



Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2024 – 04:27 PM EDT

PDB ID : 1AHU
Title : STRUCTURE OF THE OCTAMERIC FLAVOENZYME VANILLYL-ALCOHOL OXIDASE IN COMPLEX WITH P-CRESOL
Authors : Mattevi, A.
Deposited on : 1997-04-10
Resolution : 2.70 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
buster-report : 1.1.7 (2018)
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) : 2.36.2

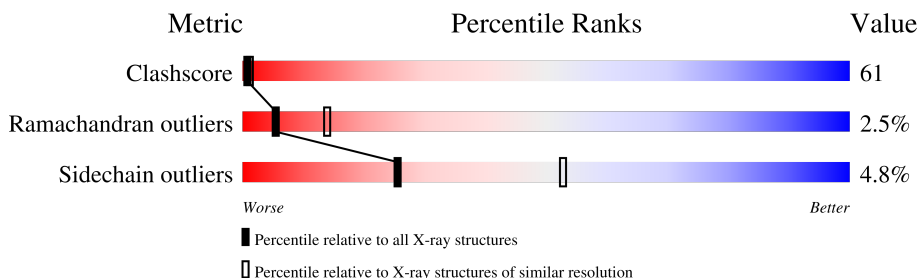
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	560	 26% 56% 16% ..
1	B	560	 25% 57% 16% ..

2 Entry composition [i](#)

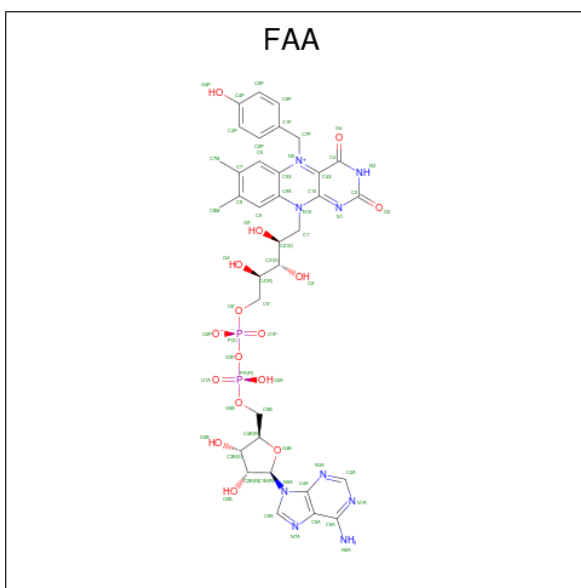
There are 3 unique types of molecules in this entry. The entry contains 9011 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 VANILLYL-ALCOHOL OXIDASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	555	4391	2817	751	799	24	37	0	0
1	B	555	4391	2817	751	799	24	37	0	0

- Molecule 2 is N5-(4-HYDROXYBENZYL)FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAA) (formula: C₃₄H₃₉N₉O₁₆P₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	61	34	9	16	2	0	0
2	B	1	61	34	9	16	2	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	55	Total 55	O 55	0	0
3	B	52	Total 52	O 52	1	0

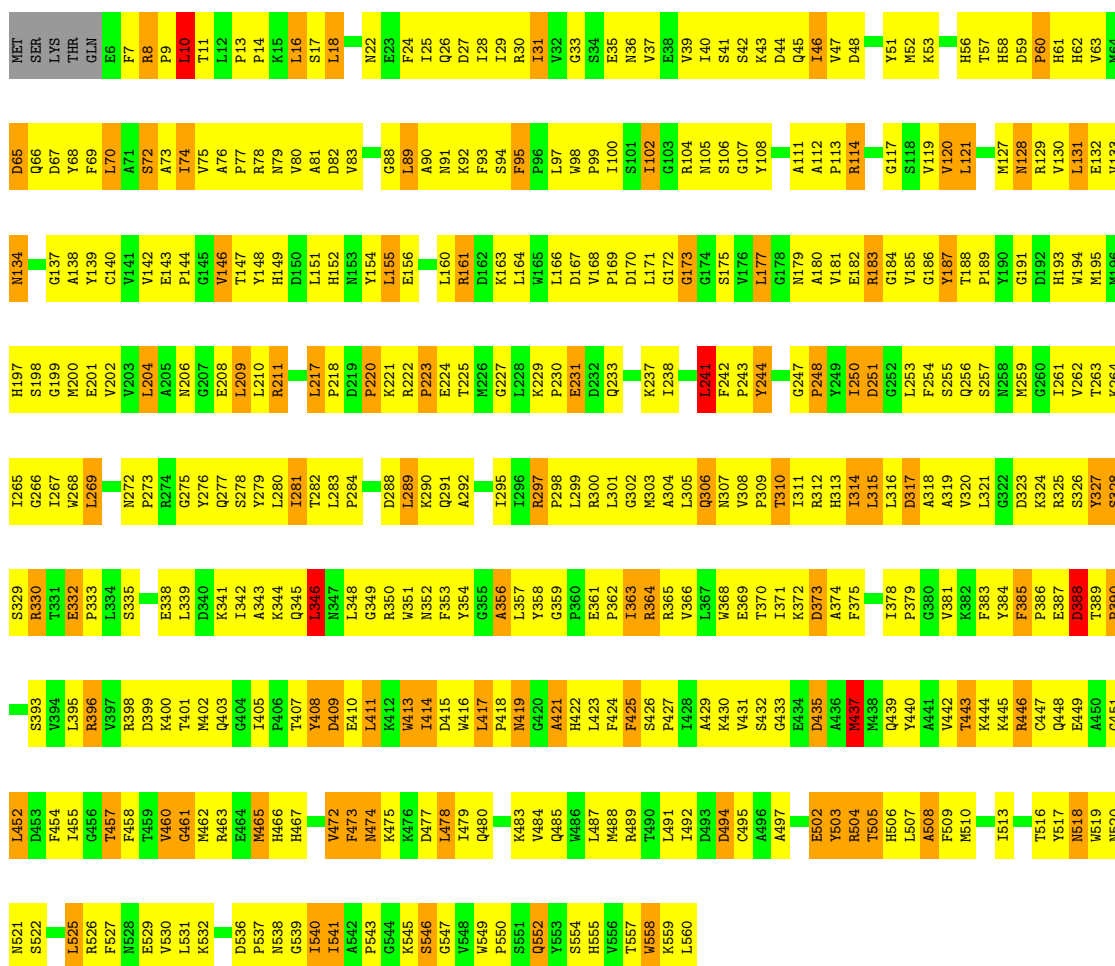
3 Residue-property plots

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: VANILLYL-ALCOHOL OXIDASE

Chain A: 



- Molecule 1: VANILLYL-ALCOHOL OXIDASE

Chain B: 



