Full wwPDB X-ray Structure Validation Report ⓘ

Sep 5, 2023 – 04:00 PM EDT

PDB ID	:	4E85
Title	:	crystal STRUCTURE OF HAT DOMAIN OF RNA14
Authors	:	Paulson, A.R.; Tong, L.
Deposited on	:	2012-03-19
Resolution	:	3.00 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

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

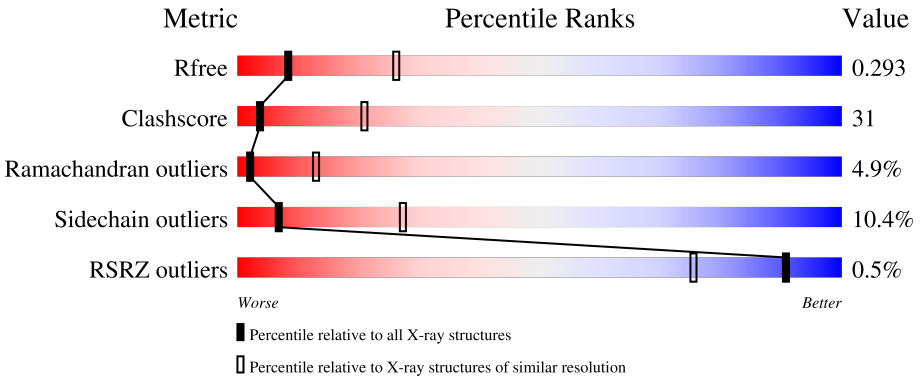
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.00 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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	A	678	37% 37% 8% 18%
1	B	678	37% 36% 8% 19%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 9221 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called mRNA 3'-end-processing protein RNA14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	555	Total	C	N	O	S	0	0	0
			4623	2976	765	856	26			
1	B	552	Total	C	N	O	S	0	0	0
			4598	2962	760	851	25			

There are 68 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-16	MET	-	expression tag	UNP Q6CII8
A	-15	GLY	-	expression tag	UNP Q6CII8
A	-14	SER	-	expression tag	UNP Q6CII8
A	-13	SER	-	expression tag	UNP Q6CII8
A	-12	HIS	-	expression tag	UNP Q6CII8
A	-11	HIS	-	expression tag	UNP Q6CII8
A	-10	HIS	-	expression tag	UNP Q6CII8
A	-9	HIS	-	expression tag	UNP Q6CII8
A	-8	HIS	-	expression tag	UNP Q6CII8
A	-7	HIS	-	expression tag	UNP Q6CII8
A	-6	SER	-	expression tag	UNP Q6CII8
A	-5	SER	-	expression tag	UNP Q6CII8
A	-4	GLY	-	expression tag	UNP Q6CII8
A	-3	LEU	-	expression tag	UNP Q6CII8
A	-2	VAL	-	expression tag	UNP Q6CII8
A	-1	PRO	-	expression tag	UNP Q6CII8
A	0	ARG	-	expression tag	UNP Q6CII8
A	1	GLY	-	expression tag	UNP Q6CII8
A	2	SER	-	expression tag	UNP Q6CII8
A	3	HIS	-	expression tag	UNP Q6CII8
A	4	MET	-	expression tag	UNP Q6CII8
A	5	ALA	-	expression tag	UNP Q6CII8
A	6	SER	-	expression tag	UNP Q6CII8
A	7	MET	-	expression tag	UNP Q6CII8
A	8	THR	-	expression tag	UNP Q6CII8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	9	GLY	-	expression tag	UNP Q6CII8
A	10	GLY	-	expression tag	UNP Q6CII8
A	11	GLN	-	expression tag	UNP Q6CII8
A	12	GLN	-	expression tag	UNP Q6CII8
A	13	MET	-	expression tag	UNP Q6CII8
A	14	GLY	-	expression tag	UNP Q6CII8
A	15	ARG	-	expression tag	UNP Q6CII8
A	16	GLY	-	expression tag	UNP Q6CII8
A	17	MET	-	expression tag	UNP Q6CII8
B	-16	MET	-	expression tag	UNP Q6CII8
B	-15	GLY	-	expression tag	UNP Q6CII8
B	-14	SER	-	expression tag	UNP Q6CII8
B	-13	SER	-	expression tag	UNP Q6CII8
B	-12	HIS	-	expression tag	UNP Q6CII8
B	-11	HIS	-	expression tag	UNP Q6CII8
B	-10	HIS	-	expression tag	UNP Q6CII8
B	-9	HIS	-	expression tag	UNP Q6CII8
B	-8	HIS	-	expression tag	UNP Q6CII8
B	-7	HIS	-	expression tag	UNP Q6CII8
B	-6	SER	-	expression tag	UNP Q6CII8
B	-5	SER	-	expression tag	UNP Q6CII8
B	-4	GLY	-	expression tag	UNP Q6CII8
B	-3	LEU	-	expression tag	UNP Q6CII8
B	-2	VAL	-	expression tag	UNP Q6CII8
B	-1	PRO	-	expression tag	UNP Q6CII8
B	0	ARG	-	expression tag	UNP Q6CII8
B	1	GLY	-	expression tag	UNP Q6CII8
B	2	SER	-	expression tag	UNP Q6CII8
B	3	HIS	-	expression tag	UNP Q6CII8
B	4	MET	-	expression tag	UNP Q6CII8
B	5	ALA	-	expression tag	UNP Q6CII8
B	6	SER	-	expression tag	UNP Q6CII8
B	7	MET	-	expression tag	UNP Q6CII8
B	8	THR	-	expression tag	UNP Q6CII8
B	9	GLY	-	expression tag	UNP Q6CII8
B	10	GLY	-	expression tag	UNP Q6CII8
B	11	GLN	-	expression tag	UNP Q6CII8
B	12	GLN	-	expression tag	UNP Q6CII8
B	13	MET	-	expression tag	UNP Q6CII8
B	14	GLY	-	expression tag	UNP Q6CII8
B	15	ARG	-	expression tag	UNP Q6CII8
B	16	GLY	-	expression tag	UNP Q6CII8

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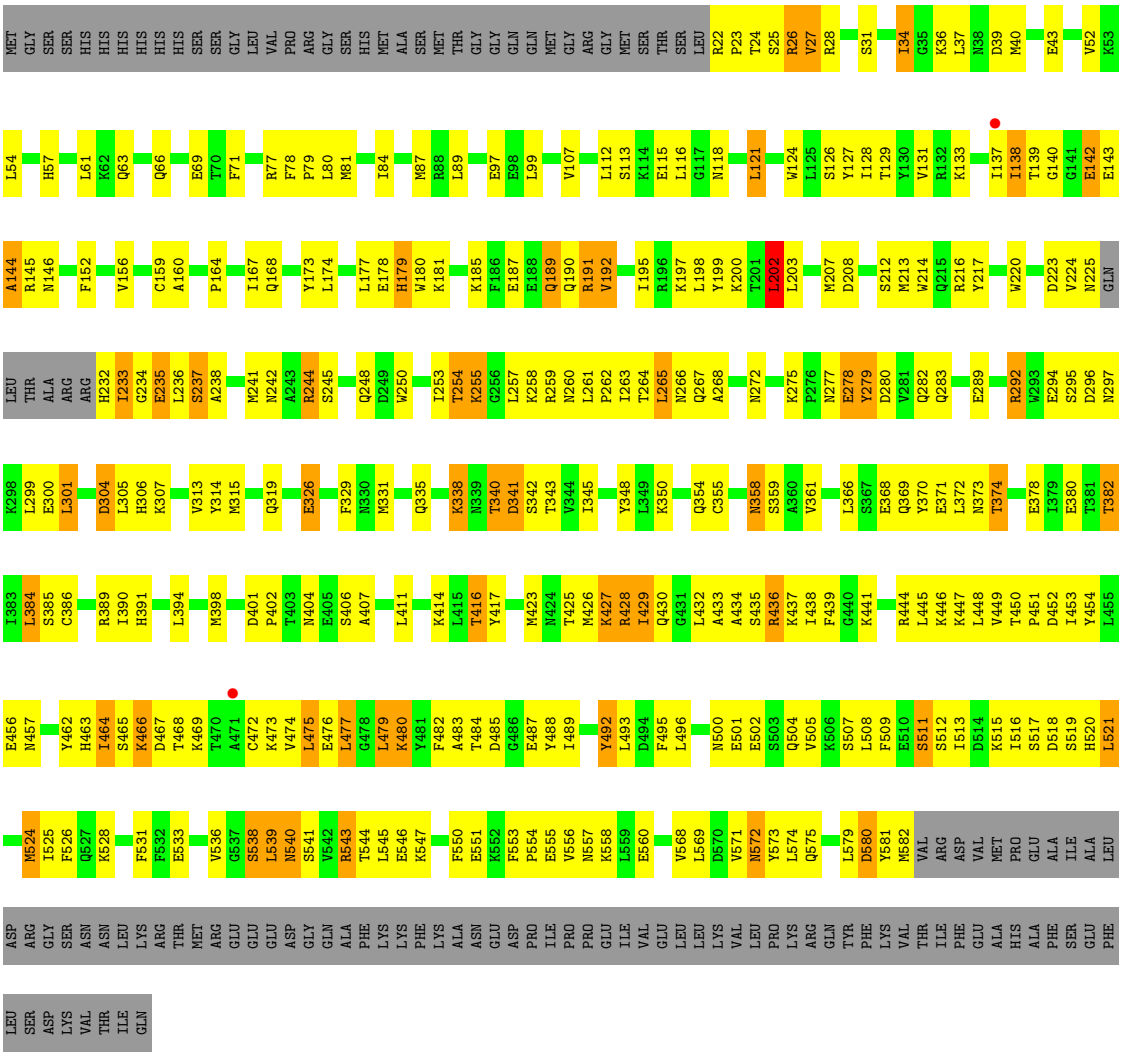
Chain	Residue	Modelled	Actual	Comment	Reference
B	17	MET	-	expression tag	UNP Q6CII8

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.

