



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 8, 2023 – 06:55 PM EDT

PDB ID : 6W4N
Title : Co-crystal structure of Pd_dinase with probe glycine-propargylglycine-AOM
K
Authors : Xu, J.H.; Solania, A.; Wolan, D.W.
Deposited on : 2020-03-11
Resolution : 2.62 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 : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
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) : 2.35.1

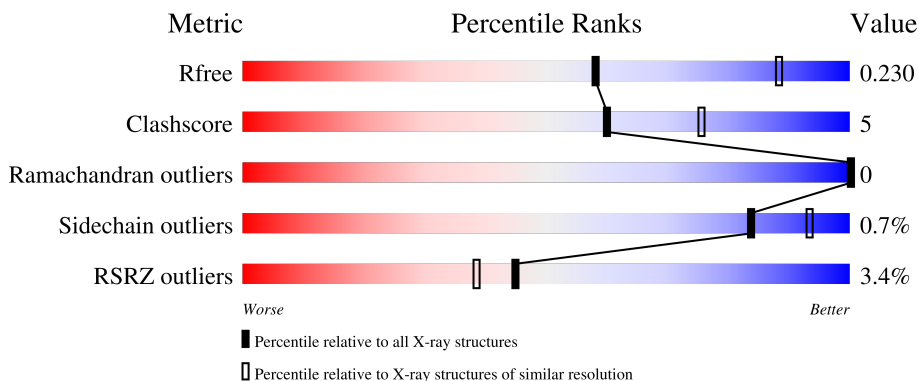
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.62 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.




Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3797 (2.64-2.60)
Clashscore	141614	4168 (2.64-2.60)
Ramachandran outliers	138981	4093 (2.64-2.60)
Sidechain outliers	138945	4093 (2.64-2.60)
RSRZ outliers	127900	3731 (2.64-2.60)

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 $\leq 5\%$. 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	401	 4% 73% 13% 10%
1	B	401	 3% 78% 9% 10%
1	C	401	 3% 73% 13% 11%
1	D	401	 6% 80% 7% 9%
1	E	401	 84% 7% 9%

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Mol	Chain	Length	Quality of chain
1	F	401	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a green segment labeled '85%', a yellow segment labeled '6%', and a grey segment labeled '9%'. A small red square is at the beginning of the bar, and a '%' symbol is above it.</p>

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 17389 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 Aminopeptidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	347	2734	1740	445	532	17	0	0	0
1	B	350	2757	1755	448	537	17	0	0	0
1	C	347	2722	1734	437	534	17	0	0	0
1	D	351	2758	1753	446	542	17	0	0	0
1	E	366	2891	1843	471	560	17	0	1	0
1	F	363	2882	1837	470	558	17	0	0	0

There are 108 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	5	MET	-	initiating methionine	UNP A0A395YY96
A	6	GLY	-	expression tag	UNP A0A395YY96
A	7	SER	-	expression tag	UNP A0A395YY96
A	8	ASP	-	expression tag	UNP A0A395YY96
A	9	LYS	-	expression tag	UNP A0A395YY96
A	10	ILE	-	expression tag	UNP A0A395YY96
A	11	HIS	-	expression tag	UNP A0A395YY96
A	12	HIS	-	expression tag	UNP A0A395YY96
A	13	HIS	-	expression tag	UNP A0A395YY96
A	14	HIS	-	expression tag	UNP A0A395YY96
A	15	HIS	-	expression tag	UNP A0A395YY96
A	16	HIS	-	expression tag	UNP A0A395YY96
A	17	GLU	-	expression tag	UNP A0A395YY96
A	18	ASN	-	expression tag	UNP A0A395YY96
A	19	LEU	-	expression tag	UNP A0A395YY96
A	20	TYR	-	expression tag	UNP A0A395YY96
A	21	PHE	-	expression tag	UNP A0A395YY96

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Chain	Residue	Modelled	Actual	Comment	Reference
A	22	GLN	-	expression tag	UNP A0A395YY96
B	5	MET	-	initiating methionine	UNP A0A395YY96
B	6	GLY	-	expression tag	UNP A0A395YY96
B	7	SER	-	expression tag	UNP A0A395YY96
B	8	ASP	-	expression tag	UNP A0A395YY96
B	9	LYS	-	expression tag	UNP A0A395YY96
B	10	ILE	-	expression tag	UNP A0A395YY96
B	11	HIS	-	expression tag	UNP A0A395YY96
B	12	HIS	-	expression tag	UNP A0A395YY96
B	13	HIS	-	expression tag	UNP A0A395YY96
B	14	HIS	-	expression tag	UNP A0A395YY96
B	15	HIS	-	expression tag	UNP A0A395YY96
B	16	HIS	-	expression tag	UNP A0A395YY96
B	17	GLU	-	expression tag	UNP A0A395YY96
B	18	ASN	-	expression tag	UNP A0A395YY96
B	19	LEU	-	expression tag	UNP A0A395YY96
B	20	TYR	-	expression tag	UNP A0A395YY96
B	21	PHE	-	expression tag	UNP A0A395YY96
B	22	GLN	-	expression tag	UNP A0A395YY96
C	5	MET	-	initiating methionine	UNP A0A395YY96
C	6	GLY	-	expression tag	UNP A0A395YY96
C	7	SER	-	expression tag	UNP A0A395YY96
C	8	ASP	-	expression tag	UNP A0A395YY96
C	9	LYS	-	expression tag	UNP A0A395YY96
C	10	ILE	-	expression tag	UNP A0A395YY96
C	11	HIS	-	expression tag	UNP A0A395YY96
C	12	HIS	-	expression tag	UNP A0A395YY96
C	13	HIS	-	expression tag	UNP A0A395YY96
C	14	HIS	-	expression tag	UNP A0A395YY96
C	15	HIS	-	expression tag	UNP A0A395YY96
C	16	HIS	-	expression tag	UNP A0A395YY96
C	17	GLU	-	expression tag	UNP A0A395YY96
C	18	ASN	-	expression tag	UNP A0A395YY96
C	19	LEU	-	expression tag	UNP A0A395YY96
C	20	TYR	-	expression tag	UNP A0A395YY96
C	21	PHE	-	expression tag	UNP A0A395YY96
C	22	GLN	-	expression tag	UNP A0A395YY96
D	5	MET	-	initiating methionine	UNP A0A395YY96
D	6	GLY	-	expression tag	UNP A0A395YY96
D	7	SER	-	expression tag	UNP A0A395YY96
D	8	ASP	-	expression tag	UNP A0A395YY96
D	9	LYS	-	expression tag	UNP A0A395YY96

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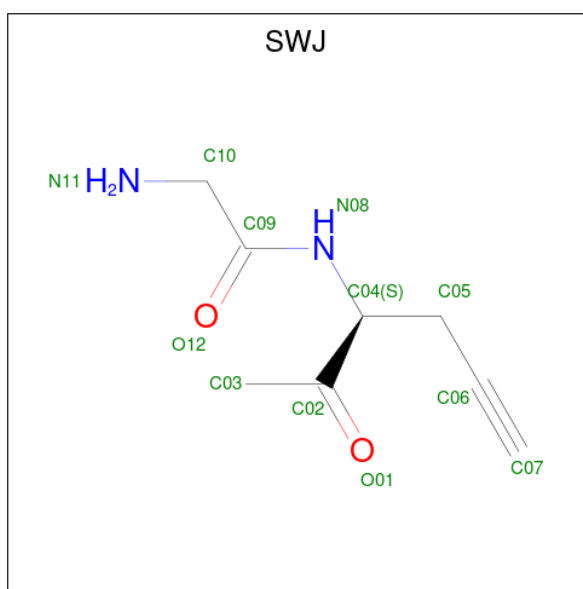
Chain	Residue	Modelled	Actual	Comment	Reference
D	10	ILE	-	expression tag	UNP A0A395YY96
D	11	HIS	-	expression tag	UNP A0A395YY96
D	12	HIS	-	expression tag	UNP A0A395YY96
D	13	HIS	-	expression tag	UNP A0A395YY96
D	14	HIS	-	expression tag	UNP A0A395YY96
D	15	HIS	-	expression tag	UNP A0A395YY96
D	16	HIS	-	expression tag	UNP A0A395YY96
D	17	GLU	-	expression tag	UNP A0A395YY96
D	18	ASN	-	expression tag	UNP A0A395YY96
D	19	LEU	-	expression tag	UNP A0A395YY96
D	20	TYR	-	expression tag	UNP A0A395YY96
D	21	PHE	-	expression tag	UNP A0A395YY96
D	22	GLN	-	expression tag	UNP A0A395YY96
E	5	MET	-	initiating methionine	UNP A0A395YY96
E	6	GLY	-	expression tag	UNP A0A395YY96
E	7	SER	-	expression tag	UNP A0A395YY96
E	8	ASP	-	expression tag	UNP A0A395YY96
E	9	LYS	-	expression tag	UNP A0A395YY96
E	10	ILE	-	expression tag	UNP A0A395YY96
E	11	HIS	-	expression tag	UNP A0A395YY96
E	12	HIS	-	expression tag	UNP A0A395YY96
E	13	HIS	-	expression tag	UNP A0A395YY96
E	14	HIS	-	expression tag	UNP A0A395YY96
E	15	HIS	-	expression tag	UNP A0A395YY96
E	16	HIS	-	expression tag	UNP A0A395YY96
E	17	GLU	-	expression tag	UNP A0A395YY96
E	18	ASN	-	expression tag	UNP A0A395YY96
E	19	LEU	-	expression tag	UNP A0A395YY96
E	20	TYR	-	expression tag	UNP A0A395YY96
E	21	PHE	-	expression tag	UNP A0A395YY96
E	22	GLN	-	expression tag	UNP A0A395YY96
F	5	MET	-	initiating methionine	UNP A0A395YY96
F	6	GLY	-	expression tag	UNP A0A395YY96
F	7	SER	-	expression tag	UNP A0A395YY96
F	8	ASP	-	expression tag	UNP A0A395YY96
F	9	LYS	-	expression tag	UNP A0A395YY96
F	10	ILE	-	expression tag	UNP A0A395YY96
F	11	HIS	-	expression tag	UNP A0A395YY96
F	12	HIS	-	expression tag	UNP A0A395YY96
F	13	HIS	-	expression tag	UNP A0A395YY96
F	14	HIS	-	expression tag	UNP A0A395YY96
F	15	HIS	-	expression tag	UNP A0A395YY96

