



Full wwPDB EM Validation Report ⓘ

Jun 25, 2025 – 04:05 PM JST

PDB ID : 7XNZ / pdb_00007xnz
EMDB ID : EMD-33331
Title : Native cystathionine beta-synthase of Mycobacterium tuberculosis.
Authors : Bandyopadhyay, P.; Pramanick, I.; Biswas, R.; Sabarinath, P.S.; Sreedharan, S.; Singh, S.; Rajmani, R.; Laxman, S.; Dutta, S.; Singh, A.
Deposited on : 2022-04-30
Resolution : 3.60 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

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.dev118
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

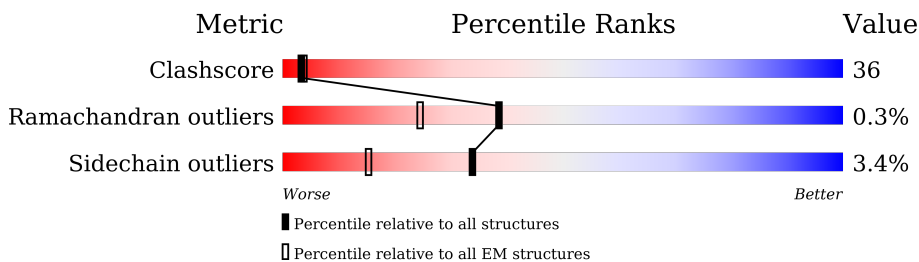
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.60 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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 ≥ 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	478	
1	B	478	
1	C	478	
1	D	478	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 13528 atoms, of which 4 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 Putative cystathionine beta-synthase Rv1077.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	458	Total	C	N	O	S	0	0
			3366	2113	583	655	15		
1	A	458	Total	C	N	O	S	0	0
			3366	2113	583	655	15		
1	C	458	Total	C	N	O	S	0	0
			3366	2113	583	655	15		
1	D	458	Total	C	N	O	S	0	0
			3366	2113	583	655	15		

There are 56 discrepancies between the modelled and reference sequences:

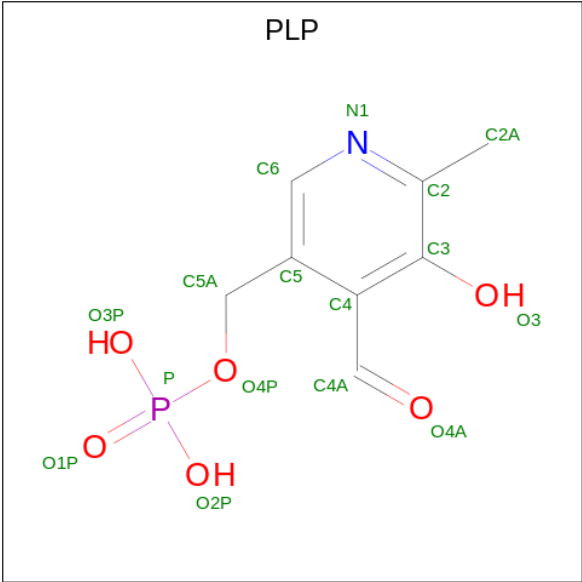
Chain	Residue	Modelled	Actual	Comment	Reference
B	1	ALA	-	insertion	UNP P9WP51
B	465	LYS	-	expression tag	UNP P9WP51
B	466	LEU	-	expression tag	UNP P9WP51
B	467	ALA	-	expression tag	UNP P9WP51
B	468	ALA	-	expression tag	UNP P9WP51
B	469	ALA	-	expression tag	UNP P9WP51
B	470	LEU	-	expression tag	UNP P9WP51
B	471	GLU	-	expression tag	UNP P9WP51
B	472	HIS	-	expression tag	UNP P9WP51
B	473	HIS	-	expression tag	UNP P9WP51
B	474	HIS	-	expression tag	UNP P9WP51
B	475	HIS	-	expression tag	UNP P9WP51
B	476	HIS	-	expression tag	UNP P9WP51
B	477	HIS	-	expression tag	UNP P9WP51
A	1	ALA	-	insertion	UNP P9WP51
A	465	LYS	-	expression tag	UNP P9WP51
A	466	LEU	-	expression tag	UNP P9WP51
A	467	ALA	-	expression tag	UNP P9WP51
A	468	ALA	-	expression tag	UNP P9WP51
A	469	ALA	-	expression tag	UNP P9WP51
A	470	LEU	-	expression tag	UNP P9WP51
A	471	GLU	-	expression tag	UNP P9WP51

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Chain	Residue	Modelled	Actual	Comment	Reference
A	472	HIS	-	expression tag	UNP P9WP51
A	473	HIS	-	expression tag	UNP P9WP51
A	474	HIS	-	expression tag	UNP P9WP51
A	475	HIS	-	expression tag	UNP P9WP51
A	476	HIS	-	expression tag	UNP P9WP51
A	477	HIS	-	expression tag	UNP P9WP51
C	1	ALA	-	insertion	UNP P9WP51
C	465	LYS	-	expression tag	UNP P9WP51
C	466	LEU	-	expression tag	UNP P9WP51
C	467	ALA	-	expression tag	UNP P9WP51
C	468	ALA	-	expression tag	UNP P9WP51
C	469	ALA	-	expression tag	UNP P9WP51
C	470	LEU	-	expression tag	UNP P9WP51
C	471	GLU	-	expression tag	UNP P9WP51
C	472	HIS	-	expression tag	UNP P9WP51
C	473	HIS	-	expression tag	UNP P9WP51
C	474	HIS	-	expression tag	UNP P9WP51
C	475	HIS	-	expression tag	UNP P9WP51
C	476	HIS	-	expression tag	UNP P9WP51
C	477	HIS	-	expression tag	UNP P9WP51
D	1	ALA	-	insertion	UNP P9WP51
D	465	LYS	-	expression tag	UNP P9WP51
D	466	LEU	-	expression tag	UNP P9WP51
D	467	ALA	-	expression tag	UNP P9WP51
D	468	ALA	-	expression tag	UNP P9WP51
D	469	ALA	-	expression tag	UNP P9WP51
D	470	LEU	-	expression tag	UNP P9WP51
D	471	GLU	-	expression tag	UNP P9WP51
D	472	HIS	-	expression tag	UNP P9WP51
D	473	HIS	-	expression tag	UNP P9WP51
D	474	HIS	-	expression tag	UNP P9WP51
D	475	HIS	-	expression tag	UNP P9WP51
D	476	HIS	-	expression tag	UNP P9WP51
D	477	HIS	-	expression tag	UNP P9WP51

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (CCD ID: PLP) (formula: $C_8H_{10}NO_6P$) (labeled as "Ligand of Interest" by depositor).

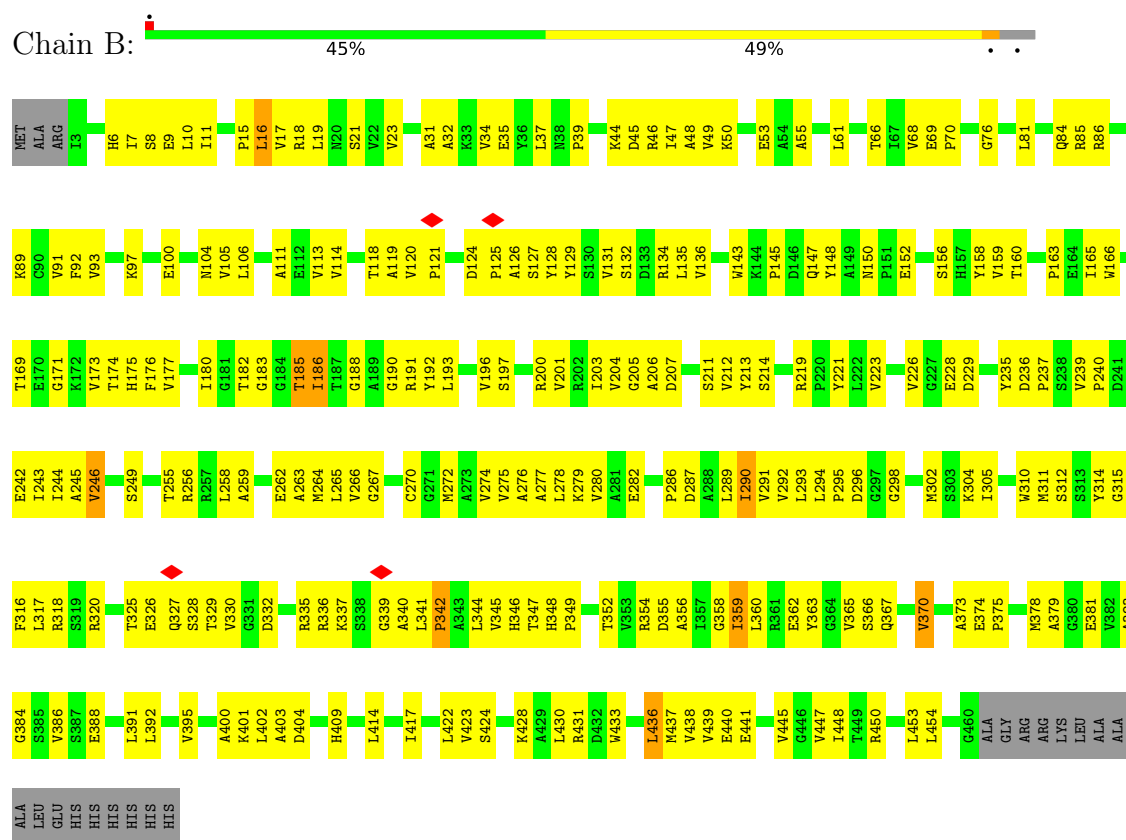


Mol	Chain	Residues	Atoms						AltConf
			Total	C	H	N	O	P	
2	B	1	16	8	1	1	5	1	0
2	A	1	16	8	1	1	5	1	0
2	C	1	16	8	1	1	5	1	0
2	D	1	16	8	1	1	5	1	0

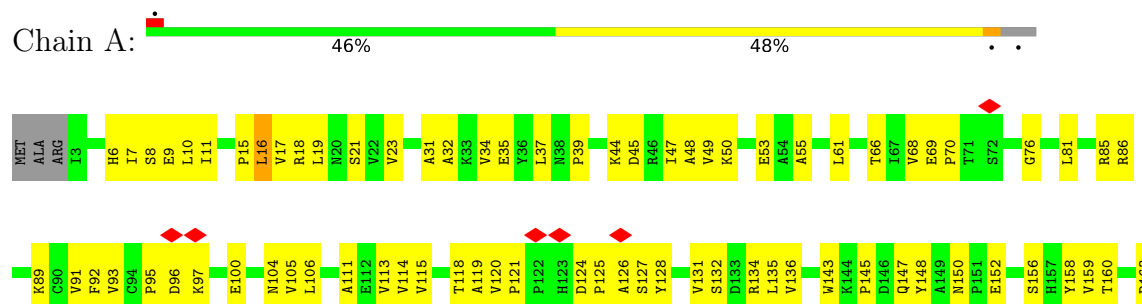
3 Residue-property plots

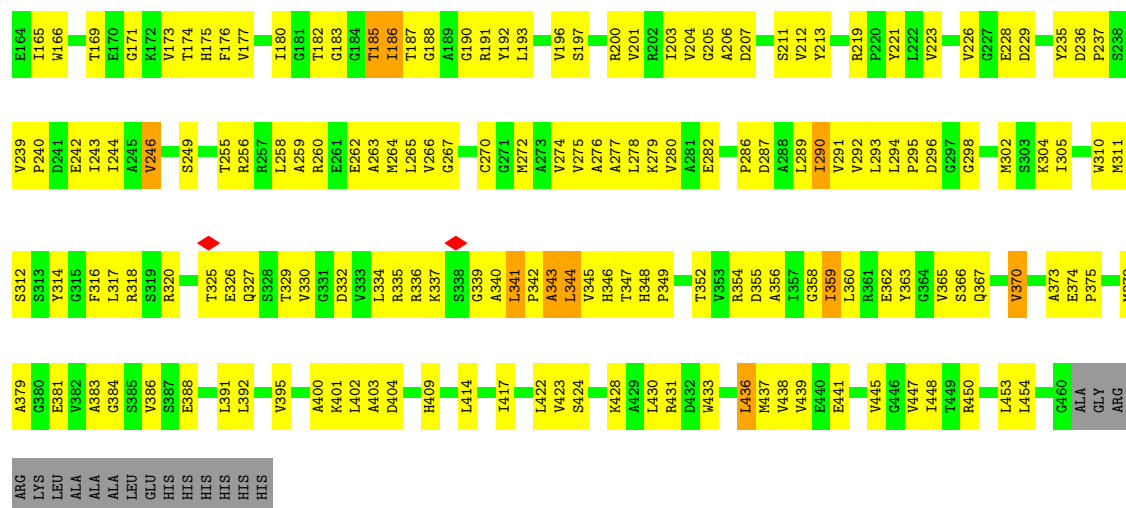
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Putative cystathionine beta-synthase Rv1077

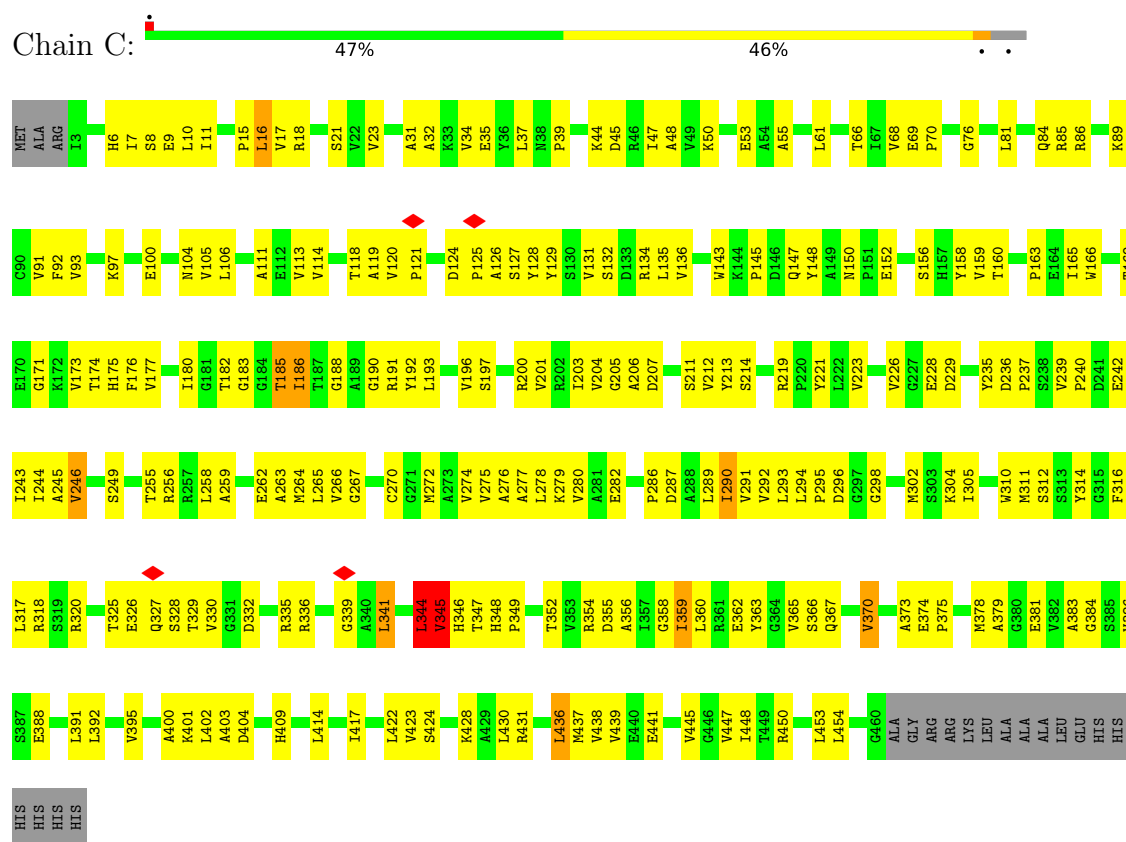


• Molecule 1: Putative cystathionine beta-synthase Rv1077

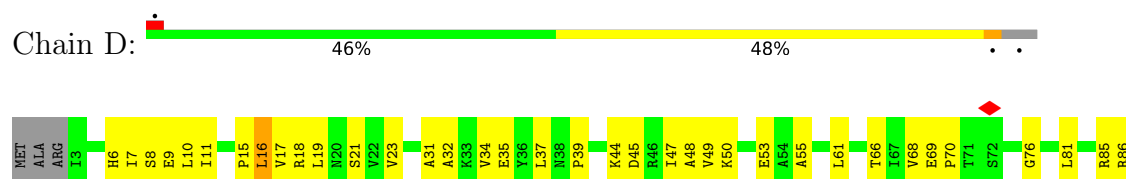




• Molecule 1: Putative cystathionine beta-synthase Rv1077



• Molecule 1: Putative cystathionine beta-synthase Rv1077



LYS	G380	S312	V239	E164	K89
	E381	S313	P240	I165	C90
LEU	V382	Y314	D241	W166	V91
ALA	A383	G315	E242	T169	V93
ALA	G384	F316	I243		
LEU	S385	L317	I244	E170	F92
GLU	V386	R318	A245	G171	F93
HIS	S387	S319	V246	K172	D96
	E388	R320	S249	V173	K97
HIS	L391	T325		T174	E100
HIS	L392	E326	H175		
HIS	V395	G327	F176		
HIS		S328	R256	V177	
ALA	A400	L258	I180	N104	
	K401	A259	G181	V105	
LEU	L402	R260	T182	L106	
A03	A403	G331	G183	A111	
DA04	DA04	D332	G184	E112	
		R335	T185	V113	
GLU	H409	R336	A263	V114	
L414	K337	M264	I186	V115	
	S338	L265	T187		
I417	G339	V266	G188	T118	
	A340	G267	A189	A119	
L422	L341	C270	G190	V120	
	P342	G271	R191	P121	
V423	A343	M272	Y192	F122	
S424	L344	A273	L193	H123	
K428	V345	V274	V196	D124	
	A429	V275	S197	P125	
L430	H346	A276	R200	A126	
R431	H348	A277		S127	
D432	P349	L278	V201	Y128	
	W433	K279	R202	Y129	
L436	T352	V280	I203	S130	
	D355	A281	V204	V131	
M437	A356	E282	G205	S132	
V438	I357	P286	A206	D133	
V439	G358	D287	D207	R134	
E440	I359	A288	S211	L135	
E441	L360	L289	V212	V136	
V445	R361	I290	Y213	W143	
	G446	V291	R219	K144	
V447	E362	V292	P220	P145	
I448	Y363	L293	Y221	D146	
T449	G364	L294	L222	Q147	
R450	V365	P295	V223	Y148	
L453	S366	D296	V226	A149	
	Q367	G297	G297	N150	
L454	V370	G298	E227	P151	
G460	ALA	M302	E228	E152	
		S303	D229	S156	
GLY	E374	K304	H157	Y158	
ARG	P375	I305	D236	V159	
ARG	M378	W310	P237	T160	
ARG	A379	M311	S238	P163	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	178599	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	2200	Depositor
Maximum defocus (nm)	3900	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.290	Depositor
Minimum map value	-0.188	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.0292	Depositor
Map size (Å)	256.80002, 256.80002, 256.80002	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	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: PLP

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	0.19	0/3434	0.35	0/4670
1	B	0.19	0/3434	0.36	3/4670 (0.1%)
1	C	0.20	0/3434	0.36	2/4670 (0.0%)
1	D	0.21	0/3434	0.35	1/4670 (0.0%)
All	All	0.20	0/13736	0.36	6/18680 (0.0%)

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	328	SER	CA-C-N	6.08	133.61	122.92
1	B	328	SER	C-N-CA	6.08	133.61	122.92
1	C	328	SER	CA-C-N	5.92	133.35	122.92
1	C	328	SER	C-N-CA	5.92	133.35	122.92
1	B	342	PRO	CA-C-O	-5.59	117.17	121.31
1	D	342	PRO	CA-C-O	-5.38	117.24	121.38

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	3366	0	3337	261	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3366	0	3337	262	0
1	C	3366	0	3337	252	0
1	D	3366	0	3337	258	0
2	A	15	1	7	4	0
2	B	15	1	7	4	0
2	C	15	1	7	4	0
2	D	15	1	7	4	0
All	All	13524	4	13376	967	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 36.

