WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Dec 12, 2023 – 06:29 pm GMT

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PDB ID	:	2X6F
Title	:	THE CRYSTAL STRUCTURE OF THE DROSOPHILA CLASS III PI3-KINASE VPS34 IN COMPLEX WITH 3-METHYLADENINE
Authors	:	Miller, S.; Tavshanjian, B.; Oleksy, A.; Perisic, O.; Houseman, B.T.; Shokat, K.M.; Williams, R.L.
Deposited on	:	2010-02-17
Resolution	:	3.30 Å(reported)

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION
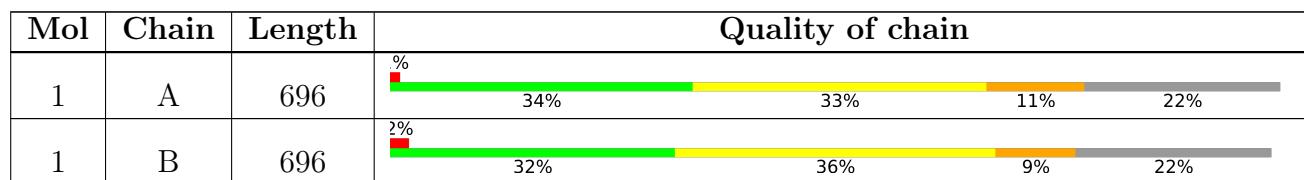
The reported resolution of this entry is 3.30 Å.

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		0.286
Clashscore		40
Ramachandran outliers		1.2%
Sidechain outliers		18.9%
RSRZ outliers		1.8%

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	1149 (3.34-3.26)
Clashscore	141614	1205 (3.34-3.26)
Ramachandran outliers	138981	1183 (3.34-3.26)
Sidechain outliers	138945	1182 (3.34-3.26)
RSRZ outliers	127900	1115 (3.34-3.26)

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	696	.% 34% 33% 11% 22%
1	B	696	2% 32% 36% 9% 22%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 8897 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.
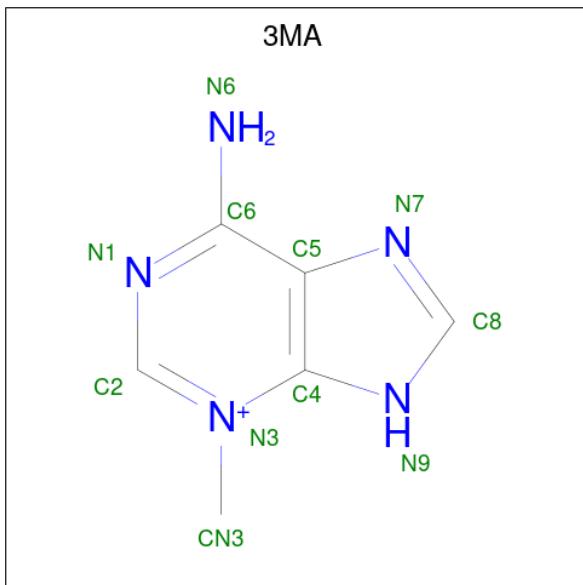
- Molecule 1 is a protein called PHOSPHOTIDYLINOSITOL 3 KINASE 59F.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	543	Total	C	N	O	S	0	0	0
			4443	2873	754	789	27			
1	B	542	Total	C	N	O	S	0	0	0
			4432	2867	754	784	27			

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	254	GLY	-	expression tag	UNP Q9W1M7
A	255	SER	-	expression tag	UNP Q9W1M7
A	256	HIS	-	expression tag	UNP Q9W1M7
A	257	MET	-	expression tag	UNP Q9W1M7
A	455	ALA	GLY	engineered mutation	UNP Q9W1M7
B	254	GLY	-	expression tag	UNP Q9W1M7
B	255	SER	-	expression tag	UNP Q9W1M7
B	256	HIS	-	expression tag	UNP Q9W1M7
B	257	MET	-	expression tag	UNP Q9W1M7
B	455	ALA	GLY	engineered mutation	UNP Q9W1M7

- Molecule 2 is 6-AMINO-3-METHYLPURINE (three-letter code: 3MA) (formula: $C_6H_8N_5$).

3MA

N6

NH₂

C6   N7

N1 N   C5   N

C8

C2   C4   N
H

N⁺ N3   N9

CN3
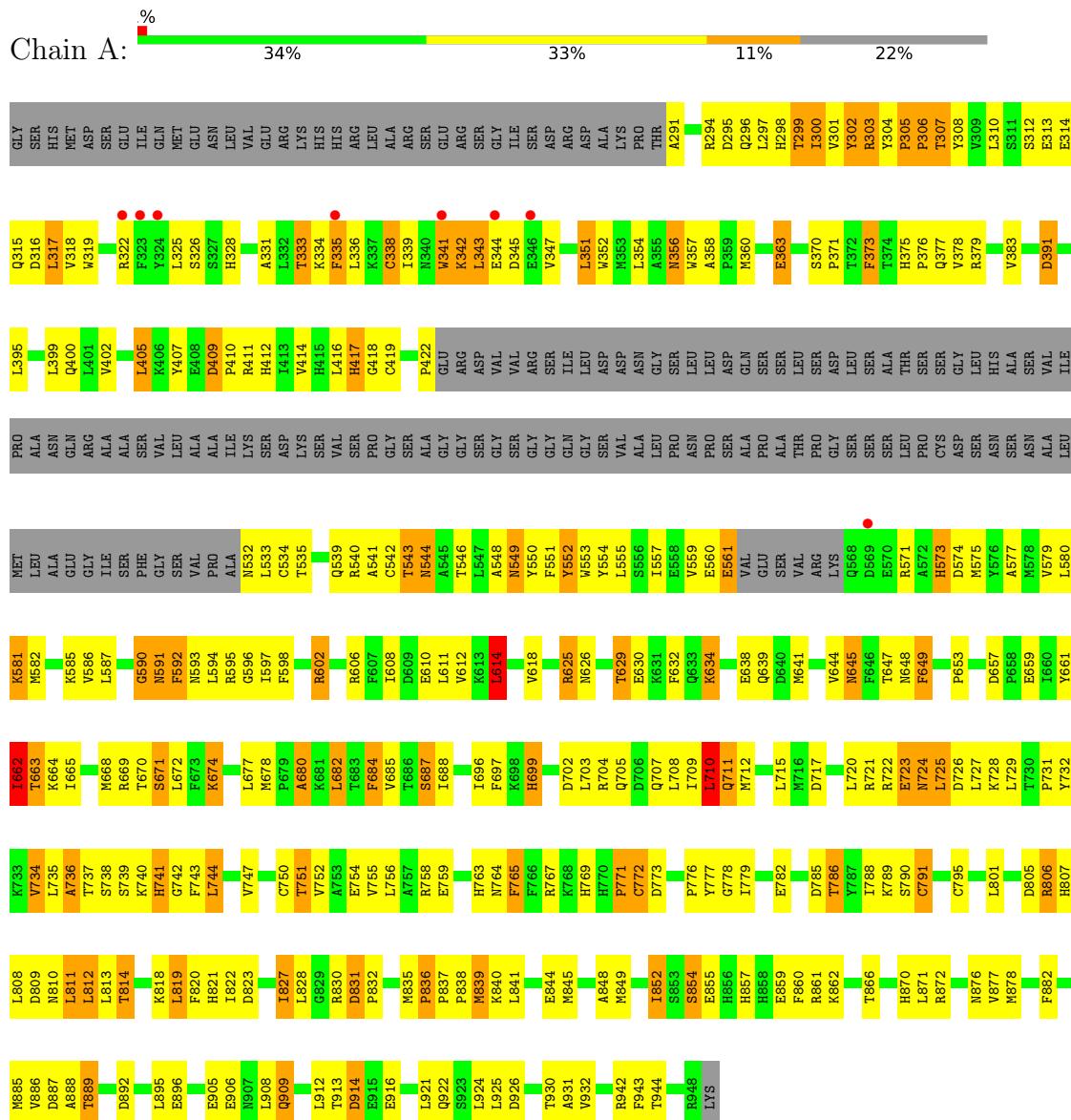
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 11	C 6	N 5	0	0
2	B	1	Total 11	C 6	N 5	0	0

W O R L D W I D E

PDB

PROTEIN DATA BANK
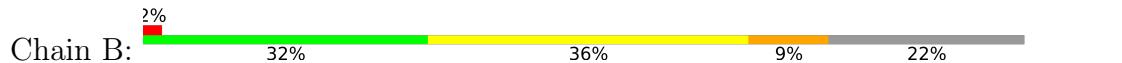
3 Residue-property plots ⓘ
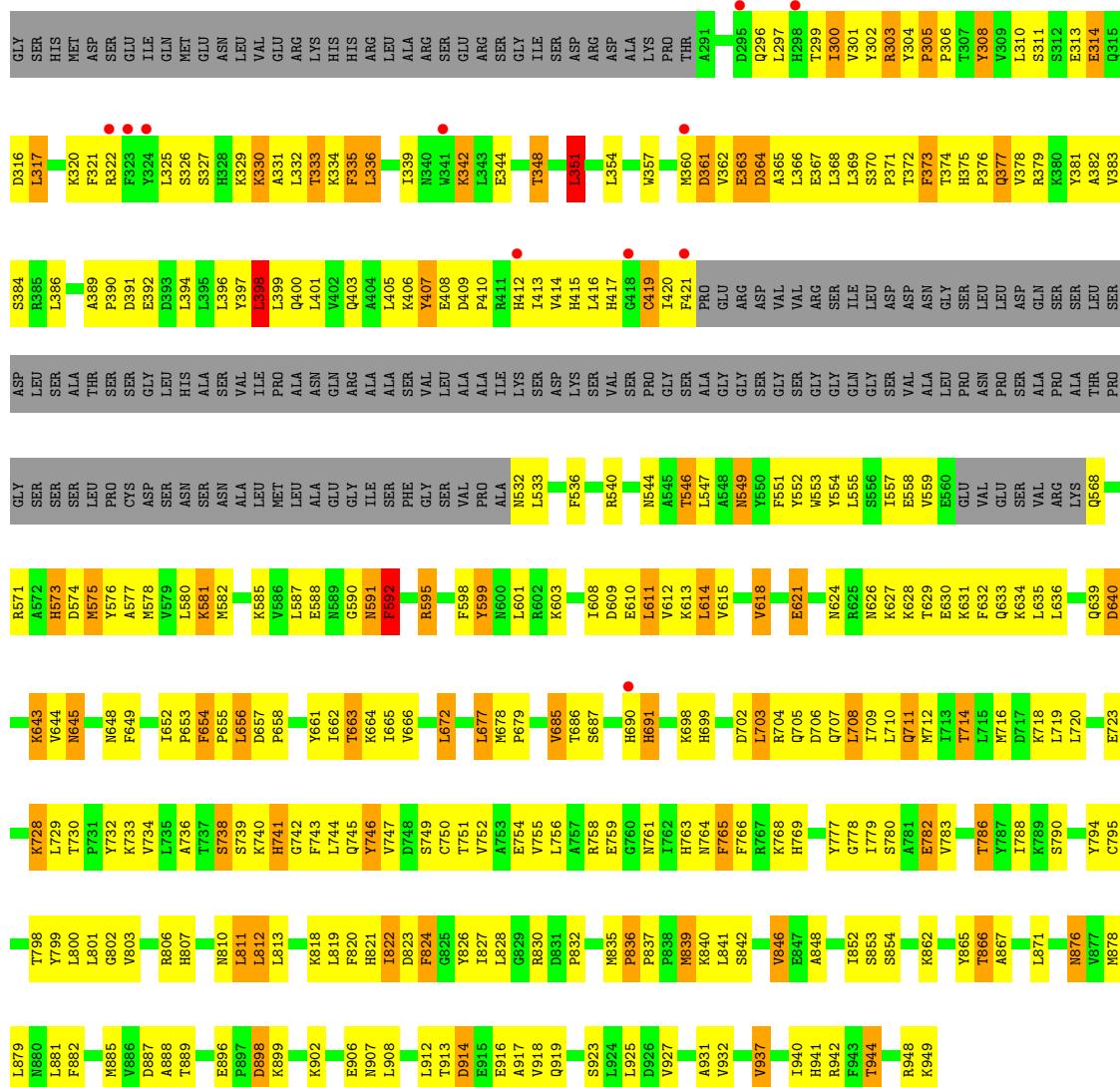
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: PHOSPHOTIDYLINOSITOL 3 KINASE 59F

