



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 12, 2026 – 07:12 AM UTC

PDB ID : 1FVP / pdb_00001fvp
Title : FLAVOPROTEIN 390
Authors : Kita, A.; Miki, K.
Deposited on : 1995-07-07
Resolution : 2.70 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)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

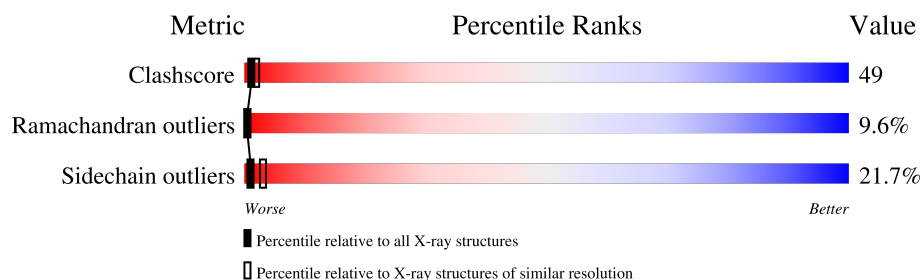
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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))
Clashscore	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)

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 $\leq 5\%$

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	231	
1	B	231	

2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 3997 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.

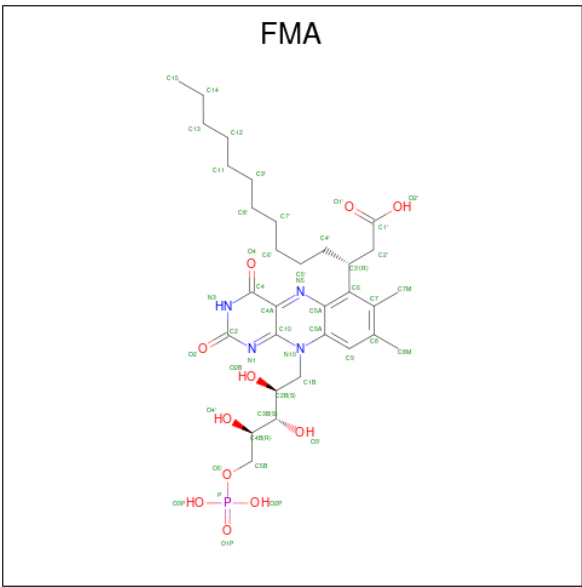
- Molecule 1 is a protein called FLAVOPROTEIN 390.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	231	1874	1193	306	367	8	0	0	0
1	B	231	1874	1193	306	367	8	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	64	PRO	SER	conflict	UNP P12745
B	64	PRO	SER	conflict	UNP P12745

- Molecule 2 is 6-(3-TETRADECANOIC ACID) FLAVINE MONONUCLEOTIDE (CCD ID: FMA) (formula: C₃₁H₄₇N₄O₁₁P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	47	31	4	11	1	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			47	31	4	11	1		
2	B	1	Total	C	N	O	P	0	0
			47	31	4	11	1		
2	B	1	Total	C	N	O	P	0	0
			47	31	4	11	1		

- Molecule 3 is water.

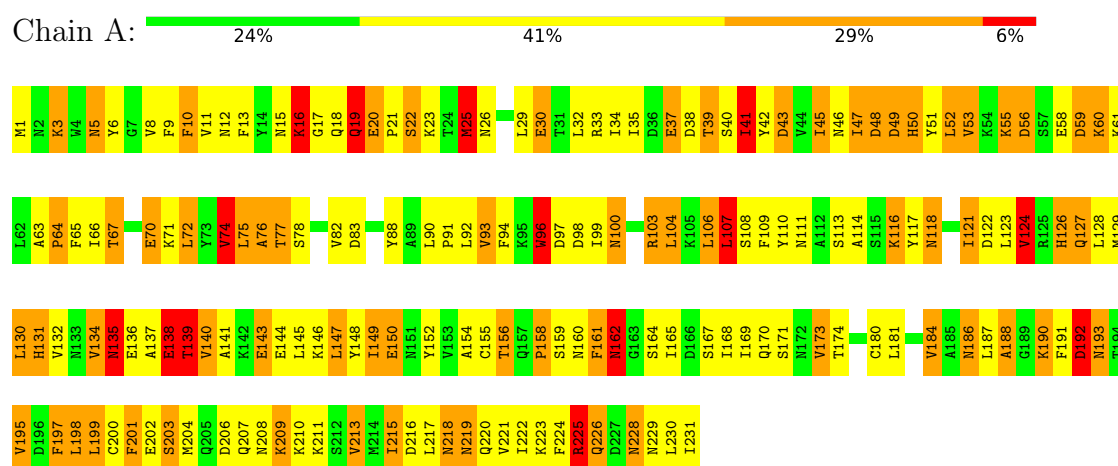
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	37	Total	O	0	0
			37	37		
3	B	24	Total	O	0	0
			24	24		

3 Residue-property plots

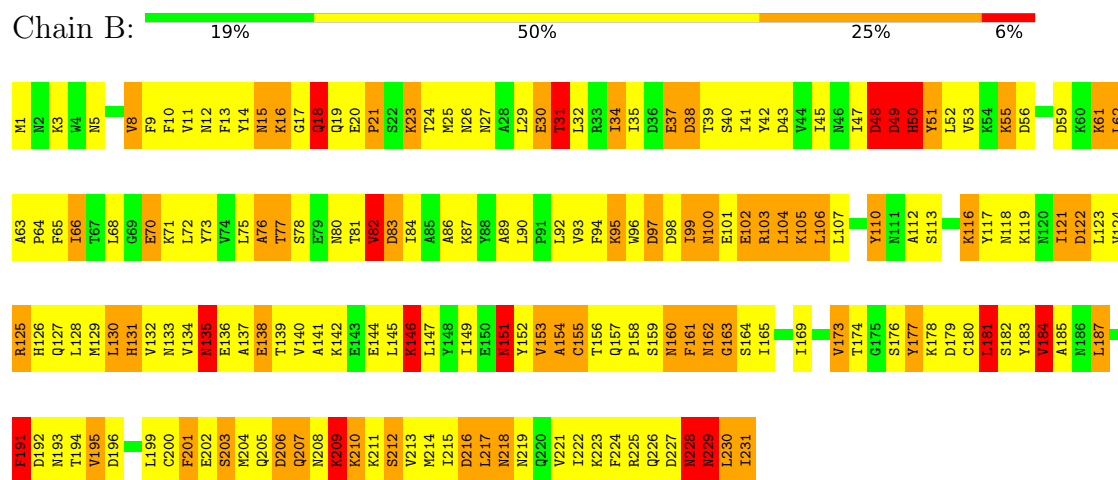
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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. 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.

Note EDS was not executed.

• Molecule 1: FLAVOPROTEIN 390



• Molecule 1: FLAVOPROTEIN 390



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 43 2 2	Depositor
Cell constants a, b, c, α , β , γ	76.80 Å 76.80 Å 242.00 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	6.00 – 2.70	Depositor
% Data completeness (in resolution range)	(Not available) (6.00-2.70)	Depositor
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	PROLSQ, X-PLOR 3.1	Depositor
R, R_{free}	0.240 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	3997	wwPDB-VP
Average B, all atoms (Å ²)	35.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

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

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	0.96	0/1907	2.16	91/2578 (3.5%)
1	B	0.94	0/1907	2.06	63/2578 (2.4%)
All	All	0.95	0/3814	2.11	154/5156 (3.0%)

There are no bond length outliers.

