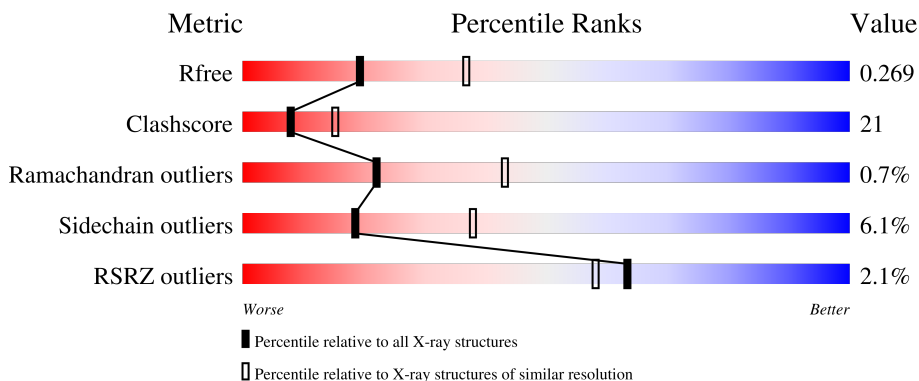|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.60 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	Percentile Ranks	Value
Rfree		0.269
Clashscore		21
Ramachandran outliers		0.7%
Sidechain outliers		6.1%
RSRZ outliers		2.1%

Worse ← → *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	318	% 57% · 29% · 12%
1	B	318	2% 56% · 26% · · 14%
1	C	318	3% 49% · 32% · · 14%
1	D	318	2% 57% · 26% · 14%

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
2	GOL	C	301	-	-	X	-

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 9112 atoms, of which 32 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 effector Lpg2505.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	279	Total	C	N	O	S	0	0	0
			2248	1442	370	423	13			
1	B	274	Total	C	N	O	S	0	0	0
			2202	1416	364	409	13			
1	C	272	Total	C	N	O	S	0	0	0
			2197	1414	363	407	13			
1	D	274	Total	C	N	O	S	0	0	0
			2210	1419	364	414	13			

There are 92 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-22	MET	-	expression tag	UNP Q5ZSL2
A	-21	GLY	-	expression tag	UNP Q5ZSL2
A	-20	SER	-	expression tag	UNP Q5ZSL2
A	-19	SER	-	expression tag	UNP Q5ZSL2
A	-18	HIS	-	expression tag	UNP Q5ZSL2
A	-17	HIS	-	expression tag	UNP Q5ZSL2
A	-16	HIS	-	expression tag	UNP Q5ZSL2
A	-15	HIS	-	expression tag	UNP Q5ZSL2
A	-14	HIS	-	expression tag	UNP Q5ZSL2
A	-13	HIS	-	expression tag	UNP Q5ZSL2
A	-12	SER	-	expression tag	UNP Q5ZSL2
A	-11	SER	-	expression tag	UNP Q5ZSL2
A	-10	GLY	-	expression tag	UNP Q5ZSL2
A	-9	LEU	-	expression tag	UNP Q5ZSL2
A	-8	VAL	-	expression tag	UNP Q5ZSL2
A	-7	PRO	-	expression tag	UNP Q5ZSL2
A	-6	ARG	-	expression tag	UNP Q5ZSL2
A	-5	GLY	-	expression tag	UNP Q5ZSL2
A	-4	SER	-	expression tag	UNP Q5ZSL2
A	-3	HIS	-	expression tag	UNP Q5ZSL2
A	-2	MET	-	expression tag	UNP Q5ZSL2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	ALA	-	expression tag	UNP Q5ZSL2
A	0	SER	-	expression tag	UNP Q5ZSL2
B	-22	MET	-	expression tag	UNP Q5ZSL2
B	-21	GLY	-	expression tag	UNP Q5ZSL2
B	-20	SER	-	expression tag	UNP Q5ZSL2
B	-19	SER	-	expression tag	UNP Q5ZSL2
B	-18	HIS	-	expression tag	UNP Q5ZSL2
B	-17	HIS	-	expression tag	UNP Q5ZSL2
B	-16	HIS	-	expression tag	UNP Q5ZSL2
B	-15	HIS	-	expression tag	UNP Q5ZSL2
B	-14	HIS	-	expression tag	UNP Q5ZSL2
B	-13	HIS	-	expression tag	UNP Q5ZSL2
B	-12	SER	-	expression tag	UNP Q5ZSL2
B	-11	SER	-	expression tag	UNP Q5ZSL2
B	-10	GLY	-	expression tag	UNP Q5ZSL2
B	-9	LEU	-	expression tag	UNP Q5ZSL2
B	-8	VAL	-	expression tag	UNP Q5ZSL2
B	-7	PRO	-	expression tag	UNP Q5ZSL2
B	-6	ARG	-	expression tag	UNP Q5ZSL2
B	-5	GLY	-	expression tag	UNP Q5ZSL2
B	-4	SER	-	expression tag	UNP Q5ZSL2
B	-3	HIS	-	expression tag	UNP Q5ZSL2
B	-2	MET	-	expression tag	UNP Q5ZSL2
B	-1	ALA	-	expression tag	UNP Q5ZSL2
B	0	SER	-	expression tag	UNP Q5ZSL2
C	-22	MET	-	expression tag	UNP Q5ZSL2
C	-21	GLY	-	expression tag	UNP Q5ZSL2
C	-20	SER	-	expression tag	UNP Q5ZSL2
C	-19	SER	-	expression tag	UNP Q5ZSL2
C	-18	HIS	-	expression tag	UNP Q5ZSL2
C	-17	HIS	-	expression tag	UNP Q5ZSL2
C	-16	HIS	-	expression tag	UNP Q5ZSL2
C	-15	HIS	-	expression tag	UNP Q5ZSL2
C	-14	HIS	-	expression tag	UNP Q5ZSL2
C	-13	HIS	-	expression tag	UNP Q5ZSL2
C	-12	SER	-	expression tag	UNP Q5ZSL2
C	-11	SER	-	expression tag	UNP Q5ZSL2
C	-10	GLY	-	expression tag	UNP Q5ZSL2
C	-9	LEU	-	expression tag	UNP Q5ZSL2
C	-8	VAL	-	expression tag	UNP Q5ZSL2
C	-7	PRO	-	expression tag	UNP Q5ZSL2
C	-6	ARG	-	expression tag	UNP Q5ZSL2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-5	GLY	-	expression tag	UNP Q5ZSL2
C	-4	SER	-	expression tag	UNP Q5ZSL2
C	-3	HIS	-	expression tag	UNP Q5ZSL2
C	-2	MET	-	expression tag	UNP Q5ZSL2
C	-1	ALA	-	expression tag	UNP Q5ZSL2
C	0	SER	-	expression tag	UNP Q5ZSL2
D	-22	MET	-	expression tag	UNP Q5ZSL2
D	-21	GLY	-	expression tag	UNP Q5ZSL2
D	-20	SER	-	expression tag	UNP Q5ZSL2
D	-19	SER	-	expression tag	UNP Q5ZSL2
D	-18	HIS	-	expression tag	UNP Q5ZSL2
D	-17	HIS	-	expression tag	UNP Q5ZSL2
D	-16	HIS	-	expression tag	UNP Q5ZSL2
D	-15	HIS	-	expression tag	UNP Q5ZSL2
D	-14	HIS	-	expression tag	UNP Q5ZSL2
D	-13	HIS	-	expression tag	UNP Q5ZSL2
D	-12	SER	-	expression tag	UNP Q5ZSL2
D	-11	SER	-	expression tag	UNP Q5ZSL2
D	-10	GLY	-	expression tag	UNP Q5ZSL2
D	-9	LEU	-	expression tag	UNP Q5ZSL2
D	-8	VAL	-	expression tag	UNP Q5ZSL2
D	-7	PRO	-	expression tag	UNP Q5ZSL2
D	-6	ARG	-	expression tag	UNP Q5ZSL2
D	-5	GLY	-	expression tag	UNP Q5ZSL2
D	-4	SER	-	expression tag	UNP Q5ZSL2
D	-3	HIS	-	expression tag	UNP Q5ZSL2
D	-2	MET	-	expression tag	UNP Q5ZSL2
D	-1	ALA	-	expression tag	UNP Q5ZSL2
D	0	SER	-	expression tag	UNP Q5ZSL2

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$) (labeled as "Ligand of Interest" by depositor).