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Chain	Residue	Modelled	Actual	Comment	Reference
F	16	HIS	-	expression tag	UNP A0A395YY96
F	17	GLU	-	expression tag	UNP A0A395YY96
F	18	ASN	-	expression tag	UNP A0A395YY96
F	19	LEU	-	expression tag	UNP A0A395YY96
F	20	TYR	-	expression tag	UNP A0A395YY96
F	21	PHE	-	expression tag	UNP A0A395YY96
F	22	GLN	-	expression tag	UNP A0A395YY96

- Molecule 2 is 2-azanyl- {N}-[(3 {S})-2-oxidanylidenehex-5-yn-3-yl]ethanamide (three-letter code: SWJ) (formula: C₈H₁₂N₂O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			12	8	2	2		
2	B	1	Total	C	N	O	0	0
			12	8	2	2		
2	C	1	Total	C	N	O	0	0
			12	8	2	2		
2	D	1	Total	C	N	O	0	0
			12	8	2	2		
2	E	1	Total	C	N	O	0	0
			12	8	2	2		
2	F	1	Total	C	N	O	0	0
			12	8	2	2		

- Molecule 3 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	2	Total K 2 2	0	0
3	B	2	Total K 2 2	0	0
3	C	2	Total K 2 2	0	0
3	D	2	Total K 2 2	0	0
3	E	2	Total K 2 2	0	0
3	F	2	Total K 2 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	57	Total O 57 57	0	0
4	B	71	Total O 71 71	0	0
4	C	39	Total O 39 39	0	0
4	D	57	Total O 57 57	0	0
4	E	155	Total O 155 155	0	0
4	F	182	Total O 182 182	0	0

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	105.11Å 138.61Å 220.13Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.14 – 2.62 49.14 – 2.62	Depositor EDS
% Data completeness (in resolution range)	99.3 (49.14-2.62) 99.3 (49.14-2.62)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.36 (at 2.61Å)	Xtrriage
Refinement program	PHENIX 1.12_2829	Depositor
R, R_{free}	0.207 , 0.229 0.208 , 0.230	Depositor DCC
R_{free} test set	4834 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	40.0	Xtrriage
Anisotropy	0.133	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 43.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	17389	wwPDB-VP
Average B, all atoms (Å ²)	47.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.71% 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 [i](#)

5.1 Standard geometry [i](#)

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

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	0.41	0/2806	0.56	3/3807 (0.1%)
1	B	0.36	1/2830 (0.0%)	0.56	5/3842 (0.1%)
1	C	0.40	0/2795	0.52	1/3799 (0.0%)
1	D	0.40	1/2831 (0.0%)	0.49	1/3844 (0.0%)
1	E	0.36	0/2969	0.46	0/4023
1	F	0.30	0/2956	0.45	0/4005
All	All	0.37	2/17187 (0.0%)	0.51	10/23320 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	349	LYS	CE-NZ	6.46	1.65	1.49
1	D	268	TRP	CB-CG	-5.13	1.41	1.50

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	349	LYS	CD-CE-NZ	-8.34	92.52	111.70
1	B	130	ARG	NE-CZ-NH1	7.04	123.82	120.30
1	A	203	LYS	CB-CG-CD	6.00	127.20	111.60
1	B	349	LYS	CA-CB-CG	5.92	126.43	113.40
1	A	391	LYS	CB-CG-CD	-5.66	96.89	111.60
1	B	130	ARG	CB-CG-CD	-5.42	97.51	111.60
1	C	211	LEU	CA-CB-CG	5.32	127.54	115.30
1	A	79	LEU	CA-CB-CG	5.09	127.01	115.30
1	B	130	ARG	NE-CZ-NH2	-5.03	117.78	120.30
1	D	377	LYS	CB-CG-CD	-5.01	98.58	111.60

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	2734	0	2559	45	0
1	B	2757	0	2572	27	0
1	C	2722	0	2523	36	0
1	D	2758	0	2553	16	0
1	E	2891	0	2729	16	0
1	F	2882	0	2736	13	0
2	A	12	0	0	0	0
2	B	12	0	0	1	0
2	C	12	0	0	0	0
2	D	12	0	0	0	0
2	E	12	0	0	0	0
2	F	12	0	0	0	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
3	F	2	0	0	0	0
4	A	57	0	0	0	0
4	B	71	0	0	0	0
4	C	39	0	0	0	0
4	D	57	0	0	0	0
4	E	155	0	0	0	0
4	F	182	0	0	0	0
All	All	17389	0	15672	149	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.

All (149) 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:127:GLU:CB	1:A:130:ARG:HH12	1.40	1.32
1:D:271:ASP:OD1	1:D:339:ASP:OD2	1.65	1.14
1:A:127:GLU:HA	1:A:130:ARG:NH1	1.64	1.12

