



## Full wwPDB EM Validation Report ⓘ

Mar 10, 2024 – 08:46 AM EDT

PDB ID : 6UI9  
EMDB ID : EMD-20783  
Title : Structure of human ATP citrate lyase in complex with acetyl-CoA and oxaloacetate  
Authors : Wei, X.; Marmorstein, R.  
Deposited on : 2019-09-30  
Resolution : 3.10 Å(reported)  
Based on initial model : 3MWD

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>.

---

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

EMDB validation analysis : 0.0.1.dev70  
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) : 2.36

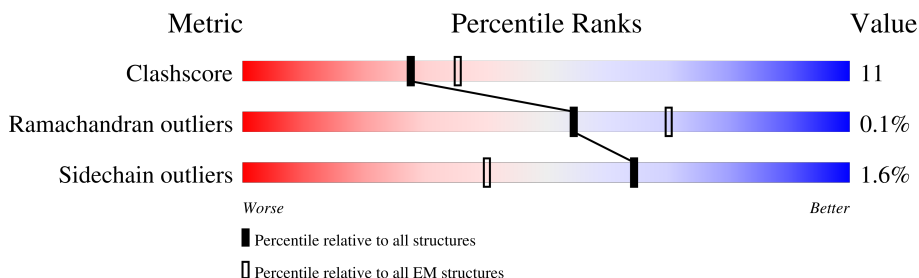
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.10 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	1101	
1	B	1101	
1	C	1101	
1	D	1101	

## 2 Entry composition [i](#)

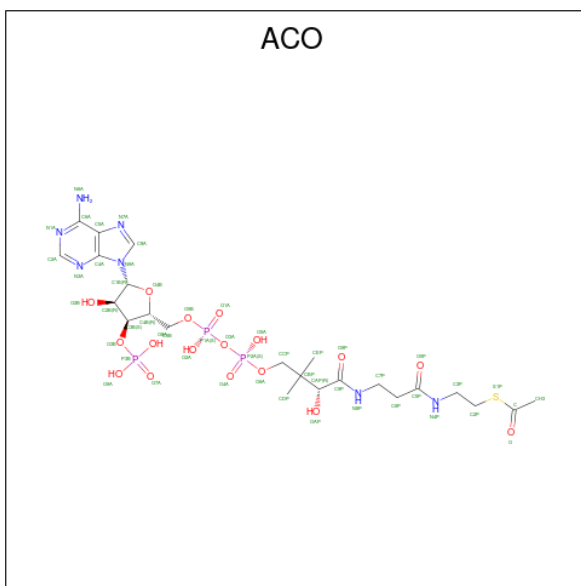
There are 4 unique types of molecules in this entry. The entry contains 31912 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ACLY.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1021	Total 7906	C 5064	N 1340	O 1458	S 44	2	0
1	B	1021	Total 7906	C 5064	N 1340	O 1458	S 44	2	0
1	C	1021	Total 7906	C 5064	N 1340	O 1458	S 44	2	0
1	D	1021	Total 7906	C 5064	N 1340	O 1458	S 44	2	0

- Molecule 2 is ACETYL COENZYME \*A (three-letter code: ACO) (formula: C<sub>23</sub>H<sub>38</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub>S) (labeled as "Ligand of Interest" by depositor).



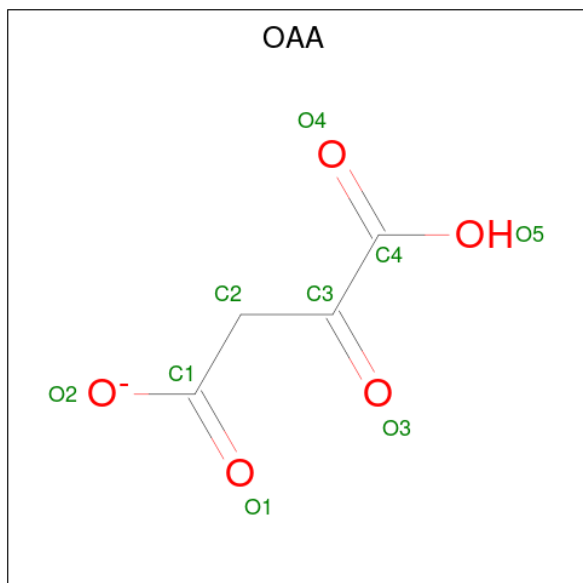
Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
2	A	1	Total 51	C 23	N 7	O 17	P 3	S 1	0
2	A	1	Total 51	C 23	N 7	O 17	P 3	S 1	0

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
2	B	1	Total	C	N	O	P	S	0
			51	23	7	17	3	1	
2	D	1	Total	C	N	O	P	S	0
			51	23	7	17	3	1	

- Molecule 3 is OXALOACETATE ION (three-letter code: OAA) (formula:  $C_4H_3O_5$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms		AltConf
			Total	O	
3	A	1	Total	O	0
			9	5	
3	A	1	Total	O	0
			9	5	
3	B	1	Total	O	0
			9	5	
3	B	1	Total	O	0
			9	5	
3	C	1	Total	O	0
			9	5	
3	C	1	Total	O	0
			9	5	
3	D	1	Total	O	0
			9	5	
3	D	1	Total	O	0
			9	5	

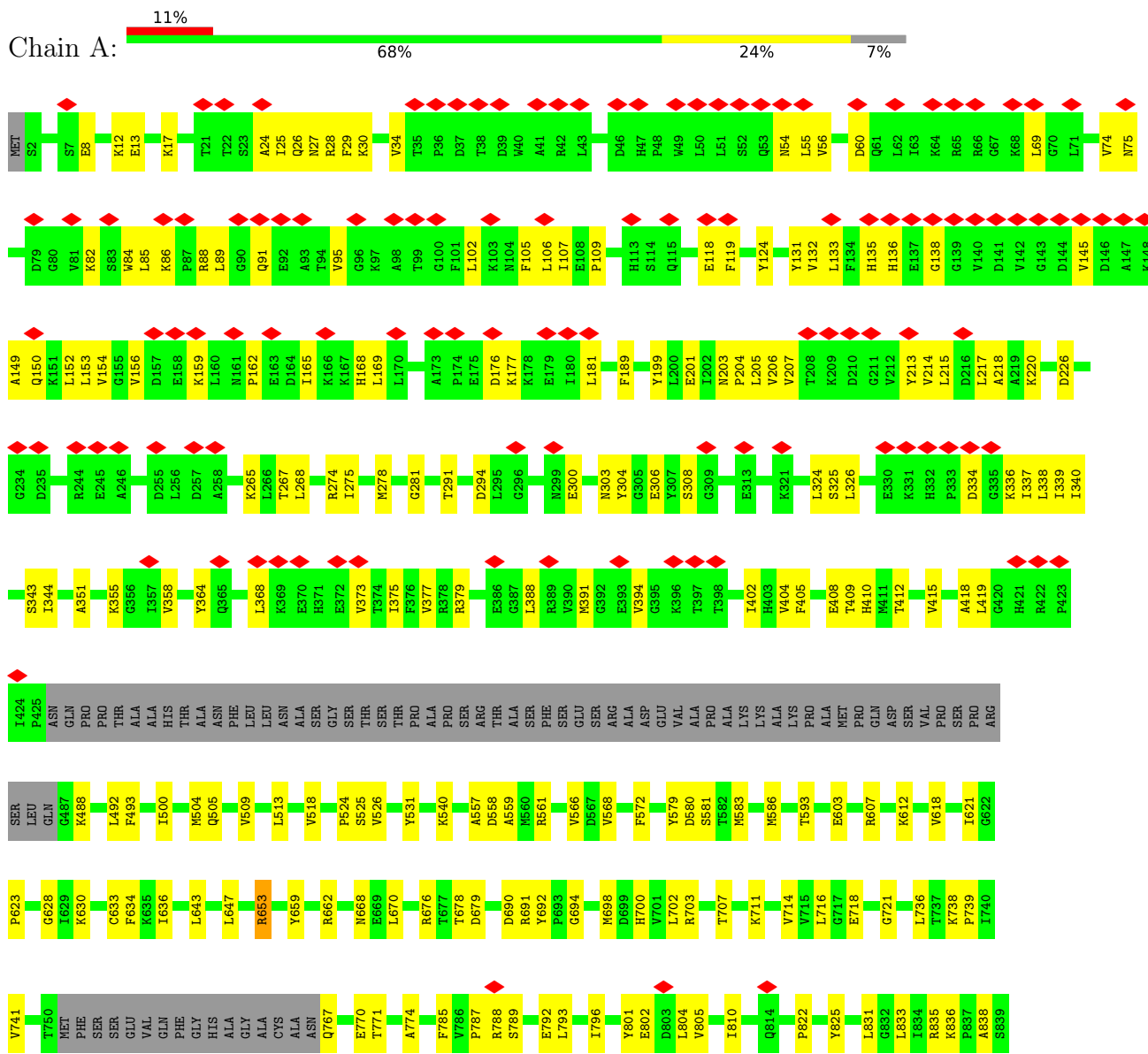
- Molecule 4 is water.

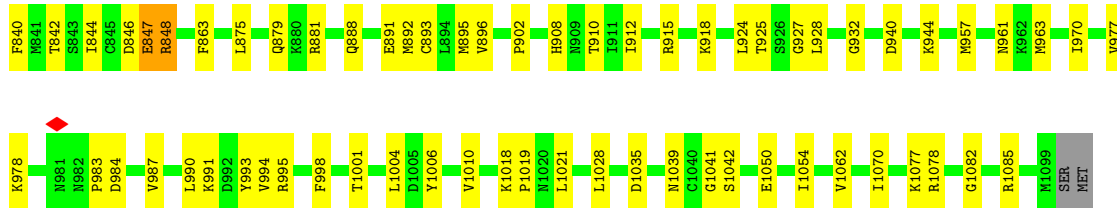
Mol	Chain	Residues	Atoms	AltConf
4	A	3	Total O 3 3	0
4	B	3	Total O 3 3	0
4	C	3	Total O 3 3	0
4	D	3	Total O 3 3	0

### 3 Residue-property plots

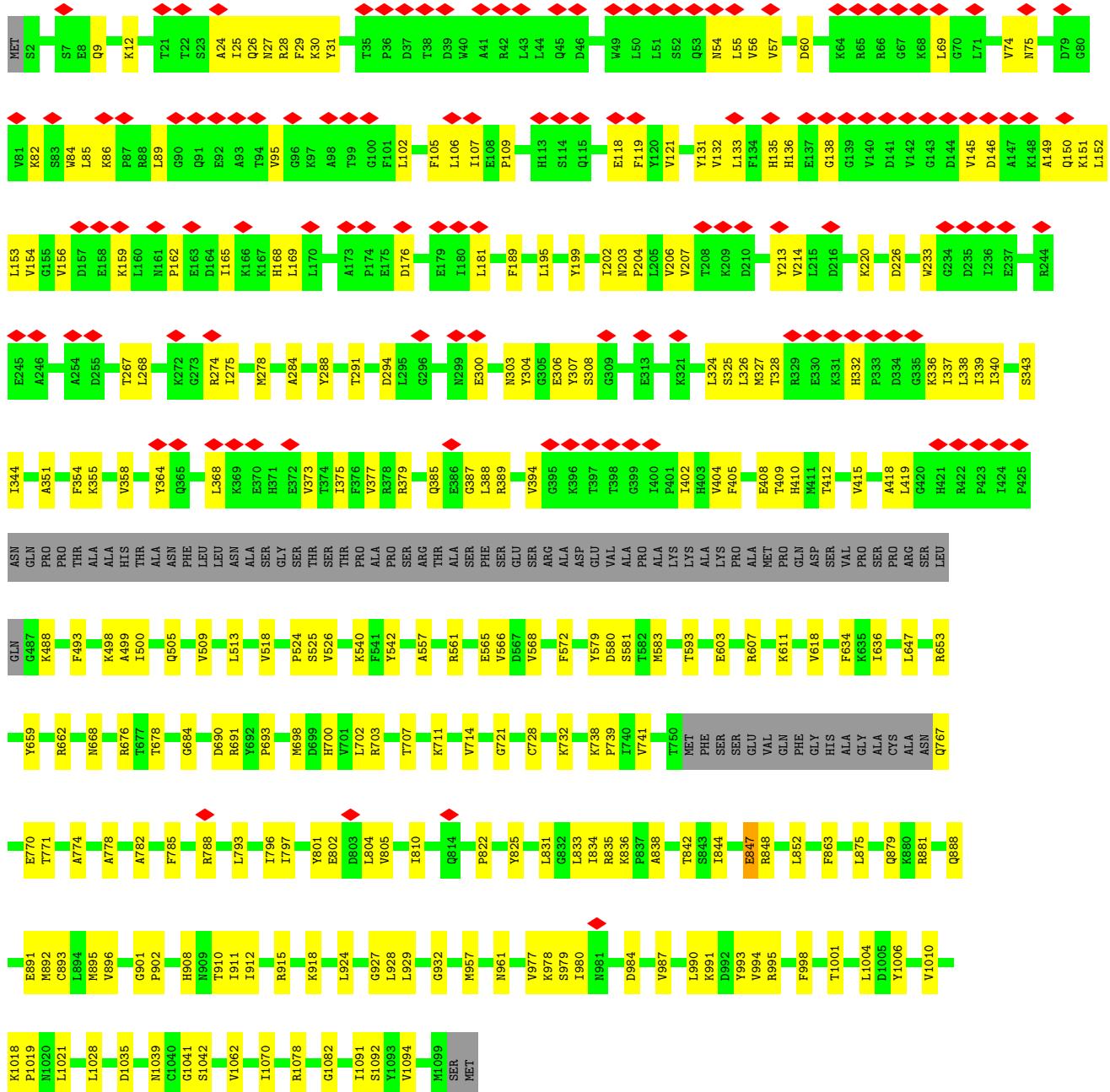
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

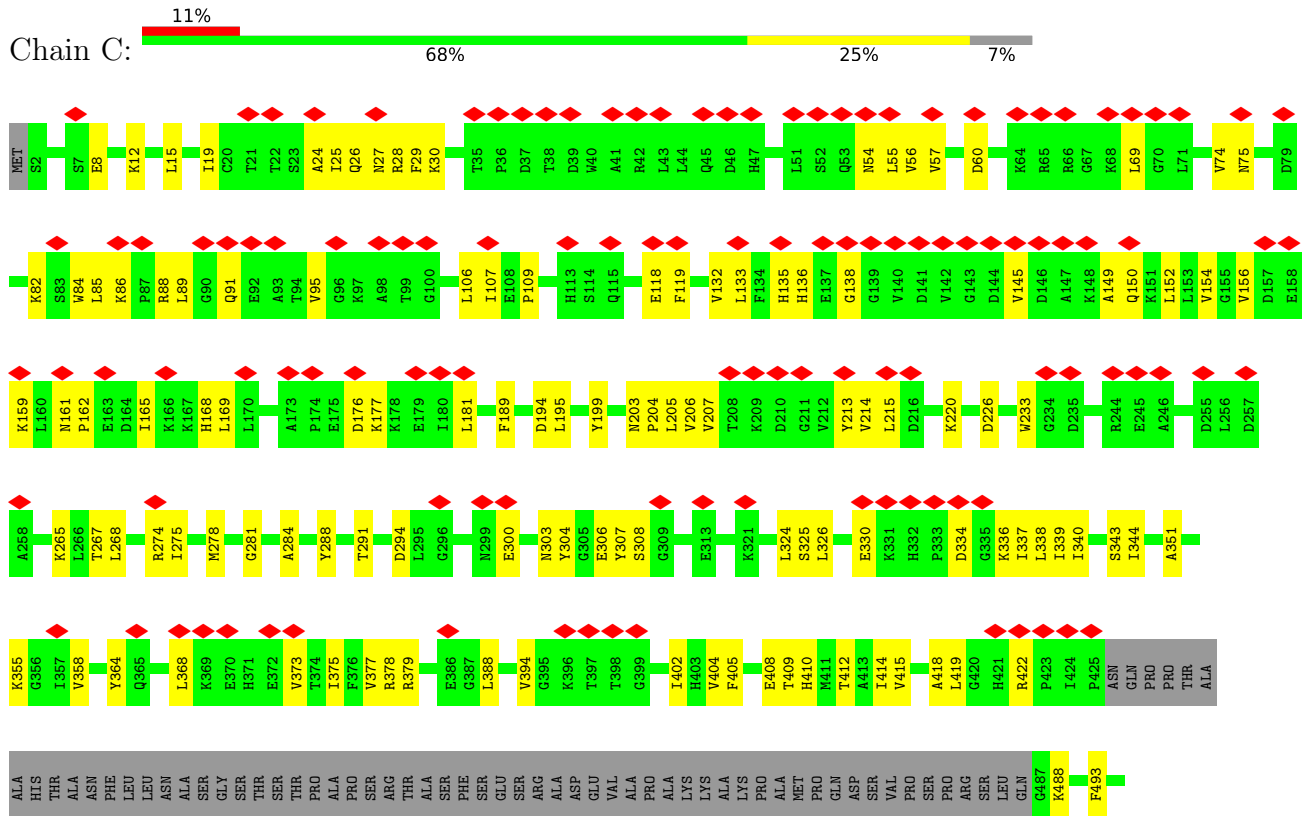




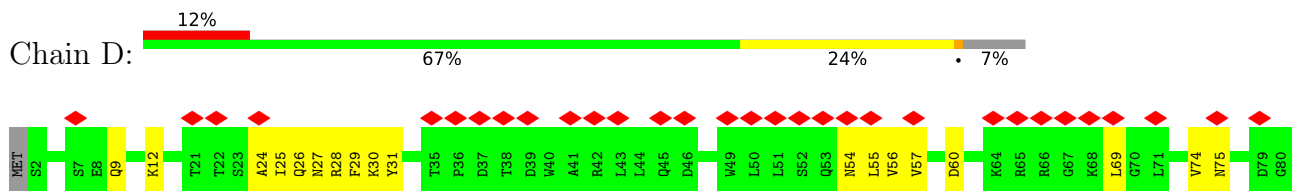
• Molecule 1: ACLY



• Molecule 1: ACLY



• Molecule 1: ACLY





M1099	B886	C893	A774	M668	K488	PRO	S343	Y247	L153	V81
SER	L990	L894	A778	R676	F493	THR	I344	P248	V156	K82
MET	K991	M895	T677	T677	T678	ALA	A351	A254	D157	S83
	D992	V896	A782	I678	A499	ALA	K355	D255	E158	W84
	V993	T897	F785	G684	I500	HIS	V358	L256	K159	L86
	V984	G901	R788	D690	Q605	THR	Y364	D257	L160	P87
	K996	P902	L793	R691	V509	ASN	Q365	N161	N161	R88
	P999	H908	I796	R692	L513	LEU	L368	S263	P162	L89
	L1003	I912	M698	F697	V518	LEU	K369	L268	E163	G90
	L1008	R915	M698	M698	V518	ASN	E370	K272	I165	Q91
	E1009	K918	H700	D699	P624	ALA	G273	G273	K166	Q91
	V1010	V701	V701	H700	S225	GLY	R274	R274	K167	E92
	K1017	V921	E802	L702	V526	SER	I275	I275	H168	A93
	I1022	S922	D803	R703	K540	THR	M278	M278	H169	V95
	V1025	S923	L804	T707	F941	SER	A173	A173	K170	G96
	L1028	T925	V805	K711	Y542	THR	P174	P174	A173	K97
	M1036	G927	I810	V714	A557	ALA	E175	E175	A173	A98
	L1037	L928	Q814	G721	D558	PRO	K177	K177	P174	T99
	R1038	L929	P822	C728	A559	ARG	D176	D176	E175	T99
	H1039	T930	Y825	K732	M560	SER	K177	K177	D176	G100
	C1040	I931	Y825	R735	R561	THR	N299	N299	E175	F101
	F1043	G932	L831	R735	F566	ALA	E300	E300	K178	L102
	R1045	G933	G832	K738	V566	SER	M303	M303	K178	F105
	H1054	D932	L833	P739	M560	ARG	Y304	Y304	E179	L106
	G1055	R934	R833	I740	R561	ALA	G305	G305	E179	L106
	I1060	K934	A838	V741	V566	PHE	E306	E306	I107	L107
	F1061	L939	S839	T750	F607	GLU	S308	S308	F108	F108
	R1065	D940	F840	MET	R607	SER	G309	G309	P109	P109
	D1075	K948	T842	PHE	K611	ARG	E313	E313	H113	H113
	Q1076	D951	S843	SER	K611	ALA	L324	L324	S114	S114
	K1077	G952	I844	GLU	Q615	ALA	S325	S325	Q115	Q115
	R1078	I954	F847	VAL	V618	LYS	L326	L326	E118	E118
	K1080	G953	T842	GLY	V618	LYS	M327	M327	F119	F119
	Q1081	I955	S843	HIS	Q615	ALA	T328	T328	Y120	Y120
	R1085	P956	I844	ALA	V618	PRO	R329	R329	V121	V121
	H1086	V960	E847	VAL	V618	PRO	E330	E330	Y131	Y131
	P1087	G972	K962	PHE	V618	ALA	K331	K331	V132	V132
	I1091	K965	L875	HIS	K630	PRO	H332	H332	L133	L133
	S1092	M971	F878	ALA	K630	PRO	P333	P333	F134	F134
	V1094	I973	K980	CYS	I636	SER	D334	D334	H135	H135
		V977	R881	ASN	L647	ARG	G420	G420	H136	H136
		K978	Q888	GLN	R653	SER	H421	H421	E137	E137
		N981	E891	G487	Y659	VAL	R422	R422	K220	K220
			M892			ALA	P423	P423	D226	D226
						PRO	I424	I424	W233	W233
						PRO	K336	K336	G234	G234
						PRO	I337	I337	D235	D235
						PRO	L338	L338	I236	I236
						PRO	E237	E237	E244	E244
						PRO	I340	I340	E245	E245
						PRO	ASN	ASN	A246	A246
						PRO	GLN	GLN		

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D2	Depositor
Number of particles used	108738	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	40	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	0.133	Depositor
Minimum map value	-0.072	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	191.4, 191.4, 191.4	wwPDB
Map dimensions	220, 220, 220	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86999995, 0.86999995, 0.86999995	Depositor

## 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: OAA, ACO

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	0.32	0/8083	0.53	0/10942
1	B	0.32	0/8083	0.53	0/10942
1	C	0.32	0/8083	0.53	0/10942
1	D	0.62	0/8083	0.63	0/10942
All	All	0.41	0/32332	0.55	0/43768

There are no bond length outliers.