All (154) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	98	ASP	CA-CB-CG	16.14	128.74	112.60
1	A	96	TRP	CA-CB-CG	15.14	142.36	113.60
1	A	109	PHE	CA-CB-CG	12.32	126.12	113.80
1	A	201	PHE	CA-CB-CG	11.32	125.12	113.80
1	B	228	ASN	CA-CB-CG	10.49	123.09	112.60
1	B	50	HIS	CA-CB-CG	10.40	124.20	113.80
1	A	139	THR	N-CA-C	9.69	124.19	112.38
1	B	37	GLU	N-CA-C	9.46	121.53	111.03
1	B	131	HIS	CA-C-O	-9.39	110.67	121.47
1	A	161	PHE	CA-CB-CG	8.89	122.69	113.80
1	B	37	GLU	CA-C-O	-8.83	111.80	120.90
1	B	191	PHE	CA-CB-CG	8.57	122.37	113.80
1	A	111	ASN	N-CA-C	-7.94	104.11	113.88
1	A	111	ASN	CB-CA-C	7.89	121.81	109.03
1	B	219	ASN	CA-CB-CG	-7.82	104.78	112.60
1	A	107	LEU	N-CA-C	-7.81	103.73	113.18
1	B	121	ILE	N-CA-CB	-7.58	103.31	112.33
1	A	93	VAL	CB-CA-C	7.53	120.43	111.32
1	B	209	LYS	N-CA-C	-7.51	103.03	111.14
1	B	31	THR	N-CA-C	-7.50	102.79	110.97
1	A	138	GLU	CA-C-N	7.37	132.39	120.60
1	A	138	GLU	C-N-CA	7.37	132.39	120.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	43	ASP	CA-C-O	-7.35	112.08	120.24
1	A	216	ASP	O-C-N	7.32	129.94	122.03
1	B	152	TYR	CA-C-N	7.30	135.12	121.97
1	B	152	TYR	C-N-CA	7.30	135.12	121.97
1	B	135	ASN	CA-CB-CG	-7.30	105.30	112.60
1	A	135	ASN	CB-CA-C	7.25	120.82	110.24
1	A	37	GLU	N-CA-C	7.23	122.39	113.50
1	A	203	SER	N-CA-C	-7.16	103.52	112.90
1	A	109	PHE	N-CA-C	-7.07	103.57	111.28
1	B	8	VAL	CA-C-O	-7.01	113.14	120.64
1	A	124	VAL	CB-CA-C	6.92	119.33	110.96
1	A	173	VAL	N-CA-C	6.86	117.74	107.51
1	A	197	PHE	CA-C-O	6.84	128.09	120.70
1	B	103	ARG	N-CA-C	-6.79	104.88	113.02
1	B	97	ASP	CA-CB-CG	6.68	119.28	112.60
1	B	201	PHE	CA-C-O	-6.67	114.34	122.41
1	B	9	PHE	CA-CB-CG	6.63	120.43	113.80
1	A	216	ASP	CA-C-N	6.42	129.53	120.28
1	A	216	ASP	C-N-CA	6.42	129.53	120.28
1	A	10	PHE	CA-CB-CG	6.41	120.21	113.80
1	B	38	ASP	CA-CB-CG	6.39	118.99	112.60
1	A	195	VAL	CA-C-N	6.35	132.77	122.81
1	A	195	VAL	C-N-CA	6.35	132.77	122.81
1	B	118	ASN	CA-CB-CG	-6.34	106.26	112.60
1	A	186	ASN	CA-CB-CG	6.33	118.93	112.60
1	A	5	ASN	N-CA-C	-6.32	102.02	110.55
1	B	199	LEU	CA-C-O	-6.32	113.60	120.36
1	B	146	LYS	N-CA-C	-6.31	104.46	111.71
1	A	144	GLU	CB-CG-CD	6.29	123.29	112.60
1	B	183	TYR	CA-C-O	-6.27	113.28	120.24
1	A	208	ASN	CA-CB-CG	-6.26	106.33	112.60
1	A	140	VAL	CA-C-N	6.26	128.96	120.38
1	A	140	VAL	C-N-CA	6.26	128.96	120.38
1	A	111	ASN	OD1-CG-ND2	6.23	128.83	122.60
1	B	173	VAL	N-CA-C	6.17	116.53	106.72
1	A	228	ASN	CA-C-N	6.13	133.26	121.54
1	A	228	ASN	C-N-CA	6.13	133.26	121.54
1	A	59	ASP	CA-CB-CG	6.12	118.72	112.60
1	A	136	GLU	CB-CG-CD	6.10	122.97	112.60
1	A	197	PHE	N-CA-C	6.07	119.29	109.40
1	A	76	ALA	CA-C-N	6.06	130.98	120.68
1	A	76	ALA	C-N-CA	6.06	130.98	120.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	209	LYS	O-C-N	6.06	130.65	122.59
1	B	98	ASP	N-CA-CB	6.06	118.89	110.17
1	A	43	ASP	CA-CB-CG	6.03	118.63	112.60
1	A	168	ILE	N-CA-CB	6.01	116.93	110.62
1	B	105	LYS	CA-C-N	6.01	128.62	120.44
1	B	105	LYS	C-N-CA	6.01	128.62	120.44
1	A	126	HIS	CA-CB-CG	-5.99	107.81	113.80
1	B	10	PHE	CA-C-O	-5.99	114.29	120.99
1	A	218	ASN	N-CA-C	-5.98	104.39	111.03
1	B	216	ASP	N-CA-C	-5.95	104.42	111.03
1	B	206	ASP	CA-CB-CG	-5.94	106.66	112.60
1	A	173	VAL	N-CA-CB	-5.93	104.00	111.41
1	A	162	ASN	CA-CB-CG	5.89	118.50	112.60
1	B	203	SER	N-CA-C	-5.88	104.27	112.45
1	A	96	TRP	CB-CG-CD2	5.86	135.00	126.80
1	B	32	LEU	CA-C-O	-5.82	114.41	120.92
1	A	41	ILE	CA-C-O	-5.77	113.57	120.78
1	A	96	TRP	CA-C-O	-5.76	114.39	120.55
1	A	130	LEU	CA-C-N	5.73	130.03	122.06
1	A	130	LEU	C-N-CA	5.73	130.03	122.06
1	A	154	ALA	N-CA-C	-5.72	105.13	111.36
1	A	46	ASN	N-CA-CB	-5.63	102.61	111.05
1	B	103	ARG	CD-NE-CZ	5.63	132.28	124.40
1	B	112	ALA	N-CA-C	-5.62	104.79	111.03
1	A	122	ASP	N-CA-C	-5.61	106.79	113.97
1	A	168	ILE	O-C-N	5.61	128.01	121.96
1	A	202	GLU	CA-CB-CG	5.59	125.28	114.10
1	A	168	ILE	N-CA-C	-5.59	104.42	110.23
1	A	148	TYR	CA-C-N	5.59	127.70	120.88
1	A	148	TYR	C-N-CA	5.59	127.70	120.88
1	B	23	LYS	N-CA-C	-5.59	104.03	111.24
1	B	223	LYS	N-CA-C	-5.58	104.04	111.24
1	B	95	LYS	N-CA-C	5.57	119.31	109.96
1	B	162	ASN	N-CA-C	-5.54	104.76	113.02
1	A	3	LYS	O-C-N	5.51	129.49	123.04
1	B	16	LYS	N-CA-C	-5.50	102.35	111.37
1	B	49	ASP	CA-C-N	5.49	129.92	121.19
1	B	49	ASP	C-N-CA	5.49	129.92	121.19
1	B	83	ASP	CA-CB-CG	-5.46	107.14	112.60
1	B	162	ASN	CA-C-O	5.45	125.28	119.34
1	B	98	ASP	N-CA-C	-5.44	102.83	110.50
1	B	163	GLY	N-CA-C	-5.42	100.34	113.18

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	195	VAL	O-C-N	5.41	129.04	123.04
1	A	184	VAL	CB-CA-C	5.37	119.05	112.02
1	A	49	ASP	O-C-N	5.35	126.83	121.85
1	A	19	GLN	CB-CG-CD	5.34	121.68	112.60
1	A	161	PHE	CA-C-N	5.34	131.74	121.54
1	A	161	PHE	C-N-CA	5.34	131.74	121.54
1	B	11	VAL	CB-CA-C	5.33	120.03	111.29
1	B	18	GLN	CB-CA-C	5.31	119.55	110.74
1	B	208	ASN	CA-CB-CG	-5.30	107.30	112.60
1	B	110	TYR	CA-CB-CG	5.29	123.42	113.90
1	A	50	HIS	CA-CB-CG	-5.27	108.53	113.80
1	B	124	VAL	N-CA-C	5.27	114.37	106.42
1	A	111	ASN	O-C-N	5.25	129.40	122.36
1	A	159	SER	N-CA-C	-5.24	105.62	112.23
1	B	184	VAL	N-CA-C	-5.24	105.43	110.72
1	A	203	SER	CA-C-N	5.24	130.97	122.07
1	A	203	SER	C-N-CA	5.24	130.97	122.07
1	A	20	GLU	CA-C-N	5.23	126.38	119.84
1	A	20	GLU	C-N-CA	5.23	126.38	119.84
1	A	1	MET	CA-C-N	5.22	131.52	121.54
1	A	1	MET	C-N-CA	5.22	131.52	121.54
1	A	74	VAL	CA-C-N	5.22	128.18	120.82
1	A	74	VAL	C-N-CA	5.22	128.18	120.82
1	B	82	VAL	CB-CA-C	5.21	118.64	111.97
1	B	162	ASN	CB-CA-C	5.21	119.19	110.44
1	B	185	ALA	N-CA-C	-5.21	105.03	111.33
1	A	83	ASP	N-CA-C	-5.19	105.31	110.97
1	B	15	ASN	N-CA-C	-5.17	104.11	111.24
1	A	143	GLU	N-CA-C	-5.15	106.95	113.18
1	A	5	ASN	CB-CA-C	5.12	119.94	109.76
1	B	187	LEU	CB-CA-C	5.11	120.80	110.38
1	A	77	THR	CA-CB-OG1	-5.11	101.94	109.60
1	B	48	ASP	CB-CA-C	5.11	118.67	109.64
1	A	192	ASP	CA-CB-CG	5.10	117.70	112.60
1	A	198	LEU	CA-C-O	-5.10	114.14	120.57
1	A	48	ASP	CA-CB-CG	5.08	117.68	112.60
1	A	25	MET	CA-CB-CG	-5.08	103.95	114.10
1	B	151	ASN	CB-CA-C	5.06	119.81	109.55
1	A	94	PHE	CA-CB-CG	-5.06	108.74	113.80
1	A	188	ALA	N-CA-C	-5.04	103.05	111.37
1	A	22	SER	CA-C-N	5.04	126.99	120.44
1	A	22	SER	C-N-CA	5.04	126.99	120.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	149	ILE	CB-CA-C	-5.02	105.31	111.94
1	A	16	LYS	N-CA-C	-5.02	103.91	110.53
1	A	49	ASP	CA-CB-CG	5.02	117.62	112.60
1	B	34	ILE	CA-C-N	5.01	126.97	120.70
1	B	34	ILE	C-N-CA	5.01	126.97	120.70
1	B	82	VAL	N-CA-C	-5.00	105.62	110.42

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	1874	0	1851	175	0
1	B	1874	0	1851	206	0
2	A	94	0	88	20	0
2	B	94	0	88	27	0
3	A	37	0	0	3	0
3	B	24	0	0	2	0
All	All	3997	0	3878	384	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 49.