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:127:GLU:CB	1:A:130:ARG:NH1	2.12	1.10
1:A:127:GLU:HB3	1:A:130:ARG:HH12	0.99	1.05
1:A:127:GLU:CA	1:A:130:ARG:NH1	2.20	1.04
1:A:127:GLU:HA	1:A:130:ARG:HH11	1.31	0.89
1:B:52:ARG:HB2	1:B:141:ASN:HA	1.57	0.86
1:A:127:GLU:HB3	1:A:130:ARG:NH1	1.82	0.85
1:C:281:GLY:HA2	1:C:373:TRP:CE3	2.18	0.77
1:C:278:THR:O	1:C:373:TRP:HZ3	1.70	0.75
1:C:350:ASP:OD1	1:C:354:ASN:O	2.05	0.74
1:B:52:ARG:HG3	1:B:52:ARG:HH11	1.52	0.73
1:C:215:ASP:HA	1:C:391:LYS:HE3	1.69	0.72
1:B:37:THR:OG1	1:B:349:LYS:HG3	1.90	0.71
1:A:127:GLU:HB2	1:A:130:ARG:HH12	1.52	0.71
1:C:201:THR:HG23	1:C:204:SER:H	1.56	0.71
1:A:127:GLU:CA	1:A:130:ARG:HH11	1.95	0.68
1:B:52:ARG:HH11	1:B:52:ARG:CG	2.08	0.66
1:C:282:VAL:HG22	1:C:284:VAL:HG13	1.77	0.65
1:A:47:VAL:CG2	1:A:365:THR:HG23	2.27	0.65
1:D:219:LEU:HD23	1:D:245:TYR:HB2	1.80	0.63
1:C:127:GLU:OE1	1:C:127:GLU:N	2.29	0.62
1:A:50:GLN:HE22	1:A:56:CYS:HB3	1.65	0.61
1:A:193:PHE:O	1:A:200:TYR:N	2.27	0.61
1:E:151:ALA:HB1	1:F:151:ALA:HB1	1.83	0.60
1:A:198:LYS:HG3	1:A:199:GLU:N	2.15	0.60
1:A:151:ALA:HB1	1:B:151:ALA:HB1	1.85	0.59
1:E:258:ASN:O	1:E:262:THR:OG1	2.16	0.59
1:A:47:VAL:HG22	1:A:365:THR:HG23	1.85	0.58
1:C:284:VAL:HG23	1:C:286:PRO:HD3	1.85	0.58
1:E:357:TYR:CZ	1:E:377:LYS:HE2	2.38	0.58
1:C:151:ALA:HB1	1:D:151:ALA:HB1	1.86	0.58
1:A:47:VAL:HG22	1:A:365:THR:CG2	2.33	0.58
1:C:350:ASP:OD1	1:C:350:ASP:N	2.23	0.58
1:D:62:TYR:HH	1:D:84:THR:HG1	1.53	0.56
1:D:257:ASP:OD2	1:D:377:LYS:NZ	2.30	0.55
1:C:205:PHE:O	1:C:209:THR:HG23	2.06	0.55
1:F:219:LEU:HD11	1:F:394:LEU:HD21	1.89	0.55
1:E:215:ASP:HA	1:E:391:LYS:HE2	1.88	0.55
1:C:391:LYS:O	1:C:394:LEU:HD23	2.06	0.55
1:C:391:LYS:HA	1:C:394:LEU:HD23	1.89	0.55
1:A:47:VAL:CG2	1:A:365:THR:CG2	2.85	0.54
1:D:399:LYS:HG3	1:D:404:ILE:HB	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:127:GLU:HB2	1:A:130:ARG:NH1	2.10	0.53
1:F:62:TYR:HH	1:F:84:THR:HG1	1.51	0.53
1:A:62:TYR:HH	1:A:84:THR:HG1	1.52	0.53
1:B:316:PRO:HG2	1:B:351:GLN:HE22	1.73	0.53
1:A:209:THR:OG1	1:A:211:LEU:HD12	2.08	0.53
1:B:52:ARG:CB	1:B:141:ASN:HA	2.36	0.52
1:D:284:VAL:HG23	1:D:286:PRO:HD3	1.91	0.52
1:C:65:LEU:HD13	1:C:118:MET:HE1	1.91	0.52
1:E:38:THR:HG21	1:E:41:GLU:HG2	1.92	0.52
1:B:219:LEU:HD11	1:B:394:LEU:HD21	1.91	0.52
1:C:281:GLY:HA2	1:C:373:TRP:CD2	2.44	0.52
1:A:257:ASP:OD2	1:A:377:LYS:NZ	2.43	0.52
1:E:402:LEU:HB2	1:E:404:ILE:HD12	1.91	0.52
1:C:198:LYS:HB3	1:C:200:TYR:CE2	2.45	0.51
1:C:264:TYR:CD2	1:C:393:ALA:HB2	2.46	0.50
1:D:62:TYR:OH	1:D:84:THR:OG1	2.21	0.50
1:C:278:THR:O	1:C:373:TRP:CZ3	2.58	0.50
1:F:290:LYS:O	1:F:294:LEU:HD12	2.11	0.50
1:C:120:THR:O	1:C:203:LYS:HE2	2.11	0.49
1:C:132:GLY:HA2	1:C:135:TYR:CZ	2.47	0.49
1:A:45:THR:HG22	1:A:46:SER:N	2.27	0.49
1:E:219:LEU:HD11	1:E:394:LEU:HD21	1.93	0.49
1:F:258:ASN:O	1:F:262:THR:OG1	2.22	0.49
1:B:201:THR:HG23	1:B:203:LYS:H	1.78	0.49
1:A:65:LEU:HD22	1:A:211:LEU:HD22	1.95	0.49
1:A:33:GLY:O	1:A:351:GLN:NE2	2.45	0.48
1:D:133:MET:HG3	1:D:134:MET:HE2	1.96	0.48
1:B:52:ARG:CG	1:B:52:ARG:NH1	2.71	0.48
1:D:404:ILE:HG22	1:D:405:LYS:N	2.27	0.48
1:A:219:LEU:HD11	1:A:394:LEU:HD21	1.96	0.48
1:E:395:PRO:HG2	1:E:398:ILE:HD12	1.94	0.48
1:B:201:THR:HG22	1:B:204:SER:H	1.78	0.47
1:C:319:GLN:HB2	1:C:321:TRP:CZ3	2.49	0.47
1:D:46:SER:O	1:D:48:LYS:NZ	2.40	0.47
1:C:47:VAL:HA	1:C:360:LYS:HE3	1.97	0.47
1:D:132:GLY:HA2	1:D:135:TYR:CZ	2.50	0.47
1:D:350:ASP:OD2	1:D:356:TYR:HE1	1.97	0.47
1:C:47:VAL:HG22	1:C:360:LYS:HG3	1.97	0.47
1:C:395:PRO:HG2	1:C:398:ILE:HD12	1.96	0.47
1:A:39:VAL:HG22	1:A:349:LYS:HE2	1.97	0.46
1:F:395:PRO:HG2	1:F:398:ILE:HD12	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:VAL:HG23	1:A:351:GLN:HB3	1.97	0.46
1:B:404:ILE:H	1:B:404:ILE:HG13	1.57	0.46
1:C:350:ASP:OD1	1:C:354:ASN:N	2.47	0.46
1:B:69:LEU:HD13	1:B:77:TYR:CD1	2.51	0.46
1:B:395:PRO:HG2	1:B:398:ILE:HD12	1.96	0.46
1:E:350:ASP:OD1	1:E:353:GLY:N	2.48	0.46
1:B:133:MET:HG3	1:B:134:MET:HE2	1.98	0.46
1:A:201:THR:HG22	1:A:204:SER:HB3	1.98	0.46
1:E:399:LYS:HG3	1:E:404:ILE:HB	1.97	0.46
1:A:193:PHE:CE1	1:A:200:TYR:HB2	2.51	0.45
1:A:327:ARG:NH2	1:A:384:THR:O	2.45	0.45
1:D:350:ASP:OD2	1:D:354:ASN:HB2	2.17	0.45
1:D:395:PRO:HG2	1:D:398:ILE:HD12	1.99	0.45
1:F:355:GLU:HB3	1:F:377:LYS:HE3	1.99	0.45
1:A:219:LEU:HD23	1:A:245:TYR:HB2	1.98	0.45
1:B:350:ASP:OD1	1:B:351:GLN:N	2.48	0.45
1:F:38:THR:HG21	1:F:41:GLU:HG2	1.99	0.45
1:D:311:LYS:O	1:D:317:GLN:NE2	2.44	0.45
1:A:80:SER:HB2	1:A:126:GLU:HA	1.99	0.44
1:E:132:GLY:HA2	1:E:135:TYR:CZ	2.53	0.44
1:B:391:LYS:HE3	1:B:391:LYS:HB2	1.70	0.44
1:C:80:SER:HB2	1:C:126:GLU:HA	2.00	0.44
1:A:344:ILE:HG12	1:A:359:VAL:HG22	1.99	0.44
1:C:50:GLN:HE22	1:C:56:CYS:HB3	1.82	0.44
1:F:132:GLY:HA2	1:F:135:TYR:CZ	2.53	0.44
1:B:53:ALA:HB1	1:B:55:THR:HG23	2.00	0.44
1:C:270:SER:HB2	1:C:384:THR:HA	2.00	0.44
1:C:282:VAL:O	1:C:282:VAL:HG13	2.18	0.44
1:B:201:THR:CG2	1:B:204:SER:H	2.30	0.43
1:C:266:ILE:HB	1:C:344:ILE:HB	2.00	0.43
1:C:283:ALA:HB3	1:C:375:ALA:HA	2.00	0.43
1:B:46:SER:O	1:B:48:LYS:NZ	2.50	0.43
1:A:45:THR:CG2	1:A:46:SER:H	2.32	0.43
1:A:404:ILE:H	1:A:404:ILE:HG13	1.56	0.43
1:E:40:LYS:NZ	1:E:261:ASN:O	2.47	0.43
1:A:194:THR:HA	1:A:199:GLU:HA	2.01	0.43
1:B:52:ARG:HD3	1:B:52:ARG:HA	1.72	0.43
1:F:311:LYS:O	1:F:317:GLN:NE2	2.49	0.43
1:C:62:TYR:OH	1:C:84:THR:OG1	2.29	0.43
1:A:258:ASN:ND2	1:A:393:ALA:O	2.41	0.42
1:A:99:THR:HB	1:A:102:ASP:HB2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:132:GLY:HA2	1:A:135:TYR:CZ	2.54	0.42
1:C:65:LEU:HA	1:C:65:LEU:HD23	1.73	0.42
1:A:284:VAL:HG23	1:A:286:PRO:HD3	2.00	0.42
1:B:72:MET:HE1	1:B:211:LEU:HD23	2.01	0.42
1:A:45:THR:CG2	1:A:46:SER:N	2.82	0.42
1:E:99:THR:HB	1:E:102:ASP:HB2	2.02	0.42
1:A:130:ARG:H	1:A:133:MET:HE2	1.85	0.42
1:B:219:LEU:HD23	1:B:245:TYR:HB2	2.01	0.42
1:B:338:ASP:OD2	2:B:601:SWJ:N11	2.53	0.41
1:B:99:THR:HB	1:B:102:ASP:HB2	2.00	0.41
1:C:42:ASN:OD1	1:C:263:GLY:HA2	2.20	0.41
1:C:99:THR:HB	1:C:102:ASP:HB2	2.02	0.41
1:F:132:GLY:HA2	1:F:135:TYR:CE2	2.55	0.41
1:A:163:LYS:HG3	1:F:335:GLU:HG3	2.02	0.41
1:B:281:GLY:HA2	1:B:373:TRP:CE2	2.55	0.41
1:A:251:GLU:OE2	1:A:401:LYS:NZ	2.53	0.41
1:E:219:LEU:HD23	1:E:245:TYR:HB2	2.03	0.41
1:E:311:LYS:O	1:E:317:GLN:NE2	2.51	0.41
1:A:132:GLY:HA2	1:A:135:TYR:CE2	2.55	0.41
1:B:132:GLY:HA2	1:B:135:TYR:CZ	2.56	0.41
1:F:219:LEU:HD23	1:F:245:TYR:HB2	2.03	0.40
1:C:323:THR:HG22	1:C:324:GLN:N	2.36	0.40
1:E:317:GLN:HB3	1:E:318:PRO:HD2	2.03	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	343/401 (86%)	338 (98%)	5 (2%)	0	100 100
1	B	346/401 (86%)	342 (99%)	4 (1%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	343/401 (86%)	339 (99%)	4 (1%)	0	100	100
1	D	347/401 (86%)	342 (99%)	5 (1%)	0	100	100
1	E	363/401 (90%)	359 (99%)	4 (1%)	0	100	100
1	F	359/401 (90%)	355 (99%)	4 (1%)	0	100	100
All	All	2101/2406 (87%)	2075 (99%)	26 (1%)	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	286/346 (83%)	285 (100%)	1 (0%)	92	97
1	B	288/346 (83%)	284 (99%)	4 (1%)	67	84
1	C	284/346 (82%)	279 (98%)	5 (2%)	59	79
1	D	287/346 (83%)	286 (100%)	1 (0%)	92	97
1	E	303/346 (88%)	303 (100%)	0	100	100
1	F	305/346 (88%)	303 (99%)	2 (1%)	84	93
All	All	1753/2076 (84%)	1740 (99%)	13 (1%)	84	93