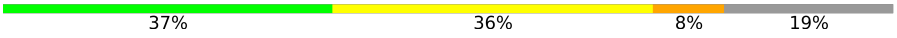
• Molecule 1: mRNA 3'-end-processing protein RNA14

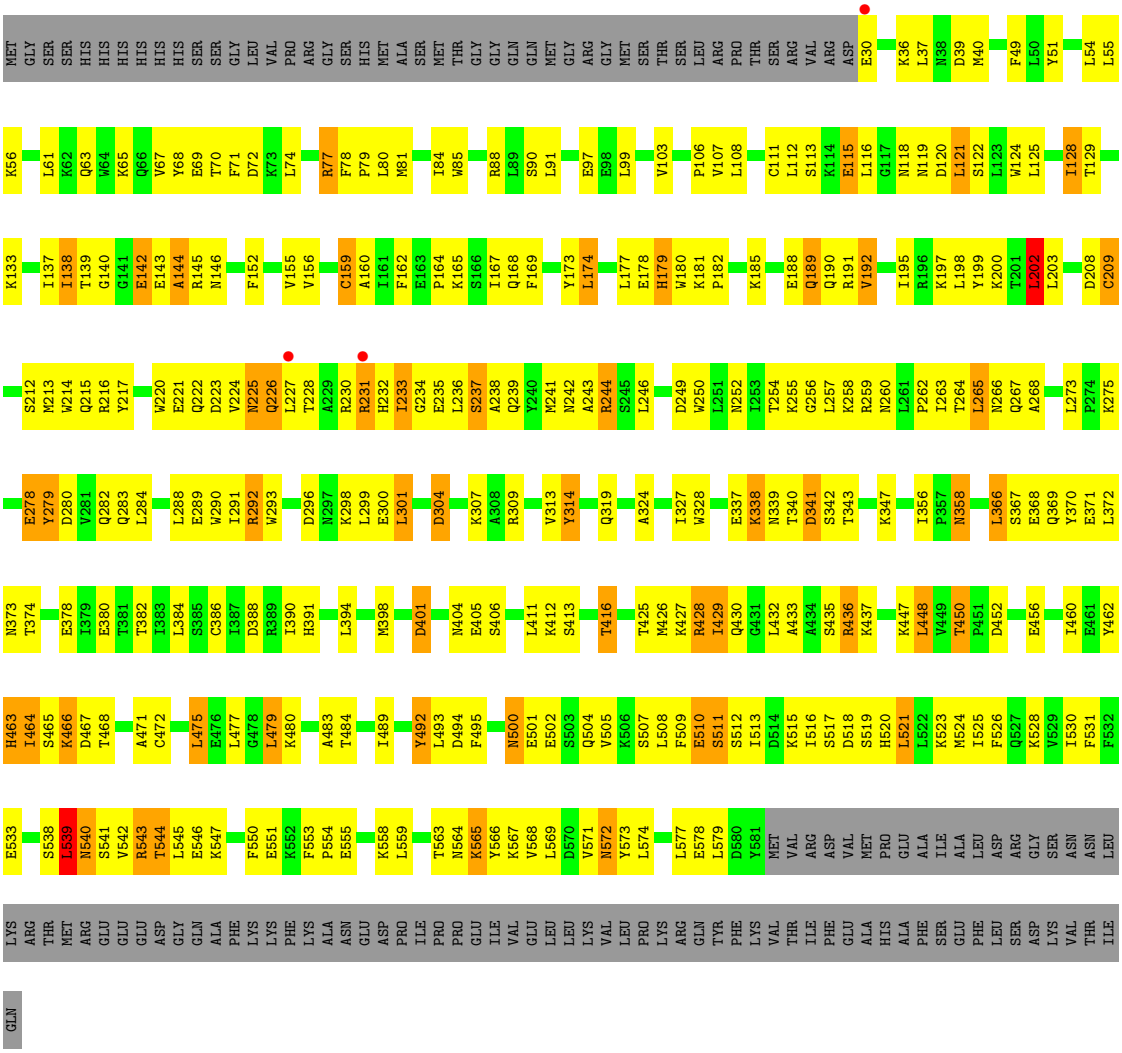
Chain A:



• Molecule 1: mRNA 3'-end-processing protein RNA14

Chain B:




MET GLY SER SER HIS HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET ALA SER MET THR GLY GLY GLN GLN MET GLY ARG GLY MET SER THR SER LEU ARG PRO THR SER ARG VAL ARG ASP
E30 K36 L37 N38 D39 M40 F49 L50 Y51 L54 L55
K56 L61 K62 Q63 W64 K65 Q66 V67 Y68 E69 T70 F71 D72 K73 L74 R77 F78 P79 L80 M81 I84 W85 R88 L89 S90 L91 E97 E98 L99 V103 P106 V107 L108 C111 L112 S113 K114 E115 L116 G117 N118 N119 D120 L121 S122 L123 W124 L125 I128 T129
K133 I137 I138 T139 G140 G141 E142 E143 A144 R145 N146 F152 V155 V156 C159 A160 I161 F162 E163 P164 K165 S166 I167 Q168 F169 Y173 L174 L177 E178 H179 W180 K181 P182 K185 E188 Q189 Q190 R191 V192 I195 R196 K197 L198 Y199 K200 T201 L202 L203 D208 C209
S212 M213 W214 Q215 R216 Y217 W220 E221 Q222 D223 V224 N226 Q226 L227 T228 A229 R230 R231 H232 I233 G234 E235 L236 S237 A238 Q239 Y240 M241 N242 A243 R244 S245 L246 D249 W250 L251 N252 I253 T254 K255 G256 L257 K258 R259 N260 L261 P262 I263 T264 L265 N266 Q267 A268 L273 P274 K275
E278 Y279 D280 V281 Q282 Q283 L284 L288 E289 W290 I291 R292 W293 D296 N297 K298 L299 E300 L301 D304 K307 A308 R309 V313 Y314 Q319 A324 I327 W328 E337 K338 N339 T340 D341 S342 T343 K347 I356 P357 N358 L366 S367 E368 Q369 Y370 E371 L372
N373 T374 E378 I379 E380 T381 T382 I383 L384 S385 C386 I387 D388 R389 I390 H391 L394 M398 D401 N404 E405 S406 L411 K412 S413 T416 T425 M426 K427 R428 I429 Q430 G431 L432 A433 A434 S435 R436 K437 K447 L448 V449 T450 P451 D452 E456 I460 E461 Y462
H463 I464 S465 K466 D467 T468 A471 C472 L475 E476 L477 G478 L479 K480 A483 T484 I489 Y492 L493 D494 F495 N500 E501 E502 S503 Q504 V505 K506 S507 L508 F509 E510 S511 S512 I513 D514 K515 I516 S517 D518 S519 H520 L521 L522 K523 M524 I525 F526 Q527 K528 V529 I530 F531 F532
E533 S538 L539 N540 S541 V542 R543 T544 L545 E546 K547 F550 E551 K552 F553 P554 E555 K558 L559 T563 N564 K565 Y566 K567 V568 L569 D570 V571 N572 Y573 L574 L577 E578 L579 D580 Y581 MET VAL ARG ASP VAL MET PRO GLU ALA ILE ALA LEU ASP ARG GLY SER ASN ASN LEU
LYS ARG THR MET ARG GLU GLU GLU ASP GLY GLN ALA PHE LYS LYS PHE LYS ALA ASN GLU ASP PRO ILE PRO PRO GLU ILE VAL GLU LEU LEU LYS VAL LEU PRO LYS ARG GLN TYR PHE LYS VAL THR ILE PHE GLU ALA HIS ALA PHE SER GLU PHE LEU SER ASP LYS VAL THR ILE
GLN

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	114.87Å 241.73Å 49.02Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.77 – 3.00 46.77 – 2.99	Depositor EDS
% Data completeness (in resolution range)	87.8 (46.77-3.00) 87.2 (46.77-2.99)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.08 (at 3.01Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.233 , 0.293 0.233 , 0.293	Depositor DCC
R_{free} test set	1280 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å^2)	61.0	Xtriage
Anisotropy	0.474	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 52.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	9221	wwPDB-VP
Average B, all atoms (Å^2)	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.35% 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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.67	1/4724 (0.0%)	0.81	2/6385 (0.0%)
1	B	0.64	0/4699	0.80	1/6353 (0.0%)
All	All	0.66	1/9423 (0.0%)	0.80	3/12738 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	355	CYS	CB-SG	-5.01	1.73	1.81

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	202	LEU	CA-CB-CG	6.11	129.35	115.30
1	A	202	LEU	CA-CB-CG	5.68	128.37	115.30
1	A	27	VAL	N-CA-C	-5.15	97.10	111.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	348	TYR	Sidechain

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	A	4623	0	4620	296	0
1	B	4598	0	4598	296	0
All	All	9221	0	9218	576	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 31.

