



# Full wwPDB X-ray Structure Validation Report ⓘ

May 26, 2020 – 07:37 am BST

PDB ID : 1QU3  
Title : INSIGHTS INTO EDITING FROM AN ILE-TRNA SYNTHETASE STRUCTURE WITH TRNA(ILE) AND MUPIROCIN  
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Deposited on : 1999-07-06  
Resolution : 2.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

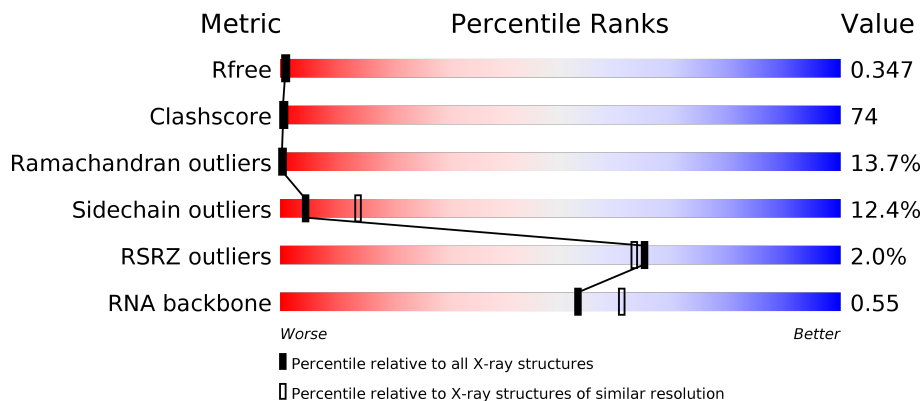
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.90 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)
RNA backbone	3102	1007 (3.16-2.64)

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

Mol	Chain	Length	Quality of chain
1	T	75	
2	A	917	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	MRC	A	993	X	-	-	-

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 8870 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 RNA chain called ISOLEUCYL-TRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	T	75	1603	715	289	525	74	24	0	0

- Molecule 2 is a protein called ISOLEUCYL-TRNA SYNTHETASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	A	880	7113	4537	1198	1358	20	0	0	0

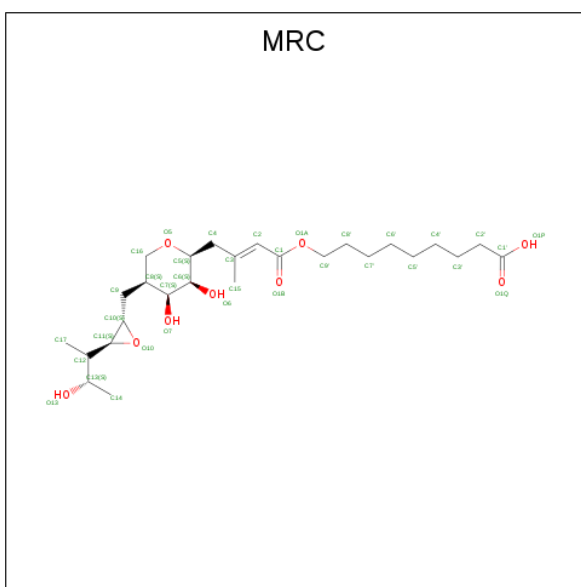
There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	4	GLU	LYS	CONFLICT	UNP P41972
A	5	LYS	GLU	CONFLICT	UNP P41972
A	295	TRP	TYR	CONFLICT	UNP P41972
A	340	GLN	LYS	CONFLICT	UNP P41972
A	644	ASP	VAL	CONFLICT	UNP P41972

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
3	A	1	1	1	0	0

- Molecule 4 is MUPIROCIN (three-letter code: MRC) (formula: C<sub>26</sub>H<sub>44</sub>O<sub>9</sub>).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	
4	A	1	Total	C	O	0	0
			35	26	9		

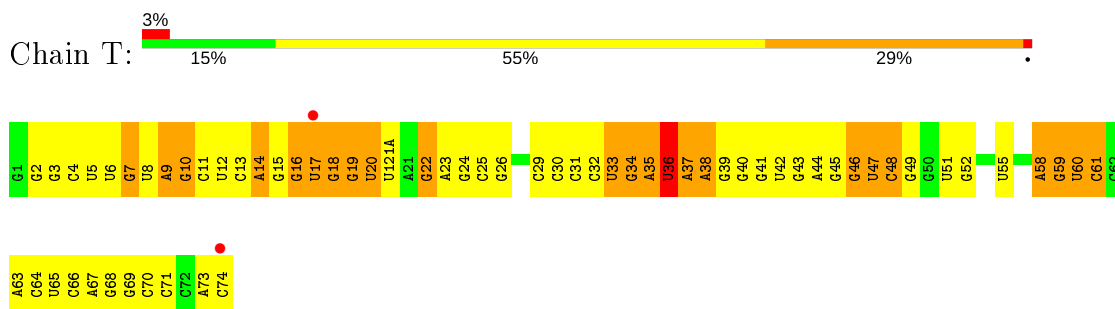
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	T	36	Total	O	0	0
			36	36		
5	A	82	Total	O	0	0
			82	82		

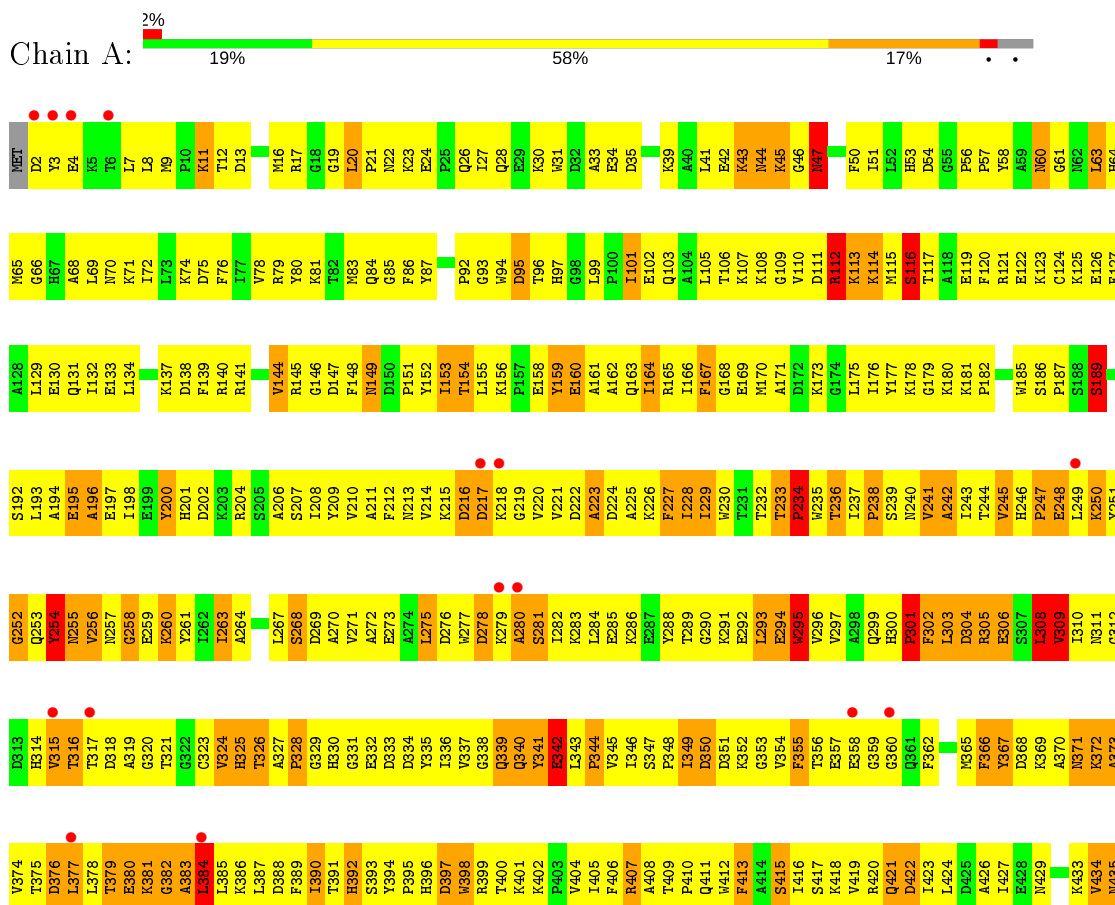
### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA 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: ISOLEUCYL-TRNA



#### • Molecule 2: ISOLEUCYL-TRNA SYNTHETASE



ARG	H436	F496	B560	H621	R686	I823
CYS	G437	E497	G561	V622	R686	S824
TRP	H438	E498	H662	S623	A757	L825
ASN	T439	F499	F563	S624	I758	E826
TYR	A500	E500	S624	T625	L760	A827
SER	I441	K501	N564	T626	N694	K828
GLU	Y442	D502	L567	Y627	N695	V829
ASP	M443	L503	L628	L628	N698	T830
LEU	M444	L504	A629	A629	F699	I831
GLY	V445	P505	T569	D630	E765	R832
ALA	R446	S570	D630	D630	E766	A832
VAL	R446	V571	V631	V631	V767	S833
ASP	D447	E506	R632	R632	H768	N834
GLU	R448	G507	A572	L633	S769	D835
LEU	G449	F508	T573	L634	H770	K836
THR	E450	T509	R574	S634	I771	F837
HIS	M451	H510	G575	D635	F772	N838
LEU	V452	P511	V576	E636	H773	A839
CYS	I453	G512	S577	L637	V774	S840
PRO	S454	S513	P578	L638	K775	F841
ARG	R455	P514	K579	S642	E776	L842
GLN	R456	M515	K580	D643	E777	R844
VAL	Q456	F518	L582	D644	S778	A848
LYS	R457	T519	L583	Y645	V779	L849
SER	V465	K520	S584	R646	H780	H850
LEU	V465	E521	H586	L648	L781	Q851
VAL	F466	F529	G587	R649	H784	R852
GLN	Y467	D530	F587	R649	D791	F853
VAL	A468	D530	V588	M650	Q792	R854
VAL	E469	S533	M589	T651	A793	V855
LYS	M470	S534	D590	L652	L794	S856
ASP	G471	H535	G591	L652	L795	Q857
GLY	E472	R536	E592	L656	D796	V858
LEU	I473	G537	K593	L656	K797	R859
VAL	H474	V538	K594	L661	V798	V860
ASP	T476	L539	K595	D661	R799	V861
LEU	E478	R542	M596	P664	T800	D862
GLU	T479	P543	S597	D665	F801	D865
LEU	V480	E544	K598	T666	M802	D866
GLY	M481	L545	S599	T669	N803	Q867
GLY	H482	S546	K599	F669	L804	A868
LEU	V483	F547	L600	F670	R805	T869
LYS	A484	P548	G601	P670	D806	A870
CYS	D485	A549	N602	D677	D807	R871
GLU	L486	D550	V603	S668	V808	E872
GLU	P487	M551	V604	F669	R809	H873
GLU	A488	Y552	L604	F670	R810	G874
GLY	E489	L553	P605	E671	L812	D875
LEU	H490	E554	P606	S672	E813	L876
LYS	G491	G555	D607	E673	T814	V877
CYS	S492	S556	H736	E676	T815	A881
GLU	M493	D557	I737	E676	L745	ASP
GLU	T494	Q558	R738	E676	R816	GLY
GLU	W495	Y559	R739	E676	N817	GLU
			S740	E676	K818	LYS
			M741	E676	R819	CYS
			S672	E676	V820	GLU
			V610	E676	I821	GLU
			K611	E676	G822	
			G612	E676		
			K613	E676		
			G614	E676		
			A615	E676		
			D616	E676		
			L617	E676		
			A618	E676		
			R619	E676		
			L620	E676		

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	71.00Å 100.00Å 180.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 2.90 19.93 – 2.75	Depositor EDS
% Data completeness (in resolution range)	85.9 (10.00-2.90) 55.5 (19.93-2.75)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.10	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.76 (at 2.75Å)	Xtrriage
Refinement program	unknown	Depositor
R, $R_{free}$	0.234 , 0.345 0.233 , 0.347	Depositor DCC
$R_{free}$ test set	956 reflections (4.83%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	43.7	Xtrriage
Anisotropy	0.418	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 42.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	8870	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	34.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.99% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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



## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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	T	0.53	0/1792	0.80	1/2794 (0.0%)
2	A	0.44	0/7287	0.72	3/9879 (0.0%)
All	All	0.46	0/9079	0.74	4/12673 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	471	GLY	N-CA-C	-6.82	96.06	113.10
2	A	681	LEU	CA-CB-CG	-5.37	102.94	115.30
1	T	36	U	N1-C1'-C2'	5.28	120.86	114.00
2	A	255	ASN	N-CA-C	5.25	125.18	111.00

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	T	1603	0	811	99	1
2	A	7113	0	6935	1135	1
3	A	1	0	0	0	0
4	A	35	0	40	5	0
5	A	82	0	0	15	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	T	36	0	0	2	0
All	All	8870	0	7786	1212	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 74.

