



# Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Sep 24, 2018 – 12:46 PM EDT

PDB ID : 5A1A  
EMDB ID: : EMD-2984  
Title : 2.2 Å resolution cryo-EM structure of beta-galactosidase in complex with a cell-permeant inhibitor  
Authors : Bartesaghi, A.; Merk, A.; Banerjee, S.; Matthies, D.; Wu, X.; Milne, J.; Subramaniam, S.  
Deposited on : 2015-04-29  
Resolution : 2.20 Å (reported)

This is a Full wwPDB/EMDatabank EM Map/Model Validation Report for a publicly released PDB/EMDB 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/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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MolProbity : 4.02b-467  
Mogul : 1.7.3 (157068), CSD as539be (2018)  
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : rb-20031172

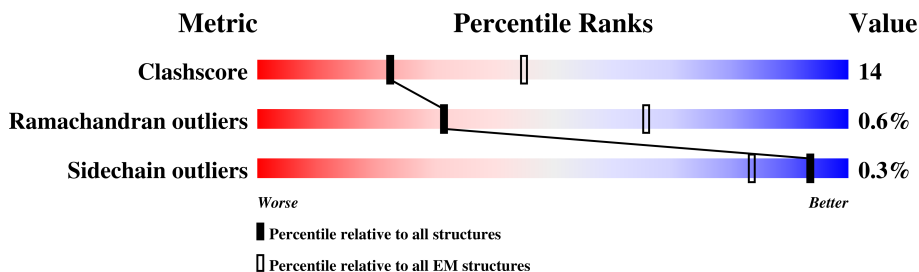
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.20 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	136327	1886
Ramachandran outliers	132723	1663
Sidechain outliers	132532	1531

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	1022	72%	27% .
1	B	1022	71%	28% .
1	C	1022	72%	27% .
1	D	1022	71%	28% .

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
2	PTQ	A	2001	-	-	X	-
2	PTQ	B	2001	-	-	X	-
2	PTQ	C	2001	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	PTQ	D	2001	-	-	X	-

## 2 Entry composition [i](#)

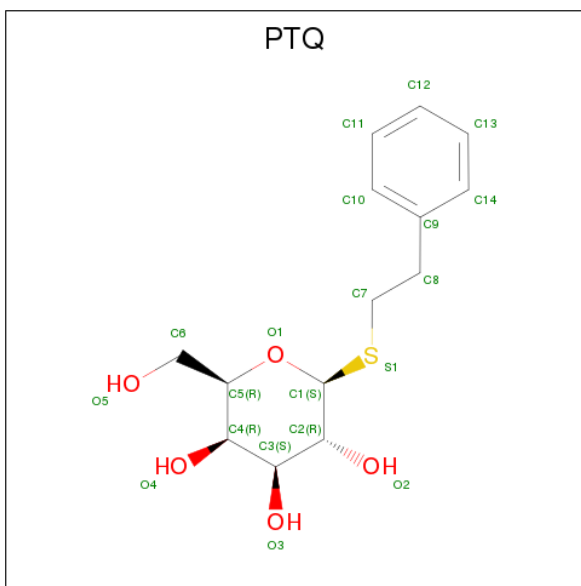
There are 5 unique types of molecules in this entry. The entry contains 33696 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 BETA-GALACTOSIDASE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1022	Total	C	N	O	S	0	0
			8206	5190	1452	1525	39		
1	B	1022	Total	C	N	O	S	0	0
			8206	5190	1452	1525	39		
1	C	1022	Total	C	N	O	S	0	0
			8206	5190	1452	1525	39		
1	D	1022	Total	C	N	O	S	0	0
			8206	5190	1452	1525	39		

- Molecule 2 is 2-phenylethyl 1-thio-beta-D-galactopyranoside (three-letter code: PTQ) (formula: C<sub>14</sub>H<sub>20</sub>O<sub>5</sub>S).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	S	
2	A	1	Total	C	O	S	0
			20	14	5	1	
2	B	1	Total	C	O	S	0
			20	14	5	1	

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Mol	Chain	Residues	Atoms				AltConf
2	C	1	Total	C	O	S	0
			20	14	5	1	
2	D	1	Total	C	O	S	0
			20	14	5	1	

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
3	B	2	Total	Mg	0
			2	2	
3	A	2	Total	Mg	0
			2	2	
3	D	2	Total	Mg	0
			2	2	
3	C	2	Total	Mg	0
			2	2	

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
4	B	2	Total	Na	0
			2	2	
4	A	2	Total	Na	0
			2	2	
4	D	2	Total	Na	0
			2	2	
4	C	2	Total	Na	0
			2	2	

- Molecule 5 is water.

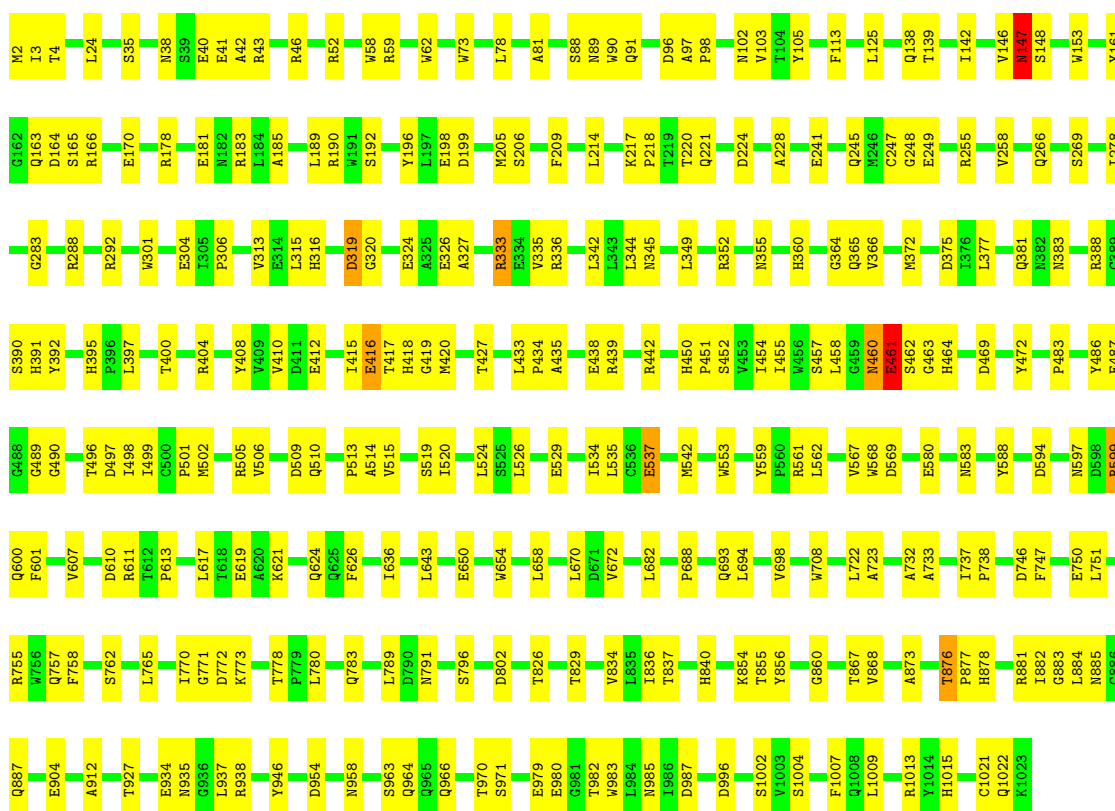
Mol	Chain	Residues	Atoms		AltConf
5	A	194	Total	O	0
			194	194	
5	B	194	Total	O	0
			194	194	
5	C	194	Total	O	0
			194	194	
5	D	194	Total	O	0
			194	194	

### 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. 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.

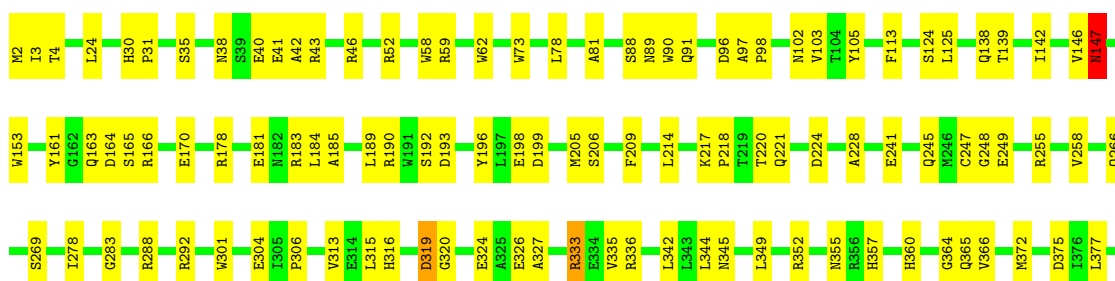
- Molecule 1: BETA-GALACTOSIDASE

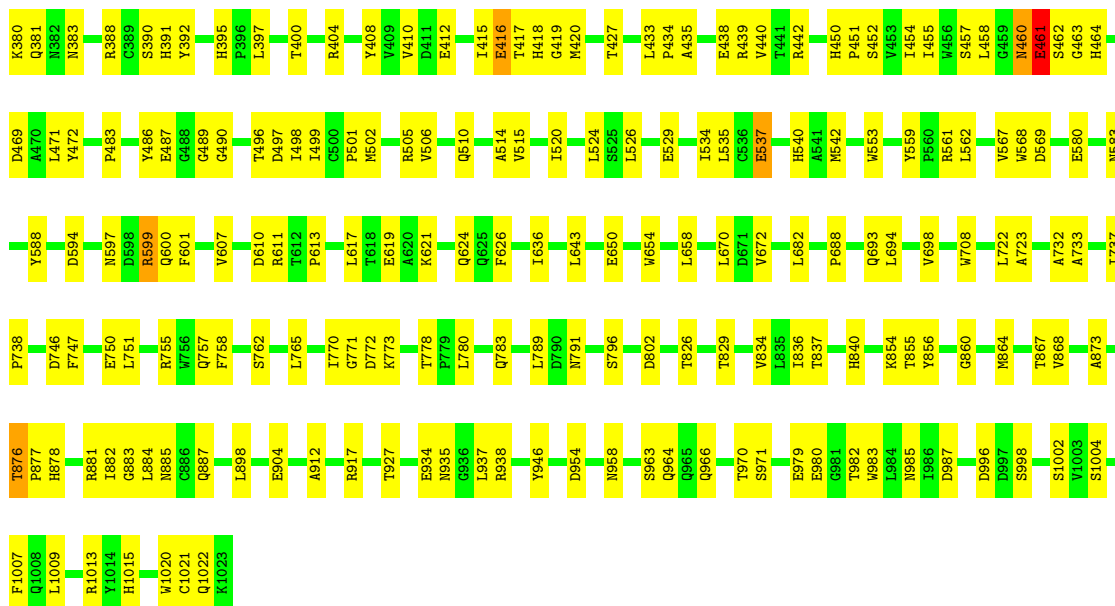
Chain A:  72% 27%



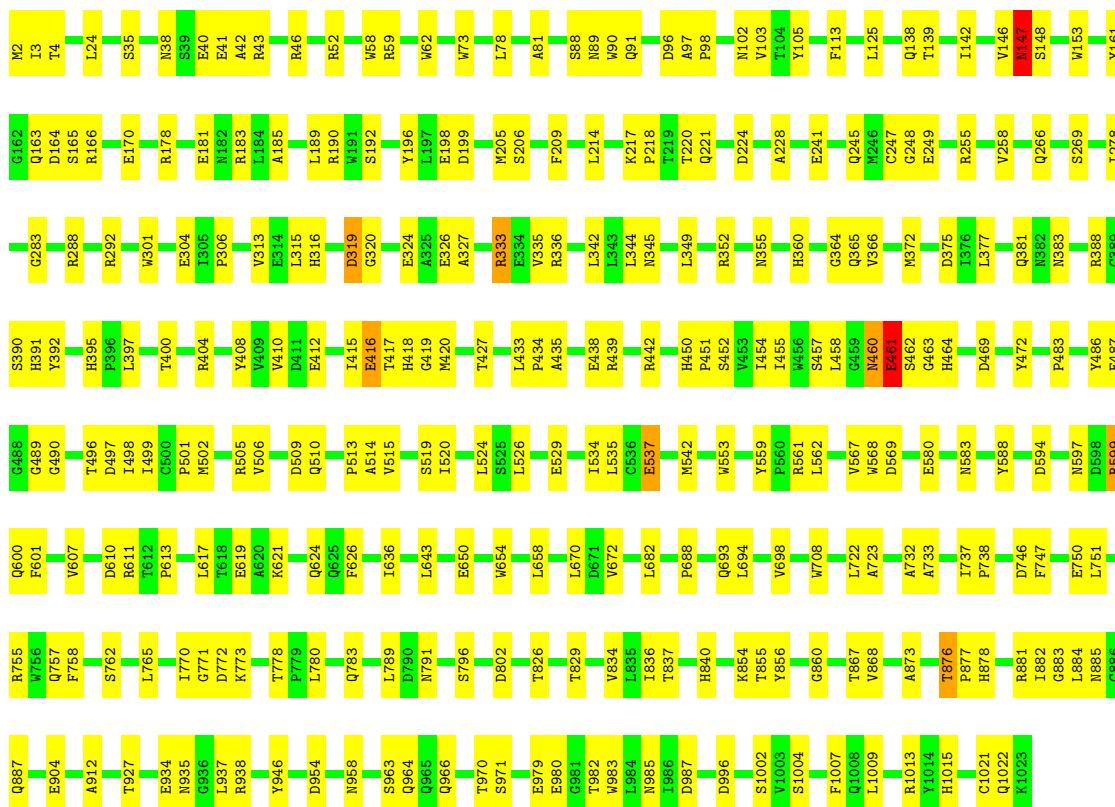
- Molecule 1: BETA-GALACTOSIDASE

Chain B:  71% 28%





• Molecule 1: BETA-GALACTOSIDASE



• Molecule 1: BETA-GALACTOSIDASE







## 4 Experimental information

Property	Value	Source
Reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D2	Depositor
Number of particles used	41123	Depositor
Resolution determination method	Not provided	Depositor
CTF correction method	EACH PARTICLE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	45	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	215000	Depositor
Image detector	GATAN K2 (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: NA, MG, PTQ

