Full wwPDB X-ray Structure Validation Report (i)

Oct 16, 2021 – 08:26 PM EDT

PDB ID	:	1S9E
Title	:	CRYSTAL STRUCTURE OF HIV-1 REVERSE TRANSCRIPTASE (RT) IN COMPLEX WITH JANSSEN-R129385
Authors	:	Das, K.; Clark Jr., A.D.; Ludovici, D.W.; Kukla, M.J.; Decorte, B.; Lewi, P.J.; Hughes, S.H.; Janssen, P.A.; Arnold, E.
Deposited on	:	2004-02-04
Resolution	:	2.60 Å(reported)

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

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

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

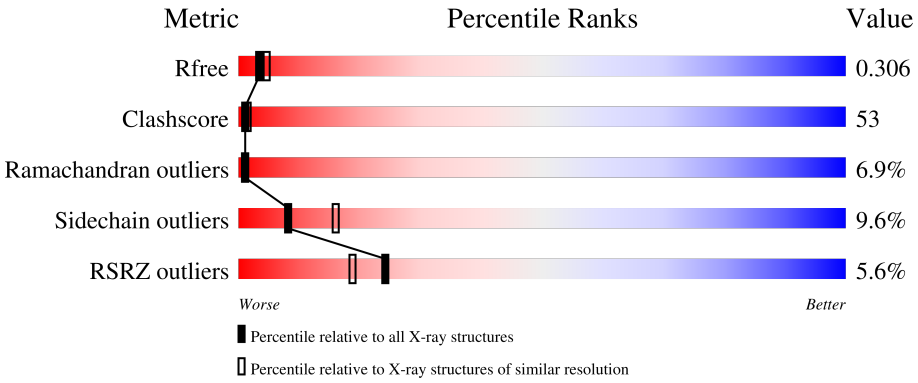
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.23.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	560	3% 34% 54% 10% ··
2	B	430	8% 33% 54% 12% ··

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8231 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 POL polyprotein [Contains:Reverse transcriptase].

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	552	4498	2913	748	830	7	122	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	280	SER	CYS	engineered mutation	UNP P03366

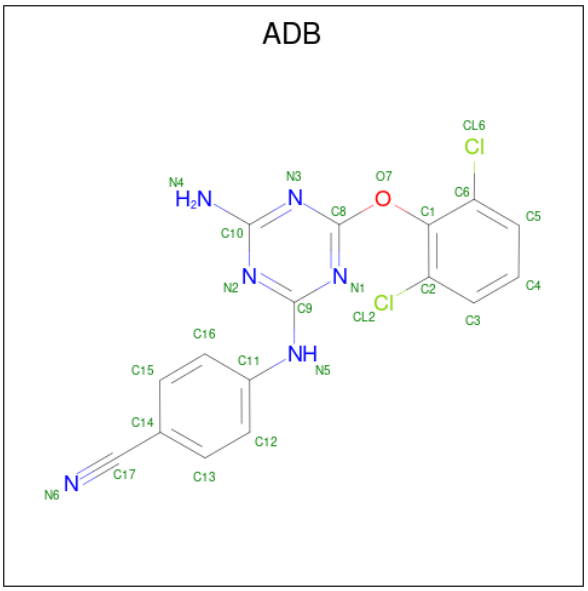
- Molecule 2 is a protein called POL polyprotein [Contains: Reverse transcriptase].

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	427	3529	2300	584	638	7	56	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	280	SER	CYS	engineered mutation	UNP P03366

- Molecule 3 is 4-[4-AMINO-6-(2,6-DICHLORO-PHENOXY)-[1,3,5]TRIAZIN-2-YLAMINO]-BENZONITRILE (three-letter code: ADB) (formula: $C_{16}H_{10}Cl_2N_6O$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	Cl	N	O	0	0
			25	16	2	6	1		

- Molecule 4 is water.

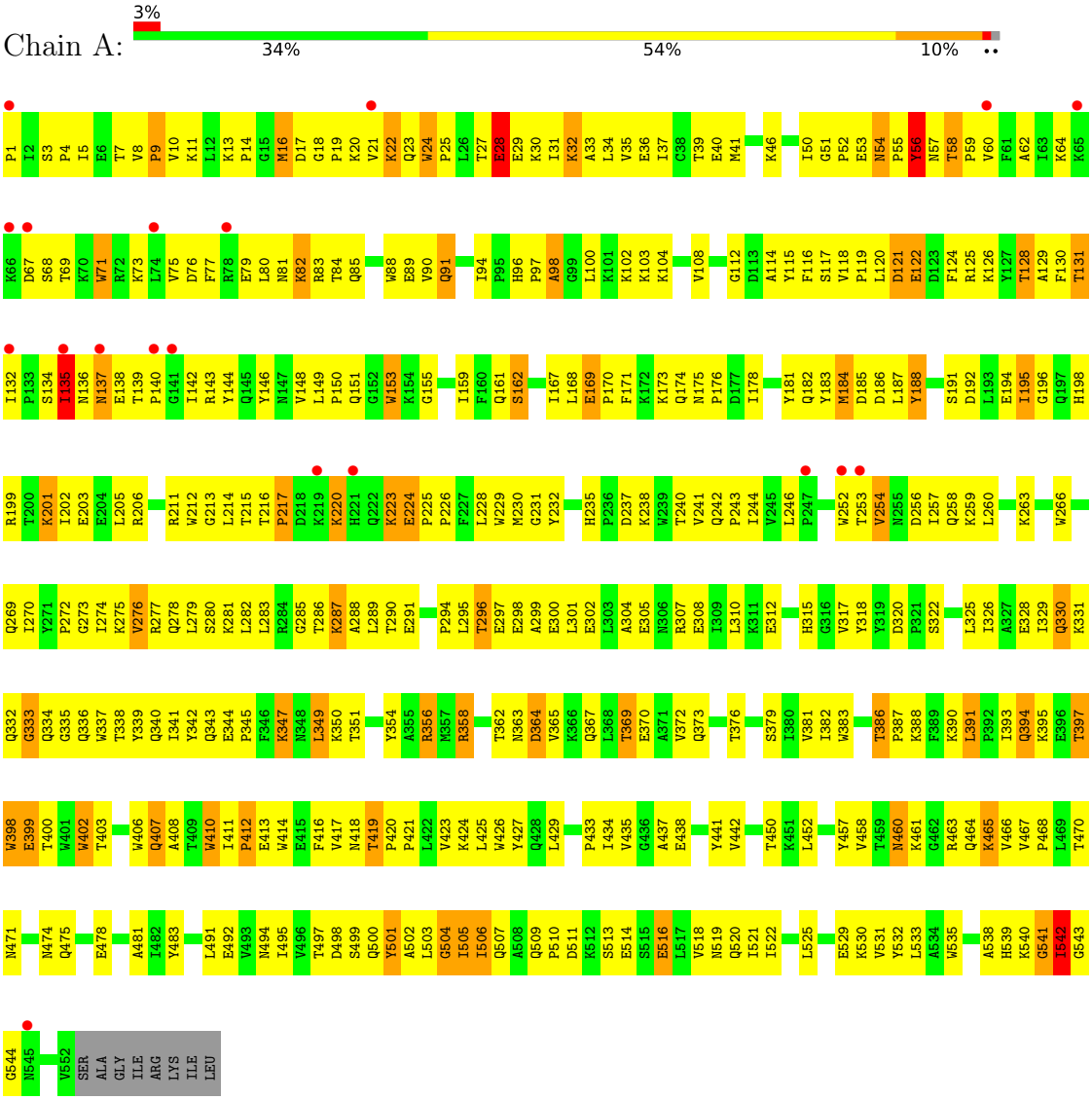
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	85	Total	O	0	0
			85	85		
4	B	94	Total	O	0	0
			94	94		

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.

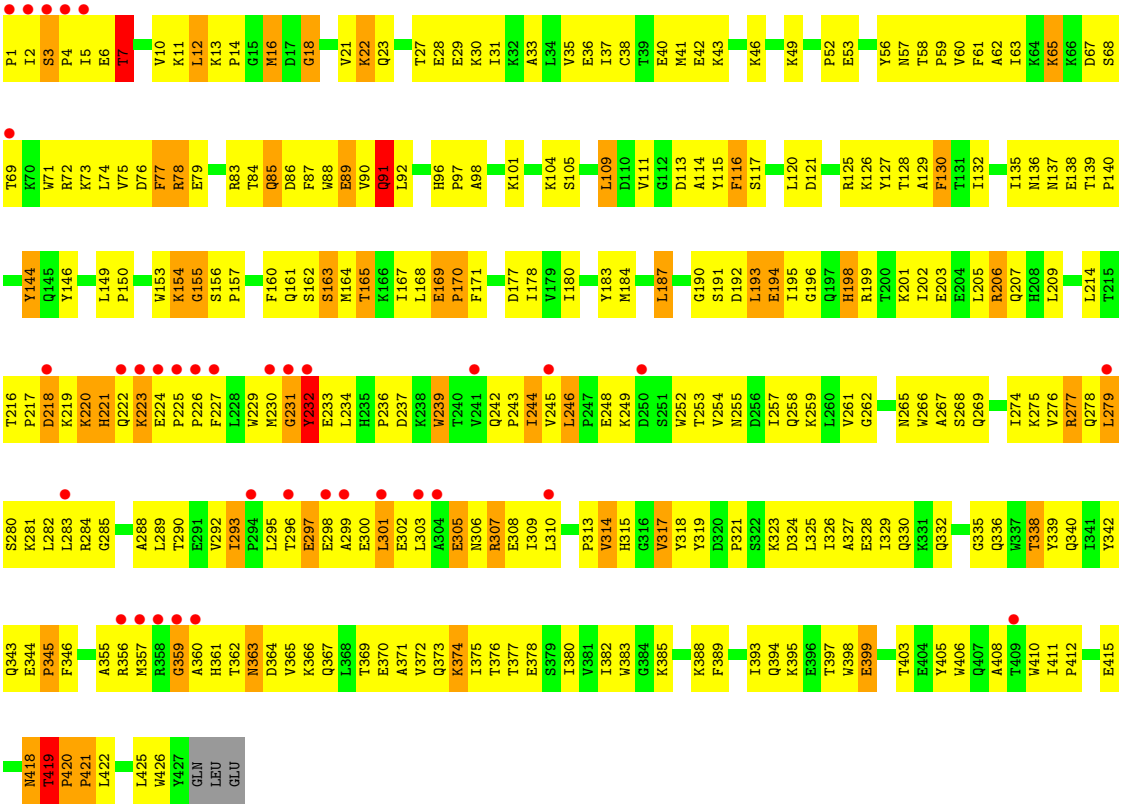
• Molecule 1: POL polyprotein [Contains:Reverse transcriptase]

Chain A:



• Molecule 2: POL polyprotein [Contains: Reverse transcriptase]

Chain B:


P1 I2 S3 P4 I5 E6 T7 V10 K11 L12 K13 P14 G15 M16 D17 G18 V21 K22 Q23 T27 E28 E29 K30 I31 K32 A33 L34 V35 E36 I37 C38 T39 E40 M41 E42 K43 K46 K49 P52 E53 Y56 N57 T58 P59 V60 F61 A62 I63 K64 K65 K66 D67 S68
T69 K70 W71 R72 K73 L74 V75 D76 F77 R78 E79 R83 T84 Q85 D86 F87 W88 E89 V90 Q91 L92 H96 P97 A98 K101 K104 S105 L109 D110 V111 G112 D113 A114 Y115 F116 S117 L120 D121 R125 K126 Y127 T128 A129 F130 T131 I132 I135 N136 N137 E138 T139 P140
Y144 Q145 Y146 L149 P150 W153 K154 G155 S156 P157 F160 Q161 S162 S163 M164 T165 K166 I167 L168 E169 P170 F171 D177 I178 V179 I180 Y183 M184 L187 G190 S191 D192 L193 E194 I195 G196 Q197 H198 R199 T200 K201 I202 E203 E204 L205 R206 Q207 H208 L209 L214 T215
T216 P217 D218 K219 K220 H221 Q222 K223 E224 P225 P226 F227 L228 W229 M230 G231 Y232 E233 L234 H235 P236 D237 K238 W239 T240 V241 Q242 P243 I244 V245 L246 P247 E248 K249 D250 S251 W252 T253 V254 N255 D256 I257 Q258 K259 L260 V261 G262 N265 W266 A267 S268 Q269 I274 K275 V276 R277 Q278 L279
S280 K281 L282 L283 R284 Q285 A288 L289 T290 E291 V292 I293 P294 L295 T296 E297 E298 A299 E300 L301 E302 L303 A304 E305 N306 R307 E308 I309 L310 P313 V314 H315 G316 V317 Y318 Y319 D320 P321 S322 K323 D324 L325 I326 A327 E328 I329 Q330 K331 Q332 G335 Q336 W337 T338 Y339 Q340 I341 Y342
Q343 E344 P345 F346 A355 R356 M357 R358 G359 A360 H361 T362 N363 D364 V365 K366 Q367 L368 T369 E370 A371 V372 Q373 K374 I375 T376 T377 E378 S379 I380 V381 I382 W383 G384 K385 K388 F389 I393 Q394 K395 E396 T397 W398 E399 T403 E404 Y405 W406 Q407 A408 T409 W410 I411 P412 E415
N418 T419 P420 P421 L422 L425 W426 Y427 GLN LEU GLU