There are no bond angle outliers.

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	7906	0	7956	189	0
1	B	7906	0	7956	180	0
1	C	7906	0	7956	193	0
1	D	7906	0	7956	172	0
2	A	102	0	68	1	0
2	B	51	0	34	0	0
2	D	51	0	34	1	0
3	A	18	0	4	0	0
3	B	18	0	4	0	0

*Continued on next page...*

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	18	0	4	0	0
3	D	18	0	4	0	0
4	A	3	0	0	0	0
4	B	3	0	0	0	0
4	C	3	0	0	0	0
4	D	3	0	0	0	0
All	All	31912	0	31976	683	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 (683) 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:925:THR:HG23	1:C:925:THR:HG23	1.46	0.94
1:A:835:ARG:HG3	1:B:822:PRO:HB2	1.56	0.86
1:C:835:ARG:HG3	1:D:822:PRO:HB2	1.56	0.86
1:A:88:ARG:HA	1:A:91:GLN:HE21	1.41	0.85
1:C:88:ARG:HA	1:C:91:GLN:HE21	1.40	0.84
1:C:1018:LYS:HB3	1:C:1021:LEU:HD13	1.60	0.82
1:B:1018:LYS:HB3	1:B:1021:LEU:HD13	1.61	0.79
1:A:822:PRO:HB2	1:B:835:ARG:HG3	1.64	0.79
1:C:977:VAL:HG23	1:C:978:LYS:HG3	1.66	0.77
1:B:977:VAL:HG23	1:B:978:LYS:HG3	1.66	0.77
1:A:977:VAL:HG23	1:A:978:LYS:HG3	1.68	0.74
1:C:268:LEU:HD21	1:C:326:LEU:HD21	1.68	0.73
1:C:822:PRO:HB2	1:D:835:ARG:HG3	1.70	0.73
1:D:268:LEU:HD21	1:D:326:LEU:HD21	1.71	0.73
1:B:268:LEU:HD21	1:B:326:LEU:HD21	1.70	0.72
1:D:831:LEU:HD11	1:D:833:LEU:HD23	1.72	0.71
1:C:831:LEU:HD11	1:C:833:LEU:HD23	1.73	0.70
1:C:838:ALA:O	1:D:540:LYS:NZ	2.25	0.70
1:A:831:LEU:HD11	1:A:833:LEU:HD23	1.74	0.70
1:B:831:LEU:HD11	1:B:833:LEU:HD23	1.74	0.70
1:A:204:PRO:HG2	1:A:215:LEU:HB3	1.74	0.69
1:C:294:ASP:OD1	1:C:788:ARG:NH1	2.26	0.69
1:C:344:ILE:HB	1:C:668:ASN:HB3	1.74	0.69
1:C:343:SER:O	1:C:379:ARG:NH1	2.26	0.68
1:B:978:LYS:HE3	1:B:984:ASP:HA	1.76	0.68
1:D:294:ASP:OD1	1:D:788:ARG:NH1	2.26	0.68
1:A:540:LYS:NZ	1:B:838:ALA:O	2.26	0.68

Continued on next page...

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:844:ILE:HG22	1:C:879:GLN:HE21	1.59	0.68
1:A:838:ALA:O	1:B:540:LYS:NZ	2.27	0.68
1:C:540:LYS:NZ	1:D:838:ALA:O	2.26	0.68
1:D:54:ASN:ND2	1:D:75:ASN:OD1	2.27	0.68
1:A:54:ASN:ND2	1:A:75:ASN:OD1	2.28	0.67
1:A:844:ILE:HG22	1:A:879:GLN:HE21	1.60	0.67
1:B:54:ASN:ND2	1:B:75:ASN:OD1	2.28	0.67
1:C:54:ASN:ND2	1:C:75:ASN:OD1	2.28	0.67
1:D:85:LEU:HD23	1:D:89:LEU:HD22	1.77	0.67
1:D:844:ILE:HG22	1:D:879:GLN:HE21	1.60	0.67
1:A:978:LYS:HE3	1:A:984:ASP:HA	1.77	0.67
1:B:844:ILE:HG22	1:B:879:GLN:HE21	1.60	0.66
1:B:85:LEU:HD23	1:B:89:LEU:HD22	1.78	0.66
1:A:203:ASN:HB3	1:A:204:PRO:HD3	1.77	0.66
1:C:978:LYS:HE3	1:C:984:ASP:HA	1.76	0.66
1:A:268:LEU:HD21	1:A:326:LEU:HD21	1.77	0.66
1:C:203:ASN:HB3	1:C:204:PRO:HD3	1.77	0.66
1:B:294:ASP:OD1	1:B:788:ARG:NH1	2.28	0.65
1:D:181:LEU:HD21	1:D:207:VAL:HG21	1.79	0.65
1:C:667:SER:O	1:C:671:ASN:ND2	2.29	0.65
1:B:690:ASP:OD1	1:B:691:ARG:N	2.29	0.65
1:B:150:GLN:NE2	1:B:168:HIS:O	2.30	0.65
1:D:150:GLN:NE2	1:D:168:HIS:O	2.30	0.65
1:B:902:PRO:HG3	1:D:842:THR:HG21	1.79	0.64
1:D:925:THR:HA	1:D:928:LEU:HB2	1.79	0.64
1:B:707:THR:O	1:B:738:LYS:NZ	2.30	0.64
1:D:707:THR:O	1:D:738:LYS:NZ	2.31	0.64
1:C:802:GLU:HA	1:C:805:VAL:HG22	1.79	0.64
1:A:8:GLU:O	1:A:12:LYS:HB2	1.98	0.64
1:A:294:ASP:OD1	1:A:788:ARG:NH1	2.27	0.63
1:C:56:VAL:HG23	1:C:74:VAL:HA	1.80	0.63
1:B:275:ILE:HD11	1:B:419:LEU:HD21	1.80	0.63
1:A:344:ILE:HB	1:A:668:ASN:HB3	1.80	0.63
1:D:690:ASP:OD1	1:D:691:ARG:N	2.30	0.63
1:A:690:ASP:OD1	1:A:691:ARG:N	2.31	0.63
1:B:662:ARG:HH22	1:B:691:ARG:HA	1.64	0.63
1:B:339:ILE:HD13	1:B:415:VAL:HG12	1.81	0.63
1:C:690:ASP:OD1	1:C:691:ARG:N	2.31	0.63
1:C:707:THR:O	1:C:738:LYS:NZ	2.31	0.63
1:B:56:VAL:HG23	1:B:74:VAL:HA	1.81	0.62
1:D:275:ILE:HD11	1:D:419:LEU:HD21	1.80	0.62

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:802:GLU:HA	1:A:805:VAL:HG22	1.81	0.62
1:B:344:ILE:HB	1:B:668:ASN:HB3	1.80	0.62
1:D:56:VAL:HG23	1:D:74:VAL:HA	1.82	0.62
1:A:150:GLN:NE2	1:A:168:HIS:O	2.32	0.62
1:A:902:PRO:HG3	1:C:842:THR:HG21	1.80	0.62
1:B:340:ILE:HB	1:B:377:VAL:HG22	1.81	0.62
1:A:56:VAL:HG23	1:A:74:VAL:HA	1.82	0.62
1:A:275:ILE:HD11	1:A:419:LEU:HD21	1.82	0.62
1:C:275:ILE:HD11	1:C:419:LEU:HD21	1.82	0.62
1:C:340:ILE:HB	1:C:377:VAL:HG22	1.80	0.62
1:C:150:GLN:NE2	1:C:168:HIS:O	2.33	0.62
1:C:835:ARG:HD2	1:D:542:TYR:CE2	2.35	0.62
1:D:119:PHE:HD1	1:D:136:HIS:HA	1.65	0.62
1:A:957:MET:O	1:A:961:ASN:ND2	2.31	0.62
1:B:1018:LYS:HG2	1:B:1019:PRO:HD2	1.81	0.61
1:C:206:VAL:HB	1:C:213:TYR:HB2	1.81	0.61
1:A:835:ARG:HD2	1:B:542:TYR:CE2	2.35	0.61
1:A:206:VAL:HB	1:A:213:TYR:HB2	1.82	0.61
1:A:707:THR:O	1:A:738:LYS:NZ	2.33	0.61
1:D:340:ILE:HB	1:D:377:VAL:HG22	1.82	0.61
1:A:340:ILE:HB	1:A:377:VAL:HG22	1.81	0.61
1:B:802:GLU:HA	1:B:805:VAL:HG22	1.81	0.61
1:A:12:LYS:HZ2	1:A:214:VAL:HG23	1.66	0.61
1:D:343:SER:O	1:D:379:ARG:NH1	2.33	0.61
1:B:842:THR:HG21	1:D:902:PRO:HG3	1.82	0.61
1:D:802:GLU:HA	1:D:805:VAL:HG22	1.82	0.61
1:A:343:SER:O	1:A:379:ARG:NH1	2.34	0.60
1:C:156:VAL:HG11	1:C:607:ARG:HB3	1.83	0.60
1:A:27:ASN:HA	1:A:30:LYS:HD2	1.81	0.60
1:B:119:PHE:HD1	1:B:136:HIS:HA	1.66	0.60
1:C:896:VAL:HG21	1:C:990:LEU:HD11	1.84	0.60
1:D:165:ILE:HG23	1:D:169:LEU:HD12	1.83	0.60
1:B:957:MET:O	1:B:961:ASN:ND2	2.34	0.60
1:A:1018:LYS:HG2	1:A:1019:PRO:HD2	1.82	0.60
1:B:165:ILE:HG23	1:B:169:LEU:HD12	1.84	0.60
1:B:118:GLU:HB2	1:B:138:GLY:HA3	1.83	0.60
1:A:987:VAL:HG13	1:A:1028:LEU:HD13	1.83	0.60
1:B:324:LEU:HD13	1:B:368:LEU:HD11	1.83	0.60
1:C:1018:LYS:HG2	1:C:1019:PRO:HD2	1.81	0.60
1:A:181:LEU:HD21	1:A:207:VAL:HG21	1.82	0.60
1:A:842:THR:HG21	1:C:902:PRO:HG3	1.83	0.60

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:896:VAL:HG21	1:A:990:LEU:HD11	1.84	0.60
1:B:987:VAL:HG13	1:B:1028:LEU:HD13	1.84	0.59
1:D:284:ALA:O	1:D:288:TYR:HD1	1.84	0.59
1:D:324:LEU:HD13	1:D:368:LEU:HD11	1.83	0.59
1:B:793:LEU:O	1:B:797:ILE:HG13	2.03	0.59
1:A:274:ARG:HB2	1:A:336:LYS:HA	1.84	0.59
1:A:579:TYR:O	1:A:583:MET:HG2	2.02	0.59
1:C:27:ASN:HA	1:C:30:LYS:HD2	1.83	0.59
1:D:793:LEU:O	1:D:797:ILE:HG13	2.03	0.59
1:A:12:LYS:NZ	1:A:214:VAL:HG23	2.17	0.59
1:A:721:GLY:N	1:A:770:GLU:OE1	2.33	0.59
1:B:896:VAL:HG21	1:B:990:LEU:HD11	1.85	0.59
1:D:118:GLU:HB2	1:D:138:GLY:HA3	1.84	0.59
1:B:27:ASN:HA	1:B:30:LYS:HD2	1.84	0.59
1:B:579:TYR:O	1:B:583:MET:HG2	2.03	0.59
1:B:698:MET:O	1:B:702:LEU:HG	2.03	0.59
1:C:835:ARG:HD2	1:D:542:TYR:CD2	2.37	0.59
1:C:987:VAL:HG13	1:C:1028:LEU:HD13	1.84	0.59
1:D:579:TYR:O	1:D:583:MET:HG2	2.03	0.59
1:D:721:GLY:N	1:D:770:GLU:OE1	2.35	0.59
1:D:27:ASN:HA	1:D:30:LYS:HD2	1.84	0.59
1:D:698:MET:O	1:D:702:LEU:HG	2.03	0.58
1:A:119:PHE:HD1	1:A:136:HIS:HA	1.68	0.58
1:A:28:ARG:HG2	1:A:29:PHE:CD2	2.39	0.58
1:A:789:SER:N	1:A:792:GLU:OE2	2.37	0.58
1:B:721:GLY:N	1:B:770:GLU:OE1	2.36	0.58
1:A:118:GLU:HB2	1:A:138:GLY:HA3	1.86	0.58
1:C:579:TYR:O	1:C:583:MET:HG2	2.04	0.58
1:C:662:ARG:NH1	1:C:690:ASP:O	2.35	0.58
1:D:24:ALA:O	1:D:26:GLN:NE2	2.37	0.58
1:A:835:ARG:HD2	1:B:542:TYR:CD2	2.38	0.58
1:D:339:ILE:HD13	1:D:415:VAL:HG12	1.85	0.58
1:A:940:ASP:OD2	1:A:944:LYS:NZ	2.29	0.58
1:C:119:PHE:HD1	1:C:136:HIS:HA	1.69	0.58
1:A:324:LEU:HD11	1:A:338:LEU:HD22	1.84	0.57
1:B:24:ALA:O	1:B:26:GLN:NE2	2.37	0.57
1:C:133:LEU:HD11	1:C:145:VAL:HB	1.86	0.57
1:C:324:LEU:HD11	1:C:338:LEU:HD22	1.85	0.57
1:C:721:GLY:N	1:C:770:GLU:OE1	2.34	0.57
1:C:668:ASN:HA	1:C:671:ASN:HD22	1.69	0.57
1:A:156:VAL:HG11	1:A:607:ARG:HB3	1.86	0.57

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:375:ILE:HB	1:A:402:ILE:HG12	1.86	0.57
1:A:1077:LYS:HG3	1:C:1054:ILE:HD12	1.86	0.57
1:D:156:VAL:HG11	1:D:607:ARG:HB3	1.87	0.57
1:D:897:THR:HG21	1:D:1061:PHE:HA	1.87	0.57
1:B:181:LEU:HD21	1:B:207:VAL:HG21	1.86	0.57
1:B:337:ILE:HG21	1:B:418:ALA:HB1	1.87	0.57
1:C:181:LEU:HD21	1:C:207:VAL:HG21	1.86	0.57
1:C:284:ALA:O	1:C:288:TYR:HD1	1.88	0.57
1:B:343:SER:O	1:B:379:ARG:NH1	2.38	0.56
1:C:375:ILE:HB	1:C:402:ILE:HG12	1.86	0.56
1:A:1054:ILE:HD12	1:C:1077:LYS:HG3	1.87	0.56
1:A:119:PHE:HB2	1:A:205:LEU:HD23	1.88	0.56
1:C:24:ALA:O	1:C:26:GLN:NE2	2.38	0.56
1:C:204:PRO:HG2	1:C:215:LEU:HB3	1.87	0.56
1:C:324:LEU:HD12	1:C:368:LEU:HD21	1.87	0.56
1:C:8:GLU:O	1:C:12:LYS:HG2	2.06	0.56
1:D:375:ILE:HB	1:D:402:ILE:HG12	1.86	0.56
1:A:324:LEU:HD12	1:A:368:LEU:HD21	1.88	0.56
1:C:165:ILE:HG23	1:C:169:LEU:HD12	1.86	0.56
1:D:351:ALA:O	1:D:355:LYS:HG2	2.05	0.56
1:A:24:ALA:O	1:A:26:GLN:NE2	2.39	0.56
1:A:165:ILE:HG23	1:A:169:LEU:HD12	1.87	0.56
1:C:28:ARG:HG2	1:C:29:PHE:CD2	2.41	0.56
1:D:891:GLU:O	1:D:895:MET:HG3	2.05	0.56
1:B:351:ALA:O	1:B:355:LYS:HG2	2.06	0.55
1:D:28:ARG:HG2	1:D:29:PHE:CD2	2.40	0.55
1:B:28:ARG:HG2	1:B:29:PHE:CD2	2.40	0.55
1:D:767:GLN:HB3	1:D:770:GLU:HG2	1.88	0.55
1:B:891:GLU:O	1:B:895:MET:HG3	2.05	0.55
1:A:85:LEU:HD23	1:A:89:LEU:HD22	1.88	0.55
1:A:767:GLN:HB3	1:A:770:GLU:HG2	1.88	0.55
1:A:846:ASP:OD1	1:A:848:ARG:HG3	2.07	0.55
1:B:767:GLN:HB3	1:B:770:GLU:HG2	1.89	0.55
1:B:863:PHE:CE1	1:D:892:MET:HG3	2.42	0.55
1:B:892:MET:HG3	1:D:863:PHE:CE1	2.42	0.55
1:A:12:LYS:NZ	1:A:214:VAL:O	2.39	0.55
1:A:351:ALA:O	1:A:355:LYS:HG2	2.06	0.55
1:C:351:ALA:O	1:C:355:LYS:HG2	2.06	0.55
1:C:118:GLU:HB2	1:C:138:GLY:HA3	1.88	0.55
1:C:339:ILE:HD13	1:C:415:VAL:HG12	1.89	0.54
1:A:741:VAL:HG23	1:A:785:PHE:O	2.07	0.54

