



# Full wwPDB X-ray Structure Validation Report ⓘ

Dec 20, 2023 – 07:09 AM EST

PDB ID : 1VCG  
Title : Crystal Structure of IPP isomerase at P43212  
Authors : Wada, T.; Park, S.-Y.; Tame, R.H.; Kuramitsu, S.; Yokoyama, S.; RIKEN  
Structural Genomics/Proteomics Initiative (RSGI)  
Deposited on : 2004-03-08  
Resolution : 3.02 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

---

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

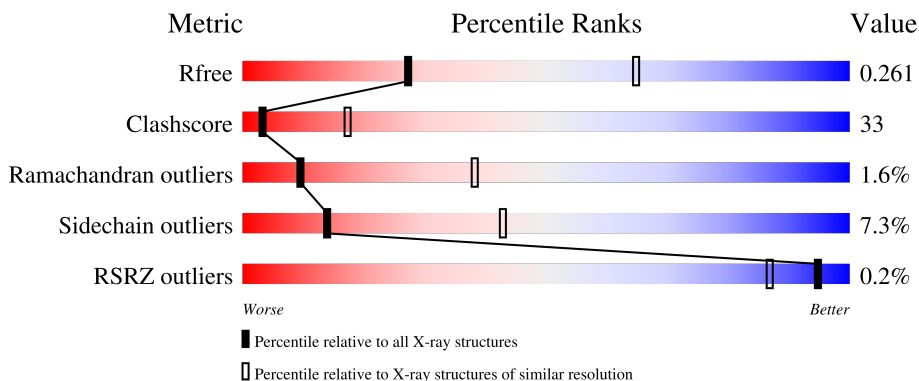
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.02 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	2399 (3.04-3.00)
Clashscore	141614	2734 (3.04-3.00)
Ramachandran outliers	138981	2640 (3.04-3.00)
Sidechain outliers	138945	2643 (3.04-3.00)
RSRZ outliers	127900	2287 (3.04-3.00)

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  $\geq 3$ , 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	332	47% 40% 5% • 6%
1	B	332	48% 42% 5% • •
1	C	332	49% 40% 5% • 5%
1	D	332	48% 40% • • 6%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	FMN	A	501	-	X	-	-
2	FMN	C	503	-	-	X	-
2	FMN	D	504	-	X	-	-

## 2 Entry composition i

There are 2 unique types of molecules in this entry. The entry contains 9677 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 isopentenyl-diphosphate delta-isomerase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	N	O	S				Se
1	A	311	2362	1505	426	424	2	5	0	0	0
1	B	318	2423	1543	439	434	2	5	0	0	0
1	C	316	2406	1531	437	431	2	5	0	0	0
1	D	311	2362	1505	426	424	2	5	0	0	0

There are 24 discrepancies between the modelled and reference sequences:

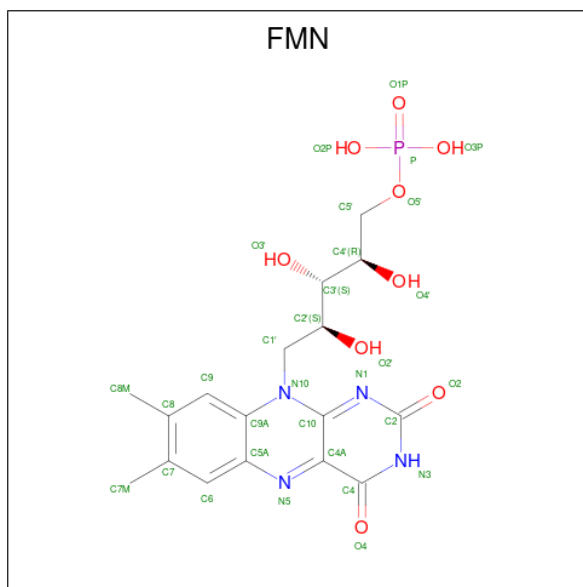
Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MSE	MET	modified residue	UNP Q746I8
A	66	MSE	MET	modified residue	UNP Q746I8
A	91	MSE	MET	modified residue	UNP Q746I8
A	92	MSE	MET	modified residue	UNP Q746I8
A	143	MSE	MET	modified residue	UNP Q746I8
A	185	MSE	MET	modified residue	UNP Q746I8
B	1	MSE	MET	modified residue	UNP Q746I8
B	66	MSE	MET	modified residue	UNP Q746I8
B	91	MSE	MET	modified residue	UNP Q746I8
B	92	MSE	MET	modified residue	UNP Q746I8
B	143	MSE	MET	modified residue	UNP Q746I8
B	185	MSE	MET	modified residue	UNP Q746I8
C	1	MSE	MET	modified residue	UNP Q746I8
C	66	MSE	MET	modified residue	UNP Q746I8
C	91	MSE	MET	modified residue	UNP Q746I8
C	92	MSE	MET	modified residue	UNP Q746I8
C	143	MSE	MET	modified residue	UNP Q746I8
C	185	MSE	MET	modified residue	UNP Q746I8
D	1	MSE	MET	modified residue	UNP Q746I8
D	66	MSE	MET	modified residue	UNP Q746I8
D	91	MSE	MET	modified residue	UNP Q746I8

*Continued on next page...*

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	92	MSE	MET	modified residue	UNP Q746I8
D	143	MSE	MET	modified residue	UNP Q746I8
D	185	MSE	MET	modified residue	UNP Q746I8

- Molecule 2 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: C<sub>17</sub>H<sub>21</sub>N<sub>4</sub>O<sub>9</sub>P).

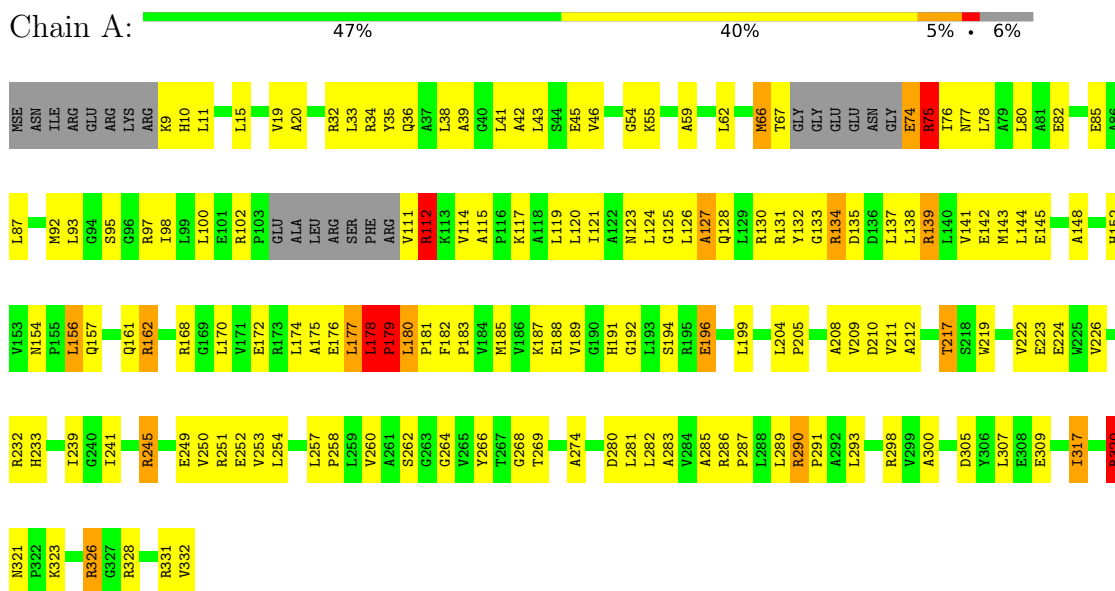


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	B	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	C	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	D	1	Total	C	N	O	P	0	0
			31	17	4	9	1		

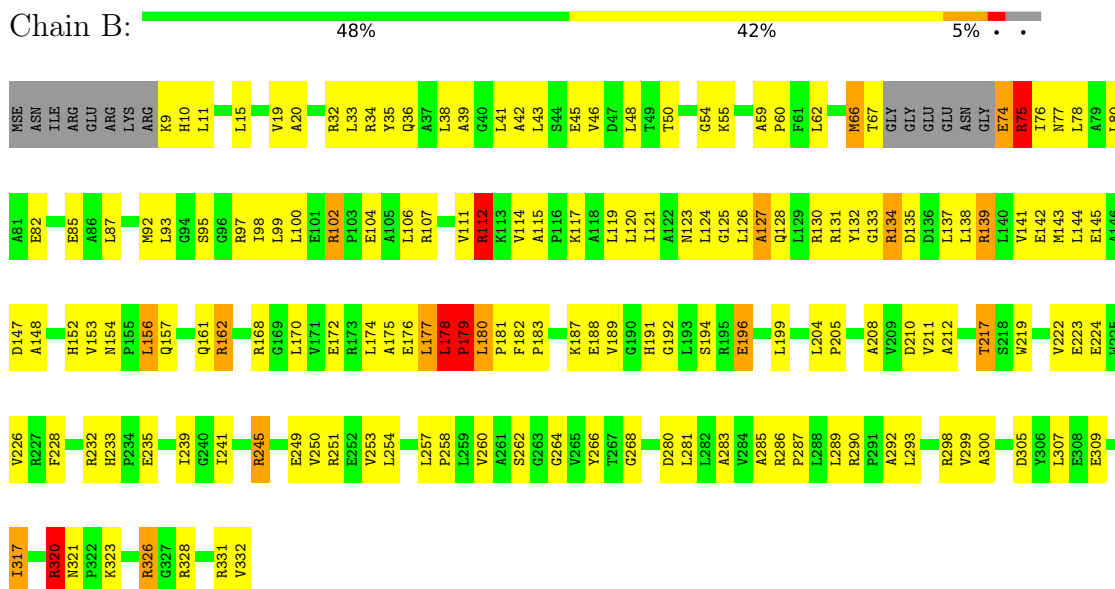
### 3 Residue-property plots

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 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: isopentenyl-diphosphate delta-isomerase

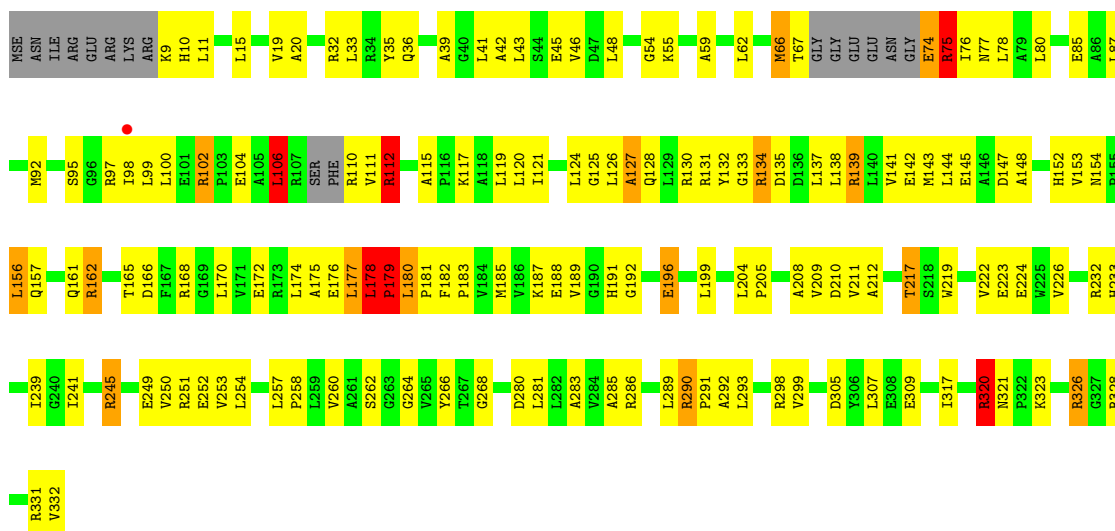


- Molecule 1: isopentenyl-diphosphate delta-isomerase



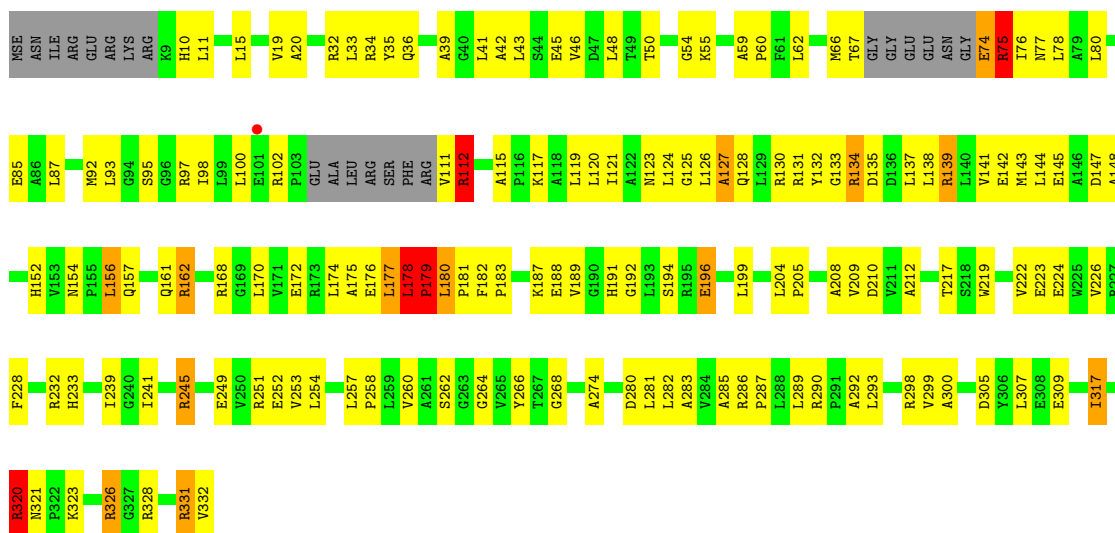
- Molecule 1: isopentenyl-diphosphate delta-isomerase

Chain C:  49% 40% 5% 5%



- Molecule 1: isopentenyl-diphosphate delta-isomerase

Chain D:  48% 40% 6% 6%



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	112.95Å 112.95Å 261.28Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.98 – 3.02 19.98 – 3.02	Depositor EDS
% Data completeness (in resolution range)	94.3 (19.98-3.02) 94.4 (19.98-3.02)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.05	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.33 (at 3.04Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, $R_{free}$	0.240 , 0.262 0.234 , 0.261	Depositor DCC
$R_{free}$ test set	1593 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	63.1	Xtrriage
Anisotropy	0.038	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 34.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	9677	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	54.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.63% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: FMN

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	0.49	1/2394 (0.0%)	1.34	23/3234 (0.7%)
1	B	0.47	1/2457 (0.0%)	1.08	20/3319 (0.6%)
1	C	0.45	1/2438 (0.0%)	1.09	20/3292 (0.6%)
1	D	0.48	0/2394	1.41	23/3234 (0.7%)
All	All	0.47	3/9683 (0.0%)	1.24	86/13079 (0.7%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	66	MSE	CG-SE	-5.71	1.76	1.95
1	C	66	MSE	CG-SE	-5.55	1.76	1.95
1	A	66	MSE	CG-SE	-5.11	1.78	1.95

