



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 7, 2026 – 03:21 AM UTC

PDB ID : 2J4L / pdb_00002j4l
Title : Crystal structure of uridylylate kinase from *Sulfolobus solfataricus* in complex with UTP to 2.8 Angstrom resolution
Authors : Jensen, K.S.; Johansson, E.; Jensen, K.F.
Deposited on : 2006-09-01
Resolution : 2.80 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

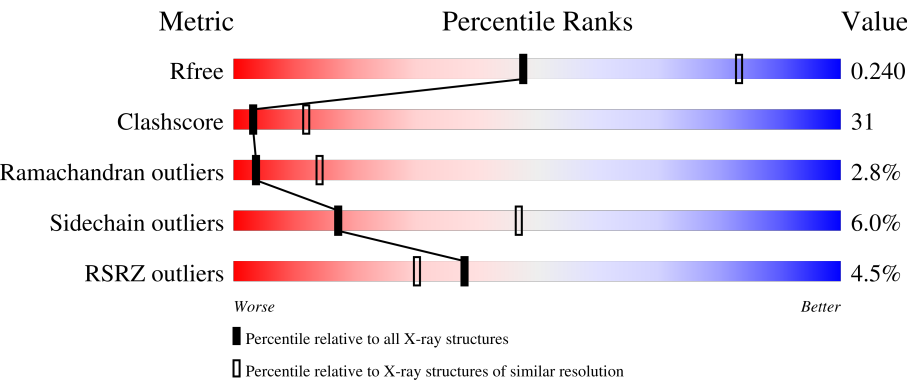
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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}	180053	3866 (2.80-2.80)
Clashscore	190562	4276 (2.80-2.80)
Ramachandran outliers	187476	4196 (2.80-2.80)
Sidechain outliers	187428	4198 (2.80-2.80)
RSRZ outliers	180081	3869 (2.80-2.80)

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	226	5% 45% 39% 8% • 5%
1	B	226	4% 46% 42% 7% 6%
1	C	226	5% 41% 37% 9% 12%
1	D	226	2% 47% 38% 9% 6%
1	E	226	3% 46% 45% • • •

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Mol	Chain	Length	Quality of chain
1	F	226	
1	G	226	
1	H	226	
1	I	226	
1	J	226	
1	K	226	
1	L	226	

2 Entry composition

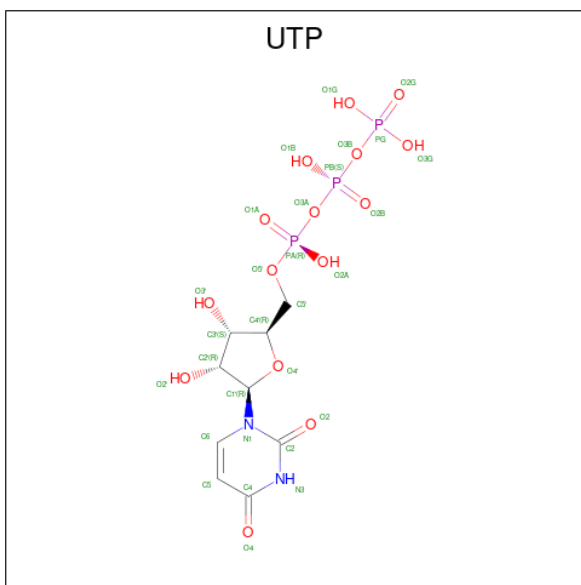
There are 3 unique types of molecules in this entry. The entry contains 19613 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 URIDYLATE KINASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	214	Total	C	N	O	S	0	0	0
			1674	1074	286	310	4			
1	B	213	Total	C	N	O	S	0	0	0
			1665	1069	285	307	4			
1	C	198	Total	C	N	O	S	0	0	0
			1539	991	260	284	4			
1	D	213	Total	C	N	O	S	0	0	0
			1665	1069	285	307	4			
1	E	217	Total	C	N	O	S	0	0	0
			1688	1082	287	315	4			
1	F	219	Total	C	N	O	S	0	0	0
			1714	1100	291	319	4			
1	G	212	Total	C	N	O	S	0	0	0
			1662	1070	283	305	4			
1	H	171	Total	C	N	O	S	0	0	0
			1317	850	222	241	4			
1	I	194	Total	C	N	O	S	0	0	0
			1507	970	256	277	4			
1	J	214	Total	C	N	O	S	0	0	0
			1673	1075	286	308	4			
1	K	190	Total	C	N	O	S	0	0	0
			1481	950	254	273	4			
1	L	214	Total	C	N	O	S	0	0	0
			1673	1075	286	308	4			

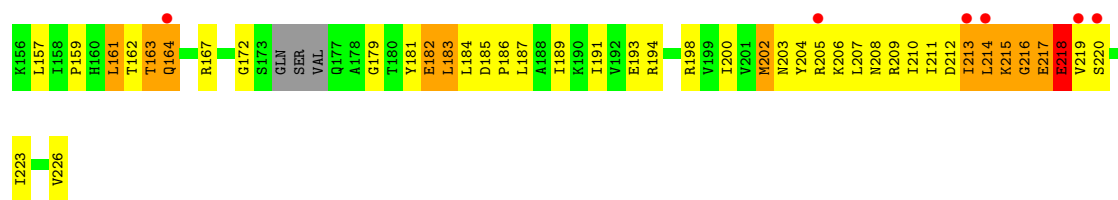
- Molecule 2 is URIDINE 5'-TRIPHOSPHATE (CCD ID: UTP) (formula: $C_9H_{15}N_2O_{15}P_3$).



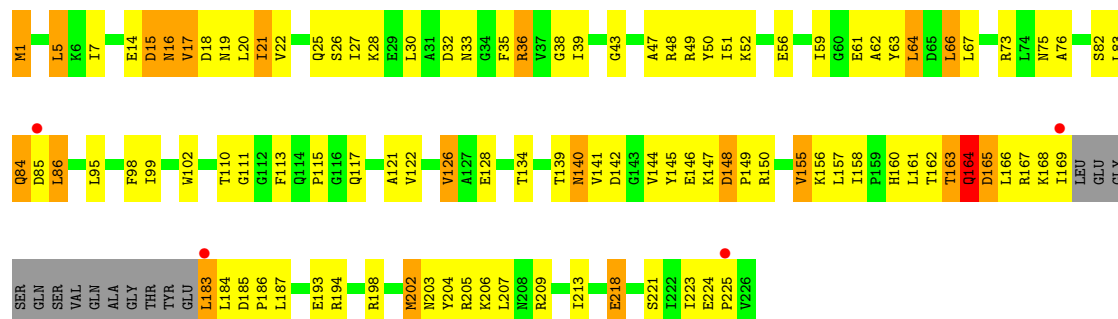
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	B	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	C	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	D	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	E	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	F	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	G	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	H	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	I	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	J	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	K	1	Total 29	C 9	N 2	O 15	P 3	0	0
2	L	1	Total 29	C 9	N 2	O 15	P 3	0	0

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

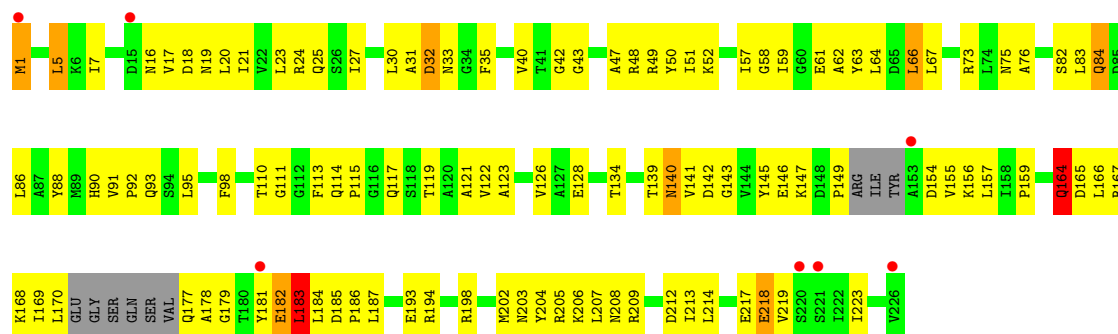
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total 1	Mg 1	0	0
3	C	1	Total 1	Mg 1	0	0
3	D	1	Total 1	Mg 1	0	0
3	E	1	Total 1	Mg 1	0	0
3	I	1	Total 1	Mg 1	0	0
3	J	1	Total 1	Mg 1	0	0
3	L	1	Total 1	Mg 1	0	0



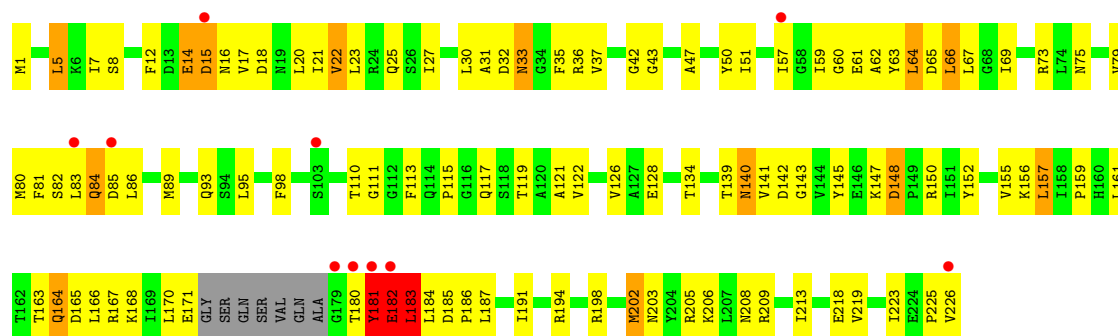
• Molecule 1: URIDYLATE KINASE



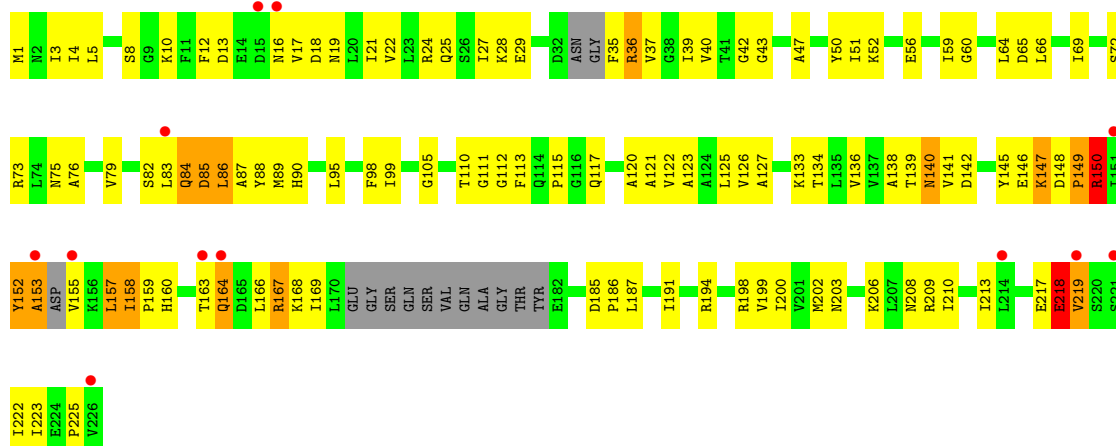
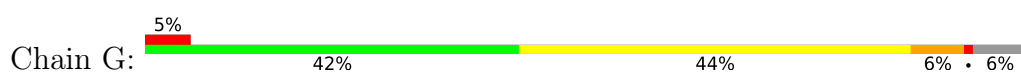
• Molecule 1: URIDYLATE KINASE



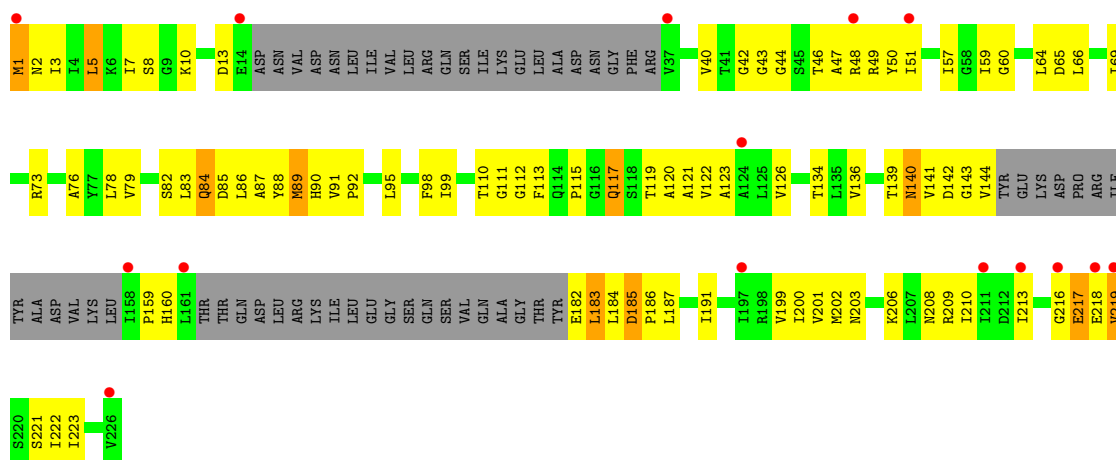
• Molecule 1: URIDYLATE KINASE



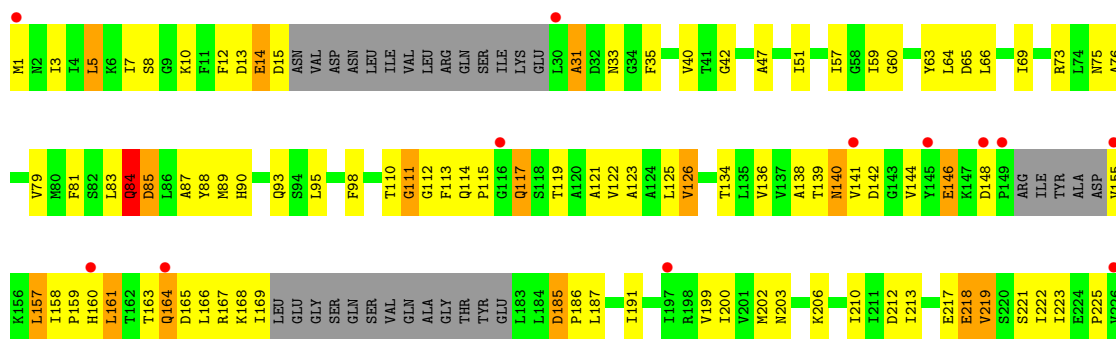
• Molecule 1: URIDYLATE KINASE



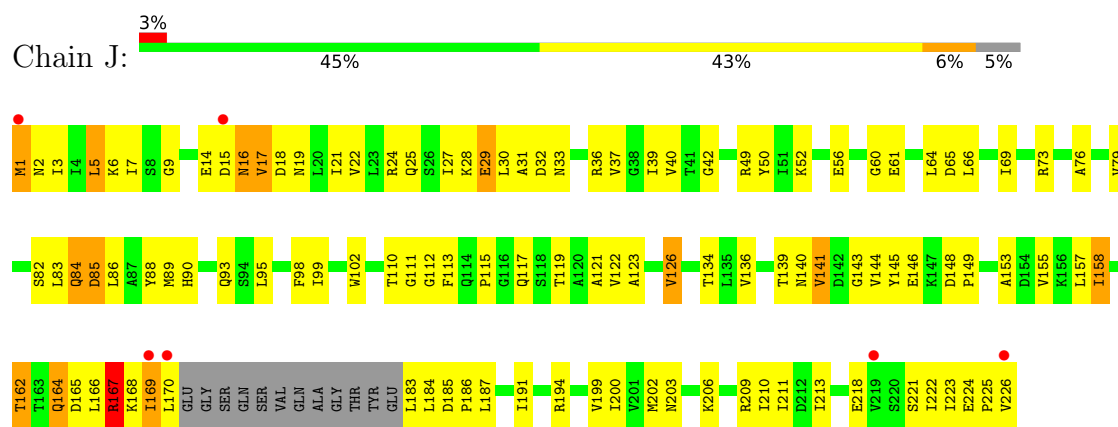
• Molecule 1: URIDYLATE KINASE



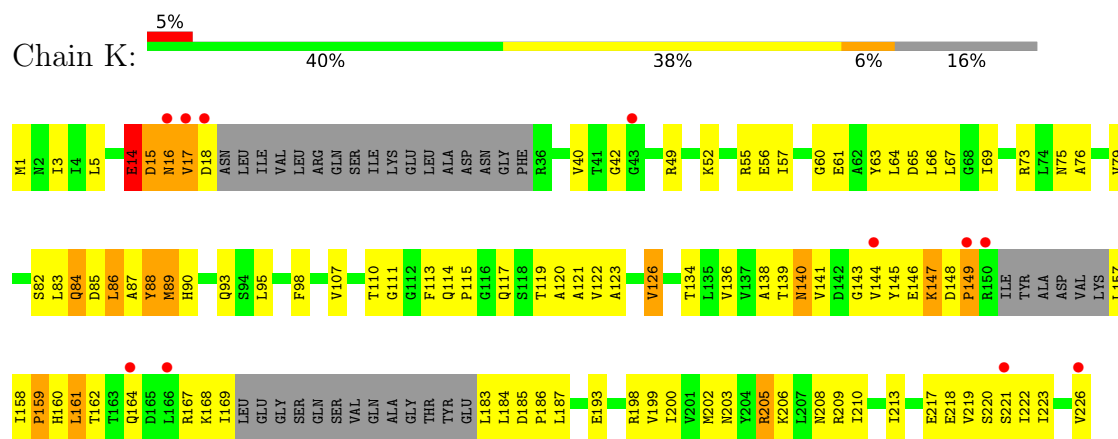
• Molecule 1: URIDYLATE KINASE



• Molecule 1: URIDYLATE KINASE



• Molecule 1: URIDYLATE KINASE



• Molecule 1: URIDYLATE KINASE



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	224.75Å 79.03Å 223.47Å 90.00° 96.56° 90.00°	Depositor
Resolution (Å)	29.63 – 2.80 29.63 – 2.80	Depositor EDS
% Data completeness (in resolution range)	94.6 (29.63-2.80) 94.6 (29.63-2.80)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.19 (at 2.76Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.246 , 0.278 0.246 , 0.240	Depositor DCC
R_{free} test set	4633 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	74.1	Xtriage
Anisotropy	0.498	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 49.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	19613	wwPDB-VP
Average B, all atoms (Å ²)	76.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.52% 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: UTP, MG

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	0.65	0/1698	1.12	11/2296 (0.5%)
1	B	0.60	0/1689	1.04	12/2284 (0.5%)
1	C	0.69	5/1561 (0.3%)	1.19	13/2107 (0.6%)
1	D	0.55	0/1689	1.05	12/2284 (0.5%)
1	E	0.54	0/1711	1.03	7/2313 (0.3%)
1	F	0.66	2/1739 (0.1%)	1.13	10/2352 (0.4%)
1	G	0.64	4/1684 (0.2%)	1.61	18/2274 (0.8%)
1	H	0.43	0/1335	0.95	5/1803 (0.3%)
1	I	0.45	0/1528	1.00	5/2063 (0.2%)
1	J	0.50	0/1697	1.02	4/2295 (0.2%)
1	K	0.53	0/1501	1.03	10/2027 (0.5%)
1	L	0.56	0/1697	1.03	8/2295 (0.3%)
All	All	0.57	11/19529 (0.1%)	1.12	115/26393 (0.4%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	G	0	2

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	153	ALA	C-O	-11.95	1.07	1.24
1	G	152	TYR	C-N	-8.59	1.22	1.33
1	C	214	LEU	CA-C	-6.42	1.44	1.52
1	G	218	GLU	N-CA	5.98	1.53	1.46
1	F	182	GLU	C-N	-5.66	1.25	1.33
1	C	215	LYS	CA-CB	-5.66	1.44	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	183	LEU	N-CA	-5.53	1.39	1.46
1	G	218	GLU	CA-CB	-5.48	1.44	1.53
1	C	215	LYS	CA-C	-5.35	1.44	1.52
1	C	215	LYS	C-O	-5.14	1.17	1.24
1	C	215	LYS	N-CA	-5.10	1.39	1.46

All (115) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	150	ARG	CA-C-N	23.56	148.47	121.84
1	G	150	ARG	C-N-CA	23.56	148.47	121.84
1	G	150	ARG	O-C-N	-22.20	93.06	122.59
1	G	153	ALA	CA-C-O	-21.42	94.50	119.56
1	G	152	TYR	CA-C-N	-20.59	89.70	122.65
1	G	152	TYR	C-N-CA	-20.59	89.70	122.65
1	C	217	GLU	N-CA-C	-19.09	77.62	108.55
1	F	183	LEU	N-CA-C	-16.77	75.09	110.80
1	G	218	GLU	N-CA-C	14.27	141.20	110.80
1	E	183	LEU	N-CA-C	-12.17	96.50	112.68
1	G	152	TYR	O-C-N	11.48	137.42	122.96
1	A	15	ASP	N-CA-C	-10.92	97.49	111.90
1	F	183	LEU	N-CA-CB	10.03	127.45	110.49
1	K	164	GLN	OE1-CD-NE2	-9.84	112.76	122.60
1	I	164	GLN	OE1-CD-NE2	-9.83	112.77	122.60
1	C	164	GLN	OE1-CD-NE2	-9.82	112.78	122.60
1	A	164	GLN	OE1-CD-NE2	-9.81	112.79	122.60
1	L	164	GLN	OE1-CD-NE2	-9.81	112.79	122.60
1	G	164	GLN	OE1-CD-NE2	-9.81	112.79	122.60
1	B	164	GLN	OE1-CD-NE2	-9.80	112.80	122.60
1	E	164	GLN	OE1-CD-NE2	-9.80	112.80	122.60
1	F	164	GLN	OE1-CD-NE2	-9.79	112.81	122.60
1	J	164	GLN	OE1-CD-NE2	-9.78	112.82	122.60
1	A	209	ARG	N-CA-C	-9.78	101.29	113.02
1	D	164	GLN	OE1-CD-NE2	-9.75	112.85	122.60
1	G	217	GLU	CA-C-N	9.56	139.81	121.54
1	G	217	GLU	C-N-CA	9.56	139.81	121.54
1	K	86	LEU	N-CA-C	-9.21	101.32	114.12
1	C	214	LEU	CA-C-N	-8.89	108.42	122.65
1	C	214	LEU	C-N-CA	-8.89	108.42	122.65
1	C	146	GLU	N-CA-C	-8.81	103.65	114.75
1	G	16	ASN	N-CA-C	-8.25	96.74	109.52
1	A	17	VAL	N-CA-C	-7.81	100.97	111.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	14	GLU	N-CA-C	7.61	120.46	111.71
1	F	182	GLU	CB-CA-C	7.61	125.55	110.42
1	D	36	ARG	N-CA-C	-7.58	96.06	108.41
1	C	215	LYS	CA-C-N	-7.50	106.71	121.41
1	C	215	LYS	C-N-CA	-7.50	106.71	121.41
1	K	14	GLU	N-CA-C	7.46	126.69	110.80
1	H	217	GLU	N-CA-C	7.35	126.45	110.80
1	D	86	LEU	N-CA-C	-7.20	105.68	114.75
1	C	218	GLU	N-CA-C	-7.08	95.71	110.80
1	A	64	LEU	N-CA-C	-6.87	103.72	111.07
1	I	14	GLU	N-CA-C	6.82	119.55	111.71
1	B	64	LEU	N-CA-C	-6.78	103.97	111.36
1	E	182	GLU	N-CA-C	-6.73	96.47	110.80
1	A	164	GLN	CG-CD-NE2	6.70	126.44	116.40
1	B	164	GLN	CG-CD-NE2	6.68	126.43	116.40
1	C	164	GLN	CG-CD-NE2	6.68	126.42	116.40
1	K	164	GLN	CG-CD-NE2	6.67	126.41	116.40
1	F	164	GLN	CG-CD-NE2	6.67	126.41	116.40
1	I	164	GLN	CG-CD-NE2	6.67	126.40	116.40
1	D	164	GLN	CG-CD-NE2	6.66	126.39	116.40
1	L	164	GLN	CG-CD-NE2	6.66	126.38	116.40
1	J	164	GLN	CG-CD-NE2	6.65	126.37	116.40
1	E	164	GLN	CG-CD-NE2	6.64	126.37	116.40
1	G	164	GLN	CG-CD-NE2	6.64	126.36	116.40
1	B	15	ASP	N-CA-C	-6.62	102.54	111.54
1	A	27	ILE	N-CA-C	-6.43	104.49	110.53
1	L	36	ARG	N-CA-C	-6.41	98.80	109.24
1	K	205	ARG	NE-CZ-NH2	6.20	124.78	119.20
1	L	14	GLU	N-CA-C	6.17	118.00	111.28
1	B	86	LEU	N-CA-C	-6.09	106.46	114.31
1	D	21	ILE	CB-CA-C	-6.07	104.20	111.97
1	C	216	GLY	N-CA-C	-6.04	98.87	113.18
1	B	148	ASP	CA-C-N	5.98	125.52	119.19
1	B	148	ASP	C-N-CA	5.98	125.52	119.19
1	K	88	TYR	N-CA-C	-5.93	100.18	109.25
1	F	37	VAL	N-CA-C	5.93	116.41	108.11
1	I	146	GLU	N-CA-C	-5.93	105.30	113.18
1	F	36	ARG	N-CA-C	-5.89	99.68	109.46
1	K	205	ARG	NE-CZ-NH1	-5.89	115.61	121.50
1	C	64	LEU	N-CA-C	-5.88	104.87	111.28
1	K	1	MET	CB-CA-C	-5.81	99.06	110.10
1	J	29	GLU	N-CA-C	-5.78	104.17	111.11