GOL

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total 14	C 3	H 8	O 3	0	0
2	B	1	Total 14	C 3	H 8	O 3	0	0
2	C	1	Total 14	C 3	H 8	O 3	0	0
2	D	1	Total 14	C 3	H 8	O 3	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	53	Total 53	O 53	0	0
3	B	58	Total 58	O 58	0	0
3	C	31	Total 31	O 31	0	0
3	D	57	Total 57	O 57	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
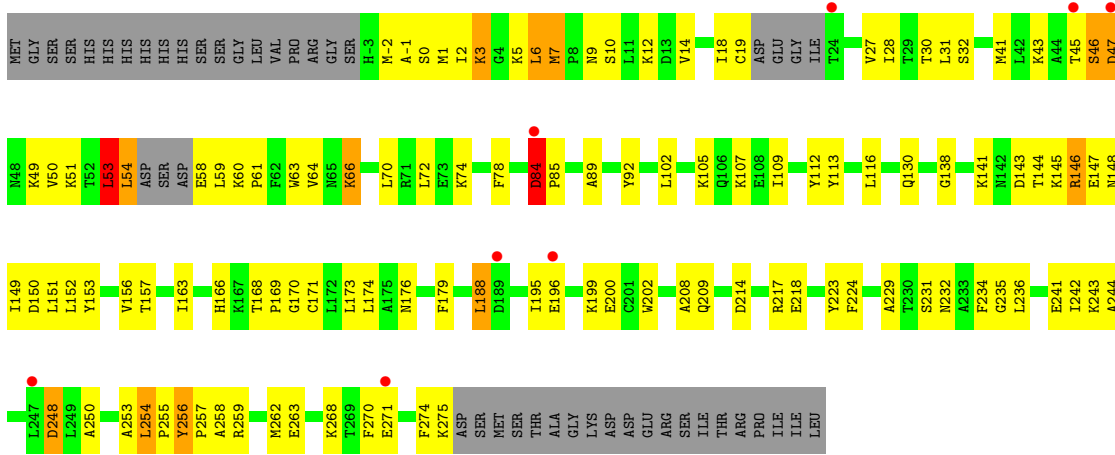
- Molecule 1: effector Lpg2505
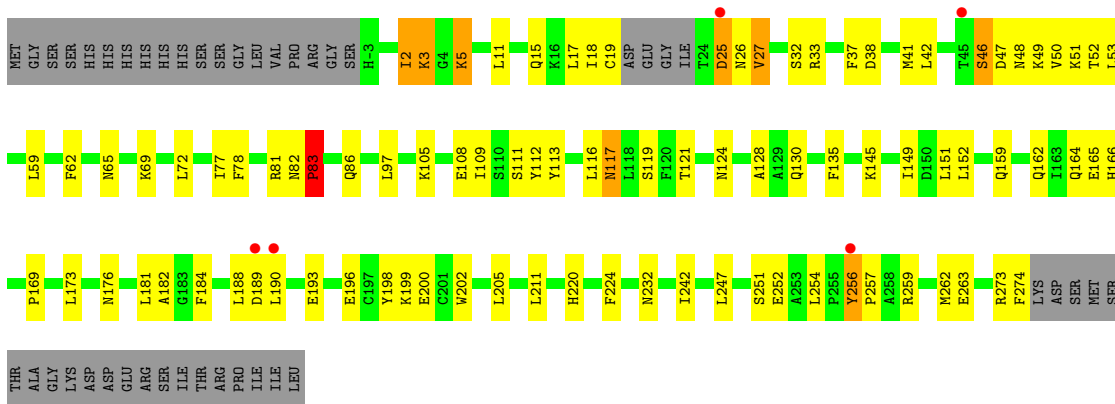

- Molecule 1: effector Lpg2505

- Molecule 1: effector Lpg2505

MET GLY SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER H-3 M-2 A-1 S0 M1 I2 K3 G4 K5 L6 M7 P8 N9 S10 L11 K12 D13 V14 I18 C19 ASP GLU GLY ILE T24 V27 I28 T29 T30 L31 S32 M41 L42 K43 A44 T45 S46 D47

N48 K49 V50 K51 T52 L53 L54 ASP SER ASP E58 L59 K60 P61 F62 W63 V64 N65 K66 L70 R71 L72 E73 K74 F78 D84 P85 A89 Y92 L102 K105 Q106 K107 E108 I109 Y112 Y113 L116 Q130 G138 K141 N142 D143 T144 K145 R146 E147 N148

I149 D150 L151 L152 Y153 V156 T157 I163 H166 K167 T168 P169 G170 C171 L172 L173 L174 A175 N176 F179 L188 D189 I195 E196 K199 E200 C201 W202 A208 Q209 D214 R217 E218 Y223 F224 A229 T230 S231 N232 A233 F234 G235 L236 E241 I242 K243 A244

L247 D248 L249 A250 A253 L254 P255 Y256 P257 A258 R259 M262 E263 K268 T269 F270 E271 F274 K275 ASP SER MET THR ALA GLY LYS ASP ASP GLU ARG SER ILE THR ARG PRO ILE ILE LEU

• Molecule 1: effector Lpg2505

Chain D:

2%

57% 26% • 14%

MET GLY SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER H-3 I2 K3 G4 K5 L11 Q15 K16 L17 I18 C19 ASP GLU GLY ILE T24 D25 N26 V27 S32 R33 F37 D38 M41 L42 T45 S46 D47 N48 K49 V50 K51 T52 L53

L59 F62 N65 K69 L72 I77 F78 R81 N82 P83 Q86 L97 K105 E108 I109 S110 S111 Y112 Y113 L116 N117 L118 S119 F120 T121 N124 A128 A129 Q130 F135 K145 I149 D150 L151 L152 Q159 Q162 I163 Q164 E165 H166

P169 L173 N176 L181 A182 G183 F184 L188 D189 L190 E193 E196 C197 Y198 K199 E200 C201 W202 L205 L211 H220 F224 N232 I242 L247 S251 E252 A253 L254 P255 Y256 P257 A258 R259 M262 E263 R273 F274 LYS ASP SER MET SER

THR ALA GLY LYS ASP ASP GLU ARG SER ILE THR ARG PRO ILE ILE LEU

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	106.54Å 50.45Å 122.03Å 90.00° 109.06° 90.00°	Depositor
Resolution (Å)	92.24 – 2.60 92.23 – 2.54	Depositor EDS
% Data completeness (in resolution range)	93.2 (92.24-2.60) 92.6 (92.23-2.54)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.79 (at 2.55Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.229 , 0.276 0.229 , 0.269	Depositor DCC
R_{free} test set	1944 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	25.3	Xtriage
Anisotropy	0.002	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 51.2	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	9112	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 51.65 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.4454e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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[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: GOL

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	0.52	1/2295 (0.0%)	0.62	0/3100
1	B	0.54	0/2248	0.79	7/3036 (0.2%)
1	C	0.65	0/2242	0.79	3/3025 (0.1%)
1	D	0.54	1/2256 (0.0%)	0.70	3/3047 (0.1%)
All	All	0.56	2/9041 (0.0%)	0.73	13/12208 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	83	PRO	C-O	-5.93	1.11	1.23
1	A	190	LEU	C-O	-5.19	1.13	1.23

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	83	PRO	N-CA-C	-11.81	81.39	112.10
1	B	52	THR	CB-CA-C	-7.90	90.26	111.60
1	D	2	ILE	CB-CA-C	-7.86	95.88	111.60
1	B	83	PRO	C-N-CA	7.84	141.29	121.70
1	C	53	LEU	CA-CB-CG	7.80	133.25	115.30
1	C	54	LEU	CB-CG-CD1	-6.61	99.77	111.00
1	B	52	THR	O-C-N	6.12	132.49	122.70
1	D	83	PRO	C-N-CA	6.05	136.84	121.70
1	B	48	ASN	CB-CA-C	-5.89	98.61	110.40
1	B	167	LYS	CB-CA-C	5.42	121.23	110.40
1	D	2	ILE	C-N-CA	5.16	134.59	121.70
1	C	84	ASP	CB-CG-OD2	5.14	122.93	118.30
1	B	55	ASP	CB-CA-C	5.01	120.42	110.40

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2248	0	2231	89	0
1	B	2202	0	2184	102	0
1	C	2197	0	2192	131	0
1	D	2210	0	2193	89	0
2	A	6	8	8	1	0
2	B	6	8	8	2	0
2	C	6	8	8	4	0
2	D	6	8	8	2	0
3	A	53	0	0	0	0
3	B	58	0	0	0	0
3	C	31	0	0	2	0
3	D	57	0	0	3	0
All	All	9080	32	8832	380	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 21.