All (86) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	320	ARG	NE-CZ-NH1	-26.33	107.14	120.30
1	D	331	ARG	NE-CZ-NH1	-24.27	108.16	120.30
1	A	320	ARG	NE-CZ-NH2	22.53	131.57	120.30
1	D	331	ARG	NE-CZ-NH2	22.30	131.45	120.30
1	D	112	ARG	NE-CZ-NH1	-21.18	109.71	120.30
1	A	290	ARG	NE-CZ-NH1	-20.82	109.89	120.30
1	D	112	ARG	NE-CZ-NH2	20.21	130.40	120.30
1	D	162	ARG	NE-CZ-NH1	-19.37	110.62	120.30
1	A	290	ARG	NE-CZ-NH2	19.13	129.87	120.30
1	D	162	ARG	NE-CZ-NH2	18.43	129.52	120.30
1	B	102	ARG	NE-CZ-NH1	-16.83	111.89	120.30
1	C	102	ARG	NE-CZ-NH1	-16.53	112.04	120.30
1	A	102	ARG	NE-CZ-NH2	-16.52	112.04	120.30
1	D	75	ARG	NE-CZ-NH1	16.50	128.55	120.30

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	102	ARG	NE-CZ-NH2	-16.42	112.09	120.30
1	A	139	ARG	NE-CZ-NH1	-16.39	112.11	120.30
1	D	75	ARG	NE-CZ-NH2	-16.37	112.11	120.30
1	B	75	ARG	NE-CZ-NH1	16.33	128.47	120.30
1	C	102	ARG	NE-CZ-NH2	16.24	128.42	120.30
1	A	75	ARG	NE-CZ-NH1	-16.18	112.21	120.30
1	C	139	ARG	NE-CZ-NH1	-16.00	112.30	120.30
1	C	75	ARG	NE-CZ-NH1	-15.98	112.31	120.30
1	D	139	ARG	NE-CZ-NH2	-15.94	112.33	120.30
1	C	75	ARG	NE-CZ-NH2	15.91	128.25	120.30
1	B	75	ARG	NE-CZ-NH2	-15.89	112.35	120.30
1	B	139	ARG	NE-CZ-NH2	-15.88	112.36	120.30
1	A	75	ARG	NE-CZ-NH2	15.83	128.21	120.30
1	A	139	ARG	NE-CZ-NH2	15.70	128.15	120.30
1	C	139	ARG	NE-CZ-NH2	15.65	128.13	120.30
1	D	102	ARG	NE-CZ-NH1	15.58	128.09	120.30
1	B	102	ARG	NE-CZ-NH2	15.54	128.07	120.30
1	D	139	ARG	NE-CZ-NH1	15.48	128.04	120.30
1	A	102	ARG	NE-CZ-NH1	15.02	127.81	120.30
1	B	139	ARG	NE-CZ-NH1	14.62	127.61	120.30
1	D	331	ARG	CD-NE-CZ	12.11	140.55	123.60
1	A	320	ARG	CD-NE-CZ	11.99	140.39	123.60
1	B	320	ARG	NE-CZ-NH2	-10.20	115.20	120.30
1	D	112	ARG	CD-NE-CZ	9.96	137.54	123.60
1	B	75	ARG	CD-NE-CZ	9.24	136.54	123.60
1	D	75	ARG	CD-NE-CZ	9.09	136.33	123.60
1	D	320	ARG	NE-CZ-NH2	-8.89	115.85	120.30
1	C	331	ARG	NE-CZ-NH2	-8.84	115.88	120.30
1	A	331	ARG	NE-CZ-NH2	-8.78	115.91	120.30
1	C	102	ARG	CD-NE-CZ	8.77	135.87	123.60
1	C	75	ARG	CD-NE-CZ	8.66	135.73	123.60
1	B	102	ARG	CD-NE-CZ	8.65	135.71	123.60
1	B	331	ARG	NE-CZ-NH2	-8.64	115.98	120.30
1	A	290	ARG	CD-NE-CZ	8.59	135.63	123.60
1	C	320	ARG	NE-CZ-NH2	-8.53	116.04	120.30
1	A	139	ARG	CD-NE-CZ	8.49	135.49	123.60
1	C	139	ARG	CD-NE-CZ	8.42	135.39	123.60
1	D	139	ARG	CD-NE-CZ	8.41	135.37	123.60
1	B	331	ARG	NE-CZ-NH1	8.40	124.50	120.30
1	A	331	ARG	NE-CZ-NH1	8.39	124.49	120.30
1	A	75	ARG	CD-NE-CZ	8.38	135.34	123.60
1	D	102	ARG	CD-NE-CZ	8.33	135.26	123.60

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	102	ARG	CD-NE-CZ	8.21	135.09	123.60
1	B	112	ARG	NE-CZ-NH2	-8.17	116.22	120.30
1	B	139	ARG	CD-NE-CZ	8.15	135.02	123.60
1	B	320	ARG	NE-CZ-NH1	8.15	124.37	120.30
1	A	112	ARG	NE-CZ-NH2	-8.06	116.27	120.30
1	C	112	ARG	NE-CZ-NH2	-8.04	116.28	120.30
1	D	162	ARG	CD-NE-CZ	7.93	134.71	123.60
1	C	331	ARG	NE-CZ-NH1	7.73	124.17	120.30
1	B	112	ARG	NE-CZ-NH1	7.62	124.11	120.30
1	A	112	ARG	NE-CZ-NH1	7.44	124.02	120.30
1	C	112	ARG	NE-CZ-NH1	7.24	123.92	120.30
1	D	290	ARG	NE-CZ-NH2	-7.21	116.70	120.30
1	C	320	ARG	NE-CZ-NH1	7.19	123.89	120.30
1	D	320	ARG	NE-CZ-NH1	7.17	123.89	120.30
1	B	290	ARG	NE-CZ-NH2	-6.71	116.94	120.30
1	B	162	ARG	NE-CZ-NH2	-6.64	116.98	120.30
1	C	290	ARG	NE-CZ-NH2	-6.50	117.05	120.30
1	C	162	ARG	NE-CZ-NH2	-6.43	117.08	120.30
1	C	162	ARG	NE-CZ-NH1	6.31	123.45	120.30
1	A	162	ARG	NE-CZ-NH2	-6.26	117.17	120.30
1	A	162	ARG	NE-CZ-NH1	6.17	123.39	120.30
1	B	162	ARG	NE-CZ-NH1	6.10	123.35	120.30
1	C	106	LEU	CA-CB-CG	5.72	128.47	115.30
1	D	162	ARG	CG-CD-NE	5.70	123.77	111.80
1	C	290	ARG	NE-CZ-NH1	5.63	123.11	120.30
1	D	290	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	B	290	ARG	NE-CZ-NH1	5.19	122.90	120.30
1	B	331	ARG	CD-NE-CZ	5.17	130.84	123.60
1	A	331	ARG	CD-NE-CZ	5.10	130.74	123.60
1	A	290	ARG	CG-CD-NE	5.02	122.34	111.80

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	2362	0	2452	159	0
1	B	2423	0	2515	176	0
1	C	2406	0	2500	178	0
1	D	2362	0	2452	157	0
2	A	31	0	19	7	0
2	B	31	0	19	8	0
2	C	31	0	19	9	0
2	D	31	0	19	5	0
All	All	9677	0	9995	650	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 33.

All (650) 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:C:257:LEU:HD12	1:C:258:PRO:HD2	1.29	1.10
1:D:257:LEU:HD12	1:D:258:PRO:HD2	1.33	1.07
1:A:257:LEU:HD12	1:A:258:PRO:HD2	1.36	1.06
1:B:257:LEU:HD12	1:B:258:PRO:HD2	1.37	1.04
1:C:106:LEU:HD22	1:C:110:ARG:HH22	1.18	1.02
1:C:33:LEU:HB3	1:C:317:ILE:HD11	1.47	0.97
1:B:33:LEU:HB3	1:B:317:ILE:HD11	1.47	0.96
1:C:127:ALA:HA	1:C:170:LEU:HD21	1.50	0.94
1:D:33:LEU:HB3	1:D:317:ILE:HD11	1.50	0.93
1:A:127:ALA:HA	1:A:170:LEU:HD21	1.50	0.92
1:B:178:LEU:HB3	1:B:179:PRO:HD3	1.52	0.92
1:D:127:ALA:HA	1:D:170:LEU:HD21	1.49	0.91
1:D:178:LEU:HB3	1:D:179:PRO:HD3	1.53	0.91
1:A:178:LEU:HB3	1:A:179:PRO:HD3	1.51	0.91
1:A:33:LEU:HB3	1:A:317:ILE:HD11	1.52	0.90
1:C:178:LEU:HB3	1:C:179:PRO:HD3	1.51	0.90
1:B:127:ALA:HA	1:B:170:LEU:HD21	1.52	0.89
1:A:326:ARG:HH11	1:A:326:ARG:HB2	1.40	0.86
1:B:188:GLU:HG3	1:B:189:VAL:N	1.88	0.86
1:C:268:GLY:HA3	1:C:309:GLU:HG3	1.57	0.86
1:D:326:ARG:HH11	1:D:326:ARG:HB2	1.41	0.86
1:D:268:GLY:HA3	1:D:309:GLU:HG3	1.57	0.86
1:C:188:GLU:HG3	1:C:189:VAL:N	1.92	0.85
1:A:188:GLU:HG3	1:A:189:VAL:N	1.90	0.85
1:D:188:GLU:HG3	1:D:189:VAL:N	1.89	0.84
1:C:326:ARG:HH11	1:C:326:ARG:HB2	1.42	0.84

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:GLY:HA3	1:A:309:GLU:HG3	1.60	0.83
1:B:326:ARG:HH11	1:B:326:ARG:HB2	1.42	0.83
1:C:106:LEU:HD22	1:C:110:ARG:NH2	1.93	0.83
1:A:85:GLU:HG3	1:A:115:ALA:HA	1.61	0.82
1:D:85:GLU:HG3	1:D:115:ALA:HA	1.62	0.82
1:B:268:GLY:HA3	1:B:309:GLU:HG3	1.58	0.81
1:B:99:LEU:HD11	1:B:106:LEU:HA	1.61	0.81
1:C:85:GLU:HG3	1:C:115:ALA:HA	1.61	0.81
1:A:178:LEU:HB3	1:A:179:PRO:CD	2.11	0.81
1:B:85:GLU:HG3	1:B:115:ALA:HA	1.62	0.80
1:D:178:LEU:HB3	1:D:179:PRO:CD	2.12	0.80
1:C:178:LEU:HB3	1:C:179:PRO:CD	2.11	0.79
1:B:178:LEU:HB3	1:B:179:PRO:CD	2.10	0.78
1:D:174:LEU:HG	1:D:178:LEU:HD23	1.66	0.78
1:B:174:LEU:HG	1:B:178:LEU:HD23	1.66	0.78
1:C:174:LEU:HG	1:C:178:LEU:HD23	1.67	0.77
1:C:78:LEU:HD23	1:C:111:VAL:HG23	1.67	0.77
1:D:43:LEU:O	1:D:46:VAL:HG12	1.84	0.77
1:A:43:LEU:O	1:A:46:VAL:HG12	1.86	0.76
1:C:43:LEU:O	1:C:46:VAL:HG12	1.85	0.76
1:D:78:LEU:HD23	1:D:111:VAL:HG23	1.64	0.76
1:A:78:LEU:HD23	1:A:111:VAL:HG23	1.68	0.76
1:C:98:ILE:H	1:C:98:ILE:HD12	1.52	0.75
1:A:174:LEU:HG	1:A:178:LEU:HD23	1.67	0.75
1:B:188:GLU:HG3	1:B:189:VAL:H	1.49	0.75
1:B:78:LEU:HD23	1:B:111:VAL:HG23	1.68	0.74
1:B:43:LEU:O	1:B:46:VAL:HG12	1.87	0.74
1:C:125:GLY:HA2	1:C:152:HIS:H	1.52	0.74
1:D:125:GLY:HA2	1:D:152:HIS:H	1.52	0.74
1:A:98:ILE:HD12	1:A:98:ILE:H	1.51	0.73
1:C:99:LEU:HD11	1:C:106:LEU:HA	1.69	0.73
1:A:125:GLY:HA2	1:A:152:HIS:H	1.52	0.73
1:A:188:GLU:HG3	1:A:189:VAL:H	1.51	0.73
1:D:326:ARG:HB2	1:D:326:ARG:NH1	2.04	0.73
1:A:41:LEU:HD22	1:A:320:ARG:HD2	1.71	0.72
1:A:67:THR:H	2:A:501:FMN:H6	1.54	0.72
1:A:326:ARG:HB2	1:A:326:ARG:NH1	2.03	0.72
1:D:188:GLU:HG3	1:D:189:VAL:H	1.52	0.72
1:B:67:THR:H	2:B:502:FMN:H6	1.53	0.71
1:C:188:GLU:HG3	1:C:189:VAL:H	1.52	0.71
1:D:98:ILE:HD12	1:D:98:ILE:H	1.54	0.71

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:326:ARG:HB2	1:B:326:ARG:NH1	2.04	0.71
1:C:326:ARG:HB2	1:C:326:ARG:NH1	2.04	0.70
1:B:98:ILE:HD12	1:B:98:ILE:H	1.54	0.70
1:C:67:THR:H	2:C:503:FMN:H6	1.57	0.69
1:B:125:GLY:HA2	1:B:152:HIS:H	1.57	0.69
1:C:260:VAL:HG22	1:C:281:LEU:HB2	1.75	0.69
1:D:260:VAL:HG22	1:D:281:LEU:HB2	1.75	0.68
1:D:257:LEU:HD12	1:D:258:PRO:CD	2.20	0.68
1:B:178:LEU:O	1:B:179:PRO:C	2.32	0.67
1:C:317:ILE:CG2	1:C:328:ARG:HD2	2.24	0.67
1:B:317:ILE:CG2	1:B:328:ARG:HD2	2.24	0.67
1:C:41:LEU:HD22	1:C:320:ARG:HD3	1.77	0.67
1:C:257:LEU:HD12	1:C:258:PRO:CD	2.17	0.67
1:C:85:GLU:CG	1:C:115:ALA:HA	2.23	0.67
1:D:317:ILE:CG2	1:D:328:ARG:HD2	2.24	0.67
1:D:178:LEU:O	1:D:179:PRO:C	2.32	0.67
1:C:161:GLN:HB2	1:C:223:GLU:HG2	1.77	0.67
1:A:178:LEU:O	1:A:179:PRO:C	2.33	0.66
1:B:99:LEU:HD11	1:B:106:LEU:CA	2.25	0.66
1:D:41:LEU:HD22	1:D:320:ARG:HD3	1.78	0.66
1:A:180:LEU:HD23	1:A:182:PHE:CE1	2.31	0.66
1:D:180:LEU:HD23	1:D:182:PHE:CE1	2.30	0.66
1:D:85:GLU:CG	1:D:115:ALA:HA	2.25	0.66
1:A:98:ILE:HD12	1:A:98:ILE:N	2.10	0.66
1:B:161:GLN:HB2	1:B:223:GLU:HG2	1.78	0.66
1:B:85:GLU:CG	1:B:115:ALA:HA	2.25	0.66
1:A:260:VAL:HG22	1:A:281:LEU:HB2	1.76	0.65
1:D:161:GLN:HB2	1:D:223:GLU:HG2	1.79	0.65
1:A:257:LEU:HD12	1:A:258:PRO:CD	2.22	0.65
1:B:260:VAL:HG22	1:B:281:LEU:HB2	1.79	0.65
1:A:317:ILE:CG2	1:A:328:ARG:HD2	2.27	0.65
1:A:85:GLU:CG	1:A:115:ALA:HA	2.26	0.64
1:B:217:THR:CG2	2:B:502:FMN:O3P	2.45	0.64
1:C:98:ILE:HD12	1:C:98:ILE:N	2.10	0.64
1:B:98:ILE:HD12	1:B:98:ILE:N	2.12	0.64
1:C:178:LEU:O	1:C:179:PRO:C	2.34	0.64
1:D:98:ILE:HD12	1:D:98:ILE:N	2.12	0.64
1:B:188:GLU:CG	1:B:189:VAL:N	2.61	0.63
1:C:99:LEU:HD11	1:C:106:LEU:HB3	1.80	0.63
1:B:217:THR:HG22	2:B:502:FMN:O3P	1.99	0.63
1:B:41:LEU:HD22	1:B:320:ARG:HD3	1.81	0.63