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	213	ILE	CB-CA-C	-5.75	101.86	111.29
1	L	86	LEU	N-CA-C	-5.75	106.90	114.31
1	A	36	ARG	N-CA-C	-5.72	100.35	109.96
1	G	36	ARG	N-CA-C	-5.69	99.91	109.07
1	A	207	LEU	N-CA-C	5.69	119.69	112.87
1	C	37	VAL	N-CA-C	5.66	116.04	108.11
1	A	142	ASP	N-CA-C	5.65	118.98	111.75
1	I	111	GLY	N-CA-C	-5.63	103.38	111.20
1	G	37	VAL	N-CA-C	5.62	116.68	108.53
1	E	165	ASP	N-CA-C	-5.62	105.08	111.14
1	K	120	ALA	N-CA-C	-5.61	105.08	111.14
1	H	217	GLU	CA-C-N	-5.61	112.53	122.74
1	H	217	GLU	C-N-CA	-5.61	112.53	122.74
1	B	155	VAL	N-CA-C	-5.55	100.42	108.36
1	G	218	GLU	CA-C-O	-5.53	112.60	120.51
1	G	147	LYS	N-CA-C	-5.53	102.02	110.14
1	E	64	LEU	N-CA-C	-5.50	105.18	111.07
1	D	148	ASP	N-CA-C	5.45	117.33	109.48
1	D	16	ASN	N-CA-C	-5.42	98.19	107.61
1	D	38	GLY	N-CA-C	-5.37	101.14	110.71
1	H	86	LEU	N-CA-C	-5.34	106.69	114.12
1	K	205	ARG	CD-NE-CZ	-5.34	116.92	124.40
1	F	64	LEU	N-CA-C	-5.32	105.48	111.28
1	B	167	ARG	N-CA-C	-5.29	105.41	111.07
1	H	120	ALA	N-CA-C	-5.29	105.43	111.14
1	B	36	ARG	N-CA-C	-5.26	101.12	109.96
1	G	120	ALA	N-CA-C	-5.21	105.51	111.14
1	J	36	ARG	N-CA-C	-5.21	101.47	109.76
1	D	148	ASP	CA-C-N	5.20	124.87	119.56
1	D	148	ASP	C-N-CA	5.20	124.87	119.56
1	D	155	VAL	N-CA-C	-5.19	100.29	108.23
1	D	64	LEU	N-CA-C	-5.18	105.71	111.36
1	B	17	VAL	N-CA-C	-5.17	104.63	111.09
1	A	86	LEU	N-CA-C	-5.16	107.36	113.97
1	L	88	TYR	N-CA-C	-5.13	101.39	109.25
1	L	37	VAL	N-CA-C	5.11	115.94	108.53
1	F	182	GLU	N-CA-C	-5.09	99.96	110.80
1	L	215	LYS	N-CA-C	-5.07	107.10	113.28
1	E	58	GLY	N-CA-C	5.05	122.86	115.08
1	B	58	GLY	N-CA-C	5.04	122.85	114.48

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	G	150	ARG	Mainchain
1	G	152	TYR	Peptide

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	1674	0	1742	114	0
1	B	1665	0	1736	105	0
1	C	1539	0	1599	104	0
1	D	1665	0	1736	104	0
1	E	1688	0	1751	121	0
1	F	1714	0	1778	127	0
1	G	1662	0	1738	116	0
1	H	1317	0	1374	96	0
1	I	1507	0	1569	99	0
1	J	1673	0	1747	125	0
1	K	1481	0	1541	105	0
1	L	1673	0	1747	121	0
2	A	29	0	11	0	0
2	B	29	0	11	1	0
2	C	29	0	11	2	0
2	D	29	0	11	0	0
2	E	29	0	11	2	0
2	F	29	0	11	5	0
2	G	29	0	11	1	0
2	H	29	0	11	2	0
2	I	29	0	11	2	0
2	J	29	0	11	3	0
2	K	29	0	11	0	0
2	L	29	0	11	1	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	I	1	0	0	0	0
3	J	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	L	1	0	0	0	0
All	All	19613	0	20190	1224	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 31.