All (1212) 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:T:13:C:H2'	1:T:14:A:H5''	1.32	1.10
2:A:366:PHE:H	2:A:370:ALA:HB3	1.18	1.07
2:A:53:HIS:NE2	2:A:534:SER:HB3	1.73	1.02
2:A:250:LYS:HG2	2:A:290:GLY:N	1.77	1.00
2:A:302:PHE:HA	2:A:378:LEU:HD13	1.43	0.99
2:A:821:ILE:HD13	2:A:822:GLY:N	1.77	0.98
2:A:481:ASN:HD22	2:A:481:ASN:H	1.10	0.98
1:T:37:A:H2'	2:A:17:ARG:HD2	1.45	0.98
2:A:250:LYS:NZ	2:A:289:THR:HG23	1.78	0.97
2:A:469:GLU:HA	2:A:513:SER:N	1.79	0.97
2:A:70:ASN:HD22	2:A:585:HIS:HE1	1.10	0.97
2:A:250:LYS:HD3	2:A:289:THR:HA	1.45	0.97
2:A:589:MET:HE3	2:A:595:LYS:HA	1.46	0.96
2:A:596:MET:HB3	2:A:603:VAL:HG12	1.46	0.96
2:A:821:ILE:HD13	2:A:822:GLY:H	1.30	0.96
2:A:539:LEU:HD23	2:A:545:LEU:HD13	1.49	0.95
2:A:481:ASN:N	2:A:481:ASN:HD22	1.61	0.94
1:T:23:A:H2'	1:T:24:G:C8	2.03	0.94
2:A:23:LYS:HE3	2:A:27:ILE:HD11	1.47	0.94
2:A:116:SER:HB3	2:A:119:GLU:HG3	1.50	0.93
2:A:467:TYR:HB3	2:A:472:GLU:CB	1.98	0.93
2:A:487:PHE:CE1	2:A:492:SER:HA	2.02	0.93
2:A:411:GLN:HE22	2:A:456:GLN:NE2	1.65	0.93
2:A:704:ILE:O	2:A:708:VAL:HG12	1.68	0.93
2:A:481:ASN:H	2:A:481:ASN:ND2	1.66	0.93
2:A:857:GLN:NE2	2:A:858:VAL:H	1.67	0.93
2:A:102:GLU:HA	2:A:105:LEU:HD12	1.50	0.92
2:A:237:ILE:HA	2:A:325:HIS:NE2	1.85	0.92
2:A:390:ILE:HG12	2:A:391:THR:H	1.33	0.92
2:A:336:ILE:HG13	2:A:337:VAL:N	1.85	0.92
2:A:857:GLN:HE21	2:A:858:VAL:H	1.11	0.92
2:A:253:GLN:O	2:A:254:TYR:HB2	1.67	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:749:LEU:HD22	2:A:750:VAL:N	1.85	0.91
2:A:200:TYR:CE2	2:A:395:PRO:HG3	2.05	0.91
2:A:296:VAL:HG12	2:A:297:VAL:H	1.35	0.91
2:A:597:SER:H	2:A:602:ASN:HD21	1.18	0.91
2:A:105:LEU:HB3	2:A:110:VAL:HG21	1.53	0.90
2:A:602:ASN:HD22	2:A:602:ASN:H	1.20	0.90
2:A:250:LYS:HZ2	2:A:289:THR:HG23	1.37	0.89
2:A:4:GLU:HG3	2:A:7:LEU:HD23	1.54	0.89
2:A:649:ARG:HH11	2:A:649:ARG:HG3	1.34	0.89
2:A:355:PHE:HE1	2:A:365:MET:HB2	1.38	0.89
2:A:121:ARG:HD2	2:A:496:PHE:HD1	1.37	0.89
2:A:60:ASN:HD22	2:A:61:GLY:N	1.71	0.88
2:A:551:MET:HB3	2:A:581:PHE:HB3	1.55	0.88
2:A:467:TYR:HB3	2:A:472:GLU:HB3	1.57	0.87
2:A:324:VAL:O	2:A:325:HIS:HB3	1.75	0.87
2:A:829:VAL:HB	2:A:858:VAL:HG12	1.56	0.87
2:A:218:LYS:HD2	2:A:218:LYS:H	1.40	0.87
2:A:723:TYR:HA	2:A:854:ILE:HD11	1.55	0.87
2:A:349:ILE:HG12	2:A:355:PHE:HB3	1.55	0.86
2:A:71:LYS:HG3	2:A:139:PHE:CE2	2.10	0.86
2:A:749:LEU:HD13	2:A:750:VAL:H	1.38	0.86
2:A:578:PRO:HD2	5:A:1048:HOH:O	1.74	0.86
2:A:237:ILE:HB	2:A:238:PRO:HD3	1.58	0.86
1:T:33:U:H4'	1:T:34:G:O5'	1.73	0.86
2:A:105:LEU:HD13	2:A:124:CYS:SG	2.16	0.85
2:A:290:GLY:HA2	2:A:293:LEU:HB3	1.59	0.85
2:A:469:GLU:HA	2:A:513:SER:H	1.38	0.84
2:A:745:LEU:HA	2:A:748:ILE:HG22	1.57	0.84
2:A:434:VAL:HG13	2:A:435:ASN:H	1.43	0.84
2:A:240:ASN:ND2	2:A:308:LEU:HD21	1.93	0.84
2:A:289:THR:HG22	2:A:292:GLU:H	1.42	0.84
2:A:355:PHE:HD1	2:A:355:PHE:H	1.24	0.83
2:A:244:THR:HG22	2:A:311:ASN:HB2	1.58	0.83
2:A:741:MET:HE2	2:A:745:LEU:HD11	1.58	0.83
2:A:275:LEU:HG	2:A:386:LYS:HE3	1.61	0.83
2:A:482:HIS:O	2:A:486:LEU:HB2	1.78	0.83
1:T:13:C:C2'	1:T:14:A:H5''	2.09	0.83
2:A:384:LEU:O	2:A:385:LEU:HD23	1.79	0.82
2:A:379:THR:HG23	2:A:385:LEU:HB2	1.60	0.82
2:A:30:LYS:O	2:A:34:GLU:HG2	1.80	0.81
2:A:749:LEU:HD13	2:A:750:VAL:HG23	1.59	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:23:LYS:O	2:A:26:GLN:HG2	1.81	0.81
2:A:301:PRO:O	2:A:303:LEU:N	2.14	0.81
2:A:250:LYS:HG2	2:A:290:GLY:H	1.39	0.80
2:A:167:PHE:CE1	2:A:464:PRO:HD2	2.16	0.80
1:T:63:A:H2'	1:T:64:C:C6	2.16	0.80
2:A:212:PHE:CD2	2:A:301:PRO:HD2	2.17	0.80
2:A:834:ASN:HB2	2:A:874:GLY:HA2	1.64	0.80
2:A:536:ARG:HH12	2:A:574:ARG:CZ	1.95	0.79
1:T:33:U:H1'	1:T:36:U:H3	1.45	0.79
2:A:803:ASN:HB3	2:A:873:HIS:CE1	2.16	0.79
2:A:708:VAL:HG13	2:A:709:GLN:N	1.97	0.79
1:T:46:G:H2'	1:T:47:U:H5'	1.65	0.79
2:A:570:SER:CB	2:A:578:PRO:HG3	2.13	0.79
2:A:247:PRO:HB3	2:A:291:LYS:HA	1.65	0.78
2:A:390:ILE:HG12	2:A:391:THR:N	1.98	0.78
2:A:210:VAL:O	2:A:229:ILE:HG22	1.83	0.78
2:A:341:TYR:O	2:A:343:LEU:HG	1.82	0.78
2:A:535:HIS:HD1	2:A:536:ARG:N	1.81	0.78
2:A:272:ALA:HA	2:A:277:TRP:HB2	1.65	0.78
2:A:486:LEU:HD11	5:A:1020:HOH:O	1.83	0.78
2:A:323:CYS:O	2:A:324:VAL:HB	1.82	0.78
2:A:411:GLN:HE22	2:A:456:GLN:HE22	1.30	0.78
2:A:831:ILE:HA	2:A:875:ASP:O	1.83	0.78
2:A:857:GLN:HE21	2:A:858:VAL:N	1.81	0.77
2:A:154:THR:HA	2:A:159:TYR:CD1	2.19	0.77
2:A:164:ILE:HD11	2:A:484:ALA:HB2	1.65	0.77
2:A:501:LYS:CD	2:A:501:LYS:H	1.98	0.77
2:A:468:ALA:H	2:A:472:GLU:HB3	1.50	0.77
2:A:234:PRO:HG2	2:A:235:TRP:H	1.50	0.77
2:A:466:PHE:HA	2:A:520:LYS:HA	1.67	0.77
2:A:469:GLU:N	2:A:472:GLU:HG2	1.99	0.76
2:A:198:ILE:HG23	2:A:396:HIS:O	1.84	0.76
2:A:164:ILE:CD1	2:A:484:ALA:HB2	2.15	0.76
2:A:181:LYS:HG2	2:A:182:PRO:HD2	1.68	0.76
2:A:349:ILE:O	2:A:350:ASP:O	2.03	0.76
2:A:228:ILE:HD12	2:A:263:ILE:CG2	2.16	0.76
2:A:570:SER:HB2	2:A:578:PRO:HG3	1.68	0.76
1:T:43:G:O2'	1:T:44:A:H5'	1.86	0.76
2:A:164:ILE:HG13	2:A:165:ARG:N	2.01	0.75
2:A:161:ALA:HB1	2:A:165:ARG:HH12	1.51	0.75
1:T:19:G:O2'	1:T:20:U:OP1	2.04	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:823:LYS:O	2:A:825:LEU:N	2.19	0.75
2:A:178:LYS:HZ2	2:A:412:TRP:HE1	1.32	0.75
2:A:229:ILE:HD12	2:A:323:CYS:HB2	1.69	0.75
2:A:433:LYS:HB2	2:A:583:LEU:HG	1.69	0.75
2:A:240:ASN:HB2	2:A:308:LEU:HD11	1.69	0.75
2:A:462:PRO:HA	2:A:524:ILE:HA	1.67	0.74
1:T:37:A:H4'	1:T:38:A:OP2	1.87	0.74
1:T:47:U:O2'	1:T:48:C:OP2	2.05	0.74
2:A:309:VAL:C	2:A:310:ILE:HD12	2.08	0.74
2:A:336:ILE:HG13	2:A:337:VAL:H	1.50	0.74
1:T:63:A:H2'	1:T:64:C:H6	1.53	0.74
2:A:420:ARG:NH2	2:A:449:GLY:H	1.86	0.74
2:A:255:ASN:O	2:A:260:LYS:HA	1.86	0.74
2:A:602:ASN:HD22	2:A:602:ASN:N	1.84	0.74
2:A:650:ASN:O	2:A:653:ARG:HB3	1.87	0.74
2:A:54:ASP:OD1	2:A:92:PRO:HA	1.88	0.74
2:A:539:LEU:HD11	2:A:549:ALA:HB2	1.70	0.74
2:A:64:HIS:CD2	2:A:66:GLY:H	2.05	0.74
1:T:41:G:N2	5:T:156:HOH:O	2.20	0.74
2:A:604:ILE:HD12	2:A:633:ILE:HG23	1.70	0.73
2:A:653:ARG:HH11	2:A:653:ARG:HG2	1.52	0.73
2:A:807:ASP:OD2	2:A:871:TYR:HB3	1.88	0.73
2:A:459:TRP:H	2:A:524:ILE:HD13	1.51	0.73
2:A:469:GLU:C	2:A:471:GLY:H	1.89	0.73
2:A:300:HIS:O	2:A:304:ASP:HB3	1.87	0.73
2:A:293:LEU:O	2:A:295:TRP:N	2.20	0.73
2:A:468:ALA:N	2:A:472:GLU:HB3	2.04	0.73
2:A:70:ASN:HD22	2:A:585:HIS:CE1	2.02	0.73
2:A:58:TYR:CE2	2:A:101:ILE:HG13	2.23	0.73
2:A:220:VAL:HG22	2:A:224:ASP:OD1	1.89	0.72
2:A:681:LEU:HD13	2:A:720:TYR:CD1	2.23	0.72
2:A:745:LEU:HA	2:A:748:ILE:CG2	2.19	0.72
2:A:362:PHE:HA	2:A:365:MET:CG	2.20	0.72
2:A:289:THR:CG2	2:A:291:LYS:HB3	2.19	0.72
2:A:865:ASP:HB3	2:A:867:GLN:HE21	1.54	0.72
1:T:13:C:H4'	2:A:702:LEU:HD11	1.70	0.72
2:A:355:PHE:N	2:A:355:PHE:CD1	2.58	0.72
2:A:437:GLY:O	2:A:441:ILE:HG22	1.90	0.72
2:A:120:PHE:CD1	2:A:124:CYS:SG	2.83	0.72
2:A:293:LEU:O	2:A:296:VAL:HG23	1.90	0.72
2:A:632:ARG:HH11	2:A:632:ARG:HG3	1.54	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:289:THR:HG23	2:A:291:LYS:HB3	1.72	0.71
2:A:256:VAL:HG21	2:A:282:ILE:HD12	1.72	0.71
2:A:501:LYS:HD2	2:A:501:LYS:H	1.55	0.71
2:A:163:GLN:HG2	2:A:461:VAL:HG11	1.71	0.71
2:A:250:LYS:CG	2:A:290:GLY:H	2.03	0.71
2:A:597:SER:H	2:A:602:ASN:ND2	1.89	0.71
2:A:233:THR:HG23	2:A:236:THR:HG21	1.71	0.71
1:T:40:G:OP1	2:A:717:SER:HB3	1.90	0.71
1:T:9:A:H5'	1:T:10:G:OP2	1.90	0.71
2:A:229:ILE:CD1	2:A:323:CYS:HB2	2.20	0.71
2:A:247:PRO:CB	2:A:291:LYS:HA	2.20	0.71
2:A:757:ALA:HB3	2:A:758:PRO:HD3	1.73	0.71
2:A:255:ASN:ND2	2:A:256:VAL:HG23	2.06	0.70
2:A:185:TRP:O	2:A:404:VAL:HG13	1.92	0.70
2:A:499:GLU:HA	2:A:520:LYS:NZ	2.06	0.70
2:A:20:LEU:HD12	2:A:20:LEU:H	1.56	0.70
2:A:250:LYS:HZ1	2:A:289:THR:HG23	1.57	0.70
2:A:163:GLN:HG2	2:A:461:VAL:HG21	1.71	0.70
2:A:20:LEU:CD1	2:A:20:LEU:H	2.04	0.70
2:A:250:LYS:CD	2:A:289:THR:HA	2.21	0.70
2:A:239:SER:O	2:A:346:ILE:HG12	1.90	0.70
2:A:296:VAL:HG12	2:A:297:VAL:N	2.04	0.69
2:A:44:ASN:C	2:A:47:ASN:HD21	1.94	0.69
2:A:181:LYS:HG2	2:A:182:PRO:CD	2.23	0.69
2:A:493:ASN:O	2:A:497:GLU:HG2	1.93	0.69
2:A:494:ILE:HA	2:A:497:GLU:HG3	1.74	0.69
2:A:65:MET:HE3	2:A:606:PRO:HG3	1.72	0.69
2:A:706:GLN:HA	2:A:706:GLN:HE21	1.56	0.69
2:A:121:ARG:HD2	2:A:496:PHE:CD1	2.24	0.69
2:A:247:PRO:O	2:A:248:GLU:HB2	1.90	0.69
2:A:247:PRO:HA	2:A:291:LYS:HA	1.73	0.69
2:A:421:GLN:HA	2:A:424:LEU:HD12	1.75	0.69
2:A:434:VAL:HG13	2:A:435:ASN:N	2.08	0.69
2:A:473:ILE:HG22	2:A:473:ILE:O	1.90	0.69
2:A:749:LEU:CD1	2:A:750:VAL:H	2.06	0.69
2:A:246:HIS:CD2	2:A:315:VAL:H	2.11	0.69
1:T:69:G:H5''	2:A:589:MET:CE	2.23	0.69
2:A:821:ILE:CD1	2:A:822:GLY:H	2.01	0.69
2:A:362:PHE:HA	2:A:365:MET:HG3	1.72	0.69
2:A:469:GLU:N	2:A:513:SER:HB2	2.08	0.69
2:A:649:ARG:HG3	2:A:649:ARG:NH1	2.08	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:23:LYS:HA	2:A:26:GLN:HE21	1.57	0.68
2:A:129:LEU:HA	2:A:132:ILE:HG12	1.75	0.68
2:A:129:LEU:O	2:A:132:ILE:HG12	1.93	0.68
1:T:43:G:H2'	1:T:44:A:C8	2.28	0.68
2:A:247:PRO:CA	2:A:291:LYS:HA	2.23	0.68
1:T:32:C:H5'	2:A:823:LYS:HB3	1.75	0.68
2:A:278:ASP:C	2:A:280:ALA:H	1.97	0.68
2:A:354:VAL:HG22	2:A:365:MET:O	1.94	0.68
2:A:634:SER:OG	2:A:637:ILE:HG13	1.93	0.68
2:A:120:PHE:CE1	2:A:124:CYS:SG	2.87	0.68
2:A:500:ALA:O	2:A:504:LEU:HD23	1.94	0.68
2:A:469:GLU:CB	2:A:512:GLY:HA3	2.23	0.68
2:A:848:ALA:HB1	2:A:851:GLN:HB2	1.76	0.68
2:A:23:LYS:HG3	2:A:27:ILE:HD11	1.75	0.68
2:A:840:SER:HA	2:A:860:VAL:CG1	2.23	0.68
1:T:23:A:H2'	1:T:24:G:H8	1.58	0.68
2:A:237:ILE:C	2:A:239:SER:H	1.98	0.68
1:T:58:A:O2'	1:T:60:U:H5	1.77	0.68
2:A:214:VAL:HG22	2:A:227:PHE:CD1	2.29	0.67
2:A:831:ILE:HG22	2:A:876:ILE:HG12	1.77	0.67
2:A:829:VAL:O	2:A:858:VAL:HA	1.94	0.67
2:A:70:ASN:ND2	2:A:585:HIS:HE1	1.89	0.67
2:A:228:ILE:HD12	2:A:263:ILE:HG21	1.74	0.67
2:A:802:MET:HE2	2:A:802:MET:HA	1.76	0.67
2:A:132:ILE:HG13	2:A:133:GLU:N	2.08	0.67
1:T:74:C:H6	1:T:74:C:O5'	1.77	0.67
2:A:71:LYS:HG3	2:A:139:PHE:HE2	1.57	0.67
2:A:349:ILE:HA	2:A:355:PHE:HA	1.76	0.67
2:A:105:LEU:HD13	2:A:120:PHE:CZ	2.30	0.67
2:A:622:VAL:O	2:A:625:THR:HG22	1.94	0.67
2:A:220:VAL:HG13	2:A:224:ASP:OD2	1.93	0.67
2:A:351:ASP:HA	2:A:407:ARG:NH2	2.08	0.67
2:A:366:PHE:H	2:A:370:ALA:CB	2.03	0.67
2:A:808:VAL:O	2:A:812:LEU:HG	1.95	0.67
2:A:57:PRO:HD2	2:A:93:GLY:O	1.95	0.67
1:T:4:C:HO2'	2:A:436:TRP:HE3	1.40	0.67
1:T:4:C:O2'	2:A:436:TRP:HE3	1.77	0.67
2:A:484:ALA:C	2:A:486:LEU:H	1.98	0.66
2:A:175:LEU:HD23	2:A:418:LYS:HD2	1.77	0.66
2:A:467:TYR:HB3	2:A:472:GLU:HB2	1.77	0.66
2:A:766:GLU:O	2:A:770:HIS:HD2	1.79	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:681:LEU:HD13	2:A:720:TYR:CG	2.30	0.66
2:A:708:VAL:HG13	2:A:709:GLN:H	1.59	0.66
2:A:237:ILE:O	2:A:239:SER:N	2.28	0.66
2:A:69:LEU:HD12	2:A:622:VAL:HG13	1.78	0.66
2:A:148:PHE:O	2:A:151:PRO:HD3	1.96	0.66
2:A:453:ILE:HD12	2:A:463:LEU:HD21	1.77	0.66
2:A:294:GLU:HA	2:A:310:ILE:HG22	1.77	0.66
2:A:275:LEU:HD21	2:A:386:LYS:HG3	1.76	0.66
2:A:371:ASN:HD22	2:A:371:ASN:N	1.93	0.66
2:A:544:GLU:H	2:A:544:GLU:CD	1.96	0.66
2:A:745:LEU:CA	2:A:748:ILE:HG22	2.26	0.65
2:A:275:LEU:HG	2:A:386:LYS:CE	2.26	0.65
2:A:499:GLU:HB2	2:A:501:LYS:HD2	1.79	0.65
2:A:606:PRO:O	2:A:609:VAL:HG12	1.95	0.65
2:A:653:ARG:HG2	2:A:653:ARG:NH1	2.11	0.65
2:A:736:HIS:HA	5:A:1007:HOH:O	1.95	0.65
2:A:96:THR:H	2:A:154:THR:CG2	2.09	0.65
2:A:254:TYR:CD2	2:A:286:LYS:HE3	2.32	0.65
2:A:861:VAL:O	2:A:862:ASP:HB2	1.96	0.65
2:A:256:VAL:HG12	2:A:257:ASN:N	2.11	0.65
2:A:491:GLY:C	2:A:493:ASN:H	1.98	0.65
2:A:368:ASP:OD1	2:A:372:LYS:HE3	1.97	0.65
2:A:667:ASP:O	2:A:668:SER:O	2.14	0.65
2:A:834:ASN:CB	2:A:874:GLY:HA2	2.27	0.65
1:T:69:G:H5''	2:A:589:MET:HE1	1.79	0.65
2:A:300:HIS:CD2	2:A:308:LEU:HD12	2.31	0.65
2:A:706:GLN:HA	2:A:706:GLN:NE2	2.12	0.65
2:A:210:VAL:HG13	2:A:385:LEU:HD22	1.79	0.65
2:A:469:GLU:H	2:A:472:GLU:HG2	1.61	0.65
2:A:390:ILE:CG1	2:A:391:THR:H	2.09	0.64
2:A:451:TRP:O	2:A:453:ILE:HG23	1.97	0.64
2:A:644:ASP:HA	5:A:1040:HOH:O	1.97	0.64
2:A:825:LEU:O	2:A:856:SER:HB2	1.96	0.64
2:A:64:HIS:HB2	5:A:1071:HOH:O	1.97	0.64
2:A:747:GLN:C	2:A:749:LEU:N	2.48	0.64
2:A:201:HIS:HB2	2:A:396:HIS:CD2	2.32	0.64
1:T:18:G:O2'	1:T:19:G:OP1	2.12	0.64
2:A:64:HIS:NE2	2:A:66:GLY:HA3	2.13	0.64
1:T:5:U:H2'	1:T:6:U:C6	2.32	0.64
2:A:413:PHE:CD1	2:A:413:PHE:N	2.65	0.64
2:A:316:THR:HG22	2:A:316:THR:O	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:538:VAL:HG23	2:A:542:ARG:HD3	1.81	0.63
2:A:167:PHE:HD2	2:A:167:PHE:C	2.01	0.63
2:A:400:THR:HG22	2:A:402:LYS:HG2	1.80	0.63
2:A:548:PRO:HB2	2:A:580:LYS:HE3	1.79	0.63
2:A:813:GLU:OE2	2:A:813:GLU:HA	1.98	0.63
2:A:84:GLN:OE1	2:A:84:GLN:HA	1.97	0.63
2:A:831:ILE:CG2	2:A:876:ILE:HG12	2.28	0.63
2:A:876:ILE:HG22	2:A:877:VAL:N	2.14	0.63
2:A:132:ILE:HG13	2:A:133:GLU:H	1.63	0.63
2:A:745:LEU:O	2:A:748:ILE:HG22	1.98	0.63
2:A:81:LYS:HE3	2:A:86:PHE:CE2	2.33	0.63
2:A:481:ASN:O	2:A:484:ALA:N	2.32	0.63
2:A:8:LEU:HD13	2:A:738:ARG:NE	2.14	0.63
2:A:244:THR:CG2	2:A:311:ASN:HB2	2.29	0.62
2:A:424:LEU:HD22	2:A:442:TYR:CE1	2.34	0.62
2:A:11:LYS:O	2:A:12:THR:HG23	1.99	0.62
2:A:141:ARG:HG3	2:A:141:ARG:HH11	1.64	0.62
2:A:158:GLU:O	2:A:161:ALA:HB3	1.99	0.62
2:A:535:HIS:CD2	2:A:570:SER:HB2	2.34	0.62
1:T:37:A:H8	1:T:37:A:OP2	1.82	0.62
2:A:16:MET:O	2:A:649:ARG:HD2	1.99	0.62
2:A:854:ILE:O	2:A:854:ILE:HG22	1.99	0.62
