



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 9, 2026 – 03:08 AM UTC

PDB ID : 7ZM0 / pdb_00007zm0
Title : Structure of UCHL1 in complex with GK13S inhibitor
Authors : Grethe, C.; Gersch, M.
Deposited on : 2022-04-18
Resolution : 2.24 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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

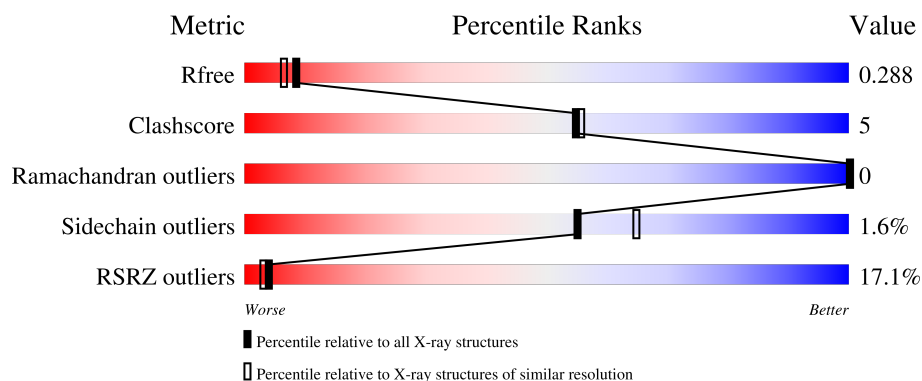
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.24 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.



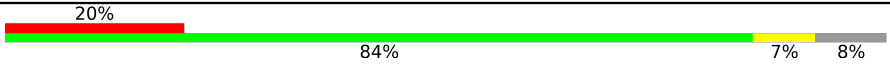
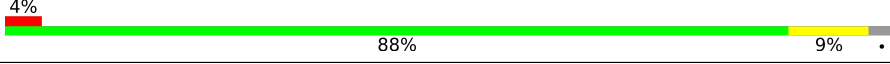
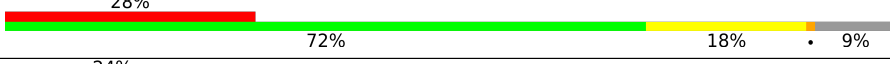
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	3416 (2.26-2.22)
Clashscore	190562	3556 (2.26-2.22)
Ramachandran outliers	187476	3500 (2.26-2.22)
Sidechain outliers	187428	3501 (2.26-2.22)
RSRZ outliers	180081	3415 (2.26-2.22)

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	227	
1	B	227	
1	C	227	
1	D	227	
1	E	227	

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Mol	Chain	Length	Quality of chain
1	F	227	
1	G	227	
1	H	227	
1	I	227	
1	J	227	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 16195 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 Ubiquitin carboxyl-terminal hydrolase isozyme L1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	213	Total	C	N	O	S	0	0	0
			1615	1023	280	301	11			
1	B	219	Total	C	N	O	S	0	0	0
			1599	1012	279	297	11			
1	C	204	Total	C	N	O	S	0	0	0
			1487	947	257	272	11			
1	D	217	Total	C	N	O	S	0	0	0
			1607	1020	278	298	11			
1	E	218	Total	C	N	O	S	0	0	0
			1603	1013	280	299	11			
1	F	208	Total	C	N	O	S	0	0	0
			1529	976	260	282	11			
1	G	212	Total	C	N	O	S	0	0	0
			1556	985	269	291	11			
1	H	220	Total	C	N	O	S	0	0	0
			1656	1048	291	305	12			
1	I	206	Total	C	N	O	S	0	0	0
			1466	929	251	275	11			
1	J	200	Total	C	N	O	S	0	0	0
			1456	922	251	273	10			

There are 40 discrepancies between the modelled and reference sequences:

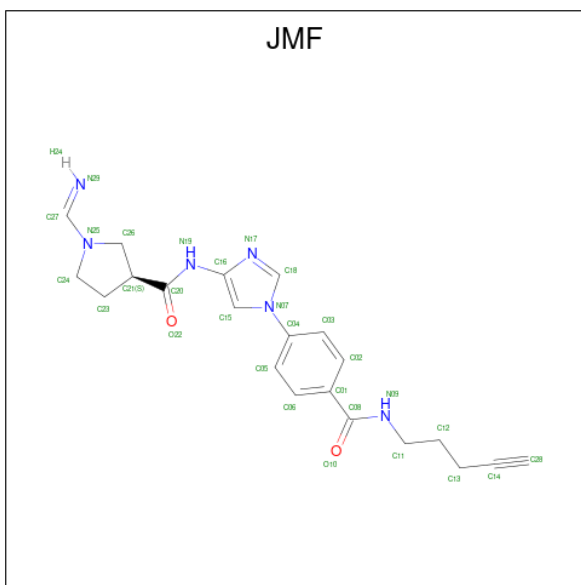
Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP P09936
A	-2	PRO	-	expression tag	UNP P09936
A	-1	GLY	-	expression tag	UNP P09936
A	0	SER	-	expression tag	UNP P09936
B	-3	GLY	-	expression tag	UNP P09936
B	-2	PRO	-	expression tag	UNP P09936
B	-1	GLY	-	expression tag	UNP P09936
B	0	SER	-	expression tag	UNP P09936
C	-3	GLY	-	expression tag	UNP P09936

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	PRO	-	expression tag	UNP P09936
C	-1	GLY	-	expression tag	UNP P09936
C	0	SER	-	expression tag	UNP P09936
D	-3	GLY	-	expression tag	UNP P09936
D	-2	PRO	-	expression tag	UNP P09936
D	-1	GLY	-	expression tag	UNP P09936
D	0	SER	-	expression tag	UNP P09936
E	-3	GLY	-	expression tag	UNP P09936
E	-2	PRO	-	expression tag	UNP P09936
E	-1	GLY	-	expression tag	UNP P09936
E	0	SER	-	expression tag	UNP P09936
F	-3	GLY	-	expression tag	UNP P09936
F	-2	PRO	-	expression tag	UNP P09936
F	-1	GLY	-	expression tag	UNP P09936
F	0	SER	-	expression tag	UNP P09936
G	-3	GLY	-	expression tag	UNP P09936
G	-2	PRO	-	expression tag	UNP P09936
G	-1	GLY	-	expression tag	UNP P09936
G	0	SER	-	expression tag	UNP P09936
H	-3	GLY	-	expression tag	UNP P09936
H	-2	PRO	-	expression tag	UNP P09936
H	-1	GLY	-	expression tag	UNP P09936
H	0	SER	-	expression tag	UNP P09936
I	-3	GLY	-	expression tag	UNP P09936
I	-2	PRO	-	expression tag	UNP P09936
I	-1	GLY	-	expression tag	UNP P09936
I	0	SER	-	expression tag	UNP P09936
J	-3	GLY	-	expression tag	UNP P09936
J	-2	PRO	-	expression tag	UNP P09936
J	-1	GLY	-	expression tag	UNP P09936
J	0	SER	-	expression tag	UNP P09936

- Molecule 2 is (3S)-1-(iminomethyl)-N-[1-[4-(pent-4-ynylcarbamoyl)phenyl]imidazol-4-yl]pyrrolidine-3-carboxamide (CCD ID: JMF) (formula: C₂₁H₂₄N₆O₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			29	21	6	2		
2	B	1	Total	C	N	O	0	0
			29	21	6	2		
2	C	1	Total	C	N	O	0	0
			29	21	6	2		
2	D	1	Total	C	N	O	0	0
			29	21	6	2		
2	E	1	Total	C	N	O	0	0
			29	21	6	2		
2	F	1	Total	C	N	O	0	0
			29	21	6	2		
2	G	1	Total	C	N	O	0	0
			29	21	6	2		
2	H	1	Total	C	N	O	0	0
			29	21	6	2		
2	I	1	Total	C	N	O	0	0
			29	21	6	2		
2	J	1	Total	C	N	O	0	0
			29	21	6	2		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	47	Total	O	0	0
			47	47		
3	B	24	Total	O	0	0
			24	24		

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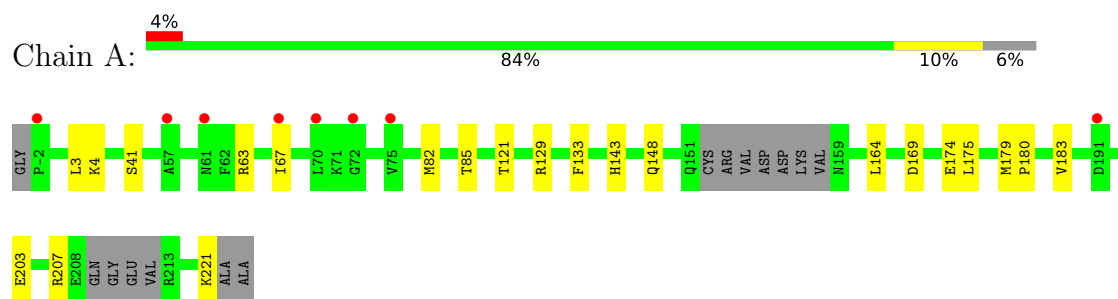
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	C	24	Total 24	O 24	0	0
3	D	30	Total 30	O 30	0	0
3	E	23	Total 23	O 23	0	0
3	F	38	Total 38	O 38	0	0
3	G	32	Total 32	O 32	0	0
3	H	54	Total 54	O 54	0	0
3	I	30	Total 30	O 30	0	0
3	J	29	Total 29	O 29	0	0

