



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 08:09 PM UTC

PDB ID : 8BAP / pdb_00008bap
Title : Eugenol Oxidase (EUGO) from *Rhodococcus jostii* RHA1, eightfold mutant active on propanol syringol
Authors : Alvigini, L.; Mattevi, A.
Deposited on : 2022-10-11
Resolution : 2.30 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

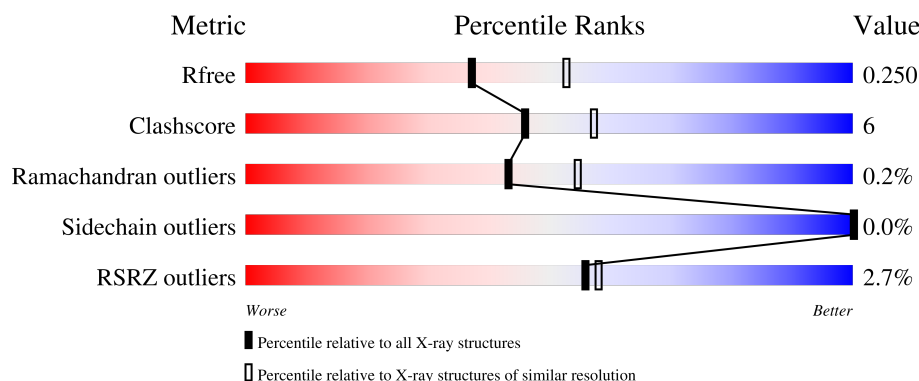
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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.



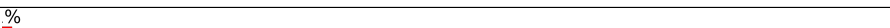
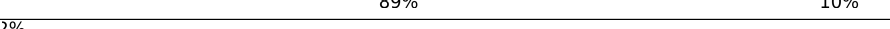
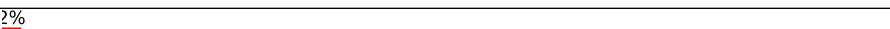
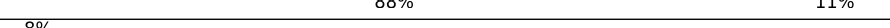
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

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	526	88% 11%
1	B	526	90% 10%
1	C	526	89% 10%
1	D	526	89% 10%
1	E	526	86% 14%

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Mol	Chain	Length	Quality of chain
1	F	526	 90% 10%
1	G	526	 88% 12% 2%
1	H	526	 90% 10%
1	I	526	 89% 10%
1	J	526	 88% 12% 2%
1	K	526	 89% 10%
1	L	526	 88% 11% 3%
1	M	526	 83% 16% 2%
1	N	526	 88% 11% 2%
1	O	526	 86% 14% 8%
1	P	526	 77% 22% 17%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 68547 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 Probable vanillyl-alcohol oxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	B	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	C	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	D	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	E	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	F	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	G	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	H	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	I	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	J	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	K	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	L	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	M	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	N	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	O	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			
1	P	525	Total	C	N	O	S	0	0	0
			4135	2635	702	774	24			

There are 128 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	81	HIS	SER	engineered mutation	UNP Q0SBK1
A	381	GLN	LEU	engineered mutation	UNP Q0SBK1
A	394	VAL	SER	engineered mutation	UNP Q0SBK1
A	423	MET	ALA	engineered mutation	UNP Q0SBK1
A	427	VAL	ILE	engineered mutation	UNP Q0SBK1
A	434	TYR	HIS	engineered mutation	UNP Q0SBK1
A	445	ASP	ILE	engineered mutation	UNP Q0SBK1
A	518	PRO	SER	engineered mutation	UNP Q0SBK1
B	81	HIS	SER	engineered mutation	UNP Q0SBK1
B	381	GLN	LEU	engineered mutation	UNP Q0SBK1
B	394	VAL	SER	engineered mutation	UNP Q0SBK1
B	423	MET	ALA	engineered mutation	UNP Q0SBK1
B	427	VAL	ILE	engineered mutation	UNP Q0SBK1
B	434	TYR	HIS	engineered mutation	UNP Q0SBK1
B	445	ASP	ILE	engineered mutation	UNP Q0SBK1
B	518	PRO	SER	engineered mutation	UNP Q0SBK1
C	81	HIS	SER	engineered mutation	UNP Q0SBK1
C	381	GLN	LEU	engineered mutation	UNP Q0SBK1
C	394	VAL	SER	engineered mutation	UNP Q0SBK1
C	423	MET	ALA	engineered mutation	UNP Q0SBK1
C	427	VAL	ILE	engineered mutation	UNP Q0SBK1
C	434	TYR	HIS	engineered mutation	UNP Q0SBK1
C	445	ASP	ILE	engineered mutation	UNP Q0SBK1
C	518	PRO	SER	engineered mutation	UNP Q0SBK1
D	81	HIS	SER	engineered mutation	UNP Q0SBK1
D	381	GLN	LEU	engineered mutation	UNP Q0SBK1
D	394	VAL	SER	engineered mutation	UNP Q0SBK1
D	423	MET	ALA	engineered mutation	UNP Q0SBK1
D	427	VAL	ILE	engineered mutation	UNP Q0SBK1
D	434	TYR	HIS	engineered mutation	UNP Q0SBK1
D	445	ASP	ILE	engineered mutation	UNP Q0SBK1
D	518	PRO	SER	engineered mutation	UNP Q0SBK1
E	81	HIS	SER	engineered mutation	UNP Q0SBK1
E	381	GLN	LEU	engineered mutation	UNP Q0SBK1
E	394	VAL	SER	engineered mutation	UNP Q0SBK1
E	423	MET	ALA	engineered mutation	UNP Q0SBK1
E	427	VAL	ILE	engineered mutation	UNP Q0SBK1
E	434	TYR	HIS	engineered mutation	UNP Q0SBK1
E	445	ASP	ILE	engineered mutation	UNP Q0SBK1
E	518	PRO	SER	engineered mutation	UNP Q0SBK1
F	81	HIS	SER	engineered mutation	UNP Q0SBK1
F	381	GLN	LEU	engineered mutation	UNP Q0SBK1

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Chain	Residue	Modelled	Actual	Comment	Reference
F	394	VAL	SER	engineered mutation	UNP Q0SBK1
F	423	MET	ALA	engineered mutation	UNP Q0SBK1
F	427	VAL	ILE	engineered mutation	UNP Q0SBK1
F	434	TYR	HIS	engineered mutation	UNP Q0SBK1
F	445	ASP	ILE	engineered mutation	UNP Q0SBK1
F	518	PRO	SER	engineered mutation	UNP Q0SBK1
G	81	HIS	SER	engineered mutation	UNP Q0SBK1
G	381	GLN	LEU	engineered mutation	UNP Q0SBK1
G	394	VAL	SER	engineered mutation	UNP Q0SBK1
G	423	MET	ALA	engineered mutation	UNP Q0SBK1
G	427	VAL	ILE	engineered mutation	UNP Q0SBK1
G	434	TYR	HIS	engineered mutation	UNP Q0SBK1
G	445	ASP	ILE	engineered mutation	UNP Q0SBK1
G	518	PRO	SER	engineered mutation	UNP Q0SBK1
H	81	HIS	SER	engineered mutation	UNP Q0SBK1
H	381	GLN	LEU	engineered mutation	UNP Q0SBK1
H	394	VAL	SER	engineered mutation	UNP Q0SBK1
H	423	MET	ALA	engineered mutation	UNP Q0SBK1
H	427	VAL	ILE	engineered mutation	UNP Q0SBK1
H	434	TYR	HIS	engineered mutation	UNP Q0SBK1
H	445	ASP	ILE	engineered mutation	UNP Q0SBK1
H	518	PRO	SER	engineered mutation	UNP Q0SBK1
I	81	HIS	SER	engineered mutation	UNP Q0SBK1
I	381	GLN	LEU	engineered mutation	UNP Q0SBK1
I	394	VAL	SER	engineered mutation	UNP Q0SBK1
I	423	MET	ALA	engineered mutation	UNP Q0SBK1
I	427	VAL	ILE	engineered mutation	UNP Q0SBK1
I	434	TYR	HIS	engineered mutation	UNP Q0SBK1
I	445	ASP	ILE	engineered mutation	UNP Q0SBK1
I	518	PRO	SER	engineered mutation	UNP Q0SBK1
J	81	HIS	SER	engineered mutation	UNP Q0SBK1
J	381	GLN	LEU	engineered mutation	UNP Q0SBK1
J	394	VAL	SER	engineered mutation	UNP Q0SBK1
J	423	MET	ALA	engineered mutation	UNP Q0SBK1
J	427	VAL	ILE	engineered mutation	UNP Q0SBK1
J	434	TYR	HIS	engineered mutation	UNP Q0SBK1
J	445	ASP	ILE	engineered mutation	UNP Q0SBK1
J	518	PRO	SER	engineered mutation	UNP Q0SBK1
K	81	HIS	SER	engineered mutation	UNP Q0SBK1
K	381	GLN	LEU	engineered mutation	UNP Q0SBK1
K	394	VAL	SER	engineered mutation	UNP Q0SBK1
K	423	MET	ALA	engineered mutation	UNP Q0SBK1

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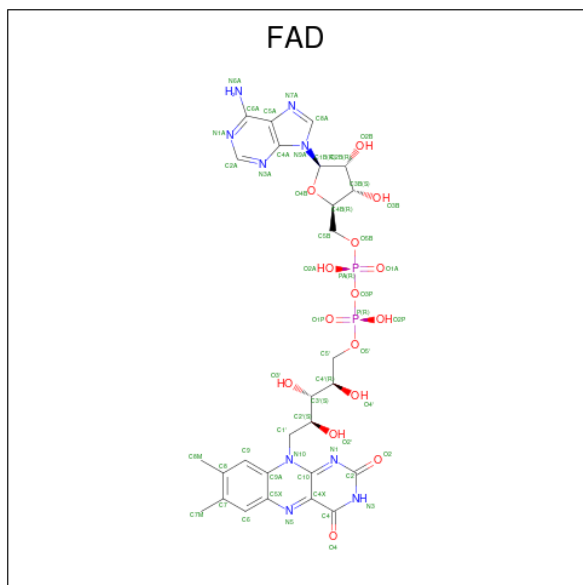
Chain	Residue	Modelled	Actual	Comment	Reference
K	427	VAL	ILE	engineered mutation	UNP Q0SBK1
K	434	TYR	HIS	engineered mutation	UNP Q0SBK1
K	445	ASP	ILE	engineered mutation	UNP Q0SBK1
K	518	PRO	SER	engineered mutation	UNP Q0SBK1
L	81	HIS	SER	engineered mutation	UNP Q0SBK1
L	381	GLN	LEU	engineered mutation	UNP Q0SBK1
L	394	VAL	SER	engineered mutation	UNP Q0SBK1
L	423	MET	ALA	engineered mutation	UNP Q0SBK1
L	427	VAL	ILE	engineered mutation	UNP Q0SBK1
L	434	TYR	HIS	engineered mutation	UNP Q0SBK1
L	445	ASP	ILE	engineered mutation	UNP Q0SBK1
L	518	PRO	SER	engineered mutation	UNP Q0SBK1
M	81	HIS	SER	engineered mutation	UNP Q0SBK1
M	381	GLN	LEU	engineered mutation	UNP Q0SBK1
M	394	VAL	SER	engineered mutation	UNP Q0SBK1
M	423	MET	ALA	engineered mutation	UNP Q0SBK1
M	427	VAL	ILE	engineered mutation	UNP Q0SBK1
M	434	TYR	HIS	engineered mutation	UNP Q0SBK1
M	445	ASP	ILE	engineered mutation	UNP Q0SBK1
M	518	PRO	SER	engineered mutation	UNP Q0SBK1
N	81	HIS	SER	engineered mutation	UNP Q0SBK1
N	381	GLN	LEU	engineered mutation	UNP Q0SBK1
N	394	VAL	SER	engineered mutation	UNP Q0SBK1
N	423	MET	ALA	engineered mutation	UNP Q0SBK1
N	427	VAL	ILE	engineered mutation	UNP Q0SBK1
N	434	TYR	HIS	engineered mutation	UNP Q0SBK1
N	445	ASP	ILE	engineered mutation	UNP Q0SBK1
N	518	PRO	SER	engineered mutation	UNP Q0SBK1
O	81	HIS	SER	engineered mutation	UNP Q0SBK1
O	381	GLN	LEU	engineered mutation	UNP Q0SBK1
O	394	VAL	SER	engineered mutation	UNP Q0SBK1
O	423	MET	ALA	engineered mutation	UNP Q0SBK1
O	427	VAL	ILE	engineered mutation	UNP Q0SBK1
O	434	TYR	HIS	engineered mutation	UNP Q0SBK1
O	445	ASP	ILE	engineered mutation	UNP Q0SBK1
O	518	PRO	SER	engineered mutation	UNP Q0SBK1
P	81	HIS	SER	engineered mutation	UNP Q0SBK1
P	381	GLN	LEU	engineered mutation	UNP Q0SBK1
P	394	VAL	SER	engineered mutation	UNP Q0SBK1
P	423	MET	ALA	engineered mutation	UNP Q0SBK1
P	427	VAL	ILE	engineered mutation	UNP Q0SBK1
P	434	TYR	HIS	engineered mutation	UNP Q0SBK1

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Chain	Residue	Modelled	Actual	Comment	Reference
P	445	ASP	ILE	engineered mutation	UNP Q0SBK1
P	518	PRO	SER	engineered mutation	UNP Q0SBK1

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).



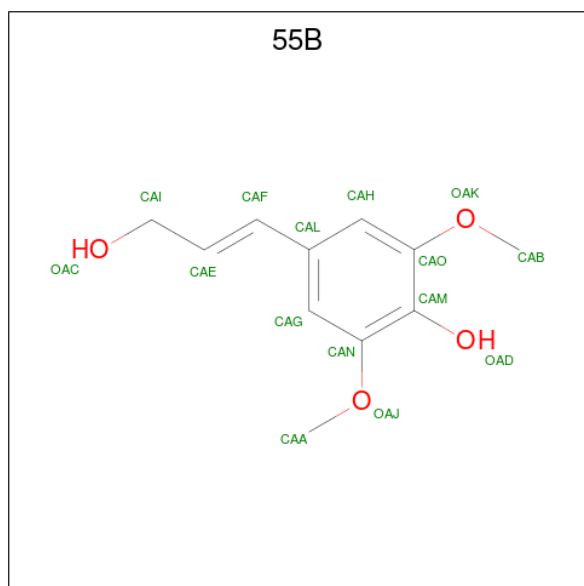
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	B	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	C	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	D	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	E	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	F	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	G	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	H	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	I	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	J	1	Total 53	C 27	N 9	O 15	P 2	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	K	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	L	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	M	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	N	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	O	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	P	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 3 is 4-[(1E)-3-hydroxyprop-1-en-1-yl]-2,6-dimethoxyphenol (CCD ID: 55B) (formula: C₁₁H₁₄O₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			15	11	4		
3	B	1	Total	C	O	0	0
			15	11	4		
3	C	1	Total	C	O	0	0
			15	11	4		
3	D	1	Total	C	O	0	0
			15	11	4		
3	E	1	Total	C	O	0	0
			15	11	4		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	F	1	Total	C	O	0	0
			15	11	4		
3	G	1	Total	C	O	0	0
			15	11	4		
3	H	1	Total	C	O	0	0
			15	11	4		
3	I	1	Total	C	O	0	0
			15	11	4		
3	J	1	Total	C	O	0	0
			15	11	4		
3	K	1	Total	C	O	0	0
			15	11	4		
3	L	1	Total	C	O	0	0
			15	11	4		
3	M	1	Total	C	O	0	0
			15	11	4		
3	N	1	Total	C	O	0	0
			15	11	4		
3	O	1	Total	C	O	0	0
			15	11	4		
3	P	1	Total	C	O	0	0
			15	11	4		

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	2	Total	Ca	0	0
			2	2		
4	B	1	Total	Ca	0	0
			1	1		
4	C	1	Total	Ca	0	0
			1	1		
4	D	1	Total	Ca	0	0
			1	1		
4	E	1	Total	Ca	0	0
			1	1		
4	F	1	Total	Ca	0	0
			1	1		
4	J	1	Total	Ca	0	0
			1	1		
4	L	1	Total	Ca	0	0
			1	1		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	M	1	Total 1	Ca 1	0	0
4	N	1	Total 1	Ca 1	0	0
4	O	1	Total 1	Ca 1	0	0

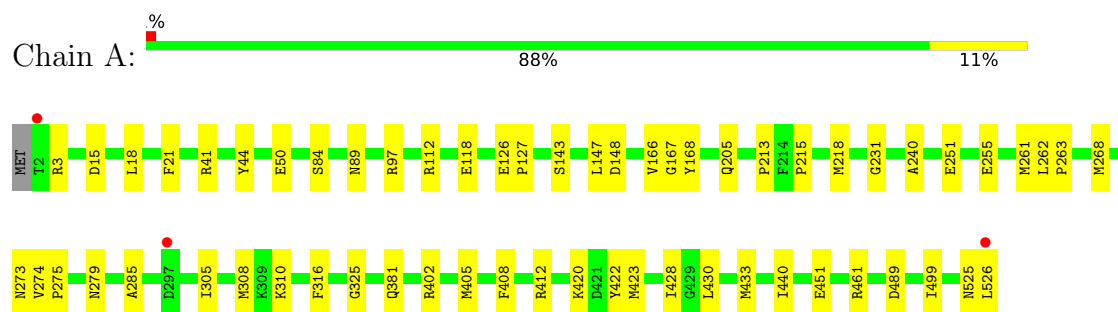
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	90	Total 90	O 90	0	0
5	B	118	Total 118	O 118	0	0
5	C	110	Total 110	O 110	0	0
5	D	108	Total 108	O 108	0	0
5	E	68	Total 68	O 68	0	0
5	F	111	Total 111	O 111	0	0
5	G	87	Total 87	O 87	0	0
5	H	105	Total 105	O 105	0	0
5	I	95	Total 95	O 95	0	0
5	J	72	Total 72	O 72	0	0
5	K	71	Total 71	O 71	0	0
5	L	72	Total 72	O 72	0	0
5	M	51	Total 51	O 51	0	0
5	N	61	Total 61	O 61	0	0
5	O	41	Total 41	O 41	0	0
5	P	27	Total 27	O 27	0	0

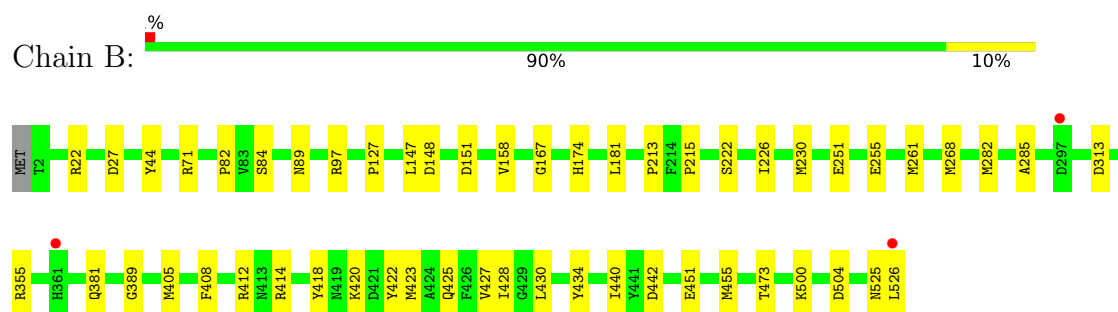
3 Residue-property plots [i](#)

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.

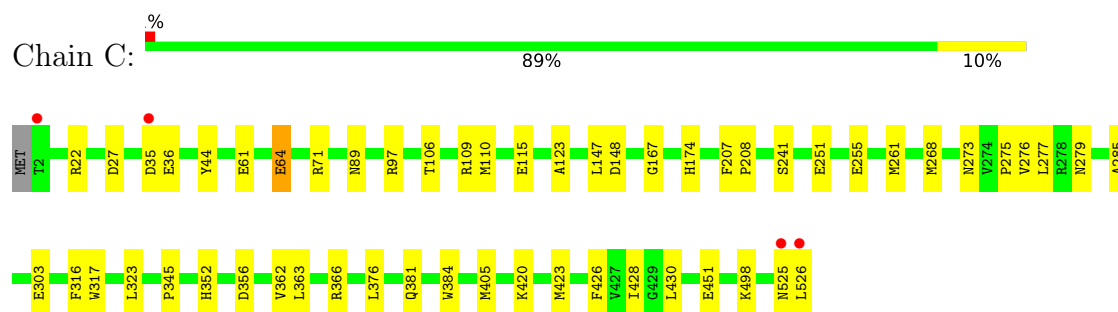
- Molecule 1: Probable vanillyl-alcohol oxidase



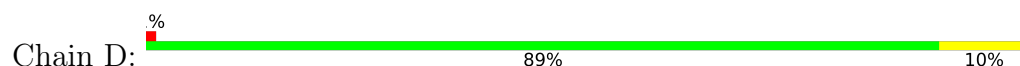
- Molecule 1: Probable vanillyl-alcohol oxidase

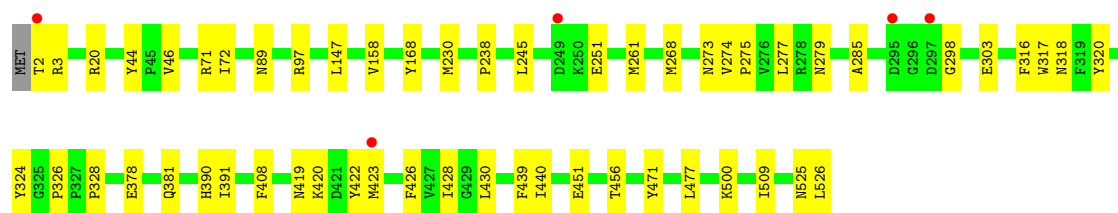


- Molecule 1: Probable vanillyl-alcohol oxidase

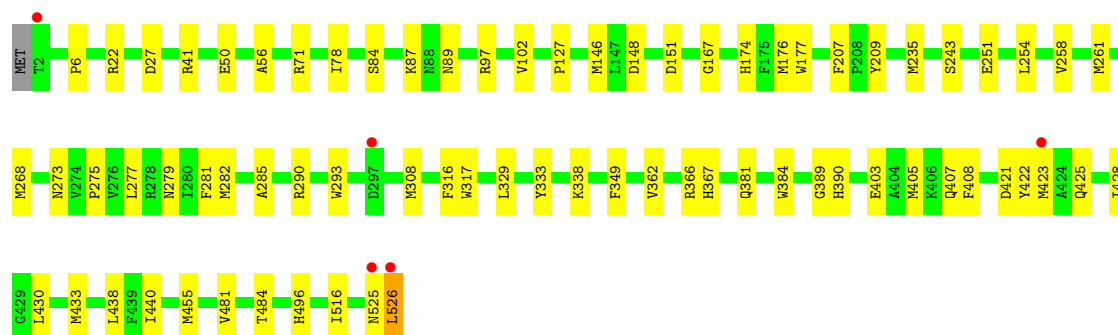
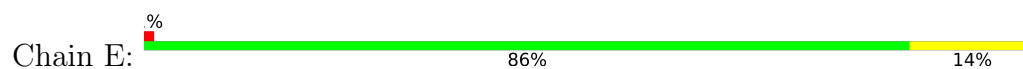


- Molecule 1: Probable vanillyl-alcohol oxidase

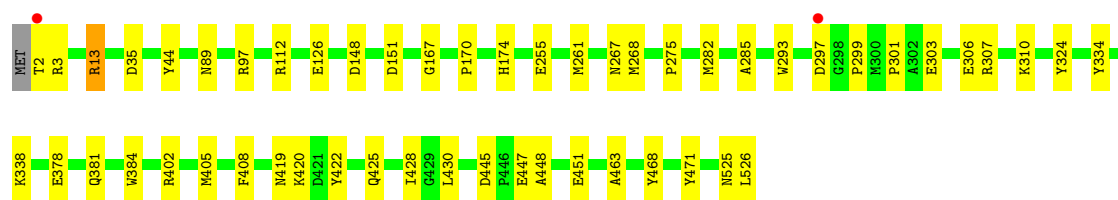




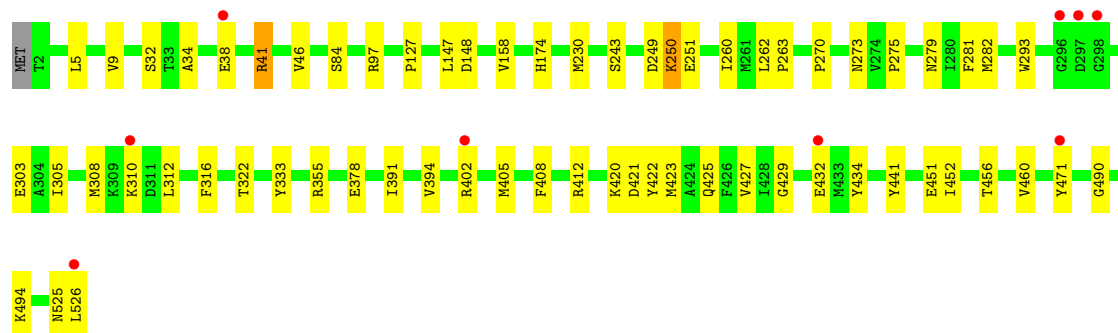
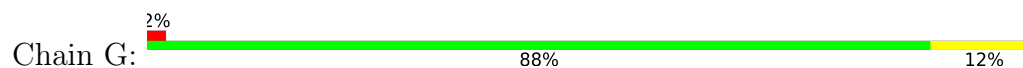
● Molecule 1: Probable vanillyl-alcohol oxidase



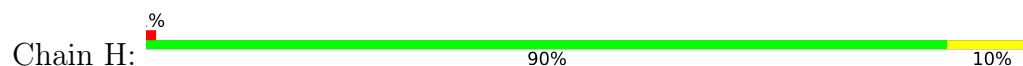
● Molecule 1: Probable vanillyl-alcohol oxidase

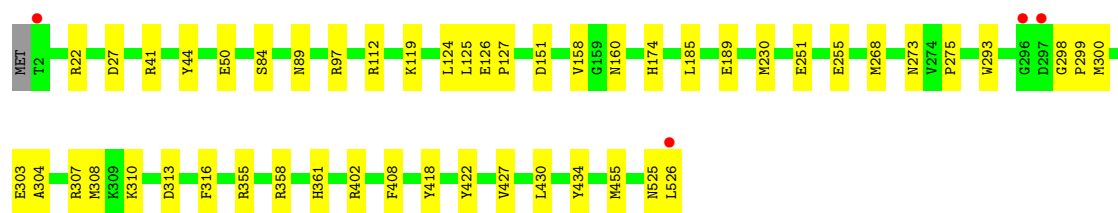


● Molecule 1: Probable vanillyl-alcohol oxidase

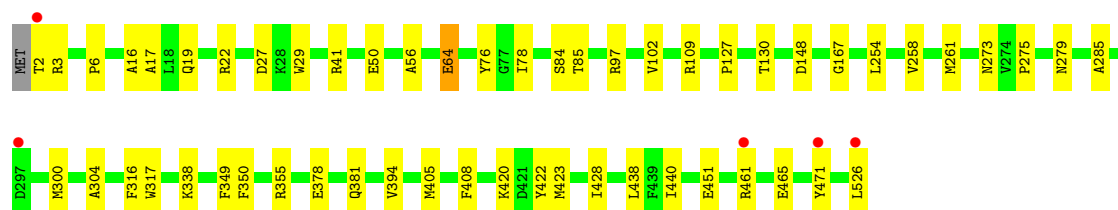
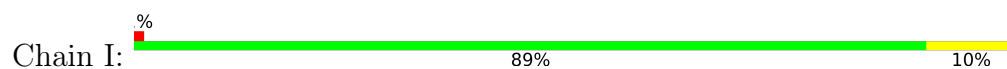


● Molecule 1: Probable vanillyl-alcohol oxidase

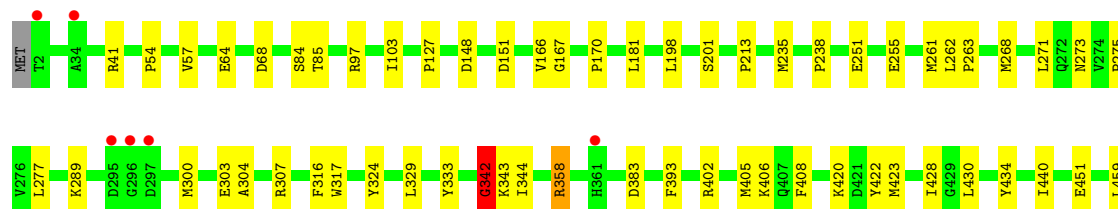
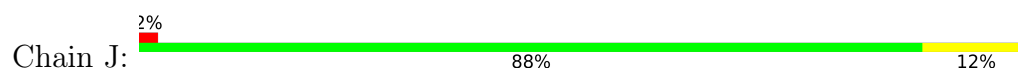




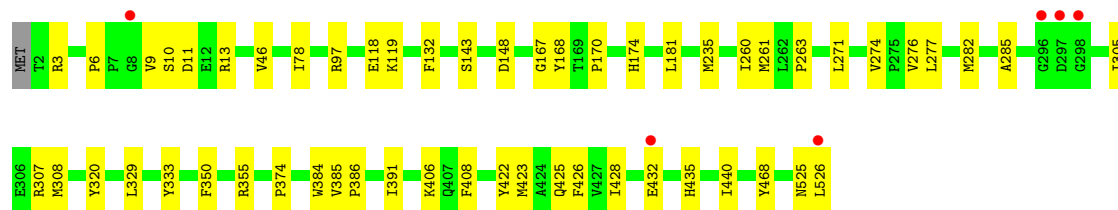
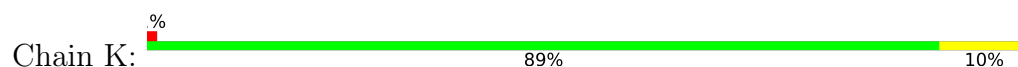
• Molecule 1: Probable vanillyl-alcohol oxidase



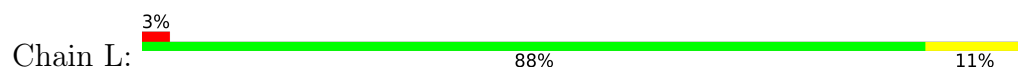
• Molecule 1: Probable vanillyl-alcohol oxidase

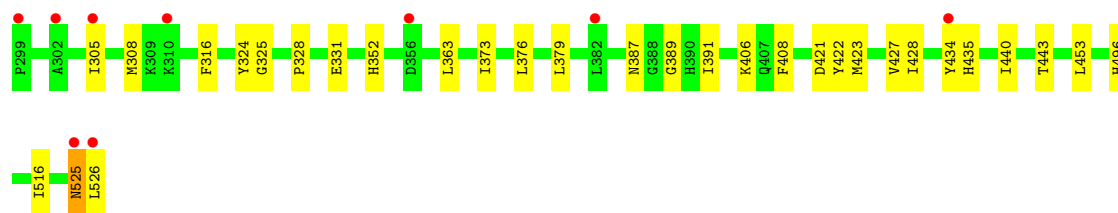


• Molecule 1: Probable vanillyl-alcohol oxidase

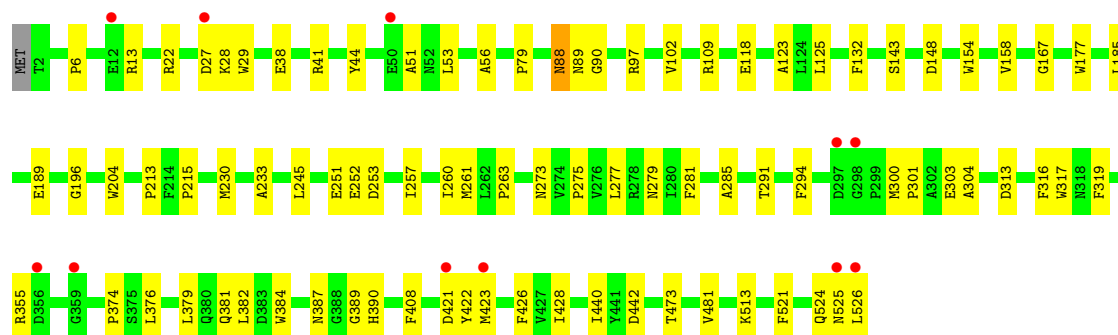
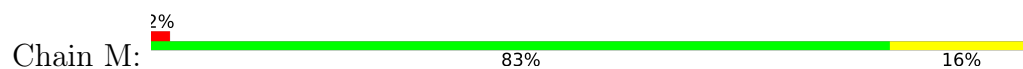


• Molecule 1: Probable vanillyl-alcohol oxidase

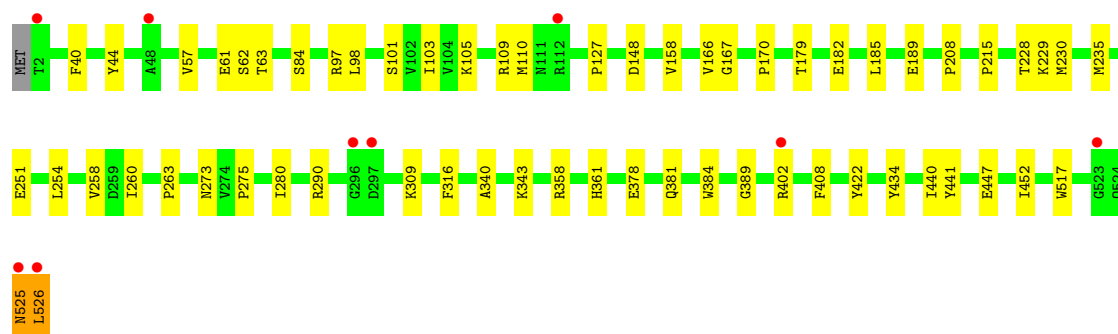
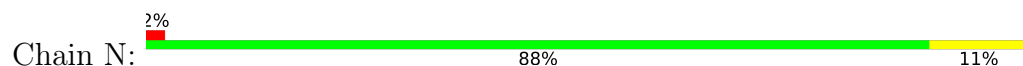




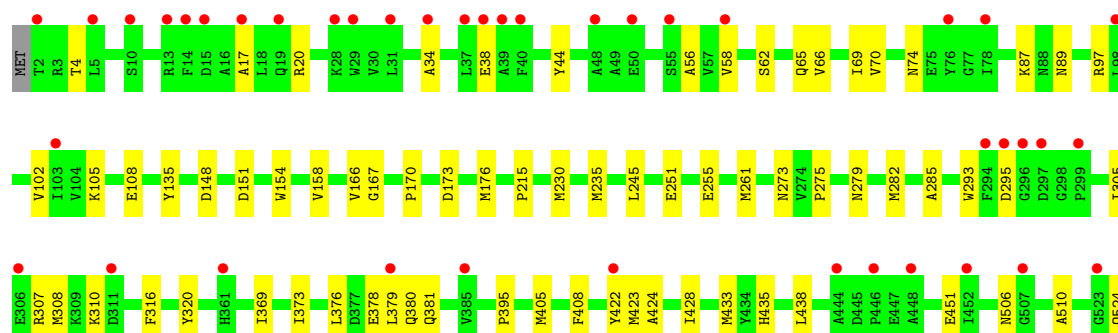
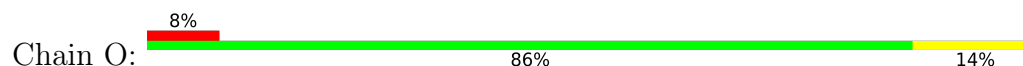
● Molecule 1: Probable vanillyl-alcohol oxidase



● Molecule 1: Probable vanillyl-alcohol oxidase

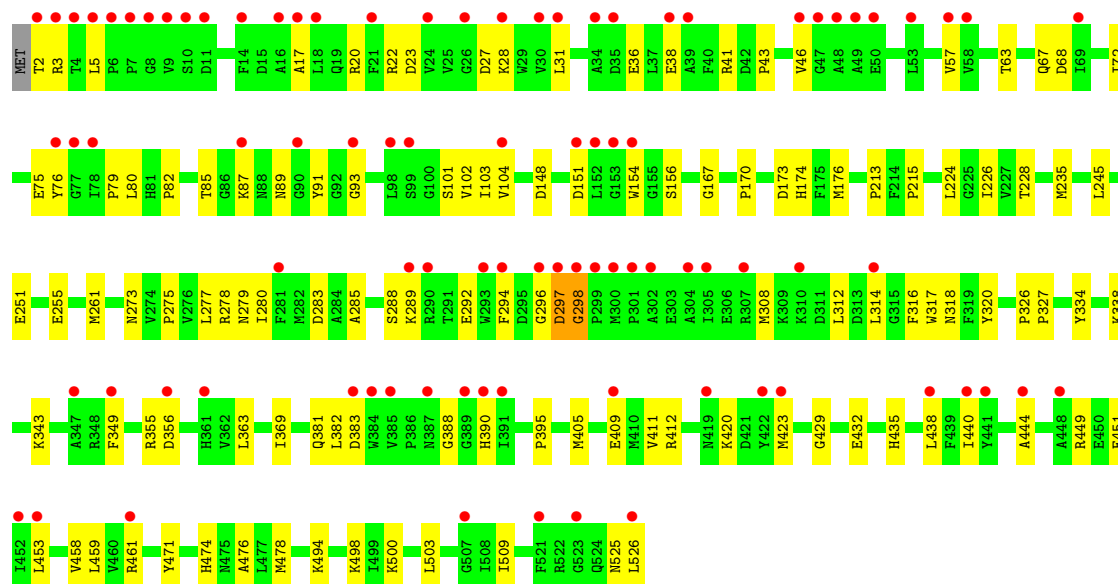
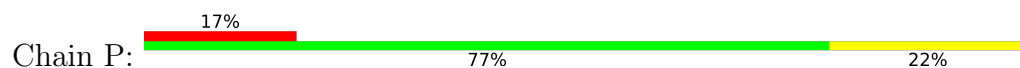


● Molecule 1: Probable vanillyl-alcohol oxidase





- Molecule 1: Probable vanillyl-alcohol oxidase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	113.56Å 143.00Å 154.60Å 114.87° 97.00° 93.28°	Depositor
Resolution (Å)	49.04 – 2.30 49.04 – 2.30	Depositor EDS
% Data completeness (in resolution range)	98.2 (49.04-2.30) 98.2 (49.04-2.30)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.32 (at 2.29Å)	Xtriage
Refinement program	PHENIX 1.16_3546	Depositor
R, R_{free}	0.193 , 0.249 0.193 , 0.250	Depositor DCC
R_{free} test set	18986 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å ²)	29.9	Xtriage
Anisotropy	0.072	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 32.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	68547	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.44% 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: FAD, 55B, CA

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	0.43	0/4244	0.60	0/5760
1	B	0.44	0/4244	0.60	2/5760 (0.0%)
1	C	0.46	0/4244	0.63	4/5760 (0.1%)
1	D	0.44	0/4244	0.61	0/5760
1	E	0.43	0/4244	0.61	1/5760 (0.0%)
1	F	0.49	5/4244 (0.1%)	0.66	8/5760 (0.1%)
1	G	0.41	1/4244 (0.0%)	0.59	2/5760 (0.0%)
1	H	0.44	0/4244	0.63	0/5760
1	I	0.42	0/4244	0.61	1/5760 (0.0%)
1	J	0.47	2/4244 (0.0%)	0.62	0/5760
1	K	0.39	0/4244	0.58	0/5760
1	L	0.38	0/4244	0.59	0/5760
1	M	0.37	0/4244	0.57	0/5760
1	N	0.38	0/4244	0.57	1/5760 (0.0%)
1	O	0.33	0/4244	0.55	0/5760
1	P	0.34	0/4244	0.59	0/5760
All	All	0.42	8/67904 (0.0%)	0.60	19/92160 (0.0%)

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	402	ARG	CZ-NH1	-8.02	1.21	1.32
1	F	402	ARG	CG-CD	-7.15	1.31	1.52
1	J	358	ARG	CB-CG	6.52	1.72	1.52
1	F	13	ARG	CB-CG	-6.43	1.33	1.52
1	F	13	ARG	CG-CD	-6.28	1.33	1.52
1	J	342	GLY	CA-C	-6.11	1.43	1.51
1	F	402	ARG	NE-CZ	-5.14	1.27	1.33
1	G	250	LYS	CD-CE	5.11	1.67	1.52

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	13	ARG	CB-CG-CD	-12.27	83.09	111.30
1	C	64	GLU	CB-CG-CD	-9.38	96.66	112.60
1	F	13	ARG	CG-CD-NE	-8.06	94.26	112.00
1	F	402	ARG	CB-CG-CD	-7.45	94.16	111.30
1	C	71	ARG	NE-CZ-NH1	-6.75	114.75	121.50
1	F	402	ARG	CA-CB-CG	-6.65	100.80	114.10
1	E	526	LEU	CB-CG-CD2	-6.54	91.08	110.70
1	C	71	ARG	CA-CB-CG	-6.47	101.17	114.10
1	C	71	ARG	CB-CG-CD	-6.42	96.55	111.30
1	F	13	ARG	NE-CZ-NH1	6.11	127.61	121.50
1	F	13	ARG	NH1-CZ-NH2	-6.09	111.38	119.30
1	N	526	LEU	CB-CG-CD2	-5.93	92.91	110.70
1	I	64	GLU	CB-CG-CD	-5.80	102.73	112.60
1	F	402	ARG	NE-CZ-NH1	-5.76	115.74	121.50
1	G	310	LYS	CD-CE-NZ	-5.53	94.22	111.90
1	B	473	THR	CA-C-N	5.22	129.13	120.94
1	B	473	THR	C-N-CA	5.22	129.13	120.94
1	F	13	ARG	CB-CA-C	-5.08	101.23	110.63
1	G	250	LYS	CB-CG-CD	-5.06	99.66	111.30

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	4135	0	4000	44	0
1	B	4135	0	4000	38	1
1	C	4135	0	4000	38	0
1	D	4135	0	4000	43	0
1	E	4135	0	4000	58	0
1	F	4135	0	4000	39	1
1	G	4135	0	4000	50	0
1	H	4135	0	4000	37	0
1	I	4135	0	4000	45	0
1	J	4135	0	4000	45	2
1	K	4135	0	4000	37	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L	4135	0	4000	40	0
1	M	4135	0	4000	57	1
1	N	4135	0	4000	42	1
1	O	4135	0	4000	47	0
1	P	4135	0	4000	104	0
2	A	53	0	29	1	0
2	B	53	0	29	1	0
2	C	53	0	29	1	0
2	D	53	0	29	1	0
2	E	53	0	29	1	0
2	F	53	0	29	1	0
2	G	53	0	29	1	0
2	H	53	0	30	1	0
2	I	53	0	29	1	0
2	J	53	0	30	3	0
2	K	53	0	30	1	0
2	L	53	0	29	1	0
2	M	53	0	30	3	0
2	N	53	0	30	1	0
2	O	53	0	29	0	0
2	P	53	0	31	2	0
3	A	15	0	13	1	0
3	B	15	0	13	1	0
3	C	15	0	14	0	0
3	D	15	0	13	2	0
3	E	15	0	13	2	0
3	F	15	0	13	2	0
3	G	15	0	13	3	0
3	H	15	0	13	1	0
3	I	15	0	13	4	0
3	J	15	0	14	0	0
3	K	15	0	14	0	0
3	L	15	0	14	0	0
3	M	15	0	13	0	0
3	N	15	0	14	0	0
3	O	15	0	13	5	0
3	P	15	0	13	2	0
4	A	2	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	F	1	0	0	0	0
4	J	1	0	0	0	0
4	L	1	0	0	0	0
4	M	1	0	0	0	0
4	N	1	0	0	0	0
4	O	1	0	0	0	0
5	A	90	0	0	2	0
5	B	118	0	0	0	0
5	C	110	0	0	2	0
5	D	108	0	0	1	0
5	E	68	0	0	1	0
5	F	111	0	0	2	0
5	G	87	0	0	0	0
5	H	105	0	0	1	0
5	I	95	0	0	5	0
5	J	72	0	0	4	0
5	K	71	0	0	1	0
5	L	72	0	0	0	0
5	M	51	0	0	1	0
5	N	61	0	0	0	0
5	O	41	0	0	2	0
5	P	27	0	0	0	0
All	All	68547	0	64684	768	3

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 6.

