



# Full wwPDB EM Validation Report ⓘ

Jun 20, 2024 – 01:21 AM JST

PDB ID : 7VTP  
EMDB ID : EMD-32119  
Title : Cryo-EM structure of PYD-deleted human NLRP3 hexamer  
Authors : Ohto, U.; Shimizu, T.  
Deposited on : 2021-10-30  
Resolution : 3.23 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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>.

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

EMDB validation analysis : 0.0.1.dev92  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.37.1

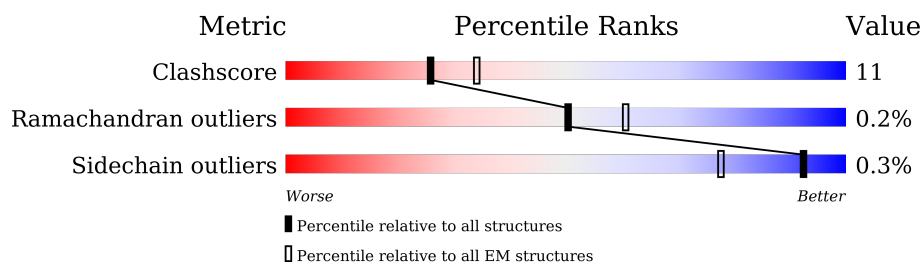
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.23 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)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	931	 5% 63% 22% • 15%
1	B	931	 6% 65% 20% • 15%
1	C	931	 6% 64% 21% • 15%
1	D	931	 5% 63% 21% • 15%
1	E	931	 6% 64% 21% • 15%
1	F	931	 6% 63% 22% • 15%

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 38358 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 NACHT, LRR and PYD domains-containing protein 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0
1	B	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0
1	C	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0
1	D	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0
1	E	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0
1	F	795	Total 6338	C 4051	N 1071	O 1161	S 55	0	0

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	106	HIS	-	expression tag	UNP Q96P20
A	107	HIS	-	expression tag	UNP Q96P20
A	108	HIS	-	expression tag	UNP Q96P20
A	109	HIS	-	expression tag	UNP Q96P20
A	110	HIS	-	expression tag	UNP Q96P20
A	111	HIS	-	expression tag	UNP Q96P20
A	112	ASP	-	expression tag	UNP Q96P20
A	113	TYR	-	expression tag	UNP Q96P20
A	114	LYS	-	expression tag	UNP Q96P20
A	115	ASP	-	expression tag	UNP Q96P20
A	116	ASP	-	expression tag	UNP Q96P20
A	117	ASP	-	expression tag	UNP Q96P20
A	118	ASP	-	expression tag	UNP Q96P20
A	119	LYS	-	expression tag	UNP Q96P20
A	120	LEU	-	expression tag	UNP Q96P20
A	121	GLU	-	expression tag	UNP Q96P20
A	122	VAL	-	expression tag	UNP Q96P20
A	123	LEU	-	expression tag	UNP Q96P20

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Chain	Residue	Modelled	Actual	Comment	Reference
A	124	PHE	-	expression tag	UNP Q96P20
A	125	GLN	-	expression tag	UNP Q96P20
A	126	GLY	-	expression tag	UNP Q96P20
A	127	PRO	-	expression tag	UNP Q96P20
A	128	GLU	-	expression tag	UNP Q96P20
A	129	PHE	-	expression tag	UNP Q96P20
B	106	HIS	-	expression tag	UNP Q96P20
B	107	HIS	-	expression tag	UNP Q96P20
B	108	HIS	-	expression tag	UNP Q96P20
B	109	HIS	-	expression tag	UNP Q96P20
B	110	HIS	-	expression tag	UNP Q96P20
B	111	HIS	-	expression tag	UNP Q96P20
B	112	ASP	-	expression tag	UNP Q96P20
B	113	TYR	-	expression tag	UNP Q96P20
B	114	LYS	-	expression tag	UNP Q96P20
B	115	ASP	-	expression tag	UNP Q96P20
B	116	ASP	-	expression tag	UNP Q96P20
B	117	ASP	-	expression tag	UNP Q96P20
B	118	ASP	-	expression tag	UNP Q96P20
B	119	LYS	-	expression tag	UNP Q96P20
B	120	LEU	-	expression tag	UNP Q96P20
B	121	GLU	-	expression tag	UNP Q96P20
B	122	VAL	-	expression tag	UNP Q96P20
B	123	LEU	-	expression tag	UNP Q96P20
B	124	PHE	-	expression tag	UNP Q96P20
B	125	GLN	-	expression tag	UNP Q96P20
B	126	GLY	-	expression tag	UNP Q96P20
B	127	PRO	-	expression tag	UNP Q96P20
B	128	GLU	-	expression tag	UNP Q96P20
B	129	PHE	-	expression tag	UNP Q96P20
C	106	HIS	-	expression tag	UNP Q96P20
C	107	HIS	-	expression tag	UNP Q96P20
C	108	HIS	-	expression tag	UNP Q96P20
C	109	HIS	-	expression tag	UNP Q96P20
C	110	HIS	-	expression tag	UNP Q96P20
C	111	HIS	-	expression tag	UNP Q96P20
C	112	ASP	-	expression tag	UNP Q96P20
C	113	TYR	-	expression tag	UNP Q96P20
C	114	LYS	-	expression tag	UNP Q96P20
C	115	ASP	-	expression tag	UNP Q96P20
C	116	ASP	-	expression tag	UNP Q96P20
C	117	ASP	-	expression tag	UNP Q96P20

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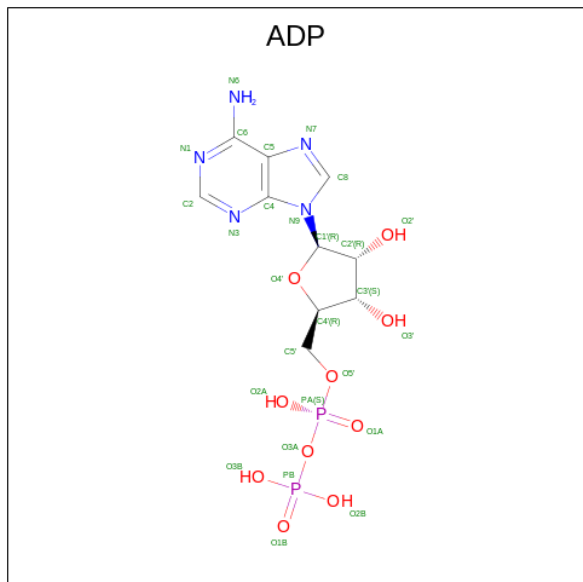
Chain	Residue	Modelled	Actual	Comment	Reference
C	118	ASP	-	expression tag	UNP Q96P20
C	119	LYS	-	expression tag	UNP Q96P20
C	120	LEU	-	expression tag	UNP Q96P20
C	121	GLU	-	expression tag	UNP Q96P20
C	122	VAL	-	expression tag	UNP Q96P20
C	123	LEU	-	expression tag	UNP Q96P20
C	124	PHE	-	expression tag	UNP Q96P20
C	125	GLN	-	expression tag	UNP Q96P20
C	126	GLY	-	expression tag	UNP Q96P20
C	127	PRO	-	expression tag	UNP Q96P20
C	128	GLU	-	expression tag	UNP Q96P20
C	129	PHE	-	expression tag	UNP Q96P20
D	106	HIS	-	expression tag	UNP Q96P20
D	107	HIS	-	expression tag	UNP Q96P20
D	108	HIS	-	expression tag	UNP Q96P20
D	109	HIS	-	expression tag	UNP Q96P20
D	110	HIS	-	expression tag	UNP Q96P20
D	111	HIS	-	expression tag	UNP Q96P20
D	112	ASP	-	expression tag	UNP Q96P20
D	113	TYR	-	expression tag	UNP Q96P20
D	114	LYS	-	expression tag	UNP Q96P20
D	115	ASP	-	expression tag	UNP Q96P20
D	116	ASP	-	expression tag	UNP Q96P20
D	117	ASP	-	expression tag	UNP Q96P20
D	118	ASP	-	expression tag	UNP Q96P20
D	119	LYS	-	expression tag	UNP Q96P20
D	120	LEU	-	expression tag	UNP Q96P20
D	121	GLU	-	expression tag	UNP Q96P20
D	122	VAL	-	expression tag	UNP Q96P20
D	123	LEU	-	expression tag	UNP Q96P20
D	124	PHE	-	expression tag	UNP Q96P20
D	125	GLN	-	expression tag	UNP Q96P20
D	126	GLY	-	expression tag	UNP Q96P20
D	127	PRO	-	expression tag	UNP Q96P20
D	128	GLU	-	expression tag	UNP Q96P20
D	129	PHE	-	expression tag	UNP Q96P20
E	106	HIS	-	expression tag	UNP Q96P20
E	107	HIS	-	expression tag	UNP Q96P20
E	108	HIS	-	expression tag	UNP Q96P20
E	109	HIS	-	expression tag	UNP Q96P20
E	110	HIS	-	expression tag	UNP Q96P20
E	111	HIS	-	expression tag	UNP Q96P20

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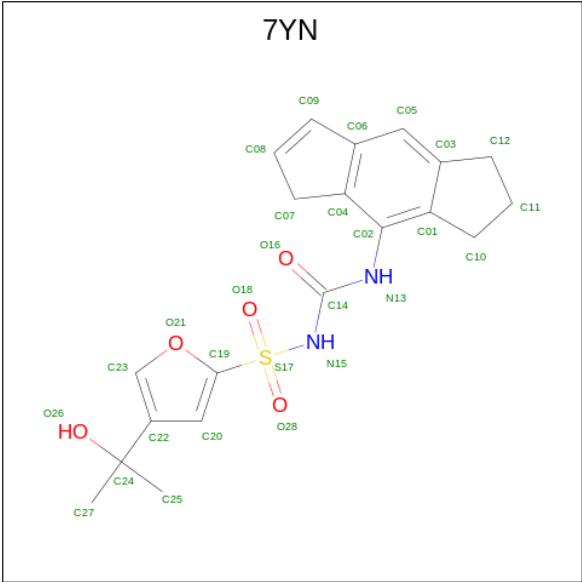
Chain	Residue	Modelled	Actual	Comment	Reference
E	112	ASP	-	expression tag	UNP Q96P20
E	113	TYR	-	expression tag	UNP Q96P20
E	114	LYS	-	expression tag	UNP Q96P20
E	115	ASP	-	expression tag	UNP Q96P20
E	116	ASP	-	expression tag	UNP Q96P20
E	117	ASP	-	expression tag	UNP Q96P20
E	118	ASP	-	expression tag	UNP Q96P20
E	119	LYS	-	expression tag	UNP Q96P20
E	120	LEU	-	expression tag	UNP Q96P20
E	121	GLU	-	expression tag	UNP Q96P20
E	122	VAL	-	expression tag	UNP Q96P20
E	123	LEU	-	expression tag	UNP Q96P20
E	124	PHE	-	expression tag	UNP Q96P20
E	125	GLN	-	expression tag	UNP Q96P20
E	126	GLY	-	expression tag	UNP Q96P20
E	127	PRO	-	expression tag	UNP Q96P20
E	128	GLU	-	expression tag	UNP Q96P20
E	129	PHE	-	expression tag	UNP Q96P20
F	106	HIS	-	expression tag	UNP Q96P20
F	107	HIS	-	expression tag	UNP Q96P20
F	108	HIS	-	expression tag	UNP Q96P20
F	109	HIS	-	expression tag	UNP Q96P20
F	110	HIS	-	expression tag	UNP Q96P20
F	111	HIS	-	expression tag	UNP Q96P20
F	112	ASP	-	expression tag	UNP Q96P20
F	113	TYR	-	expression tag	UNP Q96P20
F	114	LYS	-	expression tag	UNP Q96P20
F	115	ASP	-	expression tag	UNP Q96P20
F	116	ASP	-	expression tag	UNP Q96P20
F	117	ASP	-	expression tag	UNP Q96P20
F	118	ASP	-	expression tag	UNP Q96P20
F	119	LYS	-	expression tag	UNP Q96P20
F	120	LEU	-	expression tag	UNP Q96P20
F	121	GLU	-	expression tag	UNP Q96P20
F	122	VAL	-	expression tag	UNP Q96P20
F	123	LEU	-	expression tag	UNP Q96P20
F	124	PHE	-	expression tag	UNP Q96P20
F	125	GLN	-	expression tag	UNP Q96P20
F	126	GLY	-	expression tag	UNP Q96P20
F	127	PRO	-	expression tag	UNP Q96P20
F	128	GLU	-	expression tag	UNP Q96P20
F	129	PHE	-	expression tag	UNP Q96P20

- Molecule 2 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).



Mol	Chain	Residues	Atoms					AltConf
2	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
2	B	1	Total	C	N	O	P	0
			27	10	5	10	2	
2	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
2	D	1	Total	C	N	O	P	0
			27	10	5	10	2	
2	E	1	Total	C	N	O	P	0
			27	10	5	10	2	
2	F	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 3 is 1-[4-(2-oxidanylpropan-2-yl)furan-2-yl]sulfonyl-3-(1,2,3,5-tetrahydro-s-indacen-4-yl)urea (three-letter code: 7YN) (formula:  $C_{20}H_{22}N_2O_5S$ ) (labeled as "Ligand of Interest" by depositor).



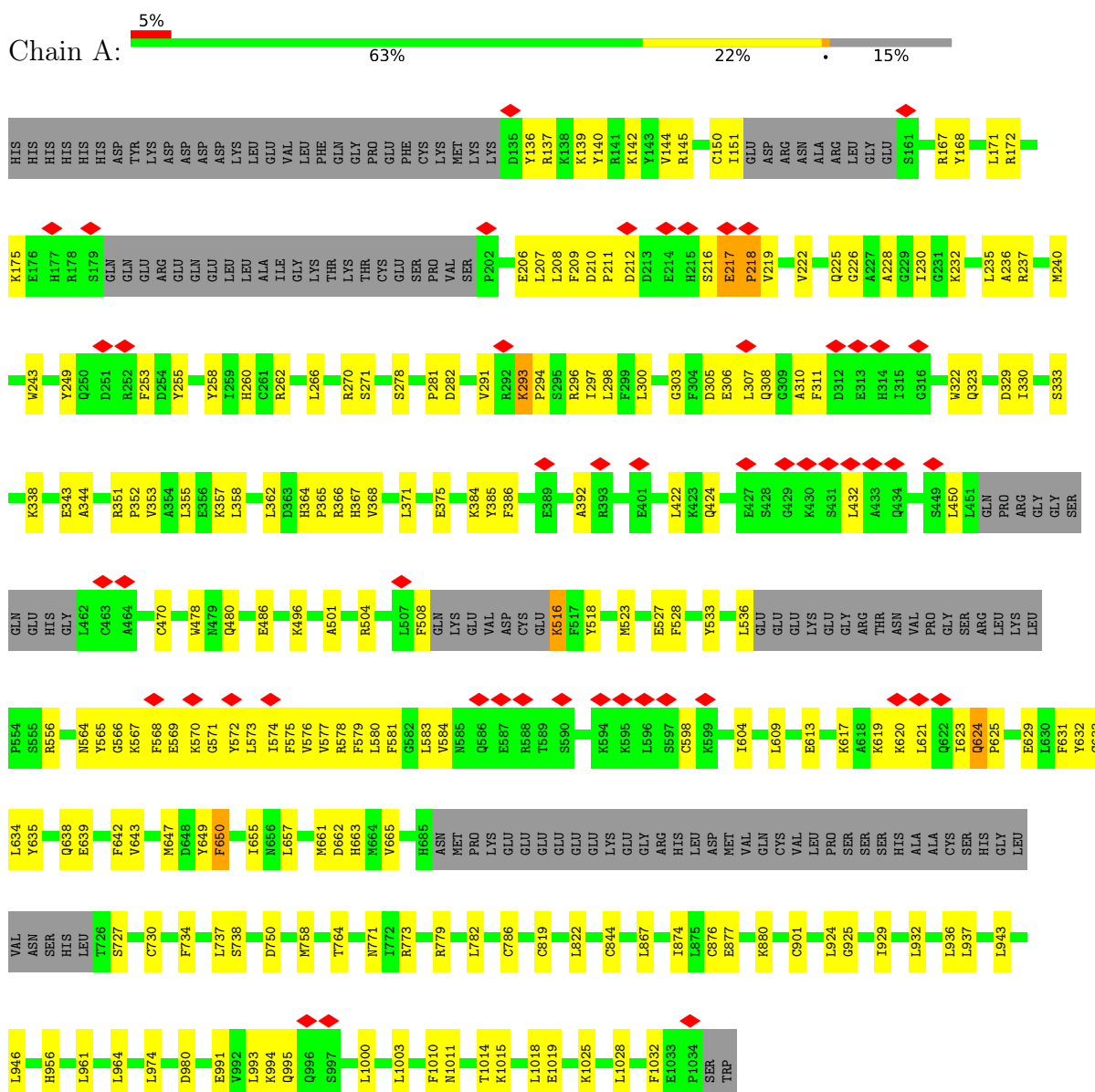
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	S	0
			28	20	2	5	1	
3	B	1	Total	C	N	O	S	0
			28	20	2	5	1	
3	C	1	Total	C	N	O	S	0
			28	20	2	5	1	
3	D	1	Total	C	N	O	S	0
			28	20	2	5	1	
3	E	1	Total	C	N	O	S	0
			28	20	2	5	1	
3	F	1	Total	C	N	O	S	0
			28	20	2	5	1	



### 3 Residue-property plots

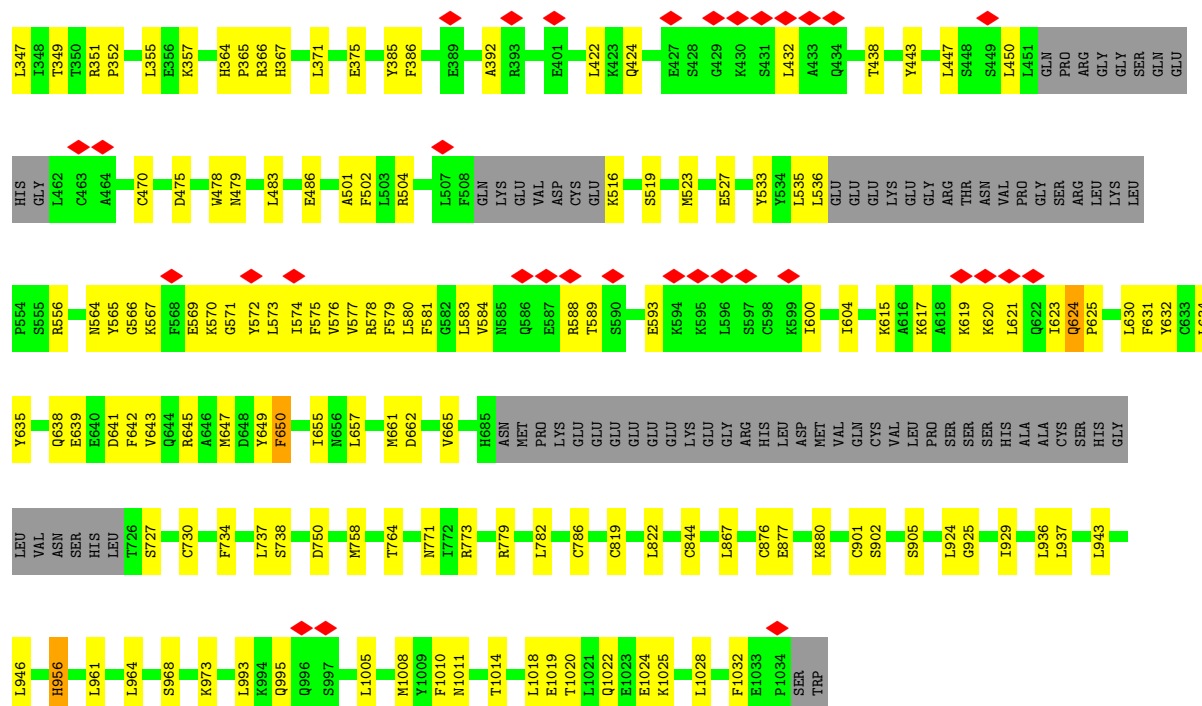
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: NACHT, LRR and PYD domains-containing protein 3



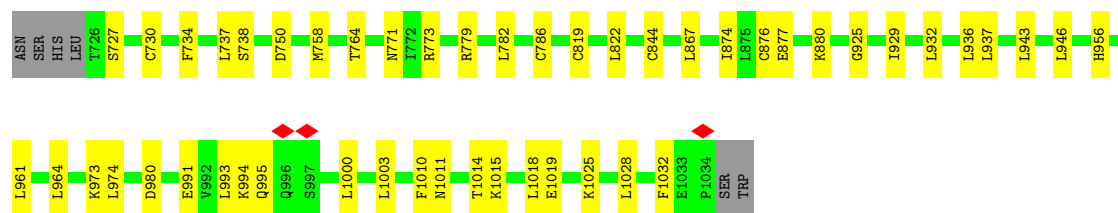
- Molecule 1: NACHT, LRR and PYD domains-containing protein 3



