



Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Mar 2, 2017 – 11:12 am GMT

PDB ID : 2P4N
EMDB ID: : EMD-1340
Title : Human Monomeric Kinesin (1BG2) and Bovine Tubulin (1JFF) Docked into
the 9-Angstrom Cryo-EM Map of Nucleotide-Free Kinesin Complexed to the
Microtubule
Authors : Sindelar, C.V.; Downing, K.H.
Deposited on : 2007-03-12
Resolution : 9.00 Å(reported)

This is a Full wwPDB/EMDatabank EM Map/Model Validation Report
for a publicly released PDB/EMDB entry.

We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

MolProbity : 4.02b-467
Mogul : 1.7.2 (RC1), CSD as538be (2017)
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : recalc29047

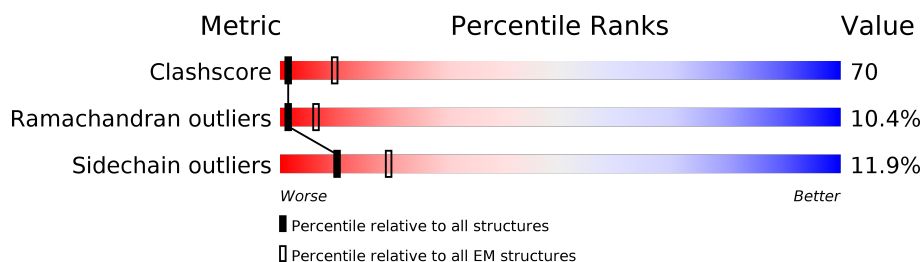
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 9.00 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)	EM structures (#Entries)
Clashscore	125131	1336
Ramachandran outliers	121729	1120
Sidechain outliers	121581	1026

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	K	325	
2	A	451	
3	B	445	

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 9264 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Kinesin heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	K	323	Total	C	N	O	S	0	0
			2534	1578	434	507	15		

- Molecule 2 is a protein called Tubulin alpha chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	412	Total	C	N	O	S	0	0
			3227	2043	551	613	20		

- Molecule 3 is a protein called Tubulin beta chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	426	Total	C	N	O	S	0	0
			3351	2105	575	646	25		

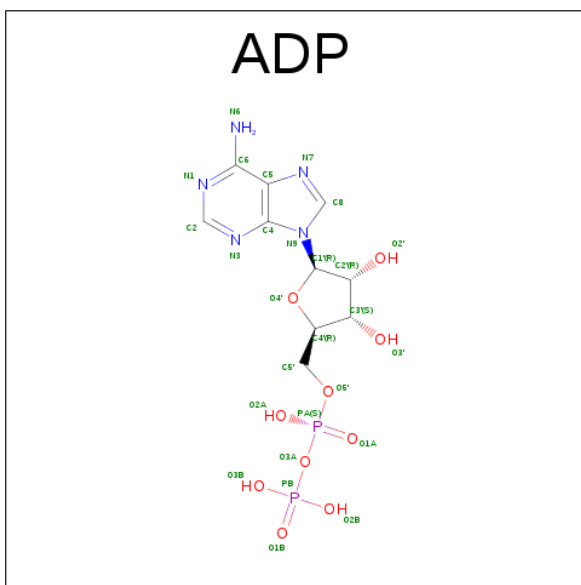
- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
4	A	1	Total	Mg	0
			1	1	
4	K	1	Total	Mg	0
			1	1	

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

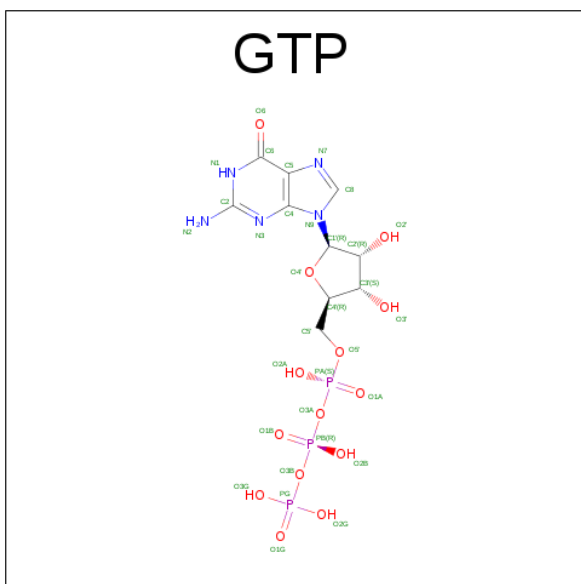
Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Zn	0
			1	1	

- Molecule 6 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: C₁₀H₁₅N₅O₁₀P₂).



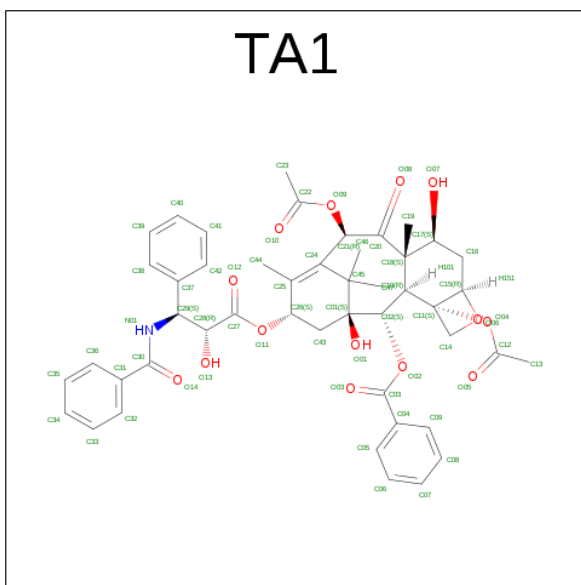
Mol	Chain	Residues	Atoms					AltConf
6	K	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 7 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP, GDP) (formula: $C_{10}H_{16}N_5O_{14}P_3$, $C_{10}H_{15}N_5O_{11}P_2$).



Mol	Chain	Residues	Atoms					AltConf
7	B	2	Total	C	N	O	P	0
			60	20	10	25	5	

- Molecule 8 is TAXOL (three-letter code: TA1) (formula: $C_{47}H_{51}NO_{14}$).

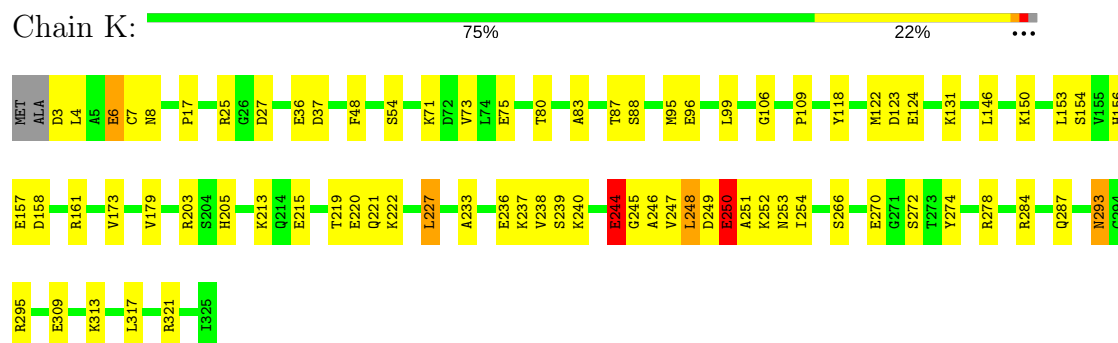


Mol	Chain	Residues	Atoms				AltConf
8	B	1	Total	C	N	O	0
			62	47	1	14	

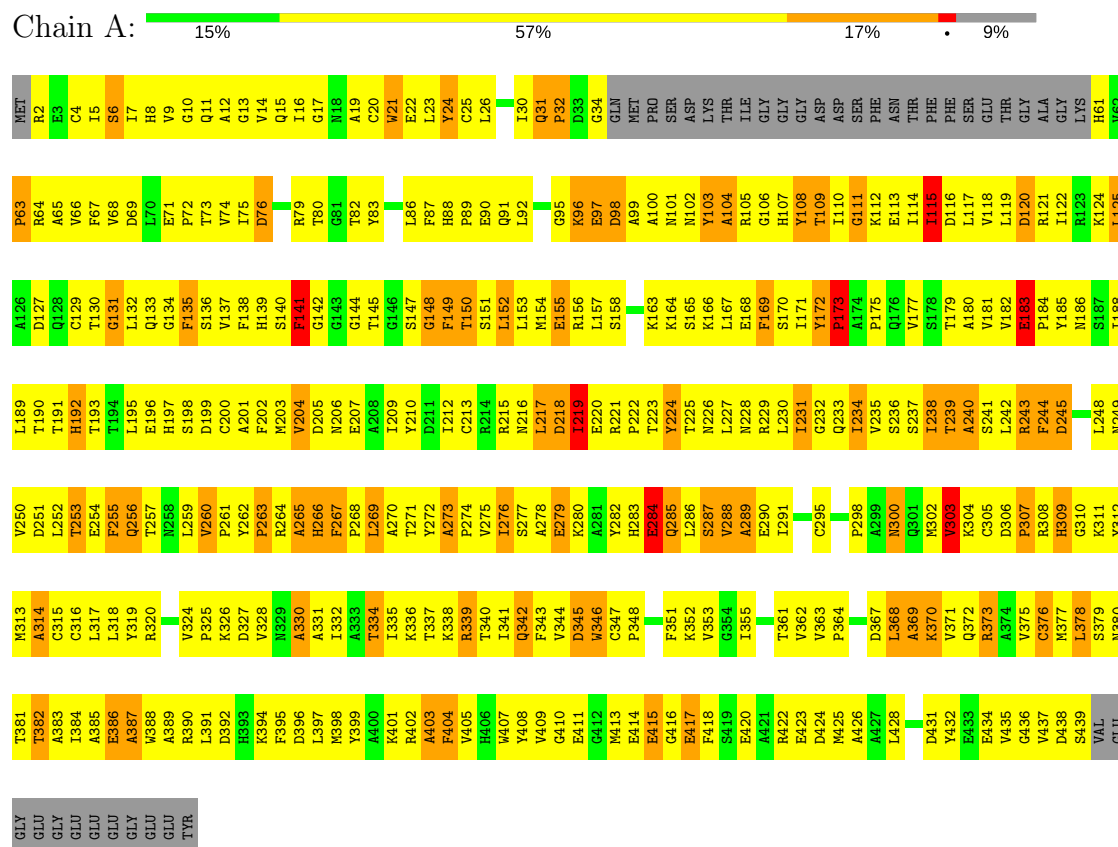
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA 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. 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. 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: Kinesin heavy chain

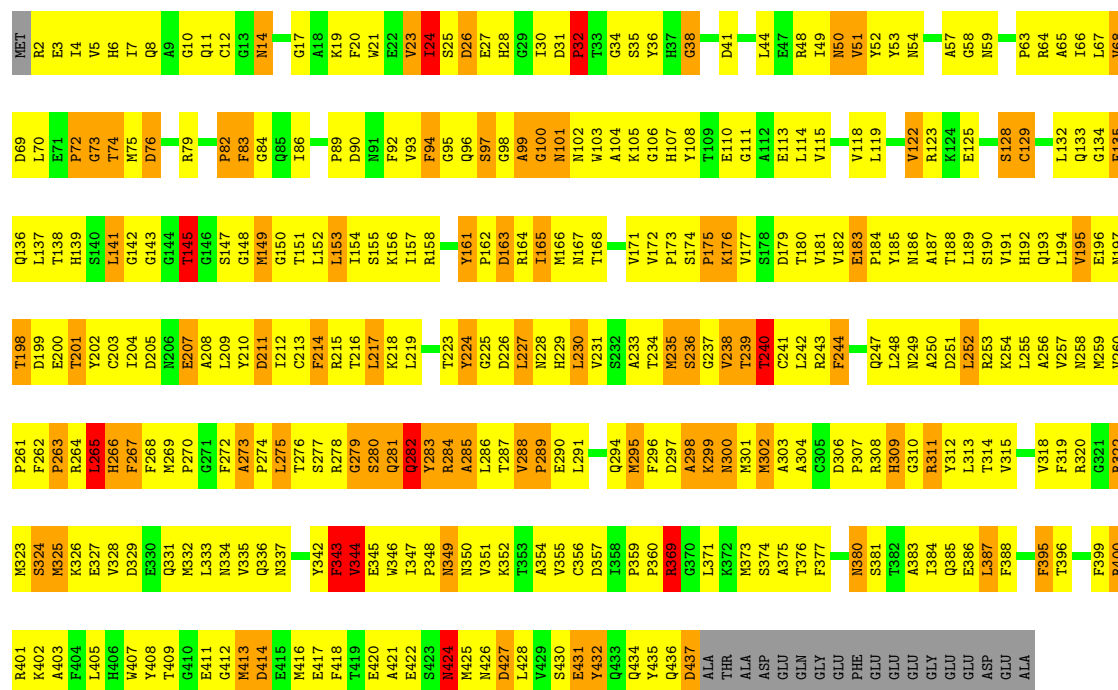


• Molecule 2: Tubulin alpha chain



● Molecule 3: Tubulin beta chain

Chain B:  20% 55% 18%



4 Experimental information

Property	Value	Source
Reconstruction method	Not provided	Depositor
Imposed symmetry	POINT, Not provided	Depositor
Number of images used	Not provided	Depositor
Resolution determination method	Not provided	Depositor
CTF correction method	CTF correction was integrated into the back projection process with a customized C program	Depositor
Microscope	JEOL 4000	Depositor
Voltage (kV)	400	Depositor
Electron dose ($e^-/\text{\AA}^2$)	16	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	60000	Depositor
Image detector	Kodak SO163	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: GDP, MG, TA1, ADP, ZN, GTP

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 > 2$	RMSZ	# $ Z > 2$
1	K	0.36	0/2573	0.63	0/3467
2	A	0.50	0/3300	0.73	0/4482
3	B	0.51	0/3426	0.76	2/4642 (0.0%)
All	All	0.47	0/9299	0.71	2/12591 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	235	MET	CG-SD-CE	6.09	109.94	100.20
3	B	217	LEU	N-CA-C	-5.37	96.50	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	K	2534	0	2498	214	0
2	A	3227	0	3138	659	0
3	B	3351	0	3229	598	0
4	A	1	0	0	0	0
4	K	1	0	0	0	0
5	A	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	K	27	0	12	0	0
7	B	60	0	24	6	0
8	B	62	0	51	6	0
All	All	9264	0	8952	1276	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 70.