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	226.80Å 69.30Å 104.10Å 90.00° 106.70° 90.00°	Depositor
Resolution (Å)	20.00 – 2.60 34.69 – 2.60	Depositor EDS
% Data completeness (in resolution range)	93.3 (20.00-2.60) 95.8 (34.69-2.60)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.92 (at 2.61Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.253 , 0.316 0.248 , 0.306	Depositor DCC
R_{free} test set	2293 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	56.5	Xtriage
Anisotropy	0.036	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 70.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	8231	wwPDB-VP
Average B, all atoms (Å^2)	69.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.33% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ADB

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	0/4616	0.89	4/6271 (0.1%)
2	B	0.78	1/3634 (0.0%)	0.95	5/4940 (0.1%)
All	All	0.72	1/8250 (0.0%)	0.92	9/11211 (0.1%)

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
2	B	0	3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	383	TRP	CB-CG	-5.55	1.40	1.50

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	7	THR	N-CA-C	8.01	132.63	111.00
1	A	381	VAL	CB-CA-C	-6.29	99.46	111.40
1	A	56	TYR	N-CA-C	-6.16	94.36	111.00
1	A	333	GLY	N-CA-C	5.61	127.12	113.10
2	B	78	ARG	NE-CZ-NH2	-5.61	117.50	120.30
2	B	89	GLU	N-CA-C	-5.56	95.98	111.00
1	A	135	ILE	N-CA-C	5.53	125.92	111.00
2	B	12	LEU	CA-CB-CG	5.39	127.71	115.30
2	B	155	GLY	N-CA-C	-5.11	100.33	113.10

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	130	PHE	Sidechain
2	B	144	TYR	Sidechain
2	B	318	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	4498	0	4560	481	0
2	B	3529	0	3568	378	0
3	A	25	0	10	4	0
4	A	85	0	0	4	0
4	B	94	0	0	17	0
All	All	8231	0	8138	836	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 53.