Chain A:

- Molecule 1: PHOSPHOTIDYLINOSITOL 3 KINASE 59F

Chain B:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	I 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	112.07Å 155.14Å 244.53Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	61.13 – 3.30 61.13 – 3.30	Depositor EDS
% Data completeness (in resolution range)	97.5 (61.13-3.30) 97.5 (61.13-3.30)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.00 (at 3.33Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.242 , 0.293 0.237 , 0.286	Depositor DCC
R_{free} test set	1564 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å^2)	114.7	Xtriage
Anisotropy	0.050	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 77.9	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.46, < L^2 > = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	8897	wwPDB-VP
Average B, all atoms (Å^2)	90.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.67% 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 $< \lvert L \rvert >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 3MA

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	0.57	1/4552 (0.0%)	0.84	4/6165 (0.1%)
1	B	0.46	0/4540	0.68	4/6147 (0.1%)
All	All	0.52	1/9092 (0.0%)	0.76	8/12312 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	5

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	590	GLY	C-O	5.43	1.32	1.23

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	710	LEU	CA-CB-CG	-6.57	100.18	115.30
1	B	398	LEU	CA-CB-CG	6.05	129.22	115.30
1	B	351	LEU	CA-CB-CG	5.64	128.27	115.30
1	B	677	LEU	CA-CB-CG	5.61	128.20	115.30
1	B	344	GLU	N-CA-C	5.42	125.64	111.00
1	A	614	LEU	CA-CB-CG	5.38	127.68	115.30
1	A	325	LEU	CA-CB-CG	5.21	127.28	115.30
1	A	854	SER	N-CA-C	-5.20	96.97	111.00

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	590	GLY	Mainchain
1	A	591	ASN	Mainchain
1	A	680	ALA	Peptide
1	A	734	VAL	Peptide
1	A	736	ALA	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4443	0	4472	350	1
1	B	4432	0	4468	383	0
2	A	11	0	8	1	0
2	B	11	0	8	2	0
All	All	8897	0	8956	721	1

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 40.

