



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 9, 2023 – 08:05 am GMT

PDB ID : 2BXS
Title : Human Monoamine Oxidase A in complex with Clorgyline, Crystal Form B
Authors : De Colibus, L.; Binda, C.; Edmondson, D.E.; Mattevi, A.
Deposited on : 2005-07-27
Resolution : 3.15 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, 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

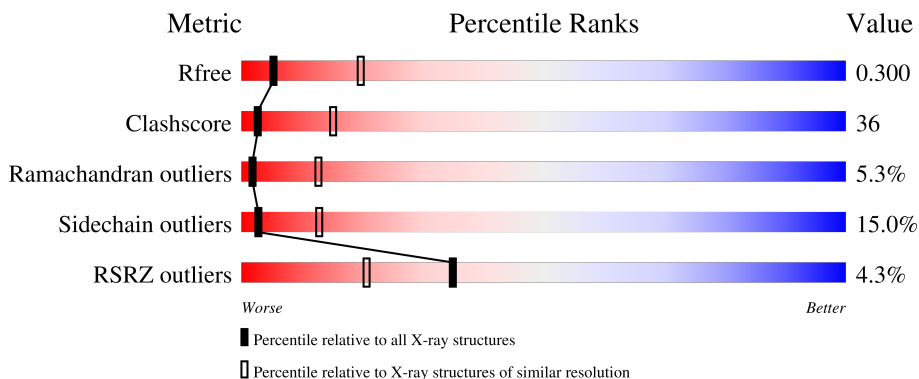
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.15 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	1665 (3.20-3.12)
Clashscore	141614	1804 (3.20-3.12)
Ramachandran outliers	138981	1770 (3.20-3.12)
Sidechain outliers	138945	1769 (3.20-3.12)
RSRZ outliers	127900	1616 (3.20-3.12)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	527	
1	B	527	

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
3	MLG	A	601	X	-	-	-
3	MLG	B	601	X	-	-	-

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 7900 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 AMINE OXIDASE [FLAVIN-CONTAINING] A.

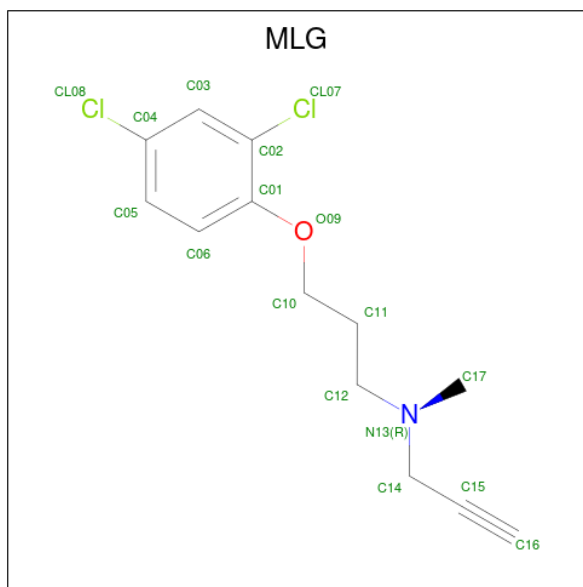
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	490	3880	2482	660	717	21	0	0	0
1	B	490	3880	2482	660	717	21	0	0	0

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	53	27	9	15	2	0	0
2	B	1	53	27	9	15	2	0	0

- Molecule 3 is N-[3-(2,4-DICHLOROPHENOXY)PROPYL]-N-METHYL-N-PROP-2-YNYL AMINE (three-letter code: MLG) (formula: $C_{13}H_{15}Cl_2NO$).

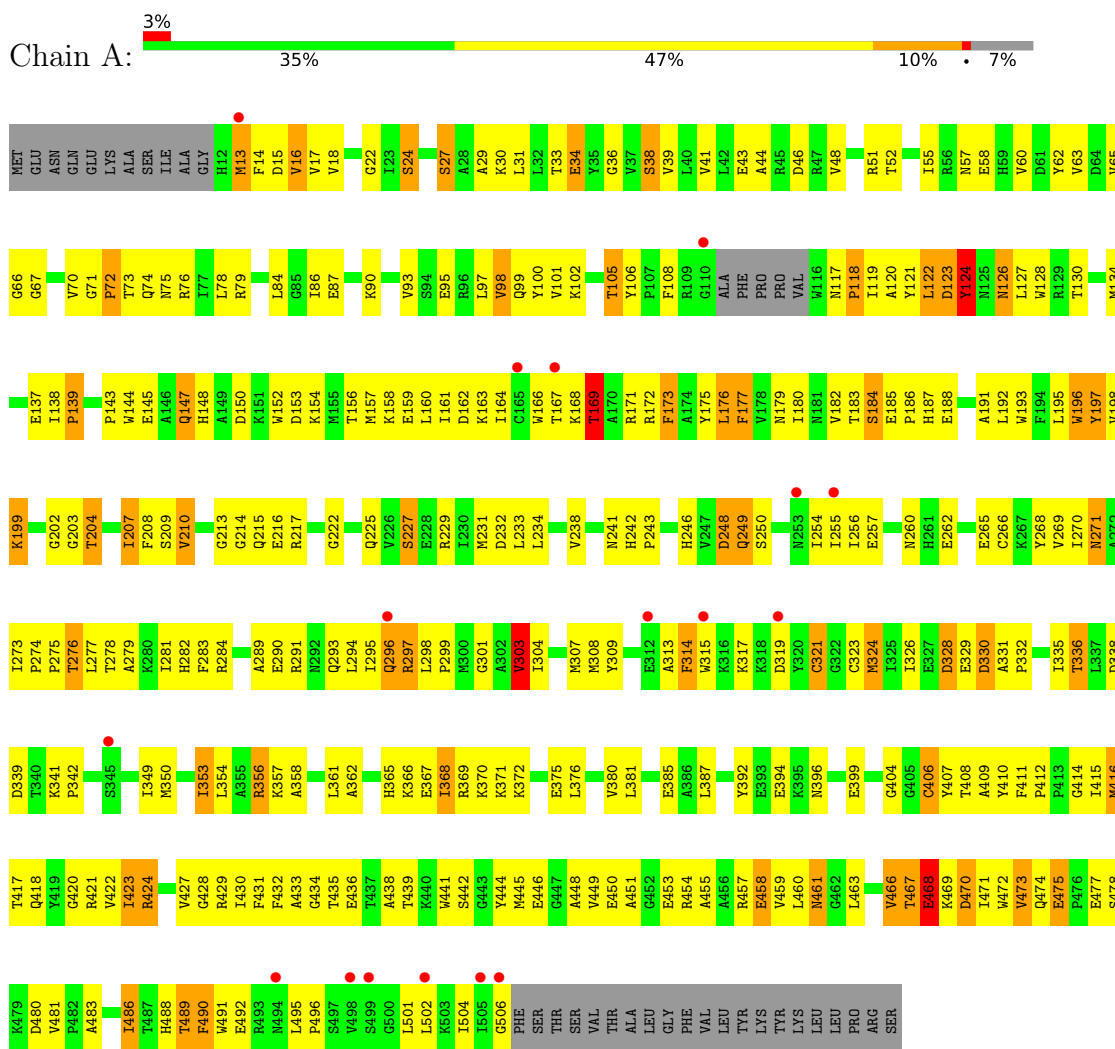


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Cl	N			O
3	A	1	Total	13	2	1	1	0	0
3	B	1	Total	13	2	1	1	0	0

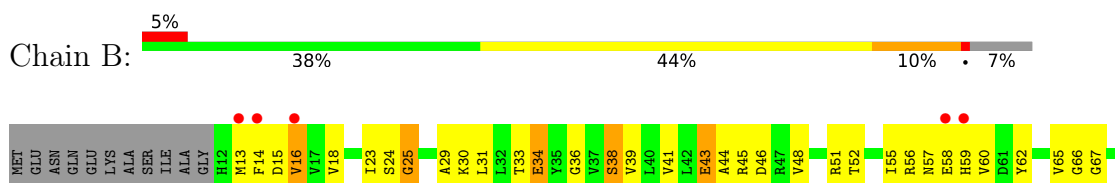
3 Residue-property plots i

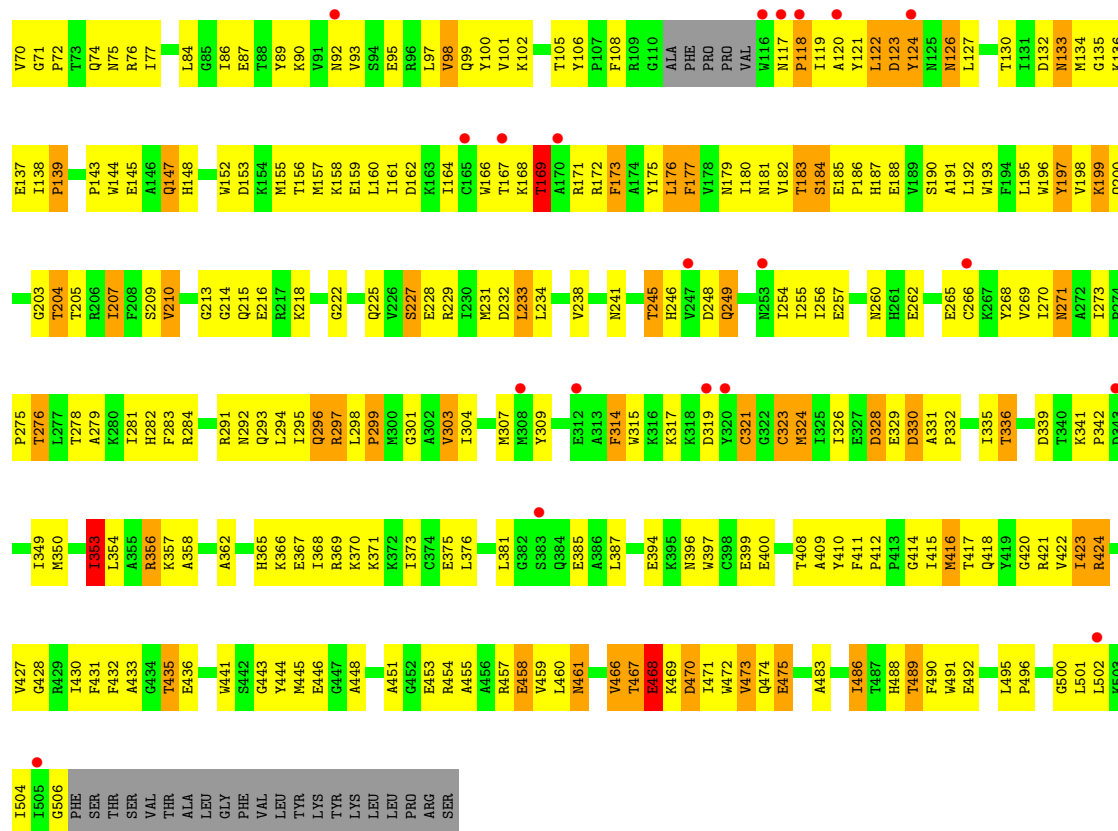
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: AMINE OXIDASE [FLAVIN-CONTAINING] A



• Molecule 1: AMINE OXIDASE [FLAVIN-CONTAINING] A





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	158.37Å 152.08Å 82.20Å 90.00° 104.52° 90.00°	Depositor
Resolution (Å)	15.00 – 3.15 59.26 – 3.15	Depositor EDS
% Data completeness (in resolution range)	90.5 (15.00-3.15) 90.4 (59.26-3.15)	Depositor EDS
R_{merge}	0.01	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.52 (at 3.13Å)	Xtrriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.268 , 0.330 0.253 , 0.300	Depositor DCC
R_{free} test set	1502 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å ²)	68.1	Xtrriage
Anisotropy	0.073	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 106.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.23$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.84	EDS
Total number of atoms	7900	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.51% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.84	0/3973	0.84	1/5389 (0.0%)
1	B	0.81	1/3973 (0.0%)	0.82	2/5389 (0.0%)
All	All	0.82	1/7946 (0.0%)	0.83	3/10778 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	441	TRP	CB-CG	-5.02	1.41	1.50

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	353	ILE	CB-CA-C	5.56	122.73	111.60
1	B	353	ILE	N-CA-C	-5.09	97.26	111.00
1	A	303	VAL	CB-CA-C	-5.07	101.77	111.40

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3880	0	3828	285	0
1	B	3880	0	3828	275	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	53	0	29	0	0
2	B	53	0	29	2	0
3	A	17	0	15	6	0
3	B	17	0	15	4	0
All	All	7900	0	7744	563	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 36.

