



# Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 04:17 AM GMT

PDB ID : 2H5L  
Title : S-Adenosylhomocysteinehydrolase containing NAD and 3-deaza-D-eritadenine  
Authors : Yamada, T.; Komoto, J.; Takusagawa, F.  
Deposited on : 2006-05-26  
Resolution : 2.80 Å(reported)

This is a full wwPDB 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 <http://wwpdb.org/ValidationPDFNotes.html>

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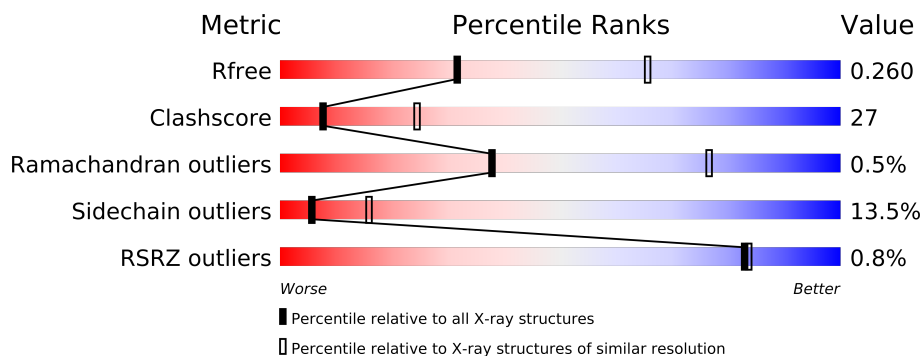
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.15 2013  
Xtriage (Phenix) : dev-1323  
EDS : stable22639  
Percentile statistics : 21963  
Refmac : 5.8.0049  
CCP4 : 6.3.0 (Settle)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : stable22683

# 1 Overall quality at a glance

The reported resolution of this entry is 2.80 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))
$R_{free}$	66092	1799 (2.80-2.80)
Clashscore	79885	2295 (2.80-2.80)
Ramachandran outliers	78287	2252 (2.80-2.80)
Sidechain outliers	78261	2254 (2.80-2.80)
RSRZ outliers	66119	1802 (2.80-2.80)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	431	
1	B	431	
1	C	431	
1	D	431	
1	E	431	
1	F	431	
1	G	431	
1	H	431	

## 2 Entry composition

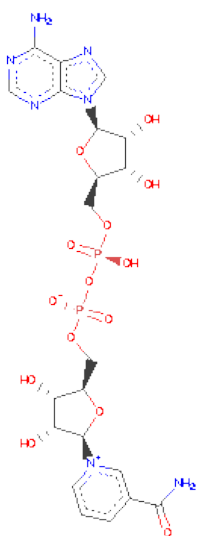
There are 4 unique types of molecules in this entry. The entry contains 27338 atoms, of which 0 are hydrogen and 0 are deuterium.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Adenosylhomocysteinase.

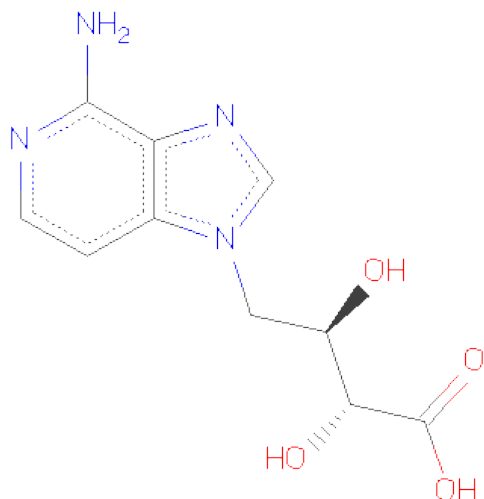
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	B	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	C	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	D	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	E	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	F	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	G	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			
1	H	430	Total	C	N	O	S	0	0	0
			3319	2108	571	615	25			

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: C<sub>21</sub>H<sub>27</sub>N<sub>7</sub>O<sub>14</sub>P<sub>2</sub>).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	C	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	D	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	E	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	F	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	G	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	H	1	Total	C	N	O	P	0	0
			44	21	7	14	2		

- Molecule 3 is (2R,3R)-4-(4-AMINO-1H-IMIDAZO[4,5-C]PYRIDIN-1-YL)-2,3-DIHYDROXYBUTANOICACID (three-letter code: 3DD) (formula: C<sub>10</sub>H<sub>12</sub>N<sub>4</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			18	10	4	4		
3	B	1	Total	C	N	O	0	0
			18	10	4	4		
3	C	1	Total	C	N	O	0	0
			18	10	4	4		
3	D	1	Total	C	N	O	0	0
			18	10	4	4		
3	E	1	Total	C	N	O	0	0
			18	10	4	4		
3	F	1	Total	C	N	O	0	0
			18	10	4	4		
3	G	1	Total	C	N	O	0	0
			18	10	4	4		
3	H	1	Total	C	N	O	0	0
			18	10	4	4		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	47	Total	O	0	0
			47	47		
4	B	30	Total	O	0	0
			30	30		
4	C	28	Total	O	0	0
			28	28		
4	D	34	Total	O	0	0
			34	34		

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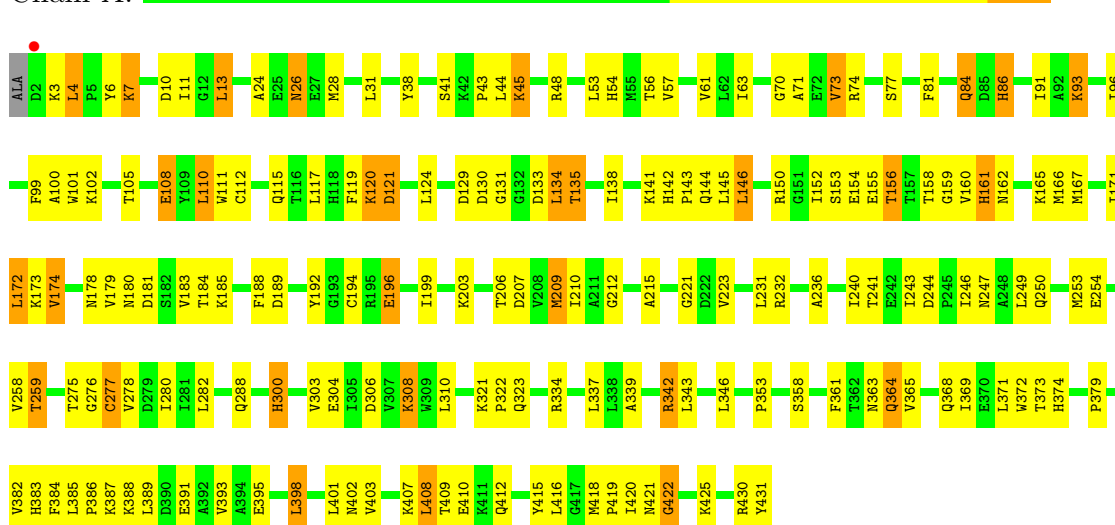
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	E	53	Total 53	O 53	0	0
4	F	35	Total 35	O 35	0	0
4	G	33	Total 33	O 33	0	0
4	H	30	Total 30	O 30	0	0

### 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 errors 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.

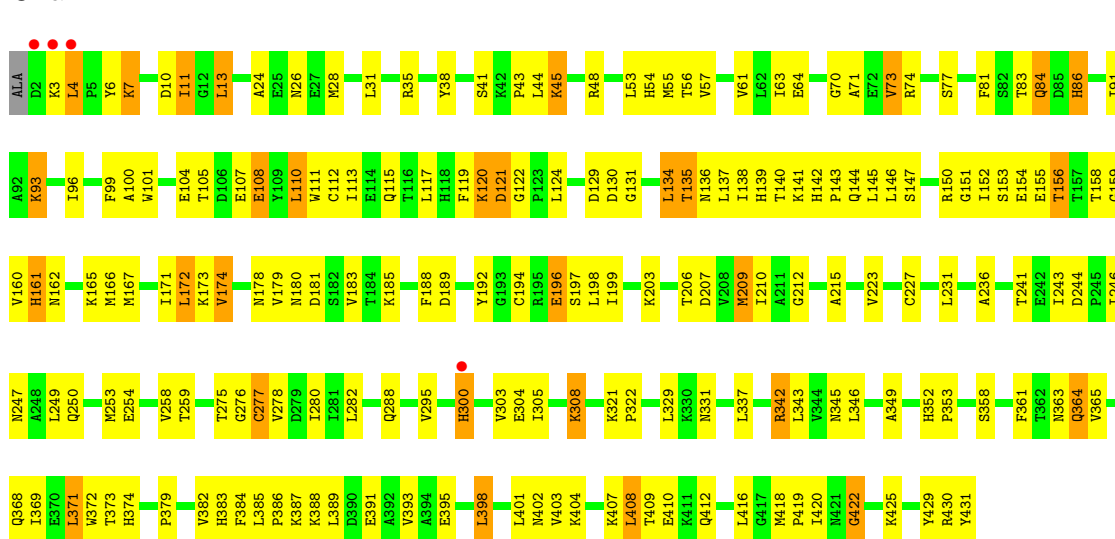
#### • Molecule 1: Adenosylhomocysteinase

Chain A:



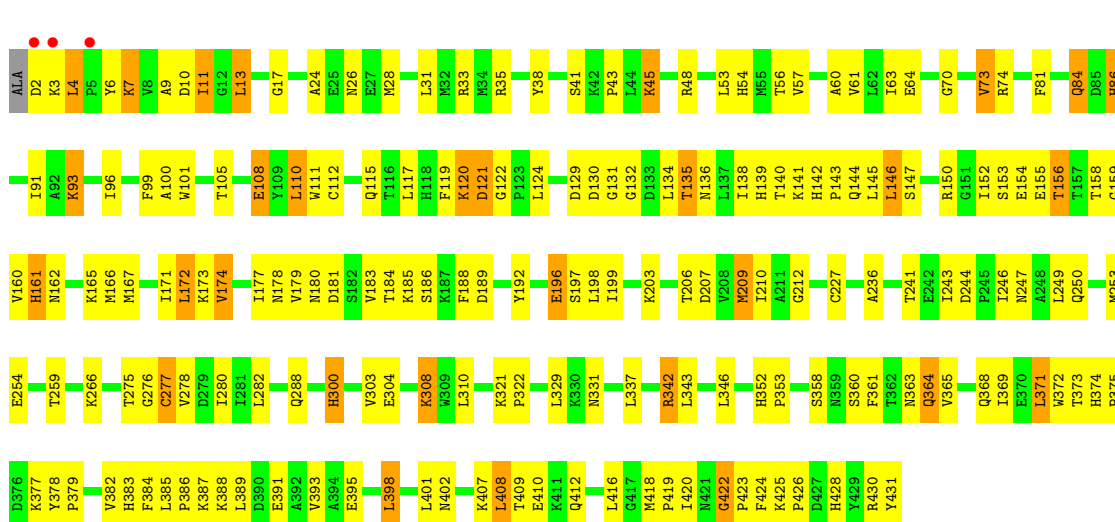
#### • Molecule 1: Adenosylhomocysteinase

Chain B:



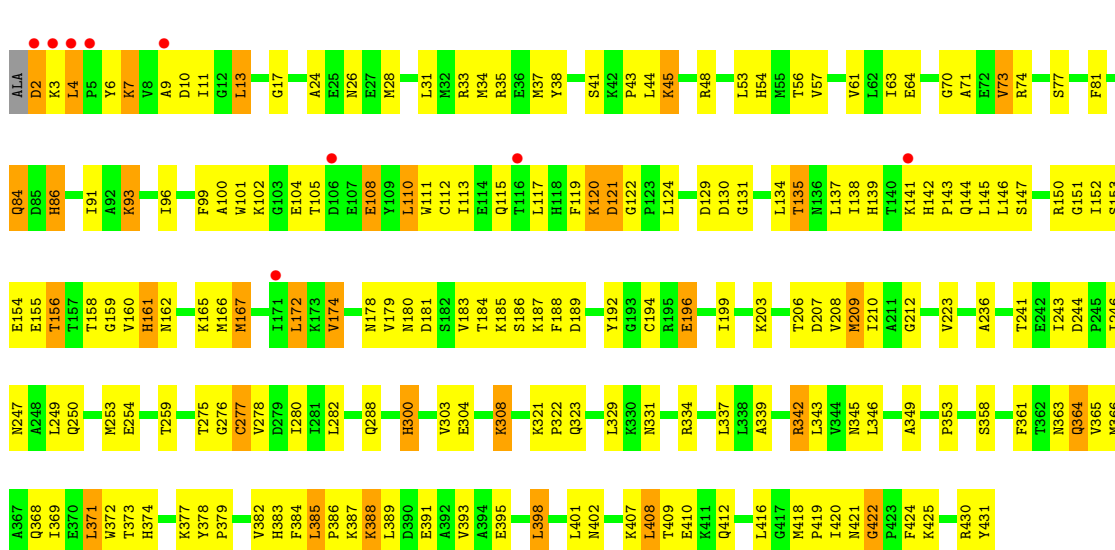
#### • Molecule 1: Adenosylhomocysteinase

Chain C:



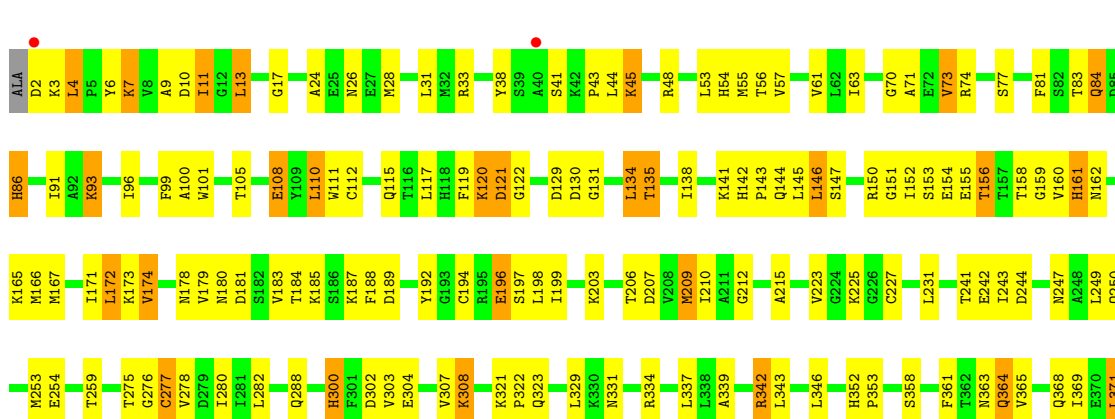
- Molecule 1: Adenosylhomocysteinase

## Chain D:



- Molecule 1: Adenosylhomocysteinase

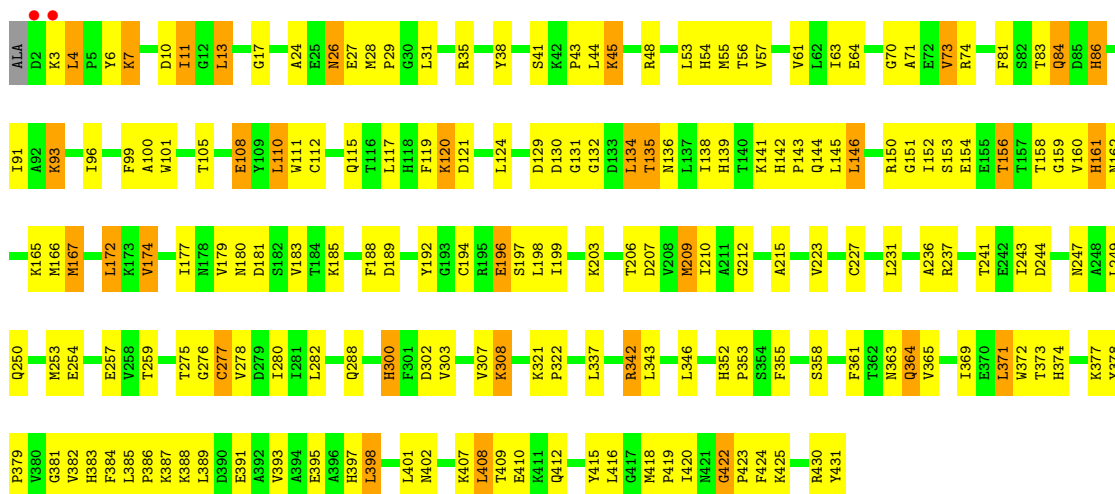
Chain E:





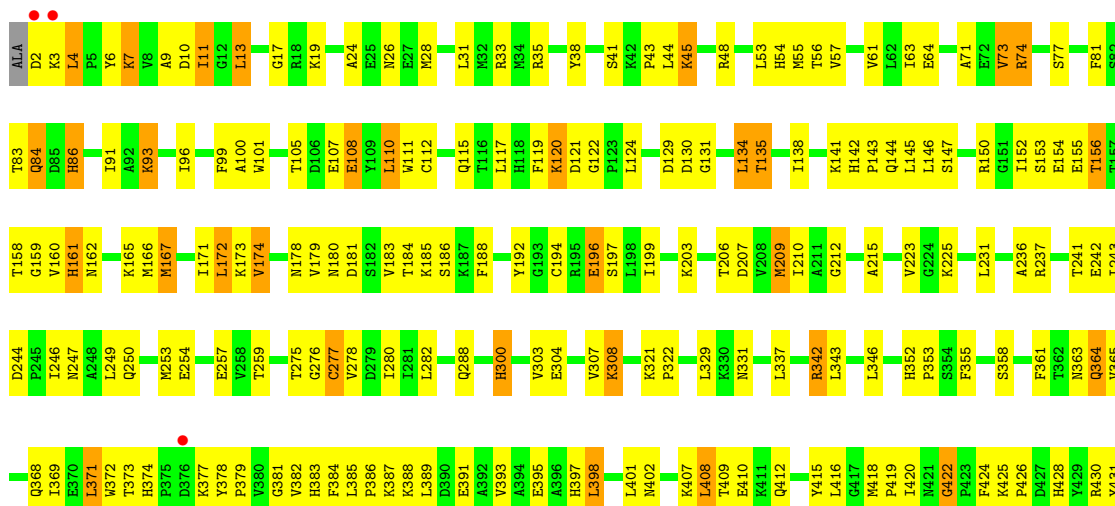
• Molecule 1: Adenosylhomocysteinase

Chain F:



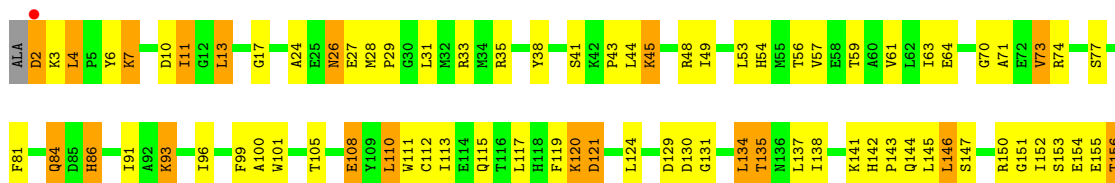
• Molecule 1: Adenosylhomocysteinase

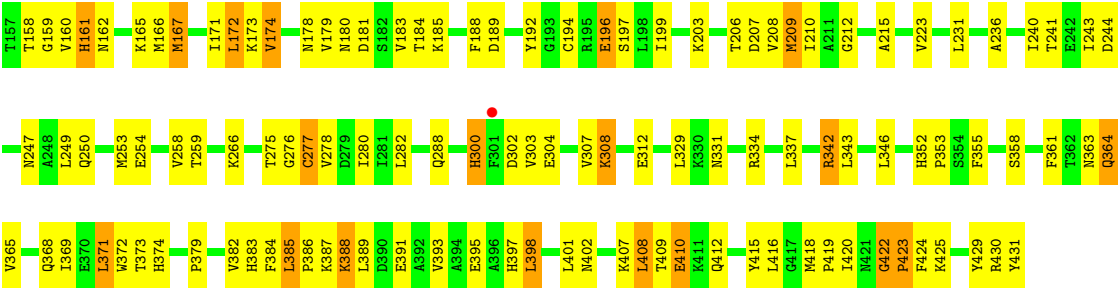
Chain G:



• Molecule 1: Adenosylhomocysteinase

Chain H:





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	90.50Å 178.60Å 112.66Å 90.00° 107.90° 90.00°	Depositor
Resolution (Å)	10.00 – 2.80 91.92 – 2.78	Depositor EDS
% Data completeness (in resolution range)	(Not available) (10.00-2.80) 92.3 (91.92-2.78)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.31 (at 2.77Å)	Xtriage
Refinement program	X-PLOR 98.0	Depositor
R, $R_{free}$	0.248 , 0.283 0.229 , 0.260	Depositor DCC
$R_{free}$ test set	7705 reflections (10.06%)	DCC
Wilson B-factor (Å <sup>2</sup> )	21.5	Xtriage
Anisotropy	0.602	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.18 , -10.0	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	2 of 78969 reflections (0.003%)	Xtriage
$F_o, F_c$ correlation	0.89	EDS
Total number of atoms	27338	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	6.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 17.76% of the height of the origin peak. No significant pseudotranslation is detected.*

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

## 5 Model quality

### 5.1 Standard geometry

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z  > 5$	RMSZ	$\# Z  > 5$
1	A	0.39	0/3384	0.60	0/4579
1	B	0.39	0/3384	0.60	0/4579
1	C	0.39	0/3384	0.61	0/4579
1	D	0.40	0/3384	0.61	0/4579
1	E	0.38	0/3384	0.61	0/4579
1	F	0.39	0/3384	0.61	0/4579
1	G	0.38	0/3384	0.61	0/4579
1	H	0.38	0/3384	0.61	0/4579
All	All	0.39	0/27072	0.61	0/36632

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3319	0	3341	193	0
1	B	3319	0	3341	205	0
1	C	3319	0	3341	198	0
1	D	3319	0	3341	207	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	3319	0	3341	195	0
1	F	3319	0	3341	187	0
1	G	3319	0	3341	200	0
1	H	3319	0	3341	199	0
2	A	44	0	26	6	0
2	B	44	0	26	5	0
2	C	44	0	26	6	0
2	D	44	0	26	6	0
2	E	44	0	26	6	0
2	F	44	0	26	5	0
2	G	44	0	26	5	0
2	H	44	0	26	4	0
3	A	18	0	11	0	0
3	B	18	0	11	0	0
3	C	18	0	11	0	0
3	D	18	0	11	0	0
3	E	18	0	11	0	0
3	F	18	0	11	0	0
3	G	18	0	11	0	0
3	H	18	0	11	0	0
4	A	47	0	0	2	0
4	B	30	0	0	1	0
4	C	28	0	0	2	0
4	D	34	0	0	10	0
4	E	53	0	0	1	0
4	F	35	0	0	1	0
4	G	33	0	0	3	0
4	H	30	0	0	2	0
All	All	27338	0	27024	1480	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 27.

