



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 5, 2024 – 03:30 pm GMT

PDB ID : 8RDX
Title : PGGtase I in complex with probe BAY-6092
Authors : Steuber, H.
Deposited on : 2023-12-08
Resolution : 3.67 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

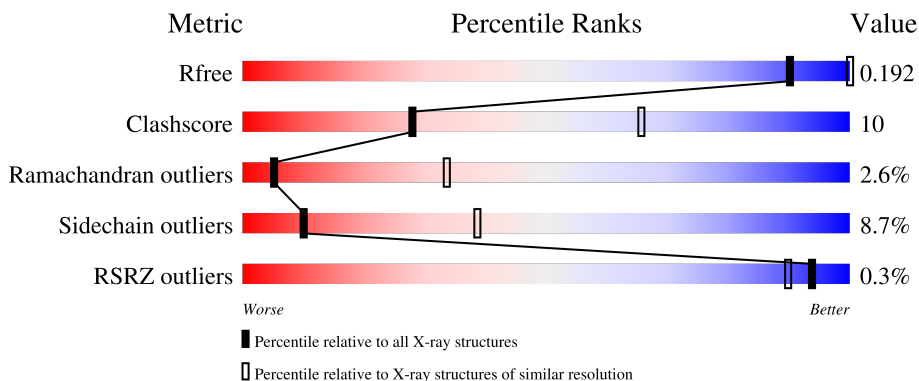
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.67 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1013 (3.84-3.52)
Clashscore	141614	1070 (3.84-3.52)
Ramachandran outliers	138981	1036 (3.84-3.52)
Sidechain outliers	138945	1033 (3.84-3.52)
RSRZ outliers	127900	1471 (3.86-3.50)

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 $\leq 5\%$. 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	314	 75% 23% .
1	C	314	 70% 26% .
1	E	314	 71% 25% .
1	G	314	 67% 29% .
1	I	314	 74% 23% .

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Mol	Chain	Length	Quality of chain	
1	K	314	69%	27%
2	B	346	73%	22%
2	D	346	70%	24%
2	F	346	74%	23%
2	H	346	71%	26%
2	J	346	72%	25%
2	L	346	64%	32%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	DPO	D	403	-	-	X	-
5	DPO	H	403	-	-	X	-

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 32241 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 Protein farnesyltransferase/geranylgeranyltransferase type-1 subunit alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	314	2629	1679	463	482	5	0	0	0
1	C	314	2629	1679	463	482	5	0	0	0
1	E	314	2632	1680	463	484	5	0	0	0
1	G	314	2629	1679	463	482	5	0	0	0
1	I	314	2629	1679	463	482	5	0	0	0
1	K	314	2629	1679	463	482	5	0	0	0

- Molecule 2 is a protein called Geranylgeranyl transferase type-1 subunit beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	346	2697	1707	467	499	24	0	0	0
2	D	346	2697	1707	467	499	24	0	0	0
2	F	346	2697	1707	467	499	24	0	0	0
2	H	346	2697	1707	467	499	24	0	0	0
2	J	346	2697	1707	467	499	24	0	0	0
2	L	346	2697	1707	467	499	24	0	0	0

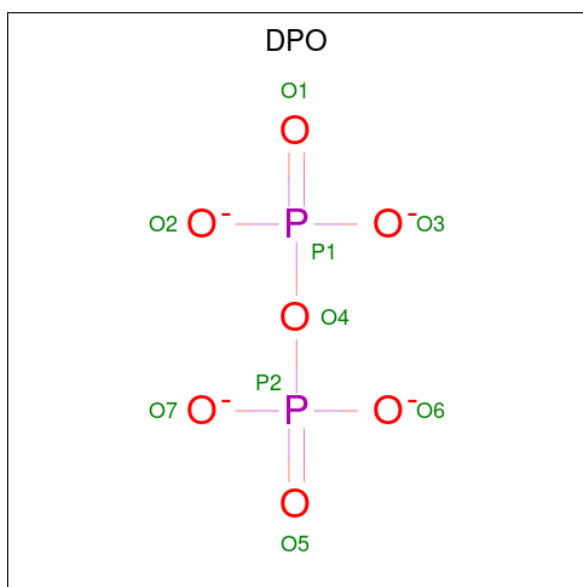
- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total Zn 1 1	0	0
3	D	1	Total Zn 1 1	0	0
3	F	1	Total Zn 1 1	0	0
3	H	1	Total Zn 1 1	0	0
3	J	1	Total Zn 1 1	0	0
3	L	1	Total Zn 1 1	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

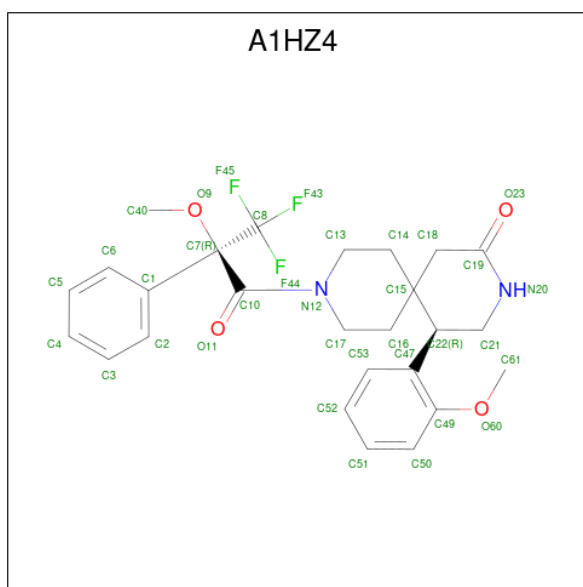
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total Cl 1 1	0	0
4	D	1	Total Cl 1 1	0	0
4	F	1	Total Cl 1 1	0	0
4	H	1	Total Cl 1 1	0	0
4	J	1	Total Cl 1 1	0	0
4	L	1	Total Cl 1 1	0	0

- Molecule 5 is DIPHOSPHATE (three-letter code: DPO) (formula: O₇P₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total O P 9 7 2	0	0
5	D	1	Total O P 9 7 2	0	0
5	F	1	Total O P 9 7 2	0	0
5	H	1	Total O P 9 7 2	0	0
5	J	1	Total O P 9 7 2	0	0
5	L	1	Total O P 9 7 2	0	0

- Molecule 6 is (5 {R})-5-(2-methoxyphenyl)-9-[(2 {R})-3,3,3-tris(fluoranyl)-2-methoxy-2-phenyl-propanoyl]-3,9-diazaspiro[5.5]undecan-2-one (three-letter code: A1HZ4) (formula: C₂₆H₂₉F₃N₂O₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	F	N			O
6	B	1	Total	C	F	N	O	0	0
			35	26	3	2	4		
6	D	1	Total	C	F	N	O	0	0
			35	26	3	2	4		
6	F	1	Total	C	F	N	O	0	0
			35	26	3	2	4		
6	H	1	Total	C	F	N	O	0	0
			35	26	3	2	4		
6	J	1	Total	C	F	N	O	0	0
			35	26	3	2	4		
6	L	1	Total	C	F	N	O	0	0
			35	26	3	2	4		

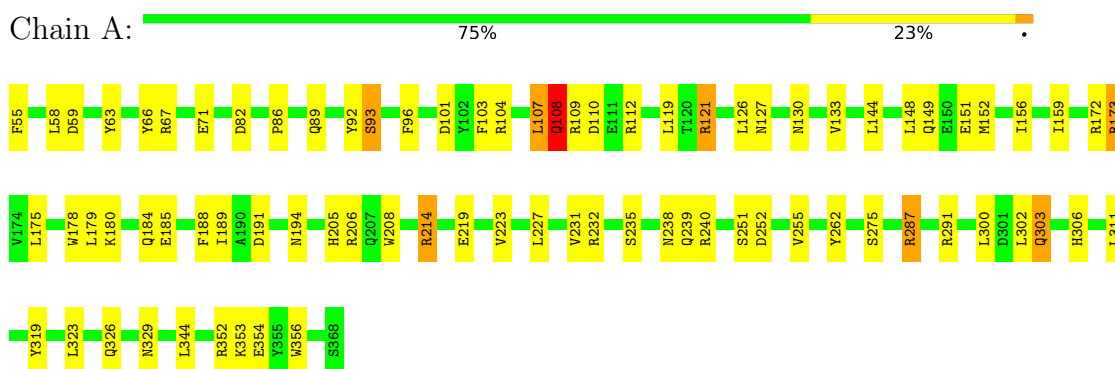
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	1	Total	O	0	0
			1	1		
7	D	1	Total	O	0	0
			1	1		
7	F	1	Total	O	0	0
			1	1		
7	H	1	Total	O	0	0
			1	1		
7	J	1	Total	O	0	0
			1	1		
7	L	1	Total	O	0	0
			1	1		

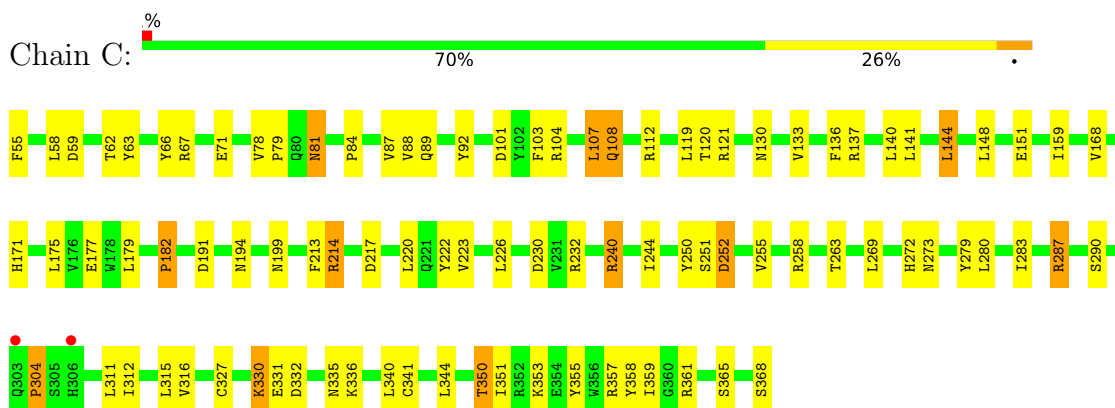
3 Residue-property plots i

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.

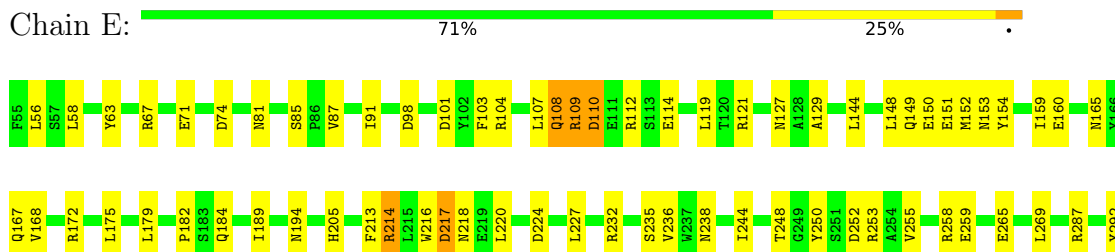
- Molecule 1: Protein farnesyltransferase/geranylgeranyltransferase type-1 subunit alpha



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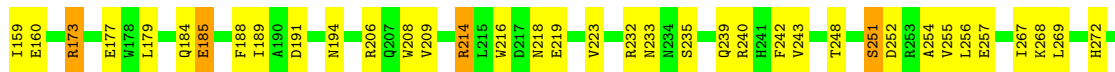


- Molecule 1: Protein farnesyltransferase/geranylgeranyltransferase type-1 subunit alpha

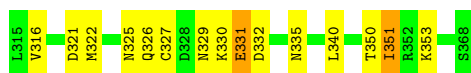




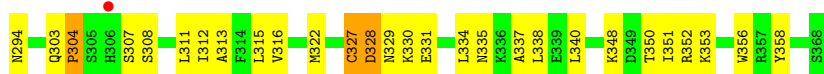
- Molecule 1: Protein farnesyltransferase/geranylgeranyltransferase type-1 subunit alpha



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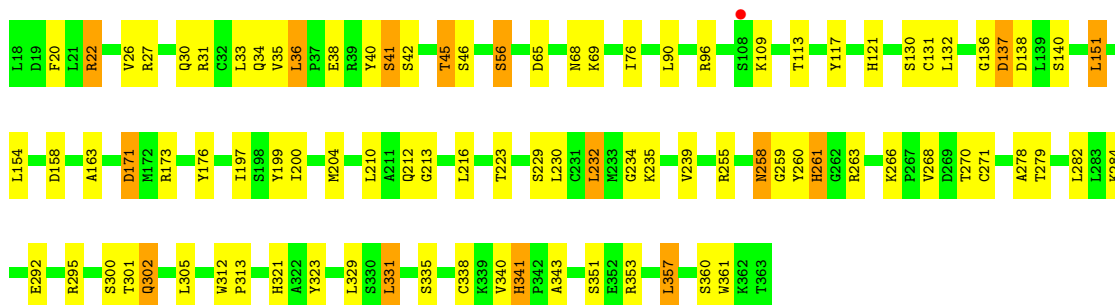


- Molecule 1: Protein farnesyltransferase/geranylgeranyltransferase type-1 subunit alpha



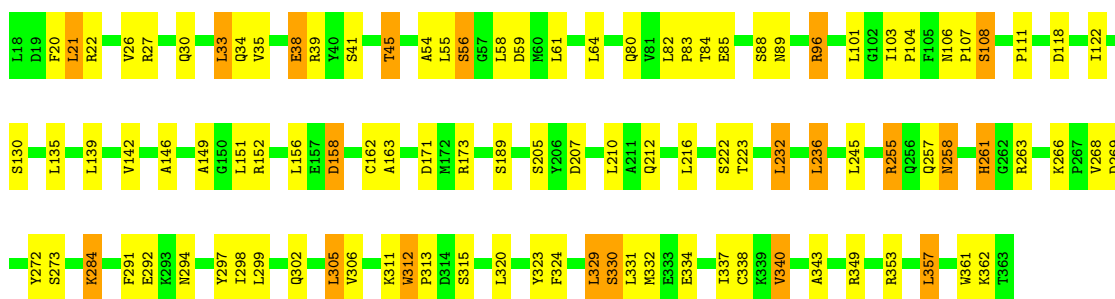
- Molecule 2: Geranylgeranyl transferase type-1 subunit beta





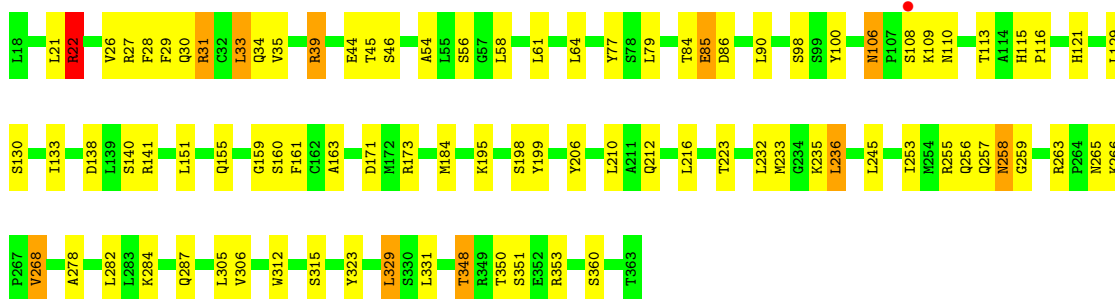
- Molecule 2: Geranylgeranyl transferase type-1 subunit beta

Chain D: 70% 24% 6%



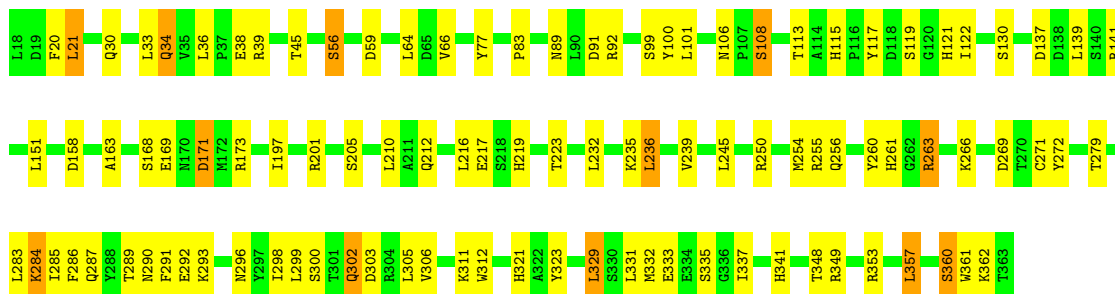
- Molecule 2: Geranylgeranyl transferase type-1 subunit beta

Chain F: 74% 23% 3%



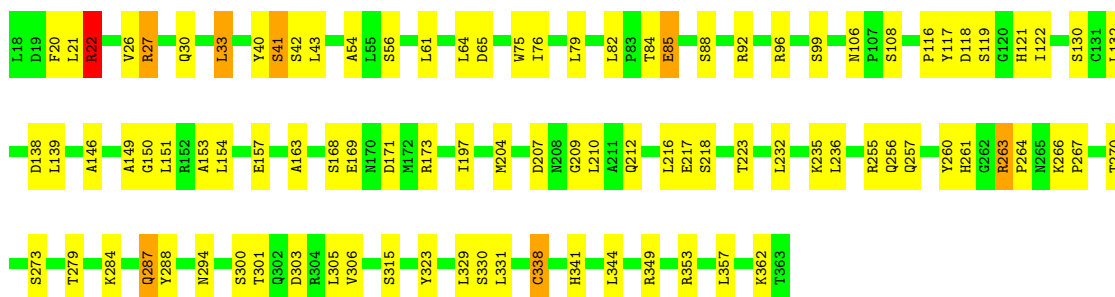
- Molecule 2: Geranylgeranyl transferase type-1 subunit beta