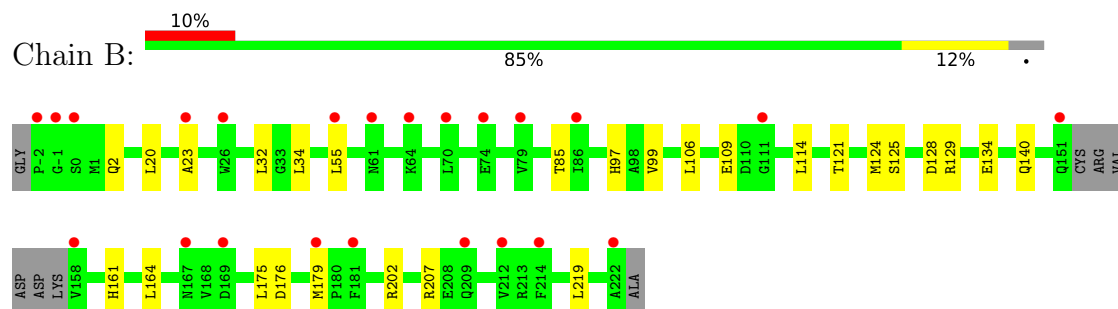
3 Residue-property plots [i](#)

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

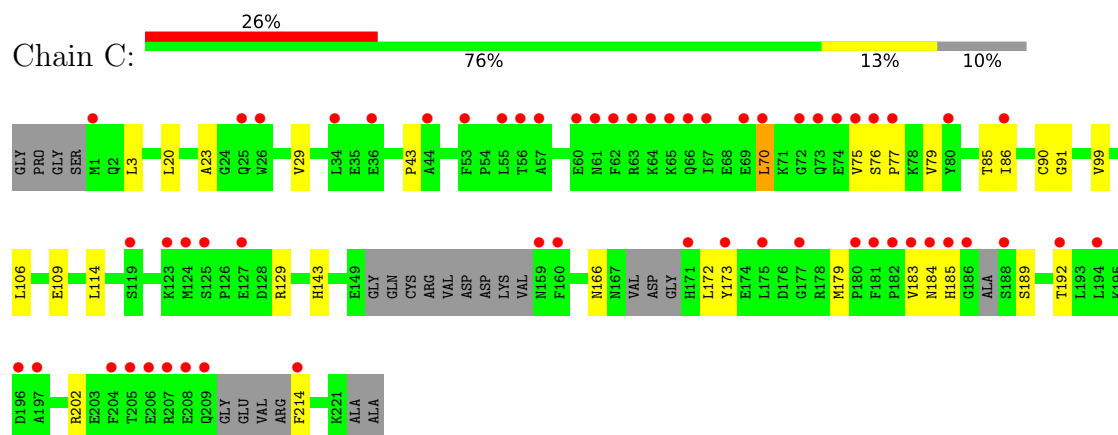
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



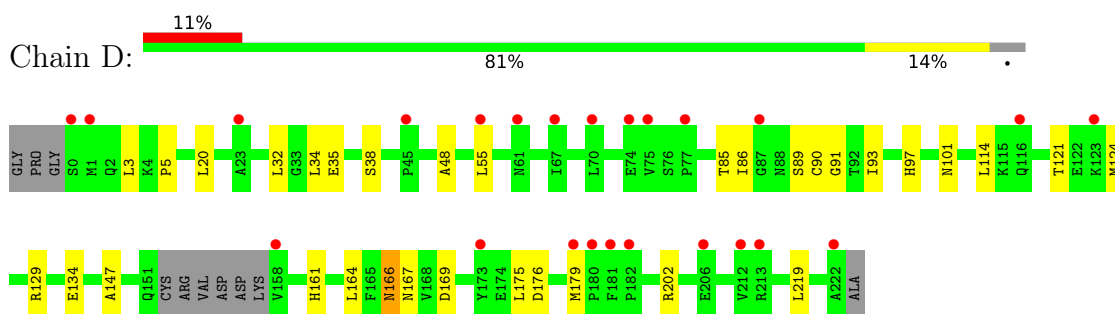
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



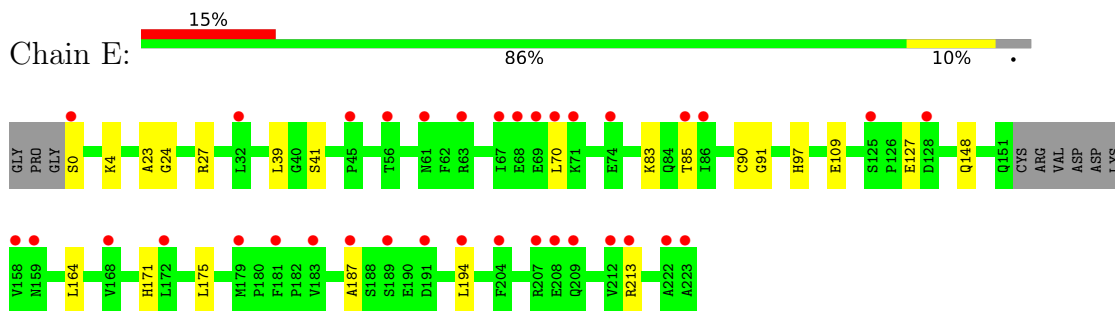
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



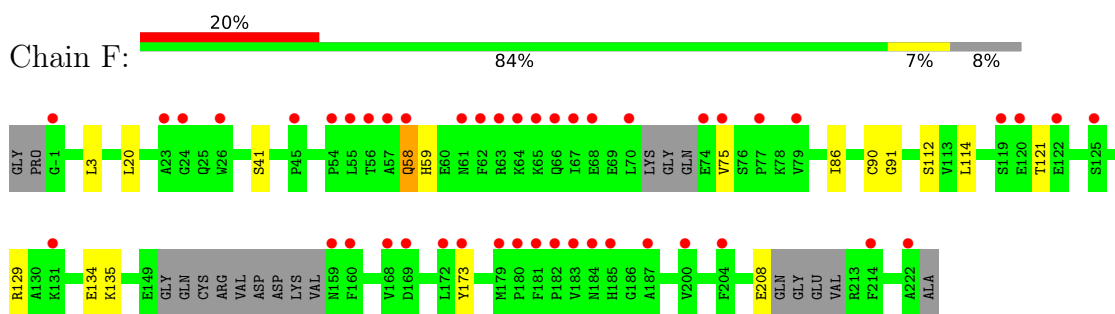
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



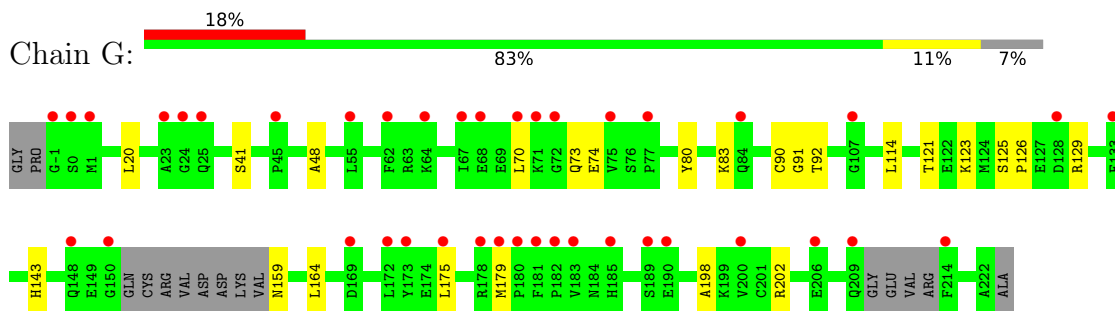
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



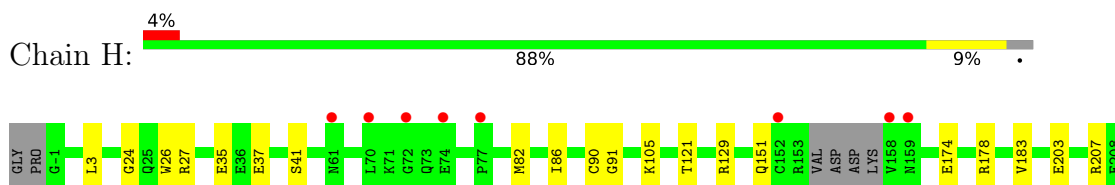
- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1

