WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Feb 15, 2024 – 01:11 AM EST

PDB ID	:	3O6B
Title	:	A Dual E3 Mechanism for Rub1 Ligation to Cdc53: Dcn1(P)-Cdc53(WHB) low resolution
Authors	:	Scott, D.C.; Monda, J.K.; Grace, C.R.R.; Duda, D.M.; Kriwacki, R.W.; Kurz, T.; Schulman, B.A.
Deposited on	:	2010-07-28
Resolution	:	3.10 Å(reported)

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

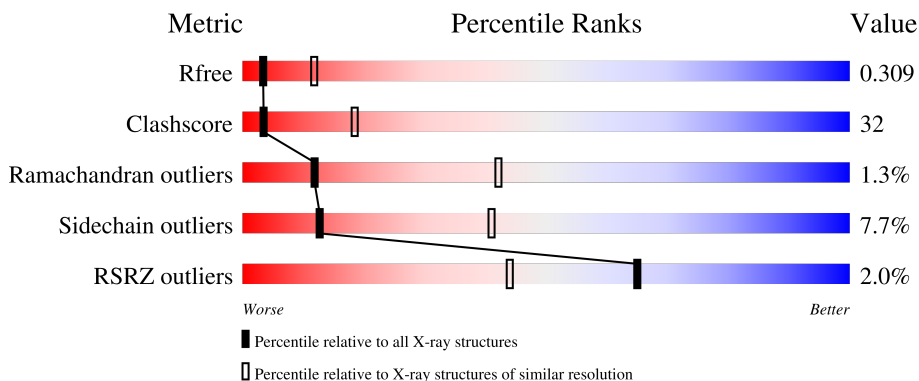|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation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

1　Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.10 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		0.309
Clashscore		32
Ramachandran outliers		1.3%
Sidechain outliers		7.7%
RSRZ outliers		2.0%

Worse *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
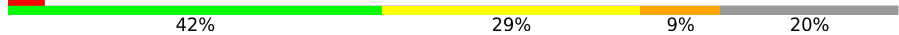
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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	202	51% 42% · ·
1	C	202	64% 31% · ·
1	E	202	40% 47% 10% ·
1	G	202	% 61% 33% · 5%
1	I	202	8% 35% 38% 5% 22%

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Mol	Chain	Length	Quality of chain
2	B	76	42% 42% 8% 8%
2	D	76	46% 36% 7% · 11%
2	F	76	7% 39% 36% 14% 11%
2	H	76	53% 33% · 11%
2	J	76	4% 42% 29% 9% 20%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 10662 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 Defective in cullin neddylation protein 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	195	Total	C	N	O	S	0	0	0
			1664	1090	256	310	8			
1	C	198	Total	C	N	O	S	0	0	0
			1689	1107	259	315	8			
1	E	195	Total	C	N	O	S	0	0	0
			1667	1094	255	310	8			
1	G	192	Total	C	N	O	S	0	0	0
			1639	1074	251	306	8			
1	I	157	Total	C	N	O	S	0	0	0
			1348	888	208	246	6			

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	68	GLY	-	expression tag	UNP Q12395
A	69	SER	-	expression tag	UNP Q12395
C	68	GLY	-	expression tag	UNP Q12395
C	69	SER	-	expression tag	UNP Q12395
E	68	GLY	-	expression tag	UNP Q12395
E	69	SER	-	expression tag	UNP Q12395
G	68	GLY	-	expression tag	UNP Q12395
G	69	SER	-	expression tag	UNP Q12395
I	68	GLY	-	expression tag	UNP Q12395
I	69	SER	-	expression tag	UNP Q12395

- Molecule 2 is a protein called Cell division control protein 53.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	70	Total	C	N	O	S	0	0	0
			559	350	105	100	4			
2	D	68	Total	C	N	O	S	0	0	0
			543	341	99	99	4			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	68	Total	C	N	O	S	0	0	0
			540	339	97	100	4			
2	H	68	Total	C	N	O	S	0	0	0
			539	339	99	97	4			
2	J	61	Total	C	N	O	S	0	0	0
			474	298	84	88	4			

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	740	GLY	-	expression tag	UNP Q12018
B	741	SER	-	expression tag	UNP Q12018
D	740	GLY	-	expression tag	UNP Q12018
D	741	SER	-	expression tag	UNP Q12018
F	740	GLY	-	expression tag	UNP Q12018
F	741	SER	-	expression tag	UNP Q12018
H	740	GLY	-	expression tag	UNP Q12018
H	741	SER	-	expression tag	UNP Q12018
J	740	GLY	-	expression tag	UNP Q12018
J	741	SER	-	expression tag	UNP Q12018

3 Residue-property plots ⓘ

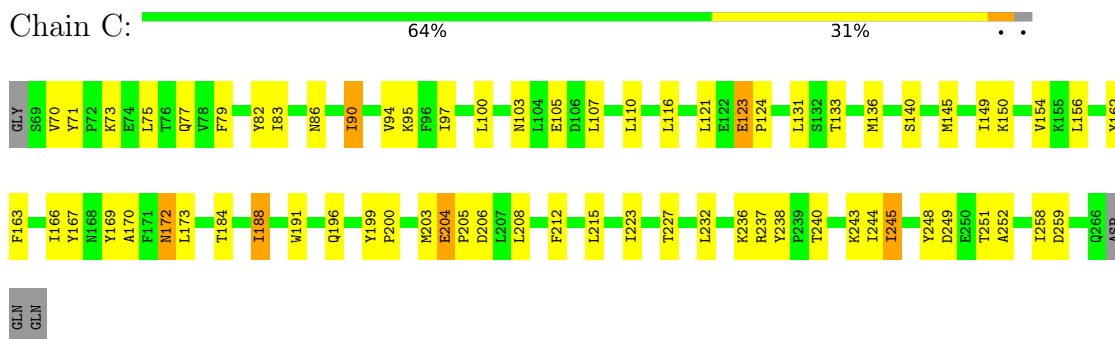These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Defective in cullin neddylation protein 1
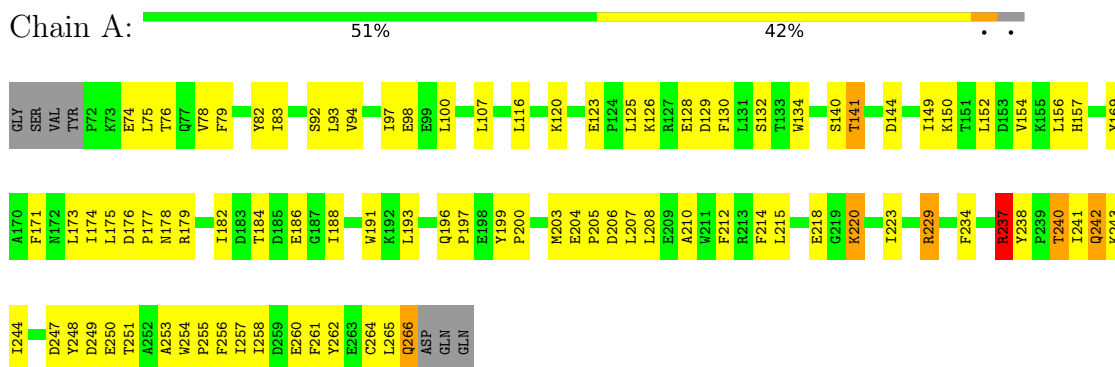
Chain A:

• Molecule 1: Defective in cullin neddylation protein 1
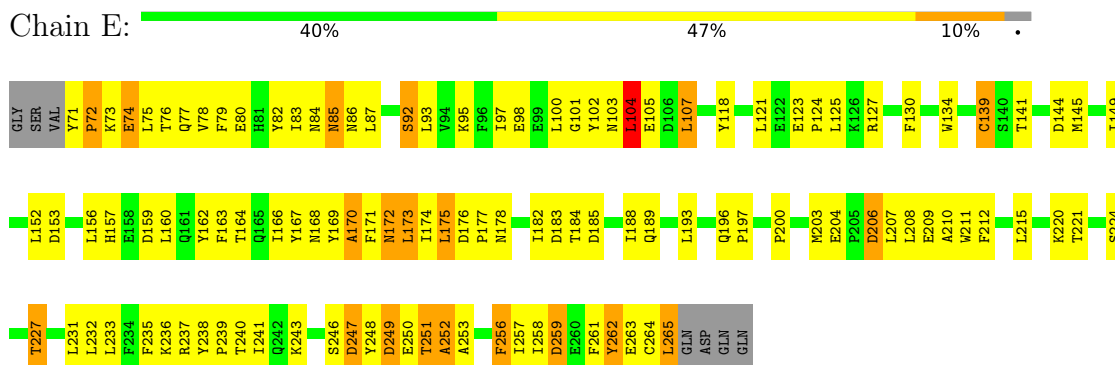
Chain C:

• Molecule 1: Defective in cullin neddylation protein 1

Chain E:

• Molecule 1: Defective in cullin neddylation protein 1

Chain G:

• Molecule 1: Defective in cullin neddylation protein 1

Chain I:

• Molecule 2: Cell division control protein 53

Chain B:

• Molecule 2: Cell division control protein 53

Chain D:

• Molecule 2: Cell division control protein 53

Chain F:

GLY SER GLU LEU ASN T745 E746 R747 Q748 I749 F750 L751 E752 A753 C754 I755 V756 R757 I758 M759 K760 A761 K762 R763 N764 L765 P766 T769 L770 V771 N772 E773 C774 I775 A776 Q777 S778 HIS GLN ARG F782 N783 A784 K785 V786 S787 M788 V789 K790 R791 D794 S795 Q798 K799 G800 D807

G808 E809 S810 A815

• Molecule 2: Cell division control protein 53

Chain H: 53% 33% • 11%

GLY SER GLU LEU ASN THR GLU ARG Q748 I749 F750 L751 E752 I755 V756 M759 K760 A761 K762 R763 N764 L765 L770 V771 S778 H779 Q780 R781 F782 N783 V789 K790 I793 I797 L802 Q803 D807 A812 Y813 L814 A815

• Molecule 2: Cell division control protein 53

Chain J: 4% 42% 29% 9% 20%

GLY SER GLU LEU ASN THR E746 R747 Q748 I749 F750 L751 E752 V756 M759 K760 A761 LYS ARG ASN L765 P766 H767 T768 T769 N772 E773 C774 I775 A776 H779 GLN ARG PHE ASN ALA LYS V786 V789 K790 R791 A792 I793 D794 S795 Q798 L802 Q803 R804 D807 G808

