



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 16, 2024 – 05:51 PM EDT

PDB ID : 3TAL
Title : Crystal structure of NurA with manganese
Authors : Chae, J.; Kim, Y.C.; Cho, Y.
Deposited on : 2011-08-04
Resolution : 3.15 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
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 2.37.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

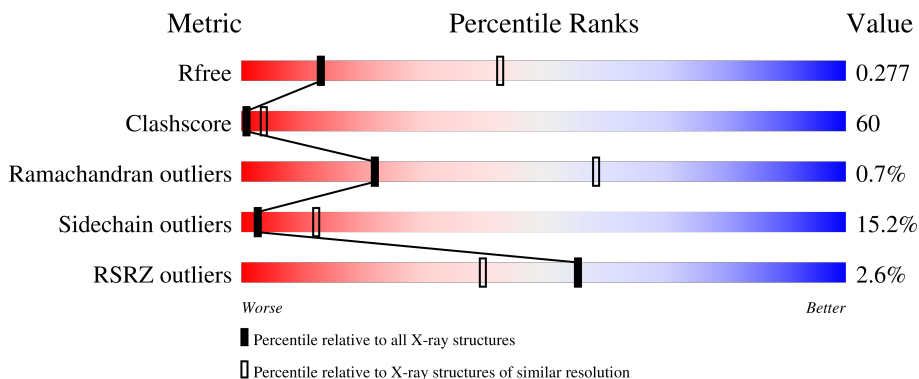
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.15 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	1665 (3.20-3.12)
Clashscore	141614	1804 (3.20-3.12)
Ramachandran outliers	138981	1770 (3.20-3.12)
Sidechain outliers	138945	1769 (3.20-3.12)
RSRZ outliers	127900	1616 (3.20-3.12)

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

Mol	Chain	Length	Quality of chain
1	A	471	
1	B	471	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 6861 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 DNA double-strand break repair protein nurA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	Se			
1	A	424	3420	2188	587	638	7	0	0	0
1	B	421	3411	2186	584	634	7	0	0	0

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MSE	-	EXPRESSION TAG	UNP Q8U1N8
A	-18	GLY	-	EXPRESSION TAG	UNP Q8U1N8
A	-17	SER	-	EXPRESSION TAG	UNP Q8U1N8
A	-16	SER	-	EXPRESSION TAG	UNP Q8U1N8
A	-15	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-14	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-13	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-12	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-11	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-10	HIS	-	EXPRESSION TAG	UNP Q8U1N8
A	-9	SER	-	EXPRESSION TAG	UNP Q8U1N8
A	-8	SER	-	EXPRESSION TAG	UNP Q8U1N8
A	-7	GLY	-	EXPRESSION TAG	UNP Q8U1N8
A	-6	LEU	-	EXPRESSION TAG	UNP Q8U1N8
A	-5	VAL	-	EXPRESSION TAG	UNP Q8U1N8
A	-4	PRO	-	EXPRESSION TAG	UNP Q8U1N8
A	-3	ARG	-	EXPRESSION TAG	UNP Q8U1N8
A	-2	GLY	-	EXPRESSION TAG	UNP Q8U1N8
A	-1	SER	-	EXPRESSION TAG	UNP Q8U1N8
A	0	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-19	MSE	-	EXPRESSION TAG	UNP Q8U1N8
B	-18	GLY	-	EXPRESSION TAG	UNP Q8U1N8
B	-17	SER	-	EXPRESSION TAG	UNP Q8U1N8
B	-16	SER	-	EXPRESSION TAG	UNP Q8U1N8
B	-15	HIS	-	EXPRESSION TAG	UNP Q8U1N8

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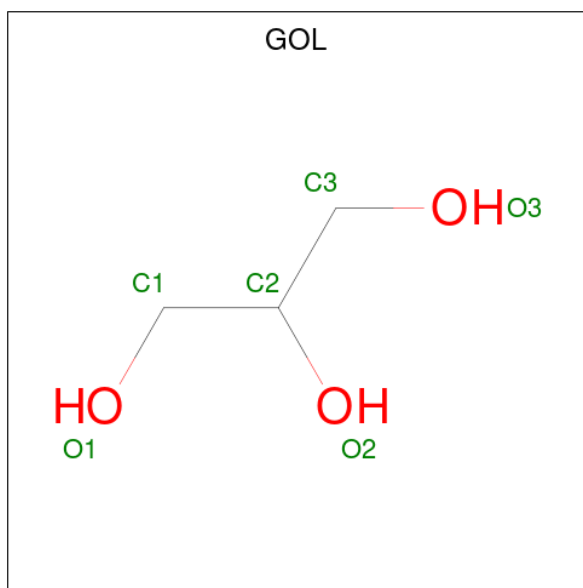
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Chain	Residue	Modelled	Actual	Comment	Reference
B	-14	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-13	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-12	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-11	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-10	HIS	-	EXPRESSION TAG	UNP Q8U1N8
B	-9	SER	-	EXPRESSION TAG	UNP Q8U1N8
B	-8	SER	-	EXPRESSION TAG	UNP Q8U1N8
B	-7	GLY	-	EXPRESSION TAG	UNP Q8U1N8
B	-6	LEU	-	EXPRESSION TAG	UNP Q8U1N8
B	-5	VAL	-	EXPRESSION TAG	UNP Q8U1N8
B	-4	PRO	-	EXPRESSION TAG	UNP Q8U1N8
B	-3	ARG	-	EXPRESSION TAG	UNP Q8U1N8
B	-2	GLY	-	EXPRESSION TAG	UNP Q8U1N8
B	-1	SER	-	EXPRESSION TAG	UNP Q8U1N8
B	0	HIS	-	EXPRESSION TAG	UNP Q8U1N8

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Mn 2 2	0	0
2	B	2	Total Mn 2 2	0	0

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		

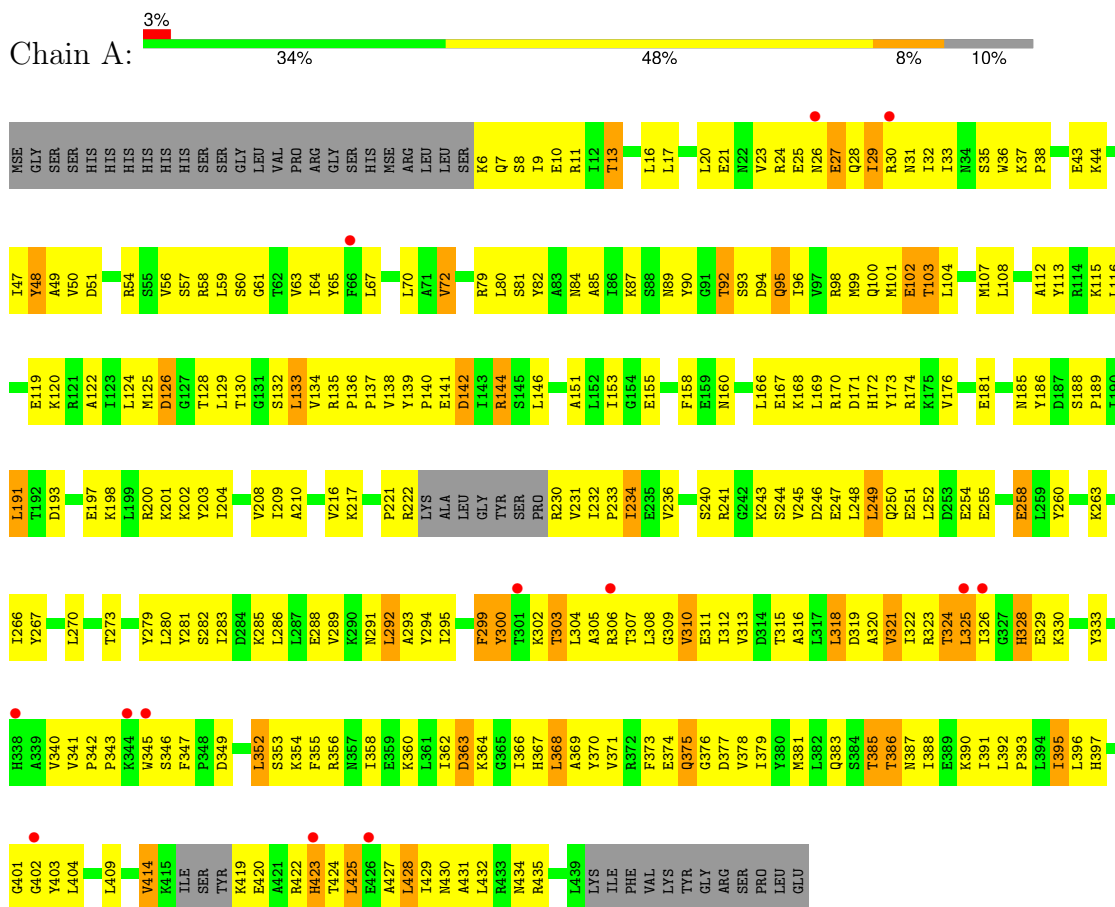
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	13	Total	O	0	0
			13	13		
4	B	7	Total	O	0	0
			7	7		

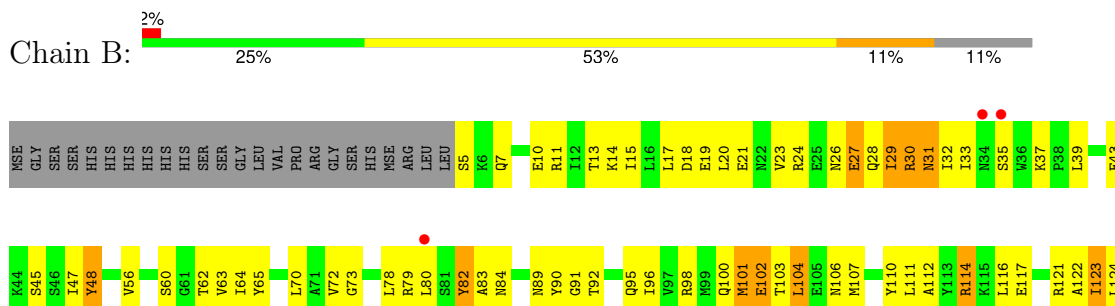
3 Residue-property plots

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: DNA double-strand break repair protein nurA