All (836) 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:A:244:ILE:HD11	1:A:310:LEU:HD13	1.26	1.14
1:A:435:VAL:HG13	2:B:290:THR:HG21	1.31	1.09
2:B:278:GLN:HA	2:B:281:LYS:HE3	1.30	1.09
1:A:224:GLU:HB3	1:A:225:PRO:HD2	1.38	1.04
1:A:497:THR:HG22	1:A:499:SER:H	1.21	1.04
2:B:362:THR:HG22	2:B:367:GLN:HE21	1.16	1.04
2:B:277:ARG:H	2:B:277:ARG:HD3	1.18	1.03
2:B:363:ASN:C	2:B:363:ASN:HD22	1.63	1.01
2:B:363:ASN:ND2	2:B:366:LYS:H	1.59	1.00
1:A:288:ALA:CB	1:A:291:GLU:HB2	1.91	0.98
2:B:5:ILE:HG22	2:B:6:GLU:H	1.29	0.98
2:B:65:LYS:HA	2:B:72:ARG:HG3	1.46	0.97
2:B:221:HIS:CE1	2:B:230:MET:HG2	2.01	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:503:LEU:HD22	1:A:535:TRP:HB2	1.45	0.95
1:A:337:TRP:HE1	1:A:367:GLN:HE21	1.05	0.94
1:A:328:GLU:HG3	1:A:390:LYS:HB2	1.50	0.94
1:A:22:LYS:HG2	1:A:24:TRP:CZ2	2.03	0.94
2:B:363:ASN:HD21	2:B:366:LYS:H	1.02	0.93
2:B:282:LEU:HG	2:B:293:ILE:HD11	1.47	0.92
1:A:503:LEU:HG	1:A:507:GLN:NE2	1.85	0.92
1:A:460:ASN:N	1:A:460:ASN:HD22	1.66	0.91
2:B:274:ILE:HG23	2:B:306:ASN:OD1	1.70	0.91
1:A:279:LEU:HD23	1:A:299:ALA:HB1	1.53	0.90
1:A:542:ILE:HD13	1:A:544:GLY:H	1.36	0.90
1:A:516:GLU:HA	1:A:519:ASN:HD22	1.35	0.90
1:A:79:GLU:HG3	1:A:83:ARG:HH12	1.37	0.90
1:A:96:HIS:HD2	1:A:98:ALA:H	1.17	0.89
1:A:122:GLU:HA	1:A:125:ARG:HD2	1.53	0.89
2:B:85:GLN:HG3	2:B:154:LYS:CB	2.02	0.89
1:A:254:VAL:HG13	1:A:283:LEU:HD11	1.56	0.88
2:B:362:THR:CG2	2:B:367:GLN:HE21	1.87	0.88
1:A:506:ILE:HG21	1:A:533:LEU:HD12	1.54	0.87
1:A:288:ALA:HB3	1:A:291:GLU:HB2	1.58	0.86
2:B:303:LEU:O	2:B:307:ARG:HB2	1.75	0.86
2:B:310:LEU:O	2:B:310:LEU:HD23	1.76	0.86
1:A:90:VAL:HG12	1:A:91:GLN:HG3	1.57	0.86
1:A:226:PRO:HG3	1:A:235:HIS:CE1	2.11	0.86
1:A:465:LYS:HG3	1:A:466:VAL:N	1.88	0.86
2:B:278:GLN:NE2	2:B:298:GLU:HB2	1.91	0.86
2:B:363:ASN:HD21	2:B:366:LYS:N	1.73	0.85
2:B:31:ILE:O	2:B:35:VAL:HG23	1.75	0.85
1:A:406:TRP:CZ3	2:B:420:PRO:HD2	2.10	0.85
1:A:388:LYS:NZ	1:A:413:GLU:HG3	1.92	0.85
2:B:244:ILE:O	2:B:310:LEU:HD21	1.76	0.85
1:A:104:LYS:HE2	1:A:104:LYS:N	1.92	0.84
1:A:460:ASN:HD22	1:A:460:ASN:H	1.25	0.84
1:A:497:THR:HG22	1:A:498:ASP:N	1.89	0.84
1:A:148:VAL:O	1:A:150:PRO:HD3	1.77	0.84
2:B:104:LYS:HA	2:B:237:ASP:OD2	1.77	0.84
2:B:257:ILE:HG23	2:B:283:LEU:HD21	1.59	0.84
1:A:224:GLU:HB3	1:A:225:PRO:CD	2.07	0.84
1:A:254:VAL:O	1:A:257:ILE:HG22	1.78	0.84
1:A:542:ILE:HG12	1:A:543:GLY:H	1.43	0.83
2:B:422:LEU:HD12	2:B:425:LEU:HD12	1.61	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:LYS:HG2	1:A:192:ASP:HA	1.61	0.82
1:A:435:VAL:CG1	2:B:290:THR:HG21	2.07	0.82
1:A:442:VAL:HG13	1:A:481:ALA:HB1	1.59	0.81
1:A:96:HIS:CD2	1:A:98:ALA:H	1.99	0.81
2:B:345:PRO:HB2	2:B:346:PHE:CD1	2.15	0.81
1:A:46:LYS:HD3	1:A:116:PHE:HB3	1.62	0.81
1:A:64:LYS:HE3	1:A:68:SER:HB3	1.62	0.81
1:A:97:PRO:HG2	1:A:232:TYR:CD2	2.15	0.81
2:B:249:LYS:HD2	2:B:252:TRP:CZ3	2.16	0.81
1:A:155:GLY:O	1:A:159:ILE:HG13	1.81	0.80
2:B:206:ARG:HB3	2:B:206:ARG:NH1	1.96	0.80
1:A:337:TRP:HE1	1:A:367:GLN:NE2	1.80	0.80
2:B:296:THR:OG1	2:B:299:ALA:HB2	1.83	0.79
2:B:85:GLN:HG3	2:B:154:LYS:HB3	1.65	0.79
2:B:85:GLN:HG2	4:B:1089:HOH:O	1.81	0.79
1:A:206:ARG:HH22	1:A:217:PRO:C	1.86	0.78
1:A:224:GLU:CB	1:A:225:PRO:HD2	2.11	0.78
1:A:136:ASN:O	1:A:138:GLU:N	2.16	0.78
1:A:298:GLU:H	1:A:298:GLU:CD	1.87	0.78
1:A:53:GLU:C	1:A:55:PRO:HD3	2.03	0.77
1:A:287:LYS:HG2	1:A:288:ALA:H	1.49	0.77
2:B:111:VAL:HG11	2:B:187:LEU:HD22	1.67	0.77
1:A:288:ALA:HB3	1:A:291:GLU:CB	2.15	0.77
1:A:138:GLU:HA	1:A:138:GLU:OE2	1.85	0.77
1:A:220:LYS:HB2	4:A:1009:HOH:O	1.85	0.77
1:A:540:LYS:HD2	2:B:265:ASN:ND2	2.00	0.77
2:B:369:THR:HG22	2:B:373:GLN:HE21	1.50	0.76
1:A:115:TYR:HD2	1:A:149:LEU:O	1.69	0.76
1:A:315:HIS:CE1	1:A:347:LYS:HD3	2.20	0.76
1:A:19:PRO:HG3	1:A:80:LEU:HA	1.66	0.76
1:A:130:PHE:CZ	1:A:144:TYR:HB2	2.21	0.76
1:A:139:THR:HB	1:A:140:PRO:HD2	1.66	0.76
1:A:506:ILE:HG21	1:A:533:LEU:CD1	2.15	0.76
2:B:366:LYS:HG3	2:B:405:TYR:CD2	2.21	0.75
1:A:181:TYR:HE2	1:A:183:TYR:HB2	1.50	0.75
2:B:139:THR:HG23	2:B:140:PRO:HD2	1.68	0.75
1:A:506:ILE:HG22	1:A:507:GLN:N	2.00	0.75
2:B:222:GLN:HG2	2:B:223:LYS:HG2	1.68	0.75
1:A:97:PRO:HG2	1:A:232:TYR:CE2	2.22	0.75
1:A:287:LYS:H	1:A:287:LYS:HD3	1.51	0.75
1:A:1:PRO:O	1:A:117:SER:HA	1.87	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:10:VAL:HG12	1:A:11:LYS:N	2.02	0.74
2:B:366:LYS:HG3	2:B:405:TYR:CG	2.22	0.74
2:B:298:GLU:HB3	2:B:301:LEU:HD13	1.69	0.74
1:A:183:TYR:CE2	1:A:230:MET:SD	2.81	0.74
1:A:503:LEU:HG	1:A:507:GLN:HE22	1.51	0.74
1:A:509:GLN:N	1:A:510:PRO:HD3	2.02	0.74
2:B:60:VAL:HG11	2:B:130:PHE:CD2	2.23	0.74
1:A:96:HIS:HD2	1:A:98:ALA:N	1.85	0.74
1:A:497:THR:HG22	1:A:499:SER:N	2.01	0.74
1:A:58:THR:HG22	1:A:59:PRO:HD2	1.68	0.74
1:A:417:VAL:HG12	1:A:419:THR:HG23	1.68	0.74
1:A:388:LYS:HZ2	1:A:413:GLU:HG3	1.52	0.73
1:A:312:GLU:O	1:A:312:GLU:HG2	1.89	0.73
2:B:356:ARG:HG2	2:B:362:THR:HG21	1.69	0.73
1:A:540:LYS:HD2	2:B:265:ASN:HD21	1.52	0.73
2:B:356:ARG:HG3	2:B:357:MET:H	1.52	0.73
2:B:257:ILE:CG2	2:B:283:LEU:HD21	2.18	0.73
2:B:27:THR:CG2	2:B:29:GLU:HB3	2.19	0.73
1:A:28:GLU:HB3	1:A:135:ILE:HD13	1.71	0.73
1:A:232:TYR:OH	1:A:269:GLN:NE2	2.22	0.73
1:A:382:ILE:HG23	2:B:136:ASN:ND2	2.04	0.73
1:A:542:ILE:HG12	1:A:543:GLY:N	2.04	0.73
1:A:438:GLU:HG3	1:A:460:ASN:HD21	1.54	0.72
2:B:85:GLN:HG3	2:B:154:LYS:HB2	1.70	0.72
1:A:458:VAL:HG22	1:A:464:GLN:HG2	1.71	0.72
2:B:278:GLN:HE22	2:B:298:GLU:HB2	1.53	0.72
2:B:373:GLN:HE22	2:B:406:TRP:HA	1.55	0.72
1:A:435:VAL:HG13	2:B:290:THR:CG2	2.14	0.72
1:A:55:PRO:HD2	1:A:143:ARG:HH12	1.55	0.71
2:B:362:THR:HG22	2:B:367:GLN:NE2	2.00	0.71
1:A:253:THR:OG1	1:A:290:THR:HA	1.90	0.71
1:A:64:LYS:HE3	1:A:68:SER:CB	2.21	0.71
1:A:424:LYS:HD3	1:A:425:LEU:N	2.05	0.71
2:B:38:CYS:SG	2:B:132:ILE:HD11	2.31	0.71
2:B:278:GLN:OE1	2:B:297:GLU:HB2	1.90	0.71
1:A:503:LEU:CD2	1:A:535:TRP:HB2	2.20	0.71
2:B:130:PHE:CZ	2:B:144:TYR:HB2	2.26	0.71
2:B:345:PRO:HB2	2:B:346:PHE:HD1	1.54	0.71
1:A:301:LEU:O	1:A:305:GLU:HG3	1.90	0.70
2:B:221:HIS:HE1	2:B:230:MET:HG2	1.55	0.70
1:A:325:LEU:HD21	1:A:383:TRP:CE3	2.26	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:542:ILE:HD13	1:A:544:GLY:N	2.06	0.70
1:A:30:LYS:HD3	1:A:62:ALA:HB3	1.74	0.70
1:A:30:LYS:O	1:A:33:ALA:N	2.25	0.70
1:A:507:GLN:O	1:A:509:GLN:HG3	1.91	0.70
2:B:278:GLN:HA	2:B:281:LYS:CE	2.18	0.70
1:A:373:GLN:OE1	2:B:397:THR:HA	1.91	0.70
1:A:495:ILE:HB	1:A:533:LEU:HD23	1.74	0.70
2:B:298:GLU:HB3	2:B:301:LEU:CD1	2.22	0.69
2:B:418:ASN:O	2:B:419:THR:HG23	1.92	0.69
1:A:33:ALA:O	1:A:37:ILE:HG12	1.92	0.69
1:A:103:LYS:C	1:A:104:LYS:HE2	2.12	0.69
1:A:277:ARG:HD2	1:A:334:GLN:CB	2.23	0.69
1:A:497:THR:CG2	1:A:499:SER:H	2.03	0.69
1:A:277:ARG:HD2	1:A:334:GLN:HB3	1.75	0.68
1:A:7:THR:HG22	1:A:119:PRO:HB2	1.74	0.68
1:A:27:THR:O	1:A:29:GLU:N	2.25	0.68
1:A:518:VAL:O	1:A:522:ILE:HG13	1.94	0.68
1:A:376:THR:HG23	1:A:386:THR:HG22	1.75	0.68
2:B:371:ALA:O	2:B:375:ILE:HG13	1.93	0.68
1:A:331:LYS:NZ	1:A:333:GLY:HA2	2.09	0.68
1:A:373:GLN:HG2	2:B:394:GLN:NE2	2.09	0.68
2:B:277:ARG:HD3	2:B:277:ARG:N	2.00	0.68
1:A:398:TRP:NE1	1:A:402:TRP:HD1	1.92	0.68
1:A:162:SER:HB2	2:B:52:PRO:HG3	1.74	0.68
1:A:474:ASN:O	1:A:478:GLU:HG3	1.95	0.67
1:A:286:THR:O	1:A:286:THR:HG22	1.93	0.67
1:A:244:ILE:HD11	1:A:310:LEU:CD1	2.15	0.67
1:A:326:ILE:HD12	1:A:326:ILE:N	2.09	0.67
2:B:357:MET:HB2	2:B:361:HIS:HE2	1.59	0.67
2:B:76:ASP:OD1	2:B:78:ARG:NE	2.20	0.67
1:A:354:TYR:OH	1:A:356:ARG:HD3	1.94	0.67
2:B:101:LYS:O	2:B:236:PRO:HB2	1.95	0.67
2:B:388:LYS:HE3	2:B:415:GLU:OE1	1.95	0.67
1:A:542:ILE:CD1	1:A:544:GLY:H	2.07	0.67
1:A:29:GLU:OE1	1:A:29:GLU:HA	1.94	0.66
2:B:257:ILE:O	2:B:261:VAL:HG23	1.95	0.66
1:A:79:GLU:HG3	1:A:83:ARG:NH1	2.10	0.66
1:A:301:LEU:O	1:A:301:LEU:HD12	1.95	0.66
2:B:357:MET:HB2	2:B:361:HIS:NE2	2.10	0.66
2:B:5:ILE:HG22	2:B:6:GLU:N	2.08	0.66
2:B:278:GLN:HE22	2:B:298:GLU:CB	2.07	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:417:VAL:HG12	1:A:417:VAL:O	1.96	0.66
2:B:86:ASP:O	2:B:89:GLU:HB3	1.95	0.66
1:A:460:ASN:N	1:A:460:ASN:ND2	2.40	0.66
1:A:475:GLN:HB3	1:A:501:TYR:CE2	2.32	0.65
1:A:27:THR:O	1:A:30:LYS:N	2.28	0.65
1:A:290:THR:O	1:A:290:THR:HG22	1.96	0.65
1:A:340:GLN:HB3	1:A:351:THR:HG22	1.76	0.65
2:B:23:GLN:HB2	4:B:1090:HOH:O	1.95	0.65
2:B:278:GLN:HE22	2:B:298:GLU:CG	2.09	0.65
2:B:422:LEU:O	2:B:425:LEU:HB2	1.96	0.65
1:A:10:VAL:HG12	1:A:11:LYS:H	1.59	0.65
1:A:434:ILE:H	1:A:494:ASN:HD21	1.43	0.65
1:A:329:ILE:HD12	1:A:391:LEU:CD2	2.27	0.65
1:A:315:HIS:NE2	1:A:347:LYS:HD3	2.11	0.65
2:B:53:GLU:OE1	2:B:53:GLU:N	2.29	0.65
1:A:225:PRO:HA	1:A:226:PRO:C	2.17	0.65
1:A:298:GLU:CD	1:A:298:GLU:N	2.50	0.64
1:A:363:ASN:OD1	1:A:365:VAL:N	2.30	0.64
1:A:56:TYR:CD1	1:A:56:TYR:N	2.64	0.64
2:B:76:ASP:CG	2:B:78:ARG:HH21	2.00	0.64
2:B:411:ILE:HA	4:B:1088:HOH:O	1.97	0.64
1:A:279:LEU:CD2	1:A:299:ALA:HB1	2.25	0.64
1:A:335:GLY:HA2	1:A:367:GLN:HE22	1.62	0.64
2:B:46:LYS:CE	2:B:116:PHE:HD1	2.11	0.64
2:B:339:TYR:C	2:B:340:GLN:OE1	2.36	0.64
2:B:335:GLY:O	2:B:355:ALA:HA	1.97	0.64
2:B:85:GLN:HA	4:B:1089:HOH:O	1.98	0.63
1:A:270:ILE:O	1:A:272:PRO:HD3	1.98	0.63
2:B:156:SER:N	2:B:157:PRO:HD2	2.13	0.63
2:B:46:LYS:HD3	2:B:116:PHE:CD1	2.33	0.63
