Full wwPDB X-ray Structure Validation Report (i)

Apr 17, 2024 – 12:36 PM EDT

PDB ID	:	8UKQ
Title	:	RNA polymerase II elongation complex with Fapy-dG lesion in apo state
Authors	:	Hou, P.; Oh, J.; Wang, D.
Deposited on	:	2023-10-15
Resolution	:	3.50 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 (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

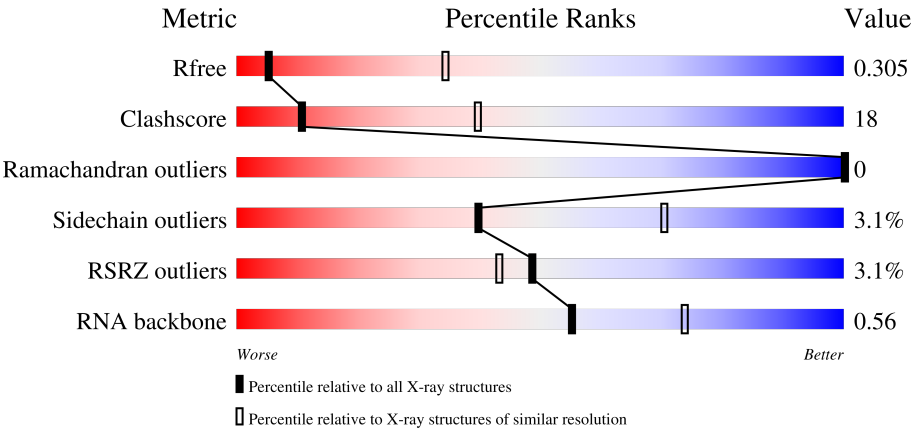
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.50 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1659 (3.60-3.40)
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RSRZ outliers	127900	1559 (3.60-3.40)
RNA backbone	3102	1002 (4.00-3.00)

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

Mol	Chain	Length	Quality of chain
1	R	9	44% 44% 11%
2	T	29	17% 66% 17%
3	N	18	28% 44% 28%
4	A	1733	3% 46% 32% · 20%

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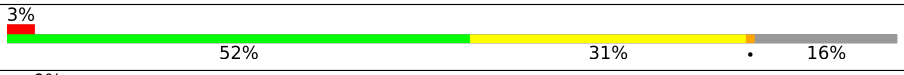
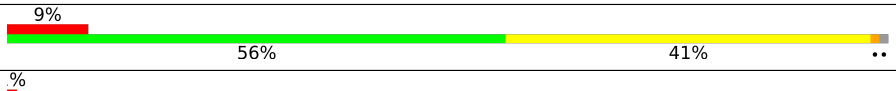
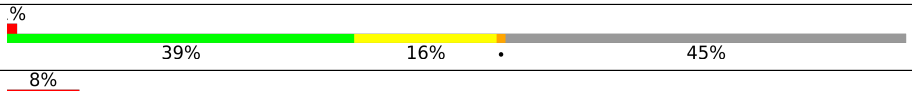
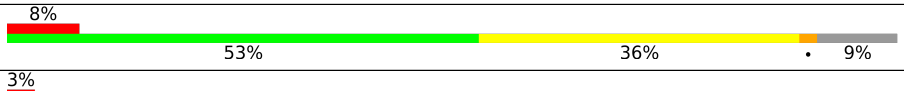
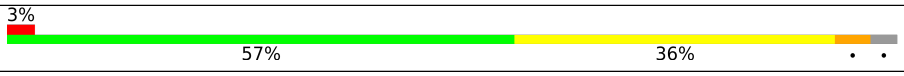
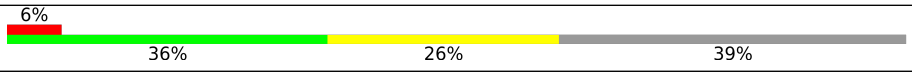
Mol	Chain	Length	Quality of chain
5	B	1224	
6	C	318	
7	E	215	
8	F	155	
9	H	146	
10	I	122	
11	J	70	
12	K	120	
13	L	70	

2 Entry composition

There are 15 unique types of molecules in this entry. The entry contains 28981 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 RNA chain called RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	R	9	Total	C	N	O	P	0	0	0
			194	88	40	58	8			

- Molecule 2 is a DNA chain called tsDNA with FapydG lesion.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	T	24	Total	C	N	O	P	0	0	0
			481	230	76	151	24			

- Molecule 3 is a DNA chain called ntsDNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	N	13	Total	C	N	O	P	0	0	0
			275	128	61	73	13			

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	A	1384	Total	C	N	O	S	0	0	0
			10828	6831	1896	2041	60			

- Molecule 5 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	B	1126	Total	C	N	O	S	0	0	0
			8874	5616	1555	1650	53			

- Molecule 6 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	C	267	Total	C	N	O	S	0	0	0
			2101	1320	349	419	13			

- Molecule 7 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	E	212	Total	C	N	O	S	0	0	0
			1731	1100	305	315	11			

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	F	86	Total	C	N	O	S	0	0	0
			684	437	115	129	3			

- Molecule 9 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	H	133	Total	C	N	O	S	0	0	0
			1064	670	179	211	4			

- Molecule 10 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	I	118	Total	C	N	O	S	0	0	0
			952	585	173	184	10			

- Molecule 11 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
11	J	65	Total	C	N	O	S	0	0	0
			532	339	93	94	6			

- Molecule 12 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
12	K	114	Total	C	N	O	S	0	0	0
			919	590	156	171	2			

- Molecule 13 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
13	L	43	Total	C	N	O	S	0	0	0
			337	208	66	59	4			

- Molecule 14 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
14	A	2	Total Zn 2 2	0	0
14	B	1	Total Zn 1 1	0	0
14	C	1	Total Zn 1 1	0	0
14	I	2	Total Zn 2 2	0	0
14	J	1	Total Zn 1 1	0	0
14	L	1	Total Zn 1 1	0	0

- Molecule 15 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
15	A	1	Total Mg 1 1	0	0

3 Residue-property plots (i)

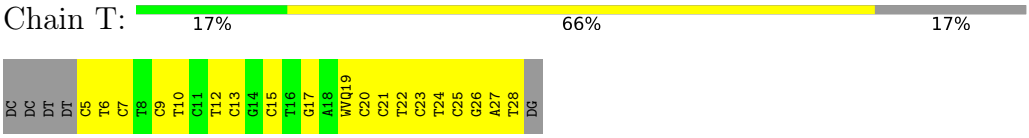
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

• Molecule 1: RNA

Chain R:

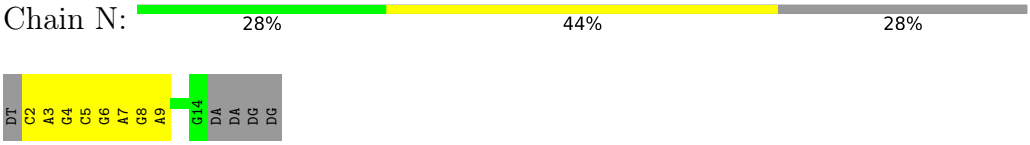
• Molecule 2: tsDNA with FapydG lesion

Chain T:



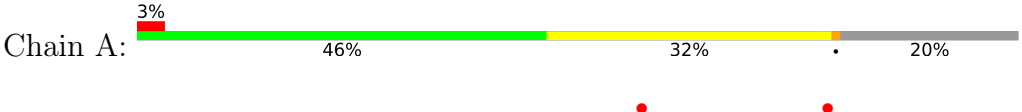
• Molecule 3: ntsDNA

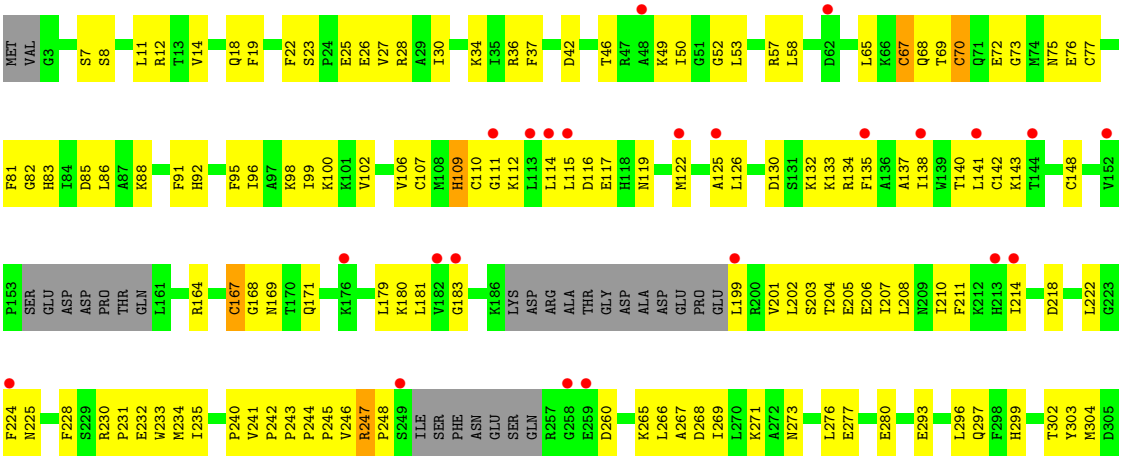
Chain N:

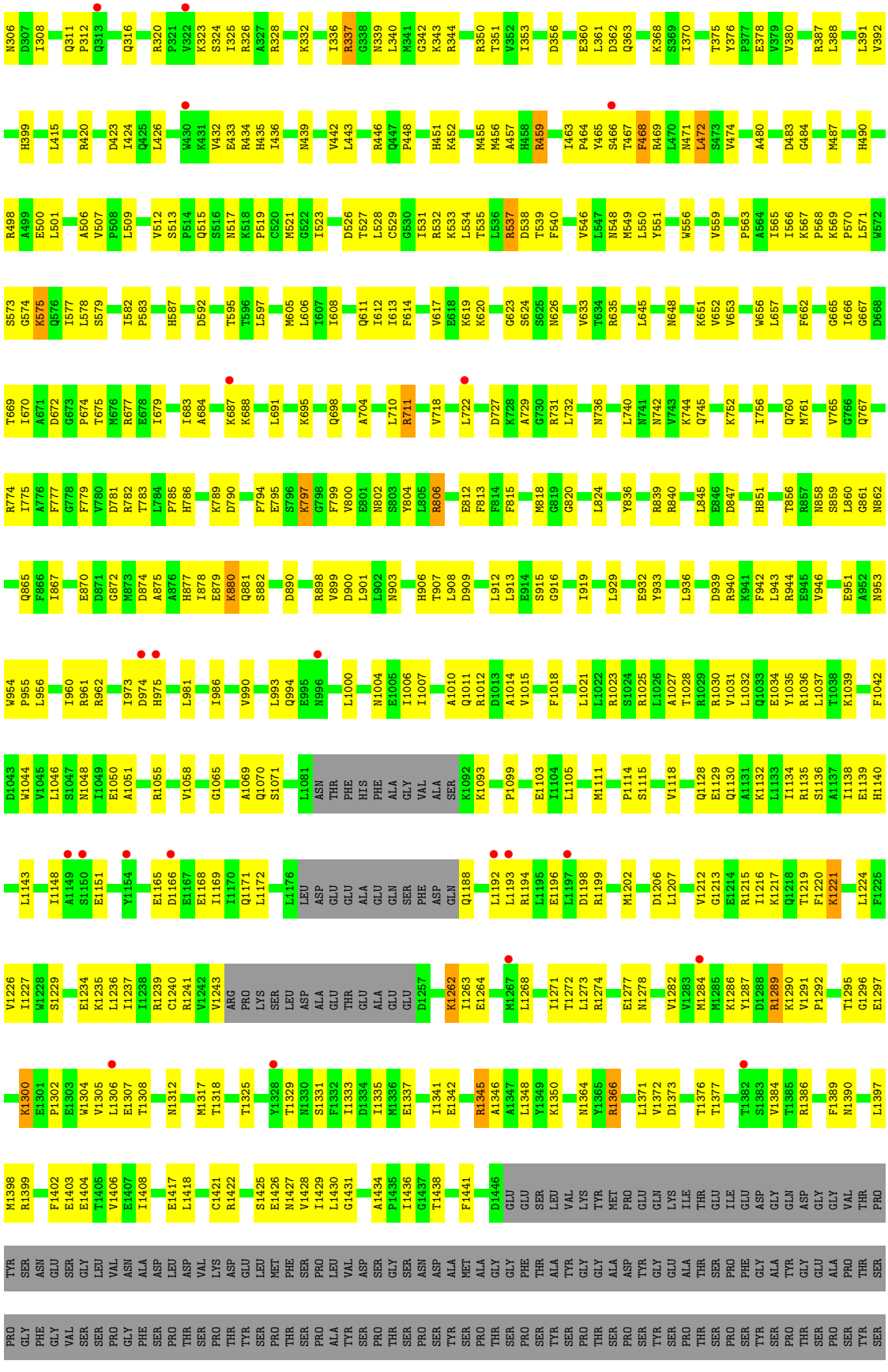


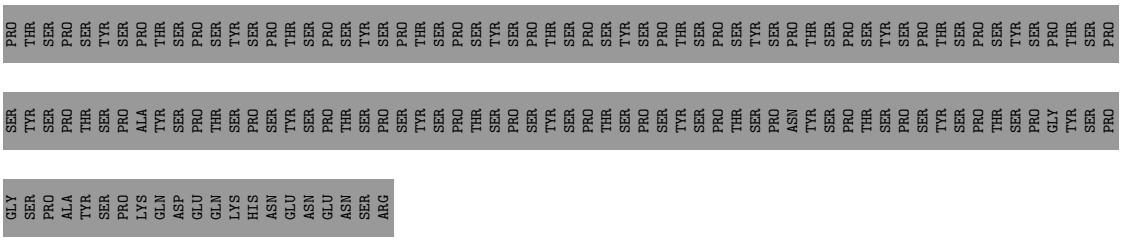
• Molecule 4: DNA-directed RNA polymerase II subunit RPB1

Chain A:



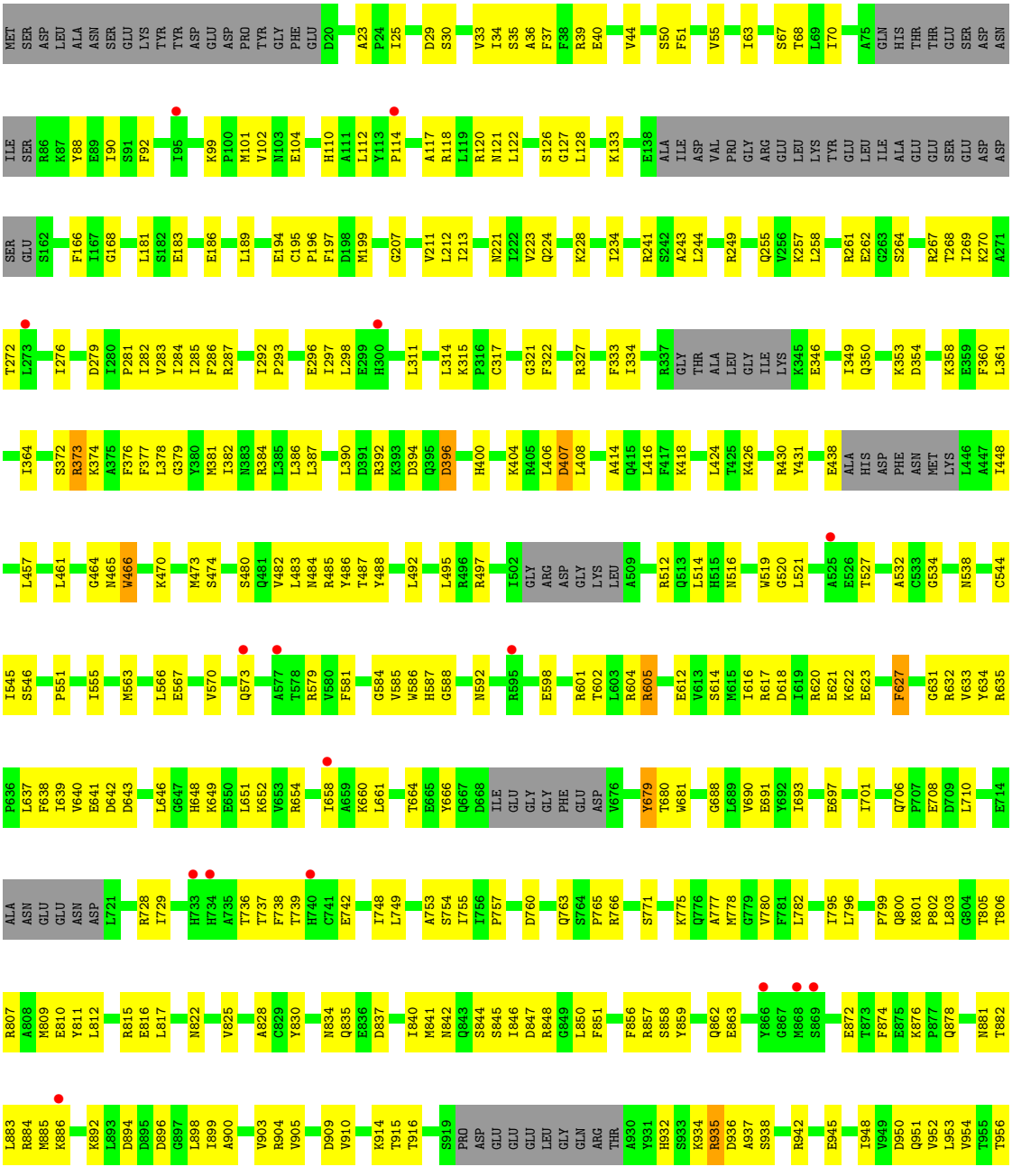


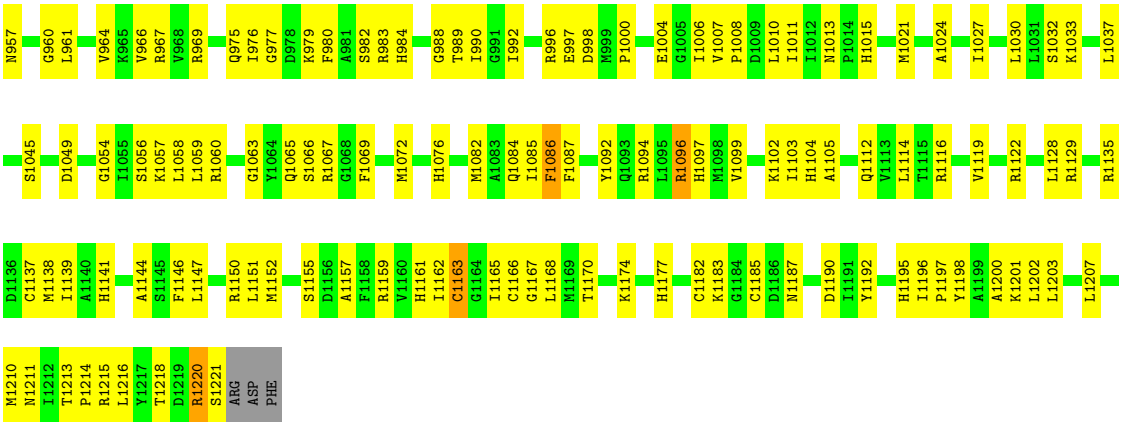




• Molecule 5: DNA-directed RNA polymerase II subunit RPB2

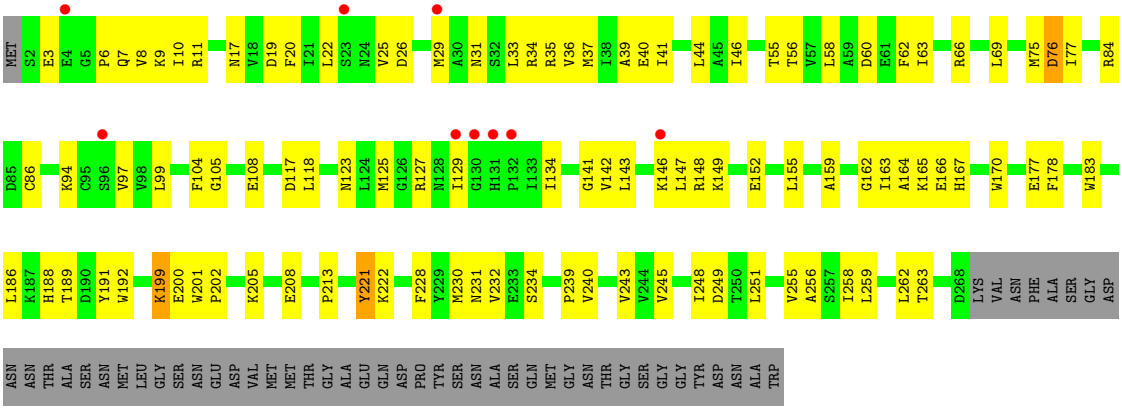
Chain B:





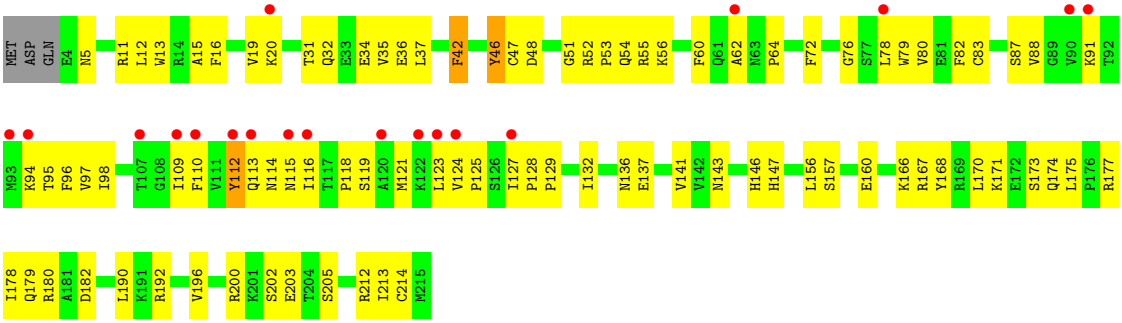
• Molecule 6: DNA-directed RNA polymerase II subunit RPB3

Chain C:



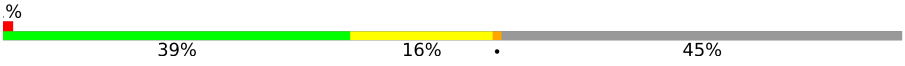
• Molecule 7: DNA-directed RNA polymerases I, II, and III subunit RPABC1

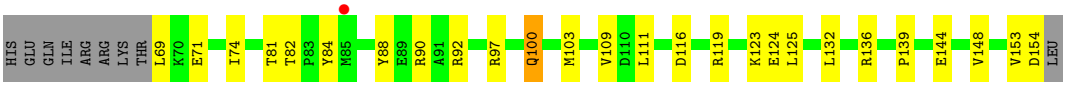
Chain E:



• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC2

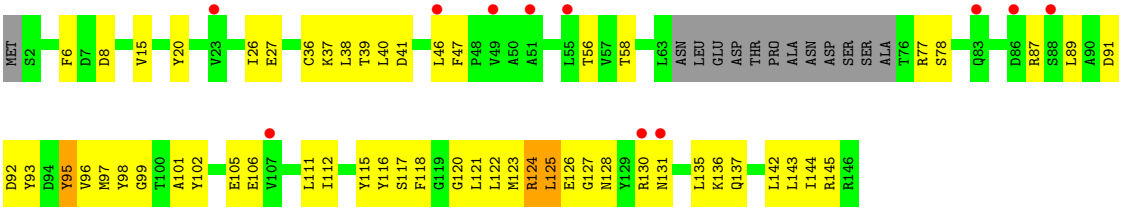
Chain F:





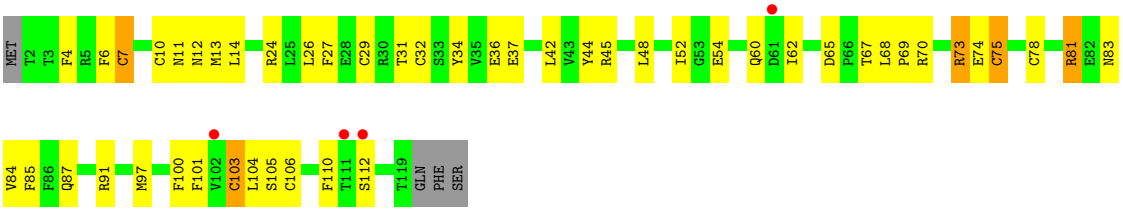
• Molecule 9: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain H:



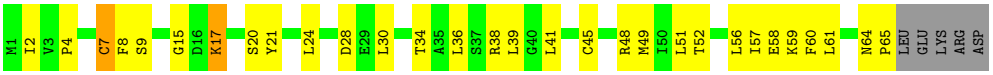
• Molecule 10: DNA-directed RNA polymerase II subunit RPB9

Chain I:



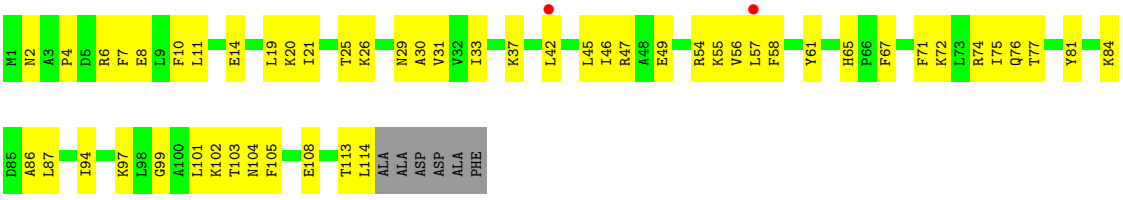
• Molecule 11: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain J:



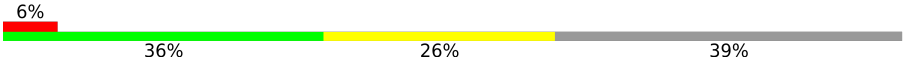
• Molecule 12: DNA-directed RNA polymerase II subunit RPB11

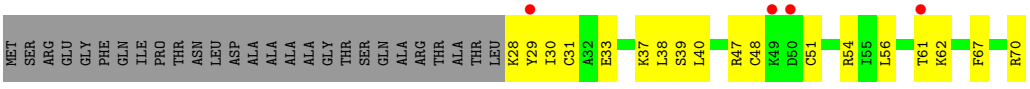
Chain K:



• Molecule 13: DNA-directed RNA polymerases I, II, and III subunit RPABC4

Chain L:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	161.54Å 223.49Å 191.47Å 90.00° 98.38° 90.00°	Depositor
Resolution (Å)	48.44 – 3.50 48.44 – 3.50	Depositor EDS
% Data completeness (in resolution range)	99.4 (48.44-3.50) 99.4 (48.44-3.50)	Depositor EDS
R_{merge}	0.55	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.19 (at 3.48Å)	Xtriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, R_{free}	0.268 , 0.302 0.271 , 0.305	Depositor DCC
R_{free} test set	1958 reflections (2.33%)	wwPDB-VP
Wilson B-factor (Å^2)	94.4	Xtriage
Anisotropy	0.550	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.26 , 84.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.37$, $< L^2 > = 0.20$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	28981	wwPDB-VP
Average B, all atoms (Å^2)	123.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.71% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, WVQ, 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	R	0.29	0/218	0.94	0/339
2	T	0.58	0/507	1.05	0/775
3	N	0.54	0/311	0.77	0/479
4	A	0.27	0/11020	0.55	1/14907 (0.0%)
5	B	0.27	0/9046	0.53	0/12210
6	C	0.28	0/2139	0.50	0/2899
7	E	0.28	0/1767	0.52	0/2378
8	F	0.26	0/696	0.54	0/943
9	H	0.30	0/1082	0.65	2/1466 (0.1%)
10	I	0.28	0/970	0.57	0/1308
11	J	0.27	0/541	0.62	0/727
12	K	0.29	0/937	0.55	0/1265
13	L	0.27	0/339	0.62	0/450
All	All	0.29	0/29573	0.57	3/40146 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	H	92	ASP	CB-CG-OD1	5.56	123.30	118.30
4	A	472	LEU	CB-CG-CD2	-5.36	101.89	111.00
9	H	125	LEU	CA-CB-CG	5.30	127.49	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	194	0	98	6	0
2	T	481	0	262	18	0
3	N	275	0	144	11	0
4	A	10828	0	10876	462	0
5	B	8874	0	8823	347	0
6	C	2101	0	2056	89	0
7	E	1731	0	1758	66	0
8	F	684	0	692	17	0
9	H	1064	0	1029	56	0
10	I	952	0	897	41	0
11	J	532	0	542	30	0
12	K	919	0	929	49	0
13	L	337	0	352	14	0
14	A	2	0	0	0	0
14	B	1	0	0	0	0
14	C	1	0	0	0	0
14	I	2	0	0	0	0
14	J	1	0	0	0	0
14	L	1	0	0	0	0
15	A	1	0	0	0	0
All	All	28981	0	28458	1053	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 18.