All (384) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:135:ASN:HD21	1:A:140:VAL:HB	1.21	1.02
1:A:3:LYS:HB2	1:A:230:LEU:HD22	1.41	0.99
1:A:184:VAL:HG21	2:A:233:FMA:H111	1.47	0.95
1:A:25:MET:HG3	2:B:232:FMA:H6'1	1.50	0.94
2:B:232:FMA:N5	2:B:232:FMA:H2'1	1.87	0.88
1:A:145:LEU:HD23	1:A:169:ILE:HG23	1.55	0.88
1:B:18:GLN:HG2	1:B:147:LEU:HD21	1.56	0.87
1:B:16:LYS:HD2	1:B:19:GLN:HB2	1.59	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:233:FMA:H2'	2:A:233:FMA:N1	1.90	0.84
1:A:75:LEU:HD12	1:A:93:VAL:HG13	1.57	0.84
1:A:181:LEU:HD21	1:A:220:GLN:HE22	1.44	0.83
1:B:31:THR:HG22	1:B:214:MET:HE1	1.60	0.83
1:B:3:LYS:HB2	1:B:230:LEU:HD13	1.58	0.83
2:A:233:FMA:N1	2:A:233:FMA:C2B	2.42	0.83
2:A:232:FMA:H2'1	2:A:232:FMA:N5	1.95	0.81
1:B:135:ASN:HD22	1:B:209:LYS:HD2	1.46	0.81
1:A:108:SER:HA	3:A:269:HOH:O	1.82	0.80
1:B:102:GLU:HA	1:B:105:LYS:HG2	1.63	0.80
1:A:98:ASP:HB3	1:A:103:ARG:HB3	1.63	0.79
1:A:61:LYS:HB2	2:A:232:FMA:H4'	1.64	0.79
1:B:66:ILE:HD12	1:B:75:LEU:HB2	1.65	0.79
1:B:93:VAL:HG22	1:B:127:GLN:HB3	1.65	0.79
1:B:133:ASN:HB3	1:B:141:ALA:HB1	1.65	0.78
1:B:16:LYS:HZ2	1:B:19:GLN:NE2	1.80	0.78
1:B:41:ILE:HG22	1:B:222:ILE:HG23	1.66	0.76
1:A:225:ARG:HA	1:A:230:LEU:HD12	1.69	0.75
2:A:232:FMA:N5	2:A:232:FMA:C2'	2.49	0.75
1:A:25:MET:HG3	2:B:232:FMA:C6'	2.16	0.75
1:A:135:ASN:ND2	1:A:140:VAL:HB	2.01	0.74
1:B:204:MET:HE1	1:B:213:VAL:HG21	1.69	0.74
1:B:125:ARG:NH2	1:B:194:THR:HA	2.03	0.74
1:B:20:GLU:HB3	1:B:21:PRO:HD2	1.70	0.73
1:A:126:HIS:HB2	1:A:195:VAL:HG12	1.71	0.73
1:B:137:ALA:O	1:B:140:VAL:HG12	1.88	0.72
1:A:66:ILE:HG13	1:A:93:VAL:HG11	1.71	0.71
1:A:13:PHE:HB3	1:A:16:LYS:HZ3	1.57	0.70
1:B:31:THR:HA	1:B:34:ILE:HD12	1.73	0.70
1:B:184:VAL:HG22	2:B:233:FMA:H7'2	1.73	0.69
1:B:77:THR:HG22	1:B:81:THR:HG21	1.74	0.69
1:A:184:VAL:HG21	2:A:233:FMA:C11	2.24	0.68
1:B:16:LYS:C	1:B:151:ASN:HD21	2.02	0.68
1:B:133:ASN:ND2	1:B:145:LEU:HB2	2.09	0.68
2:B:233:FMA:H2'1	2:B:233:FMA:N5	2.09	0.67
1:A:230:LEU:C	1:A:231:ILE:HD12	2.20	0.67
1:A:61:LYS:CB	2:A:232:FMA:H4'	2.24	0.67
1:B:41:ILE:HD13	1:B:218:ASN:HA	1.77	0.66
1:B:50:HIS:O	1:B:52:LEU:N	2.28	0.66
1:B:132:VAL:HG22	1:B:173:VAL:HB	1.78	0.66
1:B:61:LYS:HB2	3:B:253:HOH:O	1.95	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:153:VAL:HG13	1:B:154:ALA:H	1.61	0.65
1:A:155:CYS:SG	1:A:156:THR:N	2.69	0.65
1:A:3:LYS:NZ	1:A:231:ILE:HD13	2.11	0.65
2:A:233:FMA:O2	2:A:233:FMA:H4'	1.98	0.64
1:B:40:SER:H	1:B:218:ASN:ND2	1.96	0.64
1:A:210:LYS:HA	1:A:213:VAL:HG23	1.78	0.64
1:B:55:LYS:HG3	1:B:59:ASP:HA	1.80	0.64
1:B:99:ILE:HG12	1:B:101:GLU:H	1.63	0.64
1:A:13:PHE:HB3	1:A:16:LYS:NZ	2.13	0.64
1:B:160:ASN:O	1:B:164:SER:N	2.31	0.64
1:A:39:THR:HG21	1:A:42:TYR:HE2	1.63	0.63
1:A:104:LEU:HD21	1:A:190:LYS:O	1.98	0.63
1:A:131:HIS:HB3	1:A:145:LEU:HD11	1.82	0.62
1:B:107:LEU:HD22	1:B:191:PHE:HD2	1.65	0.62
1:B:207:GLN:HG3	1:B:210:LYS:HD3	1.82	0.62
1:A:13:PHE:CB	1:A:16:LYS:HZ3	2.13	0.61
1:A:181:LEU:HD11	2:A:233:FMA:H5D	1.81	0.61
1:B:16:LYS:NZ	1:B:19:GLN:NE2	2.48	0.61
2:A:232:FMA:H5B	1:B:25:MET:HB2	1.82	0.61
1:B:133:ASN:HD22	1:B:145:LEU:HB2	1.63	0.61
1:A:41:ILE:HD13	1:A:221:VAL:HB	1.82	0.61
1:A:3:LYS:HD2	1:A:231:ILE:HD13	1.82	0.61
1:B:65:PHE:CD2	1:B:72:LEU:HD11	2.36	0.61
1:B:87:LYS:O	1:B:119:LYS:HG3	2.00	0.61
1:A:70:GLU:HA	1:B:45:ILE:HG23	1.82	0.61
1:A:156:THR:O	1:A:158:PRO:HD3	2.00	0.61
1:A:181:LEU:HD21	1:A:220:GLN:NE2	2.14	0.61
1:B:161:PHE:HB2	1:B:165:ILE:HG23	1.81	0.60
1:A:8:VAL:O	1:A:45:ILE:HA	2.00	0.60
1:A:128:LEU:HD22	1:A:195:VAL:HG21	1.83	0.60
1:B:145:LEU:HD13	1:B:174:THR:HG22	1.83	0.60
1:B:146:LYS:HA	1:B:169:ILE:HD11	1.82	0.60
1:B:160:ASN:C	1:B:162:ASN:H	2.09	0.60
1:B:160:ASN:ND2	1:B:165:ILE:HA	2.15	0.60
1:A:75:LEU:HD12	1:A:93:VAL:CG1	2.32	0.60
1:B:19:GLN:HA	1:B:23:LYS:HD3	1.83	0.60
1:B:134:VAL:HG13	1:B:177:TYR:H	1.66	0.60
1:B:211:LYS:HE3	1:B:215:ILE:HD12	1.84	0.59
1:B:184:VAL:O	1:B:187:LEU:N	2.34	0.59
1:A:34:ILE:HD13	1:A:211:LYS:HA	1.83	0.59
1:A:93:VAL:HG23	1:A:127:GLN:HB2	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:ARG:HA	1:A:106:LEU:HD12	1.84	0.59
1:A:3:LYS:HZ2	1:A:231:ILE:HD13	1.66	0.59
1:A:130:LEU:O	1:A:199:LEU:HA	2.02	0.59
1:A:221:VAL:O	1:A:225:ARG:HG2	2.02	0.59
1:B:103:ARG:HH12	1:B:130:LEU:HD23	1.67	0.59
1:B:133:ASN:HD21	1:B:144:GLU:HG3	1.66	0.59
1:B:68:LEU:HD12	1:B:73:TYR:CD1	2.38	0.58
1:B:230:LEU:O	1:B:231:ILE:HB	2.03	0.58
1:A:40:SER:N	1:A:218:ASN:ND2	2.52	0.58
1:A:34:ILE:HA	1:A:38:ASP:HB2	1.84	0.58
1:B:137:ALA:O	1:B:139:THR:N	2.37	0.58
1:B:41:ILE:HG23	1:B:218:ASN:ND2	2.19	0.57
1:B:40:SER:H	1:B:218:ASN:HD21	1.52	0.57
1:B:40:SER:OG	1:B:222:ILE:HD13	2.05	0.57
1:A:184:VAL:C	1:A:186:ASN:H	2.11	0.57
1:B:113:SER:O	1:B:116:LYS:HB3	2.03	0.57
1:A:116:LYS:C	1:A:118:ASN:H	2.12	0.57
1:A:13:PHE:HZ	1:A:155:CYS:HB3	1.70	0.57
1:A:40:SER:H	1:A:218:ASN:ND2	2.02	0.56
1:B:133:ASN:ND2	1:B:144:GLU:HG3	2.21	0.56
1:B:30:GLU:O	1:B:34:ILE:HG13	2.06	0.56
1:A:135:ASN:HB3	1:A:141:ALA:HB2	1.86	0.56
2:B:232:FMA:H6'2	2:B:232:FMA:H122	1.88	0.56
1:B:1:MET:HE2	2:B:233:FMA:H1'2	1.87	0.56
1:B:92:LEU:HB2	1:B:126:HIS:ND1	2.21	0.56
1:B:48:ASP:OD1	1:B:50:HIS:ND1	2.37	0.56
1:B:145:LEU:HD13	1:B:174:THR:CG2	2.36	0.56
1:B:161:PHE:HB2	1:B:165:ILE:CG2	2.36	0.56
1:A:12:ASN:ND2	1:B:62:LEU:HD23	2.21	0.55
1:A:53:VAL:HB	1:A:55:LYS:HE2	1.88	0.55
1:B:61:LYS:CD	2:B:232:FMA:O3P	2.54	0.55
1:A:32:LEU:HD11	1:B:72:LEU:HD22	1.87	0.55
1:B:35:ILE:HG23	1:B:42:TYR:HB2	1.89	0.55
1:B:16:LYS:HZ2	1:B:19:GLN:HE22	1.53	0.55
1:B:82:VAL:HG21	1:B:106:LEU:HD12	1.88	0.55
1:B:96:TRP:HA	1:B:129:MET:O	2.07	0.55
1:A:9:PHE:CZ	1:A:200:CYS:HB2	2.41	0.55
1:A:58:GLU:HB2	1:A:60:LYS:HG3	1.89	0.55
1:B:138:GLU:HG2	1:B:176:SER:HB3	1.87	0.55
1:A:39:THR:HG21	1:A:42:TYR:CE2	2.42	0.55
1:A:207:GLN:HE21	1:A:210:LYS:HE2	1.70	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:61:LYS:HD2	2:B:232:FMA:O3P	2.06	0.54
1:B:66:ILE:CD1	1:B:75:LEU:HD13	2.36	0.54
1:A:76:ALA:HB2	1:A:92:LEU:HD22	1.89	0.54
1:A:104:LEU:HD23	1:A:107:LEU:HD22	1.88	0.54
1:A:222:ILE:HG21	3:A:242:HOH:O	2.06	0.54
1:B:142:LYS:O	1:B:146:LYS:HB2	2.07	0.54
1:A:104:LEU:HD23	1:A:107:LEU:CD2	2.38	0.54
1:A:130:LEU:HD13	1:A:173:VAL:HG21	1.87	0.54
1:B:128:LEU:HB2	1:B:195:VAL:HG13	1.90	0.54
1:B:140:VAL:HG13	1:B:141:ALA:H	1.73	0.54
1:B:25:MET:HE3	1:B:29:LEU:HG	1.90	0.54
1:A:30:GLU:O	1:A:34:ILE:HG13	2.07	0.54
1:B:49:ASP:O	1:B:52:LEU:HG	2.08	0.54
1:A:222:ILE:O	1:A:226:GLN:HG3	2.08	0.53
1:B:80:ASN:O	1:B:83:ASP:N	2.42	0.53
1:B:135:ASN:HA	1:B:209:LYS:NZ	2.24	0.53
1:B:135:ASN:O	1:B:137:ALA:N	2.41	0.53
1:A:219:ASN:N	1:A:219:ASN:HD22	2.07	0.53
1:B:1:MET:CE	2:B:233:FMA:H1'2	2.39	0.53
1:B:128:LEU:N	1:B:196:ASP:O	2.29	0.53
1:B:50:HIS:C	1:B:52:LEU:H	2.17	0.53
1:B:19:GLN:HG2	1:B:23:LYS:NZ	2.24	0.53
1:B:76:ALA:O	1:B:77:THR:C	2.52	0.53
1:A:121:ILE:HG22	1:A:124:VAL:HG11	1.90	0.53
1:B:16:LYS:O	1:B:151:ASN:ND2	2.42	0.53
1:B:12:ASN:O	1:B:51:TYR:OH	2.25	0.52
1:A:139:THR:HG22	1:A:143:GLU:OE1	2.09	0.52
1:B:201:PHE:HB3	1:B:204:MET:HE3	1.91	0.52
1:B:184:VAL:CG2	2:B:233:FMA:H7'2	2.38	0.52
1:B:224:PHE:O	1:B:227:ASP:HB3	2.09	0.52
1:A:25:MET:HG3	2:B:232:FMA:C5'	2.40	0.52
1:A:129:MET:HA	1:A:198:LEU:O	2.09	0.52
1:B:87:LYS:HG3	1:B:117:TYR:CE2	2.45	0.52
1:A:25:MET:HG3	2:B:232:FMA:H5B	1.92	0.52
1:A:135:ASN:HD22	1:A:141:ALA:N	2.09	0.51
1:A:225:ARG:O	1:A:226:GLN:C	2.53	0.51
1:A:9:PHE:CZ	1:A:96:TRP:HD1	2.28	0.51
1:A:74:VAL:O	1:A:92:LEU:HA	2.10	0.51
1:A:206:ASP:O	1:A:207:GLN:C	2.51	0.51
1:B:48:ASP:HB2	1:B:129:MET:HE1	1.92	0.51
1:B:229:ASN:O	1:B:230:LEU:HG	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:233:FMA:H4'	2:A:233:FMA:C2	2.40	0.51
1:B:173:VAL:HG21	1:B:184:VAL:HG12	1.92	0.51
1:B:16:LYS:NZ	1:B:19:GLN:HE22	2.07	0.51
1:B:40:SER:N	1:B:218:ASN:HD21	2.09	0.51
1:B:227:ASP:C	1:B:229:ASN:H	2.19	0.51
1:B:159:SER:O	1:B:160:ASN:HB3	2.11	0.51
1:A:13:PHE:O	2:B:232:FMA:H8'	2.10	0.51
1:A:225:ARG:HB3	1:A:230:LEU:HB2	1.92	0.50
1:A:114:ALA:HB1	1:A:121:ILE:HG12	1.93	0.50
1:A:33:ARG:HH12	1:A:38:ASP:CG	2.19	0.50
1:B:179:ASP:O	1:B:180:CYS:C	2.53	0.50
1:B:224:PHE:O	1:B:228:ASN:OD1	2.30	0.50
1:B:76:ALA:O	1:B:78:SER:N	2.45	0.50
1:A:145:LEU:O	1:A:149:ILE:HG12	2.11	0.50
1:B:201:PHE:CD1	1:B:214:MET:HE3	2.46	0.50
1:B:137:ALA:C	1:B:139:THR:H	2.19	0.50
1:A:110:TYR:CE1	1:A:121:ILE:HD13	2.46	0.50
1:B:217:LEU:O	1:B:218:ASN:C	2.54	0.50
1:A:160:ASN:HB3	1:A:164:SER:O	2.11	0.50
1:B:35:ILE:HA	1:B:39:THR:OG1	2.12	0.50