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  >2	RMSZ	# Z  >2
1	A	0.40	6/8448 (0.1%)	0.52	14/11526 (0.1%)
1	B	0.40	6/8448 (0.1%)	0.52	14/11526 (0.1%)
1	C	0.40	6/8448 (0.1%)	0.52	14/11526 (0.1%)
1	D	0.40	6/8448 (0.1%)	0.52	14/11526 (0.1%)
All	All	0.40	24/33792 (0.1%)	0.52	56/46104 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3
1	B	0	3
1	C	0	3
1	D	0	3
All	All	0	12

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	146	VAL	C-N	-18.42	0.91	1.34
1	B	146	VAL	C-N	-18.42	0.91	1.34
1	C	146	VAL	C-N	-18.42	0.91	1.34
1	D	146	VAL	C-N	-18.42	0.91	1.34
1	A	461	GLU	C-N	-15.25	0.98	1.34
1	B	461	GLU	C-N	-15.25	0.98	1.34
1	C	461	GLU	C-N	-15.25	0.98	1.34
1	D	461	GLU	C-N	-15.25	0.98	1.34
1	A	139	THR	C-N	-12.93	1.04	1.34
1	B	139	THR	C-N	-12.93	1.04	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	139	THR	C-N	-12.93	1.04	1.34
1	D	139	THR	C-N	-12.93	1.04	1.34
1	A	138	GLN	C-N	10.66	1.58	1.34
1	B	138	GLN	C-N	10.66	1.58	1.34
1	C	138	GLN	C-N	10.66	1.58	1.34
1	D	138	GLN	C-N	10.66	1.58	1.34
1	A	877	PRO	N-CD	5.24	1.55	1.47
1	B	877	PRO	N-CD	5.24	1.55	1.47
1	C	877	PRO	N-CD	5.24	1.55	1.47
1	D	877	PRO	N-CD	5.24	1.55	1.47
1	A	98	PRO	N-CD	5.22	1.55	1.47
1	B	98	PRO	N-CD	5.22	1.55	1.47
1	C	98	PRO	N-CD	5.22	1.55	1.47
1	D	98	PRO	N-CD	5.22	1.55	1.47

All (56) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	461	GLU	O-C-N	19.17	153.38	122.70
1	B	461	GLU	O-C-N	19.17	153.38	122.70
1	C	461	GLU	O-C-N	19.17	153.38	122.70
1	D	461	GLU	O-C-N	19.17	153.38	122.70
1	A	147	ASN	O-C-N	-14.44	99.59	122.70
1	B	147	ASN	O-C-N	-14.44	99.59	122.70
1	C	147	ASN	O-C-N	-14.44	99.59	122.70
1	D	147	ASN	O-C-N	-14.44	99.59	122.70
1	A	461	GLU	CA-C-N	-14.05	86.30	117.20
1	B	461	GLU	CA-C-N	-14.05	86.30	117.20
1	C	461	GLU	CA-C-N	-14.05	86.30	117.20
1	D	461	GLU	CA-C-N	-14.05	86.30	117.20
1	A	146	VAL	C-N-CA	10.45	147.81	121.70
1	B	146	VAL	C-N-CA	10.45	147.81	121.70
1	C	146	VAL	C-N-CA	10.45	147.81	121.70
1	D	146	VAL	C-N-CA	10.45	147.81	121.70
1	A	147	ASN	CA-C-N	9.20	137.44	117.20
1	B	147	ASN	CA-C-N	9.20	137.44	117.20
1	C	147	ASN	CA-C-N	9.20	137.44	117.20
1	D	147	ASN	CA-C-N	9.20	137.44	117.20
1	A	146	VAL	O-C-N	-8.49	109.11	122.70
1	B	146	VAL	O-C-N	-8.49	109.11	122.70
1	C	146	VAL	O-C-N	-8.49	109.11	122.70
1	D	146	VAL	O-C-N	-8.49	109.11	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	460	ASN	O-C-N	-7.77	110.27	122.70
1	B	460	ASN	O-C-N	-7.77	110.27	122.70
1	C	460	ASN	O-C-N	-7.77	110.27	122.70
1	D	460	ASN	O-C-N	-7.77	110.27	122.70
1	A	139	THR	O-C-N	-7.67	110.43	122.70
1	B	139	THR	O-C-N	-7.67	110.43	122.70
1	C	139	THR	O-C-N	-7.67	110.43	122.70
1	D	139	THR	O-C-N	-7.67	110.43	122.70
1	A	461	GLU	C-N-CA	-6.67	105.02	121.70
1	B	461	GLU	C-N-CA	-6.67	105.02	121.70
1	C	461	GLU	C-N-CA	-6.67	105.02	121.70
1	D	461	GLU	C-N-CA	-6.67	105.02	121.70
1	A	147	ASN	C-N-CA	-6.42	105.66	121.70
1	B	147	ASN	C-N-CA	-6.42	105.66	121.70
1	C	147	ASN	C-N-CA	-6.42	105.66	121.70
1	D	147	ASN	C-N-CA	-6.42	105.66	121.70
1	A	146	VAL	CA-C-N	5.80	129.95	117.20
1	B	146	VAL	CA-C-N	5.80	129.95	117.20
1	C	146	VAL	CA-C-N	5.80	129.95	117.20
1	D	146	VAL	CA-C-N	5.80	129.95	117.20
1	A	97	ALA	C-N-CD	5.67	140.30	128.40
1	B	97	ALA	C-N-CD	5.67	140.30	128.40
1	C	97	ALA	C-N-CD	5.67	140.30	128.40
1	D	97	ALA	C-N-CD	5.67	140.30	128.40
1	A	876	THR	C-N-CD	5.50	139.94	128.40
1	B	876	THR	C-N-CD	5.50	139.94	128.40
1	C	876	THR	C-N-CD	5.50	139.94	128.40
1	D	876	THR	C-N-CD	5.50	139.94	128.40
1	A	139	THR	CA-C-N	5.20	128.64	117.20
1	B	139	THR	CA-C-N	5.20	128.64	117.20
1	C	139	THR	CA-C-N	5.20	128.64	117.20
1	D	139	THR	CA-C-N	5.20	128.64	117.20

There are no chirality outliers.

All (12) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	147	ASN	Mainchain
1	A	460	ASN	Mainchain
1	A	882	ILE	Peptide
1	B	147	ASN	Mainchain
1	B	460	ASN	Mainchain

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Mol	Chain	Res	Type	Group
1	B	882	ILE	Peptide
1	C	147	ASN	Mainchain
1	C	460	ASN	Mainchain
1	C	882	ILE	Peptide
1	D	147	ASN	Mainchain
1	D	460	ASN	Mainchain
1	D	882	ILE	Peptide

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	8206	0	7802	218	0
1	B	8206	0	7802	221	0
1	C	8206	0	7802	218	0
1	D	8206	0	7802	218	0
2	A	20	0	18	20	0
2	B	20	0	18	20	0
2	C	20	0	18	20	0
2	D	20	0	18	19	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
4	A	2	0	0	0	0
4	B	2	0	0	0	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
5	A	194	0	0	19	0
5	B	194	0	0	19	0
5	C	194	0	0	19	0
5	D	194	0	0	19	0
All	All	33696	0	31280	878	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 14.