E449	T516	S326	T263	H197	M134	K64
A450	A450	Y327	K264	S196	G137	D65
G451	G451	S328	I265	G199	A138	Q66
L452	L452	S329	G266	M200	Y139	D67
D453	D453	R330	I267	E201	C140	Y68
F454	F454	T331	W268	V202	V141	F69
L455	L455	E332	L269	V203	V142	L70
G456	G456	P333	M270	A205	E143	A71
T457	T457	L394	P271	N206	P144	S72
F458	F458	S335	N272	G207	G145	A73
F459	F459	E338	P273	E208	V146	I74
V460	V460	B340	R274	L209	T147	V75
G461	G461	K341	G275	L210	Y148	A76
M462	M462	I342	Y276	R211	H149	F77
R463	R463	A343	Q277	M214	D150	R78
E464	E464	K344	S278	L217	L151	N79
M465	M465	A344	Y279	L218	H152	W80
H466	H466	Q345	L280	D219	W153	A81
H467	H467	B346	I281	P220	Y154	D82
V472	V472	N347	T282	K221	E156	W83
F473	F473	L348	L283	R222	L160	L89
N474	N474	G349	P284	K223	D162	A90
K475	K475	R350	D288	E224	K163	N91
K476	K476	N351	L289	M226	L164	K92
D477	D477	B352	K290	G227	K166	F83
L478	L478	F353	Q291	M228	L166	S94
L479	L479	Y354	A292	G228	D167	F95
K480	K480	G355	I295	L227	P169	P96
K483	K483	L357	T296	K229	L171	L97
V484	V484	Y358	R297	P230	G173	W98
Q485	Q485	G359	P298	E231	G174	P99
W486	W486	P360	L299	D232	S175	I100
L487	L487	E361	R300	Q233	V176	I102
M488	M488	P362	L301	K237	G177	G103
R489	R489	I363	G302	I238	G178	R104
T490	T490	R364	M303	L241	M179	M105
L491	L491	R365	A304	F242	A180	S106
L492	L492	V366	L305	P243	V181	G107
D493	D493	L367	Q306	Y244	E182	Y108
D494	D494	W368	N307	G247	R183	A111
C495	C495	A374	V308	Y248	G184	A112
A496	A496	E369	P309	P249	V185	P113
A497	A497	T370	P309	Y249	G186	R114
W500	W500	I371	I310	P248	Y187	G117
E501	E501	K372	I311	Y249	T188	S118
E502	E502	D373	R312	T250	P189	V119
Y503	Y503	A374	H313	D251	S255	L120
R504	R504	F375	I314	G252	P189	L121
T505	T505	G376	L315	L253	Y190	M127
H506	H506	I376	L316	P254	G191	M128
L507	L507	P379	D317	F255	Y190	R129
A508	A508	G380	A318	Q256	G191	V130
F509	F509	A441	A319	Q257	D192	L131
M510	M510	T443	V320	M259	H193	W194
D511	D511	K382	L321	G260	M195	E132
L513	L513	Y384	G382	V262	M196	L133
		F385	D323			
		C447	K324			
		E387	R325			
		Q448				
		T388				
		T389				
		P390				
		S393				
		V394				
		L395				
		R396				
		V397				
		R398				
		D399				
		K400				
		T401				
		M402				
		Q403				
		G404				
		I405				
		P406				
		T407				
		Y408				
		D409				
		E410				
		L411				
		K412				
		W413				
		L414				
		D415				
		W416				
		L417				
		P418				
		N419				
		Q420				
		A421				
		H422				
		L423				
		F424				
		P425				
		S426				
		P427				
		T428				
		A429				
		K430				
		V431				
		S432				
		G433				
		E434				
		D435				
		A436				
		M438				
		Q439				
		Y440				
		A441				
		V442				
		T443				
		K444				
		K445				
		R446				
		C447				
		Q448				
		L518				
		S519				
		I540				
		I541				
		A542				
		P543				
		G544				
		K545				
		S546				
		W549				
		P550				
		S551				
		Q552				
		Y553				
		S554				
		H555				
		Y556				
		T557				
		W558				
		K559				
		L560				

4 Data and refinement statistics

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

Property	Value	Source
Space group	I 4	Depositor
Cell constants a, b, c, α , β , γ	128.82Å 128.82Å 130.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	30.00 – 2.70	Depositor
% Data completeness (in resolution range)	95.4 (30.00-2.70)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.97	Depositor
Refinement program	TNT 5E	Depositor
R, R_{free}	0.221 , 0.290	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	9011	wwPDB-VP
Average B, all atoms (Å ²)	27.0	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: FAA

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	0.73	0/4511	1.74	110/6131 (1.8%)
1	B	0.73	0/4511	1.74	108/6131 (1.8%)
All	All	0.73	0/9022	1.74	218/12262 (1.8%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	2	0
1	B	2	0
All	All	4	0

There are no bond length outliers.

