W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

Full wwPDB EM Validation Report (i)

May 19, 2025 – 10:08 PM EDT

PDB ID	:	7L9P / pdb_00007l9p
EMDB ID	:	EMD-23244
Title	:	Structure of human SHLD2-SHLD3-REV7-TRIP13(E253Q) complex
Authors	:	Xie, W.; Patel, D.J.
Deposited on	:	2021-01-04
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 (i) 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 (i)) were used in the production of this report:

|		
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	2022.3.0, CSD as543be (2022)
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)	:	2.43.1

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.60 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.
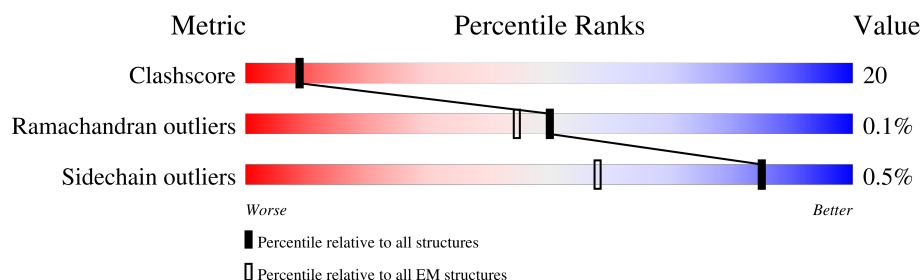
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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 <=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	432	10% / 47% 25% 29%
1	B	432	58% 34% • 8%
1	C	432	62% 29% • 8%
1	D	432	61% 31% • 8%
1	E	432	60% 31% 8%
1	F	432	20% / 39% 23% • 37%
2	G	211	26% / 48% 33% 18%
2	I	211	13% / 51% 38% • 10%

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Mol	Chain	Length	Quality of chain
2	J	211	9% 35% 26% 40%
2	K	211	14% 39% 21% 40%
3	X	99	25% 32% 31% 36%
3	Y	99	24% 37% 32% 30%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 21908 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 Pachytene checkpoint protein 2 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	308	Total 2301	C 1485	N 383	O 427	S 6	0	0
1	B	398	Total 3037	C 1940	N 524	O 565	S 8	0	0
1	C	398	Total 2995	C 1915	N 520	O 551	S 9	0	0
1	D	398	Total 3043	C 1949	N 519	O 568	S 7	0	0
1	E	398	Total 2982	C 1914	N 504	O 557	S 7	0	0
1	F	272	Total 2007	C 1285	N 336	O 380	S 6	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	SER	-	expression tag	UNP Q15645
A	253	GLN	GLU	engineered mutation	UNP Q15645
B	1	SER	-	expression tag	UNP Q15645
B	253	GLN	GLU	engineered mutation	UNP Q15645
C	1	SER	-	expression tag	UNP Q15645
C	253	GLN	GLU	engineered mutation	UNP Q15645
D	1	SER	-	expression tag	UNP Q15645
D	253	GLN	GLU	engineered mutation	UNP Q15645
E	1	SER	-	expression tag	UNP Q15645
E	253	GLN	GLU	engineered mutation	UNP Q15645
F	1	SER	-	expression tag	UNP Q15645
F	253	GLN	GLU	engineered mutation	UNP Q15645

- Molecule 2 is a protein called Mitotic spindle assembly checkpoint protein MAD2B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	G	172	Total 1199	C 764	N 198	O 231	S 6	0	0
2	I	189	Total 1325	C 846	N 224	O 247	S 8	0	0
2	J	127	Total 945	C 616	N 153	O 171	S 5	0	0
2	K	127	Total 929	C 604	N 148	O 170	S 7	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	1	SER	-	expression tag	UNP Q9UI95
I	1	SER	-	expression tag	UNP Q9UI95
J	1	SER	-	expression tag	UNP Q9UI95
K	1	SER	-	expression tag	UNP Q9UI95

- Molecule 3 is a protein called Shieldin complex subunit 2, Shieldin complex subunit 3 chimera.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	Y	69	Total 522	C 343	N 85	O 93	S 1	0	0
3	X	63	Total 468	C 304	N 80	O 83	S 1	0	0

There are 54 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	1	MET	-	initiating methionine	UNP Q86V20
Y	17	GLY	-	linker	UNP Q86V20
Y	18	SER	-	linker	UNP Q86V20
Y	19	GLY	-	linker	UNP Q86V20
Y	20	SER	-	linker	UNP Q86V20
Y	21	GLY	-	linker	UNP Q86V20
Y	22	SER	-	linker	UNP Q86V20
Y	23	GLY	-	linker	UNP Q86V20
Y	24	SER	-	linker	UNP Q86V20
Y	25	GLY	-	linker	UNP Q86V20
Y	26	SER	-	linker	UNP Q86V20
Y	27	GLY	-	linker	UNP Q86V20
Y	28	SER	-	linker	UNP Q86V20
Y	29	GLY	-	linker	UNP Q86V20
Y	30	SER	-	linker	UNP Q86V20

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Chain	Residue	Modelled	Actual	Comment	Reference
Y	31	GLY	-	linker	UNP Q86V20
Y	32	SER	-	linker	UNP Q86V20
Y	90	ALA	-	expression tag	UNP Q6ZNX1
Y	91	SER	-	expression tag	UNP Q6ZNX1
Y	92	ARG	-	expression tag	UNP Q6ZNX1
Y	93	GLU	-	expression tag	UNP Q6ZNX1
Y	94	GLU	-	expression tag	UNP Q6ZNX1
Y	95	ILE	-	expression tag	UNP Q6ZNX1
Y	96	MET	-	expression tag	UNP Q6ZNX1
Y	97	ALA	-	expression tag	UNP Q6ZNX1
Y	98	THR	-	expression tag	UNP Q6ZNX1
Y	99	LEU	-	expression tag	UNP Q6ZNX1
X	1	MET	-	initiating methionine	UNP Q86V20
X	17	GLY	-	linker	UNP Q86V20
X	18	SER	-	linker	UNP Q86V20
X	19	GLY	-	linker	UNP Q86V20
X	20	SER	-	linker	UNP Q86V20
X	21	GLY	-	linker	UNP Q86V20
X	22	SER	-	linker	UNP Q86V20
X	23	GLY	-	linker	UNP Q86V20
X	24	SER	-	linker	UNP Q86V20
X	25	GLY	-	linker	UNP Q86V20
X	26	SER	-	linker	UNP Q86V20
X	27	GLY	-	linker	UNP Q86V20
X	28	SER	-	linker	UNP Q86V20
X	29	GLY	-	linker	UNP Q86V20
X	30	SER	-	linker	UNP Q86V20
X	31	GLY	-	linker	UNP Q86V20
X	32	SER	-	linker	UNP Q86V20
X	90	ALA	-	expression tag	UNP Q6ZNX1
X	91	SER	-	expression tag	UNP Q6ZNX1
X	92	ARG	-	expression tag	UNP Q6ZNX1
X	93	GLU	-	expression tag	UNP Q6ZNX1
X	94	GLU	-	expression tag	UNP Q6ZNX1
X	95	ILE	-	expression tag	UNP Q6ZNX1
X	96	MET	-	expression tag	UNP Q6ZNX1
X	97	ALA	-	expression tag	UNP Q6ZNX1
X	98	THR	-	expression tag	UNP Q6ZNX1
X	99	LEU	-	expression tag	UNP Q6ZNX1

- Molecule 4 is PHOSPHOTHIOPHOSPHORIC ACID-ADENYLATE ESTER (CCD ID: AGS) (formula: $C_{10}H_{16}N_5O_{12}P_3S$) (labeled as "Ligand of Interest" by depositor).
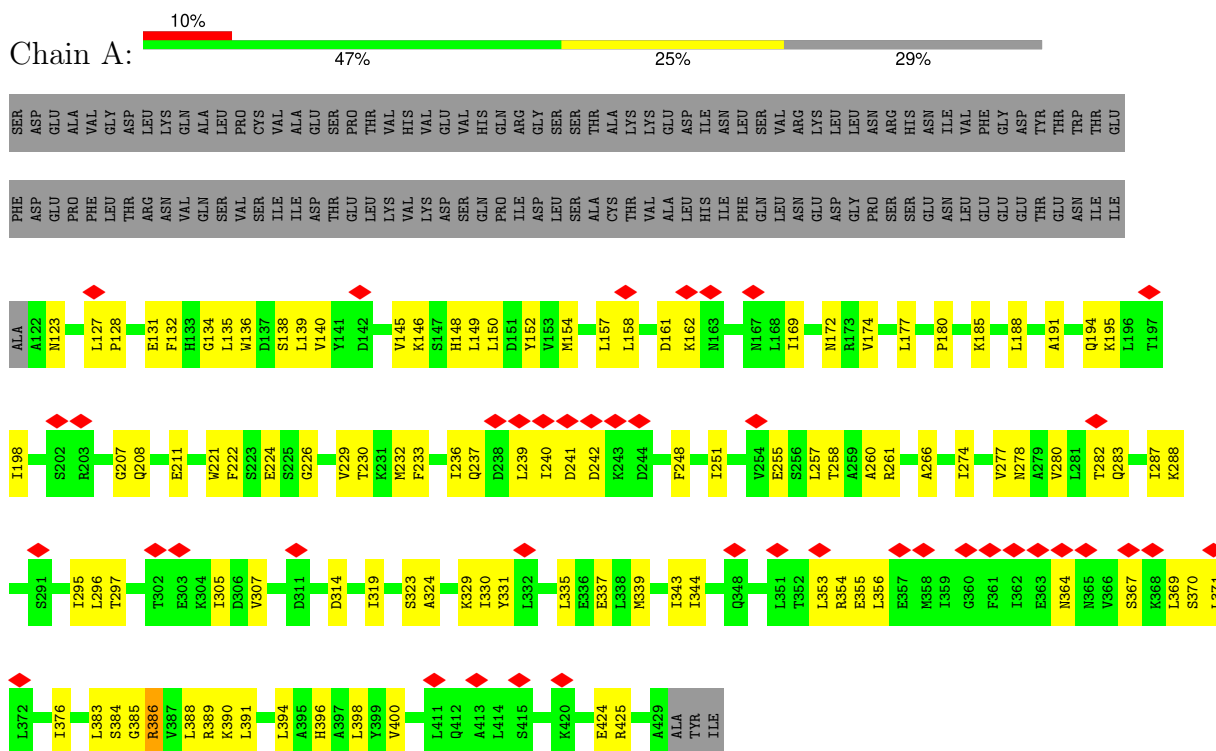
AGS
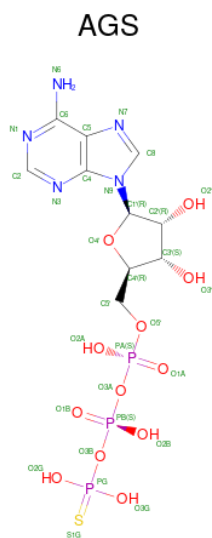
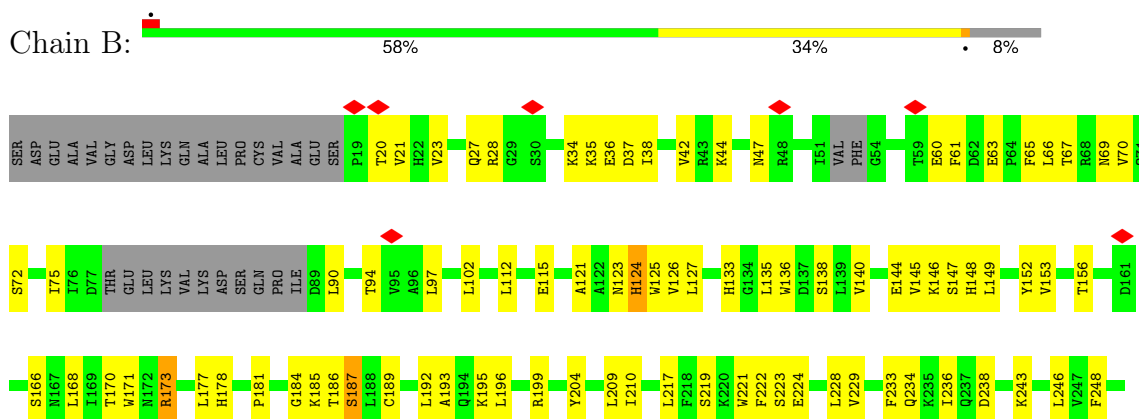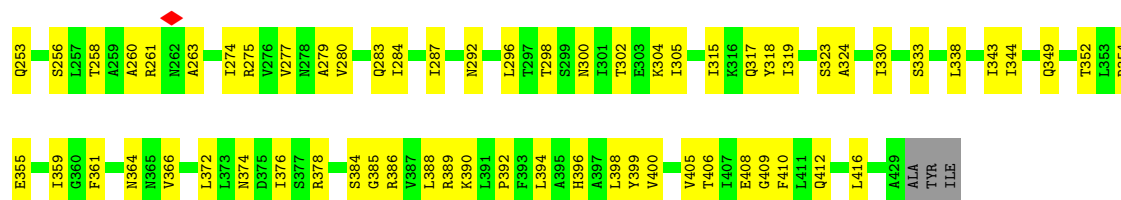| Mol	Chain	Residues	Atoms						AltConf
4	A	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
4	B	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
4	C	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
4	D	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
4	E	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

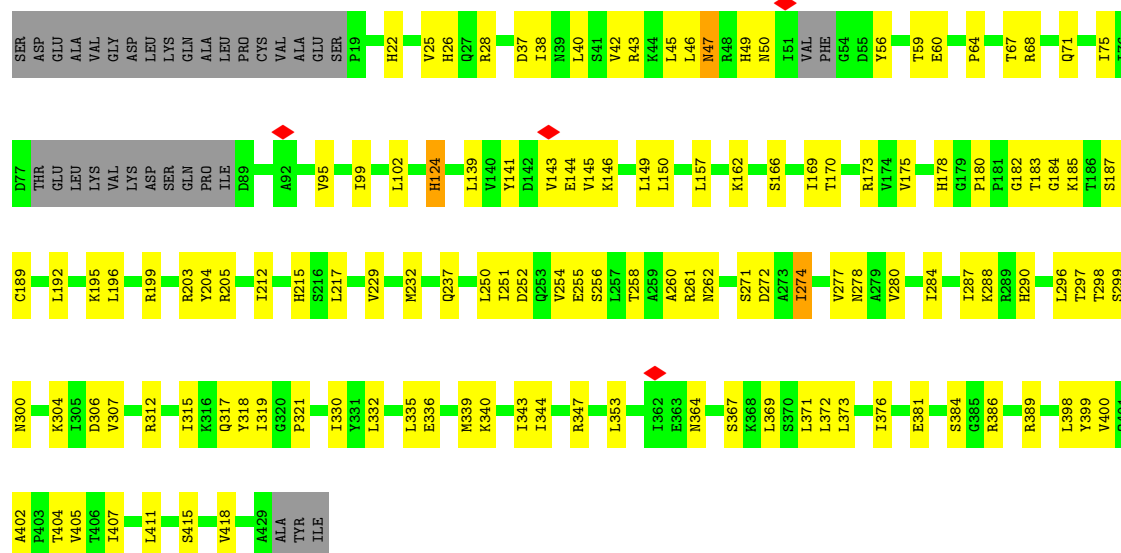- Molecule 1: Pachytene checkpoint protein 2 homolog

Chain A:

10%

47%   25%   29%

- Molecule 1: Pachytene checkpoint protein 2 homolog

Chain B:

58%   34%   8%

Q253 S256 L257 T258 A259 A260 R261 N262 A263 I274 R275 V276 V277 N278 A279 V280 Q283 I284 I287 N292 L296 T297 T298 S299 N300 I301 T302 E303 K304 I305 I315 K316 Q317 Y318 I319 S323 A324 I330 S333 L338 I343 I344 Q349 T352 L353 R354

E355 I359 G360 F361 N364 N365 V366 L372 L373 N374 D375 I376 S377 R378 S384 G385 R386 V387 L388 R389 K390 L391 P392 F393 L394 A395 H396 A397 L398 Y399 V400 V405 T406 I407 E408 G409 F410 L411 Q412 L416 A429 ALA TYR ILE

• Molecule 1: Pachytene checkpoint protein 2 homolog

Chain C:

62% 29% • 8%

SER ASP GLU ALA VAL GLY ASP LEU LYS GLN ALA LEU PRO CYS VAL ALA GLU SER P19 H22 V25 H26 Q27 R28 D37 I38 N39 L40 S41 V42 R43 K44 L45 L46 N47 R48 H49 N50 I51 VAL PHE G54 D55 Y56 T59 E60 P64 T67 R68 Q71 I75 I76

D77 THR GLU LEU LYS VAL LYS ASP SER GLN PRO ILE D89 A92 V95 I99 L102 H124 L139 V140 Y141 D142 V143 E144 V145 K146 L149 L150 L157 K162 S166 I169 T170 R173 V174 V175 H178 G179 P180 P181 G182 T183 G184 K185 T186 S187 L188

C189 L192 K195 L196 R199 R203 Y204 R205 I212 H215 S216 L217 V229 M232 Q237 L250 I251 D252 Q253 V254 E255 S256 L257 T258 A259 A260 R261 N262 S271 D272 A273 I274 V277 N278 A279 V280 I284 I287 R288 H290 L296 T297 T298 S299

N300 K304 I305 D306 V307 R312 I315 K316 Q317 Y318 I319 G320 P321 Y331 L332 L335 E336 M339 K340 I343 I344 R347 L353 I362 E363 N364 S367 K368 L369 S370 L371 L372 L373 I376 E381 S384 G385 R386 R389 L398 Y399 V400 Q401

A402 P403 T404 V405 T406 I407 L411 S415 V418 A429 ALA TYR ILE

• Molecule 1: Pachytene checkpoint protein 2 homolog

Chain D:

61% 31% • 8%

SER ASP GLU ALA VAL GLY ASP LEU LYS GLN ALA LEU PRO CYS VAL ALA GLU SER P19 V25 H26 Q27 S31 D37 L45 L46 N47 R48 I51 VAL PHE G54 D55 Y56 T57 W58 F61 L66 N69 V73 S74 I75 I76 D77 THR GLU LEU LYS VAL LYS ASP

SER GLN PRO ILE D89 L90 S91 T94 I99 L102 N103 S109 L112 E113 E114 E115 T116 I120 A121 A122 N123 H124 W125 V126 L127 P128 A129 A130 L139 V140 Y141 M154 D161 K162 L168 I169 V175 L176 L177 H178 G182 T183 G184 K185 T186 S187 L188 C189

Q194 T197 I198 R199 L200 R203 Q208 L209 I210 E211 L217 K220 W221 E224 S225 G226 K227 L228 K231 M232 F233 Q234 K235 I236 I240 V249 L250 I251 D252 Q253 V254 E255 S256 L257 R261 R265 A266 G267 T268 N278 A279 Q283 I287 V293

V294 I295 L296 T297 T298 S299 N300 I301 T302 D306 R312 I315 K316 Q317 Y318 I319 A324 A325 A326 I327 F328 K329 I330 C334 L335 E336 E337 L338 M339 I344 Q349 L350 L351 T352 E355 L356 I359 G360 F361 I362 E363 N364 N365 V366 L369 L372 L373 N374

R386 V387 L388 R389 K390 L391 P392 H396 Q401 V405 T406 I407 F410 L411 L428 A429 ALA TYR ILE

• Molecule 1: Pachytene checkpoint protein 2 homolog

Chain E:

• Molecule 1: Pachytene checkpoint protein 2 homolog

Chain F:

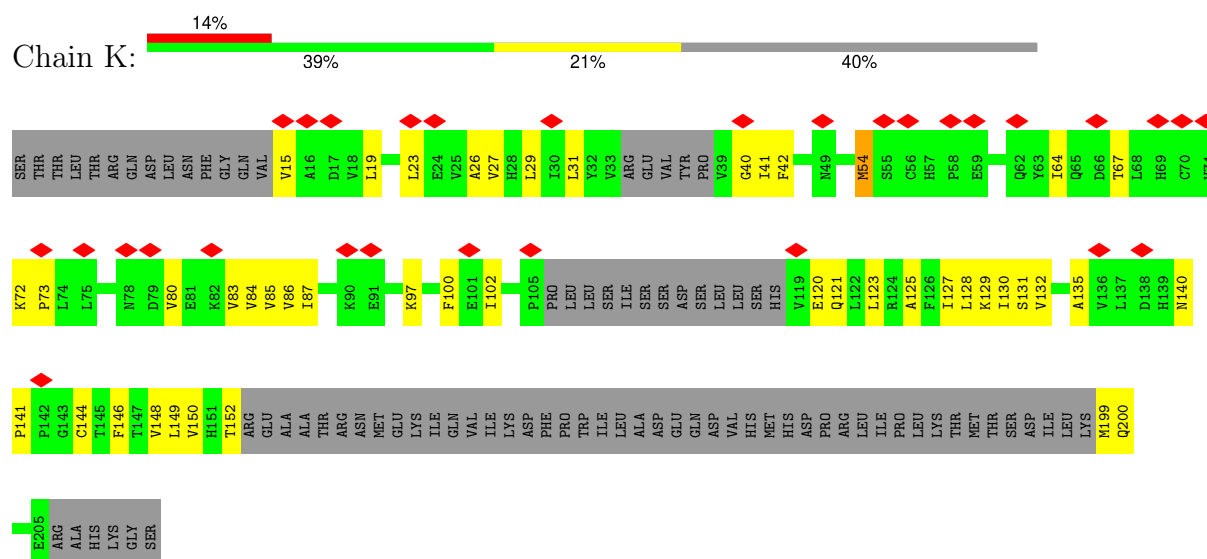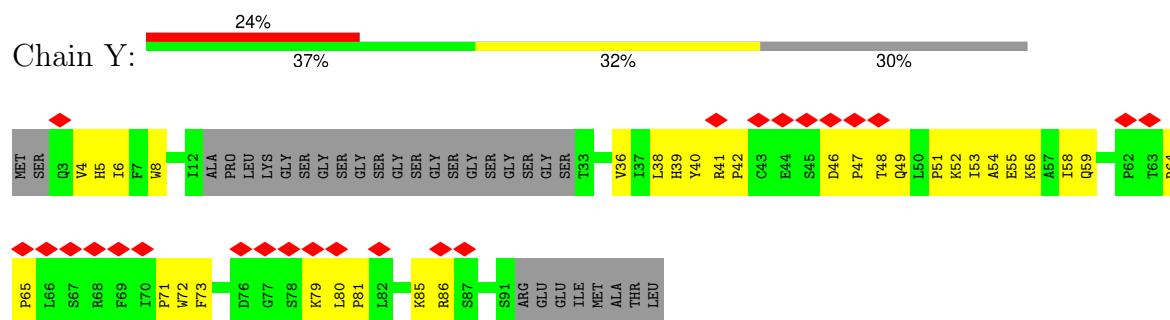
• Molecule 2: Mitotic spindle assembly checkpoint protein MAD2B

Chain G:

• Molecule 2: Mitotic spindle assembly checkpoint protein MAD2B

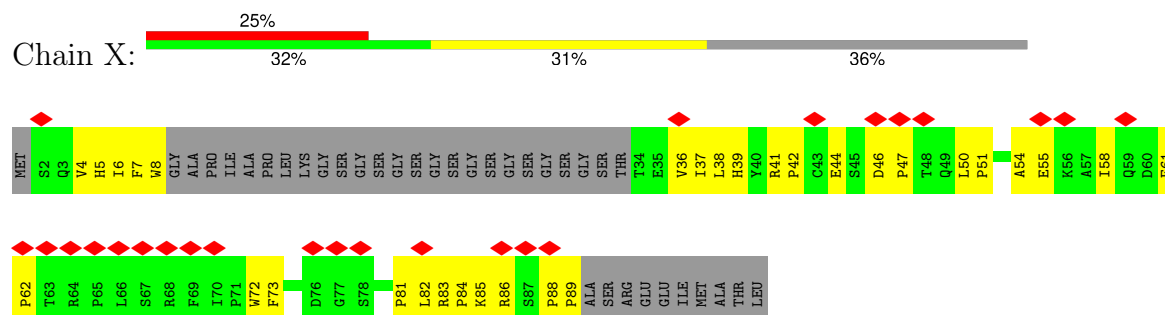**Chain I:**

13%

51% 38% • 10%

• Molecule 2: Mitotic spindle assembly checkpoint protein MAD2B

Chain J:

9%

35% 26% 40%

• Molecule 2: Mitotic spindle assembly checkpoint protein MAD2B

Chain K:

14%

39%　　21%　　40%

SER THR THR LEU THR ARG GLN ASP LEU ASN PHE GLY GLN VAL V15 A16 D17 V18 L19 L23 E24 V25 A26 V27 H28 L29 I30 L31 Y32 V33 ARG GLU VAL TYR PRO V39 G40 I41 F42 N49 M54 S55 C56 H57 P58 E59 Q62 Y63 I64 Q65 D66 T67 L68 H69 C70 V71

K72 P73 L74 L75 N78 D79 V80 E81 K82 V83 V84 V85 V86 I87 K90 E91 K97 F100 E101 I102 P105 PRO LEU LEU SER ILE SER ASP SER LEU LEU SER HIS V119 E120 Q121 L122 L123 R124 A125 F126 I127 L128 K129 I130 S131 V132 A135 V136 L137 D138 H139 N140

P141 P142 G143 C144 T145 F146 T147 V148 L149 V150 H151 T152 ARG GLU ALA ALA THR ARG ASN MET GLU LYS ILE GLN VAL ILE LYS ASP PHE PRO TRP ILE LEU ALA ASP GLU GLN ASP VAL HIS MET HIS ASP PRO ARG LEU ILE PRO LEU LYS THR MET THR SER ASP ILE LEU LYS M199 Q200

E205 ARG ALA HIS LYS GLY SER

• Molecule 3: Shieldin complex subunit 2, Shieldin complex subunit 3 chimera

Chain Y:

24%

37%　　32%　　30%

MET SER Q3 V4 H5 I6 F7 W8 I12 ALA PRO LEU LYS GLY SER GLY SER GLY SER GLY SER GLY SER GLY SER GLY SER T33 V36 I37 L38 H39 Y40 R41 P42 C43 E44 S45 D46 P47 T48 Q49 L50 P51 K52 I53 A54 E55 K56 A57 I58 Q59 P62 T63 R64

P65 L66 S67 R68 F69 I70 P71 W72 F73 D76 G77 S78 K79 L80 P81 L82 K85 R86 S87 S91 ARG GLU GLU ILE MET ALA THR LEU

• Molecule 3: Shieldin complex subunit 2, Shieldin complex subunit 3 chimera

Chain X:

25%

32%　　31%　　36%

MET S2 Q3 V4 H5 I6 F7 W8 GLY ALA PRO ILE ALA PRO LEU LYS GLY SER GLY SER GLY SER GLY SER GLY SER GLY SER GLY SER THR T34 E35 V36 I37 L38 H39 Y40 R41 P42 C43 E44 S45 D46 P47 T48 Q49 L50 P51 A54 E55 K56 A57 I58 Q59 D60 F61

P62 T63 R64 P65 L66 S67 R68 F69 I70 P71 W72 F73 D76 G77 S78 P81 L82 R83 P84 K85 R86 S87 P88 P89 ALA SER ARG GLU GLU ILE MET ALA THR LEU

4   Experimental information   ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	104023	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 $(e^-/\text{Å}^2)$	53	Depositor
Minimum defocus (nm)	-1000	Depositor
Maximum defocus (nm)	-2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	36.672	Depositor
Minimum map value	-21.230	Depositor
Average map value	0.002	Depositor
Map value standard deviation	1.034	Depositor
Recommended contour level	4	Depositor
Map size (Å)	255.36, 255.36, 255.36	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.064, 1.064, 1.064	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: AGS

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	0.28	0/2344	0.59	0/3200
1	B	0.26	0/3090	0.61	2/4203 (0.0%)
1	C	0.25	0/3047	0.55	1/4148 (0.0%)
1	D	0.28	0/3097	0.57	3/4213 (0.1%)
1	E	0.26	0/3035	0.57	0/4140
1	F	0.31	0/2039	0.72	6/2785 (0.2%)
2	G	0.26	0/1215	0.71	1/1674 (0.1%)
2	I	0.31	0/1349	0.75	3/1858 (0.2%)
2	J	0.26	0/957	0.67	0/1307
2	K	0.26	0/944	0.69	0/1294
3	X	0.32	0/486	0.74	2/670 (0.3%)
3	Y	0.27	0/544	0.71	0/750
All	All	0.27	0/22147	0.63	18/30242 (0.1%)

There are no bond length outliers.

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	14	VAL	N-CA-C	-8.70	104.42	112.43
2	I	7	GLN	N-CA-C	7.25	122.06	107.41
1	B	173	ARG	N-CA-C	7.22	121.68	113.01
1	D	316	LYS	N-CA-C	-6.80	96.12	108.02
2	G	35	GLU	N-CA-C	6.30	120.28	112.47
1	F	276	VAL	CA-C-N	6.24	133.21	121.97
1	F	276	VAL	C-N-CA	6.24	133.21	121.97
2	I	206	ARG	N-CA-C	-6.14	93.82	111.00
3	X	86	ARG	CA-C-N	5.96	139.65	122.38
3	X	86	ARG	C-N-CA	5.96	139.65	122.38
1	D	407	ILE	N-CA-C	-5.72	102.20	109.58
1	F	349	GLN	N-CA-C	5.56	118.02	109.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	274	ILE	N-CA-C	-5.53	106.95	113.42
1	F	276	VAL	N-CA-C	-5.45	98.00	109.34
1	F	290	HIS	N-CA-C	5.39	117.15	111.28
1	D	407	ILE	CA-C-O	-5.21	115.65	121.23
1	F	280	VAL	CB-CA-C	-5.09	102.94	111.29
1	B	187	SER	N-CA-C	-5.03	107.00	114.64

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	2301	0	2248	92	0
1	B	3037	0	2992	122	0
1	C	2995	0	2927	114	0
1	D	3043	0	3003	117	0
1	E	2982	0	2905	120	0
1	F	2007	0	1898	84	0
2	G	1199	0	1075	58	0
2	I	1325	0	1170	79	0
2	J	945	0	912	45	0
2	K	929	0	874	48	0
3	X	468	0	418	33	0
3	Y	522	0	474	39	0
4	A	31	0	11	2	0
4	B	31	0	12	7	0
4	C	31	0	12	7	0
4	D	31	0	11	8	0
4	E	31	0	12	1	0
All	All	21908	0	20954	877	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 20.