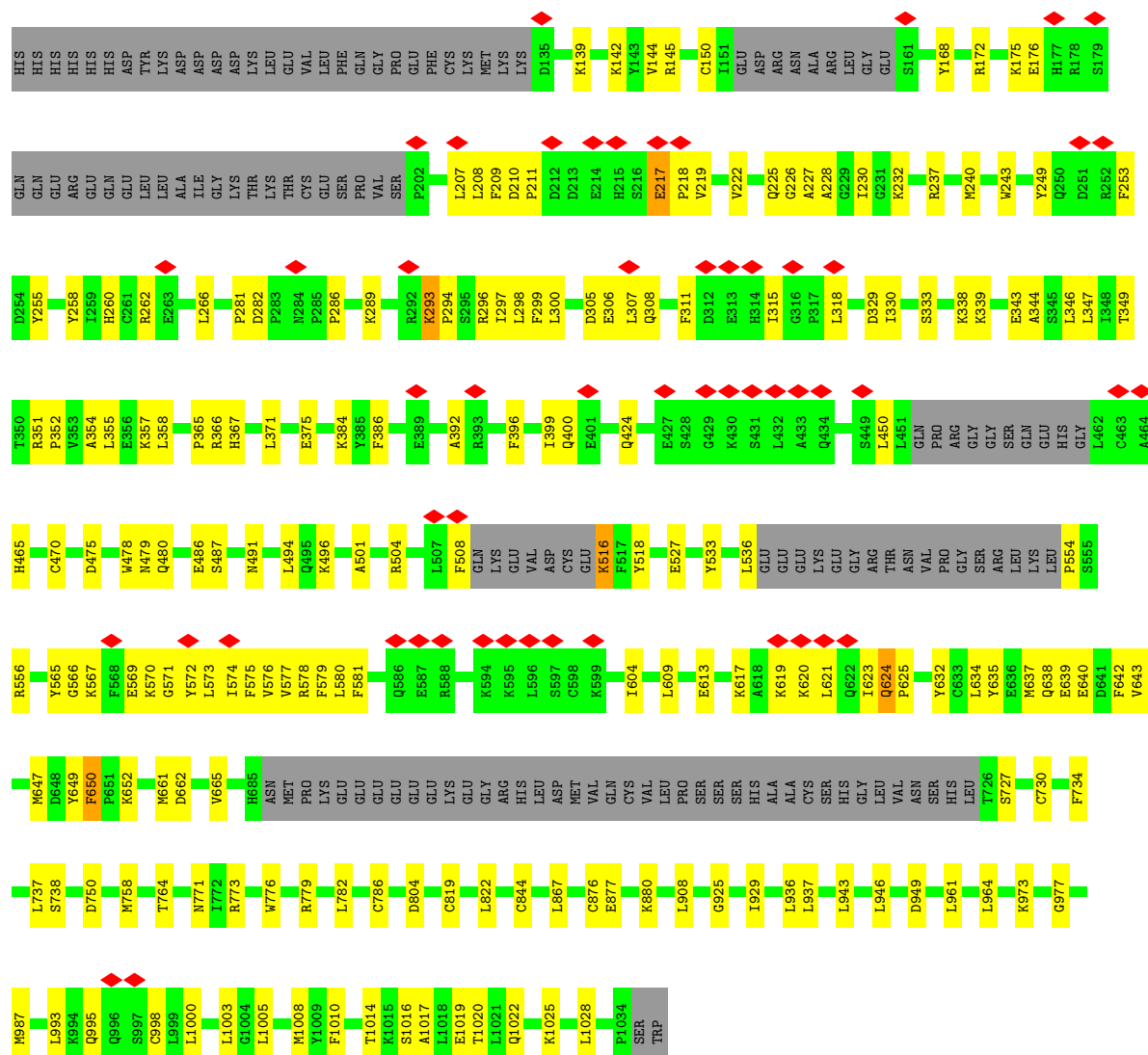


• Molecule 1: NACHT, LRR and PYD domains-containing protein 3

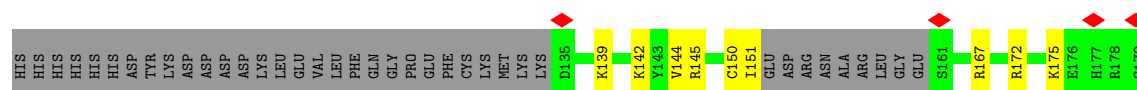


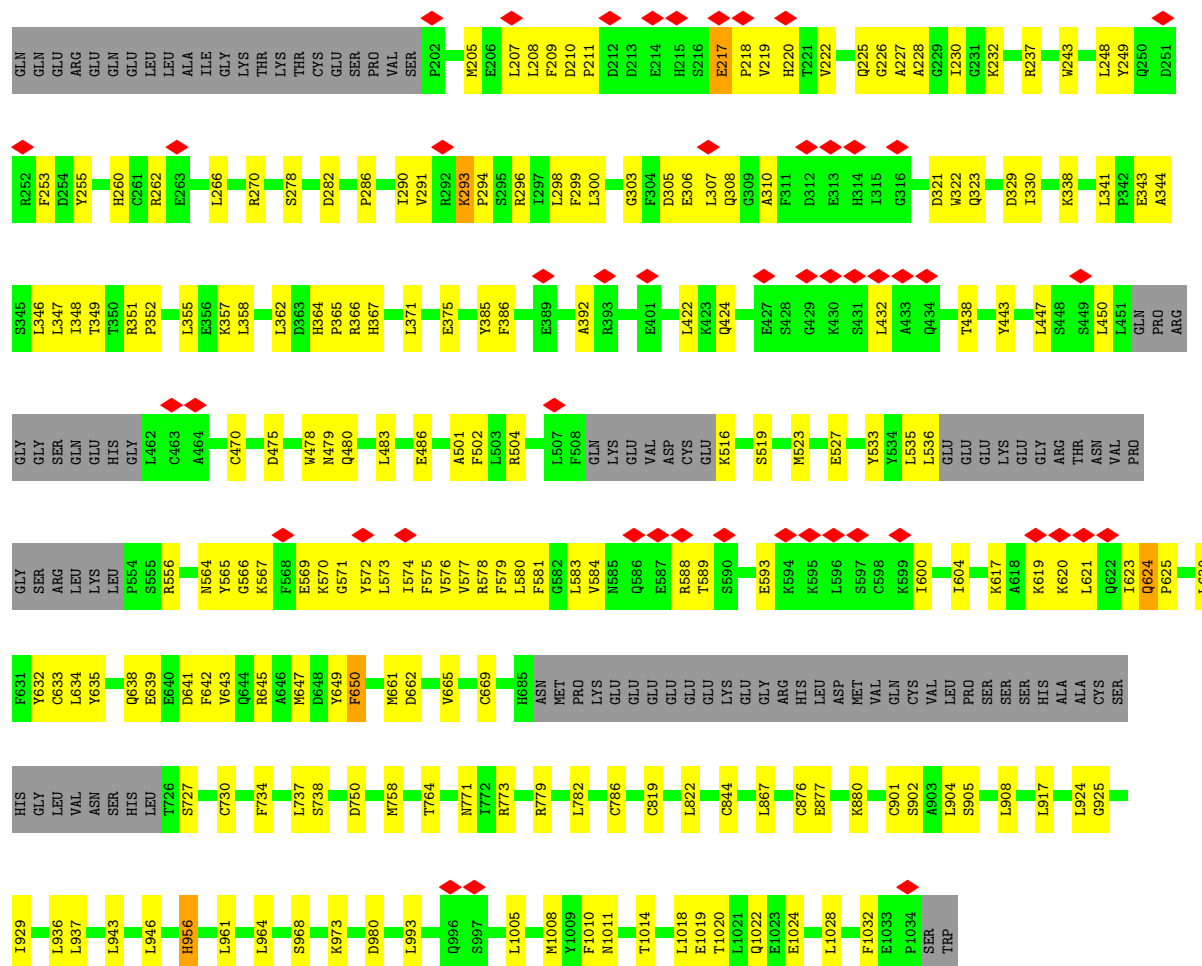


• Molecule 1: NACHT, LRR and PYD domains-containing protein 3



• Molecule 1: NACHT, LRR and PYD domains-containing protein 3





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D3	Depositor
Number of particles used	105139	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	68	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.074	Depositor
Minimum map value	-0.026	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.015	Depositor
Map size ( $\text{\AA}$ )	249.0, 249.0, 249.0	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.245, 1.245, 1.245	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ADP, 7YN

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	0.25	0/6457	0.49	2/8704 (0.0%)
1	B	0.26	0/6457	0.49	2/8704 (0.0%)
1	C	0.25	0/6457	0.48	0/8704
1	D	0.25	0/6457	0.49	2/8704 (0.0%)
1	E	0.25	0/6457	0.48	0/8704
1	F	0.25	0/6457	0.48	0/8704
All	All	0.25	0/38742	0.48	6/52224 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	2
1	C	0	2
1	D	0	1
1	E	0	2
1	F	0	2
All	All	0	10

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	216	SER	C-N-CA	7.57	140.61	121.70
1	D	216	SER	C-N-CA	7.57	140.61	121.70
1	A	217	GLU	C-N-CD	-7.00	105.19	120.60
1	D	217	GLU	C-N-CD	-7.00	105.21	120.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	218	PRO	CA-N-CD	-6.50	102.40	111.50
1	B	218	PRO	N-CD-CG	-6.36	93.66	103.20

There are no chirality outliers.

All (10) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	650	PHE	Peptide
1	B	217	GLU	Peptide
1	B	650	PHE	Peptide
1	C	217	GLU	Peptide
1	C	650	PHE	Peptide
1	D	650	PHE	Peptide
1	E	217	GLU	Peptide
1	E	650	PHE	Peptide
1	F	217	GLU	Peptide
1	F	650	PHE	Peptide

## 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	6338	0	6401	152	0
1	B	6338	0	6401	136	0
1	C	6338	0	6401	140	0
1	D	6338	0	6401	150	0
1	E	6338	0	6401	141	0
1	F	6338	0	6401	146	0
2	A	27	0	12	1	0
2	B	27	0	12	1	0
2	C	27	0	12	1	0
2	D	27	0	12	1	0
2	E	27	0	12	1	0
2	F	27	0	12	1	0
3	A	28	0	0	0	0
3	B	28	0	0	1	0
3	C	28	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	28	0	0	0	0
3	E	28	0	0	1	0
3	F	28	0	0	1	0
All	All	38358	0	38478	865	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 11.