All (768) 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:P:87:LYS:NZ	1:P:154:TRP:CZ2	1.94	1.35
1:D:525:ASN:O	1:D:526:LEU:HD12	1.38	1.20
1:I:394:VAL:HG11	1:I:471:TYR:CE1	1.79	1.18
1:P:87:LYS:HE3	1:P:154:TRP:CE2	1.80	1.15
1:G:394:VAL:HG11	1:G:471:TYR:HE1	1.05	1.13
1:I:394:VAL:HG11	1:I:471:TYR:HE1	1.12	1.09
1:A:461:ARG:NH1	5:A:701:HOH:O	1.86	1.09
1:D:2:THR:HG22	1:D:3:ARG:H	1.18	1.09
1:P:87:LYS:CE	1:P:154:TRP:CE2	2.35	1.09
1:G:394:VAL:HG11	1:G:471:TYR:CE1	1.86	1.08
1:D:97:ARG:HH12	1:D:526:LEU:HD21	1.14	1.07

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:525:ASN:O	1:J:526:LEU:HD12	1.55	1.06
1:P:245:LEU:HD13	1:P:320:TYR:CE2	1.90	1.05
1:M:376:LEU:O	1:M:379:LEU:HD12	1.53	1.05
1:P:390:HIS:CE1	2:P:601:FAD:HM82	1.92	1.04
1:P:87:LYS:HE3	1:P:154:TRP:NE1	1.73	1.03
1:N:358:ARG:HA	1:N:361:HIS:CE1	1.94	1.02
1:I:394:VAL:CG1	1:I:471:TYR:HE1	1.73	1.01
1:M:525:ASN:C	1:M:526:LEU:HD12	1.89	0.97
1:I:394:VAL:CG1	1:I:471:TYR:CE1	2.47	0.96
1:G:394:VAL:CG1	1:G:471:TYR:HE1	1.79	0.95
1:E:281:PHE:HB3	1:E:423:MET:SD	2.05	0.95
1:I:471:TYR:OH	3:I:602:55B:OAD	1.86	0.94
1:M:281:PHE:HB3	1:M:423:MET:SD	2.08	0.93
1:G:41:ARG:HH11	1:G:41:ARG:HB3	1.32	0.92
1:P:22:ARG:HD3	1:P:27:ASP:HB3	1.48	0.92
1:P:3:ARG:O	1:P:5:LEU:HD12	1.69	0.92
1:G:525:ASN:O	1:G:526:LEU:HD12	1.71	0.89
1:B:285:ALA:HB2	1:B:423:MET:HE1	1.52	0.88
1:D:2:THR:HG22	1:D:3:ARG:N	1.89	0.88
1:P:474:HIS:HD2	1:P:476:ALA:H	1.22	0.87
1:G:41:ARG:HB3	1:G:41:ARG:NH1	1.88	0.86
1:K:119:LYS:NZ	5:K:701:HOH:O	2.09	0.86
1:G:394:VAL:CG1	1:G:471:TYR:CE1	2.55	0.86
1:P:87:LYS:HZ2	1:P:154:TRP:HZ2	1.16	0.85
1:G:429:GLY:HA3	1:G:432:GLU:OE2	1.77	0.84
1:K:432:GLU:C	1:K:432:GLU:OE1	2.22	0.83
1:F:13:ARG:HD2	1:F:13:ARG:N	1.93	0.82
1:H:97:ARG:HH22	1:H:526:LEU:HD21	1.44	0.82
1:M:252:GLU:O	5:M:701:HOH:O	1.97	0.82
1:K:6:PRO:HG2	1:K:78:ILE:HD12	1.62	0.81
1:F:525:ASN:O	1:F:526:LEU:HD12	1.80	0.80
1:K:525:ASN:O	1:K:526:LEU:HD12	1.82	0.80
1:M:376:LEU:HB3	1:M:379:LEU:CD1	2.12	0.80
1:D:2:THR:CG2	1:D:3:ARG:H	1.95	0.79
1:P:3:ARG:O	1:P:5:LEU:CD1	2.31	0.78
1:P:87:LYS:CE	1:P:154:TRP:CZ2	2.66	0.78
1:N:97:ARG:NH2	1:N:526:LEU:HD21	1.99	0.77
1:D:97:ARG:HH22	1:D:526:LEU:HD11	1.50	0.77
1:L:525:ASN:O	1:L:526:LEU:HD12	1.84	0.77
1:N:358:ARG:HA	1:N:361:HIS:HE1	1.48	0.77
1:K:9:VAL:HA	1:K:13:ARG:HH21	1.49	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:423:MET:HE1	1:P:440:ILE:H	1.50	0.76
1:M:376:LEU:O	1:M:379:LEU:CD1	2.31	0.76
1:H:97:ARG:HH12	1:H:526:LEU:HD22	1.49	0.75
1:H:119:LYS:NZ	5:I:701:HOH:O	2.18	0.75
1:A:525:ASN:ND2	5:A:702:HOH:O	2.19	0.75
1:I:394:VAL:CB	1:I:471:TYR:HE1	2.00	0.75
1:O:97:ARG:HH12	1:O:526:LEU:HD23	1.52	0.75
1:I:64:GLU:OE2	5:I:701:HOH:O	2.04	0.74
1:G:97:ARG:HH12	1:G:526:LEU:HD21	1.52	0.74
1:C:255:GLU:HB2	1:C:405:MET:HE2	1.69	0.74
1:N:185:LEU:HB2	1:N:189:GLU:HG2	1.69	0.74
1:L:97:ARG:HH12	1:L:526:LEU:HD21	1.53	0.73
1:G:471:TYR:OH	3:G:602:55B:OAD	2.06	0.72
1:D:97:ARG:NH1	1:D:526:LEU:HD21	1.97	0.72
1:M:185:LEU:HB2	1:M:189:GLU:HG2	1.71	0.72
1:A:423:MET:HE2	1:A:440:ILE:HD12	1.69	0.71
1:O:105:LYS:HG2	1:O:108:GLU:HB2	1.70	0.71
1:P:390:HIS:CE1	2:P:601:FAD:C8M	2.72	0.71
1:J:423:MET:HE2	1:J:440:ILE:HD12	1.71	0.71
1:P:294:PHE:HZ	1:P:297:ASP:HB3	1.56	0.71
1:N:358:ARG:O	1:N:361:HIS:ND1	2.24	0.70
1:F:97:ARG:HH12	1:F:526:LEU:HD21	1.56	0.70
1:M:277:LEU:HD11	1:M:317:TRP:HB3	1.73	0.70
1:F:408:PHE:CD1	1:F:422:TYR:HE2	2.10	0.70
1:G:41:ARG:HH11	1:G:41:ARG:CB	2.03	0.70
1:C:97:ARG:HH12	1:C:526:LEU:HD23	1.58	0.69
1:E:525:ASN:C	1:E:526:LEU:HD12	2.19	0.68
1:H:408:PHE:CD1	1:H:422:TYR:HE2	2.11	0.68
1:P:245:LEU:HD13	1:P:320:TYR:CZ	2.29	0.68
1:J:358:ARG:HA	5:J:746:HOH:O	1.94	0.67
1:B:255:GLU:HB2	1:B:405:MET:HE2	1.75	0.67
1:N:517:TRP:CH2	1:N:526:LEU:HD23	2.29	0.67
1:C:97:ARG:HH12	1:C:526:LEU:CD2	2.07	0.67
1:O:87:LYS:HE3	1:O:154:TRP:CD2	2.30	0.67
1:P:224:LEU:HD22	1:P:503:LEU:HD12	1.77	0.67
1:O:65:GLN:O	1:O:69:ILE:HG13	1.94	0.67
1:A:97:ARG:HH12	1:A:526:LEU:HD23	1.59	0.67
1:K:432:GLU:OE1	1:K:432:GLU:O	2.13	0.67
1:P:151:ASP:HA	1:P:369:ILE:HD13	1.76	0.66
1:J:358:ARG:HG3	5:J:746:HOH:O	1.94	0.66
1:B:408:PHE:CD1	1:B:422:TYR:HE2	2.14	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:282:MET:HE1	1:E:438:LEU:HD12	1.78	0.66
1:J:342:GLY:O	1:J:344:ILE:N	2.28	0.66
1:I:394:VAL:CB	1:I:471:TYR:CE1	2.78	0.66
1:A:97:ARG:HH12	1:A:526:LEU:CD2	2.09	0.65
1:K:6:PRO:HG2	1:K:78:ILE:CD1	2.26	0.65
1:N:148:ASP:OD1	1:N:167:GLY:HA3	1.96	0.65
1:G:38:GLU:OE2	1:G:41:ARG:HD2	1.96	0.65
1:H:22:ARG:HD3	1:H:27:ASP:HB2	1.79	0.65
1:H:525:ASN:C	1:H:526:LEU:HG	2.21	0.65
1:F:297:ASP:OD2	5:F:701:HOH:O	2.14	0.65
1:P:22:ARG:HD3	1:P:27:ASP:CB	2.26	0.65
1:M:148:ASP:OD1	1:M:167:GLY:HA3	1.97	0.64
1:E:421:ASP:CB	1:E:423:MET:CE	2.76	0.64
1:I:423:MET:HE2	1:I:440:ILE:HD12	1.78	0.64
1:E:421:ASP:HB2	1:E:423:MET:CE	2.28	0.64
2:L:601:FAD:H8A	2:L:601:FAD:O5B	1.97	0.64
1:K:97:ARG:HH12	1:K:526:LEU:HD21	1.63	0.64
1:O:135:TYR:CE1	1:O:373:ILE:HD13	2.32	0.64
1:P:458:VAL:HG13	1:P:461:ARG:HH21	1.63	0.64
1:P:312:LEU:HB3	1:P:314:LEU:HG	1.79	0.63
1:F:13:ARG:HD2	1:F:13:ARG:H	1.61	0.63
1:M:525:ASN:O	1:M:526:LEU:HD12	1.99	0.63
1:J:170:PRO:HG2	1:J:235:MET:HE1	1.81	0.63
1:I:64:GLU:CD	5:I:701:HOH:O	2.42	0.62
1:A:402:ARG:HD3	1:B:71:ARG:NH2	2.13	0.62
1:D:471:TYR:OH	3:D:602:55B:OAD	2.17	0.62
1:E:282:MET:HE3	1:E:425:GLN:HB2	1.81	0.62
1:A:489:ASP:HB2	1:J:406:LYS:HE2	1.81	0.62
1:P:173:ASP:HB3	1:P:176:MET:HE2	1.80	0.62
1:P:420:LYS:NZ	1:P:451:GLU:OE1	2.28	0.62
1:F:268:MET:HG2	1:F:430:LEU:HD21	1.80	0.62
1:G:420:LYS:NZ	1:G:451:GLU:OE1	2.32	0.62
1:C:148:ASP:OD1	1:C:174:HIS:NE2	2.30	0.61
1:K:277:LEU:HB3	1:K:426:PHE:HB2	1.82	0.61
1:L:38:GLU:HA	1:L:41:ARG:HD2	1.82	0.61
1:J:358:ARG:HB3	5:J:742:HOH:O	2.00	0.61
1:F:408:PHE:HD1	1:F:422:TYR:HE2	1.47	0.61
1:B:22:ARG:HD3	1:B:27:ASP:HB3	1.82	0.61
1:I:461:ARG:NH1	1:I:465:GLU:OE1	2.32	0.61
1:L:46:VAL:HG21	1:L:391:ILE:HD12	1.82	0.61
1:A:408:PHE:HD1	1:A:422:TYR:HE2	1.48	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:408:PHE:CD1	1:G:422:TYR:HE2	2.19	0.61
1:K:305:ILE:HA	1:K:308:MET:HE2	1.83	0.61
1:M:376:LEU:HB3	1:M:379:LEU:HD13	1.83	0.61
1:A:525:ASN:HB3	1:A:526:LEU:HD12	1.82	0.61
1:F:299:PRO:HD3	1:F:419:ASN:ND2	2.16	0.60
1:F:471:TYR:OH	3:F:602:55B:OAD	2.17	0.60
1:I:97:ARG:HH12	1:I:526:LEU:HD23	1.67	0.60
1:P:245:LEU:HD13	1:P:320:TYR:CD2	2.36	0.60
1:L:376:LEU:HB3	1:L:379:LEU:HD12	1.82	0.60
1:H:97:ARG:HH22	1:H:526:LEU:CD2	2.13	0.60
1:P:494:LYS:O	1:P:498:LYS:HG3	2.02	0.60
1:A:408:PHE:CD1	1:A:422:TYR:HE2	2.20	0.60
1:G:402:ARG:NH2	1:G:405:MET:HG2	2.17	0.60
1:D:303:GLU:CD	1:D:303:GLU:H	2.10	0.59
1:B:285:ALA:HB2	1:B:423:MET:CE	2.27	0.59
1:O:170:PRO:HG2	1:O:235:MET:HE1	1.85	0.59
1:I:461:ARG:NH2	1:I:465:GLU:OE2	2.35	0.59
1:N:158:VAL:HG22	1:N:230:MET:HB3	1.85	0.59
1:C:64:GLU:OE2	5:C:701:HOH:O	2.16	0.59
1:K:170:PRO:HD2	1:K:235:MET:HE1	1.85	0.59
1:B:251:GLU:OE1	1:B:412:ARG:NH1	2.36	0.59
1:P:46:VAL:CG1	1:P:453:LEU:HD23	2.33	0.59
1:P:170:PRO:HD2	1:P:235:MET:HE1	1.84	0.59
1:J:408:PHE:CD1	1:J:422:TYR:HE2	2.21	0.58
1:E:97:ARG:HH12	1:E:526:LEU:HD21	1.67	0.58
1:M:123:ALA:HB1	1:M:125:LEU:HD21	1.85	0.58
1:P:87:LYS:NZ	1:P:154:TRP:CE2	2.49	0.58
1:P:474:HIS:CD2	1:P:476:ALA:H	2.13	0.58
1:I:97:ARG:HH12	1:I:526:LEU:CD2	2.15	0.58
2:I:601:FAD:H8A	2:I:601:FAD:O5B	2.03	0.58
1:L:422:TYR:HH	1:L:435:HIS:HE2	1.52	0.58
1:D:525:ASN:C	1:D:526:LEU:HD12	2.23	0.57
1:G:249:ASP:OD2	1:G:250:LYS:NZ	2.35	0.57
1:B:97:ARG:HH12	1:B:526:LEU:CD2	2.17	0.57
1:I:22:ARG:HD3	1:I:27:ASP:HB2	1.86	0.57
1:P:87:LYS:HE3	1:P:154:TRP:CD1	2.37	0.57
1:D:158:VAL:HG22	1:D:230:MET:HB3	1.87	0.57
1:P:63:THR:HG23	1:P:228:THR:HG21	1.86	0.57
1:N:166:VAL:HG11	1:N:434:TYR:HE2	1.70	0.57
1:G:251:GLU:OE1	1:G:412:ARG:NH1	2.37	0.56
1:N:170:PRO:HD2	1:N:235:MET:HE1	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:601:FAD:H8A	2:N:601:FAD:O5B	2.04	0.56
1:O:305:ILE:HA	1:O:308:MET:HE2	1.86	0.56
1:B:97:ARG:HH12	1:B:526:LEU:HD23	1.70	0.56
1:K:406:LYS:HD3	1:K:468:TYR:OH	2.05	0.56
1:K:423:MET:HE2	1:K:440:ILE:HD12	1.87	0.56
1:P:474:HIS:O	1:P:478:MET:HG3	2.05	0.56
1:E:428:ILE:HG23	1:E:433:MET:HG2	1.88	0.56
1:I:64:GLU:OE1	5:I:701:HOH:O	2.18	0.56
1:J:166:VAL:HG11	1:J:434:TYR:HE2	1.70	0.56
1:M:303:GLU:CD	1:M:303:GLU:H	2.11	0.56
1:E:71:ARG:HD2	1:H:402:ARG:HH21	1.70	0.56
1:F:293:TRP:O	1:F:307:ARG:NH2	2.39	0.56
1:I:394:VAL:HB	1:I:471:TYR:CE1	2.38	0.56
1:O:34:ALA:O	1:O:38:GLU:HG2	2.05	0.56
1:E:22:ARG:HB3	1:E:27:ASP:OD1	2.06	0.56
1:H:268:MET:HG2	1:H:430:LEU:HD21	1.87	0.56
1:P:405:MET:HG3	1:P:409:GLU:OE2	2.06	0.56
2:F:601:FAD:H8A	2:F:601:FAD:O5B	2.06	0.56
1:H:300:MET:HG2	1:H:304:ALA:HB3	1.88	0.55
1:P:245:LEU:HD11	1:P:318:ASN:HB3	1.87	0.55
1:A:112:ARG:NH2	1:A:126:GLU:OE2	2.38	0.55
1:E:421:ASP:CB	1:E:423:MET:HE1	2.36	0.55
1:E:421:ASP:HB3	1:E:423:MET:CE	2.35	0.55
1:G:281:PHE:HB3	1:G:423:MET:SD	2.46	0.55
1:I:254:LEU:HB3	1:I:405:MET:HE1	1.87	0.55
2:C:601:FAD:H8A	2:C:601:FAD:O5B	2.06	0.55
1:O:310:LYS:NZ	5:O:701:HOH:O	2.33	0.55
1:E:421:ASP:HB3	1:E:423:MET:HE1	1.88	0.55
1:O:423:MET:HB2	1:O:438:LEU:O	2.07	0.55
1:D:168:TYR:HA	1:D:274:VAL:HB	1.89	0.55
1:P:390:HIS:HD2	1:P:438:LEU:HD22	1.71	0.55
1:P:500:LYS:NZ	1:P:509:ILE:O	2.39	0.55
1:A:3:ARG:NH2	1:A:15:ASP:OD1	2.30	0.55
1:E:97:ARG:HH12	1:E:526:LEU:CD2	2.19	0.55
1:G:471:TYR:OH	3:G:602:55B:OAJ	2.24	0.55
1:I:6:PRO:HG2	1:I:78:ILE:HD12	1.89	0.55
1:I:438:LEU:HD11	3:I:602:55B:H12	1.88	0.55
1:A:402:ARG:HD3	1:B:71:ARG:HH22	1.72	0.55
1:P:525:ASN:O	1:P:526:LEU:HD12	2.08	0.54
1:P:277:LEU:HD11	1:P:317:TRP:HB3	1.89	0.54
1:C:268:MET:HG2	1:C:430:LEU:HD21	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:251:GLU:OE1	1:P:412:ARG:NH1	2.40	0.54
1:G:46:VAL:HG21	1:G:391:ILE:HD12	1.89	0.54
1:K:307:ARG:HG3	1:K:307:ARG:HH11	1.73	0.54
1:M:387:ASN:HB2	1:M:442:ASP:OD2	2.07	0.54
1:O:4:THR:HA	5:O:719:HOH:O	2.07	0.54
1:B:408:PHE:CE1	1:B:422:TYR:HE2	2.25	0.54
1:D:273:ASN:O	1:D:275:PRO:HD3	2.08	0.54
1:J:255:GLU:HB2	1:J:405:MET:HE2	1.89	0.54
1:D:298:GLY:HA2	1:D:419:ASN:OD1	2.08	0.53
1:O:295:ASP:N	1:O:295:ASP:OD1	2.41	0.53
1:L:387:ASN:O	1:L:443:THR:OG1	2.26	0.53
1:N:408:PHE:CD1	1:N:422:TYR:HE2	2.26	0.53
1:A:251:GLU:OE1	1:A:412:ARG:NH1	2.41	0.53
1:D:423:MET:SD	1:D:440:ILE:HD12	2.49	0.53
1:F:420:LYS:NZ	1:F:451:GLU:OE1	2.40	0.53
1:C:22:ARG:HD3	1:C:27:ASP:HB3	1.90	0.53
1:H:307:ARG:HA	1:H:310:LYS:HG2	1.90	0.53
1:O:245:LEU:HD13	1:O:320:TYR:CE2	2.44	0.53
1:B:82:PRO:HB3	1:B:226:ILE:HG12	1.90	0.53
1:B:285:ALA:CB	1:B:423:MET:HE1	2.33	0.53
1:M:421:ASP:HB3	1:M:423:MET:HE2	1.91	0.53
1:J:277:LEU:HD11	1:J:317:TRP:HB3	1.90	0.53
1:G:402:ARG:NH2	1:G:405:MET:CG	2.72	0.52
1:H:408:PHE:HD1	1:H:422:TYR:HE2	1.58	0.52
1:M:132:PHE:CE1	1:M:374:PRO:HB2	2.44	0.52
1:M:313:ASP:HB3	1:M:355:ARG:HH22	1.75	0.52
1:J:97:ARG:HH12	1:J:526:LEU:HD21	1.74	0.52
1:O:97:ARG:HH12	1:O:526:LEU:CD2	2.22	0.52
1:P:38:GLU:HA	1:P:41:ARG:HH11	1.72	0.52
1:E:254:LEU:O	1:E:258:VAL:HG23	2.09	0.52
1:F:267:ASN:ND2	5:F:704:HOH:O	2.42	0.52
1:N:98:LEU:O	1:N:101:SER:OG	2.26	0.52
1:L:97:ARG:HH22	1:L:526:LEU:HD11	1.75	0.52
1:P:17:ALA:HB2	1:P:76:TYR:HD2	1.73	0.52
1:N:251:GLU:HG2	1:N:316:PHE:CZ	2.44	0.52
1:P:2:THR:HG22	1:P:3:ARG:H	1.75	0.52
1:P:85:THR:HG23	1:P:156:SER:HB2	1.92	0.52
1:B:500:LYS:NZ	1:B:504:ASP:OD2	2.41	0.52
1:C:97:ARG:HH22	1:C:526:LEU:HG	1.75	0.52
1:P:458:VAL:HG13	1:P:461:ARG:NH2	2.23	0.52
2:J:601:FAD:H8A	2:J:601:FAD:O5B	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:338:LYS:HG2	1:E:349:PHE:CD2	2.46	0.51
1:H:160:ASN:OD1	1:H:174:HIS:ND1	2.40	0.51
1:N:280:ILE:HD13	1:N:309:LYS:HG2	1.92	0.51
1:O:44:TYR:CE2	1:O:89:ASN:HB3	2.45	0.51
1:I:408:PHE:CD1	1:I:422:TYR:HE2	2.28	0.51
1:K:9:VAL:HA	1:K:13:ARG:NH2	2.22	0.51
1:H:251:GLU:HG2	1:H:316:PHE:CZ	2.46	0.51
1:P:334:TYR:CE2	1:P:338:LYS:HD3	2.46	0.51
1:C:255:GLU:HB2	1:C:405:MET:CE	2.40	0.51
1:C:384:TRP:CD1	1:C:423:MET:HE1	2.46	0.51
1:K:285:ALA:HA	1:K:384:TRP:CE3	2.46	0.51
1:L:422:TYR:OH	1:L:435:HIS:NE2	2.40	0.51
1:M:421:ASP:CB	1:M:423:MET:HE2	2.40	0.51
1:P:17:ALA:HB2	1:P:76:TYR:CD2	2.45	0.51
1:B:213:PRO:O	1:B:215:PRO:HD3	2.10	0.51
1:O:17:ALA:O	1:O:20:ARG:HB2	2.11	0.51
1:A:408:PHE:HD1	1:A:422:TYR:CE2	2.27	0.51
1:G:394:VAL:CB	1:G:471:TYR:CE1	2.93	0.51
1:M:513:LYS:HE2	2:M:601:FAD:O2B	2.11	0.51
1:P:87:LYS:CE	1:P:154:TRP:CD2	2.93	0.51
1:B:282:MET:HE3	1:B:425:GLN:HB2	1.92	0.51
1:D:268:MET:HG2	1:D:430:LEU:HD21	1.92	0.51
1:I:56:ALA:HB3	1:I:102:VAL:HG22	1.92	0.51
1:J:408:PHE:HD1	1:J:422:TYR:HE2	1.60	0.50
1:F:445:ASP:OD1	1:F:447:GLU:HG2	2.11	0.50
1:G:34:ALA:O	1:G:38:GLU:HG2	2.10	0.50
1:M:22:ARG:HB3	1:M:27:ASP:OD1	2.10	0.50
1:E:408:PHE:CD1	1:E:422:TYR:HE2	2.29	0.50
1:H:427:VAL:HB	1:H:434:TYR:HB2	1.93	0.50
1:P:338:LYS:HA	1:P:349:PHE:CE2	2.47	0.50
1:P:79:PRO:HB2	1:P:101:SER:OG	2.11	0.50
1:E:41:ARG:NH2	1:E:50:GLU:OE1	2.34	0.50
1:E:277:LEU:HD11	1:E:317:TRP:HB3	1.93	0.50
1:A:402:ARG:CZ	1:B:71:ARG:HH12	2.25	0.50
1:C:356:ASP:HB2	1:L:373:ILE:HD11	1.92	0.50
1:H:97:ARG:NH1	1:H:526:LEU:HD22	2.22	0.50
1:C:35:ASP:OD1	1:C:36:GLU:HG3	2.11	0.50
1:E:525:ASN:O	1:E:526:LEU:HD12	2.10	0.50
1:N:84:SER:OG	1:N:127:PRO:HB3	2.11	0.50
1:P:423:MET:HE3	1:P:440:ILE:HD12	1.93	0.50
1:B:222:SER:HB2	1:J:213:PRO:HG3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:97:ARG:NH1	1:G:526:LEU:HD21	2.24	0.50
1:N:525:ASN:O	1:N:526:LEU:HG	2.12	0.50
1:G:273:ASN:O	1:G:275:PRO:HD3	2.12	0.50
1:G:158:VAL:HG22	1:G:230:MET:HB3	1.94	0.49
1:I:461:ARG:NH1	1:I:465:GLU:CD	2.70	0.49
1:L:279:ASN:HA	1:L:316:PHE:O	2.12	0.49
1:M:213:PRO:O	1:M:215:PRO:HD3	2.11	0.49
1:P:278:ARG:NE	1:P:283:ASP:OD1	2.38	0.49
1:C:285:ALA:O	1:C:381:GLN:HA	2.12	0.49
1:M:313:ASP:HB3	1:M:355:ARG:NH2	2.27	0.49
1:B:148:ASP:OD1	1:B:174:HIS:NE2	2.43	0.49
1:E:251:GLU:HG2	1:E:316:PHE:CE1	2.47	0.49
1:I:394:VAL:CG1	1:I:471:TYR:CD1	2.96	0.49
1:N:280:ILE:HD13	1:N:309:LYS:CG	2.41	0.49
1:O:279:ASN:HA	1:O:316:PHE:O	2.13	0.49
1:P:148:ASP:OD1	1:P:167:GLY:HA3	2.12	0.49
1:G:5:LEU:HD23	1:G:9:VAL:O	2.12	0.49
2:M:601:FAD:H8A	2:M:601:FAD:O5B	2.13	0.49
1:F:148:ASP:OD1	1:F:174:HIS:NE2	2.45	0.49
1:K:408:PHE:CD1	1:K:422:TYR:HE2	2.31	0.49
1:N:358:ARG:HA	1:N:361:HIS:ND1	2.24	0.49
1:O:255:GLU:HB2	1:O:405:MET:HE2	1.95	0.49
1:P:411:VAL:HG22	1:P:459:LEU:HD22	1.94	0.49
1:C:64:GLU:CD	5:C:701:HOH:O	2.56	0.49
2:D:601:FAD:H8A	2:D:601:FAD:O5B	2.12	0.49
1:O:74:ASN:OD1	1:O:506:ASN:ND2	2.38	0.49
1:M:90:GLY:HA2	1:M:390:HIS:O	2.12	0.49
1:N:273:ASN:O	1:N:275:PRO:HD3	2.13	0.49
1:P:283:ASP:OD2	1:P:320:TYR:OH	2.17	0.49
1:K:132:PHE:CE1	1:K:374:PRO:HB2	2.48	0.49
1:L:293:TRP:CD2	1:L:308:MET:HG2	2.46	0.49
1:O:408:PHE:CD1	1:O:422:TYR:HE2	2.31	0.49
1:P:46:VAL:HG11	1:P:453:LEU:HD23	1.95	0.49
1:D:20:ARG:HB3	1:D:72:ILE:HD13	1.95	0.49
1:E:148:ASP:OD1	1:E:167:GLY:HA3	2.13	0.49
1:I:350:PHE:CD1	1:I:355:ARG:HD2	2.48	0.49
1:C:61:GLU:HB2	1:C:109:ARG:CZ	2.42	0.48
1:H:151:ASP:OD2	3:H:602:55B:H15	2.14	0.48
1:J:84:SER:OG	1:J:127:PRO:HB3	2.13	0.48
1:J:420:LYS:NZ	1:J:451:GLU:OE1	2.44	0.48
1:M:261:MET:SD	1:M:428:ILE:HG21	2.53	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:238:PRO:HG2	1:L:324:TYR:HB3	1.95	0.48
1:M:273:ASN:O	1:M:275:PRO:HD3	2.13	0.48
1:E:176:MET:HE3	1:E:177:TRP:CE2	2.48	0.48
1:G:394:VAL:CG1	1:G:471:TYR:CD1	2.97	0.48
1:L:496:HIS:HB3	1:L:516:ILE:HD13	1.95	0.48
1:P:382:LEU:O	1:P:388:GLY:HA3	2.13	0.48
1:C:273:ASN:O	1:C:275:PRO:HD3	2.13	0.48
1:D:326:PRO:HB2	1:D:328:PRO:HD2	1.95	0.48
1:E:273:ASN:O	1:E:275:PRO:HD3	2.13	0.48
1:M:118:GLU:OE2	1:M:143:SER:OG	2.22	0.48
1:O:173:ASP:HB3	1:O:176:MET:HE2	1.96	0.48
1:B:151:ASP:OD2	3:B:602:55B:H15	2.13	0.48
1:G:394:VAL:CB	1:G:471:TYR:HE1	2.24	0.48
1:O:376:LEU:HD22	1:O:379:LEU:HD11	1.95	0.48
1:A:41:ARG:NH2	1:A:50:GLU:OE1	2.46	0.48
1:D:261:MET:SD	1:D:428:ILE:HG21	2.53	0.48
1:H:313:ASP:HB3	1:H:355:ARG:NH2	2.29	0.48
1:M:44:TYR:CE2	1:M:89:ASN:HB3	2.49	0.48
1:N:517:TRP:CH2	1:N:526:LEU:CD2	2.95	0.48
1:M:382:LEU:N	1:M:382:LEU:HD22	2.29	0.48
1:N:260:ILE:O	1:N:263:PRO:HD2	2.14	0.48
1:M:154:TRP:CH2	1:M:379:LEU:HD21	2.49	0.48
1:D:2:THR:HG22	1:D:3:ARG:O	2.14	0.48
1:B:181:LEU:C	1:B:181:LEU:HD12	2.39	0.48
1:C:345:PRO:HG3	1:F:35:ASP:HB3	1.96	0.48
1:J:329:LEU:HD11	1:J:333:TYR:CZ	2.49	0.48
1:O:58:VAL:HG11	1:O:69:ILE:HD13	1.96	0.48
1:E:362:VAL:O	1:E:366:ARG:HG2	2.14	0.47
1:L:170:PRO:HD2	1:L:235:MET:HE1	1.96	0.47
1:M:196:GLY:H	1:M:204:TRP:CD1	2.32	0.47
1:P:289:LYS:HB3	1:P:383:ASP:O	2.13	0.47
1:B:313:ASP:HB3	1:B:355:ARG:NH2	2.29	0.47
1:E:71:ARG:CD	1:H:402:ARG:HH21	2.27	0.47
1:L:281:PHE:HB3	1:L:423:MET:HG3	1.96	0.47
1:E:97:ARG:HH22	1:E:526:LEU:HD21	1.79	0.47
1:F:282:MET:HE3	1:F:425:GLN:HB2	1.95	0.47
1:M:97:ARG:O	1:M:97:ARG:NH1	2.40	0.47
1:O:285:ALA:O	1:O:381:GLN:HA	2.15	0.47
2:B:601:FAD:H8A	2:B:601:FAD:O5B	2.14	0.47
1:H:41:ARG:NH2	1:H:50:GLU:OE1	2.40	0.47
1:K:168:TYR:HA	1:K:274:VAL:HB	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:422:TYR:OH	1:K:435:HIS:NE2	2.38	0.47
1:O:293:TRP:O	1:O:307:ARG:NH2	2.48	0.47
1:P:63:THR:O	1:P:67:GLN:HG3	2.13	0.47
1:P:279:ASN:HA	1:P:316:PHE:O	2.13	0.47
1:D:456:THR:HB	1:D:477:LEU:HD11	1.96	0.47
1:J:148:ASP:OD1	1:J:167:GLY:HA3	2.14	0.47
1:M:473:THR:HG21	1:M:481:VAL:HG21	1.95	0.47
1:N:62:SER:C	1:N:110:MET:HE3	2.39	0.47
1:C:251:GLU:HG2	1:C:316:PHE:CZ	2.49	0.47
1:K:46:VAL:HG21	1:K:391:ILE:HD12	1.96	0.47
1:L:421:ASP:N	1:L:421:ASP:OD1	2.46	0.47
1:A:262:LEU:HB3	1:A:263:PRO:HD3	1.97	0.47
1:D:408:PHE:CD1	1:D:422:TYR:CE2	3.03	0.47
1:H:185:LEU:HD12	1:H:189:GLU:HG2	1.95	0.47
2:H:601:FAD:H8A	2:H:601:FAD:O5B	2.14	0.47
1:I:16:ALA:O	1:I:19:GLN:N	2.46	0.47
1:I:338:LYS:HG2	1:I:349:PHE:CD2	2.50	0.47
1:M:291:THR:HA	1:M:294:PHE:O	2.15	0.47
1:P:68:ASP:O	1:P:72:ILE:HG12	2.14	0.47
1:P:80:LEU:HD23	1:P:102:VAL:HB	1.96	0.47
1:P:280:ILE:HB	1:P:316:PHE:HA	1.97	0.47
1:P:395:PRO:HD2	1:P:435:HIS:O	2.13	0.47
1:J:273:ASN:O	1:J:275:PRO:HD3	2.15	0.47
1:L:389:GLY:O	1:L:440:ILE:HA	2.15	0.47
1:P:288:SER:HB2	1:P:292:GLU:OE1	2.15	0.47
2:A:601:FAD:H8A	2:A:601:FAD:O5B	2.15	0.47
1:C:277:LEU:HB3	1:C:426:PHE:HB2	1.96	0.47
1:G:421:ASP:CB	1:G:423:MET:HE2	2.45	0.47
1:K:282:MET:HE3	1:K:425:GLN:HB2	1.97	0.47
1:N:447:GLU:OE1	1:N:447:GLU:HA	2.13	0.47
1:B:147:LEU:C	1:B:147:LEU:HD12	2.40	0.47
1:D:423:MET:H	1:D:423:MET:HG2	1.62	0.47
1:J:238:PRO:HG2	1:J:324:TYR:HB3	1.96	0.47
1:M:29:TRP:CZ2	1:M:109:ARG:HD3	2.50	0.47
1:P:423:MET:HE2	1:P:438:LEU:O	2.15	0.47
1:A:218:MET:HE2	1:A:499:ILE:HD13	1.97	0.46
1:A:273:ASN:O	1:A:275:PRO:HD3	2.15	0.46
1:C:303:GLU:CD	1:C:303:GLU:H	2.22	0.46
1:D:279:ASN:HA	1:D:316:PHE:O	2.15	0.46
1:E:207:PHE:CZ	1:E:209:TYR:HB2	2.50	0.46
1:G:243:SER:HG	1:G:322:THR:HG1	1.59	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:18:LEU:HD23	1:A:21:PHE:HD2	1.79	0.46
1:A:402:ARG:NH1	1:B:71:ARG:HH12	2.13	0.46
1:O:422:TYR:CZ	1:O:424:ALA:HB2	2.50	0.46
1:I:378:GLU:OE1	3:I:602:55B:H15	2.16	0.46
1:K:432:GLU:C	1:K:432:GLU:CD	2.84	0.46
1:O:87:LYS:HE3	1:O:154:TRP:CE3	2.49	0.46
1:P:72:ILE:O	1:P:75:GLU:HB2	2.15	0.46
1:P:312:LEU:O	1:P:355:ARG:NH2	2.45	0.46
1:E:338:LYS:HA	1:E:349:PHE:CE2	2.50	0.46
1:E:481:VAL:O	1:E:484:THR:OG1	2.24	0.46
1:D:44:TYR:CE2	1:D:89:ASN:HB3	2.51	0.46
1:D:423:MET:HE3	5:D:767:HOH:O	2.15	0.46
1:E:261:MET:HE2	1:E:428:ILE:HD13	1.97	0.46
1:H:273:ASN:O	1:H:275:PRO:HD3	2.16	0.46
1:K:432:GLU:O	1:K:432:GLU:CD	2.59	0.46
2:K:601:FAD:H8A	2:K:601:FAD:O5B	2.16	0.46
1:N:63:THR:HG23	1:N:228:THR:HG21	1.97	0.46
1:P:82:PRO:HB3	1:P:226:ILE:HG12	1.98	0.46
1:G:260:ILE:O	1:G:263:PRO:HD2	2.16	0.46
1:N:44:TYR:CD1	1:N:389:GLY:HA2	2.51	0.46
1:P:308:MET:O	1:P:312:LEU:HD13	2.16	0.46
1:O:56:ALA:HB3	1:O:102:VAL:HG13	1.98	0.46
1:A:44:TYR:CE2	1:A:89:ASN:HB3	2.50	0.46
1:B:261:MET:SD	1:B:428:ILE:HG21	2.56	0.46
1:K:148:ASP:OD1	1:K:167:GLY:HA3	2.15	0.46
1:M:300:MET:HG2	1:M:304:ALA:HB3	1.98	0.46
1:A:255:GLU:HB2	1:A:405:MET:HE2	1.97	0.46
1:E:151:ASP:OD2	3:E:602:55B:H15	2.16	0.46
1:F:463:ALA:HB1	1:F:468:TYR:HB2	1.96	0.46
1:G:312:LEU:O	1:G:355:ARG:NH2	2.49	0.46
1:M:277:LEU:HB3	1:M:426:PHE:HB2	1.98	0.46
1:D:46:VAL:HG21	1:D:391:ILE:HD12	1.98	0.46
1:D:525:ASN:O	1:D:526:LEU:CD1	2.34	0.46
1:F:97:ARG:HH12	1:F:526:LEU:CD2	2.26	0.46
1:F:275:PRO:HD2	1:F:428:ILE:HB	1.98	0.46
1:G:279:ASN:HA	1:G:316:PHE:O	2.16	0.46
1:M:251:GLU:HG2	1:M:316:PHE:CZ	2.51	0.46
1:H:293:TRP:CD2	1:H:308:MET:HG2	2.51	0.45
1:H:303:GLU:CD	1:H:303:GLU:H	2.24	0.45
1:M:408:PHE:CD1	1:M:422:TYR:HE2	2.33	0.45
1:B:148:ASP:OD1	1:B:167:GLY:HA3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:268:MET:HG2	1:B:430:LEU:HD21	1.98	0.45
1:B:420:LYS:NZ	1:B:451:GLU:OE1	2.49	0.45
1:E:279:ASN:HA	1:E:316:PHE:O	2.16	0.45
1:E:389:GLY:O	1:E:440:ILE:HA	2.17	0.45
1:H:418:TYR:CG	1:H:455:MET:HB2	2.51	0.45
1:I:29:TRP:CE2	1:I:109:ARG:HD3	2.50	0.45
1:J:303:GLU:HG3	1:J:304:ALA:N	2.31	0.45
1:L:406:LYS:HD2	1:L:406:LYS:HA	1.70	0.45
1:O:293:TRP:CD2	1:O:308:MET:HG2	2.51	0.45
1:P:43:PRO:HD2	1:P:93:GLY:HA3	1.98	0.45
1:A:305:ILE:HA	1:A:308:MET:CE	2.46	0.45
1:C:207:PHE:CD1	1:C:208:PRO:HD2	2.51	0.45
1:M:177:TRP:HB3	1:M:233:ALA:HB3	1.98	0.45
1:A:268:MET:HG2	1:A:430:LEU:HD21	1.99	0.45
1:J:57:VAL:HG22	1:J:103:ILE:HB	1.98	0.45
1:L:119:LYS:HD3	1:L:120:TYR:CZ	2.51	0.45
1:P:80:LEU:HD22	1:P:104:VAL:CG2	2.46	0.45
1:G:270:PRO:HB3	1:G:333:TYR:CD1	2.52	0.45
1:G:378:GLU:OE1	3:G:602:55B:OAC	2.23	0.45
1:P:444:ALA:O	1:P:449:ARG:NH1	2.50	0.45
1:C:420:LYS:NZ	1:C:451:GLU:OE1	2.45	0.45
1:D:251:GLU:HG2	1:D:316:PHE:CZ	2.51	0.45
1:M:260:ILE:O	1:M:263:PRO:HD2	2.15	0.45
1:C:352:HIS:HA	1:C:363:LEU:HD21	1.99	0.45
1:E:146:MET:SD	1:E:235:MET:HE2	2.57	0.45
1:E:251:GLU:HG2	1:E:316:PHE:CZ	2.51	0.45
1:L:29:TRP:CE2	1:L:109:ARG:HD3	2.51	0.45
1:L:328:PRO:HA	1:L:331:GLU:HG2	1.99	0.45
1:P:72:ILE:O	1:P:75:GLU:N	2.49	0.45
1:P:261:MET:C	1:P:261:MET:SD	3.00	0.45
1:P:423:MET:HE2	1:P:423:MET:HB2	1.78	0.45
1:F:151:ASP:OD2	3:F:602:55B:H15	2.17	0.45
1:G:303:GLU:H	1:G:303:GLU:CD	2.24	0.45
1:J:303:GLU:CD	1:J:307:ARG:HH12	2.25	0.45
1:J:393:PHE:CZ	1:J:459:LEU:HB3	2.52	0.45
1:C:22:ARG:HD3	1:C:27:ASP:CB	2.47	0.45
1:D:277:LEU:HB3	1:D:426:PHE:HB2	1.98	0.45
1:K:260:ILE:O	1:K:263:PRO:HD2	2.17	0.45
1:L:261:MET:HE2	1:L:428:ILE:HD13	1.99	0.45
1:H:84:SER:OG	1:H:127:PRO:HB3	2.17	0.44
1:J:251:GLU:HG2	1:J:316:PHE:CZ	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:97:ARG:NH1	1:L:526:LEU:HD21	2.26	0.44
1:B:158:VAL:HG22	1:B:230:MET:HB3	1.99	0.44
1:G:305:ILE:HA	1:G:308:MET:HE2	1.97	0.44
1:I:85:THR:HG21	1:I:130:THR:HG22	1.99	0.44
1:M:158:VAL:HG22	1:M:230:MET:HB3	2.00	0.44
1:N:251:GLU:HG2	1:N:316:PHE:CE1	2.52	0.44
1:A:147:LEU:C	1:A:147:LEU:HD12	2.43	0.44
1:C:115:GLU:O	1:C:123:ALA:HA	2.17	0.44
1:F:112:ARG:NH2	1:F:126:GLU:OE2	2.51	0.44
1:J:408:PHE:HD1	1:J:422:TYR:CE2	2.35	0.44
1:A:97:ARG:NH1	1:A:526:LEU:HD23	2.27	0.44
1:E:408:PHE:CD1	1:E:422:TYR:CE2	3.06	0.44
1:J:268:MET:HG2	1:J:430:LEU:HD21	1.99	0.44
1:K:261:MET:HE2	1:K:428:ILE:HD13	1.99	0.44
1:L:251:GLU:HG2	1:L:316:PHE:CE1	2.53	0.44
1:N:61:GLU:HB2	1:N:109:ARG:CZ	2.47	0.44
1:D:245:LEU:HD11	1:D:318:ASN:HB3	1.99	0.44
1:G:427:VAL:HB	1:G:434:TYR:HB2	2.00	0.44
1:H:255:GLU:OE2	1:H:402:ARG:NH1	2.51	0.44
1:J:85:THR:OG1	2:J:601:FAD:O1P	2.33	0.44
1:G:148:ASP:OD1	1:G:174:HIS:NE2	2.51	0.44
1:L:352:HIS:HA	1:L:363:LEU:HD21	1.99	0.44
1:M:28:LYS:HE3	1:M:29:TRP:CH2	2.53	0.44
1:A:240:ALA:HB3	1:A:325:GLY:O	2.18	0.44
1:N:97:ARG:CZ	1:N:526:LEU:HD21	2.47	0.44
1:A:285:ALA:HB2	1:A:423:MET:HE3	2.00	0.44
1:I:471:TYR:OH	3:I:602:55B:OAJ	2.36	0.44
1:M:51:ALA:O	1:M:53:LEU:HD23	2.18	0.44
1:O:251:GLU:HG2	1:O:316:PHE:CZ	2.53	0.44
1:O:310:LYS:HD2	1:O:310:LYS:HA	1.58	0.44
1:P:429:GLY:HA3	1:P:432:GLU:OE2	2.18	0.44
1:I:27:ASP:HB3	5:I:780:HOH:O	2.18	0.44
1:M:285:ALA:O	1:M:381:GLN:HA	2.18	0.44
1:A:279:ASN:HA	1:A:316:PHE:O	2.18	0.43
1:L:273:ASN:O	1:L:275:PRO:HD3	2.18	0.43
1:L:427:VAL:HB	1:L:434:TYR:HB2	1.98	0.43
1:O:451:GLU:OE2	1:O:451:GLU:HA	2.17	0.43
1:G:282:MET:HE3	1:G:425:GLN:HB2	2.00	0.43
1:J:525:ASN:C	1:J:526:LEU:HD12	2.36	0.43
1:K:10:SER:H	1:K:13:ARG:NH2	2.16	0.43
1:P:20:ARG:O	1:P:23:ASP:HB2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:285:ALA:O	1:E:381:GLN:HA	2.19	0.43
1:E:405:MET:HE3	5:E:756:HOH:O	2.18	0.43
2:E:601:FAD:H8A	2:E:601:FAD:O5B	2.18	0.43
1:K:271:LEU:HD23	1:K:271:LEU:HA	1.86	0.43
1:M:376:LEU:C	1:M:379:LEU:HD12	2.36	0.43
1:P:273:ASN:O	1:P:275:PRO:HD3	2.17	0.43
1:D:420:LYS:NZ	1:D:451:GLU:OE1	2.48	0.43
1:D:500:LYS:NZ	1:D:509:ILE:O	2.52	0.43
1:O:261:MET:SD	1:O:428:ILE:HG21	2.59	0.43
1:A:420:LYS:NZ	1:A:451:GLU:OE1	2.52	0.43
1:B:423:MET:SD	1:B:440:ILE:HD12	2.59	0.43
1:C:147:LEU:C	1:C:147:LEU:HD12	2.43	0.43
1:F:301:PRO:HB2	1:F:303:GLU:HG3	2.00	0.43
1:G:394:VAL:HB	1:G:471:TYR:CE1	2.54	0.43
1:J:151:ASP:HB2	2:J:601:FAD:N5	2.34	0.43
1:K:148:ASP:OD1	1:K:174:HIS:NE2	2.51	0.43
1:L:38:GLU:HA	1:L:41:ARG:HH11	1.83	0.43
1:N:57:VAL:HG22	1:N:103:ILE:HB	2.00	0.43
1:N:290:ARG:HG3	1:N:384:TRP:CZ2	2.54	0.43
1:I:17:ALA:HB2	1:I:76:TYR:CD2	2.54	0.43
1:I:279:ASN:HA	1:I:316:PHE:O	2.19	0.43
1:J:41:ARG:HD3	1:J:54:PRO:HD2	2.01	0.43
1:L:281:PHE:CZ	1:L:305:ILE:HD11	2.53	0.43
1:M:38:GLU:OE1	1:M:41:ARG:HD3	2.18	0.43
1:O:428:ILE:HG23	1:O:433:MET:HG2	2.00	0.43
1:A:310:LYS:HA	1:A:310:LYS:HD2	1.65	0.43
1:E:56:ALA:HB3	1:E:102:VAL:HG22	1.99	0.43
1:K:3:ARG:NH1	1:K:11:ASP:OD1	2.42	0.43
1:M:6:PRO:HB3	1:M:79:PRO:HD2	1.99	0.43
1:N:254:LEU:O	1:N:258:VAL:HG23	2.19	0.43
1:O:273:ASN:O	1:O:275:PRO:HD3	2.19	0.43
1:P:57:VAL:HG22	1:P:103:ILE:HB	1.99	0.43
1:A:428:ILE:HG12	1:A:433:MET:HG2	2.01	0.43
1:B:285:ALA:O	1:B:381:GLN:HA	2.19	0.43
1:D:285:ALA:O	1:D:381:GLN:HA	2.19	0.43
1:D:378:GLU:OE1	3:D:602:55B:H15	2.19	0.43
1:E:408:PHE:HD1	1:E:422:TYR:CE2	2.37	0.43
1:E:408:PHE:CE1	1:E:422:TYR:HE2	2.37	0.43
1:J:198:LEU:HD23	1:J:201:SER:HB2	2.01	0.43
1:M:88:ASN:HB2	2:M:601:FAD:O1A	2.19	0.43
1:N:97:ARG:HH22	1:N:526:LEU:HD21	1.80	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:395:PRO:HD2	1:O:435:HIS:O	2.19	0.43
1:F:44:TYR:CE2	1:F:89:ASN:HB3	2.53	0.43
1:G:441:TYR:CG	1:G:452:ILE:HG13	2.54	0.43
1:G:490:GLY:O	1:G:494:LYS:HD2	2.19	0.43
1:H:408:PHE:CE1	1:H:422:TYR:HE2	2.36	0.43
1:L:84:SER:OG	1:L:127:PRO:HB3	2.19	0.43
1:L:305:ILE:HA	1:L:308:MET:HE2	1.99	0.43
1:N:182:GLU:HB3	1:N:229:LYS:HB2	2.01	0.43
1:A:285:ALA:O	1:A:381:GLN:HA	2.18	0.43
1:C:44:TYR:CE2	1:C:89:ASN:HB3	2.54	0.43
1:I:285:ALA:O	1:I:381:GLN:HA	2.19	0.43
1:J:262:LEU:HB3	1:J:263:PRO:HD3	2.01	0.43
1:A:205:GLN:HG3	1:A:231:GLY:HA3	2.01	0.42
1:D:238:PRO:HG2	1:D:324:TYR:HB3	2.00	0.42
1:D:408:PHE:HD1	1:D:422:TYR:CE2	2.37	0.42
1:E:281:PHE:CB	1:E:423:MET:SD	2.94	0.42
1:I:148:ASP:OD1	1:I:167:GLY:HA3	2.18	0.42
1:P:91:TYR:HA	1:P:474:HIS:HA	2.00	0.42
1:F:2:THR:OG1	1:F:3:ARG:N	2.52	0.42
1:F:378:GLU:OE2	1:F:381:GLN:NE2	2.52	0.42
1:J:271:LEU:HD23	1:J:271:LEU:HA	1.89	0.42
1:K:329:LEU:HD11	1:K:333:TYR:CZ	2.54	0.42
1:C:285:ALA:HB2	1:C:423:MET:HE2	2.01	0.42
1:F:408:PHE:HD1	1:F:422:TYR:CE2	2.32	0.42
1:G:262:LEU:HB3	1:G:263:PRO:HD3	2.02	0.42
1:G:456:THR:O	1:G:460:VAL:HG23	2.20	0.42
1:I:84:SER:OG	1:I:127:PRO:HB3	2.20	0.42
1:I:261:MET:SD	1:I:428:ILE:HG21	2.60	0.42
1:B:418:TYR:CG	1:B:455:MET:HB2	2.54	0.42
1:F:334:TYR:CE2	1:F:338:LYS:HE2	2.54	0.42
1:L:408:PHE:CD1	1:L:422:TYR:HE2	2.37	0.42
1:N:378:GLU:O	1:N:381:GLN:HG3	2.18	0.42
1:N:389:GLY:O	1:N:440:ILE:HA	2.19	0.42
1:O:166:VAL:HG21	3:O:602:55B:H1	2.00	0.42
1:K:118:GLU:OE2	1:K:143:SER:OG	2.27	0.42
1:M:389:GLY:O	1:M:440:ILE:HA	2.18	0.42
1:N:179:THR:HG23	1:N:208:PRO:HB3	2.01	0.42
1:P:38:GLU:HA	1:P:41:ARG:NH1	2.34	0.42
1:A:166:VAL:CG2	3:A:602:55B:H1	2.49	0.42
1:C:106:THR:O	1:C:110:MET:HB2	2.19	0.42
1:E:243:SER:OG	1:E:367:HIS:ND1	2.41	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:329:LEU:HD11	1:E:333:TYR:CZ	2.55	0.42
1:E:438:LEU:HD11	3:E:602:55B:CAE	2.50	0.42
1:P:22:ARG:CD	1:P:27:ASP:HB3	2.34	0.42
1:P:245:LEU:HB2	1:P:363:LEU:HD13	2.00	0.42
1:F:445:ASP:HB3	1:F:448:ALA:HB3	2.01	0.42
1:H:358:ARG:HA	1:H:361:HIS:CE1	2.54	0.42
1:O:148:ASP:OD1	1:O:167:GLY:HA3	2.19	0.42
1:P:28:LYS:HD3	1:P:28:LYS:HA	1.85	0.42
1:A:118:GLU:OE2	1:A:143:SER:OG	2.26	0.42
1:A:305:ILE:HA	1:A:308:MET:HE2	2.00	0.42
1:C:525:ASN:C	1:C:526:LEU:HD12	2.45	0.42
1:D:277:LEU:HD11	1:D:317:TRP:HB3	2.02	0.42
1:J:181:LEU:C	1:J:181:LEU:HD12	2.45	0.42
1:M:245:LEU:HA	1:M:319:PHE:O	2.20	0.42
1:B:427:VAL:HB	1:B:434:TYR:HB2	2.02	0.42
1:C:261:MET:SD	1:C:428:ILE:HG21	2.60	0.42
1:D:147:LEU:C	1:D:147:LEU:HD12	2.45	0.42
1:H:189:GLU:CD	1:H:189:GLU:H	2.27	0.42
1:K:181:LEU:HD12	1:K:181:LEU:C	2.45	0.42
1:O:158:VAL:HG22	1:O:230:MET:HB3	2.02	0.42
1:L:278:ARG:HG2	1:L:282:MET:HG2	2.01	0.42
1:M:382:LEU:HD22	1:M:382:LEU:H	1.84	0.42
1:P:91:TYR:OH	3:P:602:55B:OAD	2.33	0.42
1:P:213:PRO:O	1:P:215:PRO:HD3	2.19	0.42
1:C:276:VAL:HA	1:C:426:PHE:O	2.20	0.41
1:C:498:LYS:HB2	1:C:498:LYS:HE3	1.85	0.41
1:E:261:MET:SD	1:E:428:ILE:HG21	2.60	0.41
1:F:148:ASP:OD1	1:F:167:GLY:HA3	2.20	0.41
1:F:255:GLU:HB2	1:F:405:MET:HE2	2.01	0.41
1:I:420:LYS:NZ	1:I:451:GLU:OE1	2.49	0.41
1:L:260:ILE:O	1:L:263:PRO:HD2	2.20	0.41
1:M:279:ASN:HA	1:M:316:PHE:O	2.20	0.41
1:B:84:SER:OG	1:B:127:PRO:HB3	2.20	0.41
1:E:403:GLU:O	1:E:407:GLN:HG3	2.20	0.41
1:G:293:TRP:CD2	1:G:308:MET:HG2	2.54	0.41
1:N:408:PHE:HD1	1:N:422:TYR:HE2	1.68	0.41
1:B:414:ARG:HA	1:B:414:ARG:HD3	1.83	0.41
1:F:261:MET:SD	1:F:428:ILE:HG21	2.61	0.41
1:H:158:VAL:HG22	1:H:230:MET:HB3	2.02	0.41
1:K:350:PHE:CD1	1:K:355:ARG:HD2	2.55	0.41
1:F:301:PRO:HB2	1:F:303:GLU:CG	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:261:MET:SD	1:O:261:MET:C	3.03	0.41
1:A:261:MET:HE2	1:A:428:ILE:HD13	2.00	0.41
1:D:245:LEU:HD13	1:D:320:TYR:CE2	2.56	0.41
1:F:299:PRO:HD3	1:F:419:ASN:HD21	1.85	0.41
1:F:306:GLU:O	1:F:310:LYS:HG2	2.20	0.41
1:G:147:LEU:HD12	1:G:147:LEU:C	2.45	0.41
1:H:112:ARG:NH2	1:H:126:GLU:OE2	2.51	0.41
1:J:251:GLU:HG2	1:J:316:PHE:CE2	2.55	0.41
1:O:62:SER:O	1:O:66:VAL:HG23	2.20	0.41
1:O:166:VAL:CG2	3:O:602:55B:H1	2.51	0.41
1:O:378:GLU:OE2	3:O:602:55B:H15	2.19	0.41
1:P:343:LYS:HE3	1:P:343:LYS:HB2	1.89	0.41
1:A:84:SER:OG	1:A:127:PRO:HB3	2.20	0.41
1:C:241:SER:HA	1:C:323:LEU:O	2.21	0.41
1:G:421:ASP:HB2	1:G:423:MET:HE2	2.02	0.41
1:H:27:ASP:HB3	5:H:797:HOH:O	2.20	0.41
1:H:124:LEU:O	1:H:125:LEU:HD23	2.20	0.41
1:I:2:THR:OG1	1:I:3:ARG:N	2.54	0.41
1:P:395:PRO:HG2	1:P:435:HIS:HB3	2.01	0.41
1:C:148:ASP:OD1	1:C:167:GLY:HA3	2.21	0.41
1:G:84:SER:OG	1:G:127:PRO:HB3	2.20	0.41
1:J:64:GLU:OE1	5:J:701:HOH:O	2.21	0.41
1:L:240:ALA:HB3	1:L:325:GLY:O	2.21	0.41
1:L:274:VAL:HG13	1:L:428:ILE:O	2.21	0.41
1:M:521:PHE:HA	1:M:524:GLN:NE2	2.36	0.41
1:N:408:PHE:CE1	1:N:422:TYR:HE2	2.38	0.41
1:P:148:ASP:OD1	1:P:174:HIS:NE2	2.49	0.41
1:B:44:TYR:CE2	1:B:89:ASN:HB3	2.56	0.41
1:F:285:ALA:HA	1:F:384:TRP:CE3	2.56	0.41
1:L:46:VAL:HG12	1:L:453:LEU:HB2	2.02	0.41
1:M:56:ALA:HB3	1:M:102:VAL:HG22	2.02	0.41
1:P:87:LYS:NZ	1:P:154:TRP:CH2	2.55	0.41
1:C:376:LEU:HD23	1:C:376:LEU:HA	1.91	0.41
1:D:71:ARG:HH12	1:J:402:ARG:CZ	2.33	0.41
1:D:261:MET:HE3	1:D:261:MET:HB3	1.90	0.41
1:E:290:ARG:HG3	1:E:384:TRP:CZ2	2.55	0.41
1:F:170:PRO:HD3	1:F:324:TYR:CE2	2.56	0.41
1:I:254:LEU:O	1:I:258:VAL:HG23	2.21	0.41
1:I:300:MET:HG2	1:I:304:ALA:HB3	2.03	0.41
1:J:198:LEU:CD2	1:J:201:SER:HB2	2.50	0.41
1:K:276:VAL:CG2	1:K:320:TYR:HB2	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:385:VAL:HB	1:K:386:PRO:HD2	2.02	0.41
1:L:376:LEU:HB3	1:L:379:LEU:CD1	2.49	0.41
1:N:40:PHE:HE2	1:N:105:LYS:HD2	1.86	0.41
1:N:441:TYR:CD1	1:N:452:ILE:HG13	2.56	0.41
1:O:66:VAL:O	1:O:70:VAL:HG23	2.21	0.41
1:O:282:MET:SD	3:O:602:55B:OAC	2.79	0.41
1:P:87:LYS:HE3	1:P:154:TRP:CD2	2.47	0.41
1:C:279:ASN:HB3	1:C:317:TRP:CZ3	2.56	0.41
1:E:6:PRO:HG2	1:E:78:ILE:CD1	2.51	0.41
1:E:268:MET:HG2	1:E:430:LEU:HD21	2.02	0.41
1:I:41:ARG:HH22	1:I:50:GLU:CD	2.29	0.41
1:P:82:PRO:HG3	1:P:226:ILE:HG12	2.03	0.41
1:P:423:MET:HE3	1:P:440:ILE:CD1	2.50	0.41
1:A:148:ASP:OD1	1:A:167:GLY:HA3	2.20	0.40
1:B:408:PHE:HD1	1:B:422:TYR:HE2	1.63	0.40
1:C:362:VAL:O	1:C:366:ARG:HG2	2.20	0.40
1:D:390:HIS:HA	1:D:439:PHE:O	2.21	0.40
1:E:496:HIS:HB3	1:E:516:ILE:HD13	2.03	0.40
1:H:298:GLY:HA3	1:H:299:PRO:HD3	1.91	0.40
1:I:273:ASN:O	1:I:275:PRO:HD3	2.20	0.40
1:J:261:MET:SD	1:J:428:ILE:HG21	2.61	0.40
1:J:300:MET:HG2	1:J:304:ALA:HB3	2.02	0.40
1:L:63:THR:HG23	1:L:228:THR:HG21	2.03	0.40
1:O:97:ARG:HH22	1:O:526:LEU:CD2	2.34	0.40
1:P:89:ASN:O	1:P:390:HIS:HE1	2.04	0.40
1:P:338:LYS:HB2	1:P:338:LYS:HE2	1.88	0.40
1:J:459:LEU:HD23	1:J:459:LEU:HA	1.88	0.40
1:P:356:ASP:OD2	1:P:356:ASP:N	2.53	0.40
1:P:471:TYR:OH	3:P:602:55B:OAD	2.34	0.40
1:E:87:LYS:O	1:E:89:ASN:N	2.50	0.40
1:E:293:TRP:CD2	1:E:308:MET:HG2	2.56	0.40
1:E:455:MET:HE2	1:E:455:MET:HB3	1.99	0.40
1:I:254:LEU:HD22	1:I:317:TRP:CZ2	2.56	0.40
1:J:289:LYS:HE3	1:J:383:ASP:HB3	2.03	0.40
1:M:253:ASP:O	1:M:257:ILE:HG13	2.21	0.40
1:M:300:MET:HA	1:M:301:PRO:HD3	1.91	0.40
1:O:151:ASP:HA	1:O:369:ILE:HD13	2.04	0.40
3:O:602:55B:H2	3:O:602:55B:H4	1.63	0.40
1:P:255:GLU:HB2	1:P:405:MET:HE2	2.04	0.40
1:P:326:PRO:HA	1:P:327:PRO:HD3	1.97	0.40
1:E:84:SER:OG	1:E:127:PRO:HB3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:148:ASP:OD1	1:E:174:HIS:NE2	2.46	0.40
1:F:261:MET:SD	1:F:261:MET:C	3.04	0.40
1:F:261:MET:HE3	1:F:261:MET:HB3	1.98	0.40
1:M:285:ALA:HA	1:M:384:TRP:CE3	2.56	0.40
1:P:31:LEU:HD22	1:P:36:GLU:OE2	2.21	0.40
1:P:285:ALA:O	1:P:381:GLN:HA	2.22	0.40
1:P:297:ASP:O	1:P:298:GLY:C	2.65	0.40
1:A:168:TYR:HA	1:A:274:VAL:HB	2.02	0.40
1:A:213:PRO:O	1:A:215:PRO:HD3	2.21	0.40
1:B:389:GLY:O	1:B:440:ILE:HA	2.20	0.40
1:E:390:HIS:ND1	1:E:438:LEU:HD23	2.37	0.40
2:G:601:FAD:H8A	2:G:601:FAD:O5B	2.21	0.40
1:H:44:TYR:CE2	1:H:89:ASN:HB3	2.57	0.40
1:H:525:ASN:O	1:H:526:LEU:HG	2.22	0.40
1:J:483:ALA:O	1:J:486:ASN:HB3	2.21	0.40
1:N:340:ALA:O	1:N:343:LYS:HG2	2.22	0.40
1:N:408:PHE:HD1	1:N:422:TYR:CE2	2.39	0.40
1:P:75:GLU:C	1:P:76:TYR:HD1	2.29	0.40
1:P:154:TRP:CD1	1:P:154:TRP:C	2.99	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:442:ASP:OD2	1:M:13:ARG:NH2[1_544]	1.85	0.35
1:J:68:ASP:OD1	1:N:402:ARG:NH2[1_455]	1.95	0.25
1:F:13:ARG:NH2	1:J:342:GLY:O[1_565]	2.02	0.18