All (380) 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:C:84:ASP:CB	1:C:85:PRO:HD2	1.22	1.35
1:C:84:ASP:HB3	1:C:85:PRO:CD	0.95	1.28
1:C:72:LEU:HD21	1:C:74:LYS:HE3	1.20	1.18
1:A:73:GLU:HG2	1:A:74:LYS:HE3	1.29	1.14
1:A:73:GLU:CG	1:A:74:LYS:HE3	1.79	1.12
1:C:176:ASN:HA	2:C:301:GOL:H32	1.32	1.08
1:A:148:ASN:HB3	1:C:-2:MET:HE1	1.36	1.06
1:C:84:ASP:HB3	1:C:85:PRO:HD3	1.35	1.06
1:B:53:LEU:HA	1:B:59:LEU:HD12	1.36	1.04
1:B:49:LYS:O	1:B:53:LEU:HB2	1.61	0.99
1:C:84:ASP:CB	1:C:85:PRO:CD	1.83	0.97
1:B:11:LEU:O	1:B:15:GLN:HB2	1.64	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:117:ASN:HD22	1:D:3:LYS:HD3	1.31	0.95
1:B:117:ASN:ND2	1:D:3:LYS:HD3	1.82	0.95
1:A:59:LEU:O	1:A:62:PHE:HB3	1.69	0.93
1:D:42:LEU:O	1:D:46:SER:HB2	1.68	0.91
1:A:117:ASN:ND2	1:C:3:LYS:HD2	1.85	0.90
1:B:59:LEU:O	1:B:62:PHE:HB3	1.71	0.90
1:C:84:ASP:CB	1:C:85:PRO:HD3	1.89	0.88
1:B:84:ASP:HB3	1:B:85:PRO:HD3	1.56	0.87
1:A:73:GLU:HG2	1:A:74:LYS:HG2	1.59	0.84
1:B:5:LYS:HE3	1:D:121:THR:OG1	1.78	0.84
1:D:25:ASP:OD1	1:D:25:ASP:N	2.11	0.84
1:A:71:ARG:HH11	1:A:76:HIS:HA	1.43	0.84
1:D:17:LEU:HG	1:D:27:VAL:HG23	1.58	0.83
1:C:43:LYS:NZ	1:C:53:LEU:HD12	1.92	0.83
1:C:72:LEU:HD21	1:C:74:LYS:CE	2.08	0.80
1:A:22:GLY:O	1:A:24:THR:HG23	1.82	0.80
1:A:154:ASN:HB3	1:C:6:LEU:HD11	1.63	0.79
1:B:26:ASN:O	1:B:29:THR:HG22	1.80	0.79
1:B:52:THR:HA	1:B:55:ASP:HB2	1.64	0.79
1:B:5:LYS:CE	1:D:121:THR:OG1	2.31	0.79
1:A:84:ASP:OD1	1:A:85:PRO:HA	1.83	0.78
1:C:138:GLY:HA2	1:C:141:LYS:HE3	1.66	0.78
1:D:251:SER:O	1:D:252:GLU:HB2	1.84	0.78
1:A:18:ILE:HG22	1:A:53:LEU:HD13	1.67	0.77
1:C:43:LYS:HZ2	1:C:53:LEU:HD12	1.49	0.76
1:D:11:LEU:HD21	1:D:38:ASP:HB3	1.66	0.75
1:D:199:LYS:HB3	1:D:262:MET:HE3	1.69	0.74
1:C:176:ASN:HA	2:C:301:GOL:C3	2.15	0.74
1:B:54:LEU:HD12	1:B:54:LEU:O	1.87	0.74
1:D:17:LEU:HG	1:D:27:VAL:CG2	2.17	0.74
1:B:27:VAL:O	1:B:29:THR:N	2.21	0.74
1:D:259:ARG:O	1:D:263:GLU:HG3	1.88	0.74
1:B:53:LEU:HA	1:B:59:LEU:CD1	2.17	0.73
1:C:163:ILE:HG21	1:C:174:LEU:CD1	2.17	0.73
1:B:271:GLU:HG2	1:B:275:LYS:HD3	1.69	0.73
1:A:5:LYS:HE2	1:A:115:TYR:CE1	2.23	0.73
1:A:54:LEU:HA	1:A:59:LEU:HD23	1.70	0.73
1:D:256:TYR:CB	1:D:257:PRO:CD	2.65	0.73
1:B:39:LEU:HD21	1:B:63:TRP:CH2	2.23	0.72
1:C:163:ILE:HG21	1:C:174:LEU:HD11	1.70	0.72
1:A:145:LYS:O	1:A:149:ILE:HG12	1.88	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:199:LYS:HB3	1:D:262:MET:CE	2.20	0.71
1:B:117:ASN:HD21	1:D:3:LYS:CG	2.04	0.71
1:A:73:GLU:CD	1:A:73:GLU:H	1.92	0.71
1:C:130:GLN:HG3	1:C:173:LEU:CD1	2.23	0.69
1:C:47:ASP:OD1	1:C:50:VAL:HB	1.91	0.69
1:B:10:SER:HB2	1:B:11:LEU:HD12	1.75	0.69
1:A:64:VAL:HG22	1:A:88:ARG:HD2	1.74	0.69
1:B:52:THR:CA	1:B:55:ASP:HB2	2.23	0.69
1:A:112:TYR:O	1:A:116:LEU:HB2	1.92	0.68
1:C:196:GLU:OE1	1:C:196:GLU:HA	1.93	0.68
1:B:27:VAL:O	1:B:28:ILE:C	2.31	0.68
1:B:146:ARG:HG3	1:B:190:LEU:HD11	1.75	0.68
1:C:138:GLY:HA2	1:C:141:LYS:CE	2.24	0.68
1:D:162:GLN:HG2	3:D:411:HOH:O	1.93	0.68
1:C:171:CYS:HB2	1:C:208:ALA:HB2	1.75	0.67
1:B:8:PRO:HB2	1:B:11:LEU:HD13	1.76	0.67
1:C:72:LEU:CD2	1:C:74:LYS:HE3	2.13	0.67
1:D:5:LYS:HD3	1:D:5:LYS:N	2.10	0.67
1:D:190:LEU:HB3	1:D:193:GLU:OE1	1.94	0.67
1:A:160:SER:O	1:A:164:GLN:HG3	1.95	0.67
1:A:234:PHE:HB2	1:A:236:LEU:HG	1.77	0.67
1:B:259:ARG:O	1:B:263:GLU:HG3	1.95	0.67
1:B:117:ASN:ND2	1:D:3:LYS:CD	2.55	0.67
1:A:73:GLU:HG3	1:A:74:LYS:HE3	1.76	0.66
1:D:256:TYR:HB3	1:D:257:PRO:CD	2.24	0.66
1:C:236:LEU:HD13	1:C:241:GLU:HB3	1.78	0.66
1:D:196:GLU:O	1:D:200:GLU:HG2	1.95	0.66
1:C:130:GLN:HG3	1:C:173:LEU:HD13	1.76	0.66
1:B:54:LEU:HD12	1:B:54:LEU:C	2.16	0.66
1:C:202:TRP:CH2	1:C:243:LYS:HB3	2.31	0.66
1:D:256:TYR:HB3	1:D:257:PRO:HD3	1.79	0.65
1:B:143:ASP:HB3	1:B:148:ASN:ND2	2.11	0.65
1:C:144:THR:HG22	1:C:188:LEU:HD12	1.79	0.65
1:D:19:CYS:O	1:D:49:LYS:NZ	2.30	0.65
1:D:108:GLU:HG2	1:D:111:SER:HB2	1.79	0.65
1:C:84:ASP:HB2	1:C:85:PRO:HD2	1.62	0.65
1:C:7:MET:CE	1:C:45:THR:O	2.45	0.64
1:A:105:LYS:HD2	1:A:112:TYR:CE1	2.33	0.64
1:A:148:ASN:HB3	1:C:-2:MET:CE	2.21	0.64
1:A:73:GLU:HG2	1:A:74:LYS:CE	2.19	0.64
1:C:179:PHE:HB3	2:C:301:GOL:H31	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:130:GLN:HG3	1:B:173:LEU:CD1	2.29	0.63
1:C:256:TYR:HB3	1:C:257:PRO:HD3	1.80	0.63
1:C:19:CYS:HB2	1:C:50:VAL:CG2	2.28	0.63
1:D:17:LEU:HD12	1:D:17:LEU:O	1.98	0.63
1:A:57:ASP:HA	1:A:60:LYS:CD	2.29	0.63
1:C:214:ASP:N	3:C:403:HOH:O	2.32	0.63
1:C:144:THR:HG22	1:C:188:LEU:CD1	2.28	0.62
1:C:232:ASN:HD22	1:C:242:ILE:HD11	1.64	0.62
1:B:-2:MET:HB3	1:D:151:LEU:HD23	1.81	0.62
1:C:234:PHE:HB2	1:C:236:LEU:HG	1.82	0.62
1:B:53:LEU:O	1:B:54:LEU:HG	1.99	0.62
1:B:70:LEU:HD11	1:B:92:TYR:HD1	1.63	0.62
1:C:218:GLU:N	1:C:218:GLU:OE2	2.33	0.61
1:A:17:LEU:HD11	1:A:21:GLU:OE2	2.01	0.61
1:B:26:ASN:O	1:B:29:THR:CG2	2.48	0.61
1:B:27:VAL:HG12	1:B:28:ILE:N	2.15	0.61
1:A:18:ILE:CG2	1:A:53:LEU:HD13	2.30	0.61
1:D:188:LEU:O	1:D:190:LEU:HD12	2.01	0.61
1:A:259:ARG:O	1:A:263:GLU:HG3	2.01	0.61
1:B:55:ASP:C	1:B:57:ASP:H	2.03	0.61
1:B:176:ASN:HA	2:B:301:GOL:H2	1.82	0.60
1:A:267:VAL:O	1:A:271:GLU:HG3	2.01	0.60
1:C:202:TRP:CZ2	1:C:243:LYS:HE2	2.35	0.60
1:C:46:SER:H	1:C:51:LYS:NZ	1.99	0.60
1:B:19:CYS:HB2	1:B:48:ASN:HB3	1.82	0.60
1:C:84:ASP:CA	1:C:217:ARG:HH12	2.14	0.60
1:C:195:ILE:HG22	1:C:199:LYS:HD2	1.83	0.60
1:C:84:ASP:CG	1:C:218:GLU:OE1	2.40	0.60
1:A:154:ASN:OD1	1:C:9:ASN:OD1	2.21	0.59
1:B:9:ASN:OD1	1:B:12:LYS:HE2	2.02	0.59
1:C:18:ILE:HG12	1:C:27:VAL:HG11	1.84	0.59
1:A:43:LYS:HE3	1:A:90:ASP:OD1	2.01	0.59
1:B:11:LEU:HD23	1:B:42:LEU:HA	1.85	0.59
1:C:166:HIS:O	1:C:169:PRO:HD2	2.03	0.59
