WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Oct 30, 2023 – 11:12 AM JST

PDB ID	:	5AX8
Title	:	Recombinant expression, purification and preliminary crystallographic studies of the mature form of human mitochondrial aspartate aminotransferase
Authors	:	Jiang, X.; Wang, J.; Chang, H.; Zhou, Y.
Deposited on	:	2015-07-20
Resolution	:	2.99 Å(reported)

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

|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 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 2.99 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	Percentile Ranks	Value
Rfree		0.290
Clashscore		33
Ramachandran outliers		0.3%
Sidechain outliers		11.2%
RSRZ outliers		5.8%

Worse *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
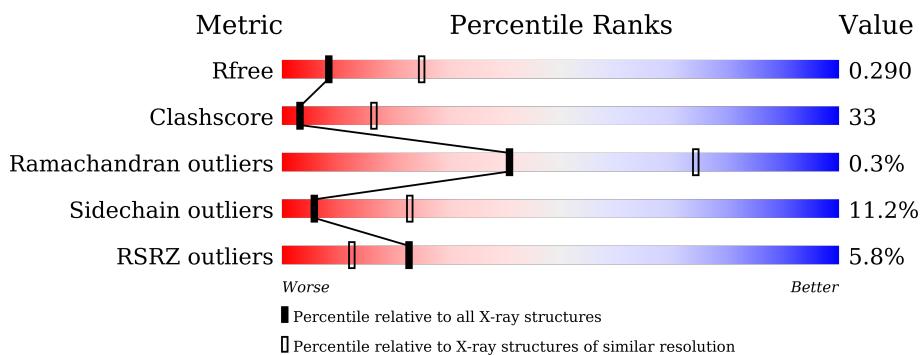
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2754 (3.00-2.96)
Clashscore	141614	3103 (3.00-2.96)
Ramachandran outliers	138981	2993 (3.00-2.96)
Sidechain outliers	138945	2996 (3.00-2.96)
RSRZ outliers	127900	2644 (3.00-2.96)

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	407	2% / 40% 50% 7% ··
1	B	407	5% / 61% 34% ··
1	C	407	5% / 50% 41% 7% ·
1	D	407	11% / 48% 43% 7% ·

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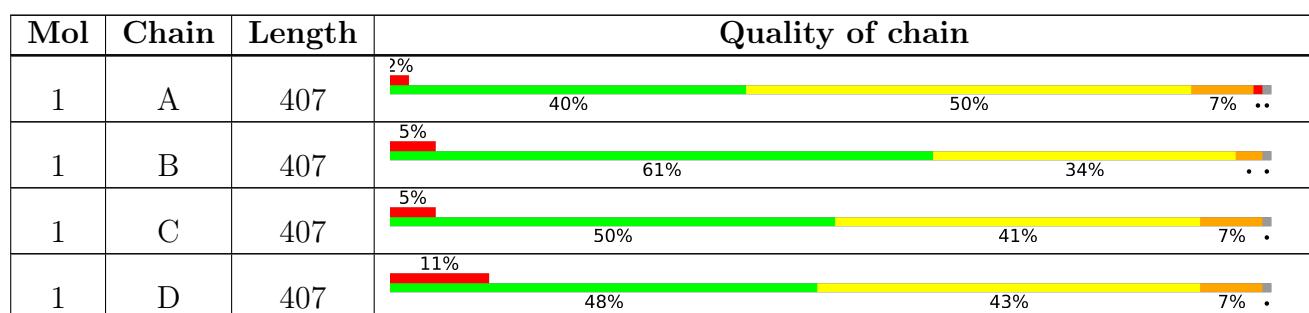
2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 12580 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 Aspartate aminotransferase, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	401	Total	C	N	O	S	0	0	0
			3145	2001	552	574	18			
1	B	401	Total	C	N	O	S	0	0	0
			3145	2001	552	574	18			
1	C	401	Total	C	N	O	S	0	0	0
			3145	2001	552	574	18			
1	D	401	Total	C	N	O	S	0	0	0
			3145	2001	552	574	18			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	346	GLY	VAL	engineered mutation	UNP P00505
A	431	HIS	-	expression tag	UNP P00505
A	432	HIS	-	expression tag	UNP P00505
A	433	HIS	-	expression tag	UNP P00505
A	434	HIS	-	expression tag	UNP P00505
A	435	HIS	-	expression tag	UNP P00505
A	436	HIS	-	expression tag	UNP P00505
B	346	GLY	VAL	engineered mutation	UNP P00505
B	431	HIS	-	expression tag	UNP P00505
B	432	HIS	-	expression tag	UNP P00505
B	433	HIS	-	expression tag	UNP P00505
B	434	HIS	-	expression tag	UNP P00505
B	435	HIS	-	expression tag	UNP P00505
B	436	HIS	-	expression tag	UNP P00505
C	346	GLY	VAL	engineered mutation	UNP P00505
C	431	HIS	-	expression tag	UNP P00505
C	432	HIS	-	expression tag	UNP P00505
C	433	HIS	-	expression tag	UNP P00505
C	434	HIS	-	expression tag	UNP P00505
C	435	HIS	-	expression tag	UNP P00505
C	436	HIS	-	expression tag	UNP P00505

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| Chain	Residue	Modelled	Actual	Comment	Reference
D	346	GLY	VAL	engineered mutation	UNP P00505
D	431	HIS	-	expression tag	UNP P00505
D	432	HIS	-	expression tag	UNP P00505
D	433	HIS	-	expression tag	UNP P00505
D	434	HIS	-	expression tag	UNP P00505
D	435	HIS	-	expression tag	UNP P00505
D	436	HIS	-	expression tag	UNP P00505

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: Aspartate aminotransferase, mitochondrial

• Molecule 1: Aspartate aminotransferase, mitochondrial

• Molecule 1: Aspartate aminotransferase, mitochondrial

Chain C:

• Molecule 1: Aspartate aminotransferase, mitochondrial

Chain D:
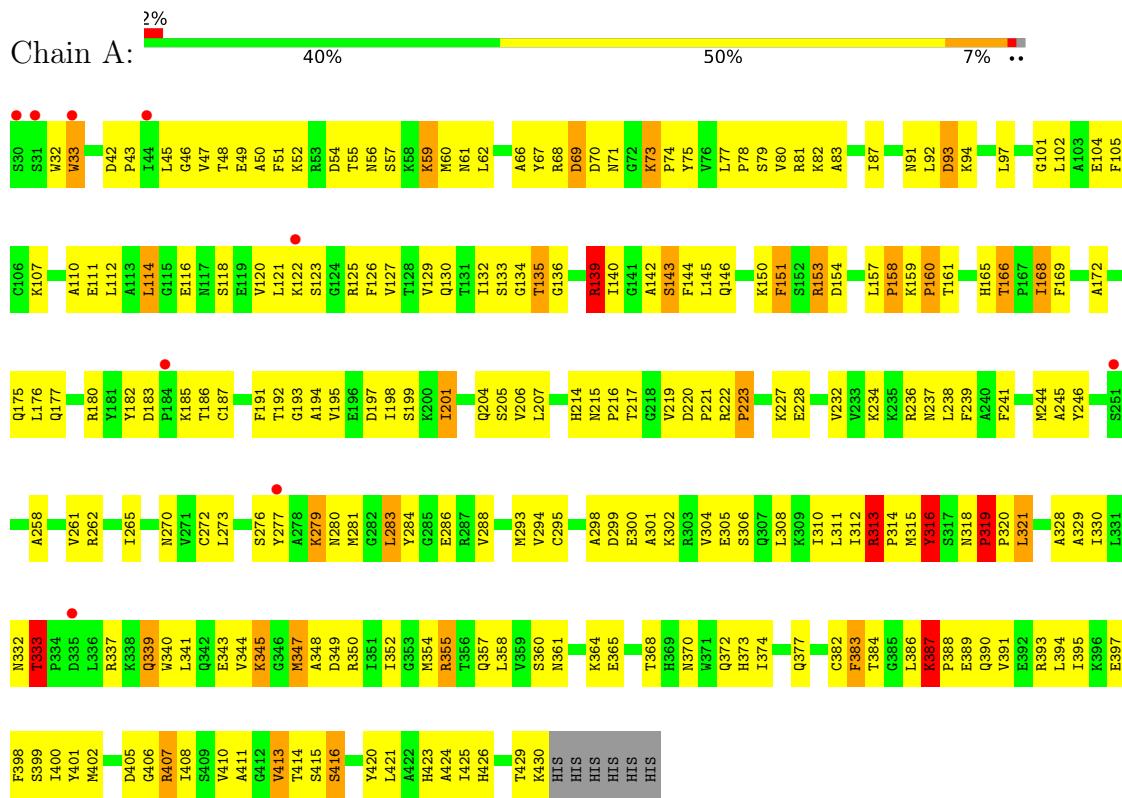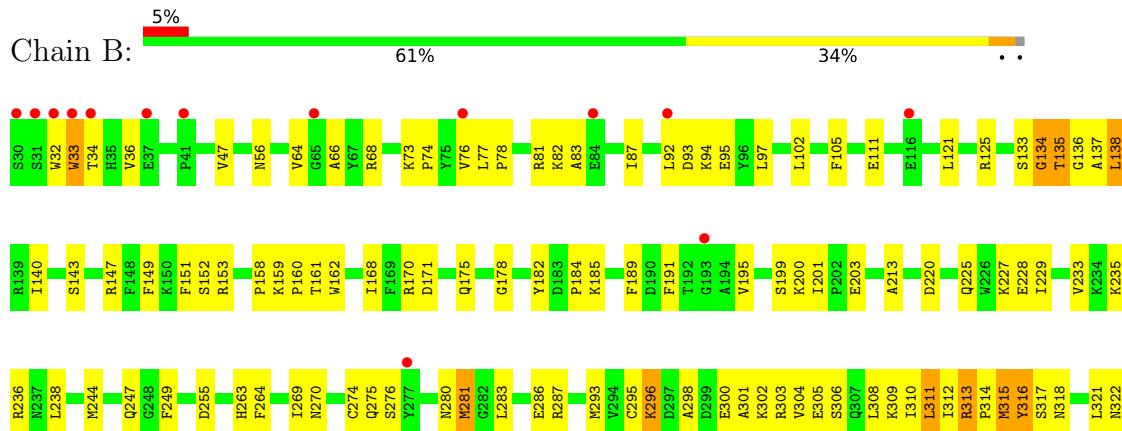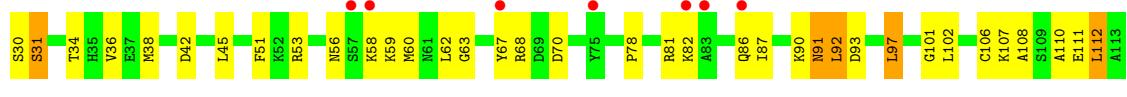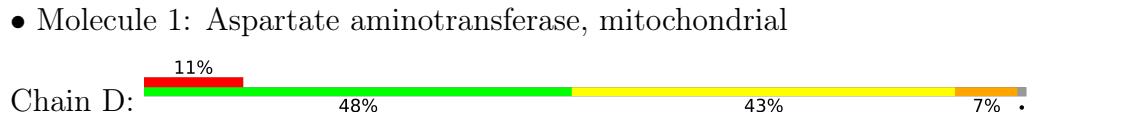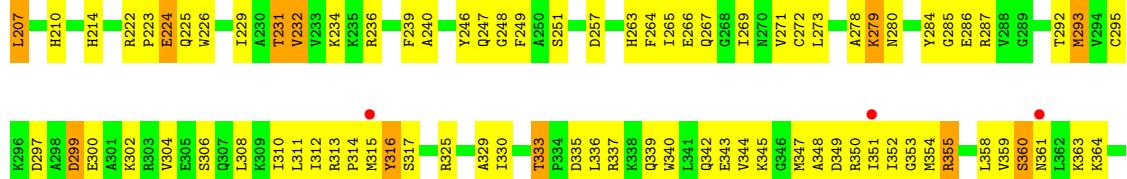
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	56.71Å 76.14Å 94.25Å 78.00° 85.65° 78.41°	Depositor
Resolution (Å)	48.31 – 2.99 48.31 – 2.99	Depositor EDS
% Data completeness (in resolution range)	88.2 (48.31-2.99) 84.3 (48.31-2.99)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	1.96 (at 3.01Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.9_1692)	Depositor
R, R_{free}	0.273 , 0.291 0.275 , 0.290	Depositor DCC
R_{free} test set	2000 reflections (7.42%)	wwPDB-VP
Wilson B-factor (Å^2)	53.7	Xtriage
Anisotropy	0.042	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 21.2	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	0.85	EDS
Total number of atoms	12580	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 48.37 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 8.6868e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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[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 (i)

