



# Full wwPDB X-ray Structure Validation Report

Apr 28, 2024 – 05:38 am BST

PDB ID : 1GYT  
Title : E. coli Aminopeptidase A (PepA)  
Authors : Straeter, N.  
Deposited on : 2002-04-29  
Resolution : 2.50 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the  symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : 2.36.2  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.2

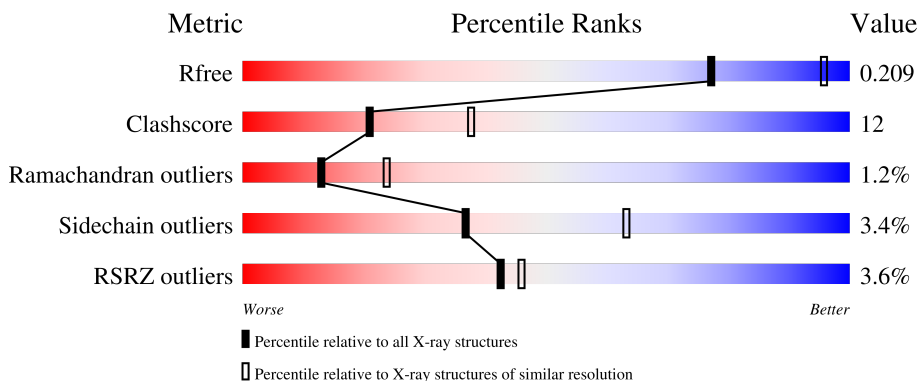
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.50 Å.

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





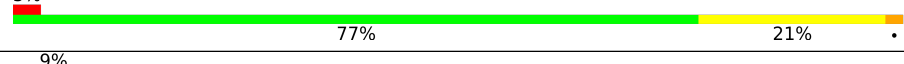
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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

Mol	Chain	Length	Quality of chain
1	A	503	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 76%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">4%      76%      22%      ••</p>
1	B	503	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">3%      80%      17%      •</p>
1	C	503	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 76%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">3%      76%      20%      •</p>
1	D	503	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">3%      74%      24%      •</p>
1	E	503	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 81%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">2%      81%      17%      •</p>

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Mol	Chain	Length	Quality of chain
1	F	503	 2% 81% 17% .
1	G	503	 2% 82% 16% .
1	H	503	 8% 73% 22% .
1	I	503	 % 83% 15% .
1	J	503	 2% 78% 19% .
1	K	503	 3% 77% 21% .
1	L	503	 9% 72% 26% .

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 49952 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called CYTOSOL AMINOPEPTIDASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	503	3846	2401	691	729	25	0	0	0
1	B	503	3846	2401	691	729	25	0	0	0
1	C	503	3846	2401	691	729	25	0	0	0
1	D	503	3846	2401	691	729	25	0	0	0
1	E	503	3846	2401	691	729	25	0	0	0
1	F	503	3846	2401	691	729	25	0	0	0
1	G	503	3846	2401	691	729	25	0	0	0
1	H	503	3846	2401	691	729	25	0	0	0
1	I	503	3846	2401	691	729	25	0	0	0
1	J	503	3846	2401	691	729	25	0	0	0
1	K	503	3846	2401	691	729	25	0	0	0
1	L	503	3846	2401	691	729	25	0	0	0

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

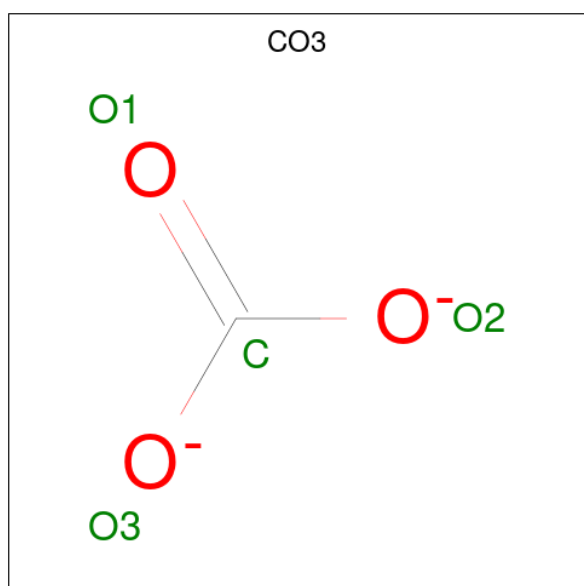
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total	Zn	0	0
			2	2		
2	B	2	Total	Zn	0	0
			2	2		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	C	2	Total 2	Zn 2	0	0
2	D	2	Total 2	Zn 2	0	0
2	E	2	Total 2	Zn 2	0	0
2	F	2	Total 2	Zn 2	0	0
2	G	2	Total 2	Zn 2	0	0
2	H	2	Total 2	Zn 2	0	0
2	I	2	Total 2	Zn 2	0	0
2	J	2	Total 2	Zn 2	0	0
2	K	2	Total 2	Zn 2	0	0
2	L	2	Total 2	Zn 2	0	0

- Molecule 3 is CARBONATE ION (three-letter code: CO3) (formula: CO<sub>3</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 4	C 1	O 3	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total C O 4 1 3	0	0
3	C	1	Total C O 4 1 3	0	0
3	D	1	Total C O 4 1 3	0	0
3	E	1	Total C O 4 1 3	0	0
3	F	1	Total C O 4 1 3	0	0
3	G	1	Total C O 4 1 3	0	0
3	H	1	Total C O 4 1 3	0	0
3	I	1	Total C O 4 1 3	0	0
3	J	1	Total C O 4 1 3	0	0
3	K	1	Total C O 4 1 3	0	0
3	L	1	Total C O 4 1 3	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total Cl 1 1	0	0
4	F	1	Total Cl 1 1	0	0
4	G	1	Total Cl 1 1	0	0
4	K	1	Total Cl 1 1	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	256	Total O 256 256	0	0
5	B	341	Total O 341 341	0	0

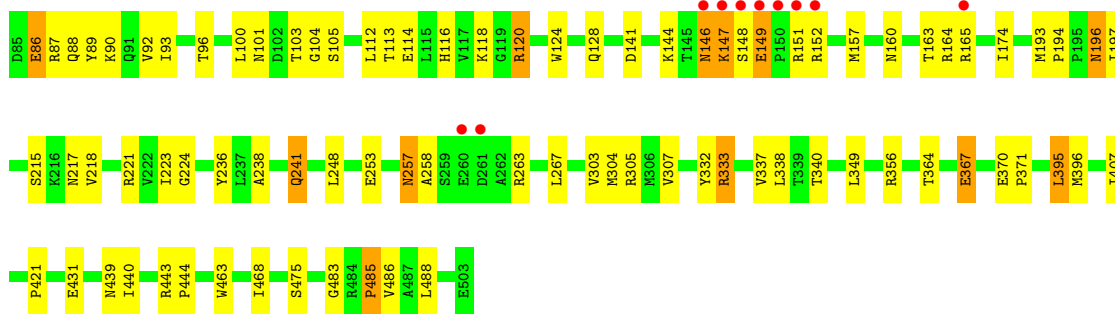
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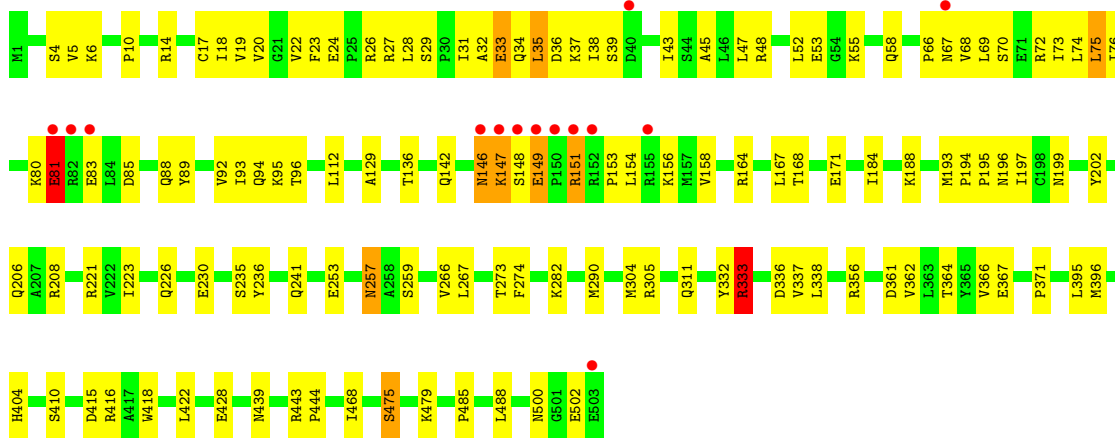
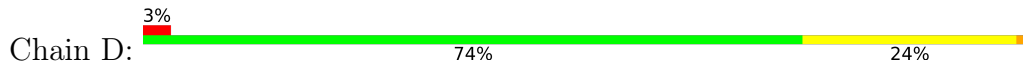
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
5	C	318	Total 318	O 318	0	0
5	D	310	Total 310	O 310	0	0
5	E	345	Total 345	O 345	0	0
5	F	304	Total 304	O 304	0	0
5	G	374	Total 374	O 374	0	0
5	H	203	Total 203	O 203	0	0
5	I	398	Total 398	O 398	0	0
5	J	313	Total 313	O 313	0	0
5	K	273	Total 273	O 273	0	0
5	L	289	Total 289	O 289	0	0



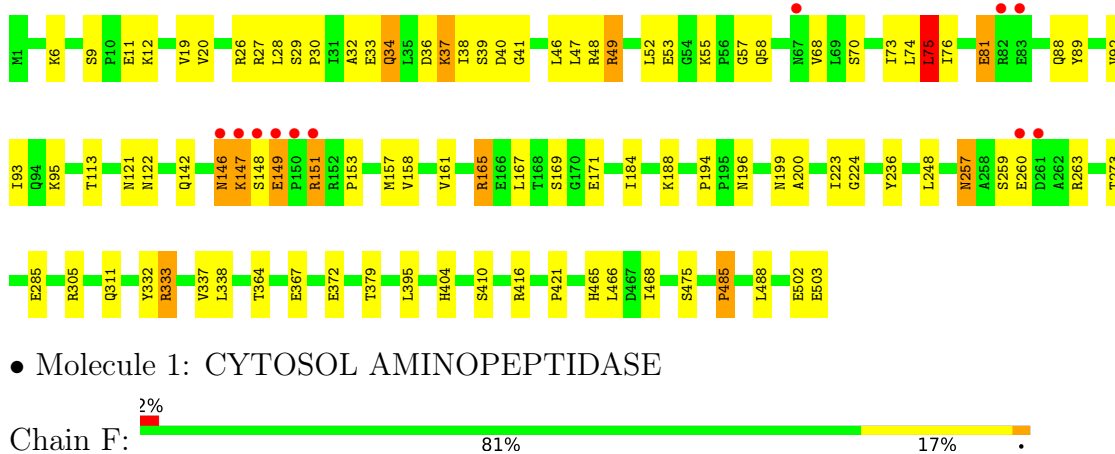
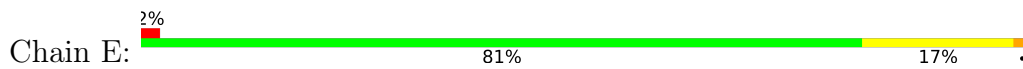




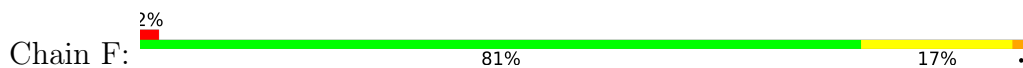
- Molecule 1: CYTOSOL AMINOPEPTIDASE

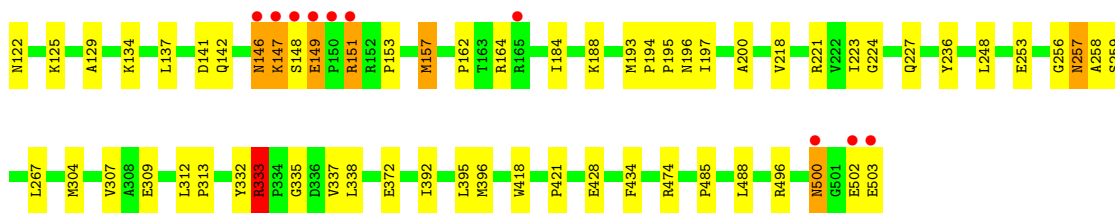


- Molecule 1: CYTOSOL AMINOPEPTIDASE

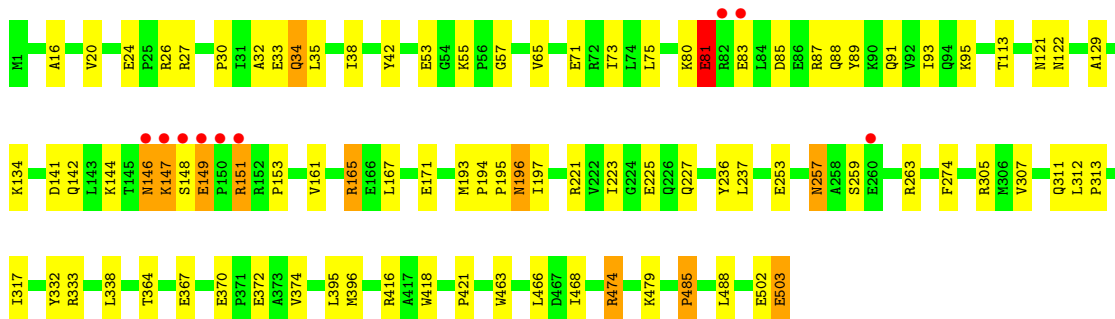
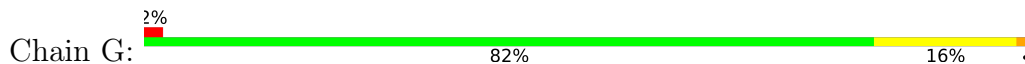


- Molecule 1: CYTOSOL AMINOPEPTIDASE

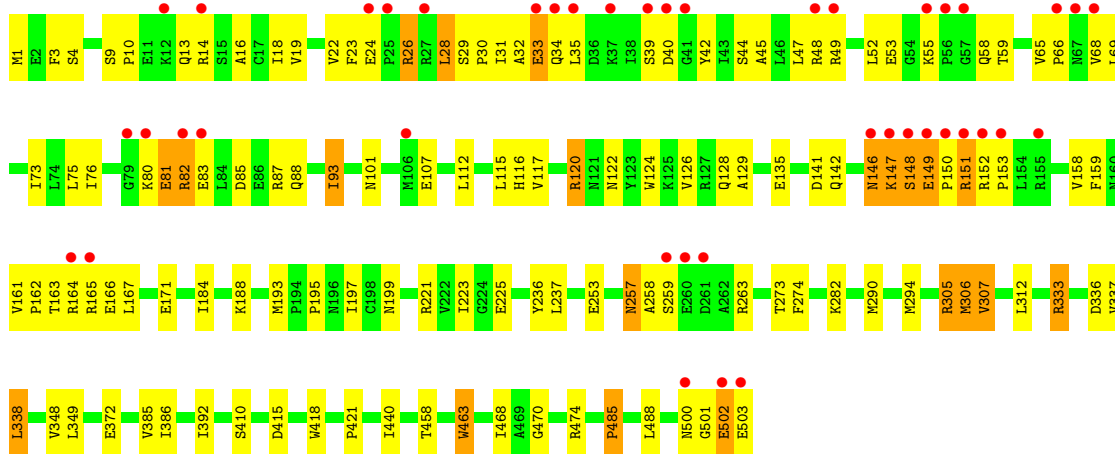




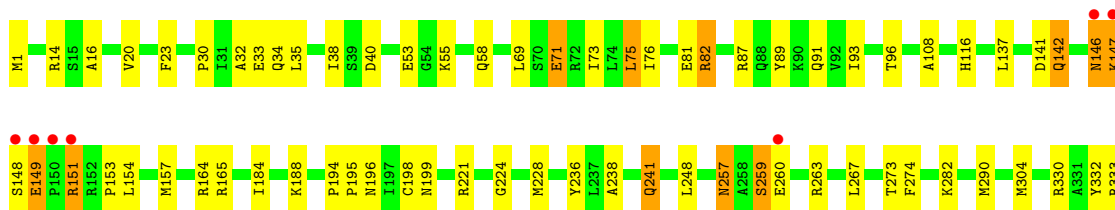
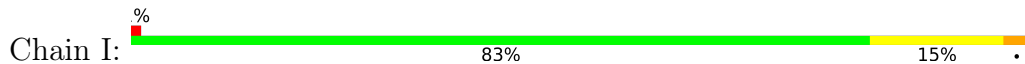
● Molecule 1: CYTOSOL AMINOPEPTIDASE



● Molecule 1: CYTOSOL AMINOPEPTIDASE

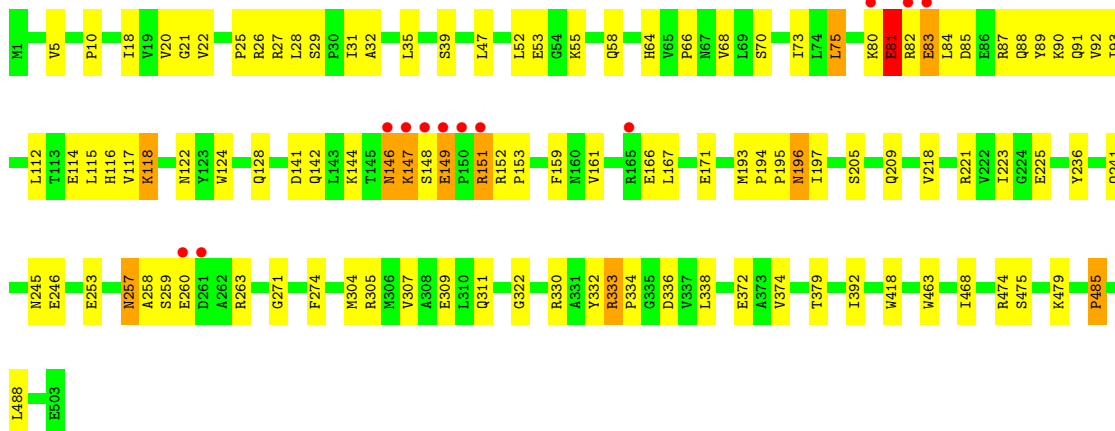
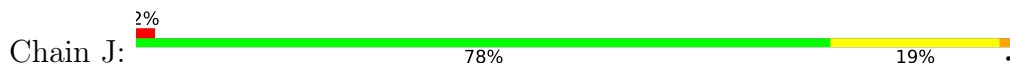