All (865) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:357:LYS:HE3	1:A:567:LYS:HG2	1.52	0.90
1:D:357:LYS:HE3	1:D:567:LYS:HG2	1.52	0.90
1:F:357:LYS:HE3	1:F:567:LYS:HG2	1.56	0.84
1:C:357:LYS:HE3	1:C:567:LYS:HG2	1.66	0.78
1:E:470:CYS:HB3	1:E:533:TYR:HB2	1.67	0.77
1:B:470:CYS:HB3	1:B:533:TYR:HB2	1.69	0.75
1:F:470:CYS:HB3	1:F:533:TYR:HB2	1.68	0.75
1:C:470:CYS:HB3	1:C:533:TYR:HB2	1.68	0.75
1:F:321:ASP:OD1	1:F:323:GLN:NE2	2.19	0.75
1:C:321:ASP:OD1	1:C:323:GLN:NE2	2.19	0.74
1:D:470:CYS:HB3	1:D:533:TYR:HB2	1.68	0.73
1:A:470:CYS:HB3	1:A:533:TYR:HB2	1.68	0.73
1:E:487:SER:O	1:E:491:ASN:ND2	2.22	0.71
1:F:758:MET:HG2	1:F:786:CYS:HB2	1.71	0.71
1:C:569:GLU:O	1:C:573:LEU:N	2.19	0.70
1:F:569:GLU:O	1:F:573:LEU:N	2.20	0.70
1:B:487:SER:O	1:B:491:ASN:ND2	2.23	0.70
1:C:758:MET:HG2	1:C:786:CYS:HB2	1.71	0.70
1:B:475:ASP:OD1	1:B:479:ASN:ND2	2.25	0.70
1:E:176:GLU:OE1	1:E:225:GLN:NE2	2.24	0.70
1:B:396:PHE:HE2	1:B:400:GLN:HE21	1.39	0.69
1:C:338:LYS:NZ	1:C:344:ALA:O	2.25	0.69
1:F:338:LYS:NZ	1:F:344:ALA:O	2.25	0.69
1:A:270:ARG:HH22	1:A:278:SER:HB3	1.58	0.69
1:D:270:ARG:HH22	1:D:278:SER:HB3	1.58	0.69
1:A:533:TYR:O	1:A:556:ARG:NH2	2.25	0.68
1:D:533:TYR:O	1:D:556:ARG:NH2	2.25	0.68
1:E:396:PHE:HE2	1:E:400:GLN:HE21	1.40	0.68
1:A:573:LEU:O	1:A:576:VAL:HB	1.94	0.68
1:E:569:GLU:O	1:E:573:LEU:N	2.22	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:270:ARG:HH22	1:C:278:SER:HB3	1.58	0.68
1:D:573:LEU:O	1:D:576:VAL:HB	1.94	0.68
1:F:351:ARG:O	1:F:355:LEU:N	2.27	0.68
1:E:573:LEU:O	1:E:576:VAL:HB	1.94	0.67
1:F:294:PRO:HB3	1:F:341:LEU:HD11	1.75	0.67
1:B:533:TYR:O	1:B:556:ARG:NH2	2.28	0.67
1:C:294:PRO:HB3	1:C:341:LEU:HD11	1.76	0.67
1:F:270:ARG:HH22	1:F:278:SER:HB3	1.58	0.67
1:E:533:TYR:O	1:E:556:ARG:NH2	2.28	0.67
1:B:569:GLU:O	1:B:573:LEU:N	2.23	0.67
1:B:573:LEU:O	1:B:576:VAL:HB	1.95	0.67
1:C:533:TYR:O	1:C:556:ARG:NH2	2.27	0.67
1:C:619:LYS:HG2	1:C:621:LEU:HD23	1.76	0.67
1:F:533:TYR:O	1:F:556:ARG:NH2	2.27	0.67
1:F:619:LYS:HG2	1:F:621:LEU:HD23	1.76	0.67
1:D:351:ARG:O	1:D:355:LEU:N	2.25	0.67
1:D:228:ALA:HB2	1:D:351:ARG:HH21	1.59	0.66
1:A:228:ALA:HB2	1:A:351:ARG:HH21	1.59	0.66
1:A:351:ARG:O	1:A:355:LEU:N	2.25	0.66
1:A:619:LYS:HG2	1:A:621:LEU:HD23	1.78	0.66
1:D:619:LYS:HG2	1:D:621:LEU:HD23	1.78	0.66
1:B:619:LYS:HG2	1:B:621:LEU:HD23	1.77	0.66
1:E:619:LYS:HG2	1:E:621:LEU:HD23	1.77	0.66
1:F:266:LEU:HD22	1:F:329:ASP:HB3	1.77	0.66
1:A:501:ALA:O	1:A:504:ARG:NH1	2.28	0.66
1:F:632:TYR:OH	1:F:662:ASP:OD1	2.12	0.66
1:D:501:ALA:O	1:D:504:ARG:NH1	2.28	0.66
1:C:351:ARG:O	1:C:355:LEU:N	2.28	0.66
1:C:632:TYR:OH	1:C:662:ASP:OD1	2.11	0.65
1:A:338:LYS:NZ	1:A:344:ALA:O	2.29	0.65
1:C:573:LEU:O	1:C:576:VAL:HB	1.97	0.65
1:B:632:TYR:OH	1:B:662:ASP:OD1	2.13	0.65
1:D:338:LYS:NZ	1:D:344:ALA:O	2.29	0.65
1:D:208:LEU:HD21	1:D:222:VAL:HG11	1.79	0.64
1:A:208:LEU:HD21	1:A:222:VAL:HG11	1.79	0.64
1:B:228:ALA:HB2	1:B:351:ARG:HH21	1.62	0.64
1:A:569:GLU:HG3	1:A:573:LEU:HG	1.79	0.64
1:D:569:GLU:HG3	1:D:573:LEU:HG	1.79	0.64
1:A:634:LEU:HD12	1:A:643:VAL:HG22	1.78	0.64
1:D:634:LEU:HD12	1:D:643:VAL:HG22	1.78	0.64
1:E:208:LEU:O	1:E:366:ARG:NH1	2.29	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:208:LEU:O	1:B:366:ARG:NH1	2.29	0.64
1:C:208:LEU:HD21	1:C:222:VAL:HG11	1.80	0.64
1:C:142:LYS:HD3	1:C:145:ARG:HH21	1.63	0.64
1:F:208:LEU:HD21	1:F:222:VAL:HG11	1.81	0.64
1:F:208:LEU:O	1:F:366:ARG:NH1	2.29	0.63
1:F:573:LEU:O	1:F:576:VAL:HB	1.98	0.63
1:F:569:GLU:HG3	1:F:573:LEU:HG	1.81	0.63
1:C:208:LEU:O	1:C:366:ARG:NH1	2.29	0.63
1:B:208:LEU:HD21	1:B:222:VAL:HG11	1.80	0.63
1:D:639:GLU:HG2	1:D:642:PHE:H	1.63	0.63
1:C:218:PRO:HB3	1:C:220:HIS:CE1	2.34	0.63
1:E:228:ALA:HB2	1:E:351:ARG:HH21	1.64	0.63
1:A:639:GLU:HG2	1:A:642:PHE:H	1.63	0.63
1:F:218:PRO:HB3	1:F:220:HIS:CE1	2.34	0.63
1:A:580:LEU:HD21	1:A:604:ILE:HD11	1.80	0.62
1:C:228:ALA:HB2	1:C:351:ARG:HH21	1.64	0.62
1:D:580:LEU:HD21	1:D:604:ILE:HD11	1.80	0.62
1:E:338:LYS:NZ	1:E:344:ALA:O	2.31	0.62
1:E:632:TYR:OH	1:E:662:ASP:OD1	2.14	0.62
1:B:338:LYS:NZ	1:B:344:ALA:O	2.31	0.62
1:E:569:GLU:HG3	1:E:573:LEU:HG	1.82	0.62
1:C:569:GLU:HG3	1:C:573:LEU:HG	1.82	0.61
1:D:877:GLU:HA	1:D:880:LYS:HE2	1.82	0.61
1:A:877:GLU:HA	1:A:880:LYS:HE2	1.82	0.61
1:F:1019:GLU:HA	1:F:1022:GLN:HG2	1.83	0.61
1:C:1019:GLU:HA	1:C:1022:GLN:HG2	1.83	0.61
1:C:266:LEU:HD22	1:C:329:ASP:HB3	1.83	0.61
1:B:569:GLU:HG3	1:B:573:LEU:HG	1.83	0.61
1:F:877:GLU:HA	1:F:880:LYS:HE2	1.81	0.61
1:C:634:LEU:HD12	1:C:643:VAL:HG22	1.82	0.60
1:F:228:ALA:HB2	1:F:351:ARG:HH21	1.65	0.60
1:C:424:GLN:HE22	1:C:450:LEU:HD21	1.65	0.60
1:C:501:ALA:O	1:C:504:ARG:NH1	2.35	0.60
1:E:139:LYS:NZ	1:E:282:ASP:OD1	2.31	0.60
1:F:424:GLN:HE22	1:F:450:LEU:HD21	1.65	0.60
1:F:501:ALA:O	1:F:504:ARG:NH1	2.35	0.60
1:B:142:LYS:HD3	1:B:145:ARG:HH21	1.66	0.60
1:E:300:LEU:HD23	1:E:347:LEU:HB3	1.83	0.60
1:B:139:LYS:NZ	1:B:282:ASP:OD1	2.31	0.59
1:B:640:GLU:O	1:B:644:GLN:HG2	2.02	0.59
1:E:142:LYS:HD3	1:E:145:ARG:HH21	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:991:GLU:HA	1:A:994:LYS:HE3	1.83	0.59
1:F:634:LEU:HD12	1:F:643:VAL:HG22	1.83	0.59
1:E:640:GLU:O	1:E:644:GLN:HG2	2.02	0.59
1:B:300:LEU:HD23	1:B:347:LEU:HB3	1.84	0.59
1:B:580:LEU:HD21	1:B:604:ILE:HD11	1.83	0.59
1:E:208:LEU:HD21	1:E:222:VAL:HG11	1.84	0.59
1:E:580:LEU:HD21	1:E:604:ILE:HD11	1.83	0.59
1:D:991:GLU:HA	1:D:994:LYS:HE3	1.84	0.59
1:A:496:LYS:NZ	1:A:518:TYR:OH	2.36	0.58
1:B:308:GLN:NE2	1:B:566:GLY:O	2.35	0.58
1:C:308:GLN:NE2	1:C:566:GLY:O	2.36	0.58
1:D:496:LYS:NZ	1:D:518:TYR:OH	2.36	0.58
1:C:535:LEU:HD22	1:C:600:ILE:HG23	1.84	0.58
1:E:311:PHE:HE1	1:E:333:SER:HB2	1.66	0.58
1:B:634:LEU:HD12	1:B:643:VAL:HG22	1.84	0.58
1:F:535:LEU:HD22	1:F:600:ILE:HG23	1.84	0.58
1:B:311:PHE:HE1	1:B:333:SER:HB2	1.67	0.58
1:A:727:SER:HA	1:A:730:CYS:HB2	1.86	0.58
1:C:293:LYS:HD2	1:C:293:LYS:O	2.03	0.58
1:D:727:SER:HA	1:D:730:CYS:HB2	1.86	0.58
1:F:299:PHE:HB2	1:F:346:LEU:HD23	1.86	0.58
1:D:206:GLU:O	1:D:249:TYR:OH	2.22	0.58
1:A:995:GLN:O	1:A:1025:LYS:NZ	2.36	0.58
1:D:995:GLN:O	1:D:1025:LYS:NZ	2.36	0.58
1:F:293:LYS:HD2	1:F:293:LYS:O	2.03	0.58
1:C:641:ASP:OD2	1:C:645:ARG:NH1	2.37	0.57
1:F:641:ASP:OD2	1:F:645:ARG:NH1	2.37	0.57
1:B:424:GLN:HE22	1:B:450:LEU:HD21	1.67	0.57
1:C:299:PHE:HB2	1:C:346:LEU:HD23	1.86	0.57
1:A:206:GLU:O	1:A:249:TYR:OH	2.22	0.57
1:C:580:LEU:HD21	1:C:604:ILE:HD11	1.86	0.57
1:F:580:LEU:HD21	1:F:604:ILE:HD11	1.85	0.57
1:A:144:VAL:HG21	1:A:243:TRP:HZ3	1.68	0.57
1:A:569:GLU:O	1:A:573:LEU:N	2.23	0.57
1:D:253:PHE:HE2	1:D:298:LEU:HB2	1.68	0.57
1:E:424:GLN:HE22	1:E:450:LEU:HD21	1.67	0.57
1:A:293:LYS:HD2	1:A:293:LYS:O	2.04	0.57
1:A:565:TYR:HB3	1:A:570:LYS:HB3	1.87	0.57
1:D:293:LYS:HD2	1:D:293:LYS:O	2.04	0.57
1:D:565:TYR:HB3	1:D:570:LYS:HB3	1.87	0.57
1:D:1010:PHE:HB3	1:D:1014:THR:OG1	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1010:PHE:HB3	1:A:1014:THR:OG1	2.04	0.57
1:D:424:GLN:HE22	1:D:450:LEU:HD21	1.70	0.57
1:A:311:PHE:HE1	1:A:333:SER:HB2	1.69	0.57
1:A:424:GLN:HE22	1:A:450:LEU:HD21	1.70	0.57
1:D:311:PHE:HE1	1:D:333:SER:HB2	1.69	0.57
1:F:205:MET:O	1:F:249:TYR:OH	2.22	0.57
1:F:1005:LEU:HD22	1:F:1008:MET:HE1	1.85	0.57
1:C:205:MET:O	1:C:249:TYR:OH	2.22	0.57
1:D:569:GLU:O	1:D:573:LEU:N	2.23	0.57
1:A:139:LYS:NZ	1:A:282:ASP:OD1	2.36	0.57
1:A:253:PHE:HE2	1:A:298:LEU:HB2	1.68	0.57
1:B:750:ASP:OD1	1:B:779:ARG:NH1	2.37	0.57
1:C:1005:LEU:HD22	1:C:1008:MET:HE1	1.86	0.56
1:D:225:GLN:HE22	1:D:367:HIS:HB3	1.70	0.56
1:A:225:GLN:HE22	1:A:367:HIS:HB3	1.70	0.56
1:B:877:GLU:HA	1:B:880:LYS:HE2	1.85	0.56
1:D:144:VAL:HG21	1:D:243:TRP:HZ3	1.69	0.56
1:E:877:GLU:HA	1:E:880:LYS:HE2	1.85	0.56
1:F:253:PHE:HE2	1:F:298:LEU:HB2	1.71	0.56
1:F:750:ASP:OD1	1:F:779:ARG:NH1	2.37	0.56
1:C:750:ASP:OD1	1:C:779:ARG:NH1	2.38	0.56
1:D:172:ARG:HH21	1:D:371:LEU:HB3	1.70	0.56
1:D:240:MET:HE3	1:D:258:TYR:HB2	1.86	0.56
1:A:172:ARG:HH21	1:A:371:LEU:HB3	1.70	0.56
1:B:172:ARG:HH21	1:B:371:LEU:HB3	1.70	0.56
1:C:253:PHE:HE2	1:C:298:LEU:HB2	1.71	0.56
1:D:139:LYS:NZ	1:D:282:ASP:OD1	2.36	0.56
1:F:386:PHE:HB2	1:F:392:ALA:HB2	1.87	0.56
1:C:386:PHE:HB2	1:C:392:ALA:HB2	1.87	0.56
1:B:727:SER:HA	1:B:730:CYS:HB2	1.88	0.56
1:B:1010:PHE:HB3	1:B:1014:THR:OG1	2.06	0.56
1:C:447:LEU:HD13	1:C:502:PHE:CZ	2.40	0.56
1:D:308:GLN:NE2	1:D:566:GLY:O	2.39	0.56
1:E:293:LYS:HD3	1:E:296:ARG:HB2	1.88	0.56
1:E:750:ASP:OD1	1:E:779:ARG:NH1	2.38	0.56
1:F:639:GLU:HG2	1:F:642:PHE:H	1.70	0.56
1:A:240:MET:HE3	1:A:258:TYR:HB2	1.86	0.56
1:E:1010:PHE:HB3	1:E:1014:THR:OG1	2.06	0.56
1:A:308:GLN:NE2	1:A:566:GLY:O	2.39	0.56
1:B:293:LYS:HD2	1:B:293:LYS:O	2.04	0.56
1:B:293:LYS:HD3	1:B:296:ARG:HB2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:260:HIS:HD2	1:D:262:ARG:HB2	1.71	0.56
1:F:447:LEU:HD13	1:F:502:PHE:CZ	2.40	0.56
1:D:142:LYS:HD3	1:D:145:ARG:HH21	1.71	0.55
1:D:624:GLN:NE2	1:D:625:PRO:O	2.39	0.55
1:E:293:LYS:HD2	1:E:293:LYS:O	2.04	0.55
1:F:150:CYS:O	1:F:237:ARG:NH2	2.37	0.55
1:A:175:LYS:HE2	1:A:366:ARG:HG3	1.88	0.55
1:A:260:HIS:HD2	1:A:262:ARG:HB2	1.71	0.55
1:A:624:GLN:NE2	1:A:625:PRO:O	2.39	0.55
1:C:150:CYS:O	1:C:237:ARG:NH2	2.37	0.55
1:D:175:LYS:HE2	1:D:366:ARG:HG3	1.88	0.55
1:A:232:LYS:NZ	2:A:1501:ADP:O3B	2.39	0.55
1:C:639:GLU:HG2	1:C:642:PHE:H	1.71	0.55
1:D:232:LYS:NZ	2:D:1501:ADP:O1B	2.39	0.55
1:E:357:LYS:HE3	1:E:567:LYS:HG2	1.88	0.55
1:A:386:PHE:HB2	1:A:392:ALA:HB2	1.88	0.55
1:B:351:ARG:O	1:B:355:LEU:N	2.39	0.55
1:A:750:ASP:OD1	1:A:779:ARG:NH1	2.39	0.55
1:B:357:LYS:HE3	1:B:567:LYS:HG2	1.87	0.55
1:B:565:TYR:HB3	1:B:570:LYS:HB3	1.86	0.55
1:D:386:PHE:HB2	1:D:392:ALA:HB2	1.88	0.55
1:F:209:PHE:HB2	1:F:249:TYR:OH	2.07	0.55
1:B:993:LEU:HD22	1:B:1028:LEU:HD11	1.89	0.55
1:C:209:PHE:HB2	1:C:249:TYR:OH	2.07	0.55
1:E:634:LEU:HD12	1:E:643:VAL:HG22	1.87	0.55
1:E:727:SER:HA	1:E:730:CYS:HB2	1.89	0.55
1:D:750:ASP:OD1	1:D:779:ARG:NH1	2.39	0.55
1:E:1019:GLU:HA	1:E:1022:GLN:HG2	1.89	0.55
1:B:308:GLN:HA	1:B:567:LYS:HD3	1.87	0.55
1:E:172:ARG:HH21	1:E:371:LEU:HB3	1.71	0.55
1:E:260:HIS:HD2	1:E:262:ARG:HB2	1.72	0.55
1:E:315:ILE:HD12	1:E:315:ILE:H	1.72	0.55
1:B:734:PHE:HD1	1:B:737:LEU:HD12	1.71	0.55
1:F:577:VAL:O	1:F:581:PHE:N	2.34	0.55
1:B:624:GLN:NE2	1:B:625:PRO:O	2.41	0.54
1:B:1019:GLU:HA	1:B:1022:GLN:HG2	1.89	0.54
1:E:734:PHE:HD1	1:E:737:LEU:HD12	1.71	0.54
1:E:993:LEU:HD22	1:E:1028:LEU:HD11	1.89	0.54
1:F:139:LYS:NZ	1:F:282:ASP:OD1	2.38	0.54
1:B:315:ILE:HD12	1:B:315:ILE:H	1.72	0.54
1:D:308:GLN:NE2	1:D:569:GLU:HB3	2.22	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:308:GLN:NE2	1:A:569:GLU:HB3	2.22	0.54
1:A:734:PHE:HD1	1:A:737:LEU:HD12	1.71	0.54
1:C:308:GLN:NE2	1:C:569:GLU:HB3	2.22	0.54
1:C:734:PHE:HD1	1:C:737:LEU:HD12	1.72	0.54
1:E:306:GLU:HG3	1:E:307:LEU:HG	1.90	0.54
1:F:565:TYR:HB3	1:F:570:LYS:HB3	1.90	0.54
1:D:734:PHE:HD1	1:D:737:LEU:HD12	1.71	0.54
1:F:734:PHE:HD1	1:F:737:LEU:HD12	1.72	0.54
1:F:308:GLN:HE21	1:F:569:GLU:HB3	1.73	0.54
1:A:142:LYS:HD3	1:A:145:ARG:HH21	1.73	0.54
1:E:308:GLN:NE2	1:E:566:GLY:O	2.40	0.54
1:B:150:CYS:O	1:B:237:ARG:NH2	2.37	0.54
1:C:574:ILE:HA	1:C:577:VAL:HG22	1.90	0.54
1:E:150:CYS:O	1:E:237:ARG:NH2	2.37	0.54
1:F:574:ILE:HA	1:F:577:VAL:HG22	1.90	0.54
1:C:993:LEU:HD22	1:C:1028:LEU:HD11	1.90	0.54
1:F:961:LEU:O	1:F:964:LEU:HB3	2.07	0.54
1:C:139:LYS:NZ	1:C:282:ASP:OD1	2.38	0.54
1:C:308:GLN:HE21	1:C:569:GLU:HB3	1.72	0.54
1:B:527:GLU:OE2	1:B:576:VAL:HA	2.08	0.54
1:C:961:LEU:O	1:C:964:LEU:HB3	2.07	0.54
1:D:657:LEU:HD23	1:D:663:HIS:CD2	2.43	0.54
1:F:993:LEU:HD22	1:F:1028:LEU:HD11	1.91	0.54
1:A:657:LEU:HD23	1:A:663:HIS:CD2	2.43	0.53
1:B:209:PHE:HB2	1:B:249:TYR:OH	2.08	0.53
1:E:266:LEU:HD22	1:E:329:ASP:HB3	1.90	0.53
1:E:565:TYR:HB3	1:E:570:LYS:HB3	1.89	0.53
1:A:632:TYR:OH	1:A:662:ASP:OD1	2.16	0.53
1:E:496:LYS:NZ	1:E:518:TYR:OH	2.42	0.53
1:F:308:GLN:NE2	1:F:566:GLY:O	2.41	0.53
1:D:255:TYR:HD1	1:D:293:LYS:HZ3	1.57	0.53
1:E:209:PHE:HB2	1:E:249:TYR:OH	2.08	0.53
1:E:305:ASP:OD1	1:E:351:ARG:HD2	2.09	0.53
1:F:172:ARG:HB2	1:F:371:LEU:HB2	1.89	0.53
1:F:308:GLN:NE2	1:F:569:GLU:HB3	2.23	0.53
1:A:255:TYR:HD1	1:A:293:LYS:HZ3	1.57	0.53
1:B:623:ILE:O	1:B:624:GLN:HG3	2.09	0.53
1:E:527:GLU:OE2	1:E:576:VAL:HA	2.08	0.53
1:B:260:HIS:HD2	1:B:262:ARG:HB2	1.74	0.53
1:D:632:TYR:OH	1:D:662:ASP:OD1	2.16	0.53
1:B:175:LYS:HE2	1:B:366:ARG:HG3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:352:PRO:O	1:C:355:LEU:HB3	2.09	0.53
1:C:571:GLY:O	1:C:575:PHE:N	2.31	0.53
1:E:623:ILE:O	1:E:624:GLN:HG3	2.08	0.53
1:C:172:ARG:HB2	1:C:371:LEU:HB2	1.89	0.53
1:E:501:ALA:O	1:E:504:ARG:NH1	2.41	0.53
1:A:623:ILE:O	1:A:624:GLN:HG3	2.09	0.53
1:A:308:GLN:HE21	1:A:569:GLU:HB3	1.74	0.53
1:B:306:GLU:HG3	1:B:307:LEU:HG	1.91	0.53
1:D:308:GLN:HE21	1:D:569:GLU:HB3	1.74	0.53
1:D:623:ILE:O	1:D:624:GLN:HG3	2.09	0.53
1:E:624:GLN:NE2	1:E:625:PRO:O	2.42	0.53
1:F:623:ILE:O	1:F:624:GLN:HG3	2.09	0.53
1:F:727:SER:HA	1:F:730:CYS:HB2	1.90	0.53
1:C:623:ILE:O	1:C:624:GLN:HG3	2.09	0.52
1:C:727:SER:HA	1:C:730:CYS:HB2	1.90	0.52
1:F:232:LYS:NZ	2:F:1501:ADP:O3B	2.41	0.52
1:F:617:LYS:HD3	1:F:649:TYR:HB3	1.91	0.52
1:A:574:ILE:HA	1:A:577:VAL:HG22	1.91	0.52
1:B:308:GLN:NE2	1:B:569:GLU:HB3	2.23	0.52
1:C:232:LYS:NZ	2:C:1501:ADP:O3B	2.41	0.52
1:C:306:GLU:HG2	1:C:307:LEU:HG	1.91	0.52
1:D:209:PHE:HB2	1:D:249:TYR:OH	2.09	0.52
1:D:574:ILE:HA	1:D:577:VAL:HG22	1.91	0.52
1:E:386:PHE:HB2	1:E:392:ALA:HB2	1.92	0.52
1:D:647:MET:HA	1:D:650:PHE:HD2	1.74	0.52
1:E:486:GLU:H	1:E:516:LYS:NZ	2.07	0.52
1:B:217:GLU:HB3	1:B:218:PRO:HD3	1.91	0.52
1:A:647:MET:HA	1:A:650:PHE:HD2	1.74	0.52
1:B:629:GLU:CD	1:B:629:GLU:H	2.13	0.52
1:E:232:LYS:NZ	2:E:1501:ADP:O1B	2.42	0.52
1:E:299:PHE:HB2	1:E:346:LEU:HD23	1.91	0.52
1:B:308:GLN:HE21	1:B:569:GLU:HB3	1.74	0.52
1:F:172:ARG:HH21	1:F:371:LEU:HB3	1.75	0.52
1:B:486:GLU:H	1:B:516:LYS:NZ	2.08	0.52
1:A:209:PHE:HB2	1:A:249:TYR:OH	2.10	0.52
1:C:172:ARG:HH21	1:C:371:LEU:HB3	1.75	0.52
1:F:352:PRO:O	1:F:355:LEU:HB3	2.10	0.52
1:B:572:TYR:O	1:B:576:VAL:N	2.37	0.52
1:A:208:LEU:O	1:A:366:ARG:NH1	2.41	0.51
1:B:352:PRO:O	1:B:355:LEU:HB3	2.10	0.51
1:B:577:VAL:O	1:B:581:PHE:N	2.34	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:208:LEU:O	1:D:366:ARG:NH1	2.41	0.51
1:A:207:LEU:HA	1:A:210:ASP:HB2	1.92	0.51
1:C:617:LYS:HD3	1:C:649:TYR:HB3	1.91	0.51
1:E:571:GLY:O	1:E:575:PHE:N	2.31	0.51
1:B:232:LYS:NZ	2:B:1501:ADP:O3B	2.43	0.51
1:B:299:PHE:HB2	1:B:346:LEU:HD23	1.92	0.51
1:B:571:GLY:O	1:B:575:PHE:N	2.31	0.51
1:D:207:LEU:HA	1:D:210:ASP:HB2	1.92	0.51
1:B:496:LYS:NZ	1:B:518:TYR:OH	2.44	0.51
1:C:565:TYR:HB3	1:C:570:LYS:HB3	1.93	0.51
1:C:655:ILE:HD12	1:C:657:LEU:HD11	1.93	0.51
1:E:308:GLN:NE2	1:E:569:GLU:HB3	2.25	0.51
1:D:323:GLN:OE1	1:D:323:GLN:N	2.44	0.51
1:A:323:GLN:N	1:A:323:GLN:OE1	2.44	0.51
1:E:572:TYR:O	1:E:576:VAL:N	2.38	0.51
1:A:486:GLU:H	1:A:516:LYS:NZ	2.09	0.51
1:D:352:PRO:O	1:D:355:LEU:HB3	2.11	0.51
1:A:352:PRO:O	1:A:355:LEU:HB3	2.11	0.51
1:D:486:GLU:H	1:D:516:LYS:NZ	2.09	0.51
1:F:253:PHE:CE2	1:F:298:LEU:HB2	2.45	0.51
1:E:647:MET:HG2	1:E:650:PHE:CD2	2.46	0.50
1:A:937:LEU:HD21	1:A:964:LEU:HA	1.93	0.50
1:B:998:CYS:SG	1:B:1025:LYS:NZ	2.85	0.50
1:F:624:GLN:NE2	1:F:625:PRO:O	2.44	0.50
1:A:308:GLN:HA	1:A:567:LYS:HD3	1.92	0.50
1:B:211:PRO:HB3	1:B:219:VAL:HG21	1.94	0.50
1:B:266:LEU:HD22	1:B:329:ASP:HB3	1.93	0.50
1:B:286:PRO:HB2	1:B:289:LYS:HD3	1.92	0.50
1:B:386:PHE:HB2	1:B:392:ALA:HB2	1.94	0.50
1:C:647:MET:HA	1:C:650:PHE:HD2	1.76	0.50
1:D:308:GLN:HA	1:D:567:LYS:HD3	1.92	0.50
1:D:937:LEU:HD21	1:D:964:LEU:HA	1.93	0.50
1:E:998:CYS:SG	1:E:1025:LYS:NZ	2.85	0.50
1:C:253:PHE:CE2	1:C:298:LEU:HB2	2.46	0.50
1:F:572:TYR:O	1:F:575:PHE:HB3	2.10	0.50
1:A:523:MET:O	1:A:572:TYR:OH	2.29	0.50
1:A:572:TYR:O	1:A:575:PHE:HB3	2.11	0.50
1:C:624:GLN:NE2	1:C:625:PRO:O	2.44	0.50
1:D:523:MET:O	1:D:572:TYR:OH	2.29	0.50
1:E:211:PRO:HB3	1:E:219:VAL:HG21	1.93	0.50
1:F:738:SER:HB3	1:F:764:THR:HG23	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:266:LEU:HD22	1:A:329:ASP:HB3	1.92	0.50
1:C:255:TYR:HB2	1:C:293:LYS:NZ	2.27	0.50
1:D:572:TYR:O	1:D:575:PHE:HB3	2.11	0.50
1:F:255:TYR:HB2	1:F:293:LYS:NZ	2.27	0.50
1:C:293:LYS:HD3	1:C:296:ARG:HB2	1.94	0.50
1:E:286:PRO:HB2	1:E:289:LYS:HD3	1.92	0.50
1:F:647:MET:HA	1:F:650:PHE:HD2	1.77	0.50
1:D:266:LEU:HD22	1:D:329:ASP:HB3	1.93	0.49
1:C:620:LYS:HG2	1:C:623:ILE:HB	1.95	0.49
1:D:527:GLU:OE2	1:D:576:VAL:HA	2.12	0.49
1:D:631:PHE:HE2	1:D:655:ILE:HG21	1.76	0.49
1:C:577:VAL:HA	1:C:580:LEU:HB3	1.93	0.49
1:E:527:GLU:OE2	1:E:579:PHE:HB2	2.13	0.49
1:F:620:LYS:HG2	1:F:623:ILE:HB	1.95	0.49
1:A:527:GLU:OE2	1:A:576:VAL:HA	2.12	0.49
1:A:631:PHE:HE2	1:A:655:ILE:HG21	1.76	0.49
1:C:329:ASP:OD1	1:C:330:ILE:N	2.45	0.49
1:C:876:CYS:O	1:C:880:LYS:HG3	2.13	0.49
1:E:308:GLN:HE21	1:E:569:GLU:HB3	1.77	0.49
1:F:226:GLY:HA3	1:F:230:ILE:HG21	1.94	0.49
1:F:577:VAL:HA	1:F:580:LEU:HB3	1.93	0.49
1:B:527:GLU:OE2	1:B:579:PHE:HB2	2.13	0.49
1:B:577:VAL:HA	1:B:580:LEU:HB3	1.94	0.49
1:C:144:VAL:HG21	1:C:243:TRP:HZ3	1.76	0.49
1:C:226:GLY:HA3	1:C:230:ILE:HG21	1.94	0.49
1:C:569:GLU:HA	1:C:572:TYR:HB3	1.95	0.49
1:E:329:ASP:OD1	1:E:330:ILE:N	2.46	0.49
1:F:569:GLU:HA	1:F:572:TYR:HB3	1.94	0.49
1:A:575:PHE:O	1:A:578:ARG:HB3	2.13	0.49
1:A:620:LYS:HG2	1:A:623:ILE:HB	1.95	0.49
1:B:329:ASP:OD1	1:B:330:ILE:N	2.46	0.49
1:D:571:GLY:O	1:D:575:PHE:N	2.31	0.49
1:D:620:LYS:HG2	1:D:623:ILE:HB	1.95	0.49
1:F:293:LYS:HD3	1:F:296:ARG:HB2	1.95	0.49
1:F:329:ASP:OD1	1:F:330:ILE:N	2.45	0.49
1:A:225:GLN:NE2	1:A:367:HIS:HB3	2.28	0.49
1:A:643:VAL:O	1:A:647:MET:HG3	2.12	0.49
1:C:572:TYR:O	1:C:575:PHE:HB3	2.12	0.49
1:C:738:SER:HB3	1:C:764:THR:HG23	1.95	0.49
1:D:575:PHE:O	1:D:578:ARG:HB3	2.13	0.49
1:E:294:PRO:HA	1:E:297:ILE:HD12	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:771:ASN:OD1	1:E:773:ARG:NH1	2.46	0.49
1:F:144:VAL:HG21	1:F:243:TRP:HZ3	1.77	0.49
1:F:527:GLU:OE2	1:F:576:VAL:HA	2.13	0.49
1:B:294:PRO:HA	1:B:297:ILE:HD12	1.94	0.49
1:D:225:GLN:NE2	1:D:367:HIS:HB3	2.28	0.49
1:D:643:VAL:O	1:D:647:MET:HG3	2.12	0.49
1:E:937:LEU:HD21	1:E:964:LEU:HA	1.94	0.49
1:F:211:PRO:HB3	1:F:219:VAL:HG21	1.94	0.49
1:B:771:ASN:OD1	1:B:773:ARG:NH1	2.46	0.48
1:C:211:PRO:HB3	1:C:219:VAL:HG21	1.94	0.48
1:C:1010:PHE:HB3	1:C:1014:THR:OG1	2.13	0.48
1:F:1010:PHE:HB3	1:F:1014:THR:OG1	2.13	0.48
1:F:876:CYS:O	1:F:880:LYS:HG3	2.13	0.48
1:A:571:GLY:O	1:A:575:PHE:N	2.31	0.48
1:B:937:LEU:HD21	1:B:964:LEU:HA	1.94	0.48
1:E:308:GLN:HB2	1:E:480:GLN:HE21	1.78	0.48
1:E:253:PHE:HE2	1:E:298:LEU:HB2	1.77	0.48
1:E:577:VAL:HA	1:E:580:LEU:HB3	1.94	0.48
1:B:575:PHE:O	1:B:578:ARG:HB3	2.13	0.48
1:C:527:GLU:OE2	1:C:576:VAL:HA	2.13	0.48
1:F:207:LEU:HA	1:F:210:ASP:HB2	1.95	0.48
1:C:207:LEU:HA	1:C:210:ASP:HB2	1.95	0.48
1:C:771:ASN:OD1	1:C:773:ARG:NH1	2.46	0.48
1:F:300:LEU:HD22	1:F:347:LEU:HD22	1.95	0.48
1:C:973:LYS:HE3	1:C:973:LYS:HB2	1.68	0.48
1:E:575:PHE:O	1:E:578:ARG:HB3	2.14	0.48
1:A:635:TYR:O	1:A:638:GLN:HG2	2.14	0.48
1:A:993:LEU:HD22	1:A:1028:LEU:HD11	1.95	0.48
1:B:253:PHE:HE2	1:B:298:LEU:HB2	1.78	0.48
1:C:877:GLU:HA	1:C:880:LYS:HE2	1.95	0.48
1:D:635:TYR:O	1:D:638:GLN:HG2	2.14	0.48
1:E:352:PRO:O	1:E:355:LEU:HB3	2.13	0.48
1:F:308:GLN:O	1:F:480:GLN:NE2	2.47	0.48
1:D:993:LEU:HD22	1:D:1028:LEU:HD11	1.95	0.48
1:F:771:ASN:OD1	1:F:773:ARG:NH1	2.47	0.48
1:A:876:CYS:O	1:A:880:LYS:HG3	2.13	0.48
1:B:172:ARG:HB2	1:B:371:LEU:HB2	1.96	0.48
1:B:218:PRO:HB3	1:B:220:HIS:CE1	2.49	0.48
