



Full wwPDB EM Validation Report ⓘ

Jul 9, 2025 – 02:29 PM JST

PDB ID : 9IXM / pdb_00009ixm
EMDB ID : EMD-60973
Title : Cryo-EM structure of Lactobacillus casei DdmDE bound with DNA
Authors : Huang, P.P.; Chen, M.R.; Xiao, Y.B.
Deposited on : 2024-07-29
Resolution : 3.26 Å (reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : **FAILED**
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

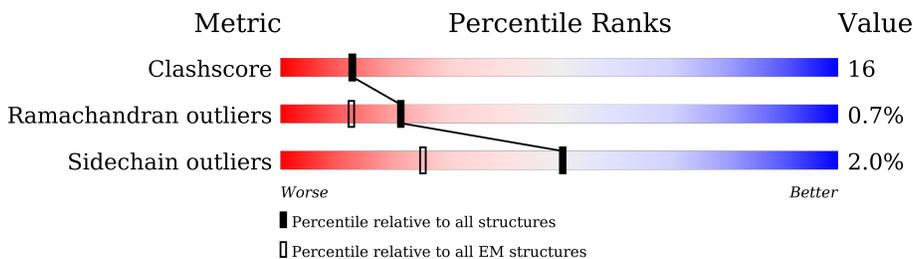
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.26 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	1192	
1	C	1192	
2	B	715	
3	E	30	
4	D	15	
5	F	30	

2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 20925 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 DdmD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1169	9459	6029	1635	1766	29	0	0
1	C	521	4076	2606	706	752	12	0	0

There are 38 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	7	SER	LEU	conflict	UNP A0A5R8LS59
A	46	ILE	VAL	conflict	UNP A0A5R8LS59
A	115	SER	ASN	conflict	UNP A0A5R8LS59
A	154	GLU	ASP	conflict	UNP A0A5R8LS59
A	174	LYS	ARG	conflict	UNP A0A5R8LS59
A	179	ALA	GLU	conflict	UNP A0A5R8LS59
A	187	ASP	ASN	conflict	UNP A0A5R8LS59
A	313	PHE	SER	conflict	UNP A0A5R8LS59
A	468	HIS	TYR	conflict	UNP A0A5R8LS59
A	575	GLU	GLN	conflict	UNP A0A5R8LS59
A	681	ASP	GLU	conflict	UNP A0A5R8LS59
A	704	ILE	VAL	conflict	UNP A0A5R8LS59
A	762	ARG	PRO	conflict	UNP A0A5R8LS59
A	859	PRO	THR	conflict	UNP A0A5R8LS59
A	1090	VAL	ALA	conflict	UNP A0A5R8LS59
A	1101	ASP	ASN	conflict	UNP A0A5R8LS59
A	1106	ALA	VAL	conflict	UNP A0A5R8LS59
A	1140	ARG	GLN	conflict	UNP A0A5R8LS59
A	1165	THR	MET	conflict	UNP A0A5R8LS59
C	7	SER	LEU	conflict	UNP A0A5R8LS59
C	46	ILE	VAL	conflict	UNP A0A5R8LS59
C	115	SER	ASN	conflict	UNP A0A5R8LS59
C	154	GLU	ASP	conflict	UNP A0A5R8LS59
C	174	LYS	ARG	conflict	UNP A0A5R8LS59
C	179	ALA	GLU	conflict	UNP A0A5R8LS59
C	187	ASP	ASN	conflict	UNP A0A5R8LS59

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Chain	Residue	Modelled	Actual	Comment	Reference
C	313	PHE	SER	conflict	UNP A0A5R8LS59
C	468	HIS	TYR	conflict	UNP A0A5R8LS59
C	575	GLU	GLN	conflict	UNP A0A5R8LS59
C	681	ASP	GLU	conflict	UNP A0A5R8LS59
C	704	ILE	VAL	conflict	UNP A0A5R8LS59
C	762	ARG	PRO	conflict	UNP A0A5R8LS59
C	859	PRO	THR	conflict	UNP A0A5R8LS59
C	1090	VAL	ALA	conflict	UNP A0A5R8LS59
C	1101	ASP	ASN	conflict	UNP A0A5R8LS59
C	1106	ALA	VAL	conflict	UNP A0A5R8LS59
C	1140	ARG	GLN	conflict	UNP A0A5R8LS59
C	1165	THR	MET	conflict	UNP A0A5R8LS59

- Molecule 2 is a protein called DdmE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	713	5848	3737	1025	1064	22	0	0

- Molecule 3 is a DNA chain called DNA (30-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	E	30	614	293	115	176	30	0	0

- Molecule 4 is a DNA chain called DNA (5'-D(P*TP*GP*AP*CP*GP*GP*CP*TP*CP*TP*AP*AP*TP*CP*T)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	D	15	305	146	52	92	15	0	0

- Molecule 5 is a DNA chain called DNA (30-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	F	30	622	296	118	178	30	0	0

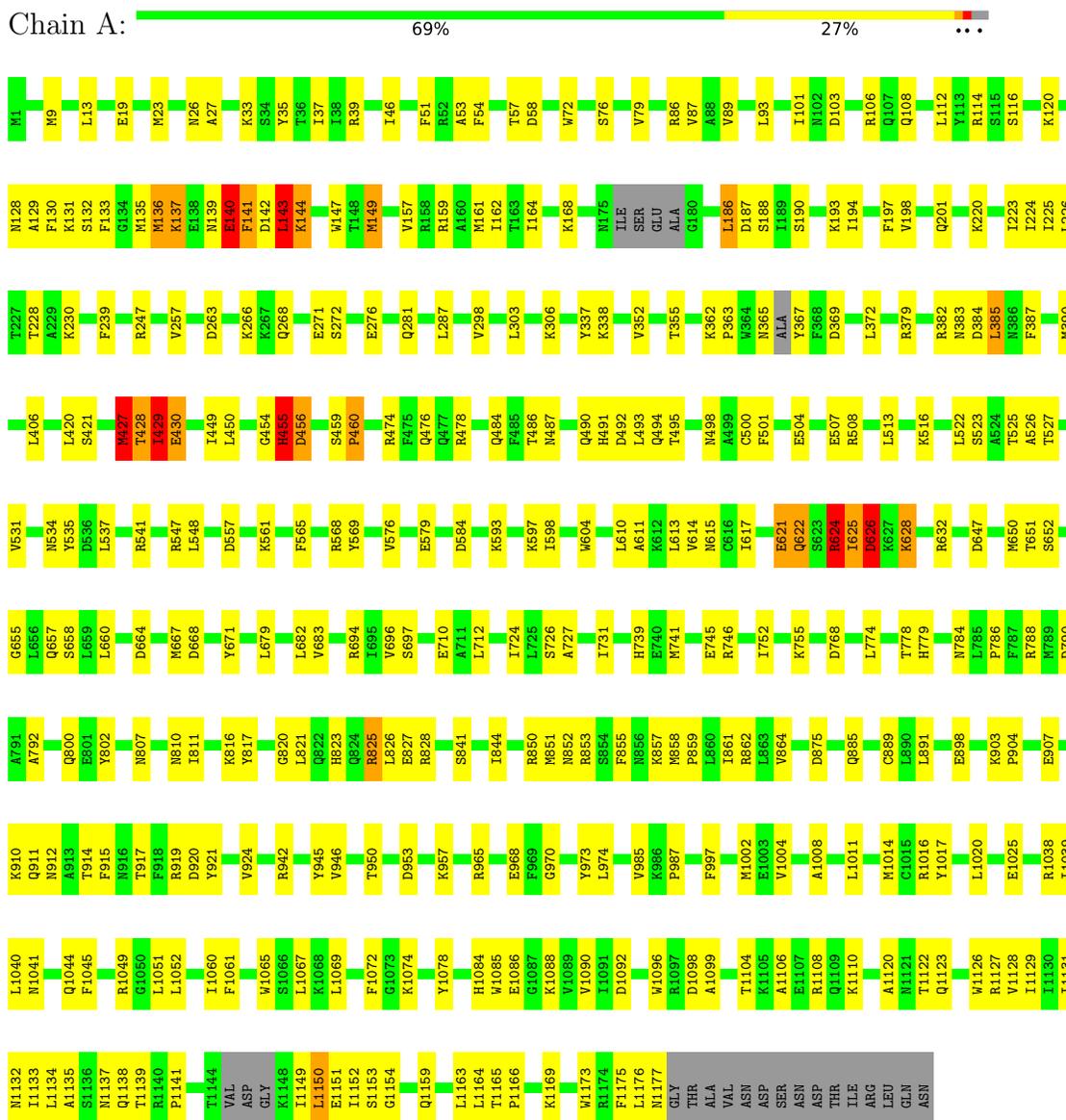
- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
6	D	1	Total	Mg	0
			1	1	