● Molecule 1: CYTOSOL AMINOPEPTIDASE

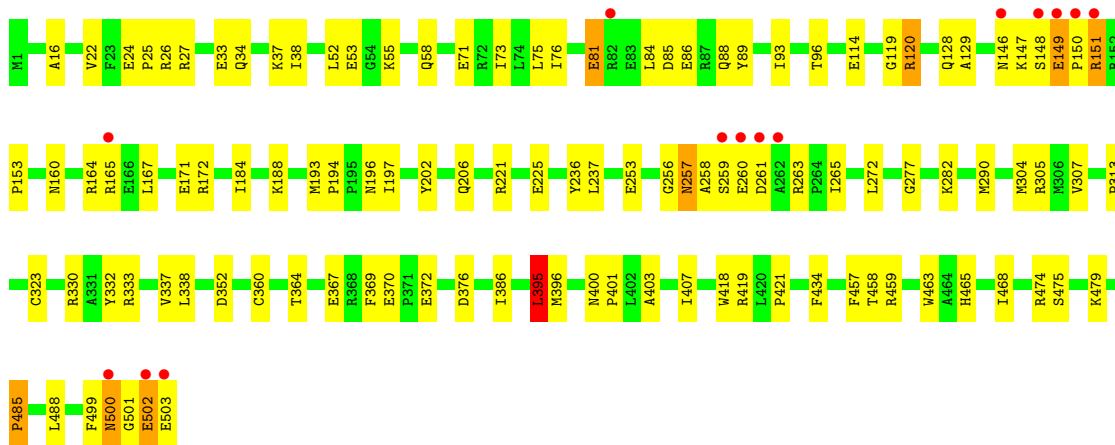
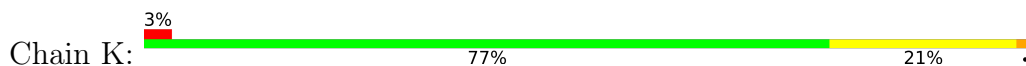




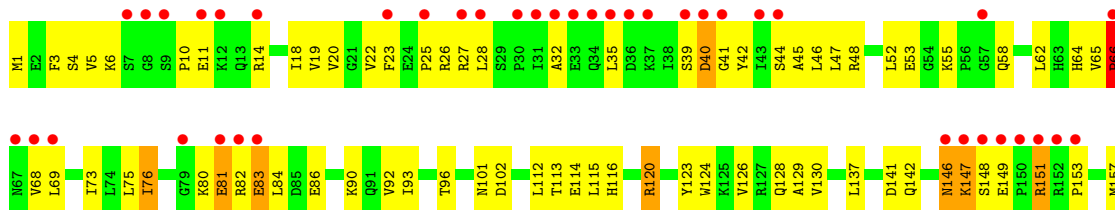
● Molecule 1: CYTOSOL AMINOPEPTIDASE

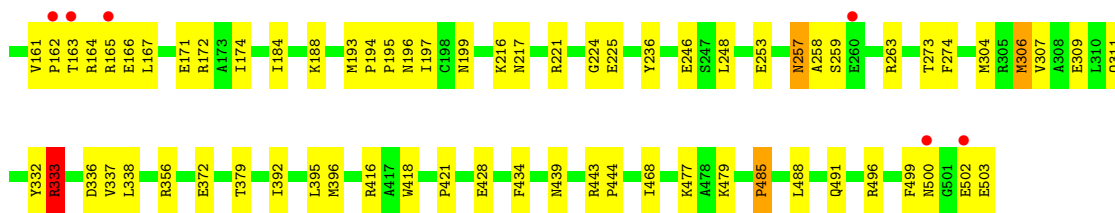


● Molecule 1: CYTOSOL AMINOPEPTIDASE



● Molecule 1: CYTOSOL AMINOPEPTIDASE





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 32	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	178.00Å 178.00Å 244.40Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	30.00 – 2.50 29.97 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.9 (30.00-2.50) 99.9 (29.97-2.50)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.63 (at 2.51Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, $R_{free}$	0.165 , 0.209 0.167 , 0.209	Depositor DCC
$R_{free}$ test set	14839 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	18.7	Xtrriage
Anisotropy	0.335	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 56.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.002 for -h,-k,l 0.016 for h,-h-k,-l 0.007 for -k,-h,-l	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	49952	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	27.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.69% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality [i](#)

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

Bond lengths and bond angles in the following residue types are not validated in this section: CL, ZN, CO3

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	0.59	0/3909	0.77	1/5277 (0.0%)
1	B	0.68	0/3909	0.82	4/5277 (0.1%)
1	C	0.66	0/3909	0.80	4/5277 (0.1%)
1	D	0.64	0/3909	0.80	4/5277 (0.1%)
1	E	0.65	0/3909	0.79	3/5277 (0.1%)
1	F	0.62	0/3909	0.78	2/5277 (0.0%)
1	G	0.64	0/3909	0.81	3/5277 (0.1%)
1	H	0.59	0/3909	0.74	1/5277 (0.0%)
1	I	0.71	0/3909	0.81	2/5277 (0.0%)
1	J	0.65	0/3909	0.78	3/5277 (0.1%)
1	K	0.62	0/3909	0.78	3/5277 (0.1%)
1	L	0.66	0/3909	0.79	3/5277 (0.1%)
All	All	0.64	0/46908	0.79	33/63324 (0.1%)

There are no bond length outliers.

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	333	ARG	NE-CZ-NH1	9.54	125.07	120.30
1	B	221	ARG	NE-CZ-NH2	-9.26	115.67	120.30
1	C	333	ARG	NE-CZ-NH1	8.77	124.69	120.30
1	A	333	ARG	NE-CZ-NH1	7.76	124.18	120.30
1	L	333	ARG	NE-CZ-NH2	-7.25	116.68	120.30
1	B	333	ARG	NE-CZ-NH2	-7.23	116.69	120.30
1	F	333	ARG	NE-CZ-NH2	-7.14	116.73	120.30
1	G	196	ASN	N-CA-CB	-6.76	98.43	110.60
1	G	165	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	E	165	ARG	NE-CZ-NH2	-6.58	117.01	120.30
1	L	35	LEU	CA-CB-CG	6.55	130.37	115.30
1	K	501	GLY	N-CA-C	-6.40	97.10	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	221	ARG	NE-CZ-NH1	6.37	123.48	120.30
1	B	333	ARG	NE-CZ-NH1	6.16	123.38	120.30
1	C	333	ARG	NE-CZ-NH2	-5.93	117.33	120.30
1	D	35	LEU	CA-CB-CG	5.64	128.26	115.30
1	H	501	GLY	N-CA-C	-5.51	99.33	113.10
1	D	333	ARG	NE-CZ-NH2	-5.42	117.59	120.30
1	G	81	GLU	N-CA-C	5.42	125.63	111.00
1	D	81	GLU	N-CA-C	5.36	125.48	111.00
1	J	75	LEU	CA-CB-CG	5.30	127.49	115.30
1	I	164	ARG	NE-CZ-NH2	-5.28	117.66	120.30
1	J	379	THR	N-CA-C	-5.27	96.78	111.00
1	D	164	ARG	NE-CZ-NH2	-5.24	117.68	120.30
1	K	395	LEU	CA-CB-CG	5.23	127.33	115.30
1	E	75	LEU	CA-CB-CG	5.22	127.31	115.30
1	J	196	ASN	N-CA-CB	-5.21	101.21	110.60
1	C	196	ASN	N-CA-CB	-5.21	101.22	110.60
1	E	379	THR	N-CA-C	-5.13	97.15	111.00
1	K	265	ILE	N-CA-C	-5.09	97.26	111.00
1	I	379	THR	N-CA-C	-5.08	97.28	111.00
1	L	379	THR	N-CA-C	-5.04	97.38	111.00
1	C	35	LEU	CA-CB-CG	5.00	126.81	115.30

There are no chirality outliers.

There are no planarity outliers.

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3846	0	3866	105	0
1	B	3846	0	3866	92	1
1	C	3846	0	3866	103	0
1	D	3846	0	3866	105	1
1	E	3846	0	3866	76	0
1	F	3846	0	3866	93	0
1	G	3846	0	3866	87	0
1	H	3846	0	3866	113	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	I	3846	0	3866	70	0
1	J	3846	0	3866	112	0
1	K	3846	0	3866	95	0
1	L	3846	0	3866	127	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
2	E	2	0	0	0	0
2	F	2	0	0	0	0
2	G	2	0	0	0	0
2	H	2	0	0	0	0
2	I	2	0	0	0	0
2	J	2	0	0	0	0
2	K	2	0	0	0	0
2	L	2	0	0	0	0
3	A	4	0	0	0	0
3	B	4	0	0	0	0
3	C	4	0	0	0	0
3	D	4	0	0	0	0
3	E	4	0	0	0	0
3	F	4	0	0	0	0
3	G	4	0	0	0	0
3	H	4	0	0	0	0
3	I	4	0	0	0	0
3	J	4	0	0	0	0
3	K	4	0	0	0	0
3	L	4	0	0	0	0
4	B	1	0	0	0	0
4	F	1	0	0	0	0
4	G	1	0	0	0	0
4	K	1	0	0	0	0
5	A	256	0	0	6	0
5	B	341	0	0	10	0
5	C	318	0	0	9	0
5	D	310	0	0	6	0
5	E	345	0	0	7	0
5	F	304	0	0	7	0
5	G	374	0	0	4	0
5	H	203	0	0	2	0
5	I	398	0	0	4	0
5	J	313	0	0	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	K	273	0	0	8	0
5	L	289	0	0	6	0
All	All	49952	0	46392	1129	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 12.