All (1480) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:105:THR:H	1:G:108:GLU:HG3	1.18	1.08
1:F:275:THR:HG22	1:F:277:CYS:H	1.18	1.08
1:B:275:THR:HG22	1:B:277:CYS:H	1.16	1.08
1:E:275:THR:HG22	1:E:277:CYS:H	1.13	1.07
1:C:275:THR:HG22	1:C:277:CYS:H	1.17	1.07
1:D:105:THR:H	1:D:108:GLU:HG3	1.17	1.07
1:H:275:THR:HG22	1:H:277:CYS:H	1.18	1.07

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:275:THR:HG22	1:G:277:CYS:H	1.16	1.06
1:C:105:THR:H	1:C:108:GLU:HG3	1.21	1.05
1:B:105:THR:H	1:B:108:GLU:HG3	1.16	1.05
1:D:275:THR:HG22	1:D:277:CYS:H	1.19	1.04
1:A:275:THR:HG22	1:A:277:CYS:H	1.20	1.04
1:A:105:THR:H	1:A:108:GLU:HG3	1.22	1.03
1:A:7:LYS:HZ3	1:A:101:TRP:HE3	1.06	1.03
1:E:105:THR:H	1:E:108:GLU:HG3	1.23	1.02
1:F:105:THR:H	1:F:108:GLU:HG3	1.22	1.01
1:C:7:LYS:HZ3	1:C:101:TRP:HE3	1.07	0.97
1:H:105:THR:H	1:H:108:GLU:HG3	1.26	0.97
1:D:7:LYS:HZ3	1:D:101:TRP:HE3	1.09	0.96
1:G:7:LYS:HZ3	1:G:101:TRP:HE3	1.09	0.95
1:B:7:LYS:HZ3	1:B:101:TRP:HE3	1.04	0.95
1:B:156:THR:HG23	1:B:159:GLY:H	1.32	0.94
1:G:156:THR:HG23	1:G:159:GLY:H	1.31	0.94
1:D:156:THR:HG23	1:D:159:GLY:H	1.32	0.94
1:H:156:THR:HG23	1:H:159:GLY:H	1.32	0.93
1:E:156:THR:HG23	1:E:159:GLY:H	1.32	0.93
1:D:300:HIS:H	2:D:432:NAD:H1D	1.34	0.92
1:C:156:THR:HG23	1:C:159:GLY:H	1.33	0.92
1:F:156:THR:HG23	1:F:159:GLY:H	1.32	0.92
1:A:300:HIS:H	2:A:432:NAD:H1D	1.33	0.92
1:H:7:LYS:HZ3	1:H:101:TRP:HE3	1.12	0.92
1:A:156:THR:HG23	1:A:159:GLY:H	1.32	0.92
1:F:7:LYS:HZ3	1:F:101:TRP:HE3	1.08	0.92
1:H:300:HIS:H	2:H:432:NAD:H1D	1.33	0.91
1:A:308:LYS:HD2	1:A:308:LYS:H	1.36	0.90
1:E:7:LYS:HZ3	1:E:101:TRP:HE3	1.13	0.90
1:C:300:HIS:H	2:C:432:NAD:H1D	1.36	0.90
1:G:300:HIS:H	2:G:432:NAD:H1D	1.34	0.90
1:F:300:HIS:H	2:F:432:NAD:H1D	1.35	0.89
1:E:308:LYS:HD2	1:E:308:LYS:H	1.36	0.89
1:A:416:LEU:HD21	1:B:277:CYS:HB3	1.56	0.88
1:E:300:HIS:H	2:E:432:NAD:H1D	1.37	0.87
1:C:308:LYS:HD2	1:C:308:LYS:H	1.39	0.87
1:H:369:ILE:O	1:H:373:THR:HB	1.74	0.87
1:B:300:HIS:H	2:B:432:NAD:H1D	1.37	0.87
1:G:308:LYS:H	1:G:308:LYS:HD2	1.39	0.86
1:E:369:ILE:O	1:E:373:THR:HB	1.75	0.86
1:A:369:ILE:O	1:A:373:THR:HB	1.75	0.86
1:D:308:LYS:HD2	1:D:308:LYS:H	1.38	0.85

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:308:LYS:HD2	1:B:308:LYS:H	1.39	0.85
1:D:186:SER:HB3	4:D:434:HOH:O	1.77	0.84
1:G:180:ASN:HA	1:G:185:LYS:HD2	1.60	0.84
1:D:369:ILE:O	1:D:373:THR:HB	1.78	0.84
1:H:308:LYS:HD2	1:H:308:LYS:H	1.43	0.83
1:F:369:ILE:O	1:F:373:THR:HB	1.78	0.83
1:F:308:LYS:H	1:F:308:LYS:HD2	1.43	0.83
1:C:369:ILE:O	1:C:373:THR:HB	1.78	0.83
1:G:369:ILE:O	1:G:373:THR:HB	1.79	0.83
1:B:369:ILE:O	1:B:373:THR:HB	1.79	0.82
1:F:401:LEU:HD22	1:H:212:GLY:O	1.80	0.82
1:B:180:ASN:HA	1:B:185:LYS:HD2	1.61	0.81
1:B:7:LYS:HE2	1:B:112:CYS:SG	2.20	0.81
1:H:156:THR:CG2	1:H:159:GLY:H	1.94	0.81
1:B:156:THR:CG2	1:B:159:GLY:H	1.94	0.80
1:E:156:THR:CG2	1:E:159:GLY:H	1.94	0.80
1:A:408:LEU:HD13	1:B:243:ILE:HG21	1.63	0.79
1:E:120:LYS:HE2	1:E:120:LYS:H	1.48	0.79
1:C:275:THR:HG22	1:C:277:CYS:N	1.97	0.79
1:G:275:THR:HG22	1:G:277:CYS:N	1.96	0.79
1:D:373:THR:HG21	4:D:455:HOH:O	1.83	0.79
1:D:119:PHE:HB3	4:D:454:HOH:O	1.83	0.79
1:F:409:THR:H	1:F:412:GLN:HE21	1.30	0.78
1:D:180:ASN:HA	1:D:185:LYS:HD2	1.64	0.78
1:D:156:THR:CG2	1:D:159:GLY:H	1.96	0.78
1:E:275:THR:HG22	1:E:277:CYS:N	1.95	0.78
1:H:7:LYS:HE3	1:H:99:PHE:HB3	1.65	0.78
1:A:156:THR:CG2	1:A:159:GLY:H	1.96	0.78
1:D:409:THR:H	1:D:412:GLN:HE21	1.30	0.78
1:G:409:THR:H	1:G:412:GLN:HE21	1.31	0.78
1:C:156:THR:CG2	1:C:159:GLY:H	1.96	0.77
1:E:7:LYS:HE3	1:E:99:PHE:HB3	1.66	0.77
1:C:409:THR:H	1:C:412:GLN:HE21	1.33	0.77
1:E:277:CYS:HB3	1:F:416:LEU:HD21	1.66	0.77
1:H:410:GLU:HG2	4:H:438:HOH:O	1.85	0.77
1:H:409:THR:H	1:H:412:GLN:HE21	1.33	0.77
1:A:409:THR:H	1:A:412:GLN:HE21	1.32	0.77
1:D:120:LYS:H	1:D:120:LYS:HE2	1.48	0.76
1:B:409:THR:H	1:B:412:GLN:HE21	1.32	0.76
1:E:212:GLY:O	1:G:401:LEU:HD22	1.85	0.76
1:G:120:LYS:H	1:G:120:LYS:HE2	1.49	0.76
1:B:275:THR:HG22	1:B:277:CYS:N	1.97	0.76

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:243:ILE:HG21	1:F:408:LEU:HD13	1.68	0.76
1:C:419:PRO:HG2	1:C:422:GLY:HA3	1.68	0.76
1:H:275:THR:HG22	1:H:277:CYS:N	1.99	0.76
1:G:371:LEU:HD11	4:G:463:HOH:O	1.86	0.76
1:F:156:THR:CG2	1:F:159:GLY:H	1.99	0.75
1:F:353:PRO:HB2	1:H:209:MET:HB2	1.69	0.75
1:E:180:ASN:HA	1:E:185:LYS:HD2	1.68	0.75
1:A:196:GLU:HG2	1:C:203:LYS:NZ	2.01	0.75
1:E:409:THR:H	1:E:412:GLN:HE21	1.33	0.75
1:A:180:ASN:HA	1:A:185:LYS:HD2	1.67	0.75
1:F:120:LYS:HE2	1:F:120:LYS:H	1.52	0.74
1:D:275:THR:HG22	1:D:277:CYS:N	1.99	0.74
1:G:156:THR:CG2	1:G:159:GLY:H	1.99	0.74
1:E:209:MET:HB2	1:G:353:PRO:HB2	1.68	0.74
1:A:277:CYS:HB3	1:B:416:LEU:HD21	1.70	0.74
1:F:180:ASN:HA	1:F:185:LYS:HD2	1.69	0.74
1:H:180:ASN:HA	1:H:185:LYS:HD2	1.70	0.74
1:B:196:GLU:HG2	1:D:203:LYS:NZ	2.02	0.74
1:A:7:LYS:HE3	1:A:99:PHE:HB3	1.68	0.73
1:B:7:LYS:NZ	1:B:101:TRP:HE3	1.86	0.73
1:A:419:PRO:HG2	1:A:422:GLY:HA3	1.71	0.73
1:F:7:LYS:HE3	1:F:99:PHE:HB3	1.71	0.73
1:G:416:LEU:HD21	1:H:277:CYS:HB3	1.70	0.73
1:B:7:LYS:NZ	1:B:101:TRP:CE3	2.56	0.73
1:C:7:LYS:HE2	1:C:112:CYS:SG	2.28	0.73
1:E:419:PRO:HG2	1:E:422:GLY:HA3	1.70	0.73
1:C:180:ASN:HA	1:C:185:LYS:HD2	1.71	0.72
1:B:120:LYS:HE2	1:B:120:LYS:H	1.55	0.72
1:B:7:LYS:HE3	1:B:99:PHE:HB3	1.71	0.72
1:F:419:PRO:HG2	1:F:422:GLY:HA3	1.72	0.72
1:A:7:LYS:HE2	1:A:112:CYS:SG	2.30	0.72
1:A:275:THR:HG22	1:A:277:CYS:N	2.01	0.72
1:D:419:PRO:HG2	1:D:422:GLY:HA3	1.71	0.72
1:F:275:THR:HG22	1:F:277:CYS:N	1.99	0.71
1:F:203:LYS:HZ1	1:H:196:GLU:HG2	1.56	0.71
1:A:120:LYS:H	1:A:120:LYS:HE2	1.55	0.71
1:D:7:LYS:HE3	1:D:99:PHE:HB3	1.71	0.71
1:C:120:LYS:HE2	1:C:120:LYS:H	1.54	0.71
1:H:120:LYS:HE2	1:H:120:LYS:H	1.51	0.71
1:E:196:GLU:HG2	1:G:203:LYS:NZ	2.06	0.71
1:B:105:THR:N	1:B:108:GLU:HG3	2.00	0.71
1:C:416:LEU:HD21	1:D:277:CYS:HB3	1.73	0.71

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:7:LYS:HZ1	1:A:100:ALA:N	1.89	0.71
1:A:243:ILE:HG21	1:B:408:LEU:HD13	1.73	0.71
1:F:203:LYS:NZ	1:H:196:GLU:HG2	2.05	0.70
1:G:277:CYS:HB3	1:H:416:LEU:HD21	1.72	0.70
1:B:3:LYS:HE2	1:B:115:GLN:HE22	1.57	0.70
1:C:277:CYS:HB3	1:D:416:LEU:HD21	1.74	0.70
1:F:7:LYS:HE2	1:F:112:CYS:SG	2.32	0.70
1:A:209:MET:HB2	1:C:353:PRO:HB2	1.74	0.70
1:G:7:LYS:HE3	1:G:99:PHE:HB3	1.74	0.69
1:C:7:LYS:HE3	1:C:99:PHE:HB3	1.73	0.69
1:E:7:LYS:NZ	1:E:101:TRP:HE3	1.90	0.69
1:G:243:ILE:HG21	1:H:408:LEU:HD13	1.74	0.69
1:D:7:LYS:HE2	1:D:112:CYS:SG	2.33	0.69
1:B:419:PRO:HG2	1:B:422:GLY:HA3	1.74	0.69
1:H:7:LYS:NZ	1:H:101:TRP:CE3	2.60	0.69
1:G:7:LYS:HZ1	1:G:100:ALA:N	1.91	0.69
1:E:7:LYS:HE2	1:E:112:CYS:SG	2.33	0.69
1:B:401:LEU:HD22	1:D:212:GLY:O	1.93	0.69
1:C:243:ILE:HG21	1:D:408:LEU:HD13	1.75	0.69
1:A:7:LYS:NZ	1:A:101:TRP:CE3	2.60	0.69
1:A:421:ASN:HB2	4:H:440:HOH:O	1.91	0.69
1:B:353:PRO:HB2	1:D:209:MET:HB2	1.74	0.68
1:E:7:LYS:NZ	1:E:101:TRP:CE3	2.61	0.68
1:H:7:LYS:NZ	1:H:101:TRP:HE3	1.90	0.68
1:D:105:THR:N	1:D:108:GLU:HG3	2.01	0.68
1:G:74:ARG:HE	1:G:120:LYS:NZ	1.93	0.67
1:C:7:LYS:HZ1	1:C:100:ALA:N	1.93	0.67
1:B:142:HIS:HB3	1:B:145:LEU:HD12	1.74	0.67
1:D:74:ARG:HE	1:D:120:LYS:NZ	1.92	0.67
1:H:142:HIS:HB3	1:H:145:LEU:HD12	1.76	0.67
1:D:7:LYS:NZ	1:D:101:TRP:CE3	2.61	0.67
1:A:74:ARG:HE	1:A:120:LYS:NZ	1.93	0.67
1:A:196:GLU:HG2	1:C:203:LYS:HZ1	1.57	0.67
1:G:419:PRO:HG2	1:G:422:GLY:HA3	1.75	0.67
1:E:401:LEU:HD22	1:G:212:GLY:O	1.95	0.67
1:C:7:LYS:NZ	1:C:101:TRP:HE3	1.90	0.67
1:C:7:LYS:NZ	1:C:101:TRP:CE3	2.60	0.67
1:B:7:LYS:HZ1	1:B:100:ALA:N	1.92	0.67
1:B:203:LYS:NZ	1:D:196:GLU:HG2	2.10	0.67
1:G:7:LYS:HE2	1:G:112:CYS:SG	2.34	0.66
1:G:308:LYS:H	1:G:308:LYS:CD	2.07	0.66
1:D:421:ASN:HB3	4:D:443:HOH:O	1.96	0.66

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:142:HIS:HB3	1:D:145:LEU:HD12	1.76	0.66
1:F:7:LYS:HZ1	1:F:100:ALA:N	1.93	0.66
1:E:203:LYS:HZ1	1:G:196:GLU:HG2	1.60	0.66
1:E:203:LYS:NZ	1:G:196:GLU:HG2	2.11	0.66
1:H:419:PRO:HG2	1:H:422:GLY:HA3	1.78	0.65
1:H:129:ASP:OD2	1:H:135:THR:HG23	1.97	0.65
1:F:74:ARG:HE	1:F:120:LYS:NZ	1.94	0.65
1:D:7:LYS:HZ1	1:D:100:ALA:N	1.95	0.65
1:E:74:ARG:HE	1:E:120:LYS:NZ	1.94	0.65
1:E:416:LEU:HD21	1:F:277:CYS:HB3	1.78	0.65
1:F:13:LEU:HB3	1:F:86:HIS:HA	1.79	0.65
1:G:7:LYS:NZ	1:G:101:TRP:CE3	2.61	0.65
1:F:129:ASP:OD2	1:F:135:THR:HG23	1.97	0.65
1:G:105:THR:N	1:G:108:GLU:HG3	2.02	0.65
1:G:408:LEU:HD13	1:H:243:ILE:HG21	1.78	0.65
1:C:142:HIS:HB3	1:C:145:LEU:HD12	1.79	0.65
1:D:13:LEU:HB3	1:D:86:HIS:HA	1.78	0.65
1:B:74:ARG:HG3	1:B:119:PHE:CZ	2.31	0.65
1:E:196:GLU:HG2	1:G:203:LYS:HZ1	1.59	0.65
1:A:13:LEU:HB3	1:A:86:HIS:HA	1.78	0.65
1:C:13:LEU:HB3	1:C:86:HIS:HA	1.77	0.64
1:A:203:LYS:HZ1	1:C:196:GLU:HG2	1.62	0.64
1:A:275:THR:HG21	1:A:280:ILE:HD11	1.79	0.64
1:H:4:LEU:HD12	1:H:4:LEU:N	2.12	0.64
1:F:196:GLU:HG2	1:H:203:LYS:NZ	2.13	0.64
1:E:13:LEU:HB3	1:E:86:HIS:HA	1.79	0.64
1:D:4:LEU:HD11	1:D:111:TRP:CH2	2.32	0.64
1:G:7:LYS:NZ	1:G:101:TRP:HE3	1.91	0.64
1:D:74:ARG:HG3	1:D:119:PHE:CZ	2.33	0.64
1:H:278:VAL:HG12	1:H:303:VAL:HB	1.79	0.64
1:G:74:ARG:HG3	1:G:119:PHE:CZ	2.32	0.64
1:A:4:LEU:HD11	1:A:111:TRP:CH2	2.31	0.64
1:G:278:VAL:HG12	1:G:303:VAL:HB	1.80	0.64
1:B:13:LEU:HB3	1:B:86:HIS:HA	1.80	0.64
1:A:209:MET:HB2	1:C:353:PRO:CB	2.28	0.64
1:E:142:HIS:HB3	1:E:145:LEU:HD12	1.79	0.64
1:B:74:ARG:HE	1:B:120:LYS:NZ	1.96	0.63
1:D:28:MET:HB3	1:D:358:SER:HB2	1.80	0.63
1:E:28:MET:HB3	1:E:358:SER:HB2	1.80	0.63
1:H:7:LYS:HE2	1:H:112:CYS:SG	2.39	0.63
1:C:74:ARG:HE	1:C:120:LYS:NZ	1.96	0.63
1:A:7:LYS:NZ	1:A:101:TRP:HE3	1.88	0.63

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:275:THR:HG21	1:B:280:ILE:HD11	1.78	0.63
1:F:7:LYS:NZ	1:F:101:TRP:CE3	2.61	0.63
1:H:74:ARG:HG3	1:H:119:PHE:CZ	2.33	0.63
1:E:117:LEU:HD22	1:E:138:ILE:HD11	1.81	0.63
1:B:278:VAL:HG12	1:B:303:VAL:HB	1.81	0.63
1:E:4:LEU:HD12	1:E:4:LEU:N	2.13	0.63
1:D:300:HIS:N	2:D:432:NAD:H1D	2.12	0.63
1:C:308:LYS:CD	1:C:308:LYS:H	2.09	0.63
1:F:74:ARG:HG3	1:F:119:PHE:CZ	2.33	0.63
1:E:353:PRO:HB2	1:G:209:MET:HB2	1.80	0.62
1:F:7:LYS:NZ	1:F:101:TRP:HE3	1.90	0.62
1:H:28:MET:HB3	1:H:358:SER:HB2	1.81	0.62
1:E:74:ARG:HG3	1:E:119:PHE:CZ	2.34	0.62
1:G:120:LYS:CE	1:G:120:LYS:H	2.13	0.62
1:H:13:LEU:HB3	1:H:86:HIS:HA	1.81	0.62
1:G:275:THR:HG22	1:G:276:GLY:N	2.14	0.62
1:C:4:LEU:HD11	1:C:111:TRP:CH2	2.34	0.62
1:E:105:THR:N	1:E:108:GLU:HG3	2.06	0.62
1:D:4:LEU:N	1:D:4:LEU:HD12	2.15	0.62
1:D:120:LYS:H	1:D:120:LYS:CE	2.12	0.62
1:E:129:ASP:OD2	1:E:135:THR:HG23	1.99	0.62
1:C:408:LEU:HD13	1:D:243:ILE:HG21	1.82	0.62
1:G:7:LYS:NZ	1:G:100:ALA:N	2.48	0.62
1:D:7:LYS:NZ	1:D:100:ALA:N	2.48	0.62
1:C:419:PRO:HB2	1:C:422:GLY:H	1.65	0.62
1:F:278:VAL:HG12	1:F:303:VAL:HB	1.82	0.62
1:G:129:ASP:OD2	1:G:135:THR:HG23	1.99	0.62
1:E:7:LYS:NZ	1:E:100:ALA:N	2.47	0.62
1:E:120:LYS:H	1:E:120:LYS:CE	2.13	0.62
1:A:203:LYS:NZ	1:C:196:GLU:HG2	2.15	0.62
1:G:13:LEU:HB3	1:G:86:HIS:HA	1.80	0.62
1:B:4:LEU:HD12	1:B:4:LEU:N	2.14	0.62
1:E:275:THR:HG21	1:E:280:ILE:HD11	1.81	0.61
1:A:74:ARG:HG3	1:A:119:PHE:CZ	2.34	0.61
1:F:212:GLY:O	1:H:401:LEU:HD22	2.01	0.61
1:A:278:VAL:HG12	1:A:303:VAL:HB	1.82	0.61
1:A:415:TYR:OH	1:B:303:VAL:HG21	2.00	0.61
1:A:421:ASN:ND2	1:H:312:GLU:OE2	2.33	0.61
1:A:117:LEU:HD22	1:A:138:ILE:HD11	1.83	0.61
1:C:7:LYS:NZ	1:C:100:ALA:N	2.48	0.61
1:B:4:LEU:HD11	1:B:111:TRP:CH2	2.36	0.61
1:H:7:LYS:NZ	1:H:100:ALA:N	2.49	0.61

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:3:LYS:HE2	1:E:115:GLN:HE22	1.65	0.61
1:G:117:LEU:HD22	1:G:138:ILE:HD11	1.82	0.61
1:C:4:LEU:HD12	1:C:4:LEU:N	2.15	0.61
1:F:105:THR:N	1:F:108:GLU:HG3	2.04	0.61
1:F:120:LYS:CE	1:F:120:LYS:H	2.13	0.61
1:A:142:HIS:HB3	1:A:145:LEU:HD12	1.82	0.61
1:G:4:LEU:HD12	1:G:4:LEU:N	2.14	0.61
1:H:275:THR:HG21	1:H:280:ILE:HD11	1.81	0.61
1:B:250:GLN:O	1:B:254:GLU:HG2	2.00	0.61
1:A:353:PRO:HB2	1:C:209:MET:HB2	1.81	0.61
1:G:142:HIS:HB3	1:G:145:LEU:HD12	1.83	0.61
1:B:188:PHE:HA	1:B:192:TYR:CD2	2.36	0.61
1:A:4:LEU:N	1:A:4:LEU:HD12	2.16	0.61
1:H:7:LYS:HZ1	1:H:100:ALA:N	1.99	0.61
1:C:74:ARG:HG3	1:C:119:PHE:CZ	2.35	0.61
1:H:386:PRO:HG2	1:H:389:LEU:HG	1.81	0.61
1:C:105:THR:N	1:C:108:GLU:HG3	2.04	0.60
1:B:7:LYS:NZ	1:B:100:ALA:N	2.49	0.60
1:B:300:HIS:N	2:B:432:NAD:H1D	2.14	0.60
1:A:7:LYS:NZ	1:A:100:ALA:N	2.49	0.60
1:E:7:LYS:HZ1	1:E:100:ALA:N	1.99	0.60
1:F:7:LYS:NZ	1:F:100:ALA:N	2.49	0.60
1:B:395:GLU:HA	1:B:398:LEU:HD22	1.83	0.60
1:C:28:MET:HB3	1:C:358:SER:HB2	1.83	0.60
1:G:7:LYS:HD3	1:G:111:TRP:CZ3	2.36	0.60
1:D:275:THR:HG22	1:D:276:GLY:N	2.16	0.60
1:A:105:THR:N	1:A:108:GLU:HG3	2.05	0.60
1:B:196:GLU:HG2	1:D:203:LYS:HZ1	1.65	0.60
1:H:74:ARG:HE	1:H:120:LYS:NZ	1.99	0.60
1:E:278:VAL:HG12	1:E:303:VAL:HB	1.83	0.60
1:H:120:LYS:CE	1:H:120:LYS:H	2.15	0.60
1:C:386:PRO:HG2	1:C:389:LEU:HG	1.84	0.60
1:E:408:LEU:HD13	1:F:243:ILE:HG21	1.82	0.60
1:C:278:VAL:HG12	1:C:303:VAL:HB	1.83	0.60
1:F:275:THR:HG21	1:F:280:ILE:HD11	1.83	0.60
1:D:4:LEU:HD11	1:D:111:TRP:CZ2	2.37	0.60
1:F:4:LEU:N	1:F:4:LEU:HD12	2.15	0.60
1:G:4:LEU:HD11	1:G:111:TRP:CH2	2.36	0.60
1:F:188:PHE:HA	1:F:192:TYR:CD2	2.37	0.60
1:C:275:THR:HG21	1:C:280:ILE:HD11	1.83	0.60
1:C:129:ASP:OD2	1:C:135:THR:HG23	2.01	0.60
1:C:150:ARG:HD2	1:C:372:TRP:HA	1.84	0.60