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	523/526 (99%)	510 (98%)	13 (2%)	0	100	100
1	B	523/526 (99%)	511 (98%)	11 (2%)	1 (0%)	43	55
1	C	523/526 (99%)	511 (98%)	12 (2%)	0	100	100
1	D	523/526 (99%)	509 (97%)	14 (3%)	0	100	100
1	E	523/526 (99%)	507 (97%)	16 (3%)	0	100	100
1	F	523/526 (99%)	508 (97%)	15 (3%)	0	100	100
1	G	523/526 (99%)	505 (97%)	17 (3%)	1 (0%)	43	55
1	H	523/526 (99%)	510 (98%)	13 (2%)	0	100	100
1	I	523/526 (99%)	505 (97%)	18 (3%)	0	100	100
1	J	523/526 (99%)	504 (96%)	17 (3%)	2 (0%)	30	38
1	K	523/526 (99%)	500 (96%)	23 (4%)	0	100	100
1	L	523/526 (99%)	507 (97%)	14 (3%)	2 (0%)	30	38
1	M	523/526 (99%)	507 (97%)	15 (3%)	1 (0%)	43	55
1	N	523/526 (99%)	504 (96%)	17 (3%)	2 (0%)	30	38
1	O	523/526 (99%)	494 (94%)	25 (5%)	4 (1%)	16	20
1	P	523/526 (99%)	488 (93%)	32 (6%)	3 (1%)	21	27
All	All	8368/8416 (99%)	8080 (97%)	272 (3%)	16 (0%)	43	55

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	P	297	ASP
1	J	342	GLY
1	J	343	LYS
1	B	525	ASN
1	L	525	ASN
1	N	525	ASN
1	O	524	GLN
1	G	32	SER
1	M	88	ASN
1	O	380	GLN
1	L	215	PRO
1	O	510	ALA
1	O	215	PRO
1	P	296	GLY
1	P	298	GLY
1	N	215	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	434/435 (100%)	434 (100%)	0	100	100
1	B	434/435 (100%)	434 (100%)	0	100	100
1	C	434/435 (100%)	434 (100%)	0	100	100
1	D	434/435 (100%)	434 (100%)	0	100	100
1	E	434/435 (100%)	434 (100%)	0	100	100
1	F	434/435 (100%)	434 (100%)	0	100	100
1	G	434/435 (100%)	433 (100%)	1 (0%)	87	94
1	H	434/435 (100%)	434 (100%)	0	100	100
1	I	434/435 (100%)	434 (100%)	0	100	100
1	J	434/435 (100%)	434 (100%)	0	100	100
1	K	434/435 (100%)	434 (100%)	0	100	100
1	L	434/435 (100%)	434 (100%)	0	100	100
1	M	434/435 (100%)	434 (100%)	0	100	100
1	N	434/435 (100%)	434 (100%)	0	100	100
1	O	434/435 (100%)	434 (100%)	0	100	100
1	P	434/435 (100%)	434 (100%)	0	100	100
All	All	6944/6960 (100%)	6943 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	41	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (74) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	256	GLN
1	A	496	HIS

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Mol	Chain	Res	Type
1	A	525	ASN
1	B	52	ASN
1	B	67	GLN
1	B	89	ASN
1	B	361	HIS
1	C	65	GLN
1	C	81	HIS
1	C	187	GLN
1	C	387	ASN
1	D	139	GLN
1	D	361	HIS
1	D	387	ASN
1	E	381	GLN
1	E	496	HIS
1	E	519	GLN
1	E	525	ASN
1	F	267	ASN
1	F	380	GLN
1	F	381	GLN
1	F	419	ASN
1	G	89	ASN
1	G	267	ASN
1	G	380	GLN
1	G	387	ASN
1	H	19	GLN
1	H	89	ASN
1	H	370	ASN
1	H	380	GLN
1	H	381	GLN
1	H	387	ASN
1	H	506	ASN
1	I	67	GLN
1	I	387	ASN
1	I	519	GLN
1	I	524	GLN
1	J	89	ASN
1	J	141	HIS
1	J	380	GLN
1	J	506	ASN
1	J	524	GLN
1	K	81	HIS
1	K	89	ASN

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Mol	Chain	Res	Type
1	K	256	GLN
1	K	318	ASN
1	K	416	ASN
1	K	519	GLN
1	L	380	GLN
1	L	381	GLN
1	L	387	ASN
1	L	419	ASN
1	M	352	HIS
1	M	387	ASN
1	M	413	ASN
1	M	419	ASN
1	M	524	GLN
1	N	74	ASN
1	N	89	ASN
1	N	267	ASN
1	N	370	ASN
1	N	381	GLN
1	N	387	ASN
1	N	496	HIS
1	N	506	ASN
1	O	19	GLN
1	O	89	ASN
1	O	387	ASN
1	O	519	GLN
1	P	52	ASN
1	P	267	ASN
1	P	361	HIS
1	P	387	ASN
1	P	474	HIS

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 [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 44 ligands modelled in this entry, 12 are monoatomic - leaving 32 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
3	55B	L	602	-	15,15,15	2.02	3 (20%)	19,19,19	2.43	5 (26%)
2	FAD	P	601	-	58,58,58	0.39	0	85,89,89	0.41	0
3	55B	N	602	-	15,15,15	1.99	2 (13%)	19,19,19	2.74	4 (21%)
3	55B	G	602	-	15,15,15	2.14	4 (26%)	19,19,19	2.47	6 (31%)
3	55B	E	602	-	15,15,15	1.99	2 (13%)	19,19,19	2.83	7 (36%)
3	55B	K	602	-	15,15,15	2.02	2 (13%)	19,19,19	2.24	6 (31%)
3	55B	F	602	-	15,15,15	1.99	2 (13%)	19,19,19	2.83	7 (36%)
3	55B	D	602	-	15,15,15	2.14	3 (20%)	19,19,19	2.15	5 (26%)
3	55B	C	602	-	15,15,15	2.17	4 (26%)	19,19,19	2.30	4 (21%)
2	FAD	O	601	-	58,58,58	0.45	0	85,89,89	0.45	0
3	55B	O	602	-	15,15,15	2.00	2 (13%)	19,19,19	3.20	6 (31%)
2	FAD	K	601	-	58,58,58	0.33	0	85,89,89	0.52	1 (1%)
2	FAD	L	601	-	58,58,58	0.40	0	85,89,89	0.47	0
2	FAD	E	601	-	58,58,58	0.51	2 (3%)	85,89,89	0.45	0
2	FAD	F	601	-	58,58,58	0.39	0	85,89,89	0.51	0
2	FAD	M	601	-	58,58,58	0.42	0	85,89,89	0.51	0
2	FAD	N	601	-	58,58,58	0.45	1 (1%)	85,89,89	0.42	0
3	55B	H	602	-	15,15,15	1.91	2 (13%)	19,19,19	2.42	4 (21%)
3	55B	J	602	-	15,15,15	2.07	3 (20%)	19,19,19	2.30	5 (26%)
3	55B	I	602	-	15,15,15	2.09	3 (20%)	19,19,19	2.11	3 (15%)
3	55B	B	602	-	15,15,15	2.11	3 (20%)	19,19,19	2.50	7 (36%)
2	FAD	A	601	-	58,58,58	0.75	1 (1%)	85,89,89	0.54	1 (1%)
2	FAD	B	601	-	58,58,58	0.46	0	85,89,89	0.44	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	55B	P	602	-	15,15,15	2.10	3 (20%)	19,19,19	2.44	6 (31%)
2	FAD	C	601	-	58,58,58	0.56	1 (1%)	85,89,89	0.41	0
3	55B	M	602	-	15,15,15	2.04	3 (20%)	19,19,19	2.82	7 (36%)
2	FAD	D	601	-	58,58,58	0.65	1 (1%)	85,89,89	0.57	1 (1%)
3	55B	A	602	-	15,15,15	2.08	2 (13%)	19,19,19	2.41	8 (42%)
2	FAD	J	601	-	58,58,58	0.47	0	85,89,89	0.55	2 (2%)
2	FAD	G	601	-	58,58,58	0.42	0	85,89,89	0.43	0
2	FAD	H	601	-	58,58,58	0.49	1 (1%)	85,89,89	0.52	0
2	FAD	I	601	-	58,58,58	0.54	1 (1%)	85,89,89	0.53	2 (2%)

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
3	55B	L	602	-	-	1/8/8/8	0/1/1/1
2	FAD	P	601	-	-	9/34/50/50	0/6/6/6
3	55B	N	602	-	-	0/8/8/8	0/1/1/1
3	55B	G	602	-	-	0/8/8/8	0/1/1/1
3	55B	E	602	-	-	1/8/8/8	0/1/1/1
3	55B	K	602	-	-	0/8/8/8	0/1/1/1
3	55B	F	602	-	-	0/8/8/8	0/1/1/1
3	55B	D	602	-	-	0/8/8/8	0/1/1/1
3	55B	C	602	-	-	1/8/8/8	0/1/1/1
2	FAD	O	601	-	-	10/34/50/50	0/6/6/6
3	55B	O	602	-	-	0/8/8/8	0/1/1/1
2	FAD	K	601	-	-	7/34/50/50	0/6/6/6
2	FAD	L	601	-	-	7/34/50/50	0/6/6/6
2	FAD	E	601	-	-	5/34/50/50	0/6/6/6
2	FAD	F	601	-	-	6/34/50/50	0/6/6/6
2	FAD	M	601	-	-	9/34/50/50	0/6/6/6
2	FAD	N	601	-	-	6/34/50/50	0/6/6/6
3	55B	H	602	-	-	0/8/8/8	0/1/1/1
3	55B	J	602	-	-	1/8/8/8	0/1/1/1
3	55B	I	602	-	-	0/8/8/8	0/1/1/1
3	55B	B	602	-	-	0/8/8/8	0/1/1/1
2	FAD	A	601	-	-	5/34/50/50	0/6/6/6
2	FAD	B	601	-	-	4/34/50/50	0/6/6/6

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	55B	P	602	-	-	1/8/8/8	0/1/1/1
2	FAD	C	601	-	-	7/34/50/50	0/6/6/6
3	55B	M	602	-	-	0/8/8/8	0/1/1/1
2	FAD	D	601	-	-	7/34/50/50	0/6/6/6
3	55B	A	602	-	-	0/8/8/8	0/1/1/1
2	FAD	J	601	-	-	5/34/50/50	0/6/6/6
2	FAD	G	601	-	-	7/34/50/50	0/6/6/6
2	FAD	H	601	-	-	5/34/50/50	0/6/6/6
2	FAD	I	601	-	-	6/34/50/50	0/6/6/6