All (1129) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:27:ARG:HH22	1:B:81:GLU:HG3	1.10	1.16
1:E:27:ARG:HH22	1:E:81:GLU:HG3	1.12	1.12
1:D:27:ARG:HH22	1:D:81:GLU:HG3	1.03	1.09
1:C:103:THR:HG22	1:C:105:SER:H	1.18	1.07
1:L:163:THR:HG22	1:L:164:ARG:H	1.14	1.07
1:L:26:ARG:HH21	1:L:53:GLU:HG2	1.21	1.03
1:D:27:ARG:NH2	1:D:81:GLU:HG3	1.75	1.02
1:F:30:PRO:HA	1:F:33:GLU:HG3	1.42	0.99
1:F:55:LYS:H	1:F:58:GLN:HE21	1.10	0.98
1:F:55:LYS:H	1:F:58:GLN:NE2	1.62	0.98
1:I:55:LYS:H	1:I:58:GLN:NE2	1.60	0.98
1:K:55:LYS:H	1:K:58:GLN:HE21	1.04	0.95
1:H:163:THR:HG22	1:H:165:ARG:H	1.31	0.95
1:L:499:PHE:HZ	1:L:502:GLU:HG2	1.28	0.95
1:A:55:LYS:HB2	1:A:58:GLN:HE21	1.33	0.94
1:G:27:ARG:NH2	1:G:81:GLU:HG3	1.82	0.93
1:G:85:ASP:H	1:G:88:GLN:HE21	1.04	0.93
1:C:27:ARG:NH2	1:C:81:GLU:HG3	1.82	0.93
1:H:82:ARG:HA	1:H:116:HIS:HD2	1.34	0.93
1:C:82:ARG:CZ	1:C:116:HIS:CE1	2.54	0.91
1:I:55:LYS:H	1:I:58:GLN:HE21	1.04	0.91
1:F:55:LYS:N	1:F:58:GLN:HE21	1.70	0.90
1:K:305:ARG:HG2	1:K:305:ARG:HH11	1.35	0.90
1:L:172:ARG:HD3	1:L:502:GLU:OE2	1.72	0.89
1:A:333:ARG:HG2	1:A:333:ARG:HH11	1.37	0.88
1:L:263:ARG:NH1	1:L:372:GLU:HG2	1.89	0.88
1:A:500:ASN:HD22	1:A:501:GLY:N	1.71	0.88
1:C:86:GLU:OE2	1:C:120:ARG:HD2	1.72	0.88
1:E:27:ARG:NH2	1:E:81:GLU:HG3	1.88	0.88
1:B:49:ARG:HH22	1:F:71:GLU:HB2	1.40	0.86
1:H:257:ASN:C	1:H:257:ASN:HD22	1.79	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:53:GLU:HG2	1:K:151:ARG:HH12	1.40	0.85
1:I:55:LYS:N	1:I:58:GLN:HE21	1.73	0.85
1:B:55:LYS:HB2	1:B:58:GLN:HE21	1.40	0.85
1:J:27:ARG:HH12	1:J:81:GLU:HG3	1.42	0.85
1:H:148:SER:O	1:H:149:GLU:HG2	1.78	0.84
1:F:33:GLU:HB3	5:F:938:HOH:O	1.76	0.84
1:J:146:ASN:HB2	5:L:798:HOH:O	1.77	0.84
1:B:82:ARG:HH21	1:B:116:HIS:CE1	1.94	0.83
1:H:161:VAL:HB	1:H:166:GLU:HB2	1.60	0.83
1:L:163:THR:HG22	1:L:164:ARG:N	1.94	0.83
1:J:257:ASN:ND2	1:J:259:SER:H	1.76	0.83
1:K:55:LYS:H	1:K:58:GLN:NE2	1.77	0.82
1:G:85:ASP:H	1:G:88:GLN:NE2	1.76	0.82
1:G:148:SER:O	1:G:149:GLU:HG2	1.79	0.82
1:B:167:LEU:O	1:B:171:GLU:HG3	1.80	0.82
1:I:76:ILE:HD13	1:I:96:THR:OG1	1.80	0.82
1:J:146:ASN:O	1:J:147:LYS:O	1.97	0.82
1:G:151:ARG:HD3	1:G:153:PRO:HD3	1.60	0.81
1:B:27:ARG:HH22	1:B:81:GLU:CG	1.93	0.81
1:I:257:ASN:ND2	1:I:259:SER:H	1.77	0.81
1:J:257:ASN:C	1:J:257:ASN:HD22	1.82	0.81
1:J:53:GLU:HB3	1:J:58:GLN:HE22	1.45	0.80
1:K:55:LYS:N	1:K:58:GLN:HE21	1.79	0.80
1:K:27:ARG:HH22	1:K:81:GLU:HG3	1.46	0.80
1:B:53:GLU:HG2	1:F:151:ARG:HH12	1.46	0.80
1:H:82:ARG:HA	1:H:116:HIS:CD2	2.16	0.80
1:B:257:ASN:HD22	1:B:258:ALA:N	1.80	0.79
1:B:27:ARG:NH2	1:B:81:GLU:HG3	1.95	0.79
1:G:27:ARG:HH22	1:G:81:GLU:HG3	1.48	0.79
1:A:148:SER:O	1:A:149:GLU:HG2	1.84	0.78
1:J:114:GLU:HG3	5:J:751:HOH:O	1.82	0.78
1:B:141:ASP:HB3	1:B:147:LYS:HD3	1.65	0.78
1:D:221:ARG:HH21	1:D:253:GLU:CD	1.86	0.78
1:I:395:LEU:HD12	1:I:396:MET:N	1.97	0.78
1:C:305:ARG:HD2	5:C:811:HOH:O	1.83	0.77
1:K:193:MET:CE	1:K:197:ILE:HG21	2.13	0.77
1:G:364:THR:O	1:G:367:GLU:HG2	1.84	0.77
1:L:148:SER:O	1:L:149:GLU:HG2	1.85	0.77
1:C:27:ARG:HH22	1:C:81:GLU:HG3	1.49	0.77
1:H:162:PRO:HD2	1:H:166:GLU:HG3	1.67	0.76
1:L:499:PHE:CZ	1:L:502:GLU:HG2	2.17	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:5:VAL:O	1:L:6:LYS:HG3	1.85	0.76
1:D:148:SER:O	1:D:149:GLU:HG2	1.85	0.75
1:K:27:ARG:NH2	1:K:81:GLU:HG3	2.01	0.75
1:G:141:ASP:O	1:G:147:LYS:HE2	1.85	0.75
1:B:257:ASN:HD22	1:B:257:ASN:C	1.89	0.75
1:I:53:GLU:CG	1:K:151:ARG:HH12	1.98	0.75
1:E:55:LYS:H	1:E:58:GLN:NE2	1.84	0.75
1:B:85:ASP:H	1:B:88:GLN:HE21	1.35	0.75
1:H:257:ASN:HD22	1:H:258:ALA:N	1.85	0.75
1:F:257:ASN:HD22	1:F:258:ALA:N	1.85	0.75
1:E:55:LYS:N	1:E:58:GLN:HE21	1.85	0.74
1:G:93:ILE:HD13	1:G:129:ALA:CB	2.17	0.74
1:L:20:VAL:HG23	1:L:75:LEU:HD13	1.70	0.74
1:G:53:GLU:HG2	1:J:151:ARG:HH12	1.52	0.74
1:I:257:ASN:HD21	1:I:259:SER:HB3	1.50	0.74
1:A:241:GLN:HG3	5:A:880:HOH:O	1.88	0.74
1:K:89:TYR:CZ	1:K:93:ILE:HD11	2.24	0.73
1:L:47:LEU:HD22	1:L:52:LEU:HB3	1.69	0.73
1:D:257:ASN:ND2	1:D:259:SER:H	1.87	0.73
1:A:55:LYS:HB2	1:A:58:GLN:NE2	2.02	0.72
1:B:110:CYS:HB2	1:B:157:MET:CE	2.18	0.72
1:K:305:ARG:HG2	1:K:305:ARG:NH1	2.02	0.72
1:J:27:ARG:NH1	1:J:81:GLU:HG3	2.04	0.72
1:C:76:ILE:HD13	1:C:96:THR:OG1	1.90	0.72
1:B:82:ARG:NH2	1:B:116:HIS:CE1	2.57	0.72
1:F:148:SER:O	1:F:149:GLU:HG2	1.89	0.72
1:F:30:PRO:HA	1:F:33:GLU:CG	2.18	0.72
1:I:330:ARG:NH1	5:I:701:HOH:O	2.21	0.72
1:E:475:SER:HB2	5:E:731:HOH:O	1.90	0.72
1:L:55:LYS:H	1:L:58:GLN:NE2	1.87	0.72
1:C:164:ARG:NH1	1:C:164:ARG:HB3	2.06	0.71
1:K:85:ASP:H	1:K:88:GLN:HE21	1.36	0.71
1:A:474:ARG:HH11	1:A:474:ARG:HG2	1.54	0.71
1:E:404:HIS:HB3	5:E:990:HOH:O	1.90	0.71
1:B:49:ARG:NH2	1:F:71:GLU:HB2	2.05	0.71
1:A:257:ASN:HD22	1:A:258:ALA:N	1.88	0.71
1:J:148:SER:O	1:J:149:GLU:HG2	1.90	0.71
1:D:193:MET:HE3	1:D:194:PRO:HD2	1.72	0.71
1:B:257:ASN:ND2	1:B:259:SER:H	1.89	0.70
1:C:263:ARG:HG3	1:C:263:ARG:HH11	1.54	0.70
1:I:148:SER:O	1:I:149:GLU:HG2	1.90	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:172:ARG:HD3	1:A:499:PHE:HE1	1.54	0.70
1:E:39:SER:O	1:E:40:ASP:HB2	1.92	0.70
1:E:55:LYS:H	1:E:58:GLN:HE21	1.40	0.70
1:F:221:ARG:HG2	1:F:221:ARG:HH11	1.57	0.70
1:L:82:ARG:NH1	1:L:116:HIS:NE2	2.39	0.70
1:L:309:GLU:HG2	5:L:934:HOH:O	1.90	0.70
1:F:108:ALA:HB3	1:F:157:MET:HE3	1.74	0.69
1:A:307:VAL:HG23	1:A:312:LEU:HD12	1.73	0.69
1:C:395:LEU:HD12	1:C:396:MET:N	2.07	0.69
1:G:85:ASP:OD1	1:G:88:GLN:HG3	1.91	0.69
1:B:162:PRO:HD2	1:B:166:GLU:HG3	1.74	0.69
1:H:257:ASN:ND2	1:H:259:SER:H	1.90	0.69
1:L:44:SER:O	1:L:48:ARG:HG3	1.92	0.69
1:G:146:ASN:O	1:G:147:LYS:HG2	1.92	0.69
1:I:194:PRO:HD3	5:I:811:HOH:O	1.91	0.69
1:K:33:GLU:OE2	1:K:37:LYS:HE3	1.93	0.69
1:J:89:TYR:CZ	1:J:93:ILE:HD11	2.28	0.69
1:K:172:ARG:HD2	1:K:502:GLU:OE2	1.93	0.69
1:G:221:ARG:HH21	1:G:253:GLU:CD	1.97	0.68
1:D:311:GLN:HG2	5:D:894:HOH:O	1.93	0.68
1:D:364:THR:O	1:D:367:GLU:HG2	1.93	0.68
1:K:364:THR:O	1:K:367:GLU:HG2	1.93	0.68
1:E:20:VAL:HG23	1:E:75:LEU:HD13	1.76	0.68
1:H:85:ASP:OD1	1:H:88:GLN:HG3	1.94	0.68
1:L:66:PRO:O	1:L:68:VAL:HG23	1.92	0.68
1:A:305:ARG:HG2	1:A:305:ARG:HH11	1.58	0.68
1:L:163:THR:HB	1:L:166:GLU:OE2	1.94	0.68
1:F:333:ARG:HG2	1:F:333:ARG:HH11	1.60	0.67
1:G:257:ASN:HD22	1:G:259:SER:H	1.40	0.67
1:B:148:SER:O	1:B:149:GLU:HG2	1.94	0.67
1:A:364:THR:O	1:A:367:GLU:HG2	1.94	0.67
1:E:148:SER:O	1:E:149:GLU:HG2	1.94	0.67
1:J:82:ARG:C	1:J:84:LEU:H	1.97	0.67
1:H:164:ARG:HB3	1:H:164:ARG:NH1	2.09	0.67
1:B:55:LYS:CB	1:B:58:GLN:HE21	2.08	0.67
1:B:55:LYS:H	1:B:58:GLN:NE2	1.92	0.67
1:C:141:ASP:O	1:C:147:LYS:HE2	1.94	0.67
1:C:194:PRO:HD3	5:C:737:HOH:O	1.94	0.67
1:C:364:THR:O	1:C:367:GLU:HG2	1.95	0.67
1:D:76:ILE:HD13	1:D:96:THR:OG1	1.94	0.67
1:F:257:ASN:HD22	1:F:257:ASN:C	1.96	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:26:ARG:HH21	1:L:53:GLU:CG	2.02	0.67
1:A:20:VAL:HG23	1:A:75:LEU:HD13	1.77	0.66
1:L:184:ILE:O	1:L:188:LYS:HG3	1.95	0.66
1:A:257:ASN:HD22	1:A:257:ASN:C	1.99	0.66
1:D:55:LYS:H	1:D:58:GLN:HE21	1.42	0.66
1:H:135:GLU:OE2	1:H:188:LYS:NZ	2.29	0.66
1:H:307:VAL:HG23	1:H:312:LEU:HD12	1.77	0.66
1:J:144:LYS:O	1:J:147:LYS:HE3	1.96	0.66
1:J:333:ARG:HD2	1:J:333:ARG:N	2.11	0.66
1:E:364:THR:O	1:E:367:GLU:HG2	1.96	0.66
1:D:23:PHE:CE1	1:D:81:GLU:HA	2.31	0.66
1:D:53:GLU:HB2	1:D:58:GLN:HE22	1.60	0.66
1:G:122:ASN:HD21	1:G:161:VAL:HG12	1.62	0.65
1:K:53:GLU:HB2	1:K:58:GLN:HE22	1.60	0.65
1:G:257:ASN:ND2	1:G:259:SER:H	1.92	0.65
1:K:120:ARG:HD3	1:K:128:GLN:HE22	1.61	0.65
1:K:34:GLN:O	1:K:38:ILE:HG12	1.96	0.65
1:L:82:ARG:HD2	1:L:116:HIS:CD2	2.32	0.65
1:L:141:ASP:HB3	1:L:147:LYS:HD3	1.77	0.65
1:C:124:TRP:CH2	1:C:128:GLN:HG2	2.32	0.65
1:E:146:ASN:O	1:E:147:LYS:O	2.14	0.65
1:I:34:GLN:O	1:I:38:ILE:HG12	1.96	0.65
1:C:103:THR:CG2	1:C:105:SER:H	2.04	0.65
1:A:82:ARG:HA	1:A:116:HIS:HD2	1.62	0.65
1:J:68:VAL:HG12	1:J:70:SER:H	1.61	0.65
1:C:257:ASN:HD22	1:C:258:ALA:N	1.95	0.64
1:E:305:ARG:HH11	1:E:305:ARG:HG2	1.63	0.64
1:H:120:ARG:HD3	1:H:128:GLN:HE22	1.61	0.64
1:J:257:ASN:HD22	1:J:258:ALA:N	1.95	0.64
1:K:164:ARG:HG3	1:K:167:LEU:HD12	1.80	0.64
1:H:221:ARG:NH2	1:H:253:GLU:OE2	2.25	0.64
1:K:73:ILE:HG22	1:K:75:LEU:HD22	1.78	0.64
1:K:172:ARG:HD3	1:K:499:PHE:HE1	1.63	0.64
1:I:263:ARG:CB	1:I:372:GLU:HB2	2.28	0.64
1:K:475:SER:HB3	5:K:796:HOH:O	1.98	0.64
1:E:68:VAL:HG12	1:E:70:SER:H	1.62	0.64
1:A:23:PHE:CE2	1:A:81:GLU:HG2	2.32	0.64
1:E:184:ILE:O	1:E:188:LYS:HG3	1.97	0.64
1:F:82:ARG:HA	1:F:116:HIS:CD2	2.33	0.64
1:L:73:ILE:HG22	1:L:75:LEU:HD22	1.80	0.64
1:L:257:ASN:C	1:L:257:ASN:HD22	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:42:TYR:CD2	1:L:65:VAL:HG13	2.32	0.63
1:I:421:PRO:HD3	1:J:418:TRP:CE2	2.33	0.63
1:B:32:ALA:O	1:B:35:LEU:HB3	1.99	0.63
1:D:28:LEU:HG	1:D:32:ALA:HB3	1.80	0.63
1:K:27:ARG:HH22	1:K:81:GLU:CG	2.12	0.63
1:H:81:GLU:O	1:H:83:GLU:HG3	1.98	0.63
1:E:305:ARG:NH2	5:E:701:HOH:O	2.32	0.63
1:B:468:ILE:HG21	1:B:485:PRO:HD3	1.80	0.63
1:J:82:ARG:NH1	1:J:116:HIS:CE1	2.66	0.63
1:K:395:LEU:HD12	1:K:396:MET:N	2.13	0.63
1:A:27:ARG:HH22	1:A:81:GLU:HG3	1.63	0.63
1:G:305:ARG:HG2	1:G:305:ARG:HH11	1.62	0.63
1:H:9:SER:O	1:H:13:GLN:HG2	1.99	0.62
1:H:23:PHE:CZ	1:H:81:GLU:HG2	2.34	0.62
1:A:500:ASN:HD22	1:A:501:GLY:H	1.45	0.62
1:E:121:ASN:HD22	1:E:503:GLU:HG2	1.64	0.62
1:E:257:ASN:HD22	1:E:259:SER:H	1.47	0.62
1:I:76:ILE:CD1	1:I:96:THR:OG1	2.47	0.62
1:B:55:LYS:HB2	1:B:58:GLN:NE2	2.14	0.62
1:H:32:ALA:O	1:H:35:LEU:N	2.32	0.62
1:H:468:ILE:HG21	1:H:485:PRO:HD3	1.82	0.62
1:I:55:LYS:HB2	1:I:58:GLN:HE21	1.64	0.62
1:B:55:LYS:H	1:B:58:GLN:HE21	1.47	0.62
1:I:151:ARG:HD3	1:I:153:PRO:HD3	1.82	0.62
1:J:221:ARG:NH2	1:J:253:GLU:OE2	2.33	0.62
1:K:194:PRO:HD3	5:K:769:HOH:O	1.98	0.62
1:A:23:PHE:CZ	1:A:81:GLU:HG2	2.34	0.62
1:A:305:ARG:HG2	1:A:305:ARG:NH1	2.15	0.62
1:A:305:ARG:HD2	5:A:852:HOH:O	2.00	0.62
1:A:474:ARG:HG2	1:A:474:ARG:NH1	2.15	0.62
1:A:27:ARG:NH2	1:A:81:GLU:HG3	2.15	0.62
1:J:257:ASN:HD21	1:J:259:SER:HB3	1.63	0.62
1:A:94:GLN:HG3	1:A:136:THR:OG1	1.99	0.62
1:D:32:ALA:O	1:D:35:LEU:N	2.33	0.62
1:B:73:ILE:HG22	1:B:75:LEU:HD22	1.80	0.61
1:F:50:GLY:HA2	5:F:795:HOH:O	1.99	0.61
1:E:20:VAL:CG2	1:E:75:LEU:HD13	2.30	0.61
1:F:30:PRO:CA	1:F:33:GLU:HG3	2.26	0.61
1:J:10:PRO:HG2	1:J:31:ILE:CG2	2.30	0.61
1:F:82:ARG:HA	1:F:116:HIS:HD2	1.64	0.61
1:F:110:CYS:HB2	1:F:157:MET:HE2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:55:LYS:O	1:K:58:GLN:HG3	2.00	0.61
1:B:34:GLN:O	1:B:38:ILE:HG12	2.00	0.61
1:C:475:SER:HB3	5:C:791:HOH:O	2.00	0.61
1:D:221:ARG:NH2	1:D:253:GLU:OE2	2.27	0.61
1:B:303:VAL:O	1:B:307:VAL:HG12	1.99	0.61
1:I:488:LEU:C	1:I:488:LEU:HD23	2.21	0.61
1:C:92:VAL:CG1	1:C:112:LEU:HD13	2.31	0.61
1:G:151:ARG:HE	1:G:153:PRO:CG	2.14	0.61
1:F:110:CYS:HB2	1:F:157:MET:CE	2.30	0.60
1:F:194:PRO:HB2	1:F:196:ASN:HB3	1.82	0.60
1:G:27:ARG:HH22	1:G:81:GLU:CG	2.14	0.60
1:H:257:ASN:C	1:H:257:ASN:ND2	2.52	0.60
1:J:257:ASN:HD22	1:J:259:SER:H	1.49	0.60
1:C:82:ARG:NE	1:C:116:HIS:CE1	2.69	0.60
1:C:103:THR:HG22	1:C:105:SER:N	2.03	0.60
1:I:55:LYS:HB2	1:I:58:GLN:NE2	2.16	0.60
1:J:21:GLY:O	1:J:29:SER:HB2	2.02	0.60
1:E:6:LYS:HD2	1:E:158:VAL:HG11	1.82	0.60
1:H:59:THR:HG22	1:H:76:ILE:HG12	1.83	0.60
1:L:146:ASN:O	1:L:147:LYS:O	2.17	0.60
1:C:45:ALA:HA	1:C:48:ARG:NH1	2.17	0.60
1:F:395:LEU:HD12	1:F:396:MET:N	2.16	0.60
1:G:53:GLU:HG2	1:J:151:ARG:NH1	2.16	0.60
1:H:306:MET:HE3	1:H:307:VAL:N	2.16	0.60
1:G:221:ARG:NH2	1:G:253:GLU:OE2	2.30	0.60
1:L:224:GLY:HA2	1:L:248:LEU:HD23	1.84	0.60
1:L:395:LEU:HD12	1:L:396:MET:N	2.17	0.60
1:A:73:ILE:HG22	1:A:75:LEU:HD22	1.82	0.60
1:B:410:SER:HB2	1:B:416:ARG:HA	1.84	0.60
1:C:14:ARG:HE	1:C:69:LEU:HD13	1.67	0.60
1:D:184:ILE:O	1:D:188:LYS:HG3	2.02	0.60
1:I:263:ARG:HB3	1:I:372:GLU:HB2	1.84	0.60
1:F:184:ILE:O	1:F:188:LYS:HG3	2.00	0.60
1:E:30:PRO:HA	1:E:33:GLU:HG3	1.83	0.60
1:D:24:GLU:OE2	1:D:55:LYS:HG2	2.02	0.59
1:F:372:GLU:OE1	1:F:496:ARG:NH1	2.32	0.59
1:I:55:LYS:CB	1:I:58:GLN:HE21	2.15	0.59
1:D:146:ASN:O	1:D:147:LYS:HG3	2.01	0.59
1:E:311:GLN:HG2	5:E:919:HOH:O	2.02	0.59
1:F:221:ARG:HG2	1:F:221:ARG:NH1	2.16	0.59
1:G:93:ILE:HD13	1:G:129:ALA:HB2	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:49:ARG:NH2	1:L:64:HIS:NE2	2.50	0.59
1:J:333:ARG:HD3	1:J:336:ASP:OD1	2.01	0.59
1:K:84:LEU:HD12	1:K:88:GLN:HB2	1.84	0.59
1:L:257:ASN:HD22	1:L:258:ALA:N	2.00	0.59