All (1276) 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:K:237:LYS:HE2	2:A:414:GLU:CG	1.28	1.57
1:K:247:VAL:CG2	2:A:156:ARG:NH1	1.67	1.55
1:K:247:VAL:CG2	2:A:156:ARG:CZ	1.84	1.52
1:K:237:LYS:CE	2:A:414:GLU:HG3	1.37	1.51
1:K:247:VAL:HG23	2:A:156:ARG:NH2	1.27	1.46
1:K:247:VAL:HG23	2:A:156:ARG:CZ	1.45	1.45
1:K:253:ASN:CB	2:A:410:GLY:CA	1.84	1.45
1:K:274:TYR:CZ	3:B:431:GLU:HB2	1.54	1.42
1:K:248:LEU:CB	2:A:112:LYS:O	1.68	1.38
1:K:253:ASN:HB3	2:A:410:GLY:CA	1.47	1.35
1:K:247:VAL:HG21	2:A:156:ARG:NH1	1.24	1.33
1:K:248:LEU:HD12	2:A:112:LYS:C	1.45	1.33
1:K:253:ASN:CB	2:A:410:GLY:HA2	1.49	1.28
1:K:248:LEU:HB3	2:A:112:LYS:O	1.13	1.28
1:K:317:LEU:HB3	2:A:415:GLU:OE2	1.35	1.21
1:K:248:LEU:O	2:A:112:LYS:C	1.79	1.21
1:K:237:LYS:CE	2:A:414:GLU:CG	2.03	1.20
1:K:248:LEU:CD1	2:A:112:LYS:O	1.90	1.18
1:K:248:LEU:CD1	2:A:111:GLY:O	1.91	1.18
1:K:317:LEU:CB	2:A:415:GLU:OE2	1.92	1.16
3:B:234:THR:HG21	3:B:270:PRO:HB2	1.23	1.16
1:K:274:TYR:CE2	3:B:431:GLU:HB2	1.81	1.16
1:K:237:LYS:CD	2:A:414:GLU:HG3	1.74	1.15
1:K:274:TYR:HB3	3:B:434:GLN:NE2	1.61	1.14
1:K:248:LEU:CD1	2:A:112:LYS:CA	2.25	1.14
2:A:243:ARG:NH2	2:A:252:LEU:H	1.45	1.13
1:K:248:LEU:HD11	2:A:111:GLY:O	1.45	1.13
1:K:248:LEU:CG	2:A:112:LYS:O	1.97	1.12
1:K:248:LEU:CD1	2:A:112:LYS:HA	1.78	1.12
1:K:248:LEU:CD1	2:A:112:LYS:C	2.20	1.11

