Full wwPDB X-ray Structure Validation Report ⓘ

Nov 8, 2022 – 06:09 pm GMT

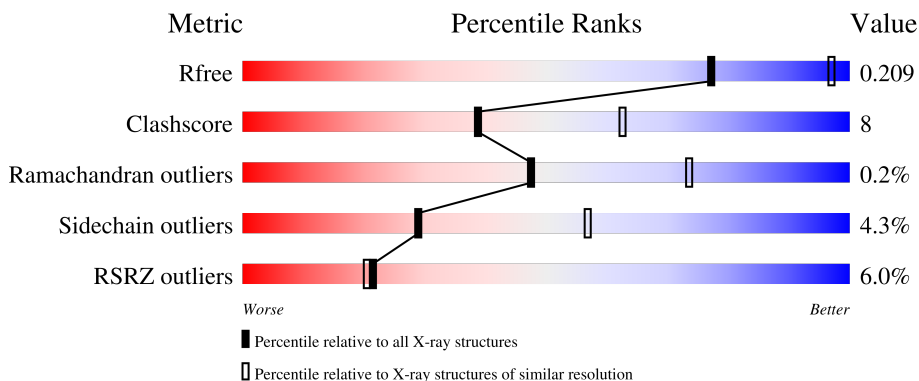|		
PDB ID	:	7Q5Y
Title	:	Structure of NADH:ubichinon oxidoreductase (complex I) of the hyperthermophilic eubacterium Aquifex aeolicus
Authors	:	Warkentin, E.; Ermler, U.; Peng, G.
Deposited on	:	2021-11-05
Resolution	:	2.70 Å(reported)

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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 2.70 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		0.209
Clashscore		8
Ramachandran outliers		0.2%
Sidechain outliers		4.3%
RSRZ outliers		6.0%

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	632	82% 15% ••
1	G	632	83% 14% ••
1	M	632	79% 18% ••
1	S	632	2% 80% 17% ••
2	B	586	9% 74% 24% •

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Mol	Chain	Length	Quality of chain
2	H	586	15% / 73% / 24%
2	N	586	10% / 71% / 27%
2	T	586	10% / 71% / 27%
3	C	426	87% / 11%
3	I	426	89% / 9%
3	O	426	% / 87% / 11%
3	U	426	% / 87% / 12%
4	D	201	14% / 71% / 24%
4	J	201	17% / 68% / 27%
4	P	201	16% / 70% / 24%
4	V	201	17% / 69% / 26%
5	E	160	84% / 13%
5	K	160	84% / 11%
5	Q	160	83% / 14%
5	W	160	6% / 80% / 16%
6	F	179	5% / 53% / 20% / 25%
6	L	179	15% / 49% / 25% / 25%
6	R	179	15% / 55% / 18% / 25%
6	X	179	13% / 55% / 18% / 25%

2 Entry composition ⓘ

There are 10 unique types of molecules in this entry. The entry contains 69025 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 NADH dehydrogenase I chain G.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	626	Total	C	N	O	S	0	0	0
			5071	3250	846	946	29			
1	G	626	Total	C	N	O	S	0	0	0
			5071	3250	846	946	29			
1	M	626	Total	C	N	O	S	0	0	0
			5071	3250	846	946	29			
1	S	626	Total	C	N	O	S	0	0	0
			5071	3250	846	946	29			

- Molecule 2 is a protein called NADH-quinone oxidoreductase subunit C/D 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	585	Total	C	N	O	S	0	0	0
			4789	3089	819	865	16			
2	H	585	Total	C	N	O	S	0	0	0
			4789	3089	819	865	16			
2	N	585	Total	C	N	O	S	0	0	0
			4789	3089	819	865	16			
2	T	585	Total	C	N	O	S	0	0	0
			4789	3089	819	865	16			

- Molecule 3 is a protein called NADH-quinone oxidoreductase subunit F.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	419	Total	C	N	O	S	0	0	0
			3301	2122	550	615	14			
3	I	419	Total	C	N	O	S	0	0	0
			3301	2122	550	615	14			
3	O	419	Total	C	N	O	S	0	0	0
			3301	2122	550	615	14			
3	U	419	Total	C	N	O	S	0	0	0
			3301	2122	550	615	14			

• Molecule 4 is a protein called NADH-quinone oxidoreductase subunit I.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	197	Total 1610	C 1029	N 280	O 286	S 15	0	0	0
4	J	197	Total 1610	C 1029	N 280	O 286	S 15	0	0	0
4	P	197	Total 1610	C 1029	N 280	O 286	S 15	0	0	0
4	V	197	Total 1610	C 1029	N 280	O 286	S 15	0	0	0

• Molecule 5 is a protein called NADH-quinone oxidoreductase subunit E.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	155	Total 1259	C 816	N 203	O 231	S 9	0	0	0
5	K	155	Total 1259	C 816	N 203	O 231	S 9	0	0	0
5	Q	155	Total 1259	C 816	N 203	O 231	S 9	0	0	0
5	W	155	Total 1259	C 816	N 203	O 231	S 9	0	0	0

• Molecule 6 is a protein called NADH-quinone oxidoreductase subunit B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	135	Total 1033	C 665	N 180	O 178	S 10	0	0	0
6	L	135	Total 1033	C 665	N 180	O 178	S 10	0	0	0
6	R	135	Total 1033	C 665	N 180	O 178	S 10	0	0	0
6	X	135	Total 1033	C 665	N 180	O 178	S 10	0	0	0

• Molecule 7 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).
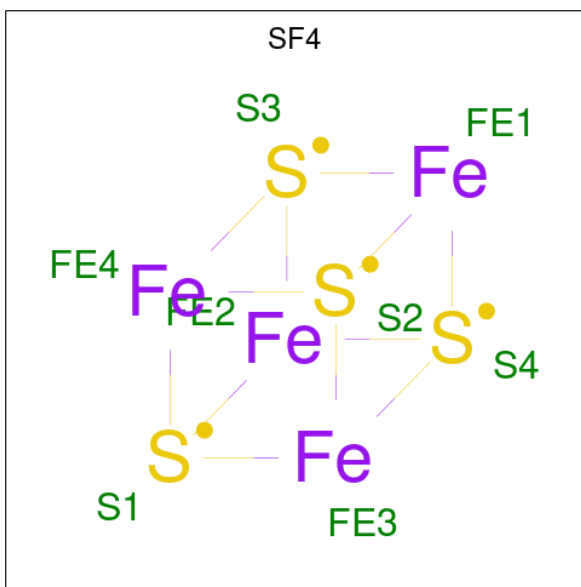
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total 8	Fe 4	S 4	0	0
7	A	1	Total 8	Fe 4	S 4	0	0
7	A	1	Total 8	Fe 4	S 4	0	0
7	A	1	Total 8	Fe 4	S 4	0	0
7	C	1	Total 8	Fe 4	S 4	0	0
7	D	1	Total 8	Fe 4	S 4	0	0
7	D	1	Total 8	Fe 4	S 4	0	0
7	F	1	Total 8	Fe 4	S 4	0	0
7	G	1	Total 8	Fe 4	S 4	0	0
7	G	1	Total 8	Fe 4	S 4	0	0
7	G	1	Total 8	Fe 4	S 4	0	0
7	G	1	Total 8	Fe 4	S 4	0	0
7	I	1	Total 8	Fe 4	S 4	0	0
7	J	1	Total 8	Fe 4	S 4	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	J	1	Total 8	Fe 4	S 4	0	0
7	L	1	Total 8	Fe 4	S 4	0	0
7	M	1	Total 8	Fe 4	S 4	0	0
7	M	1	Total 8	Fe 4	S 4	0	0
7	M	1	Total 8	Fe 4	S 4	0	0
7	M	1	Total 8	Fe 4	S 4	0	0
7	O	1	Total 8	Fe 4	S 4	0	0
7	P	1	Total 8	Fe 4	S 4	0	0
7	P	1	Total 8	Fe 4	S 4	0	0
7	R	1	Total 8	Fe 4	S 4	0	0
7	S	1	Total 8	Fe 4	S 4	0	0
7	S	1	Total 8	Fe 4	S 4	0	0
7	S	1	Total 8	Fe 4	S 4	0	0
7	S	1	Total 8	Fe 4	S 4	0	0
7	U	1	Total 8	Fe 4	S 4	0	0
7	V	1	Total 8	Fe 4	S 4	0	0
7	V	1	Total 8	Fe 4	S 4	0	0
7	X	1	Total 8	Fe 4	S 4	0	0

- Molecule 8 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).

FES
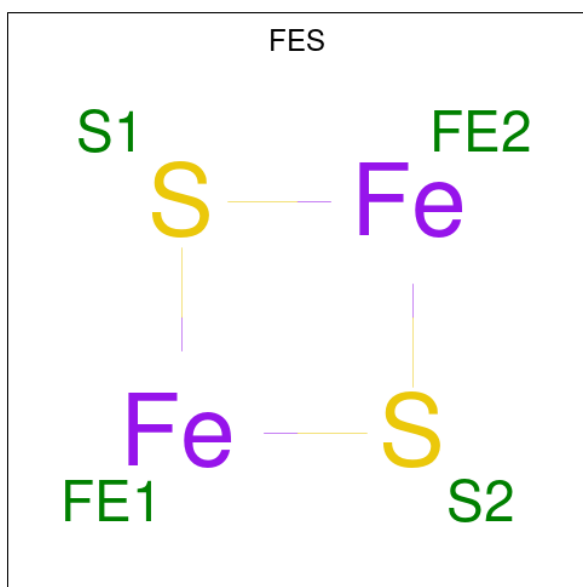
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	A	1	Total 4	Fe 2	S 2	0	0
8	E	1	Total 4	Fe 2	S 2	0	0
8	G	1	Total 4	Fe 2	S 2	0	0
8	K	1	Total 4	Fe 2	S 2	0	0
8	M	1	Total 4	Fe 2	S 2	0	0
8	Q	1	Total 4	Fe 2	S 2	0	0
8	S	1	Total 4	Fe 2	S 2	0	0
8	W	1	Total 4	Fe 2	S 2	0	0

- Molecule 9 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$) (labeled as "Ligand of Interest" by depositor).

FMN
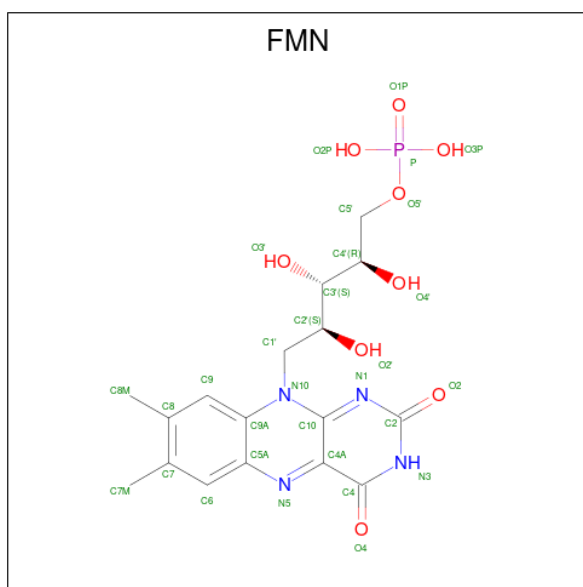
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	C	1	Total 31	C 17	N 4	O 9	P 1	0	0
9	I	1	Total 31	C 17	N 4	O 9	P 1	0	0
9	O	1	Total 31	C 17	N 4	O 9	P 1	0	0
9	U	1	Total 31	C 17	N 4	O 9	P 1	0	0

- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	79	Total 79	O 79	0	0
10	B	5	Total 5	O 5	0	0
10	C	24	Total 24	O 24	0	0
10	D	5	Total 5	O 5	0	0
10	E	14	Total 14	O 14	0	0
10	G	38	Total 38	O 38	0	0
10	H	2	Total 2	O 2	0	0
10	I	41	Total 41	O 41	0	0

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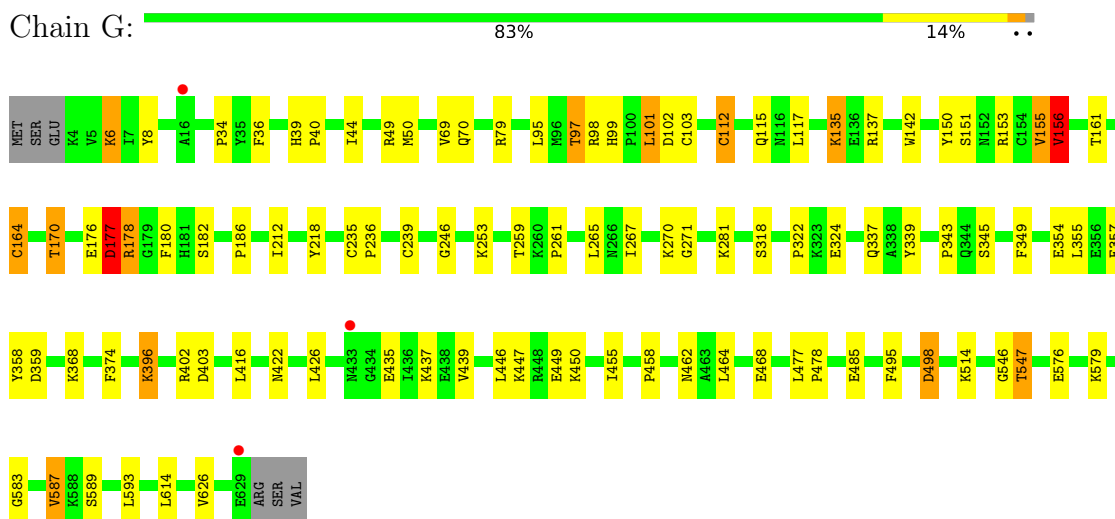| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	J	4	Total 4	O 4	0	0
10	K	14	Total 14	O 14	0	0
10	M	51	Total 51	O 51	0	0
10	N	8	Total 8	O 8	0	0
10	O	11	Total 11	O 11	0	0
10	P	3	Total 3	O 3	0	0
10	Q	10	Total 10	O 10	0	0
10	S	32	Total 32	O 32	0	0
10	T	4	Total 4	O 4	0	0
10	U	10	Total 10	O 10	0	0
10	V	2	Total 2	O 2	0	0
10	W	4	Total 4	O 4	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.

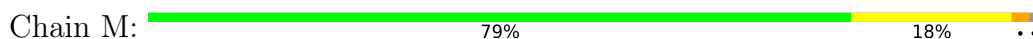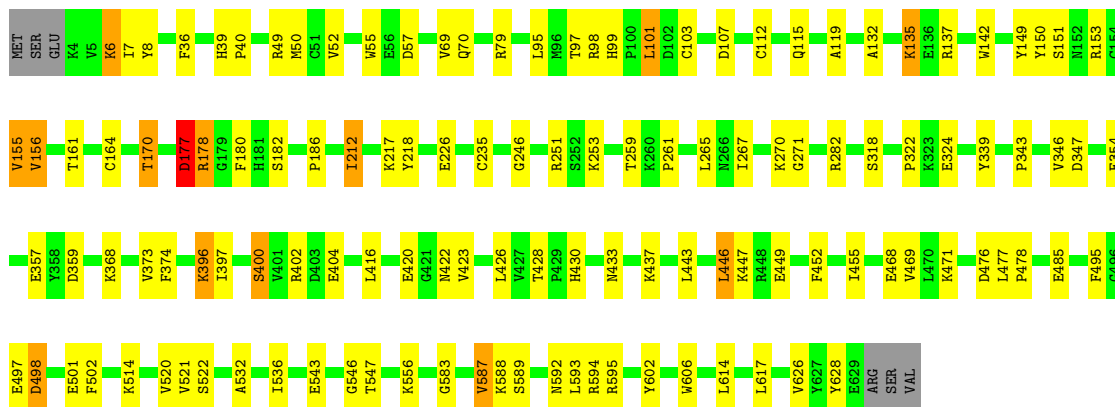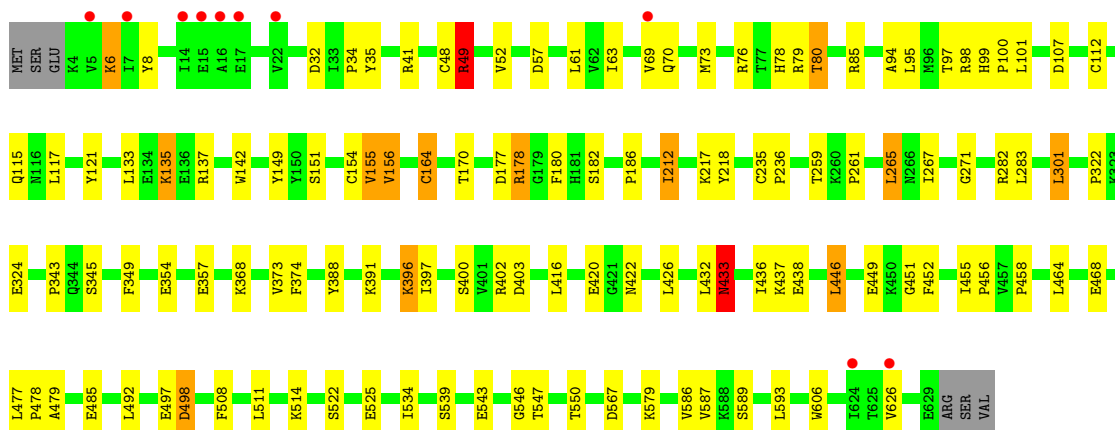• Molecule 1: NADH dehydrogenase I chain G
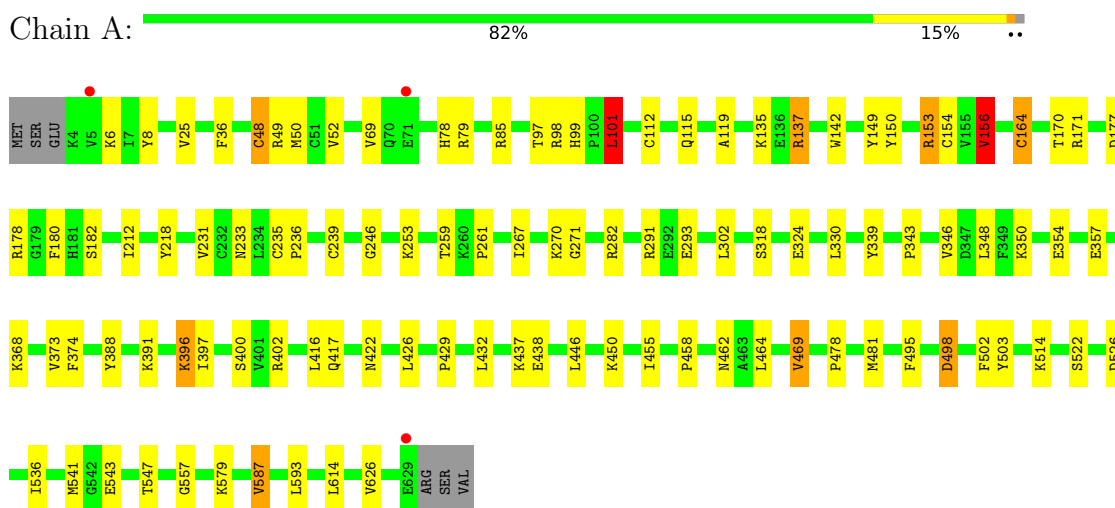
Chain A:

• Molecule 1: NADH dehydrogenase I chain G
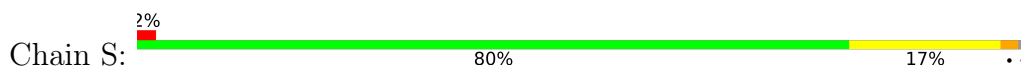
Chain G:

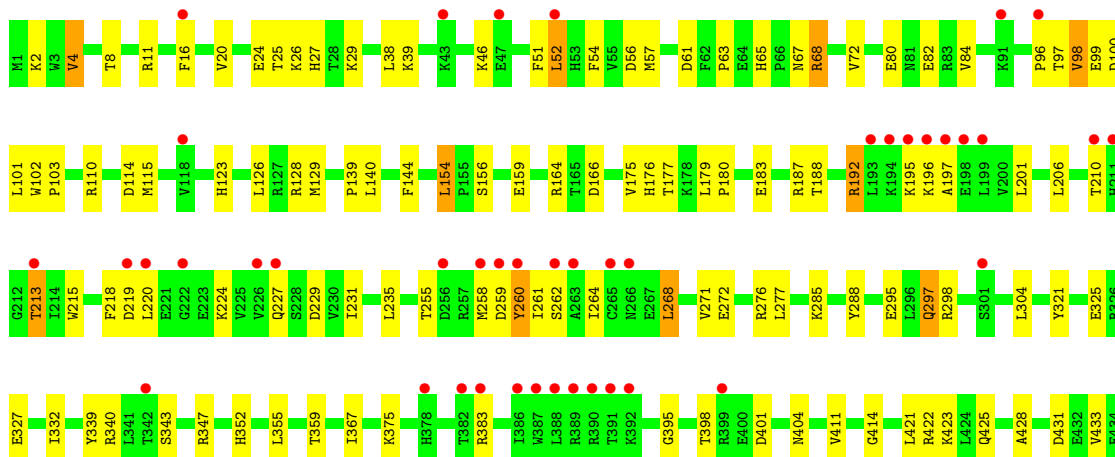• Molecule 1: NADH dehydrogenase I chain G

Chain M:

• Molecule 1: NADH dehydrogenase I chain G
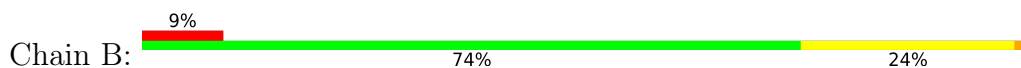
• Molecule 2: NADH-quinone oxidoreductase subunit C/D 2

• Molecule 2: NADH-quinone oxidoreductase subunit C/D 2

Chain H:

• Molecule 2: NADH-quinone oxidoreductase subunit C/D 2

Chain N:

I567 I571 S576 L577 D578 P579 V580 V581 G582 E583 T584 D585 ARG

• Molecule 2: NADH-quinone oxidoreductase subunit C/D 2

Chain T:

10%

71% 27%

M1 K2 W3 V4 N5 T8 K13 E24 T25 K26 H27 T28 K29 F37 L38 K39 P40 K46 F51 L52 H53 F54 V55 D56 M57 D61 F62 P63 E64 H65 P66 N67 R68 V72 Y73 N77 E82 R83 V84 K94 T97 V98 E99 D100 L101 W102 P103

A108 E109 R110 D114 M115 V119 H123 L126 R127 K128 M129 F130 E133 P139 L140 R141 K142 D143 F144 L154 L157 L161 R164 T165 D166 L174 T177 P180 I181 L182 E183 D184 R187 T188 R192 L193 K194 K195 K196 A197 E198 L199 V200 W203

T210 H211 G212 T213 L220 E221 G222 E223 K224 Q227 L235 H236 R237 P253 Y254 T255 D256 R257 M258 D259 Y260 I261 S262 A263 I264 C265 N266 E267 L268 A269 V270 V271 E272 T273 R276 L277 Q297 R298 I299 N300 S301 L304 Y321 R324 E325 R326 I329 I332

Y339 T342 S343 C344 R347 L355 T359 L360 I367 K368 D369 R373 L374 K375 T379 L380 L381 T382 R383 N384 R385 I386 W387 L388 R389 R390 T391 K392 D393 V394 G395 T398 R399 E400 D401 V402 H403 N404 L407 V411 V417 L421 R422 K423 L424 Q425

A428 E434 I437 V445 Y446 D447 R448 Y449 V460 R461 I462 I463 E464 Q465 C466 V467 Q468 K475 F495 H496 D497 L498 E499 S500 M501 V502 K503 R506 E512 F521 A522 G523 E524 R527 G528 E529 F532 Y543 I547 R548 S549 G550 A551 I557 T566

I567 A568 S576 L577 D578 P579 V580 V581 G582 E583 T584 D585 ARG

• Molecule 3: NADH-quinone oxidoreductase subunit F

Chain C:

87% 11%

M1 R2 A6 I7 P8 L16 N17 R22 A23 K24 I31 D37 Q82 N83 R87 D94 F101 H112 R135 Y142 R175 G176 A177 R196 G197 H198 Q208 P215 P249 K257 T271 E274 K278 L284 K287 S294

D298 E328 T346 R354 V355 G356 E359 L364 E374 I387 Q388 P389 T390 L402 T406 E412 E415 R418 K419 LYS SER ALA SER LEU PRO LEU

• Molecule 3: NADH-quinone oxidoreductase subunit F

Chain I:

89% 9%

M1 A6 I7 P8 I31 N83 R87 D94 E97 P98 G99 T100 F101 H112 E129 R135 K153 E170 I171 Y172 G178 L192 R196 G197 H198 Q208 P215 D245 Y246 L314 L325 I331 L336 K337 T346 C347 G348

R354 L364 E374 D381 R385 E412 R418 K419 LYS SER ALA SER LEU PRO LEU

• Molecule 3: NADH-quinone oxidoreductase subunit F

Chain O:

• Molecule 3: NADH-quinone oxidoreductase subunit F

Chain U:

• Molecule 4: NADH-quinone oxidoreductase subunit I
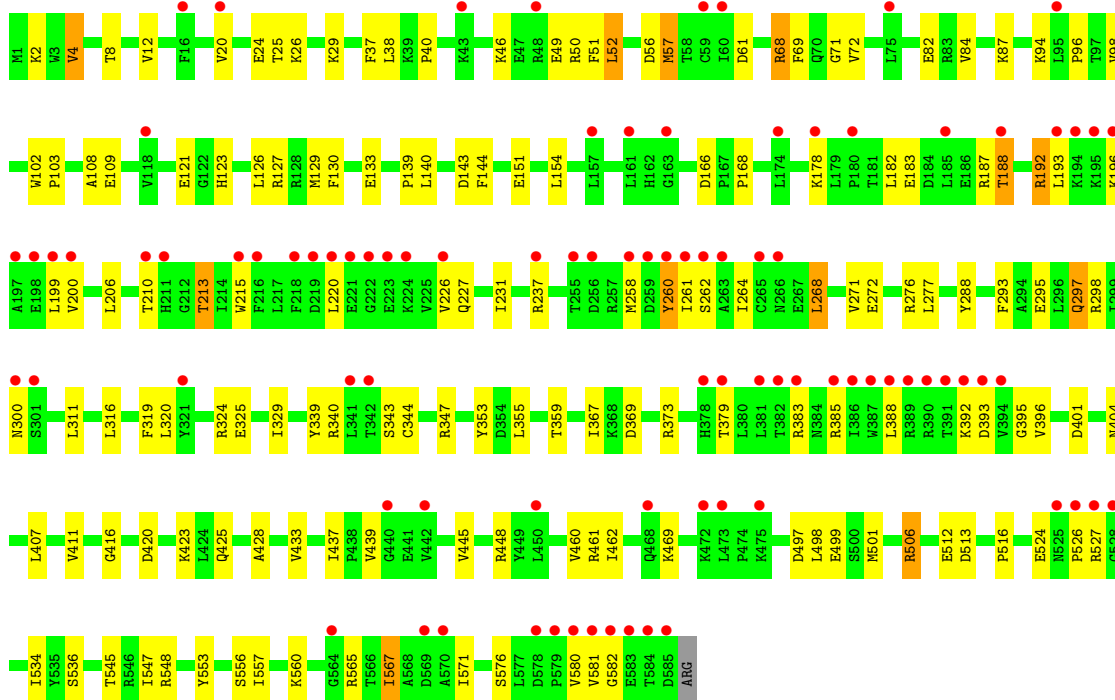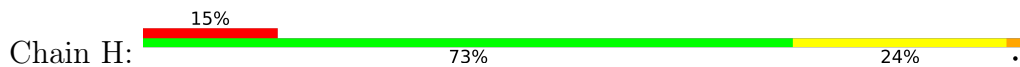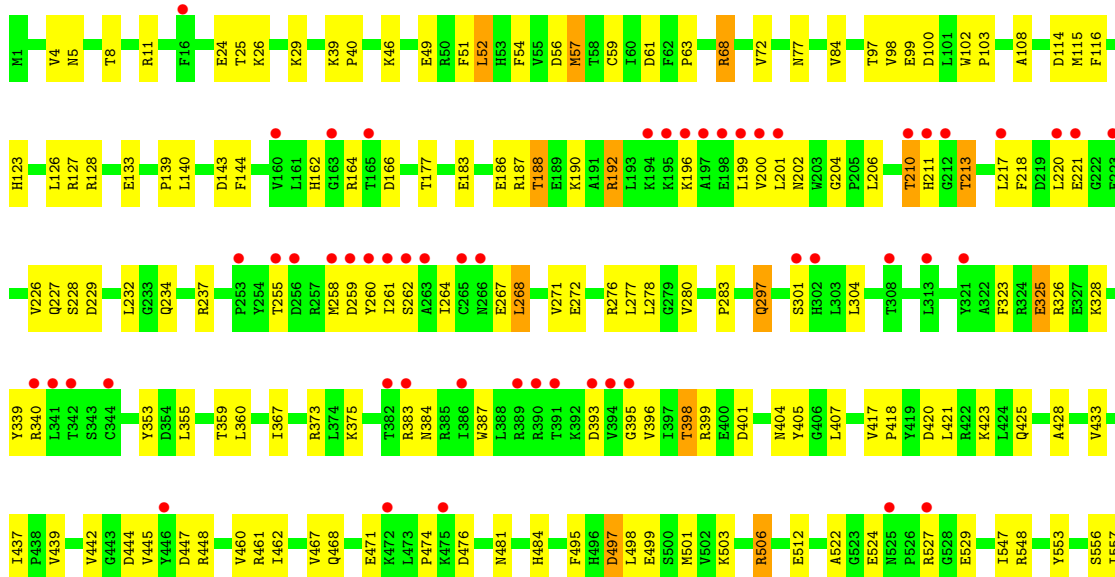
Chain D:

• Molecule 4: NADH-quinone oxidoreductase subunit I

Chain J:

• Molecule 4: NADH-quinone oxidoreductase subunit I

Chain P:

A83 K84 S85 R86 A89 M99 L102 F103 R104 I105 E106 K115 K116 V117 V118 R119 L128 C133 V134 V139 L142 T143 M144 T145 D146 E149 L150 R156 E163 D164 L165 E166 K167 R175 N186 E191 K192 L193 W194 G195 K196 G201

• Molecule 4: NADH-quinone oxidoreductase subunit I

Chain V:

MET GLY VAL LYS K5 L6 S7 R8 K9 D10 Y11 L12 N13 I14 L15 E16 S17 I18 L19 F20 I21 D22 F23 L24 K25 G26 L27 S28 V29 T30 L31 K32 N33 L34 I39 E42 Y43 P44 K45 E46 K47 L48 K52 R55 V62 W63 P68 L71 E75 M78 S79

Y80 E81 K82 A83 Q94 C97 P98 M99 P100 R104 K115 K116 V117 D121 L128 F129 C130 G131 L132 C133 V134 V139 L142 T143 M144 E149 Y153 R156 L160 L165 D171 F172 K173 Q174 R175 R176 I183 W184 P185 N186 D187 E188 E189 R190

K196 W199 S200 G201

• Molecule 5: NADH-quinone oxidoreductase subunit E

Chain E:

MET PHE LYS THR GLU F6 E11 F23 R27 L32 Q38 I44 Y70 F73 I83 S88 L100 P111 K119 A130 C131 S132 V136 F137 M138 D142 E143 Y159 T160

• Molecule 5: NADH-quinone oxidoreductase subunit E

Chain K:

MET PHE LYS THR GLU F6 F23 L32 Q38 I44 S48 P51 S88 L93 L100 P111 L128 G129 A130 C131 S132 V136 F137 M138 V139 N140 D141 D142 E143 T160

• Molecule 5: NADH-quinone oxidoreductase subunit E

Chain Q:

MET PHE LYS THR GLU F6 T14 E18 F23 L32 D74 L93 L99 L100 I109 K110 P111 T115 K119 F120 K121 L128 G129 A130 V136 F137 M138 D142 E143 F146 Y159 T160

• Molecule 5: NADH-quinone oxidoreductase subunit E

Chain W:

MET PHE LYS THR GLU F6 E7 F8 E11 Q38 Y41 I44 F69 F73 D74 K78 Y81 S88 I89 V90 C91 H92 T96 L103 L107 G108 I109 T115 G118 K119 F120 K121 C127 L128 G129 A130 C131 S132 V136 F137 M138 D142 E143
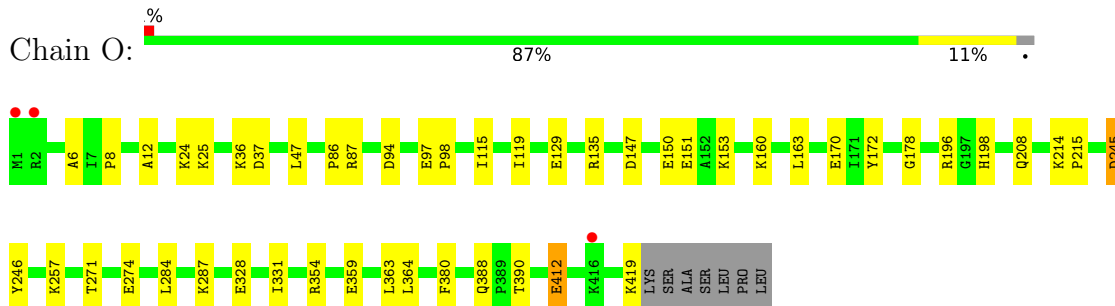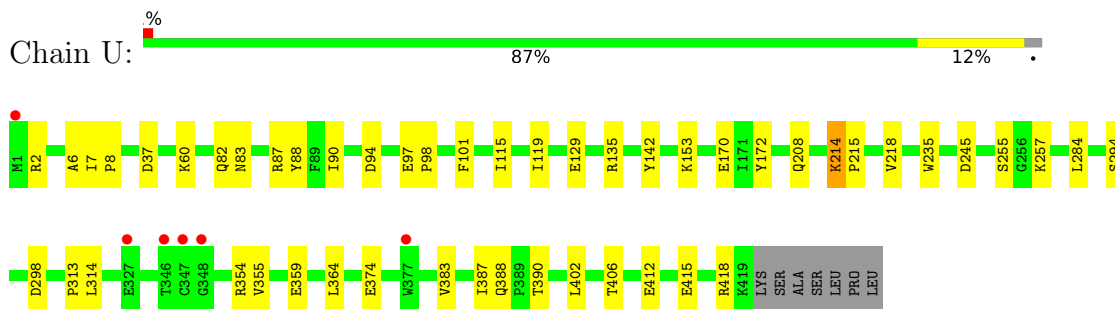
L152 I155 L156 Y159 T160

• Molecule 6: NADH-quinone oxidoreductase subunit B

Chain F:

• Molecule 6: NADH-quinone oxidoreductase subunit B
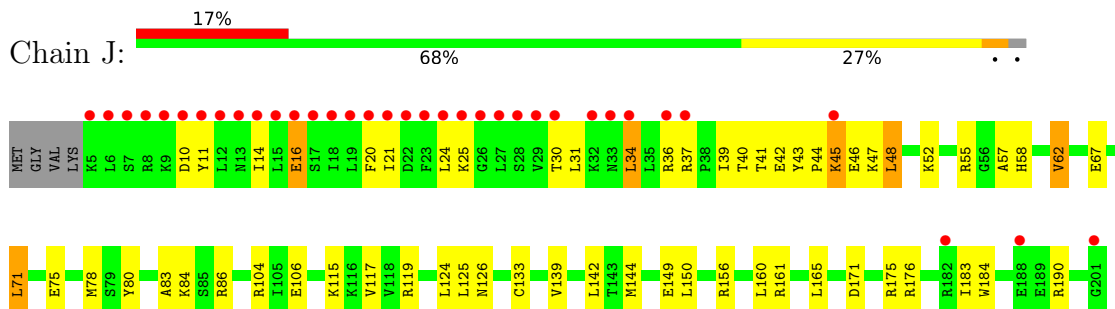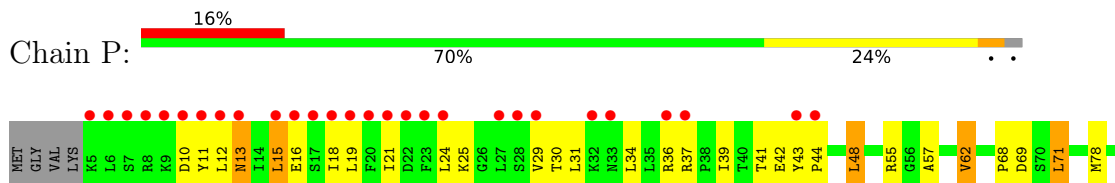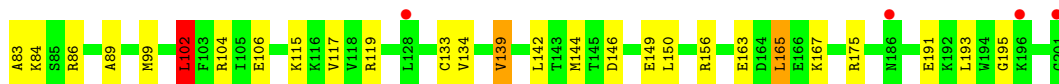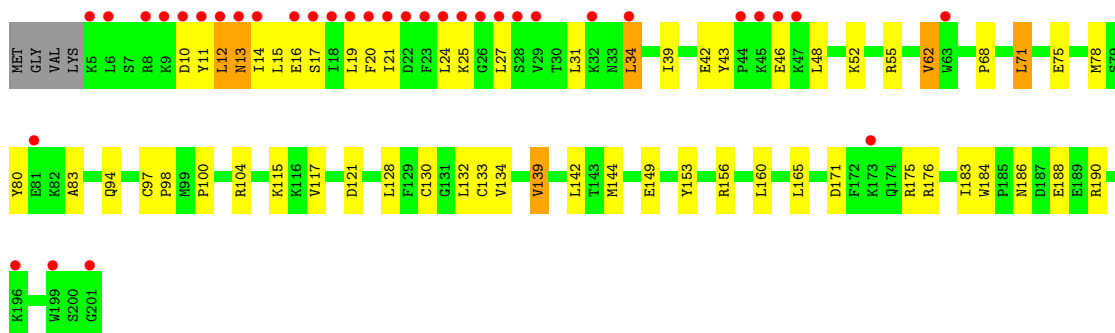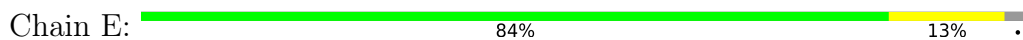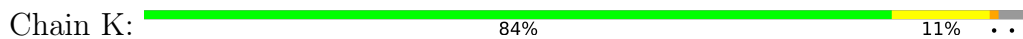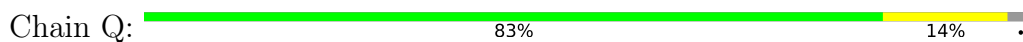
Chain L:

• Molecule 6: NADH-quinone oxidoreductase subunit B

Chain R:

• Molecule 6: NADH-quinone oxidoreductase subunit B

Chain X:

ILE PHE VAL PRO ARG GLU LEU LYS VAL

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	132.88Å 240.24Å 230.92Å 90.00° 95.57° 90.00°	Depositor
Resolution (Å)	29.95 – 2.70 48.63 – 2.70	Depositor EDS
% Data completeness (in resolution range)	98.4 (29.95-2.70) 98.4 (48.63-2.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.46 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.16_3549, PHENIX 1.16_3549	Depositor
R, R_{free}	0.169 , 0.209 0.170 , 0.209	Depositor DCC
R_{free} test set	19447 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	64.9	Xtriage
Anisotropy	0.133	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	(Not available) , (Not available)	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	69025	wwPDB-VP
Average B, all atoms (Å^2)	89.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.27% 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: SF4, FMN, FES

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	0.56	2/5182 (0.0%)	0.78	5/7004 (0.1%)
1	G	0.53	2/5182 (0.0%)	0.74	0/7004
1	M	0.51	0/5182	0.74	0/7004
1	S	0.49	0/5182	0.74	2/7004 (0.0%)
2	B	0.39	0/4917	0.64	0/6657
2	H	0.35	0/4917	0.61	0/6657
2	N	0.37	0/4917	0.61	0/6657
2	T	0.38	0/4917	0.64	0/6657
3	C	0.49	0/3382	0.66	0/4574
3	I	0.52	0/3382	0.71	0/4574
3	O	0.46	0/3382	0.65	0/4574
3	U	0.43	0/3382	0.62	0/4574
4	D	0.41	0/1646	0.75	2/2216 (0.1%)
4	J	0.43	0/1646	0.69	0/2216
4	P	0.39	0/1646	0.77	3/2216 (0.1%)
4	V	0.40	0/1646	0.72	1/2216 (0.0%)
5	E	0.49	0/1288	0.72	0/1740
5	K	0.52	0/1288	0.71	1/1740 (0.1%)
5	Q	0.43	0/1288	0.66	0/1740
5	W	0.40	0/1288	0.63	0/1740
6	F	0.42	0/1059	0.67	0/1442
6	L	0.34	0/1059	0.61	0/1442
6	R	0.37	0/1059	0.62	0/1442
6	X	0.37	0/1059	0.62	0/1442
All	All	0.45	4/69896 (0.0%)	0.69	14/94532 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	239	CYS	CB-SG	-6.75	1.70	1.82
1	G	112	CYS	CB-SG	-6.51	1.71	1.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	154	CYS	CB-SG	-5.74	1.72	1.81
1	G	239	CYS	CB-SG	-5.00	1.73	1.81

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	P	102	LEU	CA-CB-CG	10.14	138.63	115.30
4	D	15	LEU	CA-CB-CG	7.95	133.59	115.30
4	P	15	LEU	CA-CB-CG	6.72	130.75	115.30
4	P	165	LEU	CA-CB-CG	6.33	129.85	115.30
1	S	49	ARG	NE-CZ-NH2	6.17	123.39	120.30
5	K	139	VAL	N-CA-C	-6.06	94.64	111.00
1	A	526	ASP	CB-CG-OD1	5.79	123.51	118.30
1	A	153	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	A	137	ARG	NE-CZ-NH1	5.67	123.13	120.30
1	A	137	ARG	NE-CZ-NH2	-5.63	117.48	120.30
4	V	15	LEU	CA-CB-CG	5.41	127.74	115.30
1	A	101	LEU	CA-CB-CG	5.33	127.57	115.30
4	D	43	TYR	C-N-CD	-5.23	109.10	120.60
1	S	49	ARG	NE-CZ-NH1	-5.05	117.77	120.30

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	5071	0	5048	60	0
1	G	5071	0	5048	62	0
1	M	5071	0	5049	78	0
1	S	5071	0	5048	76	0
2	B	4789	0	4743	102	0
2	H	4789	0	4743	99	0
2	N	4789	0	4743	104	0
2	T	4789	0	4743	108	0
3	C	3301	0	3282	26	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	I	3301	0	3282	27	0
3	O	3301	0	3282	29	0
3	U	3301	0	3282	30	0
4	D	1610	0	1623	36	0
4	J	1610	0	1623	43	0
4	P	1610	0	1623	43	0
4	V	1610	0	1623	37	0
5	E	1259	0	1263	15	0
5	K	1259	0	1263	15	0
5	Q	1259	0	1263	17	0
5	W	1259	0	1263	19	0
6	F	1033	0	1062	30	0
6	L	1033	0	1062	34	0
6	R	1033	0	1062	23	0
6	X	1033	0	1062	25	0
7	A	32	0	0	1	0
7	C	8	0	0	0	0
7	D	16	0	0	0	0
7	F	8	0	0	0	0
7	G	32	0	0	1	0
7	I	8	0	0	0	0
7	J	16	0	0	0	0
7	L	8	0	0	0	0
7	M	32	0	0	0	0
7	O	8	0	0	0	0
7	P	16	0	0	0	0
7	R	8	0	0	0	0
7	S	32	0	0	1	0
7	U	8	0	0	0	0
7	V	16	0	0	0	0
7	X	8	0	0	0	0
8	A	4	0	0	0	0
8	E	4	0	0	0	0
8	G	4	0	0	0	0
8	K	4	0	0	0	0
8	M	4	0	0	0	0
8	Q	4	0	0	0	0
8	S	4	0	0	1	0
8	W	4	0	0	1	0
9	C	31	0	19	0	0
9	I	31	0	19	0	0
9	O	31	0	19	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	U	31	0	19	0	0
10	A	79	0	0	1	0
10	B	5	0	0	0	0
10	C	24	0	0	0	0
10	D	5	0	0	0	0
10	E	14	0	0	1	0
10	G	38	0	0	0	0
10	H	2	0	0	0	0
10	I	41	0	0	1	0
10	J	4	0	0	0	0
10	K	14	0	0	0	0
10	M	51	0	0	0	0
10	N	8	0	0	0	0
10	O	11	0	0	2	0
10	P	3	0	0	0	0
10	Q	10	0	0	0	0
10	S	32	0	0	2	0
10	T	4	0	0	0	0
10	U	10	0	0	1	0
10	V	2	0	0	0	0
10	W	4	0	0	0	0
All	All	69025	0	68161	1029	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 8.