All (967) 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:263:ALA:HB1	1:C:81:LEU:HD12	1.47	0.94
1:B:81:LEU:HD12	1:D:263:ALA:HB1	1.49	0.93
1:A:81:LEU:HD12	1:C:263:ALA:HB1	1.50	0.91
1:B:263:ALA:HB1	1:D:81:LEU:HD12	1.52	0.88
1:B:105:VAL:HG22	1:D:302:MET:HE3	1.62	0.81
1:C:128:TYR:HA	1:C:131:VAL:HG12	1.63	0.81
1:D:128:TYR:HA	1:D:131:VAL:HG12	1.63	0.81
1:A:128:TYR:HA	1:A:131:VAL:HG12	1.63	0.80
1:A:145:PRO:O	1:A:150:ASN:ND2	2.15	0.80
1:B:145:PRO:O	1:B:150:ASN:ND2	2.15	0.80
1:A:302:MET:HE3	1:C:105:VAL:HG22	1.62	0.79
1:C:311:MET:O	1:C:316:PHE:HB2	1.83	0.79
1:D:345:VAL:HG21	1:D:365:VAL:HG11	1.64	0.79
1:A:105:VAL:HG22	1:C:302:MET:HE3	1.63	0.79
1:B:345:VAL:HG21	1:B:365:VAL:HG11	1.64	0.79
1:A:345:VAL:HG21	1:A:365:VAL:HG11	1.64	0.79
1:B:311:MET:O	1:B:316:PHE:HB2	1.83	0.79
1:D:145:PRO:O	1:D:150:ASN:ND2	2.15	0.79
1:B:302:MET:HE3	1:D:105:VAL:HG22	1.64	0.79
1:C:145:PRO:O	1:C:150:ASN:ND2	2.15	0.79
1:B:128:TYR:HA	1:B:131:VAL:HG12	1.63	0.78
1:A:311:MET:O	1:A:316:PHE:HB2	1.83	0.78
1:C:266:VAL:HB	1:C:270:CYS:CB	2.14	0.78
1:D:311:MET:O	1:D:316:PHE:HB2	1.83	0.77
1:B:358:GLY:O	1:B:362:GLU:HG2	1.84	0.77
1:A:266:VAL:HB	1:A:270:CYS:CB	2.14	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:266:VAL:HB	1:B:270:CYS:CB	2.14	0.77
1:A:358:GLY:O	1:A:362:GLU:HG2	1.84	0.77
1:D:266:VAL:HB	1:D:270:CYS:CB	2.14	0.77
1:D:358:GLY:O	1:D:362:GLU:HG2	1.84	0.77
1:C:358:GLY:O	1:C:362:GLU:HG2	1.84	0.76
1:C:265:LEU:O	1:C:298:GLY:N	2.15	0.75
1:A:334:LEU:HB3	1:A:341:LEU:HD12	1.67	0.74
1:D:265:LEU:O	1:D:298:GLY:N	2.15	0.74
1:C:55:ALA:HB1	1:C:61:LEU:HB2	1.70	0.74
1:A:265:LEU:O	1:A:298:GLY:N	2.15	0.74
1:A:424:SER:O	1:A:428:LYS:HG2	1.89	0.73
1:C:424:SER:O	1:C:428:LYS:HG2	1.89	0.73
1:A:332:ASP:HA	1:A:335:ARG:HG2	1.70	0.73
1:B:55:ALA:HB1	1:B:61:LEU:HB2	1.70	0.73
1:B:332:ASP:HA	1:B:335:ARG:HG2	1.71	0.72
1:B:424:SER:O	1:B:428:LYS:HG2	1.89	0.72
1:D:55:ALA:HB1	1:D:61:LEU:HB2	1.70	0.72
1:D:332:ASP:HA	1:D:335:ARG:HG2	1.70	0.72
1:A:55:ALA:HB1	1:A:61:LEU:HB2	1.69	0.72
1:D:424:SER:O	1:D:428:LYS:HG2	1.89	0.72
1:D:120:VAL:HG12	1:D:124:ASP:OD2	1.91	0.71
1:B:120:VAL:HG12	1:B:124:ASP:OD2	1.91	0.70
1:A:120:VAL:HG12	1:A:124:ASP:OD2	1.91	0.70
1:C:332:ASP:HA	1:C:335:ARG:HG2	1.71	0.70
1:C:120:VAL:HG12	1:C:124:ASP:OD2	1.91	0.70
1:B:124:ASP:HB2	1:B:125:PRO:HD2	1.72	0.70
1:C:124:ASP:HB2	1:C:125:PRO:HD2	1.72	0.70
1:A:124:ASP:HB2	1:A:125:PRO:HD2	1.72	0.69
1:D:124:ASP:HB2	1:D:125:PRO:HD2	1.72	0.69
1:D:256:ARG:HH12	1:D:317:LEU:HD12	1.57	0.69
1:A:93:VAL:HG12	1:A:114:VAL:CG2	2.23	0.69
1:C:93:VAL:HG12	1:C:114:VAL:CG2	2.23	0.69
1:D:93:VAL:HG12	1:D:114:VAL:CG2	2.23	0.69
1:C:256:ARG:HH12	1:C:317:LEU:HD12	1.57	0.69
1:D:378:MET:SD	1:D:381:GLU:HB2	2.32	0.69
1:C:326:GLU:HG3	1:C:422:LEU:HD13	1.75	0.69
1:D:258:LEU:HD23	1:D:266:VAL:HG21	1.75	0.69
1:D:326:GLU:HG3	1:D:422:LEU:HD13	1.75	0.69
1:B:256:ARG:HH12	1:B:317:LEU:HD12	1.57	0.69
1:A:378:MET:SD	1:A:381:GLU:HB2	2.32	0.69
1:B:258:LEU:HD23	1:B:266:VAL:HG21	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:256:ARG:HH12	1:A:317:LEU:HD12	1.57	0.68
1:C:258:LEU:HD23	1:C:266:VAL:HG21	1.75	0.68
1:B:93:VAL:HG12	1:B:114:VAL:CG2	2.23	0.68
1:A:258:LEU:HD23	1:A:266:VAL:HG21	1.75	0.68
1:B:378:MET:SD	1:B:381:GLU:HB2	2.32	0.68
1:A:16:LEU:HD11	1:A:165:ILE:HD13	1.75	0.68
1:B:265:LEU:O	1:B:298:GLY:N	2.15	0.68
1:C:16:LEU:HD11	1:C:165:ILE:HD13	1.75	0.68
1:C:378:MET:SD	1:C:381:GLU:HB2	2.32	0.68
1:D:16:LEU:HD11	1:D:165:ILE:HD13	1.75	0.68
1:B:16:LEU:HD11	1:B:165:ILE:HD13	1.75	0.68
1:B:326:GLU:HG3	1:B:422:LEU:HD13	1.75	0.67
1:A:326:GLU:HG3	1:A:422:LEU:HD13	1.75	0.67
1:B:132:SER:O	1:B:136:VAL:HG23	1.94	0.67
1:B:118:THR:HG22	1:B:119:ALA:H	1.60	0.67
1:B:347:THR:O	1:B:370:VAL:HA	1.95	0.67
1:A:132:SER:O	1:A:136:VAL:HG23	1.94	0.67
1:D:118:THR:HG22	1:D:119:ALA:H	1.60	0.66
1:D:128:TYR:HA	1:D:131:VAL:CG1	2.25	0.66
1:B:128:TYR:HA	1:B:131:VAL:CG1	2.25	0.66
1:C:132:SER:O	1:C:136:VAL:HG23	1.94	0.66
1:A:347:THR:O	1:A:370:VAL:HA	1.95	0.66
1:C:175:HIS:HB2	1:C:290:ILE:HG23	1.78	0.66
1:D:175:HIS:HB2	1:D:290:ILE:HG23	1.78	0.66
1:B:177:VAL:HG11	1:B:277:ALA:HB2	1.78	0.66
1:A:128:TYR:HA	1:A:131:VAL:CG1	2.25	0.66
1:A:177:VAL:HG11	1:A:277:ALA:HB2	1.78	0.66
1:C:128:TYR:HA	1:C:131:VAL:CG1	2.25	0.66
1:D:132:SER:O	1:D:136:VAL:HG23	1.94	0.66
1:B:192:TYR:CZ	1:B:196:VAL:HG21	2.31	0.66
1:A:118:THR:HG22	1:A:119:ALA:H	1.60	0.66
1:D:347:THR:O	1:D:370:VAL:HA	1.95	0.66
1:D:192:TYR:CZ	1:D:196:VAL:HG21	2.31	0.65
1:C:118:THR:HG22	1:C:119:ALA:H	1.60	0.65
1:C:177:VAL:HG11	1:C:277:ALA:HB2	1.78	0.65
1:A:192:TYR:CZ	1:A:196:VAL:HG21	2.31	0.65
1:C:192:TYR:CZ	1:C:196:VAL:HG21	2.31	0.65
1:D:177:VAL:HG11	1:D:277:ALA:HB2	1.78	0.65
1:A:401:LYS:N	1:A:404:ASP:OD2	2.30	0.64
1:B:105:VAL:HG22	1:D:302:MET:CE	2.27	0.64
1:C:347:THR:O	1:C:370:VAL:HA	1.95	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:175:HIS:HB2	1:A:290:ILE:HG23	1.78	0.64
1:B:55:ALA:HB1	1:B:61:LEU:CB	2.27	0.64
1:A:302:MET:CE	1:C:105:VAL:HG22	2.27	0.64
1:B:175:HIS:HB2	1:B:290:ILE:HG23	1.78	0.64
1:B:401:LYS:N	1:B:404:ASP:OD2	2.30	0.64
1:A:55:ALA:HB1	1:A:61:LEU:CB	2.27	0.64
1:C:226:VAL:HG21	1:C:272:MET:HE1	1.80	0.64
1:D:206:ALA:HB2	1:D:276:ALA:CB	2.28	0.63
1:D:226:VAL:HG21	1:D:272:MET:HE1	1.80	0.63
1:C:55:ALA:HB1	1:C:61:LEU:CB	2.27	0.63
1:C:120:VAL:HG11	1:C:126:ALA:HB3	1.80	0.63
1:C:206:ALA:HB2	1:C:276:ALA:CB	2.28	0.63
1:D:55:ALA:HB1	1:D:61:LEU:CB	2.27	0.63
1:D:120:VAL:HG11	1:D:126:ALA:HB3	1.80	0.63
1:D:401:LYS:N	1:D:404:ASP:OD2	2.30	0.63
1:C:370:VAL:HG13	1:C:384:GLY:C	2.24	0.63
1:D:370:VAL:HG13	1:D:384:GLY:C	2.24	0.63
1:A:120:VAL:HG11	1:A:126:ALA:HB3	1.80	0.63
1:A:370:VAL:HG13	1:A:384:GLY:C	2.24	0.63
1:A:226:VAL:HG21	1:A:272:MET:HE1	1.80	0.62
1:B:226:VAL:HG21	1:B:272:MET:HE1	1.80	0.62
1:D:176:PHE:HD1	1:D:291:VAL:HG23	1.64	0.62
1:A:176:PHE:HD1	1:A:291:VAL:HG23	1.64	0.62
1:A:206:ALA:HB2	1:A:276:ALA:CB	2.28	0.62
1:A:177:VAL:CG1	1:A:292:VAL:HG12	2.29	0.62
1:B:176:PHE:HD1	1:B:291:VAL:HG23	1.64	0.62
1:B:6:HIS:NE2	1:B:85:ARG:HB2	2.15	0.62
1:D:177:VAL:CG1	1:D:292:VAL:HG12	2.29	0.62
1:D:326:GLU:C	1:D:328:SER:H	2.07	0.62
1:B:120:VAL:HG11	1:B:126:ALA:HB3	1.80	0.62
1:B:177:VAL:CG1	1:B:292:VAL:HG12	2.29	0.62
1:C:401:LYS:N	1:C:404:ASP:OD2	2.30	0.62
1:D:6:HIS:NE2	1:D:85:ARG:HB2	2.15	0.62
1:B:206:ALA:HB2	1:B:276:ALA:CB	2.28	0.62
1:B:370:VAL:HG13	1:B:384:GLY:C	2.24	0.62
1:C:176:PHE:HD1	1:C:291:VAL:HG23	1.64	0.62
1:C:374:GLU:N	1:C:375:PRO:HD2	2.15	0.62
1:C:177:VAL:CG1	1:C:292:VAL:HG12	2.29	0.62
1:D:9:GLU:OE2	1:D:85:ARG:NH1	2.33	0.62
1:C:6:HIS:NE2	1:C:85:ARG:HB2	2.15	0.61
1:A:9:GLU:OE2	1:A:85:ARG:NH1	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:302:MET:CE	1:D:105:VAL:HG22	2.31	0.61
1:A:6:HIS:NE2	1:A:85:ARG:HB2	2.15	0.61
1:A:332:ASP:HA	1:A:335:ARG:CG	2.30	0.61
1:A:374:GLU:N	1:A:375:PRO:HD2	2.15	0.61
1:D:374:GLU:N	1:D:375:PRO:HD2	2.15	0.61
1:A:105:VAL:HG22	1:C:302:MET:CE	2.30	0.61
1:C:69:GLU:OE1	1:C:70:PRO:HD2	2.01	0.61
1:D:69:GLU:OE1	1:D:70:PRO:HD2	2.01	0.61
1:D:182:THR:HG22	2:D:501:PLP:O1P	2.01	0.61
1:B:193:LEU:HB3	1:B:201:VAL:HG11	1.83	0.61
1:B:374:GLU:N	1:B:375:PRO:HD2	2.15	0.61
1:A:182:THR:HG22	2:A:501:PLP:O1P	2.01	0.61
1:A:249:SER:OG	1:A:318:ARG:NH1	2.33	0.61
1:B:9:GLU:OE2	1:B:85:ARG:NH1	2.33	0.61
1:A:302:MET:HG2	1:C:105:VAL:HG23	1.83	0.61
1:C:9:GLU:OE2	1:C:85:ARG:NH1	2.33	0.61
1:B:332:ASP:HA	1:B:335:ARG:CG	2.30	0.61
1:A:183:GLY:N	2:A:501:PLP:O3P	2.32	0.61
1:D:193:LEU:HB3	1:D:201:VAL:HG11	1.83	0.61
1:C:193:LEU:HB3	1:C:201:VAL:HG11	1.83	0.61
1:C:226:VAL:HG21	1:C:272:MET:CE	2.31	0.61
1:C:182:THR:HG22	2:C:501:PLP:O2P	2.01	0.60
1:A:193:LEU:HB3	1:A:201:VAL:HG11	1.83	0.60
1:B:182:THR:HG22	2:B:501:PLP:O2P	2.01	0.60
1:A:365:VAL:HG22	1:A:367:GLN:H	1.66	0.60
1:C:332:ASP:HA	1:C:335:ARG:CG	2.30	0.60
1:D:226:VAL:HG21	1:D:272:MET:CE	2.31	0.60
1:C:365:VAL:HG22	1:C:367:GLN:H	1.66	0.60
1:B:105:VAL:HG23	1:D:302:MET:HG2	1.83	0.60
1:A:69:GLU:OE1	1:A:70:PRO:HD2	2.01	0.60
1:A:423:VAL:HG13	1:A:453:LEU:HD11	1.84	0.60
1:A:226:VAL:HG21	1:A:272:MET:CE	2.31	0.59
1:B:69:GLU:OE1	1:B:70:PRO:HD2	2.01	0.59
1:D:332:ASP:HA	1:D:335:ARG:CG	2.30	0.59
1:B:365:VAL:HG22	1:B:367:GLN:H	1.66	0.59
1:B:423:VAL:HG13	1:B:453:LEU:HD11	1.84	0.59
1:D:365:VAL:HG22	1:D:367:GLN:H	1.66	0.59
1:B:226:VAL:HG21	1:B:272:MET:CE	2.32	0.59
1:C:156:SER:O	1:C:160:THR:HG22	2.03	0.59
1:A:173:VAL:HG12	1:A:289:LEU:HD22	1.85	0.59
1:C:183:GLY:N	2:C:501:PLP:O3P	2.32	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:430:LEU:HD12	1:B:436:LEU:HD21	1.85	0.59
1:A:156:SER:O	1:A:160:THR:HG22	2.03	0.59
1:A:430:LEU:HD12	1:A:436:LEU:HD21	1.85	0.59
1:D:423:VAL:HG13	1:D:453:LEU:HD11	1.84	0.59
1:D:430:LEU:HD12	1:D:436:LEU:HD21	1.85	0.59
1:C:430:LEU:HD12	1:C:436:LEU:HD21	1.85	0.58
1:B:173:VAL:HG12	1:B:289:LEU:HD22	1.85	0.58
1:B:388:GLU:O	1:B:392:LEU:HD23	2.04	0.58
1:A:266:VAL:HB	1:A:270:CYS:HB2	1.86	0.58
1:D:177:VAL:HG13	1:D:292:VAL:HG12	1.84	0.58
1:D:266:VAL:HB	1:D:270:CYS:HB2	1.86	0.58
1:A:177:VAL:HG13	1:A:292:VAL:HG12	1.84	0.58
1:D:173:VAL:HG12	1:D:289:LEU:HD22	1.85	0.58
1:C:177:VAL:HG13	1:C:292:VAL:HG12	1.84	0.58
1:B:156:SER:O	1:B:160:THR:HG22	2.03	0.58
1:D:388:GLU:O	1:D:392:LEU:HD23	2.04	0.58
1:C:423:VAL:HG13	1:C:453:LEU:HD11	1.84	0.58
1:D:156:SER:O	1:D:160:THR:HG22	2.03	0.58
1:B:6:HIS:CD2	1:B:85:ARG:HB2	2.39	0.58
1:C:120:VAL:HG12	1:C:121:PRO:HD2	1.86	0.58
1:C:388:GLU:O	1:C:392:LEU:HD23	2.04	0.58
1:D:120:VAL:HG12	1:D:121:PRO:HD2	1.86	0.58
1:B:177:VAL:HG13	1:B:292:VAL:HG12	1.84	0.58
1:A:120:VAL:HG12	1:A:121:PRO:HD2	1.86	0.58
1:A:180:ILE:HG22	1:A:206:ALA:O	2.04	0.58
1:C:6:HIS:CD2	1:C:85:ARG:HB2	2.39	0.58
1:C:266:VAL:HB	1:C:270:CYS:HB2	1.86	0.58
1:B:120:VAL:HG12	1:B:121:PRO:HD2	1.86	0.57
1:A:388:GLU:O	1:A:392:LEU:HD23	2.04	0.57
1:B:180:ILE:HG22	1:B:206:ALA:O	2.04	0.57
1:C:314:TYR:CE1	1:D:354:ARG:HD2	2.39	0.57
1:C:335:ARG:HB3	1:C:339:GLY:HA2	1.87	0.57
1:B:417:ILE:HG12	1:B:436:LEU:HD13	1.86	0.57
1:A:417:ILE:HG12	1:A:436:LEU:HD13	1.86	0.57
1:C:249:SER:OG	1:C:318:ARG:NH1	2.33	0.57
1:C:173:VAL:HG12	1:C:289:LEU:HD22	1.85	0.57
1:D:6:HIS:CD2	1:D:85:ARG:HB2	2.39	0.57
1:C:47:ILE:HG13	1:C:48:ALA:N	2.20	0.57
1:C:212:VAL:HG23	1:C:228:GLU:O	2.05	0.57
1:A:6:HIS:CD2	1:A:85:ARG:HB2	2.39	0.57
1:A:159:VAL:O	1:A:163:PRO:HG2	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:320:ARG:HD2	1:A:325:THR:O	2.05	0.57
1:C:320:ARG:HD2	1:C:325:THR:O	2.05	0.57
1:D:159:VAL:O	1:D:163:PRO:HG2	2.05	0.57
1:A:212:VAL:HG23	1:A:228:GLU:O	2.05	0.57
1:C:417:ILE:HG12	1:C:436:LEU:HD13	1.86	0.57
1:D:180:ILE:HG22	1:D:206:ALA:O	2.04	0.57
1:D:212:VAL:HG23	1:D:228:GLU:O	2.05	0.57
1:B:335:ARG:HB3	1:B:339:GLY:HA2	1.87	0.57
1:D:320:ARG:HD2	1:D:325:THR:O	2.05	0.57
1:B:314:TYR:HE2	1:A:352:THR:HG21	1.70	0.56
1:A:6:HIS:CD2	1:A:8:SER:H	2.23	0.56
1:C:159:VAL:O	1:C:163:PRO:HG2	2.05	0.56
1:C:354:ARG:HD2	1:D:314:TYR:CZ	2.40	0.56
1:D:335:ARG:HB3	1:D:339:GLY:HA2	1.86	0.56
1:D:417:ILE:HG12	1:D:436:LEU:HD13	1.86	0.56
1:B:159:VAL:O	1:B:163:PRO:HG2	2.05	0.56
1:B:340:ALA:O	1:B:341:LEU:C	2.48	0.56
1:B:212:VAL:HG23	1:B:228:GLU:O	2.05	0.56
1:B:277:ALA:HB2	1:B:292:VAL:HG12	1.87	0.56
1:A:277:ALA:HB2	1:A:292:VAL:HG12	1.87	0.56
1:A:293:LEU:O	1:A:295:PRO:HD3	2.05	0.56
1:C:277:ALA:HB2	1:C:292:VAL:HG12	1.87	0.56
1:D:293:LEU:O	1:D:295:PRO:HD3	2.05	0.56
1:B:293:LEU:O	1:B:295:PRO:HD3	2.05	0.56
1:B:354:ARG:HD2	1:A:314:TYR:CZ	2.41	0.56
1:A:174:THR:O	1:A:201:VAL:HA	2.06	0.56
1:C:180:ILE:HG22	1:C:206:ALA:O	2.04	0.56
1:C:454:LEU:HD23	1:D:392:LEU:CD1	2.35	0.56
1:D:47:ILE:HG13	1:D:48:ALA:N	2.20	0.56
1:D:277:ALA:HB2	1:D:292:VAL:HG12	1.87	0.56
1:B:314:TYR:CE1	1:A:354:ARG:HD2	2.40	0.56
1:A:207:ASP:OD2	1:A:213:TYR:HB2	2.06	0.56
1:C:293:LEU:O	1:C:295:PRO:HD3	2.05	0.56
1:B:266:VAL:HB	1:B:270:CYS:HB2	1.86	0.56
1:B:341:LEU:HD13	1:B:445:VAL:HB	1.87	0.56
1:C:345:VAL:HG11	1:C:365:VAL:HG11	1.87	0.56
1:D:174:THR:O	1:D:201:VAL:HA	2.06	0.56
1:B:6:HIS:CD2	1:B:8:SER:H	2.23	0.56
1:B:320:ARG:HD2	1:B:325:THR:O	2.05	0.56
1:C:174:THR:O	1:C:201:VAL:HA	2.06	0.56
1:A:47:ILE:HG13	1:A:48:ALA:N	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:105:VAL:HG23	1:C:302:MET:HG2	1.88	0.56
1:C:207:ASP:OD2	1:C:213:TYR:HB2	2.06	0.56
1:B:183:GLY:N	2:B:501:PLP:O3P	2.32	0.56
1:D:6:HIS:CD2	1:D:8:SER:H	2.23	0.56
1:B:131:VAL:O	1:B:135:LEU:HD13	2.06	0.56
1:A:131:VAL:O	1:A:135:LEU:HD13	2.06	0.56
1:D:131:VAL:O	1:D:135:LEU:HD13	2.06	0.56
1:B:180:ILE:CD1	1:B:183:GLY:HA2	2.37	0.55
1:A:330:VAL:HG21	1:A:417:ILE:HD11	1.88	0.55
1:C:131:VAL:O	1:C:135:LEU:HD13	2.06	0.55
1:B:249:SER:OG	1:B:318:ARG:NH1	2.33	0.55
1:C:354:ARG:HD2	1:D:314:TYR:CE1	2.41	0.55
1:D:180:ILE:CD1	1:D:183:GLY:HA2	2.37	0.55
1:D:207:ASP:OD2	1:D:213:TYR:HB2	2.06	0.55
1:D:255:THR:OG1	1:D:267:GLY:O	2.20	0.55
1:B:6:HIS:CG	1:B:85:ARG:HG3	2.42	0.55
1:B:302:MET:HG2	1:D:105:VAL:HG23	1.88	0.55
1:B:454:LEU:HD23	1:A:392:LEU:CD1	2.36	0.55
1:C:6:HIS:CD2	1:C:8:SER:H	2.23	0.55
1:C:314:TYR:HE2	1:D:352:THR:HG21	1.71	0.55
1:B:47:ILE:HG13	1:B:48:ALA:N	2.19	0.55
1:B:332:ASP:O	1:B:336:ARG:NH1	2.38	0.55
1:A:335:ARG:HB3	1:A:339:GLY:HA2	1.87	0.55
1:D:183:GLY:N	2:D:501:PLP:O3P	2.32	0.55
1:B:174:THR:O	1:B:201:VAL:HA	2.06	0.55
1:B:207:ASP:OD2	1:B:213:TYR:HB2	2.06	0.55
1:A:6:HIS:CG	1:A:85:ARG:HG3	2.42	0.55
1:C:255:THR:HG21	1:C:305:ILE:HD11	1.89	0.55
1:C:256:ARG:HH12	1:C:317:LEU:CD1	2.20	0.55
1:C:291:VAL:HG23	1:C:291:VAL:O	2.07	0.55
1:D:249:SER:OG	1:D:318:ARG:NH1	2.33	0.55
1:A:100:GLU:O	1:A:104:ASN:HB2	2.07	0.55
1:A:291:VAL:HG23	1:A:291:VAL:O	2.07	0.55
1:C:100:GLU:O	1:C:104:ASN:HB2	2.07	0.55
1:C:330:VAL:HG21	1:C:417:ILE:HD11	1.88	0.55
1:D:6:HIS:CG	1:D:85:ARG:HG3	2.42	0.55
1:D:330:VAL:HG21	1:D:417:ILE:HD11	1.88	0.55
1:D:438:VAL:O	1:D:438:VAL:HG23	2.07	0.55
1:C:6:HIS:CG	1:C:85:ARG:HG3	2.42	0.55
1:C:31:ALA:O	1:C:291:VAL:HA	2.07	0.55
1:C:180:ILE:CD1	1:C:183:GLY:HA2	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:255:THR:HG21	1:D:305:ILE:HD11	1.89	0.55
1:D:256:ARG:HH12	1:D:317:LEU:CD1	2.20	0.55
1:B:256:ARG:HH12	1:B:317:LEU:CD1	2.20	0.55
1:B:330:VAL:HG21	1:B:417:ILE:HD11	1.88	0.55
1:B:291:VAL:HG23	1:B:291:VAL:O	2.07	0.54
1:D:100:GLU:O	1:D:104:ASN:HB2	2.07	0.54
1:B:31:ALA:O	1:B:291:VAL:HA	2.07	0.54
1:B:274:VAL:HG23	1:B:294:LEU:HD21	1.90	0.54
1:B:100:GLU:O	1:B:104:ASN:HB2	2.07	0.54