All (1053) 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)
12:K:30:ALA:HA	12:K:75:ILE:O	1.74	0.88
4:A:613:ILE:HG21	9:H:102:TYR:HB3	1.57	0.85
4:A:1224:LEU:HD21	4:A:1240:CYS:HB3	1.60	0.84
4:A:109:HIS:CE1	4:A:110:CYS:SG	2.71	0.83
4:A:672:ASP:H	4:A:736:ASN:HD21	1.27	0.81
4:A:111:GLY:HA3	4:A:214:ILE:HA	1.62	0.80
9:H:101:ALA:HA	9:H:116:TYR:HA	1.61	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:446:ARG:HG3	4:A:448:PRO:HD2	1.62	0.80
4:A:110:CYS:SG	4:A:112:LYS:NZ	2.54	0.79
5:B:68:THR:HA	5:B:90:ILE:O	1.80	0.79
4:A:179:LEU:HD22	4:A:297:GLN:HG2	1.65	0.78
5:B:621:GLU:HB3	5:B:623:GLU:HB2	1.65	0.77
5:B:828:ALA:O	5:B:834:ASN:ND2	2.17	0.77
4:A:67:CYS:SG	4:A:70:CYS:HB2	2.24	0.77
4:A:1136:SER:HB3	4:A:1206:ASP:HB2	1.66	0.76
5:B:102:VAL:HG22	5:B:112:LEU:HB2	1.68	0.75
7:E:168:TYR:HB3	7:E:170:LEU:HD23	1.70	0.74
5:B:392:ARG:HH12	10:I:52:ILE:HG22	1.53	0.73
5:B:1165:ILE:HB	5:B:1185:CYS:HB3	1.69	0.73
4:A:246:VAL:HA	5:B:1202:LEU:HD11	1.70	0.73
4:A:370:ILE:HD13	5:B:1105:ALA:HB2	1.71	0.73
9:H:96:VAL:HA	9:H:142:LEU:O	1.89	0.72
4:A:23:SER:HB3	4:A:26:GLU:HG2	1.70	0.72
5:B:1056:SER:HB3	5:B:1066:SER:HB2	1.71	0.72
4:A:1136:SER:O	4:A:1274:ARG:NH1	2.23	0.72
3:N:7:DA:H2'	3:N:8:DG:C8	2.24	0.72
4:A:69:THR:HA	5:B:1174:LYS:HE2	1.71	0.71
4:A:960:ILE:HG21	4:A:1025:ARG:HB3	1.72	0.71
4:A:575:LYS:HE2	9:H:120:GLY:HA3	1.71	0.71
4:A:1219:THR:HG21	4:A:1271:ILE:HD12	1.71	0.71
5:B:465:ASN:HB3	5:B:474:SER:HB3	1.70	0.71
4:A:1004:ASN:HD22	4:A:1007:ILE:HG12	1.56	0.71
4:A:37:PHE:H	4:A:52:GLY:HA3	1.55	0.70
4:A:42:ASP:HB2	4:A:49:LYS:H	1.56	0.70
12:K:30:ALA:HB2	12:K:76:GLN:HG2	1.74	0.70
7:E:52:ARG:HE	7:E:53:PRO:HD2	1.57	0.69
12:K:42:LEU:HG	12:K:46:ILE:HD11	1.74	0.69
8:F:81:THR:HB	8:F:136:ARG:HH11	1.56	0.69
5:B:121:ASN:HA	5:B:207:GLY:HA3	1.74	0.69
5:B:910:VAL:HG11	5:B:938:SER:HB3	1.74	0.69
4:A:1278:ASN:HB2	4:A:1312:ASN:HB2	1.75	0.69
5:B:25:ILE:HG12	5:B:651:LEU:HD22	1.74	0.69
5:B:1210:MET:O	5:B:1211:ASN:ND2	2.26	0.69
6:C:99:LEU:HD12	6:C:118:LEU:HB3	1.74	0.69
7:E:97:VAL:HG13	7:E:127:ILE:HD11	1.75	0.69
4:A:42:ASP:HB3	4:A:46:THR:HB	1.75	0.68
12:K:21:ILE:HG12	12:K:33:ILE:HG12	1.75	0.68
12:K:49:GLU:HG3	12:K:94:ILE:HG13	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:302:THR:HG22	4:A:308:ILE:HD11	1.75	0.68
4:A:463:ILE:HD13	4:A:469:ARG:HG2	1.75	0.68
5:B:896:ASP:OD2	13:L:29:TYR:OH	2.08	0.68
4:A:861:GLY:HA3	7:E:174:GLN:HE21	1.59	0.67
5:B:778:MET:HE2	5:B:1094:ARG:HB3	1.77	0.67
5:B:915:THR:HB	5:B:934:LYS:HB3	1.76	0.67
7:E:5:ASN:HB3	7:E:52:ARG:HH12	1.60	0.67
4:A:202:LEU:HB3	4:A:207:ILE:HD11	1.77	0.67
5:B:426:LYS:O	5:B:430:ARG:HG2	1.95	0.67
4:A:53:LEU:HD21	4:A:266:LEU:HD11	1.75	0.67
4:A:540:PHE:HB3	4:A:571:LEU:HD12	1.75	0.67
4:A:464:PRO:HB2	12:K:4:PRO:HD3	1.75	0.67
4:A:1192:LEU:HD21	4:A:1239:ARG:HG2	1.78	0.66
9:H:128:ASN:O	9:H:131:ASN:ND2	2.29	0.66
5:B:904:ARG:HG2	5:B:948:ILE:HG12	1.75	0.66
5:B:997:GLU:HB2	6:C:35:ARG:HG2	1.77	0.66
7:E:127:ILE:HG22	7:E:129:PRO:HD2	1.76	0.66
5:B:519:TRP:HD1	5:B:635:ARG:HH12	1.43	0.66
5:B:570:VAL:HG23	5:B:573:GLN:HB2	1.77	0.66
5:B:1167:GLY:H	5:B:1215:ARG:HG2	1.61	0.66
4:A:1268:LEU:HD22	10:I:48:LEU:HD11	1.77	0.66
4:A:1227:ILE:HD11	4:A:1239:ARG:HE	1.60	0.66
4:A:392:VAL:HG13	4:A:415:LEU:HD11	1.78	0.65
7:E:47:CYS:HB3	7:E:51:GLY:HA2	1.78	0.65
5:B:234:ILE:HG21	5:B:257:LYS:HB3	1.78	0.65
4:A:665:GLY:HA2	5:B:1086:PHE:CD2	2.31	0.65
11:J:28:ASP:HB2	11:J:30:LEU:HG	1.79	0.65
4:A:115:LEU:HB3	4:A:122:MET:HE3	1.78	0.65
4:A:879:GLU:OE2	4:A:962:ARG:NH2	2.29	0.65
5:B:950:ASP:HB3	5:B:967:ARG:HG2	1.79	0.65
5:B:643:ASP:HB3	5:B:646:LEU:HA	1.79	0.65
5:B:883:LEU:HB2	5:B:932:HIS:HB3	1.79	0.65
6:C:25:VAL:HG23	6:C:228:PHE:CE1	2.32	0.65
4:A:565:ILE:HG21	9:H:46:LEU:HD13	1.78	0.65
5:B:957:ASN:ND2	5:B:961:LEU:O	2.30	0.65
4:A:856:THR:HB	4:A:865:GLN:HB2	1.79	0.65
6:C:31:ASN:OD1	6:C:34:ARG:NH1	2.29	0.65
10:I:68:LEU:HD13	10:I:84:VAL:HG11	1.79	0.65
4:A:1348:LEU:HD23	4:A:1372:VAL:HG13	1.79	0.64
6:C:10:ILE:H	12:K:108:GLU:HG2	1.62	0.64
4:A:243:PRO:HB2	4:A:245:PRO:HD2	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:1060:ARG:NH2	6:C:199:LYS:O	2.30	0.64
9:H:125:LEU:HG	9:H:130:ARG:HH22	1.63	0.64
4:A:7:SER:OG	5:B:1159:ARG:NH1	2.31	0.64
4:A:635:ARG:HE	4:A:877:HIS:HA	1.62	0.64
11:J:21:TYR:HB2	11:J:39:LEU:HD11	1.80	0.64
4:A:569:LYS:HD3	6:C:221:TYR:HB2	1.79	0.64
7:E:62:ALA:HB3	7:E:78:LEU:HB3	1.80	0.64
7:E:124:VAL:HG13	7:E:132:ILE:HB	1.80	0.64
4:A:666:ILE:HD11	5:B:1067:ARG:HA	1.80	0.63
4:A:1386:ARG:HA	4:A:1390:ASN:HB2	1.80	0.63
4:A:88:LYS:NZ	4:A:203:SER:OG	2.32	0.63
4:A:1188:GLN:HA	4:A:1243:VAL:HA	1.79	0.63
10:I:78:CYS:CB	10:I:103:CYS:SG	2.85	0.63
4:A:711:ARG:NH2	10:I:87:GLN:OE1	2.30	0.63
4:A:22:PHE:HD2	5:B:1211:ASN:HA	1.64	0.63
7:E:72:PHE:HE1	7:E:157:SER:HA	1.63	0.63
6:C:39:ALA:HA	6:C:164:ALA:HB3	1.81	0.63
4:A:858:ASN:HD21	4:A:860:LEU:HB2	1.63	0.63
9:H:56:THR:HB	9:H:145:ARG:HB3	1.81	0.63
5:B:1220:ARG:HH11	5:B:1221:SER:H	1.46	0.63
5:B:780:VAL:HG22	5:B:795:ILE:HG23	1.80	0.62
5:B:842:ASN:ND2	5:B:845:SER:OG	2.32	0.62
4:A:1325:THR:HA	7:E:147:HIS:HA	1.81	0.62
7:E:20:LYS:HD2	7:E:35:VAL:HA	1.81	0.62
6:C:163:ILE:HD12	6:C:165:LYS:HB3	1.79	0.62
10:I:65:ASP:OD2	10:I:67:THR:OG1	2.13	0.62
6:C:262:LEU:HD11	12:K:87:LEU:HD23	1.81	0.62
4:A:326:ARG:HG3	4:A:1406:VAL:HG11	1.82	0.62
11:J:36:LEU:HD22	11:J:41:LEU:HD11	1.80	0.62
7:E:119:SER:O	7:E:123:LEU:HG	1.99	0.62
5:B:664:THR:HG21	5:B:679:TYR:H	1.64	0.62
11:J:20:SER:O	11:J:24:LEU:HG	2.00	0.62
13:L:47:ARG:HB2	13:L:54:ARG:HA	1.82	0.61
5:B:639:ILE:HD11	5:B:691:GLU:HB2	1.81	0.61
4:A:267:ALA:O	4:A:271:LYS:HG3	2.01	0.61
5:B:620:ARG:NH2	10:I:68:LEU:HD21	2.15	0.61
5:B:1166:CYS:HB3	5:B:1185:CYS:SG	2.40	0.61
9:H:38:LEU:HB2	9:H:125:LEU:HD13	1.82	0.61
5:B:620:ARG:HH22	10:I:68:LEU:HD21	1.65	0.61
4:A:169:ASN:O	4:A:171:GLN:NE2	2.33	0.61
4:A:704:ALA:HA	4:A:710:LEU:HD11	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:521:LEU:HD22	5:B:633:VAL:HG12	1.81	0.61
4:A:344:ARG:HA	5:B:1129:ARG:HA	1.83	0.61
4:A:467:THR:HG21	5:B:977:GLY:HA3	1.83	0.61
2:T:12:DT:H2'	2:T:13:DC:C6	2.36	0.60
4:A:208:LEU:HD13	4:A:235:ILE:HD11	1.84	0.60
4:A:23:SER:HB2	4:A:233:TRP:CE2	2.35	0.60
6:C:123:ASN:ND2	6:C:125:MET:SD	2.74	0.60
12:K:57:LEU:N	12:K:76:GLN:O	2.35	0.60
5:B:892:LYS:HD2	5:B:909:ASP:HB3	1.82	0.60
5:B:848:ARG:HD2	11:J:8:PHE:HA	1.84	0.60
4:A:550:LEU:HD12	4:A:577:ILE:HD13	1.83	0.60
7:E:87:SER:HA	7:E:115:ASN:HB2	1.83	0.60
4:A:818:MET:HG2	5:B:514:LEU:HD23	1.84	0.60
5:B:977:GLY:HA2	5:B:989:THR:HB	1.83	0.60
6:C:249:ASP:OD1	12:K:102:LYS:NZ	2.35	0.60
4:A:566:ILE:HD11	9:H:98:TYR:HB2	1.83	0.60
4:A:813:PHE:HE2	5:B:749:LEU:HD21	1.67	0.59
9:H:125:LEU:HG	9:H:130:ARG:HH12	1.67	0.59
5:B:693:ILE:HG21	5:B:701:ILE:HD13	1.83	0.59
4:A:526:ASP:HB2	5:B:835:GLN:HE21	1.67	0.59
7:E:114:ASN:OD1	7:E:115:ASN:ND2	2.35	0.59
2:T:6:DT:H2"	2:T:7:DC:C4	2.38	0.59
4:A:106:VAL:HG13	4:A:111:GLY:HA2	1.85	0.59
4:A:559:VAL:HG13	9:H:78:SER:HA	1.85	0.59
4:A:1118:VAL:HB	4:A:1306:LEU:HB2	1.83	0.59
5:B:848:ARG:NH1	11:J:8:PHE:O	2.36	0.59
13:L:28:LYS:HG3	13:L:39:SER:HA	1.83	0.59
4:A:1282:VAL:HG22	4:A:1308:THR:HG22	1.84	0.59
4:A:956:LEU:HD13	4:A:1021:LEU:HD22	1.85	0.58
4:A:993:LEU:HD22	4:A:1046:LEU:HG	1.85	0.58
7:E:32:GLN:O	7:E:36:GLU:OE1	2.20	0.58
4:A:483:ASP:HA	5:B:988:GLY:HA2	1.85	0.58
4:A:517:ASN:O	4:A:626:ASN:ND2	2.27	0.58
5:B:354:ASP:HB3	5:B:358:LYS:HE3	1.85	0.58
9:H:102:TYR:CZ	9:H:115:TYR:HB3	2.38	0.58
1:R:2:U:H2'	1:R:3:C:C6	2.39	0.58
4:A:512:VAL:HA	4:A:519:PRO:HA	1.84	0.58
6:C:146:LYS:NZ	11:J:58:GLU:OE2	2.35	0.58
10:I:73:ARG:HH12	10:I:112:SER:HA	1.68	0.58
5:B:243:ALA:HB1	5:B:249:ARG:HG3	1.83	0.58
5:B:1060:ARG:NH1	6:C:200:GLU:O	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:94:LYS:HA	6:C:127:ARG:HH22	1.67	0.58
4:A:875:ALA:HB2	4:A:1366:ARG:HD2	1.86	0.58
4:A:446:ARG:HH21	4:A:480:ALA:HA	1.69	0.58
4:A:265:LYS:O	4:A:269:ILE:HD12	2.04	0.58
4:A:782:ARG:HH21	4:A:785:PRO:HA	1.69	0.58
5:B:841:MET:HB3	5:B:846:ILE:HD11	1.84	0.58
5:B:996:ARG:HG3	5:B:1007:VAL:HG21	1.86	0.58
4:A:1364:ASN:OD1	4:A:1366:ARG:NH1	2.37	0.57
12:K:61:TYR:HB3	12:K:71:PHE:HE1	1.67	0.57
4:A:881:GLN:HB2	4:A:956:LEU:HD12	1.85	0.57
5:B:269:ILE:HD11	5:B:386:LEU:HD21	1.86	0.57
4:A:880:LYS:HD3	4:A:953:ASN:HB3	1.86	0.57
4:A:1165:GLU:OE1	4:A:1235:LYS:NZ	2.36	0.57
9:H:91:ASP:HB2	9:H:93:TYR:HD1	1.70	0.57
4:A:974:ASP:HB3	9:H:136:LYS:HE3	1.86	0.57
5:B:884:ARG:HH21	5:B:935:ARG:HB3	1.69	0.57
7:E:11:ARG:HD2	7:E:141:VAL:HG21	1.85	0.57
13:L:39:SER:N	13:L:40:LEU:HD12	2.20	0.57
2:T:27:DA:H2'	2:T:28:DT:C6	2.38	0.57
4:A:102:VAL:O	4:A:106:VAL:HG23	2.05	0.57
4:A:1290:LYS:HA	4:A:1300:LYS:HA	1.87	0.57
5:B:1065:GLN:HE21	6:C:200:GLU:HG2	1.70	0.57
7:E:173:SER:HA	7:E:177:ARG:HH12	1.69	0.57
8:F:100:GLN:HA	8:F:103:MET:HE2	1.86	0.57
2:T:22:DT:OP1	4:A:344:ARG:NH1	2.38	0.57
4:A:58:LEU:HB3	4:A:244:PRO:HD2	1.85	0.57
6:C:34:ARG:HA	6:C:37:MET:HE2	1.86	0.57
4:A:18:GLN:NE2	4:A:19:PHE:O	2.35	0.57
4:A:181:LEU:HB2	4:A:202:LEU:HD22	1.87	0.57
4:A:569:LYS:HG2	4:A:570:PRO:HD2	1.87	0.57
4:A:1070:GLN:HE22	5:B:1137:CYS:HA	1.69	0.57
4:A:1192:LEU:HD11	4:A:1239:ARG:HB3	1.85	0.57
5:B:276:ILE:HG12	5:B:334:ILE:HG23	1.86	0.57
5:B:681:TRP:CH2	5:B:690:VAL:HG11	2.40	0.57
5:B:408:LEU:HD21	5:B:545:ILE:HG13	1.86	0.57
4:A:484:GLY:H	5:B:989:THR:HG23	1.70	0.56
6:C:134:ILE:HG12	6:C:141:GLY:HA2	1.86	0.56
9:H:102:TYR:CE2	9:H:115:TYR:HB3	2.40	0.56
12:K:58:PHE:HB3	12:K:76:GLN:HB2	1.87	0.56
4:A:579:SER:HB3	4:A:611:GLN:HA	1.86	0.56
5:B:424:LEU:HD11	5:B:448:ILE:HG13	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:825:VAL:HG22	5:B:1010:LEU:HB3	1.87	0.56