1:F:34:GLN:O	1:F:38:ILE:HG12	2.03	0.59
1:C:90:LYS:HE2	1:C:128:GLN:CD	2.23	0.59
1:D:55:LYS:HB2	1:D:58:GLN:HE21	1.68	0.59
1:K:263:ARG:HB2	1:K:372:GLU:HB2	1.84	0.59
1:D:488:LEU:C	1:D:488:LEU:HD23	2.22	0.59
1:E:263:ARG:HB2	1:E:372:GLU:HB2	1.84	0.59
1:J:20:VAL:HG23	1:J:75:LEU:HD13	1.84	0.59
1:L:216:LYS:NZ	1:L:311:GLN:NE2	2.50	0.59
1:L:333:ARG:HD2	1:L:336:ASP:OD1	2.02	0.59
1:C:101:ASN:O	1:C:151:ARG:HD3	2.03	0.59
1:B:110:CYS:HB2	1:B:157:MET:HE2	1.84	0.59
1:C:146:ASN:O	1:C:147:LYS:O	2.21	0.59
1:F:55:LYS:HB2	1:F:58:GLN:NE2	2.18	0.59
1:J:474:ARG:HG2	1:J:474:ARG:HH11	1.67	0.59
1:K:479:LYS:HE3	5:K:905:HOH:O	2.02	0.59
1:A:167:LEU:O	1:A:171:GLU:HG3	2.03	0.58
1:B:85:ASP:H	1:B:88:GLN:NE2	1.99	0.58
1:D:151:ARG:HD3	1:D:153:PRO:HD3	1.85	0.58
1:I:224:GLY:HA2	1:I:248:LEU:HD23	1.84	0.58
1:B:116:HIS:HB2	5:B:837:HOH:O	2.02	0.58
1:K:84:LEU:CD1	1:K:88:GLN:HB2	2.33	0.58
1:F:11:GLU:OE2	1:F:34:GLN:NE2	2.37	0.58
1:H:14:ARG:HG2	1:H:69:LEU:HB3	1.85	0.58
1:L:45:ALA:HA	1:L:48:ARG:NH1	2.19	0.58
1:L:163:THR:CG2	1:L:164:ARG:H	1.91	0.58
1:F:141:ASP:HB3	1:F:147:LYS:HD3	1.84	0.58
1:L:172:ARG:HD3	1:L:502:GLU:CD	2.24	0.58
1:A:500:ASN:ND2	1:A:501:GLY:N	2.49	0.58
1:E:53:GLU:HB3	1:E:58:GLN:HE22	1.67	0.58
1:L:257:ASN:ND2	1:L:259:SER:H	2.02	0.58
1:B:20:VAL:HG23	1:B:75:LEU:HD13	1.86	0.58
1:I:1:MET:HE1	1:I:154:LEU:HD23	1.86	0.58
1:F:93:ILE:HD13	1:F:129:ALA:CB	2.33	0.58
1:K:172:ARG:HD3	1:K:499:PHE:CE1	2.38	0.58
1:E:74:LEU:HG	1:E:76:ILE:CD1	2.34	0.57
1:E:337:VAL:O	1:F:196:ASN:ND2	2.37	0.57
1:G:263:ARG:HB2	1:G:372:GLU:HB2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:184:ILE:O	1:B:188:LYS:HG3	2.04	0.57
1:G:193:MET:HE1	1:G:197:ILE:HG21	1.85	0.57
1:G:167:LEU:O	1:G:171:GLU:HG3	2.04	0.57
1:G:305:ARG:HG2	1:G:305:ARG:NH1	2.20	0.57
1:J:166:GLU:N	1:J:166:GLU:OE1	2.37	0.57
1:J:263:ARG:NH1	1:J:372:GLU:HG2	2.19	0.57
1:K:114:GLU:OE2	1:K:160:ASN:ND2	2.31	0.57
1:E:121:ASN:ND2	1:E:503:GLU:HG2	2.19	0.57
1:G:27:ARG:HH21	1:G:81:GLU:HG3	1.68	0.57
1:A:81:GLU:O	1:A:83:GLU:HG3	2.04	0.57
1:A:221:ARG:HH21	1:A:253:GLU:CD	2.07	0.57
1:B:20:VAL:CG2	1:B:75:LEU:HD13	2.35	0.57
1:B:87:ARG:O	1:B:91:GLN:HG3	2.05	0.57
1:C:82:ARG:C	1:C:84:LEU:H	2.07	0.57
1:D:10:PRO:HG2	1:D:31:ILE:HG22	1.87	0.57
1:J:122:ASN:HD21	1:J:161:VAL:HG12	1.68	0.57
1:D:5:VAL:O	1:D:6:LYS:HG3	2.04	0.57
1:F:193:MET:CE	1:F:197:ILE:HG21	2.35	0.57
1:A:4:SER:OG	1:A:158:VAL:HG22	2.04	0.57
1:D:257:ASN:HD22	1:D:259:SER:H	1.51	0.57
1:F:27:ARG:HH22	1:F:81:GLU:HG3	1.69	0.57
1:L:372:GLU:CD	1:L:496:ARG:HH12	2.08	0.57
1:A:164:ARG:HH11	1:A:164:ARG:HB3	1.70	0.56
1:D:257:ASN:HD22	1:D:257:ASN:C	2.08	0.56
1:A:166:GLU:H	1:A:166:GLU:CD	2.09	0.56
1:A:188:LYS:HE2	5:A:713:HOH:O	2.04	0.56
1:B:501:GLY:C	1:B:503:GLU:H	2.07	0.56
1:C:55:LYS:HD2	1:C:58:GLN:NE2	2.20	0.56
1:I:416:ARG:HD2	5:I:734:HOH:O	2.04	0.56
1:C:82:ARG:O	1:C:84:LEU:N	2.33	0.56
1:C:193:MET:CE	1:C:197:ILE:HG21	2.34	0.56
1:D:4:SER:OG	1:D:158:VAL:HG22	2.04	0.56
1:H:163:THR:HG22	1:H:164:ARG:N	2.20	0.56
1:I:141:ASP:HB3	1:I:147:LYS:HD3	1.86	0.56
1:J:55:LYS:H	1:J:58:GLN:HE21	1.52	0.56
1:A:25:PRO:O	1:A:27:ARG:N	2.39	0.56
1:D:14:ARG:NE	1:D:69:LEU:HD13	2.20	0.56
1:D:89:TYR:CZ	1:D:93:ILE:HD11	2.41	0.56
1:E:224:GLY:HA2	1:E:248:LEU:HD23	1.88	0.56
1:F:121:ASN:O	1:F:125:LYS:HG3	2.04	0.56
1:H:502:GLU:HG2	1:H:502:GLU:O	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:163:THR:HG23	1:A:166:GLU:OE2	2.06	0.56
1:I:195:PRO:HB3	1:I:274:PHE:HB2	1.87	0.56
1:D:93:ILE:HD13	1:D:129:ALA:CB	2.35	0.56
1:J:141:ASP:HB3	1:J:147:LYS:HD3	1.88	0.56
1:C:305:ARG:NH1	1:C:305:ARG:HG2	2.19	0.56
1:D:24:GLU:OE1	1:D:80:LYS:HE2	2.06	0.56
1:H:161:VAL:HB	1:H:166:GLU:CB	2.33	0.56
1:I:1:MET:HE2	1:I:137:LEU:HD11	1.87	0.56
1:K:86:GLU:OE2	1:K:120:ARG:HD2	2.06	0.56
1:H:53:GLU:HG3	1:L:151:ARG:NH2	2.20	0.56
1:I:257:ASN:HD22	1:I:259:SER:H	1.50	0.56
1:K:167:LEU:O	1:K:171:GLU:HG3	2.06	0.56
1:E:30:PRO:HA	1:E:33:GLU:CG	2.36	0.56
1:G:311:GLN:HG2	5:G:818:HOH:O	2.06	0.56
1:J:241:GLN:HG2	1:J:330:ARG:O	2.06	0.56
1:A:421:PRO:HD3	1:F:418:TRP:CE2	2.41	0.55
1:B:110:CYS:HB2	1:B:157:MET:HE1	1.88	0.55
1:L:65:VAL:HG21	1:L:73:ILE:HD12	1.88	0.55
1:G:87:ARG:O	1:G:91:GLN:HG3	2.06	0.55
1:L:263:ARG:HH12	1:L:372:GLU:HG2	1.71	0.55
1:D:333:ARG:HD2	1:D:336:ASP:OD1	2.06	0.55
1:H:146:ASN:ND2	5:H:703:HOH:O	2.40	0.55
1:J:195:PRO:HB2	1:L:333:ARG:HD3	1.87	0.55
1:L:82:ARG:C	1:L:84:LEU:H	2.10	0.55
1:H:294:MET:O	1:H:294:MET:HE2	2.06	0.55
1:L:76:ILE:HD12	1:L:96:THR:OG1	2.07	0.55
1:A:45:ALA:HA	1:A:48:ARG:NH1	2.22	0.55
1:E:74:LEU:HG	1:E:76:ILE:HD12	1.89	0.55
1:H:163:THR:HG22	1:H:165:ARG:N	2.13	0.55
1:C:305:ARG:HG2	1:C:305:ARG:HH11	1.71	0.55
1:G:16:ALA:HA	1:G:71:GLU:CG	2.37	0.55
1:K:184:ILE:O	1:K:188:LYS:HG3	2.06	0.55
1:L:416:ARG:NH1	5:L:705:HOH:O	2.40	0.55
1:A:443:ARG:N	1:A:444:PRO:CD	2.70	0.55
1:L:47:LEU:CD2	1:L:52:LEU:HB3	2.34	0.55
1:C:103:THR:CG2	1:C:104:GLY:N	2.70	0.55
1:E:257:ASN:ND2	1:E:259:SER:H	2.05	0.55
1:F:57:GLY:O	1:F:95:LYS:HE2	2.07	0.55
1:F:218:VAL:HA	1:F:253:GLU:O	2.07	0.55
1:L:500:ASN:O	1:L:503:GLU:HG2	2.07	0.55
1:G:141:ASP:HB3	1:G:147:LYS:HD3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:11:GLU:HG2	1:E:12:LYS:HG3	1.88	0.54
1:D:395:LEU:HD12	1:D:396:MET:N	2.22	0.54
1:E:34:GLN:O	1:E:38:ILE:HG12	2.08	0.54
1:H:337:VAL:O	1:I:196:ASN:ND2	2.40	0.54
1:K:502:GLU:O	1:K:503:GLU:HG2	2.08	0.54
1:A:146:ASN:O	1:A:147:LYS:O	2.26	0.54
1:C:86:GLU:HG2	5:C:937:HOH:O	2.06	0.54
1:F:193:MET:HE1	1:F:197:ILE:HG21	1.88	0.54
1:L:193:MET:HE1	1:L:197:ILE:HG21	1.88	0.54
1:A:80:LYS:O	1:A:83:GLU:HB2	2.07	0.54
1:B:257:ASN:C	1:B:257:ASN:ND2	2.60	0.54
1:J:85:ASP:OD1	1:J:88:GLN:HG3	2.06	0.54
1:A:126:VAL:O	1:A:130:VAL:HG23	2.07	0.54
1:G:34:GLN:O	1:G:38:ILE:HG12	2.06	0.54
1:K:53:GLU:CB	1:K:58:GLN:HE22	2.20	0.54
1:K:257:ASN:C	1:K:257:ASN:HD22	2.09	0.54
1:L:503:GLU:OE1	1:L:503:GLU:HA	2.06	0.54
1:D:68:VAL:HG12	1:D:70:SER:H	1.72	0.54
1:J:73:ILE:HG22	1:J:75:LEU:HD22	1.90	0.54
1:A:10:PRO:HG2	1:A:31:ILE:HG22	1.89	0.54
1:I:16:ALA:HA	1:I:71:GLU:HG3	1.89	0.54
1:J:88:GLN:HA	1:J:91:GLN:OE1	2.08	0.54
1:F:16:ALA:HA	1:F:71:GLU:HG2	1.90	0.54
1:J:22:VAL:HG22	1:J:28:LEU:HD12	1.89	0.54
1:J:124:TRP:CH2	1:J:128:GLN:HG2	2.43	0.54
1:A:81:GLU:O	1:A:83:GLU:N	2.40	0.54
1:C:151:ARG:O	1:C:152:ARG:HD3	2.08	0.54
1:J:196:ASN:ND2	1:L:337:VAL:O	2.41	0.54
1:K:257:ASN:HD22	1:K:258:ALA:N	2.06	0.54
1:K:434:PHE:HE2	1:L:479:LYS:HD2	1.72	0.54
1:C:364:THR:O	1:C:367:GLU:CG	2.56	0.53
1:J:90:LYS:HE2	1:J:128:GLN:CD	2.28	0.53
1:J:488:LEU:C	1:J:488:LEU:HD23	2.27	0.53
1:K:76:ILE:CD1	1:K:96:THR:OG1	2.57	0.53
1:F:151:ARG:HE	1:F:153:PRO:HG2	1.73	0.53
1:F:500:ASN:HB2	1:F:503:GLU:O	2.07	0.53
1:L:123:TYR:CG	1:L:502:GLU:HB2	2.43	0.53
1:H:167:LEU:O	1:H:171:GLU:HG3	2.09	0.53
1:K:488:LEU:HD23	1:K:488:LEU:C	2.28	0.53
1:C:488:LEU:C	1:C:488:LEU:HD23	2.27	0.53
1:E:305:ARG:HG2	1:E:305:ARG:NH1	2.22	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:85:ASP:OD1	1:D:88:GLN:HG3	2.08	0.53
1:H:53:GLU:OE2	1:L:151:ARG:HG3	2.08	0.53
1:A:164:ARG:HB3	1:A:164:ARG:NH1	2.22	0.53
1:G:141:ASP:HB3	1:G:147:LYS:CD	2.39	0.53
1:I:87:ARG:O	1:I:91:GLN:HG3	2.09	0.53
1:K:93:ILE:HD13	1:K:129:ALA:CB	2.38	0.53
1:L:151:ARG:HD3	1:L:153:PRO:HD3	1.91	0.53
1:L:193:MET:CE	1:L:197:ILE:HG21	2.38	0.53
1:A:20:VAL:CG2	1:A:75:LEU:HD13	2.39	0.53
1:D:19:VAL:CG1	1:D:76:ILE:HD12	2.39	0.53
1:D:235:SER:HB3	1:D:361:ASP:OD2	2.09	0.53
1:L:73:ILE:HG22	1:L:75:LEU:CD2	2.39	0.53
1:L:80:LYS:O	1:L:83:GLU:HB2	2.08	0.53
1:C:82:ARG:CZ	1:C:116:HIS:HE1	2.17	0.53
1:D:38:ILE:HG22	1:D:67:ASN:HB2	1.91	0.53
1:H:23:PHE:CE2	1:H:81:GLU:HG2	2.44	0.53
1:L:216:LYS:NZ	1:L:311:GLN:HE22	2.07	0.53
1:A:74:LEU:HG	1:A:76:ILE:CD1	2.39	0.53
1:A:224:GLY:HA2	1:A:248:LEU:HD23	1.90	0.53
1:B:68:VAL:HA	5:B:709:HOH:O	2.07	0.53
1:B:503:GLU:HA	5:B:734:HOH:O	2.09	0.53
1:C:13:GLN:O	1:C:69:LEU:HB2	2.09	0.53
1:E:169:SER:HB2	1:E:502:GLU:CG	2.39	0.52
1:F:20:VAL:HG23	1:F:75:LEU:HD13	1.91	0.52
1:I:263:ARG:HB2	1:I:372:GLU:HB2	1.90	0.52
1:J:193:MET:HE3	1:J:194:PRO:HD2	1.90	0.52
1:A:82:ARG:HA	1:A:116:HIS:CD2	2.44	0.52
1:B:65:VAL:HG21	1:B:73:ILE:HD12	1.92	0.52
1:C:27:ARG:HH22	1:C:81:GLU:CG	2.22	0.52
1:D:55:LYS:HB2	1:D:58:GLN:NE2	2.23	0.52
1:D:156:LYS:HD3	5:D:960:HOH:O	2.08	0.52
1:F:23:PHE:CZ	1:F:81:GLU:HG2	2.44	0.52
1:H:22:VAL:CG2	1:H:75:LEU:HD12	2.39	0.52
1:H:28:LEU:HG	1:H:29:SER:N	2.24	0.52
1:H:257:ASN:HD21	1:H:259:SER:H	1.57	0.52
1:H:305:ARG:HH11	1:H:305:ARG:HG2	1.74	0.52
1:J:10:PRO:HG2	1:J:31:ILE:HG22	1.91	0.52
1:C:100:LEU:O	1:C:103:THR:HB	2.09	0.52
1:G:146:ASN:O	1:G:147:LYS:O	2.27	0.52
1:G:395:LEU:HD12	1:G:466:LEU:HD23	1.92	0.52
1:L:19:VAL:HG11	1:L:96:THR:HG23	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:88:GLN:HB3	5:C:957:HOH:O	2.08	0.52
1:C:193:MET:CE	1:C:197:ILE:CG2	2.88	0.52
1:D:32:ALA:O	1:D:34:GLN:N	2.42	0.52
1:L:10:PRO:HD2	1:L:11:GLU:OE1	2.10	0.52
1:D:196:ASN:ND2	1:F:337:VAL:O	2.42	0.52
1:E:29:SER:O	1:E:32:ALA:HB3	2.10	0.52
1:H:421:PRO:HD3	1:K:418:TRP:CE2	2.45	0.52
1:J:257:ASN:HD21	1:J:259:SER:CB	2.23	0.52
1:C:19:VAL:CG1	1:C:76:ILE:HD12	2.40	0.52
1:C:193:MET:HE1	1:C:197:ILE:HG21	1.91	0.52
1:F:307:VAL:HG23	1:F:312:LEU:HD12	1.91	0.52
1:K:468:ILE:HG21	1:K:485:PRO:HD3	1.91	0.52
1:B:53:GLU:HB2	1:B:58:GLN:HE22	1.75	0.52
1:B:146:ASN:O	1:B:147:LYS:O	2.28	0.52
1:F:224:GLY:HA2	1:F:248:LEU:HD23	1.92	0.52
1:J:28:LEU:HG	1:J:32:ALA:CB	2.40	0.52
1:J:304:MET:HA	1:J:304:MET:CE	2.40	0.52
1:A:221:ARG:NH2	1:A:253:GLU:OE2	2.41	0.51
1:B:305:ARG:HD2	5:B:747:HOH:O	2.09	0.51
1:F:146:ASN:O	1:F:147:LYS:O	2.27	0.51
1:H:161:VAL:CB	1:H:166:GLU:HB2	2.36	0.51
1:L:65:VAL:HG13	1:L:66:PRO:HD2	1.93	0.51
1:G:73:ILE:HG22	1:G:75:LEU:HD22	1.91	0.51
1:H:18:ILE:HD11	1:H:35:LEU:HD21	1.91	0.51
1:A:38:ILE:HG22	1:A:38:ILE:O	2.10	0.51
1:I:184:ILE:O	1:I:188:LYS:HG3	2.10	0.51
1:L:124:TRP:HH2	1:L:491:GLN:OE1	1.94	0.51
1:G:121:ASN:HD22	1:G:503:GLU:HG2	1.75	0.51
1:J:221:ARG:HH21	1:J:253:GLU:CD	2.13	0.51
1:K:225:GLU:HG2	1:K:237:LEU:CD2	2.41	0.51
1:B:144:LYS:NZ	5:B:708:HOH:O	2.44	0.51
1:E:33:GLU:O	1:E:37:LYS:HG3	2.11	0.51
1:F:392:ILE:HG21	1:F:418:TRP:HB2	1.93	0.51
1:J:257:ASN:ND2	1:J:259:SER:N	2.53	0.51
1:G:488:LEU:C	1:G:488:LEU:HD23	2.31	0.51
1:L:23:PHE:CE1	1:L:81:GLU:HA	2.46	0.51
1:J:55:LYS:H	1:J:58:GLN:NE2	2.08	0.51
1:A:28:LEU:HD11	1:A:32:ALA:HB1	1.92	0.51
1:B:85:ASP:OD1	1:B:88:GLN:HG3	2.11	0.51
1:E:200:ALA:HB3	5:E:810:HOH:O	2.11	0.51
1:F:223:ILE:HD12	1:F:223:ILE:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:76:ILE:HG21	1:E:92:VAL:HG13	1.94	0.50
1:K:282:LYS:HE3	1:K:290:MET:SD	2.51	0.50
1:C:79:GLY:C	1:C:80:LYS:HG3	2.30	0.50
1:J:305:ARG:NH1	1:J:309:GLU:OE1	2.35	0.50
1:J:84:LEU:HD12	1:J:88:GLN:HB2	1.91	0.50
1:D:20:VAL:HG23	1:D:75:LEU:HD13	1.94	0.50
1:G:193:MET:CE	1:G:197:ILE:HG21	2.41	0.50
1:J:81:GLU:C	1:J:83:GLU:H	2.14	0.50
1:C:148:SER:O	1:C:149:GLU:HG2	2.12	0.50
1:G:374:VAL:O	1:G:463:TRP:HA	2.11	0.50
1:J:85:ASP:H	1:J:88:GLN:HE21	1.59	0.50
1:L:84:LEU:CD2	1:L:115:LEU:HD13	2.41	0.50
1:E:30:PRO:O	1:E:33:GLU:HG3	2.11	0.50
1:K:85:ASP:H	1:K:88:GLN:NE2	2.05	0.50
1:K:193:MET:CE	1:K:197:ILE:CG2	2.87	0.50
1:C:16:ALA:HA	1:C:71:GLU:HG3	1.93	0.50
1:C:28:LEU:HD11	1:C:32:ALA:HB1	1.94	0.50
1:I:146:ASN:O	1:I:147:LYS:O	2.30	0.50
1:J:92:VAL:CG1	1:J:112:LEU:HD13	2.42	0.50
1:K:502:GLU:C	1:K:503:GLU:HG2	2.32	0.50
1:C:263:ARG:HG3	1:C:263:ARG:NH1	2.25	0.50
1:E:89:TYR:CE1	1:E:93:ILE:HD11	2.47	0.50
1:H:93:ILE:HD12	1:H:129:ALA:CB	2.42	0.50
1:L:4:SER:HA	1:L:174:ILE:HD13	1.94	0.50
1:C:223:ILE:N	1:C:223:ILE:HD12	2.27	0.49
1:G:151:ARG:HE	1:G:153:PRO:HG3	1.77	0.49
1:H:141:ASP:O	1:H:147:LYS:HE3	2.11	0.49
1:K:305:ARG:HH11	1:K:305:ARG:CG	2.15	0.49
1:A:193:MET:HE1	1:A:197:ILE:HG21	1.95	0.49
1:H:53:GLU:HB2	1:H:58:GLN:HE22	1.76	0.49
1:I:267:LEU:HD12	1:I:304:MET:HE3	1.95	0.49
1:L:41:GLY:O	1:L:45:ALA:HB2	2.12	0.49
1:A:263:ARG:HB3	1:A:372:GLU:HB2	1.93	0.49
1:B:338:LEU:HD22	1:B:348:VAL:CG2	2.42	0.49
1:D:36:ASP:OD1	1:D:43:ILE:HB	2.12	0.49
1:D:410:SER:HB2	1:D:415:ASP:O	2.13	0.49
1:H:24:GLU:OE2	1:H:55:LYS:HA	2.13	0.49
1:K:221:ARG:HD2	5:K:845:HOH:O	2.11	0.49
1:K:330:ARG:NH1	5:K:706:HOH:O	2.44	0.49
1:B:195:PRO:HB3	1:B:274:PHE:HB2	1.94	0.49
1:B:474:ARG:HG2	1:B:474:ARG:HH11	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:468:ILE:HG21	1:D:485:PRO:HD3	1.94	0.49