5.1 Standard geometry (i)

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	1.41	4/3218 (0.1%)	1.03	14/4348 (0.3%)
1	B	0.66	2/3218 (0.1%)	0.69	2/4348 (0.0%)
1	C	0.70	1/3218 (0.0%)	0.72	3/4348 (0.1%)
1	D	0.62	1/3218 (0.0%)	0.72	3/4348 (0.1%)
All	All	0.91	8/12872 (0.1%)	0.80	22/17392 (0.1%)

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	334	PRO	N-CD	5.36	1.55	1.47
1	A	388	PRO	N-CD	5.35	1.55	1.47
1	A	319	PRO	N-CD	5.20	1.55	1.47
1	C	167	PRO	N-CD	5.19	1.55	1.47
1	B	314	PRO	N-CD	5.17	1.55	1.47
1	A	223	PRO	N-CD	5.12	1.55	1.47
1	D	334	PRO	N-CD	5.09	1.54	1.47
1	A	158	PRO	N-CD	5.08	1.54	1.47

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	313	ARG	C-N-CD	6.00	140.99	128.40
1	A	333	THR	C-N-CD	5.93	140.86	128.40
1	A	201	ILE	C-N-CD	5.89	140.78	128.40
1	A	183	ASP	C-N-CD	5.89	140.78	128.40
1	D	333	THR	C-N-CD	5.84	140.67	128.40
1	A	73	LYS	C-N-CD	5.80	140.59	128.40
1	A	97	LEU	C-N-CD	5.79	140.55	128.40
1	A	42	ASP	C-N-CD	5.73	140.43	128.40
1	C	316	TYR	N-CA-C	-5.72	95.55	111.00
1	A	318	ASN	C-N-CD	5.71	140.38	128.40
1	A	222	ARG	C-N-CD	5.68	140.33	128.40
1	A	166	THR	C-N-CD	5.57	140.10	128.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	316	TYR	N-CA-C	-5.55	96.02	111.00
1	A	313	ARG	C-N-CD	5.41	139.75	128.40
1	A	157	LEU	C-N-CD	5.40	139.74	128.40
1	B	313	ARG	C-N-CD	5.39	139.72	128.40
1	B	333	THR	C-N-CD	5.36	139.66	128.40
1	A	387	LYS	C-N-CD	5.26	139.45	128.40
1	A	316	TYR	N-CA-C	-5.18	97.00	111.00
1	A	139	ARG	NE-CZ-NH2	-5.13	117.73	120.30
1	C	159	LYS	C-N-CD	-5.13	109.31	120.60
1	C	166	THR	C-N-CD	5.08	139.06	128.40

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3145	0	3133	294	0
1	B	3145	0	3133	160	0
1	C	3145	0	3133	220	0
1	D	3145	0	3133	250	0
All	All	12580	0	12532	833	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 33.

All (833) 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:32:TRP:CE3	1:D:151:PHE:CZ	2.21	1.29
1:D:333:THR:HG21	1:D:336:LEU:CD1	1.63	1.28
1:D:333:THR:HG23	1:D:336:LEU:CB	1.65	1.26
1:D:333:THR:CG2	1:D:336:LEU:HB2	1.65	1.25
1:B:33:TRP:HH2	1:D:149:PHE:CD1	1.54	1.24
1:C:354:MET:HE1	1:C:414:THR:C	1.57	1.22