5:B:862:GLN:O	5:B:914:LYS:NZ	2.37	0.56
4:A:14:VAL:HA	5:B:1218:THR:HA	1.87	0.56
4:A:526:ASP:HB2	5:B:835:GLN:NE2	2.20	0.56
5:B:346:GLU:HA	5:B:349:ILE:HD12	1.88	0.56
10:I:78:CYS:HB3	10:I:103:CYS:SG	2.45	0.56
13:L:33:GLU:HB3	13:L:51:CYS:HB2	1.87	0.56
4:A:859:SER:HB2	4:A:1422:ARG:HB3	1.87	0.56
8:F:90:ARG:HH11	8:F:90:ARG:HB3	1.70	0.56
11:J:9:SER:OG	11:J:48:ARG:NH2	2.37	0.56
4:A:1341:ILE:HD11	7:E:179:GLN:HG2	1.88	0.56
4:A:117:GLU:HG3	4:A:126:LEU:HD11	1.87	0.56
5:B:859:TYR:HE2	5:B:942:ARG:HD3	1.70	0.56
5:B:1207:LEU:HD12	5:B:1214:PRO:HG3	1.86	0.56
4:A:578:LEU:O	4:A:582:ILE:HG13	2.06	0.56
4:A:779:PHE:HB2	4:A:782:ARG:HG3	1.87	0.56
4:A:1329:THR:HG22	4:A:1331:SER:H	1.71	0.56
5:B:50:SER:HB3	5:B:408:LEU:HD12	1.87	0.56
9:H:6:PHE:CE1	9:H:8:ASP:HB2	2.41	0.56
4:A:268:ASP:HA	4:A:271:LYS:HE2	1.87	0.56
4:A:874:ASP:HB2	4:A:1058:VAL:HA	1.88	0.56
4:A:666:ILE:O	4:A:669:THR:OG1	2.20	0.56
6:C:177:GLU:HB3	6:C:231:ASN:HB3	1.88	0.56
4:A:752:LYS:HG2	5:B:1015:HIS:O	2.06	0.55
5:B:882:THR:HG22	5:B:934:LYS:HB2	1.87	0.55
4:A:12:ARG:HB2	5:B:1218:THR:HB	1.88	0.55
4:A:961:ARG:HE	4:A:1025:ARG:HH22	1.54	0.55
5:B:886:LYS:NZ	5:B:936:ASP:O	2.38	0.55
10:I:85:PHE:HB3	10:I:101:PHE:CD2	2.41	0.55
5:B:262:GLU:HA	5:B:267:ARG:HH21	1.70	0.55
4:A:466:SER:HB3	5:B:1103:ILE:HD11	1.87	0.55
4:A:1199:ARG:HE	4:A:1236:LEU:HD11	1.72	0.55
7:E:91:LYS:HE2	7:E:94:LYS:HD2	1.87	0.55
4:A:951:GLU:O	4:A:954:TRP:NE1	2.39	0.55
5:B:293:PRO:HB3	10:I:11:ASN:HB3	1.87	0.55
5:B:842:ASN:HD21	5:B:844:SER:HB2	1.72	0.55
5:B:44:VAL:HG11	5:B:495:LEU:HD13	1.88	0.55
5:B:361:LEU:HD21	5:B:377:PHE:HB3	1.89	0.55
4:A:132:LYS:NZ	4:A:1417:GLU:OE2	2.40	0.55
4:A:344:ARG:O	5:B:1155:SER:OG	2.13	0.55
5:B:104:GLU:HG2	5:B:110:HIS:CE1	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1213:GLY:HA2	4:A:1216:ILE:HD12	1.88	0.55
9:H:36:CYS:HA	9:H:126:GLU:O	2.07	0.55
4:A:563:PRO:HG2	4:A:566:ILE:HG12	1.89	0.55
4:A:1004:ASN:HD21	4:A:1006:ILE:HB	1.70	0.55
4:A:1168:GLU:O	4:A:1171:GLN:HG3	2.07	0.55
4:A:72:GLU:HB3	4:A:76:GLU:HB3	1.89	0.54
4:A:323:LYS:HD3	4:A:328:ARG:HG2	1.88	0.54
7:E:166:LYS:HE3	7:E:167:ARG:HG2	1.88	0.54
4:A:88:LYS:HE3	4:A:204:THR:HB	1.89	0.54
4:A:782:ARG:NH2	5:B:701:ILE:O	2.41	0.54
4:A:1194:ARG:HE	4:A:1237:ILE:HG13	1.73	0.54
5:B:977:GLY:H	5:B:990:ILE:HB	1.71	0.54
6:C:256:ALA:HA	6:C:259:LEU:HD12	1.90	0.54
4:A:304:MET:O	4:A:324:SER:OG	2.24	0.54
4:A:244:PRO:HA	4:A:247:ARG:HG2	1.87	0.54
4:A:1051:ALA:O	4:A:1055:ARG:HG2	2.07	0.54
11:J:4:PRO:HG2	11:J:49:MET:HG3	1.88	0.54
4:A:380:VAL:HG12	4:A:388:LEU:HD12	1.90	0.54
4:A:845:LEU:HD12	4:A:1069:ALA:HB2	1.90	0.54
4:A:1262:LYS:HE3	4:A:1263:ILE:HG12	1.90	0.54
3:N:8:DG:H2"	3:N:9:DA:C8	2.42	0.54
5:B:845:SER:HB3	11:J:8:PHE:HB3	1.88	0.54
7:E:79:TRP:O	7:E:109:ILE:N	2.41	0.54
9:H:58:THR:HB	9:H:143:LEU:HB2	1.88	0.54
4:A:34:LYS:HB2	4:A:36:ARG:HD3	1.90	0.54
4:A:711:ARG:HE	10:I:97:MET:HG2	1.73	0.54
5:B:520:GLY:HA2	5:B:748:ILE:HG22	1.90	0.54
7:E:78:LEU:HD21	7:E:109:ILE:HD12	1.90	0.54
4:A:605:MET:HE1	4:A:617:VAL:HA	1.90	0.54
5:B:186:GLU:HG3	5:B:196:PRO:HB3	1.89	0.54
5:B:512:ARG:HH21	5:B:532:ALA:HA	1.73	0.53
6:C:167:HIS:CG	13:L:70:ARG:HG2	2.43	0.53
5:B:349:ILE:HG22	5:B:353:LYS:HE3	1.90	0.53
5:B:800:GLN:HB3	11:J:52:THR:HB	1.91	0.53
5:B:863:GLU:HG2	5:B:872:GLU:HB3	1.89	0.53
4:A:592:ASP:N	4:A:595:THR:OG1	2.40	0.53
4:A:1425:SER:HA	5:B:1135:ARG:HH12	1.73	0.53
5:B:896:ASP:OD1	5:B:896:ASP:N	2.40	0.53
5:B:956:THR:OG1	5:B:960:GLY:O	2.26	0.53
12:K:7:PHE:HA	12:K:10:PHE:CE1	2.44	0.53
4:A:336:ILE:HA	4:A:340:LEU:HD12	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:L:38:LEU:HD21	13:L:48:CYS:HB3	1.89	0.53
4:A:777:PHE:HA	4:A:783:THR:HA	1.91	0.53
4:A:1011:GLN:O	4:A:1015:VAL:HG22	2.09	0.53
4:A:1274:ARG:HG2	4:A:1274:ARG:HH11	1.74	0.53
5:B:1104:HIS:HB2	5:B:1122:ARG:HG2	1.89	0.53
6:C:33:LEU:HA	6:C:36:VAL:HG12	1.91	0.53
4:A:1345:ARG:NH1	4:A:1373:ASP:OD1	2.42	0.53
6:C:97:VAL:HG21	6:C:129:ILE:HG22	1.90	0.53
4:A:42:ASP:N	4:A:46:THR:O	2.42	0.53
4:A:99:ILE:HA	4:A:102:VAL:HG12	1.91	0.53
4:A:116:ASP:OD1	4:A:164:ARG:NE	2.42	0.53
4:A:662:PHE:O	5:B:828:ALA:HA	2.09	0.53
5:B:882:THR:OG1	5:B:885:MET:SD	2.63	0.53
4:A:339:ASN:O	4:A:343:LYS:HG2	2.09	0.53
4:A:388:LEU:HD13	4:A:432:VAL:HB	1.91	0.53
4:A:1282:VAL:HA	4:A:1307:GLU:O	2.09	0.53
6:C:8:VAL:HG22	6:C:22:LEU:HD12	1.91	0.53
4:A:1000:LEU:HD22	4:A:1007:ILE:HD12	1.90	0.52
5:B:771:SER:O	5:B:775:LYS:HG2	2.09	0.52
5:B:1004:GLU:HB2	5:B:1006:ILE:HG12	1.90	0.52
9:H:96:VAL:HG22	9:H:143:LEU:HG	1.91	0.52
4:A:276:LEU:HD11	4:A:293:GLU:HG3	1.91	0.52
4:A:1027:ALA:O	4:A:1031:VAL:N	2.30	0.52
6:C:6:PRO:HB2	12:K:101:LEU:HB2	1.89	0.52
6:C:76:ASP:HB2	6:C:129:ILE:HG12	1.92	0.52
9:H:135:LEU:HB3	9:H:137:GLN:HG2	1.90	0.52
4:A:882:SER:H	4:A:961:ARG:NH2	2.06	0.52
5:B:390:LEU:HD13	5:B:392:ARG:HH21	1.73	0.52
4:A:484:GLY:HA3	5:B:979:LYS:HE2	1.91	0.52
5:B:519:TRP:O	5:B:635:ARG:NH1	2.42	0.52
4:A:579:SER:OG	4:A:612:ILE:HG22	2.10	0.52
4:A:1229:SER:HB3	4:A:1237:ILE:H	1.75	0.52
4:A:490:HIS:HB3	5:B:1150:ARG:CZ	2.40	0.52
5:B:311:LEU:O	5:B:315:LYS:HG3	2.10	0.52
5:B:796:LEU:HD23	5:B:799:PRO:HA	1.90	0.52
5:B:806:THR:HG23	5:B:1045:SER:HA	1.90	0.52
5:B:1116:ARG:HG3	5:B:1198:TYR:CD1	2.45	0.52
4:A:387:ARG:O	4:A:391:LEU:HG	2.10	0.52
4:A:527:THR:O	4:A:653:VAL:HG11	2.09	0.52
6:C:7:GLN:HB3	6:C:9:LYS:HZ3	1.74	0.52
4:A:75:ASN:OD1	5:B:1116:ARG:NH1	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:308:ILE:HB	4:A:312:PRO:HD2	1.91	0.52
4:A:802:ASN:OD1	5:B:729:ILE:N	2.41	0.52
4:A:1436:ILE:HB	5:B:1144:ALA:HB2	1.91	0.52
5:B:997:GLU:O	6:C:34:ARG:NH2	2.43	0.52
9:H:99:GLY:HA3	9:H:118:PHE:HA	1.91	0.52
10:I:26:LEU:HD23	10:I:37:GLU:HA	1.92	0.52
5:B:1135:ARG:O	5:B:1139:ILE:HG12	2.10	0.51
6:C:177:GLU:O	6:C:230:MET:HA	2.10	0.51
4:A:633:VAL:HG21	4:A:645:LEU:HD22	1.92	0.51
4:A:1004:ASN:ND2	4:A:1007:ILE:HG12	2.25	0.51
5:B:414:ALA:O	5:B:418:LYS:HG3	2.10	0.51
5:B:754:SER:HB2	5:B:812:LEU:HD11	1.92	0.51
5:B:1187:ASN:HB2	5:B:1190:ASP:HB3	1.92	0.51
5:B:416:LEU:HD23	5:B:457:LEU:HD23	1.93	0.51
5:B:519:TRP:HD1	5:B:635:ARG:NH1	2.07	0.51
6:C:55:THR:OG1	6:C:152:GLU:N	2.43	0.51
7:E:12:LEU:HD21	7:E:55:ARG:NH2	2.25	0.51
4:A:1194:ARG:HG3	4:A:1237:ILE:HG23	1.92	0.51
5:B:803:LEU:HD13	5:B:1032:SER:HB3	1.93	0.51
5:B:1084:GLN:HE22	6:C:191:TYR:HA	1.75	0.51
4:A:890:ASP:HA	4:A:940:ARG:HH12	1.76	0.51
9:H:15:VAL:HG12	9:H:26:ILE:HG23	1.92	0.51
4:A:306:ASN:H	4:A:324:SER:HB2	1.75	0.51
4:A:1099:PRO:O	4:A:1103:GLU:HG3	2.11	0.51
4:A:1428:VAL:HG21	5:B:1135:ARG:HD2	1.93	0.51
6:C:142:VAL:HG23	11:J:15:GLY:HA3	1.93	0.51
2:T:12:DT:H2"	2:T:13:DC:H5'	1.93	0.51
5:B:627:PHE:O	5:B:632:ARG:NH2	2.43	0.51
4:A:472:LEU:HD21	5:B:835:GLN:CD	2.31	0.51
4:A:800:VAL:HG22	4:A:812:GLU:HG2	1.91	0.51
4:A:898:ARG:NH1	4:A:899:VAL:O	2.43	0.51
4:A:1342:GLU:OE1	7:E:200:ARG:NH2	2.44	0.51
4:A:1345:ARG:HE	7:E:200:ARG:NH2	2.08	0.51
6:C:183:TRP:CG	6:C:213:PRO:HD3	2.46	0.51
3:N:7:DA:H2"	3:N:8:DG:H5'	1.91	0.51
4:A:206:GLU:O	4:A:210:ILE:HG12	2.11	0.51
4:A:456:MET:HE3	4:A:507:VAL:HG22	1.92	0.51
5:B:197:PHE:O	5:B:488:TYR:OH	2.27	0.51
6:C:108:GLU:HA	6:C:149:LYS:HB2	1.91	0.51
7:E:190:LEU:HD21	7:E:196:VAL:HB	1.91	0.51
9:H:47:PHE:HB3	9:H:95:TYR:CD2	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:21:ILE:HD13	12:K:84:LYS:HE2	1.92	0.51
4:A:583:PRO:HD3	4:A:645:LEU:HD13	1.92	0.51
8:F:97:ARG:O	8:F:100:GLN:HG2	2.11	0.51
4:A:81:PHE:CD2	4:A:240:PRO:HB2	2.46	0.50
4:A:513:SER:OG	4:A:515:GLN:O	2.19	0.50
4:A:523:ILE:HG23	4:A:527:THR:HB	1.92	0.50
4:A:901:LEU:HD13	4:A:919:ILE:HG23	1.92	0.50
5:B:228:LYS:HG3	5:B:234:ILE:HG13	1.92	0.50
5:B:763:GLN:HG3	5:B:765:PRO:HD2	1.93	0.50
5:B:980:PHE:CE1	5:B:990:ILE:HD11	2.45	0.50
12:K:113:THR:O	12:K:114:LEU:HD22	2.11	0.50
4:A:350:ARG:HD2	5:B:1128:LEU:HD11	1.92	0.50
6:C:234:SER:HB2	6:C:240:VAL:HG12	1.93	0.50
7:E:42:PHE:O	7:E:46:TYR:HB2	2.11	0.50
10:I:54:GLU:HB2	10:I:100:PHE:CE2	2.46	0.50
4:A:50:ILE:HG23	4:A:52:GLY:H	1.76	0.50
4:A:368:LYS:NZ	4:A:399:HIS:H	2.09	0.50
4:A:551:TYR:HB2	12:K:58:PHE:HZ	1.77	0.50
4:A:1134:ILE:O	4:A:1138:ILE:HG22	2.11	0.50
5:B:1147:LEU:O	5:B:1151:LEU:HB3	2.11	0.50
9:H:125:LEU:HG	9:H:130:ARG:NH2	2.26	0.50
2:T:9:DC:H2"	2:T:10:DT:H2'	1.94	0.50
4:A:782:ARG:NH2	4:A:785:PRO:O	2.44	0.50
5:B:364:ILE:HG12	5:B:585:VAL:HG22	1.94	0.50
2:T:20:DC:H2"	2:T:21:DC:H6	1.77	0.50
5:B:660:LYS:O	5:B:664:THR:HG23	2.11	0.50
5:B:809:MET:HA	5:B:812:LEU:HB2	1.93	0.50
5:B:859:TYR:OH	5:B:945:GLU:OE2	2.28	0.50
6:C:259:LEU:O	6:C:263:THR:HG23	2.12	0.50
11:J:9:SER:HB2	11:J:45:CYS:HB2	1.94	0.50
4:A:180:LYS:HD2	4:A:201:VAL:HG13	1.93	0.50
4:A:336:ILE:HD12	5:B:1203:LEU:HD22	1.93	0.50
4:A:538:ASP:CG	9:H:20:TYR:HB3	2.32	0.50
4:A:565:ILE:HG13	9:H:97:MET:HG2	1.93	0.50
4:A:742:ASN:HA	4:A:745:GLN:HG3	1.92	0.50
5:B:1054:GLY:HA2	5:B:1057:LYS:HD2	1.92	0.50
12:K:10:PHE:CD2	12:K:11:LEU:HD13	2.46	0.50
12:K:29:ASN:OD1	12:K:77:THR:OG1	2.21	0.50
4:A:218:ASP:O	4:A:222:LEU:HG	2.12	0.50
4:A:1329:THR:H	4:A:1335:ILE:HD11	1.76	0.50
7:E:52:ARG:NE	7:E:53:PRO:HD2	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:H:38:LEU:HA	9:H:124:ARG:O	2.12	0.50
4:A:761:MET:HA	4:A:804:TYR:HB2	1.93	0.50
4:A:1115:SER:HA	4:A:1308:THR:O	2.12	0.50
5:B:350:GLN:HA	5:B:353:LYS:HD2	1.94	0.50
5:B:648:HIS:NE2	5:B:710:LEU:O	2.43	0.50
10:I:69:PRO:HB2	10:I:85:PHE:CE1	2.47	0.50
5:B:796:LEU:HB3	5:B:799:PRO:HG3	1.93	0.50
6:C:25:VAL:HG23	6:C:228:PHE:HE1	1.73	0.50
9:H:93:TYR:CD2	9:H:145:ARG:HB2	2.46	0.50
4:A:549:MET:HE1	4:A:656:TRP:HD1	1.78	0.49
4:A:684:ALA:O	4:A:688:LYS:HD3	2.12	0.49