All (576) 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:B:200:LYS:HD3	1:B:236:LEU:HD21	1.27	1.14
1:B:61:LEU:HD12	1:B:63:GLN:NE2	1.70	1.06
1:B:264:THR:HB	1:B:267:GLN:HG3	1.43	1.00
1:B:533:GLU:HG3	1:B:545:LEU:HD11	1.40	0.98
1:B:244:ARG:HH11	1:B:244:ARG:HB3	1.27	0.98
1:A:475:LEU:HD12	1:A:475:LEU:H	1.25	0.97
1:A:428:ARG:HH11	1:A:428:ARG:HG2	1.26	0.97
1:A:264:THR:HB	1:A:267:GLN:HG3	1.43	0.96
1:B:475:LEU:HD12	1:B:475:LEU:H	1.31	0.94
1:A:307:LYS:HD3	1:A:338:LYS:HD2	1.50	0.94
1:A:546:GLU:O	1:A:550:PHE:HD1	1.51	0.92
1:A:341:ASP:OD2	1:A:343:THR:HG22	1.72	0.89
1:A:61:LEU:HD12	1:A:63:GLN:NE2	1.88	0.89
1:B:61:LEU:HD12	1:B:63:GLN:HE21	1.34	0.88
1:B:307:LYS:HD3	1:B:338:LYS:HD2	1.54	0.88
1:A:480:LYS:HA	1:A:480:LYS:HE2	1.59	0.84
1:B:115:GLU:H	1:B:115:GLU:CD	1.82	0.83
1:B:299:LEU:HB3	1:B:301:LEU:HD21	1.61	0.83
1:A:115:GLU:HG2	1:A:116:LEU:H	1.45	0.82
1:A:428:ARG:HH11	1:A:428:ARG:CG	1.92	0.82
1:A:560:GLU:HA	1:A:582:MET:HE1	1.62	0.82
1:A:191:ARG:O	1:A:195:ILE:HG13	1.80	0.81
1:B:137:ILE:HD12	1:B:138:ILE:HG13	1.63	0.81
1:B:386:CYS:O	1:B:390:ILE:HG13	1.80	0.81
1:B:231:ARG:HD2	1:B:231:ARG:O	1.81	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:341:ASP:OD2	1:B:343:THR:HG22	1.80	0.80
1:A:386:CYS:O	1:A:390:ILE:HG13	1.81	0.80
1:A:202:LEU:HD21	1:A:213:MET:HG2	1.62	0.79
1:B:546:GLU:O	1:B:550:PHE:HD1	1.63	0.79
1:B:480:LYS:HE2	1:B:480:LYS:HA	1.62	0.79
1:A:61:LEU:HD12	1:A:63:GLN:HE21	1.46	0.79
1:A:560:GLU:HA	1:A:582:MET:CE	2.13	0.79
1:A:378:GLU:O	1:A:382:THR:HG22	1.83	0.78
1:B:307:LYS:NZ	1:B:338:LYS:HG3	1.98	0.78
1:B:258:LYS:H	1:B:283:GLN:HE22	1.30	0.77
1:A:26:ARG:HH11	1:A:26:ARG:HG2	1.51	0.76
1:A:99:LEU:CD1	1:A:133:LYS:HD3	2.15	0.76
1:A:427:LYS:HB2	1:A:435:SER:OG	1.87	0.75
1:B:230:ARG:HB3	1:B:230:ARG:NH1	2.01	0.75
1:B:254:THR:O	1:B:256:GLY:N	2.19	0.75
1:A:550:PHE:CE2	1:A:558:LYS:HD3	2.22	0.75
1:A:237:SER:O	1:A:241:MET:HG2	1.86	0.75
1:B:80:LEU:HA	1:B:118:ASN:HD21	1.52	0.75
1:A:200:LYS:HD3	1:A:236:LEU:HD21	1.68	0.75
1:A:258:LYS:H	1:A:283:GLN:HE22	1.36	0.74
1:A:536:VAL:HG12	1:A:536:VAL:O	1.87	0.74
1:A:423:MET:HA	1:A:438:ILE:HD12	1.69	0.73
1:A:538:SER:C	1:A:540:ASN:H	1.92	0.73
1:B:231:ARG:HG3	1:B:232:HIS:HD2	1.54	0.73
1:B:128:ILE:HD11	1:B:152:PHE:HA	1.70	0.72
1:B:224:VAL:O	1:B:225:ASN:HB2	1.87	0.72
1:B:230:ARG:HB3	1:B:230:ARG:HH11	1.53	0.72
1:B:238:ALA:HB3	1:B:239:GLN:NE2	2.04	0.72
1:B:227:LEU:HD23	1:B:228:THR:HG23	1.71	0.72
1:B:533:GLU:HG3	1:B:545:LEU:CD1	2.19	0.72
1:B:278:GLU:O	1:B:279:TYR:HB3	1.88	0.71
1:A:140:GLY:HA3	1:A:144:ALA:HB2	1.72	0.71
1:B:115:GLU:HG2	1:B:116:LEU:H	1.55	0.70
1:B:299:LEU:HB3	1:B:301:LEU:CD2	2.22	0.70
1:A:546:GLU:O	1:A:550:PHE:CD1	2.40	0.70
1:B:511:SER:O	1:B:515:LYS:HE2	1.92	0.69
1:A:99:LEU:HD11	1:A:133:LYS:HD3	1.74	0.69
1:B:167:ILE:HG23	1:B:168:GLN:N	2.08	0.69
1:A:167:ILE:HG23	1:A:168:GLN:N	2.08	0.69
1:A:292:ARG:HH11	1:A:292:ARG:HB3	1.56	0.69
1:A:501:GLU:O	1:A:504:GLN:HB2	1.92	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:394:LEU:HD11	1:A:398:MET:HE3	1.75	0.69
1:A:380:GLU:O	1:A:384:LEU:HB2	1.93	0.69
1:A:342:SER:HB2	1:A:373:ASN:OD1	1.92	0.69
1:A:569:LEU:HD12	1:B:452:ASP:OD2	1.93	0.68
1:A:214:TRP:CH2	1:A:233:ILE:HG23	2.29	0.68
1:B:202:LEU:HD21	1:B:213:MET:HG2	1.74	0.68
1:A:462:TYR:O	1:A:464:ILE:N	2.26	0.68
1:B:428:ARG:HG2	1:B:428:ARG:HH11	1.58	0.68
1:B:378:GLU:O	1:B:382:THR:HG22	1.94	0.68
1:A:358:ASN:C	1:A:358:ASN:HD22	1.96	0.68
1:A:468:THR:HG22	1:A:468:THR:O	1.94	0.68
1:B:521:LEU:O	1:B:525:ILE:HG13	1.93	0.68
1:B:538:SER:C	1:B:540:ASN:H	1.98	0.68
1:A:350:LYS:NZ	1:A:354:GLN:HE21	1.92	0.67
1:B:244:ARG:HB3	1:B:244:ARG:NH1	2.06	0.67
1:B:358:ASN:C	1:B:358:ASN:HD22	1.98	0.67
1:B:533:GLU:CG	1:B:545:LEU:HD11	2.22	0.66
1:A:78:PHE:HB3	1:A:81:MET:HG2	1.77	0.66
1:B:156:VAL:HA	1:B:160:ALA:HB3	1.77	0.66
1:A:371:GLU:OE1	1:B:539:LEU:HD22	1.94	0.66
1:B:99:LEU:HD11	1:B:133:LYS:HD3	1.77	0.66
1:B:290:TRP:HD1	1:B:290:TRP:O	1.79	0.66
1:A:36:LYS:O	1:A:40:MET:HG3	1.96	0.66
1:B:237:SER:O	1:B:241:MET:HG2	1.96	0.66
1:A:278:GLU:O	1:A:279:TYR:HB3	1.96	0.66
1:A:282:GLN:HE21	1:A:282:GLN:HA	1.60	0.65
1:A:428:ARG:CG	1:A:428:ARG:NH1	2.57	0.65
1:A:398:MET:O	1:A:402:PRO:HB3	1.97	0.65
1:A:22:ARG:HA	1:A:22:ARG:NE	2.12	0.64
1:A:394:LEU:CD1	1:A:398:MET:HE3	2.27	0.64
1:B:78:PHE:HB3	1:B:81:MET:HG2	1.79	0.64
1:B:138:ILE:HG22	1:B:139:THR:N	2.13	0.63
1:B:307:LYS:HZ1	1:B:338:LYS:HG3	1.62	0.63
1:B:554:PRO:O	1:B:555:GLU:HB3	1.97	0.63
1:A:299:LEU:HB3	1:A:301:LEU:HD21	1.81	0.63
1:B:543:ARG:HA	1:B:543:ARG:HH11	1.63	0.63
1:B:546:GLU:O	1:B:550:PHE:CD1	2.50	0.63
1:A:477:LEU:O	1:A:480:LYS:HB2	1.99	0.62
1:B:61:LEU:HD12	1:B:63:GLN:HE22	1.62	0.62
1:B:99:LEU:CD1	1:B:133:LYS:HD3	2.29	0.62
1:A:456:GLU:CG	1:B:568:VAL:HG13	2.29	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:480:LYS:HA	1:A:480:LYS:CE	2.29	0.62
1:B:145:ARG:HG2	1:B:145:ARG:O	1.98	0.62
1:A:80:LEU:HA	1:A:118:ASN:HD21	1.64	0.62
1:A:178:GLU:O	1:A:180:TRP:N	2.32	0.62
1:A:137:ILE:HD12	1:A:138:ILE:HG13	1.82	0.62
1:A:115:GLU:CD	1:A:115:GLU:H	2.03	0.62
1:A:275:LYS:O	1:A:278:GLU:HB2	2.00	0.62
1:B:36:LYS:O	1:B:40:MET:HG3	1.99	0.62
1:B:37:LEU:HD23	1:B:54:LEU:HA	1.82	0.61
1:B:142:GLU:HG3	1:B:143:GLU:N	2.15	0.61
1:B:366:LEU:HD22	1:B:370:TYR:CE1	2.35	0.61
1:A:232:HIS:HA	1:A:235:GLU:OE1	1.99	0.61
1:A:472:CYS:O	1:A:476:GLU:HG3	2.00	0.61
1:A:489:ILE:HD12	1:A:508:LEU:HD11	1.81	0.61
1:B:162:PHE:CD2	1:B:309:ARG:HG3	2.36	0.61
1:A:394:LEU:CG	1:A:398:MET:HE3	2.31	0.61
1:A:465:SER:O	1:A:467:ASP:N	2.34	0.60
1:A:543:ARG:HH11	1:A:543:ARG:HA	1.66	0.60
1:B:264:THR:HG22	1:B:266:ASN:H	1.66	0.60
1:A:282:GLN:HA	1:A:282:GLN:NE2	2.16	0.60
1:B:61:LEU:CD1	1:B:63:GLN:HE21	2.10	0.60
1:B:290:TRP:O	1:B:290:TRP:CD1	2.54	0.60
1:A:167:ILE:HB	1:A:208:ASP:OD1	2.02	0.60
1:B:559:LEU:HD21	1:B:579:LEU:HD11	1.84	0.60
1:B:275:LYS:O	1:B:278:GLU:HB2	2.01	0.59
1:A:254:THR:HG23	1:A:257:LEU:HB2	1.84	0.59
1:A:368:GLU:O	1:A:372:LEU:HD13	2.01	0.59
1:B:538:SER:O	1:B:540:ASN:N	2.35	0.59
1:A:23:PRO:O	1:A:25:SER:N	2.34	0.59
1:A:178:GLU:C	1:A:180:TRP:H	2.05	0.59
1:A:173:TYR:CE2	1:A:198:LEU:HD13	2.38	0.59
1:A:427:LYS:HE2	1:A:427:LYS:O	2.02	0.59
1:B:254:THR:HG23	1:B:257:LEU:HB2	1.84	0.59
1:B:140:GLY:HA3	1:B:144:ALA:HB2	1.85	0.59
1:B:528:LYS:HB2	1:B:528:LYS:NZ	2.17	0.59
1:B:37:LEU:HD23	1:B:54:LEU:CA	2.33	0.59
1:B:167:ILE:HB	1:B:208:ASP:OD1	2.02	0.59
