



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 5, 2023 – 02:44 AM EDT

PDB ID : 6VSU
Title : Arginase from Arabidopsis thaliana in Complex with Ornithine
Authors : Sekula, B.
Deposited on : 2020-02-11
Resolution : 2.25 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 : **FAILED**
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : **FAILED**
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
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

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.25 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 63508 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 Arginase 1, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	316	2426	1517	432	465	12	0	1	0
1	B	317	2426	1516	433	466	11	0	0	0
1	C	316	2431	1521	432	465	13	0	2	0
1	D	316	2421	1513	432	465	11	0	0	0
1	E	318	2431	1519	434	467	11	0	0	0
1	F	316	2426	1516	433	466	11	0	1	0
1	G	316	2427	1517	432	467	11	0	1	0
1	H	317	2426	1516	433	466	11	0	0	0
1	I	316	2421	1513	432	465	11	0	0	0
1	J	317	2426	1516	433	466	11	0	0	0
1	K	316	2421	1513	432	465	11	0	0	0
1	L	317	2426	1516	433	466	11	0	0	0
1	M	316	2421	1513	432	465	11	0	0	0
1	N	316	2421	1513	432	465	11	0	0	0
1	O	316	2421	1513	432	465	11	0	0	0
1	P	316	2421	1513	432	465	11	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	Q	316	2421	1513	432	465	11	0	0	0
1	R	316	2429	1518	435	465	11	0	1	0
1	S	316	2421	1513	432	465	11	0	0	0
1	T	318	2432	1519	434	468	11	0	0	0
1	U	316	2426	1518	432	465	11	0	1	0
1	V	316	2421	1513	432	465	11	0	0	0
1	W	317	2426	1516	433	466	11	0	0	0
1	X	316	2421	1513	432	465	11	0	0	0

There are 72 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	22	SER	-	expression tag	UNP P46637
A	23	ASN	-	expression tag	UNP P46637
A	24	ALA	-	expression tag	UNP P46637
B	22	SER	-	expression tag	UNP P46637
B	23	ASN	-	expression tag	UNP P46637
B	24	ALA	-	expression tag	UNP P46637
C	22	SER	-	expression tag	UNP P46637
C	23	ASN	-	expression tag	UNP P46637
C	24	ALA	-	expression tag	UNP P46637
D	22	SER	-	expression tag	UNP P46637
D	23	ASN	-	expression tag	UNP P46637
D	24	ALA	-	expression tag	UNP P46637
E	22	SER	-	expression tag	UNP P46637
E	23	ASN	-	expression tag	UNP P46637
E	24	ALA	-	expression tag	UNP P46637
F	22	SER	-	expression tag	UNP P46637
F	23	ASN	-	expression tag	UNP P46637
F	24	ALA	-	expression tag	UNP P46637
G	22	SER	-	expression tag	UNP P46637
G	23	ASN	-	expression tag	UNP P46637
G	24	ALA	-	expression tag	UNP P46637
H	22	SER	-	expression tag	UNP P46637
H	23	ASN	-	expression tag	UNP P46637

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Chain	Residue	Modelled	Actual	Comment	Reference
H	24	ALA	-	expression tag	UNP P46637
I	22	SER	-	expression tag	UNP P46637
I	23	ASN	-	expression tag	UNP P46637
I	24	ALA	-	expression tag	UNP P46637
J	22	SER	-	expression tag	UNP P46637
J	23	ASN	-	expression tag	UNP P46637
J	24	ALA	-	expression tag	UNP P46637
K	22	SER	-	expression tag	UNP P46637
K	23	ASN	-	expression tag	UNP P46637
K	24	ALA	-	expression tag	UNP P46637
L	22	SER	-	expression tag	UNP P46637
L	23	ASN	-	expression tag	UNP P46637
L	24	ALA	-	expression tag	UNP P46637
M	22	SER	-	expression tag	UNP P46637
M	23	ASN	-	expression tag	UNP P46637
M	24	ALA	-	expression tag	UNP P46637
N	22	SER	-	expression tag	UNP P46637
N	23	ASN	-	expression tag	UNP P46637
N	24	ALA	-	expression tag	UNP P46637
O	22	SER	-	expression tag	UNP P46637
O	23	ASN	-	expression tag	UNP P46637
O	24	ALA	-	expression tag	UNP P46637
P	22	SER	-	expression tag	UNP P46637
P	23	ASN	-	expression tag	UNP P46637
P	24	ALA	-	expression tag	UNP P46637
Q	22	SER	-	expression tag	UNP P46637
Q	23	ASN	-	expression tag	UNP P46637
Q	24	ALA	-	expression tag	UNP P46637
R	22	SER	-	expression tag	UNP P46637
R	23	ASN	-	expression tag	UNP P46637
R	24	ALA	-	expression tag	UNP P46637
S	22	SER	-	expression tag	UNP P46637
S	23	ASN	-	expression tag	UNP P46637
S	24	ALA	-	expression tag	UNP P46637
T	22	SER	-	expression tag	UNP P46637
T	23	ASN	-	expression tag	UNP P46637
T	24	ALA	-	expression tag	UNP P46637
U	22	SER	-	expression tag	UNP P46637
U	23	ASN	-	expression tag	UNP P46637
U	24	ALA	-	expression tag	UNP P46637
V	22	SER	-	expression tag	UNP P46637
V	23	ASN	-	expression tag	UNP P46637

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Chain	Residue	Modelled	Actual	Comment	Reference
V	24	ALA	-	expression tag	UNP P46637
W	22	SER	-	expression tag	UNP P46637
W	23	ASN	-	expression tag	UNP P46637
W	24	ALA	-	expression tag	UNP P46637
X	22	SER	-	expression tag	UNP P46637
X	23	ASN	-	expression tag	UNP P46637
X	24	ALA	-	expression tag	UNP P46637

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Mn 2 2	0	0
2	B	2	Total Mn 2 2	0	0
2	C	2	Total Mn 2 2	0	0
2	D	2	Total Mn 2 2	0	0
2	E	2	Total Mn 2 2	0	0
2	F	2	Total Mn 2 2	0	0
2	G	2	Total Mn 2 2	0	0
2	H	2	Total Mn 2 2	0	0
2	I	2	Total Mn 2 2	0	0
2	J	2	Total Mn 2 2	0	0
2	K	2	Total Mn 2 2	0	0
2	L	2	Total Mn 2 2	0	0
2	M	2	Total Mn 2 2	0	0
2	N	2	Total Mn 2 2	0	0
2	O	2	Total Mn 2 2	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	P	2	Total 2	Mn 2	0	0
2	Q	2	Total 2	Mn 2	0	0
2	R	2	Total 2	Mn 2	0	0
2	S	2	Total 2	Mn 2	0	0
2	T	2	Total 2	Mn 2	0	0
2	U	2	Total 2	Mn 2	0	0
2	V	2	Total 2	Mn 2	0	0
2	W	2	Total 2	Mn 2	0	0
2	X	2	Total 2	Mn 2	0	0

- Molecule 3 is SODIUM ION (three-letter code: NA) (formula: Na).