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:150:ARG:HD2	1:B:372:TRP:HA	1.84	0.60
1:B:386:PRO:HG2	1:B:389:LEU:HG	1.84	0.60
1:D:278:VAL:HG12	1:D:303:VAL:HB	1.83	0.60
1:B:56:THR:HA	1:B:84:GLN:HB2	1.84	0.59
1:A:300:HIS:N	2:A:432:NAD:H1D	2.12	0.59
1:F:4:LEU:HD11	1:F:111:TRP:CH2	2.37	0.59
1:B:386:PRO:HD2	1:B:389:LEU:HD12	1.83	0.59
1:A:212:GLY:O	1:C:401:LEU:HD22	2.03	0.59
1:F:300:HIS:HA	1:F:343:LEU:HD11	1.83	0.59
1:E:419:PRO:HB2	1:E:422:GLY:H	1.67	0.59
1:C:188:PHE:HA	1:C:192:TYR:CD2	2.37	0.59
1:F:117:LEU:HD22	1:F:138:ILE:HD11	1.85	0.59
1:D:7:LYS:NZ	1:D:101:TRP:HE3	1.89	0.59
1:H:419:PRO:HB2	1:H:422:GLY:H	1.67	0.59
1:B:209:MET:HB2	1:D:353:PRO:HB2	1.85	0.59
1:D:386:PRO:HG2	1:D:389:LEU:HG	1.85	0.59
1:D:129:ASP:OD2	1:D:135:THR:HG23	2.02	0.59
1:F:209:MET:HB2	1:H:353:PRO:HB2	1.85	0.59
1:H:7:LYS:HD3	1:H:111:TRP:CZ3	2.37	0.59
1:D:300:HIS:HA	1:D:343:LEU:HD11	1.85	0.59
1:G:188:PHE:HA	1:G:192:TYR:CD2	2.37	0.59
1:G:150:ARG:HD2	1:G:372:TRP:HA	1.85	0.59
1:H:4:LEU:HD11	1:H:111:TRP:CH2	2.38	0.58
1:F:7:LYS:CD	1:F:111:TRP:HZ3	2.17	0.58
1:E:188:PHE:HA	1:E:192:TYR:CD2	2.38	0.58
1:G:7:LYS:CD	1:G:111:TRP:HZ3	2.15	0.58
1:E:275:THR:HG22	1:E:276:GLY:N	2.18	0.58
1:D:308:LYS:CD	1:D:308:LYS:H	2.09	0.58
1:B:308:LYS:CD	1:B:308:LYS:H	2.08	0.58
1:H:117:LEU:HD22	1:H:138:ILE:HD11	1.85	0.58
1:H:150:ARG:HD2	1:H:372:TRP:HA	1.84	0.58
1:G:7:LYS:HD3	1:G:111:TRP:HZ3	1.68	0.58
1:A:419:PRO:HB2	1:A:422:GLY:H	1.68	0.58
1:C:120:LYS:H	1:C:120:LYS:CE	2.16	0.58
1:F:249:LEU:O	1:F:253:MET:HG2	2.02	0.58
1:G:387:LYS:HE3	1:G:431:TYR:OH	2.03	0.58
1:C:56:THR:HA	1:C:84:GLN:HB2	1.85	0.58
1:A:416:LEU:CD2	1:B:277:CYS:HB3	2.33	0.58
1:G:275:THR:HG21	1:G:280:ILE:HD11	1.84	0.58
1:H:300:HIS:N	2:H:432:NAD:H1D	2.13	0.58
1:B:188:PHE:HA	1:B:192:TYR:HD2	1.69	0.58
1:A:129:ASP:OD2	1:A:135:THR:HG23	2.03	0.58

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:4:LEU:HD11	1:C:111:TRP:CZ2	2.39	0.58
1:B:4:LEU:HD11	1:B:111:TRP:CZ2	2.39	0.58
1:B:129:ASP:OD2	1:B:135:THR:HG23	2.03	0.58
1:A:150:ARG:HD2	1:A:372:TRP:HA	1.86	0.58
1:D:188:PHE:HA	1:D:192:TYR:CD2	2.39	0.58
1:A:386:PRO:HD2	1:A:389:LEU:HD12	1.86	0.57
1:A:56:THR:HA	1:A:84:GLN:HB2	1.86	0.57
1:A:4:LEU:HD11	1:A:111:TRP:CZ2	2.39	0.57
1:F:7:LYS:HD3	1:F:111:TRP:CZ3	2.37	0.57
1:H:105:THR:N	1:H:108:GLU:HG3	2.08	0.57
1:H:7:LYS:CD	1:H:111:TRP:HZ3	2.17	0.57
1:G:249:LEU:O	1:G:253:MET:HG2	2.03	0.57
1:H:188:PHE:HA	1:H:192:TYR:CD2	2.39	0.57
1:B:244:ASP:CG	1:B:247:ASN:HD22	2.07	0.57
1:H:3:LYS:HE2	1:H:115:GLN:HE22	1.68	0.57
1:E:308:LYS:HD2	1:E:308:LYS:N	2.15	0.57
1:G:3:LYS:HE2	1:G:115:GLN:HE22	1.68	0.57
1:F:343:LEU:HG	2:F:432:NAD:N7N	2.19	0.57
1:B:300:HIS:HA	1:B:343:LEU:HD11	1.86	0.57
1:A:300:HIS:HA	1:A:343:LEU:HD11	1.87	0.57
1:E:199:ILE:HG22	1:E:203:LYS:HG3	1.85	0.57
1:B:81:PHE:CD2	1:B:342:ARG:HD2	2.40	0.57
1:E:389:LEU:O	1:E:393:VAL:HG23	2.04	0.57
1:D:56:THR:HA	1:D:84:GLN:HB2	1.87	0.57
1:A:401:LEU:HD22	1:C:212:GLY:O	2.05	0.57
1:H:7:LYS:HE3	1:H:99:PHE:CB	2.33	0.57
1:A:343:LEU:HG	2:A:432:NAD:N7N	2.20	0.57
1:E:209:MET:HB2	1:G:353:PRO:CB	2.35	0.57
1:A:209:MET:HG3	1:C:196:GLU:OE1	2.04	0.57
1:C:117:LEU:HD22	1:C:138:ILE:HD11	1.87	0.57
1:B:3:LYS:HE2	1:B:115:GLN:NE2	2.19	0.57
1:D:275:THR:HG21	1:D:280:ILE:HD11	1.84	0.57
1:B:117:LEU:HD22	1:B:138:ILE:HD11	1.87	0.57
1:H:389:LEU:O	1:H:393:VAL:HG23	2.03	0.57
1:B:161:HIS:HB2	4:B:459:HOH:O	2.05	0.57
1:F:275:THR:HG22	1:F:276:GLY:N	2.19	0.57
1:B:120:LYS:CE	1:B:120:LYS:H	2.17	0.57
1:A:199:ILE:HG22	1:A:203:LYS:HG3	1.87	0.57
1:B:389:LEU:O	1:B:393:VAL:HG23	2.05	0.57
1:A:395:GLU:HA	1:A:398:LEU:HD22	1.86	0.57
1:F:188:PHE:HA	1:F:192:TYR:HD2	1.70	0.57
1:E:244:ASP:CG	1:E:247:ASN:HD22	2.08	0.57

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:199:ILE:HG22	1:F:203:LYS:HG3	1.87	0.56
1:F:387:LYS:O	1:F:391:GLU:HG3	2.04	0.56
1:D:249:LEU:O	1:D:253:MET:HG2	2.05	0.56
1:H:4:LEU:HD12	1:H:4:LEU:H	1.70	0.56
1:D:343:LEU:HG	2:D:432:NAD:N7N	2.20	0.56
1:C:343:LEU:HG	2:C:432:NAD:N7N	2.20	0.56
1:A:386:PRO:HG2	1:A:389:LEU:HG	1.88	0.56
1:H:56:THR:HA	1:H:84:GLN:HB2	1.87	0.56
1:A:7:LYS:HE3	1:A:99:PHE:CB	2.36	0.56
1:H:300:HIS:HA	1:H:343:LEU:HD11	1.87	0.56
1:A:120:LYS:H	1:A:120:LYS:CE	2.18	0.56
1:D:117:LEU:HD22	1:D:138:ILE:HD11	1.87	0.56
1:E:386:PRO:HG2	1:E:389:LEU:HG	1.87	0.56
1:F:387:LYS:HE3	1:F:431:TYR:OH	2.06	0.56
1:F:250:GLN:O	1:F:254:GLU:HG2	2.06	0.56
1:B:387:LYS:HE3	1:B:431:TYR:OH	2.06	0.56
1:F:150:ARG:HD2	1:F:372:TRP:HA	1.86	0.56
1:A:28:MET:HB3	1:A:358:SER:HB2	1.88	0.56
1:F:389:LEU:O	1:F:393:VAL:HG23	2.06	0.56
1:C:3:LYS:HE2	1:C:115:GLN:HE22	1.70	0.56
1:G:343:LEU:HG	2:G:432:NAD:N7N	2.19	0.56
1:E:4:LEU:HD11	1:E:111:TRP:CZ2	2.41	0.56
1:E:4:LEU:HD11	1:E:111:TRP:CH2	2.39	0.56
1:C:300:HIS:N	2:C:432:NAD:H1D	2.14	0.56
1:G:300:HIS:HA	1:G:343:LEU:HD11	1.86	0.56
1:G:430:ARG:HB3	1:H:430:ARG:HB3	1.87	0.56
1:A:3:LYS:HE2	1:A:115:GLN:HE22	1.71	0.56
1:A:407:LYS:HE2	1:A:420:ILE:HG22	1.87	0.56
1:E:300:HIS:N	2:E:432:NAD:H1D	2.14	0.56
1:F:142:HIS:HB3	1:F:145:LEU:HD12	1.86	0.56
1:F:300:HIS:N	2:F:432:NAD:H1D	2.13	0.56
1:F:419:PRO:HB2	1:F:422:GLY:H	1.71	0.56
1:A:188:PHE:HA	1:A:192:TYR:CD2	2.40	0.56
1:G:386:PRO:HG2	1:G:389:LEU:HG	1.87	0.56
1:D:162:ASN:O	1:D:166:MET:HG3	2.06	0.56
1:E:308:LYS:CD	1:E:308:LYS:H	2.05	0.56
1:A:389:LEU:O	1:A:393:VAL:HG23	2.06	0.56
1:H:387:LYS:HE3	1:H:431:TYR:OH	2.05	0.56
1:E:395:GLU:HA	1:E:398:LEU:HD22	1.86	0.56
1:D:150:ARG:HD2	1:D:372:TRP:HA	1.87	0.56
1:G:4:LEU:HD11	1:G:111:TRP:CZ2	2.41	0.56
1:H:4:LEU:HD11	1:H:111:TRP:CZ2	2.41	0.56

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:199:ILE:HG22	1:B:203:LYS:HG3	1.87	0.56
1:F:28:MET:HB3	1:F:358:SER:HB2	1.88	0.56
1:F:3:LYS:HE2	1:F:115:GLN:HE22	1.70	0.56
1:C:185:LYS:C	1:C:185:LYS:HD3	2.26	0.56
1:A:138:ILE:HG22	1:A:146:LEU:HD13	1.88	0.56
1:F:141:LYS:HB3	1:F:142:HIS:ND1	2.21	0.56
1:G:300:HIS:N	2:G:432:NAD:H1D	2.14	0.55
1:E:141:LYS:HB3	1:E:142:HIS:ND1	2.21	0.55
1:B:7:LYS:CD	1:B:111:TRP:HZ3	2.20	0.55
1:G:199:ILE:HG22	1:G:203:LYS:HG3	1.87	0.55
1:E:343:LEU:HG	2:E:432:NAD:N7N	2.21	0.55
1:D:387:LYS:O	1:D:391:GLU:HG3	2.06	0.55
1:A:308:LYS:HD2	1:A:308:LYS:N	2.15	0.55
1:H:199:ILE:HG22	1:H:203:LYS:HG3	1.87	0.55
1:E:430:ARG:HB3	1:F:430:ARG:HB3	1.88	0.55
1:G:107:GLU:HG2	4:G:451:HOH:O	2.06	0.55
1:C:275:THR:HG22	1:C:276:GLY:N	2.21	0.55
1:B:7:LYS:HD3	1:B:111:TRP:CZ3	2.41	0.55
1:A:275:THR:HG22	1:A:276:GLY:N	2.21	0.55
1:H:343:LEU:HG	2:H:432:NAD:N7N	2.21	0.55
1:D:143:PRO:O	1:D:146:LEU:HB2	2.06	0.55
1:C:407:LYS:HE2	1:C:420:ILE:HG22	1.88	0.55
1:B:24:ALA:O	1:B:28:MET:HG3	2.06	0.55
1:F:308:LYS:H	1:F:308:LYS:CD	2.09	0.55
1:C:162:ASN:HB2	4:C:460:HOH:O	2.05	0.55
1:D:250:GLN:O	1:D:254:GLU:HG2	2.07	0.55
1:E:7:LYS:HE3	1:E:99:PHE:CB	2.34	0.55
1:F:386:PRO:HD2	1:F:389:LEU:HD12	1.88	0.55
1:C:389:LEU:O	1:C:393:VAL:HG23	2.07	0.55
1:G:386:PRO:HD2	1:G:389:LEU:HD12	1.88	0.55
1:F:56:THR:HA	1:F:84:GLN:HB2	1.87	0.55
1:C:430:ARG:HB3	1:D:430:ARG:HB3	1.88	0.55
1:F:4:LEU:HD11	1:F:111:TRP:CZ2	2.41	0.55
1:F:185:LYS:C	1:F:185:LYS:HD3	2.27	0.55
1:H:185:LYS:HD3	1:H:185:LYS:C	2.27	0.55
1:C:143:PRO:O	1:C:146:LEU:HB2	2.07	0.55
1:B:162:ASN:O	1:B:166:MET:HG3	2.07	0.55
1:G:308:LYS:N	1:G:308:LYS:HD2	2.17	0.54
1:G:56:THR:HA	1:G:84:GLN:HB2	1.88	0.54
1:E:300:HIS:HA	1:E:343:LEU:HD11	1.89	0.54
1:B:212:GLY:O	1:D:401:LEU:HD22	2.06	0.54
1:D:81:PHE:CD2	1:D:342:ARG:HD2	2.43	0.54

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:150:ARG:HD2	1:E:372:TRP:HA	1.89	0.54
1:C:387:LYS:HE3	1:C:431:TYR:OH	2.08	0.54
1:G:131:GLY:HA2	1:G:156:THR:HG21	1.89	0.54
1:B:353:PRO:CB	1:D:209:MET:HB2	2.36	0.54
1:C:386:PRO:HD2	1:C:389:LEU:HD12	1.89	0.54
1:E:56:THR:HA	1:E:84:GLN:HB2	1.88	0.54
1:D:141:LYS:HB3	1:D:142:HIS:ND1	2.21	0.54
1:C:138:ILE:HG22	1:C:146:LEU:HD13	1.90	0.54
1:H:179:VAL:HG13	1:H:363:ASN:HB3	1.89	0.54
1:F:7:LYS:HD3	1:F:111:TRP:HZ3	1.72	0.54
1:H:308:LYS:CD	1:H:308:LYS:H	2.09	0.54
1:E:131:GLY:HA2	1:E:156:THR:HG21	1.90	0.54
1:F:138:ILE:HG22	1:F:146:LEU:HD13	1.89	0.54
1:A:250:GLN:O	1:A:254:GLU:HG2	2.07	0.54
1:H:250:GLN:O	1:H:254:GLU:HG2	2.08	0.54
1:E:7:LYS:HD3	1:E:111:TRP:CZ3	2.43	0.54
1:B:141:LYS:HB3	1:B:142:HIS:ND1	2.23	0.54
1:C:395:GLU:HA	1:C:398:LEU:HD22	1.88	0.54
1:G:162:ASN:O	1:G:166:MET:HG3	2.07	0.54
1:B:249:LEU:O	1:B:253:MET:HG2	2.07	0.54
1:C:249:LEU:O	1:C:253:MET:HG2	2.08	0.54
1:G:395:GLU:HA	1:G:398:LEU:HD22	1.88	0.54
1:B:343:LEU:HG	2:B:432:NAD:N7N	2.22	0.54
1:H:138:ILE:HG22	1:H:146:LEU:HD13	1.89	0.54
1:E:24:ALA:O	1:E:28:MET:HG3	2.08	0.54
1:D:386:PRO:HD2	1:D:389:LEU:HD12	1.89	0.54
1:D:4:LEU:H	1:D:4:LEU:HD12	1.72	0.53
1:E:4:LEU:HD12	1:E:4:LEU:H	1.72	0.53
1:H:7:LYS:HD3	1:H:111:TRP:HZ3	1.71	0.53
1:F:74:ARG:HG3	1:F:119:PHE:CE2	2.43	0.53
1:B:419:PRO:HB2	1:B:422:GLY:H	1.74	0.53
1:B:142:HIS:CB	1:B:145:LEU:HD12	2.38	0.53
1:E:45:LYS:O	1:E:45:LYS:HG3	2.07	0.53
1:H:275:THR:HG22	1:H:276:GLY:N	2.22	0.53
1:D:142:HIS:CB	1:D:145:LEU:HD12	2.37	0.53
1:C:7:LYS:HD3	1:C:111:TRP:CZ3	2.44	0.53
1:H:308:LYS:HD2	1:H:308:LYS:N	2.20	0.53
1:B:203:LYS:HZ1	1:D:196:GLU:HG2	1.71	0.53
1:D:244:ASP:CG	1:D:247:ASN:HD22	2.12	0.53
1:A:81:PHE:CD2	1:A:342:ARG:HD2	2.43	0.53
1:D:183:VAL:HG21	1:D:431:TYR:CE1	2.43	0.53
1:D:419:PRO:HB2	1:D:422:GLY:H	1.73	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:3:LYS:HE2	1:D:115:GLN:HE22	1.73	0.53
1:F:162:ASN:O	1:F:166:MET:HG3	2.09	0.53
1:B:275:THR:HG22	1:B:276:GLY:N	2.24	0.53
1:E:7:LYS:CD	1:E:111:TRP:HZ3	2.21	0.53
1:D:183:VAL:HA	4:D:434:HOH:O	2.08	0.53
1:E:386:PRO:HD2	1:E:389:LEU:HD12	1.91	0.53
1:G:389:LEU:O	1:G:393:VAL:HG23	2.08	0.53
1:E:407:LYS:HE3	4:E:468:HOH:O	2.09	0.53
1:E:249:LEU:O	1:E:253:MET:HG2	2.09	0.53
1:A:141:LYS:HB3	1:A:142:HIS:ND1	2.23	0.53
1:H:183:VAL:HG21	1:H:431:TYR:CE1	2.44	0.53
1:D:161:HIS:CD2	1:D:165:LYS:HZ1	2.26	0.53
1:B:4:LEU:HD12	1:B:4:LEU:H	1.73	0.53
1:B:7:LYS:HE3	1:B:99:PHE:CB	2.38	0.53
1:C:308:LYS:HD2	1:C:308:LYS:N	2.18	0.53
1:H:141:LYS:HB3	1:H:142:HIS:ND1	2.24	0.53
1:F:386:PRO:HG2	1:F:389:LEU:HG	1.90	0.53
1:C:183:VAL:HG21	1:C:431:TYR:CE1	2.44	0.53
1:A:162:ASN:O	1:A:166:MET:HG3	2.08	0.53
1:F:407:LYS:HE2	1:F:420:ILE:HG22	1.89	0.53
1:D:387:LYS:HE3	1:D:431:TYR:OH	2.09	0.53
1:G:74:ARG:HG3	1:G:119:PHE:CE2	2.44	0.53
1:D:199:ILE:HG22	1:D:203:LYS:HG3	1.89	0.53
1:D:389:LEU:O	1:D:393:VAL:HG23	2.08	0.53
1:A:24:ALA:O	1:A:28:MET:HG3	2.09	0.53
1:C:81:PHE:CD2	1:C:342:ARG:HD2	2.43	0.53
1:G:4:LEU:HD12	1:G:4:LEU:H	1.74	0.52
1:C:300:HIS:HA	1:C:343:LEU:HD11	1.91	0.52
1:G:188:PHE:HA	1:G:192:TYR:HD2	1.73	0.52
1:E:162:ASN:O	1:E:166:MET:HG3	2.09	0.52
1:D:366:MET:HG3	4:D:467:HOH:O	2.09	0.52
1:D:7:LYS:HE3	1:D:99:PHE:CB	2.38	0.52
1:A:185:LYS:HD3	1:A:185:LYS:C	2.29	0.52
1:B:143:PRO:O	1:B:146:LEU:HB2	2.09	0.52
1:H:143:PRO:O	1:H:146:LEU:HB2	2.10	0.52
1:C:152:ILE:HG22	1:C:153:SER:N	2.24	0.52
1:E:161:HIS:CD2	1:E:161:HIS:C	2.83	0.52
1:C:181:ASP:HB2	1:C:384:PHE:HE1	1.73	0.52
1:D:7:LYS:CD	1:D:111:TRP:HZ3	2.22	0.52
1:F:353:PRO:CB	1:H:209:MET:HB2	2.37	0.52
1:B:194:CYS:SG	1:B:223:VAL:HG13	2.50	0.52
1:C:4:LEU:HD12	1:C:4:LEU:H	1.74	0.52