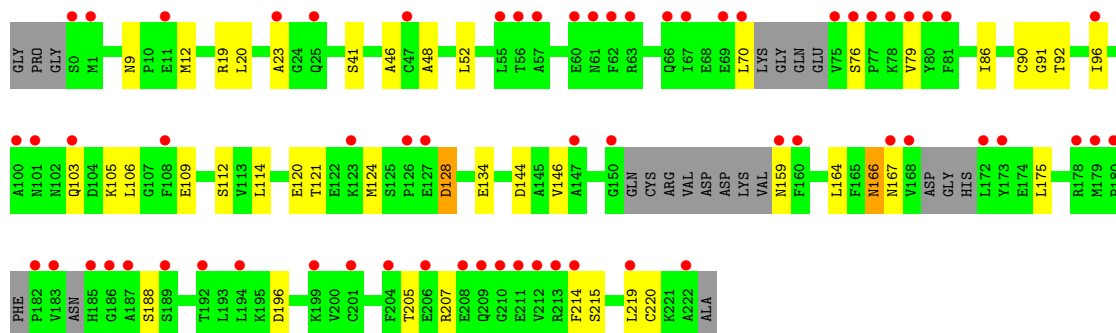


- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1

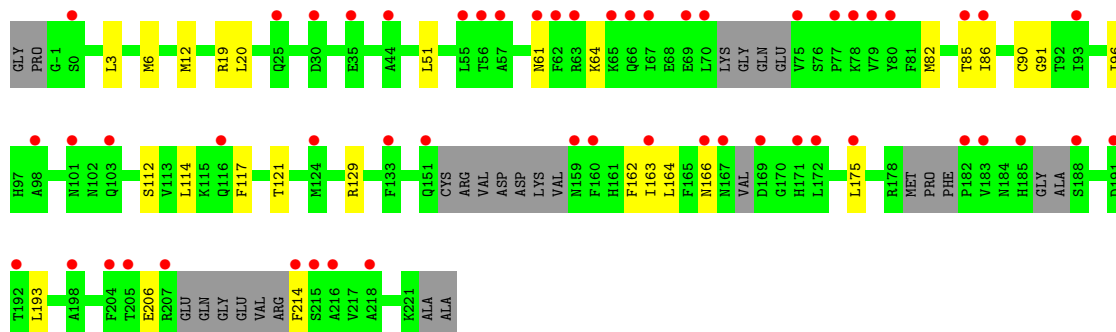
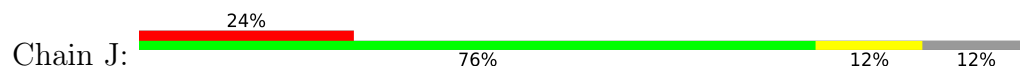




- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



- Molecule 1: Ubiquitin carboxyl-terminal hydrolase isozyme L1



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	101.93Å 144.41Å 158.25Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	62.50 – 2.24 62.50 – 2.24	Depositor EDS
% Data completeness (in resolution range)	56.3 (62.50-2.24) 56.5 (62.50-2.24)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.23 (at 2.25Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.240 , 0.288 0.241 , 0.288	Depositor DCC
R_{free} test set	1633 reflections (2.10%)	wwPDB-VP
Wilson B-factor (Å ²)	46.3	Xtriage
Anisotropy	0.066	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 69.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	16195	wwPDB-VP
Average B, all atoms (Å ²)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.23% 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: JMF

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	0.13	0/1645	0.25	0/2219
1	B	0.14	0/1630	0.27	0/2212
1	C	0.10	0/1513	0.25	0/2051
1	D	0.19	0/1637	0.29	0/2217
1	E	0.08	0/1633	0.22	0/2212
1	F	0.18	0/1557	0.30	0/2109
1	G	0.19	0/1584	0.32	0/2146
1	H	0.09	0/1686	0.24	0/2274
1	I	0.23	0/1489	0.34	0/2016
1	J	0.14	0/1479	0.26	0/2000
All	All	0.15	0/15853	0.28	0/21456

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1615	0	1568	15	0
1	B	1599	0	1498	14	0
1	C	1487	0	1383	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	1607	0	1529	19	0
1	E	1603	0	1500	13	0
1	F	1529	0	1450	11	0
1	G	1556	0	1467	15	0
1	H	1656	0	1610	12	0
1	I	1466	0	1327	25	0
1	J	1456	0	1337	14	0
2	A	29	0	0	0	0
2	B	29	0	0	0	0
2	C	29	0	0	0	0
2	D	29	0	0	0	0
2	E	29	0	0	0	0
2	F	29	0	0	0	0
2	G	29	0	0	0	0
2	H	29	0	0	0	0
2	I	29	0	0	0	0
2	J	29	0	0	0	0
3	A	47	0	0	1	0
3	B	24	0	0	0	0
3	C	24	0	0	2	0
3	D	30	0	0	0	0
3	E	23	0	0	1	0
3	F	38	0	0	3	0
3	G	32	0	0	1	0
3	H	54	0	0	1	0
3	I	30	0	0	2	0
3	J	29	0	0	1	0
All	All	16195	0	14669	147	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 5.

The worst 5 of 147 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:F:208:GLU:CB	3:F:435:HOH:O	2.23	0.85
1:J:121:THR:HB	1:J:129:ARG:HG2	1.66	0.75
1:D:121:THR:HB	1:D:129:ARG:HG2	1.75	0.69
1:A:121:THR:HB	1:A:129:ARG:HG2	1.73	0.69
1:B:32:LEU:CB	3:F:428:HOH:O	2.44	0.65

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	207/227 (91%)	206 (100%)	1 (0%)	0	100	100
1	B	215/227 (95%)	208 (97%)	7 (3%)	0	100	100
1	C	194/227 (86%)	189 (97%)	5 (3%)	0	100	100
1	D	213/227 (94%)	210 (99%)	3 (1%)	0	100	100
1	E	214/227 (94%)	210 (98%)	4 (2%)	0	100	100
1	F	200/227 (88%)	198 (99%)	2 (1%)	0	100	100
1	G	206/227 (91%)	202 (98%)	4 (2%)	0	100	100
1	H	216/227 (95%)	211 (98%)	5 (2%)	0	100	100
1	I	194/227 (86%)	192 (99%)	2 (1%)	0	100	100
1	J	186/227 (82%)	183 (98%)	3 (2%)	0	100	100
All	All	2045/2270 (90%)	2009 (98%)	36 (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	168/190 (88%)	167 (99%)	1 (1%)	78	83
1	B	157/190 (83%)	154 (98%)	3 (2%)	50	59

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	144/190 (76%)	142 (99%)	2 (1%)	59	69
1	D	160/190 (84%)	158 (99%)	2 (1%)	61	71
1	E	156/190 (82%)	154 (99%)	2 (1%)	61	71
1	F	152/190 (80%)	151 (99%)	1 (1%)	76	81
1	G	154/190 (81%)	152 (99%)	2 (1%)	61	71
1	H	169/190 (89%)	168 (99%)	1 (1%)	78	83
1	I	136/190 (72%)	130 (96%)	6 (4%)	25	27
1	J	141/190 (74%)	137 (97%)	4 (3%)	38	45
All	All	1537/1900 (81%)	1513 (98%)	24 (2%)	55	65

5 of 24 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	I	70	LEU
1	I	128	ASP
1	I	105	LYS
1	I	166	ASN
1	D	166	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 15 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	116	GLN
1	I	166	ASN
1	G	148	GLN
1	J	84	GLN
1	I	9	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

10 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	JMF	F	301	1	29,31,31	5.71	20 (68%)	34,41,41	2.45	6 (17%)
2	JMF	H	301	1	29,31,31	5.66	20 (68%)	34,41,41	2.49	6 (17%)
2	JMF	A	301	1	29,31,31	5.75	20 (68%)	34,41,41	2.40	6 (17%)
2	JMF	E	301	1	29,31,31	5.68	20 (68%)	34,41,41	2.47	8 (23%)
2	JMF	D	301	1	29,31,31	5.66	20 (68%)	34,41,41	2.48	7 (20%)
2	JMF	C	301	1	29,31,31	5.69	19 (65%)	34,41,41	2.39	6 (17%)
2	JMF	J	301	1	29,31,31	5.71	19 (65%)	34,41,41	2.40	6 (17%)
2	JMF	I	301	1	29,31,31	5.65	20 (68%)	34,41,41	2.49	8 (23%)
2	JMF	B	301	1	29,31,31	5.67	19 (65%)	34,41,41	2.39	6 (17%)
2	JMF	G	301	1	29,31,31	5.66	20 (68%)	34,41,41	2.49	6 (17%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	JMF	F	301	1	-	4/21/33/33	0/3/3/3
2	JMF	H	301	1	-	4/21/33/33	0/3/3/3
2	JMF	A	301	1	-	3/21/33/33	0/3/3/3
2	JMF	E	301	1	-	3/21/33/33	0/3/3/3
2	JMF	D	301	1	-	7/21/33/33	0/3/3/3
2	JMF	C	301	1	-	5/21/33/33	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	JMF	J	301	1	-	8/21/33/33	0/3/3/3
2	JMF	I	301	1	-	4/21/33/33	0/3/3/3
2	JMF	B	301	1	-	4/21/33/33	0/3/3/3
2	JMF	G	301	1	-	4/21/33/33	0/3/3/3