1:A:479:LEU:CD1	1:A:483:ALA:HA	2.33	0.58
1:B:401:ASP:OD2	1:B:404:ASN:HB2	2.02	0.58
1:A:138:ILE:HG22	1:A:139:THR:N	2.19	0.58
1:A:189:GLN:HE21	1:A:190:GLN:N	2.01	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:280:ASP:OD1	1:A:282:GLN:HB3	2.04	0.58
1:B:65:LYS:O	1:B:69:GLU:HG3	2.03	0.58
1:A:224:VAL:O	1:A:225:ASN:HB2	2.02	0.58
1:A:533:GLU:HG3	1:A:545:LEU:HD11	1.86	0.58
1:B:538:SER:HB2	1:B:541:SER:OG	2.04	0.58
1:A:429:ILE:HG22	1:A:430:GLN:HG3	1.84	0.57
1:B:232:HIS:O	1:B:234:GLY:N	2.37	0.57
1:A:236:LEU:O	1:A:238:ALA:N	2.37	0.57
1:B:264:THR:HB	1:B:267:GLN:CG	2.24	0.57
1:B:191:ARG:O	1:B:195:ILE:HG13	2.04	0.57
1:B:199:TYR:CD1	1:B:217:TYR:HB2	2.40	0.57
1:A:429:ILE:CG2	1:A:430:GLN:HG3	2.34	0.57
1:A:538:SER:O	1:A:540:ASN:N	2.37	0.57
1:A:417:TYR:CD1	1:B:573:TYR:HB2	2.38	0.57
1:B:55:LEU:HD21	1:B:70:THR:HB	1.87	0.57
1:A:26:ARG:HG2	1:A:26:ARG:NH1	2.16	0.57
1:B:292:ARG:HH11	1:B:292:ARG:HB3	1.70	0.57
1:A:361:VAL:HG21	1:B:579:LEU:HD21	1.86	0.57
1:A:433:ALA:O	1:A:437:LYS:HG3	2.04	0.57
1:A:475:LEU:HD12	1:A:475:LEU:N	2.07	0.57
1:A:520:HIS:HE1	1:A:524:MET:CE	2.18	0.57
1:A:142:GLU:HG3	1:A:143:GLU:N	2.20	0.57
1:A:394:LEU:HG	1:A:398:MET:HE3	1.85	0.57
1:A:143:GLU:HA	1:A:146:ASN:HB3	1.86	0.56
1:B:299:LEU:CB	1:B:301:LEU:HD21	2.34	0.56
1:A:521:LEU:O	1:A:525:ILE:HG13	2.05	0.56
1:B:559:LEU:HD21	1:B:579:LEU:CD1	2.35	0.56
1:A:482:PHE:HB2	1:A:488:TYR:CD2	2.40	0.56
1:B:30:GLU:N	1:B:36:LYS:HZ1	2.02	0.56
1:B:489:ILE:HD12	1:B:508:LEU:HD11	1.85	0.56
1:A:479:LEU:HD12	1:A:483:ALA:HA	1.88	0.56
1:A:432:LEU:HD23	1:A:436:ARG:HD3	1.88	0.56
1:B:220:TRP:O	1:B:224:VAL:HG23	2.06	0.56
1:A:167:ILE:HG23	1:A:168:GLN:H	1.70	0.55
1:B:450:THR:HG23	1:B:452:ASP:H	1.72	0.55
1:A:202:LEU:C	1:A:202:LEU:HD12	2.27	0.55
1:A:224:VAL:O	1:A:224:VAL:HG12	2.07	0.55
1:B:61:LEU:CD1	1:B:63:GLN:NE2	2.56	0.55
1:B:520:HIS:HE1	1:B:524:MET:CE	2.19	0.55
1:A:307:LYS:NZ	1:A:338:LYS:HG3	2.21	0.55
1:A:539:LEU:HD22	1:B:371:GLU:OE1	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:538:SER:C	1:A:540:ASN:N	2.60	0.55
1:B:178:GLU:C	1:B:180:TRP:H	2.10	0.55
1:B:178:GLU:O	1:B:180:TRP:N	2.39	0.55
1:A:78:PHE:HB3	1:A:81:MET:CG	2.37	0.54
1:A:299:LEU:CB	1:A:301:LEU:HD21	2.37	0.54
1:A:489:ILE:HG21	1:A:516:ILE:HD11	1.88	0.54
1:A:66:GLN:HA	1:A:69:GLU:HG3	1.90	0.54
1:A:232:HIS:O	1:A:234:GLY:N	2.40	0.54
1:A:26:ARG:O	1:A:28:ARG:N	2.40	0.54
1:B:230:ARG:HH11	1:B:230:ARG:CB	2.20	0.54
1:A:456:GLU:HG3	1:B:568:VAL:HG13	1.89	0.54
1:A:181:LYS:NZ	1:A:181:LYS:H	2.06	0.54
1:B:173:TYR:CE2	1:B:198:LEU:HD13	2.43	0.54
1:A:345:ILE:HB	1:A:369:GLN:OE1	2.08	0.54
1:A:350:LYS:HZ1	1:A:354:GLN:HE21	1.54	0.54
1:B:291:ILE:HD13	1:B:314:TYR:CE1	2.42	0.54
1:B:463:HIS:HD2	1:B:466:LYS:HE2	1.72	0.54
1:B:468:THR:O	1:B:472:CYS:HB2	2.08	0.54
1:A:489:ILE:HG13	1:A:516:ILE:HD11	1.90	0.53
1:B:428:ARG:HG2	1:B:428:ARG:NH1	2.23	0.53
1:A:99:LEU:HD13	1:A:133:LYS:HD3	1.89	0.53
1:A:538:SER:HB2	1:A:541:SER:OG	2.08	0.53
1:A:568:VAL:O	1:A:569:LEU:HB2	2.08	0.53
1:B:426:MET:HE2	1:B:426:MET:HA	1.89	0.53
1:B:342:SER:HB2	1:B:373:ASN:OD1	2.08	0.53
1:A:531:PHE:O	1:A:531:PHE:CD1	2.61	0.53
1:A:518:ASP:CG	1:A:519:SER:H	2.12	0.53
1:A:199:TYR:CD1	1:A:217:TYR:HB2	2.43	0.53
1:B:202:LEU:HD12	1:B:202:LEU:C	2.29	0.53
1:B:551:GLU:O	1:B:554:PRO:HD3	2.09	0.53
1:A:245:SER:O	1:A:248:GLN:HB2	2.09	0.53
1:A:432:LEU:CD2	1:A:436:ARG:HD3	2.39	0.53
1:A:531:PHE:CD1	1:A:531:PHE:C	2.82	0.53
1:A:511:SER:O	1:A:515:LYS:HE2	2.09	0.53
1:B:202:LEU:HD12	1:B:203:LEU:N	2.24	0.53
1:A:220:TRP:O	1:A:224:VAL:HG23	2.09	0.52
1:B:304:ASP:N	1:B:304:ASP:OD2	2.42	0.52
1:A:140:GLY:CA	1:A:144:ALA:HB2	2.40	0.52
1:A:254:THR:HG23	1:A:257:LEU:CB	2.39	0.52
1:A:232:HIS:CD2	1:A:232:HIS:N	2.77	0.52
1:A:299:LEU:O	1:A:300:GLU:HB2	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:340:THR:O	1:A:341:ASP:HB3	2.09	0.52
1:A:307:LYS:HE3	1:A:335:GLN:HE22	1.74	0.52
1:B:238:ALA:HB3	1:B:239:GLN:HE21	1.73	0.52
1:B:509:PHE:O	1:B:513:ILE:HG13	2.09	0.52
1:A:401:ASP:O	1:A:401:ASP:CG	2.47	0.52
1:B:137:ILE:CD1	1:B:138:ILE:HG13	2.37	0.52
1:B:468:THR:O	1:B:468:THR:HG22	2.10	0.52
1:B:531:PHE:CD1	1:B:531:PHE:C	2.83	0.52
1:A:156:VAL:HA	1:A:160:ALA:HB3	1.92	0.52
1:A:264:THR:HG22	1:A:265:LEU:N	2.24	0.52
1:B:432:LEU:C	1:B:432:LEU:HD23	2.30	0.52
1:B:433:ALA:O	1:B:437:LYS:HG3	2.10	0.52
1:B:37:LEU:HD23	1:B:54:LEU:HB2	1.92	0.51
1:B:231:ARG:HG3	1:B:232:HIS:CD2	2.39	0.51
1:A:307:LYS:HE3	1:A:335:GLN:NE2	2.26	0.51
1:B:543:ARG:HA	1:B:543:ARG:NH1	2.25	0.51
1:B:167:ILE:CG2	1:B:168:GLN:N	2.72	0.51
1:A:192:VAL:HG12	1:A:220:TRP:HZ2	1.75	0.51
1:A:547:LYS:O	1:A:551:GLU:HG3	2.10	0.51
1:A:579:LEU:C	1:A:581:TYR:H	2.12	0.51
1:B:162:PHE:HD2	1:B:309:ARG:HG3	1.75	0.51
1:B:520:HIS:HE1	1:B:524:MET:HE1	1.75	0.51
1:A:304:ASP:OD2	1:A:304:ASP:N	2.44	0.51
1:B:68:TYR:N	1:B:68:TYR:CD2	2.78	0.50
1:B:307:LYS:HZ2	1:B:338:LYS:HG3	1.76	0.50
1:A:189:GLN:NE2	1:A:189:GLN:C	2.65	0.50
1:B:202:LEU:HD21	1:B:213:MET:CG	2.42	0.50
1:A:259:ARG:C	1:A:260:ASN:HD22	2.13	0.50
1:A:292:ARG:O	1:A:295:SER:OG	2.23	0.50
1:A:452:ASP:O	1:A:456:GLU:HB2	2.11	0.50
1:B:81:MET:CE	1:B:319:GLN:HA	2.41	0.50
1:B:173:TYR:CD2	1:B:198:LEU:HD13	2.46	0.50
1:B:56:LYS:HG3	1:B:265:LEU:HD23	1.94	0.50
1:B:192:VAL:HG12	1:B:220:TRP:HZ2	1.76	0.50
1:A:89:LEU:HD21	1:A:107:VAL:CG1	2.41	0.50
1:A:326:GLU:O	1:A:326:GLU:HG3	2.09	0.50
1:A:538:SER:OG	1:A:541:SER:HB2	2.12	0.50
1:B:189:GLN:HE21	1:B:190:GLN:N	2.08	0.50
1:B:290:TRP:CD1	1:B:290:TRP:C	2.84	0.50
1:A:315:MET:HG3	1:A:331:MET:HE3	1.94	0.50
1:B:509:PHE:CE2	1:B:513:ILE:HD11	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:544:THR:O	1:B:547:LYS:N	2.45	0.50
1:B:432:LEU:HD23	1:B:436:ARG:HD3	1.94	0.50
1:A:262:PRO:HG3	1:A:272:ASN:ND2	2.27	0.50
1:A:493:LEU:HD23	1:A:496:LEU:HD12	1.93	0.50
1:A:315:MET:HG3	1:A:331:MET:CE	2.42	0.49
1:B:282:GLN:HE21	1:B:282:GLN:HA	1.77	0.49
1:A:554:PRO:O	1:A:555:GLU:HB3	2.11	0.49
1:B:72:ASP:OD1	1:B:88:ARG:NH1	2.43	0.49
1:A:81:MET:CE	1:A:319:GLN:HA	2.42	0.49
1:A:426:MET:HG3	1:A:438:ILE:HD11	1.93	0.49
1:B:280:ASP:OD1	1:B:282:GLN:HB3	2.13	0.49
1:A:167:ILE:CG2	1:A:168:GLN:N	2.75	0.49
1:B:192:VAL:HG12	1:B:220:TRP:CZ2	2.47	0.49
1:B:429:ILE:HG22	1:B:430:GLN:HG3	1.92	0.49
1:B:236:LEU:O	1:B:238:ALA:N	2.46	0.49
1:B:493:LEU:O	1:B:494:ASP:C	2.50	0.49
1:A:22:ARG:HA	1:A:22:ARG:CZ	2.43	0.49
1:A:550:PHE:HE2	1:A:558:LYS:HA	1.78	0.49