1:D:164:GLN:HB2	1:D:273:ARG:HH12	1.68	0.59
1:B:117:ASN:ND2	1:D:3:LYS:CG	2.65	0.59
1:C:46:SER:OG	1:C:50:VAL:HB	2.03	0.58
1:C:14:VAL:HG22	1:C:30:THR:HG21	1.85	0.58
1:A:143:ASP:HB3	1:A:148:ASN:ND2	2.18	0.58
1:B:254:LEU:O	1:B:259:ARG:HD3	2.03	0.58
1:C:7:MET:HE2	1:C:45:THR:O	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:256:TYR:CB	1:D:257:PRO:HD3	2.32	0.58
1:C:244:ALA:O	1:C:248:ASP:HB2	2.03	0.58
1:D:18:ILE:CG2	1:D:53:LEU:HD12	2.34	0.58
1:C:259:ARG:O	1:C:263:GLU:HG3	2.02	0.58
1:A:73:GLU:CB	1:A:74:LYS:HE3	2.34	0.58
1:D:65:ASN:O	1:D:69:LYS:HG2	2.04	0.58
1:C:84:ASP:HA	1:C:217:ARG:HH12	1.69	0.57
1:D:119:SER:OG	1:D:128:ALA:HB2	2.04	0.57
1:B:58:GLU:O	1:B:61:PRO:HD2	2.03	0.57
1:B:130:GLN:HG3	1:B:173:LEU:HD11	1.86	0.57
1:B:143:ASP:O	1:B:148:ASN:ND2	2.33	0.57
1:A:120:PHE:O	1:A:124:ASN:HA	2.05	0.57
1:C:173:LEU:O	1:C:176:ASN:HB3	2.05	0.57
1:C:43:LYS:HZ1	1:C:54:LEU:CD2	2.18	0.57
1:C:70:LEU:HD21	1:C:92:TYR:CD1	2.40	0.57
1:C:153:TYR:O	1:C:157:THR:HG23	2.04	0.56
1:C:255:PRO:HD2	1:C:258:ALA:CB	2.35	0.56
1:C:41:MET:CE	1:C:45:THR:HG21	2.33	0.56
1:C:43:LYS:HZ3	1:C:53:LEU:HD12	1.69	0.56
1:B:117:ASN:HD21	1:D:3:LYS:HG2	1.70	0.56
1:B:146:ARG:HG3	1:B:190:LEU:CD1	2.36	0.56
1:A:158:SER:OG	1:C:6:LEU:HD13	2.06	0.55
1:D:176:ASN:HA	2:D:301:GOL:H2	1.89	0.55
1:A:40:ALA:HA	1:A:93:CYS:SG	2.47	0.55
1:B:55:ASP:O	1:B:57:ASP:N	2.40	0.55
1:B:117:ASN:ND2	1:D:5:LYS:HE2	2.21	0.55
1:C:255:PRO:HD2	1:C:258:ALA:HB3	1.89	0.55
1:A:232:ASN:ND2	1:A:242:ILE:HD11	2.22	0.55
1:C:66:LYS:HD2	1:C:92:TYR:CZ	2.42	0.55
1:C:268:LYS:HA	1:C:271:GLU:OE1	2.07	0.55
1:D:130:GLN:HA	1:D:173:LEU:HD11	1.89	0.55
1:A:-2:MET:CE	1:C:151:LEU:HD23	2.36	0.54
1:A:56:SER:O	1:A:60:LYS:HG3	2.07	0.54
1:A:113:TYR:CE2	1:C:0:SER:HB3	2.42	0.54
1:D:77:ILE:O	1:D:77:ILE:HG22	2.06	0.54
1:A:57:ASP:HA	1:A:60:LYS:HD2	1.90	0.54
1:C:84:ASP:OD1	1:C:85:PRO:HD3	2.08	0.54
1:C:105:LYS:HD2	1:C:112:TYR:CE1	2.42	0.54
1:A:236:LEU:HD13	1:A:241:GLU:HB3	1.88	0.54
1:C:143:ASP:O	1:C:148:ASN:ND2	2.41	0.54
1:A:-2:MET:HE1	1:C:151:LEU:HB3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:149:ILE:HD12	1:B:184:PHE:HB3	1.90	0.53
1:B:196:GLU:O	1:B:200:GLU:HG2	2.07	0.53
1:D:2:ILE:HG22	1:D:2:ILE:O	2.09	0.53
1:C:84:ASP:CG	1:C:85:PRO:CD	2.74	0.53
1:D:105:LYS:HG3	1:D:112:TYR:CE1	2.43	0.53
1:C:84:ASP:CG	1:C:85:PRO:HD3	2.29	0.53
1:C:112:TYR:O	1:C:116:LEU:HB2	2.09	0.53
1:A:23:ILE:HG22	1:A:28:ILE:HD11	1.91	0.53
1:D:78:PHE:CE2	1:D:224:PHE:HA	2.43	0.53
1:D:247:LEU:HD11	1:D:259:ARG:HD3	1.90	0.53
1:B:117:ASN:HD21	1:D:5:LYS:HE2	1.73	0.53
1:C:7:MET:HE1	1:C:45:THR:O	2.08	0.53
1:A:21:GLU:OE2	1:A:26:ASN:HB3	2.09	0.53
1:B:39:LEU:HD23	1:B:39:LEU:O	2.09	0.53
1:D:205:LEU:HD21	2:D:301:GOL:H31	1.90	0.53
1:A:31:LEU:HA	1:A:34:LEU:HD12	1.90	0.52
1:C:14:VAL:HG22	1:C:30:THR:CG2	2.37	0.52
1:D:72:LEU:HD22	1:D:224:PHE:CD1	2.44	0.52
1:A:165:GLU:OE2	1:C:49:LYS:HD2	2.09	0.52
1:C:163:ILE:CG2	1:C:174:LEU:HD11	2.37	0.52
1:C:43:LYS:HG3	1:C:53:LEU:HD11	1.92	0.52
1:B:52:THR:C	1:B:55:ASP:H	2.13	0.52
1:C:214:ASP:OD2	1:C:275:LYS:HE3	2.10	0.52
1:B:72:LEU:HD21	1:B:224:PHE:CD1	2.45	0.52
1:C:27:VAL:HG12	1:C:31:LEU:HD12	1.92	0.52
1:C:270:PHE:HA	1:C:274:PHE:HD2	1.75	0.52
1:B:209:GLN:HG3	1:B:239:ILE:CG2	2.40	0.52
1:C:84:ASP:OD2	1:C:218:GLU:OE1	2.28	0.52
1:D:18:ILE:HG23	1:D:53:LEU:HD12	1.92	0.52
1:B:168:THR:HB	1:B:169:PRO:HD3	1.92	0.52
1:C:163:ILE:CG2	1:C:174:LEU:CD1	2.86	0.52
1:B:14:VAL:HA	1:B:17:LEU:HB3	1.91	0.51
1:C:78:PHE:CE2	1:C:224:PHE:HA	2.46	0.51
1:A:37:PHE:CZ	1:A:41:MET:SD	3.04	0.51
1:B:70:LEU:HD21	1:B:92:TYR:CE1	2.46	0.51
1:C:196:GLU:OE1	1:C:196:GLU:CA	2.54	0.51
1:D:47:ASP:O	1:D:51:LYS:HE3	2.10	0.51
1:A:223:TYR:CZ	1:A:231:SER:HB3	2.45	0.51
1:D:182:ALA:HB1	1:D:198:TYR:CE2	2.45	0.51
1:A:15:GLN:NE2	1:A:47:ASP:OD1	2.43	0.51
1:B:59:LEU:O	1:B:62:PHE:CB	2.51	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:116:LEU:HD23	1:C:1:MET:SD	2.51	0.50
1:A:71:ARG:NH1	1:A:76:HIS:HA	2.20	0.50
1:C:-1:ALA:O	1:C:2:ILE:O	2.28	0.50
1:D:232:ASN:HD22	1:D:242:ILE:HD11	1.75	0.50
1:A:196:GLU:O	1:A:200:GLU:HG2	2.12	0.50
1:C:250:ALA:HB3	1:C:254:LEU:CD1	2.42	0.50
1:C:196:GLU:O	1:C:200:GLU:HB2	2.11	0.50
1:D:59:LEU:O	1:D:62:PHE:HB3	2.12	0.50
1:A:17:LEU:O	1:A:21:GLU:HG2	2.12	0.50
1:D:202:TRP:CZ2	1:D:259:ARG:HD2	2.47	0.50
1:C:74:LYS:HG2	1:C:74:LYS:O	2.12	0.49
1:A:176:ASN:ND2	2:A:301:GOL:O2	2.42	0.49
1:B:143:ASP:HB3	1:B:148:ASN:HD21	1.77	0.49
1:C:41:MET:HE3	1:C:45:THR:HG21	1.94	0.49
1:B:271:GLU:HA	1:B:275:LYS:HG2	1.94	0.49
1:B:236:LEU:HD13	1:B:241:GLU:HG2	1.94	0.49
1:A:3:LYS:NZ	1:A:3:LYS:HB3	2.28	0.49
1:D:112:TYR:O	1:D:116:LEU:HB2	2.13	0.49
1:C:47:ASP:OD1	1:C:47:ASP:N	2.47	0.48
1:D:109:ILE:O	1:D:112:TYR:HB3	2.12	0.48
1:B:27:VAL:O	1:B:30:THR:N	2.45	0.48
1:B:209:GLN:HG3	1:B:239:ILE:HG21	1.95	0.48
1:D:152:LEU:HD23	1:D:181:LEU:CD2	2.43	0.48
1:A:268:LYS:HA	1:A:268:LYS:HD3	1.60	0.48
1:B:28:ILE:HD11	1:B:58:GLU:HB3	1.95	0.48
1:D:15:GLN:HE21	1:D:47:ASP:H	1.62	0.48
1:D:117:ASN:O	1:D:121:THR:HB	2.14	0.48
1:C:145:LYS:O	1:C:149:ILE:HG12	2.14	0.48
1:A:166:HIS:O	1:A:169:PRO:HD2	2.14	0.48
1:B:74:LYS:HD2	1:B:74:LYS:HA	1.74	0.48
1:C:168:THR:HB	1:C:169:PRO:HD3	1.96	0.48
1:C:199:LYS:O	1:C:262:MET:HG3	2.14	0.48
1:C:179:PHE:CB	2:C:301:GOL:H31	2.43	0.47
1:A:35:LYS:HB3	1:A:35:LYS:HE2	1.37	0.47
1:A:73:GLU:CG	1:A:74:LYS:CE	2.72	0.47
1:A:50:VAL:O	1:A:54:LEU:HG	2.14	0.47
1:B:-2:MET:CB	1:D:151:LEU:HD23	2.45	0.47
1:B:59:LEU:O	1:B:62:PHE:N	2.47	0.47
1:B:215:SER:HA	1:B:218:GLU:OE1	2.15	0.47
1:C:43:LYS:HZ2	1:C:53:LEU:CD1	2.25	0.47