All (877) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:398:LEU:CD1	1:E:420:LYS:HE3	1.68	1.24
1:B:330:ILE:HD11	4:B:901:AGS:N1	1.53	1.20
1:E:398:LEU:HD11	1:E:420:LYS:HE3	1.31	1.12
1:D:283:GLN:HA	1:D:283:GLN:HE21	1.22	1.04
2:K:42:PHE:CD2	2:K:54:MET:C	2.38	1.02
1:B:330:ILE:CD1	4:B:901:AGS:N1	2.23	1.01
2:G:67:THR:O	2:G:71:VAL:HG23	1.67	0.94
1:A:386:ARG:HG3	1:A:386:ARG:HH11	1.35	0.92
2:K:42:PHE:HD2	2:K:54:MET:C	1.78	0.91
1:B:300:ASN:ND2	4:B:901:AGS:S1G	2.44	0.90
2:K:42:PHE:CD2	2:K:54:MET:O	2.24	0.90
1:B:63:GLU:O	1:B:67:THR:HG23	1.69	0.90
1:C:386:ARG:HH12	1:D:312:ARG:HH21	1.20	0.87
1:B:27:GLN:HA	1:B:70:VAL:HA	1.59	0.85
2:I:103:THR:O	2:I:198:LYS:CB	2.27	0.82
1:D:389:ARG:NH1	4:D:901:AGS:H2	1.94	0.82
4:D:901:AGS:S1G	4:D:901:AGS:O2B	2.38	0.82
1:A:177:LEU:HD12	1:A:319:ILE:HD11	1.62	0.81
2:G:83:VAL:O	2:G:100:PHE:HB2	1.80	0.81
1:F:123:ASN:HD21	1:F:125:TRP:NE1	1.79	0.81
2:I:23:LEU:O	2:I:27:VAL:N	2.11	0.80
1:D:58:TRP:HB3	1:D:61:PHE:HE1	1.48	0.79
1:F:348:GLN:CB	1:F:407:ILE:HG13	2.13	0.78
1:F:347:ARG:CZ	1:F:347:ARG:HB3	2.13	0.77
1:E:398:LEU:HD12	1:E:420:LYS:HE3	1.64	0.77
1:D:387:VAL:HA	1:D:390:LYS:HD2	1.66	0.76
2:I:86:VAL:HG13	2:I:94:PRO:HB3	1.68	0.76
2:I:123:LEU:HA	2:I:126:PHE:HB2	1.67	0.76
1:F:229:VAL:HG21	1:F:280:VAL:HG22	1.66	0.76
2:K:80:VAL:HA	2:K:152:THR:HA	1.68	0.76
1:C:389:ARG:HD2	4:C:901:AGS:O2'	1.86	0.76
1:A:261:ARG:HA	1:A:274:ILE:HG12	1.68	0.75
1:C:344:ILE:HD13	1:C:407:ILE:HD11	1.66	0.75
1:E:145:VAL:CG1	1:E:188:LEU:HD21	2.17	0.74
1:C:330:ILE:HD11	4:C:901:AGS:N1	2.03	0.73
1:F:229:VAL:HG11	1:F:280:VAL:HA	1.69	0.72
2:I:26:ALA:O	2:I:30:ILE:HG13	1.89	0.72
4:D:901:AGS:O2G	4:D:901:AGS:O1B	2.05	0.72
1:E:145:VAL:HG11	1:E:188:LEU:CD2	2.19	0.72
3:Y:6:ILE:HG21	3:Y:54:ALA:HA	1.72	0.72
1:F:130:ALA:HA	1:F:133:HIS:HB2	1.71	0.71
1:D:386:ARG:NH1	1:E:312:ARG:HG2	2.06	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:256:SER:HB3	1:D:278:ASN:HD21	1.54	0.71
1:D:283:GLN:HA	1:D:283:GLN:NE2	2.01	0.71
1:E:221:TRP:HB3	2:I:7:GLN:HG2	1.71	0.71
1:D:283:GLN:HE21	1:D:283:GLN:CA	2.01	0.71
1:A:136:TRP:HB2	1:A:191:ALA:HB1	1.72	0.71
1:B:385:GLY:HA2	1:B:388:LEU:HD12	1.73	0.71
2:J:68:LEU:HA	2:J:71:VAL:HG22	1.72	0.71
1:B:256:SER:HB3	1:C:278:ASN:HD21	1.56	0.70
1:E:145:VAL:HG11	1:E:188:LEU:HD21	1.73	0.70
1:C:185:LYS:HG2	1:C:319:ILE:HD11	1.73	0.70
2:I:20:CYS:O	2:I:23:LEU:HB2	1.91	0.70
1:D:128:PRO:HG2	1:D:198:ILE:HD11	1.73	0.70
1:A:386:ARG:HH11	1:A:386:ARG:CG	2.04	0.70
1:C:170:THR:OG1	1:C:288:LYS:NZ	2.25	0.70
4:D:901:AGS:N3	4:D:901:AGS:O2'	2.25	0.69
1:C:59:THR:HG22	1:C:60:GLU:H	1.57	0.69
2:G:19:LEU:O	2:G:23:LEU:HD12	1.92	0.69
3:Y:56:LYS:O	3:Y:59:GLN:NE2	2.25	0.69
1:B:330:ILE:CD1	4:B:901:AGS:C2	2.71	0.69
2:J:26:ALA:O	2:J:30:ILE:HG13	1.91	0.69
4:A:901:AGS:H5'1	4:A:901:AGS:H8	1.74	0.69
1:F:190:LYS:O	1:F:194:GLN:HG3	1.93	0.69
1:B:136:TRP:CD1	1:B:195:LYS:HZ3	2.12	0.68
4:C:901:AGS:O2G	4:C:901:AGS:O2B	2.04	0.67
1:E:121:ALA:O	1:E:213:ASN:ND2	2.27	0.67
2:G:60:LEU:HD21	3:X:88:PRO:HB3	1.76	0.67
1:B:280:VAL:O	1:B:284:ILE:HG13	1.95	0.67
1:E:399:TYR:OH	1:E:420:LYS:HD2	1.93	0.67
3:Y:51:PRO:HD3	3:X:51:PRO:HD3	1.75	0.67
1:D:389:ARG:HH12	4:D:901:AGS:H2	1.56	0.67
1:D:396:HIS:O	1:D:396:HIS:ND1	2.28	0.67
1:B:177:LEU:HD23	1:B:319:ILE:HD11	1.76	0.66
1:D:102:LEU:HD23	1:D:130:ALA:HA	1.78	0.66
1:D:386:ARG:HD2	1:E:311:ASP:HB3	1.76	0.66
1:E:185:LYS:HB2	1:E:185:LYS:NZ	2.10	0.66
1:F:331:TYR:O	1:F:335:LEU:HD12	1.95	0.66
2:I:133:CYS:O	2:I:137:LEU:N	2.23	0.66
1:F:370:SER:O	1:F:373:LEU:HG	1.96	0.66
1:D:25:VAL:HG12	1:D:73:VAL:HG22	1.78	0.66
1:D:251:ILE:HB	1:D:297:THR:HG22	1.77	0.65
1:A:180:PRO:O	1:A:185:LYS:NZ	2.27	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:26:ALA:O	2:G:30:ILE:HG12	1.97	0.65
2:J:83:VAL:HG23	2:J:102:ILE:HD11	1.78	0.65
1:A:123:ASN:HB2	1:A:211:GLU:HB3	1.78	0.65
1:D:326:ALA:O	1:D:330:ILE:HG13	1.96	0.65
1:B:140:VAL:O	4:B:901:AGS:N6	2.30	0.65
1:E:326:ALA:O	1:E:330:ILE:HG13	1.97	0.65
1:B:144:GLU:O	1:B:148:HIS:ND1	2.30	0.65
1:C:25:VAL:HB	1:C:99:ILE:HG12	1.79	0.65
1:C:251:ILE:HB	1:C:297:THR:HG22	1.77	0.64
2:J:132:VAL:O	2:J:135:ALA:HB3	1.96	0.64
2:I:81:GLU:N	2:I:151:HIS:O	2.26	0.64
1:A:241:ASP:OD2	1:A:242:ASP:N	2.30	0.64
1:F:153:VAL:HG23	1:F:196:LEU:HD21	1.80	0.63
2:K:80:VAL:HG23	2:K:152:THR:HG22	1.80	0.63
1:C:287:ILE:HG13	1:C:287:ILE:O	1.99	0.63
1:D:126:VAL:HG12	1:D:127:LEU:H	1.62	0.63
1:A:208:GLN:HG3	1:A:239:LEU:HD11	1.79	0.63
2:G:88:LEU:O	2:G:145:THR:N	2.32	0.63
1:A:251:ILE:HB	1:A:297:THR:HG22	1.81	0.63
1:E:249:VAL:HB	1:E:295:ILE:HD13	1.81	0.62
1:F:280:VAL:O	1:F:284:ILE:HG22	1.99	0.62
1:C:45:LEU:O	1:C:49:HIS:ND1	2.32	0.62
1:C:335:LEU:O	1:C:339:MET:HG3	1.98	0.62
1:E:110:GLU:O	1:E:121:ALA:N	2.31	0.62
1:E:117:GLU:O	1:F:276:VAL:HA	2.00	0.62
1:F:128:PRO:HD3	1:F:197:THR:HB	1.82	0.62
2:G:126:PHE:O	2:G:130:ILE:HG12	1.99	0.62
2:I:155:ALA:HA	3:Y:80:LEU:H	1.63	0.62
1:A:138:SER:HB2	1:A:389:ARG:NH2	2.15	0.62
1:D:236:ILE:O	1:D:240:ILE:HG13	1.98	0.62
2:K:41:ILE:O	2:K:41:ILE:HG22	2.00	0.62
1:D:103:ASN:O	1:D:129:ALA:HA	1.99	0.62
1:A:398:LEU:HD23	1:B:148:HIS:CD2	2.34	0.62
1:C:261:ARG:NE	1:C:306:ASP:OD1	2.32	0.62
1:A:371:LEU:C	1:A:371:LEU:HD23	2.25	0.62
1:A:383:LEU:HD12	1:A:388:LEU:HD21	1.82	0.62
1:D:61:PHE:HD2	1:D:66:LEU:HB3	1.65	0.62
1:D:390:LYS:NZ	1:E:314:ASP:OD1	2.33	0.62
1:E:230:THR:O	1:E:234:GLN:HG3	2.00	0.62
2:I:23:LEU:HA	2:I:26:ALA:HB3	1.80	0.62
1:D:128:PRO:HB3	1:D:194:GLN:NE2	2.15	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:248:PHE:HD2	1:F:294:VAL:HB	1.65	0.61
2:J:62:GLN:HA	2:J:65:GLN:HB3	1.81	0.61
1:F:326:ALA:O	1:F:330:ILE:HG12	2.00	0.61
2:G:82:LYS:HA	2:G:100:PHE:O	2.00	0.61
2:K:42:PHE:HD2	2:K:54:MET:O	1.75	0.61
1:C:145:VAL:HG21	1:C:319:ILE:HG22	1.81	0.61
2:K:42:PHE:CB	2:K:54:MET:O	2.49	0.61
1:E:110:GLU:O	1:E:121:ALA:HA	2.01	0.60
4:E:901:AGS:O1B	4:E:901:AGS:O2G	2.19	0.60
1:A:134:GLY:O	1:A:138:SER:HB3	2.01	0.60
2:G:35:GLU:O	2:G:35:GLU:HG2	2.01	0.60
2:J:84:VAL:HG12	2:J:86:VAL:HG23	1.83	0.60
1:C:317:GLN:OE1	1:C:318:TYR:N	2.35	0.60
1:D:125:TRP:HB2	1:D:209:LEU:HD22	1.84	0.60
2:J:84:VAL:HG22	2:J:99:VAL:HG22	1.84	0.60
1:B:330:ILE:HD13	4:B:901:AGS:C2	2.32	0.60
1:B:186:THR:HG22	1:B:186:THR:O	1.99	0.60
2:G:150:VAL:HG12	2:G:152:THR:HG23	1.83	0.60
2:G:50:VAL:HG11	2:G:127:ILE:HG21	1.84	0.60
3:X:6:ILE:HD11	3:X:58:ILE:HD11	1.84	0.60
3:X:38:LEU:HD23	3:X:39:HIS:N	2.17	0.60
2:K:42:PHE:CA	2:K:54:MET:O	2.50	0.59
1:E:183:THR:HG22	1:E:183:THR:O	2.00	0.59
3:Y:40:TYR:HB2	3:X:38:LEU:HB2	1.85	0.59
1:F:247:VAL:O	1:F:293:VAL:HA	2.02	0.59
1:C:386:ARG:NH1	1:D:312:ARG:HH21	1.96	0.59
1:E:185:LYS:HB2	1:E:185:LYS:HZ2	1.67	0.59
2:J:30:ILE:HG22	2:J:87:ILE:HD11	1.84	0.59
1:B:61:PHE:HZ	1:B:72:SER:HA	1.67	0.59
2:I:100:PHE:HB3	2:I:102:ILE:HD11	1.84	0.59
2:K:42:PHE:HD2	2:K:54:MET:CA	2.15	0.59
1:E:63:GLU:O	1:E:67:THR:HG23	2.03	0.59
1:A:229:VAL:HG21	1:A:280:VAL:HG22	1.85	0.59
1:B:156:THR:HG23	1:B:171:TRP:HE1	1.67	0.59
1:E:323:SER:O	1:E:327:ILE:HG13	2.03	0.59
1:C:386:ARG:HH22	1:D:312:ARG:CZ	2.15	0.59
1:E:26:HIS:HD2	1:E:100:PHE:HE1	1.51	0.59
1:F:236:ILE:O	1:F:240:ILE:HG12	2.02	0.59
2:J:71:VAL:O	2:J:75:LEU:N	2.35	0.59
2:K:19:LEU:O	2:K:23:LEU:HG	2.02	0.59
1:E:221:TRP:CB	2:I:7:GLN:HG2	2.32	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:327:ILE:HG21	1:F:377:SER:HB3	1.85	0.59
1:F:349:GLN:HG3	1:F:351:LEU:HD22	1.85	0.58
2:I:128:LEU:HD22	2:J:32:TYR:CE2	2.37	0.58
1:E:143:VAL:HG23	1:E:145:VAL:HG23	1.83	0.58
1:F:172:ASN:ND2	1:F:314:ASP:HB2	2.18	0.58
1:F:136:TRP:HB2	1:F:191:ALA:HB1	1.85	0.58
3:Y:38:LEU:HD23	3:Y:39:HIS:N	2.18	0.58
1:B:145:VAL:O	1:B:149:LEU:HD12	2.04	0.58
1:B:184:GLY:HA2	1:B:187:SER:OG	2.04	0.58
1:E:110:GLU:O	1:E:121:ALA:CA	2.51	0.58
1:E:185:LYS:HA	1:E:319:ILE:CD1	2.33	0.58
2:K:42:PHE:CG	2:K:54:MET:O	2.56	0.58
1:E:397:ALA:HA	1:F:155:THR:HG21	1.85	0.58
1:A:134:GLY:O	1:A:138:SER:CB	2.52	0.58
1:D:26:HIS:CE1	1:D:102:LEU:HD13	2.39	0.58
1:D:324:ALA:HA	1:D:327:ILE:HD12	1.84	0.58
3:Y:47:PRO:O	3:Y:48:THR:HG22	2.03	0.58
1:D:109:SER:HB2	1:D:120:ILE:HG23	1.86	0.58
1:E:237:GLN:OE1	1:E:286:GLN:NE2	2.29	0.58
2:G:78:ASN:ND2	2:G:104:GLN:O	2.37	0.58
2:G:83:VAL:HG23	2:G:150:VAL:HG22	1.85	0.58
1:E:389:ARG:NH2	1:F:168:LEU:HA	2.19	0.58
2:I:34:ARG:O	2:I:140:ASN:ND2	2.36	0.58
1:C:178:HIS:CE1	1:C:318:TYR:HB2	2.39	0.58
2:G:159:ASN:O	2:G:163:ILE:HG12	2.03	0.58
2:I:83:VAL:O	2:I:100:PHE:HB2	2.02	0.58
1:A:260:ALA:HB2	1:B:275:ARG:HH22	1.69	0.58
1:C:306:ASP:OD2	1:C:307:VAL:N	2.37	0.57
1:A:248:PHE:HD1	1:A:296:LEU:HD11	1.68	0.57
1:D:287:ILE:HD11	1:D:295:ILE:HD11	1.86	0.57
1:A:330:ILE:HG23	1:A:389:ARG:HH11	1.69	0.57
1:C:178:HIS:HE1	1:C:318:TYR:HB2	1.69	0.57
1:E:247:VAL:HG13	1:E:293:VAL:HG23	1.86	0.57
1:F:364:ASN:ND2	1:F:366:VAL:HG22	2.19	0.57
1:E:117:GLU:HA	1:F:276:VAL:HA	1.85	0.57
1:E:132:PHE:CE1	1:E:190:LYS:HB3	2.39	0.57
1:B:181:PRO:O	1:B:384:SER:OG	2.16	0.57
1:C:143:VAL:HG13	1:C:145:VAL:HG23	1.85	0.57
1:F:353:LEU:O	1:F:356:LEU:N	2.38	0.57
1:B:261:ARG:HG3	1:B:274:ILE:HB	1.87	0.57
1:E:24:GLU:HB3	1:E:100:PHE:HE2	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:31:LEU:HD13	2:K:146:PHE:CD1	2.40	0.57
2:K:42:PHE:HA	2:K:54:MET:O	2.05	0.57
1:F:146:LYS:O	1:F:150:LEU:HD23	2.05	0.57
1:A:128:PRO:HA	1:A:132:PHE:HD2	1.68	0.56
1:C:22:HIS:CE1	1:C:199:ARG:HH21	2.23	0.56
1:A:207:GLY:O	1:A:208:GLN:NE2	2.35	0.56
1:D:99:ILE:H	1:D:99:ILE:HD12	1.71	0.56
2:K:125:ALA:HA	2:K:128:LEU:HG	1.87	0.56
1:A:278:ASN:O	1:A:282:THR:HG23	2.06	0.56
1:C:402:ALA:O	1:C:404:THR:N	2.39	0.56
1:C:389:ARG:HH11	1:C:389:ARG:HG2	1.70	0.56
1:D:56:TYR:H	1:D:75:ILE:HG23	1.70	0.56
1:D:253:GLN:O	1:D:256:SER:OG	2.21	0.56
2:J:25:VAL:HG13	2:J:52:VAL:HB	1.87	0.56
2:K:84:VAL:HG12	2:K:86:VAL:HG23	1.86	0.56
1:E:101:GLN:O	1:E:128:PRO:HG2	2.06	0.56
1:A:154:MET:HE3	1:A:154:MET:HA	1.87	0.56
1:A:266:ALA:HB1	2:I:9:LEU:HD22	1.87	0.56
1:B:65:PHE:O	1:B:69:ASN:ND2	2.37	0.56
1:E:135:LEU:HD22	1:E:191:ALA:HB2	1.88	0.56
2:I:65:GLN:HA	2:I:69:HIS:HB2	1.87	0.56
1:B:275:ARG:HG3	1:B:275:ARG:HH11	1.71	0.56
1:F:391:LEU:HD11	1:F:418:VAL:HG12	1.88	0.56
2:G:203:VAL:HG22	2:G:205:GLU:HB3	1.88	0.56
2:K:29:LEU:HD22	2:K:127:ILE:HD12	1.88	0.56
1:E:175:VAL:HG13	1:E:315:ILE:HB	1.87	0.56
1:A:354:ARG:HD2	1:A:355:GLU:N	2.21	0.56
1:B:217:LEU:HD21	1:B:229:VAL:HG23	1.87	0.56
3:X:38:LEU:HD23	3:X:39:HIS:H	1.70	0.56
1:B:192:LEU:HD23	1:B:296:LEU:HD21	1.87	0.55
1:C:258:THR:HA	1:C:277:VAL:HG22	1.89	0.55
1:D:141:TYR:OH	1:D:184:GLY:O	2.23	0.55
1:F:243:LYS:O	1:F:243:LYS:HD3	2.05	0.55
1:F:347:ARG:HB3	1:F:347:ARG:NH1	2.21	0.55
2:G:129:LYS:O	2:G:133:CYS:N	2.39	0.55
2:J:71:VAL:HA	2:J:74:LEU:HB3	1.87	0.55
1:B:333:SER:OG	1:B:389:ARG:NH1	2.39	0.55
2:J:149:LEU:HD23	2:J:150:VAL:N	2.21	0.55
1:D:89:ASP:OD1	1:D:90:LEU:N	2.39	0.55
1:F:410:PHE:O	1:F:414:LEU:HG	2.06	0.55
2:I:128:LEU:O	2:I:132:VAL:HG23	2.05	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:88:LEU:N	2:J:145:THR:O	2.30	0.55
1:B:315:ILE:HG22	1:B:317:GLN:HB2	1.88	0.55
1:F:213:ASN:HA	1:F:252:ASP:HB3	1.88	0.55
2:G:191:THR:O	2:K:135:ALA:HB1	2.05	0.55
1:D:369:LEU:HD23	1:D:407:ILE:HG22	1.89	0.55
1:F:195:LYS:HA	1:F:198:ILE:HG22	1.89	0.55
1:A:135:LEU:O	1:A:139:LEU:HG	2.07	0.55
1:C:237:GLN:HE22	1:C:290:HIS:CE1	2.25	0.55
2:I:65:GLN:OE1	2:I:69:HIS:ND1	2.40	0.55
1:B:233:PHE:HD2	1:B:283:GLN:HB3	1.71	0.55
1:F:208:GLN:HB2	1:F:247:VAL:HG22	1.87	0.55
1:E:193:ALA:O	1:E:197:THR:HG23	2.07	0.55
2:J:198:LYS:HE3	2:J:200:GLN:HA	1.88	0.55
1:D:126:VAL:HG12	1:D:127:LEU:N	2.21	0.54
3:Y:36:VAL:HG23	3:X:42:PRO:HG3	1.89	0.54
1:B:349:GLN:N	1:B:349:GLN:OE1	2.40	0.54
1:C:182:GLY:O	1:C:384:SER:HB2	2.07	0.54
1:D:182:GLY:HA2	1:D:386:ARG:HE	1.72	0.54
1:E:175:VAL:HB	1:E:296:LEU:HD23	1.88	0.54
1:E:284:ILE:HB	1:E:312:ARG:HH12	1.73	0.54
1:E:180:PRO:HG3	1:E:321:PRO:HD3	1.90	0.54
1:A:356:LEU:HD21	1:A:370:SER:HB3	1.90	0.54
1:A:394:LEU:O	1:A:398:LEU:HD12	2.08	0.54
2:J:60:LEU:HA	2:J:63:TYR:HB3	1.90	0.54
1:B:156:THR:CG2	1:B:173:ARG:NH1	2.71	0.54
1:A:150:LEU:O	1:A:154:MET:HG2	2.08	0.54
1:B:219:SER:OG	1:B:224:GLU:HB2	2.08	0.54
2:I:19:LEU:HD22	2:I:197:LEU:HD11	1.90	0.54
2:I:82:LYS:HB2	2:I:151:HIS:CD2	2.43	0.54
1:D:45:LEU:O	1:D:48:ARG:HG2	2.07	0.53
2:I:179:VAL:HG23	3:Y:81:PRO:HD2	1.89	0.53
2:K:128:LEU:HD12	2:K:129:LYS:HD2	1.89	0.53
3:X:6:ILE:HD13	3:X:54:ALA:O	2.08	0.53
1:B:136:TRP:CD1	1:B:146:LYS:HZ1	2.26	0.53
1:D:19:PRO:O	1:D:94:THR:OG1	2.24	0.53
1:F:148:HIS:HA	1:F:151:ASP:OD2	2.08	0.53
2:I:36:VAL:HG11	2:I:87:ILE:HD12	1.89	0.53
1:D:428:LEU:O	1:E:302:THR:OG1	2.25	0.53
1:E:233:PHE:HE1	1:E:280:VAL:HG23	1.72	0.53
2:J:95:VAL:HG23	2:J:206:ARG:HE	1.73	0.53
2:G:100:PHE:HD2	2:G:102:ILE:HD11	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:83:VAL:O	2:K:100:PHE:HB2	2.08	0.53
1:A:194:GLN:O	1:A:198:ILE:HG12	2.09	0.53
1:C:28:ARG:HD2	1:C:71:GLN:HB2	1.90	0.53
1:F:369:LEU:O	1:F:372:LEU:HB2	2.09	0.53
1:B:23:VAL:HG22	1:B:75:ILE:HG12	1.89	0.53
1:B:112:LEU:H	1:B:121:ALA:HB2	1.74	0.53
2:G:170:PRO:O	3:X:85:LYS:HG2	2.08	0.53
2:G:45:ARG:CZ	2:G:54:MET:HG3	2.38	0.53