1:B:258:LYS:H	1:B:283:GLN:NE2	2.04	0.49
1:A:22:ARG:CB	1:A:23:PRO:HD3	2.43	0.49
1:B:489:ILE:HG21	1:B:516:ILE:HD11	1.94	0.49
1:A:294:GLU:HG3	1:A:313:VAL:HG21	1.95	0.49
1:A:371:GLU:CD	1:B:539:LEU:HD22	2.33	0.49
1:B:282:GLN:HA	1:B:282:GLN:NE2	2.27	0.49
1:B:299:LEU:O	1:B:300:GLU:HB2	2.13	0.49
1:A:366:LEU:O	1:A:369:GLN:N	2.46	0.48
1:B:394:LEU:HG	1:B:398:MET:HE3	1.95	0.48
1:A:338:LYS:HE2	1:A:338:LYS:HA	1.95	0.48
1:A:414:LYS:HB2	1:B:577:LEU:HD13	1.95	0.48
1:B:309:ARG:O	1:B:313:VAL:HG23	2.13	0.48
1:B:563:THR:HB	1:B:572:ASN:HD21	1.78	0.48
1:A:61:LEU:HB2	1:A:63:GLN:HG3	1.95	0.48
1:A:472:CYS:SG	1:A:504:GLN:NE2	2.87	0.48
1:B:214:TRP:CH2	1:B:233:ILE:HG23	2.48	0.48
1:B:542:VAL:HG12	1:B:546:GLU:HG3	1.95	0.48
1:B:264:THR:HG22	1:B:265:LEU:N	2.28	0.48
1:B:501:GLU:O	1:B:504:GLN:HB2	2.12	0.48
1:A:145:ARG:O	1:A:145:ARG:HG2	2.12	0.48
1:A:428:ARG:NH2	1:B:539:LEU:HD13	2.29	0.48
1:B:550:PHE:CE2	1:B:558:LYS:HD3	2.48	0.48
1:A:89:LEU:HD21	1:A:107:VAL:HG12	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:180:TRP:CE3	1:A:191:ARG:HG3	2.48	0.48
1:A:474:VAL:O	1:A:477:LEU:HB2	2.13	0.48
1:B:55:LEU:HD22	1:B:67:VAL:HG13	1.94	0.48
1:B:292:ARG:O	1:B:293:TRP:C	2.50	0.48
1:A:52:VAL:HG11	1:A:268:ALA:HB3	1.95	0.48
1:A:181:LYS:H	1:A:181:LYS:HZ3	1.61	0.48
1:A:359:SER:HA	1:B:578:GLU:OE2	2.13	0.48
1:A:553:PHE:HB3	1:A:556:VAL:CG2	2.44	0.48
1:A:277:ASN:ND2	1:A:358:ASN:OD1	2.45	0.48
1:A:401:ASP:OD2	1:A:404:ASN:HB2	2.14	0.48
1:A:350:LYS:HZ1	1:A:354:GLN:NE2	2.12	0.48
1:B:189:GLN:NE2	1:B:190:GLN:N	2.62	0.48
1:B:224:VAL:O	1:B:224:VAL:HG12	2.14	0.47
1:B:539:LEU:HA	1:B:542:VAL:CG2	2.43	0.47
1:A:192:VAL:HG12	1:A:220:TRP:CZ2	2.49	0.47
1:B:358:ASN:C	1:B:358:ASN:ND2	2.66	0.47
1:A:512:SER:HB2	1:A:516:ILE:HG13	1.96	0.47
1:B:225:ASN:C	1:B:227:LEU:H	2.18	0.47
1:B:565:LYS:NZ	1:B:565:LYS:CB	2.77	0.47
1:B:55:LEU:CD2	1:B:70:THR:HB	2.44	0.47
1:B:432:LEU:CD2	1:B:436:ARG:HD3	2.44	0.47
1:A:462:TYR:C	1:A:464:ILE:H	2.17	0.47
1:B:518:ASP:CG	1:B:519:SER:H	2.17	0.47
1:A:372:LEU:C	1:A:374:THR:H	2.17	0.47
1:B:121:LEU:HD21	1:B:169:PHE:HB2	1.96	0.47
1:B:246:LEU:HD22	1:B:293:TRP:CZ2	2.50	0.47
1:B:538:SER:C	1:B:540:ASN:N	2.66	0.47
1:A:212:SER:O	1:A:216:ARG:HG3	2.14	0.47
1:A:553:PHE:C	1:A:554:PRO:O	2.50	0.47
1:B:222:GLN:C	1:B:224:VAL:H	2.18	0.47
1:B:293:TRP:NE1	1:B:298:LYS:HD2	2.29	0.47
1:B:479:LEU:HD12	1:B:483:ALA:HA	1.97	0.47
1:B:221:GLU:HA	1:B:221:GLU:OE1	2.15	0.47
1:B:479:LEU:HD22	1:B:492:TYR:HE2	1.80	0.47
1:A:445:LEU:O	1:A:446:LYS:HB2	2.14	0.47
1:A:297:ASN:HB2	1:A:306:HIS:CD2	2.50	0.46
1:B:155:VAL:HG11	1:B:169:PHE:CE1	2.50	0.46
1:B:489:ILE:HG13	1:B:516:ILE:HD11	1.96	0.46
1:A:329:PHE:CG	1:B:559:LEU:HD13	2.51	0.46
1:A:479:LEU:HD12	1:A:483:ALA:CA	2.44	0.46
1:A:509:PHE:HZ	1:A:526:PHE:CE2	2.34	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:112:LEU:HD22	1:B:124:TRP:CH2	2.51	0.46
1:B:307:LYS:CD	1:B:338:LYS:HD2	2.38	0.46
1:A:520:HIS:HE1	1:A:524:MET:HE1	1.80	0.46
1:A:543:ARG:HA	1:A:543:ARG:NH1	2.30	0.46
1:A:350:LYS:HZ2	1:A:354:GLN:HE21	1.63	0.46
1:A:407:ALA:O	1:A:411:LEU:HD13	2.15	0.46
1:B:568:VAL:O	1:B:569:LEU:HB2	2.15	0.46
1:A:439:PHE:CD2	1:A:457:ASN:OD1	2.69	0.46
1:B:284:LEU:O	1:B:288:LEU:HG	2.15	0.46
1:A:189:GLN:NE2	1:A:190:GLN:N	2.63	0.46
1:A:307:LYS:CE	1:A:335:GLN:HE22	2.28	0.46
1:B:77:ARG:C	1:B:79:PRO:HD3	2.36	0.46
1:A:454:TYR:CE1	1:A:482:PHE:HE1	2.34	0.46
1:A:509:PHE:CE2	1:A:513:ILE:HD11	2.51	0.46
1:B:448:LEU:HD12	1:B:448:LEU:HA	1.75	0.46
1:A:519:SER:OG	1:A:520:HIS:N	2.49	0.45
1:B:107:VAL:HG12	1:B:108:LEU:N	2.31	0.45
1:B:244:ARG:HH11	1:B:244:ARG:CB	2.14	0.45
1:B:401:ASP:CG	1:B:401:ASP:O	2.55	0.45
1:B:569:LEU:O	1:B:571:VAL:HG23	2.16	0.45
1:A:142:GLU:O	1:A:146:ASN:HB2	2.16	0.45
1:B:209:CYS:O	1:B:213:MET:HB2	2.16	0.45
1:B:452:ASP:O	1:B:456:GLU:HB2	2.17	0.45
1:B:484:THR:O	1:B:484:THR:HG22	2.16	0.45
1:A:550:PHE:CD2	1:A:558:LYS:HD3	2.52	0.45
1:A:569:LEU:O	1:A:571:VAL:HG23	2.16	0.45
1:B:125:LEU:HD23	1:B:125:LEU:HA	1.53	0.45
1:B:416:THR:HG21	1:B:450:THR:HG22	1.99	0.45
1:B:425:THR:HG22	1:B:426:MET:HE3	1.97	0.45
1:B:564:ASN:O	1:B:567:LYS:HG3	2.16	0.45
1:A:37:LEU:HD23	1:A:54:LEU:HA	1.98	0.45
1:A:264:THR:HG22	1:A:266:ASN:H	1.81	0.45
1:A:484:THR:HG22	1:A:484:THR:O	2.16	0.45
1:A:560:GLU:HA	1:A:582:MET:HE3	1.97	0.45
1:B:144:ALA:C	1:B:146:ASN:H	2.19	0.45
1:B:380:GLU:O	1:B:384:LEU:HB2	2.17	0.45
1:A:115:GLU:HG2	1:A:116:LEU:N	2.23	0.45
1:A:128:ILE:HD11	1:A:152:PHE:HA	1.99	0.45
1:A:236:LEU:O	1:A:237:SER:C	2.55	0.45
1:A:475:LEU:H	1:A:475:LEU:CD1	2.04	0.45
1:B:49:PHE:HD1	1:B:273:LEU:HD12	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:115:GLU:CD	1:B:115:GLU:N	2.60	0.45
1:B:523:LYS:HB2	1:B:553:PHE:CE2	2.52	0.45
1:B:78:PHE:HB3	1:B:81:MET:CG	2.45	0.45
1:B:547:LYS:O	1:B:551:GLU:HG3	2.17	0.45
1:A:573:TYR:O	1:A:574:LEU:C	2.56	0.44
1:B:125:LEU:CD1	1:B:168:GLN:NE2	2.80	0.44
1:B:182:PRO:HG2	1:B:188:GLU:HA	1.98	0.44
1:B:519:SER:O	1:B:521:LEU:N	2.50	0.44
1:B:565:LYS:NZ	1:B:565:LYS:HB3	2.32	0.44
1:A:485:ASP:CG	1:A:487:GLU:HB3	2.38	0.44
1:B:115:GLU:HG2	1:B:116:LEU:N	2.27	0.44
1:B:200:LYS:HD3	1:B:236:LEU:CD2	2.20	0.44
1:B:436:ARG:O	1:B:437:LYS:C	2.55	0.44
1:B:520:HIS:O	1:B:520:HIS:ND1	2.49	0.44
1:A:244:ARG:HH11	1:A:244:ARG:HB3	1.81	0.44
1:A:428:ARG:HD2	1:A:428:ARG:O	2.17	0.44
1:B:337:GLU:O	1:B:338:LYS:O	2.35	0.44
1:B:177:LEU:HD23	1:B:177:LEU:HA	1.77	0.44
1:B:254:THR:HG23	1:B:257:LEU:CB	2.48	0.44
1:B:565:LYS:HD2	1:B:566:TYR:CE1	2.53	0.44
1:A:81:MET:HE2	1:A:319:GLN:HA	1.98	0.44
1:A:508:LEU:O	1:A:508:LEU:HD12	2.17	0.44
1:B:212:SER:O	1:B:216:ARG:HG3	2.17	0.44
1:A:61:LEU:CD1	1:A:63:GLN:NE2	2.72	0.44
1:A:520:HIS:HE1	1:A:524:MET:HE3	1.81	0.44
1:A:560:GLU:HG3	1:A:582:MET:HE3	2.00	0.44
1:A:572:ASN:HD21	1:A:574:LEU:HB2	1.83	0.44
1:B:140:GLY:CA	1:B:144:ALA:HB2	2.46	0.44
1:B:79:PRO:HB3	1:B:116:LEU:HD13	1.99	0.44
1:B:174:LEU:HA	1:B:174:LEU:HD23	1.77	0.44
1:B:493:LEU:HD22	1:B:505:VAL:HG13	1.99	0.44
1:A:454:TYR:HE1	1:A:482:PHE:HE1	1.64	0.44
1:A:438:ILE:O	1:A:441:LYS:HG2	2.18	0.44
1:A:468:THR:O	1:A:468:THR:CG2	2.65	0.44
1:A:579:LEU:N	1:A:579:LEU:HD23	2.32	0.44
1:A:25:SER:O	1:A:27:VAL:N	2.46	0.43
1:A:207:MET:HE3	1:A:207:MET:HB3	1.64	0.43
1:B:508:LEU:HD12	1:B:508:LEU:O	2.17	0.43
1:A:173:TYR:CD2	1:A:198:LEU:HD13	2.54	0.43
1:A:425:THR:O	1:A:429:ILE:HB	2.17	0.43