All (51) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	602	55B	CAF-CAE	7.14	1.53	1.31
3	P	602	55B	CAF-CAE	6.98	1.53	1.31
3	B	602	55B	CAF-CAE	6.97	1.53	1.31
3	C	602	55B	CAF-CAE	6.92	1.52	1.31
3	J	602	55B	CAF-CAE	6.88	1.52	1.31
3	D	602	55B	CAF-CAE	6.84	1.52	1.31
3	M	602	55B	CAF-CAE	6.82	1.52	1.31
3	E	602	55B	CAF-CAE	6.79	1.52	1.31
3	N	602	55B	CAF-CAE	6.78	1.52	1.31
3	G	602	55B	CAF-CAE	6.77	1.52	1.31
3	K	602	55B	CAF-CAE	6.75	1.52	1.31
3	L	602	55B	CAF-CAE	6.74	1.52	1.31
3	F	602	55B	CAF-CAE	6.65	1.52	1.31
3	I	602	55B	CAF-CAE	6.56	1.51	1.31
3	O	602	55B	CAF-CAE	6.54	1.51	1.31
3	H	602	55B	CAF-CAE	6.39	1.51	1.31
2	A	601	FAD	P-O3P	-4.40	1.54	1.59
3	O	602	55B	CAL-CAF	-3.47	1.37	1.47
2	D	601	FAD	P-O3P	-3.23	1.56	1.59
3	F	602	55B	CAL-CAF	-3.03	1.38	1.47
3	G	602	55B	CAL-CAF	-2.99	1.39	1.47
3	C	602	55B	CAL-CAF	-2.96	1.39	1.47
2	C	601	FAD	P-O2P	-2.94	1.41	1.55
3	L	602	55B	CAL-CAF	-2.90	1.39	1.47
3	M	602	55B	CAL-CAF	-2.89	1.39	1.47
3	P	602	55B	CAL-CAF	-2.86	1.39	1.47
3	N	602	55B	CAL-CAF	-2.86	1.39	1.47
3	I	602	55B	CAI-CAE	2.85	1.55	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	602	55B	CAL-CAF	-2.78	1.39	1.47
3	H	602	55B	CAL-CAF	-2.77	1.39	1.47
3	B	602	55B	CAL-CAF	-2.76	1.39	1.47
3	J	602	55B	CAL-CAF	-2.71	1.39	1.47
3	D	602	55B	CAI-CAE	2.68	1.55	1.49
3	K	602	55B	CAL-CAF	-2.64	1.40	1.47
3	I	602	55B	CAL-CAF	-2.56	1.40	1.47
3	C	602	55B	CAI-CAE	2.54	1.54	1.49
3	A	602	55B	CAL-CAF	-2.52	1.40	1.47
3	E	602	55B	CAL-CAF	-2.52	1.40	1.47
3	B	602	55B	CAI-CAE	2.45	1.54	1.49
2	N	601	FAD	P-O2P	-2.42	1.44	1.55
2	I	601	FAD	P-O3P	-2.39	1.56	1.59
3	G	602	55B	CAI-CAE	2.36	1.54	1.49
3	G	602	55B	CAN-CAM	-2.22	1.37	1.40
3	M	602	55B	CAI-CAE	2.21	1.54	1.49
3	J	602	55B	CAI-CAE	2.17	1.54	1.49
2	H	601	FAD	P-O3P	-2.10	1.57	1.59
2	E	601	FAD	C1'-C2'	2.09	1.55	1.52
3	P	602	55B	CAI-CAE	2.09	1.53	1.49
3	C	602	55B	CAN-CAM	-2.06	1.37	1.40
2	E	601	FAD	P-O3P	-2.02	1.57	1.59
3	L	602	55B	CAI-CAE	2.01	1.53	1.49

All (97) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	O	602	55B	CAA-OAJ-CAN	-9.35	103.79	117.51
3	M	602	55B	CAA-OAJ-CAN	-8.29	105.35	117.51
3	N	602	55B	CAA-OAJ-CAN	-8.07	105.67	117.51
3	E	602	55B	CAA-OAJ-CAN	-7.71	106.20	117.51
3	F	602	55B	CAA-OAJ-CAN	-7.03	107.20	117.51
3	P	602	55B	CAA-OAJ-CAN	-6.96	107.31	117.51
3	G	602	55B	CAA-OAJ-CAN	-6.80	107.54	117.51
3	H	602	55B	CAA-OAJ-CAN	-6.56	107.89	117.51
3	A	602	55B	CAA-OAJ-CAN	-6.45	108.05	117.51
3	C	602	55B	CAA-OAJ-CAN	-6.36	108.19	117.51
3	L	602	55B	CAA-OAJ-CAN	-6.17	108.47	117.51
3	J	602	55B	CAA-OAJ-CAN	-6.08	108.60	117.51
3	I	602	55B	CAA-OAJ-CAN	-5.82	108.97	117.51
3	F	602	55B	CAI-CAE-CAF	-5.82	111.26	124.56
3	J	602	55B	CAI-CAE-CAF	-5.71	111.51	124.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	O	602	55B	CAI-CAE-CAF	-5.71	111.52	124.56
3	B	602	55B	CAI-CAE-CAF	-5.67	111.59	124.56
3	K	602	55B	CAA-OAJ-CAN	-5.51	109.43	117.51
3	N	602	55B	CAI-CAE-CAF	-5.45	112.10	124.56
3	L	602	55B	CAI-CAE-CAF	-5.40	112.21	124.56
3	B	602	55B	CAA-OAJ-CAN	-5.36	109.65	117.51
3	O	602	55B	OAJ-CAN-CAM	5.30	120.08	114.53
3	C	602	55B	CAI-CAE-CAF	-5.29	112.46	124.56
3	H	602	55B	CAI-CAE-CAF	-5.24	112.59	124.56
3	G	602	55B	CAI-CAE-CAF	-5.13	112.83	124.56
3	M	602	55B	CAI-CAE-CAF	-5.07	112.98	124.56
3	E	602	55B	CAI-CAE-CAF	-5.06	112.99	124.56
3	P	602	55B	CAI-CAE-CAF	-5.01	113.10	124.56
3	K	602	55B	CAI-CAE-CAF	-4.88	113.41	124.56
3	D	602	55B	CAI-CAE-CAF	-4.75	113.70	124.56
3	A	602	55B	CAI-CAE-CAF	-4.74	113.73	124.56
3	D	602	55B	CAA-OAJ-CAN	-4.72	110.59	117.51
3	I	602	55B	CAI-CAE-CAF	-4.59	114.06	124.56
3	E	602	55B	OAJ-CAN-CAM	4.50	119.24	114.53
3	F	602	55B	OAJ-CAN-CAM	4.40	119.13	114.53
3	O	602	55B	CAL-CAF-CAE	-4.19	116.73	126.99
3	M	602	55B	OAJ-CAN-CAM	4.08	118.80	114.53
3	N	602	55B	CAL-CAF-CAE	-3.78	117.72	126.99
3	P	602	55B	CAL-CAF-CAE	-3.78	117.74	126.99
3	F	602	55B	CAL-CAF-CAE	-3.73	117.84	126.99
3	I	602	55B	CAL-CAF-CAE	-3.55	118.29	126.99
3	D	602	55B	CAL-CAF-CAE	-3.50	118.42	126.99
3	E	602	55B	CAB-OAK-CAO	-3.50	112.38	117.51
3	B	602	55B	OAJ-CAN-CAM	3.50	118.19	114.53
3	N	602	55B	OAJ-CAN-CAM	3.50	118.19	114.53
3	K	602	55B	CAL-CAF-CAE	-3.46	118.51	126.99
3	G	602	55B	CAL-CAF-CAE	-3.45	118.55	126.99
3	L	602	55B	CAL-CAF-CAE	-3.43	118.58	126.99
3	E	602	55B	CAL-CAF-CAE	-3.37	118.74	126.99
3	A	602	55B	CAL-CAF-CAE	-3.34	118.81	126.99
3	B	602	55B	CAG-CAN-CAM	-3.27	117.48	120.59
3	B	602	55B	CAO-CAM-CAN	3.26	123.11	118.79
3	M	602	55B	CAL-CAF-CAE	-3.22	119.10	126.99
3	C	602	55B	CAL-CAF-CAE	-3.19	119.17	126.99
3	H	602	55B	CAL-CAF-CAE	-3.15	119.28	126.99
3	M	602	55B	CAB-OAK-CAO	-3.11	112.95	117.51
3	O	602	55B	CAB-OAK-CAO	-2.95	113.19	117.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	K	602	55B	OAJ-CAN-CAM	2.94	117.60	114.53
3	L	602	55B	OAJ-CAN-CAM	2.74	117.39	114.53
3	J	602	55B	OAJ-CAN-CAM	2.67	117.32	114.53
3	D	602	55B	CAO-CAM-CAN	2.63	122.28	118.79
3	F	602	55B	CAO-CAM-CAN	2.62	122.27	118.79
3	B	602	55B	CAL-CAF-CAE	-2.61	120.59	126.99
3	J	602	55B	CAL-CAF-CAE	-2.56	120.72	126.99
3	K	602	55B	CAG-CAN-CAM	-2.53	118.18	120.59
3	G	602	55B	CAO-CAM-CAN	2.50	122.11	118.79
3	H	602	55B	OAJ-CAN-CAM	2.50	117.15	114.53
3	A	602	55B	OAK-CAO-CAM	2.50	117.15	114.53
3	E	602	55B	CAG-CAN-CAM	-2.48	118.23	120.59
2	D	601	FAD	O3'-C3'-C2'	2.46	114.53	108.93
3	O	602	55B	OAJ-CAN-CAG	-2.45	119.86	124.08
3	F	602	55B	CAG-CAN-CAM	-2.43	118.28	120.59
3	A	602	55B	CAO-CAM-CAN	2.42	122.00	118.79
2	I	601	FAD	O2'-C2'-C3'	-2.41	103.60	109.25
3	P	602	55B	OAJ-CAN-CAM	2.36	117.00	114.53
2	J	601	FAD	O3'-C3'-C2'	2.34	114.26	108.93
3	L	602	55B	CAB-OAK-CAO	-2.29	114.15	117.51
3	A	602	55B	CAH-CAO-CAM	-2.27	118.44	120.59
3	A	602	55B	OAJ-CAN-CAM	2.24	116.87	114.53
3	G	602	55B	CAB-OAK-CAO	-2.23	114.25	117.51
3	B	602	55B	CAG-CAL-CAF	-2.22	113.98	120.61
2	I	601	FAD	O3'-C3'-C2'	2.20	113.92	108.93
3	P	602	55B	CAO-CAM-CAN	2.20	121.70	118.79
3	D	602	55B	CAH-CAL-CAG	2.19	122.09	119.11
3	F	602	55B	CAB-OAK-CAO	-2.16	114.34	117.51
3	K	602	55B	CAO-CAM-CAN	2.16	121.66	118.79
3	M	602	55B	CAO-CAM-CAN	2.14	121.63	118.79
2	K	601	FAD	O2'-C2'-C3'	-2.13	104.26	109.25
3	P	602	55B	CAG-CAN-CAM	-2.12	118.58	120.59
3	G	602	55B	CAG-CAL-CAF	-2.11	114.30	120.61
2	J	601	FAD	O2'-C2'-C3'	-2.09	104.37	109.25
3	A	602	55B	CAG-CAN-CAM	-2.06	118.63	120.59
3	M	602	55B	CAG-CAN-CAM	-2.06	118.63	120.59
3	J	602	55B	CAG-CAL-CAF	-2.05	114.48	120.61
2	A	601	FAD	C5'-C4'-C3'	2.03	116.05	112.22
3	C	602	55B	CAO-CAM-CAN	2.01	121.46	118.79
3	E	602	55B	CAG-CAL-CAF	-2.00	114.62	120.61

There are no chirality outliers.

All (110) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	M	601	FAD	N10-C1'-C2'-O2'
2	M	601	FAD	N10-C1'-C2'-C3'
2	O	601	FAD	C2'-C3'-C4'-C5'
2	O	601	FAD	O3'-C3'-C4'-O4'
2	O	601	FAD	O3'-C3'-C4'-C5'
2	O	601	FAD	C3'-C4'-C5'-O5'
2	O	601	FAD	O4'-C4'-C5'-O5'
3	J	602	55B	CAF-CAE-CAI-OAC
2	O	601	FAD	C2'-C3'-C4'-O4'
2	P	601	FAD	C2'-C3'-C4'-O4'
2	P	601	FAD	C2'-C3'-C4'-C5'
2	P	601	FAD	O3'-C3'-C4'-O4'
2	B	601	FAD	O4'-C4'-C5'-O5'
2	C	601	FAD	O4'-C4'-C5'-O5'
2	F	601	FAD	O4'-C4'-C5'-O5'
2	J	601	FAD	O4'-C4'-C5'-O5'
2	L	601	FAD	O4'-C4'-C5'-O5'
2	N	601	FAD	O4'-C4'-C5'-O5'
2	C	601	FAD	C2'-C3'-C4'-C5'
2	M	601	FAD	C2'-C3'-C4'-C5'
2	C	601	FAD	C2'-C3'-C4'-O4'
2	G	601	FAD	C2'-C3'-C4'-O4'
2	I	601	FAD	C2'-C3'-C4'-O4'
2	M	601	FAD	C2'-C3'-C4'-O4'
2	K	601	FAD	O3'-C3'-C4'-O4'
2	M	601	FAD	O3'-C3'-C4'-O4'
2	P	601	FAD	O3'-C3'-C4'-C5'
2	K	601	FAD	C2'-C3'-C4'-O4'
2	L	601	FAD	C2'-C3'-C4'-C5'
2	A	601	FAD	C3'-C4'-C5'-O5'
2	B	601	FAD	C3'-C4'-C5'-O5'
2	C	601	FAD	C3'-C4'-C5'-O5'
2	D	601	FAD	C3'-C4'-C5'-O5'
2	E	601	FAD	C3'-C4'-C5'-O5'
2	F	601	FAD	C3'-C4'-C5'-O5'
2	G	601	FAD	C3'-C4'-C5'-O5'
2	I	601	FAD	C3'-C4'-C5'-O5'
2	J	601	FAD	C3'-C4'-C5'-O5'
2	L	601	FAD	C3'-C4'-C5'-O5'
2	M	601	FAD	C3'-C4'-C5'-O5'
2	N	601	FAD	C3'-C4'-C5'-O5'
2	D	601	FAD	C2'-C3'-C4'-O4'

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Mol	Chain	Res	Type	Atoms
2	H	601	FAD	C2'-C3'-C4'-O4'
2	L	601	FAD	C2'-C3'-C4'-O4'
2	D	601	FAD	C2'-C3'-C4'-C5'
2	G	601	FAD	C2'-C3'-C4'-C5'
2	I	601	FAD	C2'-C3'-C4'-C5'
2	K	601	FAD	C2'-C3'-C4'-C5'
2	G	601	FAD	O3'-C3'-C4'-O4'
2	J	601	FAD	C2'-C3'-C4'-O4'
2	L	601	FAD	O3'-C3'-C4'-C5'
2	C	601	FAD	O3'-C3'-C4'-O4'
2	L	601	FAD	O3'-C3'-C4'-O4'
2	P	601	FAD	C4'-C5'-O5'-P
2	G	601	FAD	O4'-C4'-C5'-O5'
2	F	601	FAD	C2'-C3'-C4'-O4'
2	N	601	FAD	C2'-C3'-C4'-O4'
2	M	601	FAD	O3'-C3'-C4'-C5'
2	F	601	FAD	C2'-C3'-C4'-C5'
2	H	601	FAD	C2'-C3'-C4'-C5'
2	J	601	FAD	C2'-C3'-C4'-C5'
3	E	602	55B	CAF-CAE-CAI-OAC
3	L	602	55B	CAF-CAE-CAI-OAC
3	P	602	55B	CAF-CAE-CAI-OAC
2	H	601	FAD	C3'-C4'-C5'-O5'
2	D	601	FAD	C4'-C5'-O5'-P
2	K	601	FAD	C4'-C5'-O5'-P
2	D	601	FAD	O4'-C4'-C5'-O5'
2	M	601	FAD	O4'-C4'-C5'-O5'
2	I	601	FAD	O3'-C3'-C4'-O4'
2	C	601	FAD	C4'-C5'-O5'-P
2	E	601	FAD	C4'-C5'-O5'-P
2	F	601	FAD	C4'-C5'-O5'-P
2	G	601	FAD	C4'-C5'-O5'-P
2	J	601	FAD	C4'-C5'-O5'-P
2	L	601	FAD	C4'-C5'-O5'-P
2	M	601	FAD	C4'-C5'-O5'-P
2	O	601	FAD	C5'-O5'-P-O1P
2	O	601	FAD	C5'-O5'-P-O3P
2	P	601	FAD	C5'-O5'-P-O1P
2	P	601	FAD	C5'-O5'-P-O2P
2	P	601	FAD	C5'-O5'-P-O3P
2	A	601	FAD	C2'-C3'-C4'-O4'
2	B	601	FAD	C2'-C3'-C4'-O4'

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Mol	Chain	Res	Type	Atoms
2	A	601	FAD	C4'-C5'-O5'-P
2	B	601	FAD	C4'-C5'-O5'-P
2	H	601	FAD	C4'-C5'-O5'-P
2	I	601	FAD	C4'-C5'-O5'-P
2	N	601	FAD	C4'-C5'-O5'-P
2	N	601	FAD	C2'-C3'-C4'-C5'
2	O	601	FAD	C4'-C5'-O5'-P
2	C	601	FAD	O3'-C3'-C4'-C5'
2	K	601	FAD	O3'-C3'-C4'-C5'
2	A	601	FAD	C2'-C3'-C4'-C5'
2	G	601	FAD	O3'-C3'-C4'-C5'
2	E	601	FAD	C2'-C3'-C4'-O4'
2	D	601	FAD	O3'-C3'-C4'-O4'
2	H	601	FAD	O3'-C3'-C4'-O4'
2	N	601	FAD	O3'-C3'-C4'-O4'
3	C	602	55B	CAF-CAE-CAI-OAC
2	A	601	FAD	O4'-C4'-C5'-O5'
2	I	601	FAD	O4'-C4'-C5'-O5'
2	F	601	FAD	O3'-C3'-C4'-O4'
2	K	601	FAD	C3'-C4'-C5'-O5'
2	P	601	FAD	C3'-C4'-C5'-O5'
2	E	601	FAD	O3'-C3'-C4'-O4'
2	E	601	FAD	O4'-C4'-C5'-O5'
2	D	601	FAD	N10-C1'-C2'-C3'
2	K	601	FAD	N10-C1'-C2'-C3'
2	O	601	FAD	PA-O3P-P-O2P

There are no ring outliers.

25 monomers are involved in 43 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	P	601	FAD	2	0
3	G	602	55B	3	0
3	E	602	55B	2	0
3	F	602	55B	2	0
3	D	602	55B	2	0
3	O	602	55B	5	0
2	K	601	FAD	1	0
2	L	601	FAD	1	0
2	E	601	FAD	1	0
2	F	601	FAD	1	0
2	M	601	FAD	3	0

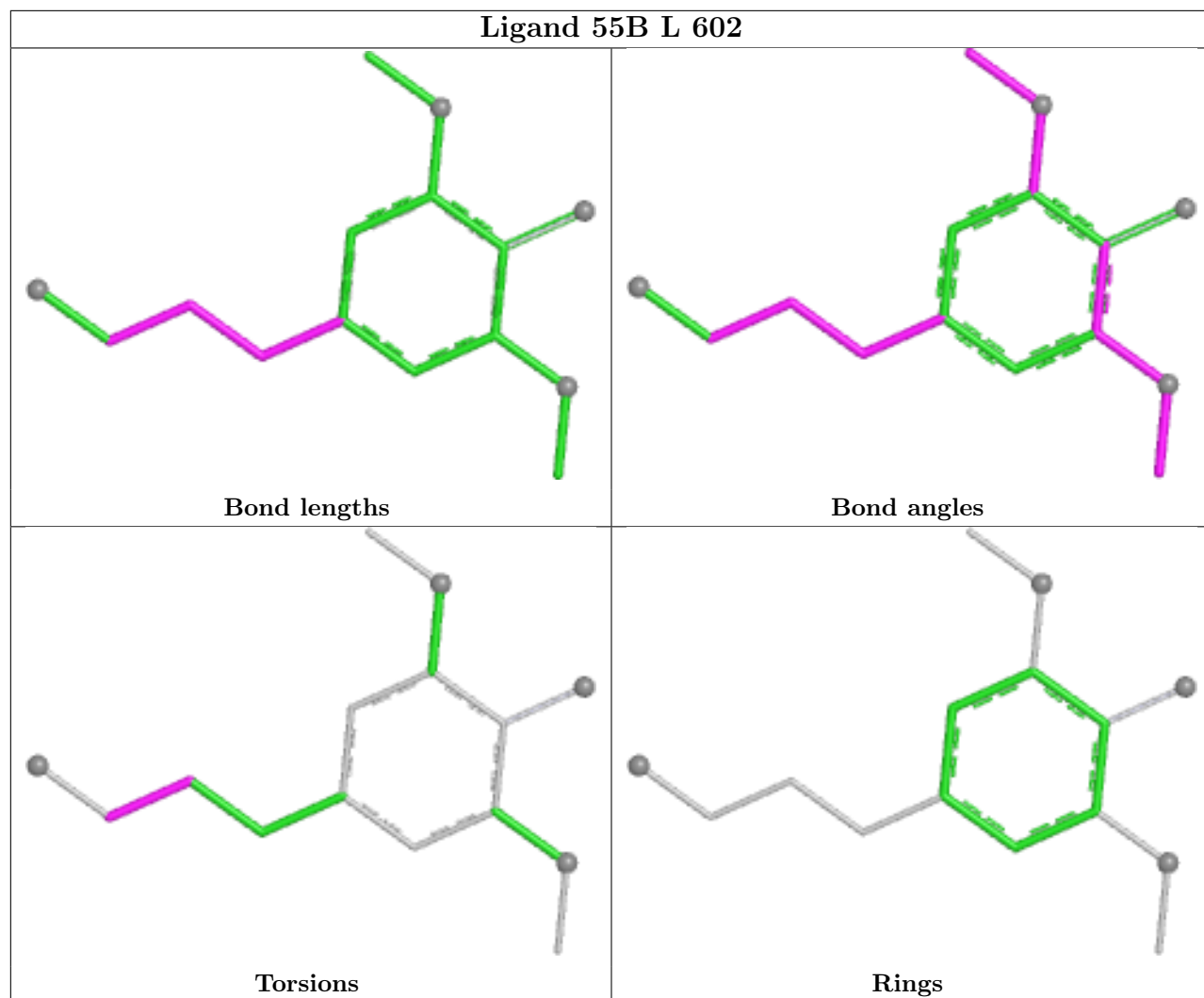
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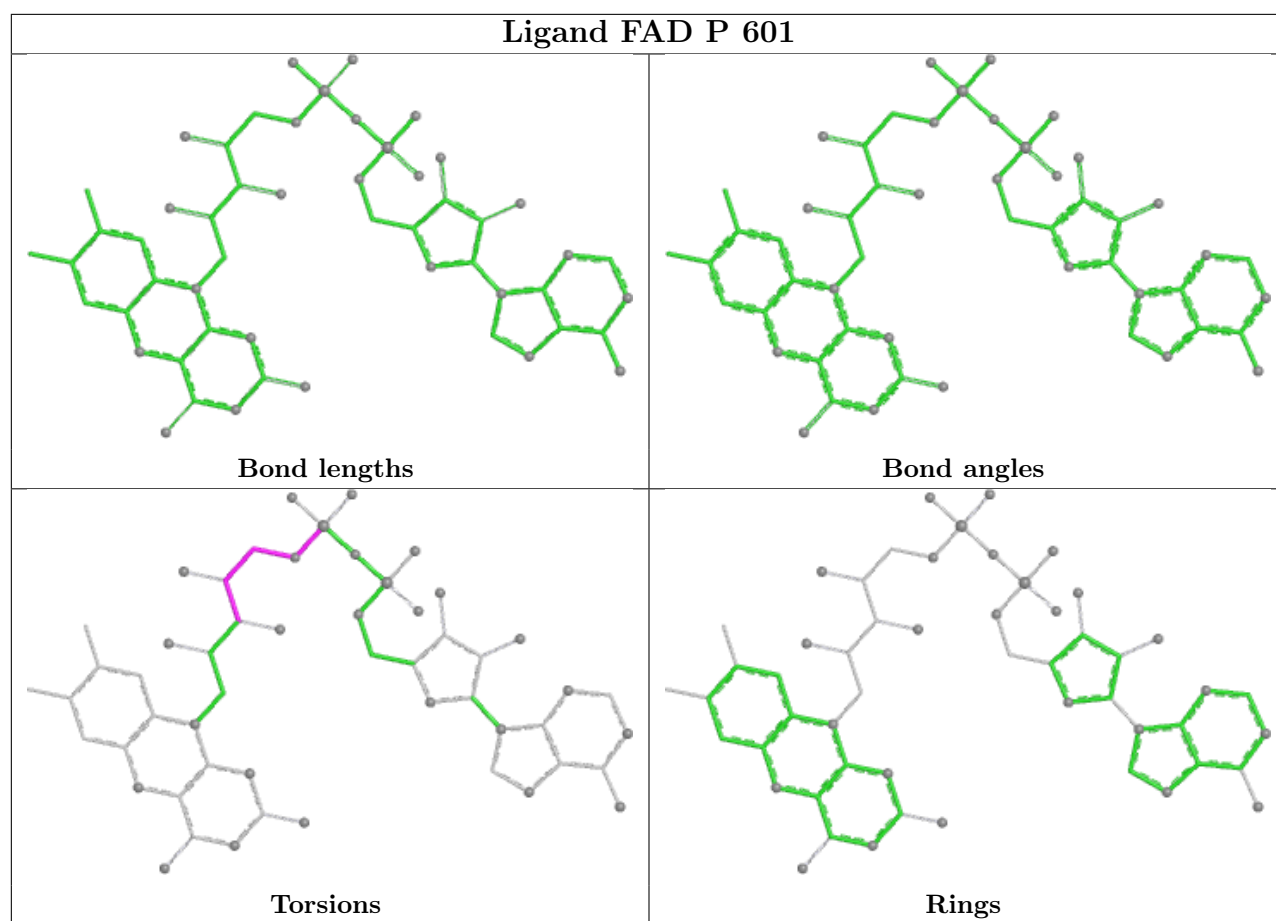
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	N	601	FAD	1	0
3	H	602	55B	1	0
3	I	602	55B	4	0
3	B	602	55B	1	0
2	A	601	FAD	1	0
2	B	601	FAD	1	0
3	P	602	55B	2	0
2	C	601	FAD	1	0
2	D	601	FAD	1	0
3	A	602	55B	1	0
2	J	601	FAD	3	0
2	G	601	FAD	1	0
2	H	601	FAD	1	0
2	I	601	FAD	1	0

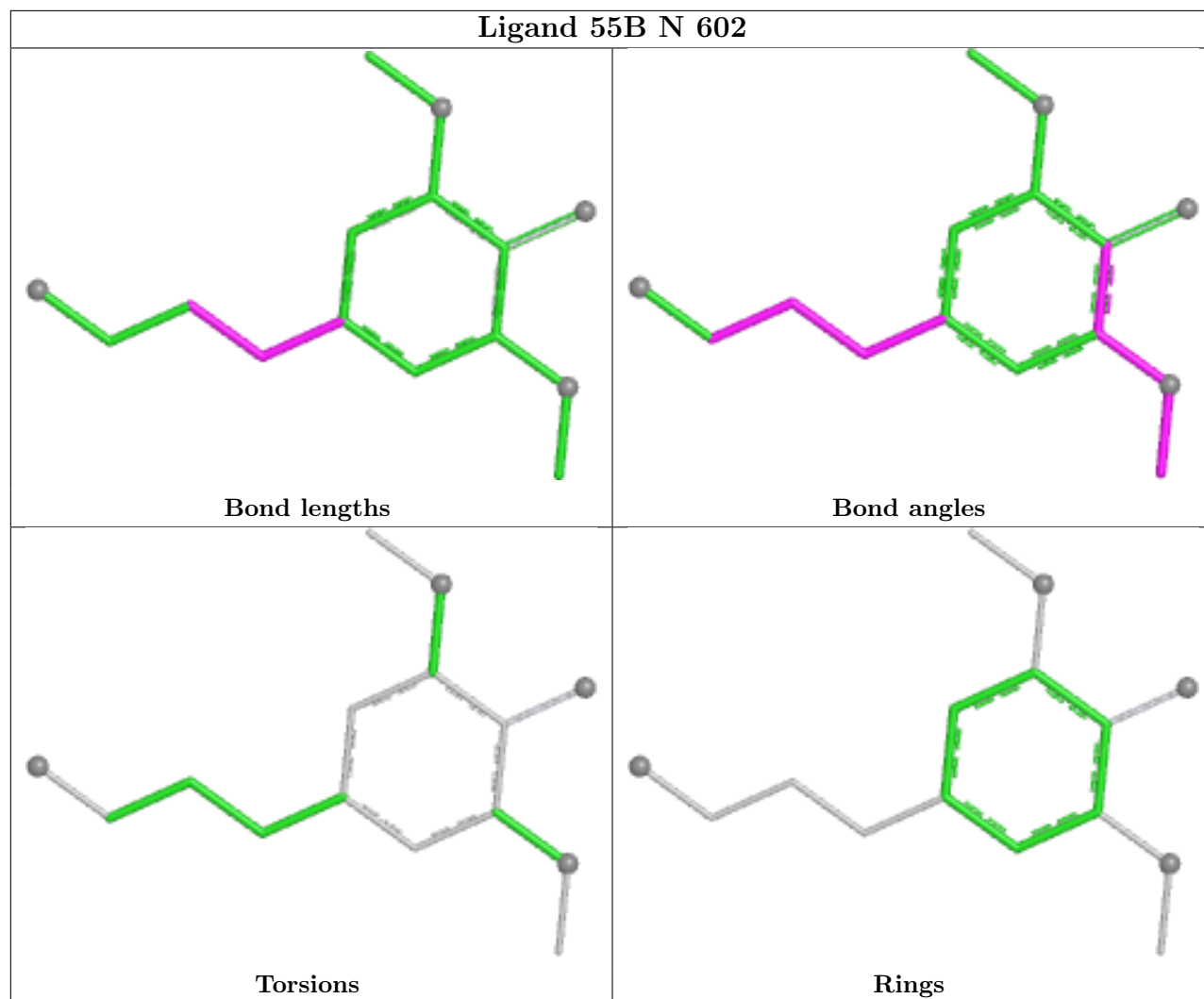
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