All (218) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	330	ARG	NE-CZ-NH1	-11.34	114.63	120.30
1	B	330	ARG	NE-CZ-NH1	-11.24	114.68	120.30
1	A	536	ASP	C-N-CD	-9.85	98.92	120.60
1	B	536	ASP	C-N-CD	-9.85	98.93	120.60
1	B	417	LEU	CA-CB-CG	-9.34	93.83	115.30
1	A	417	LEU	CA-CB-CG	-9.31	93.88	115.30
1	B	457	THR	CB-CA-C	-8.82	87.78	111.60
1	A	457	THR	CB-CA-C	-8.82	87.80	111.60
1	B	452	LEU	CA-CB-CG	-8.62	95.47	115.30
1	A	452	LEU	CA-CB-CG	-8.60	95.53	115.30
1	A	187	TYR	N-CA-C	8.46	133.84	111.00
1	B	187	TYR	N-CA-C	8.44	133.79	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	209	LEU	CA-CB-CG	8.06	133.84	115.30
1	A	209	LEU	CA-CB-CG	8.05	133.82	115.30
1	B	129	ARG	N-CA-C	8.03	132.68	111.00
1	A	129	ARG	N-CA-C	8.02	132.65	111.00
1	A	8	ARG	CB-CA-C	-7.94	94.53	110.40
1	B	8	ARG	CB-CA-C	-7.93	94.53	110.40
1	B	31	ILE	CB-CA-C	-7.89	95.82	111.60
1	A	31	ILE	CB-CA-C	-7.88	95.84	111.60
1	A	472	VAL	CB-CA-C	-7.84	96.51	111.40
1	B	505	THR	CB-CA-C	-7.83	90.45	111.60
1	B	472	VAL	CB-CA-C	-7.83	96.52	111.40
1	A	505	THR	CB-CA-C	-7.82	90.48	111.60
1	B	330	ARG	NE-CZ-NH2	7.81	124.20	120.30
1	B	16	LEU	CA-CB-CG	-7.80	97.36	115.30
1	A	16	LEU	CA-CB-CG	-7.80	97.36	115.30
1	A	366	VAL	CB-CA-C	-7.79	96.61	111.40
1	A	330	ARG	NE-CZ-NH2	7.77	124.18	120.30
1	B	366	VAL	CB-CA-C	-7.77	96.64	111.40
1	B	183	ARG	NE-CZ-NH2	-7.68	116.46	120.30
1	A	183	ARG	NE-CZ-NH2	-7.59	116.50	120.30
1	A	315	LEU	CB-CG-CD2	-7.55	98.16	111.00
1	B	315	LEU	CB-CG-CD2	-7.53	98.20	111.00
1	A	67	ASP	N-CA-CB	-7.38	97.31	110.60
1	B	67	ASP	N-CA-CB	-7.36	97.36	110.60
1	A	183	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	A	444	LYS	N-CA-CB	-7.22	97.61	110.60
1	B	444	LYS	N-CA-CB	-7.20	97.64	110.60
1	B	183	ARG	NE-CZ-NH1	7.20	123.90	120.30
1	B	128	ASN	CB-CA-C	-7.05	96.31	110.40
1	A	128	ASN	CB-CA-C	-7.03	96.34	110.40
1	B	155	LEU	CA-CB-CG	-6.84	99.57	115.30
1	A	155	LEU	CA-CB-CG	-6.83	99.58	115.30
1	B	264	LYS	CB-CA-C	-6.82	96.76	110.40
1	A	264	LYS	CB-CA-C	-6.81	96.78	110.40
1	A	452	LEU	N-CA-C	6.80	129.37	111.00
1	B	452	LEU	N-CA-C	6.80	129.36	111.00
1	A	541	ILE	CB-CA-C	-6.80	98.00	111.60
1	B	541	ILE	CB-CA-C	-6.78	98.04	111.60
1	A	558	TRP	N-CA-C	6.76	129.25	111.00
1	B	204	LEU	CB-CG-CD2	-6.76	99.51	111.00
1	B	558	TRP	N-CA-C	6.74	129.21	111.00
1	A	417	LEU	C-N-CD	-6.74	105.77	120.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	204	LEU	CB-CG-CD2	-6.74	99.55	111.00
1	B	417	LEU	C-N-CD	-6.73	105.80	120.60
1	A	129	ARG	CB-CG-CD	-6.70	94.19	111.60
1	B	129	ARG	CB-CG-CD	-6.69	94.20	111.60
1	B	10	LEU	CA-CB-CG	6.67	130.65	115.30
1	A	10	LEU	CA-CB-CG	6.66	130.61	115.30
1	A	560	LEU	CB-CG-CD2	-6.57	99.83	111.00
1	B	560	LEU	CB-CG-CD2	-6.57	99.83	111.00
1	A	130	VAL	N-CA-C	-6.50	93.44	111.00
1	B	130	VAL	N-CA-C	-6.50	93.44	111.00
1	A	419	ASN	CB-CA-C	6.48	123.36	110.40
1	B	411	LEU	CA-CB-CG	6.48	130.20	115.30
1	B	419	ASN	CB-CA-C	6.46	123.32	110.40
1	B	495	CYS	CA-CB-SG	-6.46	102.38	114.00
1	A	89	LEU	CB-CG-CD2	-6.45	100.03	111.00
1	B	89	LEU	CB-CG-CD2	-6.45	100.03	111.00
1	A	411	LEU	CA-CB-CG	6.45	130.12	115.30
1	B	89	LEU	CA-CB-CG	-6.44	100.48	115.30
1	A	495	CYS	CA-CB-SG	-6.44	102.41	114.00
1	A	460	VAL	CG1-CB-CG2	6.44	121.20	110.90
1	A	89	LEU	CA-CB-CG	-6.43	100.50	115.30
1	A	177	LEU	CB-CG-CD1	6.43	121.93	111.00
1	B	177	LEU	CB-CG-CD1	6.42	121.92	111.00
1	B	460	VAL	CG1-CB-CG2	6.42	121.17	110.90
1	B	430	LYS	CB-CA-C	-6.40	97.60	110.40
1	B	473	PHE	N-CA-C	-6.38	93.78	111.00
1	A	473	PHE	N-CA-C	-6.37	93.79	111.00
1	A	430	LYS	CB-CA-C	-6.36	97.69	110.40
1	A	424	PHE	CB-CA-C	-6.31	97.79	110.40
1	B	424	PHE	CB-CA-C	-6.28	97.84	110.40
1	B	385	PHE	N-CA-C	-6.25	94.12	111.00
1	A	385	PHE	N-CA-C	-6.25	94.14	111.00
1	A	477	ASP	CB-CG-OD1	6.24	123.92	118.30
1	B	477	ASP	CB-CG-OD1	6.22	123.90	118.30
1	A	217	LEU	CA-CB-CG	-6.21	101.01	115.30
1	B	540	ILE	CB-CA-C	-6.20	99.21	111.60
1	B	217	LEU	CA-CB-CG	-6.19	101.06	115.30
1	A	540	ILE	CB-CA-C	-6.18	99.24	111.60
1	A	411	LEU	CB-CA-C	-6.17	98.48	110.20
1	B	411	LEU	CB-CA-C	-6.13	98.55	110.20
1	A	317	ASP	CB-CG-OD1	-6.12	112.80	118.30
1	B	317	ASP	CB-CG-OD1	-6.10	112.81	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	306	GLN	N-CA-C	6.06	127.36	111.00
1	B	18	LEU	CA-CB-CG	-6.05	101.39	115.30
1	A	18	LEU	CA-CB-CG	-6.04	101.40	115.30
1	A	306	GLN	N-CA-C	6.04	127.30	111.00
1	A	462	MET	CB-CA-C	-6.03	98.33	110.40
1	B	462	MET	CB-CA-C	-6.01	98.37	110.40
1	B	332	GLU	N-CA-CB	6.01	121.42	110.60
1	A	332	GLU	N-CA-CB	6.01	121.41	110.60
1	B	121	LEU	CB-CG-CD1	-6.00	100.80	111.00
1	A	121	LEU	CB-CG-CD1	-6.00	100.80	111.00
1	B	269	LEU	CA-CB-CG	-6.00	101.50	115.30
1	A	269	LEU	CA-CB-CG	-5.98	101.55	115.30