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:156:VAL:HG11	1:B:607:ARG:HB3	1.89	0.54
1:C:625:THR:OG1	1:C:686:ALA:O	2.20	0.54
1:C:12:LYS:NZ	1:C:214:VAL:HG23	2.22	0.54
1:A:847:GLU:HG2	1:C:901:GLY:HA3	1.89	0.54
1:C:789:SER:N	1:C:792:GLU:OE2	2.41	0.54
1:A:891:GLU:O	1:A:895:MET:HG3	2.08	0.54
1:B:284:ALA:O	1:B:288:TYR:HD1	1.90	0.54
1:B:557:ALA:O	1:B:561:ARG:HG3	2.08	0.54
1:C:154:VAL:HG11	1:C:189:PHE:CZ	2.42	0.54
1:C:891:GLU:O	1:C:895:MET:HG3	2.08	0.54
1:B:375:ILE:HB	1:B:402:ILE:HG12	1.88	0.54
1:B:500:ILE:HG13	1:B:566:VAL:HG11	1.89	0.54
1:C:119:PHE:HB2	1:C:205:LEU:HD23	1.89	0.54
1:D:557:ALA:O	1:D:561:ARG:HG3	2.08	0.54
1:A:678:THR:HG22	1:A:801:TYR:HB2	1.89	0.54
1:C:542:TYR:CD2	1:D:835:ARG:HD2	2.43	0.54
1:A:863:PHE:CE1	1:C:892:MET:HG3	2.43	0.53
1:C:405:PHE:HD2	1:C:409:THR:HG21	1.73	0.53
1:C:767:GLN:HB3	1:C:770:GLU:HG2	1.89	0.53
1:A:892:MET:HG3	1:C:863:PHE:CE1	2.43	0.53
1:C:422:ARG:NH1	1:C:791:ASP:OD2	2.41	0.53
1:B:924:LEU:HD13	1:B:1070:ILE:HG13	1.90	0.53
1:C:924:LEU:HD13	1:C:1070:ILE:HG13	1.90	0.53
1:A:698:MET:O	1:A:702:LEU:HG	2.08	0.53
1:A:924:LEU:HD13	1:A:1070:ILE:HG13	1.90	0.53
1:A:978:LYS:NZ	1:A:983:PRO:O	2.42	0.53
1:D:344:ILE:HB	1:D:668:ASN:HB3	1.90	0.53
1:A:13:GLU:O	1:A:17:LYS:HG2	2.10	0.52
1:A:337:ILE:HG21	1:A:418:ALA:HB1	1.91	0.52
1:A:504:MET:HE3	1:A:531:TYR:HB2	1.90	0.52
1:A:918:LYS:HD3	1:B:932:GLY:HA3	1.90	0.52
1:D:500:ILE:HG13	1:D:566:VAL:HG11	1.91	0.52
1:C:288:TYR:HE2	1:C:414:ILE:HD11	1.74	0.52
1:C:557:ALA:O	1:C:561:ARG:HG3	2.08	0.52
1:B:1078:ARG:HH22	1:D:879:GLN:HE22	1.57	0.52
1:A:34:VAL:HG12	1:A:107:ILE:HD11	1.91	0.52
1:B:278:MET:HB3	1:B:340:ILE:HD13	1.90	0.52
1:D:358:VAL:HG23	1:D:394:VAL:HG11	1.92	0.52
1:A:337:ILE:HD13	1:A:418:ALA:HB1	1.92	0.52
1:B:268:LEU:HA	1:B:303:ASN:HB3	1.91	0.52
1:B:990:LEU:O	1:B:994:VAL:HG23	2.10	0.52

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:278:MET:HB3	1:C:340:ILE:HD13	1.92	0.52
1:D:580:ASP:OD1	1:D:581:SER:N	2.43	0.52
1:A:557:ALA:O	1:A:561:ARG:HG3	2.09	0.52
1:A:1035:ASP:O	1:A:1039:ASN:CB	2.58	0.52
1:B:580:ASP:OD1	1:B:581:SER:N	2.43	0.52
1:A:990:LEU:O	1:A:994:VAL:HG23	2.10	0.52
1:B:728:CYS:O	1:B:732:LYS:HG2	2.09	0.52
1:C:990:LEU:O	1:C:994:VAL:HG23	2.10	0.51
1:B:337:ILE:HD13	1:B:418:ALA:HB1	1.93	0.51
1:C:504:MET:HE3	1:C:531:TYR:HB2	1.91	0.51
1:C:580:ASP:OD1	1:C:581:SER:N	2.42	0.51
1:D:133:LEU:HD11	1:D:145:VAL:HB	1.92	0.51
1:D:728:CYS:O	1:D:732:LYS:HG2	2.09	0.51
1:A:932:GLY:HA3	1:B:918:LYS:HD3	1.91	0.51
1:B:324:LEU:HD21	1:B:338:LEU:HD22	1.92	0.51
1:C:1035:ASP:O	1:C:1039:ASN:CB	2.59	0.51
1:D:678:THR:HG22	1:D:801:TYR:HB2	1.93	0.51
1:A:274:ARG:HA	1:A:336:LYS:HG2	1.91	0.51
1:D:206:VAL:HB	1:D:213:TYR:HB2	1.93	0.51
1:D:741:VAL:HG23	1:D:785:PHE:O	2.10	0.51
1:B:133:LEU:HD11	1:B:145:VAL:HB	1.92	0.51
1:B:678:THR:HG22	1:B:801:TYR:HB2	1.93	0.51
1:C:267:THR:HB	1:C:304:TYR:CE1	2.45	0.51
1:D:278:MET:HB3	1:D:340:ILE:HD13	1.92	0.51
1:A:199:TYR:HB3	1:A:220:LYS:HB2	1.93	0.51
1:B:893:CYS:HA	1:B:896:VAL:HG22	1.92	0.51
1:D:57:VAL:HG23	1:D:107:ILE:HG13	1.92	0.51
1:A:268:LEU:HA	1:A:303:ASN:HB3	1.92	0.51
1:A:291:THR:HG21	1:A:412:THR:HB	1.93	0.51
1:A:991:LYS:O	1:A:995:ARG:HG2	2.11	0.51
1:C:325:SER:HB2	1:C:364:TYR:HE2	1.76	0.51
1:C:274:ARG:HB2	1:C:336:LYS:HA	1.93	0.51
1:B:206:VAL:HB	1:B:213:TYR:HB2	1.93	0.50
1:D:893:CYS:HA	1:D:896:VAL:HG22	1.92	0.50
1:B:57:VAL:HG23	1:B:107:ILE:HG13	1.92	0.50
1:B:1094:VAL:HG12	1:B:1094:VAL:O	2.11	0.50
1:C:991:LYS:O	1:C:995:ARG:HG2	2.11	0.50
1:C:337:ILE:HG21	1:C:418:ALA:HB1	1.94	0.50
1:D:12:LYS:NZ	1:D:214:VAL:HG23	2.26	0.50
1:D:337:ILE:HG21	1:D:418:ALA:HB1	1.93	0.50
1:D:1094:VAL:HG12	1:D:1094:VAL:O	2.11	0.50

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:267:THR:HB	1:B:304:TYR:CE1	2.46	0.50
1:B:741:VAL:HG23	1:B:785:PHE:O	2.11	0.50
1:B:12:LYS:NZ	1:B:214:VAL:HG23	2.27	0.50
1:B:847:GLU:HG2	1:D:901:GLY:HA3	1.93	0.50
1:C:57:VAL:HG23	1:C:107:ILE:HG13	1.93	0.50
1:B:991:LYS:O	1:B:995:ARG:HG2	2.12	0.50
1:C:509:VAL:HG13	1:C:526:VAL:HG21	1.94	0.50
1:D:324:LEU:HD21	1:D:338:LEU:HD22	1.93	0.50
1:A:410:HIS:CD2	1:A:412:THR:H	2.29	0.50
1:B:603:GLU:OE2	1:B:691:ARG:NE	2.45	0.50
1:D:931:ILE:HG22	1:D:932:GLY:H	1.76	0.50
1:C:825:TYR:OH	1:C:836:LYS:HE3	2.12	0.49
1:C:918:LYS:NZ	1:D:929:LEU:O	2.44	0.49
1:A:825:TYR:OH	1:A:836:LYS:HE3	2.12	0.49
1:C:268:LEU:HA	1:C:303:ASN:HB3	1.93	0.49
1:C:368:LEU:HD22	1:C:373:VAL:HG21	1.94	0.49
1:D:337:ILE:HD13	1:D:418:ALA:HB1	1.93	0.49
1:A:662:ARG:NE	1:A:718:GLU:OE2	2.44	0.49
1:A:525:SER:HB2	1:A:634:PHE:HE1	1.77	0.49
1:D:739:PRO:HG2	1:D:804:LEU:HD21	1.95	0.49
1:D:915:ARG:HG2	1:D:1081:GLN:HB2	1.94	0.49
1:A:388:LEU:HD22	1:A:404:VAL:HB	1.94	0.49
1:A:500:ILE:HG13	1:A:566:VAL:HG11	1.93	0.49
1:A:711:LYS:HG3	1:A:810:ILE:HG12	1.94	0.49
1:B:388:LEU:HD22	1:B:404:VAL:HB	1.93	0.49
1:A:278:MET:HB3	1:A:340:ILE:HD13	1.94	0.49
1:A:339:ILE:HD13	1:A:415:VAL:HG12	1.94	0.49
1:B:739:PRO:HG2	1:B:804:LEU:HD21	1.95	0.49
1:D:119:PHE:HE2	1:D:207:VAL:HB	1.78	0.49
1:A:306:GLU:OE2	1:A:308:SER:OG	2.29	0.49
1:A:1078:ARG:HH22	1:C:879:GLN:HE22	1.58	0.49
1:C:932:GLY:HA3	1:D:918:LYS:HD3	1.93	0.49
1:D:388:LEU:HD22	1:D:404:VAL:HB	1.94	0.49
1:A:405:PHE:HD2	1:A:409:THR:HG21	1.77	0.49
1:A:133:LEU:HD11	1:A:145:VAL:HB	1.95	0.49
1:A:580:ASP:OD1	1:A:581:SER:N	2.45	0.49
1:A:879:GLN:HE22	1:C:1078:ARG:HH22	1.59	0.49
1:B:1035:ASP:O	1:B:1039:ASN:CB	2.61	0.49
1:C:678:THR:HG22	1:C:801:TYR:HB2	1.94	0.49
1:C:893:CYS:HA	1:C:896:VAL:HG22	1.93	0.49
1:D:156:VAL:HG23	1:D:611:LYS:HD3	1.94	0.49

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:670:LEU:HD21	1:A:716:LEU:HD12	1.94	0.48
1:B:405:PHE:HD2	1:B:409:THR:HG21	1.78	0.48
1:A:267:THR:HB	1:A:304:TYR:CE1	2.48	0.48
1:D:405:PHE:HB3	1:D:409:THR:HG21	1.95	0.48
1:C:85:LEU:HD23	1:C:89:LEU:HD22	1.96	0.48
1:C:199:TYR:HB3	1:C:220:LYS:HB2	1.96	0.48
1:C:741:VAL:HG23	1:C:785:PHE:O	2.13	0.48
1:C:525:SER:HB2	1:C:634:PHE:HE1	1.78	0.48
1:D:119:PHE:CE2	1:D:207:VAL:HB	2.48	0.48
1:D:199:TYR:HB3	1:D:220:LYS:HB2	1.96	0.48
1:A:325:SER:HB2	1:A:364:TYR:HE2	1.78	0.48
1:A:368:LEU:HD22	1:A:373:VAL:HG21	1.96	0.48
1:A:893:CYS:HA	1:A:896:VAL:HG22	1.94	0.48
1:B:146:ASP:HA	1:B:151:LYS:HE3	1.95	0.48
1:B:162:PRO:HA	1:B:165:ILE:HD12	1.95	0.48
1:B:498:LYS:HG3	1:B:565:GLU:OE2	2.13	0.48
1:B:711:LYS:HG3	1:B:810:ILE:HG12	1.96	0.48
1:C:662:ARG:NE	1:C:718:GLU:OE2	2.46	0.48
1:D:711:LYS:HG3	1:D:810:ILE:HG12	1.96	0.48
1:A:691:ARG:NH2	1:A:692:TYR:OH	2.47	0.48
1:C:711:LYS:HG3	1:C:810:ILE:HG12	1.95	0.48
1:C:908:HIS:O	1:C:912:ILE:HG12	2.14	0.48
1:D:146:ASP:HA	1:D:151:LYS:HE3	1.95	0.48
1:D:525:SER:HB2	1:D:634:PHE:HE1	1.78	0.48
1:B:119:PHE:CE2	1:B:207:VAL:HB	2.48	0.48
1:C:15:LEU:HD12	1:C:19:ILE:HB	1.96	0.48
1:D:896:VAL:HG21	1:D:990:LEU:HD11	1.95	0.48
1:A:586:MET:HE1	1:A:612:LYS:HB3	1.96	0.47
1:A:908:HIS:O	1:A:912:ILE:HG12	2.14	0.47
1:B:525:SER:HB2	1:B:634:PHE:HE1	1.78	0.47
1:D:162:PRO:HA	1:D:165:ILE:HD12	1.95	0.47
1:D:962:LYS:HE3	1:D:962:LYS:HB3	1.64	0.47
1:A:281:GLY:N	1:A:306:GLU:OE2	2.47	0.47
1:C:274:ARG:HA	1:C:336:LYS:HG2	1.95	0.47
1:D:25:ILE:HB	1:D:28:ARG:HH22	1.79	0.47
1:A:518:VAL:HG21	1:A:647:LEU:HD21	1.96	0.47
1:A:847:GLU:H	1:A:847:GLU:HG3	1.15	0.47
1:B:358:VAL:HG23	1:B:394:VAL:HG11	1.96	0.47
1:B:1091:ILE:O	1:B:1092:SER:OG	2.30	0.47
1:A:739:PRO:HG2	1:A:804:LEU:HD21	1.96	0.47
1:B:825:TYR:OH	1:B:836:LYS:HE3	2.15	0.47

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:278:MET:HG2	1:D:307:TYR:CE1	2.49	0.47
1:A:659:TYR:HA	1:A:714:VAL:O	2.14	0.47
1:B:25:ILE:HB	1:B:28:ARG:HH22	1.79	0.47
1:C:12:LYS:HZ2	1:C:214:VAL:HG23	1.78	0.47
1:C:670:LEU:HD11	1:C:716:LEU:HD23	1.96	0.47
1:D:844:ILE:HG22	1:D:879:GLN:NE2	2.26	0.47
1:D:878:PHE:HB3	1:D:1043:PHE:CE1	2.49	0.47
1:B:119:PHE:HE2	1:B:207:VAL:HB	1.80	0.47
1:B:274:ARG:HA	1:B:336:LYS:HG2	1.96	0.47
1:B:324:LEU:HD23	1:B:327:MET:HE3	1.97	0.47
1:B:662:ARG:HH12	1:B:693:PRO:HG3	1.80	0.47
1:B:844:ILE:HG22	1:B:879:GLN:NE2	2.26	0.47
1:C:82:LYS:O	1:C:86:LYS:HG2	2.15	0.47
1:C:119:PHE:HE2	1:C:207:VAL:HB	1.79	0.47
1:C:518:VAL:HG21	1:C:647:LEU:HD21	1.97	0.47
1:D:518:VAL:HG21	1:D:647:LEU:HD21	1.97	0.47
1:A:119:PHE:HE2	1:A:207:VAL:HB	1.79	0.47
1:A:358:VAL:HG12	1:A:394:VAL:HG11	1.97	0.47
1:C:337:ILE:HD13	1:C:418:ALA:HB1	1.97	0.47
1:C:659:TYR:CE1	1:C:684:GLY:HA3	2.50	0.47
1:C:994:VAL:HG13	1:C:998:PHE:CD2	2.50	0.47
1:D:324:LEU:HD23	1:D:327:MET:HE3	1.97	0.47
1:A:82:LYS:O	1:A:86:LYS:HG2	2.15	0.47
1:A:162:PRO:HA	1:A:165:ILE:HD12	1.96	0.47
1:C:25:ILE:O	1:C:28:ARG:NH1	2.48	0.47
1:C:940:ASP:OD2	1:C:944:LYS:NZ	2.29	0.47
1:D:1091:ILE:O	1:D:1092:SER:OG	2.30	0.47
1:A:994:VAL:HG13	1:A:998:PHE:CD2	2.50	0.46
1:B:518:VAL:HG21	1:B:647:LEU:HD21	1.97	0.46
1:C:162:PRO:HA	1:C:165:ILE:HD12	1.96	0.46
1:D:268:LEU:HA	1:D:303:ASN:HB3	1.97	0.46
1:D:324:LEU:HD22	1:D:368:LEU:HD21	1.97	0.46
1:A:963:MET:HG3	1:A:970:ILE:HG12	1.97	0.46
1:B:82:LYS:O	1:B:86:LYS:HG2	2.15	0.46
1:B:852:LEU:HD12	1:D:986:ARG:HD3	1.97	0.46
1:A:509:VAL:HG13	1:A:526:VAL:HG21	1.98	0.46
1:B:848:ARG:HG2	1:C:1088:TRP:CD2	2.50	0.46
1:D:888:GLN:HB3	1:D:993:TYR:OH	2.15	0.46
1:C:25:ILE:HB	1:C:28:ARG:HH22	1.79	0.46
1:D:908:HIS:O	1:D:912:ILE:HG12	2.16	0.46
1:D:960:VAL:HG22	1:D:1010:VAL:HG13	1.96	0.46

Continued on next page...

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:55:LEU:HD13	1:A:109:PRO:HA	1.98	0.46
1:B:291:THR:HG21	1:B:412:THR:HB	1.97	0.46
1:C:653:ARG:NH2	1:C:679:ASP:O	2.45	0.46
1:D:82:LYS:O	1:D:86:LYS:HG2	2.15	0.46
1:D:274:ARG:HA	1:D:336:LYS:HG2	1.97	0.46
1:A:25:ILE:O	1:A:28:ARG:NH1	2.49	0.46
1:A:25:ILE:HB	1:A:28:ARG:HH22	1.80	0.46
1:A:131:TYR:CE1	1:A:153:LEU:HD12	2.51	0.46
1:A:603:GLU:OE2	1:A:691:ARG:NE	2.48	0.46
1:B:324:LEU:HD22	1:B:368:LEU:HD21	1.98	0.46
1:D:119:PHE:CD1	1:D:136:HIS:HA	2.49	0.46
1:D:995:ARG:HD2	1:D:995:ARG:HA	1.60	0.46
1:B:306:GLU:OE2	1:B:308:SER:OG	2.21	0.46
1:C:505:GLN:HG3	1:C:572:PHE:CG	2.51	0.46
1:D:918:LYS:HD2	1:D:918:LYS:HA	1.65	0.46
1:B:156:VAL:HG23	1:B:611:LYS:HD3	1.98	0.45
1:B:355:LYS:HA	1:B:358:VAL:HG12	1.98	0.45
1:B:410:HIS:CE1	1:B:412:THR:H	2.33	0.45
1:B:994:VAL:HG13	1:B:998:PHE:CD2	2.51	0.45
1:C:488:LYS:NZ	1:C:618:VAL:O	2.49	0.45
1:D:509:VAL:HG13	1:D:526:VAL:HG21	1.97	0.45
1:A:488:LYS:NZ	1:A:618:VAL:O	2.49	0.45
1:B:908:HIS:O	1:B:912:ILE:HG12	2.16	0.45
1:D:355:LYS:HA	1:D:358:VAL:HG12	1.98	0.45
1:A:505:GLN:HG3	1:A:572:PHE:CG	2.51	0.45
1:A:1018:LYS:HB3	1:A:1021:LEU:HG	1.98	0.45
1:C:915:ARG:HG2	1:C:1082:GLY:O	2.16	0.45
1:B:509:VAL:HG13	1:B:526:VAL:HG21	1.98	0.45
1:B:888:GLN:HB3	1:B:993:TYR:OH	2.16	0.45
1:C:132:VAL:CG1	1:C:152:LEU:HB3	2.46	0.45
1:D:825:TYR:OH	1:D:836:LYS:HE3	2.16	0.45
1:B:848:ARG:HD3	1:C:1093:TYR:CE1	2.52	0.45
1:C:159:LYS:HZ3	1:C:161:ASN:HA	1.82	0.45
1:A:176:ASP:OD1	1:A:176:ASP:N	2.50	0.45
1:A:628:GLY:H	1:A:636:ILE:HD12	1.80	0.45
1:B:203:ASN:HA	1:B:204:PRO:HA	1.77	0.45
1:B:488:LYS:NZ	1:B:618:VAL:O	2.50	0.45
1:C:88:ARG:HA	1:C:91:GLN:NE2	2.20	0.45
1:C:159:LYS:NZ	1:C:161:ASN:OD1	2.34	0.45
1:C:358:VAL:HG12	1:C:394:VAL:HG11	1.98	0.45
1:D:931:ILE:HG22	1:D:932:GLY:N	2.31	0.45

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:278:MET:HG2	1:B:307:TYR:CE1	2.52	0.45
1:C:176:ASP:N	1:C:176:ASP:OD1	2.50	0.45
1:C:888:GLN:HB3	1:C:993:TYR:OH	2.16	0.45
1:D:488:LYS:NZ	1:D:618:VAL:O	2.50	0.45
1:C:205:LEU:HG	1:C:207:VAL:HG23	2.00	0.44
1:C:1001:THR:HB	1:C:1004:LEU:HB3	1.99	0.44
1:D:176:ASP:OD1	1:D:176:ASP:N	2.50	0.44
1:B:102:LEU:HD21	1:B:105:PHE:CZ	2.53	0.44
1:B:119:PHE:CD1	1:B:136:HIS:HA	2.51	0.44
1:B:408:GLU:HA	1:B:676:ARG:CZ	2.47	0.44
1:C:265:LYS:HB2	1:C:306:GLU:HB3	1.98	0.44
1:C:291:THR:HG21	1:C:412:THR:HB	2.00	0.44
1:D:499:ALA:N	1:D:525:SER:O	2.50	0.44
1:D:691:ARG:NH1	1:D:692:TYR:CE1	2.86	0.44
1:D:1080:LYS:HE2	1:D:1080:LYS:HB2	1.33	0.44
1:A:888:GLN:HB3	1:A:993:TYR:OH	2.16	0.44
1:B:915:ARG:HG2	1:B:1082:GLY:O	2.18	0.44
1:C:500:ILE:HG13	1:C:566:VAL:HG11	2.00	0.44
1:C:844:ILE:HG22	1:C:879:GLN:NE2	2.28	0.44
1:C:949:ALA:HB2	1:C:959:PHE:CE1	2.52	0.44
1:D:102:LEU:HD21	1:D:105:PHE:CZ	2.53	0.44
1:D:300:GLU:OE2	1:D:332:HIS:NE2	2.50	0.44
1:B:176:ASP:OD1	1:B:176:ASP:N	2.50	0.44
1:A:88:ARG:HA	1:A:91:GLN:NE2	2.20	0.44
1:A:702:LEU:HD23	1:A:736:LEU:HD21	1.99	0.44
1:B:55:LEU:HD13	1:B:109:PRO:HA	2.00	0.44
1:D:135:HIS:ND1	1:D:149:ALA:HB2	2.33	0.44
1:A:8:GLU:HG2	1:A:217:LEU:O	2.17	0.44
1:A:915:ARG:HG2	1:A:1082:GLY:O	2.18	0.44
1:B:505:GLN:HG3	1:B:572:PHE:CG	2.53	0.44
1:C:771:THR:HG23	1:C:774:ALA:H	1.83	0.44
1:D:131:TYR:CE1	1:D:153:LEU:HD12	2.51	0.44
1:D:505:GLN:HG3	1:D:572:PHE:CG	2.53	0.44
1:A:525:SER:HB2	1:A:634:PHE:CE1	2.53	0.44
1:B:135:HIS:ND1	1:B:149:ALA:HB2	2.33	0.44
1:C:119:PHE:CE2	1:C:207:VAL:HB	2.52	0.44
1:C:274:ARG:NH2	1:C:334:ASP:O	2.50	0.44
1:A:623:PRO:HD2	1:A:694:GLY:H	1.82	0.44
1:B:1078:ARG:NH2	1:D:879:GLN:OE1	2.51	0.44
1:C:275:ILE:HD12	1:C:300:GLU:HG3	1.99	0.44
1:A:274:ARG:N	1:A:300:GLU:OE2	2.50	0.43

Continued on next page...