- Molecule 1: DNA double-strand break repair protein nurA



PRO	L388	L325	Y260	D193	M125
LEU	E389	L326	L261	M194	D126
GLU	K390	GLY	I266	V195	G127
	I391	HIS	Y267	V196	T128
	L392	GLU	D268	E197	L129
	P393	K330	A269	K198	L130
	L394	E331	L270	L199	
	L396	G332	H271	R200	V134
	H397	L334	M272	K201	R135
	H398	E335	T273	K202	P136
	K399	I336	L274	Y203	P137
	A400		S275	I204	V138
GLY	V340		Y276	D205	Y139
TYR	P341		I277	T206	F140
	P342		E278	K207	E141
	P343		Y279	V208	D142
R405	K344		L280	ILE	I143
P406	V345		Y281	ALA	R144
L407	S346		S282	TYR	S145
Q408	F347		I283	GLY	L146
L409	P348		K284	SER	
A410	P349		K285	GLY	M149
H411	F350		L286	K215	R150
H412	L351		L287	V216	
G413	L352		E288	K217	I153
V414	S353		N291	V218	
K415	K354		L292	K219	D157
I416	F355		A293	I220	
S417	R356		Y294	K223	L161
Y418	N357		L295	A224	L162
K419	I358		A296	L225	N163
E420	E359		K297	G226	E164
A421	K360		F299	Y227	F165
R422	L361		S298	S228	L166
H423	I362		Y300	P229	E167
T424	D363		T301	R230	K168
L425	K364		K302	V231	R170
E426	G365		T303	I232	D171
A427	I366		L304	P233	H172
L428	H367		A305	I234	Y173
I429	A369		R306	E235	R174
	V370		THR	V236	K175
L432	V371		LEU	S240	V176
R433	R372		GLY	R241	E177
N434	F373		V310	G242	E178
R435	E374		E311	K243	H179
D436	Q375		L312	L180	L180
P437	G376		D314	S244	E181
A438	D377		L317	V245	K182
L439	V378		R318	D246	M183
K440	I379		L319	E247	G184
ILE	P380		D319	L248	M185
PHE	N381		A320	L249	Y186
VAL	L382		V321	Q250	D187
LYS	Q383		I322	K256	S188
TYR	S384		R323	V257	P189
GLY	T385		T324	E258	L190
ARG				L259	L191
SER					T192

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	64.80Å 114.65Å 121.62Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.48 – 3.15 34.37 – 3.10	Depositor EDS
% Data completeness (in resolution range)	96.8 (29.48-3.15) 94.4 (34.37-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.39 (at 3.12Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, R_{free}	0.218 , 0.285 0.216 , 0.277	Depositor DCC
R_{free} test set	1694 reflections (10.06%)	wwPDB-VP
Wilson B-factor (Å ²)	97.2	Xtrriage
Anisotropy	0.133	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 89.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	6861	wwPDB-VP
Average B, all atoms (Å ²)	125.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.89% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.34	0/3470	0.60	0/4670
1	B	0.32	0/3459	0.62	1/4652 (0.0%)
All	All	0.33	0/6929	0.61	1/9322 (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	B	0	2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	B	274	LEU	CA-CB-CG	5.97	129.03	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	228	SER	Peptide
1	B	417	SER	Peptide

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	3420	0	3526	400	0
1	B	3411	0	3532	474	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
3	A	6	0	8	3	0
4	A	13	0	0	3	0
4	B	7	0	0	1	0
All	All	6861	0	7066	829	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 60.