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:178:LEU:HD12	1:C:205:PRO:HG2	1.81	0.63
1:A:285:ALA:HB3	2:A:501:FMN:O5'	1.99	0.63
1:B:178:LEU:HD12	1:B:205:PRO:HG2	1.81	0.63
1:A:177:LEU:O	1:A:177:LEU:HD12	1.99	0.62
1:C:251:ARG:NH2	1:C:257:LEU:O	2.32	0.62
1:C:62:LEU:CD1	1:C:92:MSE:HE2	2.29	0.62
1:C:180:LEU:HD23	1:C:182:PHE:CE1	2.34	0.62
1:A:161:GLN:HB2	1:A:223:GLU:HG2	1.80	0.62
1:B:180:LEU:HD23	1:B:182:PHE:CE1	2.34	0.62
1:C:62:LEU:HD12	1:C:92:MSE:HE2	1.81	0.62
1:C:66:MSE:HA	2:C:503:FMN:C5A	2.29	0.62
1:C:110:ARG:HB3	1:C:110:ARG:CZ	2.28	0.61
1:B:188:GLU:CG	1:B:189:VAL:H	2.13	0.61
1:B:106:LEU:HD11	1:B:143:MSE:HB3	1.82	0.61
1:B:11:LEU:HD21	1:B:289:LEU:HD11	1.83	0.61
1:D:177:LEU:HD12	1:D:177:LEU:O	2.00	0.61
1:A:253:VAL:HG12	1:A:254:LEU:HD23	1.83	0.61
1:C:42:ALA:O	1:C:45:GLU:HG2	2.00	0.60
1:A:188:GLU:CG	1:A:189:VAL:N	2.63	0.60
1:B:251:ARG:NH2	1:B:257:LEU:O	2.34	0.60
1:D:11:LEU:HD21	1:D:289:LEU:HD11	1.83	0.60
1:C:19:VAL:HB	1:C:222:VAL:HG22	1.84	0.60
1:D:67:THR:H	2:D:504:FMN:H6	1.65	0.60
1:B:42:ALA:O	1:B:45:GLU:HG2	2.02	0.60
1:D:251:ARG:NH2	1:D:257:LEU:O	2.34	0.60
1:D:112:ARG:HD2	1:D:115:ALA:O	2.02	0.60
1:D:178:LEU:HD12	1:D:205:PRO:HG2	1.83	0.60
1:B:177:LEU:HD12	1:B:177:LEU:O	2.02	0.59
1:A:251:ARG:NH2	1:A:257:LEU:O	2.34	0.59
1:C:20:ALA:HB2	1:C:286:ARG:NH2	2.16	0.59
1:A:42:ALA:O	1:A:45:GLU:HG2	2.02	0.59
1:A:178:LEU:HD12	1:A:205:PRO:HG2	1.84	0.59
1:A:188:GLU:CG	1:A:189:VAL:H	2.15	0.59
1:B:19:VAL:HB	1:B:222:VAL:HG22	1.85	0.59
1:C:99:LEU:HD11	1:C:106:LEU:CA	2.31	0.59
1:C:188:GLU:CG	1:C:189:VAL:H	2.15	0.59
1:D:188:GLU:CG	1:D:189:VAL:N	2.63	0.59
1:C:11:LEU:HD21	1:C:289:LEU:HD11	1.84	0.59
1:D:188:GLU:CG	1:D:189:VAL:H	2.15	0.59
1:D:285:ALA:HB3	2:D:504:FMN:O5'	2.03	0.59
1:D:62:LEU:HD12	1:D:92:MSE:HE2	1.85	0.59

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:148:ALA:HB2	1:D:183:PRO:HG2	1.82	0.59
1:D:253:VAL:HG12	1:D:254:LEU:HD23	1.84	0.59
1:B:161:GLN:HB2	1:B:223:GLU:CG	2.33	0.58
1:D:62:LEU:CD1	1:D:92:MSE:HE2	2.33	0.58
1:C:99:LEU:HD11	1:C:106:LEU:CB	2.34	0.58
1:C:127:ALA:CA	1:C:170:LEU:HD21	2.30	0.58
1:D:42:ALA:O	1:D:45:GLU:HG2	2.03	0.58
1:A:180:LEU:HG	1:A:181:PRO:HD2	1.86	0.58
1:C:110:ARG:NH2	1:C:110:ARG:HB2	2.18	0.58
1:C:161:GLN:HB2	1:C:223:GLU:CG	2.32	0.58
1:C:177:LEU:O	1:C:177:LEU:HD12	2.03	0.58
1:A:62:LEU:HD12	1:A:92:MSE:HE2	1.86	0.58
1:C:178:LEU:O	1:C:180:LEU:HD13	2.02	0.58
1:C:285:ALA:HB3	2:C:503:FMN:O5'	2.03	0.58
1:D:156:LEU:HD12	1:D:191:HIS:CD2	2.39	0.58
1:A:305:ASP:OD2	1:B:233:HIS:HE1	1.85	0.58
1:D:180:LEU:HG	1:D:181:PRO:HD2	1.86	0.58
1:D:245:ARG:HH11	1:D:245:ARG:HG2	1.68	0.58
1:B:20:ALA:HB2	1:B:286:ARG:NH2	2.19	0.58
1:A:11:LEU:HD21	1:A:289:LEU:HD11	1.85	0.57
1:A:233:HIS:HE1	1:D:305:ASP:OD2	1.87	0.57
1:C:188:GLU:HG2	1:C:192:GLY:H	1.68	0.57
1:D:127:ALA:CA	1:D:170:LEU:HD21	2.30	0.57
1:D:154:ASN:HD22	1:D:157:GLN:HB3	1.69	0.57
1:B:172:GLU:CD	1:B:172:GLU:H	2.07	0.57
1:B:245:ARG:HH11	1:B:245:ARG:HG2	1.68	0.57
1:C:188:GLU:CG	1:C:189:VAL:N	2.64	0.57
1:D:178:LEU:O	1:D:180:LEU:HD13	2.04	0.57
1:A:245:ARG:HG2	1:A:245:ARG:HH11	1.69	0.57
1:A:191:HIS:HD2	1:A:239:ILE:O	1.87	0.57
1:A:148:ALA:HB2	1:A:183:PRO:HG2	1.85	0.57
1:A:20:ALA:HB2	1:A:286:ARG:NH2	2.20	0.57
1:A:224:GLU:OE1	1:A:233:HIS:HD2	1.88	0.57
1:C:156:LEU:HD12	1:C:191:HIS:CD2	2.38	0.57
1:B:178:LEU:O	1:B:180:LEU:HD13	2.03	0.57
1:C:245:ARG:HG2	1:C:245:ARG:HH11	1.70	0.57
1:C:253:VAL:HG12	1:C:254:LEU:HD23	1.86	0.57
1:B:224:GLU:OE1	1:B:233:HIS:HD2	1.88	0.57
1:A:87:LEU:N	1:A:87:LEU:HD12	2.20	0.56
1:D:161:GLN:HB2	1:D:223:GLU:CG	2.34	0.56
1:D:224:GLU:OE1	1:D:233:HIS:HD2	1.88	0.56

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:10:HIS:HD2	1:A:219:TRP:HZ3	1.53	0.56
1:A:172:GLU:H	1:A:172:GLU:CD	2.09	0.56
1:B:130:ARG:HG3	1:B:130:ARG:HH11	1.70	0.56
1:D:19:VAL:HB	1:D:222:VAL:HG22	1.85	0.56
1:B:222:VAL:O	1:B:226:VAL:HG23	2.05	0.56
1:C:121:ILE:HD12	1:C:121:ILE:N	2.21	0.56
1:D:124:LEU:CD1	1:D:128:GLN:HB2	2.34	0.56
1:D:172:GLU:CD	1:D:172:GLU:H	2.07	0.56
1:A:178:LEU:O	1:A:180:LEU:HD13	2.04	0.56
1:A:222:VAL:O	1:A:226:VAL:HG23	2.05	0.56
1:B:156:LEU:HD12	1:B:191:HIS:CD2	2.41	0.56
1:A:62:LEU:CD1	1:A:92:MSE:HE2	2.36	0.56
1:A:156:LEU:HD12	1:A:191:HIS:CD2	2.40	0.56
1:A:232:ARG:HG2	1:A:232:ARG:HH21	1.71	0.56
1:C:148:ALA:HB2	1:C:183:PRO:HG2	1.86	0.56
1:A:161:GLN:HB2	1:A:223:GLU:CG	2.36	0.56
1:B:127:ALA:CA	1:B:170:LEU:HD21	2.32	0.56
1:B:62:LEU:HD12	1:B:92:MSE:HE2	1.88	0.56
1:B:62:LEU:CD1	1:B:92:MSE:HE2	2.36	0.56
1:B:188:GLU:HG2	1:B:192:GLY:H	1.70	0.56
1:C:138:LEU:O	1:C:142:GLU:HB2	2.06	0.56
1:D:10:HIS:HD2	1:D:219:TRP:HZ3	1.54	0.56
1:D:20:ALA:HB2	1:D:286:ARG:NH2	2.21	0.56
1:C:10:HIS:HD2	1:C:219:TRP:HZ3	1.53	0.56
1:A:19:VAL:HB	1:A:222:VAL:HG22	1.87	0.55
1:B:10:HIS:HD2	1:B:219:TRP:HZ3	1.54	0.55
1:B:124:LEU:CD1	1:B:128:GLN:HB2	2.36	0.55
1:A:66:MSE:HA	2:A:501:FMN:C5A	2.35	0.55
1:A:124:LEU:CD1	1:A:128:GLN:HB2	2.37	0.55
1:B:305:ASP:OD2	1:C:233:HIS:HE1	1.90	0.55
1:C:222:VAL:O	1:C:226:VAL:HG23	2.06	0.55
1:D:121:ILE:N	1:D:121:ILE:HD12	2.22	0.55
1:B:191:HIS:HD2	1:B:239:ILE:O	1.89	0.55
1:A:154:ASN:HD22	1:A:157:GLN:HB3	1.72	0.55
1:C:139:ARG:O	1:C:142:GLU:HB3	2.07	0.55
1:C:172:GLU:CD	1:C:172:GLU:H	2.09	0.55
1:B:232:ARG:HG2	1:B:232:ARG:HH21	1.71	0.55
1:A:188:GLU:HG2	1:A:192:GLY:H	1.72	0.55
1:B:253:VAL:HG12	1:B:254:LEU:HD23	1.89	0.55
1:C:110:ARG:CZ	1:C:110:ARG:CB	2.85	0.55
1:D:138:LEU:O	1:D:142:GLU:HB2	2.07	0.55

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:224:GLU:OE1	1:C:233:HIS:HD2	1.90	0.55
1:C:99:LEU:CD1	1:C:106:LEU:HA	2.37	0.54
1:C:124:LEU:CD1	1:C:128:GLN:HB2	2.37	0.54
1:C:98:ILE:H	1:C:98:ILE:CD1	2.19	0.54
1:B:285:ALA:HB3	2:B:502:FMN:O5'	2.08	0.54
1:D:176:GLU:C	1:D:178:LEU:H	2.11	0.54
1:B:148:ALA:HB2	1:B:183:PRO:HG2	1.89	0.54
1:C:188:GLU:HG2	1:C:192:GLY:N	2.22	0.54
1:D:222:VAL:O	1:D:226:VAL:HG23	2.08	0.54
1:C:180:LEU:HG	1:C:181:PRO:HD2	1.89	0.54
1:B:178:LEU:O	1:B:180:LEU:N	2.40	0.54
1:B:245:ARG:HG2	1:B:245:ARG:NH1	2.23	0.54
1:C:176:GLU:C	1:C:178:LEU:H	2.11	0.54
1:C:187:LYS:CB	1:C:210:ASP:HB3	2.37	0.54
1:D:126:LEU:HB3	1:D:170:LEU:HD23	1.90	0.54
1:D:139:ARG:O	1:D:142:GLU:HB3	2.08	0.54
1:D:191:HIS:HD2	1:D:239:ILE:O	1.91	0.54
1:D:245:ARG:HG2	1:D:245:ARG:NH1	2.23	0.54
1:A:176:GLU:C	1:A:178:LEU:H	2.11	0.54
1:B:187:LYS:CB	1:B:210:ASP:HB3	2.38	0.54
1:A:245:ARG:HG2	1:A:245:ARG:NH1	2.24	0.53
1:B:87:LEU:HD12	1:B:87:LEU:N	2.22	0.53
1:B:257:LEU:HD12	1:B:258:PRO:CD	2.24	0.53
1:D:178:LEU:O	1:D:180:LEU:N	2.40	0.53
1:C:232:ARG:HG2	1:C:232:ARG:HH21	1.73	0.53
1:B:121:ILE:N	1:B:121:ILE:HD12	2.23	0.53
1:B:176:GLU:C	1:B:178:LEU:H	2.12	0.53
1:C:178:LEU:O	1:C:180:LEU:N	2.41	0.53
1:D:232:ARG:HH21	1:D:232:ARG:HG2	1.72	0.53
1:C:154:ASN:HD22	1:C:157:GLN:HB3	1.73	0.53
1:C:191:HIS:HD2	1:C:239:ILE:O	1.90	0.53
1:A:66:MSE:HE3	1:A:80:LEU:HD11	1.90	0.53
1:C:126:LEU:HB3	1:C:170:LEU:HD23	1.90	0.53
1:C:268:GLY:H	1:C:309:GLU:CD	2.12	0.53
1:A:178:LEU:O	1:A:180:LEU:N	2.42	0.53
1:B:66:MSE:HE3	1:B:80:LEU:HD11	1.91	0.53
1:B:317:ILE:HG22	1:B:328:ARG:HD2	1.91	0.53
1:A:67:THR:H	2:A:501:FMN:C6	2.20	0.52
1:A:121:ILE:N	1:A:121:ILE:HD12	2.25	0.52
1:A:130:ARG:HG3	1:A:130:ARG:HH11	1.73	0.52
1:B:126:LEU:HB3	1:B:170:LEU:HD23	1.92	0.52