1	B	465	MET	CB-CA-C	-5.96	98.48	110.40
1	A	241	LEU	CA-CB-CG	5.96	129.01	115.30
1	A	465	MET	CB-CA-C	-5.96	98.48	110.40
1	B	114	ARG	NE-CZ-NH2	-5.95	117.32	120.30
1	B	241	LEU	CA-CB-CG	5.95	128.99	115.30
1	A	346	LEU	CB-CG-CD1	5.91	121.05	111.00
1	B	346	LEU	CB-CG-CD1	5.90	121.02	111.00
1	B	437	MET	N-CA-CB	-5.88	100.02	110.60
1	A	114	ARG	NE-CZ-NH2	-5.87	117.36	120.30
1	A	437	MET	N-CA-CB	-5.84	100.08	110.60
1	A	74	ILE	CB-CA-C	-5.84	99.92	111.60
1	A	388	ASP	CB-CG-OD1	-5.82	113.06	118.30
1	B	74	ILE	CB-CA-C	-5.82	99.96	111.60
1	A	446	ARG	NE-CZ-NH2	5.80	123.20	120.30
1	B	504	ARG	NE-CZ-NH1	-5.80	117.40	120.30
1	A	504	ARG	NE-CZ-NH1	-5.78	117.41	120.30
1	B	259	MET	CA-CB-CG	-5.77	103.49	113.30
1	A	259	MET	CA-CB-CG	-5.76	103.50	113.30
1	B	388	ASP	CB-CG-OD1	-5.76	113.12	118.30
1	A	518	ASN	N-CA-C	5.75	126.54	111.00
1	B	518	ASN	N-CA-C	5.75	126.52	111.00
1	A	494	ASP	CB-CA-C	-5.73	98.95	110.40
1	B	494	ASP	CB-CA-C	-5.72	98.95	110.40
1	B	289	LEU	CB-CG-CD2	5.72	120.72	111.00
1	A	289	LEU	CB-CG-CD2	5.71	120.71	111.00
1	A	297	ARG	N-CA-C	5.71	126.41	111.00
1	B	297	ARG	N-CA-C	5.70	126.40	111.00
1	B	244	TYR	N-CA-C	5.69	126.36	111.00
1	B	446	ARG	NE-CZ-NH2	5.69	123.14	120.30
1	B	120	VAL	CB-CA-C	5.69	122.21	111.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	244	TYR	N-CA-C	5.68	126.35	111.00
1	A	120	VAL	CB-CA-C	5.64	122.12	111.40
1	A	267	ILE	CB-CA-C	-5.57	100.45	111.60
1	B	227	GLY	N-CA-C	5.55	126.99	113.10
1	B	396	ARG	CG-CD-NE	-5.55	100.14	111.80
1	B	267	ILE	CB-CA-C	-5.54	100.51	111.60
1	A	227	GLY	N-CA-C	5.54	126.95	113.10
1	B	8	ARG	N-CA-CB	-5.53	100.64	110.60
1	B	425	PHE	CB-CA-C	5.52	121.44	110.40
1	A	396	ARG	CG-CD-NE	-5.52	100.22	111.80
1	A	425	PHE	CB-CA-C	5.51	121.42	110.40
1	A	388	ASP	CB-CG-OD2	5.51	123.26	118.30
1	A	8	ARG	N-CA-CB	-5.50	100.69	110.60
1	B	503	TYR	CB-CG-CD1	5.48	124.29	121.00
1	A	502	GLU	CA-CB-CG	-5.48	101.35	113.40
1	B	241	LEU	CB-CG-CD1	5.47	120.30	111.00
1	B	502	GLU	CA-CB-CG	-5.47	101.37	113.40
1	B	327	TYR	CA-CB-CG	5.46	123.77	113.40
1	B	388	ASP	CB-CG-OD2	5.45	123.21	118.30
1	B	304	ALA	N-CA-C	-5.45	96.28	111.00
1	A	241	LEU	CB-CG-CD1	5.45	120.26	111.00
1	A	304	ALA	N-CA-C	-5.44	96.31	111.00
1	B	146	VAL	CB-CA-C	-5.44	101.07	111.40
1	A	503	TYR	CB-CG-CD1	5.43	124.26	121.00
1	B	474	ASN	N-CA-CB	-5.43	100.82	110.60
1	A	327	TYR	CA-CB-CG	5.42	123.70	113.40
1	A	421	ALA	N-CA-C	-5.42	96.37	111.00
1	B	421	ALA	N-CA-C	-5.41	96.40	111.00
1	A	146	VAL	CB-CA-C	-5.41	101.13	111.40
1	A	474	ASN	N-CA-CB	-5.41	100.87	110.60
1	B	131	LEU	CA-CB-CG	-5.38	102.94	115.30
1	A	131	LEU	CA-CB-CG	-5.37	102.95	115.30
1	A	415	ASP	N-CA-C	5.36	125.46	111.00
1	B	415	ASP	N-CA-C	5.35	125.45	111.00
1	A	173	GLY	N-CA-C	5.34	126.46	113.10
1	B	173	GLY	N-CA-C	5.34	126.44	113.10
1	B	461	GLY	N-CA-C	-5.32	99.80	113.10
1	A	461	GLY	N-CA-C	-5.31	99.83	113.10
1	A	396	ARG	NE-CZ-NH2	-5.30	117.65	120.30
1	B	301	LEU	CA-CB-CG	5.30	127.48	115.30
1	B	250	ILE	CB-CA-C	-5.29	101.03	111.60
1	A	250	ILE	CB-CA-C	-5.28	101.04	111.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	364	ARG	CG-CD-NE	-5.28	100.72	111.80
1	B	396	ARG	NE-CZ-NH2	-5.27	117.66	120.30
1	A	301	LEU	CA-CB-CG	5.27	127.42	115.30
1	B	364	ARG	CG-CD-NE	-5.24	100.80	111.80
1	B	332	GLU	CB-CA-C	5.22	120.85	110.40
1	A	472	VAL	N-CA-C	-5.21	96.92	111.00
1	A	332	GLU	CB-CA-C	5.21	120.82	110.40
1	B	472	VAL	N-CA-C	-5.19	96.97	111.00
1	A	414	ILE	CG1-CB-CG2	5.19	122.82	111.40
1	B	414	ILE	CG1-CB-CG2	5.18	122.81	111.40
1	A	102	ILE	N-CA-C	5.18	124.98	111.00
1	A	72	SER	N-CA-C	-5.17	97.05	111.00
1	A	211	ARG	N-CA-C	-5.16	97.06	111.00
1	B	102	ILE	N-CA-C	5.16	124.94	111.00
1	A	317	ASP	CB-CG-OD2	5.15	122.94	118.30
1	B	211	ARG	N-CA-C	-5.15	97.10	111.00
1	B	72	SER	N-CA-C	-5.14	97.12	111.00
1	B	525	LEU	CA-CB-CG	-5.10	103.57	115.30
1	A	546	SER	CB-CA-C	5.09	119.77	110.10
1	B	281	ILE	N-CA-C	-5.09	97.26	111.00
1	B	546	SER	CB-CA-C	5.09	119.76	110.10
1	A	396	ARG	CA-CB-CG	-5.08	102.22	113.40
1	A	161	ARG	CB-CA-C	-5.08	100.24	110.40
1	B	396	ARG	CA-CB-CG	-5.08	102.22	113.40
1	A	281	ILE	N-CA-C	-5.08	97.29	111.00
1	B	161	ARG	CB-CA-C	-5.08	100.25	110.40
1	B	317	ASP	CB-CG-OD2	5.07	122.86	118.30
1	B	310	THR	N-CA-C	-5.07	97.32	111.00
1	A	525	LEU	CA-CB-CG	-5.06	103.66	115.30
1	A	217	LEU	CB-CG-CD2	-5.06	102.40	111.00
1	A	310	THR	N-CA-C	-5.06	97.34	111.00
1	A	314	ILE	CG1-CB-CG2	5.05	122.52	111.40
1	B	314	ILE	CG1-CB-CG2	5.05	122.51	111.40
1	B	217	LEU	CB-CG-CD2	-5.04	102.44	111.00
1	B	225	THR	CA-CB-CG2	-5.03	105.36	112.40
1	A	225	THR	CA-CB-CG2	-5.02	105.37	112.40
1	A	70	LEU	N-CA-CB	-5.01	100.37	110.40
1	A	356	ALA	N-CA-CB	5.00	117.10	110.10