All (878) 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:601:PHE:CG	2:C:2001:PTQ:H11	1.82	1.15
1:A:601:PHE:CG	2:A:2001:PTQ:H11	1.82	1.15
1:D:601:PHE:CG	2:D:2001:PTQ:H11	1.82	1.14
1:B:601:PHE:CG	2:B:2001:PTQ:H11	1.82	1.14
1:B:601:PHE:CD1	2:B:2001:PTQ:H11	1.97	1.00
1:D:601:PHE:CD1	2:D:2001:PTQ:H11	1.97	1.00
1:C:601:PHE:CD1	2:C:2001:PTQ:H11	1.97	0.98
1:A:601:PHE:CD1	2:A:2001:PTQ:H11	1.97	0.98
1:D:420:MET:HE3	5:D:5150:HOH:O	1.69	0.92
1:B:420:MET:HE3	5:B:5150:HOH:O	1.69	0.91
1:A:420:MET:HE3	5:A:5150:HOH:O	1.69	0.91
1:C:420:MET:HE3	5:C:5150:HOH:O	1.69	0.91
1:A:601:PHE:CD2	2:A:2001:PTQ:H11	2.07	0.90
1:C:601:PHE:CD2	2:C:2001:PTQ:H11	2.07	0.90
1:B:601:PHE:CD2	2:B:2001:PTQ:H11	2.07	0.89
1:D:601:PHE:CD2	2:D:2001:PTQ:H11	2.07	0.89
1:B:198:GLU:HG3	1:B:439:ARG:NH1	1.89	0.88
1:D:198:GLU:HG3	1:D:439:ARG:NH1	1.89	0.87
1:A:198:GLU:HG3	1:A:439:ARG:NH1	1.89	0.87
1:C:198:GLU:HG3	1:C:439:ARG:NH1	1.89	0.86
1:D:102:ASN:HD22	2:D:2001:PTQ:C14	1.89	0.85
1:B:102:ASN:HD22	2:B:2001:PTQ:C14	1.89	0.84
1:A:102:ASN:HD22	2:A:2001:PTQ:C14	1.89	0.84
1:C:102:ASN:HD22	2:C:2001:PTQ:C14	1.89	0.84
1:B:420:MET:CE	5:B:5150:HOH:O	2.25	0.81
1:D:420:MET:CE	5:D:5150:HOH:O	2.25	0.81
1:B:415:ILE:HD11	1:B:439:ARG:HB2	1.63	0.80
1:D:415:ILE:HD11	1:D:439:ARG:HB2	1.63	0.80
1:A:415:ILE:HD11	1:A:439:ARG:HB2	1.63	0.80
1:C:415:ILE:HD11	1:C:439:ARG:HB2	1.63	0.80
1:B:352:ARG:HD2	1:B:626:PHE:CZ	2.17	0.80
1:D:352:ARG:HD2	1:D:626:PHE:CZ	2.17	0.80
1:A:352:ARG:HD2	1:A:626:PHE:CZ	2.17	0.79
1:C:352:ARG:HD2	1:C:626:PHE:CZ	2.17	0.79
1:A:420:MET:CE	5:A:5150:HOH:O	2.25	0.77
1:C:420:MET:CE	5:C:5150:HOH:O	2.25	0.77
1:A:442:ARG:NH1	5:A:5095:HOH:O	2.19	0.76
1:C:198:GLU:HG3	1:C:439:ARG:HH12	1.48	0.76
1:C:442:ARG:NH1	5:C:5095:HOH:O	2.19	0.76
1:A:198:GLU:HG3	1:A:439:ARG:HH12	1.48	0.76
1:B:442:ARG:NH1	5:B:5095:HOH:O	2.19	0.74
1:D:442:ARG:NH1	5:D:5095:HOH:O	2.19	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:198:GLU:HG3	1:B:439:ARG:HH12	1.48	0.74
1:D:198:GLU:HG3	1:D:439:ARG:HH12	1.48	0.73
1:A:73:TRP:O	1:A:183:ARG:NH2	2.22	0.73
1:C:73:TRP:O	1:C:183:ARG:NH2	2.22	0.73
1:A:601:PHE:CD1	2:A:2001:PTQ:C11	2.72	0.73
1:B:73:TRP:O	1:B:183:ARG:NH2	2.22	0.73
1:D:73:TRP:O	1:D:183:ARG:NH2	2.22	0.73
1:C:601:PHE:CD1	2:C:2001:PTQ:C11	2.72	0.73
1:B:2:MET:O	1:B:4:THR:N	2.22	0.73
1:B:601:PHE:CD1	2:B:2001:PTQ:C11	2.72	0.72
1:D:2:MET:O	1:D:4:THR:N	2.22	0.72
1:D:601:PHE:CD1	2:D:2001:PTQ:C11	2.72	0.72
1:C:355:ASN:HD21	1:C:388:ARG:HH11	1.37	0.72
1:A:355:ASN:HD21	1:A:388:ARG:HH11	1.37	0.72
1:B:355:ASN:HD21	1:B:388:ARG:HH11	1.37	0.72
1:D:355:ASN:HD21	1:D:388:ARG:HH11	1.37	0.72
1:A:408:TYR:OH	5:A:5098:HOH:O	2.04	0.72
1:C:2:MET:O	1:C:4:THR:N	2.22	0.72
1:A:102:ASN:ND2	2:A:2001:PTQ:C14	2.53	0.71
1:A:2:MET:O	1:A:4:THR:N	2.22	0.71
1:C:102:ASN:ND2	2:C:2001:PTQ:C14	2.53	0.71
1:C:408:TYR:OH	5:C:5098:HOH:O	2.04	0.71
1:A:147:ASN:ND2	1:A:205:MET:O	2.24	0.70
1:C:147:ASN:ND2	1:C:205:MET:O	2.24	0.70
1:D:102:ASN:ND2	2:D:2001:PTQ:C14	2.53	0.70
1:B:102:ASN:ND2	2:B:2001:PTQ:C14	2.53	0.70
1:B:597:ASN:HD22	1:B:599:ARG:H	1.40	0.70
1:D:597:ASN:HD22	1:D:599:ARG:H	1.40	0.70
1:B:147:ASN:ND2	1:B:205:MET:O	2.24	0.69
1:D:147:ASN:ND2	1:D:205:MET:O	2.24	0.69
1:A:505:ARG:HH22	1:A:1002:SER:HA	1.57	0.69
1:C:505:ARG:HH22	1:C:1002:SER:HA	1.57	0.69
1:D:505:ARG:HH22	1:D:1002:SER:HA	1.57	0.69
1:B:505:ARG:HH22	1:B:1002:SER:HA	1.57	0.68
1:B:147:ASN:HB2	1:B:209:PHE:CE1	2.29	0.68
1:D:147:ASN:HB2	1:D:209:PHE:CE1	2.29	0.68
1:A:597:ASN:HD22	1:A:599:ARG:H	1.40	0.68
1:C:610:ASP:N	1:C:611:ARG:HA	2.09	0.68
1:A:610:ASP:N	1:A:611:ARG:HA	2.09	0.68
1:B:610:ASP:N	1:B:611:ARG:HA	2.09	0.68
1:C:597:ASN:HD22	1:C:599:ARG:H	1.40	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:610:ASP:N	1:D:611:ARG:HA	2.09	0.68
1:A:147:ASN:HB2	1:A:209:PHE:CE1	2.29	0.67
1:B:427:THR:HG21	1:B:462:SER:HB3	1.77	0.67
1:D:427:THR:HG21	1:D:462:SER:HB3	1.77	0.67
1:C:147:ASN:HB2	1:C:209:PHE:CE1	2.29	0.67
1:C:427:THR:HG21	1:C:462:SER:HB3	1.77	0.67
1:A:427:THR:HG21	1:A:462:SER:HB3	1.77	0.67
2:C:2001:PTQ:H8	2:C:2001:PTQ:O1	1.93	0.67
2:D:2001:PTQ:H8	2:D:2001:PTQ:O1	1.93	0.67
2:B:2001:PTQ:O1	2:B:2001:PTQ:H8	1.93	0.66
2:A:2001:PTQ:H8	2:A:2001:PTQ:O1	1.93	0.66
1:A:624:GLN:NE2	5:A:5017:HOH:O	2.27	0.66
1:C:624:GLN:NE2	5:C:5017:HOH:O	2.27	0.66
1:B:624:GLN:NE2	5:B:5017:HOH:O	2.27	0.66
1:D:624:GLN:NE2	5:D:5017:HOH:O	2.27	0.65
1:A:442:ARG:NH2	5:A:5095:HOH:O	2.29	0.65
1:C:442:ARG:NH2	5:C:5095:HOH:O	2.29	0.65
1:C:650:GLU:HB2	1:C:670:LEU:HB3	1.79	0.65
1:D:442:ARG:NH2	5:D:5095:HOH:O	2.29	0.65
1:A:650:GLU:HB2	1:A:670:LEU:HB3	1.79	0.65
1:B:38:ASN:HD22	1:B:41:GLU:HG3	1.62	0.65
1:B:442:ARG:NH2	5:B:5095:HOH:O	2.29	0.65
1:D:38:ASN:HD22	1:D:41:GLU:HG3	1.62	0.65
1:A:412:GLU:HA	1:A:457:SER:HB3	1.80	0.64
1:A:636:ILE:HD11	1:A:682:LEU:HD11	1.80	0.64
1:C:412:GLU:HA	1:C:457:SER:HB3	1.80	0.64
1:C:636:ILE:HD11	1:C:682:LEU:HD11	1.80	0.64
1:C:38:ASN:HD22	1:C:41:GLU:HG3	1.62	0.64
1:D:153:TRP:HB2	1:D:185:ALA:HB3	1.79	0.64
1:B:636:ILE:HD11	1:B:682:LEU:HD11	1.80	0.64
1:B:883:GLY:HA2	1:B:987:ASP:HA	1.79	0.64
1:A:38:ASN:HD22	1:A:41:GLU:HG3	1.62	0.64
1:B:153:TRP:HB2	1:B:185:ALA:HB3	1.79	0.64
1:B:658:LEU:HB2	1:B:694:LEU:HD23	1.79	0.64
1:D:636:ILE:HD11	1:D:682:LEU:HD11	1.80	0.64
1:D:658:LEU:HB2	1:D:694:LEU:HD23	1.79	0.64
1:A:658:LEU:HB2	1:A:694:LEU:HD23	1.79	0.64
1:C:658:LEU:HB2	1:C:694:LEU:HD23	1.79	0.64
1:D:883:GLY:HA2	1:D:987:ASP:HA	1.79	0.64
1:D:650:GLU:HB2	1:D:670:LEU:HB3	1.79	0.64
1:B:650:GLU:HB2	1:B:670:LEU:HB3	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:979:GLU:OE1	1:A:983:TRP:NE1	2.31	0.63
1:C:883:GLY:HA2	1:C:987:ASP:HA	1.79	0.63
1:B:979:GLU:OE1	1:B:983:TRP:NE1	2.31	0.63
1:C:979:GLU:OE1	1:C:983:TRP:NE1	2.31	0.63
1:A:883:GLY:HA2	1:A:987:ASP:HA	1.79	0.63
1:D:979:GLU:OE1	1:D:983:TRP:NE1	2.31	0.63
1:C:153:TRP:HB2	1:C:185:ALA:HB3	1.79	0.63
1:B:601:PHE:CE1	2:B:2001:PTQ:H11	2.34	0.63
1:D:601:PHE:CE1	2:D:2001:PTQ:H11	2.34	0.63
1:A:153:TRP:HB2	1:A:185:ALA:HB3	1.79	0.63
1:B:220:THR:HG22	1:B:315:LEU:HD21	1.81	0.63
1:D:220:THR:HG22	1:D:315:LEU:HD21	1.81	0.63
1:A:198:GLU:CG	1:A:439:ARG:NH1	2.63	0.62
1:B:412:GLU:HA	1:B:457:SER:HB3	1.80	0.62
1:C:198:GLU:CG	1:C:439:ARG:NH1	2.63	0.62
1:D:40:GLU:OE2	1:D:43:ARG:NH1	2.31	0.62
1:D:412:GLU:HA	1:D:457:SER:HB3	1.80	0.62
1:A:220:THR:HG22	1:A:315:LEU:HD21	1.81	0.62
1:C:220:THR:HG22	1:C:315:LEU:HD21	1.81	0.62
1:B:40:GLU:OE2	1:B:43:ARG:NH1	2.31	0.62
1:B:408:TYR:OH	5:B:5098:HOH:O	2.04	0.62
1:B:218:PRO:HG2	1:B:324:GLU:HB2	1.82	0.61
1:C:442:ARG:NH1	5:C:5094:HOH:O	2.25	0.61
1:C:601:PHE:CE1	2:C:2001:PTQ:H11	2.34	0.61
1:D:218:PRO:HG2	1:D:324:GLU:HB2	1.82	0.61
1:A:218:PRO:HG2	1:A:324:GLU:HB2	1.82	0.61
1:A:601:PHE:CE1	2:A:2001:PTQ:H11	2.34	0.61
1:D:408:TYR:OH	5:D:5098:HOH:O	2.04	0.61
1:A:442:ARG:NH1	5:A:5094:HOH:O	2.25	0.61
1:C:218:PRO:HG2	1:C:324:GLU:HB2	1.82	0.61
1:D:52:ARG:HG2	1:D:214:LEU:HB2	1.81	0.61
1:B:52:ARG:HG2	1:B:214:LEU:HB2	1.81	0.61
1:D:887:GLN:NE2	1:D:980:GLU:O	2.33	0.61
1:D:198:GLU:CG	1:D:439:ARG:NH1	2.63	0.61
1:B:198:GLU:CG	1:B:439:ARG:NH1	2.63	0.61
1:B:887:GLN:NE2	1:B:980:GLU:O	2.33	0.61
1:A:147:ASN:HA	1:A:165:SER:OG	2.02	0.60
1:C:147:ASN:HA	1:C:165:SER:OG	2.02	0.60
1:C:746:ASP:OD2	1:C:757:GLN:NE2	2.34	0.60
1:A:746:ASP:OD2	1:A:757:GLN:NE2	2.34	0.60
1:D:442:ARG:NH1	5:D:5094:HOH:O	2.25	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:40:GLU:OE2	1:C:43:ARG:NH1	2.31	0.60
1:C:52:ARG:HG2	1:C:214:LEU:HB2	1.81	0.60
1:A:52:ARG:HG2	1:A:214:LEU:HB2	1.81	0.60
1:A:40:GLU:OE2	1:A:43:ARG:NH1	2.31	0.60
1:B:442:ARG:NH1	5:B:5094:HOH:O	2.25	0.60
1:B:746:ASP:OD2	1:B:757:GLN:NE2	2.34	0.59
1:C:381:GLN:NE2	1:C:708:TRP:O	2.35	0.59
1:A:381:GLN:NE2	1:A:708:TRP:O	2.35	0.59
1:B:524:LEU:O	1:B:561:ARG:NH1	2.36	0.59
1:D:524:LEU:O	1:D:561:ARG:NH1	2.36	0.59
1:D:746:ASP:OD2	1:D:757:GLN:NE2	2.34	0.59
1:D:147:ASN:HA	1:D:165:SER:OG	2.02	0.59
1:B:147:ASN:HA	1:B:165:SER:OG	2.02	0.59
1:A:442:ARG:CZ	5:A:5095:HOH:O	2.51	0.59
1:A:791:ASN:ND2	5:A:5065:HOH:O	2.23	0.59
1:B:758:PHE:HA	1:B:765:LEU:HA	1.84	0.59
1:C:442:ARG:CZ	5:C:5095:HOH:O	2.51	0.59
1:D:442:ARG:CZ	5:D:5095:HOH:O	2.51	0.59
1:D:758:PHE:HA	1:D:765:LEU:HA	1.84	0.59
1:B:442:ARG:CZ	5:B:5095:HOH:O	2.51	0.59
1:C:791:ASN:ND2	5:C:5065:HOH:O	2.23	0.59
1:A:166:ARG:HG3	1:A:392:TYR:HB2	1.85	0.58
1:C:166:ARG:HG3	1:C:392:TYR:HB2	1.85	0.58
1:A:524:LEU:O	1:A:561:ARG:NH1	2.36	0.58
1:A:758:PHE:HA	1:A:765:LEU:HA	1.84	0.58
1:C:887:GLN:NE2	1:C:980:GLU:O	2.33	0.58
1:A:887:GLN:NE2	1:A:980:GLU:O	2.33	0.58
1:C:524:LEU:O	1:C:561:ARG:NH1	2.36	0.58
1:C:758:PHE:HA	1:C:765:LEU:HA	1.84	0.58
1:D:166:ARG:HG3	1:D:392:TYR:HB2	1.85	0.58
1:B:166:ARG:HG3	1:B:392:TYR:HB2	1.85	0.58
1:A:499:ILE:HG22	1:A:501:PRO:HD3	1.87	0.57
1:C:499:ILE:HG22	1:C:501:PRO:HD3	1.87	0.57
1:A:105:TYR:CE1	1:A:419:GLY:HA3	2.40	0.57
1:C:105:TYR:CE1	1:C:419:GLY:HA3	2.40	0.57
1:C:487:GLU:HG3	1:C:502:MET:HG3	1.85	0.57
1:A:487:GLU:HG3	1:A:502:MET:HG3	1.85	0.57
1:D:487:GLU:HG3	1:D:502:MET:HG3	1.85	0.57
1:B:487:GLU:HG3	1:B:502:MET:HG3	1.85	0.57
1:A:885:ASN:HB2	1:A:985:ASN:HD22	1.70	0.57
1:B:224:ASP:HB3	1:B:245:GLN:HB2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:161:TYR:OH	1:C:163:GLN:NE2	2.38	0.57
1:D:224:ASP:HB3	1:D:245:GLN:HB2	1.87	0.57
1:B:105:TYR:CE1	1:B:419:GLY:HA3	2.40	0.56
1:C:885:ASN:HB2	1:C:985:ASN:HD22	1.70	0.56
1:D:105:TYR:CE1	1:D:419:GLY:HA3	2.40	0.56
1:D:381:GLN:NE2	1:D:708:TRP:O	2.35	0.56
1:B:770:ILE:HB	1:B:773:LYS:HB3	1.87	0.56
1:B:499:ILE:HG22	1:B:501:PRO:HD3	1.87	0.56
1:D:499:ILE:HG22	1:D:501:PRO:HD3	1.87	0.56
1:D:770:ILE:HB	1:D:773:LYS:HB3	1.87	0.56
1:A:224:ASP:HB3	1:A:245:GLN:HB2	1.87	0.56
1:B:381:GLN:NE2	1:B:708:TRP:O	2.35	0.56
1:C:224:ASP:HB3	1:C:245:GLN:HB2	1.87	0.56
1:D:161:TYR:OH	1:D:163:GLN:NE2	2.38	0.56