1:A:433:PRO:HG3	2:B:255:ASN:HD22	1.63	0.63
2:B:278:GLN:NE2	2:B:298:GLU:CB	2.61	0.63
1:A:373:GLN:HG2	2:B:394:GLN:HE22	1.64	0.63
1:A:497:THR:CG2	1:A:498:ASP:N	2.59	0.63
2:B:363:ASN:C	2:B:363:ASN:ND2	2.39	0.63
2:B:359:GLY:O	2:B:361:HIS:N	2.32	0.63
1:A:50:ILE:HG13	1:A:51:GLY:N	2.13	0.63
1:A:420:PRO:HA	1:A:421:PRO:C	2.18	0.62
2:B:195:ILE:HG23	2:B:196:GLY:N	2.13	0.62
2:B:266:TRP:HZ3	2:B:426:TRP:CD1	2.17	0.62
2:B:332:GLN:HA	2:B:332:GLN:OE1	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:THR:O	1:A:403:THR:HB	1.99	0.62
2:B:217:PRO:O	2:B:219:LYS:N	2.32	0.62
2:B:305:GLU:HG3	2:B:306:ASN:N	2.14	0.62
1:A:35:VAL:O	1:A:39:THR:HG23	1.98	0.62
1:A:287:LYS:H	1:A:287:LYS:CD	2.12	0.62
2:B:357:MET:CB	2:B:361:HIS:HE2	2.13	0.62
1:A:27:THR:O	1:A:27:THR:HG22	1.99	0.62
1:A:492:GLU:OE1	1:A:530:LYS:HD2	2.00	0.62
1:A:501:TYR:O	1:A:505:ILE:HD12	1.99	0.62
2:B:282:LEU:CG	2:B:293:ILE:HD11	2.27	0.62
2:B:373:GLN:HG2	2:B:406:TRP:CH2	2.35	0.62
1:A:474:ASN:HD22	1:A:474:ASN:H	1.48	0.62
2:B:267:ALA:HB2	2:B:426:TRP:CH2	2.35	0.62
1:A:254:VAL:HG13	1:A:283:LEU:CD1	2.28	0.61
1:A:460:ASN:H	1:A:460:ASN:ND2	1.94	0.61
2:B:323:LYS:HB2	2:B:343:GLN:NE2	2.15	0.61
1:A:442:VAL:HG13	1:A:481:ALA:CB	2.30	0.61
2:B:411:ILE:O	2:B:412:PRO:C	2.37	0.61
1:A:10:VAL:CG1	1:A:11:LYS:H	2.14	0.61
2:B:221:HIS:NE2	2:B:230:MET:HG2	2.16	0.61
2:B:224:GLU:O	2:B:226:PRO:HD3	2.00	0.61
2:B:195:ILE:HG12	2:B:199:ARG:HE	1.65	0.61
1:A:398:TRP:CD1	1:A:402:TRP:HD1	2.18	0.61
2:B:87:PHE:O	2:B:91:GLN:HB2	2.00	0.60
2:B:266:TRP:CZ3	2:B:426:TRP:CD1	2.87	0.60
2:B:255:ASN:O	2:B:258:GLN:HB2	2.01	0.60
1:A:90:VAL:HG12	1:A:91:GLN:CG	2.28	0.60
1:A:115:TYR:CD2	1:A:149:LEU:O	2.54	0.60
1:A:388:LYS:HZ3	1:A:413:GLU:HG3	1.66	0.60
2:B:369:THR:O	2:B:373:GLN:HG3	2.00	0.60
1:A:81:ASN:C	1:A:83:ARG:H	2.03	0.60
1:A:102:LYS:HG2	1:A:104:LYS:NZ	2.17	0.60
1:A:258:GLN:HG2	1:A:283:LEU:HD21	1.83	0.60
2:B:59:PRO:HG2	2:B:76:ASP:HB3	1.84	0.60
2:B:253:THR:HA	2:B:292:VAL:HA	1.84	0.60
2:B:306:ASN:O	2:B:308:GLU:N	2.34	0.60
2:B:395:LYS:HG2	2:B:399:GLU:OE1	2.01	0.60
1:A:108:VAL:HG23	1:A:108:VAL:O	2.02	0.60
1:A:388:LYS:NZ	4:A:1155:HOH:O	2.28	0.60
2:B:27:THR:HG22	2:B:29:GLU:HB3	1.82	0.60
2:B:376:THR:O	2:B:380:ILE:HG13	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:55:PRO:HB2	1:A:143:ARG:NH2	2.17	0.60
1:A:57:ASN:OD1	1:A:131:THR:HB	2.01	0.60
1:A:503:LEU:CG	1:A:507:GLN:HE22	2.13	0.60
1:A:226:PRO:HG3	1:A:235:HIS:HE1	1.64	0.60
2:B:248:GLU:HA	2:B:307:ARG:HH22	1.67	0.60
2:B:61:PHE:HB3	4:B:1121:HOH:O	2.02	0.59
1:A:3:SER:HB2	1:A:4:PRO:HD2	1.83	0.59
1:A:183:TYR:HE2	1:A:230:MET:SD	2.23	0.59
2:B:224:GLU:HG3	4:B:1151:HOH:O	2.01	0.59
1:A:10:VAL:CG1	1:A:11:LYS:N	2.65	0.59
1:A:134:SER:HB2	1:A:139:THR:OG1	2.02	0.59
1:A:195:ILE:HD11	1:A:199:ARG:CZ	2.32	0.59
1:A:406:TRP:CZ3	1:A:407:GLN:HG3	2.38	0.59
1:A:332:GLN:OE1	1:A:338:THR:HG23	2.02	0.59
2:B:105:SER:O	2:B:190:GLY:HA2	2.02	0.59
1:A:125:ARG:O	1:A:128:THR:OG1	2.20	0.59
1:A:131:THR:OG1	1:A:143:ARG:HG3	2.01	0.59
1:A:483:TYR:CE1	1:A:520:GLN:HB3	2.38	0.59
1:A:503:LEU:CG	1:A:507:GLN:NE2	2.64	0.59
1:A:21:VAL:HG21	1:A:59:PRO:HD3	1.83	0.59
2:B:84:THR:O	2:B:86:ASP:N	2.36	0.59
2:B:60:VAL:CG1	2:B:130:PHE:HB2	2.33	0.58
2:B:308:GLU:C	2:B:310:LEU:H	2.06	0.58
2:B:374:LYS:O	2:B:378:GLU:HG3	2.03	0.58
1:A:17:ASP:O	1:A:83:ARG:HD3	2.03	0.58
1:A:402:TRP:HE3	1:A:402:TRP:O	1.86	0.58
2:B:195:ILE:HD13	2:B:199:ARG:HH21	1.69	0.58
1:A:501:TYR:CD1	1:A:505:ILE:HD11	2.38	0.58
2:B:277:ARG:H	2:B:277:ARG:CD	1.96	0.58
1:A:356:ARG:HG3	1:A:356:ARG:HH11	1.68	0.58
2:B:4:PRO:HG3	2:B:117:SER:HB2	1.85	0.58
2:B:27:THR:HG22	2:B:30:LYS:H	1.68	0.58
1:A:173:LYS:O	1:A:176:PRO:HD3	2.04	0.58
1:A:84:THR:HG22	1:A:124:PHE:HZ	1.69	0.58
1:A:182:GLN:HB3	1:A:187:LEU:HD12	1.85	0.57
1:A:253:THR:O	1:A:256:ASP:N	2.35	0.57
2:B:274:ILE:HG23	2:B:306:ASN:CG	2.23	0.57
1:A:329:ILE:HD12	1:A:391:LEU:HD22	1.87	0.57
1:A:364:ASP:HB3	1:A:423:VAL:HG13	1.86	0.57
1:A:382:ILE:HG23	2:B:136:ASN:HD21	1.67	0.57
2:B:63:ILE:HD13	2:B:74:LEU:HD22	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:60:VAL:HG13	2:B:130:PHE:HB2	1.87	0.57
1:A:19:PRO:O	1:A:56:TYR:CB	2.53	0.57
1:A:84:THR:HG21	1:A:153:TRP:HE1	1.70	0.57
2:B:342:TYR:CD1	2:B:342:TYR:C	2.78	0.57
1:A:100:LEU:HD21	3:A:701:ADB:CL2	2.41	0.57
1:A:81:ASN:O	1:A:83:ARG:N	2.38	0.57
1:A:100:LEU:HD22	3:A:701:ADB:C8	2.35	0.56
1:A:501:TYR:CE1	1:A:505:ILE:HD11	2.40	0.56
1:A:130:PHE:CE1	1:A:144:TYR:HB2	2.39	0.56
1:A:277:ARG:HB2	1:A:336:GLN:CD	2.26	0.56
1:A:3:SER:HB3	1:A:212:TRP:C	2.26	0.56
1:A:32:LYS:O	1:A:36:GLU:HG3	2.05	0.56
1:A:116:PHE:O	1:A:148:VAL:HG11	2.03	0.56
1:A:356:ARG:NH1	1:A:358:ARG:O	2.38	0.56
1:A:506:ILE:CG2	1:A:507:GLN:N	2.68	0.56
2:B:115:TYR:HB3	2:B:149:LEU:HB2	1.88	0.56
2:B:376:THR:HB	2:B:410:TRP:CH2	2.39	0.56
1:A:121:ASP:O	1:A:122:GLU:C	2.43	0.56
2:B:222:GLN:HG2	2:B:223:LYS:N	2.21	0.56
1:A:22:LYS:CG	1:A:24:TRP:CZ2	2.83	0.56
2:B:5:ILE:CG2	2:B:6:GLU:H	2.11	0.56
2:B:13:LYS:O	2:B:16:MET:HB2	2.04	0.56
1:A:288:ALA:CB	1:A:291:GLU:CB	2.72	0.56
2:B:231:GLY:O	2:B:233:GLU:HG3	2.06	0.56
2:B:306:ASN:C	2:B:308:GLU:H	2.09	0.56
1:A:181:TYR:CE2	1:A:183:TYR:HB2	2.38	0.56
1:A:497:THR:HG22	1:A:498:ASP:H	1.66	0.56
2:B:79:GLU:OE2	2:B:83:ARG:NH1	2.37	0.56
1:A:229:TRP:CE2	1:A:230:MET:HG2	2.40	0.56
1:A:362:THR:HG22	1:A:363:ASN:N	2.19	0.56
1:A:433:PRO:CG	2:B:255:ASN:HD22	2.18	0.56
2:B:128:THR:OG1	2:B:146:TYR:HB2	2.06	0.56
1:A:235:HIS:HB2	1:A:238:LYS:O	2.06	0.56
2:B:168:LEU:CD1	2:B:180:ILE:HG21	2.35	0.55
2:B:222:GLN:HG2	2:B:223:LYS:H	1.70	0.55
2:B:345:PRO:HB2	2:B:346:PHE:CE1	2.42	0.55
1:A:186:ASP:HB3	1:A:188:TYR:CE1	2.40	0.55
2:B:98:ALA:O	2:B:101:LYS:HE2	2.07	0.55
2:B:395:LYS:CG	2:B:399:GLU:OE1	2.55	0.55
1:A:356:ARG:HG3	1:A:356:ARG:NH1	2.21	0.55
2:B:61:PHE:HE1	2:B:76:ASP:HB2	1.70	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:277:ARG:CD	1:A:334:GLN:HB3	2.36	0.55
1:A:433:PRO:HD3	2:B:255:ASN:ND2	2.22	0.55
2:B:206:ARG:HB3	2:B:206:ARG:CZ	2.37	0.55
2:B:245:VAL:HG12	2:B:246:LEU:O	2.06	0.55
2:B:419:THR:O	2:B:420:PRO:C	2.42	0.55
2:B:10:VAL:HG22	2:B:88:TRP:CH2	2.41	0.55
2:B:146:TYR:CD1	2:B:150:PRO:HB3	2.41	0.55
1:A:434:ILE:N	1:A:494:ASN:HD21	2.04	0.55
1:A:19:PRO:O	1:A:57:ASN:N	2.40	0.55
2:B:246:LEU:HD23	2:B:246:LEU:N	2.22	0.55
2:B:301:LEU:O	2:B:305:GLU:HB3	2.07	0.55
2:B:308:GLU:C	2:B:310:LEU:N	2.59	0.55
1:A:369:THR:CG2	1:A:398:TRP:HH2	2.19	0.55
2:B:195:ILE:HD11	2:B:233:GLU:OE1	2.06	0.55
1:A:29:GLU:O	1:A:32:LYS:HE2	2.07	0.54
2:B:328:GLU:HB3	4:B:1149:HOH:O	2.06	0.54
1:A:175:ASN:HB3	1:A:178:ILE:CD1	2.37	0.54
1:A:242:GLN:O	1:A:243:PRO:C	2.46	0.54
2:B:78:ARG:HD3	2:B:411:ILE:O	2.07	0.54
2:B:330:GLN:HG2	2:B:338:THR:OG1	2.08	0.54
1:A:18:GLY:HA3	1:A:56:TYR:CD2	2.42	0.54
2:B:2:ILE:HG23	2:B:2:ILE:O	2.06	0.54
1:A:55:PRO:HB2	1:A:143:ARG:CZ	2.36	0.54
1:A:82:LYS:O	1:A:82:LYS:HG2	2.08	0.54
1:A:182:GLN:HA	1:A:187:LEU:HA	1.89	0.54
1:A:341:ILE:HG21	1:A:383:TRP:CH2	2.42	0.54
2:B:18:GLY:HA3	2:B:127:TYR:CD1	2.43	0.54
2:B:206:ARG:NH1	2:B:216:THR:OG1	2.40	0.54
2:B:296:THR:H	2:B:299:ALA:HB3	1.73	0.54
1:A:287:LYS:HG2	1:A:288:ALA:N	2.21	0.54
2:B:73:LYS:HE2	2:B:75:VAL:HG22	1.90	0.54
2:B:362:THR:CG2	2:B:367:GLN:HG3	2.38	0.54
1:A:215:THR:HG22	1:A:216:THR:N	2.23	0.54
1:A:399:GLU:HA	1:A:402:TRP:CD1	2.43	0.54
1:A:429:LEU:HD11	1:A:506:ILE:CG2	2.38	0.54
2:B:125:ARG:O	2:B:127:TYR:N	2.40	0.54
1:A:139:THR:HB	1:A:140:PRO:CD	2.37	0.53
1:A:315:HIS:CE1	1:A:347:LYS:CD	2.90	0.53
1:A:90:VAL:CG1	1:A:91:GLN:HG3	2.33	0.53
2:B:136:ASN:O	2:B:137:ASN:HB2	2.08	0.53
2:B:156:SER:H	2:B:157:PRO:HD2	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:206:ARG:HB3	2:B:206:ARG:HH11	1.70	0.53
1:A:112:GLY:HA2	1:A:185:ASP:OD1	2.09	0.53
1:A:257:ILE:CG2	1:A:283:LEU:HD13	2.38	0.53
2:B:276:VAL:O	2:B:279:LEU:N	2.40	0.53
2:B:330:GLN:H	2:B:330:GLN:NE2	2.06	0.53
2:B:28:GLU:HB2	2:B:135:ILE:HD11	1.91	0.53
2:B:300:GLU:OE1	2:B:300:GLU:HA	2.08	0.53
1:A:335:GLY:HA2	1:A:367:GLN:NE2	2.23	0.53
2:B:78:ARG:CZ	2:B:411:ILE:HG21	2.39	0.53
2:B:114:ALA:HB1	2:B:160:PHE:CZ	2.43	0.53
1:A:304:ALA:O	1:A:307:ARG:N	2.33	0.53
2:B:28:GLU:CB	2:B:135:ILE:HD11	2.39	0.53
2:B:340:GLN:N	2:B:340:GLN:CD	2.62	0.53
1:A:276:VAL:HG12	1:A:276:VAL:O	2.07	0.53
1:A:362:THR:CG2	1:A:363:ASN:N	2.71	0.53
1:A:28:GLU:HB3	1:A:135:ILE:CD1	2.37	0.53
1:A:54:ASN:N	1:A:55:PRO:HD3	2.24	0.53
1:A:117:SER:CB	1:A:214:LEU:HD23	2.39	0.53
1:A:54:ASN:O	1:A:55:PRO:C	2.46	0.52
1:A:50:ILE:CG1	1:A:51:GLY:N	2.71	0.52
1:A:507:GLN:C	1:A:509:GLN:H	2.11	0.52
1:A:81:ASN:C	1:A:83:ARG:N	2.63	0.52
1:A:297:GLU:HB2	1:A:298:GLU:OE2	2.10	0.52
1:A:194:GLU:O	1:A:196:GLY:N	2.42	0.52
1:A:393:ILE:HG23	1:A:414:TRP:CZ3	2.45	0.52
2:B:11:LYS:HG2	2:B:12:LEU:O	2.10	0.52
2:B:84:THR:O	2:B:87:PHE:N	2.43	0.52
2:B:91:GLN:O	2:B:92:LEU:HD23	2.10	0.52
2:B:120:LEU:O	2:B:121:ASP:C	2.48	0.52
2:B:220:LYS:HD2	2:B:231:GLY:N	2.25	0.52
1:A:27:THR:O	1:A:28:GLU:C	2.48	0.52
2:B:191:SER:OG	2:B:198:HIS:ND1	2.24	0.52
1:A:50:ILE:HG13	1:A:51:GLY:H	1.75	0.52
1:A:191:SER:OG	1:A:198:HIS:ND1	2.38	0.52
2:B:406:TRP:NE1	2:B:408:ALA:HB3	2.25	0.52
1:A:340:GLN:CB	1:A:351:THR:HG22	2.39	0.52