2:A:41:LEU:HB3	2:A:87:TYR:CE1	2.33	0.62
2:A:171:ALA:HA	2:A:176:ILE:HG22	1.82	0.62
2:A:500:ALA:HB3	2:A:501:LYS:HE3	1.81	0.62
2:A:701:TYR:O	2:A:704:ILE:N	2.29	0.62
2:A:17:ARG:HG2	2:A:646:ARG:HH22	1.65	0.62
2:A:749:LEU:C	2:A:749:LEU:HD22	2.20	0.62
1:T:47:U:O2'	1:T:48:C:P	2.58	0.62
2:A:810:ARG:O	2:A:814:THR:HG23	2.00	0.62
1:T:19:G:OP1	1:T:60:U:N3	2.33	0.62
2:A:235:TRP:HB3	2:A:371:ASN:HB3	1.81	0.62
2:A:166:ILE:HD12	2:A:533:SER:OG	2.00	0.62
2:A:212:PHE:CE2	2:A:300:HIS:HB3	2.35	0.62
2:A:379:THR:HA	2:A:385:LEU:CD1	2.30	0.62
2:A:397:ASP:OD2	2:A:400:THR:HB	1.99	0.62
2:A:267:LEU:HG	2:A:320:GLY:O	1.99	0.61
2:A:718:ASN:HB3	5:A:1060:HOH:O	1.98	0.61
2:A:676:GLU:HG2	2:A:798:TRP:HZ2	1.64	0.61
1:T:41:G:O2'	2:A:813:GLU:HG2	2.00	0.61
2:A:120:PHE:HA	2:A:123:LYS:HB2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:228:ILE:HG22	2:A:229:ILE:H	1.64	0.61
1:T:58:A:O2'	1:T:59:G:O5'	2.17	0.61
2:A:821:ILE:HG12	2:A:826:GLU:HB2	1.81	0.61
2:A:80:TYR:O	2:A:83:MET:HB2	2.00	0.61
2:A:467:TYR:CB	2:A:472:GLU:HB3	2.29	0.61
2:A:124:CYS:O	2:A:459:TRP:CZ2	2.54	0.61
2:A:332:GLU:O	2:A:335:TYR:HB3	2.00	0.61
2:A:367:TYR:O	2:A:371:ASN:OD1	2.18	0.61
2:A:256:VAL:CG1	2:A:257:ASN:N	2.63	0.61
2:A:60:ASN:HD22	2:A:60:ASN:C	1.99	0.61
2:A:167:PHE:C	2:A:167:PHE:CD2	2.74	0.61
2:A:424:LEU:HB3	2:A:442:TYR:HE1	1.65	0.61
2:A:105:LEU:CD1	2:A:124:CYS:SG	2.87	0.61
2:A:125:LYS:HG2	2:A:125:LYS:O	1.99	0.61
2:A:420:ARG:O	2:A:421:GLN:CB	2.48	0.61
2:A:708:VAL:CG1	2:A:709:GLN:N	2.64	0.61
2:A:318:ASP:CG	2:A:319:ALA:H	2.03	0.61
2:A:64:HIS:CD2	2:A:66:GLY:N	2.69	0.61
2:A:263:ILE:HD12	2:A:271:VAL:HG21	1.83	0.60
2:A:434:VAL:HG22	2:A:435:ASN:N	2.16	0.60
2:A:536:ARG:HH12	2:A:574:ARG:NE	1.98	0.60
2:A:218:LYS:C	2:A:220:VAL:H	2.04	0.60
2:A:476:THR:O	2:A:479:THR:OG1	2.17	0.60
2:A:702:LEU:O	2:A:706:GLN:HG2	2.00	0.60
2:A:733:ARG:HG3	2:A:733:ARG:HH11	1.65	0.60
2:A:366:PHE:N	2:A:366:PHE:CD2	2.67	0.60
2:A:366:PHE:N	2:A:370:ALA:HB3	2.03	0.60
2:A:398:TRP:CD1	2:A:399:ARG:HG3	2.35	0.60
2:A:250:LYS:O	2:A:264:ALA:HA	2.01	0.60
2:A:251:TYR:O	2:A:253:GLN:N	2.34	0.60
2:A:373:ALA:HA	2:A:376:ASP:OD1	2.01	0.60
2:A:382:GLY:O	2:A:383:ALA:HB2	2.01	0.60
2:A:397:ASP:OD1	2:A:400:THR:HB	2.02	0.60
2:A:50:PHE:HZ	2:A:551:MET:HG2	1.67	0.60
2:A:832:ALA:HB2	2:A:861:VAL:CG1	2.31	0.60
2:A:239:SER:HB3	2:A:346:ILE:HD13	1.83	0.60
2:A:251:TYR:C	2:A:253:GLN:H	2.04	0.60
2:A:336:ILE:CG1	2:A:337:VAL:N	2.62	0.60
2:A:4:GLU:HG3	2:A:7:LEU:CD2	2.30	0.60
2:A:605:VAL:HG13	2:A:606:PRO:HD2	1.84	0.60
2:A:164:ILE:CG1	2:A:484:ALA:HB2	2.31	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:232:THR:HG21	2:A:392:HIS:HE1	1.67	0.60
2:A:244:THR:HG21	2:A:337:VAL:CG2	2.31	0.60
2:A:367:TYR:CE1	2:A:405:ILE:HG21	2.37	0.60
2:A:536:ARG:HH12	2:A:574:ARG:NH2	2.00	0.60
2:A:494:ILE:HA	2:A:497:GLU:CG	2.31	0.59
2:A:545:LEU:O	2:A:546:SER:HB3	2.01	0.59
2:A:548:PRO:O	2:A:580:LYS:HE3	2.02	0.59
2:A:659:ILE:C	2:A:659:ILE:HD12	2.23	0.59
2:A:625:THR:OG1	2:A:631:VAL:HG12	2.03	0.59
2:A:749:LEU:CD2	2:A:750:VAL:N	2.63	0.59
2:A:126:GLU:O	2:A:130:GLU:HG3	2.02	0.59
2:A:218:LYS:CD	2:A:218:LYS:H	2.14	0.59
2:A:223:ALA:HB3	2:A:254:TYR:OH	2.02	0.59
2:A:470:ASN:N	2:A:472:GLU:HG2	2.17	0.59
2:A:510:HIS:CE1	2:A:511:PRO:HG2	2.37	0.59
2:A:539:LEU:CD1	2:A:549:ALA:HB2	2.33	0.59
2:A:215:LYS:HG2	2:A:216:ASP:H	1.66	0.59
2:A:235:TRP:O	2:A:238:PRO:HD2	2.02	0.59
2:A:228:ILE:CG2	2:A:321:THR:HG21	2.32	0.59
2:A:823:LYS:HG2	2:A:826:GLU:OE2	2.02	0.59
2:A:830:THR:HB	2:A:877:VAL:HG22	1.83	0.59
2:A:745:LEU:HD23	2:A:748:ILE:HG21	1.83	0.59
2:A:41:LEU:HB3	2:A:87:TYR:HE1	1.66	0.59
2:A:220:VAL:HG12	2:A:220:VAL:O	2.02	0.59
2:A:234:PRO:HG2	2:A:235:TRP:N	2.17	0.59
2:A:289:THR:O	2:A:289:THR:HG22	2.02	0.59
2:A:484:ALA:C	2:A:486:LEU:N	2.56	0.59
2:A:600:LEU:HD23	2:A:600:LEU:O	2.03	0.59
2:A:499:GLU:HA	2:A:520:LYS:HZ2	1.68	0.59
1:T:38:A:H2'	1:T:39:G:H5'	1.85	0.59
2:A:257:ASN:O	2:A:258:GLY:C	2.41	0.59
2:A:338:GLY:O	2:A:343:LEU:HD12	2.01	0.59
2:A:411:GLN:NE2	2:A:456:GLN:HE22	1.97	0.59
2:A:535:HIS:HB2	2:A:547:PHE:CE1	2.38	0.59
2:A:558:GLN:O	2:A:563:PHE:HB2	2.03	0.59
2:A:46:GLY:O	2:A:47:ASN:O	2.20	0.58
2:A:613:LYS:HD3	2:A:642:SER:OG	2.03	0.58
2:A:178:LYS:NZ	2:A:412:TRP:HE1	2.01	0.58
2:A:453:ILE:O	2:A:453:ILE:HD12	2.02	0.58
2:A:589:MET:HB3	2:A:594:LYS:O	2.04	0.58
2:A:239:SER:HB3	2:A:346:ILE:HB	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:739:ARG:HD3	2:A:742:GLN:NE2	2.19	0.58
2:A:792:GLN:O	2:A:795:LEU:N	2.37	0.58
2:A:834:ASN:HD22	2:A:874:GLY:C	2.05	0.58
2:A:314:HIS:O	2:A:315:VAL:HB	2.03	0.58
2:A:419:VAL:HA	2:A:422:ASP:OD1	2.03	0.58
2:A:469:GLU:HB2	2:A:512:GLY:HA3	1.83	0.58
2:A:247:PRO:CD	2:A:312:GLY:HA2	2.34	0.58
2:A:379:THR:HG23	2:A:385:LEU:CB	2.31	0.58
2:A:234:PRO:CG	2:A:235:TRP:H	2.17	0.58
2:A:792:GLN:HE22	2:A:799:ARG:NH1	2.00	0.58
2:A:821:ILE:CD1	2:A:822:GLY:N	2.61	0.58
2:A:315:VAL:O	2:A:316:THR:OG1	2.22	0.58
2:A:616:ASP:OD1	2:A:762:HIS:HB2	2.04	0.58
2:A:490:HIS:HB2	2:A:494:ILE:HB	1.84	0.58
2:A:247:PRO:O	2:A:248:GLU:CB	2.51	0.58
2:A:328:PRO:HA	2:A:335:TYR:HA	1.86	0.58
2:A:299:GLN:HB3	2:A:304:ASP:HB2	1.86	0.57
2:A:724:GLY:HA3	2:A:741:MET:HE1	1.85	0.57
2:A:192:SER:O	2:A:193:LEU:HD23	2.04	0.57
2:A:225:ALA:HB2	2:A:254:TYR:CE2	2.39	0.57
2:A:387:LEU:C	2:A:387:LEU:HD23	2.24	0.57
2:A:552:TYR:CD1	2:A:579:TYR:HB3	2.39	0.57
2:A:185:TRP:C	2:A:404:VAL:HG13	2.24	0.57
2:A:243:ILE:HG23	2:A:323:CYS:O	2.03	0.57
2:A:250:LYS:HD2	2:A:251:TYR:H	1.69	0.57
1:T:71:C:O2'	2:A:560:ARG:NH1	2.38	0.57
2:A:588:VAL:HG12	2:A:596:MET:SD	2.44	0.57
2:A:69:LEU:CD1	2:A:622:VAL:HG13	2.34	0.57
2:A:209:TYR:O	2:A:386:LYS:HB2	2.04	0.57
2:A:469:GLU:C	2:A:471:GLY:N	2.58	0.57
2:A:625:THR:OG1	2:A:631:VAL:CG1	2.53	0.57
2:A:821:ILE:HD11	2:A:824:SER:N	2.20	0.57
2:A:163:GLN:NE2	2:A:529:PHE:CD2	2.73	0.57
2:A:809:ASN:O	2:A:812:LEU:N	2.37	0.57
2:A:228:ILE:O	2:A:229:ILE:HB	2.05	0.57
1:T:42:U:O2'	1:T:43:G:H5'	2.05	0.57
2:A:218:LYS:O	2:A:221:VAL:HG23	2.05	0.57
2:A:35:ASP:O	2:A:39:LYS:HG2	2.04	0.57
2:A:164:ILE:HG12	2:A:484:ALA:HB2	1.86	0.57
2:A:23:LYS:HA	2:A:26:GLN:NE2	2.20	0.57
2:A:708:VAL:CG1	2:A:709:GLN:H	2.18	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:741:MET:CE	2:A:745:LEU:HD11	2.34	0.57
2:A:397:ASP:CG	2:A:400:THR:HB	2.24	0.57
2:A:469:GLU:CG	2:A:512:GLY:HA3	2.35	0.57
2:A:747:GLN:C	2:A:749:LEU:H	2.06	0.57
2:A:336:ILE:CG1	2:A:337:VAL:H	2.17	0.57
2:A:416:ILE:HD11	2:A:451:TRP:HB2	1.85	0.57
2:A:842:PHE:C	2:A:844:THR:H	2.09	0.57
2:A:201:HIS:HB2	2:A:396:HIS:NE2	2.20	0.56
2:A:217:ASP:O	2:A:220:VAL:HB	2.05	0.56
2:A:296:VAL:O	2:A:310:ILE:HD13	2.05	0.56
2:A:382:GLY:O	2:A:383:ALA:CB	2.53	0.56
2:A:385:LEU:O	2:A:386:LYS:HG2	2.05	0.56
2:A:472:GLU:O	2:A:473:ILE:HB	2.05	0.56
2:A:160:GLU:O	2:A:163:GLN:HB3	2.05	0.56
2:A:832:ALA:HB2	2:A:861:VAL:HG13	1.86	0.56
1:T:47:U:HO2'	1:T:48:C:P	2.28	0.56
2:A:461:VAL:O	2:A:525:MET:HG3	2.05	0.56
2:A:553:LEU:O	2:A:554:GLU:CD	2.44	0.56
2:A:302:PHE:CD1	2:A:303:LEU:N	2.74	0.56
2:A:424:LEU:HB3	2:A:442:TYR:CE1	2.41	0.56
2:A:212:PHE:HD2	2:A:301:PRO:HD2	1.67	0.56
2:A:487:PHE:CD1	2:A:492:SER:HA	2.40	0.56
1:T:66:C:O2'	1:T:67:A:H5'	2.05	0.56
2:A:865:ASP:HB3	2:A:867:GLN:NE2	2.21	0.56
2:A:713:ASN:O	2:A:718:ASN:HB2	2.05	0.56
2:A:263:ILE:CD1	2:A:271:VAL:HG21	2.36	0.56
2:A:8:LEU:HD21	2:A:733:ARG:NH1	2.21	0.56
2:A:79:ARG:HH12	2:A:780:HIS:CG	2.23	0.56
1:T:43:G:O2'	1:T:44:A:C5'	2.54	0.56
2:A:194:ALA:O	2:A:195:GLU:C	2.44	0.56
2:A:218:LYS:HD2	2:A:218:LYS:N	2.15	0.56
2:A:219:GLY:HA2	2:A:297:VAL:H	1.70	0.56
2:A:327:ALA:C	2:A:329:GLY:H	2.08	0.56
2:A:468:ALA:HA	2:A:472:GLU:OE2	2.06	0.56
2:A:664:PRO:O	2:A:665:ASP:C	2.45	0.56
2:A:749:LEU:O	2:A:752:MET:N	2.30	0.56
2:A:816:ARG:HD2	2:A:822:GLY:O	2.06	0.56
2:A:120:PHE:CG	2:A:124:CYS:SG	2.99	0.56
2:A:212:PHE:CE1	2:A:229:ILE:HG21	2.40	0.56
2:A:254:TYR:HD2	2:A:286:LYS:HE3	1.69	0.56
2:A:419:VAL:O	2:A:420:ARG:C	2.45	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:487:PHE:O	2:A:491:GLY:N	2.37	0.56
2:A:57:PRO:HG3	5:A:1013:HOH:O	2.06	0.56
2:A:618:ALA:O	2:A:621:TRP:HB3	2.06	0.56
1:T:51:U:C2	1:T:52:G:C8	2.94	0.56
2:A:64:HIS:HD2	2:A:66:GLY:H	1.54	0.56
2:A:237:ILE:C	2:A:239:SER:N	2.58	0.55
2:A:24:GLU:HG2	2:A:762:HIS:CD2	2.41	0.55
2:A:747:GLN:O	2:A:749:LEU:N	2.39	0.55
2:A:219:GLY:HA3	2:A:297:VAL:O	2.06	0.55
2:A:484:ALA:O	2:A:486:LEU:N	2.39	0.55
2:A:842:PHE:O	2:A:844:THR:N	2.39	0.55
2:A:212:PHE:CE2	2:A:301:PRO:HD2	2.40	0.55
2:A:212:PHE:N	2:A:227:PHE:O	2.37	0.55
2:A:470:ASN:H	2:A:472:GLU:HG2	1.71	0.55
1:T:63:A:O2'	1:T:64:C:H5'	2.05	0.55
2:A:293:LEU:HD23	2:A:296:VAL:HG23	1.89	0.55
2:A:371:ASN:ND2	2:A:371:ASN:N	2.54	0.55
2:A:477:LYS:O	2:A:478:GLU:HB3	2.06	0.55
2:A:536:ARG:HH22	2:A:574:ARG:NH2	2.04	0.55
1:T:19:G:HO2'	1:T:20:U:P	2.28	0.55
1:T:31:C:H2'	1:T:32:C:H6	1.72	0.55
2:A:324:VAL:O	2:A:325:HIS:CB	2.52	0.55
2:A:469:GLU:HB3	2:A:472:GLU:H	1.72	0.55
2:A:765:GLU:OE1	2:A:778:SER:HA	2.05	0.55
2:A:535:HIS:HB2	2:A:547:PHE:HE1	1.70	0.55
2:A:81:LYS:HE3	2:A:86:PHE:HE2	1.72	0.55
1:T:4:C:O2'	1:T:5:U:H5'	2.07	0.55
2:A:23:LYS:HE3	2:A:27:ILE:CD1	2.31	0.55
2:A:272:ALA:CA	2:A:277:TRP:HB2	2.36	0.55
2:A:350:ASP:OD2	2:A:351:ASP:N	2.38	0.55
2:A:212:PHE:CD1	2:A:229:ILE:HG21	2.41	0.55
2:A:590:ASP:C	2:A:590:ASP:OD1	2.44	0.55
2:A:74:LYS:O	2:A:78:VAL:HG23	2.07	0.55
2:A:446:ARG:CG	2:A:446:ARG:O	2.55	0.55
2:A:741:MET:HB2	5:A:1063:HOH:O	2.07	0.55
2:A:294:GLU:O	2:A:295:TRP:HB2	2.05	0.54
2:A:290:GLY:HA2	2:A:293:LEU:CB	2.34	0.54
2:A:164:ILE:HD11	2:A:484:ALA:CB	2.35	0.54
2:A:494:ILE:HG13	2:A:494:ILE:O	2.06	0.54
2:A:505:PRO:HB2	2:A:508:PHE:HB2	1.88	0.54
1:T:2:G:H2'	1:T:3:G:C8	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:362:PHE:HE2	2:A:374:VAL:CG2	2.20	0.54
2:A:463:LEU:CD1	2:A:525:MET:HG2	2.36	0.54
2:A:453:ILE:CD1	2:A:463:LEU:HD21	2.36	0.54
2:A:466:PHE:CE1	2:A:504:LEU:HD11	2.41	0.54
2:A:491:GLY:C	2:A:493:ASN:N	2.60	0.54
2:A:602:ASN:ND2	2:A:602:ASN:N	2.54	0.54
2:A:23:LYS:CE	2:A:27:ILE:HD11	2.30	0.54
2:A:380:GLU:HA	2:A:384:LEU:HA	1.88	0.54
2:A:415:SER:O	2:A:419:VAL:HG22	2.08	0.54
2:A:491:GLY:O	2:A:494:ILE:HG22	2.08	0.54
2:A:121:ARG:NH1	2:A:496:PHE:CE1	2.76	0.54
2:A:595:LYS:NZ	4:A:993:MRC:H8'1	2.21	0.54
2:A:81:LYS:HG3	2:A:86:PHE:CD2	2.42	0.54
2:A:163:GLN:OE1	2:A:530:ASP:HA	2.08	0.54
2:A:707:GLU:O	2:A:708:VAL:C	2.46	0.54
1:T:22:G:N7	1:T:46:G:N2	2.50	0.54
2:A:250:LYS:CD	2:A:251:TYR:H	2.20	0.54
2:A:372:LYS:C	2:A:374:VAL:N	2.60	0.54
2:A:374:VAL:HG12	2:A:375:THR:N	2.23	0.54
2:A:486:LEU:CD2	2:A:494:ILE:HG12	2.38	0.54
2:A:598:LYS:O	2:A:600:LEU:N	2.41	0.54
2:A:551:MET:HE3	2:A:699:PHE:CZ	2.43	0.54
1:T:33:U:H1'	1:T:36:U:N3	2.19	0.54
2:A:278:ASP:C	2:A:280:ALA:N	2.60	0.54
2:A:621:TRP:O	2:A:624:SER:N	2.40	0.54
2:A:321:THR:C	2:A:323:CYS:H	2.10	0.53
2:A:433:LYS:HG2	2:A:583:LEU:HD21	1.90	0.53
2:A:706:GLN:CA	2:A:706:GLN:HE21	2.21	0.53
2:A:768:TRP:HB2	2:A:779:VAL:HG22	1.89	0.53
2:A:24:GLU:HG2	2:A:762:HIS:CG	2.43	0.53
2:A:327:ALA:N	2:A:334:ASP:OD1	2.41	0.53
2:A:175:LEU:CD2	2:A:418:LYS:HD2	2.37	0.53
2:A:420:ARG:HH21	2:A:448:ARG:HB3	1.71	0.53
2:A:632:ARG:CG	2:A:632:ARG:HH11	2.21	0.53
2:A:739:ARG:HA	2:A:742:GLN:HE21	1.73	0.53
2:A:773:HIS:O	2:A:774:VAL:C	2.45	0.53
2:A:294:GLU:HA	2:A:310:ILE:CG2	2.39	0.53
2:A:348:PRO:O	2:A:407:ARG:HD3	2.09	0.53
2:A:44:ASN:O	2:A:45:LYS:O	2.25	0.53
2:A:818:GLU:O	2:A:819:LYS:HB2	2.09	0.53
2:A:243:ILE:O	2:A:310:ILE:HA	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:357:GLU:O	2:A:359:GLY:N	2.39	0.53
2:A:685:LEU:HD13	2:A:748:ILE:HA	1.89	0.53
2:A:116:SER:N	2:A:119:GLU:HB2	2.24	0.53
2:A:204:ARG:HG3	2:A:204:ARG:O	2.07	0.53
2:A:207:SER:HB3	2:A:388:ASP:HB2	1.90	0.53
2:A:551:MET:HA	2:A:581:PHE:O	2.09	0.53
2:A:555:GLY:O	2:A:557:ASP:N	2.42	0.53
2:A:96:THR:HB	2:A:155:LEU:HD23	1.91	0.53
2:A:331:GLY:HA3	2:A:334:ASP:HB3	1.90	0.53
2:A:676:GLU:HG2	2:A:798:TRP:CZ2	2.44	0.53
1:T:69:G:H5''	2:A:589:MET:HE2	1.90	0.53
2:A:661:ASP:C	2:A:661:ASP:OD2	2.45	0.53
2:A:733:ARG:NH1	2:A:733:ARG:HG3	2.24	0.53
2:A:818:GLU:HB2	2:A:820:VAL:HG23	1.90	0.53
2:A:482:HIS:CD2	2:A:486:LEU:HD12	2.44	0.53
2:A:501:LYS:H	2:A:501:LYS:CE	2.21	0.53
2:A:547:PHE:HB3	2:A:548:PRO:HD3	1.91	0.53
2:A:649:ARG:CG	2:A:649:ARG:NH1	2.72	0.53
2:A:711:PHE:CE2	2:A:752:MET:HE1	2.44	0.53
2:A:225:ALA:HB2	2:A:254:TYR:CZ	2.44	0.53
2:A:350:ASP:O	2:A:407:ARG:CZ	2.57	0.53
2:A:350:ASP:HB3	2:A:352:LYS:O	2.08	0.53
2:A:423:ILE:O	2:A:426:ALA:N	2.42	0.53
2:A:469:GLU:OE1	2:A:510:HIS:HE1	1.92	0.53
2:A:372:LYS:C	2:A:374:VAL:H	2.12	0.52
2:A:58:TYR:CZ	2:A:101:ILE:HG13	2.44	0.52
2:A:597:SER:HB2	5:A:1021:HOH:O	2.09	0.52
2:A:166:ILE:O	2:A:170:MET:HG3	2.10	0.52
2:A:439:THR:O	2:A:440:ARG:C	2.48	0.52
2:A:749:LEU:CG	2:A:750:VAL:H	2.20	0.52
2:A:120:PHE:CZ	2:A:124:CYS:SG	3.03	0.52
2:A:182:PRO:HA	2:A:407:ARG:O	2.09	0.52
2:A:380:GLU:O	2:A:382:GLY:N	2.41	0.52
2:A:12:THR:HG23	2:A:657:GLY:HA2	1.91	0.52
2:A:229:ILE:O	2:A:229:ILE:HG23	2.09	0.52
2:A:267:LEU:O	2:A:268:SER:C	2.47	0.52
2:A:2:ASP:OD2	2:A:4:GLU:HB3	2.09	0.52
2:A:638:LEU:O	2:A:642:SER:N	2.42	0.52
2:A:823:LYS:HG2	2:A:826:GLU:HG3	1.91	0.52
