Full wwPDB X-ray Structure Validation Report ⓘ

Sep 18, 2023 – 02:49 PM EDT

PDB ID	:	2PCD
Title	:	STRUCTURE OF PROTOCATECHUATE 3,4-DIOXYGENASE FROM PSEUDOMONAS AERUGINOSA AT 2.15 ANGSTROMS RESOLUTION
Authors	:	Ohlendorf, D.H.; Orville, A.M.; Lipscomb, J.D.
Deposited on	:	1994-06-21
Resolution	:	2.15 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*
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.

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

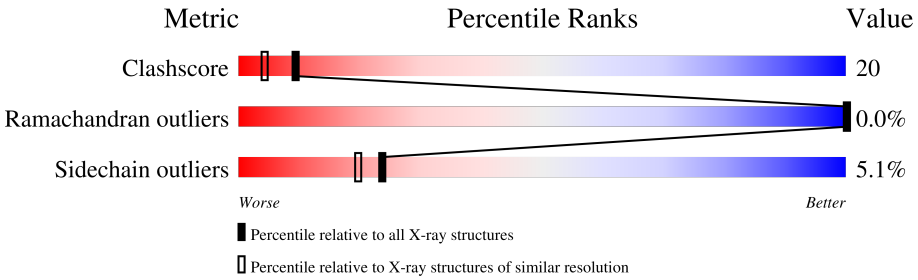
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 2.15 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))
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)

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 >=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 <=5%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	200	56% 35% 8% •
1	B	200	54% 36% 10%
1	C	200	53% 40% 6% •
1	D	200	58% 32% 8% •
1	E	200	55% 36% 8% •
1	F	200	44% 44% 10% •
2	M	238	57% 32% 7% • •
2	N	238	58% 33% 7% •

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Mol	Chain	Length	Quality of chain
2	O	238	
2	P	238	
2	Q	238	
2	R	238	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 21906 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 PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			
1	B	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			
1	C	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			
1	D	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			
1	E	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			
1	F	200	Total	C	N	O	S	0	0	0
			1571	993	276	299	3			

- Molecule 2 is a protein called PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	M	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			
2	N	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			
2	O	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			
2	P	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			
2	Q	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			
2	R	233	Total	C	N	O	S	0	0	0
			1840	1171	334	328	7			

- Molecule 3 is FE (III) ION (three-letter code: FE) (formula: Fe).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	M	1	Total Fe 1 1	0	0
3	N	1	Total Fe 1 1	0	0
3	O	1	Total Fe 1 1	0	0
3	P	1	Total Fe 1 1	0	0
3	Q	1	Total Fe 1 1	0	0
3	R	1	Total Fe 1 1	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	83	Total O 83 83	0	0
4	M	154	Total O 154 154	0	0
4	B	79	Total O 79 79	0	0
4	N	163	Total O 163 163	0	0
4	C	80	Total O 80 80	0	0
4	O	158	Total O 158 158	0	0
4	D	77	Total O 77 77	0	0
4	P	159	Total O 159 159	0	0
4	E	77	Total O 77 77	0	0
4	Q	163	Total O 163 163	0	0
4	F	83	Total O 83 83	0	0
4	R	158	Total O 158 158	0	0

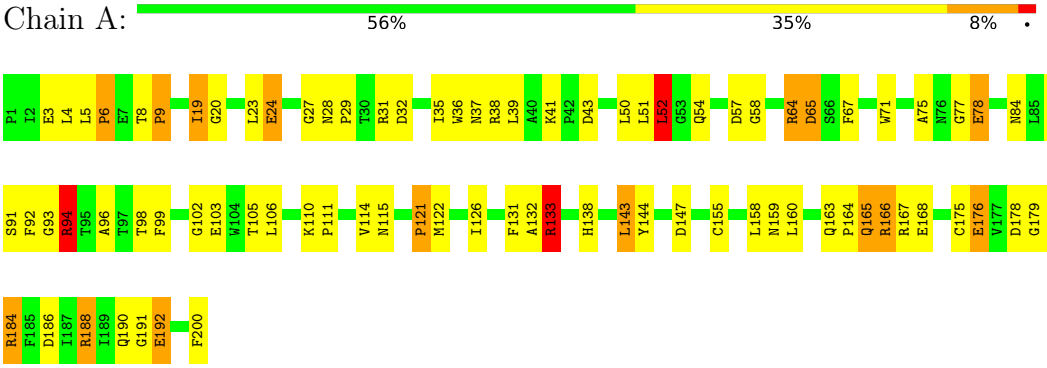
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Note EDS was not executed.

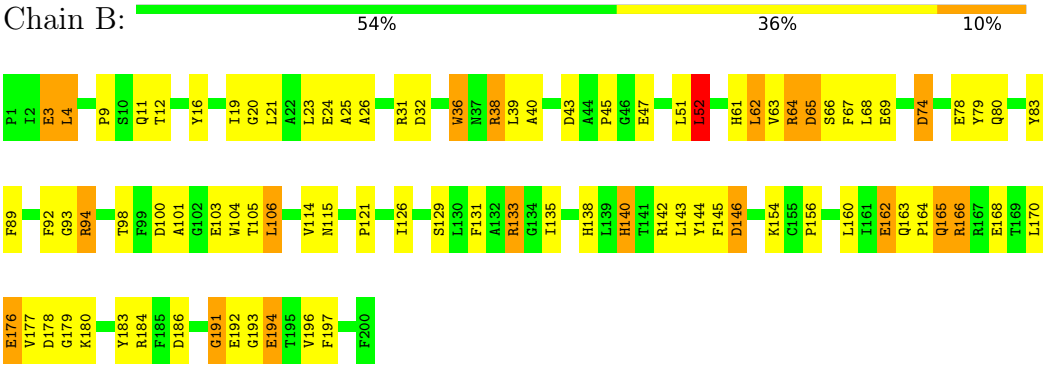
• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

Chain A:



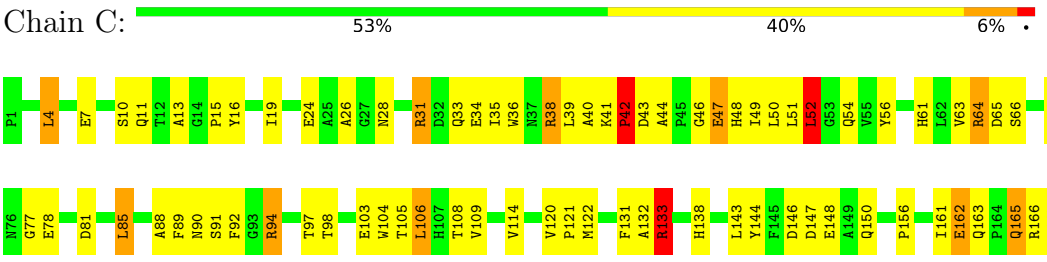
• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

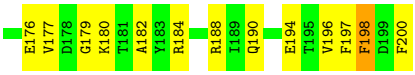
Chain B:



• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

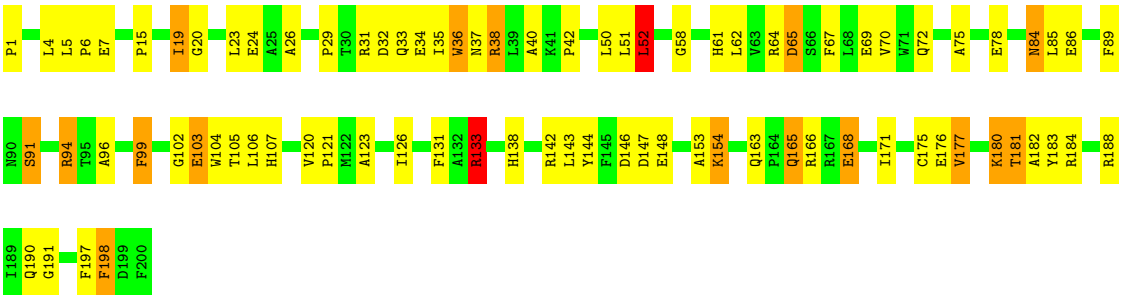
Chain C:





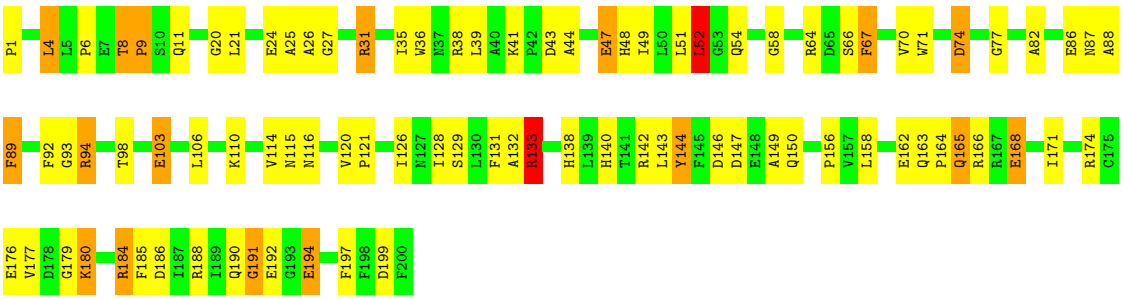
• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

Chain D:



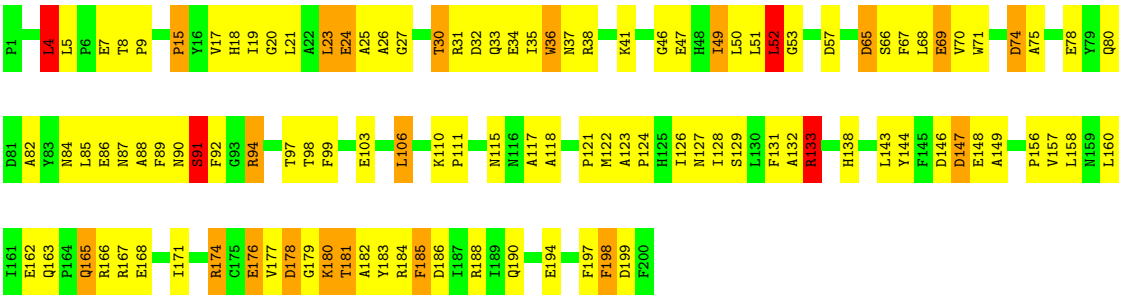
• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

Chain E:



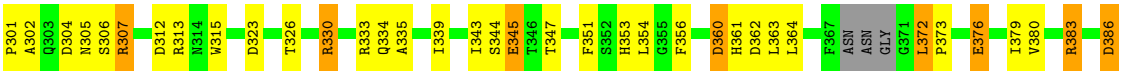
• Molecule 1: PROTOCATECHUATE 3,4-DIOXYGENASE (ALPHA CHAIN)

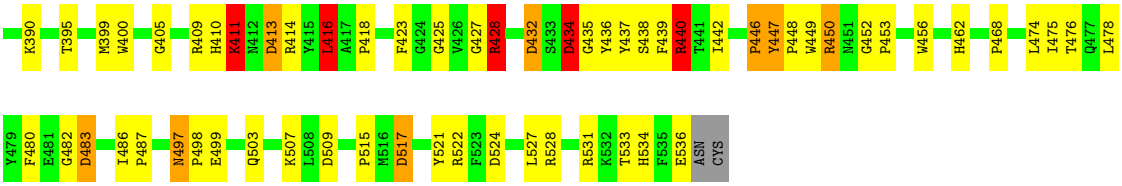
Chain F:



• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

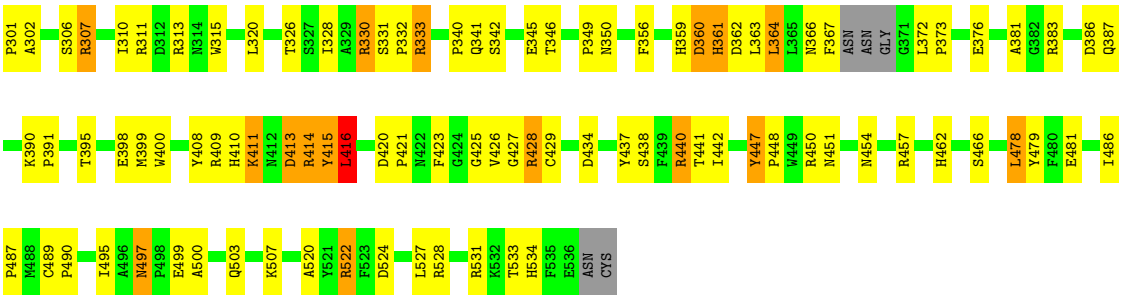
Chain M:





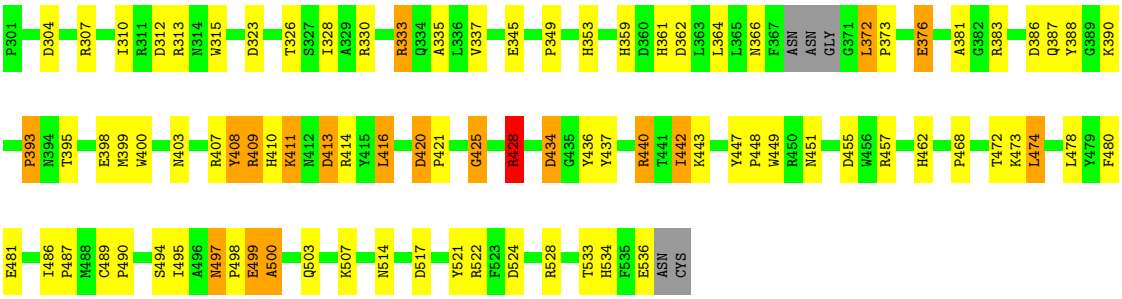
• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

Chain N:



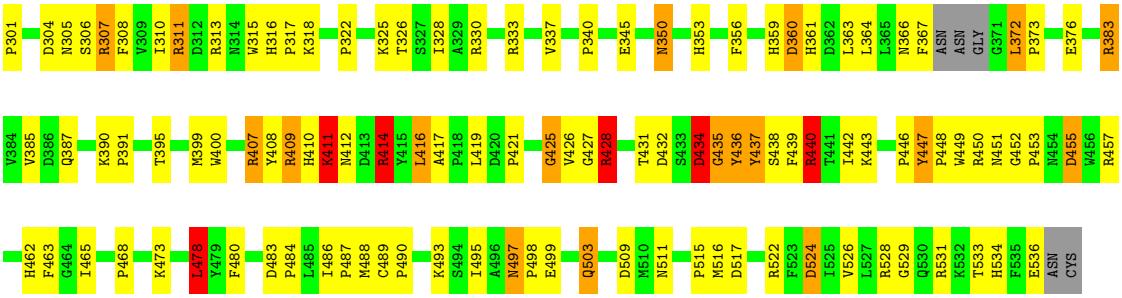
• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

Chain O:



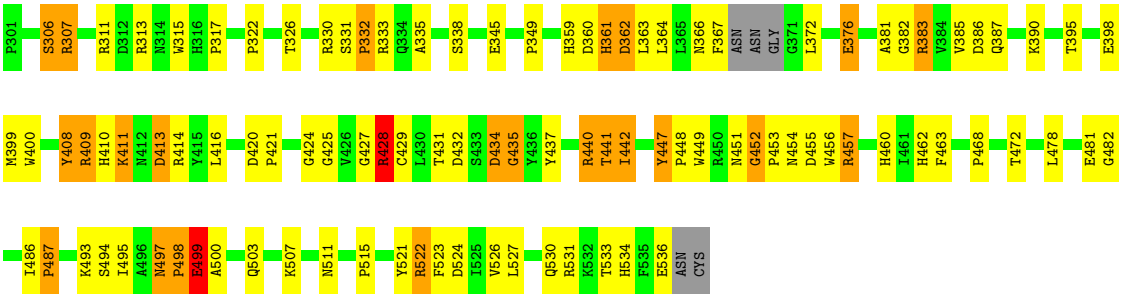
• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

Chain P:



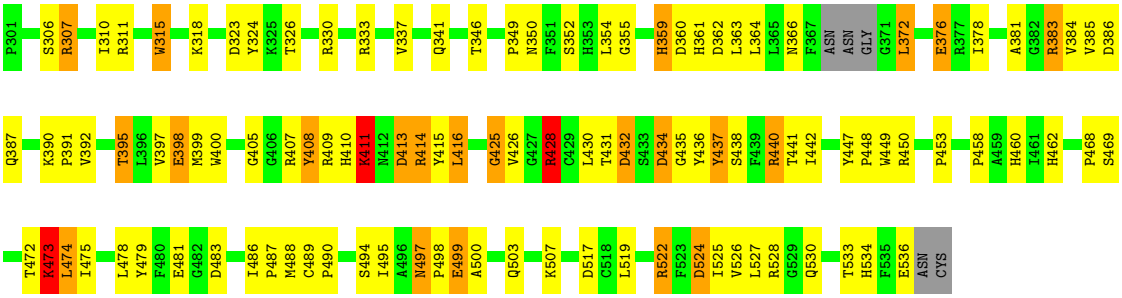
• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

Chain Q:



• Molecule 2: PROTOCATECHUATE 3,4-DIOXYGENASE (BETA CHAIN)

Chain R:



4 Data and refinement statistics (i)

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	I 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	197.17Å 127.03Å 134.18Å 90.00° 97.64° 90.00°	Depositor
Resolution (Å)	5.00 – 2.15	Depositor
% Data completeness (in resolution range)	(Not available) (5.00-2.15)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	PROLSQ	Depositor
R, R_{free}	0.172 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	21906	wwPDB-VP
Average B, all atoms (Å^2)	25.0	wwPDB-VP

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: FE

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	1.91	19/1611 (1.2%)	1.98	35/2195 (1.6%)
1	B	1.94	25/1611 (1.6%)	1.91	45/2195 (2.1%)
1	C	1.87	22/1611 (1.4%)	1.95	34/2195 (1.5%)
1	D	1.89	20/1611 (1.2%)	1.99	39/2195 (1.8%)
1	E	1.97	20/1611 (1.2%)	1.98	42/2195 (1.9%)
1	F	1.86	20/1611 (1.2%)	1.95	45/2195 (2.1%)
2	M	1.85	18/1895 (0.9%)	1.96	44/2580 (1.7%)
2	N	1.91	19/1895 (1.0%)	1.94	44/2580 (1.7%)
2	O	1.85	20/1895 (1.1%)	1.85	37/2580 (1.4%)
2	P	1.89	21/1895 (1.1%)	1.93	43/2580 (1.7%)
2	Q	1.88	25/1895 (1.3%)	1.89	42/2580 (1.6%)
2	R	1.89	21/1895 (1.1%)	1.86	32/2580 (1.2%)
All	All	1.89	250/21036 (1.2%)	1.93	482/28650 (1.7%)