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:32:TRP:CZ3	1:D:151:PHE:CZ	2.29	1.20
1:D:149:PHE:CZ	1:D:151:PHE:CE1	2.31	1.17
1:D:70:ASP:OD1	1:D:414:THR:HG23	1.41	1.17
1:A:354:MET:HE1	1:A:414:THR:CA	1.75	1.15
1:A:78:PRO:HD2	1:A:343:GLU:OE2	1.44	1.14
1:B:33:TRP:CH2	1:D:149:PHE:CE1	2.34	1.14
1:B:33:TRP:HH2	1:D:149:PHE:CE1	1.65	1.14
1:D:149:PHE:CZ	1:D:151:PHE:HE1	1.66	1.13
1:D:389:GLU:O	1:D:393:ARG:HG3	1.45	1.12
1:B:32:TRP:CZ3	1:D:151:PHE:CE1	2.39	1.11
1:D:333:THR:CG2	1:D:336:LEU:CB	2.25	1.10
1:B:33:TRP:CH2	1:D:149:PHE:CD1	2.40	1.09
1:D:333:THR:CG2	1:D:336:LEU:HD12	1.85	1.06
1:B:306:SER:O	1:B:310:ILE:HG13	1.54	1.05
1:A:33:TRP:HZ2	1:C:293:MET:HE1	1.20	1.03
1:C:349:ASP:HA	1:C:352:ILE:HD12	1.38	1.03
1:B:33:TRP:NE1	1:D:293:MET:SD	2.33	1.01
1:B:344:VAL:HA	1:B:347:MET:HE3	1.43	1.01
1:A:354:MET:HE1	1:A:414:THR:HA	1.41	1.00
1:D:70:ASP:CB	1:D:350:ARG:NH2	2.24	1.00
1:C:180:ARG:HH11	1:C:193:GLY:HA2	1.24	1.00
1:C:354:MET:CE	1:C:414:THR:C	2.29	1.00
1:C:339:GLN:O	1:C:343:GLU:HG3	1.60	0.99
1:A:140:ILE:CD1	1:A:315:MET:HE1	1.93	0.99
1:A:354:MET:HE1	1:A:414:THR:C	1.81	0.99
1:D:229:ILE:O	1:D:232:VAL:HG12	1.60	0.99
1:B:32:TRP:HZ3	1:D:151:PHE:CE1	1.77	0.99
1:C:308:LEU:O	1:C:312:ILE:HG13	1.63	0.99
1:A:355:ARG:NH2	1:A:377:GLN:HB2	1.78	0.98
1:A:140:ILE:CD1	1:A:315:MET:CE	2.42	0.97
1:A:293:MET:CE	1:C:33:TRP:HE1	1.78	0.96
1:A:354:MET:CE	1:A:414:THR:CA	2.43	0.96
1:B:33:TRP:CH2	1:D:149:PHE:HE1	1.83	0.96
1:D:70:ASP:HB2	1:D:350:ARG:NH2	1.80	0.96
1:C:340:TRP:O	1:C:344:VAL:HG23	1.66	0.96
1:A:132:ILE:CD1	1:C:132:ILE:HD13	1.96	0.95
1:A:140:ILE:HD13	1:A:315:MET:HE1	1.45	0.95
1:A:293:MET:CE	1:C:33:TRP:NE1	2.29	0.94
1:C:191:PHE:CD2	1:C:225:GLN:HG2	2.01	0.94
1:A:135:THR:HG21	1:C:317:SER:OG	1.69	0.93
1:B:93:ASP:OD1	1:B:94:LYS:N	2.00	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:33:TRP:CZ2	1:C:293:MET:HE1	2.04	0.93
1:B:32:TRP:HE3	1:D:151:PHE:CZ	1.73	0.93
1:D:128:THR:HG22	1:D:292:THR:HG23	1.51	0.93
1:A:140:ILE:HD11	1:A:315:MET:CE	1.99	0.93
1:A:33:TRP:CZ2	1:C:293:MET:CE	2.52	0.92
1:A:48:THR:HG23	1:A:61:ASN:ND2	1.83	0.92
1:A:158:PRO:HG2	1:A:161:THR:HB	1.51	0.92
1:A:382:CYS:O	1:A:407:ARG:HA	1.70	0.91
1:B:92:LEU:HA	1:D:81:ARG:NH2	1.85	0.91
1:B:32:TRP:CE3	1:D:151:PHE:HZ	1.75	0.91
1:A:354:MET:CE	1:A:414:THR:C	2.38	0.90
1:D:70:ASP:HB2	1:D:350:ARG:HH21	1.36	0.90
1:B:200:LYS:C	1:B:236:ARG:HH11	1.75	0.90
1:C:114:LEU:HD21	1:C:265:ILE:HD12	1.54	0.90
1:B:354:MET:HE2	1:B:413:VAL:O	1.71	0.89
1:D:70:ASP:CB	1:D:350:ARG:HH22	1.84	0.89
1:C:131:THR:OG1	1:C:137:ALA:HB2	1.73	0.88
1:D:70:ASP:CA	1:D:350:ARG:HH22	1.87	0.88
1:C:139:ARG:HB2	1:C:168:ILE:HG23	1.53	0.88
1:B:158:PRO:HG2	1:B:161:THR:HB	1.54	0.87
1:C:329:ALA:O	1:C:333:THR:HG23	1.73	0.87
1:D:179:TYR:HA	1:D:197:ASP:OD2	1.74	0.86
1:D:333:THR:HG21	1:D:336:LEU:HD12	0.89	0.86
1:C:191:PHE:O	1:C:195:VAL:HG23	1.75	0.85
1:C:354:MET:HE1	1:C:415:SER:N	1.91	0.85
1:C:414:THR:O	1:C:418:VAL:HG22	1.77	0.85
1:B:168:ILE:HG12	1:D:314:PRO:O	1.77	0.85
1:D:70:ASP:OD1	1:D:414:THR:CG2	2.23	0.84
1:D:326:ILE:O	1:D:330:ILE:HG22	1.77	0.84
1:A:140:ILE:HD11	1:A:315:MET:HE2	1.57	0.84
1:B:32:TRP:HE3	1:D:151:PHE:HZ	1.13	0.84
1:D:70:ASP:CA	1:D:350:ARG:NH2	2.39	0.84
1:D:149:PHE:CE2	1:D:151:PHE:CE1	2.66	0.83
1:D:414:THR:O	1:D:418:VAL:HG22	1.77	0.83
1:D:354:MET:HE3	1:D:354:MET:HA	1.59	0.83
1:D:70:ASP:HA	1:D:350:ARG:HH22	1.42	0.83
1:C:333:THR:HG1	1:C:336:LEU:HB2	1.44	0.83
1:A:55:THR:OG1	1:D:153:ARG:HG3	1.78	0.83
1:A:394:LEU:HD22	1:A:400:ILE:HD12	1.59	0.82
1:B:264:PHE:HD2	1:B:269:ILE:HD11	1.44	0.82
1:A:293:MET:HE3	1:C:33:TRP:HE1	1.45	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:333:THR:OG1	1:C:336:LEU:HB2	1.80	0.82
1:C:344:VAL:HA	1:C:347:MET:HE2	1.62	0.82
1:A:394:LEU:HD23	1:A:424:ALA:HB1	1.62	0.81
1:A:228:GLU:O	1:A:232:VAL:HG23	1.79	0.81
1:B:329:ALA:O	1:B:333:THR:HG23	1.79	0.81
1:C:198:ILE:HD13	1:C:207:LEU:HD11	1.62	0.81
1:D:355:ARG:HH12	1:D:377:GLN:HB2	1.43	0.81
1:A:348:ALA:O	1:A:352:ILE:HG13	1.80	0.80
1:B:200:LYS:C	1:B:236:ARG:NH1	2.35	0.80
1:A:56:ASN:O	1:A:59:LYS:HD3	1.81	0.80
1:B:136:GLY:O	1:B:140:ILE:HG13	1.82	0.80
1:C:139:ARG:HB2	1:C:168:ILE:CG2	2.10	0.80
1:B:315:MET:HE1	1:D:139:ARG:HH12	1.44	0.80
1:B:93:ASP:O	1:B:94:LYS:HG2	1.82	0.80
1:A:33:TRP:HZ2	1:C:293:MET:CE	1.88	0.79
1:B:270:ASN:HD21	1:B:296:LYS:HD3	1.46	0.79
1:D:82:LYS:HB2	1:D:336:LEU:HD21	1.63	0.79
1:D:151:PHE:HD1	1:D:204:GLN:O	1.66	0.79
1:C:67:TYR:OH	1:C:350:ARG:HD3	1.83	0.78
1:A:33:TRP:HB2	1:C:300:GLU:CD	2.03	0.78
1:A:166:THR:HG23	1:A:176:LEU:CD1	2.13	0.78
1:A:387:LYS:O	1:A:390:GLN:HB2	1.84	0.78
1:C:355:ARG:HH22	1:C:382:CYS:HB2	1.49	0.78
1:D:331:LEU:HD23	1:D:331:LEU:O	1.84	0.78
1:A:283:LEU:HD12	1:A:288:VAL:HG21	1.65	0.78
1:A:350:ARG:HG2	1:A:350:ARG:HH21	1.49	0.77
1:C:354:MET:CE	1:C:414:THR:CA	2.63	0.77
1:A:354:MET:CE	1:A:414:THR:N	2.48	0.77
1:A:279:LYS:HD2	1:A:284:TYR:HE1	1.50	0.77
1:C:354:MET:HE2	1:C:414:THR:CA	2.14	0.77
1:B:33:TRP:CH2	1:D:149:PHE:HD1	1.96	0.76
1:D:151:PHE:CD1	1:D:204:GLN:O	2.39	0.76
1:B:36:VAL:HG11	1:D:304:VAL:HA	1.69	0.75
1:C:355:ARG:HH11	1:C:355:ARG:HG2	1.51	0.75
1:D:92:LEU:HD12	1:D:92:LEU:H	1.51	0.75
1:A:33:TRP:CZ2	1:C:293:MET:HE3	2.20	0.75
1:A:283:LEU:N	1:A:283:LEU:HD23	2.01	0.75
1:B:317:SER:OG	1:D:135:THR:HG21	1.87	0.75
1:B:355:ARG:HG2	1:B:355:ARG:HH11	1.51	0.75
1:B:388:PRO:HB3	1:B:404:LYS:HD2	1.67	0.75
1:A:33:TRP:NE1	1:C:293:MET:SD	2.57	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:SER:O	1:A:310:ILE:HG13	1.86	0.75
1:A:48:THR:HG23	1:A:61:ASN:HD21	1.51	0.75
1:D:327:ALA:HA	1:D:330:ILE:CG2	2.17	0.75
1:D:333:THR:HG23	1:D:336:LEU:HB2	0.81	0.74
1:D:354:MET:HA	1:D:354:MET:CE	2.13	0.74
1:A:382:CYS:HB3	1:A:408:ILE:HG12	1.68	0.74
1:A:33:TRP:CE2	1:C:293:MET:HE3	2.22	0.74
1:C:359:VAL:HG21	1:C:375:THR:HG23	1.67	0.74
1:A:340:TRP:O	1:A:344:VAL:HG23	1.87	0.74
1:A:354:MET:HE2	1:A:413:VAL:C	2.08	0.74
1:D:333:THR:HG21	1:D:336:LEU:CG	2.18	0.74
1:A:391:VAL:HG12	1:A:395:ILE:CD1	2.18	0.73
1:D:345:LYS:O	1:D:349:ASP:HB2	1.88	0.73
1:C:355:ARG:HG2	1:C:355:ARG:NH1	2.01	0.73
1:A:283:LEU:HB3	1:A:286:GLU:HB2	1.70	0.73
1:C:354:MET:HE1	1:C:414:THR:O	1.89	0.73
1:A:355:ARG:NH2	1:A:377:GLN:CB	2.52	0.73
1:B:200:LYS:HA	1:B:236:ARG:NH1	2.02	0.73
1:B:36:VAL:O	1:D:303:ARG:NH1	2.21	0.73
1:D:351:ILE:O	1:D:355:ARG:HG3	1.89	0.72
1:D:391:VAL:O	1:D:395:ILE:HG13	1.89	0.72
1:A:413:VAL:CG2	1:A:421:LEU:HD22	2.19	0.72
1:B:200:LYS:CA	1:B:236:ARG:HH11	2.02	0.72
1:D:414:THR:HG22	1:D:415:SER:N	2.04	0.72
1:D:275:GLN:NE2	1:D:290:ALA:HB3	2.05	0.72
1:A:70:ASP:O	1:A:414:THR:HG23	1.89	0.72
1:A:82:LYS:CE	1:A:339:GLN:HE22	2.03	0.72
1:C:224:GLU:CD	1:C:224:GLU:H	1.93	0.72
1:C:62:LEU:HD13	1:C:408:ILE:HG13	1.69	0.71
1:A:87:ILE:HG23	1:A:92:LEU:HD12	1.70	0.71
1:A:300:GLU:O	1:A:304:VAL:HG23	1.90	0.71
1:A:339:GLN:O	1:A:343:GLU:HG3	1.89	0.71
1:C:198:ILE:CD1	1:C:207:LEU:HD11	2.20	0.71
1:A:180:ARG:O	1:A:194:ALA:HB2	1.90	0.71
1:D:145:LEU:O	1:D:153:ARG:NH2	2.23	0.71
1:B:344:VAL:HA	1:B:347:MET:CE	2.18	0.71
1:C:295:CYS:HB3	1:C:300:GLU:HG2	1.73	0.71
1:D:350:ARG:O	1:D:354:MET:HB2	1.90	0.71
1:B:322:ASN:ND2	1:D:322:ASN:OD1	2.24	0.71
1:A:394:LEU:CD2	1:A:424:ALA:HB1	2.20	0.71
1:D:62:LEU:HB2	1:D:402:MET:HB3	1.73	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:133:SER:HB2	1:B:287:ARG:HA	1.71	0.70
1:C:355:ARG:HH11	1:C:355:ARG:CG	2.04	0.70
1:C:31:SER:HB3	1:C:34:THR:HG23	1.71	0.70
1:D:70:ASP:HA	1:D:350:ARG:NH2	2.04	0.70
1:D:82:LYS:NZ	1:D:339:GLN:OE1	2.23	0.70
1:D:110:ALA:HB2	1:D:128:THR:HG21	1.72	0.70
1:A:33:TRP:HE1	1:C:293:MET:CE	2.04	0.70
1:A:83:ALA:O	1:A:87:ILE:HD12	1.91	0.70
1:B:95:GLU:CD	1:D:68:ARG:HH12	1.94	0.70
1:D:82:LYS:CB	1:D:336:LEU:HD21	2.22	0.70
1:B:315:MET:HE1	1:D:139:ARG:NH1	2.06	0.70
1:A:169:PHE:O	1:A:172:ALA:HB3	1.91	0.70
1:C:151:PHE:HD1	1:C:151:PHE:H	1.38	0.70
1:D:149:PHE:CE2	1:D:206:VAL:CG1	2.75	0.70
1:A:391:VAL:HG12	1:A:395:ILE:HD12	1.74	0.69
1:B:311:LEU:O	1:B:315:MET:HE3	1.91	0.69
1:D:157:LEU:HD22	1:D:208:LEU:HD23	1.72	0.69
1:D:310:ILE:O	1:D:314:PRO:HD3	1.92	0.69
1:A:354:MET:HE2	1:A:413:VAL:HG12	1.74	0.69
1:D:355:ARG:NH1	1:D:377:GLN:HB2	2.07	0.69
1:B:32:TRP:HZ3	1:D:151:PHE:CZ	1.88	0.69
1:B:355:ARG:HG2	1:B:355:ARG:NH1	2.06	0.69
1:D:191:PHE:HD2	1:D:225:GLN:HG2	1.55	0.69
1:D:327:ALA:O	1:D:330:ILE:HG23	1.92	0.69
1:C:106:CYS:HB3	1:C:128:THR:HB	1.73	0.69
1:C:198:ILE:HD13	1:C:207:LEU:CD1	2.22	0.69
1:A:350:ARG:HG2	1:A:350:ARG:NH2	2.03	0.69
1:D:63:GLY:HA2	1:D:407:ARG:HH21	1.57	0.69
1:D:244:MET:HE2	1:D:273:LEU:HD11	1.75	0.69
1:B:170:ARG:HH12	1:B:175:GLN:HA	1.58	0.68
1:C:354:MET:HE2	1:C:414:THR:HA	1.75	0.68
1:A:33:TRP:NE1	1:C:293:MET:HE3	2.09	0.68
1:A:350:ARG:NH1	1:A:413:VAL:O	2.23	0.68
1:B:135:THR:HG23	1:B:162:TRP:HH2	1.57	0.68
1:C:117:ASN:O	1:C:122:LYS:HE3	1.94	0.68
1:A:70:ASP:O	1:A:414:THR:CG2	2.41	0.68
1:C:306:SER:O	1:C:310:ILE:HG13	1.92	0.68
1:D:322:ASN:O	1:D:326:ILE:HG13	1.94	0.68
1:B:200:LYS:CA	1:B:236:ARG:NH1	2.56	0.68
1:D:321:LEU:HD21	1:D:325:ARG:NH2	2.08	0.68
1:D:93:ASP:O	1:D:325:ARG:NH2	2.24	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:193:GLY:O	1:D:196:GLU:HB3	1.94	0.68