Y811 L814 A815
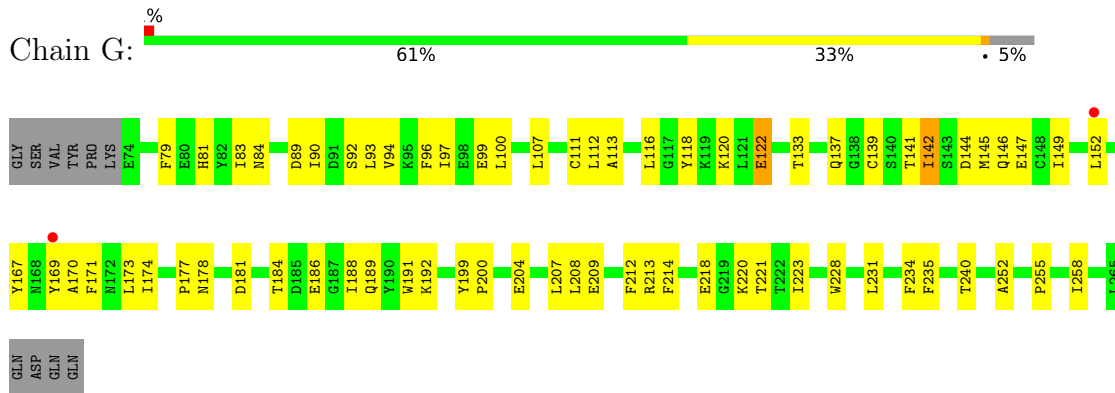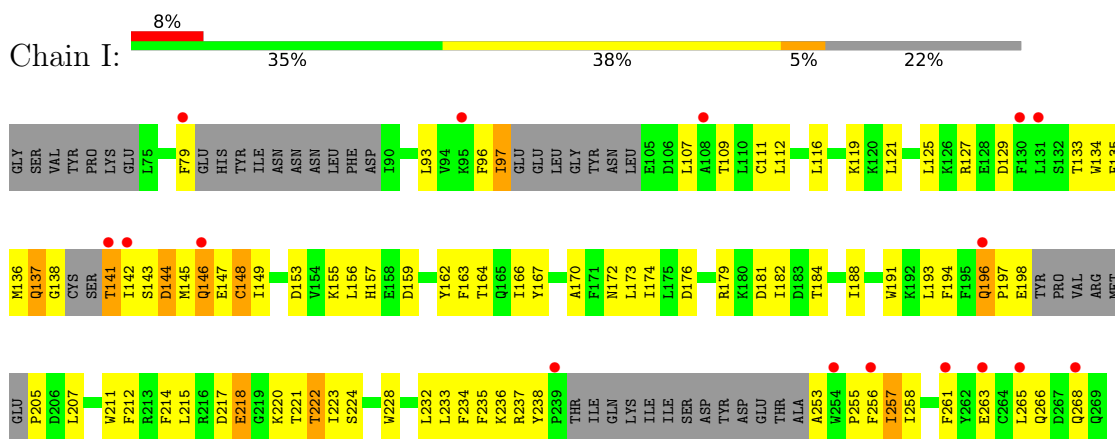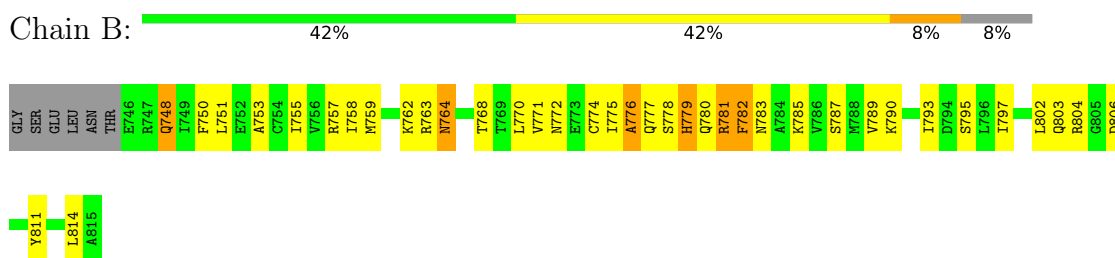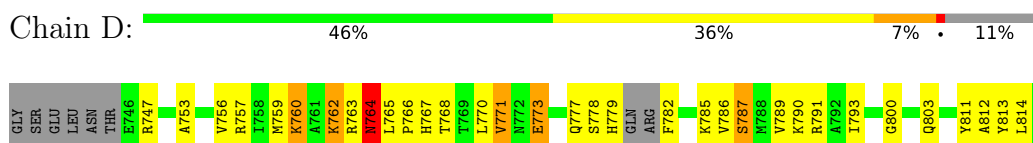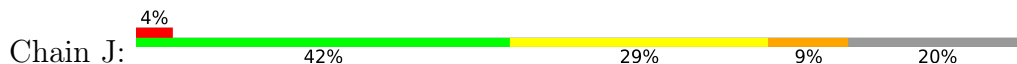
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 61	Depositor
Cell constants a, b, c, α, β, γ	123.91Å 123.91Å 192.56Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	40.00 – 3.10 39.69 – 3.10	Depositor EDS
% Data completeness (in resolution range)	(Not available) (40.00-3.10) 99.1 (39.69-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.23 (at 3.12Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.258 , 0.308 0.264 , 0.309	Depositor DCC
R_{free} test set	1532 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å^2)	95.1	Xtriage
Anisotropy	0.296	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 68.9	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.038 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	10662	wwPDB-VP
Average B, all atoms (Å^2)	114.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.33% of the height of the origin peak. No significant pseudotranslation is detected.*

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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	0.61	0/1710	0.80	2/2317 (0.1%)
1	C	0.56	0/1736	0.72	0/2354
1	E	0.73	5/1714 (0.3%)	0.81	2/2324 (0.1%)
1	G	0.51	0/1684	0.72	0/2283
1	I	0.46	0/1381	0.71	1/1860 (0.1%)
2	B	0.62	0/566	0.82	0/757
2	D	0.55	0/549	0.70	0/733
2	F	0.50	0/545	0.77	1/728 (0.1%)
2	H	0.56	0/546	0.84	0/731
2	J	0.45	0/478	0.73	1/640 (0.2%)
All	All	0.58	5/10909 (0.0%)	0.76	7/14727 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	170	ALA	C-O	11.32	1.44	1.23
1	E	170	ALA	CA-CB	-6.26	1.39	1.52
1	E	173	LEU	C-O	5.98	1.34	1.23
1	E	172	ASN	C-O	5.98	1.34	1.23
1	E	168	ASN	CG-ND2	5.03	1.45	1.32

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	237	ARG	NE-CZ-NH2	8.92	124.76	120.30
1	A	237	ARG	NH1-CZ-NH2	-6.14	112.64	119.40
2	F	800	GLY	N-CA-C	5.76	127.50	113.10
1	E	247	ASP	N-CA-C	5.71	126.42	111.00
1	E	253	ALA	N-CA-C	5.61	126.15	111.00
2	J	803	GLN	N-CA-C	-5.21	96.94	111.00
1	I	137	GLN	N-CA-C	-5.02	97.44	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1664	0	1613	88	3
1	C	1689	0	1635	60	0
1	E	1667	0	1613	150	3
1	G	1639	0	1584	57	0
1	I	1348	0	1311	89	0
2	B	559	0	572	59	0
2	D	543	0	554	57	0
2	F	540	0	554	80	0
2	H	539	0	551	39	0
2	J	474	0	473	29	0
All	All	10662	0	10460	680	3

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 32.