All (1224) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:212:ASP:O	1:C:216:GLY:N	1.83	1.12
1:B:14:GLU:HB3	1:B:16:ASN:HD22	1.05	1.10
1:D:156:LYS:HG3	1:D:157:LEU:H	1.16	1.05
1:D:145:TYR:HD1	1:D:156:LYS:O	1.43	1.02
1:I:212:ASP:HB3	1:I:217:GLU:HB2	1.42	1.00
1:F:18:ASP:O	1:F:22:VAL:HG12	1.62	0.99
1:L:147:LYS:HD3	1:L:152:TYR:CD1	1.99	0.97
1:B:14:GLU:HB3	1:B:16:ASN:ND2	1.80	0.95
1:I:14:GLU:O	1:I:15:ASP:HB2	1.66	0.94
1:B:183:LEU:HD23	1:B:184:LEU:HG	1.47	0.94
1:L:185:ASP:HB2	1:L:186:PRO:HD2	1.50	0.93
1:H:185:ASP:HB2	1:H:186:PRO:HD2	1.52	0.92
1:D:166:LEU:HD22	1:D:223:ILE:HG12	1.50	0.92
1:I:185:ASP:HB2	1:I:186:PRO:HD2	1.52	0.91
1:A:164:GLN:HG3	1:A:226:VAL:CG2	2.01	0.91
1:A:166:LEU:HD21	1:A:184:LEU:HG	1.53	0.91
1:G:185:ASP:HB2	1:G:186:PRO:HD2	1.53	0.90
1:D:185:ASP:HB2	1:D:186:PRO:HD2	1.54	0.89
1:C:211:ILE:O	1:C:215:LYS:HG2	1.73	0.89
1:J:202:MET:HE2	1:J:213:ILE:HG21	1.55	0.88
1:D:145:TYR:CD1	1:D:156:LYS:O	2.25	0.88
1:F:180:THR:HG22	1:F:181:TYR:H	1.38	0.88
1:C:163:THR:HG22	1:C:189:ILE:HG23	1.53	0.88
1:J:185:ASP:HB2	1:J:186:PRO:HD2	1.56	0.88
1:K:185:ASP:HB2	1:K:186:PRO:HD2	1.55	0.87
1:K:213:ILE:HD13	1:K:218:GLU:HB3	1.56	0.86
1:A:206:LYS:HZ3	1:A:219:VAL:HG21	1.40	0.86
1:E:181:TYR:O	1:E:182:GLU:HG3	1.74	0.86
1:G:147:LYS:HB2	1:G:155:VAL:HG21	1.58	0.85
1:G:153:ALA:C	1:G:155:VAL:N	2.34	0.85
1:B:151:ILE:HG12	1:B:152:TYR:HD2	1.38	0.85
1:E:16:ASN:HD21	1:E:18:ASP:HB2	1.40	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:213:ILE:HD13	1:J:218:GLU:HB3	1.59	0.85
1:F:185:ASP:HB2	1:F:186:PRO:HD2	1.59	0.84
1:F:170:LEU:HB3	1:F:182:GLU:OE1	1.77	0.83
1:A:164:GLN:HG3	1:A:226:VAL:HG23	1.61	0.83
1:C:185:ASP:HB2	1:C:186:PRO:HD2	1.60	0.83
1:E:16:ASN:HB3	1:E:19:ASN:ND2	1.92	0.83
1:J:21:ILE:O	1:J:25:GLN:HG2	1.78	0.82
1:E:16:ASN:HB3	1:E:19:ASN:HD22	1.43	0.82
1:G:121:ALA:HB1	1:G:187:LEU:HD23	1.62	0.82
1:E:185:ASP:HB2	1:E:186:PRO:HD2	1.61	0.82
1:B:185:ASP:HB2	1:B:186:PRO:HD2	1.61	0.82
1:F:181:TYR:HE1	2:F:1227:UTP:O3G	1.61	0.82
1:J:162:THR:HG22	1:J:164:GLN:H	1.44	0.82
1:L:42:GLY:HA3	2:L:1227:UTP:O2B	1.79	0.81
1:K:202:MET:HE2	1:K:213:ILE:HG21	1.61	0.81
1:G:202:MET:HE2	1:G:213:ILE:HG21	1.63	0.81
1:K:141:VAL:HG12	1:K:143:GLY:H	1.44	0.81
1:C:208:ASN:OD1	1:C:209:ARG:HG3	1.81	0.80
1:C:47:ALA:O	1:C:51:ILE:HG13	1.81	0.80
1:A:185:ASP:HB2	1:A:186:PRO:HD2	1.63	0.80
1:H:202:MET:HE2	1:H:213:ILE:HG21	1.63	0.80
1:E:32:ASP:C	1:E:33:ASN:HD22	1.91	0.79
1:E:146:GLU:HG2	1:E:147:LYS:HG3	1.65	0.79
1:G:82:SER:HA	1:H:59:ILE:HD11	1.65	0.79
1:E:145:TYR:CD2	1:E:149:PRO:HD3	2.18	0.79
1:L:121:ALA:HB1	1:L:187:LEU:HD23	1.65	0.79
1:F:170:LEU:HD22	1:F:182:GLU:HG2	1.65	0.78
1:L:202:MET:HE2	1:L:213:ILE:HG21	1.65	0.78
1:C:148:ASP:HB2	1:C:149:PRO:HD2	1.63	0.78
1:C:163:THR:HG21	1:C:193:GLU:HG3	1.65	0.78
1:J:121:ALA:HB1	1:J:187:LEU:HD23	1.66	0.77
1:E:42:GLY:HA3	2:E:1227:UTP:O2B	1.84	0.77
1:A:14:GLU:HB3	1:A:16:ASN:ND2	2.00	0.77
1:G:79:VAL:HG12	1:G:83:LEU:HD11	1.66	0.77
1:A:17:VAL:O	1:A:21:ILE:HG12	1.84	0.77
1:G:115:PRO:HG2	1:K:95:LEU:HD23	1.66	0.77
1:B:167:ARG:C	1:B:169:ILE:H	1.93	0.77
1:A:167:ARG:C	1:A:169:ILE:H	1.93	0.76
1:C:80:MET:HE2	1:C:81:PHE:CE2	2.20	0.76
1:G:140:ASN:HD22	1:G:141:VAL:N	1.84	0.76
1:C:139:THR:OG1	1:C:140:ASN:N	2.19	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:28:LYS:HE2	1:J:86:LEU:HD11	1.69	0.75
1:F:183:LEU:HD12	1:F:183:LEU:O	1.87	0.75
1:D:163:THR:O	1:D:167:ARG:HG2	1.85	0.75
1:H:121:ALA:HB1	1:H:187:LEU:HD23	1.69	0.75
1:K:121:ALA:HB1	1:K:187:LEU:HD23	1.68	0.75
1:L:164:GLN:O	1:L:167:ARG:HB2	1.86	0.75
1:G:21:ILE:O	1:G:25:GLN:HG2	1.85	0.75
1:G:1:MET:HE1	1:G:133:LYS:HE3	1.69	0.75
1:F:30:LEU:O	1:F:35:PHE:HB2	1.87	0.74
1:A:142:ASP:CG	1:A:206:LYS:HZ1	1.95	0.74
1:E:182:GLU:OE1	1:E:185:ASP:HA	1.86	0.74
1:A:14:GLU:HB2	1:A:16:ASN:HB2	1.69	0.74
1:B:11:PHE:CE1	1:B:19:ASN:HB3	2.22	0.74
1:F:170:LEU:HD22	1:F:182:GLU:CG	2.16	0.74
1:A:14:GLU:HB3	1:A:16:ASN:HD22	1.49	0.74
1:E:141:VAL:HG12	1:E:143:GLY:H	1.53	0.74
1:E:141:VAL:HG12	1:E:142:ASP:N	2.01	0.74
1:E:217:GLU:O	1:E:218:GLU:HB2	1.87	0.73
1:F:205:ARG:HH11	1:L:16:ASN:ND2	1.87	0.73
1:B:14:GLU:CB	1:B:16:ASN:HD22	1.93	0.73
1:I:202:MET:HE2	1:I:213:ILE:HG21	1.70	0.73
1:J:144:VAL:O	1:J:158:ILE:HG12	1.89	0.72
1:L:14:GLU:O	1:L:15:ASP:HB3	1.87	0.72
1:L:167:ARG:HG3	1:L:167:ARG:HH11	1.52	0.72
1:D:156:LYS:HG3	1:D:157:LEU:N	1.97	0.72
1:E:145:TYR:HE1	1:E:157:LEU:HB2	1.54	0.72
1:C:218:GLU:HG2	1:C:219:VAL:HG23	1.70	0.72
1:H:206:LYS:HZ3	1:H:219:VAL:HB	1.55	0.72
1:B:141:VAL:HG12	1:B:143:GLY:H	1.55	0.71
1:D:146:GLU:HG3	1:D:158:ILE:HD11	1.72	0.71
1:A:95:LEU:CD2	1:E:115:PRO:HG2	2.19	0.71
1:G:206:LYS:HZ2	1:G:219:VAL:CG1	2.03	0.71
1:D:47:ALA:O	1:D:51:ILE:HG13	1.90	0.71
1:J:27:ILE:CD1	1:J:39:ILE:HD11	2.20	0.71
1:D:18:ASP:O	1:D:22:VAL:HG12	1.90	0.71
1:H:141:VAL:HG12	1:H:143:GLY:H	1.54	0.71
1:B:11:PHE:CZ	1:B:19:ASN:HB3	2.25	0.70
1:E:20:LEU:HD13	1:F:57:ILE:HD13	1.73	0.70
1:K:159:PRO:HG2	1:K:160:HIS:H	1.55	0.70
1:J:162:THR:CG2	1:J:164:GLN:H	2.05	0.70
1:L:166:LEU:HD12	1:L:223:ILE:HG12	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:164:GLN:O	1:D:167:ARG:HB2	1.91	0.70
1:G:17:VAL:O	1:G:21:ILE:HG12	1.91	0.70
1:G:206:LYS:NZ	1:G:219:VAL:HG11	2.07	0.70
1:I:121:ALA:HB1	1:I:187:LEU:HD23	1.73	0.70
1:A:203:ASN:OD1	1:A:205:ARG:HB2	1.91	0.70
1:B:17:VAL:O	1:B:21:ILE:HG12	1.92	0.70
1:B:157:LEU:C	1:B:157:LEU:HD23	2.17	0.69
1:G:85:ASP:H	1:G:89:MET:HE3	1.57	0.69
1:I:14:GLU:O	1:I:15:ASP:CB	2.41	0.69
1:A:32:ASP:C	1:A:33:ASN:HD22	2.00	0.69
1:G:51:ILE:HG23	1:G:64:LEU:HB3	1.73	0.69
1:G:115:PRO:HG2	1:K:95:LEU:CD2	2.21	0.69
1:I:157:LEU:HD22	1:I:158:ILE:N	2.07	0.69
1:J:61:GLU:HG2	1:L:194:ARG:HD2	1.75	0.69
1:A:128:GLU:HG2	1:E:62:ALA:HB2	1.74	0.69
1:H:218:GLU:OE2	1:H:219:VAL:HG23	1.91	0.69
1:C:10:LYS:HD2	1:C:140:ASN:HB3	1.73	0.69
1:D:203:ASN:OD1	1:D:205:ARG:HB2	1.93	0.69
1:G:145:TYR:CE1	1:G:157:LEU:HB2	2.28	0.69
1:B:110:THR:HG22	1:B:111:GLY:N	2.07	0.68
1:L:60:GLY:O	1:L:64:LEU:HG	1.92	0.68
1:B:95:LEU:CD2	1:C:115:PRO:HG2	2.24	0.68
1:J:32:ASP:C	1:J:33:ASN:HD22	2.02	0.68
1:K:203:ASN:OD1	1:K:205:ARG:HD3	1.92	0.68
1:K:183:LEU:HD22	1:K:184:LEU:HG	1.76	0.68
1:E:16:ASN:ND2	1:E:18:ASP:HB2	2.07	0.68
1:C:213:ILE:HG23	1:C:220:SER:HB3	1.76	0.68
1:F:110:THR:HG22	1:F:111:GLY:N	2.09	0.68
1:F:181:TYR:CE1	2:F:1227:UTP:O3G	2.46	0.68
1:I:110:THR:HG22	1:I:111:GLY:N	2.09	0.68
1:J:24:ARG:HD3	1:J:82:SER:O	1.94	0.67
1:D:61:GLU:HG2	1:F:194:ARG:HD2	1.75	0.67
1:L:167:ARG:HG3	1:L:167:ARG:NH1	2.08	0.67
1:E:48:ARG:HG3	1:E:52:LYS:HE3	1.76	0.67
1:F:32:ASP:C	1:F:33:ASN:HD22	2.01	0.67
1:H:208:ASN:OD1	1:H:209:ARG:HG3	1.95	0.67
1:F:141:VAL:HG12	1:F:143:GLY:H	1.58	0.67
1:D:95:LEU:CD2	1:F:115:PRO:HG2	2.25	0.67
1:H:60:GLY:O	1:H:64:LEU:HG	1.95	0.67
1:B:21:ILE:O	1:B:25:GLN:HG3	1.95	0.66
1:L:18:ASP:O	1:L:22:VAL:HG12	1.94	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:110:THR:HG22	1:A:111:GLY:N	2.10	0.66
1:G:95:LEU:CD2	1:K:115:PRO:HG2	2.24	0.66
1:B:61:GLU:HG2	1:C:194:ARG:HD2	1.78	0.66
1:H:183:LEU:HD22	1:H:184:LEU:HG	1.76	0.66
1:I:165:ASP:O	1:I:169:ILE:HD13	1.96	0.66
1:F:205:ARG:HH21	1:L:205:ARG:NH1	1.94	0.66
1:F:181:TYR:C	1:F:181:TYR:CD2	2.73	0.66
1:J:144:VAL:N	1:J:221:SER:OG	2.17	0.66
1:C:59:ILE:CD1	1:D:82:SER:HA	2.27	0.65
1:E:157:LEU:C	1:E:157:LEU:HD23	2.21	0.65
1:K:168:LYS:O	1:K:169:ILE:C	2.38	0.65
1:F:147:LYS:O	1:F:148:ASP:HB2	1.97	0.65
1:C:140:ASN:O	1:C:141:VAL:HG23	1.97	0.65
1:G:42:GLY:HA3	2:G:1227:UTP:O2B	1.96	0.65
1:H:95:LEU:HD23	1:I:115:PRO:HG2	1.79	0.65
1:H:182:GLU:HG3	1:H:183:LEU:H	1.60	0.65
1:B:95:LEU:HD22	1:C:115:PRO:HG2	1.77	0.65
1:C:110:THR:HG22	1:C:111:GLY:N	2.11	0.65
1:E:110:THR:HG22	1:E:111:GLY:O	1.96	0.65
1:L:110:THR:HG22	1:L:111:GLY:N	2.11	0.65
1:L:79:VAL:O	1:L:83:LEU:HG	1.97	0.65
1:K:79:VAL:O	1:K:83:LEU:HG	1.97	0.65
1:L:165:ASP:O	1:L:169:ILE:HD13	1.97	0.65
1:C:203:ASN:OD1	1:C:205:ARG:HB2	1.97	0.65
1:K:17:VAL:HG13	1:K:18:ASP:H	1.61	0.65
1:G:95:LEU:HD23	1:K:115:PRO:HG2	1.77	0.64
1:A:95:LEU:HD22	1:E:115:PRO:HG2	1.78	0.64
1:E:141:VAL:CG1	1:E:142:ASP:N	2.59	0.64
1:F:42:GLY:HA3	2:F:1227:UTP:O2B	1.96	0.64
1:K:84:GLN:HA	1:K:89:MET:HE1	1.80	0.64
1:L:30:LEU:O	1:L:35:PHE:HB2	1.98	0.64
1:C:141:VAL:HG12	1:C:143:GLY:H	1.61	0.64
1:E:110:THR:HG22	1:E:111:GLY:N	2.11	0.64
1:G:27:ILE:CD1	1:G:39:ILE:HD11	2.28	0.64
1:F:181:TYR:CD2	1:F:182:GLU:N	2.66	0.64
1:I:148:ASP:OD2	1:I:155:VAL:HG22	1.97	0.64
1:C:110:THR:HG22	1:C:111:GLY:O	1.97	0.64
1:B:113:PHE:CE2	1:B:122:VAL:HG13	2.33	0.64
1:E:49:ARG:NH2	1:F:12:PHE:O	2.31	0.64
1:A:11:PHE:CE1	1:A:19:ASN:HB3	2.33	0.64
1:D:95:LEU:HD22	1:F:115:PRO:HG2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:24:ARG:HH21	1:E:84:GLN:HG2	1.61	0.64
1:G:206:LYS:NZ	1:G:219:VAL:CG1	2.61	0.64
1:D:110:THR:HG22	1:D:111:GLY:N	2.11	0.64
1:G:50:TYR:HD2	1:H:78:LEU:HD22	1.63	0.64
1:A:61:GLU:HG2	1:E:194:ARG:HD2	1.80	0.63
1:A:206:LYS:NZ	1:A:219:VAL:HG21	2.13	0.63
1:D:17:VAL:O	1:D:21:ILE:HG12	1.98	0.63
1:F:161:LEU:HD12	1:F:165:ASP:HB2	1.80	0.63
1:A:209:ARG:HD3	1:A:218:GLU:OE1	1.98	0.63
1:J:110:THR:HG22	1:J:111:GLY:N	2.12	0.63
1:J:162:THR:HB	1:J:165:ASP:OD1	1.98	0.63
1:E:73:ARG:NH2	1:E:93:GLN:HB3	2.14	0.63
1:F:203:ASN:OD1	1:F:205:ARG:HB2	1.97	0.63
1:H:79:VAL:O	1:H:83:LEU:HG	1.98	0.63
1:C:59:ILE:HD11	1:D:82:SER:HA	1.81	0.62
1:A:167:ARG:HH22	1:A:193:GLU:CD	2.07	0.62
1:J:162:THR:HG22	1:J:164:GLN:N	2.13	0.62
1:B:128:GLU:HG2	1:C:62:ALA:HB2	1.81	0.62
1:J:139:THR:O	1:J:203:ASN:HA	2.00	0.62
1:K:110:THR:HG22	1:K:111:GLY:N	2.14	0.62
1:L:213:ILE:HD13	1:L:218:GLU:HB3	1.80	0.62
1:E:203:ASN:OD1	1:E:205:ARG:HB2	1.99	0.62
1:F:209:ARG:O	1:F:213:ILE:HG12	2.00	0.62
1:J:162:THR:HG23	1:J:226:VAL:CG2	2.29	0.62
1:F:84:GLN:HA	1:F:89:MET:HE1	1.81	0.62
1:H:110:THR:HG22	1:H:111:GLY:N	2.13	0.62
1:J:162:THR:CG2	1:J:226:VAL:HG21	2.30	0.62
1:B:151:ILE:HG12	1:B:152:TYR:N	2.14	0.62
1:D:164:GLN:OE1	1:D:167:ARG:HG3	2.00	0.62
1:B:162:THR:H	1:B:165:ASP:HB2	1.65	0.61
1:C:10:LYS:HD2	1:C:140:ASN:CB	2.30	0.61
1:D:163:THR:OG1	1:D:225:PRO:HA	2.00	0.61
1:E:82:SER:HA	1:F:59:ILE:HD11	1.82	0.61
1:A:110:THR:HG22	1:A:111:GLY:O	2.00	0.61
1:J:145:TYR:CZ	1:J:157:LEU:HD23	2.36	0.61
1:J:194:ARG:HD2	1:L:61:GLU:HG2	1.82	0.61
1:E:155:VAL:HG12	1:E:156:LYS:N	2.15	0.61
1:F:110:THR:HG22	1:F:111:GLY:O	1.99	0.61
1:A:164:GLN:HG3	1:A:226:VAL:HG21	1.80	0.61
1:F:180:THR:HG22	1:F:181:TYR:N	2.14	0.61
1:D:30:LEU:O	1:D:35:PHE:HB2	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:218:GLU:HG3	1:E:219:VAL:N	2.16	0.61
1:D:213:ILE:HD13	1:D:218:GLU:HB3	1.83	0.61
1:L:31:ALA:C	1:L:33:ASN:H	2.09	0.61
1:J:183:LEU:HD23	1:J:184:LEU:HG	1.83	0.61
1:A:142:ASP:HA	1:A:203:ASN:HB2	1.82	0.61
1:I:84:GLN:HA	1:I:89:MET:HE1	1.83	0.61
1:K:79:VAL:HG12	1:K:83:LEU:HD11	1.83	0.61
1:E:50:TYR:OH	1:F:75:ASN:ND2	2.34	0.60
1:G:82:SER:HA	1:H:59:ILE:CD1	2.30	0.60
1:G:209:ARG:O	1:G:213:ILE:HG12	2.00	0.60
1:F:80:MET:HE2	1:F:81:PHE:CE2	2.36	0.60
1:J:95:LEU:CD2	1:L:115:PRO:HG2	2.32	0.60
1:B:140:ASN:HD22	1:B:140:ASN:H	1.49	0.60
1:D:163:THR:HG21	1:D:193:GLU:HG3	1.84	0.60
1:B:140:ASN:HD22	1:B:140:ASN:N	1.99	0.60
1:C:209:ARG:CZ	1:C:218:GLU:OE2	2.50	0.60
1:D:163:THR:HG1	1:D:225:PRO:HA	1.66	0.60
1:K:60:GLY:O	1:K:64:LEU:HG	2.02	0.60
1:F:8:SER:HA	2:F:1227:UTP:O1G	2.01	0.60
1:A:79:VAL:O	1:A:83:LEU:HG	2.01	0.60
1:F:98:PHE:CZ	1:F:126:VAL:HG13	2.37	0.60
1:F:83:LEU:O	1:F:86:LEU:HB2	2.02	0.60
1:F:166:LEU:HD21	1:F:184:LEU:HD12	1.82	0.60
1:A:27:ILE:HD11	1:A:39:ILE:HD11	1.84	0.59
1:D:115:PRO:HG2	1:F:95:LEU:CD2	2.31	0.59
1:E:218:GLU:HG3	1:E:219:VAL:H	1.66	0.59
1:H:8:SER:HA	2:H:1227:UTP:O3G	2.00	0.59
1:E:145:TYR:HD2	1:E:149:PRO:HD3	1.65	0.59
1:G:27:ILE:HD12	1:G:39:ILE:HD11	1.83	0.59
1:A:14:GLU:C	1:A:16:ASN:N	2.54	0.59
1:B:194:ARG:HD2	1:C:61:GLU:HG2	1.83	0.59
1:B:203:ASN:OD1	1:B:205:ARG:HB2	2.02	0.59
1:F:181:TYR:CG	1:F:182:GLU:N	2.68	0.59
1:A:167:ARG:C	1:A:169:ILE:N	2.60	0.59
1:H:134:THR:HG23	1:H:200:ILE:HD13	1.84	0.59
1:C:161:LEU:HD23	1:C:161:LEU:N	2.18	0.59
1:L:169:ILE:HG22	1:L:170:LEU:HD23	1.85	0.59
1:B:148:ASP:HB3	1:B:151:ILE:HG23	1.83	0.59
1:B:167:ARG:C	1:B:169:ILE:N	2.61	0.59
1:B:183:LEU:CD2	1:B:184:LEU:HG	2.30	0.59
1:C:42:GLY:HA3	2:C:1227:UTP:O2B	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:163:THR:HB	1:C:193:GLU:OE1	2.03	0.59
1:G:148:ASP:O	1:G:149:PRO:O	2.21	0.59
1:A:14:GLU:CB	1:A:16:ASN:HD22	2.15	0.59
1:L:141:VAL:HG13	1:L:143:GLY:H	1.68	0.59
1:D:21:ILE:O	1:D:25:GLN:HG2	2.03	0.59
1:E:147:LYS:HB2	1:E:155:VAL:HG21	1.84	0.59
1:H:182:GLU:CG	1:H:183:LEU:H	2.16	0.59
1:E:179:GLY:N	2:E:1227:UTP:O3'	2.35	0.58
1:F:21:ILE:O	1:F:25:GLN:HG3	2.02	0.58
1:H:115:PRO:HG2	1:I:95:LEU:HD23	1.84	0.58
1:I:57:ILE:HG22	1:J:21:ILE:HD11	1.84	0.58
1:J:95:LEU:HD23	1:L:115:PRO:HG2	1.85	0.58
1:D:140:ASN:HD22	1:D:140:ASN:N	2.01	0.58
1:B:167:ARG:O	1:B:169:ILE:N	2.36	0.58
1:D:113:PHE:CE2	1:D:122:VAL:HG13	2.38	0.58
1:F:167:ARG:HG3	1:F:167:ARG:HH11	1.69	0.58
1:I:168:LYS:O	1:I:169:ILE:C	2.47	0.58
1:J:168:LYS:O	1:J:169:ILE:HD12	2.03	0.58
1:F:85:ASP:H	1:F:89:MET:HE3	1.67	0.58
1:I:60:GLY:O	1:I:64:LEU:HG	2.02	0.58
1:C:145:TYR:CD1	1:C:157:LEU:HA	2.38	0.58
1:C:206:LYS:HZ3	1:C:219:VAL:HB	1.68	0.58
1:E:1:MET:HE3	1:E:1:MET:N	2.18	0.58
1:F:213:ILE:HD13	1:F:218:GLU:HB3	1.85	0.58
1:G:60:GLY:O	1:G:64:LEU:HG	2.02	0.58
1:G:110:THR:HG22	1:G:111:GLY:N	2.18	0.58
1:E:167:ARG:HH22	1:E:193:GLU:CD	2.11	0.58
1:K:56:GLU:HG2	1:L:17:VAL:CG2	2.33	0.58
1:E:181:TYR:O	1:E:182:GLU:CG	2.50	0.58
1:E:167:ARG:NH2	1:E:193:GLU:OE2	2.35	0.58
1:J:16:ASN:OD1	1:J:18:ASP:HB2	2.04	0.58
1:E:157:LEU:HD23	1:E:157:LEU:O	2.04	0.58
1:K:15:ASP:O	1:K:16:ASN:CG	2.46	0.58
1:K:79:VAL:HG12	1:K:83:LEU:CD1	2.33	0.58
1:G:164:GLN:O	1:G:167:ARG:HB2	2.04	0.58
1:H:95:LEU:CD2	1:I:115:PRO:HG2	2.34	0.58
1:K:206:LYS:HZ3	1:K:219:VAL:CB	2.17	0.58
1:G:50:TYR:CD2	1:H:78:LEU:HD22	2.39	0.57
1:L:134:THR:HG23	1:L:200:ILE:HD13	1.86	0.57
1:L:140:ASN:C	1:L:140:ASN:HD22	2.12	0.57
1:H:140:ASN:N	1:H:140:ASN:HD22	2.01	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:31:ALA:C	1:E:33:ASN:H	2.12	0.57
1:G:25:GLN:O	1:G:29:GLU:HG3	2.04	0.57
1:I:144:VAL:HG23	1:I:221:SER:CB	2.35	0.57
1:J:17:VAL:O	1:J:21:ILE:HG12	2.04	0.57
1:G:59:ILE:HD11	1:H:82:SER:HA	1.85	0.57
1:H:87:ALA:O	1:H:89:MET:HE2	2.04	0.57
1:H:206:LYS:NZ	1:H:219:VAL:HB	2.19	0.57
1:K:17:VAL:HG13	1:K:18:ASP:N	2.18	0.57
1:A:98:PHE:CZ	1:A:126:VAL:HG13	2.39	0.57
1:A:142:ASP:CG	1:A:206:LYS:NZ	2.62	0.57
1:C:211:ILE:O	1:C:215:LYS:CG	2.51	0.57
1:D:144:VAL:HG23	1:D:221:SER:CB	2.34	0.57
1:L:162:THR:HB	1:L:226:VAL:CG2	2.35	0.57
1:D:140:ASN:HD22	1:D:140:ASN:H	1.51	0.57
1:E:218:GLU:CG	1:E:219:VAL:H	2.17	0.57
1:A:147:LYS:O	1:A:155:VAL:HG11	2.04	0.57
1:G:167:ARG:HG3	1:G:167:ARG:HH11	1.69	0.57
1:I:47:ALA:O	1:I:51:ILE:HG13	2.04	0.57
1:I:110:THR:HG22	1:I:111:GLY:O	2.04	0.57
1:B:18:ASP:O	1:B:22:VAL:HG12	2.04	0.57
1:G:206:LYS:HZ2	1:G:219:VAL:HG11	1.67	0.57
1:I:69:ILE:HG23	1:I:112:GLY:HA3	1.87	0.57
1:K:160:HIS:O	1:K:161:LEU:HB3	2.05	0.57
1:L:140:ASN:C	1:L:140:ASN:ND2	2.61	0.57
1:B:98:PHE:CZ	1:B:126:VAL:HG13	2.40	0.57
1:G:140:ASN:ND2	1:G:141:VAL:HG23	2.20	0.57
1:H:115:PRO:HG2	1:I:95:LEU:CD2	2.33	0.57
1:J:30:LEU:HD13	1:J:37:VAL:HG21	1.87	0.57
1:J:84:GLN:O	1:J:85:ASP:HB3	2.04	0.57
1:E:141:VAL:CG1	1:E:142:ASP:H	2.17	0.56
1:G:148:ASP:C	1:G:149:PRO:O	2.48	0.56
1:H:182:GLU:HG3	1:H:183:LEU:N	2.19	0.56
1:K:134:THR:HG23	1:K:200:ILE:HD13	1.87	0.56
1:F:170:LEU:CD2	1:F:182:GLU:HG2	2.34	0.56
1:G:47:ALA:O	1:G:51:ILE:HG13	2.05	0.56
1:K:57:ILE:HG22	1:L:17:VAL:HG13	1.86	0.56
1:C:73:ARG:NH2	1:C:93:GLN:HB3	2.20	0.56
1:C:84:GLN:O	1:C:85:ASP:HB2	2.05	0.56
1:E:1:MET:HE3	1:E:1:MET:H3	1.70	0.56
1:H:206:LYS:HG2	1:H:209:ARG:HH21	1.71	0.56
1:B:158:ILE:N	1:B:158:ILE:HD13	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:84:GLN:HA	1:F:89:MET:CE	2.35	0.56
1:K:84:GLN:O	1:K:85:ASP:HB2	2.05	0.56
1:L:40:VAL:HG21	1:L:123:ALA:HA	1.88	0.56
1:K:144:VAL:HG23	1:K:221:SER:HB2	1.87	0.56
1:H:84:GLN:O	1:H:85:ASP:HB2	2.06	0.56
1:L:79:VAL:HG12	1:L:83:LEU:HD11	1.86	0.56
1:A:11:PHE:CZ	1:A:19:ASN:HB3	2.40	0.56
1:E:52:LYS:HB3	1:L:150:ARG:HB2	1.86	0.56
1:F:161:LEU:HD21	1:F:223:ILE:HG13	1.87	0.56
1:H:3:ILE:HD11	1:H:136:VAL:HG23	1.88	0.56
1:J:27:ILE:HD12	1:J:39:ILE:HD11	1.88	0.56
1:A:139:THR:O	1:A:203:ASN:HA	2.06	0.56
1:E:179:GLY:O	1:E:181:TYR:CD1	2.58	0.56
1:I:206:LYS:NZ	1:I:219:VAL:HB	2.21	0.56
1:K:144:VAL:HG23	1:K:221:SER:CB	2.36	0.56
1:A:22:VAL:HG23	1:A:208:ASN:HD22	1.71	0.55
1:I:65:ASP:O	1:I:69:ILE:HG13	2.06	0.55
1:J:27:ILE:HD11	1:J:39:ILE:HD11	1.89	0.55
1:L:21:ILE:O	1:L:25:GLN:HG2	2.05	0.55
1:H:142:ASP:HA	1:H:203:ASN:HB2	1.87	0.55
1:J:52:LYS:O	1:J:56:GLU:HB2	2.05	0.55
1:G:140:ASN:HD22	1:G:140:ASN:C	2.11	0.55
1:H:142:ASP:HB3	1:H:219:VAL:HG11	1.89	0.55
1:I:206:LYS:HZ3	1:I:219:VAL:HB	1.71	0.55
1:J:60:GLY:O	1:J:64:LEU:HG	2.07	0.55
1:I:40:VAL:HG21	1:I:123:ALA:HA	1.88	0.55
1:K:206:LYS:HZ3	1:K:219:VAL:HB	1.71	0.55
1:C:59:ILE:HD11	1:D:82:SER:CA	2.36	0.55
1:C:157:LEU:O	1:C:159:PRO:HD3	2.06	0.55
1:F:23:LEU:O	1:F:27:ILE:HG12	2.06	0.55
1:G:134:THR:HG23	1:G:200:ILE:HD13	1.87	0.55
1:G:145:TYR:HE1	1:G:157:LEU:HB2	1.70	0.55
1:A:157:LEU:HD23	1:A:157:LEU:C	2.32	0.55
1:A:164:GLN:O	1:A:168:LYS:HG3	2.06	0.55
1:B:84:GLN:O	1:B:85:ASP:HB2	2.05	0.55
1:D:141:VAL:HG12	1:D:142:ASP:N	2.22	0.55
1:I:13:ASP:HA	1:J:49:ARG:NH2	2.22	0.55
1:F:84:GLN:O	1:F:85:ASP:HB2	2.07	0.55
1:K:202:MET:HE1	1:K:210:ILE:HD12	1.87	0.55
1:D:167:ARG:C	1:D:169:ILE:H	2.15	0.54
1:I:87:ALA:O	1:I:89:MET:HE2	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:164:GLN:O	1:I:167:ARG:HB2	2.06	0.54
1:J:202:MET:HE1	1:J:210:ILE:HD12	1.90	0.54
1:A:144:VAL:N	1:A:221:SER:OG	2.27	0.54
1:I:223:ILE:HD12	1:I:223:ILE:N	2.21	0.54
1:J:206:LYS:HG2	1:J:209:ARG:HH21	1.71	0.54
1:F:167:ARG:HG3	1:F:167:ARG:NH1	2.23	0.54
1:H:79:VAL:HG12	1:H:83:LEU:HD11	1.89	0.54
1:H:140:ASN:O	1:H:203:ASN:ND2	2.41	0.54
1:H:223:ILE:N	1:H:223:ILE:HD12	2.23	0.54
1:D:51:ILE:HG23	1:D:64:LEU:HB3	1.89	0.54