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:405:PHE:HB3	1:A:409:THR:HG21	2.00	0.43
1:C:135:HIS:ND1	1:C:149:ALA:HB2	2.33	0.43
1:C:659:TYR:HA	1:C:714:VAL:O	2.18	0.43
1:C:1091:ILE:O	1:C:1092:SER:OG	2.31	0.43
1:D:195:LEU:HD23	1:D:233:TRP:CD1	2.53	0.43
1:A:771:THR:HG23	1:A:774:ALA:H	1.83	0.43
1:A:844:ILE:HG22	1:A:879:GLN:NE2	2.27	0.43
1:A:918:LYS:NZ	1:B:929:LEU:O	2.46	0.43
1:A:1001:THR:HB	1:A:1004:LEU:HB3	2.00	0.43
1:B:199:TYR:HB3	1:B:220:LYS:HB2	1.99	0.43
1:B:1078:ARG:HH22	1:D:879:GLN:NE2	2.16	0.43
1:C:278:MET:HG2	1:C:307:TYR:CE1	2.53	0.43
1:D:291:THR:HG21	1:D:412:THR:HB	2.01	0.43
1:B:848:ARG:HE	1:B:848:ARG:HB2	1.40	0.43
1:B:915:ARG:HH12	1:D:840:PHE:H	1.66	0.43
1:C:60:ASP:HB2	1:C:106:LEU:HB2	2.01	0.43
1:D:55:LEU:HD13	1:D:109:PRO:HA	2.01	0.43
1:D:25:ILE:O	1:D:28:ARG:NH1	2.52	0.43
1:B:12:LYS:HZ3	1:B:214:VAL:HG23	1.83	0.43
1:B:25:ILE:O	1:B:28:ARG:NH1	2.52	0.43
1:B:154:VAL:HG11	1:B:189:PHE:CZ	2.54	0.43
1:B:300:GLU:OE2	1:B:332:HIS:NE2	2.51	0.43
1:C:918:LYS:HD3	1:D:931:ILE:O	2.19	0.43
1:D:55:LEU:HD12	1:D:107:ILE:HG22	2.00	0.43
1:D:203:ASN:HA	1:D:204:PRO:HA	1.78	0.43
1:D:513:LEU:HD22	1:D:524:PRO:HB3	2.00	0.43
1:D:965:LYS:HB2	1:D:965:LYS:HE2	1.63	0.43
1:A:1041:GLY:O	1:A:1042:SER:OG	2.33	0.43
1:B:131:TYR:CE1	1:B:153:LEU:HD12	2.52	0.43
1:C:513:LEU:HD22	1:C:524:PRO:HB3	2.00	0.43
1:C:928:LEU:HD22	1:C:1062:VAL:HG13	2.00	0.43
1:A:928:LEU:HD22	1:A:1062:VAL:HG13	2.01	0.43
1:C:195:LEU:HD23	1:C:233:TRP:CD1	2.54	0.43
1:D:410:HIS:CE1	1:D:412:THR:H	2.36	0.43
1:A:102:LEU:HD21	1:A:105:PHE:CZ	2.54	0.43
1:A:879:GLN:OE1	1:C:1078:ARG:NH2	2.51	0.43
1:B:55:LEU:HD12	1:B:107:ILE:HG22	2.00	0.43
1:B:525:SER:HB2	1:B:634:PHE:CE1	2.52	0.43
1:C:1041:GLY:O	1:C:1042:SER:OG	2.33	0.43
1:D:325:SER:HB2	1:D:364:TYR:HE2	1.83	0.43
1:B:121:VAL:CG1	1:B:202:ILE:HB	2.49	0.43

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:801:TYR:HE1	1:B:810:ILE:HG21	1.83	0.43
1:D:991:LYS:HD2	1:D:1008:LEU:HD11	2.01	0.43
1:A:205:LEU:HG	1:A:207:VAL:HG23	2.01	0.42
1:A:1078:ARG:NH2	1:C:879:GLN:OE1	2.51	0.42
1:B:195:LEU:HD23	1:B:233:TRP:CD1	2.54	0.42
1:C:306:GLU:OE2	1:C:308:SER:OG	2.33	0.42
1:A:119:PHE:CE2	1:A:207:VAL:HB	2.53	0.42
1:A:135:HIS:ND1	1:A:149:ALA:HB2	2.35	0.42
1:A:201:GLU:HG3	1:A:218:ALA:HB3	2.00	0.42
1:A:493:PHE:CZ	1:A:636:ILE:HD11	2.54	0.42
1:B:493:PHE:CZ	1:B:636:ILE:HD11	2.54	0.42
1:C:84:TRP:HE3	1:C:85:LEU:HD12	1.84	0.42
1:C:525:SER:HB2	1:C:634:PHE:CE1	2.54	0.42
1:D:525:SER:HB2	1:D:634:PHE:CE1	2.53	0.42
1:A:54:ASN:OD1	1:A:55:LEU:N	2.52	0.42
1:B:368:LEU:HD22	1:B:373:VAL:HG21	2.00	0.42
1:D:368:LEU:HD22	1:D:373:VAL:HG21	2.00	0.42
1:D:801:TYR:HE1	1:D:810:ILE:HG21	1.84	0.42
1:A:653:ARG:NH2	1:A:679:ASP:O	2.49	0.42
1:B:325:SER:HB2	1:B:364:TYR:HE2	1.83	0.42
1:B:928:LEU:HD22	1:B:1062:VAL:HG13	2.01	0.42
1:C:55:LEU:HD12	1:C:107:ILE:HG22	2.02	0.42
1:C:568:VAL:HG13	1:C:593:THR:HG23	2.01	0.42
1:D:611:LYS:O	1:D:615:GLN:HG3	2.20	0.42
1:D:771:THR:HG23	1:D:774:ALA:H	1.83	0.42
1:B:499:ALA:N	1:B:525:SER:O	2.52	0.42
1:B:611:LYS:HE3	1:B:611:LYS:HB3	1.85	0.42
1:B:929:LEU:HA	1:D:921:VAL:HG11	2.01	0.42
1:C:69:LEU:HD22	1:C:95:VAL:HG23	2.01	0.42
1:C:410:HIS:CE1	1:C:412:THR:H	2.38	0.42
1:C:702:LEU:HD23	1:C:736:LEU:HD21	2.02	0.42
1:D:493:PHE:CZ	1:D:636:ILE:HD11	2.54	0.42
1:A:154:VAL:HG11	1:A:189:PHE:CZ	2.55	0.42
1:A:408:GLU:HA	1:A:676:ARG:CZ	2.50	0.42
1:A:793:LEU:O	1:A:796:ILE:HG22	2.20	0.42
1:B:901:GLY:HA3	1:D:847:GLU:HG2	2.02	0.42
1:C:54:ASN:OD1	1:C:55:LEU:N	2.52	0.42
1:C:343:SER:HA	1:C:669:GLU:OE2	2.19	0.42
1:D:54:ASN:OD1	1:D:55:LEU:N	2.52	0.42
1:D:132:VAL:CG1	1:D:152:LEU:HB3	2.49	0.42
1:D:408:GLU:HA	1:D:676:ARG:CZ	2.49	0.42

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:700:HIS:HD1	1:A:703:ARG:HE	1.67	0.42
1:B:771:THR:HG23	1:B:774:ALA:H	1.84	0.42
1:B:1041:GLY:O	1:B:1042:SER:OG	2.31	0.42
1:C:691:ARG:NH1	1:C:692:TYR:CE1	2.88	0.42
1:B:54:ASN:OD1	1:B:55:LEU:N	2.52	0.42
1:B:84:TRP:HE3	1:B:85:LEU:HD12	1.84	0.42
1:C:156:VAL:HG23	1:C:611:LYS:HD3	2.02	0.42
1:C:493:PHE:CZ	1:C:636:ILE:HD11	2.54	0.42
1:C:716:LEU:HD11	1:C:745:ILE:HG23	2.02	0.42
1:A:274:ARG:NH2	1:A:334:ASP:O	2.52	0.42
1:A:643:LEU:HA	1:A:643:LEU:HD23	1.80	0.42
1:B:659:TYR:HA	1:B:714:VAL:O	2.19	0.42
1:C:55:LEU:HD13	1:C:109:PRO:HA	2.02	0.42
1:C:875:LEU:O	1:C:879:GLN:HA	2.20	0.42
1:D:121:VAL:CG1	1:D:202:ILE:HB	2.49	0.42
1:D:700:HIS:HD1	1:D:703:ARG:HE	1.66	0.42
1:D:1065:ARG:HA	1:D:1065:ARG:HD3	1.36	0.42
1:B:132:VAL:CG1	1:B:152:LEU:HB3	2.50	0.42
1:B:1001:THR:HB	1:B:1004:LEU:HB3	2.01	0.42
1:B:1021:LEU:HD21	2:D:1201:ACO:C4A	2.49	0.42
1:C:194:ASP:OD1	1:C:195:LEU:HD12	2.20	0.42
1:D:659:TYR:CE1	1:D:684:GLY:HA3	2.55	0.42
1:D:1075:ASP:C	1:D:1077:LYS:H	2.22	0.42
1:A:84:TRP:HE3	1:A:85:LEU:HD12	1.85	0.41
1:A:132:VAL:CG1	1:A:152:LEU:HB3	2.49	0.41
1:B:659:TYR:CE1	1:B:684:GLY:HA3	2.55	0.41
1:B:910:THR:OG1	1:B:927:GLY:HA3	2.20	0.41
1:D:928:LEU:HD23	1:D:928:LEU:HA	1.71	0.41
1:A:513:LEU:HD22	1:A:524:PRO:HB3	2.02	0.41
1:A:568:VAL:HG13	1:A:593:THR:HG23	2.02	0.41
2:A:1204:ACO:C4A	1:C:1021:LEU:HD21	2.50	0.41
1:C:355:LYS:HA	1:C:358:VAL:HG22	2.02	0.41
1:C:410:HIS:CE1	1:C:791:ASP:HA	2.55	0.41
1:C:910:THR:OG1	1:C:927:GLY:HA3	2.20	0.41
1:D:60:ASP:HB2	1:D:106:LEU:HB2	2.01	0.41
1:D:611:LYS:HE3	1:D:611:LYS:HB3	1.86	0.41
1:D:735:ARG:HD2	1:D:735:ARG:O	2.19	0.41
1:A:69:LEU:HD22	1:A:95:VAL:HG23	2.02	0.41
1:A:176:ASP:OD2	1:A:177:LYS:NZ	2.52	0.41
1:A:662:ARG:NH1	1:A:690:ASP:O	2.48	0.41
1:A:825:TYR:HA	1:B:834:ILE:HD11	2.02	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1078:ARG:HH22	1:C:879:GLN:NE2	2.17	0.41
1:B:60:ASP:HB2	1:B:106:LEU:HB2	2.01	0.41
1:B:385:GLN:HB3	1:B:389:ARG:HH21	1.85	0.41
1:C:388:LEU:HD22	1:C:404:VAL:HB	2.01	0.41
1:A:879:GLN:NE2	1:C:1078:ARG:HH22	2.17	0.41
1:C:643:LEU:HA	1:C:643:LEU:HD23	1.80	0.41
1:B:408:GLU:H	1:B:408:GLU:CD	2.24	0.41
1:B:778:ALA:O	1:B:782:ALA:HB2	2.21	0.41
1:B:847:GLU:H	1:B:847:GLU:HG3	1.11	0.41
1:B:1001:THR:HA	1:B:1035:ASP:OD1	2.21	0.41
1:C:825:TYR:HA	1:D:834:ILE:HD11	2.03	0.41
1:C:963:MET:HG3	1:C:970:ILE:HG12	2.02	0.41
1:D:659:TYR:HA	1:D:714:VAL:O	2.20	0.41
1:A:840:PHE:H	1:C:915:ARG:HH12	1.68	0.41
1:A:910:THR:OG1	1:A:927:GLY:HA3	2.20	0.41
1:B:568:VAL:HG13	1:B:593:THR:HG23	2.03	0.41
1:D:9:GLN:HE21	1:D:31:TYR:HE2	1.68	0.41
1:D:948:LYS:HB2	1:D:948:LYS:HE2	1.56	0.41
1:B:278:MET:HG2	1:B:307:TYR:HE1	1.85	0.41
1:C:330:GLU:O	1:C:336:LYS:NZ	2.47	0.41
1:C:558:ASP:OD1	1:C:559:ALA:N	2.54	0.41
1:D:159:LYS:HZ3	1:D:162:PRO:HD3	1.85	0.41
1:D:921:VAL:O	1:D:922:SER:C	2.59	0.41
1:B:69:LEU:HD22	1:B:95:VAL:HG23	2.03	0.41
1:B:405:PHE:HB3	1:B:409:THR:HG21	2.01	0.41
1:B:513:LEU:HD22	1:B:524:PRO:HB3	2.02	0.41
1:B:875:LEU:O	1:B:879:GLN:HA	2.21	0.41
1:B:979:SER:OG	1:B:980:ILE:N	2.54	0.41
1:D:119:PHE:HB2	1:D:205:LEU:HD23	2.03	0.41
1:D:630:LYS:HG2	1:D:633:CYS:HB3	2.02	0.41
1:D:875:LEU:O	1:D:879:GLN:HA	2.21	0.41
1:D:950:PHE:HB2	1:D:1003:LEU:HD13	2.01	0.41
1:A:124:TYR:CE2	1:A:131:TYR:HD2	2.39	0.41
1:A:156:VAL:CG1	1:A:607:ARG:HE	2.34	0.41
1:A:159:LYS:HZ3	1:A:162:PRO:HD3	1.85	0.41
1:A:787:PRO:HG3	1:A:793:LEU:HD13	2.02	0.41
1:A:796:ILE:HD12	1:A:796:ILE:HA	1.95	0.41
1:B:159:LYS:HZ3	1:B:162:PRO:HD3	1.85	0.41
1:B:324:LEU:O	1:B:328:THR:HG23	2.21	0.41
1:B:793:LEU:O	1:B:796:ILE:HG22	2.21	0.41
1:C:118:GLU:OE2	1:C:206:VAL:HG22	2.21	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:84:TRP:HE3	1:D:85:LEU:HD12	1.85	0.41
1:D:303:ASN:N	1:D:303:ASN:OD1	2.54	0.41
1:D:324:LEU:O	1:D:328:THR:HG23	2.21	0.41
1:A:355:LYS:HA	1:A:358:VAL:HG22	2.03	0.41
1:A:875:LEU:O	1:A:879:GLN:HA	2.21	0.41
1:B:354:PHE:HD2	1:B:387:GLY:HA3	1.85	0.41
1:C:742:CYS:SG	1:C:743:TRP:N	2.94	0.41
1:D:408:GLU:H	1:D:408:GLU:CD	2.24	0.41
1:D:697:PHE:O	1:D:701:VAL:HG23	2.21	0.41
1:A:118:GLU:OE2	1:A:206:VAL:HG22	2.21	0.40
1:A:492:LEU:HD13	1:A:621:ILE:HD11	2.02	0.40
1:A:630:LYS:HG2	1:A:633:CYS:HB3	2.03	0.40
1:A:1006:TYR:O	1:A:1010:VAL:HG23	2.21	0.40
1:B:9:GLN:HE21	1:B:31:TYR:HE2	1.68	0.40
1:C:1050:GLU:O	1:C:1054:ILE:HG12	2.22	0.40
1:D:274:ARG:NH2	1:D:334:ASP:O	2.54	0.40
1:A:408:GLU:H	1:A:408:GLU:CD	2.24	0.40
1:A:558:ASP:OD1	1:A:559:ALA:N	2.54	0.40
1:C:408:GLU:H	1:C:408:GLU:CD	2.24	0.40
1:D:69:LEU:HD22	1:D:95:VAL:HG23	2.03	0.40
1:D:263:SER:HB3	1:D:308:SER:HB2	2.03	0.40
1:D:793:LEU:O	1:D:796:ILE:HG22	2.21	0.40
1:A:391:MET:HE1	1:A:402:ILE:HD13	2.03	0.40
1:A:1050:GLU:O	1:A:1054:ILE:HG12	2.22	0.40
1:B:303:ASN:OD1	1:B:303:ASN:N	2.55	0.40
1:B:911:ILE:O	1:B:915:ARG:HB2	2.22	0.40
1:C:176:ASP:OD2	1:C:177:LYS:NZ	2.54	0.40
1:C:281:GLY:N	1:C:306:GLU:OE2	2.51	0.40
1:C:1006:TYR:O	1:C:1010:VAL:HG23	2.22	0.40
1:A:60:ASP:HB2	1:A:106:LEU:HB2	2.04	0.40
1:B:1006:TYR:O	1:B:1010:VAL:HG23	2.21	0.40
1:C:378:ARG:HB2	1:C:414:ILE:HG21	2.03	0.40
1:C:408:GLU:HA	1:C:676:ARG:CZ	2.51	0.40
1:C:1082:GLY:HA2	1:D:934:ARG:NH1	2.36	0.40
1:A:265:LYS:HB2	1:A:306:GLU:HB3	2.02	0.40
1:B:700:HIS:HD1	1:B:703:ARG:HE	1.68	0.40
1:C:630:LYS:HG2	1:C:633:CYS:HB3	2.03	0.40
1:C:735:ARG:HD2	1:C:735:ARG:O	2.22	0.40
1:C:943:ALA:HB1	1:C:1034:VAL:HG21	2.03	0.40
1:D:558:ASP:OD1	1:D:559:ALA:N	2.55	0.40
1:D:778:ALA:O	1:D:782:ALA:HB2	2.22	0.40

There are no symmetry-related clashes.