All (1029) 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)
2:T:423:LYS:HG3	2:T:437:ILE:HD11	1.54	0.90
2:H:355:LEU:HB3	2:H:359:THR:HG21	1.54	0.89
2:B:355:LEU:HB3	2:B:359:THR:HG21	1.57	0.84
1:M:354:GLU:HG3	1:M:437:LYS:HG3	1.58	0.83
2:B:103:PRO:HD2	2:B:404:ASN:HB3	1.59	0.83
5:Q:138:MET:HG2	5:Q:143:GLU:HG3	1.61	0.82
1:G:137:ARG:NH2	1:G:182:SER:O	2.11	0.82
2:H:4:VAL:HG22	2:H:84:VAL:HG22	1.62	0.81
2:T:196:LYS:HD2	2:T:227:GLN:HG3	1.62	0.81
2:B:298:ARG:NH2	2:B:524:GLU:O	2.13	0.81
1:S:354:GLU:HG3	1:S:437:LYS:HG3	1.64	0.79
2:T:114:ASP:OD1	2:T:128:ARG:NH1	2.16	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:103:PRO:HD2	2:N:404:ASN:HB3	1.64	0.79
2:N:56:ASP:HB2	2:N:548:ARG:HG3	1.66	0.78
2:H:264:ILE:HB	2:H:297:GLN:HG3	1.65	0.78
2:H:423:LYS:HG3	2:H:437:ILE:HD11	1.66	0.78
6:L:62:ARG:NH2	6:L:87:GLN:OE1	2.18	0.77
2:B:4:VAL:HG22	2:B:84:VAL:HG22	1.67	0.77
2:T:103:PRO:HD2	2:T:404:ASN:HB3	1.66	0.76
2:B:395:GLY:O	2:B:448:ARG:NH2	2.19	0.76
1:M:177:ASP:O	3:O:196:ARG:NH2	2.16	0.75
6:R:142:GLN:OE1	6:R:145:ARG:NH1	2.19	0.75
2:T:183:GLU:OE1	2:T:187:ARG:NH2	2.20	0.75
3:U:415:GLU:HG3	3:U:418:ARG:HD3	1.66	0.74
2:T:298:ARG:NH2	2:T:524:GLU:O	2.20	0.73
2:T:258:MET:HE1	2:T:547:ILE:HD13	1.68	0.73
4:P:12:LEU:O	4:P:13:ASN:HB2	1.88	0.73
1:S:368:LYS:O	1:S:422:ASN:ND2	2.21	0.72
1:M:468:GLU:OE2	1:M:471:LYS:NZ	2.21	0.72
1:G:95:LEU:HD22	1:G:155:VAL:HG22	1.69	0.72
1:G:97:THR:HG22	1:G:98:ARG:HG2	1.70	0.72
2:H:258:MET:HE1	2:H:547:ILE:HD13	1.72	0.72
4:V:171:ASP:OD2	4:V:175:ARG:NH1	2.23	0.72
1:S:97:THR:HG22	1:S:98:ARG:HG2	1.71	0.72
1:S:137:ARG:NH2	1:S:182:SER:O	2.23	0.72
1:M:324:GLU:OE2	1:M:547:THR:HG23	1.89	0.71
2:N:133:GLU:H	2:N:188:THR:HG22	1.52	0.71
2:T:395:GLY:O	2:T:448:ARG:NH2	2.23	0.71
5:E:138:MET:HG2	5:E:143:GLU:HG3	1.73	0.71
1:G:259:THR:HG21	1:G:271:GLY:O	1.89	0.71
2:N:206:LEU:HD23	6:R:80:MET:HG2	1.71	0.71
2:N:183:GLU:OE1	2:N:187:ARG:NH2	2.24	0.71
2:N:423:LYS:HG3	2:N:437:ILE:HD11	1.72	0.71
3:U:87:ARG:HG2	3:U:215:PRO:HB2	1.73	0.70
2:H:340:ARG:NH1	6:L:39:GLU:OE1	2.24	0.70
1:M:137:ARG:NH2	1:M:182:SER:O	2.24	0.70
1:M:101:LEU:HD22	2:N:498:LEU:HB2	1.73	0.70
4:V:12:LEU:O	4:V:13:ASN:HB2	1.91	0.70
2:T:355:LEU:HB3	2:T:359:THR:HG21	1.71	0.70
1:A:354:GLU:HG3	1:A:437:LYS:HG3	1.74	0.69
4:P:43:TYR:OH	4:P:149:GLU:OE1	2.09	0.69
1:G:180:PHE:HA	3:I:354:ARG:HG2	1.75	0.69
2:N:237:ARG:HH11	6:R:72:THR:HG21	1.58	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:592:ASN:HB3	1:M:594:ARG:HH21	1.55	0.68
4:P:134:VAL:HG21	4:P:144:MET:HG2	1.76	0.68
2:B:272:GLU:HG3	2:B:276:ARG:HH12	1.59	0.68
1:M:343:PRO:HG2	1:M:498:ASP:HB2	1.75	0.68
1:S:137:ARG:NH1	1:S:151:SER:O	2.26	0.67
3:C:83:ASN:O	3:C:87:ARG:NH1	2.28	0.67
2:N:264:ILE:HB	2:N:297:GLN:HG3	1.75	0.67
1:G:137:ARG:NH1	1:G:151:SER:O	2.26	0.67
2:T:388:LEU:HD22	2:T:392:LYS:HE3	1.76	0.67
1:G:354:GLU:HG3	1:G:437:LYS:HG3	1.77	0.67
4:D:43:TYR:OH	4:D:149:GLU:OE1	2.10	0.67
2:T:259:ASP:HB2	2:T:583:GLU:HG3	1.76	0.67
5:K:138:MET:HG2	5:K:143:GLU:HG3	1.78	0.66
1:M:259:THR:HG21	1:M:271:GLY:O	1.95	0.66
1:A:259:THR:HG21	1:A:271:GLY:O	1.95	0.66
2:H:388:LEU:HD22	2:H:392:LYS:HE3	1.78	0.66
1:A:416:LEU:HB3	1:A:446:LEU:HD21	1.78	0.65
2:H:367:ILE:HG23	2:H:460:VAL:HG13	1.77	0.65
2:H:272:GLU:HG3	2:H:276:ARG:NH1	2.10	0.65
2:B:206:LEU:HD23	6:F:80:MET:HG2	1.78	0.65
2:T:264:ILE:HB	2:T:297:GLN:HG3	1.78	0.65
1:M:97:THR:HG22	1:M:98:ARG:HG2	1.79	0.65
2:B:272:GLU:HG3	2:B:276:ARG:NH1	2.12	0.65
4:D:44:PRO:HG3	6:F:141:LEU:HD21	1.77	0.65
3:I:87:ARG:HG2	3:I:215:PRO:HB2	1.79	0.65
4:J:41:THR:HG21	4:J:48:LEU:HG	1.79	0.65
1:M:137:ARG:NH1	1:M:151:SER:O	2.29	0.65
3:I:8:PRO:HD3	5:K:143:GLU:HB3	1.79	0.64
2:N:355:LEU:HB3	2:N:359:THR:HG21	1.79	0.64
1:A:137:ARG:NH2	1:A:182:SER:O	2.25	0.64
2:N:213:THR:HG22	2:N:234:GLN:HB3	1.80	0.64
4:P:36:ARG:HH21	4:P:37:ARG:HB2	1.62	0.64
2:B:264:ILE:HB	2:B:297:GLN:HG3	1.79	0.64
2:H:369:ASP:HB3	2:H:373:ARG:HD2	1.79	0.64
6:R:62:ARG:NH2	6:R:87:GLN:OE1	2.31	0.64
2:H:133:GLU:H	2:H:188:THR:HB	1.62	0.64
2:T:398:THR:HG23	2:T:401:ASP:OD2	1.98	0.64
2:H:193:LEU:HD13	2:H:227:GLN:HE21	1.63	0.63
2:H:237:ARG:HD3	6:L:72:THR:HG21	1.79	0.63
2:N:258:MET:HE1	2:N:547:ILE:HD13	1.80	0.63
1:S:416:LEU:HB3	1:S:446:LEU:HD11	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:259:ASP:HB2	2:N:583:GLU:HG3	1.79	0.63
1:A:282:ARG:NH2	1:A:543:GLU:OE1	2.32	0.63
2:B:196:LYS:HD2	2:B:227:GLN:HG3	1.80	0.63
6:F:27:TRP:HE1	6:F:56:ILE:HD12	1.64	0.63
3:U:8:PRO:HD3	5:W:143:GLU:HB3	1.79	0.63
1:S:259:THR:HG21	1:S:271:GLY:O	1.97	0.63
1:S:78:HIS:O	1:S:85:ARG:NH1	2.33	0.62
1:S:343:PRO:HG2	1:S:498:ASP:HB2	1.79	0.62
3:U:374:GLU:OE2	3:U:418:ARG:NH2	2.32	0.62
2:H:324:ARG:HH12	4:J:34:LEU:HD11	1.64	0.62
6:L:39:GLU:HG2	6:L:131:PRO:O	1.99	0.62
2:H:272:GLU:HG3	2:H:276:ARG:HH12	1.63	0.62
6:X:117:ASP:HA	6:X:120:ILE:O	1.99	0.62
1:A:324:GLU:OE2	1:A:547:THR:HG23	2.00	0.62
4:J:43:TYR:OH	4:J:149:GLU:OE1	2.14	0.62
4:P:62:VAL:HG13	4:P:83:ALA:HA	1.81	0.62
6:L:28:PRO:HB3	6:L:66:VAL:HB	1.81	0.62
2:T:39:LYS:NZ	2:T:100:ASP:OD2	2.29	0.62
2:B:262:SER:HA	2:B:297:GLN:NE2	2.15	0.62
1:G:396:LYS:NZ	1:G:403:ASP:OD2	2.32	0.62
2:N:114:ASP:OD1	2:N:128:ARG:NH1	2.31	0.61
5:Q:74:ASP:OD2	5:Q:121:LYS:NZ	2.33	0.61
5:W:74:ASP:OD2	5:W:121:LYS:NZ	2.33	0.61
5:K:23:PHE:HE2	5:K:32:LEU:HD12	1.66	0.61
1:A:368:LYS:O	1:A:422:ASN:ND2	2.33	0.61
3:O:147:ASP:O	3:O:151:GLU:HG3	2.00	0.61
2:B:56:ASP:HB2	2:B:548:ARG:HG3	1.83	0.61
2:B:383:ARG:HH12	4:D:24:LEU:HD12	1.66	0.61
4:J:36:ARG:HH21	4:J:37:ARG:HD2	1.65	0.61
1:M:180:PHE:HA	3:O:354:ARG:HG2	1.82	0.61
1:G:343:PRO:HG2	1:G:498:ASP:HB2	1.81	0.61
3:C:87:ARG:HG2	3:C:215:PRO:HB2	1.81	0.61
6:X:72:THR:HA	6:X:100:CYS:HB3	1.83	0.61
2:B:445:VAL:HG13	2:B:576:SER:HB3	1.82	0.60
2:T:237:ARG:HH11	6:X:72:THR:HG21	1.64	0.60
2:H:182:LEU:HD21	6:L:83:LEU:HB2	1.83	0.60
4:P:13:ASN:HB3	4:P:15:LEU:HB2	1.83	0.60
1:A:330:LEU:HD22	1:A:469:VAL:HG13	1.82	0.60
6:F:85:TRP:HA	6:F:88:MET:HE3	1.83	0.60
1:S:155:VAL:HG13	1:S:155:VAL:O	2.02	0.60
1:S:426:LEU:HD23	1:S:455:ILE:HB	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:J:106:GLU:HB2	4:J:119:ARG:HB3	1.84	0.60
2:T:61:ASP:OD1	2:T:68:ARG:HD3	2.02	0.60
3:C:6:ALA:HB3	5:E:142:ASP:HB3	1.83	0.59
3:O:8:PRO:HD3	5:Q:143:GLU:HB3	1.84	0.59
1:M:373:VAL:HG11	1:M:416:LEU:HD21	1.82	0.59
4:V:184:TRP:CE2	4:V:190:ARG:HG3	2.38	0.59
2:H:343:SER:O	4:J:55:ARG:NH1	2.24	0.59
5:K:130:ALA:HB3	5:K:136:VAL:HG21	1.85	0.59
2:T:445:VAL:HG13	2:T:576:SER:HB3	1.84	0.59
2:N:272:GLU:HG3	2:N:276:ARG:NH1	2.17	0.59
6:X:28:PRO:HB3	6:X:66:VAL:HB	1.83	0.59
2:T:56:ASP:HB2	2:T:548:ARG:HG3	1.84	0.59
2:B:8:THR:HG22	2:B:11:ARG:HH21	1.68	0.58
1:M:95:LEU:HD22	1:M:155:VAL:HG22	1.86	0.58
1:G:416:LEU:HB3	1:G:446:LEU:HD11	1.86	0.58
1:S:432:LEU:HB2	1:S:436:ILE:HG12	1.84	0.58
4:V:27:LEU:HD21	4:V:31:LEU:HD12	1.85	0.58
2:B:383:ARG:HH21	4:D:27:LEU:HD22	1.67	0.58
2:T:324:ARG:HH11	2:T:373:ARG:HH22	1.51	0.58
6:X:74:VAL:HG12	6:X:76:LYS:H	1.67	0.58
1:G:218:TYR:CD2	4:J:115:LYS:HB2	2.38	0.58
2:T:367:ILE:HD12	2:T:460:VAL:HG13	1.85	0.58
6:F:28:PRO:HB3	6:F:66:VAL:HB	1.85	0.58
2:H:56:ASP:HB2	2:H:548:ARG:HG3	1.86	0.58
6:X:27:TRP:HE1	6:X:56:ILE:HD12	1.68	0.58
3:C:374:GLU:OE2	3:C:418:ARG:NH2	2.37	0.57
2:B:46:LYS:HG3	2:B:52:LEU:HA	1.84	0.57
2:B:61:ASP:OD1	2:B:68:ARG:HD3	2.04	0.57
4:D:106:GLU:HB2	4:D:119:ARG:HB3	1.85	0.57
6:X:27:TRP:NE1	6:X:56:ILE:HD12	2.18	0.57
4:D:62:VAL:HG13	4:D:83:ALA:HA	1.86	0.57
1:G:343:PRO:HA	1:G:477:LEU:HD22	1.87	0.57
2:H:395:GLY:O	2:H:448:ARG:NH2	2.38	0.57
2:N:395:GLY:O	2:N:448:ARG:NH2	2.37	0.57
2:B:423:LYS:HG3	2:B:437:ILE:HD11	1.87	0.57
2:N:201:LEU:HD22	2:N:220:LEU:HD11	1.87	0.57
4:P:99:MET:O	4:P:102:LEU:HD13	2.04	0.57
2:B:201:LEU:HD22	2:B:220:LEU:HD11	1.85	0.57
1:G:112:CYS:HB3	1:G:115:GLN:HB3	1.86	0.57
6:F:50:LEU:HD11	6:F:57:PHE:HE2	1.70	0.57
2:T:272:GLU:HG3	2:T:276:ARG:NH1	2.20	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:368:LYS:O	1:G:422:ASN:ND2	2.37	0.57
2:B:258:MET:HE1	2:B:547:ILE:HD13	1.86	0.56
2:B:327:GLU:OE2	2:B:340:ARG:NH2	2.37	0.56
1:G:178:ARG:NH2	3:I:178:GLY:O	2.37	0.56
6:L:138:TYR:HA	6:L:141:LEU:HD22	1.87	0.56
1:A:291:ARG:NH2	1:A:293:GLU:OE2	2.36	0.56
2:H:298:ARG:NH2	2:H:524:GLU:O	2.38	0.56
5:Q:23:PHE:HE2	5:Q:32:LEU:HD12	1.69	0.56
5:W:138:MET:HG2	5:W:143:GLU:HG3	1.87	0.56
6:X:62:ARG:NH2	6:X:87:GLN:OE1	2.38	0.56
4:J:62:VAL:HG13	4:J:83:ALA:HA	1.87	0.56
2:N:280:VAL:HG22	2:N:484:HIS:CD2	2.40	0.56
3:U:101:PHE:CZ	5:W:132:SER:HB3	2.39	0.56
2:H:166:ASP:OD1	2:H:166:ASP:N	2.33	0.56
5:Q:159:TYR:O	5:Q:160:THR:HB	2.06	0.56
6:R:28:PRO:HD2	6:R:57:PHE:H	1.71	0.56
2:B:580:VAL:HG12	2:B:582:GLY:H	1.70	0.56
2:H:206:LEU:HD23	6:L:80:MET:HG2	1.88	0.56
2:N:340:ARG:NH1	6:R:39:GLU:OE1	2.39	0.56
2:T:73:TYR:CE2	2:T:98:VAL:HG21	2.40	0.56
2:H:50:ARG:NH2	2:H:52:LEU:HD21	2.20	0.56
2:N:399:ARG:HD3	2:N:417:VAL:HG22	1.86	0.56
1:S:261:PRO:HB3	1:S:267:ILE:HB	1.88	0.56
6:F:142:GLN:OE1	6:F:145:ARG:NH1	2.33	0.56
2:H:262:SER:HA	2:H:297:GLN:NE2	2.20	0.56
2:T:383:ARG:HH21	4:V:27:LEU:HD22	1.70	0.56
4:V:71:LEU:HG	4:V:139:VAL:HG13	1.87	0.56
2:H:61:ASP:OD1	2:H:68:ARG:HD3	2.05	0.56
2:N:384:ASN:HB2	2:N:387:TRP:HE1	1.71	0.56
4:P:43:TYR:CG	4:P:43:TYR:O	2.59	0.56
1:S:508:PHE:HA	1:S:511:LEU:HB2	1.88	0.56
3:I:354:ARG:NH1	10:I:601:HOH:O	2.38	0.55
3:O:412:GLU:CD	3:O:412:GLU:H	2.09	0.55
4:J:71:LEU:HG	4:J:139:VAL:HG13	1.88	0.55
2:N:133:GLU:H	2:N:188:THR:CG2	2.18	0.55
1:A:97:THR:HG22	1:A:98:ARG:HG2	1.86	0.55
2:B:24:GLU:HG2	2:B:29:LYS:HG2	1.87	0.55
6:F:67:LEU:HB2	6:F:88:MET:HE1	1.89	0.55
1:G:324:GLU:OE2	1:G:547:THR:HG23	2.06	0.55
4:D:187:ASP:O	4:D:191:GLU:HG3	2.07	0.55
1:M:107:ASP:OD2	1:M:217:LYS:HA	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L:72:THR:HA	6:L:100:CYS:HB3	1.88	0.55
1:M:416:LEU:HB3	1:M:446:LEU:HD11	1.88	0.55
2:N:8:THR:HG22	2:N:11:ARG:HH21	1.72	0.55
6:R:28:PRO:HB3	6:R:66:VAL:HB	1.88	0.55
4:V:42:GLU:CD	4:V:42:GLU:H	2.08	0.55
1:G:164:CYS:SG	1:G:170:THR:HG23	2.47	0.55
2:N:199:LEU:HD12	2:N:200:VAL:H	1.70	0.55
2:T:425:GLN:NE2	2:T:522:ALA:O	2.29	0.55
2:B:555:LEU:HG	2:B:579:PRO:HB3	1.89	0.55
5:E:119:LYS:HE2	5:E:160:THR:HG23	1.87	0.55
4:J:44:PRO:HG3	6:L:141:LEU:HD21	1.88	0.55
2:N:433:VAL:HG11	2:N:462:ILE:HG23	1.87	0.55
3:O:354:ARG:NH1	10:O:603:HOH:O	2.40	0.55
1:M:261:PRO:HB3	1:M:267:ILE:HB	1.89	0.55
2:N:196:LYS:HD2	2:N:227:GLN:HG3	1.87	0.55
2:B:2:LYS:NZ	2:B:80:GLU:O	2.31	0.55
2:N:383:ARG:HH12	4:P:24:LEU:HA	1.70	0.55
2:T:332:ILE:HA	4:V:183:ILE:HD11	1.89	0.55
5:W:38:GLN:HB2	5:W:44:ILE:HG13	1.89	0.55
1:A:426:LEU:HD23	1:A:455:ILE:HB	1.89	0.54
1:G:485:GLU:OE1	1:G:514:LYS:HE3	2.08	0.54
4:D:146:ASP:OD2	4:D:175:ARG:NH2	2.40	0.54
1:S:164:CYS:SG	1:S:170:THR:HG23	2.47	0.54
3:C:402:LEU:O	3:C:406:THR:HG23	2.07	0.54
4:D:71:LEU:HD22	4:D:139:VAL:HG13	1.90	0.54
2:H:344:CYS:O	2:H:347:ARG:NH2	2.40	0.54
6:R:74:VAL:HG12	6:R:76:LYS:H	1.71	0.54
1:M:39:HIS:ND1	1:M:40:PRO:HD2	2.23	0.54
1:M:150:TYR:HB3	1:M:153:ARG:HG3	1.88	0.54
3:U:97:GLU:HG2	3:U:98:PRO:HD2	1.90	0.54
1:G:36:PHE:HE2	1:G:50:MET:HE3	1.73	0.54
4:J:57:ALA:HB2	4:J:150:LEU:HD11	1.90	0.54
1:A:261:PRO:HB3	1:A:267:ILE:HB	1.89	0.54
5:E:100:LEU:HD22	5:E:111:PRO:HG3	1.89	0.54
2:H:51:PHE:CE2	2:H:84:VAL:HG23	2.42	0.54
1:S:218:TYR:CD2	4:V:115:LYS:HB2	2.43	0.54
1:S:95:LEU:HD22	1:S:155:VAL:HG22	1.90	0.53
3:I:374:GLU:OE2	3:I:418:ARG:NH2	2.41	0.53
4:V:43:TYR:OH	4:V:149:GLU:OE1	2.22	0.53
6:F:39:GLU:HG2	6:F:131:PRO:O	2.08	0.53
1:G:39:HIS:ND1	1:G:40:PRO:HD2	2.23	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:379:THR:O	2:H:383:ARG:HB2	2.08	0.53
3:I:99:GLY:HA2	5:K:131:CYS:SG	2.48	0.53
2:N:262:SER:HA	2:N:297:GLN:NE2	2.23	0.53
4:P:55:ARG:HB3	4:P:144:MET:HE3	1.91	0.53
6:X:44:ALA:HA	6:X:50:LEU:HD22	1.90	0.53
2:B:51:PHE:CE2	2:B:84:VAL:HG23	2.43	0.53
2:H:260:TYR:CB	6:L:35:CYS:HB3	2.39	0.53
2:N:166:ASP:OD1	2:N:166:ASP:N	2.42	0.53
1:A:180:PHE:HA	3:C:354:ARG:HG2	1.89	0.53
1:G:101:LEU:HA	2:H:501:MET:HE1	1.90	0.53
3:U:142:TYR:OH	10:U:601:HOH:O	2.18	0.53
4:J:171:ASP:OD2	4:J:175:ARG:NH1	2.42	0.53
6:L:142:GLN:OE1	6:L:145:ARG:NH1	2.40	0.53
3:O:129:GLU:HG2	3:O:172:TYR:HE1	1.74	0.53
1:M:374:PHE:CE1	1:M:426:LEU:HD12	2.44	0.53
6:R:23:ARG:O	6:R:23:ARG:HG2	2.09	0.53
2:T:24:GLU:HG2	2:T:29:LYS:HG2	1.91	0.53
2:T:73:TYR:HE2	2:T:98:VAL:HG21	1.75	0.53
5:E:130:ALA:HB3	5:E:136:VAL:HG21	1.91	0.52
2:H:46:LYS:HB2	2:H:102:TRP:CZ2	2.44	0.52
2:H:127:ARG:HD2	2:H:133:GLU:OE1	2.08	0.52
2:H:183:GLU:OE2	2:H:187:ARG:NH2	2.38	0.52
6:X:39:GLU:HG2	6:X:131:PRO:O	2.10	0.52
2:T:383:ARG:NH2	4:V:27:LEU:HD22	2.23	0.52
4:D:130:CYS:SG	4:D:132:LEU:HG	2.49	0.52
1:S:301:LEU:HD13	1:S:534:ILE:HD11	1.91	0.52
5:W:41:TYR:O	5:W:78:LYS:HE3	2.08	0.52
1:A:6:LYS:HE2	1:A:8:TYR:OH	2.10	0.52
6:F:23:ARG:O	6:F:23:ARG:HG2	2.10	0.52
1:G:576:GLU:O	1:G:579:LYS:HE3	2.09	0.52
2:H:129:MET:HG3	2:H:130:PHE:CD1	2.44	0.52
5:Q:138:MET:CG	5:Q:143:GLU:HG3	2.37	0.52
2:T:360:LEU:HD22	2:T:467:VAL:HG13	1.91	0.52
1:A:101:LEU:HA	2:B:501:MET:HE2	1.92	0.52
1:A:458:PRO:HG3	1:A:464:LEU:HG	1.91	0.52
3:O:47:LEU:HD12	3:O:163:LEU:HD12	1.90	0.52
2:T:97:THR:HG22	2:T:99:GLU:H	1.73	0.52
2:N:51:PHE:CE2	2:N:84:VAL:HG23	2.45	0.52
2:N:367:ILE:HG23	2:N:460:VAL:HG13	1.91	0.52
1:S:180:PHE:HA	3:U:354:ARG:HG2	1.92	0.52
1:G:101:LEU:HD22	2:H:498:LEU:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:359:ASP:OD1	1:G:447:LYS:HE2	2.10	0.52
6:L:89:PRO:HB2	6:L:91:PRO:HD2	1.91	0.52
1:A:270:LYS:HA	1:A:614:LEU:HD11	1.92	0.52
2:B:295:GLU:OE2	2:B:298:ARG:NH1	2.42	0.52
4:D:158:GLU:OE2	6:F:127:PRO:HG3	2.10	0.52
5:Q:100:LEU:HD22	5:Q:111:PRO:HG3	1.91	0.52
3:C:8:PRO:HD3	5:E:143:GLU:HB3	1.91	0.51
6:L:74:VAL:HG12	6:L:76:LYS:H	1.74	0.51
1:M:501:GLU:OE1	1:M:595:ARG:NH1	2.43	0.51
6:R:22:ARG:HD2	6:R:148:LYS:NZ	2.25	0.51
6:X:97:MET:HA	6:X:126:ILE:HB	1.92	0.51
1:A:343:PRO:HG2	1:A:498:ASP:HB2	1.90	0.51
1:G:98:ARG:HG3	1:G:180:PHE:HZ	1.75	0.51
1:S:282:ARG:NH2	1:S:543:GLU:OE1	2.44	0.51
1:G:270:LYS:HA	1:G:614:LEU:HD11	1.92	0.51
3:I:325:LEU:HG	5:K:93:LEU:HD21	1.93	0.51
1:M:426:LEU:HD23	1:M:455:ILE:HB	1.92	0.51
2:N:325:GLU:CD	2:N:373:ARG:HE	2.14	0.51
1:S:324:GLU:OE2	1:S:547:THR:HG23	2.09	0.51
2:N:495:PHE:HB3	4:P:68:PRO:HB2	1.91	0.51
6:R:117:ASP:HA	6:R:120:ILE:O	2.10	0.51
2:B:522:ALA:HB1	2:B:529:GLU:HG3	1.92	0.51
1:S:170:THR:HG21	7:S:704:SF4:S3	2.50	0.51
2:T:129:MET:HG3	2:T:130:PHE:CD1	2.45	0.51
1:A:142:TRP:CE2	1:A:149:TYR:HB2	2.46	0.51
3:C:101:PHE:CZ	5:E:132:SER:HB3	2.46	0.51
4:D:27:LEU:HG	4:D:31:LEU:HB2	1.93	0.51
3:I:153:LYS:HE3	3:I:170:GLU:OE2	2.10	0.51
1:M:98:ARG:HG3	1:M:180:PHE:CZ	2.45	0.51
2:N:97:THR:HG22	2:N:99:GLU:H	1.76	0.51
4:V:52:LYS:HE3	4:V:176:ARG:O	2.11	0.51
4:V:186:ASN:OD1	4:V:188:GLU:N	2.41	0.51
2:B:183:GLU:OE2	2:B:187:ARG:NH2	2.44	0.51
3:I:94:ASP:O	3:I:135:ARG:HB3	2.11	0.51
4:P:41:THR:HG21	4:P:48:LEU:HG	1.93	0.51
1:S:438:GLU:OE1	1:S:438:GLU:N	2.33	0.51
3:U:88:TYR:HE2	3:U:214:LYS:HG3	1.75	0.51
3:I:129:GLU:HG2	3:I:172:TYR:HE1	1.75	0.51
2:T:46:LYS:HB2	2:T:102:TRP:CZ2	2.46	0.51
3:O:257:LYS:HA	3:O:284:LEU:HD12	1.93	0.50
4:P:13:ASN:C	4:P:15:LEU:H	2.14	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:R:39:GLU:HG2	6:R:131:PRO:O	2.11	0.50
2:B:25:THR:HG22	2:B:26:LYS:N	2.26	0.50
2:B:154:LEU:HB3	6:F:118:ARG:HD3	1.94	0.50
6:F:149:GLU:HG2	6:F:152:ILE:HG21	1.93	0.50
1:G:142:TRP:CD1	1:G:186:PRO:HD3	2.46	0.50
2:T:180:PRO:O	6:X:79:PRO:HG3	2.11	0.50
5:Q:130:ALA:HB3	5:Q:136:VAL:HG21	1.93	0.50
1:S:142:TRP:CE2	1:S:149:TYR:HB2	2.46	0.50
2:B:355:LEU:HB3	2:B:359:THR:CG2	2.35	0.50
6:L:117:ASP:HA	6:L:120:ILE:O	2.10	0.50