All (721) 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:300:ILE:HG12	1:B:304:TYR:CE2	1.58	1.38
1:B:360:MET:HB3	1:B:364:ASP:OD2	1.28	1.27
1:B:305:PRO:HG3	1:B:308:TYR:CD1	1.71	1.25
1:B:299:THR:HA	1:B:302:TYR:CE2	1.82	1.14
1:B:811:LEU:HD22	1:B:821:HIS:CD2	1.86	1.10
1:B:811:LEU:HD22	1:B:821:HIS:HD2	1.07	1.07
1:B:300:ILE:CG1	1:B:304:TYR:HE2	1.67	1.07
1:B:412:HIS:HB3	1:B:532:ASN:HD21	0.96	1.06
1:A:375:HIS:CD2	1:A:377:GLN:H	1.72	1.06
1:B:409:ASP:HB3	1:B:412:HIS:ND1	1.70	1.06
1:A:577:ALA:O	1:A:581:LYS:HD2	1.57	1.05
1:B:412:HIS:HB3	1:B:532:ASN:ND2	1.71	1.05
1:B:370:SER:HB2	1:B:371:PRO:HD2	1.39	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:391:ASP:OD2	1:B:540:ARG:NH2	1.91	1.03
1:B:716:MET:HG2	1:B:878:MET:CE	1.89	1.02
1:A:322:ARG:HH12	1:A:339:ILE:HD11	1.18	1.01
1:A:322:ARG:NH2	1:A:338:CYS:SG	2.33	1.01
1:B:739:SER:O	1:B:740:LYS:HG2	1.60	1.01
1:B:664:LYS:HG3	1:B:685:VAL:CG2	1.90	1.00
1:B:592:PHE:HA	1:B:595:ARG:HD3	1.43	0.99
1:B:375:HIS:NE2	1:B:377:GLN:HB2	1.78	0.98
1:B:595:ARG:HG2	1:B:595:ARG:HH11	1.28	0.97
1:B:794:TYR:O	1:B:798:THR:HG23	1.64	0.97
1:B:412:HIS:CB	1:B:532:ASN:HD21	1.78	0.96
1:B:664:LYS:HG3	1:B:685:VAL:HG21	1.48	0.96
1:B:322:ARG:NH1	1:B:335:PHE:HB2	1.80	0.96
1:A:322:ARG:NH1	1:A:339:ILE:HD11	1.83	0.94
1:B:756:LEU:HA	1:B:759:GLU:O	1.68	0.94
1:B:322:ARG:CZ	1:B:335:PHE:HB2	1.98	0.93
1:B:827:ILE:HG22	1:B:828:LEU:HG	1.49	0.93
1:A:319:TRP:HD1	1:A:319:TRP:O	1.50	0.93
1:A:294:ARG:O	1:A:298:HIS:HD2	1.51	0.92
1:A:751:THR:HG23	1:A:754:GLU:HG3	1.51	0.91
1:B:836:PRO:HB2	1:B:837:PRO:CA	2.00	0.91
1:B:300:ILE:CG1	1:B:304:TYR:CE2	2.46	0.91
1:B:876:ASN:H	1:B:876:ASN:HD22	1.10	0.91
1:B:409:ASP:HB3	1:B:412:HIS:CE1	2.07	0.90
1:B:716:MET:HG2	1:B:878:MET:HE1	1.50	0.90
1:A:409:ASP:HB2	1:A:412:HIS:ND1	1.87	0.89
1:B:296:GLN:O	1:B:299:THR:HG22	1.73	0.89
1:B:558:GLU:HB3	1:B:576:TYR:HD1	1.37	0.89
1:A:302:TYR:HD2	1:A:303:ARG:N	1.72	0.89
1:A:806:ARG:NH2	1:A:822:ILE:O	2.06	0.88
1:B:629:THR:HG22	1:B:672:LEU:HB2	1.55	0.88
1:A:409:ASP:HB2	1:A:412:HIS:CE1	2.09	0.86
1:B:592:PHE:HA	1:B:595:ARG:CD	2.05	0.86
1:B:710:LEU:HD23	1:B:732:TYR:O	1.75	0.86
1:A:335:PHE:CD1	1:A:357:TRP:CZ3	2.64	0.86
1:B:549:ASN:C	1:B:549:ASN:HD22	1.76	0.86
1:B:592:PHE:CA	1:B:595:ARG:HD3	2.06	0.86
1:A:913:THR:HG22	1:A:916:GLU:CD	1.95	0.86
1:B:812:LEU:HD21	1:B:822:ILE:HB	1.57	0.86
1:A:315:GLN:HB2	1:A:338:CYS:SG	2.15	0.86
1:A:319:TRP:HA	1:A:322:ARG:CD	2.07	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:608:ILE:O	1:A:612:VAL:HG23	1.76	0.85
1:A:922:GLN:HE22	1:B:919:GLN:HB3	1.40	0.85
1:A:375:HIS:NE2	1:A:377:GLN:HB2	1.91	0.85
1:A:827:ILE:HG23	1:A:828:LEU:HG	1.55	0.85
1:A:335:PHE:HD1	1:A:357:TRP:CZ3	1.95	0.84
1:A:806:ARG:CZ	1:A:810:ASN:HD21	1.90	0.84
1:A:837:PRO:O	1:A:840:LYS:HE2	1.77	0.84
1:B:549:ASN:OD1	1:B:658:PRO:HG3	1.77	0.84
1:B:300:ILE:HG12	1:B:304:TYR:HE2	0.75	0.84
1:A:717:ASP:OD2	1:A:721:ARG:NH1	2.09	0.84
1:B:592:PHE:HD2	1:B:595:ARG:HE	1.26	0.83
1:A:836:PRO:HB2	1:A:837:PRO:HA	1.59	0.83
1:B:719:LEU:O	1:B:723:GLU:HG2	1.78	0.83
1:A:302:TYR:HE2	1:A:303:ARG:HG2	1.41	0.83
1:B:732:TYR:HB2	1:B:745:GLN:HB3	1.59	0.83
1:B:705:GLN:HG3	1:B:827:ILE:HD11	1.61	0.83
1:B:575:MET:SD	1:B:576:TYR:HD2	2.02	0.83
1:B:836:PRO:HB2	1:B:837:PRO:HA	1.58	0.83
1:B:630:GLU:HA	1:B:633:GLN:OE1	1.79	0.83
1:A:553:TRP:O	1:A:557:ILE:HG13	1.79	0.82
1:A:776:PRO:HG2	1:A:777:TYR:HD1	1.43	0.82
1:B:761:ASN:OD1	1:B:764:ASN:HB2	1.78	0.82
1:A:314:GLU:HA	1:A:317:LEU:HD21	1.62	0.82
1:A:703:LEU:HD12	1:A:742:GLY:HA3	1.62	0.81
1:B:348:THR:HA	1:B:351:LEU:HD22	1.61	0.81
1:A:638:GLU:HG2	1:A:641:MET:HG3	1.60	0.81
1:A:855:GLU:H	1:A:855:GLU:CD	1.82	0.81
1:A:300:ILE:O	1:A:304:TYR:CD2	2.33	0.80
1:B:608:ILE:O	1:B:612:VAL:HG23	1.82	0.80
1:A:854:SER:HB2	1:A:857:HIS:H	1.47	0.80
1:A:305:PRO:HB3	1:A:308:TYR:CD2	2.16	0.80
1:A:300:ILE:O	1:A:304:TYR:HD2	1.64	0.80
1:A:304:TYR:HB2	1:A:305:PRO:HD3	1.64	0.80
1:A:335:PHE:CD1	1:A:357:TRP:HZ3	1.97	0.80
1:A:743:PHE:C	1:A:744:LEU:HD23	2.01	0.80
1:B:730:THR:HG22	1:B:818:LYS:HD3	1.63	0.80
1:A:602:ARG:HH11	1:A:606:ARG:HD2	1.47	0.79
1:A:542:CYS:HB3	1:A:594:LEU:HD11	1.62	0.79
1:B:709:ILE:HG21	1:B:824:PHE:CD2	2.16	0.79
1:A:542:CYS:HB3	1:A:594:LEU:CD1	2.11	0.79
1:A:942:ARG:HD3	1:B:835:MET:HG3	1.64	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:319:TRP:HA	1:A:322:ARG:HD2	1.64	0.79
1:B:367:GLU:O	1:B:370:SER:OG	2.00	0.78
1:A:839:MET:HG2	1:A:925:LEU:CD2	2.12	0.78
1:A:625:ARG:O	1:A:629:THR:HG22	1.82	0.78
1:B:549:ASN:C	1:B:549:ASN:ND2	2.36	0.78
1:B:371:PRO:HB3	1:B:407:TYR:CE1	2.19	0.78
1:B:634:LYS:HA	1:B:634:LYS:HE2	1.66	0.78
1:A:751:THR:HG23	1:A:754:GLU:CG	2.13	0.78
1:A:296:GLN:HA	1:A:299:THR:HG22	1.64	0.77
1:B:763:HIS:NE2	1:B:848:ALA:HA	1.99	0.77
1:A:375:HIS:CD2	1:A:377:GLN:N	2.52	0.77
1:A:931:ALA:O	1:B:944:THR:CG2	2.33	0.77
1:B:407:TYR:N	1:B:407:TYR:CD2	2.52	0.77
1:B:876:ASN:H	1:B:876:ASN:ND2	1.83	0.77
1:B:795:CYS:SG	1:B:841:LEU:HD21	2.26	0.76
1:B:573:HIS:CD2	1:B:574:ASP:N	2.54	0.76
1:A:549:ASN:HD22	1:A:550:TYR:N	1.83	0.76
1:A:763:HIS:CE1	1:A:848:ALA:O	2.38	0.76
1:B:578:MET:O	1:B:582:MET:HG3	1.85	0.76
1:B:878:MET:O	1:B:882:PHE:HD2	1.68	0.76
1:A:312:SER:N	1:A:314:GLU:OE1	2.16	0.76
1:A:552:TYR:C	1:A:552:TYR:CD2	2.59	0.76
1:B:558:GLU:CB	1:B:576:TYR:HD1	1.99	0.76
1:B:326:SER:HA	1:B:357:TRP:CZ2	2.21	0.75
1:B:782:GLU:O	1:B:786:THR:HG22	1.87	0.75
1:B:407:TYR:N	1:B:407:TYR:HD2	1.84	0.75
1:A:807:HIS:CD2	1:A:809:ASP:HB2	2.21	0.75
1:B:703:LEU:HD22	1:B:744:LEU:HD21	1.67	0.75
1:B:716:MET:HG2	1:B:878:MET:HE2	1.68	0.74
1:A:734:VAL:HG22	1:A:744:LEU:HD22	1.68	0.74
1:B:305:PRO:HG3	1:B:308:TYR:HD1	1.44	0.74
1:B:305:PRO:CG	1:B:308:TYR:CD1	2.63	0.74
1:A:410:PRO:O	1:A:414:VAL:HG23	1.88	0.74
1:A:302:TYR:C	1:A:302:TYR:CD2	2.61	0.73
1:A:319:TRP:O	1:A:319:TRP:CD1	2.37	0.73
1:A:743:PHE:O	1:A:744:LEU:HD23	1.86	0.73
1:B:332:LEU:HB3	1:B:360:MET:SD	2.28	0.73
1:B:305:PRO:HG3	1:B:308:TYR:CE1	2.21	0.73
1:A:931:ALA:O	1:B:944:THR:HG22	1.89	0.73
1:B:777:TYR:O	1:B:779:ILE:N	2.21	0.73
1:A:811:LEU:C	1:A:812:LEU:HD23	2.09	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:322:ARG:NH2	1:B:331:ALA:O	2.21	0.73
1:B:375:HIS:CD2	1:B:377:GLN:H	2.07	0.72
1:B:392:GLU:O	1:B:396:LEU:HD12	1.89	0.72
1:A:672:LEU:HD12	1:A:678:MET:HE2	1.71	0.72
1:A:375:HIS:NE2	1:A:377:GLN:CB	2.52	0.72
1:A:399:LEU:O	1:A:399:LEU:HD12	1.90	0.72