All (250) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	306	SER	CB-OG	-10.31	1.28	1.42
2	P	345	GLU	CD-OE1	-9.59	1.15	1.25
1	B	192	GLU	CD-OE2	-9.10	1.15	1.25
1	E	47	GLU	CD-OE2	-8.86	1.16	1.25
1	E	133	ARG	NE-CZ	-8.78	1.21	1.33
2	N	440	ARG	CD-NE	-8.69	1.31	1.46
1	C	34	GLU	CD-OE1	-8.55	1.16	1.25
1	B	103	GLU	CD-OE2	-8.54	1.16	1.25
1	A	94	ARG	CD-NE	-8.42	1.32	1.46
1	A	192	GLU	CD-OE2	-8.38	1.16	1.25
1	B	94	ARG	CD-NE	-8.06	1.32	1.46
1	C	7	GLU	CD-OE2	-8.05	1.16	1.25
1	C	194	GLU	CD-OE2	-8.02	1.16	1.25
2	R	536	GLU	CD-OE1	-7.94	1.17	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	133	ARG	CD-NE	-7.90	1.33	1.46
1	D	94	ARG	CD-NE	-7.89	1.33	1.46
2	Q	306	SER	CB-OG	-7.85	1.32	1.42
1	E	194	GLU	CD-OE2	-7.72	1.17	1.25
2	P	428	ARG	CD-NE	-7.71	1.33	1.46
2	M	428	ARG	CD-NE	-7.69	1.33	1.46
1	A	91	SER	CB-OG	-7.66	1.32	1.42
2	O	536	GLU	CD-OE1	-7.65	1.17	1.25
2	R	481	GLU	CD-OE2	-7.64	1.17	1.25
2	R	376	GLU	CD-OE1	-7.50	1.17	1.25
1	D	91	SER	CB-OG	-7.44	1.32	1.42
2	Q	481	GLU	CG-CD	-7.40	1.40	1.51
1	A	78	GLU	CD-OE2	-7.40	1.17	1.25
1	B	86	GLU	CG-CD	-7.39	1.40	1.51
1	C	78	GLU	CD-OE1	-7.38	1.17	1.25
1	C	24	GLU	CD-OE2	-7.34	1.17	1.25
2	M	345	GLU	CD-OE1	-7.30	1.17	1.25
2	M	345	GLU	CG-CD	-7.23	1.41	1.51
1	E	192	GLU	CD-OE2	-7.18	1.17	1.25
2	O	376	GLU	CD-OE1	-7.17	1.17	1.25
1	D	29	PRO	N-CD	-7.13	1.37	1.47
1	E	103	GLU	CD-OE2	-7.08	1.17	1.25
1	D	24	GLU	CD-OE2	-7.06	1.17	1.25
1	F	78	GLU	CD-OE1	-7.04	1.18	1.25
2	N	438	SER	CA-CB	-7.02	1.42	1.52
1	C	167	ARG	CZ-NH2	-7.02	1.24	1.33
1	B	168	GLU	CG-CD	-6.99	1.41	1.51
1	B	194	GLU	CD-OE2	-6.95	1.18	1.25
1	B	69	GLU	CD-OE2	-6.91	1.18	1.25
1	F	34	GLU	CD-OE1	-6.84	1.18	1.25
1	F	38	ARG	CA-CB	-6.82	1.39	1.53
1	E	86	GLU	CG-CD	-6.78	1.41	1.51
1	F	167	ARG	CZ-NH2	-6.78	1.24	1.33
2	R	311	ARG	NE-CZ	-6.76	1.24	1.33
1	B	162	GLU	CD-OE1	-6.68	1.18	1.25
1	A	29	PRO	N-CD	-6.66	1.38	1.47
2	R	438	SER	CB-OG	-6.64	1.33	1.42
2	O	449	TRP	CD2-CE2	-6.59	1.33	1.41
2	Q	494	SER	CB-OG	-6.57	1.33	1.42
2	N	332	PRO	N-CD	-6.57	1.38	1.47
2	R	536	GLU	CG-CD	-6.56	1.42	1.51
2	P	345	GLU	CG-CD	-6.53	1.42	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	429	CYS	CB-SG	-6.48	1.71	1.82
2	N	428	ARG	CD-NE	-6.48	1.35	1.46
1	F	94	ARG	CZ-NH1	-6.48	1.24	1.33
2	Q	440	ARG	CA-CB	-6.47	1.39	1.53
1	F	24	GLU	CD-OE2	-6.45	1.18	1.25
1	D	191	GLY	CA-C	-6.41	1.41	1.51
2	P	307	ARG	CD-NE	-6.41	1.35	1.46
2	R	437	TYR	CG-CD2	-6.38	1.30	1.39
2	M	344	SER	CB-OG	-6.37	1.33	1.42
2	N	481	GLU	CD-OE1	-6.33	1.18	1.25
2	O	436	TYR	CB-CG	-6.31	1.42	1.51
1	B	47	GLU	CD-OE2	-6.27	1.18	1.25
2	M	468	PRO	N-CA	-6.27	1.36	1.47
2	P	340	PRO	N-CD	-6.23	1.39	1.47
2	O	536	GLU	CG-CD	-6.23	1.42	1.51
2	O	481	GLU	CD-OE2	-6.22	1.18	1.25
1	A	20	GLY	CA-C	-6.22	1.42	1.51
1	A	121	PRO	N-CD	-6.17	1.39	1.47
1	A	133	ARG	CZ-NH1	-6.17	1.25	1.33
1	A	191	GLY	CA-C	-6.17	1.42	1.51
2	N	481	GLU	CG-CD	-6.17	1.42	1.51
2	R	494	SER	CA-CB	-6.15	1.43	1.52
1	F	7	GLU	CD-OE2	-6.15	1.18	1.25
1	E	129	SER	CA-CB	-6.14	1.43	1.52
2	Q	435	GLY	N-CA	-6.11	1.36	1.46
2	P	421	PRO	N-CD	-6.10	1.39	1.47
1	F	194	GLU	CD-OE2	-6.09	1.19	1.25
2	M	536	GLU	CD-OE2	-6.09	1.19	1.25
2	O	388	TYR	CE2-CZ	-6.08	1.30	1.38
2	Q	330	ARG	CZ-NH1	-6.08	1.25	1.33
2	M	482	GLY	N-CA	-6.07	1.36	1.46
2	R	398	GLU	CD-OE1	-6.06	1.19	1.25
1	E	156	PRO	N-CD	-6.02	1.39	1.47
2	M	446	PRO	N-CD	-5.95	1.39	1.47
2	P	322	PRO	CA-C	-5.93	1.41	1.52
1	B	24	GLU	CD-OE2	-5.90	1.19	1.25
2	Q	376	GLU	CD-OE2	-5.89	1.19	1.25
1	D	148	GLU	CD-OE1	-5.88	1.19	1.25
1	C	52	LEU	CA-CB	-5.87	1.40	1.53
2	R	315	TRP	NE1-CE2	-5.87	1.29	1.37
1	B	69	GLU	CG-CD	-5.82	1.43	1.51
2	O	449	TRP	CB-CG	-5.81	1.39	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	10	SER	CB-OG	-5.78	1.34	1.42
2	Q	332	PRO	N-CD	-5.78	1.39	1.47
1	B	193	GLY	CA-C	-5.78	1.42	1.51
1	D	6	PRO	N-CD	-5.77	1.39	1.47
2	P	446	PRO	N-CD	-5.76	1.39	1.47
1	F	31	ARG	NE-CZ	-5.75	1.25	1.33
1	E	36	TRP	CB-CG	-5.75	1.40	1.50
2	N	466	SER	CB-OG	-5.71	1.34	1.42
2	O	398	GLU	CD-OE1	-5.70	1.19	1.25
2	R	449	TRP	CZ3-CH2	-5.69	1.30	1.40
1	E	58	GLY	CA-C	-5.68	1.42	1.51
1	D	168	GLU	CD-OE1	-5.67	1.19	1.25
1	B	79	TYR	CB-CG	-5.67	1.43	1.51
2	R	425	GLY	N-CA	-5.65	1.37	1.46
1	B	47	GLU	CG-CD	-5.64	1.43	1.51
1	A	24	GLU	CG-CD	-5.62	1.43	1.51
1	C	42	PRO	CA-CB	-5.62	1.42	1.53
2	M	307	ARG	CD-NE	-5.61	1.36	1.46
1	E	1	PRO	N-CD	-5.61	1.40	1.47
1	E	67	PHE	CB-CG	-5.60	1.41	1.51
1	A	6	PRO	N-CD	-5.59	1.40	1.47
1	B	9	PRO	N-CA	-5.57	1.37	1.47
2	N	440	ARG	CA-CB	-5.57	1.41	1.53
1	E	191	GLY	N-CA	-5.57	1.37	1.46
1	B	36	TRP	CB-CG	-5.57	1.40	1.50
1	D	69	GLU	CD-OE2	-5.57	1.19	1.25
2	O	425	GLY	N-CA	-5.56	1.37	1.46
1	A	99	PHE	CA-CB	-5.55	1.41	1.53
2	Q	345	GLU	CD-OE1	-5.55	1.19	1.25
2	O	408	TYR	CZ-OH	-5.55	1.28	1.37
1	B	129	SER	CA-CB	-5.55	1.44	1.52
2	N	479	TYR	CZ-OH	-5.55	1.28	1.37
2	P	435	GLY	CA-C	-5.54	1.43	1.51
1	A	9	PRO	N-CD	-5.54	1.40	1.47
1	D	175	CYS	CA-CB	-5.53	1.41	1.53
2	R	449	TRP	CD2-CE2	-5.53	1.34	1.41
1	C	148	GLU	CD-OE1	-5.52	1.19	1.25
1	E	9	PRO	N-CA	-5.52	1.37	1.47
1	D	197	PHE	CA-CB	-5.52	1.41	1.53
2	R	315	TRP	CG-CD1	-5.52	1.29	1.36
1	B	79	TYR	CZ-OH	-5.50	1.28	1.37
1	F	103	GLU	CD-OE1	-5.49	1.19	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	94	ARG	CD-NE	-5.48	1.37	1.46
1	E	71	TRP	CE2-CZ2	-5.48	1.30	1.39
2	Q	447	TYR	CE1-CZ	-5.48	1.31	1.38
1	B	36	TRP	CD2-CE2	-5.47	1.34	1.41
1	E	36	TRP	CD2-CE2	-5.47	1.34	1.41
1	C	148	GLU	CD-OE2	-5.47	1.19	1.25
1	D	184	ARG	CZ-NH2	-5.46	1.25	1.33
2	Q	498	PRO	CA-C	-5.46	1.42	1.52
2	Q	515	PRO	N-CD	-5.45	1.40	1.47
1	E	186	ASP	CA-CB	-5.45	1.42	1.53
2	P	428	ARG	CG-CD	-5.43	1.38	1.51
1	D	142	ARG	CZ-NH1	-5.43	1.25	1.33
2	O	345	GLU	CD-OE1	-5.42	1.19	1.25
2	M	447	TYR	CD1-CE1	-5.42	1.31	1.39
2	Q	463	PHE	CG-CD2	-5.41	1.30	1.38
2	P	449	TRP	NE1-CE2	-5.41	1.30	1.37
2	N	447	TYR	CG-CD2	-5.41	1.32	1.39
2	P	468	PRO	N-CA	-5.41	1.38	1.47
1	A	176	GLU	CG-CD	-5.39	1.43	1.51
1	D	20	GLY	CA-C	-5.39	1.43	1.51
2	R	473	LYS	CA-CB	-5.39	1.42	1.53
1	E	156	PRO	CA-CB	-5.39	1.42	1.53
2	Q	487	PRO	CA-C	-5.38	1.42	1.52
2	N	330	ARG	CZ-NH1	-5.38	1.26	1.33
2	O	398	GLU	CD-OE2	-5.37	1.19	1.25
2	Q	456	TRP	CG-CD1	-5.37	1.29	1.36
2	M	449	TRP	CD2-CE3	-5.36	1.32	1.40
1	F	118	ALA	C-N	-5.36	1.23	1.33
2	R	449	TRP	CD1-NE1	-5.35	1.28	1.38
2	P	301	PRO	N-CD	-5.34	1.40	1.47
2	O	428	ARG	NE-CZ	-5.34	1.26	1.33
2	R	469	SER	CA-CB	-5.34	1.45	1.52
2	Q	456	TRP	CD2-CE2	-5.32	1.34	1.41
2	Q	447	TYR	CG-CD2	-5.32	1.32	1.39
2	N	345	GLU	CD-OE1	-5.32	1.19	1.25
2	P	436	TYR	N-CA	-5.31	1.35	1.46
2	M	425	GLY	CA-C	-5.31	1.43	1.51
1	B	191	GLY	N-CA	-5.31	1.38	1.46
2	O	440	ARG	CZ-NH1	-5.30	1.26	1.33
2	Q	482	GLY	CA-C	-5.30	1.43	1.51
1	D	183	TYR	CB-CG	-5.29	1.43	1.51
1	C	15	PRO	N-CA	-5.29	1.38	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	156	PRO	N-CD	-5.29	1.40	1.47
2	M	521	TYR	CD2-CE2	-5.27	1.31	1.39
2	O	494	SER	CA-CB	-5.27	1.45	1.52
2	P	440	ARG	CD-NE	-5.27	1.37	1.46
1	D	99	PHE	CA-CB	-5.26	1.42	1.53
2	N	391	PRO	N-CD	-5.25	1.40	1.47
1	B	94	ARG	CG-CD	-5.24	1.38	1.51
2	R	330	ARG	NE-CZ	-5.23	1.26	1.33
2	P	425	GLY	CA-C	-5.23	1.43	1.51
1	F	69	GLU	CD-OE2	-5.23	1.19	1.25
2	P	409	ARG	CD-NE	-5.22	1.37	1.46
2	Q	440	ARG	CD-NE	-5.21	1.37	1.46
2	R	408	TYR	CB-CG	-5.21	1.43	1.51
2	R	307	ARG	CZ-NH1	-5.20	1.26	1.33
2	O	437	TYR	CG-CD1	-5.20	1.32	1.39
1	B	45	PRO	N-CD	-5.18	1.40	1.47
2	P	531	ARG	NE-CZ	-5.18	1.26	1.33
1	F	162	GLU	CG-CD	-5.18	1.44	1.51
2	M	418	PRO	N-CD	-5.18	1.40	1.47
1	F	176	GLU	CD-OE1	-5.18	1.20	1.25
1	C	47	GLU	CD-OE1	-5.17	1.20	1.25
1	F	52	LEU	CA-CB	-5.17	1.41	1.53
1	D	102	GLY	CA-C	-5.17	1.43	1.51
1	E	82	ALA	CA-CB	-5.17	1.41	1.52
1	F	148	GLU	CD-OE2	-5.15	1.20	1.25
1	C	188	ARG	CZ-NH2	-5.14	1.26	1.33
1	A	92	PHE	CB-CG	-5.13	1.42	1.51
1	F	194	GLU	CG-CD	-5.12	1.44	1.51
1	A	3	GLU	CA-CB	-5.12	1.42	1.53
2	M	428	ARG	CG-CD	-5.12	1.39	1.51
1	B	101	ALA	C-N	-5.12	1.23	1.33
1	C	144	TYR	CB-CG	-5.11	1.44	1.51
1	A	94	ARG	CG-CD	-5.11	1.39	1.51
2	R	440	ARG	NE-CZ	-5.11	1.26	1.33
1	A	183	TYR	CB-CG	-5.11	1.44	1.51
1	C	31	ARG	NE-CZ	-5.10	1.26	1.33
2	O	521	TYR	C-N	-5.10	1.22	1.34
1	F	185	PHE	CB-CG	-5.10	1.42	1.51
2	M	440	ARG	CD-NE	-5.09	1.37	1.46
1	C	162	GLU	CG-CD	-5.09	1.44	1.51
2	Q	499	GLU	CD-OE1	-5.09	1.20	1.25
1	C	56	TYR	CB-CG	-5.08	1.44	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	P	503	GLN	CA-CB	-5.08	1.42	1.53
2	O	499	GLU	CG-CD	-5.08	1.44	1.51
1	D	89	PHE	CA-CB	-5.08	1.42	1.53
1	C	77	GLY	N-CA	-5.07	1.38	1.46
2	P	439	PHE	CB-CG	-5.07	1.42	1.51
2	O	428	ARG	CD-NE	-5.06	1.37	1.46
1	F	15	PRO	CA-C	-5.06	1.42	1.52
1	F	57	ASP	C-N	-5.06	1.24	1.33
2	M	449	TRP	NE1-CE2	-5.06	1.30	1.37
2	Q	322	PRO	N-CA	-5.05	1.38	1.47
1	C	36	TRP	CD2-CE3	-5.04	1.32	1.40
2	P	447	TYR	CB-CG	-5.04	1.44	1.51
1	D	107	HIS	CG-CD2	-5.04	1.27	1.35
2	Q	376	GLU	CD-OE1	-5.04	1.20	1.25
2	N	400	TRP	CZ3-CH2	-5.03	1.32	1.40
1	C	91	SER	CA-CB	-5.03	1.45	1.52
1	B	3	GLU	CG-CD	-5.03	1.44	1.51
1	D	183	TYR	CZ-OH	-5.03	1.29	1.37
2	Q	457	ARG	NE-CZ	-5.03	1.26	1.33
2	Q	511	ASN	N-CA	-5.03	1.36	1.46
2	N	531	ARG	CZ-NH2	-5.02	1.26	1.33
2	N	340	PRO	N-CA	-5.02	1.38	1.47
2	N	331	SER	CB-OG	-5.02	1.35	1.42
2	M	447	TYR	CB-CG	-5.02	1.44	1.51
2	Q	317	PRO	N-CA	-5.01	1.38	1.47
1	A	175	CYS	CB-SG	-5.00	1.73	1.81

