WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Nov 14, 2023 – 09:14 PM JST

PDB ID	:	6ADB
Title	:	Crystal structure of the E148N mutant CLC-ec1 in 20mM bromide
Authors	:	Lim, H.-H.; Park, K.
Deposited on	:	2018-07-31
Resolution	:	2.69 Å(reported)

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

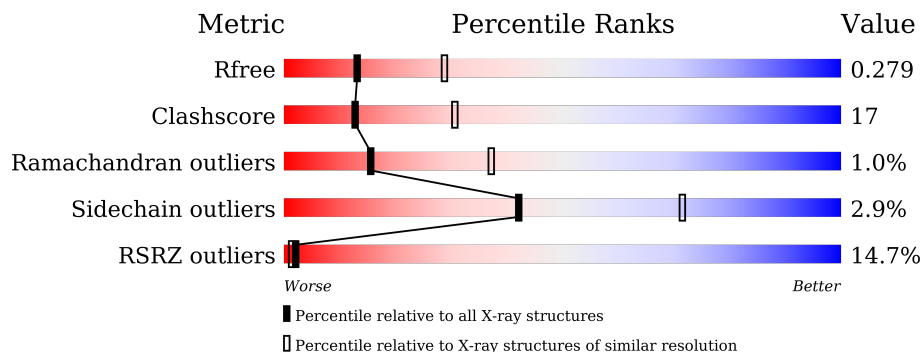|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.69 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	Percentile Ranks	Value
Rfree		0.279
Clashscore		17
Ramachandran outliers		1.0%
Sidechain outliers		2.9%
RSRZ outliers		14.7%

Worse — Better

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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

Mol	Chain	Length	Quality of chain
1	A	473	14% / 66% 27% • 6%
1	B	473	21% / 61% 31% • 7%
2	C	222	10% / 73% 26% •
2	E	222	9% / 73% 23% •
3	D	211	14% / 61% 37% •
3	F	211	10% / 69% 29% •

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The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	BR	A	501	-	-	X	-
4	BR	A	502	-	-	X	-
4	BR	B	501	-	-	X	-

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 13247 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called H(+)/Cl(-) exchange transporter ClcA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	444	Total	C	N	O	S	0	0	0
			3332	2189	561	562	20			
1	B	442	Total	C	N	O	S	0	0	0
			3314	2179	558	557	20			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	148	ASN	GLU	engineered mutation	UNP P37019
B	148	ASN	GLU	engineered mutation	UNP P37019

- Molecule 2 is a protein called antibody Fab fragment, heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	222	Total	C	N	O	S	0	0	0
			1681	1082	275	318	6			
2	E	221	Total	C	N	O	S	0	0	0
			1672	1077	274	315	6			

- Molecule 3 is a protein called antibody Fab fragment, light chain.

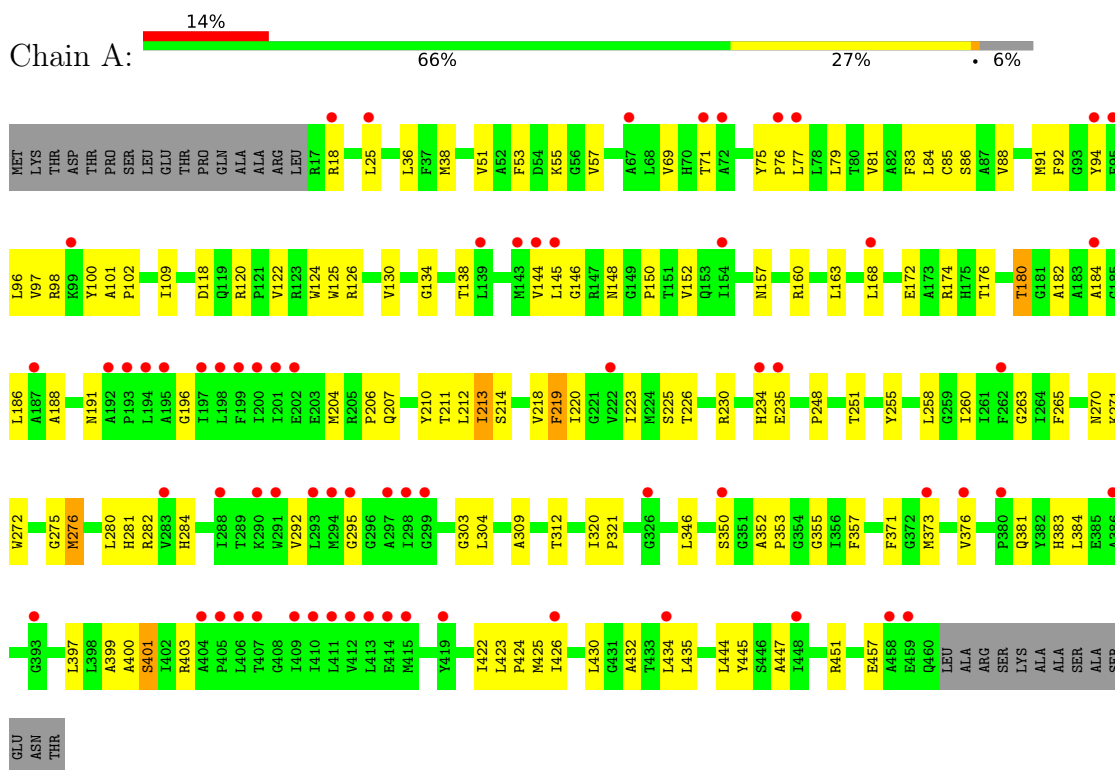| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	D	211	Total	C	N	O	S	0	0	0
			1621	1008	271	334	8			
3	F	211	Total	C	N	O	S	0	0	0
			1621	1008	271	334	8			

- Molecule 4 is BROMIDE ION (three-letter code: BR) (formula: Br) (labeled as "Ligand of Interest" by depositor).

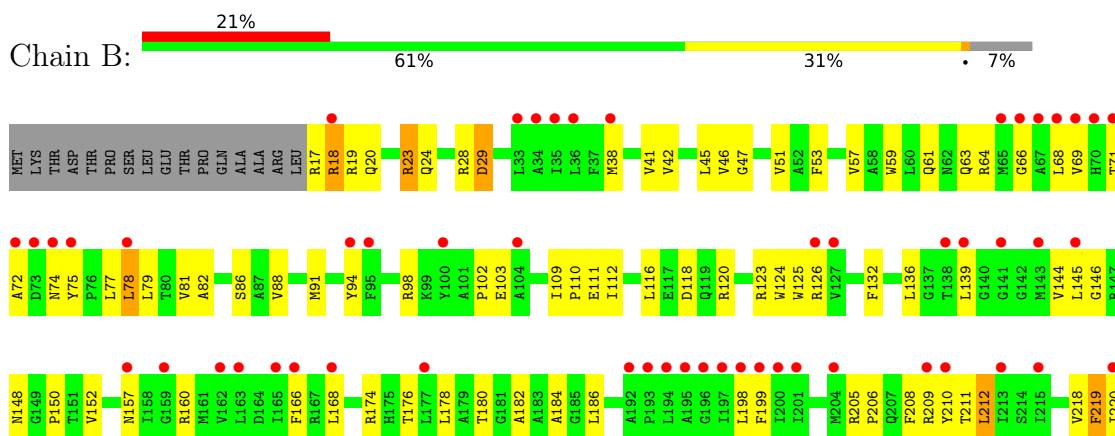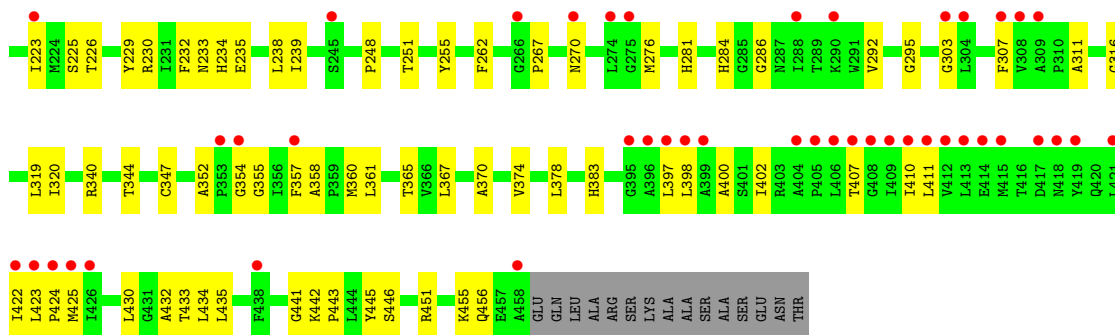| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	3	Total 3	Br 3	0	0
4	B	3	Total 3	Br 3	0	0

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 electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
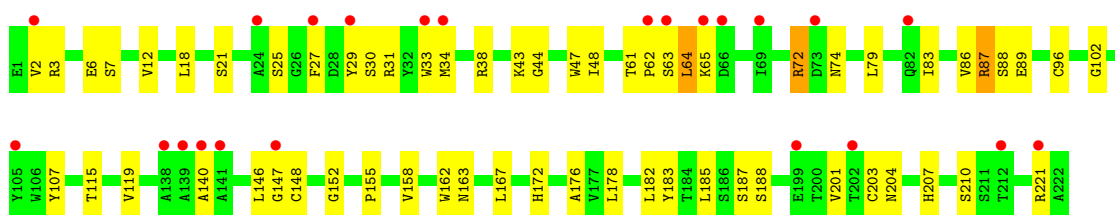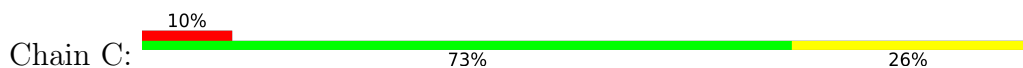
• Molecule 1: H(+)/Cl(-) exchange transporter ClcA