All (829) 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:172:HIS:ND1	1:B:191:LEU:HD11	1.57	1.20
1:A:54:ARG:HB3	1:A:101:MSE:HE3	1.29	1.14
1:B:98:ARG:HH22	1:B:137:PRO:HB3	0.99	1.10
1:A:244:SER:HA	1:B:244:SER:HA	1.24	1.09
1:A:240:SER:HB3	1:A:243:LYS:HD2	1.31	1.08
1:A:310:VAL:HG12	1:A:311:GLU:H	1.18	1.04
1:A:87:LYS:HZ3	1:B:19:GLU:HG3	1.21	1.02
1:A:231:VAL:HB	1:B:231:VAL:HG11	1.41	1.02
1:B:405:ARG:HG3	1:B:406:PRO:HD3	1.43	0.99
1:A:135:ARG:HH22	1:A:140:PRO:HD3	1.26	0.99
1:A:21:GLU:HB3	1:A:24:ARG:HD3	1.43	0.99
1:A:87:LYS:NZ	1:B:19:GLU:HG3	1.78	0.99
1:A:169:LEU:HD23	1:A:191:LEU:HD12	1.43	0.99
1:A:95:GLN:HE22	1:A:138:VAL:HA	1.24	0.98
1:A:419:LYS:HG3	1:A:420:GLU:H	1.29	0.98
1:A:300:TYR:HE1	1:A:304:LEU:H	1.06	0.97
1:B:98:ARG:NH2	1:B:137:PRO:HB3	1.79	0.95
1:A:217:LYS:HG3	1:A:258:GLU:OE2	1.67	0.95
1:B:217:LYS:HG2	1:B:260:TYR:HE1	1.29	0.95
1:B:217:LYS:HG2	1:B:260:TYR:CE1	2.02	0.95
1:A:374:GLU:HB3	1:A:377:ASP:HB2	1.48	0.94
1:A:44:LYS:HA	1:A:397:HIS:ND1	1.85	0.92
1:A:320:ALA:HA	1:B:436:ASP:OD2	1.69	0.91
1:B:5:SER:HB2	1:B:7:GLN:HE22	1.35	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:28:GLN:C	1:B:30:ARG:H	1.64	0.91
1:B:111:LEU:HD23	1:B:180:LEU:HD12	1.53	0.91
1:B:361:LEU:HD11	1:B:366:ILE:HG22	1.53	0.90
1:B:192:THR:HG21	1:B:275:SER:HA	1.51	0.90
1:A:321:VAL:HG13	1:A:325:LEU:HD21	1.51	0.90
1:B:98:ARG:HH22	1:B:137:PRO:CB	1.85	0.89
1:B:284:ASP:OD1	1:B:357:ASN:HB2	1.72	0.89
1:A:310:VAL:HG12	1:A:311:GLU:N	1.85	0.89
1:B:172:HIS:CG	1:B:191:LEU:HD11	2.08	0.89
1:B:96:ILE:HD11	1:B:272:MSE:HE1	1.53	0.88
1:B:232:ILE:HG12	1:B:236:VAL:HG11	1.55	0.88
1:A:374:GLU:HB2	1:A:402:GLY:HA2	1.53	0.87
1:A:99:MSE:O	1:A:103:THR:HG22	1.74	0.87
1:B:110:TYR:HD2	1:B:111:LEU:HD12	1.39	0.87
1:B:172:HIS:CE1	1:B:191:LEU:HD11	2.12	0.85
1:A:340:VAL:HG12	1:A:341:VAL:H	1.41	0.85
1:B:114:ARG:HH12	1:B:170:ARG:NH1	1.75	0.85
1:A:304:LEU:HA	1:A:307:THR:HB	1.59	0.84
1:A:300:TYR:OH	1:A:304:LEU:HB2	1.78	0.84
1:B:370:TYR:HB3	1:B:379:ILE:HD11	1.60	0.84
1:B:129:LEU:HG	1:B:294:TYR:CE2	2.12	0.83
1:A:340:VAL:CG1	1:A:341:VAL:H	1.90	0.83
1:B:357:ASN:HA	1:B:360:LYS:HE3	1.58	0.83
1:A:425:LEU:HD23	1:A:428:LEU:HD21	1.60	0.83
1:B:43:GLU:O	1:B:397:HIS:HB2	1.79	0.83
1:B:174:ARG:HG3	1:B:175:LYS:N	1.94	0.82
1:B:192:THR:HG22	1:B:274:LEU:HD13	1.60	0.82
1:A:300:TYR:CZ	1:A:303:THR:HB	2.14	0.82
1:A:299:PHE:CE1	1:A:304:LEU:HD22	2.15	0.82
1:A:208:VAL:HB	1:A:216:VAL:CG1	2.10	0.82
1:A:21:GLU:HB3	1:A:24:ARG:NH1	1.96	0.81
1:B:322:ILE:HA	1:B:325:LEU:HD23	1.60	0.81
1:B:426:GLU:CD	1:B:427:ALA:H	1.83	0.81
1:A:107:MSE:HE1	1:A:189:PRO:HB2	1.62	0.81
1:A:340:VAL:HG12	1:A:341:VAL:N	1.96	0.81
1:B:5:SER:HB2	1:B:7:GLN:NE2	1.95	0.81
1:A:21:GLU:HB3	1:A:24:ARG:HH11	1.45	0.80
1:A:374:GLU:HB2	1:A:402:GLY:CA	2.11	0.80
1:B:219:LYS:HB3	1:B:256:LYS:HD3	1.64	0.80
1:B:32:ILE:HD13	1:B:325:LEU:HD22	1.62	0.80
1:A:300:TYR:CE1	1:A:304:LEU:N	2.49	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:32:ILE:HD12	1:B:33:ILE:N	1.95	0.79
1:B:331:GLU:HB3	1:B:373:PHE:O	1.82	0.79
1:A:208:VAL:HB	1:A:216:VAL:HG11	1.63	0.79
1:A:176:VAL:HG22	1:A:186:TYR:HE2	1.48	0.79
1:A:321:VAL:HG13	1:A:325:LEU:CD2	2.13	0.78
1:B:107:MSE:O	1:B:111:LEU:HD13	1.82	0.78
1:B:137:PRO:HG2	1:B:279:TYR:CZ	2.17	0.78
1:B:399:LYS:HD2	1:B:400:ALA:N	1.99	0.78
1:B:29:ILE:O	1:B:30:ARG:HG2	1.82	0.78
1:A:430:ASN:OD1	1:A:431:ALA:N	2.15	0.77
1:B:146:LEU:HD12	1:B:273:THR:HG22	1.65	0.77
1:B:205:ASP:HA	1:B:208:VAL:HG23	1.66	0.77
1:B:230:ARG:HG3	1:B:231:VAL:H	1.49	0.77
1:A:21:GLU:CB	1:A:24:ARG:HD3	2.14	0.77
1:B:191:LEU:HD12	1:B:191:LEU:N	2.00	0.77
1:B:342:PRO:HD2	1:B:362:ILE:HA	1.67	0.76
1:A:428:LEU:N	1:A:435:ARG:HH22	1.83	0.76
1:A:144:ARG:HH12	1:B:229:PRO:HG2	1.48	0.76
1:B:32:ILE:HD13	1:B:325:LEU:CD2	2.16	0.76
1:B:420:GLU:HA	1:B:423:HIS:CD2	2.21	0.76
1:A:133:LEU:HD11	1:A:347:PHE:CZ	2.20	0.76
1:B:47:ILE:HD12	1:B:122:ALA:HB3	1.66	0.76
1:B:228:SER:O	1:B:230:ARG:HG2	1.85	0.76
1:A:378:VAL:HG13	1:B:440:LYS:HE3	1.66	0.75
1:B:179:HIS:HA	1:B:182:LYS:HG2	1.66	0.75
1:A:304:LEU:CD2	1:A:312:ILE:HD12	2.16	0.75
1:A:24:ARG:HG2	1:A:25:GLU:N	2.02	0.75
1:A:307:THR:HG23	1:A:309:GLY:H	1.51	0.75
1:A:245:VAL:HG22	1:B:243:LYS:O	1.87	0.75
1:B:370:TYR:HD1	1:B:379:ILE:HD11	1.52	0.75
1:B:123:ILE:HG22	1:B:292:LEU:HD13	1.68	0.74
1:B:362:ILE:HG13	1:B:363:ASP:N	2.00	0.74
1:A:428:LEU:HD12	1:A:428:LEU:H	1.51	0.74
1:B:301:THR:HG21	1:B:314:ASP:HB2	1.69	0.74
1:B:426:GLU:N	1:B:426:GLU:OE1	2.20	0.74
1:B:373:PHE:CE2	1:B:399:LYS:HE3	2.23	0.74
1:A:20:LEU:O	1:A:23:VAL:HB	1.88	0.73
1:A:37:LYS:HG2	1:A:38:PRO:HD2	1.69	0.73
1:B:114:ARG:HH12	1:B:170:ARG:HH12	1.36	0.73
1:A:44:LYS:HG3	1:A:397:HIS:HE1	1.53	0.73
1:B:433:ARG:HG3	1:B:434:ASN:H	1.52	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:302:LYS:CE	1:A:306:ARG:NH2	2.52	0.73
1:B:89:ASN:OD1	1:B:92:THR:HB	1.88	0.73
1:B:244:SER:N	1:B:247:GLU:OE2	2.22	0.73
1:B:325:LEU:HG	1:B:326:ILE:H	1.54	0.73
1:B:207:LYS:HD2	1:B:207:LYS:N	2.03	0.73
1:A:135:ARG:NH2	1:A:140:PRO:HD3	2.03	0.73
1:B:21:GLU:HA	1:B:24:ARG:HG3	1.71	0.73
1:B:348:PRO:HG2	1:B:351:LEU:HD13	1.70	0.72
1:B:433:ARG:HG3	1:B:434:ASN:N	2.04	0.72
1:A:176:VAL:HG22	1:A:186:TYR:CE2	2.25	0.72
1:A:395:ILE:HD12	1:A:404:LEU:HD13	1.72	0.72
1:B:325:LEU:HG	1:B:326:ILE:N	2.04	0.72
1:B:48:TYR:CD1	1:B:112:ALA:HB1	2.25	0.72
1:A:248:LEU:O	1:A:248:LEU:HD12	1.90	0.72
1:A:129:LEU:HD23	1:A:366:ILE:HG12	1.71	0.71
1:B:240:SER:HB3	1:B:243:LYS:HD2	1.72	0.71
1:A:29:ILE:O	1:A:32:ILE:HG22	1.89	0.71
1:B:243:LYS:HB3	1:B:247:GLU:OE2	1.90	0.71
1:B:373:PHE:CZ	1:B:399:LYS:HE3	2.26	0.71
1:A:95:GLN:OE1	1:A:137:PRO:O	2.08	0.71
1:A:113:TYR:CG	1:A:289:VAL:HG22	2.25	0.71
1:B:191:LEU:N	1:B:191:LEU:CD1	2.53	0.71
1:A:126:ASP:OD1	1:A:126:ASP:O	2.08	0.70
1:A:28:GLN:HA	1:A:28:GLN:OE1	1.91	0.70
1:B:172:HIS:HB2	1:B:191:LEU:HD21	1.72	0.70
1:B:172:HIS:O	1:B:176:VAL:HG13	1.91	0.70
1:A:231:VAL:HB	1:B:231:VAL:CG1	2.19	0.70
1:B:216:VAL:O	1:B:260:TYR:HA	1.91	0.70
1:B:124:LEU:HD13	1:B:395:ILE:HD11	1.74	0.70
1:B:370:TYR:HB3	1:B:379:ILE:CD1	2.20	0.70
1:A:134:VAL:O	1:A:345:TRP:HH2	1.74	0.70
1:A:300:TYR:CZ	1:A:304:LEU:HB2	2.27	0.70
1:B:101:MSE:HE3	1:B:101:MSE:HA	1.74	0.70
1:B:370:TYR:CD1	1:B:379:ILE:HD11	2.27	0.70
1:A:21:GLU:HB3	1:A:24:ARG:CD	2.21	0.69
1:A:136:PRO:HB2	1:A:138:VAL:HG13	1.73	0.69
1:A:230:ARG:HG3	1:B:234:ILE:CG1	2.22	0.69
1:A:64:ILE:HD11	1:A:425:LEU:HD22	1.74	0.69
1:A:428:LEU:CD1	1:A:429:ILE:H	2.06	0.69
1:B:204:ILE:HD11	1:B:270:LEU:HD12	1.75	0.69
1:A:285:LYS:O	1:A:288:GLU:HB2	1.91	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:300:TYR:HE1	1:A:304:LEU:N	1.85	0.69
1:A:21:GLU:CB	1:A:24:ARG:HH11	2.06	0.69
1:A:217:LYS:CG	1:A:258:GLU:OE2	2.40	0.69
1:A:302:LYS:HE3	1:A:306:ARG:NH2	2.08	0.69
1:A:378:VAL:HG13	1:B:440:LYS:CE	2.22	0.69
1:B:416:ILE:HG22	1:B:416:ILE:O	1.92	0.69
1:A:230:ARG:HG3	1:B:234:ILE:HG12	1.75	0.69
1:A:134:VAL:O	1:A:345:TRP:CH2	2.46	0.68
1:B:163:ASN:O	1:B:167:GLU:HG3	1.94	0.68
1:A:315:THR:HG22	1:A:370:TYR:CD1	2.29	0.68
1:A:313:VAL:HG12	1:A:318:LEU:HB2	1.75	0.68
1:A:364:LYS:HE3	4:A:461:HOH:O	1.94	0.68
1:B:30:ARG:O	1:B:33:ILE:HG22	1.94	0.68
1:B:182:LYS:HG3	1:B:183:ASN:H	1.59	0.68
1:B:368:LEU:HB3	1:B:381:MSE:HE1	1.74	0.68
1:B:21:GLU:HG3	1:B:24:ARG:HD2	1.74	0.68
1:B:28:GLN:C	1:B:30:ARG:N	2.39	0.68
1:B:104:LEU:HA	1:B:107:MSE:HE2	1.75	0.68
1:A:363:ASP:OD1	1:A:363:ASP:C	2.32	0.67
1:A:302:LYS:HE3	1:A:306:ARG:CZ	2.24	0.67
1:B:325:LEU:HG	1:B:326:ILE:HG22	1.76	0.67
1:A:299:PHE:CZ	1:A:304:LEU:HD22	2.29	0.67
1:A:304:LEU:HD23	1:A:312:ILE:HD12	1.77	0.67
1:B:106:ASN:HB2	1:B:282:SER:HB2	1.76	0.67
1:B:269:ALA:O	1:B:273:THR:HG23	1.94	0.67
1:B:334:LEU:HD12	1:B:335:GLU:O	1.95	0.67
1:B:439:LEU:HD12	1:B:440:LYS:N	2.09	0.67
1:B:127:GLY:O	1:B:296:ALA:HB2	1.95	0.66
1:A:419:LYS:HG3	1:A:420:GLU:N	2.07	0.66
1:A:302:LYS:HG2	1:A:306:ARG:CZ	2.25	0.66
1:A:24:ARG:HG2	1:A:25:GLU:H	1.60	0.66
1:B:294:TYR:HB2	1:B:383:GLN:HB2	1.77	0.66
1:A:355:PHE:HB3	1:A:358:ILE:HD12	1.78	0.66
1:A:32:ILE:O	1:A:35:SER:HB3	1.96	0.66
1:A:302:LYS:HE2	1:A:306:ARG:NH2	2.11	0.66
1:A:307:THR:O	1:A:308:LEU:HB2	1.95	0.66
1:A:29:ILE:HA	1:A:32:ILE:HG22	1.77	0.65
1:A:304:LEU:O	1:A:307:THR:HG22	1.96	0.65
1:B:336:ILE:HD11	1:B:370:TYR:HE2	1.61	0.65
1:A:64:ILE:CD1	1:A:425:LEU:HD22	2.27	0.65
1:A:48:TYR:CD1	1:A:116:LEU:HD13	2.31	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:GLU:O	1:B:312:ILE:HG23	1.97	0.65
1:B:161:LEU:HA	1:B:203:TYR:CZ	2.32	0.65
1:B:283:ILE:HG22	1:B:287:LEU:HD11	1.78	0.65
1:A:26:ASN:HB2	1:A:30:ARG:CG	2.26	0.65
1:A:300:TYR:CE1	1:A:304:LEU:HB2	2.32	0.65
1:B:248:LEU:HD12	1:B:248:LEU:O	1.97	0.65
1:A:310:VAL:CG1	1:A:311:GLU:N	2.58	0.65
1:A:209:ILE:O	1:A:216:VAL:HG13	1.97	0.64
1:B:172:HIS:ND1	1:B:191:LEU:CD1	2.48	0.64
1:B:231:VAL:HG12	1:B:232:ILE:N	2.13	0.64
1:B:56:VAL:HG22	1:B:65:TYR:HB3	1.78	0.64
1:A:29:ILE:HD11	1:A:33:ILE:HG12	1.80	0.64
1:B:172:HIS:CE1	1:B:191:LEU:CD1	2.81	0.64
1:A:24:ARG:CG	1:A:25:GLU:N	2.61	0.64
1:A:87:LYS:NZ	1:B:19:GLU:CG	2.58	0.64
1:B:174:ARG:HG3	1:B:175:LYS:H	1.63	0.64
1:B:420:GLU:HA	1:B:423:HIS:NE2	2.13	0.63
1:B:411:HIS:O	1:B:414:VAL:HG12	1.99	0.63