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:7:LYS:HZ1	1:B:100:ALA:CA	2.23	0.52
1:B:7:LYS:CE	1:B:101:TRP:HZ3	2.23	0.52
1:B:74:ARG:HG3	1:B:119:PHE:CE2	2.43	0.52
1:G:143:PRO:O	1:G:146:LEU:HB2	2.09	0.52
1:H:244:ASP:CG	1:H:247:ASN:HD22	2.12	0.52
1:E:407:LYS:HE2	1:E:420:ILE:HG22	1.92	0.52
1:G:81:PHE:CD2	1:G:342:ARG:HD2	2.44	0.52
1:G:110:LEU:O	1:G:110:LEU:HD22	2.10	0.52
1:E:343:LEU:HD23	1:E:346:LEU:HD12	1.92	0.52
1:D:74:ARG:HG2	4:D:444:HOH:O	2.08	0.52
1:E:243:ILE:HG21	1:F:408:LEU:CD1	2.38	0.52
1:B:361:PHE:O	1:B:365:VAL:HG23	2.09	0.52
1:B:105:THR:OG1	1:B:108:GLU:HG2	2.10	0.52
1:A:4:LEU:H	1:A:4:LEU:HD12	1.75	0.52
1:C:74:ARG:HE	1:C:120:LYS:HZ1	1.58	0.52
1:H:48:ARG:HD2	1:H:119:PHE:HB2	1.92	0.52
1:H:386:PRO:HD2	1:H:389:LEU:HD12	1.90	0.52
1:F:81:PHE:CD2	1:F:342:ARG:HD2	2.44	0.52
1:E:31:LEU:HD13	1:E:61:VAL:HG12	1.92	0.52
1:C:7:LYS:HZ1	1:C:100:ALA:CA	2.22	0.52
1:E:387:LYS:O	1:E:391:GLU:HG3	2.09	0.52
1:E:138:ILE:HG22	1:E:146:LEU:HD13	1.92	0.52
1:F:24:ALA:O	1:F:28:MET:HG3	2.10	0.52
1:D:7:LYS:HD3	1:D:111:TRP:CZ3	2.45	0.52
1:B:7:LYS:HD3	1:B:111:TRP:HZ3	1.75	0.52
1:C:244:ASP:CG	1:C:247:ASN:HD22	2.13	0.52
1:A:74:ARG:HG3	1:A:119:PHE:CE2	2.45	0.52
1:E:143:PRO:O	1:E:146:LEU:HB2	2.08	0.52
1:A:387:LYS:HE3	1:A:431:TYR:OH	2.10	0.52
1:E:387:LYS:HE3	1:E:431:TYR:OH	2.09	0.52
1:G:161:HIS:CD2	1:G:161:HIS:C	2.83	0.52
1:C:7:LYS:CD	1:C:111:TRP:HZ3	2.22	0.52
1:C:48:ARG:HD2	1:C:119:PHE:CB	2.39	0.52
1:H:74:ARG:HG3	1:H:119:PHE:CE2	2.44	0.52
1:H:81:PHE:CD2	1:H:342:ARG:HD2	2.45	0.52
1:H:249:LEU:O	1:H:253:MET:HG2	2.10	0.52
1:H:142:HIS:CB	1:H:145:LEU:HD12	2.40	0.51
1:A:179:VAL:HG13	1:A:363:ASN:HB3	1.92	0.51
1:G:361:PHE:O	1:G:365:VAL:HG23	2.09	0.51
1:G:343:LEU:HD23	1:G:346:LEU:HD12	1.92	0.51
1:G:48:ARG:HD2	1:G:119:PHE:CB	2.40	0.51
1:E:210:ILE:N	1:G:196:GLU:OE1	2.44	0.51

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:143:PRO:O	1:F:146:LEU:HB2	2.10	0.51
1:D:185:LYS:C	1:D:185:LYS:HD3	2.30	0.51
1:C:141:LYS:HB3	1:C:142:HIS:ND1	2.25	0.51
1:H:387:LYS:O	1:H:391:GLU:HG3	2.10	0.51
1:D:161:HIS:C	1:D:161:HIS:CD2	2.83	0.51
1:E:179:VAL:HG13	1:E:363:ASN:HB3	1.93	0.51
1:C:161:HIS:CD2	1:C:161:HIS:C	2.83	0.51
1:B:93:LYS:HG3	1:B:93:LYS:O	2.10	0.51
1:C:142:HIS:CB	1:C:145:LEU:HD12	2.40	0.51
1:F:6:TYR:OH	1:F:11:ILE:HD13	2.10	0.51
1:B:379:PRO:O	1:B:383:HIS:HE1	1.94	0.51
1:D:7:LYS:HZ1	1:D:100:ALA:CA	2.24	0.51
1:A:7:LYS:HD3	1:A:111:TRP:CZ3	2.46	0.51
1:C:74:ARG:HG3	1:C:119:PHE:CE2	2.46	0.51
1:E:188:PHE:HA	1:E:192:TYR:HD2	1.76	0.51
1:F:161:HIS:CD2	1:F:161:HIS:C	2.84	0.51
1:G:93:LYS:HG3	1:G:93:LYS:O	2.11	0.51
1:F:7:LYS:HE3	1:F:99:PHE:CB	2.38	0.51
1:C:48:ARG:HD2	1:C:119:PHE:HB2	1.92	0.51
1:B:387:LYS:O	1:B:391:GLU:HG3	2.10	0.51
1:E:91:ILE:HG23	1:E:96:ILE:HB	1.93	0.51
1:G:419:PRO:HB2	1:G:422:GLY:H	1.74	0.51
1:H:17:GLY:HA3	1:H:86:HIS:O	2.10	0.51
1:C:188:PHE:HA	1:C:192:TYR:HD2	1.74	0.51
1:A:415:TYR:HE2	1:B:277:CYS:HA	1.74	0.51
1:A:4:LEU:HD11	1:A:111:TRP:HH2	1.76	0.51
1:C:343:LEU:HD23	1:C:346:LEU:HD12	1.92	0.51
1:A:387:LYS:O	1:A:391:GLU:HG3	2.11	0.51
1:A:188:PHE:HA	1:A:192:TYR:HD2	1.76	0.51
1:D:379:PRO:O	1:D:383:HIS:HE1	1.93	0.51
1:D:395:GLU:HA	1:D:398:LEU:HD22	1.92	0.51
1:C:361:PHE:O	1:C:365:VAL:HG23	2.11	0.51
1:C:93:LYS:HG3	1:C:93:LYS:O	2.11	0.51
1:F:308:LYS:HD2	1:F:308:LYS:N	2.21	0.51
1:C:199:ILE:HG22	1:C:203:LYS:HG3	1.93	0.51
1:C:131:GLY:HA2	1:C:156:THR:HG21	1.93	0.51
1:F:343:LEU:HD23	1:F:346:LEU:HD12	1.93	0.51
1:D:24:ALA:O	1:D:28:MET:HG3	2.11	0.51
1:G:387:LYS:O	1:G:391:GLU:HG3	2.10	0.51
1:E:152:ILE:HG22	1:E:153:SER:N	2.26	0.51
1:A:7:LYS:CD	1:A:111:TRP:HZ3	2.24	0.50
1:D:188:PHE:HA	1:D:192:TYR:HD2	1.75	0.50

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:179:VAL:HG13	1:D:363:ASN:HB3	1.93	0.50
1:G:24:ALA:O	1:G:28:MET:HG3	2.11	0.50
1:F:154:GLU:HG3	1:F:160:VAL:HG23	1.93	0.50
1:E:300:HIS:HB2	2:E:432:NAD:O2D	2.11	0.50
1:E:74:ARG:HG3	1:E:119:PHE:CE2	2.46	0.50
1:F:120:LYS:CD	1:F:120:LYS:H	2.23	0.50
1:C:45:LYS:O	1:C:45:LYS:HG3	2.11	0.50
1:F:91:ILE:HG23	1:F:96:ILE:HB	1.93	0.50
1:B:48:ARG:HD2	1:B:119:PHE:HB2	1.92	0.50
1:B:188:PHE:O	1:B:192:TYR:HB2	2.12	0.50
1:A:183:VAL:HG21	1:A:431:TYR:CE1	2.45	0.50
1:A:181:ASP:HB2	1:A:384:PHE:HE1	1.75	0.50
1:D:407:LYS:HE2	1:D:420:ILE:HG22	1.92	0.50
1:C:250:GLN:O	1:C:254:GLU:HG2	2.11	0.50
1:B:48:ARG:HD2	1:B:119:PHE:CB	2.41	0.50
1:G:141:LYS:HB3	1:G:142:HIS:ND1	2.27	0.50
1:G:142:HIS:N	1:G:143:PRO:HD3	2.26	0.50
1:C:162:ASN:O	1:C:166:MET:HG3	2.10	0.50
1:G:250:GLN:O	1:G:254:GLU:HG2	2.11	0.50
1:E:7:LYS:CE	1:E:101:TRP:HZ3	2.25	0.50
1:B:343:LEU:HD23	1:B:346:LEU:HD12	1.92	0.50
1:B:142:HIS:N	1:B:143:PRO:HD3	2.26	0.50
1:D:138:ILE:HG22	1:D:146:LEU:HD13	1.92	0.50
1:A:131:GLY:HA2	1:A:156:THR:HG21	1.93	0.50
1:C:142:HIS:N	1:C:143:PRO:HD3	2.26	0.50
1:E:142:HIS:CB	1:E:145:LEU:HD12	2.41	0.50
1:D:6:TYR:C	1:D:6:TYR:CD1	2.84	0.50
1:B:189:ASP:OD1	1:B:189:ASP:C	2.50	0.50
1:C:7:LYS:HE3	1:C:99:PHE:CB	2.40	0.50
1:F:4:LEU:HD13	1:F:99:PHE:HE1	1.77	0.50
1:G:28:MET:HB3	1:G:358:SER:HB2	1.93	0.50
1:A:244:ASP:CG	1:A:247:ASN:HD22	2.15	0.50
1:G:45:LYS:HG3	1:G:45:LYS:O	2.09	0.50
1:A:7:LYS:HZ1	1:A:100:ALA:CA	2.24	0.50
1:B:138:ILE:HG22	1:B:146:LEU:HD13	1.93	0.50
1:D:142:HIS:N	1:D:143:PRO:HD3	2.27	0.50
1:D:181:ASP:HB2	1:D:384:PHE:HE1	1.77	0.50
1:C:54:HIS:CD2	1:C:54:HIS:H	2.29	0.50
1:G:7:LYS:HZ1	1:G:100:ALA:CA	2.25	0.50
1:D:131:GLY:HA2	1:D:156:THR:HG21	1.93	0.50
1:A:143:PRO:O	1:A:146:LEU:HB2	2.12	0.50
1:C:57:VAL:H	1:C:84:GLN:NE2	2.10	0.50

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:425:LYS:HE2	1:B:247:ASN:HD21	1.77	0.50
1:B:183:VAL:HG21	1:B:431:TYR:CE1	2.46	0.50
1:H:91:ILE:HG23	1:H:96:ILE:HB	1.93	0.50
1:E:81:PHE:CD2	1:E:342:ARG:HD2	2.46	0.50
1:B:179:VAL:HG13	1:B:363:ASN:HB3	1.94	0.50
1:D:180:ASN:O	1:D:186:SER:HB2	2.12	0.49
1:C:373:THR:HG22	1:C:374:HIS:CD2	2.46	0.49
1:B:57:VAL:H	1:B:84:GLN:NE2	2.09	0.49
1:F:152:ILE:HG13	1:F:174:VAL:HG22	1.94	0.49
1:E:250:GLN:O	1:E:254:GLU:HG2	2.11	0.49
1:G:7:LYS:HE3	1:G:99:PHE:CB	2.40	0.49
1:G:275:THR:CG2	1:G:276:GLY:N	2.75	0.49
1:G:48:ARG:HD2	1:G:119:PHE:HB2	1.93	0.49
1:F:74:ARG:HE	1:F:120:LYS:HZ1	1.60	0.49
1:H:142:HIS:N	1:H:143:PRO:HD3	2.27	0.49
1:C:179:VAL:HG13	1:C:363:ASN:HB3	1.95	0.49
1:H:101:TRP:HZ2	1:H:108:GLU:OE1	1.95	0.49
1:F:307:VAL:H	1:F:308:LYS:NZ	2.10	0.49
1:F:179:VAL:HG13	1:F:363:ASN:HB3	1.94	0.49
1:H:152:ILE:HG22	1:H:153:SER:N	2.28	0.49
1:H:154:GLU:HG3	1:H:160:VAL:HG23	1.95	0.49
1:F:7:LYS:CE	1:F:101:TRP:HZ3	2.25	0.49
1:H:7:LYS:CE	1:H:101:TRP:HZ3	2.25	0.49
1:E:142:HIS:N	1:E:143:PRO:HD3	2.27	0.49
1:E:361:PHE:O	1:E:365:VAL:HG23	2.13	0.49
1:A:430:ARG:HB3	1:B:430:ARG:HB3	1.94	0.49
1:G:53:LEU:O	1:G:54:HIS:C	2.51	0.49
1:G:105:THR:OG1	1:G:108:GLU:HG2	2.11	0.49
1:A:7:LYS:CE	1:A:101:TRP:HZ3	2.26	0.49
1:E:105:THR:OG1	1:E:108:GLU:HG2	2.12	0.49
1:G:74:ARG:HE	1:G:120:LYS:HZ1	1.60	0.49
1:E:419:PRO:CG	1:E:422:GLY:HA3	2.41	0.49
1:H:48:ARG:HD2	1:H:119:PHE:CB	2.41	0.49
1:H:407:LYS:HE2	1:H:420:ILE:HG22	1.95	0.49
1:H:162:ASN:O	1:H:166:MET:HG3	2.11	0.49
1:B:181:ASP:HB2	1:B:384:PHE:HE1	1.77	0.49
1:G:44:LEU:HB3	1:G:71:ALA:HB2	1.95	0.49
1:C:121:ASP:N	1:C:121:ASP:OD1	2.46	0.49
1:H:54:HIS:CD2	1:H:54:HIS:H	2.28	0.49
1:D:154:GLU:HG3	1:D:160:VAL:HG23	1.95	0.49
1:G:7:LYS:CE	1:G:101:TRP:HZ3	2.25	0.49
1:A:415:TYR:CE2	1:B:277:CYS:HA	2.48	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:105:THR:OG1	1:F:108:GLU:HG2	2.12	0.49
1:A:308:LYS:CD	1:A:308:LYS:H	2.07	0.49
1:E:185:LYS:C	1:E:185:LYS:HD3	2.32	0.49
1:A:196:GLU:OE1	1:C:209:MET:HG3	2.12	0.49
1:D:142:HIS:N	1:D:143:PRO:CD	2.76	0.49
1:C:161:HIS:CD2	1:C:165:LYS:HZ1	2.31	0.49
1:D:45:LYS:HG3	1:D:45:LYS:O	2.12	0.49
1:B:91:ILE:HG23	1:B:96:ILE:HB	1.95	0.49
1:D:91:ILE:HG23	1:D:96:ILE:HB	1.95	0.49
1:E:194:CYS:SG	1:E:223:VAL:HG13	2.53	0.49
1:A:7:LYS:HE3	1:A:99:PHE:CA	2.43	0.49
1:D:343:LEU:HD23	1:D:346:LEU:HD12	1.94	0.49
1:B:196:GLU:OE1	1:D:210:ILE:N	2.46	0.49
1:D:419:PRO:CG	1:D:422:GLY:HA3	2.41	0.49
1:A:48:ARG:HD2	1:A:119:PHE:CB	2.43	0.49
1:D:194:CYS:SG	1:D:223:VAL:HG13	2.53	0.49
1:A:154:GLU:HG3	1:A:160:VAL:HG23	1.95	0.49
1:C:7:LYS:CE	1:C:101:TRP:HZ3	2.26	0.49
1:B:7:LYS:HE3	1:B:99:PHE:CA	2.43	0.49
1:E:7:LYS:HD3	1:E:111:TRP:HZ3	1.78	0.49
1:F:4:LEU:H	1:F:4:LEU:HD12	1.74	0.49
1:A:343:LEU:HD23	1:A:346:LEU:HD12	1.94	0.49
1:B:185:LYS:C	1:B:185:LYS:HD3	2.33	0.49
1:G:120:LYS:CD	1:G:120:LYS:H	2.26	0.49
1:B:120:LYS:CD	1:B:120:LYS:H	2.26	0.49
1:G:138:ILE:HG22	1:G:146:LEU:HD13	1.94	0.49
1:H:188:PHE:HA	1:H:192:TYR:HD2	1.76	0.49
1:B:407:LYS:HE2	1:B:420:ILE:HG22	1.94	0.49
1:D:74:ARG:HE	1:D:120:LYS:HZ1	1.58	0.49
1:A:10:ASP:HB3	1:A:13:LEU:HD22	1.95	0.49
1:G:183:VAL:HG21	1:G:431:TYR:CE1	2.48	0.49
1:F:7:LYS:HZ1	1:F:100:ALA:CA	2.26	0.48
1:B:161:HIS:C	1:B:161:HIS:CD2	2.86	0.48
1:A:45:LYS:O	1:A:45:LYS:HG3	2.13	0.48
1:A:415:TYR:HD2	1:B:277:CYS:HB2	1.78	0.48
1:A:249:LEU:O	1:A:253:MET:HG2	2.13	0.48
1:C:379:PRO:O	1:C:383:HIS:HE1	1.96	0.48
1:B:154:GLU:HG3	1:B:160:VAL:HG23	1.95	0.48
1:A:105:THR:OG1	1:A:108:GLU:HG2	2.13	0.48
1:E:10:ASP:HB3	1:E:13:LEU:HD22	1.95	0.48
1:F:244:ASP:CG	1:F:247:ASN:HD22	2.16	0.48
1:G:152:ILE:HG22	1:G:153:SER:N	2.28	0.48

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:161:HIS:CD2	1:H:161:HIS:C	2.87	0.48
1:D:275:THR:CG2	1:D:276:GLY:N	2.77	0.48
1:F:373:THR:HG22	1:F:374:HIS:CD2	2.48	0.48
1:A:48:ARG:HD2	1:A:119:PHE:HB2	1.95	0.48
1:A:74:ARG:HE	1:A:120:LYS:HZ1	1.57	0.48
1:G:54:HIS:HA	1:G:77:SER:OG	2.13	0.48
1:A:161:HIS:C	1:A:161:HIS:CD2	2.87	0.48
1:A:91:ILE:HG23	1:A:96:ILE:HB	1.95	0.48
1:D:105:THR:OG1	1:D:108:GLU:HG2	2.13	0.48
1:H:343:LEU:HD23	1:H:346:LEU:HD12	1.96	0.48
1:B:142:HIS:N	1:B:143:PRO:CD	2.77	0.48
1:G:179:VAL:HG13	1:G:363:ASN:HB3	1.96	0.48
1:H:181:ASP:HB2	1:H:384:PHE:HE1	1.79	0.48
1:H:189:ASP:OD1	1:H:189:ASP:C	2.52	0.48
1:A:138:ILE:HG22	1:A:146:LEU:CD1	2.44	0.48
1:G:181:ASP:HB2	1:G:384:PHE:HE1	1.79	0.48
1:B:54:HIS:H	1:B:54:HIS:CD2	2.31	0.48
1:F:131:GLY:HA2	1:F:156:THR:HG21	1.94	0.48
1:D:308:LYS:N	1:D:308:LYS:HD2	2.17	0.48
1:F:142:HIS:N	1:F:143:PRO:HD3	2.28	0.48
1:H:395:GLU:HA	1:H:398:LEU:HD22	1.94	0.48
1:F:197:SER:OG	1:F:352:HIS:HD2	1.96	0.48
1:C:154:GLU:HG3	1:C:160:VAL:HG23	1.96	0.48
1:B:275:THR:HB	1:B:304:GLU:OE1	2.14	0.48
1:C:111:TRP:O	1:C:115:GLN:HG2	2.14	0.48
1:C:419:PRO:CG	1:C:422:GLY:HA3	2.40	0.48
1:A:353:PRO:CB	1:C:209:MET:HB2	2.44	0.48
1:F:183:VAL:HG21	1:F:431:TYR:CE1	2.49	0.48
1:D:34:MET:HE2	4:D:467:HOH:O	2.14	0.48
1:D:152:ILE:HG22	1:D:153:SER:N	2.29	0.48
1:C:7:LYS:CD	1:C:101:TRP:HZ3	2.27	0.48
1:A:142:HIS:N	1:A:143:PRO:HD3	2.28	0.48
1:E:247:ASN:HD21	1:F:425:LYS:HE2	1.78	0.48
1:F:45:LYS:HG3	1:F:45:LYS:O	2.12	0.48
1:H:131:GLY:HA2	1:H:156:THR:HG21	1.95	0.47
1:A:142:HIS:CB	1:A:145:LEU:HD12	2.44	0.47
1:G:152:ILE:HG13	1:G:174:VAL:HG22	1.95	0.47
1:D:54:HIS:HA	1:D:77:SER:OG	2.14	0.47
1:G:377:LYS:HD2	1:G:378:TYR:CE1	2.49	0.47
1:C:6:TYR:C	1:C:6:TYR:CD1	2.87	0.47
1:C:105:THR:OG1	1:C:108:GLU:HG2	2.14	0.47
1:E:154:GLU:HG3	1:E:160:VAL:HG23	1.96	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:93:LYS:O	1:E:93:LYS:HG3	2.14	0.47
1:H:7:LYS:HE3	1:H:99:PHE:CA	2.44	0.47
1:D:343:LEU:HG	2:D:432:NAD:H71N	1.79	0.47
1:G:142:HIS:N	1:G:143:PRO:CD	2.78	0.47
1:C:63:ILE:HG23	1:C:73:VAL:HG21	1.96	0.47
1:F:379:PRO:O	1:F:383:HIS:HE1	1.97	0.47
1:H:379:PRO:O	1:H:383:HIS:HE1	1.97	0.47
1:B:131:GLY:HA2	1:B:156:THR:HG21	1.96	0.47
1:H:10:ASP:HB3	1:H:13:LEU:HD22	1.95	0.47
1:C:165:LYS:HE3	1:C:165:LYS:HB2	1.67	0.47
1:B:152:ILE:HG22	1:B:153:SER:N	2.29	0.47
1:F:395:GLU:HA	1:F:398:LEU:HD22	1.96	0.47
1:F:194:CYS:SG	1:F:223:VAL:HG13	2.55	0.47
1:F:93:LYS:O	1:F:93:LYS:HG3	2.13	0.47
1:E:189:ASP:C	1:E:189:ASP:OD1	2.52	0.47
1:G:185:LYS:HD3	1:G:185:LYS:C	2.35	0.47
1:A:188:PHE:O	1:A:192:TYR:HB2	2.14	0.47
1:H:361:PHE:O	1:H:365:VAL:HG23	2.15	0.47
1:C:4:LEU:HD13	1:C:99:PHE:HE1	1.79	0.47
1:E:7:LYS:HE3	1:E:99:PHE:CA	2.45	0.47
1:F:300:HIS:HB2	2:F:432:NAD:O2D	2.15	0.47
1:G:373:THR:HG22	1:G:374:HIS:CD2	2.49	0.47
1:F:48:ARG:HD2	1:F:119:PHE:HB2	1.96	0.47
1:C:120:LYS:H	1:C:120:LYS:CD	2.27	0.47
1:C:142:HIS:N	1:C:143:PRO:CD	2.77	0.47
1:E:57:VAL:H	1:E:84:GLN:NE2	2.13	0.47
1:A:165:LYS:HE3	1:A:165:LYS:HB2	1.69	0.47
1:A:259:THR:HG23	1:B:404:LYS:HG3	1.94	0.47
1:F:31:LEU:HD13	1:F:61:VAL:HG12	1.97	0.47
1:G:63:ILE:HG23	1:G:73:VAL:HG21	1.95	0.47
1:D:110:LEU:O	1:D:110:LEU:HD22	2.14	0.47
1:F:189:ASP:C	1:F:189:ASP:OD1	2.53	0.47
1:D:121:ASP:OD1	1:D:121:ASP:N	2.45	0.47
1:F:275:THR:CG2	1:F:276:GLY:N	2.78	0.47
1:E:275:THR:CG2	1:E:276:GLY:N	2.77	0.47
1:D:7:LYS:CE	1:D:101:TRP:HZ3	2.27	0.47
1:E:48:ARG:HD2	1:E:119:PHE:CB	2.44	0.47
1:G:142:HIS:CB	1:G:145:LEU:HD12	2.44	0.47
1:C:24:ALA:O	1:C:28:MET:HG3	2.14	0.47
1:F:142:HIS:N	1:F:143:PRO:CD	2.77	0.47
1:G:244:ASP:CG	1:G:247:ASN:HD22	2.17	0.47
1:H:424:PHE:C	1:H:425:LYS:HG2	2.35	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:35:ARG:NH2	1:C:64:GLU:HB2	2.30	0.47
1:B:6:TYR:CD1	1:B:6:TYR:C	2.88	0.47
1:C:7:LYS:HD3	1:C:111:TRP:HZ3	1.80	0.47
1:H:105:THR:OG1	1:H:108:GLU:HG2	2.15	0.47
1:A:373:THR:HG22	1:A:374:HIS:CD2	2.50	0.47
1:E:48:ARG:HD2	1:E:119:PHE:HB2	1.95	0.47
1:D:120:LYS:H	1:D:120:LYS:CD	2.28	0.47
1:D:54:HIS:H	1:D:54:HIS:CD2	2.32	0.47
1:G:379:PRO:O	1:G:383:HIS:HE1	1.98	0.47
1:E:379:PRO:O	1:E:383:HIS:HE1	1.98	0.47
1:B:63:ILE:HG23	1:B:73:VAL:HG21	1.97	0.47
1:D:7:LYS:HD3	1:D:111:TRP:HZ3	1.80	0.47
1:G:54:HIS:H	1:G:54:HIS:CD2	2.33	0.47
1:A:53:LEU:HG	1:A:130:ASP:HB2	1.96	0.47
1:D:74:ARG:HG3	1:D:119:PHE:CE2	2.50	0.46
1:A:196:GLU:OE1	1:C:210:ILE:N	2.49	0.46
1:D:142:HIS:HB3	1:D:145:LEU:CD1	2.44	0.46
1:C:53:LEU:O	1:C:54:HIS:C	2.53	0.46
1:E:225:LYS:NZ	1:E:250:GLN:HE22	2.12	0.46
1:D:53:LEU:HG	1:D:130:ASP:HB2	1.98	0.46
1:B:152:ILE:HG13	1:B:174:VAL:HG22	1.97	0.46
1:D:7:LYS:NZ	1:D:7:LYS:O	2.40	0.46
1:B:28:MET:HB3	1:B:358:SER:HB2	1.97	0.46
1:A:6:TYR:CD1	1:A:6:TYR:C	2.88	0.46
1:A:7:LYS:HD3	1:A:111:TRP:HZ3	1.81	0.46
1:H:307:VAL:H	1:H:308:LYS:NZ	2.14	0.46
1:D:48:ARG:HD2	1:D:119:PHE:CB	2.44	0.46
1:C:419:PRO:HB2	1:C:422:GLY:N	2.29	0.46
1:E:142:HIS:N	1:E:143:PRO:CD	2.79	0.46
1:A:142:HIS:N	1:A:143:PRO:CD	2.78	0.46
1:F:48:ARG:HD2	1:F:119:PHE:CB	2.46	0.46
1:H:134:LEU:O	1:H:138:ILE:HG12	2.15	0.46
1:H:142:HIS:N	1:H:143:PRO:CD	2.78	0.46
1:H:53:LEU:O	1:H:54:HIS:C	2.54	0.46
1:C:377:LYS:HD2	1:C:378:TYR:CE1	2.50	0.46
1:G:6:TYR:OH	1:G:11:ILE:HD13	2.16	0.46
1:E:53:LEU:O	1:E:54:HIS:C	2.54	0.46
1:D:361:PHE:O	1:D:365:VAL:HG23	2.15	0.46
1:A:194:CYS:SG	1:A:223:VAL:HG13	2.56	0.46
1:G:7:LYS:CD	1:G:101:TRP:HZ3	2.29	0.46
1:G:4:LEU:HD13	1:G:99:PHE:HE1	1.81	0.46
1:C:275:THR:HB	1:C:304:GLU:OE1	2.15	0.46