2:I:8:ASP:OD2	2:I:8:ASP:N	2.42	0.53
2:I:129:LYS:O	2:I:133:CYS:N	2.42	0.53
2:K:128:LEU:HA	2:K:131:SER:OG	2.08	0.53
1:F:309:PHE:HD2	1:F:312:ARG:HH21	1.56	0.53
1:D:349:GLN:OE1	1:D:349:GLN:N	2.42	0.53
1:E:185:LYS:HA	1:E:319:ILE:HD12	1.91	0.53
2:I:194:SER:OG	2:I:195:ASP:N	2.42	0.53
1:B:406:THR:OG1	1:B:408:GLU:OE2	2.26	0.53
2:G:47:LYS:HD2	2:G:48:TYR:H	1.74	0.53
1:C:173:ARG:NH1	1:C:288:LYS:O	2.41	0.52
2:J:31:LEU:HD22	2:J:36:VAL:HG21	1.91	0.52
1:C:330:ILE:HD11	4:C:901:AGS:C2	2.40	0.52
3:Y:40:TYR:CE2	3:Y:42:PRO:HG3	2.44	0.52
1:A:339:MET:HA	1:A:339:MET:HE3	1.90	0.52
2:I:119:VAL:O	2:I:123:LEU:HD13	2.08	0.52
1:A:398:LEU:HD23	1:B:148:HIS:HD2	1.73	0.52
1:B:28:ARG:N	1:B:69:ASN:O	2.42	0.52
1:C:386:ARG:HH12	1:D:312:ARG:NH2	1.97	0.52
1:E:185:LYS:NZ	1:E:185:LYS:CB	2.73	0.52
2:I:191:THR:O	2:I:191:THR:HG22	2.09	0.52
3:Y:85:LYS:HG3	3:Y:86:ARG:HD3	1.90	0.52
1:A:305:ILE:HG22	1:A:307:VAL:H	1.74	0.52
1:A:343:ILE:HD12	1:A:343:ILE:H	1.73	0.52
1:D:328:PHE:HE2	1:D:374:ASN:HB2	1.75	0.52
2:G:84:VAL:HA	2:G:98:PHE:O	2.10	0.52
1:A:172:ASN:HB3	1:A:174:VAL:HG22	1.90	0.52
1:B:258:THR:HA	1:B:277:VAL:HG22	1.91	0.52
1:B:359:ILE:HG23	1:B:361:PHE:H	1.75	0.52
2:G:73:PRO:HA	2:G:76:GLU:HG2	1.92	0.52
2:K:15:VAL:O	2:K:19:LEU:HG	2.10	0.52
2:K:64:ILE:O	2:K:67:THR:OG1	2.27	0.52
3:X:61:PHE:HB2	3:X:62:PRO:HD2	1.91	0.52
1:A:169:ILE:HD12	1:F:389:ARG:O	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:145:VAL:HG12	1:E:188:LEU:HD21	1.92	0.52
1:F:172:ASN:HD21	1:F:314:ASP:HB2	1.74	0.52
1:D:185:LYS:CE	4:D:901:AGS:S1G	2.98	0.51
2:I:71:VAL:HG22	2:I:75:LEU:HG	1.92	0.51
1:B:330:ILE:HD13	4:B:901:AGS:H2	1.90	0.51
1:A:371:LEU:HD23	1:A:371:LEU:O	2.09	0.51
1:C:175:VAL:HG13	1:C:315:ILE:HG21	1.92	0.51
1:C:372:LEU:O	1:C:376:ILE:HG13	2.10	0.51
1:E:346:PRO:HB2	1:E:348:GLN:NE2	2.25	0.51
1:C:146:LYS:O	1:C:150:LEU:HB2	2.10	0.51
1:D:189:CYS:HB3	1:D:296:LEU:HD13	1.93	0.51
1:E:208:GLN:HB2	1:E:247:VAL:HG23	1.93	0.51
1:E:412:GLN:O	1:E:416:LEU:HG	2.10	0.51
2:K:121:GLN:O	2:K:125:ALA:N	2.42	0.51
3:X:41:ARG:O	3:X:44:GLU:HG3	2.11	0.51
1:D:231:LYS:HA	1:D:234:GLN:HG2	1.92	0.51
1:D:254:VAL:O	1:D:257:LEU:N	2.40	0.51
1:B:222:PHE:O	1:B:223:SER:OG	2.26	0.51
1:C:145:VAL:HG13	1:C:317:GLN:HG2	1.93	0.51
1:C:189:CYS:HB3	1:C:250:LEU:HD13	1.93	0.51
2:J:23:LEU:O	2:J:27:VAL:HG23	2.10	0.51
2:J:125:ALA:O	2:J:129:LYS:N	2.22	0.51
1:B:364:ASN:O	1:B:366:VAL:HG23	2.11	0.51
1:D:339:MET:HE2	1:D:407:ILE:HG13	1.93	0.51
1:E:112:LEU:O	1:E:116:THR:HG22	2.11	0.51
1:F:209:LEU:HA	1:F:248:PHE:O	2.10	0.51
1:D:177:LEU:HD23	1:D:317:GLN:HB3	1.92	0.51
1:E:372:LEU:O	1:E:376:ILE:HG13	2.11	0.51
3:X:38:LEU:HD21	3:X:50:LEU:HD21	1.92	0.51
1:B:193:ALA:HA	1:B:248:PHE:CE1	2.46	0.50
2:J:21:GLU:O	2:J:25:VAL:HG23	2.10	0.50
2:K:140:ASN:HB3	2:K:141:PRO:HD2	1.92	0.50
1:A:390:LYS:HD3	1:B:171:TRP:HA	1.92	0.50
2:J:74:LEU:HD11	3:Y:5:HIS:CE1	2.46	0.50
1:B:60:GLU:OE2	1:B:60:GLU:N	2.43	0.50
2:J:32:TYR:HE1	2:J:53:GLN:OE1	1.94	0.50
1:B:222:PHE:CE1	2:I:14:VAL:HG22	2.47	0.50
1:B:323:SER:OG	1:B:324:ALA:N	2.43	0.50
1:D:355:GLU:O	1:D:359:ILE:HG12	2.11	0.50
1:E:396:HIS:O	1:E:396:HIS:ND1	2.44	0.50
2:J:150:VAL:HB	3:Y:5:HIS:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:343:ILE:HD11	1:D:162:LYS:HG2	1.93	0.50
1:F:123:ASN:ND2	1:F:125:TRP:NE1	2.54	0.50
1:F:284:ILE:HA	1:F:287:ILE:HG22	1.93	0.50
2:J:132:VAL:O	2:J:135:ALA:CB	2.59	0.50
2:K:31:LEU:HD22	2:K:146:PHE:HE1	1.76	0.50
1:B:38:ILE:O	1:B:42:VAL:HG12	2.12	0.50
1:B:126:VAL:HG12	1:B:127:LEU:N	2.26	0.50
1:D:356:LEU:HB3	1:D:361:PHE:HE1	1.77	0.50
1:D:396:HIS:HB2	1:D:410:PHE:CE1	2.47	0.50
1:D:233:PHE:CD2	1:D:283:GLN:HB3	2.47	0.50
1:D:240:ILE:HD13	1:D:293:VAL:HG21	1.94	0.50
2:K:87:ILE:HG13	2:K:144:CYS:HB3	1.94	0.50
1:C:180:PRO:HG3	1:C:321:PRO:HD3	1.93	0.49
1:E:174:VAL:HG22	1:E:295:ILE:HB	1.94	0.49
2:G:81:GLU:OE2	2:G:153:ARG:N	2.44	0.49
2:J:74:LEU:HD21	3:Y:5:HIS:CG	2.47	0.49
2:K:102:ILE:HD12	2:K:102:ILE:H	1.76	0.49
1:A:221:TRP:CD1	1:A:222:PHE:H	2.31	0.49
1:C:367:SER:O	1:C:371:LEU:HG	2.12	0.49
1:D:185:LYS:O	1:D:298:THR:HG21	2.12	0.49
1:E:171:TRP:HD1	1:E:173:ARG:HG2	1.76	0.49
1:B:34:LYS:HB3	1:B:37:ASP:OD1	2.11	0.49
2:J:88:LEU:HD22	2:J:92:HIS:C	2.38	0.49
2:K:42:PHE:HD2	2:K:54:MET:HA	1.78	0.49
1:A:237:GLN:HA	1:A:240:ILE:HG22	1.94	0.49
1:C:22:HIS:HA	1:C:95:VAL:HG21	1.94	0.49
1:E:176:LEU:HB3	1:E:316:LYS:HA	1.94	0.49
1:E:334:CYS:O	1:E:338:LEU:HG	2.12	0.49
1:E:399:TYR:CE2	1:E:416:LEU:HB2	2.48	0.49
1:F:143:VAL:HG13	1:F:144:GLU:OE2	2.12	0.49
2:G:129:LYS:O	2:G:129:LYS:HD3	2.13	0.49
1:A:236:ILE:HG21	1:A:287:ILE:HD12	1.93	0.49
1:B:189:CYS:HA	1:B:296:LEU:HD22	1.95	0.49
1:C:46:LEU:O	1:C:50:ASN:N	2.44	0.49
1:C:141:TYR:OH	1:C:184:GLY:O	2.30	0.49
1:C:217:LEU:HB3	1:C:229:VAL:HG22	1.95	0.49
2:I:31:LEU:HD11	2:I:146:PHE:CD1	2.48	0.49
1:A:127:LEU:HD23	1:A:128:PRO:HG2	1.95	0.49
1:E:185:LYS:HG2	1:E:319:ILE:HB	1.94	0.49
1:D:359:ILE:HB	1:D:362:ILE:HG22	1.94	0.49
1:E:139:LEU:HD11	1:E:187:SER:OG	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:261:ARG:HD3	1:E:277:VAL:HG11	1.95	0.49
1:B:185:LYS:HD3	1:B:298:THR:HB	1.94	0.49
1:D:139:LEU:HD11	1:D:187:SER:HB3	1.95	0.49
1:E:396:HIS:HB2	1:E:410:PHE:CZ	2.46	0.49
2:K:83:VAL:O	2:K:83:VAL:HG23	2.12	0.49
1:A:371:LEU:C	1:A:371:LEU:CD2	2.86	0.49
1:C:272:ASP:OD2	2:I:10:ASN:ND2	2.45	0.49
1:D:217:LEU:HD21	1:D:232:MET:HE3	1.95	0.49
1:A:138:SER:HB2	1:A:389:ARG:HH21	1.77	0.49
1:D:37:ASP:OD2	1:D:37:ASP:N	2.45	0.49
1:E:317:GLN:OE1	1:E:318:TYR:N	2.39	0.49
1:F:140:VAL:HG11	1:F:325:ALA:HB3	1.95	0.49
1:F:229:VAL:HG13	1:F:233:PHE:CE1	2.48	0.49
2:G:74:LEU:HD21	2:G:159:ASN:OD1	2.12	0.49
2:G:120:GLU:H	2:G:120:GLU:CD	2.21	0.49
1:A:127:LEU:HD23	1:A:128:PRO:CD	2.43	0.48
1:B:221:TRP:HE1	2:I:16:ALA:HB3	1.77	0.48
1:C:256:SER:HB3	1:D:278:ASN:ND2	2.24	0.48
2:G:80:VAL:HG22	2:G:152:THR:HG22	1.94	0.48
2:G:206:ARG:H	2:G:208:HIS:HE1	1.61	0.48
1:C:332:LEU:O	1:C:336:GLU:HG2	2.13	0.48
1:D:344:ILE:HG23	1:D:405:VAL:O	2.13	0.48
2:J:124:ARG:O	2:J:128:LEU:N	2.25	0.48
3:X:5:HIS:CE1	3:X:37:ILE:HD12	2.47	0.48
1:A:330:ILE:HG23	1:A:389:ARG:NH1	2.28	0.48
2:I:151:HIS:HA	3:Y:81:PRO:HA	1.95	0.48
2:J:57:HIS:HB3	2:J:59:GLU:HG2	1.95	0.48
1:B:352:THR:HG22	1:B:355:GLU:OE1	2.13	0.48
1:C:38:ILE:O	1:C:42:VAL:HG23	2.14	0.48
1:E:195:LYS:HE2	1:E:195:LYS:HA	1.93	0.48
1:A:174:VAL:HG12	1:A:295:ILE:HB	1.95	0.48
1:C:141:TYR:HE2	1:C:188:LEU:HD13	1.79	0.48
1:E:398:LEU:HD11	1:E:420:LYS:CE	2.21	0.48
1:F:123:ASN:O	1:F:210:ILE:HA	2.12	0.48
2:I:33:VAL:C	2:I:35:GLU:H	2.21	0.48
1:B:156:THR:HG21	1:B:173:ARG:NH1	2.29	0.48
1:C:175:VAL:HG13	1:C:315:ILE:CG2	2.43	0.48
1:B:234:GLN:NE2	1:B:238:ASP:OD1	2.41	0.48
1:B:354:ARG:NH1	1:B:355:GLU:HG2	2.29	0.48
1:C:124:HIS:ND1	1:C:124:HIS:C	2.72	0.48
1:C:149:LEU:HD11	1:C:175:VAL:HG11	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:157:LEU:HD11	1:C:204:TYR:HE2	1.79	0.48
1:D:352:THR:O	1:D:356:LEU:HD13	2.14	0.48
2:G:27:VAL:O	2:G:31:LEU:HG	2.12	0.48
3:Y:51:PRO:HA	3:Y:54:ALA:HB3	1.96	0.48
1:E:192:LEU:HD23	1:E:296:LEU:HD11	1.95	0.48
2:I:202:TYR:HE2	2:I:204:GLU:OE1	1.96	0.48
1:B:44:LYS:HA	1:B:47:ASN:HB2	1.95	0.48
1:B:279:ALA:O	1:B:283:GLN:NE2	2.47	0.48
1:D:220:LYS:HG3	1:D:221:TRP:N	2.29	0.48
1:D:265:ARG:CG	1:D:266:ALA:H	2.26	0.48
1:F:143:VAL:HG13	1:F:144:GLU:H	1.79	0.48
1:F:153:VAL:O	1:F:157:LEU:HD23	2.13	0.48
1:B:65:PHE:CD2	1:B:69:ASN:ND2	2.82	0.48
1:B:21:VAL:HG21	1:B:90:LEU:HD22	1.94	0.47
1:B:156:THR:HG21	1:B:173:ARG:HH11	1.77	0.47
1:D:162:LYS:HG3	1:D:162:LYS:O	2.14	0.47
2:G:60:LEU:HG	3:X:89:PRO:HD2	1.96	0.47
2:I:103:THR:O	2:I:105:PRO:HD3	2.13	0.47
2:K:199:MET:SD	2:K:199:MET:N	2.87	0.47
1:B:392:PRO:HB3	1:B:410:PHE:HZ	1.79	0.47
1:B:398:LEU:HB2	1:B:399:TYR:CD1	2.49	0.47
1:E:405:VAL:HG11	1:E:410:PHE:HD1	1.79	0.47
1:E:38:ILE:O	1:E:42:VAL:HG12	2.14	0.47
1:F:315:ILE:O	1:F:315:ILE:HG13	2.14	0.47
2:G:162:LYS:O	2:G:166:ILE:HD12	2.13	0.47
2:I:66:ASP:O	2:I:70:CYS:HB2	2.13	0.47
1:C:373:LEU:HA	1:C:376:ILE:HD12	1.97	0.47
1:D:344:ILE:HG21	1:D:407:ILE:CD1	2.44	0.47
2:J:80:VAL:HG21	2:J:102:ILE:HG21	1.96	0.47
1:D:337:GLU:HG3	1:E:168:LEU:HD23	1.97	0.47
1:F:411:LEU:HD13	1:F:414:LEU:HD12	1.95	0.47
2:I:124:ARG:O	2:I:128:LEU:HB2	2.14	0.47
2:K:23:LEU:O	2:K:27:VAL:HG13	2.14	0.47
3:Y:51:PRO:HG3	3:X:50:LEU:HB3	1.96	0.47
1:B:344:ILE:HG13	1:B:405:VAL:HG23	1.96	0.47
1:D:128:PRO:HD3	1:D:197:THR:HG21	1.96	0.47
1:E:41:SER:HB2	1:E:66:LEU:HD12	1.96	0.47
2:J:128:LEU:O	2:J:132:VAL:HG12	2.14	0.47
2:J:133:CYS:O	2:J:137:LEU:HG	2.15	0.47
1:B:66:LEU:O	1:B:70:VAL:HG22	2.15	0.47
1:B:135:LEU:O	1:B:138:SER:OG	2.26	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:144:GLU:HB3	1:B:147:SER:OG	2.15	0.47
1:C:364:ASN:OD1	1:C:367:SER:N	2.44	0.47
1:E:23:VAL:HG22	1:E:75:ILE:HD12	1.96	0.47
2:I:126:PHE:O	2:I:130:ILE:HG13	2.13	0.47
2:I:202:TYR:OH	3:Y:71:PRO:HB3	2.15	0.47
2:J:27:VAL:HG11	2:J:146:PHE:CE2	2.50	0.47
3:Y:46:ASP:N	3:Y:47:PRO:HD3	2.30	0.47
3:Y:64:ARG:HG2	3:Y:65:PRO:HD2	1.96	0.47
1:A:145:VAL:O	1:A:149:LEU:HG	2.15	0.47
1:B:184:GLY:O	1:B:187:SER:OG	2.31	0.47
1:C:254:VAL:HG23	1:C:298:THR:O	2.15	0.47
1:D:122:ALA:HB2	1:D:232:MET:SD	2.55	0.47
1:E:405:VAL:HG11	1:E:410:PHE:HB2	1.97	0.47
1:A:221:TRP:HH2	2:I:120:GLU:OE1	1.98	0.47
1:E:380:SER:HB2	1:E:418:VAL:HG21	1.97	0.47
1:F:355:GLU:HA	1:F:358:MET:HB2	1.97	0.47
1:A:288:LYS:HB3	1:A:288:LYS:HE3	1.70	0.47
1:C:261:ARG:HG2	1:C:274:ILE:HD12	1.98	0.47
1:D:58:TRP:HB3	1:D:61:PHE:CE1	2.39	0.47
1:E:335:LEU:HD11	1:E:373:LEU:HD21	1.97	0.47
2:I:151:HIS:CE1	3:Y:81:PRO:HD3	2.50	0.47
1:A:232:MET:HG2	1:A:233:PHE:CD2	2.49	0.46
1:A:386:ARG:HB2	4:A:901:AGS:H5'2	1.97	0.46
1:F:176:LEU:HD23	1:F:316:LYS:HG2	1.97	0.46
2:K:85:VAL:HG23	2:K:85:VAL:O	2.14	0.46
1:A:136:TRP:CE2	1:A:195:LYS:HG3	2.50	0.46
1:B:136:TRP:CG	1:B:195:LYS:HZ3	2.33	0.46
1:E:261:ARG:NE	1:E:306:ASP:OD1	2.45	0.46
1:D:265:ARG:HG3	1:D:266:ALA:H	1.79	0.46
2:G:46:LYS:HZ3	2:G:50:VAL:N	2.13	0.46
1:F:127:LEU:HD11	1:F:248:PHE:HE1	1.80	0.46
1:F:205:ARG:HG3	1:F:206:TYR:CD2	2.50	0.46
2:I:187:ILE:O	2:I:189:LEU:N	2.48	0.46
3:Y:6:ILE:HD12	3:Y:54:ALA:HB1	1.98	0.46
3:X:44:GLU:O	3:X:46:ASP:N	2.43	0.46
1:A:386:ARG:CG	1:A:386:ARG:NH1	2.71	0.46
1:B:217:LEU:HD12	1:B:228:LEU:HB3	1.96	0.46
1:C:28:ARG:HH21	1:C:68:ARG:C	2.24	0.46
1:D:330:ILE:HG23	1:D:389:ARG:CZ	2.45	0.46
1:E:23:VAL:HG22	1:E:75:ILE:CD1	2.45	0.46
1:E:185:LYS:HA	1:E:319:ILE:HD13	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:104:GLN:O	2:I:106:PRO:HD3	2.16	0.46
3:Y:8:TRP:CZ3	3:Y:53:ILE:HG21	2.51	0.46
1:A:135:LEU:H	1:A:135:LEU:HD12	1.79	0.46
1:B:374:ASN:OD1	1:B:378:ARG:NH2	2.49	0.46
2:I:103:THR:HG21	3:Y:72:TRP:HE3	1.80	0.46
2:K:148:VAL:O	3:X:7:PHE:HB2	2.15	0.46
3:Y:51:PRO:O	3:Y:55:GLU:N	2.38	0.46
1:A:195:LYS:HE3	1:A:198:ILE:HD11	1.97	0.46
1:B:396:HIS:HA	1:B:400:VAL:CG2	2.45	0.46
1:C:166:SER:O	1:C:170:THR:HB	2.16	0.46
1:E:101:GLN:OE1	1:E:101:GLN:HA	2.15	0.46
1:E:261:ARG:NH1	1:E:278:ASN:OD1	2.49	0.46
1:A:136:TRP:CZ2	1:A:146:LYS:HB3	2.51	0.46
1:C:195:LYS:O	1:C:199:ARG:HG2	2.16	0.46
1:D:224:GLU:O	1:D:228:LEU:HG	2.16	0.46
1:E:162:LYS:HE2	1:E:162:LYS:HB2	1.63	0.46
1:F:176:LEU:O	1:F:316:LYS:HA	2.16	0.46
2:K:200:GLN:OE1	2:K:200:GLN:N	2.48	0.46
3:X:8:TRP:CZ2	3:X:47:PRO:HG3	2.51	0.46
1:B:97:LEU:HD23	1:B:97:LEU:HA	1.79	0.46
1:B:166:SER:O	1:B:170:THR:HB	2.15	0.46
1:C:340:LYS:HD2	1:C:340:LYS:C	2.40	0.46
1:F:250:LEU:HD12	1:F:296:LEU:HB2	1.98	0.46
1:A:255:GLU:HA	1:A:258:THR:HG22	1.97	0.45
1:C:139:LEU:HD11	1:C:187:SER:OG	2.15	0.45
1:F:233:PHE:HA	1:F:236:ILE:HD12	1.98	0.45
1:D:261:ARG:HG3	1:D:306:ASP:OD1	2.16	0.45
1:E:327:ILE:HG23	1:E:388:LEU:HD21	1.97	0.45
1:E:383:LEU:HD11	1:E:422:PHE:CE1	2.51	0.45
1:A:158:LEU:HA	1:A:161:ASP:OD2	2.16	0.45
1:C:182:GLY:N	4:C:901:AGS:S1G	2.85	0.45
1:C:300:ASN:HD21	1:D:261:ARG:HH22	1.64	0.45
2:G:187:ILE:O	2:G:187:ILE:HG13	2.16	0.45
2:I:87:ILE:HB	2:I:96:GLU:HB2	1.97	0.45
1:D:183:THR:HG21	1:D:319:ILE:O	2.16	0.45
1:E:157:LEU:HD23	1:E:157:LEU:HA	1.79	0.45
2:I:82:LYS:H	2:I:151:HIS:HB2	1.80	0.45
1:B:390:LYS:HG2	1:B:394:LEU:HG	1.98	0.45
1:F:127:LEU:HD11	1:F:248:PHE:CE1	2.51	0.45
1:B:152:TYR:CD1	1:B:315:ILE:HD11	2.52	0.45
1:C:255:GLU:OE2	1:C:299:SER:HB3	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:400:VAL:HG12	1:F:402:ALA:H	1.81	0.45
1:A:185:LYS:HZ2	1:A:185:LYS:HG3	1.57	0.45
1:B:256:SER:HB3	1:C:278:ASN:ND2	2.29	0.45
1:E:196:LEU:HD23	1:E:196:LEU:HA	1.62	0.45
2:I:203:VAL:HG12	2:I:205:GLU:OE1	2.17	0.45
1:A:369:LEU:HD12	1:A:369:LEU:H	1.81	0.45
1:B:102:LEU:HD11	1:B:133:HIS:HB2	1.98	0.45
1:B:204:TYR:CD2	1:B:246:LEU:HD13	2.51	0.45
1:E:75:ILE:O	1:E:76:ILE:HD13	2.17	0.45
1:E:332:LEU:O	1:E:333:SER:C	2.59	0.45
2:K:149:LEU:HG	3:X:5:HIS:O	2.17	0.45
3:X:83:ARG:HD3	3:X:84:PRO:O	2.16	0.45
1:A:390:LYS:HG2	1:B:170:THR:O	2.16	0.45
1:B:61:PHE:CE2	1:B:70:VAL:HG23	2.52	0.45
1:B:258:THR:O	1:B:258:THR:OG1	2.34	0.45
3:X:6:ILE:CD1	3:X:54:ALA:HB1	2.47	0.45
1:A:148:HIS:O	1:A:152:TYR:HD1	2.00	0.44
1:B:123:ASN:O	1:B:125:TRP:CE3	2.70	0.44
1:C:28:ARG:CD	1:C:71:GLN:HB2	2.47	0.44