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:138:LEU:O	1:B:142:GLU:HB2	2.09	0.52
1:D:157:GLN:NE2	1:D:189:VAL:HG21	2.25	0.52
1:D:172:GLU:HA	1:D:175:ALA:HB3	1.92	0.52
1:D:268:GLY:H	1:D:309:GLU:CD	2.13	0.52
1:A:85:GLU:OE1	1:A:117:LYS:N	2.43	0.52
1:A:126:LEU:HB3	1:A:170:LEU:HD23	1.92	0.52
1:C:130:ARG:HG3	1:C:130:ARG:HH11	1.73	0.52
1:A:98:ILE:H	1:A:98:ILE:CD1	2.19	0.52
1:B:76:ILE:HG13	1:B:77:ASN:N	2.25	0.52
1:B:180:LEU:HG	1:B:181:PRO:HD2	1.92	0.52
1:D:187:LYS:CB	1:D:210:ASP:HB3	2.40	0.52
1:A:188:GLU:HG2	1:A:192:GLY:N	2.25	0.52
1:A:187:LYS:CB	1:A:210:ASP:HB3	2.40	0.51
1:B:85:GLU:OE1	1:B:117:LYS:N	2.43	0.51
1:C:66:MSE:HA	2:C:503:FMN:C6	2.40	0.51
1:A:138:LEU:O	1:A:142:GLU:HB2	2.10	0.51
1:B:188:GLU:HG2	1:B:192:GLY:N	2.25	0.51
1:A:127:ALA:CA	1:A:170:LEU:HD21	2.31	0.51
1:B:157:GLN:NE2	1:B:189:VAL:HG21	2.25	0.51
1:C:67:THR:H	2:C:503:FMN:C6	2.24	0.51
1:C:119:LEU:O	1:C:120:LEU:HD23	2.10	0.51
1:A:76:ILE:HG13	1:A:77:ASN:N	2.26	0.51
1:B:266:TYR:HE1	2:B:502:FMN:O1P	1.94	0.51
1:D:188:GLU:HG2	1:D:192:GLY:H	1.75	0.51
1:A:41:LEU:CD2	1:A:320:ARG:HD2	2.41	0.51
1:C:104:GLU:O	1:C:106:LEU:HD12	2.10	0.51
1:C:110:ARG:NH2	1:C:110:ARG:CB	2.73	0.51
1:C:112:ARG:NH1	1:C:145:GLU:O	2.42	0.51
1:D:66:MSE:HE3	1:D:80:LEU:HD11	1.92	0.51
1:D:130:ARG:HG3	1:D:130:ARG:HH11	1.76	0.51
1:B:98:ILE:H	1:B:98:ILE:CD1	2.22	0.51
1:B:139:ARG:O	1:B:142:GLU:HB3	2.11	0.51
1:C:87:LEU:N	1:C:87:LEU:HD12	2.25	0.51
1:C:157:GLN:NE2	1:C:189:VAL:HG21	2.26	0.51
1:C:317:ILE:HG22	1:C:328:ARG:HD2	1.91	0.51
1:D:87:LEU:HD12	1:D:87:LEU:N	2.25	0.51
1:C:245:ARG:HG2	1:C:245:ARG:NH1	2.25	0.50
1:D:76:ILE:HG13	1:D:77:ASN:N	2.26	0.50
1:C:212:ALA:HA	1:C:262:SER:O	2.11	0.50
1:D:188:GLU:HG2	1:D:192:GLY:N	2.26	0.50
1:D:317:ILE:HG22	1:D:328:ARG:HD2	1.93	0.50

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:172:GLU:HA	1:B:175:ALA:HB3	1.94	0.50
1:D:157:GLN:HE21	1:D:189:VAL:HG21	1.76	0.50
1:A:144:LEU:O	1:A:145:GLU:HB2	2.12	0.50
1:D:85:GLU:OE1	1:D:117:LYS:N	2.43	0.50
1:D:98:ILE:H	1:D:98:ILE:CD1	2.22	0.50
1:C:66:MSE:HE3	1:C:80:LEU:HD11	1.93	0.50
1:C:172:GLU:HA	1:C:175:ALA:HB3	1.94	0.50
1:A:36:GLN:HB2	1:A:39:ALA:HB2	1.93	0.50
1:C:76:ILE:HG13	1:C:77:ASN:N	2.26	0.50
1:C:85:GLU:OE1	1:C:117:LYS:N	2.45	0.50
1:C:100:LEU:HD13	1:C:132:TYR:CD1	2.47	0.49
1:A:317:ILE:HG22	1:A:328:ARG:HD2	1.92	0.49
1:A:139:ARG:O	1:A:142:GLU:HB3	2.12	0.49
1:A:172:GLU:HA	1:A:175:ALA:HB3	1.94	0.49
1:B:157:GLN:HE21	1:B:189:VAL:HG21	1.77	0.49
1:D:317:ILE:HG23	1:D:328:ARG:HD2	1.94	0.49
1:B:144:LEU:O	1:B:145:GLU:HB2	2.13	0.49
1:C:36:GLN:CB	1:C:39:ALA:HB2	2.43	0.49
1:B:66:MSE:HA	2:B:502:FMN:C5A	2.42	0.49
1:C:95:SER:OG	1:C:97:ARG:HB2	2.12	0.49
1:C:36:GLN:HB2	1:C:39:ALA:HB2	1.95	0.49
1:C:144:LEU:O	1:C:145:GLU:HB2	2.13	0.49
1:D:59:ALA:HB1	1:D:307:LEU:HD22	1.95	0.49
1:A:100:LEU:HD13	1:A:132:TYR:CD1	2.48	0.48
1:A:268:GLY:H	1:A:309:GLU:CD	2.16	0.48
1:A:95:SER:OG	1:A:97:ARG:HB2	2.13	0.48
1:A:112:ARG:NH1	1:A:145:GLU:O	2.42	0.48
1:B:66:MSE:HA	2:B:502:FMN:C6	2.42	0.48
1:B:212:ALA:HA	1:B:262:SER:O	2.12	0.48
1:A:35:TYR:HB3	1:B:241:ILE:CD1	2.43	0.48
1:C:102:ARG:HB3	1:C:104:GLU:OE2	2.13	0.48
1:C:134:ARG:O	1:C:138:LEU:HG	2.13	0.48
1:B:36:GLN:HB2	1:B:39:ALA:HB2	1.95	0.48
1:C:106:LEU:HD12	1:C:106:LEU:H	1.78	0.48
1:C:176:GLU:CG	1:C:177:LEU:H	2.26	0.48
1:D:36:GLN:HB2	1:D:39:ALA:HB2	1.94	0.48
1:A:157:GLN:NE2	1:A:189:VAL:HG21	2.28	0.48
1:B:126:LEU:O	1:B:128:GLN:N	2.47	0.48
1:C:135:ASP:HA	1:C:138:LEU:HD12	1.96	0.48
1:D:212:ALA:HA	1:D:262:SER:O	2.13	0.48
1:A:38:LEU:HD23	1:B:153:VAL:HG21	1.96	0.48

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:MSE:HA	2:A:501:FMN:C6	2.43	0.48
1:A:326:ARG:HH11	1:A:326:ARG:CB	2.21	0.48
1:B:100:LEU:HD13	1:B:132:TYR:CD1	2.48	0.48
1:A:204:LEU:N	1:A:204:LEU:HD12	2.28	0.48
1:A:241:ILE:CD1	1:D:35:TYR:HB3	2.44	0.48
1:C:41:LEU:HD22	1:C:320:ARG:CD	2.42	0.48
1:C:110:ARG:HB2	1:C:110:ARG:HH21	1.79	0.48
1:B:38:LEU:HD23	1:C:153:VAL:HG21	1.94	0.48
1:B:95:SER:OG	1:B:97:ARG:HB2	2.13	0.48
1:B:268:GLY:H	1:B:309:GLU:CD	2.17	0.48
1:D:196:GLU:HA	1:D:199:LEU:HD12	1.96	0.48
1:A:126:LEU:O	1:A:128:GLN:N	2.47	0.48
1:B:67:THR:H	2:B:502:FMN:C6	2.23	0.48
1:D:141:VAL:HG21	1:D:182:PHE:CE2	2.48	0.47
1:A:36:GLN:CB	1:A:39:ALA:HB2	2.44	0.47
1:B:176:GLU:CG	1:B:177:LEU:H	2.27	0.47
1:B:262:SER:HB3	1:B:283:ALA:HB3	1.95	0.47
1:C:126:LEU:O	1:C:128:GLN:N	2.48	0.47
1:C:119:LEU:C	1:C:120:LEU:HD23	2.34	0.47
1:C:305:ASP:OD2	1:D:233:HIS:HE1	1.97	0.47
1:D:144:LEU:O	1:D:145:GLU:HB2	2.14	0.47
1:B:36:GLN:CB	1:B:39:ALA:HB2	2.43	0.47
1:B:119:LEU:O	1:B:120:LEU:HD23	2.14	0.47
1:C:157:GLN:HE21	1:C:189:VAL:HG21	1.79	0.47
1:C:208:ALA:HB2	1:C:258:PRO:HG2	1.95	0.47
1:D:100:LEU:HD13	1:D:132:TYR:CD1	2.49	0.47
1:D:176:GLU:CG	1:D:177:LEU:H	2.28	0.47
1:C:264:GLY:HA2	1:C:266:TYR:CE1	2.50	0.47
1:D:36:GLN:CB	1:D:39:ALA:HB2	2.45	0.47
1:D:119:LEU:O	1:D:120:LEU:HD23	2.13	0.47
1:D:161:GLN:O	1:D:162:ARG:HB2	2.14	0.47
1:D:204:LEU:HD12	1:D:204:LEU:N	2.30	0.47
1:A:157:GLN:HE21	1:A:189:VAL:HG21	1.80	0.47
1:A:262:SER:HB3	1:A:283:ALA:HB3	1.97	0.47
1:B:317:ILE:HA	1:B:317:ILE:HD13	1.70	0.47
1:C:204:LEU:N	1:C:204:LEU:HD12	2.30	0.47
1:C:266:TYR:HE1	2:C:503:FMN:O1P	1.98	0.47
1:B:19:VAL:HB	1:B:222:VAL:CG2	2.45	0.47
1:B:317:ILE:HG23	1:B:328:ARG:HD2	1.96	0.47
1:C:217:THR:CG2	2:C:503:FMN:O3P	2.63	0.47
1:A:119:LEU:O	1:A:120:LEU:HD23	2.15	0.47

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:59:ALA:HB1	1:B:307:LEU:HD22	1.97	0.47
1:B:280:ASP:C	1:B:281:LEU:HD22	2.35	0.47
1:C:141:VAL:HG21	1:C:182:PHE:CE2	2.50	0.47
1:D:208:ALA:HA	1:D:257:LEU:HD11	1.97	0.47
1:A:176:GLU:CG	1:A:177:LEU:H	2.28	0.46
1:A:217:THR:CG2	2:A:501:FMN:O3P	2.62	0.46
1:A:253:VAL:HG12	1:A:254:LEU:CD2	2.45	0.46
1:B:154:ASN:HD22	1:B:157:GLN:HB3	1.79	0.46
1:C:76:ILE:HG22	1:C:293:LEU:HD23	1.97	0.46
1:D:95:SER:OG	1:D:97:ARG:HB2	2.15	0.46
1:A:130:ARG:C	1:A:131:ARG:HG3	2.35	0.46
1:B:204:LEU:HD12	1:B:204:LEU:N	2.30	0.46
1:C:138:LEU:CD2	1:C:181:PRO:HG3	2.45	0.46
1:B:112:ARG:NH1	1:B:145:GLU:O	2.43	0.46
1:B:141:VAL:HG21	1:B:182:PHE:CE2	2.50	0.46
1:B:11:LEU:HD13	1:B:11:LEU:O	2.15	0.46
1:C:196:GLU:HA	1:C:199:LEU:HD12	1.98	0.46
1:C:280:ASP:C	1:C:281:LEU:HD22	2.36	0.46
1:A:59:ALA:HB1	1:A:307:LEU:HD22	1.97	0.46
1:B:34:ARG:NH1	1:C:196:GLU:OE2	2.49	0.46
1:C:217:THR:HG22	2:C:503:FMN:O3P	2.16	0.46
1:D:135:ASP:HA	1:D:138:LEU:HD12	1.97	0.46
1:D:168:ARG:O	1:D:170:LEU:HD12	2.16	0.46
1:A:332:VAL:OXT	1:A:332:VAL:HG12	2.15	0.46
1:C:264:GLY:HA2	1:C:266:TYR:CZ	2.50	0.46
1:B:99:LEU:CD1	1:B:106:LEU:HA	2.40	0.46
1:C:119:LEU:HD12	1:C:147:ASP:HB2	1.97	0.46
1:A:209:VAL:HG23	1:A:257:LEU:HD21	1.97	0.46
1:B:41:LEU:HD22	1:B:320:ARG:CD	2.45	0.46
1:B:196:GLU:HA	1:B:199:LEU:HD12	1.97	0.46
1:D:119:LEU:HD12	1:D:147:ASP:HB2	1.98	0.46
1:D:138:LEU:CD2	1:D:181:PRO:HG3	2.46	0.46
1:A:133:GLY:O	1:A:135:ASP:N	2.49	0.46
1:A:269:THR:HG21	1:B:235:GLU:HG2	1.98	0.46
1:B:35:TYR:HB3	1:C:241:ILE:CD1	2.45	0.46
1:D:126:LEU:O	1:D:128:GLN:N	2.49	0.46
1:D:208:ALA:HB2	1:D:258:PRO:HG2	1.98	0.46
1:A:75:ARG:CD	1:A:75:ARG:C	2.84	0.45
1:B:187:LYS:HB3	1:B:210:ASP:HB3	1.98	0.45
1:C:19:VAL:HB	1:C:222:VAL:CG2	2.45	0.45
1:C:187:LYS:HB3	1:C:210:ASP:HB3	1.98	0.45