All (680) 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)
2:B:758:ILE:HD11	2:B:777:GLN:OE1	1.25	1.24
1:E:71:TYR:HB3	1:E:72:PRO:HD2	1.21	1.17
2:B:779:HIS:CG	2:B:780:GLN:H	1.60	1.15
2:D:762:LYS:HD2	2:D:765:LEU:HD11	1.24	1.15
1:E:261:PHE:O	1:E:265:LEU:HD11	1.47	1.15
2:B:779:HIS:CD2	2:B:780:GLN:H	1.65	1.14
2:F:747:ARG:HD2	2:F:782:PHE:HE1	1.13	1.14
2:B:774:CYS:O	2:B:778:SER:HB2	1.48	1.10
1:A:237:ARG:NH1	1:A:254:TRP:CZ2	2.19	1.10
2:D:759:MET:CE	2:D:764:ASN:HA	1.86	1.06
1:A:237:ARG:HH11	1:A:254:TRP:HZ2	1.07	1.03
1:A:249:ASP:OD1	1:A:251:THR:HG22	1.58	1.01
1:E:121:LEU:HD13	1:E:173:LEU:HD21	1.41	0.98
2:F:753:ALA:O	2:F:756:VAL:HG12	1.64	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:775:ILE:HA	2:B:778:SER:HB3	1.46	0.97
2:B:775:ILE:HA	2:B:778:SER:CB	1.95	0.96
2:D:764:ASN:O	2:D:765:LEU:HG	1.66	0.96
2:B:772:ASN:O	2:B:775:ILE:HG22	1.65	0.96
2:B:779:HIS:CD2	2:B:780:GLN:N	2.32	0.96
2:H:749:ILE:CG2	2:H:752:GLU:HG2	1.95	0.95
1:E:239:PRO:HD2	1:E:243:LYS:NZ	1.81	0.95
2:F:763:ARG:C	2:F:764:ASN:HD22	1.72	0.94
2:D:764:ASN:HD22	2:D:764:ASN:C	1.69	0.93
1:E:145:MET:O	1:E:149:ILE:HD13	1.69	0.93
2:B:779:HIS:CG	2:B:780:GLN:N	2.36	0.93
1:E:204:GLU:OE1	1:E:240:THR:HG22	1.67	0.93
1:E:249:ASP:OD1	1:E:252:ALA:N	2.03	0.92
2:F:747:ARG:HD2	2:F:782:PHE:CE1	2.05	0.91
2:F:747:ARG:HG2	2:F:788:MET:CE	2.00	0.91
2:F:756:VAL:HG11	1:I:136:MET:CE	2.00	0.90
1:A:178:ASN:O	1:A:179:ARG:HG3	1.72	0.90
2:H:764:ASN:N	2:H:764:ASN:HD22	1.70	0.89
2:H:763:ARG:C	2:H:764:ASN:HD22	1.75	0.88
1:A:79:PHE:O	1:A:83:ILE:HD13	1.73	0.88
2:H:759:MET:CE	2:H:765:LEU:HD12	2.04	0.88
1:E:239:PRO:HD2	1:E:243:LYS:HZ2	1.39	0.87
1:A:257:ILE:HD12	1:A:257:ILE:H	1.39	0.87
2:F:759:MET:O	2:F:761:ALA:N	2.09	0.85
1:E:121:LEU:N	1:E:173:LEU:HD11	1.92	0.84
1:E:175:LEU:HD12	1:E:175:LEU:O	1.76	0.84
2:D:803:GLN:HB2	2:D:814:LEU:HD23	1.59	0.84
1:E:171:PHE:CE1	1:E:182:ILE:HG23	2.12	0.84
1:A:214:PHE:CE1	1:A:218:GLU:HG3	2.12	0.84
2:D:759:MET:HE3	2:D:764:ASN:HA	1.60	0.83
1:E:262:TYR:CD2	1:E:263:GLU:HG2	2.13	0.83
2:F:757:ARG:NE	1:I:136:MET:O	2.11	0.83
1:I:93:LEU:O	1:I:97:ILE:HG23	1.79	0.83
2:F:747:ARG:CZ	2:F:782:PHE:HZ	1.91	0.83
2:F:747:ARG:HH12	2:F:750:PHE:HB3	1.42	0.82
1:A:94:VAL:O	1:A:98:GLU:HG3	1.79	0.82
1:E:171:PHE:HE1	1:E:182:ILE:CG1	1.92	0.82
1:E:71:TYR:HB3	1:E:72:PRO:CD	2.05	0.82
1:E:248:TYR:OH	1:E:259:ASP:OD1	1.98	0.82
1:E:207:LEU:HD13	1:E:241:ILE:HG12	1.62	0.81
1:E:188:ILE:HD12	1:E:212:PHE:CD1	2.16	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:188:ILE:HD12	1:E:212:PHE:HD1	1.46	0.81
1:E:249:ASP:OD1	1:E:251:THR:N	2.13	0.81
1:C:75:LEU:HD13	1:C:140:SER:HA	1.61	0.80
1:G:137:GLN:HB3	1:G:139:CYS:SG	2.21	0.80
2:D:803:GLN:HB2	2:D:814:LEU:CD2	2.11	0.80
1:I:107:LEU:HD11	1:I:193:LEU:HB3	1.61	0.80
1:E:121:LEU:N	1:E:173:LEU:CD1	2.45	0.80
2:J:748:GLN:HG2	2:J:751:LEU:HD12	1.65	0.79
1:I:184:THR:O	1:I:188:ILE:HG13	1.83	0.79
1:E:139:CYS:HB3	1:E:144:ASP:HB3	1.64	0.79
2:D:778:SER:O	2:D:779:HIS:O	2.00	0.79
2:B:748:GLN:O	2:B:751:LEU:HB2	1.83	0.79
1:E:207:LEU:HA	1:E:241:ILE:HD11	1.62	0.79
2:F:747:ARG:HG2	2:F:788:MET:HE2	1.63	0.79
1:E:249:ASP:OD1	1:E:249:ASP:C	2.21	0.78
1:E:86:ASN:C	1:E:87:LEU:HD12	2.04	0.78
1:E:121:LEU:CA	1:E:173:LEU:HD11	2.13	0.78
1:C:196:GLN:HG2	1:C:199:TYR:HD1	1.49	0.78
2:F:747:ARG:NE	2:F:751:LEU:HG	1.99	0.78
1:A:255:PRO:HD2	1:A:258:ILE:HD12	1.65	0.78
1:G:209:GLU:O	1:G:213:ARG:HG3	1.84	0.78
1:G:141:THR:HG22	1:G:142:ILE:HD12	1.67	0.77
2:B:775:ILE:CA	2:B:778:SER:HB3	2.15	0.77
1:E:71:TYR:CB	1:E:72:PRO:HD2	2.08	0.77
1:E:104:LEU:C	1:E:104:LEU:HD23	2.06	0.76
2:D:762:LYS:HD2	2:D:765:LEU:CD1	2.11	0.76
2:F:747:ARG:NH1	2:F:751:LEU:HG	2.01	0.76
1:E:265:LEU:N	1:E:265:LEU:HD12	2.01	0.75
2:H:749:ILE:HG21	2:H:752:GLU:HG2	1.68	0.75
1:A:238:TYR:OH	1:A:248:TYR:HA	1.85	0.75
2:F:784:ALA:HB1	2:F:788:MET:SD	2.25	0.75
1:E:171:PHE:CE1	1:E:182:ILE:CG2	2.68	0.75
1:A:126:LYS:HB2	1:A:129:ASP:OD2	1.86	0.75
2:J:748:GLN:NE2	2:J:791:ARG:HH12	1.85	0.75
2:F:747:ARG:NH1	2:F:750:PHE:HB3	2.02	0.75
1:E:264:CYS:C	1:E:265:LEU:HD12	2.07	0.74
2:B:772:ASN:HA	2:B:775:ILE:HG22	1.69	0.74
2:D:762:LYS:CD	2:D:765:LEU:HD11	2.11	0.74
1:E:249:ASP:CG	1:E:252:ALA:H	1.91	0.74
2:F:747:ARG:CZ	2:F:751:LEU:HG	2.17	0.74
1:I:144:ASP:O	1:I:147:GLU:HB3	1.87	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:747:ARG:CZ	2:F:782:PHE:CZ	2.71	0.73
2:J:748:GLN:HE22	2:J:792:ALA:HB2	1.52	0.73
1:E:251:THR:HA	2:F:786:VAL:HG21	1.70	0.73
2:D:764:ASN:HB2	2:D:811:TYR:O	1.88	0.73
1:E:134:TRP:HH2	1:E:149:ILE:HD11	1.52	0.73
2:D:764:ASN:C	2:D:764:ASN:ND2	2.42	0.73
1:I:96:PHE:HE2	1:I:112:LEU:HD21	1.51	0.73
1:C:100:LEU:HD13	1:C:149:ILE:HD13	1.71	0.73
2:D:753:ALA:O	2:D:756:VAL:HG22	1.88	0.72
1:E:93:LEU:O	1:E:97:ILE:HG12	1.89	0.72
1:I:121:LEU:HB2	1:I:173:LEU:HG	1.71	0.72
2:D:785:LYS:HD2	2:D:787:SER:HB3	1.71	0.72
1:E:264:CYS:N	1:E:265:LEU:HD12	2.04	0.72
1:G:100:LEU:HD13	1:G:149:ILE:HD11	1.70	0.72
1:E:171:PHE:CE1	1:E:182:ILE:HG12	2.25	0.72
2:B:768:THR:HA	2:B:771:VAL:HG12	1.71	0.72
1:E:107:LEU:HD21	1:E:193:LEU:HB3	1.72	0.71
1:E:171:PHE:HE1	1:E:182:ILE:HG12	1.53	0.71
2:B:775:ILE:CA	2:B:778:SER:CB	2.68	0.71
2:J:791:ARG:HH11	2:J:791:ARG:HB3	1.55	0.71
1:E:257:ILE:H	1:E:257:ILE:HD12	1.56	0.71
2:F:756:VAL:HG11	1:I:136:MET:HE2	1.73	0.71
1:E:86:ASN:O	1:E:87:LEU:HD12	1.90	0.70
2:D:785:LYS:HD3	2:D:786:VAL:N	2.07	0.70
2:F:756:VAL:HG11	1:I:136:MET:HE1	1.72	0.70
1:C:166:ILE:HD12	1:C:166:ILE:H	1.55	0.70
2:B:774:CYS:O	2:B:778:SER:CB	2.36	0.70
2:F:756:VAL:HG13	2:F:757:ARG:N	2.07	0.69
1:A:249:ASP:CG	1:A:251:THR:HG22	2.13	0.69
1:E:82:TYR:HD2	1:E:95:LYS:HB3	1.57	0.69
1:I:153:ASP:OD1	1:I:157:HIS:HE1	1.75	0.69
2:H:749:ILE:HG21	2:H:752:GLU:CG	2.22	0.69
2:D:764:ASN:CB	2:D:812:ALA:HA	2.22	0.69
2:F:747:ARG:HH22	2:F:750:PHE:HB3	1.58	0.69
1:A:265:LEU:O	1:A:266:GLN:HB2	1.92	0.69
2:H:763:ARG:HD3	2:H:813:TYR:HD2	1.57	0.69
1:E:262:TYR:O	1:E:265:LEU:HD13	1.93	0.69
2:J:759:MET:SD	2:J:765:LEU:HD12	2.33	0.68
2:B:772:ASN:C	2:B:775:ILE:HG22	2.14	0.68
2:B:778:SER:O	2:B:779:HIS:O	2.11	0.68
2:D:759:MET:HE1	2:D:764:ASN:HA	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:803:GLN:CB	2:D:814:LEU:HD23	2.22	0.68
1:I:162:TYR:O	1:I:166:ILE:HD13	1.93	0.68
1:A:128:GLU:O	1:A:132:SER:HB2	1.93	0.68
1:G:255:PRO:HD2	1:G:258:ILE:HD12	1.76	0.68
2:B:757:ARG:NH2	2:B:777:GLN:HE22	1.92	0.68
1:E:164:THR:HG23	1:E:232:LEU:CD2	2.23	0.68
2:B:755:ILE:HD13	2:B:774:CYS:SG	2.34	0.67
1:E:262:TYR:CE2	1:E:263:GLU:HG2	2.29	0.67
2:F:756:VAL:CG1	2:F:757:ARG:N	2.56	0.67
2:F:747:ARG:HD3	2:F:784:ALA:HB2	1.74	0.67
2:B:772:ASN:O	2:B:775:ILE:CG2	2.42	0.67
1:G:111:CYS:HB3	1:G:152:LEU:HD13	1.75	0.67
1:C:199:TYR:HB3	1:C:200:PRO:HD2	1.76	0.67
1:I:196:GLN:O	1:I:198:GLU:N	2.27	0.67
1:E:261:PHE:O	1:E:265:LEU:CD1	2.33	0.67
2:F:747:ARG:HE	2:F:751:LEU:HG	1.58	0.67
2:H:759:MET:O	2:H:762:LYS:O	2.13	0.67
2:D:763:ARG:O	2:D:764:ASN:CB	2.43	0.66
2:H:763:ARG:C	2:H:764:ASN:ND2	2.47	0.66
2:B:763:ARG:O	2:B:764:ASN:HB2	1.95	0.66
2:D:764:ASN:HB3	2:D:812:ALA:HA	1.78	0.66
2:H:759:MET:HE3	2:H:765:LEU:HD12	1.77	0.66
1:I:235:PHE:C	1:I:237:ARG:H	1.96	0.66
2:B:774:CYS:C	2:B:778:SER:HB2	2.16	0.66
2:B:772:ASN:CA	2:B:775:ILE:HG22	2.25	0.66
2:D:764:ASN:O	2:D:765:LEU:CG	2.44	0.66
2:F:747:ARG:NH2	2:F:782:PHE:CZ	2.64	0.66
1:E:85:ASN:O	1:E:86:ASN:HB2	1.96	0.66
2:F:772:ASN:O	2:F:775:ILE:HG22	1.96	0.66
1:G:90:ILE:HG13	1:G:122:GLU:HG3	1.78	0.65
2:F:757:ARG:HG2	1:I:136:MET:HA	1.77	0.65
2:D:762:LYS:HD3	2:D:765:LEU:HD21	1.78	0.65