3:Y:41:ARG:HA	3:X:36:VAL:H	1.82	0.44
3:Y:52:LYS:O	3:Y:56:LYS:N	2.50	0.44
1:A:424:GLU:OE1	1:A:425:ARG:HG3	2.18	0.44
1:C:271:SER:O	1:C:274:ILE:HG22	2.18	0.44
2:I:103:THR:HG23	3:Y:73:PHE:CE1	2.52	0.44
1:A:364:ASN:OD1	1:A:367:SER:OG	2.27	0.44
1:D:178:HIS:HA	1:D:299:SER:O	2.18	0.44
1:E:248:PHE:CD2	1:E:294:VAL:HB	2.52	0.44
1:F:165:ASN:OD1	1:F:168:LEU:HG	2.17	0.44
1:F:398:LEU:HD23	1:F:399:TYR:CD1	2.52	0.44
1:B:221:TRP:HA	2:I:13:GLN:O	2.18	0.44
1:D:364:ASN:OD1	1:D:366:VAL:HG22	2.16	0.44
1:E:172:ASN:N	1:E:172:ASN:HD22	2.15	0.44
1:E:389:ARG:HH21	1:F:168:LEU:HA	1.80	0.44
2:J:46:LYS:O	2:J:49:ASN:N	2.50	0.44
1:A:136:TRP:CH2	1:A:146:LYS:HB3	2.52	0.44
1:A:388:LEU:HD22	1:A:391:LEU:HD12	1.99	0.44
1:B:243:LYS:O	1:B:292:ASN:ND2	2.49	0.44
1:D:185:LYS:HE2	4:D:901:AGS:S1G	2.57	0.44
1:E:384:SER:O	1:E:387:VAL:HG22	2.18	0.44
2:K:26:ALA:O	2:K:27:VAL:C	2.61	0.44
1:E:217:LEU:HD21	1:E:232:MET:HG2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:54:MET:HE3	2:G:55:SER:H	1.82	0.44
2:G:71:VAL:HG12	2:G:71:VAL:O	2.16	0.44
1:A:337:GLU:HG2	1:B:168:LEU:HB2	1.99	0.44
1:C:40:LEU:HA	1:C:43:ARG:HG2	1.98	0.44
1:C:64:PRO:O	1:C:67:THR:HB	2.18	0.44
1:C:280:VAL:O	1:C:284:ILE:HG12	2.18	0.44
1:E:339:MET:HG2	1:E:344:ILE:HB	1.99	0.44
3:X:72:TRP:C	3:X:73:PHE:HD1	2.26	0.44
1:A:339:MET:HE1	1:A:344:ILE:HB	1.99	0.44
1:B:409:GLY:HA2	1:B:412:GLN:HE21	1.83	0.44
1:D:211:GLU:O	1:D:211:GLU:HG3	2.16	0.44
1:D:249:VAL:HB	1:D:295:ILE:HG12	2.00	0.44
1:E:346:PRO:HG3	1:E:406:THR:HG23	1.99	0.44
1:D:386:ARG:CZ	1:E:312:ARG:HG2	2.48	0.44
2:I:60:LEU:O	2:I:64:ILE:HG12	2.18	0.44
2:J:78:ASN:HA	2:J:80:VAL:HG22	2.00	0.44
1:B:284:ILE:O	1:B:287:ILE:HG22	2.18	0.43
1:D:356:LEU:HB3	1:D:361:PHE:CE1	2.53	0.43
1:D:372:LEU:HG	1:D:411:LEU:HD21	2.00	0.43
1:F:178:HIS:O	1:F:318:TYR:HA	2.18	0.43
1:F:351:LEU:HD23	1:F:366:VAL:HB	2.00	0.43
1:A:331:TYR:O	1:A:335:LEU:HG	2.18	0.43
2:I:27:VAL:O	2:I:31:LEU:HD23	2.17	0.43
1:B:136:TRP:HZ3	1:B:192:LEU:HA	1.82	0.43
1:B:153:VAL:HG11	1:B:196:LEU:HD11	2.00	0.43
1:B:372:LEU:O	1:B:376:ILE:HG12	2.18	0.43
1:C:252:ASP:OD2	1:C:298:THR:OG1	2.33	0.43
1:C:353:LEU:H	1:C:353:LEU:HD12	1.82	0.43
1:C:381:GLU:OE2	1:C:381:GLU:N	2.45	0.43
1:D:26:HIS:CE1	1:D:27:GLN:O	2.71	0.43
2:J:150:VAL:O	3:Y:4:VAL:HA	2.17	0.43
3:X:6:ILE:HD12	3:X:54:ALA:HB1	1.99	0.43
1:A:335:LEU:O	1:A:339:MET:HG2	2.19	0.43
1:A:396:HIS:HA	1:A:400:VAL:CG2	2.48	0.43
1:D:265:ARG:HA	1:D:265:ARG:NE	2.33	0.43
1:E:173:ARG:NH1	1:E:288:LYS:O	2.51	0.43
1:E:207:GLY:HA2	1:E:246:LEU:O	2.18	0.43
2:K:72:LYS:HB3	2:K:73:PRO:HD3	1.99	0.43
1:B:34:LYS:HZ2	1:B:35:LYS:HB2	1.83	0.43
1:E:157:LEU:HD13	1:E:203:ARG:HH12	1.83	0.43
1:B:338:LEU:HD21	1:C:169:ILE:HD12	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:189:CYS:SG	1:C:296:LEU:HB3	2.58	0.43
1:C:212:ILE:HD13	1:C:232:MET:HE1	2.01	0.43
1:C:386:ARG:HH22	1:D:312:ARG:NH2	2.16	0.43
1:D:339:MET:CE	1:D:350:LEU:HD11	2.49	0.43
1:E:24:GLU:OE2	1:E:76:ILE:HG12	2.19	0.43
1:E:58:TRP:N	1:E:73:VAL:O	2.51	0.43
1:E:171:TRP:CD1	1:E:173:ARG:HG2	2.53	0.43
2:G:57:HIS:HE1	3:X:89:PRO:HG2	1.83	0.43
2:I:155:ALA:HB2	3:Y:79:LYS:HA	2.01	0.43
2:K:86:VAL:HG22	2:K:97:LYS:NZ	2.33	0.43
1:A:154:MET:HE3	1:A:157:LEU:HD21	2.00	0.43
1:A:162:LYS:HZ3	1:F:343:ILE:HA	1.84	0.43
1:B:302:THR:HA	1:B:305:ILE:HD11	2.00	0.43
4:D:901:AGS:N3	4:D:901:AGS:C2'	2.78	0.43
2:I:61:ASN:O	2:I:65:GLN:HG2	2.18	0.43
1:B:115:GLU:O	2:I:159:ASN:ND2	2.51	0.43
1:B:261:ARG:HH11	1:B:261:ARG:HB2	1.84	0.43
1:C:196:LEU:HA	1:C:196:LEU:HD23	1.77	0.43
1:C:254:VAL:HG21	1:C:297:THR:HB	1.99	0.43
1:C:287:ILE:O	1:C:287:ILE:CG1	2.66	0.43
1:E:51:ILE:HD12	1:E:51:ILE:H	1.84	0.43
2:I:186:LEU:HD11	3:Y:71:PRO:HD3	2.01	0.43
2:K:125:ALA:O	2:K:128:LEU:HG	2.19	0.43
3:Y:55:GLU:O	3:Y:58:ILE:HG22	2.19	0.43
1:A:172:ASN:N	1:A:314:ASP:OD2	2.50	0.43
1:A:353:LEU:HA	1:A:356:LEU:CD1	2.49	0.43
1:B:138:SER:O	1:B:389:ARG:NH2	2.52	0.43
1:F:323:SER:O	1:F:327:ILE:HG12	2.19	0.43
2:K:40:GLY:C	2:K:42:PHE:H	2.27	0.43
3:X:55:GLU:HA	3:X:58:ILE:HD12	2.01	0.43
1:C:343:ILE:O	1:C:343:ILE:HG22	2.19	0.43
2:G:100:PHE:HB3	2:G:102:ILE:HG12	2.01	0.43
1:B:124:HIS:O	1:B:124:HIS:ND1	2.52	0.42
1:C:43:ARG:O	1:C:47:ASN:ND2	2.46	0.42
1:D:176:LEU:HA	1:D:297:THR:O	2.19	0.42
1:E:136:TRP:HE3	1:E:191:ALA:HB1	1.84	0.42
1:F:410:PHE:CE2	1:F:414:LEU:HD21	2.54	0.42
2:J:29:LEU:HD22	2:J:130:ILE:HG21	2.01	0.42
2:J:80:VAL:HG12	2:J:150:VAL:CG1	2.48	0.42
2:K:102:ILE:HA	2:K:200:GLN:OE1	2.19	0.42
1:A:233:PHE:CD1	1:A:283:GLN:HB3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:193:ALA:HA	1:B:248:PHE:CD1	2.54	0.42
1:C:56:TYR:H	1:C:75:ILE:HG22	1.83	0.42
1:D:334:CYS:SG	1:D:392:PRO:HG2	2.59	0.42
1:E:176:LEU:N	1:E:315:ILE:O	2.42	0.42
2:G:166:ILE:O	2:G:166:ILE:HG22	2.18	0.42
1:B:192:LEU:HA	1:B:192:LEU:HD12	1.87	0.42
1:C:254:VAL:CG2	1:C:297:THR:HB	2.49	0.42
1:D:124:HIS:NE2	1:D:208:GLN:OE1	2.52	0.42
2:G:46:LYS:HD3	2:G:47:LYS:N	2.34	0.42
2:J:43:GLN:OE1	2:J:43:GLN:HA	2.19	0.42
1:B:36:GLU:OE1	1:B:36:GLU:N	2.49	0.42
1:B:233:PHE:CD1	1:B:236:ILE:HD12	2.54	0.42
1:D:330:ILE:HG23	1:D:389:ARG:NH1	2.35	0.42
1:F:178:HIS:O	1:F:178:HIS:ND1	2.52	0.42
2:G:189:LEU:H	2:G:202:TYR:HB2	1.83	0.42
2:I:31:LEU:HD13	2:I:36:VAL:HG23	2.02	0.42
2:I:89:ASP:OD2	2:I:89:ASP:N	2.43	0.42
2:J:80:VAL:HB	2:J:102:ILE:HD13	2.01	0.42
1:A:331:TYR:HE2	1:A:376:ILE:HG22	1.84	0.42
1:C:144:GLU:N	1:C:144:GLU:OE2	2.53	0.42
1:F:351:LEU:HD12	1:F:355:GLU:HG3	2.01	0.42
1:F:414:LEU:O	1:F:418:VAL:HG22	2.18	0.42
1:F:416:LEU:HD12	1:F:416:LEU:HA	1.94	0.42
2:G:189:LEU:H	2:G:202:TYR:CB	2.32	0.42
1:A:222:PHE:O	1:A:224:GLU:N	2.53	0.42
1:E:217:LEU:O	1:E:225:SER:HB2	2.19	0.42
1:E:368:LYS:HG3	1:E:369:LEU:N	2.35	0.42
2:I:86:VAL:O	2:I:146:PHE:HA	2.20	0.42
2:K:150:VAL:O	3:X:4:VAL:HA	2.19	0.42
3:Y:40:TYR:CD2	3:Y:42:PRO:HG3	2.54	0.42
1:C:215:HIS:CD2	1:D:279:ALA:HB2	2.54	0.42
1:C:389:ARG:HD2	4:C:901:AGS:HO2'	1.83	0.42
1:D:113:GLU:HB2	1:D:116:THR:HA	2.01	0.42
1:D:265:ARG:HB3	1:E:268:THR:HG22	2.02	0.42
1:D:396:HIS:HB2	1:D:410:PHE:HE1	1.83	0.42
1:E:309:PHE:CD2	1:E:309:PHE:O	2.72	0.42
1:F:123:ASN:HD21	1:F:125:TRP:CD1	2.37	0.42
1:F:186:THR:HG22	1:F:298:THR:HG21	2.02	0.42
3:X:82:LEU:HD12	3:X:83:ARG:N	2.35	0.42
1:C:37:ASP:O	1:C:40:LEU:HG	2.20	0.42
1:D:168:LEU:O	1:D:169:ILE:HG13	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:388:LEU:HD23	1:D:388:LEU:HA	1.82	0.42
1:E:58:TRP:HB2	1:E:73:VAL:HB	2.01	0.42
1:F:306:ASP:OD1	1:F:306:ASP:N	2.53	0.42
2:I:55:SER:OG	2:I:60:LEU:HD23	2.19	0.42
1:B:126:VAL:CG1	1:B:127:LEU:N	2.83	0.42
1:C:330:ILE:CD1	4:C:901:AGS:C2	2.97	0.42
1:C:399:TYR:O	1:C:400:VAL:C	2.63	0.42
1:D:344:ILE:HD13	1:D:407:ILE:HD11	2.02	0.42
2:G:20:CYS:SG	2:G:68:LEU:HD12	2.60	0.42
2:J:86:VAL:HG13	2:J:94:PRO:HA	2.01	0.42
1:C:26:HIS:NE2	1:C:102:LEU:HG	2.34	0.42
1:C:199:ARG:HG3	1:C:199:ARG:HH11	1.85	0.42
1:C:402:ALA:O	1:C:405:VAL:HG13	2.19	0.42
2:G:145:THR:HB	3:X:88:PRO:HD2	2.01	0.42
2:G:149:LEU:HD11	3:X:81:PRO:HG2	2.02	0.42
2:I:20:CYS:O	2:I:24:GLU:N	2.48	0.42
2:I:130:ILE:O	2:I:133:CYS:HB2	2.20	0.42
1:F:165:ASN:HB3	1:F:168:LEU:HD12	2.01	0.41
2:G:156:ALA:O	2:G:160:MET:N	2.42	0.41
2:J:25:VAL:HG22	2:J:52:VAL:HG21	2.02	0.41
2:K:120:GLU:OE2	2:K:123:LEU:HB2	2.20	0.41
1:A:135:LEU:O	1:A:139:LEU:N	2.42	0.41
1:A:323:SER:OG	1:A:324:ALA:N	2.53	0.41
1:B:199:ARG:HE	1:B:199:ARG:HB2	1.77	0.41
1:B:261:ARG:HB2	1:B:261:ARG:NH1	2.34	0.41
1:D:122:ALA:HA	1:D:211:GLU:O	2.21	0.41
1:D:175:VAL:HG12	1:D:296:LEU:HA	2.02	0.41
1:D:278:ASN:OD1	1:D:279:ALA:N	2.53	0.41
1:E:399:TYR:N	1:E:399:TYR:CD1	2.88	0.41
2:G:81:GLU:H	2:G:81:GLU:CD	2.28	0.41
2:G:164:GLN:HA	2:G:167:LYS:O	2.20	0.41
3:Y:6:ILE:HD13	3:Y:54:ALA:O	2.20	0.41
3:X:88:PRO:HA	3:X:89:PRO:HD3	1.89	0.41
1:B:221:TRP:HB2	1:B:224:GLU:HG3	2.00	0.41
1:C:398:LEU:HD21	1:D:315:ILE:HD11	2.02	0.41
1:E:214:SER:HB2	1:E:257:LEU:HG	2.01	0.41
1:E:389:ARG:HH21	1:F:168:LEU:HD23	1.85	0.41
2:G:73:PRO:HA	2:G:76:GLU:OE1	2.20	0.41
2:J:137:LEU:HD23	3:Y:64:ARG:HH12	1.85	0.41
1:A:226:GLY:O	1:A:230:THR:OG1	2.31	0.41
1:B:20:THR:HA	1:B:94:THR:HG23	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:146:LYS:HB3	1:B:146:LYS:HE2	1.90	0.41
1:B:253:GLN:HA	1:B:253:GLN:OE1	2.21	0.41
1:B:260:ALA:HB3	1:B:263:ALA:HB3	2.03	0.41
1:D:302:THR:HG23	1:D:302:THR:O	2.21	0.41
2:J:74:LEU:HG	3:Y:5:HIS:CD2	2.56	0.41
2:K:42:PHE:CD2	2:K:54:MET:HA	2.54	0.41
1:B:343:ILE:HD13	1:C:162:LYS:HD2	2.02	0.41
1:C:300:ASN:HD21	1:D:261:ARG:NH2	2.19	0.41
1:D:127:LEU:O	1:D:128:PRO:C	2.64	0.41
1:F:281:LEU:O	1:F:282:THR:C	2.63	0.41
2:G:45:ARG:NH1	2:G:54:MET:HG3	2.36	0.41
2:I:172:ILE:HG23	3:Y:85:LYS:HB2	2.02	0.41
1:A:131:GLU:O	1:A:135:LEU:HD11	2.21	0.41
1:C:192:LEU:HD12	1:C:192:LEU:HA	1.81	0.41
1:C:287:ILE:HD13	1:C:287:ILE:HG21	1.80	0.41
1:D:225:SER:OG	1:D:226:GLY:N	2.53	0.41
1:E:231:LYS:H	1:E:231:LYS:HG2	1.62	0.41
1:F:205:ARG:HG3	1:F:206:TYR:HD2	1.86	0.41
1:F:417:ALA:O	1:F:420:LYS:N	2.54	0.41
1:A:188:LEU:HD12	1:A:188:LEU:HA	1.89	0.41
1:B:389:ARG:O	1:B:392:PRO:HD2	2.21	0.41
1:C:178:HIS:HA	1:C:299:SER:O	2.20	0.41
1:C:339:MET:HB3	1:C:347:ARG:HB3	2.03	0.41
1:C:389:ARG:HG2	1:C:389:ARG:NH1	2.35	0.41
1:E:154:MET:HE1	1:E:200:LEU:HD11	2.03	0.41
1:F:280:VAL:O	1:F:280:VAL:HG12	2.17	0.41
2:I:67:THR:HA	2:I:169:PHE:CE2	2.55	0.41
1:A:140:VAL:HG11	1:A:329:LYS:HB3	2.02	0.41
1:B:178:HIS:CE1	1:B:318:TYR:HB2	2.56	0.41
1:B:209:LEU:HD23	1:B:210:ILE:N	2.36	0.41
1:D:154:MET:HE1	1:D:200:LEU:HD11	2.02	0.41
1:E:412:GLN:HA	1:E:415:SER:OG	2.20	0.41
1:F:236:ILE:O	1:F:239:LEU:N	2.54	0.41
2:I:20:CYS:HA	2:I:23:LEU:HB2	2.03	0.41
2:I:82:LYS:HB2	2:I:151:HIS:HB2	2.03	0.41
2:I:130:ILE:HA	2:I:133:CYS:SG	2.61	0.41
2:K:132:VAL:O	2:K:135:ALA:HB3	2.21	0.41
1:A:384:SER:OG	1:A:385:GLY:N	2.54	0.41
1:A:394:LEU:HD23	1:A:398:LEU:HD13	2.02	0.41
1:C:47:ASN:ND2	1:C:47:ASN:N	2.68	0.41
1:C:157:LEU:HD12	1:C:203:ARG:NE	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:205:ARG:HH11	1:C:205:ARG:HG2	1.86	0.41
1:E:113:GLU:OE1	1:E:113:GLU:HA	2.20	0.41
1:E:153:VAL:HG11	1:E:196:LEU:HD13	2.03	0.41
1:E:355:GLU:O	1:E:359:ILE:HG23	2.20	0.41
2:G:206:ARG:H	2:G:208:HIS:CE1	2.36	0.41
2:I:58:PRO:HA	2:I:61:ASN:HB2	2.03	0.41
2:I:75:LEU:HD23	2:I:80:VAL:HG11	2.02	0.41
3:Y:47:PRO:C	3:Y:49:GLN:H	2.29	0.41
1:F:359:ILE:H	1:F:359:ILE:HD12	1.86	0.41
2:I:7:GLN:O	2:I:7:GLN:CG	2.68	0.41
2:I:187:ILE:HD13	2:I:187:ILE:HA	1.94	0.41
1:A:174:VAL:HA	1:A:295:ILE:HB	2.03	0.40
1:A:232:MET:HG2	1:A:233:PHE:HD2	1.86	0.40
1:B:304:LYS:NZ	1:C:262:ASN:HA	2.36	0.40
1:C:199:ARG:CZ	1:C:199:ARG:HB3	2.51	0.40
1:C:369:LEU:HG	1:C:411:LEU:HD11	2.02	0.40
2:G:77:LYS:O	2:G:77:LYS:HG2	2.21	0.40
2:G:105:PRO:HD2	2:G:196:ILE:O	2.22	0.40
2:K:23:LEU:HD22	2:K:83:VAL:HG21	2.03	0.40
1:C:415:SER:O	1:C:418:VAL:HB	2.21	0.40
1:D:161:ASP:OD2	1:D:203:ARG:NH1	2.54	0.40
1:D:335:LEU:O	1:D:339:MET:HG3	2.22	0.40
1:E:31:SER:CB	1:E:69:ASN:HA	2.52	0.40
2:G:15:VAL:HA	2:G:18:VAL:HB	2.02	0.40
2:G:77:LYS:HD2	2:G:79:ASP:CG	2.47	0.40
2:G:81:GLU:HB3	3:X:73:PHE:HB3	2.04	0.40
2:I:19:LEU:H	2:I:19:LEU:HG	1.70	0.40
2:I:96:GLU:HB3	2:I:98:PHE:HE2	1.86	0.40
2:I:128:LEU:HD23	2:I:128:LEU:HA	1.95	0.40
2:J:84:VAL:HG13	2:J:97:LYS:HB3	2.04	0.40
3:Y:6:ILE:CD1	3:Y:54:ALA:HB1	2.52	0.40
1:B:184:GLY:CA	1:B:187:SER:OG	2.68	0.40
1:C:183:THR:O	1:C:183:THR:HG22	2.21	0.40
1:C:274:ILE:HD12	1:C:274:ILE:HA	1.97	0.40
1:D:112:LEU:HD12	1:D:112:LEU:HA	1.97	0.40
1:D:126:VAL:CG1	1:D:127:LEU:H	2.33	0.40
1:E:176:LEU:O	1:E:316:LYS:HA	2.21	0.40
2:G:43:GLN:OE1	2:G:43:GLN:N	2.54	0.40
2:I:128:LEU:O	2:I:131:SER:HB3	2.22	0.40
2:K:127:ILE:HA	2:K:130:ILE:HG22	2.03	0.40
3:X:4:VAL:HG21	3:X:58:ILE:HG23	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:134:GLY:O	1:A:138:SER:OG	2.37	0.40
1:A:257:LEU:O	1:A:277:VAL:HG21	2.22	0.40
1:B:416:LEU:HD23	1:B:416:LEU:HA	1.94	0.40
1:C:260:ALA:N	1:C:304:LYS:O	2.50	0.40
1:D:175:VAL:CG1	1:D:296:LEU:HA	2.51	0.40
1:F:410:PHE:CE2	1:F:414:LEU:HD11	2.57	0.40
2:G:17:ASP:N	2:G:17:ASP:OD2	2.55	0.40
2:I:129:LYS:HD2	2:I:189:LEU:O	2.22	0.40
1:B:35:LYS:HB3	1:B:35:LYS:HE3	1.89	0.40
1:B:386:ARG:HH12	1:C:312:ARG:NH1	2.19	0.40
1:D:31:SER:OG	1:D:69:ASN:HA	2.22	0.40
1:D:46:LEU:HD21	1:D:91:SER:OG	2.21	0.40
1:E:257:LEU:HD23	1:E:257:LEU:HA	1.83	0.40
1:F:229:VAL:HG11	1:F:280:VAL:CA	2.47	0.40
2:I:21:GLU:O	2:I:24:GLU:CB	2.70	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	306/432 (71%)	284 (93%)	22 (7%)	0	100	100
1	B	392/432 (91%)	362 (92%)	30 (8%)	0	100	100
1	C	392/432 (91%)	357 (91%)	35 (9%)	0	100	100
1	D	392/432 (91%)	352 (90%)	40 (10%)	0	100	100
1	E	392/432 (91%)	357 (91%)	34 (9%)	1 (0%)	37	67
1	F	264/432 (61%)	247 (94%)	16 (6%)	1 (0%)	30	63
2	G	166/211 (79%)	153 (92%)	13 (8%)	0	100	100
2	I	183/211 (87%)	155 (85%)	28 (15%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	J	119/211 (56%)	108 (91%)	11 (9%)	0	100	100
2	K	119/211 (56%)	103 (87%)	16 (13%)	0	100	100
3	X	59/99 (60%)	50 (85%)	9 (15%)	0	100	100
3	Y	65/99 (66%)	50 (77%)	15 (23%)	0	100	100
All	All	2849/3634 (78%)	2578 (90%)	269 (9%)	2 (0%)	50	79