Chain H: 71% 26% 3%



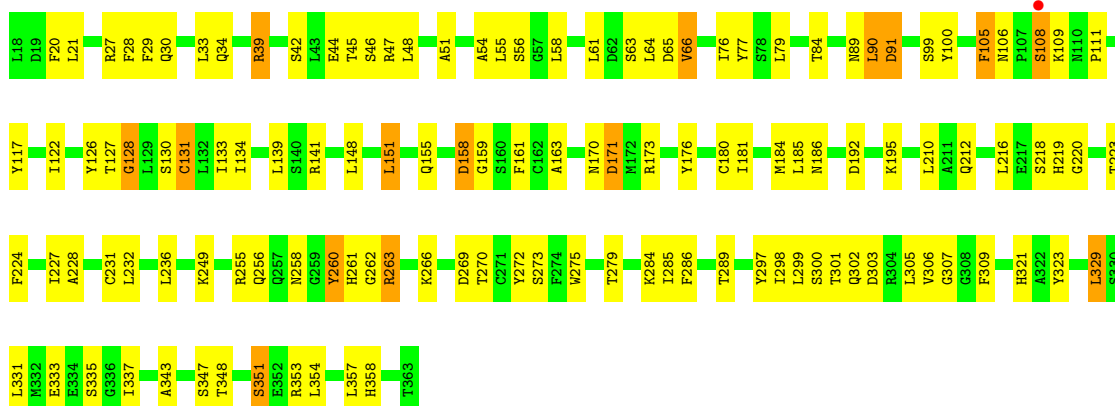
- Molecule 2: Geranylgeranyl transferase type-1 subunit beta

Chain J:  72% 25%



- Molecule 2: Geranylgeranyl transferase type-1 subunit beta

Chain L:  64% 32%



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	270.89Å 269.26Å 185.25Å 90.00° 131.77° 90.00°	Depositor
Resolution (Å)	48.21 – 3.67 48.21 – 3.67	Depositor EDS
% Data completeness (in resolution range)	97.9 (48.21-3.67) 98.0 (48.21-3.67)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.18 (at 3.67Å)	Xtrriage
Refinement program	REFMAC 5.8.0258	Depositor
R, R_{free}	0.137 , 0.189 0.148 , 0.192	Depositor DCC
R_{free} test set	2100 reflections (1.99%)	wwPDB-VP
Wilson B-factor (Å ²)	94.8	Xtrriage
Anisotropy	0.487	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 59.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.087 for -h-2*1,-k,l	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	32241	wwPDB-VP
Average B, all atoms (Å ²)	87.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.14% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: ZN, DPO, CL, A1HZ4

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	0.70	0/2695	0.95	0/3668
1	C	0.70	0/2695	0.94	0/3668
1	E	0.70	0/2698	0.94	0/3672
1	G	0.70	0/2695	0.92	0/3668
1	I	0.70	0/2695	0.90	0/3668
1	K	0.69	0/2695	0.91	0/3668
2	B	0.74	0/2759	0.98	0/3733
2	D	0.75	0/2759	0.95	0/3733
2	F	0.75	0/2759	0.92	0/3733
2	H	0.73	0/2759	0.94	0/3733
2	J	0.73	0/2759	0.94	0/3733
2	L	0.75	0/2759	0.94	0/3733
All	All	0.72	0/32727	0.94	0/44410

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	2629	0	2520	52	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2629	0	2520	53	0
1	E	2632	0	2522	58	0
1	G	2629	0	2520	64	0
1	I	2629	0	2520	41	0
1	K	2629	0	2520	56	0
2	B	2697	0	2600	51	0
2	D	2697	0	2600	66	0
2	F	2697	0	2600	50	0
2	H	2697	0	2600	50	0
2	J	2697	0	2600	50	0
2	L	2697	0	2600	72	0
3	B	1	0	0	0	0
3	D	1	0	0	0	0
3	F	1	0	0	0	0
3	H	1	0	0	0	0
3	J	1	0	0	0	0
3	L	1	0	0	0	0
4	B	1	0	0	0	0
4	D	1	0	0	0	0
4	F	1	0	0	0	0
4	H	1	0	0	0	0
4	J	1	0	0	0	0
4	L	1	0	0	0	0
5	B	9	0	0	0	0
5	D	9	0	0	2	0
5	F	9	0	0	0	0
5	H	9	0	0	2	0
5	J	9	0	0	1	0
5	L	9	0	0	1	0
6	B	35	0	0	0	0
6	D	35	0	0	0	0
6	F	35	0	0	0	0
6	H	35	0	0	1	0
6	J	35	0	0	0	0
6	L	35	0	0	0	0
7	B	1	0	0	0	0
7	D	1	0	0	0	0
7	F	1	0	0	0	0
7	H	1	0	0	0	0
7	J	1	0	0	0	0
7	L	1	0	0	0	0
All	All	32241	0	30722	626	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 10.