All (4) chirality outliers are listed below:

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Mol	Chain	Res	Type	Atom
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Mol	Chain	Res	Type	Atom
1	A	187	TYR	CA
1	A	332	GLU	CA
1	B	187	TYR	CA
1	B	332	GLU	CA

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	4391	0	4330	531	0
1	B	4391	0	4330	548	0
2	A	61	0	35	13	0
2	B	61	0	35	13	0
3	A	55	0	0	9	0
3	B	52	0	0	9	0
All	All	9011	0	8730	1058	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 61.

All (1058) 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)
2:A:600:FAA:H51A	2:A:600:FAA:H8A	1.21	1.13
1:A:309:PRO:HG2	1:A:460:VAL:HB	1.32	1.11
2:B:600:FAA:H51A	2:B:600:FAA:H8A	1.21	1.10
1:A:555:HIS:HB3	1:A:559:LYS:HE3	1.32	1.07
1:A:507:LEU:HA	1:A:510:MET:HE3	1.37	1.06
1:B:309:PRO:HG2	1:B:460:VAL:HB	1.32	1.05
1:B:555:HIS:HB3	1:B:559:LYS:HE3	1.32	1.05
1:B:507:LEU:HA	1:B:510:MET:HE3	1.44	0.98
1:A:56:HIS:HA	1:A:111:ALA:HB3	1.44	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:56:HIS:HA	1:B:111:ALA:HB3	1.44	0.96
1:B:280:LEU:HD12	1:B:281:ILE:H	1.31	0.95
1:A:280:LEU:HD12	1:A:281:ILE:H	1.31	0.95
1:B:61:HIS:HB3	1:B:421:ALA:HB1	1.49	0.94
1:A:200:MET:HE2	1:A:251:ASP:HB3	1.51	0.93
1:A:61:HIS:HB3	1:A:421:ALA:HB1	1.49	0.92
1:A:253:LEU:HD11	1:B:253:LEU:HD21	1.51	0.91
1:A:414:ILE:HD11	2:A:600:FAA:HM71	1.54	0.90
1:B:200:MET:HE2	1:B:251:ASP:HB3	1.51	0.90
1:A:61:HIS:HE1	3:A:641:HOH:O	1.54	0.90
1:B:419:ASN:O	1:B:474:ASN:HA	1.72	0.89
1:B:555:HIS:CB	1:B:559:LYS:HE3	2.02	0.88
1:A:555:HIS:CB	1:A:559:LYS:HE3	2.02	0.88
1:A:480:GLN:HA	1:A:483:LYS:CD	2.04	0.88
1:B:554:SER:HB3	1:B:557:THR:HB	1.56	0.88
1:A:309:PRO:HG2	1:A:460:VAL:CB	2.04	0.88
1:B:414:ILE:HD11	2:B:600:FAA:HM71	1.54	0.88
1:B:425:PHE:CE2	1:B:427:PRO:HG3	2.09	0.88
1:B:133:VAL:HG21	1:B:154:TYR:CE1	2.09	0.87
1:A:419:ASN:O	1:A:474:ASN:HA	1.72	0.87
1:B:480:GLN:HA	1:B:483:LYS:CD	2.04	0.87
1:A:133:VAL:HG21	1:A:154:TYR:CE1	2.09	0.87
1:B:507:LEU:HA	1:B:510:MET:CE	2.05	0.87
1:A:507:LEU:HA	1:A:510:MET:CE	2.05	0.87
1:A:425:PHE:CE2	1:A:427:PRO:HG3	2.09	0.87
1:B:309:PRO:HG2	1:B:460:VAL:CB	2.04	0.86
1:B:289:LEU:HD23	1:B:437:MET:HE3	1.59	0.85
1:A:554:SER:HB3	1:A:557:THR:HB	1.56	0.85
1:B:480:GLN:HA	1:B:483:LYS:HD2	1.58	0.85
1:B:463:ARG:HD2	3:B:630:HOH:O	1.76	0.84
1:A:56:HIS:HA	1:A:111:ALA:CB	2.09	0.83
1:A:80:VAL:HG11	1:A:209:LEU:HD21	1.61	0.82
1:A:289:LEU:HD23	1:A:437:MET:HE3	1.61	0.82
1:A:61:HIS:NE2	1:A:422:HIS:ND1	2.28	0.82
1:A:369:GLU:O	1:A:373:ASP:HB3	1.79	0.82
1:A:378:ILE:HB	1:A:381:VAL:HG21	1.62	0.82
1:A:425:PHE:CZ	1:A:427:PRO:HG3	2.14	0.82
1:A:480:GLN:HA	1:A:483:LYS:HD2	1.59	0.82
1:A:247:GLY:O	1:B:183:ARG:NH2	2.11	0.82
1:B:56:HIS:HA	1:B:111:ALA:CB	2.09	0.82
1:B:369:GLU:O	1:B:373:ASP:HB3	1.79	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:600:FAA:H8A	2:B:600:FAA:C5B	2.07	0.82
1:B:425:PHE:CZ	1:B:427:PRO:HG3	2.14	0.81
1:A:132:GLU:HG2	1:A:133:VAL:N	1.95	0.81
1:B:61:HIS:NE2	1:B:422:HIS:ND1	2.28	0.81
1:B:80:VAL:HG11	1:B:209:LEU:HD21	1.61	0.81
1:A:309:PRO:CG	1:A:460:VAL:HB	2.10	0.81
1:B:378:ILE:HB	1:B:381:VAL:HG21	1.62	0.81
1:A:187:TYR:O	1:A:307:ASN:HB2	1.82	0.80
2:A:600:FAA:H8A	2:A:600:FAA:C5B	2.07	0.80
1:B:156:GLU:HB2	1:B:161:ARG:HH21	1.46	0.80
2:B:600:FAA:H51A	2:B:600:FAA:C8A	2.09	0.80
1:B:316:LEU:O	1:B:320:VAL:HG23	1.81	0.80
1:A:316:LEU:O	1:A:320:VAL:HG23	1.81	0.80
1:B:187:TYR:O	1:B:307:ASN:HB2	1.82	0.80