2:A:309:VAL:HG12	2:A:310:ILE:H	1.75	0.52
2:A:348:PRO:O	2:A:349:ILE:HB	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:691:SER:O	2:A:695:ASN:ND2	2.43	0.52
2:A:176:ILE:O	2:A:176:ILE:HG23	2.10	0.52
2:A:229:ILE:HD11	2:A:324:VAL:C	2.30	0.52
2:A:372:LYS:O	2:A:374:VAL:N	2.42	0.52
2:A:398:TRP:HA	2:A:401:LYS:HD3	1.92	0.52
2:A:163:GLN:NE2	2:A:529:PHE:HD2	2.07	0.52
2:A:245:VAL:HG12	2:A:246:HIS:H	1.74	0.52
2:A:278:ASP:OD1	2:A:281:SER:HB3	2.10	0.52
2:A:571:VAL:C	2:A:573:THR:H	2.13	0.52
2:A:802:MET:CE	2:A:805:ARG:HD3	2.40	0.52
2:A:107:LYS:O	2:A:107:LYS:HG2	2.10	0.51
2:A:226:LYS:HD2	2:A:259:GLU:HB2	1.91	0.51
2:A:420:ARG:O	2:A:421:GLN:HB2	2.09	0.51
2:A:300:HIS:HD2	2:A:308:LEU:HD12	1.74	0.51
2:A:560:ARG:HB2	2:A:560:ARG:NH1	2.25	0.51
2:A:802:MET:HA	2:A:802:MET:CE	2.40	0.51
2:A:200:TYR:CD1	2:A:200:TYR:N	2.79	0.51
2:A:250:LYS:HD2	2:A:251:TYR:N	2.25	0.51
2:A:280:ALA:O	2:A:282:ILE:N	2.40	0.51
2:A:377:LEU:O	2:A:381:LYS:HB2	2.10	0.51
2:A:200:TYR:HE2	2:A:395:PRO:HG3	1.70	0.51
2:A:560:ARG:CB	2:A:560:ARG:NH1	2.74	0.51
2:A:244:THR:HG21	2:A:337:VAL:HG21	1.91	0.51
2:A:837:PHE:HD2	2:A:873:HIS:O	1.94	0.51
2:A:257:ASN:CG	2:A:258:GLY:H	2.14	0.51
1:T:35:A:C2	2:A:654:PHE:HB2	2.45	0.51
2:A:876:ILE:CG2	2:A:877:VAL:N	2.73	0.51
2:A:292:GLU:C	2:A:294:GLU:N	2.64	0.51
2:A:330:HIS:HA	2:A:406:PHE:HB3	1.92	0.51
2:A:417:SER:HA	2:A:420:ARG:HD2	1.92	0.51
2:A:416:ILE:O	2:A:420:ARG:HG2	2.10	0.51
2:A:470:ASN:N	2:A:472:GLU:CG	2.73	0.51
2:A:129:LEU:CA	2:A:132:ILE:HG12	2.40	0.51
2:A:194:ALA:O	2:A:196:ALA:N	2.44	0.51
2:A:229:ILE:HA	2:A:321:THR:OG1	2.10	0.51
2:A:328:PRO:HB3	2:A:335:TYR:HA	1.93	0.51
2:A:567:ILE:O	2:A:571:VAL:HG23	2.11	0.51
2:A:777:GLU:O	2:A:778:SER:HB3	2.11	0.51
1:T:4:C:C2'	1:T:5:U:H5'	2.40	0.51
2:A:195:GLU:O	2:A:197:GLU:N	2.44	0.51
2:A:417:SER:HA	2:A:420:ARG:HG2	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:679:ARG:HH22	2:A:791:ASP:CG	2.13	0.51
2:A:768:TRP:CG	2:A:779:VAL:HG22	2.46	0.51
2:A:861:VAL:O	2:A:862:ASP:CB	2.59	0.51
2:A:250:LYS:HZ2	2:A:289:THR:CG2	2.18	0.51
2:A:468:ALA:HB2	2:A:518:PHE:CD2	2.46	0.51
2:A:56:PRO:HD3	2:A:152:TYR:OH	2.10	0.51
2:A:664:PRO:HG2	2:A:746:TYR:CE2	2.46	0.51
2:A:805:ARG:O	2:A:808:VAL:N	2.44	0.51
2:A:279:LYS:O	2:A:280:ALA:CB	2.58	0.51
2:A:350:ASP:HB2	2:A:354:VAL:O	2.11	0.51
2:A:512:GLY:O	2:A:513:SER:C	2.49	0.51
2:A:809:ASN:C	2:A:811:ALA:N	2.63	0.51
2:A:110:VAL:O	2:A:111:ASP:HB3	2.11	0.50
2:A:120:PHE:O	2:A:124:CYS:SG	2.69	0.50
2:A:309:VAL:O	2:A:310:ILE:HD12	2.11	0.50
2:A:348:PRO:O	2:A:407:ARG:HG2	2.11	0.50
2:A:181:LYS:HD3	2:A:452:VAL:HG21	1.92	0.50
2:A:468:ALA:H	2:A:472:GLU:CB	2.22	0.50
2:A:719:PHE:HD1	2:A:805:ARG:NH2	2.09	0.50
1:T:58:A:O2'	1:T:59:G:P	2.68	0.50
2:A:213:ASN:ND2	2:A:226:LYS:HE3	2.26	0.50
2:A:218:LYS:HA	2:A:221:VAL:HG23	1.92	0.50
1:T:11:C:H5'	2:A:636:GLU:OE2	2.11	0.50
2:A:719:PHE:HD1	2:A:805:ARG:CZ	2.24	0.50
2:A:469:GLU:HG3	2:A:512:GLY:HA3	1.91	0.50
2:A:727:ILE:HD13	2:A:737:ILE:CG1	2.41	0.50
1:T:55:U:O5'	1:T:55:U:H6	1.95	0.50
1:T:60:U:O2'	1:T:61:C:OP1	2.26	0.50
2:A:366:PHE:HD1	2:A:369:LYS:HB3	1.75	0.50
2:A:409:THR:HG23	2:A:410:PRO:HD2	1.92	0.50
2:A:420:ARG:HH22	2:A:449:GLY:H	1.59	0.50
2:A:652:LEU:HA	2:A:655:MET:CE	2.42	0.50
2:A:775:LYS:C	2:A:776:GLU:HG2	2.31	0.50
2:A:223:ALA:CB	2:A:254:TYR:OH	2.60	0.50
2:A:267:LEU:O	2:A:270:ALA:N	2.44	0.50
2:A:39:LYS:HA	2:A:42:GLU:HB2	1.94	0.50
2:A:178:LYS:NZ	2:A:412:TRP:NE1	2.57	0.50
2:A:443:ASN:ND2	2:A:446:ARG:CZ	2.74	0.50
2:A:50:PHE:CZ	2:A:551:MET:HG2	2.45	0.50
2:A:589:MET:HE3	2:A:595:LYS:CA	2.31	0.50
2:A:603:VAL:HG11	4:A:993:MRC:H3'1	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:186:SER:HB2	2:A:404:VAL:HG22	1.93	0.50
2:A:20:LEU:N	2:A:20:LEU:HD12	2.24	0.50
2:A:230:TRP:CE3	2:A:319:ALA:HB1	2.47	0.50
1:T:43:G:H2'	1:T:44:A:H8	1.73	0.50
2:A:303:LEU:O	2:A:305:ARG:N	2.45	0.50
2:A:112:ARG:NH2	2:A:458:VAL:HG21	2.27	0.50
2:A:467:TYR:N	2:A:519:THR:O	2.34	0.50
1:T:5:U:H2'	1:T:6:U:H6	1.75	0.50
2:A:292:GLU:O	2:A:294:GLU:N	2.45	0.50
2:A:510:HIS:CG	2:A:511:PRO:HD2	2.46	0.50
2:A:359:GLY:HA3	2:A:362:PHE:HB2	1.92	0.50
2:A:58:TYR:HA	2:A:95:ASP:HB2	1.94	0.50
2:A:711:PHE:HE2	2:A:752:MET:HE1	1.76	0.50
2:A:116:SER:HB3	2:A:119:GLU:CG	2.31	0.49
2:A:247:PRO:HA	2:A:291:LYS:CA	2.41	0.49
2:A:277:TRP:C	2:A:279:LYS:H	2.15	0.49
2:A:853:PHE:O	2:A:855:VAL:HG13	2.11	0.49
2:A:861:VAL:O	2:A:861:VAL:CG2	2.60	0.49
2:A:8:LEU:HB2	2:A:729:TYR:O	2.11	0.49
2:A:141:ARG:HG3	2:A:141:ARG:NH1	2.27	0.49
2:A:476:THR:O	2:A:480:VAL:HG23	2.12	0.49
2:A:719:PHE:CD1	2:A:805:ARG:CZ	2.95	0.49
2:A:805:ARG:O	2:A:807:ASP:N	2.45	0.49
2:A:861:VAL:O	2:A:861:VAL:HG22	2.11	0.49
2:A:112:ARG:HD2	2:A:113:LYS:HD2	1.95	0.49
2:A:204:ARG:CG	2:A:204:ARG:O	2.59	0.49
2:A:339:GLN:O	2:A:341:TYR:N	2.46	0.49
2:A:373:ALA:O	2:A:376:ASP:HB2	2.12	0.49
2:A:451:TRP:CD1	2:A:453:ILE:HG22	2.46	0.49
2:A:65:MET:HA	2:A:606:PRO:HG3	1.93	0.49
2:A:113:LYS:O	2:A:114:LYS:HB2	2.11	0.49
2:A:341:TYR:CD1	2:A:341:TYR:N	2.80	0.49
2:A:338:GLY:HA2	2:A:343:LEU:HD12	1.94	0.49
2:A:206:ALA:O	2:A:208:ILE:HG23	2.11	0.49
2:A:279:LYS:O	2:A:280:ALA:HB3	2.13	0.49
2:A:443:ASN:ND2	2:A:446:ARG:NH1	2.60	0.49
2:A:176:ILE:CG2	2:A:475:MET:HE3	2.43	0.49
2:A:81:LYS:HG3	2:A:86:PHE:HD2	1.75	0.49
2:A:472:GLU:O	2:A:473:ILE:CB	2.61	0.49
1:T:12:U:H5''	5:A:1033:HOH:O	2.12	0.49
2:A:255:ASN:CG	2:A:256:VAL:N	2.66	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:222:ASP:HB3	2:A:288:TYR:CE2	2.48	0.49
2:A:327:ALA:O	2:A:329:GLY:N	2.45	0.49
2:A:656:LEU:HD21	2:A:771:THR:HG23	1.95	0.49
2:A:289:THR:HG21	2:A:292:GLU:HG3	1.95	0.49
2:A:368:ASP:O	2:A:372:LYS:HG3	2.13	0.49
2:A:500:ALA:HB3	2:A:501:LYS:CE	2.41	0.49
2:A:658:ASN:HB3	2:A:728:LEU:HD13	1.94	0.49
2:A:333:ASP:O	2:A:337:VAL:HG12	2.12	0.49
2:A:44:ASN:C	2:A:47:ASN:ND2	2.65	0.49
1:T:13:C:O3'	2:A:702:LEU:HD21	2.13	0.49
2:A:833:SER:CB	2:A:840:SER:HG	2.26	0.49
2:A:411:GLN:HE22	2:A:456:GLN:HE21	1.56	0.49
2:A:443:ASN:HD22	2:A:446:ARG:NH1	2.11	0.49
2:A:504:LEU:HB3	2:A:505:PRO:HD2	1.95	0.49
2:A:230:TRP:CZ3	2:A:319:ALA:HB1	2.46	0.48
2:A:229:ILE:HA	2:A:323:CYS:SG	2.53	0.48
2:A:451:TRP:CE2	2:A:453:ILE:HG22	2.47	0.48
2:A:469:GLU:O	2:A:471:GLY:N	2.45	0.48
2:A:8:LEU:HD13	2:A:738:ARG:HE	1.77	0.48
2:A:300:HIS:HB2	2:A:302:PHE:CE2	2.48	0.48
2:A:64:HIS:HD2	4:A:993:MRC:H9'2	1.78	0.48
2:A:65:MET:HE3	2:A:65:MET:HA	1.94	0.48
2:A:711:PHE:HE2	2:A:752:MET:CE	2.26	0.48
2:A:296:VAL:CG1	2:A:297:VAL:N	2.76	0.48
2:A:416:ILE:HB	2:A:449:GLY:O	2.13	0.48
2:A:495:TRP:O	2:A:520:LYS:HE3	2.13	0.48
2:A:466:PHE:HB3	2:A:520:LYS:HA	1.96	0.48
2:A:719:PHE:O	2:A:720:TYR:C	2.50	0.48
2:A:739:ARG:HD3	2:A:742:GLN:HE22	1.78	0.48
2:A:807:ASP:O	2:A:809:ASN:N	2.46	0.48
2:A:220:VAL:CG1	2:A:220:VAL:O	2.62	0.48
2:A:23:LYS:HG3	2:A:27:ILE:CD1	2.40	0.48
2:A:500:ALA:H	2:A:501:LYS:HZ2	1.62	0.48
2:A:465:VAL:O	2:A:521:GLU:CB	2.62	0.48
2:A:282:ILE:HG13	2:A:282:ILE:O	2.14	0.48
2:A:469:GLU:O	2:A:469:GLU:HG2	2.13	0.48
2:A:470:ASN:H	2:A:472:GLU:CG	2.26	0.48
2:A:589:MET:CE	2:A:595:LYS:HA	2.31	0.48
2:A:627:TYR:C	2:A:629:ALA:H	2.17	0.48
2:A:152:TYR:CD2	2:A:538:VAL:HG21	2.48	0.48
2:A:668:SER:HA	2:A:743:THR:OG1	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:840:SER:HA	2:A:860:VAL:HG11	1.95	0.48
2:A:547:PHE:O	2:A:549:ALA:N	2.46	0.48
2:A:632:ARG:CZ	2:A:632:ARG:HB2	2.42	0.48
2:A:711:PHE:CE2	2:A:752:MET:CE	2.96	0.48
2:A:165:ARG:O	2:A:169:GLU:HG3	2.14	0.48
2:A:254:TYR:CE2	2:A:260:LYS:HE2	2.49	0.48
2:A:327:ALA:H	2:A:334:ASP:CG	2.17	0.48
2:A:99:LEU:O	2:A:103:GLN:HG3	2.13	0.48
2:A:138:ASP:O	2:A:141:ARG:N	2.47	0.48
2:A:332:GLU:O	2:A:335:TYR:N	2.45	0.48
2:A:180:LYS:HD3	2:A:408:ALA:HB1	1.96	0.48
2:A:749:LEU:O	2:A:751:ASP:N	2.46	0.48
1:T:16:G:H5'	1:T:17:U:OP2	2.14	0.48
1:T:65:U:O2'	1:T:66:C:H5'	2.14	0.48
2:A:350:ASP:CB	2:A:354:VAL:O	2.62	0.48
2:A:357:GLU:C	2:A:359:GLY:H	2.18	0.48
1:T:69:G:O2'	2:A:630:ASP:OD2	2.25	0.48
2:A:800:THR:O	2:A:803:ASN:HB2	2.14	0.48
2:A:849:LEU:HB2	2:A:858:VAL:HG21	1.96	0.48
2:A:106:THR:HG21	2:A:399:ARG:HH12	1.79	0.47
2:A:194:ALA:O	2:A:197:GLU:N	2.42	0.47
2:A:243:ILE:HD11	2:A:300:HIS:NE2	2.28	0.47
2:A:504:LEU:O	2:A:506:GLU:N	2.47	0.47
2:A:840:SER:OG	2:A:862:ASP:HA	2.14	0.47
2:A:153:ILE:HG13	2:A:156:LYS:HG2	1.94	0.47
2:A:369:LYS:HA	2:A:372:LYS:HD2	1.96	0.47
2:A:481:ASN:O	2:A:483:VAL:N	2.47	0.47
2:A:569:THR:CG2	2:A:570:SER:N	2.76	0.47
1:T:2:G:H2'	1:T:3:G:H8	1.78	0.47
2:A:241:VAL:O	2:A:242:ALA:HB2	2.14	0.47
2:A:248:GLU:C	2:A:249:LEU:HG	2.34	0.47
2:A:293:LEU:HD23	2:A:293:LEU:O	2.14	0.47
2:A:366:PHE:O	2:A:371:ASN:ND2	2.44	0.47
2:A:398:TRP:C	2:A:400:THR:H	2.17	0.47
2:A:722:ASP:O	2:A:723:TYR:C	2.53	0.47
2:A:724:GLY:HA3	2:A:741:MET:CE	2.44	0.47
2:A:321:THR:O	2:A:323:CYS:N	2.42	0.47
2:A:324:VAL:CG1	2:A:326:THR:HG23	2.45	0.47
2:A:535:HIS:ND1	2:A:536:ARG:N	2.55	0.47
2:A:535:HIS:NE2	2:A:569:THR:CG2	2.77	0.47
2:A:848:ALA:HA	2:A:850:HIS:CE1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:220:VAL:HG13	2:A:224:ASP:CG	2.34	0.47
2:A:552:TYR:CD2	2:A:562:TRP:CZ3	3.03	0.47
2:A:567:ILE:HG23	2:A:568:THR:N	2.30	0.47
2:A:717:SER:O	2:A:719:PHE:N	2.47	0.47
2:A:811:ALA:HA	2:A:871:TYR:OH	2.14	0.47
2:A:591:GLY:O	2:A:592:GLU:C	2.52	0.47
1:T:24:G:H2'	1:T:25:C:O4'	2.14	0.47
1:T:51:U:O2'	1:T:52:G:H5'	2.14	0.47
2:A:379:THR:HA	2:A:385:LEU:HD12	1.97	0.47
2:A:434:VAL:HG11	2:A:436:TRP:NE1	2.30	0.47
2:A:446:ARG:O	2:A:446:ARG:HG2	2.15	0.47
2:A:466:PHE:CD2	2:A:504:LEU:HD21	2.49	0.47
2:A:4:GLU:HA	2:A:7:LEU:HB2	1.96	0.47
2:A:652:LEU:HD22	2:A:767:VAL:HG21	1.97	0.47
2:A:680:TYR:CE1	2:A:798:TRP:HB2	2.48	0.47
2:A:296:VAL:CG1	2:A:297:VAL:H	2.16	0.47
2:A:551:MET:HE3	2:A:699:PHE:CE2	2.50	0.47
2:A:285:GLU:OE2	2:A:285:GLU:HA	2.15	0.47
2:A:242:ALA:N	2:A:308:LEU:HD13	2.30	0.47
2:A:275:LEU:HD11	2:A:386:LYS:HD2	1.97	0.47
2:A:433:LYS:O	2:A:433:LYS:HD2	2.14	0.47
2:A:701:TYR:O	2:A:702:LEU:C	2.53	0.47
1:T:46:G:C2'	1:T:47:U:H5'	2.39	0.47
2:A:23:LYS:HE2	2:A:766:GLU:OE2	2.14	0.47
2:A:366:PHE:CG	2:A:370:ALA:HB2	2.50	0.47
2:A:467:TYR:CA	2:A:472:GLU:HB3	2.44	0.47
2:A:571:VAL:HG13	2:A:575:GLY:HA2	1.97	0.47
2:A:849:LEU:CB	2:A:858:VAL:HG21	2.44	0.47
1:T:55:U:H3'	1:T:55:U:C6	2.50	0.47
2:A:42:GLU:O	2:A:43:LYS:C	2.53	0.47
2:A:571:VAL:O	2:A:573:THR:N	2.42	0.47
2:A:587:PHE:HA	4:A:993:MRC:H152	1.96	0.47
2:A:596:MET:HB3	2:A:603:VAL:CG1	2.30	0.47
2:A:127:PHE:O	2:A:130:GLU:HB2	2.15	0.46
2:A:96:THR:OG1	2:A:154:THR:HG23	2.15	0.46
2:A:239:SER:HB3	2:A:346:ILE:CG1	2.45	0.46
2:A:598:LYS:C	2:A:600:LEU:H	2.19	0.46
2:A:632:ARG:NH1	2:A:632:ARG:HG3	2.28	0.46
2:A:802:MET:O	2:A:805:ARG:HB3	2.15	0.46
2:A:831:ILE:CD1	2:A:839:ALA:HB1	2.44	0.46
2:A:163:GLN:HG2	2:A:461:VAL:CG1	2.44	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:229:ILE:HA	2:A:321:THR:HG1	1.79	0.46
2:A:549:ALA:O	2:A:580:LYS:HG3	2.15	0.46
2:A:63:LEU:HD12	2:A:138:ASP:HB2	1.96	0.46
2:A:749:LEU:O	2:A:750:VAL:C	2.53	0.46
2:A:210:VAL:HG11	2:A:212:PHE:CE2	2.50	0.46
2:A:219:GLY:HA2	2:A:296:VAL:HG12	1.97	0.46
2:A:327:ALA:C	2:A:334:ASP:OD1	2.54	0.46
2:A:211:ALA:HB3	2:A:385:LEU:HD23	1.98	0.46
2:A:436:TRP:N	2:A:436:TRP:CD1	2.82	0.46
2:A:97:HIS:CG	2:A:460:GLY:HA2	2.50	0.46
2:A:493:ASN:HA	2:A:493:ASN:HD22	1.59	0.46
2:A:500:ALA:N	2:A:501:LYS:HZ2	2.14	0.46
2:A:560:ARG:HB3	2:A:560:ARG:HH11	1.81	0.46
2:A:433:LYS:CB	2:A:583:LEU:HG	2.43	0.46
1:T:25:C:H2'	1:T:26:G:O4'	2.15	0.46
1:T:9:A:H2'	1:T:11:C:H41	1.80	0.46
2:A:216:ASP:O	2:A:220:VAL:HG23	2.15	0.46
2:A:228:ILE:O	2:A:229:ILE:CB	2.62	0.46
2:A:238:PRO:HB3	2:A:362:PHE:CE1	2.51	0.46
2:A:424:LEU:O	2:A:427:ILE:HB	2.15	0.46
2:A:504:LEU:HB3	2:A:505:PRO:CD	2.45	0.46
2:A:609:VAL:CG1	2:A:610:VAL:N	2.79	0.46
2:A:812:LEU:O	2:A:816:ARG:N	2.47	0.46
2:A:252:GLY:HA2	2:A:263:ILE:O	2.15	0.46
2:A:289:THR:CG2	2:A:292:GLU:HG3	2.46	0.46
2:A:200:TYR:HB3	2:A:393:SER:O	2.16	0.46
2:A:397:ASP:O	2:A:397:ASP:CG	2.52	0.46
2:A:53:HIS:HE1	2:A:152:TYR:CE2	2.32	0.46
2:A:632:ARG:CG	2:A:632:ARG:NH1	2.77	0.46
2:A:383:ALA:O	2:A:384:LEU:O	2.33	0.46
2:A:160:GLU:O	2:A:161:ALA:C	2.54	0.46
2:A:170:MET:O	2:A:173:LYS:HB2	2.16	0.46
2:A:237:ILE:HB	2:A:238:PRO:CD	2.37	0.46
2:A:536:ARG:NH1	2:A:574:ARG:NH2	2.63	0.46
2:A:802:MET:HE2	2:A:805:ARG:HD3	1.97	0.46
2:A:805:ARG:O	2:A:806:ASP:C	2.54	0.46
2:A:857:GLN:NE2	2:A:858:VAL:N	2.47	0.46
1:T:58:A:HO2'	1:T:59:G:P	2.38	0.46
2:A:102:GLU:O	2:A:105:LEU:HB2	2.16	0.46
2:A:240:ASN:ND2	2:A:302:PHE:HZ	2.14	0.46
2:A:293:LEU:HD23	2:A:296:VAL:CG2	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:329:GLY:HA3	2:A:346:ILE:HD12	1.98	0.46
2:A:542:ARG:O	2:A:544:GLU:N	2.49	0.46
2:A:323:CYS:O	2:A:324:VAL:CB	2.55	0.46
2:A:211:ALA:H	2:A:385:LEU:HD22	1.81	0.46
2:A:500:ALA:HB3	2:A:501:LYS:NZ	2.31	0.46
2:A:75:ASP:OD2	2:A:619:ARG:NH2	2.49	0.46
2:A:285:GLU:C	2:A:286:LYS:HG2	2.37	0.46
2:A:310:ILE:CG2	2:A:311:ASN:N	2.78	0.46
2:A:397:ASP:O	2:A:401:LYS:N	2.42	0.46
2:A:162:ALA:HB1	2:A:536:ARG:CG	2.47	0.46
1:T:18:G:O2'	1:T:19:G:P	2.74	0.46
2:A:120:PHE:O	2:A:124:CYS:N	2.50	0.45
2:A:160:GLU:O	2:A:163:GLN:N	2.50	0.45
2:A:20:LEU:HA	2:A:23:LYS:HB3	1.97	0.45
2:A:255:ASN:HD21	2:A:256:VAL:HG23	1.81	0.45