1:H:52:LEU:CD2	1:H:75:LEU:HB3	2.42	0.49
1:H:164:ARG:HB3	1:H:164:ARG:CZ	2.42	0.49
1:J:47:LEU:HD22	1:J:52:LEU:HB3	1.94	0.49
1:A:356:ARG:HD2	1:A:439:ASN:O	2.12	0.49
1:D:226:GLN:O	1:D:230:GLU:HG3	2.11	0.49
1:F:85:ASP:OD1	1:F:88:GLN:HG3	2.12	0.49
1:H:23:PHE:CE1	1:H:81:GLU:HG2	2.48	0.49
1:L:28:LEU:HD11	1:L:32:ALA:HB1	1.94	0.49
1:L:82:ARG:CG	1:L:116:HIS:HD2	2.24	0.49
1:B:16:ALA:HA	1:B:71:GLU:CG	2.42	0.49
1:F:502:GLU:O	1:F:502:GLU:HG3	2.13	0.49
1:G:479:LYS:HD2	1:I:434:PHE:HE2	1.77	0.49
1:L:39:SER:O	1:L:40:ASP:HB2	2.11	0.49
1:L:101:ASN:HA	1:L:153:PRO:HD2	1.95	0.49
1:B:28:LEU:HG	1:B:32:ALA:HB3	1.94	0.49
1:C:23:PHE:CE1	1:C:81:GLU:HA	2.47	0.49
1:E:223:ILE:N	1:E:223:ILE:HD12	2.27	0.49
1:G:53:GLU:CG	1:J:151:ARG:HH12	2.21	0.49
1:H:45:ALA:O	1:H:48:ARG:HB2	2.13	0.49
1:K:337:VAL:O	1:L:196:ASN:ND2	2.46	0.49
1:L:167:LEU:O	1:L:171:GLU:HG3	2.13	0.49
1:L:416:ARG:HG3	5:L:854:HOH:O	2.12	0.49
1:C:84:LEU:O	1:C:118:LYS:HG3	2.13	0.49
1:G:196:ASN:HB2	1:I:336:ASP:OD1	2.12	0.49
1:G:225:GLU:HG2	1:G:237:LEU:CD2	2.42	0.49
1:H:418:TRP:CE2	1:K:421:PRO:HD3	2.47	0.49
1:D:479:LYS:HE3	5:D:928:HOH:O	2.13	0.49
1:G:16:ALA:HA	1:G:71:GLU:HG3	1.95	0.49
1:A:418:TRP:CE2	1:F:421:PRO:HD3	2.48	0.49
1:D:29:SER:O	1:D:32:ALA:HB3	2.13	0.49
1:I:30:PRO:O	1:I:33:GLU:HG2	2.12	0.49
1:B:21:GLY:O	1:B:29:SER:HB2	2.13	0.48
1:B:103:THR:O	1:B:153:PRO:HG2	2.13	0.48
1:D:18:ILE:HD11	1:D:35:LEU:HD21	1.95	0.48
1:E:49:ARG:O	1:E:49:ARG:HG3	2.12	0.48
1:A:85:ASP:OD1	1:A:88:GLN:HG3	2.13	0.48
1:A:488:LEU:HD23	1:A:488:LEU:C	2.34	0.48
1:E:57:GLY:O	1:E:95:LYS:HE2	2.13	0.48
1:E:488:LEU:C	1:E:488:LEU:HD23	2.32	0.48
1:I:410:SER:HB2	1:I:415:ASP:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:333:ARG:N	1:J:333:ARG:CD	2.77	0.48
1:B:172:ARG:HD2	1:B:499:PHE:CE1	2.48	0.48
1:C:53:GLU:HG2	1:E:151:ARG:HH12	1.77	0.48
1:C:349:LEU:HB2	1:C:440:ILE:HG12	1.95	0.48
1:G:395:LEU:HG	1:G:396:MET:N	2.28	0.48
1:A:268:VAL:O	1:A:376:ASP:HA	2.13	0.48
1:C:18:ILE:HD11	1:C:35:LEU:HD21	1.95	0.48
1:C:218:VAL:HA	1:C:253:GLU:O	2.13	0.48
1:D:55:LYS:H	1:D:58:GLN:NE2	2.10	0.48
1:I:55:LYS:CA	1:I:58:GLN:HE21	2.25	0.48
1:K:502:GLU:HA	1:K:502:GLU:OE1	2.12	0.48
1:L:194:PRO:HB2	1:L:196:ASN:HB3	1.95	0.48
1:A:410:SER:HB2	1:A:415:ASP:O	2.13	0.48
1:E:488:LEU:HD23	1:E:488:LEU:O	2.14	0.48
1:G:121:ASN:ND2	1:G:503:GLU:HG2	2.28	0.48
1:H:338:LEU:HD22	1:H:348:VAL:CG2	2.44	0.48
1:J:333:ARG:HB2	1:J:334:PRO:HD2	1.94	0.48
1:J:474:ARG:HD2	5:J:795:HOH:O	2.13	0.48
1:H:10:PRO:HG2	1:H:31:ILE:O	2.14	0.48
1:I:263:ARG:NH1	1:I:370:GLU:HB2	2.28	0.48
1:L:55:LYS:H	1:L:58:GLN:HE21	1.61	0.48
1:C:164:ARG:HB3	1:C:164:ARG:HH11	1.74	0.48
1:C:267:LEU:HD12	1:C:304:MET:HE1	1.96	0.48
1:H:68:VAL:HG11	1:H:73:ILE:HD11	1.95	0.48
1:J:304:MET:HA	1:J:307:VAL:HG12	1.95	0.48
1:K:277:GLY:HA2	1:K:352:ASP:OD1	2.14	0.48
1:L:3:PHE:HA	1:L:157:MET:O	2.14	0.48
1:A:87:ARG:O	1:A:91:GLN:HG3	2.13	0.48
1:A:163:THR:CG2	1:A:166:GLU:OE2	2.62	0.48
1:B:257:ASN:HD21	1:B:259:SER:H	1.60	0.48
1:E:73:ILE:HG22	1:E:75:LEU:HD22	1.96	0.48
1:F:200:ALA:HB1	1:F:248:LEU:HB2	1.96	0.48
1:F:474:ARG:HB3	1:F:474:ARG:NH1	2.29	0.48
1:H:4:SER:OG	1:H:158:VAL:HG22	2.13	0.48
1:H:14:ARG:HE	1:H:69:LEU:HD13	1.78	0.48
1:J:27:ARG:HH22	1:J:81:GLU:HB2	1.78	0.48
1:K:119:GLY:C	1:K:120:ARG:HG2	2.32	0.48
1:B:141:ASP:CB	1:B:147:LYS:HD3	2.37	0.48
1:B:418:TRP:CE2	1:E:421:PRO:HD3	2.49	0.48
1:D:410:SER:HB2	1:D:416:ARG:HA	1.96	0.48
1:E:167:LEU:O	1:E:171:GLU:HG3	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:263:ARG:CB	1:E:372:GLU:HB2	2.44	0.48
1:G:30:PRO:HA	1:G:33:GLU:HG3	1.96	0.48
1:H:117:VAL:HG12	1:H:120:ARG:HG3	1.96	0.48
1:H:257:ASN:ND2	1:H:259:SER:N	2.58	0.48
1:K:259:SER:O	1:K:261:ASP:N	2.47	0.48
1:L:82:ARG:CD	1:L:116:HIS:CD2	2.96	0.48
1:B:151:ARG:HE	1:B:153:PRO:HG3	1.79	0.48
1:B:474:ARG:HD2	5:B:788:HOH:O	2.13	0.48
1:C:73:ILE:HG22	1:C:75:LEU:HD22	1.95	0.48
1:C:163:THR:OG1	1:C:165:ARG:HB2	2.14	0.48
1:D:76:ILE:CD1	1:D:96:THR:OG1	2.61	0.48
1:D:475:SER:HB2	5:D:791:HOH:O	2.14	0.48
1:I:221:ARG:HD2	5:I:1006:HOH:O	2.13	0.48
1:J:47:LEU:CD2	1:J:52:LEU:HB3	2.44	0.48
1:J:84:LEU:CD2	1:J:115:LEU:HD13	2.44	0.48
1:K:304:MET:HA	1:K:307:VAL:HG12	1.95	0.48
1:E:28:LEU:HG	1:E:32:ALA:HB3	1.95	0.47
1:F:193:MET:CE	1:F:197:ILE:CG2	2.92	0.47
1:D:282:LYS:HE3	1:D:290:MET:SD	2.54	0.47
1:E:468:ILE:HG21	1:E:485:PRO:HD3	1.96	0.47
1:F:1:MET:HE2	1:F:137:LEU:HD11	1.96	0.47
1:G:93:ILE:CD1	1:G:129:ALA:HB2	2.44	0.47
1:H:392:ILE:HG21	1:H:418:TRP:HB2	1.96	0.47
1:J:18:ILE:CD1	1:J:35:LEU:HD21	2.44	0.47
1:J:257:ASN:HD21	1:J:259:SER:H	1.55	0.47
1:K:165:ARG:HB2	1:K:165:ARG:CZ	2.44	0.47
1:D:33:GLU:O	1:D:37:LYS:HG3	2.15	0.47
1:D:68:VAL:HG11	1:D:73:ILE:HD11	1.95	0.47
1:K:502:GLU:O	1:K:503:GLU:CB	2.61	0.47
1:C:483:GLY:O	1:C:486:VAL:HG23	2.14	0.47
1:D:47:LEU:CD2	1:D:52:LEU:HB3	2.45	0.47
1:I:263:ARG:HH11	1:I:370:GLU:HB2	1.78	0.47
1:I:468:ILE:HG21	1:I:485:PRO:HD3	1.96	0.47
1:B:32:ALA:O	1:B:35:LEU:CB	2.63	0.47
1:D:202:TYR:O	1:D:206:GLN:HG2	2.14	0.47
1:D:500:ASN:HB3	1:D:502:GLU:H	1.79	0.47
1:H:122:ASN:O	1:H:126:VAL:HG23	2.14	0.47
1:H:385:VAL:HG22	1:H:470:GLY:CA	2.44	0.47
1:I:108:ALA:HB3	1:I:157:MET:HE2	1.96	0.47
1:J:193:MET:HE1	1:J:197:ILE:HG21	1.95	0.47
1:L:126:VAL:O	1:L:130:VAL:HG23	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:225:GLU:HG3	1:L:246:GLU:HG3	1.96	0.47
1:A:474:ARG:NH1	1:A:474:ARG:CG	2.78	0.47
1:C:27:ARG:HH21	1:C:81:GLU:HG3	1.70	0.47
1:H:410:SER:HB2	1:H:415:ASP:O	2.14	0.47
1:A:196:ASN:ND2	1:C:337:VAL:O	2.47	0.47
1:B:305:ARG:HG2	1:B:305:ARG:HH11	1.79	0.47
1:B:474:ARG:HG2	1:B:474:ARG:NH1	2.29	0.47
1:G:195:PRO:HB3	1:G:274:PHE:HB2	1.96	0.47
1:H:19:VAL:CG1	1:H:76:ILE:HD12	2.45	0.47
1:H:24:GLU:OE1	1:H:80:LYS:HE3	2.15	0.47
1:H:184:ILE:O	1:H:188:LYS:HG3	2.15	0.47
1:H:223:ILE:N	1:H:223:ILE:HD12	2.30	0.47
1:A:44:SER:O	1:A:48:ARG:HG3	2.15	0.47
1:B:164:ARG:HB3	1:B:164:ARG:NH1	2.30	0.47
1:D:208:ARG:HD2	5:D:715:HOH:O	2.13	0.47
1:D:479:LYS:HD2	1:F:434:PHE:HE2	1.80	0.47
1:L:257:ASN:C	1:L:257:ASN:ND2	2.68	0.47
1:D:38:ILE:HG22	1:D:67:ASN:CB	2.44	0.47
1:D:80:LYS:O	1:D:83:GLU:HG2	2.15	0.47
1:D:337:VAL:O	1:E:196:ASN:ND2	2.47	0.47
1:F:114:GLU:HG2	1:F:162:PRO:HG3	1.96	0.47
1:H:500:ASN:C	1:H:502:GLU:N	2.64	0.47
1:B:55:LYS:N	1:B:58:GLN:HE21	2.12	0.47
1:B:305:ARG:HG2	1:B:305:ARG:NH1	2.30	0.47
1:G:20:VAL:HG23	1:G:75:LEU:HD13	1.97	0.47
1:H:82:ARG:HG2	1:H:116:HIS:CD2	2.49	0.47
1:B:1:MET:CE	1:B:137:LEU:HD11	2.44	0.46
1:G:144:LYS:O	1:G:147:LYS:HE3	2.15	0.46
1:H:47:LEU:CD2	1:H:52:LEU:HB3	2.45	0.46
1:H:80:LYS:HB3	1:H:83:GLU:OE2	2.15	0.46
1:H:82:ARG:HG2	1:H:116:HIS:CG	2.50	0.46
1:L:19:VAL:HG11	1:L:96:THR:CG2	2.44	0.46
1:L:42:TYR:CD2	1:L:66:PRO:HD2	2.51	0.46
1:L:120:ARG:HD3	1:L:128:GLN:HE22	1.79	0.46
1:A:101:ASN:O	1:A:151:ARG:HD3	2.16	0.46
1:C:65:VAL:HG21	1:C:73:ILE:HD12	1.98	0.46
1:D:267:LEU:HD12	1:D:304:MET:HE3	1.97	0.46
1:E:395:LEU:HD13	1:E:466:LEU:CD2	2.45	0.46
1:F:257:ASN:ND2	1:F:259:SER:H	2.13	0.46
1:G:257:ASN:HD21	1:G:259:SER:HB2	1.79	0.46
1:G:418:TRP:CE2	1:L:421:PRO:HD3	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:44:SER:O	1:H:48:ARG:HG3	2.15	0.46
1:A:163:THR:OG1	1:A:164:ARG:N	2.48	0.46
1:C:257:ASN:HD22	1:C:257:ASN:C	2.19	0.46
1:E:169:SER:HB2	1:E:502:GLU:HG2	1.97	0.46
1:H:3:PHE:HD2	1:H:159:PHE:CE2	2.33	0.46
1:H:80:LYS:O	1:H:83:GLU:HB2	2.15	0.46
1:A:87:ARG:HH22	1:F:428:GLU:CD	2.18	0.46
1:B:85:ASP:CG	1:B:88:GLN:HG3	2.36	0.46
1:J:81:GLU:O	1:J:83:GLU:N	2.39	0.46
1:L:479:LYS:CE	5:L:908:HOH:O	2.63	0.46
1:D:73:ILE:HG22	1:D:75:LEU:HD22	1.97	0.46
1:D:305:ARG:HG2	1:D:305:ARG:HH11	1.81	0.46
1:G:89:TYR:CZ	1:G:93:ILE:HD11	2.51	0.46
1:K:148:SER:O	1:K:149:GLU:HG2	2.16	0.46
1:F:85:ASP:H	1:F:88:GLN:HE21	1.61	0.46
1:B:29:SER:O	1:B:32:ALA:HB3	2.16	0.46
1:C:103:THR:HG22	1:C:104:GLY:N	2.31	0.46
1:D:362:VAL:O	1:D:366:VAL:HG13	2.16	0.46
1:J:304:MET:HE2	1:J:304:MET:N	2.30	0.46
1:A:74:LEU:HG	1:A:76:ILE:HD12	1.97	0.46
1:J:82:ARG:C	1:J:84:LEU:N	2.68	0.46
1:B:149:GLU:HA	1:B:150:PRO:HD3	1.86	0.46
1:C:141:ASP:HB3	1:C:147:LYS:CD	2.45	0.46
1:C:144:LYS:O	1:C:147:LYS:HE3	2.16	0.46
1:D:22:VAL:HG21	1:D:52:LEU:HD23	1.97	0.46
1:G:146:ASN:O	1:G:147:LYS:CG	2.61	0.46
1:H:32:ALA:O	1:H:34:GLN:N	2.49	0.46
1:L:27:ARG:NH2	1:L:81:GLU:OE2	2.48	0.46
1:C:356:ARG:HD2	1:C:439:ASN:O	2.16	0.45
1:F:55:LYS:CA	1:F:58:GLN:HE21	2.28	0.45
1:F:141:ASP:O	1:F:147:LYS:HE3	2.16	0.45
1:F:309:GLU:HG3	5:F:837:HOH:O	2.15	0.45
1:B:76:ILE:HD13	1:B:96:THR:OG1	2.16	0.45
1:B:221:ARG:NH2	5:B:716:HOH:O	2.49	0.45
1:I:142:GLN:H	1:I:142:GLN:CD	2.17	0.45
1:J:80:LYS:O	1:J:83:GLU:HB2	2.17	0.45
1:K:146:ASN:ND2	5:K:709:HOH:O	2.49	0.45
1:B:114:GLU:OE2	1:B:160:ASN:ND2	2.43	0.45
1:C:82:ARG:NH2	1:C:116:HIS:CE1	2.83	0.45
1:H:16:ALA:HB3	1:H:107:GLU:O	2.16	0.45
1:H:22:VAL:HG21	1:H:75:LEU:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:503:GLU:HG2	5:H:785:HOH:O	2.16	0.45
1:J:245:ASN:ND2	5:J:712:HOH:O	2.50	0.45
1:J:479:LYS:HD2	1:L:434:PHE:HE2	1.81	0.45
1:B:73:ILE:HG22	1:B:75:LEU:CD2	2.46	0.45
1:C:68:VAL:HG11	1:C:73:ILE:HD11	1.99	0.45
1:C:76:ILE:CD1	1:C:96:THR:OG1	2.62	0.45
1:F:20:VAL:HG23	1:F:75:LEU:CD1	2.47	0.45
1:F:257:ASN:C	1:F:257:ASN:ND2	2.67	0.45
1:H:30:PRO:HA	1:H:33:GLU:OE2	2.16	0.45
1:I:282:LYS:HE3	1:I:290:MET:SD	2.57	0.45
1:K:202:TYR:O	1:K:206:GLN:HG2	2.16	0.45
1:L:163:THR:HG21	1:L:165:ARG:HG3	1.98	0.45
1:L:199:ASN:C	1:L:273:THR:HG21	2.37	0.45
1:C:443:ARG:N	1:C:444:PRO:CD	2.80	0.45
1:D:195:PRO:HB3	1:D:274:PHE:HB2	1.98	0.45
1:H:26:ARG:HD3	1:H:47:LEU:O	2.15	0.45
1:K:221:ARG:NE	1:K:253:GLU:OE2	2.47	0.45
1:L:55:LYS:HB2	1:L:58:GLN:NE2	2.32	0.45
1:A:56:PRO:HD3	1:A:79:GLY:HA2	1.99	0.45
1:H:195:PRO:HB3	1:H:274:PHE:HB2	1.97	0.45
1:L:46:LEU:HD13	1:L:62:LEU:HD21	1.97	0.45
1:L:55:LYS:N	1:L:58:GLN:HE21	2.15	0.45
1:L:488:LEU:C	1:L:488:LEU:HD23	2.37	0.45
1:F:55:LYS:O	1:F:58:GLN:HG3	2.17	0.45
1:J:468:ILE:HG21	1:J:485:PRO:HD3	1.98	0.45
1:E:305:ARG:HD2	5:E:915:HOH:O	2.16	0.45
1:G:134:LYS:NZ	5:G:713:HOH:O	2.50	0.45
1:G:257:ASN:HD21	1:G:259:SER:CB	2.29	0.45
1:G:421:PRO:HD3	1:L:418:TRP:CE2	2.52	0.45
1:K:256:GLY:O	1:K:313:PRO:HA	2.17	0.45
1:K:259:SER:C	1:K:261:ASP:H	2.20	0.45
1:A:395:LEU:HD23	1:A:407:ILE:HD11	1.99	0.45
1:B:42:TYR:CD2	1:B:65:VAL:HG13	2.52	0.45
1:D:194:PRO:HB3	1:F:335:GLY:O	2.17	0.45
1:E:89:TYR:CZ	1:E:93:ILE:HD11	2.52	0.45
1:G:30:PRO:O	1:G:33:GLU:HG3	2.16	0.45
1:G:257:ASN:HD22	1:G:257:ASN:C	2.20	0.45
1:F:488:LEU:HD23	1:F:488:LEU:C	2.38	0.45
1:G:312:LEU:HA	1:G:313:PRO:HD3	1.68	0.45
1:I:198:CYS:O	1:I:273:THR:HB	2.17	0.45
1:L:124:TRP:HB3	1:L:128:GLN:NE2	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:16:ALA:HA	1:C:71:GLU:CG	2.47	0.44
1:C:52:LEU:CD1	1:C:58:GLN:HB3	2.47	0.44
1:D:92:VAL:HG12	1:D:112:LEU:HD13	1.99	0.44
1:F:34:GLN:H	1:F:34:GLN:HG3	1.34	0.44
1:J:474:ARG:HH11	1:J:474:ARG:CG	2.30	0.44
1:D:404:HIS:HB3	5:D:974:HOH:O	2.17	0.44
1:E:333:ARG:CD	1:F:195:PRO:HB2	2.47	0.44
1:G:65:VAL:HG21	1:G:73:ILE:HD12	1.98	0.44
1:H:1:MET:HG3	1:H:3:PHE:CZ	2.53	0.44
1:H:163:THR:CG2	1:H:165:ARG:H	2.17	0.44
1:B:458:THR:HG21	1:B:463:TRP:CD1	2.52	0.44
1:H:386:ILE:HD13	1:K:386:ILE:HD13	1.98	0.44
1:J:167:LEU:O	1:J:171:GLU:HG3	2.17	0.44
1:J:195:PRO:HB3	1:J:274:PHE:HB2	1.98	0.44
1:K:24:GLU:HA	1:K:25:PRO:HA	1.72	0.44
1:H:305:ARG:HG2	1:H:305:ARG:NH1	2.32	0.44
1:J:271:GLY:O	1:J:322:GLY:HA2	2.17	0.44
1:A:257:ASN:C	1:A:257:ASN:ND2	2.66	0.44
1:C:20:VAL:HG23	1:C:75:LEU:HD13	1.98	0.44
1:D:45:ALA:HA	1:D:48:ARG:NH1	2.33	0.44
1:E:9:SER:HB2	1:E:11:GLU:OE1	2.18	0.44
1:E:55:LYS:HB2	1:E:58:GLN:NE2	2.31	0.44
1:F:267:LEU:HD12	1:F:304:MET:HE3	2.00	0.44
1:H:112:LEU:HD22	1:H:115:LEU:HD11	1.98	0.44
1:K:22:VAL:HG21	1:K:52:LEU:HD23	2.00	0.44
1:K:403:ALA:O	1:K:407:ILE:HG12	2.17	0.44
1:L:22:VAL:HG21	1:L:52:LEU:HD23	2.00	0.44
1:L:93:ILE:HD13	1:L:129:ALA:CB	2.47	0.44
1:A:28:LEU:HD11	1:A:32:ALA:CB	2.47	0.44
1:B:144:LYS:HD3	5:B:708:HOH:O	2.17	0.44
1:C:55:LYS:HB2	1:C:58:GLN:NE2	2.33	0.44
1:C:141:ASP:HB3	1:C:147:LYS:HD3	1.99	0.44
1:K:26:ARG:NE	1:K:53:GLU:OE2	2.49	0.44
1:A:30:PRO:HA	1:A:33:GLU:HG2	2.00	0.44
1:C:92:VAL:HG12	1:C:112:LEU:HD13	2.00	0.44
1:D:193:MET:HE1	1:D:197:ILE:HG21	1.99	0.44
1:H:39:SER:O	1:H:42:TYR:HB2	2.18	0.44
1:J:474:ARG:CG	1:J:474:ARG:NH1	2.79	0.44