All (563) 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:B:408:THR:HG23	1:B:409:ALA:O	1.50	1.11
1:A:304:ILE:HB	1:A:353:ILE:CG2	1.90	1.02
1:A:304:ILE:HB	1:A:353:ILE:HG23	1.39	1.02
1:A:408:THR:HG23	1:A:409:ALA:O	1.59	1.01
1:B:422:VAL:O	1:B:424:ARG:N	1.96	0.99
1:A:210:VAL:HG22	1:A:214:GLY:HA3	1.47	0.96
1:A:422:VAL:O	1:A:424:ARG:N	1.99	0.96
1:B:210:VAL:HG22	1:B:214:GLY:HA3	1.49	0.94
1:A:120:ALA:HA	1:A:167:THR:HG21	1.52	0.92
1:B:130:THR:O	1:B:134:MET:HB2	1.70	0.91
1:A:130:THR:O	1:A:134:MET:HB2	1.71	0.89
1:B:304:ILE:HB	1:B:353:ILE:CG2	2.03	0.88
1:B:120:ALA:HA	1:B:167:THR:HG21	1.54	0.86
1:A:176:LEU:O	1:A:180:ILE:N	2.08	0.86
1:A:210:VAL:HG22	1:A:214:GLY:CA	2.06	0.84
1:B:304:ILE:HB	1:B:353:ILE:HG23	1.56	0.84
1:B:210:VAL:HG22	1:B:214:GLY:CA	2.07	0.84
1:B:323:CYS:HA	1:B:336:THR:HG22	1.61	0.82
1:A:210:VAL:HG13	1:A:213:GLY:C	1.99	0.82
1:A:471:ILE:HG22	1:A:471:ILE:O	1.79	0.81
1:A:299:PRO:HG2	1:A:410:TYR:CZ	2.16	0.81
1:A:396:ASN:ND2	1:A:399:GLU:HG2	1.95	0.80
1:A:416:MET:O	1:A:420:GLY:HA3	1.80	0.80
1:A:501:LEU:HA	1:A:504:ILE:HD12	1.64	0.80
1:A:210:VAL:HG13	1:A:213:GLY:CA	2.12	0.79
1:A:299:PRO:HB2	1:A:410:TYR:CE2	2.16	0.79
1:B:330:ASP:OD2	1:B:330:ASP:N	2.15	0.79
1:A:438:ALA:HB3	1:A:442:SER:HB2	1.61	0.79
1:A:330:ASP:OD2	1:A:330:ASP:N	2.16	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:222:GLY:O	1:A:225:GLN:HG3	1.84	0.78
1:B:210:VAL:HG13	1:B:213:GLY:CA	2.13	0.78
1:B:197:TYR:HE2	1:B:207:ILE:HD11	1.49	0.78
1:A:323:CYS:HA	1:A:336:THR:HG22	1.66	0.78
1:B:210:VAL:HG13	1:B:213:GLY:C	2.05	0.77
1:A:157:MET:O	1:A:161:ILE:HG13	1.85	0.75
1:B:216:GLU:OE2	3:B:601:MLG:H102	1.86	0.75
1:A:324:MET:HG3	1:A:326:ILE:HD11	1.68	0.75
1:B:454:ARG:HD2	1:B:472:TRP:CZ2	2.22	0.75
1:B:197:TYR:HH	1:B:444:TYR:HE1	1.34	0.75
1:B:34:GLU:OE1	1:B:34:GLU:HA	1.86	0.74
1:B:299:PRO:HG2	1:B:410:TYR:CZ	2.22	0.74
1:B:193:TRP:CG	1:B:411:PHE:HB2	2.23	0.73
1:B:324:MET:HG3	1:B:326:ILE:HD11	1.69	0.73
1:A:34:GLU:HA	1:A:34:GLU:OE1	1.86	0.73
1:B:52:THR:HG22	1:B:67:GLY:HA3	1.70	0.72
1:B:84:LEU:HD22	1:B:229:ARG:HB2	1.71	0.72
1:B:95:GLU:O	1:B:321:CYS:HB3	1.89	0.72
1:B:332:PRO:HD2	1:B:376:LEU:HD22	1.72	0.72
1:B:501:LEU:HA	1:B:504:ILE:HD12	1.71	0.71
1:B:416:MET:O	1:B:420:GLY:HA3	1.90	0.71
1:B:97:LEU:O	1:B:108:PHE:N	2.24	0.71
1:B:468:GLU:HG3	1:B:469:LYS:H	1.56	0.71
1:B:299:PRO:HD2	1:B:410:TYR:O	1.90	0.71
1:B:408:THR:CG2	1:B:409:ALA:O	2.33	0.71
1:A:299:PRO:HB2	1:A:410:TYR:HE2	1.56	0.71
1:A:176:LEU:HA	1:A:179:ASN:HB2	1.72	0.70
1:B:87:GLU:OE1	1:B:87:GLU:HA	1.90	0.70
1:B:18:VAL:HB	1:B:41:VAL:HG22	1.74	0.70
1:B:192:LEU:HD23	1:B:416:MET:HG2	1.73	0.70
1:A:273:ILE:HD11	1:A:278:THR:HA	1.74	0.69
1:A:18:VAL:HB	1:A:41:VAL:HG22	1.73	0.69
1:B:254:ILE:HD13	1:B:269:VAL:HG23	1.75	0.69
1:B:273:ILE:HD11	1:B:278:THR:HA	1.75	0.69
1:A:76:ARG:HH21	1:A:475:GLU:HG2	1.57	0.69
1:A:97:LEU:O	1:A:108:PHE:N	2.26	0.69
1:B:99:GLN:N	1:B:106:TYR:O	2.22	0.68
1:A:87:GLU:OE1	1:A:87:GLU:HA	1.93	0.67
1:A:467:THR:HB	1:A:470:ASP:HB2	1.74	0.67
3:B:601:MLG:CL07	3:B:601:MLG:H172	2.32	0.67
1:A:52:THR:HG22	1:A:67:GLY:HA3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:197:TYR:HE2	1:A:207:ILE:HD11	1.60	0.67
1:A:438:ALA:HB3	1:A:442:SER:CB	2.25	0.67
1:A:185:GLU:OE2	1:A:356:ARG:HB3	1.95	0.66
1:B:467:THR:HB	1:B:470:ASP:HB2	1.78	0.66
1:B:41:VAL:HB	1:B:238:VAL:HG22	1.76	0.66
1:A:48:VAL:HG23	1:A:227:SER:HB3	1.76	0.66
1:A:147:GLN:HB3	1:A:148:HIS:HD2	1.61	0.66
1:B:135:GLY:O	1:B:199:LYS:NZ	2.29	0.66
1:B:176:LEU:O	1:B:180:ILE:N	2.16	0.65
1:A:254:ILE:HD13	1:A:269:VAL:HG23	1.78	0.65
1:A:299:PRO:HD2	1:A:410:TYR:O	1.97	0.65
1:B:279:ALA:HA	1:B:295:ILE:HD12	1.77	0.64
1:A:193:TRP:CG	1:A:411:PHE:HB2	2.31	0.64
1:B:156:THR:HG23	1:B:159:GLU:H	1.62	0.64
1:B:291:ARG:HH21	1:B:422:VAL:HG12	1.60	0.64
1:A:31:LEU:O	1:A:34:GLU:HB2	1.97	0.64
1:B:269:VAL:HG12	1:B:270:ILE:N	2.13	0.64
1:A:246:HIS:CD2	1:A:282:HIS:HB2	2.33	0.64
1:A:172:ARG:HA	1:A:175:TYR:CD2	2.33	0.64
1:B:222:GLY:O	1:B:225:GLN:HG3	1.97	0.64
1:B:197:TYR:OH	1:B:444:TYR:HE1	1.81	0.64
1:B:172:ARG:HA	1:B:175:TYR:CD2	2.31	0.63
1:B:299:PRO:CD	1:B:410:TYR:O	2.46	0.63
1:B:396:ASN:ND2	1:B:399:GLU:HG2	2.13	0.63
1:B:157:MET:O	1:B:161:ILE:HG13	1.98	0.63
1:A:467:THR:CB	1:A:470:ASP:HB2	2.28	0.63
1:A:95:GLU:O	1:A:321:CYS:HB3	1.98	0.63
1:A:454:ARG:HD2	1:A:472:TRP:CZ2	2.34	0.63
1:A:191:ALA:O	1:A:195:LEU:HD12	1.99	0.62
1:B:31:LEU:O	1:B:34:GLU:HB2	1.99	0.62
1:A:281:ILE:HB	1:A:283:PHE:CE1	2.35	0.62
1:B:225:GLN:O	1:B:229:ARG:HG2	1.99	0.62
1:A:156:THR:HG23	1:A:159:GLU:H	1.63	0.62
1:B:210:VAL:HG13	1:B:213:GLY:HA2	1.81	0.62
1:B:291:ARG:NH2	1:B:422:VAL:HG12	2.15	0.62
1:A:76:ARG:NH2	1:A:475:GLU:HG2	2.14	0.62
1:A:299:PRO:HG2	1:A:410:TYR:CE2	2.34	0.62
1:A:332:PRO:HD2	1:A:376:LEU:HD22	1.81	0.62
1:A:197:TYR:HH	1:A:444:TYR:HE1	1.47	0.62
1:A:152:TRP:O	1:A:191:ALA:HB3	2.00	0.61
1:B:23:ILE:HD12	1:B:445:MET:HG2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:118:PRO:O	1:B:121:TYR:N	2.33	0.61
1:A:99:GLN:N	1:A:106:TYR:O	2.33	0.61
1:A:279:ALA:HA	1:A:295:ILE:HD12	1.82	0.61
1:B:153:ASP:OD2	1:B:417:THR:OG1	2.16	0.61
1:B:315:TRP:HB3	1:B:381:LEU:HD13	1.82	0.61
1:A:183:THR:HG1	1:A:301:GLY:HA3	1.64	0.61
1:A:354:LEU:HA	1:A:358:ALA:HB2	1.83	0.61
1:A:409:ALA:HB3	1:A:436:GLU:HG3	1.81	0.61
1:B:489:THR:O	1:B:492:GLU:HB2	2.01	0.61
1:A:439:THR:OG1	1:A:450:GLU:OE2	2.18	0.61
1:A:99:GLN:HE21	1:A:100:TYR:N	1.99	0.61
1:B:299:PRO:HG2	1:B:410:TYR:CE2	2.36	0.61
1:A:293:GLN:O	1:A:296:GLN:N	2.33	0.61
1:A:276:THR:O	1:A:279:ALA:HB3	2.01	0.60
1:B:143:PRO:HD2	1:B:144:TRP:CE3	2.36	0.60
1:A:471:ILE:O	1:A:471:ILE:CG2	2.48	0.60
1:B:168:LYS:O	1:B:171:ARG:N	2.34	0.60
1:A:134:MET:HG2	1:A:152:TRP:CH2	2.36	0.60
1:A:246:HIS:HA	1:A:282:HIS:O	2.01	0.60
1:B:62:TYR:O	1:B:341:LYS:HE3	2.00	0.60
1:B:183:THR:OG1	1:B:301:GLY:HA3	2.01	0.60
1:B:143:PRO:HG2	1:B:416:MET:SD	2.42	0.60
1:A:210:VAL:HG13	1:A:213:GLY:HA2	1.83	0.60
1:B:90:LYS:NZ	1:B:215:GLN:NE2	2.50	0.60
1:B:471:ILE:HG22	1:B:471:ILE:O	2.01	0.59
1:B:182:VAL:O	1:B:184:SER:HB2	2.02	0.59
1:A:158:LYS:HE3	1:A:162:ASP:OD2	2.01	0.59
1:B:84:LEU:HD22	1:B:229:ARG:CB	2.32	0.59
1:B:176:LEU:HA	1:B:179:ASN:HB2	1.83	0.59
1:B:246:HIS:CD2	1:B:282:HIS:HB2	2.37	0.59
1:A:143:PRO:HB3	1:A:196:TRP:CD1	2.37	0.59
1:A:255:ILE:HG12	1:A:265:GLU:HG2	1.83	0.59
1:B:197:TYR:CE2	1:B:207:ILE:HD11	2.34	0.59
1:B:341:LYS:HB3	1:B:342:PRO:HD2	1.85	0.59
1:A:168:LYS:O	1:A:169:THR:C	2.42	0.58
1:B:158:LYS:HE3	1:B:162:ASP:OD2	2.04	0.58
1:A:46:ASP:HA	1:A:241:ASN:HD21	1.69	0.58
1:A:144:TRP:CH2	1:A:421:ARG:HA	2.39	0.57
1:B:369:ARG:NH1	1:B:394:GLU:OE1	2.38	0.57
1:A:269:VAL:HG12	1:A:270:ILE:N	2.18	0.57
1:B:99:GLN:HE21	1:B:100:TYR:N	2.02	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:315:TRP:HB3	1:A:381:LEU:HD13	1.85	0.57
1:A:177:PHE:C	1:A:177:PHE:CD2	2.78	0.57
1:A:183:THR:OG1	1:A:301:GLY:HA3	2.03	0.57
1:B:297:ARG:HD3	1:B:415:ILE:HD11	1.87	0.57
1:A:246:HIS:HD2	1:A:282:HIS:HB2	1.68	0.57
1:A:396:ASN:HD22	1:A:399:GLU:HG2	1.68	0.57
1:B:176:LEU:HD23	1:B:177:PHE:N	2.21	0.56
1:A:62:TYR:O	1:A:341:LYS:CE	2.54	0.56
1:B:177:PHE:C	1:B:177:PHE:CD2	2.79	0.56
1:A:51:ARG:O	1:A:66:GLY:HA3	2.06	0.56
1:A:297:ARG:HD3	1:A:415:ILE:HD11	1.86	0.56
1:A:299:PRO:CB	1:A:410:TYR:CE2	2.89	0.56
1:A:315:TRP:CE3	1:A:349:ILE:HD11	2.40	0.56
1:B:29:ALA:HA	1:B:39:VAL:HG11	1.87	0.56
1:B:90:LYS:HZ3	1:B:215:GLN:NE2	2.04	0.56
1:A:307:MET:SD	1:A:350:MET:HG2	2.46	0.56
1:A:365:HIS:HD2	1:A:367:GLU:H	1.54	0.56
1:A:468:GLU:HG3	1:A:469:LYS:H	1.70	0.56
1:B:48:VAL:HG23	1:B:227:SER:HB3	1.88	0.56
1:B:454:ARG:HD2	1:B:472:TRP:CH2	2.39	0.56
1:B:76:ARG:HH21	1:B:475:GLU:HG2	1.69	0.56
1:B:76:ARG:NH2	1:B:475:GLU:HG2	2.20	0.56
1:B:168:LYS:O	1:B:169:THR:C	2.44	0.56
1:A:33:THR:O	1:A:36:GLY:N	2.37	0.56
1:A:328:ASP:C	1:A:328:ASP:OD2	2.43	0.56
1:B:72:PRO:HB3	1:B:483:ALA:HA	1.88	0.56
1:B:315:TRP:CE3	1:B:349:ILE:HD11	2.41	0.56
1:A:29:ALA:HA	1:A:39:VAL:HG11	1.88	0.55
1:A:407:TYR:OH	3:A:601:MLG:H173	2.07	0.55
1:A:156:THR:HG22	1:A:159:GLU:CD	2.27	0.55
1:A:192:LEU:HD23	1:A:416:MET:HG2	1.88	0.55
1:A:197:TYR:C	1:A:197:TYR:CD2	2.80	0.55
1:B:467:THR:CB	1:B:470:ASP:HB2	2.36	0.55
1:A:143:PRO:HD2	1:A:144:TRP:CE3	2.42	0.55
1:B:186:PRO:O	1:B:188:GLU:N	2.40	0.55
1:B:281:ILE:HB	1:B:283:PHE:CE1	2.41	0.55
1:B:293:GLN:O	1:B:296:GLN:N	2.40	0.55
1:A:274:PRO:HD2	1:A:277:LEU:HD12	1.89	0.55
1:A:118:PRO:O	1:A:121:TYR:N	2.40	0.55
1:A:157:MET:HG3	1:A:161:ILE:HD11	1.89	0.55
1:A:369:ARG:NH1	1:A:394:GLU:OE1	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:197:TYR:C	1:B:197:TYR:CD2	2.80	0.55
1:A:314:PHE:O	1:A:317:LYS:HB3	2.07	0.55
1:A:147:GLN:HB3	1:A:148:HIS:CD2	2.42	0.54
1:B:143:PRO:HD2	1:B:144:TRP:CZ3	2.43	0.54
1:B:185:GLU:O	1:B:188:GLU:HB2	2.07	0.54
1:B:86:ILE:HD13	1:B:225:GLN:HB2	1.89	0.54
1:B:260:ASN:HD21	1:B:262:GLU:HB2	1.72	0.54
1:B:431:PHE:CE2	1:B:458:GLU:HB3	2.42	0.54
1:A:73:THR:HG23	1:A:483:ALA:CB	2.38	0.54
1:A:153:ASP:OD2	1:A:417:THR:OG1	2.21	0.54
1:B:182:VAL:O	1:B:183:THR:C	2.45	0.54
1:B:369:ARG:NH1	1:B:394:GLU:OE2	2.40	0.54
1:B:185:GLU:OE2	1:B:356:ARG:HB3	2.08	0.54
1:B:365:HIS:HD2	1:B:367:GLU:H	1.55	0.54
1:B:147:GLN:HB3	1:B:148:HIS:HD2	1.72	0.54
1:B:246:HIS:HD2	1:B:282:HIS:HB2	1.72	0.54
1:A:62:TYR:O	1:A:341:LYS:HE3	2.07	0.54
1:A:90:LYS:NZ	1:A:215:GLN:NE2	2.56	0.54
1:B:52:THR:HA	1:B:67:GLY:H	1.72	0.54
1:B:152:TRP:O	1:B:191:ALA:HB3	2.07	0.54
1:B:433:ALA:HB1	1:B:451:ALA:HB1	1.90	0.54
1:A:371:LYS:O	1:A:375:GLU:HG2	2.08	0.54
1:B:299:PRO:HB2	1:B:410:TYR:CE2	2.43	0.54
1:B:354:LEU:HA	1:B:358:ALA:HB2	1.90	0.53
1:B:304:ILE:HD11	1:B:362:ALA:HB2	1.90	0.53
1:A:99:GLN:HB3	1:A:106:TYR:HB2	1.90	0.53
1:B:275:PRO:CD	1:B:436:GLU:HG2	2.38	0.53
1:A:44:ALA:HB1	1:A:243:PRO:HG3	1.91	0.53
1:A:431:PHE:CE2	1:A:458:GLU:HB3	2.44	0.53
1:A:291:ARG:HH21	1:A:422:VAL:HG12	1.72	0.53
1:B:468:GLU:CG	1:B:469:LYS:H	2.20	0.53
1:A:445:MET:O	1:A:446:GLU:C	2.47	0.53
1:B:491:TRP:HB3	1:B:495:LEU:HG	1.90	0.53
1:A:160:LEU:HG	1:A:164:ILE:HD11	1.91	0.53
1:B:46:ASP:HA	1:B:241:ASN:HD21	1.74	0.53
1:B:328:ASP:OD2	1:B:328:ASP:C	2.47	0.53
1:A:335:ILE:HG12	3:A:601:MLG:H03	1.91	0.53
1:B:62:TYR:O	1:B:341:LYS:CE	2.57	0.53
1:B:133:ASN:HA	1:B:136:LYS:HD2	1.91	0.53
1:A:225:GLN:O	1:A:229:ARG:HG2	2.09	0.52
1:B:490:PHE:HD2	1:B:491:TRP:N	2.07	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:304:ILE:HD11	1:A:362:ALA:HB2	1.91	0.52
1:B:490:PHE:C	1:B:490:PHE:CD2	2.81	0.52
1:B:502:LEU:O	1:B:506:GLY:N	2.33	0.52
1:A:331:ALA:O	1:A:357:LYS:NZ	2.37	0.52
1:A:291:ARG:NH2	1:A:422:VAL:HG12	2.25	0.52
1:B:256:ILE:HD12	1:B:256:ILE:N	2.24	0.52
1:B:488:HIS:HA	1:B:492:GLU:OE1	2.09	0.52
1:A:46:ASP:HA	1:A:241:ASN:ND2	2.24	0.52
1:A:335:ILE:HG21	3:A:601:MLG:CL07	2.46	0.52
1:A:502:LEU:O	1:A:506:GLY:N	2.36	0.52
1:B:134:MET:HG2	1:B:152:TRP:CH2	2.44	0.52
1:A:489:THR:O	1:A:492:GLU:HB2	2.09	0.52
1:B:246:HIS:HA	1:B:282:HIS:O	2.09	0.52
1:B:293:GLN:O	1:B:295:ILE:N	2.43	0.52
1:A:84:LEU:HD22	1:A:229:ARG:HB2	1.91	0.52
1:B:414:GLY:O	1:B:418:GLN:HB2	2.10	0.51
1:B:123:ASP:CG	1:B:166:TRP:H	2.13	0.51
1:B:124:TYR:OH	1:B:173:PHE:CD1	2.54	0.51
1:B:335:ILE:HG12	3:B:601:MLG:H03	1.92	0.51
1:A:414:GLY:O	1:A:418:GLN:HB2	2.10	0.51
1:B:444:TYR:HB3	2:B:600:FAD:O2	2.09	0.51
1:B:156:THR:HG22	1:B:159:GLU:CD	2.31	0.51
1:A:186:PRO:O	1:A:188:GLU:N	2.44	0.51
1:B:293:GLN:O	1:B:294:LEU:C	2.49	0.51
1:B:98:VAL:HB	1:B:324:MET:HB3	1.93	0.51
1:B:193:TRP:NE1	1:B:411:PHE:CD1	2.79	0.51
1:A:143:PRO:HG2	1:A:416:MET:SD	2.50	0.51
1:B:95:GLU:OE1	1:B:321:CYS:HA	2.09	0.51
1:A:15:ASP:HB2	1:A:38:SER:O	2.11	0.51
1:A:41:VAL:HB	1:A:238:VAL:HG22	1.93	0.51
1:A:491:TRP:HB3	1:A:495:LEU:HG	1.92	0.51
1:B:30:LYS:O	1:B:34:GLU:HG2	2.11	0.51
1:B:271:ASN:HB3	1:B:432:PHE:HD2	1.76	0.51
1:A:369:ARG:NH1	1:A:394:GLU:OE2	2.44	0.51
1:B:143:PRO:HB3	1:B:196:TRP:CD1	2.46	0.51
1:B:331:ALA:O	1:B:357:LYS:NZ	2.34	0.51
1:A:182:VAL:O	1:A:183:THR:C	2.49	0.51
1:B:248:ASP:HA	1:B:284:ARG:O	2.10	0.51
1:A:182:VAL:O	1:A:184:SER:HB2	2.11	0.50
1:A:168:LYS:O	1:A:171:ARG:N	2.44	0.50
1:A:303:VAL:HG13	1:A:354:LEU:HB3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:72:PRO:HD3	1:A:481:VAL:CG1	2.41	0.50
1:A:338:ASP:OD1	1:A:339:ASP:N	2.44	0.50
1:B:321:CYS:SG	1:B:323:CYS:HB3	2.51	0.50
1:A:490:PHE:HD2	1:A:491:TRP:N	2.10	0.50
1:B:16:VAL:HA	1:B:268:TYR:O	2.11	0.50
1:A:275:PRO:CD	1:A:436:GLU:HG2	2.42	0.50
1:B:99:GLN:HB3	1:B:106:TYR:HB2	1.94	0.50