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:247:VAL:HG22	2:A:156:ARG:CZ	1.80	1.10
3:B:93:VAL:HG11	3:B:118:VAL:HG22	1.30	1.09
1:K:248:LEU:HD13	2:A:112:LYS:CA	1.82	1.07
1:K:250:GLU:HG3	2:A:107:HIS:CD2	1.92	1.04
1:K:274:TYR:CE1	3:B:431:GLU:HB2	1.92	1.04
2:A:109:THR:HG22	2:A:110:ILE:N	1.70	1.04
1:K:254:ILE:HD11	2:A:414:GLU:HA	1.40	1.04
2:A:243:ARG:HH21	2:A:252:LEU:N	1.57	1.03
1:K:248:LEU:HD12	2:A:112:LYS:O	1.47	1.02
1:K:248:LEU:HD13	2:A:112:LYS:HA	1.03	1.02
3:B:172:VAL:HG11	3:B:387:LEU:HD21	1.37	1.02
2:A:11:GLN:HG3	2:A:74:VAL:HG11	1.43	1.01
3:B:236:SER:O	3:B:240:THR:HG23	1.61	1.01
1:K:237:LYS:HE2	2:A:414:GLU:CB	1.80	1.01
3:B:299:LYS:H	3:B:299:LYS:HD3	1.24	1.00
1:K:248:LEU:HD12	2:A:112:LYS:CA	1.92	0.98
1:K:237:LYS:CG	2:A:414:GLU:HG3	1.95	0.97
2:A:98:ASP:HB2	2:A:105:ARG:HH21	1.31	0.96
1:K:274:TYR:CZ	3:B:431:GLU:CB	2.47	0.96
1:K:274:TYR:H	3:B:434:GLN:HE22	1.09	0.95
1:K:253:ASN:HB3	2:A:410:GLY:N	1.57	0.95
2:A:259:LEU:HD11	2:A:378:LEU:HD13	1.47	0.95
3:B:273:ALA:HB3	3:B:274:PRO:HD3	1.48	0.94
3:B:281:GLN:O	3:B:283:TYR:N	2.00	0.94
1:K:244:GLU:OE2	2:A:113:GLU:OE2	1.85	0.94
1:K:237:LYS:HE3	2:A:414:GLU:OE1	1.66	0.94
2:A:251:ASP:N	2:A:254:GLU:HG3	1.82	0.94
2:A:237:SER:HB2	2:A:376:CYS:SG	2.08	0.94
1:K:253:ASN:HB2	2:A:410:GLY:HA2	1.47	0.94
3:B:132:LEU:HD23	3:B:164:ARG:HG3	1.50	0.94
1:K:247:VAL:N	2:A:116:ASP:OD2	2.00	0.94
2:A:31:GLN:HB3	2:A:32:PRO:HD2	1.51	0.93
2:A:251:ASP:H	2:A:254:GLU:HG3	1.33	0.93
1:K:237:LYS:HE3	2:A:414:GLU:CD	1.88	0.93
2:A:316:CYS:HB3	2:A:378:LEU:HD11	1.49	0.93
1:K:278:ARG:HG3	3:B:196:GLU:OE2	1.68	0.92
3:B:264:ARG:O	3:B:265:LEU:HB3	1.69	0.92
1:K:237:LYS:CE	2:A:414:GLU:CD	2.37	0.92
3:B:70:LEU:H	3:B:145:THR:HG21	1.33	0.91
1:K:157:GLU:C	3:B:416:MET:CE	2.39	0.91
2:A:151:SER:HB3	2:A:193:THR:HG21	1.51	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:248:LEU:O	2:A:112:LYS:CB	2.19	0.90
1:K:247:VAL:HG23	2:A:156:ARG:HH22	1.27	0.89
1:K:248:LEU:HB2	2:A:116:ASP:H	1.35	0.89
3:B:147:SER:O	3:B:151:THR:HB	1.71	0.89
3:B:102:ASN:HD21	3:B:408:TYR:HA	1.38	0.89
3:B:8:GLN:OE1	3:B:67:LEU:HD22	1.73	0.89
3:B:93:VAL:HG11	3:B:118:VAL:CG2	2.03	0.89
1:K:248:LEU:HD12	2:A:111:GLY:O	1.72	0.88
2:A:343:PHE:CZ	2:A:351:PHE:CE1	2.60	0.88
3:B:101:ASN:HD21	3:B:143:GLY:HA2	1.38	0.88
2:A:119:LEU:HD23	2:A:122:ILE:HD11	1.53	0.88
3:B:264:ARG:HB2	3:B:266:HIS:CD2	2.08	0.88
3:B:311:ARG:HD3	3:B:342:TYR:HA	1.56	0.88
1:K:247:VAL:CG2	2:A:156:ARG:NH2	2.19	0.88
2:A:147:SER:HB2	2:A:190:THR:OG1	1.73	0.88
2:A:109:THR:HG22	2:A:110:ILE:H	1.33	0.88
2:A:407:TRP:HE1	3:B:260:VAL:HG23	1.38	0.87
3:B:276:THR:HB	3:B:281:GLN:HG3	1.56	0.87
1:K:274:TYR:HD2	3:B:430:SER:HG	0.90	0.87
2:A:110:ILE:HG23	2:A:111:GLY:H	1.38	0.87
2:A:122:ILE:HD12	2:A:157:LEU:HD21	1.54	0.87
3:B:6:HIS:CE1	3:B:8:GLN:HG2	2.10	0.87
3:B:153:LEU:O	3:B:157:ILE:HG12	1.75	0.86
1:K:274:TYR:HB3	3:B:434:GLN:CD	1.96	0.86
1:K:157:GLU:C	3:B:416:MET:HE1	1.94	0.86
1:K:237:LYS:HG2	2:A:414:GLU:CG	2.05	0.86
3:B:195:VAL:HG13	3:B:196:GLU:HG2	1.57	0.86
3:B:10:GLY:HA2	3:B:145:THR:HB	1.55	0.86
3:B:360:PRO:HG2	3:B:371:LEU:HB3	1.56	0.85
2:A:264:ARG:O	2:A:266:HIS:N	2.09	0.85
3:B:242:LEU:HD22	3:B:250:ALA:H	1.41	0.85
2:A:234:ILE:HG13	2:A:270:ALA:HB1	1.59	0.84
3:B:234:THR:HG21	3:B:270:PRO:CB	2.06	0.84
2:A:204:VAL:HG11	2:A:231:ILE:HD12	1.60	0.84
3:B:20:PHE:CD2	3:B:235:MET:SD	2.71	0.84
3:B:19:LYS:HG3	3:B:228:ASN:HB3	1.57	0.84
3:B:4:ILE:HD13	3:B:136:GLN:HE21	1.42	0.84
3:B:324:SER:HB3	3:B:327:GLU:HG2	1.60	0.84
1:K:250:GLU:HG3	2:A:107:HIS:HD2	1.41	0.84
2:A:264:ARG:HB2	2:A:266:HIS:CD2	2.13	0.83
1:K:317:LEU:HB2	2:A:415:GLU:OE2	1.77	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:316:CYS:HB3	2:A:378:LEU:CD1	2.08	0.83
1:K:254:ILE:CD1	2:A:414:GLU:HA	2.09	0.83
3:B:3:GLU:O	3:B:133:GLN:HB3	1.78	0.83
3:B:101:ASN:ND2	3:B:143:GLY:HA2	1.94	0.83
3:B:148:GLY:O	3:B:151:THR:HG22	1.79	0.83
3:B:209:LEU:HB3	3:B:227:LEU:HD22	1.59	0.83
1:K:274:TYR:OH	3:B:264:ARG:NH1	2.11	0.83
3:B:156:LYS:HE2	3:B:156:LYS:HA	1.61	0.82
1:K:248:LEU:O	2:A:112:LYS:CA	2.27	0.82
2:A:184:PRO:HG2	2:A:398:MET:HE1	1.60	0.82
2:A:106:GLY:O	2:A:111:GLY:HA3	1.78	0.82
1:K:157:GLU:O	3:B:416:MET:HE2	1.79	0.82
3:B:287:THR:O	3:B:288:VAL:HG23	1.78	0.82
2:A:23:LEU:HD23	2:A:236:SER:HB2	1.61	0.81
3:B:147:SER:HB2	3:B:190:SER:HB3	1.60	0.81
1:K:157:GLU:O	3:B:416:MET:CG	2.28	0.81
1:K:237:LYS:HE2	2:A:414:GLU:HG3	0.89	0.81
1:K:274:TYR:CB	3:B:434:GLN:NE2	2.42	0.81
2:A:151:SER:CB	2:A:193:THR:HG21	2.09	0.81
3:B:110:GLU:O	3:B:113:GLU:HG2	1.79	0.81
3:B:150:GLY:HA2	3:B:153:LEU:HD22	1.60	0.81
1:K:274:TYR:CE2	3:B:431:GLU:CB	2.64	0.81
2:A:267:PHE:CD1	2:A:267:PHE:N	2.49	0.81
2:A:248:LEU:HD23	2:A:353:VAL:O	1.80	0.81
3:B:264:ARG:HB2	3:B:266:HIS:HD2	1.45	0.81
3:B:54:ASN:HD21	3:B:64:ARG:HD3	1.46	0.81
2:A:234:ILE:HD13	2:A:234:ILE:O	1.81	0.80
3:B:191:VAL:HG11	3:B:425:MET:HG3	1.60	0.80
3:B:20:PHE:CZ	3:B:24:ILE:HD12	2.15	0.80
3:B:236:SER:O	3:B:240:THR:CG2	2.29	0.80
2:A:6:SER:HB3	2:A:136:SER:OG	1.81	0.80
2:A:220:GLU:C	2:A:222:PRO:HD3	2.02	0.80
1:K:244:GLU:OE1	2:A:113:GLU:HG3	1.79	0.80
1:K:248:LEU:HA	2:A:112:LYS:HZ3	1.46	0.80
3:B:68:VAL:HG12	3:B:149:MET:SD	2.22	0.80
1:K:274:TYR:H	3:B:434:GLN:NE2	1.79	0.80
2:A:313:MET:HB3	2:A:344:VAL:HG21	1.63	0.79
2:A:7:ILE:HG22	2:A:66:VAL:HG22	1.63	0.79
3:B:265:LEU:HD12	3:B:265:LEU:O	1.83	0.79
3:B:413:MET:HG3	3:B:414:ASP:H	1.47	0.79
1:K:157:GLU:O	3:B:416:MET:CE	2.31	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:241:SER:O	2:A:244:PHE:HB3	1.82	0.79
2:A:132:LEU:HD23	2:A:132:LEU:H	1.46	0.79
3:B:259:MET:HA	3:B:314:THR:HG21	1.65	0.79
2:A:11:GLN:HG3	2:A:74:VAL:CG1	2.13	0.78
2:A:109:THR:CG2	2:A:110:ILE:N	2.44	0.78
2:A:204:VAL:HG13	2:A:209:ILE:HD11	1.66	0.78
2:A:69:ASP:HA	2:A:145:THR:HG21	1.66	0.78
2:A:172:TYR:HD1	2:A:172:TYR:C	1.87	0.78
2:A:199:ASP:HB3	2:A:256:GLN:NE2	1.98	0.78
1:K:237:LYS:CG	2:A:414:GLU:CG	2.59	0.78
3:B:234:THR:CG2	3:B:270:PRO:HB2	2.11	0.78
1:K:248:LEU:O	2:A:112:LYS:HB3	1.84	0.78
2:A:155:GLU:HA	2:A:197:HIS:ND1	1.99	0.78
3:B:205:ASP:OD1	3:B:304:ALA:HB2	1.84	0.77
2:A:243:ARG:HH21	2:A:252:LEU:H	0.79	0.77
1:K:237:LYS:CE	2:A:414:GLU:OE1	2.32	0.77
1:K:248:LEU:N	2:A:112:LYS:NZ	2.32	0.77
1:K:254:ILE:HD11	2:A:414:GLU:CA	2.14	0.77
3:B:396:THR:HG23	3:B:422:GLU:OE2	1.83	0.77
1:K:274:TYR:HD2	3:B:430:SER:OG	1.68	0.77
3:B:192:HIS:ND1	3:B:424:ASN:OD1	2.18	0.77
1:K:250:GLU:HB2	2:A:108:TYR:CG	2.20	0.77
2:A:223:THR:HB	2:A:225:THR:HG22	1.67	0.77
2:A:231:ILE:HA	2:A:234:ILE:HG22	1.66	0.77
2:A:425:MET:HE2	2:A:428:LEU:HD23	1.64	0.77
3:B:259:MET:HG2	3:B:314:THR:HG21	1.67	0.77
1:K:250:GLU:HB2	2:A:108:TYR:CD2	2.20	0.77
2:A:110:ILE:HG23	2:A:111:GLY:N	1.99	0.76
1:K:237:LYS:HE2	2:A:414:GLU:CD	2.04	0.76
1:K:237:LYS:HG2	2:A:414:GLU:HG3	1.66	0.76
3:B:35:SER:HB3	3:B:59:ASN:HA	1.65	0.76
2:A:7:ILE:HD12	2:A:153:LEU:HD21	1.68	0.76
2:A:221:ARG:HD3	2:A:221:ARG:O	1.85	0.76
1:K:251:ALA:N	2:A:108:TYR:C	2.39	0.76
3:B:176:LYS:HE3	3:B:207:GLU:HG3	1.68	0.76
3:B:250:ALA:HA	3:B:254:LYS:HE2	1.68	0.76
1:K:157:GLU:O	3:B:416:MET:HG3	1.85	0.76
2:A:167:LEU:HG	2:A:200:CYS:HB3	1.69	0.75
3:B:198:THR:O	3:B:265:LEU:HD22	1.85	0.75
2:A:225:THR:O	2:A:229:ARG:HG3	1.85	0.75
2:A:101:ASN:ND2	3:B:254:LYS:HD2	2.02	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:344:VAL:HG11	2:A:346:TRP:CE2	2.21	0.75
2:A:163:LYS:O	2:A:164:LYS:HG2	1.86	0.75
1:K:274:TYR:CD2	3:B:431:GLU:N	2.54	0.75
2:A:205:ASP:CB	2:A:303:VAL:HA	2.17	0.75
3:B:19:LYS:HG3	3:B:228:ASN:CB	2.17	0.75
3:B:209:LEU:HG	3:B:230:LEU:HD22	1.69	0.75
3:B:103:TRP:CZ3	3:B:108:TYR:HE1	2.05	0.74
2:A:4:CYS:SG	2:A:252:LEU:HD11	2.27	0.74
2:A:172:TYR:OH	2:A:387:ALA:HB1	1.87	0.74
2:A:276:ILE:HG23	2:A:369:ALA:CB	2.16	0.74
2:A:331:ALA:O	2:A:335:ILE:HG12	1.86	0.74
2:A:362:VAL:HG13	2:A:368:LEU:HD12	1.68	0.74
2:A:264:ARG:C	2:A:266:HIS:H	1.91	0.74
3:B:242:LEU:HD13	3:B:250:ALA:C	2.08	0.74
2:A:317:LEU:HB3	2:A:319:TYR:HE1	1.52	0.74
3:B:168:THR:HB	3:B:201:THR:HG23	1.68	0.74
2:A:63:PRO:O	2:A:64:ARG:HG2	1.88	0.73
3:B:325:MET:HE3	3:B:325:MET:HA	1.70	0.73
3:B:8:GLN:CD	3:B:67:LEU:HD22	2.08	0.73
1:K:248:LEU:CA	2:A:112:LYS:NZ	2.52	0.73
2:A:104:ALA:HB2	2:A:413:MET:HG3	1.71	0.73
2:A:104:ALA:CB	2:A:413:MET:HG3	2.18	0.73
3:B:217:LEU:O	3:B:219:LEU:N	2.22	0.73
3:B:217:LEU:C	3:B:219:LEU:H	1.91	0.73
3:B:76:ASP:HA	3:B:79:ARG:HG2	1.71	0.73
1:K:248:LEU:O	2:A:112:LYS:O	2.04	0.73
2:A:7:ILE:HD11	2:A:137:VAL:HG22	1.71	0.73
2:A:31:GLN:HB3	2:A:32:PRO:CD	2.18	0.73
3:B:191:VAL:CG1	3:B:425:MET:HG3	2.19	0.73
2:A:105:ARG:O	2:A:110:ILE:HG22	1.89	0.72
2:A:25:CYS:HB2	2:A:30:ILE:O	1.89	0.72
3:B:274:PRO:HG2	3:B:371:LEU:HD21	1.70	0.72
2:A:103:TYR:CD2	2:A:189:LEU:HD13	2.24	0.72
1:K:248:LEU:CA	2:A:112:LYS:HZ3	2.00	0.72
2:A:242:LEU:HG	2:A:250:VAL:O	1.88	0.72
3:B:6:HIS:HE1	3:B:8:GLN:HG2	1.52	0.72
2:A:7:ILE:CG1	2:A:137:VAL:HG22	2.20	0.72
3:B:356:CYS:SG	3:B:357:ASP:N	2.62	0.72
1:K:247:VAL:H	2:A:116:ASP:CG	1.92	0.72
2:A:172:TYR:C	2:A:172:TYR:CD1	2.61	0.72
2:A:306:ASP:O	2:A:308:ARG:N	2.20	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:243:ARG:NH2	3:B:252:LEU:HG	2.05	0.71
1:K:253:ASN:HB3	2:A:410:GLY:HA2	1.22	0.71
2:A:25:CYS:HG	2:A:83:TYR:HE2	1.36	0.71
3:B:111:GLY:O	3:B:115:VAL:HG23	1.89	0.71
3:B:70:LEU:HG	3:B:145:THR:CG2	2.20	0.71
3:B:237:GLY:O	3:B:241:CYS:HB3	1.90	0.71
3:B:48:ARG:HG2	3:B:243:ARG:O	1.90	0.71
1:K:247:VAL:O	2:A:115:ILE:HG23	1.90	0.71
3:B:201:THR:OG1	3:B:265:LEU:HD11	1.90	0.71
3:B:431:GLU:OE1	3:B:432:TYR:HA	1.91	0.71
2:A:12:ALA:HB3	2:A:140:SER:OG	1.91	0.71
3:B:255:LEU:O	3:B:259:MET:HG3	1.91	0.71
3:B:299:LYS:N	3:B:299:LYS:HD3	2.04	0.71
2:A:317:LEU:HD12	2:A:351:PHE:HD2	1.55	0.71
1:K:274:TYR:HB3	3:B:434:GLN:HE21	1.56	0.71
2:A:166:LYS:HE3	2:A:199:ASP:OD1	1.90	0.70
3:B:10:GLY:O	3:B:14:ASN:HB2	1.90	0.70
2:A:259:LEU:HD11	2:A:378:LEU:CD1	2.20	0.70
3:B:8:GLN:NE2	3:B:17:GLY:HA3	2.06	0.70
2:A:148:GLY:O	2:A:151:SER:HB2	1.91	0.70
1:K:254:ILE:H	2:A:409:VAL:C	1.94	0.70
3:B:175:PRO:HD2	3:B:207:GLU:OE2	1.91	0.70
2:A:343:PHE:CZ	2:A:351:PHE:HE1	2.08	0.70
1:K:237:LYS:HG2	2:A:414:GLU:HG2	1.73	0.70
2:A:312:TYR:O	2:A:344:VAL:HG23	1.90	0.70
3:B:70:LEU:HG	3:B:145:THR:HG23	1.74	0.70
2:A:5:ILE:HG22	2:A:6:SER:N	2.07	0.70
3:B:291:LEU:O	3:B:295:MET:HG3	1.91	0.70
2:A:88:HIS:C	2:A:90:GLU:H	1.95	0.70
2:A:205:ASP:HB3	2:A:303:VAL:HA	1.73	0.70
2:A:234:ILE:HG21	2:A:302:MET:HE3	1.72	0.69
1:K:245:GLY:HA3	2:A:113:GLU:HA	1.73	0.69
2:A:242:LEU:HD21	2:A:250:VAL:HB	1.71	0.69
1:K:247:VAL:HG22	2:A:156:ARG:NH1	1.89	0.69
3:B:24:ILE:HD11	3:B:52:TYR:CE1	2.28	0.69
2:A:237:SER:CB	2:A:376:CYS:SG	2.80	0.69
3:B:180:THR:HG22	3:B:181:VAL:N	2.07	0.69
3:B:209:LEU:HD23	3:B:227:LEU:HB3	1.75	0.69
3:B:234:THR:O	3:B:238:VAL:HG23	1.92	0.69
1:K:131:LYS:NZ	1:K:213:LYS:HD2	2.07	0.69
2:A:381:THR:C	2:A:383:ALA:H	1.95	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:244:PHE:HD2	2:A:245:ASP:N	1.89	0.69