1:A:312:SER:HB2	1:A:317:LEU:HD22	1.89	0.54
1:A:438:VAL:HG23	1:A:438:VAL:O	2.07	0.54
1:C:274:VAL:HG23	1:C:294:LEU:HD21	1.90	0.54
1:B:355:ASP:O	1:B:359:ILE:HG22	2.08	0.54
1:C:158:TYR:HA	1:C:188:GLY:O	2.08	0.54
1:C:314:TYR:CZ	1:D:354:ARG:HD2	2.42	0.54
1:D:312:SER:HB2	1:D:317:LEU:HD22	1.89	0.54
1:B:312:SER:HB2	1:B:317:LEU:HD22	1.90	0.54
1:D:120:VAL:CG1	1:D:121:PRO:HD2	2.38	0.54
1:D:190:GLY:HA3	1:D:203:ILE:HG13	1.90	0.54
1:D:355:ASP:O	1:D:359:ILE:HG22	2.08	0.54
1:B:120:VAL:CG1	1:B:121:PRO:HD2	2.38	0.54
1:B:359:ILE:HD12	1:B:363:TYR:CE1	2.43	0.54
1:A:120:VAL:CG1	1:A:121:PRO:HD2	2.38	0.54
1:A:158:TYR:HA	1:A:188:GLY:O	2.08	0.54
1:A:180:ILE:CD1	1:A:183:GLY:HA2	2.37	0.54
1:A:190:GLY:HA3	1:A:203:ILE:HG13	1.90	0.54
1:C:120:VAL:CG1	1:C:121:PRO:HD2	2.38	0.54
1:B:438:VAL:HG23	1:B:438:VAL:O	2.07	0.54
1:B:255:THR:HG21	1:B:305:ILE:HD11	1.89	0.54
1:C:359:ILE:HD12	1:C:363:TYR:CE1	2.43	0.54
1:C:438:VAL:HG23	1:C:438:VAL:O	2.07	0.54
1:B:21:SER:N	1:B:262:GLU:OE2	2.41	0.54
1:A:31:ALA:O	1:A:291:VAL:HA	2.07	0.54
1:A:255:THR:OG1	1:A:267:GLY:O	2.20	0.54
1:C:312:SER:HB2	1:C:317:LEU:HD22	1.89	0.54
1:D:31:ALA:O	1:D:291:VAL:HA	2.07	0.54
1:D:158:TYR:HA	1:D:188:GLY:O	2.08	0.54
1:B:158:TYR:CD1	1:B:192:TYR:HB2	2.43	0.53
1:A:255:THR:HG21	1:A:305:ILE:HD11	1.89	0.53
1:C:355:ASP:O	1:C:359:ILE:HG22	2.08	0.53
1:C:190:GLY:HA3	1:C:203:ILE:HG13	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:291:VAL:HG23	1:D:291:VAL:O	2.07	0.53
1:D:359:ILE:HD12	1:D:363:TYR:CE1	2.43	0.53
1:B:158:TYR:HA	1:B:188:GLY:O	2.08	0.53
1:A:332:ASP:O	1:A:336:ARG:NH1	2.38	0.53
1:C:158:TYR:CD1	1:C:192:TYR:HB2	2.43	0.53
1:D:414:LEU:HD11	1:D:437:MET:HB3	1.90	0.53
1:B:354:ARG:HD2	1:A:314:TYR:CE1	2.43	0.53
1:A:50:LYS:HG3	1:A:152:GLU:HG3	1.91	0.53
1:A:355:ASP:O	1:A:359:ILE:HG22	2.08	0.53
1:B:50:LYS:HG3	1:B:152:GLU:HG3	1.90	0.53
1:B:277:ALA:HB2	1:B:292:VAL:CG1	2.39	0.53
1:B:438:VAL:HG23	1:B:445:VAL:CG2	2.38	0.53
1:A:359:ILE:HD12	1:A:363:TYR:CE1	2.43	0.53
1:D:274:VAL:HG23	1:D:294:LEU:HD21	1.90	0.53
1:D:32:ALA:HA	1:D:292:VAL:CG2	2.39	0.53
1:D:277:ALA:HB2	1:D:292:VAL:CG1	2.39	0.53
1:B:190:GLY:HA3	1:B:203:ILE:HG13	1.89	0.53
1:B:314:TYR:CZ	1:A:354:ARG:HD2	2.43	0.53
1:A:158:TYR:CD1	1:A:192:TYR:HB2	2.44	0.53
1:C:50:LYS:HG3	1:C:152:GLU:HG3	1.90	0.53
1:C:93:VAL:HG23	1:C:93:VAL:O	2.09	0.53
1:D:50:LYS:HG3	1:D:152:GLU:HG3	1.90	0.53
1:D:438:VAL:HG23	1:D:445:VAL:CG2	2.38	0.53
1:B:10:LEU:HD13	1:D:15:PRO:HG3	1.91	0.53
1:B:32:ALA:HA	1:B:292:VAL:CG2	2.39	0.53
1:A:197:SER:OG	1:A:200:ARG:HB2	2.09	0.53
1:A:414:LEU:HD11	1:A:437:MET:HB3	1.90	0.53
1:D:197:SER:OG	1:D:200:ARG:HB2	2.09	0.53
1:B:266:VAL:HB	1:B:270:CYS:SG	2.49	0.53
1:B:414:LEU:HD11	1:B:437:MET:HB3	1.90	0.53
1:A:32:ALA:HA	1:A:292:VAL:HG22	1.91	0.53
1:A:274:VAL:HG23	1:A:294:LEU:HD21	1.90	0.53
1:D:158:TYR:CD1	1:D:192:TYR:HB2	2.44	0.53
1:B:32:ALA:HA	1:B:292:VAL:HG22	1.91	0.52
1:C:32:ALA:HA	1:C:292:VAL:CG2	2.39	0.52
1:C:438:VAL:HG23	1:C:445:VAL:CG2	2.38	0.52
1:A:32:ALA:HA	1:A:292:VAL:CG2	2.39	0.52
1:C:277:ALA:HA	1:C:280:VAL:HG12	1.92	0.52
1:C:392:LEU:CD1	1:D:454:LEU:HD23	2.39	0.52
1:A:274:VAL:CG2	1:A:294:LEU:HD21	2.39	0.52
1:C:274:VAL:CG2	1:C:294:LEU:HD21	2.40	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:277:ALA:HB2	1:C:292:VAL:CG1	2.39	0.52
1:C:332:ASP:O	1:C:336:ARG:NH1	2.38	0.52
1:D:277:ALA:HA	1:D:280:VAL:HG12	1.91	0.52
1:A:21:SER:N	1:A:262:GLU:OE2	2.41	0.52
1:A:266:VAL:HB	1:A:270:CYS:SG	2.50	0.52
1:C:370:VAL:O	1:C:370:VAL:HG22	2.10	0.52
1:D:128:TYR:CA	1:D:131:VAL:HG12	2.38	0.52
1:D:266:VAL:HB	1:D:270:CYS:SG	2.50	0.52
1:D:436:LEU:HD12	1:D:448:ILE:HG22	1.92	0.52
1:B:197:SER:OG	1:B:200:ARG:HB2	2.09	0.52
1:B:277:ALA:HA	1:B:280:VAL:HG12	1.92	0.52
1:A:128:TYR:CA	1:A:131:VAL:HG12	2.38	0.52
1:A:277:ALA:HB2	1:A:292:VAL:CG1	2.39	0.52
1:A:277:ALA:HA	1:A:280:VAL:HG12	1.92	0.52
1:C:414:LEU:HD11	1:C:437:MET:HB3	1.90	0.52
1:D:93:VAL:HG23	1:D:93:VAL:O	2.09	0.52
1:D:370:VAL:HG22	1:D:370:VAL:O	2.09	0.52
1:B:274:VAL:CG2	1:B:294:LEU:HD21	2.40	0.52
1:B:370:VAL:HG22	1:B:370:VAL:O	2.10	0.52
1:D:272:MET:O	1:D:275:VAL:HG12	2.10	0.52
1:D:344:LEU:HD13	1:D:446:GLY:HA2	1.92	0.52
1:B:272:MET:O	1:B:275:VAL:HG12	2.10	0.52
1:A:436:LEU:HD12	1:A:448:ILE:HG22	1.92	0.52
1:A:438:VAL:HG23	1:A:445:VAL:CG2	2.38	0.52
1:C:346:HIS:NE2	1:C:374:GLU:HA	2.25	0.52
1:D:196:VAL:HG12	1:D:196:VAL:O	2.10	0.52
1:C:196:VAL:HG12	1:C:196:VAL:O	2.10	0.52
1:C:266:VAL:HB	1:C:270:CYS:SG	2.50	0.52
1:B:7:ILE:HG21	1:D:263:ALA:O	2.10	0.52
1:A:196:VAL:HG12	1:A:196:VAL:O	2.10	0.52
1:C:197:SER:OG	1:C:200:ARG:HB2	2.09	0.52
1:C:272:MET:O	1:C:275:VAL:HG12	2.10	0.52
1:B:196:VAL:O	1:B:196:VAL:HG12	2.10	0.52
1:B:438:VAL:HG23	1:B:445:VAL:HG23	1.92	0.52
1:C:32:ALA:HA	1:C:292:VAL:HG22	1.91	0.52
1:D:32:ALA:HA	1:D:292:VAL:HG22	1.91	0.52
1:D:340:ALA:O	1:D:341:LEU:C	2.53	0.52
1:B:436:LEU:HD12	1:B:448:ILE:HG22	1.92	0.51
1:A:256:ARG:HH12	1:A:317:LEU:CD1	2.20	0.51
1:D:346:HIS:HE2	1:D:374:GLU:CD	2.19	0.51
1:A:263:ALA:O	1:C:7:ILE:HG21	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:68:VAL:O	1:B:145:PRO:HD2	2.11	0.51
1:A:272:MET:O	1:A:275:VAL:HG12	2.10	0.51
1:B:93:VAL:HG23	1:B:93:VAL:O	2.09	0.51
1:B:180:ILE:HG23	1:B:180:ILE:O	2.11	0.51
1:A:93:VAL:O	1:A:93:VAL:HG23	2.09	0.51
1:A:438:VAL:HG23	1:A:445:VAL:HG23	1.92	0.51
1:C:68:VAL:O	1:C:145:PRO:HD2	2.11	0.51
1:D:180:ILE:O	1:D:180:ILE:HG23	2.11	0.51
1:D:274:VAL:CG2	1:D:294:LEU:HD21	2.39	0.51
1:A:180:ILE:HG23	1:A:180:ILE:O	2.11	0.51
1:D:118:THR:HG22	1:D:119:ALA:N	2.26	0.51
1:D:395:VAL:HG13	1:D:402:LEU:HD22	1.93	0.51
1:B:346:HIS:HE2	1:B:374:GLU:CD	2.19	0.51
1:C:180:ILE:HG23	1:C:180:ILE:O	2.11	0.51
1:C:352:THR:CG2	1:C:403:ALA:HA	2.41	0.51
1:C:395:VAL:HG13	1:C:402:LEU:HD22	1.93	0.51
1:D:352:THR:CG2	1:D:403:ALA:HA	2.41	0.51
1:A:370:VAL:HG22	1:A:370:VAL:O	2.10	0.51
1:C:438:VAL:HG23	1:C:445:VAL:HG23	1.92	0.51
1:A:68:VAL:O	1:A:145:PRO:HD2	2.11	0.51
1:A:352:THR:CG2	1:A:403:ALA:HA	2.41	0.51
1:C:436:LEU:HD12	1:C:448:ILE:HG22	1.92	0.51
1:A:10:LEU:HD13	1:C:15:PRO:HG3	1.93	0.51
1:D:438:VAL:HG23	1:D:445:VAL:HG23	1.92	0.51
1:A:15:PRO:HG3	1:C:10:LEU:HD13	1.93	0.50
1:A:340:ALA:O	1:A:341:LEU:C	2.53	0.50
1:D:11:ILE:HD13	1:D:45:ASP:HB3	1.92	0.50
1:A:360:LEU:HD13	1:A:388:GLU:HB2	1.94	0.50
1:B:15:PRO:HG3	1:D:10:LEU:HD13	1.92	0.50
1:B:344:LEU:HG	1:B:344:LEU:O	2.12	0.50
1:B:92:PHE:CE2	1:B:106:LEU:HD11	2.47	0.50
1:B:360:LEU:HD13	1:B:388:GLU:HB2	1.94	0.50
1:A:92:PHE:CE2	1:A:106:LEU:HD11	2.47	0.50
1:D:68:VAL:O	1:D:145:PRO:HD2	2.11	0.50
1:C:21:SER:N	1:C:262:GLU:OE2	2.41	0.50
1:D:259:ALA:HA	1:D:264:MET:O	2.12	0.50
1:B:11:ILE:HD13	1:B:45:ASP:HB3	1.92	0.50
1:A:106:LEU:O	1:A:111:ALA:HB3	2.12	0.50
1:A:118:THR:HG22	1:A:119:ALA:N	2.26	0.50
1:B:392:LEU:CD1	1:A:454:LEU:HD23	2.42	0.50
1:B:395:VAL:HG13	1:B:402:LEU:HD22	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:11:ILE:HD13	1:A:45:ASP:HB3	1.93	0.50
1:D:332:ASP:O	1:D:336:ARG:NH1	2.38	0.50
1:C:259:ALA:HA	1:C:264:MET:O	2.12	0.50
1:B:352:THR:CG2	1:B:403:ALA:HA	2.41	0.49
1:A:259:ALA:HA	1:A:264:MET:O	2.12	0.49
1:A:302:MET:SD	1:C:105:VAL:HG22	2.52	0.49
1:C:118:THR:HG22	1:C:119:ALA:N	2.26	0.49
1:C:360:LEU:HD13	1:C:388:GLU:HB2	1.94	0.49
1:D:360:LEU:HD13	1:D:388:GLU:HB2	1.93	0.49
1:D:93:VAL:HG21	1:D:132:SER:HB3	1.94	0.49
1:A:346:HIS:HE2	1:A:374:GLU:CD	2.19	0.49
1:A:386:VAL:HG11	1:A:391:LEU:HD11	1.95	0.49
1:A:395:VAL:HG13	1:A:402:LEU:HD22	1.93	0.49
1:C:93:VAL:HG21	1:C:132:SER:HB3	1.94	0.49
1:D:92:PHE:CE2	1:D:106:LEU:HD11	2.47	0.49
1:B:106:LEU:O	1:B:111:ALA:HB3	2.12	0.49
1:B:206:ALA:HB2	1:B:276:ALA:HB2	1.94	0.49
1:A:341:LEU:O	1:A:342:PRO:C	2.54	0.49
1:C:11:ILE:HD13	1:C:45:ASP:HB3	1.93	0.49
1:B:255:THR:OG1	1:B:267:GLY:O	2.20	0.49
1:B:386:VAL:HG11	1:B:391:LEU:HD11	1.95	0.49
1:C:92:PHE:CE2	1:C:106:LEU:HD11	2.47	0.49
1:A:286:PRO:O	1:A:287:ASP:HB2	2.13	0.49
1:D:21:SER:N	1:D:262:GLU:OE2	2.41	0.49
1:A:68:VAL:HG22	1:A:91:VAL:HG13	1.94	0.49
1:C:373:ALA:HB1	1:C:375:PRO:HG2	1.94	0.49
1:B:68:VAL:HG22	1:B:91:VAL:HG13	1.94	0.49
1:A:337:LYS:HE2	1:A:342:PRO:HD3	1.94	0.49
1:D:201:VAL:O	1:D:201:VAL:HG13	2.13	0.49
1:B:93:VAL:HG21	1:B:132:SER:HB3	1.94	0.49
1:C:206:ALA:HB2	1:C:276:ALA:HB2	1.94	0.49
1:A:11:ILE:HG12	1:A:39:PRO:HG2	1.95	0.49
1:A:206:ALA:HB2	1:A:276:ALA:HB2	1.94	0.49
1:C:68:VAL:HG22	1:C:91:VAL:HG13	1.94	0.49
1:C:106:LEU:O	1:C:111:ALA:HB3	2.12	0.49
1:C:400:ALA:HB2	1:C:409:HIS:CE1	2.48	0.49
1:B:201:VAL:O	1:B:201:VAL:HG13	2.13	0.48
1:B:439:VAL:O	1:B:439:VAL:HG13	2.13	0.48
1:A:400:ALA:HB2	1:A:409:HIS:CE1	2.48	0.48
1:C:296:ASP:OD2	2:C:501:PLP:H2A2	2.13	0.48
1:D:286:PRO:O	1:D:287:ASP:HB2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:439:VAL:HG13	1:D:439:VAL:O	2.13	0.48
1:B:11:ILE:HG12	1:B:39:PRO:HG2	1.95	0.48
1:B:337:LYS:HE3	1:B:342:PRO:HB3	1.95	0.48
1:A:296:ASP:OD2	2:A:501:PLP:H2A2	2.13	0.48
1:D:68:VAL:HG22	1:D:91:VAL:HG13	1.94	0.48
1:D:206:ALA:HB2	1:D:276:ALA:HB2	1.94	0.48
1:D:335:ARG:HB3	1:D:339:GLY:H	1.78	0.48
1:D:373:ALA:HB1	1:D:375:PRO:HG2	1.94	0.48
1:D:400:ALA:HB2	1:D:409:HIS:CE1	2.48	0.48
1:B:207:ASP:OD1	1:B:211:SER:HB3	2.14	0.48
1:B:335:ARG:HB3	1:B:339:GLY:H	1.78	0.48
1:A:341:LEU:H	1:A:341:LEU:HD22	1.78	0.48
1:A:439:VAL:HG13	1:A:439:VAL:O	2.14	0.48
1:C:128:TYR:CA	1:C:131:VAL:HG12	2.38	0.48
1:C:255:THR:OG1	1:C:267:GLY:O	2.20	0.48
1:D:106:LEU:O	1:D:111:ALA:HB3	2.12	0.48
1:B:219:ARG:HH21	1:B:221:TYR:HD1	1.60	0.48
1:B:259:ALA:HA	1:B:264:MET:O	2.12	0.48
1:B:373:ALA:HB1	1:B:375:PRO:HG2	1.94	0.48
1:C:185:THR:HB	2:C:501:PLP:O1P	2.14	0.48
1:C:201:VAL:O	1:C:201:VAL:HG13	2.13	0.48
1:A:201:VAL:O	1:A:201:VAL:HG13	2.13	0.48
1:C:286:PRO:O	1:C:287:ASP:HB2	2.13	0.48
1:D:226:VAL:CB	1:D:272:MET:HE1	2.44	0.48
1:A:219:ARG:HH21	1:A:221:TYR:HD1	1.60	0.48
1:C:335:ARG:HB3	1:C:339:GLY:H	1.78	0.48
1:B:223:VAL:HG23	1:B:223:VAL:O	2.14	0.48
1:B:286:PRO:O	1:B:287:ASP:HB2	2.13	0.48
1:A:226:VAL:CB	1:A:272:MET:HE1	2.44	0.48
1:A:373:ALA:HB1	1:A:375:PRO:HG2	1.94	0.48
1:C:207:ASP:OD1	1:C:211:SER:HB3	2.14	0.48
1:C:305:ILE:HA	1:C:311:MET:CE	2.44	0.48
1:C:439:VAL:O	1:C:439:VAL:HG13	2.13	0.48
1:D:207:ASP:OD1	1:D:211:SER:HB3	2.14	0.48
1:D:223:VAL:HG23	1:D:223:VAL:O	2.14	0.48
1:B:226:VAL:CB	1:B:272:MET:HE1	2.44	0.48
1:A:335:ARG:HB3	1:A:339:GLY:H	1.78	0.48
1:A:346:HIS:NE2	1:A:374:GLU:OE2	2.47	0.48
1:D:219:ARG:HH21	1:D:221:TYR:HD1	1.60	0.48
1:D:386:VAL:HG11	1:D:391:LEU:HD11	1.95	0.48
1:A:185:THR:HB	2:A:501:PLP:O2P	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:11:ILE:HG21	1:C:45:ASP:HB3	1.96	0.48
1:C:386:VAL:HG11	1:C:391:LEU:HD11	1.95	0.48
1:D:11:ILE:HG21	1:D:45:ASP:HB3	1.96	0.48
1:B:105:VAL:HG22	1:D:302:MET:SD	2.54	0.47
1:B:296:ASP:OD2	2:B:501:PLP:H2A2	2.13	0.47
1:B:305:ILE:HA	1:B:311:MET:CE	2.44	0.47
1:B:400:ALA:HB2	1:B:409:HIS:CE1	2.48	0.47
1:C:11:ILE:HG12	1:C:39:PRO:HG2	1.95	0.47
1:C:219:ARG:HH21	1:C:221:TYR:HD1	1.60	0.47
1:B:128:TYR:CA	1:B:131:VAL:HG12	2.38	0.47
1:B:362:GLU:OE1	1:B:362:GLU:HA	2.14	0.47
1:A:305:ILE:HA	1:A:311:MET:CE	2.44	0.47
1:C:185:THR:CG2	1:C:293:LEU:HD23	2.44	0.47
1:D:11:ILE:HG12	1:D:39:PRO:HG2	1.95	0.47
1:D:121:PRO:O	1:D:127:SER:OG	2.30	0.47
1:A:11:ILE:HG21	1:A:45:ASP:HB3	1.96	0.47
1:A:207:ASP:OD1	1:A:211:SER:HB3	2.14	0.47
1:A:329:THR:HG22	1:A:332:ASP:OD1	2.14	0.47
1:C:266:VAL:HG11	1:C:294:LEU:HD13	1.96	0.47
1:D:362:GLU:HA	1:D:362:GLU:OE1	2.14	0.47
1:B:185:THR:HB	2:B:501:PLP:O1P	2.14	0.47
1:B:185:THR:CG2	1:B:293:LEU:HD23	2.44	0.47
1:A:93:VAL:HG21	1:A:132:SER:HB3	1.94	0.47
1:A:362:GLU:HA	1:A:362:GLU:OE1	2.14	0.47
1:C:205:GLY:O	1:C:243:ILE:HA	2.15	0.47
1:C:352:THR:HG21	1:D:314:TYR:HE2	1.79	0.47
1:D:185:THR:HB	2:D:501:PLP:O2P	2.14	0.47
1:D:326:GLU:C	1:D:328:SER:N	2.71	0.47
1:B:11:ILE:HG21	1:B:45:ASP:HB3	1.96	0.47
1:B:44:LYS:O	1:B:47:ILE:HG12	2.14	0.47
1:D:266:VAL:HG11	1:D:294:LEU:HD13	1.96	0.47
1:D:296:ASP:OD2	2:D:501:PLP:H2A2	2.13	0.47
1:B:329:THR:HG22	1:B:332:ASP:OD1	2.14	0.47
1:A:44:LYS:O	1:A:47:ILE:HG12	2.14	0.47
1:C:185:THR:HG21	1:C:293:LEU:HD23	1.97	0.47
1:C:226:VAL:CB	1:C:272:MET:HE1	2.44	0.47
1:D:114:VAL:HG23	1:D:114:VAL:O	2.15	0.47
1:D:305:ILE:HA	1:D:311:MET:CE	2.44	0.47
1:B:50:LYS:CB	1:B:156:SER:HB2	2.45	0.47
1:B:185:THR:HG21	1:B:293:LEU:HD23	1.97	0.47
1:B:205:GLY:O	1:B:243:ILE:HA	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:266:VAL:HG11	1:B:294:LEU:HD13	1.96	0.47
1:A:50:LYS:CB	1:A:156:SER:HB2	2.45	0.47
1:A:185:THR:CG2	1:A:293:LEU:HD23	2.44	0.47
1:A:185:THR:HG21	1:A:293:LEU:HD23	1.97	0.47
1:A:205:GLY:O	1:A:243:ILE:HA	2.15	0.47
1:A:223:VAL:HG23	1:A:223:VAL:O	2.14	0.47
1:A:226:VAL:HG11	1:A:272:MET:CE	2.45	0.47
1:C:34:VAL:HG12	1:C:37:LEU:HD13	1.97	0.47
1:C:50:LYS:CB	1:C:156:SER:HB2	2.45	0.47
1:C:226:VAL:HG11	1:C:272:MET:CE	2.45	0.47
1:C:329:THR:HG22	1:C:332:ASP:OD1	2.14	0.47
1:D:34:VAL:HG12	1:D:37:LEU:HD13	1.97	0.47
1:D:44:LYS:O	1:D:47:ILE:HG12	2.14	0.47
1:D:50:LYS:CB	1:D:156:SER:HB2	2.45	0.47
1:D:185:THR:HG21	1:D:293:LEU:HD23	1.97	0.47
1:B:212:VAL:HG21	1:B:229:ASP:C	2.40	0.47
1:A:266:VAL:HG11	1:A:294:LEU:HD13	1.96	0.47
1:C:114:VAL:O	1:C:114:VAL:HG23	2.15	0.47
1:C:223:VAL:O	1:C:223:VAL:HG23	2.14	0.47
1:D:185:THR:CG2	1:D:293:LEU:HD23	2.44	0.47
1:B:34:VAL:HG12	1:B:37:LEU:HD13	1.97	0.47
1:C:44:LYS:O	1:C:47:ILE:HG12	2.14	0.47
1:C:212:VAL:HG21	1:C:229:ASP:C	2.40	0.47
1:C:226:VAL:CG2	1:C:272:MET:HE1	2.44	0.47
1:D:205:GLY:O	1:D:243:ILE:HA	2.15	0.47
1:B:118:THR:HG22	1:B:119:ALA:N	2.26	0.47
1:A:114:VAL:HG23	1:A:114:VAL:O	2.15	0.47
1:C:362:GLU:OE1	1:C:362:GLU:HA	2.14	0.47
1:D:212:VAL:HG21	1:D:229:ASP:C	2.40	0.46
1:D:226:VAL:CG2	1:D:272:MET:HE1	2.44	0.46
1:A:34:VAL:HG12	1:A:37:LEU:HD13	1.97	0.46
1:D:327:GLN:H	1:D:327:GLN:CD	2.23	0.46
1:B:441:GLU:HG3	1:B:441:GLU:O	2.15	0.46
1:A:335:ARG:HD2	1:A:339:GLY:HA2	1.97	0.46
1:A:366:SER:O	1:A:367:GLN:HG2	2.16	0.46
1:B:226:VAL:HG11	1:B:272:MET:CE	2.45	0.46
1:B:348:HIS:HB3	1:B:349:PRO:HD2	1.98	0.46
1:A:212:VAL:HG21	1:A:229:ASP:C	2.40	0.46
1:D:335:ARG:HD2	1:D:339:GLY:HA2	1.97	0.46
1:B:366:SER:O	1:B:367:GLN:HG2	2.16	0.46
1:A:356:ALA:O	1:A:359:ILE:HG23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:113:VAL:O	1:C:113:VAL:HG13	2.16	0.46
1:C:348:HIS:HB3	1:C:349:PRO:HD2	1.98	0.46
1:C:366:SER:O	1:C:367:GLN:HG2	2.16	0.46
1:D:226:VAL:HG11	1:D:272:MET:CE	2.45	0.46