3 Residue-property plots

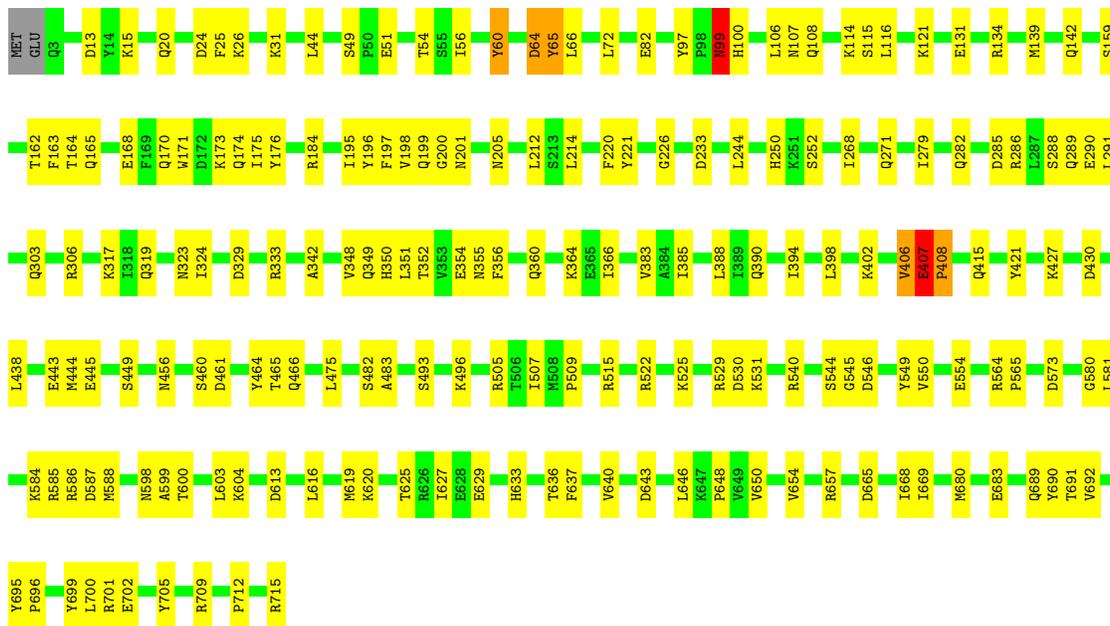
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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. 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: DdmD

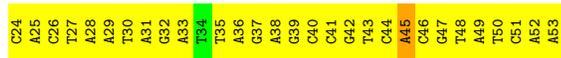


- Molecule 1: DdmD

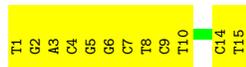




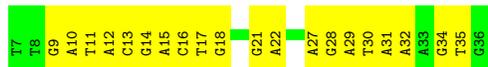
• Molecule 3: DNA (30-MER)



• Molecule 4: DNA (5'-D(P*TP*GP*AP*CP*GP*GP*CP*TP*CP*TP*AP*AP*TP*CP*T)-3')



• Molecule 5: DNA (30-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	94045	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.21	0/9652	0.57	19/13017 (0.1%)
1	C	0.27	0/4143	0.76	16/5573 (0.3%)
2	B	0.18	0/5972	0.47	10/8060 (0.1%)
3	E	0.34	0/689	0.73	1/1060 (0.1%)
4	D	0.32	0/340	0.57	0/522
5	F	0.37	0/699	0.62	0/1078
All	All	0.23	0/21495	0.60	46/29310 (0.2%)

There are no bond length outliers.

All (46) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	427	MET	CB-CA-C	-21.78	79.79	110.06
1	A	430	GLU	N-CA-C	-16.53	92.61	113.43
1	C	376	VAL	N-CA-C	16.38	126.71	110.82
1	C	430	GLU	N-CA-C	-14.82	94.88	113.55
1	A	139	ASN	N-CA-C	13.44	139.44	110.80
1	C	28	PRO	CB-CA-C	-9.75	95.47	111.56
1	A	628	LYS	N-CA-C	9.61	121.83	111.36
1	A	456	ASP	N-CA-C	9.05	124.52	113.38
1	C	429	ILE	CB-CA-C	-8.74	96.96	111.29
1	A	624	ARG	N-CA-C	8.51	120.87	110.91
1	C	172	LYS	N-CA-C	-8.00	93.76	110.80
2	B	407	GLU	CB-CA-C	7.89	125.71	110.17
1	C	378	GLY	CA-C-N	-7.88	111.94	122.42
1	C	378	GLY	C-N-CA	-7.88	111.94	122.42
3	E	45	DA	C4'-C3'-O3'	7.72	121.58	110.00
1	A	139	ASN	CB-CA-C	-7.43	95.64	110.42
2	B	64	ASP	CB-CA-C	-7.32	97.16	109.75
1	A	626	ASP	N-CA-C	-7.30	95.07	107.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	460	PRO	N-CA-CB	7.29	110.91	103.25
2	B	60	TYR	N-CA-C	-7.16	92.74	107.70
1	A	140	GLU	N-CA-C	-7.04	105.22	114.31
1	C	29	THR	N-CA-CB	-6.95	99.69	111.50
1	C	28	PRO	N-CA-CB	6.87	110.47	103.25
1	C	377	LEU	N-CA-C	6.73	120.86	112.24
2	B	65	TYR	N-CA-CB	6.57	121.68	111.24
2	B	620	LYS	CB-CA-C	-6.44	98.71	109.27
1	A	428	THR	N-CA-CB	-6.41	100.65	111.17
1	C	18	PRO	N-CA-CB	6.33	110.22	103.39
1	A	429	ILE	N-CA-C	6.09	122.01	109.34
1	A	516	LYS	CB-CA-C	-6.02	100.20	109.29
1	A	429	ILE	CB-CA-C	-6.01	101.43	111.29
1	A	456	ASP	N-CA-CB	-5.89	101.75	110.53
1	C	802	TYR	N-CA-C	-5.81	103.93	111.02
1	C	173	LEU	N-CA-CB	5.80	120.29	110.49
1	A	667	MET	N-CA-C	-5.71	98.31	108.13
1	A	455	HIS	N-CA-C	-5.68	98.70	110.80
1	C	24	LEU	N-CA-C	5.61	118.04	108.67
1	A	79	VAL	N-CA-C	-5.61	100.32	108.17
1	C	386	ASN	N-CA-C	-5.60	104.36	110.91
2	B	406	VAL	O-C-N	5.55	128.14	122.09
2	B	599	ALA	N-CA-C	-5.55	102.25	110.46
2	B	159	SER	N-CA-C	-5.50	101.31	110.17
1	A	141	PHE	N-CA-C	5.42	117.24	108.08
2	B	598	ASN	CB-CA-C	-5.33	100.07	109.02
2	B	99	ASN	CB-CA-C	5.25	116.26	109.28
1	C	83	PHE	N-CA-C	-5.16	99.81	110.80

There are no chirality outliers.

There are no planarity outliers.

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	9459	0	9382	276	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	4076	0	3971	172	0
2	B	5848	0	5916	142	0
3	E	614	0	338	67	0
4	D	305	0	171	14	0
5	F	622	0	339	58	0
6	D	1	0	0	0	0
All	All	20925	0	20117	664	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 16.