Ligand 55B L 602

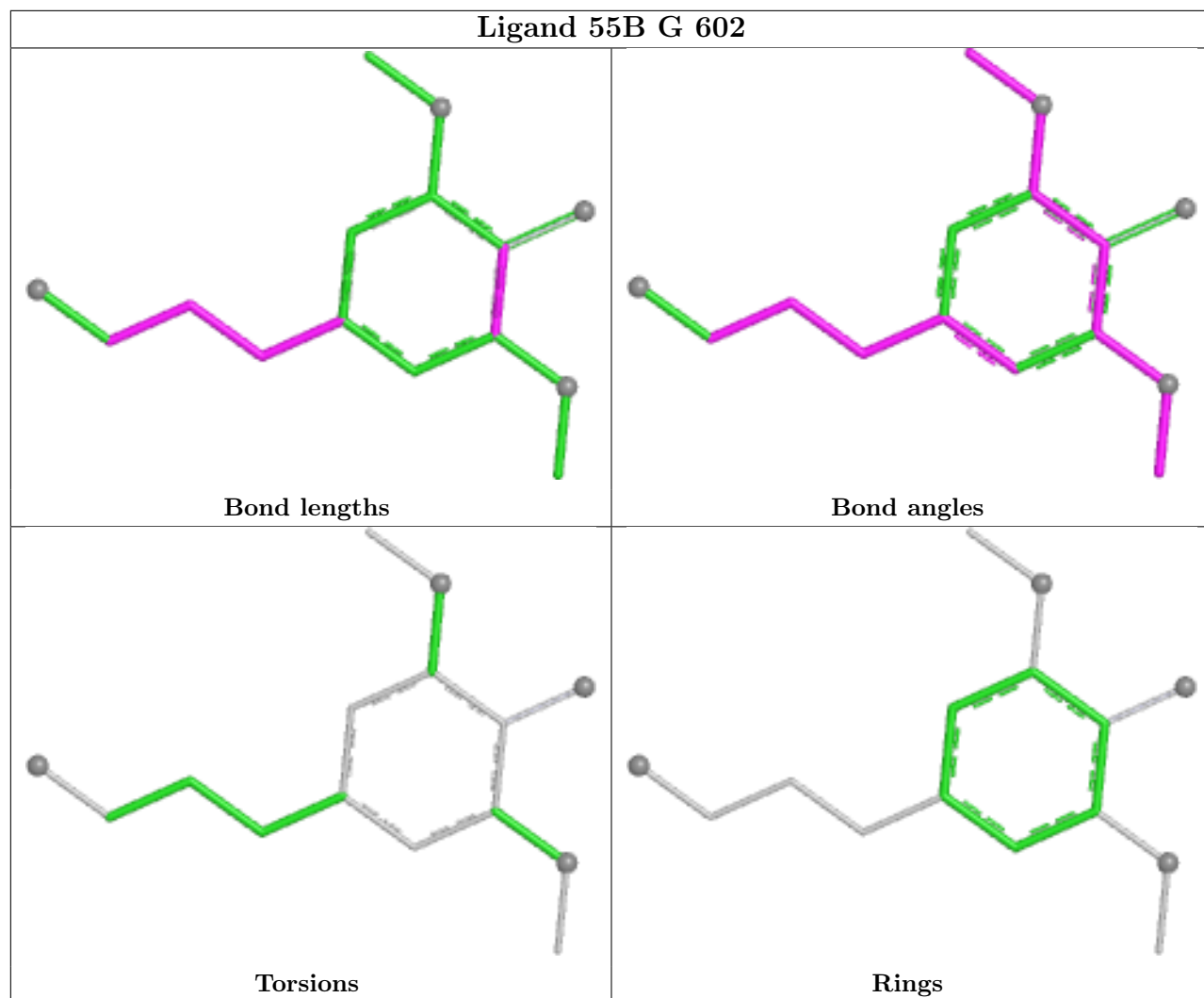




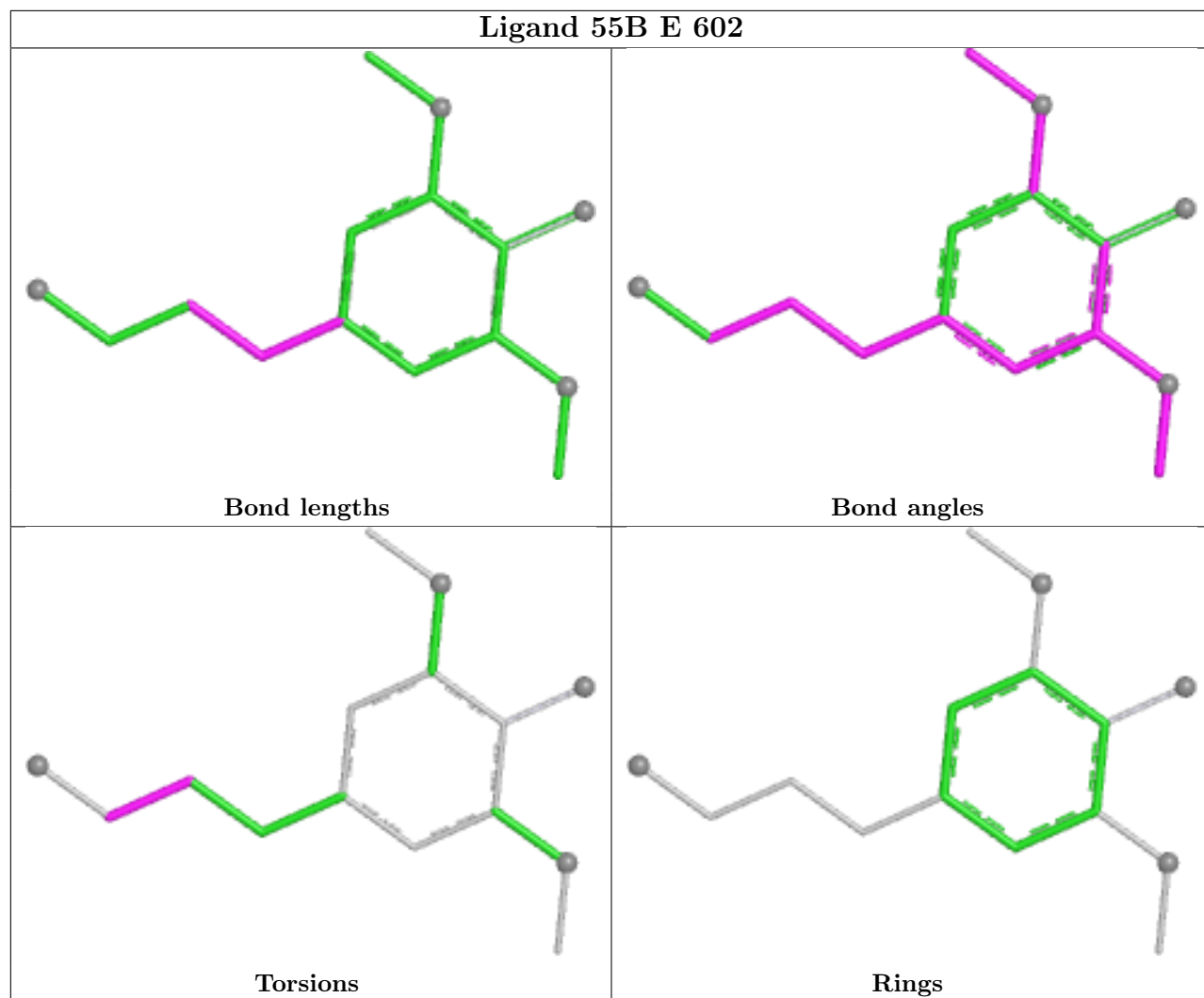
Ligand 55B N 602



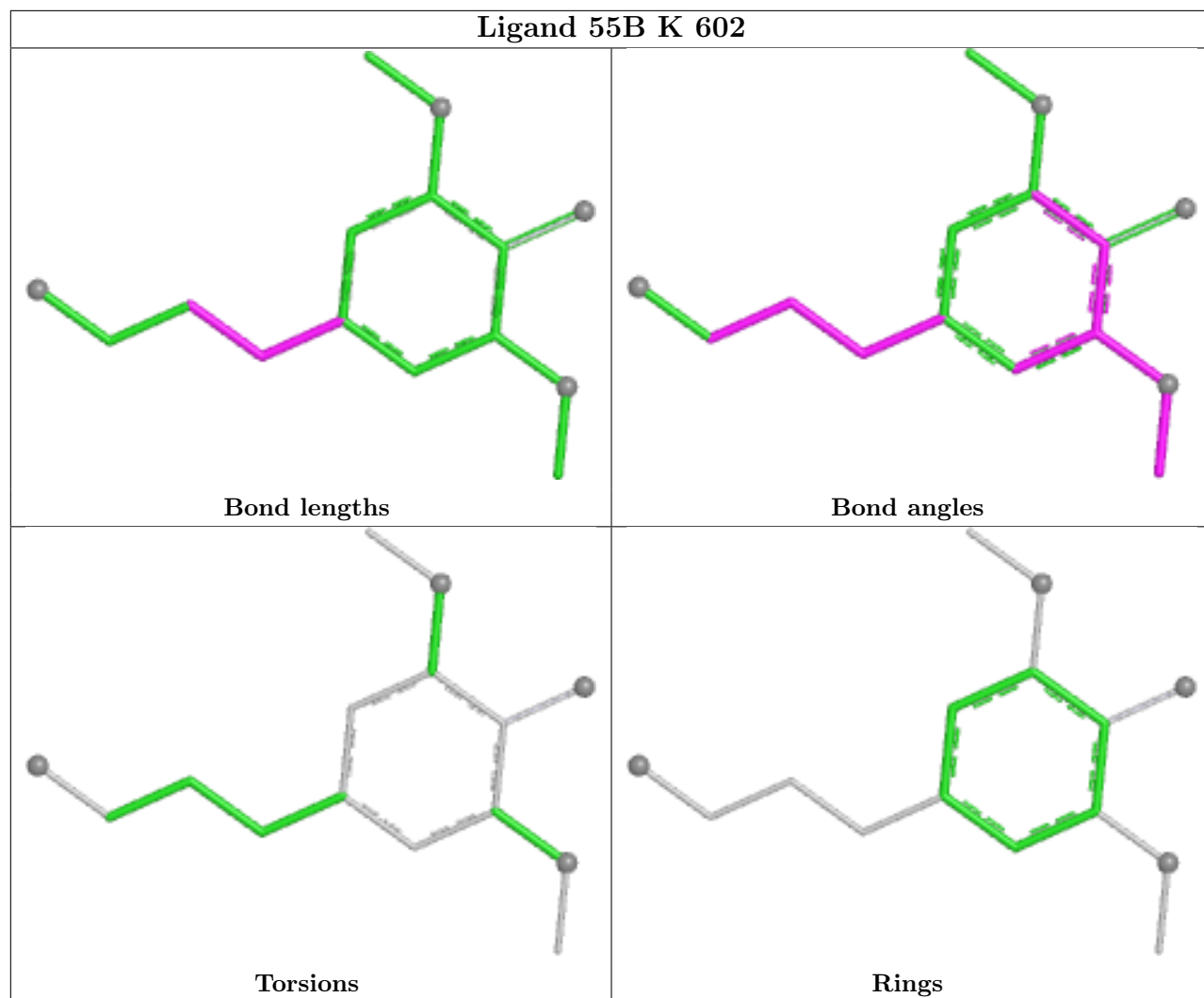
Ligand 55B G 602



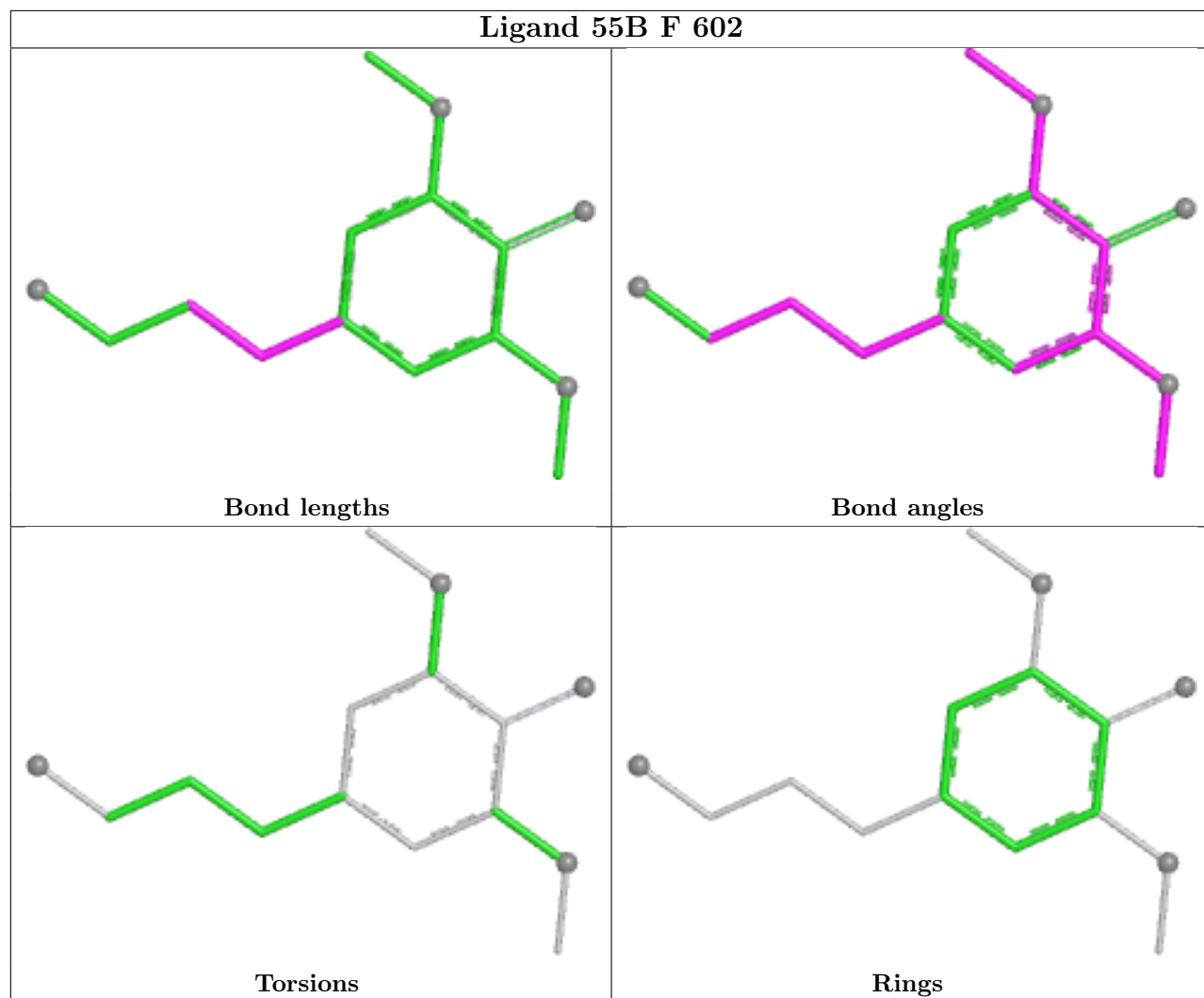
Ligand 55B E 602



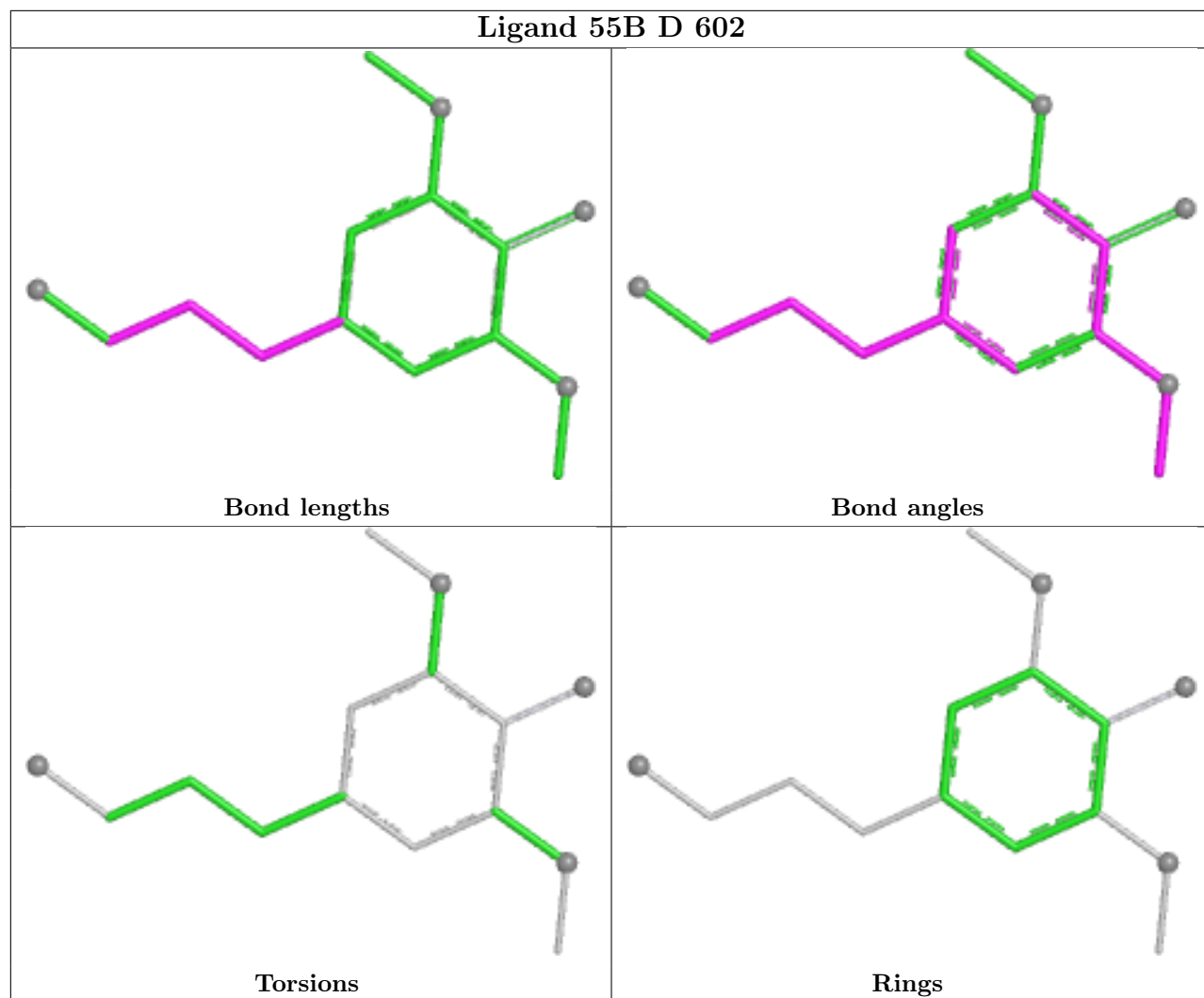
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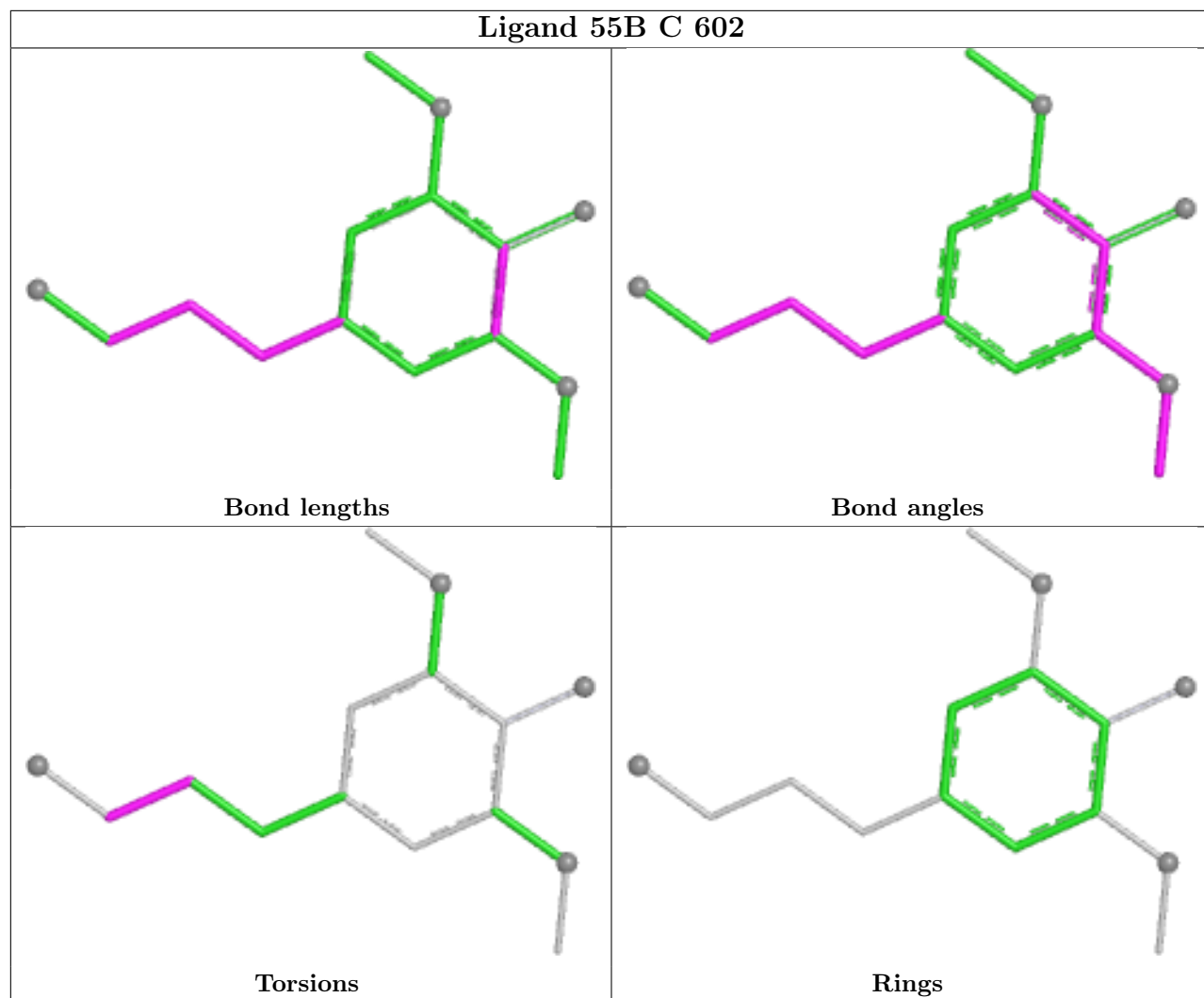
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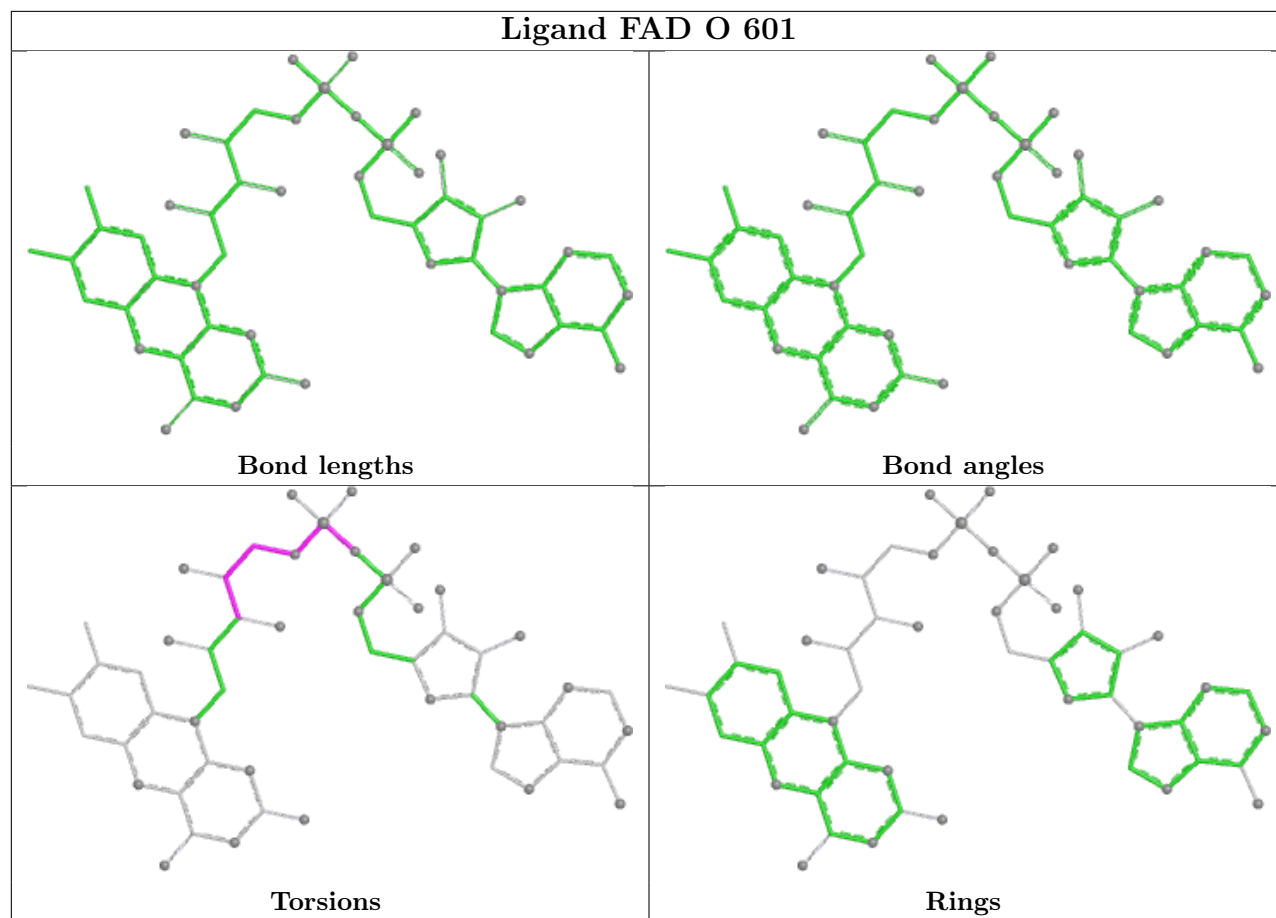


Ligand 55B D 602

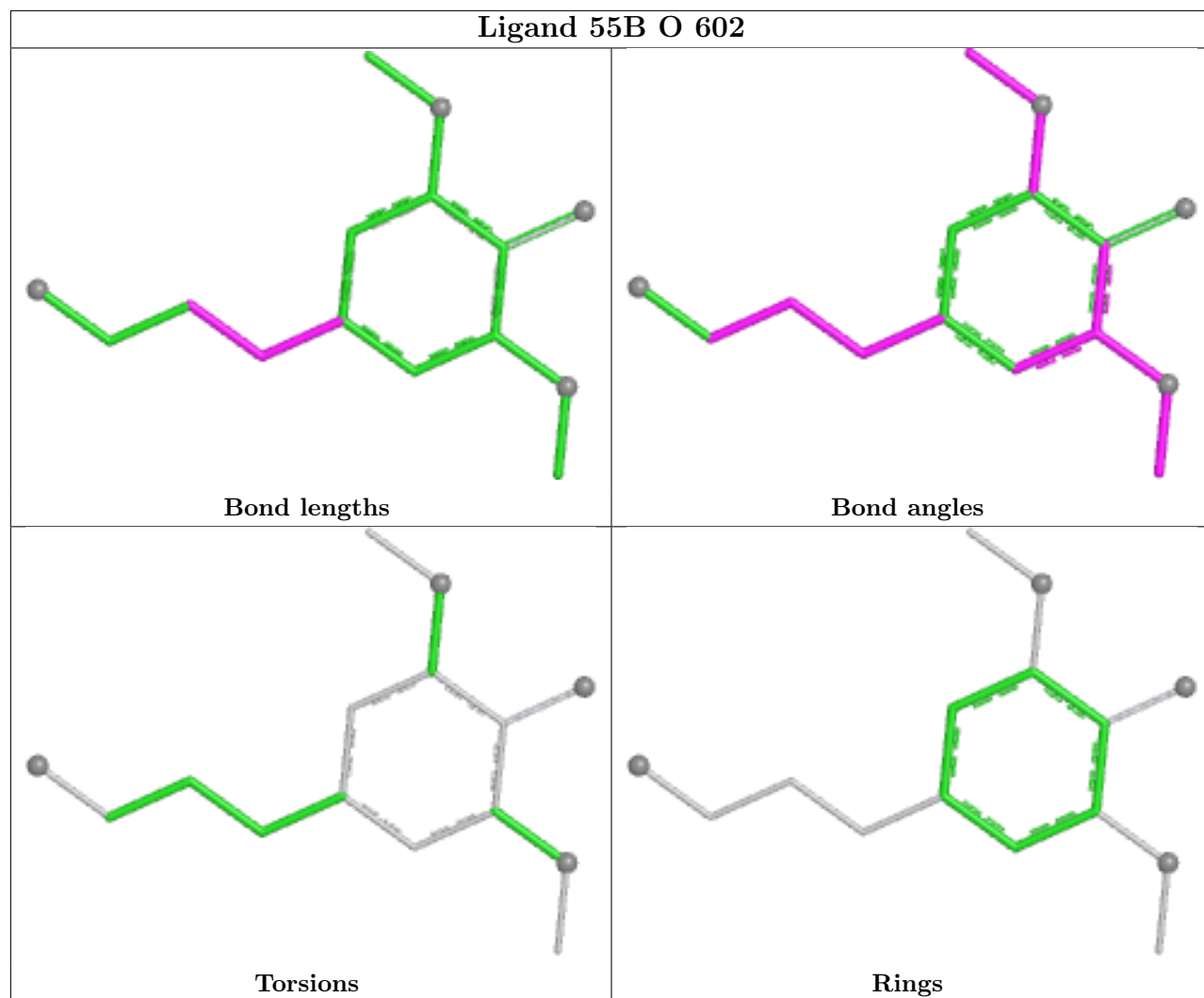


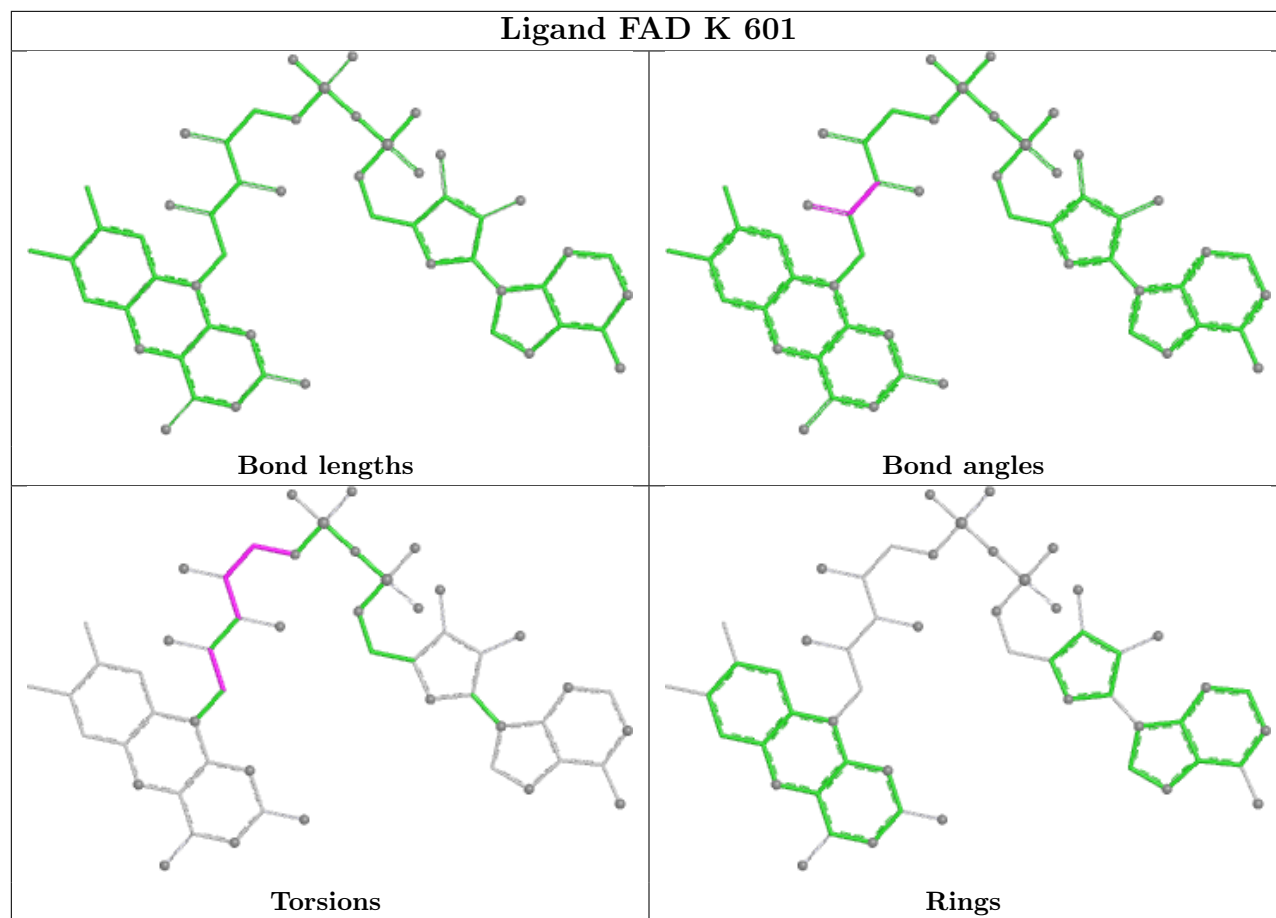
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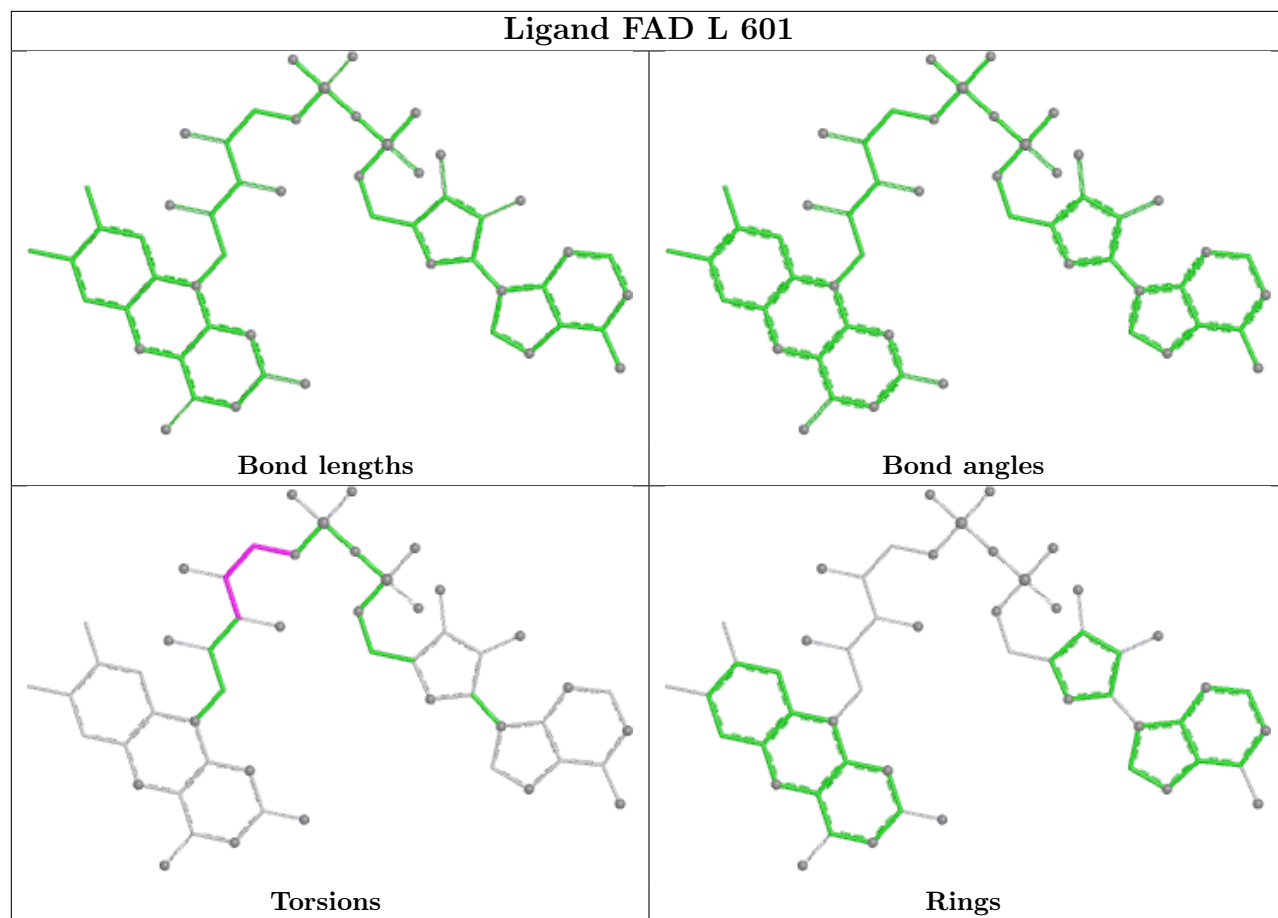


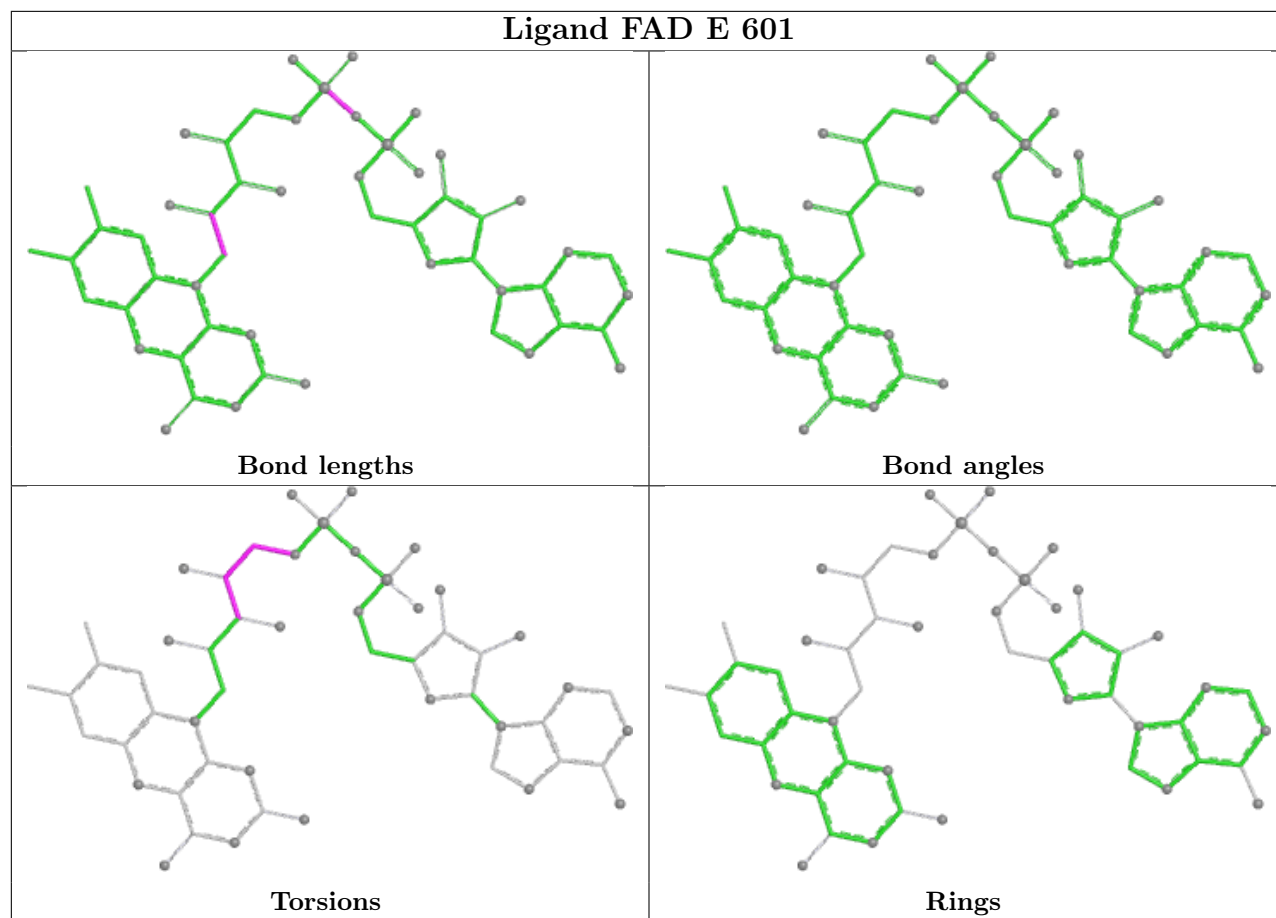


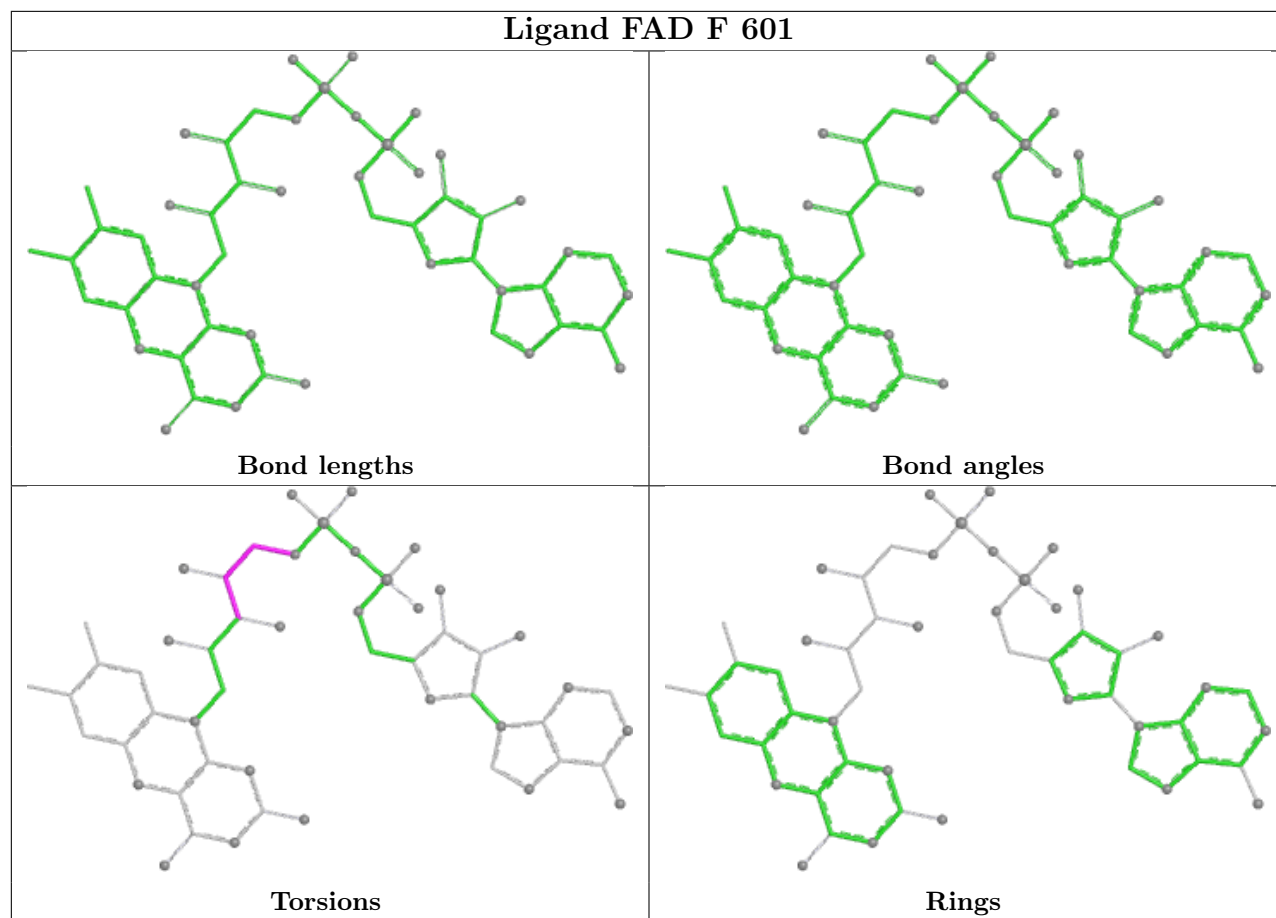
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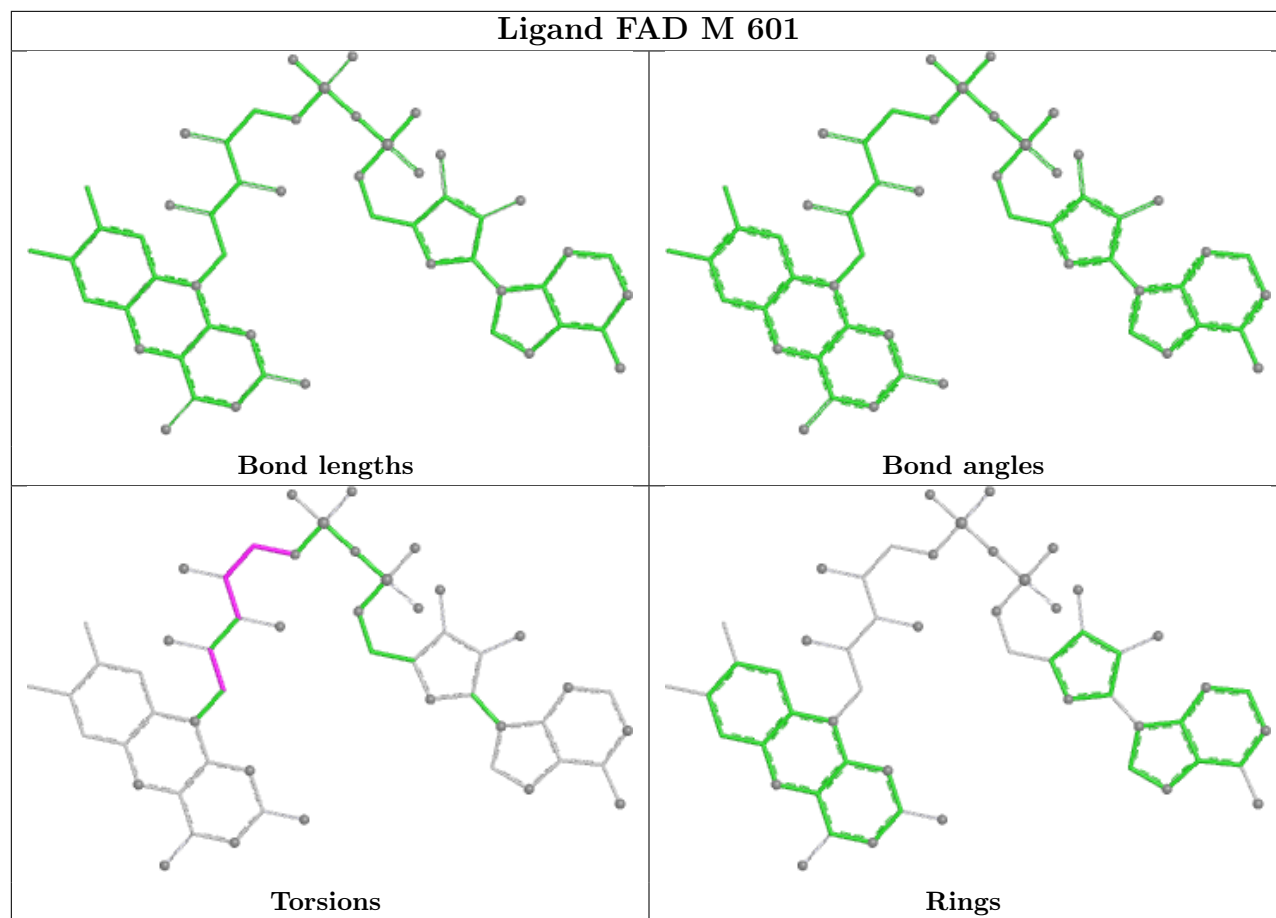