All (482) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	N	440	ARG	NE-CZ-NH2	-27.45	106.58	120.30
2	Q	440	ARG	NE-CZ-NH2	-23.45	108.58	120.30
2	M	440	ARG	NE-CZ-NH2	-21.68	109.46	120.30
1	D	94	ARG	NE-CZ-NH2	-19.68	110.46	120.30
1	F	38	ARG	CD-NE-CZ	19.65	151.11	123.60
2	P	440	ARG	NE-CZ-NH2	-18.92	110.84	120.30
1	E	133	ARG	NE-CZ-NH1	18.25	129.43	120.30
2	R	407	ARG	NE-CZ-NH2	-17.71	111.45	120.30
2	R	440	ARG	NE-CZ-NH2	-17.39	111.61	120.30
2	Q	522	ARG	NE-CZ-NH1	-16.95	111.82	120.30
1	E	133	ARG	NE-CZ-NH2	-16.91	111.85	120.30
1	C	133	ARG	NE-CZ-NH1	16.58	128.59	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	166	ARG	NE-CZ-NH2	-16.57	112.02	120.30
2	N	440	ARG	NE-CZ-NH1	16.48	128.54	120.30
1	C	94	ARG	NE-CZ-NH1	16.38	128.49	120.30
1	A	94	ARG	CD-NE-CZ	16.34	146.48	123.60
1	D	94	ARG	NE-CZ-NH1	16.29	128.45	120.30
2	O	330	ARG	NE-CZ-NH2	-16.20	112.20	120.30
2	M	450	ARG	NE-CZ-NH1	16.19	128.40	120.30
1	A	133	ARG	NE-CZ-NH1	16.17	128.38	120.30
2	N	333	ARG	NE-CZ-NH1	-15.96	112.32	120.30
1	D	166	ARG	NE-CZ-NH1	15.88	128.24	120.30
2	P	440	ARG	NE-CZ-NH1	14.82	127.71	120.30
1	E	38	ARG	NE-CZ-NH2	-14.78	112.91	120.30
1	A	94	ARG	NE-CZ-NH2	-14.67	112.96	120.30
1	E	64	ARG	NE-CZ-NH1	14.63	127.61	120.30
1	B	38	ARG	NE-CZ-NH2	-14.53	113.03	120.30
1	A	184	ARG	NE-CZ-NH2	-14.39	113.10	120.30
2	O	440	ARG	NE-CZ-NH2	-14.05	113.27	120.30
2	R	407	ARG	NE-CZ-NH1	13.95	127.28	120.30
2	M	313	ARG	NE-CZ-NH1	13.87	127.24	120.30
1	B	184	ARG	NE-CZ-NH2	-13.86	113.37	120.30
1	C	94	ARG	CD-NE-CZ	13.84	142.97	123.60
2	M	428	ARG	NE-CZ-NH2	-13.82	113.39	120.30
2	Q	311	ARG	NE-CZ-NH1	13.65	127.13	120.30
1	A	31	ARG	NE-CZ-NH1	13.23	126.91	120.30
2	P	428	ARG	NE-CZ-NH1	13.08	126.84	120.30
2	M	450	ARG	NE-CZ-NH2	-13.05	113.78	120.30
1	F	38	ARG	NE-CZ-NH1	12.97	126.78	120.30
2	R	383	ARG	NE-CZ-NH1	-12.87	113.87	120.30
1	E	142	ARG	NE-CZ-NH2	-12.75	113.92	120.30
1	D	142	ARG	NE-CZ-NH1	-12.75	113.93	120.30
2	P	307	ARG	NE-CZ-NH1	12.69	126.64	120.30
2	N	457	ARG	NE-CZ-NH2	-12.55	114.03	120.30
2	Q	311	ARG	NE-CZ-NH2	-12.52	114.04	120.30
1	D	94	ARG	CD-NE-CZ	12.49	141.08	123.60
1	D	65	ASP	CB-CG-OD1	12.45	129.51	118.30
1	B	186	ASP	CB-CG-OD1	12.41	129.47	118.30
1	B	133	ARG	NE-CZ-NH2	-12.37	114.11	120.30
1	A	64	ARG	NE-CZ-NH1	-12.33	114.13	120.30
2	O	407	ARG	NE-CZ-NH2	-12.32	114.14	120.30
1	F	166	ARG	NE-CZ-NH1	12.13	126.37	120.30
1	A	133	ARG	CD-NE-CZ	12.05	140.48	123.60
1	B	64	ARG	NE-CZ-NH2	-12.04	114.28	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	N	307	ARG	NE-CZ-NH1	12.03	126.32	120.30
1	E	133	ARG	CD-NE-CZ	11.96	140.35	123.60
1	A	94	ARG	NE-CZ-NH1	11.61	126.11	120.30
1	C	166	ARG	NE-CZ-NH1	11.56	126.08	120.30
1	F	188	ARG	NE-CZ-NH1	11.51	126.06	120.30
1	A	65	ASP	CB-CG-OD1	11.22	128.40	118.30
2	M	428	ARG	NE-CZ-NH1	11.15	125.88	120.30
1	B	94	ARG	NE-CZ-NH2	-11.12	114.74	120.30
2	O	330	ARG	NE-CZ-NH1	11.10	125.85	120.30
2	N	428	ARG	NE-CZ-NH2	-11.08	114.76	120.30
1	A	184	ARG	NE-CZ-NH1	10.88	125.74	120.30
1	D	133	ARG	CD-NE-CZ	10.84	138.77	123.60
2	O	409	ARG	NE-CZ-NH1	-10.79	114.90	120.30
1	D	133	ARG	NE-CZ-NH1	10.77	125.69	120.30
1	E	52	LEU	CA-CB-CG	10.75	140.03	115.30
1	D	31	ARG	NE-CZ-NH1	10.73	125.67	120.30
1	A	167	ARG	NE-CZ-NH1	-10.72	114.94	120.30
2	N	383	ARG	NE-CZ-NH2	-10.59	115.00	120.30
2	P	450	ARG	NE-CZ-NH2	-10.52	115.04	120.30
2	P	524	ASP	CB-CG-OD1	10.45	127.71	118.30
2	Q	428	ARG	NE-CZ-NH1	10.44	125.52	120.30
2	N	414	ARG	NE-CZ-NH2	-10.41	115.10	120.30
1	E	186	ASP	CB-CG-OD1	10.40	127.66	118.30
2	N	434	ASP	CB-CG-OD2	-10.38	108.96	118.30
2	O	383	ARG	NE-CZ-NH1	-10.17	115.21	120.30
1	D	38	ARG	NE-CZ-NH1	10.16	125.38	120.30
2	P	409	ARG	NE-CZ-NH1	10.16	125.38	120.30
2	M	528	ARG	NE-CZ-NH2	-10.14	115.23	120.30
2	O	409	ARG	NE-CZ-NH2	10.08	125.34	120.30
2	Q	457	ARG	NE-CZ-NH2	-10.08	115.26	120.30
2	Q	440	ARG	NE-CZ-NH1	10.04	125.32	120.30
1	F	174	ARG	NE-CZ-NH2	-10.05	115.28	120.30
2	P	428	ARG	NE-CZ-NH2	-10.01	115.30	120.30
2	Q	428	ARG	NE-CZ-NH2	-9.90	115.35	120.30
2	P	383	ARG	NE-CZ-NH2	-9.88	115.36	120.30
2	M	434	ASP	CB-CG-OD2	-9.68	109.59	118.30
2	M	383	ARG	NE-CZ-NH2	-9.67	115.47	120.30
2	R	524	ASP	CB-CG-OD1	9.64	126.98	118.30
2	M	307	ARG	NE-CZ-NH1	9.60	125.10	120.30
1	C	188	ARG	NE-CZ-NH1	9.50	125.05	120.30
2	R	330	ARG	NE-CZ-NH2	-9.48	115.56	120.30
1	E	184	ARG	NE-CZ-NH1	9.33	124.97	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	94	ARG	NE-CZ-NH2	-9.30	115.65	120.30
2	N	313	ARG	NE-CZ-NH1	9.19	124.89	120.30
1	F	94	ARG	NE-CZ-NH1	9.15	124.87	120.30
2	M	440	ARG	NE-CZ-NH1	9.07	124.83	120.30
2	Q	434	ASP	CB-CG-OD2	-9.06	110.15	118.30
2	M	524	ASP	CB-CG-OD1	9.03	126.43	118.30
1	F	38	ARG	CA-CB-CG	9.01	133.21	113.40
2	Q	457	ARG	NE-CZ-NH1	8.94	124.77	120.30
2	R	311	ARG	NE-CZ-NH2	-8.79	115.91	120.30
2	P	455	ASP	CB-CG-OD1	8.77	126.19	118.30
1	E	174	ARG	NE-CZ-NH2	-8.77	115.92	120.30
2	P	524	ASP	CB-CG-OD2	-8.76	110.42	118.30
2	R	362	ASP	CB-CG-OD2	8.73	126.15	118.30
1	D	188	ARG	NE-CZ-NH1	8.70	124.65	120.30
1	B	83	TYR	CB-CG-CD1	-8.69	115.79	121.00
1	C	64	ARG	NE-CZ-NH2	-8.68	115.96	120.30
1	E	52	LEU	CB-CA-C	8.68	126.69	110.20
1	B	94	ARG	CG-CD-NE	8.66	129.99	111.80
1	F	199	ASP	CB-CG-OD1	8.64	126.07	118.30
2	M	333	ARG	NE-CZ-NH2	-8.63	115.98	120.30
2	O	457	ARG	NE-CZ-NH1	8.61	124.61	120.30
1	C	94	ARG	CA-CB-CG	8.52	132.14	113.40
1	A	166	ARG	NE-CZ-NH2	-8.52	116.04	120.30
2	O	428	ARG	CD-NE-CZ	8.49	135.49	123.60
1	E	94	ARG	NE-CZ-NH1	8.45	124.53	120.30
1	A	52	LEU	CB-CA-C	8.39	126.13	110.20
2	N	311	ARG	NE-CZ-NH2	-8.37	116.11	120.30
1	A	75	ALA	CB-CA-C	8.37	122.65	110.10
1	F	31	ARG	NE-CZ-NH2	-8.27	116.17	120.30
1	C	133	ARG	CD-NE-CZ	8.25	135.15	123.60
1	B	64	ARG	NE-CZ-NH1	8.20	124.40	120.30
1	B	146	ASP	CB-CG-OD1	8.16	125.64	118.30
2	N	415	TYR	CB-CG-CD1	8.14	125.89	121.00
2	O	428	ARG	NE-CZ-NH2	-8.13	116.24	120.30
2	P	528	ARG	NE-CZ-NH2	-8.12	116.24	120.30
1	B	133	ARG	NE-CZ-NH1	8.11	124.36	120.30
2	N	428	ARG	NE-CZ-NH1	8.07	124.33	120.30
1	C	197	PHE	CB-CG-CD1	-8.03	115.18	120.80
2	R	450	ARG	NE-CZ-NH1	-7.97	116.31	120.30
2	Q	383	ARG	NE-CZ-NH2	-7.95	116.32	120.30
2	Q	409	ARG	NE-CZ-NH2	7.95	124.28	120.30
1	A	31	ARG	NE-CZ-NH2	-7.91	116.34	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	142	ARG	NE-CZ-NH1	7.91	124.25	120.30
2	O	388	TYR	CB-CG-CD2	7.86	125.72	121.00
2	P	432	ASP	CB-CG-OD1	7.85	125.37	118.30
2	O	408	TYR	CB-CG-CD1	-7.82	116.31	121.00
1	B	74	ASP	CB-CG-OD1	7.81	125.33	118.30
1	A	166	ARG	NE-CZ-NH1	7.78	124.19	120.30
1	D	32	ASP	CB-CG-OD2	-7.76	111.32	118.30
1	B	24	GLU	CA-CB-CG	7.71	130.36	113.40
1	F	31	ARG	NE-CZ-NH1	7.71	124.15	120.30
2	M	354	LEU	CB-CA-C	7.69	124.81	110.20
2	R	414	ARG	NE-CZ-NH1	7.69	124.14	120.30
2	N	307	ARG	NE-CZ-NH2	-7.68	116.46	120.30
1	E	64	ARG	NE-CZ-NH2	-7.67	116.47	120.30
2	R	383	ARG	NH1-CZ-NH2	7.64	127.81	119.40
1	B	142	ARG	NE-CZ-NH2	-7.58	116.51	120.30
2	N	457	ARG	NE-CZ-NH1	7.54	124.07	120.30
2	P	428	ARG	CG-CD-NE	7.53	127.61	111.80
2	M	428	ARG	CD-NE-CZ	7.49	134.09	123.60
1	B	175	CYS	CA-CB-SG	7.49	127.48	114.00
2	Q	413	ASP	CB-CG-OD1	7.48	125.03	118.30
2	P	428	ARG	CD-NE-CZ	7.47	134.05	123.60
1	C	133	ARG	NE-CZ-NH2	-7.45	116.57	120.30
2	P	333	ARG	CD-NE-CZ	-7.42	113.21	123.60
2	P	407	ARG	NE-CZ-NH2	7.39	123.99	120.30
1	B	184	ARG	NE-CZ-NH1	7.36	123.98	120.30
2	O	440	ARG	NH1-CZ-NH2	7.35	127.49	119.40
2	Q	383	ARG	CD-NE-CZ	-7.35	113.31	123.60
2	Q	313	ARG	NE-CZ-NH2	7.32	123.96	120.30
2	O	312	ASP	CB-CG-OD2	-7.29	111.74	118.30
1	D	36	TRP	CB-CA-C	7.28	124.95	110.40
2	Q	432	ASP	CB-CG-OD1	7.28	124.85	118.30
2	M	509	ASP	CB-CG-OD1	7.23	124.80	118.30
2	Q	333	ARG	NE-CZ-NH2	7.22	123.91	120.30
1	A	188	ARG	NE-CZ-NH2	-7.21	116.69	120.30
2	O	333	ARG	NE-CZ-NH2	-7.19	116.70	120.30
2	N	434	ASP	CA-CB-CG	-7.19	97.58	113.40
2	P	450	ARG	NE-CZ-NH1	7.19	123.89	120.30
1	F	188	ARG	NE-CZ-NH2	-7.18	116.71	120.30
1	A	64	ARG	CD-NE-CZ	-7.18	113.55	123.60
1	B	31	ARG	NE-CZ-NH1	7.17	123.89	120.30
2	O	323	ASP	CB-CG-OD1	7.17	124.75	118.30
1	C	167	ARG	CD-NE-CZ	-7.10	113.66	123.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	434	ASP	CB-CG-OD2	-7.09	111.92	118.30
2	N	522	ARG	NE-CZ-NH1	-7.08	116.76	120.30
1	B	36	TRP	CB-CA-C	7.05	124.50	110.40
1	F	197	PHE	CB-CG-CD1	-7.04	115.88	120.80
2	P	509	ASP	CB-CG-OD1	7.03	124.63	118.30
1	C	106	LEU	CB-CG-CD2	-7.03	99.06	111.00
1	B	11	GLN	N-CA-CB	7.02	123.24	110.60
1	A	188	ARG	NE-CZ-NH1	6.97	123.79	120.30
1	E	184	ARG	NE-CZ-NH2	-6.95	116.82	120.30
2	O	323	ASP	CB-CG-OD2	-6.90	112.09	118.30
1	F	38	ARG	NE-CZ-NH2	-6.85	116.88	120.30
2	Q	311	ARG	CD-NE-CZ	6.81	133.14	123.60
1	E	74	ASP	CB-CG-OD1	6.79	124.41	118.30
1	E	186	ASP	CB-CG-OD2	-6.76	112.22	118.30
1	D	96	ALA	N-CA-CB	-6.75	100.65	110.10
1	E	174	ARG	CD-NE-CZ	-6.74	114.16	123.60
2	N	522	ARG	CD-NE-CZ	6.74	133.03	123.60
1	E	43	ASP	CB-CG-OD1	6.71	124.34	118.30
1	B	142	ARG	NE-CZ-NH1	6.70	123.65	120.30
1	E	144	TYR	CB-CG-CD2	6.69	125.01	121.00
2	O	420	ASP	CB-CG-OD1	6.68	124.31	118.30
1	E	89	PHE	CB-CG-CD1	-6.67	116.13	120.80
1	C	38	ARG	CD-NE-CZ	-6.65	114.29	123.60
1	D	38	ARG	NE-CZ-NH2	-6.64	116.98	120.30
2	R	323	ASP	CB-CG-OD1	6.64	124.28	118.30
2	Q	531	ARG	NE-CZ-NH1	6.64	123.62	120.30
2	Q	522	ARG	NH1-CZ-NH2	6.63	126.69	119.40
1	E	31	ARG	NE-CZ-NH2	-6.61	117.00	120.30
2	R	440	ARG	NH1-CZ-NH2	6.60	126.66	119.40
1	B	144	TYR	CB-CG-CD2	-6.59	117.05	121.00
1	A	52	LEU	CA-CB-CG	6.56	130.38	115.30
2	N	416	LEU	CA-CB-CG	6.54	130.33	115.30
2	N	413	ASP	CB-CG-OD1	6.52	124.17	118.30
2	P	372	LEU	CB-CA-C	6.52	122.59	110.20
1	C	85	LEU	CB-CA-C	6.52	122.58	110.20
2	R	434	ASP	CB-CG-OD1	-6.51	112.44	118.30
1	C	11	GLN	N-CA-CB	6.50	122.31	110.60
1	B	174	ARG	NE-CZ-NH2	-6.50	117.05	120.30
2	N	524	ASP	CB-CG-OD2	-6.49	112.46	118.30
2	M	330	ARG	NE-CZ-NH2	-6.49	117.06	120.30
1	A	32	ASP	CB-CG-OD1	6.46	124.11	118.30
1	C	106	LEU	CA-CB-CG	6.45	130.14	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	O	313	ARG	NE-CZ-NH1	6.43	123.52	120.30
2	M	312	ASP	CB-CG-OD2	-6.42	112.52	118.30
2	P	483	ASP	CB-CG-OD2	6.42	124.08	118.30
1	D	64	ARG	NE-CZ-NH2	-6.42	117.09	120.30
2	M	432	ASP	CB-CG-OD1	6.40	124.06	118.30
2	Q	440	ARG	CD-NE-CZ	6.39	132.55	123.60
2	O	524	ASP	CB-CG-OD1	6.38	124.05	118.30
1	A	57	ASP	CB-CG-OD1	6.37	124.03	118.30
2	N	428	ARG	CG-CD-NE	6.34	125.11	111.80
1	F	167	ARG	CD-NE-CZ	-6.32	114.75	123.60
2	R	323	ASP	CB-CG-OD2	-6.32	112.61	118.30
1	F	178	ASP	CB-CG-OD1	6.31	123.98	118.30
2	M	483	ASP	CB-CG-OD2	6.31	123.98	118.30
2	N	333	ARG	NH1-CZ-NH2	6.31	126.34	119.40
2	R	436	TYR	CB-CG-CD1	-6.31	117.22	121.00
1	D	183	TYR	CB-CG-CD2	-6.30	117.22	121.00