Chain A:
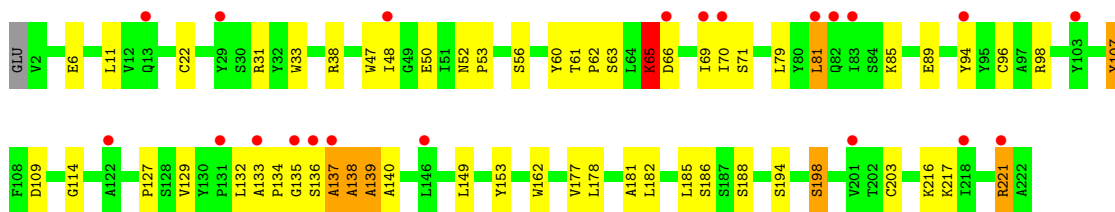

• Molecule 1: H(+)/Cl(-) exchange transporter ClcA

Chain B:
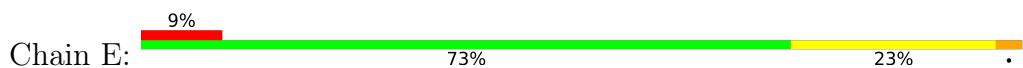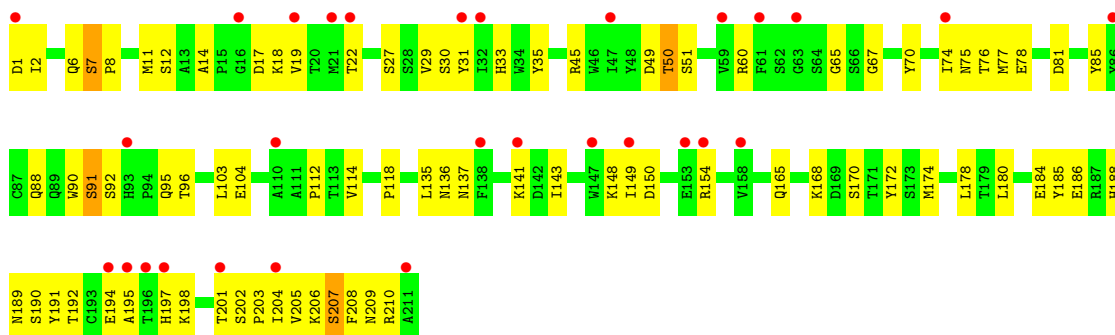
I223 M224 S225 T226 Y229 R230 I231 F232 N233 H234 E235 L238 I239 S245 P248 T251 Y255 F262 G266 P267 N270 L274 G275 M276 H281 H284 G285 G286 N287 I288 T289 K290 W291 V292 G295 G303 L304 F307 V308 A309 P310 A311 G316

L319 I320 R340 T344 C347 A352 P353 G354 G355 I356 F357 A358 P359 M360 L361 T365 V366 L367 A370 V374 L378 H383 G395 A396 L397 L398 A399 A400 S401 I402 R403 A404 P405 L406 T407 G408 I409 I410 L411 V412 L413 E414 M415 T416 D417 N418 Y419 Q420 L421

I422 L423 P424 M425 I426 L430 G431 A432 T433 L434 L435 F438 G441 K442 P443 L444 Y445 S446 R451 K455 Q456 E457 A458 GLU GLN LEU ALA ARG SER LYS ALA ALA SER ALA SER GLU ASN THR

• Molecule 2: antibody Fab fragment, heavy chain

Chain C:

10%
73%   26%

E1 V2 R3 E6 S7 V12 L18 S21 A24 S25 G26 F27 D28 Y29 S30 R31 Y32 W33 M34 R38 K43 G44 W47 I48 T61 P62 S63 L64 K65 D66 I69 R72 D73 N74 L79 Q82 I83 V86 R87 S88 E89 C96 G102

Y105 W106 Y107 T115 V119 A138 A139 A140 A141 L146 G147 C148 G152 P155 V158 W162 N163 L167 H172 A176 V177 L178 L182 Y183 T184 L185 S186 S187 S188 E199 T200 V201 T202 C203 N204 H207 S210 S211 T212 R221 A222

• Molecule 2: antibody Fab fragment, heavy chain

Chain E:

9%
73%   23%

GLU V2 E6 L11 V12 Q13 C22 Y29 S30 R31 Y32 W33 R38 W47 I48 G49 E50 I51 N52 P53 S56 Y60 T61 P62 S63 L64 K65 D66 I69 I70 S71 L79 Y80 L81 Q82 I83 S84 K85 E89 Y94 Y95 C96 A97 R98 Y103 Y107

F108 D109 G114 A122 P127 S128 V129 Y130 P131 L132 A133 P134 G135 S136 A137 A138 A139 A140 L146 L149 Y153 W162 V177 L178 A181 L182 L185 S186 S187 S188 S194 S198 V201 T202 C203 K216 K217 I218 R221 A222

• Molecule 3: antibody Fab fragment, light chain

Chain D:

14%
61%   37%

D1 I2 Q6 S7 P8 M11 S12 A13 A14 P15 G16 D17 K18 V19 T20 M21 T22 S27 S28 V29 S30 Y31 I32 H33 W34 Y35 R45 W46 I47 Y48 D49 T50 S51 V59 R60 F61 S62 G63 S64 G65 S66 G67 Y70 I74 N75 T76 M77 E78 D81 Y85 Y86

C87 Q88 Q89 W90 S91 S92 P94 Q95 T96 L103 E104 A110 A111 P112 T113 V114 L135 N136 N137 F138 K141 D142 I143 W147 K148 I149 D150 E153 R154 V158 Q165 K168 D169 S170 T171 Y172 S173 M174 L178 T179 L180 E184 Y185 E186 R187 H188

N189 S190 Y191 T192 C193 E194 A195 T196 H197 K198 T201 S202 P203 I204 V205 K206 S207 F208 N209 R210 A211

• Molecule 3: antibody Fab fragment, light chain

Chain F:

10%
69%   29%

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	231.90Å 97.98Å 170.79Å 90.00° 132.02° 90.00°	Depositor
Resolution (Å)	33.96 – 2.69 49.54 – 2.69	Depositor EDS
% Data completeness (in resolution range)	99.0 (33.96-2.69) 99.3 (49.54-2.69)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.34 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.237 , 0.278 0.239 , 0.279	Depositor DCC
R_{free} test set	3952 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	77.1	Xtriage
Anisotropy	0.462	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 64.3	EDS
L-test for twinning [2]	$< |L| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.006 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	13247	wwPDB-VP
Average B, all atoms (Å^2)	88.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.24% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	0.49	1/3404 (0.0%)	0.60	0/4620
1	B	0.43	0/3386	0.65	3/4596 (0.1%)
2	C	0.52	1/1730 (0.1%)	0.72	0/2367
2	E	0.50	0/1721	0.68	1/2355 (0.0%)
3	D	0.48	0/1660	0.66	0/2257
3	F	0.48	0/1660	0.67	0/2257
All	All	0.48	2/13561 (0.0%)	0.66	4/18452 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	150	PRO	N-CD	-14.03	1.28	1.47
2	C	148	CYS	CB-SG	-5.54	1.72	1.81

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	139	LEU	CA-CB-CG	6.22	129.60	115.30
1	B	212	LEU	CA-CB-CG	-5.34	103.03	115.30
1	B	78	LEU	CB-CG-CD1	-5.06	102.39	111.00
2	E	185	LEU	CA-CB-CG	5.03	126.88	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3332	0	3484	125	0
1	B	3314	0	3470	140	0
2	C	1681	0	1663	40	0
2	E	1672	0	1654	43	0
3	D	1621	0	1546	78	0
3	F	1621	0	1546	57	0
4	A	3	0	0	5	0
4	B	3	0	0	5	0
All	All	13247	0	13363	442	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 17.