1:C:46:SER:C	1:C:47:ASP:O	2.52	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:46:SER:O	1:D:51:LYS:CE	2.63	0.47
1:D:81:ARG:HG3	1:D:220:HIS:CD2	2.49	0.47
1:A:81:ARG:HG3	1:A:220:HIS:CD2	2.50	0.47
1:B:37:PHE:CZ	1:B:41:MET:SD	3.08	0.47
1:A:229:ALA:O	1:A:235:GLY:HA2	2.15	0.47
1:A:41:MET:O	1:A:45:THR:OG1	2.28	0.47
1:C:223:TYR:CZ	1:C:231:SER:HB3	2.50	0.47
1:D:37:PHE:CZ	1:D:41:MET:HE3	2.49	0.47
1:C:253:ALA:C	1:C:255:PRO:HD3	2.35	0.46
1:C:70:LEU:HD21	1:C:92:TYR:CE1	2.50	0.46
1:D:188:LEU:HB3	1:D:190:LEU:CD1	2.46	0.46
1:D:211:LEU:HD21	1:D:274:PHE:CG	2.50	0.46
1:B:52:THR:O	1:B:55:ASP:N	2.49	0.46
1:C:60:LYS:N	1:C:61:PRO:CD	2.79	0.46
1:B:-2:MET:HB3	1:D:151:LEU:CD2	2.45	0.46
1:B:14:VAL:HG22	1:B:18:ILE:HD12	1.98	0.46
1:A:31:LEU:HD23	1:A:34:LEU:HD12	1.98	0.46
1:A:70:LEU:HD23	1:A:70:LEU:HA	1.76	0.46
1:B:0:SER:HB3	1:D:113:TYR:CE2	2.51	0.46
1:B:83:PRO:O	1:B:83:PRO:CG	2.64	0.46
1:C:130:GLN:HG3	1:C:173:LEU:HD11	1.98	0.46
1:C:43:LYS:NZ	1:C:53:LEU:CD1	2.73	0.46
1:D:3:LYS:O	1:D:3:LYS:HG3	2.16	0.46
1:D:149:ILE:HD12	1:D:184:PHE:HB3	1.96	0.46
1:A:232:ASN:HD22	1:A:242:ILE:HD11	1.80	0.45
1:C:66:LYS:CD	1:C:92:TYR:CZ	2.99	0.45
1:C:163:ILE:HG21	1:C:174:LEU:HD13	1.94	0.45
1:B:83:PRO:O	1:B:86:GLN:O	2.34	0.45
1:D:48:ASN:O	1:D:52:THR:HG23	2.16	0.45
1:A:190:LEU:HB3	1:A:193:GLU:OE1	2.16	0.45
1:B:253:ALA:C	1:B:255:PRO:HD3	2.37	0.45
1:B:7:MET:CE	1:B:15:GLN:HG3	2.47	0.45
1:A:57:ASP:HA	1:A:60:LYS:HD3	1.99	0.45
1:D:46:SER:O	1:D:51:LYS:HE2	2.17	0.45
1:D:83:PRO:O	1:D:86:GLN:O	2.34	0.45
1:B:165:GLU:HA	1:B:165:GLU:OE1	2.16	0.45
1:D:41:MET:HE2	1:D:97:LEU:HD21	1.98	0.45
1:D:82:ASN:HA	1:D:83:PRO:HD3	1.80	0.45
1:C:141:LYS:HE3	1:C:141:LYS:HB2	1.82	0.45
1:B:93:CYS:O	1:B:97:LEU:HG	2.17	0.45
1:A:-2:MET:HE2	1:C:151:LEU:HD23	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:202:TRP:CZ3	1:D:247:LEU:HD13	2.53	0.44
1:B:2:ILE:O	1:B:2:ILE:HG22	2.16	0.44
1:B:5:LYS:HE3	1:D:121:THR:HG1	1.79	0.44
1:B:70:LEU:HD11	1:B:92:TYR:CD1	2.49	0.44
1:A:148:ASN:CB	1:C:-2:MET:HE1	2.25	0.44
1:D:232:ASN:ND2	1:D:242:ILE:HD11	2.32	0.44
1:C:152:LEU:O	1:C:156:VAL:HG23	2.18	0.44
1:B:209:GLN:OE1	1:B:243:LYS:NZ	2.38	0.44
1:A:46:SER:O	1:A:51:LYS:HE3	2.17	0.44
1:A:6:LEU:HD23	1:A:6:LEU:HA	1.83	0.43
1:C:28:ILE:HD13	1:C:59:LEU:CD1	2.48	0.43
1:C:146:ARG:HD3	1:C:150:ASP:OD2	2.18	0.43
1:A:229:ALA:HA	1:A:236:LEU:O	2.18	0.43
1:B:-3:HIS:HB3	1:D:135:PHE:HZ	1.83	0.43
1:B:176:ASN:N	2:B:301:GOL:H31	2.34	0.43
1:B:234:PHE:HB2	1:B:236:LEU:HG	2.00	0.43
1:B:255:PRO:O	1:B:259:ARG:HG3	2.18	0.43
1:A:3:LYS:HB3	1:A:3:LYS:HZ3	1.83	0.43
1:C:28:ILE:O	1:C:32:SER:HB2	2.19	0.43
1:A:76:HIS:CD2	1:A:76:HIS:N	2.87	0.43
1:A:150:ASP:O	1:A:154:ASN:ND2	2.51	0.43
1:B:25:ASP:HB2	1:B:28:ILE:HD12	2.01	0.43
1:B:39:LEU:HD23	1:B:39:LEU:C	2.39	0.43
1:D:159:GLN:NE2	3:D:401:HOH:O	2.25	0.43
1:C:109:ILE:HG23	1:C:113:TYR:CZ	2.53	0.43
1:A:18:ILE:HG22	1:A:53:LEU:CD1	2.43	0.43
1:B:55:ASP:C	1:B:57:ASP:N	2.69	0.43
1:B:39:LEU:HD21	1:B:63:TRP:CZ3	2.53	0.43
1:C:229:ALA:O	1:C:235:GLY:HA2	2.19	0.43
1:D:145:LYS:O	1:D:149:ILE:HG12	2.18	0.43
1:A:23:ILE:HD12	1:A:59:LEU:HD22	2.01	0.42
1:D:47:ASP:OD1	1:D:50:VAL:HB	2.19	0.42
1:A:270:PHE:O	1:A:274:PHE:HB2	2.19	0.42
1:B:59:LEU:HD23	1:B:59:LEU:HA	1.71	0.42
1:A:64:VAL:HA	1:A:88:ARG:HD3	2.00	0.42
1:A:273:ARG:O	1:A:273:ARG:CG	2.66	0.42
1:B:47:ASP:OD2	1:B:48:ASN:N	2.53	0.42
1:C:63:TRP:CG	1:C:89:ALA:HB2	2.54	0.42
1:C:74:LYS:HE2	1:C:74:LYS:HB3	1.75	0.42
1:A:77:ILE:O	1:A:77:ILE:HG13	2.16	0.42
1:B:63:TRP:CG	1:B:89:ALA:HB2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:107:LYS:HD2	1:C:107:LYS:HA	1.74	0.42
1:A:21:GLU:O	1:A:22:GLY:O	2.38	0.42
1:A:73:GLU:CD	1:A:73:GLU:N	2.68	0.42
1:C:19:CYS:HB2	1:C:50:VAL:HG23	1.99	0.42
1:C:27:VAL:HG12	1:C:31:LEU:CD1	2.49	0.42
1:D:3:LYS:CG	1:D:3:LYS:O	2.67	0.42
1:D:188:LEU:HB3	1:D:190:LEU:HD12	2.00	0.42
1:C:60:LYS:O	1:C:64:VAL:HG23	2.20	0.42
1:B:2:ILE:O	1:B:2:ILE:CG2	2.68	0.42
1:B:130:GLN:HG3	1:B:173:LEU:HD13	2.00	0.41
1:D:130:GLN:HG2	3:D:417:HOH:O	2.20	0.41
1:A:24:THR:C	1:A:26:ASN:N	2.73	0.41
1:B:255:PRO:HB2	1:B:257:PRO:HD2	2.01	0.41
1:C:41:MET:HE1	1:C:45:THR:HG21	2.03	0.41
1:D:247:LEU:HD12	1:D:247:LEU:HA	1.88	0.41
1:C:163:ILE:CG2	1:C:174:LEU:HD13	2.50	0.41
1:B:119:SER:OG	1:B:128:ALA:HB2	2.20	0.41
1:C:41:MET:O	1:C:45:THR:HG23	2.21	0.41
1:C:202:TRP:HB2	1:C:254:LEU:HD21	2.03	0.41
1:C:28:ILE:HD13	1:C:59:LEU:HD13	2.02	0.41
1:C:43:LYS:HZ1	1:C:54:LEU:HD23	1.84	0.41
1:C:102:LEU:O	1:C:105:LYS:HB2	2.21	0.41
1:D:254:LEU:O	1:D:259:ARG:NH1	2.54	0.41
1:B:232:ASN:ND2	1:B:242:ILE:HD11	2.36	0.41
1:D:15:GLN:HE21	1:D:47:ASP:N	2.19	0.41
1:A:46:SER:HB3	1:A:50:VAL:HB	2.03	0.41
1:A:67:PHE:CZ	1:A:83:PRO:HD3	2.55	0.41
1:A:152:LEU:HG	1:A:181:LEU:HD21	2.02	0.41
1:B:-3:HIS:HB3	1:D:135:PHE:CZ	2.55	0.41
1:B:27:VAL:C	1:B:29:THR:N	2.74	0.41
1:B:120:PHE:O	1:B:124:ASN:HA	2.20	0.41
1:B:254:LEU:N	1:B:255:PRO:HD3	2.35	0.41
1:A:151:LEU:HD23	1:C:-2:MET:CB	2.51	0.41
1:C:170:GLY:O	1:C:174:LEU:HD13	2.21	0.41
1:D:124:ASN:OD1	1:D:162:GLN:HG3	2.21	0.40
1:D:152:LEU:HD23	1:D:181:LEU:HD21	2.04	0.40
1:C:196:GLU:HA	1:C:199:LYS:HD3	2.04	0.40
1:D:166:HIS:O	1:D:169:PRO:HD2	2.22	0.40
1:D:77:ILE:O	1:D:77:ILE:CG2	2.69	0.40
1:C:6:LEU:N	3:C:404:HOH:O	2.43	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	277/318 (87%)	266 (96%)	10 (4%)	1 (0%)	34	57
1	B	270/318 (85%)	248 (92%)	19 (7%)	3 (1%)	14	30
1	C	266/318 (84%)	257 (97%)	7 (3%)	2 (1%)	19	39
1	D	270/318 (85%)	255 (94%)	13 (5%)	2 (1%)	22	43
All	All	1083/1272 (85%)	1026 (95%)	49 (4%)	8 (1%)	22	43