All (664) 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:C:480:LEU:CD1	1:C:797:ILE:HG21	1.55	1.35
1:A:186:LEU:HD11	1:A:239:PHE:CD2	1.67	1.27
1:C:473:ARG:NH1	1:C:805:ASP:O	1.65	1.27
1:C:480:LEU:CD1	1:C:797:ILE:CG2	2.12	1.27
1:C:480:LEU:HD11	1:C:797:ILE:CG2	1.65	1.26
5:F:34:DG:N2	5:F:35:DT:C2	2.16	1.13
1:C:480:LEU:HD12	1:C:797:ILE:HG22	1.35	1.07
1:A:186:LEU:CD1	1:A:239:PHE:CD2	2.37	1.07
1:C:274:ILE:HD11	1:C:794:LEU:HD22	1.13	1.07
5:F:34:DG:N2	5:F:35:DT:O2	1.87	1.07
3:E:45:DA:H61	5:F:15:DA:H62	1.06	1.02
1:C:480:LEU:HD12	1:C:797:ILE:CG2	1.88	1.01
1:A:137:LYS:HE3	1:A:143:LEU:HB2	1.41	1.00
1:A:365:ASN:HB3	1:A:383:ASN:HB3	1.41	1.00
2:B:584:LYS:HE3	5:F:14:DG:H2"	1.42	1.00
1:C:429:ILE:HG23	1:C:429:ILE:O	1.60	1.00
1:A:186:LEU:HD21	1:A:239:PHE:HB3	1.43	0.99
1:A:137:LYS:O	1:A:141:PHE:HE1	1.45	0.98
1:C:172:LYS:O	1:C:173:LEU:HD23	1.61	0.98
1:C:475:PHE:CD2	1:C:801:GLU:HB3	2.00	0.96
1:A:186:LEU:HD11	1:A:239:PHE:CE2	2.01	0.96
3:E:50:DT:H71	5:F:10:DA:N6	1.81	0.95
1:A:826:LEU:HD23	5:F:18:DG:H21	1.30	0.95
1:A:406:LEU:HD22	1:A:455:HIS:O	1.65	0.95
1:A:429:ILE:HG23	1:A:429:ILE:O	1.66	0.92
1:C:274:ILE:CD1	1:C:794:LEU:HD22	2.00	0.92
1:C:106:ARG:O	3:E:26:DC:H5	1.53	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:29:DA:H2'	5:F:30:DT:H4'	1.53	0.90
1:A:137:LYS:O	1:A:141:PHE:CE1	2.25	0.89
3:E:45:DA:H61	5:F:15:DA:N6	1.70	0.89
5:F:17:DT:H2'	5:F:17:DT:O2	1.71	0.88
1:A:186:LEU:CD1	1:A:239:PHE:CE2	2.57	0.87
1:C:475:PHE:HD2	1:C:801:GLU:HB3	1.36	0.86
2:B:64:ASP:O	2:B:65:TYR:CD1	2.27	0.86
1:C:274:ILE:HD11	1:C:794:LEU:CD2	2.04	0.86
3:E:50:DT:H71	5:F:10:DA:H62	1.41	0.85
1:C:480:LEU:CD1	1:C:797:ILE:HG22	1.95	0.83
1:A:625:ILE:HD13	1:A:625:ILE:N	1.93	0.82
1:C:475:PHE:HB2	1:C:805:ASP:OD2	1.78	0.82
1:A:823:HIS:HD2	1:A:825:ARG:NH2	1.77	0.82
1:A:136:MET:HE1	1:A:140:GLU:HG2	1.61	0.81
1:A:826:LEU:HD23	5:F:18:DG:N2	1.93	0.81
2:B:586:ARG:HE	3:E:50:DT:H4'	1.46	0.80
5:F:16:DC:H2'	5:F:16:DC:O2	1.80	0.80
1:A:622:GLN:O	1:A:622:GLN:NE2	2.15	0.80
3:E:43:DT:H1'	3:E:44:DC:OP1	1.82	0.79
1:C:413:GLN:NE2	1:C:427:MET:O	2.15	0.79
2:B:407:GLU:HG2	2:B:408:PRO:CD	2.13	0.78
1:A:493:LEU:HD22	1:C:304:PRO:HG3	1.66	0.78
2:B:689:GLN:NE2	3:E:44:DC:OP1	2.17	0.78
1:A:406:LEU:CD2	1:A:455:HIS:O	2.33	0.77
1:A:72:TRP:O	1:A:76:SER:HB2	1.83	0.77
2:B:689:GLN:NE2	3:E:44:DC:P	2.59	0.76
1:A:626:ASP:N	1:A:626:ASP:OD1	2.16	0.76
1:C:480:LEU:HD11	1:C:797:ILE:HG21	0.80	0.75
1:A:625:ILE:HD13	1:A:625:ILE:H	1.50	0.74
1:C:473:ARG:HB3	1:C:805:ASP:HB3	1.69	0.74
3:E:50:DT:H72	5:F:9:DG:H1	1.53	0.74
5:F:13:DC:H2''	5:F:14:DG:C8	2.23	0.74
1:A:474:ARG:HH11	1:A:478:ARG:HH12	1.34	0.73
1:C:99:LYS:HZ1	1:C:211:GLU:HG2	1.53	0.73
1:C:106:ARG:O	3:E:26:DC:C5	2.41	0.73
5:F:27:DA:H2''	5:F:28:DG:H5''	1.71	0.72
1:A:825:ARG:O	1:A:825:ARG:HG3	1.88	0.72
3:E:31:DA:H4'	3:E:32:DG:OP1	1.89	0.72
1:A:137:LYS:HE3	1:A:143:LEU:CB	2.19	0.72
1:A:914:THR:HG22	1:A:1041:ASN:HB2	1.70	0.71
1:A:694:ARG:NH1	1:A:710:GLU:OE2	2.24	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1139:THR:HB	1:A:1163:LEU:HD23	1.71	0.71
1:C:278:LEU:CD2	1:C:794:LEU:HD13	2.21	0.71
3:E:51:DC:H2''	3:E:52:DA:H5''	1.72	0.71
2:B:475:LEU:HD12	2:B:483:ALA:HB1	1.73	0.71
5:F:29:DA:C4	5:F:30:DT:H1'	2.25	0.70
3:E:24:DC:H2''	3:E:25:DA:H5'	1.73	0.70
1:C:278:LEU:HD21	1:C:794:LEU:CD1	2.21	0.70
1:C:365:ASN:O	1:C:377:LEU:HA	1.90	0.70
1:A:1120:ALA:O	1:A:1123:GLN:NE2	2.25	0.70
1:A:823:HIS:HD2	1:A:825:ARG:HH22	1.37	0.69
1:A:985:VAL:HG23	1:A:997:PHE:HA	1.73	0.69
3:E:52:DA:H2''	3:E:53:DA:H5'	1.72	0.69
1:A:186:LEU:H	1:A:186:LEU:HD23	1.56	0.69
3:E:43:DT:H2''	3:E:44:DC:O5'	1.92	0.69
1:A:779:HIS:HD1	1:A:779:HIS:H	1.39	0.69
1:C:111:ASP:HA	1:C:114:ARG:HB2	1.73	0.69
1:A:826:LEU:HB3	5:F:18:DG:C2	2.28	0.69
1:C:91:ARG:NH2	1:C:211:GLU:O	2.26	0.69
1:C:339:MET:CE	1:C:377:LEU:HD12	2.23	0.69
1:A:474:ARG:NH2	1:A:968:GLU:O	2.26	0.69
1:A:584:ASP:OD2	2:B:522:ARG:NH2	2.25	0.68
3:E:27:DT:H2''	3:E:28:DA:H8	1.58	0.68
2:B:648:PRO:HD3	5:F:15:DA:N6	2.08	0.68
1:A:420:LEU:HD12	1:A:421:SER:H	1.59	0.68
2:B:142:GLN:NE2	2:B:201:ASN:OD1	2.27	0.67
1:A:136:MET:HE3	1:A:136:MET:HA	1.76	0.67
2:B:505:ARG:NH1	2:B:629:GLU:OE1	2.27	0.67
1:A:786:PRO:HD2	1:A:788:ARG:NH2	2.10	0.67
2:B:31:LYS:HB2	2:B:82:GLU:HB2	1.77	0.66
2:B:171:TRP:HB2	3:E:30:DT:C5	2.30	0.66
3:E:36:DA:H2''	3:E:37:DG:H5''	1.75	0.66
2:B:449:SER:HG	2:B:464:TYR:HH	1.42	0.66
1:A:1139:THR:HG21	1:A:1164:LEU:HB2	1.77	0.66
1:C:201:GLN:HG3	1:C:202:PRO:HD3	1.76	0.66
1:A:93:LEU:HD23	1:A:147:TRP:NE1	2.11	0.66
1:A:46:ILE:HD13	1:A:76:SER:HA	1.77	0.65
5:F:17:DT:O2	5:F:17:DT:C2'	2.44	0.65
1:A:624:ARG:CG	1:A:624:ARG:O	2.43	0.65
1:A:144:LYS:HA	5:F:28:DG:C6	2.32	0.65
1:C:474:ARG:HG2	1:C:801:GLU:OE1	1.96	0.65
1:A:1122:THR:OG1	1:A:1126:TRP:NE1	2.21	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1129:ILE:HG23	1:A:1150:LEU:HB3	1.79	0.65
3:E:50:DT:H71	5:F:10:DA:C6	2.32	0.65
5:F:16:DC:O2	5:F:16:DC:C2'	2.45	0.64
1:A:624:ARG:O	1:A:624:ARG:HG2	1.96	0.64
2:B:665:ASP:O	2:B:668:ILE:HG12	1.98	0.64
1:A:54:PHE:HB2	1:A:257:VAL:HG12	1.79	0.63
5:F:11:DT:H2''	5:F:12:DA:C8	2.33	0.63
1:A:823:HIS:CD2	1:A:825:ARG:HH22	2.16	0.63
1:A:752:ILE:N	1:A:855:PHE:O	2.28	0.63
1:A:820:GLY:HA2	1:A:825:ARG:NH1	2.13	0.63
3:E:48:DT:H2''	3:E:49:DA:C8	2.34	0.63
2:B:252:SER:HG	2:B:625:THR:HG1	1.45	0.62
1:A:365:ASN:CB	1:A:383:ASN:HB3	2.23	0.62
2:B:303:GLN:HA	2:B:306:ARG:HG2	1.82	0.62
1:C:339:MET:HE1	1:C:377:LEU:HD12	1.80	0.62
1:C:491:HIS:O	1:C:491:HIS:ND1	2.32	0.62
2:B:282:GLN:O	2:B:289:GLN:NE2	2.33	0.62
1:A:298:VAL:HG12	1:A:303:LEU:HG	1.82	0.62
1:C:475:PHE:HD2	1:C:801:GLU:CB	2.12	0.61
1:C:278:LEU:HD21	1:C:794:LEU:HD13	1.80	0.61
1:A:137:LYS:CE	1:A:143:LEU:HB2	2.24	0.61
2:B:648:PRO:HD3	5:F:15:DA:C6	2.35	0.61
1:C:413:GLN:HA	1:C:427:MET:HE3	1.82	0.61
2:B:355:ASN:ND2	4:D:2:DG:OP1	2.31	0.61