2:T:321:TYR:OH	4:V:34:LEU:HG	2.12	0.50
4:V:134:VAL:HG21	4:V:144:MET:HG2	1.92	0.50
6:X:142:GLN:OE1	6:X:145:ARG:NH1	2.38	0.50
1:G:103:CYS:H	2:H:501:MET:HE3	1.77	0.50
1:M:119:ALA:HB3	2:N:506:ARG:HG3	1.94	0.50
1:A:478:PRO:HD3	1:A:593:LEU:HD12	1.92	0.50
1:G:261:PRO:HB3	1:G:267:ILE:HB	1.93	0.50
4:J:14:ILE:O	4:J:16:GLU:N	2.43	0.50
1:M:98:ARG:HG3	1:M:180:PHE:HZ	1.76	0.50
2:B:97:THR:HG22	2:B:99:GLU:H	1.76	0.50
2:B:156:SER:OG	2:B:159:GLU:HG2	2.12	0.50
6:L:23:ARG:O	6:L:23:ARG:HG2	2.11	0.50
2:N:63:PRO:HA	2:N:68:ARG:HG2	1.94	0.50
2:T:496:HIS:ND1	2:T:497:ASP:OD2	2.33	0.50
2:H:237:ARG:HH11	6:L:72:THR:HG21	1.77	0.49
2:H:497:ASP:HB2	2:H:499:GLU:OE1	2.12	0.49
1:M:142:TRP:CE2	1:M:149:TYR:HB2	2.47	0.49
2:T:4:VAL:HG22	2:T:84:VAL:HG22	1.93	0.49
2:B:16:PHE:O	2:B:20:VAL:HG22	2.12	0.49
3:I:336:LEU:HA	3:I:364:LEU:HD13	1.94	0.49
4:P:43:TYR:N	4:P:44:PRO:HD3	2.27	0.49
2:T:355:LEU:HB3	2:T:359:THR:CG2	2.42	0.49
3:C:94:ASP:O	3:C:135:ARG:HB3	2.12	0.49
6:F:74:VAL:HG12	6:F:76:LYS:H	1.76	0.49
1:G:155:VAL:O	1:G:155:VAL:HG13	2.12	0.49
1:M:282:ARG:NH2	1:M:543:GLU:OE1	2.45	0.49
2:N:59:CYS:HB2	2:N:116:PHE:CD2	2.47	0.49
2:N:445:VAL:HG13	2:N:576:SER:HB3	1.92	0.49
2:T:63:PRO:HA	2:T:68:ARG:HG2	1.93	0.49
2:T:115:MET:HB3	2:T:140:LEU:HB2	1.94	0.49
4:V:78:MET:HE2	4:V:115:LYS:HB3	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:220:LEU:HA	2:B:224:LYS:O	2.12	0.49
4:J:21:ILE:O	4:J:25:LYS:HG2	2.13	0.49
3:O:6:ALA:HB3	5:Q:142:ASP:HB3	1.94	0.49
3:O:196:ARG:HD3	3:O:198:HIS:NE2	2.26	0.49
4:P:133:CYS:HB2	4:P:142:LEU:CD2	2.42	0.49
2:T:300:ASN:HB2	2:T:329:ILE:HG21	1.93	0.49
1:A:119:ALA:HB3	2:B:506:ARG:HG3	1.93	0.49
4:D:78:MET:CE	4:D:115:LYS:HB3	2.42	0.49
1:M:270:LYS:HA	1:M:614:LEU:HD11	1.94	0.49
2:N:398:THR:HG23	2:N:401:ASP:OD2	2.12	0.49
2:H:103:PRO:HD2	2:H:404:ASN:HB3	1.93	0.49
2:H:433:VAL:HG11	2:H:462:ILE:HG23	1.94	0.49
1:M:343:PRO:HA	1:M:477:LEU:HD22	1.95	0.49
3:O:97:GLU:HG2	3:O:98:PRO:HD2	1.93	0.49
6:R:27:TRP:NE1	6:R:56:ILE:HD12	2.28	0.49
2:T:51:PHE:CE2	2:T:77:ASN:HB2	2.48	0.49
2:T:166:ASP:OD1	2:T:166:ASP:N	2.45	0.49
2:T:399:ARG:HD3	2:T:417:VAL:HG22	1.94	0.49
1:A:78:HIS:O	1:A:85:ARG:NH1	2.46	0.49
2:B:304:LEU:HD21	6:F:38:ILE:HD12	1.95	0.49
1:S:478:PRO:HD3	1:S:593:LEU:HD12	1.95	0.49
1:S:539:SER:OG	1:S:567:ASP:HB2	2.13	0.49
4:V:48:LEU:HD11	6:X:47:ARG:NH2	2.28	0.49
5:W:103:LEU:HD23	5:W:152:LEU:HD21	1.93	0.49
2:N:268:LEU:O	2:N:272:GLU:HB2	2.12	0.49
2:T:527:ARG:HD3	2:T:578:ASP:O	2.12	0.49
4:V:121:ASP:HA	4:V:160:LEU:O	2.12	0.49
2:H:24:GLU:HG2	2:H:29:LYS:HG2	1.94	0.49
2:H:52:LEU:O	2:H:102:TRP:NE1	2.46	0.49
6:R:133:PRO:O	6:R:137:ILE:HG13	2.13	0.49
1:S:35:TYR:HB2	8:S:705:FES:S2	2.53	0.49
1:S:485:GLU:HA	1:S:514:LYS:HD2	1.93	0.49
2:B:213:THR:OG1	2:B:581:VAL:HG21	2.12	0.49
2:B:421:LEU:HB2	2:B:524:GLU:HG2	1.93	0.49
2:H:316:LEU:HD12	2:H:316:LEU:H	1.78	0.49
2:T:184:ASP:O	2:T:188:THR:HG22	2.13	0.49
6:F:27:TRP:NE1	6:F:56:ILE:HD12	2.27	0.48
6:L:97:MET:HA	6:L:126:ILE:HB	1.95	0.48
1:M:142:TRP:CD1	1:M:186:PRO:HD3	2.48	0.48
1:M:478:PRO:HD3	1:M:593:LEU:HD12	1.95	0.48
2:T:51:PHE:CE2	2:T:84:VAL:HG23	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:97:THR:HG21	3:C:359:GLU:CG	2.44	0.48
1:A:346:VAL:HG11	1:A:502:PHE:CE1	2.48	0.48
2:B:123:HIS:HB3	2:B:126:LEU:HB2	1.94	0.48
2:B:166:ASP:OD1	2:B:166:ASP:N	2.42	0.48
1:G:98:ARG:HG3	1:G:180:PHE:CZ	2.48	0.48
2:N:553:TYR:O	2:N:556:SER:OG	2.31	0.48
2:B:38:LEU:HD23	2:B:96:PRO:HD2	1.95	0.48
2:H:25:THR:HG22	2:H:26:LYS:N	2.28	0.48
2:B:2:LYS:HG3	2:B:82:GLU:HG2	1.94	0.48
1:M:218:TYR:CD2	4:P:115:LYS:HB2	2.49	0.48
1:S:99:HIS:O	1:S:135:LYS:HG2	2.12	0.48
2:B:25:THR:HG22	2:B:26:LYS:H	1.78	0.48
1:M:396:LYS:HG3	1:M:397:ILE:N	2.28	0.48
4:P:106:GLU:HB2	4:P:119:ARG:HB3	1.96	0.48
4:D:62:VAL:CG1	4:D:83:ALA:HA	2.44	0.48
4:D:78:MET:HE2	4:D:115:LYS:HB3	1.96	0.48
6:L:137:ILE:O	6:L:141:LEU:HD13	2.13	0.48
3:U:402:LEU:O	3:U:406:THR:HG23	2.14	0.48
2:B:261:ILE:HG23	2:B:304:LEU:HD23	1.96	0.48
1:G:281:LYS:NZ	5:Q:119:LYS:HE2	2.27	0.48
6:R:93:TRP:CE2	6:R:147:ILE:HG12	2.49	0.48
2:B:343:SER:O	4:D:55:ARG:NH1	2.37	0.48
2:B:433:VAL:HG11	2:B:462:ILE:HG23	1.93	0.48
1:S:112:CYS:HB3	1:S:115:GLN:HB3	1.95	0.48
1:G:246:GLY:HA3	1:G:253:LYS:O	2.14	0.48
2:H:295:GLU:OE2	2:H:298:ARG:NH1	2.47	0.48
2:H:445:VAL:HG13	2:H:576:SER:HB3	1.96	0.48
4:P:146:ASP:OD2	4:P:175:ARG:NH2	2.47	0.48
1:S:137:ARG:HH12	1:S:154:CYS:HB3	1.78	0.48
2:T:139:PRO:HA	2:T:144:PHE:CD2	2.49	0.48
2:T:199:LEU:HD12	2:T:200:VAL:H	1.79	0.48
2:T:512:GLU:H	2:T:512:GLU:CD	2.17	0.48
4:D:89:ALA:HB2	4:D:117:VAL:HG22	1.96	0.48
6:L:31:ILE:HG13	6:L:67:LEU:HD11	1.96	0.48
1:S:212:ILE:HD12	1:S:212:ILE:HA	1.74	0.48
2:T:463:ILE:O	2:T:467:VAL:HG23	2.13	0.48
2:T:198:GLU:OE1	2:T:221:GLU:HA	2.14	0.47
1:A:339:TYR:CE1	1:A:587:VAL:HG22	2.49	0.47
2:B:54:PHE:HB2	2:B:102:TRP:CD1	2.49	0.47
3:I:381:ASP:OD2	3:I:385:ARG:NH2	2.47	0.47
4:P:78:MET:CE	4:P:115:LYS:HB3	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S:388:TYR:O	1:S:391:LYS:HE2	2.14	0.47
1:G:170:THR:HG21	7:G:704:SF4:S3	2.54	0.47
4:J:184:TRP:CE2	4:J:190:ARG:HG3	2.48	0.47
1:M:155:VAL:O	1:M:155:VAL:HG13	2.13	0.47
4:P:89:ALA:HB3	4:P:115:LYS:HE2	1.97	0.47
1:S:52:VAL:HG11	3:U:390:THR:HG22	1.96	0.47
2:T:260:TYR:CB	6:X:35:CYS:HB3	2.44	0.47
1:G:156:VAL:HG22	1:G:156:VAL:O	2.15	0.47
2:H:420:ASP:OD1	2:H:524:GLU:HG3	2.13	0.47
5:K:38:GLN:HB2	5:K:44:ILE:HG13	1.97	0.47
1:M:339:TYR:CE1	1:M:587:VAL:HG22	2.49	0.47
4:P:71:LEU:HG	4:P:139:VAL:HG13	1.97	0.47
3:U:6:ALA:HB3	5:W:142:ASP:HB3	1.95	0.47
3:I:97:GLU:HG2	3:I:98:PRO:HD2	1.96	0.47
4:V:42:GLU:O	4:V:46:GLU:HB3	2.14	0.47
2:B:398:THR:HG22	2:B:401:ASP:OD2	2.14	0.47
5:E:27:ARG:NH1	10:E:301:HOH:O	2.47	0.47
5:E:159:TYR:O	5:E:160:THR:HB	2.15	0.47
1:G:150:TYR:HB3	1:G:153:ARG:HG3	1.95	0.47
1:G:177:ASP:O	3:I:196:ARG:NH2	2.35	0.47
2:H:46:LYS:HB2	2:H:102:TRP:HZ2	1.80	0.47
2:H:71:GLY:O	2:H:87:LYS:HA	2.15	0.47
2:H:213:THR:OG1	2:H:581:VAL:HG21	2.15	0.47
1:M:112:CYS:HB3	1:M:115:GLN:HB3	1.96	0.47
2:N:5:ASN:HD21	2:N:8:THR:HG23	1.80	0.47
2:N:61:ASP:OD1	2:N:68:ARG:HD3	2.14	0.47
4:P:62:VAL:HG22	4:P:84:LYS:C	2.35	0.47
3:U:90:ILE:HB	3:U:218:VAL:HG22	1.96	0.47
2:B:332:ILE:HA	4:D:183:ILE:HD11	1.96	0.47
3:C:16:LEU:HD13	3:C:249:PRO:HB3	1.97	0.47
4:J:30:THR:O	4:J:34:LEU:N	2.47	0.47
1:M:322:PRO:HB3	1:M:546:GLY:HA3	1.97	0.47
2:N:39:LYS:HB3	2:N:40:PRO:HD3	1.96	0.47
2:T:110:ARG:HD2	2:T:129:MET:HE2	1.96	0.47
2:T:129:MET:HG3	2:T:130:PHE:CE1	2.50	0.47
2:B:285:LYS:HB3	2:B:478:PRO:O	2.15	0.47
4:D:41:THR:HG21	4:D:48:LEU:HG	1.96	0.47
2:H:143:ASP:OD1	2:H:143:ASP:N	2.42	0.47
2:H:311:LEU:HD12	2:H:319:PHE:CD1	2.50	0.47
2:H:369:ASP:O	2:H:373:ARG:HG3	2.15	0.47
6:L:36:CYS:SG	6:L:98:GLY:HA3	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S:6:LYS:HE2	1:S:8:TYR:OH	2.15	0.47
6:X:22:ARG:HD2	6:X:148:LYS:NZ	2.29	0.47
3:C:271:THR:OG1	3:C:274:GLU:HG3	2.15	0.47
4:D:13:ASN:C	4:D:15:LEU:H	2.17	0.47
1:M:97:THR:HG21	3:O:359:GLU:CG	2.45	0.47
2:N:57:MET:HG3	2:N:108:ALA:HB1	1.95	0.47
2:N:103:PRO:HB2	2:N:405:TYR:CE2	2.50	0.47
1:S:142:TRP:CD1	1:S:186:PRO:HD3	2.50	0.47
3:U:313:PRO:HB2	3:U:314:LEU:HD22	1.97	0.47
1:A:374:PHE:CE1	1:A:426:LEU:HD12	2.50	0.46
2:B:259:ASP:HB2	2:B:583:GLU:HG3	1.96	0.46
5:E:23:PHE:HE2	5:E:32:LEU:HD12	1.79	0.46
2:N:192:ARG:HG3	2:N:229:ASP:OD2	2.15	0.46
3:O:86:PRO:HD2	3:O:214:LYS:HD3	1.97	0.46
2:T:142:LYS:HE3	2:T:543:TYR:CZ	2.50	0.46
2:H:199:LEU:HD12	2:H:200:VAL:H	1.80	0.46
1:M:101:LEU:N	1:M:101:LEU:HD23	2.31	0.46
5:Q:14:THR:O	5:Q:18:GLU:HG3	2.15	0.46
2:T:123:HIS:CD2	2:T:126:LEU:HA	2.50	0.46
2:T:253:PRO:O	2:T:257:ARG:NH1	2.49	0.46
2:B:180:PRO:O	6:F:79:PRO:HG3	2.16	0.46
3:C:22:ARG:NH1	3:C:37:ASP:OD2	2.48	0.46
2:H:123:HIS:HB3	2:H:126:LEU:HB2	1.96	0.46
1:M:359:ASP:OD1	1:M:447:LYS:HE2	2.15	0.46
2:N:139:PRO:HA	2:N:144:PHE:CD2	2.51	0.46
4:P:25:LYS:O	4:P:29:VAL:HG23	2.16	0.46
2:T:344:CYS:O	2:T:347:ARG:NH2	2.48	0.46
4:D:163:GLU:H	4:D:163:GLU:CD	2.19	0.46
4:J:71:LEU:HD11	4:J:86:ARG:HB3	1.98	0.46
1:S:343:PRO:HA	1:S:477:LEU:HD22	1.98	0.46
1:G:435:GLU:O	1:G:439:VAL:HG23	2.16	0.46
2:H:109:GLU:OE1	2:H:123:HIS:ND1	2.44	0.46
2:H:506:ARG:NH1	2:H:513:ASP:OD2	2.48	0.46
1:M:396:LYS:HD3	1:M:400:SER:HB2	1.98	0.46
1:M:428:THR:HB	1:M:430:HIS:CE1	2.50	0.46
2:N:115:MET:HB3	2:N:140:LEU:HB2	1.98	0.46
2:N:162:HIS:CG	2:N:164:ARG:HH21	2.32	0.46
3:O:287:LYS:HD3	3:O:328:GLU:OE1	2.16	0.46
2:T:262:SER:HA	2:T:297:GLN:OE1	2.16	0.46
3:U:60:LYS:HD3	3:U:235:TRP:CE2	2.51	0.46
2:B:140:LEU:HD23	2:B:140:LEU:HA	1.77	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:192:ARG:HG3	2:B:229:ASP:OD2	2.15	0.46
2:B:383:ARG:NH2	4:D:27:LEU:HD22	2.30	0.46
4:D:62:VAL:HG22	4:D:84:LYS:C	2.36	0.46
1:M:103:CYS:HB2	2:N:501:MET:HE3	1.97	0.46
1:M:318:SER:HB2	1:M:495:PHE:O	2.14	0.46
1:M:520:VAL:HG23	1:M:532:ALA:HB2	1.98	0.46
1:S:446:LEU:HD13	1:S:452:PHE:CD2	2.51	0.46
2:B:98:VAL:HG12	2:B:101:LEU:HD12	1.97	0.46
3:C:17:ASN:OD1	3:C:24:LYS:NZ	2.48	0.46
1:M:39:HIS:CE1	1:M:40:PRO:HD2	2.51	0.46
1:M:150:TYR:CB	1:M:153:ARG:HG3	2.45	0.46
1:M:226:GLU:OE1	1:M:251:ARG:NH2	2.35	0.46
1:S:137:ARG:NH1	1:S:154:CYS:HB3	2.31	0.46
1:S:345:SER:HA	1:S:349:PHE:HB2	1.97	0.46
1:A:438:GLU:OE1	1:A:438:GLU:N	2.43	0.46
2:H:37:PHE:C	2:H:40:PRO:HD2	2.35	0.46
6:L:94:CYS:HB3	6:L:122:VAL:HA	1.98	0.46
1:M:404:GLU:HB3	1:M:628:TYR:HB2	1.98	0.46
2:N:512:GLU:CD	2:N:512:GLU:H	2.18	0.46
1:A:36:PHE:CE2	1:A:50:MET:HE3	2.51	0.46
2:H:268:LEU:O	2:H:272:GLU:HB2	2.16	0.46
4:J:62:VAL:HG22	4:J:84:LYS:C	2.36	0.46
1:M:521:VAL:HA	1:M:536:ILE:O	2.15	0.46
3:O:153:LYS:HE3	3:O:170:GLU:OE2	2.16	0.46
6:R:72:THR:HA	6:R:100:CYS:HB3	1.98	0.46
1:A:218:TYR:CD2	4:D:115:LYS:HB2	2.51	0.46
2:B:63:PRO:HA	2:B:68:ARG:HG2	1.96	0.46
6:F:122:VAL:HG22	6:F:125:TYR:CZ	2.51	0.46
2:H:215:TRP:HB3	2:H:231:ILE:O	2.16	0.46
2:N:255:THR:HA	2:N:258:MET:HG3	1.98	0.46
2:B:39:LYS:NZ	2:B:100:ASP:OD1	2.48	0.45
2:H:2:LYS:HG3	2:H:82:GLU:HG2	1.98	0.45
2:H:68:ARG:HD2	2:H:69:PHE:CZ	2.51	0.45
6:R:95:ILE:HG12	6:R:124:VAL:HB	1.98	0.45
1:A:164:CYS:SG	1:A:170:THR:HG23	2.57	0.45
5:E:138:MET:CG	5:E:143:GLU:HG3	2.44	0.45
6:F:82:LYS:HE3	6:F:86:ASP:OD2	2.16	0.45
2:H:261:ILE:HB	2:H:527:ARG:HH12	1.82	0.45
6:L:85:TRP:HA	6:L:88:MET:HE3	1.98	0.45
4:P:71:LEU:HG	4:P:139:VAL:HG22	1.98	0.45
1:S:101:LEU:HA	2:T:501:MET:HE1	1.96	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:514:LYS:HE2	1:A:514:LYS:HB2	1.72	0.45
3:C:274:GLU:O	3:C:278:LYS:HB3	2.16	0.45
2:H:288:TYR:CZ	2:H:469:LYS:HG2	2.51	0.45
3:I:101:PHE:CZ	5:K:132:SER:HB3	2.52	0.45
2:N:283:PRO:HD3	2:N:481:ASN:HB2	1.98	0.45
2:T:220:LEU:HA	2:T:224:LYS:O	2.15	0.45
4:V:17:SER:HA	4:V:20:PHE:HB3	1.98	0.45
1:A:339:TYR:CD1	1:A:587:VAL:HG22	2.51	0.45
1:A:346:VAL:O	1:A:350:LYS:HD2	2.16	0.45
2:B:422:ARG:HG3	2:B:524:GLU:HB2	1.99	0.45
2:H:534:ILE:HG23	2:H:545:THR:HG22	1.99	0.45
4:J:126:ASN:HA	6:L:105:GLY:HA2	1.99	0.45
4:V:62:VAL:HG13	4:V:83:ALA:HA	1.99	0.45
4:V:133:CYS:HB2	4:V:142:LEU:HD23	1.99	0.45
6:F:44:ALA:HA	6:F:50:LEU:HD22	1.98	0.45
2:H:298:ARG:HA	2:H:526:PRO:HG3	1.99	0.45
2:H:580:VAL:HG12	2:H:582:GLY:H	1.82	0.45
2:T:57:MET:HG3	2:T:108:ALA:HB1	1.98	0.45
2:T:164:ARG:HB3	4:V:156:ARG:NH2	2.31	0.45
2:T:374:LEU:HD23	2:T:374:LEU:HA	1.84	0.45
1:G:99:HIS:O	1:G:135:LYS:HG2	2.17	0.45
2:N:24:GLU:HG2	2:N:29:LYS:HG2	1.99	0.45
2:N:51:PHE:CD2	2:N:77:ASN:HB2	2.51	0.45
2:N:355:LEU:HB3	2:N:359:THR:CG2	2.47	0.45
2:T:407:LEU:HD11	2:T:557:ILE:HD12	1.99	0.45
2:B:201:LEU:HB3	2:B:218:PHE:HB2	1.99	0.45
1:G:464:LEU:HD23	1:G:464:LEU:HA	1.80	0.45
2:H:123:HIS:HD2	2:H:126:LEU:HA	1.81	0.45
2:N:46:LYS:HB2	2:N:102:TRP:CZ2	2.52	0.45
2:N:57:MET:HA	2:N:72:VAL:O	2.17	0.45
2:N:211:HIS:CD2	2:N:579:PRO:HG2	2.52	0.45
2:N:522:ALA:HB1	2:N:529:GLU:HG3	1.99	0.45
2:N:571:ILE:HD12	2:N:571:ILE:H	1.81	0.45
3:U:83:ASN:O	3:U:87:ARG:NH1	2.50	0.45
5:Q:128:LEU:HD12	5:Q:136:VAL:HG12	1.99	0.45
2:T:497:ASP:HB2	2:T:499:GLU:OE1	2.16	0.45
1:A:25:VAL:HG21	1:A:69:VAL:HG11	1.98	0.45
2:H:355:LEU:HB3	2:H:359:THR:CG2	2.36	0.45
2:T:51:PHE:CD2	2:T:77:ASN:HB2	2.51	0.45
4:V:55:ARG:HB3	4:V:144:MET:HE3	1.99	0.45
4:V:130:CYS:SG	4:V:132:LEU:HG	2.57	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:103:CYS:SG	2:H:501:MET:HE2	2.57	0.45
3:I:348:GLY:HA2	3:I:354:ARG:HG3	1.98	0.45
2:N:304:LEU:HD13	2:N:323:PHE:CZ	2.52	0.45
2:N:420:ASP:OD1	2:N:524:GLU:HG3	2.17	0.45
1:S:373:VAL:HG11	1:S:416:LEU:HD21	1.99	0.45
2:B:114:ASP:OD1	2:B:128:ARG:NH1	2.41	0.44
2:B:288:TYR:CZ	2:B:469:LYS:HG2	2.52	0.44
4:D:67:GLU:HG3	4:D:86:ARG:NE	2.32	0.44
6:F:117:ASP:HB3	6:F:122:VAL:HG13	1.99	0.44
3:I:7:ILE:HG21	3:I:7:ILE:HD13	1.74	0.44
5:K:128:LEU:HD12	5:K:136:VAL:HG12	1.99	0.44
1:M:514:LYS:HE2	1:M:514:LYS:HB2	1.83	0.44
2:N:360:LEU:HD22	2:N:467:VAL:HG13	1.99	0.44
1:S:107:ASP:OD2	1:S:217:LYS:HA	2.17	0.44
2:T:54:PHE:HB2	2:T:102:TRP:CD1	2.53	0.44
4:V:128:LEU:HG	6:X:106:PRO:HB3	1.99	0.44
2:B:340:ARG:NH1	6:F:39:GLU:OE1	2.50	0.44
1:G:478:PRO:HD3	1:G:593:LEU:HD12	1.99	0.44
4:J:71:LEU:HG	4:J:139:VAL:CG1	2.46	0.44
1:M:583:GLY:HA3	1:S:586:VAL:O	2.17	0.44
1:S:98:ARG:HG3	1:S:180:PHE:CZ	2.52	0.44
3:U:129:GLU:HG2	3:U:172:TYR:HE1	1.82	0.44
1:A:101:LEU:HD22	2:B:498:LEU:HB2	1.99	0.44
2:B:285:LYS:HE3	2:B:477:ALA:HB3	1.99	0.44
1:G:95:LEU:HD22	1:G:155:VAL:CG2	2.43	0.44
2:H:192:ARG:CZ	2:H:231:ILE:HG12	2.47	0.44
3:I:6:ALA:HB3	5:K:142:ASP:HB3	1.98	0.44
2:N:123:HIS:HD2	2:N:126:LEU:HA	1.83	0.44
6:R:22:ARG:HD2	6:R:148:LYS:HZ3	1.81	0.44
1:S:34:PRO:HB3	1:S:117:LEU:HD22	1.99	0.44
1:S:282:ARG:NH2	1:S:543:GLU:OE2	2.50	0.44
2:T:37:PHE:C	2:T:40:PRO:HD2	2.38	0.44
1:A:318:SER:HB2	1:A:495:PHE:O	2.18	0.44
2:B:4:VAL:CG2	2:B:84:VAL:HG22	2.44	0.44
2:B:110:ARG:HB2	2:B:129:MET:HE2	1.99	0.44
2:B:268:LEU:O	2:B:272:GLU:HB2	2.18	0.44
2:B:288:TYR:CZ	2:B:469:LYS:HE3	2.53	0.44
2:B:414:GLY:HA2	2:B:451:VAL:HG21	1.98	0.44
2:H:220:LEU:HD13	2:H:567:ILE:HD13	1.99	0.44
2:T:25:THR:HG22	2:T:26:LYS:N	2.32	0.44
3:U:294:SER:HB3	3:U:298:ASP:HB2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:V:94:GLN:O	4:V:100:PRO:HB3	2.18	0.44
1:A:464:LEU:HD23	1:A:464:LEU:HA	1.79	0.44
2:B:176:HIS:CE1	6:F:113:LEU:HD12	2.52	0.44
1:G:514:LYS:HB2	1:G:514:LYS:HE2	1.58	0.44
2:H:38:LEU:HD23	2:H:96:PRO:HD2	1.99	0.44
1:M:55:TRP:NE1	1:M:57:ASP:HB2	2.33	0.44
4:P:191:GLU:HA	4:P:195:GLY:H	1.83	0.44
6:R:27:TRP:HE1	6:R:56:ILE:HD12	1.83	0.44
1:S:32:ASP:OD2	1:S:121:TYR:OH	2.26	0.44
2:T:123:HIS:HD2	2:T:126:LEU:HA	1.83	0.44
1:A:36:PHE:HB2	1:A:48:CYS:SG	2.57	0.44
3:C:196:ARG:HD3	3:C:198:HIS:NE2	2.32	0.44
2:H:123:HIS:CD2	2:H:126:LEU:HA	2.52	0.44
2:H:553:TYR:O	2:H:556:SER:OG	2.36	0.44
4:J:125:LEU:HD13	6:L:102:SER:HB3	2.00	0.44
1:M:132:ALA:HB3	4:P:69:ASP:HB3	2.00	0.44
4:P:31:LEU:HD23	4:P:31:LEU:HA	1.84	0.44
1:S:99:HIS:CD2	1:S:100:PRO:HD2	2.53	0.44
2:T:411:VAL:HA	2:T:448:ARG:HD3	1.99	0.44
5:W:159:TYR:O	5:W:160:THR:HB	2.17	0.44
2:B:411:VAL:HA	2:B:448:ARG:HD3	1.98	0.44
6:F:117:ASP:HA	6:F:120:ILE:O	2.18	0.44
1:G:34:PRO:HB3	1:G:117:LEU:HD22	2.00	0.44
1:G:318:SER:HB2	1:G:495:PHE:O	2.17	0.44
1:M:52:VAL:HG11	3:O:390:THR:HG22	1.99	0.44
2:N:127:ARG:HD2	2:N:133:GLU:OE1	2.18	0.44
2:T:4:VAL:HG13	2:T:84:VAL:HG22	1.98	0.44
4:V:153:TYR:CE1	6:X:146:LYS:HB2	2.53	0.44
4:D:134:VAL:HG21	4:D:144:MET:HG2	2.00	0.44
1:G:6:LYS:HE2	1:G:8:TYR:OH	2.18	0.44
1:G:102:ASP:OD2	1:G:153:ARG:NH1	2.51	0.44
1:G:426:LEU:HD23	1:G:455:ILE:HB	1.98	0.44
1:G:485:GLU:HA	1:G:514:LYS:HD2	1.99	0.44
2:H:401:ASP:OD2	2:H:560:LYS:NZ	2.50	0.44
2:H:411:VAL:HA	2:H:448:ARG:HD3	2.00	0.44
1:M:246:GLY:HA3	1:M:253:LYS:O	2.18	0.44