1:D:472:TYR:OH	1:D:497:ASP:OD1	2.24	0.56
1:B:161:TYR:OH	1:B:163:GLN:NE2	2.38	0.56
1:B:472:TYR:OH	1:B:497:ASP:OD1	2.24	0.56
1:A:221:GLN:HG3	1:A:247:CYS:HB3	1.88	0.56
1:B:221:GLN:HG3	1:B:247:CYS:HB3	1.88	0.56
1:C:221:GLN:HG3	1:C:247:CYS:HB3	1.88	0.56
1:D:221:GLN:HG3	1:D:247:CYS:HB3	1.88	0.56
1:D:433:LEU:HB3	1:D:434:PRO:HD3	1.88	0.56
1:D:885:ASN:HB2	1:D:985:ASN:HD22	1.70	0.56
1:B:103:VAL:O	1:B:199:ASP:OD2	2.24	0.55
1:A:770:ILE:HB	1:A:773:LYS:HB3	1.87	0.55
1:B:433:LEU:HB3	1:B:434:PRO:HD3	1.88	0.55
1:B:885:ASN:HB2	1:B:985:ASN:HD22	1.70	0.55
1:C:770:ILE:HB	1:C:773:LYS:HB3	1.87	0.55
1:D:103:VAL:O	1:D:199:ASP:OD2	2.24	0.55
1:D:540:HIS:ND1	1:D:998:SER:OG	2.39	0.55
1:A:103:VAL:O	1:A:199:ASP:OD2	2.24	0.55
1:B:540:HIS:ND1	1:B:998:SER:OG	2.39	0.55
1:C:103:VAL:O	1:C:199:ASP:OD2	2.24	0.55
1:A:113:PHE:O	1:A:196:TYR:OH	2.22	0.55
1:C:113:PHE:O	1:C:196:TYR:OH	2.22	0.55
1:C:377:LEU:HD22	1:C:708:TRP:HA	1.88	0.55
1:A:377:LEU:HD22	1:A:708:TRP:HA	1.88	0.55
1:A:301:TRP:CH2	1:A:452:SER:HA	2.42	0.55
1:C:301:TRP:CH2	1:C:452:SER:HA	2.42	0.55
1:C:410:VAL:HG22	1:C:455:ILE:HB	1.89	0.55
1:D:410:VAL:HG22	1:D:455:ILE:HB	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:410:VAL:HG22	1:A:455:ILE:HB	1.89	0.55
1:B:410:VAL:HG22	1:B:455:ILE:HB	1.89	0.55
1:A:161:TYR:OH	1:A:163:GLN:NE2	2.38	0.54
1:A:737:ILE:HD12	1:A:738:PRO:HD2	1.89	0.54
1:C:737:ILE:HD12	1:C:738:PRO:HD2	1.89	0.54
1:B:737:ILE:HD12	1:B:738:PRO:HD2	1.89	0.54
1:C:433:LEU:HB3	1:C:434:PRO:HD3	1.88	0.54
1:A:433:LEU:HB3	1:A:434:PRO:HD3	1.88	0.54
1:B:791:ASN:ND2	5:B:5065:HOH:O	2.23	0.54
1:D:737:ILE:HD12	1:D:738:PRO:HD2	1.89	0.54
1:D:791:ASN:ND2	5:D:5065:HOH:O	2.23	0.54
1:A:747:PHE:HB2	1:A:758:PHE:HB2	1.90	0.54
1:C:747:PHE:HB2	1:C:758:PHE:HB2	1.90	0.54
1:D:747:PHE:HB2	1:D:758:PHE:HB2	1.90	0.54
1:A:636:ILE:HD13	1:A:698:VAL:HG11	1.90	0.54
1:B:747:PHE:HB2	1:B:758:PHE:HB2	1.90	0.54
1:C:636:ILE:HD13	1:C:698:VAL:HG11	1.90	0.54
1:D:352:ARG:NH1	1:D:626:PHE:CE2	2.76	0.54
1:D:198:GLU:CG	1:D:439:ARG:HH12	2.19	0.54
1:D:377:LEU:HD22	1:D:708:TRP:HA	1.88	0.54
1:A:278:ILE:HG23	1:A:283:GLY:HA2	1.90	0.54
1:B:377:LEU:HD22	1:B:708:TRP:HA	1.88	0.54
1:B:198:GLU:CG	1:B:439:ARG:HH12	2.19	0.54
1:B:352:ARG:NH1	1:B:626:PHE:CE2	2.76	0.54
1:C:278:ILE:HG23	1:C:283:GLY:HA2	1.90	0.54
1:B:636:ILE:HD13	1:B:698:VAL:HG11	1.90	0.54
1:D:301:TRP:CH2	1:D:452:SER:HA	2.42	0.54
1:D:636:ILE:HD13	1:D:698:VAL:HG11	1.90	0.54
1:B:301:TRP:CH2	1:B:452:SER:HA	2.42	0.53
1:A:954:ASP:HB3	1:C:1013:ARG:HH22	1.74	0.53
1:A:1013:ARG:HH22	1:C:954:ASP:HB3	1.74	0.53
1:A:601:PHE:CE2	2:A:2001:PTQ:H11	2.42	0.53
1:A:778:THR:HB	1:A:887:GLN:HB3	1.91	0.53
1:B:102:ASN:HD22	2:B:2001:PTQ:C13	2.21	0.53
1:C:198:GLU:CG	1:C:439:ARG:HH12	2.19	0.53
1:C:778:THR:HB	1:C:887:GLN:HB3	1.91	0.53
1:B:954:ASP:HB3	1:D:1013:ARG:HH22	1.74	0.53
1:D:102:ASN:HD22	2:D:2001:PTQ:C13	2.21	0.53
1:B:1013:ARG:HH22	1:D:954:ASP:HB3	1.74	0.53
1:C:601:PHE:CE2	2:C:2001:PTQ:H11	2.42	0.53
1:A:198:GLU:CG	1:A:439:ARG:HH12	2.19	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:352:ARG:NH1	1:A:626:PHE:CE2	2.76	0.53
1:C:619:GLU:HA	1:C:912:ALA:HB2	1.91	0.53
1:A:619:GLU:HA	1:A:912:ALA:HB2	1.91	0.53
1:B:601:PHE:CE2	2:B:2001:PTQ:H11	2.42	0.53
1:C:352:ARG:NH1	1:C:626:PHE:CE2	2.76	0.53
1:B:278:ILE:HG23	1:B:283:GLY:HA2	1.90	0.53
1:B:619:GLU:HA	1:B:912:ALA:HB2	1.91	0.53
1:D:601:PHE:CE2	2:D:2001:PTQ:H11	2.42	0.53
1:D:278:ILE:HG23	1:D:283:GLY:HA2	1.90	0.53
1:C:102:ASN:HD22	2:C:2001:PTQ:C13	2.21	0.53
1:D:59:ARG:NH2	1:D:81:ALA:O	2.42	0.53
1:D:619:GLU:HA	1:D:912:ALA:HB2	1.91	0.53
1:B:59:ARG:NH2	1:B:81:ALA:O	2.42	0.53
1:A:102:ASN:HD22	2:A:2001:PTQ:C13	2.21	0.53
1:D:778:THR:HB	1:D:887:GLN:HB3	1.91	0.53
1:D:796:SER:HB2	1:D:802:ASP:HB3	1.91	0.53
1:A:59:ARG:NH2	1:A:81:ALA:O	2.42	0.52
1:B:526:LEU:HB2	1:B:529:GLU:HG3	1.91	0.52
1:B:778:THR:HB	1:B:887:GLN:HB3	1.91	0.52
1:B:796:SER:HB2	1:B:802:ASP:HB3	1.91	0.52
1:D:526:LEU:HB2	1:D:529:GLU:HG3	1.91	0.52
1:C:59:ARG:NH2	1:C:81:ALA:O	2.42	0.52
1:D:113:PHE:O	1:D:196:TYR:OH	2.22	0.52
1:D:496:THR:OG1	1:D:498:ILE:O	2.24	0.52
1:A:966:GLN:O	1:A:970:THR:OG1	2.25	0.52
1:C:105:TYR:CD1	1:C:419:GLY:HA3	2.45	0.52
1:A:105:TYR:CD1	1:A:419:GLY:HA3	2.45	0.52
1:A:607:VAL:HG12	1:A:613:PRO:HA	1.92	0.52
1:B:607:VAL:HG12	1:B:613:PRO:HA	1.92	0.52
1:C:607:VAL:HG12	1:C:613:PRO:HA	1.92	0.52
1:D:607:VAL:HG12	1:D:613:PRO:HA	1.92	0.52
1:B:496:THR:OG1	1:B:498:ILE:O	2.24	0.52
1:A:526:LEU:HB2	1:A:529:GLU:HG3	1.91	0.52
1:B:1021:CYS:SG	1:B:1022:GLN:N	2.83	0.52
1:B:113:PHE:O	1:B:196:TYR:OH	2.22	0.52
1:D:1021:CYS:SG	1:D:1022:GLN:N	2.83	0.52
1:D:553:TRP:CZ2	1:D:624:GLN:HG2	2.45	0.52
1:A:601:PHE:CE1	2:A:2001:PTQ:C11	2.93	0.52
1:B:553:TRP:CZ2	1:B:624:GLN:HG2	2.45	0.52
1:B:601:PHE:CG	2:B:2001:PTQ:C11	2.75	0.52
1:C:526:LEU:HB2	1:C:529:GLU:HG3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:601:PHE:CE1	2:C:2001:PTQ:C11	2.93	0.52
1:D:105:TYR:CD1	1:D:419:GLY:HA3	2.45	0.52
1:A:553:TRP:CZ2	1:A:624:GLN:HG2	2.45	0.52
1:B:105:TYR:CD1	1:B:419:GLY:HA3	2.45	0.52
1:D:601:PHE:CG	2:D:2001:PTQ:C11	2.75	0.52
1:C:553:TRP:CZ2	1:C:624:GLN:HG2	2.45	0.52
1:B:313:VAL:N	1:B:326:GLU:O	2.40	0.52
1:A:416:GLU:CD	5:A:5078:HOH:O	2.48	0.51
1:B:349:LEU:HA	1:B:643:LEU:HD11	1.92	0.51
1:C:416:GLU:CD	5:C:5078:HOH:O	2.48	0.51
1:C:472:TYR:OH	1:C:497:ASP:OD1	2.24	0.51
1:D:313:VAL:N	1:D:326:GLU:O	2.40	0.51
1:D:349:LEU:H	1:D:349:LEU:HD23	1.75	0.51
1:A:796:SER:HB2	1:A:802:ASP:HB3	1.91	0.51
1:C:796:SER:HB2	1:C:802:ASP:HB3	1.91	0.51
1:D:349:LEU:HA	1:D:643:LEU:HD11	1.92	0.51
1:A:472:TYR:OH	1:A:497:ASP:OD1	2.24	0.51
1:B:349:LEU:HD23	1:B:349:LEU:H	1.75	0.51
1:B:395:HIS:HD2	1:B:397:LEU:H	1.58	0.51
1:D:395:HIS:HD2	1:D:397:LEU:H	1.58	0.51
1:A:1021:CYS:SG	1:A:1022:GLN:N	2.83	0.51
1:D:694:LEU:HD12	1:D:723:ALA:HB3	1.93	0.51
1:A:496:THR:OG1	1:A:498:ILE:O	2.24	0.51
1:B:245:GLN:HG2	1:B:288:ARG:HG2	1.93	0.51
1:B:694:LEU:HD12	1:B:723:ALA:HB3	1.93	0.51
1:D:245:GLN:HG2	1:D:288:ARG:HG2	1.93	0.51
1:B:416:GLU:CD	5:B:5078:HOH:O	2.48	0.51
1:B:966:GLN:O	1:B:970:THR:OG1	2.25	0.51
1:C:1021:CYS:SG	1:C:1022:GLN:N	2.83	0.51
1:C:496:THR:OG1	1:C:498:ILE:O	2.24	0.51
1:A:349:LEU:HA	1:A:643:LEU:HD11	1.92	0.51
1:C:349:LEU:HA	1:C:643:LEU:HD11	1.92	0.51
1:D:416:GLU:CD	5:D:5078:HOH:O	2.48	0.51
1:A:738:PRO:HG3	1:A:751:LEU:HD22	1.93	0.51
1:A:937:LEU:HA	1:A:958:ASN:HB3	1.93	0.51
1:B:693:GLN:NE2	1:B:694:LEU:O	2.37	0.51
1:C:458:LEU:HD11	1:C:472:TYR:HB2	1.93	0.51
1:C:738:PRO:HG3	1:C:751:LEU:HD22	1.93	0.51
1:A:455:ILE:HG12	1:A:483:PRO:HG2	1.93	0.51
1:A:458:LEU:HD11	1:A:472:TYR:HB2	1.93	0.51
1:C:349:LEU:HD23	1:C:349:LEU:H	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:455:ILE:HG12	1:C:483:PRO:HG2	1.93	0.51
1:C:937:LEU:HA	1:C:958:ASN:HB3	1.93	0.51
1:A:245:GLN:HG2	1:A:288:ARG:HG2	1.93	0.50
1:A:349:LEU:H	1:A:349:LEU:HD23	1.75	0.50
1:B:490:GLY:HA2	1:B:515:VAL:HG13	1.93	0.50
1:B:937:LEU:HA	1:B:958:ASN:HB3	1.93	0.50
1:D:490:GLY:HA2	1:D:515:VAL:HG13	1.93	0.50
1:D:937:LEU:HA	1:D:958:ASN:HB3	1.93	0.50
1:A:524:LEU:HD11	1:A:562:LEU:HG	1.93	0.50
1:C:245:GLN:HG2	1:C:288:ARG:HG2	1.93	0.50
1:C:524:LEU:HD11	1:C:562:LEU:HG	1.93	0.50
1:D:693:GLN:NE2	1:D:694:LEU:O	2.37	0.50
1:B:88:SER:HA	1:B:366:VAL:HG21	1.92	0.50
1:C:178:ARG:NH1	1:C:181:GLU:O	2.45	0.50
1:C:345:ASN:ND2	5:C:5124:HOH:O	2.39	0.50
1:D:458:LEU:HD11	1:D:472:TYR:HB2	1.93	0.50
1:A:178:ARG:NH1	1:A:181:GLU:O	2.45	0.50
1:A:490:GLY:HA2	1:A:515:VAL:HG13	1.93	0.50
1:B:1004:SER:HB3	1:B:1007:PHE:HD2	1.77	0.50
1:B:458:LEU:HD11	1:B:472:TYR:HB2	1.93	0.50
1:C:490:GLY:HA2	1:C:515:VAL:HG13	1.93	0.50
1:D:1004:SER:HB3	1:D:1007:PHE:HD2	1.77	0.50
1:D:836:ILE:HG23	1:D:856:TYR:HB2	1.93	0.50
1:A:1004:SER:HB3	1:A:1007:PHE:HD2	1.77	0.50
1:A:313:VAL:N	1:A:326:GLU:O	2.40	0.50
1:A:88:SER:HA	1:A:366:VAL:HG21	1.92	0.50
1:A:694:LEU:HD12	1:A:723:ALA:HB3	1.93	0.50
1:B:601:PHE:CE1	2:B:2001:PTQ:C11	2.93	0.50
1:B:524:LEU:HD11	1:B:562:LEU:HG	1.93	0.50
1:B:836:ILE:HG23	1:B:856:TYR:HB2	1.93	0.50
1:C:395:HIS:HD2	1:C:397:LEU:H	1.58	0.50
1:D:88:SER:HA	1:D:366:VAL:HG21	1.92	0.50
1:D:524:LEU:HD11	1:D:562:LEU:HG	1.93	0.50
1:A:395:HIS:HD2	1:A:397:LEU:H	1.58	0.50
1:A:836:ILE:HG23	1:A:856:TYR:HB2	1.93	0.50
1:C:1004:SER:HB3	1:C:1007:PHE:HD2	1.77	0.50
1:C:313:VAL:N	1:C:326:GLU:O	2.40	0.50
1:C:694:LEU:HD12	1:C:723:ALA:HB3	1.93	0.50
1:A:345:ASN:ND2	5:A:5124:HOH:O	2.39	0.50
1:B:738:PRO:HD3	1:B:860:GLY:HA2	1.93	0.50
1:C:88:SER:HA	1:C:366:VAL:HG21	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:383:ASN:ND2	1:C:621:LYS:O	2.38	0.50
1:C:836:ILE:HG23	1:C:856:TYR:HB2	1.93	0.50
1:D:601:PHE:CE1	2:D:2001:PTQ:C11	2.93	0.50
1:D:738:PRO:HD3	1:D:860:GLY:HA2	1.93	0.50
1:A:738:PRO:HD3	1:A:860:GLY:HA2	1.93	0.50
1:B:30:HIS:ND1	1:B:31:PRO:O	2.31	0.50
1:C:738:PRO:HD3	1:C:860:GLY:HA2	1.93	0.50
1:A:383:ASN:ND2	1:A:621:LYS:O	2.38	0.49
1:B:96:ASP:OD2	1:B:190:ARG:NH1	2.45	0.49
1:B:455:ILE:HG12	1:B:483:PRO:HG2	1.93	0.49
1:A:643:LEU:HD11	5:A:5099:HOH:O	2.12	0.49
1:C:643:LEU:HD11	5:C:5099:HOH:O	2.12	0.49
1:D:455:ILE:HG12	1:D:483:PRO:HG2	1.93	0.49
1:D:96:ASP:OD2	1:D:190:ARG:NH1	2.45	0.49
1:D:30:HIS:ND1	1:D:31:PRO:O	2.31	0.49
1:D:345:ASN:ND2	5:D:5124:HOH:O	2.39	0.49
1:C:62:TRP:NE1	1:C:96:ASP:HB2	2.28	0.49
1:C:96:ASP:OD2	1:C:190:ARG:NH1	2.45	0.49
1:D:103:VAL:HG22	1:D:418:HIS:CE1	2.48	0.49
1:A:62:TRP:NE1	1:A:96:ASP:HB2	2.28	0.49
1:A:96:ASP:OD2	1:A:190:ARG:NH1	2.45	0.49
1:B:103:VAL:HG22	1:B:418:HIS:CE1	2.48	0.49
1:B:738:PRO:HG3	1:B:751:LEU:HD22	1.93	0.49
1:D:738:PRO:HG3	1:D:751:LEU:HD22	1.93	0.49
1:A:228:ALA:HB3	1:A:241:GLU:HG2	1.95	0.49
1:B:345:ASN:ND2	5:B:5124:HOH:O	2.39	0.49
1:C:228:ALA:HB3	1:C:241:GLU:HG2	1.95	0.49
1:B:62:TRP:NE1	1:B:96:ASP:HB2	2.28	0.49
1:D:62:TRP:NE1	1:D:96:ASP:HB2	2.28	0.49
1:A:601:PHE:CG	2:A:2001:PTQ:C11	2.75	0.48