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	277	VAL
1	E	116	THR

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	237/385 (62%)	236 (100%)	1 (0%)	89	95
1	B	321/385 (83%)	320 (100%)	1 (0%)	91	96
1	C	310/385 (80%)	308 (99%)	2 (1%)	84	92
1	D	323/385 (84%)	321 (99%)	2 (1%)	84	92
1	E	310/385 (80%)	309 (100%)	1 (0%)	91	96
1	F	201/385 (52%)	198 (98%)	3 (2%)	60	78
2	G	115/199 (58%)	115 (100%)	0	100	100
2	I	126/199 (63%)	125 (99%)	1 (1%)	79	88
2	J	98/199 (49%)	98 (100%)	0	100	100
2	K	97/199 (49%)	96 (99%)	1 (1%)	73	85
3	X	47/83 (57%)	47 (100%)	0	100	100
3	Y	53/83 (64%)	53 (100%)	0	100	100
All	All	2238/3272 (68%)	2226 (100%)	12 (0%)	85	93

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	386	ARG
1	B	124	HIS
1	C	47	ASN
1	C	124	HIS
1	D	26	HIS
1	D	283	GLN
1	E	185	LYS
1	F	278	ASN
1	F	290	HIS
1	F	347	ARG
2	I	200	GLN
2	K	54	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	133	HIS
1	B	98	HIS
1	B	172	ASN
1	B	178	HIS
1	B	290	HIS
1	C	133	HIS
1	C	194	GLN
1	C	237	GLN
1	C	401	GLN
1	D	26	HIS
1	D	71	GLN
1	D	283	GLN
1	D	348	GLN
1	E	26	HIS
1	E	300	ASN
1	F	123	ASN
2	G	53	GLN
2	I	92	HIS
2	J	104	GLN
3	X	3	GLN
3	X	39	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

5 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	$\#|Z| > 2$
4	AGS	E	901	-	28,33,33	3.26	13 (46%)	31,52,52	2.44	13 (41%)
4	AGS	A	901	-	28,33,33	3.62	14 (50%)	31,52,52	3.15	5 (16%)
4	AGS	D	901	-	28,33,33	4.06	17 (60%)	31,52,52	3.27	13 (41%)
4	AGS	C	901	-	28,33,33	4.01	19 (67%)	31,52,52	3.88	16 (51%)
4	AGS	B	901	-	28,33,33	1.85	2 (7%)	31,52,52	1.33	3 (9%)

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
4	AGS	E	901	-	-	6/17/38/38	0/3/3/3
4	AGS	A	901	-	-	3/17/38/38	0/3/3/3
4	AGS	D	901	-	-	5/17/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	AGS	C	901	-	-	5/17/38/38	0/3/3/3
4	AGS	B	901	-	-	1/17/38/38	0/3/3/3

All (65) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	901	AGS	C4-N3	-10.30	1.21	1.35
4	C	901	AGS	PB-O3A	-9.12	1.49	1.59
4	C	901	AGS	PA-O3A	-8.94	1.49	1.59
4	D	901	AGS	PA-O3A	-8.25	1.50	1.59
4	A	901	AGS	C3'-C4'	-8.16	1.32	1.53
4	A	901	AGS	O4'-C4'	8.10	1.63	1.45
4	B	901	AGS	PG-S1G	7.95	2.07	1.90
4	C	901	AGS	C4-N3	-7.13	1.26	1.35
4	E	901	AGS	PB-O3A	-6.98	1.52	1.59
4	E	901	AGS	PA-O3A	-6.87	1.52	1.59
4	D	901	AGS	PB-O3A	-6.72	1.52	1.59
4	C	901	AGS	PB-O3B	-6.64	1.52	1.59
4	A	901	AGS	O4'-C1'	-6.58	1.32	1.40
4	D	901	AGS	O4'-C1'	-6.43	1.32	1.40
4	A	901	AGS	PA-O3A	6.16	1.66	1.59
4	E	901	AGS	PB-O3B	-6.16	1.52	1.59
4	C	901	AGS	PG-O3G	-5.76	1.36	1.54
4	A	901	AGS	PB-O3A	5.75	1.65	1.59
4	D	901	AGS	PB-O3B	-5.38	1.53	1.59
4	D	901	AGS	C5-N7	-5.38	1.20	1.39
4	A	901	AGS	PB-O3B	5.26	1.65	1.59
4	E	901	AGS	PG-S1G	5.13	2.01	1.90
4	D	901	AGS	C1'-N9	-5.04	1.37	1.49
4	E	901	AGS	C4-N3	-5.00	1.28	1.35
4	C	901	AGS	O4'-C4'	-4.69	1.34	1.45
4	E	901	AGS	PG-O3G	-4.63	1.39	1.54
4	E	901	AGS	C5-N7	-4.38	1.24	1.39
4	D	901	AGS	PA-O1A	-4.23	1.36	1.50
4	C	901	AGS	C5-N7	-4.18	1.24	1.39
4	A	901	AGS	PG-O3G	4.17	1.68	1.54
4	D	901	AGS	C3'-C4'	-3.76	1.43	1.53
4	A	901	AGS	O2'-C2'	-3.73	1.33	1.43
4	D	901	AGS	PG-S1G	3.67	1.98	1.90
4	C	901	AGS	PA-O1A	-3.67	1.38	1.50
4	D	901	AGS	PG-O3G	-3.58	1.43	1.54
4	C	901	AGS	C1'-N9	-3.55	1.41	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	901	AGS	C3'-C4'	-3.48	1.44	1.53
4	A	901	AGS	C6-N6	3.42	1.46	1.34
4	D	901	AGS	O4'-C4'	-3.41	1.37	1.45
4	E	901	AGS	PA-O2A	-3.40	1.39	1.55
4	C	901	AGS	O4'-C1'	-3.35	1.36	1.40
4	D	901	AGS	O2'-C2'	-3.29	1.34	1.43
4	A	901	AGS	PG-O2G	3.15	1.65	1.54
4	A	901	AGS	C2-N3	3.01	1.36	1.32
4	E	901	AGS	PB-O2B	-3.00	1.41	1.55
4	A	901	AGS	O3'-C3'	2.85	1.50	1.43
4	C	901	AGS	C2-N1	-2.79	1.29	1.33
4	E	901	AGS	C6-N1	-2.77	1.25	1.36
4	C	901	AGS	PA-O2A	-2.68	1.42	1.55
4	C	901	AGS	C6-N1	-2.66	1.26	1.36
4	C	901	AGS	C2'-C3'	-2.66	1.46	1.53
4	E	901	AGS	C3'-C4'	-2.62	1.46	1.53
4	C	901	AGS	PB-O1B	-2.55	1.42	1.50
4	D	901	AGS	C6-N1	-2.41	1.27	1.36
4	E	901	AGS	C1'-N9	-2.39	1.44	1.49
4	A	901	AGS	PA-O5'	2.36	1.68	1.59
4	D	901	AGS	PB-O2B	-2.35	1.44	1.55
4	C	901	AGS	PB-O2B	-2.31	1.44	1.55
4	E	901	AGS	O4'-C4'	-2.31	1.39	1.45
4	A	901	AGS	C5-N7	-2.22	1.31	1.39
4	D	901	AGS	PA-O2A	-2.16	1.45	1.55
4	C	901	AGS	PA-O5'	-2.14	1.51	1.59
4	C	901	AGS	C5'-C4'	-2.09	1.45	1.51
4	B	901	AGS	PG-O2G	2.08	1.61	1.54
4	D	901	AGS	C2'-C3'	-2.01	1.47	1.53

All (50) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	901	AGS	C5-C6-N6	11.72	138.16	120.31
4	C	901	AGS	O3A-PB-O1B	-8.74	84.40	110.70
4	D	901	AGS	O2B-PB-O3B	-7.87	86.01	107.27
4	A	901	AGS	N6-C6-N1	-7.84	101.59	118.33
4	D	901	AGS	O3B-PB-O1B	-7.57	87.94	110.70
4	C	901	AGS	PB-O3B-PG	-7.04	107.42	133.17
4	C	901	AGS	O4'-C4'-C3'	-6.78	91.69	105.15
4	C	901	AGS	C4'-O4'-C1'	-6.72	103.78	109.92
4	C	901	AGS	O3A-PA-O1A	-6.61	90.82	110.70

Continued on next page...

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	901	AGS	C1'-N9-C4	6.50	138.06	126.64
4	A	901	AGS	N3-C2-N1	-6.20	120.26	128.67
4	C	901	AGS	O3G-PG-O3B	6.09	124.97	104.64
4	D	901	AGS	N3-C2-N1	-5.93	120.62	128.67
4	C	901	AGS	O2B-PB-O1B	5.71	138.99	112.44
4	D	901	AGS	O2B-PB-O1B	5.64	138.67	112.44
4	C	901	AGS	N3-C2-N1	-5.33	121.44	128.67
4	D	901	AGS	C4-C5-N7	-5.20	103.84	109.34
4	E	901	AGS	N3-C2-N1	-4.91	122.01	128.67
4	E	901	AGS	O2B-PB-O1B	4.84	134.95	112.44
4	C	901	AGS	O3B-PB-O1B	-4.82	96.21	110.70
4	D	901	AGS	O3A-PA-O1A	-4.70	96.58	110.70
4	D	901	AGS	O4'-C4'-C3'	-4.58	96.07	105.15
4	E	901	AGS	C4'-O4'-C1'	4.57	114.11	109.92
4	E	901	AGS	O2B-PB-O3B	-4.27	95.73	107.27
4	C	901	AGS	O2G-PG-O3B	4.24	118.79	104.64
4	D	901	AGS	O2A-PA-O3A	4.19	118.59	107.27
4	C	901	AGS	O2A-PA-O1A	4.06	131.35	112.44
4	C	901	AGS	C5'-C4'-C3'	-3.88	101.24	115.21
4	E	901	AGS	O3B-PB-O1B	-3.86	99.10	110.70
4	E	901	AGS	PB-O3B-PG	-3.84	119.12	133.17
4	E	901	AGS	C1'-N9-C4	3.71	133.16	126.64
4	B	901	AGS	N3-C2-N1	-3.64	123.73	128.67
4	B	901	AGS	PB-O3B-PG	-3.44	120.58	133.17
4	D	901	AGS	PB-O3B-PG	-3.31	121.07	133.17
4	D	901	AGS	O3'-C3'-C4'	-3.20	101.89	111.08
4	A	901	AGS	PB-O3B-PG	-3.14	121.67	133.17
4	D	901	AGS	O2B-PB-O3A	3.13	115.72	107.27
4	C	901	AGS	O2B-PB-O3B	2.91	115.13	107.27
4	E	901	AGS	C5'-C4'-C3'	-2.82	105.05	115.21
4	E	901	AGS	O2G-PG-O3B	2.68	113.57	104.64
4	E	901	AGS	O2A-PA-O3A	-2.61	100.23	107.27
4	E	901	AGS	O3'-C3'-C4'	-2.60	103.61	111.08
4	B	901	AGS	C4-C5-N7	-2.58	106.61	109.34
4	D	901	AGS	N6-C6-N1	2.41	123.49	118.33
4	D	901	AGS	C5'-C4'-C3'	-2.38	106.65	115.21
4	C	901	AGS	O5'-PA-O1A	-2.32	99.74	108.94
4	C	901	AGS	O4'-C1'-N9	2.22	111.68	108.75
4	E	901	AGS	O2B-PB-O3A	-2.16	101.44	107.27
4	C	901	AGS	O4'-C4'-C5'	-2.09	102.65	109.33
4	E	901	AGS	C5-C6-N6	-2.02	117.24	120.31

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	901	AGS	PB-O3B-PG-O2G
4	A	901	AGS	PB-O3B-PG-O3G
4	B	901	AGS	C5'-O5'-PA-O1A
4	C	901	AGS	PB-O3B-PG-O2G
4	C	901	AGS	PB-O3B-PG-O3G
4	C	901	AGS	C5'-O5'-PA-O2A
4	C	901	AGS	C5'-O5'-PA-O3A
4	D	901	AGS	C5'-O5'-PA-O1A
4	D	901	AGS	C5'-O5'-PA-O2A
4	D	901	AGS	C5'-O5'-PA-O3A
4	E	901	AGS	C5'-O5'-PA-O1A
4	E	901	AGS	C5'-O5'-PA-O2A
4	E	901	AGS	C5'-O5'-PA-O3A
4	E	901	AGS	O4'-C4'-C5'-O5'
4	D	901	AGS	O4'-C4'-C5'-O5'
4	E	901	AGS	C3'-C4'-C5'-O5'
4	C	901	AGS	C3'-C4'-C5'-O5'
4	A	901	AGS	PG-O3B-PB-O2B
4	D	901	AGS	PA-O3A-PB-O2B
4	E	901	AGS	PA-O3A-PB-O2B

There are no ring outliers.

5 monomers are involved in 25 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	901	AGS	1	0
4	A	901	AGS	2	0
4	D	901	AGS	8	0
4	C	901	AGS	7	0
4	B	901	AGS	7	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 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 AGS E 901