### 5.3 Torsion angles [i](#)

#### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	1017/1101 (92%)	965 (95%)	52 (5%)	0	100	100
1	B	1017/1101 (92%)	969 (95%)	48 (5%)	0	100	100
1	C	1017/1101 (92%)	972 (96%)	45 (4%)	0	100	100
1	D	1017/1101 (92%)	955 (94%)	56 (6%)	6 (1%)	25	59
All	All	4068/4404 (92%)	3861 (95%)	201 (5%)	6 (0%)	54	83

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	1017	LYS
1	D	952	SER
1	D	999	PRO
1	D	1055	GLY
1	D	921	VAL
1	D	931	ILE

#### 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	842/909 (93%)	835 (99%)	7 (1%)	81	92
1	B	842/909 (93%)	837 (99%)	5 (1%)	86	94

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	842/909 (93%)	837 (99%)	5 (1%)	86	94
1	D	842/909 (93%)	801 (95%)	41 (5%)	25	57
All	All	3368/3636 (93%)	3310 (98%)	58 (2%)	64	83

All (58) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	226[A]	ASP
1	A	226[B]	ASP
1	A	653	ARG
1	A	847	GLU
1	A	848	ARG
1	A	881	ARG
1	A	1085	ARG
1	B	226[A]	ASP
1	B	226[B]	ASP
1	B	653	ARG
1	B	847	GLU
1	B	881	ARG
1	C	226[A]	ASP
1	C	226[B]	ASP
1	C	653	ARG
1	C	847	GLU
1	C	881	ARG
1	D	226[A]	ASP
1	D	226[B]	ASP
1	D	653	ARG
1	D	847	GLU
1	D	881	ARG
1	D	922	SER
1	D	924	LEU
1	D	925	THR
1	D	926	SER
1	D	930	THR
1	D	933	ASP
1	D	939	LEU
1	D	940	ASP
1	D	948	LYS
1	D	952	SER
1	D	954	ILE
1	D	956	PRO

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	D	962	LYS
1	D	971	MET
1	D	973	ILE
1	D	977	VAL
1	D	978	LYS
1	D	981	ASN
1	D	986	ARG
1	D	995	ARG
1	D	996	GLN
1	D	1022	ILE
1	D	1025	VAL
1	D	1028	LEU
1	D	1036	MET
1	D	1037	LEU
1	D	1038	ARG
1	D	1040	CYS
1	D	1045	ARG
1	D	1054	ILE
1	D	1060	ILE
1	D	1065	ARG
1	D	1078	ARG
1	D	1080	LYS
1	D	1085	ARG
1	D	1087	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	410	HIS
1	B	410	HIS
1	B	879	GLN
1	C	410	HIS
1	C	671	ASN
1	D	410	HIS
1	D	900	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

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
3	OAA	A	1202	-	8,8,8	1.31	1 (12%)	9,10,10	1.32	1 (11%)
2	ACO	B	1203	-	45,53,53	0.85	1 (2%)	56,79,79	1.26	6 (10%)
3	OAA	C	1202	-	8,8,8	1.33	1 (12%)	9,10,10	1.37	1 (11%)
2	ACO	A	1201	-	45,53,53	0.86	1 (2%)	56,79,79	1.27	8 (14%)
2	ACO	A	1204	-	45,53,53	0.85	1 (2%)	56,79,79	1.25	8 (14%)
3	OAA	C	1201	-	8,8,8	1.31	1 (12%)	9,10,10	1.35	1 (11%)
2	ACO	D	1201	-	45,53,53	0.85	1 (2%)	56,79,79	1.25	6 (10%)
3	OAA	B	1202	-	8,8,8	1.33	1 (12%)	9,10,10	1.35	1 (11%)
3	OAA	D	1203	-	8,8,8	1.32	1 (12%)	9,10,10	1.33	1 (11%)
3	OAA	B	1201	-	8,8,8	1.29	1 (12%)	9,10,10	1.34	1 (11%)
3	OAA	A	1203	-	8,8,8	1.31	1 (12%)	9,10,10	1.32	1 (11%)
3	OAA	D	1202	-	8,8,8	1.31	1 (12%)	9,10,10	1.33	1 (11%)

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



Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	OAA	A	1202	-	-	3/8/8/8	-
2	ACO	B	1203	-	-	15/47/67/67	0/3/3/3
3	OAA	C	1202	-	-	5/8/8/8	-
2	ACO	A	1201	-	-	15/47/67/67	0/3/3/3
2	ACO	A	1204	-	-	15/47/67/67	0/3/3/3
3	OAA	C	1201	-	-	6/8/8/8	-
2	ACO	D	1201	-	-	15/47/67/67	0/3/3/3
3	OAA	B	1202	-	-	5/8/8/8	-
3	OAA	D	1203	-	-	4/8/8/8	-
3	OAA	B	1201	-	-	6/8/8/8	-
3	OAA	A	1203	-	-	4/8/8/8	-
3	OAA	D	1202	-	-	3/8/8/8	-

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1204	ACO	C2B-C1B	-2.23	1.50	1.53
2	D	1201	ACO	C2B-C1B	-2.22	1.50	1.53
2	A	1201	ACO	C2B-C1B	-2.22	1.50	1.53
2	B	1203	ACO	C2B-C1B	-2.22	1.50	1.53
3	A	1202	OAA	O3-C3	-2.11	1.18	1.23
3	C	1201	OAA	O3-C3	-2.10	1.18	1.23
3	C	1202	OAA	O3-C3	-2.09	1.18	1.23
3	B	1201	OAA	O3-C3	-2.09	1.18	1.23
3	B	1202	OAA	O3-C3	-2.08	1.18	1.23
3	D	1202	OAA	O3-C3	-2.07	1.18	1.23
3	D	1203	OAA	O3-C3	-2.05	1.18	1.23
3	A	1203	OAA	O3-C3	-2.04	1.19	1.23

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1203	ACO	N3A-C2A-N1A	-3.63	123.00	128.68
2	D	1201	ACO	N3A-C2A-N1A	-3.62	123.02	128.68
2	A	1204	ACO	N3A-C2A-N1A	-3.61	123.03	128.68
2	A	1201	ACO	N3A-C2A-N1A	-3.61	123.03	128.68
2	A	1201	ACO	CAP-C9P-N8P	2.89	122.33	116.58
2	D	1201	ACO	CAP-C9P-N8P	2.82	122.20	116.58
2	A	1204	ACO	CAP-C9P-N8P	2.82	122.20	116.58
2	B	1203	ACO	CAP-C9P-N8P	2.81	122.17	116.58

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	1201	ACO	C4A-C5A-N7A	-2.56	106.74	109.40
2	A	1201	ACO	C4A-C5A-N7A	-2.51	106.78	109.40
2	B	1203	ACO	C4A-C5A-N7A	-2.51	106.78	109.40
2	A	1204	ACO	C4A-C5A-N7A	-2.51	106.79	109.40
2	B	1203	ACO	P2A-O3A-P1A	-2.46	124.38	132.83
2	D	1201	ACO	P2A-O3A-P1A	-2.43	124.50	132.83
2	A	1204	ACO	P2A-O3A-P1A	-2.41	124.54	132.83
2	A	1201	ACO	O3B-C3B-C2B	-2.40	102.98	111.68
2	A	1201	ACO	P2A-O3A-P1A	-2.35	124.77	132.83
2	B	1203	ACO	O4B-C1B-C2B	-2.31	103.55	106.93
2	A	1201	ACO	O4B-C1B-C2B	-2.27	103.61	106.93
3	D	1203	OAA	O5-C4-C3	2.27	120.18	113.97
3	A	1203	OAA	O5-C4-C3	2.24	120.11	113.97
3	C	1201	OAA	O5-C4-C3	2.24	120.11	113.97
3	C	1202	OAA	O5-C4-C3	2.24	120.10	113.97
3	B	1201	OAA	O5-C4-C3	2.23	120.07	113.97
3	B	1202	OAA	O5-C4-C3	2.21	120.02	113.97
3	D	1202	OAA	O5-C4-C3	2.21	120.02	113.97
3	A	1202	OAA	O5-C4-C3	2.20	120.00	113.97
2	A	1201	ACO	O9A-P3B-O8A	2.18	115.98	107.64
2	A	1204	ACO	O4B-C1B-C2B	-2.13	103.81	106.93
2	B	1203	ACO	C2A-N1A-C6A	2.13	122.40	118.75
2	A	1204	ACO	C2A-N1A-C6A	2.12	122.39	118.75
2	D	1201	ACO	C2A-N1A-C6A	2.10	122.34	118.75
2	A	1201	ACO	C2A-N1A-C6A	2.09	122.32	118.75
2	A	1204	ACO	O3B-C3B-C2B	-2.09	104.12	111.68
2	D	1201	ACO	O4B-C1B-C2B	-2.05	103.93	106.93
2	A	1204	ACO	O9A-P3B-O8A	2.04	115.44	107.64

There are no chirality outliers.

All (96) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1201	ACO	CCP-O6A-P2A-O4A
2	A	1201	ACO	CEP-CBP-CCP-O6A
2	A	1201	ACO	CAP-CBP-CCP-O6A
2	A	1201	ACO	O9P-C9P-CAP-CBP
2	A	1201	ACO	N8P-C9P-CAP-CBP
2	A	1201	ACO	C5P-C6P-C7P-N8P
2	A	1201	ACO	C3P-C2P-S1P-C
2	A	1201	ACO	O-C-S1P-C2P
2	A	1204	ACO	CCP-O6A-P2A-O3A

Continued on next page...

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
2	A	1204	ACO	CCP-O6A-P2A-O4A
2	A	1204	ACO	CAP-CBP-CCP-O6A
2	A	1204	ACO	O9P-C9P-CAP-CBP
2	A	1204	ACO	N8P-C9P-CAP-CBP
2	A	1204	ACO	CAP-C9P-N8P-C7P
2	A	1204	ACO	C5P-C6P-C7P-N8P
2	A	1204	ACO	C3P-C2P-S1P-C
2	A	1204	ACO	O-C-S1P-C2P
2	B	1203	ACO	CCP-O6A-P2A-O3A
2	B	1203	ACO	CCP-O6A-P2A-O4A
2	B	1203	ACO	CAP-CBP-CCP-O6A
2	B	1203	ACO	O9P-C9P-CAP-CBP
2	B	1203	ACO	N8P-C9P-CAP-CBP
2	B	1203	ACO	C5P-C6P-C7P-N8P
2	B	1203	ACO	C3P-C2P-S1P-C
2	B	1203	ACO	O-C-S1P-C2P
2	D	1201	ACO	CCP-O6A-P2A-O3A
2	D	1201	ACO	CCP-O6A-P2A-O4A
2	D	1201	ACO	CAP-CBP-CCP-O6A
2	D	1201	ACO	O9P-C9P-CAP-CBP
2	D	1201	ACO	N8P-C9P-CAP-CBP
2	D	1201	ACO	C5P-C6P-C7P-N8P
2	D	1201	ACO	C3P-C2P-S1P-C
2	D	1201	ACO	O-C-S1P-C2P
3	A	1202	OAA	C2-C3-C4-O4
3	A	1202	OAA	C2-C3-C4-O5
3	A	1203	OAA	C1-C2-C3-O3
3	A	1203	OAA	C2-C3-C4-O4
3	A	1203	OAA	C2-C3-C4-O5
3	B	1201	OAA	O2-C1-C2-C3
3	B	1201	OAA	O3-C3-C4-O4
3	B	1201	OAA	O3-C3-C4-O5
3	B	1201	OAA	C2-C3-C4-O4
3	B	1201	OAA	C2-C3-C4-O5
3	B	1202	OAA	C1-C2-C3-O3
3	B	1202	OAA	O3-C3-C4-O4
3	B	1202	OAA	O3-C3-C4-O5
3	B	1202	OAA	C2-C3-C4-O5
3	C	1201	OAA	O2-C1-C2-C3
3	C	1201	OAA	O3-C3-C4-O4
3	C	1201	OAA	O3-C3-C4-O5
3	C	1201	OAA	C2-C3-C4-O5

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
3	C	1202	OAA	C1-C2-C3-O3
3	C	1202	OAA	O3-C3-C4-O4
3	C	1202	OAA	O3-C3-C4-O5
3	C	1202	OAA	C2-C3-C4-O5
3	D	1202	OAA	C2-C3-C4-O4
3	D	1202	OAA	C2-C3-C4-O5
3	D	1203	OAA	C1-C2-C3-O3
3	D	1203	OAA	C2-C3-C4-O4
3	D	1203	OAA	C2-C3-C4-O5
2	A	1201	ACO	CDP-CBP-CCP-O6A
2	A	1204	ACO	CDP-CBP-CCP-O6A
2	A	1204	ACO	CEP-CBP-CCP-O6A
2	B	1203	ACO	CDP-CBP-CCP-O6A
2	B	1203	ACO	CEP-CBP-CCP-O6A
2	D	1201	ACO	CDP-CBP-CCP-O6A
2	D	1201	ACO	CEP-CBP-CCP-O6A
2	A	1201	ACO	CH3-C-S1P-C2P
2	A	1204	ACO	CH3-C-S1P-C2P
2	B	1203	ACO	CH3-C-S1P-C2P
2	D	1201	ACO	CH3-C-S1P-C2P
2	A	1201	ACO	CAP-C9P-N8P-C7P
2	B	1203	ACO	CAP-C9P-N8P-C7P
2	D	1201	ACO	CAP-C9P-N8P-C7P
3	B	1201	OAA	O1-C1-C2-C3
3	C	1201	OAA	O1-C1-C2-C3
2	A	1204	ACO	O9P-C9P-N8P-C7P
2	A	1201	ACO	C5B-O5B-P1A-O3A
2	A	1201	ACO	CCP-O6A-P2A-O3A
2	A	1204	ACO	CCP-O6A-P2A-O5A
2	B	1203	ACO	CCP-O6A-P2A-O5A
3	A	1202	OAA	O3-C3-C4-O4
3	A	1203	OAA	O3-C3-C4-O4
3	D	1202	OAA	O3-C3-C4-O4
3	D	1203	OAA	O3-C3-C4-O4
3	B	1202	OAA	C2-C3-C4-O4
3	C	1201	OAA	C2-C3-C4-O4
3	C	1202	OAA	C2-C3-C4-O4
2	B	1203	ACO	O9P-C9P-N8P-C7P
2	D	1201	ACO	O9P-C9P-N8P-C7P
2	A	1201	ACO	O9P-C9P-N8P-C7P
2	A	1201	ACO	S1P-C2P-C3P-N4P
2	B	1203	ACO	S1P-C2P-C3P-N4P

*Continued on next page...*

*Continued from previous page...*

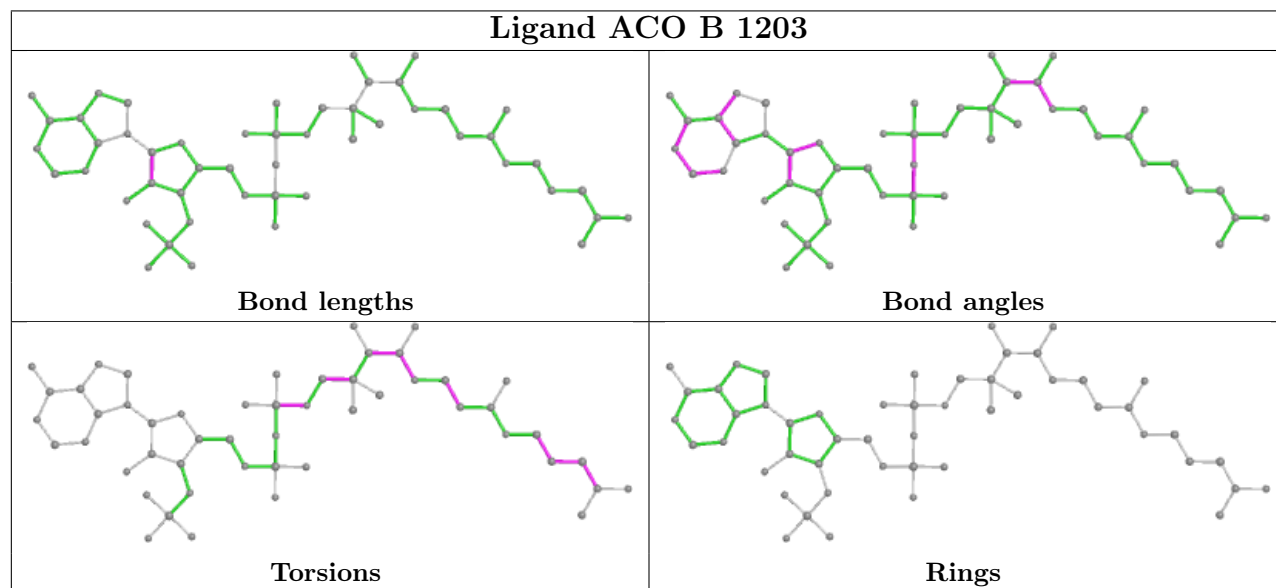
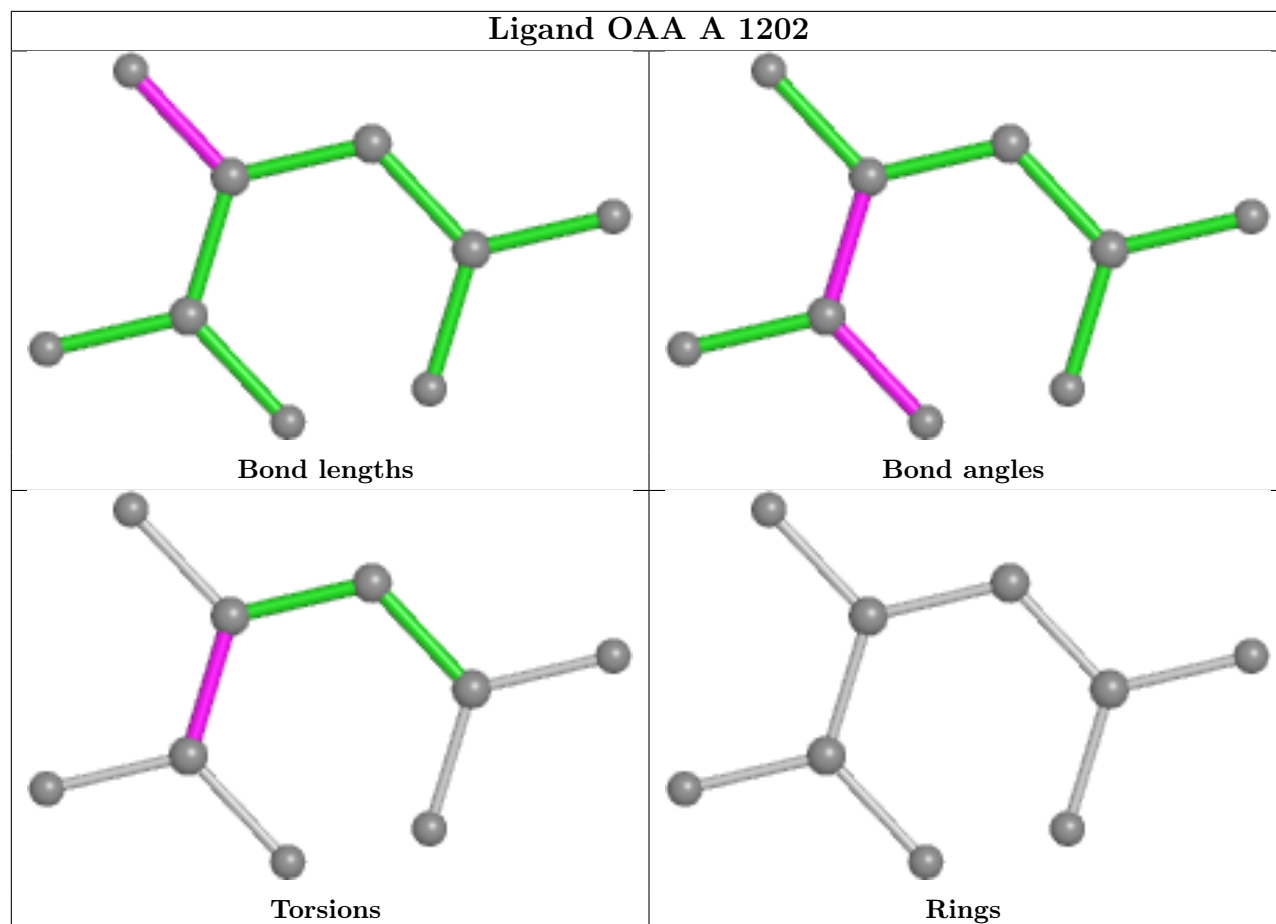
Mol	Chain	Res	Type	Atoms
2	D	1201	ACO	S1P-C2P-C3P-N4P
2	A	1204	ACO	C5B-O5B-P1A-O3A
2	D	1201	ACO	CCP-O6A-P2A-O5A