1:A:1011:LEU:HD13	1:A:1052:LEU:HD21	1.81	0.61
2:B:421:TYR:HB2	2:B:700:LEU:HD13	1.81	0.61
1:C:185:LYS:O	1:C:190:SER:OG	2.18	0.61
5:F:22:DA:C8	5:F:22:DA:H5'	2.36	0.61
1:C:383:ASN:ND2	1:C:383:ASN:O	2.32	0.61
3:E:45:DA:N6	5:F:15:DA:H62	1.88	0.61
5:F:10:DA:H2'	5:F:11:DT:C6	2.36	0.61
2:B:584:LYS:HE3	5:F:14:DG:C2'	2.26	0.60
3:E:37:DG:H2''	3:E:38:DA:C8	2.36	0.60
1:A:114:ARG:O	1:A:120:LYS:NZ	2.31	0.60
1:A:628:LYS:O	1:A:632:ARG:HG2	2.02	0.60
1:A:946:VAL:HG21	1:A:1051:LEU:HD22	1.83	0.60
3:E:31:DA:H2''	3:E:32:DG:O5'	2.02	0.60
2:B:286:ARG:NH2	2:B:364:LYS:O	2.34	0.60
1:C:259:LEU:HD22	1:C:265:THR:HG21	1.83	0.60
3:E:40:DC:H2'	3:E:41:DC:C6	2.37	0.60
2:B:139:MET:SD	2:B:139:MET:N	2.75	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:604:LYS:HZ2	5:F:14:DG:H5'	1.65	0.60
1:C:205:ASP:N	1:C:205:ASP:OD1	2.34	0.60
1:A:820:GLY:HA2	1:A:825:ARG:HH11	1.67	0.59
1:A:1014:MET:HE2	1:A:1133:ILE:HG21	1.84	0.59
2:B:329:ASP:O	2:B:333:ARG:NH1	2.34	0.59
1:C:455:HIS:O	1:C:455:HIS:ND1	2.34	0.59
4:D:2:DG:H2'	4:D:3:DA:C8	2.37	0.59
3:E:50:DT:C7	5:F:10:DA:H62	2.14	0.59
1:A:825:ARG:HH11	1:A:825:ARG:CG	2.14	0.59
2:B:689:GLN:HE22	3:E:44:DC:P	2.24	0.59
1:A:355:THR:HA	1:A:919:ARG:HH21	1.67	0.59
2:B:383:VAL:HG21	3:E:44:DC:C5	2.38	0.59
2:B:407:GLU:HG2	2:B:408:PRO:HD2	1.84	0.59
2:B:545:GLY:HA3	2:B:549:TYR:HD2	1.68	0.59
2:B:162:THR:OG1	4:D:9:DC:OP2	2.21	0.59
2:B:643:ASP:OD1	2:B:643:ASP:N	2.35	0.59
2:B:701:ARG:NH1	4:D:4:DC:OP1	2.36	0.58
1:A:72:TRP:O	1:A:76:SER:CB	2.51	0.58
1:C:365:ASN:HB3	1:C:384:ASP:CG	2.28	0.58
2:B:171:TRP:HB2	3:E:30:DT:C6	2.38	0.58
3:E:35:DT:H2''	3:E:36:DA:C8	2.39	0.58
2:B:496:LYS:HD3	2:B:668:ILE:HD12	1.84	0.58
2:B:580:GLY:O	2:B:585:ARG:NH1	2.33	0.58
1:C:280:ILE:HD13	1:C:448:LYS:HD3	1.86	0.58
2:B:51:GLU:HB3	2:B:108:GLN:HE22	1.68	0.58
2:B:317:LYS:O	2:B:319:GLN:NE2	2.36	0.58
1:C:91:ARG:O	1:C:230:LYS:NZ	2.36	0.58
5:F:30:DT:H2'	5:F:31:DA:O4'	2.04	0.58
1:A:1008:ALA:O	1:A:1049:ARG:NH2	2.37	0.58
1:C:386:ASN:OD1	1:C:389:ARG:N	2.37	0.58
1:C:475:PHE:CE2	1:C:801:GLU:HB3	2.39	0.58
1:C:19:GLU:O	1:C:547:ARG:NH1	2.36	0.58
1:A:823:HIS:CD2	1:A:825:ARG:NH2	2.67	0.57
2:B:530:ASP:OD1	2:B:530:ASP:N	2.35	0.57
1:C:86:ARG:O	1:C:222:GLN:N	2.33	0.57
1:C:83:PHE:O	1:C:85:GLU:N	2.38	0.57
1:C:103:ASP:HA	1:C:108:GLN:HB2	1.85	0.57
1:A:576:VAL:HG22	1:A:861:ILE:HB	1.87	0.57
1:C:262:PHE:HB3	1:C:523:SER:HB3	1.86	0.57
1:C:278:LEU:HD21	1:C:794:LEU:HD12	1.86	0.57
1:A:731:ILE:O	1:A:850:ARG:NH1	2.36	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:438:LEU:HB2	2:B:700:LEU:HD21	1.87	0.57
1:C:278:LEU:CD2	1:C:794:LEU:CD1	2.82	0.57
1:A:624:ARG:HB3	1:A:624:ARG:CZ	2.33	0.57
2:B:360:GLN:N	2:B:360:GLN:OE1	2.38	0.56
2:B:427:LYS:NZ	2:B:712:PRO:O	2.36	0.56
1:C:191:LYS:HG3	1:C:239:PHE:HE2	1.70	0.56
1:A:136:MET:HE3	1:A:136:MET:CA	2.35	0.56
3:E:38:DA:H2''	3:E:39:DG:O4'	2.05	0.56
1:A:660:LEU:HD22	1:A:697:SER:HB2	1.88	0.56
1:C:104:TRP:HZ2	1:C:120:LYS:HD3	1.70	0.56
3:E:50:DT:H73	5:F:10:DA:N7	2.20	0.56
1:A:186:LEU:HD13	1:A:239:PHE:CD2	2.35	0.56
2:B:636:THR:HG21	2:B:669:ILE:HG21	1.86	0.56
1:C:158:ARG:O	1:C:162:ILE:HD12	2.05	0.56
1:C:277:ALA:O	1:C:281:GLN:NE2	2.37	0.56
1:C:376:VAL:HG12	1:C:378:GLY:H	1.71	0.56
1:A:903:LYS:HB2	1:A:904:PRO:HD3	1.87	0.56
1:A:1016:ARG:HD2	1:A:1159:GLN:HA	1.88	0.56
1:A:950:THR:HG22	1:A:1039:ILE:HG13	1.86	0.55
1:A:1173:TRP:O	1:A:1177:ASN:ND2	2.39	0.55
2:B:507:ILE:HB	2:B:654:VAL:HG23	1.88	0.55
1:C:309:LYS:O	1:C:310:SER:C	2.50	0.55
1:C:367:TYR:CD1	1:C:367:TYR:N	2.72	0.55
1:C:39:ARG:O	1:C:39:ARG:NH1	2.38	0.55
1:C:173:LEU:HG	1:C:173:LEU:O	2.05	0.55
1:C:473:ARG:CB	1:C:805:ASP:HB3	2.37	0.55
1:A:362:LYS:HZ2	1:A:379:ARG:HA	1.71	0.55
2:B:268:ILE:HG12	2:B:390:GLN:HG3	1.87	0.55
1:A:696:VAL:HG23	1:A:726:SER:HB2	1.88	0.55
2:B:15:LYS:HG2	2:B:244:LEU:HD12	1.87	0.55
3:E:42:DG:H1	4:D:4:DC:H42	1.55	0.55
2:B:288:SER:OG	2:B:289:GLN:NE2	2.39	0.55
1:A:186:LEU:HD13	1:A:239:PHE:CE2	2.39	0.55
2:B:20:GLN:NE2	2:B:24:ASP:OD2	2.39	0.55
3:E:51:DC:H2''	3:E:52:DA:H8	1.71	0.55
2:B:385:ILE:HA	2:B:388:LEU:HD12	1.88	0.55
1:A:133:PHE:CD1	1:A:133:PHE:C	2.85	0.55
1:A:157:VAL:O	1:A:161:MET:HG2	2.07	0.54
1:A:741:MET:SD	1:A:746:ARG:HG3	2.46	0.54
1:C:191:LYS:HG3	1:C:239:PHE:CE2	2.41	0.54
3:E:45:DA:OP2	3:E:45:DA:H2'	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:50:DT:H72	5:F:9:DG:N1	2.20	0.54
2:B:525:LYS:NZ	2:B:600:THR:O	2.41	0.54
1:C:324:ALA:HB2	1:C:397:PHE:CZ	2.42	0.54
2:B:407:GLU:HG2	2:B:408:PRO:HD3	1.88	0.54
1:A:907:GLU:O	1:A:911:GLN:HG3	2.07	0.54
1:C:338:LYS:O	1:C:376:VAL:O	2.26	0.54
3:E:47:DG:O5'	3:E:47:DG:H2'	2.08	0.54
5:F:29:DA:C2'	5:F:30:DT:H4'	2.32	0.54
1:A:136:MET:CA	1:A:136:MET:CE	2.85	0.54
2:B:279:ILE:HD13	2:B:324:ILE:HB	1.90	0.54
1:A:597:LYS:H	1:A:597:LYS:HD2	1.72	0.54
2:B:383:VAL:HG11	3:E:44:DC:H2'	1.90	0.53
1:C:415:SER:O	1:C:419:LYS:HG2	2.08	0.53
1:A:186:LEU:HD21	1:A:239:PHE:CB	2.27	0.53
1:C:39:ARG:HH12	1:C:43:ARG:HB2	1.72	0.53
1:C:319:GLU:HA	1:C:322:ASN:HD21	1.73	0.53
2:B:657:ARG:NH1	4:D:6:DG:OP1	2.32	0.53
1:C:399:LYS:O	1:C:403:LYS:HG2	2.08	0.53
1:A:112:LEU:HD11	1:A:168:LYS:HG3	1.89	0.53
1:A:367:TYR:CD2	1:A:382:ARG:HG2	2.43	0.53
1:A:650:MET:HE2	1:A:650:MET:HA	1.89	0.53
1:C:318:LYS:O	1:C:322:ASN:ND2	2.41	0.53
1:C:428:THR:O	1:C:429:ILE:HG22	2.09	0.53
1:A:474:ARG:NH1	1:A:920:ASP:OD1	2.40	0.53
1:A:624:ARG:O	1:A:624:ARG:HD2	2.08	0.53
1:C:491:HIS:CE1	1:C:496:LYS:HG2	2.43	0.53
1:A:490:GLN:OE1	1:C:444:LYS:NZ	2.33	0.53
1:C:82:ALA:HB3	1:C:85:GLU:HB3	1.91	0.53
2:B:173:LYS:HD2	2:B:198:VAL:HG21	1.91	0.52
2:B:354:GLU:OE1	2:B:354:GLU:N	2.42	0.52
2:B:588:MET:HE1	2:B:603:LEU:HD13	1.92	0.52
5:F:13:DC:H2''	5:F:14:DG:H8	1.73	0.52
1:C:110:PRO:HG3	1:C:205:ASP:HA	1.91	0.52
3:E:49:DA:H2''	3:E:50:DT:O2	2.09	0.52
1:C:41:LEU:HD11	1:C:258:VAL:HG21	1.91	0.52