1:A:299:PRO:CG	1:A:410:TYR:CE2	2.94	0.50
1:B:13:MET:C	1:B:14:PHE:CD2	2.85	0.50
1:B:256:ILE:HD11	1:B:266:CYS:SG	2.52	0.50
1:B:461:ASN:HB2	1:B:466:VAL:HG12	1.93	0.50
1:A:51:ARG:HG2	1:A:406:CYS:SG	2.52	0.50
1:A:176:LEU:O	1:A:179:ASN:HB2	2.12	0.50
1:A:416:MET:O	1:A:420:GLY:CA	2.56	0.50
1:B:225:GLN:HE21	1:B:229:ARG:NH2	2.10	0.50
1:B:51:ARG:O	1:B:66:GLY:HA3	2.12	0.50
1:A:468:GLU:CG	1:A:469:LYS:H	2.24	0.49
1:B:70:VAL:HA	1:B:74:GLN:OE1	2.12	0.49
1:A:197:TYR:CE2	1:A:207:ILE:HD11	2.45	0.49
1:A:409:ALA:CB	1:A:436:GLU:HG3	2.43	0.49
1:B:193:TRP:CD1	1:B:411:PHE:HB2	2.46	0.49
1:A:176:LEU:HD23	1:A:177:PHE:N	2.27	0.49
1:B:33:THR:O	1:B:36:GLY:N	2.41	0.49
1:A:143:PRO:HD2	1:A:144:TRP:CZ3	2.48	0.49
1:A:369:ARG:O	1:A:370:LYS:C	2.51	0.49
1:B:314:PHE:O	1:B:317:LYS:HB3	2.13	0.49
1:B:198:VAL:HG12	1:B:203:GLY:HA2	1.94	0.49
1:B:268:TYR:CG	1:B:459:VAL:HG13	2.47	0.49
1:A:203:GLY:O	1:A:204:THR:C	2.51	0.49
1:A:457:ARG:HA	1:A:460:LEU:HB2	1.95	0.49
1:B:126:ASN:C	1:B:126:ASN:ND2	2.66	0.49
1:A:144:TRP:CZ2	1:A:421:ARG:HA	2.48	0.49
1:A:365:HIS:CD2	1:A:367:GLU:H	2.31	0.48
1:A:117:ASN:HD22	1:A:120:ALA:HB2	1.78	0.48
1:B:276:THR:O	1:B:279:ALA:HB3	2.13	0.48
1:A:139:PRO:HG2	1:A:143:PRO:HA	1.95	0.48
1:A:199:LYS:O	1:A:202:GLY:N	2.39	0.48
1:A:271:ASN:HB3	1:A:432:PHE:HD2	1.78	0.48
1:A:24:SER:O	1:A:27:SER:N	2.47	0.48
1:A:73:THR:CG2	1:A:483:ALA:CB	2.91	0.48
1:A:160:LEU:O	1:A:164:ILE:HG13	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:138:ILE:HA	1:A:139:PRO:HD2	1.39	0.48
1:A:365:HIS:HB3	1:A:368:ILE:HG13	1.96	0.48
1:B:196:TRP:CZ2	1:B:200:GLN:HG2	2.48	0.48
1:B:245:THR:OG1	1:B:246:HIS:ND1	2.47	0.48
1:A:13:MET:C	1:A:14:PHE:CD2	2.87	0.48
1:A:123:ASP:CG	1:A:166:TRP:H	2.16	0.48
1:A:293:GLN:O	1:A:294:LEU:C	2.52	0.48
1:B:160:LEU:HG	1:B:164:ILE:HD11	1.96	0.48
1:B:371:LYS:O	1:B:375:GLU:HG2	2.14	0.48
1:B:416:MET:HE2	1:B:420:GLY:HA3	1.96	0.48
1:A:256:ILE:N	1:A:256:ILE:HD12	2.29	0.47
1:B:471:ILE:O	1:B:471:ILE:CG2	2.62	0.47
1:A:335:ILE:CG2	3:A:601:MLG:CL07	2.99	0.47
1:B:365:HIS:CD2	1:B:367:GLU:H	2.31	0.47
1:A:176:LEU:CA	1:A:179:ASN:HB2	2.43	0.47
1:A:271:ASN:HB3	1:A:432:PHE:CD2	2.50	0.47
1:A:313:ALA:O	1:A:315:TRP:N	2.47	0.47
1:A:461:ASN:HB2	1:A:466:VAL:HG12	1.95	0.47
1:A:268:TYR:CG	1:A:459:VAL:HG13	2.50	0.47
1:A:433:ALA:HB1	1:A:451:ALA:HB1	1.97	0.47
1:A:90:LYS:HZ3	1:A:215:GLN:NE2	2.12	0.47
1:B:144:TRP:CH2	1:B:421:ARG:HA	2.49	0.47
1:B:196:TRP:CE2	1:B:200:GLN:HG2	2.50	0.47
1:B:255:ILE:HG12	1:B:265:GLU:HG2	1.97	0.47
1:B:409:ALA:HB3	1:B:436:GLU:HG3	1.95	0.47
1:A:185:GLU:O	1:A:188:GLU:HB2	2.14	0.47
1:A:197:TYR:OH	1:A:444:TYR:HE1	1.97	0.47
1:A:299:PRO:CD	1:A:410:TYR:O	2.63	0.47
1:B:56:ARG:HH22	1:B:228:GLU:CD	2.18	0.47
1:A:256:ILE:HD11	1:A:266:CYS:SG	2.55	0.47
1:A:93:VAL:HG12	1:A:93:VAL:O	2.15	0.47
1:B:123:ASP:OD2	1:B:166:TRP:N	2.41	0.47
1:B:130:THR:HG22	1:B:134:MET:HE2	1.97	0.47
1:B:177:PHE:C	1:B:177:PHE:HD2	2.18	0.47
1:B:177:PHE:CE2	1:B:181:ASN:ND2	2.83	0.47
1:B:269:VAL:HB	1:B:430:ILE:HG23	1.97	0.47
1:A:256:ILE:HD12	1:A:256:ILE:H	1.80	0.46
1:A:490:PHE:C	1:A:490:PHE:CD2	2.88	0.46
1:A:123:ASP:OD2	1:A:166:TRP:N	2.37	0.46
1:A:198:VAL:HG12	1:A:203:GLY:HA2	1.96	0.46
1:B:176:LEU:HG	1:B:180:ILE:CD1	2.44	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:84:LEU:HD22	1:A:229:ARG:CB	2.45	0.46
1:A:86:ILE:HD13	1:A:225:GLN:HB2	1.97	0.46
1:A:210:VAL:HG13	1:A:214:GLY:N	2.30	0.46
1:A:458:GLU:O	1:A:459:VAL:C	2.53	0.46
1:B:147:GLN:HB3	1:B:148:HIS:CD2	2.50	0.46
1:B:197:TYR:C	1:B:197:TYR:HD2	2.19	0.46
1:B:292:ASN:O	1:B:296:GLN:NE2	2.49	0.46
1:B:466:VAL:HG13	1:B:470:ASP:HB3	1.96	0.46
3:B:601:MLG:CL07	3:B:601:MLG:C17	3.00	0.46
1:A:298:LEU:HA	1:A:299:PRO:HD3	1.70	0.46
1:B:249:GLN:HE22	1:B:428:GLY:HA3	1.81	0.46
1:B:46:ASP:HA	1:B:241:ASN:ND2	2.30	0.46
1:B:117:ASN:OD1	1:B:118:PRO:HD2	2.15	0.46
1:B:297:ARG:CD	1:B:415:ILE:HD11	2.46	0.46
1:B:445:MET:O	1:B:448:ALA:HB3	2.16	0.46
1:A:98:VAL:HB	1:A:324:MET:HB3	1.98	0.46
1:A:246:HIS:HB2	1:A:257:GLU:HB3	1.97	0.46
1:B:203:GLY:O	1:B:204:THR:C	2.53	0.46
1:B:457:ARG:HA	1:B:460:LEU:HB2	1.98	0.46
1:A:130:THR:HG22	1:A:134:MET:HE2	1.97	0.46
1:A:197:TYR:C	1:A:197:TYR:HD2	2.19	0.46
1:B:271:ASN:HB3	1:B:432:PHE:CD2	2.50	0.46
1:B:433:ALA:HB2	1:B:455:ALA:HB2	1.98	0.46
1:A:207:ILE:CG2	1:A:208:PHE:N	2.78	0.46
1:A:274:PRO:HB2	1:A:275:PRO:CD	2.45	0.46
1:B:246:HIS:HB2	1:B:257:GLU:HB3	1.97	0.46
1:B:271:ASN:OD1	1:B:278:THR:HG23	2.16	0.46
1:B:307:MET:SD	1:B:350:MET:HG2	2.55	0.46
1:A:279:ALA:HB2	1:A:295:ILE:HB	1.98	0.45
1:A:408:THR:OG1	1:A:436:GLU:OE1	2.27	0.45
1:B:303:VAL:HG13	1:B:354:LEU:HB3	1.98	0.45
1:B:490:PHE:CD2	1:B:491:TRP:N	2.83	0.45
1:A:254:ILE:HG13	1:A:429:ARG:HH21	1.81	0.45
1:A:307:MET:HB3	1:A:309:TYR:CE2	2.51	0.45
1:A:16:VAL:HA	1:A:268:TYR:O	2.17	0.45
1:B:57:ASN:O	1:B:60:VAL:HG22	2.16	0.45
1:B:186:PRO:C	1:B:188:GLU:H	2.20	0.45
1:B:245:THR:OG1	1:B:246:HIS:CE1	2.69	0.45
1:A:490:PHE:CD2	1:A:491:TRP:N	2.84	0.45
1:B:138:ILE:HA	1:B:139:PRO:HD2	1.49	0.45
1:B:43:GLU:HG3	1:B:44:ALA:N	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:183:THR:HG1	1:B:301:GLY:HA3	1.82	0.45
1:B:275:PRO:CG	1:B:436:GLU:HG2	2.47	0.45
1:B:445:MET:O	1:B:446:GLU:C	2.52	0.45
1:A:275:PRO:HD3	1:A:436:GLU:HG2	1.99	0.45
1:A:289:ALA:O	1:A:290:GLU:C	2.54	0.45
1:A:466:VAL:HG13	1:A:470:ASP:HB3	1.98	0.45
1:B:275:PRO:HD3	1:B:436:GLU:HG2	1.97	0.45
1:B:176:LEU:O	1:B:179:ASN:HB2	2.16	0.45
1:A:177:PHE:C	1:A:177:PHE:HD2	2.20	0.45
1:B:139:PRO:HG2	1:B:143:PRO:HA	1.99	0.44
1:B:408:THR:HG23	1:B:409:ALA:C	2.31	0.44
1:A:275:PRO:CG	1:A:436:GLU:HG2	2.47	0.44
1:A:22:GLY:O	1:A:24:SER:N	2.51	0.44
1:A:73:THR:HG23	1:A:483:ALA:HB2	1.98	0.44
1:A:198:VAL:O	1:A:203:GLY:HA2	2.18	0.44
1:A:273:ILE:CD1	1:A:281:ILE:HD11	2.48	0.44
1:B:43:GLU:HG3	1:B:45:ARG:H	1.82	0.44
1:B:256:ILE:HD12	1:B:256:ILE:H	1.82	0.44
1:B:291:ARG:O	1:B:294:LEU:N	2.50	0.44
1:B:339:ASP:HB2	1:B:350:MET:HB2	1.98	0.44
1:B:453:GLU:O	1:B:457:ARG:HG3	2.17	0.44
1:B:461:ASN:CB	1:B:471:ILE:HD11	2.48	0.44
1:A:332:PRO:HB3	1:A:361:LEU:CD1	2.47	0.44
1:A:416:MET:HE2	1:A:420:GLY:HA3	1.99	0.44
1:B:192:LEU:HA	1:B:195:LEU:HD12	2.00	0.44
1:B:232:ASP:O	1:B:234:LEU:N	2.51	0.44
1:B:307:MET:HB3	1:B:309:TYR:CE2	2.52	0.44
1:B:416:MET:CE	1:B:420:GLY:HA3	2.47	0.44
1:B:121:TYR:HA	1:B:124:TYR:HB2	1.99	0.44
1:A:154:LYS:HD3	1:A:154:LYS:HA	1.90	0.44
1:A:433:ALA:HB2	1:A:455:ALA:HB2	2.00	0.44
1:B:75:ASN:O	1:B:76:ARG:C	2.55	0.44
1:A:57:ASN:O	1:A:60:VAL:HG22	2.18	0.44
1:A:120:ALA:CA	1:A:167:THR:HG21	2.37	0.44
1:A:186:PRO:C	1:A:188:GLU:H	2.21	0.44
1:A:372:LYS:O	1:A:375:GLU:HG3	2.17	0.44
1:B:185:GLU:OE1	1:B:185:GLU:HA	2.17	0.44
1:A:338:ASP:OD1	1:A:338:ASP:C	2.56	0.44
1:A:341:LYS:HB3	1:A:342:PRO:HD2	1.99	0.44
1:A:445:MET:O	1:A:448:ALA:HB3	2.18	0.44
1:A:461:ASN:CB	1:A:471:ILE:HD11	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:LYS:O	1:A:34:GLU:HG2	2.18	0.43
1:A:78:LEU:O	1:A:79:ARG:C	2.56	0.43
1:A:323:CYS:HA	1:A:336:THR:O	2.18	0.43
1:B:77:ILE:N	1:B:446:GLU:OE2	2.42	0.43
1:B:299:PRO:CG	1:B:410:TYR:CE2	3.01	0.43
1:A:95:GLU:OE1	1:A:321:CYS:HA	2.18	0.43
1:A:242:HIS:NE2	1:A:262:GLU:OE2	2.51	0.43
1:A:185:GLU:OE1	1:A:185:GLU:HA	2.18	0.43
1:A:330:ASP:O	1:A:331:ALA:C	2.55	0.43
1:A:412:PRO:HG2	1:A:415:ILE:CG1	2.49	0.43
1:B:15:ASP:HB2	1:B:38:SER:O	2.18	0.43
1:B:122:LEU:O	1:B:123:ASP:C	2.56	0.43
1:B:155:MET:HB3	1:B:191:ALA:CB	2.49	0.43
1:B:192:LEU:O	1:B:195:LEU:HB2	2.18	0.43
1:A:254:ILE:HG13	1:A:429:ARG:NH2	2.34	0.43
1:A:416:MET:CE	1:A:420:GLY:HA3	2.48	0.43
1:B:246:HIS:NE2	1:B:282:HIS:HD2	2.16	0.43
1:A:124:TYR:OH	1:A:173:PHE:CD1	2.58	0.43
1:B:160:LEU:O	1:B:164:ILE:HG13	2.18	0.43
1:B:232:ASP:O	1:B:233:LEU:C	2.57	0.43
1:A:260:ASN:HD21	1:A:262:GLU:HB2	1.83	0.43
1:A:408:THR:CG2	1:A:409:ALA:O	2.49	0.43
1:B:190:SER:HB3	1:B:193:TRP:HB2	2.00	0.43
1:A:183:THR:OG1	1:A:183:THR:O	2.26	0.43
1:B:260:ASN:ND2	1:B:262:GLU:HB2	2.33	0.43
1:B:454:ARG:CD	1:B:472:TRP:CH2	3.00	0.43
1:B:468:GLU:HG3	1:B:469:LYS:N	2.29	0.43
1:A:271:ASN:C	1:A:271:ASN:ND2	2.72	0.43
1:A:291:ARG:O	1:A:294:LEU:N	2.52	0.43
1:A:293:GLN:O	1:A:295:ILE:N	2.51	0.43
1:A:445:MET:O	1:A:448:ALA:N	2.52	0.43
1:B:329:GLU:OE1	1:B:329:GLU:HA	2.18	0.43
1:B:18:VAL:HG11	1:B:25:GLY:O	2.19	0.43
1:B:193:TRP:CH2	1:B:410:TYR:HA	2.54	0.43
1:A:22:GLY:C	1:A:24:SER:N	2.72	0.43
1:A:339:ASP:HB2	1:A:350:MET:HB2	2.01	0.43
1:B:71:GLY:N	1:B:74:GLN:OE1	2.51	0.43
1:B:92:ASN:O	1:B:93:VAL:HG22	2.19	0.43
1:B:500:GLY:O	1:B:502:LEU:N	2.52	0.43
1:A:17:VAL:HG12	1:A:18:VAL:N	2.34	0.42
1:A:463:LEU:HD23	1:A:463:LEU:HA	1.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:52:THR:HG22	1:A:67:GLY:CA	2.46	0.42
1:A:52:THR:HG21	1:A:445:MET:SD	2.59	0.42
1:A:488:HIS:HA	1:A:492:GLU:OE1	2.19	0.42
1:B:273:ILE:CD1	1:B:281:ILE:HD11	2.49	0.42
1:A:144:TRP:CZ3	1:A:421:ARG:HA	2.54	0.42
1:A:191:ALA:C	1:A:195:LEU:HD12	2.39	0.42
1:A:453:GLU:O	1:A:457:ARG:HG3	2.19	0.42
1:B:186:PRO:C	1:B:188:GLU:N	2.73	0.42
1:A:52:THR:HA	1:A:67:GLY:H	1.83	0.42
1:A:124:TYR:HD2	1:A:128:TRP:CZ3	2.36	0.42
1:B:120:ALA:CA	1:B:167:THR:HG21	2.39	0.42
1:B:315:TRP:CD2	1:B:349:ILE:HD11	2.54	0.42
1:B:412:PRO:HG2	1:B:415:ILE:HG13	2.01	0.42
1:A:97:LEU:N	1:A:97:LEU:HD12	2.34	0.42
1:A:193:TRP:CD1	1:A:411:PHE:HB2	2.54	0.42
1:A:315:TRP:CD2	1:A:349:ILE:HD11	2.55	0.42
1:B:52:THR:HG22	1:B:67:GLY:CA	2.44	0.42
1:B:299:PRO:HD3	1:B:410:TYR:O	2.19	0.42
1:A:434:GLY:O	1:A:436:GLU:N	2.53	0.42
1:A:477:GLU:O	1:A:478:SER:C	2.57	0.42
3:A:601:MLG:H06	3:A:601:MLG:H101	1.69	0.42
1:A:70:VAL:HA	1:A:74:GLN:OE1	2.20	0.42
1:B:204:THR:OG1	1:B:205:THR:N	2.53	0.42
1:A:44:ALA:O	1:A:241:ASN:HA	2.20	0.42
1:A:156:THR:HG22	1:A:159:GLU:OE2	2.19	0.42
1:A:232:ASP:O	1:A:234:LEU:N	2.53	0.42
1:A:254:ILE:HD11	1:A:429:ARG:HB2	2.01	0.42
1:A:329:GLU:HA	1:A:329:GLU:OE1	2.20	0.42
1:B:298:LEU:HA	1:B:299:PRO:HD3	1.79	0.42
1:A:105:THR:HG21	1:A:380:VAL:O	2.20	0.41
1:A:117:ASN:HA	1:A:118:PRO:HD2	1.92	0.41
1:A:126:ASN:ND2	1:A:126:ASN:C	2.72	0.41
1:A:269:VAL:HB	1:A:430:ILE:HG23	2.02	0.41
1:A:415:ILE:HD13	1:A:415:ILE:HA	1.78	0.41
1:B:269:VAL:CG1	1:B:270:ILE:N	2.82	0.41
1:A:148:HIS:CD2	1:A:148:HIS:N	2.88	0.41
1:A:308:MET:CE	1:A:392:TYR:HD1	2.33	0.41
1:B:330:ASP:O	1:B:331:ALA:C	2.58	0.41
1:B:369:ARG:O	1:B:370:LYS:C	2.59	0.41
1:A:75:ASN:OD1	1:A:478:SER:N	2.41	0.41
1:A:274:PRO:CB	1:A:275:PRO:CD	2.97	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:271:ASN:C	1:B:271:ASN:ND2	2.73	0.41
1:B:408:THR:OG1	1:B:436:GLU:OE1	2.31	0.41
1:A:246:HIS:NE2	1:A:282:HIS:HD2	2.18	0.41
1:A:248:ASP:HA	1:A:284:ARG:O	2.20	0.41
1:B:155:MET:HB3	1:B:191:ALA:HB2	2.03	0.41
1:B:473:VAL:HG12	1:B:474:GLN:O	2.20	0.41
1:A:121:TYR:HA	1:A:124:TYR:HB2	2.03	0.41
1:B:196:TRP:CD2	1:B:196:TRP:C	2.93	0.41
1:A:216:GLU:OE2	3:A:601:MLG:H101	2.20	0.41
1:A:274:PRO:HB2	1:A:275:PRO:HD2	2.01	0.41
1:B:57:ASN:O	1:B:59:HIS:N	2.54	0.41
1:B:365:HIS:HB3	1:B:368:ILE:HG13	2.03	0.41
1:B:444:TYR:CD1	1:B:444:TYR:N	2.88	0.41
1:B:132:ASP:O	1:B:135:GLY:N	2.35	0.41
1:B:156:THR:CG2	1:B:159:GLU:H	2.32	0.41
1:B:172:ARG:HA	1:B:175:TYR:HD2	1.81	0.41
1:B:416:MET:O	1:B:420:GLY:CA	2.64	0.41
1:B:192:LEU:CD2	1:B:416:MET:HG2	2.48	0.41
1:B:369:ARG:NH1	1:B:394:GLU:CD	2.74	0.41
1:A:122:LEU:O	1:A:123:ASP:C	2.59	0.41
1:A:196:TRP:O	1:A:196:TRP:CG	2.71	0.41
1:A:249:GLN:HE22	1:A:428:GLY:HA3	1.86	0.41
1:A:444:TYR:N	1:A:444:TYR:CD1	2.88	0.41
1:A:449:VAL:O	1:A:453:GLU:HG3	2.21	0.41
1:B:89:TYR:CE2	1:B:218:LYS:HB2	2.56	0.41
1:B:304:ILE:HB	1:B:353:ILE:HG22	1.98	0.41
1:B:373:ILE:O	1:B:376:LEU:HB3	2.20	0.41
1:B:397:TRP:HA	1:B:400:GLU:HG2	2.01	0.41
1:B:468:GLU:C	1:B:470:ASP:N	2.74	0.41
1:A:473:VAL:HG12	1:A:474:GLN:O	2.21	0.41
1:B:292:ASN:HA	1:B:295:ILE:HD11	2.03	0.41
1:B:443:GLY:O	2:B:600:FAD:H1'2	2.20	0.41
1:A:117:ASN:OD1	1:A:118:PRO:HD2	2.21	0.40
1:B:193:TRP:CZ2	1:B:410:TYR:HA	2.56	0.40
1:B:100:TYR:HD2	1:B:326:ILE:HG23	1.86	0.40
1:B:245:THR:HG1	1:B:246:HIS:CE1	2.39	0.40
1:A:71:GLY:O	1:A:74:GLN:HB2	2.21	0.40
1:A:172:ARG:HA	1:A:175:TYR:HD2	1.83	0.40
1:A:454:ARG:HD2	1:A:472:TRP:CH2	2.56	0.40
1:B:144:TRP:CD1	1:B:144:TRP:C	2.94	0.40
1:B:415:ILE:HD13	1:B:415:ILE:HA	1.81	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:190:SER:HB3	1:B:193:TRP:CB	2.51	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	486/527 (92%)	386 (79%)	73 (15%)	27 (6%)	2	12
1	B	486/527 (92%)	389 (80%)	72 (15%)	25 (5%)	2	13
All	All	972/1054 (92%)	775 (80%)	145 (15%)	52 (5%)	2	13