1:K:248:LEU:N	2:A:112:LYS:HZ2	1.91	0.69
2:A:394:LYS:HG2	3:B:348:PRO:HG3	1.75	0.69
3:B:359:PRO:HB2	3:B:360:PRO:HD2	1.74	0.69
1:K:250:GLU:C	2:A:108:TYR:C	2.43	0.68
2:A:222:PRO:HD2	3:B:326:LYS:HB3	1.74	0.68
1:K:157:GLU:HB3	3:B:416:MET:HE1	1.73	0.68
1:K:274:TYR:CE1	3:B:431:GLU:CB	2.72	0.68
1:K:272:SER:OG	3:B:434:GLN:NE2	2.26	0.68
2:A:133:GLN:HG2	2:A:243:ARG:HH22	1.57	0.68
2:A:141:PHE:O	2:A:147:SER:HB3	1.94	0.68
2:A:371:VAL:HG12	2:A:372:GLN:H	1.57	0.68
1:K:250:GLU:CG	2:A:107:HIS:HD2	2.06	0.68
2:A:71:GLU:HG3	3:B:2:ARG:HH21	1.58	0.68
2:A:407:TRP:HE1	3:B:260:VAL:CG2	2.07	0.68
1:K:158:ASP:HA	3:B:416:MET:HG2	1.74	0.68
1:K:244:GLU:OE2	2:A:113:GLU:CD	2.32	0.68
1:K:249:ASP:O	2:A:112:LYS:CE	2.41	0.68
2:A:199:ASP:HB3	2:A:256:GLN:HE21	1.57	0.68
2:A:217:LEU:HD12	2:A:277:SER:HB3	1.75	0.68
2:A:7:ILE:HD12	2:A:153:LEU:CD2	2.24	0.68
2:A:221:ARG:N	2:A:222:PRO:HD3	2.09	0.68
1:K:313:LYS:HD2	2:A:420:GLU:OE1	1.94	0.68
2:A:95:GLY:O	2:A:97:GLU:N	2.27	0.68
3:B:204:ILE:HD13	3:B:231:VAL:HG22	1.76	0.68
2:A:63:PRO:C	2:A:64:ARG:HG2	2.12	0.68
3:B:251:ASP:O	3:B:253:ARG:N	2.26	0.68
3:B:257:VAL:O	3:B:257:VAL:HG12	1.93	0.68
1:K:240:LYS:HD2	1:K:252:LYS:HD2	1.76	0.68
2:A:152:LEU:HA	2:A:155:GLU:HB2	1.77	0.67
1:K:274:TYR:HB2	3:B:430:SER:OG	1.93	0.67
2:A:115:ILE:CD1	2:A:119:LEU:HG	2.23	0.67
2:A:298:PRO:HB3	2:A:307:PRO:HD2	1.74	0.67
3:B:328:VAL:O	3:B:332:MET:HG2	1.95	0.67
3:B:325:MET:CE	3:B:355:VAL:HG21	2.24	0.67
1:K:250:GLU:CB	2:A:108:TYR:CG	2.76	0.67
3:B:256:ALA:O	3:B:260:VAL:HG22	1.94	0.67
2:A:102:ASN:HB2	2:A:408:TYR:CE2	2.29	0.67
3:B:107:HIS:CD2	3:B:151:THR:CG2	2.77	0.67
3:B:230:LEU:HD23	3:B:231:VAL:N	2.10	0.67
3:B:242:LEU:CD2	3:B:250:ALA:H	2.06	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:251:ALA:N	2:A:109:THR:N	2.13	0.67
2:A:343:PHE:HZ	2:A:351:PHE:CE1	2.10	0.67
3:B:276:THR:HB	3:B:281:GLN:CG	2.25	0.67
2:A:251:ASP:O	2:A:254:GLU:HB2	1.94	0.67
3:B:250:ALA:HB1	3:B:254:LYS:HB2	1.76	0.67
3:B:310:GLY:HA3	3:B:436:GLN:HE21	1.59	0.67
1:K:154:SER:OG	1:K:156:HIS:HE1	1.77	0.67
3:B:172:VAL:HG11	3:B:387:LEU:CD2	2.22	0.67
3:B:44:LEU:HD12	3:B:49:ILE:HD13	1.76	0.67
3:B:66:ILE:C	3:B:67:LEU:HD23	2.15	0.67
3:B:182:VAL:HG23	3:B:186:ASN:HD21	1.60	0.66
3:B:243:ARG:HH22	3:B:252:LEU:HG	1.59	0.66
2:A:175:PRO:HG3	2:A:304:LYS:HG2	1.76	0.66
2:A:276:ILE:O	2:A:369:ALA:HB2	1.95	0.66
1:K:254:ILE:CG1	2:A:414:GLU:HA	2.24	0.66
3:B:108:TYR:CD1	3:B:413:MET:HE1	2.30	0.66
1:K:248:LEU:CD1	2:A:111:GLY:C	2.64	0.66
2:A:100:ALA:CB	2:A:105:ARG:HD3	2.25	0.66
2:A:315:CYS:HB3	2:A:377:MET:HE2	1.77	0.66
2:A:172:TYR:HD1	2:A:173:PRO:N	1.93	0.66
2:A:68:VAL:HG11	2:A:149:PHE:CZ	2.30	0.66
3:B:4:ILE:HG21	3:B:136:GLN:HG2	1.76	0.66
3:B:281:GLN:O	3:B:283:TYR:HB2	1.96	0.66
2:A:243:ARG:NH2	2:A:252:LEU:N	2.28	0.66
2:A:206:ASN:OD1	2:A:227:LEU:HD13	1.96	0.65
3:B:265:LEU:HD12	3:B:265:LEU:C	2.16	0.65
2:A:217:LEU:HD11	2:A:367:ASP:O	1.96	0.65
2:A:341:ILE:HG12	2:A:341:ILE:O	1.95	0.65
3:B:267:PHE:CD1	3:B:267:PHE:N	2.62	0.65
1:K:157:GLU:HB3	3:B:416:MET:CE	2.27	0.65
3:B:103:TRP:HZ3	3:B:108:TYR:HE1	1.42	0.65
3:B:158:ARG:NE	3:B:197:ASN:O	2.30	0.65
3:B:242:LEU:CD1	3:B:255:LEU:HD11	2.25	0.65
1:K:278:ARG:CG	3:B:196:GLU:OE2	2.42	0.65
1:K:313:LYS:CD	2:A:420:GLU:OE1	2.44	0.65
3:B:66:ILE:CD1	3:B:122:VAL:HG12	2.26	0.65
3:B:66:ILE:HD13	3:B:122:VAL:HG12	1.79	0.65
3:B:422:GLU:O	3:B:426:ASN:HB2	1.97	0.65
2:A:271:THR:HG23	2:A:300:ASN:O	1.97	0.65
2:A:313:MET:HB3	2:A:344:VAL:CG2	2.26	0.65
3:B:413:MET:HG2	3:B:418:PHE:HE1	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:344:VAL:HG12	2:A:345:ASP:N	2.12	0.65
3:B:431:GLU:O	3:B:434:GLN:HG2	1.97	0.65
1:K:157:GLU:CB	3:B:416:MET:CE	2.75	0.65
2:A:115:ILE:HG23	2:A:116:ASP:N	2.12	0.65
2:A:372:GLN:O	2:A:373:ARG:HB3	1.96	0.64
1:K:3:ASP:HB2	1:K:293:ASN:HD21	1.62	0.64
2:A:402:ARG:O	2:A:403:ALA:C	2.36	0.64
3:B:242:LEU:HD12	3:B:255:LEU:HD11	1.78	0.64
3:B:35:SER:HB3	3:B:59:ASN:CA	2.26	0.64
2:A:305:CYS:SG	2:A:384:ILE:HD13	2.37	0.64
2:A:224:TYR:CD1	3:B:325:MET:HG2	2.33	0.64
3:B:105:LYS:O	3:B:110:GLU:HB2	1.98	0.64
3:B:192:HIS:O	3:B:195:VAL:HG12	1.98	0.64
3:B:241:CYS:O	3:B:244:PHE:HB2	1.97	0.64
1:K:161:ARG:HH21	1:K:287:GLN:NE2	1.96	0.64
2:A:317:LEU:HD12	2:A:351:PHE:CD2	2.32	0.64
3:B:284:ARG:O	3:B:286:LEU:N	2.31	0.64
3:B:332:MET:HE3	3:B:351:VAL:HG11	1.78	0.64
3:B:427:ASP:O	3:B:430:SER:HB3	1.97	0.64
2:A:209:ILE:HG23	2:A:230:LEU:HD23	1.79	0.64
3:B:243:ARG:HH21	3:B:252:LEU:H	1.45	0.64
2:A:151:SER:O	2:A:155:GLU:HB2	1.98	0.64
3:B:180:THR:CG2	3:B:181:VAL:N	2.61	0.64
2:A:175:PRO:HG2	2:A:207:GLU:OE1	1.98	0.63
1:K:237:LYS:HD2	2:A:413:MET:N	2.13	0.63
3:B:133:GLN:HG3	3:B:165:ILE:HD11	1.80	0.63
2:A:276:ILE:HG23	2:A:369:ALA:HB2	1.80	0.63
3:B:172:VAL:CG1	3:B:387:LEU:HD21	2.24	0.63
2:A:386:GLU:O	2:A:389:ALA:N	2.31	0.63
2:A:273:ALA:HB3	2:A:274:PRO:HD3	1.81	0.63
2:A:269:LEU:O	2:A:378:LEU:HA	1.99	0.63
3:B:282:GLN:O	3:B:282:GLN:HG2	1.97	0.63
8:B:601:TA1:H261	8:B:601:TA1:H463	1.80	0.63
3:B:114:LEU:O	3:B:118:VAL:HG23	1.97	0.63
3:B:325:MET:HE1	3:B:355:VAL:HG11	1.81	0.63
1:K:274:TYR:N	3:B:434:GLN:NE2	2.46	0.63
1:K:244:GLU:OE2	2:A:113:GLU:CG	2.47	0.63
2:A:7:ILE:HG22	2:A:66:VAL:CG2	2.28	0.63
3:B:205:ASP:OD1	3:B:304:ALA:N	2.32	0.63
3:B:318:VAL:HA	3:B:354:ALA:HB3	1.81	0.63
3:B:107:HIS:HD2	3:B:151:THR:CG2	2.12	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:234:ILE:HD13	2:A:234:ILE:C	2.18	0.63
3:B:315:VAL:HG13	3:B:377:PHE:CE1	2.34	0.63
3:B:4:ILE:HA	3:B:134:GLY:O	1.99	0.63
1:K:157:GLU:C	3:B:416:MET:HE2	2.17	0.63
3:B:137:LEU:HD22	3:B:154:ILE:CG2	2.28	0.62
2:A:315:CYS:HB3	2:A:377:MET:CE	2.29	0.62
2:A:288:VAL:O	2:A:290:GLU:N	2.33	0.62
3:B:299:LYS:O	3:B:300:ASN:HB2	1.97	0.62
2:A:7:ILE:CD1	2:A:137:VAL:HG22	2.29	0.62
2:A:236:SER:O	2:A:240:ALA:HB3	1.99	0.62
2:A:278:ALA:HA	2:A:282:TYR:OH	2.00	0.62
2:A:317:LEU:HD11	2:A:351:PHE:HE2	1.63	0.62
1:K:274:TYR:CG	3:B:431:GLU:HA	2.35	0.62
3:B:115:VAL:HG21	3:B:152:LEU:CD2	2.30	0.62
2:A:267:PHE:H	2:A:267:PHE:HD1	1.47	0.62
2:A:317:LEU:HB3	2:A:319:TYR:CE1	2.33	0.62
1:K:321:ARG:NH2	2:A:402:ARG:NH1	2.47	0.62
2:A:152:LEU:HD12	2:A:153:LEU:N	2.14	0.62
3:B:253:ARG:O	3:B:256:ALA:N	2.33	0.62
2:A:205:ASP:HB2	2:A:303:VAL:HA	1.82	0.62
1:K:248:LEU:HB2	2:A:116:ASP:N	2.12	0.62
3:B:230:LEU:O	3:B:233:ALA:HB3	2.00	0.62
1:K:274:TYR:N	3:B:434:GLN:HE22	1.90	0.61
3:B:63:PRO:HD2	3:B:86:ILE:HG12	1.80	0.61
3:B:4:ILE:HG23	3:B:134:GLY:O	2.00	0.61
2:A:179:THR:HG22	3:B:352:LYS:NZ	2.15	0.61
1:K:254:ILE:HG13	2:A:413:MET:O	2.01	0.61
2:A:118:VAL:HG11	2:A:149:PHE:HZ	1.65	0.61
2:A:177:VAL:HG11	3:B:329:ASP:HB3	1.82	0.61
2:A:102:ASN:OD1	2:A:105:ARG:HB3	1.99	0.61
2:A:166:LYS:H	2:A:199:ASP:CG	2.03	0.61
3:B:114:LEU:HD23	3:B:149:MET:CE	2.30	0.61
3:B:70:LEU:CG	3:B:145:THR:HG23	2.30	0.61
3:B:54:ASN:ND2	3:B:64:ARG:HD3	2.15	0.61
2:A:179:THR:HG21	3:B:248:LEU:HD21	1.81	0.61
2:A:23:LEU:HD22	2:A:232:GLY:O	1.99	0.61
3:B:204:ILE:CD1	3:B:231:VAL:HG13	2.30	0.61
2:A:168:GLU:OE1	2:A:198:SER:HB2	2.00	0.61
2:A:88:HIS:O	2:A:90:GLU:N	2.33	0.61
2:A:179:THR:HG21	3:B:248:LEU:CD2	2.30	0.61
2:A:181:VAL:HG21	3:B:258:ASN:O	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:169:PHE:CE1	2:A:235:VAL:HG22	2.36	0.60
2:A:362:VAL:HG13	2:A:368:LEU:HB2	1.83	0.60
3:B:70:LEU:H	3:B:145:THR:CG2	2.10	0.60
2:A:115:ILE:HG13	2:A:152:LEU:HD13	1.81	0.60
2:A:167:LEU:HA	2:A:200:CYS:O	2.01	0.60
3:B:211:ASP:OD1	3:B:212:ILE:N	2.33	0.60
3:B:205:ASP:OD1	3:B:304:ALA:CB	2.50	0.60
2:A:311:LYS:HE3	2:A:342:GLN:CD	2.22	0.60
2:A:435:VAL:HG12	2:A:435:VAL:O	2.02	0.60
3:B:70:LEU:N	3:B:145:THR:HG21	2.11	0.60
3:B:19:LYS:CG	3:B:228:ASN:HB3	2.31	0.60
2:A:407:TRP:NE1	3:B:260:VAL:HG23	2.14	0.60
2:A:11:GLN:HE21	2:A:74:VAL:HG22	1.66	0.60
2:A:345:ASP:C	2:A:347:CYS:H	2.04	0.60
3:B:204:ILE:HG21	3:B:231:VAL:HG22	1.84	0.60
1:K:274:TYR:HH	3:B:264:ARG:NH1	1.99	0.60
3:B:279:GLY:O	3:B:282:GLN:HB3	2.01	0.60
2:A:177:VAL:CG1	3:B:329:ASP:HB3	2.31	0.60
3:B:285:ALA:HB1	3:B:290:GLU:HG2	1.82	0.60
2:A:191:THR:HG21	2:A:425:MET:SD	2.41	0.60
2:A:229:ARG:NH1	2:A:363:VAL:HG21	2.16	0.60
3:B:128:SER:OG	3:B:129:CYS:N	2.34	0.60
3:B:324:SER:C	3:B:326:LYS:H	2.03	0.60
3:B:324:SER:CB	3:B:327:GLU:HG2	2.30	0.60
3:B:324:SER:O	3:B:328:VAL:HG23	2.01	0.60
2:A:344:VAL:HG11	2:A:346:TRP:NE1	2.16	0.60
3:B:49:ILE:O	3:B:51:VAL:N	2.35	0.60
2:A:119:LEU:O	2:A:122:ILE:HG12	2.02	0.59
2:A:371:VAL:HG12	2:A:372:GLN:N	2.17	0.59
3:B:102:ASN:ND2	3:B:407:TRP:O	2.35	0.59
3:B:68:VAL:CG1	3:B:149:MET:SD	2.90	0.59
3:B:161:TYR:C	3:B:163:ASP:H	2.05	0.59
2:A:115:ILE:HD13	2:A:115:ILE:O	2.02	0.59
3:B:115:VAL:HG21	3:B:152:LEU:HD23	1.84	0.59
3:B:30:ILE:HD13	3:B:53:TYR:CE2	2.38	0.59
2:A:119:LEU:CD2	2:A:122:ILE:HD11	2.28	0.59
2:A:278:ALA:HB2	2:A:369:ALA:HA	1.85	0.59
3:B:93:VAL:CG1	3:B:118:VAL:HG22	2.19	0.59
3:B:89:PRO:HA	3:B:92:PHE:CD1	2.38	0.59
1:K:244:GLU:CD	2:A:113:GLU:HG3	2.23	0.59
2:A:284:GLU:O	2:A:286:LEU:N	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:141:LEU:N	3:B:141:LEU:CD1	2.65	0.59
1:K:274:TYR:CD2	3:B:431:GLU:HB2	2.35	0.59
3:B:332:MET:CE	3:B:351:VAL:HG11	2.32	0.59
1:K:248:LEU:C	2:A:112:LYS:CA	2.67	0.58
2:A:369:ALA:O	2:A:370:LYS:HB3	2.03	0.58
2:A:6:SER:HA	2:A:136:SER:O	2.03	0.58
1:K:73:VAL:HG21	1:K:227:LEU:HG	1.85	0.58
2:A:110:ILE:CG2	2:A:111:GLY:H	2.15	0.58
3:B:408:TYR:CG	3:B:418:PHE:HZ	2.20	0.58
1:K:249:ASP:O	2:A:112:LYS:HE2	2.02	0.58
3:B:307:PRO:HB3	3:B:312:TYR:OH	2.04	0.58
2:A:2:ARG:N	2:A:131:GLY:O	2.36	0.58
2:A:88:HIS:C	2:A:90:GLU:N	2.57	0.58
2:A:166:LYS:HD2	2:A:197:HIS:O	2.04	0.58
2:A:317:LEU:HD11	2:A:351:PHE:CE2	2.38	0.58
2:A:248:LEU:CD2	2:A:353:VAL:O	2.49	0.58
3:B:198:THR:HG22	3:B:265:LEU:HD22	1.85	0.58
1:K:248:LEU:C	2:A:112:LYS:C	2.60	0.58
2:A:268:PRO:HA	2:A:379:SER:O	2.04	0.58
2:A:381:THR:C	2:A:383:ALA:N	2.56	0.58
2:A:218:ASP:O	2:A:219:ILE:HG23	2.04	0.58
3:B:320:ARG:O	3:B:359:PRO:HA	2.04	0.58
2:A:407:TRP:O	2:A:411:GLU:HG2	2.02	0.58
3:B:299:LYS:O	3:B:300:ASN:CB	2.51	0.58
1:K:274:TYR:CD2	3:B:430:SER:OG	2.47	0.58
3:B:180:THR:CG2	3:B:181:VAL:H	2.17	0.57
3:B:183:GLU:HB3	3:B:184:PRO:CD	2.33	0.57
2:A:345:ASP:O	2:A:347:CYS:N	2.38	0.57
2:A:362:VAL:HG11	2:A:368:LEU:O	2.04	0.57
3:B:283:TYR:C	3:B:284:ARG:HG2	2.24	0.57
3:B:70:LEU:C	3:B:99:ALA:HB2	2.24	0.57
3:B:5:VAL:CG2	3:B:135:PHE:HD2	2.18	0.57
3:B:319:PHE:CD2	3:B:375:ALA:HB2	2.40	0.57
3:B:253:ARG:O	3:B:254:LYS:C	2.42	0.57
2:A:71:GLU:HG3	3:B:2:ARG:NH2	2.18	0.57
3:B:151:THR:OG1	3:B:193:GLN:HB3	2.03	0.57
3:B:270:PRO:HA	3:B:377:PHE:O	2.04	0.57
3:B:273:ALA:HB3	3:B:274:PRO:CD	2.29	0.57
3:B:349:ASN:C	3:B:349:ASN:HD22	2.07	0.57
2:A:152:LEU:HA	2:A:155:GLU:CB	2.35	0.57
2:A:202:PHE:CE2	2:A:378:LEU:HD22	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:362:VAL:CG1	2:A:368:LEU:HB2	2.35	0.57
3:B:149:MET:O	3:B:153:LEU:HD13	2.05	0.57
3:B:217:LEU:C	3:B:219:LEU:N	2.55	0.57
2:A:165:SER:HA	2:A:199:ASP:OD2	2.04	0.57