1:A:479:ILE:O	1:A:483:LYS:HG3	1.81	0.79
1:A:156:GLU:HB2	1:A:161:ARG:HH21	1.46	0.79
1:A:445:LYS:O	1:A:449:GLU:HG3	1.82	0.79
1:B:479:ILE:O	1:B:483:LYS:HG3	1.81	0.79
1:B:132:GLU:HG2	1:B:133:VAL:N	1.95	0.79
1:A:40:ILE:HD11	1:A:57:THR:HG22	1.64	0.79
1:B:445:LYS:O	1:B:449:GLU:HG3	1.82	0.79
1:B:40:ILE:HD11	1:B:57:THR:HG22	1.64	0.79
1:B:309:PRO:CG	1:B:460:VAL:HB	2.10	0.78
1:B:480:GLN:O	1:B:484:VAL:HG23	1.84	0.78
1:A:341:LYS:O	1:A:345:GLN:HG3	1.83	0.78
1:A:177:LEU:HD12	1:A:265:ILE:HG22	1.66	0.78
1:B:45:GLN:HA	3:B:642:HOH:O	1.83	0.78
1:B:289:LEU:HB2	1:B:351:TRP:NE1	1.98	0.78
1:A:480:GLN:O	1:A:484:VAL:HG23	1.84	0.78
1:B:91:ASN:ND2	1:B:538:ASN:HD22	1.82	0.78
1:A:289:LEU:HB2	1:A:351:TRP:NE1	1.98	0.78
1:B:550:PRO:HB2	1:B:552:GLN:HG2	1.66	0.78
1:B:177:LEU:HD12	1:B:265:ILE:HG22	1.65	0.77
1:B:341:LYS:O	1:B:345:GLN:HG3	1.83	0.77
1:B:79:ASN:ND2	1:B:81:ALA:HB3	2.00	0.77
1:A:91:ASN:ND2	1:A:538:ASN:HD22	1.82	0.77
1:A:253:LEU:HD21	1:B:253:LEU:HD11	1.67	0.77
1:B:300:ARG:HA	1:B:305:LEU:HB2	1.67	0.77
1:A:300:ARG:HA	1:A:305:LEU:HB2	1.67	0.76
1:A:77:PRO:HB2	1:A:127:MET:CE	2.15	0.76
2:A:600:FAA:H51A	2:A:600:FAA:C8A	2.09	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:51:TYR:CE1	1:B:171:LEU:HD13	2.21	0.76
1:B:98:TRP:HB3	1:B:120:VAL:HG22	1.67	0.76
1:A:51:TYR:CE1	1:A:171:LEU:HD13	2.21	0.76
1:B:77:PRO:HB2	1:B:127:MET:CE	2.15	0.76
1:A:61:HIS:HA	1:A:475:LYS:HE2	1.68	0.75
1:A:550:PRO:HB2	1:A:552:GLN:HG2	1.66	0.75
1:A:555:HIS:CG	1:A:559:LYS:HE3	2.22	0.75
1:A:79:ASN:ND2	1:A:81:ALA:HB3	2.00	0.75
1:B:61:HIS:HA	1:B:475:LYS:HE2	1.68	0.75
1:B:414:ILE:HG23	3:B:636:HOH:O	1.85	0.75
1:A:43:LYS:O	1:A:45:GLN:HG2	1.87	0.75
1:B:485:GLN:O	1:B:489:ARG:HG3	1.86	0.75
1:B:555:HIS:CG	1:B:559:LYS:HE3	2.21	0.75
1:A:229:LYS:O	1:A:233:GLN:HG3	1.86	0.75
1:B:341:LYS:O	1:B:344:LYS:HG2	1.87	0.75
1:B:229:LYS:O	1:B:233:GLN:HG3	1.86	0.75
1:B:47:VAL:HG11	3:B:640:HOH:O	1.86	0.75
1:A:289:LEU:HB2	1:A:351:TRP:CD1	2.22	0.74
1:B:280:LEU:HD12	1:B:281:ILE:N	2.02	0.74
1:B:10:LEU:HD21	1:B:42:SER:CA	2.18	0.74
1:B:555:HIS:HB3	1:B:559:LYS:CE	2.15	0.74
1:A:98:TRP:HB3	1:A:120:VAL:HG22	1.67	0.74
1:B:43:LYS:O	1:B:45:GLN:HG2	1.86	0.74
1:A:485:GLN:O	1:A:489:ARG:HG3	1.86	0.74
1:B:289:LEU:HB2	1:B:351:TRP:CD1	2.22	0.74
1:A:280:LEU:HD12	1:A:281:ILE:N	2.02	0.73
1:A:10:LEU:HD21	1:A:42:SER:CA	2.18	0.73
1:B:399:ASP:O	1:B:403:GLN:HG2	1.88	0.73
1:B:505:THR:OG1	1:B:513:ILE:HD12	1.88	0.73
1:B:505:THR:HG21	1:B:509:PHE:HB2	1.69	0.73
1:A:399:ASP:O	1:A:403:GLN:HG2	1.88	0.73
1:A:95:PHE:CE1	1:A:119:VAL:HG23	2.24	0.73
1:A:341:LYS:O	1:A:344:LYS:HG2	1.87	0.73
1:B:202:VAL:HG23	1:B:261:ILE:O	1.88	0.73
1:A:202:VAL:HG23	1:A:261:ILE:C	2.09	0.73
1:A:505:THR:HG21	1:A:509:PHE:HB2	1.69	0.73
1:A:217:LEU:HB2	1:B:517:TYR:CE1	2.24	0.72
1:B:95:PHE:CE1	1:B:119:VAL:HG23	2.24	0.72
1:B:537:PRO:HD2	1:B:538:ASN:H	1.54	0.72
1:A:170:ASP:OD2	2:A:600:FAA:H7P1	1.89	0.72
1:A:505:THR:OG1	1:A:513:ILE:HD12	1.88	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:460:VAL:HG13	1:B:465:MET:HG2	1.72	0.72
1:B:202:VAL:HG23	1:B:261:ILE:C	2.09	0.72
1:A:445:LYS:O	1:A:448:GLN:HB3	1.89	0.72
1:A:361:GLU:O	1:A:361:GLU:HG2	1.90	0.72
1:A:202:VAL:HG23	1:A:261:ILE:O	1.88	0.72
1:A:284:PRO:HD2	1:A:288:ASP:OD2	1.89	0.72
1:B:363:ILE:HD12	1:B:363:ILE:N	2.05	0.72
1:B:170:ASP:OD2	2:B:600:FAA:H7P1	1.88	0.72
1:B:284:PRO:HD2	1:B:288:ASP:OD2	1.89	0.72
1:B:332:GLU:HB3	1:B:333:PRO:CD	2.19	0.72