1:B:134:VAL:HG13	1:B:177:TYR:N	2.27	0.50
1:B:147:LEU:O	1:B:151:ASN:N	2.44	0.49
1:B:176:SER:O	1:B:177:TYR:C	2.55	0.49
1:A:65:PHE:CE2	2:A:232:FMA:H132	2.47	0.49
1:B:8:VAL:O	1:B:45:ILE:HA	2.13	0.49
1:A:88:TYR:HE1	1:B:26:ASN:HD21	1.59	0.49
1:B:63:ALA:HB1	1:B:65:PHE:CE1	2.47	0.49
1:B:135:ASN:HA	1:B:209:LYS:HZ2	1.77	0.49
1:B:193:ASN:HD22	2:B:233:FMA:H4'	1.78	0.49
1:A:219:ASN:O	1:A:223:LYS:HE2	2.11	0.49
1:B:133:ASN:HB3	1:B:141:ALA:CB	2.40	0.49
1:B:213:VAL:HG13	2:B:233:FMA:H151	1.95	0.49
1:A:30:GLU:OE2	1:A:33:ARG:NE	2.38	0.49
1:A:56:ASP:OD2	1:A:60:LYS:HB2	2.13	0.49
1:A:48:ASP:OD2	1:A:129:MET:HE1	2.13	0.49
1:A:110:TYR:O	1:A:110:TYR:CD1	2.65	0.49
1:A:113:SER:O	1:A:114:ALA:C	2.56	0.49
1:A:184:VAL:HG21	2:A:233:FMA:C9'	2.43	0.49
1:A:206:ASP:O	1:A:209:LYS:N	2.43	0.49
1:B:41:ILE:CD1	1:B:218:ASN:HA	2.42	0.49
1:A:51:TYR:OH	1:B:62:LEU:HD21	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:133:ASN:HB2	1:B:145:LEU:HD12	1.94	0.48
1:A:187:LEU:O	1:A:188:ALA:C	2.56	0.48
1:B:184:VAL:C	1:B:187:LEU:H	2.21	0.48
1:B:209:LYS:O	1:B:213:VAL:HG23	2.13	0.48
1:A:25:MET:HE3	1:B:65:PHE:CZ	2.49	0.48
1:A:146:LYS:HG2	1:A:150:GLU:OE1	2.14	0.48
1:B:125:ARG:NH1	1:B:196:ASP:OD1	2.42	0.48
1:B:138:GLU:HG2	1:B:176:SER:CB	2.43	0.48
1:A:96:TRP:HE3	1:A:97:ASP:N	2.10	0.48
1:B:15:ASN:O	1:B:16:LYS:C	2.57	0.48
1:B:70:GLU:CD	1:B:70:GLU:H	2.21	0.48
1:A:34:ILE:HG23	1:A:38:ASP:HB2	1.96	0.48
1:A:71:LYS:HD2	3:A:268:HOH:O	2.12	0.48
1:B:100:ASN:OD1	1:B:187:LEU:HD11	2.12	0.48
1:B:128:LEU:HD22	1:B:195:VAL:HG11	1.96	0.48
1:A:11:VAL:HG21	1:A:16:LYS:HD2	1.95	0.48
1:A:110:TYR:OH	1:A:124:VAL:HG21	2.14	0.48
1:A:201:PHE:HB3	1:A:204:MET:HE3	1.95	0.48
1:B:82:VAL:HG22	1:B:92:LEU:CD2	2.44	0.48
1:B:100:ASN:ND2	1:B:104:LEU:HD22	2.29	0.48
1:B:212:SER:O	1:B:216:ASP:HB2	2.13	0.48
1:A:18:GLN:HG2	1:A:147:LEU:HD23	1.95	0.47
1:B:78:SER:O	1:B:106:LEU:HD11	2.14	0.47
1:B:20:GLU:OE1	1:B:23:LYS:HD2	2.14	0.47
1:B:149:ILE:HG22	1:B:165:ILE:HD12	1.96	0.47
1:A:11:VAL:CG2	1:A:16:LYS:HD2	2.44	0.47
1:A:191:PHE:C	1:A:193:ASN:N	2.71	0.47
1:B:134:VAL:C	1:B:209:LYS:HZ2	2.22	0.47
1:A:40:SER:N	1:A:218:ASN:HD21	2.11	0.47
1:B:169:ILE:CG2	1:B:174:THR:HG21	2.44	0.47
2:A:233:FMA:N1	2:A:233:FMA:C3B	2.78	0.47
1:A:134:VAL:HG22	1:A:180:CYS:SG	2.55	0.47
1:B:3:LYS:NZ	1:B:5:ASN:OD1	2.48	0.47
1:B:102:GLU:O	1:B:106:LEU:HB2	2.14	0.47
2:B:233:FMA:N5	2:B:233:FMA:C2'	2.77	0.47
1:B:16:LYS:CA	1:B:151:ASN:HD21	2.27	0.47
1:A:61:LYS:O	1:B:14:TYR:HE2	1.97	0.47
1:A:218:ASN:OD1	1:A:219:ASN:ND2	2.47	0.47
2:B:232:FMA:N5	2:B:232:FMA:C2'	2.64	0.47
1:A:78:SER:O	1:A:82:VAL:HB	2.14	0.47
1:A:48:ASP:HA	1:A:50:HIS:CE1	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:13:PHE:CZ	1:A:155:CYS:HB3	2.49	0.46
1:A:132:VAL:HA	1:A:173:VAL:O	2.15	0.46
1:A:67:THR:HG21	1:B:47:ILE:HG13	1.98	0.46
1:B:27:ASN:ND2	1:B:207:GLN:OE1	2.48	0.46
1:B:225:ARG:O	1:B:227:ASP:N	2.49	0.46
1:B:103:ARG:NH1	1:B:130:LEU:HD23	2.31	0.46
1:B:211:LYS:HE3	1:B:215:ILE:CD1	2.45	0.46
1:A:217:LEU:HD12	1:A:217:LEU:O	2.15	0.46
1:B:134:VAL:O	1:B:209:LYS:HD3	2.16	0.46
1:A:137:ALA:O	1:A:138:GLU:C	2.57	0.46
1:A:219:ASN:HA	1:A:222:ILE:HG22	1.97	0.46
1:A:121:ILE:HD12	1:A:121:ILE:O	2.16	0.46
1:A:146:LYS:HG2	1:A:146:LYS:O	2.16	0.46
1:A:149:ILE:O	1:A:152:TYR:N	2.49	0.46
1:A:16:LYS:O	1:A:17:GLY:C	2.59	0.45
1:B:39:THR:HB	1:B:218:ASN:HD22	1.81	0.45
1:A:123:LEU:N	1:A:123:LEU:HD22	2.32	0.45
1:A:88:TYR:HB3	1:B:29:LEU:HD11	1.99	0.45
1:A:6:TYR:CE1	2:A:233:FMA:H7'1	2.51	0.45
1:B:41:ILE:HG22	1:B:222:ILE:CG2	2.41	0.45
1:A:130:LEU:HD22	1:A:173:VAL:HG23	1.98	0.45
1:A:135:ASN:HB2	1:A:209:LYS:NZ	2.31	0.45
1:B:75:LEU:C	1:B:77:THR:H	2.25	0.45
1:B:217:LEU:HD11	2:B:233:FMA:H8'2	1.99	0.45
1:A:191:PHE:O	1:A:193:ASN:N	2.50	0.45
1:A:38:ASP:O	1:A:39:THR:HG23	2.17	0.44
1:A:224:PHE:HE1	1:A:230:LEU:HD11	1.82	0.44
1:B:16:LYS:HG3	1:B:151:ASN:ND2	2.32	0.44
1:B:27:ASN:O	1:B:30:GLU:N	2.49	0.44
1:B:162:ASN:HD22	1:B:162:ASN:HA	1.55	0.44
2:B:233:FMA:HM73	2:B:233:FMA:H3'	1.89	0.44
1:A:16:LYS:O	1:A:19:GLN:HG3	2.17	0.44
1:A:58:GLU:O	1:A:59:ASP:C	2.60	0.44
1:A:63:ALA:HA	1:A:64:PRO:HD2	1.82	0.44
1:B:19:GLN:HB3	1:B:24:THR:HG23	1.99	0.44
1:A:67:THR:HG22	1:B:45:ILE:HD11	2.00	0.44
1:A:184:VAL:HG21	2:A:233:FMA:H9'1	1.99	0.44
1:A:221:VAL:O	1:A:222:ILE:C	2.61	0.44
1:B:95:LYS:NZ	3:B:274:HOH:O	2.50	0.44
1:A:100:ASN:OD1	1:A:187:LEU:HD11	2.16	0.44
1:B:76:ALA:HB1	1:B:106:LEU:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:98:ASP:O	1:A:99:ILE:C	2.61	0.44
1:A:167:SER:O	1:A:171:SER:N	2.48	0.44
1:B:149:ILE:CG2	1:B:165:ILE:HD12	2.48	0.44
1:A:167:SER:HA	1:A:170:GLN:HB2	2.00	0.44
1:A:223:LYS:HE2	1:A:223:LYS:HB2	1.76	0.44
1:B:181:LEU:HB3	1:B:182:SER:H	1.64	0.44
1:B:184:VAL:HG21	2:B:233:FMA:H9'1	2.00	0.44
1:B:75:LEU:HD12	1:B:93:VAL:O	2.18	0.43
1:B:77:THR:CG2	1:B:81:THR:HG21	2.45	0.43
1:B:84:ILE:HG21	2:B:232:FMA:C7	2.47	0.43
1:A:34:ILE:O	1:A:35:ILE:C	2.61	0.43
1:B:55:LYS:CG	1:B:59:ASP:HA	2.46	0.43
1:B:89:ALA:HB2	1:B:119:LYS:HB3	1.99	0.43
1:A:96:TRP:NE1	1:A:131:HIS:CE1	2.86	0.43
1:B:158:PRO:O	1:B:160:ASN:N	2.47	0.43
1:A:39:THR:HG22	1:A:218:ASN:HB2	2.01	0.43
1:B:116:LYS:O	1:B:116:LYS:HG2	2.18	0.43
1:A:3:LYS:CB	1:A:230:LEU:HD22	2.30	0.43
1:A:98:ASP:O	1:A:103:ARG:NH2	2.51	0.43
1:A:145:LEU:HD22	1:A:174:THR:CG2	2.47	0.43
1:B:64:PRO:HG3	1:B:77:THR:HG21	2.00	0.43
1:A:207:GLN:NE2	1:A:210:LYS:NZ	2.67	0.43
1:A:211:LYS:O	1:A:215:ILE:HG23	2.18	0.43
1:B:160:ASN:C	1:B:162:ASN:N	2.76	0.43
1:B:165:ILE:O	1:B:169:ILE:HG13	2.19	0.43
1:A:12:ASN:HB2	1:A:47:ILE:CG2	2.48	0.43
1:A:34:ILE:O	1:A:39:THR:OG1	2.35	0.43
1:B:31:THR:O	1:B:34:ILE:N	2.52	0.43
1:B:95:LYS:HE2	1:B:97:ASP:OD1	2.18	0.43
1:B:125:ARG:NH1	1:B:195:VAL:H	2.16	0.43
1:A:199:LEU:HD12	1:A:199:LEU:H	1.84	0.42
1:A:106:LEU:C	1:A:108:SER:N	2.77	0.42
1:A:221:VAL:O	1:A:223:LYS:N	2.52	0.42
1:B:94:PHE:HZ	1:B:107:LEU:HD13	1.83	0.42
1:A:90:LEU:HA	1:A:91:PRO:HD3	1.86	0.42
1:B:99:ILE:O	1:B:100:ASN:C	2.62	0.42
1:B:146:LYS:HB2	1:B:146:LYS:NZ	2.34	0.42
1:B:200:CYS:SG	1:B:202:GLU:HB2	2.60	0.42
2:B:233:FMA:C2B	2:B:233:FMA:N1	2.81	0.42
1:A:67:THR:CG2	1:B:47:ILE:HG13	2.50	0.42
1:A:230:LEU:O	1:A:231:ILE:HD12	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:17:GLY:O	1:B:18:GLN:C	2.62	0.42
1:B:99:ILE:C	1:B:101:GLU:N	2.76	0.42
1:A:19:GLN:H	1:A:19:GLN:HG2	1.68	0.42
1:A:221:VAL:C	1:A:223:LYS:N	2.74	0.42
1:B:1:MET:HE2	2:B:233:FMA:C3B	2.50	0.42
1:B:83:ASP:O	1:B:86:ALA:HB3	2.20	0.42
1:B:205:GLN:O	1:B:207:GLN:N	2.52	0.42
1:B:13:PHE:HZ	1:B:16:LYS:HE2	1.84	0.42
1:B:82:VAL:HG22	1:B:92:LEU:HD22	2.02	0.42
1:A:10:PHE:CB	2:B:232:FMA:H141	2.50	0.42
1:B:121:ILE:O	1:B:122:ASP:C	2.63	0.42
1:B:125:ARG:HH12	1:B:195:VAL:H	1.68	0.42
1:B:134:VAL:HG12	1:B:209:LYS:HZ3	1.84	0.42
1:B:145:LEU:HD23	1:B:145:LEU:O	2.20	0.42
1:B:218:ASN:OD1	1:B:222:ILE:HD11	2.20	0.42
1:A:219:ASN:HD22	1:A:219:ASN:H	1.68	0.42
2:B:232:FMA:HM73	2:B:232:FMA:H3'	1.92	0.42
1:A:55:LYS:HA	1:A:60:LYS:O	2.20	0.41
1:B:50:HIS:NE2	1:B:97:ASP:OD1	2.53	0.41
1:B:82:VAL:HG21	1:B:106:LEU:CD1	2.49	0.41
1:B:225:ARG:C	1:B:227:ASP:H	2.27	0.41
1:B:125:ARG:NH1	1:B:195:VAL:O	2.53	0.41
1:A:5:ASN:OD1	1:A:43:ASP:OD1	2.38	0.41
1:A:184:VAL:O	1:A:187:LEU:N	2.52	0.41
1:B:132:VAL:HA	1:B:173:VAL:O	2.20	0.41
1:A:132:VAL:HG22	1:A:173:VAL:CG1	2.50	0.41
1:A:161:PHE:O	1:A:162:ASN:OD1	2.38	0.41
2:A:232:FMA:H141	1:B:47:ILE:HD13	2.02	0.41
1:B:48:ASP:OD1	1:B:48:ASP:C	2.64	0.41
1:B:169:ILE:HG23	1:B:174:THR:HG21	2.03	0.41
1:A:45:ILE:HD13	1:B:70:GLU:C	2.45	0.41
1:A:114:ALA:CB	1:A:121:ILE:HG12	2.49	0.41
1:B:19:GLN:HG2	1:B:23:LYS:HZ3	1.84	0.41
1:A:20:GLU:O	1:A:23:LYS:N	2.54	0.41
1:A:72:LEU:HG	2:A:232:FMA:C15	2.51	0.41
1:B:95:LYS:HA	1:B:129:MET:SD	2.60	0.41
1:A:40:SER:H	1:A:218:ASN:HD22	1.65	0.41
1:A:96:TRP:CZ3	1:A:97:ASP:HB3	2.56	0.41
1:B:64:PRO:HG3	1:B:81:THR:HG21	2.03	0.41
2:B:232:FMA:C6'	2:B:232:FMA:H122	2.51	0.41
1:A:25:MET:HE3	1:B:65:PHE:HZ	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:184:VAL:CG2	2:A:233:FMA:H111	2.34	0.40
1:A:191:PHE:O	1:A:192:ASP:C	2.64	0.40
1:B:160:ASN:O	1:B:162:ASN:N	2.54	0.40
1:B:225:ARG:C	1:B:227:ASP:N	2.75	0.40
1:A:107:LEU:O	1:A:107:LEU:HG	2.19	0.40
1:A:50:HIS:C	1:A:52:LEU:H	2.29	0.40
1:B:80:ASN:O	1:B:81:THR:C	2.64	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	229/231 (99%)	170 (74%)	44 (19%)	15 (7%)	1	1
1	B	229/231 (99%)	147 (64%)	53 (23%)	29 (13%)	0	0
All	All	458/462 (99%)	317 (69%)	97 (21%)	44 (10%)	0	0