1:C:473:ARG:HE	1:C:473:ARG:HA	1.75	0.52
1:A:826:LEU:CD2	5:F:18:DG:N2	2.69	0.52
2:B:627:ILE:HB	2:B:637:PHE:HE1	1.75	0.52
1:A:557:ASP:N	1:A:557:ASP:OD1	2.42	0.52
2:B:131:GLU:OE1	2:B:131:GLU:N	2.31	0.52
1:A:190:SER:HA	1:A:193:LYS:HG3	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:74:GLU:N	1:C:74:GLU:OE1	2.42	0.51
1:A:579:GLU:HB2	1:A:864:VAL:HG12	1.92	0.51
1:A:942:ARG:HB3	1:A:1051:LEU:HD12	1.92	0.51
2:B:544:SER:O	2:B:544:SER:OG	2.23	0.51
1:A:768:ASP:OD2	1:A:853:ARG:N	2.42	0.51
1:A:427:MET:HE1	1:C:492:ASP:OD2	2.11	0.51
1:C:387:PHE:HE1	1:C:390:MET:HE3	1.75	0.51
1:A:852:ASN:HA	1:A:857:LYS:HZ1	1.75	0.51
5:F:17:DT:C6	5:F:17:DT:OP1	2.64	0.51
1:A:1061:PHE:HE1	1:A:1067:LEU:HD11	1.75	0.51
1:A:921:TYR:HA	1:A:924:VAL:HG12	1.93	0.51
2:B:233:ASP:OD2	2:B:515:ARG:NH1	2.41	0.51
2:B:550:VAL:O	2:B:554:GLU:HG2	2.10	0.51
1:A:87:VAL:HG22	1:A:223:ILE:HB	1.92	0.51
1:A:726:SER:OG	1:A:727:ALA:N	2.44	0.51
1:A:624:ARG:O	1:A:624:ARG:CD	2.59	0.51
2:B:168:GLU:OE2	2:B:170:GLN:NE2	2.44	0.51
1:C:190:SER:HA	1:C:193:LYS:HG3	1.92	0.51
2:B:319:GLN:O	2:B:323:ASN:ND2	2.44	0.50
2:B:164:THR:OG1	2:B:200:GLY:O	2.29	0.50
3:E:27:DT:H2''	3:E:28:DA:C8	2.42	0.50
1:A:1141:PRO:HA	1:A:1151:GLU:O	2.11	0.50
1:C:201:GLN:N	1:C:202:PRO:HD2	2.26	0.50
3:E:26:DC:H2''	3:E:27:DT:C2	2.46	0.50
3:E:39:DG:H2''	3:E:40:DC:H6	1.76	0.50
1:A:476:GLN:O	1:A:508:ARG:NH2	2.35	0.50
1:A:784:ASN:HD22	1:A:792:ALA:HB1	1.75	0.50
1:A:1106:ALA:O	1:A:1110:LYS:HG3	2.12	0.50
1:A:387:PHE:O	1:A:390:MET:HG3	2.11	0.50
1:C:22:LEU:HD22	1:C:544:LEU:HD22	1.93	0.50
1:C:326:GLN:O	1:C:330:GLU:HG2	2.12	0.50
4:D:14:DC:H2''	4:D:15:DT:C6	2.46	0.50
1:A:858:MET:HG3	1:A:859:PRO:HD2	1.94	0.50
2:B:695:TYR:N	2:B:696:PRO:HD2	2.27	0.49
1:C:331:PHE:CD1	1:C:390:MET:HG2	2.47	0.49
5:F:11:DT:H2''	5:F:12:DA:H8	1.76	0.49
1:C:201:GLN:N	1:C:202:PRO:CD	2.75	0.49
1:A:93:LEU:HD23	1:A:147:TRP:CD1	2.47	0.49
1:A:103:ASP:OD1	1:A:106:ARG:NH2	2.45	0.49
2:B:712:PRO:HA	2:B:715:ARG:HG3	1.94	0.49
1:A:800:GLN:HG3	1:A:817:TYR:CE2	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:610:LEU:O	1:A:614:VAL:HG22	2.12	0.49
1:C:305:ALA:C	1:C:308:GLY:H	2.20	0.49
1:C:412:TYR:CD2	1:C:427:MET:HE1	2.48	0.49
1:A:494:GLN:HE22	1:C:438:ALA:HB1	1.77	0.49
1:A:752:ILE:HG22	1:A:855:PHE:HA	1.94	0.49
2:B:460:SER:HB3	2:B:465:THR:HG21	1.94	0.49
1:C:85:GLU:HG2	1:C:86:ARG:HD2	1.94	0.49
1:C:302:GLN:O	1:C:303:LEU:HB2	2.12	0.49
1:A:507:GLU:OE1	1:A:802:TYR:OH	2.22	0.49
1:A:825:ARG:NH1	1:A:825:ARG:CG	2.73	0.49
1:A:910:LYS:O	1:A:914:THR:HG23	2.12	0.49
1:A:89:VAL:HG22	1:A:225:ILE:HB	1.95	0.49
2:B:342:ALA:HB2	2:B:348:VAL:HG12	1.94	0.49
2:B:415:GLN:HB2	2:B:444:MET:HE1	1.95	0.49
1:C:250:PRO:HB2	1:C:424:ASP:OD1	2.12	0.49
1:A:604:TRP:CD1	2:B:114:LYS:HE3	2.48	0.49
2:B:291:LEU:HA	2:B:366:ILE:HD13	1.93	0.49
1:C:319:GLU:HA	1:C:322:ASN:ND2	2.27	0.49
1:A:579:GLU:OE2	1:A:862:ARG:NH1	2.45	0.48
2:B:402:LYS:NZ	2:B:443:GLU:O	2.42	0.48
3:E:25:DA:H2''	3:E:26:DC:H5''	1.95	0.48
1:A:1098:ASP:N	1:A:1098:ASP:OD1	2.43	0.48
2:B:586:ARG:CZ	3:E:51:DC:H5'	2.43	0.48
1:C:219:GLU:HG3	1:C:424:ASP:CB	2.43	0.48
1:C:364:TRP:N	1:C:364:TRP:CD1	2.80	0.48
1:A:57:THR:O	1:A:228:THR:N	2.46	0.48
1:A:953:ASP:O	1:A:957:LYS:HG2	2.13	0.48
1:A:19:GLU:O	1:A:547:ARG:NH1	2.46	0.48
1:A:875:ASP:HB3	1:A:891:LEU:HD13	1.96	0.48
1:C:99:LYS:NZ	1:C:211:GLU:HG2	2.27	0.48
1:C:228:THR:O	1:C:232:ILE:HG12	2.13	0.48
2:B:351:LEU:HD13	2:B:356:PHE:CD2	2.48	0.48
1:C:86:ARG:NH1	1:C:220:LYS:O	2.47	0.48
2:B:540:ARG:O	2:B:540:ARG:NH1	2.35	0.48
3:E:44:DC:H5''	3:E:44:DC:C6	2.49	0.48
1:A:287:LEU:HD11	1:A:450:LEU:HG	1.95	0.48
1:A:527:THR:HA	1:A:537:LEU:HD11	1.96	0.48
2:B:402:LYS:HD2	2:B:445:GLU:HG3	1.94	0.48
2:B:573:ASP:HA	2:B:603:LEU:HD23	1.96	0.48
1:C:119:PHE:HE1	1:C:161:MET:HG3	1.79	0.48
1:C:158:ARG:HG2	1:C:238:PHE:CE1	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:93:LEU:CD2	1:A:147:TRP:NE1	2.76	0.48
1:A:541:ARG:HG3	1:A:548:LEU:HD23	1.96	0.48
1:A:945:TYR:CZ	1:A:1044:GLN:HG2	2.49	0.48
1:A:186:LEU:HD11	1:A:239:PHE:CG	2.40	0.47
1:A:910:LYS:HG2	1:A:974:LEU:HD22	1.96	0.47
2:B:214:LEU:HD11	2:B:616:LEU:HD11	1.95	0.47
1:C:335:PHE:HE2	1:C:368:PHE:CZ	2.31	0.47
5:F:27:DA:H2''	5:F:28:DG:C8	2.48	0.47
1:C:109:ILE:HD11	1:C:113:TYR:HB2	1.95	0.47
1:A:281:GLN:HG2	1:A:500:CYS:HB3	1.95	0.47
1:A:811:ILE:HG12	1:A:915:PHE:CE2	2.50	0.47
1:C:278:LEU:HD11	1:C:790:ASP:HB3	1.96	0.47
1:C:454:GLY:O	1:C:456:ASP:N	2.45	0.47
1:C:482:LEU:HG	1:C:500:CYS:HB3	1.95	0.47
3:E:39:DG:H2''	3:E:40:DC:C6	2.49	0.47
3:E:46:DC:H2''	3:E:47:DG:C8	2.49	0.47
2:B:286:ARG:O	2:B:290:GLU:HG2	2.15	0.47
5:F:14:DG:H4'	5:F:14:DG:OP1	2.14	0.47
1:A:101:ILE:HD12	1:A:130:PHE:HD2	1.79	0.47
1:A:129:ALA:O	1:A:132:SER:OG	2.27	0.47
1:A:263:ASP:OD2	1:A:525:THR:OG1	2.32	0.47
1:A:362:LYS:NZ	1:A:363:PRO:O	2.31	0.47
1:A:454:GLY:O	1:A:455:HIS:C	2.58	0.47
1:A:1150:LEU:HD23	1:A:1175:PHE:CD1	2.49	0.47
2:B:349:GLN:NE2	2:B:350:HIS:O	2.45	0.47
1:C:333:LEU:HD12	1:C:333:LEU:H	1.79	0.47
1:A:1004:VAL:HG13	1:A:1045:PHE:CG	2.49	0.47
1:A:133:PHE:CE1	1:A:137:LYS:HG2	2.49	0.47
1:A:755:LYS:HB2	1:A:755:LYS:HE3	1.79	0.47
1:A:965:ARG:HD2	1:A:965:ARG:HA	1.64	0.47
1:A:1131:ILE:HG13	1:A:1152:ILE:HD13	1.96	0.47
1:A:1131:ILE:CG1	1:A:1152:ILE:HD13	2.45	0.47
1:A:1165:THR:OG1	1:A:1166:PRO:HD3	2.14	0.47
1:C:339:MET:HE2	1:C:377:LEU:HD12	1.95	0.47
3:E:50:DT:C7	5:F:9:DG:H1	2.25	0.47
3:E:50:DT:C7	5:F:9:DG:N1	2.77	0.47
1:A:226:LEU:HD12	1:A:230:LYS:HG3	1.97	0.47
1:A:622:GLN:NE2	1:A:622:GLN:C	2.73	0.47
1:A:885:GLN:NE2	1:A:889:CYS:SG	2.88	0.47
2:B:65:TYR:OH	3:E:33:DA:OP1	2.33	0.47
1:C:415:SER:O	1:C:418:GLN:HG3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:987:PRO:HD3	1:A:1002:MET:HB3	1.96	0.47
1:A:1017:TYR:CE2	1:A:1060:ILE:HG12	2.50	0.47
2:B:406:VAL:HG21	2:B:695:TYR:CZ	2.50	0.47
1:A:647:ASP:OD2	1:A:862:ARG:NH2	2.48	0.47