1:A:132:ILE:HD13	1:C:132:ILE:HD13	1.73	0.68
1:A:140:ILE:CD1	1:A:315:MET:HE2	2.16	0.68
1:A:33:TRP:NE1	1:C:293:MET:CE	2.57	0.67
1:D:333:THR:CG2	1:D:336:LEU:CD1	2.52	0.67
1:A:54:ASP:OD1	1:A:399:SER:HB3	1.93	0.67
1:A:33:TRP:CD1	1:C:304:VAL:HG21	2.29	0.67
1:D:333:THR:CG2	1:D:336:LEU:HB3	2.21	0.67
1:A:199:SER:O	1:A:236:ARG:NH1	2.27	0.67
1:A:33:TRP:CE2	1:C:293:MET:CE	2.78	0.67
1:A:311:LEU:O	1:A:314:PRO:HD2	1.95	0.67
1:C:330:ILE:O	1:C:337:ARG:HB2	1.95	0.67
1:A:391:VAL:O	1:A:395:ILE:HG13	1.94	0.67
1:A:393:ARG:O	1:A:397:GLU:HB2	1.95	0.66
1:B:33:TRP:CD1	1:D:293:MET:SD	2.88	0.66
1:A:191:PHE:CE1	1:A:195:VAL:HG21	2.30	0.66
1:A:201:ILE:O	1:A:236:ARG:NH1	2.29	0.66
1:D:333:THR:HG23	1:D:333:THR:O	1.94	0.66
1:A:191:PHE:CZ	1:A:195:VAL:HG21	2.30	0.66
1:D:311:LEU:O	1:D:314:PRO:HD2	1.96	0.66
1:A:198:ILE:HD13	1:A:207:LEU:HD21	1.78	0.66
1:D:211:ALA:HB3	1:D:244:MET:HG3	1.76	0.66
1:B:171:ASP:OD1	1:D:147:ARG:NH2	2.29	0.65
1:C:191:PHE:HD2	1:C:225:GLN:HG2	1.56	0.65
1:C:263:HIS:HA	1:C:266:GLU:HG2	1.78	0.65
1:A:102:LEU:HB3	1:A:105:PHE:HB3	1.78	0.65
1:A:258:ALA:O	1:A:262:ARG:HG3	1.96	0.65
1:A:293:MET:HE3	1:C:33:TRP:NE1	2.04	0.65
1:C:311:LEU:O	1:C:314:PRO:HD2	1.95	0.65
1:A:364:LYS:NZ	1:B:151:PHE:O	2.30	0.65
1:B:264:PHE:CD2	1:B:269:ILE:HD11	2.28	0.65
1:B:338:LYS:O	1:B:342:GLN:HG3	1.96	0.65
1:A:391:VAL:CG1	1:A:395:ILE:HD11	2.27	0.65
1:A:382:CYS:HB3	1:A:408:ILE:CG1	2.26	0.65
1:B:92:LEU:CA	1:D:81:ARG:NH2	2.58	0.65
1:D:414:THR:HG22	1:D:415:SER:H	1.60	0.65
1:C:360:SER:HA	1:C:363:LYS:HG2	1.79	0.65
1:D:150:LYS:HG3	1:D:151:PHE:CD2	2.32	0.65
1:A:132:ILE:CD1	1:C:132:ILE:CD1	2.75	0.64
1:A:373:HIS:O	1:A:377:GLN:HG3	1.96	0.64
1:C:86:GLN:HE22	1:C:333:THR:HG21	1.63	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:93:ASP:O	1:C:325:ARG:NH2	2.28	0.64
1:B:159:LYS:HE3	1:B:178:GLY:HA3	1.78	0.64
1:C:391:VAL:HG12	1:C:395:ILE:CD1	2.27	0.64
1:A:166:THR:HG23	1:A:176:LEU:HD12	1.78	0.64
1:D:120:VAL:HG22	1:D:125:ARG:NE	2.13	0.64
1:A:143:SER:O	1:A:146:GLN:N	2.29	0.64
1:C:382:CYS:HB3	1:C:408:ILE:HG23	1.80	0.64
1:D:231:THR:O	1:D:235:LYS:N	2.27	0.64
1:A:302:LYS:HG2	1:C:38:MET:CE	2.28	0.64
1:C:361:ASN:HA	1:C:364:LYS:HB2	1.79	0.64
1:A:54:ASP:HB2	1:A:401:TYR:OH	1.98	0.63
1:A:355:ARG:HH21	1:A:377:GLN:HB2	1.62	0.63
1:A:293:MET:HE1	1:C:33:TRP:HE1	1.61	0.63
1:D:149:PHE:CE1	1:D:151:PHE:CE1	2.86	0.63
1:A:123:SER:OG	1:A:125:ARG:HG2	1.98	0.63
1:A:286:GLU:OE1	1:A:286:GLU:HA	1.97	0.63
1:A:329:ALA:O	1:A:333:THR:HG23	1.98	0.63
1:B:306:SER:O	1:B:310:ILE:CG1	2.39	0.63
1:A:394:LEU:CD2	1:A:424:ALA:CB	2.77	0.63
1:A:49:GLU:OE2	1:A:49:GLU:HA	1.98	0.63
1:A:205:SER:O	1:A:238:LEU:HB3	1.98	0.63
1:A:354:MET:HE2	1:A:413:VAL:CG1	2.29	0.62
1:C:339:GLN:HG2	1:C:343:GLU:OE2	1.99	0.62
1:A:355:ARG:HH21	1:A:377:GLN:CB	2.12	0.62
1:C:354:MET:HE3	1:C:413:VAL:HG12	1.81	0.62
1:A:166:THR:HG23	1:A:176:LEU:HD13	1.81	0.62
1:C:164:ASN:O	1:C:168:ILE:HG13	2.00	0.62
1:C:354:MET:CE	1:C:414:THR:O	2.44	0.62
1:A:354:MET:HE2	1:A:414:THR:N	2.13	0.62
1:A:33:TRP:HB2	1:C:300:GLU:OE1	1.98	0.62
1:A:176:LEU:O	1:A:177:GLN:NE2	2.33	0.62
1:A:354:MET:HE3	1:A:414:THR:O	1.99	0.62
1:B:350:ARG:O	1:B:354:MET:HG2	1.99	0.62
1:D:108:ALA:HB1	1:D:331:LEU:HD22	1.82	0.62
1:C:199:SER:O	1:C:236:ARG:CZ	2.48	0.61
1:C:249:PHE:HB2	1:C:280:ASN:HB3	1.80	0.61
1:D:112:LEU:HD13	1:D:331:LEU:HD11	1.82	0.61
1:B:227:LYS:HD2	1:B:263:HIS:CE1	2.35	0.61
1:B:304:VAL:O	1:B:308:LEU:HD23	2.00	0.61
1:A:62:LEU:HD11	1:A:421:LEU:HD11	1.80	0.61
1:A:140:ILE:HD13	1:A:315:MET:CE	2.17	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:231:THR:O	1:D:234:LYS:HB3	2.00	0.61
1:A:33:TRP:HD1	1:C:304:VAL:HG21	1.65	0.61
1:A:354:MET:HE3	1:A:414:THR:C	2.19	0.61
1:B:311:LEU:O	1:B:315:MET:CE	2.49	0.61
1:A:127:VAL:CG2	1:A:305:GLU:HG3	2.31	0.61
1:A:312:ILE:O	1:A:313:ARG:C	2.35	0.60
1:B:93:ASP:O	1:B:94:LYS:CG	2.49	0.60
1:B:351:ILE:O	1:B:355:ARG:HD2	2.01	0.60
1:C:115:GLY:C	1:C:117:ASN:H	2.03	0.60
1:A:33:TRP:CZ3	1:C:149:PHE:HE1	2.20	0.60
1:D:367:SER:HG	1:D:371:TRP:HE1	1.50	0.60
1:A:107:LYS:O	1:A:111:GLU:HG3	2.00	0.60
1:A:355:ARG:CG	1:A:355:ARG:HH11	2.14	0.60
1:A:201:ILE:O	1:A:236:ARG:CZ	2.50	0.60
1:D:149:PHE:CE1	1:D:151:PHE:CZ	2.89	0.60
1:A:355:ARG:NH1	1:A:355:ARG:HG2	2.17	0.60
1:B:357:GLN:O	1:B:361:ASN:ND2	2.23	0.60
1:D:331:LEU:HA	1:D:337:ARG:HG3	1.83	0.60
1:B:303:ARG:NH1	1:D:36:VAL:O	2.35	0.60
1:B:244:MET:HG2	1:B:247:GLN:HB2	1.84	0.60
1:A:33:TRP:CH2	1:C:149:PHE:HE1	2.20	0.59
1:A:261:VAL:O	1:A:265:ILE:HG13	2.02	0.59
1:B:170:ARG:NH1	1:B:175:GLN:HA	2.17	0.59
1:C:349:ASP:CA	1:C:352:ILE:HD12	2.25	0.59
1:D:149:PHE:CE2	1:D:206:VAL:HG13	2.37	0.59
1:A:383:PHE:CD1	1:A:407:ARG:HB2	2.38	0.59
1:D:333:THR:CG2	1:D:333:THR:O	2.50	0.59
1:A:358:LEU:HD13	1:A:421:LEU:HD23	1.85	0.59
1:C:240:ALA:HB3	1:C:271:VAL:HG12	1.84	0.59
1:A:321:LEU:HB2	1:C:285:GLY:O	2.02	0.59
1:A:382:CYS:O	1:A:407:ARG:CA	2.49	0.59
1:A:244:MET:HB2	1:A:273:LEU:HD11	1.85	0.58
1:A:46:GLY:O	1:A:50:ALA:N	2.24	0.58
1:A:206:VAL:HG13	1:A:239:PHE:HD2	1.69	0.58
1:C:191:PHE:CE2	1:C:225:GLN:HG2	2.37	0.58
1:A:48:THR:O	1:A:51:PHE:HB3	2.04	0.58
1:A:330:ILE:O	1:A:337:ARG:HB2	2.04	0.58
1:C:247:GLN:O	1:C:280:ASN:ND2	2.34	0.58
1:B:73:LYS:HG2	1:B:74:PRO:HD2	1.85	0.58
1:C:131:THR:HG1	1:C:137:ALA:HB2	1.68	0.58
1:B:33:TRP:HE3	1:B:33:TRP:HA	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:391:VAL:HG12	1:C:395:ILE:HD12	1.86	0.58
1:D:70:ASP:CG	1:D:350:ARG:HH22	2.07	0.57
1:D:190:ASP:O	1:D:194:ALA:HB2	2.03	0.57
1:C:358:LEU:HD23	1:C:374:ILE:HG21	1.86	0.57
1:B:280:ASN:O	1:B:340:TRP:NE1	2.37	0.57
1:D:258:ALA:O	1:D:262:ARG:HG3	2.04	0.57
1:D:321:LEU:HG	1:D:325:ARG:NE	2.19	0.57
1:C:313:ARG:N	1:C:314:PRO:CD	2.67	0.57
1:D:118:SER:O	1:D:121:LEU:HD23	2.05	0.57
1:A:32:TRP:O	1:A:33:TRP:HE3	1.88	0.57
1:A:383:PHE:CE1	1:A:405:ASP:OD2	2.58	0.57
1:B:315:MET:HG3	1:B:316:TYR:CE1	2.40	0.57
1:B:354:MET:HE2	1:B:413:VAL:C	2.24	0.57
1:B:33:TRP:HA	1:B:33:TRP:CE3	2.40	0.57
1:C:180:ARG:HE	1:C:193:GLY:HA3	1.69	0.57
1:D:86:GLN:OE1	1:D:90:LYS:NZ	2.38	0.57
1:D:348:ALA:HA	1:D:351:ILE:HD12	1.86	0.57
1:C:151:PHE:CD1	1:C:151:PHE:N	2.73	0.57
1:D:92:LEU:HD13	1:D:325:ARG:NH1	2.20	0.57
1:A:293:MET:CE	1:C:33:TRP:CE2	2.88	0.56
1:D:70:ASP:OD2	1:D:415:SER:OG	2.22	0.56
1:A:140:ILE:HD11	1:A:315:MET:HE1	1.71	0.56
1:A:127:VAL:HG23	1:A:305:GLU:HG3	1.87	0.56
1:A:151:PHE:CD1	1:A:151:PHE:N	2.73	0.56
1:D:227:LYS:O	1:D:231:THR:HG23	2.05	0.56
1:A:401:TYR:CD1	1:A:401:TYR:N	2.73	0.56
1:A:118:SER:O	1:A:122:LYS:HG3	2.05	0.56
1:A:398:PHE:O	1:A:420:TYR:OH	2.22	0.56
1:B:355:ARG:HH11	1:B:355:ARG:CG	2.16	0.56
1:C:180:ARG:NH1	1:C:193:GLY:HA2	2.08	0.56
1:D:321:LEU:HD21	1:D:325:ARG:HH21	1.69	0.56
1:B:32:TRP:HH2	1:D:204:GLN:HA	1.71	0.56
1:B:47:VAL:HG13	1:B:401:TYR:HB3	1.86	0.56
1:D:245:ALA:HA	1:D:276:SER:HB3	1.88	0.56
1:D:342:GLN:O	1:D:345:LYS:HB3	2.05	0.56
1:D:159:LYS:HG3	1:D:179:TYR:O	2.06	0.56
1:A:186:THR:O	1:A:187:CYS:HB2	2.05	0.55
1:A:293:MET:HE1	1:C:33:TRP:NE1	2.17	0.55
1:D:265:ILE:HG13	1:D:266:GLU:N	2.22	0.55
1:A:139:ARG:HD3	1:C:315:MET:HA	1.88	0.55
1:B:249:PHE:HB2	1:B:280:ASN:HB3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:74:PRO:HB3	1:C:95:GLU:OE2	2.06	0.55
1:A:279:LYS:HD2	1:A:284:TYR:CE1	2.37	0.55
1:B:137:ALA:CB	1:B:274:CYS:HB3	2.36	0.55
1:D:31:SER:OG	1:D:34:THR:HG23	2.06	0.55
1:D:271:VAL:O	1:D:294:VAL:HG13	2.06	0.55
1:A:345:LYS:O	1:A:349:ASP:HB2	2.06	0.55
1:C:223:PRO:O	1:C:226:TRP:HB2	2.07	0.55
1:D:120:VAL:HG22	1:D:125:ARG:HE	1.70	0.55
1:C:199:SER:O	1:C:236:ARG:NH1	2.39	0.55
1:D:271:VAL:N	1:D:294:VAL:HG22	2.22	0.55
1:A:302:LYS:HG2	1:C:38:MET:HE1	1.88	0.55
1:D:362:LEU:HD13	1:D:371:TRP:CD2	2.41	0.55
1:A:425:ILE:O	1:A:429:THR:HG23	2.07	0.55
1:B:140:ILE:O	1:B:143:SER:OG	2.24	0.55
1:D:67:TYR:CE2	1:D:347:MET:HB3	2.42	0.55
1:D:414:THR:N	1:D:417:ASN:OD1	2.25	0.55
1:A:310:ILE:O	1:A:314:PRO:HD3	2.07	0.54
1:D:354:MET:HE3	1:D:354:MET:CA	2.33	0.54
1:D:58:LYS:HE2	1:D:420:TYR:CD2	2.43	0.54
1:A:236:ARG:HB2	1:A:238:LEU:HG	1.88	0.54
1:A:430:LYS:O	1:A:430:LYS:HG2	2.06	0.54
1:C:360:SER:O	1:C:363:LYS:HG2	2.06	0.54
1:A:82:LYS:HE2	1:A:339:GLN:HE22	1.71	0.54
1:A:191:PHE:O	1:A:195:VAL:HG23	2.07	0.54
1:C:402:MET:HB2	1:C:407:ARG:O	2.07	0.54
1:D:354:MET:CE	1:D:354:MET:CA	2.85	0.54
1:D:62:LEU:N	1:D:401:TYR:O	2.31	0.54
1:A:398:PHE:O	1:A:420:TYR:CE1	2.61	0.54
1:D:180:ARG:HG3	1:D:197:ASP:OD1	2.06	0.54
1:A:245:ALA:HA	1:A:276:SER:HB3	1.89	0.54
1:A:302:LYS:HG2	1:C:38:MET:HE3	1.90	0.54
1:B:34:THR:HA	1:D:303:ARG:HH22	1.72	0.54
1:A:43:PRO:O	1:A:47:VAL:HG23	2.07	0.54
1:A:280:ASN:OD1	1:A:281:MET:N	2.40	0.54
1:B:327:ALA:O	1:B:331:LEU:HG	2.08	0.54
1:D:222:ARG:HH12	1:D:378:ILE:HD11	1.73	0.54
1:D:386:LEU:HD21	1:D:425:ILE:HG23	1.88	0.54
1:A:93:ASP:OD1	1:A:93:ASP:N	2.29	0.54
1:D:270:ASN:OD1	1:D:296:LYS:HE2	2.08	0.53
1:A:56:ASN:ND2	1:A:399:SER:OG	2.24	0.53
1:B:83:ALA:O	1:B:87:ILE:HD12	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:354:MET:CE	1:B:413:VAL:O	2.52	0.53
1:D:310:ILE:O	1:D:314:PRO:CD	2.55	0.53
1:C:299:ASP:O	1:C:302:LYS:N	2.41	0.53
1:D:267:GLN:O	1:D:267:GLN:HG3	2.08	0.53
1:B:191:PHE:O	1:B:195:VAL:HG23	2.08	0.53
1:A:154:ASP:HA	1:A:175:GLN:HB2	1.91	0.53