6:C:245:VAL:HA	6:C:248:ILE:HD12	1.93	0.49
12:K:47:ARG:HD3	12:K:61:TYR:CD1	2.47	0.49
4:A:340:LEU:HD22	4:A:1429:ILE:HA	1.93	0.49
4:A:443:LEU:HD21	4:A:455:MET:HB3	1.93	0.49
4:A:1421:CYS:O	4:A:1427:ASN:ND2	2.44	0.49
11:J:45:CYS:HA	11:J:48:ARG:HE	1.77	0.49
4:A:332:LYS:HE2	4:A:337:ARG:NH2	2.27	0.49
4:A:614:PHE:HB2	9:H:122:LEU:HD11	1.94	0.49
4:A:687:LYS:NZ	4:A:795:GLU:OE1	2.42	0.49
4:A:1199:ARG:NE	4:A:1236:LEU:HD11	2.27	0.49
4:A:1346:ALA:O	4:A:1350:LYS:HG3	2.12	0.49
4:A:1390:ASN:HD21	4:A:1402:PHE:HB3	1.78	0.49
5:B:211:VAL:HG21	5:B:483:LEU:HD13	1.94	0.49
5:B:221:ASN:HB3	5:B:584:GLY:HA3	1.93	0.49
5:B:883:LEU:HG	5:B:884:ARG:HG3	1.94	0.49
9:H:39:THR:O	9:H:123:MET:HA	2.13	0.49
9:H:106:GLU:HB2	9:H:112:ILE:HD12	1.93	0.49
12:K:21:ILE:HG23	12:K:31:VAL:HG21	1.94	0.49
4:A:464:PRO:O	12:K:2:ASN:HB3	2.12	0.49
5:B:261:ARG:HB2	5:B:264:SER:HB3	1.93	0.49
5:B:641:GLU:HG3	5:B:652:LYS:HD2	1.94	0.49
4:A:443:LEU:HD12	4:A:501:LEU:HD11	1.94	0.49
4:A:535:THR:HG21	4:A:617:VAL:HG23	1.95	0.49
5:B:99:LYS:NZ	5:B:183:GLU:OE1	2.46	0.49
6:C:148:ARG:HG3	6:C:149:LYS:N	2.28	0.49
4:A:248:PRO:HD3	5:B:1114:LEU:HD22	1.95	0.49
4:A:786:HIS:NE2	5:B:742:GLU:HG3	2.27	0.49
4:A:990:VAL:O	4:A:994:GLN:HG3	2.12	0.49
5:B:850:LEU:HB2	11:J:8:PHE:CG	2.47	0.49
4:A:225:ASN:HB3	4:A:228:PHE:HB2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:434:ARG:HH12	4:A:436:ILE:HA	1.77	0.49
4:A:568:PRO:HB2	9:H:46:LEU:HD22	1.95	0.49
4:A:729:ALA:HA	4:A:732:LEU:HD12	1.95	0.49
5:B:70:ILE:HA	5:B:88:TYR:O	2.13	0.49
5:B:551:PRO:O	5:B:555:ILE:HG12	2.13	0.49
5:B:616:ILE:HG12	5:B:697:GLU:HA	1.95	0.49
5:B:807:ARG:O	5:B:810:GLU:HG2	2.13	0.49
5:B:847:ASP:OD2	12:K:6:ARG:NH2	2.45	0.49
6:C:22:LEU:HD11	12:K:101:LEU:HD11	1.93	0.49
4:A:392:VAL:HG11	4:A:424:ILE:HD11	1.95	0.49
4:A:1397:LEU:HB3	4:A:1429:ILE:HD13	1.94	0.49
1:R:4:G:H2'	1:R:5:A:C8	2.48	0.49
4:A:909:ASP:HB3	4:A:912:LEU:HD13	1.94	0.49
6:C:7:GLN:HB3	6:C:9:LYS:NZ	2.28	0.49
10:I:75:CYS:HB3	10:I:110:PHE:CD1	2.48	0.49
4:A:210:ILE:O	4:A:214:ILE:HG13	2.13	0.49
4:A:534:LEU:HA	4:A:539:THR:HG21	1.94	0.49
4:A:781:ASP:O	4:A:790:ASP:N	2.43	0.49
7:E:91:LYS:O	7:E:95:THR:HG23	2.13	0.49
9:H:105:GLU:HG2	9:H:115:TYR:HE1	1.77	0.49
4:A:942:PHE:O	4:A:946:VAL:HG23	2.12	0.48
8:F:74:ILE:HG21	8:F:144:GLU:OE2	2.13	0.48
4:A:211:PHE:HA	4:A:214:ILE:HD12	1.96	0.48
5:B:51:PHE:O	5:B:55:VAL:HG23	2.13	0.48
5:B:114:PRO:O	5:B:118:ARG:HG3	2.12	0.48
5:B:120:ARG:NE	5:B:956:THR:O	2.46	0.48
5:B:544:CYS:HB2	5:B:634:TYR:CE2	2.47	0.48
5:B:618:ASP:HB3	5:B:621:GLU:HB2	1.95	0.48
5:B:701:ILE:HB	5:B:739:THR:OG1	2.12	0.48
6:C:46:ILE:HA	6:C:159:ALA:HA	1.95	0.48
4:A:167:CYS:SG	4:A:168:GLY:N	2.87	0.48
4:A:727:ASP:O	4:A:731:ARG:HG2	2.13	0.48
4:A:794:PRO:HB2	4:A:799:PHE:HB3	1.94	0.48
5:B:282:ILE:HA	5:B:285:ILE:HD12	1.93	0.48
4:A:973:ILE:HG22	4:A:975:HIS:H	1.78	0.48
5:B:757:PRO:HG2	5:B:984:HIS:CE1	2.48	0.48
6:C:26:ASP:OD1	6:C:26:ASP:N	2.45	0.48
7:E:118:PRO:HA	7:E:121:MET:HG2	1.94	0.48
4:A:96:ILE:HA	4:A:99:ILE:HB	1.95	0.48
4:A:954:TRP:HB3	7:E:203:GLU:OE2	2.13	0.48
4:A:1221:LYS:HD2	4:A:1221:LYS:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:612:GLU:O	5:B:632:ARG:NH1	2.43	0.48
5:B:635:ARG:HE	5:B:637:LEU:HD11	1.78	0.48
5:B:780:VAL:HB	5:B:817:LEU:HD11	1.96	0.48
5:B:840:ILE:HB	5:B:1011:ILE:HB	1.95	0.48
4:A:148:CYS:O	4:A:168:GLY:HA2	2.13	0.48
4:A:180:LYS:NZ	4:A:202:LEU:O	2.32	0.48
5:B:598:GLU:OE2	5:B:601:ARG:NH2	2.47	0.48
5:B:620:ARG:HG2	10:I:62:ILE:HD11	1.95	0.48
5:B:992:ILE:HG13	12:K:67:PHE:HE1	1.79	0.48
7:E:79:TRP:HE1	7:E:96:PHE:HE1	1.60	0.48
8:F:125:LEU:HD11	8:F:153:VAL:HG21	1.94	0.48
4:A:248:PRO:HD2	4:A:260:ASP:OD2	2.14	0.48
4:A:442:VAL:O	4:A:457:ALA:HA	2.13	0.48
4:A:592:ASP:N	4:A:592:ASP:OD1	2.47	0.48
4:A:761:MET:HE2	5:B:1021:MET:HG2	1.96	0.48
5:B:212:LEU:HD21	5:B:466:TRP:CH2	2.49	0.48
5:B:1060:ARG:HH12	6:C:200:GLU:C	2.17	0.48
6:C:29:MET:HE2	12:K:45:LEU:HD21	1.95	0.48
6:C:36:VAL:HG23	6:C:40:GLU:HG3	1.94	0.48
6:C:239:PRO:O	6:C:243:VAL:HG23	2.13	0.48
9:H:26:ILE:O	9:H:39:THR:HA	2.14	0.48
9:H:125:LEU:HB3	9:H:130:ARG:HH12	1.79	0.48
11:J:58:GLU:HA	11:J:61:LEU:HD12	1.96	0.48
1:R:3:C:H2'	1:R:4:G:C8	2.49	0.48
4:A:269:ILE:HG13	4:A:299:HIS:HB3	1.96	0.48
4:A:767:GLN:HA	4:A:799:PHE:HA	1.95	0.48
5:B:857:ARG:HG2	5:B:859:TYR:CZ	2.49	0.48
5:B:1033:LYS:O	5:B:1037:LEU:HG	2.13	0.48
5:B:1072:MET:HG3	5:B:1085:ILE:HB	1.95	0.48
4:A:913:LEU:HG	4:A:1032:LEU:HD13	1.95	0.48
5:B:1163:CYS:HB2	5:B:1187:ASN:HD21	1.78	0.48
7:E:88:VAL:HG11	7:E:112:TYR:CD2	2.49	0.48
4:A:244:PRO:HD3	4:A:247:ARG:HH21	1.79	0.48
4:A:836:TYR:O	4:A:840:ARG:HG3	2.14	0.48
5:B:400:HIS:O	5:B:404:LYS:HG2	2.13	0.48
5:B:710:LEU:HD21	5:B:738:PHE:HB2	1.95	0.48
7:E:31:THR:HB	7:E:34:GLU:H	1.79	0.48
4:A:277:GLU:O	4:A:280:GLU:HG3	2.13	0.47
4:A:665:GLY:HA2	5:B:1086:PHE:HD2	1.78	0.47
4:A:899:VAL:HG13	4:A:929:LEU:HD13	1.96	0.47
4:A:975:HIS:HA	4:A:1036:ARG:HB2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:1112:GLN:HG3	5:B:1119:VAL:HG12	1.95	0.47
6:C:17:ASN:HA	6:C:232:VAL:O	2.14	0.47
6:C:62:PHE:CE1	6:C:66:ARG:HD2	2.49	0.47
8:F:90:ARG:HB3	8:F:90:ARG:NH1	2.29	0.47
2:T:5:DC:H5"	2:T:5:DC:H6	1.79	0.47
4:A:1143:LEU:HG	4:A:1268:LEU:HD23	1.95	0.47
4:A:1333:ILE:O	4:A:1337:GLU:HG2	2.14	0.47
5:B:287:ARG:NH1	5:B:321:GLY:O	2.47	0.47
8:F:109:VAL:HG21	8:F:123:LYS:HG3	1.96	0.47
2:T:6:DT:H2"	2:T:7:DC:C5	2.49	0.47
2:T:12:DT:O2	3:N:8:DG:N2	2.47	0.47
4:A:548:ASN:HD21	12:K:47:ARG:HD2	1.78	0.47
4:A:1037:LEU:HD23	4:A:1042:PHE:HB2	1.96	0.47
5:B:36:ALA:HA	5:B:39:ARG:HD2	1.94	0.47
4:A:18:GLN:HB2	4:A:1418:LEU:HD12	1.97	0.47
4:A:463:ILE:HG21	4:A:469:ARG:HG3	1.96	0.47
4:A:515:GLN:NE2	4:A:1071:SER:OG	2.47	0.47
4:A:674:PRO:HA	4:A:677:ARG:NH1	2.29	0.47
4:A:1431:GLY:HA3	5:B:1197:PRO:HD3	1.96	0.47
5:B:954:VAL:HA	5:B:964:VAL:HG12	1.96	0.47
5:B:1097:HIS:HB3	5:B:1102:LYS:HE3	1.96	0.47
6:C:255:VAL:HG22	12:K:42:LEU:HD11	1.97	0.47
4:A:662:PHE:HZ	4:A:745:GLN:HB2	1.80	0.47
4:A:899:VAL:HG21	4:A:908:LEU:HG	1.96	0.47
4:A:915:SER:O	4:A:919:ILE:N	2.45	0.47
5:B:586:TRP:NE1	5:B:588:GLY:O	2.47	0.47
5:B:757:PRO:HD3	5:B:983:ARG:HD2	1.96	0.47
5:B:760:ASP:OD1	5:B:760:ASP:N	2.48	0.47
5:B:1063:GLY:O	6:C:202:PRO:HG3	2.15	0.47
7:E:16:PHE:CD2	7:E:20:LYS:HE2	2.49	0.47
7:E:55:ARG:HB3	7:E:82:PHE:HB3	1.96	0.47
4:A:7:SER:OG	5:B:1161:HIS:HE1	1.98	0.47
4:A:434:ARG:HH21	4:A:498:ARG:HH21	1.62	0.47
4:A:517:ASN:HB2	4:A:878:ILE:O	2.14	0.47
4:A:537:ARG:NH1	9:H:41:ASP:OD2	2.47	0.47
4:A:606:LEU:HG	4:A:613:ILE:HD13	1.97	0.47
4:A:1166:ASP:CG	4:A:1239:ARG:HD2	2.35	0.47
4:A:1397:LEU:HB2	4:A:1426:GLU:HG2	1.97	0.47
5:B:483:LEU:HD12	5:B:484:ASN:H	1.80	0.47
5:B:566:LEU:HG	5:B:587:HIS:HA	1.96	0.47
5:B:876:LYS:HB2	5:B:894:ASP:O	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:104:PHE:HD1	6:C:152:GLU:HB3	1.80	0.47
6:C:258:ILE:HD12	12:K:19:LEU:HD21	1.96	0.47
4:A:783:THR:O	5:B:516:ASN:ND2	2.44	0.47
4:A:916:GLY:HA2	4:A:919:ILE:HB	1.95	0.47
5:B:101:MET:HA	5:B:112:LEU:H	1.78	0.47
5:B:293:PRO:HB2	5:B:296:GLU:HB2	1.97	0.47
5:B:728:ARG:NE	5:B:1049:ASP:OD1	2.45	0.47
5:B:900:ALA:HB3	13:L:61:THR:HG23	1.96	0.47
7:E:64:PRO:HG3	7:E:76:GLY:HA2	1.97	0.47
11:J:64:ASN:N	11:J:65:PRO:HD2	2.29	0.47
13:L:30:ILE:HG13	13:L:37:LYS:HA	1.97	0.47
4:A:30:ILE:O	5:B:1183:LYS:HD3	2.14	0.47
4:A:106:VAL:HG12	4:A:107:CYS:O	2.14	0.47
10:I:10:CYS:SG	10:I:31:THR:HB	2.55	0.47
4:A:14:VAL:HG11	5:B:1216:LEU:HB3	1.97	0.47
4:A:57:ARG:CB	4:A:68:GLN:HB3	2.44	0.47
4:A:181:LEU:O	4:A:202:LEU:HB2	2.15	0.47
4:A:994:GLN:OE1	4:A:1023:ARG:NE	2.47	0.47
5:B:223:VAL:HG21	5:B:381:MET:HG2	1.97	0.47
6:C:60:ASP:HB2	13:L:67:PHE:HE2	1.80	0.47
9:H:115:TYR:CE2	9:H:124:ARG:HG3	2.49	0.47
4:A:86:LEU:HD13	4:A:296:LEU:HD11	1.97	0.47
4:A:115:LEU:HD11	4:A:119:ASN:ND2	2.29	0.47
4:A:691:LEU:O	4:A:695:LYS:HG3	2.15	0.47
4:A:900:ASP:H	4:A:906:HIS:HB3	1.80	0.47
5:B:1099:VAL:O	5:B:1103:ILE:HG13	2.15	0.47
6:C:11:ARG:N	6:C:19:ASP:O	2.48	0.47
4:A:353:ILE:HG21	4:A:487:MET:HB2	1.96	0.46
4:A:567:LYS:HE3	9:H:89:LEU:HD12	1.98	0.46
4:A:575:LYS:O	4:A:579:SER:OG	2.24	0.46
4:A:1207:LEU:HD11	4:A:1273:LEU:HB2	1.96	0.46
4:A:1376:THR:HG22	7:E:212:ARG:NH2	2.30	0.46
9:H:125:LEU:HG	9:H:130:ARG:NH1	2.30	0.46
12:K:81:TYR:CE2	12:K:86:ALA:HB2	2.50	0.46
4:A:342:GLY:O	5:B:1129:ARG:NH1	2.47	0.46
4:A:845:LEU:O	4:A:1065:GLY:HA3	2.15	0.46
6:C:108:GLU:HG2	6:C:149:LYS:HD2	1.96	0.46
4:A:981:LEU:HD22	4:A:986:ILE:HG13	1.96	0.46
11:J:34:THR:O	11:J:38:ARG:HG2	2.16	0.46
4:A:551:TYR:OH	12:K:72:LYS:HG2	2.14	0.46
6:C:148:ARG:HH12	11:J:64:ASN:HA	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:994:GLN:HE22	4:A:1023:ARG:HH21	1.63	0.46
4:A:1111:MET:HB3	4:A:1114:PRO:HG3	1.97	0.46
10:I:78:CYS:HB2	10:I:105:SER:OG	2.15	0.46
6:C:148:ARG:HD3	11:J:61:LEU:O	2.16	0.46
4:A:781:ASP:HB2	4:A:789:LYS:HG2	1.98	0.46
4:A:1148:ILE:N	4:A:1196:GLU:O	2.47	0.46
4:A:1215:ARG:O	4:A:1219:THR:HG23	2.16	0.46
4:A:1377:THR:HA	7:E:212:ARG:HH12	1.81	0.46
5:B:464:GLY:HA2	5:B:480:SER:HB3	1.97	0.46
5:B:579:ARG:HH11	5:B:623:GLU:HG3	1.80	0.46
6:C:37:MET:HA	6:C:41:ILE:HD11	1.96	0.46
8:F:82:THR:HG22	8:F:84:TYR:H	1.80	0.46
4:A:851:HIS:ND1	8:F:139:PRO:HG3	2.31	0.46
5:B:258:LEU:HD13	5:B:269:ILE:HG12	1.98	0.46
5:B:954:VAL:O	13:L:56:LEU:N	2.47	0.46
2:T:26:DG:H4'	5:B:482:VAL:HG21	1.98	0.46
4:A:378:GLU:OE1	4:A:434:ARG:HD3	2.16	0.46
5:B:40:GLU:CD	5:B:681:TRP:HB3	2.36	0.46
5:B:1168:LEU:HB2	5:B:1170:THR:HG23	1.97	0.46
1:R:1:A:H2'	1:R:2:U:C6	2.52	0.45
3:N:3:DA:H4'	3:N:4:DG:H5'	1.98	0.45
4:A:1198:ASP:O	4:A:1202:MET:HG2	2.16	0.45
5:B:90:ILE:HA	5:B:133:LYS:O	2.16	0.45