1	E	43	ASP	CB-CG-OD2	-6.29	112.64	118.30
1	F	74	ASP	CB-CG-OD1	6.29	123.96	118.30
2	M	313	ARG	NE-CZ-NH2	-6.28	117.16	120.30
1	C	147	ASP	CB-CG-OD1	6.27	123.95	118.30
2	P	350	ASN	N-CA-CB	6.27	121.89	110.60
2	R	432	ASP	CB-CG-OD2	-6.25	112.67	118.30
1	D	65	ASP	CB-CG-OD2	-6.24	112.69	118.30
1	F	52	LEU	CB-CA-C	6.23	122.04	110.20
1	F	82	ALA	CB-CA-C	6.23	119.44	110.10
1	B	79	TYR	CB-CG-CD1	-6.21	117.28	121.00
1	C	52	LEU	CB-CA-C	6.20	121.98	110.20
2	R	428	ARG	CG-CD-NE	6.19	124.80	111.80
1	B	83	TYR	CB-CG-CD2	6.18	124.71	121.00
1	D	133	ARG	NE-CZ-NH2	-6.18	117.21	120.30
1	B	176	GLU	OE1-CD-OE2	-6.16	115.90	123.30
2	N	479	TYR	CB-CG-CD1	-6.14	117.31	121.00
1	C	81	ASP	CB-CG-OD1	6.14	123.83	118.30
1	A	133	ARG	NH1-CZ-NH2	-6.13	112.65	119.40
1	D	75	ALA	CB-CA-C	6.09	119.24	110.10
1	B	166	ARG	NE-CZ-NH2	-6.09	117.25	120.30
1	D	7	GLU	OE1-CD-OE2	6.08	130.59	123.30
1	D	184	ARG	NE-CZ-NH1	6.06	123.33	120.30
2	O	416	LEU	CB-CA-C	6.06	121.72	110.20
2	O	383	ARG	NH1-CZ-NH2	6.04	126.04	119.40
2	M	306	SER	N-CA-CB	-6.04	101.45	110.50
2	R	383	ARG	N-CA-CB	-6.03	99.74	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	N	320	LEU	CB-CG-CD2	-6.01	100.78	111.00
1	E	74	ASP	CB-CG-OD2	-6.00	112.90	118.30
2	P	437	TYR	CB-CG-CD1	-6.00	117.40	121.00
2	M	333	ARG	NE-CZ-NH1	6.00	123.30	120.30
1	C	166	ARG	CD-NE-CZ	5.99	131.99	123.60
1	E	31	ARG	NE-CZ-NH1	5.99	123.30	120.30
1	B	65	ASP	CB-CG-OD1	5.99	123.69	118.30
1	C	36	TRP	CB-CA-C	5.98	122.37	110.40
2	M	531	ARG	NE-CZ-NH1	-5.98	117.31	120.30
1	E	38	ARG	NH1-CZ-NH2	5.97	125.97	119.40
1	A	78	GLU	OE1-CD-OE2	5.97	130.46	123.30
2	M	434	ASP	OD1-CG-OD2	5.97	134.64	123.30
1	B	94	ARG	CB-CG-CD	5.96	127.09	111.60
1	B	38	ARG	NE-CZ-NH1	5.96	123.28	120.30
2	N	528	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	A	23	LEU	CB-CA-C	5.91	121.43	110.20
1	E	36	TRP	CB-CA-C	5.90	122.21	110.40
2	N	381	ALA	N-CA-CB	-5.90	101.84	110.10
2	M	313	ARG	CD-NE-CZ	5.89	131.84	123.60
2	P	457	ARG	NE-CZ-NH1	5.88	123.24	120.30
2	N	361	HIS	CA-CB-CG	-5.88	103.60	113.60
2	M	383	ARG	NH1-CZ-NH2	5.87	125.86	119.40
1	F	106	LEU	CB-CG-CD2	-5.87	101.02	111.00
2	Q	381	ALA	N-CA-CB	-5.87	101.89	110.10
2	R	517	ASP	CB-CG-OD1	5.86	123.57	118.30
1	E	162	GLU	CA-CB-CG	5.86	126.28	113.40
2	Q	313	ARG	CB-CA-C	5.85	122.09	110.40
2	P	428	ARG	CB-CG-CD	5.84	126.80	111.60
2	R	473	LYS	CA-CB-CG	5.84	126.24	113.40
2	O	528	ARG	NE-CZ-NH1	5.84	123.22	120.30
2	P	452	GLY	N-CA-C	-5.83	98.52	113.10
2	Q	441	THR	N-CA-CB	-5.83	99.22	110.30
1	A	167	ARG	NE-CZ-NH2	5.83	123.22	120.30
2	N	441	THR	N-CA-CB	-5.82	99.24	110.30
2	Q	440	ARG	NH1-CZ-NH2	5.82	125.80	119.40
2	Q	372	LEU	N-CA-CB	-5.81	98.78	110.40
2	Q	383	ARG	N-CA-CB	-5.79	100.17	110.60
1	D	62	LEU	CA-CB-CG	5.79	128.61	115.30
2	P	416	LEU	CB-CA-C	5.78	121.18	110.20
2	R	409	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	A	168	GLU	CG-CD-OE1	5.77	129.84	118.30
2	P	414	ARG	NE-CZ-NH2	5.76	123.18	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	117	ALA	CB-CA-C	5.76	118.74	110.10
2	O	474	LEU	N-CA-CB	-5.75	98.89	110.40
1	C	16	TYR	CB-CG-CD2	5.75	124.45	121.00
1	B	94	ARG	NE-CZ-NH1	5.75	123.17	120.30
2	O	416	LEU	CA-CB-CG	5.74	128.51	115.30
2	Q	447	TYR	CB-CG-CD1	5.73	124.44	121.00
1	C	200	PHE	CB-CG-CD2	-5.73	116.79	120.80
2	N	434	ASP	OD1-CG-OD2	5.71	134.16	123.30
2	M	411	LYS	CB-CA-C	-5.71	98.98	110.40
2	Q	333	ARG	NE-CZ-NH1	-5.71	117.44	120.30
1	B	178	ASP	CB-CA-C	5.71	121.81	110.40
1	E	146	ASP	CB-CG-OD1	5.71	123.44	118.30
1	F	65	ASP	CB-CG-OD1	5.71	123.44	118.30
1	B	43	ASP	CB-CA-C	5.71	121.81	110.40
2	N	522	ARG	NE-CZ-NH2	5.70	123.15	120.30
2	Q	307	ARG	NE-CZ-NH1	5.70	123.15	120.30
2	O	457	ARG	CA-CB-CG	5.69	125.93	113.40
1	D	40	ALA	CB-CA-C	-5.69	101.57	110.10
1	F	180	LYS	O-C-N	5.68	131.79	122.70
1	B	74	ASP	CB-CG-OD2	-5.68	113.19	118.30
1	C	94	ARG	NE-CZ-NH2	-5.67	117.46	120.30
1	C	198	PHE	CB-CG-CD1	5.66	124.76	120.80
2	O	413	ASP	CB-CG-OD1	5.66	123.39	118.30
2	M	521	TYR	CB-CG-CD2	-5.65	117.61	121.00
1	F	133	ARG	NE-CZ-NH1	5.65	123.12	120.30
1	F	176	GLU	CG-CD-OE1	5.63	129.56	118.30
1	D	23	LEU	CB-CA-C	5.62	120.87	110.20
2	P	517	ASP	CB-CA-C	5.62	121.63	110.40
1	F	147	ASP	CB-CG-OD1	5.60	123.34	118.30
2	Q	361	HIS	CA-CB-CG	-5.60	104.08	113.60
1	D	147	ASP	CB-CG-OD1	5.60	123.34	118.30
1	F	99	PHE	CB-CA-C	5.59	121.58	110.40
2	Q	524	ASP	CB-CG-OD1	5.58	123.33	118.30
1	F	30	THR	CA-CB-CG2	5.57	120.20	112.40
2	N	383	ARG	CG-CD-NE	-5.57	100.10	111.80
1	F	23	LEU	CB-CA-C	5.57	120.78	110.20
1	C	47	GLU	CG-CD-OE2	5.56	129.43	118.30
1	B	62	LEU	CA-CB-CG	5.56	128.09	115.30
1	E	66	SER	N-CA-CB	5.56	118.84	110.50
1	D	184	ARG	NE-CZ-NH2	-5.56	117.52	120.30
2	Q	522	ARG	CD-NE-CZ	-5.55	115.82	123.60
2	Q	457	ARG	CA-CB-CG	5.55	125.62	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	M	360	ASP	CB-CG-OD1	5.54	123.28	118.30
2	O	436	TYR	CB-CG-CD1	-5.53	117.68	121.00
1	E	144	TYR	CB-CG-CD1	-5.53	117.69	121.00
1	B	162	GLU	CA-CB-CG	5.52	125.55	113.40
2	N	440	ARG	CB-CG-CD	-5.52	97.24	111.60
1	D	177	VAL	CB-CA-C	5.52	121.89	111.40
1	D	94	ARG	CB-CG-CD	5.52	125.95	111.60
2	P	353	HIS	CA-CB-CG	-5.52	104.22	113.60
1	B	144	TYR	CB-CG-CD1	5.51	124.31	121.00
2	M	437	TYR	CB-CG-CD1	-5.51	117.69	121.00
1	F	94	ARG	NE-CZ-NH2	-5.51	117.54	120.30
1	F	178	ASP	CB-CG-OD2	-5.51	113.34	118.30
1	D	31	ARG	NE-CZ-NH2	-5.51	117.55	120.30
2	Q	408	TYR	CB-CG-CD2	5.50	124.30	121.00
1	A	3	GLU	CA-CB-CG	5.50	125.49	113.40
2	O	304	ASP	CB-CG-OD2	-5.50	113.35	118.30
2	Q	362	ASP	CB-CG-OD1	5.49	123.25	118.30
1	D	78	GLU	CG-CD-OE2	-5.47	107.35	118.30
1	A	65	ASP	CB-CG-OD2	-5.47	113.38	118.30
2	N	416	LEU	CB-CA-C	5.47	120.59	110.20
2	M	452	GLY	N-CA-C	-5.47	99.43	113.10
2	O	386	ASP	CB-CG-OD2	5.46	123.22	118.30
2	P	437	TYR	CB-CG-CD2	5.45	124.27	121.00
2	M	434	ASP	CA-CB-CG	-5.45	101.41	113.40
2	P	536	GLU	CG-CD-OE1	5.44	129.18	118.30
2	P	372	LEU	CA-CB-CG	5.43	127.80	115.30
1	E	38	ARG	CD-NE-CZ	-5.43	116.00	123.60
1	D	52	LEU	CB-CA-C	5.41	120.49	110.20
1	B	178	ASP	CB-CG-OD1	5.41	123.17	118.30
1	C	52	LEU	CA-CB-CG	5.41	127.74	115.30
2	Q	376	GLU	OE1-CD-OE2	5.41	129.79	123.30
2	R	440	ARG	CB-CG-CD	-5.41	97.54	111.60
1	B	64	ARG	CD-NE-CZ	-5.40	116.04	123.60
1	F	97	THR	N-CA-CB	5.39	120.55	110.30
2	P	478	LEU	CA-CB-CG	5.39	127.70	115.30
2	R	522	ARG	NE-CZ-NH1	5.39	123.00	120.30
2	O	428	ARG	CB-CG-CD	5.39	125.61	111.60
1	A	96	ALA	N-CA-CB	-5.38	102.56	110.10
1	B	100	ASP	CB-CG-OD2	-5.37	113.47	118.30
1	E	190	GLN	N-CA-CB	-5.36	100.95	110.60
1	D	34	GLU	CG-CD-OE2	-5.36	107.58	118.30
1	E	192	GLU	CA-CB-CG	5.35	125.18	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	M	323	ASP	CB-CG-OD1	5.35	123.12	118.30
2	O	499	GLU	CG-CD-OE2	-5.35	107.60	118.30
2	P	367	PHE	CA-C-O	-5.34	108.88	120.10
1	B	52	LEU	CB-CA-C	5.34	120.34	110.20
2	Q	521	TYR	CB-CG-CD2	-5.33	117.80	121.00
1	E	166	ARG	NE-CZ-NH1	5.33	122.97	120.30
2	P	307	ARG	NE-CZ-NH2	-5.33	117.64	120.30
1	F	36	TRP	CB-CA-C	5.32	121.05	110.40
1	B	145	PHE	CB-CG-CD1	-5.32	117.08	120.80
2	M	476	THR	CA-CB-CG2	5.32	119.85	112.40
1	F	69	GLU	CG-CD-OE2	5.30	128.90	118.30
1	D	84	ASN	CA-CB-CG	5.29	125.03	113.40
2	P	311	ARG	CG-CD-NE	-5.28	100.70	111.80
2	N	520	ALA	N-CA-CB	5.28	117.50	110.10
1	F	176	GLU	OE1-CD-OE2	-5.28	116.97	123.30
2	R	440	ARG	CD-NE-CZ	5.27	130.98	123.60
1	D	198	PHE	CB-CG-CD1	-5.27	117.11	120.80
1	F	103	GLU	CG-CD-OE2	5.27	128.84	118.30
2	R	434	ASP	CA-CB-CG	-5.27	101.81	113.40
1	E	11	GLN	N-CA-CB	5.26	120.08	110.60
2	Q	432	ASP	CB-CG-OD2	-5.25	113.57	118.30
2	N	367	PHE	CA-C-O	-5.25	109.08	120.10
2	P	463	PHE	CB-CG-CD1	-5.25	117.13	120.80
2	O	434	ASP	CA-CB-CG	-5.24	101.87	113.40
1	F	4	LEU	N-CA-CB	-5.22	99.97	110.40
1	A	147	ASP	CB-CG-OD1	5.21	122.99	118.30
1	C	13	ALA	CB-CA-C	5.21	117.92	110.10
1	F	89	PHE	CB-CG-CD2	-5.21	117.16	120.80
1	B	192	GLU	CB-CA-C	-5.20	100.00	110.40
1	F	106	LEU	N-CA-CB	-5.20	100.00	110.40
2	R	411	LYS	CB-CA-C	-5.19	100.01	110.40
2	Q	367	PHE	CA-C-O	-5.18	109.21	120.10
1	B	16	TYR	CB-CG-CD1	-5.18	117.89	121.00
1	F	186	ASP	CB-CG-OD1	5.18	122.96	118.30
2	O	440	ARG	CB-CG-CD	-5.17	98.15	111.60
2	M	353	HIS	CA-CB-CG	-5.17	104.81	113.60
1	D	181	THR	O-C-N	5.17	130.97	122.70
1	F	52	LEU	CA-CB-CG	5.16	127.17	115.30
1	B	166	ARG	NE-CZ-NH1	5.16	122.88	120.30
2	Q	440	ARG	CB-CG-CD	-5.16	98.20	111.60
1	D	103	GLU	CG-CD-OE1	-5.15	108.00	118.30
1	D	184	ARG	CD-NE-CZ	-5.14	116.40	123.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	R	359	HIS	CA-CB-CG	-5.14	104.86	113.60
1	E	8	THR	CA-CB-CG2	5.14	119.59	112.40
2	M	376	GLU	CG-CD-OE2	-5.12	108.05	118.30
2	N	342	SER	N-CA-CB	5.12	118.18	110.50
1	F	185	PHE	CB-CG-CD1	-5.11	117.22	120.80
1	A	71	TRP	CA-CB-CG	5.11	123.40	113.70
1	A	178	ASP	CA-CB-CG	-5.11	102.17	113.40
1	C	94	ARG	CB-CG-CD	5.10	124.87	111.60
1	F	91	SER	N-CA-CB	-5.10	102.84	110.50
2	O	428	ARG	NE-CZ-NH1	5.10	122.85	120.30
2	Q	452	GLY	N-CA-C	-5.10	100.35	113.10
2	N	409	ARG	NE-CZ-NH1	-5.09	117.75	120.30
1	C	150	GLN	N-CA-CB	5.09	119.77	110.60
1	F	144	TYR	CB-CG-CD1	-5.09	117.94	121.00
1	E	67	PHE	CB-CG-CD1	-5.09	117.24	120.80
1	E	174	ARG	NH1-CZ-NH2	5.09	125.00	119.40
2	M	386	ASP	CB-CG-OD1	5.09	122.88	118.30
1	A	24	GLU	CG-CD-OE1	-5.09	108.13	118.30
2	M	413	ASP	CB-CA-C	5.09	120.57	110.40
2	N	409	ARG	NE-CZ-NH2	5.09	122.84	120.30
2	R	324	TYR	CG-CD1-CE1	-5.09	117.23	121.30
1	A	64	ARG	NH1-CZ-NH2	5.08	124.99	119.40
2	R	413	ASP	CB-CG-OD1	5.08	122.87	118.30
1	C	47	GLU	CG-CD-OE1	-5.08	108.14	118.30
1	C	97	THR	N-CA-CB	5.08	119.95	110.30
2	O	500	ALA	CB-CA-C	5.08	117.72	110.10
2	N	302	ALA	CB-CA-C	5.08	117.71	110.10
1	C	94	ARG	NH1-CZ-NH2	-5.07	113.82	119.40
2	N	451	ASN	CB-CG-OD1	-5.07	111.47	121.60
1	C	40	ALA	O-C-N	5.07	130.81	122.70
1	E	168	GLU	OE1-CD-OE2	5.05	129.36	123.30
2	P	306	SER	N-CA-CB	-5.05	102.93	110.50
1	F	106	LEU	CA-CB-CG	5.05	126.92	115.30
2	N	360	ASP	CB-CG-OD2	-5.05	113.76	118.30
2	N	362	ASP	CB-CG-OD2	5.05	122.84	118.30
2	N	414	ARG	NE-CZ-NH1	5.04	122.82	120.30
2	R	536	GLU	CG-CD-OE1	5.04	128.39	118.30
1	B	140	HIS	CB-CA-C	-5.04	100.32	110.40
2	M	416	LEU	CB-CA-C	5.03	119.76	110.20
2	P	411	LYS	CB-CA-C	-5.03	100.34	110.40
2	M	517	ASP	N-CA-CB	-5.02	101.56	110.60
2	P	416	LEU	CA-CB-CG	5.02	126.85	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	R	474	LEU	N-CA-CB	-5.02	100.36	110.40
2	M	480	PHE	CB-CG-CD1	-5.01	117.29	120.80
2	M	312	ASP	CB-CG-OD1	5.01	122.81	118.30
1	E	144	TYR	CA-CB-CG	5.01	122.92	113.40
2	M	474	LEU	N-CA-CB	-5.01	100.38	110.40
2	O	353	HIS	CA-CB-CG	-5.01	105.09	113.60
2	P	360	ASP	CB-CG-OD1	5.00	122.80	118.30
1	F	198	PHE	CG-CD1-CE1	5.00	126.30	120.80