1:B:372:MET:HE2	1:B:372:MET:HB2	1.66	0.48
1:C:601:PHE:CG	2:C:2001:PTQ:C11	2.75	0.48
1:D:178:ARG:NH1	1:D:181:GLU:O	2.45	0.48
1:A:41:GLU:HG2	1:A:46:ARG:HD2	1.95	0.48
1:B:178:ARG:NH1	1:B:181:GLU:O	2.45	0.48
1:C:41:GLU:HG2	1:C:46:ARG:HD2	1.95	0.48
1:D:966:GLN:O	1:D:970:THR:OG1	2.25	0.48
1:B:643:LEU:HD11	5:B:5099:HOH:O	2.12	0.48
1:B:771:GLY:HA3	1:B:772:ASP:C	2.34	0.48
1:D:771:GLY:HA3	1:D:772:ASP:C	2.34	0.48
1:B:383:ASN:ND2	1:B:621:LYS:O	2.38	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:304:GLU:O	5:C:5105:HOH:O	2.20	0.48
1:D:643:LEU:HD11	5:D:5099:HOH:O	2.12	0.48
1:B:780:LEU:HD11	1:B:884:LEU:HB3	1.96	0.48
1:D:780:LEU:HD11	1:D:884:LEU:HB3	1.96	0.48
1:A:304:GLU:O	5:A:5105:HOH:O	2.20	0.48
1:A:103:VAL:HG22	1:A:418:HIS:CE1	2.48	0.48
1:B:568:TRP:HA	1:B:569:ASP:HA	1.57	0.48
1:C:750:GLU:HG2	1:C:755:ARG:HG2	1.96	0.48
1:D:228:ALA:HB3	1:D:241:GLU:HG2	1.95	0.48
1:D:583:ASN:OD1	1:D:583:ASN:N	2.41	0.48
1:D:383:ASN:ND2	1:D:621:LYS:O	2.38	0.48
1:A:750:GLU:HG2	1:A:755:ARG:HG2	1.96	0.48
1:A:762:SER:O	1:A:840:HIS:NE2	2.34	0.48
1:A:771:GLY:HA3	1:A:772:ASP:C	2.34	0.48
1:B:228:ALA:HB3	1:B:241:GLU:HG2	1.95	0.48
1:B:583:ASN:N	1:B:583:ASN:OD1	2.41	0.48
1:B:750:GLU:HG2	1:B:755:ARG:HG2	1.96	0.48
1:C:103:VAL:HG22	1:C:418:HIS:CE1	2.48	0.48
1:C:771:GLY:HA3	1:C:772:ASP:C	2.34	0.48
1:D:372:MET:HB2	1:D:372:MET:HE2	1.66	0.48
1:D:750:GLU:HG2	1:D:755:ARG:HG2	1.96	0.48
1:A:583:ASN:N	1:A:583:ASN:OD1	2.41	0.48
1:C:583:ASN:OD1	1:C:583:ASN:N	2.41	0.48
1:D:304:GLU:O	5:D:5105:HOH:O	2.20	0.48
1:A:780:LEU:HD11	1:A:884:LEU:HB3	1.96	0.47
1:B:762:SER:O	1:B:840:HIS:NE2	2.34	0.47
1:B:78:LEU:CB	5:B:5049:HOH:O	2.62	0.47
1:C:762:SER:O	1:C:840:HIS:NE2	2.34	0.47
1:C:780:LEU:HD11	1:C:884:LEU:HB3	1.96	0.47
1:D:762:SER:O	1:D:840:HIS:NE2	2.34	0.47
1:D:78:LEU:CB	5:D:5049:HOH:O	2.62	0.47
2:B:2001:PTQ:H2	5:B:5037:HOH:O	2.13	0.47
1:B:304:GLU:O	5:B:5105:HOH:O	2.20	0.47
2:D:2001:PTQ:H2	5:D:5037:HOH:O	2.13	0.47
1:D:41:GLU:HG2	1:D:46:ARG:HD2	1.95	0.47
1:B:41:GLU:HG2	1:B:46:ARG:HD2	1.95	0.47
1:A:783:GLN:HE22	1:A:964:GLN:HG3	1.80	0.47
2:C:2001:PTQ:H2	5:C:5037:HOH:O	2.13	0.47
1:C:783:GLN:HE22	1:C:964:GLN:HG3	1.80	0.47
2:A:2001:PTQ:H2	5:A:5037:HOH:O	2.13	0.47
1:D:837:THR:HG23	1:D:855:THR:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:837:THR:HG23	1:B:855:THR:HG22	1.96	0.47
1:A:881:ARG:NH2	1:A:934:GLU:OE1	2.48	0.47
1:B:390:SER:HB2	1:B:391:HIS:CD2	2.50	0.47
1:D:390:SER:HB2	1:D:391:HIS:CD2	2.50	0.47
1:C:881:ARG:NH2	1:C:934:GLU:OE1	2.48	0.47
1:A:878:HIS:HB3	1:A:1009:LEU:O	2.15	0.46
1:A:588:TYR:OH	1:A:971:SER:O	2.29	0.46
1:C:878:HIS:HB3	1:C:1009:LEU:O	2.15	0.46
1:C:24:LEU:HB2	1:C:161:TYR:HB3	1.97	0.46
1:C:390:SER:HA	1:C:391:HIS:HA	1.52	0.46
1:A:390:SER:HB2	1:A:391:HIS:CD2	2.50	0.46
1:A:78:LEU:CB	5:A:5049:HOH:O	2.62	0.46
1:B:450:HIS:HA	1:B:451:PRO:HD2	1.76	0.46
1:B:878:HIS:HB3	1:B:1009:LEU:O	2.15	0.46
1:C:390:SER:HB2	1:C:391:HIS:CD2	2.50	0.46
1:C:613:PRO:HB3	1:C:617:LEU:CD2	2.46	0.46
1:C:78:LEU:CB	5:C:5049:HOH:O	2.62	0.46
1:C:588:TYR:OH	1:C:971:SER:O	2.29	0.46
1:D:450:HIS:HA	1:D:451:PRO:HD2	1.76	0.46
1:D:878:HIS:HB3	1:D:1009:LEU:O	2.15	0.46
1:A:24:LEU:HB2	1:A:161:TYR:HB3	1.97	0.46
1:A:613:PRO:HB3	1:A:617:LEU:CD2	2.46	0.46
1:B:502:MET:HE3	1:B:537:GLU:OE1	2.15	0.46
1:A:196:TYR:O	1:A:417:THR:HG22	2.15	0.46
1:A:506:VAL:HA	1:A:520:ILE:HG12	1.96	0.46
1:C:506:VAL:HA	1:C:520:ILE:HG12	1.96	0.46
1:D:24:LEU:HB2	1:D:161:TYR:HB3	1.97	0.46
1:D:502:MET:HE3	1:D:537:GLU:OE1	2.15	0.46
1:B:559:TYR:HB2	1:B:562:LEU:HD12	1.98	0.46
1:C:196:TYR:O	1:C:417:THR:HG22	2.15	0.46
1:C:502:MET:HE3	1:C:537:GLU:OE1	2.15	0.46
1:D:559:TYR:HB2	1:D:562:LEU:HD12	1.98	0.46
1:D:568:TRP:HA	1:D:569:ASP:HA	1.57	0.46
1:A:688:PRO:HG3	1:A:694:LEU:HD21	1.98	0.46
1:B:24:LEU:HB2	1:B:161:TYR:HB3	1.97	0.46
1:B:601:PHE:CD1	2:B:2001:PTQ:C10	2.99	0.46
1:B:510:GLN:N	1:B:510:GLN:OE1	2.49	0.46
1:B:506:VAL:HA	1:B:520:ILE:HG12	1.96	0.46
1:B:783:GLN:HE22	1:B:964:GLN:HG3	1.80	0.46
1:C:688:PRO:HG3	1:C:694:LEU:HD21	1.98	0.46
1:D:510:GLN:N	1:D:510:GLN:OE1	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:601:PHE:CD1	2:D:2001:PTQ:C10	2.99	0.46
1:A:390:SER:HA	1:A:391:HIS:HA	1.52	0.46
1:A:502:MET:HE3	1:A:537:GLU:OE1	2.16	0.46
1:A:837:THR:HG23	1:A:855:THR:HG22	1.96	0.46
1:C:837:THR:HG23	1:C:855:THR:HG22	1.96	0.46
1:D:506:VAL:HA	1:D:520:ILE:HG12	1.96	0.46
1:D:613:PRO:HB3	1:D:617:LEU:CD2	2.46	0.46
1:B:613:PRO:HB3	1:B:617:LEU:CD2	2.46	0.46
1:B:881:ARG:NH2	1:B:934:GLU:OE1	2.48	0.46
1:D:196:TYR:O	1:D:417:THR:HG22	2.15	0.46
1:D:783:GLN:HE22	1:D:964:GLN:HG3	1.80	0.46
1:A:601:PHE:CD1	2:A:2001:PTQ:C10	2.99	0.46
1:A:501:PRO:HG2	1:A:535:LEU:HD23	1.98	0.46
1:B:196:TYR:O	1:B:417:THR:HG22	2.15	0.46
1:B:873:ALA:O	1:B:876:THR:HG22	2.16	0.46
1:C:501:PRO:HG2	1:C:535:LEU:HD23	1.98	0.46
1:C:610:ASP:N	1:C:610:ASP:OD1	2.41	0.46
1:D:873:ALA:O	1:D:876:THR:HG22	2.16	0.46
1:B:501:PRO:HG2	1:B:535:LEU:HD23	1.98	0.45
1:C:601:PHE:CD1	2:C:2001:PTQ:C10	2.99	0.45
1:D:881:ARG:NH2	1:D:934:GLU:OE1	2.48	0.45
1:B:688:PRO:HG3	1:B:694:LEU:HD21	1.98	0.45
1:D:501:PRO:HG2	1:D:535:LEU:HD23	1.98	0.45
1:A:360:HIS:N	1:A:364:GLY:O	2.40	0.45
1:D:688:PRO:HG3	1:D:694:LEU:HD21	1.98	0.45
1:A:610:ASP:N	1:A:610:ASP:OD1	2.41	0.45
1:A:163:GLN:NE2	1:A:192:SER:OG	2.50	0.45
1:A:248:GLY:HA2	1:A:249:GLU:HB2	1.99	0.45
1:C:163:GLN:NE2	1:C:192:SER:OG	2.50	0.45
1:C:248:GLY:HA2	1:C:249:GLU:HB2	1.99	0.45
1:C:360:HIS:N	1:C:364:GLY:O	2.40	0.45
1:C:510:GLN:N	1:C:510:GLN:OE1	2.49	0.45
1:A:510:GLN:N	1:A:510:GLN:OE1	2.49	0.45
1:A:694:LEU:HB2	1:A:722:LEU:O	2.16	0.45
1:A:464:HIS:HB2	1:A:489:GLY:HA3	1.99	0.45
1:C:464:HIS:HB2	1:C:489:GLY:HA3	1.99	0.45
1:C:694:LEU:HB2	1:C:722:LEU:O	2.16	0.45
1:C:873:ALA:O	1:C:876:THR:HG22	2.16	0.45
1:D:163:GLN:NE2	1:D:192:SER:OG	2.50	0.45
1:D:142:ILE:HG12	1:D:170:GLU:HG2	1.98	0.45
1:A:829:THR:HG22	1:A:834:VAL:HG22	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:163:GLN:NE2	1:B:192:SER:OG	2.50	0.45
1:B:829:THR:HG22	1:B:834:VAL:HG22	1.99	0.45
1:B:958:ASN:OD1	1:B:985:ASN:HB2	2.17	0.45
1:C:829:THR:HG22	1:C:834:VAL:HG22	1.99	0.45
1:D:829:THR:HG22	1:D:834:VAL:HG22	1.99	0.45
1:D:958:ASN:OD1	1:D:985:ASN:HB2	2.17	0.45
1:A:854:LYS:HG2	1:A:868:VAL:HG22	1.99	0.45
1:A:873:ALA:O	1:A:876:THR:HG22	2.16	0.45
1:B:142:ILE:HG12	1:B:170:GLU:HG2	1.98	0.45
1:B:91:GLN:HG3	1:B:96:ASP:O	2.17	0.45
1:C:854:LYS:HG2	1:C:868:VAL:HG22	1.99	0.45
1:C:91:GLN:NE2	1:C:206:SER:OG	2.50	0.45
1:D:91:GLN:HG3	1:D:96:ASP:O	2.17	0.45
1:A:418:HIS:ND1	1:A:461:GLU:OE1	2.50	0.45
1:A:91:GLN:NE2	1:A:206:SER:OG	2.50	0.45
1:B:464:HIS:HB2	1:B:489:GLY:HA3	1.99	0.45
1:B:732:ALA:HA	1:B:733:ALA:HA	1.71	0.45
1:C:198:GLU:HG3	1:C:439:ARG:HH11	1.80	0.45
1:C:418:HIS:ND1	1:C:461:GLU:OE1	2.50	0.45
1:D:355:ASN:HD21	1:D:388:ARG:HD3	1.82	0.45
1:D:464:HIS:HB2	1:D:489:GLY:HA3	1.99	0.45
1:A:91:GLN:HG3	1:A:96:ASP:O	2.17	0.44
1:B:189:LEU:HD12	1:B:189:LEU:N	2.32	0.44
1:C:199:ASP:C	1:C:416:GLU:HG2	2.38	0.44
1:C:91:GLN:HG3	1:C:96:ASP:O	2.17	0.44
1:D:189:LEU:HD12	1:D:189:LEU:N	2.32	0.44
1:A:199:ASP:C	1:A:416:GLU:HG2	2.38	0.44
1:A:559:TYR:HB2	1:A:562:LEU:HD12	1.98	0.44
1:A:958:ASN:OD1	1:A:985:ASN:HB2	2.17	0.44
1:B:355:ASN:HD21	1:B:388:ARG:HD3	1.82	0.44
1:B:694:LEU:HB2	1:B:722:LEU:O	2.16	0.44
1:B:854:LYS:HG2	1:B:868:VAL:HG22	1.99	0.44
1:C:147:ASN:HA	1:C:148:SER:HA	1.69	0.44
1:C:142:ILE:HG12	1:C:170:GLU:HG2	1.98	0.44
1:C:559:TYR:HB2	1:C:562:LEU:HD12	1.98	0.44
1:B:418:HIS:ND1	1:B:461:GLU:OE1	2.50	0.44
1:C:258:VAL:HG22	1:C:313:VAL:HG22	1.99	0.44
1:C:355:ASN:HD21	1:C:388:ARG:HD3	1.82	0.44
1:C:958:ASN:OD1	1:C:985:ASN:HB2	2.17	0.44
1:D:418:HIS:ND1	1:D:461:GLU:OE1	2.50	0.44
1:D:854:LYS:HG2	1:D:868:VAL:HG22	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:142:ILE:HG12	1:A:170:GLU:HG2	1.98	0.44
1:A:198:GLU:HG3	1:A:439:ARG:HH11	1.80	0.44
1:A:355:ASN:HD21	1:A:388:ARG:HD3	1.82	0.44
1:A:670:LEU:HG	1:A:672:VAL:HG23	2.00	0.44
1:C:670:LEU:HG	1:C:672:VAL:HG23	2.00	0.44
1:D:694:LEU:HB2	1:D:722:LEU:O	2.16	0.44
1:D:864:MET:O	1:D:1020:TRP:N	2.43	0.44
1:A:258:VAL:HG22	1:A:313:VAL:HG22	1.99	0.44
1:B:258:VAL:HG22	1:B:313:VAL:HG22	1.99	0.44
1:B:770:ILE:HG22	1:B:771:GLY:H	1.82	0.44
1:C:732:ALA:HA	1:C:733:ALA:HA	1.71	0.44
1:A:147:ASN:HA	1:A:148:SER:HA	1.69	0.44
1:D:35:SER:HB2	1:D:217:LYS:HD3	1.99	0.44
1:A:464:HIS:NE2	1:A:469:ASP:OD1	2.51	0.44
1:A:963:SER:HB3	1:A:983:TRP:CE2	2.53	0.44
1:B:91:GLN:NE2	1:B:206:SER:OG	2.50	0.44
1:B:35:SER:HB2	1:B:217:LYS:HD3	1.99	0.44
1:B:864:MET:O	1:B:1020:TRP:N	2.43	0.44
1:C:464:HIS:NE2	1:C:469:ASP:OD1	2.51	0.44
1:C:963:SER:HB3	1:C:983:TRP:CE2	2.53	0.44
1:D:258:VAL:HG22	1:D:313:VAL:HG22	1.99	0.44
1:D:400:THR:HG22	1:D:404:ARG:HH11	1.83	0.44
1:D:770:ILE:HG22	1:D:771:GLY:H	1.82	0.44
1:B:400:THR:HG22	1:B:404:ARG:HH11	1.83	0.44
1:C:336:ARG:O	1:C:336:ARG:HG3	2.18	0.44
1:D:380:LYS:HE3	1:D:380:LYS:HB3	1.80	0.44
1:A:336:ARG:HG3	1:A:336:ARG:O	2.18	0.44
1:B:248:GLY:HA2	1:B:249:GLU:HB2	1.99	0.44
1:B:336:ARG:HG3	1:B:336:ARG:O	2.18	0.44
1:B:963:SER:HB3	1:B:983:TRP:CE2	2.53	0.44
1:C:996:ASP:H	1:C:1002:SER:HB2	1.83	0.44
1:C:189:LEU:HD12	1:C:189:LEU:N	2.32	0.44
1:D:248:GLY:HA2	1:D:249:GLU:HB2	1.99	0.44
1:D:336:ARG:O	1:D:336:ARG:HG3	2.18	0.44
1:D:610:ASP:OD1	1:D:610:ASP:N	2.41	0.44
1:D:91:GLN:NE2	1:D:206:SER:OG	2.50	0.44
1:D:963:SER:HB3	1:D:983:TRP:CE2	2.53	0.44
1:A:996:ASP:H	1:A:1002:SER:HB2	1.83	0.43
1:A:189:LEU:HD12	1:A:189:LEU:N	2.32	0.43
1:B:996:ASP:H	1:B:1002:SER:HB2	1.83	0.43
1:C:335:VAL:HG21	1:C:454:ILE:HG22	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:THR:HG22	1:A:404:ARG:HH11	1.83	0.43
1:A:335:VAL:HG21	1:A:454:ILE:HG22	2.01	0.43
1:B:463:GLY:O	1:B:486:TYR:OH	2.28	0.43
1:B:464:HIS:NE2	1:B:469:ASP:OD1	2.51	0.43
1:B:773:LYS:HA	1:B:773:LYS:HD2	1.82	0.43
1:B:90:TRP:HE1	1:B:96:ASP:HB3	1.83	0.43