The worst 5 of 197 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301	JMF	C06-C05	11.80	1.57	1.38
2	J	301	JMF	C06-C05	11.80	1.57	1.38
2	F	301	JMF	C06-C05	11.74	1.57	1.38
2	C	301	JMF	C06-C05	11.73	1.57	1.38
2	H	301	JMF	C06-C05	11.71	1.57	1.38

The worst 5 of 65 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	301	JMF	N07-C18-N17	-10.48	107.95	112.45
2	H	301	JMF	N07-C18-N17	-10.43	107.97	112.45
2	A	301	JMF	N07-C18-N17	-10.31	108.02	112.45
2	D	301	JMF	N07-C18-N17	-10.21	108.06	112.45
2	B	301	JMF	N07-C18-N17	-10.18	108.08	112.45

There are no chirality outliers.

5 of 46 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	H	301	JMF	N09-C11-C12-C13
2	B	301	JMF	C11-C12-C13-C14
2	C	301	JMF	C11-C12-C13-C14
2	G	301	JMF	C11-C12-C13-C14
2	I	301	JMF	C11-C12-C13-C14

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 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.

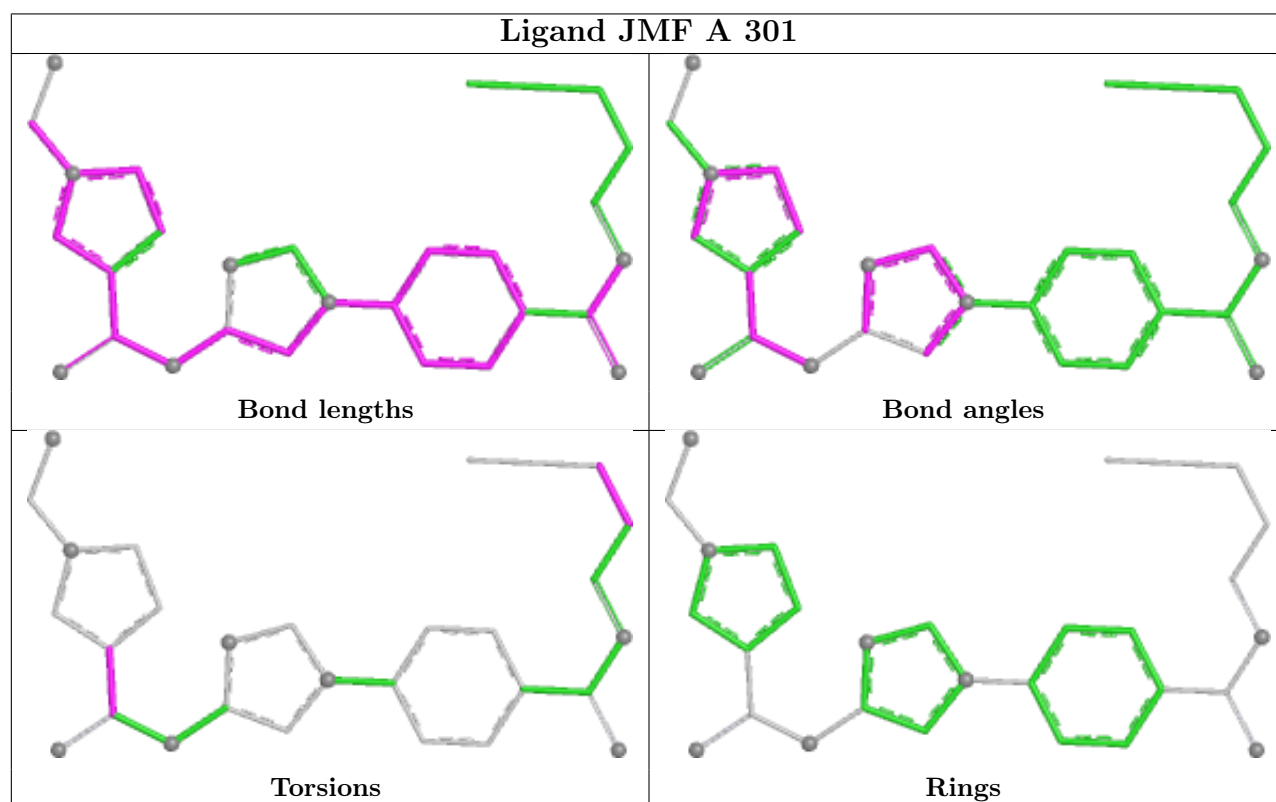
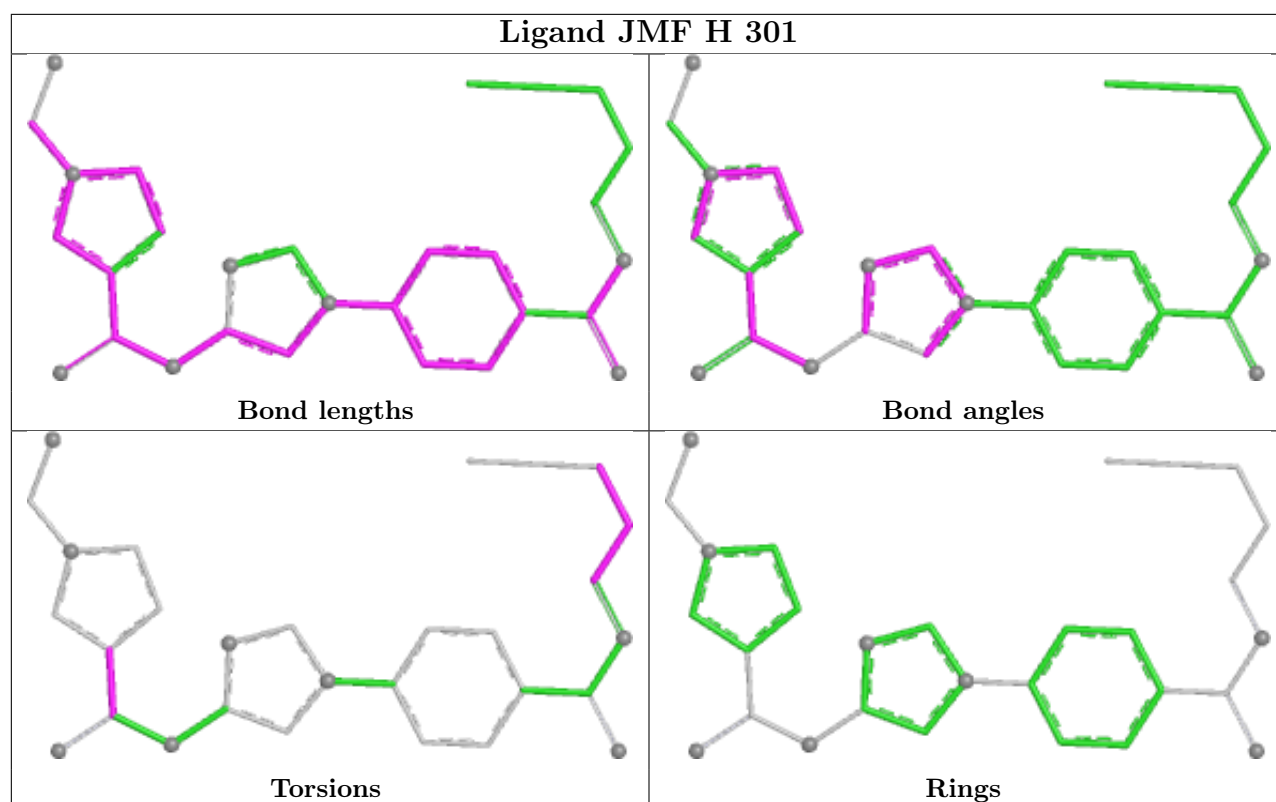
Ligand JMF F 301