All (52) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	169	THR
1	A	204	THR
1	A	209	SER
1	A	314	PHE
1	A	366	LYS
1	A	423	ILE
1	A	473	VAL
1	B	169	THR
1	B	204	THR
1	B	314	PHE
1	B	423	ILE
1	B	473	VAL
1	A	34	GLU
1	A	187	HIS
1	A	319	ASP
1	A	435	THR
1	A	441	TRP

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Mol	Chain	Res	Type
1	A	486	ILE
1	B	133	ASN
1	B	187	HIS
1	B	209	SER
1	B	319	ASP
1	B	366	LYS
1	B	486	ILE
1	A	118	PRO
1	A	127	LEU
1	B	34	GLU
1	B	118	PRO
1	B	183	THR
1	B	210	VAL
1	B	496	PRO
1	A	248	ASP
1	A	250	SER
1	A	468	GLU
1	A	496	PRO
1	B	122	LEU
1	B	127	LEU
1	B	468	GLU
1	A	102	LYS
1	A	122	LEU
1	A	210	VAL
1	A	490	PHE
1	B	58	GLU
1	B	102	LYS
1	B	435	THR
1	A	124	TYR
1	B	299	PRO
1	A	72	PRO
1	A	139	PRO
1	A	404	GLY
1	B	139	PRO
1	B	25	GLY