2:N:25:THR:HG22	2:N:26:LYS:N	2.32	0.44
2:N:328:LYS:HG3	4:P:193:LEU:HD11	1.99	0.44
2:N:396:VAL:HG22	2:N:444:ASP:HB3	1.99	0.44
4:P:78:MET:HE2	4:P:115:LYS:HB3	2.00	0.44
6:L:26:LEU:HD23	6:L:26:LEU:HA	1.86	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S:456:PRO:O	1:S:458:PRO:HD3	2.17	0.44
1:A:112:CYS:HB3	1:A:115:GLN:HB3	1.98	0.43
3:C:287:LYS:HD3	3:C:328:GLU:OE1	2.17	0.43
4:J:40:THR:HG21	6:L:49:ASP:HB2	2.00	0.43
4:J:55:ARG:HB3	4:J:144:MET:HE3	2.00	0.43
2:N:164:ARG:HB3	4:P:156:ARG:HH21	1.83	0.43
2:N:418:PRO:HB3	2:N:439:VAL:HG21	2.00	0.43
3:O:25:LYS:HA	3:O:25:LYS:HD3	1.83	0.43
5:Q:119:LYS:HD2	5:Q:119:LYS:HA	1.69	0.43
5:W:92:HIS:HA	5:W:96:THR:HB	2.00	0.43
1:A:171:ARG:NH1	10:A:804:HOH:O	2.45	0.43
2:B:115:MET:HB3	2:B:140:LEU:HB2	1.99	0.43
2:H:300:ASN:HB2	2:H:329:ILE:HG21	1.99	0.43
4:J:47:LYS:HG2	4:J:48:LEU:N	2.32	0.43
1:S:236:PRO:O	1:S:550:THR:HB	2.18	0.43
2:T:5:ASN:HD21	2:T:8:THR:HG23	1.82	0.43
6:X:85:TRP:HA	6:X:88:MET:HE3	2.00	0.43
2:B:123:HIS:HD2	2:B:126:LEU:HA	1.84	0.43
2:B:321:TYR:OH	4:D:34:LEU:HG	2.19	0.43
1:G:36:PHE:CE2	1:G:50:MET:HE3	2.52	0.43
2:H:57:MET:HA	2:H:72:VAL:O	2.18	0.43
1:S:94:ALA:O	3:U:355:VAL:HG11	2.18	0.43
1:S:497:GLU:HB2	1:S:606:TRP:CG	2.53	0.43
2:T:522:ALA:HB1	2:T:529:GLU:HG3	2.00	0.43
2:B:474:PRO:C	2:B:476:ASP:H	2.22	0.43
1:G:339:TYR:CD1	1:G:587:VAL:HG22	2.53	0.43
2:H:571:ILE:HD12	2:H:571:ILE:H	1.83	0.43
1:M:36:PHE:CE2	1:M:50:MET:HE3	2.54	0.43
1:M:97:THR:O	1:M:135:LYS:HE2	2.18	0.43
2:N:261:ILE:HG22	2:N:301:SER:HA	2.00	0.43
3:O:363:LEU:HD13	3:O:380:PHE:HA	2.01	0.43
1:S:98:ARG:HG3	1:S:180:PHE:HZ	1.82	0.43
1:S:155:VAL:O	1:S:155:VAL:CG1	2.66	0.43
2:T:213:THR:HB	2:T:581:VAL:HG11	2.00	0.43
3:U:314:LEU:HD22	3:U:314:LEU:H	1.83	0.43
5:W:88:SER:HB3	8:W:201:FES:S2	2.58	0.43
3:C:2:ARG:HD3	3:C:2:ARG:O	2.18	0.43
1:M:164:CYS:SG	1:M:170:THR:HG23	2.58	0.43
2:H:385:ARG:HD3	2:H:388:LEU:HD12	1.99	0.43
3:I:83:ASN:O	3:I:87:ARG:NH1	2.52	0.43
2:N:186:GLU:HB3	2:N:190:LYS:NZ	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:442:VAL:N	2:N:447:ASP:OD2	2.49	0.43
5:Q:93:LEU:HD12	5:Q:93:LEU:HA	1.80	0.43
1:S:41:ARG:HG2	1:S:265:LEU:HD22	2.00	0.43
1:S:433:ASN:O	1:S:433:ASN:ND2	2.49	0.43
2:T:65:HIS:CG	2:T:66:PRO:HD2	2.54	0.43
6:X:56:ILE:HG22	6:X:58:ARG:HG3	2.00	0.43
2:B:435:PHE:CG	2:B:462:ILE:HD11	2.53	0.43
2:B:555:LEU:HD23	2:B:555:LEU:HA	1.80	0.43
3:C:294:SER:HB3	3:C:298:ASP:HB2	2.01	0.43
2:H:407:LEU:HD11	2:H:557:ILE:HD12	1.99	0.43
4:J:52:LYS:HE3	4:J:176:ARG:O	2.19	0.43
4:J:75:GLU:HG2	4:J:80:TYR:CE1	2.53	0.43
1:M:7:ILE:HD13	1:M:69:VAL:HG22	1.99	0.43
1:M:602:TYR:CD2	1:M:617:LEU:HB3	2.52	0.43
2:N:497:ASP:HB2	2:N:499:GLU:OE1	2.18	0.43
4:P:42:GLU:HG3	4:P:44:PRO:HD3	2.00	0.43
1:S:511:LEU:HD23	1:S:511:LEU:HA	1.80	0.43
2:T:304:LEU:HD22	2:T:326:ARG:NH1	2.34	0.43
2:B:123:HIS:CG	2:B:123:HIS:O	2.72	0.43
2:B:139:PRO:HA	2:B:144:PHE:CD2	2.54	0.43
4:D:142:LEU:HD12	4:D:142:LEU:HA	1.89	0.43
4:D:171:ASP:OD2	4:D:175:ARG:NH1	2.52	0.43
3:I:192:LEU:HA	3:I:192:LEU:HD12	1.73	0.43
3:I:314:LEU:HD22	3:I:314:LEU:H	1.83	0.43
2:N:140:LEU:HD23	2:N:140:LEU:HA	1.62	0.43
1:S:178:ARG:HD3	5:W:69:PHE:CE1	2.54	0.43
1:S:464:LEU:HD23	1:S:464:LEU:HA	1.74	0.43
2:T:273:THR:OG1	2:T:521:PHE:HB3	2.19	0.43
1:A:417:GLN:O	1:A:450:LYS:NZ	2.41	0.43
2:H:139:PRO:HA	2:H:144:PHE:CD2	2.53	0.43
2:H:416:GLY:HA2	2:H:439:VAL:HG13	2.00	0.43
5:K:139:VAL:HG12	5:K:140:ASN:H	1.83	0.43
2:N:421:LEU:HB2	2:N:524:GLU:HG2	2.01	0.43
2:T:57:MET:HA	2:T:72:VAL:O	2.19	0.43
4:V:21:ILE:O	4:V:25:LYS:HG2	2.19	0.43
1:A:170:THR:HG21	7:A:704:SF4:S3	2.59	0.43
2:B:26:LYS:HB3	2:B:27:HIS:CE1	2.54	0.43
2:B:164:ARG:HH11	4:D:156:ARG:HD2	1.84	0.43
2:B:215:TRP:HB3	2:B:231:ILE:O	2.19	0.43
1:G:339:TYR:CE1	1:G:587:VAL:HG22	2.54	0.43
4:J:184:TRP:CD2	4:J:190:ARG:HG3	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L:29:VAL:HG21	6:L:61:PRO:HA	2.01	0.43
2:N:52:LEU:H	2:N:52:LEU:HG	1.62	0.43
2:N:221:GLU:HG3	2:N:226:VAL:HG21	2.01	0.43
3:O:271:THR:OG1	3:O:274:GLU:HG3	2.18	0.43
4:V:14:ILE:HG22	4:V:14:ILE:O	2.19	0.43
5:W:81:TYR:CE2	5:W:159:TYR:HB3	2.54	0.43
1:A:99:HIS:CE1	1:A:153:ARG:O	2.71	0.42
4:D:55:ARG:HG2	4:D:144:MET:HE2	2.00	0.42
2:H:154:LEU:HD12	2:H:154:LEU:HA	1.77	0.42
2:H:359:THR:HA	4:J:183:ILE:HD12	2.00	0.42
6:L:146:LYS:HE2	6:L:150:GLN:HE22	1.85	0.42
2:N:54:PHE:HB2	2:N:102:TRP:CD1	2.54	0.42
2:T:2:LYS:O	2:T:82:GLU:HA	2.19	0.42
6:X:93:TRP:CE2	6:X:147:ILE:HG12	2.54	0.42
6:F:72:THR:HB	6:F:100:CYS:HB3	2.01	0.42
2:N:201:LEU:HB3	2:N:218:PHE:HB2	2.01	0.42
2:N:210:THR:HG23	2:N:211:HIS:H	1.84	0.42
3:O:94:ASP:O	3:O:135:ARG:HD2	2.19	0.42
1:S:49:ARG:HH21	1:S:63:ILE:HD13	1.84	0.42
2:T:304:LEU:HD22	2:T:326:ARG:HH12	1.84	0.42
3:U:94:ASP:O	3:U:135:ARG:HB3	2.20	0.42
2:B:288:TYR:CE1	2:B:469:LYS:HG2	2.53	0.42
6:L:65:ASP:O	6:L:92:LYS:HA	2.19	0.42
2:N:407:LEU:HD11	2:N:557:ILE:HD12	2.01	0.42
3:O:160:LYS:HE2	10:O:611:HOH:O	2.19	0.42
4:P:21:ILE:O	4:P:25:LYS:HG2	2.20	0.42
6:R:117:ASP:HB3	6:R:122:VAL:HG13	2.00	0.42
3:U:257:LYS:HA	3:U:284:LEU:HD12	2.01	0.42
1:A:373:VAL:HG11	1:A:416:LEU:HD21	2.00	0.42
1:A:579:LYS:HA	1:A:579:LYS:HD3	1.75	0.42
6:F:64:ALA:O	6:F:89:PRO:HD2	2.19	0.42
3:O:245:ASP:HB2	3:O:246:TYR:CD2	2.55	0.42
2:T:94:LYS:HG2	2:T:119:VAL:HG22	2.02	0.42
3:U:98:PRO:HA	5:W:127:CYS:SG	2.60	0.42
1:A:481:MET:HG3	1:A:503:TYR:CZ	2.54	0.42
2:B:255:THR:O	2:B:258:MET:HG3	2.19	0.42
2:H:300:ASN:ND2	2:H:329:ILE:HB	2.34	0.42
2:T:343:SER:O	4:V:55:ARG:NH1	2.34	0.42
2:T:383:ARG:HH12	4:V:24:LEU:HD12	1.84	0.42
2:T:402:VAL:HA	2:T:407:LEU:HD12	2.01	0.42
6:X:27:TRP:CD1	6:X:56:ILE:HD12	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:52:VAL:HG11	3:C:390:THR:CG2	2.50	0.42
2:B:57:MET:HA	2:B:72:VAL:O	2.19	0.42
2:H:57:MET:HG3	2:H:108:ALA:HB1	2.02	0.42
3:I:331:ILE:HD13	3:I:331:ILE:HA	1.92	0.42
4:J:124:LEU:HD11	4:J:160:LEU:HD11	2.02	0.42
6:L:62:ARG:HE	6:L:62:ARG:HB2	1.72	0.42
1:S:61:LEU:HD23	1:S:61:LEU:HA	1.90	0.42
1:S:479:ALA:HB2	1:S:589:SER:HB3	2.01	0.42
2:T:210:THR:HG23	2:T:211:HIS:H	1.84	0.42
1:A:236:PRO:HG3	1:A:458:PRO:O	2.18	0.42
2:H:94:LYS:HD2	2:H:121:GLU:CG	2.50	0.42
4:J:133:CYS:HB2	4:J:142:LEU:HD23	2.01	0.42
4:J:161:ARG:HE	4:J:161:ARG:HB3	1.66	0.42
1:M:178:ARG:NH2	3:O:178:GLY:O	2.52	0.42
4:P:13:ASN:HB3	4:P:15:LEU:H	1.85	0.42
1:S:579:LYS:HA	1:S:579:LYS:HD3	1.78	0.42
2:T:182:LEU:HD21	6:X:83:LEU:HB2	2.02	0.42
1:A:150:TYR:HB3	1:A:153:ARG:HG3	2.02	0.42
1:A:246:GLY:HA3	1:A:253:LYS:O	2.20	0.42
1:G:337:GLN:HA	1:G:583:GLY:O	2.20	0.42
4:J:125:LEU:HD23	4:J:125:LEU:HA	1.91	0.42
1:M:485:GLU:HA	1:M:514:LYS:HD2	2.01	0.42
4:P:30:THR:O	4:P:34:LEU:N	2.52	0.42
1:S:396:LYS:NZ	1:S:403:ASP:OD2	2.52	0.42
2:T:154:LEU:HA	2:T:154:LEU:HD12	1.74	0.42
4:V:78:MET:CE	4:V:115:LYS:HB3	2.50	0.42
5:W:130:ALA:HB3	5:W:136:VAL:HG21	2.02	0.42
1:A:388:TYR:O	1:A:391:LYS:HE2	2.20	0.42
3:C:142:TYR:CD1	3:C:175:ARG:HG3	2.54	0.42
2:H:12:VAL:HG12	2:H:20:VAL:HG21	2.01	0.42
2:H:196:LYS:HD3	2:H:226:VAL:CG1	2.50	0.42
2:N:267:GLU:O	2:N:271:VAL:HB	2.20	0.42
2:N:527:ARG:HD3	2:N:578:ASP:O	2.19	0.42
4:P:71:LEU:HD11	4:P:86:ARG:HB3	2.02	0.42
5:Q:109:ILE:HD13	5:Q:115:THR:HG23	2.01	0.42
1:S:155:VAL:O	1:S:156:VAL:C	2.58	0.42
2:T:270:TYR:HB2	2:T:532:PHE:CZ	2.55	0.42
3:U:383:VAL:O	3:U:387:ILE:HG13	2.20	0.42
1:A:156:VAL:O	1:A:156:VAL:HG22	2.20	0.42
1:A:302:LEU:HD11	1:A:536:ILE:HD11	2.02	0.42
1:A:396:LYS:HG3	1:A:397:ILE:N	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:374:PHE:HB2	1:G:396:LYS:HE3	2.02	0.42
2:H:25:THR:HG22	2:H:26:LYS:H	1.85	0.42
3:I:196:ARG:HD3	3:I:198:HIS:NE2	2.35	0.42
4:J:42:GLU:OE2	6:L:52:ARG:HD2	2.20	0.42
1:M:6:LYS:HE2	1:M:8:TYR:OH	2.20	0.42
1:M:218:TYR:CG	4:P:115:LYS:HB2	2.55	0.42
1:M:346:VAL:HG11	1:M:502:PHE:CE1	2.55	0.42
2:N:445:VAL:HA	2:N:448:ARG:NH1	2.35	0.42
2:N:474:PRO:C	2:N:476:ASP:H	2.23	0.42
5:Q:128:LEU:HD13	5:Q:138:MET:HG3	2.01	0.42
6:R:85:TRP:HA	6:R:88:MET:HE3	2.02	0.42
2:T:3:TRP:CZ2	2:T:28:THR:HG22	2.55	0.42
2:T:434:GLU:O	2:T:465:GLN:NE2	2.37	0.42
5:W:128:LEU:HD13	5:W:138:MET:HG3	2.01	0.42
2:B:110:ARG:HD2	2:B:129:MET:HE2	2.02	0.41
3:C:31:ILE:HD12	3:C:112:HIS:CE1	2.55	0.41
6:F:72:THR:HA	6:F:100:CYS:HB3	2.02	0.41
1:G:374:PHE:CE1	1:G:426:LEU:HD12	2.55	0.41
4:J:67:GLU:HG3	4:J:86:ARG:NE	2.34	0.41
2:N:217:LEU:O	2:N:228:SER:HA	2.20	0.41
2:N:503:LYS:HB3	2:N:503:LYS:HE2	1.79	0.41
2:T:100:ASP:OD1	2:T:100:ASP:N	2.49	0.41
2:T:213:THR:OG1	2:T:581:VAL:HG21	2.20	0.41
2:H:293:PHE:HE1	2:H:355:LEU:HD21	1.86	0.41
5:K:138:MET:CG	5:K:143:GLU:HG3	2.49	0.41
2:N:304:LEU:HD22	2:N:326:ARG:NH1	2.35	0.41
6:R:89:PRO:HB2	6:R:91:PRO:HD2	2.01	0.41
1:S:374:PHE:CE1	1:S:426:LEU:HD12	2.55	0.41
1:S:396:LYS:HG3	1:S:397:ILE:N	2.34	0.41
2:T:367:ILE:HG23	2:T:460:VAL:HG13	2.02	0.41
3:U:153:LYS:HE3	3:U:170:GLU:OE2	2.20	0.41
5:W:44:ILE:HD12	5:W:73:PHE:HB3	2.02	0.41
2:B:179:LEU:HD21	6:F:113:LEU:HD13	2.02	0.41
2:H:516:PRO:HA	2:H:536:SER:O	2.21	0.41
3:I:245:ASP:HB2	3:I:246:TYR:CE2	2.55	0.41
4:J:42:GLU:HB3	4:J:45:LYS:O	2.20	0.41
4:J:78:MET:HE2	4:J:115:LYS:HB3	2.01	0.41
2:N:468:GLN:H	2:N:468:GLN:HG2	1.64	0.41
1:S:76:ARG:NH1	1:S:80:THR:HG21	2.35	0.41
2:T:267:GLU:O	2:T:271:VAL:HB	2.20	0.41
1:A:233:ASN:H	1:A:541:MET:HE2	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:133:PRO:O	6:F:137:ILE:HG13	2.21	0.41
2:H:320:LEU:HD23	2:H:320:LEU:HA	1.87	0.41
4:J:20:PHE:CE2	4:J:24:LEU:HD22	2.56	0.41
4:J:45:LYS:HZ1	6:L:52:ARG:HH22	1.67	0.41
2:N:304:LEU:HD22	2:N:326:ARG:HH12	1.86	0.41
2:T:157:LEU:O	2:T:161:LEU:HD23	2.20	0.41
2:T:421:LEU:HB2	2:T:524:GLU:HG2	2.02	0.41
3:U:7:ILE:HA	3:U:8:PRO:HD3	1.91	0.41
4:V:184:TRP:NE1	4:V:190:ARG:HG3	2.35	0.41
2:B:347:ARG:NH1	4:D:135:ASP:OD2	2.53	0.41
3:C:257:LYS:HA	3:C:284:LEU:HD12	2.00	0.41
5:K:100:LEU:HD22	5:K:111:PRO:HG3	2.03	0.41
4:P:30:THR:O	4:P:34:LEU:HB2	2.20	0.41
1:S:49:ARG:NH2	10:S:806:HOH:O	2.49	0.41
1:S:57:ASP:OD2	1:S:73:MET:HA	2.19	0.41
1:G:322:PRO:HB3	1:G:546:GLY:HA3	2.02	0.41
1:M:36:PHE:HE2	1:M:50:MET:HE3	1.86	0.41
1:M:99:HIS:CE1	1:M:153:ARG:O	2.74	0.41
2:N:164:ARG:HB3	4:P:156:ARG:NH2	2.36	0.41
2:N:202:ASN:ND2	2:N:204:GLY:O	2.53	0.41
2:N:268:LEU:HD23	2:N:268:LEU:HA	1.79	0.41
3:O:115:ILE:O	3:O:119:ILE:HG13	2.20	0.41
2:T:203:TRP:HA	2:T:203:TRP:CE3	2.55	0.41
2:H:168:PRO:HA	4:J:156:ARG:NH1	2.35	0.41
5:K:23:PHE:CE2	5:K:32:LEU:HD12	2.52	0.41
1:M:443:LEU:HA	1:M:443:LEU:HD23	1.85	0.41
1:M:497:GLU:HB2	1:M:606:TRP:CG	2.56	0.41
2:N:8:THR:HG22	2:N:49:GLU:OE2	2.20	0.41
3:O:87:ARG:HG2	3:O:215:PRO:HB2	2.03	0.41
1:S:283:LEU:HB2	1:S:525:GLU:HG3	2.03	0.41
3:U:2:ARG:O	3:U:2:ARG:HD3	2.21	0.41
3:U:359:GLU:OE2	3:U:359:GLU:HA	2.19	0.41
1:A:348:LEU:HD12	1:A:429:PRO:HG2	2.01	0.41
2:B:235:LEU:HD12	2:B:235:LEU:HA	1.85	0.41
1:G:176:GLU:CG	1:G:176:GLU:O	2.69	0.41
1:G:236:PRO:HG3	1:G:458:PRO:O	2.21	0.41
1:M:101:LEU:HA	2:N:501:MET:HE2	2.02	0.41
2:N:580:VAL:HG12	2:N:582:GLY:H	1.85	0.41
4:P:57:ALA:HB2	4:P:150:LEU:HD11	2.02	0.41
4:P:133:CYS:HB2	4:P:142:LEU:HD23	2.01	0.41
4:P:142:LEU:HD12	4:P:142:LEU:HA	1.91	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:T:369:ASP:O	2:T:373:ARG:HG3	2.20	0.41
2:T:390:ARG:HH22	2:T:568:ALA:HB1	1.85	0.41
2:B:195:LYS:HD2	2:B:195:LYS:HA	1.93	0.41
2:B:255:THR:HA	2:B:258:MET:HG3	2.02	0.41
2:B:503:LYS:HE2	2:B:503:LYS:HB3	1.80	0.41
4:D:55:ARG:HB3	4:D:144:MET:HE3	2.02	0.41
4:D:75:GLU:HG2	4:D:80:TYR:CE1	2.56	0.41
4:D:176:ARG:NH2	4:D:185:PRO:HG3	2.36	0.41
1:G:212:ILE:HD13	1:G:212:ILE:HA	1.75	0.41
1:G:345:SER:HA	1:G:349:PHE:HB2	2.02	0.41
2:H:151:GLU:OE1	2:H:178:LYS:HB2	2.20	0.41
4:J:31:LEU:HD23	4:J:31:LEU:HA	1.82	0.41
4:J:133:CYS:HB2	4:J:142:LEU:CD2	2.50	0.41
1:M:433:ASN:OD1	1:M:433:ASN:N	2.53	0.41
1:M:476:ASP:OD2	1:M:588:LYS:HD2	2.21	0.41
2:N:100:ASP:OD1	2:N:100:ASP:N	2.54	0.41
2:N:143:ASP:OD1	2:N:143:ASP:N	2.42	0.41
3:O:36:LYS:HE3	3:O:36:LYS:HB3	1.77	0.41
1:S:451:GLY:N	10:S:801:HOH:O	2.25	0.41
2:T:324:ARG:HH11	2:T:373:ARG:NH2	2.15	0.41
2:T:495:PHE:HB3	4:V:68:PRO:HB2	2.01	0.41
6:X:50:LEU:HD11	6:X:57:PHE:CE2	2.55	0.41
1:A:432:LEU:HA	1:A:432:LEU:HD23	1.88	0.41
2:B:367:ILE:HG23	2:B:460:VAL:HG13	2.03	0.41
3:C:415:GLU:HG3	3:C:418:ARG:HD3	2.02	0.41
5:E:83:ILE:HA	5:E:138:MET:O	2.21	0.41
3:I:31:ILE:HD12	3:I:112:HIS:CE1	2.56	0.41
2:N:467:VAL:O	2:N:471:GLU:HG3	2.21	0.41
5:Q:99:LEU:HD13	5:Q:146:PHE:HB2	2.04	0.41
6:X:30:THR:HB	6:X:57:PHE:HE1	1.86	0.41
3:C:177:ALA:O	5:E:70:TYR:HB3	2.21	0.40
3:C:356:GLY:HA3	3:C:387:ILE:HG12	2.03	0.40
4:D:47:LYS:HE2	4:D:148:PHE:CZ	2.56	0.40
5:E:38:GLN:HB2	5:E:44:ILE:HG13	2.02	0.40
3:I:337:LYS:HA	3:I:337:LYS:HD3	1.79	0.40
5:K:48:SER:C	5:K:51:PRO:HD2	2.40	0.40
4:P:15:LEU:O	4:P:18:ILE:HG13	2.21	0.40
1:S:133:LEU:HA	1:S:133:LEU:HD23	1.85	0.40
2:T:388:LEU:HD23	2:T:388:LEU:HA	1.84	0.40
3:U:115:ILE:O	3:U:119:ILE:HG13	2.21	0.40
4:J:78:MET:CE	4:J:115:LYS:HB3	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L:72:THR:CA	6:L:100:CYS:HB3	2.51	0.40
1:M:368:LYS:O	1:M:422:ASN:ND2	2.53	0.40
1:M:547:THR:HA	1:M:556:LYS:HA	2.03	0.40
2:N:232:LEU:HD13	2:N:584:THR:HB	2.02	0.40
3:O:12:ALA:HB3	3:O:24:LYS:HA	2.04	0.40
3:O:331:ILE:HD13	3:O:331:ILE:HA	1.93	0.40
4:P:163:GLU:O	4:P:167:LYS:HG3	2.21	0.40
1:S:322:PRO:HB3	1:S:546:GLY:HA3	2.04	0.40
2:T:268:LEU:O	2:T:272:GLU:HB2	2.21	0.40
2:T:503:LYS:HE2	2:T:503:LYS:HB3	1.85	0.40
3:U:255:SER:HB2	5:W:90:VAL:HG11	2.02	0.40
1:A:99:HIS:HB3	2:B:498:LEU:CD2	2.50	0.40
2:B:260:TYR:CB	6:F:35:CYS:HB3	2.51	0.40
5:E:44:ILE:HD12	5:E:73:PHE:HB3	2.02	0.40
1:G:355:LEU:HD23	1:G:358:TYR:HB3	2.03	0.40
2:H:8:THR:HG22	2:H:49:GLU:OE2	2.21	0.40
4:J:58:HIS:H	4:J:58:HIS:CD2	2.39	0.40
1:M:212:ILE:HD13	1:M:212:ILE:HA	1.83	0.40
1:M:396:LYS:HD3	1:M:400:SER:CB	2.51	0.40
1:M:423:VAL:HB	1:M:452:PHE:CD1	2.57	0.40
2:T:195:LYS:HD2	2:T:195:LYS:HA	1.91	0.40
2:T:468:GLN:H	2:T:468:GLN:HG2	1.75	0.40
4:V:97:CYS:HA	4:V:98:PRO:HD3	1.99	0.40
1:A:374:PHE:HB2	1:A:396:LYS:HE3	2.02	0.40
2:B:197:ALA:HB3	2:B:219:ASP:OD1	2.22	0.40
2:H:140:LEU:HD23	2:H:140:LEU:HA	1.85	0.40
4:V:75:GLU:HG2	4:V:80:TYR:CE1	2.56	0.40
5:W:109:ILE:HD13	5:W:115:THR:HG23	2.03	0.40
1:A:231:VAL:HG23	1:A:557:GLY:HA2	2.03	0.40
2:B:65:HIS:HE1	2:B:67:ASN:OD1	2.03	0.40
2:N:278:LEU:HB2	2:N:280:VAL:HG23	2.03	0.40
6:R:27:TRP:CD1	6:R:56:ILE:HD12	2.57	0.40
1:S:458:PRO:HG3	1:S:464:LEU:HG	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	624/632 (99%)	592 (95%)	29 (5%)	3 (0%)	29	54
1	G	624/632 (99%)	593 (95%)	29 (5%)	2 (0%)	41	66
1	M	624/632 (99%)	589 (94%)	33 (5%)	2 (0%)	41	66
1	S	624/632 (99%)	595 (95%)	25 (4%)	4 (1%)	25	50
2	B	583/586 (100%)	556 (95%)	26 (4%)	1 (0%)	47	73
2	H	583/586 (100%)	554 (95%)	28 (5%)	1 (0%)	47	73
2	N	583/586 (100%)	557 (96%)	25 (4%)	1 (0%)	47	73
2	T	583/586 (100%)	556 (95%)	26 (4%)	1 (0%)	47	73
3	C	417/426 (98%)	405 (97%)	12 (3%)	0	100	100
3	I	417/426 (98%)	407 (98%)	10 (2%)	0	100	100
3	O	417/426 (98%)	404 (97%)	13 (3%)	0	100	100
3	U	417/426 (98%)	406 (97%)	11 (3%)	0	100	100
4	D	195/201 (97%)	187 (96%)	7 (4%)	1 (0%)	29	54
4	J	195/201 (97%)	183 (94%)	11 (6%)	1 (0%)	29	54
4	P	195/201 (97%)	183 (94%)	11 (6%)	1 (0%)	29	54
4	V	195/201 (97%)	182 (93%)	11 (6%)	2 (1%)	15	37
5	E	153/160 (96%)	146 (95%)	7 (5%)	0	100	100
5	K	153/160 (96%)	146 (95%)	6 (4%)	1 (1%)	22	46
5	Q	153/160 (96%)	147 (96%)	6 (4%)	0	100	100
5	W	153/160 (96%)	147 (96%)	6 (4%)	0	100	100
6	F	133/179 (74%)	122 (92%)	11 (8%)	0	100	100
6	L	133/179 (74%)	120 (90%)	13 (10%)	0	100	100
6	R	133/179 (74%)	119 (90%)	14 (10%)	0	100	100
6	X	133/179 (74%)	121 (91%)	12 (9%)	0	100	100
All	All	8420/8736 (96%)	8017 (95%)	382 (4%)	21 (0%)	47	73