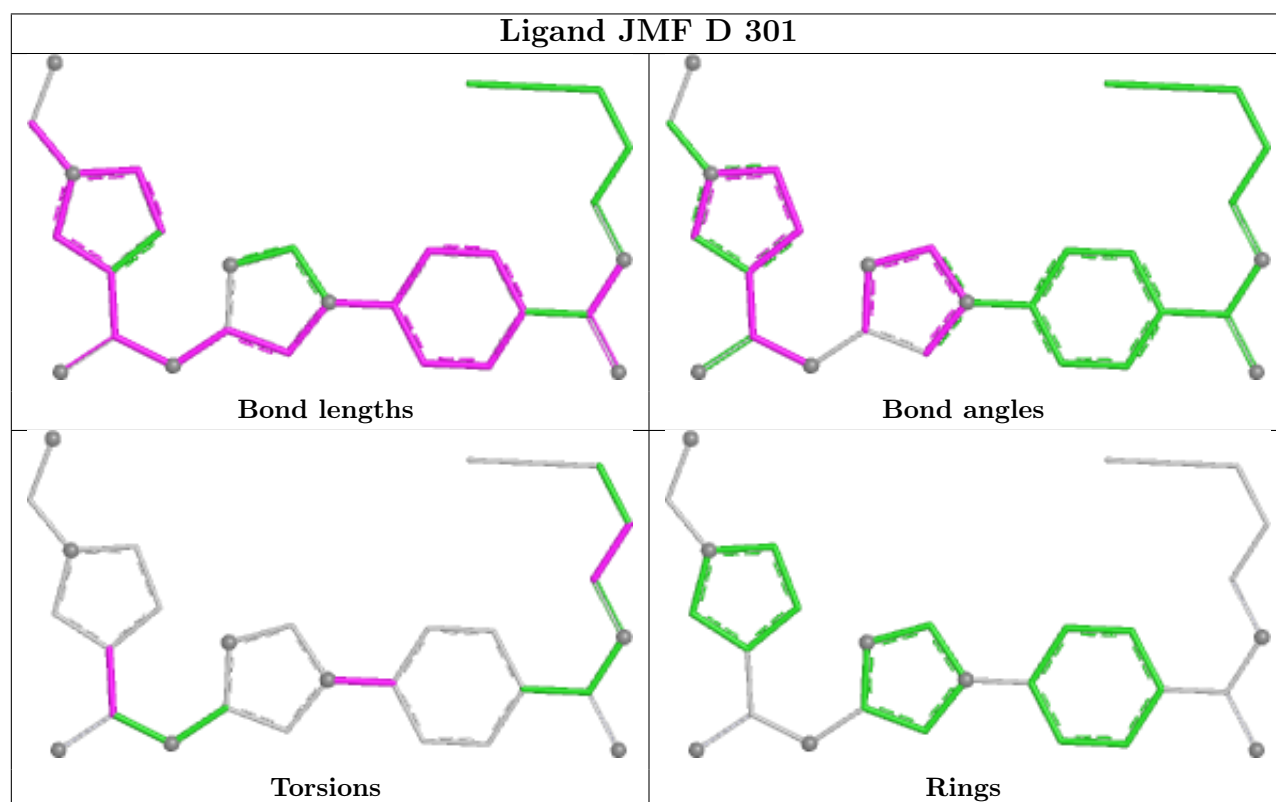
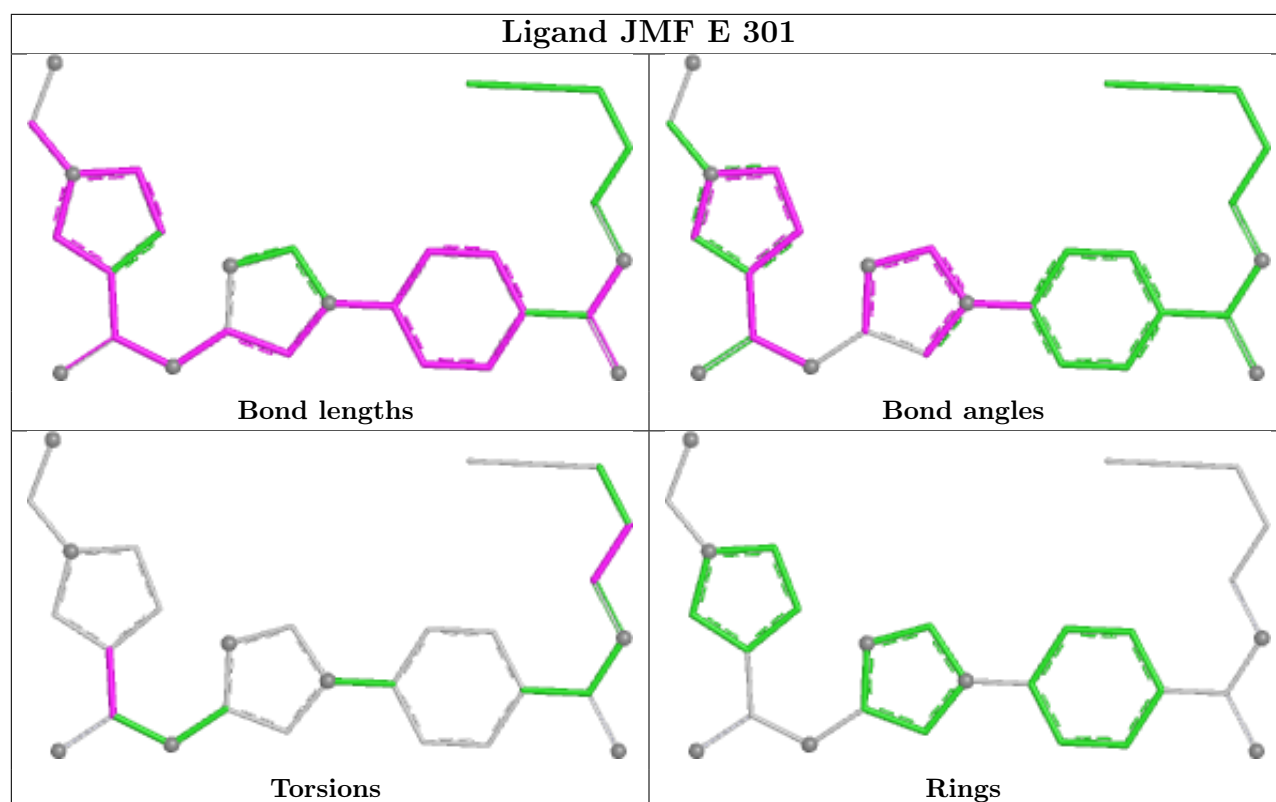
Bond lengths