All (442) 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)
3:D:194:GLU:HG2	3:D:205:VAL:HG12	1.16	1.11
2:E:133:ALA:O	2:E:221:ARG:NH1	1.88	1.05
3:D:60:ARG:NH1	3:D:81:ASP:OD1	1.89	1.05
3:D:95:GLN:OE1	3:D:95:GLN:N	1.94	1.00
3:F:95:GLN:H	3:F:95:GLN:CD	1.66	0.99
3:D:6:GLN:NE2	3:D:85:TYR:O	1.98	0.96
3:F:95:GLN:N	3:F:95:GLN:OE1	1.99	0.94
3:D:194:GLU:CG	3:D:205:VAL:HG12	2.00	0.90
1:A:146:GLY:HA3	4:A:501:BR:BR	2.27	0.89
1:B:18:ARG:H	1:B:18:ARG:HD3	1.36	0.89
1:B:320:ILE:HG23	1:B:365:THR:HG21	1.54	0.88
2:E:47:TRP:CD2	3:F:95:GLN:NE2	2.42	0.88
1:B:59:TRP:CE2	1:B:63:GLN:NE2	2.41	0.88
3:D:60:ARG:NH1	3:D:78:GLU:HB2	1.91	0.86
3:D:104:GLU:OE2	3:D:172:TYR:OH	1.95	0.84
3:F:192:THR:HG22	3:F:207:SER:HB3	1.60	0.84
1:A:98:ARG:HH22	1:A:102:PRO:HB3	1.44	0.82
3:D:114:VAL:HG22	3:D:135:LEU:HD22	1.63	0.81
1:A:206:PRO:HG2	1:A:211:THR:HG21	1.63	0.81
1:A:125:TRP:CD1	1:A:126:ARG:HG3	2.16	0.80
3:D:60:ARG:HB2	3:D:74:ILE:CD1	2.11	0.80
1:A:38:MET:HG3	1:A:168:LEU:HD11	1.62	0.80
1:A:101:ALA:HB3	1:A:130:VAL:HG11	1.63	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:219:PHE:HB3	1:B:430:LEU:HD21	1.64	0.79
3:D:60:ARG:HH12	3:D:78:GLU:HB2	1.50	0.77
2:E:70:ILE:HG13	2:E:81:LEU:HD12	1.68	0.76
1:A:124:TRP:HA	1:A:157:ASN:HD22	1.51	0.75
2:E:135:GLY:HA2	2:E:221:ARG:HD2	1.67	0.75
3:F:185:TYR:O	3:F:191:TYR:OH	2.05	0.75
1:A:176:THR:HG22	1:A:213:ILE:HA	1.67	0.75
2:E:134:PRO:C	2:E:221:ARG:NH1	2.40	0.75
1:A:126:ARG:O	1:A:130:VAL:HG12	1.87	0.75
2:E:135:GLY:O	2:E:137:ALA:N	2.20	0.75
2:E:134:PRO:C	2:E:221:ARG:HH11	1.90	0.74
1:A:430:LEU:HD11	1:B:219:PHE:CD1	2.22	0.74
3:F:194:GLU:HG2	3:F:205:VAL:HG13	1.69	0.74
3:D:31:TYR:HA	3:D:50:THR:HG23	1.70	0.74
2:C:30:SER:O	2:C:31:ARG:HB2	1.88	0.73
3:D:60:ARG:HD2	3:D:74:ILE:HD11	1.71	0.73
3:F:192:THR:HG22	3:F:207:SER:CB	2.18	0.73
1:A:207:GLN:NE2	1:B:28:ARG:HH11	1.86	0.73
1:B:206:PRO:HG2	1:B:211:THR:HG21	1.71	0.73
2:E:89:GLU:N	2:E:89:GLU:OE2	2.22	0.72
1:B:145:LEU:HD11	1:B:347:CYS:HB3	1.72	0.72
1:A:18:ARG:NH2	1:B:456:GLN:CD	2.44	0.71
1:B:72:ALA:HA	1:B:78:LEU:HD22	1.72	0.71
2:C:221:ARG:HH12	3:D:118:PRO:HD2	1.56	0.71
1:A:422:ILE:HA	1:A:425:MET:HE2	1.73	0.71
1:A:83:PHE:HD1	1:A:84:LEU:HD12	1.55	0.70
3:D:29:VAL:O	3:D:70:TYR:OH	2.07	0.70
1:B:150:PRO:HD3	1:B:354:GLY:HA2	1.73	0.70
1:B:229:TYR:OH	1:B:238:LEU:HD11	1.91	0.70
2:C:163:ASN:HD22	2:C:167:LEU:HD13	1.56	0.70
3:F:186:GLU:O	3:F:210:ARG:NH2	2.25	0.69
1:B:38:MET:HA	1:B:41:VAL:HG13	1.74	0.69
3:D:60:ARG:HB2	3:D:74:ILE:HD12	1.74	0.69
3:D:104:GLU:HB2	3:D:165:GLN:OE1	1.92	0.69
1:A:18:ARG:NH2	1:B:456:GLN:OE1	2.25	0.69
3:F:7:SER:HB3	3:F:22:THR:OG1	1.92	0.69
1:B:68:LEU:HD13	1:B:307:PHE:HD1	1.59	0.68
1:A:148:ASN:O	1:A:152:VAL:HG22	1.95	0.67
1:A:426:ILE:HG23	1:B:219:PHE:CE2	2.30	0.67
1:A:191:ASN:HD21	1:A:230:ARG:NH1	1.92	0.67
1:B:374:VAL:HG12	1:B:378:LEU:HD11	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:88:SER:HA	2:C:119:VAL:HG13	1.76	0.66
1:A:98:ARG:NH2	1:A:102:PRO:HB3	2.10	0.66
3:D:60:ARG:HB2	3:D:74:ILE:HD11	1.76	0.66
3:D:19:VAL:HB	3:D:74:ILE:CG2	2.25	0.66
3:F:192:THR:CG2	3:F:207:SER:HB3	2.26	0.66
3:F:132:VAL:HG22	3:F:177:THR:HG23	1.77	0.66
1:B:184:ALA:HB1	1:B:225:SER:HB2	1.78	0.65
1:B:124:TRP:HA	1:B:157:ASN:HD22	1.61	0.65
1:B:239:ILE:HD11	1:B:320:ILE:CG2	2.26	0.65
2:E:47:TRP:CE3	3:F:95:GLN:NE2	2.64	0.65
2:E:98:ARG:NH1	2:E:109:ASP:OD2	2.28	0.65
1:A:210:TYR:HB3	1:B:209:ARG:HH11	1.61	0.65
3:D:154:ARG:HH12	3:D:180:LEU:HD21	1.62	0.65
3:D:192:THR:HG22	3:D:207:SER:HB2	1.79	0.65
2:E:134:PRO:O	2:E:221:ARG:NH1	2.31	0.64
1:B:98:ARG:NH2	1:B:102:PRO:HB3	2.12	0.64
2:C:38:ARG:HD3	2:C:48:ILE:HD11	1.80	0.64
2:C:34:MET:HB3	2:C:79:LEU:HD22	1.79	0.64
1:A:376:VAL:HG12	1:A:384:LEU:HB2	1.79	0.64
2:C:64:LEU:HD12	2:C:65:LYS:H	1.61	0.64
1:A:430:LEU:HD21	1:B:219:PHE:HB3	1.80	0.64
1:A:184:ALA:HB1	1:A:225:SER:HB2	1.80	0.64
1:B:20:GLN:O	1:B:24:GLN:HG3	1.98	0.64
1:B:360:MET:HE3	1:B:398:LEU:HD23	1.78	0.64
3:F:145:VAL:HG11	3:F:174:MET:HE1	1.80	0.63
3:F:146:LYS:HB3	3:F:194:GLU:HB2	1.81	0.63
1:B:20:GLN:OE1	1:B:24:GLN:NE2	2.32	0.63
1:A:75:TYR:CE2	1:A:79:LEU:HD11	2.34	0.62
2:E:149:LEU:HD12	2:E:186:SER:OG	2.00	0.62
3:D:31:TYR:HB3	3:D:49:ASP:HA	1.82	0.62
2:C:207:HIS:HD2	2:C:210:SER:OG	1.83	0.62
1:B:17:ARG:O	1:B:20:GLN:HG3	2.00	0.62
1:B:59:TRP:CD2	1:B:63:GLN:NE2	2.62	0.61
1:A:255:TYR:CD1	1:A:424:PRO:HB3	2.36	0.61
1:B:74:ASN:HB3	1:B:77:LEU:HB3	1.82	0.61
1:A:271:LYS:NZ	1:A:275:GLY:HA3	2.16	0.61
2:E:85:LYS:HD2	2:E:85:LYS:N	2.15	0.61
1:A:447:ALA:O	1:A:451:ARG:HG3	2.00	0.61
1:B:112:ILE:HG23	1:B:178:LEU:HD21	1.83	0.61
2:C:87:ARG:HH11	2:C:89:GLU:HB3	1.66	0.61
3:D:185:TYR:CZ	3:D:210:ARG:HD3	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:146:GLY:HA3	4:B:501:BR:BR	2.56	0.60
1:B:180:THR:HG22	1:B:218:VAL:HA	1.81	0.60
1:A:118:ASP:CG	1:A:174:ARG:HH21	2.03	0.60
2:E:47:TRP:CE2	3:F:95:GLN:NE2	2.69	0.60
1:A:100:TYR:O	1:A:126:ARG:NH1	2.34	0.60
1:B:219:PHE:O	1:B:223:ILE:HD12	2.01	0.60
1:B:125:TRP:CD1	1:B:126:ARG:HG3	2.37	0.60
3:F:148:LYS:HB2	3:F:192:THR:OG1	2.02	0.60
1:A:94:TYR:CZ	1:A:352:ALA:HB2	2.37	0.59
3:D:75:ASN:O	3:D:76:THR:HG22	2.02	0.59
1:A:172:GLU:O	1:A:176:THR:HG23	2.02	0.59
2:C:2:VAL:HG23	2:C:27:PHE:CD1	2.37	0.59
3:F:180:LEU:HD22	3:F:184:GLU:HG2	1.83	0.59
1:A:276:MET:O	1:A:280:LEU:HD12	2.03	0.59
1:B:41:VAL:O	1:B:45:LEU:HG	2.03	0.59
2:C:7:SER:HA	2:C:115:THR:HG21	1.84	0.59
1:A:36:LEU:HD13	1:B:434:LEU:HD21	1.85	0.58
3:D:19:VAL:HG11	3:D:103:LEU:CD1	2.33	0.58
3:D:35:TYR:OH	3:D:88:GLN:OE1	2.15	0.58
2:C:146:LEU:HD12	2:C:201:VAL:HG11	1.84	0.58
3:D:7:SER:HB3	3:D:22:THR:HB	1.85	0.58
1:A:207:GLN:HE21	1:B:28:ARG:HD2	1.66	0.58
1:B:144:VAL:O	1:B:144:VAL:HG23	2.02	0.58
1:B:150:PRO:CD	1:B:354:GLY:HA2	2.33	0.58
1:B:145:LEU:CD1	1:B:347:CYS:HB3	2.33	0.58
1:A:423:LEU:HD13	1:B:230:ARG:CZ	2.34	0.58
1:B:59:TRP:CZ2	1:B:63:GLN:NE2	2.71	0.58
1:B:234:HIS:CE1	1:B:235:GLU:HG3	2.39	0.58
3:D:19:VAL:HB	3:D:74:ILE:HG22	1.85	0.58
3:D:17:ASP:OD1	3:D:18:LYS:N	2.37	0.57
1:A:75:TYR:O	1:A:79:LEU:HD12	2.03	0.57
1:B:239:ILE:HD11	1:B:320:ILE:HG21	1.86	0.57
2:E:85:LYS:HD2	2:E:85:LYS:H	1.67	0.57
1:A:434:LEU:HD11	1:B:220:ILE:HD11	1.87	0.57
1:B:248:PRO:O	1:B:251:THR:HB	2.05	0.57
1:A:146:GLY:CA	4:A:501:BR:BR	3.06	0.57
1:B:66:GLY:O	1:B:69:VAL:HG12	2.04	0.57
2:C:12:VAL:HG11	2:C:18:LEU:HD23	1.86	0.57
1:A:176:THR:HG22	1:A:214:SER:H	1.69	0.57
1:B:358:ALA:HA	1:B:361:LEU:HD12	1.86	0.57
2:C:162:TRP:CZ3	2:C:203:CYS:HB3	2.40	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:178:LEU:HB2	2:C:183:TYR:CE2	2.39	0.57
1:A:207:GLN:HE21	1:B:28:ARG:HH11	1.48	0.57