1:L:216:LYS:HZ1	1:L:311:GLN:HE22	1.64	0.44
1:L:306:MET:HE3	1:L:307:VAL:N	2.33	0.44
1:A:5:VAL:HG13	1:A:174:ILE:HD11	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:194:PRO:HB2	1:A:196:ASN:HB3	2.00	0.44
1:A:306:MET:HE3	1:A:307:VAL:N	2.31	0.44
1:B:71:GLU:H	1:B:71:GLU:HG2	1.54	0.44
1:C:5:VAL:HG13	1:C:174:ILE:HD11	1.99	0.44
1:D:80:LYS:HB2	1:D:83:GLU:CD	2.38	0.44
1:D:305:ARG:HG2	1:D:305:ARG:NH1	2.32	0.44
1:H:148:SER:O	1:H:149:GLU:CG	2.59	0.44
1:I:32:ALA:O	1:I:35:LEU:HB3	2.18	0.44
1:J:225:GLU:HG3	1:J:246:GLU:HG3	1.99	0.44
1:L:304:MET:HA	1:L:307:VAL:HG12	2.00	0.44
1:B:1:MET:HE2	1:B:137:LEU:HD11	2.00	0.44
1:D:356:ARG:HD2	1:D:439:ASN:O	2.18	0.44
1:G:193:MET:CE	1:G:197:ILE:CG2	2.96	0.44
1:I:1:MET:CE	1:I:137:LEU:HD11	2.48	0.44
1:K:400:ASN:HB2	1:K:401:PRO:HD3	2.00	0.44
1:D:29:SER:O	1:D:32:ALA:N	2.48	0.43
1:D:85:ASP:H	1:D:88:GLN:HE21	1.66	0.43
1:H:151:ARG:HE	1:H:153:PRO:CG	2.31	0.43
1:I:71:GLU:H	1:I:71:GLU:HG2	1.60	0.43
1:I:73:ILE:HG22	1:I:75:LEU:HD22	2.00	0.43
1:I:395:LEU:HD12	1:I:395:LEU:C	2.38	0.43
1:K:221:ARG:NH2	1:K:253:GLU:OE2	2.50	0.43
1:K:459:ARG:HB2	5:K:749:HOH:O	2.18	0.43
1:A:81:GLU:C	1:A:83:GLU:H	2.21	0.43
1:A:172:ARG:HD3	1:A:499:PHE:CE1	2.43	0.43
1:C:114:GLU:OE2	1:C:160:ASN:ND2	2.40	0.43
1:D:257:ASN:ND2	1:D:257:ASN:C	2.72	0.43
1:F:71:GLU:HG3	1:F:72:ARG:NH1	2.32	0.43
1:I:257:ASN:ND2	1:I:259:SER:N	2.57	0.43
1:A:150:PRO:HG3	5:A:820:HOH:O	2.17	0.43
1:G:307:VAL:HG23	1:G:312:LEU:HD12	2.00	0.43
1:H:149:GLU:O	1:H:149:GLU:HG3	2.19	0.43
1:J:151:ARG:HD3	1:J:153:PRO:HD3	2.00	0.43
1:J:152:ARG:HB3	5:J:846:HOH:O	2.17	0.43
1:A:267:LEU:HD12	1:A:304:MET:HE3	2.00	0.43
1:C:87:ARG:HH22	1:D:428:GLU:CD	2.21	0.43
1:F:85:ASP:H	1:F:88:GLN:NE2	2.16	0.43
1:G:146:ASN:C	1:G:147:LYS:HG2	2.38	0.43
1:B:500:ASN:ND2	5:B:710:HOH:O	2.46	0.43
1:C:421:PRO:HD3	1:D:418:TRP:CE2	2.53	0.43
1:E:55:LYS:N	1:E:58:GLN:NE2	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:1:MET:N	1:F:134:LYS:NZ	2.67	0.43
1:I:257:ASN:HD22	1:I:259:SER:N	2.16	0.43
1:J:21:GLY:O	1:J:29:SER:CB	2.66	0.43
1:J:223:ILE:N	1:J:223:ILE:HD12	2.33	0.43
1:L:372:GLU:OE1	1:L:496:ARG:NH1	2.51	0.43
1:A:263:ARG:HD2	1:A:370:GLU:O	2.19	0.43
1:B:199:ASN:C	1:B:273:THR:HG21	2.38	0.43
1:C:86:GLU:HB3	1:C:124:TRP:CH2	2.54	0.43
1:H:124:TRP:HE1	1:H:503:GLU:CD	2.22	0.43
1:I:141:ASP:O	1:I:147:LYS:HE2	2.18	0.43
1:K:172:ARG:NH1	1:K:500:ASN:ND2	2.66	0.43
1:K:272:LEU:HA	1:K:323:CYS:O	2.18	0.43
1:L:25:PRO:O	1:L:26:ARG:HG2	2.19	0.43
1:L:114:GLU:HG2	1:L:162:PRO:HD3	2.00	0.43
1:A:151:ARG:HH12	1:D:53:GLU:HG2	1.82	0.43
1:B:26:ARG:NH2	1:B:53:GLU:OE2	2.44	0.43
1:G:193:MET:HE3	1:G:197:ILE:HB	1.99	0.43
1:G:263:ARG:NH1	1:G:370:GLU:HB2	2.34	0.43
1:H:1:MET:HG3	1:H:3:PHE:CE1	2.54	0.43
1:H:163:THR:CG2	1:H:164:ARG:N	2.82	0.43
1:L:14:ARG:CG	1:L:69:LEU:HD13	2.49	0.43
1:L:82:ARG:CD	1:L:116:HIS:HD2	2.31	0.43
1:A:86:GLU:H	1:A:86:GLU:HG2	1.65	0.43
1:A:141:ASP:HB3	1:A:147:LYS:HD3	2.00	0.43
1:B:337:VAL:O	1:C:196:ASN:ND2	2.51	0.43
1:E:121:ASN:HD22	1:E:503:GLU:CG	2.31	0.43
1:F:221:ARG:NH1	5:F:721:HOH:O	2.51	0.43
1:J:10:PRO:HB2	1:J:35:LEU:HD13	2.01	0.43
1:B:272:LEU:HA	1:B:323:CYS:O	2.19	0.43
1:D:199:ASN:C	1:D:273:THR:HG21	2.38	0.43
1:G:223:ILE:HG23	1:G:227:GLN:HB2	2.00	0.43
1:D:443:ARG:N	1:D:444:PRO:CD	2.81	0.43
1:G:32:ALA:O	1:G:35:LEU:HB3	2.19	0.43
1:J:20:VAL:CG2	1:J:75:LEU:HD13	2.48	0.43
1:J:28:LEU:HG	1:J:32:ALA:HB1	2.00	0.43
1:J:475:SER:HB2	5:J:735:HOH:O	2.18	0.43
1:K:221:ARG:HH21	1:K:253:GLU:CD	2.21	0.43
1:C:116:HIS:HB2	5:C:717:HOH:O	2.18	0.42
1:C:468:ILE:HG21	1:C:485:PRO:HD3	2.01	0.42
1:E:410:SER:HB2	1:E:416:ARG:HA	2.01	0.42
1:G:30:PRO:HA	1:G:33:GLU:CG	2.48	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:16:ALA:HA	1:I:71:GLU:CG	2.48	0.42
1:E:68:VAL:HG21	1:E:73:ILE:HD11	2.02	0.42
1:G:151:ARG:HE	1:G:153:PRO:HG2	1.81	0.42
1:G:194:PRO:HA	1:G:195:PRO:HD3	1.87	0.42
1:H:30:PRO:O	1:H:33:GLU:HG2	2.19	0.42
1:H:349:LEU:HB2	1:H:440:ILE:HG12	2.02	0.42
1:A:81:GLU:C	1:A:83:GLU:N	2.72	0.42
1:D:85:ASP:H	1:D:88:GLN:NE2	2.16	0.42
1:H:282:LYS:HE3	1:H:290:MET:SD	2.60	0.42
1:H:333:ARG:HD2	1:H:336:ASP:OD1	2.20	0.42
1:K:26:ARG:NH2	1:K:53:GLU:OE2	2.49	0.42
1:D:39:SER:HA	1:D:66:PRO:O	2.19	0.42
1:E:36:ASP:OD1	1:E:41:GLY:HA2	2.19	0.42
1:F:267:LEU:HD12	1:F:304:MET:CE	2.50	0.42
1:I:238:ALA:O	1:I:241:GLN:HB2	2.19	0.42
1:L:164:ARG:NH1	1:L:164:ARG:HB3	2.34	0.42
1:A:50:GLY:O	1:D:151:ARG:NH2	2.52	0.42
1:B:46:LEU:HD23	1:B:49:ARG:HH11	1.84	0.42
1:B:257:ASN:ND2	1:B:259:SER:N	2.64	0.42
1:F:223:ILE:N	1:F:223:ILE:CD1	2.82	0.42
1:F:256:GLY:O	1:F:313:PRO:HA	2.20	0.42
1:G:24:GLU:OE2	1:G:55:LYS:HA	2.20	0.42
1:J:18:ILE:HD11	1:J:35:LEU:HD21	2.02	0.42
1:L:221:ARG:HH21	1:L:253:GLU:CD	2.23	0.42
1:L:92:VAL:HG12	1:L:112:LEU:HD13	2.00	0.42
1:C:305:ARG:HH11	1:C:305:ARG:CG	2.33	0.42
1:D:24:GLU:OE1	1:D:80:LYS:CE	2.68	0.42
1:F:55:LYS:HB2	1:F:58:GLN:HE21	1.84	0.42
1:G:57:GLY:O	1:G:95:LYS:HE2	2.20	0.42
1:I:199:ASN:C	1:I:273:THR:HG21	2.40	0.42
1:J:10:PRO:HG2	1:J:31:ILE:HG23	2.01	0.42
1:J:28:LEU:HG	1:J:32:ALA:HB3	2.01	0.42
1:J:68:VAL:HG21	1:J:73:ILE:HD11	2.02	0.42
1:J:333:ARG:HD2	1:J:333:ARG:H	1.85	0.42
1:J:333:ARG:HB2	1:J:334:PRO:CD	2.49	0.42
1:J:474:ARG:HG2	1:J:474:ARG:NH1	2.33	0.42
1:L:55:LYS:H	1:L:58:GLN:HE22	1.64	0.42
1:L:216:LYS:HZ3	1:L:311:GLN:NE2	2.17	0.42
1:A:500:ASN:ND2	1:A:500:ASN:C	2.73	0.42
1:C:238:ALA:O	1:C:241:GLN:HB2	2.20	0.42
1:C:395:LEU:HD23	1:C:407:ILE:CD1	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:80:LYS:O	1:D:83:GLU:CG	2.68	0.42
1:E:194:PRO:HB2	1:E:196:ASN:HB3	2.01	0.42
1:G:42:TYR:CE1	1:J:64:HIS:HD2	2.37	0.42
1:G:468:ILE:HG21	1:G:485:PRO:HD3	2.02	0.42
1:H:151:ARG:O	1:H:152:ARG:HD3	2.20	0.42
1:D:55:LYS:N	1:D:58:GLN:HE21	2.14	0.42
1:F:55:LYS:CB	1:F:58:GLN:NE2	2.82	0.42
1:G:196:ASN:HB2	1:I:336:ASP:CG	2.41	0.42
1:G:253:GLU:HG2	1:G:317:ILE:HG12	2.01	0.42
1:I:14:ARG:CZ	1:I:69:LEU:HD13	2.50	0.42
1:J:89:TYR:CZ	1:J:93:ILE:CD1	3.01	0.42
1:J:304:MET:CE	1:J:304:MET:CA	2.98	0.42
1:L:1:MET:HE2	1:L:137:LEU:HD11	2.01	0.42
1:A:163:THR:HG23	1:A:165:ARG:HB2	2.01	0.42
1:A:369:PHE:O	1:A:370:GLU:C	2.57	0.42
1:A:395:LEU:HD11	1:A:464:ALA:HB1	2.02	0.42
1:I:82:ARG:HG3	1:I:116:HIS:CG	2.55	0.42
1:A:31:ILE:O	1:A:34:GLN:HB2	2.20	0.41
1:A:263:ARG:CB	1:A:372:GLU:HB2	2.50	0.41
1:A:400:ASN:HB2	1:A:401:PRO:HD3	2.02	0.41
1:C:89:TYR:CZ	1:C:93:ILE:HD11	2.55	0.41
1:F:33:GLU:CB	5:F:938:HOH:O	2.49	0.41
1:F:68:VAL:HG11	1:F:73:ILE:HD11	2.02	0.41
1:F:395:LEU:HD12	1:F:396:MET:H	1.85	0.41
1:L:86:GLU:CD	1:L:120:ARG:HH11	2.23	0.41
1:L:90:LYS:NZ	5:L:702:HOH:O	2.31	0.41
1:L:193:MET:HE3	1:L:197:ILE:CG2	2.50	0.41
1:L:392:ILE:HG21	1:L:418:TRP:HB2	2.02	0.41
1:D:266:VAL:HG23	1:D:371:PRO:HB3	2.02	0.41
1:G:87:ARG:HH22	1:L:428:GLU:CD	2.22	0.41
1:G:416:ARG:HD2	5:G:774:HOH:O	2.19	0.41
1:H:53:GLU:HG3	1:L:151:ARG:HH22	1.84	0.41
1:H:55:LYS:HB2	1:H:58:GLN:HE21	1.84	0.41
1:I:224:GLY:O	1:I:228:MET:HG3	2.20	0.41
1:J:39:SER:HA	1:J:66:PRO:O	2.20	0.41
1:L:443:ARG:N	1:L:444:PRO:CD	2.83	0.41
1:L:468:ILE:HG21	1:L:485:PRO:HD3	2.02	0.41
1:C:147:LYS:O	1:C:147:LYS:HG3	2.21	0.41
1:D:415:ASP:OD2	1:D:485:PRO:HA	2.20	0.41
1:F:223:ILE:HG23	1:F:227:GLN:HB3	2.02	0.41
1:G:42:TYR:CE1	1:J:64:HIS:CD2	3.09	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:146:ASN:O	1:H:147:LYS:O	2.38	0.41
1:L:14:ARG:HG2	1:L:69:LEU:HD13	2.01	0.41
1:C:80:LYS:O	1:C:83:GLU:HB2	2.19	0.41
1:D:19:VAL:HG22	1:D:74:LEU:HB3	2.01	0.41
1:F:55:LYS:CB	1:F:58:GLN:HE21	2.33	0.41
1:F:304:MET:O	1:F:307:VAL:HG12	2.21	0.41
1:G:474:ARG:O	1:G:479:LYS:HA	2.20	0.41
1:G:502:GLU:HG3	5:G:781:HOH:O	2.19	0.41
1:L:195:PRO:HB3	1:L:274:PHE:HB2	2.03	0.41
1:C:221:ARG:NE	1:C:253:GLU:OE2	2.47	0.41
1:C:370:GLU:N	1:C:371:PRO:CD	2.84	0.41
1:J:82:ARG:HD3	1:J:116:HIS:CD2	2.55	0.41
1:L:221:ARG:NH2	1:L:253:GLU:OE2	2.48	0.41
1:L:257:ASN:HD22	1:L:259:SER:H	1.68	0.41
1:C:340:THR:HB	5:C:730:HOH:O	2.21	0.41
1:C:431:GLU:HG2	5:C:982:HOH:O	2.20	0.41
1:D:94:GLN:HG3	1:D:136:THR:OG1	2.21	0.41
1:D:95:LYS:HA	1:D:95:LYS:HD2	1.84	0.41
1:H:101:ASN:OD1	1:H:153:PRO:HD2	2.21	0.41
1:J:55:LYS:N	1:J:58:GLN:HE21	2.16	0.41
1:J:311:GLN:NE2	5:J:719:HOH:O	2.54	0.41
1:K:16:ALA:HA	1:K:71:GLU:HG2	2.02	0.41
1:K:257:ASN:C	1:K:257:ASN:ND2	2.74	0.41
1:K:259:SER:C	1:K:261:ASP:N	2.73	0.41
1:A:218:VAL:HA	1:A:253:GLU:O	2.21	0.41
1:A:463:TRP:CZ2	1:A:465:HIS:HB2	2.56	0.41
1:D:17:CYS:HA	1:D:72:ARG:O	2.21	0.41
1:E:151:ARG:HD3	1:E:153:PRO:HD3	2.02	0.41
1:H:53:GLU:HG3	1:L:151:ARG:CZ	2.50	0.41
1:K:458:THR:HG21	1:K:463:TRP:CD1	2.56	0.41
1:B:263:ARG:NH1	1:B:263:ARG:HG3	2.36	0.41
1:C:3:PHE:HA	1:C:157:MET:O	2.20	0.41
1:C:224:GLY:HA2	1:C:248:LEU:HD23	2.02	0.41
1:D:167:LEU:O	1:D:171:GLU:HG3	2.21	0.41
1:D:422:LEU:HD23	1:D:422:LEU:HA	1.92	0.41
1:F:27:ARG:NH2	1:F:81:GLU:HG3	2.35	0.41
1:G:80:LYS:HD2	1:G:83:GLU:OE1	2.20	0.41
1:H:65:VAL:HG13	1:H:66:PRO:HD2	2.02	0.41
1:H:85:ASP:H	1:H:88:GLN:HE21	1.69	0.41
1:H:263:ARG:HB2	1:H:372:GLU:HB2	2.02	0.41
1:H:458:THR:HG21	1:H:463:TRP:CD1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:23:PHE:CZ	1:I:81:GLU:HG2	2.56	0.41
1:I:488:LEU:C	1:I:488:LEU:CD2	2.89	0.41
1:J:117:VAL:O	1:J:118:LYS:C	2.59	0.41
1:L:45:ALA:HA	1:L:48:ARG:HH11	1.83	0.41
1:L:216:LYS:HE2	1:L:217:ASN:ND2	2.36	0.41
1:A:22:VAL:HG21	1:A:52:LEU:HD13	2.02	0.41
1:A:36:ASP:OD2	1:A:44:SER:N	2.51	0.41
1:A:106:MET:HA	1:A:153:PRO:O	2.21	0.41
1:B:124:TRP:HH2	1:B:491:GLN:OE1	2.03	0.41
1:B:245:ASN:ND2	5:B:729:HOH:O	2.54	0.41
1:B:349:LEU:HB2	1:B:440:ILE:HG12	2.02	0.41
1:C:18:ILE:CD1	1:C:35:LEU:HD21	2.51	0.41
1:E:47:LEU:HD21	1:E:52:LEU:HB3	2.02	0.41
1:E:199:ASN:C	1:E:273:THR:HG21	2.41	0.41
1:H:488:LEU:HD23	1:H:488:LEU:C	2.41	0.41
1:J:25:PRO:C	1:J:26:ARG:HG2	2.41	0.41
1:J:374:VAL:O	1:J:463:TRP:HA	2.21	0.41
1:K:165:ARG:HB2	1:K:165:ARG:NH1	2.36	0.41
1:K:369:PHE:O	1:K:370:GLU:C	2.57	0.41
1:L:6:LYS:O	1:L:161:VAL:HG22	2.20	0.41
1:A:74:LEU:HG	1:A:76:ILE:HD11	2.03	0.41
1:A:193:MET:CE	1:A:197:ILE:HG21	2.50	0.41
1:D:443:ARG:NH2	1:E:285:GLU:OE1	2.54	0.41
1:E:19:VAL:CG1	1:E:76:ILE:HD13	2.51	0.41
1:I:20:VAL:CG2	1:I:75:LEU:HD13	2.51	0.41
1:I:89:TYR:CZ	1:I:93:ILE:CD1	3.04	0.41
1:J:205:SER:O	1:J:209:GLN:HG3	2.21	0.41
1:K:376:ASP:OD2	1:K:465:HIS:HB2	2.21	0.41
1:A:194:PRO:HG3	5:A:813:HOH:O	2.21	0.40
1:C:39:SER:O	1:C:40:ASP:HB2	2.21	0.40
1:D:193:MET:HE3	1:D:194:PRO:CD	2.47	0.40
1:F:42:TYR:CD2	1:F:65:VAL:HG13	2.55	0.40
1:F:89:TYR:CZ	1:F:93:ILE:HD11	2.56	0.40
1:H:193:MET:HE1	1:H:197:ILE:HG21	2.03	0.40
1:I:473:TRP:HA	1:I:482:THR:HG23	2.03	0.40
1:J:218:VAL:HA	1:J:253:GLU:O	2.21	0.40
1:A:479:LYS:CE	5:A:888:HOH:O	2.69	0.40
1:B:263:ARG:HG3	1:B:263:ARG:HH11	1.86	0.40
1:D:223:ILE:HD12	1:D:223:ILE:N	2.35	0.40
1:F:164:ARG:HG3	5:F:799:HOH:O	2.20	0.40
1:K:151:ARG:HD3	1:K:153:PRO:HD3	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:477:LYS:HA	1:L:477:LYS:HD2	1.86	0.40
1:A:38:ILE:O	1:A:38:ILE:CG2	2.69	0.40
1:B:270:LYS:HE3	1:B:355:GLY:CA	2.51	0.40
1:C:303:VAL:O	1:C:307:VAL:HG23	2.21	0.40
1:D:28:LEU:HD11	1:D:32:ALA:HB1	2.04	0.40
1:E:122:ASN:HD21	1:E:161:VAL:HG12	1.86	0.40
1:E:395:LEU:HD12	1:E:465:HIS:O	2.21	0.40
1:F:122:ASN:ND2	5:F:713:HOH:O	2.46	0.40
1:G:148:SER:O	1:G:149:GLU:CG	2.60	0.40
1:K:149:GLU:HA	1:K:150:PRO:HD3	1.84	0.40
1:K:193:MET:HE2	1:K:197:ILE:HG21	1.99	0.40
1:K:360:CYS:HB2	1:K:457:PHE:CD2	2.56	0.40
1:K:395:LEU:O	1:K:419:ARG:HA	2.21	0.40
1:K:502:GLU:O	1:K:503:GLU:HB2	2.20	0.40
1:L:356:ARG:HD2	1:L:439:ASN:O	2.21	0.40
1:C:14:ARG:HG2	1:C:69:LEU:HB3	2.03	0.40
5:C:823:HOH:O	1:E:46:LEU:HG	2.21	0.40
1:H:199:ASN:C	1:H:273:THR:HG21	2.42	0.40
1:H:225:GLU:HG2	1:H:237:LEU:CD2	2.52	0.40
1:J:82:ARG:O	1:J:84:LEU:N	2.53	0.40
1:J:392:ILE:HG21	1:J:418:TRP:HB2	2.03	0.40
1:K:85:ASP:OD1	1:K:88:GLN:HG3	2.22	0.40
1:K:263:ARG:HG3	5:K:949:HOH:O	2.21	0.40
1:A:193:MET:HA	1:A:194:PRO:HD3	1.84	0.40
1:A:225:GLU:HG2	1:A:237:LEU:CD2	2.51	0.40
1:B:488:LEU:HD23	1:B:488:LEU:C	2.42	0.40
1:D:194:PRO:HA	1:D:195:PRO:HD3	1.92	0.40
1:E:88:GLN:HG3	5:E:789:HOH:O	2.21	0.40
1:H:73:ILE:HG22	1:H:75:LEU:HD22	2.03	0.40
1:I:55:LYS:CB	1:I:58:GLN:NE2	2.80	0.40
1:J:5:VAL:HA	1:J:159:PHE:O	2.21	0.40
1:J:27:ARG:HH12	1:J:81:GLU:CG	2.22	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:372:GLU:OE2	1:D:168:THR:OG1[3_565]	2.18	0.02