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	412/450 (92%)	346 (84%)	66 (16%)	2	10
1	B	412/450 (92%)	354 (86%)	58 (14%)	3	15
All	All	824/900 (92%)	700 (85%)	124 (15%)	3	13

All (124) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	MET
1	A	16	VAL
1	A	24	SER
1	A	27	SER
1	A	38	SER
1	A	43	GLU
1	A	55	ILE
1	A	58	GLU
1	A	63	VAL
1	A	65	VAL
1	A	98	VAL
1	A	101	VAL
1	A	105	THR
1	A	119	ILE
1	A	123	ASP
1	A	124	TYR
1	A	126	ASN
1	A	137	GLU
1	A	145	GLU
1	A	147	GLN
1	A	150	ASP
1	A	163	LYS
1	A	169	THR
1	A	173	PHE
1	A	176	LEU
1	A	177	PHE
1	A	184	SER
1	A	196	TRP
1	A	197	TYR
1	A	199	LYS
1	A	207	ILE
1	A	217	ARG
1	A	227	SER
1	A	231	MET

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Mol	Chain	Res	Type
1	A	233	LEU
1	A	249	GLN
1	A	271	ASN
1	A	276	THR
1	A	296	GLN
1	A	297	ARG
1	A	303	VAL
1	A	321	CYS
1	A	324	MET
1	A	328	ASP
1	A	330	ASP
1	A	336	THR
1	A	353	ILE
1	A	356	ARG
1	A	368	ILE
1	A	385	GLU
1	A	387	LEU
1	A	406	CYS
1	A	416	MET
1	A	423	ILE
1	A	424	ARG
1	A	427	VAL
1	A	458	GLU
1	A	461	ASN
1	A	466	VAL
1	A	467	THR
1	A	468	GLU
1	A	470	ASP
1	A	475	GLU
1	A	480	ASP
1	A	486	ILE
1	A	489	THR
1	B	16	VAL
1	B	24	SER
1	B	38	SER
1	B	43	GLU
1	B	55	ILE
1	B	65	VAL
1	B	98	VAL
1	B	101	VAL
1	B	105	THR
1	B	119	ILE