1:D:366:SER:O	1:D:367:GLN:HG2	2.15	0.46
1:B:114:VAL:HG23	1:B:114:VAL:O	2.15	0.46
1:D:113:VAL:O	1:D:113:VAL:HG13	2.16	0.46
1:B:204:VAL:HG13	1:B:242:GLU:O	2.16	0.46
1:B:414:LEU:HD12	1:B:414:LEU:O	2.16	0.46
1:A:121:PRO:O	1:A:127:SER:OG	2.30	0.46
1:A:441:GLU:O	1:A:441:GLU:HG3	2.15	0.46
1:D:356:ALA:O	1:D:359:ILE:HG23	2.16	0.46
1:B:346:HIS:NE2	1:B:374:GLU:OE2	2.47	0.46
1:A:379:ALA:O	1:A:381:GLU:HG2	2.16	0.46
1:C:356:ALA:O	1:C:359:ILE:HG23	2.16	0.46
1:D:414:LEU:HD12	1:D:414:LEU:O	2.16	0.46
1:B:121:PRO:O	1:B:127:SER:OG	2.30	0.46
1:B:335:ARG:HD2	1:B:339:GLY:HA2	1.97	0.46
1:C:441:GLU:O	1:C:441:GLU:HG3	2.15	0.46
1:D:134:ARG:C	1:D:134:ARG:HD2	2.41	0.46
1:D:166:TRP:CE2	1:D:171:GLY:HA2	2.51	0.46
1:D:204:VAL:HG13	1:D:242:GLU:O	2.16	0.46
1:B:17:VAL:HG22	1:B:18:ARG:N	2.32	0.45
1:A:166:TRP:CE2	1:A:171:GLY:HA2	2.51	0.45
1:C:18:ARG:HA	1:C:31:ALA:HA	1.99	0.45
1:D:92:PHE:CD2	1:D:106:LEU:HD21	2.52	0.45
1:D:255:THR:HG21	1:D:305:ILE:CD1	2.47	0.45
1:B:134:ARG:C	1:B:134:ARG:HD2	2.41	0.45
1:B:166:TRP:CE2	1:B:171:GLY:HA2	2.51	0.45
1:B:379:ALA:O	1:B:381:GLU:HG2	2.16	0.45
1:C:66:THR:HA	1:C:89:LYS:O	2.16	0.45
1:C:166:TRP:CE2	1:C:171:GLY:HA2	2.51	0.45
1:C:344:LEU:O	1:C:345:VAL:C	2.60	0.45
1:C:414:LEU:HD12	1:C:414:LEU:O	2.16	0.45
1:B:356:ALA:O	1:B:359:ILE:HG23	2.16	0.45
1:A:17:VAL:HG22	1:A:18:ARG:N	2.31	0.45
1:C:134:ARG:HD2	1:C:134:ARG:C	2.41	0.45
1:C:335:ARG:HD2	1:C:339:GLY:HA2	1.97	0.45
1:D:441:GLU:O	1:D:441:GLU:HG3	2.15	0.45
1:A:204:VAL:HG13	1:A:242:GLU:O	2.16	0.45
1:A:255:THR:HG21	1:A:305:ILE:CD1	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:341:LEU:N	1:A:341:LEU:HD13	2.32	0.45
1:A:348:HIS:HB3	1:A:349:PRO:HD2	1.98	0.45
1:C:204:VAL:HG13	1:C:242:GLU:O	2.16	0.45
1:D:76:GLY:HA2	1:D:92:PHE:CZ	2.52	0.45
1:B:255:THR:HG21	1:B:305:ILE:CD1	2.46	0.45
1:A:414:LEU:HD12	1:A:414:LEU:O	2.16	0.45
1:C:17:VAL:HG22	1:C:18:ARG:N	2.31	0.45
1:C:277:ALA:O	1:C:280:VAL:HG12	2.17	0.45
1:D:348:HIS:HB3	1:D:349:PRO:HD2	1.98	0.45
1:B:18:ARG:HA	1:B:31:ALA:HA	1.99	0.45
1:A:226:VAL:HG11	1:A:272:MET:HE1	1.99	0.45
1:D:129:TYR:O	1:D:132:SER:OG	2.30	0.45
1:B:113:VAL:O	1:B:113:VAL:HG13	2.16	0.45
1:B:226:VAL:HG11	1:B:272:MET:HE1	1.99	0.45
1:B:226:VAL:CG2	1:B:272:MET:HE1	2.44	0.45
1:B:352:THR:HG21	1:A:314:TYR:HE2	1.82	0.45
1:A:76:GLY:HA2	1:A:92:PHE:CZ	2.52	0.45
1:A:134:ARG:HD2	1:A:134:ARG:C	2.41	0.45
1:C:76:GLY:HA2	1:C:92:PHE:CZ	2.52	0.45
1:C:379:ALA:O	1:C:381:GLU:HG2	2.16	0.45
1:B:147:GLN:HG3	1:B:148:TYR:HD1	1.82	0.45
1:B:192:TYR:CE1	1:B:196:VAL:HG21	2.52	0.45
1:B:263:ALA:O	1:D:7:ILE:HG21	2.17	0.45
1:A:18:ARG:HA	1:A:31:ALA:HA	1.99	0.45
1:A:92:PHE:CD2	1:A:106:LEU:HD21	2.51	0.45
1:A:147:GLN:HG3	1:A:148:TYR:HD1	1.82	0.45
1:A:277:ALA:O	1:A:280:VAL:HG12	2.17	0.45
1:A:417:ILE:O	1:A:438:VAL:HA	2.17	0.45
1:D:379:ALA:O	1:D:381:GLU:HG2	2.16	0.45
1:B:92:PHE:CD2	1:B:106:LEU:HD21	2.51	0.44
1:D:226:VAL:HG11	1:D:272:MET:HE1	1.99	0.44
1:B:23:VAL:HA	1:B:278:LEU:HD22	1.98	0.44
1:B:76:GLY:HA2	1:B:92:PHE:CZ	2.52	0.44
1:B:277:ALA:O	1:B:280:VAL:HG12	2.17	0.44
1:B:304:LYS:O	1:B:310:TRP:CE3	2.71	0.44
1:A:226:VAL:CG2	1:A:272:MET:HE1	2.44	0.44
1:A:304:LYS:O	1:A:310:TRP:CE3	2.71	0.44
1:C:23:VAL:HA	1:C:278:LEU:HD22	1.98	0.44
1:C:255:THR:HG21	1:C:305:ILE:CD1	2.46	0.44
1:B:86:ARG:HA	1:B:86:ARG:HD3	1.77	0.44
1:B:129:TYR:O	1:B:132:SER:OG	2.30	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:92:PHE:CD2	1:C:106:LEU:HD21	2.51	0.44
1:C:192:TYR:CE1	1:C:196:VAL:HG21	2.52	0.44
1:C:417:ILE:O	1:C:438:VAL:HA	2.17	0.44
1:B:66:THR:HA	1:B:89:LYS:O	2.17	0.44
1:A:335:ARG:HB3	1:A:339:GLY:CA	2.48	0.44
1:C:226:VAL:HG11	1:C:272:MET:HE1	1.99	0.44
1:D:17:VAL:HG22	1:D:18:ARG:N	2.32	0.44
1:D:18:ARG:HA	1:D:31:ALA:HA	1.99	0.44
1:D:66:THR:HA	1:D:89:LYS:O	2.17	0.44
1:D:147:GLN:HG3	1:D:148:TYR:HD1	1.82	0.44
1:D:335:ARG:HB3	1:D:339:GLY:CA	2.48	0.44
1:D:417:ILE:O	1:D:438:VAL:HA	2.17	0.44
1:B:53:GLU:OE1	1:B:53:GLU:HA	2.18	0.44
1:C:53:GLU:HA	1:C:53:GLU:OE1	2.18	0.44
1:D:277:ALA:O	1:D:280:VAL:HG12	2.17	0.44
1:A:66:THR:HA	1:A:89:LYS:O	2.17	0.44
1:A:113:VAL:O	1:A:113:VAL:HG13	2.16	0.44
1:A:260:ARG:O	1:C:84:GLN:NE2	2.51	0.44
1:B:185:THR:HG22	1:B:186:ILE:N	2.33	0.44
1:A:391:LEU:HD23	1:A:391:LEU:HA	1.81	0.44
1:C:314:TYR:CE2	1:D:352:THR:HG21	2.51	0.44
1:C:335:ARG:HB3	1:C:339:GLY:CA	2.48	0.44
1:D:192:TYR:CE1	1:D:196:VAL:HG21	2.52	0.44
1:B:417:ILE:O	1:B:438:VAL:HA	2.17	0.44
1:A:192:TYR:CE1	1:A:196:VAL:HG21	2.52	0.44
1:A:263:ALA:HB3	1:C:7:ILE:HG21	1.99	0.44
1:A:352:THR:HG23	1:A:403:ALA:O	2.18	0.44
1:C:92:PHE:HE2	1:C:106:LEU:HD11	1.82	0.44
1:C:147:GLN:HG3	1:C:148:TYR:HD1	1.82	0.44
1:C:185:THR:HG22	1:C:186:ILE:N	2.33	0.44
1:D:53:GLU:OE1	1:D:53:GLU:HA	2.18	0.44
1:B:92:PHE:HE2	1:B:106:LEU:HD11	1.83	0.44
1:B:352:THR:HG23	1:B:403:ALA:O	2.18	0.44
1:A:23:VAL:HA	1:A:278:LEU:HD22	1.98	0.44
1:A:262:GLU:HA	1:A:262:GLU:OE1	2.18	0.44
1:D:23:VAL:HA	1:D:278:LEU:HD22	1.98	0.44
1:D:346:HIS:NE2	1:D:374:GLU:OE2	2.47	0.44
1:D:365:VAL:HG22	1:D:366:SER:N	2.33	0.44
1:B:239:VAL:HB	1:B:240:PRO:HD3	2.00	0.43
1:B:279:LYS:O	1:B:282:GLU:HG2	2.18	0.43
1:A:239:VAL:HB	1:A:240:PRO:HD3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:193:LEU:HB3	1:C:201:VAL:CG1	2.48	0.43
1:C:304:LYS:O	1:C:310:TRP:CE3	2.71	0.43
1:D:304:LYS:O	1:D:310:TRP:CE3	2.71	0.43
1:B:180:ILE:HD11	1:B:183:GLY:HA2	1.99	0.43
1:B:262:GLU:OE1	1:B:262:GLU:HA	2.18	0.43
1:B:335:ARG:HB3	1:B:339:GLY:CA	2.48	0.43
1:A:279:LYS:O	1:A:282:GLU:HG2	2.18	0.43
1:D:279:LYS:O	1:D:282:GLU:HG2	2.18	0.43
1:A:7:ILE:HG21	1:C:263:ALA:O	2.18	0.43
1:C:279:LYS:O	1:C:282:GLU:HG2	2.18	0.43
1:B:118:THR:O	1:B:119:ALA:HB3	2.19	0.43
1:C:180:ILE:HD11	1:C:183:GLY:HA2	1.99	0.43
1:B:173:VAL:HG23	1:B:173:VAL:O	2.19	0.43
1:A:17:VAL:O	1:A:32:ALA:N	2.51	0.43
1:A:185:THR:HG22	1:A:186:ILE:N	2.33	0.43
1:A:302:MET:HG2	1:C:105:VAL:CG2	2.46	0.43
1:D:92:PHE:HE2	1:D:106:LEU:HD11	1.83	0.43
1:D:180:ILE:HD11	1:D:183:GLY:HA2	1.99	0.43
1:B:246:VAL:HG21	1:B:275:VAL:HG11	2.01	0.43
1:A:47:ILE:O	1:A:48:ALA:C	2.62	0.43
1:C:262:GLU:HA	1:C:262:GLU:OE1	2.18	0.43
1:D:239:VAL:HB	1:D:240:PRO:CD	2.49	0.43
1:D:352:THR:HG23	1:D:403:ALA:O	2.18	0.43
1:A:92:PHE:HE2	1:A:106:LEU:HD11	1.82	0.43
1:A:180:ILE:HD11	1:A:183:GLY:HA2	1.99	0.43
1:A:263:ALA:HB3	1:C:7:ILE:CG2	2.49	0.43
1:C:6:HIS:HD2	1:C:8:SER:H	1.66	0.43
1:C:173:VAL:HG23	1:C:173:VAL:O	2.18	0.43
1:C:365:VAL:HG22	1:C:366:SER:N	2.33	0.43
1:D:246:VAL:HG21	1:D:275:VAL:HG11	2.01	0.43
1:B:200:ARG:CZ	1:B:200:ARG:HB3	2.49	0.43
1:B:314:TYR:CE2	1:A:352:THR:HG21	2.51	0.43
1:A:239:VAL:HB	1:A:240:PRO:CD	2.49	0.43
1:A:437:MET:HA	1:A:447:VAL:HA	2.01	0.43
1:C:129:TYR:O	1:C:132:SER:OG	2.29	0.43
1:B:370:VAL:HG22	1:B:383:ALA:HB3	2.01	0.43
1:A:53:GLU:OE1	1:A:53:GLU:HA	2.18	0.43
1:A:246:VAL:HG21	1:A:275:VAL:HG11	2.01	0.43
1:C:352:THR:HG23	1:C:403:ALA:O	2.18	0.43
1:D:173:VAL:HG23	1:D:173:VAL:O	2.19	0.43
1:D:431:ARG:O	1:D:431:ARG:HG2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:437:MET:HA	1:B:447:VAL:HA	2.01	0.43
1:A:343:ALA:O	1:A:344:LEU:HB2	2.19	0.43
1:C:118:THR:O	1:C:119:ALA:HB3	2.19	0.43
1:C:246:VAL:HG21	1:C:275:VAL:HG11	2.01	0.43
1:D:6:HIS:HD2	1:D:8:SER:H	1.66	0.43
1:D:47:ILE:O	1:D:48:ALA:C	2.62	0.43
1:D:370:VAL:HG22	1:D:383:ALA:HB3	2.01	0.43
1:A:370:VAL:HG22	1:A:383:ALA:HB3	2.01	0.42
1:C:437:MET:HA	1:C:447:VAL:HA	2.01	0.42
1:D:447:VAL:HG23	1:D:447:VAL:O	2.19	0.42
1:B:7:ILE:HG21	1:D:263:ALA:HB3	2.01	0.42
1:B:10:LEU:HD13	1:D:15:PRO:CG	2.49	0.42
1:B:105:VAL:CG2	1:D:302:MET:HG2	2.47	0.42
1:B:193:LEU:HB3	1:B:201:VAL:CG1	2.48	0.42
1:A:48:ALA:O	1:A:49:VAL:C	2.62	0.42
1:A:173:VAL:HG23	1:A:173:VAL:O	2.19	0.42
1:C:239:VAL:HB	1:C:240:PRO:CD	2.49	0.42
1:C:370:VAL:HG22	1:C:383:ALA:HB3	2.01	0.42
1:C:431:ARG:O	1:C:431:ARG:HG2	2.19	0.42
1:D:185:THR:HG22	1:D:186:ILE:N	2.33	0.42
1:B:239:VAL:HB	1:B:240:PRO:CD	2.49	0.42
1:B:365:VAL:HG22	1:B:366:SER:N	2.33	0.42
1:A:118:THR:O	1:A:119:ALA:HB3	2.19	0.42
1:A:235:TYR:O	1:A:237:PRO:HD3	2.19	0.42
1:A:447:VAL:HG23	1:A:447:VAL:O	2.19	0.42
1:C:180:ILE:HD12	1:C:183:GLY:HA2	2.02	0.42
1:D:239:VAL:HB	1:D:240:PRO:HD3	2.01	0.42
1:D:437:MET:HA	1:D:447:VAL:HA	2.01	0.42
1:B:235:TYR:O	1:B:237:PRO:HD3	2.19	0.42
1:B:302:MET:SD	1:D:105:VAL:HG22	2.60	0.42
1:B:447:VAL:HG23	1:B:447:VAL:O	2.19	0.42
1:A:200:ARG:HB3	1:A:200:ARG:CZ	2.49	0.42
1:A:365:VAL:HG22	1:A:366:SER:N	2.33	0.42
1:C:239:VAL:HB	1:C:240:PRO:HD3	2.01	0.42
1:A:180:ILE:HD12	1:A:183:GLY:HA2	2.02	0.42
1:C:61:LEU:HD12	1:C:143:TRP:CE3	2.55	0.42
1:C:265:LEU:HD23	1:C:265:LEU:HA	1.83	0.42
1:C:447:VAL:O	1:C:447:VAL:HG23	2.19	0.42
1:D:235:TYR:O	1:D:237:PRO:HD3	2.19	0.42
1:B:169:THR:OG1	1:B:173:VAL:HG13	2.19	0.42
1:A:61:LEU:HD12	1:A:143:TRP:CE3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:262:GLU:OE1	1:D:262:GLU:HA	2.18	0.42
1:B:180:ILE:HD12	1:B:183:GLY:HA2	2.02	0.42
1:B:395:VAL:HG13	1:B:402:LEU:CD2	2.50	0.42
1:A:17:VAL:HG12	1:A:34:VAL:HG23	2.02	0.42
1:A:395:VAL:HG13	1:A:402:LEU:CD2	2.50	0.42
1:C:93:VAL:HG12	1:C:114:VAL:HG22	2.02	0.42
1:D:61:LEU:HD12	1:D:143:TRP:CE3	2.55	0.42
1:D:118:THR:O	1:D:119:ALA:HB3	2.19	0.42
1:B:17:VAL:HG12	1:B:34:VAL:HG23	2.02	0.42
1:C:100:GLU:OE1	1:C:100:GLU:HA	2.20	0.42
1:D:274:VAL:HG23	1:D:294:LEU:CD2	2.50	0.42
1:C:121:PRO:O	1:C:127:SER:OG	2.30	0.42
1:C:235:TYR:O	1:C:237:PRO:HD3	2.19	0.42
1:B:48:ALA:O	1:B:49:VAL:C	2.62	0.42
1:B:84:GLN:NE2	1:D:260:ARG:O	2.53	0.42
1:B:274:VAL:HG23	1:B:294:LEU:CD2	2.50	0.42
1:B:431:ARG:O	1:B:431:ARG:HG2	2.19	0.42
1:A:86:ARG:HA	1:A:86:ARG:HD3	1.77	0.42
1:A:169:THR:OG1	1:A:173:VAL:HG13	2.19	0.42
1:C:454:LEU:HD23	1:D:392:LEU:HD11	2.02	0.42
1:B:61:LEU:HD12	1:B:143:TRP:CE3	2.55	0.41
1:C:86:ARG:HD3	1:C:86:ARG:HA	1.77	0.41
1:C:392:LEU:HD11	1:D:454:LEU:HD23	2.02	0.41
1:D:395:VAL:HG13	1:D:402:LEU:CD2	2.50	0.41
1:A:431:ARG:O	1:A:431:ARG:HG2	2.19	0.41
1:C:395:VAL:HG13	1:C:402:LEU:CD2	2.50	0.41
1:D:328:SER:O	1:D:329:THR:HB	2.19	0.41
1:B:97:LYS:O	1:B:97:LYS:HD3	2.21	0.41
1:B:100:GLU:HA	1:B:100:GLU:OE1	2.20	0.41
1:A:100:GLU:OE1	1:A:100:GLU:HA	2.20	0.41
1:C:177:VAL:HG11	1:C:277:ALA:CB	2.50	0.41
1:C:341:LEU:H	1:C:341:LEU:HG	1.55	0.41
1:D:17:VAL:O	1:D:32:ALA:N	2.51	0.41
1:D:180:ILE:HD12	1:D:183:GLY:HA2	2.02	0.41
1:B:256:ARG:NH1	1:B:317:LEU:HD12	2.32	0.41
1:B:329:THR:CG2	1:B:332:ASP:OD1	2.69	0.41
1:C:44:LYS:HA	1:C:44:LYS:HD2	1.69	0.41
1:C:47:ILE:O	1:C:48:ALA:C	2.62	0.41
1:C:274:VAL:HG23	1:C:294:LEU:CD2	2.50	0.41
1:D:97:LYS:O	1:D:97:LYS:HD3	2.21	0.41
1:D:265:LEU:HA	1:D:265:LEU:HD23	1.83	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:391:LEU:HD23	1:B:391:LEU:HA	1.81	0.41
1:A:7:ILE:HG21	1:C:263:ALA:HB3	2.02	0.41
1:A:105:VAL:HG22	1:C:302:MET:SD	2.59	0.41
1:C:169:THR:OG1	1:C:173:VAL:HG13	2.19	0.41
1:C:200:ARG:HB3	1:C:200:ARG:CZ	2.49	0.41
1:D:17:VAL:HG11	1:D:264:MET:HE2	2.03	0.41
1:D:86:ARG:HD3	1:D:86:ARG:HA	1.77	0.41
1:D:100:GLU:HA	1:D:100:GLU:OE1	2.20	0.41
1:B:19:LEU:HD21	1:B:32:ALA:CB	2.51	0.41
1:B:47:ILE:O	1:B:48:ALA:C	2.62	0.41
1:C:97:LYS:O	1:C:97:LYS:HD3	2.21	0.41
1:D:169:THR:OG1	1:D:173:VAL:HG13	2.19	0.41
1:D:200:ARG:CZ	1:D:200:ARG:HB3	2.49	0.41
1:D:213:TYR:HB3	1:D:243:ILE:HD13	2.03	0.41
1:B:15:PRO:CG	1:D:10:LEU:HD13	2.51	0.41
1:B:214:SER:OG	1:B:245:ALA:HB2	2.21	0.41
1:A:19:LEU:HD21	1:A:32:ALA:CB	2.51	0.41
1:A:274:VAL:HG23	1:A:294:LEU:CD2	2.50	0.41
1:D:430:LEU:HD23	1:D:450:ARG:HA	2.03	0.41
1:B:81:LEU:CD1	1:D:263:ALA:HB1	2.35	0.41
1:B:263:ALA:HB3	1:D:7:ILE:HG21	2.03	0.41
1:A:6:HIS:HD2	1:A:8:SER:H	1.66	0.41
1:A:47:ILE:CG1	1:A:48:ALA:N	2.84	0.41
1:C:191:ARG:NH2	1:C:236:ASP:OD2	2.54	0.41
1:C:329:THR:CG2	1:C:332:ASP:OD1	2.69	0.41
1:C:454:LEU:HD23	1:D:392:LEU:HD13	2.03	0.41
1:B:17:VAL:O	1:B:32:ALA:N	2.51	0.41
1:B:44:LYS:HD2	1:B:44:LYS:HA	1.69	0.41
1:B:47:ILE:CG1	1:B:48:ALA:N	2.84	0.41
1:A:15:PRO:CG	1:C:10:LEU:HD13	2.51	0.41
1:A:265:LEU:HD23	1:A:265:LEU:HA	1.83	0.41
1:C:17:VAL:HG12	1:C:34:VAL:HG23	2.02	0.41
1:C:213:TYR:HB3	1:C:243:ILE:HD13	2.03	0.41
1:C:214:SER:OG	1:C:245:ALA:HB2	2.21	0.41
1:C:430:LEU:HD23	1:C:450:ARG:HA	2.03	0.41
1:D:17:VAL:HG12	1:D:34:VAL:HG23	2.02	0.41
1:D:48:ALA:O	1:D:49:VAL:C	2.62	0.41
1:B:6:HIS:HD2	1:B:8:SER:H	1.66	0.41
1:B:314:TYR:O	1:B:315:GLY:C	2.64	0.41
1:A:32:ALA:HB1	1:A:294:LEU:HD11	2.03	0.41
1:A:282:GLU:OE1	1:A:282:GLU:HA	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:19:LEU:HD21	1:D:32:ALA:CB	2.51	0.41
1:D:193:LEU:HB3	1:D:201:VAL:CG1	2.48	0.41
1:B:7:ILE:CG2	1:D:263:ALA:HB3	2.51	0.40
1:B:256:ARG:NH2	1:B:311:MET:HG2	2.37	0.40
1:B:330:VAL:HG23	1:B:448:ILE:CD1	2.51	0.40
1:B:454:LEU:HD23	1:A:392:LEU:HD13	2.03	0.40
1:A:433:TRP:O	1:A:450:ARG:NH2	2.54	0.40
1:C:17:VAL:HG11	1:C:264:MET:HE2	2.03	0.40
1:D:96:ASP:OD1	1:D:115:VAL:HB	2.21	0.40
1:B:32:ALA:HB1	1:B:294:LEU:HD11	2.03	0.40
1:B:45:ASP:O	1:B:46:ARG:C	2.64	0.40
1:A:193:LEU:HB3	1:A:201:VAL:CG1	2.48	0.40
1:A:329:THR:CG2	1:A:332:ASP:OD1	2.69	0.40
1:D:256:ARG:NH1	1:D:317:LEU:HD12	2.32	0.40
1:D:330:VAL:HG23	1:D:448:ILE:CD1	2.51	0.40
1:D:433:TRP:O	1:D:450:ARG:NH2	2.54	0.40
1:B:282:GLU:OE1	1:B:282:GLU:HA	2.21	0.40
1:B:430:LEU:HD23	1:B:450:ARG:HA	2.03	0.40
1:A:97:LYS:O	1:A:97:LYS:HD3	2.21	0.40
1:A:186:ILE:CG2	1:A:187:THR:N	2.85	0.40
1:C:61:LEU:C	1:C:61:LEU:HD23	2.47	0.40
1:C:256:ARG:NH2	1:C:311:MET:HG2	2.36	0.40
1:B:440:GLU:O	1:B:441:GLU:HG2	2.22	0.40
1:A:93:VAL:HG12	1:A:114:VAL:HG22	2.02	0.40
1:A:213:TYR:HB3	1:A:243:ILE:HD13	2.03	0.40
1:A:263:ALA:HB1	1:C:81:LEU:CD1	2.33	0.40
1:C:282:GLU:OE1	1:C:282:GLU:HA	2.21	0.40
1:D:47:ILE:CG1	1:D:48:ALA:N	2.84	0.40
1:D:256:ARG:NH2	1:D:311:MET:HG2	2.36	0.40
1:D:440:GLU:O	1:D:441:GLU:HG2	2.22	0.40
1:B:191:ARG:NH2	1:B:236:ASP:OD2	2.54	0.40
1:B:213:TYR:HB3	1:B:243:ILE:HD13	2.03	0.40
1:B:433:TRP:O	1:B:450:ARG:NH2	2.54	0.40
1:B:454:LEU:HD23	1:A:392:LEU:HD11	2.03	0.40
1:A:17:VAL:HG11	1:A:264:MET:HE2	2.03	0.40
1:A:95:PRO:HD3	1:A:128:TYR:CE2	2.57	0.40
1:A:96:ASP:OD1	1:A:115:VAL:HB	2.21	0.40
1:A:191:ARG:NH2	1:A:236:ASP:OD2	2.54	0.40
1:A:430:LEU:HD23	1:A:450:ARG:HA	2.03	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	456/478 (95%)	401 (88%)	53 (12%)	2 (0%)	30	63
1	B	456/478 (95%)	401 (88%)	55 (12%)	0	100	100
1	C	456/478 (95%)	401 (88%)	53 (12%)	2 (0%)	30	63
1	D	456/478 (95%)	397 (87%)	58 (13%)	1 (0%)	44	73
All	All	1824/1912 (95%)	1600 (88%)	219 (12%)	5 (0%)	38	67