5:B:262:GLU:HA	5:B:267:ARG:NH2	2.31	0.45
5:B:563:MET:HG3	5:B:588:GLY:HA3	1.97	0.45
6:C:147:LEU:HD23	6:C:147:LEU:HA	1.68	0.45
9:H:47:PHE:HB3	9:H:95:TYR:HD2	1.78	0.45
4:A:107:CYS:HB3	4:A:110:CYS:O	2.15	0.45
4:A:325:ILE:HD12	5:B:1210:MET:HG3	1.99	0.45
4:A:1135:ARG:HH21	4:A:1284:MET:HG3	1.80	0.45
5:B:181:LEU:HD11	5:B:194:GLU:HG3	1.98	0.45
5:B:255:GLN:O	5:B:257:LYS:NZ	2.50	0.45
5:B:899:ILE:HD12	5:B:899:ILE:HA	1.87	0.45
5:B:1196:ILE:HD11	5:B:1201:LYS:HB2	1.98	0.45
4:A:528:LEU:O	4:A:531:ILE:HG22	2.16	0.45
4:A:722:LEU:HD13	4:A:799:PHE:HB2	1.97	0.45
4:A:806:ARG:HH12	5:B:729:ILE:HG12	1.80	0.45
4:A:53:LEU:HA	4:A:53:LEU:HD23	1.68	0.45
5:B:292:ILE:HD11	5:B:327:ARG:HB2	1.98	0.45
8:F:116:ASP:HB3	8:F:119:ARG:HG2	1.98	0.45
5:B:333:PHE:O	5:B:334:ILE:HG13	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:78:CYS:HB3	10:I:106:CYS:HB3	1.98	0.45
3:N:6:DG:C6	3:N:7:DA:C6	3.05	0.45
4:A:360:GLU:OE2	4:A:651:LYS:NZ	2.46	0.45
5:B:461:LEU:HD13	5:B:466:TRP:HH2	1.81	0.45
12:K:37:LYS:HA	12:K:37:LYS:HD3	1.80	0.45
2:T:22:DT:H2'	2:T:23:DC:C6	2.52	0.45
4:A:446:ARG:HE	4:A:480:ALA:HB2	1.81	0.45
5:B:122:LEU:HD23	5:B:122:LEU:HA	1.79	0.45
6:C:205:LYS:O	6:C:208:GLU:HG2	2.17	0.45
4:A:506:ALA:HB3	4:A:509:LEU:HG	1.99	0.45
5:B:378:LEU:HD22	5:B:382:ILE:HD11	1.99	0.45
9:H:27:GLU:HG3	9:H:39:THR:HG23	1.99	0.45
10:I:75:CYS:SG	10:I:78:CYS:N	2.68	0.45
4:A:25:GLU:HA	4:A:28:ARG:HE	1.82	0.45
4:A:326:ARG:HG3	4:A:1406:VAL:HG21	1.98	0.45
4:A:351:THR:HG23	5:B:1103:ILE:HG12	1.99	0.45
4:A:666:ILE:HD13	5:B:1030:LEU:HD22	1.98	0.45
4:A:675:THR:O	4:A:679:ILE:HG12	2.17	0.45
4:A:1128:GLN:HG2	4:A:1304:TRP:HE1	1.82	0.45
5:B:360:PHE:CE2	5:B:374:LYS:HB3	2.51	0.45
6:C:10:ILE:HA	6:C:20:PHE:HA	1.98	0.45
6:C:10:ILE:HD11	12:K:105:PHE:CE1	2.52	0.45
12:K:55:LYS:HD2	12:K:81:TYR:CG	2.52	0.45
12:K:56:VAL:HG22	12:K:77:THR:HG22	1.98	0.45
1:R:3:C:H2'	1:R:4:G:H8	1.82	0.44
3:N:2:DC:H1'	3:N:3:DA:C8	2.51	0.44
4:A:951:GLU:OE2	4:A:953:ASN:ND2	2.50	0.44
5:B:213:ILE:HG23	5:B:497:ARG:HG2	1.99	0.44
5:B:373:ARG:H	5:B:373:ARG:HG3	1.58	0.44
5:B:840:ILE:HG12	5:B:992:ILE:HG22	1.98	0.44
5:B:858:SER:HA	5:B:966:VAL:O	2.17	0.44
6:C:166:GLU:HB2	12:K:10:PHE:CE1	2.52	0.44
7:E:128:PRO:HG2	7:E:129:PRO:HD3	1.99	0.44
4:A:340:LEU:HD21	5:B:1200:ALA:HB2	1.99	0.44
4:A:420:ARG:NH2	4:A:423:ASP:OD2	2.50	0.44
4:A:993:LEU:HD11	4:A:1050:GLU:HB2	1.99	0.44
4:A:1129:GLU:CD	4:A:1129:GLU:H	2.21	0.44
4:A:1135:ARG:NH2	4:A:1284:MET:HG3	2.32	0.44
4:A:1438:THR:HA	8:F:88:TYR:HB3	1.99	0.44
5:B:281:PRO:HD2	5:B:284:ILE:HD12	2.00	0.44
5:B:470:LYS:HB2	5:B:473:MET:H	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:487:THR:OG1	5:B:777:ALA:O	2.35	0.44
5:B:706:GLN:HG2	5:B:708:GLU:H	1.81	0.44
9:H:142:LEU:HD22	9:H:144:ILE:HD11	1.99	0.44
4:A:125:ALA:HB1	4:A:138:ILE:HG13	1.99	0.44
4:A:457:ALA:HB3	4:A:506:ALA:HA	1.98	0.44
4:A:756:ILE:O	4:A:760:GLN:HG3	2.17	0.44
4:A:820:GLY:O	4:A:824:LEU:HG	2.18	0.44
5:B:527:THR:OG1	5:B:534:GLY:N	2.50	0.44
6:C:62:PHE:O	6:C:66:ARG:HG3	2.18	0.44
7:E:175:LEU:HD23	7:E:213:ILE:HB	2.00	0.44
8:F:71:GLU:O	8:F:71:GLU:HG2	2.17	0.44
9:H:118:PHE:O	9:H:121:LEU:HB2	2.17	0.44
11:J:7:CYS:HA	11:J:49:MET:HE3	1.98	0.44
4:A:230:ARG:HB3	4:A:233:TRP:CG	2.52	0.44
4:A:675:THR:HG21	4:A:736:ASN:HB2	1.99	0.44
5:B:384:ARG:HA	5:B:387:LEU:HD12	2.00	0.44
5:B:834:ASN:O	5:B:1013:ASN:HB2	2.17	0.44
5:B:1008:PRO:HD3	5:B:1087:PHE:HE1	1.82	0.44
9:H:116:TYR:HB3	9:H:118:PHE:HE1	1.82	0.44
4:A:362:ASP:N	4:A:362:ASP:OD1	2.50	0.44
4:A:452:LYS:HB2	5:B:1141:HIS:CE1	2.52	0.44
4:A:932:GLU:O	4:A:936:LEU:HG	2.17	0.44
4:A:1035:TYR:CE1	4:A:1037:LEU:HD22	2.52	0.44
5:B:488:TYR:O	5:B:492:LEU:HG	2.18	0.44
5:B:1162:ILE:O	5:B:1192:TYR:HB2	2.18	0.44
4:A:98:LYS:HD2	4:A:224:PHE:HZ	1.82	0.44
5:B:25:ILE:HG12	5:B:651:LEU:CD2	2.46	0.44
5:B:801:LYS:HG2	11:J:52:THR:HA	1.99	0.44
5:B:1138:MET:HG2	5:B:1147:LEU:HG	2.00	0.44
7:E:55:ARG:HG3	7:E:83:CYS:O	2.17	0.44
4:A:351:THR:HB	4:A:468:PHE:CD2	2.53	0.44
4:A:781:ASP:HB3	4:A:790:ASP:H	1.83	0.44
6:C:36:VAL:HA	6:C:40:GLU:HG2	2.00	0.44
6:C:162:GLY:HA3	6:C:170:TRP:CE2	2.53	0.44
4:A:202:LEU:HD23	4:A:207:ILE:HD11	1.99	0.44
4:A:1036:ARG:HA	4:A:1036:ARG:HD3	1.81	0.44
4:A:1398:MET:H	4:A:1398:MET:HG2	1.64	0.44
12:K:7:PHE:HA	12:K:10:PHE:CZ	2.53	0.44
4:A:91:PHE:HZ	4:A:207:ILE:HD13	1.82	0.44
4:A:100:LYS:HD3	4:A:100:LYS:C	2.38	0.44
4:A:242:PRO:O	4:A:247:ARG:NE	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:420:ARG:O	4:A:424:ILE:HG23	2.18	0.44
5:B:63:ILE:O	5:B:67:SER:HB3	2.18	0.44
5:B:1174:LYS:HB2	5:B:1177:HIS:HB2	1.99	0.44
6:C:186:LEU:HB3	6:C:188:HIS:ND1	2.33	0.44
4:A:679:ILE:O	4:A:683:ILE:HG12	2.18	0.43
5:B:379:GLY:HA2	5:B:382:ILE:HD12	2.00	0.43
5:B:426:LYS:HE3	5:B:426:LYS:HB3	1.78	0.43
5:B:581:PHE:CG	5:B:586:TRP:HB2	2.53	0.43
5:B:914:LYS:HB3	5:B:937:ALA:HB3	2.00	0.43
6:C:3:GLU:HB2	12:K:104:ASN:HD21	1.82	0.43
6:C:105:GLY:O	6:C:149:LYS:HA	2.18	0.43
10:I:6:PHE:HD1	10:I:13:MET:HA	1.83	0.43
3:N:8:DG:OP2	3:N:8:DG:H8	2.01	0.43
4:A:114:LEU:HB2	4:A:142:CYS:SG	2.58	0.43
4:A:340:LEU:HD13	4:A:1429:ILE:HG12	2.00	0.43
4:A:356:ASP:CG	12:K:65:HIS:HE2	2.22	0.43
5:B:555:ILE:HD12	5:B:587:HIS:CE1	2.53	0.43
6:C:60:ASP:HB2	13:L:67:PHE:CE2	2.53	0.43
9:H:125:LEU:CG	9:H:130:ARG:HH12	2.32	0.43
10:I:78:CYS:HB3	10:I:106:CYS:SG	2.57	0.43
4:A:67:CYS:SG	4:A:70:CYS:CB	2.96	0.43
4:A:125:ALA:O	4:A:134:ARG:HB2	2.17	0.43
4:A:698:GLN:HA	10:I:97:MET:O	2.18	0.43
5:B:802:PRO:HG2	5:B:805:THR:HG22	1.99	0.43
5:B:1114:LEU:HD12	5:B:1114:LEU:HA	1.82	0.43
10:I:7:CYS:HB2	10:I:34:TYR:HD2	1.82	0.43
4:A:82:GLY:O	4:A:241:VAL:HB	2.18	0.43
4:A:130:ASP:HB3	4:A:133:LYS:HG3	1.99	0.43
4:A:399:HIS:HD2	4:A:435:HIS:HB3	1.84	0.43
4:A:1105:LEU:HB3	4:A:1384:VAL:CG2	2.48	0.43
4:A:1212:VAL:O	4:A:1216:ILE:HG13	2.19	0.43
4:A:1341:ILE:HG13	7:E:182:ASP:OD1	2.18	0.43
5:B:244:LEU:O	5:B:249:ARG:HB2	2.18	0.43
5:B:975:GLN:O	5:B:990:ILE:HD12	2.17	0.43
7:E:94:LYS:O	7:E:98:ILE:HG12	2.19	0.43
10:I:42:LEU:HD21	10:I:45:ARG:HB3	2.01	0.43
10:I:68:LEU:HD23	10:I:68:LEU:HA	1.82	0.43
3:N:7:DA:C6	3:N:8:DG:C6	3.07	0.43
4:A:439:ASN:HA	4:A:459:ARG:HD2	2.00	0.43
4:A:774:ARG:HD2	4:A:797:LYS:HB3	2.00	0.43
4:A:1027:ALA:HB3	4:A:1030:ARG:HB2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1129:GLU:HA	4:A:1132:LYS:HD2	2.01	0.43
4:A:1192:LEU:HB2	4:A:1241:ARG:HG3	2.01	0.43
6:C:222:LYS:HB3	6:C:222:LYS:HE3	1.92	0.43
7:E:94:LYS:HG2	7:E:123:LEU:HD13	2.01	0.43
9:H:40:LEU:HD13	9:H:123:MET:HB3	1.99	0.43
4:A:587:HIS:HB3	4:A:608:ILE:HD13	2.00	0.43
5:B:640:VAL:HB	5:B:738:PHE:O	2.19	0.43
5:B:642:ASP:HA	5:B:649:LYS:HG2	2.00	0.43
5:B:903:VAL:HG12	5:B:905:VAL:HG13	2.00	0.43
7:E:156:LEU:HD22	7:E:160:GLU:HB3	2.01	0.43
4:A:507:VAL:HG13	4:A:521:MET:HE1	2.00	0.43
4:A:1215:ARG:HG3	4:A:1273:LEU:HD23	2.01	0.43
4:A:1341:ILE:HG22	4:A:1376:THR:HG23	1.99	0.43
5:B:272:THR:HA	5:B:279:ASP:HA	2.01	0.43
9:H:38:LEU:HD13	9:H:125:LEU:HB2	2.00	0.43
4:A:426:LEU:HD23	4:A:426:LEU:HA	1.87	0.43
4:A:1217:LYS:HD3	4:A:1226:VAL:HG23	2.01	0.43
5:B:579:ARG:NH1	5:B:623:GLU:HG3	2.33	0.43
6:C:143:LEU:HD21	11:J:2:ILE:HD11	2.01	0.43
10:I:104:LEU:HD12	10:I:104:LEU:HA	1.84	0.43
4:A:76:GLU:CD	5:B:1159:ARG:HH21	2.22	0.43
4:A:465:TYR:CD2	5:B:976:ILE:HD12	2.54	0.43
4:A:667:GLY:O	4:A:670:ILE:HG22	2.19	0.43
4:A:901:LEU:HA	4:A:907:THR:HG23	2.01	0.43
4:A:1404:GLU:O	4:A:1408:ILE:HD12	2.18	0.43
4:A:1427:ASN:HA	4:A:1430:LEU:HD12	2.01	0.43
5:B:35:SER:HG	5:B:811:TYR:HH	1.67	0.43
5:B:40:GLU:OE2	5:B:681:TRP:N	2.51	0.43
5:B:1024:ALA:HA	5:B:1027:ILE:HD12	2.01	0.43
5:B:1054:GLY:O	5:B:1058:LEU:HG	2.18	0.43
6:C:77:ILE:N	6:C:129:ILE:HD11	2.34	0.43
6:C:251:LEU:O	6:C:255:VAL:HG23	2.19	0.43
9:H:106:GLU:HA	9:H:112:ILE:HA	2.01	0.43
9:H:125:LEU:CB	9:H:130:ARG:HH12	2.32	0.43
3:N:6:DG:H2"	3:N:7:DA:H5"	2.01	0.43
4:A:867:ILE:HD11	4:A:1010:ALA:HB1	2.00	0.43
4:A:1286:LYS:HG2	4:A:1302:PRO:HB3	2.00	0.43
5:B:30:SER:O	5:B:34:ILE:HG13	2.19	0.43
5:B:602:THR:HA	5:B:605:ARG:HH11	1.84	0.43
5:B:639:ILE:HD12	5:B:688:GLY:O	2.19	0.43
7:E:15:ALA:O	7:E:19:VAL:HG23	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:52:ARG:HE	7:E:52:ARG:HA	1.83	0.43
8:F:111:LEU:HD23	8:F:111:LEU:H	1.84	0.43
10:I:34:TYR:OH	10:I:36:GLU:OE1	2.37	0.43
4:A:137:ALA:O	4:A:141:LEU:HG	2.19	0.42
4:A:353:ILE:CG2	4:A:487:MET:HB2	2.49	0.42
5:B:546:SER:OG	5:B:631:GLY:N	2.52	0.42
5:B:749:LEU:HD22	5:B:753:ALA:HB1	2.00	0.42
2:T:25:DC:H2'	2:T:26:DG:C8	2.54	0.42
4:A:23:SER:HB2	4:A:233:TRP:CZ2	2.54	0.42
4:A:1193:LEU:HD22	4:A:1264:GLU:HB2	2.01	0.42
5:B:816:GLU:OE1	5:B:816:GLU:N	2.49	0.42
5:B:848:ARG:HG2	6:C:69:LEU:HD11	2.01	0.42
5:B:904:ARG:HE	5:B:948:ILE:HD11	1.84	0.42
7:E:52:ARG:O	7:E:54:GLN:NE2	2.50	0.42
7:E:113:GLN:O	7:E:136:ASN:ND2	2.52	0.42
2:T:15:DC:OP2	2:T:15:DC:H2'	2.19	0.42
4:A:620:LYS:HE2	4:A:620:LYS:HB2	1.62	0.42
4:A:986:ILE:HD12	4:A:1028:THR:HG23	2.01	0.42
5:B:29:ASP:HB3	5:B:658:ILE:HG21	2.01	0.42
5:B:67:SER:HB2	5:B:92:PHE:HD1	1.85	0.42
5:B:830:TYR:CZ	5:B:1000:PRO:HD3	2.54	0.42
7:E:124:VAL:HB	7:E:125:PRO:HD3	2.02	0.42
9:H:37:LYS:O	9:H:125:LEU:HA	2.19	0.42
1:R:4:G:H2'	1:R:5:A:H8	1.83	0.42
4:A:28:ARG:HG2	4:A:83:HIS:CE1	2.55	0.42
4:A:880:LYS:HA	4:A:955:PRO:HA	2.00	0.42
4:A:1317:MET:HG3	4:A:1318:THR:HG23	2.01	0.42
5:B:486:TYR:CE2	5:B:1096:ARG:HB3	2.53	0.42
5:B:856:PHE:CD2	5:B:969:ARG:HB2	2.55	0.42
5:B:872:GLU:HG3	5:B:916:THR:HA	1.99	0.42
6:C:58:LEU:HB2	6:C:63:ILE:HD11	2.01	0.42
7:E:60:PHE:CZ	7:E:80:VAL:HG11	2.55	0.42
4:A:83:HIS:ND1	4:A:85:ASP:OD1	2.52	0.42
4:A:114:LEU:HD21	4:A:171:GLN:HG3	2.01	0.42
4:A:471:ASN:O	4:A:474:VAL:HG12	2.19	0.42
4:A:760:GLN:HG2	4:A:765:VAL:HA	2.01	0.42