All (44) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	51	TYR
1	B	136	GLU
1	B	138	GLU
1	B	153	VAL
1	B	177	TYR
1	B	218	ASN
1	B	229	ASN
1	A	41	ILE
1	A	56	ASP
1	A	229	ASN
1	B	116	LYS

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Mol	Chain	Res	Type
1	B	122	ASP
1	B	160	ASN
1	B	181	LEU
1	B	230	LEU
1	A	19	GLN
1	A	21	PRO
1	A	100	ASN
1	A	225	ARG
1	B	77	THR
1	B	135	ASN
1	B	156	THR
1	B	178	LYS
1	B	192	ASP
1	B	210	LYS
1	B	226	GLN
1	A	15	ASN
1	A	138	GLU
1	A	192	ASP
1	A	226	GLN
1	B	49	ASP
1	B	76	ALA
1	B	154	ALA
1	B	161	PHE
1	A	64	PRO
1	A	117	TYR
1	A	162	ASN
1	B	21	PRO
1	B	110	TYR
1	B	217	LEU
1	A	158	PRO
1	B	155	CYS
1	B	206	ASP
1	B	163	GLY

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	212/212 (100%)	162 (76%)	50 (24%)	1	2
1	B	212/212 (100%)	170 (80%)	42 (20%)	1	4
All	All	424/424 (100%)	332 (78%)	92 (22%)	1	3

All (92) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	LYS
1	A	19	GLN
1	A	22	SER
1	A	25	MET
1	A	26	ASN
1	A	29	LEU
1	A	30	GLU
1	A	37	GLU
1	A	39	THR
1	A	45	ILE
1	A	47	ILE
1	A	49	ASP
1	A	52	LEU
1	A	53	VAL
1	A	55	LYS
1	A	60	LYS
1	A	67	THR
1	A	70	GLU
1	A	72	LEU
1	A	74	VAL
1	A	75	LEU
1	A	77	THR
1	A	96	TRP
1	A	103	ARG
1	A	104	LEU
1	A	106	LEU
1	A	107	LEU
1	A	116	LYS
1	A	118	ASN
1	A	121	ILE
1	A	124	VAL
1	A	127	GLN
1	A	131	HIS
1	A	134	VAL
1	A	135	ASN

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Mol	Chain	Res	Type
1	A	139	THR
1	A	147	LEU
1	A	150	GLU
1	A	156	THR
1	A	165	ILE
1	A	190	LYS
1	A	193	ASN
1	A	197	PHE
1	A	199	LEU
1	A	203	SER
1	A	213	VAL
1	A	215	ILE
1	A	219	ASN
1	A	225	ARG
1	A	228	ASN
1	B	18	GLN
1	B	30	GLU
1	B	31	THR
1	B	37	GLU
1	B	38	ASP
1	B	48	ASP
1	B	50	HIS
1	B	53	VAL
1	B	55	LYS
1	B	56	ASP
1	B	61	LYS
1	B	62	LEU
1	B	66	ILE
1	B	70	GLU
1	B	71	LYS
1	B	82	VAL
1	B	90	LEU
1	B	99	ILE
1	B	100	ASN
1	B	102	GLU
1	B	104	LEU
1	B	106	LEU
1	B	123	LEU
1	B	125	ARG
1	B	130	LEU
1	B	131	HIS
1	B	146	LYS