1:A:19:PRO:O	1:A:56:TYR:HB3	2.10	0.52
1:A:240:THR:HG23	1:A:241:VAL:N	2.24	0.52
1:A:494:ASN:HD22	2:B:289:LEU:HD12	1.74	0.52
2:B:314:VAL:HG13	2:B:317:VAL:HG21	1.92	0.52
1:A:21:VAL:CG2	1:A:59:PRO:HD3	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:460:ASN:ND2	1:A:461:LYS:H	2.08	0.51
2:B:57:ASN:HA	2:B:129:ALA:O	2.11	0.51
2:B:168:LEU:HD13	2:B:180:ILE:HG21	1.92	0.51
2:B:194:GLU:O	2:B:195:ILE:C	2.49	0.51
1:A:88:TRP:HA	1:A:88:TRP:CE3	2.45	0.51
1:A:356:ARG:HD2	1:A:358:ARG:HG3	1.91	0.51
1:A:492:GLU:HG2	1:A:530:LYS:HB2	1.92	0.51
2:B:184:MET:HE3	4:B:1037:HOH:O	2.08	0.51
1:A:117:SER:HB2	1:A:214:LEU:HD23	1.91	0.51
1:A:171:PHE:CZ	1:A:205:LEU:HB2	2.45	0.51
1:A:188:TYR:CD2	3:A:701:ADB:H5	2.45	0.51
1:A:509:GLN:N	1:A:510:PRO:CD	2.73	0.51
1:A:407:GLN:OE1	2:B:394:GLN:N	2.44	0.51
1:A:420:PRO:HA	1:A:421:PRO:O	2.09	0.51
1:A:112:GLY:C	1:A:114:ALA:H	2.14	0.51
2:B:221:HIS:N	2:B:221:HIS:CD2	2.79	0.51
2:B:225:PRO:C	2:B:227:PHE:H	2.14	0.51
1:A:277:ARG:HD2	1:A:334:GLN:HB2	1.90	0.51
1:A:402:TRP:CE3	1:A:402:TRP:C	2.84	0.51
2:B:242:GLN:HB2	2:B:243:PRO:HD2	1.93	0.51
2:B:394:GLN:O	2:B:395:LYS:C	2.48	0.51
1:A:287:LYS:HE2	1:A:291:GLU:OE1	2.11	0.51
1:A:115:TYR:CE2	1:A:151:GLN:HA	2.45	0.51
1:A:229:TRP:O	1:A:232:TYR:N	2.40	0.51
2:B:249:LYS:HD2	2:B:252:TRP:HZ3	1.73	0.51
2:B:296:THR:H	2:B:299:ALA:CB	2.24	0.51
1:A:408:ALA:HB1	2:B:364:ASP:HB3	1.92	0.51
1:A:503:LEU:HD22	1:A:535:TRP:CB	2.31	0.51
2:B:330:GLN:HE21	2:B:338:THR:C	2.14	0.51
1:A:102:LYS:O	1:A:103:LYS:HD3	2.11	0.50
1:A:424:LYS:HD3	1:A:425:LEU:H	1.73	0.50
1:A:77:PHE:CE1	1:A:150:PRO:HB3	2.47	0.50
1:A:288:ALA:HB2	1:A:291:GLU:HB2	1.89	0.50
1:A:398:TRP:NE1	1:A:402:TRP:CD1	2.77	0.50
2:B:85:GLN:HA	2:B:88:TRP:HB2	1.93	0.50
2:B:306:ASN:C	2:B:308:GLU:N	2.64	0.50
2:B:363:ASN:HD22	2:B:364:ASP:N	2.08	0.50
1:A:3:SER:CB	1:A:4:PRO:HD2	2.41	0.50
1:A:168:LEU:O	1:A:169:GLU:C	2.48	0.50
2:B:65:LYS:CA	2:B:72:ARG:HG3	2.31	0.50
1:A:58:THR:HG22	1:A:76:ASP:O	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:372:VAL:HG11	1:A:411:ILE:HG13	1.94	0.50
1:A:417:VAL:HG12	1:A:419:THR:CG2	2.40	0.50
1:A:246:LEU:HD22	1:A:260:LEU:CD1	2.42	0.50
1:A:501:TYR:C	1:A:505:ILE:HD12	2.32	0.50
2:B:171:PHE:CB	4:B:1153:HOH:O	2.60	0.50
2:B:193:LEU:HD12	2:B:198:HIS:N	2.27	0.50
1:A:507:GLN:C	1:A:509:GLN:N	2.65	0.50
2:B:85:GLN:CG	2:B:154:LYS:HB2	2.41	0.50
2:B:276:VAL:O	2:B:280:SER:N	2.33	0.50
2:B:306:ASN:HA	2:B:309:ILE:HG22	1.93	0.50
1:A:17:ASP:O	1:A:83:ARG:CD	2.59	0.50
1:A:277:ARG:HH22	1:A:514:GLU:HG3	1.76	0.50
2:B:195:ILE:HD13	2:B:199:ARG:NH2	2.27	0.50
2:B:232:TYR:CE1	2:B:234:LEU:HD21	2.46	0.49
2:B:340:GLN:OE1	2:B:340:GLN:N	2.45	0.49
1:A:94:ILE:HD13	1:A:230:MET:HE2	1.94	0.49
1:A:162:SER:HB2	2:B:52:PRO:CG	2.42	0.49
2:B:326:ILE:CG2	2:B:342:TYR:CE1	2.94	0.49
2:B:411:ILE:HG22	2:B:412:PRO:O	2.12	0.49
1:A:186:ASP:HB3	1:A:188:TYR:HE1	1.76	0.49
2:B:75:VAL:HG11	2:B:77:PHE:CE2	2.47	0.49
2:B:362:THR:HG23	2:B:366:LYS:HZ2	1.77	0.49
1:A:500:GLN:O	1:A:501:TYR:C	2.50	0.49
2:B:27:THR:O	2:B:31:ILE:HD12	2.13	0.49
2:B:345:PRO:C	2:B:346:PHE:CD1	2.86	0.49
1:A:96:HIS:CE1	1:A:350:LYS:HE2	2.48	0.49
1:A:173:LYS:C	1:A:175:ASN:H	2.16	0.49
1:A:203:GLU:O	1:A:206:ARG:HB3	2.13	0.49
2:B:22:LYS:N	2:B:22:LYS:HD2	2.28	0.49
2:B:85:GLN:C	2:B:85:GLN:OE1	2.51	0.49
2:B:221:HIS:NE2	2:B:230:MET:CE	2.75	0.49
1:A:116:PHE:HE2	1:A:146:TYR:HE1	1.61	0.49
2:B:23:GLN:OE1	2:B:60:VAL:HG22	2.12	0.49
1:A:20:LYS:HA	1:A:57:ASN:H	1.77	0.49
1:A:30:LYS:O	1:A:33:ALA:HB3	2.13	0.49
2:B:120:LEU:HD23	2:B:125:ARG:HG2	1.95	0.49
1:A:215:THR:HG22	1:A:216:THR:H	1.77	0.49
1:A:344:GLU:OE1	1:A:344:GLU:HA	2.12	0.49
2:B:393:ILE:HG23	2:B:393:ILE:O	2.13	0.49
1:A:8:VAL:O	1:A:121:ASP:HB2	2.13	0.48
1:A:57:ASN:ND2	1:A:58:THR:H	2.10	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:LYS:HE3	1:A:192:ASP:OD1	2.13	0.48
1:A:343:GLN:HG3	1:A:349:LEU:HD22	1.95	0.48
1:A:376:THR:HG23	1:A:386:THR:CG2	2.41	0.48
1:A:379:SER:HA	1:A:383:TRP:CE3	2.48	0.48
2:B:135:ILE:O	2:B:138:GLU:HG3	2.12	0.48
2:B:373:GLN:NE2	2:B:406:TRP:HA	2.26	0.48
1:A:182:GLN:H	1:A:182:GLN:NE2	2.10	0.48
1:A:499:SER:OG	1:A:502:ALA:HB3	2.13	0.48
2:B:42:GLU:OE1	2:B:49:LYS:HE3	2.13	0.48
2:B:88:TRP:CB	4:B:1089:HOH:O	2.61	0.48
1:A:5:ILE:CD1	1:A:167:ILE:HD11	2.44	0.48
2:B:314:VAL:CG2	2:B:315:HIS:N	2.77	0.48
1:A:22:LYS:HG2	1:A:24:TRP:HZ2	1.70	0.48
2:B:12:LEU:HD12	2:B:12:LEU:H	1.77	0.48
2:B:246:LEU:HD12	2:B:303:LEU:HD11	1.96	0.48
2:B:325:LEU:HD12	2:B:385:LYS:HG3	1.95	0.48
1:A:34:LEU:HB2	1:A:132:ILE:HD12	1.96	0.48
1:A:229:TRP:O	1:A:232:TYR:HB2	2.13	0.48
1:A:286:THR:O	1:A:286:THR:CG2	2.59	0.48
1:A:9:PRO:O	1:A:9:PRO:HG2	2.14	0.48
1:A:135:ILE:O	1:A:135:ILE:HG13	2.12	0.48
1:A:441:TYR:CD2	1:A:542:ILE:HD12	2.48	0.48
1:A:540:LYS:O	1:A:541:GLY:O	2.30	0.48
2:B:246:LEU:HD12	2:B:303:LEU:CD1	2.44	0.48
1:A:285:GLY:HA3	1:A:287:LYS:NZ	2.28	0.48
2:B:195:ILE:CD1	2:B:199:ARG:NE	2.77	0.48
2:B:326:ILE:HG21	2:B:342:TYR:CE1	2.47	0.48
2:B:422:LEU:HD12	2:B:425:LEU:CD1	2.40	0.48
1:A:241:VAL:HG13	1:A:266:TRP:HE1	1.77	0.48
2:B:60:VAL:HG11	2:B:130:PHE:HD2	1.75	0.48
2:B:236:PRO:HA	2:B:239:TRP:CD2	2.48	0.48
1:A:13:LYS:HD2	1:A:16:MET:CE	2.43	0.48
2:B:246:LEU:HD21	2:B:310:LEU:CD1	2.44	0.48
1:A:354:TYR:HA	4:A:1141:HOH:O	2.13	0.48
1:A:58:THR:HG22	1:A:59:PRO:CD	2.40	0.47
2:B:30:LYS:HD3	2:B:71:TRP:CH2	2.49	0.47
2:B:195:ILE:CG2	2:B:196:GLY:N	2.77	0.47
1:A:53:GLU:N	1:A:55:PRO:HD3	2.29	0.47
2:B:27:THR:HG23	4:B:1003:HOH:O	2.12	0.47
2:B:76:ASP:OD2	2:B:78:ARG:NH2	2.38	0.47
2:B:201:LYS:HA	2:B:201:LYS:HD3	1.65	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:240:THR:HG23	1:A:241:VAL:O	2.14	0.47
1:A:326:ILE:CD1	1:A:343:GLN:HA	2.45	0.47
1:A:522:ILE:O	1:A:525:LEU:HB2	2.14	0.47
1:A:20:LYS:HG2	1:A:56:TYR:HA	1.96	0.47
1:A:223:LYS:H	1:A:223:LYS:CD	2.27	0.47
2:B:161:GLN:O	2:B:162:SER:C	2.53	0.47
2:B:198:HIS:O	2:B:199:ARG:C	2.52	0.47
1:A:56:TYR:H	1:A:56:TYR:HD1	1.58	0.47
1:A:64:LYS:CE	1:A:68:SER:CB	2.91	0.47
2:B:344:GLU:O	2:B:345:PRO:C	2.52	0.47
2:B:23:GLN:HG3	2:B:23:GLN:O	2.15	0.47
2:B:298:GLU:O	2:B:301:LEU:CB	2.62	0.47
1:A:182:GLN:H	1:A:182:GLN:CD	2.18	0.47
1:A:369:THR:HG23	1:A:398:TRP:HH2	1.79	0.47
2:B:232:TYR:HE1	2:B:234:LEU:HD21	1.80	0.47
1:A:258:GLN:HG2	1:A:283:LEU:CD2	2.44	0.47
1:A:301:LEU:HD12	1:A:301:LEU:C	2.35	0.47
2:B:346:PHE:CD1	2:B:346:PHE:N	2.82	0.47
2:B:419:THR:O	2:B:421:PRO:N	2.48	0.47
1:A:96:HIS:CE1	1:A:269:GLN:HE21	2.33	0.46
1:A:254:VAL:HA	1:A:257:ILE:HG22	1.97	0.46
1:A:278:GLN:HG2	1:A:302:GLU:OE2	2.15	0.46
1:A:410:TRP:HB2	2:B:365:VAL:HG21	1.97	0.46
1:A:344:GLU:HA	1:A:345:PRO:HD3	1.66	0.46
2:B:305:GLU:O	2:B:308:GLU:HB3	2.16	0.46
1:A:279:LEU:HD23	1:A:299:ALA:CB	2.34	0.46
2:B:85:GLN:HB2	2:B:154:LYS:HB2	1.95	0.46
2:B:206:ARG:NH1	2:B:216:THR:HG1	2.12	0.46
2:B:375:ILE:HB	2:B:389:PHE:HZ	1.80	0.46
1:A:173:LYS:O	1:A:175:ASN:N	2.48	0.46
2:B:11:LYS:NZ	2:B:14:PRO:HG3	2.31	0.46
2:B:178:ILE:HD11	2:B:201:LYS:HG2	1.95	0.46
1:A:24:TRP:N	1:A:25:PRO:CD	2.79	0.46
2:B:2:ILE:O	2:B:3:SER:C	2.54	0.46
1:A:53:GLU:C	1:A:55:PRO:CD	2.80	0.46
1:A:308:GLU:O	1:A:312:GLU:OE1	2.33	0.46
1:A:402:TRP:HE3	1:A:402:TRP:C	2.19	0.46
3:A:701:ADB:H16	3:A:701:ADB:N1	2.31	0.46
2:B:21:VAL:HB	2:B:59:PRO:HD3	1.97	0.46
2:B:277:ARG:HA	2:B:280:SER:OG	2.16	0.46
2:B:411:ILE:O	2:B:412:PRO:O	2.34	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:329:ILE:HA	1:A:338:THR:O	2.16	0.46
1:A:540:LYS:HG3	1:A:541:GLY:N	2.31	0.46
2:B:246:LEU:HD21	2:B:310:LEU:HD13	1.98	0.46
1:A:3:SER:HB3	1:A:212:TRP:O	2.15	0.46
1:A:170:PRO:HG2	1:A:171:PHE:H	1.80	0.46
1:A:331:LYS:HZ3	1:A:333:GLY:HA2	1.80	0.46
1:A:506:ILE:HD11	1:A:521:ILE:HG21	1.97	0.46
2:B:169:GLU:N	2:B:170:PRO:HD2	2.30	0.46
2:B:222:GLN:CG	2:B:223:LYS:H	2.29	0.46
1:A:13:LYS:HD2	1:A:16:MET:HE1	1.96	0.46
1:A:273:GLY:HA2	1:A:338:THR:HG21	1.98	0.46
2:B:96:HIS:HA	2:B:97:PRO:HD2	1.82	0.46
2:B:115:TYR:O	2:B:117:SER:N	2.49	0.46
1:A:244:ILE:CD1	1:A:310:LEU:HD13	2.19	0.45
1:A:288:ALA:HB1	1:A:291:GLU:H	1.81	0.45
1:A:394:GLN:O	1:A:395:LYS:C	2.53	0.45
1:A:406:TRP:HH2	2:B:418:ASN:HA	1.80	0.45
1:A:438:GLU:OE1	1:A:463:ARG:NH2	2.49	0.45
1:A:85:GLN:HE22	2:B:53:GLU:HB2	1.81	0.45
1:A:426:TRP:O	1:A:427:TYR:HB3	2.16	0.45
1:A:429:LEU:HD11	1:A:506:ILE:HG23	1.98	0.45
1:A:497:THR:CG2	1:A:498:ASP:H	2.27	0.45
2:B:319:TYR:O	2:B:321:PRO:HD3	2.17	0.45
1:A:120:LEU:O	1:A:122:GLU:N	2.49	0.45
2:B:195:ILE:CD1	2:B:199:ARG:HE	2.29	0.45
1:A:104:LYS:CE	1:A:192:ASP:OD1	2.64	0.45
1:A:356:ARG:HG2	1:A:367:GLN:HG3	1.98	0.45
2:B:139:THR:HG23	2:B:140:PRO:CD	2.44	0.45
1:A:53:GLU:H	1:A:55:PRO:HD3	1.80	0.45
1:A:59:PRO:HG2	1:A:76:ASP:HB3	1.99	0.45
1:A:379:SER:CB	1:A:387:PRO:HD3	2.47	0.45
1:A:398:TRP:O	1:A:400:THR:N	2.49	0.45
1:A:418:ASN:C	1:A:419:THR:HG22	2.37	0.45
1:A:504:GLY:O	1:A:505:ILE:C	2.54	0.45
1:A:18:GLY:HA2	1:A:19:PRO:HD3	1.84	0.45
2:B:319:TYR:CE2	2:B:321:PRO:HG3	2.52	0.45
1:A:118:VAL:HA	1:A:119:PRO:HD3	1.69	0.45
1:A:136:ASN:C	1:A:138:GLU:H	2.17	0.45
1:A:416:PHE:CE2	1:A:418:ASN:HB2	2.51	0.45
2:B:46:LYS:HD3	2:B:116:PHE:CE1	2.52	0.45
2:B:202:ILE:O	2:B:205:LEU:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:198:HIS:O	2:B:201:LYS:N	2.50	0.45