1:A:93:LEU:O	1:A:97:ILE:HG12	1.97	0.65
2:F:747:ARG:CD	2:F:782:PHE:HE1	2.00	0.65
2:B:803:GLN:HB2	2:B:814:LEU:HD11	1.79	0.65
2:H:760:LYS:HA	2:H:813:TYR:CE2	2.31	0.65
1:E:262:TYR:C	1:E:265:LEU:HD13	2.17	0.65
2:F:795:SER:O	2:F:799:LYS:N	2.25	0.65
1:A:100:LEU:HD13	1:A:149:ILE:HD12	1.79	0.65
2:B:758:ILE:CD1	2:B:777:GLN:OE1	2.21	0.65
1:A:171:PHE:O	1:A:174:ILE:HG12	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:146:GLN:O	1:I:146:GLN:HG3	1.95	0.64
1:C:204:GLU:HB2	1:C:240:THR:HG22	1.80	0.64
1:C:238:TYR:CD2	1:C:244:ILE:HG12	2.33	0.64
1:G:167:TYR:HH	1:G:191:TRP:HE1	1.44	0.64
1:I:253:ALA:HA	2:J:767:HIS:NE2	2.13	0.64
2:F:747:ARG:HH12	2:F:750:PHE:CB	2.10	0.63
2:H:797:ILE:HD13	2:H:802:LEU:O	1.98	0.63
1:C:100:LEU:HD13	1:C:149:ILE:CD1	2.28	0.63
2:F:747:ARG:NH2	2:F:750:PHE:HB3	2.13	0.63
1:G:79:PHE:CE2	1:G:83:ILE:HG21	2.33	0.63
1:E:208:LEU:HD22	1:E:212:PHE:CZ	2.34	0.63
2:F:747:ARG:HE	2:F:751:LEU:CG	2.12	0.63
1:I:141:THR:O	1:I:144:ASP:OD2	2.17	0.63
2:D:759:MET:HB3	2:D:813:TYR:HB2	1.81	0.62
1:A:191:TRP:HH2	1:A:223:ILE:HD13	1.64	0.62
1:E:256:PHE:CE2	2:F:791:ARG:HB2	2.34	0.62
2:D:778:SER:O	2:D:779:HIS:C	2.37	0.62
1:E:134:TRP:CH2	1:E:149:ILE:HD11	2.34	0.62
2:F:764:ASN:HD22	2:F:764:ASN:N	1.97	0.62
1:I:257:ILE:O	1:I:257:ILE:HD13	1.99	0.62
1:A:241:ILE:HD12	1:A:241:ILE:H	1.63	0.62
1:E:97:ILE:HA	1:E:100:LEU:HB2	1.81	0.62
2:F:747:ARG:HA	2:F:747:ARG:HH21	1.64	0.62
1:A:203:MET:HE2	1:A:208:LEU:HB2	1.81	0.62
1:E:82:TYR:CD2	1:E:95:LYS:HB3	2.34	0.62
1:E:164:THR:HG23	1:E:232:LEU:HD21	1.82	0.62
2:H:778:SER:O	2:H:783:ASN:N	2.32	0.62
1:E:74:GLU:CD	1:E:74:GLU:H	2.01	0.62
2:F:747:ARG:HH11	2:F:751:LEU:HG	1.65	0.62
1:G:181:ASP:HB3	1:G:223:ILE:O	1.99	0.62
1:A:141:THR:OG1	1:A:144:ASP:CG	2.38	0.62
1:A:214:PHE:HE1	1:A:218:GLU:HG3	1.63	0.62
1:E:263:GLU:C	1:E:265:LEU:H	2.02	0.62
1:A:174:ILE:CD1	1:A:182:ILE:HG21	2.29	0.61
1:A:191:TRP:CH2	1:A:223:ILE:HD13	2.35	0.61
1:I:96:PHE:CE2	1:I:112:LEU:HD21	2.34	0.61
1:C:184:THR:O	1:C:188:ILE:HD13	1.99	0.61
1:E:256:PHE:HE2	2:F:791:ARG:HB2	1.65	0.61
2:H:764:ASN:N	2:H:764:ASN:ND2	2.44	0.61
2:D:764:ASN:C	2:D:765:LEU:HG	2.20	0.61
1:C:238:TYR:HD2	1:C:244:ILE:HG12	1.64	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:764:ASN:N	2:F:764:ASN:ND2	2.49	0.61
1:I:196:GLN:C	1:I:198:GLU:H	2.02	0.61
1:I:191:TRP:CH2	1:I:223:ILE:HD13	2.35	0.61
1:C:162:TYR:O	1:C:166:ILE:HD12	2.00	0.61
1:A:176:ASP:OD1	1:A:177:PRO:HD2	2.01	0.60
2:B:775:ILE:HA	2:B:778:SER:HB2	1.81	0.60
1:C:116:LEU:HD23	1:C:133:THR:HG21	1.83	0.60
1:A:74:GLU:O	1:A:78:VAL:HG23	2.01	0.60
2:F:758:ILE:HD11	2:F:777:GLN:CD	2.22	0.60
1:A:184:THR:HG22	1:A:188:ILE:HD13	1.82	0.60
1:C:188:ILE:HG13	1:C:212:PHE:CD1	2.36	0.60
1:A:82:TYR:O	1:A:92:SER:HB2	2.01	0.60
1:I:134:TRP:HH2	1:I:149:ILE:HG13	1.65	0.60
1:C:199:TYR:HB3	1:C:200:PRO:CD	2.31	0.60
1:I:176:ASP:HB3	1:I:179:ARG:HG3	1.83	0.60
1:E:239:PRO:CD	1:E:243:LYS:NZ	2.62	0.60
2:D:762:LYS:CD	2:D:765:LEU:HD21	2.31	0.59
2:B:781:ARG:O	2:B:782:PHE:HB3	2.01	0.59
2:F:798:GLN:C	2:F:800:GLY:H	2.04	0.59
1:I:172:ASN:HD22	1:I:172:ASN:H	1.50	0.59
2:B:775:ILE:O	2:B:778:SER:HB3	2.02	0.59
1:E:171:PHE:CE1	1:E:182:ILE:CG1	2.81	0.59
2:J:748:GLN:NE2	2:J:792:ALA:HB2	2.18	0.59
2:H:756:VAL:O	2:H:760:LYS:HB3	2.02	0.59
1:E:167:TYR:CE2	1:E:232:LEU:HB2	2.38	0.59
2:F:747:ARG:NH2	2:F:747:ARG:HA	2.18	0.59
1:A:199:TYR:HB3	1:A:200:PRO:HD2	1.85	0.59
2:D:763:ARG:O	2:D:764:ASN:CG	2.41	0.59
2:F:747:ARG:NH2	2:F:747:ARG:O	2.36	0.59
2:B:778:SER:C	2:B:779:HIS:O	2.41	0.59
1:E:262:TYR:HD2	1:E:263:GLU:HG2	1.68	0.59
1:E:123:GLU:OE2	1:E:124:PRO:HD2	2.03	0.58
1:G:120:LYS:HD3	1:G:177:PRO:HG3	1.83	0.58
1:A:257:ILE:H	1:A:257:ILE:CD1	2.14	0.58
1:E:175:LEU:HD12	1:E:175:LEU:C	2.24	0.58
2:D:785:LYS:HD3	2:D:786:VAL:H	1.69	0.58
1:I:224:SER:CB	2:J:798:GLN:HE22	2.15	0.58
1:A:157:HIS:NE2	1:A:199:TYR:CZ	2.72	0.58
1:G:184:THR:HA	1:G:223:ILE:HD12	1.86	0.58
2:D:785:LYS:HD2	2:D:787:SER:H	1.69	0.58
1:E:171:PHE:CZ	1:E:182:ILE:HG23	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:110:LEU:HD13	1:C:170:ALA:HB2	1.86	0.57
2:B:763:ARG:O	2:B:764:ASN:CB	2.49	0.57
2:H:759:MET:HB3	2:H:813:TYR:HB2	1.86	0.57
1:E:72:PRO:HG2	1:E:75:LEU:HB3	1.86	0.57
2:F:762:LYS:CD	2:F:765:LEU:HD21	2.35	0.57
1:C:196:GLN:HG2	1:C:199:TYR:CD1	2.34	0.57
1:E:74:GLU:O	1:E:78:VAL:HG23	2.04	0.57
1:C:90:ILE:HD13	1:C:90:ILE:O	2.03	0.57
1:E:171:PHE:O	1:E:172:ASN:C	2.41	0.57
2:H:760:LYS:HA	2:H:813:TYR:CD2	2.40	0.57
2:H:803:GLN:HG3	2:H:814:LEU:HD11	1.85	0.57
1:I:181:ASP:HB3	1:I:223:ILE:O	2.03	0.57
1:A:157:HIS:CE1	1:A:199:TYR:OH	2.57	0.57
2:F:747:ARG:CZ	2:F:747:ARG:O	2.53	0.57
1:I:107:LEU:CD1	1:I:193:LEU:HB3	2.31	0.57
1:A:199:TYR:CB	1:A:200:PRO:HD2	2.35	0.57
2:D:764:ASN:HB2	2:D:812:ALA:HA	1.86	0.57
1:G:231:LEU:HD11	1:G:235:PHE:CZ	2.40	0.57
1:E:121:LEU:N	1:E:173:LEU:HD12	2.20	0.56
2:H:752:GLU:O	2:H:756:VAL:HG22	2.05	0.56
2:B:757:ARG:NH2	2:B:777:GLN:NE2	2.53	0.56
2:D:763:ARG:O	2:D:763:ARG:HG3	2.05	0.56
1:E:238:TYR:HE2	1:E:247:ASP:HB3	1.70	0.56
1:I:107:LEU:HG	1:I:193:LEU:HD13	1.87	0.56
1:I:142:ILE:HG23	1:I:143:SER:N	2.20	0.56
1:I:235:PHE:C	1:I:237:ARG:N	2.59	0.56
1:C:162:TYR:CE1	1:C:166:ILE:HD11	2.41	0.56
1:I:142:ILE:O	1:I:145:MET:HB2	2.05	0.56
1:I:182:ILE:O	1:I:222:THR:HG22	2.04	0.56
2:J:748:GLN:CG	2:J:751:LEU:HD12	2.34	0.56
2:D:785:LYS:CD	2:D:787:SER:H	2.19	0.56
1:A:238:TYR:CD2	1:A:244:ILE:HA	2.40	0.56
1:G:100:LEU:HD13	1:G:149:ILE:CD1	2.35	0.56
2:B:772:ASN:HA	2:B:775:ILE:CG2	2.33	0.56
2:B:775:ILE:CA	2:B:778:SER:HB2	2.36	0.56
1:E:123:GLU:CG	1:E:124:PRO:HD2	2.36	0.56
1:E:196:GLN:HB3	1:E:197:PRO:HD2	1.86	0.56
2:H:790:LYS:HA	2:H:793:ILE:HD12	1.86	0.56
1:E:215:LEU:HD22	1:E:220:LYS:HG2	1.87	0.56
2:B:768:THR:HA	2:B:771:VAL:CG1	2.35	0.56
1:C:73:LYS:HE3	1:C:77:GLN:HE22	1.71	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:785:LYS:HD2	2:D:787:SER:CB	2.36	0.56
1:I:263:GLU:HA	1:I:266:GLN:HG2	1.88	0.56
1:E:149:ILE:O	1:E:152:LEU:HB2	2.05	0.55
1:I:135:PHE:O	1:I:138:GLY:HA2	2.06	0.55
1:I:176:ASP:HB3	1:I:179:ARG:CG	2.36	0.55
1:E:207:LEU:CD1	1:E:241:ILE:HG12	2.35	0.55
1:G:184:THR:HG21	1:G:220:LYS:O	2.06	0.55
1:A:248:TYR:CD2	1:A:262:TYR:CD1	2.95	0.55
1:E:76:THR:OG1	1:E:77:GLN:N	2.39	0.55
2:H:749:ILE:HG22	2:H:749:ILE:O	2.05	0.55
1:A:174:ILE:CD1	1:A:182:ILE:HD13	2.37	0.55
1:C:162:TYR:CZ	1:C:166:ILE:HD11	2.41	0.55
1:I:170:ALA:O	1:I:174:ILE:HG12	2.06	0.55
1:E:249:ASP:CG	1:E:251:THR:HG23	2.27	0.55
1:A:79:PHE:CZ	1:A:83:ILE:HD11	2.42	0.55
2:B:751:LEU:O	2:B:755:ILE:HG12	2.07	0.55
1:C:167:TYR:CE2	1:C:232:LEU:HB2	2.40	0.55
1:C:248:TYR:OH	1:C:258:ILE:HG22	2.07	0.55
1:E:224:SER:OG	1:E:227:THR:HG22	2.07	0.55
1:A:193:LEU:O	1:A:196:GLN:HG3	2.07	0.55
2:J:803:GLN:HB2	2:J:814:LEU:HD11	1.89	0.55
2:B:793:ILE:HG21	2:B:811:TYR:CZ	2.42	0.54
2:D:786:VAL:HA	2:D:789:VAL:HG12	1.89	0.54
2:F:759:MET:O	2:F:760:LYS:C	2.45	0.54
1:G:89:ASP:O	1:G:92:SER:HB2	2.07	0.54
1:G:199:TYR:HB3	1:G:200:PRO:CD	2.36	0.54
1:I:125:LEU:HD11	1:I:129:ASP:HB2	1.89	0.54
1:A:169:TYR:CE2	1:A:173:LEU:HD22	2.42	0.54
2:H:749:ILE:CG2	2:H:752:GLU:CG	2.75	0.54
1:E:184:THR:HG23	1:E:221:THR:O	2.06	0.54
1:G:90:ILE:HG12	1:G:122:GLU:HA	1.89	0.54
1:E:237:ARG:O	1:E:237:ARG:HG3	2.07	0.54
2:F:747:ARG:CZ	2:F:750:PHE:HB3	2.37	0.54
1:E:139:CYS:HB3	1:E:144:ASP:CB	2.37	0.54
1:E:263:GLU:C	1:E:265:LEU:N	2.61	0.54
2:F:747:ARG:HH21	2:F:747:ARG:CA	2.21	0.54
1:G:93:LEU:HD13	1:G:118:TYR:OH	2.08	0.54
1:A:174:ILE:HG13	1:A:175:LEU:N	2.22	0.54
2:F:753:ALA:HA	1:I:136:MET:CE	2.38	0.54
1:A:214:PHE:CD1	1:A:218:GLU:HG3	2.42	0.53