## 5.3 Torsion angles [i](#)

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

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	501/503 (100%)	474 (95%)	18 (4%)	9 (2%)	8	14
1	B	501/503 (100%)	475 (95%)	22 (4%)	4 (1%)	19	35
1	C	501/503 (100%)	473 (94%)	23 (5%)	5 (1%)	15	28
1	D	501/503 (100%)	471 (94%)	23 (5%)	7 (1%)	11	20
1	E	501/503 (100%)	478 (95%)	16 (3%)	7 (1%)	11	20
1	F	501/503 (100%)	478 (95%)	20 (4%)	3 (1%)	25	43
1	G	501/503 (100%)	475 (95%)	21 (4%)	5 (1%)	15	28
1	H	501/503 (100%)	464 (93%)	26 (5%)	11 (2%)	6	10
1	I	501/503 (100%)	475 (95%)	21 (4%)	5 (1%)	15	28
1	J	501/503 (100%)	477 (95%)	18 (4%)	6 (1%)	13	24
1	K	501/503 (100%)	474 (95%)	21 (4%)	6 (1%)	13	24
1	L	501/503 (100%)	467 (93%)	28 (6%)	6 (1%)	13	24
All	All	6012/6036 (100%)	5681 (94%)	257 (4%)	74 (1%)	13	24

All (74) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	26	ARG
1	A	81	GLU
1	A	82	ARG
1	A	146	ASN
1	A	147	LYS
1	B	81	GLU
1	B	147	LYS
1	C	81	GLU
1	C	83	GLU
1	C	147	LYS
1	D	26	ARG
1	D	81	GLU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	D	147	LYS
1	E	81	GLU
1	E	146	ASN
1	E	147	LYS
1	F	146	ASN
1	F	147	LYS
1	G	81	GLU
1	G	147	LYS
1	H	28	LEU
1	H	147	LYS
1	H	148	SER
1	I	147	LYS
1	J	146	ASN
1	J	147	LYS
1	K	81	GLU
1	K	147	LYS
1	K	500	ASN
1	L	81	GLU
1	L	147	LYS
1	B	149	GLU
1	D	33	GLU
1	D	146	ASN
1	E	260	GLU
1	H	33	GLU
1	H	82	ARG
1	H	502	GLU
1	I	146	ASN
1	J	83	GLU
1	K	149	GLU
1	K	260	GLU
1	L	83	GLU
1	A	40	ASP
1	D	154	LEU
1	G	26	ARG
1	G	146	ASN
1	H	81	GLU
1	H	146	ASN
1	H	150	PRO
1	I	260	GLU
1	J	118	LYS
1	D	149	GLU
1	E	37	LYS

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Mol	Chain	Res	Type
1	E	149	GLU
1	H	26	ARG
1	H	149	GLU
1	K	502	GLU
1	L	40	ASP
1	L	146	ASN
1	A	37	LYS
1	A	52	LEU
1	A	66	PRO
1	B	118	LYS
1	C	146	ASN
1	E	26	ARG
1	I	82	ARG
1	J	81	GLU
1	J	149	GLU
1	G	149	GLU
1	I	149	GLU
1	F	149	GLU
1	L	66	PRO
1	C	149	GLU

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

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	406/406 (100%)	389 (96%)	17 (4%)	30	54
1	B	406/406 (100%)	392 (97%)	14 (3%)	37	63
1	C	406/406 (100%)	388 (96%)	18 (4%)	28	52
1	D	406/406 (100%)	396 (98%)	10 (2%)	47	73
1	E	406/406 (100%)	391 (96%)	15 (4%)	34	60
1	F	406/406 (100%)	394 (97%)	12 (3%)	41	68
1	G	406/406 (100%)	393 (97%)	13 (3%)	39	65
1	H	406/406 (100%)	390 (96%)	16 (4%)	32	57

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	I	406/406 (100%)	391 (96%)	15 (4%)	34	60
1	J	406/406 (100%)	395 (97%)	11 (3%)	44	71
1	K	406/406 (100%)	395 (97%)	11 (3%)	44	71
1	L	406/406 (100%)	391 (96%)	15 (4%)	34	60
All	All	4872/4872 (100%)	4705 (97%)	167 (3%)	37	63

All (167) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	52	LEU
1	A	81	GLU
1	A	142	GLN
1	A	151	ARG
1	A	157	MET
1	A	163	THR
1	A	205	SER
1	A	221	ARG
1	A	236	TYR
1	A	241	GLN
1	A	257	ASN
1	A	263	ARG
1	A	306	MET
1	A	332	TYR
1	A	333	ARG
1	A	338	LEU
1	A	500	ASN
1	B	75	LEU
1	B	81	GLU
1	B	113	THR
1	B	142	GLN
1	B	151	ARG
1	B	166	GLU
1	B	236	TYR
1	B	257	ASN
1	B	305	ARG
1	B	306	MET
1	B	332	TYR
1	B	333	ARG
1	B	338	LEU
1	B	485	PRO
1	C	27	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	75	LEU
1	C	81	GLU
1	C	86	GLU
1	C	113	THR
1	C	120	ARG
1	C	215	SER
1	C	217	ASN
1	C	236	TYR
1	C	241	GLN
1	C	257	ASN
1	C	332	TYR
1	C	333	ARG
1	C	338	LEU
1	C	367	GLU
1	C	395	LEU
1	C	463	TRP
1	C	485	PRO
1	D	75	LEU
1	D	142	GLN
1	D	151	ARG
1	D	236	TYR
1	D	241	GLN
1	D	257	ASN
1	D	332	TYR
1	D	333	ARG
1	D	338	LEU
1	D	475	SER
1	E	34	GLN
1	E	48	ARG
1	E	49	ARG
1	E	75	LEU
1	E	113	THR
1	E	142	GLN
1	E	151	ARG
1	E	157	MET
1	E	165	ARG
1	E	236	TYR
1	E	257	ASN
1	E	332	TYR
1	E	333	ARG
1	E	338	LEU
1	E	485	PRO