1:B:181:LYS:NZ	1:B:181:LYS:H	2.16	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:214:TRP:O	1:B:215:GLN:C	2.57	0.43
1:A:52:VAL:HG11	1:A:268:ALA:CB	2.48	0.43
1:A:197:LYS:HG2	1:A:197:LYS:O	2.19	0.43
1:A:477:LEU:HD13	1:A:477:LEU:HA	1.87	0.43
1:A:528:LYS:HB2	1:A:528:LYS:NZ	2.33	0.43
1:B:225:ASN:O	1:B:227:LEU:N	2.51	0.43
1:B:426:MET:HA	1:B:426:MET:CE	2.48	0.43
1:A:22:ARG:HB3	1:A:23:PRO:HD3	2.00	0.43
1:A:187:GLU:C	1:A:189:GLN:N	2.70	0.43
1:A:456:GLU:HG3	1:B:568:VAL:CG1	2.48	0.43
1:A:84:ILE:HA	1:A:87:MET:CE	2.49	0.43
1:B:137:ILE:HD12	1:B:138:ILE:N	2.33	0.43
1:A:121:LEU:HD23	1:A:121:LEU:O	2.19	0.43
1:A:441:LYS:O	1:A:444:ARG:HB3	2.19	0.43
1:B:115:GLU:HB2	1:B:347:LYS:NZ	2.33	0.43
1:B:539:LEU:HA	1:B:542:VAL:HG23	2.00	0.43
1:B:372:LEU:C	1:B:374:THR:H	2.22	0.43
1:B:462:TYR:O	1:B:464:ILE:N	2.52	0.43
1:B:492:TYR:O	1:B:495:PHE:HB3	2.19	0.43
1:A:385:SER:O	1:A:386:CYS:C	2.56	0.43
1:B:37:LEU:CD2	1:B:54:LEU:HA	2.48	0.43
1:B:56:LYS:CG	1:B:265:LEU:HD23	2.48	0.43
1:B:143:GLU:HA	1:B:146:ASN:HB3	2.01	0.43
1:B:232:HIS:C	1:B:234:GLY:N	2.72	0.43
1:A:520:HIS:CE1	1:A:524:MET:HE3	2.54	0.43
1:B:259:ARG:C	1:B:260:ASN:HD22	2.21	0.43
1:B:289:GLU:OE2	1:B:289:GLU:HA	2.19	0.43
1:A:299:LEU:HB3	1:A:301:LEU:CD2	2.49	0.42
1:A:451:PRO:HG3	1:A:482:PHE:CG	2.54	0.42
1:B:37:LEU:HD23	1:B:54:LEU:CB	2.49	0.42
1:B:366:LEU:O	1:B:369:GLN:N	2.52	0.42
1:B:366:LEU:O	1:B:367:SER:C	2.57	0.42
1:B:191:ARG:O	1:B:191:ARG:HG2	2.18	0.42
1:A:297:ASN:CG	1:A:297:ASN:O	2.56	0.42
1:A:430:GLN:O	1:A:434:ALA:HB2	2.19	0.42
1:A:492:TYR:O	1:A:495:PHE:HB3	2.19	0.42
1:B:90:SER:O	1:B:91:LEU:C	2.58	0.42
1:B:128:ILE:CD1	1:B:152:PHE:CD1	3.03	0.42
1:B:327:ILE:HG23	1:B:328:TRP:N	2.35	0.42
1:A:180:TRP:CD1	1:A:180:TRP:C	2.91	0.42
1:B:140:GLY:C	1:B:144:ALA:HB2	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:165:LYS:HE3	1:B:208:ASP:HB3	2.02	0.42
1:B:368:GLU:O	1:B:372:LEU:HD13	2.20	0.42
1:B:471:ALA:O	1:B:475:LEU:HD11	2.19	0.42
1:A:436:ARG:HG2	1:A:436:ARG:HH11	1.85	0.42
1:A:575:GLN:O	1:A:580:ASP:HA	2.19	0.42
1:B:137:ILE:HG22	1:B:145:ARG:HB2	2.01	0.42
1:B:460:ILE:C	1:B:462:TYR:N	2.73	0.42
1:A:479:LEU:HD12	1:A:479:LEU:HA	1.78	0.42
1:A:232:HIS:O	1:A:235:GLU:OE1	2.37	0.42
1:B:103:VAL:O	1:B:106:PRO:HG2	2.20	0.42
1:B:120:ASP:OD2	1:B:122:SER:HB2	2.19	0.42
1:B:531:PHE:CD1	1:B:531:PHE:O	2.72	0.42
1:B:262:PRO:HG2	1:B:268:ALA:HA	2.02	0.42
1:B:279:TYR:CE2	1:B:324:ALA:HA	2.54	0.42
1:A:493:LEU:HD23	1:A:493:LEU:HA	1.89	0.42
1:B:77:ARG:O	1:B:79:PRO:HD3	2.20	0.42
1:B:263:ILE:H	1:B:263:ILE:HG13	1.80	0.42
1:B:512:SER:HB2	1:B:516:ILE:HG13	2.01	0.42
1:A:112:LEU:HD22	1:A:124:TRP:CH2	2.54	0.41
1:B:51:TYR:CD2	1:B:74:LEU:HD21	2.55	0.41
1:B:231:ARG:HD2	1:B:231:ARG:C	2.40	0.41
1:B:324:ALA:O	1:B:327:ILE:HG22	2.19	0.41
1:B:394:LEU:HD13	1:B:411:LEU:HB3	2.02	0.41
1:B:412:LYS:NZ	1:B:447:LYS:O	2.39	0.41
1:A:37:LEU:HD23	1:A:54:LEU:CA	2.50	0.41
1:A:77:ARG:HG2	1:A:78:PHE:CD1	2.54	0.41
1:A:80:LEU:HA	1:A:118:ASN:ND2	2.32	0.41
1:A:236:LEU:C	1:A:238:ALA:N	2.71	0.41
1:A:550:PHE:CE2	1:A:558:LYS:HA	2.55	0.41
1:B:119:ASN:OD1	1:B:159:CYS:HB2	2.19	0.41
1:B:142:GLU:C	1:B:144:ALA:N	2.74	0.41
1:B:202:LEU:HD11	1:B:213:MET:HG2	2.02	0.41
1:B:81:MET:HE2	1:B:319:GLN:HA	2.01	0.41
1:A:177:LEU:HA	1:A:177:LEU:HD23	1.84	0.41
1:A:446:LYS:HB3	1:A:447:LYS:H	1.45	0.41
1:A:539:LEU:HD23	1:B:372:LEU:HD11	2.01	0.41
1:B:164:PRO:HG2	1:B:250:TRP:CZ2	2.55	0.41
1:A:195:ILE:HG22	1:A:195:ILE:O	2.21	0.41
1:B:144:ALA:C	1:B:146:ASN:N	2.74	0.41
1:B:249:ASP:O	1:B:250:TRP:C	2.59	0.41
1:B:519:SER:C	1:B:521:LEU:N	2.74	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:138:ILE:HG22	1:A:139:THR:HG23	2.02	0.41
1:A:164:PRO:HG3	1:A:250:TRP:CE2	2.55	0.41
1:A:261:LEU:HA	1:A:262:PRO:HD3	1.87	0.41
1:A:574:LEU:HA	1:A:574:LEU:HD23	1.64	0.41
1:B:125:LEU:HD21	1:B:169:PHE:HD1	1.85	0.41
1:A:187:GLU:O	1:A:189:GLN:N	2.54	0.41
1:A:253:ILE:HG23	1:A:289:GLU:HG3	2.02	0.41
1:A:479:LEU:HD11	1:A:483:ALA:HA	2.01	0.41
1:B:394:LEU:CG	1:B:398:MET:HE3	2.51	0.41
1:B:526:PHE:O	1:B:530:ILE:HG13	2.21	0.41
1:A:464:ILE:HB	1:A:465:SER:H	1.65	0.41
1:A:493:LEU:HD22	1:A:505:VAL:HG13	2.02	0.41
1:B:195:ILE:O	1:B:195:ILE:HG22	2.20	0.41
1:B:232:HIS:HA	1:B:235:GLU:OE1	2.20	0.41
1:B:243:ALA:O	1:B:246:LEU:N	2.54	0.41
1:B:464:ILE:HB	1:B:465:SER:H	1.71	0.41
1:A:24:THR:CB	1:A:43:GLU:OE2	2.69	0.41
1:A:416:THR:HG23	1:A:449:VAL:HB	2.03	0.41
1:A:466:LYS:HZ1	1:B:500:ASN:HB3	1.86	0.41
1:A:466:LYS:HA	1:A:466:LYS:HD3	1.94	0.41
1:A:485:ASP:OD2	1:A:487:GLU:HB3	2.21	0.41
1:A:579:LEU:O	1:A:581:TYR:N	2.54	0.41
1:B:74:LEU:HD23	1:B:74:LEU:HA	1.86	0.41
1:B:137:ILE:H	1:B:137:ILE:HG13	1.69	0.41
1:B:246:LEU:HD23	1:B:246:LEU:HA	1.86	0.41
1:B:465:SER:O	1:B:467:ASP:N	2.54	0.41
1:B:574:LEU:HD23	1:B:574:LEU:HA	1.81	0.41
1:A:77:ARG:C	1:A:79:PRO:HD3	2.42	0.41
1:A:127:TYR:O	1:A:131:VAL:HG23	2.21	0.41
1:B:85:TRP:CD2	1:B:111:CYS:HB3	2.56	0.41
1:B:463:HIS:CD2	1:B:466:LYS:HE2	2.55	0.41
1:A:178:GLU:C	1:A:180:TRP:N	2.72	0.40
1:A:299:LEU:O	1:A:300:GLU:CB	2.68	0.40
1:A:358:ASN:C	1:A:358:ASN:ND2	2.66	0.40
1:A:394:LEU:HD21	1:A:398:MET:HE1	2.03	0.40
1:A:411:LEU:N	1:A:411:LEU:CD1	2.84	0.40
1:A:469:LYS:O	1:A:473:LYS:HG3	2.21	0.40
1:A:34:ILE:CG1	1:A:57:HIS:CD2	3.04	0.40
1:A:254:THR:HG22	1:A:255:LYS:N	2.36	0.40
1:A:301:LEU:HB3	1:A:305:LEU:HB3	2.03	0.40
1:B:340:THR:O	1:B:341:ASP:HB3	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:510:GLU:OE1	1:B:510:GLU:HA	2.19	0.40
1:A:202:LEU:HD12	1:A:203:LEU:N	2.36	0.40
1:A:292:ARG:HH11	1:A:292:ARG:CB	2.27	0.40
1:A:358:ASN:O	1:A:414:LYS:NZ	2.54	0.40
1:A:366:LEU:HD22	1:A:370:TYR:CE1	2.56	0.40
1:A:417:TYR:OH	1:B:574:LEU:HG	2.20	0.40
1:A:453:ILE:HD12	1:A:453:ILE:HA	1.93	0.40
1:A:520:HIS:O	1:A:520:HIS:ND1	2.54	0.40
1:A:533:GLU:HG3	1:A:545:LEU:CD1	2.50	0.40
1:A:538:SER:CB	1:A:541:SER:OG	2.69	0.40
1:B:74:LEU:HD13	1:B:84:ILE:HD13	2.04	0.40
1:B:464:ILE:H	1:B:464:ILE:HG13	1.74	0.40
1:A:389:ARG:HA	1:A:389:ARG:HD2	1.86	0.40
1:A:128:ILE:HD13	1:A:152:PHE:CE1	2.57	0.40
1:B:85:TRP:CD2	1:B:111:CYS:CB	3.05	0.40
1:B:173:TYR:CD2	1:B:198:LEU:CD1	3.04	0.40
1:B:394:LEU:HG	1:B:398:MET:CE	2.51	0.40
1:B:394:LEU:HA	1:B:411:LEU:HD23	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	
1	A	551/678 (81%)	430 (78%)	91 (16%)	30 (5%)	2	11
1	B	550/678 (81%)	439 (80%)	87 (16%)	24 (4%)	2	15
All	All	1101/1356 (81%)	869 (79%)	178 (16%)	54 (5%)	2	13