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:373:THR:HG22	1:B:374:HIS:CD2	2.50	0.46
1:D:48:ARG:HD2	1:D:119:PHE:HB2	1.97	0.46
1:F:57:VAL:H	1:F:84:GLN:NE2	2.14	0.46
1:E:158:THR:O	1:E:161:HIS:HB3	2.16	0.46
1:B:172:LEU:HD22	1:B:174:VAL:H	1.80	0.46
1:A:31:LEU:HD13	1:A:61:VAL:HG12	1.97	0.46
1:H:124:LEU:HD23	1:H:124:LEU:N	2.30	0.46
1:E:181:ASP:HB2	1:E:384:PHE:HE1	1.80	0.46
1:E:7:LYS:O	1:E:7:LYS:NZ	2.41	0.46
1:C:243:ILE:HG21	1:D:408:LEU:CD1	2.45	0.46
1:D:158:THR:O	1:D:161:HIS:HB3	2.15	0.46
1:E:161:HIS:NE2	1:E:165:LYS:NZ	2.55	0.46
1:F:361:PHE:O	1:F:365:VAL:HG23	2.16	0.46
1:C:91:ILE:HG23	1:C:96:ILE:HB	1.96	0.46
1:H:31:LEU:HD13	1:H:61:VAL:HG12	1.97	0.46
1:D:101:TRP:CE2	1:D:104:GLU:HG2	2.51	0.46
1:E:364:GLN:HE21	1:E:364:GLN:HA	1.81	0.46
1:B:142:HIS:HB3	1:B:145:LEU:CD1	2.44	0.46
1:F:142:HIS:CB	1:F:145:LEU:HD12	2.46	0.46
1:D:57:VAL:H	1:D:84:GLN:NE2	2.13	0.46
1:G:407:LYS:HE2	1:G:420:ILE:HG22	1.97	0.46
1:H:7:LYS:HZ1	1:H:100:ALA:CA	2.28	0.46
1:B:152:ILE:HD11	1:B:174:VAL:HG13	1.98	0.46
1:F:181:ASP:HB2	1:F:384:PHE:HE1	1.80	0.46
1:F:63:ILE:HG23	1:F:73:VAL:HG21	1.98	0.46
1:D:377:LYS:HD2	1:D:378:TYR:CE1	2.50	0.46
1:G:7:LYS:HE3	1:G:99:PHE:CA	2.46	0.46
1:F:7:LYS:HE3	1:F:99:PHE:CA	2.45	0.46
1:B:387:LYS:HE2	1:B:425:LYS:HB2	1.98	0.46
1:G:247:ASN:HD21	1:H:425:LYS:HE2	1.81	0.46
1:E:6:TYR:CD1	1:E:6:TYR:C	2.89	0.46
1:G:35:ARG:NH2	1:G:64:GLU:HB2	2.31	0.46
1:A:120:LYS:H	1:A:120:LYS:CD	2.29	0.46
1:H:57:VAL:H	1:H:84:GLN:NE2	2.14	0.46
1:H:161:HIS:CD2	1:H:165:LYS:HZ1	2.32	0.46
1:B:54:HIS:HA	1:B:77:SER:OG	2.15	0.46
1:E:54:HIS:CD2	1:E:54:HIS:H	2.32	0.46
1:H:110:LEU:HD22	1:H:110:LEU:O	2.16	0.46
1:B:121:ASP:OD1	1:B:121:ASP:N	2.48	0.46
1:B:45:LYS:O	1:B:45:LYS:HG3	2.13	0.46
1:B:7:LYS:CE	1:B:101:TRP:CZ3	2.99	0.45
1:A:300:HIS:HB2	2:A:432:NAD:O2D	2.15	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:424:PHE:C	1:G:425:LYS:HG2	2.35	0.45
1:G:167:MET:SD	1:G:381:GLY:HA2	2.56	0.45
1:D:53:LEU:O	1:D:54:HIS:C	2.54	0.45
1:E:277:CYS:SG	1:F:412:GLN:HG2	2.56	0.45
1:B:111:TRP:O	1:B:115:GLN:HG2	2.17	0.45
1:H:142:HIS:HB3	1:H:145:LEU:CD1	2.45	0.45
1:F:196:GLU:HG2	1:H:203:LYS:HZ1	1.81	0.45
1:E:17:GLY:HA3	1:E:86:HIS:O	2.17	0.45
1:G:188:PHE:O	1:G:192:TYR:HB2	2.16	0.45
1:G:425:LYS:HE2	1:H:247:ASN:HD21	1.81	0.45
1:G:171:ILE:O	1:G:173:LYS:HG2	2.16	0.45
1:B:38:TYR:HB3	1:B:43:PRO:CD	2.46	0.45
1:C:275:THR:CG2	1:C:276:GLY:N	2.79	0.45
1:B:4:LEU:HD13	1:B:99:PHE:HE1	1.81	0.45
1:H:4:LEU:CD1	1:H:4:LEU:H	2.27	0.45
1:B:56:THR:HB	1:B:84:GLN:NE2	2.30	0.45
1:H:6:TYR:CD1	1:H:6:TYR:C	2.88	0.45
1:A:379:PRO:O	1:A:383:HIS:HE1	1.99	0.45
1:F:7:LYS:HG2	1:F:111:TRP:CH2	2.52	0.45
1:G:307:VAL:H	1:G:308:LYS:NZ	2.15	0.45
1:B:134:LEU:O	1:B:138:ILE:HG12	2.17	0.45
1:E:129:ASP:OD2	1:E:135:THR:CG2	2.65	0.45
1:C:158:THR:O	1:C:161:HIS:HB3	2.16	0.45
1:H:54:HIS:HA	1:H:77:SER:OG	2.16	0.45
1:D:7:LYS:HE3	1:D:99:PHE:CA	2.46	0.45
1:F:210:ILE:N	1:H:196:GLU:OE1	2.48	0.45
1:C:188:PHE:O	1:C:192:TYR:HB2	2.16	0.45
1:D:152:ILE:HG13	1:D:174:VAL:HG22	1.97	0.45
1:E:151:GLY:HA3	1:E:371:LEU:HG	1.97	0.45
1:G:197:SER:OG	1:G:352:HIS:HD2	2.00	0.45
1:H:151:GLY:HA3	1:H:371:LEU:HG	1.98	0.45
1:G:300:HIS:CA	1:G:343:LEU:HD11	2.47	0.45
1:H:120:LYS:CD	1:H:120:LYS:H	2.28	0.45
1:G:387:LYS:HE2	1:G:425:LYS:HB2	1.99	0.45
1:A:57:VAL:H	1:A:84:GLN:NE2	2.15	0.45
1:F:38:TYR:HB3	1:F:43:PRO:CD	2.46	0.45
1:H:38:TYR:HB3	1:H:43:PRO:CD	2.46	0.45
1:D:189:ASP:OD1	1:D:189:ASP:C	2.55	0.45
1:F:364:GLN:HE21	1:F:364:GLN:HA	1.81	0.45
1:G:101:TRP:HZ2	1:G:108:GLU:CD	2.20	0.45
1:D:4:LEU:H	1:D:4:LEU:CD1	2.29	0.45
1:H:343:LEU:HG	2:H:432:NAD:H71N	1.82	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:300:HIS:CA	1:F:343:LEU:HD11	2.46	0.45
1:D:188:PHE:O	1:D:192:TYR:HB2	2.16	0.45
1:A:246:ILE:O	1:A:250:GLN:HG3	2.17	0.45
1:F:45:LYS:HA	1:F:70:GLY:O	2.16	0.45
1:D:35:ARG:NH2	1:D:64:GLU:HB2	2.32	0.45
1:H:45:LYS:O	1:H:45:LYS:HG3	2.17	0.45
1:E:277:CYS:HA	1:F:415:TYR:CE2	2.51	0.45
1:A:4:LEU:HD13	1:A:99:PHE:HE1	1.81	0.45
1:H:7:LYS:NZ	1:H:7:LYS:O	2.44	0.45
1:D:300:HIS:CA	1:D:343:LEU:HD11	2.47	0.45
1:H:74:ARG:HE	1:H:120:LYS:HZ1	1.64	0.45
1:C:142:HIS:HB3	1:C:145:LEU:CD1	2.46	0.45
1:F:6:TYR:C	1:F:6:TYR:CD1	2.90	0.45
1:F:152:ILE:HG22	1:F:153:SER:N	2.31	0.45
1:H:158:THR:O	1:H:161:HIS:HB3	2.16	0.45
1:A:158:THR:O	1:A:161:HIS:HB3	2.17	0.45
1:C:197:SER:OG	1:C:352:HIS:HD2	2.00	0.45
1:H:93:LYS:O	1:H:93:LYS:HG3	2.16	0.45
1:G:101:TRP:HZ2	1:G:108:GLU:OE1	2.00	0.45
1:B:101:TRP:HZ2	1:B:108:GLU:CD	2.20	0.45
1:B:7:LYS:CD	1:B:101:TRP:HZ3	2.30	0.45
1:C:247:ASN:HD21	1:D:425:LYS:HE2	1.82	0.45
1:D:17:GLY:HA3	1:D:86:HIS:O	2.16	0.45
1:B:209:MET:HB2	1:D:353:PRO:CB	2.47	0.45
1:F:165:LYS:HE3	1:F:165:LYS:HB2	1.67	0.45
1:C:177:ILE:HG13	1:C:371:LEU:HD21	1.99	0.45
1:H:44:LEU:HB3	1:H:71:ALA:HB2	1.98	0.45
1:A:110:LEU:O	1:A:110:LEU:HD22	2.17	0.45
1:C:7:LYS:HE3	1:C:99:PHE:CA	2.47	0.45
1:D:373:THR:HG22	1:D:374:HIS:CD2	2.52	0.45
1:G:206:THR:O	1:G:207:ASP:HB2	2.16	0.45
1:E:184:THR:HA	1:E:188:PHE:CD1	2.52	0.45
1:D:81:PHE:O	1:D:102:LYS:HE2	2.17	0.45
1:C:387:LYS:HE2	1:C:425:LYS:HB2	1.99	0.45
1:G:364:GLN:HE21	1:G:364:GLN:HA	1.82	0.45
1:B:171:ILE:O	1:B:173:LYS:HG2	2.17	0.45
1:H:121:ASP:OD1	1:H:121:ASP:N	2.47	0.45
1:E:4:LEU:HD13	1:E:99:PHE:HE1	1.82	0.44
1:D:246:ILE:O	1:D:250:GLN:HG3	2.17	0.44
1:E:161:HIS:CD2	1:E:165:LYS:HZ1	2.35	0.44
1:D:364:GLN:HE21	1:D:364:GLN:HA	1.81	0.44
1:C:189:ASP:C	1:C:189:ASP:OD1	2.55	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:409:THR:H	1:G:412:GLN:NE2	2.09	0.44
1:E:7:LYS:HZ1	1:E:100:ALA:CA	2.30	0.44
1:C:161:HIS:NE2	1:C:165:LYS:NZ	2.54	0.44
1:A:161:HIS:CD2	1:A:165:LYS:HZ1	2.35	0.44
1:G:31:LEU:HD13	1:G:61:VAL:HG12	1.99	0.44
1:F:54:HIS:CD2	1:F:54:HIS:H	2.34	0.44
1:A:38:TYR:HB3	1:A:43:PRO:CD	2.47	0.44
1:B:151:GLY:HA3	1:B:371:LEU:HG	2.00	0.44
1:E:275:THR:HB	1:E:304:GLU:OE1	2.17	0.44
1:D:101:TRP:HZ2	1:D:108:GLU:OE1	2.00	0.44
1:E:7:LYS:CD	1:E:101:TRP:HZ3	2.31	0.44
1:B:308:LYS:HD2	1:B:308:LYS:N	2.18	0.44
1:E:364:GLN:HE21	1:E:364:GLN:CA	2.30	0.44
1:G:419:PRO:CG	1:G:422:GLY:HA3	2.45	0.44
1:F:364:GLN:HE21	1:F:364:GLN:CA	2.31	0.44
1:G:426:PRO:HB2	1:G:428:HIS:CE1	2.53	0.44
1:D:300:HIS:HB2	2:D:432:NAD:O2D	2.17	0.44
1:A:300:HIS:CA	1:A:343:LEU:HD11	2.47	0.44
1:E:373:THR:HG22	1:E:374:HIS:CD2	2.52	0.44
1:G:74:ARG:HE	1:G:120:LYS:HZ3	1.64	0.44
1:B:10:ASP:HB3	1:B:13:LEU:HD22	2.00	0.44
1:B:165:LYS:HB2	1:B:165:LYS:HE3	1.73	0.44
1:C:152:ILE:HG13	1:C:174:VAL:HG22	2.00	0.44
1:E:152:ILE:HG13	1:E:174:VAL:HG22	1.98	0.44
1:E:38:TYR:HB3	1:E:43:PRO:CD	2.47	0.44
1:C:321:LYS:HB2	1:C:322:PRO:HD2	2.00	0.44
1:F:110:LEU:O	1:F:110:LEU:HD22	2.17	0.44
1:G:7:LYS:O	1:G:7:LYS:NZ	2.40	0.44
1:C:7:LYS:CE	1:C:101:TRP:CZ3	3.01	0.44
1:H:300:HIS:CA	1:H:343:LEU:HD11	2.48	0.44
1:B:300:HIS:CA	1:B:343:LEU:HD11	2.47	0.44
1:C:155:GLU:O	1:C:180:ASN:HB2	2.18	0.44
1:H:2:ASP:HB3	1:H:3:LYS:H	1.60	0.44
1:A:152:ILE:HG22	1:A:153:SER:N	2.33	0.44
1:C:38:TYR:HB3	1:C:43:PRO:CD	2.48	0.44
1:B:206:THR:O	1:B:207:ASP:HB2	2.17	0.44
1:B:155:GLU:O	1:B:180:ASN:HB2	2.18	0.44
1:D:119:PHE:HB2	1:D:122:GLY:O	2.18	0.44
1:C:17:GLY:HA3	1:C:86:HIS:O	2.18	0.44
1:H:210:ILE:HG22	1:H:236:ALA:HB2	2.00	0.44
1:E:142:HIS:HB3	1:E:145:LEU:CD1	2.47	0.44
1:A:134:LEU:O	1:A:138:ILE:HG12	2.18	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:184:THR:HA	1:A:188:PHE:CD1	2.52	0.44
1:A:53:LEU:O	1:A:54:HIS:C	2.55	0.44
1:H:194:CYS:SG	1:H:223:VAL:HG13	2.58	0.44
1:B:44:LEU:HB3	1:B:71:ALA:HB2	1.99	0.44
1:E:110:LEU:HD22	1:E:110:LEU:O	2.17	0.44
1:A:275:THR:CG2	1:A:276:GLY:N	2.81	0.44
1:A:419:PRO:CG	1:A:422:GLY:HA3	2.44	0.44
1:G:6:TYR:CD1	1:G:6:TYR:C	2.91	0.44
1:F:53:LEU:HG	1:F:130:ASP:HB2	2.00	0.44
1:G:19:LYS:HE3	4:G:464:HOH:O	2.18	0.44
1:C:329:LEU:HB2	1:C:331:ASN:OD1	2.17	0.44
1:A:361:PHE:O	1:A:365:VAL:HG23	2.17	0.44
1:E:277:CYS:HA	1:F:415:TYR:HE2	1.82	0.44
1:H:4:LEU:HD13	1:H:99:PHE:HE1	1.81	0.44
1:G:154:GLU:HG3	1:G:160:VAL:HG23	2.00	0.44
1:C:138:ILE:HG22	1:C:146:LEU:CD1	2.48	0.44
1:H:172:LEU:HD22	1:H:174:VAL:H	1.82	0.44
1:H:35:ARG:NH2	1:H:64:GLU:HB2	2.33	0.44
1:A:310:LEU:HD23	1:A:310:LEU:HA	1.85	0.44
1:F:26:ASN:HD22	1:F:26:ASN:HA	1.64	0.44
1:C:300:HIS:HB2	2:C:432:NAD:O2D	2.18	0.44
1:E:155:GLU:O	1:E:180:ASN:HB2	2.18	0.44
1:G:57:VAL:H	1:G:84:GLN:NE2	2.16	0.44
1:D:63:ILE:HG23	1:D:73:VAL:HG21	2.00	0.44
1:E:63:ILE:HG23	1:E:73:VAL:HG21	1.99	0.44
1:A:93:LYS:O	1:A:93:LYS:HG3	2.17	0.44
1:C:310:LEU:HA	1:C:310:LEU:HD23	1.89	0.44
1:F:124:LEU:HD23	1:F:124:LEU:N	2.33	0.44
1:G:91:ILE:HG23	1:G:96:ILE:HB	1.99	0.44
1:D:7:LYS:HG2	1:D:111:TRP:CZ3	2.53	0.43
1:B:101:TRP:HZ2	1:B:108:GLU:OE1	2.00	0.43
1:F:343:LEU:HG	2:F:432:NAD:H71N	1.81	0.43
1:H:24:ALA:O	1:H:28:MET:HG3	2.18	0.43
1:F:188:PHE:O	1:F:192:TYR:HB2	2.18	0.43
1:H:152:ILE:HD11	1:H:174:VAL:HG13	1.98	0.43
1:G:167:MET:HG2	1:G:172:LEU:HD12	1.99	0.43
1:F:215:ALA:HB1	1:F:231:LEU:HD13	2.00	0.43
1:A:215:ALA:HB1	1:A:231:LEU:HD13	2.00	0.43
1:D:321:LYS:HB2	1:D:322:PRO:HD2	1.99	0.43
1:H:197:SER:OG	1:H:352:HIS:HD2	2.01	0.43
1:B:110:LEU:HD22	1:B:110:LEU:O	2.18	0.43
1:D:4:LEU:HD13	1:D:99:PHE:HE1	1.82	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:101:TRP:HZ2	1:A:108:GLU:CD	2.22	0.43
1:H:355:PHE:CZ	1:H:397:HIS:HB3	2.53	0.43
1:A:189:ASP:OD1	1:A:189:ASP:C	2.56	0.43
1:A:7:LYS:CE	1:A:101:TRP:CZ3	3.02	0.43
1:A:7:LYS:CD	1:A:101:TRP:HZ3	2.32	0.43
1:G:300:HIS:HB2	2:G:432:NAD:O2D	2.18	0.43
1:C:206:THR:O	1:C:207:ASP:HB2	2.18	0.43
1:B:158:THR:O	1:B:161:HIS:HB3	2.18	0.43
1:B:425:LYS:HD2	1:B:429:TYR:CD2	2.54	0.43
1:C:387:LYS:O	1:C:391:GLU:HG3	2.18	0.43
1:A:54:HIS:H	1:A:54:HIS:CD2	2.36	0.43
1:G:277:CYS:HA	1:H:415:TYR:CE2	2.54	0.43
1:E:7:LYS:CE	1:E:101:TRP:CZ3	3.01	0.43
1:E:74:ARG:HE	1:E:120:LYS:HZ3	1.65	0.43
1:F:196:GLU:OE1	1:H:210:ILE:N	2.49	0.43
1:H:203:LYS:O	1:H:207:ASP:N	2.50	0.43
1:G:10:ASP:HB3	1:G:13:LEU:HD22	2.01	0.43
1:F:158:THR:O	1:F:161:HIS:HB3	2.18	0.43
1:B:160:VAL:HG11	1:B:178:ASN:ND2	2.33	0.43
1:G:172:LEU:HD22	1:G:174:VAL:H	1.84	0.43
1:B:55:MET:HB3	1:B:83:THR:HG23	1.99	0.43
1:F:132:GLY:O	1:F:136:ASN:HB2	2.18	0.43
1:D:93:LYS:O	1:D:93:LYS:HG3	2.18	0.43
1:H:275:THR:CG2	1:H:276:GLY:N	2.81	0.43
1:C:101:TRP:HZ2	1:C:108:GLU:CD	2.21	0.43
1:B:101:TRP:CE2	1:B:104:GLU:HG2	2.54	0.43
1:D:275:THR:HB	1:D:304:GLU:OE1	2.19	0.43
1:E:7:LYS:HG2	1:E:111:TRP:CH2	2.54	0.43
1:H:7:LYS:HG2	1:H:111:TRP:CH2	2.54	0.43
1:B:155:GLU:HB3	1:B:364:GLN:OE1	2.18	0.43
1:H:208:VAL:HG22	1:H:209:MET:N	2.33	0.43
1:F:419:PRO:CG	1:F:422:GLY:HA3	2.42	0.43
1:H:387:LYS:HE2	1:H:425:LYS:HB2	2.00	0.43
1:E:425:LYS:HE2	1:F:247:ASN:HD21	1.84	0.43
1:G:53:LEU:HG	1:G:130:ASP:HB2	2.01	0.43
1:G:321:LYS:HB2	1:G:322:PRO:HD2	2.01	0.43
1:G:7:LYS:HG2	1:G:111:TRP:CH2	2.53	0.43
1:E:101:TRP:HZ2	1:E:108:GLU:OE1	2.01	0.43
1:F:111:TRP:O	1:F:115:GLN:HG2	2.19	0.43
1:F:7:LYS:CE	1:F:101:TRP:CZ3	3.02	0.43
1:B:409:THR:H	1:B:412:GLN:NE2	2.09	0.43
1:C:56:THR:HB	1:C:84:GLN:NE2	2.34	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:275:THR:HB	1:H:304:GLU:OE1	2.19	0.43
1:A:343:LEU:HG	2:A:432:NAD:H71N	1.83	0.43
1:B:210:ILE:HG22	1:B:236:ALA:HB2	2.01	0.43
1:H:419:PRO:CG	1:H:422:GLY:HA3	2.48	0.43
1:G:153:SER:HB2	1:G:368:GLN:HE21	1.84	0.43
1:F:35:ARG:NH2	1:F:64:GLU:HB2	2.33	0.43
1:C:198:LEU:HD22	1:C:227:CYS:SG	2.59	0.43
1:B:345:ASN:O	1:B:349:ALA:HB3	2.18	0.43
1:E:55:MET:HB3	1:E:83:THR:HG23	2.01	0.43
1:G:4:LEU:HD22	1:G:7:LYS:HB3	2.01	0.43
1:H:7:LYS:CE	1:H:101:TRP:CZ3	3.02	0.43
1:H:373:THR:HG22	1:H:374:HIS:CD2	2.53	0.43
1:E:329:LEU:HB2	1:E:331:ASN:OD1	2.19	0.43
1:C:31:LEU:HD13	1:C:61:VAL:HG12	2.00	0.43
1:A:26:ASN:HD22	1:A:26:ASN:HA	1.64	0.43
1:D:37:MET:HE2	1:D:38:TYR:CE2	2.53	0.43
1:A:277:CYS:HB3	1:B:416:LEU:CD2	2.45	0.43
1:F:4:LEU:HD11	1:F:111:TRP:HH2	1.84	0.43
1:E:203:LYS:O	1:E:207:ASP:N	2.51	0.43
1:G:134:LEU:O	1:G:138:ILE:HG12	2.18	0.43
1:D:56:THR:HB	1:D:84:GLN:NE2	2.33	0.43
1:E:165:LYS:HE3	1:E:165:LYS:HB2	1.69	0.43
1:B:6:TYR:OH	1:B:11:ILE:HD13	2.18	0.43
1:B:275:THR:CG2	1:B:276:GLY:N	2.82	0.43
1:D:7:LYS:HG2	1:D:111:TRP:CH2	2.53	0.43
1:B:7:LYS:HG2	1:B:111:TRP:CH2	2.53	0.43
1:G:119:PHE:HB2	1:G:122:GLY:O	2.19	0.43
1:F:172:LEU:HD22	1:F:174:VAL:H	1.84	0.43
1:D:45:LYS:HA	1:D:70:GLY:O	2.18	0.43
1:B:91:ILE:HD13	1:B:91:ILE:HA	1.86	0.43
1:F:237:ARG:NE	1:G:257:GLU:HB2	2.34	0.43
1:A:121:ASP:N	1:A:121:ASP:OD1	2.48	0.43
1:F:101:TRP:HZ2	1:F:108:GLU:OE1	2.02	0.42
1:E:196:GLU:OE1	1:G:210:ILE:N	2.47	0.42
1:A:210:ILE:N	1:C:196:GLU:OE1	2.52	0.42
1:H:419:PRO:HB2	1:H:422:GLY:N	2.32	0.42
1:G:161:HIS:CD2	1:G:165:LYS:HZ1	2.37	0.42
1:F:161:HIS:NE2	1:F:165:LYS:NZ	2.57	0.42
1:E:6:TYR:OH	1:E:11:ILE:HD13	2.19	0.42
1:A:153:SER:HB2	1:A:368:GLN:HE21	1.83	0.42
1:C:132:GLY:O	1:C:136:ASN:HB2	2.19	0.42
1:E:121:ASP:N	1:E:121:ASP:OD1	2.47	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:9:ALA:HB2	1:C:101:TRP:HB2	2.01	0.42
1:D:387:LYS:HE2	1:D:425:LYS:HB2	2.00	0.42
1:C:424:PHE:C	1:C:425:LYS:HG2	2.39	0.42
1:H:152:ILE:HG13	1:H:174:VAL:HG22	2.01	0.42
1:D:364:GLN:CA	1:D:364:GLN:HE21	2.31	0.42
1:E:187:LYS:HE2	4:F:457:HOH:O	2.19	0.42
1:D:206:THR:O	1:D:207:ASP:HB2	2.19	0.42
1:F:206:THR:O	1:F:207:ASP:HB2	2.20	0.42