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS A 901

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS D 901

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS C 901

Bond lengths

Bond angles

Torsions

Rings

Ligand AGS B 901

Bond lengths

Bond angles

Torsions

Rings
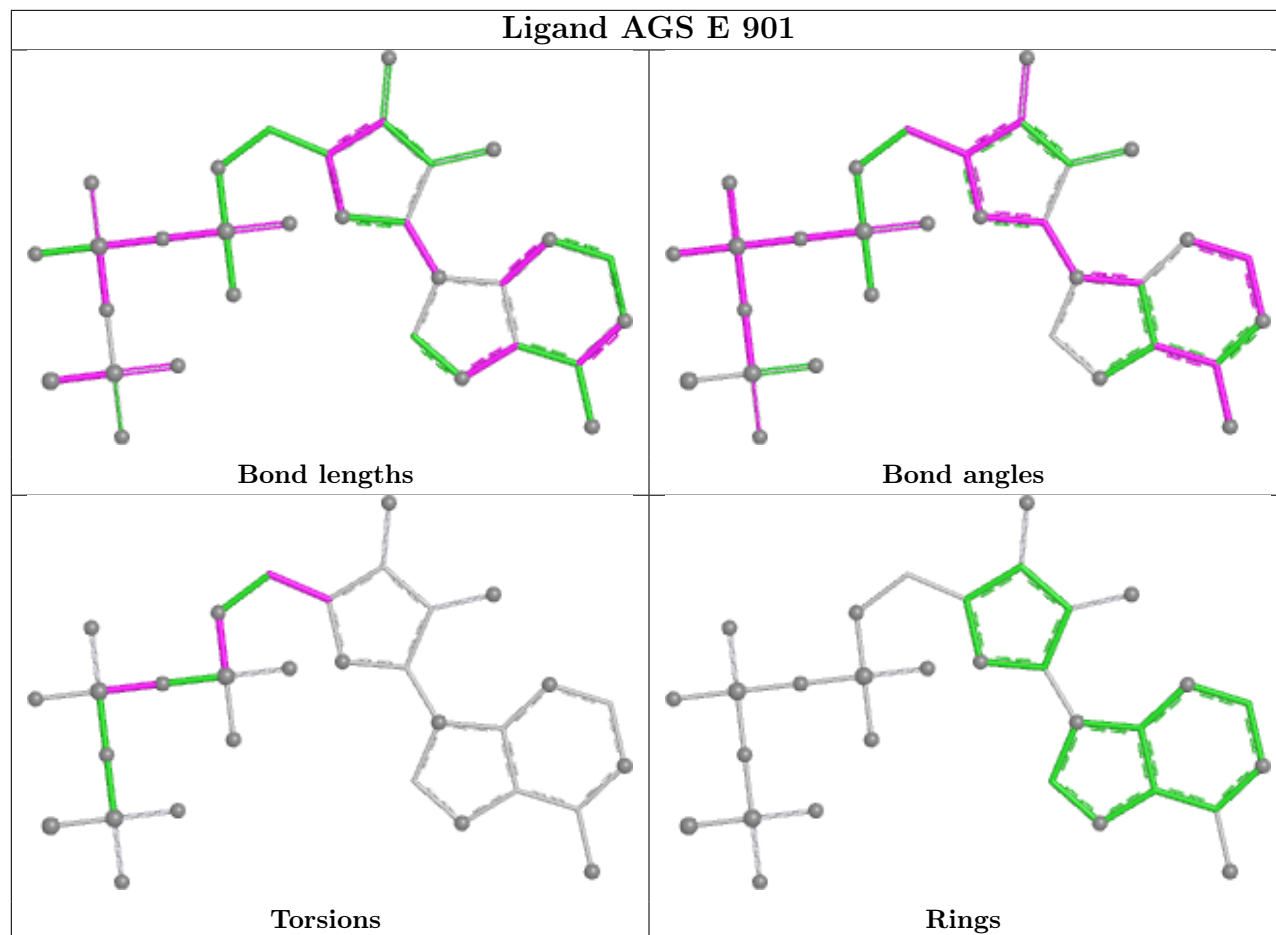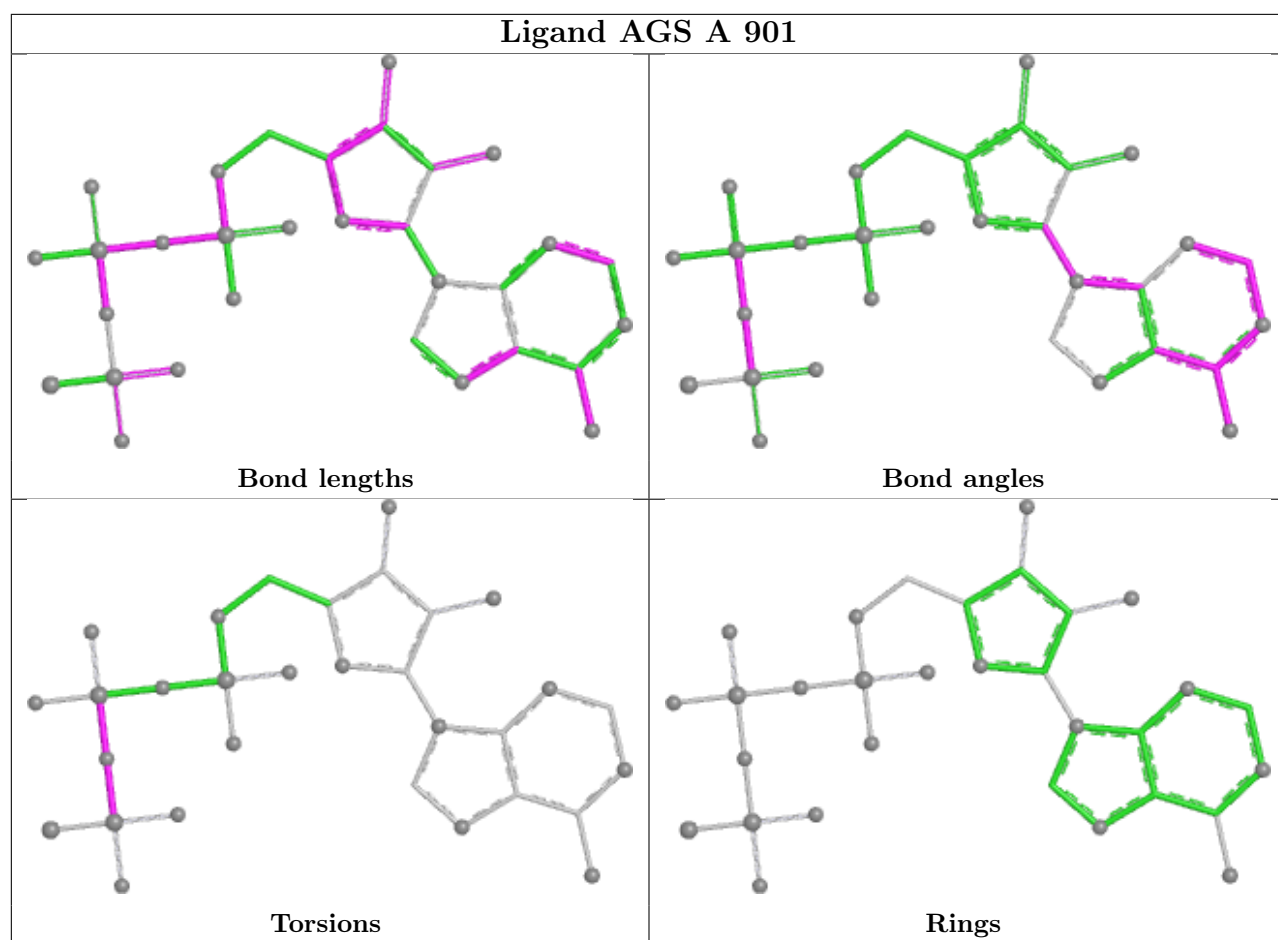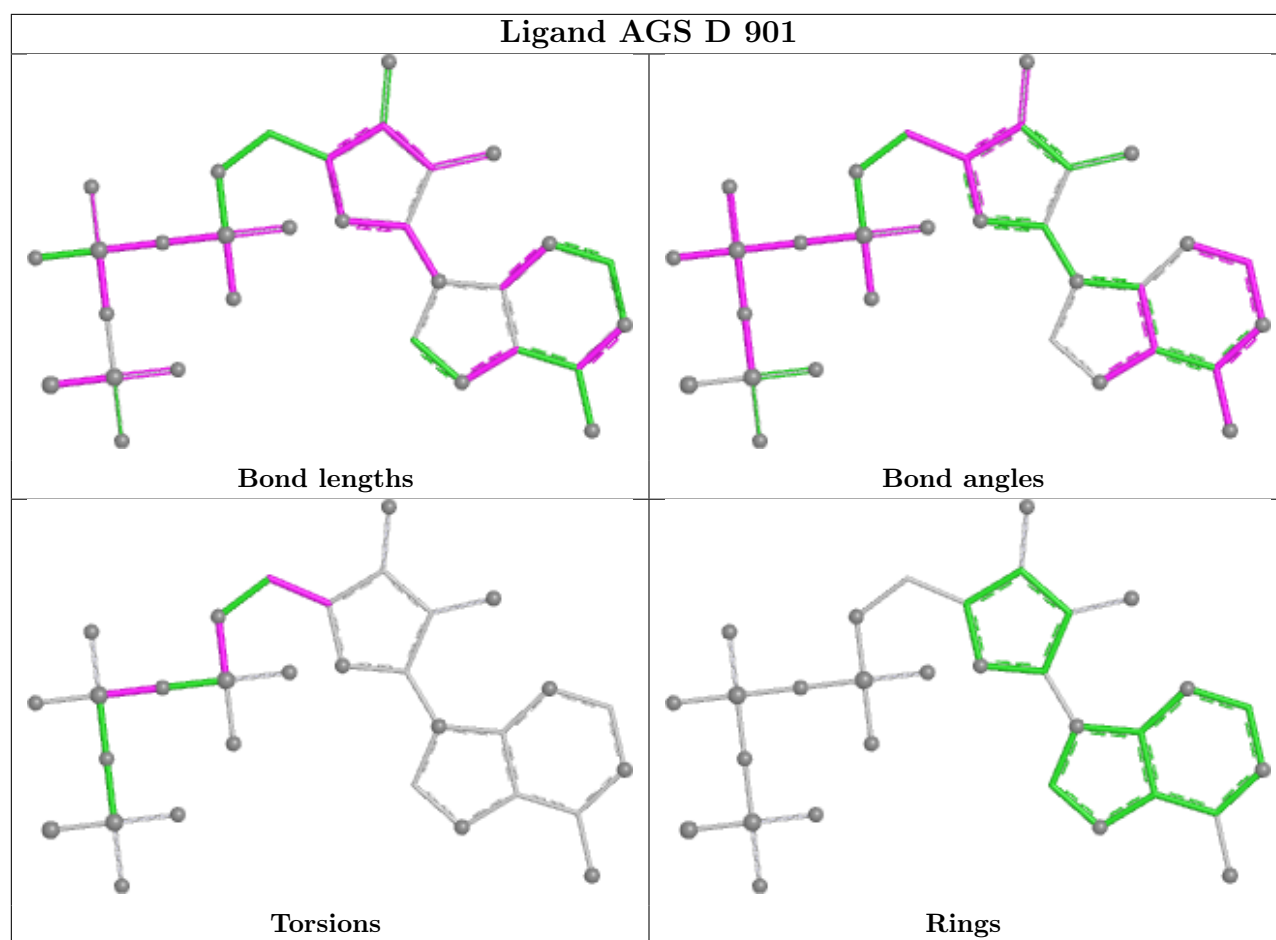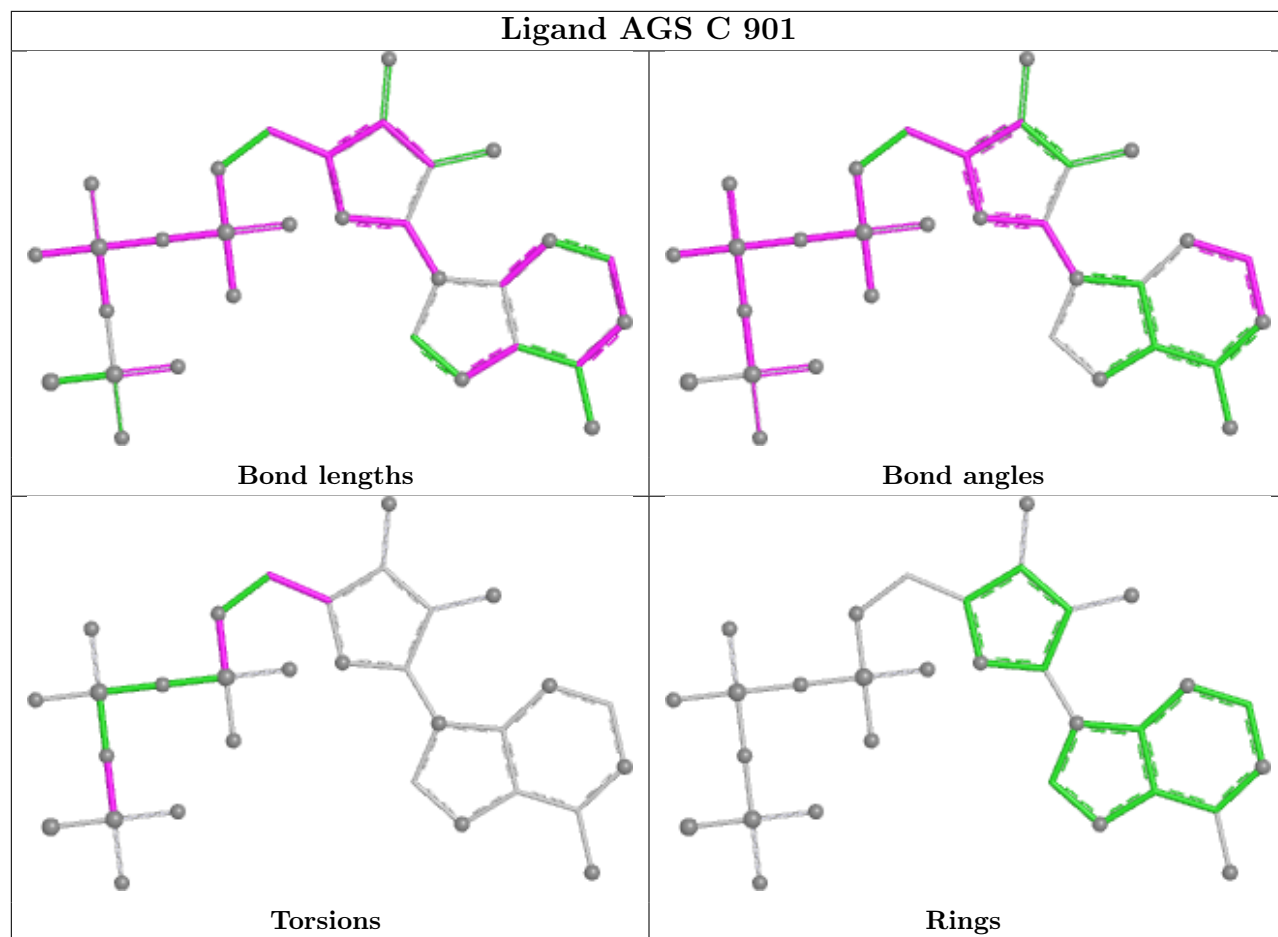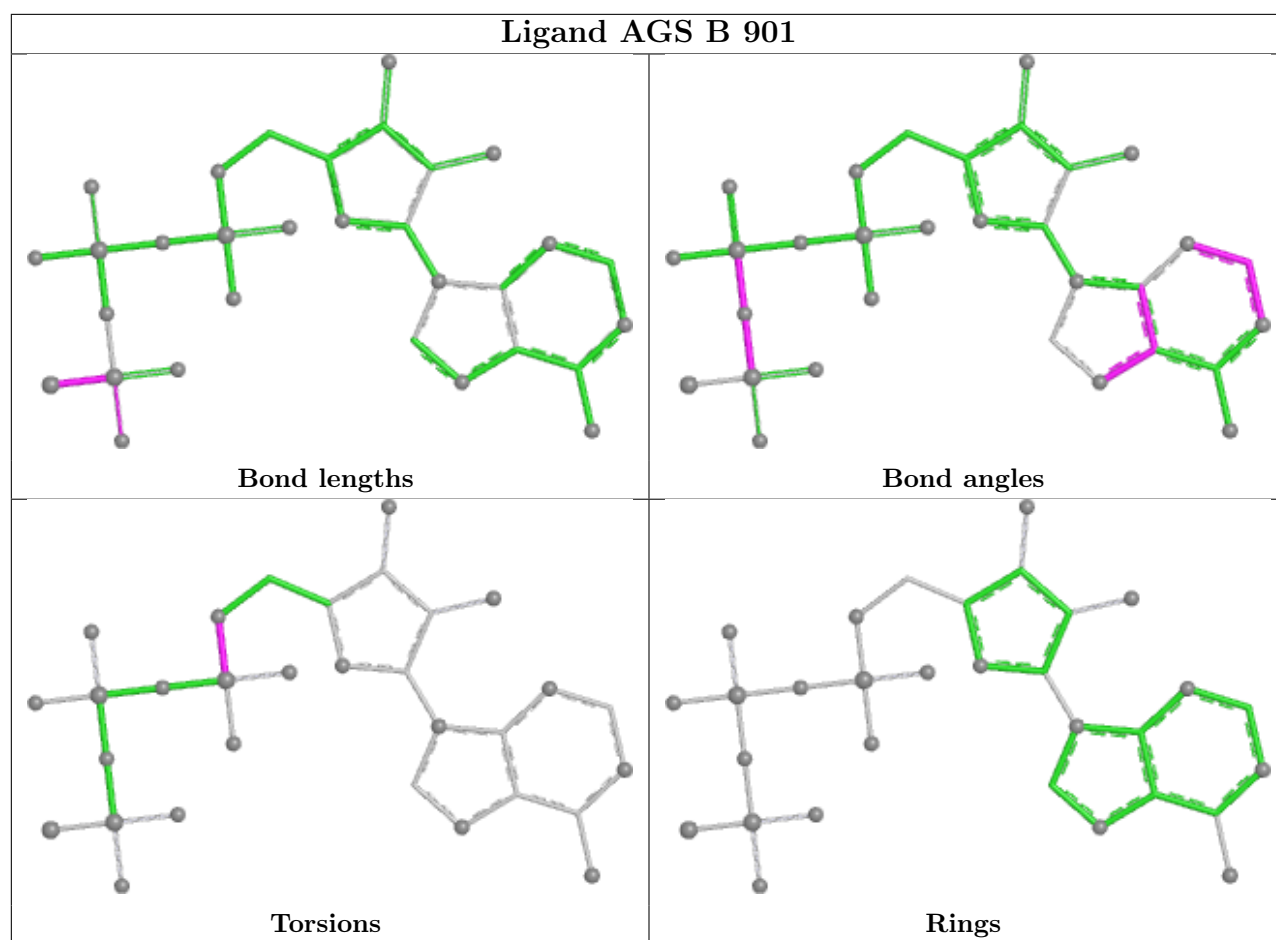
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-23244. 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 ⓘ

6.1.1 Primary map

| X | Y | Z |
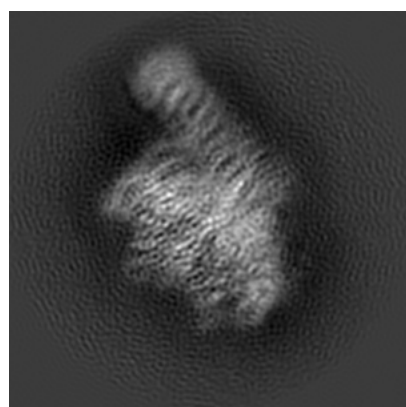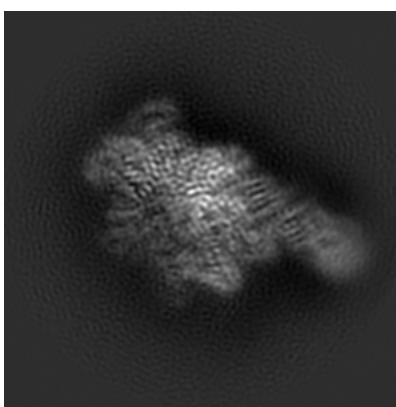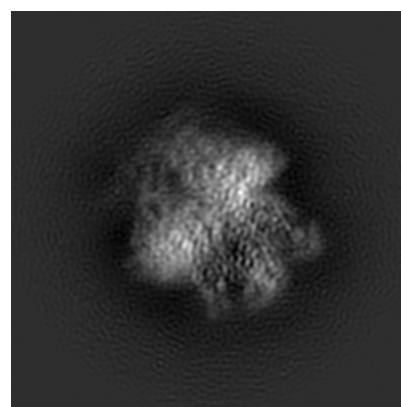
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
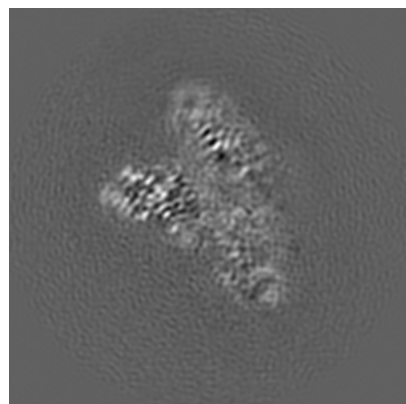
6.2.1 Primary map
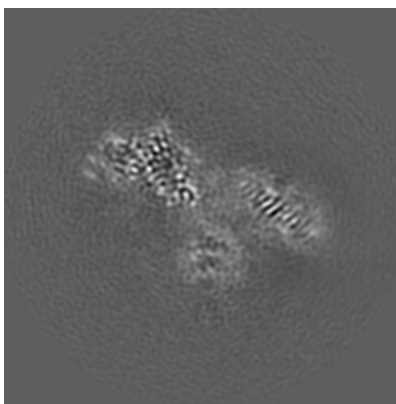
| X Index: 120 | Y Index: 120 | Z Index: 120 |
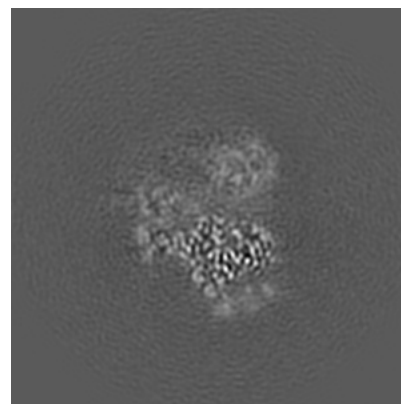
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ
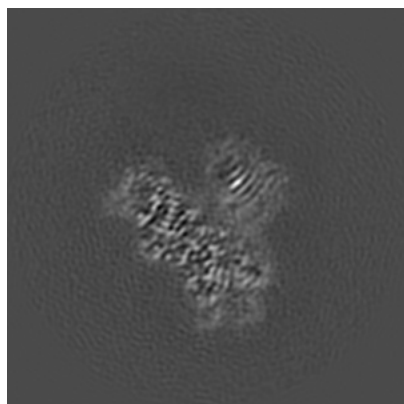
6.3.1 Primary map
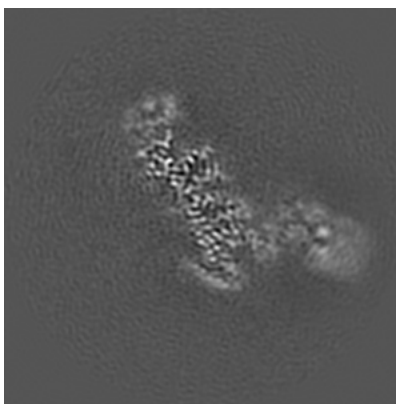
| X Index: 142 | Y Index: 101 | Z Index: 130 |
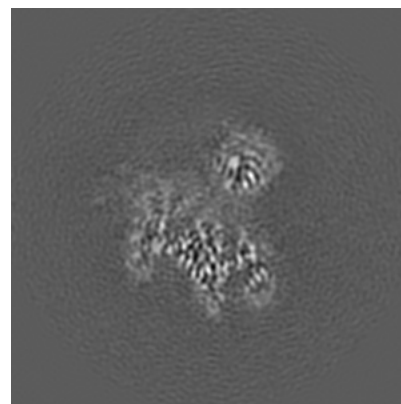
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map

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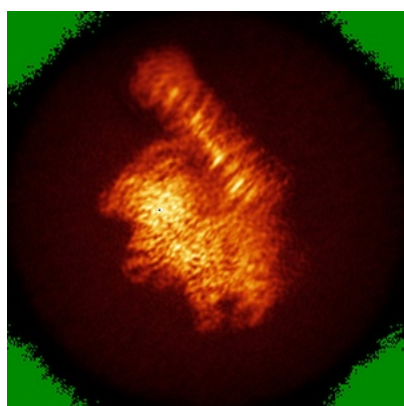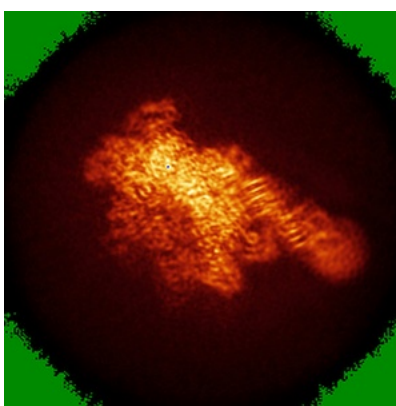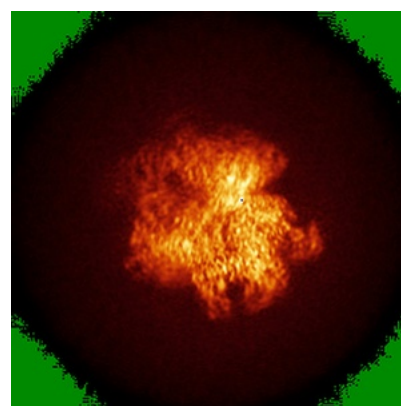
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