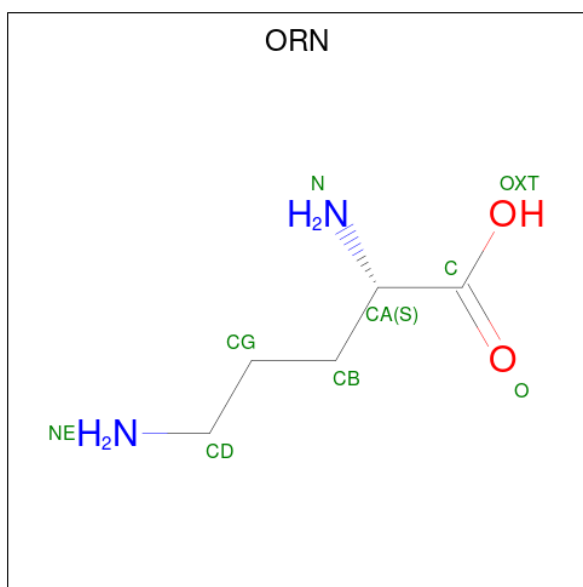
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 1	Na 1	0	0
3	B	1	Total 1	Na 1	0	0
3	C	1	Total 1	Na 1	0	0
3	D	1	Total 1	Na 1	0	0
3	E	1	Total 1	Na 1	0	0
3	F	1	Total 1	Na 1	0	0
3	G	1	Total 1	Na 1	0	0
3	H	1	Total 1	Na 1	0	0
3	I	1	Total 1	Na 1	0	0
3	J	1	Total 1	Na 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	K	1	Total Na 1 1	0	0
3	L	1	Total Na 1 1	0	0
3	M	1	Total Na 1 1	0	0
3	N	1	Total Na 1 1	0	0
3	O	1	Total Na 1 1	0	0
3	P	1	Total Na 1 1	0	0
3	Q	1	Total Na 1 1	0	0
3	R	1	Total Na 1 1	0	0
3	S	1	Total Na 1 1	0	0
3	T	1	Total Na 1 1	0	0
3	U	1	Total Na 1 1	0	0
3	V	1	Total Na 1 1	0	0
3	W	1	Total Na 1 1	0	0
3	X	1	Total Na 1 1	0	0

- Molecule 4 is L-ornithine (three-letter code: ORN) (formula: $C_5H_{12}N_2O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			9	5	2	2		
4	C	1	Total	C	N	O	0	0
			9	5	2	2		
4	E	1	Total	C	N	O	0	0
			9	5	2	2		
4	F	1	Total	C	N	O	0	0
			9	5	2	2		
4	G	1	Total	C	N	O	0	0
			9	5	2	2		
4	K	1	Total	C	N	O	0	0
			9	5	2	2		
4	P	1	Total	C	N	O	0	0
			9	5	2	2		
4	U	1	Total	C	N	O	0	0
			9	5	2	2		
4	V	1	Total	C	N	O	0	0
			9	5	2	2		

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	F	1	Total C O 6 3 3	0	0
5	G	1	Total C O 6 3 3	0	0
5	G	1	Total C O 6 3 3	0	0
5	H	1	Total C O 6 3 3	0	0
5	H	1	Total C O 6 3 3	0	0
5	I	1	Total C O 6 3 3	0	0
5	I	1	Total C O 6 3 3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	J	1	Total 6	C 3	O 3	0	0
5	J	1	Total 6	C 3	O 3	0	0
5	K	1	Total 6	C 3	O 3	0	0
5	K	1	Total 6	C 3	O 3	0	0
5	L	1	Total 6	C 3	O 3	0	0
5	L	1	Total 6	C 3	O 3	0	0
5	N	1	Total 6	C 3	O 3	0	0
5	P	1	Total 6	C 3	O 3	0	0
5	Q	1	Total 6	C 3	O 3	0	0
5	R	1	Total 6	C 3	O 3	0	0
5	S	1	Total 6	C 3	O 3	0	0
5	S	1	Total 6	C 3	O 3	0	0
5	T	1	Total 6	C 3	O 3	0	0
5	U	1	Total 6	C 3	O 3	0	0
5	W	1	Total 6	C 3	O 3	0	0
5	W	1	Total 6	C 3	O 3	0	0

- Molecule 6 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	G	1	Total C O 7 4 3	0	0
6	G	1	Total C O 7 4 3	0	0
6	L	1	Total C O 7 4 3	0	0
6	L	1	Total C O 7 4 3	0	0
6	L	1	Total C O 7 4 3	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	126	Total O 126 126	0	0
7	B	240	Total O 240 240	0	0
7	C	138	Total O 138 138	0	0
7	D	265	Total O 265 265	0	0
7	E	345	Total O 345 345	0	0
7	F	268	Total O 268 268	0	0
7	G	340	Total O 340 340	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	H	260	Total 260	O 260	0	0
7	I	265	Total 265	O 265	0	0
7	J	336	Total 336	O 336	0	0
7	K	276	Total 276	O 276	0	0
7	L	231	Total 231	O 231	0	0
7	M	61	Total 61	O 61	0	0
7	N	182	Total 182	O 182	0	0
7	O	79	Total 79	O 79	0	0
7	P	192	Total 192	O 192	0	0
7	Q	203	Total 203	O 203	0	0
7	R	184	Total 184	O 184	0	0
7	S	178	Total 178	O 178	0	0
7	T	196	Total 196	O 196	0	0
7	U	191	Total 191	O 191	0	0
7	V	136	Total 136	O 136	0	0
7	W	107	Total 107	O 107	0	0
7	X	152	Total 152	O 152	0	0

MolProbity and EDS failed to run properly - this section is therefore empty.

3 Data and refinement statistics i

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	I 41	Depositor
Cell constants a, b, c, α , β , γ	267.32Å 267.32Å 262.89Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.97 – 2.25	Depositor
% Data completeness (in resolution range)	98.4 (29.97-2.25)	Depositor
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.38 (at 2.24Å)	Xtrriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.159 , 0.197	Depositor
Wilson B-factor (Å ²)	29.7	Xtrriage
Anisotropy	0.025	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.011 for l,-k,h 0.014 for -l,-k,-h 0.011 for -h,-l,-k 0.011 for -h,l,k 0.019 for -k,-h,-l	Xtrriage
Total number of atoms	63508	wwPDB-VP
Average B, all atoms (Å ²)	44.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.48% 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.