2:B:324:ASP:O	2:B:343:GLN:HG2	2.17	0.45
2:B:160:PHE:O	2:B:161:GLN:C	2.55	0.45
2:B:363:ASN:ND2	2:B:365:VAL:N	2.65	0.45
1:A:410:TRP:HB2	2:B:365:VAL:CG2	2.46	0.45
1:A:513:SER:O	1:A:519:ASN:ND2	2.50	0.45
1:A:529:GLU:C	1:A:530:LYS:HG3	2.37	0.45
2:B:153:TRP:O	2:B:155:GLY:N	2.48	0.45
2:B:171:PHE:HB3	4:B:1153:HOH:O	2.15	0.44
1:A:395:LYS:HE2	1:A:399:GLU:OE1	2.16	0.44
1:A:102:LYS:HG2	1:A:104:LYS:HZ3	1.83	0.44
1:A:235:HIS:HB2	1:A:238:LYS:CG	2.47	0.44
2:B:205:LEU:O	2:B:206:ARG:C	2.54	0.44
2:B:267:ALA:O	2:B:269:GLN:N	2.51	0.44
2:B:274:ILE:HG22	2:B:275:LYS:N	2.32	0.44
2:B:345:PRO:C	2:B:346:PHE:HD1	2.20	0.44
1:A:126:LYS:HE2	1:A:126:LYS:HB3	1.69	0.44
1:A:253:THR:O	1:A:254:VAL:C	2.56	0.44
1:A:369:THR:HG23	1:A:398:TRP:CH2	2.53	0.44
2:B:209:LEU:HD22	2:B:214:LEU:HD12	1.99	0.44
2:B:257:ILE:HD11	2:B:279:LEU:O	2.18	0.44
2:B:339:TYR:CG	2:B:375:ILE:HD13	2.52	0.44
1:A:60:VAL:HG22	1:A:130:PHE:HB2	2.00	0.44
1:A:181:TYR:CD2	1:A:181:TYR:C	2.90	0.44
1:A:412:PRO:O	1:A:414:TRP:HD1	2.01	0.44
2:B:163:SER:O	2:B:167:ILE:HG13	2.17	0.44
2:B:366:LYS:O	2:B:370:GLU:HG3	2.18	0.44
1:A:253:THR:O	1:A:256:ASP:HB2	2.18	0.44
1:A:499:SER:OG	1:A:502:ALA:CB	2.66	0.44
1:A:37:ILE:O	1:A:41:MET:HB2	2.18	0.44
1:A:411:ILE:HG13	1:A:412:PRO:HD2	2.00	0.44
1:A:435:VAL:HA	2:B:290:THR:OG1	2.18	0.44
1:A:504:GLY:O	1:A:507:GLN:N	2.50	0.44
2:B:139:THR:HG22	2:B:140:PRO:O	2.17	0.44
2:B:220:LYS:HD2	2:B:230:MET:C	2.38	0.44
2:B:234:LEU:HD11	2:B:377:THR:HG21	1.99	0.44
2:B:275:LYS:HB2	2:B:302:GLU:OE1	2.18	0.44
1:A:80:LEU:O	1:A:84:THR:HG23	2.17	0.44
1:A:231:GLY:O	1:A:242:GLN:HG2	2.18	0.44
1:A:96:HIS:HA	1:A:97:PRO:HD3	1.87	0.44
1:A:104:LYS:N	1:A:104:LYS:CE	2.75	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:ALA:HA	1:A:144:TYR:O	2.17	0.44
1:A:320:ASP:OD2	1:A:322:SER:OG	2.36	0.44
1:A:330:GLN:HE21	1:A:330:GLN:HB3	1.61	0.44
1:A:354:TYR:CZ	1:A:370:GLU:HB3	2.53	0.44
2:B:40:GLU:O	2:B:41:MET:C	2.54	0.44
2:B:104:LYS:O	2:B:105:SER:OG	2.34	0.44
2:B:109:LEU:HA	2:B:218:ASP:OD2	2.18	0.44
2:B:259:LYS:O	2:B:262:GLY:N	2.50	0.44
1:A:51:GLY:O	1:A:53:GLU:N	2.51	0.43
1:A:235:HIS:HB2	1:A:238:LYS:HG2	2.00	0.43
1:A:288:ALA:HB3	1:A:291:GLU:HB3	1.95	0.43
1:A:397:THR:O	1:A:398:TRP:C	2.56	0.43
2:B:33:ALA:O	2:B:37:ILE:HG13	2.18	0.43
2:B:187:LEU:HD12	2:B:187:LEU:HA	1.80	0.43
1:A:30:LYS:O	1:A:31:ILE:C	2.56	0.43
1:A:241:VAL:HG12	1:A:242:GLN:N	2.33	0.43
2:B:27:THR:HG21	2:B:29:GLU:HB3	1.99	0.43
2:B:255:ASN:O	2:B:258:GLN:N	2.50	0.43
2:B:395:LYS:HE2	2:B:399:GLU:OE2	2.18	0.43
2:B:411:ILE:C	2:B:412:PRO:O	2.56	0.43
1:A:57:ASN:ND2	1:A:58:THR:N	2.66	0.43
1:A:390:LYS:HB3	1:A:417:VAL:HG21	2.00	0.43
2:B:30:LYS:HD2	2:B:62:ALA:HB3	2.01	0.43
2:B:375:ILE:HD12	2:B:389:PHE:HE2	1.82	0.43
1:A:328:GLU:HG3	1:A:390:LYS:CB	2.34	0.43
1:A:342:TYR:HA	1:A:349:LEU:HB2	2.01	0.43
2:B:13:LYS:O	2:B:16:MET:CB	2.64	0.43
2:B:27:THR:HB	2:B:30:LYS:CG	2.49	0.43
2:B:46:LYS:HZ3	2:B:116:PHE:HD1	1.66	0.43
2:B:85:GLN:CB	2:B:154:LYS:HB2	2.49	0.43
2:B:104:LYS:HB3	2:B:192:ASP:HA	1.99	0.43
2:B:195:ILE:O	2:B:198:HIS:HB3	2.19	0.43
2:B:266:TRP:CD1	2:B:422:LEU:HD23	2.53	0.43
1:A:201:LYS:HA	1:A:201:LYS:HD3	1.79	0.43
1:A:331:LYS:HZ1	1:A:333:GLY:HA2	1.81	0.43
2:B:342:TYR:C	2:B:342:TYR:HD1	2.21	0.43
1:A:229:TRP:NE1	1:A:230:MET:HG2	2.33	0.43
2:B:195:ILE:CG1	2:B:199:ARG:HE	2.30	0.43
2:B:303:LEU:HD22	4:B:1143:HOH:O	2.19	0.43
2:B:308:GLU:O	2:B:310:LEU:N	2.51	0.43
1:A:531:VAL:HG12	1:A:532:TYR:N	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:195:ILE:HG12	2:B:199:ARG:HG3	2.01	0.43
2:B:366:LYS:HZ2	2:B:366:LYS:HB3	1.84	0.43
2:B:203:GLU:HA	2:B:206:ARG:HB2	2.01	0.43
2:B:257:ILE:HG23	2:B:258:GLN:N	2.33	0.43
2:B:278:GLN:CA	2:B:281:LYS:HE3	2.22	0.43
1:A:30:LYS:HA	1:A:33:ALA:CB	2.49	0.43
1:A:94:ILE:CD1	1:A:230:MET:HE2	2.49	0.43
1:A:328:GLU:CG	1:A:390:LYS:HB2	2.36	0.43
2:B:283:LEU:C	2:B:285:GLY:N	2.72	0.43
2:B:283:LEU:O	2:B:285:GLY:N	2.51	0.43
1:A:128:THR:HB	1:A:146:TYR:HB2	2.01	0.42
1:A:137:ASN:O	1:A:138:GLU:HB3	2.18	0.42
1:A:257:ILE:HG21	1:A:283:LEU:HD13	2.01	0.42
1:A:467:VAL:HA	1:A:468:PRO:HD3	1.70	0.42
1:A:491:LEU:HB3	1:A:529:GLU:HB2	2.00	0.42
2:B:329:ILE:N	4:B:1149:HOH:O	2.51	0.42
1:A:64:LYS:HD3	1:A:71:TRP:CH2	2.54	0.42
1:A:294:PRO:O	1:A:296:THR:N	2.53	0.42
1:A:424:LYS:CD	1:A:425:LEU:N	2.79	0.42
2:B:27:THR:O	2:B:28:GLU:C	2.56	0.42
2:B:30:LYS:O	2:B:31:ILE:C	2.57	0.42
2:B:168:LEU:C	2:B:170:PRO:HD2	2.40	0.42
2:B:199:ARG:O	2:B:202:ILE:HB	2.19	0.42
1:A:62:ALA:HB1	1:A:71:TRP:CD1	2.54	0.42
1:A:195:ILE:O	1:A:199:ARG:HG3	2.19	0.42
1:A:427:TYR:CD1	1:A:427:TYR:C	2.93	0.42
1:A:457:TYR:C	1:A:457:TYR:CD2	2.93	0.42
2:B:90:VAL:O	2:B:91:GLN:C	2.57	0.42
2:B:236:PRO:HA	2:B:239:TRP:CG	2.53	0.42
1:A:96:HIS:CD2	1:A:97:PRO:HD2	2.54	0.42
1:A:183:TYR:C	1:A:184:MET:CG	2.82	0.42
1:A:406:TRP:CH2	1:A:407:GLN:HG3	2.54	0.42
2:B:13:LYS:HG2	2:B:14:PRO:O	2.20	0.42
2:B:40:GLU:O	2:B:43:LYS:N	2.52	0.42
2:B:183:TYR:CE2	2:B:184:MET:HG3	2.55	0.42
2:B:314:VAL:HG22	2:B:315:HIS:N	2.34	0.42
1:A:34:LEU:HB2	1:A:132:ILE:CD1	2.49	0.42
1:A:470:THR:O	1:A:471:ASN:CB	2.67	0.42
1:A:19:PRO:HG2	1:A:80:LEU:HB2	2.01	0.42
1:A:294:PRO:O	1:A:295:LEU:C	2.57	0.42
2:B:195:ILE:HG23	2:B:196:GLY:H	1.81	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:222:GLN:CG	2:B:223:LYS:N	2.83	0.42
1:A:341:ILE:O	1:A:349:LEU:HB3	2.20	0.42
2:B:362:THR:HG23	2:B:366:LYS:NZ	2.35	0.42
1:A:542:ILE:HD13	1:A:544:GLY:CA	2.50	0.42
2:B:280:SER:O	2:B:281:LYS:C	2.58	0.42
2:B:302:GLU:O	2:B:306:ASN:HB2	2.19	0.42
1:A:5:ILE:HD11	1:A:167:ILE:HD11	2.01	0.42
1:A:59:PRO:O	1:A:75:VAL:HA	2.20	0.42
1:A:97:PRO:CG	1:A:232:TYR:CE2	2.99	0.42
2:B:234:LEU:HD11	2:B:377:THR:CG2	2.50	0.42
2:B:327:ALA:HA	4:B:1124:HOH:O	2.20	0.42
1:A:34:LEU:CB	1:A:132:ILE:HD12	2.50	0.42
2:B:58:THR:N	4:B:1111:HOH:O	2.53	0.42
2:B:207:GLN:HE21	2:B:207:GLN:HB2	1.55	0.42
2:B:257:ILE:HD12	2:B:282:LEU:HD23	2.01	0.42
2:B:361:HIS:N	2:B:361:HIS:ND1	2.68	0.42
2:B:274:ILE:HA	2:B:306:ASN:OD1	2.20	0.41
1:A:22:LYS:HB3	1:A:24:TRP:CE2	2.55	0.41
2:B:406:TRP:CE2	2:B:408:ALA:HB3	2.55	0.41
1:A:224:GLU:CB	1:A:225:PRO:CD	2.78	0.41
1:A:257:ILE:HD11	1:A:282:LEU:HB2	2.02	0.41
2:B:28:GLU:HB2	2:B:135:ILE:CD1	2.50	0.41
2:B:393:ILE:HD13	2:B:398:TRP:HB2	2.03	0.41
1:A:198:HIS:O	1:A:202:ILE:HG12	2.20	0.41
1:A:241:VAL:HG13	1:A:266:TRP:NE1	2.34	0.41
1:A:276:VAL:HG12	1:A:280:SER:OG	2.19	0.41
1:A:289:LEU:HD12	1:A:289:LEU:HA	1.78	0.41
1:A:328:GLU:O	1:A:339:TYR:HA	2.20	0.41
1:A:434:ILE:O	1:A:437:ALA:HB3	2.21	0.41
2:B:12:LEU:HD11	2:B:127:TYR:CE2	2.56	0.41
2:B:46:LYS:CD	2:B:116:PHE:CD1	3.01	0.41
2:B:356:ARG:HB2	2:B:367:GLN:HG2	2.01	0.41
1:A:73:LYS:NZ	1:A:130:PHE:CZ	2.79	0.41
2:B:130:PHE:CE1	2:B:144:TYR:HB2	2.55	0.41
2:B:254:VAL:O	2:B:257:ILE:HG23	2.20	0.41
2:B:419:THR:H	2:B:420:PRO:CD	2.33	0.41
1:A:102:LYS:HA	1:A:318:TYR:HD1	1.85	0.41
1:A:211:ARG:HG3	1:A:211:ARG:NH1	2.35	0.41
1:A:211:ARG:HG3	1:A:211:ARG:HH11	1.85	0.41
2:B:46:LYS:CD	2:B:116:PHE:HD1	2.33	0.41
1:A:11:LYS:HB2	1:A:85:GLN:OE1	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:59:PRO:HD2	1:A:76:ASP:O	2.21	0.41
1:A:195:ILE:HG23	1:A:196:GLY:N	2.34	0.41
1:A:369:THR:HG1	1:A:398:TRP:HH2	1.60	0.41
1:A:398:TRP:O	1:A:399:GLU:C	2.59	0.41
2:B:56:TYR:O	2:B:57:ASN:HB2	2.21	0.41
2:B:84:THR:O	2:B:85:GLN:C	2.59	0.41
2:B:88:TRP:HB2	4:B:1089:HOH:O	2.20	0.41
2:B:195:ILE:HD11	2:B:199:ARG:NE	2.35	0.41
2:B:195:ILE:O	2:B:196:GLY:C	2.59	0.41
1:A:104:LYS:CG	1:A:192:ASP:HA	2.42	0.41
1:A:275:LYS:NZ	1:A:332:GLN:HE21	2.18	0.41
1:A:470:THR:O	1:A:471:ASN:HB3	2.20	0.41
1:A:542:ILE:CG1	1:A:543:GLY:N	2.79	0.41
2:B:282:LEU:HG	2:B:293:ILE:CD1	2.35	0.41
2:B:298:GLU:CA	2:B:301:LEU:HB2	2.51	0.41
1:A:102:LYS:HG2	1:A:104:LYS:HZ1	1.84	0.41
1:A:108:VAL:O	1:A:108:VAL:CG2	2.68	0.41
1:A:215:THR:O	1:A:216:THR:HG22	2.21	0.41
1:A:410:TRP:HE3	1:A:410:TRP:HA	1.85	0.41
1:A:410:TRP:HA	1:A:410:TRP:CE3	2.56	0.41
2:B:277:ARG:N	2:B:277:ARG:CD	2.70	0.41
2:B:336:GLN:HG2	2:B:355:ALA:HB2	2.03	0.41
1:A:3:SER:HB2	1:A:5:ILE:HG13	2.03	0.41
1:A:178:ILE:H	1:A:178:ILE:HG13	1.62	0.41
2:B:183:TYR:CD2	2:B:184:MET:HG3	2.55	0.41
1:A:252:TRP:CD1	1:A:295:LEU:HD13	2.56	0.40
1:A:281:LYS:HE3	4:A:1074:HOH:O	2.19	0.40
1:A:298:GLU:O	1:A:299:ALA:C	2.59	0.40
1:A:417:VAL:CG1	1:A:419:THR:CG2	3.00	0.40
2:B:224:GLU:HA	2:B:225:PRO:HD3	1.67	0.40
1:A:382:ILE:HG22	1:A:383:TRP:CD1	2.57	0.40
2:B:164:MET:O	2:B:165:THR:C	2.58	0.40
2:B:220:LYS:HD3	2:B:229:TRP:O	2.21	0.40
1:A:131:THR:O	1:A:131:THR:CG2	2.70	0.40
1:A:474:ASN:C	1:A:478:GLU:HG3	2.40	0.40
2:B:156:SER:N	2:B:157:PRO:CD	2.82	0.40
2:B:382:ILE:O	2:B:382:ILE:CG2	2.67	0.40
1:A:132:ILE:CG2	1:A:142:ILE:O	2.69	0.40
1:A:259:LYS:O	1:A:263:LYS:HG3	2.22	0.40
1:A:411:ILE:HG23	1:A:411:ILE:O	2.22	0.40
1:A:452:LEU:CD2	1:A:470:THR:HG22	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:249:LYS:HB2	2:B:252:TRP:CH2	2.56	0.40
1:A:235:HIS:CB	1:A:238:LYS:HG2	2.52	0.40
2:B:46:LYS:NZ	2:B:116:PHE:HD1	2.19	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	550/560 (98%)	429 (78%)	84 (15%)	37 (7%)	1 1
2	B	425/430 (99%)	327 (77%)	68 (16%)	30 (7%)	1 1
All	All	975/990 (98%)	756 (78%)	152 (16%)	67 (7%)	1 1