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:321:ASN:OD1	1:C:323:LYS:HB2	2.16	0.45
1:D:224:GLU:OE1	1:D:233:HIS:CD2	2.69	0.45
1:A:141:VAL:HG21	1:A:182:PHE:CE2	2.51	0.45
1:D:152:HIS:HA	1:D:187:LYS:O	2.16	0.45
1:A:135:ASP:HA	1:A:138:LEU:HD12	1.98	0.45
1:A:138:LEU:CD2	1:A:181:PRO:HG3	2.46	0.45
1:C:152:HIS:HA	1:C:187:LYS:O	2.15	0.45
1:D:19:VAL:HB	1:D:222:VAL:CG2	2.46	0.45
1:D:134:ARG:O	1:D:138:LEU:HG	2.16	0.45
1:B:137:LEU:HD23	1:B:180:LEU:HD21	1.98	0.45
1:B:138:LEU:CD2	1:B:181:PRO:HG3	2.47	0.45
1:C:208:ALA:HA	1:C:257:LEU:HD11	1.97	0.45
1:D:249:GLU:O	1:D:252:GLU:HB3	2.17	0.45
1:B:130:ARG:HG3	1:B:130:ARG:NH1	2.32	0.45
1:C:262:SER:HB3	1:C:283:ALA:HB3	1.96	0.45
1:A:196:GLU:HA	1:A:199:LEU:HD12	1.98	0.45
1:C:317:ILE:HG23	1:C:328:ARG:HD2	1.96	0.45
1:D:41:LEU:HD22	1:D:320:ARG:CD	2.44	0.45
1:A:217:THR:HG22	2:A:501:FMN:O3P	2.15	0.45
1:D:66:MSE:HA	2:D:504:FMN:C6	2.47	0.45
1:A:19:VAL:HB	1:A:222:VAL:CG2	2.47	0.45
1:B:42:ALA:HB2	1:C:166:ASP:OD1	2.16	0.45
1:B:43:LEU:HB3	1:C:165:THR:CG2	2.47	0.45
1:D:253:VAL:HG12	1:D:254:LEU:CD2	2.47	0.45
1:A:212:ALA:HA	1:A:262:SER:O	2.17	0.45
1:C:11:LEU:O	1:C:11:LEU:HD13	2.17	0.45
1:D:93:LEU:O	1:D:123:ASN:CB	2.65	0.45
1:C:54:GLY:O	1:C:55:LYS:CG	2.65	0.44
1:C:59:ALA:HB1	1:C:307:LEU:HD22	1.99	0.44
1:D:264:GLY:HA2	1:D:266:TYR:CZ	2.52	0.44
1:A:11:LEU:HD13	1:A:11:LEU:O	2.17	0.44
1:C:75:ARG:CD	1:C:75:ARG:C	2.84	0.44
1:D:137:LEU:HD23	1:D:180:LEU:HD21	1.98	0.44
1:D:133:GLY:O	1:D:135:ASP:N	2.51	0.44
1:D:11:LEU:HD13	1:D:11:LEU:O	2.17	0.44
1:B:326:ARG:HH11	1:B:326:ARG:CB	2.24	0.44
1:A:134:ARG:O	1:A:138:LEU:HG	2.18	0.44
1:A:194:SER:OG	1:A:196:GLU:HG2	2.18	0.44
1:B:134:ARG:O	1:B:138:LEU:HG	2.17	0.44
1:B:139:ARG:O	1:B:143:MSE:HG3	2.18	0.44
1:C:253:VAL:HG12	1:C:254:LEU:CD2	2.48	0.44

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:209:VAL:HG23	1:D:257:LEU:HD21	1.99	0.44
1:D:262:SER:HB3	1:D:283:ALA:HB3	1.98	0.44
1:D:321:ASN:OD1	1:D:323:LYS:HB2	2.18	0.44
1:B:99:LEU:HD21	1:B:106:LEU:HG	1.98	0.44
1:C:138:LEU:HD22	1:C:181:PRO:HG3	2.00	0.44
1:C:161:GLN:O	1:C:162:ARG:HB2	2.17	0.44
1:A:74:GLU:HG2	1:A:75:ARG:N	2.33	0.44
1:A:224:GLU:OE1	1:A:233:HIS:CD2	2.70	0.44
1:D:280:ASP:C	1:D:281:LEU:HD22	2.37	0.44
1:B:119:LEU:HD12	1:B:147:ASP:HB2	1.99	0.44
1:D:74:GLU:HG2	1:D:75:ARG:N	2.33	0.44
1:D:76:ILE:HG22	1:D:293:LEU:HD23	1.99	0.44
1:A:208:ALA:HA	1:A:257:LEU:HD11	2.00	0.43
1:D:139:ARG:O	1:D:143:MSE:HG3	2.18	0.43
1:B:48:LEU:O	1:B:50:THR:HG23	2.18	0.43
1:D:130:ARG:C	1:D:131:ARG:HG3	2.38	0.43
1:D:187:LYS:HB3	1:D:210:ASP:HB3	2.01	0.43
1:A:280:ASP:C	1:A:281:LEU:HD22	2.38	0.43
1:D:119:LEU:C	1:D:120:LEU:HD23	2.38	0.43
1:A:76:ILE:HG22	1:A:293:LEU:HD23	1.99	0.43
1:B:292:ALA:HA	1:B:299:VAL:CG2	2.49	0.43
1:A:249:GLU:O	1:A:252:GLU:HB3	2.19	0.43
1:A:321:ASN:OD1	1:A:323:LYS:HB2	2.18	0.43
1:B:106:LEU:CD1	1:B:143:MSE:SE	3.16	0.43
1:B:176:GLU:CG	1:B:177:LEU:N	2.82	0.43
1:C:95:SER:C	1:C:97:ARG:H	2.22	0.43
1:C:128:GLN:C	1:C:130:ARG:H	2.21	0.43
1:B:168:ARG:O	1:B:170:LEU:HD12	2.19	0.43
1:C:137:LEU:HD23	1:C:180:LEU:HD21	2.00	0.43
1:C:209:VAL:HG23	1:C:257:LEU:HD21	2.00	0.43
1:C:224:GLU:OE1	1:C:233:HIS:CD2	2.72	0.43
1:B:161:GLN:O	1:B:162:ARG:HB2	2.18	0.43
1:D:228:PHE:CD2	1:D:232:ARG:NE	2.86	0.43
1:A:161:GLN:O	1:A:162:ARG:HB2	2.19	0.43
1:A:264:GLY:HA2	1:A:266:TYR:CZ	2.53	0.43
1:B:133:GLY:O	1:B:135:ASP:N	2.52	0.43
1:D:54:GLY:O	1:D:55:LYS:CG	2.67	0.43
1:A:168:ARG:O	1:A:170:LEU:HD12	2.18	0.43
1:B:45:GLU:OE2	1:C:168:ARG:HD3	2.19	0.43
1:B:74:GLU:HG2	1:B:75:ARG:N	2.34	0.43
1:D:274:ALA:HB3	1:D:282:LEU:HD11	2.01	0.43

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:209:VAL:HG23	1:A:257:LEU:CD2	2.49	0.42
1:B:102:ARG:O	1:B:104:GLU:N	2.52	0.42
1:D:266:TYR:CD1	1:D:287:PRO:HG2	2.53	0.42
1:A:138:LEU:HD22	1:A:181:PRO:HG3	2.01	0.42
1:B:152:HIS:HA	1:B:187:LYS:O	2.19	0.42
1:B:194:SER:OG	1:B:196:GLU:HG2	2.19	0.42
1:B:208:ALA:HB2	1:B:258:PRO:HG2	2.01	0.42
1:C:35:TYR:HB3	1:D:241:ILE:CD1	2.50	0.42
1:C:292:ALA:HA	1:C:299:VAL:CG2	2.49	0.42
1:D:66:MSE:HA	2:D:504:FMN:C5A	2.49	0.42
1:D:292:ALA:HA	1:D:299:VAL:CG2	2.49	0.42
1:B:111:VAL:O	1:B:111:VAL:HG22	2.20	0.42
1:B:135:ASP:HA	1:B:138:LEU:HD12	2.00	0.42
1:B:172:GLU:CD	1:B:172:GLU:N	2.71	0.42
1:D:138:LEU:HD22	1:D:181:PRO:HG3	2.01	0.42
1:A:187:LYS:HB3	1:A:210:ASP:HB3	2.01	0.42
1:D:124:LEU:HD11	1:D:128:GLN:HB2	2.01	0.42
1:A:95:SER:C	1:A:97:ARG:H	2.22	0.42
1:A:124:LEU:HD11	1:A:128:GLN:HB2	2.02	0.42
1:A:317:ILE:HG23	1:A:328:ARG:HD2	2.00	0.42
1:B:93:LEU:O	1:B:123:ASN:CB	2.68	0.42
1:C:74:GLU:HG2	1:C:75:ARG:N	2.33	0.42
1:C:249:GLU:O	1:C:252:GLU:HB3	2.20	0.42
1:A:54:GLY:O	1:A:55:LYS:CG	2.68	0.42
1:A:119:LEU:C	1:A:120:LEU:HD23	2.40	0.42
1:A:290:ARG:N	1:A:291:PRO:HD2	2.35	0.42
1:B:119:LEU:C	1:B:120:LEU:HD23	2.39	0.42
1:D:332:VAL:OXT	1:D:332:VAL:HG12	2.19	0.42
1:B:138:LEU:HD22	1:B:181:PRO:HG3	2.02	0.42
1:B:217:THR:HB	1:B:286:ARG:NH1	2.35	0.42
1:C:130:ARG:HG3	1:C:130:ARG:NH1	2.34	0.42
1:C:176:GLU:CG	1:C:177:LEU:N	2.82	0.42
1:D:126:LEU:CD2	1:D:170:LEU:HB3	2.50	0.42
1:D:264:GLY:HA2	1:D:266:TYR:CE1	2.55	0.42
1:A:35:TYR:HB3	1:B:241:ILE:HD12	2.02	0.42
1:B:19:VAL:CB	1:B:222:VAL:HG22	2.49	0.42
1:B:106:LEU:HD11	1:B:143:MSE:CG	2.50	0.42
1:B:228:PHE:CD2	1:B:232:ARG:NE	2.88	0.42
1:A:139:ARG:O	1:A:143:MSE:HG3	2.19	0.42
1:B:76:ILE:HG22	1:B:293:LEU:HD23	2.00	0.42
1:B:130:ARG:C	1:B:131:ARG:HG3	2.40	0.42

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:41:LEU:CD2	1:C:320:ARG:HD3	2.47	0.42
1:B:211:VAL:HG12	1:B:250:VAL:HG21	2.01	0.41
1:B:219:TRP:O	1:B:223:GLU:HB2	2.19	0.41
1:C:130:ARG:C	1:C:131:ARG:HG3	2.39	0.41
1:C:168:ARG:O	1:C:170:LEU:HD12	2.19	0.41
1:C:185:MSE:HB2	1:C:208:ALA:O	2.20	0.41
1:C:332:VAL:OXT	1:C:332:VAL:HG12	2.20	0.41
1:A:196:GLU:OE2	1:D:34:ARG:NH1	2.54	0.41
1:A:211:VAL:HG12	1:A:250:VAL:HG21	2.01	0.41
1:C:11:LEU:HD13	1:C:11:LEU:C	2.41	0.41
1:C:326:ARG:HH11	1:C:326:ARG:CB	2.23	0.41
1:D:176:GLU:CG	1:D:177:LEU:N	2.82	0.41
1:D:194:SER:OG	1:D:196:GLU:HG2	2.20	0.41
1:A:82:GLU:HB2	1:A:114:VAL:HG11	2.03	0.41
1:A:100:LEU:HB3	1:A:132:TYR:HE1	1.86	0.41
1:A:137:LEU:HD23	1:A:180:LEU:HD21	2.01	0.41
1:C:217:THR:HG23	2:C:503:FMN:H5'1	2.02	0.41
1:A:130:ARG:HG3	1:A:130:ARG:NH1	2.34	0.41
1:A:196:GLU:CD	1:A:196:GLU:H	2.23	0.41
1:B:54:GLY:O	1:B:55:LYS:CG	2.68	0.41
1:B:95:SER:C	1:B:97:ARG:H	2.23	0.41
1:B:100:LEU:HB3	1:B:132:TYR:HE1	1.85	0.41
1:B:264:GLY:HA2	1:B:266:TYR:CZ	2.56	0.41
1:C:19:VAL:CB	1:C:222:VAL:HG22	2.49	0.41
1:C:48:LEU:HB3	1:C:59:ALA:HA	2.03	0.41
1:C:161:GLN:HA	1:C:223:GLU:HG3	2.02	0.41
1:C:317:ILE:HA	1:C:317:ILE:HD13	1.71	0.41
1:D:48:LEU:O	1:D:50:THR:HG23	2.19	0.41
1:D:112:ARG:HD3	1:D:112:ARG:HA	1.60	0.41
1:D:128:GLN:C	1:D:130:ARG:H	2.24	0.41
1:D:317:ILE:HG23	1:D:328:ARG:HB3	2.03	0.41
1:A:93:LEU:O	1:A:123:ASN:CB	2.69	0.41
1:A:98:ILE:O	1:A:98:ILE:HG22	2.20	0.41
1:B:208:ALA:HA	1:B:257:LEU:HD11	2.02	0.41
1:B:224:GLU:OE1	1:B:233:HIS:CD2	2.70	0.41
1:B:266:TYR:CD1	1:B:287:PRO:HG2	2.56	0.41
1:D:60:PRO:HA	1:D:281:LEU:HD13	2.03	0.41
1:D:266:TYR:HE1	2:D:504:FMN:O1P	2.04	0.41
1:A:111:VAL:O	1:A:111:VAL:HG22	2.20	0.41
1:B:82:GLU:HB2	1:B:114:VAL:HG11	2.01	0.41
1:A:152:HIS:HA	1:A:187:LYS:O	2.21	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:264:GLY:HA2	1:A:266:TYR:CE1	2.55	0.41
1:C:211:VAL:HG12	1:C:250:VAL:HG21	2.01	0.41
1:B:317:ILE:HG23	1:B:328:ARG:HB3	2.02	0.41
1:C:133:GLY:O	1:C:135:ASP:N	2.53	0.41
1:D:11:LEU:HD13	1:D:11:LEU:C	2.41	0.41
1:D:87:LEU:HD11	1:D:300:ALA:HB1	2.02	0.41
1:D:172:GLU:CD	1:D:172:GLU:N	2.72	0.41
1:D:209:VAL:HG23	1:D:257:LEU:CD2	2.51	0.41
1:A:34:ARG:HH22	1:B:249:GLU:CD	2.24	0.41
1:A:176:GLU:CG	1:A:177:LEU:N	2.83	0.41
1:A:266:TYR:CD1	1:A:287:PRO:HG2	2.56	0.41
1:B:321:ASN:OD1	1:B:323:LYS:HB2	2.21	0.41
1:B:332:VAL:HG12	1:B:332:VAL:OXT	2.21	0.41
1:D:19:VAL:CB	1:D:222:VAL:HG22	2.50	0.41
1:D:95:SER:C	1:D:97:ARG:H	2.23	0.41
1:D:317:ILE:HA	1:D:317:ILE:HD13	1.70	0.41
1:B:11:LEU:HD13	1:B:11:LEU:C	2.41	0.40
1:B:106:LEU:HD11	1:B:143:MSE:CB	2.49	0.40
1:B:187:LYS:HB2	1:B:210:ASP:HB3	2.02	0.40
1:D:161:GLN:HA	1:D:223:GLU:HG3	2.03	0.40
1:D:187:LYS:HB2	1:D:210:ASP:HB3	2.03	0.40
1:A:133:GLY:O	1:A:134:ARG:C	2.59	0.40
1:A:219:TRP:O	1:A:223:GLU:HB2	2.20	0.40
1:B:102:ARG:C	1:B:104:GLU:N	2.74	0.40
1:B:106:LEU:HD11	1:B:143:MSE:SE	2.71	0.40
1:B:126:LEU:CD2	1:B:170:LEU:HB3	2.51	0.40
1:C:111:VAL:O	1:C:111:VAL:HG22	2.21	0.40
1:C:126:LEU:CD2	1:C:170:LEU:HB3	2.51	0.40
1:C:139:ARG:O	1:C:143:MSE:HG3	2.21	0.40
1:C:172:GLU:CD	1:C:172:GLU:N	2.73	0.40
1:C:187:LYS:HB2	1:C:210:ASP:HB3	2.01	0.40
1:C:290:ARG:N	1:C:291:PRO:HD2	2.36	0.40
1:D:196:GLU:CD	1:D:196:GLU:H	2.25	0.40
1:D:326:ARG:HH11	1:D:326:ARG:CB	2.22	0.40
1:A:126:LEU:CD2	1:A:170:LEU:HB3	2.51	0.40
1:A:185:MSE:HB2	1:A:208:ALA:O	2.20	0.40
1:B:34:ARG:HH22	1:C:249:GLU:CD	2.23	0.40
1:B:87:LEU:HD11	1:B:300:ALA:HB1	2.03	0.40
1:C:124:LEU:HD11	1:C:128:GLN:HB2	2.03	0.40
1:C:219:TRP:O	1:C:223:GLU:HB2	2.22	0.40
1:A:87:LEU:HD11	1:A:300:ALA:HB1	2.03	0.40