4 Model quality [i](#)

4.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

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

4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

4.6 Ligand geometry [i](#)

Of 116 ligands modelled in this entry, 72 are monoatomic - leaving 44 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
5	GOL	B	405	-	5,5,5	0.20	0	5,5,5	0.53	0
5	GOL	W	403	-	5,5,5	0.17	0	5,5,5	0.32	0
5	GOL	H	403	-	5,5,5	0.13	0	5,5,5	0.32	0
5	GOL	T	404	-	5,5,5	0.08	0	5,5,5	0.27	0
4	ORN	A	404	-	7,8,8	0.75	0	8,9,9	1.36	2 (25%)
5	GOL	C	403	-	5,5,5	0.26	0	5,5,5	0.90	0
4	ORN	K	406	-	7,8,8	0.61	0	8,9,9	1.24	2 (25%)
5	GOL	F	404	-	5,5,5	0.16	0	5,5,5	0.49	0
5	GOL	P	403	-	5,5,5	0.09	0	5,5,5	0.30	0
5	GOL	J	405	-	5,5,5	0.15	0	5,5,5	0.45	0
5	GOL	D	405	-	5,5,5	0.22	0	5,5,5	0.50	0
5	GOL	S	405	-	5,5,5	0.23	0	5,5,5	0.60	0
4	ORN	E	404	-	7,8,8	0.86	1 (14%)	8,9,9	0.62	0
5	GOL	K	403	-	5,5,5	0.17	0	5,5,5	0.46	0
4	ORN	G	404	-	7,8,8	0.96	1 (14%)	8,9,9	0.77	0
4	ORN	P	405	-	7,8,8	0.76	0	8,9,9	1.41	2 (25%)
5	GOL	H	404	-	5,5,5	0.21	0	5,5,5	0.43	0
5	GOL	L	405	-	5,5,5	0.27	0	5,5,5	0.59	0
6	PEG	G	406	-	6,6,6	0.41	0	5,5,5	0.31	0
6	PEG	L	408	-	6,6,6	0.14	0	5,5,5	0.21	0
5	GOL	J	404	-	5,5,5	0.31	0	5,5,5	0.55	0
5	GOL	E	406	-	5,5,5	0.17	0	5,5,5	0.43	0
5	GOL	W	405	-	5,5,5	0.14	0	5,5,5	0.40	0
5	GOL	N	403	-	5,5,5	0.15	0	5,5,5	0.40	0
5	GOL	G	408	-	5,5,5	0.17	0	5,5,5	0.49	0
5	GOL	E	405	-	5,5,5	0.09	0	5,5,5	0.30	0
5	GOL	R	404	-	5,5,5	0.11	0	5,5,5	0.29	0
6	PEG	L	407	-	6,6,6	0.18	0	5,5,5	0.14	0
6	PEG	G	407	-	6,6,6	0.39	0	5,5,5	0.26	0
5	GOL	D	403	-	5,5,5	0.13	0	5,5,5	0.30	0
5	GOL	L	403	-	5,5,5	0.20	0	5,5,5	0.36	0
5	GOL	I	404	-	5,5,5	0.17	0	5,5,5	0.44	0
4	ORN	C	405	-	7,8,8	0.77	0	8,9,9	0.79	0
5	GOL	Q	403	-	5,5,5	0.18	0	5,5,5	0.37	0
4	ORN	V	404	-	7,8,8	0.81	1 (14%)	8,9,9	0.72	0
5	GOL	K	405	-	5,5,5	0.17	0	5,5,5	0.52	0
5	GOL	U	403	-	5,5,5	0.17	0	5,5,5	0.41	0
6	PEG	L	406	-	6,6,6	0.23	0	5,5,5	0.10	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	GOL	B	403	-	5,5,5	0.16	0	5,5,5	0.35	0
4	ORN	U	405	-	7,8,8	1.00	1 (14%)	8,9,9	0.65	0
5	GOL	S	403	-	5,5,5	0.12	0	5,5,5	0.43	0
4	ORN	F	405	-	7,8,8	0.94	1 (14%)	8,9,9	0.76	0
5	GOL	G	405	-	5,5,5	0.25	0	5,5,5	0.51	0
5	GOL	I	405	-	5,5,5	0.09	0	5,5,5	0.35	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
5	GOL	B	405	-	-	2/4/4/4	-
5	GOL	W	403	-	-	4/4/4/4	-
5	GOL	H	403	-	-	1/4/4/4	-
5	GOL	T	404	-	-	4/4/4/4	-
4	ORN	A	404	-	-	2/8/8/8	-
5	GOL	C	403	-	-	3/4/4/4	-
4	ORN	K	406	-	-	2/8/8/8	-
5	GOL	F	404	-	-	2/4/4/4	-
5	GOL	P	403	-	-	4/4/4/4	-
5	GOL	J	405	-	-	2/4/4/4	-
5	GOL	D	405	-	-	0/4/4/4	-
5	GOL	S	405	-	-	2/4/4/4	-
4	ORN	E	404	-	-	0/8/8/8	-
5	GOL	K	403	-	-	2/4/4/4	-
4	ORN	G	404	-	-	3/8/8/8	-
4	ORN	P	405	-	-	3/8/8/8	-
5	GOL	H	404	-	-	0/4/4/4	-
5	GOL	L	405	-	-	0/4/4/4	-
6	PEG	G	406	-	-	2/4/4/4	-
6	PEG	L	408	-	-	0/4/4/4	-
5	GOL	J	404	-	-	0/4/4/4	-
5	GOL	E	406	-	-	4/4/4/4	-
5	GOL	W	405	-	-	2/4/4/4	-
5	GOL	N	403	-	-	2/4/4/4	-
5	GOL	G	408	-	-	1/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	E	405	-	-	2/4/4/4	-
5	GOL	R	404	-	-	4/4/4/4	-
6	PEG	L	407	-	-	1/4/4/4	-
6	PEG	G	407	-	-	2/4/4/4	-
5	GOL	D	403	-	-	2/4/4/4	-
5	GOL	L	403	-	-	4/4/4/4	-
5	GOL	I	404	-	-	0/4/4/4	-
4	ORN	C	405	-	-	0/8/8/8	-
5	GOL	Q	403	-	-	4/4/4/4	-
4	ORN	V	404	-	-	3/8/8/8	-
5	GOL	K	405	-	-	1/4/4/4	-
5	GOL	U	403	-	-	0/4/4/4	-
6	PEG	L	406	-	-	3/4/4/4	-
5	GOL	B	403	-	-	2/4/4/4	-
4	ORN	U	405	-	-	2/8/8/8	-
5	GOL	S	403	-	-	2/4/4/4	-
4	ORN	F	405	-	-	3/8/8/8	-
5	GOL	G	405	-	-	2/4/4/4	-
5	GOL	I	405	-	-	4/4/4/4	-

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	U	405	ORN	OXT-C	-2.62	1.22	1.30
4	G	404	ORN	OXT-C	-2.54	1.22	1.30
4	F	405	ORN	OXT-C	-2.48	1.22	1.30
4	E	404	ORN	OXT-C	-2.22	1.23	1.30
4	V	404	ORN	OXT-C	-2.03	1.23	1.30

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	P	405	ORN	OXT-C-O	-2.94	117.41	124.09
4	A	404	ORN	OXT-C-O	-2.78	117.78	124.09
4	K	406	ORN	OXT-C-CA	2.54	122.05	113.38
4	A	404	ORN	OXT-C-CA	2.50	121.90	113.38
4	P	405	ORN	OXT-C-CA	2.29	121.19	113.38
4	K	406	ORN	OXT-C-O	-2.01	119.53	124.09

There are no chirality outliers.