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	343	ALA
1	A	344	LEU
1	C	344	LEU
1	D	327	GLN
1	C	345	VAL

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	351/365 (96%)	339 (97%)	12 (3%)	32	60
1	B	351/365 (96%)	340 (97%)	11 (3%)	35	62
1	C	351/365 (96%)	337 (96%)	14 (4%)	27	56
1	D	351/365 (96%)	340 (97%)	11 (3%)	35	62
All	All	1404/1460 (96%)	1356 (97%)	48 (3%)	34	60

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	16	LEU
1	B	35	GLU
1	B	185	THR
1	B	186	ILE
1	B	244	ILE
1	B	246	VAL
1	B	290	ILE
1	B	327	GLN
1	B	359	ILE
1	B	370	VAL
1	B	436	LEU
1	A	16	LEU
1	A	35	GLU
1	A	185	THR
1	A	186	ILE
1	A	244	ILE
1	A	246	VAL
1	A	290	ILE
1	A	327	GLN
1	A	341	LEU
1	A	359	ILE
1	A	370	VAL
1	A	436	LEU
1	C	16	LEU
1	C	35	GLU
1	C	185	THR
1	C	186	ILE
1	C	244	ILE
1	C	246	VAL
1	C	290	ILE
1	C	327	GLN
1	C	341	LEU
1	C	344	LEU
1	C	345	VAL
1	C	359	ILE
1	C	370	VAL
1	C	436	LEU
1	D	16	LEU
1	D	35	GLU
1	D	185	THR
1	D	186	ILE
1	D	244	ILE