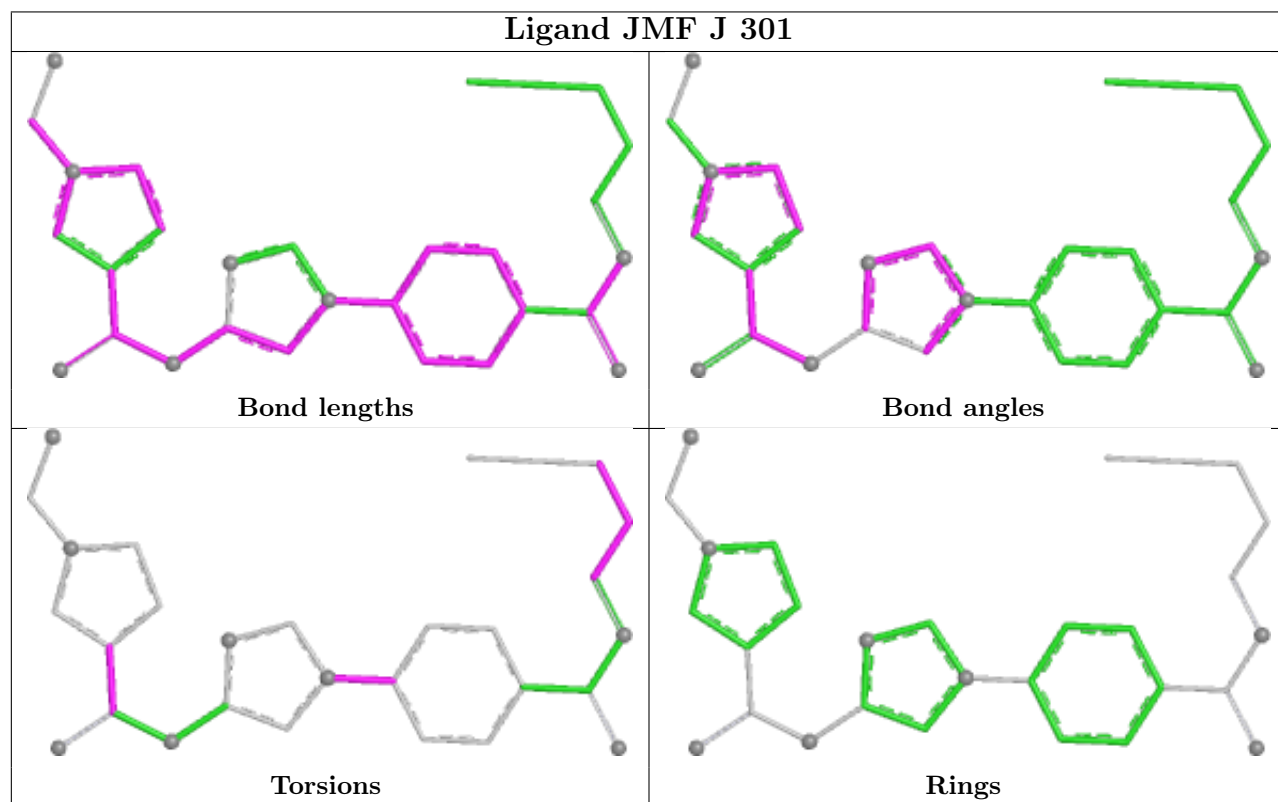
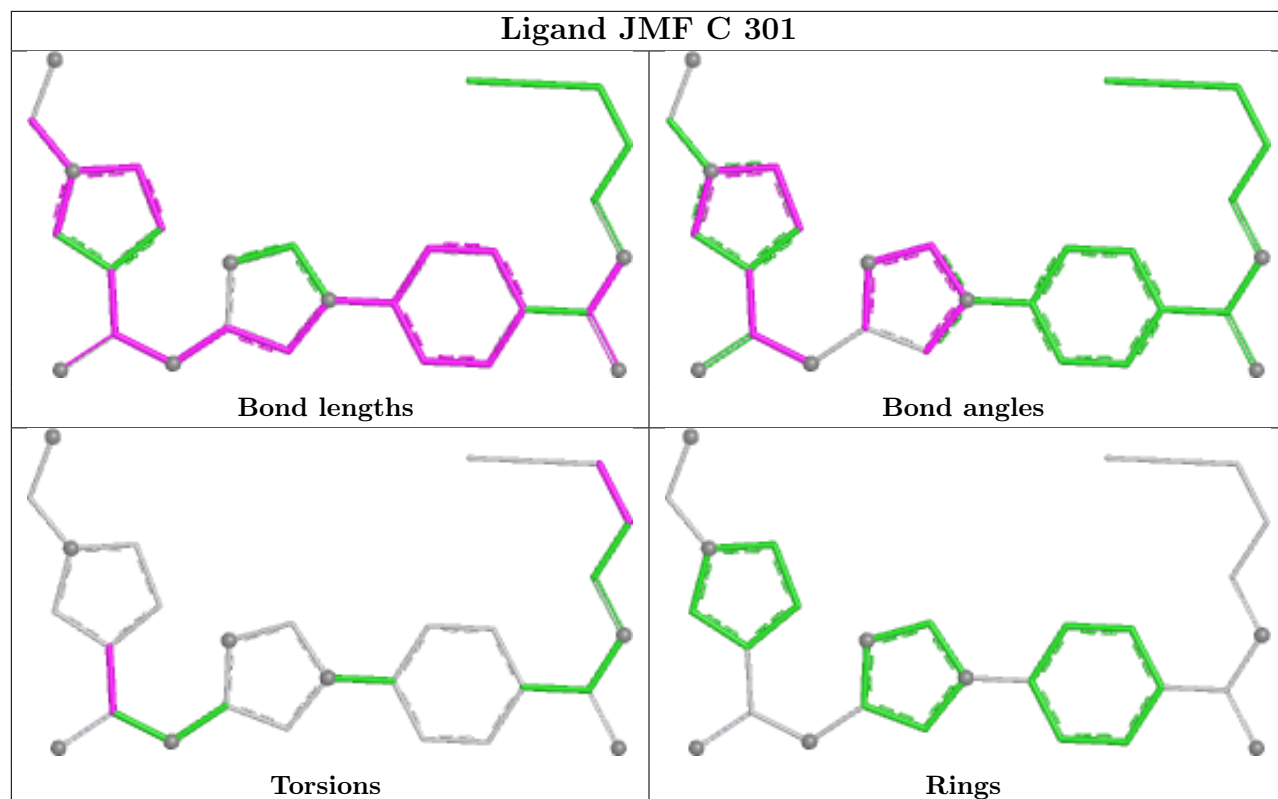
Bond angles

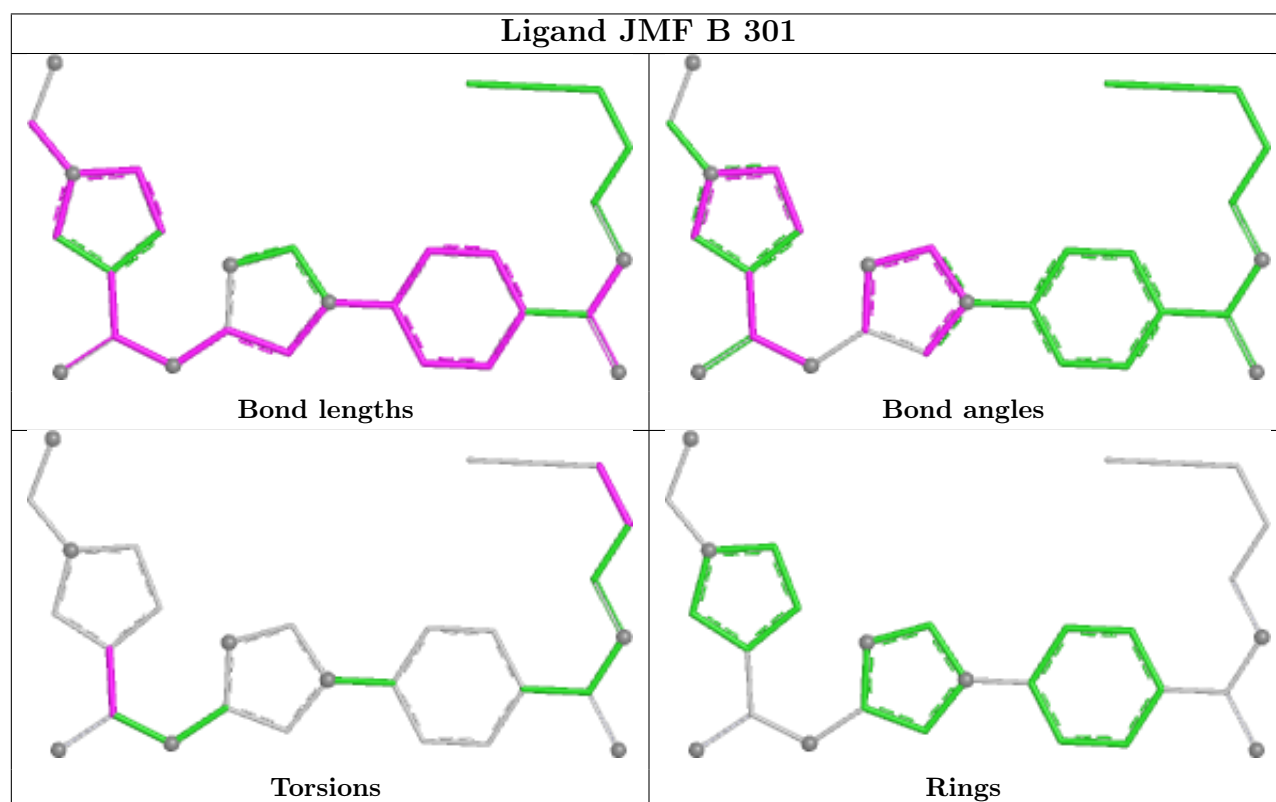
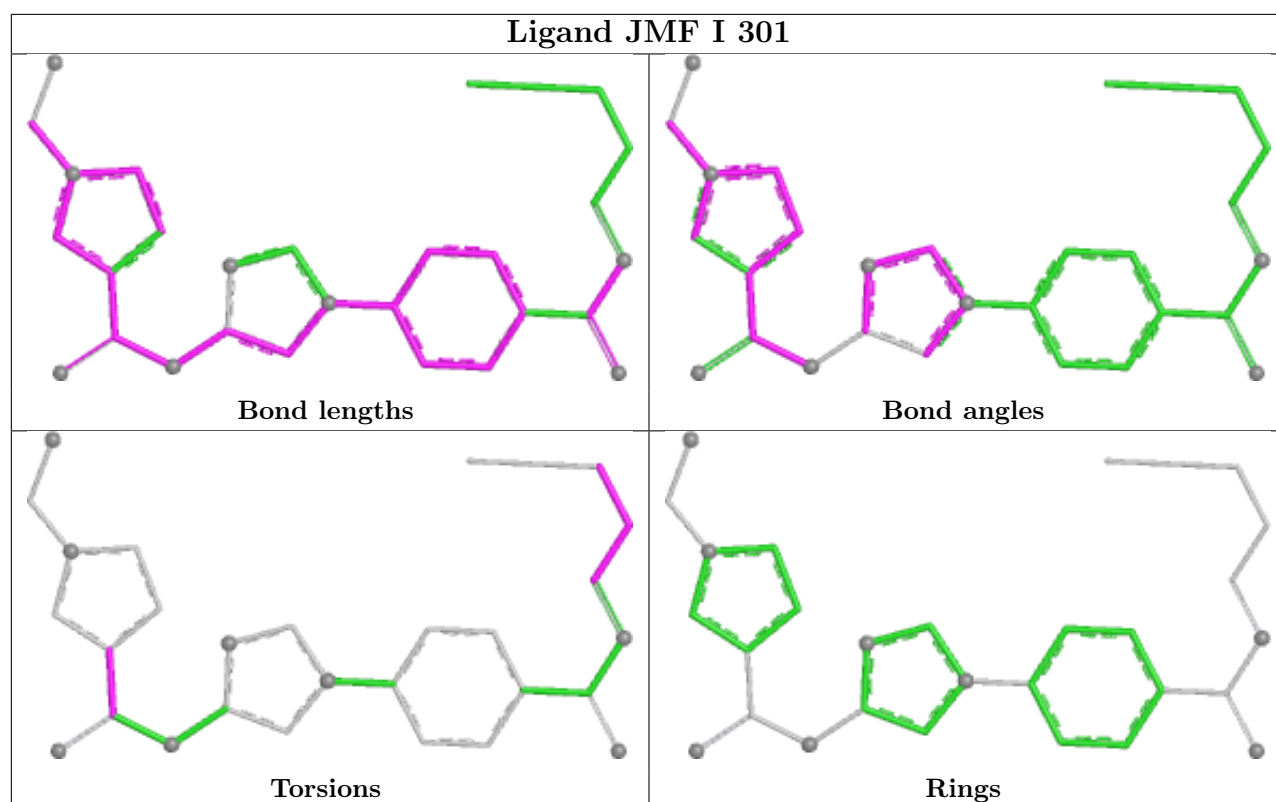
Torsions