All (88) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	403	GOL	O1-C1-C2-C3
5	D	403	GOL	C1-C2-C3-O3
5	E	405	GOL	O1-C1-C2-C3
5	E	406	GOL	O1-C1-C2-O2
5	E	406	GOL	O1-C1-C2-C3
5	I	405	GOL	C1-C2-C3-O3
5	J	405	GOL	O1-C1-C2-O2
5	J	405	GOL	O1-C1-C2-C3
5	K	403	GOL	O1-C1-C2-C3
5	N	403	GOL	O1-C1-C2-O2
5	N	403	GOL	O1-C1-C2-C3
5	P	403	GOL	O1-C1-C2-C3
5	R	404	GOL	O1-C1-C2-O2
5	R	404	GOL	O1-C1-C2-C3
5	R	404	GOL	C1-C2-C3-O3
5	S	403	GOL	O1-C1-C2-C3
5	S	405	GOL	O1-C1-C2-C3
5	T	404	GOL	O1-C1-C2-O2
5	T	404	GOL	O1-C1-C2-C3
5	T	404	GOL	C1-C2-C3-O3
5	W	403	GOL	O1-C1-C2-O2
5	W	403	GOL	C1-C2-C3-O3
5	S	403	GOL	O1-C1-C2-O2
5	S	405	GOL	O1-C1-C2-O2
5	B	403	GOL	O1-C1-C2-C3
5	B	405	GOL	O1-C1-C2-C3
5	E	406	GOL	C1-C2-C3-O3
5	F	404	GOL	C1-C2-C3-O3
5	G	405	GOL	O1-C1-C2-C3
5	I	405	GOL	O1-C1-C2-C3
5	P	403	GOL	C1-C2-C3-O3
5	Q	403	GOL	O1-C1-C2-C3
5	Q	403	GOL	C1-C2-C3-O3
5	W	403	GOL	O1-C1-C2-C3
5	W	405	GOL	O1-C1-C2-C3
5	C	403	GOL	O1-C1-C2-O2
5	D	403	GOL	O2-C2-C3-O3
5	E	405	GOL	O1-C1-C2-O2
5	G	405	GOL	O1-C1-C2-O2
5	I	405	GOL	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
5	K	403	GOL	O1-C1-C2-O2
5	P	403	GOL	O1-C1-C2-O2
5	P	403	GOL	O2-C2-C3-O3
5	Q	403	GOL	O1-C1-C2-O2
5	R	404	GOL	O2-C2-C3-O3
5	T	404	GOL	O2-C2-C3-O3
4	V	404	ORN	CA-CB-CG-CD
6	L	407	PEG	O2-C3-C4-O4
4	G	404	ORN	OXT-C-CA-CB
6	G	407	PEG	O1-C1-C2-O2
6	L	406	PEG	O1-C1-C2-O2
6	L	406	PEG	O2-C3-C4-O4
5	B	405	GOL	O1-C1-C2-O2
5	W	403	GOL	O2-C2-C3-O3
5	H	403	GOL	O2-C2-C3-O3
5	L	403	GOL	O1-C1-C2-O2
5	Q	403	GOL	O2-C2-C3-O3
4	P	405	ORN	OXT-C-CA-CB
4	K	406	ORN	OXT-C-CA-CB
6	G	406	PEG	C4-C3-O2-C2
5	C	403	GOL	O2-C2-C3-O3
4	F	405	ORN	OXT-C-CA-CB
4	G	404	ORN	O-C-CA-CB
6	L	406	PEG	C4-C3-O2-C2
4	K	406	ORN	O-C-CA-CB
4	P	405	ORN	O-C-CA-CB
6	G	406	PEG	C1-C2-O2-C3
5	W	405	GOL	O1-C1-C2-O2
4	A	404	ORN	OXT-C-CA-CB
4	U	405	ORN	O-C-CA-CB
4	U	405	ORN	OXT-C-CA-CB
4	V	404	ORN	O-C-CA-CB
4	V	404	ORN	OXT-C-CA-CB
4	A	404	ORN	O-C-CA-CB
5	B	403	GOL	O1-C1-C2-O2
5	E	406	GOL	O2-C2-C3-O3
5	F	404	GOL	O2-C2-C3-O3
5	I	405	GOL	O1-C1-C2-O2
4	F	405	ORN	O-C-CA-CB
5	G	408	GOL	O1-C1-C2-C3
5	L	403	GOL	C1-C2-C3-O3
5	K	405	GOL	O2-C2-C3-O3