1:C:527:GLU:OE2	1:C:579:PHE:HB2	2.14	0.48
1:D:253:PHE:CE2	1:D:298:LEU:HB2	2.48	0.48
1:A:536:LEU:C	1:A:556:ARG:HH22	2.17	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:738:SER:HB3	1:B:764:THR:HG23	1.96	0.47
1:A:150:CYS:O	1:A:237:ARG:NH2	2.42	0.47
1:A:253:PHE:CE2	1:A:298:LEU:HB2	2.48	0.47
1:B:144:VAL:HG21	1:B:243:TRP:HZ3	1.78	0.47
1:B:1016:SER:O	1:B:1020:THR:HG23	2.14	0.47
1:D:536:LEU:C	1:D:556:ARG:HH22	2.17	0.47
1:F:904:LEU:HD23	1:F:917:LEU:HD21	1.96	0.47
1:D:876:CYS:O	1:D:880:LYS:HG3	2.13	0.47
1:E:144:VAL:HG21	1:E:243:TRP:HZ3	1.78	0.47
1:F:973:LYS:HE3	1:F:973:LYS:HB2	1.68	0.47
1:A:329:ASP:OD1	1:A:330:ILE:N	2.45	0.47
1:A:577:VAL:HA	1:A:580:LEU:HB3	1.97	0.47
1:D:150:CYS:O	1:D:237:ARG:NH2	2.41	0.47
1:D:486:GLU:H	1:D:516:LYS:HZ2	1.62	0.47
1:D:629:GLU:CD	1:D:629:GLU:H	2.18	0.47
1:E:620:LYS:HG2	1:E:623:ILE:HB	1.96	0.47
1:E:876:CYS:O	1:E:880:LYS:HG3	2.14	0.47
1:B:876:CYS:O	1:B:880:LYS:HG3	2.14	0.47
1:C:294:PRO:HB2	1:C:343:GLU:HB2	1.96	0.47
1:D:577:VAL:HA	1:D:580:LEU:HB3	1.97	0.47
1:E:175:LYS:HE2	1:E:366:ARG:HG3	1.96	0.47
1:F:1018:LEU:HD23	1:F:1032:PHE:CD1	2.50	0.47
1:B:501:ALA:O	1:B:504:ARG:NH1	2.47	0.47
1:B:758:MET:HG2	1:B:786:CYS:HB2	1.96	0.47
1:C:1018:LEU:HD23	1:C:1032:PHE:CD1	2.50	0.47
1:D:329:ASP:OD1	1:D:330:ILE:N	2.45	0.47
1:E:536:LEU:C	1:E:556:ARG:HH22	2.17	0.47
1:E:738:SER:HB3	1:E:764:THR:HG23	1.96	0.47
1:F:527:GLU:OE2	1:F:579:PHE:HB2	2.15	0.47
1:A:629:GLU:H	1:A:629:GLU:CD	2.18	0.47
1:B:226:GLY:HA3	1:B:230:ILE:HG21	1.97	0.47
1:B:303:GLY:C	1:B:305:ASP:H	2.18	0.47
1:B:527:GLU:HG3	1:B:575:PHE:HD2	1.79	0.47
1:B:536:LEU:C	1:B:556:ARG:HH22	2.17	0.47
1:C:300:LEU:HD22	1:C:347:LEU:HD22	1.95	0.47
1:C:536:LEU:C	1:C:556:ARG:HH22	2.18	0.47
1:C:572:TYR:O	1:C:576:VAL:N	2.41	0.47
1:E:226:GLY:HA3	1:E:230:ILE:HG21	1.96	0.47
1:E:527:GLU:HG3	1:E:575:PHE:HD2	1.79	0.47
1:E:758:MET:HG2	1:E:786:CYS:HB2	1.96	0.47
1:F:306:GLU:HG3	1:F:307:LEU:HG	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:617:LYS:HD3	1:B:649:TYR:HB3	1.97	0.47
1:C:486:GLU:H	1:C:516:LYS:NZ	2.13	0.47
1:E:613:GLU:HG2	1:E:649:TYR:CD2	2.50	0.47
1:F:575:PHE:O	1:F:578:ARG:HB3	2.15	0.47
1:A:655:ILE:HD12	1:A:657:LEU:HD11	1.97	0.47
1:B:294:PRO:HB2	1:B:343:GLU:HB2	1.96	0.47
1:D:655:ILE:HD12	1:D:657:LEU:HD11	1.97	0.47
1:F:478:TRP:HZ3	1:F:564:ASN:HD21	1.63	0.47
1:F:536:LEU:C	1:F:556:ARG:HH22	2.18	0.47
1:F:572:TYR:O	1:F:576:VAL:N	2.41	0.47
1:F:486:GLU:H	1:F:516:LYS:NZ	2.13	0.47
1:B:232:LYS:HB3	1:B:349:THR:HB	1.96	0.46
1:B:647:MET:HG2	1:B:650:PHE:CD2	2.50	0.46
1:D:738:SER:HB3	1:D:764:THR:HG23	1.96	0.46
1:B:620:LYS:HG2	1:B:623:ILE:HB	1.96	0.46
1:B:973:LYS:HE3	1:B:973:LYS:HB2	1.67	0.46
1:C:635:TYR:O	1:C:638:GLN:HG2	2.15	0.46
1:A:738:SER:HB3	1:A:764:THR:HG23	1.96	0.46
1:B:240:MET:HE2	1:B:258:TYR:HB2	1.98	0.46
1:B:255:TYR:HB2	1:B:293:LYS:NZ	2.31	0.46
1:D:365:PRO:HG2	1:D:367:HIS:NE2	2.30	0.46
1:E:253:PHE:CE2	1:E:298:LEU:HB2	2.50	0.46
1:E:255:TYR:HB2	1:E:293:LYS:NZ	2.31	0.46
1:E:232:LYS:HB3	1:E:349:THR:HB	1.96	0.46
1:E:294:PRO:HB2	1:E:343:GLU:HB2	1.96	0.46
1:E:351:ARG:O	1:E:355:LEU:N	2.44	0.46
1:A:365:PRO:HG2	1:A:367:HIS:NE2	2.30	0.46
1:C:306:GLU:HG2	1:C:307:LEU:N	2.30	0.46
1:C:523:MET:O	1:C:572:TYR:OH	2.31	0.46
1:C:575:PHE:O	1:C:578:ARG:HB3	2.16	0.46
1:E:139:LYS:HZ2	1:E:281:PRO:HG2	1.80	0.46
1:F:635:TYR:O	1:F:638:GLN:HG2	2.16	0.46
1:E:240:MET:HE2	1:E:258:TYR:HB2	1.98	0.46
1:F:365:PRO:HG2	1:F:367:HIS:NE2	2.31	0.46
1:B:478:TRP:HZ3	1:B:564:ASN:HD21	1.63	0.46
1:C:175:LYS:HE2	1:C:366:ARG:HG3	1.98	0.46
1:C:303:GLY:C	1:C:305:ASP:H	2.19	0.46
1:C:478:TRP:HZ3	1:C:564:ASN:HD21	1.64	0.46
1:A:527:GLU:OE2	1:A:579:PHE:HB2	2.15	0.46
1:D:771:ASN:OD1	1:D:773:ARG:NH1	2.49	0.46
1:E:973:LYS:HB2	1:E:973:LYS:HE3	1.67	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:771:ASN:OD1	1:A:773:ARG:NH1	2.49	0.46
1:B:139:LYS:HZ2	1:B:281:PRO:HG2	1.80	0.46
1:B:635:TYR:O	1:B:638:GLN:HG2	2.16	0.46
1:C:308:GLN:HA	1:C:567:LYS:HD3	1.97	0.46
1:D:527:GLU:OE2	1:D:579:PHE:HB2	2.15	0.46
1:F:294:PRO:HB2	1:F:343:GLU:HB2	1.97	0.46
1:C:260:HIS:HD2	1:C:262:ARG:HB2	1.81	0.46
1:E:308:GLN:HA	1:E:567:LYS:HD3	1.97	0.46
1:E:936:LEU:HD21	1:E:946:LEU:HD22	1.98	0.46
1:F:175:LYS:HE2	1:F:366:ARG:HG3	1.98	0.46
1:F:260:HIS:HD2	1:F:262:ARG:HB2	1.82	0.46
1:A:932:LEU:O	1:A:936:LEU:HD12	2.15	0.45
1:B:936:LEU:HD21	1:B:946:LEU:HD22	1.98	0.45
1:B:253:PHE:CE2	1:B:298:LEU:HB2	2.51	0.45
1:D:932:LEU:O	1:D:936:LEU:HD12	2.15	0.45
1:E:574:ILE:HA	1:E:577:VAL:HG22	1.97	0.45
1:B:819:CYS:HA	1:B:822:LEU:HB2	1.98	0.45
1:C:291:VAL:HG21	1:C:322:TRP:CE2	2.52	0.45
1:E:572:TYR:O	1:E:575:PHE:HB3	2.16	0.45
1:E:819:CYS:HA	1:E:822:LEU:HB2	1.98	0.45
1:A:308:GLN:HB2	1:A:480:GLN:HE21	1.82	0.45
1:A:819:CYS:HA	1:A:822:LEU:HB2	1.97	0.45
1:C:225:GLN:HE22	1:C:367:HIS:HB3	1.82	0.45
1:D:308:GLN:HB2	1:D:480:GLN:HE21	1.82	0.45
1:D:819:CYS:HA	1:D:822:LEU:HB2	1.97	0.45
1:E:207:LEU:HA	1:E:210:ASP:HB2	1.98	0.45
1:E:635:TYR:O	1:E:638:GLN:HG2	2.17	0.45
1:A:171:LEU:HD12	1:A:235:LEU:HD12	1.99	0.45
1:A:528:PHE:HE1	1:A:583:LEU:HD21	1.81	0.45
1:D:782:LEU:HB3	1:D:786:CYS:SG	2.57	0.45
1:F:819:CYS:HA	1:F:822:LEU:HB2	1.98	0.45
1:A:236:ALA:HB1	1:A:300:LEU:HD21	1.98	0.45
1:A:294:PRO:HA	1:A:297:ILE:HD12	1.99	0.45
1:E:1016:SER:O	1:E:1020:THR:HG23	2.17	0.45
1:A:782:LEU:HB3	1:A:786:CYS:SG	2.57	0.45
1:B:572:TYR:O	1:B:575:PHE:HB3	2.17	0.45
1:B:1005:LEU:HD22	1:B:1008:MET:HE1	1.99	0.45
1:C:819:CYS:HA	1:C:822:LEU:HB2	1.99	0.45
1:D:171:LEU:HD12	1:D:235:LEU:HD12	1.99	0.45
1:D:294:PRO:HA	1:D:297:ILE:HD12	1.99	0.45
1:D:528:PHE:HE1	1:D:583:LEU:HD21	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:151:ILE:HG22	1:F:237:ARG:HH21	1.82	0.45
1:F:291:VAL:HG21	1:F:322:TRP:CE2	2.52	0.45
1:B:207:LEU:HA	1:B:210:ASP:HB2	1.98	0.45
1:B:574:ILE:HA	1:B:577:VAL:HG22	1.98	0.45
1:A:624:GLN:HB2	1:A:625:PRO:HD2	1.99	0.44
1:D:577:VAL:O	1:D:581:PHE:N	2.40	0.44
1:A:486:GLU:H	1:A:516:LYS:HZ2	1.65	0.44
1:A:577:VAL:O	1:A:581:PHE:N	2.40	0.44
1:D:624:GLN:HB2	1:D:625:PRO:HD2	1.99	0.44
1:E:569:GLU:HA	1:E:572:TYR:HB3	1.98	0.44
1:C:365:PRO:HG2	1:C:367:HIS:NE2	2.32	0.44
1:E:318:LEU:HD13	1:E:339:LYS:HG3	1.99	0.44
1:A:212:ASP:H	1:A:366:ARG:HH22	1.65	0.44
1:B:357:LYS:HE3	1:B:567:LYS:HE3	1.99	0.44
1:B:943:LEU:HD21	1:B:946:LEU:HB2	1.99	0.44
1:B:949:ASP:OD1	1:B:977:GLY:N	2.50	0.44
1:C:475:ASP:OD1	1:C:479:ASN:ND2	2.51	0.44
1:D:136:TYR:HB3	1:D:137:ARG:NH1	2.32	0.44
1:E:949:ASP:OD1	1:E:977:GLY:N	2.50	0.44
1:F:303:GLY:C	1:F:305:ASP:H	2.20	0.44
1:A:136:TYR:HB3	1:A:137:ARG:NH1	2.32	0.44
1:A:139:LYS:HZ2	1:A:281:PRO:HG2	1.82	0.44
1:A:172:ARG:HB2	1:A:371:LEU:HB2	2.00	0.44
1:B:569:GLU:HA	1:B:572:TYR:HB3	1.99	0.44
1:B:570:LYS:HG3	1:B:571:GLY:H	1.83	0.44
1:B:639:GLU:O	1:B:643:VAL:HG23	2.18	0.44
1:B:661:MET:O	1:B:665:VAL:HG12	2.18	0.44
1:C:151:ILE:HG22	1:C:237:ARG:HH21	1.83	0.44
1:D:140:TYR:CG	1:D:255:TYR:HE2	2.36	0.44
1:D:172:ARG:HB2	1:D:371:LEU:HB2	1.99	0.44
1:E:639:GLU:O	1:E:643:VAL:HG23	2.18	0.44
1:E:943:LEU:HD21	1:E:946:LEU:HB2	2.00	0.44
1:F:567:LYS:HE2	1:F:567:LYS:HB3	1.80	0.44
1:A:572:TYR:O	1:A:576:VAL:N	2.43	0.44
1:A:661:MET:O	1:A:665:VAL:HG12	2.18	0.44
1:B:961:LEU:O	1:B:964:LEU:HB3	2.18	0.44
1:C:635:TYR:HB2	1:C:665:VAL:HG23	2.00	0.44
1:E:352:PRO:HA	1:E:355:LEU:HB3	2.00	0.44
1:E:961:LEU:O	1:E:964:LEU:HB3	2.17	0.44
1:F:632:TYR:CE1	1:F:665:VAL:HG11	2.53	0.44
1:A:140:TYR:CG	1:A:255:TYR:HE2	2.36	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:236:ALA:HB1	1:D:300:LEU:HD21	1.99	0.44
1:D:661:MET:O	1:D:665:VAL:HG12	2.18	0.44
1:E:661:MET:O	1:E:665:VAL:HG12	2.18	0.44
1:C:248:LEU:HG	1:C:249:TYR:HD2	1.82	0.44
1:D:212:ASP:H	1:D:366:ARG:HH22	1.65	0.44
1:D:305:ASP:HB2	1:D:568:PHE:CD2	2.52	0.44
1:F:248:LEU:HG	1:F:249:TYR:HD2	1.82	0.44
1:A:294:PRO:HB2	1:A:343:GLU:HB2	2.00	0.44
1:D:572:TYR:O	1:D:576:VAL:N	2.43	0.44
1:E:240:MET:CE	1:E:258:TYR:HB2	2.47	0.44
1:F:310:ALA:HB3	1:F:567:LYS:HZ2	1.83	0.44
1:A:617:LYS:NZ	1:A:649:TYR:HB3	2.33	0.43
1:B:624:GLN:HB2	1:B:625:PRO:HD2	2.00	0.43
1:C:782:LEU:HB3	1:C:786:CYS:SG	2.58	0.43
1:D:294:PRO:HB2	1:D:343:GLU:HB2	2.00	0.43
1:D:375:GLU:OE1	1:D:375:GLU:N	2.43	0.43
1:D:1015:LYS:O	1:D:1019:GLU:OE1	2.36	0.43
1:A:291:VAL:HG21	1:A:322:TRP:CE2	2.53	0.43
1:A:305:ASP:HB2	1:A:568:PHE:CD2	2.52	0.43
1:A:353:VAL:HG23	1:A:568:PHE:HA	2.00	0.43
1:A:758:MET:HG2	1:A:786:CYS:HB2	1.99	0.43
1:A:1015:LYS:O	1:A:1019:GLU:OE1	2.36	0.43
1:B:318:LEU:HD13	1:B:339:LYS:HG3	2.00	0.43
1:D:353:VAL:HG23	1:D:568:PHE:HA	2.01	0.43
1:D:450:LEU:HA	1:D:450:LEU:HD23	1.76	0.43
1:D:617:LYS:NZ	1:D:649:TYR:HB3	2.33	0.43
1:E:987:MET:HE3	1:E:1014:THR:HA	1.99	0.43
1:E:1005:LEU:HD22	1:E:1008:MET:HE1	2.00	0.43
1:B:240:MET:CE	1:B:258:TYR:HB2	2.47	0.43
1:C:661:MET:O	1:C:665:VAL:HG12	2.19	0.43
1:D:291:VAL:HG21	1:D:322:TRP:CE2	2.53	0.43
1:E:527:GLU:HG3	1:E:575:PHE:CD2	2.52	0.43
1:F:443:TYR:O	1:F:447:LEU:HD23	2.18	0.43
1:F:782:LEU:HB3	1:F:786:CYS:SG	2.58	0.43
1:A:375:GLU:OE1	1:A:375:GLU:N	2.43	0.43
1:B:352:PRO:HA	1:B:355:LEU:HB3	2.00	0.43
1:C:443:TYR:O	1:C:447:LEU:HD23	2.18	0.43
1:D:570:LYS:HG3	1:D:571:GLY:H	1.83	0.43
1:D:758:MET:HG2	1:D:786:CYS:HB2	2.00	0.43
1:D:943:LEU:HD21	1:D:946:LEU:HB2	2.00	0.43
1:E:1017:ALA:O	1:E:1020:THR:OG1	2.31	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:580:LEU:O	1:A:584:VAL:HG22	2.18	0.43
1:A:943:LEU:HD21	1:A:946:LEU:HB2	2.01	0.43
1:B:227:ALA:HB1	3:B:1502:7YN:N13	2.33	0.43
1:B:1017:ALA:O	1:B:1020:THR:OG1	2.31	0.43
1:C:632:TYR:HE1	1:C:665:VAL:HG11	1.82	0.43
1:D:580:LEU:O	1:D:584:VAL:HG22	2.18	0.43
1:F:583:LEU:O	1:F:589:THR:OG1	2.35	0.43
1:F:937:LEU:HD21	1:F:964:LEU:HA	1.99	0.43
1:A:271:SER:HB2	1:A:322:TRP:O	2.18	0.43
1:A:570:LYS:HG3	1:A:571:GLY:H	1.83	0.43
1:B:527:GLU:HG3	1:B:575:PHE:CD2	2.53	0.43
1:C:631:PHE:HE2	1:C:655:ILE:HG21	1.83	0.43
1:E:624:GLN:HB2	1:E:625:PRO:HD2	2.00	0.43
1:F:475:ASP:OD1	1:F:479:ASN:ND2	2.51	0.43
1:A:569:GLU:HA	1:A:572:TYR:HB3	2.01	0.43
1:C:286:PRO:O	1:C:290:ILE:HG12	2.19	0.43
1:C:577:VAL:O	1:C:581:PHE:N	2.34	0.43
1:C:583:LEU:O	1:C:589:THR:OG1	2.34	0.43
1:C:902:SER:O	1:C:905:SER:HB3	2.19	0.43
1:C:937:LEU:HD21	1:C:964:LEU:HA	1.99	0.43
1:D:271:SER:HB2	1:D:322:TRP:O	2.18	0.43
1:E:475:ASP:OD1	1:E:479:ASN:ND2	2.52	0.43
1:A:255:TYR:HB2	1:A:293:LYS:NZ	2.34	0.43
1:B:365:PRO:HG2	1:B:367:HIS:NE2	2.33	0.43
1:C:925:GLY:O	1:C:929:ILE:HG12	2.19	0.43
1:D:255:TYR:HB2	1:D:293:LYS:NZ	2.34	0.43
1:D:293:LYS:HD3	1:D:296:ARG:HB2	2.00	0.43
1:D:569:GLU:HA	1:D:572:TYR:HB3	2.01	0.43
1:E:172:ARG:HB2	1:E:371:LEU:HB2	2.00	0.43
1:F:523:MET:O	1:F:572:TYR:OH	2.35	0.43
1:F:925:GLY:O	1:F:929:ILE:HG12	2.19	0.43
1:A:293:LYS:HD3	1:A:296:ARG:HB2	2.00	0.43
1:A:422:LEU:HD22	1:A:432:LEU:HB3	2.01	0.43
1:A:450:LEU:HD23	1:A:450:LEU:HA	1.76	0.43
1:C:995:GLN:O	1:C:1025:LYS:NZ	2.36	0.43
1:D:422:LEU:HD22	1:D:432:LEU:HB3	2.01	0.43
1:E:375:GLU:OE1	1:E:375:GLU:N	2.45	0.43
1:F:630:LEU:O	1:F:634:LEU:HD23	2.19	0.43
1:F:661:MET:O	1:F:665:VAL:HG12	2.19	0.43
1:D:980:ASP:OD1	1:D:980:ASP:N	2.47	0.42
1:E:168:TYR:O	1:E:384:LYS:NZ	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:925:GLY:O	1:E:929:ILE:HG12	2.19	0.42
1:F:571:GLY:O	1:F:575:PHE:N	2.32	0.42
1:B:609:LEU:HB2	1:B:642:PHE:CE2	2.54	0.42
1:C:567:LYS:HE2	1:C:567:LYS:HB3	1.81	0.42
1:F:286:PRO:O	1:F:290:ILE:HG12	2.20	0.42
1:F:308:GLN:HA	1:F:567:LYS:HD3	2.00	0.42
1:F:943:LEU:HD21	1:F:946:LEU:HB2	2.00	0.42
1:C:632:TYR:CE1	1:C:665:VAL:HG11	2.54	0.42
1:C:943:LEU:HD21	1:C:946:LEU:HB2	2.01	0.42
1:E:570:LYS:HG3	1:E:571:GLY:H	1.84	0.42
1:E:609:LEU:HB2	1:E:642:PHE:CE2	2.54	0.42
1:B:375:GLU:OE1	1:B:375:GLU:N	2.45	0.42
1:B:450:LEU:HA	1:B:450:LEU:HD23	1.83	0.42
1:C:227:ALA:HB1	3:C:1502:7YN:N13	2.35	0.42
1:C:232:LYS:HB3	1:C:349:THR:HB	1.99	0.42
1:E:365:PRO:HG2	1:E:367:HIS:NE2	2.34	0.42
1:F:635:TYR:HB2	1:F:665:VAL:HG23	2.02	0.42
1:A:980:ASP:OD1	1:A:980:ASP:N	2.47	0.42
1:B:925:GLY:O	1:B:929:ILE:HG12	2.19	0.42
1:C:844:CYS:SG	1:C:867:LEU:HD22	2.60	0.42
1:F:980:ASP:OD1	1:F:980:ASP:N	2.47	0.42
1:C:936:LEU:HD21	1:C:946:LEU:HD22	2.02	0.42
1:D:151:ILE:HG22	1:D:237:ARG:HH21	1.84	0.42
1:D:226:GLY:HA3	1:D:230:ILE:HG21	2.00	0.42
1:E:567:LYS:O	1:E:570:LYS:NZ	2.31	0.42
1:E:776:TRP:HA	1:E:804:ASP:HB3	2.02	0.42
1:F:624:GLN:HB2	1:F:625:PRO:HD2	2.02	0.42
1:F:936:LEU:HD21	1:F:946:LEU:HD22	2.02	0.42
1:D:961:LEU:O	1:D:964:LEU:HB3	2.20	0.42
1:E:617:LYS:HD3	1:E:649:TYR:HB3	2.02	0.42
1:F:167:ARG:HH12	1:F:385:TYR:HA	1.84	0.42
1:A:307:LEU:O	1:A:567:LYS:NZ	2.52	0.42
1:A:961:LEU:O	1:A:964:LEU:HB3	2.20	0.42
1:D:167:ARG:HH12	1:D:385:TYR:HA	1.85	0.42
1:A:151:ILE:HG22	1:A:237:ARG:HH21	1.84	0.42
1:A:167:ARG:HH12	1:A:385:TYR:HA	1.85	0.42
1:A:536:LEU:HD23	1:A:536:LEU:HA	1.89	0.42
1:B:508:PHE:H	1:B:516:LYS:N	2.18	0.42
1:E:637:MET:HE2	1:E:637:MET:HB2	1.74	0.42
1:F:375:GLU:OE2	1:F:375:GLU:N	2.41	0.42
1:D:307:LEU:O	1:D:567:LYS:NZ	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:844:CYS:SG	1:D:867:LEU:HD22	2.59	0.42
1:E:574:ILE:O	1:E:577:VAL:HG22	2.19	0.42
1:F:1011:ASN:O	1:F:1014:THR:OG1	2.38	0.42
1:A:478:TRP:HZ3	1:A:564:ASN:HD21	1.68	0.41
1:A:613:GLU:HG2	1:A:649:TYR:CD2	2.55	0.41
1:A:1018:LEU:HB3	1:A:1032:PHE:CE2	2.54	0.41
1:C:483:LEU:HD13	1:C:519:SER:HB3	2.01	0.41
1:C:624:GLN:HB2	1:C:625:PRO:HD2	2.02	0.41
1:D:306:GLU:HG3	1:D:307:LEU:HG	2.01	0.41
1:E:508:PHE:H	1:E:516:LYS:N	2.18	0.41
1:F:483:LEU:HD13	1:F:519:SER:HB3	2.01	0.41
1:A:306:GLU:HG3	1:A:307:LEU:HG	2.01	0.41
1:A:844:CYS:SG	1:A:867:LEU:HD22	2.59	0.41
1:A:925:GLY:O	1:A:929:ILE:HG12	2.19	0.41
1:D:310:ALA:HB3	1:D:567:LYS:HZ2	1.84	0.41
1:D:613:GLU:HG2	1:D:649:TYR:CD2	2.55	0.41
1:D:1018:LEU:HB3	1:D:1032:PHE:CE2	2.54	0.41
1:E:844:CYS:SG	1:E:867:LEU:HD22	2.60	0.41
1:F:570:LYS:HG3	1:F:571:GLY:H	1.85	0.41
1:F:844:CYS:SG	1:F:867:LEU:HD22	2.60	0.41
1:A:168:TYR:O	1:A:384:LYS:NZ	2.49	0.41
1:B:574:ILE:O	1:B:577:VAL:HG22	2.19	0.41
1:C:167:ARG:HH12	1:C:385:TYR:HA	1.85	0.41
1:C:375:GLU:OE2	1:C:375:GLU:N	2.41	0.41
1:C:630:LEU:O	1:C:634:LEU:HD23	2.20	0.41
1:C:1011:ASN:O	1:C:1014:THR:OG1	2.38	0.41
1:D:925:GLY:O	1:D:929:ILE:HG12	2.19	0.41
1:E:260:HIS:CD2	1:E:262:ARG:HB2	2.54	0.41
1:A:226:GLY:HA3	1:A:230:ILE:HG21	2.01	0.41
1:A:536:LEU:HD21	1:A:598:CYS:HB2	2.01	0.41
1:B:527:GLU:HG2	1:B:576:VAL:HG22	2.02	0.41
1:B:678:SER:HA	1:B:745:GLU:HB3	2.02	0.41
1:B:1000:LEU:HD21	1:B:1003:LEU:HG	2.01	0.41
1:C:956:HIS:ND1	1:C:956:HIS:N	2.69	0.41
1:D:478:TRP:HZ3	1:D:564:ASN:HD21	1.69	0.41
1:D:536:LEU:HD23	1:D:536:LEU:HA	1.89	0.41
1:E:527:GLU:HG2	1:E:576:VAL:HG22	2.03	0.41
1:B:650:PHE:O	1:B:652:LYS:N	2.53	0.41
1:B:782:LEU:HB3	1:B:786:CYS:SG	2.60	0.41
1:B:844:CYS:SG	1:B:867:LEU:HD22	2.60	0.41
1:C:422:LEU:HD22	1:C:432:LEU:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:536:LEU:HD21	1:D:598:CYS:HB2	2.01	0.41
1:E:632:TYR:CE1	1:E:665:VAL:HG11	2.56	0.41
1:F:217:GLU:HB2	1:F:364:HIS:ND1	2.35	0.41
1:F:358:LEU:HG	1:F:362:LEU:HD11	2.02	0.41
1:F:956:HIS:ND1	1:F:956:HIS:N	2.69	0.41
1:A:974:LEU:O	1:A:1003:LEU:HA	2.21	0.41
1:C:450:LEU:HD23	1:C:450:LEU:HA	1.87	0.41
1:D:168:TYR:O	1:D:384:LYS:NZ	2.49	0.41
1:E:782:LEU:HB3	1:E:786:CYS:SG	2.60	0.41
1:E:908:LEU:HD13	1:E:936:LEU:HD12	2.02	0.41
1:F:225:GLN:HE22	1:F:367:HIS:HB3	1.86	0.41
1:F:227:ALA:HB1	3:F:1502:7YN:N13	2.36	0.41
1:F:232:LYS:HB3	1:F:349:THR:HB	2.01	0.41
1:F:266:LEU:HD11	1:F:307:LEU:HD11	2.01	0.41
1:F:593:GLU:OE2	1:F:600:ILE:N	2.54	0.41
1:F:901:CYS:SG	1:F:924:LEU:HD22	2.61	0.41
1:F:902:SER:O	1:F:905:SER:HB3	2.20	0.41
1:D:1011:ASN:O	1:D:1014:THR:OG1	2.39	0.41
1:E:217:GLU:HB3	1:E:218:PRO:HD2	2.02	0.41
1:E:995:GLN:O	1:E:1025:LYS:NZ	2.39	0.41
1:F:422:LEU:HD22	1:F:432:LEU:HB3	2.02	0.41
1:F:580:LEU:O	1:F:584:VAL:HG22	2.20	0.41
1:A:1011:ASN:O	1:A:1014:THR:OG1	2.39	0.41
1:B:465:HIS:HA	1:B:494:LEU:HD21	2.02	0.41
1:B:478:TRP:CD1	1:B:554:PRO:HB3	2.56	0.41
1:B:632:TYR:CE1	1:B:665:VAL:HG11	2.56	0.41
1:B:908:LEU:HD13	1:B:936:LEU:HD12	2.02	0.41
1:C:580:LEU:O	1:C:584:VAL:HG22	2.20	0.41
1:D:974:LEU:O	1:D:1003:LEU:HA	2.21	0.41
1:E:478:TRP:CD1	1:E:554:PRO:HB3	2.55	0.41
1:E:1000:LEU:HD21	1:E:1003:LEU:HG	2.02	0.41
1:A:211:PRO:HA	1:A:219:VAL:HG11	2.03	0.41
1:A:217:GLU:HB2	1:A:364:HIS:ND1	2.36	0.41
1:A:217:GLU:HB3	1:A:218:PRO:CD	2.51	0.41
1:A:303:GLY:C	1:A:305:ASP:H	2.23	0.41
1:C:615:LYS:HD3	1:C:615:LYS:HA	1.92	0.41
1:C:964:LEU:HD12	1:C:968:SER:HB2	2.03	0.41
1:C:1020:THR:O	1:C:1024:GLU:CB	2.69	0.41
1:D:211:PRO:HA	1:D:219:VAL:HG11	2.03	0.41
1:D:217:GLU:HB3	1:D:218:PRO:CD	2.51	0.41
1:D:217:GLU:HB2	1:D:364:HIS:ND1	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:227:ALA:HB1	3:E:1502:7YN:N13	2.36	0.41
1:E:465:HIS:HA	1:E:494:LEU:HD21	2.02	0.41
1:F:365:PRO:HG2	1:F:367:HIS:HE2	1.85	0.41
1:A:310:ALA:HB3	1:A:567:LYS:HZ2	1.85	0.41
1:A:365:PRO:HG2	1:A:367:HIS:HE2	1.85	0.41
1:D:260:HIS:CD2	1:D:262:ARG:HB2	2.52	0.41
1:D:303:GLY:C	1:D:305:ASP:H	2.23	0.41
1:D:358:LEU:O	1:D:362:LEU:HG	2.21	0.41
1:D:365:PRO:HG2	1:D:367:HIS:HE2	1.85	0.41
1:D:581:PHE:CD2	1:D:633:CYS:HB3	2.56	0.41
1:D:973:LYS:HB2	1:D:973:LYS:HE3	1.68	0.41
1:E:354:ALA:O	1:E:358:LEU:HD23	2.21	0.41
1:E:357:LYS:HE3	1:E:567:LYS:HE3	2.02	0.41
1:F:450:LEU:HD23	1:F:450:LEU:HA	1.87	0.41
1:F:964:LEU:HD12	1:F:968:SER:HB2	2.02	0.41
1:A:358:LEU:HG	1:A:362:LEU:HD11	2.03	0.40
1:A:358:LEU:O	1:A:362:LEU:HG	2.21	0.40
1:C:225:GLN:NE2	1:C:367:HIS:HB3	2.36	0.40
1:C:536:LEU:HD23	1:C:536:LEU:HA	1.91	0.40
1:D:358:LEU:HG	1:D:362:LEU:HD11	2.03	0.40
1:D:1000:LEU:HD21	1:D:1003:LEU:HG	2.03	0.40
1:F:308:GLN:HB2	1:F:480:GLN:HE21	1.85	0.40
1:F:348:ILE:HD12	1:F:358:LEU:HD21	2.03	0.40
1:F:647:MET:HE1	1:F:669:CYS:HB3	2.04	0.40
1:F:1020:THR:O	1:F:1024:GLU:CB	2.69	0.40
1:A:208:LEU:HD11	1:A:368:VAL:HG21	2.03	0.40
1:A:209:PHE:HD2	1:A:249:TYR:CE1	2.39	0.40
1:A:581:PHE:CD2	1:A:633:CYS:HB3	2.56	0.40
1:A:1000:LEU:HD21	1:A:1003:LEU:HG	2.03	0.40
1:B:741:GLN:HA	1:B:741:GLN:OE1	2.21	0.40
1:D:208:LEU:HD11	1:D:368:VAL:HG21	2.03	0.40
1:E:577:VAL:O	1:E:581:PHE:N	2.35	0.40
1:E:635:TYR:HB2	1:E:665:VAL:HG23	2.02	0.40
1:F:438:THR:HG23	1:F:588:ARG:HH22	1.86	0.40
1:B:572:TYR:O	1:B:576:VAL:HG23	2.21	0.40
1:F:581:PHE:CD2	1:F:633:CYS:HB3	2.55	0.40
1:F:908:LEU:HD13	1:F:936:LEU:HD12	2.03	0.40
1:A:260:HIS:CD2	1:A:262:ARG:HB2	2.52	0.40
1:C:438:THR:HG23	1:C:588:ARG:HH22	1.86	0.40
1:D:308:GLN:HB2	1:D:480:GLN:NE2	2.36	0.40
1:E:650:PHE:O	1:E:652:LYS:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:142:LYS:HD3	1:F:145:ARG:HH21	1.86	0.40
1:A:508:PHE:H	1:A:516:LYS:N	2.20	0.40
1:A:609:LEU:HB2	1:A:642:PHE:CE2	2.56	0.40
1:A:738:SER:HB3	1:A:764:THR:CG2	2.52	0.40
1:A:874:ILE:O	1:A:877:GLU:HG3	2.21	0.40
1:A:901:CYS:SG	1:A:924:LEU:HD22	2.62	0.40
1:B:167:ARG:HH12	1:B:385:TYR:HA	1.86	0.40
1:C:217:GLU:HB2	1:C:364:HIS:ND1	2.36	0.40
1:C:593:GLU:OE2	1:C:600:ILE:N	2.55	0.40
1:C:901:CYS:SG	1:C:924:LEU:HD22	2.62	0.40
1:D:609:LEU:HB2	1:D:642:PHE:CE2	2.56	0.40
1:D:738:SER:HB3	1:D:764:THR:CG2	2.52	0.40
1:D:874:ILE:O	1:D:877:GLU:HG3	2.21	0.40
1:E:399:ILE:HD13	1:E:399:ILE:HA	1.93	0.40
1:F:536:LEU:HD23	1:F:536:LEU:HA	1.91	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	781/931 (84%)	756 (97%)	23 (3%)	2 (0%)	41	73
1	B	781/931 (84%)	759 (97%)	21 (3%)	1 (0%)	51	83
1	C	781/931 (84%)	761 (97%)	19 (2%)	1 (0%)	51	83
1	D	781/931 (84%)	756 (97%)	23 (3%)	2 (0%)	41	73
1	E	781/931 (84%)	761 (97%)	19 (2%)	1 (0%)	51	83
1	F	781/931 (84%)	759 (97%)	21 (3%)	1 (0%)	51	83
All	All	4686/5586 (84%)	4552 (97%)	126 (3%)	8 (0%)	50	78