All (67) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	14	PRO
1	A	28	GLU
1	A	54	ASN
1	A	122	GLU
1	A	135	ILE
1	A	137	ASN
1	A	153	TRP
1	A	195	ILE
1	A	412	PRO
1	A	538	ALA
1	A	539	HIS
1	A	541	GLY
2	B	7	THR
2	B	77	PHE
2	B	85	GLN

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Mol	Chain	Res	Type
2	B	116	PHE
2	B	218	ASP
2	B	295	LEU
2	B	360	ALA
2	B	419	THR
1	A	16	MET
1	A	82	LYS
1	A	89	GLU
1	A	121	ASP
1	A	174	GLN
1	A	224	GLU
1	A	276	VAL
1	A	398	TRP
1	A	505	ILE
1	A	516	GLU
2	B	126	LYS
2	B	154	LYS
2	B	220	LYS
2	B	288	ALA
2	B	297	GLU
2	B	307	ARG
2	B	421	PRO
1	A	52	PRO
1	A	213	GLY
1	A	254	VAL
2	B	68	SER
2	B	223	LYS
2	B	232	TYR
2	B	268	SER
1	A	23	GLN
1	A	98	ALA
1	A	162	SER
1	A	237	ASP
1	A	397	THR
1	A	501	TYR
1	A	542	ILE
2	B	18	GLY
2	B	231	GLY
2	B	284	ARG
2	B	345	PRO
1	A	399	GLU
2	B	65	LYS