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	56	SER
1	C	47	ASP
1	C	84	ASP
1	A	22	GLY
1	D	3	LYS
1	D	83	PRO
1	B	28	ILE
1	B	83	PRO

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	246/281 (88%)	235 (96%)	11 (4%)	27	52
1	B	239/281 (85%)	220 (92%)	19 (8%)	12	24

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	240/281 (85%)	222 (92%)	18 (8%)	13	27
1	D	242/281 (86%)	231 (96%)	11 (4%)	27	52
All	All	967/1124 (86%)	908 (94%)	59 (6%)	18	38

All (59) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	ASN
1	A	58	GLU
1	A	66	LYS
1	A	72	LEU
1	A	73	GLU
1	A	74	LYS
1	A	77	ILE
1	A	79	GLN
1	A	107	LYS
1	A	143	ASP
1	A	240	SER
1	B	3	LYS
1	B	5	LYS
1	B	15	GLN
1	B	19	CYS
1	B	25	ASP
1	B	26	ASN
1	B	46	SER
1	B	48	ASN
1	B	51	LYS
1	B	52	THR
1	B	54	LEU
1	B	55	ASP
1	B	56	SER
1	B	59	LEU
1	B	60	LYS
1	B	71	ARG
1	B	107	LYS
1	B	117	ASN
1	B	160	SER
1	C	3	LYS
1	C	5	LYS
1	C	6	LEU
1	C	7	MET

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Mol	Chain	Res	Type
1	C	10	SER
1	C	12	LYS
1	C	46	SER
1	C	53	LEU
1	C	58	GLU
1	C	66	LYS
1	C	84	ASP
1	C	146	ARG
1	C	147	GLU
1	C	188	LEU
1	C	209	GLN
1	C	248	ASP
1	C	254	LEU
1	C	256	TYR
1	D	5	LYS
1	D	25	ASP
1	D	26	ASN
1	D	27	VAL
1	D	32	SER
1	D	33	ARG
1	D	46	SER
1	D	117	ASN
1	D	165	GLU
1	D	189	ASP
1	D	256	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	154	ASN
1	B	117	ASN
1	C	162	GLN
1	C	164	GLN
1	C	272	ASN
1	D	15	GLN
1	D	26	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

4 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	GOL	D	301	-	5,5,5	0.68	0	5,5,5	1.03	0
2	GOL	A	301	-	5,5,5	0.88	0	5,5,5	1.27	1 (20%)
2	GOL	C	301	-	5,5,5	0.31	0	5,5,5	0.32	0
2	GOL	B	301	-	5,5,5	0.73	0	5,5,5	0.99	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	GOL	D	301	-	-	2/4/4/4	-
2	GOL	A	301	-	-	0/4/4/4	-
2	GOL	C	301	-	-	3/4/4/4	-
2	GOL	B	301	-	-	2/4/4/4	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	301	GOL	C3-C2-C1	-2.42	102.91	111.80

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	301	GOL	C1-C2-C3-O3
2	C	301	GOL	O1-C1-C2-C3
2	B	301	GOL	O2-C2-C3-O3
2	D	301	GOL	O2-C2-C3-O3
2	D	301	GOL	C1-C2-C3-O3
2	C	301	GOL	O1-C1-C2-O2
2	C	301	GOL	O2-C2-C3-O3

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	301	GOL	2	0
2	A	301	GOL	1	0
2	C	301	GOL	4	0
2	B	301	GOL	2	0