1:T:74:C:OP1	2:A:333:ASP:CG	2.55	0.45
2:A:362:PHE:O	2:A:365:MET:HG2	2.16	0.45
2:A:394:TYR:HA	2:A:395:PRO:HD3	1.85	0.45
2:A:176:ILE:HG23	2:A:475:MET:HE3	1.98	0.45
2:A:481:ASN:O	2:A:482:HIS:C	2.53	0.45
2:A:840:SER:HA	2:A:860:VAL:HG13	1.96	0.45
1:T:34:G:H1'	2:A:9:MET:HE1	1.99	0.45
1:T:67:A:H2'	1:T:68:G:O5'	2.15	0.45
2:A:240:ASN:ND2	2:A:302:PHE:CZ	2.84	0.45
2:A:198:ILE:HG21	2:A:395:PRO:HB3	1.98	0.45
2:A:121:ARG:NH1	2:A:496:PHE:HE1	2.14	0.45
2:A:609:VAL:HG13	2:A:610:VAL:N	2.30	0.45
2:A:679:ARG:NH2	2:A:794:LEU:HD22	2.32	0.45
2:A:684:ARG:NH1	2:A:684:ARG:HB3	2.31	0.45
2:A:792:GLN:O	2:A:794:LEU:N	2.50	0.45
2:A:445:VAL:C	2:A:447:ASP:H	2.20	0.45
2:A:560:ARG:HB2	2:A:560:ARG:CZ	2.46	0.45
2:A:765:GLU:HA	2:A:765:GLU:OE1	2.17	0.45
1:T:14:A:H2'	1:T:15:G:O4'	2.16	0.45
1:T:24:G:H2'	1:T:25:C:C6	2.51	0.45
2:A:372:LYS:O	2:A:375:THR:N	2.50	0.45
2:A:451:TRP:NE1	2:A:453:ILE:HG22	2.32	0.45
2:A:494:ILE:O	2:A:503:LEU:HD21	2.16	0.45
2:A:60:ASN:C	2:A:60:ASN:ND2	2.67	0.45
2:A:865:ASP:CB	2:A:867:GLN:HE21	2.26	0.45
1:T:24:G:H2'	1:T:25:C:H6	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:367:TYR:C	2:A:371:ASN:ND2	2.70	0.45
2:A:421:GLN:CA	2:A:424:LEU:HD12	2.45	0.45
2:A:46:GLY:O	2:A:47:ASN:C	2.55	0.45
2:A:831:ILE:HD11	2:A:843:LEU:HD11	1.99	0.45
2:A:64:HIS:CD2	4:A:993:MRC:H9'2	2.51	0.45
2:A:749:LEU:HD11	2:A:771:THR:CG2	2.45	0.45
1:T:17:U:C5'	1:T:18:G:H5'	2.47	0.45
2:A:240:ASN:HD21	2:A:306:GLU:CB	2.29	0.45
2:A:479:THR:O	2:A:483:VAL:HG23	2.17	0.45
2:A:683:ASN:O	2:A:686:ARG:HB2	2.17	0.45
2:A:257:ASN:ND2	2:A:258:GLY:H	2.15	0.45
2:A:749:LEU:HD11	2:A:771:THR:HG21	1.98	0.45
2:A:225:ALA:HB1	2:A:260:LYS:HB2	1.99	0.45
2:A:235:TRP:C	2:A:238:PRO:HD2	2.37	0.45
2:A:467:TYR:N	2:A:467:TYR:CD1	2.85	0.45
2:A:480:VAL:O	2:A:483:VAL:HB	2.17	0.45
2:A:560:ARG:CB	2:A:560:ARG:HH11	2.30	0.45
2:A:559:TYR:HA	2:A:563:PHE:HD1	1.82	0.45
2:A:616:ASP:OD1	2:A:762:HIS:ND1	2.48	0.45
2:A:71:LYS:NZ	5:A:1073:HOH:O	2.44	0.45
1:T:24:G:O2'	1:T:25:C:H5'	2.16	0.45
2:A:285:GLU:C	2:A:286:LYS:CG	2.86	0.45
2:A:99:LEU:HD22	2:A:457:ARG:HD2	1.97	0.45
2:A:500:ALA:N	2:A:520:LYS:HZ3	2.15	0.45
2:A:579:TYR:CD2	2:A:579:TYR:N	2.85	0.45
1:T:7:G:H1	1:T:66:C:H42	1.64	0.45
2:A:365:MET:HB3	2:A:370:ALA:CB	2.47	0.44
1:T:17:U:H5'	1:T:18:G:C5'	2.47	0.44
2:A:343:LEU:HA	2:A:344:PRO:HD3	1.88	0.44
2:A:417:SER:HA	2:A:420:ARG:CD	2.48	0.44
2:A:508:PHE:CD1	2:A:509:THR:N	2.86	0.44
2:A:605:VAL:HG13	2:A:606:PRO:CD	2.47	0.44
2:A:681:LEU:O	2:A:682:LEU:C	2.54	0.44
2:A:813:GLU:O	2:A:817:ASN:N	2.46	0.44
2:A:832:ALA:O	2:A:833:SER:C	2.54	0.44
1:T:34:G:H5''	1:T:36:U:C5	2.52	0.44
2:A:328:PRO:CA	2:A:335:TYR:HA	2.47	0.44
2:A:376:ASP:O	2:A:378:LEU:N	2.51	0.44
2:A:3:TYR:N	2:A:3:TYR:CD1	2.85	0.44
2:A:550:ASP:HA	2:A:580:LYS:HD2	1.99	0.44
2:A:810:ARG:NH1	2:A:814:THR:HG23	2.32	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:277:TRP:O	2:A:279:LYS:N	2.48	0.44
2:A:807:ASP:C	2:A:809:ASN:N	2.70	0.44
1:T:17:U:H5'	1:T:18:G:H5'	2.00	0.44
2:A:153:ILE:O	2:A:155:LEU:N	2.50	0.44
2:A:215:LYS:HG2	2:A:216:ASP:N	2.32	0.44
2:A:251:TYR:C	2:A:253:GLN:N	2.70	0.44
2:A:353:GLY:HA3	2:A:367:TYR:HB3	1.98	0.44
2:A:439:THR:O	2:A:442:TYR:N	2.50	0.44
2:A:627:TYR:C	2:A:629:ALA:N	2.71	0.44
2:A:749:LEU:CG	2:A:750:VAL:N	2.81	0.44
2:A:804:LEU:HD12	2:A:837:PHE:HE2	1.82	0.44
2:A:120:PHE:O	2:A:121:ARG:C	2.56	0.44
2:A:178:LYS:HG3	2:A:179:GLY:H	1.82	0.44
2:A:555:GLY:HA2	2:A:585:HIS:O	2.17	0.44
2:A:211:ALA:N	2:A:385:LEU:HD22	2.33	0.44
2:A:417:SER:CA	2:A:420:ARG:HG2	2.48	0.44
2:A:446:ARG:O	2:A:446:ARG:CD	2.65	0.44
2:A:807:ASP:C	2:A:809:ASN:H	2.21	0.44
2:A:481:ASN:C	2:A:483:VAL:N	2.72	0.44
2:A:598:LYS:C	2:A:600:LEU:N	2.71	0.44
2:A:13:ASP:OD1	2:A:770:HIS:CE1	2.71	0.44
2:A:362:PHE:HE2	2:A:374:VAL:HG22	1.83	0.44
2:A:423:ILE:O	2:A:424:LEU:C	2.55	0.44
2:A:694:ASN:O	2:A:698:ASN:ND2	2.50	0.44
2:A:737:ILE:HG23	2:A:738:ARG:N	2.32	0.44
2:A:768:TRP:HB2	2:A:779:VAL:CG2	2.48	0.44
2:A:13:ASP:OD2	2:A:770:HIS:HE1	2.01	0.44
2:A:229:ILE:HA	2:A:323:CYS:HB2	1.99	0.43
2:A:234:PRO:CG	2:A:235:TRP:N	2.75	0.43
2:A:355:PHE:CE1	2:A:365:MET:HB2	2.30	0.43
2:A:648:ILE:O	2:A:652:LEU:HD12	2.18	0.43
2:A:749:LEU:C	2:A:749:LEU:CD2	2.85	0.43
2:A:83:MET:HB3	2:A:784:MET:HG2	1.99	0.43
1:T:70:C:OP1	2:A:595:LYS:HD3	2.18	0.43
2:A:446:ARG:O	2:A:447:ASP:CG	2.57	0.43
1:T:70:C:O2	2:A:440:ARG:NH2	2.47	0.43
2:A:134:LEU:HA	2:A:134:LEU:HD23	1.84	0.43
2:A:212:PHE:O	2:A:227:PHE:N	2.42	0.43
2:A:250:LYS:O	2:A:251:TYR:HB2	2.19	0.43
2:A:606:PRO:O	2:A:607:ASP:C	2.56	0.43
2:A:723:TYR:CE1	2:A:852:LEU:HD23	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:233:THR:HG23	2:A:236:THR:CG2	2.44	0.43
2:A:241:VAL:HG11	2:A:343:LEU:HB3	2.00	0.43
2:A:4:GLU:O	2:A:4:GLU:HG2	2.18	0.43
2:A:804:LEU:HD23	2:A:808:VAL:HG23	2.00	0.43
2:A:275:LEU:O	2:A:276:ASP:C	2.56	0.43
2:A:162:ALA:HB1	2:A:536:ARG:HG3	2.01	0.43
2:A:240:ASN:O	2:A:241:VAL:HG23	2.18	0.43
2:A:275:LEU:HA	2:A:275:LEU:HD12	1.81	0.43
2:A:318:ASP:OD2	2:A:319:ALA:N	2.49	0.43
2:A:670:PRO:HG2	2:A:673:GLU:OE2	2.18	0.43
1:T:13:C:H4'	2:A:702:LEU:HD21	1.99	0.43
2:A:795:LEU:HA	2:A:795:LEU:HD23	1.81	0.43
2:A:832:ALA:CB	2:A:861:VAL:HG13	2.47	0.43
1:T:22:G:OP2	5:T:152:HOH:O	2.22	0.43
2:A:161:ALA:HB1	2:A:165:ARG:NH1	2.27	0.43
2:A:259:GLU:O	2:A:260:LYS:HB2	2.19	0.43
2:A:240:ASN:HD21	2:A:306:GLU:HB2	1.84	0.43
2:A:324:VAL:HG12	2:A:325:HIS:N	2.32	0.43
2:A:777:GLU:O	2:A:778:SER:CB	2.66	0.43
2:A:79:ARG:NH1	2:A:780:HIS:ND1	2.66	0.43
2:A:842:PHE:C	2:A:844:THR:N	2.71	0.43
2:A:129:LEU:C	2:A:132:ILE:HG12	2.39	0.43
2:A:240:ASN:HD22	2:A:308:LEU:HD21	1.77	0.43
2:A:422:ASP:OD2	2:A:422:ASP:N	2.41	0.43
2:A:68:ALA:O	2:A:72:ILE:HG13	2.18	0.43
2:A:166:ILE:O	2:A:167:PHE:C	2.58	0.43
2:A:187:PRO:C	2:A:189:SER:H	2.22	0.43
2:A:338:GLY:C	2:A:343:LEU:HD12	2.39	0.43
2:A:466:PHE:CA	2:A:520:LYS:HA	2.44	0.43
2:A:830:THR:HB	2:A:877:VAL:CG2	2.48	0.43
2:A:434:VAL:HG22	2:A:435:ASN:H	1.83	0.42
2:A:654:PHE:HE1	2:A:729:TYR:HH	1.65	0.42
2:A:727:ILE:HD13	2:A:737:ILE:HG12	2.01	0.42
2:A:727:ILE:CG2	2:A:738:ARG:HA	2.48	0.42
2:A:324:VAL:HG11	2:A:326:THR:HG23	2.01	0.42
2:A:632:ARG:HD3	5:A:1074:HOH:O	2.19	0.42
2:A:76:PHE:CE2	2:A:759:ILE:HA	2.54	0.42
2:A:81:LYS:HE3	2:A:86:PHE:CD2	2.54	0.42
2:A:821:ILE:HG13	2:A:827:ALA:HB2	2.01	0.42
2:A:129:LEU:O	2:A:132:ILE:CG1	2.65	0.42
2:A:144:VAL:CG1	2:A:145:ARG:N	2.81	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:379:THR:HG23	2:A:385:LEU:CG	2.50	0.42
2:A:454:SER:O	2:A:455:ARG:HD3	2.19	0.42
2:A:525:MET:SD	2:A:529:PHE:CD2	3.13	0.42
2:A:577:SER:HA	2:A:578:PRO:HD3	1.89	0.42
2:A:809:ASN:C	2:A:811:ALA:H	2.22	0.42
2:A:111:ASP:O	2:A:112:ARG:O	2.36	0.42
2:A:71:LYS:HE2	2:A:139:PHE:CE2	2.54	0.42
2:A:417:SER:HA	2:A:420:ARG:CG	2.49	0.42
2:A:491:GLY:O	2:A:493:ASN:N	2.53	0.42
2:A:731:GLU:HG3	2:A:737:ILE:HG21	2.02	0.42
2:A:816:ARG:CD	2:A:822:GLY:O	2.67	0.42
2:A:830:THR:O	2:A:877:VAL:HG22	2.20	0.42
1:T:55:U:C3'	1:T:55:U:C6	3.02	0.42
2:A:115:MET:HB3	2:A:119:GLU:HB3	2.01	0.42
2:A:122:GLU:C	2:A:124:CYS:H	2.23	0.42
2:A:177:TYR:HD1	2:A:178:LYS:O	2.03	0.42
2:A:218:LYS:C	2:A:220:VAL:N	2.71	0.42
2:A:30:LYS:O	2:A:33:ALA:HB3	2.19	0.42
2:A:339:GLN:O	2:A:340:GLN:C	2.57	0.42
2:A:434:VAL:HG21	2:A:436:TRP:CD1	2.55	0.42
2:A:436:TRP:HD1	2:A:436:TRP:H	1.64	0.42
2:A:413:PHE:HA	2:A:451:TRP:O	2.20	0.42
2:A:513:SER:O	2:A:515:ASN:N	2.47	0.42
2:A:644:ASP:O	2:A:648:ILE:HG13	2.20	0.42
2:A:664:PRO:O	2:A:666:THR:N	2.53	0.42
2:A:84:GLN:OE1	2:A:784:MET:HB2	2.19	0.42
1:T:45:G:H5'	1:T:46:G:OP2	2.20	0.42
2:A:501:LYS:N	2:A:501:LYS:HE3	2.35	0.42
2:A:775:LYS:O	2:A:776:GLU:CB	2.67	0.42
2:A:792:GLN:NE2	2:A:796:ASP:OD1	2.51	0.42
2:A:821:ILE:CG1	2:A:822:GLY:H	2.32	0.42
1:T:38:A:C2'	1:T:39:G:H5'	2.49	0.42
2:A:289:THR:HG22	2:A:292:GLU:N	2.21	0.42
2:A:832:ALA:HB2	2:A:861:VAL:HG12	1.99	0.42
2:A:44:ASN:OD1	2:A:85:GLY:HA2	2.20	0.42
1:T:41:G:O2'	1:T:42:U:H5'	2.20	0.42
2:A:178:LYS:HG3	2:A:179:GLY:N	2.35	0.42
2:A:462:PRO:HG3	2:A:496:PHE:CZ	2.55	0.42
2:A:548:PRO:HB2	2:A:580:LYS:CE	2.49	0.42
2:A:56:PRO:HA	2:A:57:PRO:HD2	1.97	0.42
2:A:228:ILE:HD11	2:A:261:TYR:HB3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:326:THR:HA	2:A:334:ASP:OD2	2.20	0.42
2:A:365:MET:HB3	2:A:370:ALA:HB1	2.01	0.42
2:A:623:SER:O	2:A:702:LEU:HA	2.19	0.42
1:T:29:C:H2'	1:T:30:C:C6	2.55	0.42
2:A:110:VAL:HG11	2:A:120:PHE:CZ	2.55	0.42
2:A:163:GLN:HG2	2:A:461:VAL:CG2	2.44	0.42
2:A:226:LYS:HD2	2:A:259:GLU:CB	2.50	0.42
2:A:325:HIS:C	2:A:325:HIS:ND1	2.73	0.42
2:A:350:ASP:OD1	2:A:352:LYS:HD3	2.19	0.42
2:A:376:ASP:O	2:A:377:LEU:C	2.57	0.42
2:A:8:LEU:CD2	2:A:733:ARG:NH1	2.81	0.42
2:A:116:SER:O	2:A:117:THR:C	2.59	0.41
2:A:179:GLY:HA3	2:A:413:PHE:CE1	2.55	0.41
2:A:269:ASP:O	2:A:270:ALA:C	2.58	0.41
2:A:292:GLU:C	2:A:294:GLU:H	2.22	0.41
2:A:43:LYS:HG2	2:A:44:ASN:N	2.35	0.41
1:T:51:U:H2'	1:T:52:G:H8	1.85	0.41
2:A:106:THR:C	2:A:108:LYS:H	2.23	0.41
2:A:131:GLN:O	2:A:132:ILE:C	2.57	0.41
2:A:141:ARG:HH21	2:A:611:LYS:NZ	2.18	0.41
2:A:146:GLY:O	2:A:148:PHE:N	2.50	0.41
2:A:152:TYR:HB2	5:A:1041:HOH:O	2.20	0.41
2:A:256:VAL:CG1	2:A:257:ASN:H	2.32	0.41
2:A:296:VAL:C	2:A:310:ILE:HD13	2.40	0.41
2:A:163:GLN:CG	2:A:461:VAL:HG21	2.44	0.41
2:A:469:GLU:O	2:A:470:ASN:HB2	2.20	0.41
2:A:477:LYS:O	2:A:479:THR:N	2.45	0.41
2:A:831:ILE:HG13	2:A:832:ALA:N	2.33	0.41
2:A:216:ASP:O	2:A:219:GLY:N	2.53	0.41
2:A:469:GLU:O	2:A:469:GLU:CG	2.68	0.41
2:A:505:PRO:O	2:A:506:GLU:C	2.58	0.41
2:A:51:ILE:HD12	2:A:51:ILE:N	2.36	0.41
2:A:538:VAL:HG23	2:A:542:ARG:CD	2.50	0.41
2:A:539:LEU:HD23	2:A:539:LEU:HA	1.85	0.41
2:A:536:ARG:NH2	2:A:574:ARG:NH2	2.66	0.41
2:A:170:MET:O	2:A:171:ALA:C	2.59	0.41
2:A:318:ASP:CG	2:A:319:ALA:N	2.72	0.41
2:A:325:HIS:C	2:A:325:HIS:HD1	2.23	0.41
2:A:79:ARG:O	2:A:80:TYR:C	2.58	0.41
2:A:138:ASP:O	2:A:139:PHE:C	2.58	0.41
2:A:300:HIS:C	2:A:304:ASP:HB3	2.40	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:341:TYR:O	2:A:342:GLU:C	2.58	0.41
2:A:745:LEU:C	2:A:748:ILE:HG22	2.39	0.41
2:A:798:TRP:HA	2:A:801:PHE:HB3	2.02	0.41
2:A:214:VAL:HG12	2:A:219:GLY:O	2.21	0.41
2:A:236:THR:HG23	2:A:237:ILE:H	1.86	0.41
2:A:327:ALA:C	2:A:329:GLY:N	2.73	0.41
2:A:367:TYR:CD1	2:A:405:ILE:HD13	2.54	0.41
2:A:466:PHE:N	2:A:466:PHE:CD1	2.87	0.41
2:A:749:LEU:HD13	2:A:750:VAL:CG2	2.41	0.41
2:A:137:LYS:O	2:A:141:ARG:HB2	2.21	0.41
2:A:162:ALA:O	2:A:166:ILE:HG13	2.20	0.41
2:A:170:MET:O	2:A:173:LYS:N	2.53	0.41
2:A:443:ASN:HD21	2:A:446:ARG:NH2	2.18	0.41
2:A:463:LEU:HG	2:A:525:MET:HE3	2.02	0.41
2:A:564:ASN:HA	2:A:567:ILE:HG22	2.03	0.41
2:A:664:PRO:CG	2:A:746:TYR:CE2	3.03	0.41
2:A:75:ASP:O	2:A:76:PHE:C	2.58	0.41
2:A:828:LYS:HG3	2:A:857:GLN:HB2	2.02	0.41
2:A:239:SER:HB3	2:A:346:ILE:CD1	2.48	0.41
2:A:28:GLN:O	2:A:31:TRP:N	2.54	0.41
2:A:328:PRO:CB	2:A:335:TYR:HA	2.50	0.41
2:A:539:LEU:HA	2:A:545:LEU:CD1	2.51	0.41
2:A:583:LEU:HD23	2:A:584:SER:H	1.85	0.41
2:A:765:GLU:HA	2:A:779:VAL:HG23	2.02	0.41
1:T:12:U:H2'	1:T:13:C:O4'	2.21	0.41
2:A:301:PRO:O	2:A:302:PHE:C	2.58	0.41
2:A:185:TRP:H	2:A:404:VAL:CG1	2.34	0.41
2:A:348:PRO:O	2:A:407:ARG:CD	2.68	0.41
2:A:740:SER:O	2:A:743:THR:HB	2.20	0.41
2:A:747:GLN:O	2:A:748:ILE:C	2.59	0.41
2:A:80:TYR:O	2:A:83:MET:N	2.51	0.41
2:A:823:LYS:HG2	2:A:826:GLU:CD	2.40	0.41
1:T:67:A:C2'	1:T:68:G:O5'	2.69	0.41
2:A:140:ARG:NH2	2:A:149:ASN:HD22	2.19	0.41
2:A:171:ALA:C	2:A:173:LYS:H	2.25	0.41
2:A:210:VAL:HG22	2:A:385:LEU:HD13	2.03	0.41
2:A:367:TYR:CD1	2:A:367:TYR:O	2.74	0.41
2:A:445:VAL:HA	2:A:448:ARG:HB2	2.02	0.41
2:A:539:LEU:HA	2:A:545:LEU:HD12	2.02	0.41
2:A:684:ARG:HB3	2:A:684:ARG:CZ	2.51	0.41
1:T:73:A:H2'	1:T:74:C:H5'	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:116:SER:O	2:A:119:GLU:N	2.54	0.41
2:A:338:GLY:CA	2:A:343:LEU:HD12	2.50	0.41
2:A:477:LYS:HB2	2:A:477:LYS:HE3	1.87	0.41
2:A:79:ARG:HH11	2:A:79:ARG:HG2	1.86	0.41
2:A:482:HIS:HE1	5:A:1014:HOH:O	2.05	0.40
2:A:495:TRP:HD1	2:A:496:PHE:CD2	2.39	0.40
1:T:71:C:O3'	2:A:560:ARG:HD2	2.21	0.40
2:A:24:GLU:CD	2:A:615:ALA:H	2.24	0.40
2:A:727:ILE:HD12	5:A:1063:HOH:O	2.20	0.40
2:A:120:PHE:HD1	2:A:123:LYS:CB	2.34	0.40
2:A:168:GLY:O	2:A:169:GLU:C	2.59	0.40
2:A:229:ILE:HD13	2:A:323:CYS:CB	2.51	0.40
2:A:251:TYR:N	2:A:251:TYR:CD1	2.88	0.40
2:A:304:ASP:C	2:A:306:GLU:H	2.24	0.40
2:A:327:ALA:HB1	2:A:346:ILE:HD11	2.03	0.40
2:A:476:THR:C	2:A:477:LYS:O	2.59	0.40
1:T:35:A:C2'	1:T:36:U:OP1	2.70	0.40
1:T:5:U:H5'	2:A:436:TRP:CE3	2.56	0.40
2:A:120:PHE:CD2	2:A:124:CYS:SG	3.15	0.40
2:A:426:ALA:O	2:A:429:ASN:N	2.54	0.40
2:A:44:ASN:CA	2:A:47:ASN:HD21	2.35	0.40
2:A:74:LYS:HE2	2:A:553:LEU:O	2.21	0.40
2:A:180:LYS:HG2	2:A:409:THR:C	2.41	0.40
2:A:19:GLY:C	2:A:21:PRO:HD2	2.42	0.40
2:A:367:TYR:C	2:A:371:ASN:HD21	2.25	0.40
2:A:367:TYR:CD1	2:A:405:ILE:HG21	2.56	0.40
2:A:781:LEU:HD23	2:A:781:LEU:HA	1.91	0.40
1:T:51:U:H2'	1:T:52:G:C8	2.57	0.40
2:A:112:ARG:HB3	2:A:113:LYS:H	1.47	0.40
2:A:171:ALA:HB1	2:A:475:MET:HE3	2.03	0.40
2:A:610:VAL:O	2:A:614:GLY:HA2	2.22	0.40
2:A:867:GLN:HG3	2:A:868:ALA:N	2.36	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:T:19:G:O2'	2:A:672:SER:O[4_576]	2.19	0.01