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	321	TRP
1	B	52	ARG
1	B	137	ASP
1	B	280	ASP
1	B	313	ASN
1	C	124	VAL
1	C	126	GLU
1	C	257	ASP
1	C	280	ASP

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Mol	Chain	Res	Type
1	C	321	TRP
1	D	282	VAL
1	F	292	GLN
1	F	293	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	50	GLN
1	D	351	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 18 ligands modelled in this entry, 12 are monoatomic - leaving 6 for Mogul analysis.

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	SWJ	B	601	1	9,11,11	2.29	3 (33%)	4,13,13	1.24	0
2	SWJ	D	601	1	9,11,11	2.34	3 (33%)	4,13,13	1.22	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	SWJ	C	601	-	9,11,11	2.59	4 (44%)	4,13,13	1.06	1 (25%)
2	SWJ	F	601	1	9,11,11	2.27	3 (33%)	4,13,13	1.33	0
2	SWJ	A	601	1	9,11,11	2.30	3 (33%)	4,13,13	1.29	0
2	SWJ	E	601	1	9,11,11	2.28	3 (33%)	4,13,13	1.20	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	SWJ	B	601	1	-	7/12/13/13	-
2	SWJ	D	601	1	-	2/12/13/13	-
2	SWJ	C	601	-	-	6/12/13/13	-
2	SWJ	F	601	1	-	5/12/13/13	-
2	SWJ	A	601	1	-	5/12/13/13	-
2	SWJ	E	601	1	-	1/12/13/13	-

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	601	SWJ	C09-N08	5.53	1.45	1.34
2	A	601	SWJ	C09-N08	5.41	1.45	1.34
2	F	601	SWJ	C09-N08	5.39	1.45	1.34
2	E	601	SWJ	C09-N08	5.39	1.45	1.34
2	B	601	SWJ	C09-N08	5.37	1.45	1.34
2	C	601	SWJ	O12-C09	-4.78	1.13	1.23
2	C	601	SWJ	C09-N08	4.74	1.44	1.34
2	D	601	SWJ	C05-C06	3.27	1.53	1.47
2	A	601	SWJ	C05-C06	3.24	1.53	1.47
2	E	601	SWJ	C05-C06	3.23	1.53	1.47
2	B	601	SWJ	C05-C06	3.22	1.53	1.47
2	F	601	SWJ	C05-C06	3.14	1.52	1.47
2	C	601	SWJ	C05-C06	2.58	1.51	1.47
2	B	601	SWJ	O12-C09	-2.16	1.18	1.23
2	F	601	SWJ	O12-C09	-2.16	1.18	1.23
2	A	601	SWJ	O12-C09	-2.15	1.18	1.23
2	D	601	SWJ	O12-C09	-2.14	1.18	1.23
2	E	601	SWJ	O12-C09	-2.09	1.19	1.23
2	C	601	SWJ	C03-C02	2.04	1.55	1.49

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	SWJ	O12-C09-N08	-2.02	119.54	122.95

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	SWJ	N08-C09-C10-N11
2	A	601	SWJ	C03-C02-C04-N08
2	A	601	SWJ	C02-C04-C05-C06
2	A	601	SWJ	N08-C04-C05-C06
2	B	601	SWJ	N08-C09-C10-N11
2	B	601	SWJ	O12-C09-C10-N11
2	B	601	SWJ	C02-C04-C05-C06
2	B	601	SWJ	N08-C04-C05-C06
2	C	601	SWJ	N08-C09-C10-N11
2	C	601	SWJ	C02-C04-C05-C06
2	C	601	SWJ	N08-C04-C05-C06
2	D	601	SWJ	C03-C02-C04-N08
2	E	601	SWJ	C03-C02-C04-N08
2	F	601	SWJ	O12-C09-C10-N11
2	F	601	SWJ	C02-C04-C05-C06
2	F	601	SWJ	N08-C04-C05-C06
2	A	601	SWJ	O12-C09-C10-N11
2	C	601	SWJ	O12-C09-C10-N11
2	F	601	SWJ	N08-C09-C10-N11
2	B	601	SWJ	O01-C02-C04-N08
2	D	601	SWJ	N08-C04-C05-C06
2	B	601	SWJ	C03-C02-C04-N08
2	C	601	SWJ	C03-C02-C04-C05
2	F	601	SWJ	C03-C02-C04-C05
2	B	601	SWJ	O01-C02-C04-C05
2	C	601	SWJ	O01-C02-C04-C05