1:A:14:GLU:CB	1:A:16:ASN:HB2	2.37	0.54
1:G:28:LYS:HG2	1:G:86:LEU:HD11	1.90	0.54
1:L:22:VAL:HA	1:L:25:GLN:HG2	1.88	0.54
1:A:140:ASN:HB3	1:A:204:TYR:CZ	2.42	0.54
1:B:163:THR:HG21	1:B:193:GLU:HG3	1.89	0.54
1:B:207:LEU:O	1:B:210:ILE:HB	2.08	0.54
1:F:147:LYS:HB3	1:F:152:TYR:CD2	2.43	0.54
1:H:51:ILE:HG23	1:H:64:LEU:HB3	1.89	0.54
1:I:199:VAL:C	1:I:200:ILE:HD12	2.33	0.54
1:K:183:LEU:C	1:K:183:LEU:HD23	2.33	0.54
1:F:79:VAL:O	1:F:83:LEU:HG	2.07	0.54
1:L:157:LEU:C	1:L:157:LEU:HD23	2.33	0.54
1:A:83:LEU:O	1:A:86:LEU:HB2	2.06	0.54
1:B:142:ASP:CG	1:B:206:LYS:NZ	2.66	0.54
1:G:59:ILE:CD1	1:H:82:SER:HA	2.38	0.54
1:K:218:GLU:HG3	1:K:219:VAL:H	1.73	0.54
1:L:84:GLN:O	1:L:85:ASP:HB2	2.07	0.54
1:B:166:LEU:CD2	1:B:184:LEU:HD12	2.39	0.53
1:H:141:VAL:HG12	1:H:142:ASP:N	2.23	0.53
1:J:158:ILE:HD13	1:J:158:ILE:N	2.23	0.53
1:A:194:ARG:HD2	1:E:61:GLU:HG2	1.89	0.53
1:D:28:LYS:HG2	1:D:86:LEU:HD11	1.90	0.53
1:F:33:ASN:HD22	1:F:33:ASN:N	2.05	0.53
1:J:134:THR:HG23	1:J:200:ILE:HD13	1.89	0.53
1:K:65:ASP:O	1:K:69:ILE:HG13	2.09	0.53
1:D:202:MET:HE2	1:D:213:ILE:HG13	1.89	0.53
1:E:59:ILE:HD11	1:F:82:SER:HA	1.90	0.53
1:E:75:ASN:ND2	1:F:50:TYR:OH	2.41	0.53
1:G:1:MET:O	1:G:35:PHE:HA	2.08	0.53
1:I:223:ILE:HD12	1:I:223:ILE:H	1.74	0.53
1:J:209:ARG:O	1:J:213:ILE:HG12	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:157:LEU:HD13	1:I:157:LEU:C	2.34	0.53
1:J:115:PRO:HG2	1:L:95:LEU:CD2	2.39	0.53
1:D:27:ILE:CD1	1:D:39:ILE:HD11	2.39	0.53
1:E:218:GLU:CG	1:E:219:VAL:N	2.72	0.53
1:G:40:VAL:HG21	1:G:123:ALA:HA	1.89	0.53
1:G:79:VAL:O	1:G:83:LEU:HG	2.08	0.53
1:L:22:VAL:HA	1:L:25:GLN:CG	2.39	0.53
1:B:110:THR:HG21	1:B:113:PHE:CE1	2.43	0.53
1:D:165:ASP:OD1	1:D:165:ASP:N	2.41	0.53
1:E:209:ARG:O	1:E:213:ILE:HG12	2.08	0.53
1:H:65:ASP:O	1:H:69:ILE:HG13	2.08	0.53
1:I:98:PHE:CZ	1:I:126:VAL:HG13	2.44	0.53
1:J:183:LEU:CD2	1:J:184:LEU:HG	2.38	0.53
1:D:110:THR:HG22	1:D:111:GLY:O	2.09	0.53
1:F:205:ARG:NH2	1:L:14:GLU:OE2	2.42	0.53
1:B:80:MET:HE2	1:B:81:PHE:CE2	2.44	0.53
1:F:202:MET:HE2	1:F:213:ILE:HG13	1.91	0.53
1:H:182:GLU:O	1:H:183:LEU:C	2.51	0.53
1:B:151:ILE:HG12	1:B:152:TYR:CD2	2.30	0.53
1:J:169:ILE:HG22	1:J:169:ILE:O	2.08	0.53
1:L:27:ILE:CD1	1:L:39:ILE:HD11	2.39	0.53
1:A:115:PRO:HG2	1:E:95:LEU:CD2	2.38	0.52
1:D:194:ARG:HD2	1:F:61:GLU:HG2	1.91	0.52
1:F:110:THR:HG21	1:F:113:PHE:CE1	2.43	0.52
1:J:65:ASP:O	1:J:69:ILE:HG13	2.09	0.52
1:E:20:LEU:HD13	1:F:57:ILE:CD1	2.38	0.52
1:K:3:ILE:HD11	1:K:136:VAL:HG23	1.91	0.52
1:K:82:SER:HA	1:L:59:ILE:HD11	1.91	0.52
1:B:139:THR:O	1:B:203:ASN:HA	2.09	0.52
1:E:145:TYR:CD1	1:E:157:LEU:HA	2.44	0.52
1:F:166:LEU:CD2	1:F:184:LEU:HD12	2.38	0.52
1:H:40:VAL:HG21	1:H:123:ALA:HA	1.91	0.52
1:A:149:PRO:O	1:A:150:ARG:C	2.52	0.52
1:B:60:GLY:O	1:B:64:LEU:HG	2.09	0.52
1:J:199:VAL:C	1:J:200:ILE:HD12	2.35	0.52
1:K:82:SER:HA	1:L:59:ILE:CD1	2.40	0.52
1:J:9:GLY:H	2:J:1227:UTP:PG	2.33	0.52
1:A:154:ASP:N	1:A:154:ASP:OD2	2.42	0.52
1:C:80:MET:CE	1:C:81:PHE:CE2	2.91	0.52
1:C:147:LYS:O	1:C:155:VAL:HG11	2.09	0.52
1:L:223:ILE:N	1:L:223:ILE:HD12	2.25	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:218:GLU:HG2	1:C:219:VAL:N	2.24	0.52
1:G:73:ARG:O	1:G:76:ALA:HB3	2.08	0.52
1:B:151:ILE:HD11	1:B:152:TYR:HE2	1.75	0.52
1:E:139:THR:HG23	1:E:141:VAL:H	1.75	0.52
1:C:157:LEU:C	1:C:157:LEU:HD23	2.35	0.52
1:G:166:LEU:HD12	1:G:166:LEU:O	2.10	0.52
1:C:179:GLY:N	2:C:1227:UTP:O3'	2.39	0.52
1:D:166:LEU:CD2	1:D:223:ILE:HG12	2.32	0.52
1:L:147:LYS:HD3	1:L:152:TYR:HD1	1.65	0.52
1:L:162:THR:HB	1:L:226:VAL:HG22	1.90	0.52
1:C:60:GLY:O	1:C:64:LEU:HG	2.10	0.51
1:D:163:THR:N	1:D:224:GLU:O	2.41	0.51
1:E:157:LEU:O	1:E:159:PRO:HD3	2.10	0.51
1:G:69:ILE:HG23	1:G:112:GLY:HA3	1.91	0.51
1:H:44:GLY:O	1:H:48:ARG:HG3	2.10	0.51
1:H:223:ILE:HD12	1:H:223:ILE:H	1.74	0.51
1:J:113:PHE:CE2	1:J:122:VAL:HG13	2.45	0.51
1:L:69:ILE:HG23	1:L:112:GLY:HA3	1.92	0.51
1:D:14:GLU:O	1:D:15:ASP:C	2.51	0.51
1:D:27:ILE:HD12	1:D:39:ILE:HD11	1.92	0.51
1:D:162:THR:HG22	1:D:224:GLU:HB2	1.93	0.51
1:E:179:GLY:O	1:E:181:TYR:HD1	1.94	0.51
1:F:157:LEU:O	1:F:159:PRO:HD3	2.09	0.51
1:L:161:LEU:N	1:L:161:LEU:HD23	2.25	0.51
1:H:69:ILE:HG23	1:H:112:GLY:HA3	1.92	0.51
1:I:157:LEU:HD21	1:I:221:SER:OG	2.10	0.51
1:K:98:PHE:CZ	1:K:126:VAL:HG13	2.45	0.51
1:A:26:SER:CB	1:A:207:LEU:O	2.58	0.51
1:A:164:GLN:CG	1:A:226:VAL:CG2	2.84	0.51
1:C:144:VAL:HG11	1:C:161:LEU:HD11	1.93	0.51
1:C:206:LYS:NZ	1:C:219:VAL:HB	2.25	0.51
1:D:115:PRO:HG2	1:F:95:LEU:HD22	1.92	0.51
1:D:148:ASP:OD2	1:D:150:ARG:HB2	2.10	0.51
1:E:59:ILE:HD12	1:F:81:PHE:O	2.11	0.51
1:I:202:MET:HE1	1:I:210:ILE:HD12	1.92	0.51
1:J:18:ASP:O	1:J:22:VAL:HG12	2.10	0.51
1:L:141:VAL:CG1	1:L:143:GLY:H	2.23	0.51
1:A:148:ASP:O	1:A:152:TYR:HB2	2.10	0.51
1:D:98:PHE:CZ	1:D:126:VAL:HG13	2.45	0.51
1:H:199:VAL:C	1:H:200:ILE:HD12	2.35	0.51
1:I:134:THR:HG23	1:I:200:ILE:HD13	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:84:GLN:O	1:J:85:ASP:CB	2.59	0.51
1:D:110:THR:HG21	1:D:113:PHE:CE1	2.46	0.51
1:D:147:LYS:O	1:D:155:VAL:HG11	2.10	0.51
1:F:223:ILE:HD12	1:F:223:ILE:N	2.26	0.51
1:K:49:ARG:HG3	1:K:49:ARG:HH11	1.76	0.51
1:K:223:ILE:HD12	1:K:223:ILE:H	1.76	0.51
1:B:134:THR:OG1	1:B:198:ARG:NH1	2.44	0.51
1:E:217:GLU:O	1:E:218:GLU:CB	2.56	0.51
1:G:157:LEU:HD13	1:G:157:LEU:C	2.36	0.51
1:I:110:THR:HG22	1:I:111:GLY:H	1.74	0.51
1:L:27:ILE:HD11	1:L:39:ILE:HD11	1.92	0.51
1:L:146:GLU:OE2	1:L:146:GLU:N	2.27	0.51
1:C:57:ILE:HD11	1:D:82:SER:HB3	1.92	0.51
1:C:110:THR:HG21	1:C:113:PHE:CE1	2.46	0.51
1:D:85:ASP:O	1:D:86:LEU:HD23	2.11	0.51
1:G:163:THR:HG23	1:G:225:PRO:HA	1.92	0.51
1:I:12:PHE:O	1:J:49:ARG:NH2	2.43	0.51
1:K:52:LYS:O	1:K:56:GLU:HB2	2.11	0.51
1:F:168:LYS:O	1:F:171:GLU:HB3	2.12	0.51
1:G:24:ARG:HG3	1:G:83:LEU:HD23	1.92	0.51
1:L:110:THR:HG21	1:L:113:PHE:CE1	2.46	0.51
1:L:223:ILE:HD12	1:L:223:ILE:H	1.76	0.51
1:C:80:MET:CE	1:C:81:PHE:HE2	2.23	0.50
1:E:1:MET:H3	1:E:1:MET:CE	2.24	0.50
1:G:3:ILE:HD11	1:G:136:VAL:HG23	1.92	0.50
1:G:167:ARG:HG3	1:G:167:ARG:NH1	2.26	0.50
1:H:98:PHE:CZ	1:H:126:VAL:HG13	2.46	0.50
1:H:144:VAL:HG23	1:H:221:SER:CB	2.41	0.50
1:A:27:ILE:CD1	1:A:39:ILE:HD11	2.41	0.50
1:F:164:GLN:HG2	1:F:226:VAL:HG23	1.92	0.50
1:F:170:LEU:HD22	1:F:182:GLU:OE1	2.11	0.50
1:K:200:ILE:HG13	1:K:222:ILE:HG12	1.94	0.50
1:L:202:MET:HE1	1:L:210:ILE:HD12	1.91	0.50
1:A:26:SER:HB3	1:A:208:ASN:HA	1.93	0.50
1:B:27:ILE:CD1	1:B:39:ILE:HD11	2.41	0.50
1:C:148:ASP:CB	1:C:149:PRO:HD2	2.38	0.50
1:E:17:VAL:HG23	1:F:57:ILE:HG22	1.93	0.50
1:G:223:ILE:N	1:G:223:ILE:HD12	2.26	0.50
1:H:3:ILE:HD11	1:H:136:VAL:CG2	2.42	0.50
1:I:59:ILE:HD11	1:J:82:SER:HA	1.94	0.50
1:B:121:ALA:HB1	1:B:187:LEU:HD23	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:57:ILE:HD13	1:D:20:LEU:HD13	1.93	0.50
1:D:43:GLY:HA3	1:D:47:ALA:HB2	1.93	0.50
1:I:140:ASN:N	1:I:140:ASN:HD22	2.08	0.50
1:D:84:GLN:O	1:D:85:ASP:HB2	2.11	0.50
1:D:158:ILE:HG22	1:D:160:HIS:O	2.10	0.50
1:G:141:VAL:HG12	1:G:142:ASP:N	2.27	0.50
1:J:14:GLU:O	1:J:15:ASP:HB3	2.11	0.50
1:J:162:THR:H	1:J:165:ASP:HB2	1.77	0.50
1:K:209:ARG:O	1:K:213:ILE:HG12	2.11	0.50
1:L:148:ASP:OD1	1:L:150:ARG:HG2	2.12	0.50
1:A:148:ASP:OD1	1:A:150:ARG:N	2.45	0.50
1:A:185:ASP:C	1:A:185:ASP:OD2	2.54	0.50
1:B:110:THR:HG22	1:B:111:GLY:H	1.75	0.50
1:G:88:TYR:CE2	1:G:90:HIS:HB3	2.47	0.50
1:H:113:PHE:CE2	1:H:122:VAL:HG13	2.47	0.50
1:K:40:VAL:HG21	1:K:123:ALA:HA	1.92	0.50
1:K:167:ARG:NH1	1:K:193:GLU:OE1	2.40	0.50
1:L:169:ILE:HD12	1:L:169:ILE:H	1.76	0.50
1:A:219:VAL:O	1:A:220:SER:HB3	2.11	0.50
1:C:223:ILE:N	1:C:223:ILE:HD12	2.26	0.50
1:E:30:LEU:O	1:E:35:PHE:HB2	2.12	0.50
1:L:147:LYS:NZ	1:L:152:TYR:CE1	2.80	0.50
1:C:42:GLY:HA2	1:C:119:THR:HG21	1.94	0.50
1:C:182:GLU:O	1:C:183:LEU:C	2.55	0.50
1:E:140:ASN:HD22	1:E:141:VAL:N	2.10	0.50
1:I:33:ASN:O	1:I:35:PHE:HD1	1.93	0.50
1:K:3:ILE:HD11	1:K:136:VAL:CG2	2.41	0.50
1:K:42:GLY:HA2	1:K:119:THR:HG21	1.94	0.50
1:K:134:THR:CG2	1:K:200:ILE:HD13	2.42	0.50
1:D:204:TYR:O	1:D:207:LEU:HG	2.11	0.49
1:F:43:GLY:HA3	1:F:47:ALA:HB2	1.93	0.49
1:L:110:THR:HG22	1:L:111:GLY:H	1.76	0.49
1:C:1:MET:SD	1:C:1:MET:N	2.83	0.49
1:K:157:LEU:HD23	1:K:157:LEU:O	2.12	0.49
1:L:73:ARG:O	1:L:76:ALA:HB3	2.11	0.49
1:H:10:LYS:HA	1:H:13:ASP:OD2	2.12	0.49
1:K:223:ILE:HD12	1:K:223:ILE:N	2.27	0.49
1:A:40:VAL:HG21	1:A:123:ALA:HA	1.93	0.49
1:D:36:ARG:NH2	1:D:102:TRP:O	2.43	0.49
1:J:73:ARG:NH2	1:J:93:GLN:HB3	2.26	0.49
1:K:146:GLU:O	1:K:147:LYS:HG3	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:26:SER:O	1:D:30:LEU:HD12	2.12	0.49
1:D:167:ARG:HH21	1:D:193:GLU:CD	2.20	0.49
1:J:115:PRO:HG2	1:L:95:LEU:HD23	1.94	0.49
1:K:110:THR:HG22	1:K:111:GLY:H	1.77	0.49
1:A:13:ASP:C	1:A:15:ASP:H	2.19	0.49
1:B:219:VAL:O	1:B:220:SER:HB3	2.11	0.49
1:E:82:SER:HA	1:F:59:ILE:CD1	2.42	0.49
1:J:166:LEU:HD12	1:J:166:LEU:O	2.13	0.49
1:J:223:ILE:N	1:J:223:ILE:HD12	2.26	0.49
1:A:75:ASN:ND2	1:B:50:TYR:OH	2.45	0.49
1:C:211:ILE:O	1:C:215:LYS:HE3	2.12	0.49
1:F:139:THR:HG23	1:F:141:VAL:H	1.76	0.49
1:B:148:ASP:HB3	1:B:151:ILE:CG2	2.43	0.49
1:E:146:GLU:HA	1:E:169:ILE:HG23	1.95	0.49
1:G:1:MET:HE1	1:G:133:LYS:CE	2.40	0.49
1:G:12:PHE:O	1:H:49:ARG:NH2	2.42	0.49
1:H:110:THR:HG22	1:H:111:GLY:O	2.12	0.49
1:L:148:ASP:OD2	1:L:150:ARG:NH1	2.45	0.49
1:L:166:LEU:O	1:L:170:LEU:HG	2.13	0.49
1:A:110:THR:CG2	1:A:111:GLY:N	2.75	0.49
1:C:204:TYR:O	1:C:207:LEU:HG	2.12	0.49
1:E:204:TYR:O	1:E:207:LEU:HG	2.12	0.49
1:G:223:ILE:HD12	1:G:223:ILE:H	1.77	0.49
1:H:183:LEU:HD11	1:H:201:VAL:HG21	1.95	0.49
1:J:162:THR:CG2	1:J:164:GLN:HB3	2.43	0.49
1:K:203:ASN:OD1	1:K:205:ARG:HB2	2.13	0.49
1:I:57:ILE:HG22	1:J:17:VAL:HG22	1.94	0.49
1:K:84:GLN:HA	1:K:89:MET:CE	2.43	0.49
1:A:5:LEU:HD22	1:A:7:ILE:CD1	2.43	0.48
1:A:66:LEU:HD13	1:A:115:PRO:HG3	1.95	0.48
1:A:87:ALA:O	1:A:89:MET:HE2	2.13	0.48
1:B:183:LEU:HD23	1:B:183:LEU:C	2.37	0.48
1:F:164:GLN:HG2	1:F:226:VAL:CG2	2.43	0.48
1:G:79:VAL:O	1:G:83:LEU:CD1	2.61	0.48
1:J:162:THR:HG23	1:J:226:VAL:HG22	1.95	0.48
1:E:134:THR:OG1	1:E:198:ARG:NH1	2.46	0.48
1:F:73:ARG:NH2	1:F:93:GLN:HB3	2.28	0.48
1:F:157:LEU:C	1:F:157:LEU:HD13	2.38	0.48
1:I:42:GLY:HA2	1:I:119:THR:HG21	1.95	0.48
1:K:208:ASN:OD1	1:K:209:ARG:HG3	2.13	0.48
1:L:113:PHE:CE2	1:L:122:VAL:HG13	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:110:THR:HG22	1:B:111:GLY:O	2.13	0.48
1:B:147:LYS:HD3	1:B:152:TYR:CD1	2.49	0.48
1:B:151:ILE:HD11	1:B:152:TYR:CE2	2.48	0.48
1:B:157:LEU:HD23	1:B:158:ILE:N	2.28	0.48
1:I:157:LEU:HD13	1:I:157:LEU:O	2.13	0.48
1:L:5:LEU:HD22	1:L:7:ILE:CD1	2.43	0.48
1:B:202:MET:HE2	1:B:213:ILE:HG13	1.95	0.48
1:C:75:ASN:ND2	1:D:50:TYR:OH	2.46	0.48
1:F:18:ASP:OD1	1:L:206:LYS:HE3	2.12	0.48
1:G:98:PHE:CZ	1:G:126:VAL:HG13	2.48	0.48
1:J:61:GLU:HG2	1:L:194:ARG:CD	2.42	0.48
1:A:18:ASP:O	1:A:22:VAL:HG12	2.12	0.48
1:A:152:TYR:HB3	1:A:155:VAL:HG22	1.95	0.48
1:A:164:GLN:CG	1:A:226:VAL:HG23	2.38	0.48
1:B:99:ILE:HD12	1:C:66:LEU:HD21	1.94	0.48
1:E:164:GLN:HG2	1:E:167:ARG:NH1	2.28	0.48
1:I:140:ASN:H	1:I:140:ASN:ND2	2.10	0.48
1:J:40:VAL:HG21	1:J:123:ALA:HA	1.95	0.48
1:J:79:VAL:O	1:J:83:LEU:HG	2.12	0.48
1:E:110:THR:HG21	1:E:113:PHE:CE1	2.49	0.48
1:G:52:LYS:O	1:G:56:GLU:HB2	2.13	0.48
1:G:79:VAL:HG12	1:G:83:LEU:CD1	2.39	0.48
1:H:182:GLU:CG	1:H:183:LEU:N	2.76	0.48
1:A:22:VAL:HG23	1:A:208:ASN:ND2	2.28	0.48
1:A:113:PHE:CE2	1:A:122:VAL:HG13	2.49	0.48
1:A:167:ARG:NH2	1:A:193:GLU:OE1	2.45	0.48
1:B:142:ASP:HA	1:B:203:ASN:HB2	1.96	0.48
1:F:17:VAL:O	1:F:21:ILE:HG12	2.14	0.48
1:A:165:ASP:HA	1:A:168:LYS:HD2	1.96	0.48
1:A:185:ASP:CB	1:A:186:PRO:HD2	2.38	0.48
1:C:1:MET:O	1:C:35:PHE:HA	2.13	0.48
1:D:83:LEU:O	1:D:84:GLN:C	2.56	0.48
1:E:98:PHE:CZ	1:E:126:VAL:HG13	2.49	0.48
1:G:141:VAL:HG12	1:G:142:ASP:H	1.77	0.48
1:I:69:ILE:HG23	1:I:112:GLY:CA	2.44	0.48
1:K:139:THR:OG1	1:K:140:ASN:N	2.47	0.48
1:L:134:THR:CG2	1:L:200:ILE:HD13	2.44	0.48
1:A:83:LEU:O	1:A:84:GLN:C	2.57	0.48
1:A:145:TYR:CE2	1:A:149:PRO:HG3	2.49	0.48
1:C:66:LEU:HD13	1:C:115:PRO:HG3	1.96	0.48
1:K:110:THR:HG21	1:K:113:PHE:CE1	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:113:PHE:CE2	1:K:122:VAL:HG13	2.48	0.48
1:L:187:LEU:O	1:L:191:ILE:HG12	2.14	0.48
1:A:26:SER:HB3	1:A:207:LEU:O	2.13	0.47
1:A:148:ASP:OD1	1:A:150:ARG:HB2	2.14	0.47
1:K:199:VAL:C	1:K:200:ILE:HD12	2.39	0.47
1:A:208:ASN:C	1:A:210:ILE:H	2.21	0.47
1:B:42:GLY:HA2	1:B:119:THR:HG21	1.95	0.47
1:C:110:THR:CG2	1:C:111:GLY:N	2.76	0.47
1:I:144:VAL:HG23	1:I:221:SER:HB2	1.96	0.47
1:I:200:ILE:HD12	1:I:200:ILE:N	2.30	0.47
1:E:59:ILE:CD1	1:F:82:SER:HA	2.44	0.47
1:F:47:ALA:O	1:F:51:ILE:HG13	2.13	0.47
1:G:83:LEU:O	1:G:84:GLN:C	2.58	0.47
1:G:187:LEU:O	1:G:191:ILE:HG12	2.14	0.47
1:H:110:THR:HG21	1:H:113:PHE:CE1	2.49	0.47
1:K:87:ALA:O	1:K:89:MET:HE2	2.14	0.47
1:L:200:ILE:HG13	1:L:222:ILE:HG12	1.96	0.47
1:A:4:ILE:HG13	1:A:127:ALA:HA	1.97	0.47
1:A:154:ASP:O	1:A:155:VAL:C	2.57	0.47
1:I:140:ASN:HD22	1:I:141:VAL:N	2.13	0.47
1:J:88:TYR:CE2	1:J:90:HIS:HB3	2.49	0.47
1:J:162:THR:HG22	1:J:164:GLN:HB3	1.96	0.47
1:E:21:ILE:O	1:E:25:GLN:HG2	2.15	0.47
1:E:110:THR:CG2	1:E:111:GLY:N	2.77	0.47
1:F:121:ALA:HB1	1:F:187:LEU:HD23	1.96	0.47
1:G:99:ILE:HD13	1:K:63:TYR:HE1	1.79	0.47
1:I:110:THR:CG2	1:I:111:GLY:N	2.77	0.47
1:J:183:LEU:HD23	1:J:183:LEU:O	2.14	0.47
1:K:140:ASN:ND2	1:K:141:VAL:HG23	2.29	0.47
1:B:163:THR:HG22	1:B:189:ILE:HG23	1.95	0.47
1:C:59:ILE:HB	1:C:64:LEU:HD21	1.95	0.47
1:J:16:ASN:O	1:J:17:VAL:C	2.57	0.47
1:L:3:ILE:HD11	1:L:136:VAL:HG23	1.95	0.47
1:L:166:LEU:CD1	1:L:223:ILE:HG12	2.44	0.47
1:A:148:ASP:OD1	1:A:148:ASP:C	2.58	0.47
1:B:88:TYR:CE2	1:B:90:HIS:HB3	2.50	0.47
1:B:139:THR:OG1	1:B:140:ASN:N	2.46	0.47
1:C:43:GLY:HA3	1:C:47:ALA:HB2	1.97	0.47
1:C:87:ALA:O	1:C:89:MET:HE2	2.15	0.47
1:D:52:LYS:HE2	1:D:56:GLU:OE2	2.15	0.47
1:D:139:THR:O	1:D:203:ASN:HA	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:5:LEU:HD22	1:E:7:ILE:CD1	2.44	0.47
1:F:66:LEU:HD13	1:F:115:PRO:HG3	1.97	0.47
1:G:79:VAL:CG1	1:G:83:LEU:HD11	2.40	0.47
1:G:110:THR:HG21	1:G:113:PHE:CE1	2.49	0.47
1:H:134:THR:CG2	1:H:200:ILE:HD13	2.45	0.47
1:I:3:ILE:HD11	1:I:136:VAL:HG23	1.96	0.47
1:J:3:ILE:HD11	1:J:136:VAL:HG23	1.97	0.47
1:J:162:THR:O	1:J:165:ASP:N	2.47	0.47
1:J:187:LEU:O	1:J:191:ILE:HG12	2.15	0.47
1:K:162:THR:HB	1:K:226:VAL:CG2	2.45	0.47
1:L:31:ALA:C	1:L:33:ASN:N	2.73	0.47
1:B:5:LEU:HD22	1:B:7:ILE:CD1	2.45	0.47
1:C:98:PHE:CZ	1:C:126:VAL:HG13	2.49	0.47
1:F:150:ARG:HG2	1:F:150:ARG:HH11	1.80	0.47
1:F:163:THR:HG23	1:F:225:PRO:HA	1.96	0.47
1:L:1:MET:SD	1:L:1:MET:N	2.88	0.47
1:B:110:THR:CG2	1:B:111:GLY:N	2.76	0.47
1:E:155:VAL:CG1	1:E:156:LYS:N	2.77	0.47
1:H:42:GLY:HA3	2:H:1227:UTP:O2B	2.15	0.47
1:A:157:LEU:HD23	1:A:158:ILE:C	2.39	0.47
1:G:163:THR:CG2	1:G:225:PRO:HA	2.45	0.47
1:H:200:ILE:HG13	1:H:222:ILE:HG12	1.96	0.47
1:I:81:PHE:O	1:I:84:GLN:HB2	2.15	0.47
1:I:110:THR:HG21	1:I:113:PHE:CE1	2.49	0.47
1:K:140:ASN:N	1:K:140:ASN:HD22	2.13	0.47
1:A:99:ILE:HD12	1:E:66:LEU:HD21	1.97	0.46
1:A:110:THR:HG21	1:A:113:PHE:CE1	2.49	0.46
1:C:206:LYS:HZ3	1:C:219:VAL:CB	2.28	0.46
1:C:206:LYS:HZ3	1:C:219:VAL:CG2	2.27	0.46
1:K:202:MET:CE	1:K:210:ILE:HD12	2.44	0.46
1:A:13:ASP:C	1:A:15:ASP:N	2.72	0.46
1:E:121:ALA:HB1	1:E:187:LEU:HD23	1.96	0.46
1:G:157:LEU:HD13	1:G:157:LEU:O	2.14	0.46
1:H:140:ASN:HD22	1:H:140:ASN:H	1.63	0.46
1:B:79:VAL:O	1:B:83:LEU:HG	2.16	0.46
1:B:183:LEU:HD11	1:B:201:VAL:CG2	2.45	0.46
1:D:32:ASP:O	1:D:33:ASN:ND2	2.43	0.46
1:D:73:ARG:O	1:D:76:ALA:HB3	2.14	0.46
1:G:3:ILE:HD11	1:G:136:VAL:CG2	2.45	0.46
1:G:206:LYS:HZ3	1:G:219:VAL:HG11	1.79	0.46
1:I:65:ASP:HB3	2:I:1227:UTP:O2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:73:ARG:NH2	1:I:93:GLN:HB3	2.30	0.46
1:A:99:ILE:HD13	1:E:63:TYR:CE1	2.50	0.46
1:C:65:ASP:O	1:C:69:ILE:HG13	2.16	0.46
1:D:110:THR:CG2	1:D:111:GLY:N	2.78	0.46
1:F:206:LYS:HE3	1:L:18:ASP:OD1	2.15	0.46
1:G:99:ILE:HD13	1:K:63:TYR:CE1	2.50	0.46
1:H:69:ILE:HG23	1:H:112:GLY:CA	2.46	0.46
1:I:84:GLN:HA	1:I:89:MET:CE	2.45	0.46
1:I:84:GLN:O	1:I:85:ASP:HB3	2.14	0.46
1:J:110:THR:HG22	1:J:111:GLY:O	2.15	0.46
1:J:166:LEU:O	1:J:167:ARG:C	2.57	0.46
1:K:167:ARG:HH12	1:K:193:GLU:CD	2.22	0.46
1:B:157:LEU:HD23	1:B:158:ILE:C	2.41	0.46
1:F:110:THR:HG22	1:F:111:GLY:H	1.78	0.46
1:J:110:THR:HG21	1:J:113:PHE:CE1	2.51	0.46
1:C:50:TYR:OH	1:D:75:ASN:ND2	2.48	0.46
1:F:16:ASN:OD1	1:F:18:ASP:HB2	2.15	0.46
1:G:75:ASN:O	1:G:79:VAL:HG23	2.16	0.46
1:A:115:PRO:HG2	1:E:95:LEU:HD22	1.98	0.46
1:A:121:ALA:HB1	1:A:187:LEU:HD23	1.96	0.46
1:C:121:ALA:HB1	1:C:187:LEU:HD23	1.96	0.46
1:D:19:ASN:HD22	1:D:19:ASN:N	2.13	0.46
1:E:113:PHE:CE2	1:E:122:VAL:HG13	2.51	0.46
1:J:30:LEU:HD13	1:J:37:VAL:CG2	2.45	0.46
1:L:69:ILE:HG23	1:L:112:GLY:CA	2.46	0.46
1:L:161:LEU:HB2	1:L:165:ASP:HB2	1.97	0.46
1:D:16:ASN:OD1	1:D:18:ASP:HB2	2.15	0.46
1:E:57:ILE:HD13	1:F:20:LEU:HD13	1.97	0.46
1:F:5:LEU:HD22	1:F:7:ILE:CD1	2.46	0.46
1:A:79:VAL:HG12	1:A:83:LEU:HD11	1.97	0.46
1:D:164:GLN:HA	1:D:167:ARG:HG3	1.98	0.46
1:G:82:SER:CA	1:H:59:ILE:HD11	2.41	0.46
1:G:200:ILE:HG13	1:G:222:ILE:HG12	1.98	0.46
1:H:202:MET:HE1	1:H:210:ILE:HD12	1.98	0.46
1:J:164:GLN:O	1:J:167:ARG:HB2	2.15	0.46
1:L:98:PHE:CZ	1:L:126:VAL:HG13	2.51	0.46
1:B:59:ILE:HB	1:B:64:LEU:HD21	1.98	0.46
1:B:187:LEU:O	1:B:191:ILE:HG12	2.16	0.46
1:E:73:ARG:O	1:E:76:ALA:HB3	2.16	0.46
1:I:1:MET:O	1:I:35:PHE:HA	2.17	0.46
1:I:79:VAL:O	1:I:83:LEU:HG	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:31:ALA:C	1:J:33:ASN:H	2.23	0.46
1:L:75:ASN:O	1:L:79:VAL:HG23	2.16	0.46
1:A:73:ARG:NH2	1:A:93:GLN:HB3	2.30	0.45
1:B:66:LEU:HD13	1:B:115:PRO:HG3	1.98	0.45
1:B:115:PRO:HG2	1:C:95:LEU:CD2	2.46	0.45
1:E:212:ASP:HB3	1:E:217:GLU:O	2.16	0.45
1:G:18:ASP:O	1:G:22:VAL:HG12	2.16	0.45
1:G:65:ASP:O	1:G:69:ILE:HG13	2.15	0.45
1:H:5:LEU:HD22	1:H:7:ILE:HD13	1.98	0.45
1:J:98:PHE:CZ	1:J:126:VAL:HG13	2.51	0.45
1:L:5:LEU:HD22	1:L:7:ILE:HD13	1.99	0.45
1:L:83:LEU:O	1:L:84:GLN:C	2.59	0.45
1:C:215:LYS:HB3	1:C:215:LYS:HE2	1.73	0.45
1:F:110:THR:CG2	1:F:111:GLY:N	2.76	0.45