1:B:38:MET:O	1:B:42:VAL:HG23	2.05	0.57
3:D:7:SER:HB3	3:D:8:PRO:HD3	1.87	0.57
1:A:276:MET:HG3	1:A:280:LEU:CD1	2.34	0.56
1:A:346:LEU:O	1:A:350:SER:HB3	2.05	0.56
1:B:267:PRO:HB3	1:B:441:GLY:HA3	1.86	0.56
1:B:110:PRO:HG2	4:B:503:BR:BR	2.61	0.56
1:B:68:LEU:HA	1:B:78:LEU:HD11	1.88	0.56
1:A:92:PHE:O	1:A:96:LEU:HD12	2.06	0.56
1:A:138:THR:HG21	1:A:353:PRO:O	2.06	0.56
1:B:357:PHE:HE2	1:B:411:LEU:HD22	1.71	0.56
1:B:198:LEU:HG	1:B:410:ILE:HD12	1.88	0.55
1:A:191:ASN:ND2	1:A:230:ARG:NH1	2.54	0.55
1:B:123:ARG:HE	1:B:126:ARG:HD2	1.70	0.55
1:A:400:ALA:HB2	1:A:432:ALA:HB1	1.89	0.55
1:A:381:GLN:OE1	1:A:381:GLN:N	2.27	0.55
1:B:176:THR:O	1:B:180:THR:HG23	2.07	0.55
1:B:402:ILE:HD12	1:B:402:ILE:N	2.22	0.55
3:F:148:LYS:HA	3:F:152:SER:O	2.08	0.54
1:A:430:LEU:HD22	1:B:223:ILE:HD11	1.88	0.54
3:D:1:ASP:OD2	3:D:1:ASP:N	2.36	0.54
3:F:144:ASN:HB2	3:F:196:THR:OG1	2.06	0.54
1:A:92:PHE:CZ	1:A:96:LEU:HD11	2.43	0.54
3:F:38:LYS:O	3:F:41:THR:HB	2.07	0.54
1:A:77:LEU:O	1:A:81:VAL:HG23	2.07	0.54
1:B:132:PHE:O	1:B:136:LEU:HG	2.08	0.54
2:E:149:LEU:HD13	3:F:132:VAL:HG21	1.89	0.54
3:F:192:THR:CB	3:F:207:SER:HB3	2.38	0.54
1:B:94:TYR:CZ	1:B:352:ALA:HB2	2.43	0.53
3:F:182:LYS:O	3:F:186:GLU:HG3	2.08	0.53
1:A:176:THR:CG2	1:A:214:SER:H	2.21	0.53
3:F:181:THR:HG23	3:F:184:GLU:H	1.73	0.53
2:C:43:LYS:CD	2:C:44:GLY:H	2.22	0.53
3:F:145:VAL:HA	3:F:194:GLU:O	2.08	0.53
1:B:47:GLY:O	1:B:51:VAL:HG23	2.08	0.53
1:B:255:TYR:CD1	1:B:424:PRO:HB3	2.44	0.53
3:D:60:ARG:NH1	3:D:78:GLU:CB	2.69	0.53
2:E:22:CYS:HB3	2:E:79:LEU:HB3	1.90	0.53
1:A:355:GLY:HA3	4:A:501:BR:BR	2.64	0.52
1:B:109:ILE:HB	1:B:110:PRO:HD3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:162:TRP:CZ3	2:E:203:CYS:HB3	2.44	0.52
1:A:281:HIS:HA	1:A:284:HIS:CE1	2.44	0.52
1:A:220:ILE:HD11	1:B:434:LEU:HD11	1.92	0.52
3:F:44:LYS:NZ	3:F:54:THR:HG21	2.25	0.52
1:A:191:ASN:OD1	1:A:230:ARG:NH1	2.43	0.52
1:A:251:THR:HG22	1:A:255:TYR:HE1	1.73	0.52
2:C:43:LYS:HD2	2:C:44:GLY:H	1.74	0.52
1:A:191:ASN:HD21	1:A:230:ARG:HH11	1.57	0.52
3:F:60:ARG:NH2	3:F:81:ASP:OD2	2.42	0.52
3:D:141:LYS:HD3	3:D:172:TYR:CZ	2.45	0.52
3:D:60:ARG:CD	3:D:74:ILE:HD11	2.40	0.52
1:A:94:TYR:CE1	1:A:295:GLY:HA3	2.45	0.52
2:C:87:ARG:O	2:C:119:VAL:HG11	2.10	0.52
3:F:30:SER:HA	3:F:70:TYR:OH	2.10	0.52
3:D:14:ALA:O	3:D:17:ASP:HB3	2.10	0.51
2:E:127:PRO:HB3	2:E:153:TYR:HB3	1.93	0.51
2:C:152:GLY:HA2	2:C:182:LEU:HB3	1.91	0.51
2:C:162:TRP:CH2	2:C:203:CYS:HB3	2.45	0.51
1:B:144:VAL:CG2	1:B:344:THR:HA	2.40	0.51
2:C:176:ALA:HB2	2:C:185:LEU:HD23	1.93	0.51
3:D:148:LYS:HB2	3:D:192:THR:OG1	2.10	0.51
1:B:148:ASN:HB3	4:B:501:BR:BR	2.65	0.51
1:B:281:HIS:HA	1:B:284:HIS:CE1	2.46	0.51
1:B:400:ALA:HB2	1:B:432:ALA:HB1	1.92	0.51
3:D:180:LEU:HD23	3:D:184:GLU:OE1	2.09	0.51
1:B:451:ARG:O	1:B:455:LYS:HE2	2.11	0.51
2:C:12:VAL:O	2:C:119:VAL:HA	2.12	0.50
2:C:72:ARG:HD3	2:C:74:ASN:OD1	2.11	0.50
3:D:197:HIS:CG	3:D:198:LYS:H	2.29	0.50
1:A:191:ASN:ND2	1:A:230:ARG:HH11	2.10	0.50
1:B:144:VAL:HG21	1:B:344:THR:HA	1.94	0.50
1:B:145:LEU:HD23	1:B:354:GLY:C	2.32	0.50
2:C:47:TRP:CE2	3:D:95:GLN:NE2	2.80	0.50
1:B:20:GLN:HA	1:B:23:ARG:NH1	2.27	0.50
2:E:47:TRP:HZ2	2:E:50:GLU:HG2	1.77	0.50
1:A:122:VAL:HB	1:A:160:ARG:HG2	1.93	0.49
1:A:260:ILE:HG23	1:A:435:LEU:HG	1.93	0.49
3:D:31:TYR:HA	3:D:50:THR:CG2	2.39	0.49
2:E:38:ARG:HD3	2:E:48:ILE:HD11	1.94	0.49
2:E:137:ALA:O	2:E:139:ALA:N	2.42	0.49
1:A:180:THR:HB	1:A:218:VAL:HA	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:118:ASP:CG	1:B:174:ARG:HH21	2.12	0.49
2:C:155:PRO:O	2:C:207:HIS:HE1	1.95	0.49
3:D:136:ASN:HB3	3:D:137:ASN:HD22	1.78	0.49
3:F:186:GLU:C	3:F:188:HIS:H	2.16	0.49
1:B:148:ASN:HD21	1:B:186:LEU:HD12	1.77	0.49
3:D:2:ILE:HD12	3:D:27:SER:HB2	1.95	0.49
1:B:77:LEU:O	1:B:81:VAL:HG12	2.13	0.49
1:B:61:GLN:OE1	1:B:64:ARG:NH2	2.46	0.49
3:D:191:TYR:HB2	3:D:208:PHE:CE2	2.47	0.49
1:A:109:ILE:HG12	1:A:152:VAL:HG21	1.94	0.49
3:F:80:GLU:HA	3:F:167:SER:O	2.13	0.49
1:A:83:PHE:CD1	1:A:84:LEU:HD12	2.42	0.49
1:A:18:ARG:NH2	1:B:456:GLN:NE2	2.61	0.48
1:A:270:ASN:ND2	1:A:444:LEU:HD13	2.28	0.48
1:A:144:VAL:O	1:A:145:LEU:HG	2.14	0.48
3:D:74:ILE:HG12	3:D:81:ASP:OD2	2.12	0.48
1:A:234:HIS:HD1	1:A:235:GLU:HG3	1.78	0.48
1:A:186:LEU:HD22	1:A:196:GLY:HA2	1.96	0.48
3:D:30:SER:H	3:D:91:SER:HB3	1.78	0.48
3:F:20:THR:HG23	3:F:73:THR:OG1	2.13	0.48
2:E:177:VAL:HG11	3:F:159:LEU:HD13	1.95	0.48
1:A:97:VAL:HA	1:A:130:VAL:HG21	1.95	0.48
3:F:95:GLN:CD	3:F:95:GLN:N	2.45	0.48
1:B:355:GLY:HA3	4:B:501:BR:BR	2.69	0.48
3:D:186:GLU:O	3:D:210:ARG:NH2	2.47	0.48
1:A:152:VAL:HG12	1:A:182:ALA:O	2.14	0.48
1:B:152:VAL:HG13	1:B:182:ALA:HB1	1.95	0.48
1:A:188:ALA:HB2	1:A:225:SER:OG	2.13	0.47
1:A:226:THR:HG21	1:B:423:LEU:HD11	1.95	0.47
2:C:86:VAL:HG12	2:C:119:VAL:HG21	1.96	0.47
3:D:7:SER:CB	3:D:8:PRO:HD3	2.43	0.47
3:F:66:SER:HA	3:F:70:TYR:CZ	2.48	0.47
3:F:154:ARG:HE	3:F:156:ASN:HB2	1.79	0.47
1:A:25:LEU:HD23	1:B:208:PHE:HE1	1.79	0.47
2:C:107:TYR:HB3	3:D:33:HIS:CE1	2.49	0.47
2:E:132:LEU:HD11	2:E:149:LEU:HB2	1.95	0.47
3:F:150:ASP:HA	3:F:190:SER:HB3	1.97	0.47
3:D:2:ILE:O	3:D:96:THR:HG21	2.14	0.47
1:B:71:THR:HB	1:B:77:LEU:HD23	1.95	0.47
1:B:422:ILE:HA	1:B:425:MET:HE3	1.96	0.47
2:E:66:ASP:HB3	2:E:69:ILE:HD11	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:107:TYR:HB3	3:F:33:HIS:CD2	2.49	0.47
1:A:109:ILE:HG23	1:A:204:MET:SD	2.55	0.47
1:B:38:MET:HE1	1:B:166:PHE:CD2	2.49	0.47
1:B:51:VAL:HG11	1:B:232:PHE:HB2	1.97	0.47
1:A:148:ASN:HD21	1:A:186:LEU:HD12	1.80	0.47
3:D:104:GLU:OE1	3:D:141:LYS:HE2	2.15	0.47
2:E:70:ILE:CG1	2:E:81:LEU:HD12	2.43	0.47
1:A:251:THR:HG22	1:A:255:TYR:CE1	2.49	0.46
1:A:399:ALA:O	1:A:403:ARG:HA	2.16	0.46
1:B:68:LEU:HD13	1:B:307:PHE:CD1	2.44	0.46
1:B:397:LEU:HD23	1:B:397:LEU:HA	1.72	0.46
1:B:430:LEU:HA	1:B:433:THR:HG22	1.98	0.46
2:C:18:LEU:HD11	2:C:83:ILE:HD12	1.97	0.46
3:D:112:PRO:HG3	3:D:143:ILE:HD11	1.96	0.46
1:B:212:LEU:HD23	1:B:212:LEU:HA	1.64	0.46
1:B:53:PHE:O	1:B:57:VAL:HG23	2.16	0.46
2:C:87:ARG:HH11	2:C:89:GLU:CB	2.28	0.46
1:B:91:MET:HG2	1:B:292:VAL:O	2.14	0.46
3:D:60:ARG:NH1	3:D:78:GLU:HG2	2.31	0.46
1:A:422:ILE:HA	1:A:422:ILE:HD12	1.79	0.46
1:B:118:ASP:OD1	1:B:174:ARG:NH2	2.29	0.46
1:B:374:VAL:HG12	1:B:378:LEU:CD1	2.45	0.46
1:A:91:MET:HG2	1:A:292:VAL:O	2.16	0.46
1:B:360:MET:HE1	1:B:402:ILE:HD11	1.97	0.46
1:B:445:TYR:OH	4:B:502:BR:BR	2.77	0.46
3:D:77:MET:HE2	3:D:103:LEU:HD21	1.98	0.46
1:B:229:TYR:O	1:B:233:ASN:HB2	2.16	0.46
1:B:360:MET:SD	1:B:402:ILE:HD11	2.56	0.46
3:D:90:TRP:CG	3:D:95:GLN:HB3	2.51	0.46
1:A:160:ARG:NE	1:A:163:LEU:HD23	2.31	0.45
3:F:49:ASP:O	3:F:50:THR:HB	2.17	0.45