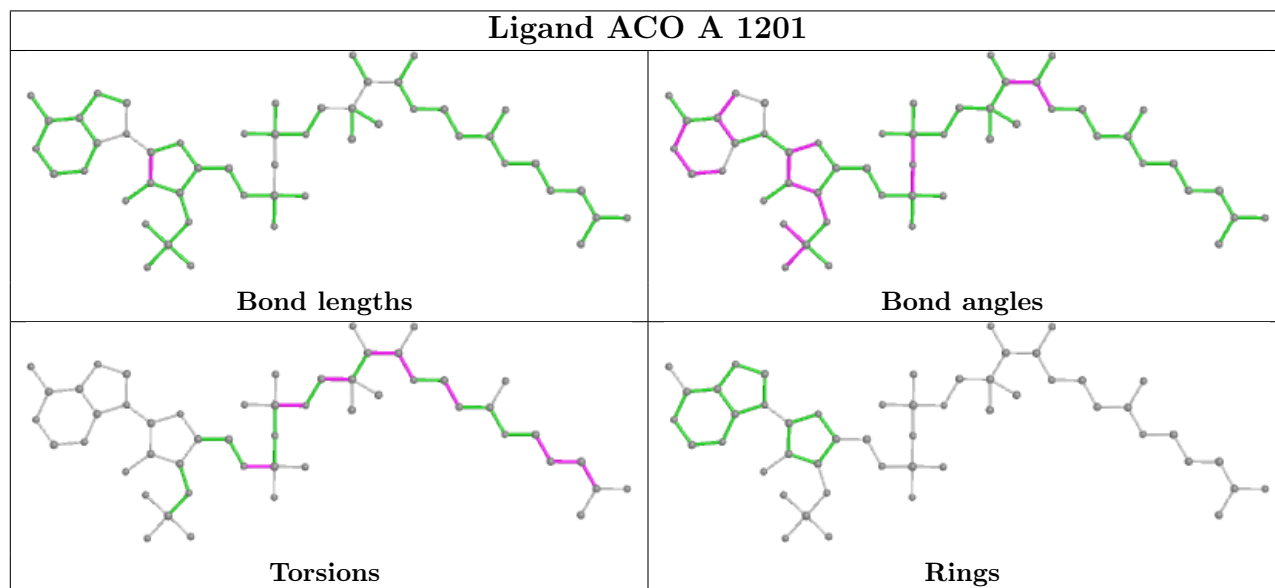
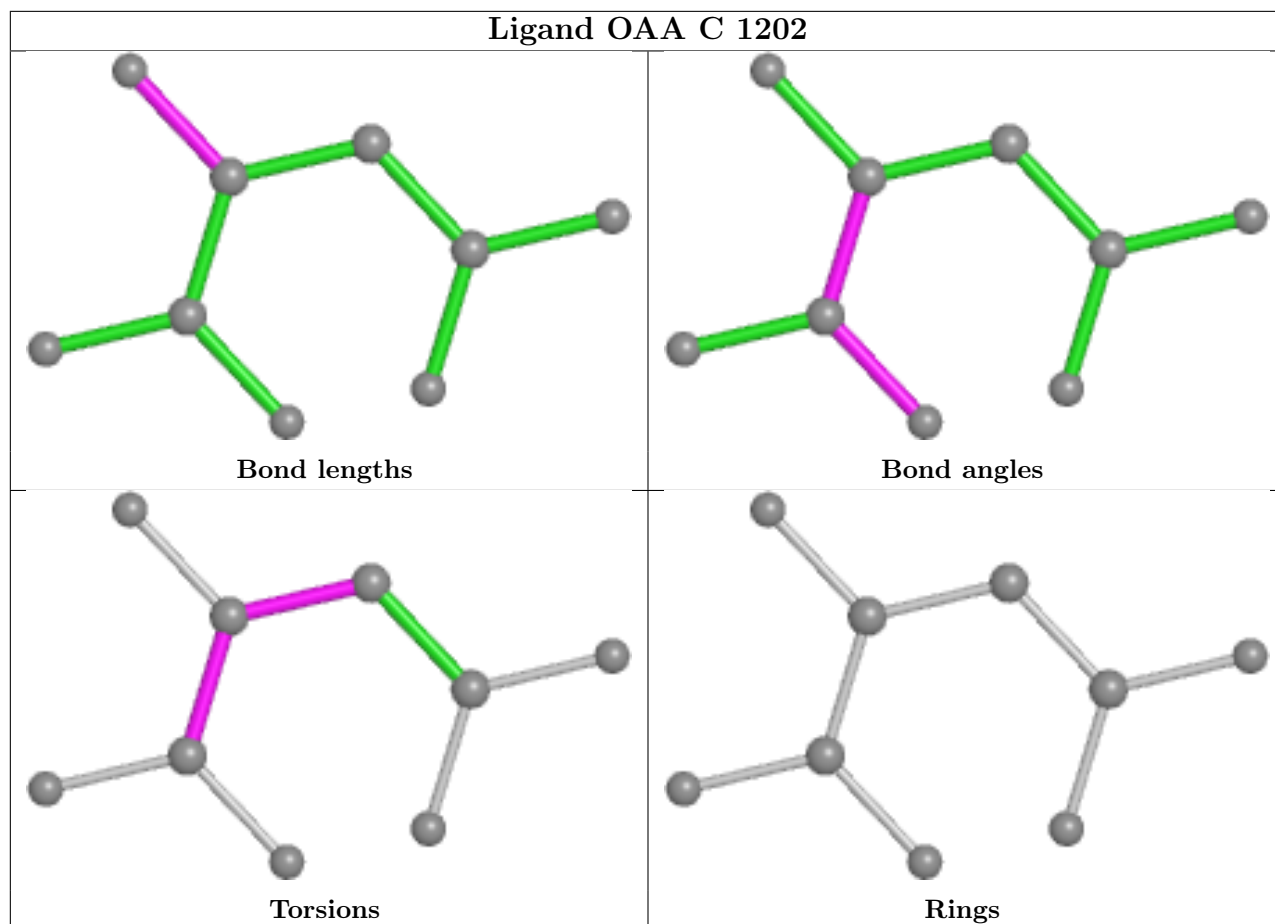
There are no ring outliers.

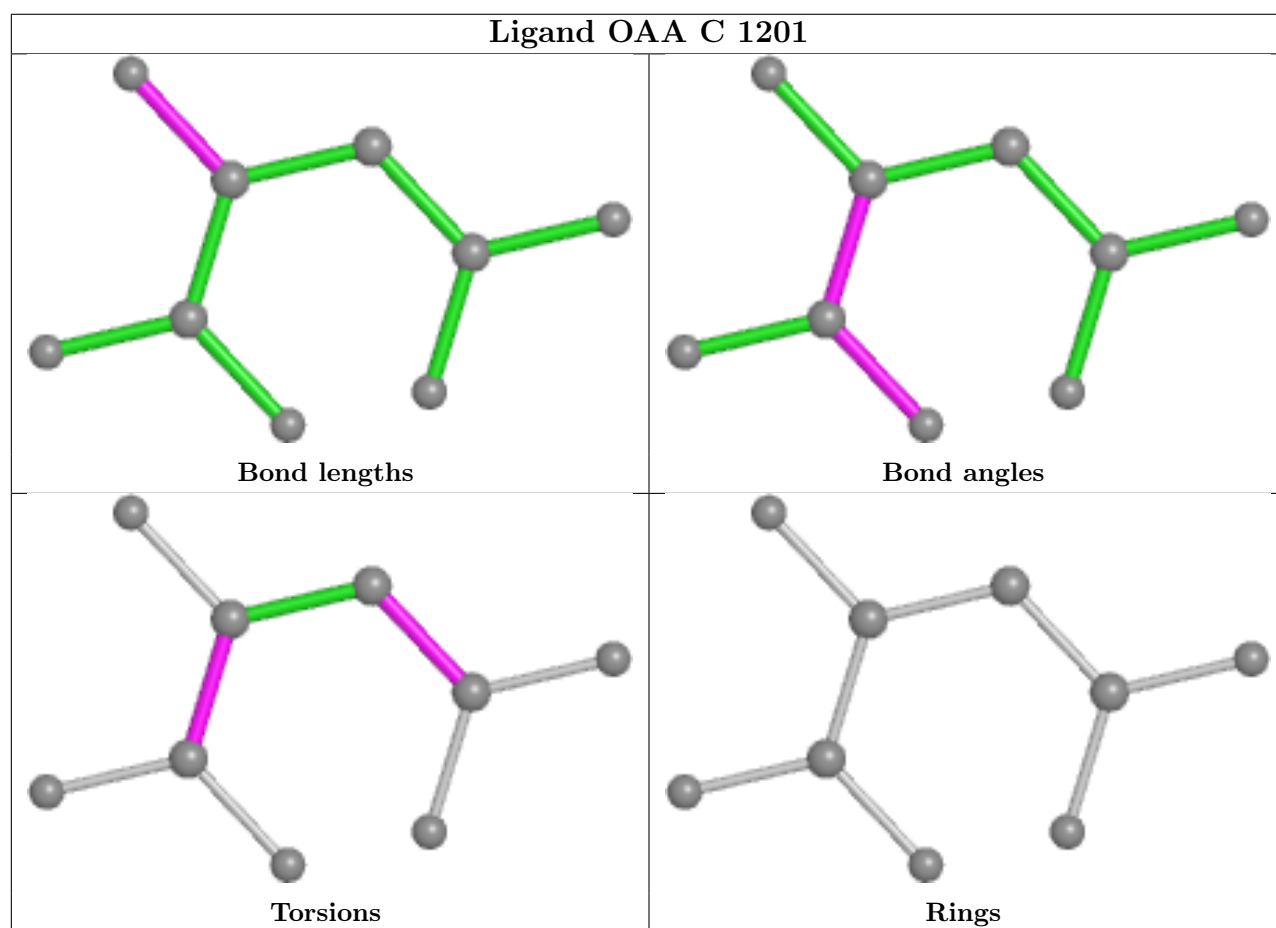
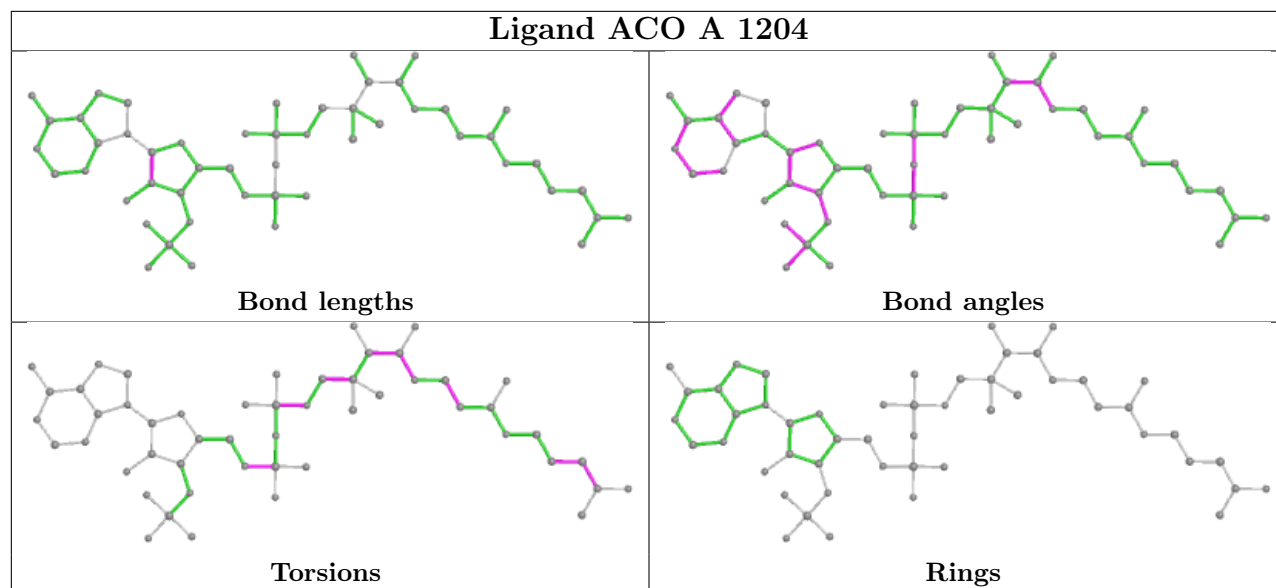
2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1204	ACO	1	0
2	D	1201	ACO	1	0

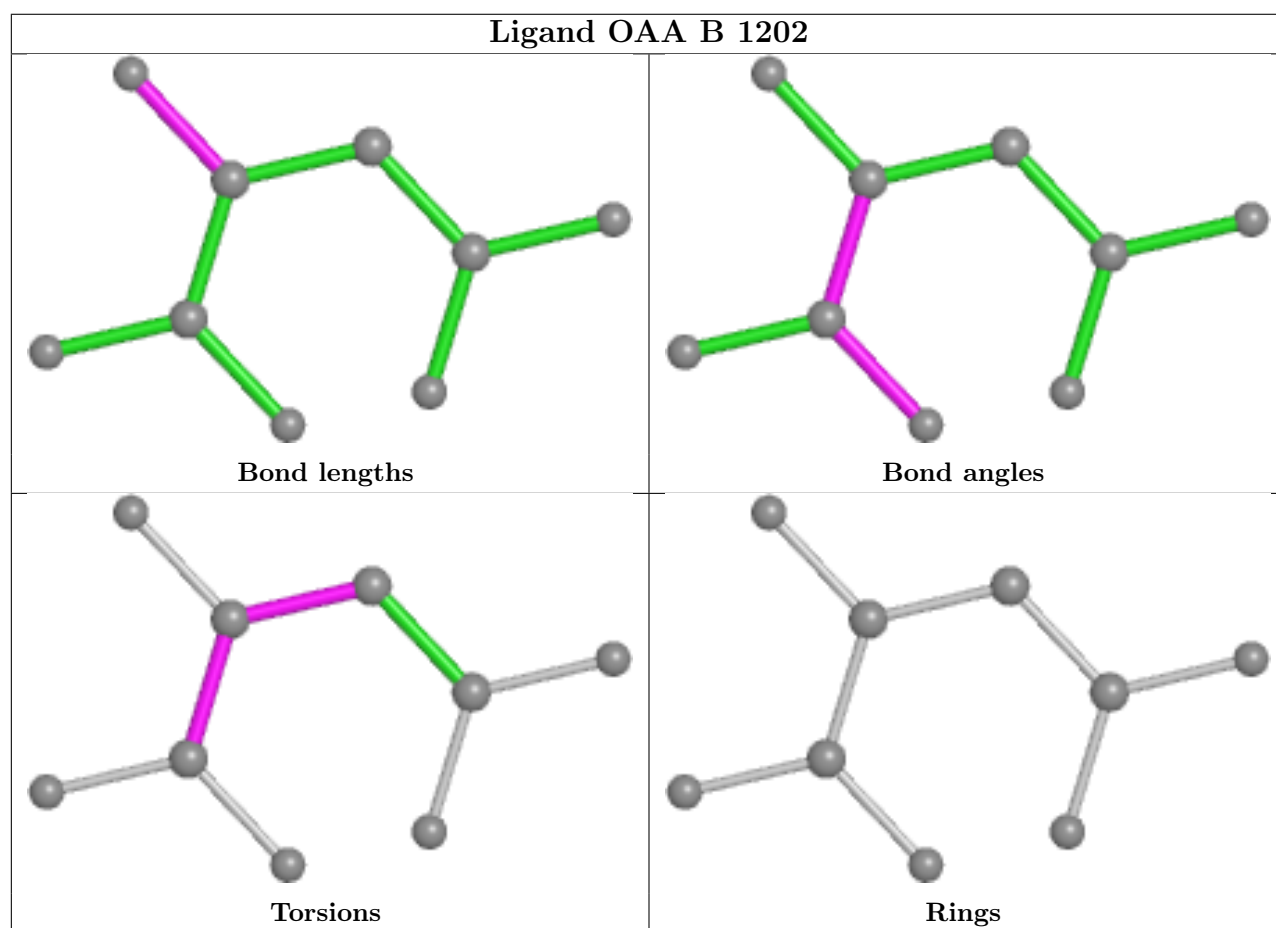
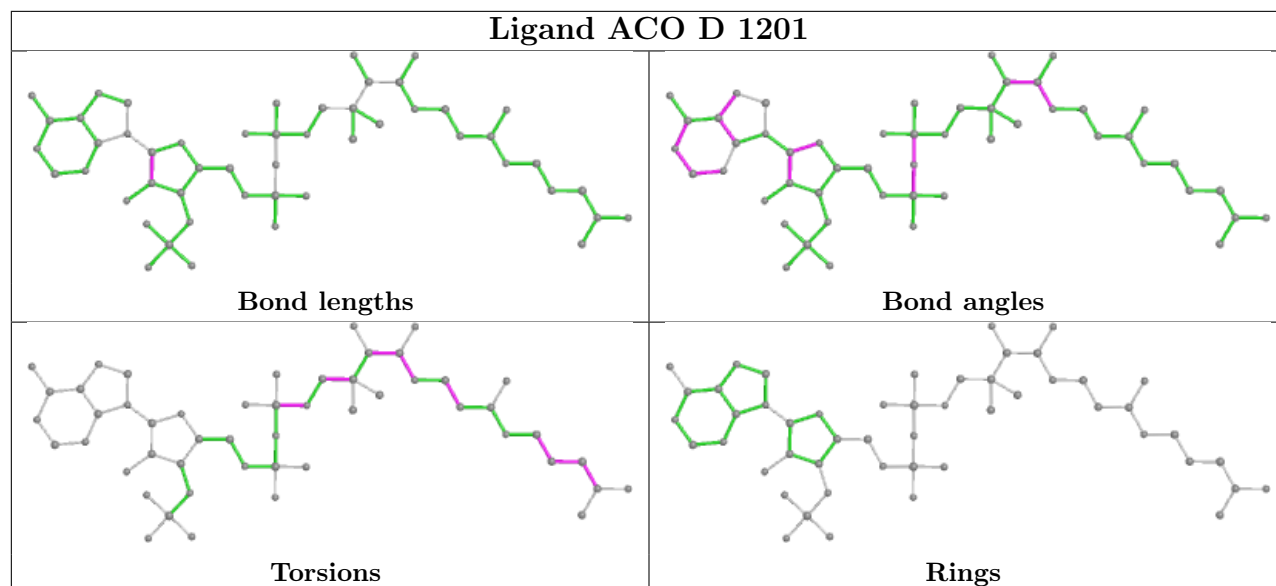
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