1:G:188:ILE:HG23	1:G:212:PHE:CD1	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:204:GLU:OE2	1:C:206:ASP:HB2	2.08	0.53
1:E:204:GLU:HG3	1:E:206:ASP:HB2	1.89	0.53
1:C:82:TYR:HD2	1:C:95:LYS:HG3	1.73	0.53
2:D:763:ARG:O	2:D:764:ASN:HB3	2.07	0.53
2:H:781:ARG:HB3	2:H:782:PHE:CD2	2.43	0.53
2:B:776:ALA:C	2:B:778:SER:H	2.10	0.53
1:E:82:TYR:O	1:E:92:SER:HB3	2.08	0.53
1:I:224:SER:HB2	2:J:798:GLN:HE22	1.73	0.53
1:E:231:LEU:HD11	1:E:235:PHE:CE1	2.44	0.53
1:C:145:MET:O	1:C:149:ILE:HD12	2.08	0.53
2:F:765:LEU:HD12	2:F:770:LEU:HD13	1.91	0.53
1:E:153:ASP:O	1:E:156:LEU:HB2	2.09	0.53
1:G:99:GLU:OE1	1:I:179:ARG:HA	2.09	0.53
1:G:188:ILE:HG23	1:G:212:PHE:CE1	2.43	0.53
1:I:119:LYS:O	1:I:172:ASN:O	2.27	0.53
1:E:84:ASN:O	1:E:85:ASN:CB	2.57	0.53
1:E:153:ASP:O	1:E:157:HIS:CE1	2.62	0.53
1:C:172:ASN:HD22	1:C:172:ASN:N	2.06	0.52
2:D:759:MET:SD	2:D:764:ASN:HA	2.48	0.52
2:B:768:THR:O	2:B:771:VAL:HG12	2.10	0.52
1:E:263:GLU:O	1:E:265:LEU:N	2.36	0.52
1:G:184:THR:HG22	1:G:223:ILE:HG13	1.91	0.52
1:E:208:LEU:HB3	1:E:212:PHE:CE2	2.45	0.52
1:A:203:MET:CE	1:A:208:LEU:HB2	2.39	0.52
2:B:755:ILE:CD1	2:B:774:CYS:SG	2.96	0.52
1:E:171:PHE:HA	1:E:174:ILE:HD12	1.91	0.52
2:F:754:CYS:HB3	2:F:774:CYS:SG	2.50	0.52
1:A:116:LEU:HD22	1:A:125:LEU:HD21	1.91	0.52
2:B:768:THR:CA	2:B:771:VAL:HG12	2.37	0.52
2:D:756:VAL:HG23	2:D:757:ARG:N	2.24	0.52
1:E:170:ALA:O	1:E:173:LEU:N	2.42	0.52
2:H:803:GLN:HG3	2:H:814:LEU:CD1	2.39	0.52
1:E:259:ASP:OD2	2:F:790:LYS:NZ	2.43	0.52
1:E:264:CYS:O	1:E:265:LEU:HG	2.10	0.52
1:G:204:GLU:HB2	1:G:240:THR:HG22	1.92	0.52
1:A:248:TYR:CD2	1:A:262:TYR:CG	2.97	0.52
1:I:191:TRP:HB2	1:I:212:PHE:HZ	1.75	0.51
2:D:760:LYS:HD2	2:D:760:LYS:O	2.10	0.51
2:F:747:ARG:CG	2:F:788:MET:HE2	2.39	0.51
1:C:90:ILE:O	1:C:94:VAL:HG23	2.10	0.51
1:C:79:PHE:CE2	1:C:83:ILE:HD12	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:203:MET:HE1	1:E:208:LEU:HG	1.93	0.51
2:F:747:ARG:NH2	2:F:782:PHE:HZ	2.03	0.51
1:E:104:LEU:HD23	1:E:105:GLU:N	2.25	0.51
1:E:207:LEU:HD13	1:E:241:ILE:CG1	2.35	0.51
1:E:262:TYR:CD2	1:E:263:GLU:CG	2.90	0.51
1:G:81:HIS:CE1	1:I:179:ARG:HD3	2.45	0.51
1:G:99:GLU:OE1	1:I:179:ARG:HD2	2.11	0.51
2:D:762:LYS:CG	2:D:765:LEU:HD21	2.40	0.51
2:F:762:LYS:HD3	2:F:765:LEU:HD21	1.92	0.51
1:G:174:ILE:HG22	1:G:186:GLU:OE2	2.11	0.51
2:J:789:VAL:HG13	2:J:790:LYS:N	2.26	0.51
1:E:262:TYR:HD2	1:E:263:GLU:CG	2.24	0.51
1:G:141:THR:H	1:G:144:ASP:HB2	1.76	0.51
2:F:798:GLN:C	2:F:800:GLY:N	2.65	0.51
2:F:759:MET:C	2:F:761:ALA:N	2.64	0.51
2:F:765:LEU:HD12	2:F:770:LEU:CD1	2.41	0.51
1:G:199:TYR:HB3	1:G:200:PRO:HD2	1.92	0.51
1:G:204:GLU:HG2	1:G:207:LEU:H	1.75	0.51
1:C:71:TYR:CD2	1:C:131:LEU:HD13	2.46	0.50
1:G:186:GLU:O	1:G:189:GLN:HB3	2.11	0.50
1:E:159:ASP:HB3	1:E:162:TYR:HB3	1.93	0.50
1:A:207:LEU:O	1:A:210:ALA:HB3	2.11	0.50
1:A:256:PHE:CE2	1:A:260:GLU:OE2	2.64	0.50
2:B:775:ILE:C	2:B:778:SER:HB3	2.31	0.50
1:E:121:LEU:HA	1:E:173:LEU:HD11	1.91	0.50
1:I:258:ILE:HG22	1:I:258:ILE:O	2.11	0.50
2:J:789:VAL:CG1	2:J:790:LYS:N	2.74	0.50
2:F:747:ARG:HH11	2:F:751:LEU:CG	2.25	0.50
1:I:153:ASP:OD1	1:I:157:HIS:CE1	2.62	0.50
2:B:771:VAL:HG13	2:B:772:ASN:OD1	2.12	0.50
1:E:79:PHE:CE2	1:E:83:ILE:HD12	2.47	0.50
1:I:257:ILE:HD13	1:I:257:ILE:C	2.32	0.50
1:G:146:GLN:O	1:G:147:GLU:C	2.49	0.50
1:I:218:GLU:CA	1:I:218:GLU:OE1	2.59	0.50
1:G:184:THR:HG23	1:G:221:THR:C	2.32	0.50
1:A:126:LYS:O	1:A:129:ASP:HB2	2.12	0.50
1:E:243:LYS:HG3	1:E:243:LYS:O	2.11	0.50
1:A:157:HIS:CE1	1:A:199:TYR:CZ	3.00	0.50
1:A:188:ILE:HD11	1:A:215:LEU:HD13	1.93	0.50
2:H:759:MET:HE3	2:H:765:LEU:HB2	1.94	0.50
1:A:229:ARG:NH2	2:B:806:ASP:O	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:767:HIS:O	2:D:771:VAL:HG12	2.12	0.49
2:H:760:LYS:HA	2:H:813:TYR:CZ	2.47	0.49
1:E:95:LYS:O	1:E:98:GLU:HB3	2.12	0.49
1:I:148:CYS:SG	1:I:149:ILE:N	2.85	0.49
2:F:747:ARG:CG	2:F:788:MET:CE	2.85	0.49
1:C:107:LEU:HD23	1:C:156:LEU:HD21	1.93	0.49
2:D:791:ARG:HH11	2:D:791:ARG:HB2	1.77	0.49
2:D:773:GLU:O	2:D:777:GLN:HG3	2.12	0.49
1:E:130:PHE:CE1	1:E:134:TRP:NE1	2.80	0.49
2:H:755:ILE:HG23	2:H:770:LEU:HD11	1.95	0.49
1:E:123:GLU:HG3	1:E:124:PRO:HD2	1.94	0.49
1:E:141:THR:HB	1:E:144:ASP:H	1.76	0.49
1:G:169:TYR:CE2	1:G:173:LEU:HD11	2.47	0.49
1:C:166:ILE:HD12	1:C:166:ILE:N	2.24	0.49
1:A:196:GLN:OE1	1:A:199:TYR:HE1	1.96	0.49
1:C:203:MET:CE	1:C:208:LEU:HB2	2.43	0.49
1:E:169:TYR:CE2	1:E:173:LEU:HD22	2.49	0.48
2:H:762:LYS:HG2	2:H:764:ASN:O	2.13	0.48
2:J:769:THR:O	2:J:773:GLU:HG2	2.14	0.48
2:F:807:ASP:HB2	2:F:810:SER:OG	2.13	0.48
1:I:172:ASN:HD22	1:I:172:ASN:N	2.11	0.48
1:A:261:PHE:O	1:A:264:CYS:HB3	2.14	0.48
2:B:757:ARG:HH21	2:B:777:GLN:CD	2.16	0.48
1:C:252:ALA:O	2:D:790:LYS:NZ	2.41	0.48
1:E:233:LEU:O	1:E:236:LYS:HB2	2.13	0.48
1:I:155:LYS:O	1:I:159:ASP:HB3	2.13	0.48
1:A:107:LEU:HB3	1:A:156:LEU:HD21	1.96	0.48
1:E:80:GLU:O	1:E:83:ILE:HG22	2.13	0.48
2:H:751:LEU:O	2:H:755:ILE:HG13	2.14	0.48
1:I:116:LEU:HA	1:I:133:THR:HG21	1.95	0.48
1:I:134:TRP:HH2	1:I:149:ILE:CG1	2.26	0.48
1:E:258:ILE:HD12	1:E:258:ILE:N	2.28	0.48
2:D:747:ARG:O	2:D:747:ARG:HG2	2.14	0.48
1:E:177:PRO:O	1:E:178:ASN:HB2	2.14	0.48
2:F:807:ASP:HB3	2:F:809:GLU:H	1.79	0.48
1:I:235:PHE:O	1:I:237:ARG:N	2.47	0.48
1:A:234:PHE:HA	1:A:254:TRP:CZ3	2.49	0.48
1:E:256:PHE:HD1	1:E:256:PHE:O	1.97	0.48
2:F:747:ARG:NH2	2:F:747:ARG:CA	2.76	0.48
2:F:756:VAL:CG1	2:F:757:ARG:H	2.26	0.48
1:E:207:LEU:O	1:E:210:ALA:HB3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:134:TRP:HA	1:A:134:TRP:CE3	2.49	0.47
2:H:763:ARG:O	2:H:812:ALA:HA	2.14	0.47
1:A:174:ILE:HD11	1:A:182:ILE:HG21	1.95	0.47
1:G:81:HIS:NE2	1:I:179:ARG:HD3	2.30	0.47
1:I:255:PRO:HG3	2:J:804:ARG:NH2	2.29	0.47
1:A:174:ILE:HD11	1:A:182:ILE:HD13	1.97	0.47
1:C:238:TYR:CD1	1:C:238:TYR:N	2.82	0.47
2:H:781:ARG:HA	2:H:781:ARG:HD3	1.67	0.47
2:B:779:HIS:O	2:B:780:GLN:HB2	2.14	0.47
1:A:100:LEU:HD13	1:A:149:ILE:CD1	2.43	0.47
1:A:130:PHE:CE1	1:A:134:TRP:NE1	2.79	0.47
1:A:150:LYS:O	1:A:154:VAL:HG23	2.15	0.47
1:C:169:TYR:CZ	1:C:173:LEU:HD11	2.49	0.47
1:C:249:ASP:OD1	1:C:252:ALA:N	2.48	0.47
2:D:762:LYS:HG2	2:D:765:LEU:HD21	1.97	0.47
2:D:765:LEU:HB3	2:D:766:PRO:HD2	1.95	0.47
1:E:87:LEU:N	1:E:87:LEU:CD1	2.78	0.47
1:E:152:LEU:O	1:E:153:ASP:C	2.52	0.47
1:E:189:GLN:O	1:E:189:GLN:HG2	2.15	0.47
1:A:240:THR:C	1:A:242:GLN:N	2.66	0.47
1:I:164:THR:O	1:I:167:TYR:N	2.47	0.47
2:D:786:VAL:O	2:D:786:VAL:HG22	2.15	0.47
1:A:249:ASP:OD1	1:A:249:ASP:C	2.52	0.46
2:F:750:PHE:HE1	2:F:754:CYS:HG	1.63	0.46
1:G:231:LEU:O	1:G:234:PHE:HB3	2.14	0.46
1:I:142:ILE:CG2	1:I:143:SER:N	2.77	0.46
1:A:178:ASN:O	1:A:179:ARG:CG	2.56	0.46
1:A:238:TYR:CE2	1:A:244:ILE:HA	2.49	0.46
2:F:747:ARG:HH11	2:F:751:LEU:CD2	2.28	0.46
1:G:112:LEU:O	1:G:113:ALA:C	2.52	0.46
2:B:779:HIS:HD2	2:B:782:PHE:H	1.62	0.46
1:E:207:LEU:HA	1:E:241:ILE:CD1	2.41	0.46
2:F:784:ALA:CB	2:F:788:MET:SD	3.01	0.46
1:I:217:ASP:C	1:I:218:GLU:OE1	2.53	0.46
1:A:266:GLN:C	1:A:266:GLN:OE1	2.54	0.46
1:A:237:ARG:HB3	1:A:238:TYR:CD1	2.51	0.46
1:I:111:CYS:SG	1:I:156:LEU:HD22	2.56	0.46
1:I:218:GLU:OE1	1:I:218:GLU:HA	2.15	0.46
2:D:762:LYS:HD3	2:D:765:LEU:CD2	2.44	0.46
1:C:70:VAL:HG11	2:H:807:ASP:O	2.15	0.46
1:E:249:ASP:OD1	1:E:251:THR:CA	2.64	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:807:ASP:OD1	2:J:807:ASP:N	2.48	0.46
1:E:125:LEU:HD21	1:E:130:PHE:HB2	1.97	0.46
1:I:196:GLN:C	1:I:198:GLU:N	2.69	0.46
1:I:261:PHE:CZ	1:I:265:LEU:HD11	2.50	0.46
2:B:757:ARG:HH21	2:B:777:GLN:NE2	2.13	0.45
1:C:237:ARG:HB3	1:C:238:TYR:HD1	1.82	0.45