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
2	A	878/917 (96%)	572 (65%)	186 (21%)	120 (14%)	<b>0</b> <b>0</b>

All (120) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	45	LYS
2	A	47	ASN
2	A	112	ARG
2	A	114	LYS
2	A	195	GLU
2	A	229	ILE
2	A	248	GLU
2	A	254	TYR
2	A	256	VAL
2	A	263	ILE
2	A	268	SER
2	A	283	LYS
2	A	294	GLU
2	A	295	TRP
2	A	301	PRO
2	A	302	PHE
2	A	304	ASP
2	A	316	THR
2	A	344	PRO
2	A	347	SER
2	A	350	ASP
2	A	376	ASP
2	A	377	LEU
2	A	383	ALA
2	A	421	GLN
2	A	439	THR
2	A	469	GLU
2	A	473	ILE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	506	GLU
2	A	556	SER
2	A	668	SER
2	A	750	VAL
2	A	776	GLU
2	A	824	SER
2	A	843	LEU
2	A	43	LYS
2	A	44	ASN
2	A	116	SER
2	A	147	ASP
2	A	154	THR
2	A	196	ALA
2	A	223	ALA
2	A	234	PRO
2	A	258	GLY
2	A	280	ALA
2	A	281	SER
2	A	293	LEU
2	A	303	LEU
2	A	315	VAL
2	A	340	GLN
2	A	360	GLY
2	A	372	LYS
2	A	379	THR
2	A	381	LYS
2	A	384	LEU
2	A	390	ILE
2	A	472	GLU
2	A	546	SER
2	A	561	GLY
2	A	572	ALA
2	A	599	SER
2	A	606	PRO
2	A	731	GLU
2	A	793	ALA
2	A	840	SER
2	A	113	LYS
2	A	189	SER
2	A	216	ASP
2	A	238	PRO
2	A	308	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	324	VAL
2	A	342	GLU
2	A	349	ILE
2	A	358	GLU
2	A	382	GLY
2	A	415	SER
2	A	440	ARG
2	A	447	ASP
2	A	468	ALA
2	A	485	ASP
2	A	505	PRO
2	A	527	VAL
2	A	543	PRO
2	A	665	ASP
2	A	718	ASN
2	A	778	SER
2	A	806	ASP
2	A	822	GLY
2	A	833	SER
2	A	63	LEU
2	A	260	LYS
2	A	278	ASP
2	A	328	PRO
2	A	356	THR
2	A	373	ALA
2	A	434	VAL
2	A	435	ASN
2	A	446	ARG
2	A	477	LYS
2	A	489	GLU
2	A	497	GLU
2	A	664	PRO
2	A	773	HIS
2	A	808	VAL
2	A	862	ASP
2	A	109	GLY
2	A	217	ASP
2	A	242	ALA
2	A	252	GLY
2	A	380	GLU
2	A	492	SER
2	A	228	ILE