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Mol	Chain	Res	Type
1	B	123	ASP
1	B	124	TYR
1	B	126	ASN
1	B	137	GLU
1	B	145	GLU
1	B	147	GLN
1	B	169	THR
1	B	173	PHE
1	B	176	LEU
1	B	177	PHE
1	B	184	SER
1	B	197	TYR
1	B	199	LYS
1	B	207	ILE
1	B	227	SER
1	B	231	MET
1	B	233	LEU
1	B	245	THR
1	B	249	GLN
1	B	271	ASN
1	B	276	THR
1	B	296	GLN
1	B	297	ARG
1	B	303	VAL
1	B	321	CYS
1	B	323	CYS
1	B	324	MET
1	B	328	ASP
1	B	330	ASP
1	B	336	THR
1	B	353	ILE
1	B	356	ARG
1	B	385	GLU
1	B	387	LEU
1	B	416	MET
1	B	423	ILE
1	B	424	ARG
1	B	427	VAL
1	B	435	THR
1	B	458	GLU
1	B	461	ASN
1	B	466	VAL

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Mol	Chain	Res	Type
1	B	467	THR
1	B	468	GLU
1	B	470	ASP
1	B	475	GLU
1	B	486	ILE
1	B	489	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	99	GLN
1	A	133	ASN
1	A	147	GLN
1	A	148	HIS
1	A	187	HIS
1	A	215	GLN
1	A	237	GLN
1	A	241	ASN
1	A	263	HIS
1	A	282	HIS
1	A	296	GLN
1	A	365	HIS
1	A	396	ASN
1	A	401	GLN
1	A	494	ASN
1	B	99	GLN
1	B	133	ASN
1	B	147	GLN
1	B	148	HIS
1	B	212	ASN
1	B	215	GLN
1	B	237	GLN
1	B	241	ASN
1	B	263	HIS
1	B	282	HIS
1	B	296	GLN
1	B	365	HIS
1	B	401	GLN
1	B	494	ASN

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	FAD	B	600	1,3	53,58,58	1.45	6 (11%)	68,89,89	1.99	18 (26%)
3	MLG	B	601	2	16,17,17	2.49	2 (12%)	20,21,21	7.52	9 (45%)
2	FAD	A	600	1,3	53,58,58	1.25	6 (11%)	68,89,89	1.91	17 (25%)
3	MLG	A	601	2	16,17,17	2.79	4 (25%)	20,21,21	7.25	8 (40%)

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	FAD	B	600	1,3	-	5/30/50/50	0/6/6/6
3	MLG	B	601	2	1/1/1/1	4/9/10/10	0/1/1/1
2	FAD	A	600	1,3	-	6/30/50/50	0/6/6/6
3	MLG	A	601	2	1/1/1/1	5/9/10/10	0/1/1/1

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	601	MLG	C14-C15	-7.88	1.36	1.47
3	B	601	MLG	C14-C15	-6.96	1.38	1.47
3	B	601	MLG	C15-C16	6.35	1.37	1.18
3	A	601	MLG	C15-C16	6.20	1.36	1.18
2	B	600	FAD	C2A-N3A	5.33	1.40	1.32
2	B	600	FAD	C4X-N5	4.00	1.38	1.30
3	A	601	MLG	C04-CL08	-3.69	1.66	1.74
2	A	600	FAD	C4X-N5	3.35	1.37	1.30
2	A	600	FAD	C2A-N3A	3.17	1.37	1.32
2	A	600	FAD	C2B-C1B	-2.92	1.49	1.53
2	B	600	FAD	C2B-C1B	-2.84	1.49	1.53
2	B	600	FAD	C2A-N1A	2.67	1.38	1.33
2	B	600	FAD	C10-N1	2.51	1.38	1.33
2	A	600	FAD	C2A-N1A	2.26	1.38	1.33
2	B	600	FAD	C9A-C5X	-2.25	1.37	1.41
2	A	600	FAD	O2'-C2'	-2.21	1.38	1.43
3	A	601	MLG	C02-CL07	-2.20	1.68	1.73
2	A	600	FAD	C10-N1	2.18	1.37	1.33

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	601	MLG	C14-C15-C16	-31.22	125.30	177.67
3	B	601	MLG	C14-C15-C16	-31.13	125.45	177.67
2	B	600	FAD	C9A-C5X-N5	-8.25	113.46	122.43
2	A	600	FAD	C9A-C5X-N5	-7.02	114.80	122.43
3	B	601	MLG	C01-C02-CL07	-6.87	111.36	119.43
2	A	600	FAD	N3A-C2A-N1A	-5.57	119.97	128.68
2	B	600	FAD	P-O3P-PA	-5.23	114.88	132.83
2	A	600	FAD	P-O3P-PA	-4.86	116.14	132.83
3	B	601	MLG	C03-C04-CL08	4.57	124.86	119.15
3	B	601	MLG	C14-N13-C12	4.42	123.94	113.05
3	B	601	MLG	C03-C02-CL07	4.24	125.33	118.49
3	A	601	MLG	C14-N13-C12	4.12	123.18	113.05
3	B	601	MLG	C11-C12-N13	-4.03	101.88	113.79
2	B	600	FAD	C5A-C6A-N6A	-3.50	115.03	120.35
3	A	601	MLG	O09-C01-C02	3.40	120.60	116.40
2	A	600	FAD	O5'-C5'-C4'	-3.32	100.49	109.36
3	B	601	MLG	C15-C14-N13	3.30	120.73	113.45
2	B	600	FAD	C4-N3-C2	-3.30	119.55	125.64
2	B	600	FAD	N6A-C6A-N1A	-3.23	111.87	118.57
2	A	600	FAD	C4-N3-C2	-3.21	119.70	125.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	600	FAD	O3'-C3'-C2'	-3.10	101.32	108.81
3	A	601	MLG	C03-C04-CL08	-3.01	115.39	119.15
2	A	600	FAD	C1B-N9A-C4A	-2.99	121.38	126.64
2	B	600	FAD	C10-C4X-N5	-2.95	118.59	124.86
2	B	600	FAD	O4'-C4'-C5'	-2.95	103.29	109.92
2	B	600	FAD	C4A-C5A-N7A	-2.92	106.36	109.40
3	B	601	MLG	C05-C04-CL08	-2.85	114.90	119.35
2	B	600	FAD	N3A-C2A-N1A	-2.83	124.26	128.68
2	A	600	FAD	C4-C4X-C10	2.74	121.40	116.79
2	B	600	FAD	C4X-C4-N3	2.74	120.14	113.19
2	B	600	FAD	O3'-C3'-C4'	-2.70	102.28	108.81
2	A	600	FAD	C4X-C10-N1	-2.60	118.71	124.73
3	B	601	MLG	C06-C05-C04	2.56	121.94	119.24
2	B	600	FAD	O2'-C2'-C1'	-2.55	103.64	109.80
2	A	600	FAD	C2B-C3B-C4B	2.48	107.46	102.64
2	A	600	FAD	C4X-C4-N3	2.44	119.39	113.19
2	A	600	FAD	C9A-N10-C10	-2.41	117.01	120.77
2	B	600	FAD	O5'-C5'-C4'	-2.39	102.97	109.36
2	A	600	FAD	O3B-C3B-C4B	-2.35	104.26	111.05
2	B	600	FAD	C5X-N5-C4X	2.34	121.97	118.07
3	A	601	MLG	C15-C14-N13	2.33	118.59	113.45
2	B	600	FAD	C4-C4X-N5	2.32	121.53	118.23
2	B	600	FAD	O4-C4-C4X	-2.28	120.56	126.60
2	B	600	FAD	O2B-C2B-C1B	-2.23	102.61	110.85
3	A	601	MLG	C02-C03-C04	-2.21	116.24	118.71
2	B	600	FAD	C1B-N9A-C4A	-2.20	122.78	126.64
2	A	600	FAD	C4A-C5A-N7A	-2.17	107.14	109.40
2	A	600	FAD	C10-C4X-N5	-2.17	120.25	124.86
2	A	600	FAD	O2B-C2B-C1B	-2.09	103.14	110.85
3	A	601	MLG	C03-C02-CL07	-2.08	115.14	118.49
3	A	601	MLG	C01-C02-CL07	2.08	121.86	119.43
2	A	600	FAD	O4-C4-C4X	-2.00	121.29	126.60

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	A	601	MLG	N13
3	B	601	MLG	N13

All (20) torsion outliers are listed below:

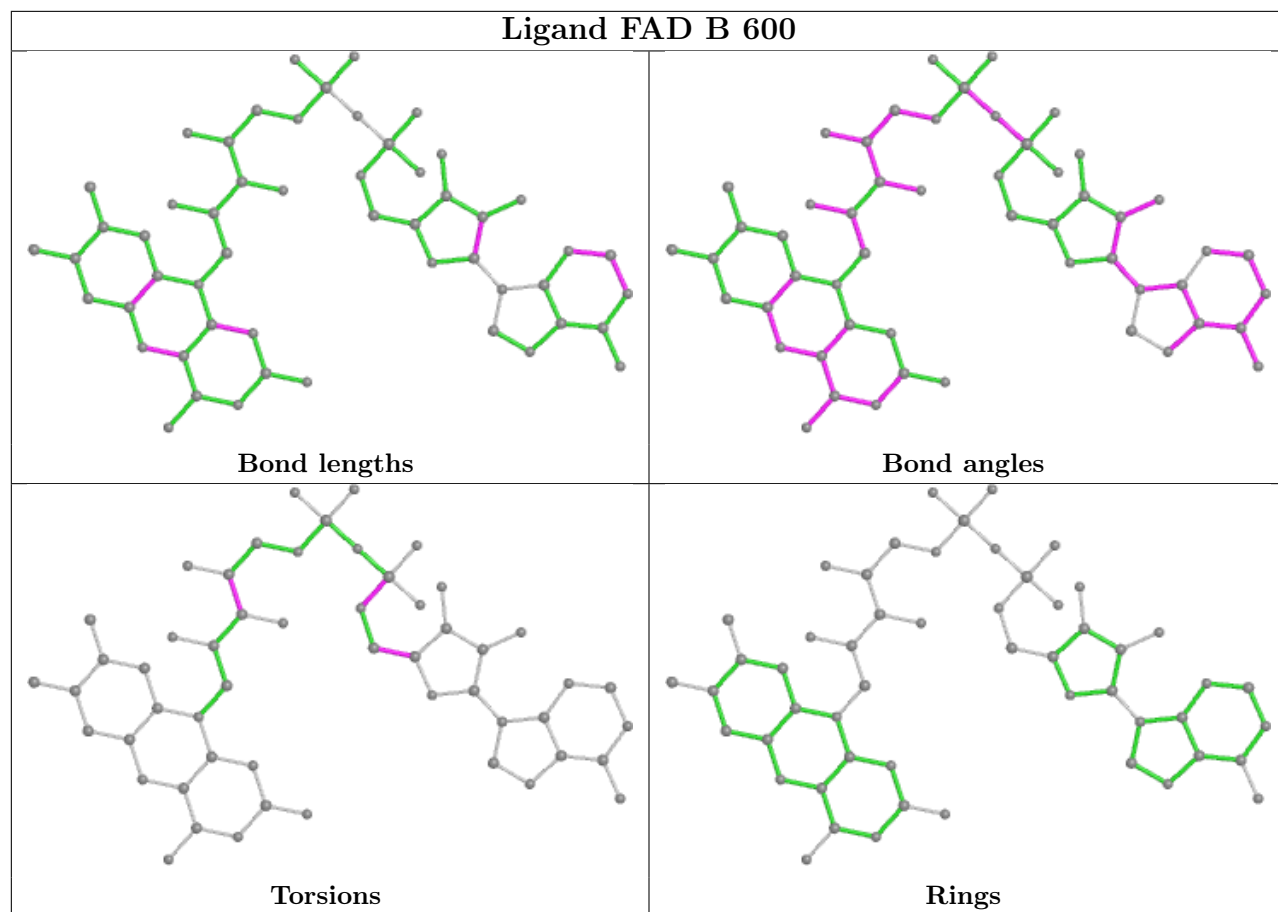
Mol	Chain	Res	Type	Atoms
2	A	600	FAD	O3'-C3'-C4'-O4'
2	A	600	FAD	O3'-C3'-C4'-C5'
3	A	601	MLG	C15-C14-N13-C17
3	B	601	MLG	C10-C11-C12-N13
3	B	601	MLG	C15-C14-N13-C17
3	A	601	MLG	O09-C10-C11-C12
2	A	600	FAD	C2'-C3'-C4'-O4'
2	A	600	FAD	C2'-C3'-C4'-C5'
2	B	600	FAD	C3B-C4B-C5B-O5B
3	A	601	MLG	C11-C12-N13-C17
3	B	601	MLG	C11-C12-N13-C17
2	B	600	FAD	O4B-C4B-C5B-O5B
2	A	600	FAD	C2'-C1'-N10-C10
3	A	601	MLG	C11-C10-O09-C01
2	B	600	FAD	C5B-O5B-PA-O3P
3	A	601	MLG	C15-C14-N13-C12
3	B	601	MLG	C15-C14-N13-C12
2	B	600	FAD	C5B-O5B-PA-O2A
2	B	600	FAD	O3'-C3'-C4'-C5'
2	A	600	FAD	O4B-C4B-C5B-O5B