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1571	0	1499	58	0
1	B	1571	0	1499	68	0
1	C	1571	0	1499	71	0
1	D	1571	0	1499	45	0
1	E	1571	0	1499	64	0
1	F	1571	0	1499	94	0
2	M	1840	0	1793	81	0
2	N	1840	0	1793	60	0
2	O	1840	0	1793	61	0
2	P	1840	0	1793	84	0
2	Q	1840	0	1793	75	0
2	R	1840	0	1793	103	0
3	M	1	0	0	0	0
3	N	1	0	0	0	0
3	O	1	0	0	0	0
3	P	1	0	0	0	0
3	Q	1	0	0	0	0
3	R	1	0	0	0	0
4	A	83	0	0	2	0
4	B	79	0	0	3	0
4	C	80	0	0	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	77	0	0	1	0
4	E	77	0	0	1	0
4	F	83	0	0	4	0
4	M	154	0	0	5	0
4	N	163	0	0	6	0
4	O	158	0	0	7	0
4	P	159	0	0	4	0
4	Q	163	0	0	8	0
4	R	158	0	0	8	0
All	All	21906	0	19752	792	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 20.

All (792) 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:E:165:GLN:H	1:E:165:GLN:NE2	1.32	1.26
1:E:165:GLN:HE21	1:E:165:GLN:N	1.38	1.20
1:C:163:GLN:HB3	1:C:165:GLN:NE2	1.64	1.12
1:F:176:GLU:HG2	1:F:179:GLY:HA2	1.34	1.07
2:P:364:LEU:HD22	2:P:440:ARG:HD3	1.34	1.06
1:B:165:GLN:H	1:B:165:GLN:NE2	1.59	1.00
1:B:176:GLU:HG3	1:B:180:LYS:O	1.62	0.99
1:E:67:PHE:HZ	1:E:94:ARG:HD2	1.30	0.96
1:C:163:GLN:HB3	1:C:165:GLN:HE21	1.32	0.93
1:F:176:GLU:CG	1:F:179:GLY:HA2	1.99	0.93
1:E:176:GLU:OE2	1:E:179:GLY:HA2	1.69	0.93
2:O:522:ARG:NH1	4:O:673:HOH:O	2.01	0.92
2:R:411:LYS:O	2:R:414:ARG:NH1	2.02	0.92
1:A:67:PHE:HZ	1:A:94:ARG:HD2	1.35	0.91
1:E:67:PHE:CZ	1:E:94:ARG:HD2	2.07	0.89
1:A:163:GLN:HB3	1:A:165:GLN:NE2	1.88	0.89
2:Q:411:LYS:HE2	2:Q:411:LYS:H	1.38	0.86
1:D:67:PHE:HZ	1:D:94:ARG:HD2	1.41	0.86
1:D:67:PHE:CZ	1:D:94:ARG:HD2	2.11	0.86
2:R:497:ASN:ND2	2:R:499:GLU:H	1.75	0.85
1:B:176:GLU:HG3	1:B:180:LYS:C	1.97	0.84
2:P:411:LYS:CE	2:P:411:LYS:H	1.91	0.83
1:B:67:PHE:HZ	1:B:94:ARG:HD2	1.43	0.83
1:C:44:ALA:O	1:C:48:HIS:NE2	2.12	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:411:LYS:H	2:Q:411:LYS:CE	1.92	0.82
1:D:180:LYS:HG3	1:D:181:THR:N	1.93	0.82
2:N:307:ARG:HG2	2:N:533:THR:HG22	1.61	0.82
1:A:67:PHE:CZ	1:A:94:ARG:HD2	2.15	0.81
2:O:497:ASN:HD22	2:O:499:GLU:H	1.28	0.81
2:N:497:ASN:ND2	2:N:499:GLU:HB2	1.96	0.81
2:N:361:HIS:CD2	2:N:361:HIS:H	1.97	0.81
1:E:31:ARG:NH1	2:Q:428:ARG:HG2	1.96	0.80
2:M:497:ASN:ND2	2:M:499:GLU:H	1.79	0.80
1:F:163:GLN:HB3	1:F:165:GLN:NE2	1.96	0.80
1:F:177:VAL:O	1:F:180:LYS:HB3	1.82	0.79
1:B:67:PHE:CZ	1:B:94:ARG:HD2	2.17	0.79
1:C:70:VAL:HG11	1:C:106:LEU:HD21	1.63	0.78
2:P:411:LYS:O	2:P:414:ARG:NH1	2.17	0.78
1:F:168:GLU:HA	1:F:171:ILE:HD12	1.66	0.78
2:R:361:HIS:H	2:R:361:HIS:CD2	1.99	0.77
1:A:176:GLU:HG3	1:A:180:LYS:O	1.84	0.77
2:N:522:ARG:NH1	4:N:673:HOH:O	2.17	0.77
1:F:165:GLN:NE2	1:F:165:GLN:H	1.83	0.77
2:Q:411:LYS:HE2	2:Q:411:LYS:N	1.99	0.77
2:P:497:ASN:HD22	2:P:499:GLU:H	1.29	0.77
1:C:26:ALA:O	2:O:411:LYS:NZ	2.16	0.76
2:M:522:ARG:NH1	4:M:661:HOH:O	2.17	0.76
2:O:497:ASN:ND2	2:O:499:GLU:H	1.84	0.75
2:M:361:HIS:H	2:M:361:HIS:CD2	2.05	0.74
1:B:65:ASP:OD2	1:B:133:ARG:HD3	1.87	0.74
1:E:110:LYS:NZ	1:E:147:ASP:OD1	2.21	0.74
1:A:65:ASP:OD2	1:A:133:ARG:HD3	1.88	0.74
2:R:411:LYS:H	2:R:411:LYS:CE	2.01	0.73
1:F:23:LEU:O	1:F:26:ALA:HB3	1.87	0.73
2:R:497:ASN:C	2:R:497:ASN:HD22	1.91	0.73
2:N:411:LYS:CE	2:N:411:LYS:H	2.02	0.73
1:B:39:LEU:HD13	1:B:106:LEU:HD21	1.70	0.73
2:P:497:ASN:ND2	2:P:499:GLU:H	1.85	0.73
2:M:411:LYS:O	2:M:414:ARG:NH1	2.22	0.72
1:B:165:GLN:H	1:B:165:GLN:HE21	1.38	0.72
2:N:361:HIS:H	2:N:361:HIS:HD2	1.35	0.72
2:N:411:LYS:H	2:N:411:LYS:HE2	1.55	0.72
2:N:497:ASN:HD22	2:N:499:GLU:H	1.37	0.71
2:P:411:LYS:H	2:P:411:LYS:HE2	1.53	0.71
2:Q:413:ASP:C	2:Q:414:ARG:HD2	2.11	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:78:GLU:CD	2:M:301:PRO:HG3	2.10	0.71
2:Q:522:ARG:NH1	4:Q:1072:HOH:O	2.24	0.71
1:C:35:ILE:HG22	1:C:94:ARG:HD3	1.73	0.71
1:D:1:PRO:HG2	2:R:488:MET:HE1	1.73	0.70
1:F:133:ARG:HG3	2:R:326:THR:HG21	1.71	0.70
1:F:50:LEU:HD12	1:F:51:LEU:N	2.06	0.70
1:B:176:GLU:HA	1:B:180:LYS:O	1.92	0.70
2:P:364:LEU:CD2	2:P:440:ARG:HD3	2.19	0.70
1:B:163:GLN:HB3	1:B:165:GLN:NE2	2.07	0.70
2:Q:497:ASN:HD22	2:Q:499:GLU:H	1.38	0.70
1:C:143:LEU:HD23	1:C:143:LEU:C	2.11	0.69
2:R:315:TRP:HZ2	2:R:503:GLN:HE21	1.39	0.69
2:M:497:ASN:HD22	2:M:499:GLU:H	1.40	0.69
1:C:165:GLN:NE2	1:C:165:GLN:H	1.91	0.69
2:R:497:ASN:HD22	2:R:499:GLU:H	1.40	0.69
2:P:376:GLU:O	2:P:442:ILE:HA	1.92	0.69
2:O:411:LYS:H	2:O:411:LYS:CE	2.06	0.68
2:O:413:ASP:C	2:O:414:ARG:HD2	2.12	0.68
2:Q:376:GLU:OE1	4:Q:1021:HOH:O	2.09	0.68
2:R:361:HIS:H	2:R:361:HIS:HD2	1.41	0.68
2:R:522:ARG:NH1	4:R:1311:HOH:O	2.25	0.68
2:N:356:PHE:CD2	2:N:428:ARG:HD3	2.28	0.68
2:P:325:LYS:HD3	2:Q:335:ALA:HB1	1.75	0.68
1:E:133:ARG:HG3	2:Q:326:THR:HG21	1.76	0.68
2:P:414:ARG:NE	2:P:414:ARG:HA	2.08	0.68
1:C:54:GLN:HG3	1:C:184:ARG:NH2	2.09	0.68
2:Q:306:SER:OG	2:Q:530:GLN:NE2	2.22	0.67
1:F:53:GLY:HA3	1:F:185:PHE:O	1.94	0.67
2:R:497:ASN:HD22	2:R:498:PRO:N	1.92	0.67
1:E:44:ALA:O	1:E:48:HIS:NE2	2.21	0.67
2:M:411:LYS:H	2:M:411:LYS:HD3	1.59	0.67
1:C:4:LEU:HB3	2:O:387:GLN:HB3	1.76	0.67
1:B:176:GLU:HG2	1:B:179:GLY:HA2	1.76	0.67
2:M:411:LYS:H	2:M:411:LYS:CD	2.08	0.66
2:Q:497:ASN:ND2	2:Q:499:GLU:H	1.91	0.66
2:M:434:ASP:HB3	2:M:436:TYR:CD2	2.29	0.66
2:M:413:ASP:O	2:M:414:ARG:NH1	2.28	0.66
2:R:315:TRP:HZ2	2:R:503:GLN:NE2	1.93	0.66
1:C:41:LYS:HD2	1:C:88:ALA:HA	1.76	0.66
1:C:103:GLU:OE2	1:C:184:ARG:NH1	2.25	0.66
2:R:390:LYS:HE2	4:R:1433:HOH:O	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:64:ARG:O	1:C:98:THR:HA	1.95	0.66
2:M:390:LYS:HD2	4:M:637:HOH:O	1.96	0.66
1:B:39:LEU:HD13	1:B:106:LEU:CD2	2.26	0.66
2:Q:361:HIS:CD2	2:Q:361:HIS:H	2.13	0.66
2:M:360:ASP:OD2	2:M:428:ARG:HD2	1.97	0.65
1:C:41:LYS:O	1:C:43:ASP:N	2.29	0.65
2:R:410:HIS:ND1	2:R:411:LYS:HE2	2.10	0.65
2:Q:454:ASN:HB2	2:R:310:ILE:HG13	1.78	0.65
2:Q:497:ASN:ND2	2:Q:499:GLU:HB2	2.11	0.65
2:M:376:GLU:OE1	4:M:632:HOH:O	2.13	0.65
2:Q:359:HIS:O	2:Q:366:ASN:HB3	1.96	0.65
2:M:376:GLU:O	2:M:442:ILE:HA	1.97	0.65
1:D:176:GLU:HA	1:D:180:LYS:O	1.97	0.65
1:C:35:ILE:CG2	1:C:94:ARG:HD3	2.26	0.65
1:F:67:PHE:HZ	1:F:94:ARG:HD2	1.62	0.65
1:C:33:GLN:HG2	1:C:85:LEU:HD12	1.79	0.64
1:E:188:ARG:HG3	1:E:188:ARG:HH11	1.61	0.64
2:R:392:VAL:HG12	2:R:395:THR:HB	1.79	0.64
2:P:361:HIS:H	2:P:361:HIS:CD2	2.14	0.64
2:O:361:HIS:H	2:O:361:HIS:CD2	2.15	0.64
1:F:26:ALA:O	2:R:411:LYS:NZ	2.27	0.64
1:F:131:PHE:CD2	2:R:475:ILE:HD12	2.32	0.64
1:F:176:GLU:HG3	1:F:180:LYS:H	1.62	0.64
1:F:190:GLN:HG3	2:R:333:ARG:HG2	1.80	0.64
1:A:163:GLN:HB3	1:A:165:GLN:HE22	1.62	0.63
2:R:411:LYS:H	2:R:411:LYS:HE2	1.63	0.63
1:C:52:LEU:HD23	1:C:103:GLU:CD	2.19	0.63
2:Q:536:GLU:HB2	4:Q:1116:HOH:O	1.97	0.63
1:A:84:ASN:OD1	1:A:86:GLU:HB2	1.99	0.63
1:B:26:ALA:O	2:N:411:LYS:NZ	2.22	0.63
1:E:26:ALA:O	2:Q:411:LYS:NZ	2.24	0.63
2:M:356:PHE:HD1	2:M:428:ARG:HD3	1.63	0.63
2:M:363:LEU:HD11	2:M:427:GLY:HA3	1.81	0.63
1:D:165:GLN:H	1:D:165:GLN:HE21	1.44	0.63
1:E:24:GLU:O	1:E:27:GLY:N	2.28	0.62
2:Q:411:LYS:O	2:Q:414:ARG:NH1	2.31	0.62
2:R:399:MET:HA	2:R:462:HIS:O	1.98	0.62
2:M:364:LEU:HD22	2:M:440:ARG:HD3	1.82	0.62
1:C:163:GLN:HB3	1:C:165:GLN:HE22	1.57	0.62
1:D:26:ALA:O	2:P:411:LYS:NZ	2.30	0.62
2:O:326:THR:HG22	2:O:326:THR:O	1.99	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:362:ASP:OD1	2:O:440:ARG:HD3	2.00	0.62
1:E:47:GLU:O	1:E:49:ILE:HG23	2.00	0.62
2:R:410:HIS:CE1	2:R:411:LYS:HE2	2.34	0.62
2:O:376:GLU:O	2:O:442:ILE:HA	1.98	0.62
1:F:176:GLU:HG3	1:F:180:LYS:N	2.15	0.62
1:F:147:ASP:OD2	1:F:174:ARG:CD	2.47	0.62
1:F:67:PHE:CZ	1:F:94:ARG:HD2	2.35	0.61
1:B:19:ILE:O	2:N:426:VAL:HG21	2.00	0.61
1:E:176:GLU:HA	1:E:180:LYS:O	1.99	0.61
1:B:176:GLU:HG3	1:B:180:LYS:N	2.15	0.61
2:Q:386:ASP:HA	2:Q:527:LEU:O	2.00	0.61
2:R:318:LYS:HE2	4:R:1430:HOH:O	2.00	0.61
1:D:35:ILE:HG22	1:D:94:ARG:HG3	1.82	0.61
1:D:165:GLN:H	1:D:165:GLN:NE2	1.99	0.60
2:O:414:ARG:HD2	2:O:414:ARG:N	2.16	0.60
2:P:414:ARG:HA	2:P:414:ARG:HE	1.66	0.60
2:M:414:ARG:HD2	2:M:414:ARG:N	2.16	0.60
2:M:361:HIS:H	2:M:361:HIS:HD2	1.43	0.60
1:F:174:ARG:HD2	1:F:183:TYR:CE2	2.36	0.60
1:A:36:TRP:HA	1:A:36:TRP:CE3	2.35	0.60
2:M:307:ARG:HG2	2:M:533:THR:HG22	1.82	0.60
1:B:23:LEU:N	1:B:23:LEU:HD12	2.17	0.60
1:F:74:ASP:HB2	4:F:1285:HOH:O	2.02	0.60
1:A:163:GLN:HB2	4:A:278:HOH:O	2.02	0.60
2:N:359:HIS:O	2:N:366:ASN:HB3	2.01	0.60
1:E:149:ALA:O	4:E:254:HOH:O	2.17	0.60
1:A:176:GLU:HA	1:A:180:LYS:O	2.02	0.59
1:B:176:GLU:CG	1:B:180:LYS:N	2.65	0.59
1:E:164:PRO:N	1:E:165:GLN:NE2	2.50	0.59
2:Q:390:LYS:HE2	4:Q:1154:HOH:O	2.02	0.59
1:A:155:CYS:O	1:A:159:ASN:ND2	2.32	0.59
1:C:31:ARG:NH1	2:O:428:ARG:HG2	2.18	0.59
2:M:304:ASP:HB2	2:M:343:ILE:HG13	1.84	0.59
2:M:497:ASN:HD22	2:M:498:PRO:N	2.00	0.59
1:B:3:GLU:HA	1:B:3:GLU:OE1	2.01	0.59
2:R:408:TYR:HE2	2:R:447:TYR:CZ	2.20	0.59
1:D:177:VAL:O	1:D:180:LYS:N	2.34	0.59
2:O:315:TRP:HZ2	2:O:503:GLN:NE2	2.00	0.59
2:O:411:LYS:H	2:O:411:LYS:HE2	1.66	0.59
1:E:131:PHE:CE2	1:E:138:HIS:HB3	2.38	0.59
2:P:315:TRP:HZ2	2:P:503:GLN:NE2	2.01	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:80:GLN:O	1:F:91:SER:HB2	2.02	0.59
1:F:163:GLN:HB3	1:F:165:GLN:HE21	1.66	0.59
1:A:163:GLN:HG3	1:C:61:HIS:ND1	2.18	0.58
2:N:411:LYS:HE2	2:N:411:LYS:N	2.18	0.58
1:E:54:GLN:OE1	1:E:184:ARG:NH2	2.36	0.58
1:D:33:GLN:HG2	1:D:85:LEU:HD12	1.85	0.58
1:B:165:GLN:NE2	1:B:165:GLN:N	2.43	0.58
2:N:497:ASN:ND2	2:N:499:GLU:H	2.00	0.58
1:E:143:LEU:HD12	1:E:185:PHE:CB	2.33	0.58
2:Q:497:ASN:HD22	2:Q:497:ASN:C	2.06	0.58
2:R:405:GLY:HA3	4:R:1277:HOH:O	2.04	0.58
2:P:522:ARG:NH1	4:P:674:HOH:O	2.30	0.58
1:E:31:ARG:HH12	2:Q:428:ARG:HG2	1.69	0.58
1:F:157:VAL:O	1:F:160:LEU:HB2	2.03	0.58
1:C:64:ARG:HH11	1:C:64:ARG:HG2	1.67	0.58
1:B:131:PHE:CE2	1:B:138:HIS:HB3	2.37	0.58
1:E:143:LEU:HD12	1:E:185:PHE:CG	2.39	0.57
1:E:165:GLN:NE2	1:E:165:GLN:N	2.17	0.57
1:A:50:LEU:O	1:A:182:ALA:HA	2.04	0.57
2:O:315:TRP:HZ2	2:O:503:GLN:HE21	1.51	0.57
1:B:74:ASP:OD2	1:B:80:GLN:NE2	2.37	0.57
2:P:411:LYS:HE2	2:P:411:LYS:N	2.19	0.57
1:F:4:LEU:HB3	2:R:387:GLN:HB3	1.86	0.57
2:P:364:LEU:HD22	2:P:440:ARG:CD	2.23	0.57
2:M:360:ASP:HB3	2:M:428:ARG:HG3	1.86	0.57
2:N:497:ASN:HD21	2:N:499:GLU:HB2	1.70	0.57
1:F:143:LEU:C	1:F:143:LEU:HD23	2.25	0.57
1:B:51:LEU:HD11	1:B:126:ILE:HD12	1.86	0.56
2:N:356:PHE:HD2	2:N:428:ARG:HD3	1.70	0.56
2:Q:363:LEU:HD23	2:Q:425:GLY:HA2	1.87	0.56
1:F:24:GLU:O	1:F:27:GLY:N	2.36	0.56
2:N:478:LEU:C	2:N:478:LEU:HD23	2.25	0.56
1:C:35:ILE:HG21	1:C:92:PHE:HE2	1.70	0.56
1:B:176:GLU:OE2	1:B:179:GLY:C	2.43	0.56
1:E:131:PHE:CD2	1:E:138:HIS:HB3	2.40	0.56
2:Q:307:ARG:HG2	2:Q:533:THR:HG22	1.88	0.56
2:Q:361:HIS:H	2:Q:361:HIS:HD2	1.54	0.56
2:R:307:ARG:HG2	2:R:533:THR:HG22	1.87	0.56
1:B:165:GLN:H	1:B:165:GLN:CD	2.06	0.56
2:N:386:ASP:HA	2:N:527:LEU:O	2.06	0.56
1:C:41:LYS:O	1:C:44:ALA:N	2.37	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:P:411:LYS:H	2:P:411:LYS:NZ	2.03	0.56
1:F:176:GLU:HA	1:F:180:LYS:O	2.06	0.56
2:R:411:LYS:H	2:R:411:LYS:CD	2.18	0.56
1:C:64:ARG:HG2	1:C:64:ARG:NH1	2.21	0.56
1:A:176:GLU:OE2	1:A:179:GLY:HA2	2.06	0.56
2:N:414:ARG:NE	2:N:414:ARG:HA	2.21	0.56
1:A:188:ARG:HG3	1:A:188:ARG:HH11	1.71	0.55
1:A:64:ARG:O	1:A:98:THR:HA	2.07	0.55
1:B:94:ARG:NH2	2:N:398:GLU:OE2	2.38	0.55
1:C:146:ASP:HB3	1:C:171:ILE:HG22	1.88	0.55
2:N:360:ASP:OD2	2:N:428:ARG:HD2	2.06	0.55
1:E:94:ARG:NH2	2:Q:398:GLU:OE2	2.36	0.55
2:M:315:TRP:HZ2	2:M:503:GLN:NE2	2.05	0.55
1:C:163:GLN:CB	1:C:165:GLN:NE2	2.54	0.55
2:Q:429:CYS:SG	4:Q:1122:HOH:O	2.06	0.55
1:C:108:THR:OG1	1:C:109:VAL:N	2.39	0.55
1:A:41:LYS:HD2	1:A:88:ALA:HA	1.89	0.55
2:M:335:ALA:HB2	2:O:328:ILE:HD12	1.88	0.55
2:R:359:HIS:O	2:R:366:ASN:HB3	2.07	0.55
1:B:131:PHE:CD2	1:B:138:HIS:HB3	2.42	0.55
2:R:414:ARG:HD2	2:R:414:ARG:N	2.21	0.55
2:P:363:LEU:HD11	2:P:427:GLY:HA3	1.89	0.54
1:B:176:GLU:HG2	1:B:179:GLY:CA	2.36	0.54
1:C:114:VAL:HG23	1:C:122:MET:HE3	1.89	0.54
1:C:190:GLN:HG3	2:O:333:ARG:HG2	1.89	0.54
2:O:400:TRP:HA	2:O:425:GLY:O	2.07	0.54
1:E:188:ARG:HG3	1:E:188:ARG:NH1	2.23	0.54
2:R:400:TRP:HA	2:R:425:GLY:O	2.07	0.54
1:D:51:LEU:O	1:D:105:THR:HA	2.06	0.54