1:G:55:MET:HB3	1:G:83:THR:HG23	2.00	0.42
1:E:323:GLN:HG3	1:E:339:ALA:HA	2.01	0.42
1:H:26:ASN:HD22	1:H:26:ASN:HA	1.65	0.42
1:F:177:ILE:HG13	1:F:371:LEU:HD21	2.01	0.42
1:C:2:ASP:HB3	1:C:3:LYS:H	1.61	0.42
1:C:4:LEU:HD11	1:C:111:TRP:HH2	1.81	0.42
1:B:7:LYS:HG2	1:B:111:TRP:CZ3	2.54	0.42
1:A:277:CYS:O	1:A:304:GLU:HG2	2.19	0.42
1:A:101:TRP:HZ2	1:A:108:GLU:OE1	2.02	0.42
1:H:155:GLU:O	1:H:180:ASN:HB2	2.20	0.42
1:H:425:LYS:HD2	1:H:429:TYR:CD2	2.54	0.42
1:G:153:SER:HB2	1:G:368:GLN:NE2	2.34	0.42
1:B:53:LEU:O	1:B:54:HIS:C	2.56	0.42
1:H:124:LEU:HD23	1:H:124:LEU:H	1.84	0.42
1:A:152:ILE:HG13	1:A:174:VAL:HG22	2.02	0.42
1:F:257:GLU:HB2	1:G:237:ARG:NE	2.34	0.42
1:F:321:LYS:HB2	1:F:322:PRO:HD2	2.00	0.42
1:E:215:ALA:HB1	1:E:231:LEU:HD13	2.01	0.42
1:A:44:LEU:HB3	1:A:71:ALA:HB2	2.00	0.42
1:G:7:LYS:CE	1:G:101:TRP:CZ3	3.01	0.42
1:D:101:TRP:HZ2	1:D:108:GLU:CD	2.23	0.42
1:B:74:ARG:HE	1:B:120:LYS:HZ1	1.66	0.42
1:G:210:ILE:HG22	1:G:236:ALA:HB2	2.00	0.42
1:F:10:ASP:HB3	1:F:13:LEU:HD22	2.00	0.42
1:E:353:PRO:CB	1:G:209:MET:HB2	2.47	0.42
1:H:3:LYS:HE2	1:H:115:GLN:NE2	2.34	0.42
1:A:403:VAL:HG13	1:B:258:VAL:HB	2.02	0.42
1:D:31:LEU:HD13	1:D:61:VAL:HG12	2.01	0.42
1:B:4:LEU:HD22	1:B:7:LYS:HB3	2.00	0.42
1:F:7:LYS:CD	1:F:101:TRP:HZ3	2.31	0.42
1:G:203:LYS:O	1:G:207:ASP:N	2.52	0.42
1:E:377:LYS:HD2	1:E:378:TYR:CE1	2.54	0.42
1:A:133:ASP:HB2	4:A:476:HOH:O	2.19	0.42
1:G:415:TYR:OH	1:H:303:VAL:HG21	2.20	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:7:LYS:NZ	1:B:7:LYS:O	2.41	0.42
1:F:119:PHE:HB3	1:F:120:LYS:HE2	2.02	0.42
1:D:2:ASP:HB3	1:D:3:LYS:H	1.63	0.42
1:C:53:LEU:HG	1:C:130:ASP:HB2	2.01	0.42
1:H:53:LEU:HG	1:H:130:ASP:HB2	2.02	0.42
1:E:53:LEU:HG	1:E:130:ASP:HB2	2.01	0.42
1:B:329:LEU:HB2	1:B:331:ASN:OD1	2.20	0.42
1:E:198:LEU:HD22	1:E:227:CYS:SG	2.59	0.42
1:C:110:LEU:HD22	1:C:110:LEU:O	2.19	0.42
1:E:119:PHE:HB2	1:E:122:GLY:O	2.20	0.42
1:E:74:ARG:HE	1:E:120:LYS:HZ1	1.66	0.42
1:F:408:LEU:HA	1:F:408:LEU:HD12	1.88	0.42
1:C:119:PHE:HB2	1:C:122:GLY:O	2.20	0.42
1:B:210:ILE:N	1:D:196:GLU:OE1	2.50	0.42
1:G:184:THR:HA	1:G:188:PHE:CD1	2.54	0.42
1:H:184:THR:HA	1:H:188:PHE:CD1	2.55	0.42
1:E:183:VAL:HG23	1:E:390:ASP:OD2	2.20	0.42
1:H:153:SER:HB2	1:H:368:GLN:HE21	1.84	0.42
1:H:6:TYR:OH	1:H:11:ILE:HD13	2.19	0.42
1:G:329:LEU:HB2	1:G:331:ASN:OD1	2.19	0.42
1:F:167:MET:SD	1:F:381:GLY:HA2	2.60	0.42
1:B:31:LEU:HD13	1:B:61:VAL:HG12	2.01	0.42
1:C:124:LEU:HD23	1:C:124:LEU:N	2.35	0.42
1:D:105:THR:HG23	1:D:108:GLU:OE1	2.19	0.42
1:G:277:CYS:HA	1:H:415:TYR:HE2	1.84	0.42
1:F:7:LYS:HG2	1:F:111:TRP:CZ3	2.55	0.42
1:C:210:ILE:HG22	1:C:236:ALA:HB2	2.01	0.42
1:E:419:PRO:HB2	1:E:422:GLY:N	2.32	0.42
1:F:210:ILE:HG22	1:F:236:ALA:HB2	2.01	0.42
1:C:184:THR:HA	1:C:188:PHE:CD1	2.55	0.42
1:E:188:PHE:O	1:E:192:TYR:HB2	2.20	0.42
1:A:150:ARG:HD2	1:A:372:TRP:CE3	2.55	0.42
1:E:44:LEU:HB3	1:E:71:ALA:HB2	2.00	0.42
1:G:355:PHE:CZ	1:G:397:HIS:HB3	2.55	0.42
1:D:329:LEU:HB2	1:D:331:ASN:OD1	2.20	0.42
1:F:44:LEU:HB3	1:F:71:ALA:HB2	2.01	0.42
1:D:4:LEU:HD22	1:D:7:LYS:HB3	2.01	0.42
1:G:275:THR:HB	1:G:304:GLU:OE1	2.19	0.42
1:B:4:LEU:HD11	1:B:111:TRP:HH2	1.83	0.42
1:B:300:HIS:HB2	2:B:432:NAD:O2D	2.19	0.42
1:D:155:GLU:O	1:D:180:ASN:HB2	2.20	0.42
1:A:409:THR:H	1:A:412:GLN:NE2	2.10	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:364:GLN:HE21	1:A:364:GLN:HA	1.85	0.42
1:G:17:GLY:HA3	1:G:86:HIS:O	2.20	0.42
1:G:142:HIS:HB3	1:G:145:LEU:CD1	2.50	0.42
1:H:150:ARG:HD2	1:H:372:TRP:CE3	2.55	0.42
1:D:184:THR:HA	1:D:188:PHE:CD1	2.54	0.42
1:C:153:SER:HB2	1:C:368:GLN:HE21	1.85	0.42
1:E:387:LYS:HE2	1:E:425:LYS:HB2	2.02	0.42
1:C:45:LYS:HA	1:C:70:GLY:O	2.19	0.42
1:H:160:VAL:HG11	1:H:178:ASN:ND2	2.34	0.42
1:D:91:ILE:HA	1:D:91:ILE:HD13	1.84	0.42
1:B:45:LYS:HA	1:B:70:GLY:O	2.20	0.42
1:H:49:ILE:HD12	1:H:71:ALA:HB1	2.02	0.42
1:F:53:LEU:O	1:F:54:HIS:C	2.58	0.42
1:D:38:TYR:HB3	1:D:43:PRO:CD	2.49	0.42
1:F:55:MET:HB3	1:F:83:THR:HG23	2.01	0.42
1:G:7:LYS:HG2	1:G:111:TRP:CZ3	2.55	0.42
1:C:7:LYS:HG2	1:C:111:TRP:CZ3	2.55	0.42
1:B:105:THR:HG23	1:B:108:GLU:OE1	2.19	0.42
1:G:3:LYS:HE2	1:G:115:GLN:NE2	2.33	0.42
1:D:153:SER:HB2	1:D:368:GLN:HE21	1.85	0.42
1:A:321:LYS:HB2	1:A:322:PRO:HD2	2.01	0.42
1:A:63:ILE:HG23	1:A:73:VAL:HG21	2.01	0.42
1:G:124:LEU:HD23	1:G:124:LEU:N	2.34	0.42
1:E:171:ILE:O	1:E:173:LYS:HG2	2.20	0.42
1:G:415:TYR:CE2	1:H:277:CYS:HA	2.55	0.41
1:C:7:LYS:HG2	1:C:111:TRP:CH2	2.54	0.41
1:H:101:TRP:HZ2	1:H:108:GLU:CD	2.23	0.41
1:H:7:LYS:CD	1:H:101:TRP:HZ3	2.33	0.41
1:B:419:PRO:CG	1:B:422:GLY:HA3	2.45	0.41
1:H:129:ASP:OD2	1:H:135:THR:CG2	2.66	0.41
1:F:57:VAL:HG23	1:F:84:GLN:HE21	1.84	0.41
1:B:53:LEU:HG	1:B:130:ASP:HB2	2.02	0.41
1:F:355:PHE:CZ	1:F:397:HIS:HB3	2.55	0.41
1:A:102:LYS:HE3	4:A:469:HOH:O	2.19	0.41
1:D:167:MET:HG2	1:D:172:LEU:HD12	2.02	0.41
1:C:101:TRP:HZ2	1:C:108:GLU:OE1	2.03	0.41
1:F:7:LYS:O	1:F:7:LYS:NZ	2.43	0.41
1:E:343:LEU:HG	2:E:432:NAD:H71N	1.84	0.41
1:B:139:HIS:ND1	1:B:146:LEU:HD11	2.35	0.41
1:E:206:THR:O	1:E:207:ASP:HB2	2.20	0.41
1:A:142:HIS:HB3	1:A:145:LEU:CD1	2.49	0.41
1:G:430:ARG:CZ	1:H:183:VAL:HG22	2.50	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:424:PHE:C	1:E:425:LYS:HG2	2.39	0.41
1:F:151:GLY:HA3	1:F:371:LEU:HG	2.02	0.41
1:C:203:LYS:O	1:C:207:ASP:N	2.53	0.41
1:C:180:ASN:O	1:C:186:SER:HB2	2.19	0.41
1:F:17:GLY:HA3	1:F:86:HIS:O	2.19	0.41
1:D:10:ASP:HB3	1:D:13:LEU:HD22	2.01	0.41
1:H:206:THR:O	1:H:207:ASP:HB2	2.20	0.41
1:F:424:PHE:C	1:F:425:LYS:HG2	2.41	0.41
1:C:172:LEU:HD22	1:C:174:VAL:H	1.85	0.41
1:A:45:LYS:HA	1:A:70:GLY:O	2.21	0.41
1:G:364:GLN:HE21	1:G:364:GLN:CA	2.33	0.41
1:A:172:LEU:HD22	1:A:174:VAL:H	1.85	0.41
1:C:136:ASN:O	1:C:140:THR:HG23	2.21	0.41
1:H:329:LEU:HB2	1:H:331:ASN:OD1	2.20	0.41
1:A:206:THR:O	1:A:207:ASP:HB2	2.20	0.41
1:H:364:GLN:HE21	1:H:364:GLN:HA	1.84	0.41
1:H:215:ALA:HB1	1:H:231:LEU:HD13	2.02	0.41
1:G:4:LEU:HD11	1:G:111:TRP:HH2	1.83	0.41
1:B:364:GLN:CA	1:B:364:GLN:HE21	2.33	0.41
1:A:210:ILE:HG22	1:A:236:ALA:HB2	2.02	0.41
1:A:387:LYS:HE2	1:A:425:LYS:HB2	2.03	0.41
1:D:113:ILE:CG2	1:D:137:LEU:HD22	2.51	0.41
1:C:426:PRO:HB2	1:C:428:HIS:CE1	2.55	0.41
1:G:343:LEU:HG	2:G:432:NAD:H71N	1.83	0.41
1:F:373:THR:HG22	1:F:374:HIS:CG	2.56	0.41
1:A:408:LEU:CD1	1:B:243:ILE:HG21	2.41	0.41
1:E:120:LYS:H	1:E:120:LYS:CD	2.27	0.41
1:B:119:PHE:HB2	1:B:122:GLY:O	2.20	0.41
1:E:134:LEU:O	1:E:138:ILE:HG12	2.21	0.41
1:F:139:HIS:ND1	1:F:146:LEU:HD11	2.36	0.41
1:E:45:LYS:HA	1:E:70:GLY:O	2.20	0.41
1:G:194:CYS:SG	1:G:223:VAL:HG13	2.61	0.41
1:F:198:LEU:HD22	1:F:227:CYS:SG	2.60	0.41
1:G:415:TYR:HE2	1:H:277:CYS:HA	1.85	0.41
1:C:4:LEU:HD22	1:C:7:LYS:HB3	2.03	0.41
1:A:306:ASP:OD1	1:A:308:LYS:HD3	2.20	0.41
1:D:373:THR:HG22	1:D:374:HIS:CG	2.56	0.41
1:G:158:THR:O	1:G:161:HIS:HB3	2.20	0.41
1:D:152:ILE:HD11	1:D:174:VAL:HG13	2.02	0.41
1:E:54:HIS:HA	1:E:77:SER:OG	2.21	0.41
1:C:321:LYS:HB2	1:C:322:PRO:CD	2.51	0.41
1:F:124:LEU:HD23	1:F:124:LEU:H	1.86	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:27:GLU:O	1:H:29:PRO:HD3	2.21	0.41
1:H:63:ILE:HG23	1:H:73:VAL:HG21	2.02	0.41
1:E:321:LYS:HB2	1:E:322:PRO:HD2	2.02	0.41
1:D:345:ASN:O	1:D:349:ALA:HB3	2.20	0.41
1:D:385:LEU:HA	1:D:385:LEU:HD12	1.90	0.41
1:E:197:SER:OG	1:E:352:HIS:HD2	2.04	0.41
1:E:277:CYS:HB2	1:F:415:TYR:HD2	1.84	0.41
1:E:303:VAL:HG21	1:F:415:TYR:OH	2.20	0.41
1:A:275:THR:HB	1:A:304:GLU:OE1	2.21	0.41
1:F:154:GLU:OE1	1:F:156:THR:HG22	2.21	0.41
1:H:138:ILE:HG22	1:H:146:LEU:CD1	2.50	0.41
1:E:183:VAL:HG21	1:E:431:TYR:CE1	2.55	0.41
1:H:165:LYS:HB2	1:H:165:LYS:HE3	1.71	0.41
1:D:321:LYS:HB2	1:D:322:PRO:CD	2.51	0.41
1:H:388:LYS:HG2	1:H:423:PRO:HD3	2.02	0.41
1:D:124:LEU:N	1:D:124:LEU:HD23	2.35	0.41
1:D:9:ALA:HB2	1:D:101:TRP:HB2	2.02	0.41
1:D:7:LYS:CD	1:D:101:TRP:HZ3	2.33	0.41
1:D:4:LEU:HD11	1:D:111:TRP:HH2	1.79	0.41
1:E:101:TRP:HZ2	1:E:108:GLU:CD	2.24	0.41
1:C:343:LEU:HG	2:C:432:NAD:H71N	1.82	0.41
1:A:155:GLU:O	1:A:180:ASN:HB2	2.21	0.41
1:C:139:HIS:ND1	1:C:146:LEU:HD11	2.36	0.41
1:B:246:ILE:O	1:B:250:GLN:HG3	2.20	0.41
1:C:246:ILE:O	1:C:250:GLN:HG3	2.20	0.41
1:A:160:VAL:HG11	1:A:178:ASN:ND2	2.34	0.41
1:A:54:HIS:HA	1:A:77:SER:OG	2.21	0.41
1:G:155:GLU:HB3	1:G:364:GLN:OE1	2.20	0.41
1:B:321:LYS:HB2	1:B:322:PRO:HD2	2.01	0.41
1:G:38:TYR:HB3	1:G:43:PRO:CD	2.51	0.41
1:D:323:GLN:HG3	1:D:339:ALA:HA	2.02	0.41
1:H:113:ILE:CG2	1:H:137:LEU:HD22	2.51	0.41
1:D:388:LYS:HG3	1:D:388:LYS:HZ3	1.79	0.41
1:D:7:LYS:CE	1:D:101:TRP:CZ3	3.03	0.41
1:E:300:HIS:H	2:E:432:NAD:C1D	2.22	0.41
1:D:424:PHE:C	1:D:425:LYS:HG2	2.40	0.41
1:D:187:LYS:HG2	4:D:434:HOH:O	2.21	0.41
1:E:155:GLU:HB3	1:E:364:GLN:OE1	2.21	0.41
1:B:196:GLU:OE1	1:D:209:MET:HG3	2.21	0.41
1:D:210:ILE:HG22	1:D:236:ALA:HB2	2.02	0.41
1:B:161:HIS:NE2	1:B:165:LYS:NZ	2.56	0.41
1:F:387:LYS:HE2	1:F:425:LYS:HB2	2.02	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:34:MET:HG3	4:D:467:HOH:O	2.21	0.41
1:C:152:ILE:HD11	1:C:174:VAL:HG13	2.03	0.41
1:C:153:SER:HB2	1:C:368:GLN:NE2	2.35	0.41
1:G:161:HIS:NE2	1:G:165:LYS:NZ	2.58	0.41
1:E:153:SER:HB2	1:E:368:GLN:NE2	2.36	0.41
1:G:225:LYS:NZ	1:G:250:GLN:HE22	2.18	0.41
1:G:178:ASN:ND2	1:G:181:ASP:HB2	2.36	0.41
1:B:124:LEU:N	1:B:124:LEU:HD23	2.36	0.41
1:D:151:GLY:HA3	1:D:371:LEU:HG	2.02	0.41
1:G:215:ALA:HB1	1:G:231:LEU:HD13	2.03	0.41
1:F:377:LYS:HD2	1:F:378:TYR:CE1	2.56	0.41
1:A:171:ILE:O	1:A:173:LYS:HG2	2.21	0.41
1:C:171:ILE:O	1:C:173:LYS:HG2	2.20	0.41
1:E:385:LEU:HA	1:E:385:LEU:HD12	1.93	0.41
1:G:412:GLN:HG2	1:H:277:CYS:SG	2.61	0.41
1:G:277:CYS:HB2	1:H:415:TYR:HD2	1.86	0.41
1:C:105:THR:HG23	1:C:108:GLU:OE1	2.20	0.41
1:C:7:LYS:NZ	1:C:7:LYS:O	2.44	0.41
1:A:105:THR:HG23	1:A:108:GLU:OE1	2.20	0.41
1:G:154:GLU:OE1	1:G:156:THR:HG22	2.21	0.41
1:B:300:HIS:H	2:B:432:NAD:C1D	2.21	0.41
1:A:155:GLU:HB3	1:A:364:GLN:OE1	2.21	0.41
1:D:139:HIS:ND1	1:D:146:LEU:HD11	2.36	0.41
1:D:161:HIS:NE2	1:D:165:LYS:NZ	2.53	0.41
1:A:153:SER:HB2	1:A:368:GLN:NE2	2.35	0.41
1:B:198:LEU:HD22	1:B:227:CYS:SG	2.61	0.41
1:B:215:ALA:HB1	1:B:231:LEU:HD13	2.02	0.41
1:H:171:ILE:O	1:H:173:LYS:HG2	2.21	0.41
1:B:113:ILE:CG2	1:B:137:LEU:HD22	2.51	0.41
1:B:364:GLN:HA	1:B:364:GLN:HE21	1.86	0.40
1:D:208:VAL:HG22	1:D:209:MET:N	2.35	0.40
1:E:153:SER:HB2	1:E:368:GLN:HE21	1.86	0.40
1:D:160:VAL:HG11	1:D:178:ASN:ND2	2.36	0.40
1:B:153:SER:HB2	1:B:368:GLN:HE21	1.87	0.40
1:E:178:ASN:ND2	1:E:181:ASP:HB2	2.36	0.40
1:D:37:MET:HE2	1:D:38:TYR:CZ	2.56	0.40
1:B:136:ASN:O	1:B:140:THR:HG23	2.20	0.40
1:B:197:SER:OG	1:B:352:HIS:HD2	2.03	0.40
1:B:156:THR:CG2	1:B:159:GLY:N	2.75	0.40
1:C:300:HIS:H	2:C:432:NAD:C1D	2.21	0.40
1:A:364:GLN:HE21	1:A:364:GLN:CA	2.34	0.40
1:A:419:PRO:HB2	1:A:422:GLY:N	2.34	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:246:ILE:O	1:G:250:GLN:HG3	2.21	0.40
1:C:160:VAL:HG11	1:C:178:ASN:ND2	2.36	0.40
1:H:364:GLN:CA	1:H:364:GLN:HE21	2.33	0.40
1:A:240:ILE:O	1:A:258:VAL:HA	2.21	0.40
1:B:295:VAL:HG12	1:B:305:ILE:HD13	2.03	0.40
1:G:9:ALA:HB2	1:G:101:TRP:HB2	2.02	0.40
1:B:105:THR:C	1:B:107:GLU:N	2.75	0.40
1:A:221:GLY:HA3	2:A:432:NAD:O5B	2.21	0.40
1:D:74:ARG:HE	1:D:120:LYS:HZ3	1.67	0.40
1:C:10:ASP:HB3	1:C:13:LEU:HD22	2.03	0.40
1:B:57:VAL:HG23	1:B:84:GLN:HE21	1.87	0.40
1:B:183:VAL:HG11	1:B:431:TYR:CD1	2.57	0.40
1:E:91:ILE:HA	1:E:91:ILE:HD13	1.89	0.40
1:C:360:SER:O	1:C:363:ASN:HB2	2.20	0.40
1:C:91:ILE:HA	1:C:91:ILE:HD13	1.85	0.40
1:F:321:LYS:HB2	1:F:322:PRO:CD	2.52	0.40
1:A:323:GLN:HG3	1:A:339:ALA:HA	2.03	0.40
1:C:375:PRO:HB2	4:C:457:HOH:O	2.21	0.40
1:H:385:LEU:HA	1:H:385:LEU:HD12	1.90	0.40
1:C:3:LYS:HE2	1:C:115:GLN:NE2	2.34	0.40
1:E:9:ALA:HB2	1:E:101:TRP:HB2	2.03	0.40
1:E:156:THR:CG2	1:E:159:GLY:N	2.74	0.40
1:D:300:HIS:H	2:D:432:NAD:C1D	2.19	0.40
1:E:307:VAL:H	1:E:308:LYS:NZ	2.20	0.40
1:G:180:ASN:O	1:G:186:SER:HB2	2.21	0.40
1:D:409:THR:H	1:D:412:GLN:NE2	2.08	0.40
1:F:134:LEU:O	1:F:138:ILE:HG12	2.22	0.40
1:C:57:VAL:O	1:C:60:ALA:HB3	2.21	0.40
1:C:152:ILE:CG2	1:C:153:SER:N	2.84	0.40
1:E:172:LEU:HD22	1:E:174:VAL:H	1.86	0.40
1:B:31:LEU:HD23	1:B:31:LEU:HA	1.96	0.40
1:H:240:ILE:O	1:H:258:VAL:HA	2.21	0.40
1:D:44:LEU:HB3	1:D:71:ALA:HB2	2.03	0.40
1:A:124:LEU:N	1:A:124:LEU:HD23	2.36	0.40
1:E:3:LYS:HE2	1:E:115:GLN:NE2	2.33	0.40
1:H:167:MET:HG2	1:H:172:LEU:HD12	2.03	0.40
1:D:153:SER:HB2	1:D:368:GLN:NE2	2.36	0.40
1:C:6:TYR:OH	1:C:11:ILE:HD13	2.22	0.40
1:H:45:LYS:HA	1:H:70:GLY:O	2.22	0.40
1:A:258:VAL:HB	1:B:403:VAL:HG13	2.01	0.40
1:A:124:LEU:O	1:A:124:LEU:HG	2.22	0.40
1:F:27:GLU:O	1:F:29:PRO:HD3	2.22	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:35:ARG:NH2	1:B:64:GLU:HB2	2.36	0.40
1:C:364:GLN:HE21	1:C:364:GLN:CA	2.33	0.40
1:H:59:THR:O	1:H:59:THR:HG22	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	428/431 (99%)	409 (96%)	17 (4%)	2 (0%)	38	76
1	B	428/431 (99%)	408 (95%)	18 (4%)	2 (0%)	38	76
1	C	428/431 (99%)	409 (96%)	17 (4%)	2 (0%)	38	76
1	D	428/431 (99%)	408 (95%)	18 (4%)	2 (0%)	38	76
1	E	428/431 (99%)	409 (96%)	17 (4%)	2 (0%)	38	76
1	F	428/431 (99%)	410 (96%)	16 (4%)	2 (0%)	38	76
1	G	428/431 (99%)	410 (96%)	16 (4%)	2 (0%)	38	76
1	H	428/431 (99%)	408 (95%)	18 (4%)	2 (0%)	38	76
All	All	3424/3448 (99%)	3271 (96%)	137 (4%)	16 (0%)	38	76