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	218	PRO
1	D	218	PRO
1	A	624	GLN
1	B	624	GLN
1	D	624	GLN
1	C	624	GLN
1	E	624	GLN
1	F	624	GLN

### 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 PDB entries followed by that with respect to all EM entries.

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	720/843 (85%)	717 (100%)	3 (0%)	91	95
1	B	720/843 (85%)	718 (100%)	2 (0%)	92	96
1	C	720/843 (85%)	718 (100%)	2 (0%)	92	96
1	D	720/843 (85%)	717 (100%)	3 (0%)	91	95
1	E	720/843 (85%)	718 (100%)	2 (0%)	92	96
1	F	720/843 (85%)	718 (100%)	2 (0%)	92	96
All	All	4320/5058 (85%)	4306 (100%)	14 (0%)	92	96

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	293	LYS
1	A	516	LYS
1	A	956	HIS
1	B	293	LYS
1	B	516	LYS
1	C	293	LYS
1	C	956	HIS
1	D	293	LYS
1	D	516	LYS
1	D	956	HIS
1	E	293	LYS

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Mol	Chain	Res	Type
1	E	516	LYS
1	F	293	LYS
1	F	956	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	225	GLN
1	A	308	GLN
1	B	225	GLN
1	C	220	HIS
1	C	323	GLN
1	C	480	GLN
1	D	225	GLN
1	D	308	GLN
1	E	308	GLN
1	E	480	GLN
1	F	220	HIS
1	F	225	GLN
1	F	308	GLN
1	F	323	GLN

### 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](#)

12 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	ADP	E	1501	-	24,29,29	0.94	1 (4%)	29,45,45	1.48	4 (13%)
2	ADP	F	1501	-	24,29,29	0.94	1 (4%)	29,45,45	1.49	4 (13%)
3	7YN	B	1502	-	27,31,31	1.93	6 (22%)	30,48,48	2.29	11 (36%)
3	7YN	D	1502	-	27,31,31	1.95	6 (22%)	30,48,48	2.29	11 (36%)
3	7YN	A	1502	-	27,31,31	1.96	6 (22%)	30,48,48	2.28	11 (36%)
3	7YN	E	1502	-	27,31,31	1.90	6 (22%)	30,48,48	2.28	11 (36%)
2	ADP	B	1501	-	24,29,29	0.94	1 (4%)	29,45,45	1.48	4 (13%)
3	7YN	C	1502	-	27,31,31	1.94	6 (22%)	30,48,48	2.29	11 (36%)
2	ADP	D	1501	-	24,29,29	0.94	1 (4%)	29,45,45	1.48	4 (13%)
2	ADP	C	1501	-	24,29,29	0.95	1 (4%)	29,45,45	1.49	4 (13%)
2	ADP	A	1501	-	24,29,29	0.95	1 (4%)	29,45,45	1.49	4 (13%)
3	7YN	F	1502	-	27,31,31	1.93	6 (22%)	30,48,48	2.30	11 (36%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	ADP	E	1501	-	-	3/12/32/32	0/3/3/3
2	ADP	F	1501	-	-	4/12/32/32	0/3/3/3
3	7YN	B	1502	-	-	0/11/33/33	0/4/4/4
3	7YN	D	1502	-	-	0/11/33/33	0/4/4/4
3	7YN	A	1502	-	-	0/11/33/33	0/4/4/4
3	7YN	E	1502	-	-	0/11/33/33	0/4/4/4
2	ADP	B	1501	-	-	2/12/32/32	0/3/3/3
3	7YN	C	1502	-	-	0/11/33/33	0/4/4/4
2	ADP	D	1501	-	-	4/12/32/32	0/3/3/3
2	ADP	C	1501	-	-	3/12/32/32	0/3/3/3
2	ADP	A	1501	-	-	3/12/32/32	0/3/3/3
3	7YN	F	1502	-	-	0/11/33/33	0/4/4/4

All (42) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1502	7YN	C24-C22	-5.60	1.49	1.53
3	D	1502	7YN	C24-C22	-5.51	1.49	1.53
3	C	1502	7YN	C24-C22	-5.47	1.49	1.53
3	B	1502	7YN	C24-C22	-5.36	1.49	1.53
3	F	1502	7YN	C24-C22	-5.34	1.49	1.53
3	E	1502	7YN	C24-C22	-5.19	1.49	1.53
3	C	1502	7YN	C19-S17	-3.61	1.71	1.76
3	F	1502	7YN	C19-S17	-3.48	1.71	1.76
3	B	1502	7YN	C19-S17	-3.46	1.71	1.76
3	E	1502	7YN	C19-S17	-3.35	1.71	1.76
3	D	1502	7YN	C19-S17	-3.33	1.71	1.76
3	A	1502	7YN	C19-S17	-3.25	1.71	1.76
3	B	1502	7YN	O26-C24	-3.16	1.39	1.44
3	E	1502	7YN	O26-C24	-3.13	1.39	1.44
3	F	1502	7YN	O26-C24	-3.11	1.40	1.44
3	D	1502	7YN	O26-C24	-3.11	1.40	1.44
3	A	1502	7YN	C14-N15	3.11	1.46	1.39
3	D	1502	7YN	C14-N15	3.09	1.46	1.39
3	B	1502	7YN	C09-C08	3.08	1.53	1.36
3	A	1502	7YN	C09-C08	3.08	1.53	1.36
3	B	1502	7YN	C14-N15	3.08	1.46	1.39
3	A	1502	7YN	O26-C24	-3.07	1.40	1.44
3	D	1502	7YN	C09-C08	3.07	1.53	1.36
3	E	1502	7YN	C09-C08	3.07	1.53	1.36
3	F	1502	7YN	C09-C08	3.06	1.53	1.36
3	C	1502	7YN	C09-C08	3.05	1.53	1.36
3	F	1502	7YN	C14-N15	3.05	1.46	1.39
3	C	1502	7YN	O26-C24	-3.02	1.40	1.44
3	C	1502	7YN	C14-N15	3.02	1.46	1.39
3	E	1502	7YN	C14-N15	2.97	1.46	1.39
3	D	1502	7YN	S17-N15	2.73	1.70	1.64
3	A	1502	7YN	S17-N15	2.70	1.70	1.64
3	B	1502	7YN	S17-N15	2.59	1.69	1.64
3	F	1502	7YN	S17-N15	2.56	1.69	1.64
3	E	1502	7YN	S17-N15	2.53	1.69	1.64
3	C	1502	7YN	S17-N15	2.46	1.69	1.64
2	A	1501	ADP	C5-C4	2.45	1.47	1.40
2	C	1501	ADP	C5-C4	2.44	1.47	1.40
2	F	1501	ADP	C5-C4	2.44	1.47	1.40
2	B	1501	ADP	C5-C4	2.44	1.47	1.40
2	E	1501	ADP	C5-C4	2.43	1.47	1.40
2	D	1501	ADP	C5-C4	2.43	1.47	1.40

All (90) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1502	7YN	C01-C02-C04	-4.85	116.06	121.75
3	D	1502	7YN	C01-C02-C04	-4.84	116.07	121.75
3	F	1502	7YN	C01-C02-C04	-4.84	116.07	121.75
3	A	1502	7YN	C01-C02-C04	-4.82	116.10	121.75
3	E	1502	7YN	C01-C02-C04	-4.77	116.15	121.75
3	B	1502	7YN	C01-C02-C04	-4.74	116.19	121.75
3	B	1502	7YN	C19-S17-N15	4.59	112.63	107.27
3	E	1502	7YN	C19-S17-N15	4.43	112.45	107.27
3	F	1502	7YN	C19-S17-N15	4.38	112.39	107.27
3	D	1502	7YN	C19-S17-N15	4.24	112.22	107.27
3	A	1502	7YN	C19-S17-N15	4.21	112.19	107.27
3	D	1502	7YN	C06-C05-C03	-4.18	116.19	122.28
3	C	1502	7YN	C06-C05-C03	-4.15	116.24	122.28
3	F	1502	7YN	C06-C05-C03	-4.13	116.25	122.28
3	A	1502	7YN	C06-C05-C03	-4.12	116.28	122.28
3	E	1502	7YN	C06-C05-C03	-4.12	116.28	122.28
3	B	1502	7YN	C06-C05-C03	-4.10	116.31	122.28
3	C	1502	7YN	C02-N13-C14	4.09	127.87	121.82
3	D	1502	7YN	C02-N13-C14	4.07	127.83	121.82
3	F	1502	7YN	C02-N13-C14	4.07	127.83	121.82
3	A	1502	7YN	C02-N13-C14	4.06	127.82	121.82
3	C	1502	7YN	C19-S17-N15	4.03	111.98	107.27
3	B	1502	7YN	C02-N13-C14	4.01	127.74	121.82
2	B	1501	ADP	PA-O3A-PB	-3.88	119.51	132.83
2	A	1501	ADP	PA-O3A-PB	-3.88	119.52	132.83
2	D	1501	ADP	PA-O3A-PB	-3.88	119.52	132.83
2	E	1501	ADP	PA-O3A-PB	-3.86	119.57	132.83
2	F	1501	ADP	PA-O3A-PB	-3.84	119.63	132.83
2	C	1501	ADP	PA-O3A-PB	-3.84	119.64	132.83
3	E	1502	7YN	C02-N13-C14	3.77	127.40	121.82
2	C	1501	ADP	C3'-C2'-C1'	3.29	105.92	100.98
2	F	1501	ADP	C3'-C2'-C1'	3.26	105.88	100.98
2	A	1501	ADP	C3'-C2'-C1'	3.22	105.82	100.98
2	D	1501	ADP	C3'-C2'-C1'	3.22	105.82	100.98
2	B	1501	ADP	C3'-C2'-C1'	3.19	105.78	100.98
2	E	1501	ADP	C3'-C2'-C1'	3.17	105.75	100.98
2	A	1501	ADP	N3-C2-N1	-3.11	123.82	128.68
2	C	1501	ADP	N3-C2-N1	-3.10	123.83	128.68
2	F	1501	ADP	N3-C2-N1	-3.10	123.83	128.68
2	E	1501	ADP	N3-C2-N1	-3.10	123.84	128.68
3	D	1502	7YN	C05-C06-C09	-3.09	123.78	133.10
2	B	1501	ADP	N3-C2-N1	-3.09	123.85	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1502	7YN	C05-C06-C09	-3.08	123.80	133.10
3	A	1502	7YN	C05-C06-C09	-3.08	123.81	133.10
3	F	1502	7YN	C05-C06-C09	-3.07	123.84	133.10
2	D	1501	ADP	N3-C2-N1	-3.07	123.88	128.68
3	B	1502	7YN	C05-C06-C09	-3.07	123.85	133.10
3	E	1502	7YN	C05-C06-C09	-3.05	123.89	133.10
3	D	1502	7YN	C05-C03-C01	3.01	122.64	120.50
3	C	1502	7YN	C05-C03-C01	2.99	122.63	120.50
3	F	1502	7YN	C05-C03-C01	2.93	122.59	120.50
3	A	1502	7YN	C05-C03-C01	2.93	122.59	120.50
3	D	1502	7YN	C12-C03-C05	-2.89	124.70	129.41
3	C	1502	7YN	C12-C03-C05	-2.89	124.71	129.41
3	F	1502	7YN	C12-C03-C05	-2.88	124.71	129.41
3	E	1502	7YN	C05-C03-C01	2.87	122.54	120.50
3	A	1502	7YN	C12-C03-C05	-2.87	124.73	129.41
3	B	1502	7YN	C05-C03-C01	2.86	122.54	120.50
3	E	1502	7YN	C12-C03-C05	-2.86	124.75	129.41
3	B	1502	7YN	C12-C03-C05	-2.83	124.79	129.41
3	E	1502	7YN	C12-C03-C01	2.81	112.71	110.28
3	F	1502	7YN	C12-C03-C01	2.80	112.70	110.28
3	A	1502	7YN	C12-C03-C01	2.78	112.68	110.28
3	B	1502	7YN	C12-C03-C01	2.77	112.67	110.28
3	C	1502	7YN	C12-C03-C01	2.76	112.66	110.28
3	D	1502	7YN	C12-C03-C01	2.75	112.66	110.28
3	E	1502	7YN	N15-C14-N13	2.75	118.57	114.93
3	A	1502	7YN	N15-C14-N13	2.67	118.46	114.93
3	D	1502	7YN	N15-C14-N13	2.66	118.46	114.93
3	C	1502	7YN	N15-C14-N13	2.65	118.45	114.93
3	C	1502	7YN	C27-C24-C25	-2.65	107.24	110.49
2	F	1501	ADP	C4-C5-N7	-2.64	106.65	109.40
3	E	1502	7YN	C27-C24-C25	-2.63	107.27	110.49
2	C	1501	ADP	C4-C5-N7	-2.61	106.67	109.40
2	B	1501	ADP	C4-C5-N7	-2.59	106.70	109.40
3	F	1502	7YN	C27-C24-C25	-2.58	107.33	110.49
3	F	1502	7YN	N15-C14-N13	2.58	118.34	114.93
2	A	1501	ADP	C4-C5-N7	-2.56	106.73	109.40
3	B	1502	7YN	N15-C14-N13	2.56	118.31	114.93
2	E	1501	ADP	C4-C5-N7	-2.54	106.75	109.40
2	D	1501	ADP	C4-C5-N7	-2.52	106.77	109.40
3	B	1502	7YN	C27-C24-C25	-2.52	107.40	110.49
3	D	1502	7YN	C27-C24-C25	-2.48	107.46	110.49
3	A	1502	7YN	C27-C24-C25	-2.47	107.47	110.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1502	7YN	O28-S17-C19	-2.27	103.93	107.66
3	E	1502	7YN	O28-S17-C19	-2.25	103.95	107.66
3	F	1502	7YN	O28-S17-C19	-2.25	103.96	107.66
3	C	1502	7YN	O28-S17-C19	-2.18	104.08	107.66
3	A	1502	7YN	O28-S17-C19	-2.16	104.10	107.66
3	D	1502	7YN	O28-S17-C19	-2.14	104.14	107.66

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1501	ADP	C5'-O5'-PA-O1A
2	E	1501	ADP	C5'-O5'-PA-O1A
2	F	1501	ADP	C5'-O5'-PA-O1A
2	A	1501	ADP	C3'-C4'-C5'-O5'
2	D	1501	ADP	C3'-C4'-C5'-O5'
2	B	1501	ADP	C3'-C4'-C5'-O5'
2	E	1501	ADP	C3'-C4'-C5'-O5'
2	C	1501	ADP	C3'-C4'-C5'-O5'
2	F	1501	ADP	C3'-C4'-C5'-O5'
2	A	1501	ADP	O4'-C4'-C5'-O5'
2	D	1501	ADP	O4'-C4'-C5'-O5'
2	B	1501	ADP	O4'-C4'-C5'-O5'
2	E	1501	ADP	O4'-C4'-C5'-O5'
2	C	1501	ADP	O4'-C4'-C5'-O5'
2	F	1501	ADP	O4'-C4'-C5'-O5'
2	A	1501	ADP	C5'-O5'-PA-O3A
2	C	1501	ADP	C5'-O5'-PA-O3A
2	D	1501	ADP	C5'-O5'-PA-O3A
2	F	1501	ADP	C5'-O5'-PA-O3A

There are no ring outliers.