3:E:44:DC:OP1	3:E:44:DC:O4'	2.32	0.47
1:A:187:ASP:O	1:A:188:SER:C	2.57	0.46
1:A:352:VAL:HG23	1:A:355:THR:H	1.79	0.46
1:A:1085:TRP:O	1:A:1086:GLU:HG2	2.14	0.46
2:B:64:ASP:C	2:B:65:TYR:CD1	2.92	0.46
2:B:107:ASN:O	2:B:184:ARG:NH1	2.49	0.46
3:E:42:DG:H1	4:D:4:DC:N4	2.13	0.46
1:A:247:ARG:NH2	1:A:504:GLU:OE2	2.41	0.46
1:A:474:ARG:NH2	1:A:920:ASP:OD2	2.38	0.46
1:C:21:ALA:HB1	1:C:547:ARG:HB2	1.97	0.46
1:A:825:ARG:NH1	1:A:825:ARG:HG2	2.30	0.46
1:C:118:ILE:HG13	1:C:121:LYS:HE3	1.97	0.46
1:A:491:HIS:O	1:A:491:HIS:ND1	2.45	0.46
2:B:461:ASP:O	2:B:466:GLN:NE2	2.49	0.46
2:B:613:ASP:OD1	2:B:613:ASP:N	2.48	0.46
1:C:401:ALA:O	1:C:405:ILE:HG12	2.16	0.46
3:E:28:DA:H2''	3:E:29:DA:H5'	1.97	0.46
1:A:898:GLU:O	2:B:564:ARG:NH2	2.48	0.46
1:A:144:LYS:NZ	5:F:28:DG:H2'	2.30	0.46
1:A:626:ASP:C	1:A:628:LYS:H	2.24	0.46
1:A:778:THR:OG1	1:A:779:HIS:N	2.49	0.46
2:B:115:SER:OG	2:B:116:LEU:N	2.49	0.46
1:C:160:ALA:O	1:C:164:ILE:HG13	2.15	0.46
1:A:187:ASP:O	1:A:190:SER:OG	2.29	0.46
1:C:423:LEU:O	1:C:424:ASP:C	2.59	0.46
4:D:7:DC:H2''	4:D:8:DT:C7	2.46	0.46
1:A:598:ILE:HG23	1:A:682:LEU:HD11	1.98	0.46
2:B:383:VAL:CG1	3:E:44:DC:H2'	2.45	0.46
1:C:144:LYS:NZ	5:F:32:DA:O4'	2.36	0.46
3:E:44:DC:H5'	3:E:45:DA:H5'	1.97	0.46
1:A:428:THR:O	1:A:429:ILE:HG22	2.17	0.45
2:B:97:TYR:O	2:B:99:ASN:N	2.46	0.45
2:B:627:ILE:HB	2:B:637:PHE:CE1	2.51	0.45
1:C:305:ALA:O	1:C:306:LYS:C	2.57	0.45
1:C:387:PHE:CE1	1:C:390:MET:HE3	2.51	0.45
1:A:429:ILE:O	1:A:429:ILE:HG12	2.17	0.45
1:A:1090:VAL:N	1:A:1127:ARG:O	2.40	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:196:GLU:HG2	1:C:200:LYS:HZ3	1.80	0.45
3:E:47:DG:C2	5:F:14:DG:N2	2.84	0.45
2:B:604:LYS:NZ	5:F:14:DG:H5'	2.32	0.45
1:C:168:LYS:HE2	1:C:168:LYS:HB2	1.77	0.45
1:C:203:LYS:O	1:C:203:LYS:NZ	2.41	0.45
1:C:323:ASP:O	1:C:327:LEU:HG	2.17	0.45
2:B:683:GLU:OE1	2:B:683:GLU:N	2.50	0.45
1:C:125:ASN:ND2	1:C:156:GLN:OE1	2.39	0.45
1:A:26:ASN:OD1	1:A:26:ASN:N	2.44	0.45
1:C:316:ALA:O	1:C:319:GLU:HG2	2.17	0.45
3:E:50:DT:C7	5:F:10:DA:N7	2.80	0.45
1:A:128:ASN:HA	1:A:131:LYS:HE3	1.99	0.45
1:A:621:GLU:H	1:A:621:GLU:HG3	1.57	0.45
1:A:655:GLY:N	1:A:724:ILE:O	2.48	0.45
2:B:64:ASP:O	2:B:65:TYR:CG	2.67	0.45
2:B:174:GLN:NE2	3:E:33:DA:OP2	2.50	0.45
1:A:143:LEU:HG	5:F:28:DG:O6	2.16	0.45
1:A:1139:THR:HA	1:A:1153:SER:HB2	1.99	0.45
1:C:536:ASP:O	1:C:539:TYR:N	2.50	0.45
1:A:337:TYR:O	1:A:495:THR:N	2.41	0.45
1:A:449:ILE:HD11	1:A:501:PHE:HD1	1.82	0.45
1:A:611:ALA:O	1:A:615:ASN:ND2	2.48	0.45
1:A:1088:LYS:HE2	1:A:1127:ARG:NE	2.32	0.45
1:C:307:LEU:HD21	1:C:311:PHE:HE1	1.81	0.45
1:A:598:ILE:HD12	1:A:598:ILE:H	1.82	0.45
1:A:651:THR:OG1	1:A:652:SER:N	2.49	0.45
1:A:945:TYR:OH	1:A:970:GLY:O	2.22	0.45
1:A:1065:TRP:CZ2	1:A:1169:LYS:HA	2.51	0.44
1:C:307:LEU:HD22	1:C:307:LEU:O	2.16	0.44
1:C:473:ARG:HA	1:C:473:ARG:NE	2.31	0.44
1:C:505:THR:OG1	1:C:508:ARG:HG3	2.17	0.44
1:C:538:GLY:O	1:C:542:GLU:HG3	2.16	0.44
1:A:194:ILE:O	1:A:198:VAL:HG13	2.18	0.44
1:A:523:SER:HB3	1:A:526:ALA:HB2	1.99	0.44
1:A:712:LEU:HB3	1:A:739:HIS:HB3	1.99	0.44
2:B:546:ASP:O	2:B:550:VAL:HG22	2.18	0.44
2:B:689:GLN:HE21	3:E:44:DC:P	2.38	0.44
1:C:796:SER:O	1:C:800:GLN:HG3	2.18	0.44
1:A:569:TYR:OH	1:A:857:LYS:NZ	2.34	0.44
1:A:593:LYS:HA	1:A:593:LYS:HD2	1.81	0.44
1:A:622:GLN:C	1:A:622:GLN:CD	2.85	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:658:SER:OG	1:A:778:THR:HB	2.17	0.44
1:A:1128:VAL:O	1:A:1149:ILE:HA	2.18	0.44
2:B:165:GLN:HG3	2:B:195:ILE:HD11	1.98	0.44
2:B:680:MET:HG2	2:B:691:THR:O	2.16	0.44
1:C:91:ARG:HB3	1:C:95:ASP:OD1	2.17	0.44
4:D:14:DC:H2"	4:D:15:DT:H6	1.83	0.44
1:A:420:LEU:HD12	1:A:421:SER:N	2.31	0.44
2:B:398:LEU:HD11	2:B:702:GLU:HB3	2.00	0.44
1:C:262:PHE:HA	1:C:265:THR:HG23	2.00	0.44
1:C:367:TYR:HB2	1:C:368:PHE:H	1.54	0.44
1:C:25:LEU:HA	1:C:521:GLY:O	2.18	0.44
1:A:268:GLN:O	1:A:271:GLU:HG3	2.17	0.44
1:A:626:ASP:C	1:A:628:LYS:N	2.75	0.44
2:B:619:MET:HE2	2:B:619:MET:HB3	1.84	0.44
1:C:166:ALA:HA	1:C:194:ILE:HD11	1.99	0.44
1:C:240:GLU:OE1	1:C:240:GLU:N	2.42	0.44
1:C:801:GLU:O	1:C:802:TYR:C	2.60	0.44
1:A:387:PHE:O	1:A:390:MET:N	2.51	0.44
1:A:1096:TRP:CD1	1:A:1099:ALA:HA	2.52	0.44
1:C:67:ASP:HA	1:C:70:VAL:HG12	1.99	0.44
1:A:35:TYR:CZ	1:A:39:ARG:HD3	2.53	0.44
1:C:37:ILE:HD12	1:C:37:ILE:HA	1.87	0.44
1:C:202:PRO:HB2	1:C:206:SER:HB2	2.00	0.44
1:C:339:MET:HE2	1:C:339:MET:HA	1.99	0.44
1:A:355:THR:HA	1:A:919:ARG:NH2	2.32	0.43
1:A:779:HIS:HB2	5:F:21:DG:C6	2.52	0.43
4:D:8:DT:H2"	4:D:9:DC:C6	2.53	0.43
1:A:137:LYS:HA	1:A:137:LYS:HD3	1.36	0.43
1:A:903:LYS:N	1:A:903:LYS:HD3	2.32	0.43
1:A:946:VAL:HG21	1:A:1051:LEU:HB3	2.00	0.43
2:B:444:MET:HE2	2:B:444:MET:H	1.82	0.43
3:E:42:DG:H2"	3:E:43:DT:H72	2.01	0.43
1:A:741:MET:HG2	1:A:745:GLU:HG2	2.00	0.43
1:C:290:ASP:HB3	1:C:442:LEU:HD23	2.00	0.43
1:A:1074:LYS:O	1:A:1078:TYR:N	2.51	0.43
1:C:309:LYS:O	1:C:311:PHE:N	2.51	0.43
1:A:197:PHE:O	1:A:201:GLN:HG3	2.19	0.43
1:A:810:ASN:OD1	1:A:810:ASN:N	2.52	0.43
1:A:945:TYR:OH	1:A:1044:GLN:HG2	2.18	0.43
2:B:581:LEU:HD23	2:B:581:LEU:HA	1.84	0.43
2:B:643:ASP:HB3	2:B:690:TYR:CE2	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:87:VAL:HG22	1:C:223:ILE:HD13	1.99	0.43
1:C:305:ALA:O	1:C:308:GLY:N	2.52	0.43
2:B:175:ILE:HG23	2:B:196:TYR:HB3	2.00	0.43
2:B:427:LYS:HE3	2:B:427:LYS:HB2	1.81	0.43
2:B:564:ARG:H	2:B:564:ARG:HG2	1.52	0.43
2:B:285:ASP:O	2:B:289:GLN:HG2	2.19	0.43
1:A:51:PHE:CZ	1:A:53:ALA:HB2	2.53	0.43
1:A:247:ARG:HH22	1:A:504:GLU:CD	2.25	0.43
1:A:266:LYS:NZ	1:A:531:VAL:O	2.51	0.43
2:B:26:LYS:HD2	2:B:72:LEU:HB2	2.01	0.43
2:B:461:ASP:OD1	2:B:466:GLN:NE2	2.49	0.43
1:C:475:PHE:CE2	1:C:798:ILE:HA	2.53	0.43
5:F:30:DT:H2'	5:F:30:DT:O2	2.18	0.43
1:A:37:ILE:HD12	1:A:522:LEU:HD11	1.99	0.43
1:A:159:ARG:HA	1:A:162:ILE:HG12	2.00	0.43
1:A:187:ASP:OD1	1:A:188:SER:N	2.52	0.43
1:A:224:ILE:HG22	1:A:226:LEU:HD22	2.01	0.42