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

Ligand GOL D 301

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL A 301

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 301

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL B 301

Bond lengths

Bond angles

Torsions

Rings
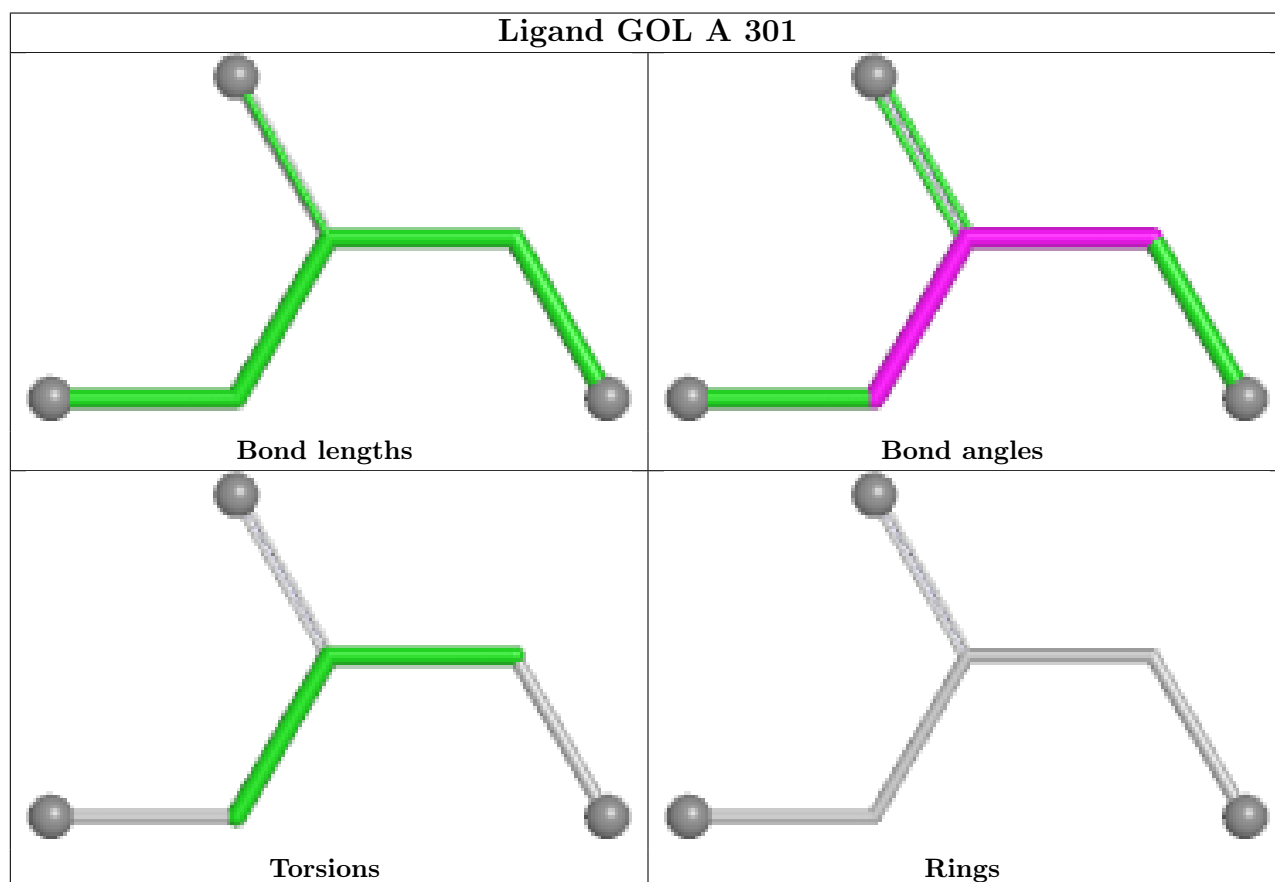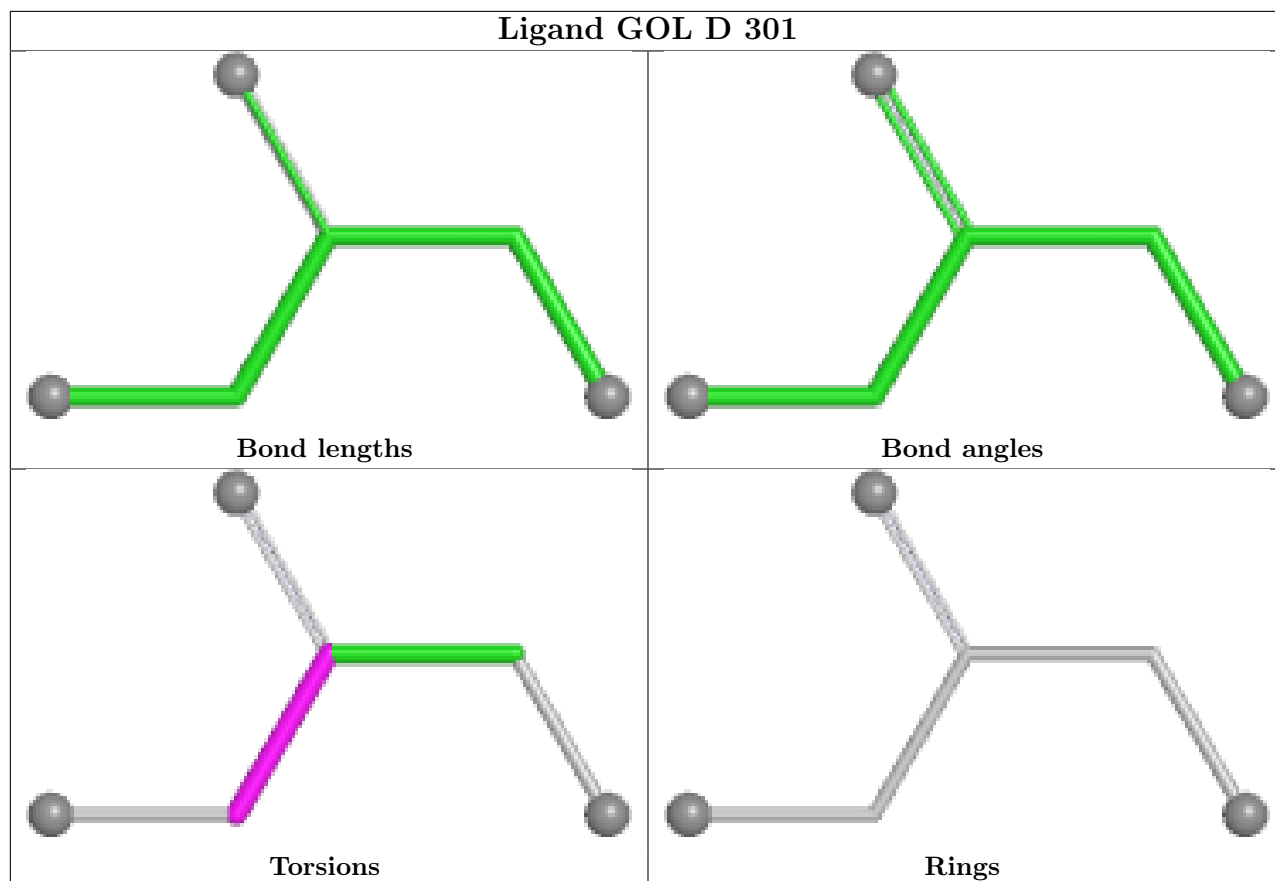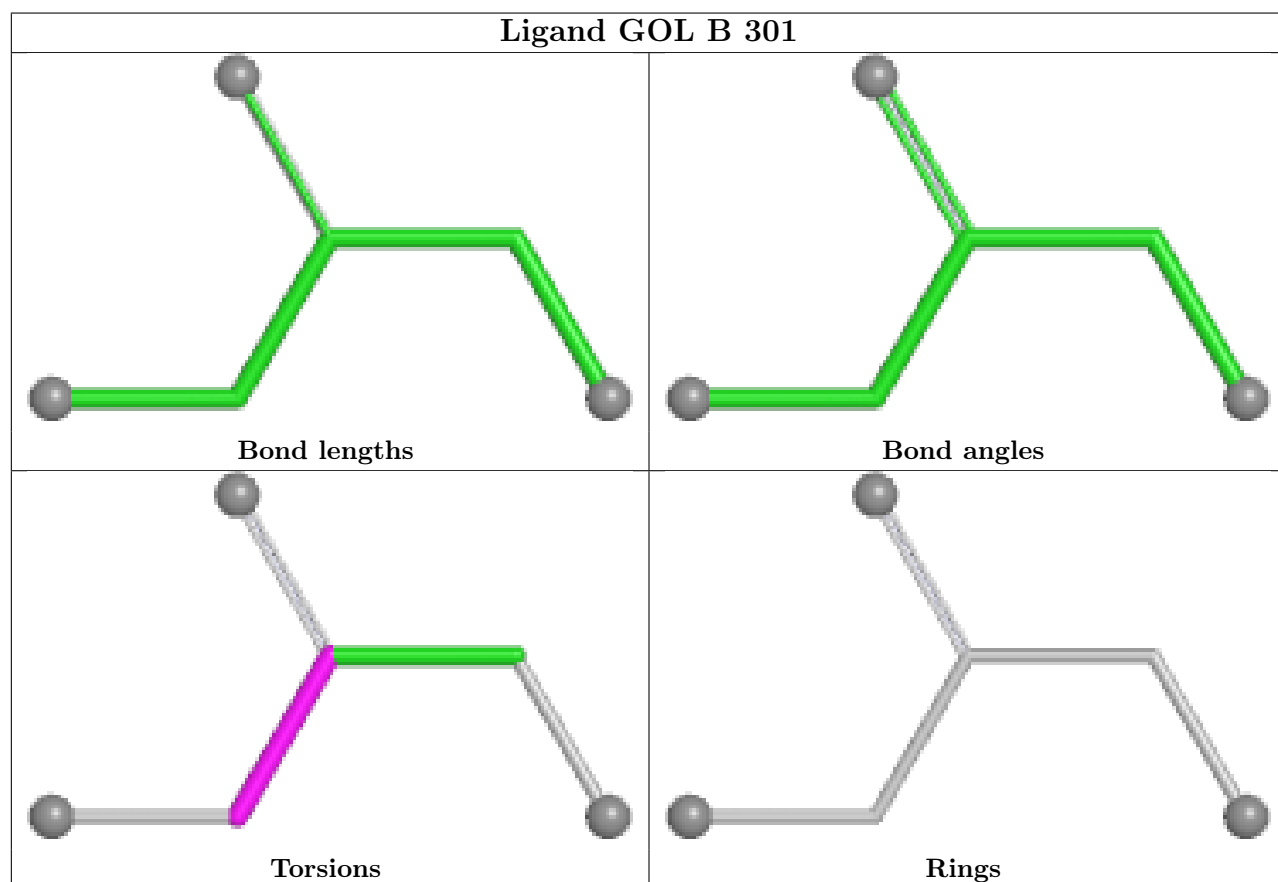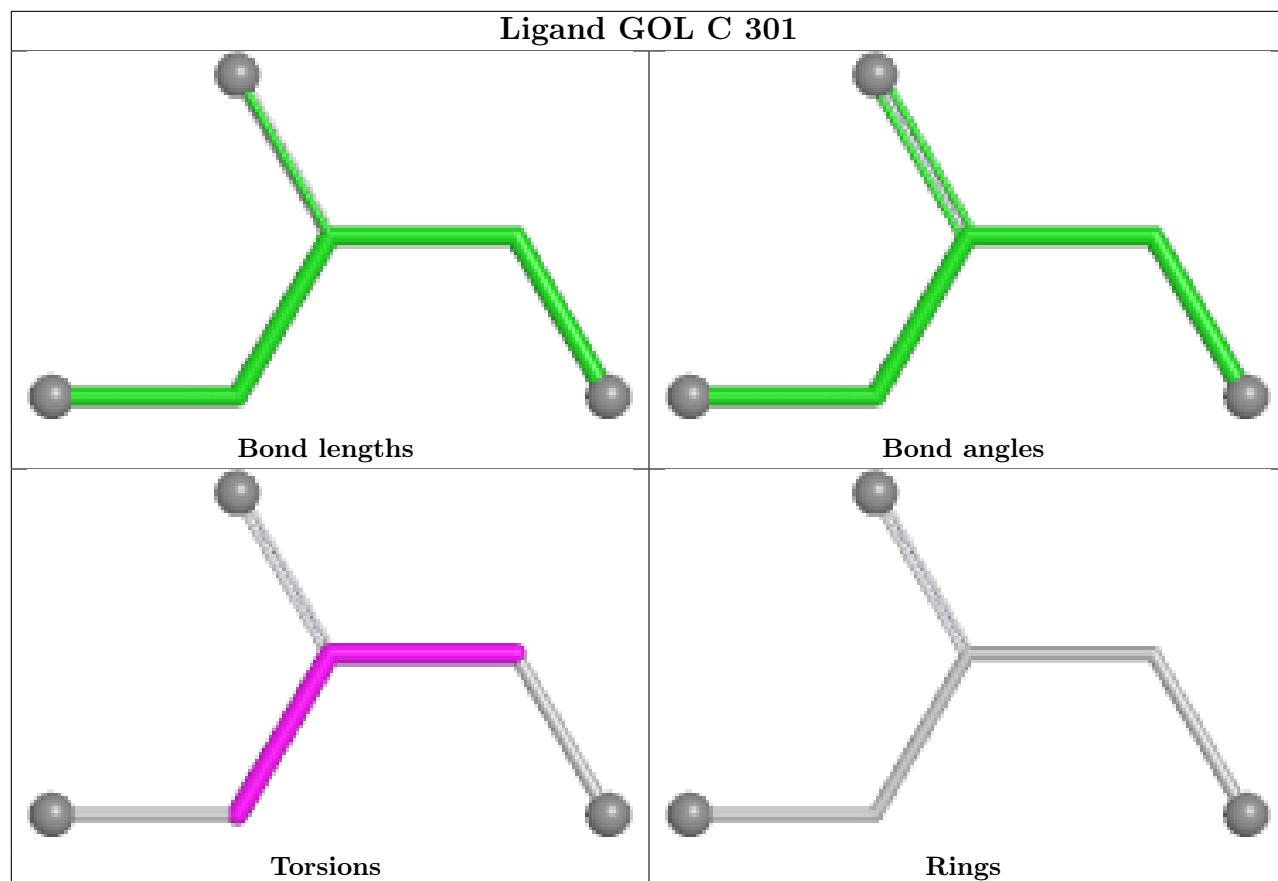
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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(Å²)	Q<0.9
1	A	279/318 (87%)	-0.09	3 (1%)	80	78	12, 30, 63, 73	0
1	B	274/318 (86%)	0.00	7 (2%)	56	50	13, 32, 74, 87	0
1	C	272/318 (85%)	0.17	8 (2%)	51	45	20, 43, 65, 85	0
1	D	274/318 (86%)	0.02	5 (1%)	68	64	19, 39, 58, 72	0
All	All	1099/1272 (86%)	0.02	23 (2%)	63	58	12, 37, 66, 87	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	84	ASP	4.4
1	B	48	ASN	4.0
1	B	19	CYS	3.9
1	C	47	ASP	3.5
1	D	256	TYR	3.3
1	C	271	GLU	3.3
1	D	25	ASP	3.0
1	C	189	ASP	2.7
1	A	18	ILE	2.7
1	B	57	ASP	2.5
1	D	45	THR	2.5
1	C	196	GLU	2.5
1	B	4	GLY	2.5
1	D	190	LEU	2.5
1	C	247	LEU	2.4
1	B	8	PRO	2.3
1	C	24	THR	2.2
1	C	45	THR	2.2
1	B	59	LEU	2.2
1	A	77	ILE	2.2
1	B	30	THR	2.1