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	F	34	GLN
1	F	113	THR
1	F	142	GLN
1	F	151	ARG
1	F	157	MET
1	F	236	TYR
1	F	257	ASN
1	F	332	TYR
1	F	333	ARG
1	F	338	LEU
1	F	485	PRO
1	F	500	ASN
1	G	34	GLN
1	G	113	THR
1	G	142	GLN
1	G	151	ARG
1	G	165	ARG
1	G	236	TYR
1	G	257	ASN
1	G	332	TYR
1	G	333	ARG
1	G	338	LEU
1	G	474	ARG
1	G	485	PRO
1	G	503	GLU
1	H	40	ASP
1	H	87	ARG
1	H	93	ILE
1	H	120	ARG
1	H	142	GLN
1	H	151	ARG
1	H	236	TYR
1	H	257	ASN
1	H	305	ARG
1	H	306	MET
1	H	307	VAL
1	H	333	ARG
1	H	338	LEU
1	H	463	TRP
1	H	474	ARG
1	H	485	PRO
1	I	40	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	I	71	GLU
1	I	75	LEU
1	I	142	GLN
1	I	151	ARG
1	I	165	ARG
1	I	236	TYR
1	I	241	GLN
1	I	257	ASN
1	I	259	SER
1	I	332	TYR
1	I	333	ARG
1	I	338	LEU
1	I	395	LEU
1	I	485	PRO
1	J	81	GLU
1	J	87	ARG
1	J	142	GLN
1	J	151	ARG
1	J	236	TYR
1	J	257	ASN
1	J	260	GLU
1	J	332	TYR
1	J	333	ARG
1	J	338	LEU
1	J	485	PRO
1	K	120	ARG
1	K	151	ARG
1	K	196	ASN
1	K	236	TYR
1	K	257	ASN
1	K	332	TYR
1	K	333	ARG
1	K	338	LEU
1	K	395	LEU
1	K	474	ARG
1	K	485	PRO
1	L	18	ILE
1	L	66	PRO
1	L	76	ILE
1	L	102	ASP
1	L	113	THR
1	L	120	ARG

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Mol	Chain	Res	Type
1	L	142	GLN
1	L	151	ARG
1	L	236	TYR
1	L	257	ASN
1	L	306	MET
1	L	332	TYR
1	L	333	ARG
1	L	338	LEU
1	L	485	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (91) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	58	GLN
1	A	116	HIS
1	A	146	ASN
1	A	241	GLN
1	A	245	ASN
1	A	257	ASN
1	A	500	ASN
1	B	58	GLN
1	B	64	HIS
1	B	88	GLN
1	B	122	ASN
1	B	226	GLN
1	B	227	GLN
1	B	245	ASN
1	B	257	ASN
1	C	146	ASN
1	C	241	GLN
1	C	245	ASN
1	C	257	ASN
1	D	58	GLN
1	D	88	GLN
1	D	122	ASN
1	D	206	GLN
1	D	217	ASN
1	D	245	ASN
1	D	257	ASN
1	E	58	GLN
1	E	64	HIS
1	E	88	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	122	ASN
1	E	146	ASN
1	E	217	ASN
1	E	245	ASN
1	E	257	ASN
1	F	58	GLN
1	F	88	GLN
1	F	116	HIS
1	F	122	ASN
1	F	245	ASN
1	F	257	ASN
1	G	88	GLN
1	G	122	ASN
1	G	146	ASN
1	G	234	HIS
1	G	245	ASN
1	G	257	ASN
1	H	58	GLN
1	H	88	GLN
1	H	98	ASN
1	H	116	HIS
1	H	122	ASN
1	H	128	GLN
1	H	146	ASN
1	H	245	ASN
1	H	257	ASN
1	I	58	GLN
1	I	88	GLN
1	I	122	ASN
1	I	241	GLN
1	I	245	ASN
1	I	257	ASN
1	I	311	GLN
1	J	58	GLN
1	J	64	HIS
1	J	88	GLN
1	J	116	HIS
1	J	122	ASN
1	J	245	ASN
1	J	257	ASN
1	J	390	HIS
1	K	34	GLN

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Mol	Chain	Res	Type
1	K	58	GLN
1	K	88	GLN
1	K	94	GLN
1	K	122	ASN
1	K	128	GLN
1	K	146	ASN
1	K	196	ASN
1	K	206	GLN
1	K	245	ASN
1	K	257	ASN
1	K	500	ASN
1	L	58	GLN
1	L	128	GLN
1	L	146	ASN
1	L	217	ASN
1	L	241	GLN
1	L	245	ASN
1	L	257	ASN
1	L	311	GLN
1	L	462	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

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

Of 40 ligands modelled in this entry, 28 are monoatomic - leaving 12 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	CO3	F	603	-	2,3,3	0.44	0	2,3,3	0.54	0
3	CO3	A	603	-	2,3,3	0.82	0	2,3,3	0.62	0
3	CO3	B	603	-	2,3,3	1.00	0	2,3,3	0.26	0
3	CO3	L	603	-	2,3,3	0.15	0	2,3,3	0.66	0
3	CO3	J	603	-	2,3,3	0.26	0	2,3,3	1.71	1 (50%)
3	CO3	G	603	-	2,3,3	0.63	0	2,3,3	0.81	0
3	CO3	K	603	-	2,3,3	0.76	0	2,3,3	0.58	0
3	CO3	C	603	-	2,3,3	0.76	0	2,3,3	2.08	1 (50%)
3	CO3	H	603	-	2,3,3	0.35	0	2,3,3	0.38	0
3	CO3	D	603	-	2,3,3	0.55	0	2,3,3	2.05	1 (50%)
3	CO3	I	603	-	2,3,3	0.66	0	2,3,3	1.80	1 (50%)
3	CO3	E	603	-	2,3,3	0.46	0	2,3,3	0.55	0

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	603	CO3	O2-C-O1	2.47	125.94	119.55
3	D	603	CO3	O2-C-O1	2.42	125.83	119.55
3	J	603	CO3	O2-C-O1	2.18	125.19	119.55
3	I	603	CO3	O2-C-O1	2.13	125.06	119.55

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data i

### 6.1 Protein, DNA and RNA chains i

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2	OWAB(Å <sup>2</sup> )	Q < 0.9
1	A	503/503 (100%)	-0.19	22 (4%) 34 37	9, 25, 61, 73	0
1	B	503/503 (100%)	-0.51	14 (2%) 53 56	6, 17, 51, 72	0
1	C	503/503 (100%)	-0.48	15 (2%) 50 53	6, 18, 57, 74	0
1	D	503/503 (100%)	-0.37	14 (2%) 53 56	8, 19, 57, 71	0
1	E	503/503 (100%)	-0.47	11 (2%) 62 65	7, 18, 53, 71	0
1	F	503/503 (100%)	-0.46	11 (2%) 62 65	12, 24, 53, 72	0
1	G	503/503 (100%)	-0.53	9 (1%) 68 71	7, 18, 49, 69	0
1	H	503/503 (100%)	0.02	42 (8%) 11 11	10, 28, 66, 74	0
1	I	503/503 (100%)	-0.61	7 (1%) 75 77	5, 15, 45, 69	0
1	J	503/503 (100%)	-0.49	12 (2%) 59 62	8, 18, 53, 73	0
1	K	503/503 (100%)	-0.43	14 (2%) 53 56	10, 24, 54, 69	0
1	L	503/503 (100%)	-0.13	46 (9%) 9 9	7, 19, 69, 77	0
All	All	6036/6036 (100%)	-0.39	217 (3%) 42 46	5, 21, 61, 77	0

All (217) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	148	SER	8.5
1	L	150	PRO	8.4
1	B	150	PRO	7.6
1	H	148	SER	7.5
1	B	148	SER	7.2
1	J	148	SER	7.1
1	D	148	SER	7.0
1	D	149	GLU	6.8
1	C	150	PRO	6.6
1	D	150	PRO	6.6
1	A	148	SER	6.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	J	150	PRO	6.5
1	E	150	PRO	6.4
1	B	149	GLU	6.4
1	F	150	PRO	6.3
1	L	66	PRO	6.3
1	A	149	GLU	6.2
1	H	150	PRO	6.2
1	I	148	SER	6.1
1	C	148	SER	6.0
1	G	150	PRO	6.0
1	A	146	ASN	5.9
1	H	149	GLU	5.9
1	A	150	PRO	5.7
1	L	149	GLU	5.7
1	E	148	SER	5.7
1	F	148	SER	5.6
1	I	150	PRO	5.5
1	K	503	GLU	5.5
1	K	150	PRO	5.4
1	E	149	GLU	5.3
1	C	151	ARG	5.2
1	H	503	GLU	5.2
1	J	149	GLU	5.1
1	L	40	ASP	5.0
1	K	148	SER	5.0
1	F	503	GLU	5.0
1	I	146	ASN	5.0
1	G	148	SER	5.0
1	F	149	GLU	5.0
1	L	67	ASN	5.0
1	L	83	GLU	4.9
1	L	69	LEU	4.8
1	C	149	GLU	4.7
1	E	151	ARG	4.7
1	H	146	ASN	4.7
1	L	502	GLU	4.7
1	A	151	ARG	4.6
1	I	149	GLU	4.6
1	H	40	ASP	4.6
1	L	151	ARG	4.5
1	L	68	VAL	4.5
1	K	149	GLU	4.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	L	500	ASN	4.5
1	H	83	GLU	4.5
1	A	503	GLU	4.4
1	F	151	ARG	4.4
1	H	82	ARG	4.4
1	A	165	ARG	4.3
1	G	151	ARG	4.3
1	H	502	GLU	4.2
1	H	151	ARG	4.2
1	H	79	GLY	4.2
1	H	261	ASP	4.1
1	L	147	LYS	4.1
1	L	41	GLY	4.1
1	A	82	ARG	4.0
1	J	151	ARG	4.0
1	C	83	GLU	4.0
1	A	67	ASN	4.0
1	D	151	ARG	4.0
1	L	33	GLU	3.9
1	H	152	ARG	3.9
1	B	151	ARG	3.9
1	F	500	ASN	3.8
1	A	147	LYS	3.8
1	G	149	GLU	3.8
1	H	500	ASN	3.8
1	E	82	ARG	3.8
1	H	155	ARG	3.8
1	J	82	ARG	3.8
1	A	83	GLU	3.8
1	K	500	ASN	3.7
1	L	34	GLN	3.7
1	H	37	LYS	3.7
1	L	146	ASN	3.7
1	L	8	GLY	3.6
1	C	82	ARG	3.6
1	H	67	ASN	3.6
1	A	260	GLU	3.6
1	H	66	PRO	3.6
1	A	69	LEU	3.6
1	H	165	ARG	3.5
1	L	32	ALA	3.5
1	L	9	SER	3.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	147	LYS	3.4
1	L	82	ARG	3.4
1	L	36	ASP	3.3
1	H	34	GLN	3.3
1	H	55	LYS	3.3
1	L	12	LYS	3.3
1	C	146	ASN	3.3
1	K	260	GLU	3.3
1	I	147	LYS	3.3
1	B	147	LYS	3.2
1	D	40	ASP	3.2
1	G	147	LYS	3.2
1	K	261	ASP	3.2
1	L	27	ARG	3.2
1	K	502	GLU	3.2
1	H	35	LEU	3.2
1	B	260	GLU	3.1
1	F	502	GLU	3.1
1	L	152	ARG	3.1
1	I	260	GLU	3.1
1	L	39	SER	3.1
1	C	165	ARG	3.0
1	F	165	ARG	3.0
1	L	162	PRO	3.0
1	C	147	LYS	3.0
1	D	146	ASN	3.0
1	L	35	LEU	3.0
1	K	146	ASN	3.0
1	E	146	ASN	3.0
1	A	261	ASP	2.9
1	G	260	GLU	2.9
1	H	147	LYS	2.8
1	H	153	PRO	2.8
1	L	11	GLU	2.8
1	K	151	ARG	2.8
1	L	37	LYS	2.8
1	D	82	ARG	2.8
1	F	147	LYS	2.8
1	L	165	ARG	2.7
1	H	68	VAL	2.7
1	H	260	GLU	2.7
1	H	33	GLU	2.7

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	502	GLU	2.7
1	J	146	ASN	2.7
1	F	146	ASN	2.7
1	H	56	PRO	2.7
1	A	40	ASP	2.6
1	B	503	GLU	2.6
1	G	82	ARG	2.6
1	H	48	ARG	2.6
1	L	14	ARG	2.6
1	K	82	ARG	2.6
1	L	153	PRO	2.6
1	A	262	ALA	2.5
1	J	83	GLU	2.6
1	H	259	SER	2.5
1	C	25	PRO	2.5
1	G	146	ASN	2.5
1	A	34	GLN	2.5
1	L	163	THR	2.5
1	J	165	ARG	2.5
1	L	79	GLY	2.5
1	L	44	SER	2.5
1	A	33	GLU	2.5
1	A	152	ARG	2.5
1	L	81	GLU	2.5
1	D	503	GLU	2.5
1	C	40	ASP	2.5
1	J	261	ASP	2.5
1	I	151	ARG	2.4
1	C	260	GLU	2.4
1	G	83	GLU	2.4
1	H	57	GLY	2.4
1	E	147	LYS	2.4
1	B	34	GLN	2.4
1	D	152	ARG	2.4
1	H	14	ARG	2.4
1	H	39	SER	2.4
1	B	152	ARG	2.3
1	H	80	LYS	2.3
1	H	106	MET	2.3
1	H	41	GLY	2.3
1	L	260	GLU	2.3
1	K	165	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
1	K	259	SER	2.3
1	B	83	GLU	2.3
1	B	82	ARG	2.2
1	A	66	PRO	2.2
1	B	33	GLU	2.2
1	E	261	ASP	2.2
1	L	30	PRO	2.2
1	E	67	ASN	2.2
1	L	25	PRO	2.2
1	H	27	ARG	2.2
1	H	49	ARG	2.2
1	A	153	PRO	2.2
1	D	81	GLU	2.1
1	H	24	GLU	2.1
1	L	28	LEU	2.1
1	L	7	SER	2.1
1	C	261	ASP	2.1
1	C	152	ARG	2.1
1	K	262	ALA	2.1
1	H	25	PRO	2.1
1	L	31	ILE	2.1
1	D	155	ARG	2.1
1	F	82	ARG	2.1
1	B	146	ASN	2.1
1	J	80	LYS	2.1
1	J	147	LYS	2.1
1	B	165	ARG	2.1
1	C	37	LYS	2.1
1	L	23	PHE	2.1
1	E	83	GLU	2.1
1	H	164	ARG	2.1
1	J	260	GLU	2.1
1	L	57	GLY	2.0
1	D	83	GLU	2.0
1	E	260	GLU	2.0
1	D	67	ASN	2.0
1	H	12	LYS	2.0
1	L	43	ILE	2.0

## 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 [i](#)

There are no monosaccharides in this entry.

### 6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
3	CO3	E	603	4/4	0.97	0.18	13,14,14,16	0
3	CO3	H	603	4/4	0.98	0.17	13,15,15,16	0
2	ZN	B	602	1/1	0.99	0.12	19,19,19,19	0
2	ZN	C	601	1/1	0.99	0.06	15,15,15,15	0
2	ZN	C	602	1/1	0.99	0.04	11,11,11,11	0
2	ZN	D	601	1/1	0.99	0.06	13,13,13,13	0
2	ZN	E	601	1/1	0.99	0.06	16,16,16,16	0
2	ZN	F	602	1/1	0.99	0.04	16,16,16,16	0
2	ZN	H	601	1/1	0.99	0.06	17,17,17,17	0
2	ZN	I	601	1/1	0.99	0.06	13,13,13,13	0
2	ZN	I	602	1/1	0.99	0.06	13,13,13,13	0
2	ZN	L	602	1/1	0.99	0.06	15,15,15,15	0
3	CO3	A	603	4/4	0.99	0.14	16,16,17,17	0
3	CO3	B	603	4/4	0.99	0.14	9,11,12,12	0
3	CO3	C	603	4/4	0.99	0.11	10,10,11,12	0
3	CO3	D	603	4/4	0.99	0.18	13,15,15,17	0
2	ZN	A	602	1/1	0.99	0.05	15,15,15,15	0
3	CO3	F	603	4/4	0.99	0.24	17,18,19,19	0
3	CO3	G	603	4/4	0.99	0.19	14,16,16,17	0
2	ZN	B	601	1/1	0.99	0.07	14,14,14,14	0
3	CO3	I	603	4/4	0.99	0.13	12,12,13,14	0
3	CO3	J	603	4/4	0.99	0.18	11,11,12,13	0
3	CO3	K	603	4/4	0.99	0.20	17,17,19,21	0
3	CO3	L	603	4/4	0.99	0.13	8,10,10,11	0
4	CL	B	604	1/1	0.99	0.23	9,9,9,9	0
4	CL	F	604	1/1	0.99	0.26	14,14,14,14	0
4	CL	G	604	1/1	0.99	0.24	9,9,9,9	0
4	CL	K	604	1/1	0.99	0.27	13,13,13,13	0
2	ZN	E	602	1/1	1.00	0.05	16,16,16,16	0
2	ZN	F	601	1/1	1.00	0.06	19,19,19,19	0
2	ZN	J	601	1/1	1.00	0.06	15,15,15,15	0
2	ZN	J	602	1/1	1.00	0.04	12,12,12,12	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	ZN	K	601	1/1	1.00	0.07	16,16,16,16	0
2	ZN	K	602	1/1	1.00	0.08	19,19,19,19	0
2	ZN	L	601	1/1	1.00	0.06	16,16,16,16	0
2	ZN	D	602	1/1	1.00	0.06	15,15,15,15	0
2	ZN	G	601	1/1	1.00	0.06	16,16,16,16	0
2	ZN	G	602	1/1	1.00	0.05	15,15,15,15	0
2	ZN	A	601	1/1	1.00	0.06	18,18,18,18	0
2	ZN	H	602	1/1	1.00	0.04	16,16,16,16	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.