1:B:336:ILE:HD11	1:B:370:TYR:CE2	2.34	0.63
1:A:21:GLU:CD	1:A:24:ARG:HD3	2.19	0.63
1:A:100:GLN:HA	1:A:103:THR:HG23	1.81	0.63
1:B:375:GLN:HG3	1:B:376:GLY:N	2.13	0.63
1:A:176:VAL:HG13	1:A:186:TYR:HD2	1.62	0.63
1:B:142:ASP:OD1	1:B:143:ILE:N	2.31	0.63
1:B:347:PHE:CB	1:B:352:LEU:HD11	2.28	0.63
1:B:123:ILE:HG22	1:B:292:LEU:CD1	2.29	0.62
1:A:65:TYR:CZ	1:A:84:ASN:HB3	2.34	0.62
1:B:215:LYS:HA	1:B:261:LEU:O	1.99	0.62
1:A:151:ALA:HB1	1:A:233:PRO:HD3	1.80	0.62
1:B:182:LYS:HG3	1:B:183:ASN:N	2.14	0.62
1:A:28:GLN:O	1:A:31:ASN:OD1	2.18	0.62
1:A:115:LYS:HZ3	1:A:181:GLU:HA	1.64	0.62
1:B:138:VAL:O	1:B:139:TYR:HB2	1.99	0.62
1:A:95:GLN:HE22	1:A:138:VAL:CA	2.08	0.62
1:A:304:LEU:HD21	1:A:312:ILE:HD12	1.82	0.62
1:B:357:ASN:CA	1:B:360:LYS:HE3	2.30	0.62
1:A:16:LEU:HD21	1:B:62:THR:HG21	1.82	0.62
1:B:89:ASN:CG	1:B:92:THR:HB	2.20	0.62
1:B:92:THR:HG22	1:B:96:ILE:HD13	1.82	0.61
1:B:391:ILE:O	1:B:394:LEU:HB2	2.00	0.61
1:A:428:LEU:HD13	1:A:429:ILE:H	1.66	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:177:GLU:HA	1:B:180:LEU:HB2	1.82	0.61
1:B:179:HIS:HA	1:B:182:LYS:CG	2.28	0.61
1:A:202:LYS:HE2	1:A:203:TYR:CE1	2.36	0.61
1:B:341:VAL:HG23	1:B:342:PRO:O	2.00	0.61
1:B:398:HIS:O	1:B:405:ARG:HG2	2.00	0.61
1:A:43:GLU:HG2	1:A:120:LYS:NZ	2.14	0.61
1:A:430:ASN:HB3	1:A:435:ARG:CZ	2.29	0.61
1:B:405:ARG:HG3	1:B:406:PRO:CD	2.25	0.61
1:A:171:ASP:HA	1:A:174:ARG:HD3	1.82	0.61
1:B:95:GLN:HB3	1:B:138:VAL:HG23	1.81	0.61
1:B:439:LEU:HD12	1:B:440:LYS:HG3	1.82	0.61
1:B:232:ILE:CG1	1:B:236:VAL:HG11	2.30	0.61
1:B:11:ARG:O	1:B:15:ILE:HG13	2.01	0.61
1:B:378:VAL:HG12	1:B:379:ILE:H	1.66	0.61
1:A:200:ARG:HD3	1:A:267:TYR:CE1	2.36	0.60
1:A:240:SER:HB3	1:A:243:LYS:CD	2.21	0.60
1:A:245:VAL:HG21	1:B:241:ARG:HA	1.82	0.60
1:A:346:SER:O	1:A:347:PHE:CD1	2.55	0.60
1:B:355:PHE:O	1:B:359:GLU:HB2	2.01	0.60
1:A:306:ARG:O	1:A:308:LEU:HD12	2.01	0.60
1:B:26:ASN:O	1:B:28:GLN:HG2	2.01	0.60
1:B:435:ARG:O	1:B:438:ALA:HB3	2.01	0.60
1:A:323:ARG:HG2	1:A:329:GLU:HB2	1.83	0.60
1:B:375:GLN:HG3	1:B:376:GLY:H	1.67	0.60
1:A:104:LEU:HD11	1:A:189:PRO:HG2	1.82	0.60
1:A:419:LYS:CG	1:A:420:GLU:H	2.11	0.60
1:B:373:PHE:CD2	1:B:374:GLU:N	2.70	0.60
1:A:130:THR:HG23	1:A:383:GLN:OE1	2.01	0.60
1:B:439:LEU:CD1	1:B:440:LYS:HG3	2.32	0.60
1:A:427:ALA:C	1:A:435:ARG:HH22	2.04	0.60
1:B:172:HIS:CD2	1:B:176:VAL:HG12	2.36	0.60
1:B:173:TYR:O	1:B:176:VAL:HG22	2.02	0.60
1:A:92:THR:HA	1:A:95:GLN:HB3	1.84	0.60
1:A:17:LEU:HD21	1:B:432:LEU:CD2	2.32	0.59
1:B:407:LEU:HD23	1:B:408:GLN:N	2.17	0.59
1:B:31:ASN:O	1:B:35:SER:N	2.36	0.59
1:A:29:ILE:CD1	1:A:33:ILE:HG12	2.32	0.59
1:A:422:ARG:O	1:A:425:LEU:N	2.35	0.59
1:A:302:LYS:HE3	1:A:306:ARG:NH1	2.17	0.59
1:A:425:LEU:O	1:A:428:LEU:HD11	2.02	0.59
1:B:27:GLU:O	1:B:29:ILE:HG13	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:110:TYR:CD2	1:B:111:LEU:HD12	2.30	0.59
1:A:142:ASP:C	1:A:142:ASP:OD1	2.40	0.59
1:B:191:LEU:CD1	1:B:191:LEU:H	2.16	0.59
1:A:243:LYS:HB2	1:A:247:GLU:OE1	2.02	0.59
1:A:432:LEU:HD22	1:B:13:THR:HG21	1.84	0.59
1:B:149:MSE:HE3	1:B:270:LEU:N	2.18	0.59
1:A:234:ILE:HB	1:B:229:PRO:O	2.02	0.58
1:A:422:ARG:HG3	1:A:423:HIS:N	2.18	0.58
1:B:271:HIS:HA	1:B:274:LEU:HD11	1.85	0.58
1:A:113:TYR:CD2	1:A:289:VAL:HG22	2.37	0.58
1:A:130:THR:OG1	1:A:299:PHE:CZ	2.57	0.58
1:B:392:LEU:C	1:B:392:LEU:HD23	2.24	0.58
1:A:378:VAL:HG13	1:B:440:LYS:NZ	2.18	0.58
1:B:405:ARG:CG	1:B:406:PRO:HD3	2.23	0.58
1:A:366:ILE:HG22	1:A:368:LEU:HD22	1.85	0.58
1:B:19:GLU:O	1:B:23:VAL:HG23	2.03	0.58
1:B:436:ASP:HB2	1:B:437:PRO:HD3	1.85	0.58
1:B:388:ILE:CG2	1:B:389:GLU:N	2.65	0.58
1:B:138:VAL:CG1	1:B:142:ASP:HB3	2.34	0.58
1:B:235:GLU:OE1	1:B:235:GLU:HA	2.04	0.58
1:A:320:ALA:HB1	1:B:434:ASN:ND2	2.19	0.57
1:A:428:LEU:H	1:A:428:LEU:CD1	2.12	0.57
1:A:104:LEU:HD11	1:A:189:PRO:CG	2.34	0.57
1:A:202:LYS:HE2	1:A:203:TYR:CZ	2.40	0.57
1:A:176:VAL:HG13	1:A:186:TYR:CD2	2.39	0.57
1:A:21:GLU:CB	1:A:24:ARG:NH1	2.64	0.57
1:A:172:HIS:O	1:A:176:VAL:HG23	2.03	0.57
1:B:172:HIS:CD2	1:B:176:VAL:CG1	2.87	0.57
1:B:192:THR:HG21	1:B:275:SER:CA	2.31	0.57
1:A:99:MSE:O	1:A:103:THR:CG2	2.51	0.57
1:A:141:GLU:HA	1:A:144:ARG:HE	1.68	0.57
1:A:169:LEU:CD2	1:A:191:LEU:HD12	2.26	0.57
1:A:428:LEU:N	1:A:428:LEU:HD12	2.19	0.57
1:B:110:TYR:CD1	1:B:285:LYS:HB3	2.39	0.57
1:B:82:TYR:CD2	1:B:190:ILE:HD12	2.40	0.57
1:B:225:LEU:CD1	1:B:227:TYR:HB2	2.35	0.57
1:A:79:ARG:HB3	1:A:185:ASN:HB2	1.86	0.57
1:A:140:PRO:O	1:A:144:ARG:HD3	2.05	0.57
1:B:304:LEU:HB3	1:B:312:ILE:CD1	2.35	0.57
1:A:141:GLU:O	1:A:144:ARG:HG2	2.05	0.57
1:A:232:ILE:O	1:B:231:VAL:HG13	2.04	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:245:VAL:HG12	1:B:249:LEU:HD12	1.86	0.56
1:A:124:LEU:HD21	1:A:295:ILE:HG12	1.87	0.56
1:B:312:ILE:HD12	1:B:312:ILE:N	2.20	0.56
1:A:181:GLU:HA	1:A:181:GLU:OE1	2.05	0.56
1:A:104:LEU:HD12	1:A:107:MSE:CE	2.35	0.56
1:A:232:ILE:HD13	1:B:234:ILE:HD13	1.88	0.56
1:A:374:GLU:HB3	1:A:377:ASP:CB	2.31	0.56
1:B:180:LEU:O	1:B:184:GLY:HA2	2.04	0.56
1:B:208:VAL:HG12	1:B:208:VAL:O	2.05	0.56
1:B:351:LEU:O	1:B:354:LYS:HB2	2.06	0.56
1:B:423:HIS:O	1:B:426:GLU:CD	2.44	0.56
1:A:292:LEU:HD12	1:A:293:ALA:N	2.21	0.56
1:A:373:PHE:HB2	1:A:402:GLY:O	2.06	0.56
1:B:80:LEU:CD1	1:B:107:MSE:HE3	2.34	0.56
1:B:202:LYS:HE2	1:B:203:TYR:CE2	2.41	0.56
1:B:258:GLU:OE1	1:B:260:TYR:OH	2.22	0.56
1:B:304:LEU:HB3	1:B:312:ILE:HD11	1.86	0.56
1:B:426:GLU:CG	1:B:427:ALA:N	2.68	0.56
1:B:436:ASP:O	1:B:439:LEU:HG	2.05	0.56
1:B:139:TYR:C	1:B:141:GLU:H	2.09	0.56
1:A:138:VAL:HG23	1:A:139:TYR:N	2.21	0.56
1:A:401:GLY:C	1:A:403:TYR:H	2.08	0.56
1:A:326:ILE:HG23	1:A:328:HIS:HB2	1.88	0.56
1:B:205:ASP:HA	1:B:208:VAL:CG2	2.35	0.55
1:A:27:GLU:O	1:A:27:GLU:HG2	2.06	0.55
1:A:427:ALA:C	1:A:435:ARG:HH12	2.09	0.55
1:B:200:ARG:HB3	1:B:270:LEU:HD13	1.88	0.55
1:B:400:ALA:H	1:B:404:LEU:HA	1.69	0.55
1:A:291:ASN:HB3	1:A:391:ILE:HD12	1.88	0.55
1:B:207:LYS:O	1:B:208:VAL:C	2.44	0.55
1:A:26:ASN:ND2	1:A:30:ARG:HD2	2.22	0.55
1:B:139:TYR:O	1:B:141:GLU:N	2.40	0.55
1:B:319:ASP:HB2	1:B:379:ILE:CG2	2.37	0.55
1:A:316:ALA:HA	1:B:440:LYS:CD	2.36	0.55
1:B:347:PHE:HB3	1:B:352:LEU:HD11	1.89	0.55
1:B:426:GLU:CD	1:B:427:ALA:N	2.59	0.55
1:A:26:ASN:HB3	1:A:30:ARG:HG2	1.89	0.55
1:B:293:ALA:HB3	1:B:395:ILE:HD11	1.88	0.55
1:A:57:SER:O	1:A:64:ILE:HG22	2.06	0.55
1:A:368:LEU:N	1:A:368:LEU:HD23	2.22	0.55
1:B:429:ILE:HD12	1:B:438:ALA:HB2	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:161:LEU:O	1:B:164:GLU:HB3	2.06	0.54
1:B:381:MSE:HE3	1:B:383:GLN:HE21	1.72	0.54
1:A:126:ASP:O	3:A:454:GOL:H31	2.07	0.54
1:B:347:PHE:HB2	1:B:352:LEU:HD11	1.88	0.54
1:A:27:GLU:C	1:A:29:ILE:H	2.10	0.54
1:A:135:ARG:HG2	1:B:90:TYR:CE2	2.42	0.54
1:A:374:GLU:HG3	1:A:375:GLN:OE1	2.07	0.54
1:A:430:ASN:CG	1:A:431:ALA:N	2.60	0.54
1:B:191:LEU:O	1:B:192:THR:C	2.46	0.54
1:B:201:LYS:HA	1:B:205:ASP:OD2	2.07	0.54
1:B:389:GLU:O	1:B:393:PRO:HD2	2.07	0.54
1:B:21:GLU:O	1:B:24:ARG:HB2	2.06	0.54
1:B:343:PRO:HG2	1:B:346:SER:HB3	1.89	0.54
1:A:102:GLU:HG3	3:A:454:GOL:H2	1.88	0.54
1:A:133:LEU:HB3	1:A:342:PRO:HB3	1.89	0.54
1:B:137:PRO:HG2	1:B:279:TYR:CE2	2.41	0.54
1:B:206:THR:HB	1:B:207:LYS:NZ	2.23	0.54
1:A:44:LYS:HG3	1:A:397:HIS:CE1	2.38	0.54
1:A:133:LEU:CD1	1:A:347:PHE:CZ	2.91	0.54
1:A:325:LEU:HG	1:A:326:ILE:H	1.73	0.54
1:A:397:HIS:HD2	1:A:397:HIS:O	1.90	0.54
1:B:21:GLU:HA	1:B:24:ARG:CG	2.36	0.54
1:B:172:HIS:NE2	1:B:176:VAL:HG12	2.22	0.54
1:B:301:THR:O	1:B:304:LEU:HB2	2.07	0.54
1:A:166:LEU:CD1	1:A:354:LYS:HD2	2.38	0.54
1:A:244:SER:N	1:A:247:GLU:OE1	2.41	0.54
1:B:218:VAL:HG12	1:B:220:ILE:HG12	1.90	0.54
1:A:197:GLU:O	1:A:201:LYS:HG3	2.08	0.54
1:A:302:LYS:CE	1:A:306:ARG:HH22	2.21	0.54
1:B:10:GLU:OE2	1:B:14:LYS:HE2	2.08	0.54
1:B:322:ILE:HG13	1:B:323:ARG:N	2.22	0.54
1:A:326:ILE:HG23	1:A:328:HIS:H	1.72	0.53
1:A:200:ARG:HG3	1:A:201:LYS:N	2.23	0.53
1:A:70:LEU:HD11	1:A:72:VAL:HG12	1.91	0.53
1:A:230:ARG:HG3	1:B:234:ILE:HG13	1.89	0.53
1:A:378:VAL:CG1	1:B:440:LYS:HE3	2.36	0.53
1:B:172:HIS:CB	1:B:191:LEU:HD21	2.38	0.53
1:A:130:THR:OG1	1:A:299:PHE:HZ	1.92	0.53
1:A:197:GLU:CG	1:A:201:LYS:HE3	2.39	0.53
1:A:119:GLU:HG2	1:A:120:LYS:HG3	1.90	0.53
1:A:392:LEU:N	1:A:393:PRO:HD2	2.23	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:200:ARG:CG	1:A:201:LYS:N	2.71	0.53
1:A:313:VAL:O	1:A:313:VAL:CG1	2.57	0.53
1:B:95:GLN:HA	1:B:98:ARG:HG2	1.91	0.53
1:B:350:PHE:CD1	1:B:351:LEU:HD12	2.44	0.53
1:A:124:LEU:CD1	1:A:395:ILE:HD11	2.39	0.53
1:A:133:LEU:HD11	1:A:347:PHE:HZ	1.71	0.53
1:A:136:PRO:HB2	1:A:138:VAL:CG1	2.39	0.53
1:B:166:LEU:HD12	1:B:169:LEU:HD12	1.89	0.53
1:B:418:TYR:CD2	1:B:419:LYS:HG2	2.44	0.53
1:B:29:ILE:C	1:B:30:ARG:HG2	2.29	0.53
1:B:171:ASP:HA	1:B:174:ARG:NH1	2.24	0.53
1:B:362:ILE:HG13	1:B:363:ASP:H	1.72	0.53
1:A:132:SER:O	1:A:136:PRO:HB3	2.09	0.53
1:B:220:ILE:O	1:B:256:LYS:HA	2.09	0.53
1:B:381:MSE:CE	1:B:383:GLN:HE21	2.22	0.53
1:B:175:LYS:NZ	1:B:186:TYR:OH	2.42	0.52
1:B:247:GLU:O	1:B:250:GLN:HB3	2.08	0.52
1:B:305:ALA:N	1:B:312:ILE:HD11	2.24	0.52
1:A:343:PRO:HG3	1:A:345:TRP:CZ2	2.44	0.52
1:B:104:LEU:HD22	1:B:107:MSE:HE1	1.92	0.52
1:B:169:LEU:HD13	1:B:281:TYR:CG	2.44	0.52