1:A:397:LEU:HD23	1:A:397:LEU:HA	1.68	0.45
1:B:116:LEU:HG	1:B:178:LEU:HD22	1.98	0.45
3:D:198:LYS:HD2	3:D:198:LYS:HA	1.86	0.45
1:A:212:LEU:HD12	1:A:212:LEU:HA	1.71	0.45
1:B:443:PRO:HB2	1:B:446:SER:HB2	1.97	0.45
1:B:120:ARG:HE	1:B:120:ARG:HB3	1.42	0.45
1:B:199:PHE:CD1	1:B:407:THR:HG21	2.52	0.45
1:A:53:PHE:O	1:A:57:VAL:HG23	2.16	0.45
1:A:223:ILE:HD11	1:B:430:LEU:HD22	1.98	0.45
1:A:276:MET:HG3	1:A:280:LEU:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:61:THR:O	2:C:63:SER:N	2.49	0.45
3:D:76:THR:O	3:D:76:THR:HG23	2.17	0.45
3:D:149:ILE:HD11	3:D:178:LEU:HD21	1.99	0.45
3:F:65:GLY:HA3	3:F:70:TYR:HA	1.98	0.45
1:B:78:LEU:HD12	1:B:78:LEU:HA	1.55	0.45
1:B:19:ARG:O	1:B:23:ARG:HG2	2.17	0.45
1:B:434:LEU:HD23	1:B:434:LEU:HA	1.65	0.45
2:E:194:SER:O	2:E:198:SER:HB3	2.16	0.45
1:A:51:VAL:O	1:A:55:LYS:HG2	2.17	0.45
1:B:206:PRO:CG	1:B:211:THR:HG21	2.45	0.45
1:A:226:THR:CG2	1:B:423:LEU:HD11	2.47	0.44
1:A:255:TYR:CG	1:A:424:PRO:HB3	2.53	0.44
1:A:120:ARG:HE	1:A:120:ARG:HB3	1.56	0.44
1:A:219:PHE:CG	1:B:430:LEU:HD11	2.52	0.44
1:B:75:TYR:O	1:B:79:LEU:HG	2.17	0.44
3:D:150:ASP:HA	3:D:190:SER:OG	2.17	0.44
1:B:284:HIS:C	1:B:286:GLY:H	2.21	0.44
2:E:129:VAL:O	2:E:216:LYS:HE3	2.17	0.44
3:F:196:THR:HG22	3:F:203:PRO:HB3	1.99	0.44
1:B:360:MET:HE2	1:B:360:MET:HB2	1.81	0.44
3:D:35:TYR:CD2	3:D:45:ARG:HA	2.52	0.44
1:A:373:MET:HA	1:A:376:VAL:HG22	2.00	0.44
1:A:430:LEU:CD2	1:B:223:ILE:HD11	2.48	0.44
1:B:86:SER:OG	1:B:303:GLY:HA3	2.17	0.44
3:F:1:ASP:OD1	3:F:1:ASP:N	2.45	0.44
3:F:117:PHE:HA	3:F:118:PRO:HD3	1.88	0.44
2:E:60:TYR:CE2	2:E:70:ILE:HD12	2.52	0.44
1:A:86:SER:OG	1:A:303:GLY:HA3	2.17	0.44
2:C:3:ARG:HB2	2:C:25:SER:OG	2.17	0.44
3:F:60:ARG:HD2	3:F:81:ASP:OD1	2.17	0.44
3:F:112:PRO:HG3	3:F:143:ILE:HD11	1.99	0.44
1:A:69:VAL:C	1:A:71:THR:H	2.21	0.44
3:D:194:GLU:HG2	3:D:205:VAL:CG1	2.11	0.44
2:E:6:GLU:CD	2:E:114:GLY:H	2.20	0.44
2:E:11:LEU:HD12	2:E:11:LEU:HA	1.81	0.44
1:A:276:MET:HG3	1:A:280:LEU:HD11	2.00	0.43
2:C:172:HIS:HE1	3:D:136:ASN:CG	2.21	0.43
3:D:19:VAL:HG11	3:D:103:LEU:HD13	1.99	0.43
1:B:42:VAL:O	1:B:46:VAL:HG23	2.18	0.43
1:A:265:PHE:CD2	1:A:397:LEU:HD21	2.53	0.43
1:B:94:TYR:CE1	1:B:295:GLY:HA3	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:383:HIS:HD2	2:E:33:TRP:CE3	2.35	0.43
3:D:30:SER:HB3	3:D:31:TYR:CD2	2.52	0.43
3:D:49:ASP:O	3:D:51:SER:N	2.50	0.43
1:A:204:MET:HB3	1:A:204:MET:HE3	1.78	0.43
1:A:423:LEU:HD11	1:B:226:THR:HG21	1.99	0.43
3:D:65:GLY:HA3	3:D:70:TYR:HA	1.99	0.43
1:A:376:VAL:HG12	1:A:384:LEU:CB	2.48	0.43
2:C:158:VAL:HG12	2:C:207:HIS:HB2	2.00	0.43
3:D:165:GLN:HE21	3:D:170:SER:HB3	1.84	0.43
1:A:271:LYS:HZ2	1:A:275:GLY:HA3	1.83	0.43
1:B:238:LEU:N	1:B:238:LEU:HD12	2.33	0.43
2:C:6:GLU:HA	2:C:21:SER:O	2.18	0.43
2:E:133:ALA:C	2:E:221:ARG:NH1	2.67	0.43
1:A:88:VAL:HA	1:A:91:MET:HE2	2.01	0.43
1:A:210:TYR:HB2	1:B:209:ARG:HD2	2.00	0.43
3:D:60:ARG:C	3:D:74:ILE:HD12	2.39	0.43
3:F:44:LYS:HZ1	3:F:54:THR:HG21	1.83	0.43
3:F:77:MET:HE2	3:F:77:MET:HB3	1.85	0.43
1:A:81:VAL:O	1:A:85:CYS:HB2	2.19	0.43
1:B:370:ALA:O	1:B:374:VAL:HG23	2.18	0.42
2:C:221:ARG:HH12	3:D:118:PRO:CD	2.29	0.42
3:D:30:SER:H	3:D:91:SER:CB	2.31	0.42
3:D:90:TRP:CZ2	3:D:95:GLN:NE2	2.87	0.42
3:D:165:GLN:NE2	3:D:170:SER:HB3	2.34	0.42
1:B:98:ARG:HH21	1:B:102:PRO:HB3	1.83	0.42
1:B:234:HIS:CE1	2:C:102:GLY:O	2.72	0.42
1:B:441:GLY:C	1:B:442:LYS:HG3	2.39	0.42
1:A:445:TYR:OH	4:A:502:BR:BR	2.84	0.42
3:F:60:ARG:HG3	3:F:74:ILE:HG23	2.01	0.42
3:F:149:ILE:HG12	3:F:191:TYR:CD2	2.54	0.42
1:A:191:ASN:CG	1:A:230:ARG:HH11	2.22	0.42
1:B:184:ALA:HB1	1:B:225:SER:CB	2.47	0.42
3:F:182:LYS:HZ1	3:F:186:GLU:CD	2.23	0.42
1:B:383:HIS:CE1	3:F:90:TRP:CZ2	3.07	0.42
2:C:38:ARG:CD	2:C:48:ILE:HD11	2.49	0.42
3:D:60:ARG:NH1	3:D:78:GLU:CG	2.83	0.42
2:E:138:ALA:O	2:E:140:ALA:N	2.51	0.42
1:A:18:ARG:HH22	1:B:456:GLN:NE2	2.18	0.42
1:A:234:HIS:O	1:A:235:GLU:HB2	2.19	0.42
2:E:94:TYR:O	2:E:114:GLY:HA2	2.20	0.42
1:A:248:PRO:O	1:A:251:THR:HB	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:397:LEU:O	1:A:401:SER:HB2	2.19	0.42
1:B:311:ALA:O	1:B:340:ARG:HD2	2.19	0.42
1:B:360:MET:CE	1:B:402:ILE:HD11	2.49	0.42
3:D:192:THR:HG22	3:D:207:SER:CB	2.49	0.42
1:A:219:PHE:O	1:A:223:ILE:HG13	2.20	0.42
3:D:12:SER:HA	3:D:104:GLU:O	2.19	0.42
2:E:52:ASN:HD21	2:E:56:SER:HB3	1.84	0.42
3:D:202:SER:HA	3:D:203:PRO:HD2	1.94	0.42
3:F:159:LEU:HA	3:F:159:LEU:HD23	1.77	0.42
3:D:150:ASP:OD1	3:D:188:HIS:HB3	2.20	0.41
3:D:195:ALA:HB3	3:D:204:ILE:HG23	2.02	0.41
3:F:7:SER:OG	3:F:8:PRO:CD	2.68	0.41
1:A:309:ALA:O	1:A:312:THR:OG1	2.32	0.41
1:A:383:HIS:HD2	2:C:33:TRP:CE3	2.38	0.41
1:B:78:LEU:HA	1:B:81:VAL:HG12	2.02	0.41
2:C:147:GLY:HA2	2:C:187:SER:O	2.20	0.41
2:C:163:ASN:ND2	2:C:167:LEU:HD22	2.35	0.41
2:E:61:THR:O	2:E:63:SER:N	2.53	0.41
1:A:357:PHE:HB2	4:A:502:BR:BR	2.76	0.41
1:A:75:TYR:CZ	1:A:79:LEU:HD11	2.55	0.41
1:A:403:ARG:NH2	1:B:29:ASP:OD2	2.46	0.41
1:B:68:LEU:HD21	1:B:82:ALA:HB2	2.01	0.41
1:B:88:VAL:HA	1:B:91:MET:HE2	2.01	0.41
3:D:189:ASN:O	3:D:209:ASN:HA	2.21	0.41
3:F:196:THR:CG2	3:F:203:PRO:HB3	2.51	0.41
1:A:75:TYR:HB3	1:A:76:PRO:HD3	2.03	0.41
1:A:263:GLY:HA3	1:A:435:LEU:HB2	2.02	0.41
1:A:94:TYR:OH	1:A:352:ALA:HB2	2.21	0.41
1:B:316:GLY:O	1:B:319:LEU:HG	2.20	0.41
2:E:178:LEU:HD11	2:E:181:ALA:HA	2.02	0.41
3:F:7:SER:HB2	3:F:8:PRO:HD3	2.03	0.41
3:F:184:GLU:HA	3:F:187:ARG:HG2	2.03	0.41
3:F:189:ASN:ND2	3:F:209:ASN:OD1	2.54	0.41
1:A:130:VAL:O	1:A:134:GLY:N	2.46	0.41
1:A:258:LEU:HD13	1:A:371:PHE:CG	2.55	0.41
1:B:103:GLU:O	1:B:111:GLU:HG3	2.21	0.41
1:B:262:PHE:CZ	1:B:367:LEU:HD23	2.56	0.41
2:E:133:ALA:O	2:E:221:ARG:CZ	2.63	0.41
2:E:178:LEU:HD12	2:E:182:LEU:O	2.21	0.41
1:A:118:ASP:OD2	1:A:174:ARG:NH2	2.53	0.41
1:B:358:ALA:O	1:B:361:LEU:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:116:ILE:HD12	3:F:193:CYS:SG	2.61	0.41
1:B:422:ILE:HA	1:B:425:MET:CE	2.51	0.40
3:D:19:VAL:HG21	3:D:77:MET:SD	2.61	0.40
2:E:65:LYS:CD	2:E:65:LYS:H	2.35	0.40
1:A:272:TRP:N	1:A:272:TRP:CD1	2.89	0.40
1:A:320:ILE:HB	1:A:321:PRO:HD3	2.02	0.40
1:B:435:LEU:HD13	1:B:435:LEU:HA	1.90	0.40
2:E:31:ARG:H	2:E:53:PRO:HB3	1.85	0.40
1:B:239:ILE:HD11	1:B:320:ILE:CB	2.50	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	442/473 (93%)	417 (94%)	23 (5%)	2 (0%)	29	54
1	B	440/473 (93%)	418 (95%)	20 (4%)	2 (0%)	29	54
2	C	220/222 (99%)	203 (92%)	14 (6%)	3 (1%)	11	28
2	E	219/222 (99%)	201 (92%)	12 (6%)	6 (3%)	5	12
3	D	209/211 (99%)	193 (92%)	13 (6%)	3 (1%)	11	28
3	F	209/211 (99%)	198 (95%)	9 (4%)	2 (1%)	15	37
All	All	1739/1812 (96%)	1630 (94%)	91 (5%)	18 (1%)	15	37