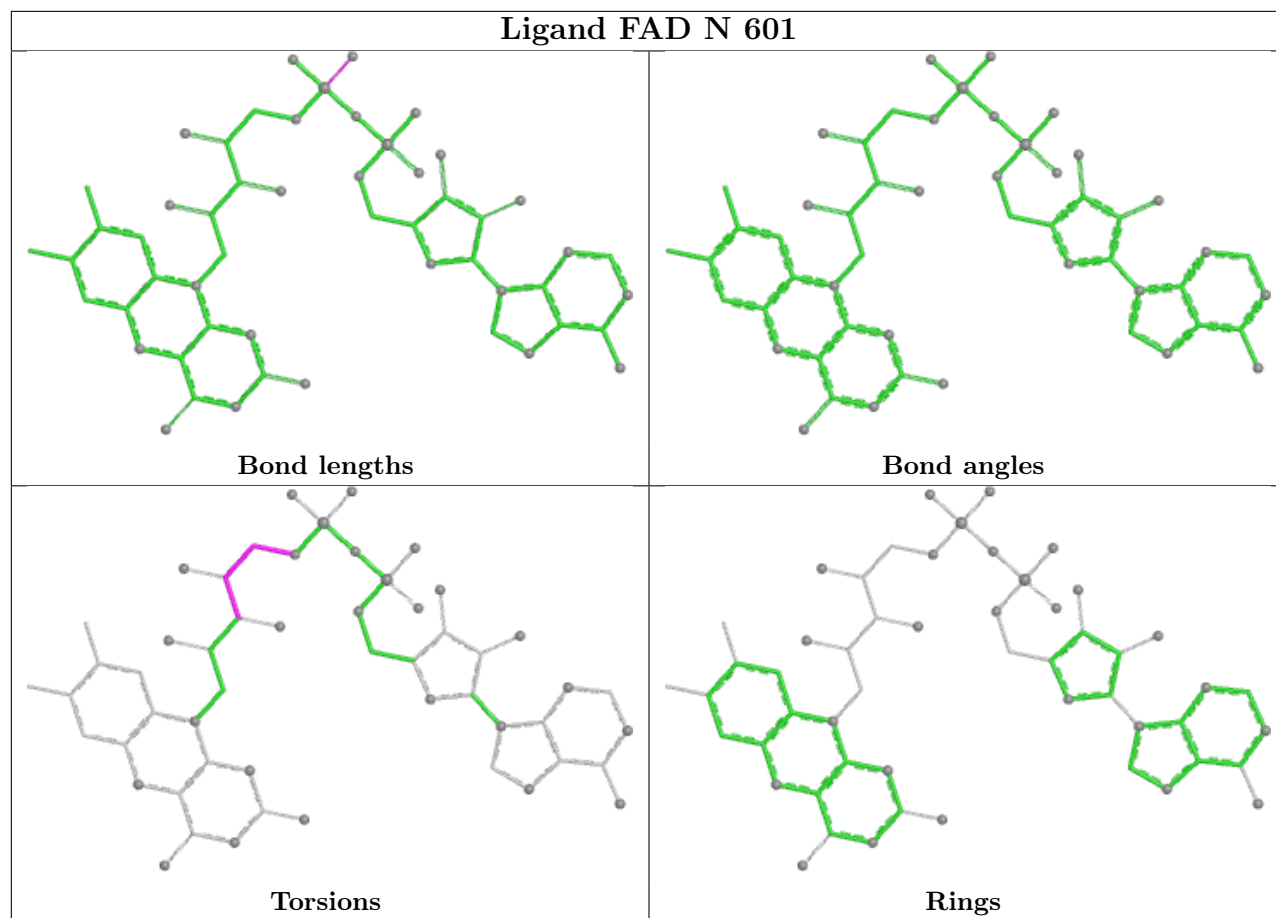




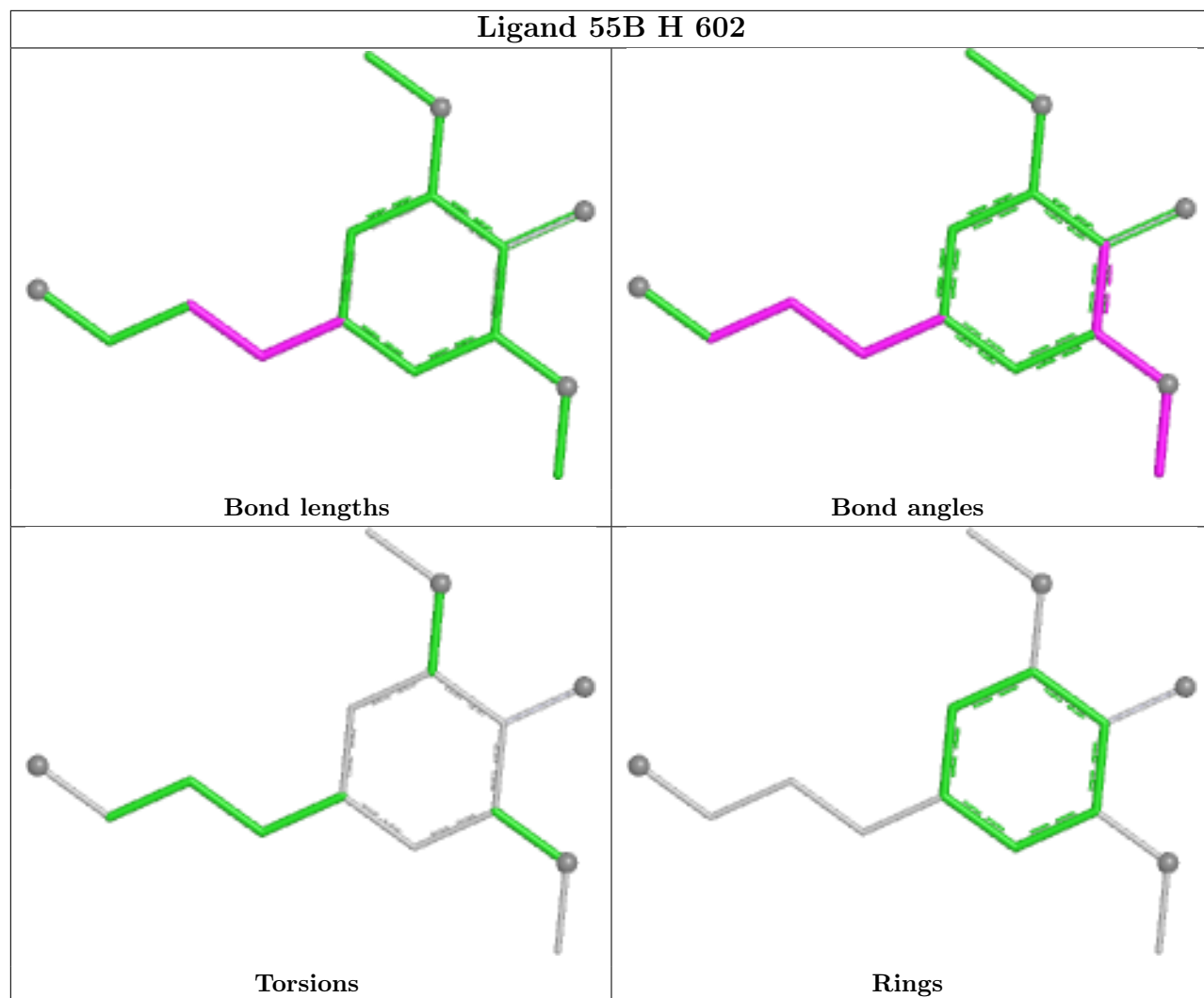




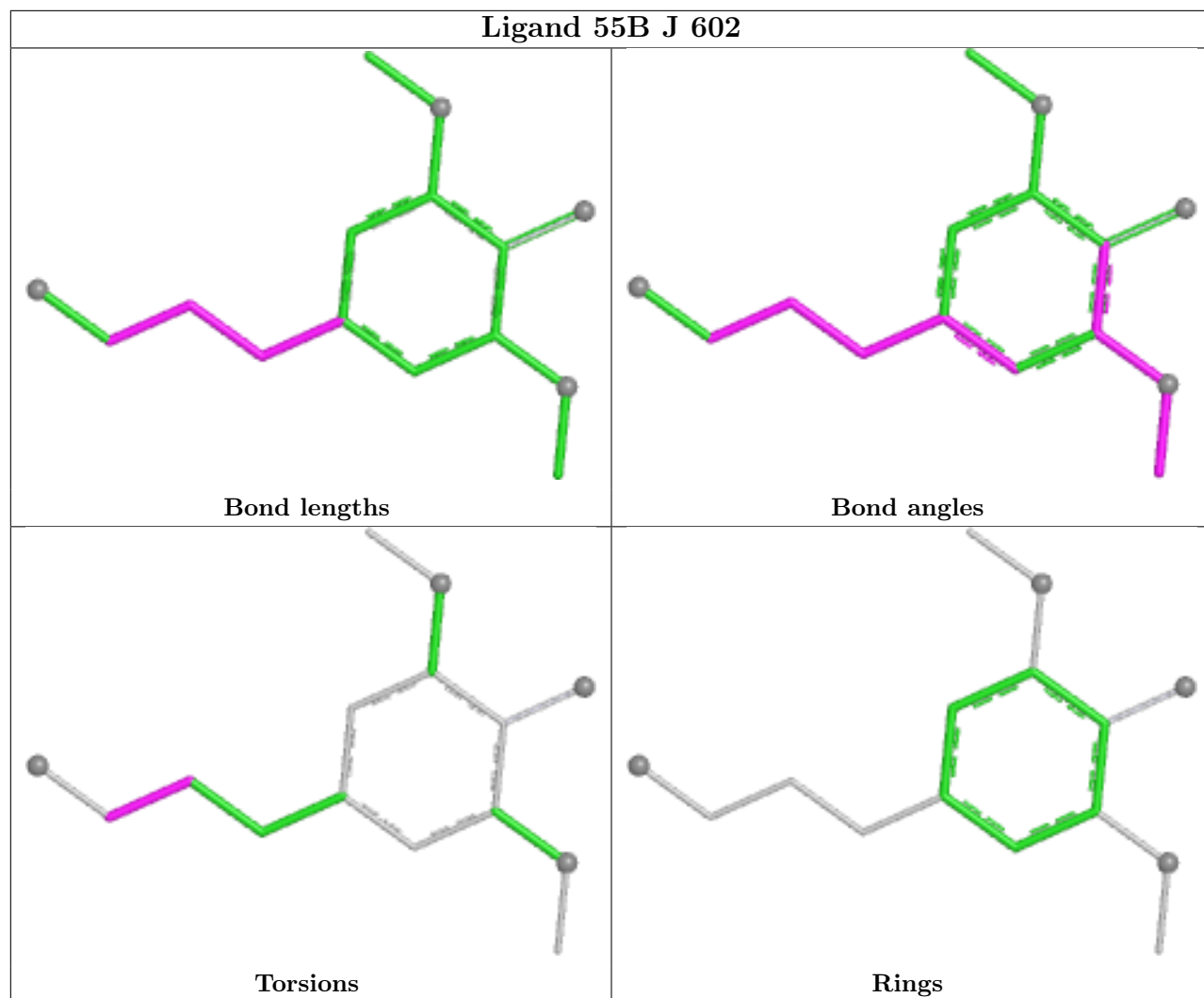




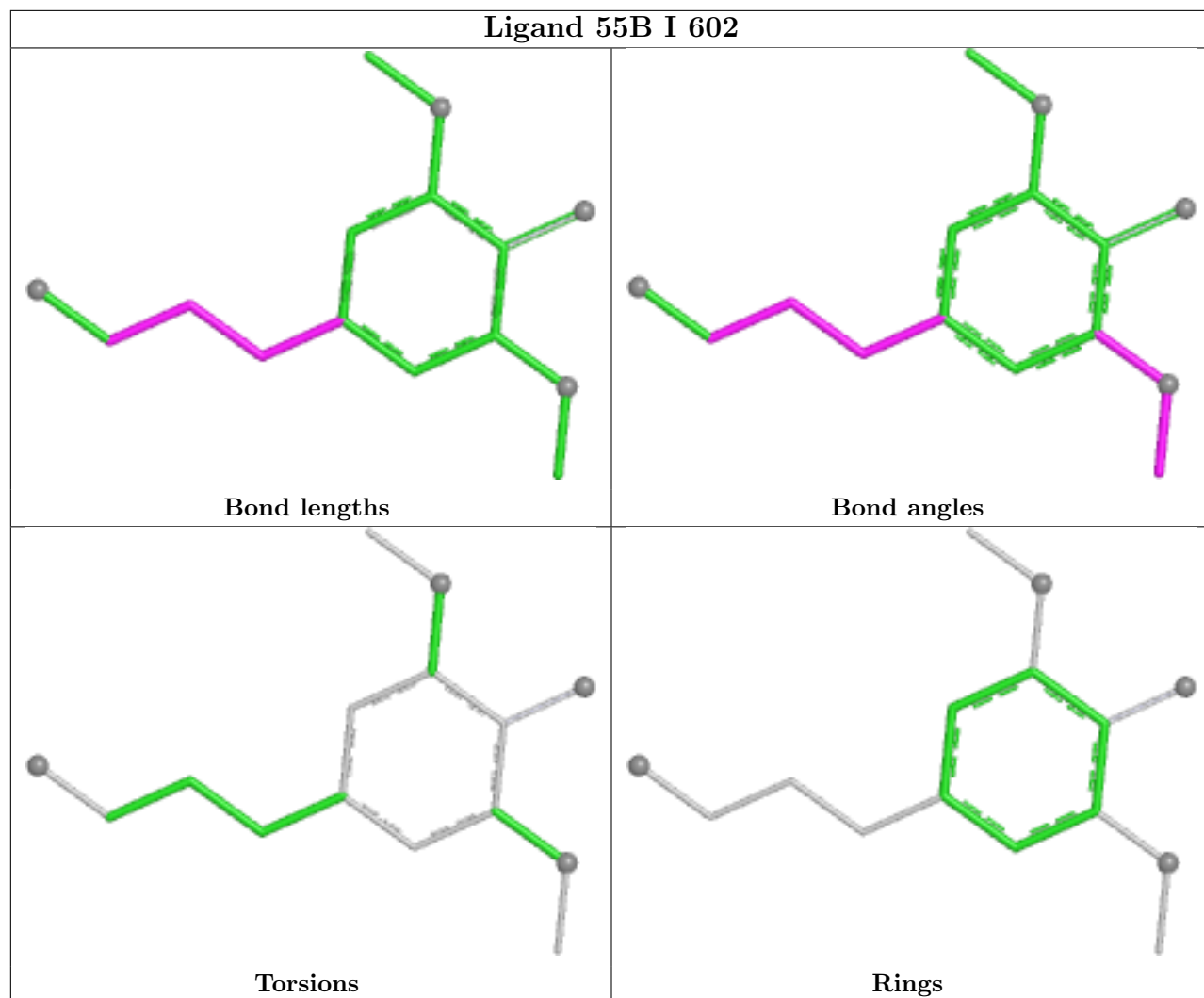
Ligand 55B H 602



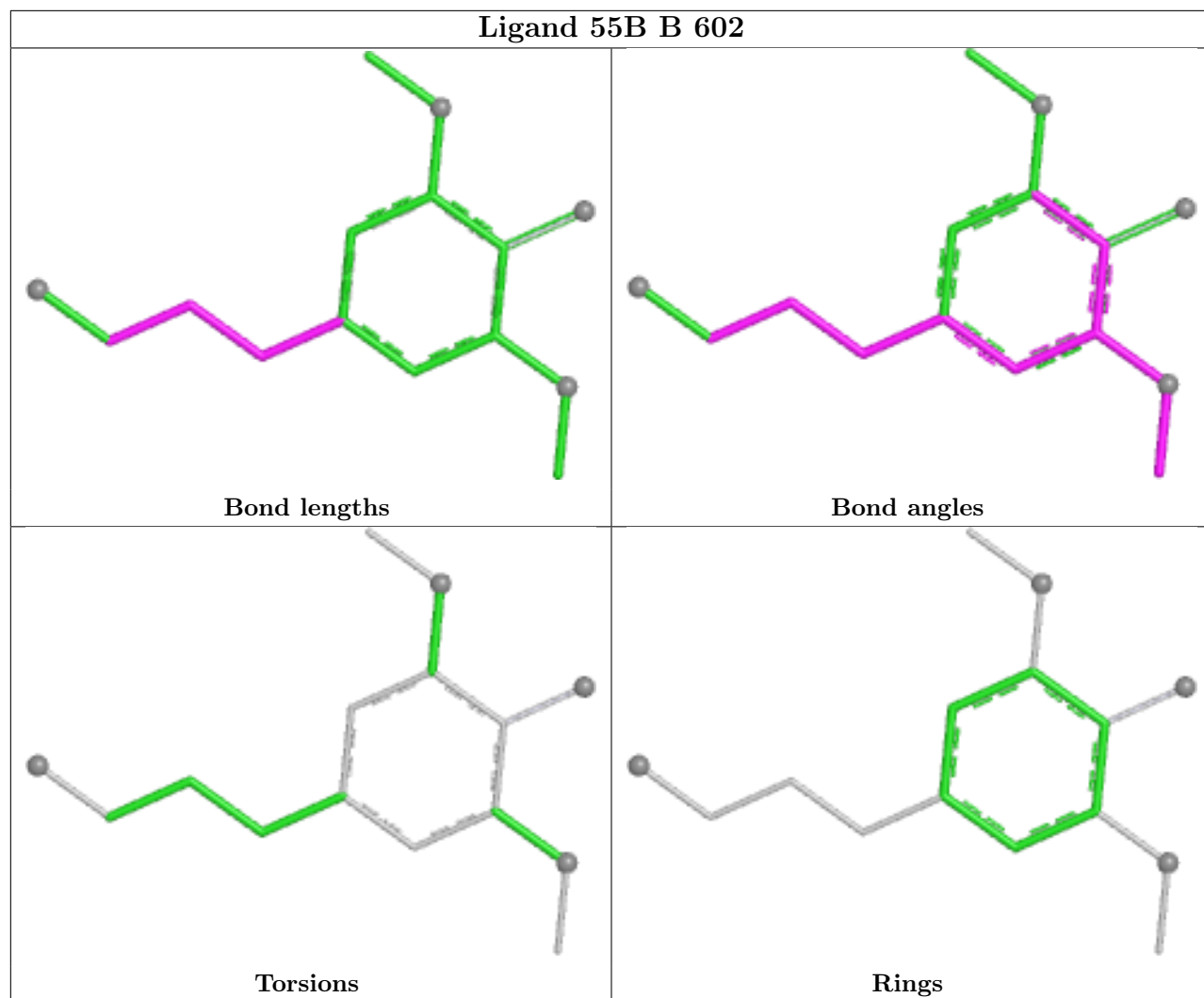
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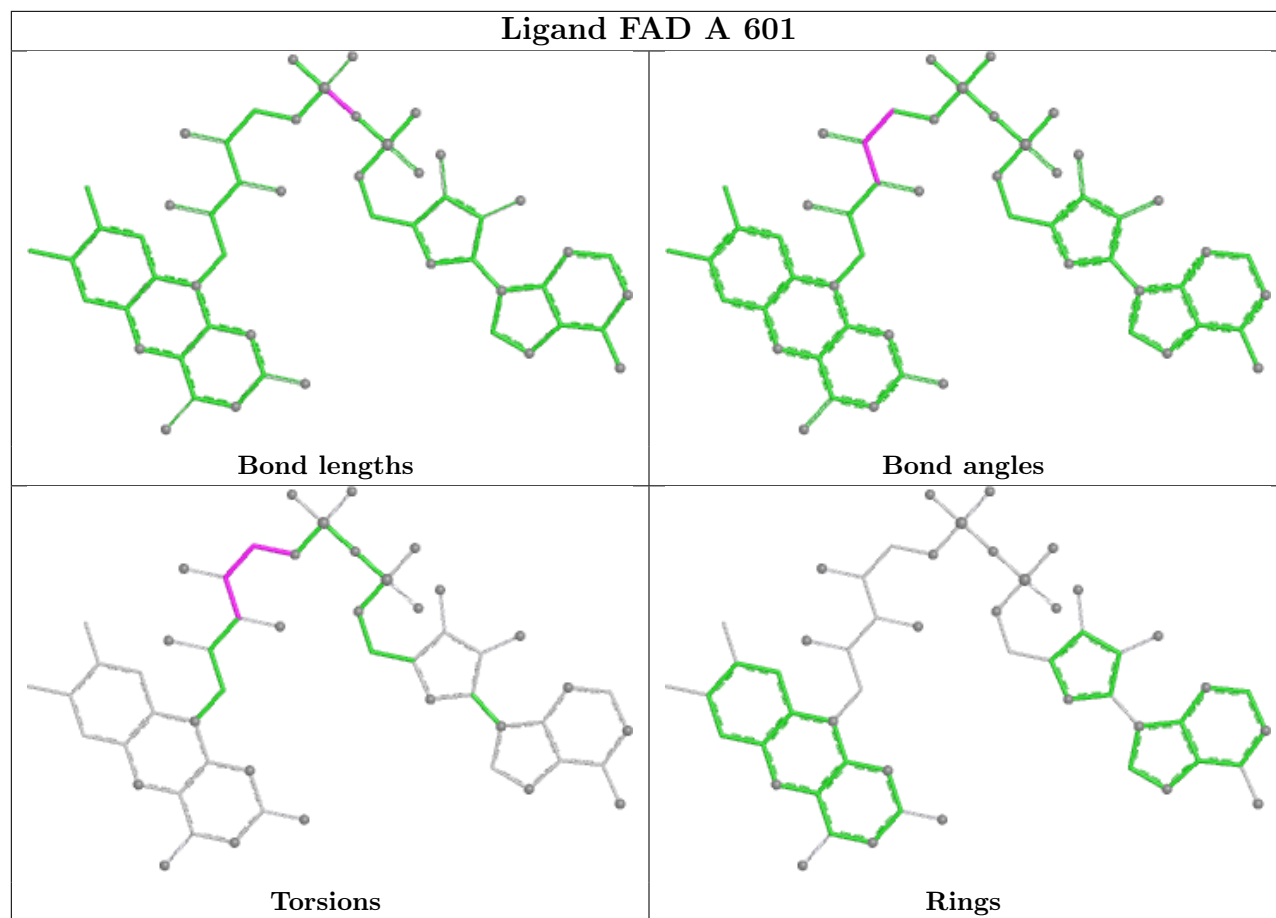