All (626) 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)
6:H:404:A1HZ4:C40	6:H:404:A1HZ4:C2	2.31	1.08
2:F:258:ASN:OD1	2:F:268:VAL:HG21	1.72	0.90
2:B:259:GLY:O	2:B:268:VAL:CG1	2.21	0.89
2:B:259:GLY:O	2:B:268:VAL:HG12	1.75	0.86
1:I:351:ILE:HD13	2:J:257:GLN:O	1.81	0.81
1:G:112:ARG:O	1:G:144:LEU:HD21	1.81	0.80
2:L:148:LEU:HD21	2:L:185:LEU:HD12	1.66	0.78
2:D:27:ARG:HA	2:D:30:GLN:HE21	1.49	0.78
1:C:59:ASP:HA	1:E:294:ASN:HD21	1.49	0.78
1:C:59:ASP:HA	1:E:294:ASN:ND2	2.00	0.77
2:H:284:LYS:HE3	2:H:284:LYS:HA	1.67	0.77
2:L:148:LEU:CD2	2:L:185:LEU:HD12	2.14	0.77
2:B:212:GLN:HE21	2:B:212:GLN:HA	1.53	0.74
2:D:266:LYS:HE2	5:D:403:DPO:O7	1.88	0.73
2:B:212:GLN:HA	2:B:212:GLN:NE2	2.04	0.73
1:E:214:ARG:HG2	1:E:214:ARG:HH11	1.52	0.73
2:L:212:GLN:HE21	2:L:212:GLN:HA	1.53	0.72
1:K:79:PRO:HA	1:K:101:ASP:OD1	1.90	0.71
1:I:280:LEU:HD23	1:I:314:PHE:CE2	2.25	0.71
2:B:27:ARG:NH1	2:D:292:GLU:OE1	2.23	0.71
2:D:212:GLN:HA	2:D:212:GLN:NE2	2.06	0.71
1:I:128:ALA:HB3	1:I:162:GLN:HE22	1.57	0.68
1:K:81:ASN:N	1:K:81:ASN:HD22	1.91	0.68
2:L:29:PHE:CD1	2:L:54:ALA:HA	2.28	0.68
2:B:259:GLY:O	2:B:268:VAL:HG11	1.91	0.68
1:E:351:ILE:HD11	2:F:256:GLN:HG2	1.76	0.67
1:K:112:ARG:O	1:K:144:LEU:HD21	1.94	0.67
1:E:252:ASP:HB3	1:E:255:VAL:HG23	1.77	0.66
1:E:149:GLN:HE22	1:E:184:GLN:HE22	1.43	0.65
1:G:96:PHE:CD2	1:G:126:LEU:HD22	2.31	0.65
2:F:22:ARG:O	2:F:26:VAL:HG23	1.95	0.65
2:B:171:ASP:OD1	2:B:173:ARG:HG3	1.96	0.65
1:C:232:ARG:NH2	1:C:272:HIS:O	2.30	0.65
1:I:79:PRO:HA	1:I:101:ASP:OD1	1.97	0.64
2:L:151:LEU:HD12	2:L:181:ILE:HG21	1.79	0.64
2:H:284:LYS:HA	2:H:284:LYS:CE	2.27	0.64
2:J:210:LEU:HB2	2:J:223:THR:HA	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:56:SER:HB3	2:B:323:TYR:CE1	2.33	0.63
1:K:182:PRO:O	1:K:184:GLN:N	2.32	0.63
2:D:330:SER:OG	2:D:340:VAL:HG12	1.99	0.62
1:A:107:LEU:HD22	2:B:117:TYR:CD2	2.34	0.62
1:C:182:PRO:HG3	1:C:213:PHE:CG	2.35	0.62
1:G:329:ASN:HB3	1:G:332:ASP:HB3	1.80	0.62
2:L:210:LEU:HB2	2:L:223:THR:HA	1.82	0.61
1:A:96:PHE:CE2	1:A:126:LEU:HB3	2.35	0.61
1:K:255:VAL:HG13	1:K:258:ARG:NH2	2.14	0.61
2:F:33:LEU:HD22	2:F:54:ALA:HB1	1.82	0.61
1:G:331:GLU:O	1:G:335:ASN:ND2	2.32	0.61
1:K:322:MET:O	1:K:327:CYS:HB3	2.01	0.61
2:H:168:SER:OG	2:H:169:GLU:O	2.19	0.61
1:E:252:ASP:HB3	1:E:255:VAL:CG2	2.31	0.61
2:L:58:LEU:O	2:L:61:LEU:N	2.33	0.61
2:F:210:LEU:HB2	2:F:223:THR:HA	1.83	0.60
2:B:22:ARG:O	2:B:26:VAL:HG23	2.01	0.60
1:C:331:GLU:O	1:C:335:ASN:ND2	2.34	0.60
2:J:22:ARG:O	2:J:26:VAL:HG23	2.01	0.60
1:E:148:LEU:HB2	1:E:179:LEU:HD21	1.84	0.60
1:G:132:THR:HG21	2:H:101:LEU:HD21	1.84	0.60
1:I:312:ILE:O	1:I:316:VAL:HG23	2.02	0.59
2:D:312:TRP:O	2:D:315:SER:HB3	2.03	0.59
1:E:244:ILE:HG21	1:E:250:TYR:CE1	2.38	0.59
2:L:212:GLN:HA	2:L:212:GLN:NE2	2.16	0.59
1:C:89:GLN:HE21	2:D:35:VAL:HG22	1.67	0.58
2:F:258:ASN:OD1	2:F:268:VAL:CG2	2.49	0.58
1:I:107:LEU:HD22	2:J:117:TYR:CD2	2.37	0.58
2:H:210:LEU:HB2	2:H:223:THR:HA	1.86	0.58
2:J:171:ASP:OD1	2:J:173:ARG:HG3	2.04	0.58
1:A:59:ASP:HA	1:K:294:ASN:ND2	2.18	0.58
2:B:210:LEU:HB2	2:B:223:THR:HA	1.85	0.58
2:D:122:ILE:HG22	2:D:163:ALA:HA	1.86	0.58
1:E:151:GLU:HG3	1:E:175:LEU:HD11	1.84	0.58
1:A:58:LEU:HD23	1:A:63:TYR:CE2	2.39	0.58
1:A:311:LEU:C	1:A:311:LEU:HD23	2.24	0.58
1:I:136:PHE:O	1:I:140:LEU:HG	2.03	0.58
1:E:357:ARG:O	1:E:361:ARG:HG3	2.04	0.57
2:H:59:ASP:OD1	2:H:349:ARG:NH1	2.36	0.57
1:C:263:THR:HG21	1:C:280:LEU:HB2	1.86	0.57
1:G:251:SER:HA	1:G:287:ARG:HH22	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:171:ASP:OD1	2:H:173:ARG:HB2	2.03	0.57
2:F:236:LEU:CD2	2:F:245:LEU:HD21	2.35	0.57
1:G:232:ARG:NH2	1:G:272:HIS:O	2.36	0.57
2:H:303:ASP:OD1	2:H:306:VAL:HG22	2.04	0.57
2:J:212:GLN:HA	2:J:212:GLN:NE2	2.19	0.57
1:K:312:ILE:HG23	1:K:340:LEU:HD22	1.87	0.57
1:E:159:ILE:HG12	1:E:168:VAL:HG23	1.86	0.57
1:A:173:ARG:HD2	1:A:208:TRP:CD2	2.40	0.56
2:D:80:GLN:HE22	2:D:142:VAL:HA	1.69	0.56
2:L:89:ASN:O	2:L:91:ASP:N	2.38	0.56
2:L:273:SER:HB3	2:L:298:ILE:HD11	1.87	0.56
1:A:101:ASP:OD1	1:A:104:ARG:NH1	2.38	0.56
2:L:27:ARG:HA	2:L:30:GLN:HE21	1.70	0.56
2:J:116:PRO:HB2	2:J:117:TYR:CD2	2.40	0.56
2:J:257:GLN:NE2	2:J:257:GLN:HA	2.20	0.56
1:G:130:ASN:HA	2:H:45:THR:HG21	1.87	0.56
2:D:21:LEU:N	2:D:21:LEU:CD1	2.68	0.56
2:D:96:ARG:HD3	2:D:101:LEU:HD12	1.87	0.56
2:F:212:GLN:NE2	2:F:212:GLN:HA	2.20	0.56
1:C:251:SER:HA	1:C:287:ARG:NH2	2.21	0.56
2:D:171:ASP:OD1	2:D:173:ARG:HG3	2.06	0.56
1:G:312:ILE:HG23	1:G:340:LEU:HD22	1.88	0.55
1:A:93:SER:HB3	2:B:38:GLU:OE2	2.05	0.55
1:E:189:ILE:HD11	1:E:205:HIS:CD2	2.41	0.55
2:H:212:GLN:HA	2:H:212:GLN:NE2	2.22	0.55
2:B:76:ILE:HG21	2:B:132:LEU:HG	1.89	0.55
2:D:298:ILE:HG21	2:D:329:LEU:HD13	1.87	0.55
1:G:308:SER:HB2	1:G:309:PRO:HD2	1.88	0.55
2:H:77:TYR:HE2	2:H:137:ASP:OD2	1.88	0.55
1:E:325:ASN:O	1:E:326:GLN:C	2.45	0.55
2:L:48:LEU:O	2:L:51:ALA:HB3	2.06	0.55
1:C:78:VAL:O	1:C:104:ARG:HD2	2.06	0.54
2:L:171:ASP:OD1	2:L:173:ARG:HG3	2.07	0.54
1:A:189:ILE:HG21	1:A:206:ARG:HB2	1.89	0.54
1:A:103:PHE:HA	1:A:119:LEU:HD21	1.88	0.54
2:F:56:SER:HB3	2:F:323:TYR:CE1	2.43	0.54
2:F:77:TYR:CE1	2:F:141:ARG:HB2	2.42	0.54
2:F:195:LYS:HA	2:F:198:SER:HB3	1.90	0.54
1:K:351:ILE:HD11	2:L:256:GLN:HG2	1.88	0.54
1:I:331:GLU:O	1:I:335:ASN:ND2	2.40	0.54
2:D:82:LEU:HD11	2:D:108:SER:HA	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:77:TYR:CZ	2:H:141:ARG:HB2	2.42	0.54
1:K:350:THR:O	1:K:353:LYS:N	2.40	0.54
2:D:106:ASN:O	2:D:108:SER:N	2.41	0.54
1:K:130:ASN:HA	2:L:45:THR:HG21	1.88	0.54
2:H:360:SER:OG	2:H:361:TRP:N	2.39	0.54
1:G:110:ASP:OD1	1:G:112:ARG:NE	2.27	0.54
2:H:20:PHE:CZ	2:H:337:ILE:HD11	2.43	0.54
1:G:97:ARG:HG2	1:G:101:ASP:OD2	2.07	0.53
2:D:56:SER:HB3	2:D:323:TYR:CE1	2.42	0.53
2:D:103:ILE:HD11	2:D:118:ASP:HB2	1.89	0.53
1:K:240:ARG:CZ	1:K:262:TYR:CE2	2.90	0.53
2:D:21:LEU:N	2:D:21:LEU:HD13	2.24	0.53
1:C:351:ILE:CD1	2:D:257:GLN:O	2.57	0.53
2:F:212:GLN:HA	2:F:212:GLN:HE21	1.74	0.53
1:E:91:ILE:O	1:E:91:ILE:HD12	2.07	0.53
2:B:223:THR:HG22	2:B:279:THR:HG21	1.89	0.53
1:E:87:VAL:CG1	2:F:33:LEU:HD12	2.39	0.53
2:L:127:THR:O	2:L:131:CYS:HB2	2.08	0.53
1:A:223:VAL:HG11	1:A:240:ARG:HB2	1.90	0.53
2:F:236:LEU:HD22	2:F:245:LEU:HD21	1.90	0.53
2:H:56:SER:HB3	2:H:323:TYR:CE1	2.44	0.53
1:C:171:HIS:O	1:C:175:LEU:HG	2.09	0.53
2:D:27:ARG:HA	2:D:30:GLN:NE2	2.21	0.53
2:B:121:HIS:HA	2:B:163:ALA:O	2.08	0.53
2:B:197:ILE:HD11	2:B:235:LYS:HD3	1.89	0.53
1:G:148:LEU:HB2	1:G:179:LEU:HD21	1.91	0.53
2:H:269:ASP:HB3	2:H:272:TYR:HD2	1.74	0.53
2:L:219:HIS:CD2	2:L:263:ARG:HD3	2.44	0.53
1:G:127:ASN:OD1	1:G:129:ALA:HB3	2.09	0.52
2:J:209:GLY:HA3	2:J:218:SER:HB2	1.92	0.52
2:D:210:LEU:HB2	2:D:223:THR:HA	1.91	0.52
2:D:268:VAL:HG23	2:D:297:TYR:CZ	2.45	0.52
1:E:265:GLU:HA	1:E:265:GLU:OE1	2.08	0.52
1:C:336:LYS:O	1:C:340:LEU:HG	2.10	0.52
1:E:152:MET:HE3	1:E:172:ARG:CZ	2.40	0.52
1:G:350:THR:O	1:G:353:LYS:HB2	2.10	0.52
1:I:78:VAL:O	1:I:104:ARG:HD2	2.09	0.52
2:B:22:ARG:HB3	2:B:22:ARG:HH11	1.75	0.52
2:B:68:ASN:O	2:B:69:LYS:C	2.48	0.52
1:C:58:LEU:HD23	1:C:63:TYR:CE2	2.45	0.52
1:G:329:ASN:HB3	1:G:332:ASP:CB	2.40	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:121:HIS:HA	2:J:163:ALA:O	2.09	0.52
1:A:148:LEU:HB2	1:A:179:LEU:HD21	1.92	0.52
2:B:270:THR:OG1	2:B:301:THR:HG21	2.10	0.52
1:E:340:LEU:O	1:E:343:ILE:N	2.43	0.52
1:I:112:ARG:O	1:I:144:LEU:HD21	2.09	0.52
1:E:165:ASN:OD1	1:E:167:GLN:HB2	2.11	0.51
1:I:159:ILE:HG12	1:I:168:VAL:HG23	1.92	0.51
2:B:136:GLY:O	2:B:137:ASP:O	2.28	0.51
2:H:223:THR:HG22	2:H:279:THR:HG21	1.93	0.51
1:K:87:VAL:O	2:L:47:ARG:NH2	2.42	0.51
1:A:189:ILE:HD11	1:A:205:HIS:CD2	2.46	0.51
1:E:351:ILE:O	1:E:351:ILE:HG13	2.10	0.51
1:I:128:ALA:HB3	1:I:162:GLN:NE2	2.23	0.51
2:J:287:GLN:HG2	2:J:288:TYR:N	2.24	0.51
1:K:97:ARG:HG2	1:K:101:ASP:OD2	2.10	0.51
1:A:352:ARG:O	1:A:353:LYS:C	2.49	0.51
2:D:212:GLN:HA	2:D:212:GLN:HE21	1.75	0.51
1:A:149:GLN:NE2	1:A:184:GLN:OE1	2.44	0.51
1:C:230:ASP:OD1	1:C:232:ARG:HB2	2.11	0.51
2:F:29:PHE:O	2:F:33:LEU:HD22	2.10	0.51
2:L:64:LEU:HD11	2:L:134:ILE:HG22	1.93	0.51
1:K:148:LEU:HB2	1:K:179:LEU:HD21	1.92	0.51
1:A:121:ARG:NH1	1:A:121:ARG:HG3	2.25	0.51
1:A:251:SER:HA	1:A:287:ARG:NH2	2.25	0.51
1:C:222:TYR:CE2	1:C:226:LEU:CD1	2.94	0.51
2:D:39:ARG:HB2	2:D:39:ARG:HH11	1.75	0.51
1:E:250:TYR:HE1	1:E:259:GLU:HG3	1.76	0.51
2:F:259:GLY:H	2:F:268:VAL:HG11	1.75	0.51
2:H:122:ILE:HG22	2:H:163:ALA:HA	1.93	0.50
2:F:278:ALA:O	2:F:282:LEU:HG	2.11	0.50
2:H:21:LEU:CD1	2:H:21:LEU:N	2.75	0.50
1:I:351:ILE:CD1	2:J:257:GLN:O	2.54	0.50
2:D:357:LEU:HD22	2:D:361:TRP:CZ2	2.46	0.50
1:I:289:LEU:N	1:I:321:ASP:OD2	2.44	0.50
2:F:312:TRP:O	2:F:315:SER:HB3	2.12	0.50
1:G:74:ASP:OD1	1:G:74:ASP:N	2.43	0.50
1:K:78:VAL:HG23	1:K:105:ALA:HA	1.94	0.50
2:L:299:LEU:O	2:L:302:GLN:HB2	2.11	0.50
2:B:138:ASP:OD1	2:B:140:SER:HB3	2.11	0.50
1:C:87:VAL:HG12	1:C:88:VAL:HG23	1.94	0.50
2:D:20:PHE:CZ	2:D:337:ILE:HD11	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:92:ARG:HB3	2:H:119:SER:HB3	1.93	0.50
2:L:219:HIS:HD2	2:L:263:ARG:HD3	1.77	0.50
1:C:279:TYR:CE1	1:C:283:ILE:HD13	2.46	0.50
2:F:138:ASP:OD1	2:F:140:SER:HB3	2.12	0.50
1:I:78:VAL:HG23	1:I:105:ALA:HB2	1.93	0.50
2:B:200:ILE:HG21	2:B:230:LEU:HD11	1.94	0.50
1:G:248:THR:HB	1:G:255:VAL:HG21	1.94	0.49
2:H:92:ARG:HB3	2:H:119:SER:CB	2.42	0.49
2:J:168:SER:OG	2:J:169:GLU:O	2.27	0.49
1:A:251:SER:HA	1:A:287:ARG:HH22	1.77	0.49
2:D:156:LEU:HD21	2:D:162:CYS:SG	2.52	0.49
2:L:133:ILE:HG13	2:L:139:LEU:HD11	1.93	0.49
2:F:133:ILE:HG22	2:F:350:THR:CG2	2.42	0.49
1:G:252:ASP:HB3	1:G:255:VAL:HG23	1.94	0.49
1:E:214:ARG:HG2	1:E:214:ARG:NH1	2.25	0.49
2:J:197:ILE:HD11	2:J:235:LYS:HD3	1.93	0.49
2:D:55:LEU:HD22	2:D:135:LEU:HD21	1.95	0.49
1:G:329:ASN:CB	1:G:332:ASP:HB3	2.42	0.49
1:I:219:GLU:HB3	1:I:243:VAL:HG21	1.94	0.49
2:J:41:SER:OG	2:J:42:SER:N	2.45	0.49
2:J:76:ILE:HG21	2:J:132:LEU:HG	1.93	0.49
1:K:334:LEU:O	1:K:337:ALA:HB3	2.13	0.49
2:L:354:LEU:HG	2:L:358:HIS:CE1	2.48	0.49
2:L:186:ASN:HB2	2:L:358:HIS:CD2	2.47	0.49
2:L:269:ASP:HB3	2:L:272:TYR:HD2	1.77	0.49
2:D:268:VAL:O	2:D:312:TRP:HD1	1.96	0.49
1:K:138:ARG:HA	1:K:141:LEU:HD12	1.95	0.49
1:E:311:LEU:C	1:E:311:LEU:HD23	2.33	0.49
2:L:170:ASN:O	2:L:171:ASP:HB3	2.13	0.49
1:A:172:ARG:NE	1:A:185:GLU:OE2	2.44	0.48
2:D:106:ASN:O	2:D:106:ASN:ND2	2.46	0.48
2:D:255:ARG:HD3	2:D:261:HIS:NE2	2.28	0.48
2:D:266:LYS:CE	5:D:403:DPO:O7	2.59	0.48
2:J:33:LEU:HD22	2:J:54:ALA:HB1	1.95	0.48
2:J:266:LYS:CE	5:J:403:DPO:O2	2.62	0.48
1:A:311:LEU:HD23	1:A:311:LEU:O	2.14	0.48
2:B:357:LEU:HD22	2:B:361:TRP:CZ2	2.48	0.48
1:E:127:ASN:OD1	1:E:129:ALA:HB3	2.13	0.48
1:G:233:ASN:OD1	1:G:235:SER:HB2	2.13	0.48
1:I:351:ILE:HD11	2:J:256:GLN:HG2	1.94	0.48
1:I:240:ARG:HD3	1:I:279:TYR:CZ	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:138:ASP:O	2:J:139:LEU:HB2	2.13	0.48
2:L:309:PHE:HB2	2:L:321:HIS:O	2.13	0.48
2:B:271:CYS:HB3	2:B:321:HIS:CD2	2.49	0.48
2:J:84:THR:O	2:J:85:GLU:C	2.51	0.48
1:C:355:TYR:CE1	1:C:359:ILE:HD11	2.48	0.48
2:L:155:GLN:HB2	2:L:161:PHE:CE2	2.48	0.48
1:E:352:ARG:O	1:E:353:LYS:C	2.52	0.48
1:I:82:ASP:HB2	1:I:86:PRO:HB3	1.96	0.48
1:I:148:LEU:HB2	1:I:179:LEU:HD21	1.96	0.48
1:E:189:ILE:HD11	1:E:205:HIS:HD2	1.78	0.48
2:H:266:LYS:HE2	5:H:403:DPO:O1	2.14	0.48
1:E:150:GLU:HA	1:E:153:ASN:HD22	1.77	0.48
1:G:107:LEU:HD22	2:H:117:TYR:CD2	2.49	0.48
1:G:173:ARG:HD2	1:G:208:TRP:CD2	2.49	0.48
1:K:159:ILE:HG12	1:K:168:VAL:HG23	1.95	0.48
1:I:194:ASN:HD22	1:I:194:ASN:HA	1.48	0.47
1:G:136:PHE:O	1:G:140:LEU:HG	2.14	0.47
1:G:355:TYR:O	1:G:358:TYR:HB3	2.14	0.47
2:J:223:THR:HG22	2:J:279:THR:HG21	1.94	0.47
1:K:327:CYS:SG	1:K:328:ASP:N	2.87	0.47
2:F:106:ASN:O	2:F:108:SER:N	2.47	0.47
1:I:244:ILE:HG21	1:I:250:TYR:CZ	2.49	0.47
1:A:300:LEU:O	1:A:303:GLN:HB2	2.15	0.47
1:C:148:LEU:HB2	1:C:179:LEU:HD21	1.96	0.47
2:L:77:TYR:CZ	2:L:141:ARG:HB2	2.50	0.47
1:A:127:ASN:OD1	2:B:42:SER:HA	2.15	0.47
2:B:171:ASP:OD2	2:B:173:ARG:NH2	2.48	0.47
1:C:222:TYR:CZ	1:C:226:LEU:HD11	2.49	0.47
1:C:240:ARG:HD3	1:C:279:TYR:CZ	2.50	0.47
1:C:244:ILE:HG22	1:C:250:TYR:CE1	2.50	0.47
2:D:273:SER:HB3	2:D:294:ASN:OD1	2.14	0.47
1:G:252:ASP:HB3	1:G:255:VAL:CG2	2.45	0.47
2:J:122:ILE:HB	2:J:154:LEU:HD13	1.97	0.47
1:K:212:GLU:O	1:K:212:GLU:HG3	2.14	0.47
2:L:63:SER:O	2:L:66:VAL:HG22	2.15	0.47
2:H:291:PHE:HE2	2:H:332:MET:HA	1.80	0.47
2:F:129:LEU:HB2	2:F:184:MET:HE1	1.97	0.47
1:C:103:PHE:CZ	1:C:133:VAL:HG22	2.49	0.47
1:K:81:ASN:N	1:K:81:ASN:ND2	2.61	0.47
1:A:148:LEU:HD11	1:A:178:TRP:HE3	1.81	0.46
1:A:151:GLU:CG	1:A:175:LEU:HD11	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:251:SER:HA	1:K:287:ARG:HH22	1.79	0.46
1:C:79:PRO:HA	1:C:101:ASP:OD1	2.15	0.46
1:C:159:ILE:HG12	1:C:168:VAL:HG23	1.95	0.46
1:E:149:GLN:HE22	1:E:184:GLN:NE2	2.11	0.46
1:C:251:SER:HA	1:C:287:ARG:HH22	1.81	0.46
1:G:240:ARG:HD3	1:G:279:TYR:CZ	2.50	0.46
1:G:336:LYS:O	1:G:340:LEU:HG	2.16	0.46
2:H:269:ASP:HB3	2:H:272:TYR:CD2	2.49	0.46
2:L:286:PHE:O	2:L:289:THR:HG23	2.15	0.46
1:A:130:ASN:HA	2:B:45:THR:HG21	1.97	0.46
2:D:236:LEU:HD22	2:D:245:LEU:HD21	1.97	0.46
1:G:223:VAL:HG11	1:G:240:ARG:HB2	1.98	0.46
2:H:286:PHE:O	2:H:289:THR:HG23	2.16	0.46
2:J:266:LYS:HD2	2:J:267:PRO:HD2	1.96	0.46
2:L:269:ASP:HB3	2:L:272:TYR:CD2	2.51	0.46
1:C:62:THR:HA	1:E:292:TYR:HD2	1.79	0.46
2:D:320:LEU:HG	2:D:324:PHE:HD2	1.81	0.46
2:F:79:LEU:HD22	2:F:98:SER:HA	1.96	0.46
1:I:200:TYR:HE1	2:J:217:GLU:HB3	1.80	0.46
2:L:159:GLY:HA3	2:L:195:LYS:O	2.15	0.46
1:I:110:ASP:OD1	1:I:112:ARG:NE	2.44	0.46
2:J:76:ILE:O	2:J:79:LEU:HB2	2.16	0.46
1:K:263:THR:HG21	1:K:280:LEU:HB2	1.98	0.46
2:L:20:PHE:CE2	2:L:337:ILE:HD11	2.51	0.46
1:C:312:ILE:O	1:C:316:VAL:HG23	2.16	0.46
1:G:267:ILE:O	1:G:268:LYS:C	2.54	0.46
1:I:255:VAL:HG13	1:I:258:ARG:NH2	2.31	0.46
2:J:56:SER:HB3	2:J:323:TYR:CE1	2.50	0.46
2:D:88:SER:OG	2:D:89:ASN:N	2.49	0.46
1:E:344:LEU:HD13	1:E:356:TRP:CD2	2.50	0.46
2:F:29:PHE:CD1	2:F:54:ALA:HA	2.51	0.46
2:F:39:ARG:HH11	2:F:39:ARG:HB3	1.80	0.46
1:G:96:PHE:CE2	1:G:126:LEU:HB3	2.51	0.46