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	422	GLY
1	B	422	GLY
1	C	422	GLY
1	D	422	GLY
1	E	422	GLY
1	F	422	GLY
1	G	422	GLY
1	H	422	GLY
1	H	300	HIS

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Mol	Chain	Res	Type
1	A	300	HIS
1	D	300	HIS
1	E	300	HIS
1	F	300	HIS
1	G	300	HIS
1	B	300	HIS
1	C	300	HIS

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	353/353 (100%)	307 (87%)	46 (13%)	6	17
1	B	353/353 (100%)	309 (88%)	44 (12%)	7	19
1	C	353/353 (100%)	305 (86%)	48 (14%)	5	16
1	D	353/353 (100%)	306 (87%)	47 (13%)	6	16
1	E	353/353 (100%)	303 (86%)	50 (14%)	5	14
1	F	353/353 (100%)	307 (87%)	46 (13%)	6	17
1	G	353/353 (100%)	305 (86%)	48 (14%)	5	16
1	H	353/353 (100%)	302 (86%)	51 (14%)	5	13
All	All	2824/2824 (100%)	2444 (86%)	380 (14%)	6	16

All (380) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	LEU
1	A	7	LYS
1	A	11	ILE
1	A	13	LEU
1	A	26	ASN
1	A	41	SER
1	A	45	LYS
1	A	73	VAL
1	A	84	GLN
1	A	86	HIS

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Mol	Chain	Res	Type
1	A	93	LYS
1	A	108	GLU
1	A	110	LEU
1	A	120	LYS
1	A	121	ASP
1	A	134	LEU
1	A	135	THR
1	A	144	GLN
1	A	146	LEU
1	A	156	THR
1	A	161	HIS
1	A	167	MET
1	A	172	LEU
1	A	174	VAL
1	A	196	GLU
1	A	209	MET
1	A	232	ARG
1	A	241	THR
1	A	259	THR
1	A	277	CYS
1	A	282	LEU
1	A	288	GLN
1	A	308	LYS
1	A	334	ARG
1	A	337	LEU
1	A	342	ARG
1	A	364	GLN
1	A	371	LEU
1	A	382	VAL
1	A	385	LEU
1	A	388	LYS
1	A	398	LEU
1	A	402	ASN
1	A	408	LEU
1	A	410	GLU
1	A	418	MET
1	B	4	LEU
1	B	7	LYS
1	B	11	ILE
1	B	13	LEU
1	B	26	ASN
1	B	41	SER

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Mol	Chain	Res	Type
1	B	45	LYS
1	B	73	VAL
1	B	84	GLN
1	B	86	HIS
1	B	93	LYS
1	B	108	GLU
1	B	110	LEU
1	B	120	LYS
1	B	121	ASP
1	B	134	LEU
1	B	135	THR
1	B	144	GLN
1	B	147	SER
1	B	156	THR
1	B	161	HIS
1	B	167	MET
1	B	172	LEU
1	B	174	VAL
1	B	196	GLU
1	B	209	MET
1	B	241	THR
1	B	259	THR
1	B	277	CYS
1	B	282	LEU
1	B	288	GLN
1	B	308	LYS
1	B	337	LEU
1	B	342	ARG
1	B	364	GLN
1	B	371	LEU
1	B	382	VAL
1	B	385	LEU
1	B	388	LYS
1	B	398	LEU
1	B	402	ASN
1	B	408	LEU
1	B	410	GLU
1	B	418	MET
1	C	4	LEU
1	C	7	LYS
1	C	11	ILE
1	C	13	LEU

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Mol	Chain	Res	Type
1	C	26	ASN
1	C	33	ARG
1	C	41	SER
1	C	45	LYS
1	C	73	VAL
1	C	84	GLN
1	C	86	HIS
1	C	93	LYS
1	C	108	GLU
1	C	110	LEU
1	C	120	LYS
1	C	121	ASP
1	C	134	LEU
1	C	135	THR
1	C	144	GLN
1	C	146	LEU
1	C	147	SER
1	C	156	THR
1	C	161	HIS
1	C	167	MET
1	C	172	LEU
1	C	174	VAL
1	C	196	GLU
1	C	209	MET
1	C	241	THR
1	C	259	THR
1	C	266	LYS
1	C	277	CYS
1	C	282	LEU
1	C	288	GLN
1	C	308	LYS
1	C	337	LEU
1	C	342	ARG
1	C	364	GLN
1	C	371	LEU
1	C	382	VAL
1	C	385	LEU
1	C	388	LYS
1	C	398	LEU
1	C	402	ASN
1	C	408	LEU
1	C	410	GLU

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Mol	Chain	Res	Type
1	C	418	MET
1	C	423	PRO
1	D	2	ASP
1	D	4	LEU
1	D	7	LYS
1	D	11	ILE
1	D	13	LEU
1	D	26	ASN
1	D	33	ARG
1	D	41	SER
1	D	45	LYS
1	D	73	VAL
1	D	84	GLN
1	D	86	HIS
1	D	93	LYS
1	D	108	GLU
1	D	110	LEU
1	D	120	LYS
1	D	121	ASP
1	D	134	LEU
1	D	135	THR
1	D	144	GLN
1	D	147	SER
1	D	156	THR
1	D	161	HIS
1	D	167	MET
1	D	172	LEU
1	D	174	VAL
1	D	196	GLU
1	D	209	MET
1	D	241	THR
1	D	259	THR
1	D	277	CYS
1	D	282	LEU
1	D	288	GLN
1	D	308	LYS
1	D	334	ARG
1	D	337	LEU
1	D	342	ARG
1	D	364	GLN
1	D	371	LEU
1	D	382	VAL

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Mol	Chain	Res	Type
1	D	385	LEU
1	D	388	LYS
1	D	398	LEU
1	D	402	ASN
1	D	408	LEU
1	D	410	GLU
1	D	418	MET
1	E	2	ASP
1	E	4	LEU
1	E	7	LYS
1	E	11	ILE
1	E	13	LEU
1	E	26	ASN
1	E	33	ARG
1	E	41	SER
1	E	45	LYS
1	E	73	VAL
1	E	84	GLN
1	E	86	HIS
1	E	93	LYS
1	E	108	GLU
1	E	110	LEU
1	E	120	LYS
1	E	121	ASP
1	E	134	LEU
1	E	135	THR
1	E	144	GLN
1	E	146	LEU
1	E	147	SER
1	E	156	THR
1	E	161	HIS
1	E	167	MET
1	E	172	LEU
1	E	174	VAL
1	E	196	GLU
1	E	209	MET
1	E	241	THR
1	E	242	GLU
1	E	259	THR
1	E	277	CYS
1	E	282	LEU
1	E	288	GLN

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Mol	Chain	Res	Type
1	E	302	ASP
1	E	308	LYS
1	E	334	ARG
1	E	337	LEU
1	E	342	ARG
1	E	364	GLN
1	E	371	LEU
1	E	382	VAL
1	E	385	LEU
1	E	388	LYS
1	E	398	LEU
1	E	402	ASN
1	E	408	LEU
1	E	410	GLU
1	E	418	MET
1	F	4	LEU
1	F	7	LYS
1	F	11	ILE
1	F	13	LEU
1	F	26	ASN
1	F	41	SER
1	F	45	LYS
1	F	73	VAL
1	F	84	GLN
1	F	86	HIS
1	F	93	LYS
1	F	108	GLU
1	F	110	LEU
1	F	120	LYS
1	F	121	ASP
1	F	134	LEU
1	F	135	THR
1	F	144	GLN
1	F	146	LEU
1	F	156	THR
1	F	161	HIS
1	F	167	MET
1	F	172	LEU
1	F	174	VAL
1	F	196	GLU
1	F	209	MET
1	F	241	THR

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Mol	Chain	Res	Type
1	F	259	THR
1	F	277	CYS
1	F	282	LEU
1	F	288	GLN
1	F	302	ASP
1	F	308	LYS
1	F	337	LEU
1	F	342	ARG
1	F	364	GLN
1	F	371	LEU
1	F	382	VAL
1	F	385	LEU
1	F	388	LYS
1	F	398	LEU
1	F	402	ASN
1	F	408	LEU
1	F	410	GLU
1	F	418	MET
1	F	423	PRO
1	G	2	ASP
1	G	4	LEU
1	G	7	LYS
1	G	11	ILE
1	G	13	LEU
1	G	26	ASN
1	G	33	ARG
1	G	41	SER
1	G	45	LYS
1	G	73	VAL
1	G	74	ARG
1	G	84	GLN
1	G	86	HIS
1	G	93	LYS
1	G	108	GLU
1	G	110	LEU
1	G	120	LYS
1	G	121	ASP
1	G	134	LEU
1	G	135	THR
1	G	144	GLN
1	G	147	SER
1	G	156	THR

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Mol	Chain	Res	Type
1	G	161	HIS
1	G	167	MET
1	G	172	LEU
1	G	174	VAL
1	G	196	GLU
1	G	209	MET
1	G	241	THR
1	G	242	GLU
1	G	259	THR
1	G	277	CYS
1	G	282	LEU
1	G	288	GLN
1	G	308	LYS
1	G	337	LEU
1	G	342	ARG
1	G	364	GLN
1	G	371	LEU
1	G	382	VAL
1	G	385	LEU
1	G	388	LYS
1	G	398	LEU
1	G	402	ASN
1	G	408	LEU
1	G	410	GLU
1	G	418	MET
1	H	2	ASP
1	H	4	LEU
1	H	7	LYS
1	H	11	ILE
1	H	13	LEU
1	H	26	ASN
1	H	33	ARG
1	H	41	SER
1	H	45	LYS
1	H	73	VAL
1	H	84	GLN
1	H	86	HIS
1	H	93	LYS
1	H	108	GLU
1	H	110	LEU
1	H	120	LYS
1	H	121	ASP

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Mol	Chain	Res	Type
1	H	134	LEU
1	H	135	THR
1	H	144	GLN
1	H	146	LEU
1	H	147	SER
1	H	156	THR
1	H	161	HIS
1	H	167	MET
1	H	172	LEU
1	H	174	VAL
1	H	196	GLU
1	H	209	MET
1	H	241	THR
1	H	259	THR
1	H	266	LYS
1	H	277	CYS
1	H	282	LEU
1	H	288	GLN
1	H	302	ASP
1	H	308	LYS
1	H	334	ARG
1	H	337	LEU
1	H	342	ARG
1	H	364	GLN
1	H	371	LEU
1	H	382	VAL
1	H	385	LEU
1	H	388	LYS
1	H	398	LEU
1	H	402	ASN
1	H	408	LEU
1	H	410	GLU
1	H	418	MET
1	H	423	PRO

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (98) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	26	ASN
1	A	84	GLN
1	A	136	ASN
1	A	162	ASN

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Mol	Chain	Res	Type
1	A	247	ASN
1	A	250	GLN
1	A	352	HIS
1	A	364	GLN
1	A	368	GLN
1	A	383	HIS
1	A	412	GLN
1	A	414	GLN
1	B	26	ASN
1	B	84	GLN
1	B	115	GLN
1	B	136	ASN
1	B	162	ASN
1	B	247	ASN
1	B	250	GLN
1	B	288	GLN
1	B	352	HIS
1	B	364	GLN
1	B	368	GLN
1	B	383	HIS
1	B	412	GLN
1	B	414	GLN
1	C	26	ASN
1	C	84	GLN
1	C	247	ASN
1	C	250	GLN
1	C	288	GLN
1	C	352	HIS
1	C	364	GLN
1	C	368	GLN
1	C	383	HIS
1	C	412	GLN
1	C	414	GLN
1	D	26	ASN
1	D	84	GLN
1	D	136	ASN
1	D	162	ASN
1	D	247	ASN
1	D	250	GLN
1	D	352	HIS
1	D	364	GLN
1	D	368	GLN

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Mol	Chain	Res	Type
1	D	383	HIS
1	D	412	GLN
1	D	414	GLN
1	E	26	ASN
1	E	84	GLN
1	E	136	ASN
1	E	162	ASN
1	E	247	ASN
1	E	250	GLN
1	E	352	HIS
1	E	364	GLN
1	E	368	GLN
1	E	383	HIS
1	E	412	GLN
1	E	414	GLN
1	F	26	ASN
1	F	84	GLN
1	F	136	ASN
1	F	162	ASN
1	F	247	ASN
1	F	250	GLN
1	F	352	HIS
1	F	364	GLN
1	F	368	GLN
1	F	383	HIS
1	F	412	GLN
1	F	414	GLN
1	G	26	ASN
1	G	84	GLN
1	G	136	ASN
1	G	162	ASN
1	G	247	ASN
1	G	250	GLN
1	G	288	GLN
1	G	352	HIS
1	G	364	GLN
1	G	368	GLN
1	G	383	HIS
1	G	412	GLN
1	G	414	GLN
1	H	26	ASN
1	H	84	GLN

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Mol	Chain	Res	Type
1	H	136	ASN
1	H	162	ASN
1	H	247	ASN
1	H	250	GLN
1	H	352	HIS
1	H	364	GLN
1	H	368	GLN
1	H	383	HIS
1	H	412	GLN
1	H	414	GLN

### 5.3.3 RNA ⓘ

There are no RNA chains in this entry.