2:P:361:HIS:H	2:P:361:HIS:HD2	1.54	0.54
2:Q:411:LYS:H	2:Q:411:LYS:CD	2.20	0.54
2:N:450:ARG:HG3	4:N:639:HOH:O	2.08	0.54
2:O:381:ALA:O	2:O:522:ARG:HA	2.08	0.54
1:E:177:VAL:O	1:E:180:LYS:HB3	2.07	0.54
2:Q:315:TRP:HZ2	2:Q:503:GLN:HE21	1.55	0.54
2:R:364:LEU:HB2	2:R:440:ARG:HD3	1.90	0.54
2:P:360:ASP:OD2	2:P:428:ARG:HD2	2.08	0.54
2:P:443:LYS:HE2	2:P:480:PHE:CG	2.43	0.54
2:P:484:PRO:O	2:P:487:PRO:HD2	2.08	0.54
1:A:165:GLN:CD	1:A:165:GLN:H	2.11	0.54
2:N:363:LEU:HD23	2:N:425:GLY:HA2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:50:LEU:HD12	1:F:51:LEU:H	1.73	0.54
1:E:51:LEU:HD11	1:E:126:ILE:CD1	2.38	0.54
1:C:114:VAL:HG22	4:C:234:HOH:O	2.07	0.54
1:D:168:GLU:HA	1:D:171:ILE:HD12	1.89	0.54
1:C:41:LYS:O	1:C:42:PRO:C	2.47	0.53
1:F:47:GLU:O	1:F:49:ILE:HG23	2.08	0.53
2:R:486:ILE:N	2:R:487:PRO:CD	2.71	0.53
2:Q:497:ASN:HD21	2:Q:499:GLU:HB2	1.73	0.53
1:F:35:ILE:HG22	1:F:94:ARG:HG3	1.90	0.53
1:C:65:ASP:OD2	1:C:133:ARG:HD3	2.09	0.53
1:E:131:PHE:O	1:E:132:ALA:HB2	2.07	0.53
1:F:33:GLN:NE2	2:R:355:GLY:HA3	2.23	0.53
1:F:84:ASN:O	1:F:90:ASN:ND2	2.31	0.53
2:O:486:ILE:N	2:O:487:PRO:CD	2.72	0.53
1:F:51:LEU:HD11	1:F:126:ILE:CD1	2.39	0.53
2:O:390:LYS:HE2	4:O:730:HOH:O	2.07	0.53
1:E:92:PHE:CD1	2:Q:349:PRO:HG3	2.44	0.53
2:M:434:ASP:HB3	2:M:436:TYR:CE2	2.44	0.53
2:M:448:PRO:HD3	2:M:456:TRP:CZ3	2.44	0.53
2:R:497:ASN:ND2	2:R:497:ASN:C	2.61	0.53
2:O:497:ASN:HD22	2:O:497:ASN:C	2.12	0.52
1:F:52:LEU:CD2	1:F:184:ARG:NH1	2.72	0.52
2:R:376:GLU:O	2:R:442:ILE:HA	2.10	0.52
2:N:326:THR:HG22	2:N:330:ARG:HD2	1.90	0.52
2:Q:414:ARG:HD2	2:Q:414:ARG:N	2.24	0.52
1:B:39:LEU:CD1	1:B:106:LEU:HD21	2.38	0.52
2:N:315:TRP:HZ2	2:N:503:GLN:HE21	1.58	0.52
1:B:40:ALA:HB2	1:B:89:PHE:HD1	1.75	0.52
1:B:170:LEU:HD21	1:B:196:VAL:HB	1.92	0.52
2:N:399:MET:HA	2:N:462:HIS:O	2.09	0.52
1:E:51:LEU:HD12	1:E:106:LEU:HD23	1.91	0.52
1:F:15:PRO:HB3	1:F:133:ARG:HD2	1.90	0.52
1:F:52:LEU:HD21	1:F:184:ARG:NH1	2.24	0.52
1:F:163:GLN:HB3	1:F:165:GLN:HE22	1.75	0.52
1:F:176:GLU:CG	1:F:179:GLY:CA	2.81	0.52
2:R:361:HIS:CD2	2:R:361:HIS:N	2.68	0.52
1:B:4:LEU:HB3	2:N:387:GLN:HB3	1.92	0.52
2:N:361:HIS:CD2	2:N:361:HIS:N	2.65	0.52
1:C:177:VAL:O	1:C:180:LYS:HB3	2.09	0.52
1:D:19:ILE:O	2:P:426:VAL:HG21	2.10	0.52
2:Q:478:LEU:C	2:Q:478:LEU:HD23	2.30	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:497:ASN:HD22	2:Q:498:PRO:N	2.07	0.52
2:M:411:LYS:H	2:M:411:LYS:CE	2.23	0.52
1:B:51:LEU:HD11	1:B:126:ILE:CD1	2.40	0.52
2:O:390:LYS:CD	4:O:730:HOH:O	2.57	0.52
1:D:70:VAL:HG11	1:D:106:LEU:HD21	1.90	0.52
1:F:70:VAL:HA	1:F:127:ASN:O	2.10	0.52
1:F:147:ASP:OD2	1:F:174:ARG:HD2	2.10	0.52
2:M:356:PHE:CD1	2:M:428:ARG:HD3	2.45	0.51
1:F:165:GLN:H	1:F:165:GLN:CD	2.13	0.51
1:E:20:GLY:O	1:E:21:LEU:HD23	2.10	0.51
2:P:399:MET:HA	2:P:462:HIS:O	2.10	0.51
1:E:116:ASN:C	1:E:116:ASN:OD1	2.49	0.51
2:Q:453:PRO:HB2	2:R:310:ILE:HD12	1.91	0.51
1:F:94:ARG:NH2	2:R:398:GLU:OE2	2.41	0.51
1:B:165:GLN:HE21	1:B:165:GLN:N	2.04	0.51
2:Q:431:THR:HG22	2:Q:437:TYR:HB3	1.93	0.51
1:D:26:ALA:O	2:P:411:LYS:CE	2.58	0.51
2:R:497:ASN:HD21	2:R:499:GLU:HB2	1.76	0.51
2:R:360:ASP:HB3	2:R:428:ARG:HG3	1.92	0.51
1:B:92:PHE:CD1	2:N:349:PRO:HG3	2.46	0.51
2:Q:382:GLY:HA3	2:Q:523:PHE:O	2.11	0.51
1:F:198:PHE:HA	2:R:337:VAL:O	2.10	0.51
2:R:495:ILE:CG2	2:R:500:ALA:HB3	2.41	0.51
2:N:307:ARG:CG	2:N:533:THR:HG22	2.38	0.51
2:P:451:ASN:HB3	2:P:455:ASP:OD2	2.11	0.51
1:A:51:LEU:O	1:A:105:THR:HA	2.11	0.50
1:B:74:ASP:HB2	4:B:329:HOH:O	2.11	0.50
2:P:497:ASN:HD22	2:P:499:GLU:N	2.04	0.50
2:Q:437:TYR:CD1	2:Q:437:TYR:C	2.84	0.50
2:R:306:SER:CB	2:R:530:GLN:HE21	2.22	0.50
2:R:413:ASP:C	2:R:414:ARG:HD2	2.31	0.50
2:R:460:HIS:HB3	2:R:479:TYR:CD1	2.46	0.50
2:R:472:THR:HG22	2:R:528:ARG:HB2	1.93	0.50
2:P:313:ARG:O	2:P:318:LYS:HE3	2.10	0.50
2:O:359:HIS:O	2:O:366:ASN:HB3	2.12	0.50
2:P:310:ILE:HD12	2:R:453:PRO:HB2	1.93	0.50
1:F:178:ASP:O	1:F:179:GLY:C	2.49	0.50
2:O:315:TRP:CZ2	2:O:503:GLN:NE2	2.80	0.50
2:P:434:ASP:HB3	2:P:436:TYR:CD2	2.46	0.50
2:R:315:TRP:CZ2	2:R:503:GLN:NE2	2.77	0.50
2:O:390:LYS:CE	4:O:730:HOH:O	2.60	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:176:GLU:HG2	1:F:179:GLY:CA	2.25	0.50
2:R:408:TYR:HE2	2:R:447:TYR:CE2	2.29	0.50
2:N:376:GLU:O	2:N:442:ILE:HA	2.12	0.50
2:P:497:ASN:HD22	2:P:498:PRO:N	2.10	0.50
1:A:188:ARG:HG3	1:A:188:ARG:NH1	2.26	0.50
1:A:19:ILE:HG21	2:M:410:HIS:HB2	1.93	0.50
2:R:306:SER:OG	2:R:530:GLN:NE2	2.37	0.50
2:N:360:ASP:O	2:N:427:GLY:HA2	2.12	0.49
1:F:18:HIS:CE1	1:F:98:THR:HG22	2.47	0.49
2:R:483:ASP:HB2	4:R:1379:HOH:O	2.11	0.49
1:A:52:LEU:O	1:A:184:ARG:HA	2.13	0.49
2:M:446:PRO:HD2	2:P:376:GLU:HG2	1.93	0.49
2:P:356:PHE:HD1	2:P:428:ARG:HD3	1.77	0.49
1:E:165:GLN:H	1:E:165:GLN:HE21	0.59	0.49
1:A:131:PHE:CD2	1:A:138:HIS:HB3	2.48	0.49
1:E:6:PRO:HG2	2:Q:503:GLN:NE2	2.27	0.49
2:Q:410:HIS:ND1	2:Q:411:LYS:HE2	2.28	0.49
1:A:143:LEU:C	1:A:143:LEU:HD23	2.32	0.49
1:C:89:PHE:CE1	1:C:109:VAL:HG22	2.47	0.49
1:D:153:ALA:C	1:D:154:LYS:HE3	2.32	0.49
2:R:390:LYS:HD3	4:R:1393:HOH:O	2.11	0.49
2:R:400:TRP:CD2	2:R:462:HIS:HB2	2.48	0.49
1:B:177:VAL:O	1:B:180:LYS:HB3	2.12	0.49
1:E:41:LYS:O	1:E:44:ALA:N	2.41	0.49
2:R:363:LEU:N	2:R:363:LEU:HD12	2.27	0.49
2:M:453:PRO:HB2	2:N:310:ILE:HD12	1.95	0.49
2:O:411:LYS:H	2:O:411:LYS:CD	2.25	0.49
2:R:478:LEU:C	2:R:478:LEU:HD23	2.33	0.49
2:Q:390:LYS:HD2	4:Q:1033:HOH:O	2.12	0.49
2:M:386:ASP:HA	2:M:527:LEU:O	2.13	0.49
2:M:515:PRO:HB3	2:P:453:PRO:O	2.13	0.49
2:R:383:ARG:HA	2:R:435:GLY:O	2.13	0.49
1:A:163:GLN:CB	1:A:165:GLN:HE22	2.26	0.49
1:F:19:ILE:O	2:R:426:VAL:HG21	2.12	0.49
1:B:23:LEU:N	1:B:23:LEU:CD1	2.75	0.49
1:C:47:GLU:O	1:C:49:ILE:HG23	2.13	0.49
2:R:473:LYS:HD2	2:R:474:LEU:N	2.28	0.49
1:C:39:LEU:N	1:C:39:LEU:HD12	2.28	0.48
1:C:114:VAL:HG23	1:C:122:MET:CE	2.43	0.48
1:A:35:ILE:HD13	2:M:351:PHE:CE1	2.47	0.48
1:B:23:LEU:CD1	1:B:23:LEU:H	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:R:354:LEU:HD21	2:R:428:ARG:NH2	2.29	0.48
2:N:328:ILE:HD12	2:O:335:ALA:HB2	1.96	0.48
2:P:359:HIS:O	2:P:366:ASN:HB3	2.14	0.48
2:O:495:ILE:CG2	2:O:500:ALA:HB3	2.44	0.48
2:M:364:LEU:HD22	2:M:440:ARG:CD	2.43	0.48
2:Q:385:VAL:O	2:Q:526:VAL:HA	2.13	0.48
2:R:497:ASN:ND2	2:R:499:GLU:HB2	2.28	0.48
1:B:63:VAL:HG12	1:B:66:SER:HB3	1.95	0.48
1:B:68:LEU:HD12	1:B:68:LEU:N	2.28	0.48
2:P:304:ASP:HA	4:P:740:HOH:O	2.12	0.48
2:M:373:PRO:HB3	2:M:423:PHE:HB2	1.95	0.48
2:M:410:HIS:ND1	2:M:411:LYS:HE2	2.28	0.48
2:M:497:ASN:HD22	2:M:497:ASN:C	2.17	0.48
2:O:451:ASN:HB3	2:O:455:ASP:OD2	2.14	0.48
2:O:497:ASN:HA	2:O:498:PRO:HD2	1.80	0.48
2:P:305:ASN:N	4:P:740:HOH:O	2.41	0.48
1:F:146:ASP:HB3	1:F:171:ILE:CG2	2.44	0.48
1:A:180:LYS:CG	1:A:181:THR:N	2.76	0.48
2:O:390:LYS:HD3	4:O:730:HOH:O	2.13	0.48
2:O:408:TYR:HE1	2:O:447:TYR:CE2	2.30	0.48
2:P:409:ARG:HA	2:P:419:LEU:HD21	1.95	0.48
2:O:364:LEU:HD11	2:O:442:ILE:HG23	1.96	0.48
2:O:489:CYS:HA	2:O:490:PRO:HD3	1.69	0.48
1:D:52:LEU:HD23	1:D:103:GLU:CD	2.35	0.48
1:D:123:ALA:HB3	1:D:144:TYR:CE2	2.49	0.48
1:D:177:VAL:O	1:D:180:LYS:HB3	2.14	0.48
2:P:497:ASN:ND2	2:P:499:GLU:OE1	2.40	0.48
2:R:363:LEU:HD23	2:R:425:GLY:HA2	1.96	0.48
2:R:397:VAL:O	2:R:428:ARG:HA	2.14	0.48
1:D:61:HIS:CD2	1:E:165:GLN:OE1	2.67	0.47
1:F:71:TRP:CZ3	1:F:91:SER:HB3	2.49	0.47
2:R:442:ILE:O	2:R:442:ILE:HG13	2.13	0.47
2:Q:493:LYS:C	2:Q:495:ILE:N	2.68	0.47
2:Q:497:ASN:HA	2:Q:498:PRO:HD2	1.69	0.47
1:F:41:LYS:HE3	1:F:85:LEU:O	2.14	0.47
2:N:478:LEU:HD23	2:N:478:LEU:O	2.14	0.47
1:C:131:PHE:CD2	1:C:138:HIS:HB3	2.49	0.47
2:P:383:ARG:NH2	2:P:391:PRO:HG3	2.28	0.47
2:Q:400:TRP:HA	2:Q:425:GLY:O	2.13	0.47
2:R:522:ARG:NH2	2:R:524:ASP:OD1	2.46	0.47
1:C:131:PHE:O	1:C:132:ALA:HB2	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:26:ALA:O	2:P:411:LYS:HE3	2.14	0.47
2:P:486:ILE:HB	2:P:487:PRO:HD3	1.94	0.47
2:Q:468:PRO:HD2	2:Q:472:THR:OG1	2.15	0.47
1:F:174:ARG:HE	1:F:181:THR:HG21	1.79	0.47
2:O:307:ARG:HG2	2:O:533:THR:HG22	1.96	0.47
2:O:410:HIS:ND1	2:O:411:LYS:N	2.61	0.47
1:D:52:LEU:HA	1:D:104:TRP:O	2.15	0.47
1:E:41:LYS:HD2	1:E:87:ASN:O	2.14	0.47
2:Q:460:HIS:HA	2:Q:478:LEU:O	2.14	0.47
2:M:413:ASP:C	2:M:414:ARG:HD2	2.35	0.47
1:C:35:ILE:HG22	1:C:94:ARG:CD	2.44	0.47
1:C:176:GLU:OE2	1:C:179:GLY:HA2	2.14	0.47
2:Q:362:ASP:OD1	2:Q:440:ARG:HD3	2.14	0.47
2:M:416:LEU:C	2:M:416:LEU:HD23	2.35	0.47
1:D:131:PHE:CD2	1:D:138:HIS:HB3	2.50	0.47
1:E:168:GLU:HA	1:E:171:ILE:HD12	1.96	0.47
1:F:36:TRP:CD1	1:F:37:ASN:OD1	2.67	0.47
1:F:123:ALA:O	1:F:124:PRO:C	2.51	0.47
1:C:198:PHE:HA	2:O:337:VAL:O	2.15	0.47
1:B:51:LEU:O	1:B:105:THR:HA	2.14	0.47
2:P:326:THR:HG22	2:P:330:ARG:HD2	1.96	0.47
1:B:84:ASN:OD1	1:B:86:GLU:HB2	2.15	0.47
1:B:140:HIS:O	1:B:197:PHE:HA	2.14	0.47
2:N:447:TYR:HB2	2:N:448:PRO:HD2	1.97	0.47
1:C:63:VAL:HG12	1:C:66:SER:HB3	1.96	0.47
1:C:92:PHE:CG	2:O:349:PRO:HG3	2.50	0.47
2:P:308:PHE:HA	2:P:529:GLY:O	2.15	0.47
2:P:434:ASP:HB3	2:P:436:TYR:CE2	2.50	0.47
2:Q:451:ASN:HB3	2:Q:455:ASP:OD2	2.15	0.47
2:Q:486:ILE:HB	2:Q:487:PRO:HD3	1.97	0.47
1:A:78:GLU:OE1	2:M:301:PRO:HG3	2.13	0.46
2:O:473:LYS:HD2	2:O:474:LEU:N	2.30	0.46
1:D:15:PRO:HB3	1:D:133:ARG:HD2	1.97	0.46
2:P:411:LYS:HE2	2:P:411:LYS:HB2	1.67	0.46
2:R:378:ILE:HA	2:R:519:LEU:O	2.15	0.46
2:R:489:CYS:HA	2:R:490:PRO:HD3	1.72	0.46
1:A:110:LYS:HG3	1:A:111:PRO:HD2	1.97	0.46
1:A:166:ARG:CZ	2:M:334:GLN:HG3	2.45	0.46
1:C:120:VAL:CG1	1:C:156:PRO:HG3	2.45	0.46
1:D:72:GLN:O	1:D:91:SER:OG	2.30	0.46
2:P:316:HIS:HB3	2:P:317:PRO:HD2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:131:PHE:CD2	1:F:138:HIS:HB3	2.51	0.46
1:C:41:LYS:C	1:C:43:ASP:N	2.69	0.46
2:O:403:ASN:HB2	4:O:613:HOH:O	2.15	0.46
2:P:497:ASN:HD22	2:P:497:ASN:C	2.18	0.46
2:R:381:ALA:O	2:R:522:ARG:HA	2.15	0.46
2:R:385:VAL:O	2:R:526:VAL:HA	2.15	0.46
2:M:302:ALA:HB1	2:M:347:THR:CG2	2.45	0.46
1:B:146:ASP:HB3	1:B:171:ILE:HG22	1.98	0.46
1:D:51:LEU:HD12	1:D:106:LEU:HD23	1.97	0.46
2:P:410:HIS:HA	2:P:411:LYS:NZ	2.31	0.46
1:F:66:SER:HA	1:F:132:ALA:HB2	1.97	0.46
1:B:78:GLU:HB3	2:N:301:PRO:HB3	1.97	0.46
1:D:51:LEU:HD11	1:D:126:ILE:CD1	2.46	0.46
2:Q:360:ASP:O	2:Q:427:GLY:HA2	2.14	0.46
1:F:176:GLU:OE2	1:F:179:GLY:HA2	2.15	0.46
1:A:35:ILE:HG22	1:A:94:ARG:HG3	1.97	0.46
1:C:50:LEU:O	1:C:182:ALA:HA	2.16	0.46
1:E:140:HIS:O	1:E:197:PHE:HA	2.16	0.46
2:Q:364:LEU:HD13	2:Q:441:THR:HA	1.98	0.46
2:R:350:ASN:OD1	2:R:352:SER:HB2	2.15	0.46
2:M:305:ASN:O	2:M:533:THR:HG23	2.16	0.45
1:E:176:GLU:OE2	1:E:179:GLY:CA	2.52	0.45
2:Q:409:ARG:HD2	2:Q:424:GLY:HA2	1.98	0.45
1:B:12:THR:HA	1:B:135:ILE:O	2.17	0.45
2:Q:399:MET:HA	2:Q:462:HIS:O	2.15	0.45
1:E:41:LYS:HB2	1:E:88:ALA:HA	1.98	0.45
1:E:176:GLU:HG2	1:E:179:GLY:CA	2.46	0.45
2:M:399:MET:HA	2:M:462:HIS:O	2.16	0.45
2:P:307:ARG:HG2	2:P:533:THR:HG22	1.99	0.45
2:P:318:LYS:HA	2:P:318:LYS:HD3	1.68	0.45
1:F:90:ASN:HB2	4:F:1427:HOH:O	2.16	0.45
1:A:131:PHE:CD2	2:M:475:ILE:HD12	2.52	0.45
2:O:443:LYS:HE3	2:O:480:PHE:CG	2.51	0.45
2:R:383:ARG:NE	2:R:434:ASP:O	2.36	0.45
2:M:486:ILE:HB	2:M:487:PRO:HD3	1.97	0.45
1:C:41:LYS:N	1:C:88:ALA:O	2.40	0.45
1:D:120:VAL:HA	1:D:121:PRO:HD3	1.78	0.45
2:R:364:LEU:HD13	2:R:441:THR:HA	1.99	0.45
2:M:410:HIS:CE1	2:M:411:LYS:HZ1	2.34	0.45
2:N:454:ASN:HB2	2:O:310:ILE:HG13	1.98	0.45
2:O:409:ARG:HG3	2:O:409:ARG:HH11	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:486:ILE:N	2:O:487:PRO:HD2	2.32	0.45
1:D:143:LEU:C	1:D:143:LEU:HD23	2.38	0.45
2:P:489:CYS:HA	2:P:490:PRO:HD3	1.76	0.45
1:E:77:GLY:O	1:E:114:VAL:HG12	2.17	0.45
2:N:413:ASP:C	2:N:414:ARG:HD2	2.37	0.45
1:D:1:PRO:HG2	2:R:488:MET:CE	2.45	0.45
1:F:174:ARG:HE	1:F:181:THR:CG2	2.30	0.45
1:A:163:GLN:HG3	1:C:61:HIS:CE1	2.51	0.45
2:M:315:TRP:CZ2	2:M:503:GLN:NE2	2.85	0.45
2:M:405:GLY:HA3	4:M:641:HOH:O	2.16	0.45
2:M:483:ASP:HB3	2:M:486:ILE:CD1	2.47	0.45
1:B:143:LEU:C	1:B:143:LEU:HD23	2.37	0.45
2:N:411:LYS:H	2:N:411:LYS:CD	2.29	0.45
2:N:495:ILE:CG2	2:N:500:ALA:HB3	2.47	0.45
1:C:66:SER:HA	1:C:132:ALA:HB2	1.99	0.45
1:D:51:LEU:HD11	1:D:126:ILE:HD12	1.98	0.45