1:B:705:GLN:HG3	1:B:827:ILE:CD1	2.19	0.71
1:B:379:ARG:O	1:B:383:VAL:HG23	1.91	0.71
1:B:654:PHE:HD1	1:B:655:PRO:HD2	1.55	0.71
1:A:763:HIS:HE1	1:A:848:ALA:O	1.70	0.71
1:B:720:LEU:O	1:B:723:GLU:HB2	1.89	0.71
1:B:410:PRO:O	1:B:414:VAL:HG13	1.90	0.71
1:A:573:HIS:C	1:A:573:HIS:CD2	2.64	0.71
1:A:836:PRO:HB2	1:A:837:PRO:CA	2.19	0.71
1:A:806:ARG:CZ	1:A:810:ASN:ND2	2.53	0.70
1:A:296:GLN:HA	1:A:299:THR:CG2	2.20	0.70
1:B:591:ASN:C	1:B:595:ARG:HD2	2.12	0.70
1:A:319:TRP:CD1	1:A:319:TRP:C	2.62	0.70
1:A:302:TYR:CE2	1:A:303:ARG:HG2	2.25	0.70
1:B:573:HIS:HD2	1:B:574:ASP:N	1.86	0.70
1:B:777:TYR:HB2	1:B:779:ILE:CD1	2.21	0.70
1:B:369:LEU:O	1:B:379:ARG:NH1	2.25	0.69
1:B:370:SER:HB2	1:B:371:PRO:CD	2.19	0.69
1:A:582:MET:O	1:A:586:VAL:HG23	1.92	0.69
1:B:679:PRO:HB3	1:B:698:LYS:HG3	1.74	0.69
1:B:654:PHE:CD1	1:B:655:PRO:HD2	2.27	0.69
1:B:663:THR:OG1	1:B:664:LYS:HG2	1.93	0.69
1:B:703:LEU:HB2	1:B:736:ALA:HB2	1.74	0.69
1:B:862:LYS:O	1:B:866:THR:HG22	1.92	0.69
1:B:876:ASN:HD22	1:B:876:ASN:N	1.88	0.69
1:A:827:ILE:HG22	1:A:892:ASP:CB	2.23	0.69
1:B:810:ASN:O	1:B:822:ILE:HG22	1.93	0.68
1:A:294:ARG:O	1:A:298:HIS:CD2	2.40	0.68
1:B:394:LEU:O	1:B:398:LEU:N	2.26	0.68
1:A:314:GLU:HA	1:A:317:LEU:CD2	2.23	0.68
1:B:755:VAL:O	1:B:759:GLU:N	2.24	0.68
1:A:395:LEU:O	1:A:395:LEU:HD23	1.94	0.68
1:B:371:PRO:HB3	1:B:407:TYR:HE1	1.55	0.68
1:B:375:HIS:NE2	1:B:377:GLN:CB	2.56	0.67
1:B:765:PHE:C	1:B:765:PHE:CD2	2.67	0.67
1:B:573:HIS:CD2	1:B:573:HIS:C	2.67	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:396:LEU:HD12	1:B:396:LEU:H	1.58	0.67
1:B:836:PRO:CB	1:B:837:PRO:C	2.62	0.67
1:B:348:THR:HA	1:B:351:LEU:CD2	2.24	0.67
1:B:599:TYR:HD2	1:B:599:TYR:O	1.78	0.67
1:B:575:MET:SD	1:B:576:TYR:CD2	2.88	0.67
1:A:738:SER:OG	1:A:741:HIS:NE2	2.27	0.67
1:A:772:CYS:O	1:A:778:GLY:HA2	1.95	0.67
1:B:595:ARG:HH11	1:B:595:ARG:CG	2.06	0.67
1:B:716:MET:CG	1:B:878:MET:HE1	2.24	0.67
1:A:703:LEU:CD1	1:A:742:GLY:HA3	2.25	0.67
1:A:645:ASN:C	1:A:645:ASN:HD22	1.98	0.67
1:A:308:TYR:HD1	1:A:310:LEU:HB2	1.58	0.66
1:A:756:LEU:HD11	1:A:844:GLU:HG2	1.77	0.66
1:A:664:LYS:HB2	1:A:685:VAL:HG22	1.76	0.66
1:A:591:ASN:O	1:A:595:ARG:NH1	2.29	0.66
1:A:852:ILE:H	1:A:852:ILE:CD1	2.08	0.66
1:B:912:LEU:HB3	1:B:916:GLU:HB2	1.76	0.66
1:A:705:GLN:NE2	1:A:892:ASP:OD1	2.30	0.65
1:B:836:PRO:HB2	1:B:837:PRO:C	2.15	0.65
1:B:333:THR:HG22	1:B:360:MET:HE3	1.77	0.65
1:A:379:ARG:O	1:A:383:VAL:HG23	1.96	0.65
1:A:602:ARG:NH1	1:A:606:ARG:HD2	2.12	0.65
1:A:727:LEU:HD23	1:A:727:LEU:N	2.09	0.65
1:B:409:ASP:CB	1:B:412:HIS:CE1	2.77	0.65
1:B:558:GLU:HB3	1:B:576:TYR:CD1	2.26	0.65
1:A:302:TYR:HE2	1:A:303:ARG:CG	2.10	0.65
1:B:654:PHE:HD1	1:B:655:PRO:CD	2.09	0.65
1:A:322:ARG:HH12	1:A:339:ILE:CD1	2.02	0.64
1:A:723:GLU:O	1:A:724:ASN:CB	2.44	0.64
1:B:409:ASP:CB	1:B:412:HIS:ND1	2.56	0.64
1:A:790:SER:CB	1:A:819:LEU:H	2.10	0.64
1:A:852:ILE:N	1:A:852:ILE:HD12	2.12	0.64
1:A:807:HIS:HD2	1:A:809:ASP:HB2	1.61	0.64
1:B:335:PHE:C	1:B:335:PHE:CD2	2.70	0.64
1:A:297:LEU:O	1:A:301:VAL:HG23	1.98	0.63
1:A:550:TYR:O	1:A:554:TYR:CD2	2.51	0.63
1:A:610:GLU:HG3	1:A:644:VAL:HG12	1.81	0.63
1:B:649:PHE:CE2	1:B:664:LYS:HA	2.33	0.63
1:B:751:THR:CG2	1:B:754:GLU:HG3	2.29	0.63
1:B:865:TYR:CD1	1:B:918:VAL:HG13	2.33	0.63
1:A:560:GLU:OE1	1:A:738:SER:HB2	1.98	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:299:THR:HA	1:B:302:TYR:HE2	1.58	0.63
1:B:595:ARG:HG2	1:B:595:ARG:NH1	2.06	0.63
1:A:674:LYS:H	1:A:674:LYS:HD3	1.62	0.63
1:B:311:SER:HB2	1:B:314:GLU:HB3	1.79	0.63
1:B:375:HIS:CD2	1:B:377:GLN:N	2.66	0.63
1:A:302:TYR:CD2	1:A:303:ARG:N	2.62	0.62
1:A:839:MET:HG2	1:A:925:LEU:HD23	1.81	0.62
1:B:551:PHE:O	1:B:555:LEU:HG	1.99	0.62
1:A:549:ASN:C	1:A:549:ASN:ND2	2.52	0.62
1:B:573:HIS:HD2	1:B:574:ASP:CA	2.11	0.62
1:B:811:LEU:CD2	1:B:821:HIS:HD2	1.97	0.62
1:B:661:TYR:HB2	1:B:687:SER:HB3	1.80	0.62
1:A:417:HIS:ND1	1:A:417:HIS:C	2.52	0.62
1:A:723:GLU:O	1:A:724:ASN:HB3	1.99	0.62
1:A:373:PHE:N	1:A:373:PHE:HD2	1.98	0.61
1:B:306:PRO:HG2	1:B:879:LEU:HD12	1.81	0.61
1:A:335:PHE:C	1:A:335:PHE:CD2	2.73	0.61
1:A:836:PRO:CB	1:A:837:PRO:CA	2.77	0.61
1:A:723:GLU:OE1	1:A:723:GLU:HA	2.00	0.61
1:A:302:TYR:HD2	1:A:302:TYR:C	1.99	0.61
1:A:351:LEU:CD1	1:A:377:GLN:HG2	2.31	0.61
1:A:625:ARG:HA	1:A:678:MET:HE1	1.83	0.61
1:A:862:LYS:O	1:A:866:THR:HG23	2.00	0.61
1:A:739:SER:O	1:A:740:LYS:HG2	2.01	0.61
1:B:322:ARG:NH1	1:B:357:TRP:CH2	2.69	0.61
1:A:812:LEU:HD11	1:A:822:ILE:CD1	2.31	0.60
1:B:703:LEU:HD13	1:B:742:GLY:HA3	1.84	0.60
1:A:931:ALA:O	1:B:944:THR:HG23	2.01	0.60
1:B:371:PRO:CB	1:B:407:TYR:HE1	2.15	0.60
1:B:558:GLU:HG3	1:B:576:TYR:CE1	2.37	0.60
1:A:672:LEU:HD12	1:A:678:MET:CE	2.31	0.60
1:A:672:LEU:HD22	1:A:680:ALA:HA	1.83	0.60
1:B:888:ALA:O	1:B:889:THR:HB	2.02	0.60
1:A:591:ASN:H	1:A:594:LEU:HB2	1.67	0.60
1:A:684:PHE:N	1:A:684:PHE:CD2	2.69	0.60
1:A:595:ARG:HG3	1:A:595:ARG:HH11	1.67	0.60
1:A:306:PRO:HD2	1:A:307:THR:HG22	1.82	0.60
1:B:360:MET:HG2	1:B:381:TYR:OH	2.02	0.60
1:B:827:ILE:HG22	1:B:828:LEU:CG	2.28	0.60
1:A:304:TYR:CB	1:A:305:PRO:HD3	2.32	0.59
1:A:737:THR:HG22	1:A:738:SER:N	2.17	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:373:PHE:N	1:A:373:PHE:CD2	2.71	0.59
1:A:405:LEU:HD23	1:A:533:LEU:CD2	2.32	0.59
1:A:375:HIS:CD2	1:A:375:HIS:C	2.74	0.59
1:A:335:PHE:C	1:A:335:PHE:HD2	2.05	0.59
1:B:322:ARG:HD3	1:B:335:PHE:CD1	2.38	0.59
1:B:397:TYR:O	1:B:401:LEU:HD13	2.01	0.59
1:B:406:LYS:NZ	1:B:887:ASP:O	2.35	0.59
1:B:813:LEU:HD12	1:B:818:LYS:O	2.03	0.59
1:A:678:MET:O	1:A:699:HIS:NE2	2.35	0.59
1:A:852:ILE:CD1	1:A:852:ILE:N	2.65	0.59
1:B:587:LEU:HB3	1:B:598:PHE:HB2	1.85	0.59
1:B:598:PHE:C	1:B:598:PHE:CD2	2.76	0.59
1:B:738:SER:HB3	1:B:741:HIS:CE1	2.37	0.59
1:A:645:ASN:O	1:A:648:ASN:O	2.19	0.59
1:A:855:GLU:CD	1:A:855:GLU:N	2.55	0.59
1:A:872:ARG:HH12	1:A:909:GLN:C	2.05	0.59
1:B:332:LEU:O	1:B:336:LEU:HD22	2.02	0.59
1:B:798:THR:O	1:B:802:GLY:N	2.36	0.59
1:A:308:TYR:CD1	1:A:310:LEU:HB2	2.38	0.59
1:B:405:LEU:HB3	1:B:575:MET:CE	2.33	0.59
1:A:827:ILE:HG22	1:A:892:ASP:HB2	1.85	0.59
1:B:410:PRO:HA	1:B:413:ILE:HD12	1.83	0.59
1:B:836:PRO:CB	1:B:837:PRO:CA	2.77	0.58
1:B:575:MET:SD	1:B:575:MET:C	2.82	0.58
1:B:624:ASN:HB3	1:B:627:LYS:HG3	1.84	0.58
1:B:664:LYS:CG	1:B:685:VAL:HG21	2.29	0.58
1:A:763:HIS:HE1	1:A:848:ALA:C	2.07	0.58
1:B:405:LEU:HB3	1:B:575:MET:HE1	1.86	0.58