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Mol	Chain	Res	Type
1	B	151	ASN
1	B	155	CYS
1	B	157	GLN
1	B	181	LEU
1	B	184	VAL
1	B	191	PHE
1	B	195	VAL
1	B	203	SER
1	B	207	GLN
1	B	209	LYS
1	B	212	SER
1	B	221	VAL
1	B	228	ASN
1	B	229	ASN
1	B	231	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	ASN
1	A	15	ASN
1	A	27	ASN
1	A	127	GLN
1	A	135	ASN
1	A	162	ASN
1	A	170	GLN
1	A	207	GLN
1	A	218	ASN
1	A	219	ASN
1	A	220	GLN
1	B	2	ASN
1	B	19	GLN
1	B	26	ASN
1	B	80	ASN
1	B	151	ASN
1	B	162	ASN
1	B	218	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	FMA	A	233	-	48,49,49	1.94	16 (33%)	60,69,69	1.86	18 (30%)
2	FMA	B	233	-	48,49,49	1.93	15 (31%)	60,69,69	1.86	17 (28%)
2	FMA	A	232	-	48,49,49	1.74	15 (31%)	60,69,69	2.13	23 (38%)
2	FMA	B	232	-	48,49,49	1.94	15 (31%)	60,69,69	2.33	22 (36%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	FMA	A	233	-	-	20/37/37/37	0/3/3/3
2	FMA	B	233	-	-	17/37/37/37	0/3/3/3
2	FMA	A	232	-	-	14/37/37/37	0/3/3/3
2	FMA	B	232	-	-	21/37/37/37	0/3/3/3

All (61) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	233	FMA	C1B-C2B	4.95	1.59	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	232	FMA	C1B-C2B	4.87	1.59	1.52
2	A	233	FMA	C1B-C2B	4.82	1.59	1.52
2	B	232	FMA	P-O3P	-4.72	1.37	1.54
2	B	233	FMA	P-O3P	-4.56	1.37	1.54
2	A	232	FMA	P-O3P	-4.44	1.38	1.54
2	A	233	FMA	P-O3P	-4.36	1.38	1.54
2	A	233	FMA	C9A-C5A	4.21	1.47	1.41
2	B	233	FMA	C9A-C5A	4.09	1.47	1.41
2	B	232	FMA	C9A-C5A	3.87	1.46	1.41
2	A	232	FMA	C9A-C5A	3.80	1.46	1.41
2	B	233	FMA	O2-C2	-3.55	1.17	1.24
2	A	232	FMA	C2-N3	3.38	1.46	1.39
2	A	233	FMA	O2-C2	-3.36	1.17	1.24
2	B	232	FMA	O2-C2	-3.33	1.17	1.24
2	A	233	FMA	C2-N3	3.25	1.46	1.39
2	A	232	FMA	O2-C2	-3.18	1.18	1.24
2	B	233	FMA	C2-N3	3.11	1.45	1.39
2	B	232	FMA	C2-N3	3.07	1.45	1.39
2	A	233	FMA	C5B-C4B	2.97	1.55	1.51
2	B	233	FMA	C7M-C7	2.91	1.57	1.51
2	B	232	FMA	C7M-C7	2.88	1.57	1.51
2	A	233	FMA	C7M-C7	2.86	1.57	1.51
2	A	233	FMA	O5'-C5B	2.84	1.55	1.44
2	B	233	FMA	O4'-C4B	2.75	1.49	1.43
2	A	232	FMA	O5'-C5B	2.69	1.54	1.44
2	B	233	FMA	O5'-C5B	2.68	1.54	1.44
2	B	233	FMA	P-O2P	-2.59	1.45	1.54
2	B	233	FMA	C8-C7	2.58	1.45	1.40
2	B	232	FMA	O5'-C5B	2.57	1.54	1.44
2	A	232	FMA	C7M-C7	2.55	1.56	1.51
2	B	232	FMA	P-O2P	-2.55	1.45	1.54
2	A	232	FMA	P-O2P	-2.53	1.45	1.54
2	A	233	FMA	P-O2P	-2.53	1.45	1.54
2	A	233	FMA	C8-C7	2.52	1.44	1.40
2	A	232	FMA	O1'-C1'	2.51	1.30	1.22
2	B	232	FMA	C5B-C4B	2.51	1.55	1.51
2	A	232	FMA	C8-C7	2.43	1.44	1.40
2	B	232	FMA	C1B-N10	2.41	1.53	1.47
2	B	232	FMA	O4'-C4B	2.40	1.48	1.43
2	A	232	FMA	C5A-N5	-2.36	1.34	1.38
2	A	232	FMA	C4-N3	-2.33	1.34	1.38
2	A	233	FMA	C1B-N10	2.31	1.53	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	232	FMA	P-O1P	2.31	1.57	1.50
2	B	233	FMA	C10-N1	-2.29	1.28	1.33
2	B	232	FMA	O3'-C3B	-2.28	1.37	1.43
2	B	233	FMA	P-O1P	2.25	1.57	1.50
2	A	233	FMA	O1'-C1'	2.24	1.29	1.22
2	A	232	FMA	C10-N1	-2.23	1.28	1.33
2	B	232	FMA	O1'-C1'	2.22	1.29	1.22
2	B	232	FMA	C8-C7	2.21	1.44	1.40
2	A	233	FMA	P-O1P	2.20	1.57	1.50
2	A	232	FMA	P-O1P	2.20	1.57	1.50
2	B	233	FMA	O2'-C1'	-2.16	1.23	1.30
2	A	232	FMA	O2'-C1'	-2.12	1.23	1.30
2	B	233	FMA	C5A-N5	-2.10	1.34	1.38
2	A	233	FMA	C10-N1	-2.10	1.28	1.33
2	A	233	FMA	O4'-C4B	2.10	1.47	1.43
2	A	233	FMA	O2'-C1'	-2.07	1.24	1.30
2	B	233	FMA	C1B-N10	2.06	1.52	1.47
2	A	232	FMA	O4'-C4B	2.00	1.47	1.43

All (80) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	232	FMA	C5A-N5-C4A	5.91	127.97	118.10
2	B	232	FMA	C4'-C3'-C6	5.62	120.59	112.67
2	A	232	FMA	O2-C2-N1	5.60	131.10	121.80
2	A	232	FMA	C2B-C1B-N10	5.50	136.19	110.20
2	B	232	FMA	C4-C4A-N5	5.40	125.67	118.21
2	B	233	FMA	C5A-N5-C4A	5.26	126.89	118.10
2	B	232	FMA	O2-C2-N1	5.21	130.45	121.80
2	A	233	FMA	C5A-N5-C4A	5.15	126.70	118.10
2	B	232	FMA	C9A-N10-C10	4.99	128.35	120.75
2	A	232	FMA	C5A-N5-C4A	4.66	125.89	118.10
2	A	232	FMA	O2-C2-N3	-4.54	109.88	118.58
2	A	232	FMA	C2'-C3'-C6	-4.43	101.33	111.36
2	A	233	FMA	C4-C4A-N5	4.18	123.99	118.21
2	A	233	FMA	O2-C2-N1	4.18	128.75	121.80
2	B	233	FMA	O2-C2-N1	4.09	128.60	121.80
2	B	233	FMA	C4-C4A-N5	3.90	123.60	118.21
2	B	233	FMA	C9A-N10-C10	3.73	126.43	120.75
2	B	232	FMA	C10-N1-C2	3.72	124.89	116.85
2	A	233	FMA	C9A-N10-C10	3.58	126.21	120.75
2	A	232	FMA	C9A-N10-C10	3.55	126.17	120.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	232	FMA	C10-N1-C2	3.45	124.33	116.85
2	B	232	FMA	O2-C2-N3	-3.43	112.00	118.58
2	B	232	FMA	C3'-C2'-C1'	3.41	119.92	113.59
2	A	232	FMA	C4-N3-C2	-3.35	119.69	125.64
2	A	233	FMA	O1'-C1'-C2'	-3.33	112.62	122.84
2	A	233	FMA	O2-C2-N3	-3.31	112.23	118.58
2	B	233	FMA	O2-C2-N3	-3.24	112.38	118.58
2	B	232	FMA	O1'-C1'-C2'	-3.16	113.16	122.84
2	B	232	FMA	C9-C9A-N10	3.14	126.08	121.85
2	B	233	FMA	C10-N1-C2	3.06	123.48	116.85
2	B	232	FMA	C10-C4A-N5	-3.01	118.66	124.81
2	B	232	FMA	O3P-P-O1P	2.99	122.47	110.83
2	B	233	FMA	O1'-C1'-C2'	-2.98	113.69	122.84
2	B	232	FMA	C5B-C4B-C3B	-2.97	106.61	112.22
2	B	233	FMA	O2B-C2B-C3B	2.92	116.08	109.25
2	A	232	FMA	N10-C10-N1	2.92	127.10	118.51
2	A	233	FMA	C10-N1-C2	2.92	123.17	116.85
2	A	232	FMA	O4-C4-C4A	-2.83	119.06	126.53
2	A	232	FMA	O2'-C1'-O1'	-2.79	116.17	123.33
2	A	232	FMA	C4A-C4-N3	2.68	120.08	113.25
2	B	232	FMA	C7M-C7-C8	-2.65	115.09	119.67
2	A	233	FMA	C4'-C3'-C6	2.64	116.40	112.67
2	A	233	FMA	C9-C9A-N10	2.64	125.40	121.85
2	B	233	FMA	C10-C4A-N5	-2.63	119.43	124.81
2	A	233	FMA	C4-N3-C2	-2.61	121.01	125.64
2	A	232	FMA	O5'-P-O1P	-2.59	99.45	106.44
2	A	233	FMA	C10-C4A-N5	-2.58	119.54	124.81
2	B	232	FMA	N10-C10-N1	2.57	126.08	118.51
2	B	233	FMA	O2'-C1'-C2'	2.54	121.91	114.00
2	A	233	FMA	C7M-C7-C8	-2.54	115.29	119.67
2	B	232	FMA	C4A-C4-N3	2.53	119.68	113.25
2	B	233	FMA	O5'-P-O1P	-2.49	99.70	106.44
2	B	232	FMA	O2'-C1'-C2'	2.48	121.71	114.00
2	B	233	FMA	C4'-C3'-C6	2.47	116.16	112.67
2	B	233	FMA	C7M-C7-C8	-2.44	115.45	119.67
2	A	232	FMA	C9-C9A-N10	2.43	125.12	121.85
2	A	233	FMA	O5'-P-O1P	-2.39	99.99	106.44
2	A	232	FMA	C4-C4A-N5	2.38	121.50	118.21
2	B	233	FMA	C4-N3-C2	-2.35	121.46	125.64
2	A	232	FMA	O2'-C1'-C2'	2.33	121.24	114.00
2	B	232	FMA	C4-N3-C2	-2.32	121.52	125.64
2	B	232	FMA	O5'-P-O1P	-2.28	100.28	106.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	232	FMA	C4A-C10-N10	-2.27	113.24	116.48
2	A	233	FMA	C4A-C4-N3	2.27	119.03	113.25
2	A	233	FMA	O2'-C1'-C2'	2.19	120.82	114.00
2	B	233	FMA	N10-C10-N1	2.19	124.96	118.51
2	A	233	FMA	O2B-C2B-C1B	-2.19	101.21	110.20
2	B	233	FMA	C9-C9A-N10	2.17	124.77	121.85
2	B	232	FMA	C5A-C9A-N10	-2.14	116.10	117.97
2	A	232	FMA	C4A-C10-N10	-2.13	113.43	116.48
2	A	232	FMA	O1'-C1'-C2'	-2.12	116.33	122.84
2	B	233	FMA	O3P-P-O1P	2.10	119.03	110.83
2	A	232	FMA	C7M-C7-C8	-2.09	116.06	119.67
2	A	232	FMA	C4A-C10-N1	-2.09	119.46	124.59
2	A	232	FMA	O3P-P-O1P	2.08	118.92	110.83
2	A	233	FMA	O3P-P-O1P	2.06	118.86	110.83
2	B	232	FMA	O4-C4-N3	-2.03	116.29	120.11
2	A	233	FMA	O2B-C2B-C3B	2.03	113.99	109.25
2	A	232	FMA	C1B-N10-C9A	-2.00	116.74	120.63
2	A	232	FMA	C4'-C3'-C6	2.00	115.49	112.67