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Mol	Chain	Res	Type
2	B	91	GLN
2	B	198	HIS
2	B	359	GLY
1	A	69	THR
2	B	420	PRO
1	A	504	GLY
2	B	313	PRO
1	A	169	GLU
2	B	3	SER
1	A	24	TRP

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	494/500 (99%)	448 (91%)	46 (9%)	9 17
2	B	389/392 (99%)	350 (90%)	39 (10%)	7 14
All	All	883/892 (99%)	798 (90%)	85 (10%)	8 16

All (85) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	PRO
1	A	22	LYS
1	A	28	GLU
1	A	32	LYS
1	A	40	GLU
1	A	56	TYR
1	A	58	THR
1	A	67	ASP
1	A	71	TRP
1	A	91	GLN
1	A	128	THR
1	A	131	THR
1	A	135	ILE

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Mol	Chain	Res	Type
1	A	161	GLN
1	A	184	MET
1	A	188	TYR
1	A	201	LYS
1	A	217	PRO
1	A	220	LYS
1	A	223	LYS
1	A	228	LEU
1	A	274	ILE
1	A	287	LYS
1	A	296	THR
1	A	300	GLU
1	A	317	VAL
1	A	330	GLN
1	A	347	LYS
1	A	349	LEU
1	A	356	ARG
1	A	358	ARG
1	A	364	ASP
1	A	369	THR
1	A	386	THR
1	A	391	LEU
1	A	394	GLN
1	A	402	TRP
1	A	407	GLN
1	A	410	TRP
1	A	419	THR
1	A	450	THR
1	A	460	ASN
1	A	465	LYS
1	A	506	ILE
1	A	511	ASP
1	A	542	ILE
2	B	1	PRO
2	B	7	THR
2	B	16	MET
2	B	22	LYS
2	B	36	GLU
2	B	67	ASP
2	B	69	THR
2	B	91	GLN
2	B	109	LEU

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Mol	Chain	Res	Type
2	B	113	ASP
2	B	163	SER
2	B	165	THR
2	B	169	GLU
2	B	170	PRO
2	B	177	ASP
2	B	187	LEU
2	B	193	LEU
2	B	194	GLU
2	B	206	ARG
2	B	221	HIS
2	B	232	TYR
2	B	239	TRP
2	B	244	ILE
2	B	246	LEU
2	B	277	ARG
2	B	279	LEU
2	B	293	ILE
2	B	301	LEU
2	B	305	GLU
2	B	314	VAL
2	B	317	VAL
2	B	338	THR
2	B	363	ASN
2	B	372	VAL
2	B	374	LYS
2	B	399	GLU
2	B	403	THR
2	B	418	ASN
2	B	419	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	23	GLN
1	A	91	GLN
1	A	96	HIS
1	A	151	GLN
1	A	161	GLN
1	A	182	GLN
1	A	235	HIS
1	A	269	GLN

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Mol	Chain	Res	Type
1	A	332	GLN
1	A	361	HIS
1	A	367	GLN
1	A	460	ASN
1	A	474	ASN
1	A	475	GLN
1	A	494	ASN
1	A	507	GLN
1	A	509	GLN
1	A	519	ASN
2	B	174	GLN
2	B	207	GLN
2	B	255	ASN
2	B	258	GLN
2	B	265	ASN
2	B	315	HIS
2	B	330	GLN
2	B	340	GLN
2	B	363	ASN
2	B	394	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	ADB	A	701	-	27,27,27	1.81	7 (25%)	36,37,37	2.44	9 (25%)

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
3	ADB	A	701	-	-	0/10/10/10	0/3/3/3

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	701	ADB	C16-C11	4.23	1.46	1.39
3	A	701	ADB	C10-N4	3.70	1.41	1.33
3	A	701	ADB	C16-C15	2.80	1.43	1.38
3	A	701	ADB	C13-C12	2.56	1.43	1.38
3	A	701	ADB	C1-C2	2.33	1.45	1.40
3	A	701	ADB	C1-C6	2.27	1.45	1.40
3	A	701	ADB	C4-C5	2.14	1.43	1.38

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	701	ADB	C8-N1-C9	9.51	120.49	112.86
3	A	701	ADB	N2-C9-N1	-4.90	118.48	126.23
3	A	701	ADB	C10-N2-C9	4.37	121.14	113.75
3	A	701	ADB	C8-O7-C1	4.13	124.56	117.18
3	A	701	ADB	N3-C10-N2	-3.58	119.80	125.42
3	A	701	ADB	N3-C8-N1	-3.25	121.37	127.63
3	A	701	ADB	C1-C6-CL6	2.85	122.14	118.41
3	A	701	ADB	C1-C2-CL2	2.70	121.94	118.41
3	A	701	ADB	N4-C10-N2	2.13	120.57	117.25

There are no chirality outliers.

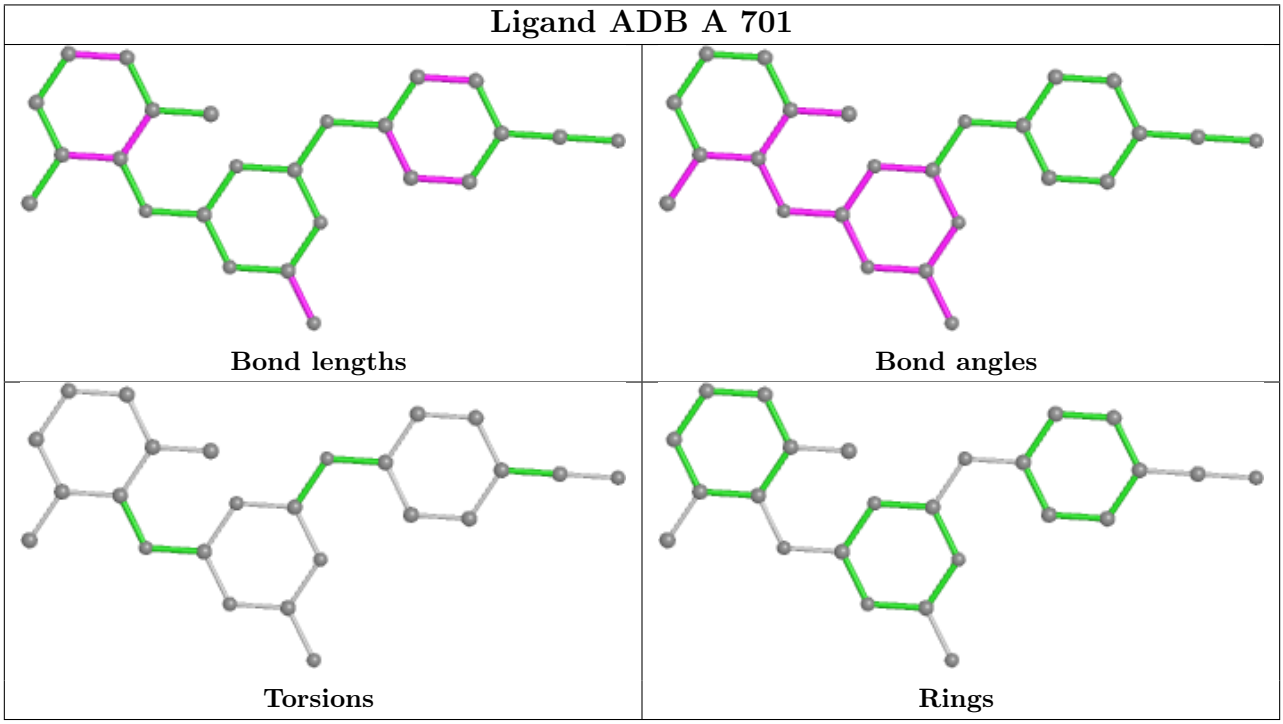
There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	701	ADB	4	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

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	545/560 (97%)	-0.02	19 (3%) 44 36	25, 74, 99, 105	19 (3%)
2	B	427/430 (99%)	0.13	35 (8%) 11 8	17, 61, 101, 106	14 (3%)
All	All	972/990 (98%)	0.05	54 (5%) 24 19	17, 71, 100, 106	33 (3%)

All (54) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	360	ALA	6.5
2	B	1	PRO	5.7
2	B	225	PRO	5.6
2	B	2	ILE	5.2
2	B	4	PRO	5.2
2	B	230	MET	5.0
2	B	231	GLY	4.9
1	A	221	HIS	4.7
1	A	141	GLY	4.4
2	B	358	ARG	4.4
2	B	304	ALA	4.3
2	B	359	GLY	4.2
2	B	222	GLN	3.7
2	B	279	LEU	3.6
2	B	245	VAL	3.6
2	B	299	ALA	3.5
2	B	226	PRO	3.5
2	B	3	SER	3.4
1	A	74	LEU	3.4
2	B	218	ASP	3.3
1	A	132	ILE	3.2
2	B	5	ILE	3.2
2	B	301	LEU	3.1
1	A	140	PRO	3.0

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Mol	Chain	Res	Type	RSRZ
1	A	135	ILE	3.0
2	B	223	LYS	3.0
1	A	1	PRO	3.0
1	A	21	VAL	2.8
2	B	310	LEU	2.8
2	B	296	THR	2.8
2	B	357	MET	2.6
1	A	78	ARG	2.6
1	A	219	LYS	2.6
1	A	65	LYS	2.4
2	B	250	ASP	2.4
1	A	253	THR	2.4
1	A	67	ASP	2.3
2	B	227	PHE	2.3
2	B	409	THR	2.3
1	A	545	ASN	2.2
2	B	241	VAL	2.2
2	B	232	TYR	2.1
2	B	224	GLU	2.1
2	B	303	LEU	2.1
2	B	298	GLU	2.1
1	A	252	TRP	2.1
2	B	356	ARG	2.1
1	A	137	ASN	2.1
1	A	247	PRO	2.1
2	B	294	PRO	2.1
2	B	69	THR	2.0
2	B	283	LEU	2.0
1	A	66	LYS	2.0
1	A	60	VAL	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands

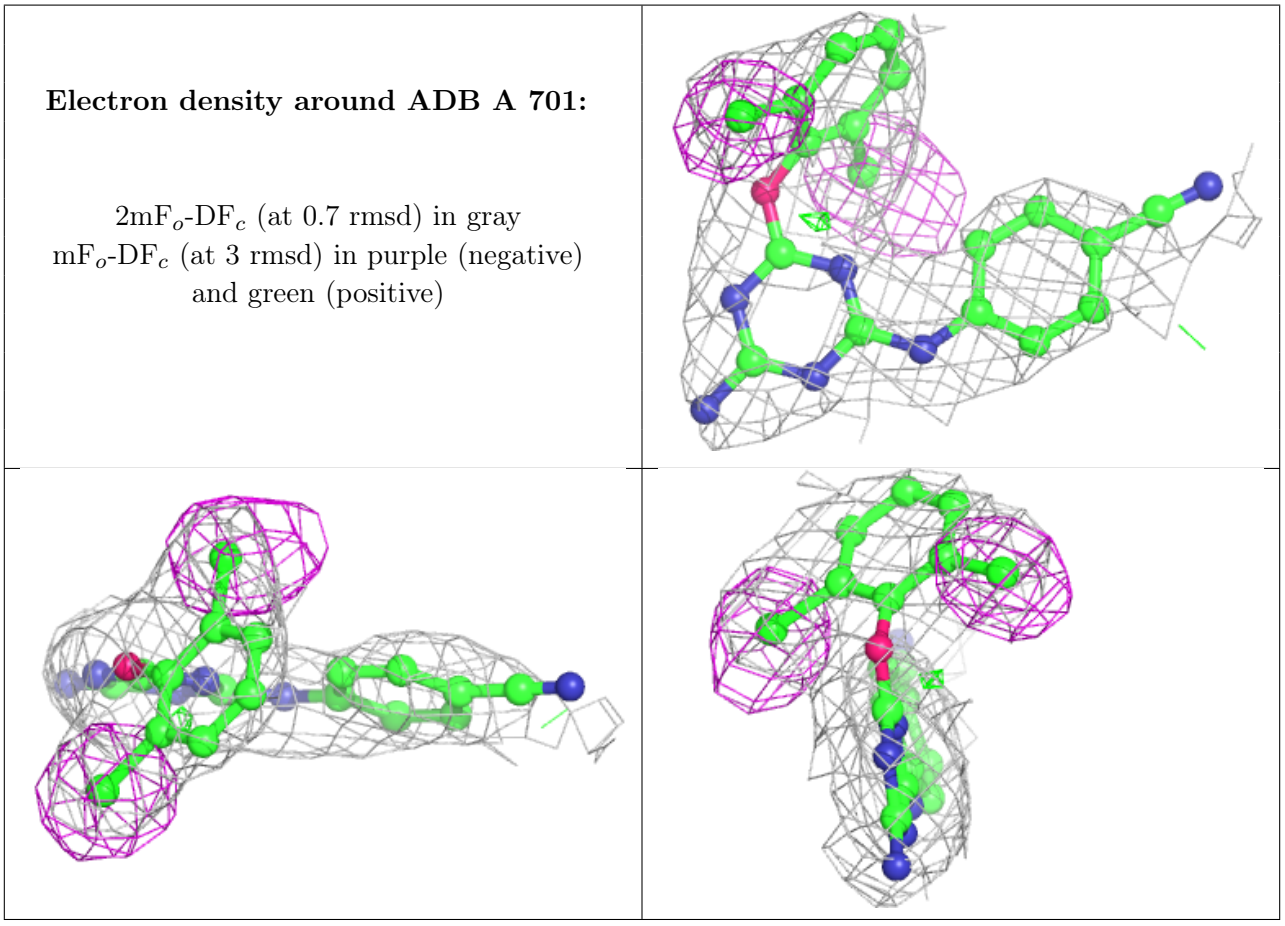
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	ADB	A	701	25/25	0.86	0.21	41,56,65,73	0

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

Electron density around ADB A 701:

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



6.5 Other polymers

There are no such residues in this entry.