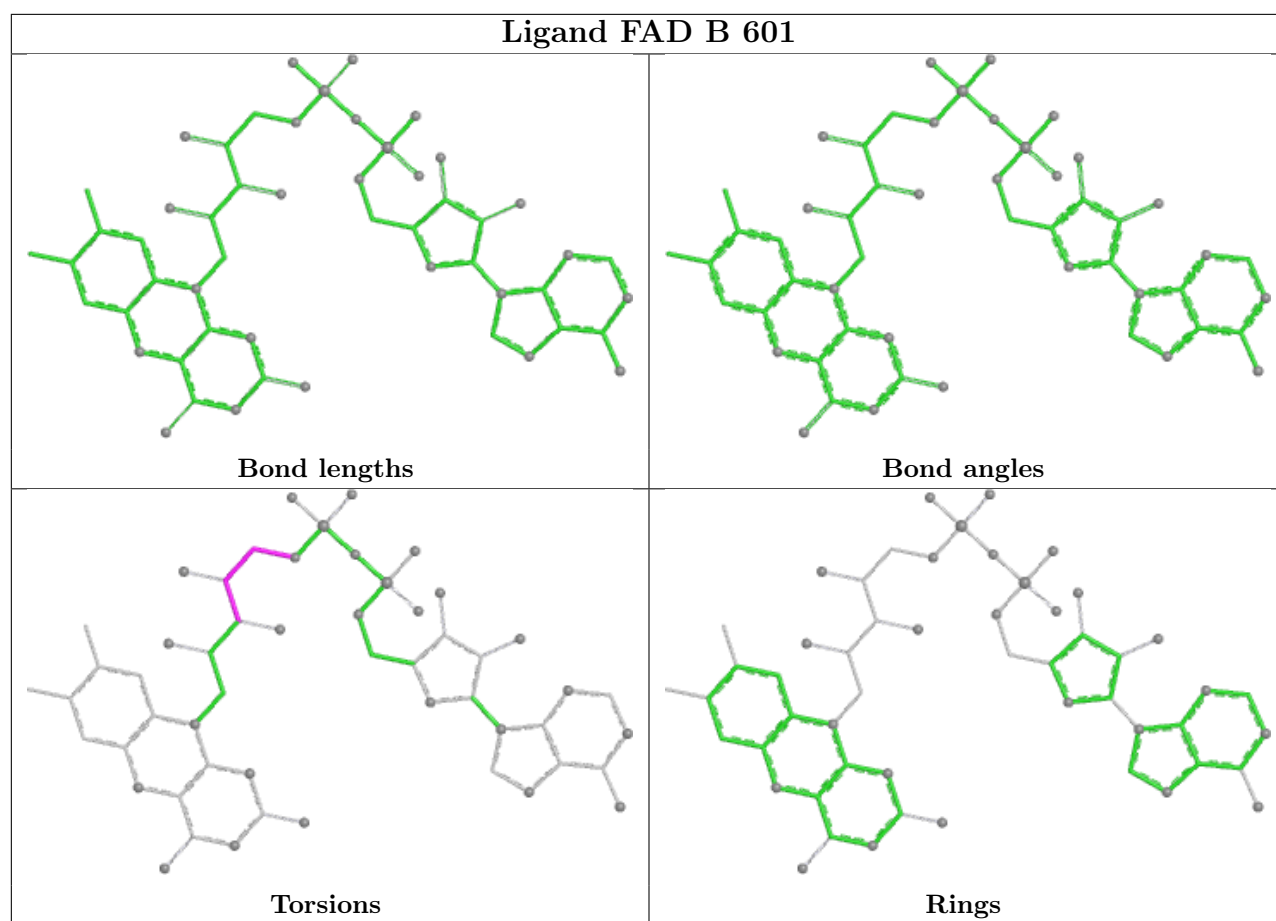
Ligand 55B I 602



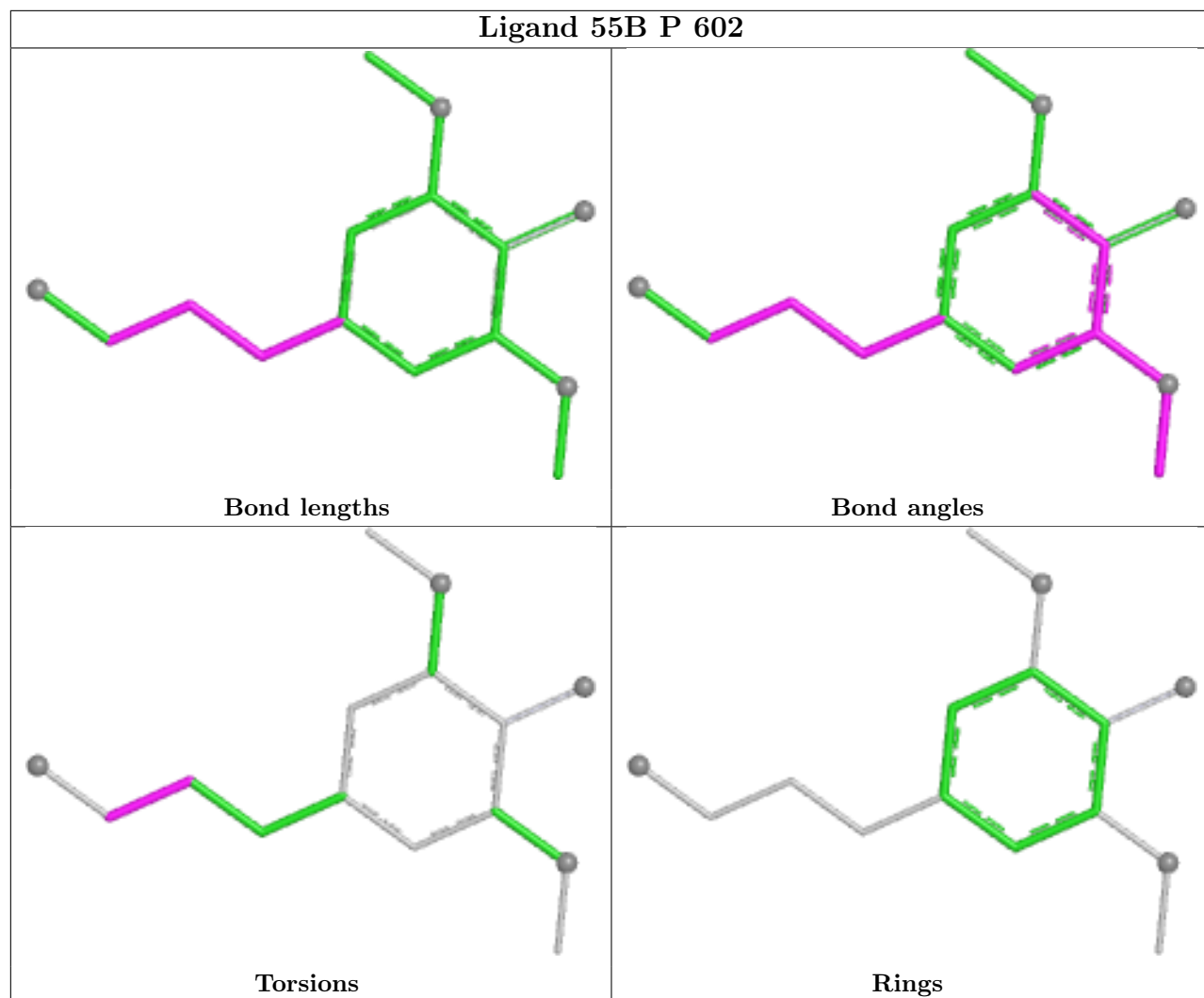
Ligand 55B B 602

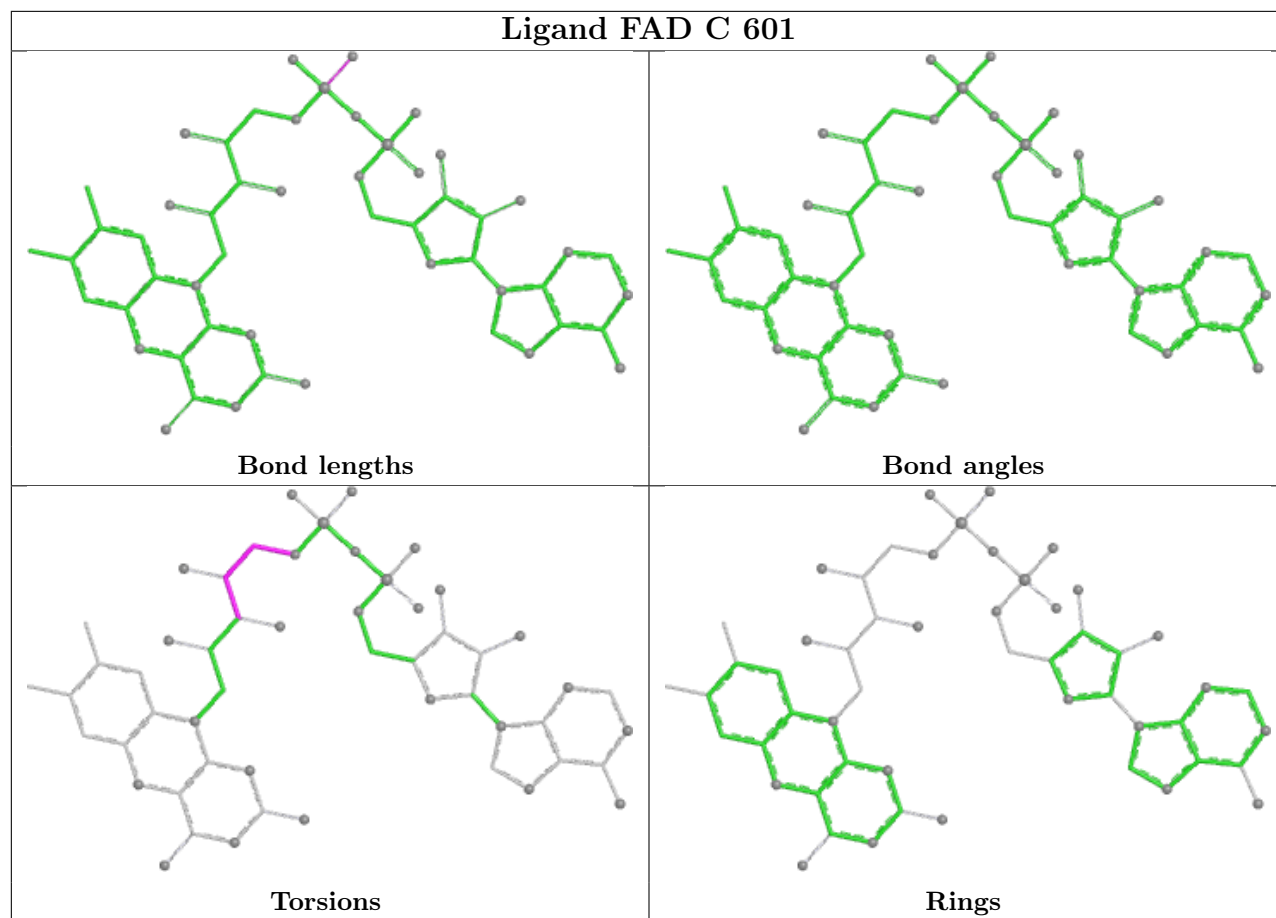




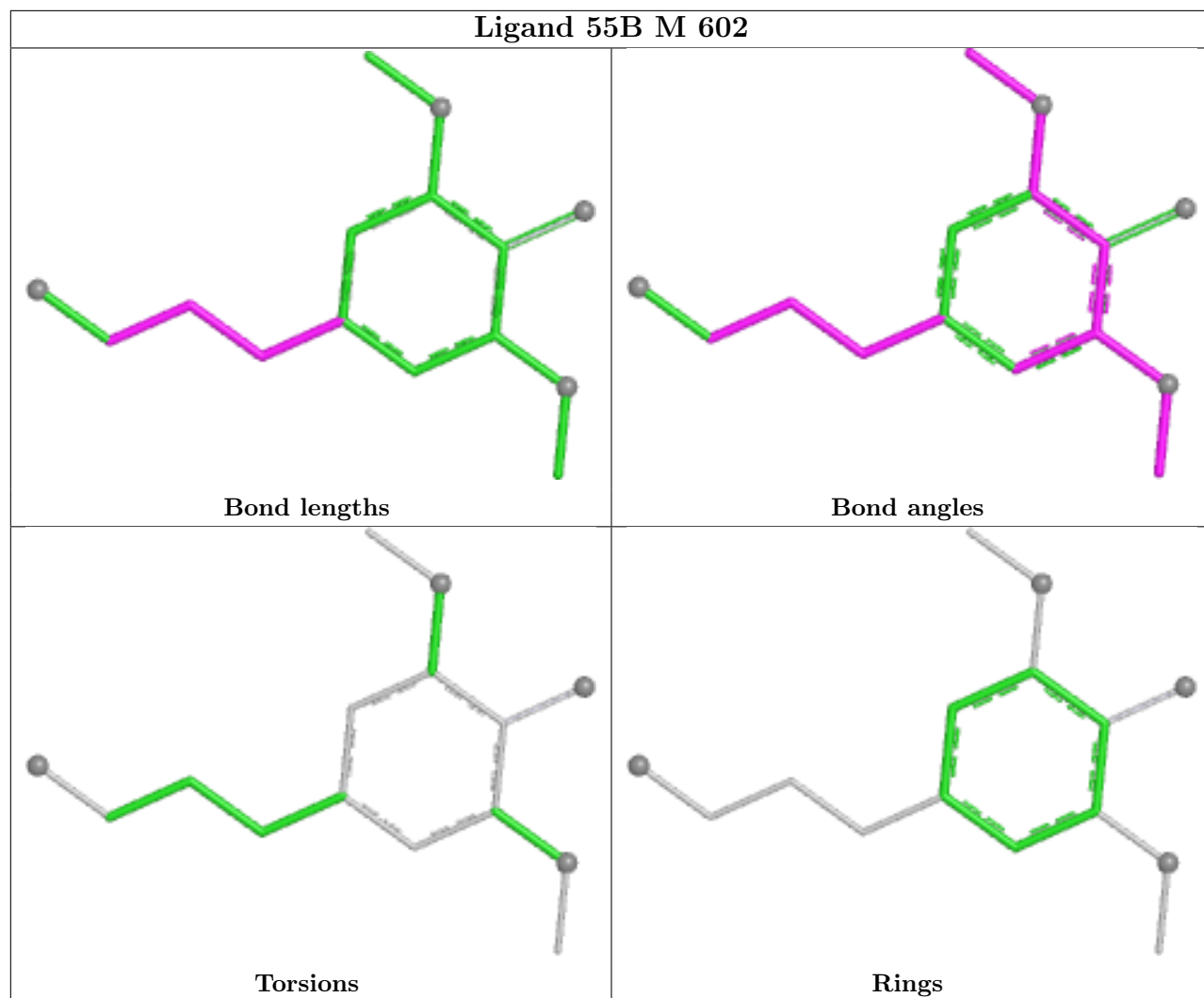


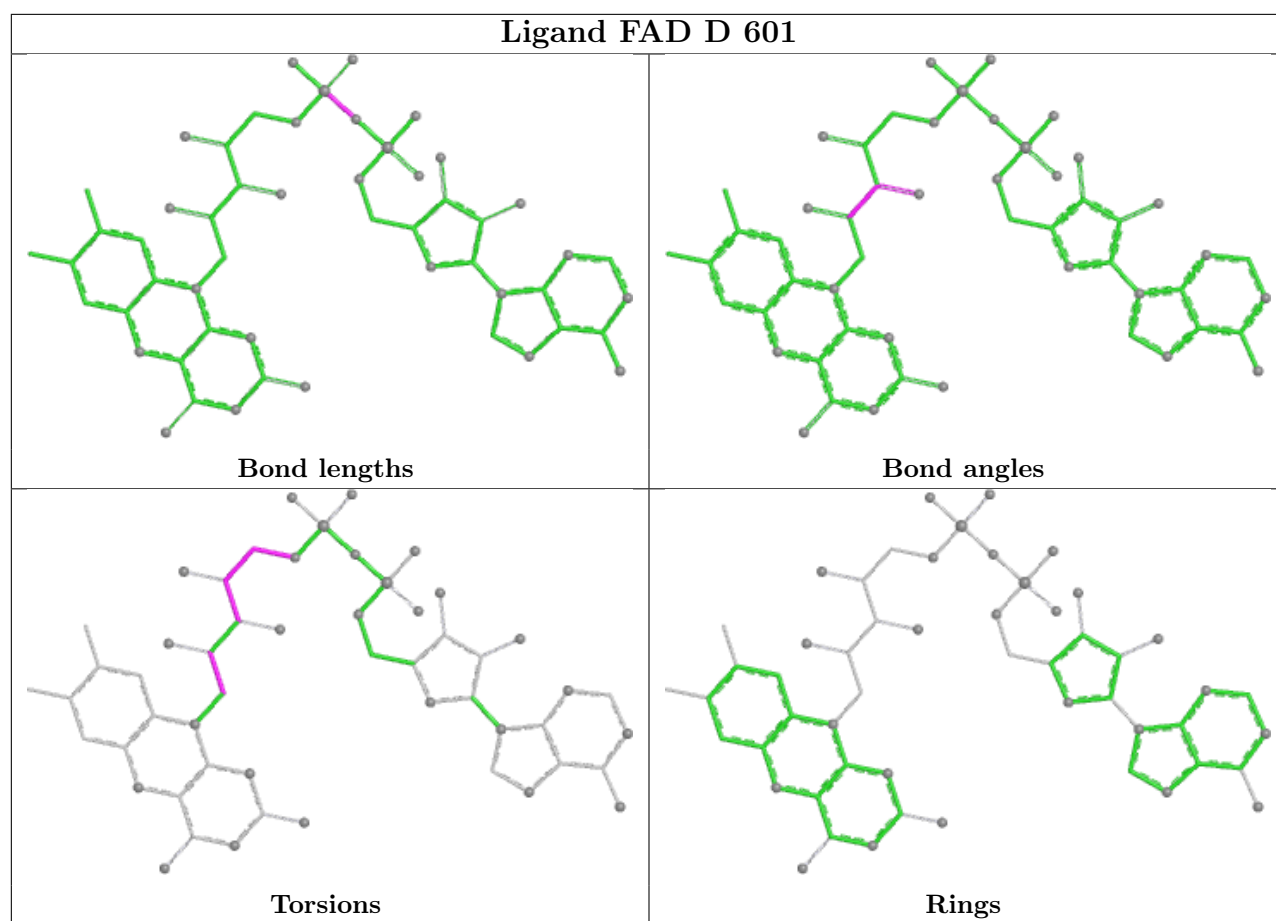
Ligand 55B P 602



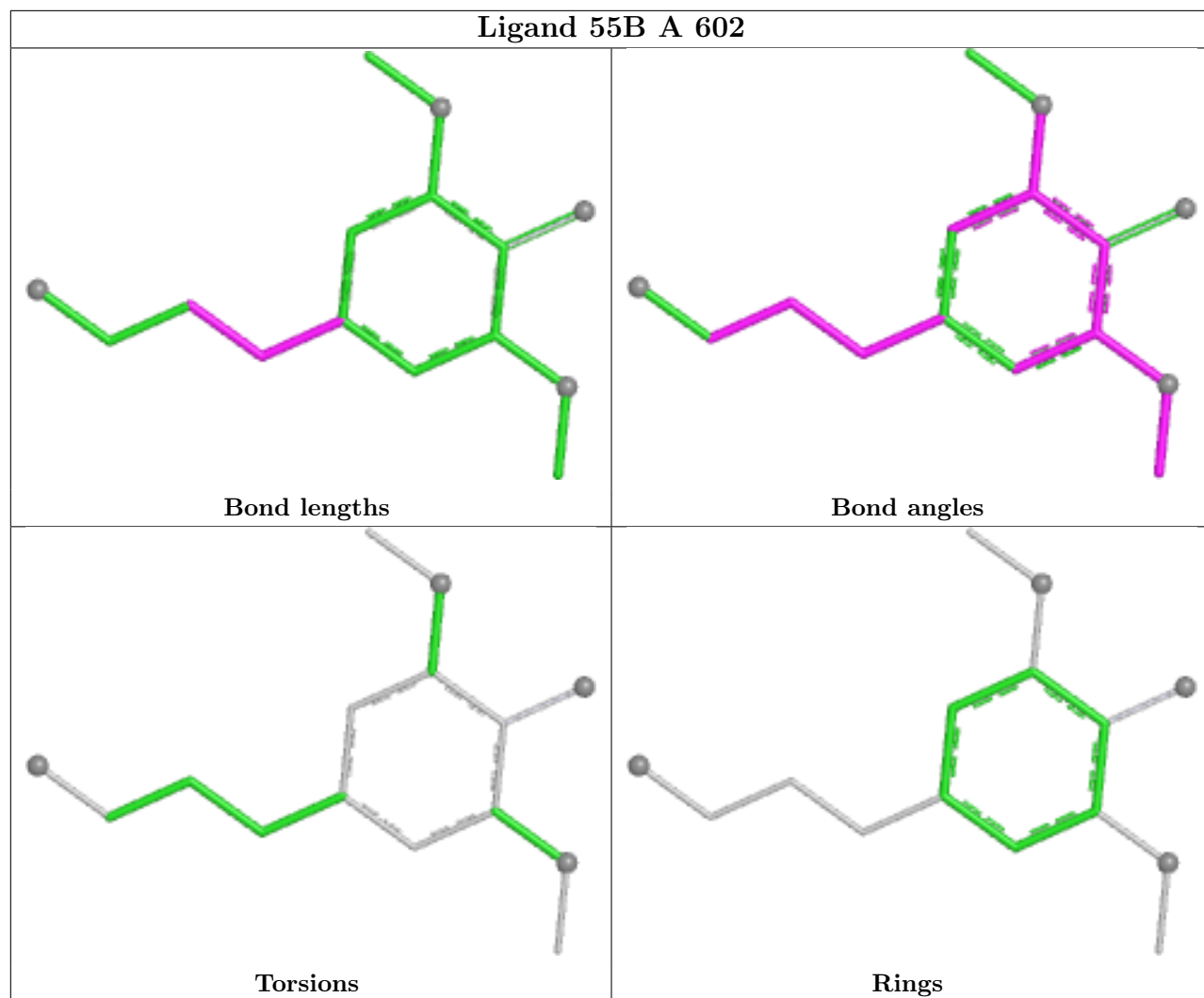


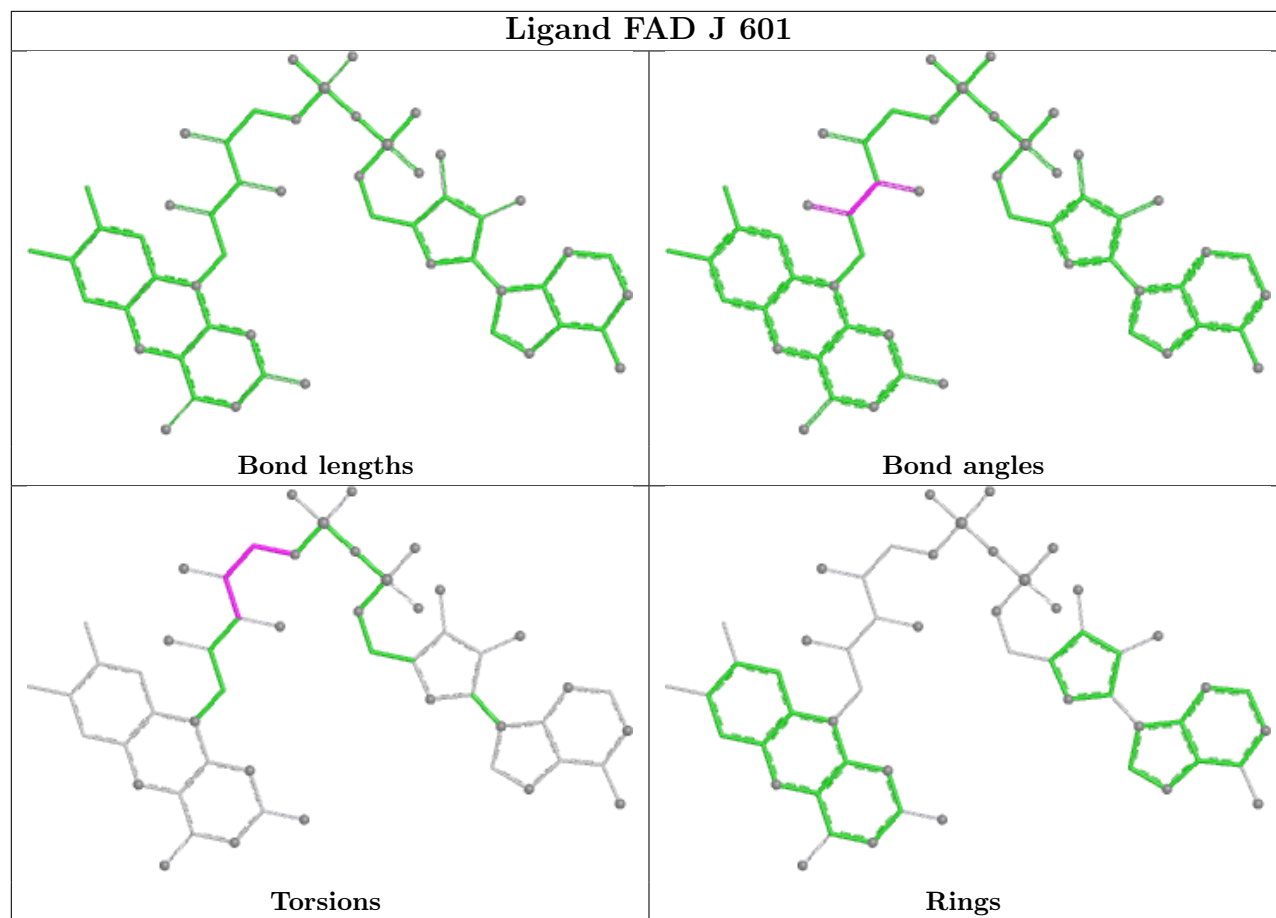
Ligand 55B M 602

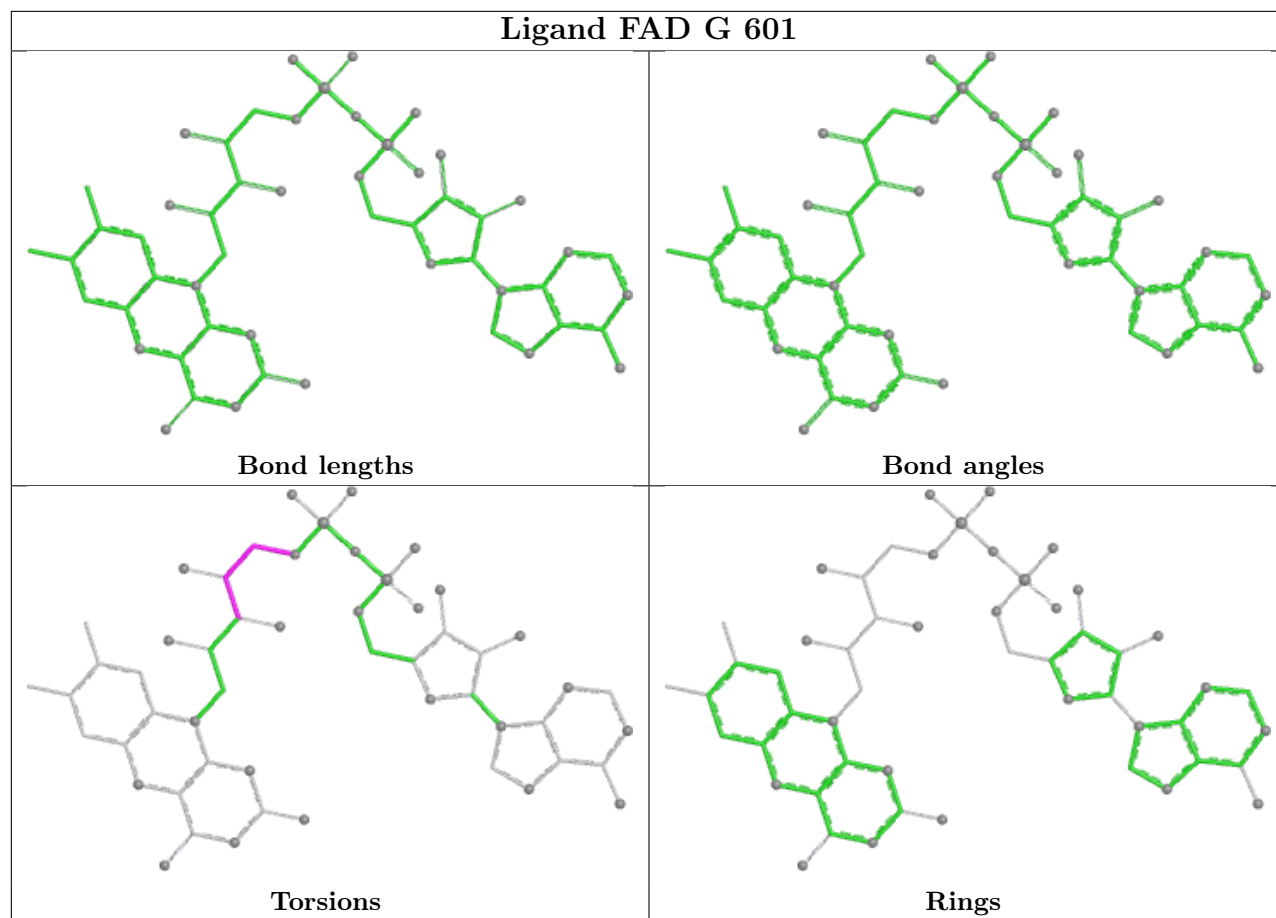


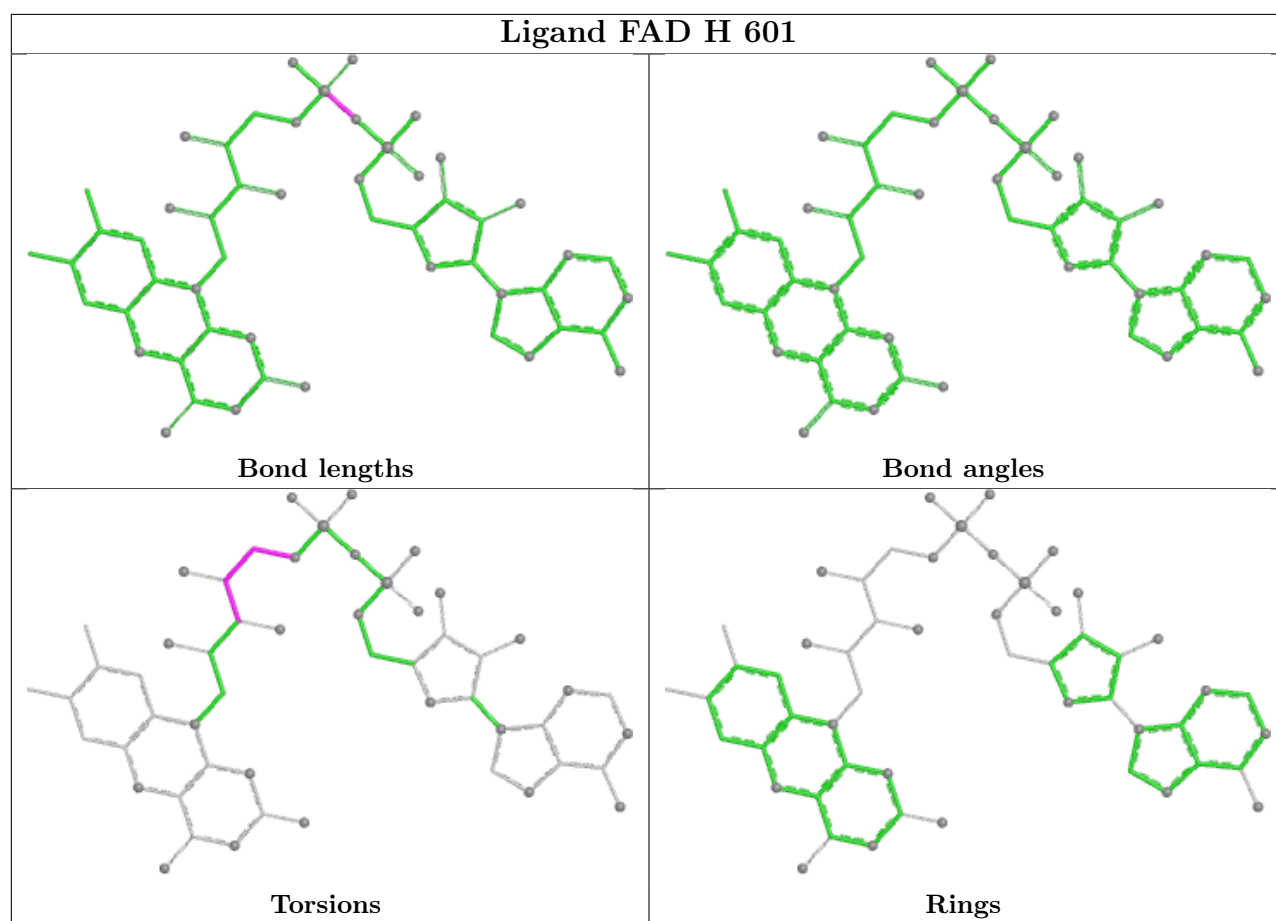


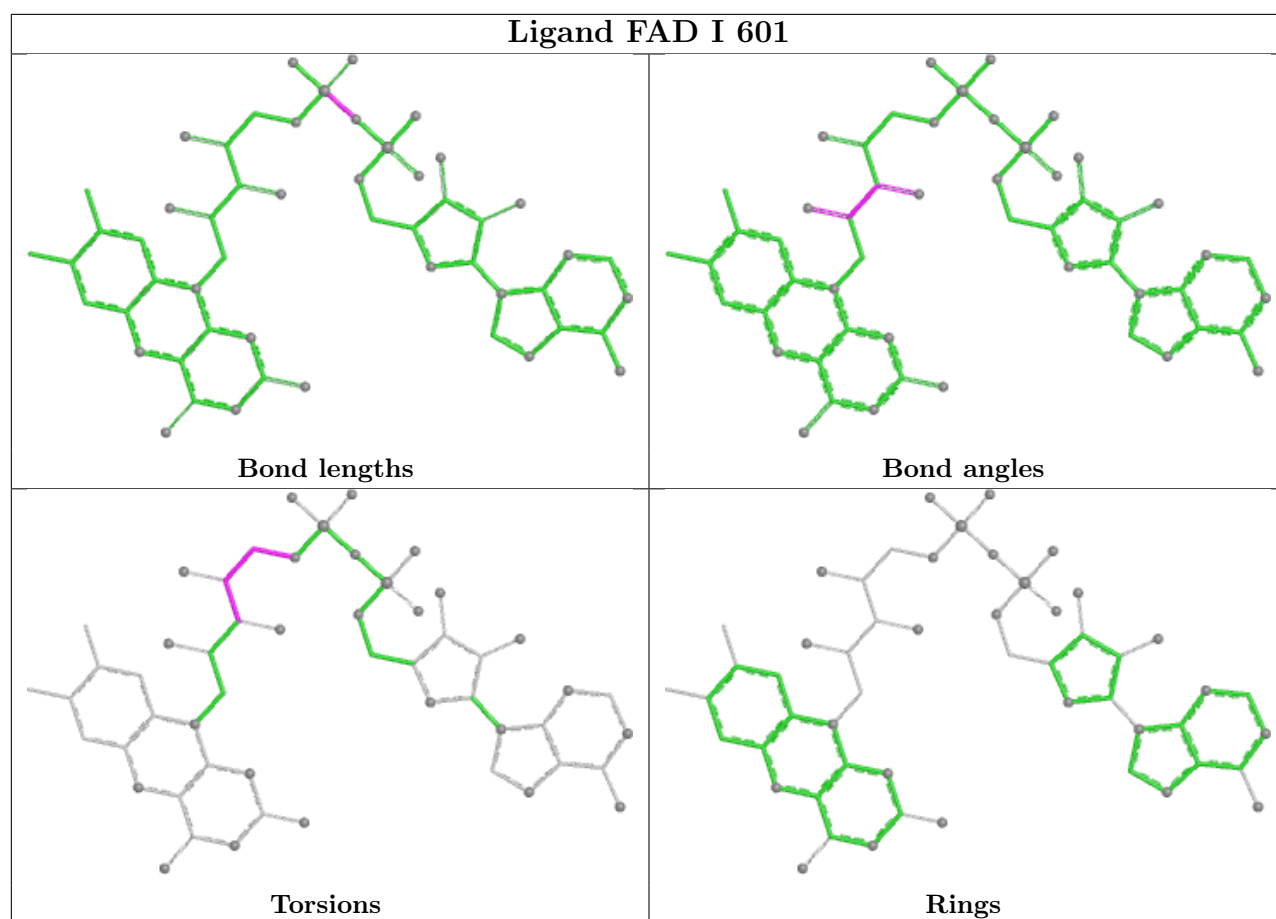
Ligand 55B A 602











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	525/526 (99%)	-0.37	3 (0%) 85 86	17, 25, 43, 71	0
1	B	525/526 (99%)	-0.43	3 (0%) 85 86	16, 24, 40, 77	0
1	C	525/526 (99%)	-0.39	4 (0%) 82 83	15, 24, 41, 79	0
1	D	525/526 (99%)	-0.36	5 (0%) 79 80	16, 25, 44, 70	0
1	E	525/526 (99%)	-0.27	5 (0%) 79 80	17, 27, 44, 85	0
1	F	525/526 (99%)	-0.25	2 (0%) 88 89	18, 28, 48, 85	0
1	G	525/526 (99%)	-0.08	9 (1%) 69 70	18, 31, 50, 79	0
1	H	525/526 (99%)	-0.41	4 (0%) 82 83	17, 24, 42, 70	0
1	I	525/526 (99%)	-0.24	5 (0%) 79 80	16, 29, 46, 84	0
1	J	525/526 (99%)	-0.18	8 (1%) 72 73	18, 29, 51, 80	0
1	K	525/526 (99%)	-0.01	6 (1%) 78 79	21, 34, 54, 89	0
1	L	525/526 (99%)	0.18	16 (3%) 52 54	20, 36, 64, 98	0
1	M	525/526 (99%)	0.38	11 (2%) 63 65	24, 41, 61, 96	0
1	N	525/526 (99%)	0.21	9 (1%) 69 70	24, 39, 58, 101	0
1	O	525/526 (99%)	0.71	43 (8%) 17 19	28, 48, 73, 91	0
1	P	525/526 (99%)	1.10	90 (17%) 4 5	26, 51, 79, 109	0
All	All	8400/8416 (99%)	-0.03	223 (2%) 56 58	15, 31, 59, 109	0

All (223) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	N	526	LEU	5.5
1	P	296	GLY	5.2
1	P	298	GLY	4.7
1	P	48	ALA	4.6
1	I	2	THR	4.5

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Mol	Chain	Res	Type	RSRZ
1	O	526	LEU	4.4
1	P	5	LEU	4.3
1	P	526	LEU	4.2
1	P	297	ASP	4.2
1	C	2	THR	4.1
1	J	34	ALA	4.0
1	P	7	PRO	4.0
1	M	526	LEU	4.0
1	F	2	THR	3.8
1	P	47	GLY	3.8
1	G	471	TYR	3.8
1	I	471	TYR	3.7
1	P	50	GLU	3.6
1	L	526	LEU	3.6
1	P	304	ALA	3.6
1	I	526	LEU	3.5
1	P	49	ALA	3.5
1	P	441	TYR	3.5
1	P	9	VAL	3.4
1	O	448	ALA	3.4
1	P	361	HIS	3.3
1	O	39	ALA	3.3
1	P	294	PHE	3.3
1	L	299	PRO	3.2
1	P	301	PRO	3.2
1	P	385	VAL	3.2
1	A	526	LEU	3.2
1	P	423	MET	3.1
1	E	423	MET	3.1
1	P	28	LYS	3.1
1	P	53	LEU	3.1
1	P	390	HIS	3.1
1	P	290	ARG	3.0
1	O	76	TYR	3.0
1	P	302	ALA	3.0
1	P	438	LEU	3.0
1	P	453	LEU	3.0
1	O	78	ILE	3.0
1	H	297	ASP	3.0
1	L	298	GLY	3.0
1	M	356	ASP	3.0
1	P	299	PRO	3.0

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Mol	Chain	Res	Type	RSRZ
1	O	34	ALA	2.9
1	M	423	MET	2.9
1	O	299	PRO	2.9
1	O	507	GLY	2.9
1	K	526	LEU	2.9
1	P	307	ARG	2.8
1	P	30	VAL	2.8
1	P	154	TRP	2.8
1	P	300	MET	2.8
1	O	525	ASN	2.8
1	K	296	GLY	2.8
1	M	359	GLY	2.8
1	O	296	GLY	2.8
1	O	523	GLY	2.8
1	P	76	TYR	2.8
1	G	432	GLU	2.8
1	O	40	PHE	2.8
1	L	295	ASP	2.8
1	P	448	ALA	2.8
1	O	14	PHE	2.8
1	G	297	ASP	2.7
1	N	297	ASP	2.7
1	N	525	ASN	2.7
1	P	444	ALA	2.7
1	P	281	PHE	2.7
1	J	297	ASP	2.7
1	P	152	LEU	2.7
1	P	16	ALA	2.7
1	J	295	ASP	2.7
1	L	302	ALA	2.7
1	D	295	ASP	2.7
1	P	314	LEU	2.7
1	O	28	LYS	2.6
1	P	521	PHE	2.6
1	P	24	VAL	2.6
1	K	8	GLY	2.6
1	P	8	GLY	2.6
1	P	419	ASN	2.6
1	P	384	TRP	2.6
1	P	21	PHE	2.6
1	P	10	SER	2.6
1	P	305	ILE	2.6

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Mol	Chain	Res	Type	RSRZ
1	M	12	GLU	2.5
1	B	297	ASP	2.5
1	N	2	THR	2.5
1	N	296	GLY	2.5
1	P	93	GLY	2.5
1	B	526	LEU	2.5
1	G	402	ARG	2.5
1	P	77	GLY	2.5
1	D	2	THR	2.5
1	O	58	VAL	2.5
1	P	58	VAL	2.5
1	P	409	GLU	2.5
1	E	526	LEU	2.5
1	P	31	LEU	2.5
1	C	525	ASN	2.5
1	H	2	THR	2.4
1	O	294	PHE	2.4
1	P	46	VAL	2.4
1	G	526	LEU	2.4
1	P	3	ARG	2.4
1	P	78	ILE	2.4
1	O	31	LEU	2.4
1	M	298	GLY	2.4
1	P	26	GLY	2.4
1	M	297	ASP	2.4
1	O	297	ASP	2.4
1	K	298	GLY	2.4
1	P	39	ALA	2.4
1	P	389	GLY	2.4
1	P	523	GLY	2.4
1	A	2	THR	2.4
1	P	440	ILE	2.4
1	L	382	LEU	2.4
1	O	379	LEU	2.4
1	P	18	LEU	2.4
1	P	293	TRP	2.4
1	O	295	ASP	2.3
1	G	296	GLY	2.3
1	P	4	THR	2.3
1	I	297	ASP	2.3
1	P	35	ASP	2.3
1	O	13	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	526	LEU	2.3
1	E	525	ASN	2.3
1	P	11	ASP	2.3
1	O	446	PRO	2.3
1	H	296	GLY	2.3
1	L	434	TYR	2.3
1	O	422	TYR	2.3
1	D	423	MET	2.3
1	P	17	ALA	2.3
1	J	526	LEU	2.3
1	L	310	LYS	2.3
1	O	37	LEU	2.3
1	C	35	ASP	2.3
1	D	249	ASP	2.3
1	G	298	GLY	2.3
1	O	48	ALA	2.3
1	P	289	LYS	2.3
1	N	112	ARG	2.2
1	O	2	THR	2.2
1	P	391	ILE	2.2
1	P	349	PHE	2.2
1	K	297	ASP	2.2
1	L	297	ASP	2.2
1	P	383	ASP	2.2
1	P	38	GLU	2.2
1	O	29	TRP	2.2
1	H	526	LEU	2.2
1	M	421	ASP	2.2
1	P	151	ASP	2.2
1	P	6	PRO	2.2
1	P	153	GLY	2.2
1	O	38	GLU	2.2
1	E	2	THR	2.2
1	O	444	ALA	2.2
1	P	2	THR	2.2
1	P	98	LEU	2.2
1	A	297	ASP	2.2
1	E	297	ASP	2.2
1	O	15	ASP	2.2
1	O	385	VAL	2.2
1	P	57	VAL	2.2
1	G	38	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	361	HIS	2.2
1	J	523	GLY	2.2
1	P	34	ALA	2.2
1	N	402	ARG	2.1
1	P	422	TYR	2.1
1	O	306	GLU	2.1
1	O	361	HIS	2.1
1	P	347	ALA	2.1
1	I	461	ARG	2.1
1	K	432	GLU	2.1
1	M	27	ASP	2.1
1	O	50	GLU	2.1
1	P	104	VAL	2.1
1	O	19	GLN	2.1
1	L	296	GLY	2.1
1	P	507	GLY	2.1
1	O	17	ALA	2.1
1	L	250	LYS	2.1
1	P	310	LYS	2.1
1	L	305	ILE	2.1
1	L	525	ASN	2.1
1	O	103	ILE	2.1
1	O	452	ILE	2.1
1	P	69	ILE	2.1
1	P	452	ILE	2.1
1	J	361	HIS	2.1
1	P	99	SER	2.1
1	N	48	ALA	2.1
1	O	5	LEU	2.1
1	O	98	LEU	2.1
1	L	356	ASP	2.1
1	P	387	ASN	2.1
1	J	296	GLY	2.1
1	N	523	GLY	2.1
1	P	90	GLY	2.1
1	L	293	TRP	2.1
1	P	461	ARG	2.1
1	G	310	LYS	2.0
1	F	297	ASP	2.0
1	M	525	ASN	2.0
1	L	294	PHE	2.0
1	P	14	PHE	2.0

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Mol	Chain	Res	Type	RSRZ
1	P	87	LYS	2.0
1	J	2	THR	2.0
1	M	50	GLU	2.0
1	O	10	SER	2.0
1	O	55	SER	2.0
1	D	297	ASP	2.0
1	O	311	ASP	2.0
1	P	356	ASP	2.0

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

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	CA	N	603	1/1	0.85	0.11	51,51,51,51	0
4	CA	L	603	1/1	0.89	0.08	37,37,37,37	0
3	55B	O	602	15/15	0.89	0.14	49,52,63,66	0
3	55B	L	602	15/15	0.90	0.11	30,32,47,56	0
3	55B	P	602	15/15	0.90	0.12	40,44,56,61	0
2	FAD	P	601	53/53	0.91	0.11	36,43,50,53	0
3	55B	M	602	15/15	0.92	0.10	37,43,50,57	0
3	55B	N	602	15/15	0.92	0.10	33,40,49,58	0
3	55B	K	602	15/15	0.93	0.09	29,33,45,58	0
2	FAD	O	601	53/53	0.93	0.10	36,46,57,61	0
4	CA	A	603	1/1	0.93	0.09	42,42,42,42	0
2	FAD	M	601	53/53	0.93	0.09	31,38,46,51	0
3	55B	D	602	15/15	0.93	0.09	19,26,35,44	0
4	CA	F	603	1/1	0.94	0.06	35,35,35,35	0
4	CA	J	603	1/1	0.94	0.10	39,39,39,39	0

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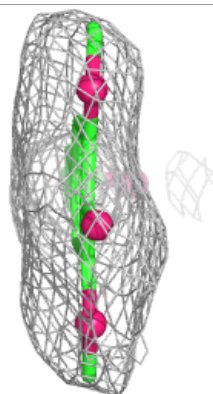
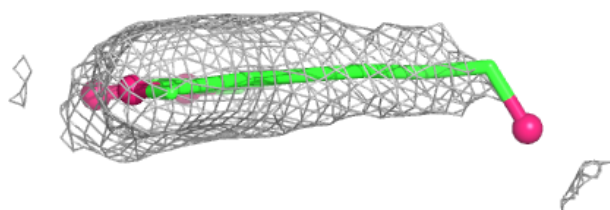
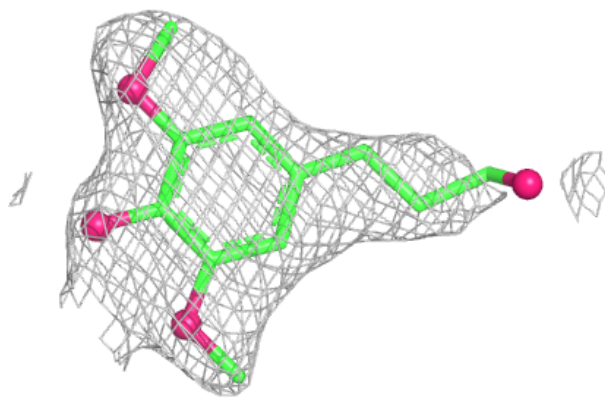
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	55B	I	602	15/15	0.94	0.09	22,25,35,50	0
3	55B	F	602	15/15	0.94	0.08	23,28,39,49	0
3	55B	J	602	15/15	0.95	0.07	28,30,36,42	0
3	55B	C	602	15/15	0.95	0.07	23,26,33,38	0
2	FAD	N	601	53/53	0.95	0.08	31,37,40,42	0
3	55B	E	602	15/15	0.95	0.07	27,29,34,39	0
3	55B	A	602	15/15	0.95	0.08	22,27,36,44	0
3	55B	B	602	15/15	0.95	0.07	21,24,37,44	0
4	CA	D	603	1/1	0.96	0.07	33,33,33,33	0
4	CA	E	603	1/1	0.96	0.06	31,31,31,31	0
2	FAD	K	601	53/53	0.96	0.07	22,27,33,36	0
3	55B	G	602	15/15	0.96	0.07	19,24,35,40	0
3	55B	H	602	15/15	0.96	0.06	21,25,28,39	0
2	FAD	B	601	53/53	0.96	0.06	17,22,26,55	0
2	FAD	J	601	53/53	0.97	0.06	17,24,28,32	0
2	FAD	A	601	53/53	0.97	0.06	17,22,27,30	0
2	FAD	L	601	53/53	0.97	0.06	18,29,36,40	0
2	FAD	C	601	53/53	0.97	0.06	15,20,27,30	0
4	CA	A	604	1/1	0.97	0.06	32,32,32,32	0
4	CA	B	603	1/1	0.97	0.07	32,32,32,32	0
2	FAD	D	601	53/53	0.97	0.06	15,21,26,29	0
2	FAD	E	601	53/53	0.97	0.05	17,23,27,28	0
2	FAD	F	601	53/53	0.97	0.06	19,23,26,30	0
2	FAD	G	601	53/53	0.97	0.05	15,23,28,33	0
2	FAD	H	601	53/53	0.97	0.05	15,21,25,27	0
4	CA	M	603	1/1	0.97	0.08	41,41,41,41	0
2	FAD	I	601	53/53	0.97	0.06	18,22,26,27	0
4	CA	C	603	1/1	0.98	0.04	32,32,32,32	0
4	CA	O	603	1/1	0.98	0.05	38,38,38,38	0

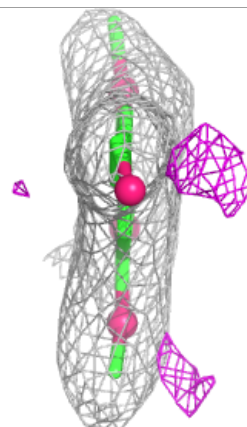
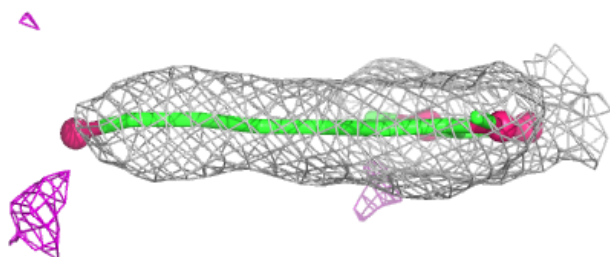
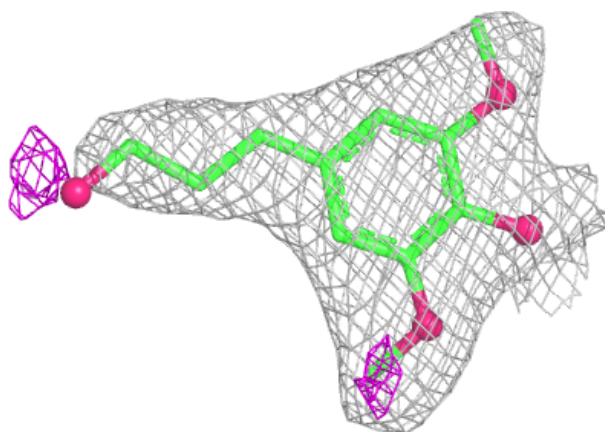
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around 55B O 602:

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

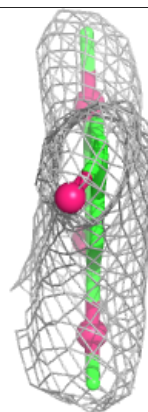
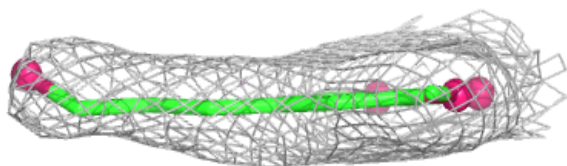
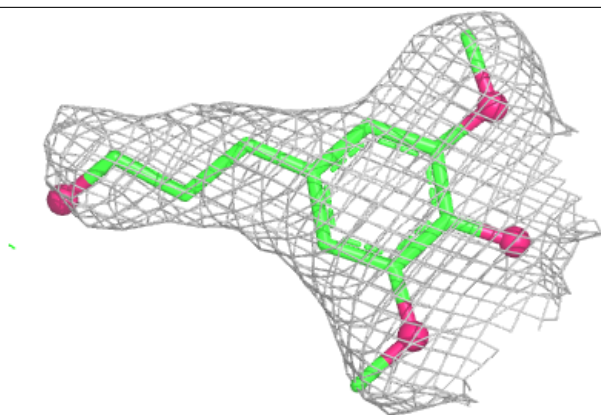
**Electron density around 55B L 602:**

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

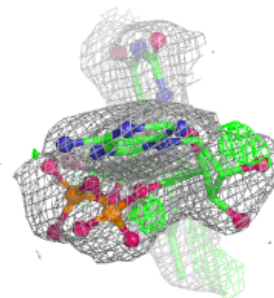
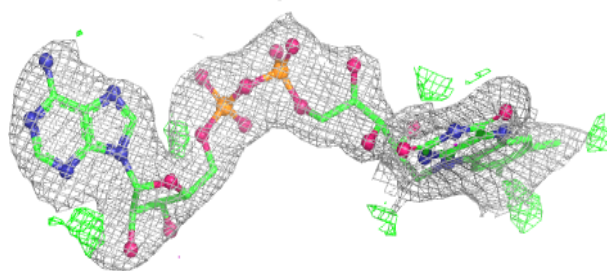
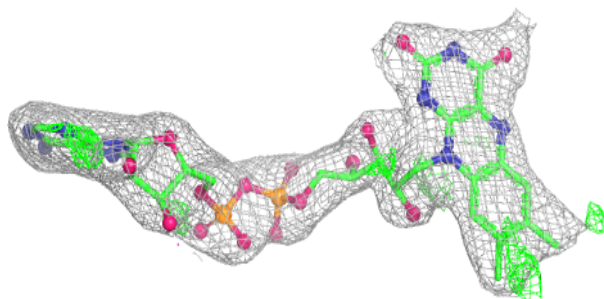


Electron density around 55B P 602:

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

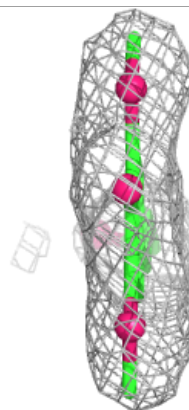
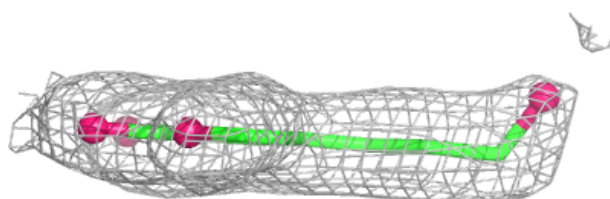
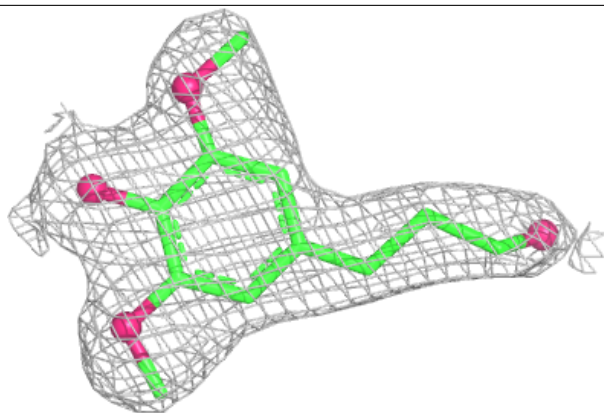
**Electron density around FAD P 601:**

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

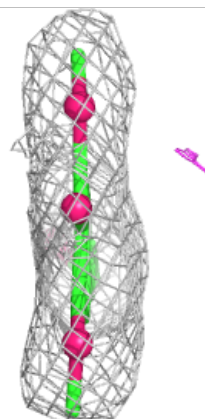
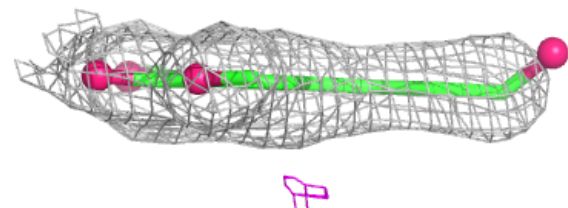
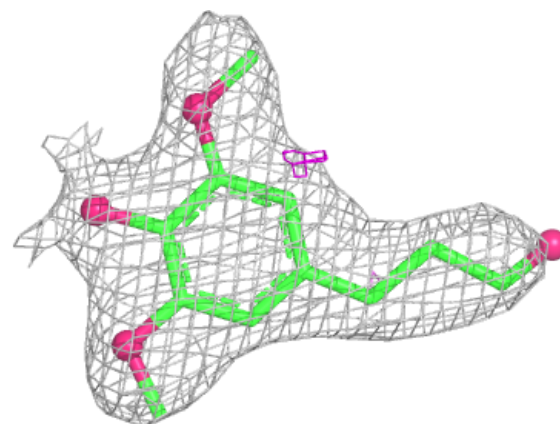


Electron density around 55B M 602:

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

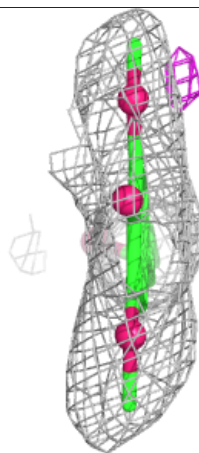
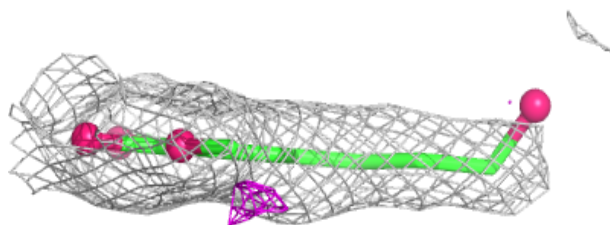
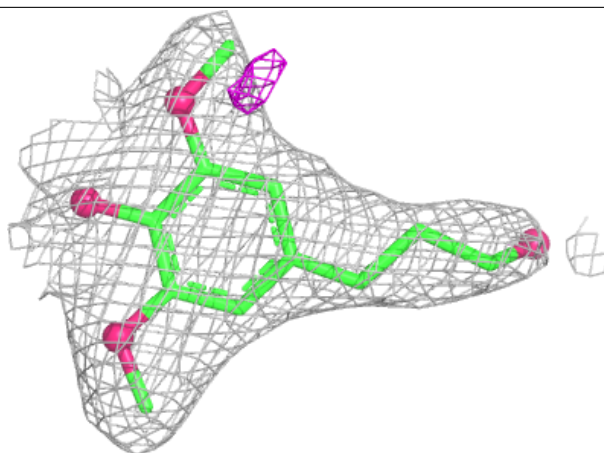
**Electron density around 55B N 602:**

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and green (positive)