2:Q:376:GLU:O	2:Q:442:ILE:HA	2.17	0.45
2:R:386:ASP:HA	2:R:527:LEU:O	2.17	0.45
2:R:415:TYR:CE1	2:R:416:LEU:HD22	2.52	0.45
2:M:497:ASN:HA	2:M:498:PRO:HD2	1.68	0.44
2:O:514:ASN:O	2:O:517:ASP:HB3	2.17	0.44
1:D:65:ASP:OD2	1:D:133:ARG:HD3	2.17	0.44
1:F:70:VAL:HG21	1:F:106:LEU:HD11	1.99	0.44
2:N:390:LYS:HE2	4:N:730:HOH:O	2.17	0.44
2:O:372:LEU:HA	2:O:373:PRO:HD3	1.72	0.44
1:D:163:GLN:HB3	1:D:165:GLN:NE2	2.31	0.44
2:P:478:LEU:C	2:P:478:LEU:HD23	2.38	0.44
2:P:522:ARG:NE	2:P:524:ASP:OD1	2.49	0.44
1:E:35:ILE:HG22	1:E:94:ARG:HG3	2.00	0.44
1:F:41:LYS:HD2	1:F:88:ALA:HA	1.98	0.44
2:R:468:PRO:HD2	2:R:472:THR:HG21	1.99	0.44
1:C:163:GLN:CB	1:C:165:GLN:HE22	2.23	0.44
1:D:58:GLY:CA	1:D:190:GLN:HB3	2.47	0.44
2:P:356:PHE:CD1	2:P:428:ARG:HD3	2.50	0.44
2:P:407:ARG:HD3	2:P:417:ALA:O	2.17	0.44
1:E:115:ASN:HA	1:E:121:PRO:HA	1.99	0.44
1:F:176:GLU:HG3	1:F:180:LYS:O	2.18	0.44
2:M:434:ASP:HB3	2:M:436:TYR:HD2	1.81	0.44
2:N:364:LEU:HB2	2:N:440:ARG:HD3	1.99	0.44
1:F:131:PHE:O	1:F:132:ALA:HB2	2.17	0.44
1:F:147:ASP:OD2	1:F:174:ARG:CZ	2.66	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:158:LEU:HD12	1:F:158:LEU:HA	1.77	0.44
2:R:458:PRO:HD3	2:R:489:CYS:HB2	1.98	0.44
2:M:372:LEU:HA	2:M:373:PRO:HD3	1.84	0.44
2:M:448:PRO:HB2	2:P:516:MET:HA	1.98	0.44
1:B:163:GLN:HB3	1:B:165:GLN:HE22	1.80	0.44
1:D:36:TRP:CE3	1:D:36:TRP:HA	2.52	0.44
2:P:372:LEU:HA	2:P:373:PRO:HD3	1.72	0.44
2:P:497:ASN:HA	2:P:498:PRO:HD2	1.75	0.44
1:F:69:GLU:OE2	1:F:94:ARG:HD3	2.18	0.44
1:F:110:LYS:HA	1:F:111:PRO:HD2	1.73	0.44
2:Q:449:TRP:CE2	2:Q:457:ARG:HD2	2.53	0.44
2:R:411:LYS:HE2	2:R:411:LYS:N	2.31	0.44
2:R:447:TYR:HB2	2:R:448:PRO:HD2	1.99	0.44
1:B:62:LEU:HD12	1:B:64:ARG:NH2	2.33	0.44
2:O:409:ARG:HG3	2:O:409:ARG:NH1	2.32	0.44
2:R:415:TYR:CE1	2:R:416:LEU:CD2	3.00	0.44
2:R:486:ILE:HB	2:R:487:PRO:HD3	1.99	0.44
2:M:410:HIS:CE1	2:M:411:LYS:CE	3.00	0.44
2:O:409:ARG:HH11	2:O:409:ARG:CG	2.31	0.44
2:O:420:ASP:HA	2:O:421:PRO:HD2	1.74	0.44
2:O:478:LEU:HD23	2:O:478:LEU:C	2.38	0.44
2:O:497:ASN:HD22	2:O:498:PRO:N	2.16	0.44
2:P:385:VAL:O	2:P:526:VAL:HA	2.18	0.44
1:E:39:LEU:O	1:E:89:PHE:HA	2.17	0.44
1:E:52:LEU:HD23	1:E:103:GLU:OE1	2.18	0.44
1:F:17:VAL:CG2	1:F:21:LEU:HD12	2.46	0.44
2:M:379:ILE:HA	2:M:439:PHE:O	2.17	0.43
1:C:35:ILE:HG21	1:C:92:PHE:CE2	2.50	0.43
2:O:399:MET:HA	2:O:462:HIS:O	2.17	0.43
2:P:390:LYS:HE2	4:P:754:HOH:O	2.16	0.43
2:Q:420:ASP:HA	2:Q:421:PRO:HD2	1.79	0.43
1:F:36:TRP:CG	1:F:37:ASN:N	2.86	0.43
1:A:51:LEU:HD11	1:A:126:ILE:HD12	1.98	0.43
1:A:115:ASN:HA	1:A:121:PRO:HA	2.00	0.43
1:A:155:CYS:HB3	1:A:158:LEU:HB2	2.00	0.43
1:B:176:GLU:OE2	1:B:179:GLY:O	2.36	0.43
1:C:176:GLU:HG2	1:C:179:GLY:HA2	1.99	0.43
2:M:448:PRO:CB	2:P:516:MET:HA	2.49	0.43
2:N:390:LYS:CD	4:N:648:HOH:O	2.65	0.43
1:E:74:ASP:C	1:E:74:ASP:OD1	2.54	0.43
2:Q:449:TRP:NE1	2:Q:457:ARG:HD2	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:52:LEU:O	1:F:184:ARG:HA	2.18	0.43
2:M:302:ALA:HB1	2:M:347:THR:HG21	2.01	0.43
2:O:390:LYS:HD2	4:O:649:HOH:O	2.16	0.43
1:F:52:LEU:C	1:F:52:LEU:HD22	2.38	0.43
2:N:486:ILE:HB	2:N:487:PRO:HD3	2.00	0.43
1:C:46:GLY:HA3	1:C:75:ALA:HB2	2.00	0.43
1:C:170:LEU:HD21	1:C:196:VAL:HB	2.00	0.43
1:E:39:LEU:HD11	1:E:93:GLY:HA3	2.00	0.43
1:E:163:GLN:C	1:E:165:GLN:NE2	2.72	0.43
2:Q:360:ASP:HB3	2:Q:428:ARG:HG3	2.00	0.43
2:Q:398:GLU:OE2	4:Q:1171:HOH:O	2.21	0.43
2:Q:408:TYR:HE1	2:Q:447:TYR:CZ	2.36	0.43
2:R:410:HIS:ND1	2:R:411:LYS:N	2.66	0.43
2:R:522:ARG:NE	2:R:524:ASP:OD1	2.51	0.43
1:A:39:LEU:HD11	1:A:93:GLY:HA3	2.00	0.43
1:A:51:LEU:HD11	1:A:126:ILE:CD1	2.47	0.43
1:B:39:LEU:HD11	1:B:93:GLY:HA3	1.99	0.43
1:D:1:PRO:CG	2:R:488:MET:HE1	2.45	0.43
1:E:164:PRO:N	1:E:165:GLN:HE21	2.16	0.43
2:R:497:ASN:HA	2:R:498:PRO:HD3	1.81	0.43
1:A:8:THR:HA	1:A:9:PRO:HD3	1.85	0.43
1:F:35:ILE:HG21	1:F:92:PHE:CE2	2.54	0.43
1:A:24:GLU:O	1:A:27:GLY:N	2.47	0.43
1:B:52:LEU:HA	1:B:104:TRP:O	2.19	0.43
2:N:415:TYR:CE1	2:N:416:LEU:HD23	2.53	0.43
1:D:146:ASP:HB3	1:D:171:ILE:HG22	2.00	0.43
2:P:383:ARG:HA	2:P:435:GLY:O	2.18	0.43
2:P:414:ARG:NE	2:P:414:ARG:CA	2.81	0.43
1:F:5:LEU:O	2:R:387:GLN:HG2	2.17	0.43
1:F:35:ILE:HG21	1:F:92:PHE:HE2	1.84	0.43
1:F:70:VAL:HG11	1:F:106:LEU:HD21	2.00	0.43
1:B:163:GLN:HA	1:B:164:PRO:HD2	1.65	0.43
1:C:120:VAL:HA	1:C:121:PRO:HD3	1.76	0.43
2:P:328:ILE:HD12	2:Q:335:ALA:HB2	2.01	0.43
2:Q:493:LYS:C	2:Q:495:ILE:H	2.21	0.43
1:F:32:ASP:HB2	4:R:1405:HOH:O	2.19	0.43
1:F:122:MET:HA	1:F:156:PRO:HD2	2.01	0.43
2:R:390:LYS:HG2	4:R:1433:HOH:O	2.19	0.43
2:R:431:THR:HG22	2:R:437:TYR:HB3	2.01	0.43
1:A:52:LEU:HD23	1:A:103:GLU:CD	2.40	0.43
1:A:163:GLN:HA	1:A:164:PRO:HD2	1.62	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:411:LYS:HE2	2:M:411:LYS:N	2.34	0.43
1:B:163:GLN:O	1:B:166:ARG:N	2.50	0.43
2:N:411:LYS:HE2	2:N:411:LYS:HB2	1.64	0.43
2:R:395:THR:O	2:R:430:LEU:HA	2.19	0.43
1:A:54:GLN:HG2	1:A:102:GLY:O	2.19	0.42
2:M:380:VAL:O	2:M:438:SER:HA	2.18	0.42
2:N:315:TRP:HZ2	2:N:503:GLN:NE2	2.15	0.42
1:F:68:LEU:HA	1:F:129:SER:O	2.18	0.42
1:F:176:GLU:OE2	1:F:179:GLY:C	2.57	0.42
2:M:410:HIS:CE1	2:M:411:LYS:NZ	2.87	0.42
1:C:51:LEU:O	1:C:105:THR:HA	2.20	0.42
1:C:54:GLN:HG3	1:C:184:ARG:HH22	1.81	0.42
1:E:191:GLY:O	1:E:194:GLU:HB2	2.20	0.42
2:Q:408:TYR:HE1	2:Q:447:TYR:CE2	2.37	0.42
1:F:176:GLU:OE2	1:F:179:GLY:CA	2.67	0.42
2:R:408:TYR:CE2	2:R:447:TYR:CE2	3.07	0.42
2:M:315:TRP:HZ2	2:M:503:GLN:HE21	1.67	0.42
2:P:400:TRP:HA	2:P:425:GLY:O	2.20	0.42
1:F:65:ASP:OD2	1:F:133:ARG:HD3	2.19	0.42
2:N:437:TYR:CD2	2:N:437:TYR:C	2.92	0.42
2:P:411:LYS:CE	2:P:411:LYS:N	2.72	0.42
1:F:68:LEU:HD23	1:F:128:ILE:CG2	2.49	0.42
1:F:115:ASN:HA	1:F:121:PRO:HA	2.01	0.42
1:F:149:ALA:HB1	4:F:1353:HOH:O	2.19	0.42
2:R:364:LEU:HD11	2:R:442:ILE:HG23	2.02	0.42
1:A:165:GLN:NE2	1:C:61:HIS:NE2	2.68	0.42
1:E:25:ALA:HB1	1:E:98:THR:HG21	2.02	0.42
1:E:176:GLU:HG2	1:E:179:GLY:HA2	2.02	0.42
2:Q:451:ASN:HB3	2:Q:452:GLY:H	1.67	0.42
2:R:366:ASN:OD1	2:R:366:ASN:C	2.56	0.42
1:A:131:PHE:O	1:A:132:ALA:HB2	2.19	0.42
2:M:450:ARG:HG3	4:M:629:HOH:O	2.18	0.42
2:M:478:LEU:HD23	2:M:478:LEU:C	2.39	0.42
2:N:341:GLN:HB3	2:N:346:THR:CG2	2.50	0.42
1:C:163:GLN:OE1	1:C:165:GLN:NE2	2.46	0.42
2:O:468:PRO:HD2	2:O:472:THR:HG21	2.02	0.42
1:D:5:LEU:O	2:P:387:GLN:HG2	2.20	0.42
1:E:70:VAL:HG12	1:E:128:ILE:HG12	2.02	0.42
2:R:341:GLN:HB3	2:R:346:THR:CG2	2.50	0.42
1:B:115:ASN:HA	1:B:121:PRO:HA	2.02	0.42
1:A:200:PHE:CG	2:M:345:GLU:HG2	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:191:GLY:O	1:B:194:GLU:HB2	2.20	0.42
1:C:161:ILE:HD13	1:C:196:VAL:HG21	2.00	0.42
2:P:489:CYS:O	2:P:493:LYS:HG3	2.20	0.42
2:Q:383:ARG:HA	2:Q:435:GLY:O	2.20	0.42
1:F:50:LEU:O	1:F:182:ALA:HA	2.20	0.42
2:R:390:LYS:HA	2:R:391:PRO:HD3	1.81	0.42
1:C:28:ASN:HB3	4:C:270:HOH:O	2.19	0.42
2:P:484:PRO:O	2:P:488:MET:CE	2.68	0.42
2:Q:331:SER:HA	2:Q:332:PRO:HD3	1.90	0.42
2:Q:390:LYS:CE	4:Q:1154:HOH:O	2.66	0.42
2:N:350:ASN:OD1	2:N:350:ASN:C	2.58	0.41
2:N:360:ASP:HB3	2:N:428:ARG:HG3	2.02	0.41
2:P:484:PRO:O	2:P:488:MET:HE2	2.19	0.41
1:E:199:ASP:O	2:Q:338:SER:HA	2.20	0.41
1:A:200:PHE:CD1	2:M:345:GLU:HG2	2.55	0.41
2:M:326:THR:HG22	2:M:330:ARG:HD2	2.02	0.41
2:M:400:TRP:CE2	2:M:462:HIS:HB2	2.54	0.41
1:C:52:LEU:HA	1:C:104:TRP:O	2.20	0.41
2:O:411:LYS:HE2	2:O:411:LYS:HB2	1.83	0.41
1:D:50:LEU:O	1:D:182:ALA:HA	2.19	0.41
2:P:431:THR:HG22	2:P:437:TYR:HB3	2.02	0.41
1:F:24:GLU:O	1:F:25:ALA:C	2.57	0.41
1:F:46:GLY:HA3	1:F:75:ALA:HB2	2.02	0.41
2:R:384:VAL:HA	2:R:525:ILE:O	2.20	0.41
2:R:497:ASN:ND2	2:R:499:GLU:N	2.55	0.41
1:A:163:GLN:HB3	1:A:165:GLN:HE21	1.76	0.41
2:N:390:LYS:HD3	4:N:648:HOH:O	2.19	0.41
2:N:489:CYS:HA	2:N:490:PRO:HD3	1.60	0.41
1:C:74:ASP:HB2	4:C:238:HOH:O	2.20	0.41
1:E:39:LEU:CD1	1:E:106:LEU:HD11	2.50	0.41
1:F:8:THR:HA	1:F:9:PRO:HD3	1.87	0.41
1:F:86:GLU:O	1:F:87:ASN:C	2.57	0.41
1:A:144:TYR:CE1	1:A:158:LEU:HD13	2.55	0.41
2:M:432:ASP:OD1	2:M:432:ASP:C	2.58	0.41
1:B:64:ARG:O	1:B:98:THR:HA	2.20	0.41
2:N:390:LYS:CE	4:N:730:HOH:O	2.67	0.41
1:C:35:ILE:CG2	1:C:94:ARG:CD	2.97	0.41
2:P:408:TYR:HE2	2:P:447:TYR:CE2	2.39	0.41
2:R:364:LEU:HD13	2:R:441:THR:CA	2.50	0.41
1:A:28:ASN:HB3	4:A:271:HOH:O	2.21	0.41
2:N:408:TYR:HE2	2:N:447:TYR:CZ	2.39	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:39:LEU:HB3	1:C:90:ASN:O	2.20	0.41
1:C:162:GLU:HG3	4:C:257:HOH:O	2.20	0.41
2:P:350:ASN:OD1	2:P:350:ASN:C	2.59	0.41
1:E:4:LEU:HB3	2:Q:387:GLN:HB3	2.02	0.41
1:C:41:LYS:HB2	1:C:88:ALA:HA	2.02	0.41
1:D:84:ASN:OD1	1:D:86:GLU:HB2	2.21	0.41
1:E:54:GLN:HG3	1:E:103:GLU:HG3	2.03	0.41
2:Q:447:TYR:HB2	2:Q:448:PRO:HD2	2.02	0.41
2:M:410:HIS:CE1	2:M:411:LYS:HE2	2.56	0.41
2:N:420:ASP:HA	2:N:421:PRO:HD2	1.88	0.41
1:D:99:PHE:CD2	2:P:412:ASN:OD1	2.74	0.41
1:E:31:ARG:HH11	2:Q:428:ARG:HG2	1.83	0.41
1:B:52:LEU:C	1:B:52:LEU:HD12	2.41	0.41
1:B:174:ARG:HB2	1:B:183:TYR:CE2	2.55	0.41
4:D:720:HOH:O	2:P:311:ARG:HB2	2.20	0.41
2:R:372:LEU:HD12	2:R:372:LEU:HA	1.94	0.41
1:A:54:GLN:O	1:A:186:ASP:HA	2.21	0.41
1:A:58:GLY:HA2	1:A:190:GLN:O	2.21	0.41
1:A:114:VAL:HG23	1:A:122:MET:CE	2.50	0.41
2:M:383:ARG:HA	2:M:435:GLY:O	2.21	0.41
2:M:453:PRO:O	2:P:515:PRO:HB3	2.20	0.41
1:B:3:GLU:OE1	1:B:3:GLU:CA	2.65	0.41
1:B:61:HIS:ND1	1:C:163:GLN:HG3	2.36	0.41
1:B:114:VAL:HG22	4:B:319:HOH:O	2.20	0.41
2:N:333:ARG:HH11	2:N:333:ARG:HD3	1.39	0.41
2:O:326:THR:O	2:O:326:THR:CG2	2.69	0.41
2:O:393:PRO:O	2:O:393:PRO:HG2	2.19	0.41
1:D:131:PHE:CE2	1:D:138:HIS:HB3	2.56	0.41
2:P:412:ASN:N	2:P:412:ASN:HD22	2.19	0.41
1:E:120:VAL:HA	1:E:121:PRO:HD3	1.90	0.41
1:F:23:LEU:O	1:F:26:ALA:N	2.54	0.41
1:F:41:LYS:HD2	1:F:87:ASN:O	2.21	0.41
2:M:497:ASN:HD22	2:M:498:PRO:CD	2.34	0.41
1:B:20:GLY:O	1:B:21:LEU:HD23	2.22	0.41
1:C:74:ASP:C	1:C:74:ASP:OD1	2.59	0.41
2:O:411:LYS:CD	2:O:411:LYS:N	2.83	0.41
2:P:465:ILE:O	2:P:473:LYS:HA	2.21	0.41
2:Q:495:ILE:CG2	2:Q:500:ALA:HB3	2.51	0.41
1:F:20:GLY:O	1:F:21:LEU:HD23	2.20	0.41
1:A:77:GLY:O	1:A:114:VAL:HG12	2.21	0.40
1:A:160:LEU:HD12	2:M:339:ILE:HG22	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:25:ALA:HB1	1:B:98:THR:HG21	2.03	0.40
2:P:315:TRP:HZ2	2:P:503:GLN:HE21	1.67	0.40
1:F:121:PRO:HG2	4:F:1368:HOH:O	2.21	0.40
1:A:5:LEU:HA	1:A:6:PRO:HD3	1.91	0.40
1:A:36:TRP:CG	1:A:37:ASN:N	2.87	0.40
2:M:362:ASP:OD2	2:M:440:ARG:NH1	2.54	0.40
2:O:447:TYR:HA	2:O:448:PRO:HD3	1.94	0.40
1:E:8:THR:HA	1:E:9:PRO:HD3	1.70	0.40
1:F:92:PHE:CG	2:R:349:PRO:HG3	2.56	0.40
2:M:409:ARG:NH1	2:M:409:ARG:HG3	2.36	0.40
2:M:517:ASP:C	2:M:517:ASP:OD1	2.60	0.40
1:B:19:ILE:HG21	2:N:410:HIS:HB2	2.03	0.40
1:B:160:LEU:HD23	1:B:160:LEU:HA	1.89	0.40
2:Q:478:LEU:HD12	2:Q:523:PHE:CG	2.57	0.40
2:R:437:TYR:CD1	2:R:437:TYR:C	2.94	0.40
2:M:307:ARG:HD3	2:M:307:ARG:HA	1.92	0.40
2:M:447:TYR:HB2	2:M:448:PRO:HD2	2.03	0.40
1:B:36:TRP:CE3	1:B:36:TRP:HA	2.55	0.40
1:B:162:GLU:HG3	4:B:400:HOH:O	2.21	0.40
2:N:373:PRO:HB3	2:N:423:PHE:HB2	2.04	0.40
1:C:85:LEU:HD23	1:C:85:LEU:HA	1.89	0.40
2:P:317:PRO:HD3	2:P:495:ILE:HG12	2.04	0.40
1:E:144:TYR:CE2	1:E:158:LEU:HD13	2.55	0.40
2:R:416:LEU:C	2:R:416:LEU:HD23	2.42	0.40
2:R:432:ASP:C	2:R:432:ASP:OD1	2.59	0.40
1:D:36:TRP:CG	1:D:37:ASN:N	2.89	0.40
1:D:198:PHE:HA	2:P:337:VAL:O	2.22	0.40
2:P:447:TYR:HB2	2:P:448:PRO:HD2	2.04	0.40
1:E:163:GLN:HB3	1:E:165:GLN:NE2	2.36	0.40
1:F:146:ASP:OD1	1:F:174:ARG:HB2	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	198/200 (99%)	192 (97%)	6 (3%)	0	100	100
1	B	198/200 (99%)	194 (98%)	4 (2%)	0	100	100
1	C	198/200 (99%)	192 (97%)	5 (2%)	1 (0%)	29	22
1	D	198/200 (99%)	187 (94%)	11 (6%)	0	100	100
1	E	198/200 (99%)	187 (94%)	11 (6%)	0	100	100
1	F	198/200 (99%)	185 (93%)	13 (7%)	0	100	100
2	M	229/238 (96%)	223 (97%)	6 (3%)	0	100	100
2	N	229/238 (96%)	219 (96%)	10 (4%)	0	100	100
2	O	229/238 (96%)	220 (96%)	9 (4%)	0	100	100
2	P	229/238 (96%)	222 (97%)	7 (3%)	0	100	100
2	Q	229/238 (96%)	223 (97%)	6 (3%)	0	100	100
2	R	229/238 (96%)	219 (96%)	10 (4%)	0	100	100
All	All	2562/2628 (98%)	2463 (96%)	98 (4%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	42	PRO