1:G:219:GLU:HA	1:G:219:GLU:OE1	2.16	0.46
2:J:150:GLY:O	2:J:153:ALA:HB3	2.15	0.46
1:K:136:PHE:CZ	1:K:140:LEU:HD21	2.51	0.46
1:K:172:ARG:HG3	1:K:172:ARG:HH11	1.81	0.46
1:K:189:ILE:HD11	1:K:205:HIS:CD2	2.50	0.46
1:A:239:GLN:HA	1:A:239:GLN:OE1	2.16	0.45
2:B:278:ALA:O	2:B:282:LEU:HG	2.16	0.45
2:D:22:ARG:O	2:D:26:VAL:HG23	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:155:GLN:HB2	2:F:161:PHE:CE2	2.51	0.45
2:H:290:ASN:OD1	2:H:293:LYS:HB2	2.16	0.45
2:J:303:ASP:CG	2:J:306:VAL:HG22	2.37	0.45
1:K:313:ALA:O	1:K:316:VAL:HB	2.15	0.45
2:L:55:LEU:HD12	2:L:131:CYS:SG	2.55	0.45
2:L:65:ASP:OD1	2:L:66:VAL:HG13	2.16	0.45
1:A:302:LEU:HB3	1:A:306:HIS:HB2	1.98	0.45
1:C:81:ASN:HD21	2:D:104:PRO:HA	1.81	0.45
2:L:298:ILE:HG21	2:L:329:LEU:HD13	1.98	0.45
2:B:138:ASP:OD1	2:B:140:SER:CB	2.65	0.45
1:A:344:LEU:HD13	1:A:356:TRP:CD2	2.52	0.45
1:C:311:LEU:CD2	1:C:315:LEU:HD11	2.46	0.45
1:I:77:PRO:HB2	1:I:101:ASP:HB3	1.98	0.45
2:L:28:PHE:CD1	2:L:28:PHE:C	2.90	0.45
1:G:303:GLN:O	1:G:307:SER:HB2	2.16	0.45
1:A:252:ASP:HB3	1:A:255:VAL:HG23	1.98	0.45
1:G:149:GLN:NE2	1:G:184:GLN:OE1	2.49	0.45
2:H:121:HIS:NE2	2:H:163:ALA:HB1	2.31	0.45
2:H:283:LEU:O	2:H:284:LYS:HB2	2.17	0.45
2:L:348:THR:HA	2:L:351:SER:OG	2.15	0.45
1:C:182:PRO:HG3	1:C:213:PHE:CD2	2.52	0.45
2:D:334:GLU:HG2	2:D:337:ILE:HD12	1.98	0.45
1:E:238:ASN:HA	2:F:206:TYR:HE2	1.81	0.45
1:I:274:GLU:OE1	2:J:264:PRO:HB3	2.17	0.45
2:L:260:TYR:CD1	2:L:260:TYR:N	2.85	0.45
1:C:120:THR:OG1	1:C:137:ARG:NH1	2.50	0.45
1:E:182:PRO:HD3	1:E:213:PHE:CE1	2.52	0.45
2:F:33:LEU:CD2	2:F:54:ALA:HB1	2.46	0.45
2:L:44:GLU:C	2:L:46:SER:H	2.21	0.45
1:E:311:LEU:HD23	1:E:311:LEU:O	2.16	0.45
2:J:22:ARG:NH2	2:J:61:LEU:O	2.50	0.45
1:K:136:PHE:O	1:K:140:LEU:HG	2.17	0.45
2:L:122:ILE:HG22	2:L:163:ALA:HA	1.98	0.45
2:B:295:ARG:NH1	2:B:295:ARG:HG2	2.31	0.45
1:G:134:TRP:CH2	1:G:155:ILE:CD1	2.99	0.45
1:K:107:LEU:HD22	2:L:117:TYR:CD2	2.51	0.45
2:B:35:VAL:CG1	2:B:36:LEU:N	2.80	0.44
2:D:146:ALA:O	2:D:149:ALA:HB3	2.18	0.44
2:D:269:ASP:HB3	2:D:272:TYR:HD2	1.82	0.44
1:E:107:LEU:O	1:E:110:ASP:N	2.50	0.44
1:E:232:ARG:HD3	2:F:265:ASN:OD1	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:334:LEU:CD1	1:G:338:LEU:HD11	2.48	0.44
2:J:40:TYR:HB3	2:J:43:LEU:HD12	1.98	0.44
2:L:303:ASP:HB3	2:L:307:GLY:O	2.17	0.44
1:C:255:VAL:HG13	1:C:258:ARG:HH12	1.82	0.44
1:C:355:TYR:O	1:C:358:TYR:HB3	2.16	0.44
1:E:112:ARG:O	1:E:144:LEU:HD21	2.18	0.44
1:K:88:VAL:O	2:L:47:ARG:NE	2.44	0.44
2:B:230:LEU:O	2:B:234:GLY:N	2.48	0.44
1:C:66:TYR:CE2	1:C:119:LEU:HD13	2.51	0.44
2:D:305:LEU:HD22	2:D:305:LEU:HA	1.88	0.44
2:H:201:ARG:HD2	2:H:239:VAL:O	2.17	0.44
1:I:350:THR:O	1:I:353:LYS:HB2	2.16	0.44
1:C:136:PHE:CE2	1:C:140:LEU:HD11	2.52	0.44
1:G:295:LEU:O	1:G:296:LEU:C	2.55	0.44
2:D:205:SER:HB3	2:D:207:ASP:OD1	2.18	0.44
1:E:107:LEU:O	1:E:109:ARG:N	2.50	0.44
2:F:115:HIS:ND1	2:F:116:PRO:HD2	2.32	0.44
2:H:271:CYS:HB3	2:H:321:HIS:CD2	2.53	0.44
2:J:106:ASN:O	2:J:108:SER:N	2.50	0.44
2:L:232:LEU:HD13	2:L:343:ALA:HB1	1.99	0.44
2:D:39:ARG:HB2	2:D:39:ARG:NH1	2.32	0.44
2:J:256:GLN:HB2	2:J:260:TYR:CE2	2.53	0.44
2:L:249:LYS:HD3	2:L:285:ILE:HG21	1.98	0.44
2:L:263:ARG:HG3	2:L:266:LYS:HG3	2.00	0.44
2:D:156:LEU:C	2:D:158:ASP:H	2.21	0.44
1:E:101:ASP:OD1	1:E:104:ARG:NH1	2.50	0.44
2:F:171:ASP:OD1	2:F:173:ARG:HB2	2.18	0.44
2:H:64:LEU:HD23	2:H:64:LEU:HA	1.77	0.44
1:C:223:VAL:HG11	1:C:240:ARG:HB2	1.99	0.44
1:K:220:LEU:HB2	1:K:243:VAL:HG11	2.00	0.44
1:G:144:LEU:N	1:G:144:LEU:HD23	2.33	0.44
2:L:56:SER:HB3	2:L:323:TYR:CE1	2.52	0.44
2:B:295:ARG:HG2	2:B:295:ARG:HH11	1.83	0.43
2:D:273:SER:HB3	2:D:298:ILE:HD11	1.99	0.43
1:E:152:MET:HE3	1:E:172:ARG:NH1	2.32	0.43
2:B:199:TYR:OH	2:B:213:GLY:HA3	2.18	0.43
2:L:297:TYR:O	2:L:300:SER:N	2.50	0.43
1:A:121:ARG:HH11	1:A:121:ARG:CG	2.30	0.43
1:C:92:TYR:HA	2:D:38:GLU:HG3	2.00	0.43
2:D:83:PRO:HA	2:D:89:ASN:OD1	2.17	0.43
2:D:212:GLN:NE2	2:D:222:SER:OG	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:216:TRP:O	1:E:218:ASN:N	2.51	0.43
2:F:121:HIS:CE1	2:F:163:ALA:HB1	2.53	0.43
2:H:219:HIS:NE2	5:H:403:DPO:O2	2.51	0.43
1:K:223:VAL:HG11	1:K:240:ARG:HB2	1.99	0.43
1:K:303:GLN:O	1:K:307:SER:HB2	2.19	0.43
1:A:159:ILE:HG21	1:A:188:PHE:HZ	1.82	0.43
2:D:64:LEU:HD23	2:D:64:LEU:HA	1.86	0.43
2:F:329:LEU:HD12	2:F:329:LEU:HA	1.88	0.43
1:G:252:ASP:C	1:G:254:ALA:H	2.21	0.43
2:J:27:ARG:O	2:J:30:GLN:HB2	2.19	0.43
1:E:244:ILE:HG21	1:E:250:TYR:CZ	2.52	0.43
2:F:58:LEU:O	2:F:61:LEU:N	2.52	0.43
1:G:107:LEU:O	1:G:108:GLN:C	2.56	0.43
1:K:116:ALA:O	1:K:119:LEU:HB3	2.19	0.43
1:A:227:LEU:HD12	1:A:262:TYR:OH	2.18	0.43
2:D:58:LEU:O	2:D:61:LEU:N	2.50	0.43
2:D:299:LEU:O	2:D:302:GLN:HB2	2.18	0.43
1:E:151:GLU:O	1:E:154:TYR:HB3	2.19	0.43
1:G:106:VAL:HG11	1:G:116:ALA:HB1	2.01	0.43
1:I:321:ASP:O	1:I:325:ASN:ND2	2.52	0.43
2:L:227:ILE:HD13	2:L:227:ILE:HA	1.93	0.43
2:L:270:THR:OG1	2:L:301:THR:HG21	2.19	0.43
1:A:66:TYR:CE2	1:A:119:LEU:HD13	2.54	0.43
1:C:144:LEU:N	1:C:144:LEU:HD23	2.33	0.43
1:C:355:TYR:CZ	1:C:359:ILE:HD11	2.54	0.43
1:E:114:GLU:HA	1:E:144:LEU:CD1	2.49	0.43
1:E:216:TRP:O	1:E:217:ASP:C	2.57	0.43
1:G:251:SER:HA	1:G:287:ARG:NH2	2.33	0.43
2:H:217:GLU:OE1	2:H:263:ARG:NH1	2.51	0.43
2:J:146:ALA:O	2:J:149:ALA:HB3	2.18	0.43
2:B:76:ILE:CD1	2:B:131:CYS:HB3	2.49	0.43
2:B:230:LEU:HD22	2:B:239:VAL:HG21	2.01	0.43
2:D:291:PHE:HD2	2:D:332:MET:SD	2.42	0.43
2:F:21:LEU:N	2:F:21:LEU:CD1	2.82	0.43
2:F:84:THR:O	2:F:85:GLU:C	2.57	0.43
1:I:165:ASN:O	1:I:168:VAL:HG22	2.19	0.43
2:J:207:ASP:OD1	2:J:218:SER:OG	2.33	0.43
1:K:127:ASN:OD1	2:L:42:SER:HA	2.18	0.43
2:L:210:LEU:O	2:L:218:SER:HA	2.19	0.43
1:C:312:ILE:HG23	1:C:340:LEU:HD22	2.01	0.43
1:E:56:LEU:HD21	1:E:63:TYR:HA	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:106:ASN:O	2:H:108:SER:N	2.52	0.43
2:L:158:ASP:C	2:L:158:ASP:OD1	2.58	0.43
1:C:357:ARG:O	1:C:361:ARG:HG3	2.18	0.43
2:F:34:GLN:HB3	2:F:35:VAL:HG23	2.01	0.43
1:G:106:VAL:HG11	1:G:116:ALA:CB	2.49	0.43
1:G:216:TRP:O	1:G:218:ASN:N	2.52	0.43
2:H:250:ARG:O	2:H:254:MET:HG2	2.18	0.43
1:K:337:ALA:O	1:K:340:LEU:HB2	2.19	0.43
2:L:39:ARG:NH1	2:L:39:ARG:HB3	2.34	0.43
2:L:192:ASP:OD2	2:L:195:LYS:HE3	2.19	0.43
2:B:331:LEU:HD13	2:B:340:VAL:CG1	2.49	0.42
1:C:130:ASN:HA	2:D:45:THR:HG21	2.01	0.42
2:D:152:ARG:HD3	2:D:189:SER:O	2.19	0.42
1:G:159:ILE:HG21	1:G:188:PHE:HZ	1.83	0.42
1:K:136:PHE:CE2	1:K:140:LEU:HD11	2.53	0.42
2:F:90:LEU:HD23	2:F:90:LEU:HA	1.87	0.42
1:I:151:GLU:C	1:I:153:ASN:H	2.23	0.42
1:I:277:TRP:CH2	1:I:311:LEU:HG	2.54	0.42
1:K:118:LYS:O	1:K:121:ARG:HB3	2.18	0.42
2:B:261:HIS:ND1	2:B:266:LYS:O	2.52	0.42
2:B:341:HIS:ND1	2:B:341:HIS:C	2.73	0.42
1:C:330:LYS:O	1:C:332:ASP:N	2.52	0.42
1:I:296:LEU:HD22	1:I:322:MET:CE	2.49	0.42
1:K:334:LEU:O	1:K:338:LEU:HG	2.19	0.42
2:L:106:ASN:O	2:L:108:SER:N	2.52	0.42
2:B:27:ARG:HE	2:B:30:GLN:HE21	1.68	0.42
1:G:189:ILE:HG21	1:G:206:ARG:HB2	2.00	0.42
1:K:273:ASN:O	1:K:274:GLU:C	2.57	0.42
2:L:151:LEU:HD12	2:L:181:ILE:CG2	2.47	0.42
2:L:224:PHE:HB2	2:L:275:TRP:O	2.20	0.42
2:B:20:PHE:HA	2:B:302:GLN:OE1	2.20	0.42
1:E:152:MET:CE	1:E:172:ARG:CZ	2.97	0.42
2:F:159:GLY:HA3	2:F:195:LYS:O	2.19	0.42
1:G:78:VAL:HG12	1:G:79:PRO:HD2	2.01	0.42
1:G:144:LEU:HB2	1:G:146:LYS:HG2	2.00	0.42
1:G:185:GLU:HG3	1:G:209:VAL:HG21	2.02	0.42
2:H:299:LEU:HD22	2:H:302:GLN:NE2	2.35	0.42
2:L:76:ILE:O	2:L:79:LEU:HB2	2.19	0.42
2:L:128:GLY:O	2:L:131:CYS:N	2.53	0.42
1:A:112:ARG:O	1:A:144:LEU:HD21	2.18	0.42
1:A:344:LEU:HD13	1:A:356:TRP:CE2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:232:LEU:HD13	2:D:343:ALA:HB1	2.00	0.42
1:I:312:ILE:HG23	1:I:340:LEU:HD22	2.02	0.42
2:L:228:ALA:HA	2:L:231:CYS:HB2	2.02	0.42
2:L:266:LYS:HE2	5:L:403:DPO:O2	2.19	0.42
2:B:40:TYR:O	2:B:42:SER:N	2.52	0.42
2:D:297:TYR:OH	2:D:312:TRP:HA	2.20	0.42
2:J:82:LEU:HD11	2:J:108:SER:HA	2.02	0.42
2:L:224:PHE:CD1	2:L:224:PHE:C	2.93	0.42
2:B:173:ARG:O	2:B:176:TYR:HB3	2.20	0.42
1:C:112:ARG:HA	1:C:140:LEU:CD2	2.50	0.42
1:C:232:ARG:HA	1:C:273:ASN:OD1	2.20	0.42
1:C:341:CYS:O	1:C:344:LEU:HB2	2.19	0.42
1:C:350:THR:O	1:C:353:LYS:HB2	2.19	0.42
2:D:329:LEU:HD12	2:D:329:LEU:HA	1.88	0.42
1:E:103:PHE:HA	1:E:119:LEU:HD21	2.01	0.42
1:G:155:ILE:HD12	1:G:155:ILE:HA	1.91	0.42
1:G:312:ILE:O	1:G:315:LEU:HB2	2.20	0.42
1:G:339:GLU:O	1:G:343:ILE:HD12	2.19	0.42
2:J:92:ARG:NH1	2:J:119:SER:HB3	2.34	0.42
1:K:219:GLU:OE1	1:K:219:GLU:HA	2.19	0.42
1:C:141:LEU:HD11	1:C:151:GLU:HG2	2.00	0.42
1:C:222:TYR:CE2	1:C:226:LEU:HD11	2.55	0.42
1:G:80:GLN:NE2	2:H:100:TYR:HA	2.34	0.42
1:G:103:PHE:HA	1:G:119:LEU:HD21	2.01	0.42
1:G:120:THR:OG1	1:G:137:ARG:NH1	2.52	0.42
2:H:30:GLN:O	2:H:34:GLN:HG2	2.19	0.42
1:K:210:ILE:O	1:K:214:ARG:HA	2.19	0.42
1:K:331:GLU:O	1:K:335:ASN:ND2	2.53	0.42
2:B:260:TYR:N	2:B:260:TYR:CD1	2.88	0.42
2:F:64:LEU:HD23	2:F:64:LEU:HA	1.83	0.42
2:F:233:MET:O	2:F:235:LYS:HG3	2.20	0.42
1:G:340:LEU:O	1:G:343:ILE:N	2.53	0.42
1:K:87:VAL:HG12	1:K:88:VAL:HG23	2.01	0.42
1:K:348:LYS:HD3	1:K:348:LYS:HA	1.92	0.42
1:A:107:LEU:O	1:A:108:GLN:C	2.58	0.41
2:B:40:TYR:O	2:B:41:SER:C	2.58	0.41
1:E:151:GLU:CG	1:E:175:LEU:HD11	2.50	0.41
2:F:44:GLU:C	2:F:46:SER:H	2.23	0.41
2:F:263:ARG:HG3	2:F:266:LYS:HG3	2.01	0.41
2:H:197:ILE:CD1	2:H:235:LYS:HD3	2.49	0.41
2:H:298:ILE:HG21	2:H:329:LEU:HD13	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:71:GLU:H	1:I:71:GLU:CD	2.23	0.41
2:J:273:SER:HB3	2:J:294:ASN:OD1	2.20	0.41
1:K:251:SER:HA	1:K:287:ARG:NH2	2.35	0.41
2:D:312:TRP:HB3	2:D:313:PRO:HD2	2.02	0.41
1:G:239:GLN:O	1:G:242:PHE:HB3	2.20	0.41
2:J:341:HIS:ND1	2:J:344:LEU:HB3	2.36	0.41
1:K:149:GLN:NE2	1:K:184:GLN:OE1	2.53	0.41
2:L:184:MET:C	2:L:186:ASN:H	2.23	0.41
2:L:357:LEU:HD23	2:L:357:LEU:O	2.20	0.41
1:A:86:PRO:CG	1:A:89:GLN:NE2	2.84	0.41
1:C:252:ASP:OD2	1:C:255:VAL:HG23	2.20	0.41
2:D:171:ASP:OD2	2:D:173:ARG:NH1	2.54	0.41
1:E:74:ASP:OD1	1:E:74:ASP:N	2.44	0.41
1:E:227:LEU:HG	1:E:236:VAL:CG1	2.51	0.41
1:E:333:ILE:HA	1:E:336:LYS:HD2	2.02	0.41
2:F:86:ASP:OD1	2:F:86:ASP:C	2.58	0.41
1:G:302:LEU:HD22	1:G:306:HIS:HB2	2.01	0.41
1:I:74:ASP:OD1	1:I:74:ASP:N	2.53	0.41
1:A:121:ARG:NH1	1:A:121:ARG:CG	2.82	0.41
1:A:311:LEU:C	1:A:311:LEU:CD2	2.89	0.41
2:B:312:TRP:HB3	2:B:313:PRO:HD2	2.01	0.41
2:D:84:THR:O	2:D:85:GLU:C	2.59	0.41
1:G:361:ARG:O	1:G:365:SER:OG	2.37	0.41
2:H:256:GLN:HB2	2:H:260:TYR:CE2	2.56	0.41
2:H:284:LYS:O	2:H:286:PHE:N	2.53	0.41
1:A:189:ILE:HD11	1:A:205:HIS:HD2	1.85	0.41
2:D:268:VAL:O	2:D:312:TRP:CD1	2.74	0.41
1:E:107:LEU:HD23	1:E:107:LEU:HA	1.93	0.41
2:H:357:LEU:HD22	2:H:361:TRP:CZ2	2.55	0.41
1:I:96:PHE:CD2	1:I:126:LEU:HD22	2.55	0.41
2:J:263:ARG:O	2:J:266:LYS:HB2	2.21	0.41
1:K:127:ASN:OD1	1:K:129:ALA:HB3	2.20	0.41
1:A:107:LEU:O	1:A:109:ARG:N	2.53	0.41
2:F:160:SER:HB3	2:F:199:TYR:CE1	2.55	0.41
2:H:77:TYR:CE1	2:H:141:ARG:HB2	2.55	0.41
1:K:106:VAL:HG11	1:K:116:ALA:HB1	2.03	0.41
1:K:198:LYS:O	2:L:263:ARG:NH2	2.53	0.41
1:A:92:TYR:CE1	1:A:96:PHE:CE1	3.09	0.41
1:A:148:LEU:CD1	1:A:178:TRP:HE3	2.34	0.41
1:A:319:TYR:O	1:A:323:LEU:HG	2.21	0.41
2:D:258:ASN:ND2	2:D:258:ASN:N	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:333:ILE:O	1:E:336:LYS:N	2.53	0.41
2:H:236:LEU:HD22	2:H:245:LEU:HD21	2.03	0.41
2:L:89:ASN:O	2:L:90:LEU:C	2.59	0.41
1:A:206:ARG:HE	1:A:219:GLU:CD	2.24	0.41
2:J:197:ILE:CD1	2:J:235:LYS:HD3	2.50	0.41
1:K:83:GLY:HA3	2:L:105:PHE:CE1	2.56	0.41
1:K:311:LEU:CD2	1:K:315:LEU:HD11	2.51	0.41
1:K:356:TRP:HA	1:K:356:TRP:CE3	2.54	0.41
1:A:103:PHE:CZ	1:A:133:VAL:HG22	2.56	0.41
1:A:206:ARG:NE	1:A:219:GLU:OE2	2.50	0.41
1:A:238:ASN:O	1:A:239:GLN:C	2.60	0.41
2:B:232:LEU:HD13	2:B:343:ALA:HB1	2.02	0.41
1:C:58:LEU:HD23	1:C:58:LEU:HA	1.87	0.41
1:C:107:LEU:O	1:C:108:GLN:C	2.58	0.41
1:E:255:VAL:HG13	1:E:258:ARG:NH2	2.35	0.41
1:G:214:ARG:O	1:G:214:ARG:HD3	2.20	0.41
1:G:219:GLU:HB3	1:G:243:VAL:HG21	2.01	0.41
2:H:299:LEU:HD21	2:H:329:LEU:HD21	2.02	0.41
1:I:292:TYR:O	1:I:294:ASN:N	2.54	0.41
2:J:270:THR:OG1	2:J:301:THR:HG21	2.20	0.41
2:J:330:SER:OG	2:J:338:CYS:O	2.22	0.41
1:K:173:ARG:CZ	1:K:208:TRP:CD1	3.04	0.41
2:D:255:ARG:HD3	2:D:261:HIS:CD2	2.56	0.41
1:E:351:ILE:O	1:E:351:ILE:CG1	2.68	0.41
2:H:83:PRO:HA	2:H:89:ASN:OD1	2.21	0.41
1:I:112:ARG:HA	1:I:140:LEU:CD2	2.51	0.41
2:J:20:PHE:C	2:J:21:LEU:HD12	2.41	0.41
2:J:21:LEU:CD1	2:J:21:LEU:N	2.84	0.41
2:L:220:GLY:N	2:L:262:GLY:O	2.53	0.41
1:A:152:MET:HE3	1:A:152:MET:HB3	1.99	0.40
2:D:33:LEU:HD22	2:D:54:ALA:HB1	2.03	0.40
2:D:149:ALA:HA	2:D:152:ARG:NH2	2.35	0.40
2:J:64:LEU:HD23	2:J:64:LEU:HA	1.80	0.40
1:A:144:LEU:N	1:A:144:LEU:HD23	2.36	0.40
1:G:256:LEU:O	1:G:257:GLU:C	2.59	0.40
1:I:244:ILE:HG21	1:I:250:TYR:CE1	2.57	0.40
1:K:74:ASP:OD1	1:K:74:ASP:N	2.55	0.40
1:A:89:GLN:HB3	2:B:35:VAL:HG22	2.04	0.40
1:E:159:ILE:HG12	1:E:168:VAL:CG2	2.51	0.40
2:F:133:ILE:HG22	2:F:350:THR:HG23	2.02	0.40
1:G:206:ARG:NE	1:G:219:GLU:OE2	2.41	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:311:LYS:HG3	2:H:312:TRP:CD2	2.56	0.40
2:H:341:HIS:ND1	2:H:341:HIS:C	2.75	0.40
1:I:87:VAL:HG23	2:J:75:TRP:CG	2.56	0.40
1:A:287:ARG:O	1:A:291:ARG:HD3	2.22	0.40
1:E:339:GLU:O	1:E:343:ILE:HG13	2.22	0.40
2:F:28:PHE:O	2:F:31:ARG:N	2.55	0.40
2:F:257:GLN:HB2	2:F:258:ASN:H	1.74	0.40
1:G:352:ARG:O	1:G:353:LYS:C	2.59	0.40
2:J:96:ARG:NE	2:J:118:ASP:OD1	2.48	0.40
2:L:176:TYR:CZ	2:L:180:CYS:SG	3.15	0.40
2:B:136:GLY:O	2:B:137:ASP:C	2.60	0.40
2:B:151:LEU:O	2:B:154:LEU:HB2	2.21	0.40
2:B:176:TYR:HA	2:B:229:SER:OG	2.22	0.40
2:F:138:ASP:OD1	2:F:140:SER:CB	2.69	0.40
2:F:348:THR:HA	2:F:351:SER:OG	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	312/314 (99%)	266 (85%)	40 (13%)	6 (2%)	8	40
1	C	312/314 (99%)	257 (82%)	47 (15%)	8 (3%)	5	33
1	E	312/314 (99%)	266 (85%)	37 (12%)	9 (3%)	4	32
1	G	312/314 (99%)	255 (82%)	52 (17%)	5 (2%)	9	43
1	I	312/314 (99%)	254 (81%)	42 (14%)	16 (5%)	2	21
1	K	312/314 (99%)	255 (82%)	48 (15%)	9 (3%)	4	32
2	B	344/346 (99%)	297 (86%)	39 (11%)	8 (2%)	6	36
2	D	344/346 (99%)	301 (88%)	34 (10%)	9 (3%)	5	33