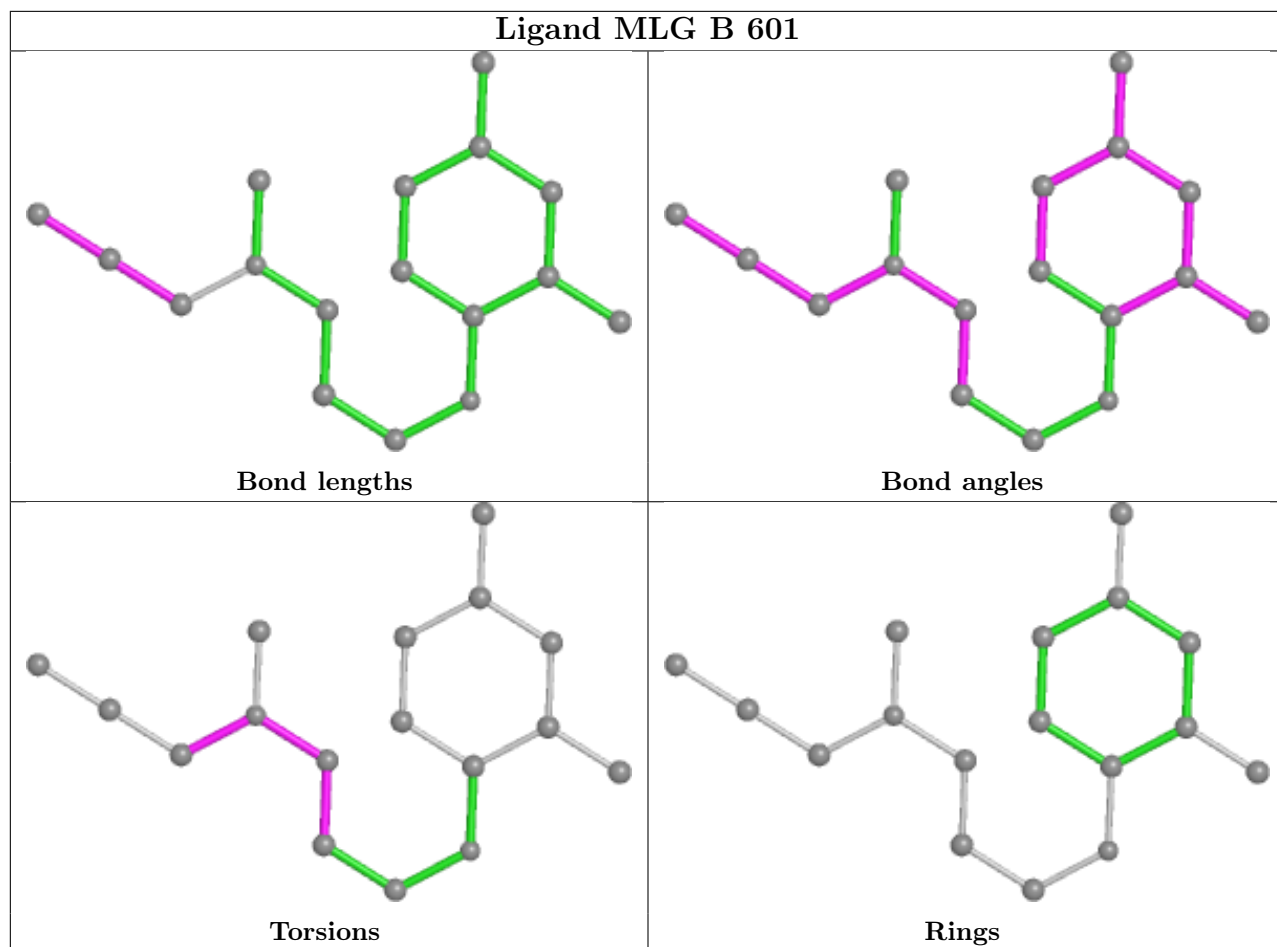
There are no ring outliers.

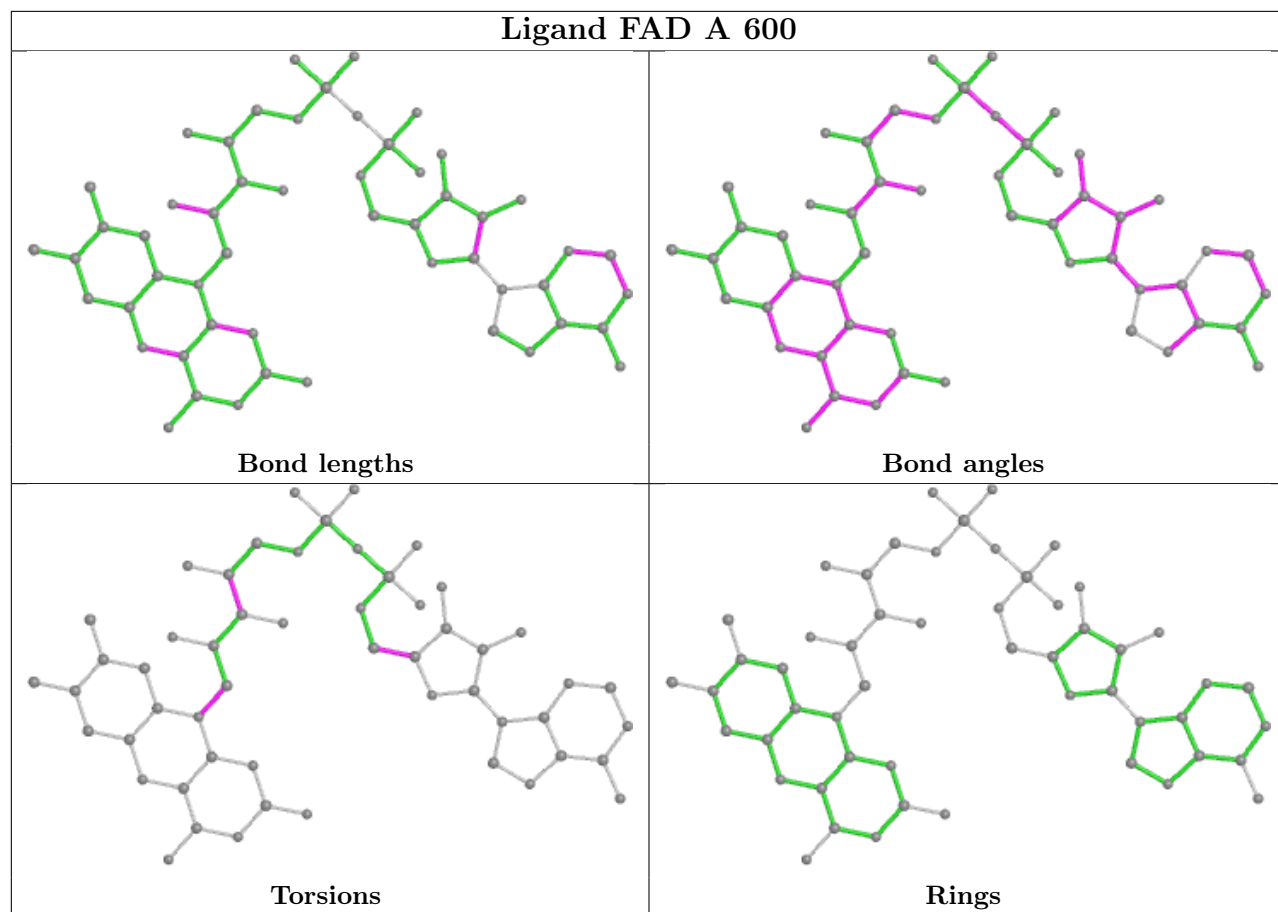
3 monomers are involved in 12 short contacts:

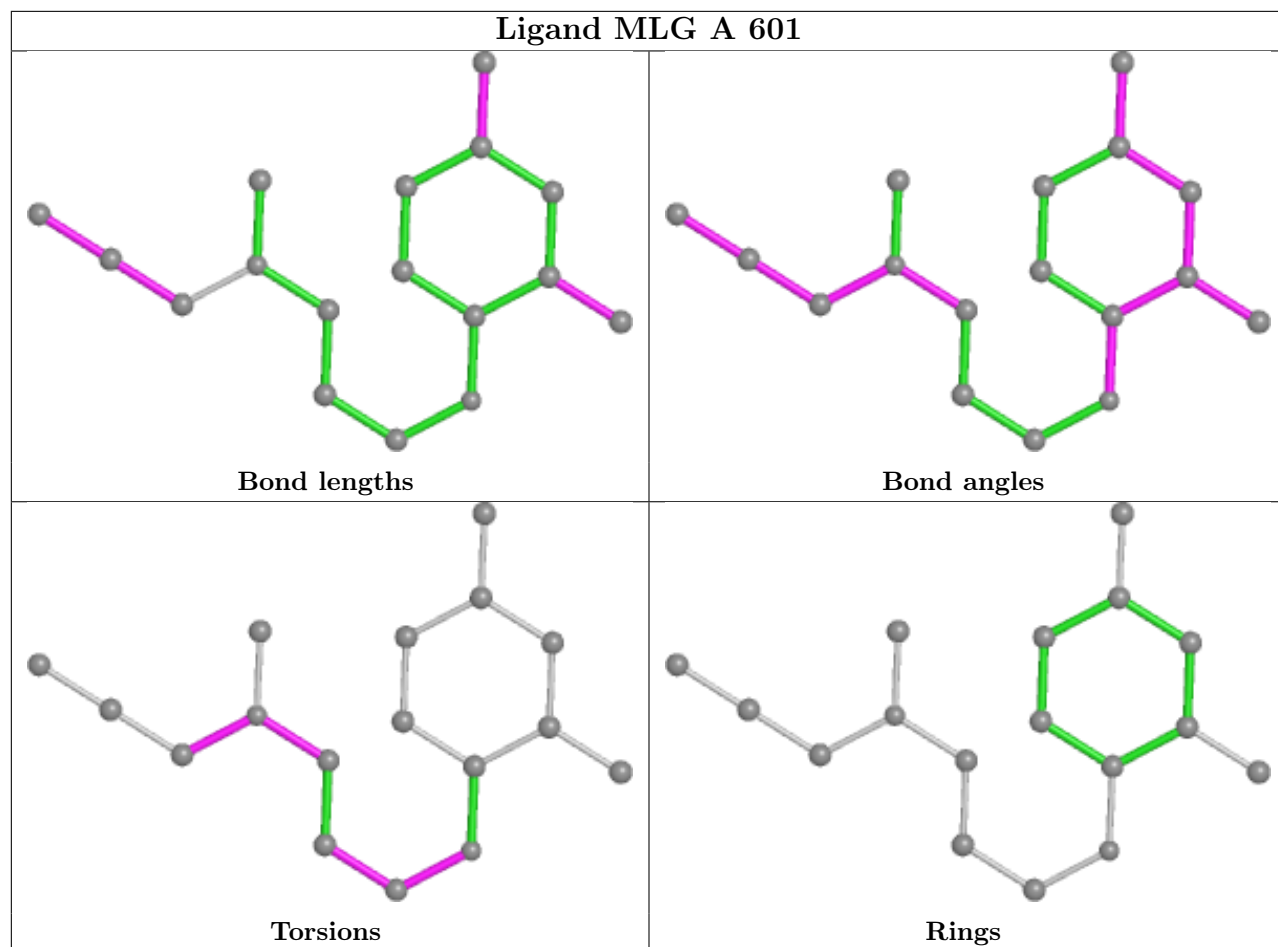
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	600	FAD	2	0
3	B	601	MLG	4	0
3	A	601	MLG	6	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	490/527 (92%)	0.09	17 (3%) 44 27	36, 38, 39, 41	0
1	B	490/527 (92%)	0.27	25 (5%) 28 15	36, 38, 39, 41	0
All	All	980/1054 (92%)	0.18	42 (4%) 35 21	36, 38, 39, 41	0