10 monomers are involved in 10 short contacts:

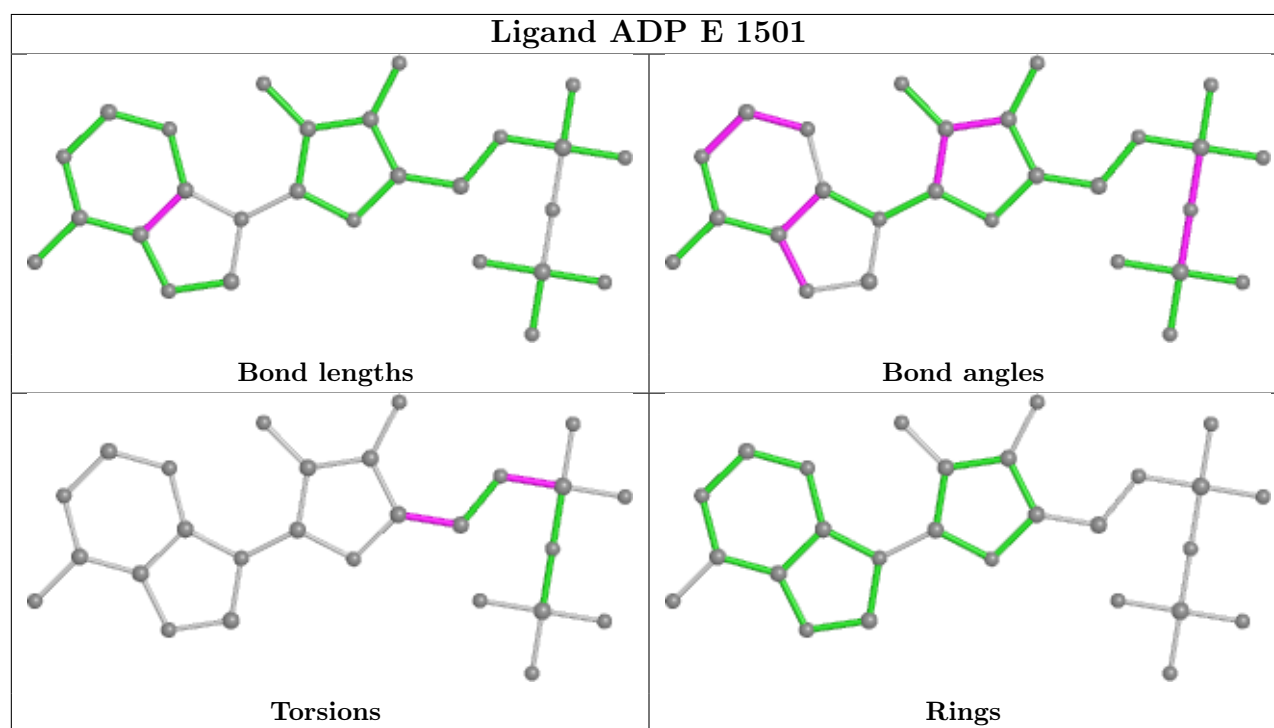
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	1501	ADP	1	0
2	F	1501	ADP	1	0
3	B	1502	7YN	1	0
3	E	1502	7YN	1	0
2	B	1501	ADP	1	0
3	C	1502	7YN	1	0

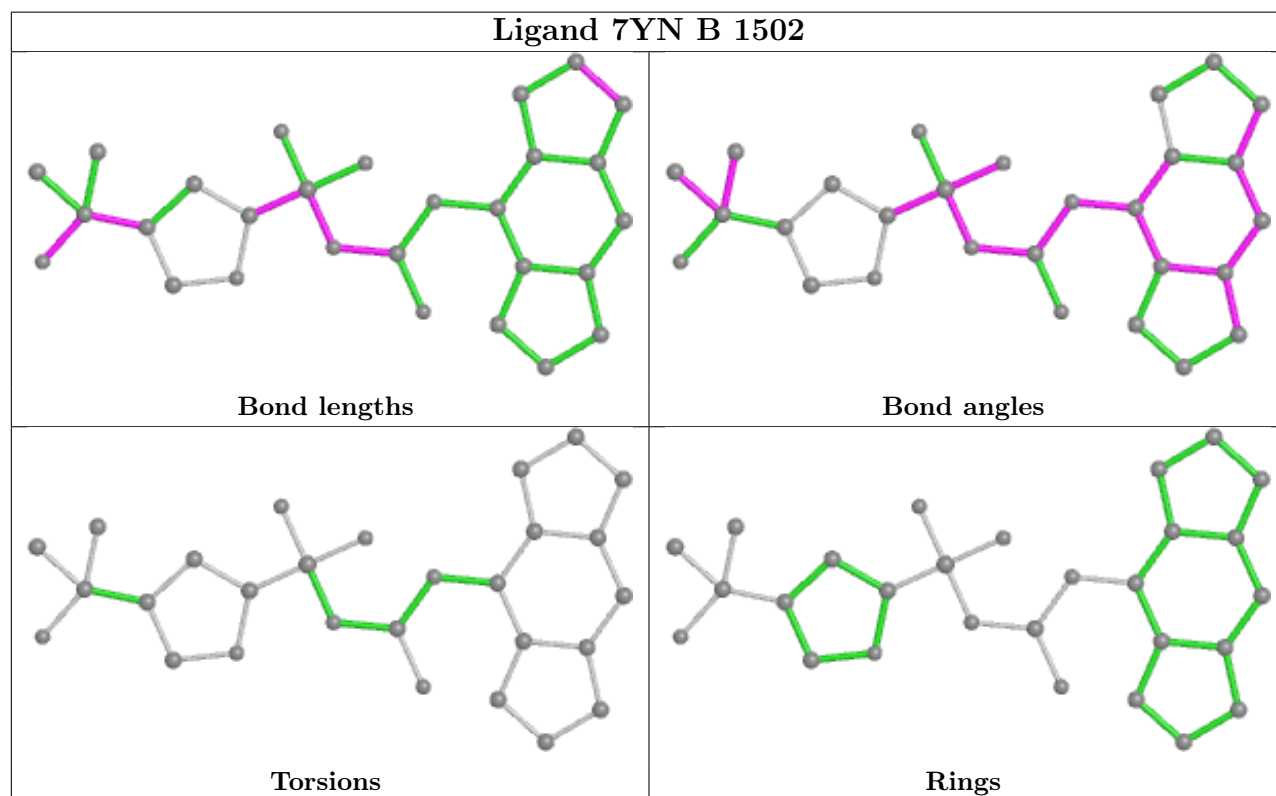
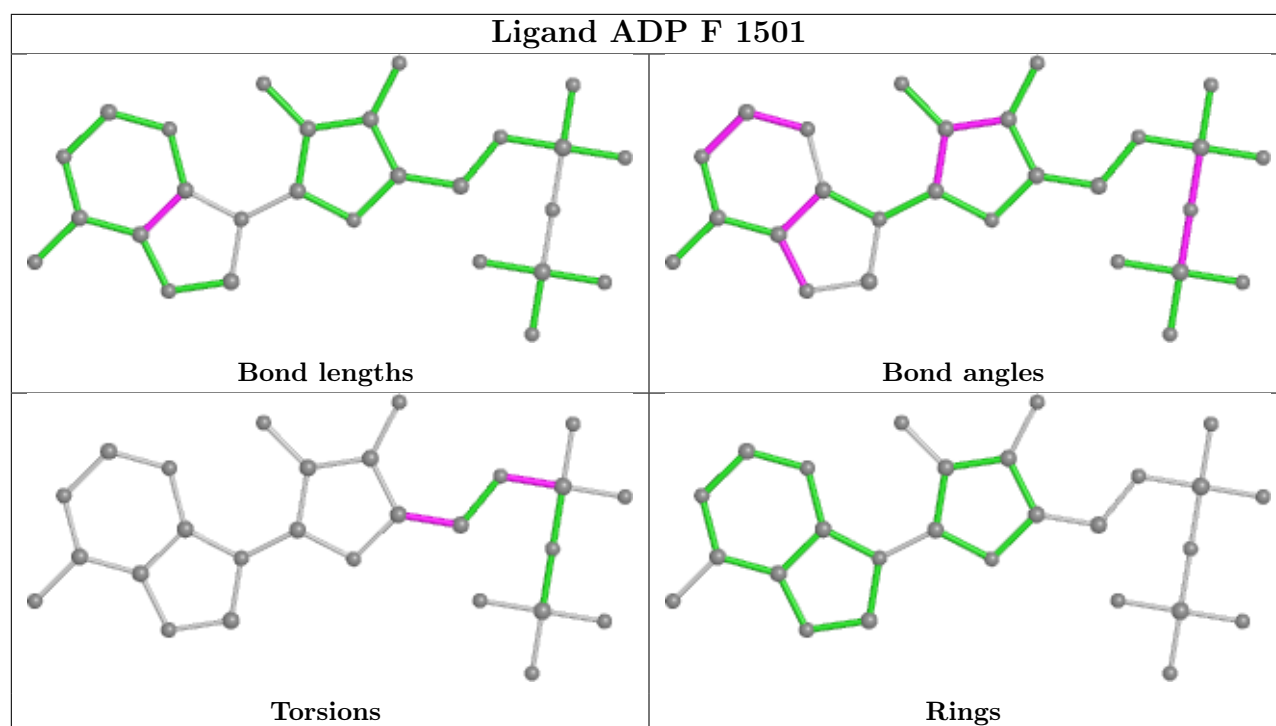
*Continued on next page...*

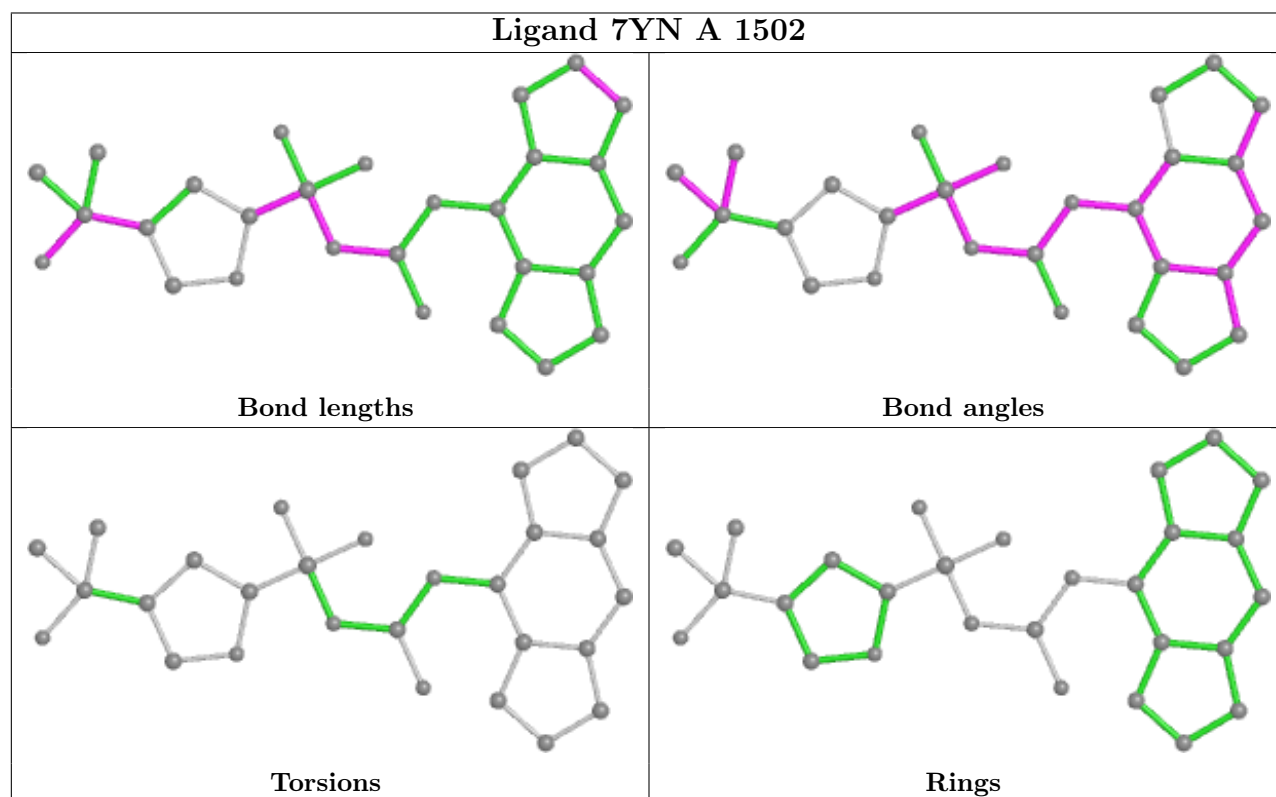
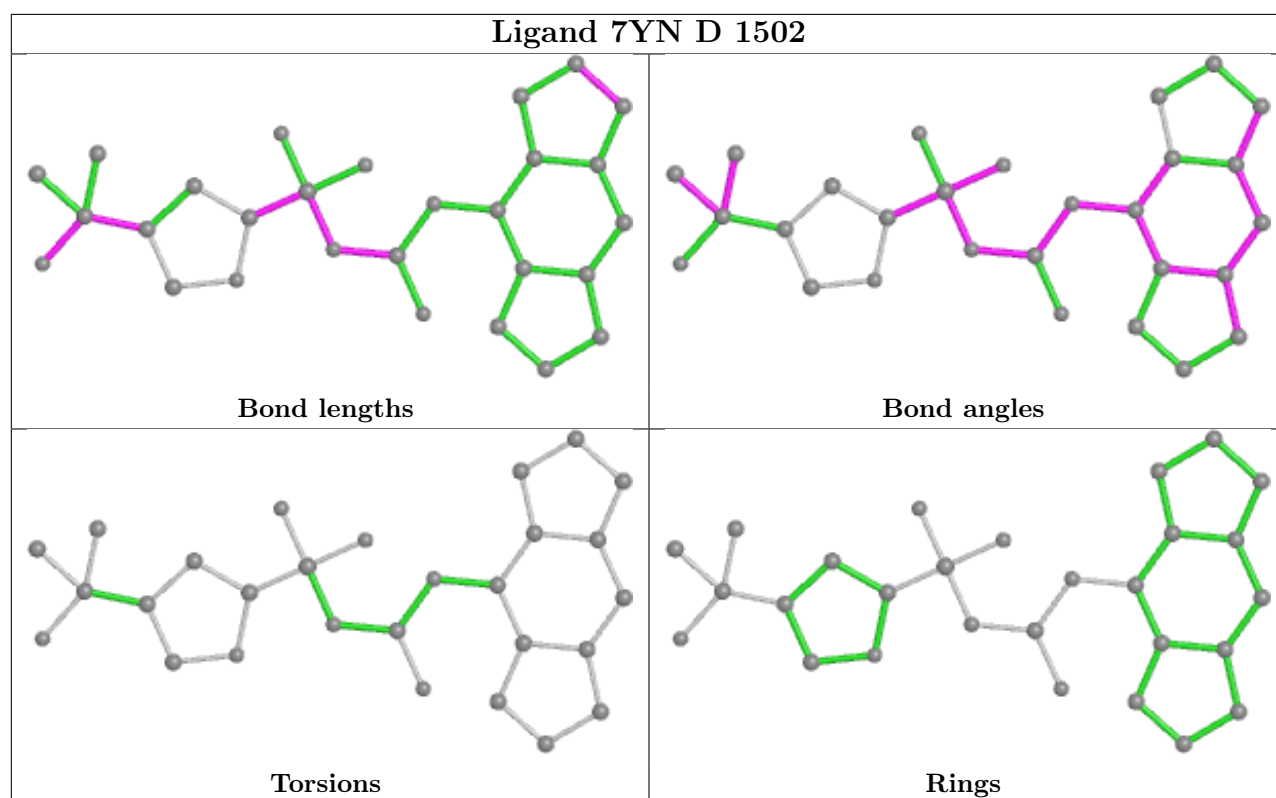
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1501	ADP	1	0
2	C	1501	ADP	1	0
2	A	1501	ADP	1	0
3	F	1502	7YN	1	0

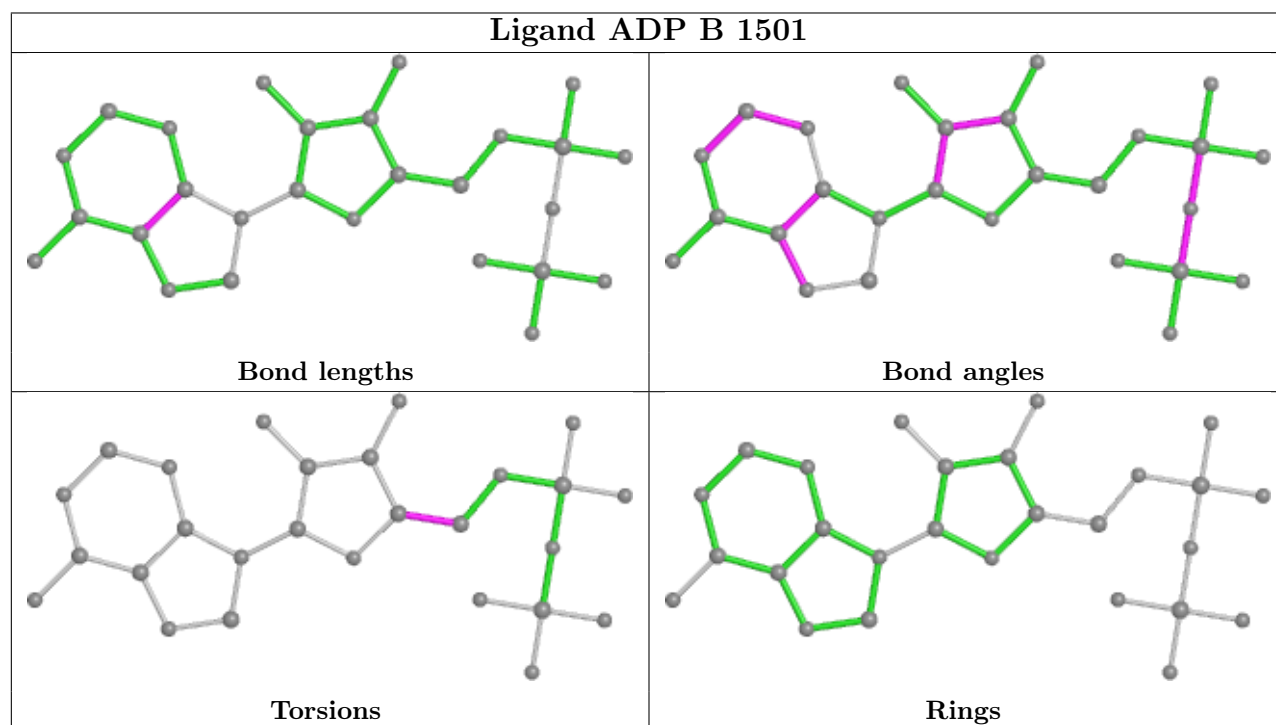
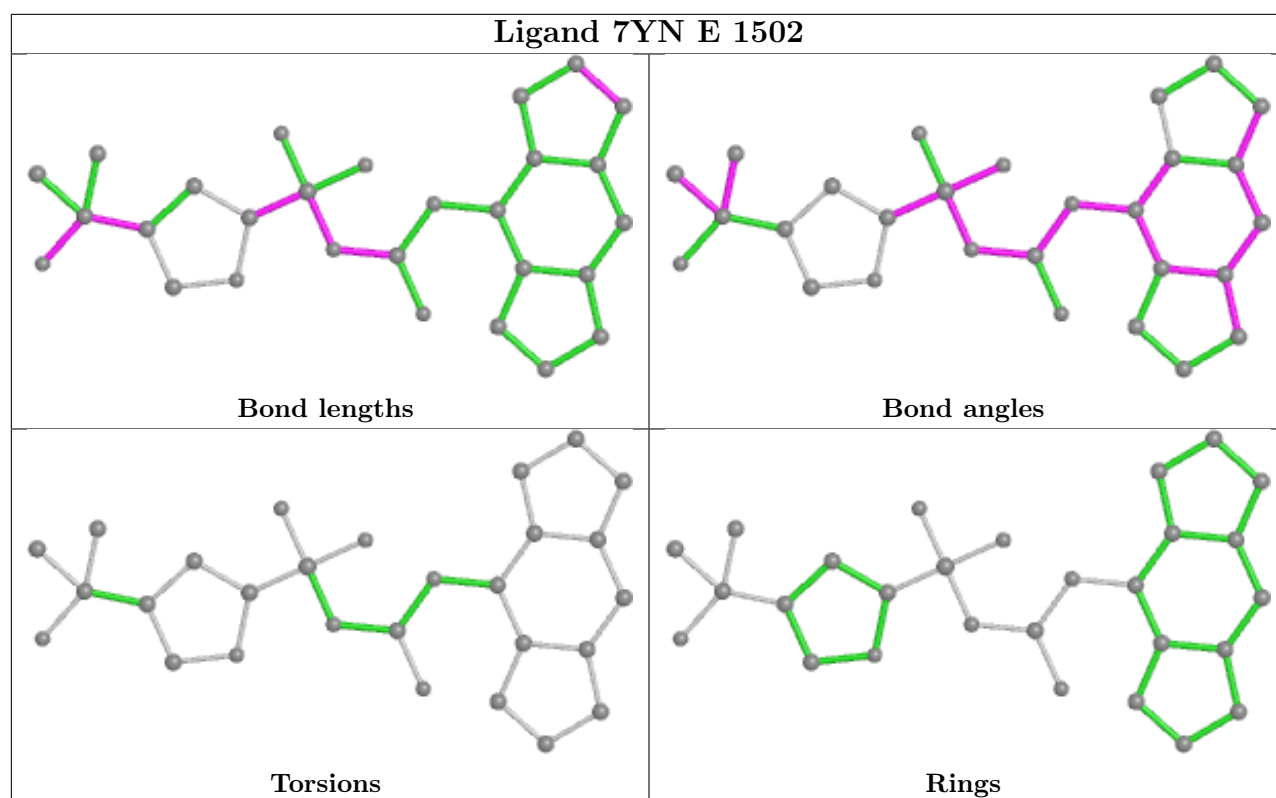
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