1:B:672:LEU:HD22	1:B:678:MET:HB2	1.86	0.58
1:B:806:ARG:N	1:B:806:ARG:HD2	2.19	0.58
1:A:737:THR:CG2	1:A:741:HIS:HD2	2.17	0.58
1:B:664:LYS:HE3	1:B:685:VAL:HG21	1.84	0.58
1:A:575:MET:O	1:A:579:VAL:HG23	2.04	0.58
1:A:712:MET:SD	1:A:882:PHE:HE2	2.26	0.58
1:A:776:PRO:HD2	1:A:779:ILE:O	2.04	0.58
1:A:591:ASN:OD1	1:A:592:PHE:N	2.34	0.57
1:A:333:THR:HG22	1:A:360:MET:HE2	1.85	0.57
1:B:306:PRO:CG	1:B:879:LEU:HD12	2.34	0.57
1:B:648:ASN:HA	1:B:664:LYS:HB3	1.86	0.57
1:B:335:PHE:C	1:B:335:PHE:HD2	2.08	0.57
1:B:734:VAL:HG22	1:B:744:LEU:HD22	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:363:GLU:H	1:A:363:GLU:CD	2.06	0.57
1:A:710:LEU:CD2	1:A:732:TYR:O	2.52	0.57
1:A:827:ILE:O	1:A:830:ARG:HG2	2.03	0.57
1:A:344:GLU:O	1:A:347:VAL:HB	2.05	0.57
1:B:322:ARG:HD3	1:B:335:PHE:HD1	1.68	0.57
1:A:335:PHE:HD1	1:A:357:TRP:HZ3	1.35	0.57
1:A:723:GLU:HG3	1:A:870:HIS:ND1	2.19	0.57
1:A:767:ARG:O	1:A:771:PRO:HB3	2.05	0.57
1:B:777:TYR:HB2	1:B:779:ILE:HD12	1.86	0.57
1:A:909:GLN:HA	1:A:909:GLN:OE1	2.05	0.57
1:A:305:PRO:CB	1:A:308:TYR:CD2	2.87	0.57
1:B:299:THR:HA	1:B:302:TYR:CD2	2.36	0.57
1:B:889:THR:O	1:B:889:THR:HG22	2.05	0.57
1:A:662:ILE:O	1:A:663:THR:OG1	2.22	0.56
1:B:645:ASN:OD1	1:B:645:ASN:C	2.42	0.56
1:A:352:TRP:O	1:A:356:ASN:ND2	2.38	0.56
1:B:379:ARG:HH22	1:B:407:TYR:HB3	1.71	0.56
1:B:614:LEU:HD21	1:B:636:LEU:HD23	1.87	0.56
1:B:746:TYR:C	1:B:746:TYR:CD2	2.79	0.56
1:B:747:VAL:O	2:B:1950:3MA:H31	2.04	0.56
1:B:810:ASN:HB3	1:B:811:LEU:HD23	1.88	0.56
1:A:347:VAL:O	1:A:351:LEU:HD23	2.05	0.56
1:B:297:LEU:O	1:B:300:ILE:HG22	2.05	0.56
1:A:391:ASP:OD2	1:A:391:ASP:N	2.39	0.56
1:A:405:LEU:HD23	1:A:533:LEU:HD21	1.88	0.56
1:A:812:LEU:HD11	1:A:822:ILE:HD12	1.87	0.56
1:A:859:GLU:OE1	1:A:862:LYS:HE3	2.06	0.56
1:A:551:PHE:CZ	1:A:555:LEU:HD11	2.40	0.56
1:B:665:ILE:HG22	1:B:666:VAL:N	2.21	0.56
1:A:811:LEU:N	1:A:811:LEU:HD23	2.21	0.56
1:A:573:HIS:C	1:A:573:HIS:HD2	2.09	0.55
1:B:703:LEU:CD2	1:B:744:LEU:HD21	2.34	0.55
1:B:812:LEU:HD23	1:B:820:PHE:CE1	2.40	0.55
1:A:291:ALA:N	1:A:294:ARG:HD2	2.22	0.55
1:A:550:TYR:O	1:A:554:TYR:HD2	1.88	0.55
1:A:710:LEU:HD23	1:A:732:TYR:O	2.06	0.55
1:B:369:LEU:HD11	1:B:386:LEU:HD11	1.87	0.55
1:B:898:ASP:OD1	1:B:898:ASP:N	2.39	0.55
1:B:912:LEU:HD12	1:B:917:ALA:HA	1.88	0.55
1:A:552:TYR:C	1:A:552:TYR:HD2	2.09	0.55
1:A:314:GLU:O	1:A:318:VAL:HG23	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:626:ASN:O	1:A:630:GLU:HG3	2.06	0.55
1:A:723:GLU:OE1	1:A:723:GLU:CA	2.54	0.55
1:B:549:ASN:ND2	1:B:553:TRP:HD1	2.05	0.55
1:B:812:LEU:CD2	1:B:822:ILE:HB	2.33	0.55
1:A:559:VAL:HG21	1:A:580:LEU:HD12	1.88	0.55
1:A:741:HIS:ND1	1:A:741:HIS:N	2.54	0.55
1:B:397:TYR:N	1:B:397:TYR:CD1	2.75	0.55
1:B:705:GLN:CG	1:B:827:ILE:HD11	2.34	0.55
1:A:776:PRO:HG2	1:A:777:TYR:CD1	2.35	0.54
1:B:305:PRO:HG2	1:B:334:LYS:HZ2	1.73	0.54
1:B:392:GLU:O	1:B:396:LEU:CD1	2.55	0.54
1:B:399:LEU:HD12	1:B:399:LEU:O	2.07	0.54
1:B:367:GLU:O	1:B:373:PHE:HE2	1.90	0.54
1:B:370:SER:CB	1:B:371:PRO:HD2	2.25	0.54
1:B:752:VAL:HG23	1:B:811:LEU:O	2.07	0.54
1:B:325:LEU:C	1:B:327:SER:H	2.10	0.54
1:B:363:GLU:N	1:B:363:GLU:CD	2.61	0.54
1:B:332:LEU:HD22	1:B:357:TRP:HB3	1.90	0.54
1:B:738:SER:HB3	1:B:741:HIS:NE2	2.23	0.54
1:A:300:ILE:HA	1:A:304:TYR:CE2	2.42	0.54
1:A:836:PRO:HB3	1:A:837:PRO:C	2.29	0.54
1:B:400:GLN:HE22	1:B:711:GLN:NE2	2.06	0.54
1:B:739:SER:O	1:B:740:LYS:CG	2.47	0.54
1:B:896:GLU:HB3	1:B:899:LYS:HB2	1.90	0.54
1:A:739:SER:O	1:A:740:LYS:CG	2.56	0.53
1:A:839:MET:CE	1:A:921:LEU:HD11	2.37	0.53
1:B:730:THR:HG22	1:B:818:LYS:CD	2.35	0.53
1:B:728:LYS:CD	1:B:786:THR:HB	2.38	0.53
1:A:402:VAL:O	1:A:405:LEU:HB2	2.07	0.53
1:A:885:MET:HB3	1:A:888:ALA:HB2	1.89	0.53
1:A:549:ASN:HD22	1:A:549:ASN:C	2.10	0.53
1:A:727:LEU:HB2	1:A:729:LEU:HD21	1.90	0.53
1:A:944:THR:OG1	1:B:931:ALA:O	2.23	0.53
1:B:751:THR:HG22	1:B:754:GLU:CG	2.38	0.53
1:A:909:GLN:OE1	1:A:909:GLN:CA	2.55	0.53
1:A:708:LEU:HD23	1:A:708:LEU:C	2.29	0.53
1:A:708:LEU:HD23	1:A:708:LEU:O	2.08	0.53
1:B:751:THR:HG23	1:B:754:GLU:H	1.73	0.53
1:B:397:TYR:N	1:B:397:TYR:HD1	2.06	0.53
1:A:839:MET:HG2	1:A:925:LEU:HD21	1.89	0.53
1:B:408:GLU:CB	1:B:409:ASP:HA	2.38	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:591:ASN:O	1:A:595:ARG:CZ	2.57	0.53
1:A:785:ASP:O	1:A:789:LYS:HG3	2.09	0.53
1:A:943:PHE:HE2	1:B:836:PRO:HD2	1.73	0.53
1:A:806:ARG:HD2	1:A:806:ARG:N	2.24	0.52
1:A:841:LEU:O	1:A:932:VAL:HG21	2.09	0.52
1:B:626:ASN:O	1:B:630:GLU:HG3	2.09	0.52
1:A:307:THR:HG23	1:A:308:TYR:HD2	1.74	0.52
1:A:573:HIS:CD2	1:A:573:HIS:O	2.62	0.52
1:A:661:TYR:HB2	1:A:687:SER:HB3	1.91	0.52
1:A:922:GLN:HE22	1:B:919:GLN:CB	2.17	0.52
1:B:629:THR:CG2	1:B:672:LEU:HB2	2.35	0.52
1:A:319:TRP:HA	1:A:322:ARG:NE	2.23	0.52
1:B:749:SER:OG	2:B:1950:3MA:H33	2.09	0.52
1:B:558:GLU:CB	1:B:576:TYR:CD1	2.86	0.52
1:A:312:SER:HA	1:A:315:GLN:HE22	1.75	0.52
1:B:555:LEU:HB2	1:B:580:LEU:HD12	1.90	0.52
1:A:331:ALA:HB3	1:A:357:TRP:HZ2	1.75	0.52
1:A:573:HIS:HD2	1:A:573:HIS:O	1.93	0.52
1:A:647:THR:O	1:A:664:LYS:HG2	2.09	0.52
1:A:302:TYR:HA	1:A:334:LYS:HZ1	1.75	0.52
1:A:395:LEU:HD23	1:A:395:LEU:C	2.29	0.52
1:A:552:TYR:CD2	1:A:552:TYR:O	2.63	0.52
1:B:592:PHE:N	1:B:595:ARG:HD2	2.24	0.52
1:A:626:ASN:HA	1:A:629:THR:HG23	1.90	0.52
1:B:297:LEU:O	1:B:301:VAL:HG23	2.09	0.52
1:B:803:VAL:HG12	1:B:806:ARG:HD3	1.91	0.52
1:B:876:ASN:ND2	1:B:876:ASN:N	2.49	0.52
1:A:375:HIS:O	1:A:378:VAL:HG22	2.10	0.52
1:B:824:PHE:CD1	1:B:824:PHE:N	2.78	0.52
1:A:704:ARG:NH1	1:A:889:THR:OG1	2.43	0.51
1:B:396:LEU:HD21	1:B:718:LYS:HD2	1.91	0.51
1:A:307:THR:HG21	1:A:905:GLU:OE2	2.10	0.51
1:A:835:MET:HE3	1:B:942:ARG:HD2	1.93	0.51
1:B:743:PHE:C	1:B:744:LEU:HD23	2.30	0.51
1:B:948:ARG:O	1:B:949:LYS:HB2	2.10	0.51
1:A:326:SER:HB2	1:A:357:TRP:CE2	2.45	0.51
1:B:614:LEU:HD21	1:B:636:LEU:CD2	2.41	0.51
1:A:845:MET:O	1:A:848:ALA:HB3	2.11	0.51
1:B:573:HIS:CD2	1:B:574:ASP:HA	2.45	0.51
1:A:533:LEU:HD23	1:A:534:CYS:N	2.25	0.51
1:A:747:VAL:O	2:A:1949:3MA:H2	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:631:LYS:O	1:B:635:LEU:HD23	2.11	0.51
1:A:737:THR:HG21	1:A:741:HIS:HD2	1.75	0.51
1:B:332:LEU:O	1:B:335:PHE:HB3	2.11	0.51
1:B:573:HIS:HD2	1:B:574:ASP:HA	1.76	0.51
1:B:648:ASN:OD1	1:B:649:PHE:N	2.43	0.51
1:A:785:ASP:OD1	1:A:789:LYS:HE3	2.10	0.51
1:B:592:PHE:N	1:B:595:ARG:CD	2.74	0.51
1:A:814:THR:HG23	1:A:818:LYS:H	1.75	0.51