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	156	VAL
1	A	177	ASP
1	G	156	VAL
1	M	156	VAL
4	P	13	ASN
1	S	156	VAL
4	V	13	ASN
2	B	428	ALA
2	H	428	ALA
1	M	177	ASP
2	N	428	ALA
1	S	177	ASP
2	T	428	ALA
1	A	178	ARG
1	G	177	ASP
1	S	178	ARG
1	S	433	ASN
4	D	46	GLU
4	J	46	GLU
5	K	140	ASN
4	V	12	LEU

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	559/565 (99%)	540 (97%)	19 (3%)	37	66
1	G	559/565 (99%)	529 (95%)	30 (5%)	22	47
1	M	559/565 (99%)	530 (95%)	29 (5%)	23	49
1	S	559/565 (99%)	531 (95%)	28 (5%)	24	51
2	B	513/514 (100%)	486 (95%)	27 (5%)	22	48
2	H	513/514 (100%)	488 (95%)	25 (5%)	25	52
2	N	513/514 (100%)	488 (95%)	25 (5%)	25	52

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles		
2	T	513/514 (100%)	487 (95%)	26 (5%)		24	50
3	C	345/351 (98%)	338 (98%)	7 (2%)		55	81
3	I	345/351 (98%)	341 (99%)	4 (1%)		71	88
3	O	345/351 (98%)	337 (98%)	8 (2%)		50	78
3	U	345/351 (98%)	337 (98%)	8 (2%)		50	78
4	D	178/181 (98%)	167 (94%)	11 (6%)		18	40
4	J	178/181 (98%)	166 (93%)	12 (7%)		16	37
4	P	178/181 (98%)	165 (93%)	13 (7%)		14	33
4	V	178/181 (98%)	166 (93%)	12 (7%)		16	37
5	E	141/146 (97%)	139 (99%)	2 (1%)		67	86
5	K	141/146 (97%)	140 (99%)	1 (1%)		84	94
5	Q	141/146 (97%)	141 (100%)	0		100	100
5	W	141/146 (97%)	140 (99%)	1 (1%)		84	94
6	F	112/152 (74%)	104 (93%)	8 (7%)		14	34
6	L	112/152 (74%)	106 (95%)	6 (5%)		22	47
6	R	112/152 (74%)	105 (94%)	7 (6%)		18	40
6	X	112/152 (74%)	106 (95%)	6 (5%)		22	47
All	All	7392/7636 (97%)	7077 (96%)	315 (4%)		29	57

All (315) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	48	CYS
1	A	49	ARG
1	A	79	ARG
1	A	101	LEU
1	A	135	LYS
1	A	156	VAL
1	A	164	CYS
1	A	212	ILE
1	A	235	CYS
1	A	357	GLU
1	A	396	LYS
1	A	400	SER
1	A	402	ARG
1	A	462	ASN

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Mol	Chain	Res	Type
1	A	469	VAL
1	A	498	ASP
1	A	522	SER
1	A	587	VAL
1	A	626	VAL
2	B	4	VAL
2	B	52	LEU
2	B	68	ARG
2	B	98	VAL
2	B	154	LEU
2	B	175	VAL
2	B	177	THR
2	B	188	THR
2	B	192	ARG
2	B	210	THR
2	B	213	THR
2	B	260	TYR
2	B	268	LEU
2	B	271	VAL
2	B	277	LEU
2	B	297	GLN
2	B	325	GLU
2	B	339	TYR
2	B	352	HIS
2	B	375	LYS
2	B	425	GLN
2	B	431	ASP
2	B	461	ARG
2	B	480	LEU
2	B	506	ARG
2	B	566	THR
2	B	567	ILE
3	C	37	ASP
3	C	82	GLN
3	C	208	GLN
3	C	346	THR
3	C	364	LEU
3	C	388	GLN
3	C	412	GLU
4	D	6	LEU
4	D	10	ASP
4	D	11	TYR

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Mol	Chain	Res	Type
4	D	15	LEU
4	D	16	GLU
4	D	19	LEU
4	D	34	LEU
4	D	39	ILE
4	D	48	LEU
4	D	62	VAL
4	D	104	ARG
5	E	11	GLU
5	E	88	SER
6	F	20	TRP
6	F	35	CYS
6	F	50	LEU
6	F	57	PHE
6	F	72	THR
6	F	81	LEU
6	F	122	VAL
6	F	141	LEU
1	G	6	LYS
1	G	44	ILE
1	G	49	ARG
1	G	69	VAL
1	G	70	GLN
1	G	79	ARG
1	G	97	THR
1	G	101	LEU
1	G	135	LYS
1	G	155	VAL
1	G	156	VAL
1	G	161	THR
1	G	164	CYS
1	G	170	THR
1	G	177	ASP
1	G	178	ARG
1	G	235	CYS
1	G	265	LEU
1	G	357	GLU
1	G	396	LYS
1	G	402	ARG
1	G	449	GLU
1	G	450	LYS
1	G	462	ASN

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Mol	Chain	Res	Type
1	G	468	GLU
1	G	498	ASP
1	G	547	THR
1	G	587	VAL
1	G	589	SER
1	G	626	VAL
2	H	4	VAL
2	H	52	LEU
2	H	57	MET
2	H	68	ARG
2	H	98	VAL
2	H	188	THR
2	H	192	ARG
2	H	210	THR
2	H	213	THR
2	H	260	TYR
2	H	268	LEU
2	H	271	VAL
2	H	277	LEU
2	H	297	GLN
2	H	325	GLU
2	H	339	TYR
2	H	353	TYR
2	H	393	ASP
2	H	396	VAL
2	H	425	GLN
2	H	461	ARG
2	H	506	ARG
2	H	512	GLU
2	H	565	ARG
2	H	567	ILE
3	I	208	GLN
3	I	346	THR
3	I	364	LEU
3	I	412	GLU
4	J	10	ASP
4	J	11	TYR
4	J	16	GLU
4	J	34	LEU
4	J	39	ILE
4	J	45	LYS
4	J	48	LEU

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Mol	Chain	Res	Type
4	J	62	VAL
4	J	71	LEU
4	J	104	ARG
4	J	117	VAL
4	J	165	LEU
5	K	88	SER
6	L	35	CYS
6	L	50	LEU
6	L	57	PHE
6	L	72	THR
6	L	81	LEU
6	L	141	LEU
1	M	6	LYS
1	M	49	ARG
1	M	70	GLN
1	M	79	ARG
1	M	101	LEU
1	M	135	LYS
1	M	155	VAL
1	M	156	VAL
1	M	161	THR
1	M	170	THR
1	M	177	ASP
1	M	178	ARG
1	M	212	ILE
1	M	235	CYS
1	M	265	LEU
1	M	347	ASP
1	M	357	GLU
1	M	396	LYS
1	M	400	SER
1	M	402	ARG
1	M	420	GLU
1	M	446	LEU
1	M	449	GLU
1	M	469	VAL
1	M	498	ASP
1	M	522	SER
1	M	587	VAL
1	M	589	SER
1	M	626	VAL
2	N	4	VAL

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Mol	Chain	Res	Type
2	N	52	LEU
2	N	57	MET
2	N	68	ARG
2	N	98	VAL
2	N	177	THR
2	N	188	THR
2	N	192	ARG
2	N	210	THR
2	N	213	THR
2	N	260	TYR
2	N	268	LEU
2	N	277	LEU
2	N	297	GLN
2	N	325	GLU
2	N	339	TYR
2	N	353	TYR
2	N	375	LYS
2	N	393	ASP
2	N	398	THR
2	N	425	GLN
2	N	461	ARG
2	N	497	ASP
2	N	506	ARG
2	N	567	ILE
3	O	37	ASP
3	O	150	GLU
3	O	208	GLN
3	O	245	ASP
3	O	364	LEU
3	O	388	GLN
3	O	412	GLU
3	O	419	LYS
4	P	10	ASP
4	P	11	TYR
4	P	16	GLU
4	P	19	LEU
4	P	39	ILE
4	P	48	LEU
4	P	62	VAL
4	P	71	LEU
4	P	102	LEU
4	P	104	ARG

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Mol	Chain	Res	Type
4	P	117	VAL
4	P	139	VAL
4	P	165	LEU
6	R	30	THR
6	R	35	CYS
6	R	57	PHE
6	R	72	THR
6	R	81	LEU
6	R	122	VAL
6	R	141	LEU
1	S	6	LYS
1	S	48	CYS
1	S	49	ARG
1	S	69	VAL
1	S	70	GLN
1	S	79	ARG
1	S	80	THR
1	S	135	LYS
1	S	155	VAL
1	S	164	CYS
1	S	212	ILE
1	S	235	CYS
1	S	265	LEU
1	S	301	LEU
1	S	357	GLU
1	S	396	LYS
1	S	400	SER
1	S	402	ARG
1	S	420	GLU
1	S	433	ASN
1	S	446	LEU
1	S	449	GLU
1	S	468	GLU
1	S	492	LEU
1	S	498	ASP
1	S	522	SER
1	S	587	VAL
1	S	626	VAL
2	T	4	VAL
2	T	13	LYS
2	T	52	LEU
2	T	68	ARG

Continued from previous page...

Mol	Chain	Res	Type
2	T	98	VAL
2	T	133	GLU
2	T	177	THR
2	T	188	THR
2	T	192	ARG
2	T	210	THR
2	T	213	THR
2	T	260	TYR
2	T	268	LEU
2	T	271	VAL
2	T	277	LEU
2	T	325	GLU
2	T	339	TYR
2	T	375	LYS
2	T	398	THR
2	T	425	GLN
2	T	449	TYR
2	T	461	ARG
2	T	497	ASP
2	T	506	ARG
2	T	566	THR
2	T	567	ILE
3	U	37	ASP
3	U	82	GLN
3	U	208	GLN
3	U	214	LYS
3	U	245	ASP
3	U	364	LEU
3	U	388	GLN
3	U	412	GLU
4	V	10	ASP
4	V	11	TYR
4	V	16	GLU
4	V	19	LEU
4	V	34	LEU
4	V	39	ILE
4	V	62	VAL
4	V	71	LEU
4	V	104	ARG
4	V	117	VAL
4	V	139	VAL
4	V	165	LEU

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Mol	Chain	Res	Type
5	W	88	SER
6	X	35	CYS
6	X	50	LEU
6	X	57	PHE
6	X	72	THR
6	X	81	LEU
6	X	141	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	433	ASN
3	I	208	GLN
4	J	58	HIS
4	P	58	HIS
1	S	88	GLN

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 ⓘ

44 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
7	SF4	M	701	1	0,12,12	-	-	-		
7	SF4	G	702	1	0,12,12	-	-	-		
8	FES	G	705	1	0,4,4	-	-	-		
9	FMN	C	501	-	33,33,33	1.04	2 (6%)	48,50,50	1.34	9 (18%)
7	SF4	V	302	4	0,12,12	-	-	-		
9	FMN	I	501	-	33,33,33	1.12	2 (6%)	48,50,50	1.46	8 (16%)
7	SF4	P	301	4	0,12,12	-	-	-		
7	SF4	I	502	3	0,12,12	-	-	-		
7	SF4	S	704	1	0,12,12	-	-	-		
7	SF4	X	701	6	0,12,12	-	-	-		
9	FMN	O	501	-	33,33,33	0.99	1 (3%)	48,50,50	1.35	8 (16%)
7	SF4	F	701	6	0,12,12	-	-	-		
7	SF4	M	703	1	0,12,12	-	-	-		
7	SF4	M	704	1	0,12,12	-	-	-		
7	SF4	A	702	1	0,12,12	-	-	-		
7	SF4	A	704	1	0,12,12	-	-	-		
7	SF4	S	702	1	0,12,12	-	-	-		
7	SF4	C	502	3	0,12,12	-	-	-		
8	FES	A	705	1	0,4,4	-	-	-		
8	FES	S	705	1	0,4,4	-	-	-		
8	FES	E	201	5	0,4,4	-	-	-		
7	SF4	M	702	1	0,12,12	-	-	-		
9	FMN	U	501	-	33,33,33	1.07	2 (6%)	48,50,50	1.34	7 (14%)
7	SF4	P	302	4	0,12,12	-	-	-		
7	SF4	S	701	1	0,12,12	-	-	-		
8	FES	W	201	5	0,4,4	-	-	-		
7	SF4	A	701	1	0,12,12	-	-	-		
7	SF4	V	301	4	0,12,12	-	-	-		
7	SF4	G	703	1	0,12,12	-	-	-		
7	SF4	D	301	4	0,12,12	-	-	-		
7	SF4	L	701	6	0,12,12	-	-	-		
7	SF4	J	301	4	0,12,12	-	-	-		
7	SF4	R	701	6	0,12,12	-	-	-		
7	SF4	S	703	1	0,12,12	-	-	-		
7	SF4	G	704	1	0,12,12	-	-	-		
7	SF4	A	703	1	0,12,12	-	-	-		
8	FES	K	201	5	0,4,4	-	-	-		
7	SF4	D	302	4	0,12,12	-	-	-		
7	SF4	O	502	3	0,12,12	-	-	-		
8	FES	Q	201	5	0,4,4	-	-	-		
7	SF4	J	302	4	0,12,12	-	-	-		
8	FES	M	705	1	0,4,4	-	-	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
7	SF4	U	502	3	0,12,12	-	-	-		
7	SF4	G	701	1	0,12,12	-	-	-		

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
7	SF4	M	701	1	-	-	0/6/5/5
7	SF4	G	702	1	-	-	0/6/5/5
9	FMN	C	501	-	-	2/18/18/18	0/3/3/3
9	FMN	I	501	-	-	2/18/18/18	0/3/3/3
7	SF4	V	302	4	-	-	0/6/5/5
8	FES	G	705	1	-	-	0/1/1/1
7	SF4	P	301	4	-	-	0/6/5/5
7	SF4	I	502	3	-	-	0/6/5/5
7	SF4	S	704	1	-	-	0/6/5/5
7	SF4	X	701	6	-	-	0/6/5/5
9	FMN	O	501	-	-	2/18/18/18	0/3/3/3
7	SF4	F	701	6	-	-	0/6/5/5
7	SF4	M	703	1	-	-	0/6/5/5
7	SF4	M	704	1	-	-	0/6/5/5
7	SF4	A	702	1	-	-	0/6/5/5
7	SF4	A	704	1	-	-	0/6/5/5
7	SF4	S	702	1	-	-	0/6/5/5
7	SF4	C	502	3	-	-	0/6/5/5
8	FES	A	705	1	-	-	0/1/1/1
8	FES	S	705	1	-	-	0/1/1/1
8	FES	E	201	5	-	-	0/1/1/1
7	SF4	M	702	1	-	-	0/6/5/5
9	FMN	U	501	-	-	2/18/18/18	0/3/3/3
7	SF4	P	302	4	-	-	0/6/5/5
7	SF4	S	701	1	-	-	0/6/5/5
8	FES	W	201	5	-	-	0/1/1/1
7	SF4	A	701	1	-	-	0/6/5/5
7	SF4	V	301	4	-	-	0/6/5/5
7	SF4	G	703	1	-	-	0/6/5/5
7	SF4	D	301	4	-	-	0/6/5/5
7	SF4	L	701	6	-	-	0/6/5/5
7	SF4	J	301	4	-	-	0/6/5/5
7	SF4	R	701	6	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	SF4	S	703	1	-	-	0/6/5/5
7	SF4	G	704	1	-	-	0/6/5/5
7	SF4	A	703	1	-	-	0/6/5/5
8	FES	K	201	5	-	-	0/1/1/1
7	SF4	D	302	4	-	-	0/6/5/5
7	SF4	O	502	3	-	-	0/6/5/5
8	FES	Q	201	5	-	-	0/1/1/1
7	SF4	J	302	4	-	-	0/6/5/5
8	FES	M	705	1	-	-	0/1/1/1
7	SF4	U	502	3	-	-	0/6/5/5
7	SF4	G	701	1	-	-	0/6/5/5

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	U	501	FMN	C4A-N5	3.98	1.38	1.30
9	I	501	FMN	C4A-N5	3.87	1.38	1.30
9	O	501	FMN	C4A-N5	3.31	1.37	1.30
9	C	501	FMN	C4A-N5	3.04	1.36	1.30
9	C	501	FMN	C10-N1	2.46	1.38	1.33
9	U	501	FMN	C10-N1	2.26	1.37	1.33
9	I	501	FMN	C10-N1	2.15	1.37	1.33

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	O	501	FMN	C5'-C4'-C3'	-3.46	105.52	112.20
9	U	501	FMN	C4-N3-C2	-3.39	119.38	125.64
9	I	501	FMN	C5'-C4'-C3'	-3.31	105.82	112.20
9	O	501	FMN	C4-N3-C2	-3.10	119.91	125.64
9	U	501	FMN	C4A-C10-N10	3.07	120.97	116.48
9	C	501	FMN	C4-C4A-C10	3.02	121.87	116.79
9	U	501	FMN	O2-C2-N1	-3.01	116.84	121.83
9	O	501	FMN	C4A-C10-N10	2.82	120.61	116.48
9	U	501	FMN	O4-C4-C4A	-2.73	119.36	126.60
9	I	501	FMN	C4A-C10-N10	2.69	120.42	116.48
9	C	501	FMN	O4-C4-C4A	-2.65	119.58	126.60
9	C	501	FMN	C4-N3-C2	-2.60	120.83	125.64
9	O	501	FMN	O4-C4-C4A	-2.59	119.73	126.60
9	U	501	FMN	C4A-C4-N3	2.51	119.58	113.19
9	C	501	FMN	O2'-C2'-C1'	-2.50	103.75	109.80
9	I	501	FMN	O4'-C4'-C5'	2.50	115.53	109.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	O	501	FMN	C4-C4A-C10	2.47	120.94	116.79
9	I	501	FMN	C10-C4A-N5	-2.43	119.71	124.86
9	I	501	FMN	C4-N3-C2	-2.43	121.16	125.64
9	U	501	FMN	C10-C4A-N5	-2.39	119.79	124.86
9	I	501	FMN	C9A-C5A-N5	-2.34	119.89	122.43
9	C	501	FMN	C6-C5A-C9A	2.34	122.24	118.94
9	C	501	FMN	C4A-C10-N10	2.27	119.80	116.48
9	C	501	FMN	C10-C4A-N5	-2.16	120.28	124.86
9	C	501	FMN	C9A-C5A-N5	-2.15	120.10	122.43
9	O	501	FMN	C10-C4A-N5	-2.15	120.30	124.86
9	O	501	FMN	C9A-C5A-N5	-2.14	120.11	122.43
9	O	501	FMN	C4A-C4-N3	2.14	118.62	113.19
9	C	501	FMN	C4A-C10-N1	-2.13	119.80	124.73
9	I	501	FMN	P-O5'-C5'	2.12	124.14	118.30
9	I	501	FMN	C4A-C4-N3	2.11	118.54	113.19
9	U	501	FMN	O2'-C2'-C1'	-2.03	104.89	109.80

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	C	501	FMN	N10-C1'-C2'-O2'
9	C	501	FMN	C4'-C5'-O5'-P
9	O	501	FMN	C4'-C5'-O5'-P
9	I	501	FMN	C4'-C5'-O5'-P
9	U	501	FMN	C4'-C5'-O5'-P
9	U	501	FMN	N10-C1'-C2'-O2'
9	I	501	FMN	N10-C1'-C2'-O2'
9	O	501	FMN	N10-C1'-C2'-O2'

There are no ring outliers.