1:C:400:THR:HG22	1:C:404:ARG:HH11	1.83	0.43
1:C:946:TYR:OH	1:C:982:THR:HG21	2.17	0.43
1:D:996:ASP:H	1:D:1002:SER:HB2	1.83	0.43
1:D:946:TYR:OH	1:D:982:THR:HG21	2.17	0.43
1:A:105:TYR:CE2	1:A:196:TYR:HA	2.54	0.43
1:A:732:ALA:HA	1:A:733:ALA:HA	1.71	0.43
1:B:610:ASP:N	1:B:610:ASP:OD1	2.41	0.43
1:C:105:TYR:CE2	1:C:196:TYR:HA	2.54	0.43
1:C:461:GLU:OE2	1:C:502:MET:HE1	2.19	0.43
1:D:464:HIS:NE2	1:D:469:ASP:OD1	2.51	0.43
1:A:770:ILE:HG22	1:A:771:GLY:H	1.82	0.43
1:A:946:TYR:OH	1:A:982:THR:HG21	2.17	0.43
1:B:380:LYS:HE3	1:B:380:LYS:HB3	1.80	0.43
1:B:461:GLU:OE2	1:B:502:MET:HE1	2.18	0.43
1:B:588:TYR:OH	1:B:971:SER:O	2.29	0.43
1:B:946:TYR:OH	1:B:982:THR:HG21	2.17	0.43
1:C:42:ALA:HB1	1:C:327:ALA:HB2	2.01	0.43
1:C:90:TRP:HE1	1:C:96:ASP:HB3	1.83	0.43
1:D:461:GLU:OE2	1:D:502:MET:HE1	2.18	0.43
1:D:90:TRP:HE1	1:D:96:ASP:HB3	1.83	0.43
1:A:42:ALA:HB1	1:A:327:ALA:HB2	2.01	0.43
1:B:105:TYR:CE2	1:B:196:TYR:HA	2.54	0.43
1:B:514:ALA:HB2	1:C:278:ILE:O	2.19	0.43
1:C:770:ILE:HG22	1:C:771:GLY:H	1.82	0.43
1:D:105:TYR:CE2	1:D:196:TYR:HA	2.54	0.43
1:D:198:GLU:HG3	1:D:439:ARG:HH11	1.80	0.43
1:A:278:ILE:O	1:D:514:ALA:HB2	2.19	0.43
1:A:333:ARG:HB2	1:A:344:LEU:HD11	2.00	0.43
1:A:90:TRP:HE1	1:A:96:ASP:HB3	1.83	0.43
1:B:199:ASP:C	1:B:416:GLU:HG2	2.38	0.43
1:B:78:LEU:HB2	5:B:5049:HOH:O	2.19	0.43
1:C:568:TRP:HA	1:C:569:ASP:HA	1.57	0.43
1:D:773:LYS:HA	1:D:773:LYS:HD2	1.82	0.43
1:A:375:ASP:OD2	1:A:611:ARG:NH1	2.52	0.43
1:B:670:LEU:HG	1:B:672:VAL:HG23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:333:ARG:HB2	1:C:344:LEU:HD11	2.00	0.43
1:C:375:ASP:OD2	1:C:611:ARG:NH1	2.52	0.43
1:D:670:LEU:HG	1:D:672:VAL:HG23	2.00	0.43
1:D:78:LEU:HB2	5:D:5049:HOH:O	2.19	0.43
1:D:588:TYR:OH	1:D:971:SER:O	2.29	0.43
1:A:450:HIS:HA	1:A:451:PRO:HD2	1.76	0.43
1:D:199:ASP:C	1:D:416:GLU:HG2	2.38	0.43
1:A:594:ASP:N	1:A:594:ASP:OD1	2.52	0.43
1:A:732:ALA:HB1	1:A:733:ALA:HB2	2.01	0.43
1:B:198:GLU:HG3	1:B:439:ARG:HH11	1.80	0.43
1:B:567:VAL:HG23	5:B:5017:HOH:O	2.19	0.43
1:B:904:GLU:HA	1:B:938:ARG:HD3	2.00	0.43
1:C:35:SER:HB2	1:C:217:LYS:HD3	1.99	0.43
1:C:594:ASP:OD1	1:C:594:ASP:N	2.52	0.43
1:C:732:ALA:HB1	1:C:733:ALA:HB2	2.01	0.43
1:D:567:VAL:HG23	5:D:5017:HOH:O	2.19	0.43
1:A:35:SER:HB2	1:A:217:LYS:HD3	1.99	0.42
1:A:461:GLU:OE2	1:A:502:MET:HE1	2.19	0.42
1:B:319:ASP:H	1:B:320:GLY:CA	2.32	0.42
1:B:335:VAL:HG21	1:B:454:ILE:HG22	2.01	0.42
1:D:319:ASP:H	1:D:320:GLY:CA	2.32	0.42
1:D:335:VAL:HG21	1:D:454:ILE:HG22	2.01	0.42
1:D:333:ARG:HB2	1:D:344:LEU:HD11	2.00	0.42
1:D:904:GLU:HA	1:D:938:ARG:HD3	2.00	0.42
1:A:102:ASN:ND2	2:A:2001:PTQ:C9	2.82	0.42
1:B:102:ASN:ND2	2:B:2001:PTQ:C9	2.82	0.42
1:B:333:ARG:HB2	1:B:344:LEU:HD11	2.00	0.42
1:B:360:HIS:N	1:B:364:GLY:O	2.40	0.42
1:D:102:ASN:ND2	2:D:2001:PTQ:C9	2.82	0.42
1:D:867:THR:HG23	1:D:1015:HIS:HE1	1.83	0.42
1:A:568:TRP:HA	1:A:569:ASP:HA	1.57	0.42
1:A:904:GLU:HA	1:A:938:ARG:HD3	2.00	0.42
1:B:601:PHE:CZ	2:B:2001:PTQ:H11	2.54	0.42
1:B:375:ASP:OD2	1:B:611:ARG:NH1	2.52	0.42
1:C:102:ASN:ND2	2:C:2001:PTQ:C9	2.82	0.42
1:C:450:HIS:HA	1:C:451:PRO:HD2	1.76	0.42
1:C:580:GLU:N	1:C:580:GLU:OE1	2.46	0.42
1:C:904:GLU:HA	1:C:938:ARG:HD3	2.00	0.42
1:D:601:PHE:CZ	2:D:2001:PTQ:H11	2.54	0.42
1:A:514:ALA:HB2	1:D:278:ILE:O	2.19	0.42
1:D:375:ASP:OD2	1:D:611:ARG:NH1	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:867:THR:HG23	1:A:1015:HIS:HE1	1.83	0.42
1:A:319:ASP:H	1:A:320:GLY:CA	2.32	0.42
1:B:42:ALA:HB1	1:B:327:ALA:HB2	2.01	0.42
1:B:867:THR:HG23	1:B:1015:HIS:HE1	1.83	0.42
1:C:867:THR:HG23	1:C:1015:HIS:HE1	1.83	0.42
2:C:2001:PTQ:H7A	2:C:2001:PTQ:H14	1.47	0.42
1:C:319:ASP:H	1:C:320:GLY:CA	2.32	0.42
1:D:42:ALA:HB1	1:D:327:ALA:HB2	2.01	0.42
1:B:278:ILE:O	1:C:514:ALA:HB2	2.19	0.42
1:B:435:ALA:O	1:B:439:ARG:HG2	2.19	0.42
1:D:58:TRP:CZ2	1:D:125:LEU:HD22	2.55	0.42
1:A:58:TRP:CZ2	1:A:125:LEU:HD22	2.55	0.42
1:A:567:VAL:HG23	5:A:5017:HOH:O	2.19	0.42
1:B:58:TRP:CZ2	1:B:125:LEU:HD22	2.55	0.42
1:B:732:ALA:HB1	1:B:733:ALA:HB2	2.01	0.42
1:C:355:ASN:ND2	1:C:388:ARG:HH11	2.11	0.42
1:C:567:VAL:HG23	5:C:5017:HOH:O	2.19	0.42
1:C:58:TRP:CZ2	1:C:125:LEU:HD22	2.55	0.42
5:A:5052:HOH:O	1:D:438:GLU:CD	2.58	0.42
1:D:435:ALA:O	1:D:439:ARG:HG2	2.19	0.42
1:D:732:ALA:HB1	1:D:733:ALA:HB2	2.01	0.42
1:A:241:GLU:HA	1:A:292:ARG:HA	2.02	0.42
1:C:241:GLU:HA	1:C:292:ARG:HA	2.02	0.42
1:C:463:GLY:O	1:C:486:TYR:OH	2.28	0.42
1:D:360:HIS:N	1:D:364:GLY:O	2.40	0.42
1:D:613:PRO:HB3	1:D:617:LEU:HD22	2.02	0.42
2:A:2001:PTQ:H14	2:A:2001:PTQ:H7A	1.47	0.42
1:B:438:GLU:CD	5:C:5052:HOH:O	2.58	0.42
1:B:613:PRO:HB3	1:B:617:LEU:HD22	2.02	0.42
1:A:355:ASN:ND2	1:A:388:ARG:HH11	2.11	0.42
1:B:534:ILE:HG22	5:B:5168:HOH:O	2.19	0.42
1:B:357:HIS:HE2	1:B:568:TRP:HH2	1.66	0.42
1:A:255:ARG:HB2	1:A:316:HIS:CE1	2.55	0.42
1:A:613:PRO:HB3	1:A:617:LEU:HD22	2.02	0.42
1:A:78:LEU:HB2	5:A:5049:HOH:O	2.19	0.42
1:B:352:ARG:HB3	1:B:553:TRP:CH2	2.55	0.42
1:B:927:THR:H	1:B:935:ASN:ND2	2.18	0.42
1:C:255:ARG:HB2	1:C:316:HIS:CE1	2.55	0.42
1:C:78:LEU:HB2	5:C:5049:HOH:O	2.19	0.42
1:D:534:ILE:HG22	5:D:5168:HOH:O	2.19	0.42
1:D:352:ARG:HB3	1:D:553:TRP:CH2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:594:ASP:OD1	1:D:594:ASP:N	2.52	0.42
1:D:927:THR:H	1:D:935:ASN:ND2	2.18	0.42
1:A:463:GLY:O	1:A:486:TYR:OH	2.28	0.41
1:A:927:THR:H	1:A:935:ASN:ND2	2.18	0.41
1:B:390:SER:HA	1:B:391:HIS:HA	1.52	0.41
1:B:594:ASP:OD1	1:B:594:ASP:N	2.52	0.41
1:C:613:PRO:HB3	1:C:617:LEU:HD22	2.02	0.41
1:A:435:ALA:O	1:A:439:ARG:HG2	2.19	0.41
1:A:580:GLU:OE1	1:A:580:GLU:N	2.46	0.41
1:B:601:PHE:CE1	2:B:2001:PTQ:C10	3.03	0.41
1:C:927:THR:H	1:C:935:ASN:ND2	2.18	0.41
1:A:352:ARG:HB3	1:A:553:TRP:CH2	2.55	0.41
1:A:826:THR:O	1:A:836:ILE:HG13	2.21	0.41
1:B:89:ASN:ND2	1:B:365:GLN:H	2.18	0.41
1:C:826:THR:O	1:C:836:ILE:HG13	2.21	0.41
1:D:601:PHE:CE1	2:D:2001:PTQ:C10	3.03	0.41
1:D:89:ASN:ND2	1:D:365:GLN:H	2.18	0.41
1:A:420:MET:HB3	1:A:420:MET:HE2	1.88	0.41
1:A:601:PHE:CE1	2:A:2001:PTQ:C10	3.03	0.41
1:A:693:GLN:NE2	1:A:694:LEU:O	2.37	0.41
1:C:89:ASN:ND2	1:C:365:GLN:H	2.18	0.41
1:C:435:ALA:O	1:C:439:ARG:HG2	2.19	0.41
1:C:352:ARG:HB3	1:C:553:TRP:CH2	2.55	0.41
1:C:601:PHE:CE1	2:C:2001:PTQ:C10	3.03	0.41
1:A:542:MET:HE3	1:A:600:GLN:HG2	2.02	0.41
1:B:255:ARG:HB2	1:B:316:HIS:CE1	2.55	0.41
1:B:420:MET:HB3	1:B:420:MET:HE2	1.88	0.41
1:C:601:PHE:CZ	2:C:2001:PTQ:H11	2.54	0.41
1:C:542:MET:HE3	1:C:600:GLN:HG2	2.02	0.41
1:D:241:GLU:HA	1:D:292:ARG:HA	2.02	0.41
1:D:342:LEU:HG	1:D:349:LEU:HD21	2.03	0.41
1:A:601:PHE:CZ	2:A:2001:PTQ:H11	2.54	0.41
1:A:89:ASN:ND2	1:A:365:GLN:H	2.18	0.41
1:B:342:LEU:HG	1:B:349:LEU:HD21	2.03	0.41
1:B:542:MET:HE3	1:B:600:GLN:HG2	2.02	0.41
1:C:693:GLN:NE2	1:C:694:LEU:O	2.37	0.41
1:D:255:ARG:HB2	1:D:316:HIS:CE1	2.55	0.41
1:B:601:PHE:CE1	2:B:2001:PTQ:H10	2.56	0.41
1:B:241:GLU:HA	1:B:292:ARG:HA	2.02	0.41
1:B:601:PHE:CD1	2:B:2001:PTQ:H10	2.56	0.41
1:C:534:ILE:HG22	5:C:5168:HOH:O	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:601:PHE:CE1	2:D:2001:PTQ:H10	2.56	0.41
1:D:542:MET:HE3	1:D:600:GLN:HG2	2.02	0.41
1:D:601:PHE:CD1	2:D:2001:PTQ:H10	2.56	0.41
1:A:342:LEU:HG	1:A:349:LEU:HD21	2.03	0.41
1:A:372:MET:HB2	1:A:372:MET:HE2	1.66	0.41
1:A:534:ILE:HG22	5:A:5168:HOH:O	2.19	0.41
1:A:783:GLN:NE2	1:A:964:GLN:HG3	2.36	0.41
1:B:580:GLU:N	1:B:580:GLU:OE1	2.46	0.41
1:D:390:SER:HA	1:D:391:HIS:HA	1.52	0.41
1:A:601:PHE:CD1	2:A:2001:PTQ:H10	2.56	0.41
1:B:898:LEU:HB2	1:B:917:ARG:HE	1.86	0.41
1:C:601:PHE:CD1	2:C:2001:PTQ:H10	2.56	0.41
1:C:342:LEU:HG	1:C:349:LEU:HD21	2.03	0.41
1:C:783:GLN:NE2	1:C:964:GLN:HG3	2.36	0.41
1:B:193:ASP:N	1:B:193:ASP:OD1	2.54	0.41
1:B:654:TRP:CE2	1:B:682:LEU:HD22	2.56	0.41
5:B:5052:HOH:O	1:C:438:GLU:CD	2.58	0.41
1:D:193:ASP:OD1	1:D:193:ASP:N	2.54	0.41
1:D:898:LEU:HB2	1:D:917:ARG:HE	1.86	0.41
1:A:266:GLN:NE2	1:A:269:SER:HB2	2.36	0.41
1:B:440:VAL:HG21	1:B:471:LEU:HD23	2.02	0.41
1:B:826:THR:O	1:B:836:ILE:HG13	2.21	0.41
1:D:440:VAL:HG21	1:D:471:LEU:HD23	2.02	0.41
1:D:580:GLU:N	1:D:580:GLU:OE1	2.46	0.41
1:A:438:GLU:CD	5:D:5052:HOH:O	2.58	0.40
1:C:266:GLN:NE2	1:C:269:SER:HB2	2.36	0.40
1:C:773:LYS:HD2	1:C:773:LYS:HA	1.82	0.40
1:D:654:TRP:CE2	1:D:682:LEU:HD22	2.56	0.40
1:D:826:THR:O	1:D:836:ILE:HG13	2.21	0.40
1:A:654:TRP:CE2	1:A:682:LEU:HD22	2.56	0.40
1:C:966:GLN:O	1:C:970:THR:OG1	2.25	0.40
1:A:105:TYR:HE2	1:A:196:TYR:HA	1.85	0.40
1:A:601:PHE:CE1	2:A:2001:PTQ:H10	2.56	0.40
1:A:498:ILE:HG21	1:A:534:ILE:HD12	2.03	0.40
1:A:513:PRO:O	1:A:515:VAL:N	2.51	0.40
1:B:124:SER:HA	1:B:184:LEU:O	2.22	0.40
1:B:789:LEU:HD21	1:B:934:GLU:HB3	2.04	0.40
1:B:927:THR:H	1:B:935:ASN:HD22	1.69	0.40
1:C:105:TYR:HE2	1:C:196:TYR:HA	1.85	0.40
1:C:601:PHE:CE1	2:C:2001:PTQ:H10	2.56	0.40
1:C:372:MET:HE2	1:C:372:MET:HB2	1.66	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:498:ILE:HG21	1:C:534:ILE:HD12	2.03	0.40
1:C:513:PRO:O	1:C:515:VAL:N	2.51	0.40
1:C:654:TRP:CE2	1:C:682:LEU:HD22	2.56	0.40
1:D:789:LEU:HD21	1:D:934:GLU:HB3	2.04	0.40
1:D:927:THR:H	1:D:935:ASN:HD22	1.69	0.40
1:A:103:VAL:HG13	1:A:418:HIS:CG	2.57	0.40
1:A:509:ASP:HB3	1:A:519:SER:N	2.37	0.40
1:A:789:LEU:HD21	1:A:934:GLU:HB3	2.04	0.40
2:B:2001:PTQ:H7A	2:B:2001:PTQ:H14	1.47	0.40
1:B:266:GLN:NE2	1:B:269:SER:HB2	2.36	0.40
1:C:103:VAL:HG13	1:C:418:HIS:CG	2.57	0.40
1:C:509:ASP:HB3	1:C:519:SER:N	2.37	0.40
1:C:789:LEU:HD21	1:C:934:GLU:HB3	2.04	0.40
1:D:124:SER:HA	1:D:184:LEU:O	2.22	0.40
1:D:266:GLN:NE2	1:D:269:SER:HB2	2.36	0.40
1:D:355:ASN:ND2	1:D:388:ARG:HH11	2.11	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	1020/1022 (100%)	974 (96%)	40 (4%)	6 (1%)	27 28
1	B	1020/1022 (100%)	974 (96%)	40 (4%)	6 (1%)	27 28
1	C	1020/1022 (100%)	974 (96%)	40 (4%)	6 (1%)	27 28
1	D	1020/1022 (100%)	974 (96%)	40 (4%)	6 (1%)	27 28
All	All	4080/4088 (100%)	3896 (96%)	160 (4%)	24 (1%)	31 28