1:B:591:ASN:C	1:B:595:ARG:CD	2.79	0.51
1:B:807:HIS:O	1:B:810:ASN:HB2	2.11	0.50
1:A:751:THR:CG2	1:A:754:GLU:HG3	2.34	0.50
1:B:794:TYR:HB3	1:B:821:HIS:HE1	1.76	0.50
1:A:914:ASP:OD1	1:A:914:ASP:N	2.41	0.50
1:B:325:LEU:C	1:B:327:SER:N	2.65	0.50
1:A:587:LEU:HB3	1:A:598:PHE:HB2	1.92	0.50
1:A:806:ARG:NE	1:A:810:ASN:ND2	2.60	0.50
1:B:573:HIS:CD2	1:B:574:ASP:CA	2.93	0.50
1:B:836:PRO:HB3	1:B:837:PRO:C	2.32	0.50
1:A:544:ASN:C	1:A:544:ASN:OD1	2.49	0.50
1:B:823:ASP:OD1	1:B:824:PHE:N	2.45	0.50
1:B:888:ALA:O	1:B:889:THR:CB	2.60	0.50
1:A:305:PRO:HB3	1:A:308:TYR:CE2	2.47	0.50
1:A:830:ARG:HG3	1:A:830:ARG:HH11	1.76	0.50
1:B:308:TYR:CD2	1:B:310:LEU:HG	2.47	0.50
1:A:696:ILE:HG22	1:A:697:PHE:N	2.27	0.49
1:A:831:ASP:CG	1:A:832:PRO:HD2	2.31	0.49
1:A:410:PRO:O	1:A:414:VAL:N	2.45	0.49
1:A:614:LEU:C	1:A:614:LEU:HD12	2.33	0.49
1:B:568:GLN:HE22	1:B:571:ARG:HD2	1.78	0.49
1:B:592:PHE:CA	1:B:595:ARG:CD	2.77	0.49
1:A:807:HIS:CD2	1:A:810:ASN:HB2	2.48	0.49
1:B:592:PHE:C	1:B:595:ARG:HD3	2.32	0.49
1:B:710:LEU:HD21	1:B:732:TYR:CE2	2.48	0.49
1:A:634:LYS:HE2	1:A:634:LYS:O	2.13	0.49
1:A:704:ARG:O	1:A:707:GLN:HG2	2.13	0.49
1:B:558:GLU:HG3	1:B:576:TYR:HE1	1.78	0.49
1:A:836:PRO:CB	1:A:837:PRO:C	2.81	0.49
1:B:568:GLN:NE2	1:B:571:ARG:HD2	2.28	0.49
1:B:653:PRO:HA	1:B:661:TYR:HA	1.95	0.49
1:B:672:LEU:CD2	1:B:678:MET:HB2	2.42	0.49
1:A:737:THR:CG2	1:A:741:HIS:CD2	2.96	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:561:GLU:N	1:A:561:GLU:CD	2.67	0.48
1:A:727:LEU:HA	1:A:789:LYS:HB3	1.94	0.48
1:B:800:LEU:HD22	1:B:908:LEU:CD2	2.43	0.48
1:A:663:THR:O	1:A:663:THR:HG22	2.13	0.48
1:A:835:MET:CE	1:B:942:ARG:HD2	2.43	0.48
1:A:839:MET:CG	1:A:925:LEU:HD23	2.43	0.48
1:B:381:TYR:C	1:B:381:TYR:CD2	2.85	0.48
1:B:403:GLN:NE2	1:B:888:ALA:HA	2.28	0.48
1:B:728:LYS:HD2	1:B:786:THR:HB	1.93	0.48
1:B:799:TYR:O	1:B:907:ASN:ND2	2.46	0.48
1:A:312:SER:C	1:A:315:GLN:OE1	2.51	0.48
1:B:678:MET:O	1:B:699:HIS:NE2	2.46	0.48
1:B:588:GLU:C	1:B:590:GLY:H	2.16	0.48
1:B:733:LYS:H	1:B:745:GLN:HE21	1.62	0.48
1:B:839:MET:HG2	1:B:925:LEU:HD23	1.94	0.48
1:A:302:TYR:HA	1:A:334:LYS:NZ	2.28	0.48
1:A:561:GLU:CD	1:A:561:GLU:H	2.17	0.48
1:A:705:GLN:CD	1:A:892:ASP:OD1	2.52	0.48
1:A:839:MET:HE2	1:A:921:LEU:HD11	1.95	0.48
1:A:765:PHE:C	1:A:765:PHE:CD1	2.87	0.48
1:A:790:SER:HB2	1:A:819:LEU:H	1.79	0.48
1:A:811:LEU:N	1:A:811:LEU:CD2	2.76	0.48
1:B:708:LEU:HD22	1:B:712:MET:HG2	1.96	0.48
1:B:709:ILE:HG21	1:B:824:PHE:CE2	2.46	0.48
1:A:671:SER:C	1:A:672:LEU:HD23	2.34	0.48
1:B:322:ARG:NH2	1:B:334:LYS:HB2	2.28	0.47
1:B:780:SER:HB3	1:B:782:GLU:OE2	2.13	0.47
1:B:326:SER:HA	1:B:357:TRP:CH2	2.49	0.47
1:A:300:ILE:HA	1:A:304:TYR:HE2	1.78	0.47
1:A:737:THR:CG2	1:A:738:SER:N	2.77	0.47
1:B:729:LEU:N	1:B:729:LEU:HD23	2.29	0.47
1:B:826:TYR:CE2	1:B:832:PRO:HD3	2.50	0.47
1:B:937:VAL:O	1:B:941:HIS:HD2	1.97	0.47
1:A:726:ASP:C	1:A:727:LEU:HD23	2.34	0.47
1:B:362:VAL:O	1:B:365:ALA:HB3	2.14	0.47
1:B:657:ASP:OD2	1:B:657:ASP:C	2.53	0.47
1:B:348:THR:CA	1:B:351:LEU:HD22	2.40	0.47
1:A:331:ALA:CB	1:A:357:TRP:HZ2	2.27	0.47
1:A:592:PHE:O	1:A:596:GLY:N	2.48	0.47
1:A:709:ILE:HD13	1:A:709:ILE:HA	1.78	0.47
1:A:751:THR:HG23	1:A:754:GLU:CD	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:800:LEU:HD22	1:B:908:LEU:HD23	1.96	0.47
1:B:923:SER:O	1:B:927:VAL:HG23	2.14	0.47
1:B:743:PHE:O	1:B:744:LEU:HD23	2.15	0.47
1:B:867:ALA:O	1:B:871:LEU:HD23	2.14	0.47
1:A:827:ILE:HG22	1:A:892:ASP:HB3	1.97	0.47
1:A:861:ARG:NH2	1:A:926:ASP:OD2	2.48	0.47
1:A:314:GLU:OE1	1:A:314:GLU:N	2.30	0.47
1:A:737:THR:HG22	1:A:741:HIS:CD2	2.50	0.47
1:B:300:ILE:HG22	1:B:301:VAL:N	2.30	0.47
1:B:375:HIS:CD2	1:B:375:HIS:C	2.88	0.47
1:B:375:HIS:CG	1:B:376:PRO:HD2	2.50	0.47
1:B:375:HIS:HD2	1:B:378:VAL:H	1.63	0.47
1:B:544:ASN:OD1	1:B:544:ASN:C	2.53	0.47
1:A:720:LEU:HD23	1:A:720:LEU:N	2.30	0.46
1:B:363:GLU:HA	1:B:366:LEU:HD12	1.96	0.46
1:B:546:THR:HB	1:B:658:PRO:HG2	1.97	0.46
1:B:568:GLN:HE22	1:B:571:ARG:HH11	1.63	0.46
1:B:412:HIS:CB	1:B:532:ASN:ND2	2.56	0.46
1:A:400:GLN:HE22	1:A:711:GLN:NE2	2.14	0.46
1:A:593:ASN:O	1:A:597:ILE:HG13	2.16	0.46
1:A:838:PRO:HG3	1:A:924:LEU:HD22	1.98	0.46
1:A:922:GLN:NE2	1:B:919:GLN:HB3	2.20	0.46
1:B:360:MET:CB	1:B:364:ASP:OD2	2.25	0.46
1:A:765:PHE:CD1	1:A:765:PHE:O	2.68	0.46
1:B:301:VAL:O	1:B:305:PRO:HD2	2.16	0.46
1:A:806:ARG:NH2	1:A:810:ASN:HD21	2.13	0.46
1:B:765:PHE:O	1:B:768:LYS:HG2	2.15	0.46
1:B:823:ASP:C	1:B:824:PHE:CD1	2.89	0.46
1:B:730:THR:O	1:B:730:THR:OG1	2.21	0.46
1:B:305:PRO:HG2	1:B:334:LYS:NZ	2.30	0.46
1:B:790:SER:HB2	1:B:819:LEU:H	1.80	0.46
1:B:800:LEU:CD2	1:B:908:LEU:HD23	2.46	0.46
1:B:837:PRO:O	1:B:840:LYS:HE2	2.16	0.46
1:A:702:ASP:OD2	1:A:704:ARG:HG3	2.16	0.46
1:A:812:LEU:HD12	1:A:820:PHE:CZ	2.51	0.46
1:A:886:VAL:HG12	1:A:887:ASP:OD1	2.16	0.46
1:A:541:ALA:O	1:A:548:ALA:HB2	2.16	0.46
1:B:311:SER:C	1:B:313:GLU:H	2.19	0.46
1:B:712:MET:O	1:B:716:MET:HG3	2.16	0.45
1:A:764:ASN:OD1	1:A:767:ARG:NH1	2.49	0.45
1:B:398:LEU:CD1	1:B:554:TYR:CE2	2.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:751:THR:HG22	1:B:754:GLU:HG3	1.96	0.45
1:B:790:SER:CB	1:B:819:LEU:H	2.29	0.45
1:B:400:GLN:O	1:B:403:GLN:HB2	2.16	0.45
1:B:609:ASP:O	1:B:613:LYS:HG3	2.15	0.45
1:B:634:LYS:HA	1:B:634:LYS:CE	2.35	0.45
1:A:357:TRP:HD1	1:A:358:ALA:O	1.99	0.45
1:A:409:ASP:CB	1:A:412:HIS:CE1	2.92	0.45
1:B:705:GLN:CG	1:B:827:ILE:CD1	2.93	0.45
1:B:712:MET:CE	1:B:878:MET:HG2	2.46	0.45
1:A:357:TRP:CD1	1:A:358:ALA:N	2.84	0.45
1:A:855:GLU:O	1:A:859:GLU:HB2	2.16	0.45
1:B:368:LEU:HB2	1:B:382:ALA:HB2	1.98	0.45
1:B:599:TYR:CE2	1:B:603:LYS:HG3	2.50	0.45
1:B:794:TYR:HB3	1:B:821:HIS:CE1	2.52	0.45
1:A:811:LEU:O	1:A:812:LEU:HD23	2.16	0.45
1:B:690:HIS:CG	1:B:690:HIS:O	2.68	0.45
1:A:313:GLU:N	1:A:314:GLU:OE1	2.49	0.45
1:A:375:HIS:HA	1:A:376:PRO:HD3	1.84	0.45
1:B:302:TYR:CE1	1:B:303:ARG:HG3	2.52	0.45
1:B:532:ASN:OD1	1:B:533:LEU:N	2.49	0.45
1:B:783:VAL:HA	1:B:786:THR:HG23	1.99	0.45
1:A:363:GLU:HB3	1:A:877:VAL:HG13	1.98	0.45
1:A:849:MET:HE2	1:A:860:PHE:HB2	1.99	0.45
1:B:389:ALA:HA	1:B:390:PRO:HD3	1.80	0.45
1:B:592:PHE:HA	1:B:595:ARG:NE	2.32	0.45
1:A:351:LEU:HD12	1:A:377:GLN:HG2	1.99	0.45
1:A:371:PRO:HB3	1:A:407:TYR:CE1	2.52	0.45
1:B:595:ARG:H	1:B:595:ARG:HG3	1.58	0.45
1:B:614:LEU:HD12	1:B:614:LEU:C	2.37	0.45
1:B:592:PHE:HD2	1:B:595:ARG:NE	2.05	0.44
1:B:639:GLN:OE1	1:B:645:ASN:ND2	2.50	0.44