1:G:84:GLN:O	1:G:85:ASP:HB2	2.16	0.45
1:G:147:LYS:H	1:G:155:VAL:HG11	1.80	0.45
1:H:42:GLY:HA2	1:H:119:THR:HG21	1.97	0.45
1:H:73:ARG:O	1:H:76:ALA:HB3	2.15	0.45
1:H:159:PRO:HG2	1:H:160:HIS:H	1.81	0.45
1:L:65:ASP:O	1:L:69:ILE:HG13	2.15	0.45
1:D:145:TYR:HE1	1:D:157:LEU:HB2	1.81	0.45
1:E:17:VAL:O	1:E:21:ILE:HG12	2.16	0.45
1:F:181:TYR:C	1:F:181:TYR:HD2	2.25	0.45
1:G:19:ASN:O	1:G:22:VAL:HG12	2.16	0.45
1:L:87:ALA:O	1:L:89:MET:HE2	2.16	0.45
1:L:110:THR:CG2	1:L:111:GLY:N	2.79	0.45
1:C:146:GLU:C	1:C:147:LYS:HG3	2.41	0.45
1:D:5:LEU:HD22	1:D:7:ILE:CD1	2.47	0.45
1:E:83:LEU:O	1:E:84:GLN:C	2.59	0.45
1:I:73:ARG:O	1:I:76:ALA:HB3	2.17	0.45
1:J:99:ILE:HG22	1:K:89:MET:HB3	1.98	0.45
1:K:157:LEU:HD23	1:K:157:LEU:C	2.42	0.45
1:A:202:MET:HE2	1:A:213:ILE:HG13	1.97	0.45
1:H:187:LEU:O	1:H:191:ILE:HG12	2.17	0.45
1:J:1:MET:HB2	1:J:2:ASN:H	1.61	0.45
1:J:146:GLU:OE1	1:J:155:VAL:HG13	2.17	0.45
1:J:200:ILE:HD12	1:J:200:ILE:N	2.32	0.45
1:B:59:ILE:HG22	1:B:63:TYR:HB2	1.98	0.45
1:C:83:LEU:O	1:C:84:GLN:C	2.60	0.45
1:D:223:ILE:HD12	1:D:223:ILE:N	2.32	0.45
1:G:69:ILE:HG23	1:G:112:GLY:CA	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:149:PRO:O	1:G:150:ARG:HB2	2.17	0.45
1:H:141:VAL:CG1	1:H:142:ASP:N	2.80	0.45
1:J:223:ILE:HD12	1:J:223:ILE:H	1.80	0.45
1:E:181:TYR:CD1	1:E:181:TYR:N	2.85	0.45
1:G:10:LYS:HA	1:G:13:ASP:OD2	2.16	0.45
1:H:79:VAL:HG12	1:H:83:LEU:CD1	2.46	0.45
1:H:110:THR:HG22	1:H:111:GLY:H	1.82	0.45
1:I:160:HIS:O	1:I:161:LEU:HB3	2.17	0.45
1:J:162:THR:C	1:J:164:GLN:N	2.74	0.45
1:B:190:LYS:NZ	1:C:181:TYR:CE2	2.84	0.45
1:F:42:GLY:HA2	1:F:119:THR:HG21	1.99	0.45
1:G:69:ILE:O	1:G:72:SER:OG	2.29	0.45
1:G:138:ALA:HA	1:G:202:MET:HG3	1.99	0.45
1:H:83:LEU:O	1:H:84:GLN:C	2.60	0.45
1:I:113:PHE:CE2	1:I:122:VAL:HG13	2.52	0.45
1:L:198:ARG:NE	1:L:200:ILE:HD11	2.32	0.45
1:B:165:ASP:O	1:B:169:ILE:HG13	2.16	0.45
1:D:209:ARG:O	1:D:213:ILE:HG12	2.17	0.45
1:E:23:LEU:O	1:E:27:ILE:HG12	2.16	0.45
1:E:57:ILE:HD13	1:F:20:LEU:CD1	2.47	0.45
1:E:209:ARG:NH1	1:E:218:GLU:OE1	2.49	0.45
1:F:170:LEU:HD22	1:F:182:GLU:CD	2.41	0.45
1:F:218:GLU:HG3	1:F:219:VAL:N	2.32	0.45
1:I:84:GLN:O	1:I:85:ASP:CB	2.64	0.45
1:I:140:ASN:ND2	1:I:141:VAL:HG23	2.32	0.45
1:I:200:ILE:HG13	1:I:222:ILE:HG12	1.99	0.45
1:I:217:GLU:O	1:I:218:GLU:CD	2.60	0.45
1:A:42:GLY:HA2	1:A:119:THR:HG21	1.99	0.45
1:B:73:ARG:O	1:B:76:ALA:HB3	2.16	0.45
1:G:113:PHE:CE2	1:G:122:VAL:HG13	2.52	0.45
1:H:142:ASP:HB3	1:H:219:VAL:CG1	2.47	0.45
1:A:88:TYR:CE2	1:A:90:HIS:HB3	2.51	0.44
1:B:183:LEU:HD23	1:B:183:LEU:O	2.17	0.44
1:C:136:VAL:HG21	1:C:214:LEU:HD21	1.98	0.44
1:D:148:ASP:HA	1:D:149:PRO:HD3	1.77	0.44
1:I:140:ASN:HD22	1:I:140:ASN:H	1.64	0.44
1:I:161:LEU:HD21	1:I:223:ILE:HG13	1.99	0.44
1:J:84:GLN:HA	1:J:89:MET:HE1	1.98	0.44
1:K:14:GLU:HB3	1:K:15:ASP:H	1.31	0.44
1:L:147:LYS:CD	1:L:152:TYR:CD1	2.87	0.44
1:A:145:TYR:CD2	1:A:149:PRO:HG3	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:23:LEU:O	1:B:27:ILE:HG12	2.18	0.44
1:B:28:LYS:HE3	1:B:86:LEU:HD11	1.99	0.44
1:B:83:LEU:O	1:B:84:GLN:C	2.61	0.44
1:C:167:ARG:HH22	1:C:193:GLU:CD	2.25	0.44
1:D:121:ALA:HB1	1:D:187:LEU:HD23	1.99	0.44
1:D:206:LYS:HG2	1:D:209:ARG:NH2	2.32	0.44
1:E:213:ILE:HD13	1:E:218:GLU:HB3	1.98	0.44
1:G:199:VAL:C	1:G:200:ILE:HD12	2.42	0.44
1:K:16:ASN:OD1	1:L:53:LEU:HD13	2.17	0.44
1:K:79:VAL:CG1	1:K:83:LEU:HD11	2.48	0.44
1:L:147:LYS:NZ	1:L:152:TYR:HE1	2.15	0.44
1:D:144:VAL:HG23	1:D:221:SER:HB2	1.98	0.44
1:G:43:GLY:HA3	1:G:47:ALA:HB2	1.99	0.44
1:G:140:ASN:O	1:G:203:ASN:ND2	2.50	0.44
1:I:89:MET:HB3	1:L:99:ILE:HG22	1.99	0.44
1:J:200:ILE:HG13	1:J:222:ILE:HG12	1.99	0.44
1:A:59:ILE:HG22	1:A:63:TYR:HB2	1.99	0.44
1:D:145:TYR:CE1	1:D:157:LEU:HB2	2.53	0.44
1:E:223:ILE:N	1:E:223:ILE:HD12	2.33	0.44
1:H:43:GLY:HA3	1:H:47:ALA:HB2	1.99	0.44
1:H:185:ASP:HB2	1:H:186:PRO:CD	2.36	0.44
1:K:206:LYS:HZ3	1:K:219:VAL:CG2	2.31	0.44
1:A:134:THR:OG1	1:A:198:ARG:NH1	2.50	0.44
1:E:30:LEU:HD21	1:E:214:LEU:HD11	1.99	0.44
1:F:205:ARG:NH1	1:L:16:ASN:ND2	2.62	0.44
1:H:47:ALA:O	1:H:51:ILE:HG13	2.18	0.44
1:I:187:LEU:O	1:I:191:ILE:HG12	2.17	0.44
1:J:5:LEU:HD22	1:J:7:ILE:CD1	2.47	0.44
1:J:69:ILE:HG23	1:J:112:GLY:HA3	1.98	0.44
1:J:134:THR:CG2	1:J:200:ILE:HD13	2.48	0.44
1:L:52:LYS:O	1:L:56:GLU:HB2	2.18	0.44
1:A:43:GLY:HA3	1:A:47:ALA:HB2	2.00	0.44
1:B:27:ILE:HD11	1:B:39:ILE:HD11	1.99	0.44
1:H:140:ASN:HD22	1:H:141:VAL:N	2.16	0.44
1:I:202:MET:CE	1:I:210:ILE:HD12	2.48	0.44
1:J:110:THR:HG22	1:J:111:GLY:H	1.79	0.44
1:A:140:ASN:H	1:A:140:ASN:HD22	1.66	0.44
1:D:66:LEU:HD13	1:D:115:PRO:HG3	1.99	0.44
1:D:144:VAL:H	1:D:221:SER:CB	2.31	0.44
1:E:164:GLN:HG2	1:E:167:ARG:HH11	1.83	0.44
1:F:164:GLN:O	1:F:167:ARG:HB2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:22:VAL:CG2	1:G:208:ASN:HB3	2.48	0.44
1:H:46:THR:O	1:H:50:TYR:HD1	2.00	0.44
1:I:89:MET:CB	1:L:99:ILE:HG22	2.47	0.44
1:G:8:SER:HB2	1:G:139:THR:HA	2.00	0.44
1:G:134:THR:CG2	1:G:200:ILE:HD13	2.47	0.44
1:I:10:LYS:HA	1:I:13:ASP:OD2	2.17	0.44
1:B:40:VAL:HG21	1:B:123:ALA:HA	1.99	0.44
1:E:66:LEU:HD13	1:E:115:PRO:HG3	1.98	0.44
1:F:83:LEU:O	1:F:84:GLN:C	2.61	0.44
1:K:217:GLU:O	1:K:218:GLU:HB2	2.18	0.44
1:L:14:GLU:O	1:L:15:ASP:CB	2.55	0.44
1:L:139:THR:O	1:L:203:ASN:HA	2.18	0.44
1:L:145:TYR:CE1	1:L:157:LEU:HB2	2.53	0.44
1:L:202:MET:CE	1:L:210:ILE:HD12	2.48	0.44
1:E:114:GLN:HA	1:E:115:PRO:HD3	1.93	0.43
1:H:110:THR:CG2	1:H:111:GLY:N	2.81	0.43
1:I:157:LEU:HD22	1:I:157:LEU:C	2.43	0.43
1:L:169:ILE:HD12	1:L:169:ILE:N	2.34	0.43
1:B:114:GLN:HA	1:B:115:PRO:HD3	1.91	0.43
1:D:99:ILE:HD13	1:F:63:TYR:CE1	2.53	0.43
1:G:168:LYS:O	1:G:169:ILE:C	2.60	0.43
1:K:83:LEU:O	1:K:84:GLN:C	2.61	0.43
1:K:206:LYS:HZ3	1:K:219:VAL:HG21	1.83	0.43
1:L:88:TYR:CE2	1:L:90:HIS:HB3	2.53	0.43
1:A:52:LYS:NZ	1:A:56:GLU:OE2	2.32	0.43
1:B:59:ILE:CG2	1:B:63:TYR:HB2	2.49	0.43
1:C:134:THR:OG1	1:C:198:ARG:NH1	2.51	0.43
1:D:110:THR:HG22	1:D:111:GLY:H	1.83	0.43
1:E:67:LEU:HA	1:E:67:LEU:HD23	1.84	0.43
1:F:205:ARG:NH1	1:L:16:ASN:CB	2.81	0.43
1:I:139:THR:O	1:I:203:ASN:HA	2.18	0.43
1:K:219:VAL:O	1:K:220:SER:HB3	2.16	0.43
1:L:117:GLN:HE21	1:L:117:GLN:HB3	1.61	0.43
1:B:194:ARG:CD	1:C:61:GLU:HG2	2.48	0.43
1:F:150:ARG:O	1:K:55:ARG:HD2	2.18	0.43
1:H:91:VAL:HA	1:H:92:PRO:HD2	1.87	0.43
1:H:139:THR:O	1:H:203:ASN:HA	2.18	0.43
1:A:167:ARG:NH2	1:A:193:GLU:OE2	2.51	0.43
1:C:207:LEU:O	1:C:210:ILE:HB	2.18	0.43
1:D:1:MET:SD	1:D:1:MET:N	2.88	0.43
1:D:161:LEU:HD12	1:D:165:ASP:HB2	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:17:VAL:HG23	1:F:57:ILE:CG2	2.48	0.43
1:E:181:TYR:HD1	1:E:181:TYR:N	2.16	0.43
1:J:185:ASP:CB	1:J:186:PRO:HD2	2.35	0.43
1:K:139:THR:HG23	1:K:141:VAL:H	1.83	0.43
1:A:95:LEU:HD13	1:A:125:LEU:HB3	2.00	0.43
1:F:98:PHE:CE2	1:F:126:VAL:HG13	2.54	0.43
1:H:88:TYR:CE2	1:H:90:HIS:HB3	2.53	0.43
1:H:99:ILE:HG22	1:J:89:MET:CB	2.48	0.43
1:H:140:ASN:H	1:H:140:ASN:ND2	2.16	0.43
1:I:59:ILE:HB	1:I:64:LEU:HD21	2.01	0.43
1:I:185:ASP:CB	1:I:186:PRO:HD2	2.34	0.43
1:J:5:LEU:HD22	1:J:7:ILE:HD13	2.01	0.43
1:J:19:ASN:O	1:J:22:VAL:HG12	2.19	0.43
1:J:194:ARG:CD	1:L:61:GLU:HG2	2.47	0.43
1:K:73:ARG:NH2	1:K:93:GLN:HB3	2.33	0.43
1:K:140:ASN:HD22	1:K:140:ASN:H	1.66	0.43
1:G:140:ASN:ND2	1:G:140:ASN:C	2.76	0.43
1:I:75:ASN:ND2	1:J:50:TYR:OH	2.52	0.43
1:J:224:GLU:OE1	1:J:225:PRO:HD2	2.19	0.43
1:K:200:ILE:HD12	1:K:200:ILE:N	2.33	0.43
1:A:164:GLN:CG	1:A:226:VAL:HG21	2.47	0.43
1:B:80:MET:HE3	1:B:89:MET:SD	2.58	0.43
1:C:164:GLN:HG3	1:C:226:VAL:HG23	2.00	0.43
1:C:187:LEU:O	1:C:191:ILE:HG12	2.19	0.43
1:F:8:SER:CA	2:F:1227:UTP:O1G	2.66	0.43
1:G:36:ARG:CZ	1:G:105:GLY:HA2	2.49	0.43
1:I:57:ILE:HG22	1:J:17:VAL:CG2	2.48	0.43
1:I:114:GLN:HA	1:I:115:PRO:HD3	1.92	0.43
1:J:65:ASP:OD1	2:J:1227:UTP:O2'	2.36	0.43
1:E:47:ALA:O	1:E:51:ILE:HG13	2.19	0.43
1:J:2:ASN:ND2	1:J:102:TRP:HZ2	2.16	0.43
1:A:157:LEU:HD23	1:A:158:ILE:N	2.34	0.43
1:A:167:ARG:O	1:A:169:ILE:N	2.51	0.43
1:H:206:LYS:HZ3	1:H:219:VAL:CB	2.29	0.43
1:K:141:VAL:HG13	1:K:145:TYR:CE2	2.53	0.43
1:C:40:VAL:HG21	1:C:123:ALA:HA	2.01	0.42
1:C:140:ASN:O	1:C:140:ASN:CG	2.62	0.42
1:F:80:MET:CE	1:F:81:PHE:CE2	3.01	0.42
1:G:87:ALA:O	1:G:89:MET:HE2	2.19	0.42
1:H:140:ASN:HD22	1:H:141:VAL:H	1.67	0.42
1:I:159:PRO:O	1:I:160:HIS:ND1	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:144:VAL:O	1:K:158:ILE:HG12	2.19	0.42
1:L:185:ASP:CB	1:L:186:PRO:HD2	2.32	0.42
1:C:136:VAL:CG2	1:C:214:LEU:HD21	2.50	0.42
1:D:128:GLU:HG2	1:F:62:ALA:HB2	2.00	0.42
1:D:167:ARG:C	1:D:169:ILE:N	2.77	0.42
1:E:166:LEU:O	1:E:167:ARG:C	2.62	0.42
1:H:5:LEU:HD22	1:H:7:ILE:CD1	2.49	0.42
1:I:163:THR:HG23	1:I:225:PRO:HA	2.00	0.42
1:K:75:ASN:HD22	1:K:75:ASN:HA	1.69	0.42
1:K:206:LYS:NZ	1:K:219:VAL:HG21	2.34	0.42
1:B:4:ILE:CD1	1:B:126:VAL:HG12	2.49	0.42
1:C:5:LEU:HD22	1:C:7:ILE:CD1	2.49	0.42
1:C:212:ASP:O	1:C:213:ILE:C	2.62	0.42
1:E:5:LEU:HD22	1:E:7:ILE:HD13	2.01	0.42
1:I:95:LEU:HD13	1:I:125:LEU:HB3	2.01	0.42
1:L:3:ILE:HD11	1:L:136:VAL:CG2	2.49	0.42
1:C:200:ILE:HD12	1:C:214:LEU:HD23	2.00	0.42
1:G:59:ILE:HB	1:G:64:LEU:HD21	2.01	0.42
1:H:59:ILE:HB	1:H:64:LEU:HD21	2.01	0.42
1:J:166:LEU:O	1:J:169:ILE:HD13	2.19	0.42
1:K:213:ILE:HD13	1:K:218:GLU:CB	2.39	0.42
1:A:144:VAL:O	1:A:158:ILE:HG23	2.18	0.42
1:B:8:SER:HA	2:B:1227:UTP:O1G	2.19	0.42
1:B:99:ILE:HD13	1:C:63:TYR:CE1	2.55	0.42
1:F:141:VAL:CG1	1:F:142:ASP:N	2.82	0.42
1:F:145:TYR:CZ	1:F:157:LEU:HD23	2.55	0.42
1:G:198:ARG:NE	1:G:200:ILE:HD11	2.33	0.42
1:I:63:TYR:CE2	1:J:84:GLN:CD	2.97	0.42
1:K:67:LEU:HD23	1:K:67:LEU:HA	1.88	0.42
1:C:123:ALA:HB1	1:C:135:LEU:HD11	2.02	0.42
1:D:32:ASP:C	1:D:33:ASN:HD22	2.26	0.42
1:D:62:ALA:HB2	1:F:128:GLU:HG2	2.00	0.42
1:F:51:ILE:HG23	1:F:64:LEU:HB3	2.01	0.42
1:G:110:THR:HG22	1:G:111:GLY:O	2.20	0.42
1:G:139:THR:HG23	1:G:141:VAL:H	1.85	0.42
1:J:33:ASN:HD22	1:J:33:ASN:N	2.13	0.42
1:B:95:LEU:HD22	1:C:115:PRO:CG	2.49	0.42
1:D:167:ARG:NH2	1:D:193:GLU:OE2	2.51	0.42
1:E:42:GLY:HA2	1:E:119:THR:HG21	2.01	0.42
1:F:113:PHE:CE2	1:F:122:VAL:HG13	2.54	0.42
1:I:163:THR:CG2	1:I:225:PRO:HA	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:99:ILE:HG22	1:K:89:MET:CB	2.50	0.42
1:K:86:LEU:O	1:K:107:VAL:HB	2.18	0.42
1:L:17:VAL:HG12	1:L:21:ILE:CD1	2.50	0.42
1:A:59:ILE:CG2	1:A:63:TYR:HB2	2.49	0.42
1:A:207:LEU:O	1:A:210:ILE:HB	2.20	0.42
1:B:166:LEU:HD22	1:B:223:ILE:HG12	2.01	0.42
1:D:156:LYS:CG	1:D:157:LEU:H	1.95	0.42
1:F:14:GLU:O	1:F:15:ASP:C	2.62	0.42
1:G:147:LYS:HB2	1:G:155:VAL:CG2	2.40	0.42
1:K:147:LYS:O	1:K:148:ASP:HB2	2.20	0.42
1:A:62:ALA:HB2	1:E:128:GLU:HG2	2.02	0.42
1:D:59:ILE:HG22	1:D:63:TYR:HB2	2.02	0.42
1:D:61:GLU:HG2	1:F:194:ARG:CD	2.47	0.42
1:F:60:GLY:O	1:F:64:LEU:HG	2.19	0.42
1:G:185:ASP:CB	1:G:186:PRO:HD2	2.35	0.42
1:K:110:THR:HG22	1:K:111:GLY:O	2.20	0.42
1:L:209:ARG:O	1:L:213:ILE:HG12	2.20	0.42
1:B:52:LYS:NZ	1:B:56:GLU:OE2	2.53	0.42
1:E:1:MET:N	1:E:1:MET:SD	2.93	0.42
1:E:31:ALA:O	1:E:33:ASN:N	2.53	0.42
1:E:168:LYS:O	1:E:169:ILE:C	2.61	0.42
1:F:167:ARG:O	1:F:171:GLU:HB2	2.19	0.42
1:I:117:GLN:HE21	1:I:117:GLN:HB3	1.62	0.42
1:I:138:ALA:HA	1:I:202:MET:HG3	2.01	0.42
1:L:162:THR:HB	1:L:226:VAL:HG21	2.02	0.42
1:L:169:ILE:H	1:L:169:ILE:CD1	2.33	0.42
1:C:161:LEU:HD23	1:C:161:LEU:H	1.85	0.41
1:E:20:LEU:CD1	1:F:57:ILE:HD13	2.44	0.41
1:F:67:LEU:HD23	1:F:67:LEU:HA	1.89	0.41
1:F:75:ASN:HD22	1:F:75:ASN:HA	1.70	0.41
1:F:166:LEU:O	1:F:166:LEU:HD12	2.20	0.41
1:G:158:ILE:N	1:G:158:ILE:HD13	2.35	0.41
1:H:1:MET:HB2	1:H:2:ASN:H	1.47	0.41
1:J:29:GLU:HB3	1:J:211:ILE:HD11	2.01	0.41
1:J:85:ASP:CG	1:J:86:LEU:N	2.78	0.41
1:C:57:ILE:CD1	1:D:82:SER:HB3	2.50	0.41
1:C:113:PHE:CE2	1:C:122:VAL:HG13	2.56	0.41
1:D:140:ASN:H	1:D:140:ASN:ND2	2.16	0.41
1:D:213:ILE:CD1	1:D:218:GLU:HB3	2.49	0.41
1:I:88:TYR:CE2	1:I:90:HIS:HB3	2.55	0.41
1:J:42:GLY:HA2	1:J:119:THR:HG21	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:84:GLN:O	1:J:84:GLN:HG2	2.20	0.41
1:A:139:THR:O	1:A:204:TYR:N	2.46	0.41
1:A:223:ILE:HD12	1:A:223:ILE:N	2.36	0.41
1:B:157:LEU:C	1:B:157:LEU:CD2	2.88	0.41
1:E:185:ASP:OD2	1:E:185:ASP:C	2.62	0.41
1:I:8:SER:HA	2:I:1227:UTP:O1G	2.20	0.41
1:I:166:LEU:O	1:I:167:ARG:C	2.63	0.41
1:L:166:LEU:CD2	1:L:170:LEU:HD11	2.50	0.41
1:A:67:LEU:HD23	1:A:67:LEU:HA	1.83	0.41
1:A:145:TYR:CE1	1:A:157:LEU:HB2	2.56	0.41
1:B:152:TYR:O	1:B:155:VAL:HG23	2.20	0.41
1:B:153:ALA:O	1:B:154:ASP:HB2	2.20	0.41
1:B:166:LEU:HD21	1:B:184:LEU:HD12	2.01	0.41
1:E:40:VAL:HG21	1:E:123:ALA:HA	2.01	0.41
1:F:65:ASP:O	1:F:69:ILE:HG13	2.21	0.41
1:F:155:VAL:O	1:F:155:VAL:HG12	2.19	0.41
1:G:194:ARG:HD2	1:K:61:GLU:HG2	2.02	0.41
1:I:3:ILE:HD11	1:I:136:VAL:CG2	2.51	0.41
1:J:28:LYS:O	1:J:29:GLU:C	2.63	0.41
1:J:73:ARG:O	1:J:76:ALA:HB3	2.20	0.41
1:J:110:THR:CG2	1:J:111:GLY:N	2.80	0.41
1:J:210:ILE:HG23	1:J:211:ILE:N	2.35	0.41
1:L:95:LEU:HD13	1:L:125:LEU:HB3	2.02	0.41
1:L:167:ARG:HH11	1:L:167:ARG:CG	2.25	0.41
1:A:73:ARG:O	1:A:76:ALA:HB3	2.20	0.41
1:B:11:PHE:HZ	1:B:19:ASN:O	2.04	0.41
1:D:134:THR:OG1	1:D:198:ARG:NH1	2.54	0.41
1:F:80:MET:CE	1:F:81:PHE:HE2	2.33	0.41
1:I:5:LEU:HD22	1:I:7:ILE:HD13	2.02	0.41
1:I:218:GLU:O	1:I:219:VAL:C	2.64	0.41
1:J:6:LYS:NZ	2:J:1227:UTP:O3G	2.52	0.41
1:J:162:THR:HG21	1:J:226:VAL:HG21	2.02	0.41
1:K:88:TYR:CE2	1:K:90:HIS:HB3	2.55	0.41
1:L:185:ASP:HB2	1:L:186:PRO:CD	2.35	0.41
1:C:202:MET:HE2	1:C:213:ILE:HG13	2.03	0.41
1:D:48:ARG:O	1:D:49:ARG:C	2.64	0.41
1:G:202:MET:HE1	1:G:210:ILE:HD12	2.02	0.41
1:J:141:VAL:HG13	1:J:143:GLY:H	1.84	0.41
1:K:16:ASN:O	1:K:17:VAL:C	2.64	0.41
1:K:183:LEU:C	1:K:183:LEU:CD2	2.94	0.41
1:L:199:VAL:C	1:L:200:ILE:HD12	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:223:ILE:N	1:B:223:ILE:HD12	2.36	0.41
1:C:117:GLN:HE21	1:C:117:GLN:HB3	1.66	0.41
1:C:141:VAL:CG1	1:C:143:GLY:H	2.32	0.41
1:F:20:LEU:HD23	1:F:20:LEU:HA	1.89	0.41
1:G:17:VAL:HG22	1:H:57:ILE:HG22	2.03	0.41
1:I:31:ALA:C	1:I:33:ASN:N	2.79	0.41
1:J:183:LEU:HD23	1:J:183:LEU:C	2.46	0.41
1:B:117:GLN:HE21	1:B:117:GLN:HB3	1.65	0.41
1:E:43:GLY:HA3	1:E:47:ALA:HB2	2.03	0.41
1:H:202:MET:CE	1:H:210:ILE:HD12	2.51	0.41
1:H:206:LYS:HG2	1:H:209:ARG:NH2	2.36	0.41
1:J:136:VAL:HG11	1:J:202:MET:HE3	2.02	0.41
1:L:138:ALA:HA	1:L:202:MET:HG3	2.03	0.41
1:B:140:ASN:H	1:B:140:ASN:ND2	2.14	0.41
1:C:73:ARG:O	1:C:76:ALA:HB3	2.21	0.41
1:C:114:GLN:HA	1:C:115:PRO:HD3	1.92	0.41
1:D:67:LEU:HA	1:D:67:LEU:HD23	1.82	0.41
1:E:33:ASN:O	1:E:35:PHE:HD1	2.04	0.41
1:E:88:TYR:CE2	1:E:90:HIS:HB3	2.56	0.41
1:E:91:VAL:HA	1:E:92:PRO:HD2	1.93	0.41
1:E:145:TYR:HD1	1:E:157:LEU:HA	1.85	0.41
1:F:187:LEU:O	1:F:191:ILE:HG12	2.21	0.41
1:H:200:ILE:HD12	1:H:200:ILE:N	2.36	0.41
1:J:202:MET:CE	1:J:210:ILE:HD12	2.50	0.41
1:K:161:LEU:HD21	1:K:223:ILE:HG13	2.02	0.41
1:L:110:THR:HG22	1:L:111:GLY:O	2.21	0.41
1:A:2:ASN:OD1	1:A:36:ARG:HB2	2.20	0.41
1:A:57:ILE:HG22	1:B:17:VAL:HB	2.02	0.41
1:B:51:ILE:HG23	1:B:64:LEU:HB3	2.02	0.41
1:E:166:LEU:HG	1:E:170:LEU:CD1	2.51	0.41
1:F:59:ILE:HB	1:F:64:LEU:HD21	2.03	0.41
1:F:140:ASN:N	1:F:140:ASN:HD22	2.19	0.41
1:F:206:LYS:C	1:F:208:ASN:N	2.78	0.41
1:K:15:ASP:HB2	1:K:16:ASN:H	1.72	0.41
1:L:150:ARG:HG2	1:L:150:ARG:HH11	1.86	0.41
1:A:21:ILE:O	1:A:25:GLN:HG2	2.21	0.40
1:B:43:GLY:HA3	1:B:47:ALA:HB2	2.03	0.40
1:B:95:LEU:HD13	1:B:125:LEU:HB3	2.03	0.40
1:C:4:ILE:HG13	1:C:127:ALA:HA	2.02	0.40
1:D:166:LEU:HD12	1:D:166:LEU:HA	1.96	0.40
1:D:183:LEU:C	1:D:183:LEU:HD13	2.47	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:183:LEU:O	1:E:184:LEU:HD23	2.21	0.40
1:G:145:TYR:CD2	1:G:149:PRO:HG2	2.57	0.40
1:G:159:PRO:C	1:G:160:HIS:ND1	2.79	0.40
1:I:165:ASP:O	1:I:169:ILE:CD1	2.66	0.40
1:J:164:GLN:HA	1:J:167:ARG:HB2	2.03	0.40
1:J:169:ILE:O	1:J:169:ILE:CG2	2.68	0.40
1:K:73:ARG:O	1:K:76:ALA:HB3	2.21	0.40
1:K:114:GLN:HA	1:K:115:PRO:HD3	1.95	0.40
1:B:142:ASP:CG	1:B:206:LYS:HZ1	2.28	0.40
1:C:185:ASP:HB2	1:C:186:PRO:CD	2.42	0.40
1:D:139:THR:OG1	1:D:140:ASN:N	2.55	0.40
1:E:177:GLN:O	1:E:178:ALA:C	2.63	0.40
1:J:3:ILE:HD11	1:J:136:VAL:CG2	2.51	0.40
1:J:162:THR:HG22	1:J:165:ASP:H	1.86	0.40
1:K:138:ALA:HA	1:K:202:MET:HG3	2.03	0.40
1:A:183:LEU:O	1:A:184:LEU:HB2	2.21	0.40
1:C:144:VAL:O	1:C:145:TYR:HD1	2.05	0.40
1:C:206:LYS:O	1:C:207:LEU:C	2.64	0.40
1:E:206:LYS:NZ	1:E:219:VAL:HB	2.36	0.40
1:G:158:ILE:HD13	1:G:158:ILE:H	1.86	0.40
1:I:142:ASP:HA	1:I:203:ASN:HB2	2.03	0.40
1:K:140:ASN:ND2	1:K:140:ASN:H	2.19	0.40
1:A:153:ALA:C	1:A:155:VAL:H	2.29	0.40
1:C:210:ILE:HG23	1:C:211:ILE:N	2.37	0.40
1:E:208:ASN:OD1	1:E:209:ARG:N	2.54	0.40
1:F:134:THR:OG1	1:F:198:ARG:NH1	2.55	0.40
1:G:95:LEU:HD13	1:G:125:LEU:HB3	2.03	0.40
1:H:117:GLN:HE21	1:H:117:GLN:HB3	1.62	0.40
1:H:140:ASN:N	1:H:140:ASN:ND2	2.66	0.40
1:H:217:GLU:O	1:H:217:GLU:HG2	2.20	0.40
1:I:59:ILE:CD1	1:J:82:SER:HA	2.51	0.40
1:I:75:ASN:HD22	1:I:75:ASN:HA	1.70	0.40
1:K:16:ASN:HB3	1:L:56:GLU:OE1	2.22	0.40
1:L:167:ARG:O	1:L:168:LYS:C	2.64	0.40
1:B:4:ILE:HG13	1:B:127:ALA:HA	2.03	0.40
1:F:31:ALA:C	1:F:33:ASN:H	2.29	0.40
1:G:4:ILE:HG13	1:G:127:ALA:HA	2.02	0.40
1:G:110:THR:CG2	1:G:111:GLY:N	2.85	0.40
1:J:69:ILE:HG23	1:J:112:GLY:CA	2.51	0.40
1:J:148:ASP:HA	1:J:149:PRO:HD3	1.94	0.40
1:K:198:ARG:NE	1:K:200:ILE:HD11	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:17:VAL:HG12	1:L:21:ILE:HD12	2.02	0.40
1:L:59:ILE:HB	1:L:64:LEU:HD21	2.04	0.40
1:L:79:VAL:HG12	1:L:83:LEU:CD1	2.52	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	210/226 (93%)	190 (90%)	11 (5%)	9 (4%)	2	7
1	B	209/226 (92%)	198 (95%)	7 (3%)	4 (2%)	6	22
1	C	190/226 (84%)	166 (87%)	20 (10%)	4 (2%)	5	20
1	D	209/226 (92%)	191 (91%)	12 (6%)	6 (3%)	3	13
1	E	211/226 (93%)	187 (89%)	21 (10%)	3 (1%)	9	30
1	F	215/226 (95%)	192 (89%)	17 (8%)	6 (3%)	4	14
1	G	204/226 (90%)	182 (89%)	18 (9%)	4 (2%)	6	21
1	H	163/226 (72%)	147 (90%)	10 (6%)	6 (4%)	2	9
1	I	186/226 (82%)	169 (91%)	11 (6%)	6 (3%)	3	11
1	J	210/226 (93%)	187 (89%)	17 (8%)	6 (3%)	3	13
1	K	182/226 (80%)	159 (87%)	13 (7%)	10 (6%)	1	4
1	L	210/226 (93%)	194 (92%)	13 (6%)	3 (1%)	9	30
All	All	2399/2712 (88%)	2162 (90%)	170 (7%)	67 (3%)	4	14