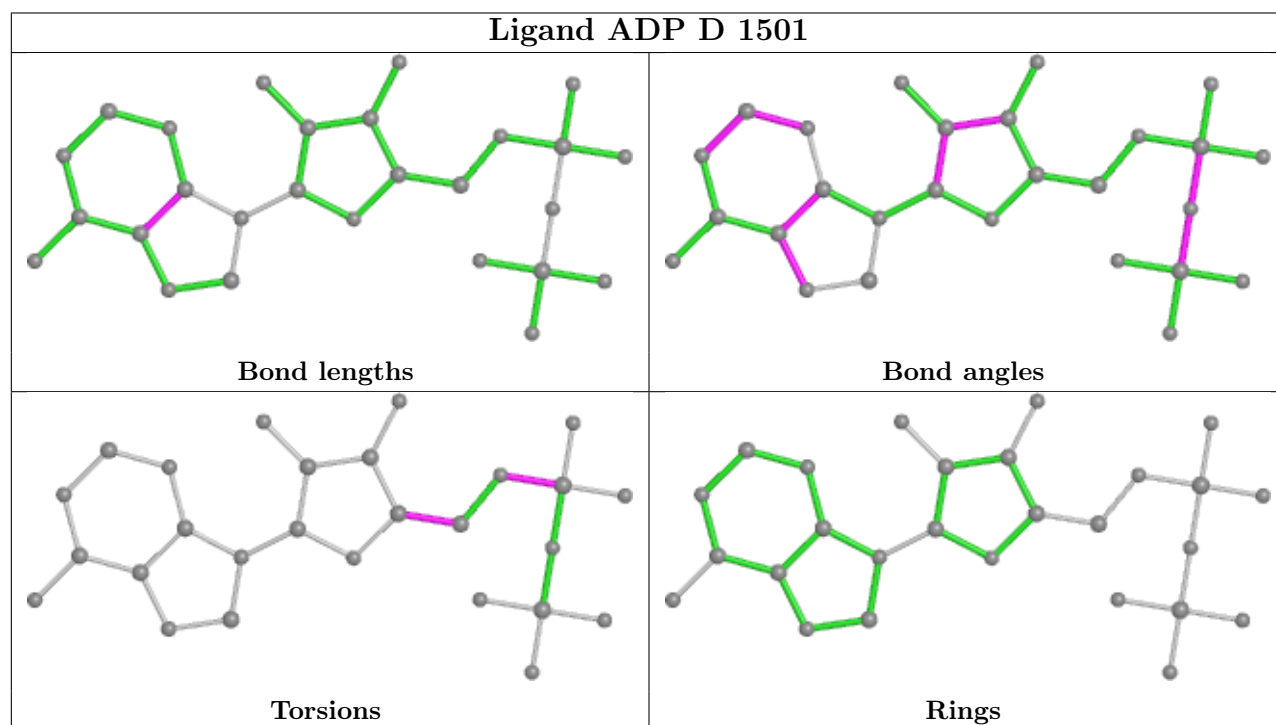
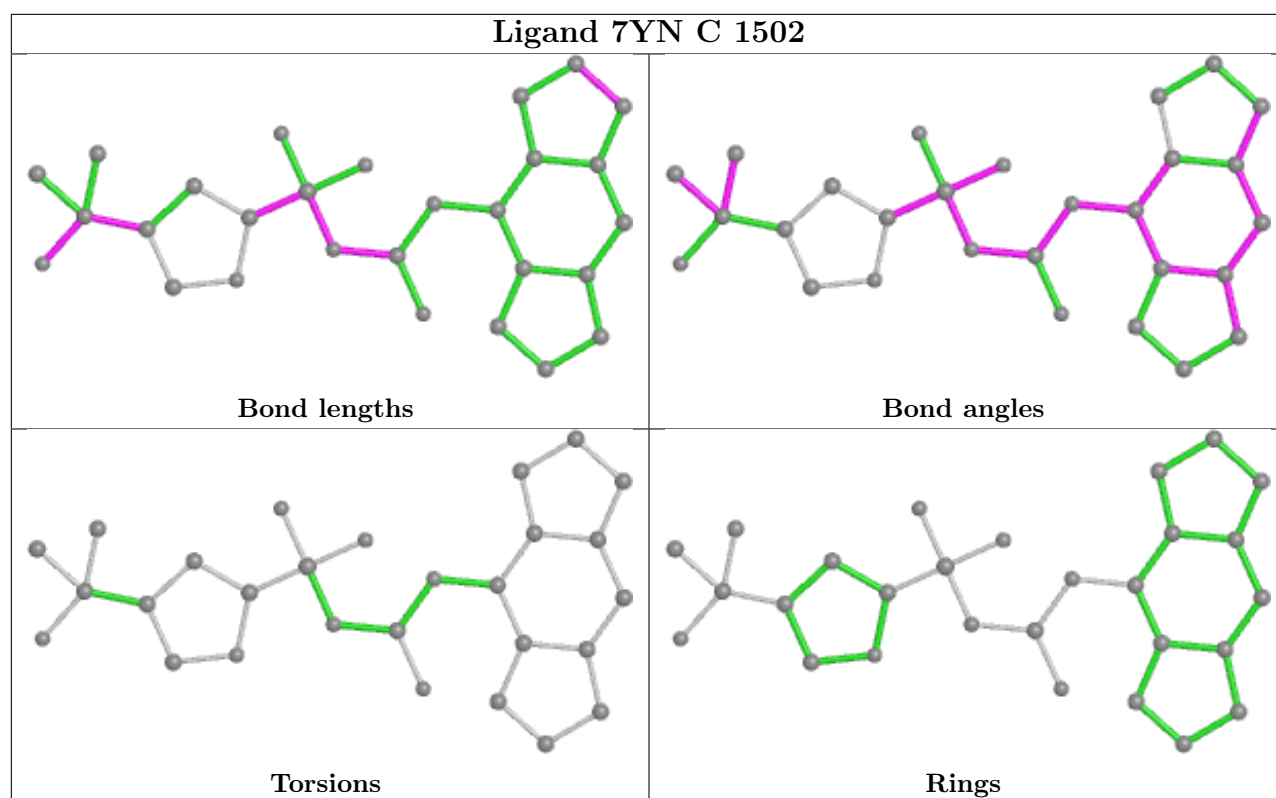


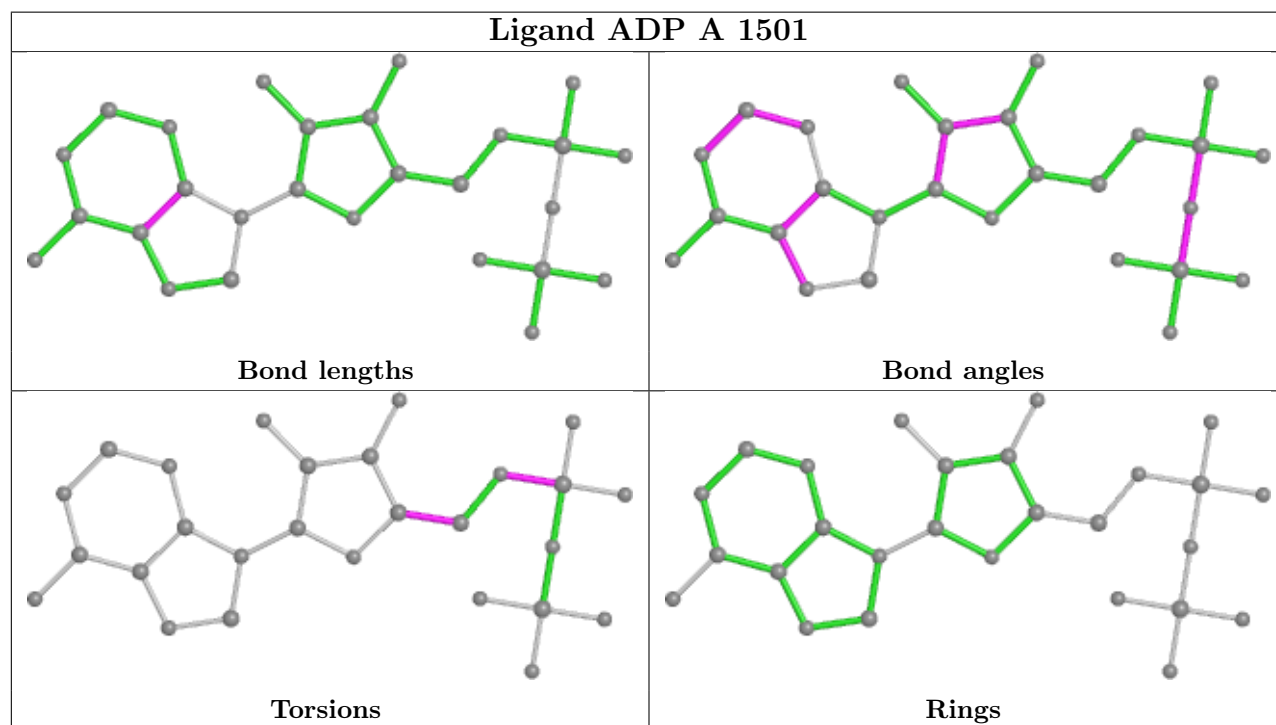
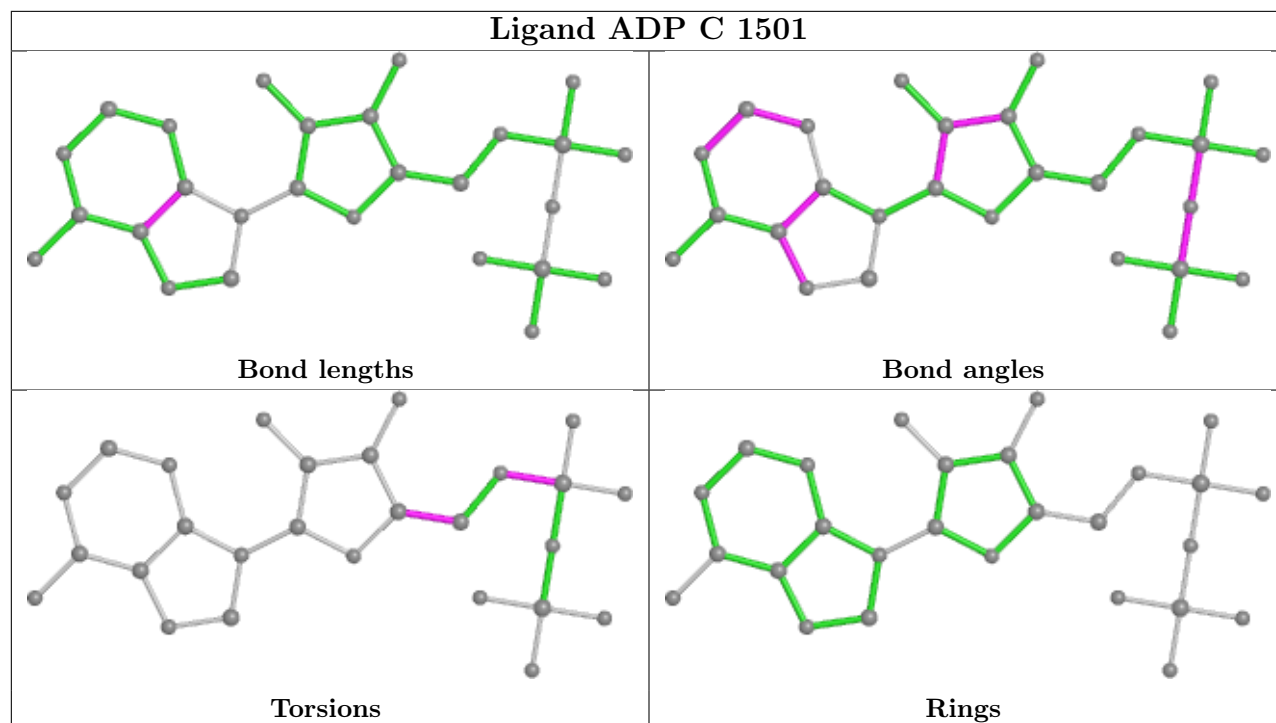


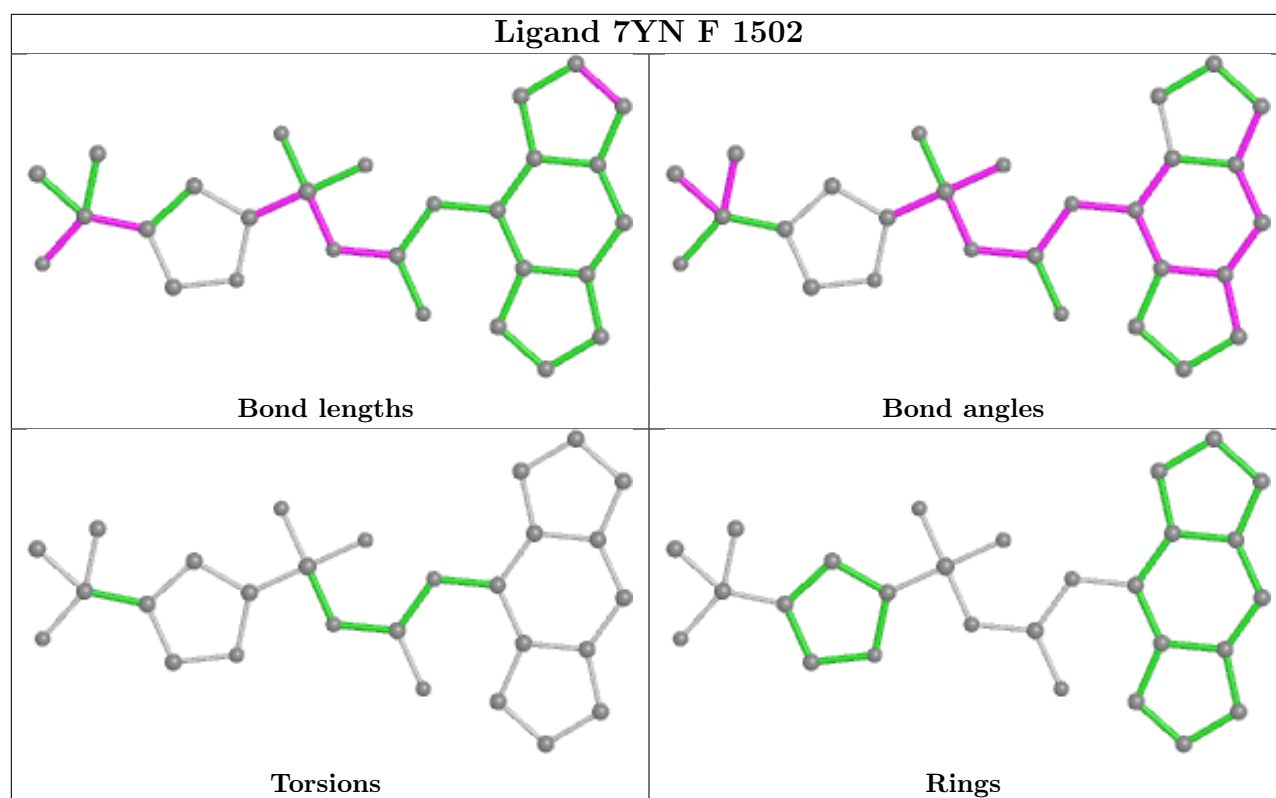












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

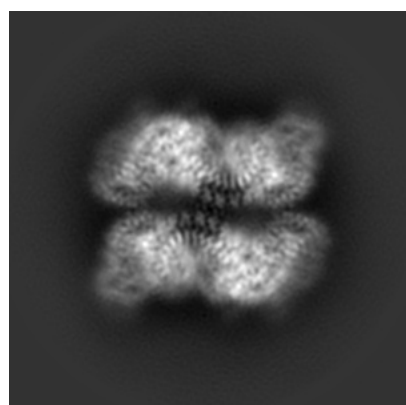
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32119. These allow visual inspection of the internal detail of the map and identification of artifacts.

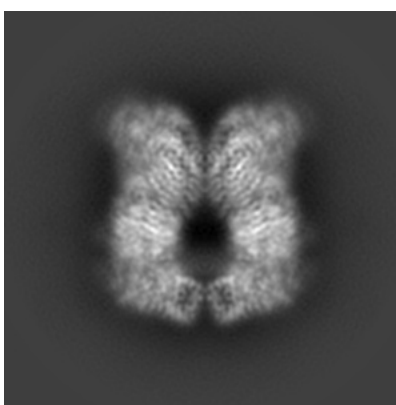
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

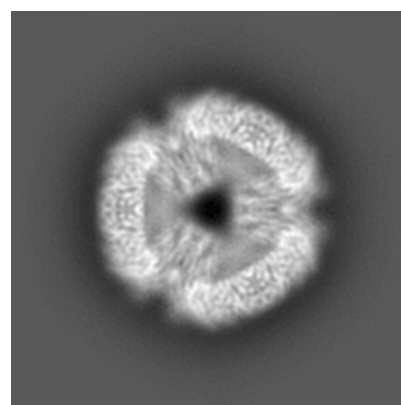
#### 6.1.1 Primary map



X



Y

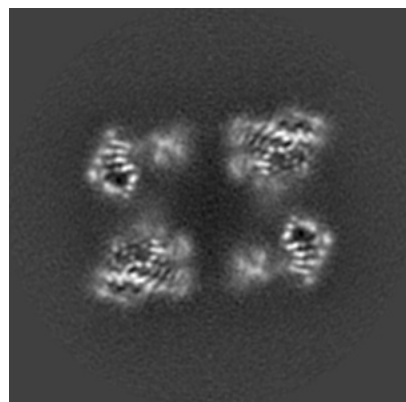


Z

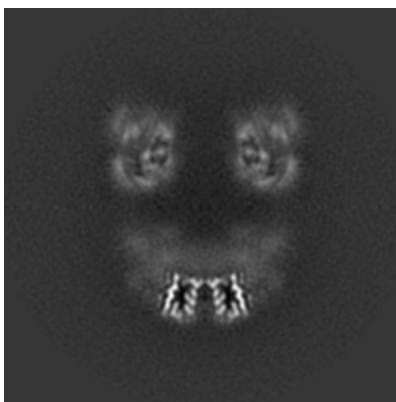
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

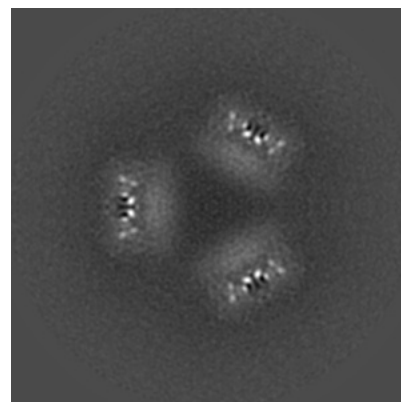
#### 6.2.1 Primary map



X Index: 100



Y Index: 100

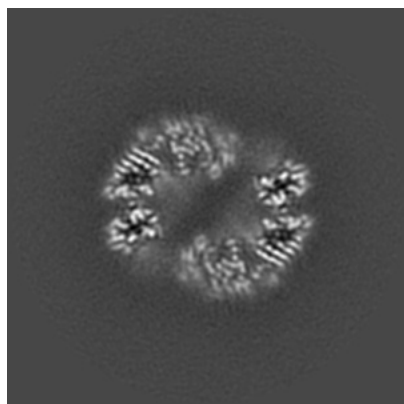


Z Index: 100

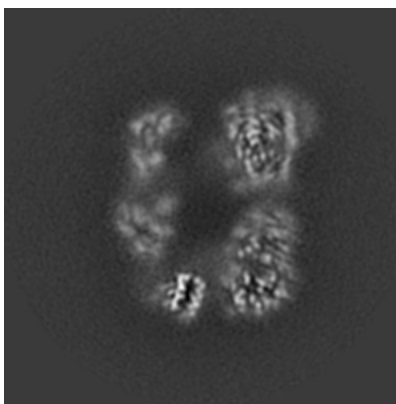
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

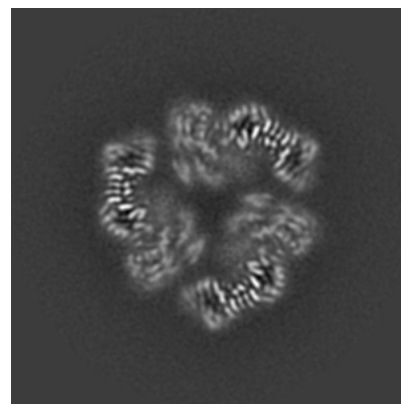
### 6.3.1 Primary map



X Index: 126



Y Index: 88

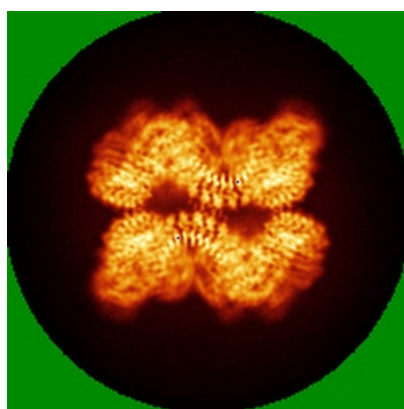


Z Index: 117

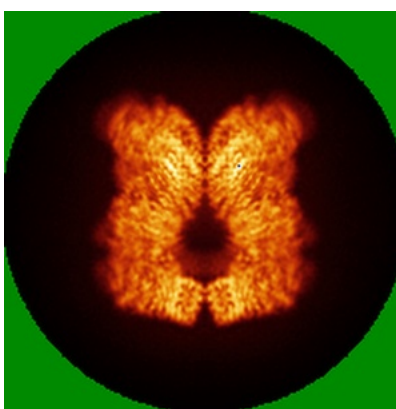
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