All (54) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	113	SER
1	A	142	GLU
1	A	179	HIS
1	A	233	ILE
1	A	338	LYS
1	A	340	THR
1	A	463	HIS
1	A	466	LYS
1	B	113	SER
1	B	142	GLU
1	B	179	HIS
1	B	225	ASN
1	B	255	LYS
1	B	338	LYS
1	A	144	ALA
1	A	237	SER
1	A	464	ILE
1	A	500	ASN
1	A	502	GLU
1	A	517	SER
1	B	144	ALA
1	B	226	GLN
1	B	233	ILE
1	B	237	SER
1	B	279	TYR
1	B	341	ASP
1	B	463	HIS
1	B	466	LYS
1	B	500	ASN
1	B	502	GLU
1	B	539	LEU
1	A	31	SER
1	A	255	LYS
1	A	580	ASP
1	B	405	GLU
1	B	464	ILE
1	B	511	SER
1	A	223	ASP
1	A	235	GLU
1	A	279	TYR
1	A	538	SER
1	A	539	LEU
1	A	557	ASN

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Mol	Chain	Res	Type
1	B	138	ILE
1	B	197	LYS
1	B	517	SER
1	A	34	ILE
1	A	138	ILE
1	A	254	THR
1	A	341	ASP
1	A	374	THR
1	A	511	SER
1	A	524	MET
1	B	223	ASP