5 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	S	704	SF4	1	0
7	A	704	SF4	1	0
8	S	705	FES	1	0
8	W	201	FES	1	0
7	G	704	SF4	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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 FMN C 501

Bond lengths

Bond angles

Torsions

Rings

Ligand FMN I 501

Bond lengths

Bond angles

Torsions

Rings

Ligand FMN O 501

Bond lengths

Bond angles

Torsions

Rings

Ligand FMN U 501

Bond lengths

Bond angles

Torsions

Rings
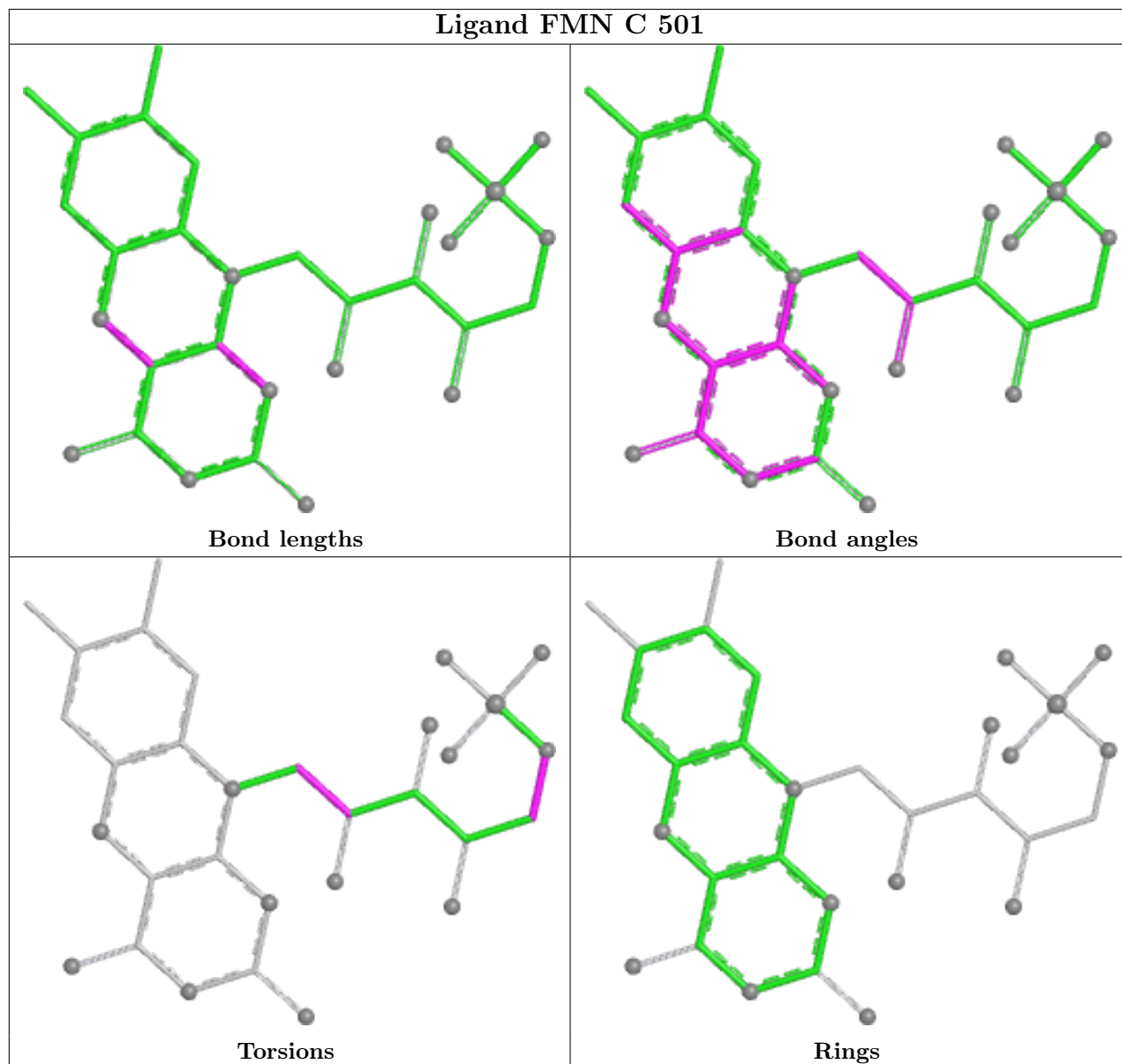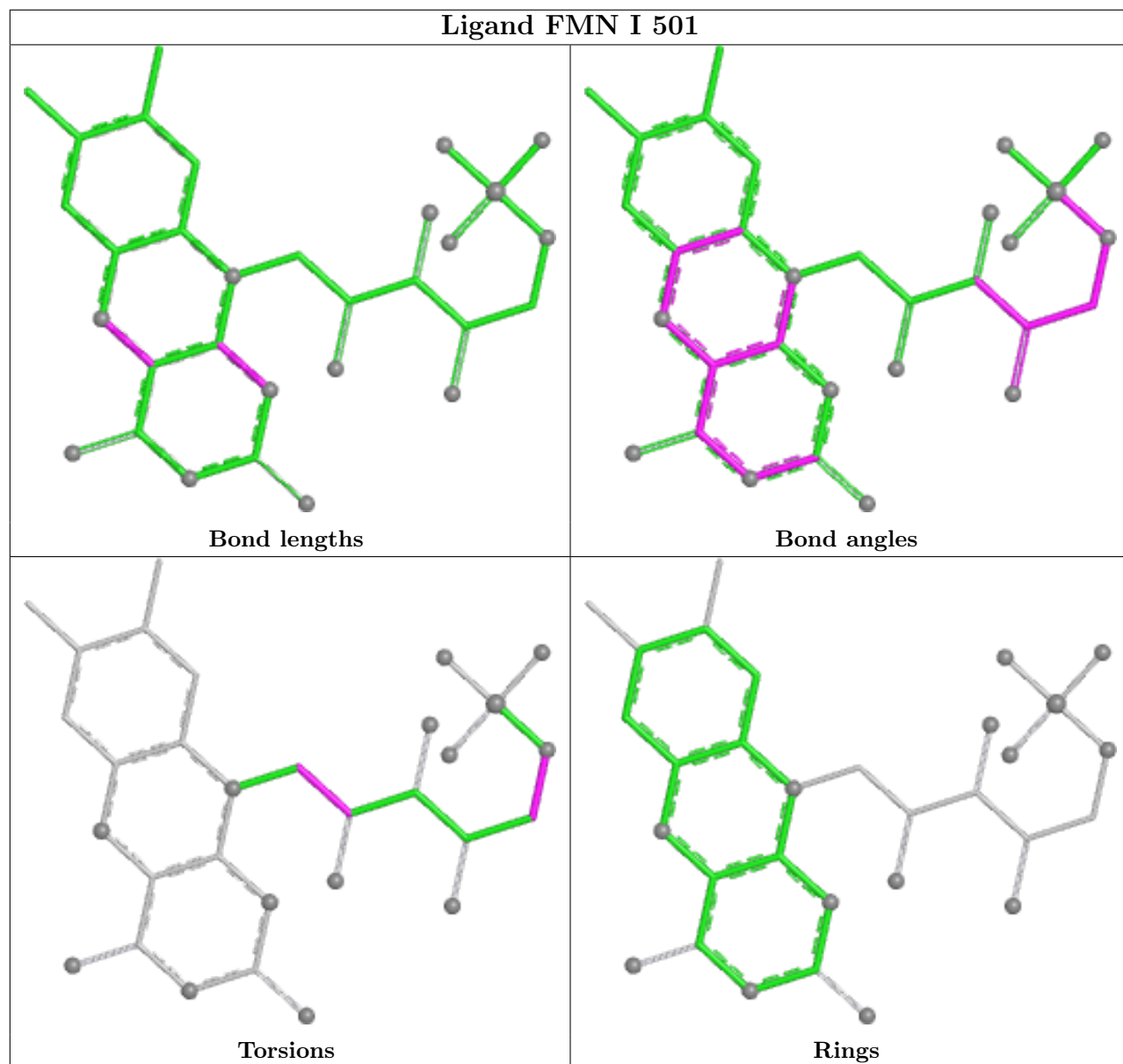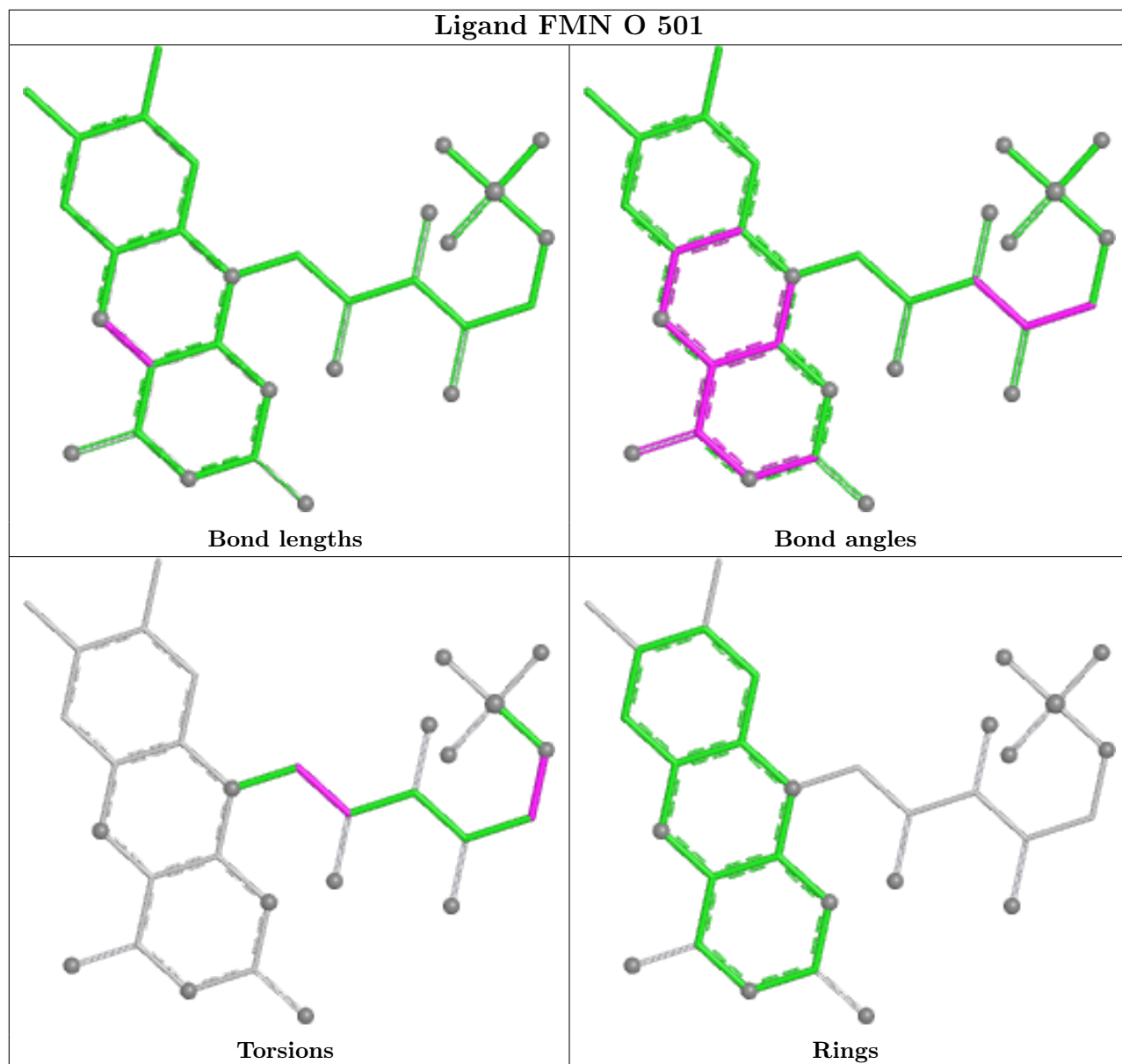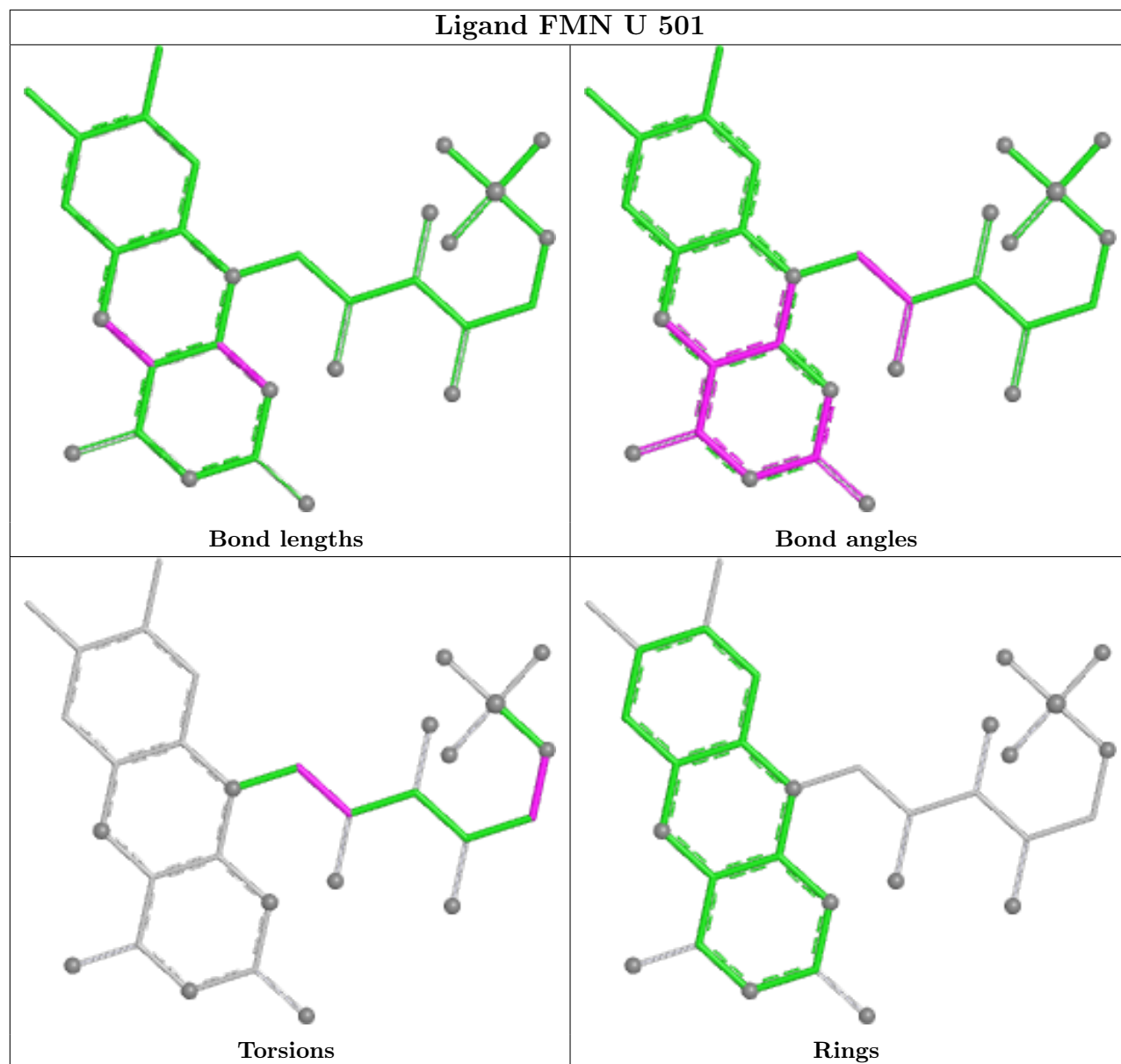
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 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	626/632 (99%)	-0.33	3 (0%)	91	92	37, 53, 90, 132	0
1	G	626/632 (99%)	-0.31	3 (0%)	91	92	38, 60, 93, 150	0
1	M	626/632 (99%)	-0.37	0	100	100	42, 60, 93, 148	0
1	S	626/632 (99%)	-0.24	10 (1%)	72	74	50, 69, 99, 138	0
2	B	585/586 (99%)	0.37	52 (8%)	9	7	51, 104, 155, 231	0
2	H	585/586 (99%)	0.73	90 (15%)	2	1	58, 130, 188, 250	0
2	N	585/586 (99%)	0.42	59 (10%)	7	5	57, 108, 164, 237	0
2	T	585/586 (99%)	0.44	58 (9%)	7	5	73, 115, 165, 236	0
3	C	419/426 (98%)	-0.25	1 (0%)	95	96	41, 62, 94, 127	0
3	I	419/426 (98%)	-0.30	1 (0%)	95	96	35, 52, 85, 129	0
3	O	419/426 (98%)	-0.18	3 (0%)	87	89	48, 74, 105, 172	0
3	U	419/426 (98%)	-0.08	6 (1%)	75	77	59, 80, 114, 165	0
4	D	197/201 (98%)	0.46	28 (14%)	2	1	48, 79, 198, 217	0
4	J	197/201 (98%)	0.68	35 (17%)	1	1	62, 105, 223, 267	0
4	P	197/201 (98%)	0.59	32 (16%)	1	1	59, 94, 206, 254	0
4	V	197/201 (98%)	0.76	35 (17%)	1	1	76, 111, 204, 224	0
5	E	155/160 (96%)	-0.48	0	100	100	35, 59, 83, 116	0
5	K	155/160 (96%)	-0.48	0	100	100	40, 59, 90, 119	0
5	Q	155/160 (96%)	-0.26	0	100	100	50, 80, 110, 145	0
5	W	155/160 (96%)	0.19	10 (6%)	18	17	61, 90, 127, 152	0
6	F	135/179 (75%)	0.35	9 (6%)	17	16	68, 95, 159, 180	0
6	L	135/179 (75%)	1.20	27 (20%)	1	0	99, 135, 191, 241	0
6	R	135/179 (75%)	1.10	26 (19%)	1	0	76, 113, 181, 245	0
6	X	135/179 (75%)	0.80	23 (17%)	1	1	90, 123, 183, 238	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
All	All	8468/8736 (96%)	0.10	511 (6%)	21	20	35, 80, 159, 267	0

All (511) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
6	R	153	THR	13.3
6	R	152	ILE	10.2
4	J	19	LEU	9.7
3	O	1	MET	9.7
4	J	18	ILE	9.7
6	L	152	ILE	9.1
4	D	19	LEU	8.9
4	J	23	PHE	8.6
4	P	44	PRO	8.5
2	H	194	LYS	8.4
2	H	585	ASP	8.4
4	V	23	PHE	8.3
4	P	23	PHE	7.6
6	X	153	THR	7.4
2	B	584	THR	7.4
6	L	153	THR	7.1
2	B	585	ASP	6.9
2	T	585	ASP	6.9
6	R	154	LYS	6.8
4	D	23	PHE	6.8
6	X	154	LYS	6.7
2	H	199	LEU	6.7
2	B	196	LYS	6.6
2	H	195	LYS	6.6
4	V	19	LEU	6.5
4	D	201	GLY	6.4
4	P	19	LEU	6.4
4	D	12	LEU	6.2
6	X	152	ILE	6.2
4	V	45	LYS	6.1
6	L	154	LYS	6.1
4	J	201	GLY	6.0
3	U	1	MET	6.0
4	P	18	ILE	6.0
2	N	386	ILE	5.9
2	H	389	ARG	5.8
4	J	20	PHE	5.8

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Mol	Chain	Res	Type	RSRZ
6	L	151	GLY	5.8
4	D	18	ILE	5.7
4	J	29	VAL	5.7
4	J	22	ASP	5.7
2	N	585	ASP	5.7
2	B	199	LEU	5.6
2	N	584	THR	5.6
2	T	394	VAL	5.5
2	T	582	GLY	5.4
2	B	389	ARG	5.4
4	D	17	SER	5.4
4	P	5	LYS	5.3
2	H	584	THR	5.3
6	R	150	GLN	5.2
2	N	196	LYS	5.2
2	H	390	ARG	5.2
2	N	389	ARG	5.1
2	T	263	ALA	5.0
4	V	12	LEU	5.0
2	H	196	LYS	4.9
4	D	20	PHE	4.9
2	B	194	LYS	4.9
4	V	32	LYS	4.8
4	V	18	ILE	4.8
4	J	24	LEU	4.8
2	T	260	TYR	4.7
2	T	386	ILE	4.7
2	N	262	SER	4.7
4	V	21	ILE	4.7
4	P	11	TYR	4.6
4	P	16	GLU	4.6
4	D	13	ASN	4.6
4	P	6	LEU	4.6
3	C	1	MET	4.6
2	N	259	ASP	4.5
2	T	584	THR	4.5
4	D	14	ILE	4.5
6	L	63	GLN	4.4
2	N	200	VAL	4.4
4	P	17	SER	4.4
2	T	210	THR	4.4
4	J	21	ILE	4.4

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Mol	Chain	Res	Type	RSRZ
2	N	258	MET	4.4
4	D	11	TYR	4.4
2	B	263	ALA	4.4
2	B	387	TRP	4.4
4	J	28	SER	4.3
4	P	22	ASP	4.3
4	V	201	GLY	4.3
4	D	21	ILE	4.3
2	H	258	MET	4.3
2	B	582	GLY	4.3
4	V	5	LYS	4.2
6	L	23	ARG	4.2
2	H	263	ALA	4.2
2	H	582	GLY	4.2
2	B	198	GLU	4.2
2	B	386	ILE	4.2
2	H	526	PRO	4.2
2	B	475	LYS	4.2
2	T	258	MET	4.2
4	D	30	THR	4.2
2	T	392	LYS	4.1
2	T	383	ARG	4.1
4	P	12	LEU	4.1
2	B	383	ARG	4.1
4	V	20	PHE	4.1
5	W	6	PHE	4.1
6	R	35	CYS	4.0
4	D	28	SER	4.0
4	V	17	SER	4.0
2	T	197	ALA	4.0
2	H	387	TRP	4.0
2	N	341	LEU	3.9
4	V	24	LEU	3.9
6	F	53	LEU	3.9
4	J	17	SER	3.9
2	T	198	GLU	3.9
2	B	388	LEU	3.9
6	L	53	LEU	3.9
6	X	23	ARG	3.9
4	J	32	LYS	3.9
6	L	146	LYS	3.9
4	J	10	ASP	3.9

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Mol	Chain	Res	Type	RSRZ
2	B	210	THR	3.8
2	B	258	MET	3.8
2	N	210	THR	3.8
2	H	262	SER	3.8
6	F	23	ARG	3.8
4	V	196	LYS	3.8
2	H	580	VAL	3.8
2	N	16	PHE	3.8
2	H	386	ILE	3.7
6	L	50	LEU	3.7
4	J	16	GLU	3.7
4	D	29	VAL	3.7
2	T	390	ARG	3.7
2	T	262	SER	3.7
6	R	34	ALA	3.7
2	N	580	VAL	3.7
2	H	383	ARG	3.7
4	P	196	LYS	3.7
6	R	23	ARG	3.7
2	H	221	GLU	3.7
4	P	13	ASN	3.7
4	D	8	ARG	3.6
6	R	93	TRP	3.6
6	R	151	GLY	3.6
2	B	219	ASP	3.6
2	N	383	ARG	3.6
2	T	199	LEU	3.6
2	T	580	VAL	3.6
4	P	10	ASP	3.6
2	N	194	LYS	3.6
2	H	197	ALA	3.6
2	H	393	ASP	3.6
2	H	450	LEU	3.6
4	P	21	ILE	3.6
1	G	629	GLU	3.6
2	T	220	LEU	3.6
6	R	130	PRO	3.6
6	L	56	ILE	3.6
4	P	32	LYS	3.6
2	B	220	LEU	3.6
4	J	27	LEU	3.6
2	T	84	VAL	3.5