2:A:139:HIS:CE1	2:A:170:SER:HB3	2.40	0.57
2:A:175:PRO:HG3	2:A:304:LYS:CG	2.35	0.57
3:B:30:ILE:HA	3:B:35:SER:O	2.04	0.57
2:A:338:LYS:O	2:A:340:THR:N	2.34	0.57
2:A:63:PRO:HD3	2:A:86:LEU:O	2.04	0.57
3:B:273:ALA:CB	3:B:274:PRO:HD3	2.30	0.57
3:B:6:HIS:HB3	3:B:65:ALA:HB2	1.87	0.57
3:B:14:ASN:OD1	3:B:75:MET:HG2	2.05	0.57
2:A:117:LEU:HD11	2:A:121:ARG:HH22	1.69	0.57
2:A:210:TYR:CE2	2:A:227:LEU:HD11	2.40	0.57
2:A:286:LEU:HD12	2:A:290:GLU:HG2	1.87	0.57
3:B:132:LEU:CD2	3:B:164:ARG:HG3	2.32	0.57
3:B:259:MET:CA	3:B:314:THR:HG21	2.35	0.57
2:A:394:LYS:HG2	3:B:348:PRO:CG	2.35	0.56
3:B:216:THR:O	3:B:217:LEU:HD12	2.05	0.56
3:B:301:MET:CE	3:B:377:PHE:HE2	2.17	0.56
1:K:157:GLU:CB	3:B:416:MET:HE1	2.35	0.56
2:A:436:GLY:C	2:A:438:ASP:H	2.08	0.56
3:B:319:PHE:HA	3:B:375:ALA:HA	1.86	0.56
3:B:50:ASN:O	3:B:64:ARG:NH2	2.38	0.56
2:A:209:ILE:CG2	2:A:227:LEU:HD22	2.35	0.56
2:A:216:ASN:O	2:A:217:LEU:HB2	2.05	0.56
2:A:19:ALA:CB	2:A:228:ASN:HB3	2.35	0.56
2:A:11:GLN:HE22	3:B:249:ASN:ND2	2.03	0.56
3:B:31:ASP:O	3:B:32:PRO:C	2.44	0.56
2:A:409:VAL:C	2:A:411:GLU:H	2.09	0.56
2:A:264:ARG:HB2	2:A:266:HIS:HD2	1.67	0.56
1:K:248:LEU:CD1	2:A:115:ILE:H	1.98	0.56
1:K:4:LEU:HD23	1:K:8:ASN:ND2	2.20	0.56
2:A:209:ILE:HG22	2:A:227:LEU:HD22	1.88	0.56
2:A:331:ALA:O	2:A:334:THR:HG22	2.05	0.56
3:B:70:LEU:CD1	3:B:145:THR:HG23	2.35	0.56
3:B:274:PRO:CG	3:B:371:LEU:HD21	2.34	0.56
3:B:139:HIS:HE1	3:B:168:THR:HG23	1.71	0.56
3:B:422:GLU:O	3:B:426:ASN:N	2.37	0.56
1:K:278:ARG:HD2	1:K:284:ARG:HH11	1.70	0.56
3:B:312:TYR:O	3:B:344:VAL:HB	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:242:LEU:C	2:A:244:PHE:H	2.09	0.56
3:B:272:PHE:HB3	3:B:275:LEU:HD22	1.88	0.56
3:B:204:ILE:HG21	3:B:231:VAL:CG2	2.36	0.56
2:A:313:MET:O	2:A:314:ALA:HB2	2.04	0.56
3:B:151:THR:OG1	3:B:193:GLN:CB	2.54	0.56
3:B:324:SER:C	3:B:326:LYS:N	2.59	0.56
2:A:388:TRP:HA	2:A:388:TRP:CE3	2.41	0.55
3:B:165:ILE:HD13	3:B:165:ILE:H	1.71	0.55
1:K:274:TYR:CD2	3:B:431:GLU:CA	2.90	0.55
3:B:182:VAL:HG23	3:B:186:ASN:ND2	2.20	0.55
3:B:191:VAL:HA	3:B:194:LEU:HD12	1.88	0.55
3:B:311:ARG:HD2	3:B:344:VAL:H	1.71	0.55
3:B:4:ILE:HD13	3:B:136:GLN:NE2	2.18	0.55
2:A:16:ILE:HD12	2:A:171:ILE:HD11	1.88	0.55
2:A:179:THR:HG22	3:B:352:LYS:HZ1	1.71	0.55
3:B:250:ALA:CA	3:B:254:LYS:HE2	2.35	0.55
3:B:311:ARG:HG2	3:B:311:ARG:HH11	1.71	0.55
2:A:253:THR:O	2:A:256:GLN:HG2	2.06	0.55
3:B:190:SER:O	3:B:194:LEU:HG	2.06	0.55
2:A:382:THR:O	2:A:382:THR:HG22	2.05	0.55
3:B:19:LYS:O	3:B:23:VAL:HG23	2.06	0.55
3:B:301:MET:HE1	3:B:377:PHE:HE2	1.70	0.55
2:A:381:THR:OG1	2:A:383:ALA:HB3	2.07	0.55
3:B:325:MET:HE2	3:B:355:VAL:HG21	1.87	0.55
2:A:231:ILE:HA	2:A:234:ILE:CG2	2.36	0.55
3:B:119:LEU:O	3:B:123:ARG:HG3	2.06	0.55
3:B:166:MET:HB3	3:B:198:THR:OG1	2.06	0.55
3:B:223:THR:HG22	3:B:224:TYR:N	2.21	0.55
1:K:247:VAL:O	2:A:115:ILE:CG2	2.55	0.55
2:A:6:SER:O	2:A:65:ALA:HB1	2.07	0.55
3:B:147:SER:O	3:B:151:THR:CB	2.51	0.55
3:B:5:VAL:HG22	3:B:135:PHE:CD2	2.42	0.55
3:B:210:TYR:HD2	3:B:227:LEU:HD21	1.71	0.55
3:B:310:GLY:CA	3:B:436:GLN:HE21	2.19	0.54
1:K:150:LYS:HB3	1:K:153:LEU:HD21	1.89	0.54
2:A:118:VAL:HG21	2:A:149:PHE:CZ	2.42	0.54
2:A:408:TYR:CD1	2:A:418:PHE:HZ	2.24	0.54
3:B:253:ARG:O	3:B:257:VAL:N	2.33	0.54
2:A:101:ASN:CG	3:B:254:LYS:HD2	2.28	0.54
3:B:239:THR:O	3:B:241:CYS:N	2.41	0.54
3:B:20:PHE:CE2	3:B:24:ILE:HD12	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:44:LEU:O	3:B:49:ILE:HG12	2.07	0.54
2:A:150:THR:O	2:A:153:LEU:N	2.40	0.54
3:B:297:ASP:OD1	3:B:298:ALA:N	2.39	0.54
2:A:9:VAL:CG1	2:A:139:HIS:HB3	2.38	0.54
3:B:325:MET:O	3:B:329:ASP:HB2	2.07	0.54
3:B:204:ILE:HD13	3:B:231:VAL:HG13	1.89	0.54
2:A:98:ASP:CB	2:A:105:ARG:HH21	2.14	0.54
2:A:115:ILE:C	2:A:115:ILE:HD13	2.28	0.54
3:B:194:LEU:C	3:B:196:GLU:H	2.11	0.54
3:B:27:GLU:HG2	3:B:27:GLU:O	2.08	0.54
3:B:325:MET:CE	3:B:355:VAL:HG11	2.38	0.54
2:A:17:GLY:O	2:A:21:TRP:HB2	2.08	0.54
2:A:173:PRO:HB2	2:A:391:LEU:CD1	2.38	0.54
2:A:5:ILE:CG2	2:A:6:SER:N	2.70	0.54
3:B:31:ASP:HB3	3:B:32:PRO:HD2	1.89	0.54
3:B:331:GLN:O	3:B:335:VAL:HG23	2.08	0.54
2:A:339:ARG:C	2:A:341:ILE:H	2.11	0.54
3:B:239:THR:HG22	3:B:240:THR:N	2.22	0.54
3:B:322:ARG:HG3	3:B:322:ARG:HH11	1.73	0.54
3:B:424:ASN:HD22	3:B:424:ASN:C	2.09	0.54
3:B:424:ASN:C	3:B:424:ASN:ND2	2.62	0.54
2:A:215:ARG:C	2:A:216:ASN:HD22	2.12	0.53
3:B:323:MET:HG3	3:B:328:VAL:HG21	1.90	0.53
2:A:150:THR:O	2:A:151:SER:C	2.47	0.53
2:A:163:LYS:O	2:A:163:LYS:HG2	2.08	0.53
2:A:5:ILE:O	2:A:135:PHE:HA	2.09	0.53
3:B:431:GLU:O	3:B:434:GLN:CG	2.56	0.53
3:B:67:LEU:HD23	3:B:67:LEU:N	2.22	0.53
3:B:68:VAL:HG12	3:B:149:MET:CE	2.38	0.53
1:K:131:LYS:HZ1	1:K:213:LYS:HD2	1.71	0.53
1:K:4:LEU:HD23	1:K:8:ASN:HD21	1.73	0.53
3:B:229:HIS:ND1	3:B:229:HIS:C	2.62	0.53
3:B:343:PHE:O	3:B:344:VAL:O	2.26	0.53
3:B:36:TYR:CZ	3:B:38:GLY:HA3	2.43	0.53
3:B:427:ASP:OD1	3:B:428:LEU:N	2.41	0.53
3:B:21:TRP:CZ2	3:B:65:ALA:HB2	2.44	0.53
1:K:96:GLU:HB2	1:K:99:LEU:HD21	1.90	0.53
2:A:248:LEU:HB3	2:A:355:ILE:H	1.73	0.53
3:B:4:ILE:CG2	3:B:136:GLN:HG2	2.38	0.53
2:A:98:ASP:O	2:A:110:ILE:HD13	2.08	0.53
1:K:248:LEU:N	2:A:112:LYS:HZ3	2.04	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:259:MET:HG2	3:B:314:THR:CG2	2.38	0.53
3:B:259:MET:CG	3:B:314:THR:HG21	2.36	0.53
2:A:110:ILE:O	2:A:112:LYS:N	2.41	0.53
3:B:242:LEU:HD22	3:B:250:ALA:N	2.19	0.53
3:B:213:CYS:SG	3:B:219:LEU:HD23	2.48	0.53
2:A:182:VAL:O	2:A:184:PRO:N	2.41	0.53
2:A:243:ARG:CZ	2:A:252:LEU:HG	2.39	0.53
3:B:133:GLN:HE21	3:B:252:LEU:HB2	1.73	0.53
3:B:141:LEU:HA	3:B:147:SER:HB3	1.91	0.53
3:B:179:ASP:HB2	7:B:600:GDP:H3'	1.90	0.53
3:B:226:ASP:O	3:B:227:LEU:C	2.46	0.53
2:A:121:ARG:O	2:A:125:LEU:HB2	2.08	0.53
2:A:196:GLU:C	2:A:197:HIS:CD2	2.82	0.53
2:A:275:VAL:HG21	2:A:300:ASN:OD1	2.09	0.53
2:A:264:ARG:C	2:A:266:HIS:N	2.60	0.53
3:B:345:GLU:C	3:B:347:ILE:H	2.13	0.53
2:A:324:VAL:O	2:A:327:ASP:HB2	2.08	0.52
3:B:212:ILE:O	3:B:216:THR:HB	2.09	0.52
1:K:295:ARG:HH11	1:K:295:ARG:HG2	1.75	0.52
2:A:408:TYR:O	2:A:411:GLU:N	2.39	0.52
3:B:198:THR:HG22	3:B:265:LEU:CD2	2.39	0.52
3:B:210:TYR:CD2	3:B:227:LEU:HD21	2.44	0.52
2:A:101:ASN:ND2	7:B:500:GTP:O3G	2.42	0.52
2:A:173:PRO:HB2	2:A:391:LEU:HD11	1.91	0.52
3:B:107:HIS:HD2	3:B:151:THR:HG22	1.72	0.52
3:B:226:ASP:O	3:B:229:HIS:N	2.42	0.52
3:B:431:GLU:OE1	3:B:432:TYR:CA	2.57	0.52
2:A:344:VAL:HG12	2:A:345:ASP:H	1.74	0.52
3:B:70:LEU:HD12	3:B:145:THR:HG23	1.91	0.52
3:B:5:VAL:O	3:B:5:VAL:HG23	2.09	0.52
2:A:206:ASN:OD1	2:A:227:LEU:CD1	2.58	0.52
2:A:231:ILE:CA	2:A:234:ILE:HG22	2.38	0.52
2:A:251:ASP:OD1	2:A:252:LEU:N	2.43	0.52
1:K:254:ILE:HD12	2:A:409:VAL:HG22	1.92	0.52
3:B:200:GLU:N	3:B:265:LEU:HD13	2.25	0.52
2:A:362:VAL:HG13	2:A:368:LEU:CD1	2.38	0.52
3:B:264:ARG:HA	3:B:264:ARG:HE	1.75	0.52
3:B:360:PRO:HB2	8:B:601:TA1:H281	1.91	0.52
3:B:188:THR:HA	3:B:425:MET:CE	2.40	0.52
1:K:250:GLU:C	2:A:109:THR:N	2.59	0.52
2:A:23:LEU:HD23	2:A:236:SER:CB	2.37	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:149:MET:HG2	3:B:149:MET:O	2.10	0.52
3:B:107:HIS:CD2	3:B:151:THR:HG22	2.45	0.52
3:B:295:MET:SD	3:B:375:ALA:O	2.68	0.52
3:B:314:THR:CG2	3:B:315:VAL:N	2.73	0.52
2:A:119:LEU:HD11	2:A:156:ARG:CD	2.39	0.52
2:A:234:ILE:HB	2:A:302:MET:HE1	1.91	0.52
3:B:149:MET:O	3:B:153:LEU:HD22	2.10	0.52
3:B:8:GLN:OE1	3:B:14:ASN:ND2	2.42	0.52
2:A:191:THR:HG23	2:A:192:HIS:N	2.25	0.51
2:A:243:ARG:NH2	2:A:251:ASP:OD1	2.44	0.51
2:A:201:ALA:O	2:A:267:PHE:HA	2.10	0.51
2:A:8:HIS:HB3	2:A:13:GLY:O	2.10	0.51
2:A:345:ASP:OD2	2:A:439:SER:HB3	2.10	0.51
3:B:103:TRP:CE2	3:B:189:LEU:HB3	2.45	0.51
3:B:251:ASP:O	3:B:252:LEU:C	2.49	0.51
3:B:425:MET:O	3:B:428:LEU:HB3	2.09	0.51
1:K:248:LEU:C	2:A:112:LYS:O	2.49	0.51
2:A:9:VAL:HG21	2:A:149:PHE:CD1	2.46	0.51
2:A:171:ILE:O	2:A:171:ILE:HG22	2.10	0.51
2:A:4:CYS:HA	2:A:134:GLY:O	2.10	0.51
3:B:320:ARG:HA	3:B:356:CYS:HB3	1.92	0.51
2:A:239:THR:O	2:A:240:ALA:C	2.48	0.51
2:A:283:HIS:O	2:A:284:GLU:C	2.47	0.51
2:A:231:ILE:HD13	2:A:231:ILE:N	2.24	0.51
2:A:172:TYR:OH	2:A:387:ALA:O	2.24	0.51
3:B:49:ILE:O	3:B:50:ASN:C	2.48	0.51
1:K:274:TYR:CG	3:B:431:GLU:CA	2.94	0.51
1:K:161:ARG:HH21	1:K:287:GLN:HE21	1.57	0.51
3:B:240:THR:HG23	3:B:241:CYS:H	1.76	0.51
3:B:21:TRP:HZ2	3:B:65:ALA:HB2	1.76	0.51
3:B:260:VAL:HG23	3:B:260:VAL:O	2.10	0.51
3:B:277:SER:OG	3:B:281:GLN:HB2	2.10	0.51
1:K:274:TYR:CD1	3:B:431:GLU:HB2	2.43	0.51
2:A:244:PHE:C	2:A:244:PHE:CD2	2.83	0.51
2:A:67:PHE:HE1	2:A:87:PHE:CE2	2.29	0.51
1:K:158:ASP:N	3:B:416:MET:HE1	2.25	0.51
2:A:133:GLN:HB3	2:A:243:ARG:HH12	1.76	0.51
2:A:244:PHE:CD2	2:A:245:ASP:N	2.76	0.51
1:K:250:GLU:OE1	2:A:112:LYS:HG2	2.11	0.51
2:A:24:TYR:CE2	2:A:240:ALA:HB2	2.45	0.51
3:B:113:GLU:HG3	3:B:114:LEU:N	2.26	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:417:GLU:OE1	2:A:417:GLU:HA	2.10	0.50
3:B:413:MET:HG3	3:B:414:ASP:N	2.22	0.50
1:K:25:ARG:HD2	1:K:27:ASP:OD1	2.11	0.50
3:B:5:VAL:CG2	3:B:135:PHE:CD2	2.94	0.50
2:A:119:LEU:HA	2:A:122:ILE:HG12	1.93	0.50
2:A:12:ALA:CB	2:A:140:SER:OG	2.59	0.50
1:K:250:GLU:CB	2:A:108:TYR:CD2	2.94	0.50
2:A:261:PRO:HB2	2:A:262:TYR:CD1	2.46	0.50
3:B:168:THR:O	3:B:201:THR:HA	2.12	0.50
3:B:296:PHE:CZ	3:B:315:VAL:HG11	2.46	0.50
2:A:310:GLY:HA3	2:A:383:ALA:N	2.26	0.50
2:A:5:ILE:O	2:A:136:SER:N	2.40	0.50
3:B:323:MET:HG3	3:B:328:VAL:CG2	2.41	0.50
3:B:3:GLU:HA	3:B:51:VAL:HA	1.93	0.50
1:K:118:TYR:O	1:K:122:MET:HG2	2.11	0.50
2:A:196:GLU:O	2:A:197:HIS:CD2	2.64	0.50
2:A:402:ARG:O	2:A:403:ALA:O	2.29	0.50
3:B:265:LEU:O	3:B:266:HIS:O	2.29	0.50
3:B:298:ALA:O	3:B:299:LYS:C	2.50	0.50
2:A:132:LEU:CD2	2:A:164:LYS:HE3	2.42	0.50
2:A:147:SER:CB	2:A:190:THR:OG1	2.52	0.50
3:B:369:ARG:C	3:B:369:ARG:HD2	2.32	0.50
3:B:49:ILE:HG13	3:B:50:ASN:H	1.76	0.50
2:A:140:SER:O	2:A:142:GLY:N	2.44	0.50
2:A:11:GLN:O	2:A:14:VAL:HB	2.12	0.50
2:A:16:ILE:HG23	2:A:17:GLY:N	2.26	0.50
3:B:156:LYS:CE	3:B:156:LYS:HA	2.38	0.50
3:B:176:LYS:CE	3:B:207:GLU:HG3	2.39	0.50
3:B:262:PHE:O	3:B:264:ARG:N	2.45	0.50
3:B:336:GLN:HE22	3:B:349:ASN:ND2	2.10	0.50
3:B:333:LEU:O	3:B:336:GLN:N	2.45	0.50
2:A:115:ILE:CG2	2:A:116:ASP:N	2.75	0.49
2:A:238:ILE:O	2:A:242:LEU:HB2	2.11	0.49
3:B:387:LEU:HD23	3:B:388:PHE:CD2	2.47	0.49
2:A:115:ILE:HD11	2:A:119:LEU:HG	1.93	0.49
2:A:227:LEU:O	2:A:231:ILE:HG12	2.12	0.49
2:A:133:GLN:CB	2:A:243:ARG:HH12	2.24	0.49
3:B:8:GLN:HB3	3:B:14:ASN:HA	1.94	0.49
3:B:24:ILE:HG22	3:B:25:SER:N	2.27	0.49
1:K:274:TYR:CA	3:B:434:GLN:NE2	2.75	0.49
3:B:265:LEU:HD12	3:B:266:HIS:O	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:383:ALA:C	3:B:385:GLN:H	2.15	0.49
3:B:69:ASP:HA	3:B:145:THR:HG21	1.95	0.49
1:K:247:VAL:C	2:A:112:LYS:NZ	2.65	0.49
3:B:4:ILE:HG22	3:B:5:VAL:N	2.27	0.49
2:A:414:GLU:OE1	2:A:414:GLU:N	2.46	0.49
2:A:192:HIS:CD2	2:A:424:ASP:OD2	2.66	0.49
3:B:199:ASP:O	3:B:200:GLU:HG3	2.13	0.49
3:B:209:LEU:O	3:B:210:TYR:C	2.48	0.49
1:K:309:GLU:HG2	1:K:313:LYS:HE3	1.94	0.49