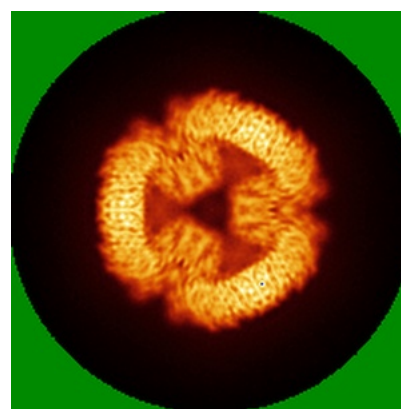
### 6.4.1 Primary map



X



Y

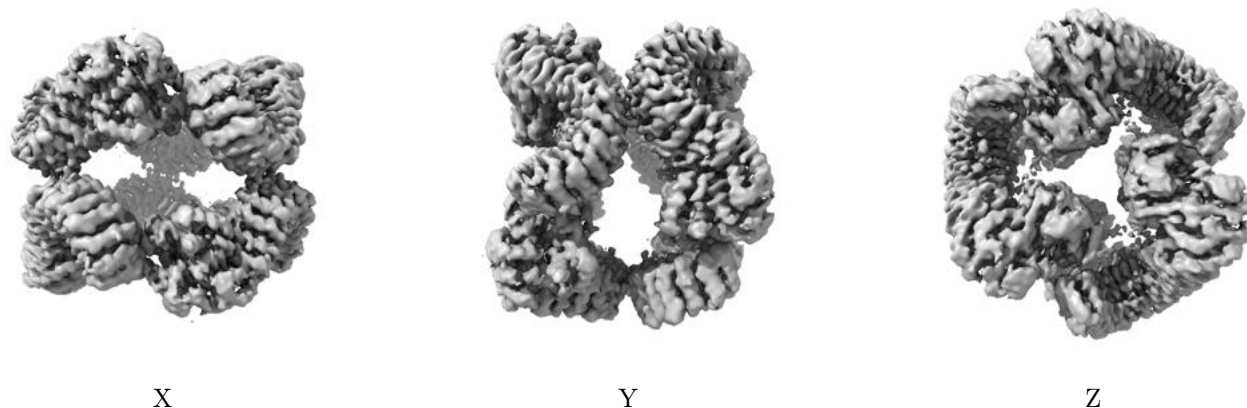


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

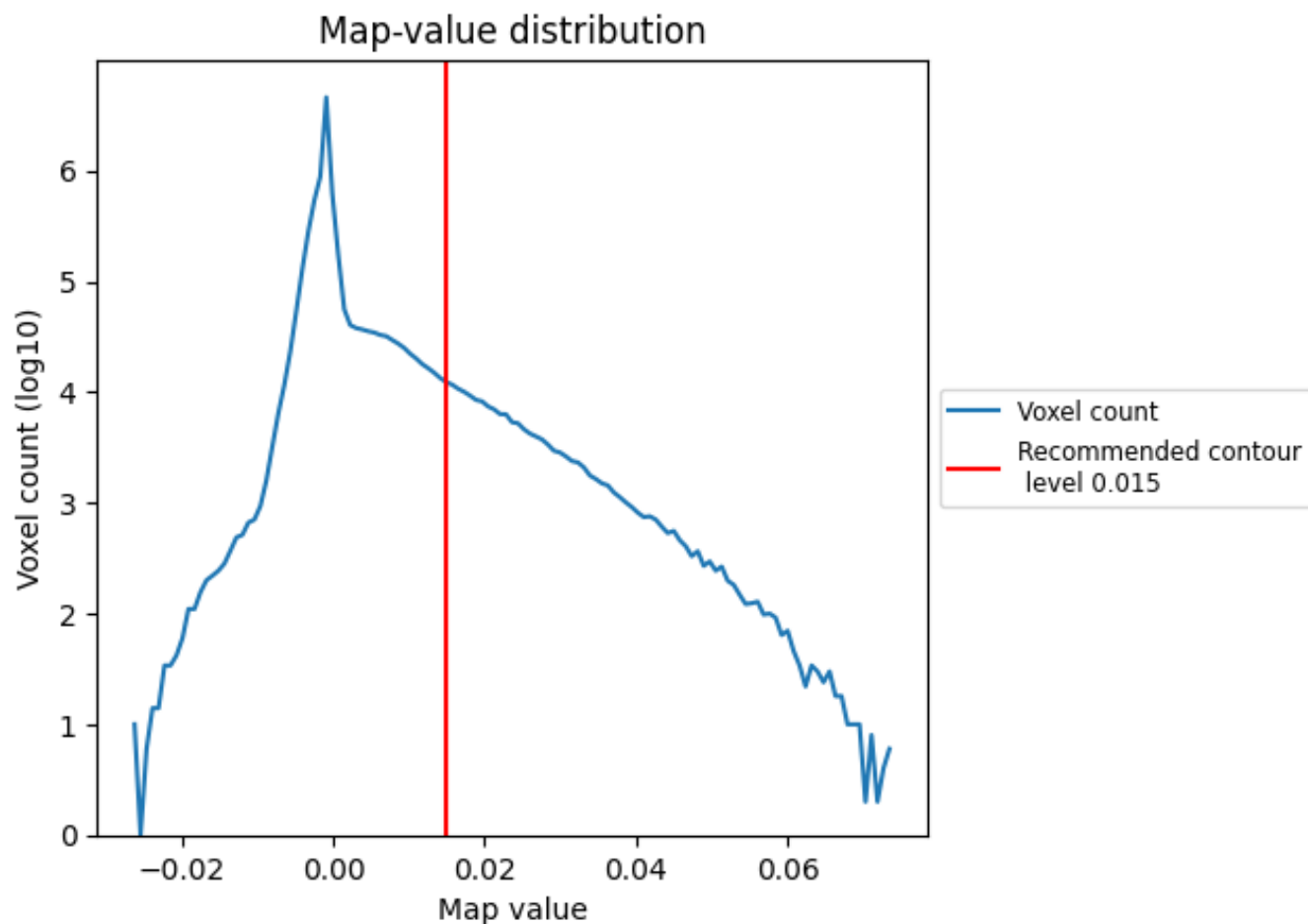
## 6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

This section contains the results of statistical analysis of the map.

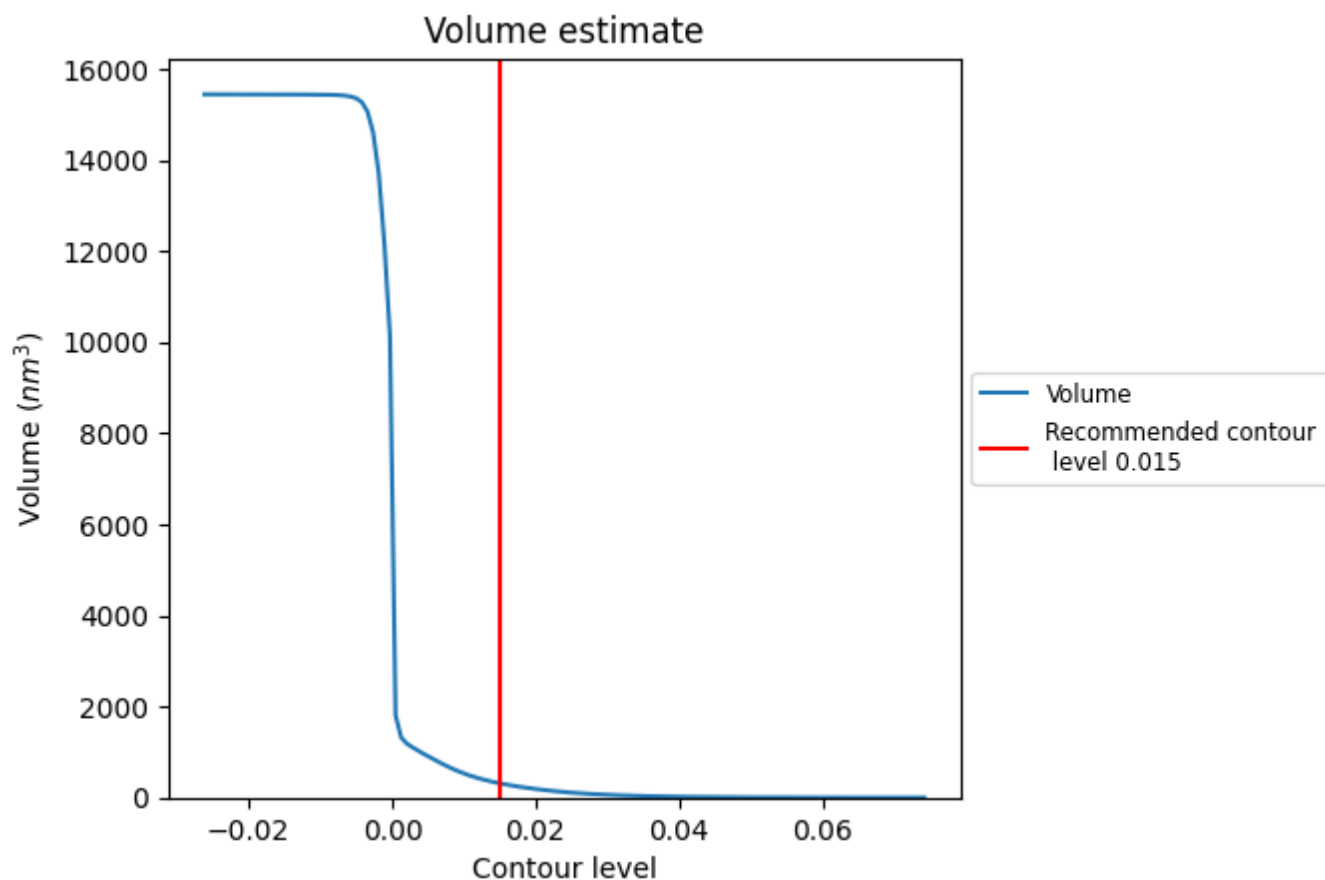
### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.



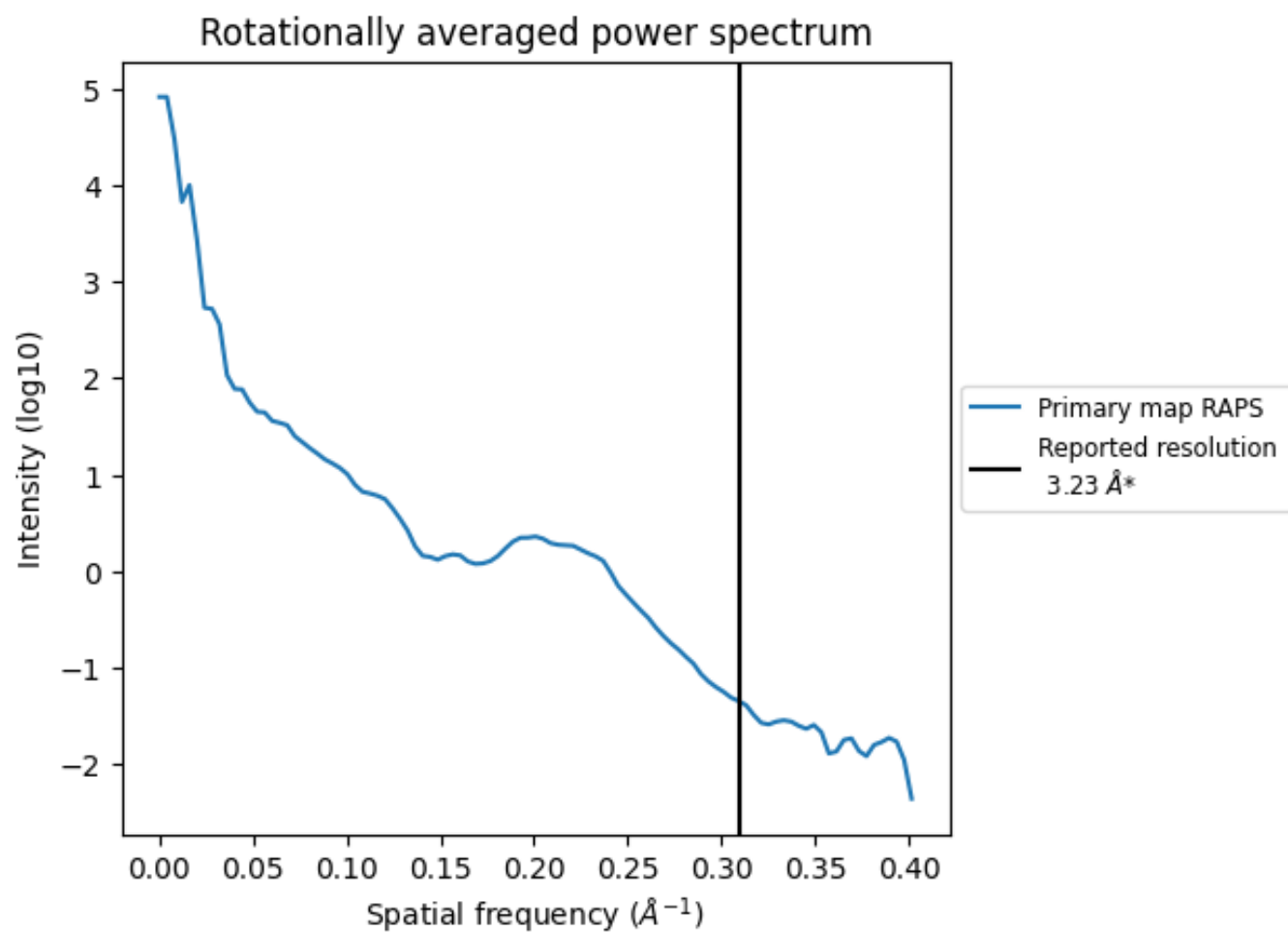
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $313 \text{ nm}^3$ ; this corresponds to an approximate mass of 283 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum ⓘ



\*Reported resolution corresponds to spatial frequency of 0.310 Å<sup>-1</sup>

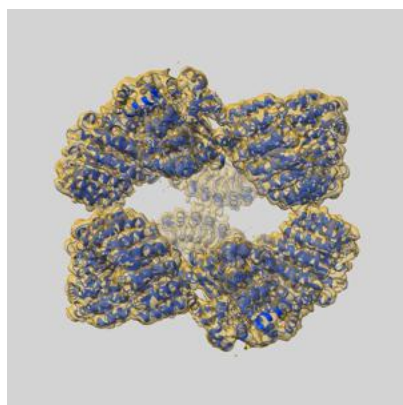
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

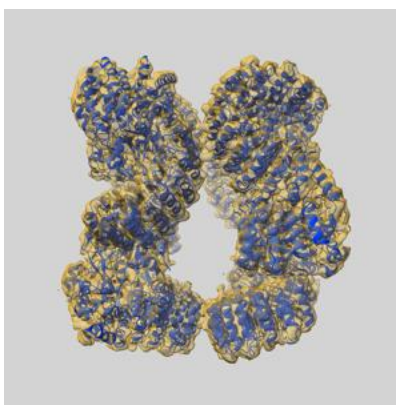
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-32119 and PDB model 7VTP. Per-residue inclusion information can be found in section [3](#) on page [9](#).

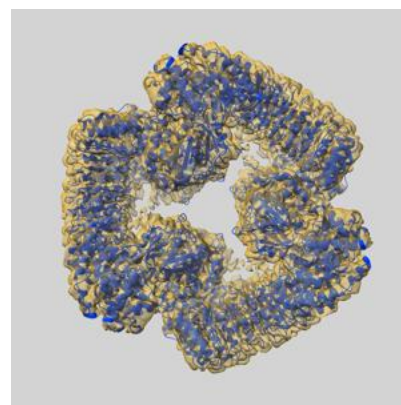
### 9.1 Map-model overlay [i](#)



X



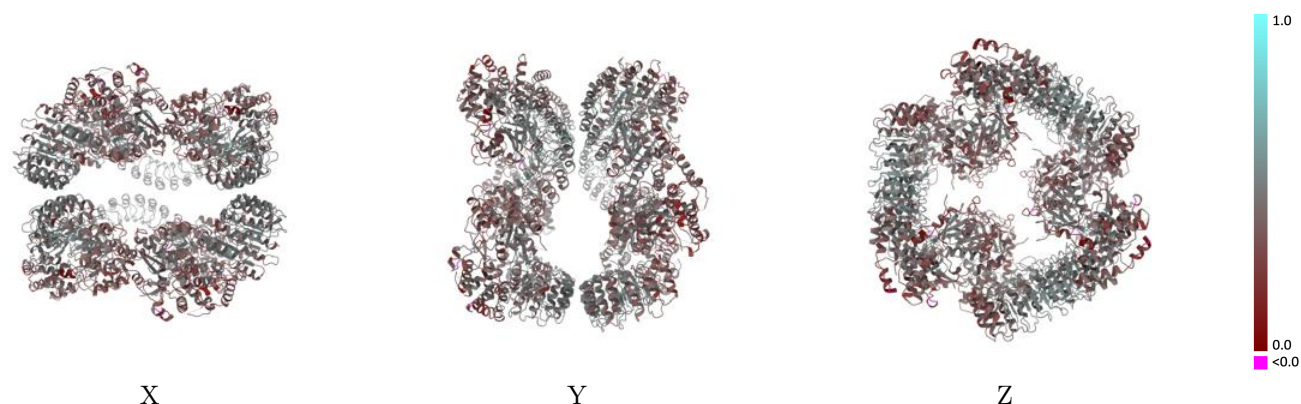
Y



Z

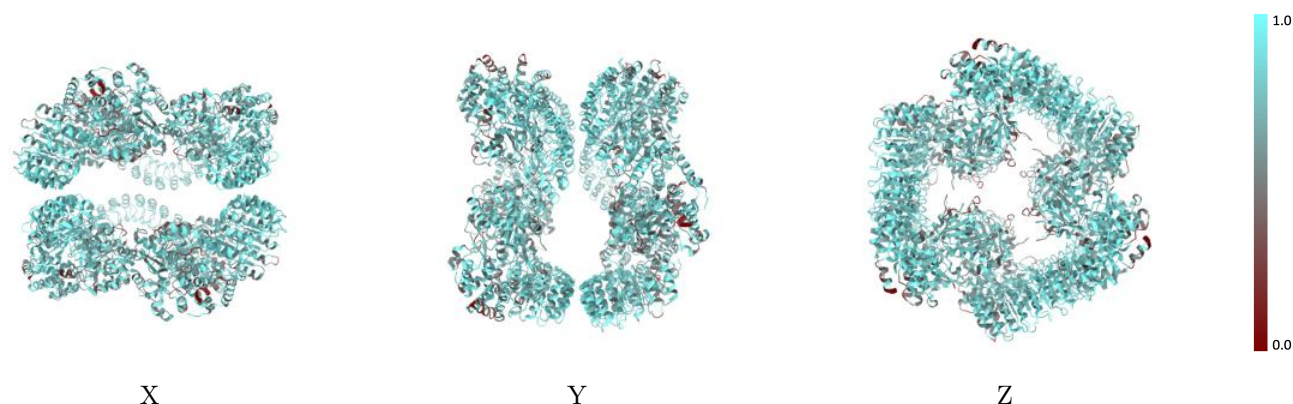
The images above show the 3D surface view of the map at the recommended contour level 0.015 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



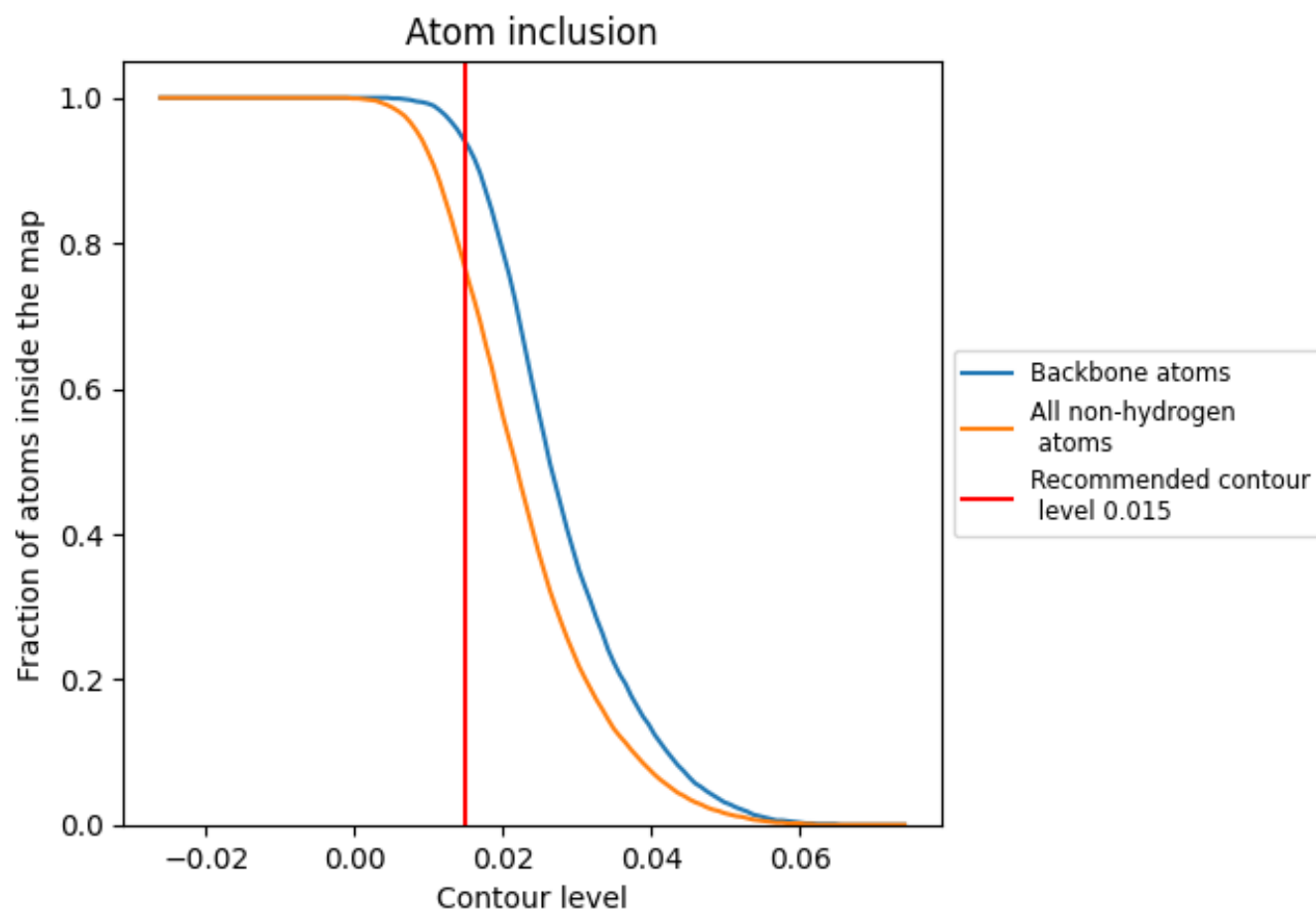
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.015).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 76% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.7620	<div></div> 0.4040
A	<div></div> 0.7620	<div></div> 0.4040
B	<div></div> 0.7640	<div></div> 0.4040
C	<div></div> 0.7620	<div></div> 0.4040
D	<div></div> 0.7620	<div></div> 0.4040
E	<div></div> 0.7620	<div></div> 0.4040
F	<div></div> 0.7600	<div></div> 0.4040