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

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

## 5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

16 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
2	NAD	A	432	-	48,48,48	2.07	7 (14%)	73,73,73	1.56	9 (12%)
3	3DD	A	433	-	19,19,19	2.44	9 (47%)	27,27,27	1.81	7 (25%)
2	NAD	B	432	-	48,48,48	1.90	7 (14%)	73,73,73	1.59	10 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	3DD	B	433	-	19,19,19	2.25	8 (42%)	27,27,27	1.84	7 (25%)
2	NAD	C	432	-	48,48,48	2.03	7 (14%)	73,73,73	1.59	9 (12%)
3	3DD	C	433	-	19,19,19	2.28	8 (42%)	27,27,27	1.89	8 (29%)
2	NAD	D	432	-	48,48,48	2.00	8 (16%)	73,73,73	1.65	11 (15%)
3	3DD	D	433	-	19,19,19	2.21	8 (42%)	27,27,27	1.74	5 (18%)
2	NAD	E	432	-	48,48,48	1.97	10 (20%)	73,73,73	1.58	10 (13%)
3	3DD	E	433	-	19,19,19	2.40	7 (36%)	27,27,27	1.84	6 (22%)
2	NAD	F	432	-	48,48,48	1.89	10 (20%)	73,73,73	1.59	10 (13%)
3	3DD	F	433	-	19,19,19	2.39	9 (47%)	27,27,27	1.81	8 (29%)
2	NAD	G	432	-	48,48,48	1.93	8 (16%)	73,73,73	1.61	9 (12%)
3	3DD	G	433	-	19,19,19	2.29	9 (47%)	27,27,27	1.83	6 (22%)
2	NAD	H	432	-	48,48,48	2.05	7 (14%)	73,73,73	1.66	10 (13%)
3	3DD	H	433	-	19,19,19	2.45	11 (57%)	27,27,27	1.77	6 (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
2	NAD	A	432	-	-	0/30/62/62	0/3/5/5
3	3DD	A	433	-	-	0/11/12/12	0/0/2/2
2	NAD	B	432	-	-	0/30/62/62	0/3/5/5
3	3DD	B	433	-	-	0/11/12/12	0/0/2/2
2	NAD	C	432	-	-	0/30/62/62	0/3/5/5
3	3DD	C	433	-	-	0/11/12/12	0/0/2/2
2	NAD	D	432	-	-	0/30/62/62	0/3/5/5
3	3DD	D	433	-	-	0/11/12/12	0/0/2/2
2	NAD	E	432	-	-	0/30/62/62	0/3/5/5
3	3DD	E	433	-	-	0/11/12/12	0/0/2/2
2	NAD	F	432	-	-	0/30/62/62	0/3/5/5
3	3DD	F	433	-	-	0/11/12/12	0/0/2/2
2	NAD	G	432	-	-	0/30/62/62	0/3/5/5
3	3DD	G	433	-	-	0/11/12/12	0/0/2/2
2	NAD	H	432	-	-	0/30/62/62	0/3/5/5
3	3DD	H	433	-	-	0/11/12/12	0/0/2/2

All (133) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	432	NAD	C2N-C3N	6.34	1.47	1.38
2	H	432	NAD	C2N-C3N	6.34	1.47	1.38
2	D	432	NAD	C2N-C3N	6.30	1.47	1.38
2	H	432	NAD	C4N-C3N	6.29	1.50	1.39
2	A	432	NAD	C2N-C3N	6.24	1.47	1.38
2	A	432	NAD	C5N-C4N	6.22	1.53	1.39
2	D	432	NAD	C4N-C3N	6.21	1.50	1.39
2	C	432	NAD	C4N-C3N	6.15	1.50	1.39
2	H	432	NAD	C5N-C4N	6.13	1.53	1.39
2	C	432	NAD	C5N-C4N	6.12	1.53	1.39
2	A	432	NAD	C4N-C3N	6.04	1.49	1.39
2	B	432	NAD	C5N-C4N	5.90	1.52	1.39
2	D	432	NAD	C5N-C4N	5.90	1.52	1.39
2	E	432	NAD	C5N-C4N	5.83	1.52	1.39
2	E	432	NAD	C2N-C3N	5.78	1.47	1.38
2	G	432	NAD	C5N-C4N	5.69	1.52	1.39
2	A	432	NAD	C2N-N1N	5.68	1.42	1.35
2	F	432	NAD	C5N-C4N	5.60	1.52	1.39
2	F	432	NAD	C4N-C3N	5.56	1.48	1.39
2	E	432	NAD	C4N-C3N	5.56	1.48	1.39
2	H	432	NAD	C2N-N1N	5.51	1.42	1.35
2	G	432	NAD	C4N-C3N	5.46	1.48	1.39
2	C	432	NAD	C2N-N1N	5.42	1.42	1.35
2	G	432	NAD	C2N-C3N	5.38	1.46	1.38
2	F	432	NAD	C2N-C3N	5.35	1.46	1.38
2	B	432	NAD	C4N-C3N	5.35	1.48	1.39
2	G	432	NAD	C2N-N1N	5.29	1.42	1.35
2	B	432	NAD	C2N-N1N	5.25	1.42	1.35
2	B	432	NAD	C2N-C3N	5.17	1.46	1.38
2	E	432	NAD	C2N-N1N	5.06	1.41	1.35
2	D	432	NAD	C2N-N1N	5.02	1.41	1.35
3	C	433	3DD	O4B-C4'	4.74	1.38	1.22
3	D	433	3DD	O4B-C4'	4.63	1.37	1.22
3	E	433	3DD	C2'-C3'	4.61	1.57	1.53
3	B	433	3DD	O4B-C4'	4.56	1.37	1.22
3	H	433	3DD	O4B-C4'	4.56	1.37	1.22
2	F	432	NAD	C2N-N1N	4.42	1.41	1.35
3	G	433	3DD	O4B-C4'	4.39	1.37	1.22
3	E	433	3DD	O4B-C4'	4.28	1.36	1.22
3	F	433	3DD	O4B-C4'	4.26	1.36	1.22
3	C	433	3DD	C2'-C3'	4.21	1.57	1.53
3	A	433	3DD	O4B-C4'	4.19	1.36	1.22
3	G	433	3DD	C2'-C3'	4.16	1.57	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	433	3DD	C2'-C3'	4.13	1.57	1.53
2	E	432	NAD	O4B-C1B	-4.08	1.35	1.41
3	A	433	3DD	C3'-C4'	-4.00	1.47	1.52
3	B	433	3DD	C8-N7	-3.94	1.26	1.34
3	H	433	3DD	C4-N9	-3.91	1.35	1.39
2	A	432	NAD	O4B-C1B	-3.91	1.35	1.41
3	A	433	3DD	C4-N9	-3.90	1.35	1.39
3	F	433	3DD	C4-N9	-3.86	1.35	1.39
2	H	432	NAD	O4B-C1B	-3.83	1.35	1.41
3	G	433	3DD	C4-C5	3.79	1.48	1.40
2	D	432	NAD	C6N-N1N	3.78	1.46	1.35
2	G	432	NAD	O4B-C1B	-3.77	1.35	1.41
3	H	433	3DD	C4-C5	3.72	1.48	1.40
3	A	433	3DD	C2'-C3'	3.65	1.57	1.53
3	B	433	3DD	C2'-C3'	3.63	1.57	1.53
3	H	433	3DD	C2'-C3'	3.61	1.57	1.53
2	C	432	NAD	O4B-C1B	-3.60	1.35	1.41
2	B	432	NAD	O4B-C1B	-3.54	1.35	1.41
3	F	433	3DD	C8-N7	-3.53	1.27	1.34
2	H	432	NAD	C6N-N1N	3.50	1.45	1.35
3	A	433	3DD	C8-N7	-3.50	1.27	1.34
2	F	432	NAD	O4B-C1B	-3.49	1.36	1.41
3	D	433	3DD	C4-C5	3.47	1.47	1.40
3	C	433	3DD	C8-N7	-3.47	1.27	1.34
3	E	433	3DD	C4-C5	3.47	1.47	1.40
3	E	433	3DD	C3'-C4'	-3.44	1.48	1.52
3	G	433	3DD	C8-N7	-3.41	1.27	1.34
2	B	432	NAD	C6N-N1N	3.40	1.45	1.35
2	D	432	NAD	O4B-C1B	-3.36	1.36	1.41
2	E	432	NAD	C6N-N1N	3.36	1.45	1.35
3	C	433	3DD	C4-C5	3.34	1.47	1.40
2	A	432	NAD	C6N-N1N	3.34	1.44	1.35
3	E	433	3DD	C8-N7	-3.32	1.28	1.34
3	F	433	3DD	C3'-C4'	-3.30	1.48	1.52
3	H	433	3DD	C3'-C4'	-3.29	1.48	1.52
2	G	432	NAD	C6N-N1N	3.29	1.44	1.35
2	C	432	NAD	C6N-N1N	3.22	1.44	1.35
3	A	433	3DD	C4-C5	3.19	1.46	1.40
3	D	433	3DD	C2'-C3'	3.16	1.56	1.53
3	H	433	3DD	C8-N7	-3.13	1.28	1.34
2	F	432	NAD	C6N-N1N	3.12	1.44	1.35
3	B	433	3DD	C4-N9	-3.05	1.36	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	433	3DD	C8-N7	-2.95	1.28	1.34
3	F	433	3DD	C4-C5	2.94	1.46	1.40
3	D	433	3DD	C4-N9	-2.92	1.36	1.39
3	A	433	3DD	O4A-C4'	-2.90	1.19	1.30
3	E	433	3DD	O4A-C4'	-2.86	1.20	1.30
3	D	433	3DD	C3'-C4'	-2.80	1.49	1.52
2	F	432	NAD	C2A-N1A	2.73	1.39	1.33
3	G	433	3DD	O4A-C4'	-2.71	1.20	1.30
3	B	433	3DD	C4-C5	2.64	1.45	1.40
3	B	433	3DD	C3'-C4'	-2.63	1.49	1.52
3	C	433	3DD	C3'-C4'	-2.61	1.49	1.52
3	E	433	3DD	C4-N9	-2.58	1.37	1.39
3	D	433	3DD	O4A-C4'	-2.57	1.21	1.30
3	C	433	3DD	O4A-C4'	-2.55	1.21	1.30
2	A	432	NAD	C2A-N1A	2.55	1.38	1.33
3	H	433	3DD	O4A-C4'	-2.50	1.21	1.30
2	F	432	NAD	C2D-C1D	-2.49	1.49	1.53
3	F	433	3DD	O4A-C4'	-2.45	1.21	1.30
2	G	432	NAD	C6N-C5N	-2.43	1.32	1.38
3	C	433	3DD	C2-N1	2.36	1.40	1.34
3	G	433	3DD	C4-N9	-2.36	1.37	1.39
2	F	432	NAD	C6N-C5N	-2.35	1.33	1.38
3	B	433	3DD	O4A-C4'	-2.32	1.22	1.30
2	B	432	NAD	C2A-N1A	2.32	1.38	1.33
2	D	432	NAD	C2A-N1A	2.30	1.38	1.33
3	H	433	3DD	C1'-N9	-2.30	1.45	1.48
2	E	432	NAD	C6N-C5N	-2.28	1.33	1.38
3	A	433	3DD	C3-C4	-2.27	1.36	1.41
2	F	432	NAD	C7N-N7N	2.21	1.38	1.33
3	H	433	3DD	C3-C4	-2.20	1.36	1.41
2	E	432	NAD	C2A-N1A	2.19	1.38	1.33
3	D	433	3DD	C5-N7	-2.18	1.32	1.40
2	E	432	NAD	C2D-C1D	-2.17	1.50	1.53
2	E	432	NAD	C7N-N7N	2.14	1.37	1.33
3	G	433	3DD	C2-N1	2.13	1.39	1.34
2	H	432	NAD	C2D-C1D	-2.10	1.50	1.53
3	H	433	3DD	C2-N1	2.10	1.39	1.34
3	G	433	3DD	C3'-C4'	-2.09	1.50	1.52
2	G	432	NAD	C2A-N1A	2.08	1.38	1.33
3	C	433	3DD	C4-N9	-2.08	1.37	1.39
2	C	432	NAD	C2D-C1D	-2.08	1.50	1.53
3	F	433	3DD	C5-N7	-2.08	1.32	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	433	3DD	O3'-C3'	2.08	1.46	1.42
3	B	433	3DD	O3'-C3'	2.06	1.46	1.42
3	H	433	3DD	C5-N7	-2.05	1.32	1.40
2	D	432	NAD	C6N-C5N	-2.03	1.33	1.38
3	F	433	3DD	C3-C4	-2.02	1.36	1.41
3	A	433	3DD	C5-N7	-2.01	1.32	1.40

All (131) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	432	NAD	C3N-C7N-N7N	6.88	125.60	117.77
2	H	432	NAD	C3N-C7N-N7N	6.86	125.58	117.77
2	H	432	NAD	O7N-C7N-C3N	-6.35	112.42	119.58
2	F	432	NAD	C3N-C7N-N7N	6.32	124.97	117.77
2	C	432	NAD	C3N-C7N-N7N	6.29	124.93	117.77
2	B	432	NAD	C3N-C7N-N7N	6.24	124.87	117.77
2	A	432	NAD	C3N-C7N-N7N	6.15	124.77	117.77
2	G	432	NAD	C3N-C7N-N7N	6.12	124.73	117.77
2	F	432	NAD	O7N-C7N-C3N	-6.09	112.71	119.58
2	E	432	NAD	C3N-C7N-N7N	6.06	124.66	117.77
2	D	432	NAD	O7N-C7N-C3N	-5.89	112.93	119.58
2	G	432	NAD	O7N-C7N-C3N	-5.88	112.95	119.58
2	B	432	NAD	O7N-C7N-C3N	-5.81	113.03	119.58
2	E	432	NAD	O7N-C7N-C3N	-5.79	113.06	119.58
2	C	432	NAD	O7N-C7N-C3N	-5.50	113.38	119.58
2	A	432	NAD	O7N-C7N-C3N	-5.26	113.64	119.58
3	C	433	3DD	C2-N1-C6	4.63	123.07	117.51
3	E	433	3DD	C1'-N9-C4	4.37	131.63	125.60
3	B	433	3DD	C1'-N9-C4	4.34	131.59	125.60
3	G	433	3DD	C2-N1-C6	4.33	122.72	117.51
3	C	433	3DD	C1'-N9-C4	4.27	131.49	125.60
3	F	433	3DD	C1'-N9-C4	4.26	131.48	125.60
3	H	433	3DD	C1'-N9-C4	4.26	131.47	125.60
2	B	432	NAD	O4B-C1B-C2B	-4.26	100.25	106.77
3	H	433	3DD	C2-N1-C6	4.26	122.63	117.51
3	D	433	3DD	C1'-N9-C4	4.24	131.45	125.60
3	E	433	3DD	C2-N1-C6	4.24	122.61	117.51
3	A	433	3DD	C1'-N9-C4	4.24	131.44	125.60
3	B	433	3DD	C2-N1-C6	4.22	122.58	117.51
3	G	433	3DD	C1'-N9-C4	4.20	131.40	125.60
3	F	433	3DD	C2-N1-C6	4.19	122.54	117.51
2	D	432	NAD	O4B-C1B-C2B	-4.09	100.50	106.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	433	3DD	C2-N1-C6	4.07	122.40	117.51
2	G	432	NAD	O4B-C1B-N9A	-4.06	104.67	108.44
3	A	433	3DD	C2-N1-C6	4.01	122.34	117.51
2	A	432	NAD	O4B-C1B-C2B	-4.01	100.62	106.77
2	E	432	NAD	O4B-C1B-C2B	-3.91	100.78	106.77
2	D	432	NAD	O4B-C1B-N9A	-3.85	104.86	108.44
2	H	432	NAD	O4B-C1B-C2B	-3.83	100.91	106.77
2	G	432	NAD	O4B-C1B-C2B	-3.81	100.92	106.77
2	E	432	NAD	O4B-C1B-N9A	-3.78	104.92	108.44
2	F	432	NAD	O4B-C1B-C2B	-3.65	101.17	106.77
2	C	432	NAD	O4B-C1B-C2B	-3.59	101.27	106.77
2	D	432	NAD	C6N-N1N-C2N	-3.59	117.99	122.04
2	B	432	NAD	C6N-N1N-C2N	-3.57	118.01	122.04
2	F	432	NAD	C6N-N1N-C2N	-3.55	118.03	122.04
2	H	432	NAD	O4B-C1B-N9A	-3.52	105.17	108.44
2	H	432	NAD	C6N-N1N-C2N	-3.50	118.09	122.04
2	A	432	NAD	O4B-C1B-N9A	-3.47	105.21	108.44
2	E	432	NAD	C6N-N1N-C2N	-3.45	118.14	122.04
2	G	432	NAD	C6N-N1N-C2N	-3.40	118.19	122.04
2	C	432	NAD	O4B-C1B-N9A	-3.40	105.28	108.44
2	A	432	NAD	C6N-N1N-C2N	-3.40	118.20	122.04
2	C	432	NAD	C6N-N1N-C2N	-3.39	118.21	122.04
3	A	433	3DD	O3'-C3'-C2'	3.37	118.15	109.29
3	H	433	3DD	O3'-C3'-C2'	3.32	118.03	109.29
3	G	433	3DD	O3'-C3'-C2'	3.23	117.80	109.29
2	C	432	NAD	C4A-C5A-N7A	3.23	112.29	109.52
3	D	433	3DD	O3'-C3'-C2'	3.22	117.75	109.29
2	F	432	NAD	O4B-C1B-N9A	-3.19	105.47	108.44
3	B	433	3DD	O3'-C3'-C2'	3.19	117.67	109.29
3	E	433	3DD	O3'-C3'-C2'	3.16	117.61	109.29
3	C	433	3DD	O3'-C3'-C2'	3.15	117.57	109.29
2	C	432	NAD	C5N-C4N-C3N	-3.11	116.28	120.32
3	E	433	3DD	C3-C4-N9	3.08	135.91	130.29
2	A	432	NAD	C5N-C4N-C3N	-3.06	116.34	120.32
3	F	433	3DD	C3-C4-N9	3.06	135.87	130.29
2	H	432	NAD	C5N-C4N-C3N	-3.05	116.36	120.32
3	C	433	3DD	C5-C4-N9	-3.05	103.67	105.64
3	B	433	3DD	C3-C4-N9	3.04	135.84	130.29
2	B	432	NAD	O4B-C1B-N9A	-3.03	105.62	108.44
3	G	433	3DD	C3-C4-N9	3.03	135.82	130.29
3	G	433	3DD	C5-C4-N9	-3.03	103.69	105.64
3	C	433	3DD	C3-C4-N9	3.00	135.75	130.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	433	3DD	C5-C4-N9	-2.99	103.71	105.64
3	A	433	3DD	C3-C4-N9	2.98	135.72	130.29
2	G	432	NAD	C4A-C5A-N7A	2.98	112.07	109.52
3	F	433	3DD	O3'-C3'-C2'	2.97	117.10	109.29
3	D	433	3DD	C3-C4-N9	2.96	135.70	130.29
2	E	432	NAD	C5N-C4N-C3N	-2.89	116.57	120.32
2	F	432	NAD	C5N-C4N-C3N	-2.88	116.58	120.32
2	D	432	NAD	C5N-C4N-C3N	-2.88	116.58	120.32
2	B	432	NAD	C5N-C4N-C3N	-2.83	116.64	120.32
3	H	433	3DD	C3-C4-N9	2.82	135.44	130.29
3	B	433	3DD	C5-C4-N9	-2.81	103.83	105.64
2	F	432	NAD	C4A-C5A-N7A	2.80	111.92	109.52
2	B	432	NAD	C4A-C5A-N7A	2.79	111.91	109.52
2	A	432	NAD	C4A-C5A-N7A	2.74	111.87	109.52
2	G	432	NAD	C5N-C4N-C3N	-2.73	116.77	120.32
2	E	432	NAD	C4A-C5A-N7A	2.73	111.86	109.52
2	H	432	NAD	C4A-C5A-N7A	2.68	111.82	109.52
2	G	432	NAD	O3-PN-O1N	2.65	115.14	108.83
3	F	433	3DD	C5-C4-N9	-2.62	103.95	105.64
2	A	432	NAD	O3-PN-O1N	2.61	115.07	108.83
2	F	432	NAD	O3-PN-O1N	2.57	114.96	108.83
2	D	432	NAD	C4A-C5A-N7A	2.57	111.72	109.52
2	D	432	NAD	O3-PN-O1N	2.55	114.91	108.83
2	H	432	NAD	O3-PN-O1N	2.53	114.87	108.83
3	A	433	3DD	C5-C4-N9	-2.52	104.02	105.64
2	F	432	NAD	C5N-C6N-N1N	2.50	124.64	120.43
2	D	432	NAD	C5N-C6N-N1N	2.47	124.61	120.43
3	A	433	3DD	C2'-C1'-N9	2.42	114.98	111.98
2	H	432	NAD	C5N-C6N-N1N	2.39	124.46	120.43
2	C	432	NAD	O3-PN-O1N	2.37	114.49	108.83
2	C	432	NAD	C5N-C6N-N1N	2.35	124.40	120.43
3	B	433	3DD	C1'-N9-C8	-2.34	120.92	125.65
2	B	432	NAD	O3-PN-O1N	2.33	114.38	108.83
3	C	433	3DD	C2'-C1'-N9	2.30	114.84	111.98
3	H	433	3DD	C5-C4-N9	-2.28	104.17	105.64
2	E	432	NAD	O3-PN-O1N	2.28	114.27	108.83
2	A	432	NAD	C5N-C6N-N1N	2.28	124.27	120.43
2	B	432	NAD	C5N-C6N-N1N	2.27	124.26	120.43
2	E	432	NAD	C5N-C6N-N1N	2.26	124.25	120.43
2	G	432	NAD	C5N-C6N-N1N	2.25	124.23	120.43
3	E	433	3DD	C1'-N9-C8	-2.24	121.12	125.65
3	C	433	3DD	C3-C2-N1	-2.23	121.20	123.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	433	3DD	C5-C4-N9	-2.22	104.21	105.64
3	A	433	3DD	C1'-N9-C8	-2.21	121.19	125.65
3	F	433	3DD	C1'-N9-C8	-2.18	121.26	125.65
3	C	433	3DD	C1'-N9-C8	-2.17	121.28	125.65
2	B	432	NAD	N3A-C2A-N1A	-2.16	126.90	128.71
2	E	432	NAD	O2N-PN-O1N	-2.13	112.31	118.72
3	B	433	3DD	C2'-C1'-N9	2.13	114.62	111.98
3	F	433	3DD	C2'-C1'-N9	2.12	114.61	111.98
3	F	433	3DD	C3-C2-N1	-2.11	121.34	123.77
3	H	433	3DD	C1'-N9-C8	-2.06	121.49	125.65
2	D	432	NAD	O5B-C5B-C4B	-2.06	101.38	108.94
2	H	432	NAD	O2N-PN-O1N	-2.05	112.52	118.72
3	G	433	3DD	C1'-N9-C8	-2.04	121.53	125.65
2	D	432	NAD	O2N-PN-O1N	-2.04	112.57	118.72
2	F	432	NAD	O5B-C5B-C4B	-2.01	101.56	108.94

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	A	430/431 (99%)	-0.69	1 (0%)	93	95	2, 4, 15, 39	0
1	B	430/431 (99%)	-0.57	4 (0%)	81	81	2, 5, 18, 44	0
1	C	430/431 (99%)	-0.52	3 (0%)	84	85	2, 5, 18, 44	0
1	D	430/431 (99%)	-0.31	9 (2%)	60	61	2, 5, 21, 43	0
1	E	430/431 (99%)	-0.67	3 (0%)	84	85	2, 4, 16, 39	0
1	F	430/431 (99%)	-0.70	2 (0%)	88	90	2, 4, 14, 43	0
1	G	430/431 (99%)	-0.59	3 (0%)	84	85	2, 5, 17, 44	0
1	H	430/431 (99%)	-0.66	2 (0%)	88	90	2, 4, 15, 40	0
All	All	3440/3448 (99%)	-0.59	27 (0%)	83	83	2, 4, 17, 44	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	2	ASP	7.1
1	C	2	ASP	6.7
1	F	2	ASP	6.3
1	B	2	ASP	5.4
1	D	2	ASP	4.4
1	D	5	PRO	4.4
1	G	376	ASP	3.9
1	E	2	ASP	3.8
1	A	2	ASP	3.5
1	G	3	LYS	3.1
1	F	3	LYS	3.1
1	D	171	ILE	2.9
1	D	141	LYS	2.5
1	E	40	ALA	2.5
1	B	4	LEU	2.5
1	D	116	THR	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	4	LEU	2.4
1	B	300	HIS	2.4
1	E	376	ASP	2.3
1	H	301	PHE	2.2
1	D	9	ALA	2.2
1	C	5	PRO	2.2
1	B	3	LYS	2.2
1	C	3	LYS	2.1
1	H	2	ASP	2.1
1	D	106	ASP	2.1
1	D	3	LYS	2.1

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

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

## 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
3	3DD	H	433	18/18	0.16	0.85	2,3,6,9	0
3	3DD	F	433	18/18	0.15	0.70	2,2,8,9	0
3	3DD	E	433	18/18	0.15	0.66	2,2,5,10	0
3	3DD	D	433	18/18	0.15	0.38	2,2,6,14	0
3	3DD	G	433	18/18	0.14	0.33	2,4,8,11	0
3	3DD	B	433	18/18	0.14	0.02	2,2,8,14	0
3	3DD	A	433	18/18	0.13	-0.02	2,3,8,10	0
3	3DD	C	433	18/18	0.14	-0.09	2,5,9,12	0
2	NAD	H	432	44/44	0.13	-0.17	2,2,5,10	0
2	NAD	A	432	44/44	0.12	-0.37	2,2,6,6	0

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Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
2	NAD	C	432	44/44	0.11	-0.60	2,2,6,8	0
2	NAD	F	432	44/44	0.10	-0.74	2,2,5,8	0
2	NAD	E	432	44/44	0.10	-0.76	2,2,5,7	0
2	NAD	D	432	44/44	0.11	-0.79	2,3,6,8	0
2	NAD	B	432	44/44	0.11	-0.80	2,2,6,10	0
2	NAD	G	432	44/44	0.10	-0.93	2,2,6,12	0

## 6.5 Other polymers ⓘ

There are no such residues in this entry.