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:274:ALA:HB3	1:A:282:LEU:HD11	2.04	0.40
1:B:48:LEU:HB3	1:B:59:ALA:HA	2.04	0.40
1:C:217:THR:HB	1:C:286:ARG:NH1	2.36	0.40
1:C:317:ILE:HG23	1:C:328:ARG:HB3	2.03	0.40
1:D:176:GLU:C	1:D:178:LEU:N	2.75	0.40
1:A:34:ARG:NH2	1:B:249:GLU:OE2	2.54	0.40
1:A:317:ILE:HG23	1:A:328:ARG:HB3	2.04	0.40
1:B:60:PRO:HA	1:B:281:LEU:HD13	2.04	0.40
1:D:93:LEU:O	1:D:123:ASN:HB2	2.22	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	305/332 (92%)	281 (92%)	19 (6%)	5 (2%)	9	38
1	B	314/332 (95%)	288 (92%)	21 (7%)	5 (2%)	9	38
1	C	310/332 (93%)	283 (91%)	22 (7%)	5 (2%)	9	38
1	D	305/332 (92%)	278 (91%)	22 (7%)	5 (2%)	9	38
All	All	1234/1328 (93%)	1130 (92%)	84 (7%)	20 (2%)	9	38

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	134	ARG
1	A	178	LEU
1	A	179	PRO
1	B	134	ARG
1	B	178	LEU
1	B	179	PRO

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	C	134	ARG
1	C	178	LEU
1	C	179	PRO
1	D	134	ARG
1	D	178	LEU
1	D	179	PRO
1	A	127	ALA
1	A	177	LEU
1	B	127	ALA
1	B	177	LEU
1	C	127	ALA
1	C	177	LEU
1	D	127	ALA
1	D	177	LEU

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	235/246 (96%)	218 (93%)	17 (7%)	14	44
1	B	241/246 (98%)	223 (92%)	18 (8%)	13	42
1	C	239/246 (97%)	222 (93%)	17 (7%)	14	44
1	D	235/246 (96%)	218 (93%)	17 (7%)	14	44
All	All	950/984 (96%)	881 (93%)	69 (7%)	14	43

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	LYS
1	A	15	LEU
1	A	32	ARG
1	A	74	GLU
1	A	75	ARG
1	A	112	ARG
1	A	156	LEU

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	178	LEU
1	A	179	PRO
1	A	180	LEU
1	A	196	GLU
1	A	217	THR
1	A	245	ARG
1	A	298	ARG
1	A	317	ILE
1	A	320	ARG
1	A	326	ARG
1	B	9	LYS
1	B	15	LEU
1	B	32	ARG
1	B	74	GLU
1	B	75	ARG
1	B	107	ARG
1	B	112	ARG
1	B	156	LEU
1	B	178	LEU
1	B	179	PRO
1	B	180	LEU
1	B	196	GLU
1	B	217	THR
1	B	245	ARG
1	B	298	ARG
1	B	317	ILE
1	B	320	ARG
1	B	326	ARG
1	C	9	LYS
1	C	15	LEU
1	C	32	ARG
1	C	74	GLU
1	C	75	ARG
1	C	106	LEU
1	C	112	ARG
1	C	156	LEU
1	C	178	LEU
1	C	179	PRO
1	C	180	LEU
1	C	196	GLU
1	C	217	THR
1	C	245	ARG

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	C	298	ARG
1	C	320	ARG
1	C	326	ARG
1	D	15	LEU
1	D	32	ARG
1	D	74	GLU
1	D	75	ARG
1	D	112	ARG
1	D	156	LEU
1	D	178	LEU
1	D	179	PRO
1	D	180	LEU
1	D	196	GLU
1	D	217	THR
1	D	245	ARG
1	D	298	ARG
1	D	317	ILE
1	D	320	ARG
1	D	326	ARG
1	D	331	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	77	ASN
1	A	154	ASN
1	A	157	GLN
1	A	191	HIS
1	A	233	HIS
1	B	77	ASN
1	B	154	ASN
1	B	157	GLN
1	B	191	HIS
1	B	233	HIS
1	C	77	ASN
1	C	154	ASN
1	C	157	GLN
1	C	191	HIS
1	C	233	HIS
1	D	77	ASN
1	D	154	ASN
1	D	157	GLN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	D	191	HIS
1	D	233	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

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	FMN	D	504	-	33,33,33	2.36	9 (27%)	48,50,50	3.32	24 (50%)
2	FMN	C	503	-	33,33,33	2.35	9 (27%)	48,50,50	3.33	23 (47%)
2	FMN	B	502	-	33,33,33	2.35	9 (27%)	48,50,50	3.34	23 (47%)
2	FMN	A	501	-	33,33,33	2.40	9 (27%)	48,50,50	3.32	24 (50%)

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	FMN	D	504	-	-	9/18/18/18	0/3/3/3
2	FMN	C	503	-	-	9/18/18/18	0/3/3/3
2	FMN	B	502	-	-	9/18/18/18	0/3/3/3
2	FMN	A	501	-	-	9/18/18/18	0/3/3/3

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	FMN	C9-C9A	7.13	1.51	1.39
2	B	502	FMN	C9-C9A	7.10	1.51	1.39
2	D	504	FMN	C9-C9A	7.00	1.51	1.39
2	C	503	FMN	C9-C9A	6.96	1.50	1.39
2	A	501	FMN	C9A-C5A	5.82	1.50	1.41
2	C	503	FMN	C9A-C5A	5.81	1.50	1.41
2	D	504	FMN	C9A-C5A	5.79	1.50	1.41
2	B	502	FMN	C9A-C5A	5.67	1.50	1.41
2	D	504	FMN	C6-C7	4.35	1.46	1.39
2	B	502	FMN	C6-C7	4.09	1.45	1.39
2	A	501	FMN	C2-N3	4.08	1.48	1.39
2	C	503	FMN	C2-N3	4.08	1.48	1.39
2	C	503	FMN	C6-C7	3.99	1.45	1.39
2	D	504	FMN	C2-N3	3.87	1.48	1.39
2	A	501	FMN	C6-C7	3.87	1.45	1.39
2	B	502	FMN	C2-N3	3.83	1.47	1.39
2	A	501	FMN	C4A-C10	3.65	1.55	1.44
2	C	503	FMN	C4A-C10	3.58	1.54	1.44
2	A	501	FMN	C5'-C4'	3.58	1.56	1.51
2	B	502	FMN	C4A-C10	3.49	1.54	1.44
2	D	504	FMN	C4A-C10	3.47	1.54	1.44
2	D	504	FMN	C5'-C4'	3.32	1.56	1.51
2	A	501	FMN	C4-N3	3.10	1.44	1.38
2	B	502	FMN	C5'-C4'	3.01	1.56	1.51
2	C	503	FMN	C5'-C4'	2.96	1.56	1.51
2	D	504	FMN	C4-N3	2.89	1.44	1.38
2	C	503	FMN	C8-C7	2.86	1.48	1.40
2	D	504	FMN	C8-C7	2.84	1.48	1.40
2	C	503	FMN	C4-N3	2.79	1.44	1.38
2	B	502	FMN	C8-C7	2.75	1.47	1.40
2	A	501	FMN	C8-C7	2.70	1.47	1.40
2	B	502	FMN	C4-N3	2.60	1.43	1.38
2	D	504	FMN	C6-C5A	2.29	1.43	1.40
2	C	503	FMN	C6-C5A	2.24	1.43	1.40

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	502	FMN	C6-C5A	2.23	1.43	1.40
2	A	501	FMN	C6-C5A	2.07	1.43	1.40

All (94) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	503	FMN	O3P-P-O5'	-10.02	80.08	106.73
2	B	502	FMN	O3P-P-O5'	-9.98	80.18	106.73
2	D	504	FMN	O3P-P-O5'	-9.85	80.53	106.73
2	A	501	FMN	O3P-P-O5'	-9.79	80.68	106.73
2	A	501	FMN	O3P-P-O1P	-7.84	79.99	110.68
2	B	502	FMN	O3P-P-O1P	-7.64	80.77	110.68
2	C	503	FMN	O3P-P-O1P	-7.57	81.03	110.68
2	D	504	FMN	O3P-P-O1P	-7.48	81.38	110.68
2	A	501	FMN	C7M-C7-C6	-6.21	108.00	119.49
2	B	502	FMN	C7M-C7-C6	-6.19	108.04	119.49
2	C	503	FMN	C7M-C7-C6	-6.15	108.13	119.49
2	D	504	FMN	C7M-C7-C6	-6.12	108.17	119.49
2	C	503	FMN	C5A-C9A-N10	5.77	123.91	117.95
2	A	501	FMN	C5A-C9A-N10	5.75	123.89	117.95
2	A	501	FMN	C1'-N10-C9A	5.70	130.02	120.51
2	B	502	FMN	C5A-C9A-N10	5.68	123.82	117.95
2	D	504	FMN	C5A-C9A-N10	5.63	123.76	117.95
2	C	503	FMN	C1'-N10-C9A	5.60	129.84	120.51
2	D	504	FMN	C1'-N10-C9A	5.57	129.80	120.51
2	C	503	FMN	O5'-P-O1P	5.50	121.92	106.47
2	B	502	FMN	C1'-N10-C9A	5.46	129.62	120.51
2	B	502	FMN	O5'-P-O1P	5.39	121.58	106.47
2	D	504	FMN	O3P-P-O2P	-5.25	87.55	107.64
2	B	502	FMN	C7M-C7-C8	5.23	131.46	120.74
2	D	504	FMN	C7M-C7-C8	5.22	131.44	120.74
2	A	501	FMN	C7M-C7-C8	5.21	131.41	120.74
2	C	503	FMN	C7M-C7-C8	5.20	131.39	120.74
2	D	504	FMN	O5'-P-O1P	5.11	120.81	106.47
2	B	502	FMN	O3P-P-O2P	-5.10	88.14	107.64
2	C	503	FMN	O3P-P-O2P	-5.01	88.47	107.64
2	A	501	FMN	C9A-C5A-N5	-5.01	116.99	122.43
2	B	502	FMN	C9A-C5A-N5	-4.99	117.01	122.43
2	A	501	FMN	O3P-P-O2P	-4.99	88.57	107.64
2	A	501	FMN	O5'-P-O1P	4.95	120.37	106.47
2	C	503	FMN	C9A-C5A-N5	-4.90	117.11	122.43
2	D	504	FMN	C9A-C5A-N5	-4.86	117.15	122.43

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	504	FMN	O2-C2-N1	3.99	128.44	121.83
2	C	503	FMN	O2-C2-N1	3.89	128.28	121.83
2	B	502	FMN	O2-C2-N1	3.89	128.27	121.83
2	D	504	FMN	C10-N1-C2	3.88	124.65	116.90
2	C	503	FMN	C10-N1-C2	3.87	124.63	116.90
2	A	501	FMN	O2-C2-N1	3.85	128.21	121.83
2	A	501	FMN	C10-N1-C2	3.85	124.59	116.90
2	B	502	FMN	C10-N1-C2	3.79	124.48	116.90
2	A	501	FMN	O2P-P-O5'	3.67	116.49	106.73
2	B	502	FMN	O5'-C5'-C4'	-3.62	99.69	109.36
2	B	502	FMN	O2P-P-O5'	3.58	116.27	106.73
2	B	502	FMN	C4A-C10-N10	3.57	121.70	116.48
2	D	504	FMN	O2P-P-O5'	3.56	116.22	106.73
2	D	504	FMN	O5'-C5'-C4'	-3.56	99.85	109.36
2	C	503	FMN	C4A-C10-N10	3.54	121.66	116.48
2	C	503	FMN	C9A-N10-C10	-3.54	115.25	120.77
2	C	503	FMN	O2P-P-O5'	3.54	116.15	106.73
2	D	504	FMN	C4A-C10-N10	3.53	121.65	116.48
2	A	501	FMN	C4A-C10-N10	3.51	121.61	116.48
2	C	503	FMN	O5'-C5'-C4'	-3.50	100.03	109.36
2	A	501	FMN	C9A-N10-C10	-3.46	115.37	120.77
2	D	504	FMN	C9A-N10-C10	-3.46	115.38	120.77
2	B	502	FMN	C9A-N10-C10	-3.45	115.39	120.77
2	A	501	FMN	O5'-C5'-C4'	-3.32	100.51	109.36
2	B	502	FMN	C5'-C4'-C3'	3.06	118.12	112.20
2	A	501	FMN	C5'-C4'-C3'	3.00	118.00	112.20
2	D	504	FMN	O4-C4-N3	-3.00	114.37	120.12
2	B	502	FMN	O3'-C3'-C4'	-2.98	101.60	108.81
2	D	504	FMN	C5'-C4'-C3'	2.90	117.81	112.20
2	D	504	FMN	O3'-C3'-C4'	-2.90	101.80	108.81
2	B	502	FMN	O4-C4-N3	-2.89	114.57	120.12
2	C	503	FMN	O4-C4-N3	-2.89	114.58	120.12
2	C	503	FMN	C5'-C4'-C3'	2.89	117.78	112.20
2	D	504	FMN	C4A-C10-N1	-2.88	118.05	124.73
2	B	502	FMN	C4A-C10-N1	-2.88	118.05	124.73
2	C	503	FMN	C4A-C10-N1	-2.86	118.09	124.73
2	A	501	FMN	C4A-C10-N1	-2.84	118.13	124.73
2	C	503	FMN	O3'-C3'-C4'	-2.82	101.99	108.81
2	A	501	FMN	O4-C4-N3	-2.80	114.76	120.12
2	A	501	FMN	O3'-C3'-C4'	-2.73	102.21	108.81
2	B	502	FMN	C4'-C3'-C2'	2.70	118.97	113.36
2	D	504	FMN	C4'-C3'-C2'	2.65	118.88	113.36

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	503	FMN	C4'-C3'-C2'	2.64	118.85	113.36
2	B	502	FMN	O2-C2-N3	-2.61	113.58	118.65
2	A	501	FMN	C4'-C3'-C2'	2.60	118.77	113.36
2	D	504	FMN	O2-C2-N3	-2.51	113.77	118.65
2	A	501	FMN	O2-C2-N3	-2.47	113.85	118.65
2	C	503	FMN	O2-C2-N3	-2.39	114.01	118.65
2	A	501	FMN	C6-C5A-N5	2.37	122.66	118.51
2	B	502	FMN	C6-C5A-N5	2.35	122.61	118.51
2	C	503	FMN	C6-C5A-N5	2.32	122.56	118.51
2	B	502	FMN	C4-C4A-C10	2.32	120.68	116.79
2	C	503	FMN	C4-C4A-C10	2.28	120.62	116.79
2	D	504	FMN	C6-C5A-N5	2.28	122.49	118.51
2	A	501	FMN	C4-C4A-C10	2.27	120.61	116.79
2	D	504	FMN	C4-C4A-C10	2.27	120.61	116.79
2	A	501	FMN	O2P-P-O1P	2.06	118.75	110.68
2	D	504	FMN	O2P-P-O1P	2.05	118.70	110.68

There are no chirality outliers.