1:B:357:ASN:HA	1:B:360:LYS:CE	2.36	0.52
1:A:26:ASN:CB	1:A:30:ARG:HG2	2.39	0.52
1:A:44:LYS:HA	1:A:397:HIS:CE1	2.43	0.52
1:A:200:ARG:HD3	1:A:267:TYR:CZ	2.44	0.52
1:B:175:LYS:O	1:B:179:HIS:ND1	2.43	0.52
1:A:432:LEU:CD2	1:B:13:THR:HG21	2.39	0.52
1:B:80:LEU:HD13	1:B:107:MSE:HE3	1.92	0.52
1:A:23:VAL:O	1:A:25:GLU:O	2.27	0.52
1:B:304:LEU:C	1:B:312:ILE:HD11	2.30	0.52
1:A:279:TYR:CE2	1:A:283:ILE:HD11	2.44	0.52
1:A:429:ILE:HD13	1:A:434:ASN:O	2.10	0.52
1:B:106:ASN:HB2	1:B:282:SER:CB	2.39	0.52
1:B:114:ARG:NH1	1:B:170:ARG:HH12	2.04	0.52
1:B:400:ALA:HB2	1:B:405:ARG:HB3	1.92	0.52
1:A:72:VAL:HG21	1:A:409:LEU:HB3	1.91	0.52
1:A:197:GLU:O	1:A:200:ARG:HG2	2.10	0.52
1:A:300:TYR:CE1	1:A:303:THR:HB	2.45	0.52
1:B:79:ARG:O	1:B:185:ASN:HB2	2.10	0.52
1:A:26:ASN:CB	1:A:30:ARG:CG	2.88	0.52
1:B:392:LEU:HB3	1:B:393:PRO:HD3	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:423:HIS:O	1:B:426:GLU:OE1	2.27	0.52
1:A:81:SER:O	1:A:189:PRO:CD	2.58	0.52
1:B:283:ILE:HG22	1:B:287:LEU:CD1	2.39	0.52
1:A:27:GLU:CD	1:A:27:GLU:H	2.13	0.51
1:A:428:LEU:O	1:A:430:ASN:OD1	2.27	0.51
1:A:281:TYR:HA	1:A:355:PHE:CE1	2.45	0.51
1:A:352:LEU:HD21	1:A:362:ILE:CD1	2.40	0.51
1:B:26:ASN:C	1:B:28:GLN:N	2.62	0.51
1:B:138:VAL:HG12	1:B:142:ASP:OD2	2.11	0.51
1:B:378:VAL:HG12	1:B:379:ILE:N	2.26	0.51
1:A:29:ILE:HD11	1:A:33:ILE:CG1	2.39	0.51
1:B:205:ASP:C	1:B:207:LYS:N	2.62	0.51
1:A:29:ILE:HA	1:A:32:ILE:CG2	2.41	0.51
1:B:176:VAL:CG2	1:B:177:GLU:N	2.74	0.51
1:A:87:LYS:HZ1	1:B:19:GLU:CD	2.14	0.51
1:B:31:ASN:HD22	1:B:35:SER:HB2	1.76	0.51
1:B:89:ASN:OD1	1:B:92:THR:N	2.44	0.51
1:A:321:VAL:CG1	1:A:325:LEU:HD21	2.33	0.51
1:A:300:TYR:CE1	1:A:304:LEU:CB	2.93	0.51
1:B:271:HIS:O	1:B:275:SER:HB2	2.10	0.51
1:B:335:GLU:C	1:B:336:ILE:HD12	2.31	0.51
1:B:26:ASN:C	1:B:28:GLN:H	2.12	0.51
1:A:144:ARG:NH1	1:B:229:PRO:HG2	2.22	0.50
1:B:195:VAL:CG1	1:B:199:LEU:HD22	2.41	0.50
1:B:225:LEU:HD13	1:B:227:TYR:HB2	1.94	0.50
1:A:135:ARG:HG2	1:B:90:TYR:CD2	2.46	0.50
1:B:137:PRO:HG2	1:B:279:TYR:OH	2.11	0.50
1:B:219:LYS:O	1:B:220:ILE:HG12	2.11	0.50
1:B:271:HIS:HA	1:B:274:LEU:CD1	2.41	0.50
1:B:72:VAL:HG21	1:B:409:LEU:CB	2.42	0.50
1:B:231:VAL:CG1	1:B:232:ILE:N	2.75	0.50
1:B:285:LYS:O	1:B:288:GLU:HB2	2.12	0.50
1:A:104:LEU:HD12	1:A:107:MSE:HE1	1.92	0.50
1:B:114:ARG:NH1	1:B:170:ARG:NH1	2.54	0.50
1:A:94:ASP:OD2	1:A:98:ARG:HD2	2.12	0.50
1:B:256:LYS:O	1:B:257:VAL:HG13	2.12	0.50
1:B:357:ASN:O	1:B:360:LYS:HG2	2.11	0.50
1:A:54:ARG:CB	1:A:101:MSE:HE3	2.20	0.50
1:B:359:GLU:O	1:B:362:ILE:HG12	2.12	0.50
1:B:191:LEU:O	1:B:193:ASP:N	2.45	0.50
1:B:352:LEU:HD12	1:B:352:LEU:N	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:100:GLN:HA	1:A:103:THR:CG2	2.42	0.50
1:A:308:LEU:C	1:A:310:VAL:H	2.14	0.50
1:B:106:ASN:HA	1:B:286:LEU:HD22	1.92	0.50
1:B:47:ILE:HB	1:B:398:HIS:CD2	2.47	0.49
1:B:82:TYR:OH	1:B:193:ASP:OD2	2.28	0.49
1:B:284:ASP:OD1	1:B:357:ASN:CB	2.51	0.49
1:B:404:LEU:N	1:B:404:LEU:HD12	2.27	0.49
1:A:302:LYS:HG2	1:A:306:ARG:NH1	2.27	0.49
1:A:390:LYS:HZ3	1:A:390:LYS:HB3	1.78	0.49
1:B:204:ILE:HG22	1:B:208:VAL:CG2	2.42	0.49
1:B:228:SER:O	1:B:229:PRO:C	2.48	0.49
1:B:259:LEU:HB3	1:B:261:LEU:HD21	1.94	0.49
1:B:418:TYR:CE2	1:B:419:LYS:HG2	2.47	0.49
1:A:10:GLU:O	1:A:11:ARG:C	2.49	0.49
1:A:333:TYR:HB2	1:A:371:VAL:HG22	1.94	0.49
1:A:392:LEU:O	1:A:396:LEU:HG	2.12	0.49
1:B:102:GLU:HB3	1:B:279:TYR:HE1	1.77	0.49
1:B:175:LYS:O	1:B:178:GLU:HB2	2.12	0.49
1:B:182:LYS:CG	1:B:183:ASN:H	2.24	0.49
1:B:360:LYS:O	1:B:364:LYS:HB3	2.12	0.49
1:A:285:LYS:HA	1:A:285:LYS:HE2	1.94	0.49
1:B:305:ALA:HA	1:B:310:VAL:O	2.12	0.49
1:A:43:GLU:HG2	1:A:120:LYS:HZ2	1.76	0.49
1:B:172:HIS:HD2	1:B:175:LYS:HE3	1.78	0.49
1:A:136:PRO:HG2	1:A:138:VAL:CG2	2.43	0.49
1:A:299:PHE:CE2	1:A:300:TYR:CE2	3.00	0.49
1:A:419:LYS:O	1:A:422:ARG:HG2	2.13	0.49
1:B:13:THR:O	1:B:17:LEU:HG	2.13	0.49
1:B:110:TYR:HE2	1:B:114:ARG:CZ	2.25	0.49
1:B:369:ALA:CB	1:B:388:ILE:HG12	2.42	0.49
1:A:316:ALA:HB3	1:B:60:SER:OG	2.12	0.49
1:B:65:TYR:CZ	1:B:84:ASN:HB3	2.48	0.49
1:B:368:LEU:HD13	1:B:381:MSE:HE1	1.93	0.49
1:A:23:VAL:HG12	1:A:321:VAL:HG21	1.95	0.49
1:A:209:ILE:HG22	1:A:210:ALA:N	2.28	0.49
1:A:322:ILE:HG23	1:A:326:ILE:CG2	2.42	0.49
1:A:428:LEU:HD12	1:A:429:ILE:H	1.78	0.49
1:A:430:ASN:HB3	1:A:435:ARG:NE	2.28	0.49
1:B:31:ASN:ND2	1:B:35:SER:HB2	2.28	0.48
1:B:267:TYR:C	1:B:267:TYR:CD2	2.85	0.48
1:B:325:LEU:CG	1:B:326:ILE:N	2.74	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:26:ASN:O	1:B:28:GLN:N	2.46	0.48
1:B:103:THR:HG21	1:B:278:GLU:HG2	1.94	0.48
1:B:124:LEU:HD13	1:B:395:ILE:CD1	2.43	0.48
1:B:134:VAL:CG2	1:B:135:ARG:N	2.76	0.48
1:B:434:ASN:OD1	1:B:434:ASN:C	2.52	0.48
1:A:305:ALA:HA	1:A:312:ILE:H	1.78	0.48
1:B:114:ARG:HH22	1:B:170:ARG:HH12	1.59	0.48
1:A:329:GLU:O	1:A:329:GLU:HG2	2.13	0.48
1:A:370:TYR:HB3	1:A:379:ILE:HG21	1.95	0.48
1:B:141:GLU:O	1:B:144:ARG:HB3	2.13	0.48
1:A:27:GLU:O	1:A:29:ILE:N	2.46	0.48
1:A:343:PRO:HG2	1:A:346:SER:HB3	1.95	0.48
1:B:199:LEU:HD12	1:B:203:TYR:CD2	2.49	0.48
1:B:219:LYS:HA	1:B:257:VAL:O	2.13	0.48
1:A:324:THR:HG22	1:A:325:LEU:N	2.28	0.48
1:A:358:ILE:O	1:A:362:ILE:HG13	2.14	0.48
1:A:397:HIS:O	1:A:397:HIS:CD2	2.67	0.48
1:B:37:LYS:HD2	1:B:333:TYR:CZ	2.49	0.48
1:B:145:SER:HB3	1:B:269:ALA:HA	1.96	0.48
1:A:82:TYR:OH	1:A:193:ASP:OD1	2.29	0.48
1:A:241:ARG:HD2	1:B:246:ASP:OD1	2.13	0.48
1:A:29:ILE:CA	1:A:32:ILE:HG22	2.44	0.48
1:B:197:GLU:O	1:B:201:LYS:HG2	2.14	0.48
1:B:381:MSE:HE3	1:B:383:GLN:HG2	1.95	0.48
1:A:47:ILE:HG13	1:A:122:ALA:HB3	1.96	0.48
1:B:223:LYS:N	4:B:457:HOH:O	2.46	0.48
1:A:245:VAL:CG2	1:B:241:ARG:HA	2.44	0.48
1:A:374:GLU:HB2	1:A:402:GLY:HA3	1.92	0.48
1:B:348:PRO:O	1:B:352:LEU:HD13	2.14	0.48
1:B:354:LYS:HD2	1:B:354:LYS:N	2.28	0.48
1:A:87:LYS:HZ1	1:B:19:GLU:HG3	1.71	0.47
1:A:138:VAL:HG23	1:A:139:TYR:H	1.79	0.47
1:A:328:HIS:CE1	1:A:330:LYS:HE3	2.49	0.47
1:B:415:LYS:O	1:B:416:ILE:C	2.51	0.47
1:A:8:SER:HA	1:A:11:ARG:HD3	1.97	0.47
1:A:204:ILE:HD13	1:A:270:LEU:HD22	1.96	0.47
1:B:72:VAL:HG21	1:B:409:LEU:HB3	1.97	0.47
1:B:204:ILE:O	1:B:207:LYS:HB2	2.14	0.47
1:B:248:LEU:HD12	1:B:248:LEU:C	2.34	0.47
1:B:381:MSE:HE3	1:B:383:GLN:CG	2.44	0.47
1:A:378:VAL:HG13	1:B:440:LYS:HZ2	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:373:PHE:CD2	1:B:399:LYS:HE3	2.49	0.47
1:B:45:SER:OG	1:B:398:HIS:CD2	2.68	0.47
1:B:90:TYR:CD1	1:B:91:GLY:N	2.78	0.47
1:B:164:GLU:OE2	1:B:203:TYR:OH	2.21	0.47
1:B:179:HIS:HA	1:B:182:LYS:HD3	1.96	0.47
1:B:232:ILE:HD11	1:B:236:VAL:HG21	1.96	0.47
1:B:243:LYS:CB	1:B:247:GLU:OE2	2.62	0.47
1:A:80:LEU:HD13	1:A:108:LEU:HD13	1.96	0.47
1:A:124:LEU:HD21	1:A:295:ILE:CG1	2.44	0.47
1:A:292:LEU:HB3	1:A:385:THR:CG2	2.45	0.47
1:A:320:ALA:CA	1:B:434:ASN:HD21	2.28	0.47
1:B:149:MSE:CE	1:B:266:ILE:O	2.63	0.47
1:A:29:ILE:O	1:A:30:ARG:C	2.53	0.47
1:A:31:ASN:OD1	1:A:32:ILE:N	2.46	0.47
1:A:133:LEU:HD13	1:A:133:LEU:N	2.29	0.47
1:B:135:ARG:HG2	1:B:136:PRO:HD2	1.96	0.47
1:B:247:GLU:HG2	1:B:248:LEU:N	2.29	0.47
1:B:400:ALA:HB2	1:B:405:ARG:N	2.30	0.47
1:A:21:GLU:HA	1:A:24:ARG:HB3	1.97	0.47
1:A:386:THR:HG21	1:A:390:LYS:NZ	2.30	0.47
1:B:64:ILE:HG21	1:B:422:ARG:NH2	2.30	0.47
1:A:33:ILE:O	1:A:36:TRP:CB	2.64	0.47
1:A:63:VAL:O	1:A:85:ALA:HA	2.15	0.47
1:B:128:THR:HG23	1:B:296:ALA:CB	2.45	0.47
1:A:23:VAL:O	1:A:24:ARG:C	2.52	0.46
1:B:273:THR:O	1:B:277:ILE:HG13	2.14	0.46
1:B:345:TRP:CE3	1:B:346:SER:HA	2.50	0.46
1:B:98:ARG:O	1:B:101:MSE:HB3	2.15	0.46
1:A:43:GLU:O	1:A:397:HIS:HB2	2.16	0.46
1:A:67:LEU:HD22	1:A:101:MSE:CE	2.46	0.46
1:A:222:ARG:NH1	1:A:255:GLU:OE2	2.49	0.46
1:A:386:THR:HB	4:A:465:HOH:O	2.15	0.46
1:A:92:THR:O	1:A:96:ILE:HG12	2.15	0.46
1:A:141:GLU:O	1:A:144:ARG:CG	2.63	0.46
1:A:221:PRO:O	1:A:230:ARG:NH2	2.48	0.46
1:A:57:SER:HB3	1:A:64:ILE:HG23	1.96	0.46
1:A:249:LEU:O	1:A:252:LEU:HB2	2.16	0.46
1:A:323:ARG:NH2	1:A:376:GLY:O	2.48	0.46
1:B:130:THR:O	1:B:134:VAL:HG13	2.16	0.46
1:B:195:VAL:HG12	1:B:199:LEU:HD22	1.98	0.46
1:B:343:PRO:HG2	1:B:346:SER:CB	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:389:GLU:O	1:B:393:PRO:CD	2.63	0.46
1:A:136:PRO:O	1:A:138:VAL:N	2.49	0.46
1:A:49:ALA:HA	1:A:124:LEU:O	2.15	0.46
1:A:281:TYR:HA	1:A:355:PHE:HE1	1.80	0.46
1:B:114:ARG:NH2	1:B:170:ARG:HH22	2.14	0.46
1:B:191:LEU:C	1:B:193:ASP:N	2.65	0.46
1:A:89:ASN:CG	1:A:92:THR:HG23	2.37	0.46
1:A:130:THR:HG1	1:A:299:PHE:HZ	1.53	0.46
1:A:133:LEU:CD1	1:A:133:LEU:N	2.79	0.46
1:A:234:ILE:HD12	1:A:234:ILE:HA	1.65	0.46
1:B:164:GLU:CD	1:B:202:LYS:HZ1	2.19	0.46
1:B:405:ARG:HA	1:B:408:GLN:NE2	2.31	0.46
1:B:98:ARG:NH2	1:B:137:PRO:CB	2.59	0.46
1:B:333:TYR:HE1	1:B:335:GLU:HB2	1.81	0.46
1:B:47:ILE:HB	1:B:398:HIS:NE2	2.31	0.45
1:B:187:ASP:C	1:B:189:PRO:HD3	2.36	0.45
1:A:21:GLU:HB3	1:A:24:ARG:CZ	2.47	0.45
1:B:48:TYR:HA	1:B:73:GLY:HA3	1.98	0.45
1:B:230:ARG:HG3	1:B:231:VAL:N	2.26	0.45
1:A:37:LYS:CG	1:A:38:PRO:HD2	2.42	0.45
1:A:126:ASP:OD1	1:A:126:ASP:C	2.55	0.45
1:A:217:LYS:HD2	1:A:260:TYR:HE1	1.81	0.45
1:A:300:TYR:HE1	1:A:304:LEU:CB	2.29	0.45
1:B:172:HIS:CD2	1:B:175:LYS:HE3	2.51	0.45
1:A:115:LYS:HZ3	1:A:181:GLU:CA	2.30	0.45
1:A:9:ILE:O	1:A:13:THR:OG1	2.34	0.45
1:A:27:GLU:OE2	1:A:29:ILE:HG22	2.16	0.45