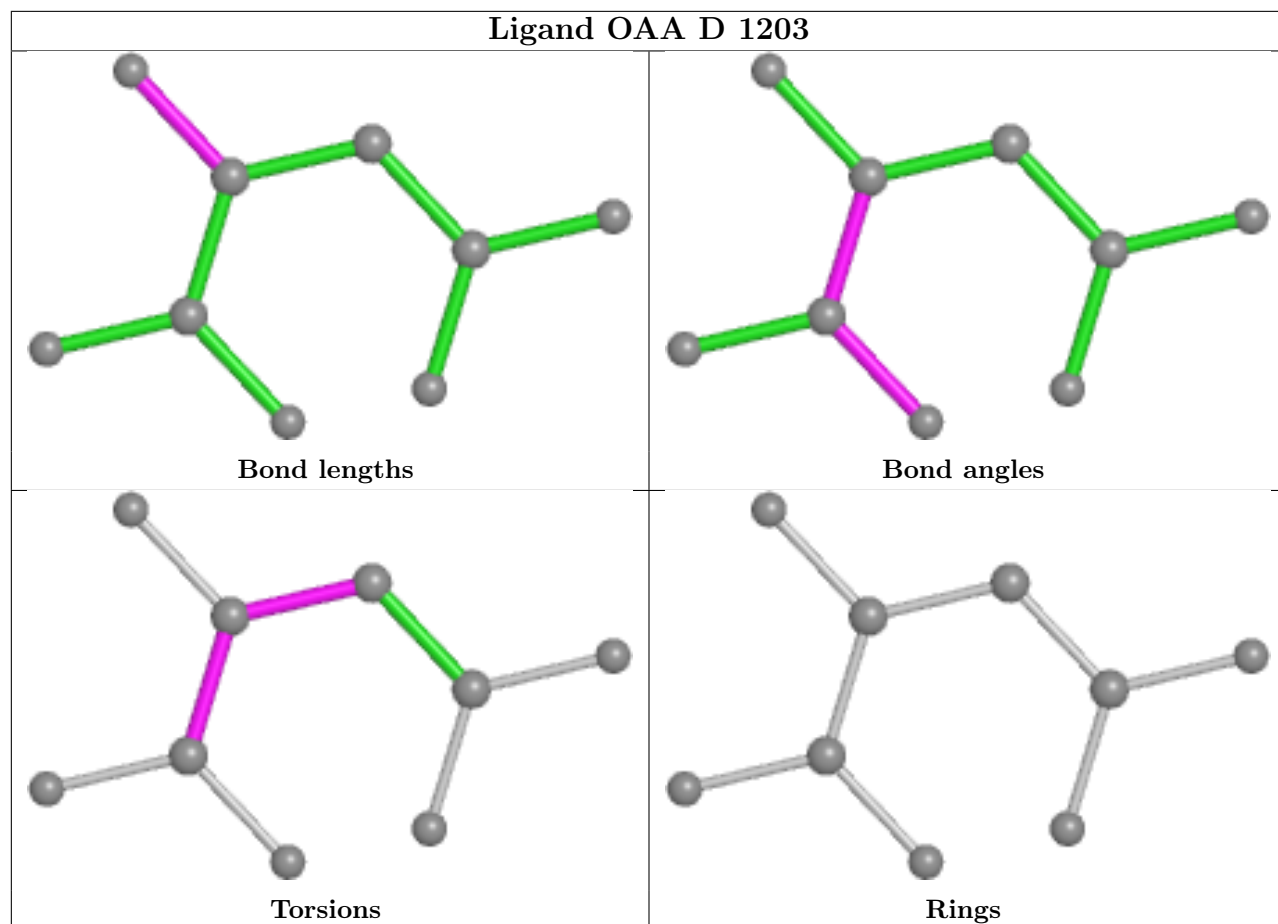


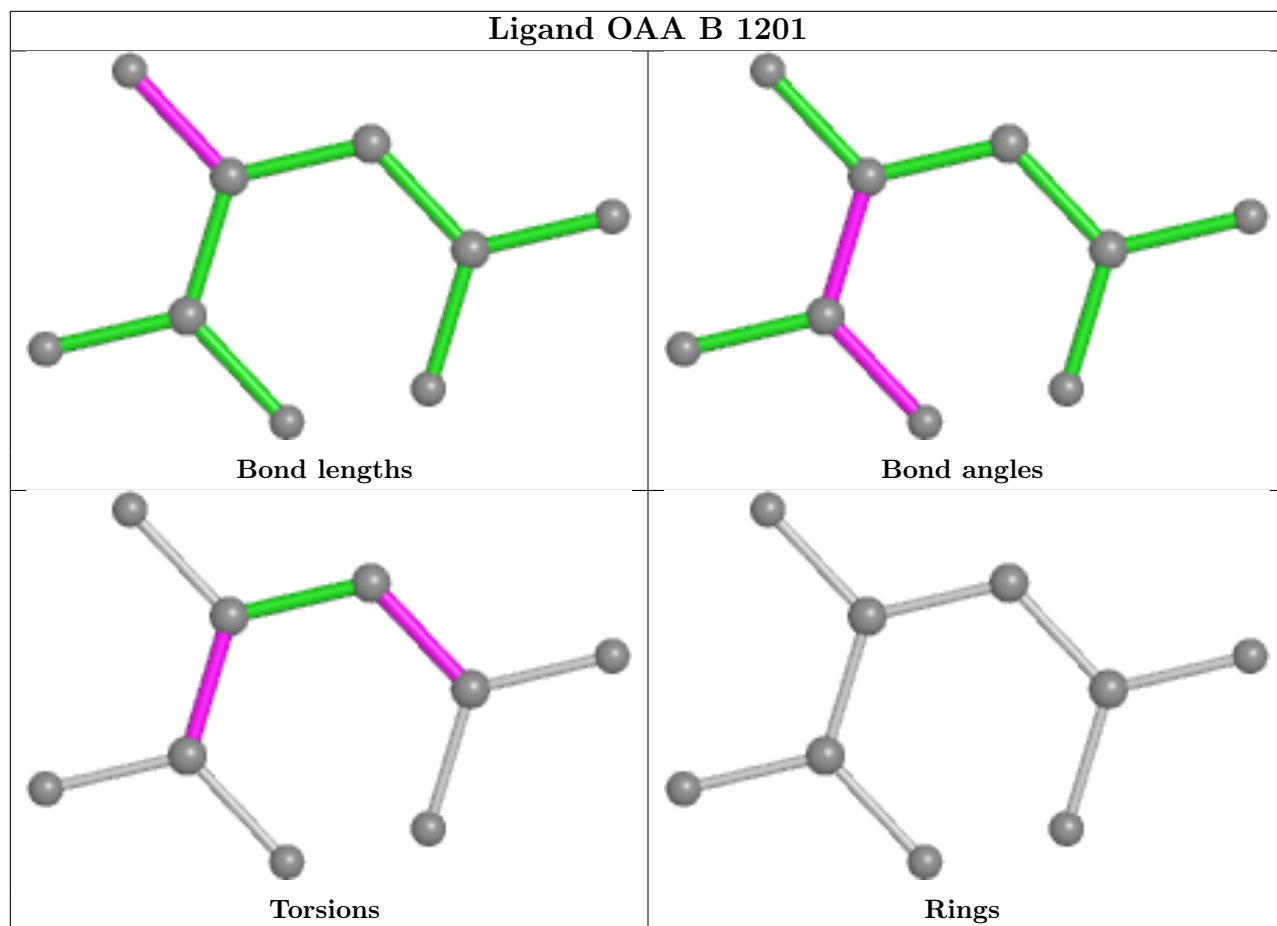


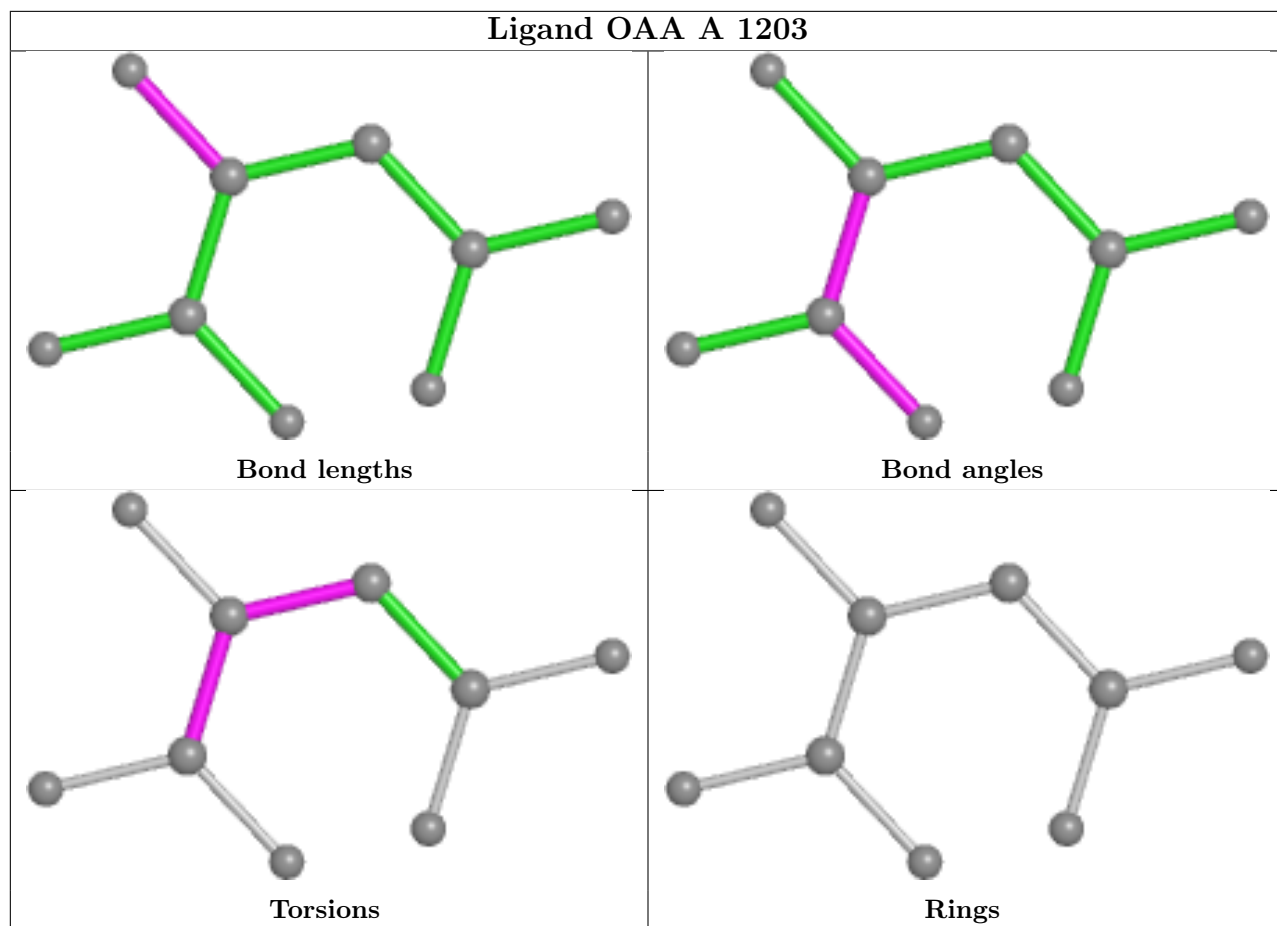


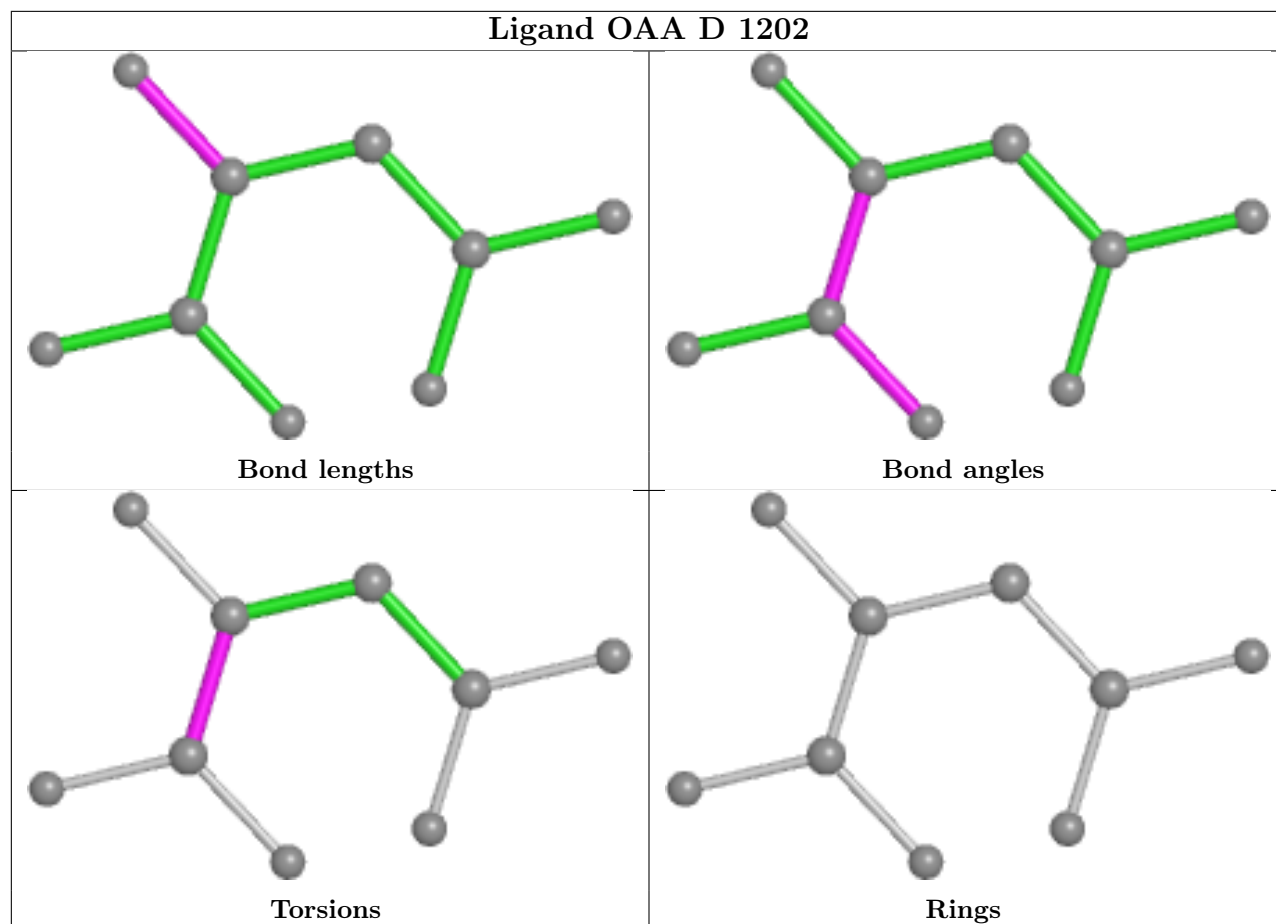












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

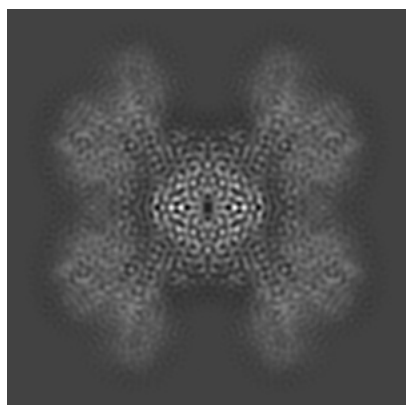
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20783. These allow visual inspection of the internal detail of the map and identification of artifacts.

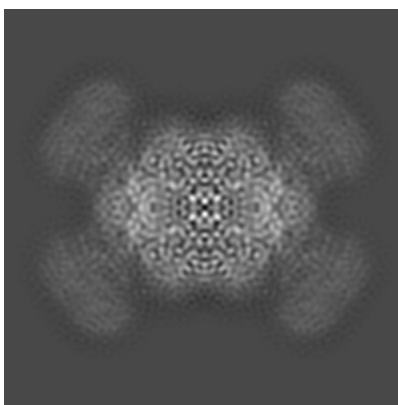
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

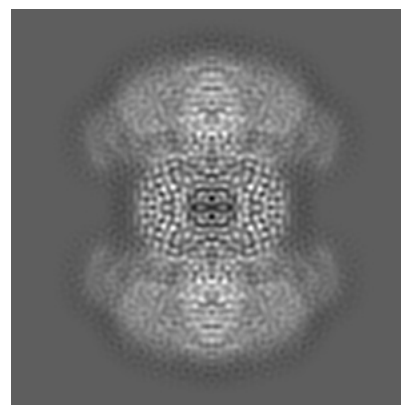
#### 6.1.1 Primary map



X



Y

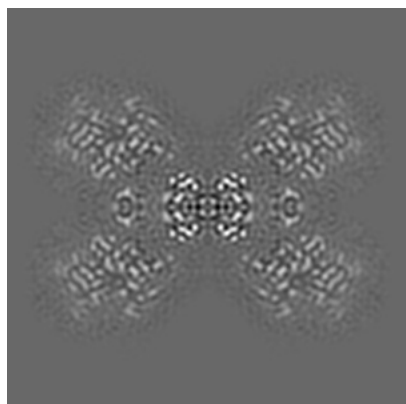


Z

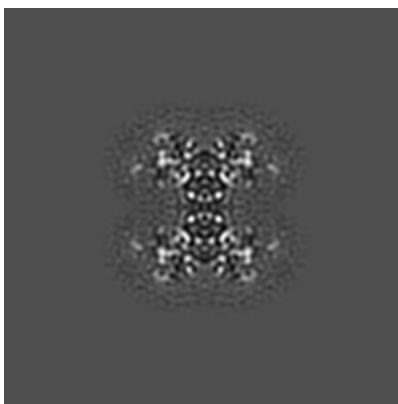
The images above show the map projected in three orthogonal directions.

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

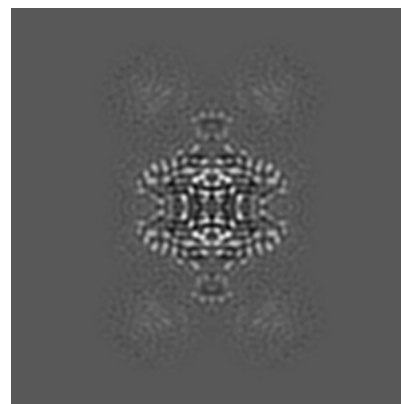
#### 6.2.1 Primary map



X Index: 110



Y Index: 110

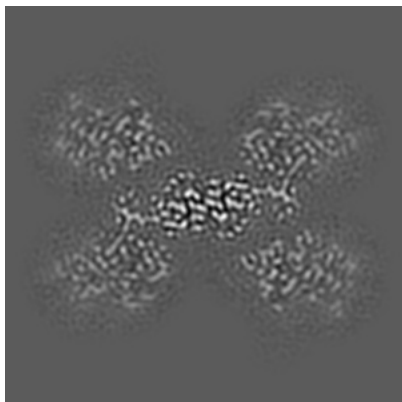


Z Index: 110

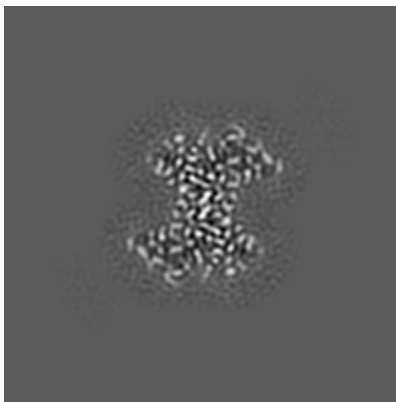
The images above show central slices of the map in three orthogonal directions.

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

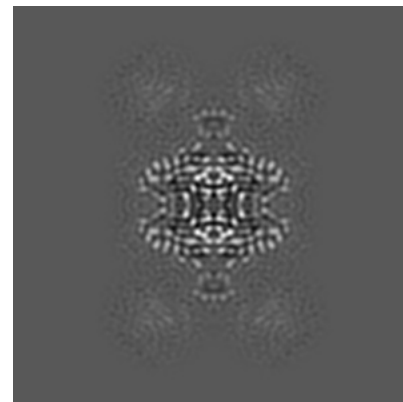
### 6.3.1 Primary map



X Index: 114



Y Index: 102

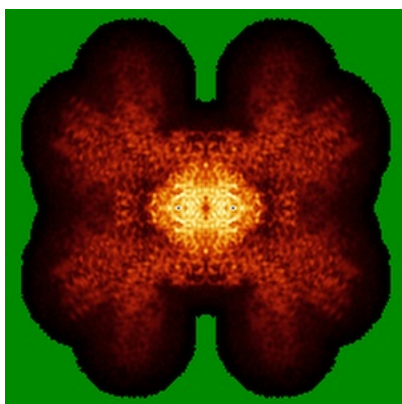


Z Index: 110

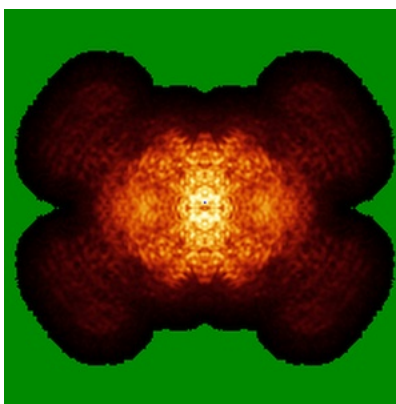
The images above show the largest variance slices of the map in three orthogonal directions.