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	162/163 (99%)	151 (93%)	11 (7%)	16	10
1	B	162/163 (99%)	155 (96%)	7 (4%)	29	27
1	C	162/163 (99%)	156 (96%)	6 (4%)	34	32
1	D	162/163 (99%)	153 (94%)	9 (6%)	21	16
1	E	162/163 (99%)	156 (96%)	6 (4%)	34	32

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	F	162/163 (99%)	154 (95%)	8 (5%)	25	21
2	M	196/202 (97%)	186 (95%)	10 (5%)	24	20
2	N	196/202 (97%)	187 (95%)	9 (5%)	27	23
2	O	196/202 (97%)	185 (94%)	11 (6%)	21	16
2	P	196/202 (97%)	184 (94%)	12 (6%)	18	14
2	Q	196/202 (97%)	186 (95%)	10 (5%)	24	20
2	R	196/202 (97%)	186 (95%)	10 (5%)	24	20
All	All	2148/2190 (98%)	2039 (95%)	109 (5%)	24	20

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	LEU
1	A	19	ILE
1	A	38	ARG
1	A	43	ASP
1	A	52	LEU
1	A	94	ARG
1	A	106	LEU
1	A	133	ARG
1	A	143	LEU
1	A	165	GLN
1	A	192	GLU
2	M	372	LEU
2	M	395	THR
2	M	411	LYS
2	M	416	LEU
2	M	428	ARG
2	M	434	ASP
2	M	440	ARG
2	M	497	ASN
2	M	507	LYS
2	M	534	HIS
1	B	4	LEU
1	B	32	ASP
1	B	38	ARG
1	B	52	LEU
1	B	106	LEU
1	B	154	LYS
1	B	165	GLN

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Mol	Chain	Res	Type
2	N	364	LEU
2	N	372	LEU
2	N	395	THR
2	N	411	LYS
2	N	416	LEU
2	N	478	LEU
2	N	497	ASN
2	N	507	LYS
2	N	534	HIS
1	C	4	LEU
1	C	19	ILE
1	C	38	ARG
1	C	52	LEU
1	C	133	ARG
1	C	165	GLN
2	O	372	LEU
2	O	393	PRO
2	O	395	THR
2	O	411	LYS
2	O	416	LEU
2	O	428	ARG
2	O	434	ASP
2	O	442	ILE
2	O	497	ASN
2	O	507	LYS
2	O	534	HIS
1	D	4	LEU
1	D	19	ILE
1	D	38	ARG
1	D	42	PRO
1	D	52	LEU
1	D	133	ARG
1	D	154	LYS
1	D	165	GLN
1	D	180	LYS
2	P	395	THR
2	P	411	LYS
2	P	414	ARG
2	P	416	LEU
2	P	428	ARG
2	P	434	ASP
2	P	438	SER

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Mol	Chain	Res	Type
2	P	440	ARG
2	P	478	LEU
2	P	497	ASN
2	P	511	ASN
2	P	534	HIS
1	E	4	LEU
1	E	52	LEU
1	E	133	ARG
1	E	150	GLN
1	E	165	GLN
1	E	180	LYS
2	Q	395	THR
2	Q	411	LYS
2	Q	416	LEU
2	Q	428	ARG
2	Q	434	ASP
2	Q	442	ILE
2	Q	497	ASN
2	Q	499	GLU
2	Q	507	LYS
2	Q	534	HIS
1	F	4	LEU
1	F	30	THR
1	F	49	ILE
1	F	52	LEU
1	F	91	SER
1	F	133	ARG
1	F	165	GLN
1	F	181	THR
2	R	372	LEU
2	R	395	THR
2	R	411	LYS
2	R	416	LEU
2	R	428	ARG
2	R	473	LYS
2	R	497	ASN
2	R	499	GLU
2	R	507	LYS
2	R	534	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	165	GLN
2	M	361	HIS
2	M	412	ASN
2	M	497	ASN
2	M	503	GLN
1	B	107	HIS
1	B	165	GLN
2	N	361	HIS
2	N	412	ASN
2	N	497	ASN
2	N	503	GLN
1	C	165	GLN
2	O	361	HIS
2	O	412	ASN
2	O	497	ASN
2	O	503	GLN
1	D	163	GLN
1	D	165	GLN
2	P	361	HIS
2	P	412	ASN
2	P	497	ASN
2	P	503	GLN
1	E	107	HIS
1	E	165	GLN
2	Q	353	HIS
2	Q	361	HIS
2	Q	412	ASN
2	Q	497	ASN
2	Q	503	GLN
2	Q	530	GLN
1	F	165	GLN
2	R	361	HIS
2	R	412	ASN
2	R	422	ASN
2	R	497	ASN
2	R	503	GLN
2	R	530	GLN

5.3.3 RNA

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 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (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

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.