There are no chirality outliers.

All (72) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	232	FMA	C2'-C3'-C6-C5A
2	A	232	FMA	N10-C1B-C2B-O2B
2	A	232	FMA	N10-C1B-C2B-C3B
2	A	232	FMA	C5B-O5'-P-O2P
2	A	232	FMA	C5B-O5'-P-O3P
2	A	232	FMA	C1'-C2'-C3'-C6
2	A	232	FMA	C1'-C2'-C3'-C4'
2	A	233	FMA	C2B-C1B-N10-C10
2	A	233	FMA	N10-C1B-C2B-O2B
2	A	233	FMA	N10-C1B-C2B-C3B
2	A	233	FMA	C1B-C2B-C3B-O3'
2	A	233	FMA	C1B-C2B-C3B-C4B
2	A	233	FMA	O2B-C2B-C3B-O3'
2	A	233	FMA	O2B-C2B-C3B-C4B
2	A	233	FMA	C3B-C4B-C5B-O5'
2	A	233	FMA	O4'-C4B-C5B-O5'
2	A	233	FMA	C1'-C2'-C3'-C6
2	B	232	FMA	C2'-C3'-C6-C5A
2	B	232	FMA	C2'-C3'-C6-C7

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Mol	Chain	Res	Type	Atoms
2	B	232	FMA	N10-C1B-C2B-O2B
2	B	232	FMA	C2B-C3B-C4B-O4'
2	B	232	FMA	O3'-C3B-C4B-O4'
2	B	232	FMA	C5B-O5'-P-O1P
2	B	232	FMA	C5B-O5'-P-O2P
2	B	232	FMA	C5B-O5'-P-O3P
2	B	232	FMA	C1'-C2'-C3'-C6
2	B	233	FMA	C2'-C3'-C6-C5A
2	B	233	FMA	C2B-C1B-N10-C10
2	B	233	FMA	N10-C1B-C2B-O2B
2	B	233	FMA	N10-C1B-C2B-C3B
2	B	233	FMA	C1B-C2B-C3B-O3'
2	B	233	FMA	C1B-C2B-C3B-C4B
2	B	233	FMA	C3B-C4B-C5B-O5'
2	B	233	FMA	O4'-C4B-C5B-O5'
2	B	233	FMA	C5B-O5'-P-O1P
2	B	232	FMA	O3'-C3B-C4B-C5B
2	B	232	FMA	C2B-C3B-C4B-C5B
2	A	233	FMA	C12-C11-C9'-C8'
2	B	232	FMA	C11-C12-C13-C14
2	A	233	FMA	C5'-C6'-C7'-C8'
2	B	232	FMA	C12-C11-C9'-C8'
2	B	233	FMA	O2B-C2B-C3B-C4B
2	A	233	FMA	C3'-C4'-C5'-C6'
2	B	233	FMA	C5'-C6'-C7'-C8'
2	A	232	FMA	C12-C11-C9'-C8'
2	B	232	FMA	C7'-C8'-C9'-C11
2	A	232	FMA	C5B-O5'-P-O1P
2	A	233	FMA	C6'-C7'-C8'-C9'
2	B	232	FMA	C12-C13-C14-C15
2	B	232	FMA	C4'-C5'-C6'-C7'
2	A	233	FMA	C12-C13-C14-C15
2	A	232	FMA	C2'-C3'-C6-C7
2	B	233	FMA	C2'-C3'-C6-C7
2	B	232	FMA	C3'-C4'-C5'-C6'
2	B	233	FMA	C4'-C5'-C6'-C7'
2	A	233	FMA	C1'-C2'-C3'-C4'
2	B	232	FMA	C1'-C2'-C3'-C4'
2	A	233	FMA	C6-C3'-C4'-C5'
2	A	232	FMA	O4'-C4B-C5B-O5'
2	A	232	FMA	C12-C13-C14-C15
2	A	232	FMA	C4B-C5B-O5'-P

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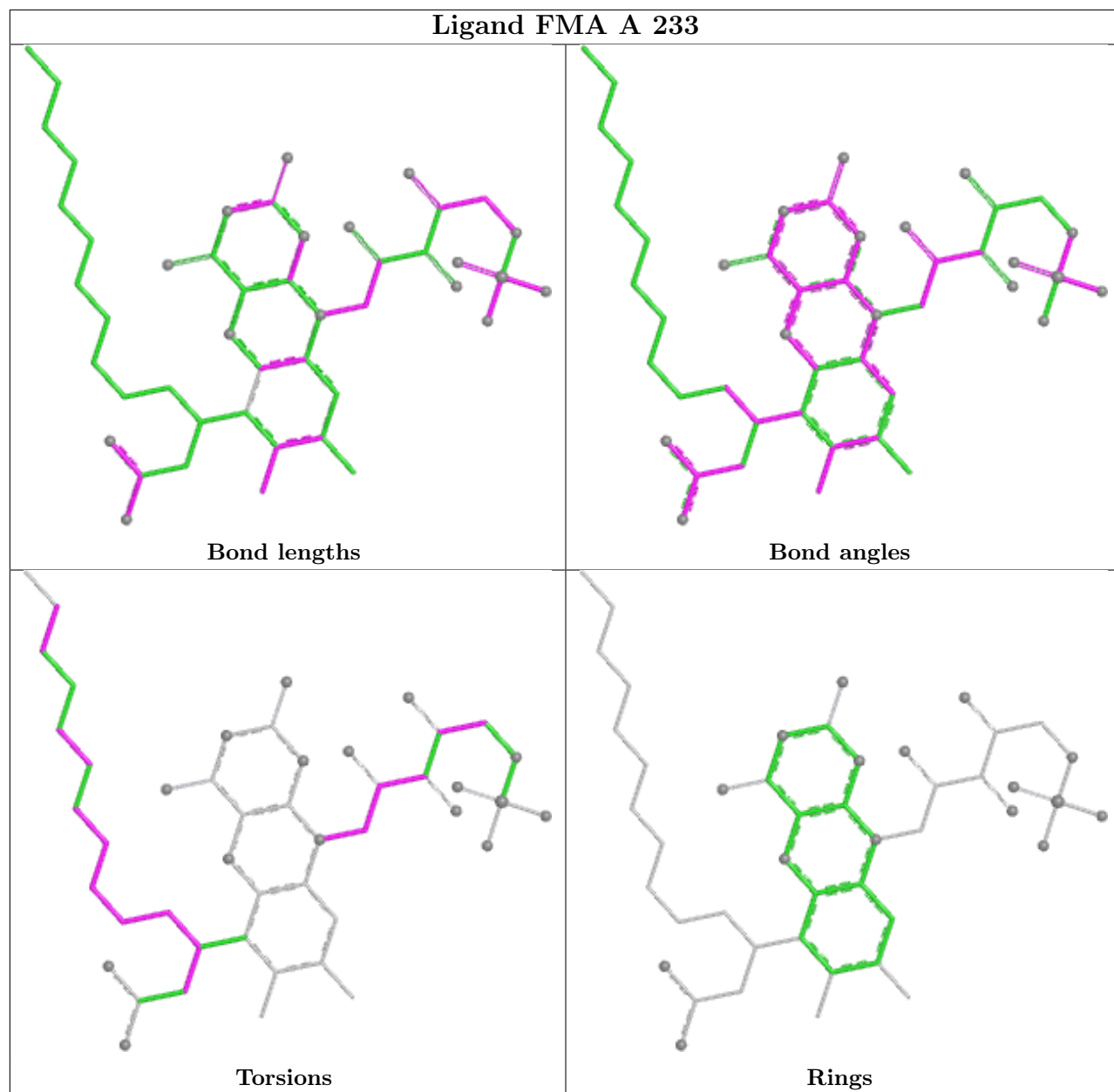
Mol	Chain	Res	Type	Atoms
2	B	232	FMA	C9'-C11-C12-C13
2	A	233	FMA	C2'-C3'-C4'-C5'
2	A	232	FMA	C11-C12-C13-C14
2	B	232	FMA	C6'-C7'-C8'-C9'
2	A	233	FMA	C2B-C1B-N10-C9A
2	A	233	FMA	C4'-C5'-C6'-C7'
2	B	232	FMA	C6-C3'-C4'-C5'
2	B	233	FMA	C3'-C4'-C5'-C6'
2	B	233	FMA	O2B-C2B-C3B-O3'
2	B	233	FMA	C4'-C3'-C6-C5A
2	B	233	FMA	C7'-C8'-C9'-C11