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	64	LEU
3	D	50	THR
2	E	65	LYS

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Mol	Chain	Res	Type
2	E	136	SER
3	F	7	SER
1	B	210	TYR
3	D	67	GLY
2	E	138	ALA
1	A	457	GLU
2	E	139	ALA
1	B	29	ASP
2	C	62	PRO
2	C	140	ALA
3	D	7	SER
2	E	137	ALA
2	E	62	PRO
3	F	76	THR
1	A	213	ILE

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 X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	335/358 (94%)	329 (98%)	6 (2%)	59	83
1	B	333/358 (93%)	325 (98%)	8 (2%)	49	77
2	C	182/182 (100%)	176 (97%)	6 (3%)	38	67
2	E	181/182 (100%)	172 (95%)	9 (5%)	24	51
3	D	185/185 (100%)	177 (96%)	8 (4%)	29	57
3	F	185/185 (100%)	182 (98%)	3 (2%)	62	85
All	All	1401/1450 (97%)	1361 (97%)	40 (3%)	42	71

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	180	THR
1	A	219	PHE
1	A	276	MET

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Mol	Chain	Res	Type
1	A	282	ARG
1	A	304	LEU
1	A	401	SER
1	B	18	ARG
1	B	23	ARG
1	B	160	ARG
1	B	168	LEU
1	B	205	ARG
1	B	219	PHE
1	B	270	ASN
1	B	276	MET
2	C	29	TYR
2	C	72	ARG
2	C	87	ARG
2	C	96	CYS
2	C	188	SER
2	C	204	ASN
3	D	11	MET
3	D	91	SER
3	D	92	SER
3	D	168	LYS
3	D	174	MET
3	D	201	THR
3	D	206	LYS
3	D	207	SER
2	E	65	LYS
2	E	71	SER
2	E	81	LEU
2	E	96	CYS
2	E	107	TYR
2	E	188	SER
2	E	198	SER
2	E	217	LYS
2	E	221	ARG
3	F	1	ASP
3	F	190	SER
3	F	198	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	GLN

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Mol	Chain	Res	Type
1	A	157	ASN
1	A	207	GLN
1	A	270	ASN
1	B	24	GLN
1	B	157	ASN
1	B	234	HIS
1	B	270	ASN
1	B	284	HIS
2	C	39	GLN
2	C	163	ASN
2	C	172	HIS
2	C	207	HIS
3	D	136	ASN
3	D	137	ASN
3	F	36	GLN
3	F	136	ASN
3	F	189	ASN
3	F	209	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	444/473 (93%)	0.91	66 (14%)	2	1	62, 88, 119, 166	0
1	B	442/473 (93%)	1.11	97 (21%)	0	0	65, 91, 134, 173	0
2	C	222/222 (100%)	0.64	23 (10%)	6	4	53, 80, 125, 179	0
2	E	221/222 (99%)	0.36	21 (9%)	8	6	55, 80, 120, 165	0
3	D	211/211 (100%)	0.69	29 (13%)	3	2	61, 91, 111, 132	0
3	F	211/211 (100%)	0.58	21 (9%)	7	5	54, 74, 117, 148	0
All	All	1751/1812 (96%)	0.79	257 (14%)	2	1	53, 86, 122, 179	0

All (257) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	140	ALA	11.9
2	C	139	ALA	8.2
1	B	73	ASP	6.1
3	D	110	ALA	5.9
1	A	283	VAL	5.7
2	C	65	LYS	5.6
1	B	410	ILE	5.5
1	A	72	ALA	5.5
1	B	72	ALA	5.5
1	A	235	GLU	5.4
3	F	156	ASN	5.3
2	E	135	GLY	5.3
1	B	104	ALA	5.2
1	B	70	HIS	5.1
1	B	66	GLY	5.1
3	F	147	TRP	5.0
2	C	147	GLY	4.8
3	F	158	VAL	4.8
2	C	29	TYR	4.8

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Mol	Chain	Res	Type	RSRZ
1	B	307	PHE	4.7
1	B	69	VAL	4.7
2	E	221	ARG	4.6
2	E	136	SER	4.6
1	B	67	ALA	4.6
1	B	409	ILE	4.5
1	A	407	THR	4.5
1	B	33	LEU	4.5
1	B	198	LEU	4.4
1	B	354	GLY	4.4
2	E	201	VAL	4.3
1	B	71	THR	4.3
1	B	34	ALA	4.3
1	B	95	PHE	4.3
1	B	195	ALA	4.3
3	D	196	THR	4.3
1	A	77	LEU	4.2
1	B	426	ILE	4.2
2	C	63	SER	4.2
1	B	139	LEU	4.2
1	A	18	ARG	4.1
1	B	127	VAL	4.1
3	D	16	GLY	4.1
1	B	353	PRO	4.1
1	A	143	MET	4.1
3	F	153	GLU	4.1
1	B	166	PHE	4.0
1	A	410	ILE	4.0
1	A	291	TRP	4.0
1	B	200	ILE	3.9
3	F	155	GLN	3.9
3	D	195	ALA	3.9
1	A	406	LEU	3.8
1	B	412	VAL	3.8
2	C	62	PRO	3.7
1	B	199	PHE	3.7
1	B	197	ILE	3.7
1	A	195	ALA	3.6
1	B	407	THR	3.6
2	C	105	TYR	3.6
1	B	145	LEU	3.6
1	A	290	LYS	3.6

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Mol	Chain	Res	Type	RSRZ
1	B	458	ALA	3.6
1	B	275	GLY	3.6
3	F	205	VAL	3.5
3	D	61	PHE	3.5
1	B	419	TYR	3.5
1	B	398	LEU	3.5
2	C	199	GLU	3.5
2	C	141	ALA	3.4
1	B	422	ILE	3.4
3	F	7	SER	3.4
1	B	177	LEU	3.4
1	B	303	GLY	3.4
3	D	1	ASP	3.4
1	B	405	PRO	3.4
1	A	298	ILE	3.4
1	B	78	LEU	3.4
1	A	145	LEU	3.4
1	B	162	VAL	3.4
2	C	2	VAL	3.3
1	B	65	MET	3.3
1	B	404	ALA	3.3
1	B	274	LEU	3.3
1	B	408	GLY	3.3
1	A	412	VAL	3.2
1	A	414	GLU	3.2
3	D	138	PHE	3.2
1	A	139	LEU	3.2
1	B	68	LEU	3.2
1	B	406	LEU	3.2
1	B	396	ALA	3.2
3	F	211	ALA	3.2
3	F	204	ILE	3.2
1	B	399	ALA	3.2
1	B	168	LEU	3.2
1	B	215	ILE	3.1
3	F	154	ARG	3.1
3	F	193	CYS	3.1
1	A	288	ILE	3.1
1	B	193	PRO	3.1
1	B	38	MET	3.1
1	A	197	ILE	3.1
1	A	415	MET	3.0

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Mol	Chain	Res	Type	RSRZ
1	A	202	GLU	3.0
1	B	411	LEU	3.0
2	C	66	ASP	3.0
3	D	201	THR	3.0
1	A	411	LEU	3.0
2	C	69	ILE	3.0
1	B	75	TYR	3.0
3	D	149	ILE	3.0
3	D	154	ARG	3.0
1	A	413	LEU	3.0
1	B	397	LEU	2.9
3	D	59	VAL	2.9
1	B	213	ILE	2.9
1	B	266	GLY	2.9
1	B	415	MET	2.9
3	D	93	HIS	2.9
1	A	193	PRO	2.9
1	B	74	ASN	2.9
1	A	299	GLY	2.8
3	F	157	GLY	2.8
1	B	438	PHE	2.8
2	E	81	LEU	2.8
1	A	144	VAL	2.8
1	A	426	ILE	2.8
2	C	138	ALA	2.8
1	B	35	ILE	2.8
1	B	288	ILE	2.8
1	B	423	LEU	2.8
2	E	83	ILE	2.7
1	A	184	ALA	2.7
1	B	309	ALA	2.7
1	B	143	MET	2.7
2	E	66	ASP	2.7
1	B	126	ARG	2.7
3	D	63	GLY	2.7
1	A	71	THR	2.7
1	B	210	TYR	2.7
1	B	159	GLY	2.7
2	E	131	PRO	2.7
3	D	211	ALA	2.7
1	B	425	MET	2.7
1	B	201	ILE	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	297	ALA	2.6
1	B	223	ILE	2.6
1	B	163	LEU	2.6
1	A	194	LEU	2.6
1	A	293	LEU	2.6
1	B	304	LEU	2.6
2	C	73	ASP	2.6
1	A	409	ILE	2.6
1	A	262	PHE	2.6
1	A	448	ILE	2.6
1	B	192	ALA	2.6
2	C	221	ARG	2.6
2	C	34	MET	2.6
2	E	218	ILE	2.6
1	B	196	GLY	2.6
1	B	414	GLU	2.5
1	A	25	LEU	2.5
1	B	413	LEU	2.5
3	D	158	VAL	2.5
2	C	24	ALA	2.5
1	A	94	TYR	2.5
2	E	48	ILE	2.5
1	A	76	PRO	2.5
1	A	386	ALA	2.5
2	E	29	TYR	2.5
1	A	192	ALA	2.4
2	C	202	THR	2.4
1	A	154	ILE	2.4
2	E	94	TYR	2.4
1	A	393	GLY	2.4
1	B	194	LEU	2.4
2	E	122	ALA	2.4
1	A	200	ILE	2.4
1	B	204	MET	2.4
1	B	424	PRO	2.4
1	A	404	ALA	2.4
1	A	458	ALA	2.4
1	A	199	PHE	2.4
1	A	222	VAL	2.4
2	C	33	TRP	2.4
2	E	103	TYR	2.4
3	D	86	TYR	2.4