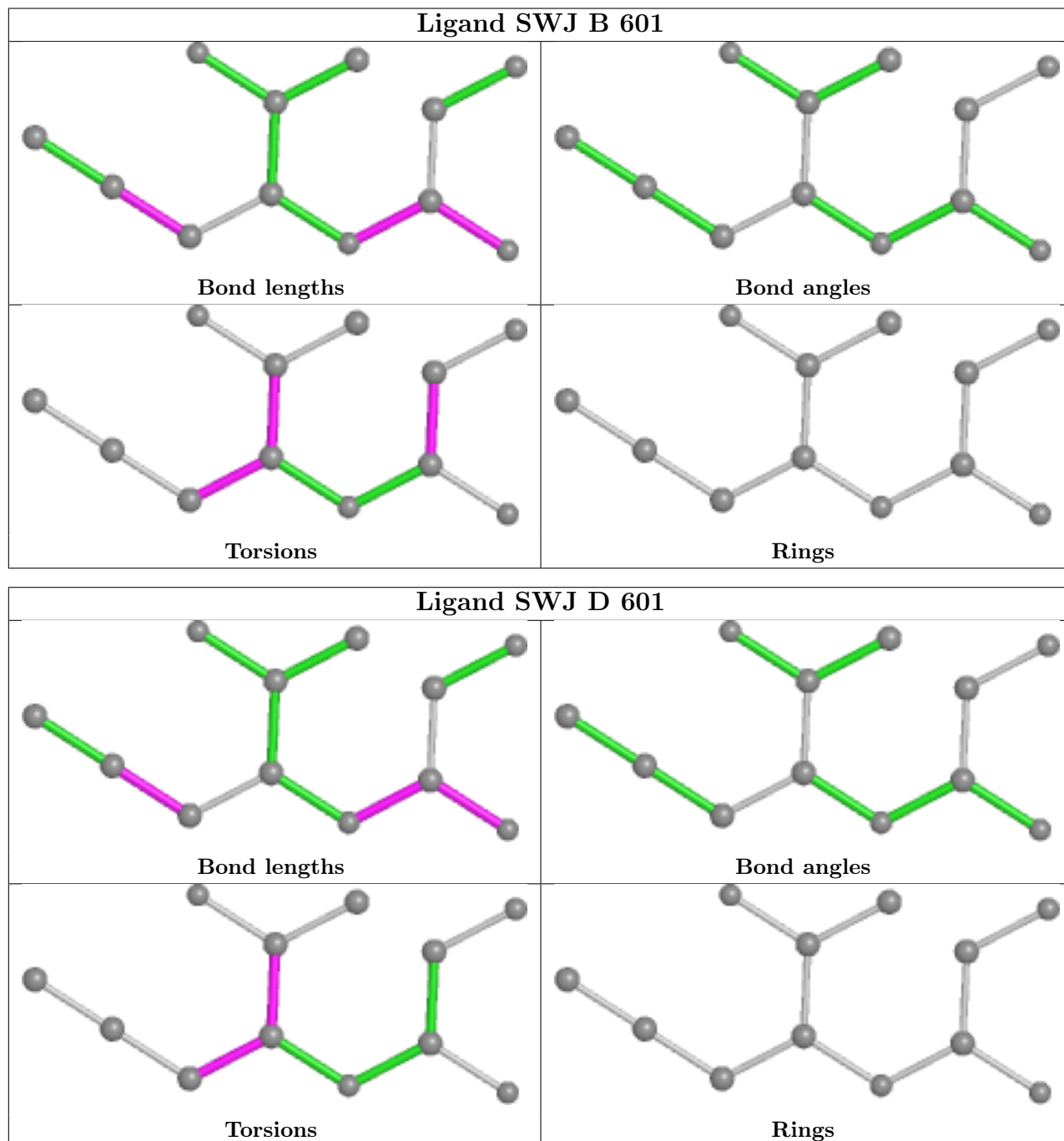
There are no ring outliers.

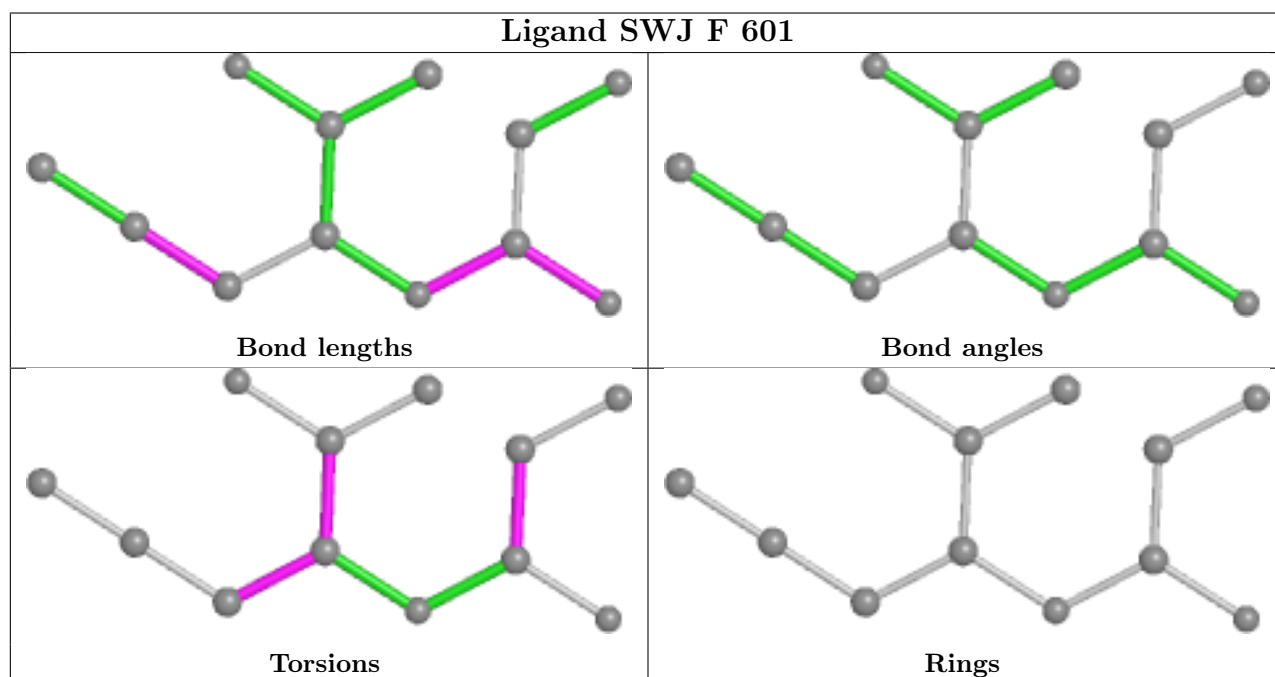
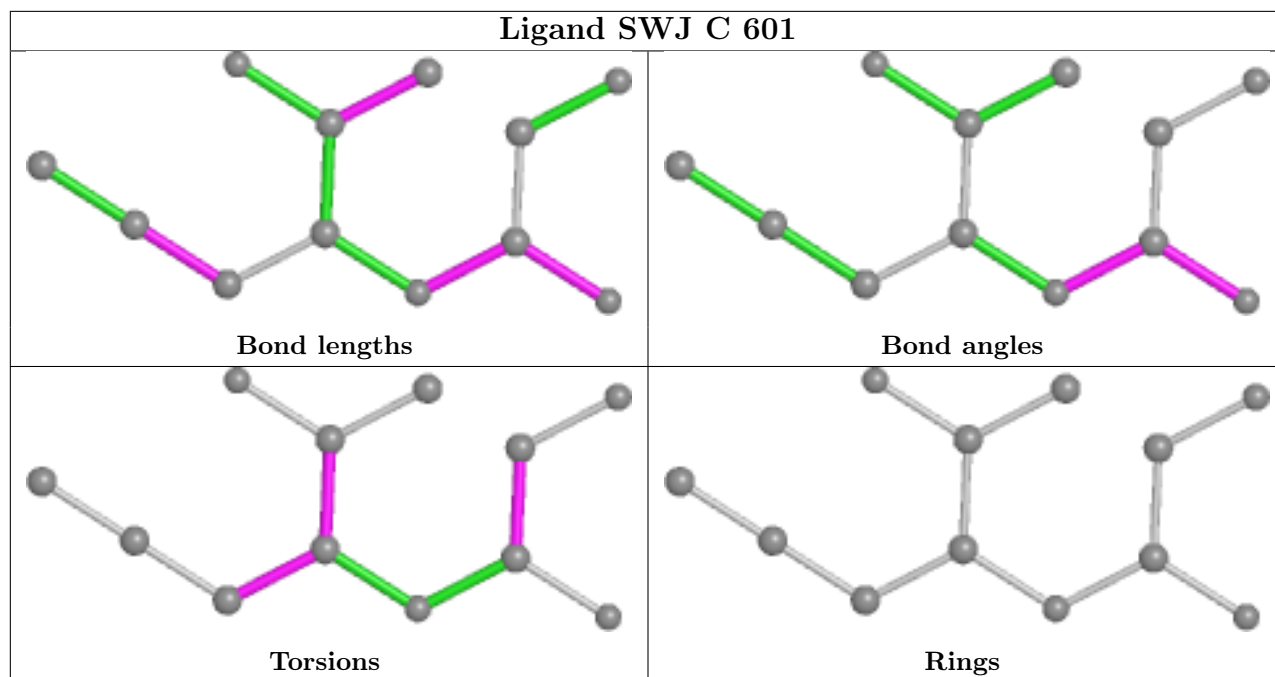
1 monomer is involved in 1 short contact:

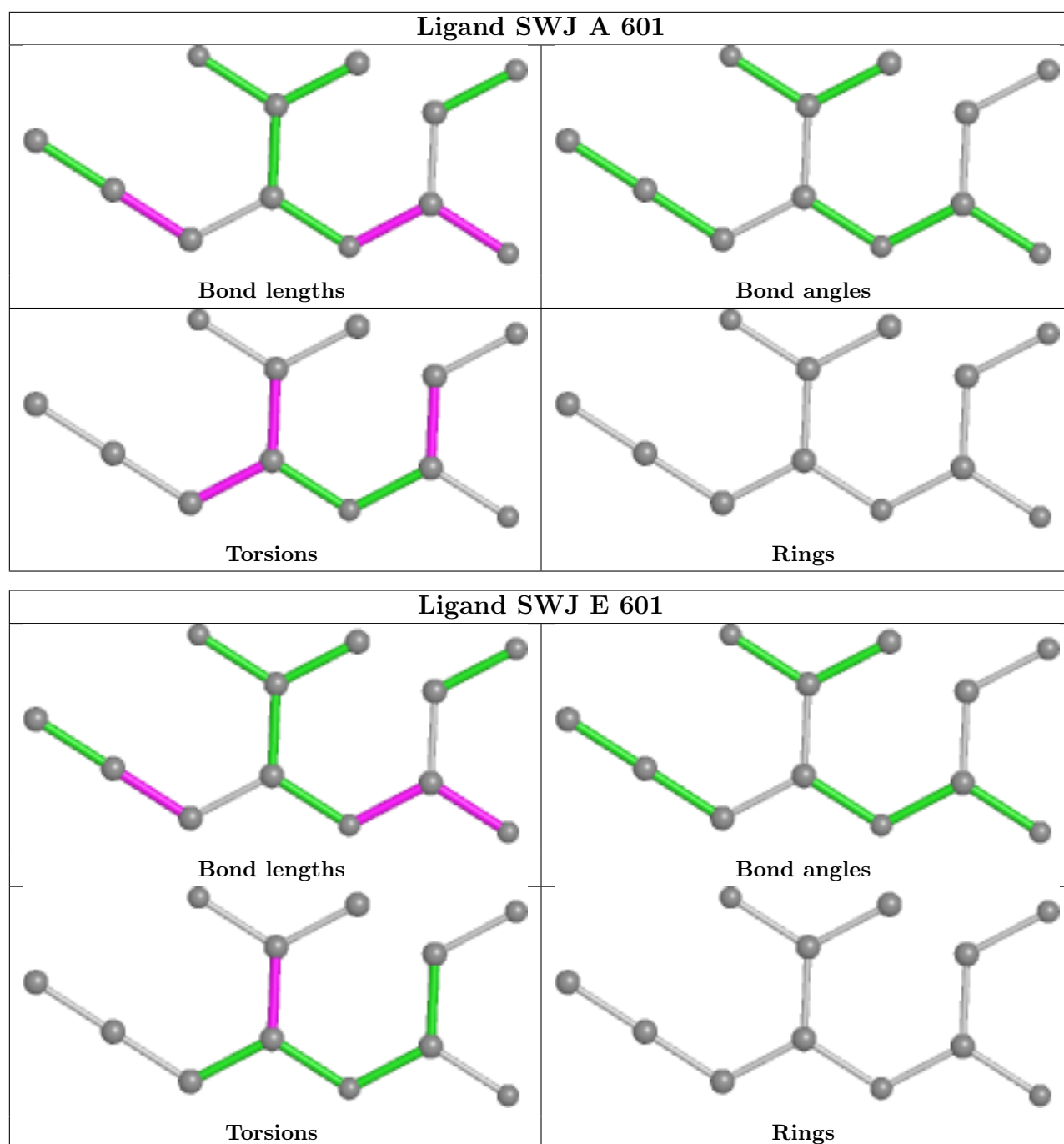
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	601	SWJ	1	0

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.







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	347/401 (86%)	0.16	15 (4%) 35 29	24, 55, 80, 87	0
1	B	350/401 (87%)	-0.04	13 (3%) 41 35	28, 44, 70, 81	0
1	C	347/401 (86%)	0.16	13 (3%) 41 35	32, 63, 86, 102	0
1	D	351/401 (87%)	0.20	24 (6%) 17 13	30, 52, 79, 97	0
1	E	366/401 (91%)	-0.34	2 (0%) 91 89	22, 34, 69, 103	0
1	F	363/401 (90%)	-0.32	6 (1%) 70 66	21, 30, 52, 87	0
All	All	2124/2406 (88%)	-0.03	73 (3%) 45 38	21, 44, 79, 103	0

All (73) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	314	THR	6.7
1	A	314	THR	4.2
1	D	313	ASN	4.1
1	B	314	THR	4.0
1	D	318	PRO	3.9
1	D	317	GLN	3.9
1	F	305	LEU	3.8
1	B	280	ASP	3.8
1	B	321	TRP	3.7
1	D	34	PHE	3.6
1	A	286	PRO	3.6
1	D	316	PRO	3.6
1	B	313	ASN	3.6
1	D	319	GLN	3.3
1	A	127	GLU	3.2
1	D	280	ASP	3.2
1	B	312	LEU	3.0
1	C	321	TRP	3.0
1	D	321	TRP	3.0

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Mol	Chain	Res	Type	RSRZ
1	C	276	GLY	3.0
1	C	398	ILE	2.9
1	D	377	LYS	2.9
1	A	321	TRP	2.9
1	C	286	PRO	2.9
1	D	404	ILE	2.8
1	D	36	PHE	2.8
1	B	275	SER	2.8
1	B	277	PHE	2.8
1	B	366	ASN	2.7
1	F	293	GLU	2.7
1	B	284	VAL	2.7
1	A	277	PHE	2.7
1	B	286	PRO	2.6
1	C	282	VAL	2.6
1	A	34	PHE	2.6
1	C	288	ASP	2.6
1	B	276	GLY	2.6
1	F	308	GLU	2.5
1	D	276	GLY	2.5
1	A	197	GLY	2.5
1	F	292	GLN	2.5
1	D	277	PHE	2.5
1	C	280	ASP	2.5
1	D	352	GLU	2.4
1	D	284	VAL	2.4
1	E	309	GLU	2.4
1	C	275	SER	2.3
1	F	309	GLU	2.3
1	A	284	VAL	2.3
1	C	366	ASN	2.3
1	D	33	GLY	2.3
1	D	285	MET	2.2
1	F	289	GLU	2.2
1	D	278	THR	2.2
1	E	298	ASP	2.2
1	D	275	SER	2.2
1	C	285	MET	2.2
1	D	375	ALA	2.2
1	D	287	ASP	2.2
1	A	130	ARG	2.2
1	D	356	TYR	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	34	PHE	2.1
1	C	287	ASP	2.1
1	A	193	PHE	2.1
1	B	52	ARG	2.1
1	A	135	TYR	2.1
1	A	136	ALA	2.1
1	C	262	THR	2.1
1	A	316	PRO	2.0
1	A	138	THR	2.0
1	C	373	TRP	2.0
1	D	398	ILE	2.0
1	A	196	LYS	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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.

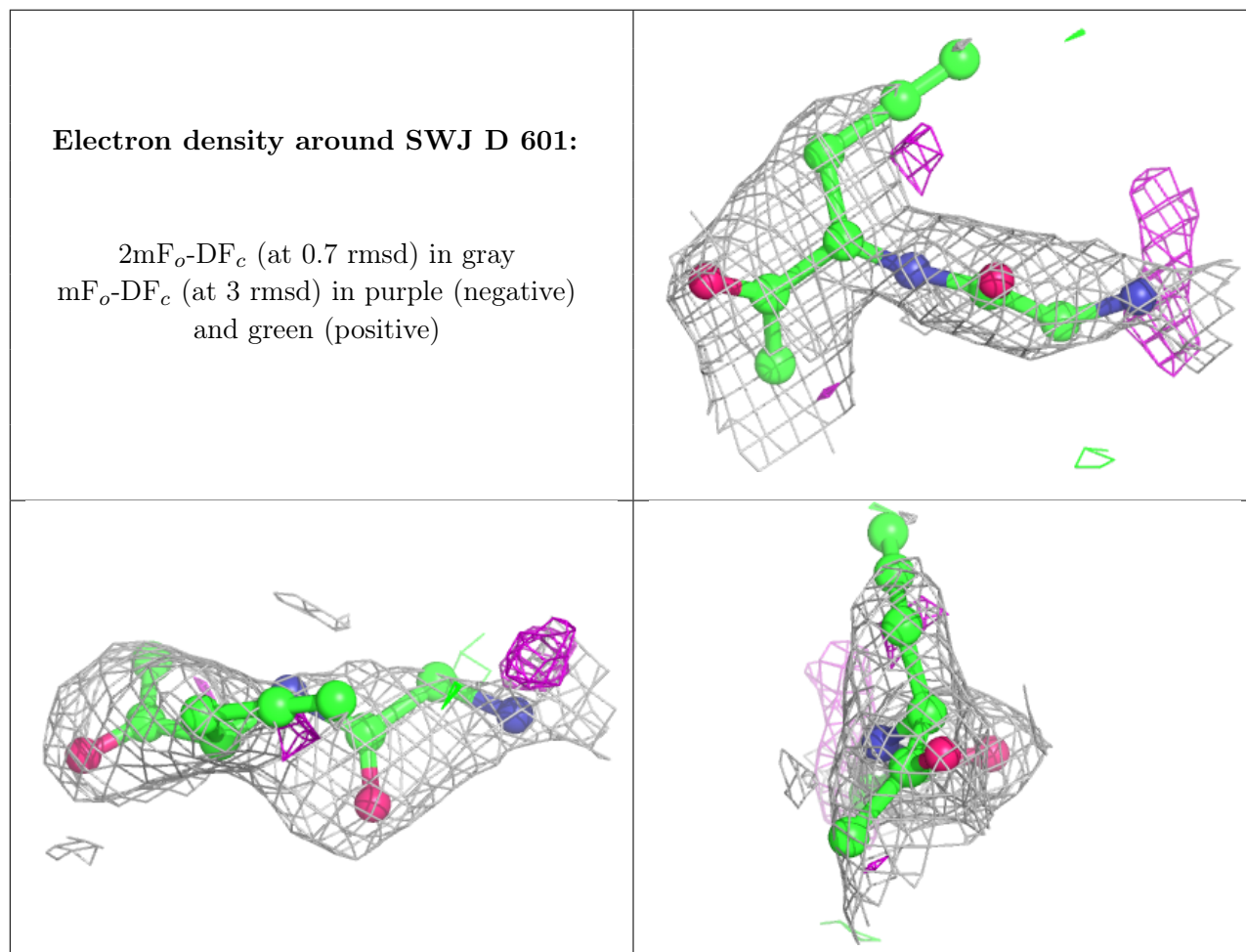
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	K	D	602	1/1	0.48	0.21	73,73,73,73	0
3	K	B	602	1/1	0.62	0.12	63,63,63,63	0
3	K	C	602	1/1	0.72	0.11	91,91,91,91	0
3	K	A	602	1/1	0.74	0.19	71,71,71,71	0
3	K	D	603	1/1	0.78	0.08	61,61,61,61	0
3	K	E	602	1/1	0.78	0.19	47,47,47,47	0
3	K	F	603	1/1	0.80	0.18	45,45,45,45	0
3	K	E	603	1/1	0.82	0.15	48,48,48,48	0
3	K	C	603	1/1	0.86	0.17	90,90,90,90	0
2	SWJ	D	601	12/12	0.87	0.33	49,58,61,62	0
3	K	A	603	1/1	0.88	0.12	80,80,80,80	0