1:B:354:MET:CE	1:B:413:VAL:C	2.77	0.53
1:C:83:ALA:O	1:C:87:ILE:HG23	2.08	0.53
1:B:92:LEU:HA	1:D:81:ARG:HH22	1.70	0.53
1:D:308:LEU:O	1:D:312:ILE:HG13	2.09	0.53
1:C:51:PHE:HD1	1:C:401:TYR:CD2	2.27	0.53
1:D:78:PRO:O	1:D:82:LYS:HG2	2.09	0.53
1:A:87:ILE:HG23	1:A:92:LEU:CD1	2.38	0.52
1:A:54:ASP:OD2	1:A:56:ASN:HB3	2.09	0.52
1:A:320:PRO:HA	1:C:287:ARG:HG2	1.91	0.52
1:A:125:ARG:HD2	1:A:295:CYS:O	2.09	0.52
1:A:146:GLN:O	1:A:153:ARG:NH2	2.42	0.52
1:B:354:MET:HE2	1:B:414:THR:HA	1.92	0.52
1:D:414:THR:CG2	1:D:415:SER:N	2.73	0.52
1:A:299:ASP:O	1:A:302:LYS:HB3	2.09	0.52
1:C:400:ILE:HD13	1:C:421:LEU:HD12	1.92	0.52
1:D:208:LEU:HD12	1:D:209:LEU:N	2.25	0.52
1:A:130:GLN:NE2	1:A:319:PRO:HG2	2.25	0.52
1:B:233:VAL:HG13	1:B:238:LEU:HB2	1.91	0.52
1:C:180:ARG:HH11	1:C:193:GLY:CA	2.10	0.52
1:C:349:ASP:O	1:C:353:GLY:N	2.42	0.52
1:A:132:ILE:HD12	1:C:132:ILE:CD1	2.39	0.52
1:A:413:VAL:HG21	1:A:421:LEU:HD22	1.91	0.52
1:C:157:LEU:HD11	1:C:176:LEU:HB3	1.91	0.52
1:C:273:LEU:HB3	1:C:292:THR:HB	1.91	0.52
1:D:262:ARG:HA	1:D:265:ILE:HG12	1.91	0.52
1:A:146:GLN:O	1:A:153:ARG:NH1	2.41	0.51
1:A:246:TYR:HE1	1:A:279:LYS:HE2	1.74	0.51
1:B:137:ALA:HB3	1:B:274:CYS:HB3	1.91	0.51
1:C:355:ARG:NH2	1:C:382:CYS:HB2	2.22	0.51
1:A:413:VAL:HG21	1:A:421:LEU:CD2	2.40	0.51
1:B:76:VAL:HG11	1:B:81:ARG:HH21	1.74	0.51
1:A:370:ASN:OD1	1:A:372:GLN:HG2	2.11	0.51
1:D:240:ALA:HB3	1:D:271:VAL:HG12	1.93	0.51
1:A:394:LEU:HD23	1:A:424:ALA:CB	2.36	0.51
1:B:391:VAL:HG22	1:B:402:MET:HE3	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:68:ARG:O	1:C:350:ARG:NH1	2.44	0.51
1:D:149:PHE:HB3	1:D:153:ARG:HH21	1.76	0.51
1:A:101:GLY:HA3	1:A:130:GLN:HB3	1.92	0.51
1:A:105:PHE:CZ	1:A:288:VAL:HG12	2.46	0.51
1:A:244:MET:HE2	1:A:273:LEU:HD21	1.92	0.51
1:D:155:VAL:HG22	1:D:206:VAL:HG21	1.92	0.51
1:D:246:TYR:HE1	1:D:279:LYS:HG2	1.75	0.51
1:A:135:THR:CG2	1:C:317:SER:OG	2.51	0.51
1:C:81:ARG:NH1	1:C:84:GLU:OE1	2.44	0.51
1:A:384:THR:HG23	1:A:406:GLY:O	2.10	0.51
1:D:321:LEU:HD11	1:D:325:ARG:HE	1.76	0.51
1:A:194:ALA:O	1:A:198:ILE:HG13	2.11	0.51
1:A:314:PRO:HG3	1:C:167:PRO:HB2	1.93	0.51
1:B:189:PHE:CE2	1:B:191:PHE:HD1	2.28	0.51
1:C:107:LYS:O	1:C:111:GLU:HG3	2.10	0.51
1:A:33:TRP:CH2	1:C:149:PHE:CE1	2.99	0.50
1:C:370:ASN:OD1	1:C:372:GLN:HG3	2.11	0.50
1:C:391:VAL:HG12	1:C:395:ILE:HD11	1.93	0.50
1:D:133:SER:OG	1:D:134:GLY:N	2.42	0.50
1:D:206:VAL:HG12	1:D:239:PHE:HB3	1.91	0.50
1:C:51:PHE:HD1	1:C:401:TYR:HD2	1.59	0.50
1:C:239:PHE:HZ	1:C:272:CYS:HB3	1.75	0.50
1:C:394:LEU:CD2	1:C:424:ALA:HB1	2.40	0.50
1:D:145:LEU:O	1:D:149:PHE:HB2	2.12	0.50
1:A:45:LEU:C	1:A:45:LEU:HD23	2.32	0.50
1:A:328:ALA:O	1:A:332:ASN:HB2	2.12	0.50
1:C:115:GLY:C	1:C:117:ASN:N	2.65	0.50
1:A:68:ARG:HB2	1:A:411:ALA:O	2.12	0.50
1:A:118:SER:HB3	1:A:121:LEU:HD12	1.94	0.50
1:C:160:PRO:O	1:C:214:HIS:CE1	2.65	0.50
1:D:149:PHE:CZ	1:D:151:PHE:CZ	2.95	0.50
1:A:277:TYR:HB2	1:A:288:VAL:HB	1.94	0.50
1:A:135:THR:HG22	1:A:168:ILE:HD11	1.94	0.50
1:A:414:THR:HG22	1:A:416:SER:H	1.77	0.50
1:C:82:LYS:HA	1:D:389:GLU:OE2	2.11	0.50
1:C:354:MET:HE2	1:C:414:THR:N	2.26	0.50
1:A:355:ARG:HH22	1:A:377:GLN:HB2	1.73	0.49
1:A:383:PHE:HD1	1:A:407:ARG:HB2	1.77	0.49
1:A:272:CYS:HB3	1:A:293:MET:SD	2.51	0.49
1:C:348:ALA:O	1:C:352:ILE:HD12	2.11	0.49
1:C:392:GLU:O	1:C:396:LYS:HG2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:135:THR:HG23	1:B:162:TRP:CH2	2.44	0.49
1:B:264:PHE:O	1:B:269:ILE:HG12	2.12	0.49
1:D:191:PHE:CD1	1:D:191:PHE:C	2.85	0.49
1:D:222:ARG:HH12	1:D:378:ILE:CD1	2.24	0.49
1:D:180:ARG:CG	1:D:197:ASP:OD1	2.60	0.49
1:D:295:CYS:HB3	1:D:300:GLU:HG2	1.95	0.49
1:B:199:SER:O	1:B:236:ARG:NE	2.46	0.49
1:B:295:CYS:HB3	1:B:300:GLU:HB3	1.95	0.49
1:A:32:TRP:C	1:A:33:TRP:CE3	2.85	0.49
1:C:349:ASP:HA	1:C:352:ILE:CD1	2.27	0.49
1:A:54:ASP:OD2	1:A:56:ASN:N	2.43	0.49
1:B:33:TRP:HB2	1:D:300:GLU:OE1	2.12	0.49
1:C:229:ILE:O	1:C:232:VAL:HG23	2.12	0.49
1:A:182:TYR:HD1	1:A:219:VAL:HG21	1.77	0.49
1:C:278:ALA:HB1	1:C:284:TYR:HA	1.95	0.49
1:D:106:CYS:HB3	1:D:128:THR:OG1	2.12	0.49
1:A:67:TYR:HE2	1:A:75:TYR:CD2	2.31	0.49
1:D:97:LEU:HD21	1:D:102:LEU:HB2	1.94	0.49
1:A:121:LEU:HA	1:A:126:PHE:HE2	1.78	0.49
1:A:132:ILE:O	1:A:136:GLY:HA3	2.12	0.49
1:A:56:ASN:OD1	1:A:57:SER:N	2.46	0.48
1:A:102:LEU:HB3	1:A:105:PHE:CB	2.42	0.48
1:A:398:PHE:HB3	1:A:420:TYR:CE1	2.48	0.48
1:B:312:ILE:O	1:B:316:TYR:O	2.31	0.48
1:C:394:LEU:HG	1:C:428:VAL:HG11	1.95	0.48
1:A:355:ARG:HH11	1:A:355:ARG:HG2	1.73	0.48
1:A:143:SER:HB3	1:A:311:LEU:HD22	1.95	0.48
1:A:180:ARG:O	1:A:194:ALA:CB	2.58	0.48
1:C:222:ARG:O	1:C:225:GLN:HB2	2.13	0.48
1:A:54:ASP:OD2	1:A:56:ASN:CB	2.61	0.48
1:A:354:MET:HE2	1:A:413:VAL:O	2.13	0.48
1:C:119:GLU:O	1:C:120:VAL:C	2.48	0.48
1:C:144:PHE:HA	1:C:311:LEU:HD11	1.95	0.48
1:C:166:THR:HA	1:C:176:LEU:HD22	1.95	0.48
1:D:42:ASP:HB3	1:D:45:LEU:HB3	1.94	0.48
1:A:33:TRP:CE3	1:A:33:TRP:HA	2.49	0.48
1:C:425:ILE:O	1:C:429:THR:OG1	2.27	0.48
1:D:107:LYS:O	1:D:111:GLU:HG3	2.14	0.48
1:D:271:VAL:H	1:D:294:VAL:HG22	1.79	0.48
1:A:94:LYS:NZ	1:C:286:GLU:OE2	2.46	0.48
1:A:349:ASP:OD1	1:A:352:ILE:HD12	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:287:ARG:HG2	1:D:320:PRO:HA	1.96	0.48
1:A:176:LEU:C	1:A:177:GLN:HG2	2.33	0.48
1:A:398:PHE:O	1:A:420:TYR:HE1	1.95	0.48
1:D:208:LEU:HD12	1:D:209:LEU:H	1.77	0.48
1:A:168:ILE:O	1:A:172:ALA:HB2	2.13	0.48
1:A:383:PHE:CZ	1:A:405:ASP:OD2	2.67	0.48
1:B:359:VAL:HG21	1:B:375:THR:HG23	1.94	0.48
1:C:68:ARG:O	1:C:350:ARG:CZ	2.61	0.48
1:C:153:ARG:NH2	1:C:175:GLN:OE1	2.47	0.48
1:C:354:MET:HE2	1:C:413:VAL:C	2.34	0.48
1:D:127:VAL:HG21	1:D:305:GLU:HB2	1.96	0.48
1:A:77:LEU:O	1:A:80:VAL:HB	2.14	0.48
1:A:82:LYS:HE2	1:A:339:GLN:OE1	2.13	0.48
1:D:183:ASP:HB2	1:D:190:ASP:HB2	1.95	0.48
1:D:359:VAL:HG21	1:D:375:THR:HG23	1.95	0.48
1:A:159:LYS:HA	1:A:160:PRO:HA	1.73	0.48
1:D:70:ASP:CG	1:D:350:ARG:NH2	2.66	0.48
1:D:321:LEU:CD1	1:D:325:ARG:HE	2.27	0.48
1:D:389:GLU:O	1:D:393:ARG:CG	2.38	0.47
1:A:310:ILE:O	1:A:314:PRO:CD	2.62	0.47
1:B:149:PHE:O	1:B:153:ARG:NH2	2.46	0.47
1:C:51:PHE:CE2	1:C:61:ASN:HB2	2.49	0.47
1:C:350:ARG:HG2	1:C:350:ARG:NH2	2.29	0.47
1:D:179:TYR:CA	1:D:197:ASP:OD2	2.56	0.47
1:D:330:ILE:HA	1:D:336:LEU:HD13	1.95	0.47
1:B:159:LYS:HA	1:B:160:PRO:HA	1.76	0.47
1:C:139:ARG:CB	1:C:168:ILE:CG2	2.88	0.47
1:A:33:TRP:HE3	1:A:33:TRP:HA	1.79	0.47
1:A:414:THR:HG22	1:A:415:SER:N	2.29	0.47
1:B:147:ARG:NH2	1:D:171:ASP:OD1	2.48	0.47
1:B:182:TYR:CE2	1:B:184:PRO:HA	2.50	0.47
1:B:225:GLN:O	1:B:229:ILE:HG12	2.15	0.47
1:D:135:THR:HG22	1:D:168:ILE:HD11	1.95	0.47
1:D:164:ASN:O	1:D:168:ILE:HG13	2.15	0.47
1:B:203:GLU:HG2	1:B:236:ARG:O	2.14	0.47
1:C:114:LEU:HB2	1:C:121:LEU:HD11	1.95	0.47
1:A:298:ALA:O	1:A:301:ALA:HB3	2.15	0.47
1:D:190:ASP:O	1:D:194:ALA:CB	2.61	0.47
1:D:246:TYR:CE1	1:D:279:LYS:HG2	2.50	0.47
1:B:315:MET:HG3	1:B:316:TYR:CD1	2.49	0.47
1:B:316:TYR:CD1	1:B:316:TYR:N	2.81	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:101:GLY:HA3	1:D:130:GLN:HB3	1.96	0.47
1:D:160:PRO:O	1:D:214:HIS:CE1	2.68	0.47
1:D:394:LEU:HD22	1:D:400:ILE:HD12	1.97	0.47
1:A:180:ARG:NH2	1:A:197:ASP:OD1	2.40	0.47
1:C:224:GLU:OE2	1:C:224:GLU:N	2.40	0.47
1:C:279:LYS:HG3	1:C:284:TYR:HE1	1.80	0.47
1:D:122:LYS:HA	1:D:122:LYS:HD3	1.60	0.47
1:A:358:LEU:HD23	1:A:374:ILE:HG21	1.97	0.47
1:B:102:LEU:HB3	1:B:105:PHE:HB3	1.97	0.47
1:B:330:ILE:O	1:B:337:ARG:HB2	2.15	0.47
1:D:343:GLU:O	1:D:347:MET:HG3	2.14	0.47
1:A:142:ALA:O	1:A:145:LEU:HB2	2.15	0.46
1:A:158:PRO:CG	1:A:161:THR:HB	2.36	0.46
1:A:340:TRP:CE3	1:A:341:LEU:HG	2.50	0.46
1:B:78:PRO:O	1:B:82:LYS:HG2	2.14	0.46
1:B:133:SER:O	1:B:135:THR:N	2.41	0.46
1:D:191:PHE:CD2	1:D:225:GLN:HG2	2.43	0.46
1:A:394:LEU:HD21	1:A:424:ALA:CB	2.45	0.46
1:B:305:GLU:O	1:B:309:LYS:HG3	2.15	0.46
1:C:44:ILE:O	1:C:47:VAL:HG12	2.15	0.46
1:D:125:ARG:HB2	1:D:295:CYS:O	2.15	0.46
1:D:271:VAL:H	1:D:294:VAL:CG2	2.27	0.46
1:D:414:THR:CG2	1:D:415:SER:H	2.27	0.46
1:D:339:GLN:O	1:D:342:GLN:HG2	2.15	0.46
1:D:149:PHE:CE2	1:D:151:PHE:HE1	2.14	0.46
1:B:149:PHE:HE2	1:B:152:SER:HB3	1.79	0.46
1:B:158:PRO:CG	1:B:161:THR:HB	2.36	0.46
1:B:171:ASP:CG	1:D:147:ARG:HH22	2.18	0.46
1:B:247:GLN:O	1:B:280:ASN:ND2	2.49	0.46
1:C:121:LEU:HA	1:C:126:PHE:CE1	2.51	0.46
1:C:225:GLN:O	1:C:229:ILE:HG12	2.16	0.46
1:D:205:SER:O	1:D:238:LEU:HB3	2.15	0.46
1:A:33:TRP:CZ3	1:C:149:PHE:CE1	3.01	0.46
1:A:191:PHE:CE1	1:A:195:VAL:CG2	2.98	0.46
1:B:87:ILE:O	1:B:87:ILE:HG22	2.16	0.46
1:C:132:ILE:O	1:C:136:GLY:HA3	2.16	0.46
1:D:115:GLY:HA3	1:D:262:ARG:HH12	1.81	0.46
1:D:155:VAL:HG22	1:D:206:VAL:CG2	2.46	0.46
1:D:347:MET:O	1:D:350:ARG:HB3	2.16	0.46
1:B:56:ASN:HD22	1:B:399:SER:HB2	1.81	0.46
1:C:395:ILE:HG23	1:C:401:TYR:CE1	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:333:THR:CG2	1:D:336:LEU:CG	2.76	0.46
1:A:110:ALA:O	1:A:114:LEU:HG	2.16	0.45
1:A:386:LEU:HD21	1:A:429:THR:HG21	1.98	0.45
1:B:81:ARG:NH2	1:D:92:LEU:O	2.49	0.45
1:C:408:ILE:HG12	1:C:409:SER:N	2.30	0.45
1:D:257:ASP:N	1:D:257:ASP:OD1	2.49	0.45
1:B:111:GLU:HG2	1:B:121:LEU:HD13	1.99	0.45
1:A:82:LYS:HE2	1:A:339:GLN:NE2	2.31	0.45
1:B:298:ALA:O	1:B:301:ALA:HB3	2.16	0.45
1:D:265:ILE:HG22	1:D:271:VAL:HG22	1.98	0.45