1:B:710:LEU:O	1:B:714:THR:OG1	2.35	0.44
1:B:865:TYR:CD1	1:B:918:VAL:CG1	3.01	0.44
1:B:902:LYS:O	1:B:906:GLU:HG2	2.17	0.44
1:A:296:GLN:CA	1:A:299:THR:HG22	2.42	0.44
1:B:595:ARG:CG	1:B:595:ARG:NH1	2.70	0.44
1:A:820:PHE:N	1:A:820:PHE:CD2	2.86	0.44
1:B:407:TYR:HD2	1:B:407:TYR:H	1.63	0.44
1:B:806:ARG:HA	1:B:810:ASN:HD22	1.82	0.44
1:B:813:LEU:HD12	1:B:813:LEU:HA	1.82	0.44
1:A:645:ASN:C	1:A:645:ASN:ND2	2.67	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:653:PRO:HG3	1:A:661:TYR:CE1	2.53	0.44
1:B:371:PRO:CB	1:B:407:TYR:CE1	2.92	0.44
1:B:678:MET:N	1:B:699:HIS:CE1	2.86	0.44
1:B:746:TYR:C	1:B:746:TYR:HD2	2.18	0.44
1:A:751:THR:CG2	1:A:754:GLU:CD	2.85	0.44
1:B:300:ILE:CG2	1:B:301:VAL:N	2.81	0.44
1:B:322:ARG:HH12	1:B:331:ALA:C	2.20	0.44
1:B:330:LYS:O	1:B:333:THR:HG23	2.18	0.44
1:A:363:GLU:CD	1:A:363:GLU:N	2.71	0.44
1:A:579:VAL:HA	1:A:582:MET:HE3	1.99	0.44
1:B:842:SER:O	1:B:846:VAL:HG23	2.16	0.44
1:A:554:TYR:HA	1:A:557:ILE:HD12	1.99	0.44
1:A:822:ILE:CG2	1:A:823:ASP:N	2.80	0.44
1:B:555:LEU:O	1:B:559:VAL:HG13	2.18	0.44
1:B:618:VAL:HG21	1:B:632:PHE:CD2	2.52	0.44
1:B:914:ASP:OD1	1:B:914:ASP:N	2.48	0.44
1:A:306:PRO:HG3	1:A:876:ASN:HA	2.00	0.43
1:A:653:PRO:HG3	1:A:661:TYR:HE1	1.81	0.43
1:B:686:THR:OG1	1:B:691:HIS:HB2	2.17	0.43
1:A:532:ASN:C	1:A:532:ASN:OD1	2.57	0.43
1:B:840:LYS:O	1:B:841:LEU:HD23	2.17	0.43
1:A:314:GLU:H	1:A:314:GLU:CD	2.17	0.43
1:B:417:HIS:O	1:B:421:PHE:HD2	2.01	0.43
1:B:599:TYR:HD2	1:B:599:TYR:C	2.22	0.43
1:A:727:LEU:C	1:A:728:LYS:HG2	2.34	0.43
1:A:786:THR:O	1:A:790:SER:OG	2.34	0.43
1:A:812:LEU:HD21	1:A:822:ILE:HD12	2.00	0.43
1:A:857:HIS:CD2	1:A:857:HIS:C	2.92	0.43
1:A:905:GLU:O	1:A:908:LEU:HB2	2.18	0.43
1:B:335:PHE:CD2	1:B:336:LEU:HD13	2.54	0.43
1:A:639:GLN:OE1	1:A:645:ASN:OD1	2.35	0.43
1:B:656:LEU:HD23	1:B:657:ASP:N	2.33	0.43
1:A:626:ASN:HA	1:A:629:THR:CG2	2.48	0.43
1:B:712:MET:HE1	1:B:878:MET:HG2	2.01	0.43
1:A:295:ASP:O	1:A:299:THR:HG22	2.19	0.43
1:A:585:LYS:HD2	1:A:585:LYS:HA	1.79	0.43
1:A:821:HIS:CD2	1:A:821:HIS:N	2.87	0.43
1:A:906:GLU:O	1:A:909:GLN:OE1	2.37	0.43
1:A:836:PRO:HB3	1:A:838:PRO:N	2.34	0.43
1:A:912:LEU:HD13	1:A:916:GLU:HB3	2.00	0.43
1:B:807:HIS:H	1:B:810:ASN:HB2	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:326:SER:HB2	1:A:357:TRP:CD2	2.54	0.43
1:A:782:GLU:O	1:A:786:THR:HG23	2.18	0.43
1:A:871:LEU:HD22	1:A:878:MET:HE1	2.01	0.43
1:B:361:ASP:O	1:B:364:ASP:OD2	2.37	0.43
1:A:559:VAL:HG22	1:A:577:ALA:HA	2.00	0.42
1:A:308:TYR:CD1	1:A:310:LEU:HD12	2.55	0.42
1:A:418:GLY:O	1:A:422:PRO:HD2	2.19	0.42
1:B:368:LEU:HA	1:B:373:PHE:CE2	2.54	0.42
1:A:300:ILE:HD13	1:A:304:TYR:CZ	2.53	0.42
1:B:329:LYS:HB2	1:B:330:LYS:HD3	2.01	0.42
1:B:751:THR:HA	1:B:812:LEU:HD12	2.01	0.42
1:A:400:GLN:HE22	1:A:711:GLN:CD	2.22	0.42
1:B:397:TYR:C	1:B:401:LEU:HD13	2.40	0.42
1:A:662:ILE:HG21	1:A:684:PHE:CD1	2.54	0.42
1:B:826:TYR:HB3	1:B:830:ARG:O	2.19	0.42
1:B:416:LEU:C	1:B:582:MET:HE1	2.39	0.42
1:A:342:LYS:HG2	1:A:343:LEU:H	1.83	0.42
1:B:575:MET:SD	1:B:576:TYR:N	2.93	0.42
1:B:878:MET:O	1:B:882:PHE:CD2	2.59	0.42
1:A:295:ASP:OD2	1:A:296:GLN:N	2.53	0.42
1:A:540:ARG:HA	1:A:543:THR:OG1	2.20	0.42
1:A:755:VAL:HG11	1:A:765:PHE:CD2	2.54	0.42
1:B:390:PRO:O	1:B:394:LEU:HD12	2.20	0.42
1:B:555:LEU:CB	1:B:580:LEU:HD12	2.50	0.42
1:B:580:LEU:C	1:B:580:LEU:HD23	2.40	0.42
1:B:728:LYS:HD3	1:B:786:THR:HB	2.02	0.42
1:B:765:PHE:HD2	1:B:766:PHE:N	2.18	0.42
1:B:314:GLU:HG3	1:B:317:LEU:HD23	2.02	0.42
1:B:661:TYR:CB	1:B:687:SER:HB3	2.49	0.42
1:A:400:GLN:NE2	1:A:711:GLN:HE22	2.19	0.41
1:A:649:PHE:CD1	1:A:649:PHE:N	2.88	0.41
1:A:735:LEU:HG	1:A:736:ALA:O	2.20	0.41
1:B:381:TYR:O	1:B:384:SER:OG	2.34	0.41
1:B:577:ALA:O	1:B:581:LYS:HD2	2.20	0.41
1:B:611:LEU:O	1:B:615:VAL:HG23	2.20	0.41
1:B:709:ILE:HD12	1:B:801:LEU:HD13	2.02	0.41
1:B:714:THR:O	1:B:718:LYS:HG3	2.20	0.41
1:A:370:SER:HB2	1:A:371:PRO:HD2	2.01	0.41
1:A:830:ARG:HH11	1:A:830:ARG:CG	2.32	0.41
1:B:621:GLU:O	1:B:628:LYS:HE3	2.20	0.41
1:A:341:TRP:CG	1:A:342:LYS:N	2.87	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:595:ARG:NH1	1:A:595:ARG:HG3	2.31	0.41
1:B:409:ASP:OD1	1:B:410:PRO:HD2	2.19	0.41
1:B:746:TYR:CD2	1:B:747:VAL:N	2.88	0.41
1:A:375:HIS:HD2	1:A:377:GLN:N	2.12	0.41
1:B:652:ILE:O	1:B:662:ILE:HG12	2.19	0.41
1:A:370:SER:CB	1:A:371:PRO:HD2	2.51	0.41
1:A:665:ILE:HD13	1:A:682:LEU:HD12	2.02	0.41
1:A:765:PHE:CE1	1:A:769:HIS:CD2	3.09	0.41
1:A:805:ASP:CG	1:A:805:ASP:O	2.59	0.41
1:A:913:THR:HG22	1:A:916:GLU:CG	2.49	0.41
1:B:375:HIS:O	1:B:379:ARG:HG2	2.20	0.41
1:B:552:TYR:CD2	1:B:601:LEU:HD22	2.56	0.41
1:B:768:LYS:HE2	1:B:769:HIS:CE1	2.56	0.41
1:B:824:PHE:N	1:B:824:PHE:HD1	2.19	0.41
1:A:618:VAL:HG21	1:A:632:PHE:CD2	2.55	0.41
1:B:639:GLN:HB3	1:B:640:ASP:OD2	2.20	0.41
1:B:704:ARG:HA	1:B:707:GLN:HG2	2.02	0.41
1:B:751:THR:HG22	1:B:754:GLU:HB2	2.03	0.41
1:A:335:PHE:HD2	1:A:335:PHE:O	2.04	0.41
1:A:391:ASP:CG	1:A:540:ARG:HH12	2.24	0.41
1:B:554:TYR:N	1:B:554:TYR:CD1	2.87	0.41
1:B:610:GLU:OE1	1:B:643:LYS:HG2	2.20	0.41
1:B:709:ILE:HG21	1:B:824:PHE:HD2	1.80	0.41
1:B:790:SER:O	1:B:794:TYR:HD2	2.02	0.41
1:A:308:TYR:HB3	1:A:310:LEU:H	1.86	0.41
1:A:410:PRO:C	1:A:414:VAL:HG23	2.41	0.41
1:A:533:LEU:HD23	1:A:533:LEU:C	2.41	0.41
1:A:763:HIS:CE1	1:A:848:ALA:C	2.90	0.41
1:A:812:LEU:HD11	1:A:822:ILE:HD11	2.02	0.41
1:A:827:ILE:HD12	1:A:827:ILE:HA	1.86	0.41
1:B:342:LYS:HA	1:B:342:LYS:HD2	1.61	0.41
1:B:614:LEU:HD12	1:B:614:LEU:O	2.20	0.41
1:A:306:PRO:CD	1:A:307:THR:H	2.33	0.41
1:A:791:CYS:O	1:A:795:CYS:SG	2.69	0.41
1:A:943:PHE:HB2	1:B:931:ALA:HB1	2.03	0.41
1:B:304:TYR:HB2	1:B:305:PRO:HD3	2.03	0.40
1:A:752:VAL:HG11	1:A:808:LEU:HD12	2.03	0.40
1:A:411:ARG:HA	1:A:411:ARG:HD2	1.87	0.40
1:A:610:GLU:CB	1:A:644:VAL:HG12	2.51	0.40
1:B:405:LEU:HB3	1:B:575:MET:HE3	2.03	0.40
1:B:705:GLN:HG3	1:B:827:ILE:HD12	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:708:LEU:HD11	1:B:885:MET:HG3	2.03	0.40
1:A:854:SER:HB2	1:A:857:HIS:N	2.24	0.40
1:B:412:HIS:CG	1:B:532:ASN:ND2	2.89	0.40
1:B:585:LYS:HD2	1:B:585:LYS:HA	1.92	0.40
1:B:599:TYR:C	1:B:599:TYR:CD2	2.94	0.40
1:A:677:LEU:HD13	1:A:677:LEU:C	2.42	0.40
1:A:725:LEU:HB3	1:A:727:LEU:HD21	2.04	0.40
1:A:727:LEU:HB2	1:A:729:LEU:CD2	2.51	0.40
1:A:801:LEU:HD23	1:A:801:LEU:HA	1.92	0.40
1:B:391:ASP:HA	1:B:394:LEU:HD13	2.03	0.40
1:B:415:HIS:O	1:B:419:CYS:HB2	2.22	0.40