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	F	344/346 (99%)	301 (88%)	38 (11%)	5 (2%)	10	44
2	H	344/346 (99%)	296 (86%)	37 (11%)	11 (3%)	4	31
2	J	344/346 (99%)	299 (87%)	40 (12%)	5 (2%)	10	44
2	L	344/346 (99%)	281 (82%)	50 (14%)	13 (4%)	3	27
All	All	3936/3960 (99%)	3328 (85%)	504 (13%)	104 (3%)	5	33

All (104) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	110	ASP
1	A	326	GLN
1	A	329	ASN
2	B	137	ASP
1	C	304	PRO
1	C	330	LYS
1	E	110	ASP
1	E	217	ASP
1	E	353	LYS
1	G	185	GLU
1	I	217	ASP
1	I	304	PRO
1	I	326	GLN
1	I	329	ASN
1	K	217	ASP
2	L	34	GLN
2	L	90	LEU
1	A	108	GLN
1	A	214	ARG
2	B	34	GLN
2	B	46	SER
2	B	171	ASP
1	C	214	ARG
1	C	217	ASP
1	E	108	GLN
1	E	253	ARG
1	E	304	PRO
1	E	326	GLN
1	E	329	ASN
1	E	330	LYS
2	F	22	ARG
2	F	109	LYS

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Mol	Chain	Res	Type
1	G	127	ASN
2	H	284	LYS
2	H	285	ILE
2	H	333	GLU
2	H	362	LYS
1	I	214	ARG
1	I	252	ASP
2	J	41	SER
1	K	108	GLN
1	K	183	SER
1	K	214	ARG
1	K	230	ASP
1	K	249	GLY
2	L	91	ASP
2	L	105	PHE
2	L	109	LYS
2	L	333	GLU
2	B	41	SER
2	B	109	LYS
2	D	362	LYS
2	F	100	TYR
2	H	38	GLU
2	H	108	SER
1	I	84	PRO
1	I	199	ASN
1	I	290	SER
1	I	330	LYS
2	J	22	ARG
2	J	85	GLU
2	J	362	LYS
2	L	100	TYR
2	L	108	SER
2	L	126	TYR
1	A	180	LYS
1	C	252	ASP
2	D	41	SER
2	D	108	SER
1	G	108	GLN
2	H	34	GLN
2	H	171	ASP
1	I	327	CYS
1	I	331	GLU

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Mol	Chain	Res	Type
2	J	157	GLU
1	K	304	PRO
2	L	111	PRO
1	C	84	PRO
1	C	199	ASN
2	D	59	ASP
2	D	107	PRO
2	D	284	LYS
2	F	85	GLU
2	F	110	ASN
1	G	353	LYS
2	H	66	VAL
1	I	142	ARG
1	I	196	ASP
1	K	127	ASN
1	K	329	ASN
2	B	258	ASN
2	B	302	GLN
2	D	34	GLN
2	D	38	GLU
2	H	91	ASP
2	L	171	ASP
2	L	128	GLY
1	C	182	PRO
2	L	66	VAL
2	H	115	HIS
1	I	293	PRO
1	I	351	ILE
2	D	111	PRO
1	G	304	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	280/293 (96%)	260 (93%)	20 (7%)	14 45

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	280/293 (96%)	258 (92%)	22 (8%)	12	42
1	E	281/293 (96%)	258 (92%)	23 (8%)	11	41
1	G	280/293 (96%)	259 (92%)	21 (8%)	13	43
1	I	280/293 (96%)	263 (94%)	17 (6%)	18	50
1	K	280/293 (96%)	258 (92%)	22 (8%)	12	42
2	B	289/301 (96%)	256 (89%)	33 (11%)	5	27
2	D	289/301 (96%)	260 (90%)	29 (10%)	7	32
2	F	289/301 (96%)	262 (91%)	27 (9%)	9	35
2	H	289/301 (96%)	258 (89%)	31 (11%)	6	30
2	J	289/301 (96%)	263 (91%)	26 (9%)	9	37
2	L	289/301 (96%)	263 (91%)	26 (9%)	9	37
All	All	3415/3564 (96%)	3118 (91%)	297 (9%)	10	39

All (297) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	55	PHE
1	A	67	ARG
1	A	71	GLU
1	A	82	ASP
1	A	93	SER
1	A	107	LEU
1	A	108	GLN
1	A	121	ARG
1	A	156	ILE
1	A	173	ARG
1	A	191	ASP
1	A	194	ASN
1	A	214	ARG
1	A	231	VAL
1	A	232	ARG
1	A	235	SER
1	A	275	SER
1	A	287	ARG
1	A	303	GLN
1	A	354	GLU
2	B	22	ARG
2	B	31	ARG

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Mol	Chain	Res	Type
2	B	33	LEU
2	B	36	LEU
2	B	45	THR
2	B	56	SER
2	B	65	ASP
2	B	90	LEU
2	B	96	ARG
2	B	113	THR
2	B	130	SER
2	B	151	LEU
2	B	158	ASP
2	B	204	MET
2	B	216	LEU
2	B	232	LEU
2	B	255	ARG
2	B	258	ASN
2	B	261	HIS
2	B	263	ARG
2	B	284	LYS
2	B	292	GLU
2	B	300	SER
2	B	305	LEU
2	B	329	LEU
2	B	331	LEU
2	B	335	SER
2	B	338	CYS
2	B	341	HIS
2	B	351	SER
2	B	353	ARG
2	B	357	LEU
2	B	360	SER
1	C	55	PHE
1	C	67	ARG
1	C	71	GLU
1	C	81	ASN
1	C	107	LEU
1	C	108	GLN
1	C	121	ARG
1	C	144	LEU
1	C	177	GLU
1	C	191	ASP
1	C	194	ASN

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Mol	Chain	Res	Type
1	C	214	ARG
1	C	220	LEU
1	C	240	ARG
1	C	269	LEU
1	C	287	ARG
1	C	290	SER
1	C	304	PRO
1	C	327	CYS
1	C	350	THR
1	C	365	SER
1	C	368	SER
2	D	21	LEU
2	D	33	LEU
2	D	45	THR
2	D	56	SER
2	D	96	ARG
2	D	130	SER
2	D	139	LEU
2	D	151	LEU
2	D	158	ASP
2	D	216	LEU
2	D	232	LEU
2	D	236	LEU
2	D	255	ARG
2	D	258	ASN
2	D	261	HIS
2	D	263	ARG
2	D	284	LYS
2	D	305	LEU
2	D	306	VAL
2	D	311	LYS
2	D	312	TRP
2	D	329	LEU
2	D	330	SER
2	D	331	LEU
2	D	338	CYS
2	D	340	VAL
2	D	349	ARG
2	D	353	ARG
2	D	357	LEU
1	E	58	LEU
1	E	67	ARG

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Mol	Chain	Res	Type
1	E	71	GLU
1	E	81	ASN
1	E	85	SER
1	E	98	ASP
1	E	108	GLN
1	E	109	ARG
1	E	121	ARG
1	E	160	GLU
1	E	194	ASN
1	E	214	ARG
1	E	220	LEU
1	E	224	ASP
1	E	235	SER
1	E	248	THR
1	E	269	LEU
1	E	287	ARG
1	E	304	PRO
1	E	305	SER
1	E	330	LYS
1	E	350	THR
1	E	351	ILE
2	F	22	ARG
2	F	27	ARG
2	F	30	GLN
2	F	31	ARG
2	F	33	LEU
2	F	39	ARG
2	F	45	THR
2	F	106	ASN
2	F	113	THR
2	F	130	SER
2	F	151	LEU
2	F	216	LEU
2	F	232	LEU
2	F	236	LEU
2	F	253	ILE
2	F	255	ARG
2	F	258	ASN
2	F	268	VAL
2	F	284	LYS
2	F	287	GLN
2	F	305	LEU

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Mol	Chain	Res	Type
2	F	306	VAL
2	F	329	LEU
2	F	331	LEU
2	F	348	THR
2	F	353	ARG
2	F	360	SER
1	G	58	LEU
1	G	67	ARG
1	G	71	GLU
1	G	78	VAL
1	G	82	ASP
1	G	107	LEU
1	G	109	ARG
1	G	127	ASN
1	G	160	GLU
1	G	173	ARG
1	G	177	GLU
1	G	191	ASP
1	G	194	ASN
1	G	214	ARG
1	G	251	SER
1	G	269	LEU
1	G	287	ARG
1	G	290	SER
1	G	334	LEU
1	G	348	LYS
1	G	365	SER
2	H	21	LEU
2	H	33	LEU
2	H	36	LEU
2	H	39	ARG
2	H	56	SER
2	H	99	SER
2	H	113	THR
2	H	130	SER
2	H	139	LEU
2	H	151	LEU
2	H	158	ASP
2	H	205	SER
2	H	216	LEU
2	H	232	LEU
2	H	236	LEU

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Mol	Chain	Res	Type
2	H	255	ARG
2	H	261	HIS
2	H	263	ARG
2	H	287	GLN
2	H	292	GLU
2	H	296	ASN
2	H	300	SER
2	H	302	GLN
2	H	305	LEU
2	H	329	LEU
2	H	331	LEU
2	H	335	SER
2	H	348	THR
2	H	353	ARG
2	H	357	LEU
2	H	360	SER
1	I	55	PHE
1	I	67	ARG
1	I	71	GLU
1	I	74	ASP
1	I	106	VAL
1	I	107	LEU
1	I	109	ARG
1	I	121	ARG
1	I	143	SER
1	I	194	ASN
1	I	214	ARG
1	I	232	ARG
1	I	269	LEU
1	I	287	ARG
1	I	290	SER
1	I	304	PRO
1	I	332	ASP
2	J	22	ARG
2	J	27	ARG
2	J	33	LEU
2	J	65	ASP
2	J	88	SER
2	J	99	SER
2	J	130	SER
2	J	151	LEU
2	J	204	MET

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Mol	Chain	Res	Type
2	J	216	LEU
2	J	232	LEU
2	J	236	LEU
2	J	255	ARG
2	J	261	HIS
2	J	263	ARG
2	J	284	LYS
2	J	287	GLN
2	J	300	SER
2	J	305	LEU
2	J	315	SER
2	J	329	LEU
2	J	331	LEU
2	J	338	CYS
2	J	349	ARG
2	J	353	ARG
2	J	357	LEU
1	K	58	LEU
1	K	71	GLU
1	K	81	ASN
1	K	98	ASP
1	K	107	LEU
1	K	109	ARG
1	K	121	ARG
1	K	132	THR
1	K	160	GLU
1	K	172	ARG
1	K	177	GLU
1	K	214	ARG
1	K	232	ARG
1	K	251	SER
1	K	287	ARG
1	K	304	PRO
1	K	308	SER
1	K	327	CYS
1	K	328	ASP
1	K	330	LYS
1	K	352	ARG
1	K	358	TYR
2	L	21	LEU
2	L	33	LEU
2	L	39	ARG

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Mol	Chain	Res	Type
2	L	84	THR
2	L	99	SER
2	L	130	SER
2	L	131	CYS
2	L	151	LEU
2	L	158	ASP
2	L	216	LEU
2	L	236	LEU
2	L	255	ARG
2	L	258	ASN
2	L	260	TYR
2	L	261	HIS
2	L	263	ARG
2	L	279	THR
2	L	284	LYS
2	L	305	LEU
2	L	306	VAL
2	L	329	LEU
2	L	331	LEU
2	L	335	SER
2	L	347	SER
2	L	351	SER
2	L	353	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (65) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	89	GLN
1	A	194	ASN
1	A	201	HIS
1	A	204	GLN
1	A	241	HIS
1	A	329	ASN
2	B	30	GLN
2	B	212	GLN
2	B	287	GLN
1	C	81	ASN
1	C	89	GLN
1	C	149	GLN
1	C	194	ASN
1	C	201	HIS
1	C	285	GLN

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Mol	Chain	Res	Type
1	C	329	ASN
1	C	335	ASN
2	D	30	GLN
2	D	80	GLN
2	D	208	ASN
2	D	212	GLN
2	D	257	GLN
2	D	258	ASN
1	E	89	GLN
1	E	153	ASN
1	E	184	GLN
1	E	194	ASN
1	E	195	GLN
1	E	201	HIS
1	E	298	GLN
1	E	329	ASN
2	F	30	GLN
2	F	212	GLN
2	F	287	GLN
1	G	80	GLN
1	G	162	GLN
1	G	201	HIS
1	G	234	ASN
1	G	241	HIS
2	H	212	GLN
2	H	265	ASN
2	H	296	ASN
1	I	89	GLN
1	I	149	GLN
1	I	162	GLN
1	I	184	GLN
1	I	194	ASN
1	I	195	GLN
1	I	201	HIS
1	I	238	ASN
1	I	329	ASN
1	I	335	ASN
2	J	30	GLN
2	J	212	GLN
2	J	257	GLN
2	J	265	ASN
2	J	287	GLN

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Mol	Chain	Res	Type
1	K	89	GLN
1	K	149	GLN
1	K	184	GLN
1	K	201	HIS
1	K	204	GLN
1	K	329	ASN
2	L	30	GLN
2	L	212	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 24 ligands modelled in this entry, 12 are monoatomic - leaving 12 for Mogul analysis.

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
6	A1HZ4	F	404	-	37,38,38	1.89	9 (24%)	47,57,57	2.42	17 (36%)
5	DPO	J	403	-	6,8,8	0.67	0	13,13,13	0.82	0
5	DPO	B	403	-	6,8,8	0.63	0	13,13,13	0.91	0
6	A1HZ4	B	404	-	37,38,38	1.82	8 (21%)	47,57,57	2.36	11 (23%)
5	DPO	L	403	-	6,8,8	0.88	0	13,13,13	0.80	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	A1HZ4	L	404	-	37,38,38	1.96	8 (21%)	47,57,57	2.90	18 (38%)
5	DPO	D	403	-	6,8,8	0.91	0	13,13,13	0.81	0
6	A1HZ4	H	404	-	37,38,38	2.01	5 (13%)	47,57,57	2.70	14 (29%)
6	A1HZ4	D	404	-	37,38,38	1.93	4 (10%)	47,57,57	2.61	13 (27%)
5	DPO	H	403	-	6,8,8	0.58	0	13,13,13	0.84	0
6	A1HZ4	J	404	-	37,38,38	1.92	5 (13%)	47,57,57	2.62	16 (34%)
5	DPO	F	403	-	6,8,8	1.02	0	13,13,13	0.80	0

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
6	A1HZ4	F	404	-	-	8/34/62/62	0/4/4/4
5	DPO	J	403	-	-	4/6/6/6	-
5	DPO	B	403	-	-	2/6/6/6	-
6	A1HZ4	B	404	-	-	0/34/62/62	0/4/4/4
5	DPO	L	403	-	-	0/6/6/6	-
6	A1HZ4	L	404	-	-	0/34/62/62	0/4/4/4
5	DPO	D	403	-	-	4/6/6/6	-
6	A1HZ4	H	404	-	-	1/34/62/62	0/4/4/4
6	A1HZ4	D	404	-	-	5/34/62/62	0/4/4/4
5	DPO	H	403	-	-	0/6/6/6	-
6	A1HZ4	J	404	-	-	1/34/62/62	0/4/4/4
5	DPO	F	403	-	-	4/6/6/6	-