1:C:166:THR:HB	1:C:167:PRO:CD	2.46	0.45
1:A:283:LEU:N	1:A:283:LEU:CD2	2.73	0.45
1:A:321:LEU:HD22	1:C:285:GLY:HA3	1.99	0.45
1:C:264:PHE:CD2	1:C:269:ILE:HD12	2.51	0.45
1:D:231:THR:HA	1:D:234:LYS:CB	2.47	0.45
1:A:127:VAL:HG21	1:A:305:GLU:HG3	1.99	0.45
1:A:354:MET:HE1	1:A:415:SER:N	2.29	0.45
1:C:54:ASP:OD2	1:C:399:SER:HB3	2.16	0.45
1:B:64:VAL:HG22	1:B:66:ALA:H	1.81	0.45
1:B:111:GLU:HA	1:B:121:LEU:HD11	1.97	0.45
1:B:315:MET:HE2	1:B:315:MET:H	1.80	0.45
1:C:134:GLY:O	1:C:138:LEU:HB2	2.16	0.45
1:A:214:HIS:CE1	1:A:217:THR:HG23	2.51	0.45
1:A:82:LYS:CE	1:A:339:GLN:NE2	2.78	0.45
1:A:400:ILE:C	1:A:401:TYR:CD1	2.91	0.45
1:C:299:ASP:O	1:C:302:LYS:HB2	2.16	0.45
1:D:60:MET:HE2	1:D:421:LEU:HD13	1.99	0.45
1:D:354:MET:HE3	1:D:357:GLN:HB2	1.99	0.45
1:A:92:LEU:O	1:C:81:ARG:NH2	2.49	0.45
1:A:399:SER:O	1:A:401:TYR:CE1	2.70	0.45
1:B:393:ARG:HG2	1:B:428:VAL:HG12	1.98	0.45
1:D:354:MET:HE3	1:D:354:MET:O	2.18	0.45
1:A:112:LEU:HD23	1:A:277:TYR:OH	2.17	0.44
1:A:204:GLN:HA	1:A:237:ASN:O	2.18	0.44
1:A:355:ARG:HH21	1:A:377:GLN:C	2.20	0.44
1:A:391:VAL:CG1	1:A:395:ILE:CD1	2.85	0.44
1:B:68:ARG:O	1:B:350:ARG:NH1	2.51	0.44
1:B:403:THR:OG1	1:B:405:ASP:OD1	2.20	0.44
1:C:354:MET:HE2	1:C:413:VAL:O	2.17	0.44
1:A:354:MET:CE	1:A:414:THR:HA	2.23	0.44
1:A:357:GLN:O	1:A:361:ASN:ND2	2.32	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:340:TRP:O	1:B:344:VAL:HG23	2.17	0.44
1:D:329:ALA:O	1:D:333:THR:CG2	2.65	0.44
1:D:329:ALA:O	1:D:333:THR:HB	2.16	0.44
1:D:334:PRO:HG2	1:D:335:ASP:N	2.32	0.44
1:C:311:LEU:C	1:C:314:PRO:HD2	2.38	0.44
1:D:78:PRO:HD2	1:D:343:GLU:OE1	2.17	0.44
1:D:92:LEU:HD13	1:D:325:ARG:HH11	1.79	0.44
1:B:125:ARG:NH1	1:B:295:CYS:O	2.47	0.44
1:C:161:THR:HG1	1:C:165:HIS:CE1	2.31	0.44
1:D:136:GLY:O	1:D:140:ILE:HG12	2.17	0.44
1:D:181:TYR:OH	1:D:221:PRO:HD3	2.18	0.44
1:A:284:TYR:HB2	1:C:94:LYS:O	2.17	0.44
1:C:115:GLY:O	1:C:117:ASN:N	2.50	0.44
1:C:165:HIS:O	1:C:169:PHE:HD2	2.00	0.44
1:A:70:ASP:O	1:A:414:THR:HG21	2.18	0.44
1:A:144:PHE:O	1:A:144:PHE:CD1	2.71	0.44
1:A:365:GLU:OE2	1:A:423:HIS:HD2	2.01	0.44
1:B:387:LYS:O	1:B:391:VAL:HG23	2.18	0.44
1:D:157:LEU:HG	1:D:176:LEU:HD22	1.99	0.44
1:A:399:SER:O	1:A:401:TYR:HE1	2.00	0.44
1:C:297:ASP:OD1	1:C:300:GLU:HB3	2.17	0.44
1:D:391:VAL:HG11	1:D:404:LYS:HA	1.99	0.44
1:C:248:GLY:N	1:C:257:ASP:OD2	2.50	0.43
1:C:316:TYR:O	1:C:316:TYR:CD1	2.70	0.43
1:D:121:LEU:HG	1:D:122:LYS:N	2.32	0.43
1:A:56:ASN:HB3	1:A:59:LYS:HB3	1.99	0.43
1:C:101:GLY:HA3	1:C:130:GLN:HB3	1.99	0.43
1:C:246:TYR:HE1	1:C:279:LYS:HD3	1.82	0.43
1:D:149:PHE:HE2	1:D:206:VAL:HG13	1.82	0.43
1:A:48:THR:CG2	1:A:61:ASN:HD21	2.26	0.43
1:A:402:MET:HE1	1:A:408:ILE:HG22	2.00	0.43
1:C:97:LEU:HD13	1:C:102:LEU:N	2.34	0.43
1:C:194:ALA:O	1:C:198:ILE:HG13	2.18	0.43
1:C:70:ASP:N	1:C:350:ARG:HE	2.17	0.43
1:C:313:ARG:N	1:C:314:PRO:HD2	2.33	0.43
1:D:334:PRO:HG2	1:D:335:ASP:H	1.84	0.43
1:A:215:ASN:HA	1:A:216:PRO:HA	1.62	0.43
1:A:343:GLU:O	1:A:347:MET:HG3	2.18	0.43
1:A:364:LYS:HE3	1:B:203:GLU:O	2.19	0.43
1:D:159:LYS:HA	1:D:160:PRO:HA	1.71	0.43
1:A:176:LEU:HD23	1:A:176:LEU:HA	1.73	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:281:MET:HB3	1:B:283:LEU:HG	2.00	0.43
1:D:280:ASN:OD1	1:D:281:MET:N	2.52	0.43
1:A:32:TRP:O	1:A:33:TRP:CE3	2.70	0.43
1:A:261:VAL:HG11	1:A:273:LEU:HD22	1.99	0.43
1:A:270:ASN:HB3	1:A:294:VAL:O	2.19	0.43
1:C:79:SER:OG	1:C:343:GLU:OE1	2.28	0.43
1:C:267:GLN:HG3	1:C:267:GLN:O	2.19	0.43
1:C:360:SER:O	1:C:364:LYS:N	2.48	0.43
1:A:130:GLN:NE2	1:A:319:PRO:CG	2.82	0.43
1:D:155:VAL:HB	1:D:176:LEU:HD23	2.01	0.43
1:A:308:LEU:O	1:A:312:ILE:HD12	2.19	0.43
1:B:191:PHE:O	1:B:195:VAL:CG2	2.67	0.43
1:B:354:MET:HE3	1:B:354:MET:HB3	1.88	0.43
1:C:134:GLY:O	1:C:138:LEU:N	2.47	0.43
1:C:400:ILE:HD13	1:C:421:LEU:CD1	2.49	0.43
1:D:361:ASN:HA	1:D:364:LYS:HB3	2.00	0.43
1:A:413:VAL:HG22	1:A:421:LEU:HD22	1.98	0.42
1:A:421:LEU:O	1:A:425:ILE:HG13	2.18	0.42
1:D:53:ARG:O	1:D:53:ARG:HG3	2.19	0.42
1:D:191:PHE:CD2	1:D:225:GLN:CG	3.02	0.42
1:D:288:VAL:HG22	1:D:323:GLY:HA3	2.00	0.42
1:A:355:ARG:HH11	1:A:410:VAL:HG21	1.85	0.42
1:B:361:ASN:HA	1:B:364:LYS:HB2	2.00	0.42
1:D:130:GLN:NE2	1:D:324:ALA:HB2	2.35	0.42
1:A:66:ALA:HB1	1:A:284:TYR:CE2	2.55	0.42
1:A:321:LEU:N	1:C:285:GLY:O	2.46	0.42
1:A:394:LEU:HA	1:A:398:PHE:HD2	1.83	0.42
1:B:158:PRO:HG2	1:B:161:THR:CB	2.39	0.42
1:B:160:PRO:HD2	1:B:182:TYR:HB3	2.00	0.42
1:B:296:LYS:HA	1:B:296:LYS:HD2	1.79	0.42
1:D:149:PHE:CE2	1:D:151:PHE:CD1	3.08	0.42
1:A:32:TRP:C	1:A:33:TRP:HE3	2.22	0.42
1:A:165:HIS:O	1:A:169:PHE:HD2	2.02	0.42
1:C:139:ARG:NH1	1:C:171:ASP:HB3	2.34	0.42
1:D:155:VAL:HB	1:D:176:LEU:CD2	2.49	0.42
1:A:283:LEU:HD12	1:A:288:VAL:CG2	2.44	0.42
1:B:382:CYS:HB3	1:B:408:ILE:HG13	2.01	0.42
1:B:395:ILE:HG23	1:B:401:TYR:CE1	2.54	0.42
1:B:402:MET:SD	1:B:408:ILE:HG22	2.60	0.42
1:C:231:THR:HA	1:C:234:LYS:HE3	2.01	0.42
1:C:396:LYS:HG2	1:C:396:LYS:H	1.71	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:56:ASN:HB3	1:D:59:LYS:HG3	2.01	0.42
1:A:60:MET:HE2	1:A:62:LEU:HD21	2.02	0.42
1:C:125:ARG:NH1	1:C:295:CYS:O	2.52	0.42
1:B:77:LEU:HD21	1:B:347:MET:HE1	2.02	0.42
1:B:97:LEU:HG	1:B:321:LEU:HD13	2.02	0.42
1:C:150:LYS:HA	1:C:150:LYS:HD3	1.81	0.42
1:C:313:ARG:HB2	1:C:314:PRO:HD3	2.01	0.42
1:C:393:ARG:HH11	1:C:393:ARG:HD3	1.71	0.42
1:C:414:THR:HG1	1:C:417:ASN:CG	2.22	0.42
1:A:365:GLU:O	1:A:426:HIS:NE2	2.53	0.42
1:C:102:LEU:H	1:C:130:GLN:NE2	2.17	0.42
1:C:120:VAL:HG21	1:C:265:ILE:HG21	2.01	0.42
1:C:239:PHE:CZ	1:C:272:CYS:HB3	2.53	0.42
1:C:343:GLU:O	1:C:347:MET:HB2	2.19	0.42
1:C:351:ILE:O	1:C:355:ARG:HG3	2.20	0.42
1:D:51:PHE:CE1	1:D:59:LYS:HB3	2.55	0.42
1:D:313:ARG:N	1:D:314:PRO:CD	2.83	0.42
1:D:388:PRO:O	1:D:392:GLU:HG2	2.19	0.42
1:A:220:ASP:HA	1:A:221:PRO:HD3	1.83	0.42
1:C:400:ILE:HG22	1:C:402:MET:HE3	2.02	0.42
1:A:78:PRO:HD2	1:A:343:GLU:CD	2.30	0.41
1:D:191:PHE:HD2	1:D:225:GLN:CG	2.27	0.41
1:D:205:SER:O	1:D:239:PHE:N	2.45	0.41
1:A:81:ARG:HD3	1:A:81:ARG:HA	1.79	0.41
1:B:81:ARG:NH1	1:D:91:ASN:OD1	2.53	0.41
1:B:93:ASP:CG	1:B:94:LYS:N	2.72	0.41
1:D:152:SER:OG	1:D:204:GLN:O	2.38	0.41
1:D:236:ARG:O	1:D:237:ASN:HB3	2.20	0.41
1:A:120:VAL:HG12	1:A:126:PHE:CD2	2.55	0.41
1:B:93:ASP:OD1	1:B:95:GLU:HG2	2.20	0.41
1:B:134:GLY:O	1:B:137:ALA:HB3	2.20	0.41
1:B:201:ILE:N	1:B:236:ARG:HH11	2.15	0.41
1:A:321:LEU:HB2	1:C:285:GLY:C	2.40	0.41
1:A:413:VAL:CG2	1:A:421:LEU:CD2	2.95	0.41
1:B:283:LEU:HD22	1:B:286:GLU:HG3	2.01	0.41
1:B:391:VAL:O	1:B:395:ILE:HD12	2.21	0.41
1:D:152:SER:OG	1:D:205:SER:HA	2.20	0.41
1:A:192:THR:OG1	1:A:193:GLY:N	2.54	0.41
1:A:414:THR:CG2	1:A:416:SER:OG	2.68	0.41
1:A:414:THR:HG22	1:A:416:SER:OG	2.20	0.41
1:B:244:MET:O	1:B:275:GLN:HA	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:199:SER:O	1:B:236:ARG:CZ	2.68	0.41
1:D:296:LYS:HD3	1:D:296:LYS:HA	1.94	0.41
1:A:198:ILE:HA	1:A:201:ILE:HG13	2.02	0.41
1:B:33:TRP:CZ3	1:D:149:PHE:CD1	3.03	0.41
1:C:135:THR:OG1	1:C:162:TRP:HH2	2.04	0.41
1:D:149:PHE:CE2	1:D:206:VAL:HG12	2.53	0.41
1:D:300:GLU:O	1:D:304:VAL:HG23	2.21	0.41
1:D:369:HIS:HB2	1:D:371:TRP:CE2	2.56	0.41
1:A:105:PHE:CZ	1:A:288:VAL:CG1	3.03	0.41
1:A:394:LEU:CD2	1:A:424:ALA:HB3	2.51	0.41
1:C:139:ARG:O	1:C:139:ARG:HG3	2.19	0.41
1:C:159:LYS:HA	1:C:160:PRO:HA	1.69	0.41
1:C:339:GLN:O	1:C:342:GLN:HG2	2.21	0.41
1:D:87:ILE:HG23	1:D:92:LEU:HD11	2.03	0.41
1:A:69:ASP:CG	1:A:71:ASN:H	2.23	0.41
1:A:133:SER:OG	1:A:134:GLY:N	2.54	0.41
1:A:236:ARG:HB3	1:A:238:LEU:HD21	2.03	0.41
1:A:293:MET:HE1	1:C:33:TRP:CZ2	2.55	0.41
1:C:203:GLU:HG3	1:C:236:ARG:HD3	2.03	0.41
1:C:360:SER:CA	1:C:363:LYS:HG2	2.47	0.41
1:C:400:ILE:HG22	1:C:402:MET:CE	2.51	0.41
1:D:120:VAL:HG13	1:D:125:ARG:HG3	2.03	0.41
1:A:214:HIS:ND1	1:A:217:THR:OG1	2.28	0.41
1:A:312:ILE:O	1:A:316:TYR:O	2.38	0.41
1:B:227:LYS:HD2	1:B:263:HIS:NE2	2.36	0.41
1:B:361:ASN:HA	1:B:364:LYS:HD2	2.03	0.41
1:C:87:ILE:HD12	1:C:325:ARG:HD3	2.03	0.41
1:C:161:THR:OG1	1:C:210:HIS:NE2	2.54	0.41
1:D:306:SER:O	1:D:310:ILE:HG13	2.21	0.41
1:A:144:PHE:CD1	1:A:144:PHE:C	2.95	0.40
1:C:180:ARG:CZ	1:C:197:ASP:OD1	2.69	0.40
1:C:345:LYS:HA	1:C:348:ALA:HB3	2.02	0.40
1:D:241:PHE:HA	1:D:272:CYS:SG	2.61	0.40
1:B:140:ILE:CD1	1:B:316:TYR:OH	2.69	0.40
1:D:234:LYS:HD3	1:D:267:GLN:HG3	2.04	0.40
1:A:120:VAL:HG12	1:A:126:PHE:HD2	1.84	0.40
1:B:134:GLY:O	1:B:138:LEU:HD12	2.21	0.40
1:B:213:ALA:N	1:B:220:ASP:OD2	2.52	0.40
1:C:86:GLN:O	1:C:90:LYS:HG3	2.21	0.40
1:C:139:ARG:HA	1:C:168:ILE:HG22	2.04	0.40
1:C:354:MET:CE	1:C:413:VAL:HG12	2.49	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:369:HIS:ND1	1:C:369:HIS:N	2.69	0.40
1:B:317:SER:OG	1:D:135:THR:CG2	2.65	0.40
1:B:354:MET:HE2	1:B:414:THR:CA	2.51	0.40
1:D:249:PHE:CZ	1:D:351:ILE:HD11	2.56	0.40
1:A:33:TRP:HH2	1:C:149:PHE:CE1	2.39	0.40
1:B:330:ILE:HG22	1:B:337:ARG:HA	2.04	0.40
1:D:311:LEU:C	1:D:314:PRO:HD2	2.42	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	399/407 (98%)	391 (98%)	7 (2%)	1 (0%)	41	74
1	B	399/407 (98%)	387 (97%)	10 (2%)	2 (0%)	29	66
1	C	399/407 (98%)	387 (97%)	10 (2%)	2 (0%)	29	66
1	D	399/407 (98%)	390 (98%)	9 (2%)	0	100	100
All	All	1596/1628 (98%)	1555 (97%)	36 (2%)	5 (0%)	41	74