All (1) 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:391:ASP:OD2	1:A:724:ASN:ND2[6_555]	2.15	0.05

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	537/696 (77%)	508 (95%)	20 (4%)	9 (2%)	9	35
1	B	536/696 (77%)	504 (94%)	28 (5%)	4 (1%)	22	54
All	All	1073/1392 (77%)	1012 (94%)	48 (4%)	13 (1%)	13	42

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	663	THR
1	A	724	ASN

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Mol	Chain	Res	Type
1	B	836	PRO
1	A	836	PRO
1	B	592	PHE
1	B	778	GLY
1	A	305	PRO
1	A	342	LYS
1	A	731	PRO
1	B	305	PRO
1	A	306	PRO
1	A	771	PRO
1	A	662	ILE

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	489/612 (80%)	395 (81%)	94 (19%)	1	6
1	B	487/612 (80%)	397 (82%)	90 (18%)	1	7
All	All	976/1224 (80%)	792 (81%)	184 (19%)	1	6

All (184) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	299	THR
1	A	300	ILE
1	A	302	TYR
1	A	303	ARG
1	A	307	THR
1	A	316	ASP
1	A	317	LEU
1	A	328	HIS
1	A	333	THR
1	A	335	PHE
1	A	336	LEU
1	A	338	CYS

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Mol	Chain	Res	Type
1	A	341	TRP
1	A	343	LEU
1	A	345	ASP
1	A	351	LEU
1	A	354	LEU
1	A	356	ASN
1	A	363	GLU
1	A	373	PHE
1	A	391	ASP
1	A	405	LEU
1	A	409	ASP
1	A	416	LEU
1	A	417	HIS
1	A	419	CYS
1	A	535	THR
1	A	539	GLN
1	A	543	THR
1	A	544	ASN
1	A	546	THR
1	A	549	ASN
1	A	552	TYR
1	A	561	GLU
1	A	571	ARG
1	A	573	HIS
1	A	574	ASP
1	A	581	LYS
1	A	592	PHE
1	A	602	ARG
1	A	611	LEU
1	A	614	LEU
1	A	625	ARG
1	A	629	THR
1	A	634	LYS
1	A	645	ASN
1	A	649	PHE
1	A	657	ASP
1	A	659	GLU
1	A	662	ILE
1	A	668	MET
1	A	669	ARG
1	A	670	THR
1	A	671	SER

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Mol	Chain	Res	Type
1	A	674	LYS
1	A	682	LEU
1	A	684	PHE
1	A	687	SER
1	A	688	ILE
1	A	699	HIS
1	A	710	LEU
1	A	711	GLN
1	A	715	LEU
1	A	722	ARG
1	A	723	GLU
1	A	725	LEU
1	A	741	HIS
1	A	744	LEU
1	A	750	CYS
1	A	751	THR
1	A	758	ARG
1	A	759	GLU
1	A	765	PHE
1	A	772	CYS
1	A	773	ASP
1	A	786	THR
1	A	788	ILE
1	A	791	CYS
1	A	806	ARG
1	A	811	LEU
1	A	812	LEU
1	A	813	LEU
1	A	814	THR
1	A	819	LEU
1	A	827	ILE
1	A	831	ASP
1	A	839	MET
1	A	852	ILE
1	A	889	THR
1	A	895	LEU
1	A	896	GLU
1	A	909	GLN
1	A	914	ASP
1	A	930	THR
1	B	300	ILE
1	B	303	ARG

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Mol	Chain	Res	Type
1	B	308	TYR
1	B	314	GLU
1	B	316	ASP
1	B	317	LEU
1	B	320	LYS
1	B	321	PHE
1	B	330	LYS
1	B	333	THR
1	B	335	PHE
1	B	336	LEU
1	B	339	ILE
1	B	342	LYS
1	B	348	THR
1	B	351	LEU
1	B	354	LEU
1	B	361	ASP
1	B	363	GLU
1	B	364	ASP
1	B	372	THR
1	B	373	PHE
1	B	374	THR
1	B	377	GLN
1	B	398	LEU
1	B	407	TYR
1	B	419	CYS
1	B	420	ILE
1	B	536	PHE
1	B	546	THR
1	B	547	LEU
1	B	549	ASN
1	B	557	ILE
1	B	573	HIS
1	B	575	MET
1	B	581	LYS
1	B	591	ASN
1	B	592	PHE
1	B	595	ARG
1	B	599	TYR
1	B	611	LEU
1	B	614	LEU
1	B	618	VAL
1	B	621	GLU

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Mol	Chain	Res	Type
1	B	640	ASP
1	B	643	LYS
1	B	644	VAL
1	B	645	ASN
1	B	654	PHE
1	B	656	LEU
1	B	663	THR
1	B	672	LEU
1	B	677	LEU
1	B	685	VAL
1	B	691	HIS
1	B	702	ASP
1	B	703	LEU
1	B	706	ASP
1	B	708	LEU
1	B	711	GLN
1	B	714	THR
1	B	728	LYS
1	B	738	SER
1	B	741	HIS
1	B	746	TYR
1	B	750	CYS
1	B	758	ARG
1	B	765	PHE
1	B	782	GLU
1	B	786	THR
1	B	788	ILE
1	B	811	LEU
1	B	812	LEU
1	B	822	ILE
1	B	824	PHE
1	B	839	MET
1	B	846	VAL
1	B	852	ILE
1	B	853	SER
1	B	854	SER
1	B	866	THR
1	B	876	ASN
1	B	881	LEU
1	B	898	ASP
1	B	913	THR
1	B	914	ASP

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Mol	Chain	Res	Type
1	B	932	VAL
1	B	937	VAL
1	B	940	ILE
1	B	944	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	298	HIS
1	A	400	GLN
1	A	549	ASN
1	A	573	HIS
1	A	645	ASN
1	A	763	HIS
1	A	769	HIS
1	A	807	HIS
1	A	810	ASN
1	A	874	HIS
1	A	922	GLN
1	A	941	HIS
1	B	328	HIS
1	B	403	GLN
1	B	549	ASN
1	B	568	GLN
1	B	573	HIS
1	B	711	GLN
1	B	745	GLN
1	B	770	HIS
1	B	810	ASN
1	B	821	HIS
1	B	876	ASN
1	B	941	HIS

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 (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
2	3MA	A	1949	-	7,12,12	1.40	1 (14%)	5,17,17	1.77	2 (40%)
2	3MA	B	1950	-	7,12,12	1.29	1 (14%)	5,17,17	1.77	2 (40%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	3MA	A	1949	-	-	-	0/2/2/2
2	3MA	B	1950	-	-	-	0/2/2/2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1949	3MA	C5-C4	2.93	1.48	1.40
2	B	1950	3MA	C5-C4	2.50	1.47	1.40

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1949	3MA	C5-C4-N9	-2.47	105.79	110.87
2	B	1950	3MA	C4-C5-N7	-2.38	106.91	109.40
2	A	1949	3MA	N6-C6-N1	2.25	123.24	118.57
2	B	1950	3MA	C5-C4-N9	-2.11	106.53	110.87

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1949	3MA	1	0
2	B	1950	3MA	2	0

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	543/696 (78%)	-0.05	8 (1%) 73	72	34, 77, 136, 142	0
1	B	542/696 (77%)	0.05	11 (2%) 65	64	66, 93, 143, 156	0
All	All	1085/1392 (77%)	0.00	19 (1%) 68	67	34, 85, 138, 156	0

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	323	PHE	4.4
1	B	298	HIS	3.9
1	A	322	ARG	3.1
1	B	322	ARG	3.1
1	B	690	HIS	2.9
1	A	344	GLU	2.7
1	B	295	ASP	2.7
1	B	341	TRP	2.6
1	A	346	GLU	2.6
1	B	421	PHE	2.6
1	B	324	TYR	2.5
1	A	324	TYR	2.5
1	A	341	TRP	2.3
1	B	323	PHE	2.2
1	A	569	ASP	2.2
1	A	335	PHE	2.1
1	B	418	GLY	2.1
1	B	360	MET	2.1
1	B	412	HIS	2.0

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

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

WORLDWIDE
wwPDB
PROTEIN DATA BANK

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
2	3MA	A	1949	11/11	0.92	0.22	84,85,87,87	0
2	3MA	B	1950	11/11	0.95	0.20	93,93,94,94	0

6.5 Other polymers ⓘ

There are no such residues in this entry.