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Mol	Chain	Res	Type	RSRZ
2	N	221	GLU	3.5
2	T	464	GLU	3.5
2	B	579	PRO	3.5
2	B	262	SER	3.5
6	R	129	CYS	3.5
2	T	196	LYS	3.5
4	J	11	TYR	3.5
3	I	1	MET	3.5
2	N	263	ALA	3.5
4	D	22	ASP	3.5
2	H	260	TYR	3.5
2	H	193	LEU	3.5
4	D	6	LEU	3.5
4	J	13	ASN	3.4
6	L	26	LEU	3.4
6	R	36	CYS	3.4
4	V	11	TYR	3.4
6	R	26	LEU	3.4
4	D	24	LEU	3.4
4	J	14	ILE	3.4
6	R	56	ILE	3.4
2	B	197	ALA	3.4
2	B	259	ASP	3.4
2	N	195	LYS	3.4
4	V	8	ARG	3.4
2	B	227	GLN	3.4
2	H	210	THR	3.3
6	R	57	PHE	3.3
2	H	569	ASP	3.3
6	R	71	GLY	3.3
2	H	224	LYS	3.3
3	O	2	ARG	3.3
2	N	199	LEU	3.3
2	N	265	CYS	3.3
4	D	26	GLY	3.3
2	T	579	PRO	3.3
4	V	29	VAL	3.3
6	L	150	GLN	3.3
6	X	34	ALA	3.3
6	F	26	LEU	3.3
2	H	259	ASP	3.3
4	J	12	LEU	3.3

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Mol	Chain	Res	Type	RSRZ
2	B	390	ARG	3.3
2	H	342	THR	3.3
2	H	391	THR	3.2
2	B	581	VAL	3.2
2	N	212	GLY	3.2
4	V	28	SER	3.2
6	L	35	CYS	3.2
4	J	5	LYS	3.2
4	D	5	LYS	3.2
2	H	95	LEU	3.2
4	D	7	SER	3.2
2	T	379	THR	3.2
2	T	391	THR	3.2
4	V	47	LYS	3.2
4	P	28	SER	3.2
2	N	582	GLY	3.2
2	N	390	ARG	3.2
2	B	382	THR	3.1
2	B	580	VAL	3.1
4	J	9	LYS	3.1
4	D	15	LEU	3.1
2	H	382	THR	3.1
2	H	385	ARG	3.1
2	T	389	ARG	3.1
2	N	583	GLU	3.1
6	X	93	TRP	3.1
2	H	161	LEU	3.1
2	T	527	ARG	3.1
2	T	342	THR	3.1
2	N	163	GLY	3.1
4	V	25	LYS	3.1
2	B	392	LYS	3.1
6	R	41	MET	3.1
2	B	193	LEU	3.1
4	V	34	LEU	3.1
4	J	36	ARG	3.1
4	J	25	LYS	3.0
6	X	148	LYS	3.0
2	N	527	ARG	3.0
4	P	20	PHE	3.0
2	T	581	VAL	3.0
2	N	260	TYR	3.0

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Mol	Chain	Res	Type	RSRZ
2	N	266	ASN	3.0
6	X	36	CYS	3.0
2	H	218	PHE	3.0
4	J	8	ARG	3.0
4	D	25	LYS	2.9
2	N	382	THR	2.9
6	X	150	GLN	2.9
2	H	198	GLU	2.9
6	R	88	MET	2.9
2	T	583	GLU	2.9
2	B	222	GLY	2.9
2	T	256	ASP	2.9
1	A	629	GLU	2.9
2	H	261	ILE	2.9
6	X	35	CYS	2.9
4	V	173	LYS	2.9
2	T	174	LEU	2.9
1	S	5	VAL	2.9
6	L	37	ALA	2.9
2	H	163	GLY	2.8
2	H	440	GLY	2.8
2	H	379	THR	2.8
2	N	308	THR	2.8
4	V	9	LYS	2.8
6	L	62	ARG	2.8
2	T	255	THR	2.8
4	J	30	THR	2.8
2	N	394	VAL	2.8
2	H	564	GLY	2.8
2	B	472	LYS	2.8
6	X	56	ILE	2.8
2	N	301	SER	2.8
2	T	211	HIS	2.8
2	B	342	THR	2.8
2	H	570	ALA	2.8
4	D	32	LYS	2.8
2	B	16	PHE	2.8
2	H	256	ASP	2.8
2	T	393	ASP	2.8
2	T	367	ILE	2.8
4	J	6	LEU	2.8
2	N	197	ALA	2.8

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Mol	Chain	Res	Type	RSRZ
4	V	16	GLU	2.8
4	D	31	LEU	2.8
5	W	107	LEU	2.8
5	W	152	LEU	2.8
2	H	528	GLY	2.8
2	T	265	CYS	2.8
4	P	29	VAL	2.7
4	V	22	ASP	2.7
2	B	260	TYR	2.7
2	H	381	LEU	2.7
2	H	200	VAL	2.7
2	N	220	LEU	2.7
1	S	17	GLU	2.7
6	L	34	ALA	2.7
2	B	195	LYS	2.7
2	H	178	LYS	2.7
6	X	129	CYS	2.7
4	V	6	LEU	2.7
6	F	27	TRP	2.7
2	H	265	CYS	2.7
6	L	149	GLU	2.7
2	T	259	ASP	2.7
2	T	301	SER	2.7
4	P	15	LEU	2.7
4	V	14	ILE	2.7
2	N	198	GLU	2.7
2	T	223	GLU	2.7
4	V	13	ASN	2.7
6	X	65	ASP	2.7
6	L	80	MET	2.7
4	J	33	ASN	2.7
2	H	219	ASP	2.7
4	P	27	LEU	2.6
6	R	148	LYS	2.6
5	W	41	TYR	2.6
4	P	201	GLY	2.6
2	N	579	PRO	2.6
6	F	35	CYS	2.6
6	R	37	ALA	2.6
4	J	15	LEU	2.6
2	H	321	TYR	2.6
4	P	9	LYS	2.6

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Mol	Chain	Res	Type	RSRZ
2	H	388	LEU	2.6
2	B	256	ASP	2.6
2	H	255	THR	2.6
2	H	583	GLU	2.6
2	N	165	THR	2.6
2	T	253	PRO	2.6
2	T	417	VAL	2.6
6	X	72	THR	2.6
1	S	22	VAL	2.6
2	H	75	LEU	2.6
2	N	342	THR	2.5
2	H	215	TRP	2.5
2	T	221	GLU	2.5
2	B	226	VAL	2.5
2	H	20	VAL	2.5
2	H	220	LEU	2.5
2	B	399	ARG	2.5
4	P	33	ASN	2.5
4	V	44	PRO	2.5
4	V	10	ASP	2.5
2	H	581	VAL	2.5
2	N	321	TYR	2.5
6	R	63	GLN	2.5
6	L	93	TRP	2.5
2	H	216	PHE	2.5
2	H	579	PRO	2.5
1	S	16	ALA	2.5
2	N	211	HIS	2.5
6	R	58	ARG	2.5
4	V	199	TRP	2.5
2	N	160	VAL	2.5
2	N	255	THR	2.5
6	F	152	ILE	2.5
6	X	27	TRP	2.5
4	J	45	LYS	2.5
2	H	578	ASP	2.5
1	G	16	ALA	2.5
2	N	472	LYS	2.5
2	H	301	SER	2.5
2	T	193	LEU	2.4
2	T	528	GLY	2.4
2	T	194	LYS	2.4

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Mol	Chain	Res	Type	RSRZ
2	T	475	LYS	2.4
2	B	211	HIS	2.4
4	J	37	ARG	2.4
4	P	8	ARG	2.4
4	P	36	ARG	2.4
6	X	53	LEU	2.4
4	V	81	GLU	2.4
2	H	468	GLN	2.4
4	D	10	ASP	2.4
1	S	624	ILE	2.4
1	S	69	VAL	2.4
2	H	525	ASN	2.4
2	N	446	TYR	2.4
2	T	381	LEU	2.4
2	T	551	ALA	2.4
4	J	7	SER	2.4
6	F	63	GLN	2.4
6	L	25	SER	2.4
4	P	128	LEU	2.4
2	H	475	LYS	2.4
2	T	257	ARG	2.4
2	B	301	SER	2.4
2	T	344	CYS	2.4
5	W	120	PHE	2.4
6	X	151	GLY	2.3
1	S	15	GLU	2.3
2	H	223	GLU	2.3
6	X	21	GLY	2.3
2	H	300	ASN	2.3
2	B	118	VAL	2.3
4	D	16	GLU	2.3
5	W	8	PHE	2.3
2	H	185	LEU	2.3
4	J	182	ARG	2.3
2	N	393	ASP	2.3
2	H	188	THR	2.3
1	A	71	GLU	2.3
2	H	226	VAL	2.3
4	V	63	TRP	2.3
6	L	98	GLY	2.3
4	J	34	LEU	2.3
4	P	24	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
5	W	155	ILE	2.3
4	J	26	GLY	2.3
1	G	433	ASN	2.3
2	H	157	LEU	2.3
2	H	266	ASN	2.3
2	T	235	LEU	2.3
6	L	72	THR	2.3
2	H	472	LYS	2.3
2	N	395	GLY	2.2
6	X	71	GLY	2.2
2	N	313	LEU	2.2
4	D	27	LEU	2.2
6	X	41	MET	2.2
2	N	340	ARG	2.2
3	O	416	LYS	2.2
2	H	394	VAL	2.2
5	W	11	GLU	2.2
6	F	34	ALA	2.2
2	H	16	PHE	2.2
2	H	442	VAL	2.2
2	N	344	CYS	2.2
2	H	392	LYS	2.2
5	W	156	LEU	2.2
2	N	391	THR	2.2
4	V	26	GLY	2.2
2	T	266	ASN	2.2
2	H	527	ARG	2.2
2	N	261	ILE	2.2
4	V	27	LEU	2.2
2	H	222	GLY	2.2
2	T	446	TYR	2.2
2	H	211	HIS	2.2
2	B	265	CYS	2.2
2	B	583	GLU	2.2
2	N	223	GLU	2.2
3	U	347	CYS	2.2
6	F	149	GLU	2.2
6	L	144	GLN	2.2
3	U	348	GLY	2.2
1	S	626	VAL	2.2
2	H	341	LEU	2.2
2	H	59	CYS	2.2

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Mol	Chain	Res	Type	RSRZ
3	U	346	THR	2.2
4	P	186	ASN	2.1
6	L	24	ASN	2.1
2	H	118	VAL	2.1
3	U	327	GLU	2.1
4	V	46	GLU	2.1
6	X	66	VAL	2.1
4	P	37	ARG	2.1
2	B	266	ASN	2.1
1	A	5	VAL	2.1
2	H	60	ILE	2.1
2	T	227	GLN	2.1
2	H	174	LEU	2.1
2	N	253	PRO	2.1
6	R	53	LEU	2.1
2	H	473	LEU	2.1
2	T	385	ARG	2.1
6	X	37	ALA	2.1
2	N	525	ASN	2.1
6	L	129	CYS	2.1
2	B	52	LEU	2.1
2	B	378	HIS	2.1
2	H	43	LYS	2.1
2	H	48	ARG	2.1
4	P	43	TYR	2.1
6	L	148	LYS	2.1
2	T	212	GLY	2.1
2	B	47	GLU	2.1
4	J	188	GLU	2.1
2	B	213	THR	2.1
6	R	146	LYS	2.1
2	B	91	LYS	2.1
2	N	475	LYS	2.1
6	X	146	LYS	2.1
2	T	300	ASN	2.1
4	P	7	SER	2.1
6	R	65	ASP	2.1
5	W	118	GLY	2.1
2	N	256	ASP	2.0
1	S	7	ILE	2.0
1	S	14	ILE	2.0
6	L	75	ASN	2.0

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Mol	Chain	Res	Type	RSRZ
2	T	549	SER	2.0
2	H	378	HIS	2.0
2	H	180	PRO	2.0
2	B	43	LYS	2.0
2	B	391	THR	2.0
3	U	377	TRP	2.0
2	H	237	ARG	2.0
2	N	201	LEU	2.0
2	N	217	LEU	2.0
6	R	50	LEU	2.0
2	N	302	HIS	2.0
2	B	96	PRO	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.
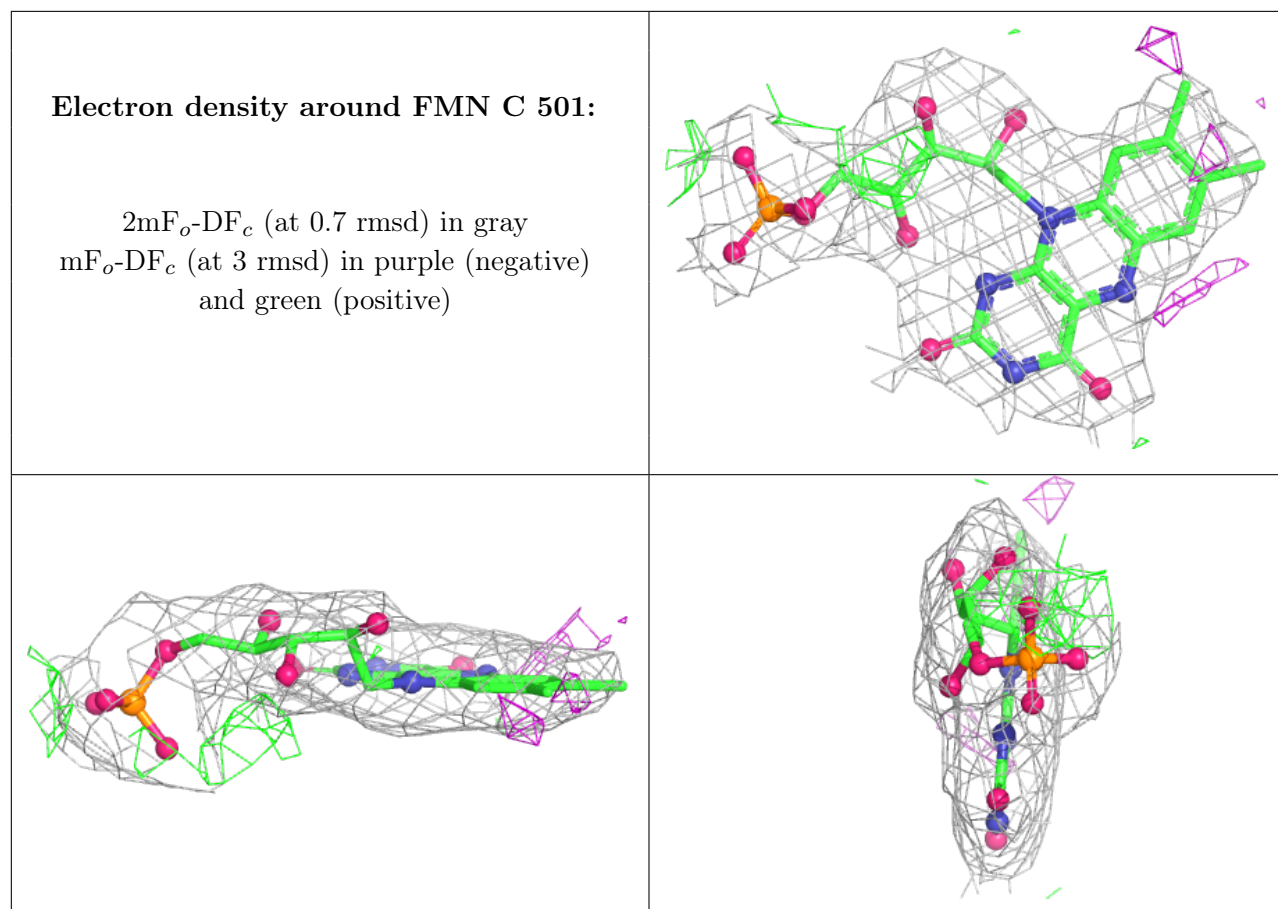
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\mathring{A}^2$)	Q<0.9
7	SF4	G	704	8/8	0.94	0.12	99,123,183,232	8
7	SF4	M	704	8/8	0.94	0.11	100,154,218,234	8
7	SF4	S	704	8/8	0.94	0.12	84,136,176,213	8
7	SF4	A	704	8/8	0.95	0.13	78,96,170,191	8
9	FMN	C	501	31/31	0.98	0.21	41,55,65,67	0
9	FMN	O	501	31/31	0.98	0.20	48,54,65,78	0
9	FMN	U	501	31/31	0.98	0.25	61,69,74,82	0
7	SF4	A	702	8/8	0.99	0.19	39,41,46,49	0
7	SF4	J	301	8/8	0.99	0.18	77,81,83,83	0
7	SF4	J	302	8/8	0.99	0.14	69,74,78,79	0
7	SF4	L	701	8/8	0.99	0.23	99,106,113,122	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	SF4	D	301	8/8	0.99	0.17	60,62,65,67	0
7	SF4	P	301	8/8	0.99	0.17	66,71,74,74	0
7	SF4	P	302	8/8	0.99	0.15	58,65,69,72	0
7	SF4	R	701	8/8	0.99	0.23	78,83,92,97	0
7	SF4	S	703	8/8	0.99	0.18	51,54,57,59	0
7	SF4	D	302	8/8	0.99	0.16	54,57,59,60	0
7	SF4	U	502	8/8	0.99	0.20	62,65,69,70	0
7	SF4	V	301	8/8	0.99	0.17	85,87,89,90	0
7	SF4	X	701	8/8	0.99	0.22	96,99,101,101	0
8	FES	E	201	4/4	0.99	0.19	53,56,57,59	0
8	FES	K	201	4/4	0.99	0.17	52,52,53,53	0
8	FES	Q	201	4/4	0.99	0.19	66,72,77,79	0
8	FES	W	201	4/4	0.99	0.17	74,78,81,91	0
7	SF4	F	701	8/8	0.99	0.20	70,72,74,75	0
9	FMN	I	501	31/31	0.99	0.19	32,44,54,60	0
7	SF4	G	701	8/8	0.99	0.15	46,54,57,57	0
7	SF4	G	703	8/8	0.99	0.19	42,44,46,46	0
7	SF4	M	702	8/8	1.00	0.18	47,51,53,55	0
7	SF4	M	703	8/8	1.00	0.18	48,50,54,67	0
7	SF4	V	302	8/8	1.00	0.12	80,82,85,90	0
7	SF4	C	502	8/8	1.00	0.19	45,50,52,52	0
8	FES	A	705	4/4	1.00	0.18	51,52,54,57	0
7	SF4	O	502	8/8	1.00	0.19	52,55,58,60	0
8	FES	G	705	4/4	1.00	0.18	50,50,52,52	0
7	SF4	I	502	8/8	1.00	0.22	43,47,49,53	0
8	FES	M	705	4/4	1.00	0.17	52,53,54,54	0
7	SF4	A	703	8/8	1.00	0.18	37,42,46,47	0
8	FES	S	705	4/4	1.00	0.15	65,66,69,71	0
7	SF4	G	702	8/8	1.00	0.19	44,47,50,50	0
7	SF4	S	701	8/8	1.00	0.15	67,69,74,79	0
7	SF4	S	702	8/8	1.00	0.18	58,62,65,66	0
7	SF4	A	701	8/8	1.00	0.17	45,50,53,53	0
7	SF4	M	701	8/8	1.00	0.15	50,54,56,58	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 FMN C 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 FMN O 501:

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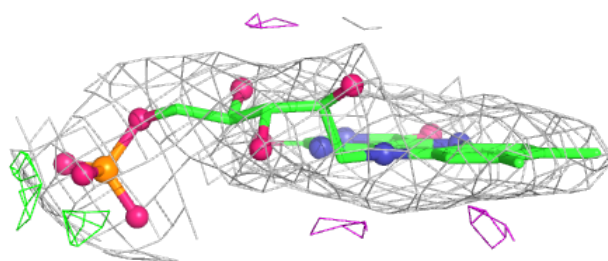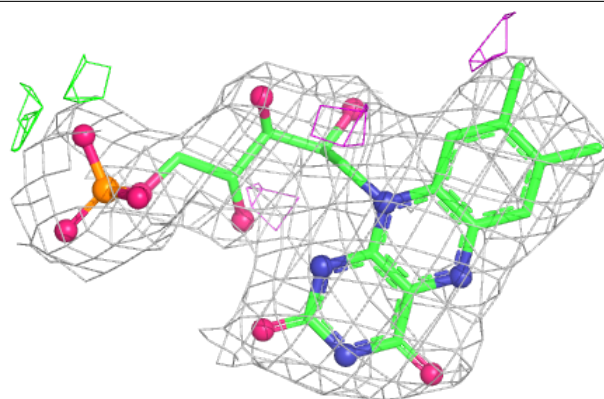
Electron density around FMN U 501:

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

Electron density around FMN I 501:

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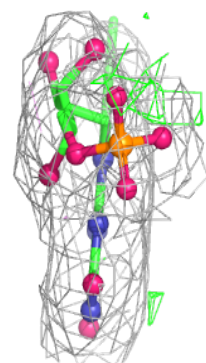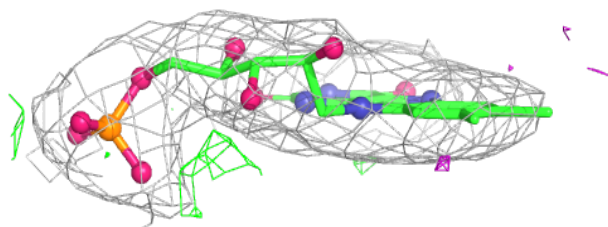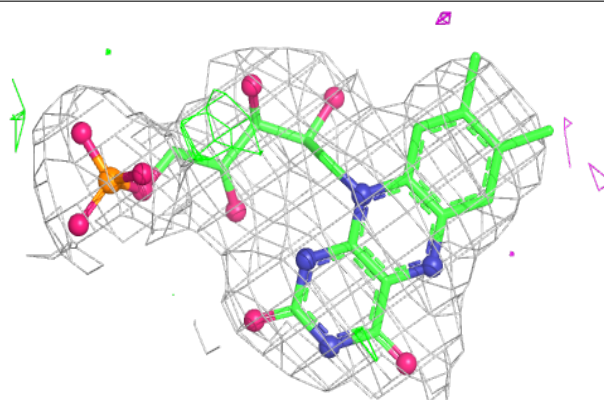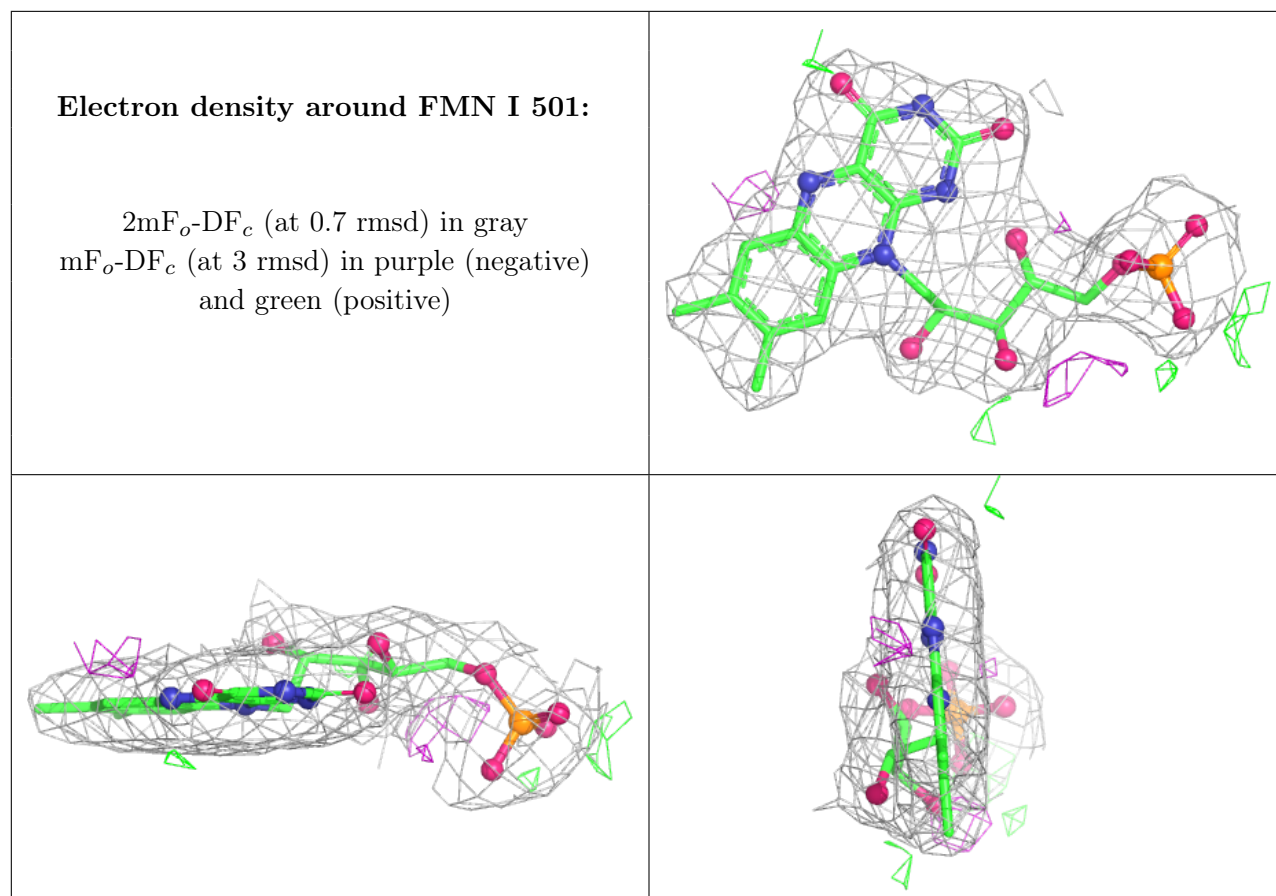
6.5 Other polymers (i)

There are no such residues in this entry.