1:B:292:ALA:O	1:B:295:ILE:HB	1.90	0.71
1:A:332:GLU:HB3	1:A:333:PRO:CD	2.19	0.71
1:A:537:PRO:HD2	1:A:538:ASN:H	1.54	0.71
1:A:460:VAL:HG13	1:A:465:MET:HG2	1.72	0.71
1:B:433:GLY:O	1:B:437:MET:HB2	1.91	0.71
1:A:79:ASN:HD21	1:A:81:ALA:HB3	1.55	0.71
1:A:537:PRO:HD2	3:A:612:HOH:O	1.89	0.71
1:B:445:LYS:O	1:B:448:GLN:HB3	1.89	0.71
1:B:550:PRO:CB	1:B:552:GLN:HE21	2.03	0.71
1:A:313:HIS:HB2	1:A:351:TRP:CZ3	2.26	0.71
1:A:363:ILE:N	1:A:363:ILE:HD12	2.05	0.71
1:A:433:GLY:O	1:A:437:MET:HB2	1.91	0.71
1:B:61:HIS:NE2	1:B:422:HIS:CE1	2.59	0.71
1:A:519:TRP:CZ3	1:B:211:ARG:HG3	2.26	0.70
1:B:79:ASN:HD21	1:B:81:ALA:HB3	1.55	0.70
1:A:68:TYR:HA	3:A:645:HOH:O	1.91	0.70
1:B:351:TRP:CE3	1:B:351:TRP:HA	2.26	0.70
1:B:361:GLU:O	1:B:361:GLU:HG2	1.90	0.70
1:B:200:MET:CE	1:B:251:ASP:HB3	2.22	0.70
1:A:292:ALA:O	1:A:295:ILE:HB	1.90	0.70
1:A:555:HIS:HB3	1:A:559:LYS:CE	2.15	0.70
1:A:60:PRO:O	1:A:62:HIS:ND1	2.24	0.70
1:A:550:PRO:CB	1:A:552:GLN:HE21	2.04	0.70
1:A:61:HIS:NE2	1:A:422:HIS:CE1	2.59	0.69
1:A:134:ASN:OD1	1:A:137:GLY:N	2.23	0.69
1:A:351:TRP:HA	1:A:351:TRP:CE3	2.26	0.69
1:A:91:ASN:HD22	1:A:538:ASN:HD22	1.40	0.69
1:A:247:GLY:C	1:B:183:ARG:HH22	1.95	0.69
1:B:313:HIS:HB2	1:B:351:TRP:CZ3	2.26	0.69
1:B:324:LYS:HB2	1:B:416:TRP:CE2	2.28	0.69
1:B:505:THR:HG22	1:B:506:HIS:N	2.08	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:378:ILE:HB	1:B:381:VAL:CG2	2.23	0.68
1:B:312:ARG:NH1	1:B:317:ASP:OD1	2.27	0.68
1:B:156:GLU:OE1	1:B:161:ARG:NH2	2.27	0.68
1:A:505:THR:HG22	1:A:506:HIS:N	2.08	0.68
1:A:312:ARG:NH1	1:A:317:ASP:OD1	2.27	0.68
1:A:324:LYS:HB2	1:A:416:TRP:CE2	2.28	0.68
1:A:416:TRP:C	1:A:417:LEU:HD23	2.13	0.68
1:A:156:GLU:OE1	1:A:161:ARG:NH2	2.27	0.68
1:B:10:LEU:HD21	1:B:42:SER:HA	1.75	0.68
1:B:363:ILE:HD12	1:B:363:ILE:H	1.58	0.68
1:B:217:LEU:HD12	1:B:218:PRO:CD	2.23	0.68
1:B:177:LEU:HG	1:B:265:ILE:CG2	2.24	0.67
1:B:416:TRP:C	1:B:417:LEU:HD23	2.13	0.67
1:A:177:LEU:HG	1:A:265:ILE:CG2	2.24	0.67
1:A:339:LEU:O	1:A:343:ALA:N	2.24	0.67
1:A:10:LEU:HD21	1:A:42:SER:HA	1.75	0.67
1:A:217:LEU:HD12	1:A:218:PRO:CD	2.24	0.67
1:A:378:ILE:HB	1:A:381:VAL:CG2	2.24	0.67
1:B:91:ASN:HD22	1:B:538:ASN:HD22	1.40	0.67
1:A:77:PRO:HB2	1:A:127:MET:HE3	1.75	0.67
1:A:200:MET:CE	1:A:251:ASP:HB3	2.22	0.67
1:A:237:LYS:HD2	1:B:500:TRP:NE1	2.10	0.67
1:B:417:LEU:HB3	1:B:418:PRO:HD2	1.77	0.67
1:A:211:ARG:HG3	1:B:519:TRP:CZ3	2.30	0.67
1:B:48:ASP:OD1	1:B:66:GLN:NE2	2.28	0.67
1:B:77:PRO:HB2	1:B:127:MET:HE3	1.75	0.67
1:A:97:LEU:CD2	1:A:119:VAL:HB	2.25	0.67
1:B:97:LEU:CD2	1:B:119:VAL:HB	2.25	0.66
1:A:363:ILE:HD12	1:A:363:ILE:H	1.58	0.66
1:B:505:THR:HG22	1:B:506:HIS:H	1.61	0.66
1:A:417:LEU:HB3	1:A:418:PRO:HD2	1.77	0.66
1:A:505:THR:HG22	1:A:506:HIS:H	1.60	0.66
1:A:48:ASP:OD1	1:A:66:GLN:NE2	2.28	0.66
1:A:283:LEU:HB2	1:A:351:TRP:HB2	1.77	0.66
1:A:531:LEU:HD22	1:B:531:LEU:HD22	1.78	0.66
1:B:283:LEU:HB2	1:B:351:TRP:HB2	1.78	0.65
1:B:312:ARG:NH2	1:B:410:GLU:OE1	2.29	0.65
1:A:312:ARG:NH2	1:A:410:GLU:OE1	2.29	0.65
1:A:503:TYR:HD2	3:A:654:HOH:O	1.78	0.65
1:B:65:ASP:OD1	1:B:65:ASP:N	2.29	0.65
1:A:339:LEU:O	1:A:342:ILE:N	2.30	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:35:GLU:HA	1:B:35:GLU:OE1	1.96	0.65
1:B:339:LEU:O	1:B:343:ALA:N	2.24	0.65
1:A:429:ALA:HB2	1:A:439:GLN:NE2	2.11	0.65
1:A:446:ARG:NH1	1:A:449:GLU:OE1	2.30	0.65
1:B:339:LEU:O	1:B:342:ILE:N	2.30	0.65
1:B:445:LYS:HD3	3:B:620:HOH:O	1.96	0.65