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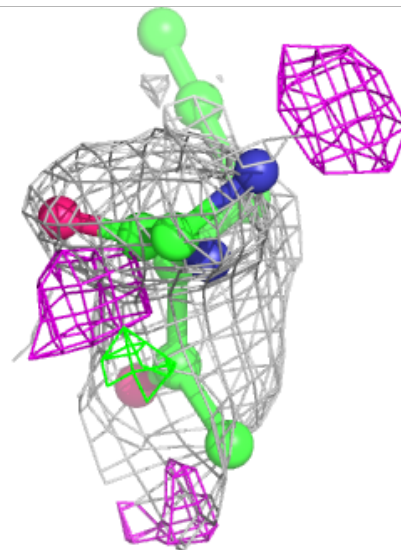
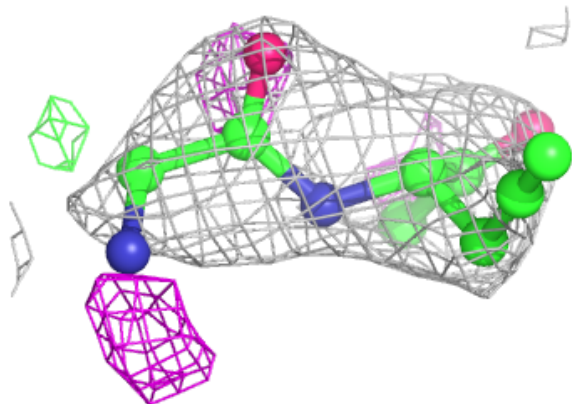
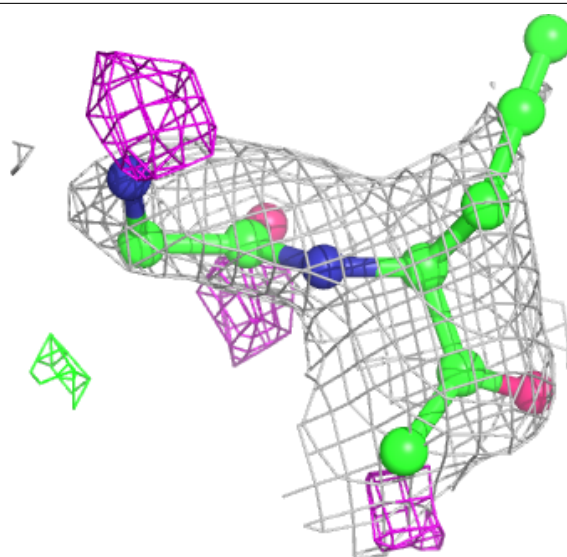
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	SWJ	B	601	12/12	0.90	0.37	52,56,61,63	0
2	SWJ	A	601	12/12	0.91	0.25	50,58,62,63	0
2	SWJ	C	601	12/12	0.92	0.31	58,66,70,72	0
3	K	F	602	1/1	0.93	0.19	30,30,30,30	0
2	SWJ	F	601	12/12	0.93	0.22	24,34,40,44	0
2	SWJ	E	601	12/12	0.95	0.27	30,34,43,53	0
3	K	B	603	1/1	0.95	0.09	71,71,71,71	0

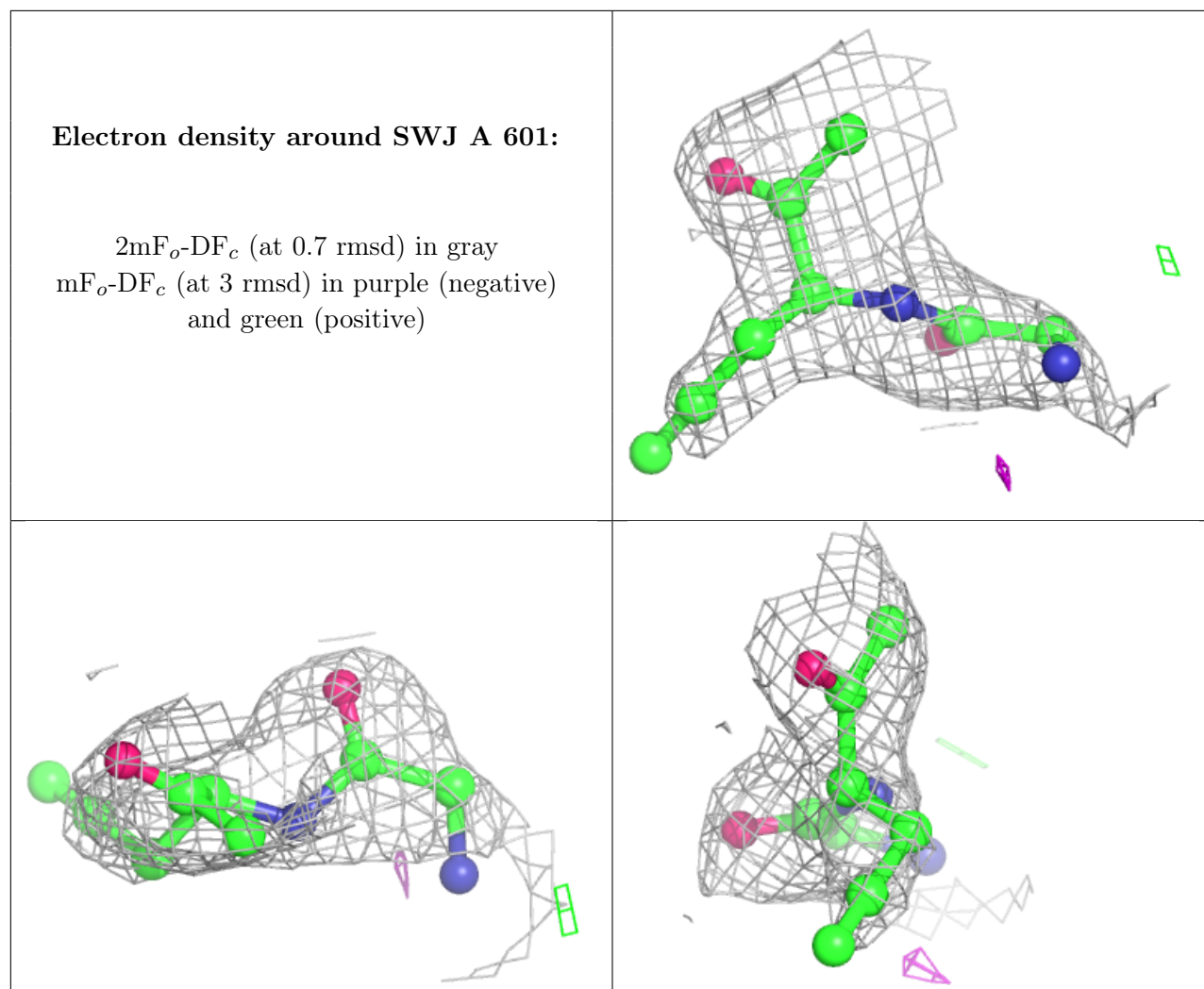
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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