1:A:557:ASP:HB2	1:A:561:LYS:NZ	2.34	0.42
1:A:774:LEU:HD13	1:A:844:ILE:HD11	2.01	0.42
1:C:47:LYS:HB2	1:C:47:LYS:HE2	1.84	0.42
1:A:133:PHE:HB2	1:A:149:MET:HE1	2.00	0.42
2:B:493:SER:O	2:B:493:SER:OG	2.30	0.42
4:D:9:DC:H2''	4:D:10:DT:C6	2.53	0.42
1:A:679:LEU:O	1:A:683:VAL:HG12	2.19	0.42
1:C:118:ILE:HA	1:C:121:LYS:HE2	2.02	0.42
1:C:453:LEU:HD12	1:C:503:ASN:ND2	2.34	0.42
5:F:17:DT:O4'	5:F:17:DT:P	2.78	0.42
1:A:13:LEU:HD23	1:A:13:LEU:HA	1.84	0.42
1:A:186:LEU:CD1	1:A:239:PHE:HD2	2.22	0.42
1:A:257:VAL:HG21	1:A:513:LEU:HD21	2.00	0.42
1:A:1052:LEU:HD12	1:A:1052:LEU:HA	1.85	0.42
2:B:51:GLU:HB3	2:B:108:GLN:NE2	2.31	0.42
2:B:616:LEU:HD13	2:B:646:LEU:HD22	2.01	0.42
1:A:657:GLN:O	1:A:727:ALA:HA	2.18	0.42
1:A:807:ASN:HA	1:A:912:ASN:HD22	1.83	0.42
1:A:817:TYR:CE2	1:A:821:LEU:HD11	2.54	0.42
1:A:1092:ASP:OD1	1:A:1092:ASP:N	2.50	0.42
2:B:689:GLN:NE2	3:E:44:DC:OP2	2.51	0.42
1:C:258:VAL:HG22	1:C:520:LEU:HD23	2.00	0.42
1:A:141:PHE:C	1:A:143:LEU:N	2.75	0.42
1:A:147:TRP:CE3	5:F:28:DG:C8	3.07	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:383:VAL:HG11	3:E:44:DC:C6	2.55	0.42
2:B:430:ASP:OD2	2:B:456:ASN:ND2	2.53	0.42
2:B:587:ASP:OD1	2:B:588:MET:N	2.52	0.42
1:C:160:ALA:HA	1:C:163:THR:HG22	2.00	0.42
1:C:369:ASP:OD1	1:C:369:ASP:N	2.51	0.42
2:B:56:ILE:HD11	2:B:66:LEU:HD12	2.02	0.42
2:B:134:ARG:NH2	2:B:205:ASN:OD1	2.52	0.42
1:A:27:ALA:HB3	1:A:33:LYS:HE2	2.02	0.42
1:A:57:THR:OG1	1:A:58:ASP:N	2.53	0.42
1:A:86:ARG:NH1	1:A:220:LYS:O	2.51	0.42
1:A:306:LYS:H	1:A:306:LYS:HG3	1.73	0.42
2:B:106:LEU:HD12	2:B:106:LEU:HA	1.92	0.42
2:B:212:LEU:HD13	2:B:509:PRO:HG3	2.02	0.42
2:B:352:THR:HG23	4:D:1:DT:O3'	2.19	0.42
1:A:568:ARG:C	1:A:752:ILE:HD11	2.44	0.42
1:A:917:THR:HG21	1:A:1044:GLN:HG3	2.02	0.42
2:B:44:LEU:HA	2:B:44:LEU:HD23	1.87	0.42
2:B:176:TYR:O	2:B:197:PHE:N	2.50	0.42
1:A:790:ASP:OD1	1:A:790:ASP:N	2.52	0.42
2:B:25:PHE:HE1	2:B:51:GLU:HG3	1.85	0.41
1:C:384:ASP:C	1:C:386:ASN:H	2.28	0.41
1:C:404:PHE:O	1:C:408:ARG:HG2	2.20	0.41
1:C:405:ILE:HG23	1:C:436:ILE:HG21	2.01	0.41
1:C:428:THR:O	1:C:428:THR:OG1	2.35	0.41
1:A:384:ASP:O	1:A:385:LEU:C	2.62	0.41
1:A:406:LEU:HD21	1:A:456:ASP:HA	2.02	0.41
1:C:198:VAL:HG11	1:C:216:PHE:CE2	2.55	0.41
1:A:1061:PHE:CD1	1:A:1069:LEU:HD11	2.55	0.41
1:A:1072:PHE:CD2	1:A:1084:HIS:HD2	2.38	0.41
1:A:128:ASN:O	1:A:131:LYS:HG2	2.20	0.41
1:A:828:ARG:NH2	5:F:18:DG:H5'	2.35	0.41
1:A:1020:LEU:HD12	1:A:1020:LEU:HA	1.81	0.41
2:B:163:PHE:CE1	2:B:199:GLN:HG2	2.55	0.41
1:A:106:ARG:HB2	1:A:108:GLN:OE1	2.20	0.41
1:A:116:SER:HB2	1:A:164:ILE:HD12	2.03	0.41
1:A:338:LYS:HB2	1:A:493:LEU:O	2.20	0.41
1:A:668:ASP:HB3	1:A:671:TYR:HB3	2.01	0.41
1:A:891:LEU:HD23	1:A:891:LEU:HA	1.91	0.41
1:A:1104:THR:O	1:A:1108:ARG:HG2	2.19	0.41
1:C:274:ILE:HD12	1:C:274:ILE:HA	1.96	0.41
5:F:18:DG:O4'	5:F:18:DG:P	2.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:MET:HG2	1:A:23:MET:SD	2.61	0.41
1:A:142:ASP:O	1:A:144:LYS:N	2.54	0.41
1:A:1132:ASN:O	1:A:1154:GLY:HA2	2.21	0.41
2:B:54:THR:HG21	2:B:100:HIS:HB3	2.02	0.41
2:B:134:ARG:NH1	2:B:205:ASN:HD21	2.19	0.41
2:B:692:VAL:HG22	4:D:5:DG:OP1	2.20	0.41
1:C:306:LYS:HB2	1:C:306:LYS:NZ	2.35	0.41
1:A:369:ASP:OD2	1:A:372:LEU:HB3	2.21	0.41
1:A:484:GLN:O	1:A:498:ASN:N	2.53	0.41
1:A:492:ASP:OD1	1:A:492:ASP:N	2.52	0.41
1:A:973:TYR:HB2	1:A:1038:ARG:HH11	1.86	0.41
1:A:1134:LEU:HD23	1:A:1135:ALA:N	2.35	0.41
2:B:640:VAL:HG21	2:B:692:VAL:HA	2.02	0.41
1:C:126:LEU:HD12	1:C:157:VAL:HG11	2.02	0.41
1:C:549:LEU:O	1:C:550:ASP:CB	2.68	0.41
1:A:26:ASN:HA	1:A:523:SER:O	2.20	0.41
1:A:1040:LEU:HD22	1:A:1044:GLN:HB3	2.03	0.41
2:B:49:SER:HA	2:B:121:LYS:HE2	2.01	0.41
2:B:221:TYR:OH	2:B:515:ARG:NE	2.54	0.41
2:B:531:LYS:HE3	2:B:531:LYS:HB2	1.91	0.41
1:C:391:LEU:HD23	1:C:483:PHE:CD1	2.55	0.41
5:F:10:DA:H2''	5:F:11:DT:OP1	2.21	0.41
1:A:752:ILE:HD12	1:A:752:ILE:HA	1.82	0.41
1:A:816:LYS:HB3	1:A:827:GLU:OE2	2.21	0.41
2:B:705:TYR:O	2:B:709:ARG:HG2	2.21	0.41
1:C:304:PRO:O	1:C:305:ALA:HB3	2.19	0.41
1:C:520:LEU:HD12	1:C:521:GLY:H	1.85	0.41
3:E:41:DC:H2''	3:E:42:DG:C8	2.56	0.41
3:E:50:DT:H71	5:F:10:DA:C5	2.56	0.41
1:A:487:ASN:OD1	1:A:487:ASN:N	2.54	0.41
1:A:841:SER:HA	1:A:844:ILE:HG22	2.03	0.41
1:A:851:MET:HE2	1:A:851:MET:HB3	1.87	0.41
1:A:1085:TRP:CD1	1:A:1176:LEU:HD21	2.56	0.41
1:A:1137:ASN:OD1	1:A:1138:GLN:N	2.53	0.41
2:B:271:GLN:OE1	2:B:271:GLN:N	2.54	0.41
1:A:537:LEU:HD23	1:A:537:LEU:HA	1.90	0.40
1:A:1072:PHE:CE1	1:A:1074:LYS:HB3	2.56	0.40
2:B:482:SER:CB	3:E:37:DG:H21	2.34	0.40
1:C:248:TYR:HB3	1:C:429:ILE:HG22	2.02	0.40
1:C:368:PHE:O	1:C:368:PHE:CG	2.74	0.40
1:C:449:ILE:HD13	1:C:449:ILE:HA	1.90	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:272:SER:O	1:A:276:GLU:HG2	2.21	0.40
1:C:502:PHE:CE2	1:C:798:ILE:HD11	2.55	0.40
1:A:474:ARG:HA	1:A:474:ARG:HD3	1.77	0.40
1:A:534:ASN:OD1	1:A:535:TYR:N	2.52	0.40
1:A:565:PHE:H	1:A:568:ARG:HH21	1.68	0.40
2:B:220:PHE:O	2:B:226:GLY:HA3	2.22	0.40
2:B:394:ILE:HG12	2:B:699:TYR:HE1	1.87	0.40
3:E:37:DG:H2''	3:E:38:DA:N7	2.37	0.40
3:E:47:DG:O5'	3:E:47:DG:C2'	2.70	0.40
1:A:613:LEU:HG	1:A:671:TYR:CD2	2.56	0.40
1:A:625:ILE:H	1:A:625:ILE:CD1	2.13	0.40
2:B:529:ARG:HB3	2:B:565:PRO:HA	2.03	0.40
1:C:85:GLU:HG3	1:C:220:LYS:NZ	2.36	0.40
1:C:88:ALA:HB1	1:C:214:PRO:HB2	2.04	0.40
1:C:405:ILE:HG21	1:C:437:TYR:CE1	2.56	0.40
5:F:29:DA:N3	5:F:30:DT:H1'	2.35	0.40
1:A:664:ASP:OD1	1:A:664:ASP:N	2.51	0.40
2:B:13:ASP:OD2	2:B:250:HIS:HA	2.21	0.40
2:B:212:LEU:HD23	2:B:650:VAL:HB	2.04	0.40
1:C:258:VAL:HA	1:C:520:LEU:HB3	2.02	0.40
1:C:423:LEU:HD22	1:C:423:LEU:N	2.35	0.40
5:F:16:DC:H2''	5:F:17:DT:H5'	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	1161/1192 (97%)	1108 (95%)	49 (4%)	4 (0%)	37 66
1	C	505/1192 (42%)	450 (89%)	45 (9%)	10 (2%)	6 27
2	B	711/715 (99%)	693 (98%)	16 (2%)	2 (0%)	37 66