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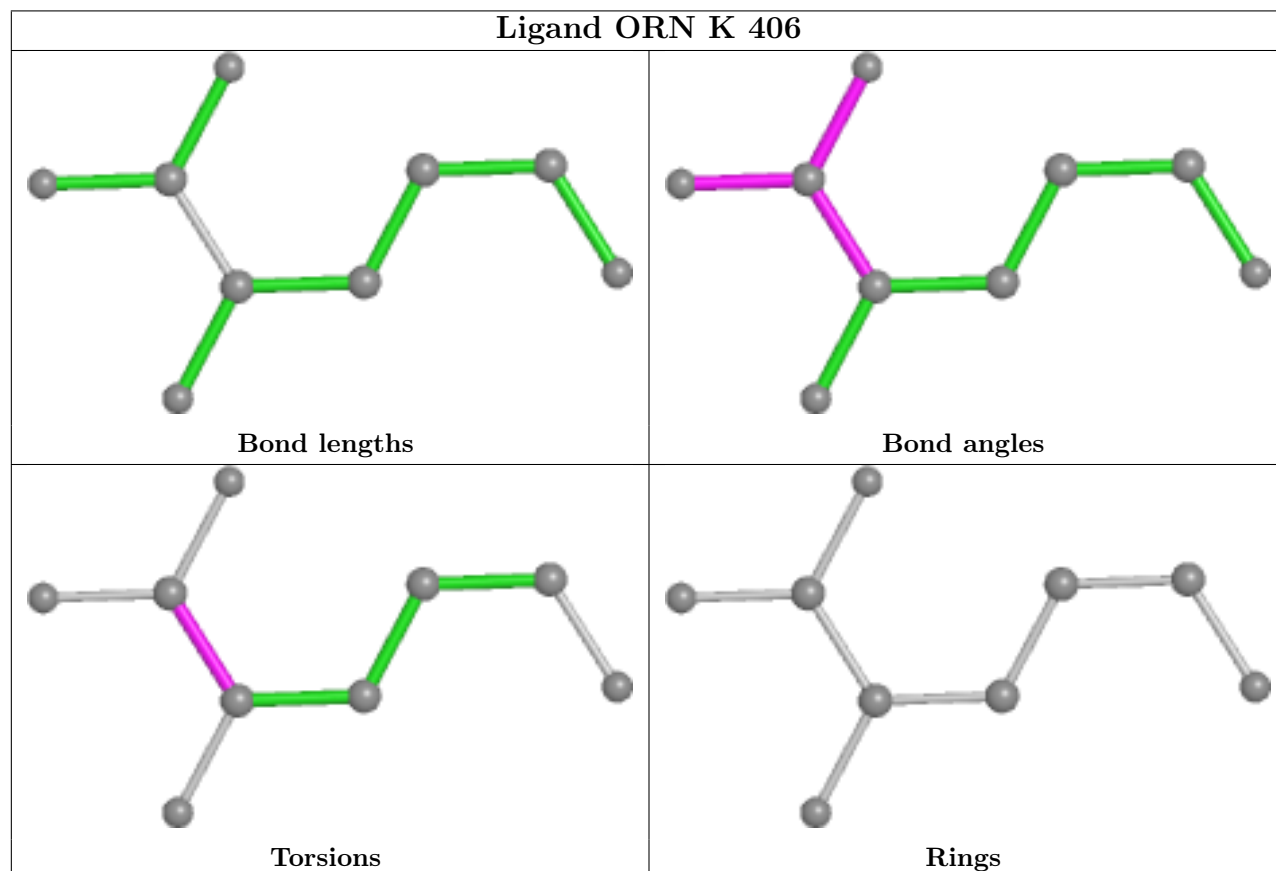
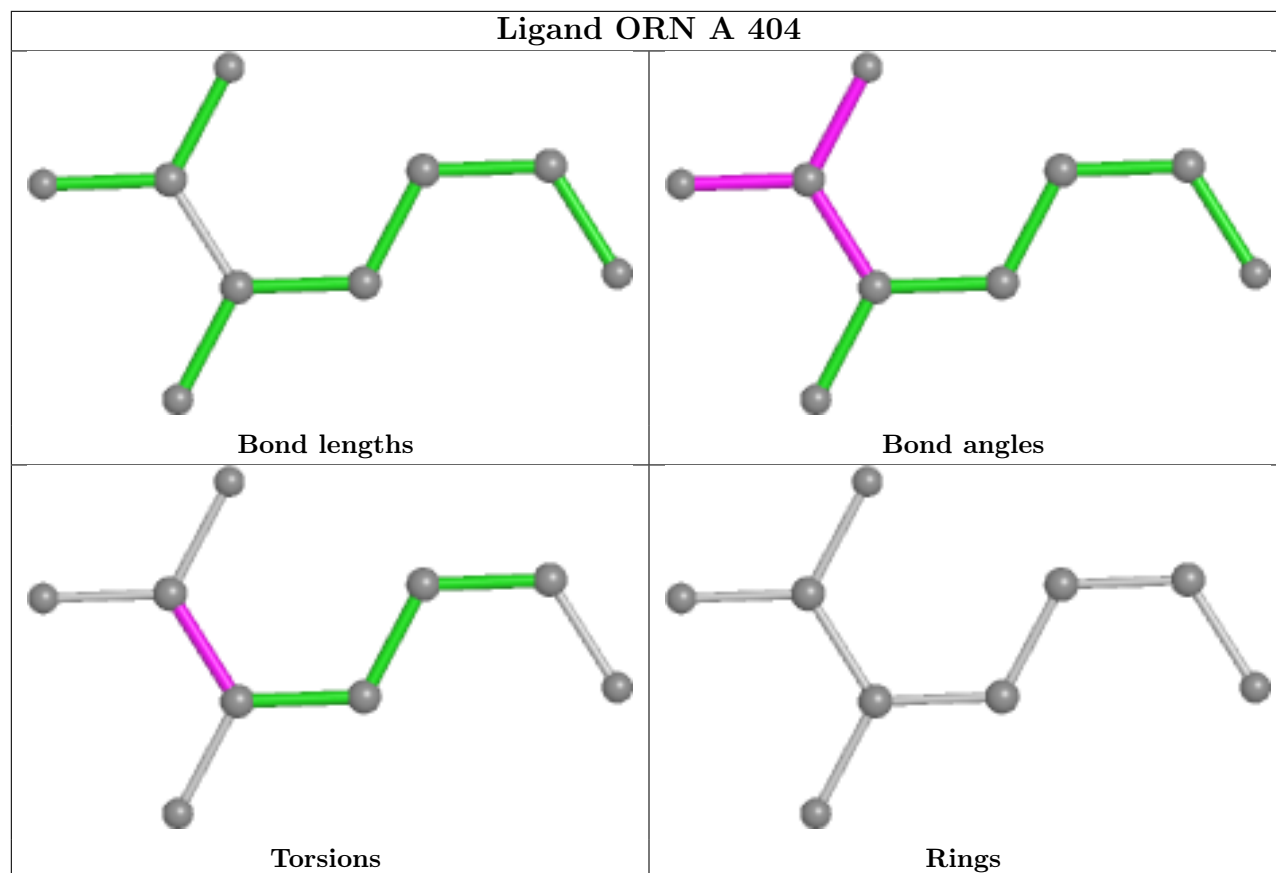
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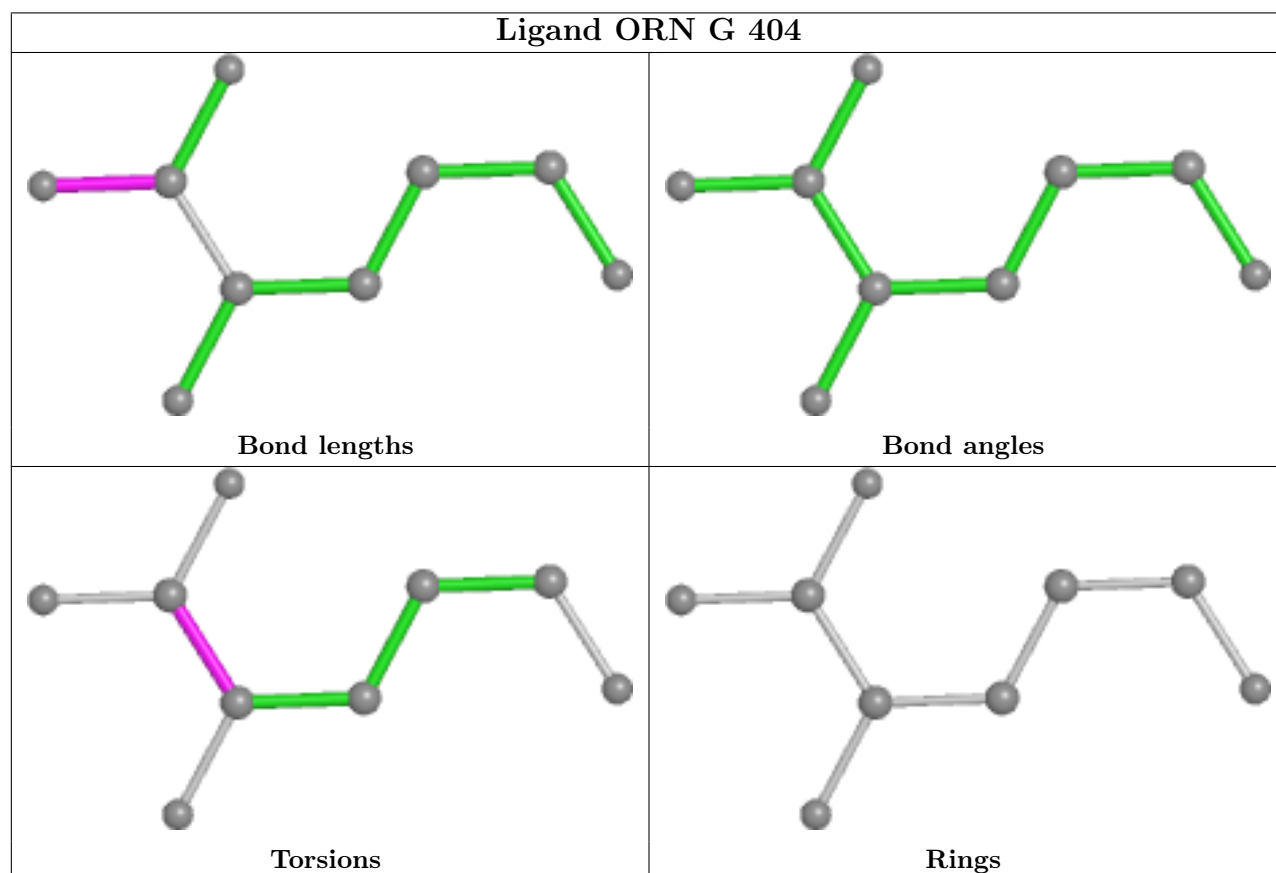
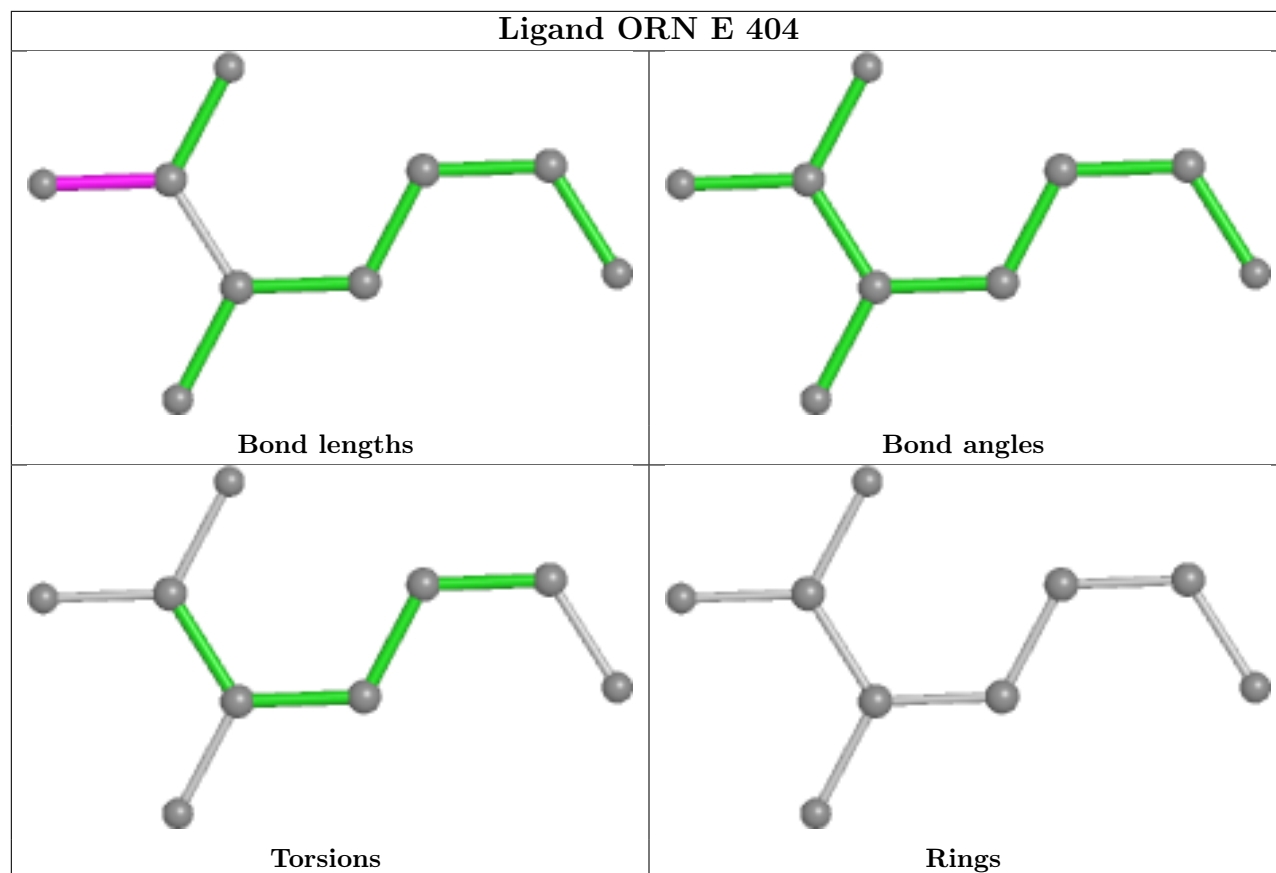
Mol	Chain	Res	Type	Atoms
5	L	403	GOL	O2-C2-C3-O3
6	G	407	PEG	C1-C2-O2-C3
5	L	403	GOL	O1-C1-C2-C3
4	P	405	ORN	OXT-C-CA-N
4	F	405	ORN	N-CA-CB-CG
4	G	404	ORN	OXT-C-CA-N