2:A:118:VAL:HG21	2:A:149:PHE:CE2	2.48	0.49
3:B:102:ASN:HB3	3:B:105:LYS:HB2	1.95	0.49
3:B:142:GLY:HA3	3:B:183:GLU:OE2	2.13	0.49
3:B:4:ILE:HD12	3:B:239:THR:CG2	2.42	0.49
3:B:280:SER:O	3:B:282:GLN:N	2.45	0.49
3:B:296:PHE:HZ	3:B:315:VAL:HG11	1.78	0.49
3:B:345:GLU:O	3:B:347:ILE:N	2.45	0.49
2:A:274:PRO:CB	2:A:371:VAL:HG21	2.43	0.49
2:A:115:ILE:O	2:A:116:ASP:C	2.51	0.49
2:A:149:PHE:HE1	2:A:153:LEU:HD22	1.77	0.49
2:A:122:ILE:CD1	2:A:157:LEU:HD21	2.35	0.49
2:A:163:LYS:C	2:A:164:LYS:HG2	2.33	0.49
2:A:191:THR:CG2	2:A:192:HIS:N	2.76	0.49
2:A:234:ILE:CG1	2:A:270:ALA:HB1	2.38	0.49
2:A:305:CYS:O	2:A:306:ASP:C	2.49	0.49
2:A:392:ASP:O	2:A:395:PHE:HB3	2.13	0.49
3:B:431:GLU:HA	3:B:434:GLN:CG	2.42	0.49
2:A:158:SER:OG	2:A:197:HIS:HB3	2.13	0.49
3:B:133:GLN:NE2	3:B:252:LEU:HB2	2.27	0.49
3:B:175:PRO:CD	3:B:207:GLU:OE1	2.61	0.49
2:A:99:ALA:O	2:A:100:ALA:HB3	2.14	0.48
2:A:188:ILE:O	2:A:191:THR:HG22	2.13	0.48
2:A:283:HIS:O	2:A:285:GLN:N	2.45	0.48
2:A:328:VAL:O	2:A:330:ALA:N	2.38	0.48
2:A:9:VAL:HG11	2:A:150:THR:OG1	2.13	0.48
1:K:3:ASP:HB2	1:K:293:ASN:ND2	2.27	0.48
2:A:155:GLU:OE1	2:A:197:HIS:HE1	1.96	0.48
3:B:173:PRO:HB3	3:B:183:GLU:HG2	1.93	0.48
3:B:2:ARG:NH1	3:B:251:ASP:OD2	2.46	0.48
2:A:151:SER:OG	2:A:193:THR:HG21	2.13	0.48
3:B:431:GLU:OE1	3:B:432:TYR:N	2.46	0.48
3:B:173:PRO:HB3	3:B:183:GLU:CG	2.42	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:231:ILE:O	2:A:235:VAL:HG23	2.12	0.48
2:A:242:LEU:C	2:A:244:PHE:N	2.66	0.48
3:B:20:PHE:CG	3:B:235:MET:SD	3.07	0.48
3:B:211:ASP:OD1	3:B:212:ILE:HG13	2.13	0.48
3:B:49:ILE:HG13	3:B:50:ASN:N	2.29	0.48
1:K:37:ASP:HB2	1:K:48:PHE:O	2.14	0.48
2:A:253:THR:O	2:A:254:GLU:C	2.52	0.48
2:A:104:ALA:CB	2:A:408:TYR:HD2	2.26	0.48
3:B:307:PRO:HB3	3:B:312:TYR:CZ	2.49	0.48
2:A:105:ARG:HG3	2:A:105:ARG:HH11	1.78	0.48
3:B:209:LEU:CD2	3:B:227:LEU:HD13	2.44	0.48
3:B:399:PHE:O	3:B:400:ARG:C	2.52	0.48
2:A:110:ILE:CG2	2:A:111:GLY:N	2.71	0.48
2:A:204:VAL:CG1	2:A:209:ILE:HD11	2.42	0.48
2:A:203:MET:SD	2:A:267:PHE:HB3	2.53	0.48
2:A:369:ALA:O	2:A:370:LYS:CB	2.62	0.48
3:B:176:LYS:HG3	3:B:177:VAL:H	1.78	0.48
3:B:237:GLY:O	3:B:241:CYS:CB	2.61	0.48
3:B:103:TRP:HZ3	3:B:108:TYR:CE1	2.27	0.48
3:B:137:LEU:HD22	3:B:154:ILE:HG21	1.95	0.48
3:B:154:ILE:HG22	3:B:166:MET:CE	2.44	0.48
3:B:191:VAL:HG13	3:B:192:HIS:N	2.28	0.48
3:B:269:MET:HB3	3:B:303:ALA:HB2	1.94	0.48
3:B:308:ARG:HG3	3:B:342:TYR:OH	2.13	0.48
1:K:248:LEU:O	2:A:113:GLU:N	2.42	0.48
2:A:107:HIS:CE1	2:A:152:LEU:HB3	2.49	0.48
2:A:151:SER:HB3	2:A:193:THR:CG2	2.34	0.48
2:A:132:LEU:HD21	2:A:164:LYS:HE3	1.96	0.48
2:A:339:ARG:C	2:A:341:ILE:N	2.68	0.48
2:A:5:ILE:HG22	2:A:6:SER:H	1.78	0.48
3:B:175:PRO:O	3:B:176:LYS:C	2.52	0.48
3:B:209:LEU:O	3:B:213:CYS:N	2.47	0.48
2:A:97:GLU:HB2	2:A:110:ILE:HD11	1.96	0.47
1:K:248:LEU:CA	2:A:112:LYS:O	2.54	0.47
2:A:230:LEU:O	2:A:233:GLN:N	2.35	0.47
2:A:286:LEU:CD1	2:A:290:GLU:HG2	2.44	0.47
3:B:384:ILE:HG23	3:B:384:ILE:O	2.14	0.47
2:A:317:LEU:CD1	2:A:351:PHE:CD2	2.97	0.47
2:A:335:ILE:O	2:A:337:THR:N	2.47	0.47
2:A:34:GLY:C	2:A:61:HIS:N	2.68	0.47
2:A:386:GLU:O	2:A:388:TRP:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:198:THR:HG23	3:B:200:GLU:H	1.79	0.47
3:B:297:ASP:OD2	3:B:299:LYS:HE2	2.14	0.47
1:K:295:ARG:NH1	1:K:295:ARG:HG2	2.29	0.47
2:A:148:GLY:O	2:A:151:SER:CB	2.61	0.47
2:A:155:GLU:HG2	2:A:197:HIS:CE1	2.49	0.47
2:A:210:TYR:CE2	2:A:227:LEU:HD21	2.49	0.47
1:K:274:TYR:CE1	3:B:431:GLU:CG	2.97	0.47
1:K:249:ASP:O	2:A:112:LYS:HE3	2.14	0.47
2:A:175:PRO:HD2	2:A:207:GLU:HB3	1.97	0.47
2:A:19:ALA:HB2	2:A:228:ASN:HB3	1.96	0.47
2:A:345:ASP:C	2:A:347:CYS:N	2.68	0.47
2:A:6:SER:OG	2:A:65:ALA:HB2	2.14	0.47
2:A:396:ASP:O	2:A:397:LEU:C	2.53	0.47
2:A:96:LYS:O	2:A:97:GLU:O	2.31	0.47
3:B:168:THR:CB	3:B:201:THR:HG23	2.38	0.47
3:B:185:TYR:HD2	3:B:395:PHE:CE1	2.33	0.47
1:K:313:LYS:O	1:K:317:LEU:HG	2.12	0.47
2:A:154:MET:HA	2:A:157:LEU:HD12	1.97	0.47
2:A:217:LEU:CD1	2:A:277:SER:HA	2.44	0.47
2:A:384:ILE:HG22	2:A:388:TRP:CD1	2.49	0.47
3:B:242:LEU:CD1	3:B:250:ALA:HB3	2.45	0.47
3:B:243:ARG:HD3	3:B:243:ARG:N	2.26	0.47
2:A:226:ASN:O	2:A:229:ARG:N	2.48	0.47
3:B:101:ASN:O	3:B:101:ASN:ND2	2.48	0.47
3:B:264:ARG:HA	3:B:264:ARG:NE	2.29	0.47
3:B:24:ILE:CD1	3:B:52:TYR:CE1	2.97	0.47
2:A:256:GLN:HA	2:A:260:VAL:HG13	1.97	0.47
1:K:274:TYR:HB3	3:B:434:GLN:CG	2.45	0.47
1:K:83:ALA:HB2	1:K:95:MET:HG2	1.97	0.47
2:A:120:ASP:O	2:A:124:LYS:HB2	2.15	0.47
2:A:191:THR:O	2:A:195:LEU:HB2	2.15	0.47
3:B:115:VAL:CG2	3:B:152:LEU:HD23	2.44	0.47
3:B:287:THR:N	3:B:290:GLU:OE1	2.48	0.47
2:A:278:ALA:O	2:A:279:GLU:HG2	2.15	0.47
3:B:134:GLY:HA3	3:B:165:ILE:HG12	1.97	0.47
3:B:242:LEU:HD11	3:B:250:ALA:HB3	1.97	0.47
3:B:70:LEU:O	3:B:99:ALA:HB2	2.15	0.47
1:K:247:VAL:N	2:A:116:ASP:CG	2.59	0.47
1:K:278:ARG:NH1	1:K:284:ARG:NH1	2.63	0.47
2:A:185:TYR:OH	2:A:399:TYR:HA	2.15	0.47
1:K:254:ILE:HD11	2:A:414:GLU:C	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:4:CYS:SG	2:A:252:LEU:CD1	3.02	0.47
3:B:263:PRO:O	3:B:264:ARG:C	2.52	0.47
2:A:147:SER:O	2:A:190:THR:HG23	2.14	0.46
2:A:384:ILE:HG22	2:A:384:ILE:O	2.15	0.46
3:B:226:ASP:O	3:B:229:HIS:HB3	2.14	0.46
2:A:114:ILE:O	2:A:118:VAL:HG23	2.16	0.46
2:A:22:GLU:O	2:A:23:LEU:C	2.54	0.46
2:A:392:ASP:OD2	2:A:422:ARG:NE	2.48	0.46
2:A:407:TRP:O	2:A:411:GLU:CG	2.63	0.46
3:B:237:GLY:HA3	3:B:376:THR:OG1	2.15	0.46
3:B:272:PHE:CE1	8:B:601:TA1:H391	2.50	0.46
3:B:387:LEU:O	3:B:387:LEU:HG	2.15	0.46
1:K:122:MET:O	1:K:124:GLU:N	2.47	0.46
2:A:11:GLN:O	2:A:15:GLN:HG3	2.15	0.46
2:A:210:TYR:CZ	2:A:227:LEU:HD11	2.51	0.46
2:A:260:VAL:O	2:A:260:VAL:CG2	2.63	0.46
3:B:133:GLN:O	3:B:165:ILE:CD1	2.64	0.46
3:B:175:PRO:HD2	3:B:207:GLU:CD	2.36	0.46
3:B:20:PHE:O	3:B:24:ILE:HB	2.14	0.46
2:A:224:TYR:CG	3:B:325:MET:HG2	2.50	0.46
2:A:241:SER:HB3	2:A:320:ARG:NH2	2.29	0.46
2:A:243:ARG:NH2	2:A:252:LEU:CB	2.78	0.46
2:A:324:VAL:HG12	2:A:326:LYS:H	1.81	0.46
2:A:11:GLN:CG	2:A:74:VAL:HG11	2.28	0.46
3:B:208:ALA:O	3:B:212:ILE:HG13	2.16	0.46
2:A:224:TYR:HD1	3:B:247:GLN:HB3	1.80	0.46
3:B:307:PRO:C	3:B:309:HIS:H	2.18	0.46
2:A:117:LEU:HD12	2:A:121:ARG:HH12	1.80	0.46
2:A:196:GLU:C	2:A:197:HIS:HD2	2.19	0.46
2:A:241:SER:C	2:A:244:PHE:HB3	2.36	0.46
3:B:324:SER:OG	3:B:326:LYS:HB3	2.16	0.46
8:B:601:TA1:C26	8:B:601:TA1:H463	2.46	0.46
2:A:155:GLU:HA	2:A:197:HIS:CE1	2.49	0.46
2:A:23:LEU:CD2	2:A:232:GLY:O	2.64	0.46
2:A:203:MET:SD	2:A:267:PHE:CB	3.04	0.46
2:A:286:LEU:O	2:A:287:SER:O	2.34	0.46
2:A:278:ALA:HB2	2:A:369:ALA:CA	2.45	0.46
2:A:381:THR:O	2:A:383:ALA:N	2.49	0.46
2:A:388:TRP:HA	2:A:388:TRP:HE3	1.79	0.46
3:B:274:PRO:HG2	3:B:371:LEU:CD2	2.43	0.46
1:K:278:ARG:HA	1:K:284:ARG:HG3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:328:VAL:C	2:A:330:ALA:H	2.16	0.46
2:A:436:GLY:O	2:A:438:ASP:N	2.48	0.46
2:A:95:GLY:C	2:A:97:GLU:N	2.69	0.46
2:A:9:VAL:HG21	2:A:149:PHE:HD1	1.80	0.46
3:B:102:ASN:ND2	3:B:104:ALA:HB3	2.31	0.46
3:B:103:TRP:CE3	3:B:189:LEU:HD13	2.50	0.46
3:B:243:ARG:HH21	3:B:252:LEU:N	2.12	0.46
3:B:360:PRO:O	3:B:369:ARG:C	2.54	0.46
3:B:408:TYR:O	3:B:411:GLU:HB2	2.16	0.46
2:A:145:THR:O	2:A:149:PHE:HB3	2.15	0.46
1:K:219:THR:O	1:K:220:GLU:HB2	2.16	0.46
2:A:265:ALA:O	2:A:266:HIS:O	2.33	0.46
2:A:286:LEU:HG	2:A:290:GLU:HB2	1.97	0.46
2:A:288:VAL:HA	2:A:291:ILE:HG12	1.97	0.46
2:A:317:LEU:CD1	2:A:351:PHE:CE2	2.99	0.46
3:B:323:MET:CE	3:B:328:VAL:HG22	2.46	0.46
2:A:117:LEU:HD11	2:A:121:ARG:NH2	2.30	0.45
2:A:204:VAL:HG21	2:A:231:ILE:HG23	1.98	0.45
2:A:243:ARG:NH2	2:A:252:LEU:HB2	2.31	0.45
2:A:316:CYS:HB3	2:A:378:LEU:HD12	1.95	0.45
2:A:423:GLU:O	2:A:426:ALA:HB3	2.16	0.45
2:A:99:ALA:H	3:B:2:ARG:HH22	1.63	0.45
3:B:196:GLU:O	3:B:197:ASN:OD1	2.34	0.45
3:B:209:LEU:HD23	3:B:227:LEU:HD13	1.98	0.45
3:B:242:LEU:C	3:B:244:PHE:H	2.19	0.45
3:B:288:VAL:N	3:B:289:PRO:CD	2.80	0.45
1:K:278:ARG:CZ	1:K:284:ARG:NH1	2.79	0.45
2:A:10:GLY:O	2:A:11:GLN:C	2.53	0.45
2:A:308:ARG:O	2:A:309:HIS:HB3	2.16	0.45
2:A:434:GLU:C	2:A:436:GLY:H	2.18	0.45
3:B:154:ILE:HD12	3:B:155:SER:N	2.31	0.45
2:A:7:ILE:HG13	2:A:137:VAL:HG22	1.98	0.45
2:A:5:ILE:CG2	2:A:6:SER:H	2.29	0.45
2:A:7:ILE:HD11	2:A:137:VAL:CG2	2.44	0.45
3:B:210:TYR:CE2	3:B:227:LEU:HD11	2.51	0.45
3:B:194:LEU:O	3:B:265:LEU:HD23	2.16	0.45
3:B:313:LEU:O	3:B:347:ILE:HD12	2.16	0.45
2:A:180:ALA:HA	3:B:352:LYS:NZ	2.31	0.45
2:A:119:LEU:HD11	2:A:156:ARG:HD2	1.97	0.45
2:A:255:PHE:O	2:A:256:GLN:C	2.53	0.45
2:A:212:ILE:HD11	2:A:302:MET:H	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:346:TRP:HZ2	2:A:435:VAL:HG12	1.81	0.45
3:B:113:GLU:CG	3:B:114:LEU:N	2.79	0.45
3:B:11:GLN:O	3:B:14:ASN:HB3	2.16	0.45
3:B:137:LEU:HD22	3:B:154:ILE:HG23	1.98	0.45
3:B:6:HIS:HB3	3:B:21:TRP:HZ2	1.81	0.45
1:K:205:HIS:CD2	1:K:233:ALA:H	2.34	0.45
1:K:274:TYR:HD2	3:B:430:SER:CB	2.29	0.45
2:A:204:VAL:O	2:A:204:VAL:HG12	2.17	0.45
2:A:256:GLN:O	2:A:260:VAL:HG13	2.15	0.45
2:A:104:ALA:HB1	2:A:413:MET:HG3	1.95	0.45
3:B:115:VAL:HG21	3:B:152:LEU:HD21	1.98	0.45
3:B:431:GLU:HA	3:B:434:GLN:HG3	1.97	0.45
1:K:247:VAL:HG13	2:A:116:ASP:HA	1.49	0.45
2:A:344:VAL:CG1	2:A:345:ASP:N	2.78	0.45
1:K:317:LEU:HD12	2:A:415:GLU:OE1	2.16	0.45
2:A:11:GLN:NE2	2:A:74:VAL:HG22	2.30	0.45
3:B:250:ALA:HB1	3:B:254:LYS:CB	2.44	0.45
3:B:273:ALA:CB	3:B:274:PRO:CD	2.93	0.45
2:A:166:LYS:CE	2:A:199:ASP:OD1	2.62	0.45
2:A:303:VAL:CG1	2:A:303:VAL:O	2.65	0.45
2:A:271:THR:O	2:A:376:CYS:HA	2.17	0.45
2:A:392:ASP:OD2	2:A:422:ARG:CZ	2.65	0.45
3:B:224:TYR:O	3:B:225:GLY:C	2.53	0.45
3:B:324:SER:O	3:B:326:LYS:N	2.50	0.45
3:B:360:PRO:HG2	3:B:371:LEU:CB	2.38	0.45
3:B:188:THR:HA	3:B:425:MET:HE3	1.98	0.45
1:K:317:LEU:HB2	2:A:415:GLU:CD	2.37	0.45
2:A:103:TYR:CD1	2:A:148:GLY:HA2	2.52	0.45
2:A:210:TYR:CD2	2:A:227:LEU:HD21	2.51	0.45
2:A:291:ILE:HD12	2:A:375:VAL:HG23	1.99	0.45
2:A:404:PHE:CD1	2:A:404:PHE:N	2.83	0.45
3:B:194:LEU:C	3:B:196:GLU:N	2.70	0.45
3:B:72:PRO:O	3:B:74:THR:N	2.50	0.45
2:A:11:GLN:HE21	2:A:74:VAL:CG2	2.29	0.45
2:A:182:VAL:O	2:A:184:PRO:CD	2.65	0.45
2:A:408:TYR:CG	2:A:418:PHE:HZ	2.34	0.45
3:B:167:ASN:HA	3:B:200:GLU:O	2.17	0.45
3:B:67:LEU:HD12	3:B:92:PHE:CD2	2.51	0.45
2:A:286:LEU:O	2:A:287:SER:C	2.55	0.45
3:B:114:LEU:HD23	3:B:149:MET:HE1	1.99	0.45
3:B:135:PHE:CD1	3:B:135:PHE:N	2.84	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:23:VAL:O	3:B:25:SER:N	2.50	0.45
3:B:82:PRO:C	3:B:84:GLY:H	2.20	0.45
2:A:132:LEU:CD2	2:A:132:LEU:H	2.23	0.44
2:A:148:GLY:O	2:A:149:PHE:C	2.55	0.44
2:A:152:LEU:HD12	2:A:152:LEU:C	2.38	0.44
2:A:229:ARG:HG2	2:A:229:ARG:NH1	2.31	0.44
3:B:307:PRO:C	3:B:309:HIS:N	2.71	0.44
3:B:94:PHE:CD2	3:B:94:PHE:N	2.84	0.44
2:A:172:TYR:CD1	2:A:173:PRO:N	2.80	0.44
2:A:288:VAL:C	2:A:290:GLU:N	2.71	0.44
2:A:274:PRO:HB2	2:A:371:VAL:HG21	1.98	0.44
3:B:106:GLY:O	3:B:149:MET:HB2	2.17	0.44
3:B:141:LEU:N	3:B:141:LEU:HD12	2.33	0.44
3:B:189:LEU:HD23	3:B:421:ALA:CB	2.47	0.44
3:B:288:VAL:N	3:B:289:PRO:HD2	2.32	0.44