4:A:775:ILE:HG21	4:A:815:PHE:CE1	2.54	0.42
4:A:1291:VAL:HG22	4:A:1292:PRO:HD2	2.02	0.42
5:B:23:ALA:O	5:B:654:ARG:HG3	2.18	0.42
5:B:33:VAL:HG11	5:B:638:PHE:HE1	1.84	0.42
5:B:195:CYS:SG	5:B:782:LEU:HB3	2.59	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:81:ARG:HE	10:I:81:ARG:HB3	1.70	0.42
12:K:25:THR:HG22	12:K:26:LYS:HG3	2.01	0.42
4:A:98:LYS:HD2	4:A:224:PHE:CZ	2.55	0.42
4:A:316:GLN:N	4:A:320:ARG:O	2.52	0.42
4:A:648:ASN:O	4:A:652:VAL:HG23	2.19	0.42
4:A:839:ARG:NH2	4:A:1402:PHE:O	2.46	0.42
4:A:981:LEU:HG	4:A:1039:LYS:HD3	2.01	0.42
4:A:1030:ARG:O	4:A:1034:GLU:HG2	2.19	0.42
4:A:1044:TRP:O	4:A:1048:ASN:ND2	2.52	0.42
4:A:1215:ARG:NH2	4:A:1272:THR:O	2.47	0.42
5:B:221:ASN:N	5:B:241:ARG:O	2.41	0.42
5:B:268:THR:OG1	5:B:270:LYS:NZ	2.53	0.42
5:B:485:ARG:CZ	5:B:782:LEU:HD11	2.49	0.42
5:B:851:PHE:CG	5:B:980:PHE:HE2	2.37	0.42
5:B:898:LEU:HD11	5:B:954:VAL:HG22	2.02	0.42
5:B:1060:ARG:HD2	5:B:1060:ARG:HA	1.68	0.42
11:J:48:ARG:O	11:J:52:THR:OG1	2.20	0.42
11:J:56:LEU:HB3	11:J:60:PHE:CZ	2.55	0.42
12:K:99:GLY:O	12:K:103:THR:HG23	2.19	0.42
4:A:231:PRO:HA	4:A:234:MET:SD	2.60	0.42
4:A:363:GLN:NE2	4:A:459:ARG:HH21	2.17	0.42
4:A:526:ASP:HB3	4:A:657:LEU:HD23	2.02	0.42
4:A:573:SER:OG	4:A:575:LYS:HG3	2.19	0.42
4:A:183:GLY:O	4:A:199:LEU:N	2.53	0.42
4:A:944:ARG:HH21	4:A:1292:PRO:HB3	1.85	0.42
5:B:579:ARG:NH1	5:B:621:GLU:O	2.37	0.42
7:E:31:THR:HB	7:E:34:GLU:HB3	2.01	0.42
7:E:112:TYR:O	7:E:136:ASN:HA	2.20	0.42
10:I:68:LEU:O	10:I:70:ARG:NH1	2.52	0.42
11:J:36:LEU:HD11	11:J:51:LEU:HD13	2.00	0.42
12:K:49:GLU:OE2	12:K:97:LYS:NZ	2.35	0.42
4:A:515:GLN:OE1	4:A:1071:SER:HA	2.20	0.42
4:A:740:LEU:HD13	6:C:192:TRP:CD1	2.55	0.42
4:A:1135:ARG:O	4:A:1139:GLU:HG3	2.20	0.42
5:B:372:SER:OG	5:B:567:GLU:HG3	2.18	0.42
5:B:519:TRP:NE1	5:B:742:GLU:OE2	2.53	0.42
6:C:56:THR:HG22	6:C:147:LEU:HD21	2.01	0.42
2:T:23:DC:H2'	2:T:24:DT:C6	2.55	0.42
4:A:519:PRO:O	4:A:624:SER:HB2	2.20	0.42
4:A:775:ILE:HG21	4:A:815:PHE:CD1	2.55	0.42
5:B:982:SER:HB3	5:B:1092:TYR:CZ	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:84:ARG:HD2	12:K:11:LEU:HD21	2.01	0.42
6:C:251:LEU:HD12	6:C:251:LEU:HA	1.86	0.42
4:A:22:PHE:HB2	5:B:1211:ASN:HB2	2.02	0.41
4:A:1289:ARG:HG2	4:A:1290:LYS:N	2.34	0.41
5:B:40:GLU:OE2	5:B:680:THR:HB	2.20	0.41
5:B:199:MET:SD	5:B:199:MET:N	2.90	0.41
5:B:886:LYS:H	5:B:886:LYS:HD2	1.85	0.41
5:B:1059:LEU:HD12	5:B:1059:LEU:HA	1.88	0.41
6:C:62:PHE:HE1	6:C:66:ARG:HD2	1.84	0.41
7:E:56:LYS:HE3	7:E:56:LYS:HB3	1.92	0.41
4:A:500:GLU:OE1	5:B:1146:PHE:N	2.53	0.41
4:A:546:VAL:O	4:A:550:LEU:HD13	2.20	0.41
12:K:10:PHE:HD2	12:K:11:LEU:HD13	1.85	0.41
2:T:22:DT:H2'	2:T:23:DC:H6	1.85	0.41
4:A:529:CYS:O	4:A:533:LYS:HG3	2.20	0.41
4:A:597:LEU:HD22	9:H:102:TYR:HD2	1.86	0.41
4:A:939:ASP:O	4:A:943:LEU:HG	2.19	0.41
4:A:1287:TYR:CE2	4:A:1305:VAL:HG11	2.55	0.41
5:B:128:LEU:HB2	5:B:168:GLY:O	2.20	0.41
5:B:407:ASP:N	5:B:407:ASP:OD1	2.52	0.41
5:B:639:ILE:HB	5:B:652:LYS:HD3	2.02	0.41
9:H:37:LYS:HB2	9:H:126:GLU:OE2	2.20	0.41
10:I:78:CYS:HB3	10:I:106:CYS:CB	2.51	0.41
4:A:203:SER:O	4:A:206:GLU:N	2.53	0.41
7:E:171:LYS:HA	7:E:171:LYS:HD2	1.94	0.41
10:I:34:TYR:CE1	10:I:36:GLU:HB3	2.56	0.41
10:I:69:PRO:HB2	10:I:85:PHE:CZ	2.55	0.41
10:I:74:GLU:OE1	10:I:81:ARG:HD2	2.20	0.41
4:A:11:LEU:HD22	5:B:1195:HIS:NE2	2.35	0.41
4:A:65:LEU:HD22	4:A:73:GLY:HA2	2.03	0.41
4:A:903:ASN:HD22	4:A:906:HIS:CG	2.38	0.41
4:A:1441:PHE:CE1	8:F:92:ARG:HD3	2.56	0.41
5:B:36:ALA:O	5:B:40:GLU:HG3	2.21	0.41
5:B:298:LEU:HG	5:B:314:LEU:HD13	2.01	0.41
5:B:654:ARG:O	5:B:658:ILE:HG12	2.20	0.41
5:B:755:ILE:HD13	5:B:755:ILE:HA	1.89	0.41
5:B:952:VAL:HG13	5:B:966:VAL:HG22	2.03	0.41
10:I:84:VAL:O	10:I:101:PHE:HA	2.20	0.41
4:A:27:VAL:HG11	4:A:240:PRO:HD3	2.03	0.41
4:A:840:ARG:HE	4:A:1384:VAL:HG23	1.84	0.41
4:A:1140:HIS:HD1	4:A:1277:GLU:HA	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1169:ILE:HA	4:A:1172:LEU:HD12	2.01	0.41
4:A:1390:ASN:ND2	4:A:1399:ARG:O	2.53	0.41
5:B:283:VAL:HG21	5:B:317:CYS:O	2.21	0.41
5:B:1060:ARG:HH12	6:C:200:GLU:HA	1.85	0.41
10:I:70:ARG:NH1	10:I:84:VAL:HG22	2.36	0.41
12:K:20:LYS:HD3	12:K:21:ILE:N	2.36	0.41
2:T:17:DG:H4'	4:A:1403:GLU:HG2	2.03	0.41
4:A:311:GLN:N	4:A:312:PRO:HD3	2.35	0.41
4:A:424:ILE:HD12	4:A:424:ILE:O	2.21	0.41
4:A:683:ILE:O	4:A:687:LYS:HG3	2.21	0.41
4:A:1220:PHE:O	4:A:1221:LYS:HG3	2.21	0.41
5:B:112:LEU:HD11	5:B:117:ALA:HB2	2.03	0.41
5:B:127:GLY:HA2	5:B:166:PHE:HE1	1.86	0.41
5:B:622:LYS:HA	5:B:622:LYS:HD2	1.89	0.41
5:B:660:LYS:HE2	5:B:679:TYR:CD2	2.56	0.41
7:E:143:ASN:HB3	7:E:146:HIS:CG	2.56	0.41
4:A:140:THR:HA	4:A:143:LYS:HD3	2.01	0.41
4:A:361:LEU:HB2	4:A:471:ASN:HD22	1.85	0.41
4:A:376:TYR:CZ	4:A:498:ARG:HD2	2.55	0.41
4:A:913:LEU:HD23	4:A:913:LEU:HA	1.84	0.41
5:B:37:PHE:HD2	5:B:681:TRP:CE2	2.39	0.41
5:B:118:ARG:HA	5:B:207:GLY:HA2	2.02	0.41
5:B:706:GLN:HG2	5:B:708:GLU:HB2	2.02	0.41
11:J:17:LYS:HB3	11:J:39:LEU:HD13	2.03	0.41
4:A:58:LEU:HD23	4:A:247:ARG:HH21	1.86	0.41
4:A:92:HIS:HB3	4:A:95:PHE:CD2	2.56	0.41
4:A:230:ARG:NE	4:A:232:GLU:HB3	2.35	0.41
4:A:534:LEU:HG	4:A:574:GLY:HA3	2.03	0.41
4:A:718:VAL:O	4:A:722:LEU:HG	2.21	0.41
4:A:765:VAL:HG22	4:A:800:VAL:HB	2.02	0.41
4:A:870:GLU:OE1	7:E:202:SER:HB2	2.21	0.41
4:A:898:ARG:HB2	4:A:933:TYR:CE1	2.55	0.41
4:A:1151:GLU:O	4:A:1193:LEU:HD12	2.21	0.41
5:B:101:MET:HB2	5:B:110:HIS:O	2.21	0.41
5:B:396:ASP:OD1	5:B:396:ASP:N	2.54	0.41
5:B:497:ARG:HH21	5:B:538:ASN:HD21	1.69	0.41
5:B:878:GLN:HB2	5:B:881:ASN:HB3	2.03	0.41
5:B:952:VAL:HG22	5:B:966:VAL:HG22	2.03	0.41
6:C:167:HIS:CD2	13:L:70:ARG:HG2	2.56	0.41
7:E:12:LEU:HD22	7:E:137:GLU:OE2	2.21	0.41
10:I:73:ARG:O	10:I:83:ASN:ND2	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:K:31:VAL:O	12:K:74:ARG:HA	2.21	0.41
4:A:472:LEU:HD21	5:B:835:GLN:OE1	2.21	0.41
4:A:619:LYS:O	4:A:623:GLY:N	2.54	0.41
4:A:1037:LEU:HD12	4:A:1037:LEU:HA	1.95	0.41
5:B:604:ARG:NH2	5:B:614:SER:HA	2.36	0.41
5:B:953:LEU:O	5:B:964:VAL:HA	2.21	0.41
5:B:1082:MET:HA	6:C:189:THR:HA	2.03	0.41
5:B:1213:THR:O	5:B:1213:THR:OG1	2.38	0.41
9:H:112:ILE:HG22	9:H:127:GLY:O	2.21	0.41
11:J:59:LYS:H	11:J:59:LYS:HG2	1.58	0.41
4:A:88:LYS:HZ1	4:A:205:GLU:H	1.69	0.40
5:B:186:GLU:HA	5:B:189:LEU:HD12	2.03	0.40
5:B:286:PHE:HB3	5:B:297:ILE:HG12	2.03	0.40
5:B:579:ARG:HB3	5:B:586:TRP:NE1	2.35	0.40
5:B:658:ILE:HG12	5:B:658:ILE:H	1.69	0.40
5:B:874:PHE:CZ	5:B:914:LYS:HD3	2.56	0.40
5:B:1152:MET:O	5:B:1157:ALA:HB2	2.21	0.40
7:E:178:ILE:HG23	7:E:214:CYS:HA	2.02	0.40
8:F:132:LEU:O	8:F:148:VAL:HG23	2.21	0.40
9:H:106:GLU:HG3	9:H:111:LEU:O	2.22	0.40
3:N:5:DC:H2"	3:N:6:DG:OP2	2.21	0.40
4:A:135:PHE:HD1	4:A:222:LEU:HA	1.87	0.40
4:A:451:HIS:NE2	4:A:515:GLN:OE1	2.54	0.40
4:A:688:LYS:O	4:A:691:LEU:HG	2.22	0.40
4:A:867:ILE:HG22	4:A:872:GLY:N	2.36	0.40
4:A:1295:THR:HB	4:A:1297:GLU:HG2	2.02	0.40
5:B:406:LEU:HD23	5:B:406:LEU:HA	1.95	0.40
5:B:736:THR:HG22	5:B:737:THR:HG23	2.03	0.40
6:C:9:LYS:HA	6:C:9:LYS:HD3	1.85	0.40
7:E:116:ILE:H	7:E:116:ILE:HG13	1.71	0.40
7:E:180:ARG:HH12	7:E:192:ARG:HB3	1.86	0.40
12:K:8:GLU:O	12:K:37:LYS:HD2	2.21	0.40
12:K:14:GLU:OE1	12:K:14:GLU:HA	2.21	0.40
13:L:62:LYS:HD3	13:L:62:LYS:HA	1.83	0.40
4:A:332:LYS:HE2	4:A:337:ARG:HH21	1.86	0.40
4:A:550:LEU:HD23	4:A:556:TRP:CZ2	2.56	0.40
4:A:665:GLY:HA3	5:B:1069:PHE:CZ	2.56	0.40
4:A:944:ARG:NH2	4:A:1296:GLY:O	2.44	0.40
4:A:1014:ALA:HA	7:E:205:SER:HB3	2.02	0.40
4:A:1034:GLU:HB2	4:A:1035:TYR:CD2	2.57	0.40
4:A:1055:ARG:NE	8:F:154:ASP:OD2	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:224:GLN:HE21	5:B:224:GLN:HB2	1.75	0.40
5:B:1069:PHE:HB2	6:C:201:TRP:HH2	1.87	0.40
6:C:258:ILE:HG23	12:K:19:LEU:HD21	2.02	0.40
7:E:13:TRP:NE1	7:E:37:LEU:O	2.51	0.40
10:I:14:LEU:HB3	10:I:27:PHE:HB3	2.04	0.40
2:T:9:DC:H2"	2:T:10:DT:H5'	2.03	0.40
4:A:375:THR:HB	4:A:433:GLU:HB3	2.04	0.40
4:A:613:ILE:HG23	9:H:117:SER:CB	2.51	0.40
4:A:845:LEU:HD21	4:A:1371:LEU:HA	2.03	0.40
4:A:862:ASN:HA	7:E:174:GLN:HA	2.03	0.40
4:A:1434:ALA:HB3	4:A:1436:ILE:HG12	2.02	0.40
5:B:661:LEU:HG	5:B:679:TYR:CD2	2.56	0.40
5:B:998:ASP:HB3	5:B:1076:HIS:HE1	1.85	0.40
6:C:44:LEU:HD21	6:C:97:VAL:HB	2.03	0.40
10:I:60:GLN:HA	10:I:104:LEU:HD11	2.03	0.40
4:A:28:ARG:HA	4:A:83:HIS:CD2	2.57	0.40
4:A:91:PHE:CE1	4:A:204:THR:HG23	2.57	0.40
4:A:597:LEU:HD23	4:A:597:LEU:HA	1.83	0.40
5:B:778:MET:HE2	5:B:778:MET:HB2	1.95	0.40
5:B:822:ASN:O	11:J:48:ARG:NH1	2.54	0.40
11:J:2:ILE:HD12	11:J:57:ILE:HD13	2.02	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	
4	A	1370/1733 (79%)	1341 (98%)	29 (2%)	0	100	100
5	B	1108/1224 (90%)	1088 (98%)	20 (2%)	0	100	100
6	C	265/318 (83%)	263 (99%)	2 (1%)	0	100	100
7	E	210/215 (98%)	207 (99%)	3 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	F	84/155 (54%)	82 (98%)	2 (2%)	0	100	100
9	H	129/146 (88%)	123 (95%)	6 (5%)	0	100	100
10	I	116/122 (95%)	114 (98%)	2 (2%)	0	100	100
11	J	63/70 (90%)	62 (98%)	1 (2%)	0	100	100
12	K	112/120 (93%)	109 (97%)	3 (3%)	0	100	100
13	L	41/70 (59%)	40 (98%)	1 (2%)	0	100	100
All	All	3498/4173 (84%)	3429 (98%)	69 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	A	1194/1520 (79%)	1161 (97%)	33 (3%)	43	72
5	B	955/1061 (90%)	929 (97%)	26 (3%)	44	73
6	C	235/274 (86%)	227 (97%)	8 (3%)	37	68
7	E	193/197 (98%)	188 (97%)	5 (3%)	46	74
8	F	73/137 (53%)	70 (96%)	3 (4%)	30	63
9	H	116/128 (91%)	112 (97%)	4 (3%)	37	68
10	I	110/116 (95%)	98 (89%)	12 (11%)	6	29
11	J	60/65 (92%)	58 (97%)	2 (3%)	38	68
12	K	99/102 (97%)	98 (99%)	1 (1%)	76	88
13	L	37/57 (65%)	36 (97%)	1 (3%)	44	73
All	All	3072/3657 (84%)	2977 (97%)	95 (3%)	40	70