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	517/623 (83%)	468 (90%)	49 (10%)	8 32
1	B	513/623 (82%)	455 (89%)	58 (11%)	6 24
All	All	1030/1246 (83%)	923 (90%)	107 (10%)	7 27

All (107) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	ARG
1	A	39	ASP
1	A	71	PHE
1	A	97	GLU
1	A	121	LEU
1	A	126	SER
1	A	129	THR
1	A	159	CYS
1	A	174	LEU
1	A	179	HIS
1	A	185	LYS
1	A	189	GLN

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Mol	Chain	Res	Type
1	A	191	ARG
1	A	192	VAL
1	A	202	LEU
1	A	242	ASN
1	A	244	ARG
1	A	263	ILE
1	A	265	LEU
1	A	278	GLU
1	A	292	ARG
1	A	296	ASP
1	A	301	LEU
1	A	304	ASP
1	A	314	TYR
1	A	326	GLU
1	A	358	ASN
1	A	382	THR
1	A	384	LEU
1	A	391	HIS
1	A	406	SER
1	A	416	THR
1	A	427	LYS
1	A	428	ARG
1	A	429	ILE
1	A	436	ARG
1	A	448	LEU
1	A	450	THR
1	A	475	LEU
1	A	477	LEU
1	A	479	LEU
1	A	480	LYS
1	A	492	TYR
1	A	507	SER
1	A	521	LEU
1	A	540	ASN
1	A	543	ARG
1	A	544	THR
1	A	572	ASN
1	B	39	ASP
1	B	71	PHE
1	B	77	ARG
1	B	97	GLU
1	B	115	GLU

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Mol	Chain	Res	Type
1	B	121	LEU
1	B	128	ILE
1	B	129	THR
1	B	159	CYS
1	B	174	LEU
1	B	179	HIS
1	B	185	LYS
1	B	189	GLN
1	B	192	VAL
1	B	202	LEU
1	B	209	CYS
1	B	226	GLN
1	B	231	ARG
1	B	242	ASN
1	B	244	ARG
1	B	252	ASN
1	B	265	LEU
1	B	278	GLU
1	B	292	ARG
1	B	296	ASP
1	B	301	LEU
1	B	304	ASP
1	B	314	TYR
1	B	339	ASN
1	B	356	ILE
1	B	358	ASN
1	B	366	LEU
1	B	388	ASP
1	B	391	HIS
1	B	401	ASP
1	B	406	SER
1	B	413	SER
1	B	416	THR
1	B	427	LYS
1	B	428	ARG
1	B	429	ILE
1	B	435	SER
1	B	436	ARG
1	B	448	LEU
1	B	450	THR
1	B	475	LEU
1	B	477	LEU

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Mol	Chain	Res	Type
1	B	479	LEU
1	B	492	TYR
1	B	507	SER
1	B	510	GLU
1	B	521	LEU
1	B	539	LEU
1	B	540	ASN
1	B	543	ARG
1	B	544	THR
1	B	565	LYS
1	B	572	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	63	GLN
1	A	118	ASN
1	A	189	GLN
1	A	232	HIS
1	A	239	GLN
1	A	260	ASN
1	A	282	GLN
1	A	283	GLN
1	A	330	ASN
1	A	335	GLN
1	A	354	GLN
1	A	504	GLN
1	A	520	HIS
1	A	527	GLN
1	A	572	ASN
1	B	63	GLN
1	B	66	GLN
1	B	118	ASN
1	B	168	GLN
1	B	189	GLN
1	B	232	HIS
1	B	239	GLN
1	B	260	ASN
1	B	282	GLN
1	B	283	GLN
1	B	330	ASN
1	B	335	GLN

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Mol	Chain	Res	Type
1	B	391	HIS
1	B	410	GLN
1	B	500	ASN
1	B	504	GLN
1	B	520	HIS
1	B	527	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	A	555/678 (81%)	-0.15	2 (0%)	92	79	30, 69, 113, 128	0
1	B	552/678 (81%)	-0.16	3 (0%)	91	75	30, 70, 115, 138	0
All	All	1107/1356 (81%)	-0.15	5 (0%)	91	75	30, 70, 114, 138	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	227	LEU	3.4
1	A	137	ILE	3.0
1	B	30	GLU	2.5
1	B	231	ARG	2.2
1	A	471	ALA	2.2

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.