1:C:162:TYR:O	1:C:163:PHE:C	2.55	0.45
1:E:86:ASN:C	1:E:87:LEU:CD1	2.80	0.45
2:H:762:LYS:HG3	2:H:764:ASN:H	1.82	0.45
1:A:207:LEU:HA	1:A:241:ILE:HD11	1.98	0.45
1:E:249:ASP:OD1	1:E:251:THR:HG23	2.16	0.45
1:G:184:THR:HG23	1:G:221:THR:O	2.17	0.45
1:E:123:GLU:CD	1:E:124:PRO:HD2	2.36	0.45
2:F:773:GLU:O	2:F:777:GLN:HB2	2.16	0.45
1:I:258:ILE:O	1:I:258:ILE:CG2	2.65	0.45
1:A:248:TYR:HD2	1:A:262:TYR:CD1	2.35	0.45
1:C:105:GLU:N	1:C:105:GLU:OE1	2.50	0.45
2:J:792:ALA:HA	2:J:795:SER:HB2	1.98	0.45
1:A:184:THR:O	1:A:188:ILE:HD13	2.17	0.45
2:B:762:LYS:O	2:B:763:ARG:HB2	2.17	0.45
2:B:797:ILE:HD13	2:B:802:LEU:O	2.16	0.45
1:A:220:LYS:NZ	1:A:220:LYS:HB3	2.32	0.45
1:G:83:ILE:O	1:G:83:ILE:HG13	2.17	0.45
1:I:96:PHE:HE1	1:I:145:MET:SD	2.40	0.44
1:G:171:PHE:HB2	1:G:228:TRP:CD1	2.53	0.44
2:H:762:LYS:CG	2:H:764:ASN:O	2.66	0.44
2:D:763:ARG:O	2:D:763:ARG:CG	2.65	0.44
2:D:791:ARG:HB2	2:D:791:ARG:NH1	2.31	0.44
1:E:265:LEU:N	1:E:265:LEU:CD1	2.75	0.44
2:J:760:LYS:HD2	2:J:760:LYS:O	2.18	0.44
1:A:207:LEU:CA	1:A:241:ILE:HD11	2.47	0.44
1:A:253:ALA:O	1:A:254:TRP:C	2.52	0.44
2:J:793:ILE:HD12	2:J:811:TYR:CE1	2.51	0.44
1:G:252:ALA:O	2:H:790:LYS:NZ	2.48	0.44
1:C:123:GLU:HA	1:C:124:PRO:HD3	1.87	0.44
1:C:237:ARG:HB3	1:C:238:TYR:CD1	2.53	0.44
2:F:763:ARG:HB3	2:F:764:ASN:ND2	2.33	0.44
1:I:253:ALA:N	2:J:767:HIS:HE2	2.15	0.44
2:J:772:ASN:O	2:J:776:ALA:HB2	2.18	0.44
2:B:759:MET:HG3	2:B:802:LEU:HD21	1.98	0.44
2:B:783:ASN:HD21	2:B:785:LYS:HD3	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:121:LEU:HD12	1:C:121:LEU:HA	1.73	0.44
1:E:141:THR:O	1:E:145:MET:HG3	2.17	0.44
1:G:137:GLN:CB	1:G:139:CYS:SG	3.00	0.44
1:A:240:THR:HB	1:A:243:LYS:H	1.83	0.44
1:E:211:TRP:CE2	1:E:215:LEU:HD11	2.52	0.44
1:C:188:ILE:HD12	1:C:191:TRP:CE3	2.53	0.44
1:I:170:ALA:HB3	1:I:228:TRP:HZ2	1.83	0.44
2:B:797:ILE:HD13	2:B:802:LEU:HB2	2.00	0.43
2:D:779:HIS:O	2:D:782:PHE:N	2.51	0.43
2:F:747:ARG:HD3	2:F:784:ALA:CB	2.44	0.43
1:G:174:ILE:HD13	1:G:174:ILE:N	2.33	0.43
2:H:763:ARG:HD3	2:H:813:TYR:CD2	2.45	0.43
1:I:155:LYS:O	1:I:159:ASP:CB	2.66	0.43
1:C:82:TYR:CD2	1:C:95:LYS:HG3	2.53	0.43
1:I:215:LEU:HD23	1:I:220:LYS:HB2	2.00	0.43
1:C:203:MET:HE2	1:C:208:LEU:HB2	1.99	0.43
2:F:766:PRO:HD2	2:F:769:THR:HG21	2.00	0.43
1:G:170:ALA:O	1:G:174:ILE:HG12	2.17	0.43
2:D:756:VAL:CG2	2:D:757:ARG:N	2.81	0.43
2:B:779:HIS:O	2:B:780:GLN:CB	2.67	0.43
1:C:167:TYR:CD2	1:C:232:LEU:HD22	2.52	0.43
1:E:72:PRO:HB2	1:E:73:LYS:H	1.70	0.43
1:E:101:GLY:C	1:E:102:TYR:CD1	2.92	0.43
1:E:139:CYS:CB	1:E:144:ASP:HB3	2.41	0.43
1:E:160:LEU:O	1:E:163:PHE:HB3	2.18	0.43
2:J:752:GLU:O	2:J:756:VAL:HG23	2.18	0.43
1:C:90:ILE:HD13	1:C:94:VAL:HG23	2.00	0.43
1:C:150:LYS:O	1:C:154:VAL:HG23	2.18	0.43
1:E:72:PRO:HG2	1:E:75:LEU:CB	2.48	0.43
1:C:199:TYR:CB	1:C:200:PRO:CD	2.94	0.43
1:I:144:ASP:OD2	1:I:144:ASP:N	2.52	0.43
2:D:800:GLY:O	2:D:814:LEU:HD11	2.18	0.43
2:H:759:MET:CE	2:H:765:LEU:HB2	2.48	0.43
1:I:125:LEU:HD11	1:I:129:ASP:CB	2.49	0.43
1:A:240:THR:O	1:A:241:ILE:C	2.58	0.43
1:A:258:ILE:O	1:A:261:PHE:HB3	2.19	0.43
1:G:191:TRP:CH2	1:G:223:ILE:HD13	2.54	0.43
1:E:264:CYS:C	1:E:265:LEU:CD1	2.81	0.42
1:I:163:PHE:HZ	1:I:194:PHE:O	2.01	0.42
1:I:167:TYR:CD2	1:I:232:LEU:HD22	2.54	0.42
2:F:798:GLN:O	2:F:800:GLY:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:135:PHE:C	1:I:138:GLY:H	2.22	0.42
1:A:120:LYS:HG3	1:A:123:GLU:HB2	2.00	0.42
2:B:750:PHE:O	2:B:753:ALA:HB3	2.18	0.42
1:C:223:ILE:HD12	1:C:227:THR:HG21	2.01	0.42
2:D:770:LEU:O	2:D:770:LEU:HG	2.20	0.42
1:E:97:ILE:O	1:E:102:TYR:N	2.43	0.42
2:J:748:GLN:CD	2:J:791:ARG:HH12	2.21	0.42
1:A:203:MET:HE3	1:A:207:LEU:HB3	2.01	0.42
1:C:188:ILE:HD11	1:C:215:LEU:HD13	2.00	0.42
1:E:166:ILE:O	1:E:167:TYR:C	2.58	0.42
1:A:157:HIS:NE2	1:A:199:TYR:CE1	2.87	0.42
1:A:204:GLU:HG2	1:A:206:ASP:H	1.84	0.42
1:E:172:ASN:O	1:E:175:LEU:HG	2.20	0.42
1:I:167:TYR:HD2	1:I:232:LEU:HD22	1.85	0.42
1:I:253:ALA:CA	2:J:767:HIS:NE2	2.82	0.42
2:J:774:CYS:C	2:J:776:ALA:N	2.73	0.42
1:A:188:ILE:HG13	1:A:212:PHE:CD1	2.54	0.42
1:G:100:LEU:HD23	1:G:100:LEU:HA	1.68	0.42
2:J:765:LEU:HA	2:J:766:PRO:HD3	1.78	0.42
1:E:249:ASP:OD1	1:E:249:ASP:O	2.38	0.42
2:B:757:ARG:HH22	2:B:777:GLN:HE22	1.66	0.42
1:E:75:LEU:HD12	1:E:75:LEU:HA	1.74	0.42
1:E:239:PRO:HD2	1:E:243:LYS:HZ1	1.80	0.42
1:I:136:MET:HE2	1:I:136:MET:HB3	1.37	0.42
2:D:760:LYS:HD2	2:D:760:LYS:C	2.40	0.42
1:E:74:GLU:OE2	1:E:74:GLU:N	2.43	0.42
2:J:749:ILE:O	2:J:749:ILE:HG13	2.20	0.42
1:E:208:LEU:O	1:E:209:GLU:C	2.58	0.41
2:F:747:ARG:HH22	2:F:750:PHE:CB	2.28	0.41
2:F:760:LYS:NZ	1:I:137:GLN:OE1	2.50	0.41
2:H:780:GLN:H	2:H:780:GLN:HG2	1.72	0.41
1:A:171:PHE:O	1:A:174:ILE:CG1	2.66	0.41
1:E:121:LEU:HB2	1:E:173:LEU:HG	2.02	0.41
1:G:116:LEU:HD23	1:G:133:THR:HG21	2.02	0.41
1:C:251:THR:HG22	2:D:786:VAL:HG11	2.01	0.41
1:G:214:PHE:O	1:G:218:GLU:HG2	2.20	0.41
2:D:789:VAL:O	2:D:793:ILE:HG13	2.19	0.41
1:G:111:CYS:CB	1:G:152:LEU:HD13	2.48	0.41
1:G:177:PRO:O	1:G:178:ASN:HB2	2.20	0.41
1:I:127:ARG:HG3	1:I:127:ARG:NH1	2.36	0.41
1:I:164:THR:O	1:I:167:TYR:HB3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:184:THR:HA	1:I:223:ILE:HD11	2.03	0.41
1:A:261:PHE:O	1:A:264:CYS:N	2.52	0.41
1:C:97:ILE:HD12	1:C:103:ASN:O	2.21	0.41
1:C:204:GLU:CD	1:C:206:ASP:HB2	2.41	0.41
1:E:248:TYR:CZ	1:E:259:ASP:OD1	2.72	0.41
1:G:94:VAL:HA	1:G:97:ILE:HG12	2.02	0.41
1:I:233:LEU:O	1:I:233:LEU:HD23	2.20	0.41
1:A:152:LEU:HA	1:A:152:LEU:HD23	1.64	0.41
2:B:755:ILE:HG23	2:B:770:LEU:HD11	2.03	0.41
1:C:188:ILE:HG23	1:C:212:PHE:CZ	2.55	0.41
2:B:775:ILE:O	2:B:776:ALA:C	2.59	0.41
1:E:118:TYR:HB2	1:E:169:TYR:OH	2.21	0.41
1:G:141:THR:HG22	1:G:142:ILE:CD1	2.45	0.41
1:I:218:GLU:OE1	1:I:218:GLU:N	2.54	0.41
1:C:245:ILE:O	1:C:245:ILE:HD13	2.21	0.41
1:E:130:PHE:CE1	1:E:134:TRP:CD1	3.08	0.41
1:E:183:ASP:C	1:E:185:ASP:N	2.72	0.41
1:E:263:GLU:C	1:E:265:LEU:HD12	2.41	0.41
2:F:747:ARG:HE	2:F:751:LEU:CD1	2.33	0.41
2:F:775:ILE:HG23	2:F:776:ALA:N	2.35	0.41
1:G:92:SER:O	1:G:96:PHE:HB2	2.21	0.41
1:G:188:ILE:O	1:G:192:LYS:HG3	2.21	0.41
2:J:791:ARG:HB3	2:J:791:ARG:NH1	2.31	0.41
1:A:204:GLU:OE1	1:A:241:ILE:HD13	2.21	0.41
1:A:253:ALA:HB1	2:B:804:ARG:HH12	1.86	0.41
2:B:776:ALA:C	2:B:778:SER:N	2.75	0.41
1:C:162:TYR:CE2	1:C:166:ILE:HD11	2.56	0.41
1:C:238:TYR:HD2	1:C:244:ILE:CG1	2.30	0.41
1:E:176:ASP:HA	1:E:177:PRO:HD3	1.91	0.41
1:E:256:PHE:HD2	2:F:791:ARG:HA	1.86	0.41
1:G:208:LEU:HG	1:G:212:PHE:CE2	2.56	0.41
1:I:93:LEU:O	1:I:96:PHE:HB3	2.21	0.41
1:A:75:LEU:HA	1:A:75:LEU:HD12	1.84	0.41
2:H:771:VAL:HA	2:H:789:VAL:HG11	2.02	0.41
2:J:793:ILE:HD13	2:J:802:LEU:HD12	2.03	0.41
1:G:112:LEU:HD23	1:G:112:LEU:HA	1.74	0.40
1:G:141:THR:O	1:G:145:MET:HG2	2.21	0.40
1:E:79:PHE:CZ	1:E:127:ARG:HA	2.55	0.40
2:F:747:ARG:CD	2:F:782:PHE:CE1	2.87	0.40
1:I:79:PHE:CZ	1:I:127:ARG:HA	2.56	0.40
1:I:234:PHE:HE2	1:I:261:PHE:CE2	2.40	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:162:TYR:CD1	1:C:166:ILE:HD11	2.56	0.40
1:E:85:ASN:O	1:E:86:ASN:CB	2.68	0.40
2:F:756:VAL:HG12	2:F:757:ARG:H	1.86	0.40
1:I:116:LEU:HD23	1:I:133:THR:CB	2.51	0.40
1:I:214:PHE:HE2	1:I:257:ILE:HD11	1.86	0.40
1:E:157:HIS:HA	1:E:200:PRO:HD3	2.04	0.40
1:A:197:PRO:HG3	1:A:205:PRO:HG3	2.03	0.40
1:A:240:THR:HG22	1:A:242:GLN:H	1.86	0.40
1:E:100:LEU:HD23	1:E:100:LEU:HA	1.95	0.40
2:F:798:GLN:OE1	2:F:798:GLN:HA	2.21	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:237:ARG:NH2	1:E:71:TYR:N[2_655]	2.06	0.14
1:A:247:ASP:OD2	1:E:73:LYS:NZ[2_655]	2.07	0.13
1:A:237:ARG:NH2	1:E:71:TYR:CA[2_655]	2.19	0.01