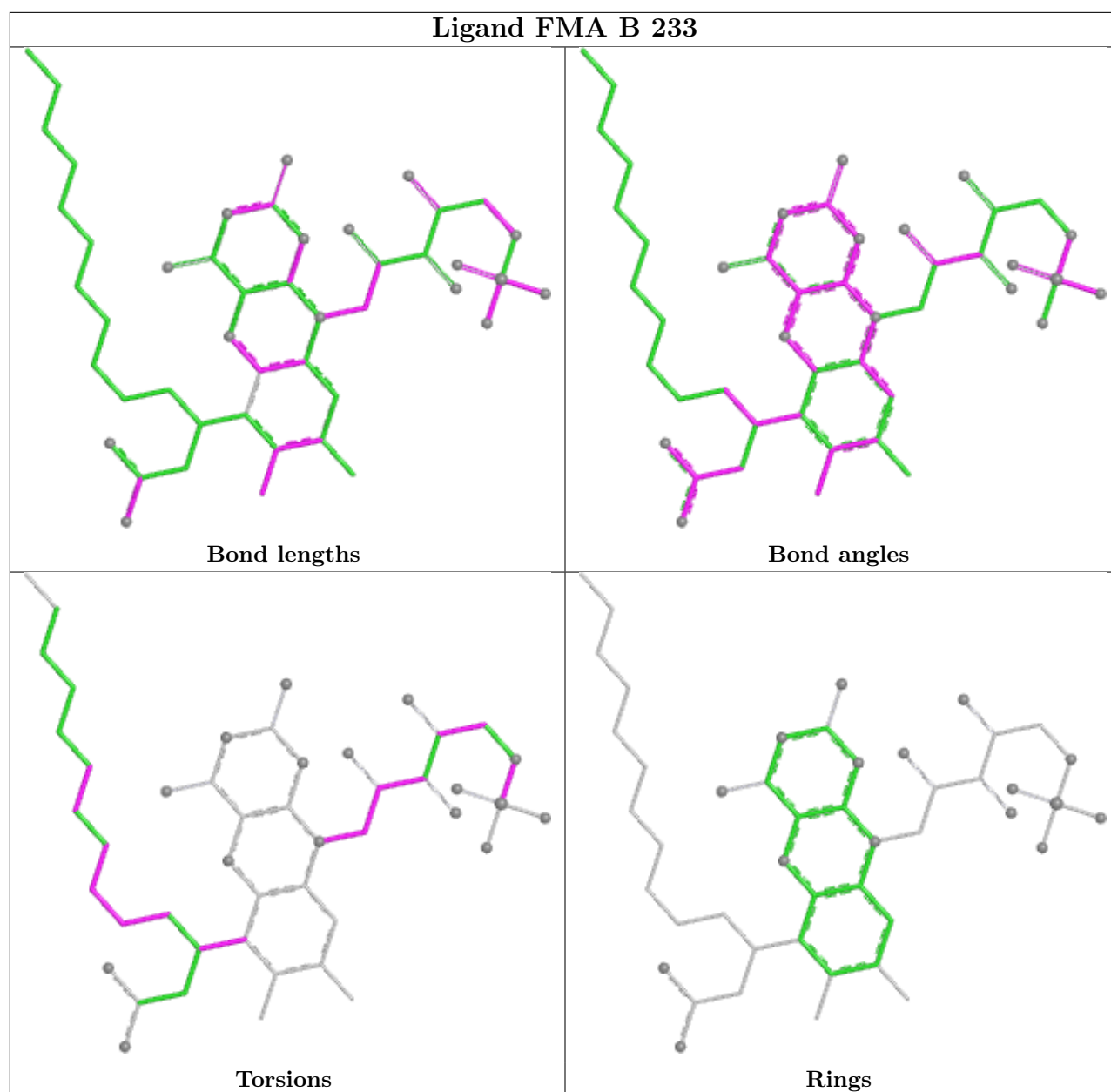
There are no ring outliers.

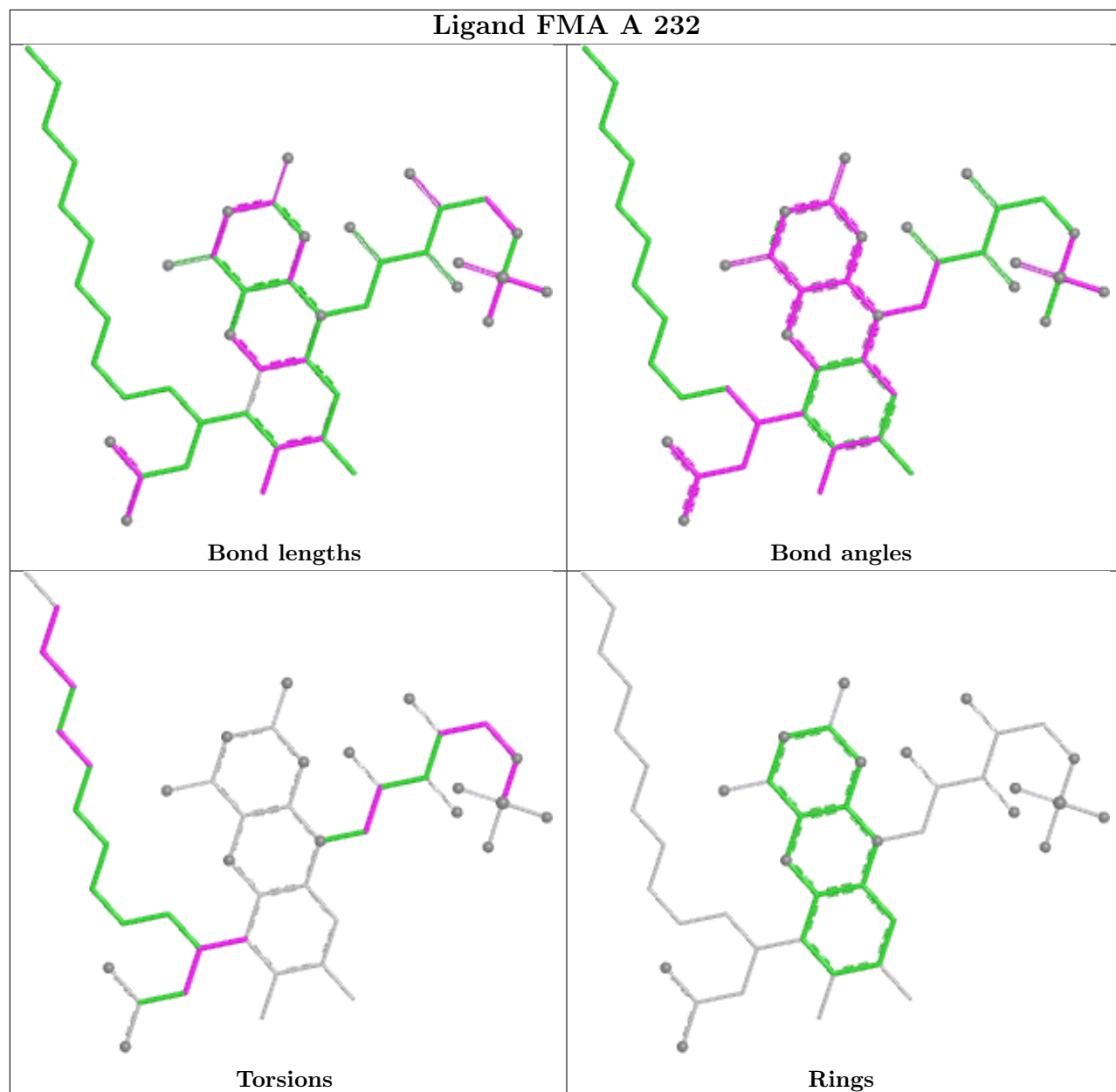
4 monomers are involved in 47 short contacts:

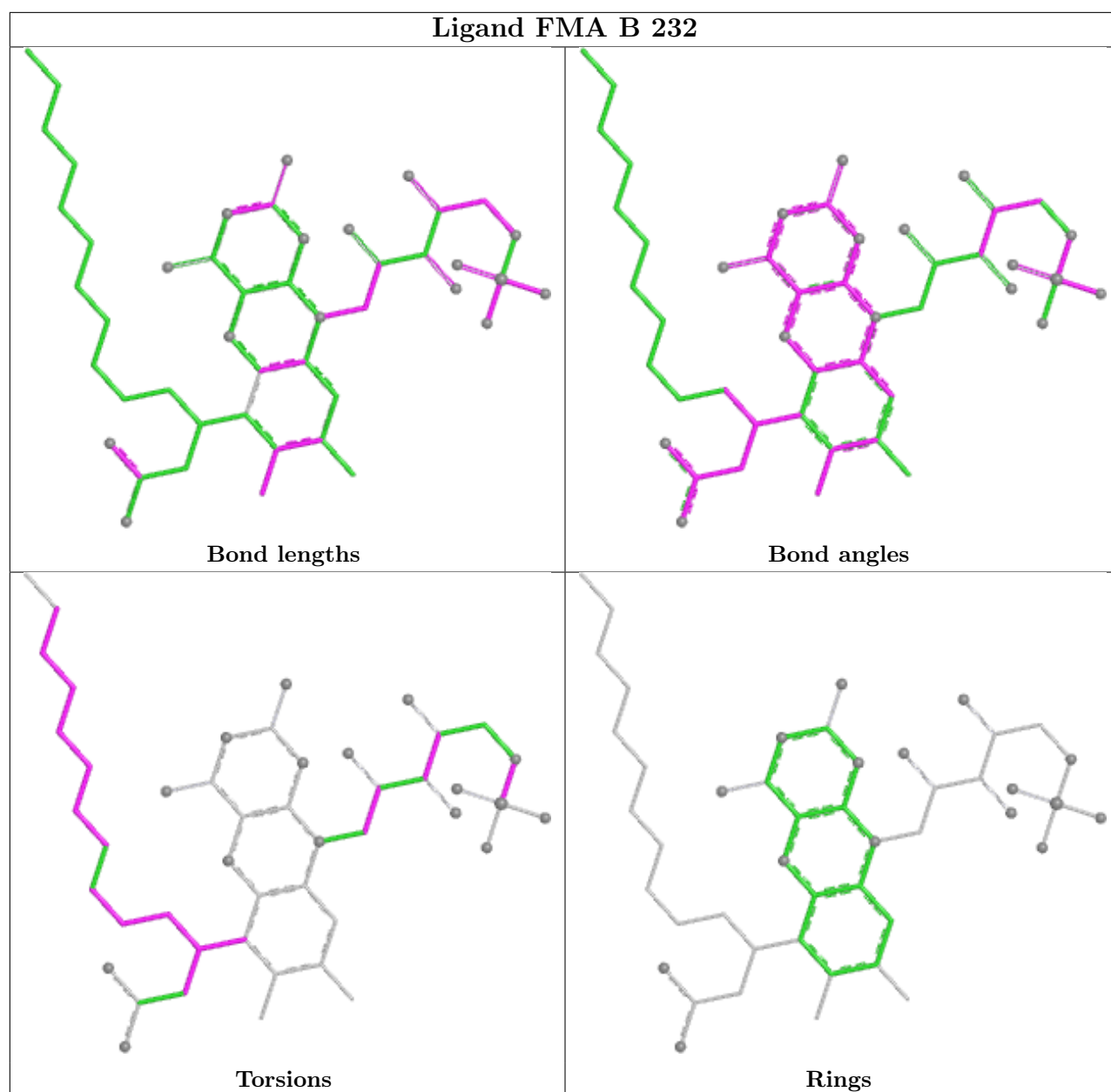
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	233	FMA	12	0
2	B	233	FMA	13	0
2	A	232	FMA	8	0
2	B	232	FMA	14	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.