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	2377/3099 (77%)	2251 (95%)	110 (5%)	16 (1%)	21 49

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	460	PRO
2	B	407	GLU
1	C	28	PRO
1	C	84	SER
1	C	550	ASP
1	A	143	LEU
1	C	173	LEU
2	B	408	PRO
1	C	368	PHE
1	C	172	LYS
1	C	310	SER
1	A	459	SER
1	C	17	SER
1	C	171	VAL
1	C	429	ILE
1	A	429	ILE

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	1022/1054 (97%)	1000 (98%)	22 (2%)	47 68
1	C	413/1054 (39%)	398 (96%)	15 (4%)	30 55
2	B	642/644 (100%)	638 (99%)	4 (1%)	84 89
All	All	2077/2752 (76%)	2036 (98%)	41 (2%)	50 70

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	135	MET
1	A	136	MET
1	A	137	LYS
1	A	140	GLU
1	A	143	LEU
1	A	144	LYS
1	A	149	MET
1	A	186	LEU
1	A	385	LEU
1	A	427	MET
1	A	430	GLU
1	A	455	HIS
1	A	486	THR
1	A	617	ILE
1	A	621	GLU
1	A	622	GLN
1	A	624	ARG
1	A	625	ILE
1	A	626	ASP
1	A	825	ARG
1	A	1025	GLU
1	A	1150	LEU
2	B	60	TYR
2	B	99	ASN
2	B	407	GLU
2	B	633	HIS
1	C	173	LEU
1	C	306	LYS
1	C	307	LEU
1	C	365	ASN
1	C	367	TYR
1	C	369	ASP
1	C	375	VAL
1	C	377	LEU
1	C	473	ARG
1	C	790	ASP
1	C	794	LEU
1	C	795	ARG
1	C	798	ILE
1	C	799	GLU
1	C	802	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	102	ASN
1	A	139	ASN
1	A	268	GLN
1	A	356	ASN
1	A	494	GLN
1	A	615	ASN
1	A	636	ASN
1	A	639	ASN
1	A	751	ASN
1	A	823	HIS
1	A	856	ASN
1	A	885	GLN
1	A	964	GLN
1	A	1084	HIS
1	A	1119	GLN
1	A	1158	HIS
2	B	84	HIS
2	B	103	GLN
2	B	108	GLN
2	B	141	GLN
2	B	170	GLN
2	B	177	GLN
2	B	282	GLN
2	B	289	GLN
2	B	316	GLN
2	B	349	GLN
2	B	376	HIS
2	B	557	GLN
1	C	322	ASN
1	C	374	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.