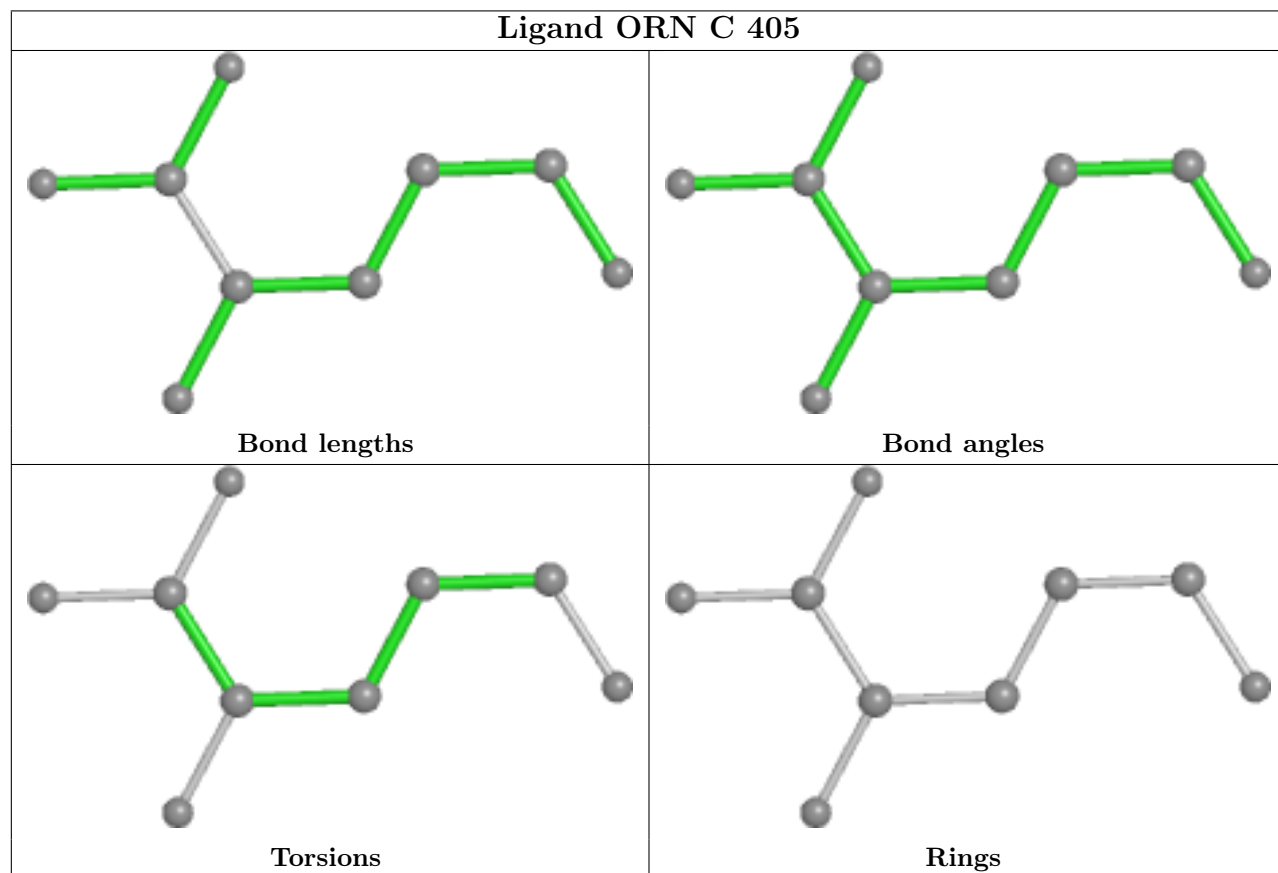
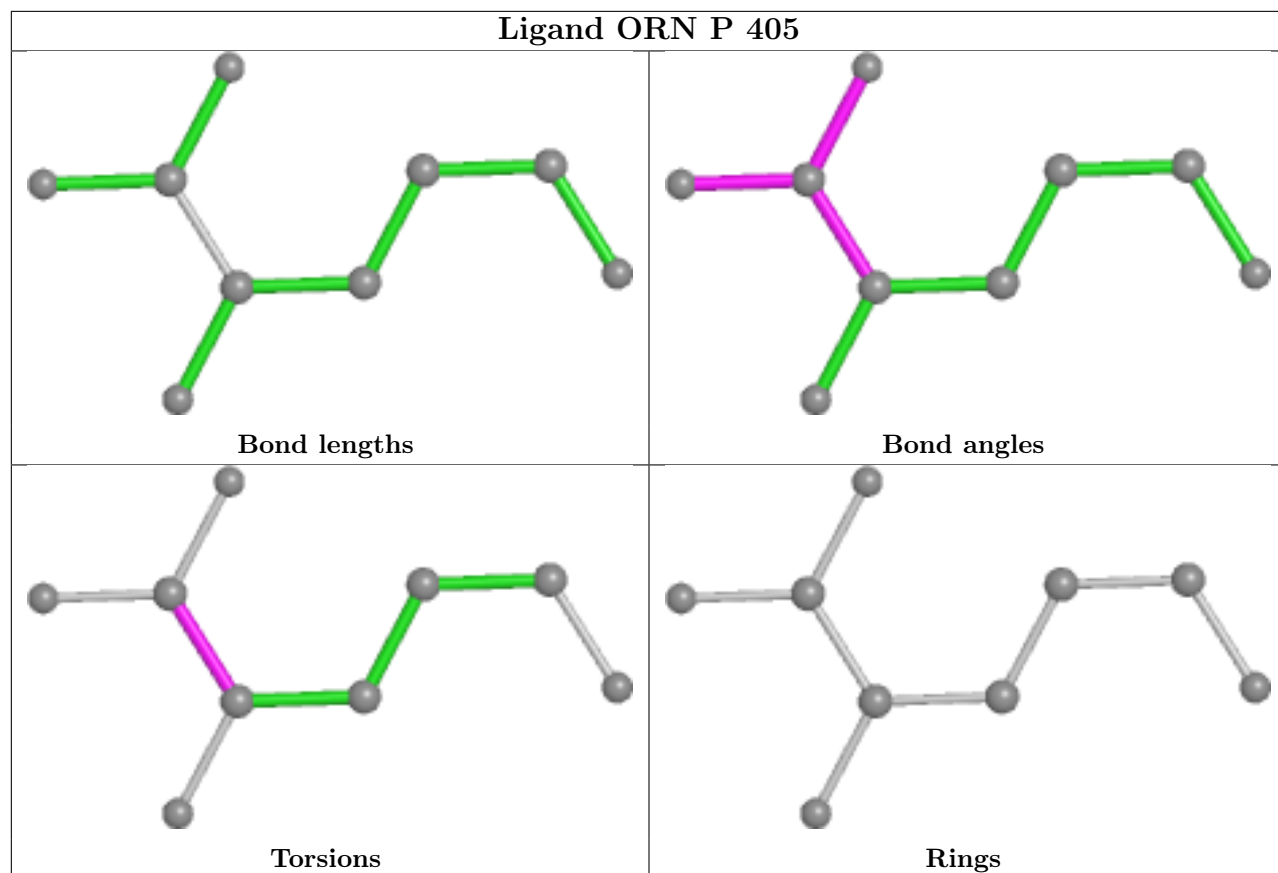
There are no ring outliers.