All (39) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	404	A1HZ4	C21-N20	6.69	1.53	1.46
6	B	404	A1HZ4	C21-N20	6.37	1.52	1.46
6	J	404	A1HZ4	C47-C22	6.36	1.60	1.51
6	L	404	A1HZ4	C21-N20	6.13	1.52	1.46
6	H	404	A1HZ4	C21-N20	5.99	1.52	1.46
6	F	404	A1HZ4	O9-C7	5.93	1.53	1.41
6	H	404	A1HZ4	C19-N20	5.44	1.44	1.33
6	H	404	A1HZ4	C18-C19	5.07	1.55	1.50
6	D	404	A1HZ4	C19-N20	5.05	1.43	1.33
6	J	404	A1HZ4	O9-C7	4.84	1.51	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	L	404	A1HZ4	O9-C7	4.83	1.51	1.41
6	D	404	A1HZ4	C47-C22	4.74	1.58	1.51
6	L	404	A1HZ4	C19-N20	4.62	1.43	1.33
6	D	404	A1HZ4	C18-C19	4.26	1.54	1.50
6	B	404	A1HZ4	C47-C22	4.25	1.57	1.51
6	B	404	A1HZ4	C18-C19	4.22	1.54	1.50
6	F	404	A1HZ4	C47-C22	4.20	1.57	1.51
6	J	404	A1HZ4	C21-N20	4.11	1.50	1.46
6	H	404	A1HZ4	C13-N12	4.08	1.54	1.47
6	J	404	A1HZ4	C19-N20	4.05	1.41	1.33
6	L	404	A1HZ4	C18-C19	3.90	1.54	1.50
6	F	404	A1HZ4	C19-N20	3.48	1.40	1.33
6	J	404	A1HZ4	C18-C19	3.44	1.54	1.50
6	F	404	A1HZ4	C18-C19	3.18	1.53	1.50
6	B	404	A1HZ4	C19-N20	3.17	1.39	1.33
6	H	404	A1HZ4	C47-C22	3.15	1.56	1.51
6	F	404	A1HZ4	C7-C10	3.10	1.59	1.55
6	F	404	A1HZ4	C21-N20	2.99	1.49	1.46
6	L	404	A1HZ4	C17-N12	2.67	1.51	1.47
6	L	404	A1HZ4	C47-C22	2.66	1.55	1.51
6	L	404	A1HZ4	C7-C10	2.52	1.58	1.55
6	B	404	A1HZ4	C13-N12	2.38	1.51	1.47
6	F	404	A1HZ4	C16-C15	2.34	1.57	1.53
6	F	404	A1HZ4	C17-N12	2.30	1.51	1.47
6	B	404	A1HZ4	O60-C61	2.23	1.49	1.42
6	B	404	A1HZ4	O9-C7	2.16	1.45	1.41
6	B	404	A1HZ4	C14-C15	2.12	1.56	1.53
6	L	404	A1HZ4	O9-C40	2.08	1.49	1.43
6	F	404	A1HZ4	C7-C1	2.05	1.56	1.52

All (89) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	L	404	A1HZ4	C7-C10-N12	12.50	128.20	117.83
6	H	404	A1HZ4	C7-C10-N12	11.71	127.54	117.83
6	J	404	A1HZ4	C7-C10-N12	11.21	127.13	117.83
6	D	404	A1HZ4	C7-C10-N12	9.11	125.39	117.83
6	B	404	A1HZ4	C7-C10-N12	8.82	125.14	117.83
6	B	404	A1HZ4	O60-C49-C47	8.33	123.79	115.83
6	F	404	A1HZ4	C7-C10-N12	8.31	124.72	117.83
6	H	404	A1HZ4	O60-C49-C47	7.32	122.83	115.83
6	L	404	A1HZ4	O60-C49-C47	7.19	122.70	115.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	J	404	A1HZ4	O60-C49-C47	6.81	122.34	115.83
6	F	404	A1HZ4	O60-C49-C47	6.77	122.30	115.83
6	D	404	A1HZ4	O60-C49-C47	6.48	122.03	115.83
6	D	404	A1HZ4	O9-C7-C10	-6.08	106.42	113.29
6	D	404	A1HZ4	O60-C49-C50	-5.39	115.14	124.37
6	D	404	A1HZ4	C61-O60-C49	-5.11	109.82	117.53
6	L	404	A1HZ4	C61-O60-C49	-4.73	110.38	117.53
6	L	404	A1HZ4	O60-C49-C50	-4.46	116.72	124.37
6	J	404	A1HZ4	O60-C49-C50	-4.39	116.85	124.37
6	B	404	A1HZ4	O60-C49-C50	-4.38	116.86	124.37
6	L	404	A1HZ4	C8-C7-C1	-4.11	100.35	109.34
6	F	404	A1HZ4	O60-C49-C50	-4.07	117.40	124.37
6	H	404	A1HZ4	O60-C49-C50	-3.97	117.56	124.37
6	J	404	A1HZ4	C61-O60-C49	-3.95	111.57	117.53
6	B	404	A1HZ4	F45-C8-C7	-3.89	104.36	112.01
6	F	404	A1HZ4	C14-C15-C16	3.86	112.99	107.45
6	D	404	A1HZ4	O23-C19-C18	-3.76	116.61	122.56
6	H	404	A1HZ4	C14-C15-C16	3.72	112.80	107.45
6	L	404	A1HZ4	C16-C17-N12	3.65	118.12	110.92
6	H	404	A1HZ4	C40-O9-C7	-3.52	111.67	117.99
6	L	404	A1HZ4	C3-C2-C1	-3.52	117.06	120.76
6	H	404	A1HZ4	C14-C13-N12	3.51	117.86	110.92
6	L	404	A1HZ4	C8-C7-C10	3.46	112.18	109.42
6	F	404	A1HZ4	C8-C7-C1	-3.46	101.76	109.34
6	L	404	A1HZ4	O11-C10-N12	-3.39	114.42	121.91
6	F	404	A1HZ4	C3-C2-C1	-3.29	117.30	120.76
6	H	404	A1HZ4	O11-C10-C7	-3.25	116.02	119.63
6	J	404	A1HZ4	C2-C1-C6	3.20	122.74	117.97
6	L	404	A1HZ4	C14-C15-C16	3.19	112.04	107.45
6	J	404	A1HZ4	C14-C13-N12	3.19	117.23	110.92
6	D	404	A1HZ4	C21-N20-C19	-3.14	121.13	126.14
6	H	404	A1HZ4	C2-C1-C6	3.12	122.61	117.97
6	D	404	A1HZ4	O11-C10-N12	-3.00	115.27	121.91
6	H	404	A1HZ4	O9-C7-C10	-3.00	109.91	113.29
6	D	404	A1HZ4	C14-C13-N12	-2.98	105.04	110.92
6	F	404	A1HZ4	C4-C5-C6	-2.96	115.68	120.19
6	B	404	A1HZ4	C21-N20-C19	-2.94	121.44	126.14
6	D	404	A1HZ4	C2-C1-C6	2.90	122.29	117.97
6	F	404	A1HZ4	F43-C8-F45	2.89	116.35	107.53
6	J	404	A1HZ4	O11-C10-C7	-2.86	116.44	119.63
6	J	404	A1HZ4	C1-C7-C10	-2.84	106.76	110.49
6	L	404	A1HZ4	C15-C22-C47	-2.70	110.91	117.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	J	404	A1HZ4	C8-C7-C1	-2.68	103.48	109.34
6	J	404	A1HZ4	C14-C15-C16	2.67	111.28	107.45
6	F	404	A1HZ4	O23-C19-C18	-2.65	118.36	122.56
6	F	404	A1HZ4	C21-N20-C19	-2.64	121.92	126.14
6	H	404	A1HZ4	C16-C17-N12	-2.61	105.76	110.92
6	F	404	A1HZ4	F43-C8-F44	-2.59	99.59	107.53
6	J	404	A1HZ4	O11-C10-N12	-2.52	116.35	121.91
6	B	404	A1HZ4	C8-C7-C1	-2.52	103.83	109.34
6	L	404	A1HZ4	C1-C7-C10	-2.50	107.21	110.49
6	L	404	A1HZ4	C2-C1-C6	2.49	121.68	117.97
6	H	404	A1HZ4	O11-C10-N12	-2.48	116.44	121.91
6	H	404	A1HZ4	C15-C22-C47	-2.45	111.54	117.72
6	J	404	A1HZ4	C5-C6-C1	-2.43	118.20	120.76
6	H	404	A1HZ4	O23-C19-C18	-2.39	118.78	122.56
6	B	404	A1HZ4	C14-C15-C16	2.38	110.87	107.45
6	L	404	A1HZ4	C4-C5-C6	-2.37	116.58	120.19
6	J	404	A1HZ4	C3-C4-C5	2.26	124.13	119.93
6	F	404	A1HZ4	C15-C22-C47	-2.26	112.02	117.72
6	J	404	A1HZ4	C8-C7-C10	2.25	111.21	109.42
6	F	404	A1HZ4	C61-O60-C49	-2.21	114.20	117.53
6	B	404	A1HZ4	C5-C6-C1	-2.20	118.44	120.76
6	F	404	A1HZ4	C16-C17-N12	2.16	115.19	110.92
6	H	404	A1HZ4	C3-C2-C1	-2.13	118.52	120.76
6	B	404	A1HZ4	O11-C10-N12	-2.13	117.21	121.91
6	J	404	A1HZ4	F45-C8-F44	2.11	113.97	107.53
6	F	404	A1HZ4	C2-C1-C6	2.11	121.11	117.97
6	B	404	A1HZ4	C4-C3-C2	-2.11	116.98	120.19
6	L	404	A1HZ4	O11-C10-C7	-2.10	117.29	119.63
6	F	404	A1HZ4	F43-C8-C7	-2.10	107.87	112.01
6	L	404	A1HZ4	C21-N20-C19	-2.07	122.83	126.14
6	J	404	A1HZ4	C4-C3-C2	-2.07	117.04	120.19
6	D	404	A1HZ4	C8-C7-C1	-2.07	104.81	109.34
6	B	404	A1HZ4	C2-C1-C6	2.07	121.05	117.97
6	D	404	A1HZ4	F43-C8-F45	2.04	113.75	107.53
6	D	404	A1HZ4	C15-C22-C47	-2.03	112.59	117.72
6	L	404	A1HZ4	O23-C19-C18	-2.03	119.35	122.56
6	F	404	A1HZ4	C17-N12-C13	2.02	116.51	112.62
6	L	404	A1HZ4	O9-C7-C1	2.01	115.08	108.64

There are no chirality outliers.

All (29) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	D	403	DPO	P1-O4-P2-O7
5	J	403	DPO	P2-O4-P1-O2
5	J	403	DPO	P1-O4-P2-O7
6	D	404	A1HZ4	C8-C7-O9-C40
6	F	404	A1HZ4	C10-C7-C8-F44
6	F	404	A1HZ4	C10-C7-C8-F45
6	F	404	A1HZ4	C1-C7-C8-F44
6	F	404	A1HZ4	C1-C7-C8-F45
6	F	404	A1HZ4	O9-C7-C8-F44
6	F	404	A1HZ4	O9-C7-C8-F45
6	D	404	A1HZ4	C1-C7-O9-C40
5	B	403	DPO	P2-O4-P1-O1
6	D	404	A1HZ4	C10-C7-O9-C40
6	F	404	A1HZ4	C50-C49-O60-C61
5	F	403	DPO	P2-O4-P1-O1
5	B	403	DPO	P2-O4-P1-O3
5	D	403	DPO	P2-O4-P1-O2
5	D	403	DPO	P2-O4-P1-O3
5	F	403	DPO	P1-O4-P2-O7
6	F	404	A1HZ4	C47-C49-O60-C61
6	D	404	A1HZ4	C50-C49-O60-C61
6	D	404	A1HZ4	C47-C49-O60-C61
6	J	404	A1HZ4	C1-C7-C8-F43
5	J	403	DPO	P2-O4-P1-O1
5	D	403	DPO	P1-O4-P2-O6
5	F	403	DPO	P2-O4-P1-O2
5	F	403	DPO	P2-O4-P1-O3
6	H	404	A1HZ4	C10-C7-O9-C40
5	J	403	DPO	P1-O4-P2-O5

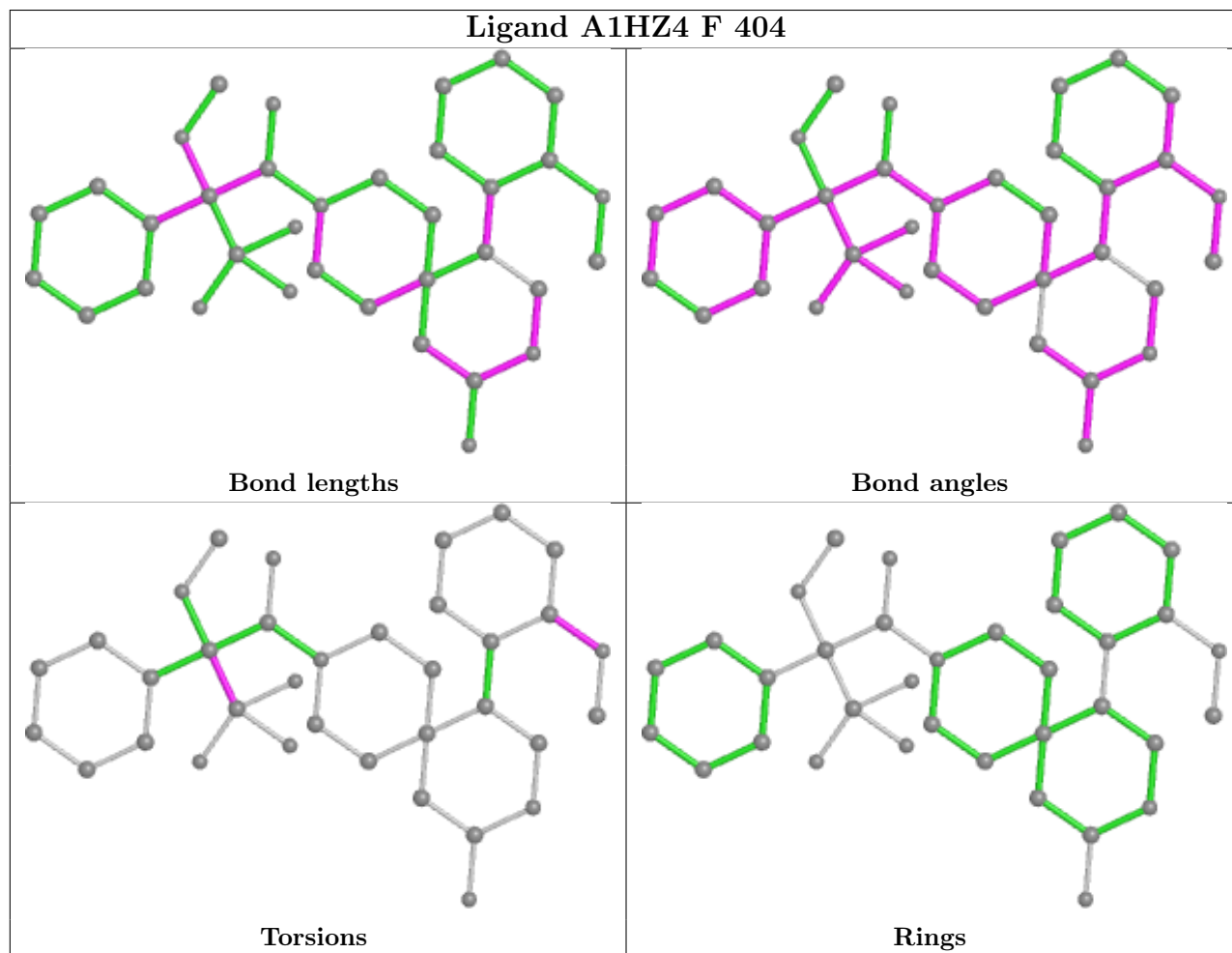
There are no ring outliers.

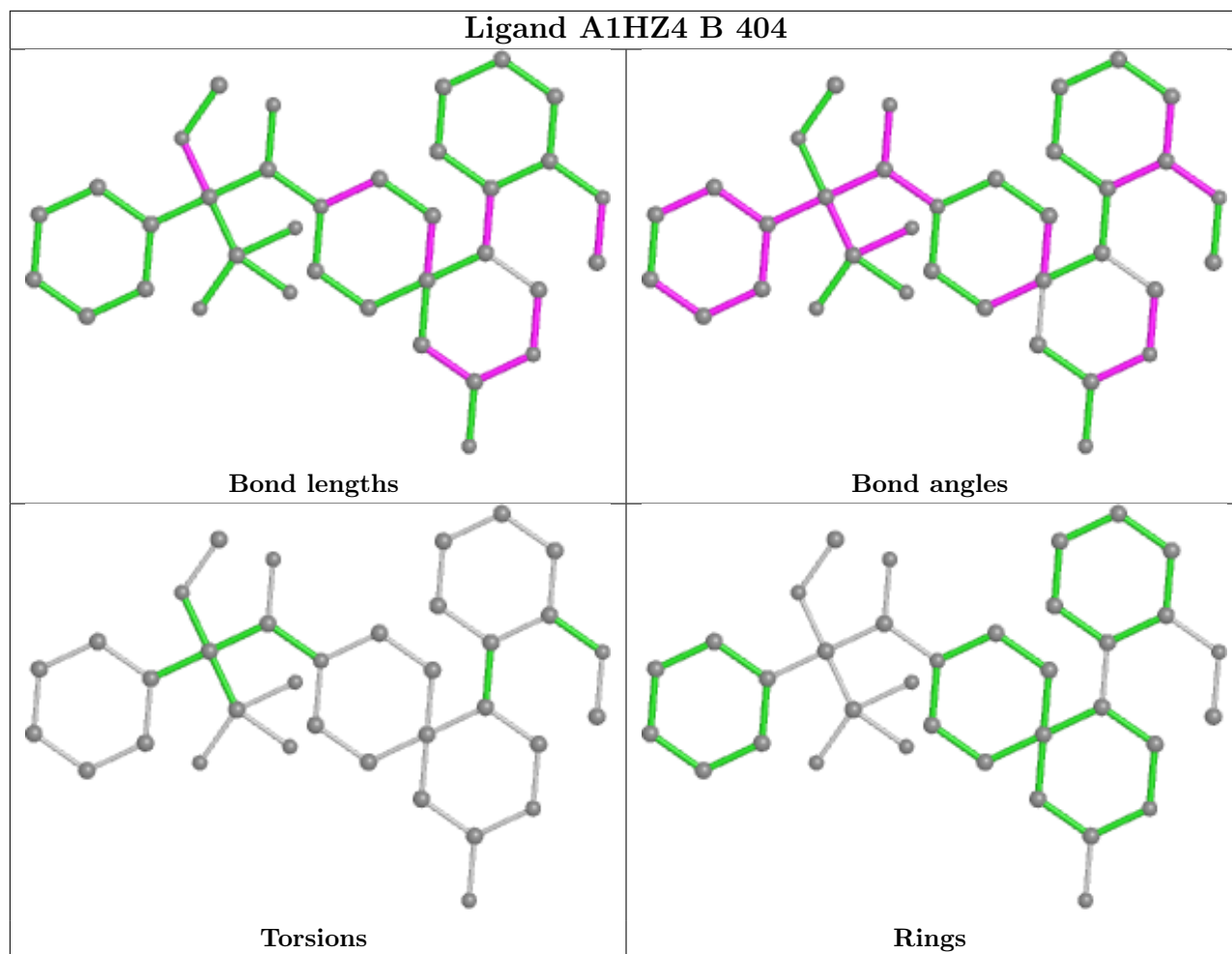
5 monomers are involved in 7 short contacts:

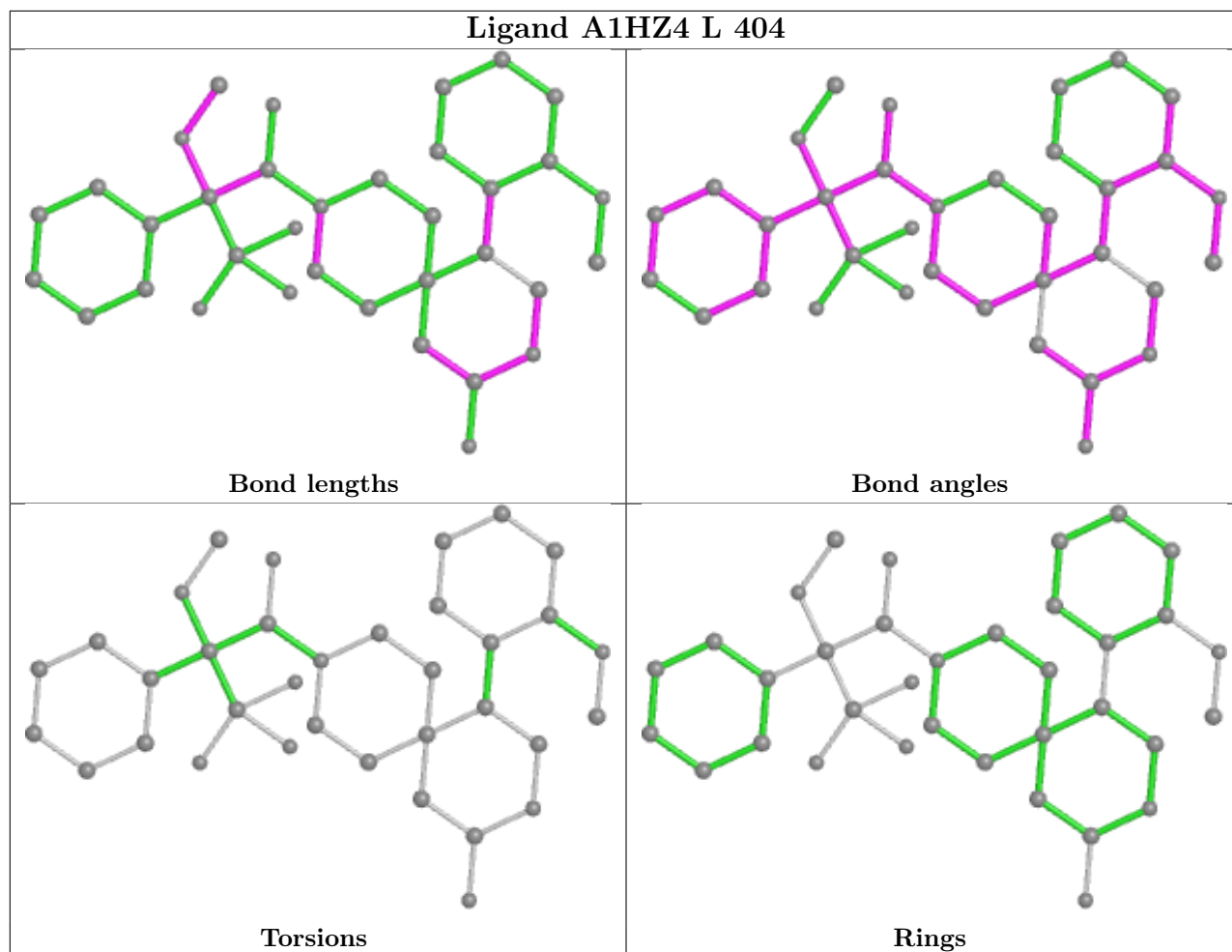
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	J	403	DPO	1	0
5	L	403	DPO	1	0
5	D	403	DPO	2	0
6	H	404	A1HZ4	1	0
5	H	403	DPO	2	0

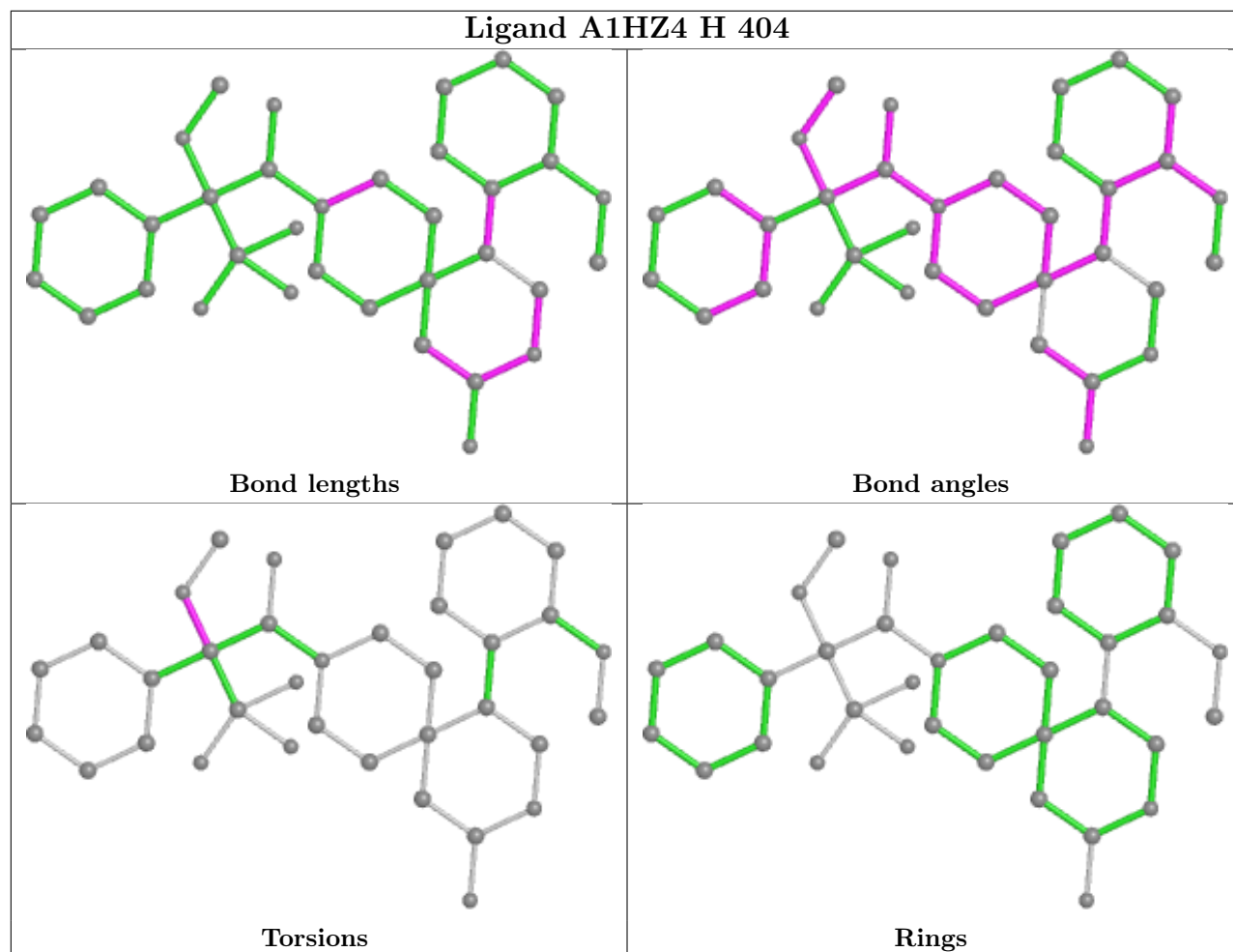
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

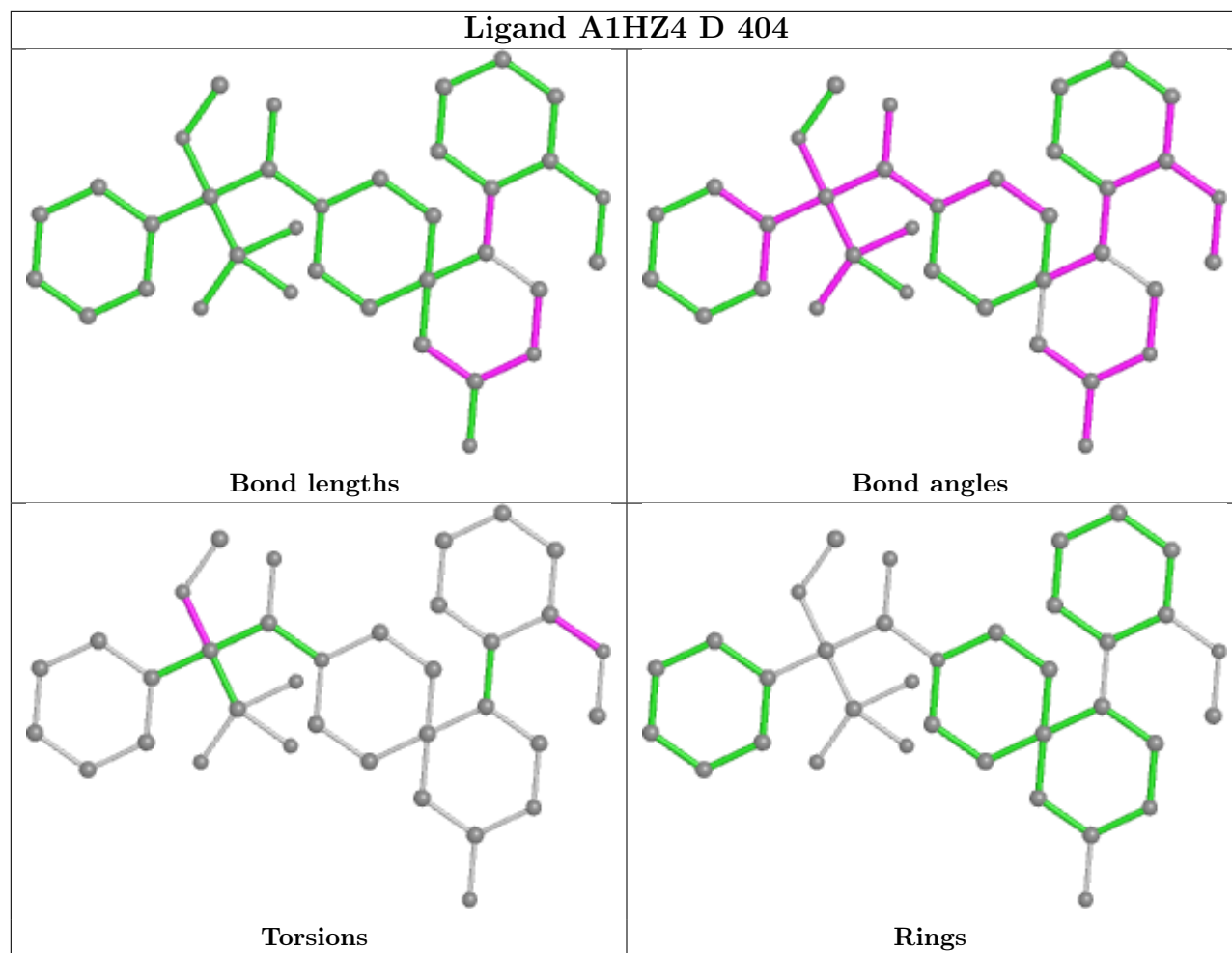
also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

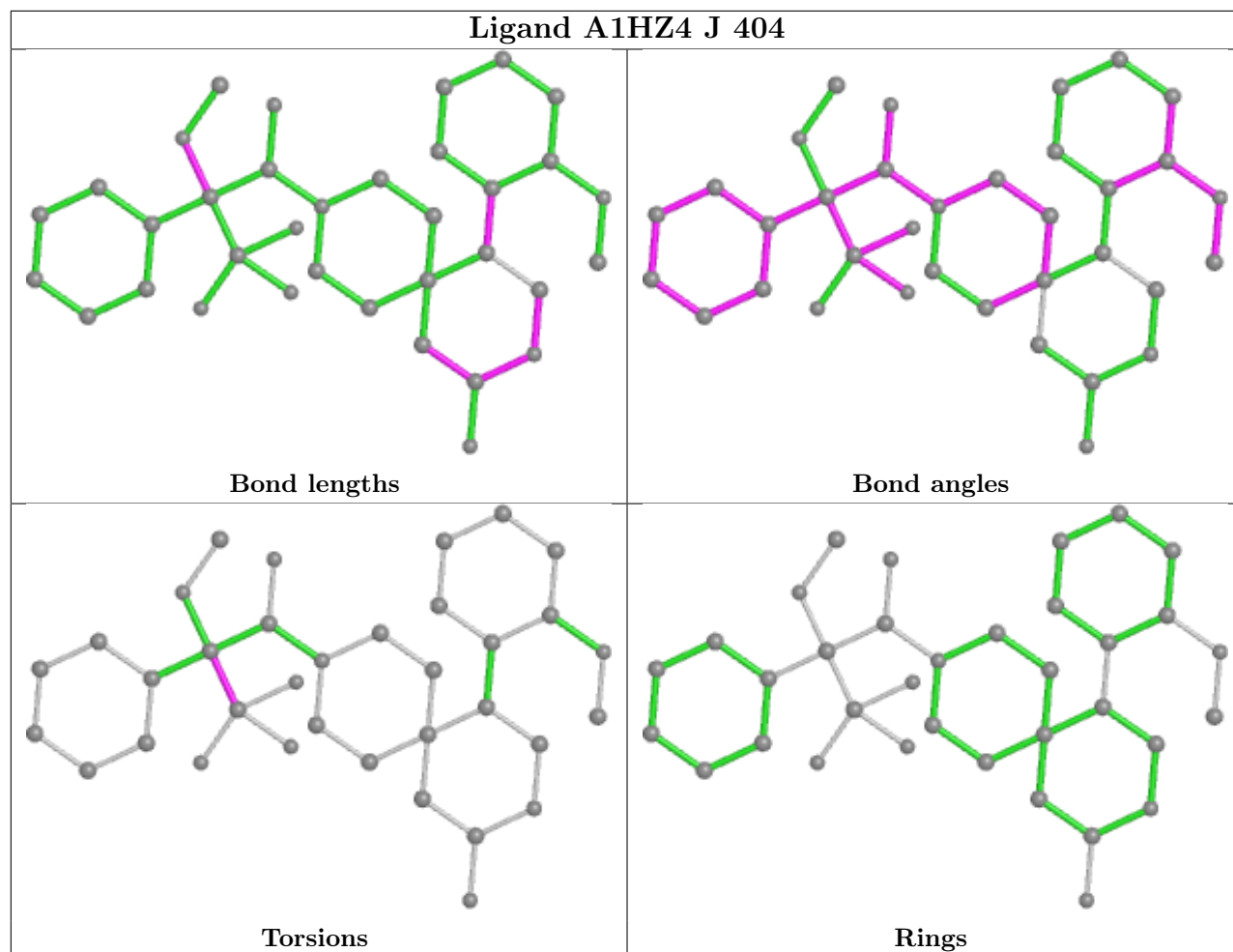












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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(Å ²)	Q<0.9
1	A	314/314 (100%)	-0.51	0 100 100	52, 78, 111, 143	0
1	C	314/314 (100%)	-0.37	2 (0%) 89 83	58, 87, 122, 144	0
1	E	314/314 (100%)	-0.44	1 (0%) 94 90	56, 84, 123, 151	0
1	G	314/314 (100%)	-0.37	1 (0%) 94 90	60, 88, 125, 155	0
1	I	314/314 (100%)	-0.29	3 (0%) 82 72	62, 93, 135, 162	0
1	K	314/314 (100%)	-0.28	1 (0%) 94 90	62, 93, 131, 158	0
2	B	346/346 (100%)	-0.50	1 (0%) 94 90	50, 72, 108, 140	0
2	D	346/346 (100%)	-0.53	0 100 100	50, 73, 109, 153	0
2	F	346/346 (100%)	-0.43	1 (0%) 94 90	58, 84, 126, 177	0
2	H	346/346 (100%)	-0.38	0 100 100	57, 82, 120, 152	0
2	J	346/346 (100%)	-0.49	0 100 100	62, 85, 119, 153	0
2	L	346/346 (100%)	-0.31	1 (0%) 94 90	62, 97, 140, 171	0
All	All	3960/3960 (100%)	-0.41	11 (0%) 94 90	50, 84, 126, 177	0

All (11) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	306	HIS	3.6
1	K	306	HIS	3.5
1	C	306	HIS	2.9
1	I	306	HIS	2.8
1	I	303	GLN	2.6
2	B	108	SER	2.5
2	F	108	SER	2.5
1	C	303	GLN	2.3
2	L	108	SER	2.3
1	E	330	LYS	2.0
1	I	304	PRO	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