1:A:302:LYS:HE3	1:A:306:ARG:HH22	1.80	0.45
1:A:320:ALA:HA	1:B:434:ASN:HD21	1.80	0.45
1:A:431:ALA:O	1:A:432:LEU:HD12	2.17	0.45
1:B:313:VAL:CG1	1:B:317:LEU:HB3	2.46	0.45
1:B:364:LYS:HG2	1:B:365:GLY:O	2.16	0.45
1:B:422:ARG:C	1:B:422:ARG:CD	2.85	0.45
1:B:82:TYR:CE2	1:B:193:ASP:OD2	2.70	0.45
1:B:136:PRO:HB3	1:B:142:ASP:OD2	2.17	0.45
1:B:196:VAL:HG12	1:B:274:LEU:HD21	1.99	0.45
1:B:407:LEU:HD23	1:B:408:GLN:HG3	1.97	0.45
1:A:346:SER:O	1:A:347:PHE:HD1	1.98	0.45
1:B:28:GLN:NE2	1:B:30:ARG:HB3	2.32	0.45
1:B:172:HIS:O	1:B:175:LYS:HG2	2.17	0.45
1:B:192:THR:O	1:B:196:VAL:HG13	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:218:VAL:HB	1:B:259:LEU:HB2	1.98	0.45
1:B:350:PHE:H	1:B:350:PHE:HD2	1.60	0.45
1:A:67:LEU:HA	1:A:101:MSE:HE1	1.98	0.45
1:A:307:THR:HG23	1:A:309:GLY:N	2.26	0.45
1:A:104:LEU:HA	1:A:107:MSE:HE3	1.99	0.45
1:A:222:ARG:HD3	1:A:255:GLU:OE2	2.17	0.45
1:A:67:LEU:HD22	1:A:101:MSE:HE2	1.98	0.45
1:A:87:LYS:HZ1	1:B:19:GLU:CG	2.26	0.45
1:B:172:HIS:NE2	1:B:176:VAL:CG1	2.80	0.45
1:A:139:TYR:O	1:A:140:PRO:C	2.55	0.44
1:A:48:TYR:CD1	1:A:112:ALA:HB1	2.52	0.44
1:B:217:LYS:HG2	1:B:260:TYR:CD1	2.48	0.44
1:A:21:GLU:CG	1:A:24:ARG:HD3	2.47	0.44
1:B:130:THR:HG23	1:B:383:GLN:NE2	2.33	0.44
1:B:240:SER:O	1:B:243:LYS:HB2	2.18	0.44
1:B:295:ILE:HD11	1:B:382:LEU:HD13	2.00	0.44
1:B:388:ILE:HG22	1:B:389:GLU:N	2.31	0.44
1:B:408:GLN:O	1:B:412:HIS:HB2	2.17	0.44
1:A:102:GLU:HG3	3:A:454:GOL:C2	2.47	0.44
1:A:146:LEU:HD22	1:A:273:THR:HG23	2.00	0.44
1:A:230:ARG:O	1:B:233:PRO:HA	2.16	0.44
1:A:430:ASN:C	1:A:432:LEU:N	2.71	0.44
1:B:138:VAL:HG11	1:B:272:MSE:SE	2.67	0.44
1:A:299:PHE:C	1:A:299:PHE:CD2	2.91	0.44
1:A:300:TYR:CD1	1:A:300:TYR:C	2.91	0.44
1:B:205:ASP:C	1:B:207:LYS:H	2.20	0.44
1:B:407:LEU:HD23	1:B:408:GLN:CA	2.48	0.44
1:A:320:ALA:HB1	1:B:434:ASN:HD21	1.83	0.44
1:A:356:ARG:O	1:A:360:LYS:HG3	2.17	0.44
1:A:422:ARG:CG	1:A:423:HIS:N	2.81	0.44
1:A:428:LEU:CD1	1:A:429:ILE:N	2.79	0.44
1:B:89:ASN:OD1	1:B:92:THR:CB	2.61	0.44
1:B:103:THR:OG1	1:B:279:TYR:HA	2.18	0.44
1:B:134:VAL:HG23	1:B:135:ARG:N	2.32	0.44
1:B:420:GLU:HG3	1:B:423:HIS:NE2	2.32	0.44
1:A:299:PHE:C	1:A:299:PHE:HD2	2.21	0.44
1:A:299:PHE:HE2	1:A:300:TYR:CE2	2.35	0.44
1:B:179:HIS:HA	1:B:182:LYS:CD	2.48	0.44
1:B:206:THR:C	1:B:207:LYS:HD2	2.38	0.44
1:B:318:LEU:HD23	1:B:370:TYR:CD1	2.53	0.44
1:A:51:ASP:C	1:A:414:VAL:HG21	2.38	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:320:ALA:CB	1:B:434:ASN:HD21	2.30	0.44
1:A:392:LEU:O	1:A:395:ILE:HG22	2.17	0.44
1:B:319:ASP:O	1:B:322:ILE:HG12	2.17	0.44
1:A:27:GLU:C	1:A:29:ILE:N	2.71	0.43
1:A:263:LYS:HB2	1:A:263:LYS:HE3	1.74	0.43
1:B:180:LEU:HA	1:B:180:LEU:HD23	1.51	0.43
1:B:191:LEU:O	1:B:194:ASN:N	2.51	0.43
1:B:333:TYR:CE1	1:B:388:ILE:HG21	2.53	0.43
1:B:373:PHE:CE1	1:B:399:LYS:HE3	2.53	0.43
1:B:89:ASN:ND2	1:B:92:THR:HB	2.33	0.43
1:B:188:SER:N	1:B:189:PRO:HD3	2.33	0.43
1:A:8:SER:OG	1:B:83:ALA:HB3	2.18	0.43
1:A:153:ILE:HD11	1:A:158:PHE:HA	2.00	0.43
1:A:313:VAL:HG12	1:A:313:VAL:O	2.18	0.43
1:A:313:VAL:CG1	1:A:318:LEU:HB2	2.46	0.43
1:B:199:LEU:HD12	1:B:203:TYR:CE2	2.53	0.43
1:A:26:ASN:HD22	1:A:30:ARG:NE	2.16	0.43
1:A:386:THR:CG2	1:A:390:LYS:HB2	2.48	0.43
1:B:28:GLN:HG3	1:B:29:ILE:N	2.32	0.43
1:B:223:LYS:HD3	1:B:223:LYS:HA	1.63	0.43
1:A:27:GLU:OE2	1:A:29:ILE:CG2	2.66	0.43
1:B:116:LEU:HD12	1:B:116:LEU:HA	1.88	0.43
1:B:276:TYR:O	1:B:279:TYR:HB3	2.18	0.43
1:B:130:THR:HG23	1:B:383:GLN:HE22	1.83	0.43
1:B:136:PRO:CB	1:B:142:ASP:OD2	2.67	0.43
1:A:232:ILE:C	1:B:231:VAL:HG13	2.39	0.43
1:A:316:ALA:HB2	1:B:440:LYS:HD3	2.01	0.43
1:B:101:MSE:HA	1:B:101:MSE:CE	2.47	0.43
1:B:116:LEU:HB3	1:B:121:ARG:HD3	2.00	0.43
1:B:138:VAL:O	1:B:138:VAL:HG22	2.18	0.43
1:B:191:LEU:H	1:B:191:LEU:HD13	1.82	0.43
1:A:21:GLU:OE1	1:A:24:ARG:NH1	2.50	0.43
1:A:386:THR:CG2	1:A:387:ASN:N	2.82	0.43
1:A:33:ILE:HA	1:A:33:ILE:HD13	1.77	0.43
1:A:80:LEU:HD23	1:A:107:MSE:HE3	2.01	0.43
1:A:243:LYS:HE2	1:A:243:LYS:HB3	1.81	0.43
1:B:14:LYS:O	1:B:18:ASP:OD2	2.36	0.43
1:B:39:LEU:HG	1:B:332:GLY:HA2	2.01	0.43
1:B:280:LEU:HD23	1:B:283:ILE:HD12	2.01	0.43
1:B:284:ASP:OD2	1:B:355:PHE:HA	2.19	0.43
1:B:304:LEU:HD13	1:B:304:LEU:HA	1.87	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:343:PRO:CG	1:B:346:SER:HB3	2.49	0.43
1:B:360:LYS:O	1:B:363:ASP:HB2	2.19	0.43
1:B:370:TYR:CB	1:B:379:ILE:HD11	2.40	0.43
1:A:79:ARG:HB3	1:A:185:ASN:CB	2.48	0.42
1:A:247:GLU:O	1:A:251:GLU:HG3	2.19	0.42
1:A:425:LEU:O	1:A:428:LEU:HD21	2.19	0.42
1:B:260:TYR:C	1:B:261:LEU:HD23	2.39	0.42
1:A:130:THR:HG23	1:A:383:GLN:HE22	1.83	0.42
1:A:170:ARG:O	1:A:174:ARG:HG3	2.18	0.42
1:A:369:ALA:HB2	1:A:388:ILE:HG13	1.99	0.42
1:B:106:ASN:HB3	1:B:282:SER:O	2.19	0.42
1:A:26:ASN:HD22	1:A:30:ARG:HD2	1.83	0.42
1:A:319:ASP:OD1	1:A:319:ASP:C	2.58	0.42
1:A:89:ASN:CB	1:A:92:THR:HG23	2.49	0.42
1:B:96:ILE:HD11	1:B:272:MSE:CE	2.37	0.42
1:B:206:THR:HB	1:B:207:LYS:HZ3	1.83	0.42
1:A:60:SER:OG	1:A:61:GLY:N	2.52	0.42
1:A:64:ILE:HG23	1:A:64:ILE:O	2.20	0.42
1:A:279:TYR:CZ	1:A:283:ILE:HD11	2.54	0.42
1:B:202:LYS:O	1:B:207:LYS:NZ	2.53	0.42
1:B:368:LEU:HD22	1:B:383:GLN:HG2	2.02	0.42
1:B:373:PHE:CE2	1:B:399:LYS:CE	2.98	0.42
1:B:95:GLN:CB	1:B:138:VAL:HG23	2.47	0.42
1:B:179:HIS:CA	1:B:182:LYS:HG2	2.44	0.42
1:B:218:VAL:N	1:B:259:LEU:O	2.52	0.42
1:B:284:ASP:OD2	1:B:355:PHE:HB3	2.20	0.42
1:A:125:MSE:HE1	1:A:286:LEU:HD11	2.01	0.42
1:A:136:PRO:HG2	1:A:138:VAL:HG21	2.01	0.42
1:A:316:ALA:HA	1:B:440:LYS:HD2	2.01	0.42
1:B:256:LYS:O	1:B:257:VAL:CG1	2.68	0.42
1:B:287:LEU:CD1	1:B:358:ILE:HD13	2.50	0.42
1:B:318:LEU:O	1:B:321:VAL:HB	2.20	0.42
1:A:89:ASN:N	1:A:93:SER:HB3	2.34	0.42
1:A:342:PRO:HG2	1:A:362:ILE:HG12	2.01	0.42
1:B:65:TYR:CE1	1:B:100:GLN:OE1	2.73	0.42
1:B:171:ASP:HA	1:B:174:ARG:HH11	1.83	0.42
1:A:29:ILE:O	1:A:29:ILE:HD12	2.19	0.42
1:A:167:GLU:HG3	1:A:168:LYS:N	2.35	0.42
1:A:374:GLU:OE1	1:A:374:GLU:HA	2.19	0.42
1:A:386:THR:HG21	1:A:390:LYS:HZ3	1.84	0.42
1:B:369:ALA:HB2	1:B:388:ILE:HG12	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:439:LEU:HD12	1:B:440:LYS:H	1.84	0.42
1:B:350:PHE:CD2	1:B:350:PHE:N	2.76	0.42
1:B:405:ARG:O	1:B:406:PRO:C	2.56	0.42
1:A:236:VAL:HG12	1:A:248:LEU:HD11	2.02	0.41
1:B:27:GLU:O	1:B:28:GLN:C	2.56	0.41
1:B:129:LEU:HD23	1:B:129:LEU:HA	1.70	0.41
1:B:433:ARG:CG	1:B:434:ASN:N	2.79	0.41
1:A:236:VAL:CG1	1:A:248:LEU:HD11	2.50	0.41
1:A:367:HIS:CE1	4:A:461:HOH:O	2.72	0.41
1:B:84:ASN:ND2	1:B:193:ASP:OD2	2.54	0.41
1:B:334:LEU:HD12	1:B:334:LEU:C	2.41	0.41
1:B:56:VAL:HG13	1:B:63:VAL:HG13	2.02	0.41
1:B:64:ILE:HG13	1:B:422:ARG:HH22	1.86	0.41
1:B:364:LYS:HG2	1:B:365:GLY:N	2.35	0.41
1:A:57:SER:HB3	1:A:64:ILE:CG2	2.51	0.41
1:A:89:ASN:HB3	1:A:92:THR:HG23	2.02	0.41
1:B:293:ALA:CB	1:B:395:ILE:HD11	2.50	0.41
1:A:173:TYR:CE1	1:A:285:LYS:HG3	2.56	0.41
1:A:250:GLN:O	1:A:254:GLU:HB2	2.20	0.41
1:B:32:ILE:HD13	1:B:325:LEU:HD21	1.97	0.41
1:B:196:VAL:HG23	1:B:197:GLU:N	2.35	0.41
1:B:295:ILE:CD1	1:B:382:LEU:HD13	2.51	0.41
1:B:362:ILE:CG1	1:B:363:ASP:N	2.79	0.41
1:B:434:ASN:OD1	1:B:436:ASP:CG	2.59	0.41
1:A:129:LEU:HD13	1:A:294:TYR:CE2	2.55	0.41
1:A:138:VAL:CG2	1:A:139:TYR:N	2.83	0.41
1:A:198:LYS:HE3	1:A:198:LYS:HB2	1.86	0.41
1:B:396:LEU:HA	1:B:396:LEU:HD23	1.76	0.41
1:A:27:GLU:CD	1:A:27:GLU:N	2.74	0.41
1:A:340:VAL:CG1	1:A:341:VAL:N	2.54	0.41
1:A:395:ILE:HA	1:A:395:ILE:HD13	1.68	0.41
1:B:95:GLN:HB3	1:B:138:VAL:HA	2.03	0.41
1:B:135:ARG:CG	1:B:136:PRO:HD2	2.51	0.41
1:B:153:ILE:O	1:B:157:ASP:HB2	2.19	0.41
1:B:166:LEU:HD12	1:B:166:LEU:HA	1.83	0.41
1:B:371:VAL:O	1:B:379:ILE:HA	2.21	0.41
1:A:352:LEU:HD12	1:A:352:LEU:HA	1.82	0.41
1:B:70:LEU:HD12	1:B:78:LEU:O	2.20	0.41
1:B:89:ASN:OD1	1:B:92:THR:CA	2.69	0.41
1:B:139:TYR:C	1:B:141:GLU:N	2.73	0.41
1:B:176:VAL:HG12	1:B:186:TYR:HE2	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:336:ILE:HD13	1:B:368:LEU:O	2.21	0.41
1:A:6:LYS:O	1:A:9:ILE:HG22	2.21	0.41
1:A:43:GLU:HG2	1:A:120:LYS:HZ3	1.85	0.41
1:A:59:LEU:HD13	1:A:64:ILE:HG22	2.02	0.41
1:A:95:GLN:NE2	1:A:138:VAL:O	2.53	0.41
1:B:47:ILE:HG21	1:B:406:PRO:HG2	2.03	0.41
1:B:149:MSE:HG3	1:B:273:THR:HG21	2.02	0.41
1:B:190:ILE:HG23	1:B:192:THR:OG1	2.21	0.41
1:B:304:LEU:O	1:B:310:VAL:HG13	2.21	0.41
1:A:104:LEU:HA	1:A:107:MSE:CE	2.51	0.41
1:B:245:VAL:HG12	1:B:249:LEU:CD1	2.48	0.41
1:B:436:ASP:O	1:B:437:PRO:C	2.58	0.41
1:B:166:LEU:O	1:B:169:LEU:HB2	2.21	0.40
1:A:434:ASN:O	1:A:434:ASN:OD1	2.40	0.40
1:B:169:LEU:O	1:B:172:HIS:HB3	2.21	0.40
1:A:11:ARG:H	1:A:11:ARG:CD	2.34	0.40
1:A:79:ARG:O	1:A:185:ASN:HA	2.22	0.40
1:B:164:GLU:OE2	1:B:202:LYS:CE	2.70	0.40
1:B:356:ARG:HA	1:B:359:GLU:HB3	2.04	0.40
1:B:373:PHE:CE2	1:B:374:GLU:CD	2.95	0.40
1:A:26:ASN:HD22	1:A:30:ARG:CD	2.34	0.40
1:A:171:ASP:O	1:A:174:ARG:HB2	2.21	0.40
1:B:419:LYS:O	1:B:422:ARG:HB3	2.21	0.40
1:A:67:LEU:HD13	1:A:101:MSE:HA	2.03	0.40
1:A:130:THR:HG23	1:A:383:GLN:NE2	2.36	0.40
1:B:404:LEU:O	1:B:407:LEU:HB3	2.22	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	418/471 (89%)	370 (88%)	46 (11%)	2 (0%)	29	65
1	B	411/471 (87%)	345 (84%)	62 (15%)	4 (1%)	15	51
All	All	829/942 (88%)	715 (86%)	108 (13%)	6 (1%)	22	59