3:B:312:TYR:HA	3:B:381:SER:HA	1.99	0.44
3:B:67:LEU:HD12	3:B:92:PHE:CE2	2.52	0.44
3:B:102:ASN:OD1	3:B:408:TYR:CZ	2.70	0.44
2:A:153:LEU:O	2:A:157:LEU:HG	2.18	0.44
2:A:209:ILE:CD1	2:A:231:ILE:HD11	2.47	0.44
2:A:276:ILE:HG12	2:A:277:SER:N	2.32	0.44
2:A:334:THR:CG2	2:A:335:ILE:N	2.79	0.44
2:A:343:PHE:CE1	2:A:351:PHE:HE1	2.36	0.44
3:B:239:THR:O	3:B:240:THR:C	2.56	0.44
3:B:24:ILE:CG2	3:B:25:SER:N	2.80	0.44
2:A:121:ARG:HG2	2:A:121:ARG:HH11	1.83	0.44
2:A:12:ALA:HB2	7:B:500:GTP:C8	2.53	0.44
2:A:144:GLY:H	7:B:500:GTP:PG	2.41	0.44
2:A:362:VAL:HG13	2:A:368:LEU:CG	2.48	0.44
2:A:295:CYS:HB3	2:A:377:MET:HG2	1.99	0.44
2:A:25:CYS:SG	2:A:83:TYR:HE2	2.38	0.44
3:B:4:ILE:HD12	3:B:239:THR:HG21	1.98	0.44
1:K:266:SER:O	1:K:270:GLU:HG3	2.17	0.44
1:K:254:ILE:HD11	2:A:415:GLU:N	2.33	0.44
2:A:72:PRO:HG2	2:A:73:THR:H	1.83	0.44
3:B:175:PRO:HG2	3:B:207:GLU:OE1	2.16	0.44
1:K:237:LYS:HA	1:K:252:LYS:HE3	1.99	0.44
2:A:121:ARG:NH1	2:A:121:ARG:HG2	2.33	0.44
2:A:218:ASP:C	2:A:219:ILE:HG12	2.37	0.44
2:A:224:TYR:HD2	2:A:224:TYR:HA	1.73	0.44
2:A:231:ILE:H	2:A:231:ILE:HD13	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:377:MET:O	2:A:377:MET:HG3	2.18	0.44
3:B:14:ASN:O	3:B:17:GLY:N	2.50	0.44
3:B:242:LEU:HD22	3:B:250:ALA:O	2.17	0.44
3:B:287:THR:O	3:B:288:VAL:CG2	2.58	0.44
1:K:248:LEU:HD12	2:A:111:GLY:C	2.31	0.44
2:A:272:TYR:CE2	2:A:274:PRO:HD2	2.53	0.44
2:A:278:ALA:CA	2:A:282:TYR:OH	2.65	0.44
2:A:268:PRO:CA	2:A:379:SER:O	2.65	0.44
3:B:12:CYS:C	3:B:14:ASN:N	2.71	0.44
3:B:7:ILE:N	3:B:136:GLN:O	2.51	0.44
3:B:161:TYR:O	3:B:163:ASP:N	2.51	0.44
3:B:168:THR:CG2	3:B:201:THR:HG23	2.48	0.44
3:B:182:VAL:O	3:B:183:GLU:C	2.56	0.44
3:B:409:THR:HA	3:B:413:MET:HB3	1.99	0.44
3:B:52:TYR:HE1	3:B:240:THR:HB	1.83	0.44
3:B:72:PRO:HG2	3:B:73:GLY:H	1.83	0.44
3:B:8:GLN:CG	3:B:67:LEU:HD22	2.47	0.44
2:A:23:LEU:O	2:A:26:LEU:HB3	2.17	0.44
3:B:161:TYR:N	3:B:161:TYR:CD1	2.86	0.44
3:B:167:ASN:HD21	3:B:252:LEU:HD22	1.82	0.44
1:K:244:GLU:OE2	2:A:113:GLU:HG3	2.16	0.43
2:A:115:ILE:CG1	2:A:152:LEU:HD13	2.46	0.43
2:A:283:HIS:ND1	2:A:283:HIS:O	2.49	0.43
2:A:287:SER:N	2:A:290:GLU:OE1	2.51	0.43
3:B:295:MET:SD	3:B:375:ALA:HB3	2.57	0.43
2:A:252:LEU:O	2:A:253:THR:C	2.56	0.43
2:A:262:TYR:HB3	2:A:263:PRO:HD2	2.00	0.43
2:A:363:VAL:CG1	2:A:364:PRO:HD2	2.48	0.43
2:A:63:PRO:HG2	2:A:91:GLN:OE1	2.17	0.43
2:A:175:PRO:CG	2:A:304:LYS:HG2	2.47	0.43
3:B:161:TYR:C	3:B:163:ASP:N	2.71	0.43
3:B:26:ASP:C	3:B:28:HIS:H	2.21	0.43
3:B:409:THR:C	3:B:411:GLU:H	2.22	0.43
3:B:229:HIS:HE2	8:B:601:TA1:H361	1.83	0.43
2:A:310:GLY:HA3	2:A:383:ALA:CA	2.49	0.43
3:B:282:GLN:O	3:B:282:GLN:CG	2.65	0.43
1:K:237:LYS:CD	2:A:413:MET:N	2.74	0.43
1:K:274:TYR:HB2	3:B:430:SER:HG	1.83	0.43
2:A:207:GLU:O	2:A:210:TYR:N	2.51	0.43
2:A:21:TRP:HE1	2:A:63:PRO:HB3	1.83	0.43
2:A:63:PRO:C	2:A:64:ARG:CG	2.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:13:GLY:C	2:A:16:ILE:HG22	2.38	0.43
2:A:184:PRO:HG2	2:A:398:MET:CE	2.40	0.43
3:B:68:VAL:HG11	3:B:153:LEU:HD21	2.00	0.43
3:B:212:ILE:O	3:B:212:ILE:HG22	2.18	0.43
3:B:230:LEU:HD21	3:B:302:MET:HE2	1.99	0.43
1:K:71:LYS:HE3	1:K:75:GLU:OE1	2.18	0.43
2:A:103:TYR:O	2:A:104:ALA:C	2.57	0.43
3:B:168:THR:N	3:B:200:GLU:O	2.43	0.43
3:B:301:MET:HE1	3:B:377:PHE:CE2	2.53	0.43
3:B:359:PRO:CB	3:B:360:PRO:HD2	2.45	0.43
3:B:108:TYR:CE1	3:B:413:MET:HE1	2.53	0.43
2:A:8:HIS:HA	2:A:138:PHE:HB2	2.00	0.43
2:A:147:SER:HB2	2:A:186:ASN:O	2.19	0.43
3:B:103:TRP:HB2	3:B:186:ASN:HA	2.01	0.43
3:B:105:LYS:HG2	3:B:110:GLU:CG	2.48	0.43
3:B:118:VAL:O	3:B:122:VAL:HG13	2.19	0.43
3:B:301:MET:O	3:B:303:ALA:N	2.51	0.43
3:B:383:ALA:C	3:B:385:GLN:N	2.72	0.43
3:B:435:TYR:C	3:B:437:ASP:N	2.72	0.43
1:K:274:TYR:CE1	3:B:431:GLU:HG3	2.54	0.43
1:K:278:ARG:CD	1:K:284:ARG:HD2	2.49	0.43
2:A:154:MET:CE	2:A:166:LYS:HB3	2.48	0.43
2:A:238:ILE:HD11	2:A:378:LEU:HD23	2.01	0.43
2:A:6:SER:HB3	2:A:136:SER:HG	1.81	0.43
3:B:399:PHE:O	3:B:402:LYS:N	2.29	0.43
2:A:172:TYR:HA	2:A:173:PRO:HD3	1.93	0.42
2:A:238:ILE:O	2:A:242:LEU:CB	2.67	0.42
2:A:343:PHE:HZ	2:A:351:PHE:CZ	2.36	0.42
3:B:299:LYS:CD	3:B:299:LYS:H	2.07	0.42
2:A:209:ILE:CD1	2:A:231:ILE:CD1	2.97	0.42
2:A:436:GLY:C	2:A:438:ASP:N	2.72	0.42
3:B:210:TYR:O	3:B:214:PHE:N	2.52	0.42
3:B:240:THR:HG23	3:B:241:CYS:N	2.33	0.42
3:B:192:HIS:NE2	3:B:420:GLU:HG2	2.34	0.42
3:B:70:LEU:HB2	3:B:99:ALA:CB	2.48	0.42
2:A:8:HIS:CD2	2:A:138:PHE:CD1	3.07	0.42
2:A:16:ILE:CG2	2:A:17:GLY:N	2.82	0.42
2:A:304:LYS:HG3	2:A:304:LYS:O	2.19	0.42
2:A:76:ASP:O	2:A:79:ARG:N	2.52	0.42
3:B:288:VAL:C	3:B:290:GLU:N	2.70	0.42
2:A:25:CYS:SG	2:A:26:LEU:N	2.92	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:409:VAL:C	2:A:411:GLU:N	2.71	0.42
3:B:204:ILE:HD13	3:B:231:VAL:CG2	2.45	0.42
3:B:48:ARG:HG2	3:B:243:ARG:HB3	2.01	0.42
1:K:238:VAL:HG22	1:K:239:SER:N	2.33	0.42
1:K:203:ARG:HH22	1:K:240:LYS:HG3	1.84	0.42
2:A:231:ILE:C	2:A:233:GLN:N	2.73	0.42
2:A:363:VAL:HG13	2:A:364:PRO:HD2	2.02	0.42
2:A:390:ARG:HG3	2:A:390:ARG:HH11	1.83	0.42
3:B:72:PRO:O	3:B:73:GLY:C	2.58	0.42
1:K:106:GLY:O	1:K:109:PRO:HD2	2.20	0.42
2:A:101:ASN:ND2	3:B:254:LYS:CD	2.75	0.42
2:A:210:TYR:OH	3:B:325:MET:HB3	2.20	0.42
2:A:378:LEU:O	2:A:378:LEU:HD12	2.19	0.42
3:B:153:LEU:HD13	3:B:153:LEU:N	2.34	0.42
3:B:242:LEU:HB3	3:B:250:ALA:O	2.20	0.42
3:B:250:ALA:CB	3:B:254:LYS:HE2	2.49	0.42
3:B:333:LEU:O	3:B:334:ASN:C	2.58	0.42
3:B:343:PHE:CD2	3:B:350:ASN:ND2	2.88	0.42
2:A:105:ARG:O	2:A:110:ILE:CG2	2.64	0.42
2:A:13:GLY:HA2	2:A:16:ILE:CG2	2.50	0.42
2:A:149:PHE:O	2:A:150:THR:C	2.56	0.42
2:A:119:LEU:HD11	2:A:156:ARG:HD3	2.01	0.42
2:A:213:CYS:O	2:A:219:ILE:HG13	2.20	0.42
2:A:175:PRO:HG3	2:A:304:LYS:CB	2.50	0.42
2:A:402:ARG:O	2:A:405:VAL:N	2.49	0.42
2:A:95:GLY:C	2:A:97:GLU:H	2.23	0.42
3:B:421:ALA:O	3:B:422:GLU:C	2.58	0.42
2:A:15:GLN:NE2	7:B:500:GTP:N7	2.67	0.42
1:K:215:GLU:HG3	1:K:222:LYS:NZ	2.35	0.42
3:B:106:GLY:O	3:B:149:MET:CA	2.68	0.42
3:B:171:VAL:O	3:B:171:VAL:HG12	2.20	0.42
3:B:187:ALA:O	3:B:188:THR:C	2.57	0.42
3:B:427:ASP:OD1	3:B:427:ASP:C	2.58	0.42
2:A:328:VAL:C	2:A:330:ALA:N	2.73	0.42
3:B:138:THR:O	3:B:139:HIS:HB3	2.20	0.42
3:B:243:ARG:HD3	3:B:243:ARG:HA	1.62	0.42
3:B:2:ARG:NH1	3:B:251:ASP:CG	2.73	0.42
3:B:25:SER:O	3:B:28:HIS:N	2.53	0.42
3:B:6:HIS:HB3	3:B:65:ALA:CB	2.48	0.42
2:A:242:LEU:HD11	2:A:250:VAL:HG23	2.02	0.42
2:A:305:CYS:SG	2:A:383:ALA:HB1	2.60	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:76:ASP:O	2:A:80:THR:N	2.53	0.42
3:B:422:GLU:O	3:B:426:ASN:CB	2.67	0.42
1:K:321:ARG:NH2	2:A:402:ARG:HH11	2.15	0.42
2:A:255:PHE:O	2:A:257:THR:N	2.53	0.41
2:A:104:ALA:HB3	2:A:408:TYR:HD2	1.84	0.41
2:A:67:PHE:HB2	2:A:92:LEU:HD23	2.02	0.41
3:B:199:ASP:C	3:B:265:LEU:HD13	2.40	0.41
3:B:210:TYR:O	3:B:211:ASP:C	2.57	0.41
3:B:273:ALA:HB1	3:B:291:LEU:HG	2.01	0.41
3:B:202:TYR:CE2	3:B:268:PHE:HD1	2.38	0.41
3:B:239:THR:CG2	3:B:240:THR:N	2.80	0.41
3:B:274:PRO:HD3	3:B:374:SER:HA	2.03	0.41
3:B:399:PHE:O	3:B:401:ARG:N	2.53	0.41
3:B:276:THR:O	8:B:601:TA1:H192	2.21	0.41
3:B:82:PRO:HB2	3:B:83:PHE:H	1.56	0.41
2:A:115:ILE:C	2:A:115:ILE:CD1	2.87	0.41
3:B:175:PRO:O	3:B:177:VAL:N	2.53	0.41
3:B:261:PRO:HB2	3:B:262:PHE:CD1	2.54	0.41
3:B:333:LEU:HD11	3:B:337:ASN:HD21	1.85	0.41
2:A:152:LEU:CD1	2:A:152:LEU:C	2.89	0.41
2:A:67:PHE:CE1	2:A:87:PHE:CE2	3.08	0.41
3:B:35:SER:CB	3:B:59:ASN:HA	2.42	0.41
1:K:6:GLU:O	1:K:7:CYS:HB3	2.20	0.41
2:A:243:ARG:NH2	2:A:252:LEU:HG	2.35	0.41
2:A:23:LEU:HD11	2:A:361:THR:O	2.21	0.41
3:B:119:LEU:O	3:B:122:VAL:HG22	2.21	0.41
3:B:154:ILE:HG22	3:B:166:MET:HE2	2.03	0.41
3:B:135:PHE:CD1	3:B:166:MET:SD	3.14	0.41
3:B:310:GLY:HA3	3:B:436:GLN:NE2	2.29	0.41
3:B:380:ASN:C	3:B:380:ASN:HD22	2.24	0.41
1:K:278:ARG:HD2	1:K:284:ARG:HD2	2.02	0.41
2:A:255:PHE:O	2:A:259:LEU:N	2.50	0.41
3:B:409:THR:C	3:B:411:GLU:N	2.73	0.41
2:A:101:ASN:HD21	3:B:254:LYS:NZ	2.19	0.41
2:A:282:TYR:HD2	2:A:284:GLU:HG3	1.86	0.41
1:K:313:LYS:HD3	2:A:420:GLU:OE1	2.19	0.41
3:B:98:GLY:C	3:B:100:GLY:H	2.24	0.41
3:B:168:THR:HB	3:B:198:THR:HG21	2.03	0.41
1:K:157:GLU:O	3:B:416:MET:HG2	2.15	0.41
1:K:248:LEU:CD1	2:A:112:LYS:N	2.79	0.41
1:K:247:VAL:CA	2:A:116:ASP:OD2	2.67	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:166:LYS:HB2	2:A:199:ASP:OD1	2.20	0.41
2:A:226:ASN:O	2:A:227:LEU:C	2.59	0.41
2:A:414:GLU:C	2:A:416:GLY:N	2.74	0.41
3:B:182:VAL:O	3:B:184:PRO:N	2.54	0.41
3:B:409:THR:O	3:B:412:GLY:N	2.48	0.41
3:B:417:GLU:O	3:B:420:GLU:HB3	2.21	0.41
1:K:203:ARG:NH2	1:K:240:LYS:HE3	2.35	0.41
2:A:149:PHE:CD1	2:A:150:THR:N	2.89	0.41
2:A:199:ASP:CB	2:A:256:GLN:NE2	2.77	0.41
2:A:288:VAL:O	2:A:289:ALA:C	2.59	0.41
3:B:132:LEU:O	3:B:164:ARG:HD2	2.21	0.41
3:B:259:MET:HE3	3:B:268:PHE:CE1	2.56	0.41
1:K:317:LEU:CB	2:A:415:GLU:CD	2.81	0.41
1:K:247:VAL:C	2:A:112:LYS:HZ3	2.25	0.41
3:B:147:SER:CB	3:B:190:SER:HB3	2.42	0.41
3:B:242:LEU:HA	3:B:242:LEU:HD23	1.76	0.41
1:K:17:PRO:HG3	1:K:54:SER:O	2.21	0.41
1:K:254:ILE:HD12	2:A:409:VAL:CG2	2.50	0.41
1:K:87:THR:O	1:K:88:SER:HB2	2.21	0.41
2:A:251:ASP:CA	2:A:254:GLU:HG3	2.48	0.41
2:A:272:TYR:O	2:A:300:ASN:ND2	2.54	0.41
2:A:332:ILE:CD1	2:A:353:VAL:HG22	2.51	0.41
2:A:384:ILE:O	2:A:385:ALA:C	2.59	0.41
2:A:401:LYS:O	2:A:402:ARG:HB2	2.21	0.41
3:B:187:ALA:O	3:B:190:SER:N	2.54	0.41
3:B:307:PRO:O	3:B:309:HIS:N	2.53	0.41
2:A:100:ALA:O	2:A:102:ASN:N	2.49	0.40
2:A:263:PRO:O	2:A:264:ARG:C	2.56	0.40
3:B:11:GLN:HA	3:B:74:THR:HG21	2.04	0.40
3:B:311:ARG:NH1	3:B:311:ARG:HG2	2.34	0.40
3:B:102:ASN:ND2	3:B:408:TYR:HA	2.20	0.40
2:A:217:LEU:HD12	2:A:277:SER:CB	2.49	0.40
2:A:273:ALA:O	2:A:275:VAL:N	2.54	0.40
2:A:434:GLU:C	2:A:436:GLY:N	2.74	0.40
2:A:14:VAL:HG11	2:A:75:ILE:HD13	2.04	0.40
3:B:125:GLU:O	3:B:128:SER:HB3	2.22	0.40
3:B:291:LEU:HD21	3:B:373:MET:HG2	2.03	0.40
1:K:173:VAL:HG21	1:K:179:VAL:HG22	2.03	0.40
1:K:73:VAL:HG21	1:K:227:LEU:CG	2.51	0.40
2:A:289:ALA:HB3	2:A:290:GLU:OE2	2.21	0.40
2:A:384:ILE:C	2:A:386:GLU:N	2.72	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:20:PHE:CD2	3:B:235:MET:CG	3.04	0.40
3:B:23:VAL:O	3:B:24:ILE:C	2.60	0.40
3:B:70:LEU:HB2	3:B:99:ALA:HB2	2.03	0.40
2:A:318:LEU:HB2	2:A:376:CYS:SG	2.61	0.40
3:B:133:GLN:CG	3:B:165:ILE:HD11	2.49	0.40
3:B:192:HIS:HD1	3:B:424:ASN:CG	2.20	0.40
3:B:315:VAL:CG1	3:B:377:PHE:CE1	3.05	0.40
3:B:95:GLY:C	3:B:97:SER:H	2.25	0.40
2:A:11:GLN:N	7:B:500:GTP:O1B	2.55	0.40
2:A:182:VAL:O	2:A:183:GLU:C	2.60	0.40
2:A:209:ILE:HD13	2:A:231:ILE:HD11	2.04	0.40
2:A:335:ILE:C	2:A:337:THR:N	2.73	0.40
3:B:99:ALA:O	3:B:100:GLY:C	2.60	0.40
3:B:105:LYS:HG2	3:B:110:GLU:HG3	2.03	0.40
3:B:35:SER:HB3	3:B:59:ASN:OD1	2.22	0.40
3:B:405:LEU:O	3:B:405:LEU:HD23	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	K	321/325 (99%)	292 (91%)	24 (8%)	5 (2%)	11	51
2	A	408/451 (90%)	266 (65%)	83 (20%)	59 (14%)	0	5
3	B	424/445 (95%)	274 (65%)	94 (22%)	56 (13%)	0	6
All	All	1153/1221 (94%)	832 (72%)	201 (17%)	120 (10%)	1	10