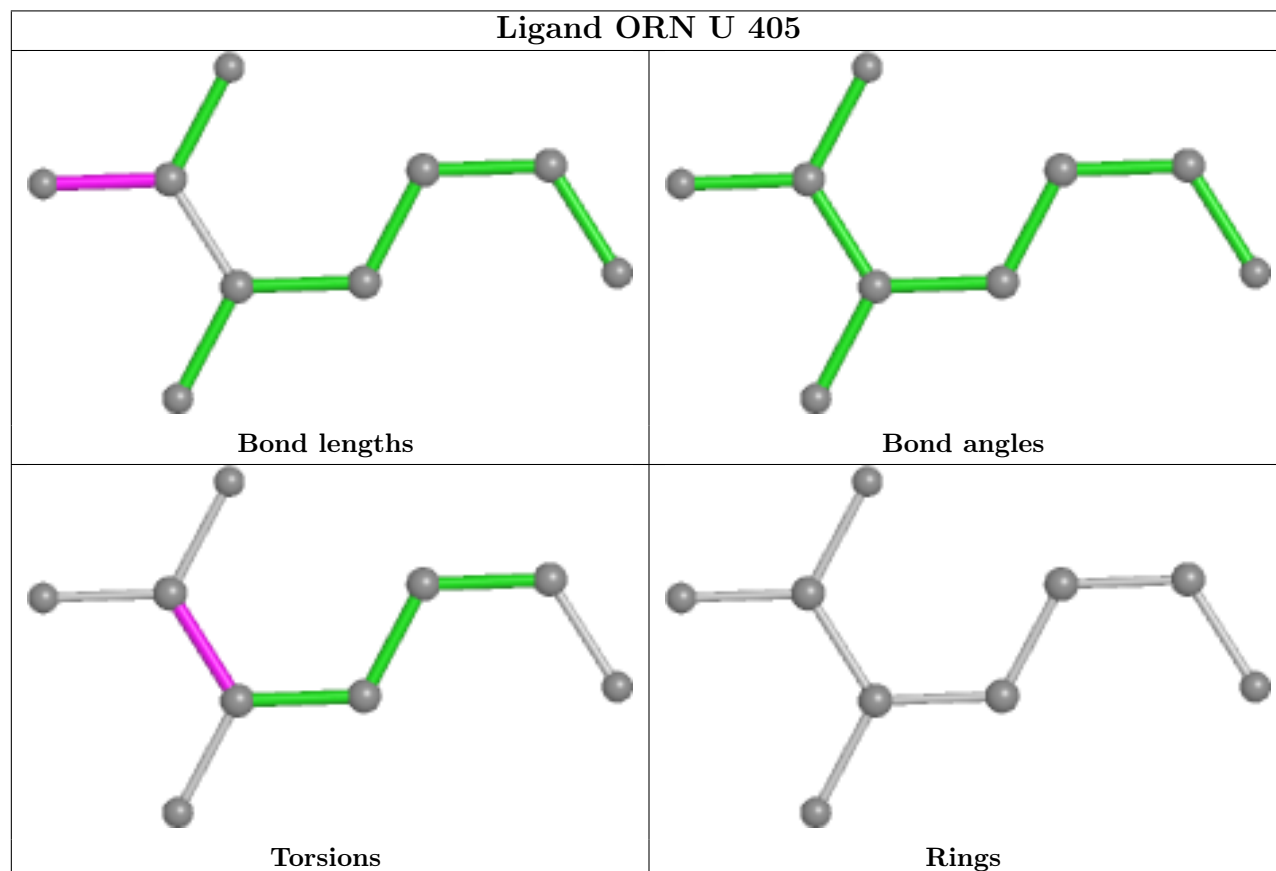
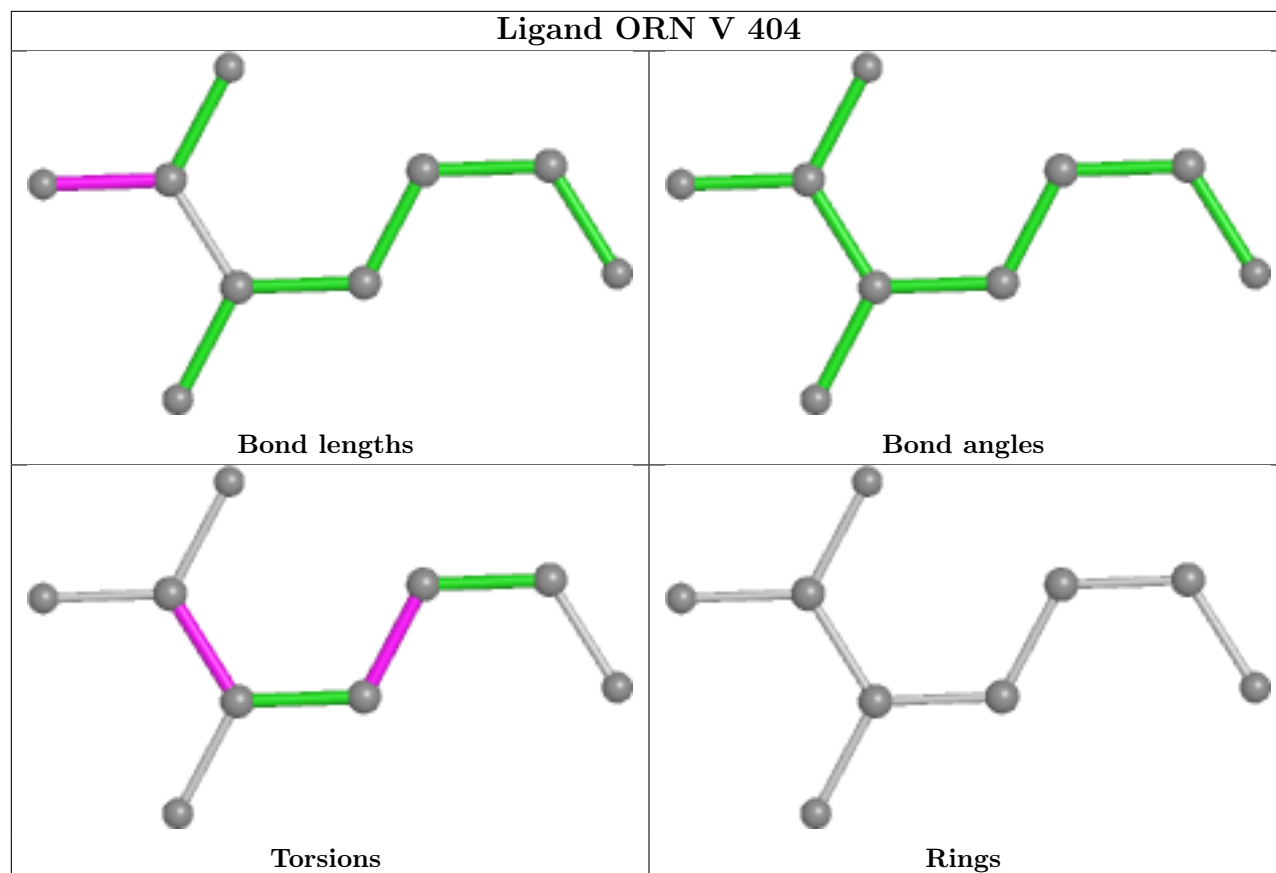
No monomer is involved in short contacts.