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	29	ILE
1	A	310	VAL
1	B	27	GLU
1	B	312	ILE
1	B	230	ARG
1	A	375	GLN

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	378/410 (92%)	325 (86%)	53 (14%)	3	15
1	B	380/410 (93%)	318 (84%)	62 (16%)	2	10
All	All	758/820 (92%)	643 (85%)	115 (15%)	3	12

All (115) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	GLN
1	A	13	THR
1	A	27	GLU
1	A	29	ILE
1	A	48	TYR
1	A	50	VAL
1	A	56	VAL
1	A	58	ARG
1	A	72	VAL
1	A	90	TYR

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Mol	Chain	Res	Type
1	A	92	THR
1	A	95	GLN
1	A	102	GLU
1	A	103	THR
1	A	126	ASP
1	A	128	THR
1	A	133	LEU
1	A	142	ASP
1	A	144	ARG
1	A	155	GLU
1	A	160	ASN
1	A	188	SER
1	A	191	LEU
1	A	234	ILE
1	A	246	ASP
1	A	249	LEU
1	A	258	GLU
1	A	266	ILE
1	A	280	LEU
1	A	282	SER
1	A	292	LEU
1	A	299	PHE
1	A	300	TYR
1	A	303	THR
1	A	318	LEU
1	A	321	VAL
1	A	324	THR
1	A	325	LEU
1	A	328	HIS
1	A	349	ASP
1	A	352	LEU
1	A	353	SER
1	A	363	ASP
1	A	368	LEU
1	A	381	MSE
1	A	385	THR
1	A	386	THR
1	A	395	ILE
1	A	414	VAL
1	A	423	HIS
1	A	424	THR
1	A	425	LEU