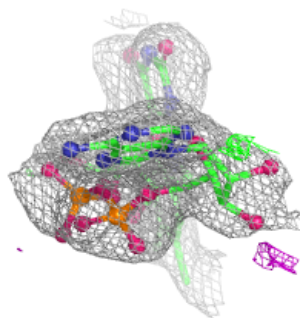
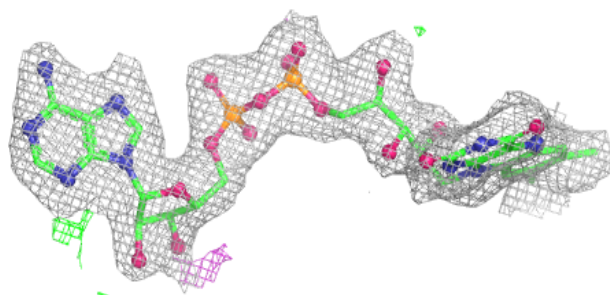
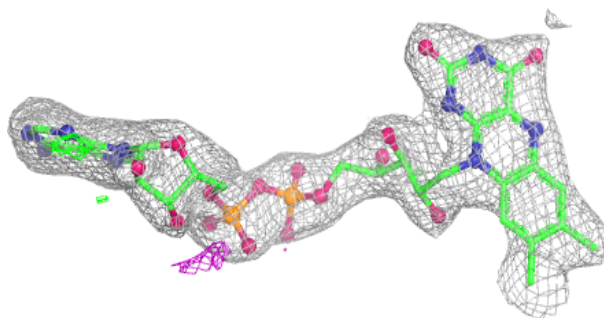


Electron density around 55B K 602:

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

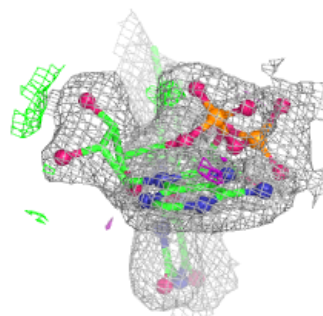
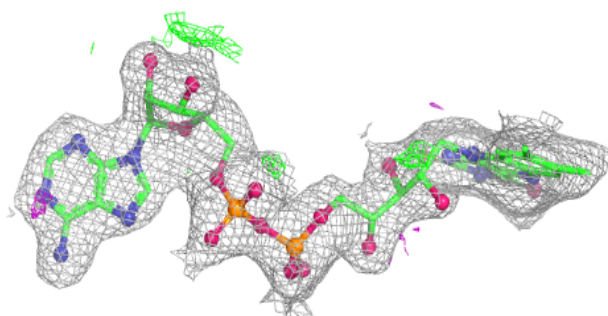
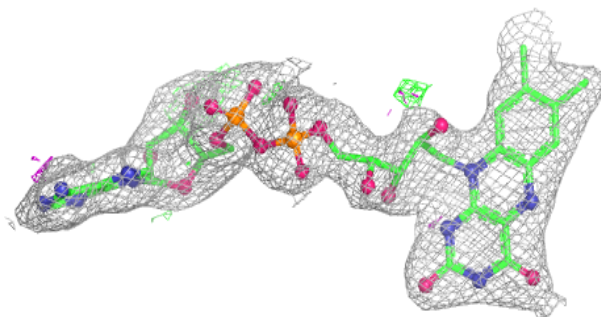
**Electron density around FAD O 601:**

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

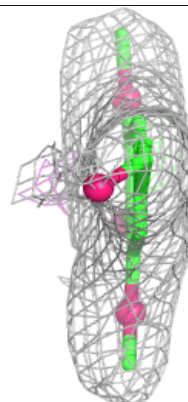
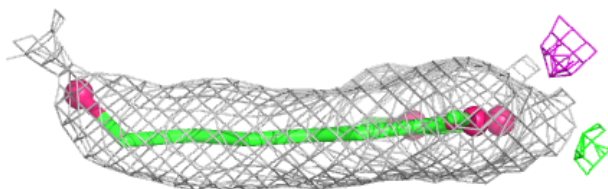
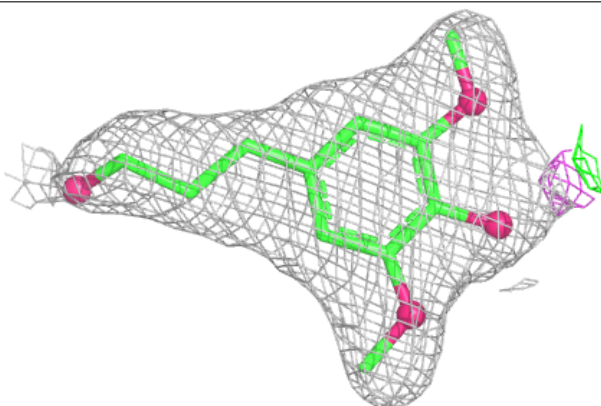


Electron density around FAD M 601:

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

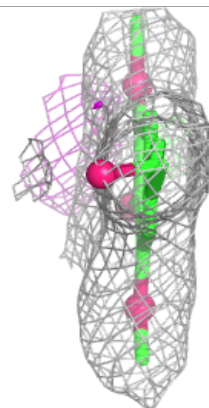
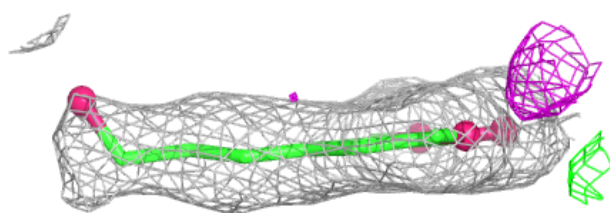
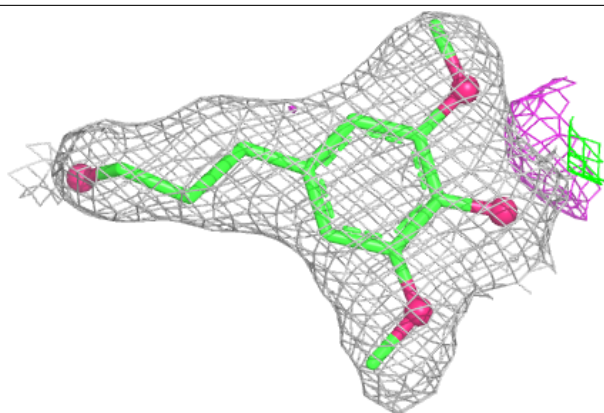
**Electron density around 55B D 602:**

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

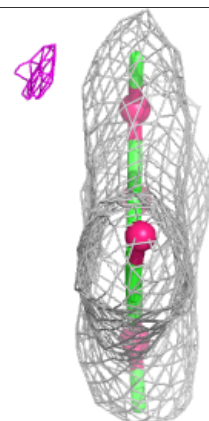
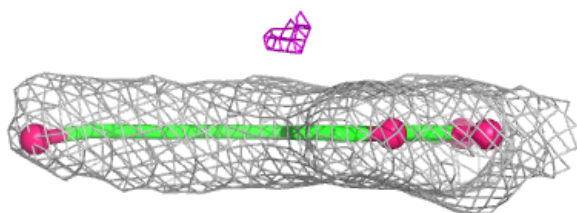
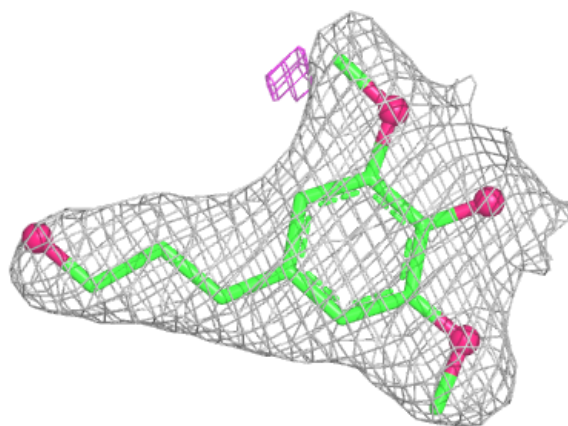


Electron density around 55B I 602:

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and green (positive)

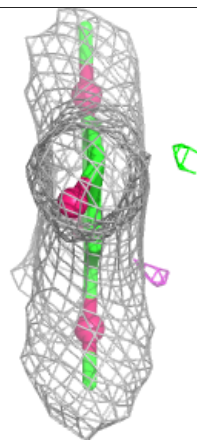
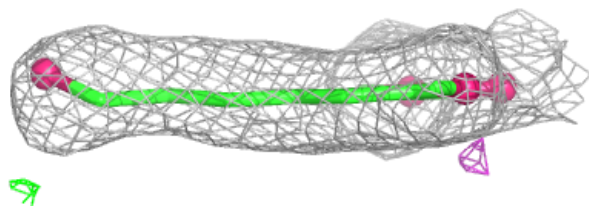
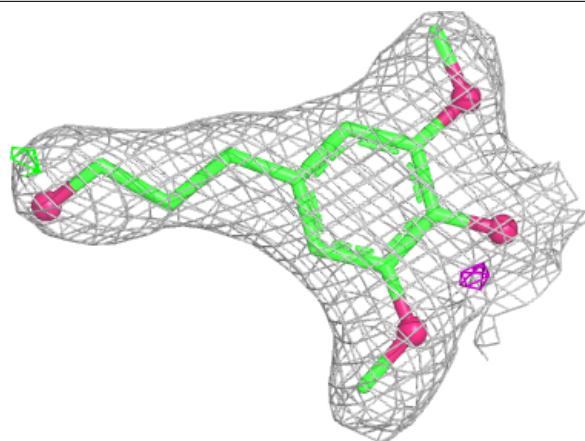
**Electron density around 55B F 602:**

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and green (positive)



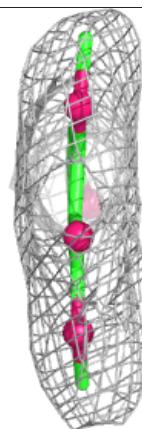
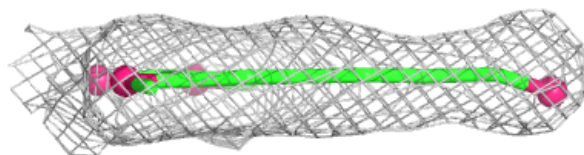
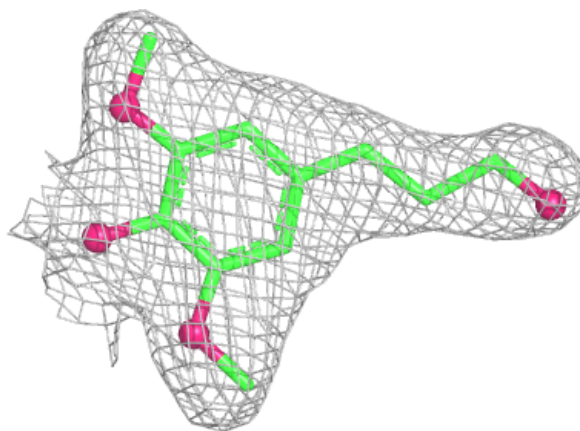
Electron density around 55B J 602:

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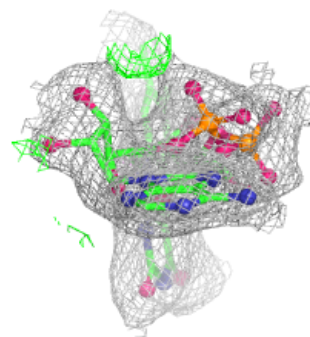
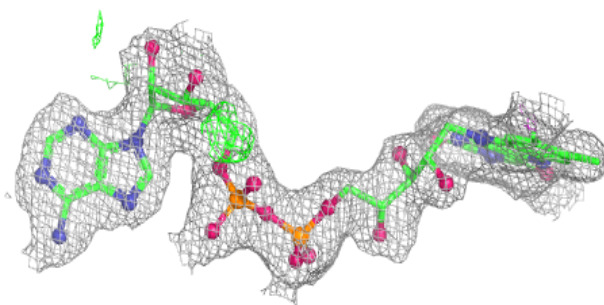
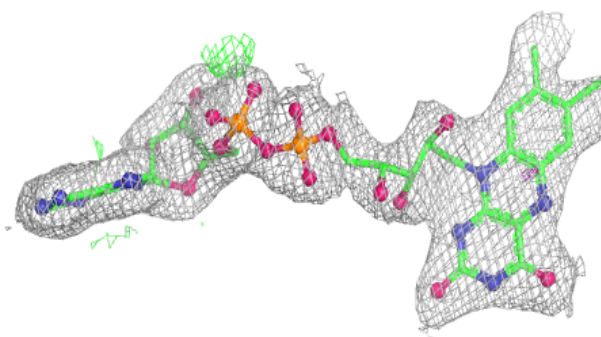


Electron density around 55B C 602:

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and green (positive)

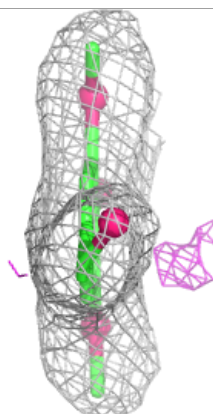
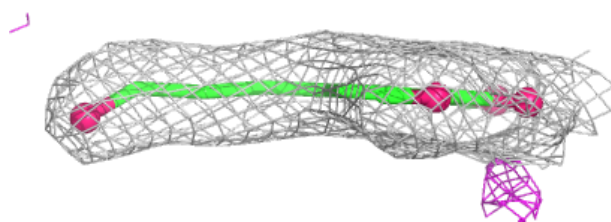
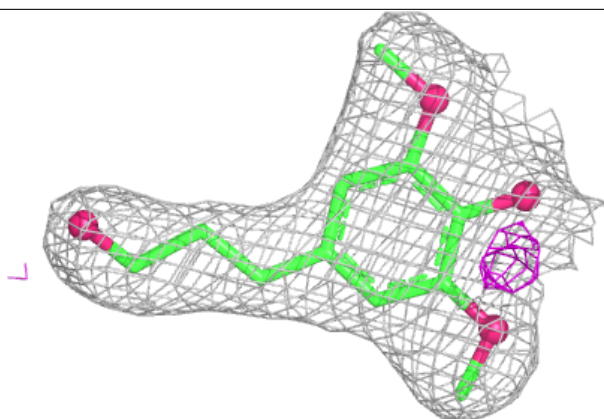
**Electron density around FAD N 601:**

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

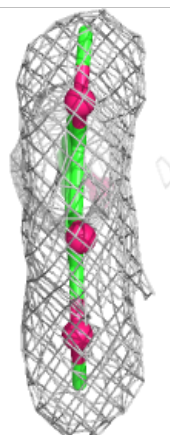
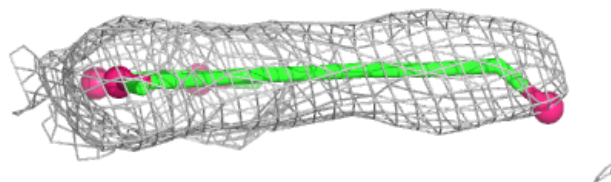
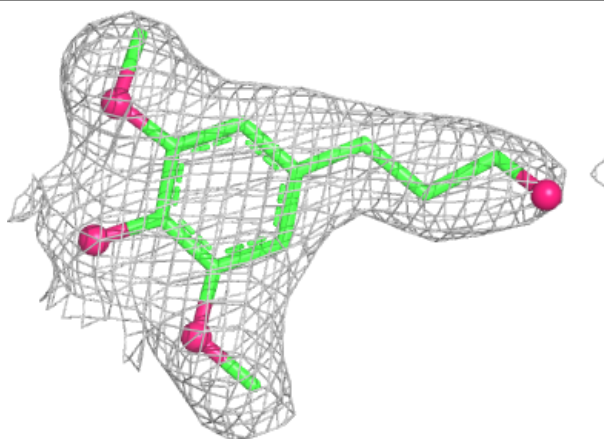


Electron density around 55B E 602:

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

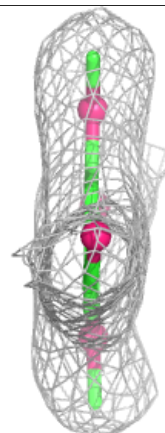
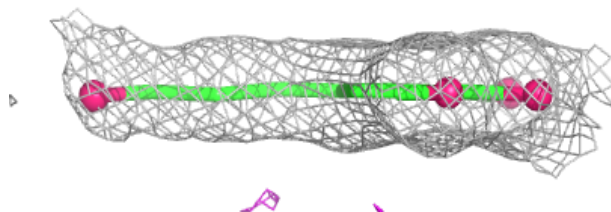
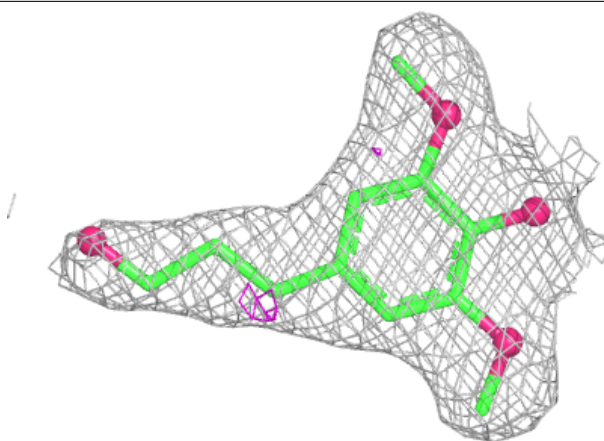
**Electron density around 55B A 602:**

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

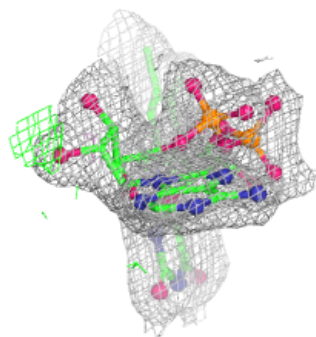
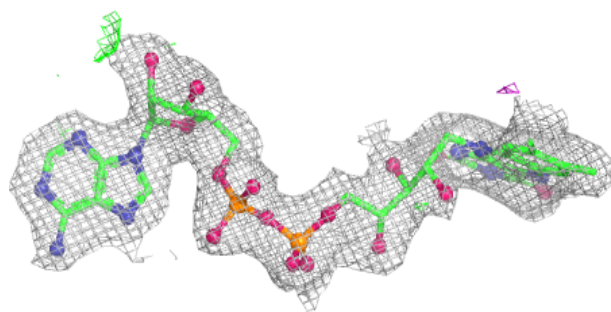
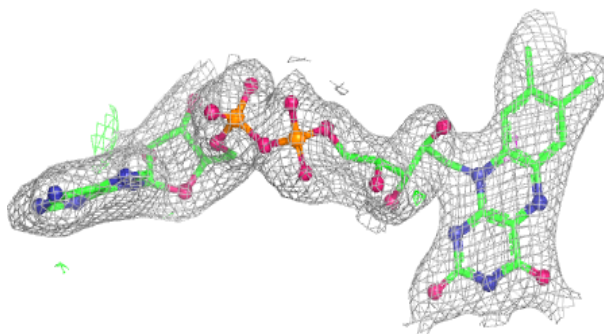


Electron density around 55B B 602:

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

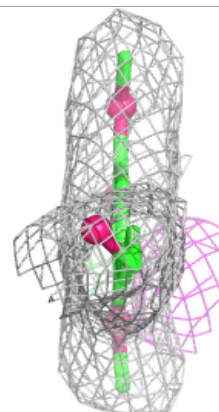
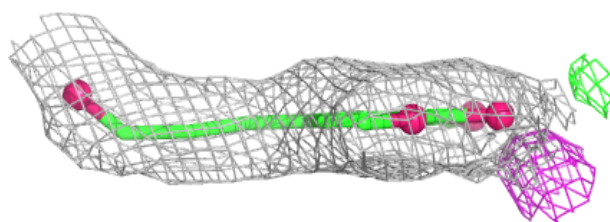
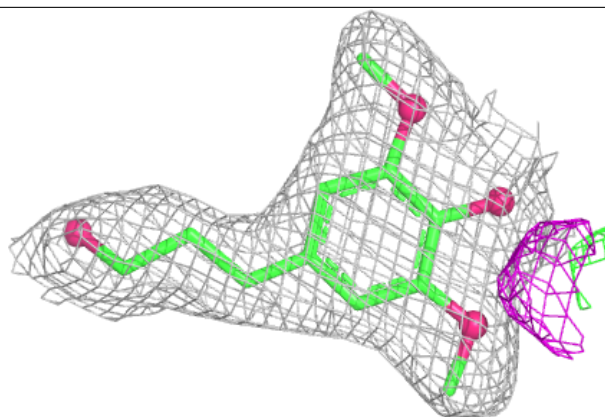
**Electron density around FAD K 601:**

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

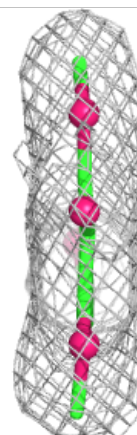
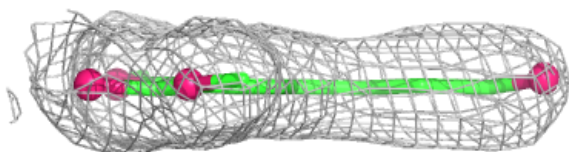
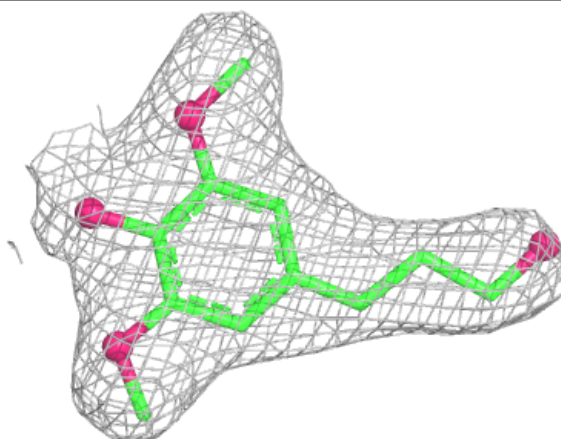


Electron density around 55B G 602:

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

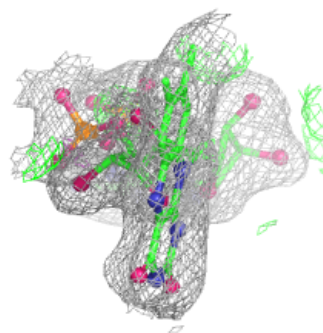
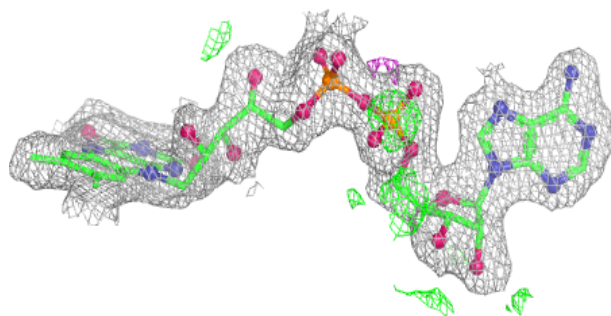
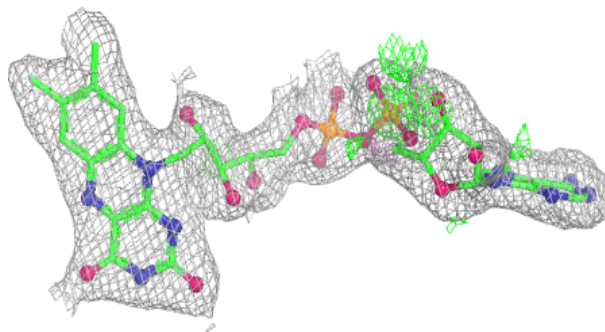
**Electron density around 55B H 602:**

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

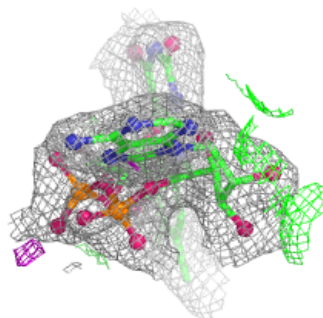
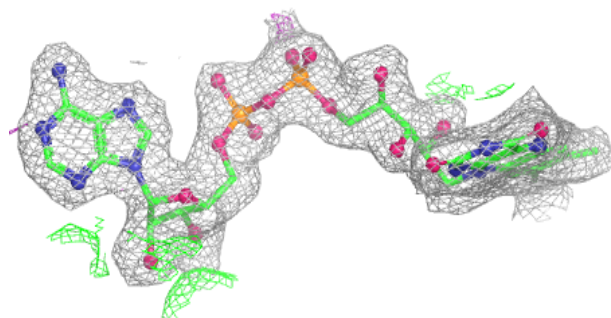
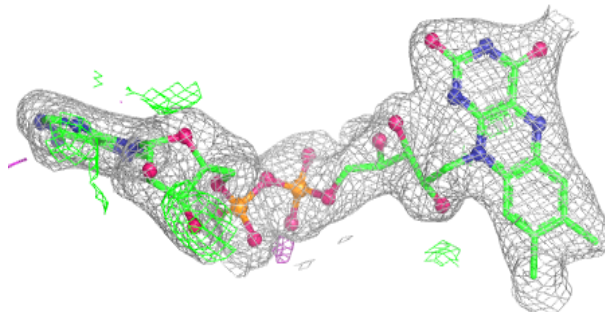


Electron density around FAD B 601:

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

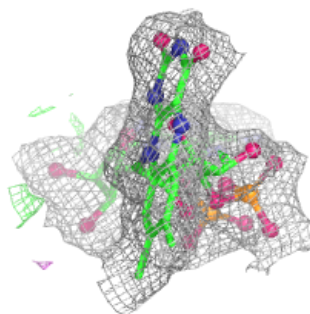
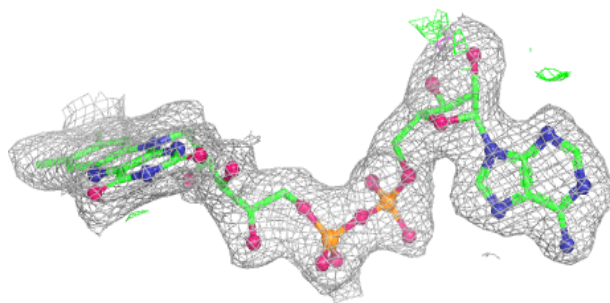
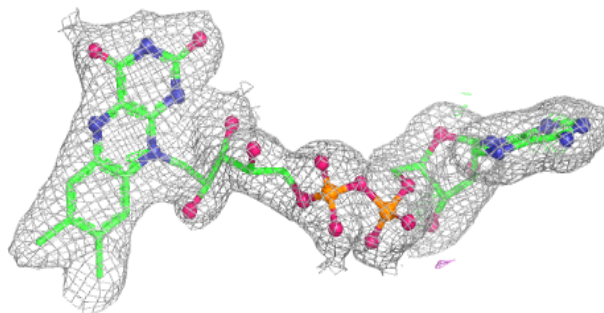
**Electron density around FAD J 601:**

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

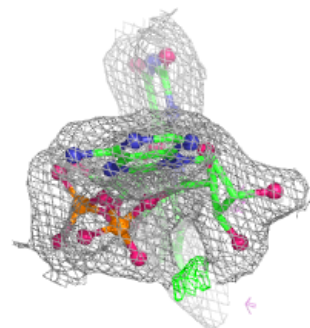
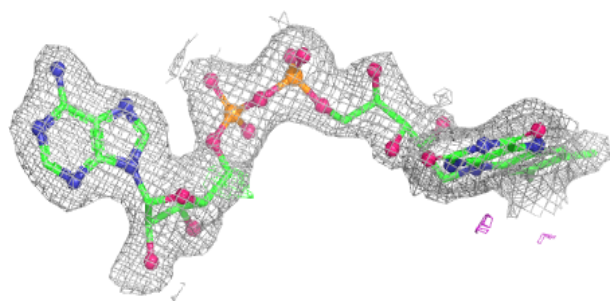
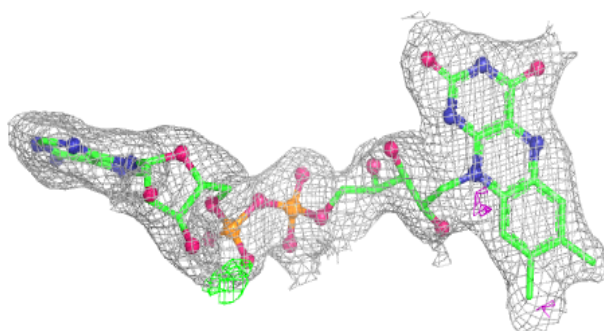


Electron density around FAD A 601:

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

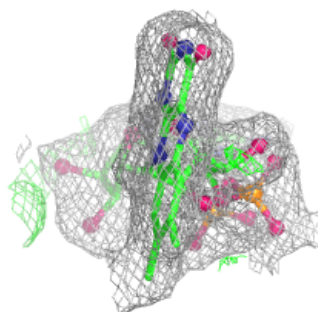
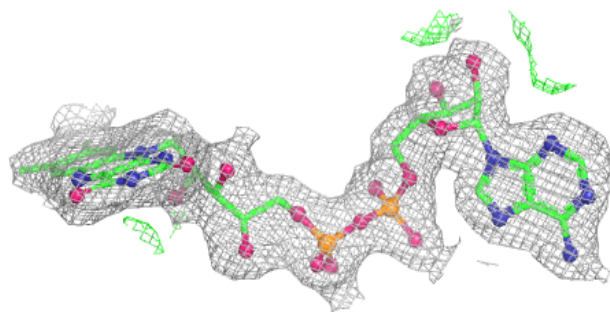
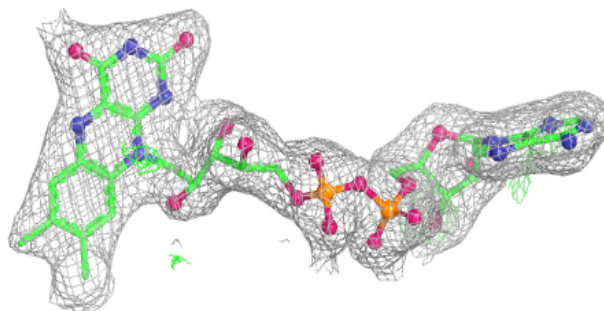
**Electron density around FAD L 601:**

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

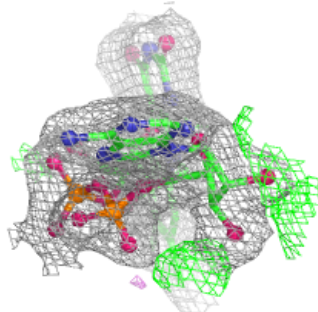
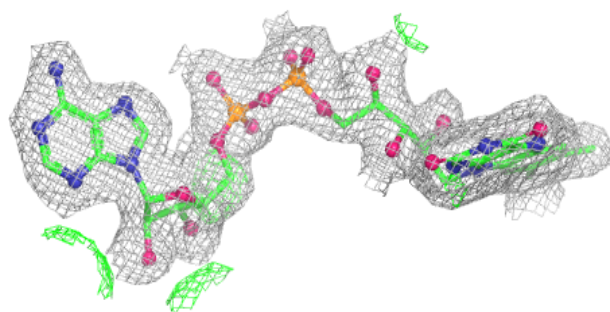
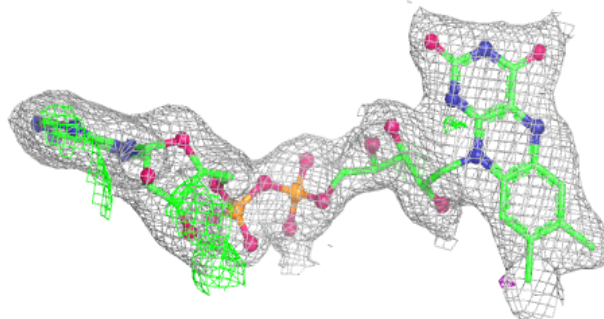


Electron density around FAD C 601:

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

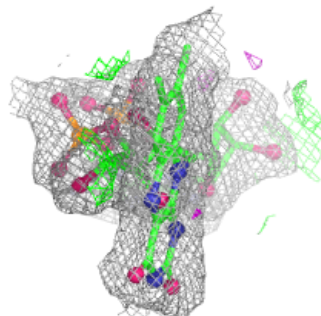
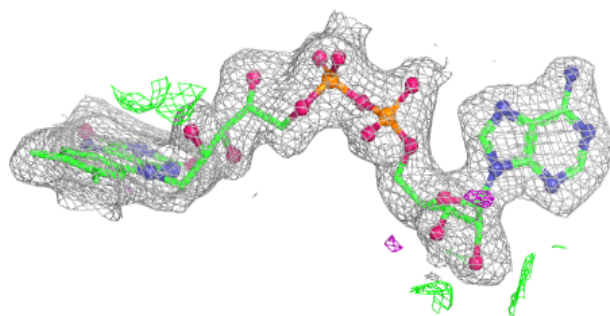
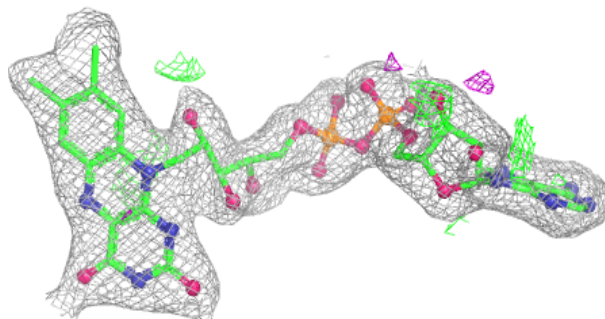
**Electron density around FAD D 601:**

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

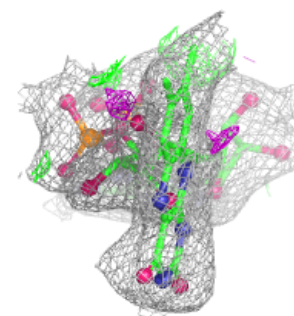
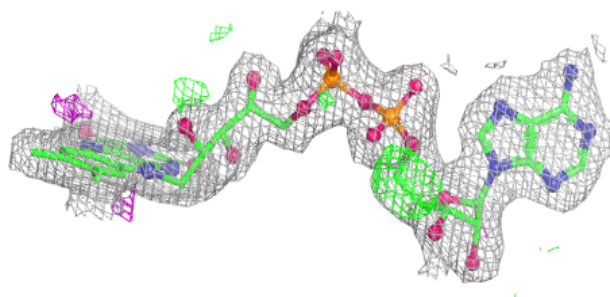
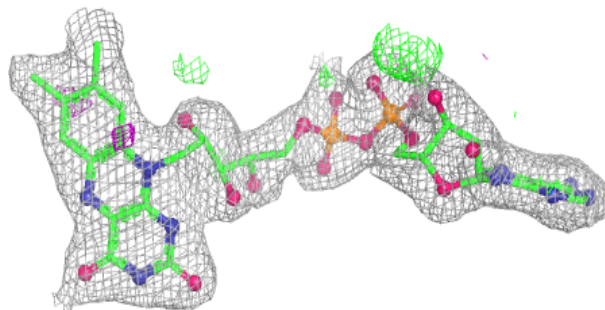


Electron density around FAD E 601:

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

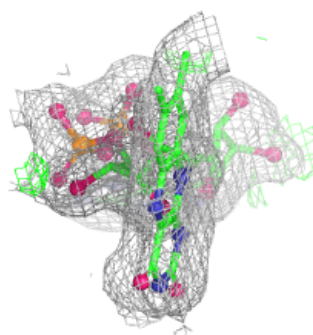
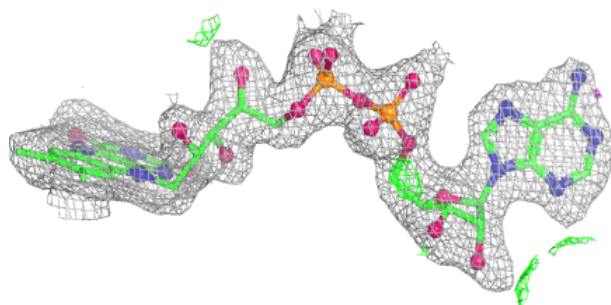
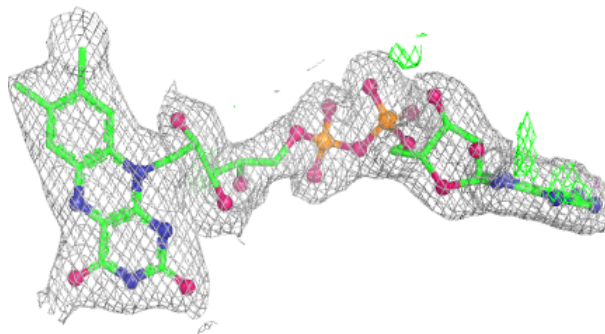
**Electron density around FAD F 601:**

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

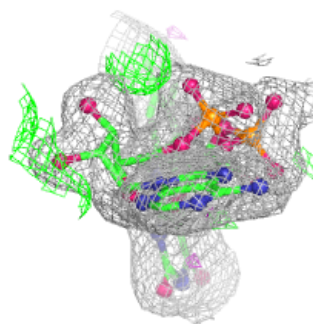
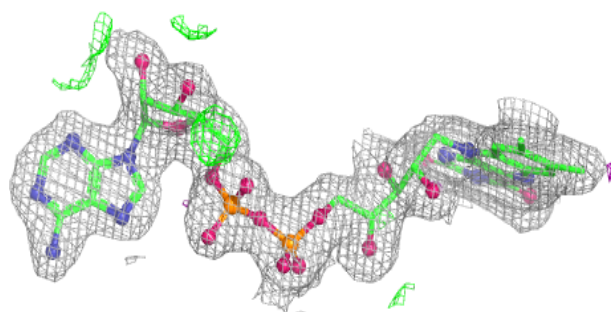
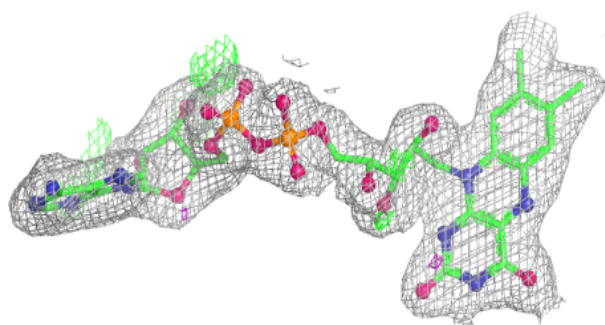


Electron density around FAD G 601:

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

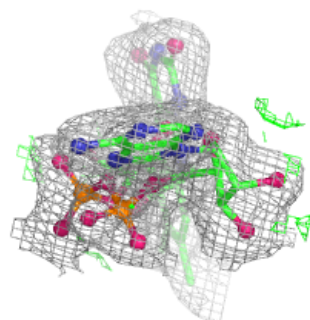
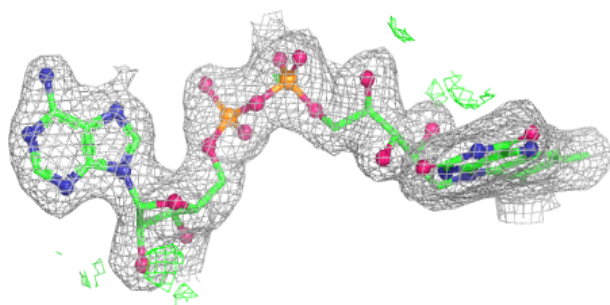
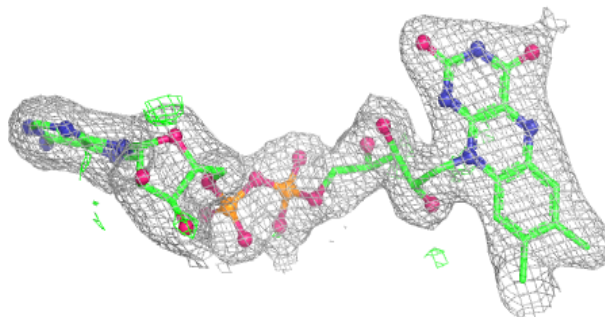
**Electron density around FAD H 601:**

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



Electron density around FAD I 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 [i](#)

There are no such residues in this entry.