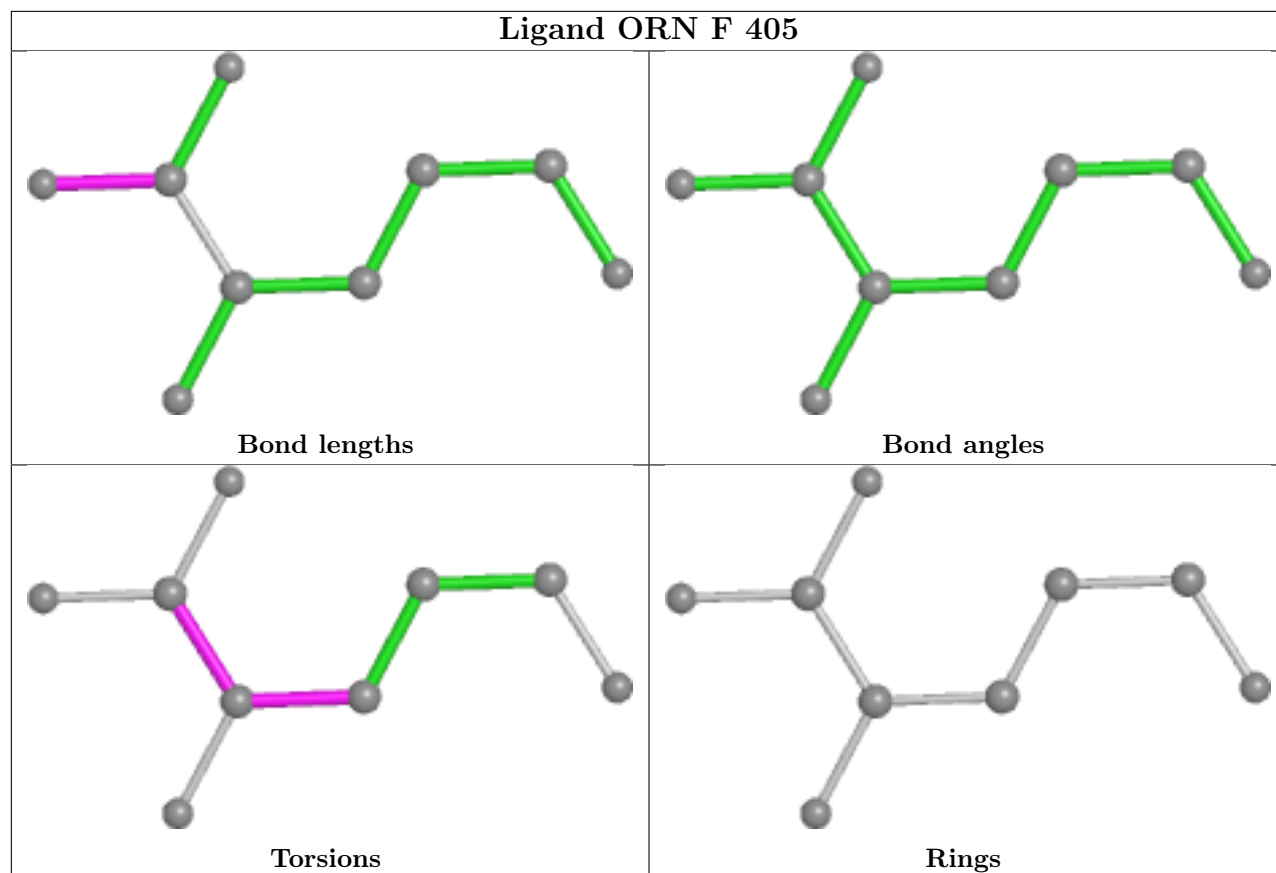
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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











4.7 Other polymers [i](#)

There are no such residues in this entry.

4.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

5 Fit of model and data

5.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

5.2 Non-standard residues in protein, DNA, RNA chains

EDS failed to run properly - this section is therefore empty.

5.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

5.4 Ligands

EDS failed to run properly - this section is therefore empty.

5.5 Other polymers

EDS failed to run properly - this section is therefore empty.