All (67) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	84	GLN

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Mol	Chain	Res	Type
1	G	218	GLU
1	H	183	LEU
1	I	84	GLN
1	J	84	GLN
1	J	153	ALA
1	K	14	GLU
1	K	17	VAL
1	A	84	GLN
1	A	154	ASP
1	A	184	LEU
1	B	84	GLN
1	B	168	LYS
1	C	84	GLN
1	C	172	GLY
1	D	84	GLN
1	D	168	LYS
1	E	32	ASP
1	E	218	GLU
1	F	84	GLN
1	F	148	ASP
1	F	156	LYS
1	F	182	GLU
1	G	149	PRO
1	H	84	GLN
1	I	85	ASP
1	I	219	VAL
1	J	85	ASP
1	K	16	ASN
1	K	84	GLN
1	K	159	PRO
1	L	84	GLN
1	A	152	TYR
1	A	155	VAL
1	A	168	LYS
1	B	33	ASN
1	C	218	GLU
1	D	184	LEU
1	F	181	TYR
1	G	84	GLN
1	H	89	MET
1	H	216	GLY
1	I	31	ALA

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Mol	Chain	Res	Type
1	J	16	ASN
1	J	167	ARG
1	K	147	LYS
1	A	220	SER
1	B	220	SER
1	D	218	GLU
1	H	219	VAL
1	I	161	LEU
1	K	15	ASP
1	K	161	LEU
1	L	32	ASP
1	L	89	MET
1	A	153	ALA
1	C	148	ASP
1	D	15	ASP
1	F	183	LEU
1	G	150	ARG
1	I	185	ASP
1	K	89	MET
1	A	150	ARG
1	D	17	VAL
1	H	185	ASP
1	J	17	VAL
1	K	149	PRO

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	183/192 (95%)	167 (91%)	16 (9%)	9	30
1	B	182/192 (95%)	173 (95%)	9 (5%)	22	55
1	C	167/192 (87%)	153 (92%)	14 (8%)	10	32
1	D	182/192 (95%)	171 (94%)	11 (6%)	17	47
1	E	184/192 (96%)	174 (95%)	10 (5%)	20	51

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	F	187/192 (97%)	174 (93%)	13 (7%)	14	40
1	G	182/192 (95%)	170 (93%)	12 (7%)	15	43
1	H	143/192 (74%)	138 (96%)	5 (4%)	32	67
1	I	164/192 (85%)	155 (94%)	9 (6%)	19	51
1	J	183/192 (95%)	171 (93%)	12 (7%)	15	43
1	K	162/192 (84%)	156 (96%)	6 (4%)	30	65
1	L	183/192 (95%)	174 (95%)	9 (5%)	22	55
All	All	2102/2304 (91%)	1976 (94%)	126 (6%)	17	47

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	LEU
1	A	15	ASP
1	A	17	VAL
1	A	66	LEU
1	A	117	GLN
1	A	126	VAL
1	A	140	ASN
1	A	141	VAL
1	A	146	GLU
1	A	152	TYR
1	A	154	ASP
1	A	155	VAL
1	A	158	ILE
1	A	161	LEU
1	A	184	LEU
1	A	219	VAL
1	B	5	LEU
1	B	18	ASP
1	B	32	ASP
1	B	66	LEU
1	B	140	ASN
1	B	151	ILE
1	B	158	ILE
1	B	163	THR
1	B	202	MET
1	C	1	MET
1	C	5	LEU
1	C	66	LEU

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Mol	Chain	Res	Type
1	C	117	GLN
1	C	139	THR
1	C	141	VAL
1	C	161	LEU
1	C	162	THR
1	C	163	THR
1	C	182	GLU
1	C	183	LEU
1	C	184	LEU
1	C	202	MET
1	C	217	GLU
1	D	1	MET
1	D	5	LEU
1	D	66	LEU
1	D	117	GLN
1	D	126	VAL
1	D	140	ASN
1	D	163	THR
1	D	164	GLN
1	D	165	ASP
1	D	183	LEU
1	D	202	MET
1	E	1	MET
1	E	5	LEU
1	E	66	LEU
1	E	86	LEU
1	E	117	GLN
1	E	140	ASN
1	E	154	ASP
1	E	164	GLN
1	E	183	LEU
1	E	202	MET
1	F	1	MET
1	F	5	LEU
1	F	15	ASP
1	F	22	VAL
1	F	33	ASN
1	F	66	LEU
1	F	117	GLN
1	F	140	ASN
1	F	157	LEU
1	F	181	TYR

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Mol	Chain	Res	Type
1	F	182	GLU
1	F	183	LEU
1	F	202	MET
1	G	5	LEU
1	G	66	LEU
1	G	85	ASP
1	G	86	LEU
1	G	117	GLN
1	G	140	ASN
1	G	146	GLU
1	G	157	LEU
1	G	158	ILE
1	G	167	ARG
1	G	218	GLU
1	G	219	VAL
1	H	1	MET
1	H	5	LEU
1	H	66	LEU
1	H	117	GLN
1	H	140	ASN
1	I	5	LEU
1	I	66	LEU
1	I	84	GLN
1	I	117	GLN
1	I	126	VAL
1	I	140	ASN
1	I	146	GLU
1	I	157	LEU
1	I	218	GLU
1	J	1	MET
1	J	5	LEU
1	J	66	LEU
1	J	117	GLN
1	J	126	VAL
1	J	140	ASN
1	J	141	VAL
1	J	158	ILE
1	J	162	THR
1	J	167	ARG
1	J	169	ILE
1	J	170	LEU
1	K	5	LEU

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Mol	Chain	Res	Type
1	K	66	LEU
1	K	117	GLN
1	K	126	VAL
1	K	140	ASN
1	K	149	PRO
1	L	5	LEU
1	L	19	ASN
1	L	66	LEU
1	L	117	GLN
1	L	126	VAL
1	L	140	ASN
1	L	141	VAL
1	L	163	THR
1	L	183	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (69) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	ASN
1	A	19	ASN
1	A	33	ASN
1	A	75	ASN
1	A	84	GLN
1	A	114	GLN
1	A	117	GLN
1	A	140	ASN
1	A	208	ASN
1	B	16	ASN
1	B	19	ASN
1	B	75	ASN
1	B	84	GLN
1	B	117	GLN
1	B	140	ASN
1	C	75	ASN
1	C	93	GLN
1	C	117	GLN
1	C	140	ASN
1	D	19	ASN
1	D	33	ASN
1	D	75	ASN
1	D	84	GLN
1	D	114	GLN

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Mol	Chain	Res	Type
1	D	117	GLN
1	D	160	HIS
1	E	16	ASN
1	E	19	ASN
1	E	33	ASN
1	E	75	ASN
1	E	117	GLN
1	E	140	ASN
1	F	33	ASN
1	F	75	ASN
1	F	114	GLN
1	F	117	GLN
1	G	75	ASN
1	G	114	GLN
1	G	117	GLN
1	G	140	ASN
1	H	75	ASN
1	H	84	GLN
1	H	114	GLN
1	H	117	GLN
1	H	140	ASN
1	I	33	ASN
1	I	75	ASN
1	I	84	GLN
1	I	114	GLN
1	I	117	GLN
1	I	140	ASN
1	J	33	ASN
1	J	75	ASN
1	J	104	HIS
1	J	114	GLN
1	J	117	GLN
1	J	140	ASN
1	J	164	GLN
1	K	75	ASN
1	K	84	GLN
1	K	114	GLN
1	K	117	GLN
1	K	140	ASN
1	L	19	ASN
1	L	75	ASN
1	L	84	GLN

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Mol	Chain	Res	Type
1	L	114	GLN
1	L	117	GLN
1	L	140	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 7 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	$\# Z > 2$
2	UTP	F	1227	-	29,30,30	1.11	3 (10%)	43,47,47	1.01	3 (6%)
2	UTP	C	1227	3	29,30,30	1.30	5 (17%)	43,47,47	0.97	2 (4%)
2	UTP	E	1227	3	29,30,30	1.20	5 (17%)	43,47,47	0.99	3 (6%)
2	UTP	G	1227	-	29,30,30	1.35	3 (10%)	43,47,47	1.00	3 (6%)
2	UTP	B	1227	3	29,30,30	1.11	2 (6%)	43,47,47	1.06	3 (6%)
2	UTP	J	1227	3	29,30,30	1.62	3 (10%)	43,47,47	1.10	3 (6%)
2	UTP	D	1227	3	29,30,30	1.03	1 (3%)	43,47,47	1.03	3 (6%)
2	UTP	H	1227	-	29,30,30	1.48	2 (6%)	43,47,47	0.99	3 (6%)
2	UTP	I	1227	-	29,30,30	1.07	2 (6%)	43,47,47	1.00	3 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	UTP	A	1227	-	29,30,30	1.36	3 (10%)	43,47,47	1.04	3 (6%)
2	UTP	K	1227	-	29,30,30	1.17	3 (10%)	43,47,47	1.01	3 (6%)
2	UTP	L	1227	3	29,30,30	1.00	3 (10%)	43,47,47	1.00	2 (4%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	UTP	F	1227	-	-	2/22/38/38	0/2/2/2
2	UTP	C	1227	3	-	2/22/38/38	0/2/2/2
2	UTP	E	1227	3	-	0/22/38/38	0/2/2/2
2	UTP	G	1227	-	-	6/22/38/38	0/2/2/2
2	UTP	B	1227	3	-	5/22/38/38	0/2/2/2
2	UTP	J	1227	3	-	3/22/38/38	0/2/2/2
2	UTP	D	1227	3	-	3/22/38/38	0/2/2/2
2	UTP	H	1227	-	-	0/22/38/38	0/2/2/2
2	UTP	I	1227	-	-	2/22/38/38	0/2/2/2
2	UTP	A	1227	-	-	2/22/38/38	0/2/2/2
2	UTP	K	1227	-	-	2/22/38/38	0/2/2/2
2	UTP	L	1227	3	-	2/22/38/38	0/2/2/2

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	1227	UTP	PA-O3A	5.17	1.65	1.59
2	G	1227	UTP	PA-O3A	4.83	1.64	1.59
2	J	1227	UTP	PA-O3A	4.23	1.64	1.59
2	A	1227	UTP	PB-O3B	4.16	1.64	1.59
2	J	1227	UTP	PB-O3B	4.11	1.63	1.59
2	C	1227	UTP	PB-O3B	4.03	1.63	1.59
2	J	1227	UTP	C2-N1	3.98	1.44	1.38
2	A	1227	UTP	PA-O3A	3.82	1.63	1.59
2	H	1227	UTP	C2-N1	3.62	1.44	1.38
2	E	1227	UTP	PA-O3A	3.42	1.63	1.59
2	G	1227	UTP	C2-N1	3.18	1.43	1.38
2	C	1227	UTP	PA-O3A	3.13	1.62	1.59
2	K	1227	UTP	PA-O3A	2.88	1.62	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	K	1227	UTP	PB-O3B	2.68	1.62	1.59
2	L	1227	UTP	PA-O3A	2.60	1.62	1.59
2	I	1227	UTP	PA-O3A	2.57	1.62	1.59
2	K	1227	UTP	C2-N1	2.55	1.42	1.38
2	F	1227	UTP	PA-O3A	2.55	1.62	1.59
2	B	1227	UTP	PB-O3B	2.46	1.62	1.59
2	I	1227	UTP	C2-N1	2.44	1.42	1.38
2	D	1227	UTP	C2-N1	2.35	1.42	1.38
2	E	1227	UTP	C2-N1	2.32	1.42	1.38
2	C	1227	UTP	C2-N1	2.24	1.42	1.38
2	F	1227	UTP	PB-O1B	-2.20	1.45	1.55
2	A	1227	UTP	C2-N1	2.20	1.41	1.38
2	F	1227	UTP	C2-N1	2.19	1.41	1.38
2	B	1227	UTP	PA-O3A	2.17	1.61	1.59
2	E	1227	UTP	PB-O2B	-2.14	1.43	1.50
2	C	1227	UTP	PB-O2B	-2.12	1.43	1.50
2	E	1227	UTP	PB-O1B	-2.11	1.45	1.55
2	G	1227	UTP	PB-O1B	-2.10	1.45	1.55
2	C	1227	UTP	PB-O1B	-2.10	1.45	1.55
2	L	1227	UTP	PB-O1B	-2.09	1.45	1.55
2	E	1227	UTP	PB-O3B	2.06	1.61	1.59
2	L	1227	UTP	C2-N1	2.04	1.41	1.38

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	J	1227	UTP	O1B-PB-O3A	3.63	117.09	107.27
2	D	1227	UTP	O1B-PB-O3A	3.37	116.39	107.27
2	H	1227	UTP	O1B-PB-O3A	3.35	116.33	107.27
2	B	1227	UTP	O1B-PB-O3A	3.29	116.17	107.27
2	G	1227	UTP	O1B-PB-O3A	3.24	116.03	107.27
2	A	1227	UTP	O1B-PB-O3A	3.23	116.00	107.27
2	E	1227	UTP	O1B-PB-O3A	3.21	115.96	107.27
2	I	1227	UTP	O1B-PB-O3A	3.19	115.91	107.27
2	K	1227	UTP	O1B-PB-O3A	3.18	115.86	107.27
2	J	1227	UTP	C3'-C2'-C1'	3.11	107.36	101.46
2	L	1227	UTP	O1B-PB-O3A	3.11	115.67	107.27
2	F	1227	UTP	O1B-PB-O3A	3.06	115.55	107.27
2	L	1227	UTP	C3'-C2'-C1'	2.90	106.94	101.46
2	C	1227	UTP	O1B-PB-O3A	2.84	114.95	107.27
2	C	1227	UTP	C3'-C2'-C1'	2.79	106.73	101.46
2	A	1227	UTP	C3'-C2'-C1'	2.65	106.48	101.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	1227	UTP	O3A-PB-O2B	-2.65	102.75	110.70
2	J	1227	UTP	O3A-PB-O2B	-2.59	102.93	110.70
2	I	1227	UTP	C3'-C2'-C1'	2.58	106.35	101.46
2	E	1227	UTP	C3'-C2'-C1'	2.56	106.31	101.46
2	D	1227	UTP	C3'-C2'-C1'	2.54	106.27	101.46
2	B	1227	UTP	C3'-C2'-C1'	2.54	106.26	101.46
2	G	1227	UTP	C3'-C2'-C1'	2.48	106.16	101.46
2	I	1227	UTP	O3A-PB-O2B	-2.46	103.31	110.70
2	D	1227	UTP	O3A-PB-O2B	-2.45	103.33	110.70
2	H	1227	UTP	C3'-C2'-C1'	2.42	106.04	101.46
2	F	1227	UTP	C3'-C2'-C1'	2.41	106.01	101.46
2	B	1227	UTP	O3A-PB-O2B	-2.40	103.49	110.70
2	K	1227	UTP	C3'-C2'-C1'	2.37	105.94	101.46
2	H	1227	UTP	O3A-PB-O2B	-2.31	103.76	110.70
2	G	1227	UTP	O3A-PB-O2B	-2.25	103.93	110.70
2	A	1227	UTP	O3A-PB-O2B	-2.23	104.00	110.70
2	E	1227	UTP	O3A-PB-O2B	-2.15	104.22	110.70
2	F	1227	UTP	O4'-C1'-N1	2.15	113.23	108.36

There are no chirality outliers.

All (29) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1227	UTP	PB-O3B-PG-O1G
2	G	1227	UTP	PB-O3B-PG-O1G
2	B	1227	UTP	C3'-C4'-C5'-O5'
2	I	1227	UTP	C3'-C4'-C5'-O5'
2	B	1227	UTP	O4'-C4'-C5'-O5'
2	F	1227	UTP	O4'-C4'-C5'-O5'
2	F	1227	UTP	C3'-C4'-C5'-O5'
2	I	1227	UTP	O4'-C4'-C5'-O5'
2	J	1227	UTP	O4'-C4'-C5'-O5'
2	L	1227	UTP	O4'-C4'-C5'-O5'
2	L	1227	UTP	C3'-C4'-C5'-O5'
2	D	1227	UTP	O4'-C4'-C5'-O5'
2	J	1227	UTP	C3'-C4'-C5'-O5'
2	K	1227	UTP	O4'-C4'-C5'-O5'
2	G	1227	UTP	O4'-C4'-C5'-O5'
2	G	1227	UTP	C3'-C4'-C5'-O5'
2	C	1227	UTP	O4'-C4'-C5'-O5'
2	D	1227	UTP	C3'-C4'-C5'-O5'
2	G	1227	UTP	PB-O3B-PG-O3G

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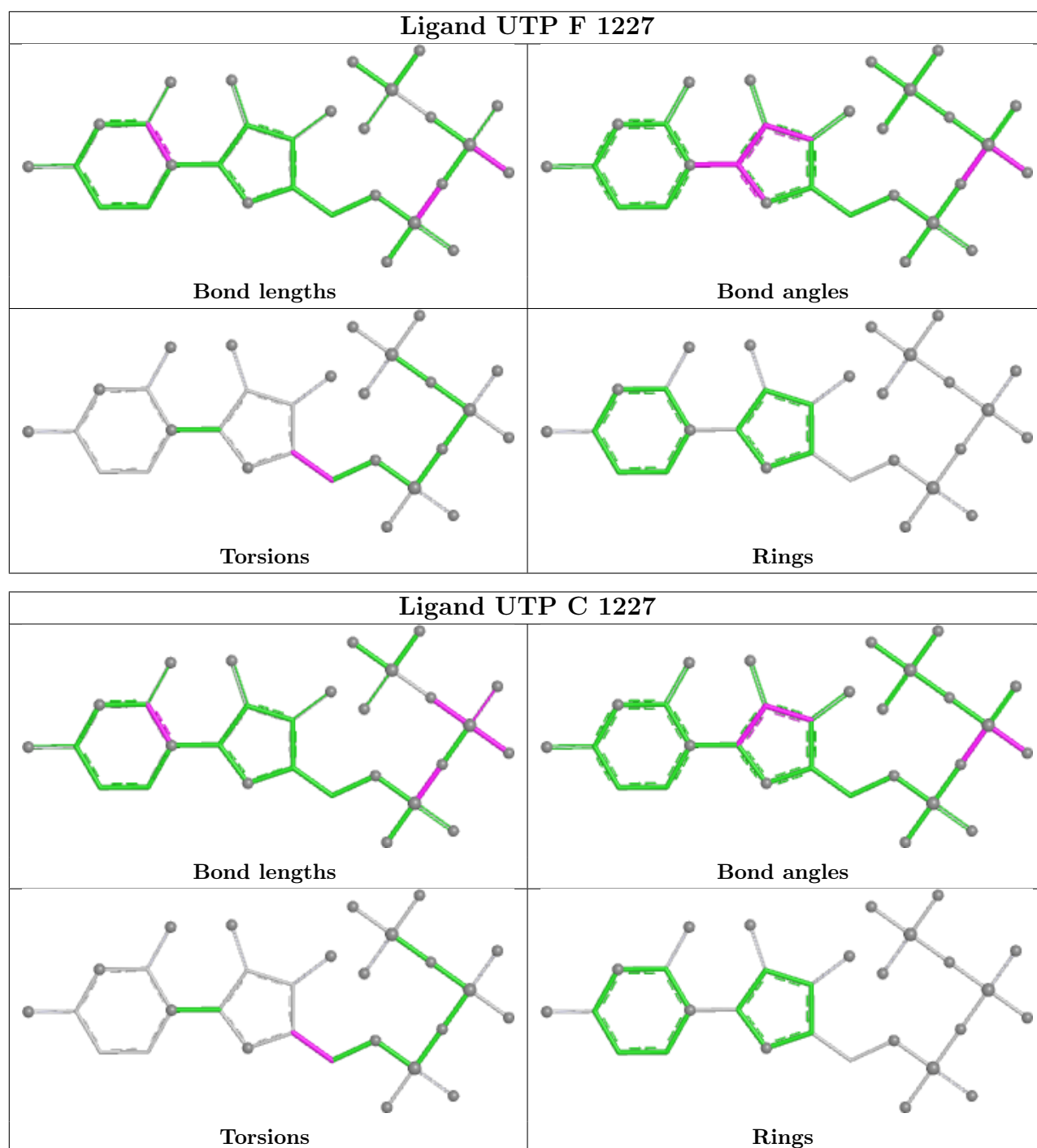
Mol	Chain	Res	Type	Atoms
2	K	1227	UTP	C3'-C4'-C5'-O5'
2	G	1227	UTP	C4'-C5'-O5'-PA
2	B	1227	UTP	PB-O3B-PG-O2G
2	G	1227	UTP	PB-O3B-PG-O2G
2	B	1227	UTP	PB-O3B-PG-O1G
2	B	1227	UTP	PB-O3B-PG-O3G
2	A	1227	UTP	PA-O3A-PB-O3B
2	C	1227	UTP	C3'-C4'-C5'-O5'
2	A	1227	UTP	PA-O3A-PB-O2B
2	J	1227	UTP	PA-O3A-PB-O1B

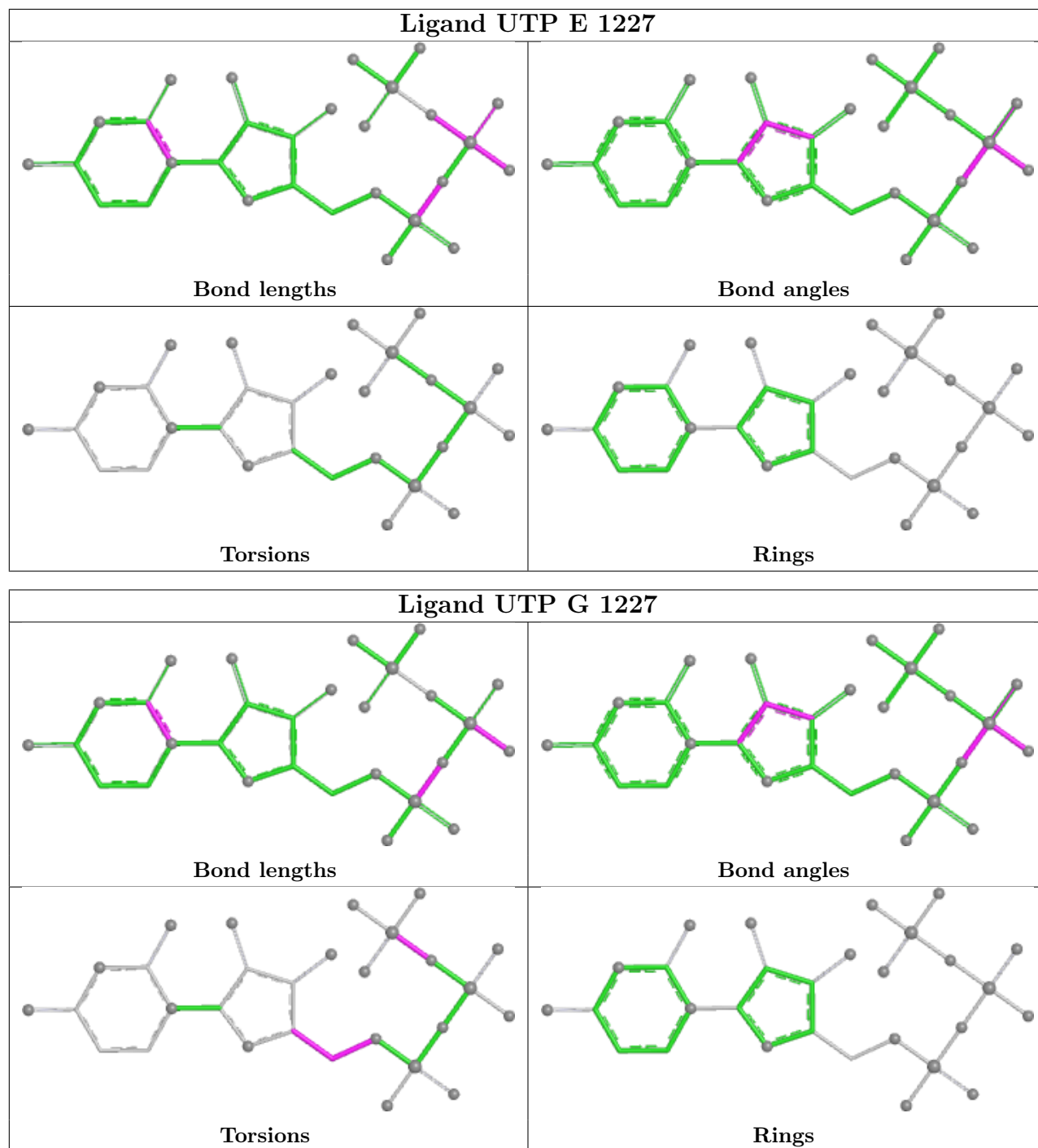
There are no ring outliers.