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	193/202 (96%)	171 (89%)	21 (11%)	1 (0%)	29	64
1	C	196/202 (97%)	177 (90%)	18 (9%)	1 (0%)	29	64
1	E	193/202 (96%)	167 (86%)	22 (11%)	4 (2%)	7	30
1	G	190/202 (94%)	172 (90%)	18 (10%)	0	100	100
1	I	145/202 (72%)	128 (88%)	15 (10%)	2 (1%)	11	40
2	B	68/76 (90%)	58 (85%)	6 (9%)	4 (6%)	1	10
2	D	64/76 (84%)	58 (91%)	5 (8%)	1 (2%)	9	37

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	F	64/76 (84%)	57 (89%)	6 (9%)	1 (2%)	9	37
2	H	66/76 (87%)	60 (91%)	6 (9%)	0	100	100
2	J	55/76 (72%)	48 (87%)	5 (9%)	2 (4%)	3	20
All	All	1234/1390 (89%)	1096 (89%)	122 (10%)	16 (1%)	12	42

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	764	ASN
2	B	779	HIS
2	B	782	PHE
2	D	764	ASN
1	E	72	PRO
2	F	760	LYS
1	A	250	GLU
2	B	776	ALA
2	J	769	THR
1	E	104	LEU
1	E	252	ALA
1	C	243	LYS
1	E	85	ASN
1	I	236	LYS
1	I	197	PRO
2	J	808	GLY