All (36) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	FMN	C1'-C2'-C3'-O3'
2	A	501	FMN	C1'-C2'-C3'-C4'
2	A	501	FMN	O2'-C2'-C3'-O3'
2	A	501	FMN	O2'-C2'-C3'-C4'
2	A	501	FMN	C3'-C4'-C5'-O5'
2	A	501	FMN	O4'-C4'-C5'-O5'
2	A	501	FMN	C5'-O5'-P-O3P
2	B	502	FMN	C1'-C2'-C3'-O3'
2	B	502	FMN	C1'-C2'-C3'-C4'
2	B	502	FMN	O2'-C2'-C3'-O3'
2	B	502	FMN	O2'-C2'-C3'-C4'
2	B	502	FMN	C3'-C4'-C5'-O5'
2	B	502	FMN	O4'-C4'-C5'-O5'
2	B	502	FMN	C5'-O5'-P-O3P
2	C	503	FMN	C1'-C2'-C3'-O3'
2	C	503	FMN	C1'-C2'-C3'-C4'
2	C	503	FMN	O2'-C2'-C3'-O3'
2	C	503	FMN	O2'-C2'-C3'-C4'
2	C	503	FMN	C3'-C4'-C5'-O5'
2	C	503	FMN	O4'-C4'-C5'-O5'
2	C	503	FMN	C5'-O5'-P-O3P

Continued on next page...

*Continued from previous page...*

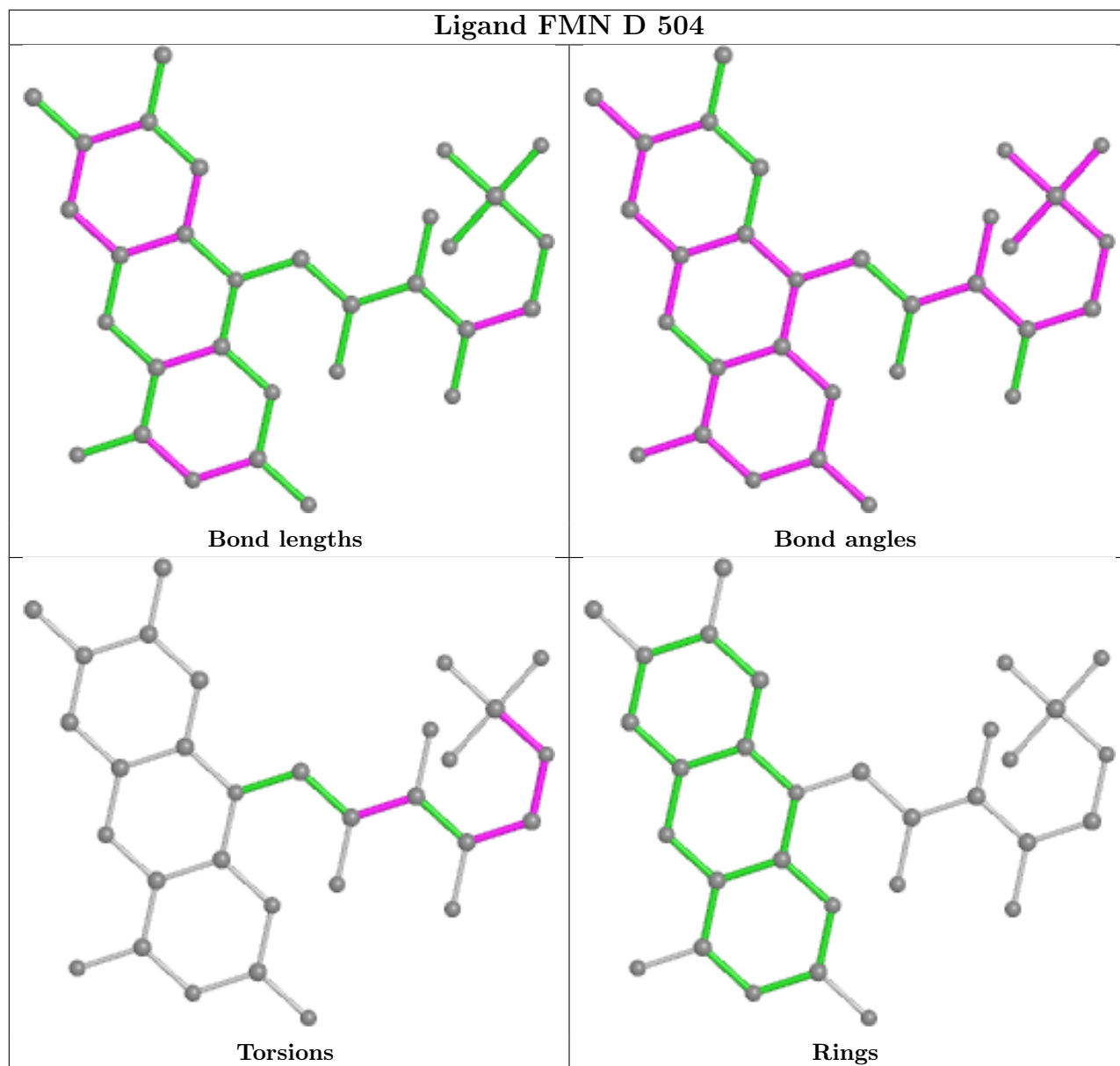
Mol	Chain	Res	Type	Atoms
2	D	504	FMN	C1'-C2'-C3'-O3'
2	D	504	FMN	C1'-C2'-C3'-C4'
2	D	504	FMN	O2'-C2'-C3'-O3'
2	D	504	FMN	O2'-C2'-C3'-C4'
2	D	504	FMN	C3'-C4'-C5'-O5'
2	D	504	FMN	O4'-C4'-C5'-O5'
2	D	504	FMN	C5'-O5'-P-O2P
2	D	504	FMN	C5'-O5'-P-O3P
2	A	501	FMN	C4'-C5'-O5'-P
2	B	502	FMN	C4'-C5'-O5'-P
2	C	503	FMN	C4'-C5'-O5'-P
2	D	504	FMN	C4'-C5'-O5'-P
2	A	501	FMN	C5'-O5'-P-O2P
2	B	502	FMN	C5'-O5'-P-O2P
2	C	503	FMN	C5'-O5'-P-O2P

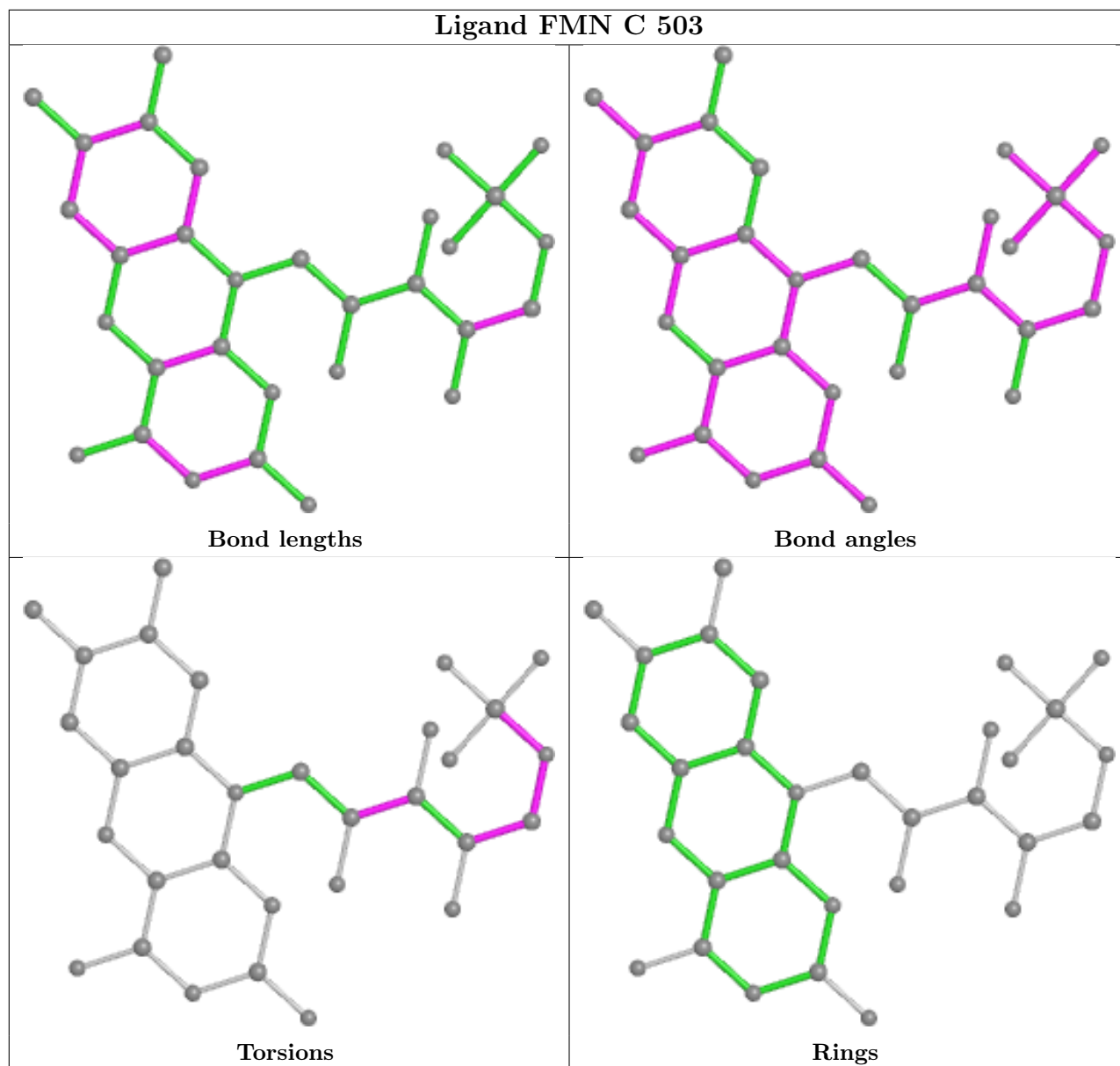
There are no ring outliers.

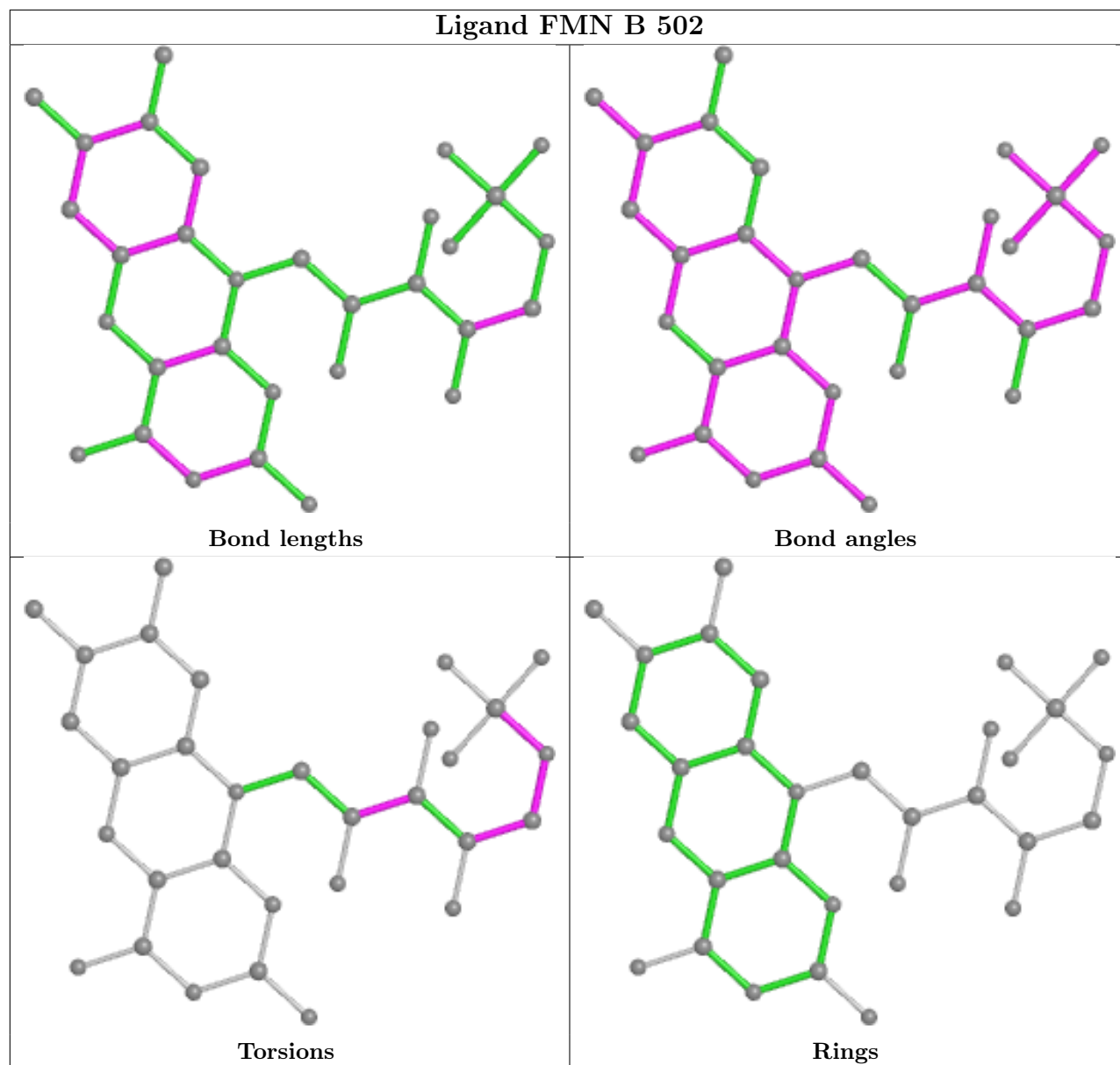
4 monomers are involved in 29 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	504	FMN	5	0
2	C	503	FMN	9	0
2	B	502	FMN	8	0
2	A	501	FMN	7	0