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	116	GLU
1	B	281	MET
1	C	93	ASP
1	B	134	GLY
1	A	160	PRO

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	333/339 (98%)	290 (87%)	43 (13%)	4	17
1	B	333/339 (98%)	309 (93%)	24 (7%)	14	43
1	C	333/339 (98%)	295 (89%)	38 (11%)	5	22
1	D	333/339 (98%)	289 (87%)	44 (13%)	4	16
All	All	1332/1356 (98%)	1183 (89%)	149 (11%)	6	23

All (149) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	TRP
1	A	52	LYS
1	A	59	LYS
1	A	69	ASP
1	A	73	LYS
1	A	79	SER
1	A	91	ASN
1	A	93	ASP
1	A	104	GLU
1	A	114	LEU
1	A	116	GLU
1	A	129	VAL
1	A	135	THR
1	A	139	ARG
1	A	143	SER
1	A	150	LYS
1	A	151	PHE
1	A	153	ARG
1	A	168	ILE
1	A	185	LYS
1	A	223	PRO
1	A	227	LYS
1	A	234	LYS
1	A	241	PHE

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Mol	Chain	Res	Type
1	A	279	LYS
1	A	283	LEU
1	A	313	ARG
1	A	316	TYR
1	A	319	PRO
1	A	321	LEU
1	A	333	THR
1	A	339	GLN
1	A	345	LYS
1	A	347	MET
1	A	355	ARG
1	A	360	SER
1	A	368	THR
1	A	383	PHE
1	A	387	LYS
1	A	389	GLU
1	A	407	ARG
1	A	413	VAL
1	A	416	SER
1	B	33	TRP
1	B	135	THR
1	B	138	LEU
1	B	185	LYS
1	B	228	GLU
1	B	235	LYS
1	B	255	ASP
1	B	276	SER
1	B	293	MET
1	B	296	LYS
1	B	302	LYS
1	B	311	LEU
1	B	313	ARG
1	B	315	MET
1	B	316	TYR
1	B	318	ASN
1	B	330	ILE
1	B	333	THR
1	B	343	GLU
1	B	355	ARG
1	B	368	THR
1	B	383	PHE
1	B	399	SER