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Mol	Chain	Res	Type
1	A	428	LEU
1	B	20	LEU
1	B	30	ARG
1	B	31	ASN
1	B	48	TYR
1	B	82	TYR
1	B	101	MSE
1	B	102	GLU
1	B	104	LEU
1	B	114	ARG
1	B	117	GLU
1	B	123	ILE
1	B	126	ASP
1	B	129	LEU
1	B	139	TYR
1	B	150	ARG
1	B	153	ILE
1	B	161	LEU
1	B	162	LEU
1	B	166	LEU
1	B	180	LEU
1	B	181	GLU
1	B	185	ASN
1	B	186	TYR
1	B	191	LEU
1	B	192	THR
1	B	199	LEU
1	B	216	VAL
1	B	225	LEU
1	B	236	VAL
1	B	247	GLU
1	B	248	LEU
1	B	249	LEU
1	B	274	LEU
1	B	275	SER
1	B	291	ASN
1	B	298	SER
1	B	301	THR
1	B	302	LYS
1	B	312	ILE
1	B	317	LEU
1	B	325	LEU

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Mol	Chain	Res	Type
1	B	326	ILE
1	B	333	TYR
1	B	334	LEU
1	B	340	VAL
1	B	341	VAL
1	B	350	PHE
1	B	366	ILE
1	B	371	VAL
1	B	374	GLU
1	B	377	ASP
1	B	379	ILE
1	B	385	THR
1	B	407	LEU
1	B	414	VAL
1	B	415	LYS
1	B	418	TYR
1	B	422	ARG
1	B	424	THR
1	B	426	GLU
1	B	428	LEU
1	B	432	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	7	GLN
1	A	26	ASN
1	A	95	GLN
1	A	271	HIS
1	A	397	HIS
1	B	28	GLN
1	B	172	HIS
1	B	185	ASN
1	B	398	HIS
1	B	408	GLN
1	B	411	HIS

5.3.3 RNA

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](#)

Of 5 ligands modelled in this entry, 4 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	GOL	A	454	-	5,5,5	0.36	0	5,5,5	0.38	0

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	GOL	A	454	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	454	GOL	O1-C1-C2-O2
3	A	454	GOL	O1-C1-C2-C3

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	454	GOL	3	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	417/471 (88%)	-0.14	13 (3%) 49 32	52, 103, 201, 270	0
1	B	414/471 (87%)	-0.11	9 (2%) 62 47	72, 130, 200, 374	0
All	All	831/942 (88%)	-0.13	22 (2%) 56 40	52, 118, 201, 374	0

All (22) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	34	ASN	6.1
1	A	301	THR	5.9
1	B	35	SER	4.9
1	A	26	ASN	3.0
1	B	322	ILE	2.8
1	A	30	ARG	2.8
1	B	325	LEU	2.7
1	A	344	LYS	2.7
1	A	338	HIS	2.7
1	A	325	LEU	2.6
1	B	318	LEU	2.4
1	A	402	GLY	2.4
1	A	306	ARG	2.3
1	B	300	TYR	2.3
1	A	326	ILE	2.2
1	A	66	PHE	2.2
1	B	437	PRO	2.1
1	A	426	GLU	2.1
1	B	419	LYS	2.0
1	A	345	TRP	2.0
1	A	423	HIS	2.0
1	B	80	LEU	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 [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	MN	B	453	1/1	0.25	0.27	235,235,235,235	0
3	GOL	A	454	6/6	0.81	0.84	95,114,126,129	0
2	MN	A	453	1/1	0.87	0.11	131,131,131,131	0
2	MN	B	452	1/1	0.96	0.22	103,103,103,103	0
2	MN	A	452	1/1	0.99	0.28	93,93,93,93	0

6.5 Other polymers [i](#)

There are no such residues in this entry.