9 monomers are involved in 19 short contacts:

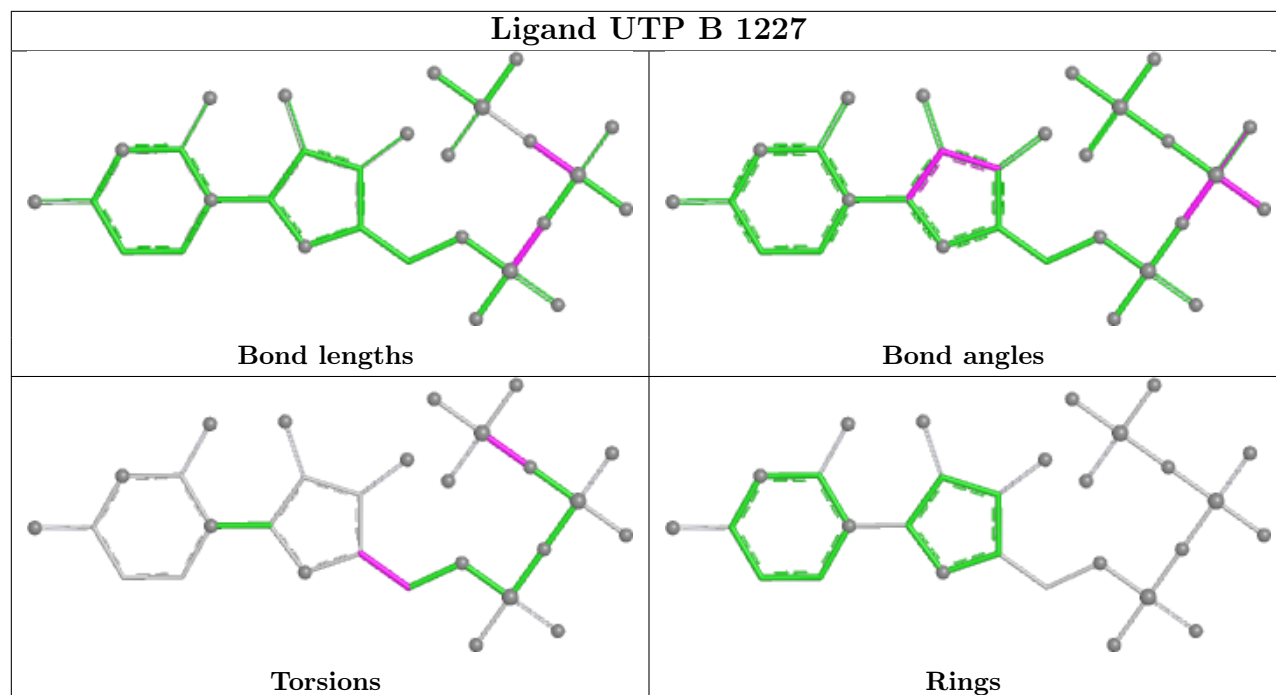
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	1227	UTP	5	0
2	C	1227	UTP	2	0
2	E	1227	UTP	2	0
2	G	1227	UTP	1	0
2	B	1227	UTP	1	0
2	J	1227	UTP	3	0
2	H	1227	UTP	2	0
2	I	1227	UTP	2	0
2	L	1227	UTP	1	0

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

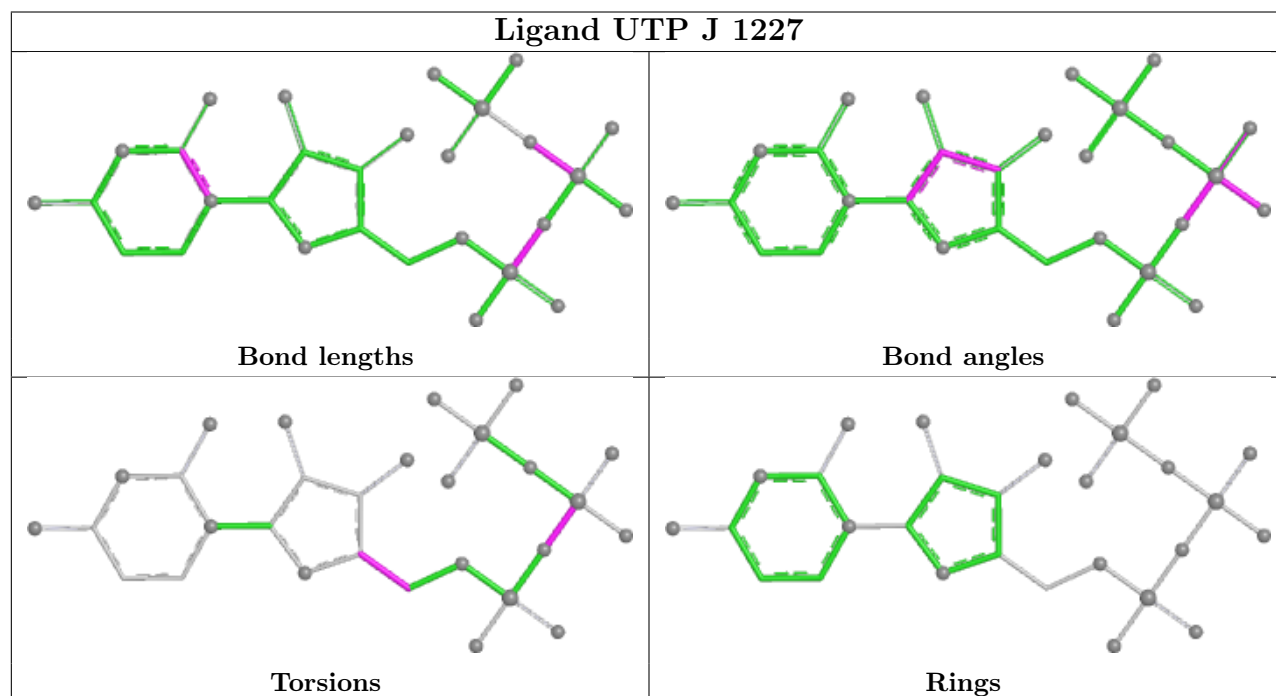




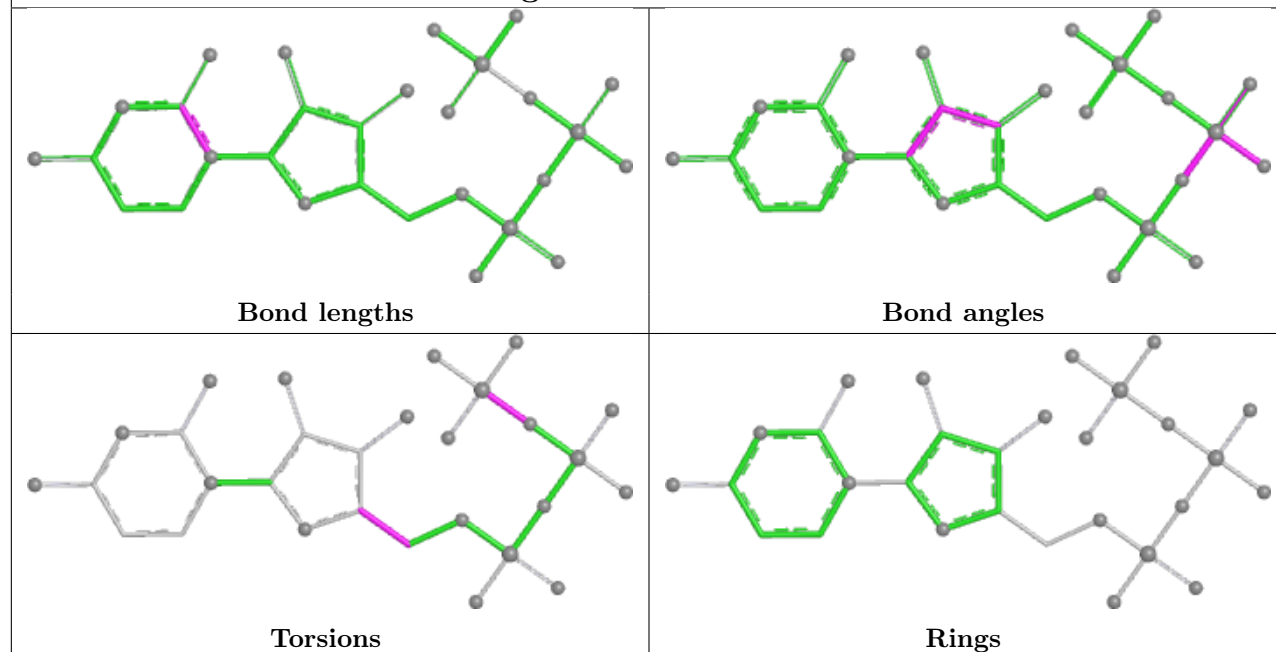
Ligand UTP B 1227



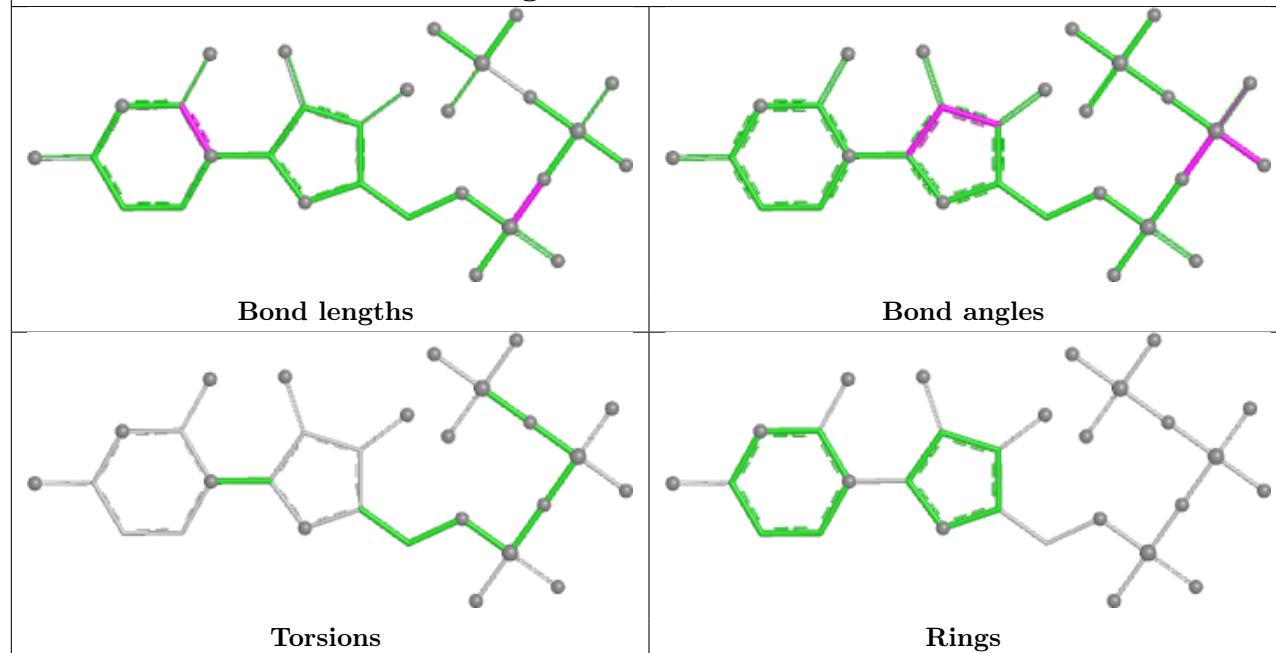
Ligand UTP J 1227

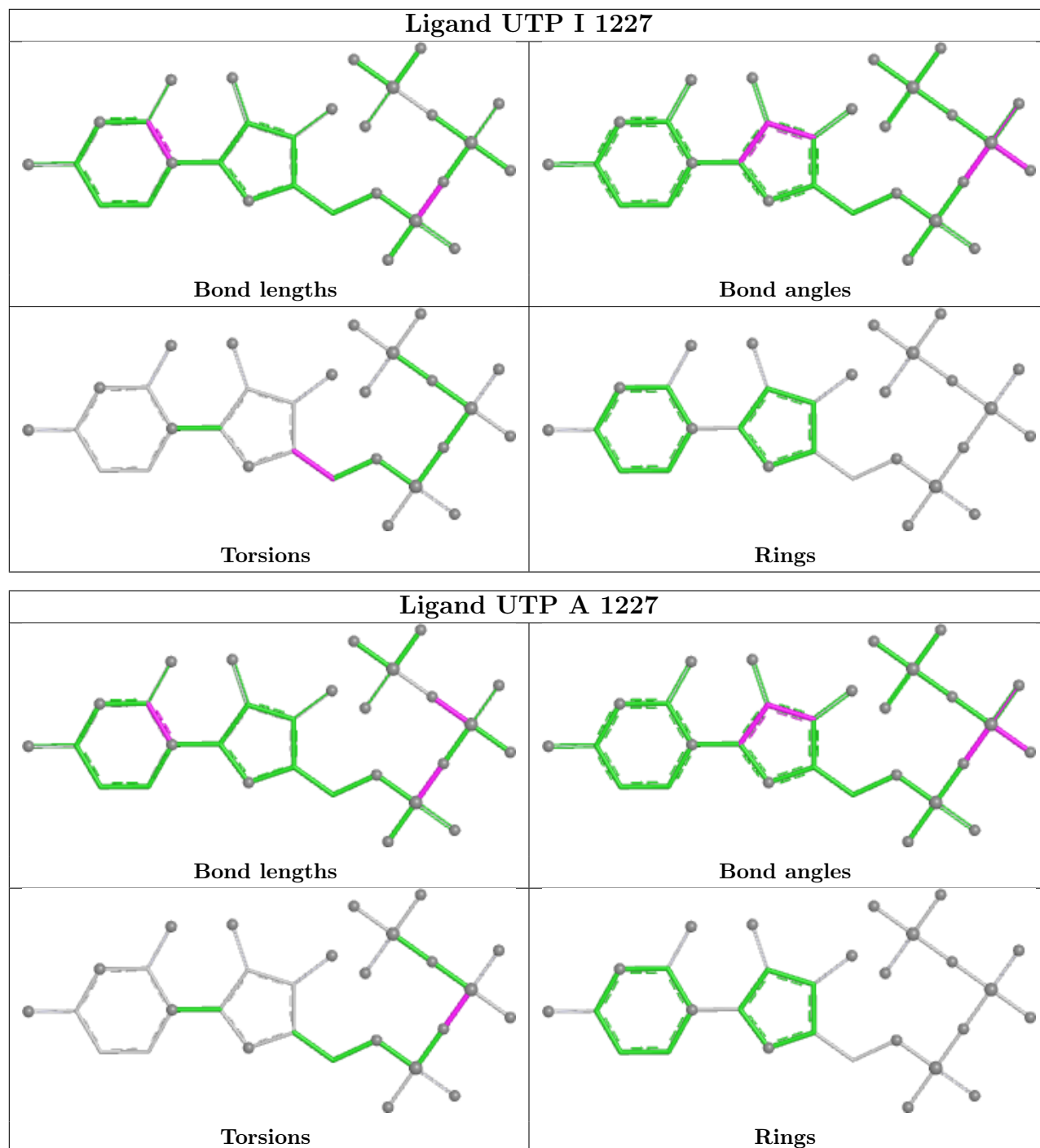


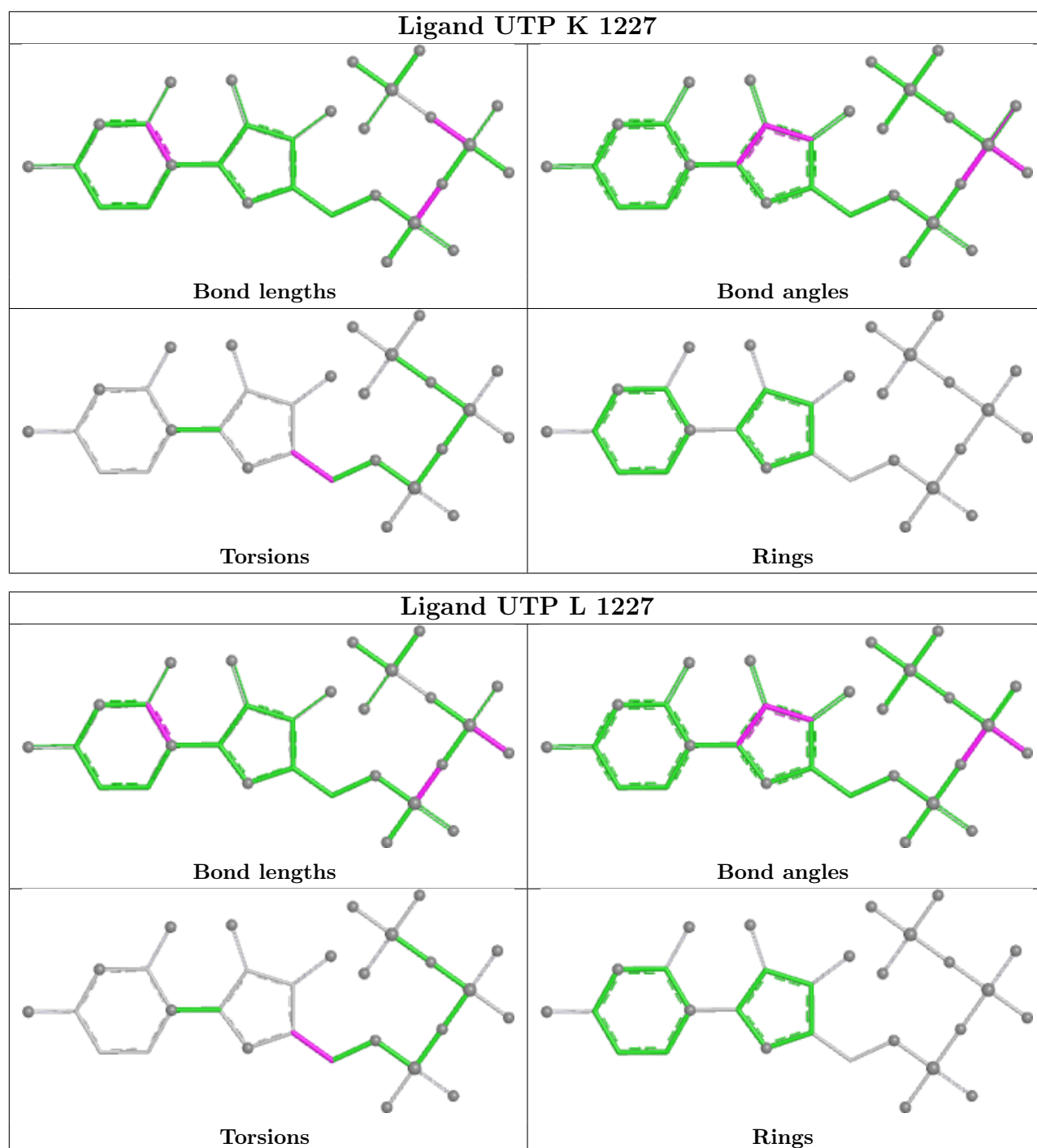
Ligand UTP D 1227



Ligand UTP H 1227







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 ⓘ

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(Å ²)	Q<0.9
1	A	214/226 (94%)	0.25	11 (5%) 33 25	39, 59, 107, 116	0
1	B	213/226 (94%)	0.16	9 (4%) 40 32	42, 62, 92, 101	0
1	C	198/226 (87%)	0.44	11 (5%) 30 23	40, 65, 110, 121	0
1	D	213/226 (94%)	0.18	4 (1%) 66 57	44, 67, 96, 109	0
1	E	217/226 (96%)	0.26	7 (3%) 50 40	37, 65, 105, 114	0
1	F	219/226 (96%)	0.18	10 (4%) 37 29	41, 64, 92, 115	0
1	G	212/226 (93%)	0.63	12 (5%) 29 22	61, 83, 104, 120	0
1	H	171/226 (75%)	0.77	15 (8%) 15 11	64, 88, 131, 140	0
1	I	194/226 (85%)	0.59	12 (6%) 26 20	57, 85, 133, 153	0
1	J	214/226 (94%)	0.25	6 (2%) 55 45	53, 73, 101, 124	0
1	K	190/226 (84%)	0.46	11 (5%) 29 22	51, 86, 134, 145	0
1	L	214/226 (94%)	0.07	4 (1%) 66 57	47, 67, 89, 103	0
All	All	2469/2712 (91%)	0.34	112 (4%) 38 30	37, 72, 116, 153	0

All (112) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	30	LEU	7.2
1	G	219	VAL	4.9
1	J	170	LEU	4.5
1	B	155	VAL	4.4
1	E	153	ALA	4.4
1	K	226	VAL	4.2
1	J	169	ILE	3.8
1	G	153	ALA	3.8
1	C	57	ILE	3.7
1	H	161	LEU	3.7
1	E	181	TYR	3.6