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 4.0. 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)
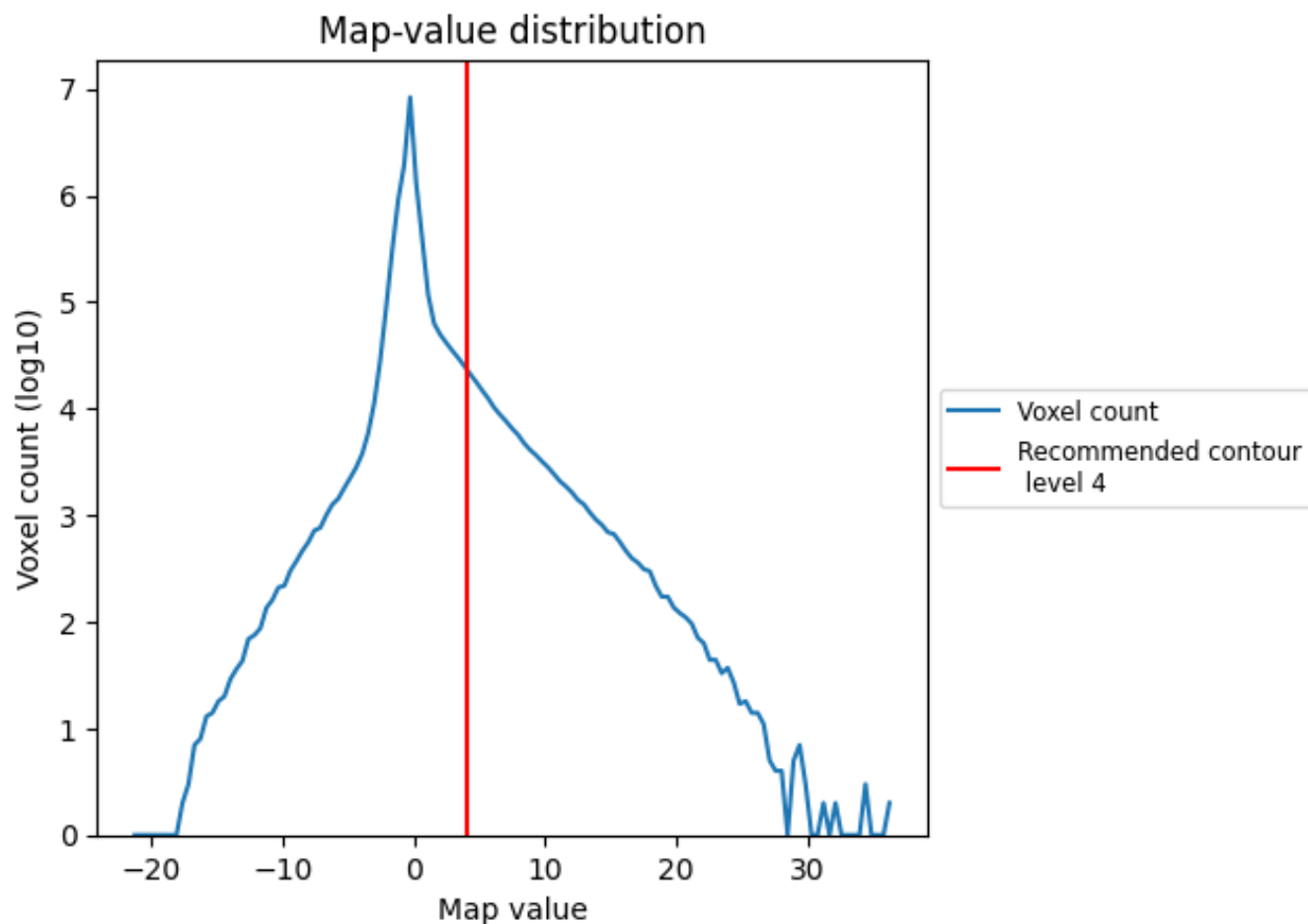
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
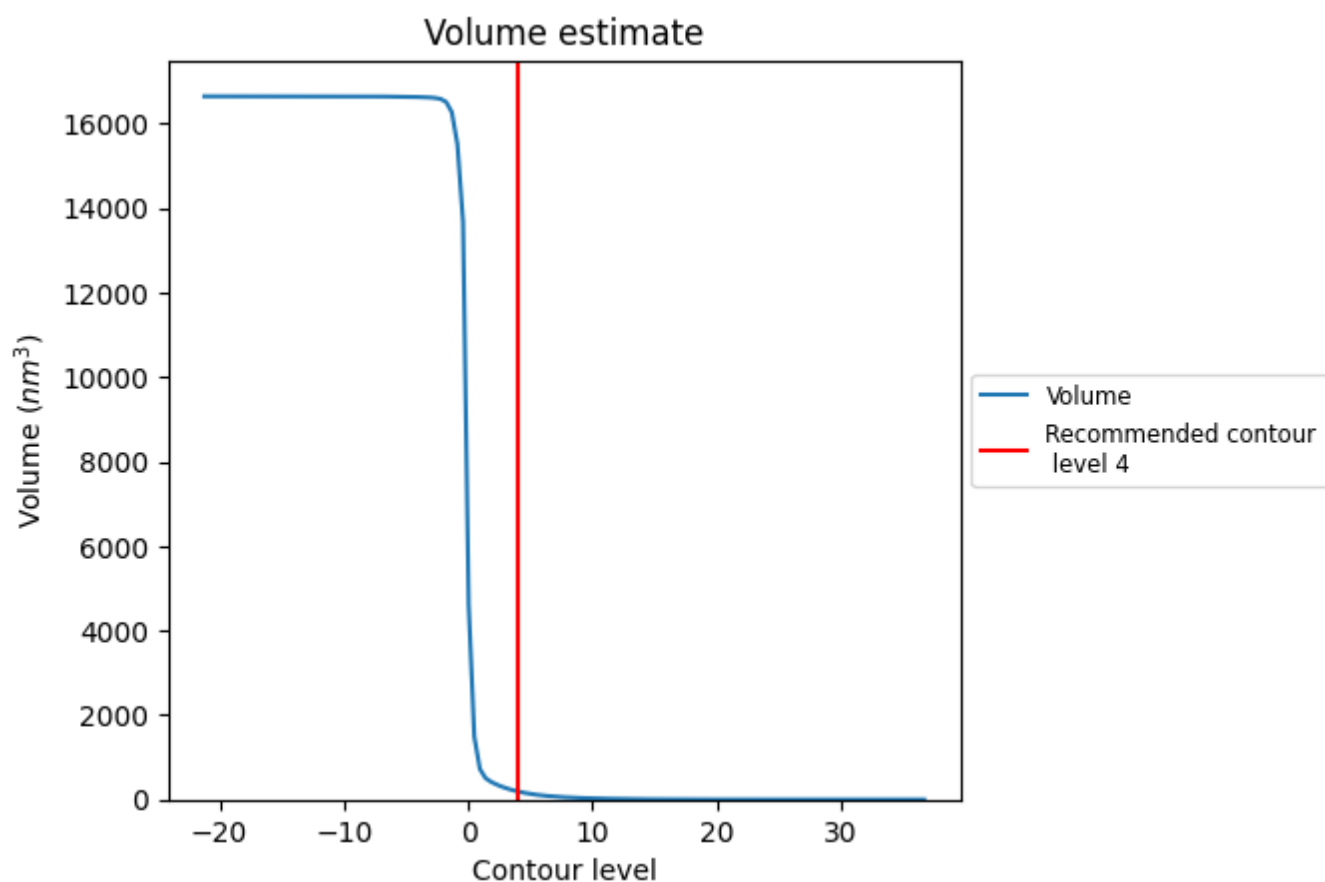
The volume at the recommended contour level is 192 nm^3; this corresponds to an approximate mass of 173 kDa.

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 ⓘ
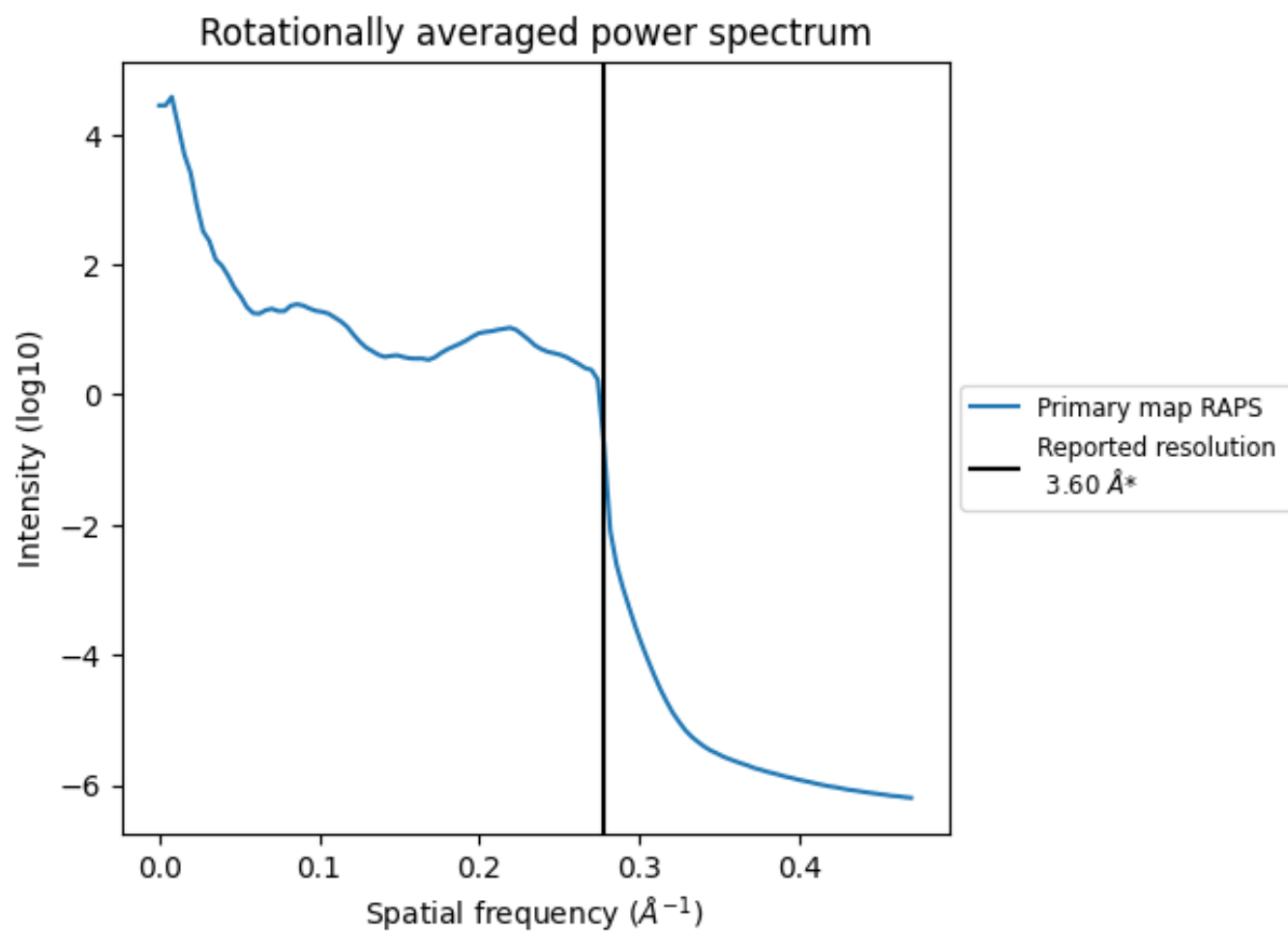

*Reported resolution corresponds to spatial frequency of 0.278 Å^{-1}

8   Fourier-Shell correlation (i)

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

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-23244 and PDB model 7L9P. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay ⓘ

X	Y	Z
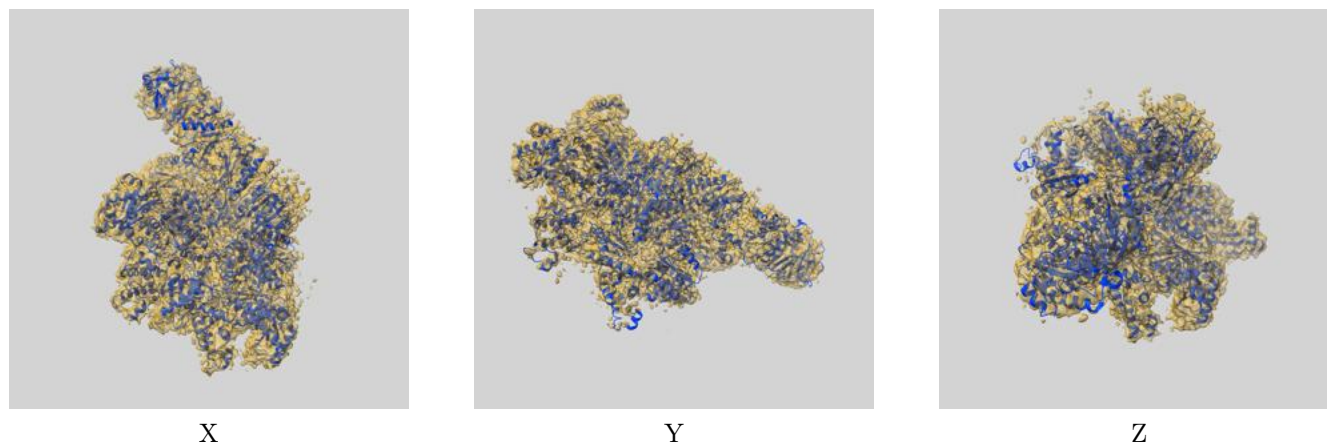
The images above show the 3D surface view of the map at the recommended contour level 4.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

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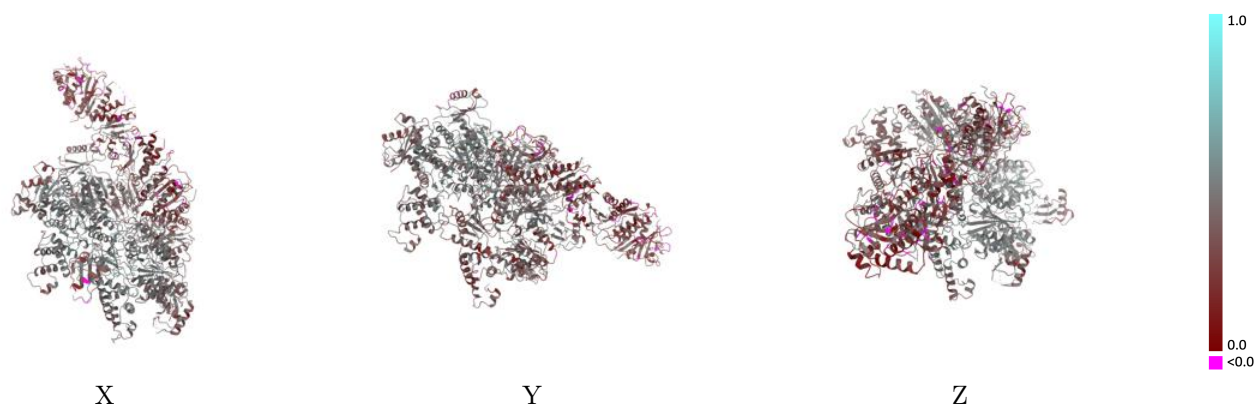
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X Y Z
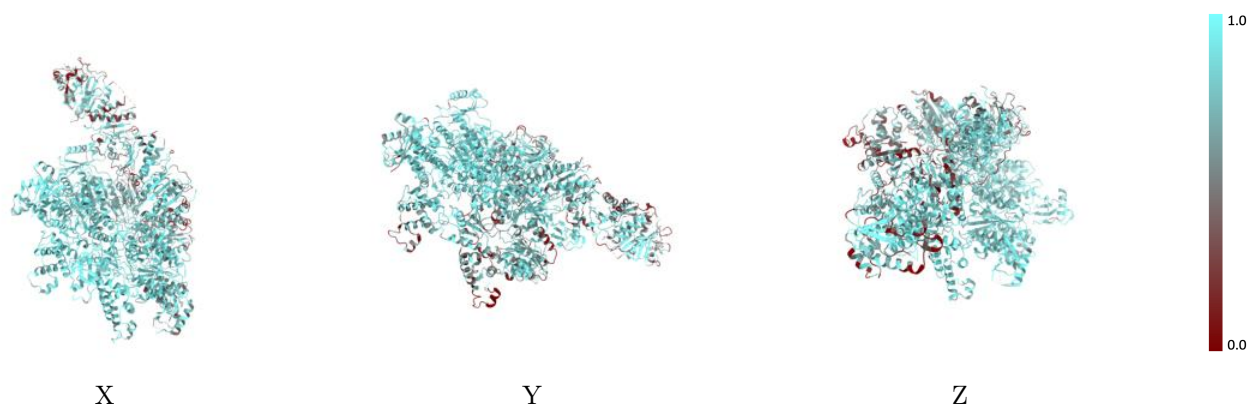
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (4).

9.4　Atom inclusion ⓘ
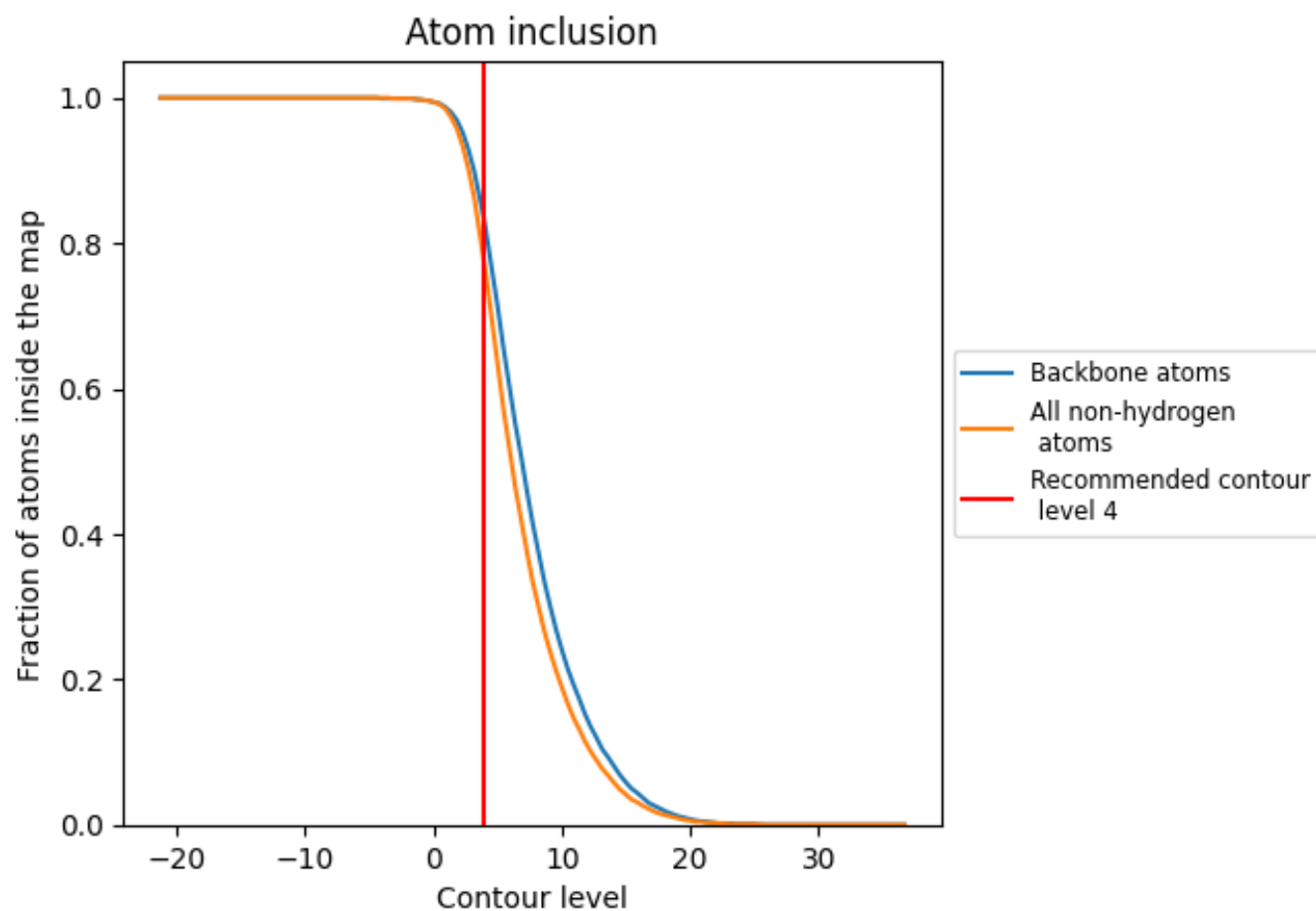
At the recommended contour level, 83% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7690	0.3970
A	0.6870	0.3990
B	0.8460	0.4480
C	0.8920	0.4700
D	0.8720	0.4620
E	0.8600	0.4400
F	0.5620	0.3600
G	0.6040	0.2200
I	0.7400	0.3080
J	0.7190	0.3060
K	0.6850	0.2810
X	0.5650	0.2880
Y	0.5410	0.2710

1.0

0.0

<0.0