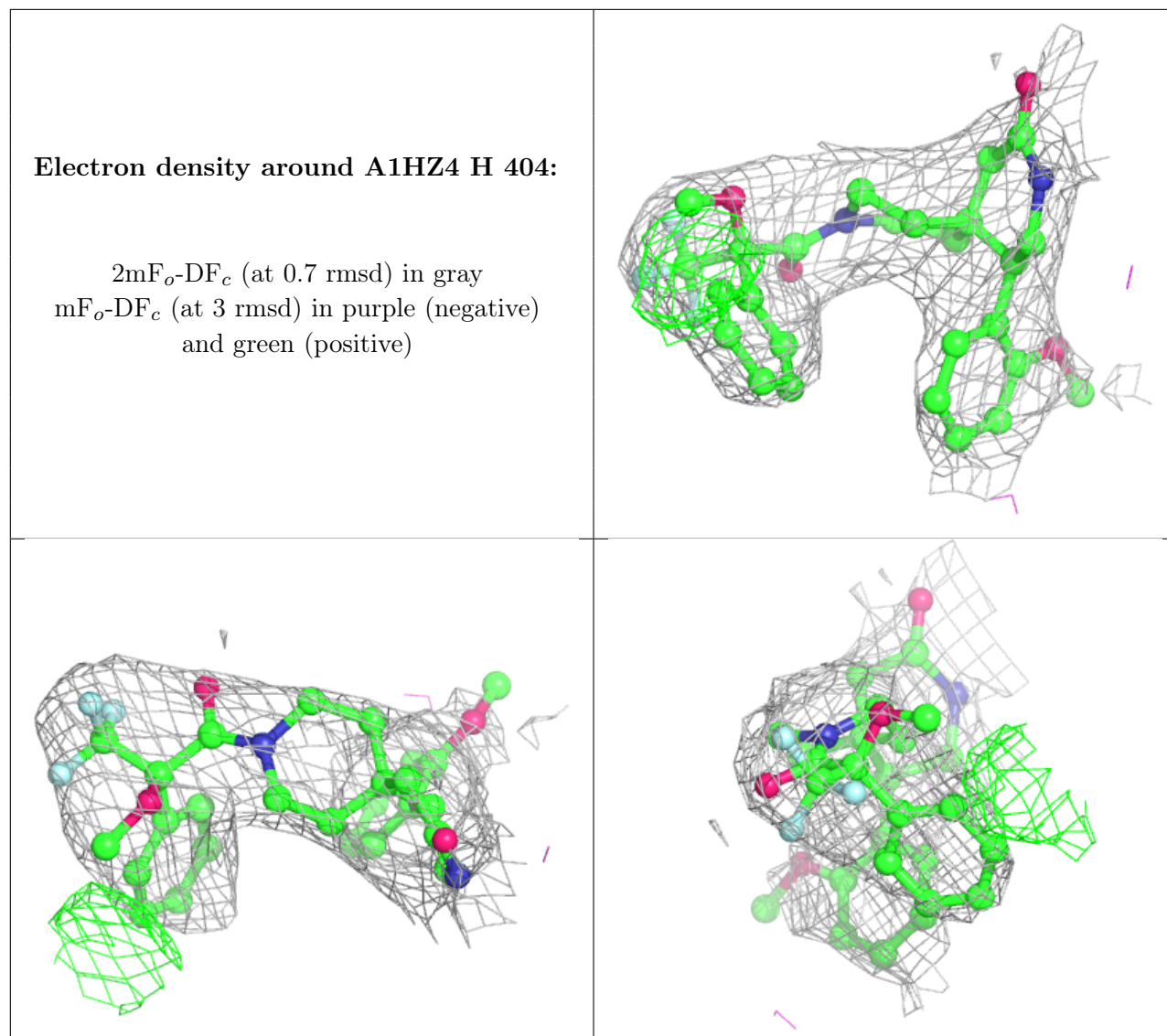
6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	CL	F	402	1/1	0.41	0.27	88,88,88,88	0
4	CL	D	402	1/1	0.52	0.37	70,70,70,70	0
4	CL	J	402	1/1	0.66	0.32	91,91,91,91	0
4	CL	B	402	1/1	0.76	0.32	81,81,81,81	0
4	CL	L	402	1/1	0.81	0.25	76,76,76,76	0
5	DPO	H	403	9/9	0.83	0.28	116,124,150,182	0
5	DPO	L	403	9/9	0.83	0.30	112,126,140,142	0
5	DPO	B	403	9/9	0.84	0.24	118,130,152,169	0
5	DPO	D	403	9/9	0.84	0.28	114,129,145,161	0
5	DPO	F	403	9/9	0.85	0.23	98,124,148,161	0
5	DPO	J	403	9/9	0.86	0.25	117,130,149,151	0
4	CL	H	402	1/1	0.91	0.18	76,76,76,76	0
6	A1HZ4	H	404	35/35	0.95	0.23	74,82,111,120	0
6	A1HZ4	L	404	35/35	0.95	0.22	73,92,116,125	0
6	A1HZ4	F	404	35/35	0.97	0.22	67,79,97,103	0
3	ZN	L	401	1/1	0.97	0.14	70,70,70,70	0
6	A1HZ4	B	404	35/35	0.97	0.20	58,75,101,113	0
6	A1HZ4	J	404	35/35	0.98	0.19	71,82,103,109	0
6	A1HZ4	D	404	35/35	0.98	0.21	61,78,93,109	0
3	ZN	H	401	1/1	0.99	0.16	63,63,63,63	0
3	ZN	J	401	1/1	0.99	0.14	64,64,64,64	0
3	ZN	D	401	1/1	0.99	0.15	63,63,63,63	0
3	ZN	F	401	1/1	1.00	0.13	61,61,61,61	0
3	ZN	B	401	1/1	1.00	0.14	50,50,50,50	0

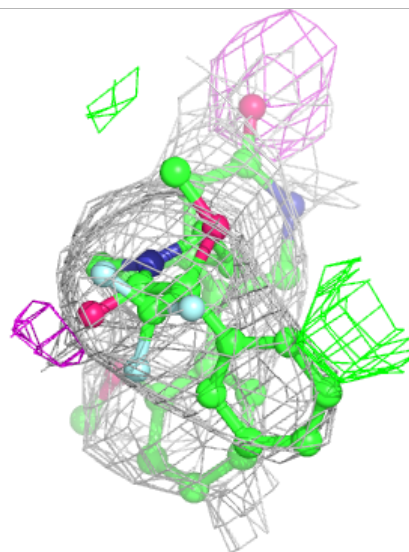
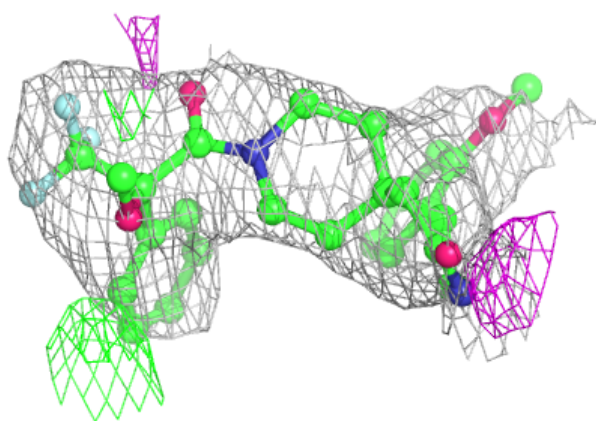
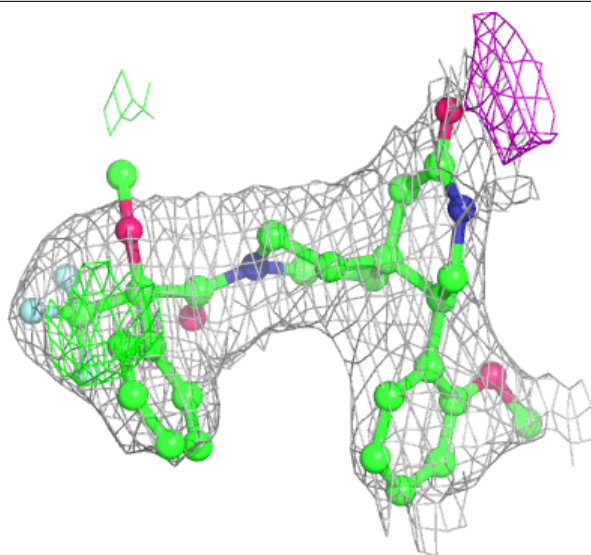
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different

orientation to approximate a three-dimensional view.



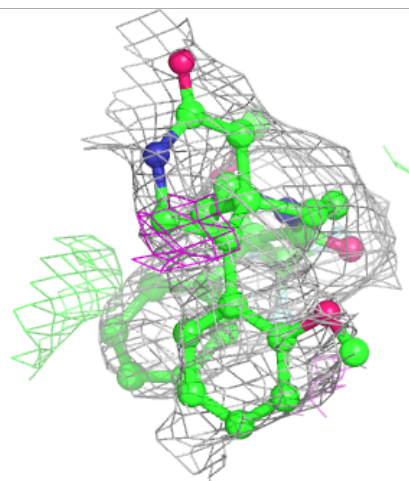
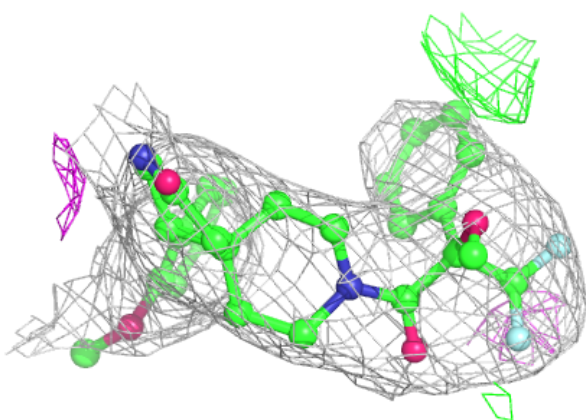
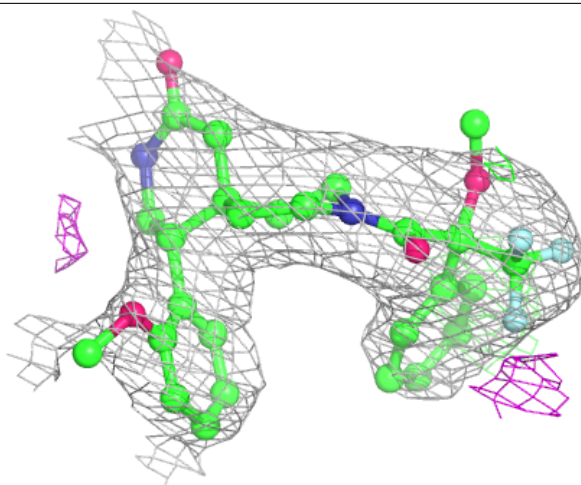
Electron density around A1HZ4 L 404:

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



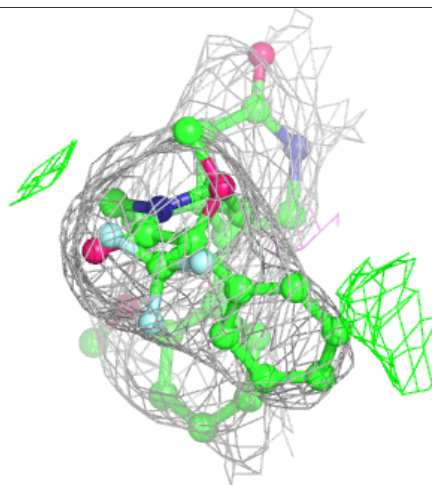
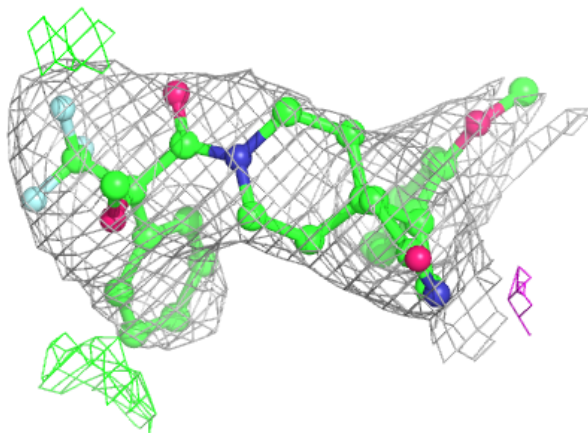
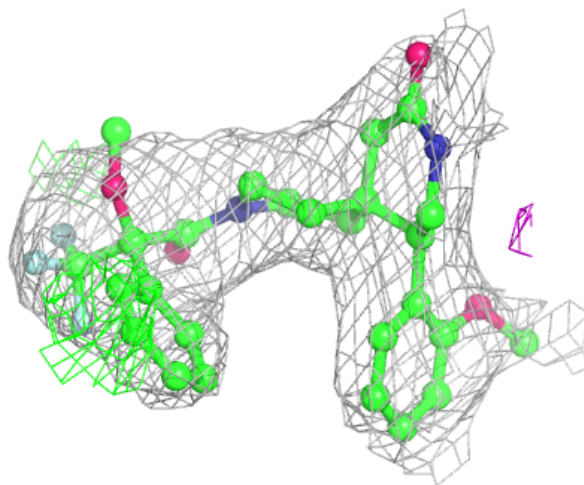
Electron density around A1HZ4 F 404:

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



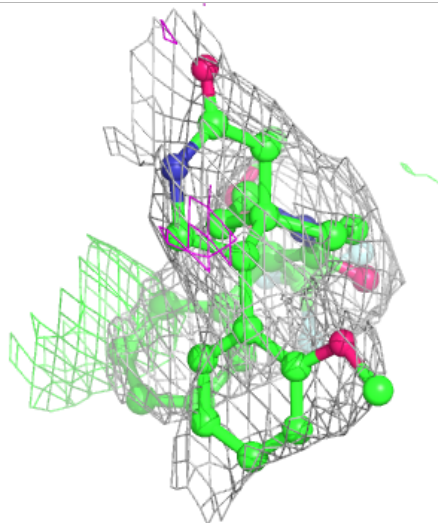
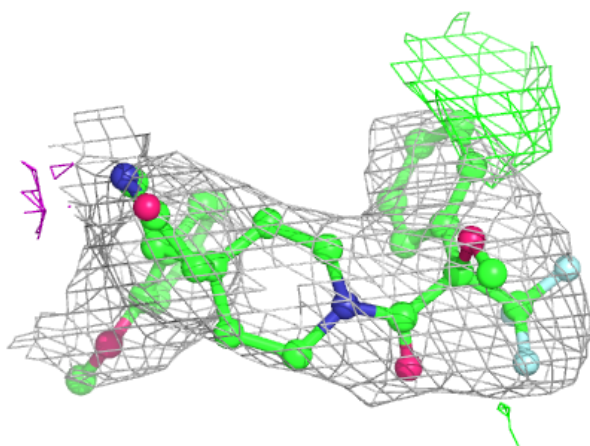
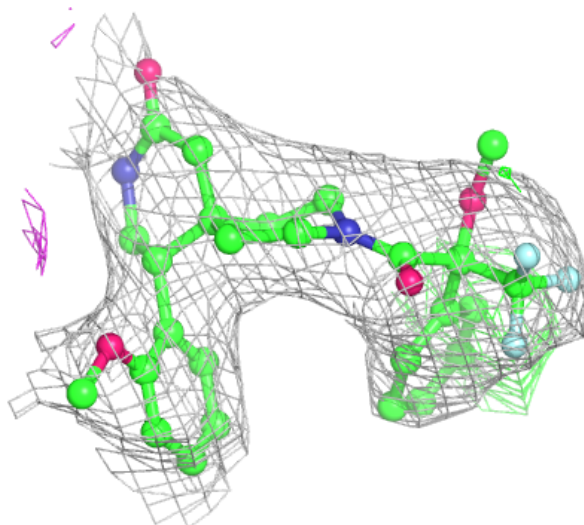
Electron density around A1HZ4 B 404:

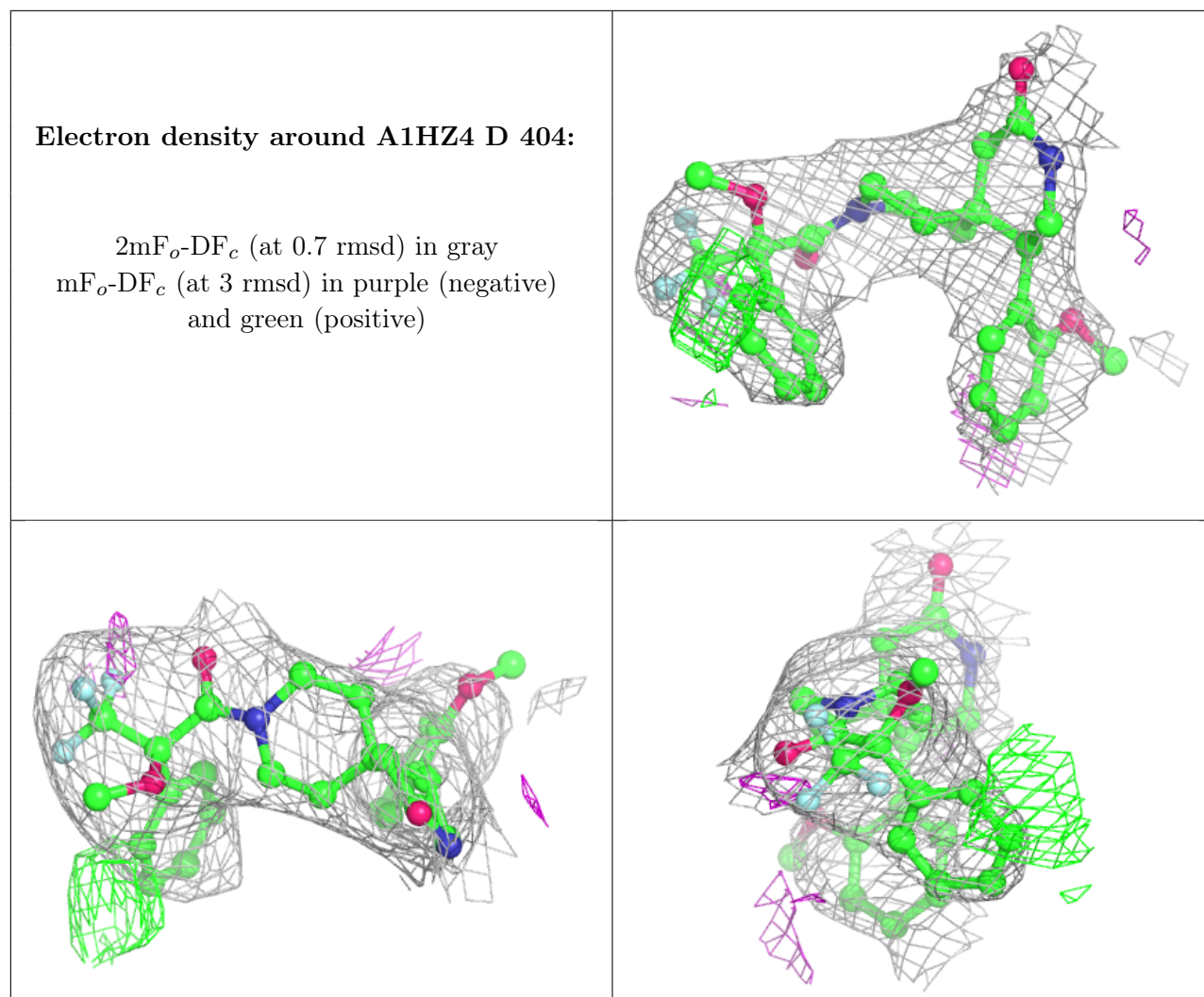
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around A1HZ4 J 404:

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





6.5 Other polymers [i](#)

There are no such residues in this entry.