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Mol	Chain	Res	Type
1	D	246	VAL
1	D	290	ILE
1	D	327	GLN
1	D	359	ILE
1	D	370	VAL
1	D	436	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	6	HIS
1	B	84	GLN
1	A	6	HIS
1	A	38	ASN
1	A	327	GLN
1	C	6	HIS
1	C	38	ASN
1	C	84	GLN
1	D	6	HIS
1	D	38	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	PLP	D	501	1	15,15,16	1.66	3 (20%)	20,22,23	1.02	1 (5%)
2	PLP	B	501	1	15,15,16	1.66	3 (20%)	20,22,23	1.02	1 (5%)
2	PLP	A	501	1	15,15,16	1.67	3 (20%)	20,22,23	1.02	1 (5%)
2	PLP	C	501	1	15,15,16	1.66	3 (20%)	20,22,23	1.01	1 (5%)

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	PLP	D	501	1	-	3/6/6/8	0/1/1/1
2	PLP	B	501	1	-	3/6/6/8	0/1/1/1
2	PLP	A	501	1	-	3/6/6/8	0/1/1/1
2	PLP	C	501	1	-	3/6/6/8	0/1/1/1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	PLP	C5-C4	-4.26	1.35	1.40
2	B	501	PLP	C5-C4	-4.25	1.35	1.40
2	C	501	PLP	C5-C4	-4.25	1.35	1.40
2	D	501	PLP	C5-C4	-4.22	1.35	1.40
2	A	501	PLP	C3-C2	-2.55	1.38	1.40
2	B	501	PLP	C3-C2	-2.50	1.38	1.40
2	D	501	PLP	C3-C2	-2.49	1.38	1.40
2	C	501	PLP	C3-C2	-2.47	1.38	1.40
2	D	501	PLP	C3-C4	-2.33	1.35	1.40
2	A	501	PLP	C3-C4	-2.31	1.35	1.40
2	B	501	PLP	C3-C4	-2.30	1.35	1.40
2	C	501	PLP	C3-C4	-2.28	1.35	1.40

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	501	PLP	C5-C6-N1	-2.36	119.89	123.82
2	A	501	PLP	C5-C6-N1	-2.36	119.89	123.82
2	B	501	PLP	C5-C6-N1	-2.35	119.90	123.82
2	C	501	PLP	C5-C6-N1	-2.33	119.94	123.82

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	501	PLP	C5A-O4P-P-O1P
2	B	501	PLP	C5A-O4P-P-O2P
2	B	501	PLP	C5A-O4P-P-O3P
2	A	501	PLP	C5A-O4P-P-O1P
2	A	501	PLP	C5A-O4P-P-O2P
2	A	501	PLP	C5A-O4P-P-O3P
2	C	501	PLP	C5A-O4P-P-O1P
2	C	501	PLP	C5A-O4P-P-O2P
2	C	501	PLP	C5A-O4P-P-O3P
2	D	501	PLP	C5A-O4P-P-O1P
2	D	501	PLP	C5A-O4P-P-O2P
2	D	501	PLP	C5A-O4P-P-O3P

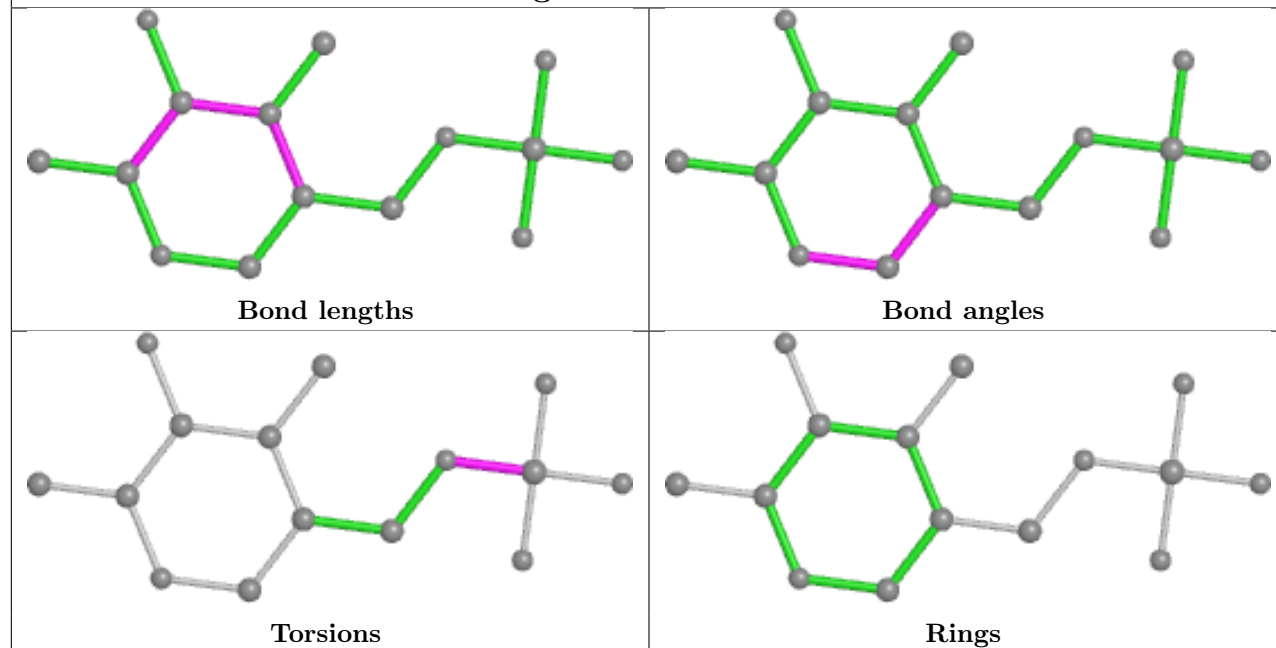
There are no ring outliers.

4 monomers are involved in 16 short contacts:

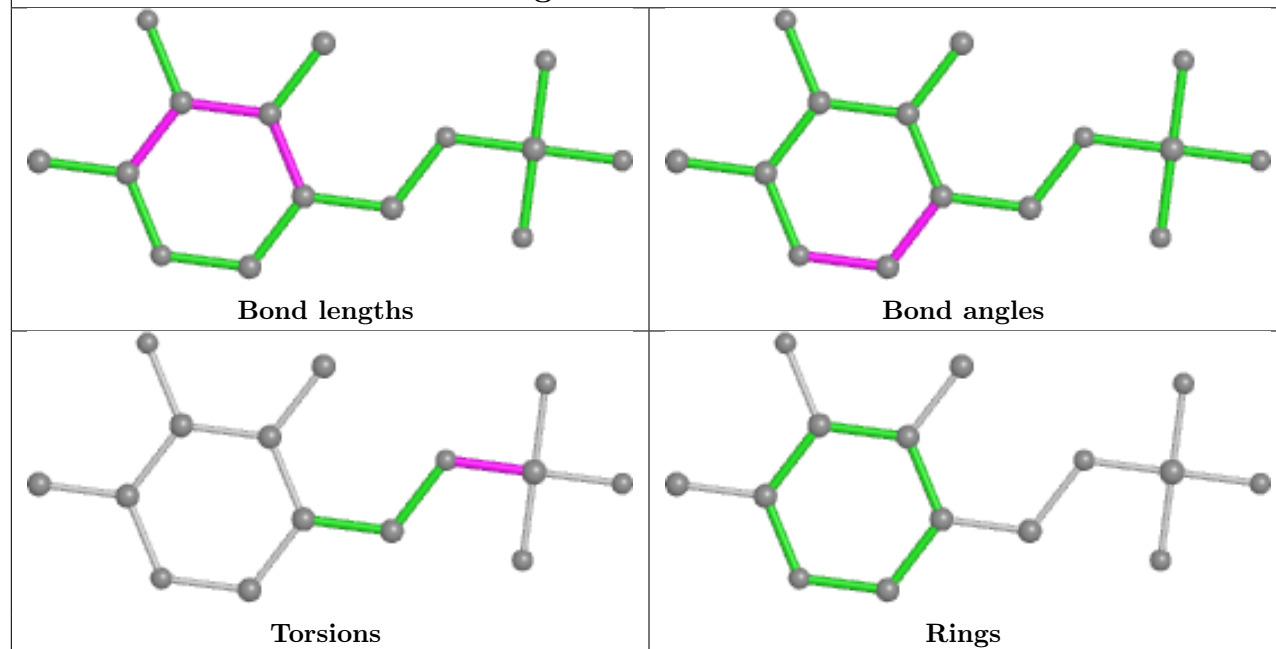
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	501	PLP	4	0
2	B	501	PLP	4	0
2	A	501	PLP	4	0
2	C	501	PLP	4	0

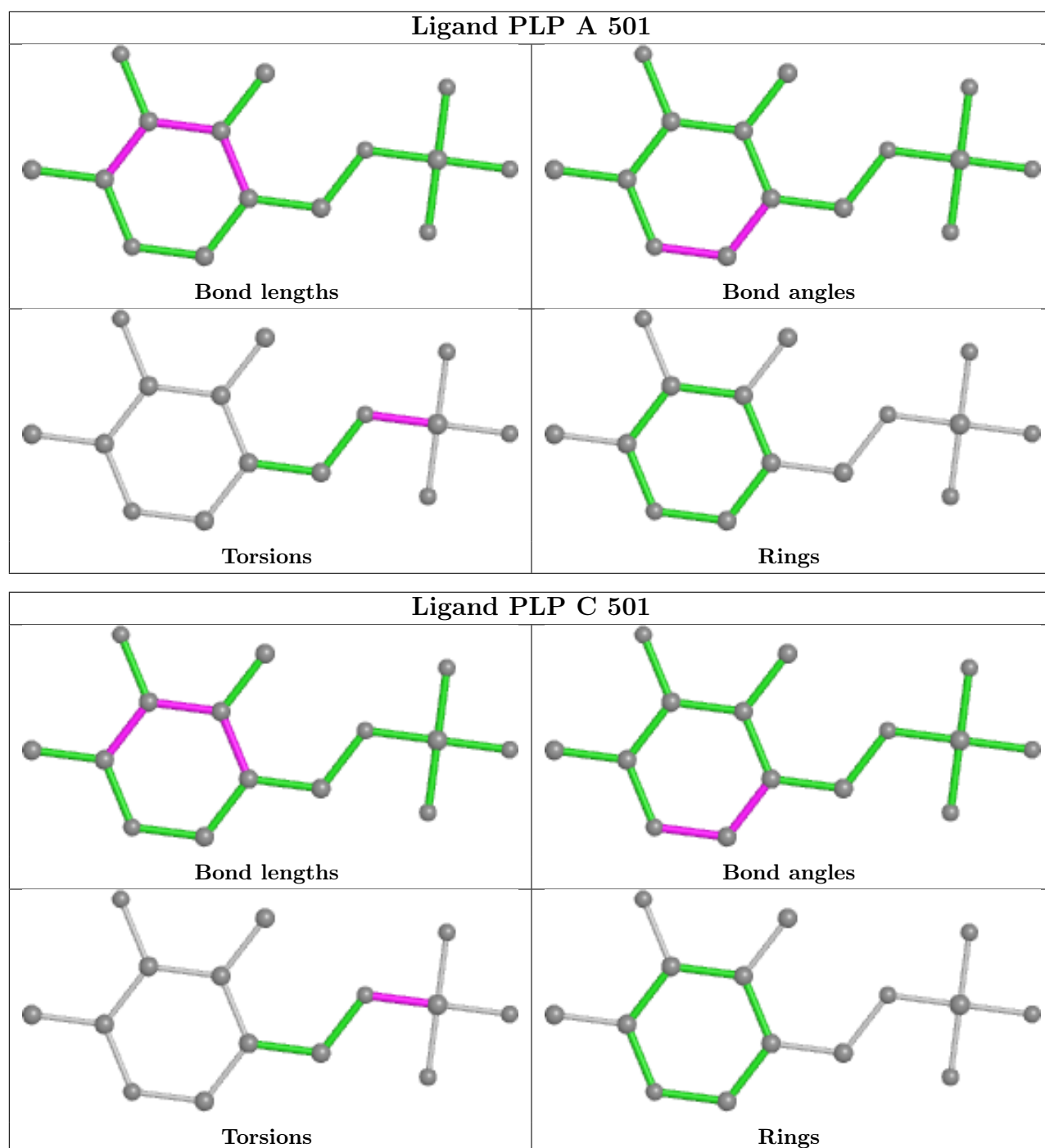
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

Ligand PLP D 501



Ligand PLP B 501





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.

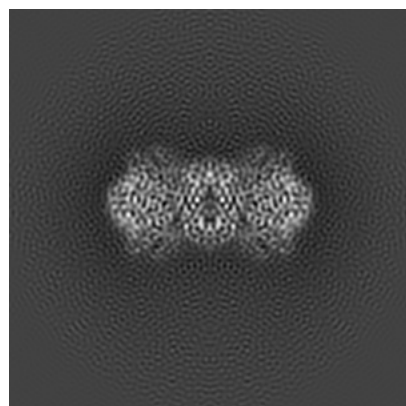
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-33331. These allow visual inspection of the internal detail of the map and identification of artifacts.