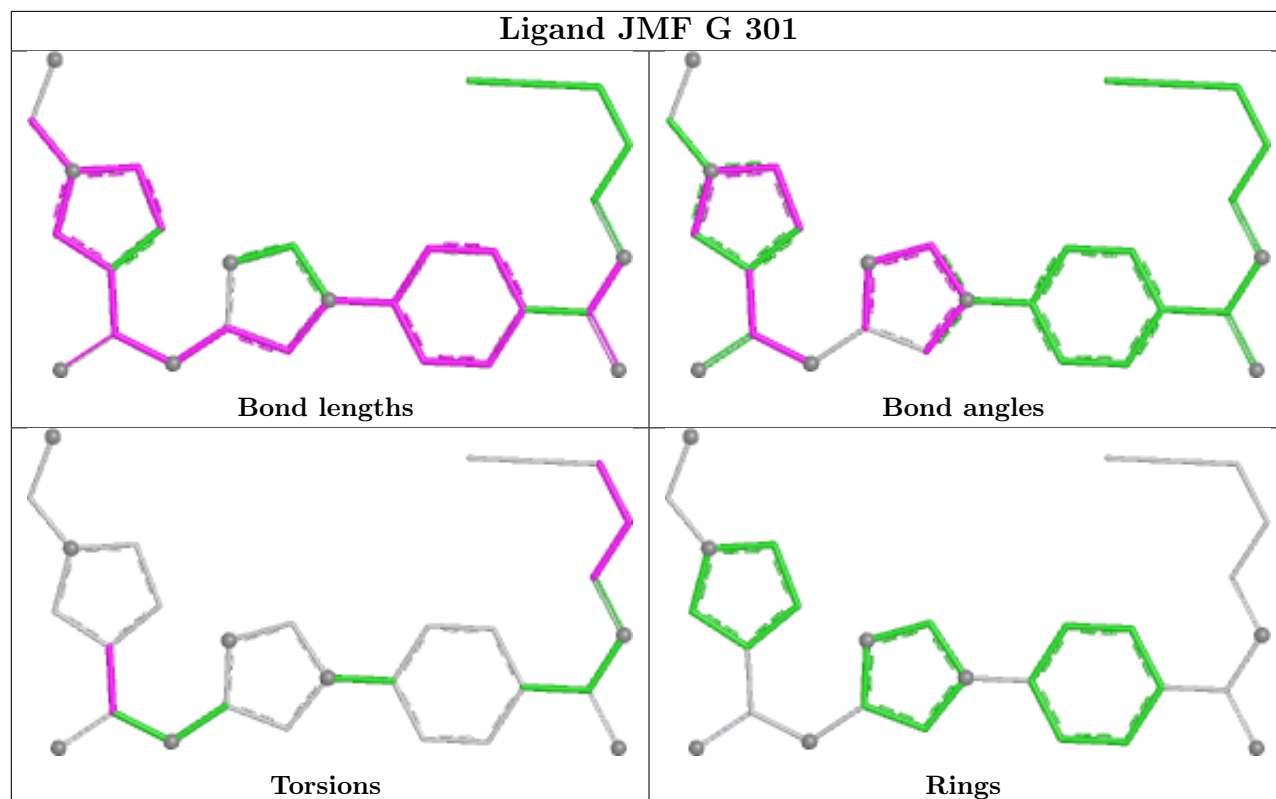
Rings











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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	213/227 (93%)	0.46	8 (3%) 44 43	25, 47, 89, 100	0
1	B	219/227 (96%)	0.78	23 (10%) 11 10	27, 56, 89, 102	0
1	C	204/227 (89%)	1.37	58 (28%) 1 1	27, 68, 111, 124	0
1	D	217/227 (95%)	0.92	24 (11%) 10 9	24, 59, 85, 101	0
1	E	218/227 (96%)	0.99	35 (16%) 4 4	32, 64, 96, 115	0
1	F	208/227 (91%)	1.27	46 (22%) 2 1	30, 66, 95, 105	0
1	G	212/227 (93%)	1.22	40 (18%) 3 2	35, 68, 97, 102	0
1	H	220/227 (96%)	0.29	10 (4%) 38 36	18, 44, 82, 99	0
1	I	206/227 (90%)	1.52	64 (31%) 1 1	35, 78, 112, 128	0
1	J	200/227 (88%)	1.50	54 (27%) 1 1	32, 75, 104, 121	0
All	All	2117/2270 (93%)	1.02	362 (17%) 4 3	18, 63, 100, 128	0

The worst 5 of 362 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	67	ILE	5.1
1	I	75	VAL	5.1
1	C	67	ILE	4.8
1	I	67	ILE	4.6
1	F	70	LEU	4.6

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 oligosaccharides in this entry.

6.4 Ligands [i](#)

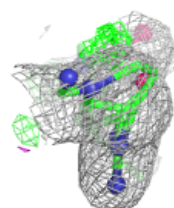
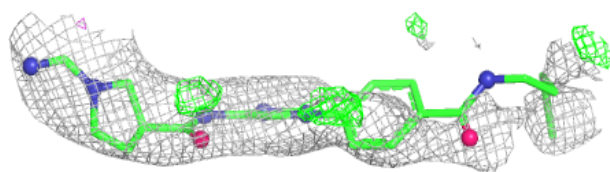
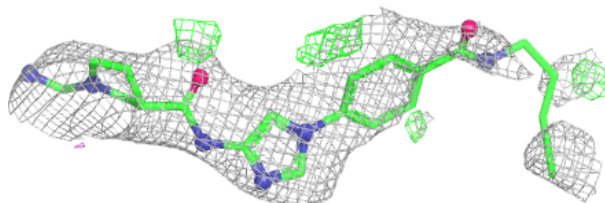
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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
2	JMF	G	301	29/29	0.73	0.19	48,70,98,101	0
2	JMF	J	301	29/29	0.73	0.20	41,77,106,114	0
2	JMF	C	301	29/29	0.74	0.19	48,72,108,114	0
2	JMF	F	301	29/29	0.79	0.18	43,64,109,112	0
2	JMF	D	301	29/29	0.81	0.16	43,63,90,98	0
2	JMF	I	301	29/29	0.82	0.19	45,65,100,115	0
2	JMF	A	301	29/29	0.85	0.16	37,59,87,91	0
2	JMF	E	301	29/29	0.85	0.15	39,62,88,96	0
2	JMF	B	301	29/29	0.86	0.14	37,60,83,87	0
2	JMF	H	301	29/29	0.89	0.14	25,47,88,97	0

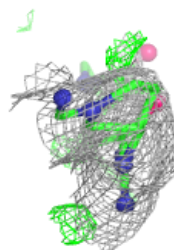
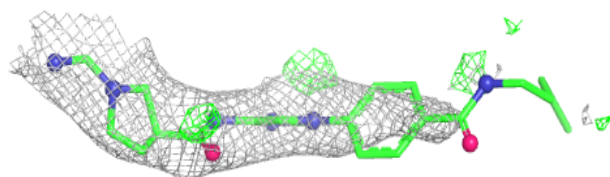
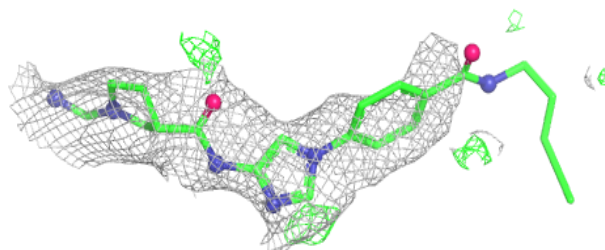
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around JMF G 301:

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

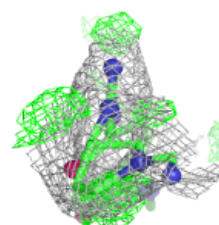
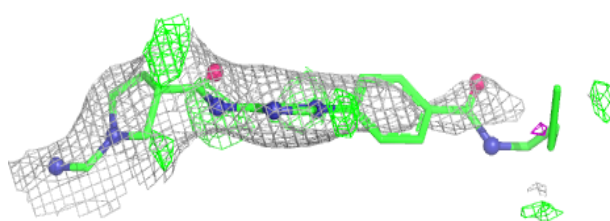
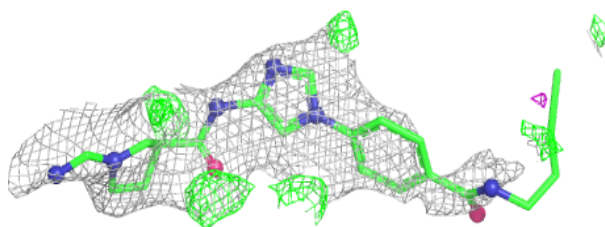
**Electron density around JMF J 301:**

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

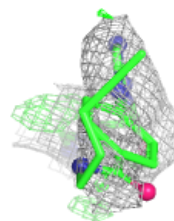
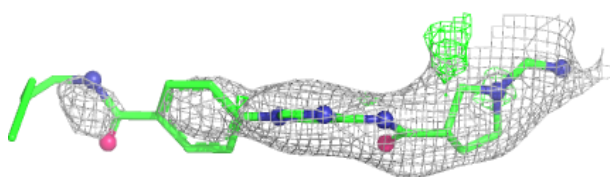
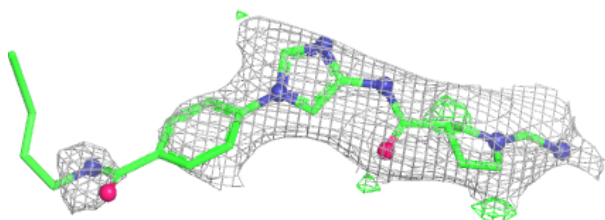


Electron density around JMF C 301:

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

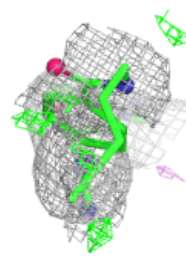
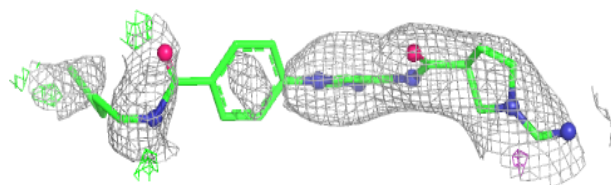
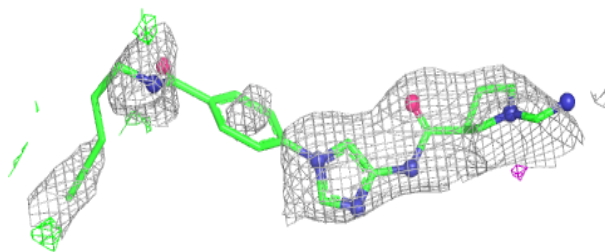
**Electron density around JMF F 301:**

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

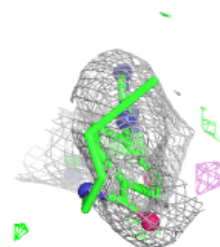
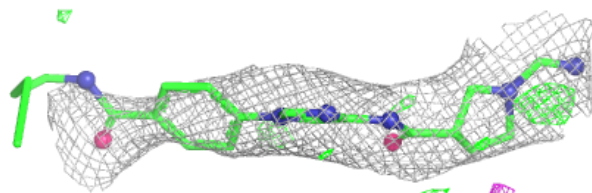
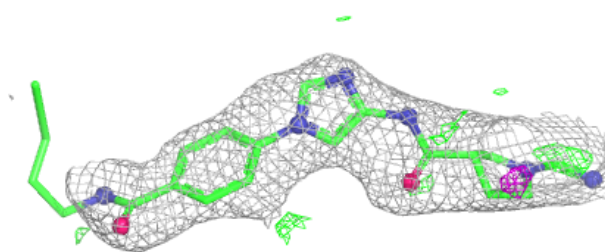


Electron density around JMF D 301:

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

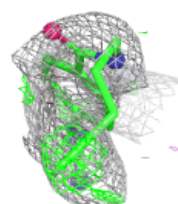
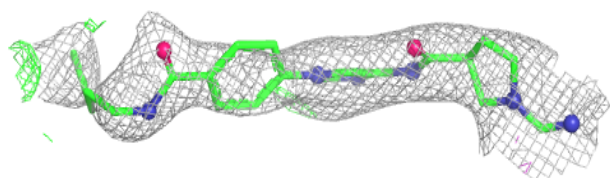
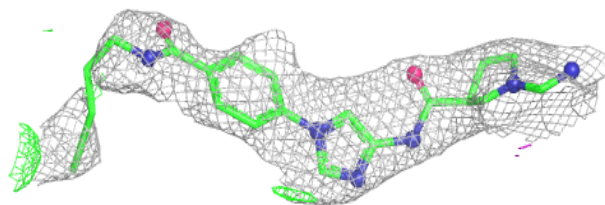
**Electron density around JMF I 301:**

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

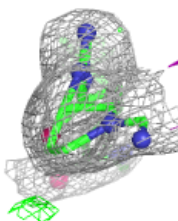
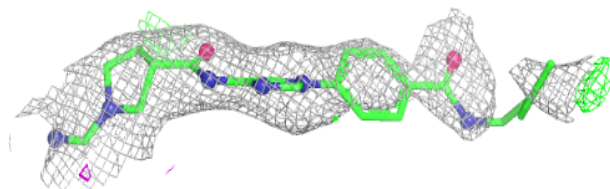
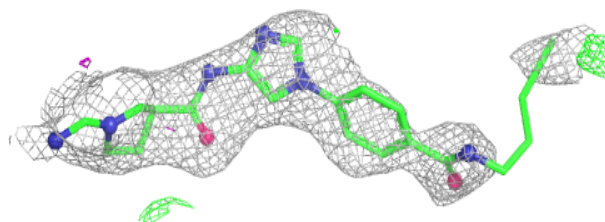


Electron density around JMF A 301:

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

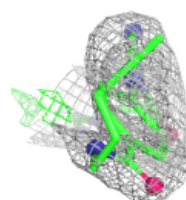
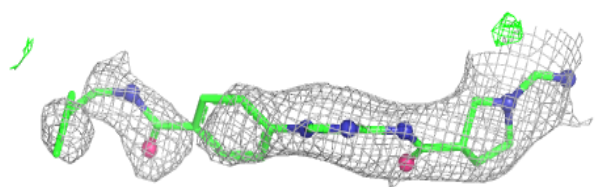
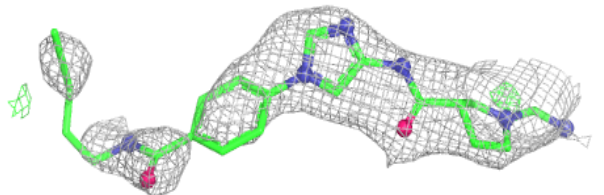
**Electron density around JMF E 301:**

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

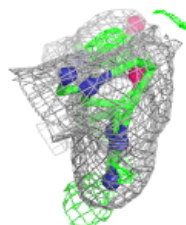
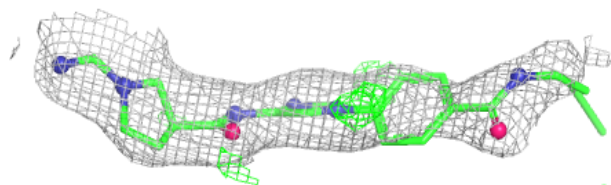
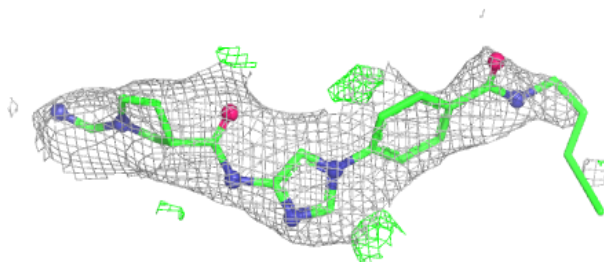


Electron density around JMF B 301:

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

**Electron density around JMF H 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 [i](#)

There are no such residues in this entry.