5.3.2　Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	184/190 (97%)	174 (95%)	10 (5%)	22	53
1	C	187/190 (98%)	176 (94%)	11 (6%)	19	50
1	E	184/190 (97%)	167 (91%)	17 (9%)	9	33
1	G	181/190 (95%)	177 (98%)	4 (2%)	52	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	I	148/190 (78%)	131 (88%)	17 (12%)	5	22
2	B	59/65 (91%)	53 (90%)	6 (10%)	7	27
2	D	58/65 (89%)	51 (88%)	7 (12%)	5	20
2	F	58/65 (89%)	48 (83%)	10 (17%)	2	9
2	H	57/65 (88%)	54 (95%)	3 (5%)	22	54
2	J	50/65 (77%)	45 (90%)	5 (10%)	7	28
All	All	1166/1275 (92%)	1076 (92%)	90 (8%)	13	41

All (90) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	76	THR
1	A	140	SER
1	A	141	THR
1	A	186	GLU
1	A	220	LYS
1	A	229	ARG
1	A	237	ARG
1	A	240	THR
1	A	242	GLN
1	A	266	GLN
2	B	748	GLN
2	B	781	ARG
2	B	787	SER
2	B	789	VAL
2	B	790	LYS
2	B	795	SER
1	C	86	ASN
1	C	90	ILE
1	C	123	GLU
1	C	136	MET
1	C	172	ASN
1	C	188	ILE
1	C	204	GLU
1	C	205	PRO
1	C	236	LYS
1	C	245	ILE
1	C	259	ASP
2	D	760	LYS
2	D	762	LYS

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Mol	Chain	Res	Type
2	D	764	ASN
2	D	768	THR
2	D	771	VAL
2	D	773	GLU
2	D	787	SER
1	E	74	GLU
1	E	92	SER
1	E	103	ASN
1	E	104	LEU
1	E	107	LEU
1	E	139	CYS
1	E	175	LEU
1	E	206	ASP
1	E	227	THR
1	E	246	SER
1	E	249	ASP
1	E	250	GLU
1	E	251	THR
1	E	256	PHE
1	E	259	ASP
1	E	262	TYR
1	E	265	LEU
2	F	747	ARG
2	F	754	CYS
2	F	757	ARG
2	F	764	ASN
2	F	766	PRO
2	F	777	GLN
2	F	782	PHE
2	F	786	VAL
2	F	794	ASP
2	F	807	ASP
1	G	84	ASN
1	G	107	LEU
1	G	122	GLU
1	G	142	ILE
2	H	760	LYS
2	H	764	ASN
2	H	781	ARG
1	I	97	ILE
1	I	109	THR
1	I	141	THR

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Mol	Chain	Res	Type
1	I	144	ASP
1	I	146	GLN
1	I	148	CYS
1	I	196	GLN
1	I	205	PRO
1	I	207	LEU
1	I	211	TRP
1	I	218	GLU
1	I	221	THR
1	I	222	THR
1	I	238	TYR
1	I	256	PHE
1	I	257	ILE
1	I	268	GLN
2	J	748	GLN
2	J	760	LYS
2	J	791	ARG
2	J	793	ILE
2	J	807	ASP

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

Mol	Chain	Res	Type
1	A	157	HIS
1	A	165	GLN
1	A	168	ASN
1	A	196	GLN
2	B	779	HIS
2	B	783	ASN
1	C	77	GLN
1	C	114	HIS
1	C	168	ASN
1	C	172	ASN
2	D	748	GLN
2	D	764	ASN
1	E	168	ASN
1	E	242	GLN
2	F	764	ASN
2	F	767	HIS
1	G	81	HIS
1	G	84	ASN
1	G	157	HIS

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Mol	Chain	Res	Type
1	G	165	GLN
1	G	168	ASN
2	H	764	ASN
1	I	114	HIS
1	I	165	GLN
1	I	172	ASN
1	I	196	GLN
2	J	748	GLN
2	J	798	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	195/202 (96%)	-0.07	0	100	100	67, 93, 113, 129	0
1	C	198/202 (98%)	-0.05	0	100	100	66, 88, 118, 133	0
1	E	195/202 (96%)	-0.01	0	100	100	80, 118, 139, 144	0
1	G	192/202 (95%)	0.00	2 (1%)	82	67	79, 113, 137, 145	0
1	I	157/202 (77%)	0.58	16 (10%)	6	2	135, 153, 179, 191	0
2	B	70/76 (92%)	0.01	0	100	100	80, 103, 141, 149	0
2	D	68/76 (89%)	-0.02	0	100	100	80, 110, 135, 150	0
2	F	68/76 (89%)	0.24	5 (7%)	14	5	106, 129, 157, 163	0
2	H	68/76 (89%)	-0.01	0	100	100	89, 111, 129, 136	0
2	J	61/76 (80%)	0.33	3 (4%)	29	14	116, 135, 154, 156	0
All	All	1272/1390 (91%)	0.08	26 (2%)	65	44	66, 111, 159, 191	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	I	265	LEU	6.9
1	I	239	PRO	5.5
1	I	141	THR	4.1
1	I	146	GLN	3.6
2	F	745	THR	3.3
1	I	268	GLN	3.3
2	F	749	ILE	3.1
1	I	131	LEU	3.1
2	F	750	PHE	3.1
1	I	196	GLN	3.0
2	F	747	ARG	2.9
1	I	130	PHE	2.8
2	J	765	LEU	2.8

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Mol	Chain	Res	Type	RSRZ
2	J	748	GLN	2.8
1	I	256	PHE	2.6
1	I	142	ILE	2.5
1	I	263	GLU	2.5
1	I	95	LYS	2.2
1	G	169	TYR	2.1
1	I	261	PHE	2.1
1	I	108	ALA	2.1
2	J	815	ALA	2.1
1	I	79	PHE	2.1
1	I	254	TRP	2.0
1	G	152	LEU	2.0
2	F	815	ALA	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.