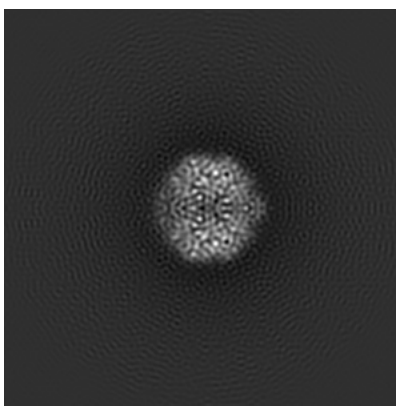
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

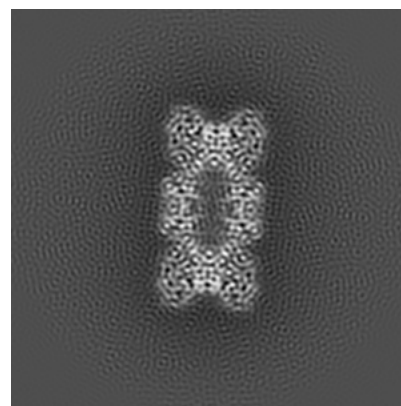
6.1.1 Primary map



X

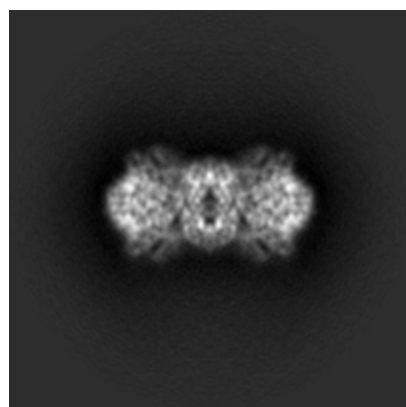


Y

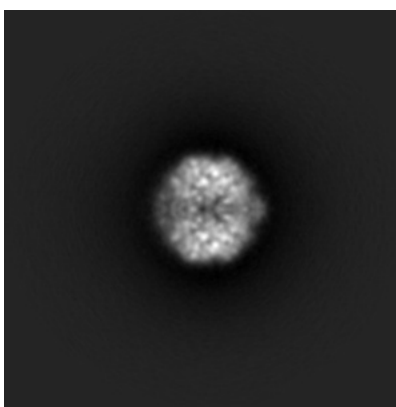


Z

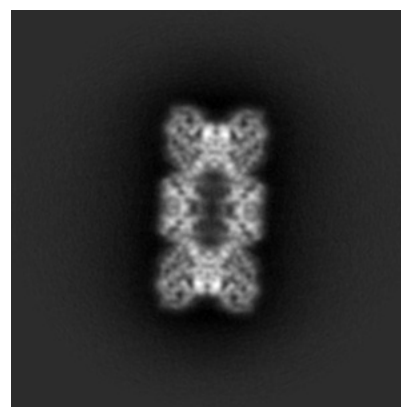
6.1.2 Raw map



X



Y

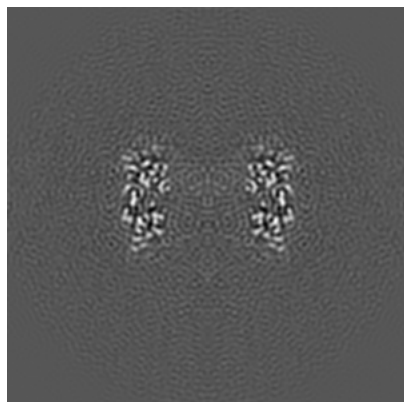


Z

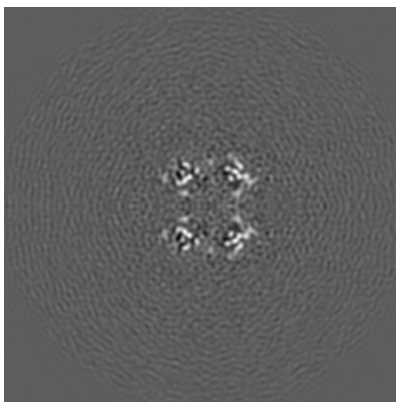
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

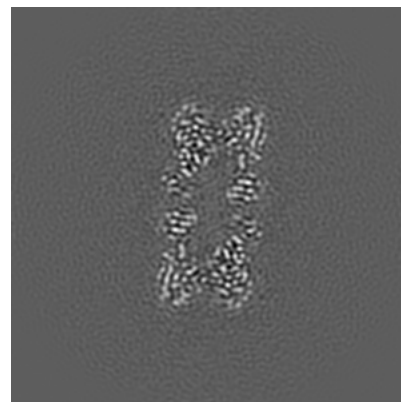
6.2.1 Primary map



X Index: 120

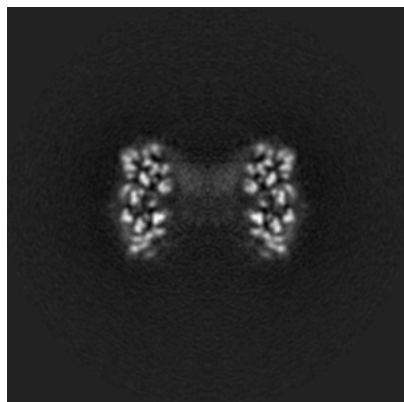


Y Index: 120

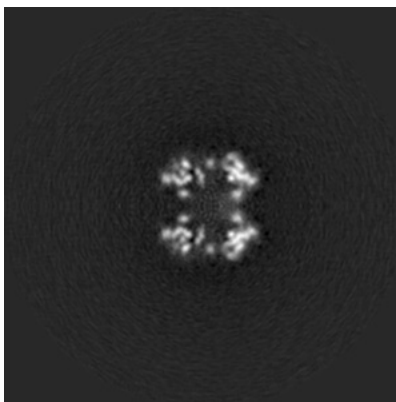


Z Index: 120

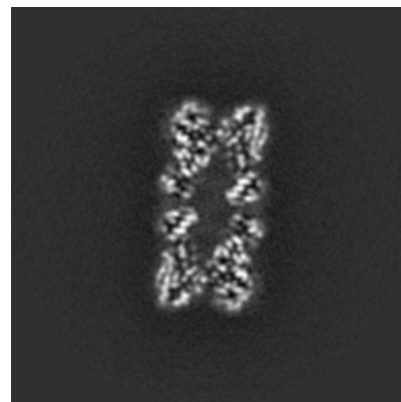
6.2.2 Raw map



X Index: 120



Y Index: 120

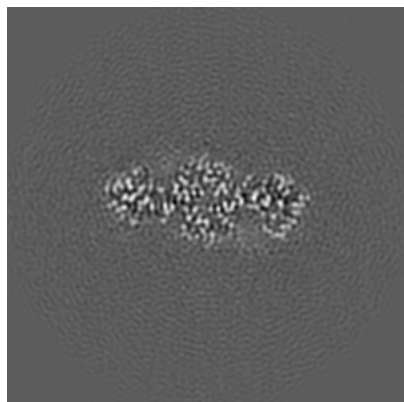


Z Index: 120

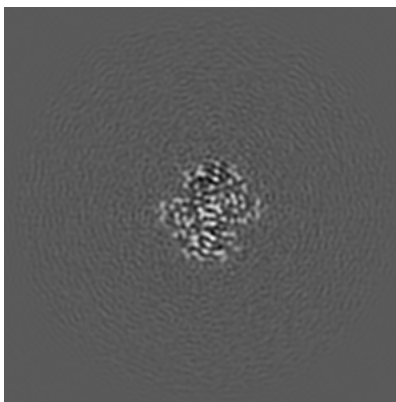
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

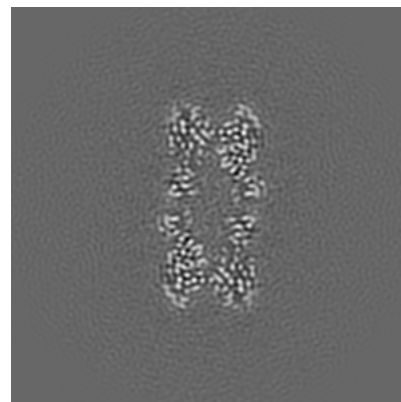
6.3.1 Primary map



X Index: 137

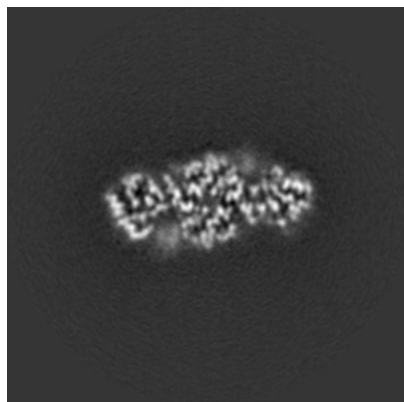


Y Index: 76

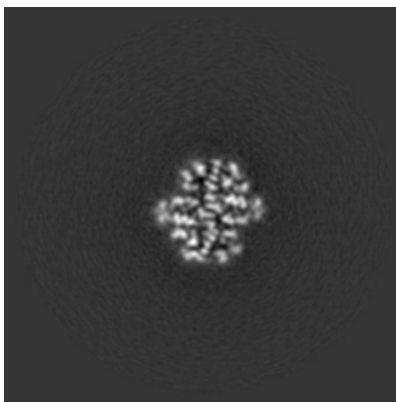


Z Index: 125

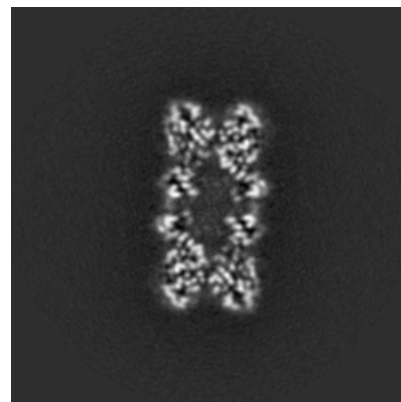
6.3.2 Raw map



X Index: 103



Y Index: 75

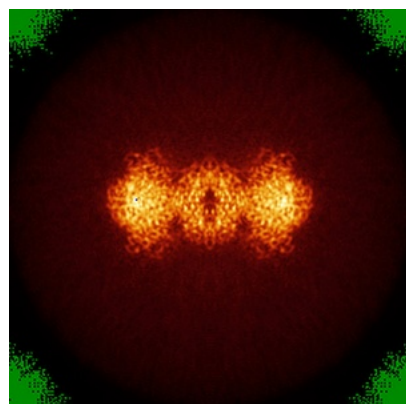


Z Index: 125

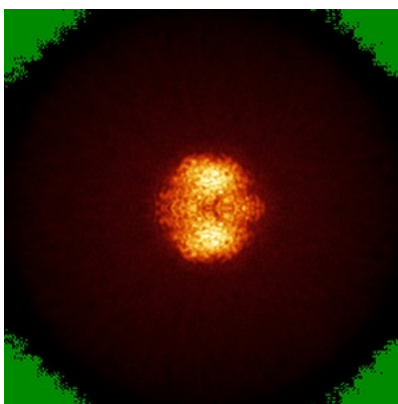
The images above show the largest variance slices of the map in three orthogonal directions.

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

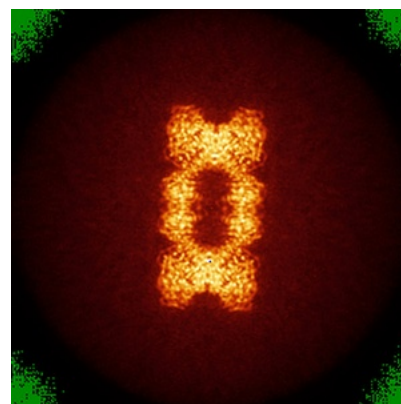
6.4.1 Primary map



X

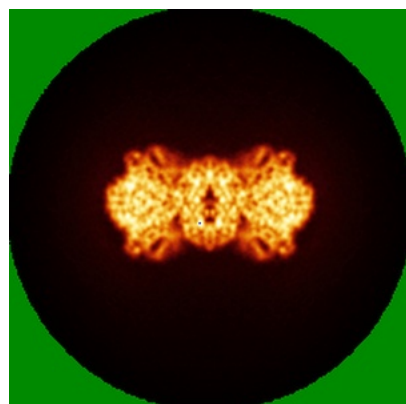


Y

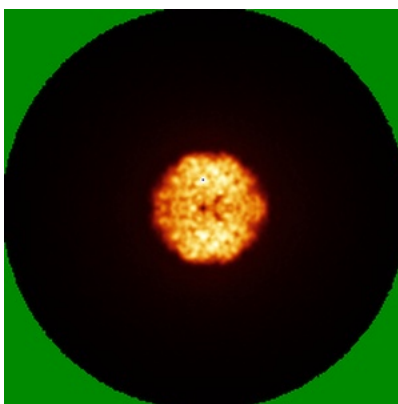


Z

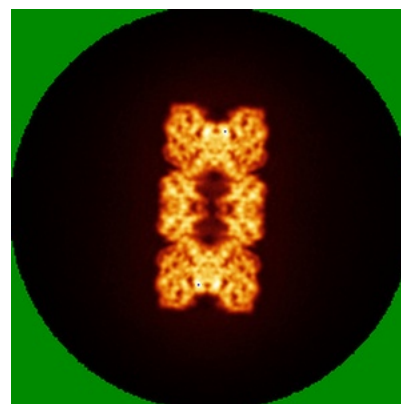
6.4.2 Raw map



X



Y

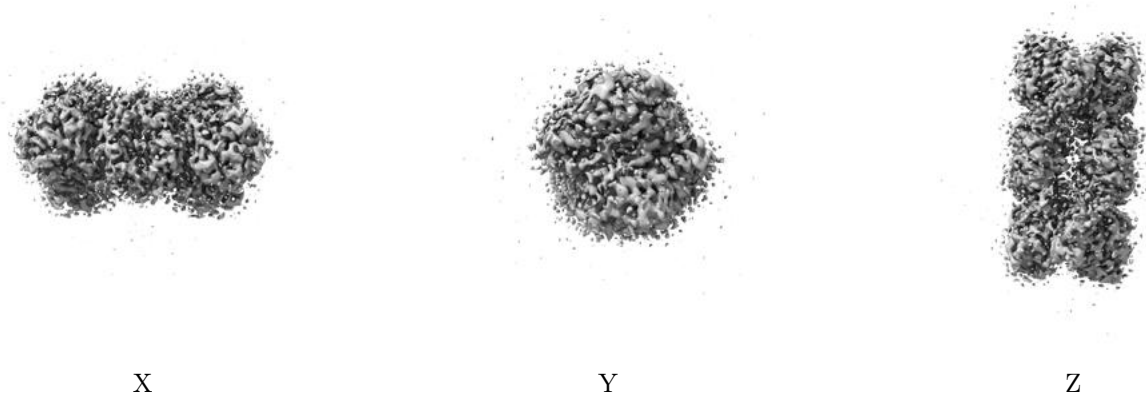


Z

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.

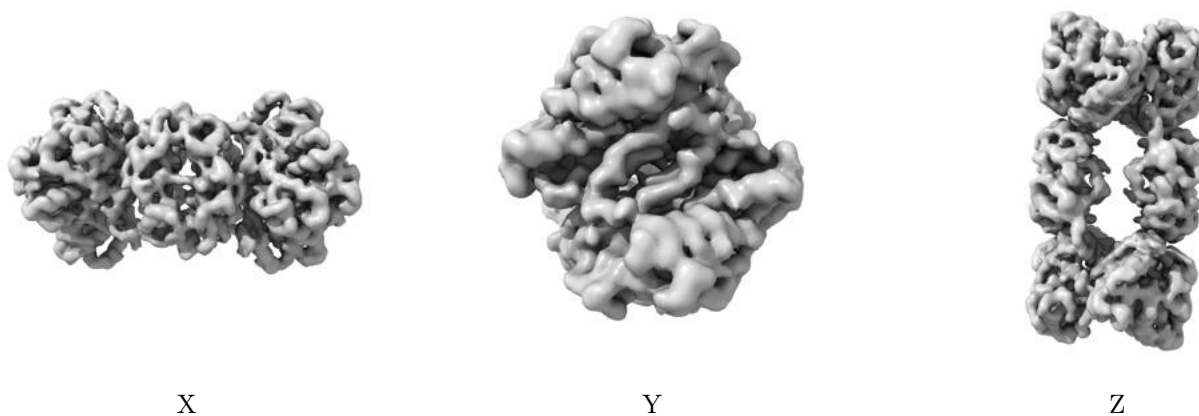
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0292. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

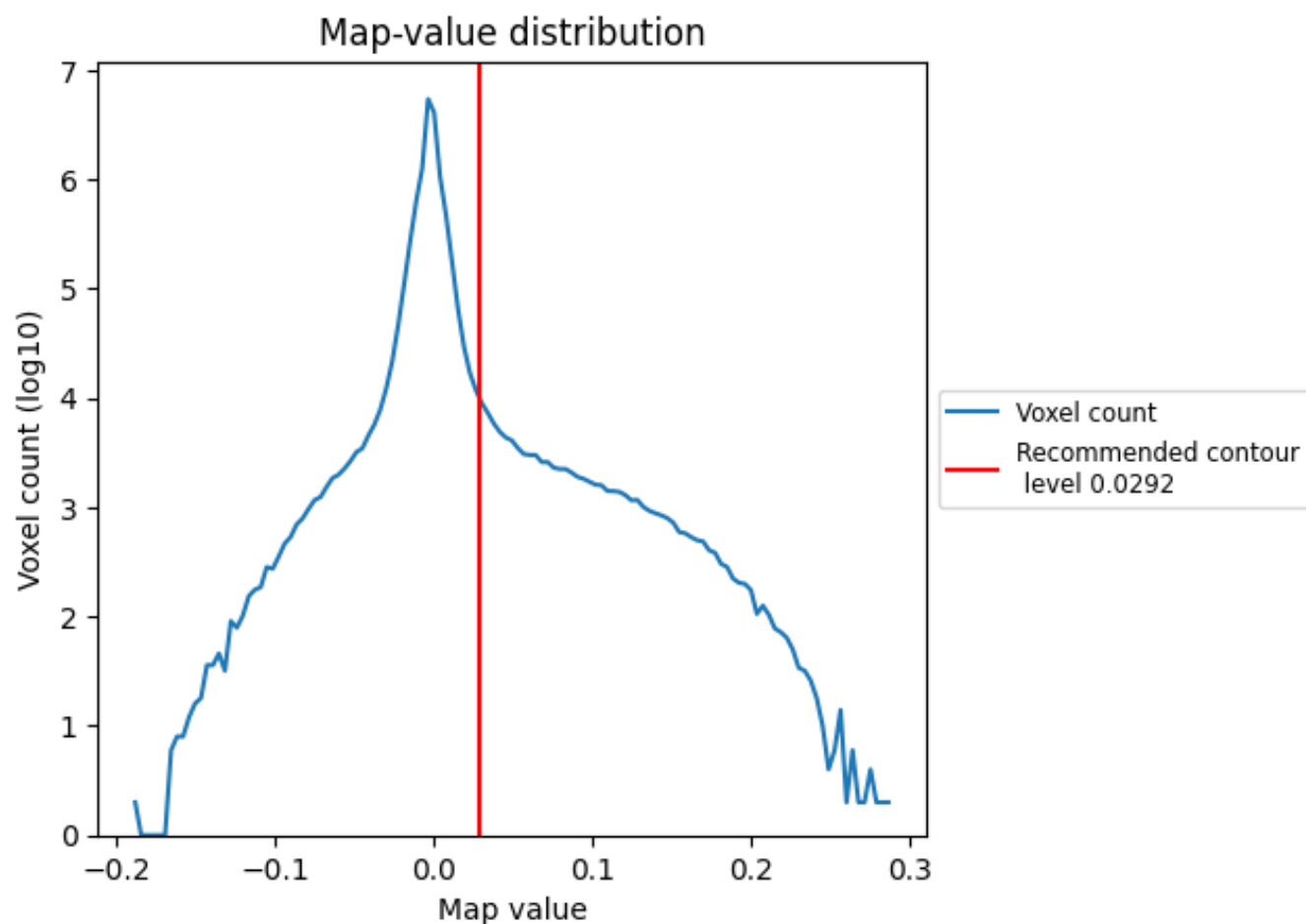
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

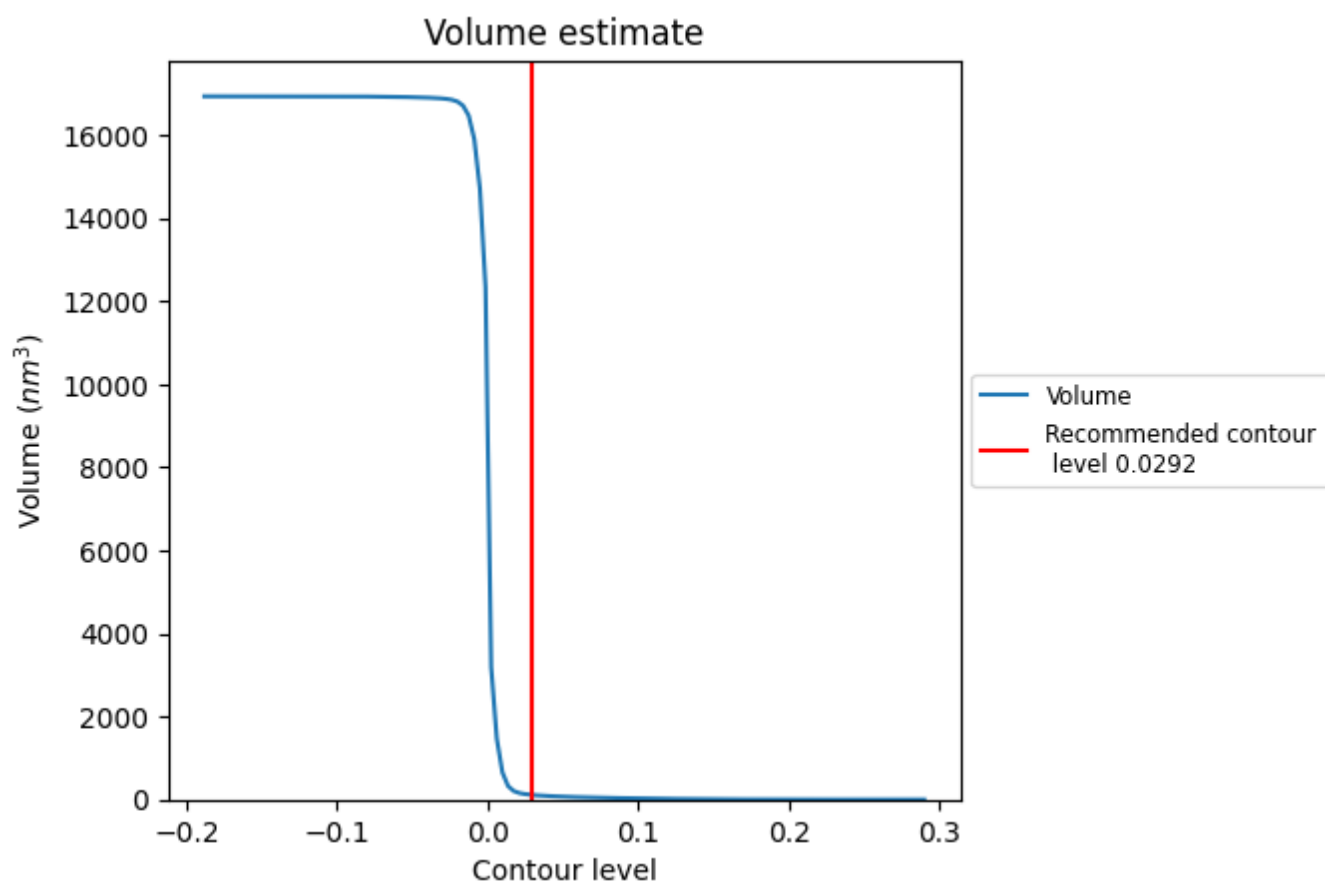
This section contains the results of statistical analysis of the map.