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Mol	Chain	Res	Type
1	B	416	SER
1	C	30	SER
1	C	69	ASP
1	C	79	SER
1	C	82	LYS
1	C	87	ILE
1	C	93	ASP
1	C	119	GLU
1	C	128	THR
1	C	133	SER
1	C	138	LEU
1	C	149	PHE
1	C	150	LYS
1	C	151	PHE
1	C	152	SER
1	C	157	LEU
1	C	176	LEU
1	C	197	ASP
1	C	199	SER
1	C	207	LEU
1	C	224	GLU
1	C	231	THR
1	C	232	VAL
1	C	251	SER
1	C	279	LYS
1	C	293	MET
1	C	299	ASP
1	C	333	THR
1	C	335	ASP
1	C	355	ARG
1	C	360	SER
1	C	367	SER
1	C	368	THR
1	C	369	HIS
1	C	383	PHE
1	C	408	ILE
1	C	416	SER
1	C	418	VAL
1	C	430	LYS
1	D	30	SER
1	D	31	SER
1	D	38	MET

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Mol	Chain	Res	Type
1	D	91	ASN
1	D	92	LEU
1	D	97	LEU
1	D	112	LEU
1	D	121	LEU
1	D	122	LYS
1	D	126	PHE
1	D	129	VAL
1	D	135	THR
1	D	146	GLN
1	D	149	PHE
1	D	152	SER
1	D	161	THR
1	D	170	ARG
1	D	180	ARG
1	D	197	ASP
1	D	203	GLU
1	D	222	ARG
1	D	235	LYS
1	D	236	ARG
1	D	238	LEU
1	D	244	MET
1	D	257	ASP
1	D	302	LYS
1	D	313	ARG
1	D	317	SER
1	D	322	ASN
1	D	330	ILE
1	D	334	PRO
1	D	337	ARG
1	D	354	MET
1	D	355	ARG
1	D	364	LYS
1	D	383	PHE
1	D	396	LYS
1	D	402	MET
1	D	403	THR
1	D	407	ARG
1	D	415	SER
1	D	418	VAL
1	D	430	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13)

such sidechains are listed below:

Mol	Chain	Res	Type
1	A	177	GLN
1	A	270	ASN
1	A	275	GLN
1	A	318	ASN
1	A	322	ASN
1	A	339	GLN
1	A	423	HIS
1	B	270	ASN
1	B	280	ASN
1	B	322	ASN
1	C	86	GLN
1	C	130	GLN
1	C	322	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

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	401/407 (98%)	0.17	9 (2%)	62	42	38, 44, 58, 65	0
1	B	401/407 (98%)	0.50	20 (4%)	28	17	41, 49, 64, 77	0
1	C	401/407 (98%)	0.51	19 (4%)	31	18	41, 51, 58, 65	0
1	D	401/407 (98%)	0.78	45 (11%)	5	3	45, 62, 70, 75	0
All	All	1604/1628 (98%)	0.49	93 (5%)	23	12	38, 51, 68, 77	0

All (93) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	31	SER	6.9
1	A	31	SER	5.8
1	B	32	TRP	5.7
1	B	33	TRP	5.1
1	B	34	THR	4.4
1	D	351	ILE	4.2
1	D	234	LYS	3.9
1	B	30	SER	3.8
1	D	82	LYS	3.7
1	D	58	LYS	3.6
1	D	400	ILE	3.6
1	D	369	HIS	3.6
1	D	204	GLN	3.5
1	D	352	ILE	3.5
1	D	242	PHE	3.5
1	D	342	GLN	3.4
1	D	75	TYR	3.4
1	C	271	VAL	3.3
1	B	41	PRO	3.3
1	A	335	ASP	3.3
1	D	383	PHE	3.3

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Mol	Chain	Res	Type	RSRZ
1	D	267	GLN	3.3
1	D	387	LYS	3.2
1	D	405	ASP	3.2
1	D	186	THR	3.1
1	C	378	ILE	3.1
1	A	184	PRO	3.1
1	D	263	HIS	3.1
1	C	375	THR	3.0
1	D	279	LYS	3.0
1	D	67	TYR	3.0
1	A	44	ILE	3.0
1	D	349	ASP	2.8
1	D	217	THR	2.8
1	D	115	GLY	2.8
1	C	387	LYS	2.8
1	D	278	ALA	2.7
1	C	182	TYR	2.7
1	B	92	LEU	2.7
1	D	86	GLN	2.7
1	C	361	ASN	2.6
1	D	377	GLN	2.6
1	D	280	ASN	2.6
1	D	396	LYS	2.6
1	D	184	PRO	2.5
1	B	342	GLN	2.5
1	D	249	PHE	2.5
1	B	362	LEU	2.5
1	D	390	GLN	2.4
1	B	84	GLU	2.4
1	D	378	ILE	2.4
1	B	410	VAL	2.4
1	C	410	VAL	2.4
1	D	185	LYS	2.4
1	A	30	SER	2.4
1	C	351	ILE	2.4
1	D	83	ALA	2.3
1	C	116	GLU	2.3
1	C	78	PRO	2.3
1	C	285	GLY	2.3
1	D	259	TRP	2.3
1	D	429	THR	2.3
1	A	277	TYR	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	65	GLY	2.3
1	D	253	ASP	2.2
1	B	116	GLU	2.2
1	C	382	CYS	2.2
1	B	340	TRP	2.2
1	B	277	TYR	2.2
1	B	37	GLU	2.2
1	D	183	ASP	2.2
1	C	249	PHE	2.2
1	C	315	MET	2.2
1	A	33	TRP	2.2
1	B	335	ASP	2.2
1	D	199	SER	2.1
1	C	289	GLY	2.1
1	A	122	LYS	2.1
1	B	193	GLY	2.1
1	D	347	MET	2.1
1	D	389	GLU	2.1
1	D	114	LEU	2.1
1	B	76	VAL	2.1
1	C	122	LYS	2.1
1	C	408	ILE	2.1
1	D	243	ASP	2.0
1	D	192	THR	2.0
1	C	114	LEU	2.0
1	D	57	SER	2.0
1	C	195	VAL	2.0
1	B	375	THR	2.0
1	A	251	SER	2.0
1	D	222	ARG	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.