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Mol	Chain	Res	Type
2	A	241	VAL
2	A	339	GLN
2	A	501	LYS
2	A	309	VAL
2	A	101	ILE
2	A	761	VAL
2	A	247	PRO
2	A	245	VAL

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	A	772/806 (96%)	676 (88%)	96 (12%)	<b>4</b> <b>14</b>

All (96) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	11	LYS
2	A	20	LEU
2	A	22	ASN
2	A	47	ASN
2	A	60	ASN
2	A	94	TRP
2	A	95	ASP
2	A	112	ARG
2	A	116	SER
2	A	144	VAL
2	A	149	ASN
2	A	153	ILE
2	A	159	TYR
2	A	160	GLU
2	A	164	ILE
2	A	167	PHE
2	A	189	SER
2	A	200	TYR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	202	ASP
2	A	227	PHE
2	A	233	THR
2	A	234	PRO
2	A	236	THR
2	A	250	LYS
2	A	254	TYR
2	A	273	GLU
2	A	275	LEU
2	A	284	LEU
2	A	295	TRP
2	A	301	PRO
2	A	305	ARG
2	A	306	GLU
2	A	308	LEU
2	A	309	VAL
2	A	317	THR
2	A	325	HIS
2	A	326	THR
2	A	341	TYR
2	A	342	GLU
2	A	345	VAL
2	A	355	PHE
2	A	366	PHE
2	A	367	TYR
2	A	371	ASN
2	A	384	LEU
2	A	389	PHE
2	A	392	HIS
2	A	397	ASP
2	A	398	TRP
2	A	407	ARG
2	A	413	PHE
2	A	422	ASP
2	A	444	MET
2	A	450	GLU
2	A	458	VAL
2	A	466	PHE
2	A	467	TYR
2	A	476	THR
2	A	481	ASN
2	A	485	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	486	LEU
2	A	487	PHE
2	A	493	ASN
2	A	499	GLU
2	A	501	LYS
2	A	526	ASP
2	A	527	VAL
2	A	535	HIS
2	A	544	GLU
2	A	551	MET
2	A	560	ARG
2	A	569	THR
2	A	573	THR
2	A	583	LEU
2	A	602	ASN
2	A	616	ASP
2	A	630	ASP
2	A	644	ASP
2	A	646	ARG
2	A	649	ARG
2	A	666	THR
2	A	681	LEU
2	A	715	GLU
2	A	723	TYR
2	A	732	GLN
2	A	749	LEU
2	A	773	HIS
2	A	807	ASP
2	A	813	GLU
2	A	821	ILE
2	A	830	THR
2	A	831	ILE
2	A	836	LYS
2	A	857	GLN
2	A	869	THR
2	A	875	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	26	GLN
2	A	36	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	A	38	HIS
2	A	47	ASN
2	A	53	HIS
2	A	60	ASN
2	A	62	ASN
2	A	131	GLN
2	A	149	ASN
2	A	240	ASN
2	A	246	HIS
2	A	299	GLN
2	A	339	GLN
2	A	371	ASN
2	A	392	HIS
2	A	396	HIS
2	A	443	ASN
2	A	456	GLN
2	A	481	ASN
2	A	482	HIS
2	A	490	HIS
2	A	493	ASN
2	A	585	HIS
2	A	602	ASN
2	A	612	GLN
2	A	650	ASN
2	A	698	ASN
2	A	706	GLN
2	A	713	ASN
2	A	732	GLN
2	A	736	HIS
2	A	742	GLN
2	A	770	HIS
2	A	773	HIS
2	A	792	GLN
2	A	809	ASN
2	A	851	GLN
2	A	857	GLN
2	A	867	GLN