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.

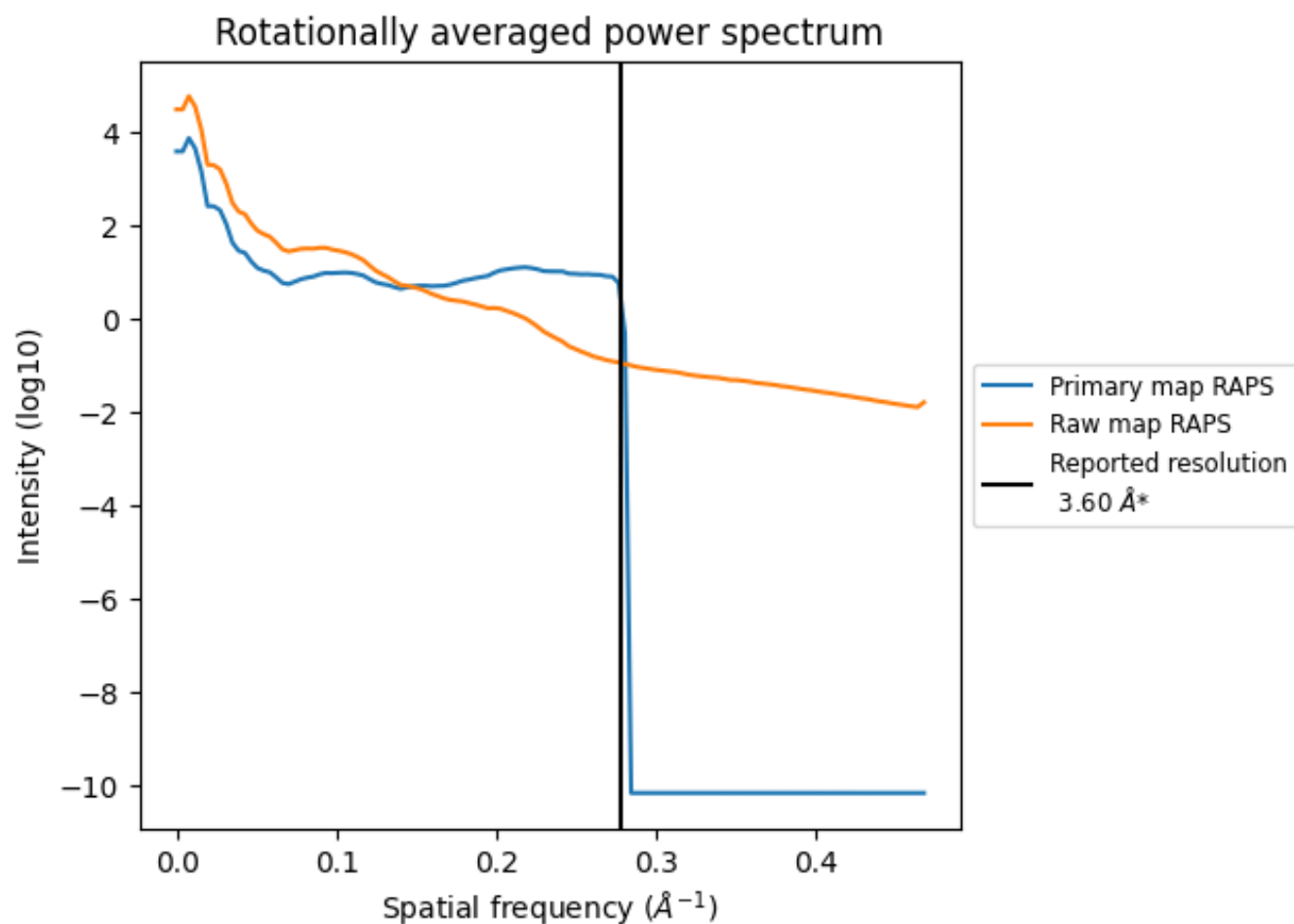
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 113 nm³; this corresponds to an approximate mass of 102 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 ⓘ

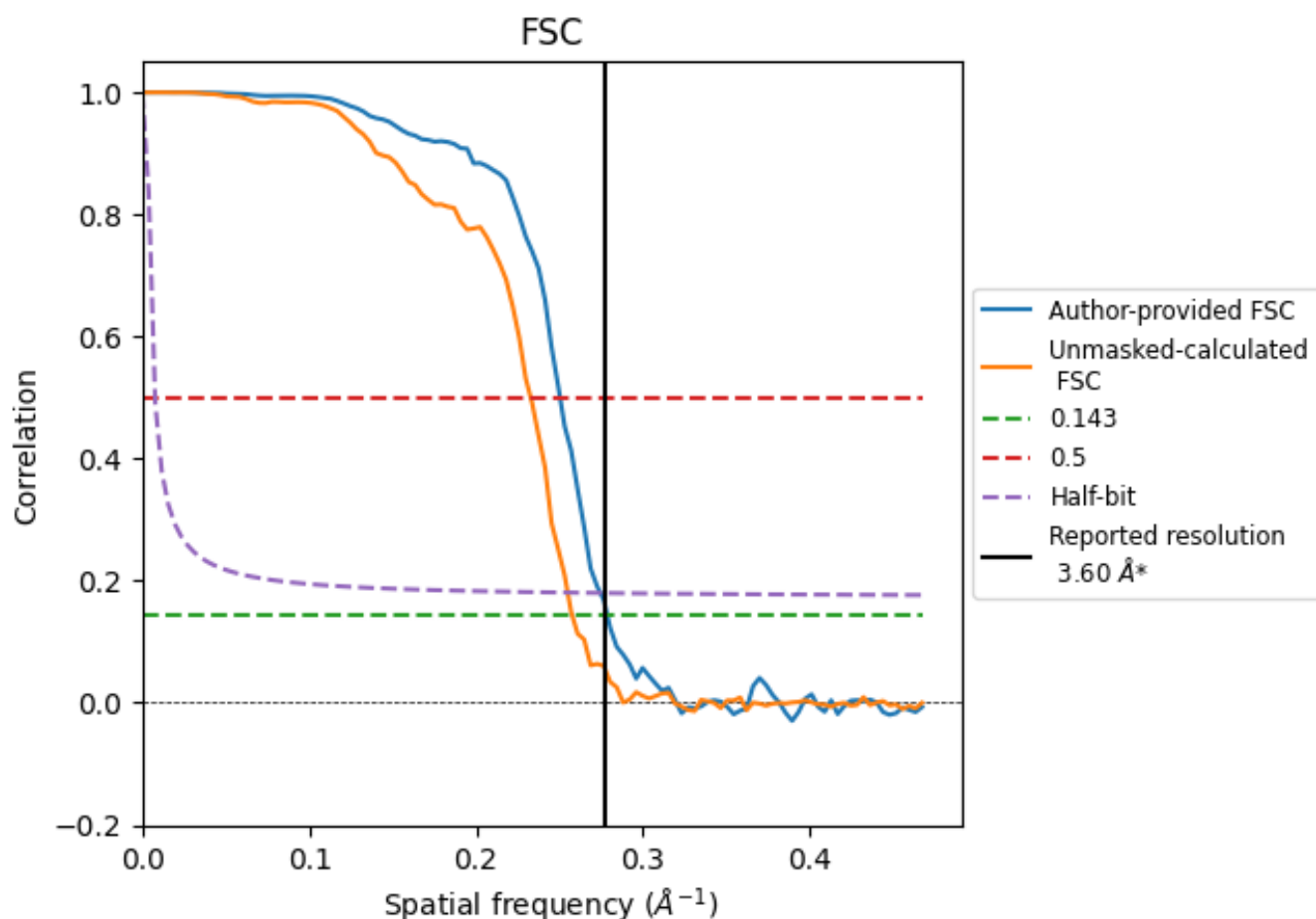


*Reported resolution corresponds to spatial frequency of 0.278 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.278 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

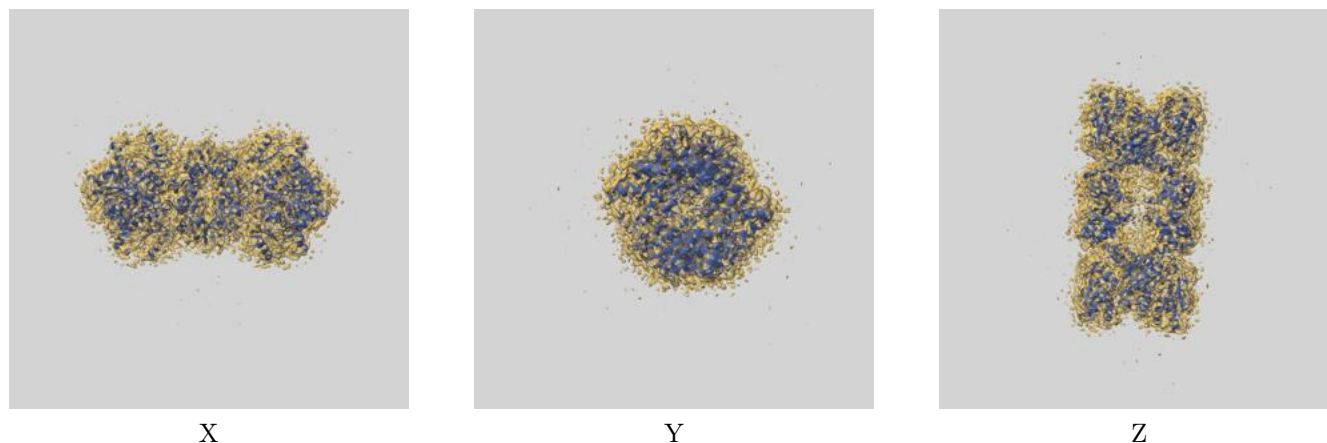
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.59	3.99	3.64
Unmasked-calculated*	3.88	4.30	3.92

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

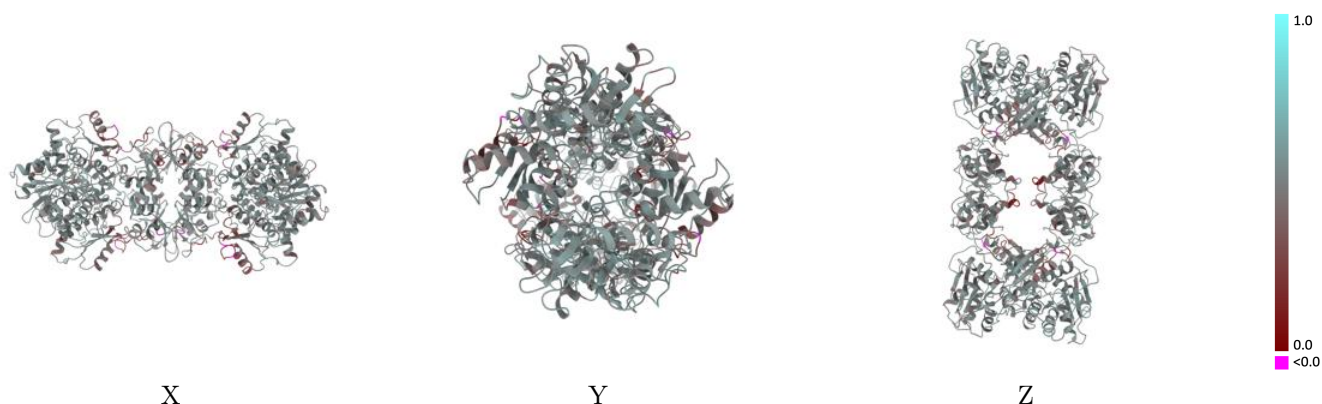
This section contains information regarding the fit between EMDB map EMD-33331 and PDB model 7XNZ. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



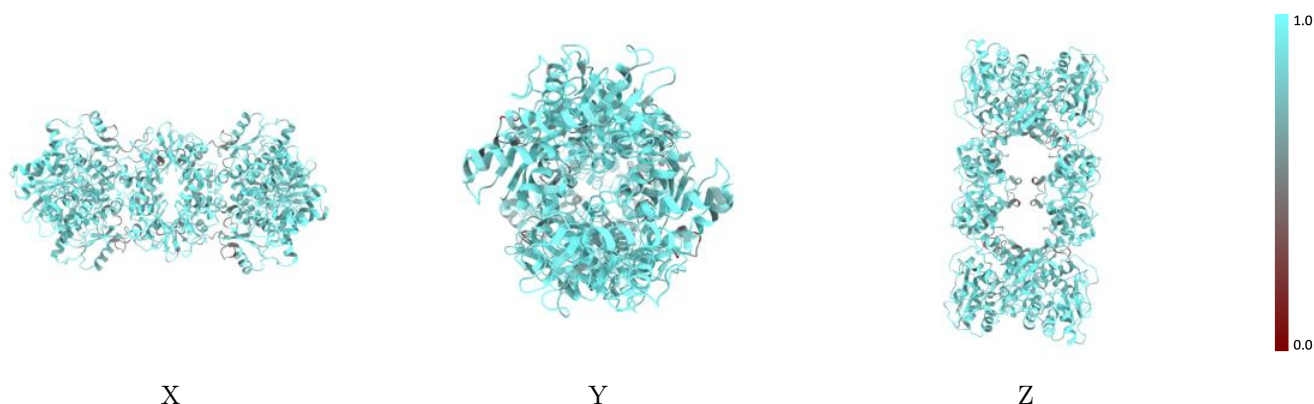
The images above show the 3D surface view of the map at the recommended contour level 0.0292 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



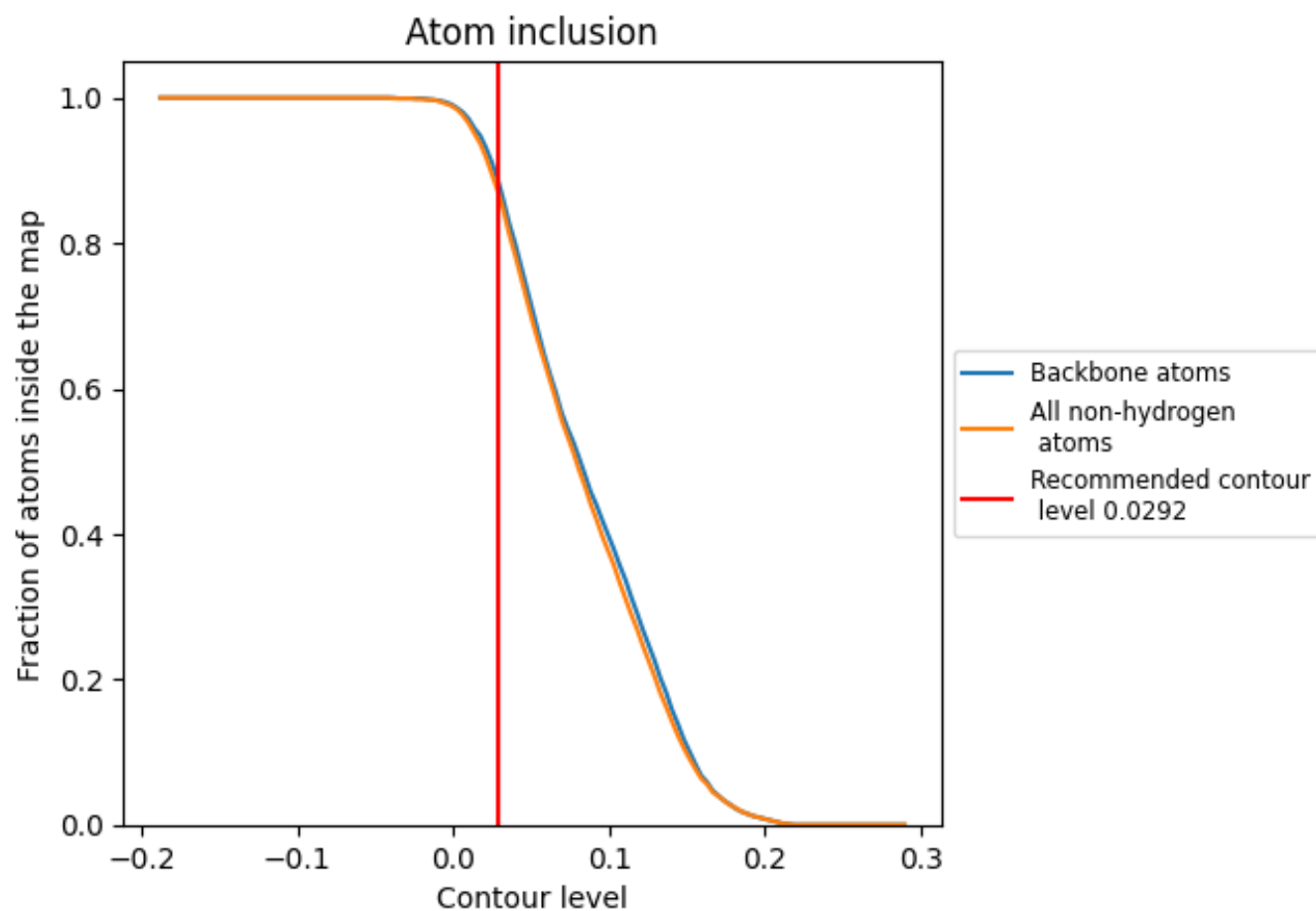
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0292).

9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 87% 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 (0.0292) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8680	0.4860
A	0.8650	0.4720
B	0.8830	0.5000
C	0.8820	0.5000
D	0.8640	0.4720