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Mol	Chain	Res	Type	RSRZ
1	D	169	ILE	3.6
1	I	149	PRO	3.5
1	F	179	GLY	3.5
1	L	153	ALA	3.5
1	F	57	ILE	3.4
1	J	1	MET	3.3
1	A	164	GLN	3.3
1	C	149	PRO	3.2
1	D	183	LEU	3.2
1	H	158	ILE	3.2
1	F	15	ASP	3.1
1	H	48	ARG	3.1
1	K	17	VAL	3.0
1	B	58	GLY	3.0
1	L	152	TYR	3.0
1	E	220	SER	3.0
1	F	226	VAL	3.0
1	L	85	ASP	2.9
1	J	219	VAL	2.9
1	G	164	GLN	2.8
1	B	154	ASP	2.8
1	F	85	ASP	2.7
1	H	218	GLU	2.7
1	H	219	VAL	2.7
1	K	16	ASN	2.7
1	K	149	PRO	2.7
1	I	164	GLN	2.7
1	H	51	ILE	2.6
1	A	153	ALA	2.6
1	D	85	ASP	2.6
1	C	164	GLN	2.6
1	H	213	ILE	2.6
1	G	214	LEU	2.6
1	K	221	SER	2.6
1	C	219	VAL	2.6
1	A	183	LEU	2.5
1	A	169	ILE	2.5
1	B	226	VAL	2.5
1	H	37	VAL	2.5
1	J	15	ASP	2.5
1	F	83	LEU	2.5
1	C	220	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	K	18	ASP	2.4
1	H	14	GLU	2.4
1	H	124	ALA	2.4
1	H	1	MET	2.4
1	B	32	ASP	2.4
1	H	226	VAL	2.4
1	I	155	VAL	2.4
1	I	226	VAL	2.4
1	A	12	PHE	2.4
1	H	216	GLY	2.4
1	I	116	GLY	2.4
1	I	141	VAL	2.4
1	K	144	VAL	2.4
1	C	155	VAL	2.3
1	G	226	VAL	2.3
1	K	43	GLY	2.3
1	K	150	ARG	2.3
1	J	226	VAL	2.3
1	F	182	GLU	2.3
1	A	83	LEU	2.3
1	B	212	ASP	2.3
1	G	15	ASP	2.3
1	A	184	LEU	2.2
1	B	169	ILE	2.2
1	H	197	ILE	2.2
1	I	197	ILE	2.2
1	G	155	VAL	2.2
1	F	181	TYR	2.2
1	I	145	TYR	2.2
1	A	14	GLU	2.2
1	A	16	ASN	2.2
1	A	151	ILE	2.2
1	I	148	ASP	2.2
1	C	14	GLU	2.2
1	G	151	ILE	2.2
1	H	211	ILE	2.2
1	G	16	ASN	2.2
1	I	160	HIS	2.2
1	G	83	LEU	2.2
1	K	166	LEU	2.1
1	I	1	MET	2.1
1	C	53	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	1	MET	2.1
1	F	180	THR	2.1
1	C	213	ILE	2.1
1	E	226	VAL	2.1
1	D	225	PRO	2.1
1	A	85	ASP	2.1
1	E	15	ASP	2.1
1	G	163	THR	2.1
1	B	211	ILE	2.1
1	L	211	ILE	2.1
1	G	221	SER	2.0
1	C	214	LEU	2.0
1	B	18	ASP	2.0
1	E	221	SER	2.0
1	F	103	SER	2.0
1	K	164	GLN	2.0
1	C	205	ARG	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 oligosaccharides 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($\text{\AA}^2$)	Q<0.9
3	MG	E	1228	1/1	0.76	0.12	73,73,73,73	0
3	MG	I	1228	1/1	0.76	0.13	78,78,78,78	0
2	UTP	H	1227	29/29	0.79	0.16	78,92,128,129	0
2	UTP	K	1227	29/29	0.83	0.15	83,92,131,132	0
2	UTP	J	1227	29/29	0.84	0.14	63,72,109,110	0
2	UTP	I	1227	29/29	0.88	0.11	62,78,122,122	0

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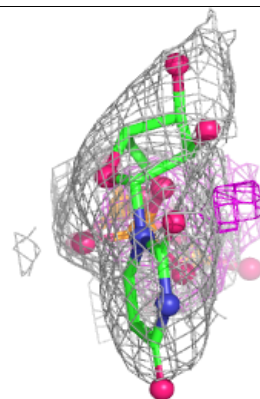
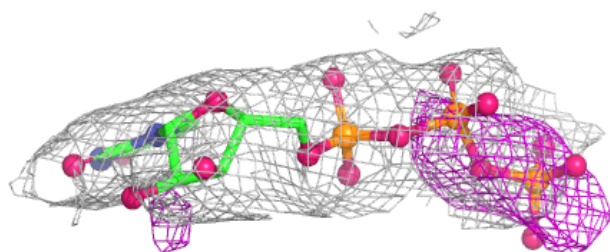
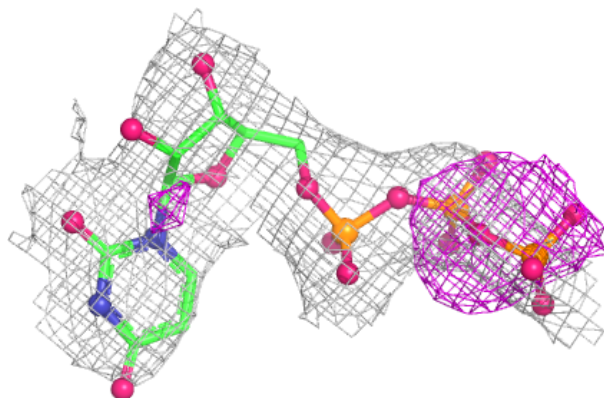
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	MG	C	1228	1/1	0.88	0.08	66,66,66,66	0
2	UTP	D	1227	29/29	0.89	0.13	56,69,114,115	0
2	UTP	F	1227	29/29	0.90	0.13	64,67,105,105	0
2	UTP	G	1227	29/29	0.90	0.11	71,85,119,119	0
3	MG	B	1228	1/1	0.90	0.08	55,55,55,55	0
2	UTP	B	1227	29/29	0.91	0.12	56,69,111,112	0
2	UTP	A	1227	29/29	0.91	0.12	64,73,109,110	0
2	UTP	E	1227	29/29	0.91	0.13	53,62,97,98	0
2	UTP	L	1227	29/29	0.91	0.13	71,77,110,111	0
3	MG	D	1228	1/1	0.92	0.17	56,56,56,56	0
2	UTP	C	1227	29/29	0.93	0.11	45,58,101,102	0
3	MG	L	1228	1/1	0.95	0.06	55,55,55,55	0
3	MG	J	1228	1/1	0.96	0.07	64,64,64,64	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.

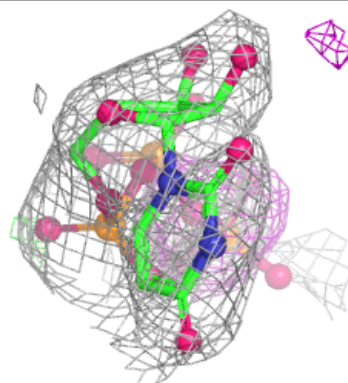
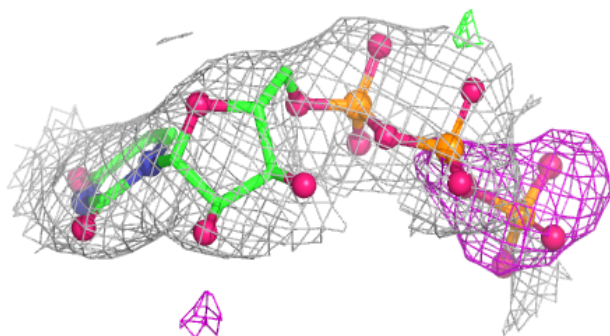
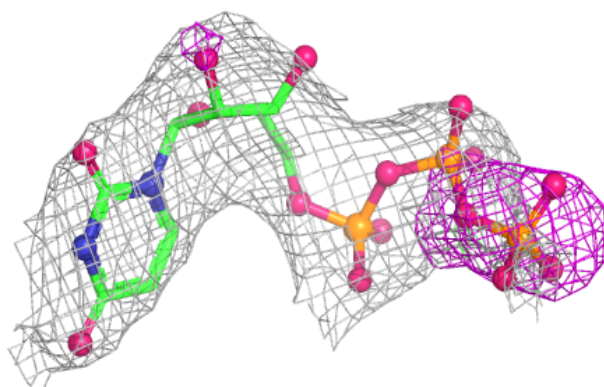
Electron density around UTP H 1227:

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



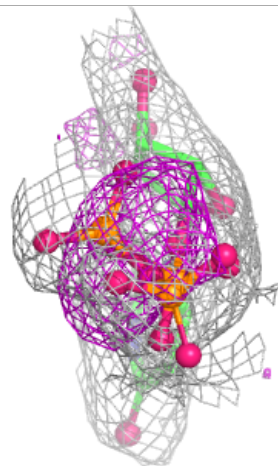
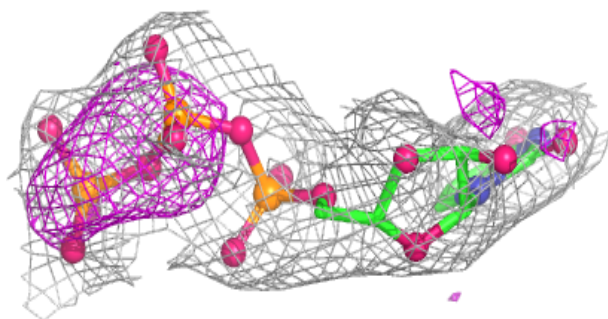
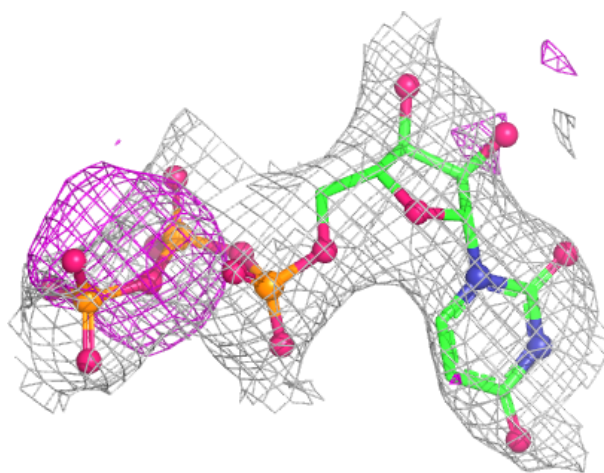
Electron density around UTP K 1227:

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



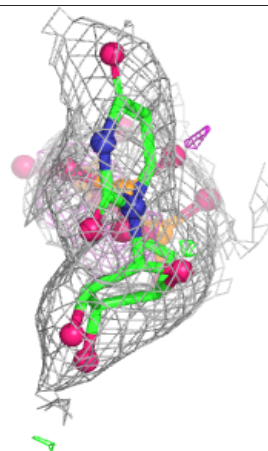
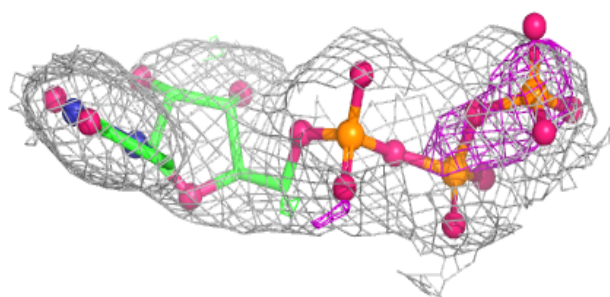
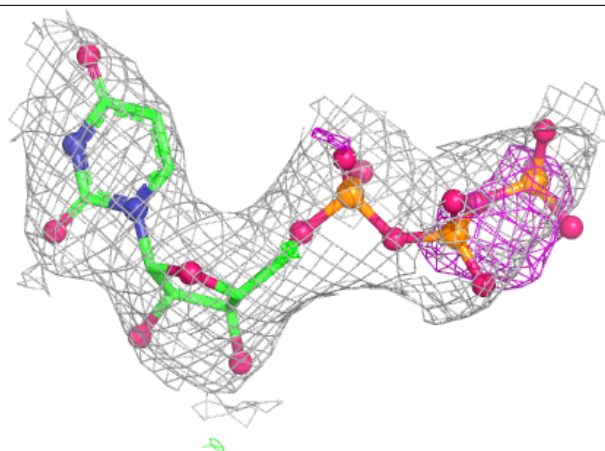
Electron density around UTP J 1227:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

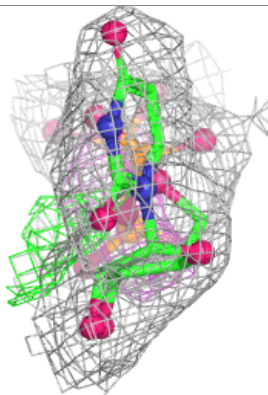
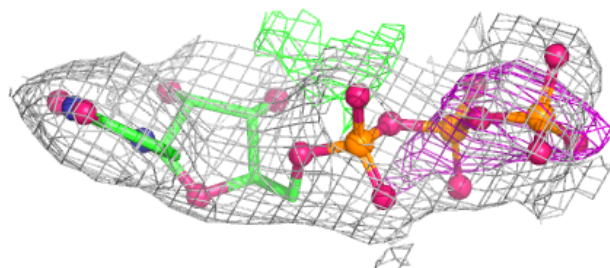
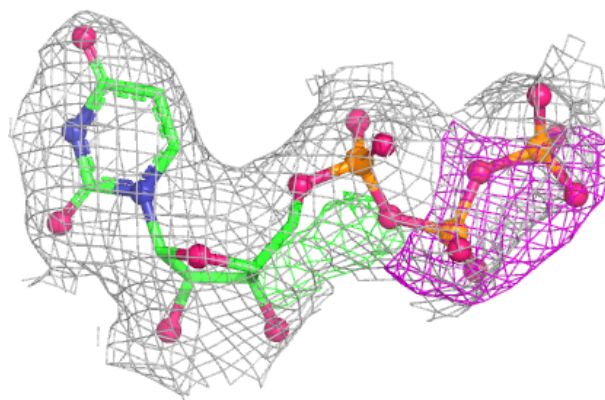


Electron density around UTP I 1227:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

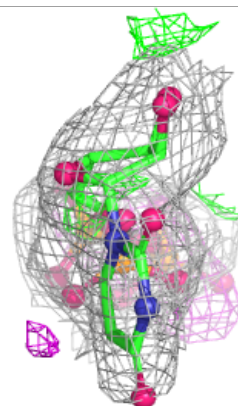
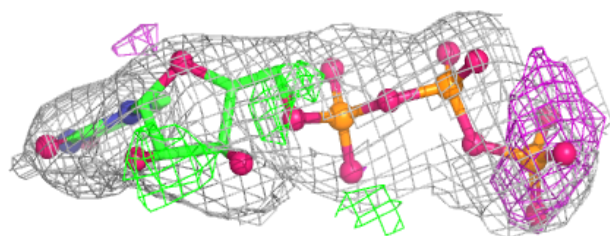
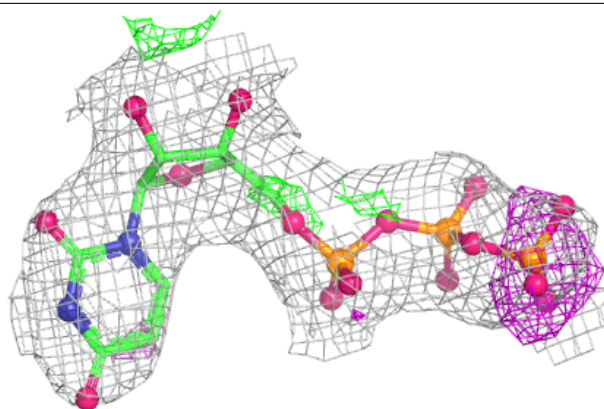
**Electron density around UTP D 1227:**

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and green (positive)

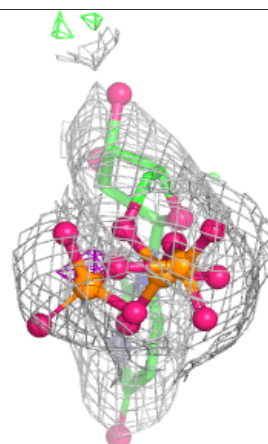
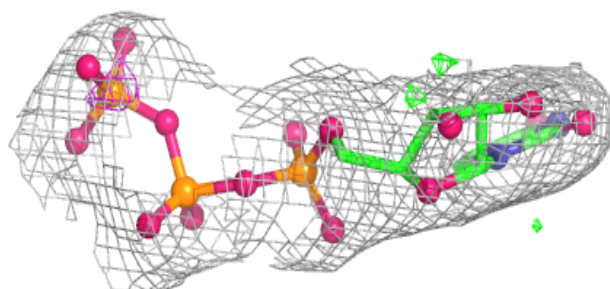
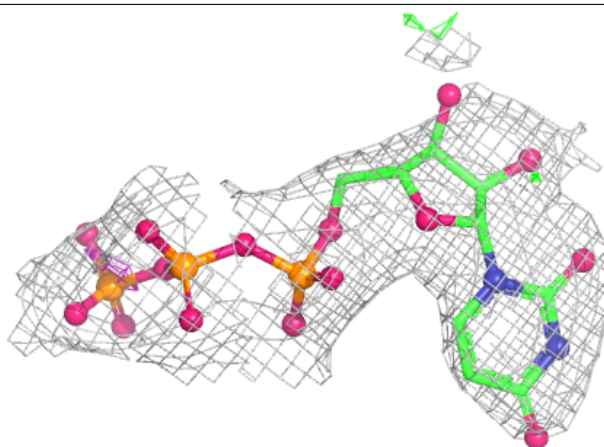


Electron density around UTP F 1227:

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

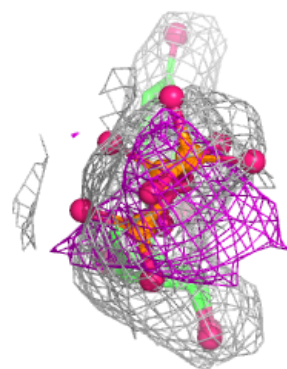
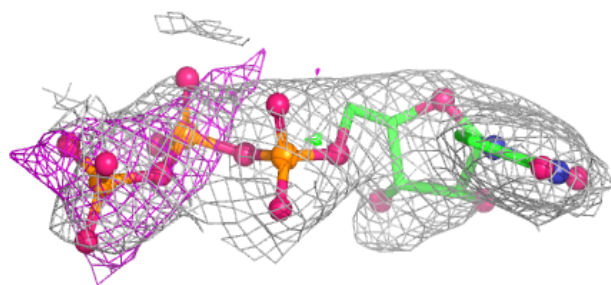
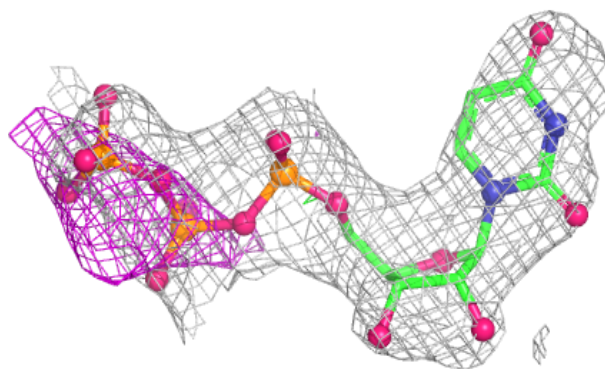
**Electron density around UTP G 1227:**

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

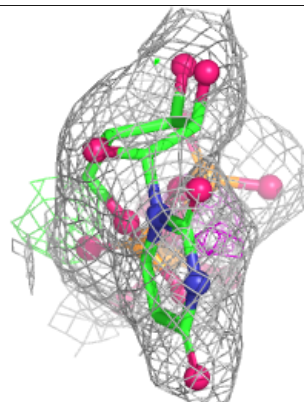
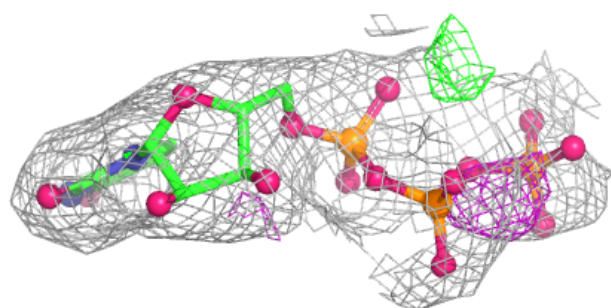
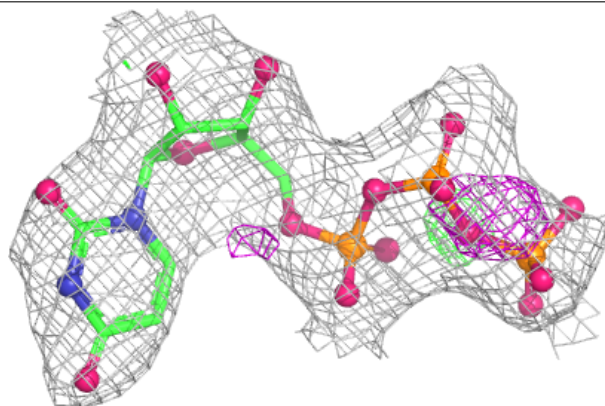


Electron density around UTP B 1227:

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and green (positive)

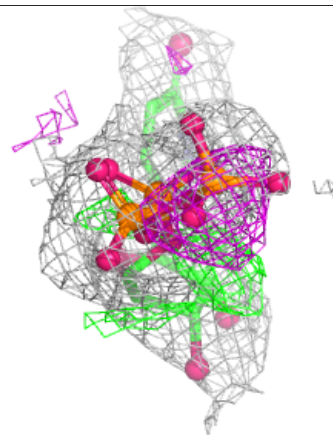
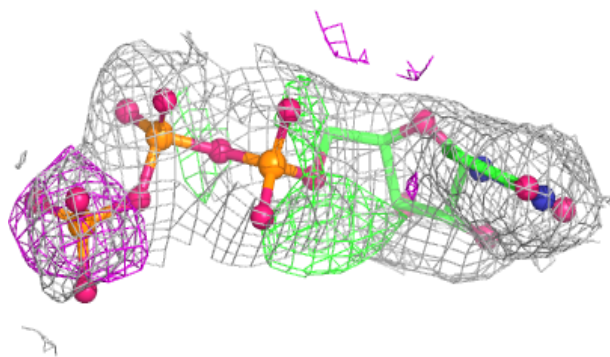
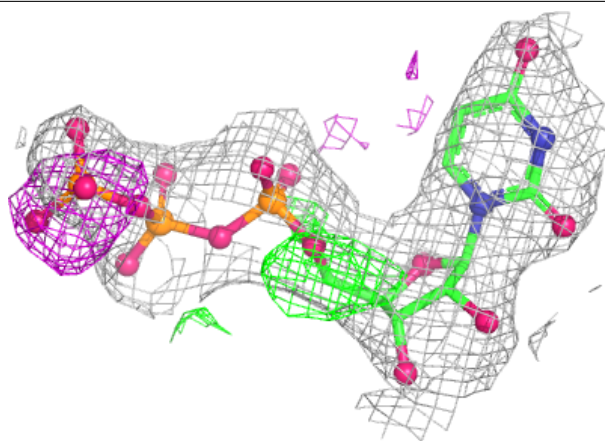
**Electron density around UTP A 1227:**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



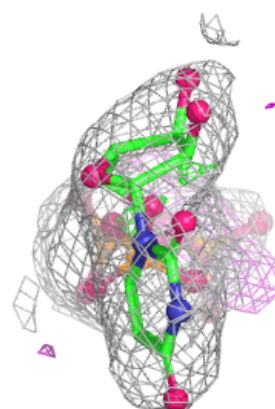
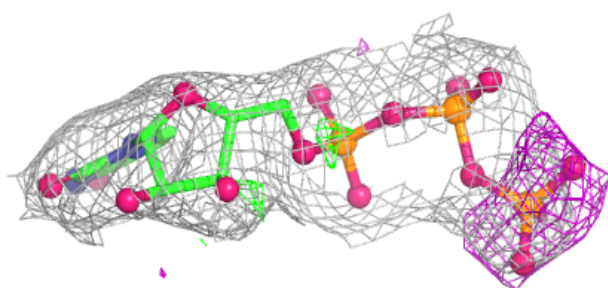
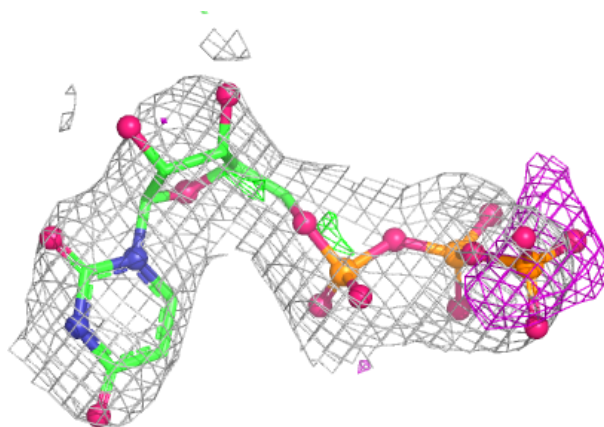
Electron density around UTP E 1227:

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

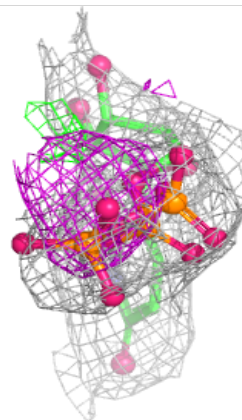
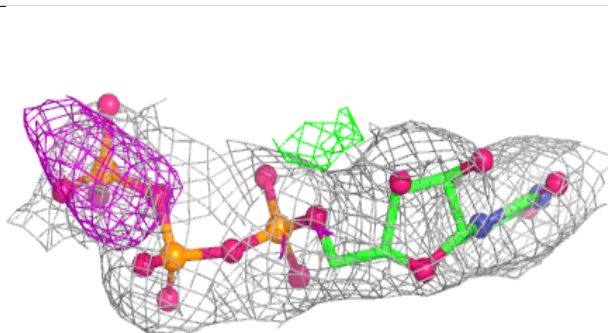
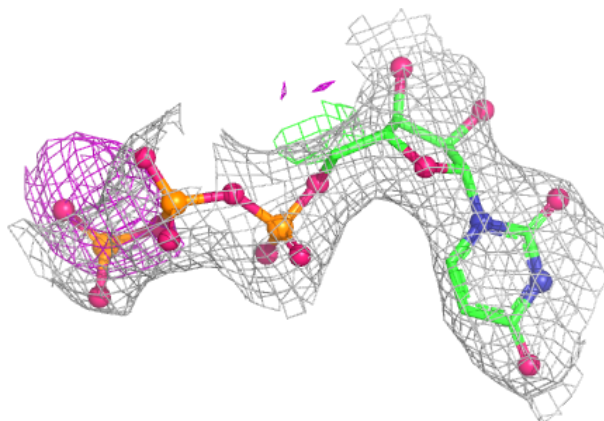


Electron density around UTP L 1227:

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

**Electron density around UTP C 1227:**

$2mF_o-DF_c$ (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.