### 5.3.3 RNA [i](#)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	T	74/75 (98%)	21 (28%)	12 (16%)

All (21) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	T	8	U
1	T	9	A
1	T	10	G
1	T	14	A
1	T	16	G
1	T	17	U
1	T	18	G
1	T	19	G
1	T	20	U
1	T	121(A)	U
1	T	22	G
1	T	34	G
1	T	35	A
1	T	36	U
1	T	37	A
1	T	38	A
1	T	46	G
1	T	48	C
1	T	49	G
1	T	59	G
1	T	61	C

All (12) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	T	7	G
1	T	9	A
1	T	18	G
1	T	19	G
1	T	33	U
1	T	34	G
1	T	36	U
1	T	37	A
1	T	47	U
1	T	48	C

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Mol	Chain	Res	Type
1	T	58	A
1	T	60	U

## 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	MRC	A	993	-	32,36,36	2.25	9 (28%)	36,48,48	1.99	8 (22%)

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
4	MRC	A	993	-	1/1/11/12	13/30/54/54	0/2/2/2

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	993	MRC	C11-C10	-7.01	1.36	1.46
4	A	993	MRC	C8-C7	4.51	1.59	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	993	MRC	O1A-C1	3.92	1.43	1.34
4	A	993	MRC	C9-C8	3.44	1.60	1.53
4	A	993	MRC	C2-C3	3.24	1.39	1.33
4	A	993	MRC	C2-C1	-2.99	1.39	1.46
4	A	993	MRC	C16-C8	2.70	1.55	1.51
4	A	993	MRC	C4-C5	2.35	1.58	1.52
4	A	993	MRC	C9-C10	2.02	1.56	1.52

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	993	MRC	C11-O10-C10	-5.02	57.39	60.59
4	A	993	MRC	C11-C12-C13	4.44	120.59	111.11
4	A	993	MRC	C9-C8-C7	4.23	119.33	113.32
4	A	993	MRC	O1A-C1-C2	4.07	118.98	110.60
4	A	993	MRC	C17-C12-C11	3.87	118.34	111.40
4	A	993	MRC	C9'-O1A-C1	-3.31	110.72	116.58
4	A	993	MRC	C5-C4-C3	2.95	120.99	113.20
4	A	993	MRC	O1A-C1-O1B	-2.13	118.25	122.93

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	993	MRC	C12

All (13) torsion outliers are listed below:

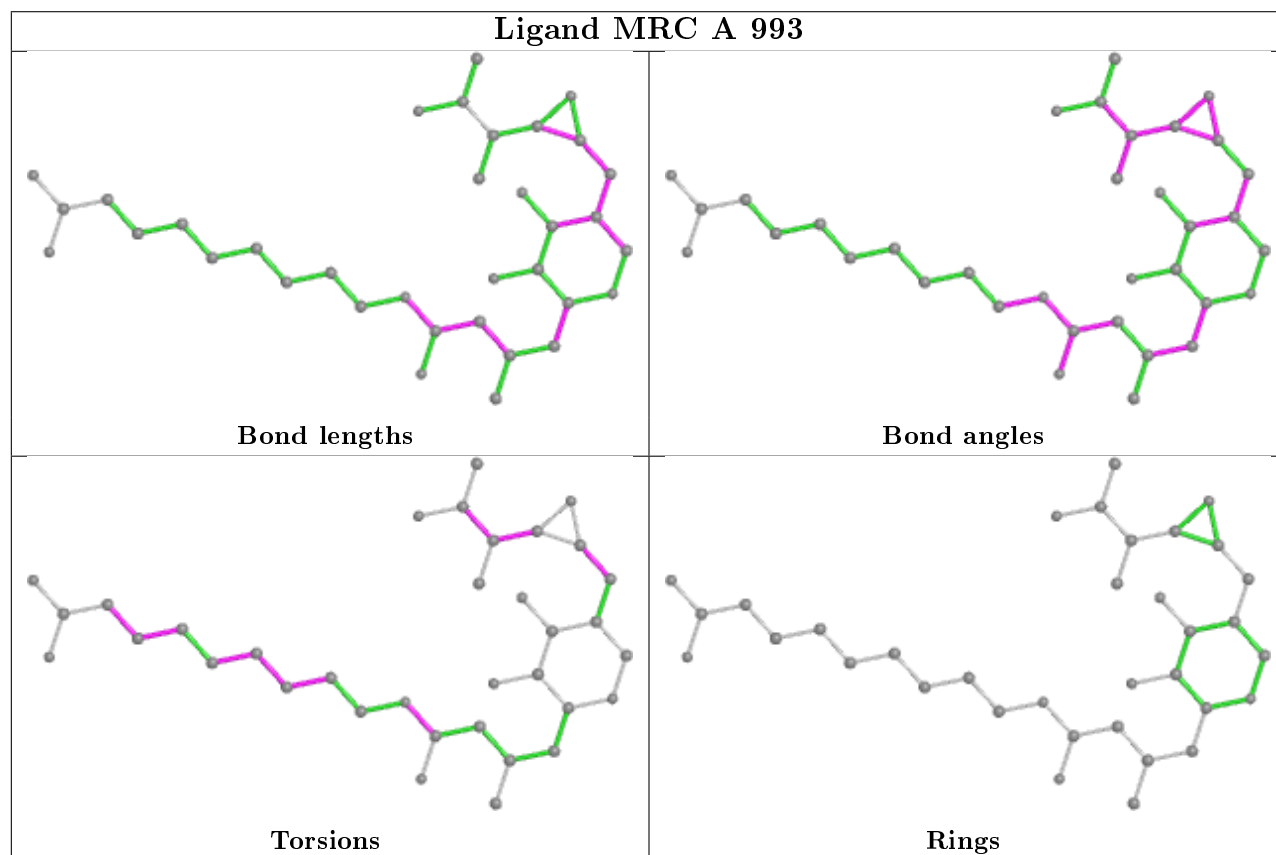
Mol	Chain	Res	Type	Atoms
4	A	993	MRC	C2-C1-O1A-C9'
4	A	993	MRC	O1B-C1-O1A-C9'
4	A	993	MRC	O10-C11-C12-C13
4	A	993	MRC	C1'-C2'-C3'-C4'
4	A	993	MRC	C6'-C7'-C8'-C9'
4	A	993	MRC	C5'-C6'-C7'-C8'
4	A	993	MRC	C2'-C3'-C4'-C5'
4	A	993	MRC	C17-C12-C13-C14
4	A	993	MRC	C4'-C5'-C6'-C7'
4	A	993	MRC	C10-C11-C12-C17
4	A	993	MRC	C11-C12-C13-O13
4	A	993	MRC	C11-C10-C9-C8
4	A	993	MRC	C17-C12-C13-O13

There are no ring outliers.

1 monomer is involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	993	MRC	5	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	T	75/75 (100%)	-0.27	2 (2%) 54 50	5, 30, 78, 100	2 (2%)
2	A	880/917 (95%)	-0.39	17 (1%) 66 65	3, 32, 70, 83	0
All	All	955/992 (96%)	-0.38	19 (1%) 65 63	3, 32, 70, 100	2 (0%)

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	A	2	ASP	4.0
1	T	74	C	3.9
2	A	4	GLU	3.9
2	A	280	ALA	3.7
2	A	3	TYR	3.6
2	A	377	LEU	3.5
2	A	217	ASP	3.1
2	A	279	LYS	2.9
2	A	384	LEU	2.9
2	A	249	LEU	2.9
2	A	218	LYS	2.7
2	A	866	ASP	2.6
2	A	360	GLY	2.4
2	A	6	THR	2.4
1	T	17	U	2.3
2	A	317	THR	2.2
2	A	315	VAL	2.1
2	A	358	GLU	2.1
2	A	470	ASN	2.0

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

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

### 6.3 Carbohydrates [i](#)

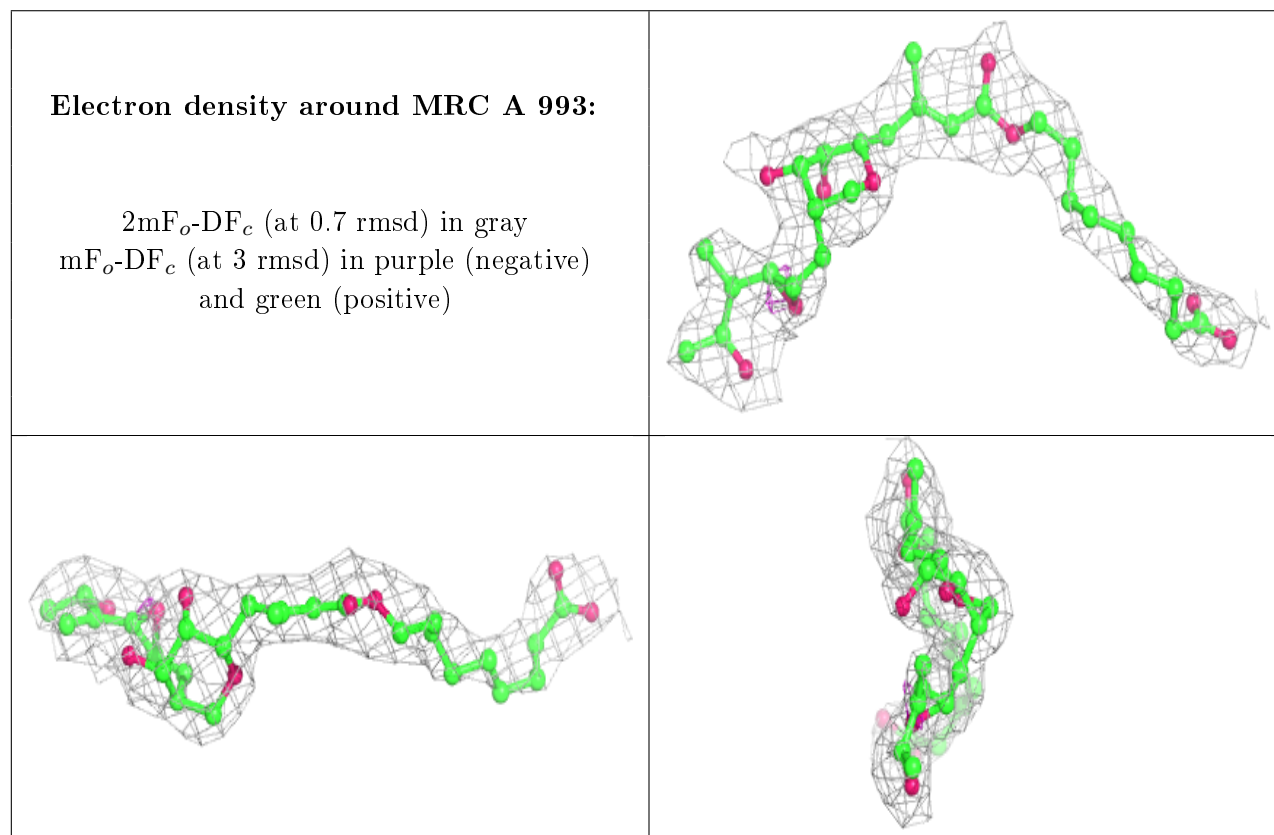
There are no carbohydrates in this entry.

### 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
4	MRC	A	993	35/35	0.90	0.21	22,29,57,58	0
3	ZN	A	992	1/1	1.00	0.04	35,35,35,35	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



## 6.5 Other polymers

There are no such residues in this entry.