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3	ILE
1	A	461	GLU
1	B	3	ILE
1	B	461	GLU
1	C	3	ILE
1	C	461	GLU
1	D	3	ILE
1	D	461	GLU
1	A	164	ASP
1	B	164	ASP
1	C	164	ASP
1	D	164	ASP
1	A	319	ASP
1	B	319	ASP
1	C	319	ASP
1	D	319	ASP
1	A	306	PRO
1	A	599	ARG
1	B	306	PRO
1	B	599	ARG
1	C	306	PRO
1	C	599	ARG
1	D	306	PRO
1	D	599	ARG

### 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	874/874 (100%)	871 (100%)	3 (0%)	93 97
1	B	874/874 (100%)	871 (100%)	3 (0%)	93 97
1	C	874/874 (100%)	871 (100%)	3 (0%)	93 97
1	D	874/874 (100%)	871 (100%)	3 (0%)	93 97
All	All	3496/3496 (100%)	3484 (100%)	12 (0%)	93 97

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	333	ARG
1	A	416	GLU
1	A	537	GLU
1	B	333	ARG
1	B	416	GLU
1	B	537	GLU
1	C	333	ARG
1	C	416	GLU
1	C	537	GLU
1	D	333	ARG
1	D	416	GLU
1	D	537	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (76) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	25	ASN
1	A	38	ASN
1	A	89	ASN
1	A	102	ASN
1	A	163	GLN
1	A	262	GLN
1	A	266	GLN
1	A	355	ASN
1	A	391	HIS
1	A	395	HIS
1	A	573	GLN
1	A	597	ASN
1	A	624	GLN
1	A	653	HIS
1	A	767	GLN
1	A	775	GLN
1	A	935	ASN
1	A	985	ASN
1	A	1015	HIS
1	B	25	ASN
1	B	38	ASN
1	B	89	ASN
1	B	102	ASN
1	B	163	GLN
1	B	262	GLN
1	B	266	GLN
1	B	355	ASN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	391	HIS
1	B	395	HIS
1	B	573	GLN
1	B	597	ASN
1	B	624	GLN
1	B	653	HIS
1	B	767	GLN
1	B	775	GLN
1	B	935	ASN
1	B	985	ASN
1	B	1015	HIS
1	C	25	ASN
1	C	38	ASN
1	C	89	ASN
1	C	102	ASN
1	C	163	GLN
1	C	262	GLN
1	C	266	GLN
1	C	355	ASN
1	C	391	HIS
1	C	395	HIS
1	C	573	GLN
1	C	597	ASN
1	C	624	GLN
1	C	653	HIS
1	C	767	GLN
1	C	775	GLN
1	C	935	ASN
1	C	985	ASN
1	C	1015	HIS
1	D	25	ASN
1	D	38	ASN
1	D	89	ASN
1	D	102	ASN
1	D	163	GLN
1	D	262	GLN
1	D	266	GLN
1	D	355	ASN
1	D	391	HIS
1	D	395	HIS
1	D	573	GLN
1	D	597	ASN