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

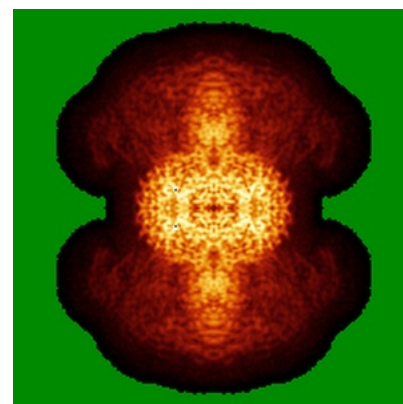
### 6.4.1 Primary map



X



Y

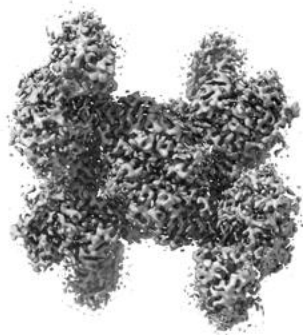


Z

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](#)

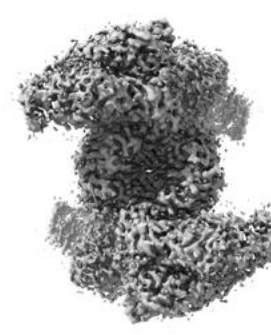
### 6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. 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](#)

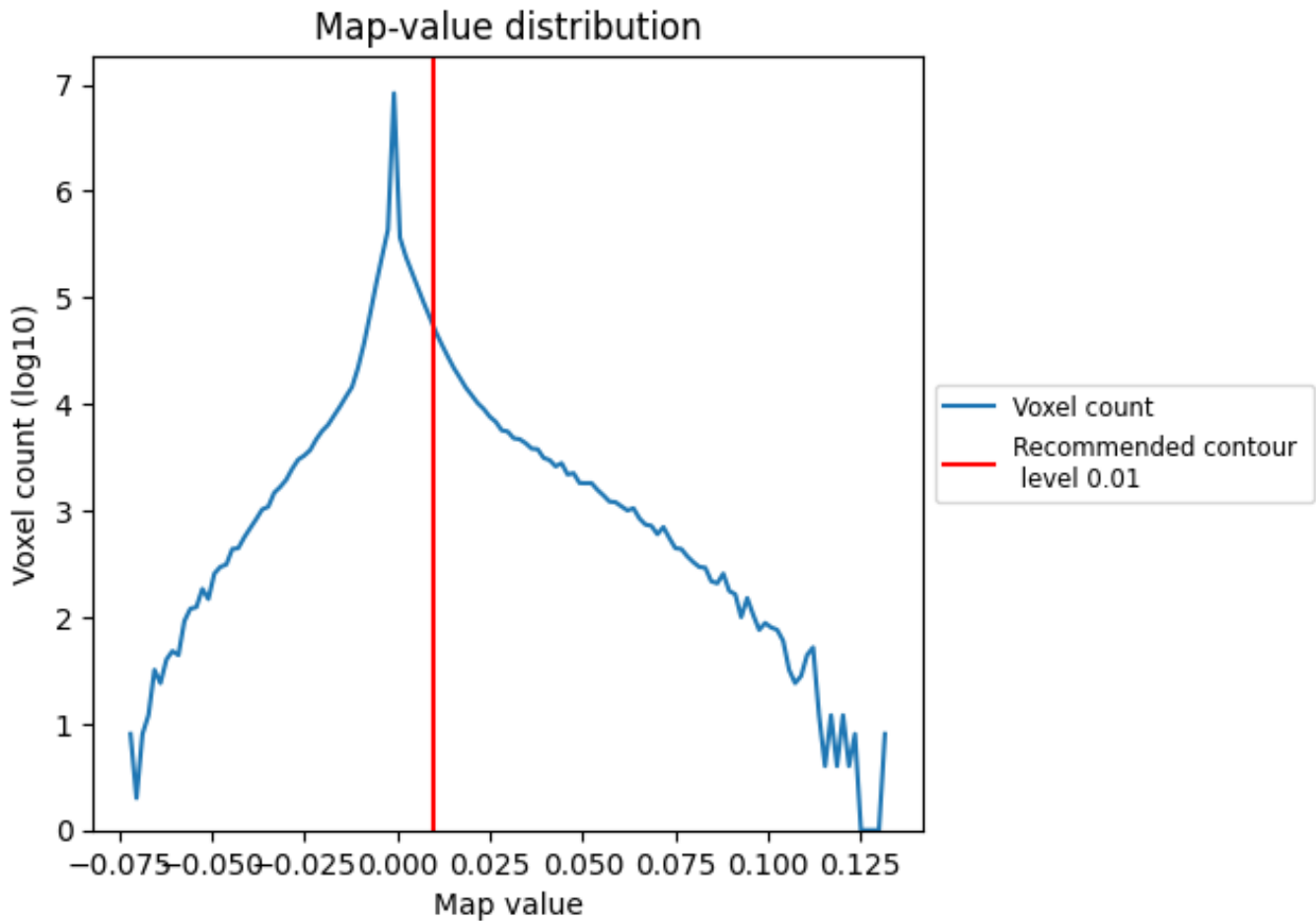
This section was not generated. No masks/segmentation were deposited.



## 7 Map analysis [i](#)

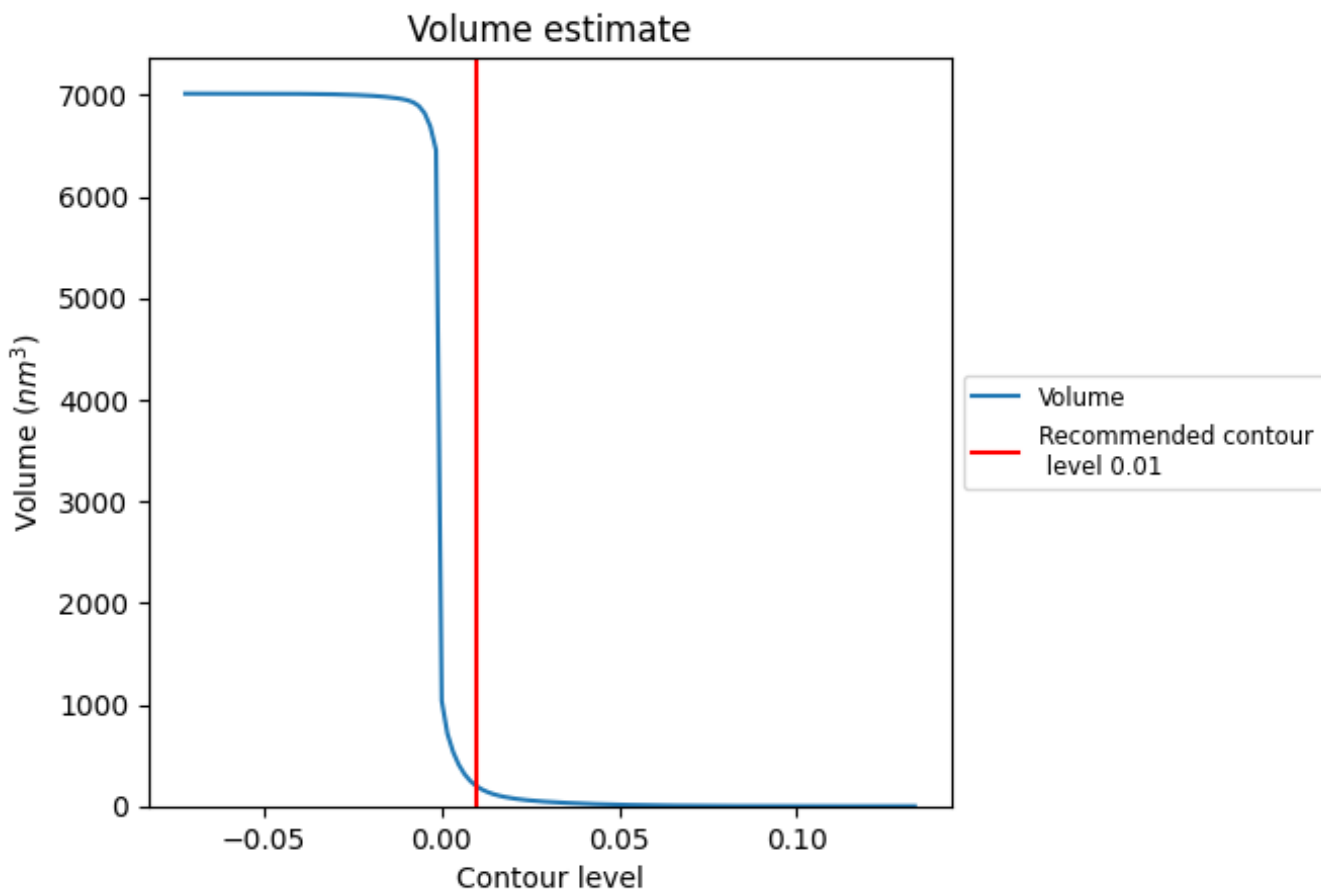
This section contains the results of statistical analysis of the map.

### 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.

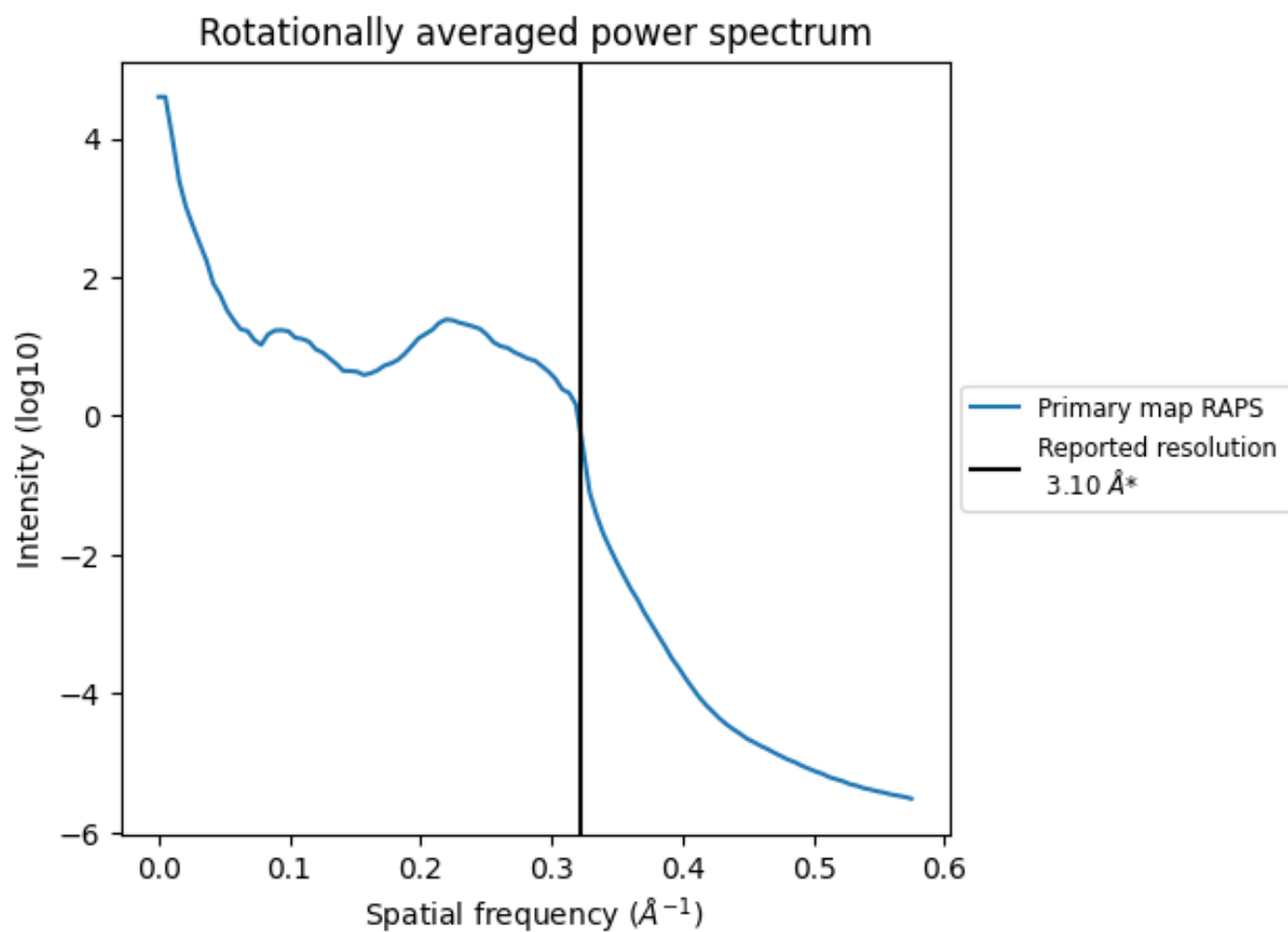
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $196 \text{ nm}^3$ ; this corresponds to an approximate mass of 177 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 [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.323 \text{\AA}^{-1}$

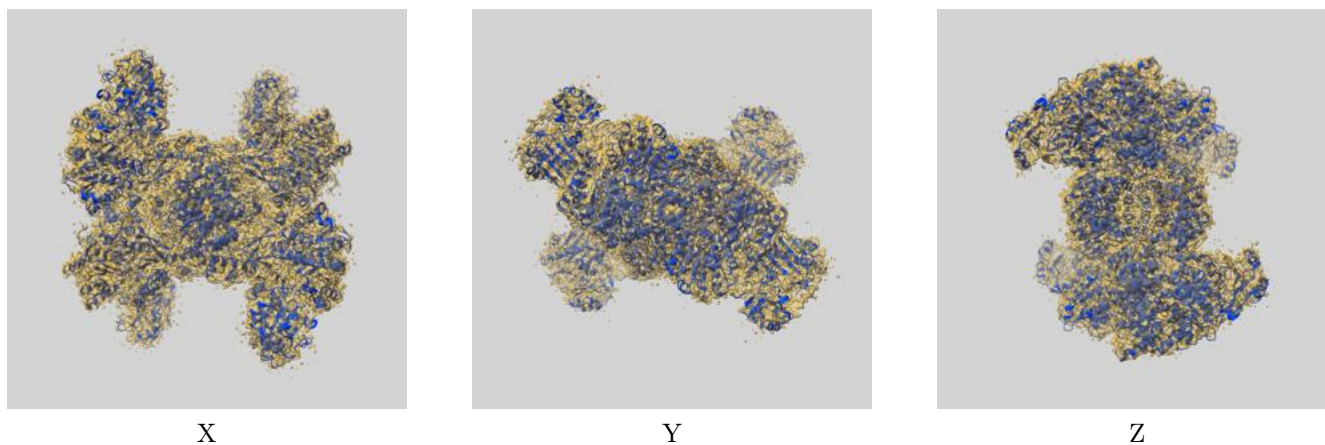
## 8 Fourier-Shell correlation

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

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

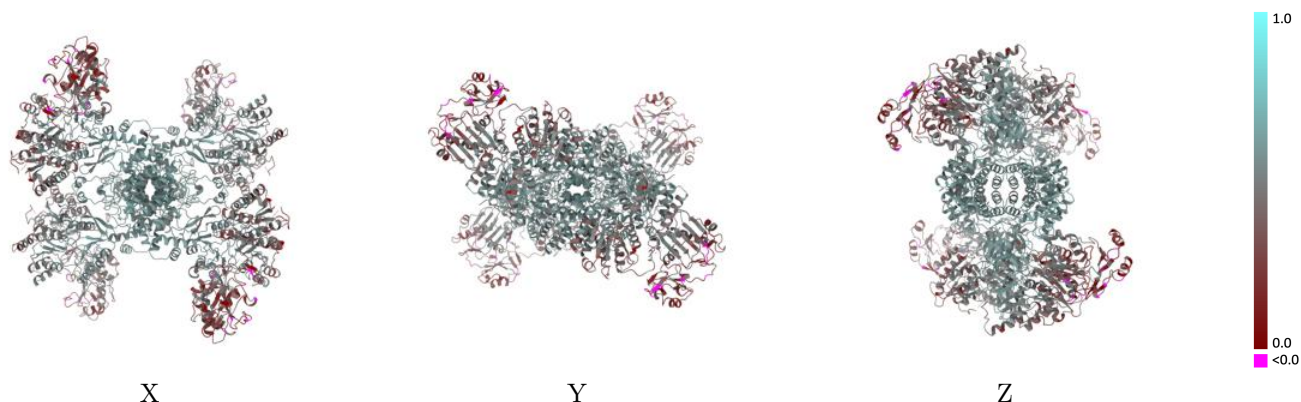
This section contains information regarding the fit between EMDB map EMD-20783 and PDB model 6UI9. Per-residue inclusion information can be found in section 3 on page 6.

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



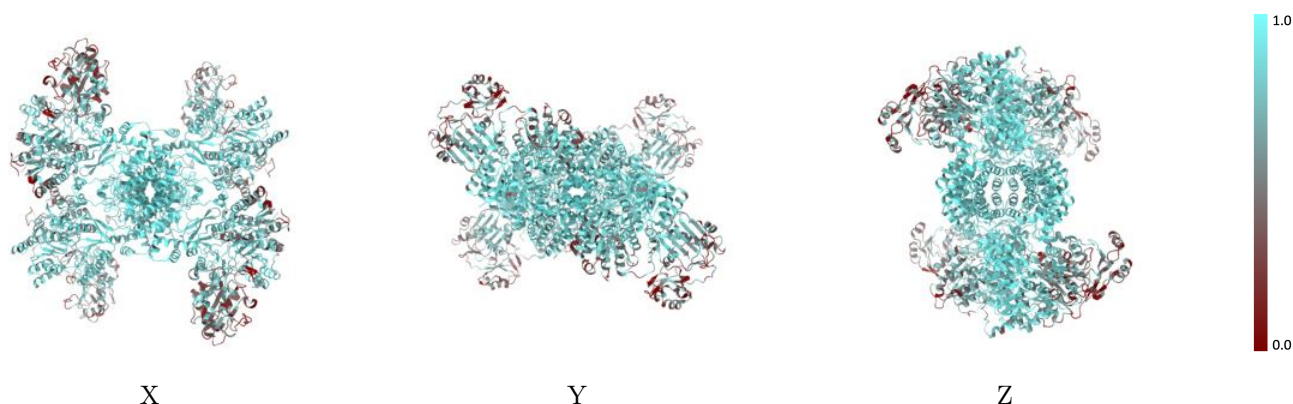
The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



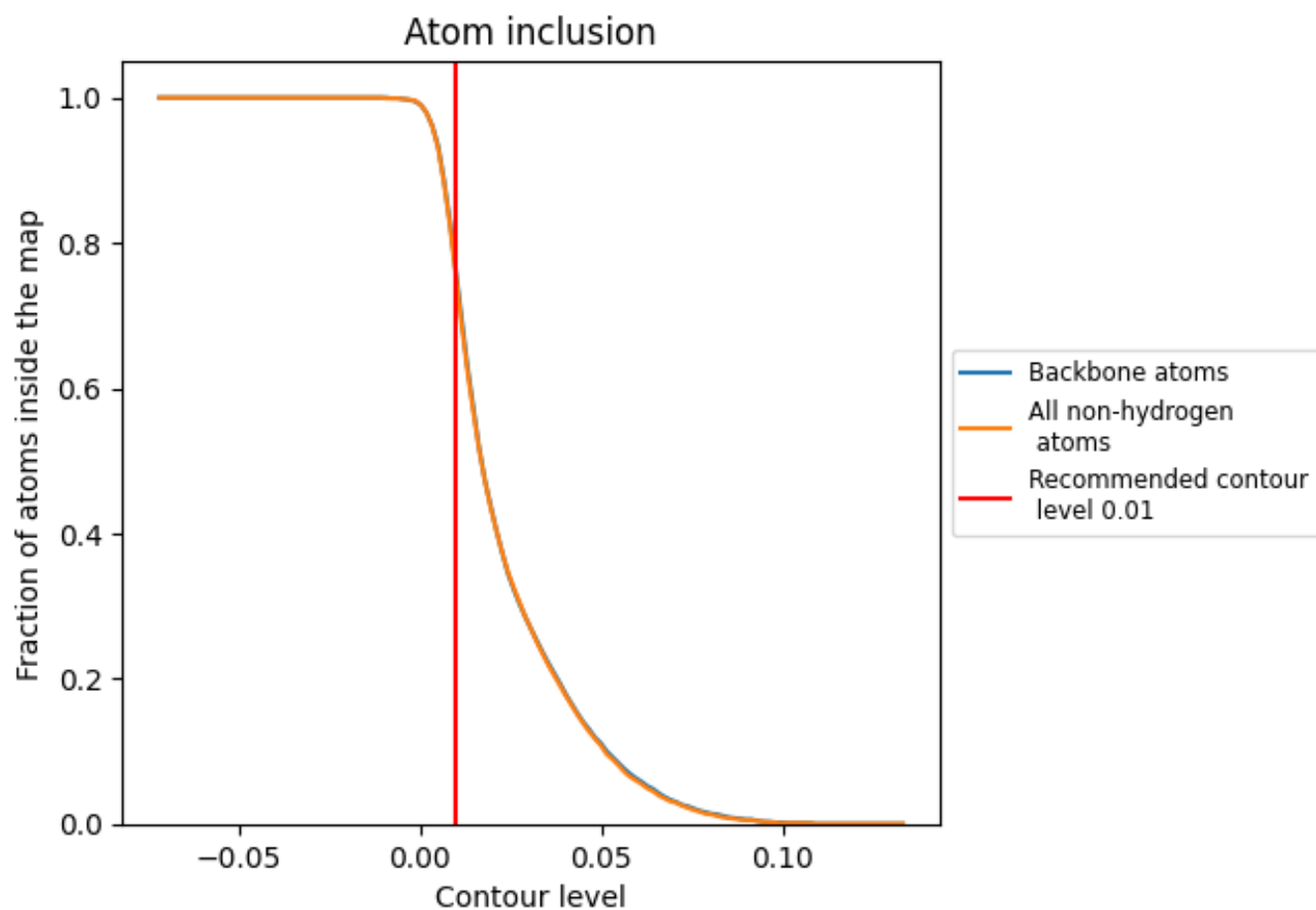
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.01).











## 9.4 Atom inclusion [i](#)



At the recommended contour level, 75% of all backbone atoms, 75% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7490	 0.4740
A	 0.7530	 0.4750
B	 0.7530	 0.4740
C	 0.7510	 0.4720
D	 0.7530	 0.4740