All (95) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	A	8	SER

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Mol	Chain	Res	Type
4	A	67	CYS
4	A	70	CYS
4	A	77	CYS
4	A	109	HIS
4	A	167	CYS
4	A	247	ARG
4	A	273	ASN
4	A	303	TYR
4	A	337	ARG
4	A	459	ARG
4	A	468	PHE
4	A	532	ARG
4	A	537	ARG
4	A	575	LYS
4	A	711	ARG
4	A	744	LYS
4	A	797	LYS
4	A	806	ARG
4	A	847	ASP
4	A	880	LYS
4	A	1012	ARG
4	A	1018	PHE
4	A	1093	LYS
4	A	1130	GLN
4	A	1221	LYS
4	A	1234	GLU
4	A	1262	LYS
4	A	1289	ARG
4	A	1300	LYS
4	A	1345	ARG
4	A	1366	ARG
4	A	1389	PHE
5	B	126	SER
5	B	322	PHE
5	B	373	ARG
5	B	376	PHE
5	B	394	ASP
5	B	396	ASP
5	B	407	ASP
5	B	431	TYR
5	B	438	GLU
5	B	466	TRP

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Mol	Chain	Res	Type
5	B	592	ASN
5	B	605	ARG
5	B	617	ARG
5	B	627	PHE
5	B	666	TYR
5	B	679	TYR
5	B	766	ARG
5	B	815	ARG
5	B	837	ASP
5	B	935	ARG
5	B	951	GLN
5	B	1086	PHE
5	B	1096	ARG
5	B	1163	CYS
5	B	1182	CYS
5	B	1220	ARG
6	C	75	MET
6	C	76	ASP
6	C	86	CYS
6	C	117	ASP
6	C	155	LEU
6	C	178	PHE
6	C	199	LYS
6	C	221	TYR
7	E	42	PHE
7	E	46	TYR
7	E	48	ASP
7	E	110	PHE
7	E	112	TYR
8	F	69	LEU
8	F	100	GLN
8	F	124	GLU
9	H	77	ARG
9	H	87	ARG
9	H	95	TYR
9	H	124	ARG
10	I	4	PHE
10	I	7	CYS
10	I	12	ASN
10	I	24	ARG
10	I	29	CYS
10	I	32	CYS

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Mol	Chain	Res	Type
10	I	44	TYR
10	I	73	ARG
10	I	75	CYS
10	I	81	ARG
10	I	91	ARG
10	I	103	CYS
11	J	7	CYS
11	J	17	LYS
12	K	54	ARG
13	L	31	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
4	A	515	GLN
4	A	517	ASN
4	A	736	ASN
4	A	965	GLN
4	A	1011	GLN
4	A	1432	GLN
5	B	776	GLN
5	B	842	ASN
5	B	881	ASN
5	B	1161	HIS
5	B	1187	ASN
5	B	1211	ASN
6	C	135	GLN
6	C	252	GLN
7	E	115	ASN
9	H	128	ASN
9	H	131	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	R	7/9 (77%)	1 (14%)	0

All (1) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	R	2	U

There are no RNA pucker outliers to report.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	WVQ	T	19	2	19,24,25	3.47	6 (31%)	20,33,36	1.53	4 (20%)

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	WVQ	T	19	2	-	4/6/40/41	0/2/2/2

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	T	19	WVQ	C5-N7	12.49	1.46	1.28
2	T	19	WVQ	C4-N9	4.83	1.45	1.35
2	T	19	WVQ	C2-N2	4.04	1.45	1.34
2	T	19	WVQ	C6-N1	-3.08	1.32	1.38
2	T	19	WVQ	O6-C6	-3.05	1.18	1.23
2	T	19	WVQ	C5-C4	-2.15	1.37	1.43

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	T	19	WVQ	N3-C2-N1	-4.14	119.71	126.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	T	19	WVQ	C2'-C3'-C4'	2.43	107.83	102.76
2	T	19	WVQ	N2-C2-N3	2.14	120.04	116.57
2	T	19	WVQ	N2-C2-N1	2.02	120.25	117.06

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	T	19	WVQ	O4'-C4'-C5'-O5'
2	T	19	WVQ	C3'-C4'-C5'-O5'
2	T	19	WVQ	O4'-C1'-N9-C4
2	T	19	WVQ	C4'-C5'-O5'-P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 9 ligands modelled in this entry, 9 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (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, 95^{th} 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	R	9/9 (100%)	-0.12	0 100 100	104, 120, 189, 222	0
2	T	23/29 (79%)	-0.32	0 100 100	107, 185, 252, 281	0
3	N	13/18 (72%)	-0.34	0 100 100	203, 228, 274, 280	0
4	A	1384/1733 (79%)	0.01	44 (3%) 47 42	77, 117, 187, 248	0
5	B	1126/1224 (91%)	-0.06	16 (1%) 75 69	47, 108, 163, 210	0
6	C	267/318 (83%)	0.02	9 (3%) 45 40	46, 100, 155, 201	0
7	E	212/215 (98%)	0.10	19 (8%) 9 10	88, 137, 215, 274	0
8	F	86/155 (55%)	-0.25	1 (1%) 79 73	80, 108, 157, 183	0
9	H	133/146 (91%)	0.37	11 (8%) 11 12	90, 137, 196, 280	0
10	I	118/122 (96%)	0.03	4 (3%) 45 40	93, 133, 178, 231	0
11	J	65/70 (92%)	-0.05	0 100 100	47, 100, 133, 150	0
12	K	114/120 (95%)	-0.15	2 (1%) 68 62	64, 108, 144, 179	0
13	L	43/70 (61%)	0.57	4 (9%) 8 9	94, 170, 235, 272	0
All	All	3593/4229 (84%)	-0.00	110 (3%) 49 43	46, 115, 186, 281	0

All (110) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
7	E	93	MET	7.8
7	E	112	TYR	6.3
5	B	869	SER	5.6
4	A	1192	LEU	5.2
4	A	258	GLY	4.9
7	E	110	PHE	4.9
9	H	86	ASP	4.8
7	E	109	ILE	4.5
4	A	214	ILE	4.2

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Mol	Chain	Res	Type	RSRZ
4	A	183	GLY	4.1
4	A	111	GLY	4.0
4	A	1197	LEU	3.9
4	A	313	GLN	3.8
4	A	141	LEU	3.8
5	B	733	HIS	3.7
5	B	577	ALA	3.5
7	E	123	LEU	3.5
13	L	49	LYS	3.4
4	A	466	SER	3.3
4	A	114	LEU	3.2
7	E	113	GLN	3.2
10	I	61	ASP	3.2
7	E	116	ILE	3.2
4	A	1149	ALA	3.1
5	B	658	ILE	3.1
4	A	144	THR	3.1
9	H	107	VAL	3.0
4	A	62	ASP	3.0
6	C	23	SER	3.0
9	H	83	GLN	3.0
9	H	46	LEU	3.0
4	A	1328	TYR	2.9
10	I	112	SER	2.9
4	A	182	VAL	2.8
4	A	213	HIS	2.8
5	B	300	HIS	2.8
10	I	111	THR	2.8
4	A	1154	TYR	2.8
13	L	50	ASP	2.7
4	A	1150	SER	2.7
5	B	740	HIS	2.7
9	H	23	VAL	2.7
7	E	62	ALA	2.6
7	E	127	ILE	2.6
9	H	51	ALA	2.6
4	A	722	LEU	2.6
4	A	1166	ASP	2.6
7	E	90	VAL	2.6
4	A	199	LEU	2.6
7	E	94	LYS	2.5
6	C	131	HIS	2.5

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Mol	Chain	Res	Type	RSRZ
12	K	42	LEU	2.5
9	H	49	VAL	2.5
5	B	734	HIS	2.5
4	A	259	GLU	2.5
4	A	122	MET	2.5
4	A	1284	MET	2.5
4	A	430	TRP	2.5
4	A	1306	LEU	2.4
7	E	120	ALA	2.4
4	A	152	VAL	2.4
4	A	996	ASN	2.4
6	C	96	SER	2.4
7	E	91	LYS	2.4
4	A	48	ALA	2.4
6	C	129	ILE	2.4
5	B	866	TYR	2.4
4	A	135	PHE	2.4
4	A	322	VAL	2.4
12	K	57	LEU	2.4
4	A	975	HIS	2.3
9	H	55	LEU	2.3
13	L	29	TYR	2.3
6	C	146	LYS	2.3
4	A	176	LYS	2.3
7	E	115	ASN	2.3
5	B	868	MET	2.3
4	A	1382	THR	2.3
4	A	138	ILE	2.2
7	E	124	VAL	2.2
6	C	29	MET	2.2
7	E	78	LEU	2.2
7	E	20	LYS	2.2
5	B	525	ALA	2.2
9	H	88	SER	2.2
10	I	102	VAL	2.2
5	B	573	GLN	2.2
4	A	1267	MET	2.1
4	A	115	LEU	2.1
5	B	95	ILE	2.1
6	C	4	GLU	2.1
5	B	886	LYS	2.1
8	F	85	MET	2.1

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Mol	Chain	Res	Type	RSRZ
4	A	974	ASP	2.1
7	E	122	LYS	2.1
9	H	130	ARG	2.1
6	C	130	GLY	2.1
7	E	107	THR	2.1
13	L	61	THR	2.1
4	A	113	LEU	2.1
4	A	687	LYS	2.1
5	B	273	LEU	2.1
5	B	595	ARG	2.0
4	A	249	SER	2.0
4	A	125	ALA	2.0
6	C	132	PRO	2.0
4	A	224	PHE	2.0
4	A	1193	LEU	2.0
5	B	114	PRO	2.0
9	H	131	ASN	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	WVQ	T	19	23/24	0.84	0.27	140,145,169,176	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
14	ZN	A	1801	1/1	0.62	0.21	301,301,301,301	0
14	ZN	L	101	1/1	0.92	0.26	363,363,363,363	0
14	ZN	C	401	1/1	0.94	0.12	120,120,120,120	0
14	ZN	J	101	1/1	0.96	0.31	133,133,133,133	0
14	ZN	B	1301	1/1	0.96	0.07	204,204,204,204	0
14	ZN	I	202	1/1	0.97	0.15	273,273,273,273	0
14	ZN	I	201	1/1	0.98	0.10	113,113,113,113	0
14	ZN	A	1802	1/1	0.98	0.07	167,167,167,167	0
15	MG	A	1803	1/1	0.98	0.13	129,129,129,129	0

6.5 Other polymers (i)

There are no such residues in this entry.