All (120) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	K	123	ASP

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Mol	Chain	Res	Type
1	K	250	GLU
2	A	96	LYS
2	A	97	GLU
2	A	108	TYR
2	A	109	THR
2	A	141	PHE
2	A	183	GLU
2	A	217	LEU
2	A	240	ALA
2	A	249	ASN
2	A	255	PHE
2	A	265	ALA
2	A	266	HIS
2	A	280	LYS
2	A	284	GLU
2	A	285	GLN
2	A	289	ALA
2	A	309	HIS
2	A	346	TRP
2	A	370	LYS
2	A	387	ALA
2	A	403	ALA
2	A	437	VAL
3	B	23	VAL
3	B	24	ILE
3	B	32	PRO
3	B	50	ASN
3	B	82	PRO
3	B	97	SER
3	B	128	SER
3	B	176	LYS
3	B	183	GLU
3	B	218	LYS
3	B	238	VAL
3	B	239	THR
3	B	240	THR
3	B	252	LEU
3	B	263	PRO
3	B	266	HIS
3	B	273	ALA
3	B	278	ARG
3	B	280	SER

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Mol	Chain	Res	Type
3	B	281	GLN
3	B	282	GLN
3	B	288	VAL
3	B	294	GLN
3	B	295	MET
3	B	343	PHE
3	B	344	VAL
3	B	346	TRP
3	B	369	ARG
3	B	403	ALA
2	A	24	TYR
2	A	63	PRO
2	A	103	TYR
2	A	111	GLY
2	A	131	GLY
2	A	218	ASP
2	A	219	ILE
2	A	238	ILE
2	A	287	SER
2	A	314	ALA
2	A	339	ARG
2	A	342	GLN
2	A	373	ARG
2	A	386	GLU
3	B	38	GLY
3	B	73	GLY
3	B	175	PRO
3	B	265	LEU
3	B	279	GLY
3	B	298	ALA
3	B	300	ASN
3	B	311	ARG
1	K	244	GLU
1	K	246	ALA
2	A	104	ALA
2	A	148	GLY
2	A	149	PHE
2	A	173	PRO
2	A	239	THR
2	A	245	ASP
2	A	263	PRO
2	A	279	GLU

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Mol	Chain	Res	Type
2	A	288	VAL
2	A	330	ALA
2	A	336	LYS
2	A	369	ALA
3	B	83	PHE
3	B	99	ALA
3	B	100	GLY
3	B	302	MET
3	B	386	GLU
2	A	89	PRO
2	A	129	CYS
2	A	300	ASN
2	A	348	PRO
3	B	34	GLY
3	B	96	GLN
3	B	395	PHE
1	K	6	GLU
2	A	256	GLN
2	A	303	VAL
2	A	307	PRO
2	A	382	THR
3	B	57	ALA
3	B	74	THR
3	B	285	ALA
3	B	424	ASN
2	A	31	GLN
2	A	273	ALA
3	B	51	VAL
3	B	58	GLY
3	B	145	THR
3	B	162	PRO
3	B	400	ARG
3	B	195	VAL
2	A	115	ILE
3	B	72	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 PDB entries followed by that with respect to all EM entries.

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	K	288/289 (100%)	278 (96%)	10 (4%)	41	69
2	A	347/377 (92%)	298 (86%)	49 (14%)	4	22
3	B	367/381 (96%)	307 (84%)	60 (16%)	3	17
All	All	1002/1047 (96%)	883 (88%)	119 (12%)	10	27

All (119) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	36	GLU
1	K	80	THR
1	K	146	LEU
1	K	221	GLN
1	K	227	LEU
1	K	236	GLU
1	K	244	GLU
1	K	248	LEU
1	K	250	GLU
1	K	293	ASN
2	A	6	SER
2	A	20	CYS
2	A	21	TRP
2	A	32	PRO
2	A	76	ASP
2	A	82	THR
2	A	98	ASP
2	A	115	ILE
2	A	120	ASP
2	A	125	LEU
2	A	127	ASP
2	A	130	THR
2	A	135	PHE
2	A	141	PHE
2	A	150	THR
2	A	152	LEU
2	A	155	GLU
2	A	169	PHE
2	A	172	TYR
2	A	173	PRO
2	A	183	GLU
2	A	192	HIS

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Mol	Chain	Res	Type
2	A	204	VAL
2	A	219	ILE
2	A	224	TYR
2	A	231	ILE
2	A	234	ILE
2	A	243	ARG
2	A	244	PHE
2	A	253	THR
2	A	260	VAL
2	A	267	PHE
2	A	269	LEU
2	A	276	ILE
2	A	284	GLU
2	A	303	VAL
2	A	325	PRO
2	A	334	THR
2	A	345	ASP
2	A	352	LYS
2	A	368	LEU
2	A	376	CYS
2	A	378	LEU
2	A	380	ASN
2	A	404	PHE
2	A	415	GLU
2	A	417	GLU
2	A	431	ASP
2	A	432	TYR
3	B	14	ASN
3	B	24	ILE
3	B	26	ASP
3	B	32	PRO
3	B	41	ASP
3	B	68	VAL
3	B	76	ASP
3	B	90	ASP
3	B	94	PHE
3	B	101	ASN
3	B	122	VAL
3	B	129	CYS
3	B	135	PHE
3	B	141	LEU
3	B	145	THR

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Mol	Chain	Res	Type
3	B	149	MET
3	B	153	LEU
3	B	161	TYR
3	B	163	ASP
3	B	165	ILE
3	B	174	SER
3	B	198	THR
3	B	201	THR
3	B	203	CYS
3	B	207	GLU
3	B	211	ASP
3	B	214	PHE
3	B	215	ARG
3	B	224	TYR
3	B	227	LEU
3	B	230	LEU
3	B	236	SER
3	B	240	THR
3	B	244	PHE
3	B	265	LEU
3	B	267	PHE
3	B	275	LEU
3	B	282	GLN
3	B	283	TYR
3	B	284	ARG
3	B	289	PRO
3	B	299	LYS
3	B	306	ASP
3	B	309	HIS
3	B	322	ARG
3	B	324	SER
3	B	325	MET
3	B	343	PHE
3	B	344	VAL
3	B	349	ASN
3	B	369	ARG
3	B	380	ASN
3	B	387	LEU
3	B	413	MET
3	B	414	ASP
3	B	424	ASN
3	B	427	ASP

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Mol	Chain	Res	Type
3	B	431	GLU
3	B	432	TYR
3	B	437	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (35) such sidechains are listed below:

Mol	Chain	Res	Type
1	K	156	HIS
1	K	189	ASN
1	K	205	HIS
1	K	287	GLN
1	K	308	ASN
2	A	11	GLN
2	A	15	GLN
2	A	28	HIS
2	A	107	HIS
2	A	128	GLN
2	A	133	GLN
2	A	139	HIS
2	A	197	HIS
2	A	216	ASN
2	A	226	ASN
2	A	256	GLN
2	A	309	HIS
2	A	380	ASN
3	B	14	ASN
3	B	91	ASN
3	B	101	ASN
3	B	102	ASN
3	B	107	HIS
3	B	136	GLN
3	B	139	HIS
3	B	197	ASN
3	B	282	GLN
3	B	331	GLN
3	B	334	ASN
3	B	337	ASN
3	B	349	ASN
3	B	380	ASN
3	B	406	HIS
3	B	434	GLN
3	B	436	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 7 ligands modelled in this entry, 3 are monoatomic - leaving 4 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	$\# Z > 2$
7	GTP	B	500	4	27,34,34	1.51	3 (11%)	27,54,54	2.15	5 (18%)
7	GDP	B	600	-	25,30,30	2.61	8 (32%)	26,47,47	3.64	9 (34%)
8	TA1	B	601	-	68,68,68	1.97	20 (29%)	105,105,105	1.33	8 (7%)
6	ADP	K	401	4	25,29,29	0.93	0	24,45,45	1.96	3 (12%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	GTP	B	500	4	-	0/18/38/38	0/3/3/3
7	GDP	B	600	-	-	0/12/32/32	0/3/3/3
8	TA1	B	601	-	-	0/41/127/127	0/5/7/7
6	ADP	K	401	4	-	0/12/32/32	0/3/3/3

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	B	601	TA1	C08-C07	-5.11	1.25	1.38
7	B	600	GDP	PB-O2B	-3.54	1.40	1.54
8	B	601	TA1	C04-C03	-2.33	1.44	1.49
8	B	601	TA1	C10-C02	2.03	1.62	1.57
7	B	500	GTP	O4'-C1'	2.08	1.44	1.41
8	B	601	TA1	C41-C42	2.11	1.42	1.38
7	B	600	GDP	O3'-C3'	2.13	1.47	1.43
8	B	601	TA1	C18-C20	2.18	1.62	1.56
8	B	601	TA1	C37-C29	2.20	1.54	1.51
8	B	601	TA1	C16-C15	2.21	1.56	1.52
8	B	601	TA1	C01-C45	2.22	1.66	1.56
7	B	600	GDP	PB-O3B	2.22	1.63	1.54
8	B	601	TA1	C11-C10	2.27	1.61	1.55
7	B	600	GDP	C5-C4	2.44	1.46	1.40
8	B	601	TA1	C26-C25	2.46	1.56	1.51
8	B	601	TA1	C43-C26	2.51	1.58	1.52
8	B	601	TA1	C43-C01	2.90	1.60	1.54
8	B	601	TA1	C25-C24	3.02	1.39	1.34
8	B	601	TA1	C46-C45	3.09	1.60	1.53
7	B	600	GDP	C8-N7	3.39	1.41	1.34
8	B	601	TA1	O02-C03	3.45	1.41	1.34
8	B	601	TA1	C45-C24	3.46	1.61	1.54
8	B	601	TA1	C36-C31	3.49	1.45	1.39
7	B	500	GTP	PG-O3B	3.84	1.66	1.60
7	B	600	GDP	O6-C6	4.08	1.34	1.24
8	B	601	TA1	C18-C10	4.28	1.69	1.57
8	B	601	TA1	C05-C04	4.52	1.46	1.39
7	B	500	GTP	C6-N1	4.79	1.41	1.33
8	B	601	TA1	C06-C05	5.81	1.50	1.38
7	B	600	GDP	O4'-C1'	6.15	1.49	1.41
7	B	600	GDP	C2-N1	7.60	1.49	1.35

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	B	600	GDP	C6-C5-C4	-11.40	109.51	120.84
6	K	401	ADP	N3-C2-N1	-7.74	122.12	128.86
7	B	500	GTP	C5-C6-N1	-7.10	113.37	123.48
7	B	600	GDP	N2-C2-N1	-5.92	107.77	117.24
7	B	600	GDP	C4-C5-N7	-5.04	104.54	109.41
7	B	600	GDP	N3-C2-N1	-4.93	120.26	127.46
8	B	601	TA1	C06-C05-C04	-4.87	114.62	120.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	B	601	TA1	C05-C04-C03	-3.96	111.48	120.39
7	B	500	GTP	N3-C2-N1	-3.18	122.82	127.46
8	B	601	TA1	O04-C11-C14	-2.76	101.76	108.14
7	B	500	GTP	C6-C5-C4	-2.43	118.43	120.84
7	B	500	GTP	O5'-C5'-C4'	2.01	116.12	109.00
6	K	401	ADP	O3B-PB-O2B	2.24	116.67	107.61
7	B	600	GDP	O2'-C2'-C3'	2.27	119.11	111.83
8	B	601	TA1	O01-C01-C43	2.48	113.40	106.86
8	B	601	TA1	C45-C01-C02	2.65	115.17	111.85
8	B	601	TA1	C17-C18-C20	2.84	109.82	102.33
6	K	401	ADP	C4-C5-N7	2.86	112.17	109.41
7	B	600	GDP	C2'-C3'-C4'	3.39	109.22	102.62
8	B	601	TA1	C09-C04-C03	3.55	128.38	120.39
7	B	600	GDP	C2-N3-C4	3.58	119.34	115.16
7	B	600	GDP	C4'-O4'-C1'	4.01	114.03	109.77
8	B	601	TA1	C07-C08-C09	5.21	127.36	120.21
7	B	500	GTP	C6-N1-C2	5.98	124.66	116.06
7	B	600	GDP	N2-C2-N3	7.70	131.96	117.75

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	B	500	GTP	5	0
7	B	600	GDP	1	0
8	B	601	TA1	6	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.