Electron density around SWJ B 601:

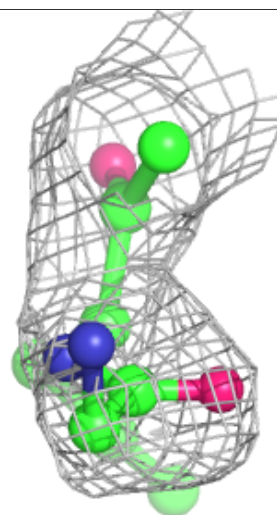
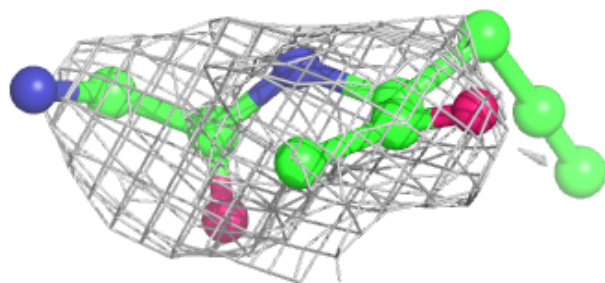
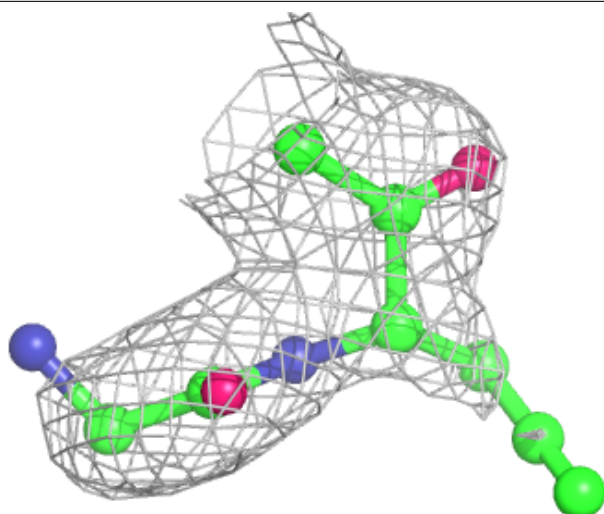
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





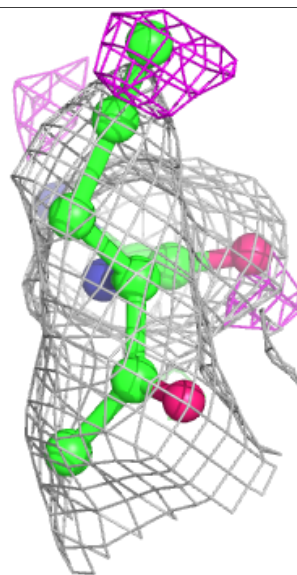
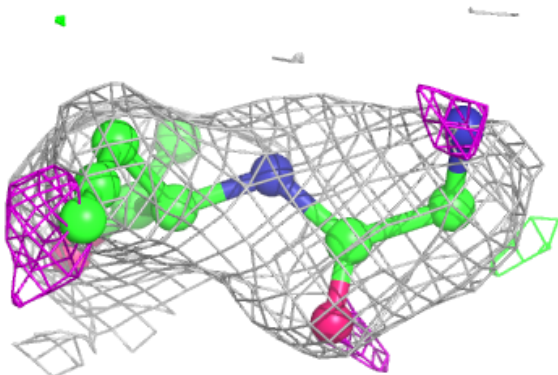
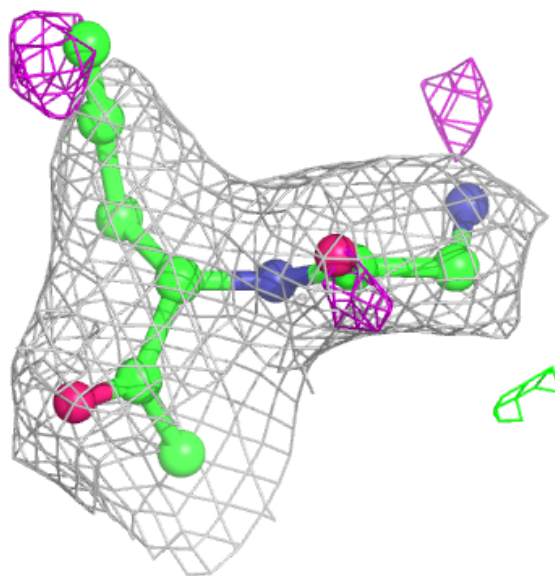
Electron density around SWJ C 601:

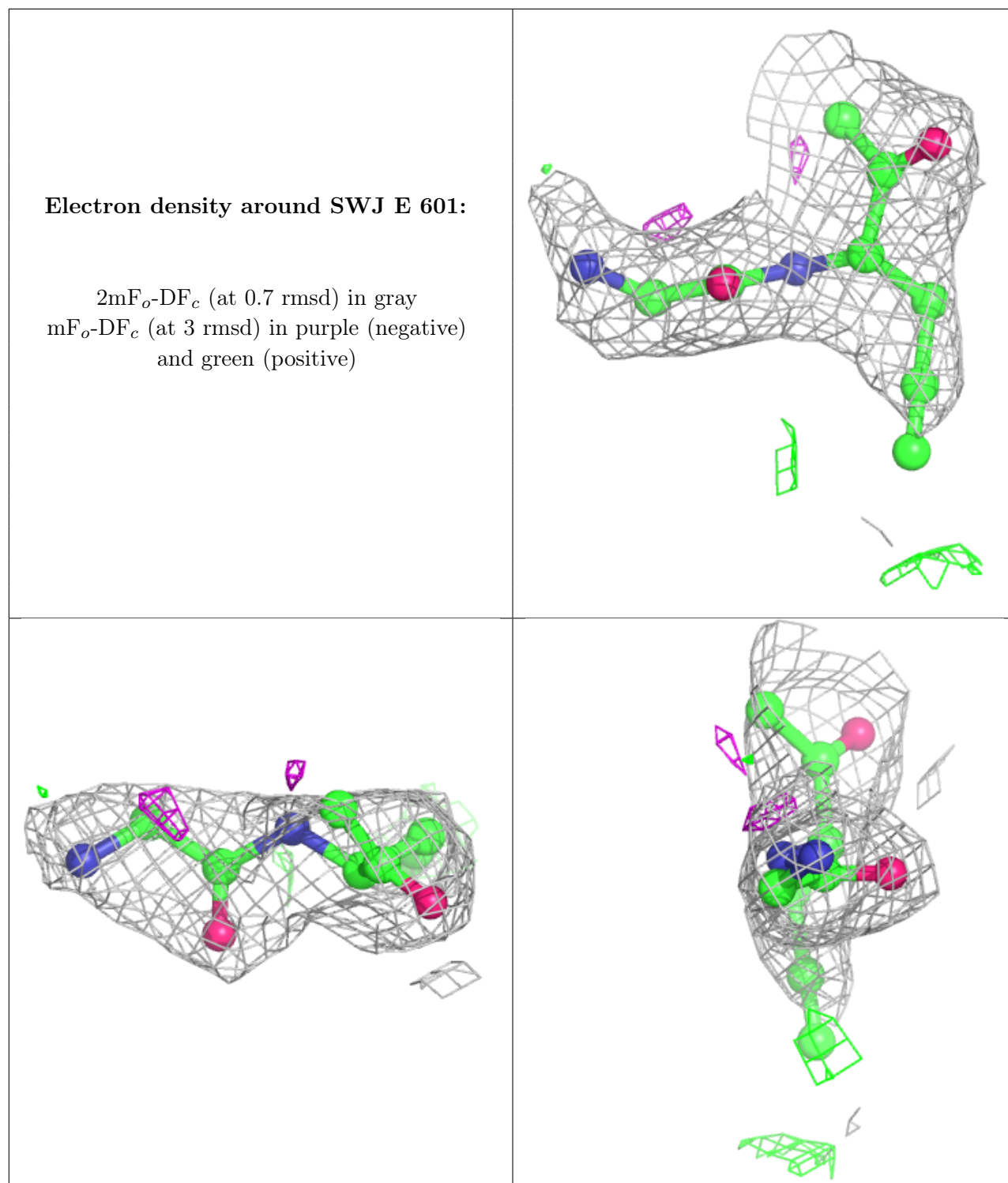
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around SWJ F 601:

$2mF_o-DF_c$ (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.