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Mol	Chain	Res	Type
1	D	624	GLN
1	D	653	HIS
1	D	767	GLN
1	D	775	GLN
1	D	935	ASN
1	D	985	ASN
1	D	1015	HIS

### 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 carbohydrates in this entry.

### 5.6 Ligand geometry [i](#)

Of 20 ligands modelled in this entry, 16 are monoatomic - leaving 4 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
2	PTQ	A	2001	4	21,21,21	2.55	4 (19%)	27,28,28	1.40	2 (7%)
2	PTQ	B	2001	4	21,21,21	2.55	4 (19%)	27,28,28	1.40	2 (7%)
2	PTQ	C	2001	4	21,21,21	2.55	4 (19%)	27,28,28	1.40	2 (7%)
2	PTQ	D	2001	4	21,21,21	2.55	4 (19%)	27,28,28	1.40	2 (7%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PTQ	A	2001	4	-	0/8/28/28	0/2/2/2
2	PTQ	B	2001	4	-	0/8/28/28	0/2/2/2
2	PTQ	C	2001	4	-	0/8/28/28	0/2/2/2
2	PTQ	D	2001	4	-	0/8/28/28	0/2/2/2

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2001	PTQ	C7-S1	-2.83	1.77	1.81
2	C	2001	PTQ	C7-S1	-2.83	1.77	1.81
2	B	2001	PTQ	C7-S1	-2.83	1.77	1.81
2	D	2001	PTQ	C7-S1	-2.83	1.77	1.81
2	A	2001	PTQ	C12-C11	5.68	1.51	1.38
2	C	2001	PTQ	C12-C11	5.68	1.51	1.38
2	B	2001	PTQ	C12-C11	5.68	1.51	1.38
2	D	2001	PTQ	C12-C11	5.68	1.51	1.38
2	A	2001	PTQ	C10-C9	6.12	1.51	1.38
2	C	2001	PTQ	C10-C9	6.12	1.51	1.38
2	B	2001	PTQ	C10-C9	6.12	1.51	1.38
2	D	2001	PTQ	C10-C9	6.12	1.51	1.38
2	A	2001	PTQ	C13-C14	6.46	1.51	1.38
2	C	2001	PTQ	C13-C14	6.46	1.51	1.38
2	B	2001	PTQ	C13-C14	6.46	1.51	1.38
2	D	2001	PTQ	C13-C14	6.46	1.51	1.38

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	2001	PTQ	C7-C8-C9	-3.27	108.41	114.05
2	C	2001	PTQ	C7-C8-C9	-3.27	108.41	114.05
2	B	2001	PTQ	C7-C8-C9	-3.27	108.41	114.05
2	D	2001	PTQ	C7-C8-C9	-3.27	108.41	114.05
2	A	2001	PTQ	C7-S1-C1	5.64	109.54	100.13
2	C	2001	PTQ	C7-S1-C1	5.64	109.54	100.13
2	B	2001	PTQ	C7-S1-C1	5.64	109.54	100.13
2	D	2001	PTQ	C7-S1-C1	5.64	109.54	100.13

There are no chirality outliers.

There are no torsion outliers.



There are no ring outliers.

4 monomers are involved in 79 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2001	PTQ	20	0
2	B	2001	PTQ	20	0
2	C	2001	PTQ	20	0
2	D	2001	PTQ	19	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	3
1	A	3
1	D	3
1	C	3

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	139:THR	C	140:ARG	N	1.04
1	B	139:THR	C	140:ARG	N	1.04
1	C	139:THR	C	140:ARG	N	1.04
1	D	139:THR	C	140:ARG	N	1.04
1	A	461:GLU	C	462:SER	N	0.99
1	B	461:GLU	C	462:SER	N	0.99
1	C	461:GLU	C	462:SER	N	0.99
1	D	461:GLU	C	462:SER	N	0.99
1	A	146:VAL	C	147:ASN	N	0.91
1	B	146:VAL	C	147:ASN	N	0.91
1	C	146:VAL	C	147:ASN	N	0.91
1	D	146:VAL	C	147:ASN	N	0.91