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Mol	Chain	Res	Type	RSRZ
3	D	74	ILE	2.4
3	D	204	ILE	2.4
2	C	82	GLN	2.3
1	A	234	HIS	2.3
3	F	200	SER	2.3
2	E	13	GLN	2.3
1	A	419	TYR	2.3
2	E	133	ALA	2.3
1	B	165	ILE	2.3
2	E	70	ILE	2.3
3	F	2	ILE	2.3
1	B	357	PHE	2.3
1	B	220	ILE	2.3
3	D	32	ILE	2.3
3	D	147	TRP	2.3
1	A	294	MET	2.3
1	B	18	ARG	2.3
1	A	67	ALA	2.3
3	D	153	GLU	2.3
3	F	94	PRO	2.3
3	D	21	MET	2.3
1	A	95	PHE	2.3
1	B	209	ARG	2.3
1	B	418	ASN	2.2
1	B	308	VAL	2.2
3	D	47	ILE	2.2
3	F	29	VAL	2.2
3	F	26	SER	2.2
1	A	198	LEU	2.2
2	E	146	LEU	2.2
1	A	187	ALA	2.2
3	D	22	THR	2.2
1	B	141	GLY	2.2
1	B	395	GLY	2.2
3	D	19	VAL	2.2
1	B	421	LEU	2.2
1	A	99	LYS	2.2
1	A	376	VAL	2.2
1	B	157	ASN	2.2
3	F	151	GLY	2.2
1	B	100	TYR	2.2
3	F	152	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	380	PRO	2.2
1	B	290	LYS	2.1
3	D	141	LYS	2.1
3	F	22	THR	2.1
1	B	36	LEU	2.1
1	A	459	GLU	2.1
2	E	82	GLN	2.1
1	A	434	LEU	2.1
1	B	417	ASP	2.1
2	E	137	ALA	2.1
1	A	350	SER	2.1
3	F	120	SER	2.1
1	A	201	ILE	2.1
1	B	94	TYR	2.1
1	A	168	LEU	2.1
2	C	212	THR	2.1
1	B	245	SER	2.1
1	A	295	GLY	2.1
1	A	373	MET	2.1
2	C	27	PHE	2.1
3	D	31	TYR	2.0
1	B	270	ASN	2.0
1	B	138	THR	2.0
2	E	69	ILE	2.0
1	A	405	PRO	2.0
1	A	326	GLY	2.0
3	D	194	GLU	2.0
3	D	197	HIS	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,

median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	BR	B	503	1/1	0.85	0.19	161,161,161,161	0
4	BR	B	501	1/1	0.92	0.19	118,118,118,118	0
4	BR	B	502	1/1	0.92	0.20	141,141,141,141	0
4	BR	A	503	1/1	0.92	0.30	168,168,168,168	0
4	BR	A	501	1/1	0.96	0.23	125,125,125,125	0
4	BR	A	502	1/1	0.96	0.24	123,123,123,123	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.
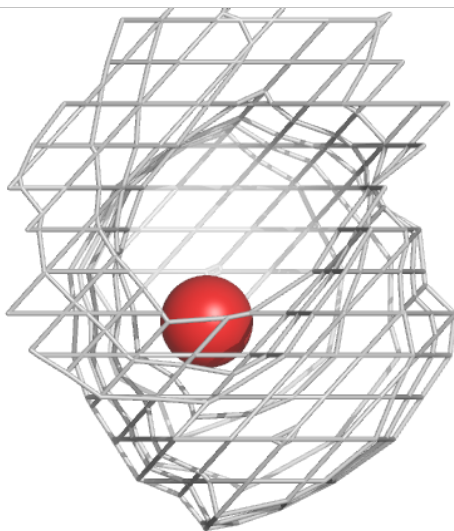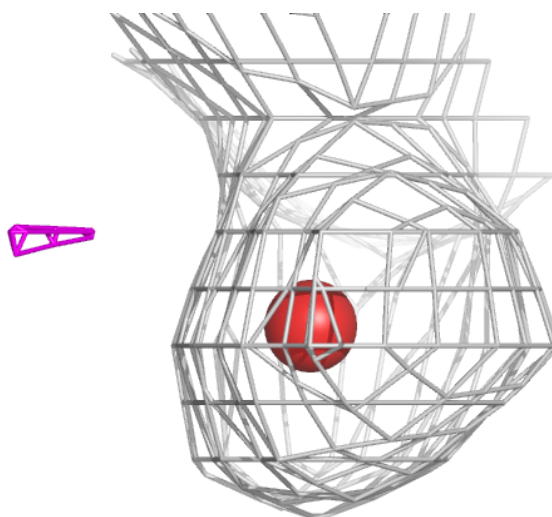
Electron density around BR B 503:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
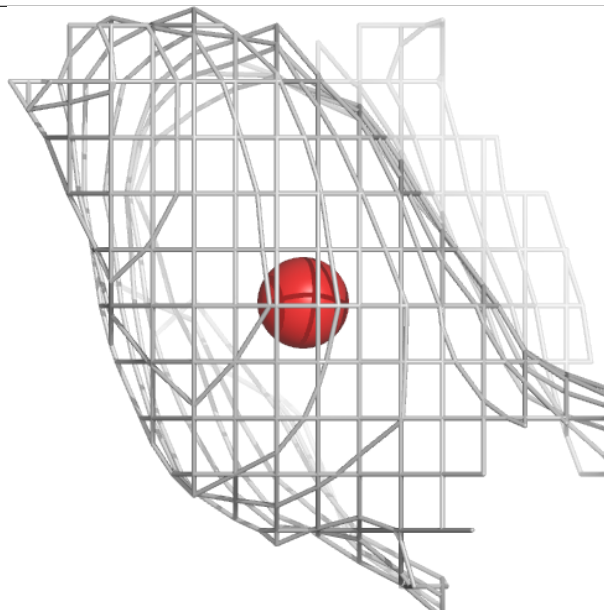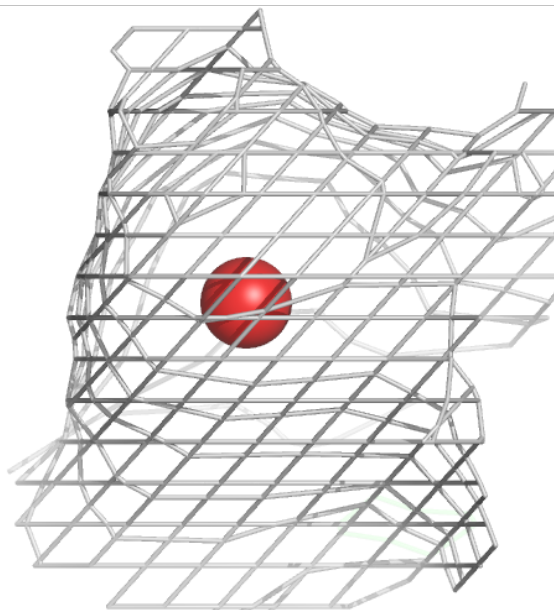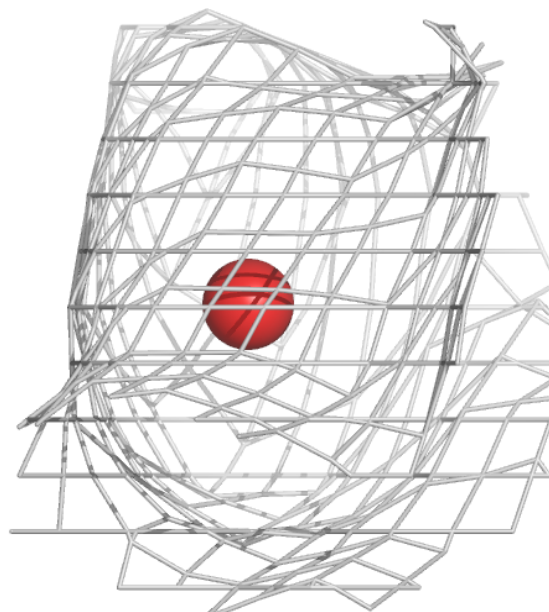
Electron density around BR B 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
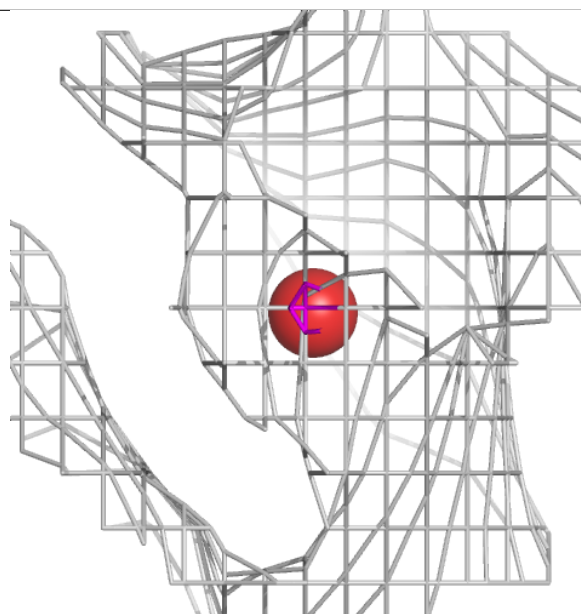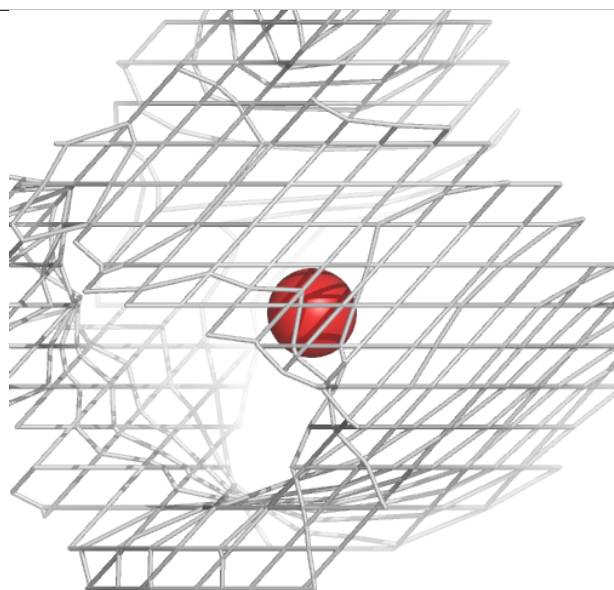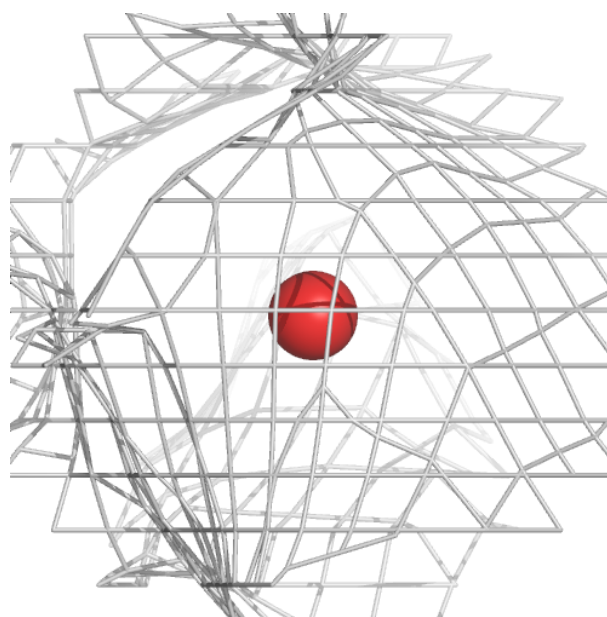
Electron density around BR B 502:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
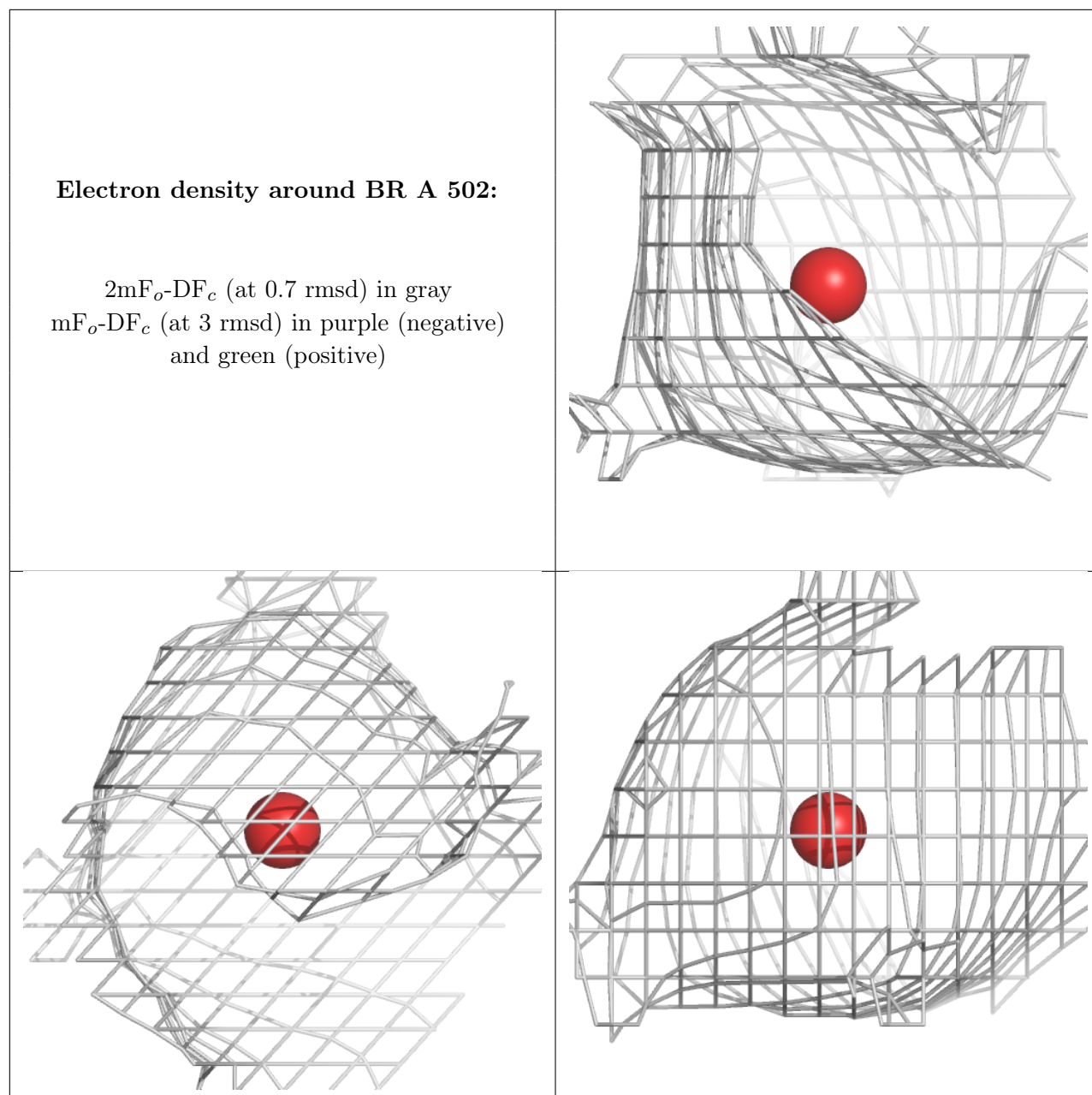and green (positive)
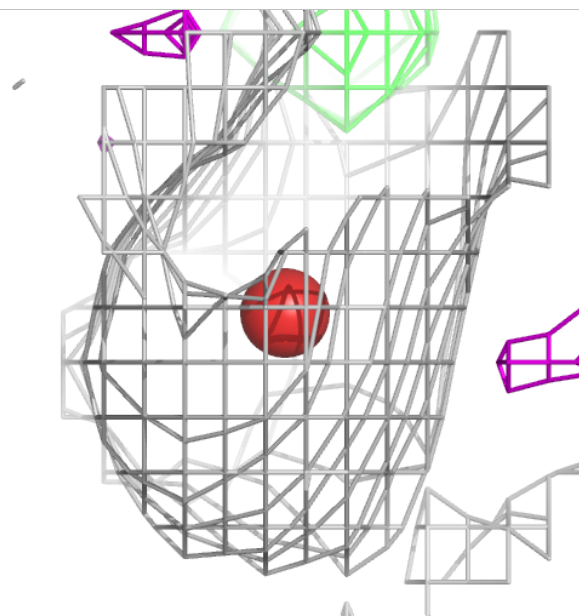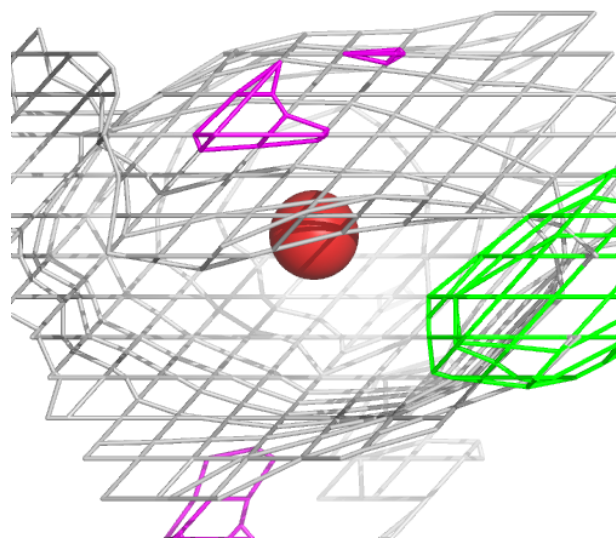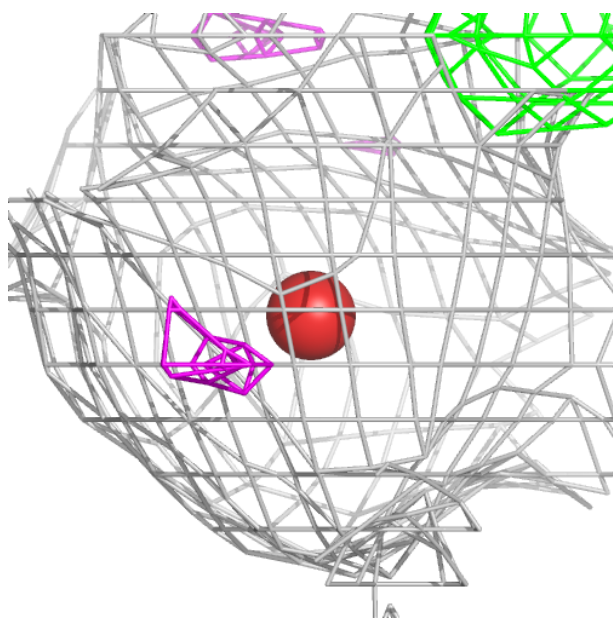
Electron density around BR A 503:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
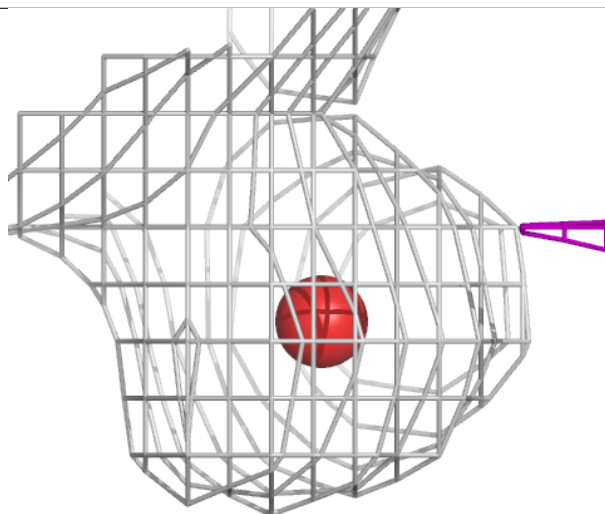
Electron density around BR A 501:

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

Electron density around BR A 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
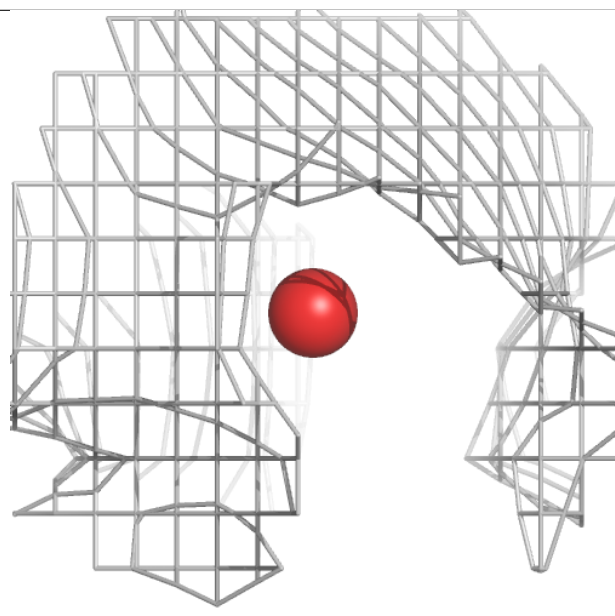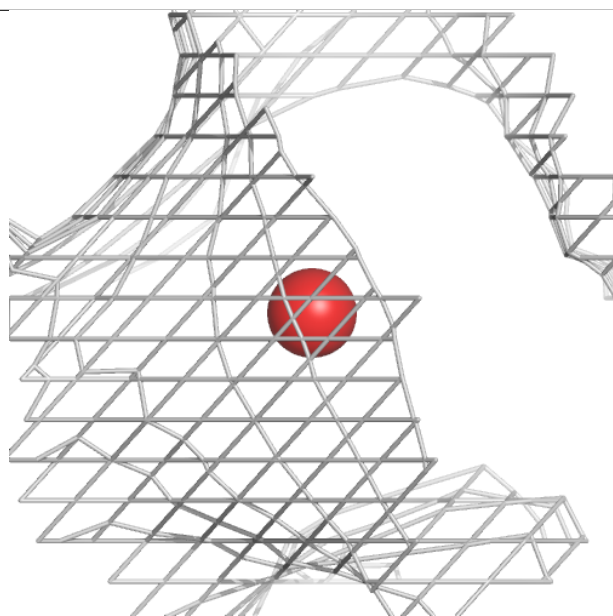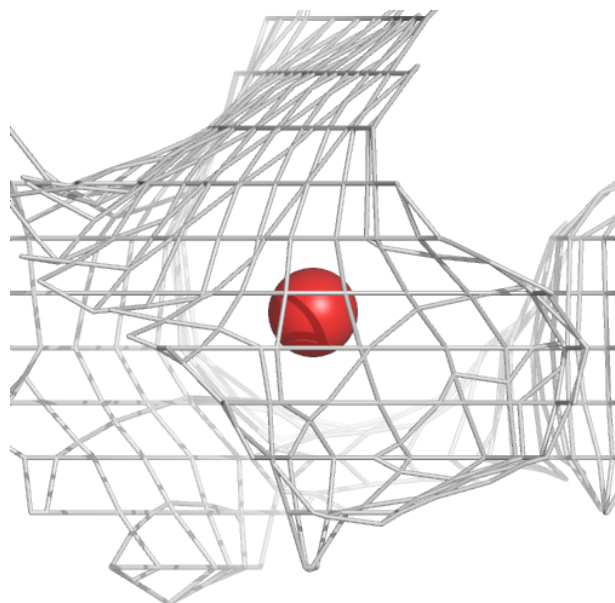
6.5 Other polymers (i)

There are no such residues in this entry.