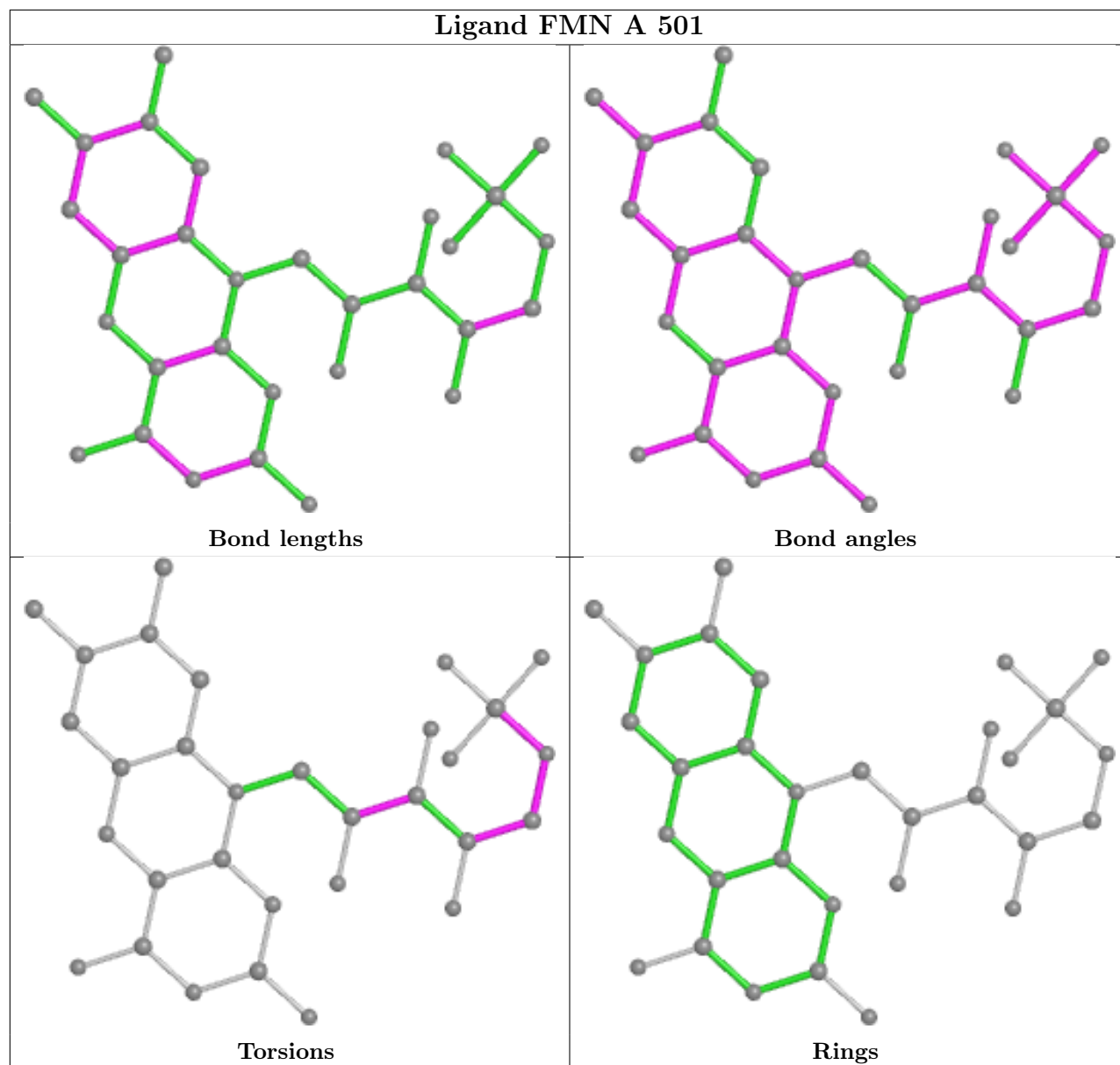
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

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

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	306/332 (92%)	-0.38	0 <a href="#">100</a> <a href="#">100</a>	28, 50, 78, 97	0
1	B	313/332 (94%)	-0.46	0 <a href="#">100</a> <a href="#">100</a>	29, 50, 80, 96	0
1	C	311/332 (93%)	-0.38	1 (0%) <a href="#">94</a> <a href="#">83</a>	31, 52, 81, 97	0
1	D	306/332 (92%)	-0.34	1 (0%) <a href="#">94</a> <a href="#">83</a>	33, 52, 79, 98	0
All	All	1236/1328 (93%)	-0.39	2 (0%) <a href="#">95</a> <a href="#">87</a>	28, 51, 80, 98	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	98	ILE	2.5
1	D	101	GLU	2.1

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

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

### 6.3 Carbohydrates [i](#)

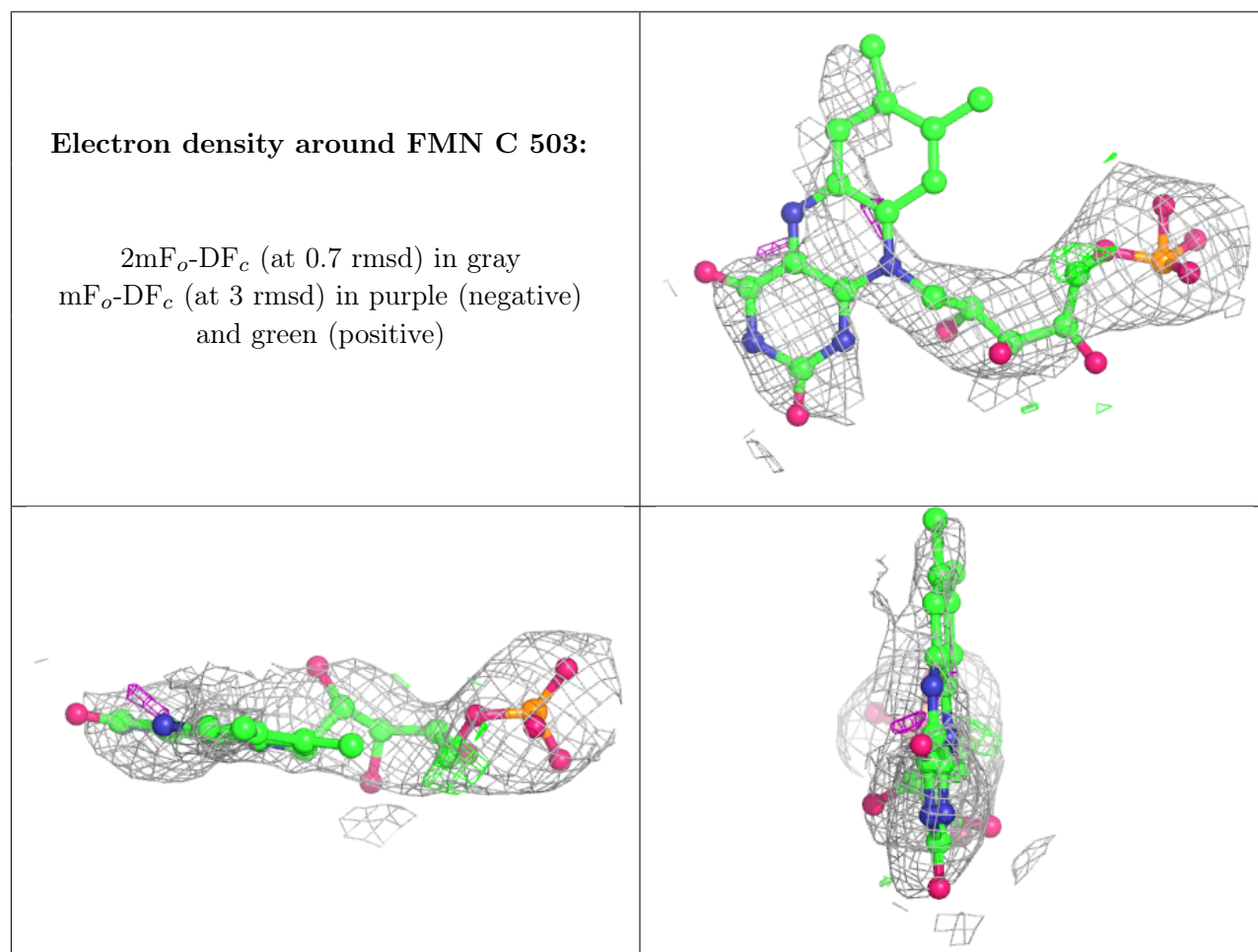
There are no monosaccharides in this entry.

### 6.4 Ligands [i](#)

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

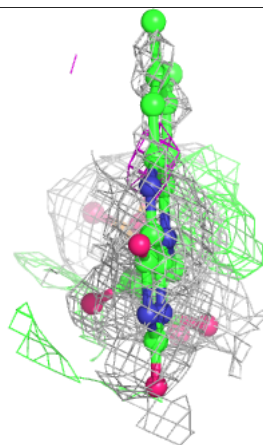
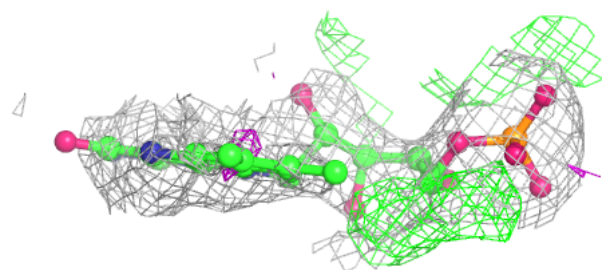
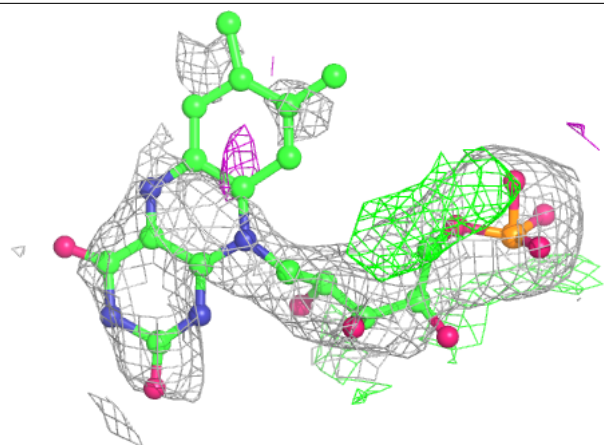
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	FMN	C	503	31/31	0.84	0.33	60,91,94,94	0
2	FMN	D	504	31/31	0.86	0.28	61,91,93,93	0
2	FMN	A	501	31/31	0.89	0.26	56,91,93,94	0
2	FMN	B	502	31/31	0.89	0.28	60,89,93,94	0

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.



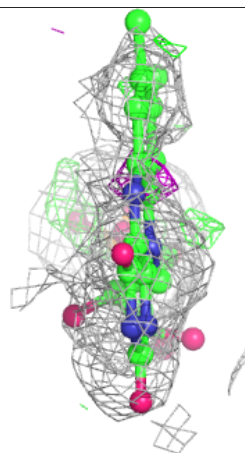
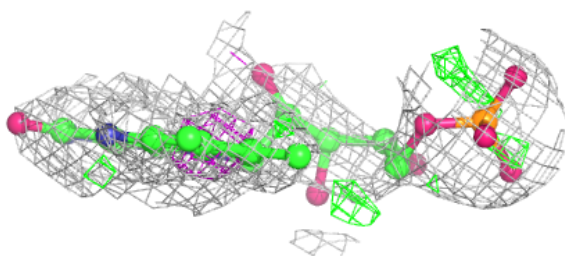
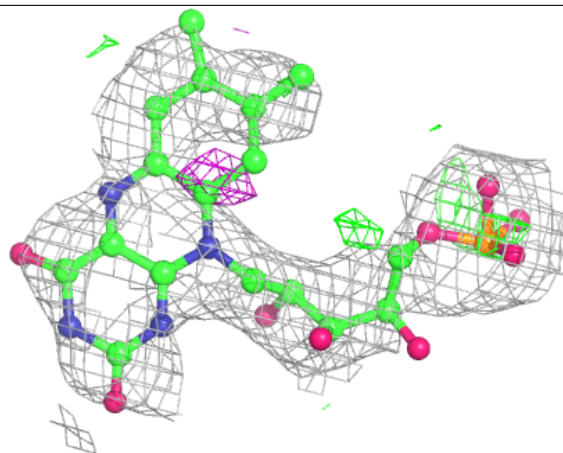
**Electron density around FMN D 504:**

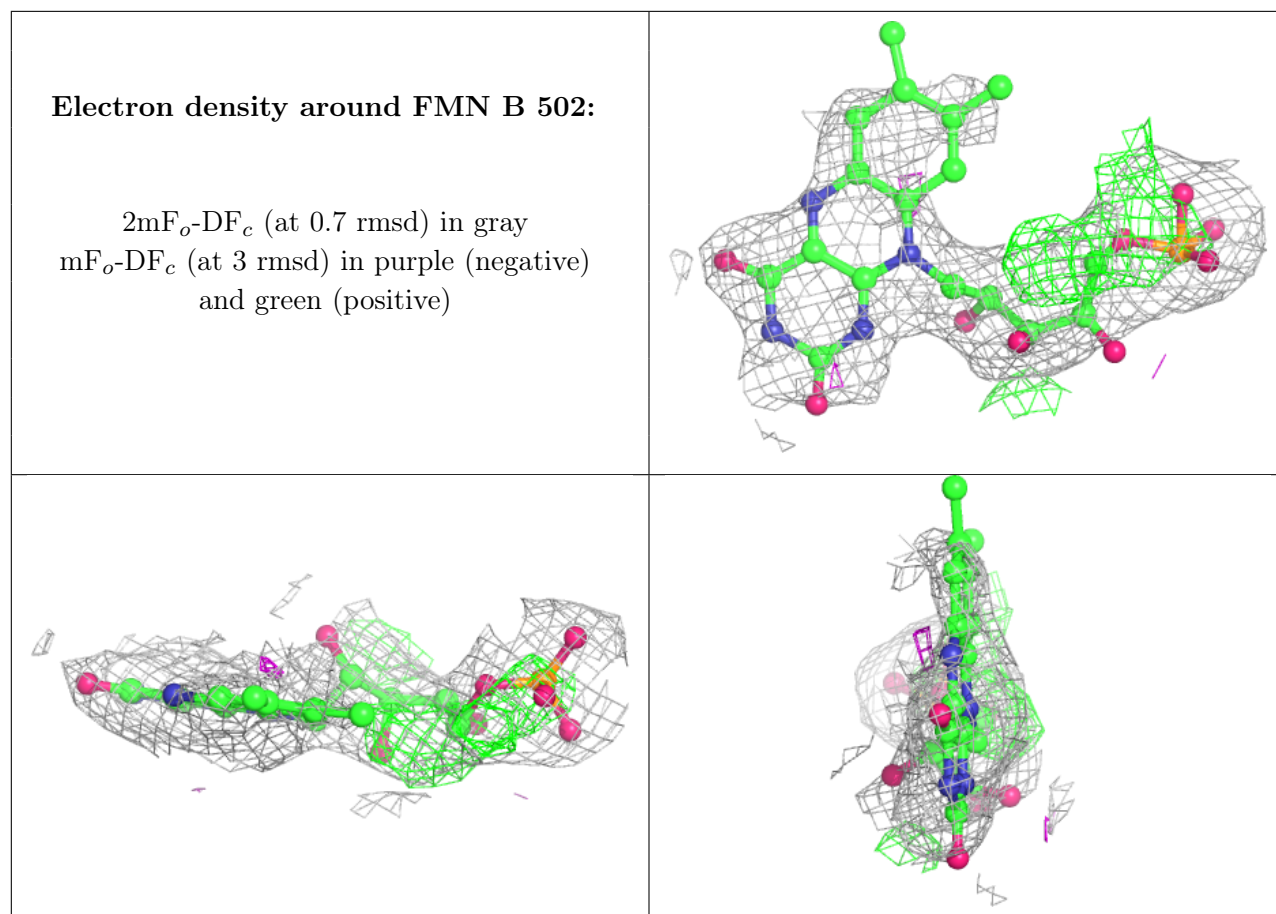
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around FMN A 501:**

$2mF_o-DF_c$  (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.