All (42) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	116	TRP	5.7
1	B	117	ASN	4.9
1	B	16	VAL	3.5
1	B	92	ASN	3.2
1	B	120	ALA	3.1
1	A	13	MET	3.1
1	A	312	GLU	3.1
1	B	383	SER	3.0
1	A	502	LEU	3.0
1	B	312	GLU	2.9
1	A	255	ILE	2.7
1	A	165	CYS	2.7
1	B	14	PHE	2.7
1	A	319	ASP	2.6
1	B	319	ASP	2.6
1	B	253	ASN	2.6
1	B	167	THR	2.6
1	B	308	MET	2.5
1	B	118	PRO	2.5
1	B	170	ALA	2.5
1	B	266	CYS	2.5
1	B	320	TYR	2.5
1	A	110	GLY	2.4
1	A	345	SER	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	165	CYS	2.4
1	A	167	THR	2.4
1	B	502	LEU	2.4
1	B	13	MET	2.3
1	B	124	TYR	2.3
1	B	58	GLU	2.3
1	A	315	TRP	2.3
1	A	505	ILE	2.3
1	B	505	ILE	2.2
1	A	253	ASN	2.2
1	A	498	VAL	2.2
1	A	494	ASN	2.1
1	B	247	VAL	2.1
1	A	499	SER	2.1
1	A	506	GLY	2.0
1	A	296	GLN	2.0
1	B	59	HIS	2.0
1	B	343	ASP	2.0

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

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

6.3 Carbohydrates [i](#)

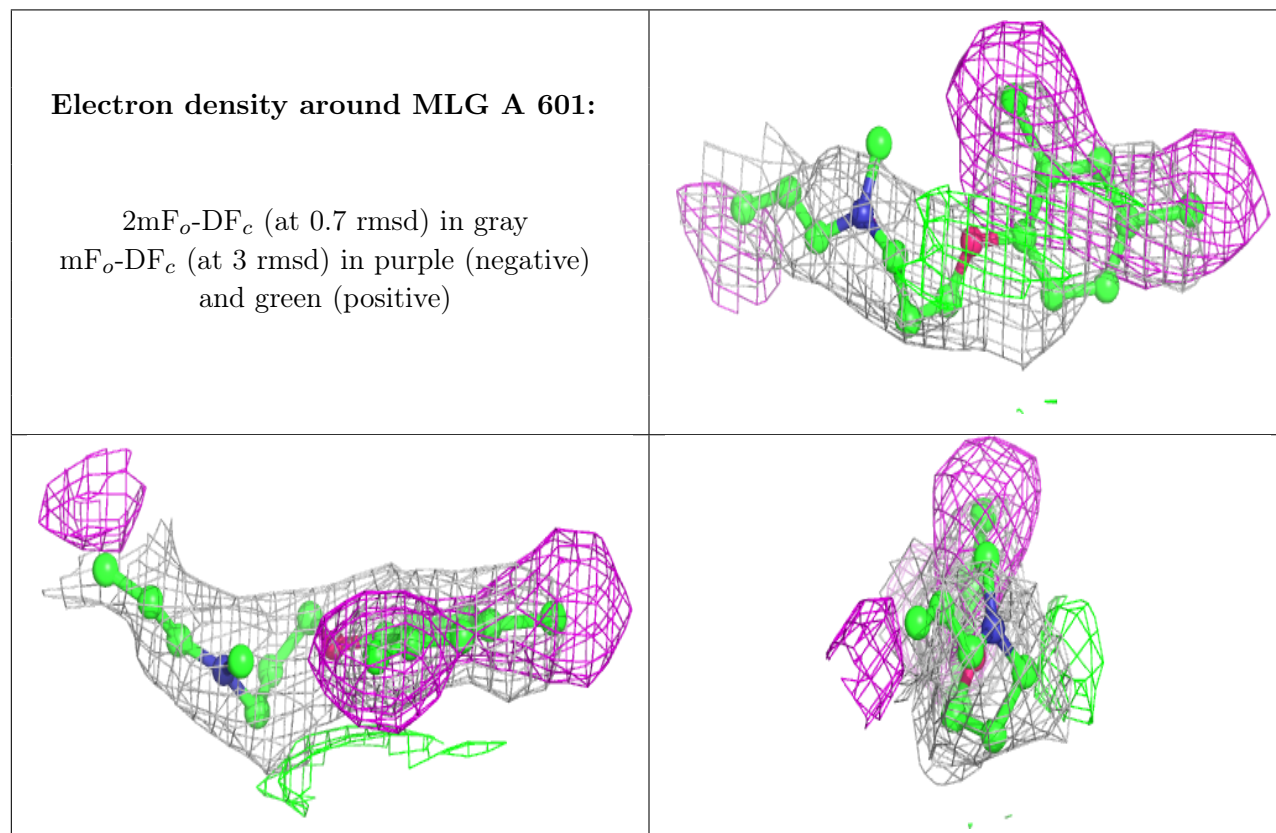
There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

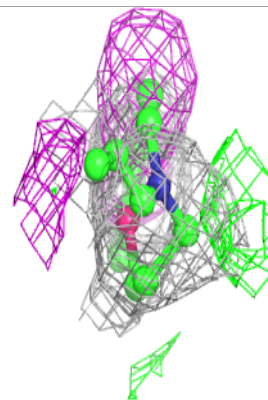
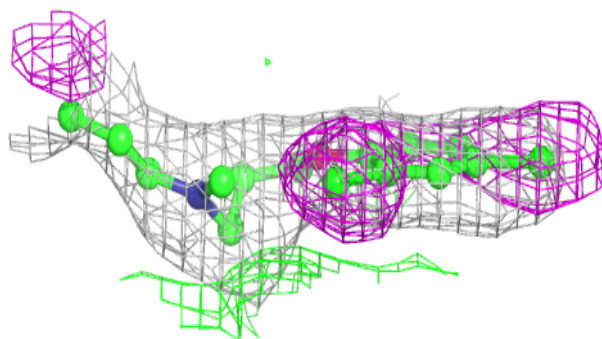
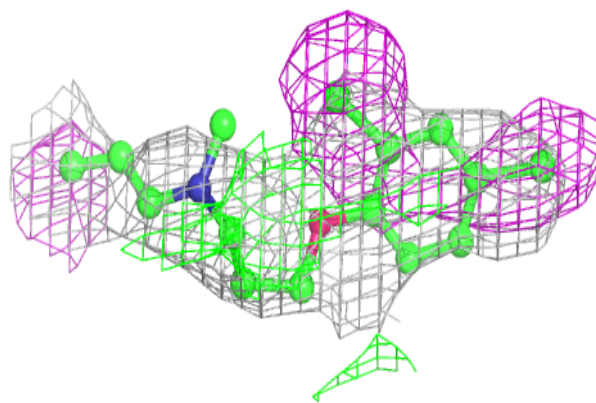
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	MLG	A	601	17/17	0.82	0.36	44,54,62,65	0
3	MLG	B	601	17/17	0.83	0.40	46,56,63,64	0
2	FAD	B	600	53/53	0.96	0.17	25,32,40,43	0
2	FAD	A	600	53/53	0.97	0.14	26,32,37,43	0

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.

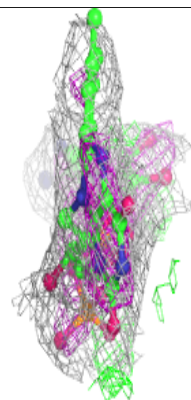
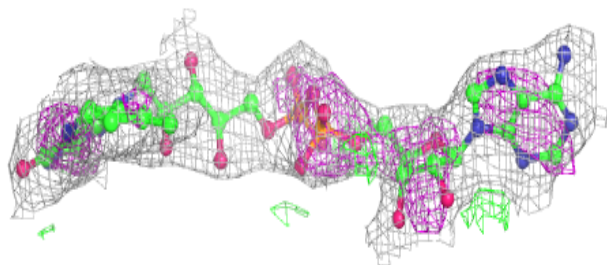
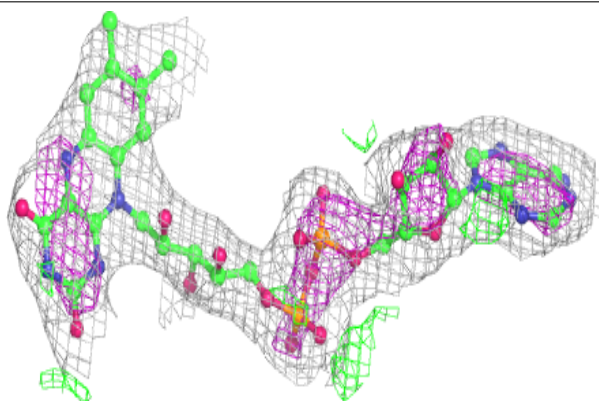


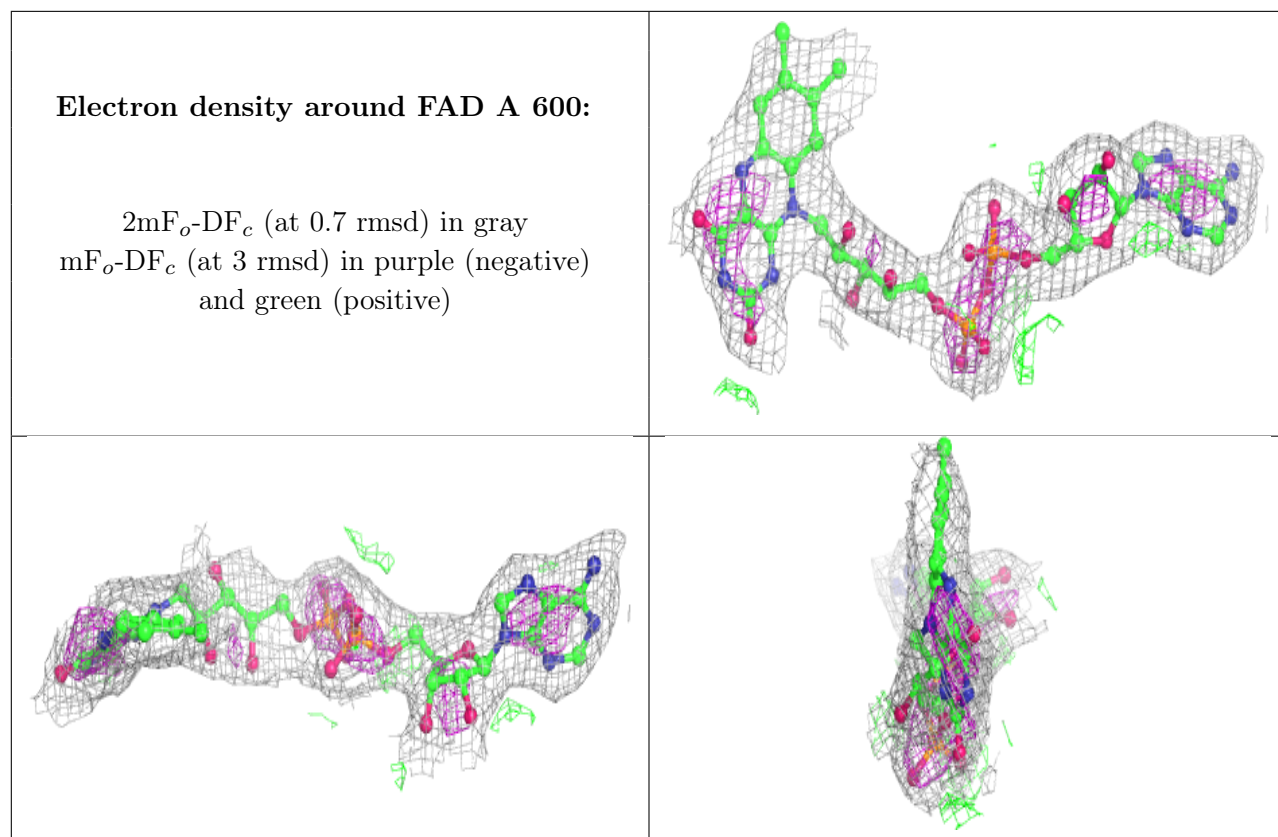
Electron density around MLG B 601:

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

**Electron density around FAD B 600:**

$2mF_o-DF_c$ (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.