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Mol	Chain	Res	Type	RSRZ
1	D	189	ASP	2.1
1	A	76	HIS	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 monosaccharides 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(Å^2)	Q<0.9
2	GOL	A	301	6/6	0.78	0.24	21,25,28,28	0
2	GOL	B	301	6/6	0.82	0.33	20,26,31,32	0
2	GOL	D	301	6/6	0.88	0.23	37,53,63,68	0
2	GOL	C	301	6/6	0.89	0.28	44,49,59,60	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.
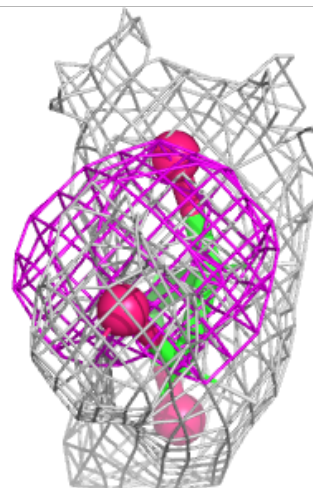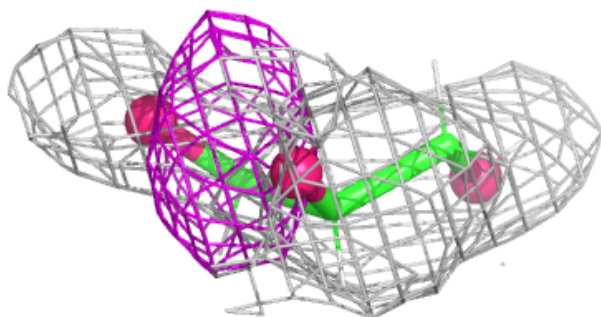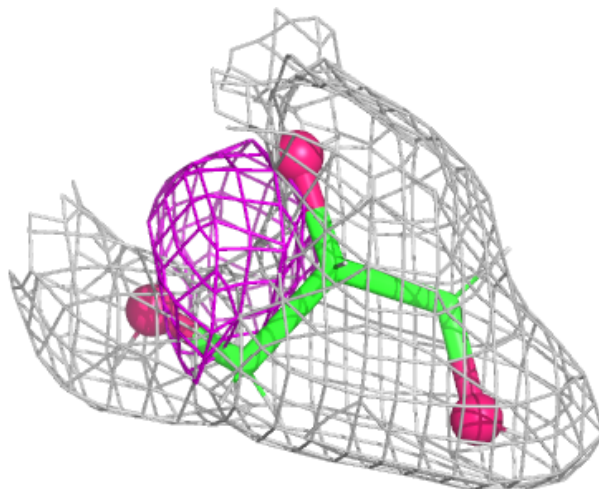
Electron density around GOL A 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
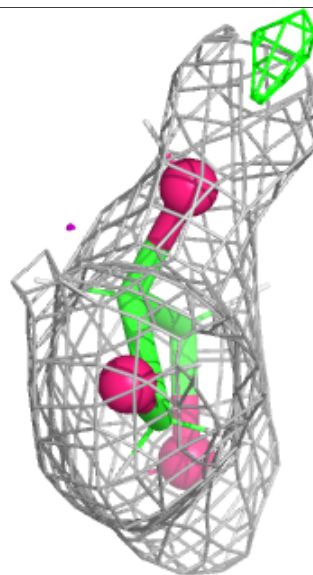mF_o-DF_c (at 3 rmsd) in purple (negative)
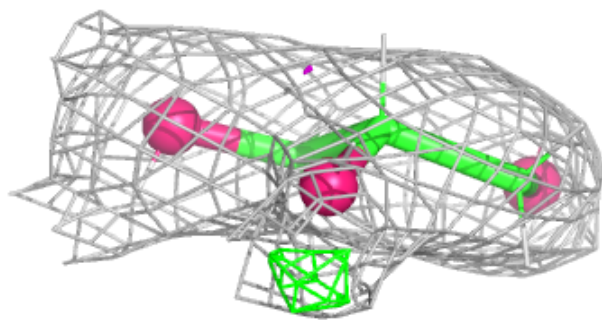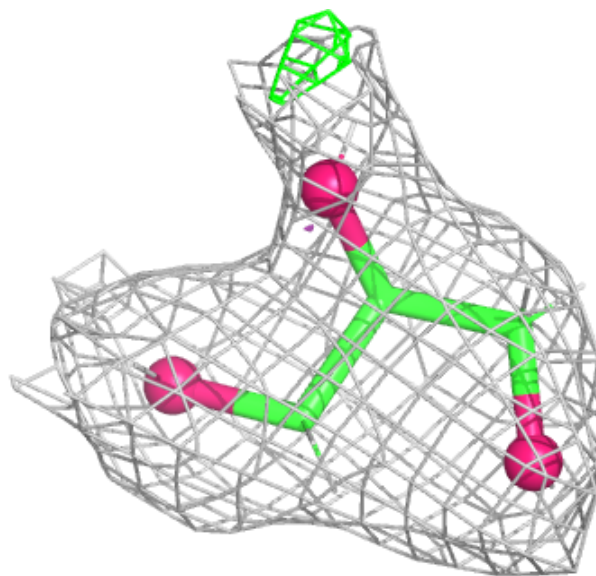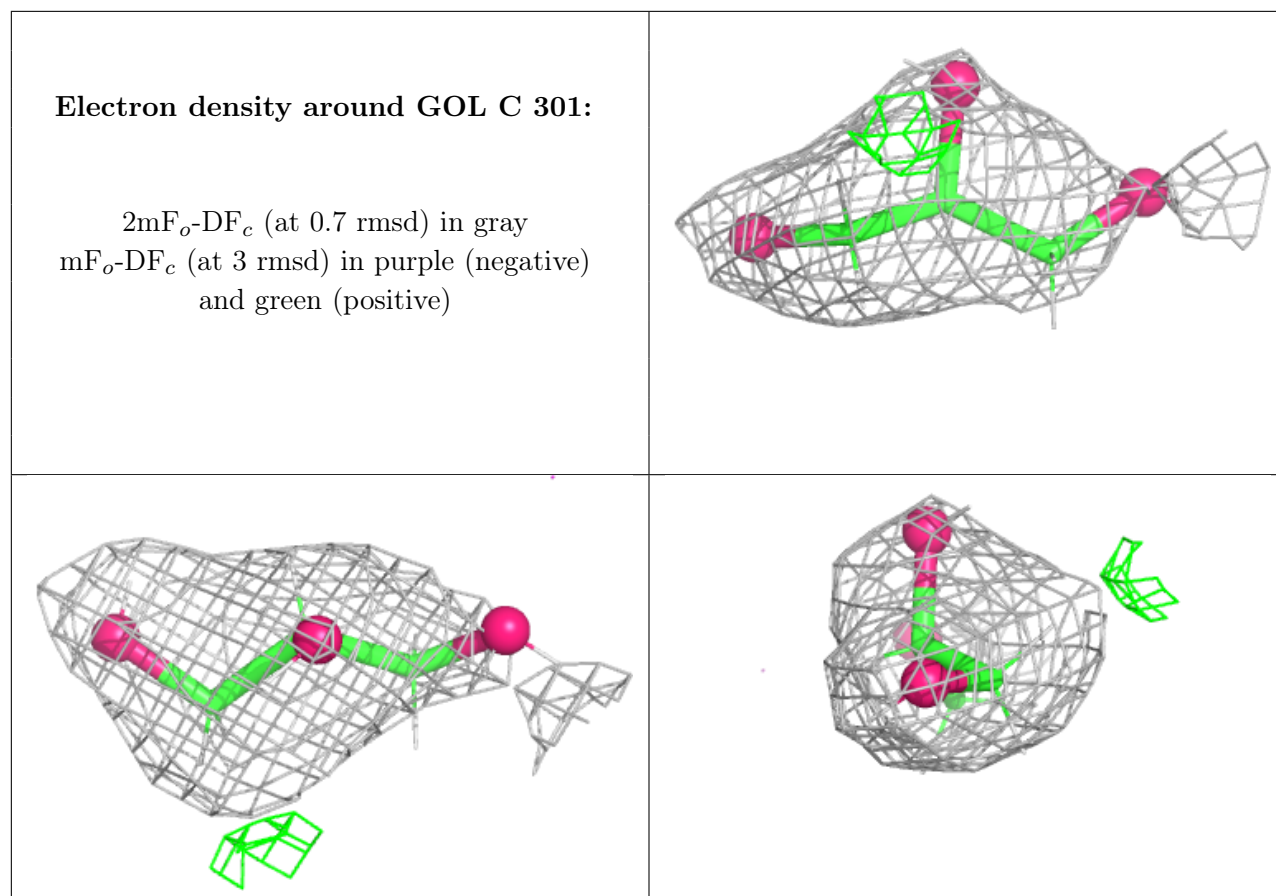and green (positive)
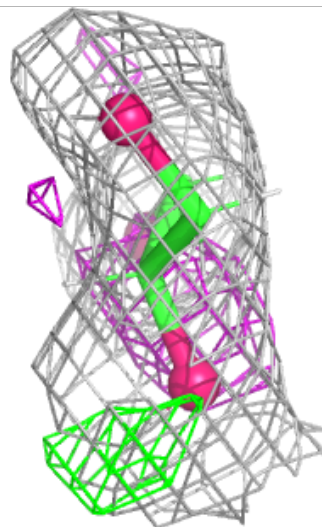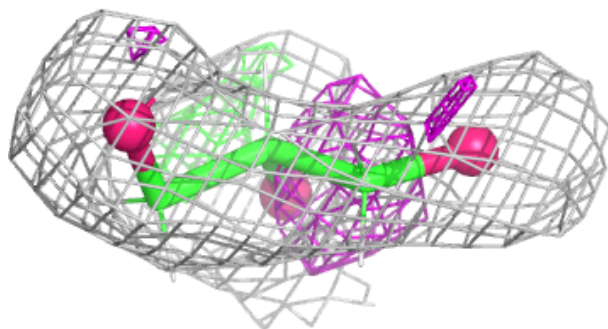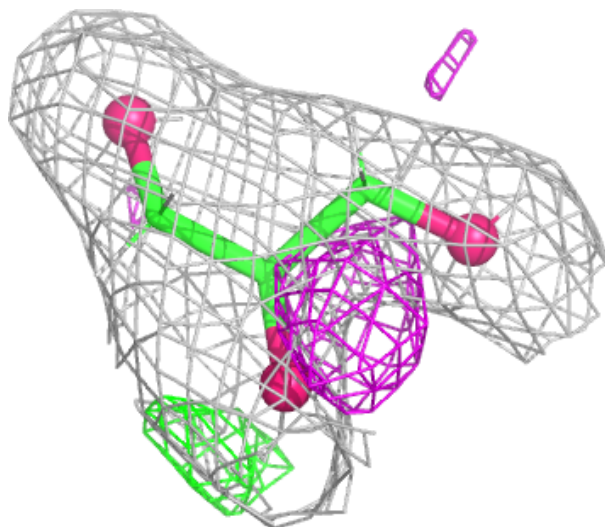
Electron density around GOL B 301:

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

Electron density around GOL D 301:

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

Electron density around GOL C 301:

$2mF_o$-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 ⓘ

There are no such residues in this entry.