1:A:43:LYS:C	1:A:45:GLN:H	1.99	0.65
1:B:134:ASN:OD1	1:B:137:GLY:N	2.23	0.65
1:B:429:ALA:HB2	1:B:439:GLN:NE2	2.11	0.65
1:A:62:HIS:HE1	1:A:475:LYS:HD3	1.61	0.64
1:B:177:LEU:CD1	1:B:265:ILE:HG22	2.28	0.64
1:B:324:LYS:HA	1:B:416:TRP:CH2	2.32	0.64
1:A:58:HIS:HD2	1:A:59:ASP:C	2.00	0.64
1:A:299:LEU:HB3	1:A:305:LEU:HG	1.79	0.64
1:A:65:ASP:N	1:A:65:ASP:OD1	2.29	0.64
1:A:160:LEU:O	1:A:163:LYS:N	2.30	0.64
1:A:457:THR:HG22	1:A:458:PHE:N	2.11	0.64
1:B:550:PRO:HB3	1:B:552:GLN:HE21	1.62	0.64
1:A:183:ARG:NH2	1:A:256:GLN:HB2	2.13	0.64
1:A:277:GLN:HB3	1:A:357:LEU:HD12	1.78	0.64
1:A:324:LYS:HA	1:A:416:TRP:CH2	2.32	0.64
1:B:277:GLN:HB3	1:B:357:LEU:HD12	1.78	0.64
1:B:60:PRO:O	1:B:62:HIS:ND1	2.24	0.64
1:A:35:GLU:OE1	1:A:35:GLU:HA	1.96	0.64
1:B:58:HIS:HD2	1:B:59:ASP:C	2.00	0.64
1:B:446:ARG:NH1	1:B:449:GLU:OE1	2.30	0.64
1:A:62:HIS:CE1	1:A:475:LYS:HD3	2.33	0.64
1:B:43:LYS:C	1:B:45:GLN:H	1.99	0.64
1:B:62:HIS:HE1	1:B:475:LYS:HD3	1.61	0.64
1:B:166:LEU:HD23	1:B:269:LEU:HD22	1.78	0.64
1:B:183:ARG:NH2	1:B:256:GLN:HB2	2.13	0.64
1:B:62:HIS:CE1	1:B:475:LYS:HD3	2.33	0.64
1:B:299:LEU:HB3	1:B:305:LEU:HG	1.80	0.63
1:B:439:GLN:O	1:B:442:VAL:HB	1.98	0.63
2:B:600:FAA:C2P	2:B:600:FAA:C4	2.76	0.63
1:A:188:THR:HB	1:A:189:PRO:HD2	1.81	0.63
1:B:222:ARG:HB2	1:B:223:PRO:HD2	1.79	0.63
1:B:416:TRP:O	1:B:417:LEU:HD23	1.99	0.63
1:A:166:LEU:HD23	1:A:269:LEU:HD22	1.79	0.63
1:A:451:GLY:O	1:A:452:LEU:HD23	1.98	0.63
1:A:138:ALA:O	1:B:463:ARG:NH2	2.27	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:457:THR:HG22	1:B:458:PHE:N	2.11	0.63
1:B:506:HIS:ND1	1:B:507:LEU:N	2.46	0.63
2:A:600:FAA:C2P	2:A:600:FAA:C4	2.76	0.63
1:B:78:ARG:HD3	1:B:82:ASP:OD2	1.98	0.63
1:A:302:GLY:O	1:A:303:MET:HB2	1.98	0.62
1:B:201:GLU:HG2	1:B:263:THR:OG1	1.99	0.62
1:B:302:GLY:O	1:B:303:MET:HB2	1.98	0.62
1:B:411:LEU:O	1:B:414:ILE:HB	1.99	0.62
1:B:451:GLY:O	1:B:452:LEU:HD23	1.98	0.62
1:A:194:TRP:O	1:A:197:HIS:HD2	1.81	0.62
1:A:550:PRO:HB3	1:A:552:GLN:HE21	1.62	0.62
1:B:399:ASP:OD1	1:B:403:GLN:NE2	2.32	0.62
1:A:222:ARG:HB2	1:A:223:PRO:HD2	1.79	0.62
1:A:506:HIS:ND1	1:A:507:LEU:N	2.46	0.62
1:A:62:HIS:ND1	1:A:62:HIS:N	2.47	0.62
1:A:201:GLU:HG2	1:A:263:THR:OG1	1.99	0.62
1:A:506:HIS:CE1	1:A:508:ALA:H	2.18	0.62
1:A:532:LYS:NZ	1:A:541:ILE:O	2.32	0.62
1:B:200:MET:O	1:B:211:ARG:HA	1.99	0.62
1:A:399:ASP:OD1	1:A:403:GLN:NE2	2.32	0.62
1:B:194:TRP:O	1:B:197:HIS:HD2	1.81	0.62
1:A:177:LEU:CD1	1:A:265:ILE:HG22	2.28	0.62
1:A:295:ILE:O	1:A:298:PRO:HD2	2.00	0.62
1:A:480:GLN:O	1:A:483:LYS:HB2	1.99	0.62
1:A:78:ARG:HD3	1:A:82:ASP:OD2	1.99	0.62
1:B:149:HIS:O	1:B:152:HIS:HB3	2.00	0.62
1:B:480:GLN:O	1:B:483:LYS:HB2	1.99	0.62
1:A:197:HIS:HA	1:A:266:GLY:O	2.00	0.62
1:B:309:PRO:HG2	1:B:460:VAL:CG2	2.30	0.62
1:B:389:THR:HB	1:B:390:PRO:HD2	1.82	0.62
1:A:200:MET:O	1:A:211:ARG:HA	1.99	0.62
1:B:506:HIS:CE1	1:B:508:ALA:H	2.17	0.62
1:A:439:GLN:O	1:A:442:VAL:HB	1.98	0.61
1:A:309:PRO:HG2	1:A:460:VAL:CG2	2.30	0.61
1:A:416:TRP:O	1:A:417:LEU:HD23	1.99	0.61
1:A:253:LEU:CD1	1:B:253:LEU:HD21	2.29	0.61
1:A:411:LEU:O	1:A:414:ILE:HB	1.99	0.61
1:A:149:HIS:O	1:A:152:HIS:HB3	2.00	0.61
1:B:197:HIS:HA	1:B:266:GLY:O	2.00	0.61
1:B:295:ILE:O	1:B:298:PRO:HD2	2.00	0.61
1:A:389:THR:HB	1:A:390:PRO:HD2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:283:LEU:O	1:A:349:GLY:HA3	2.01	0.61
1:B:74:ILE:HG22	1:B:75:VAL:N	2.16	0.61
1:B:306:GLN:OE1	1:B:357:LEU:HA	2.01	0.61
1:A:51:TYR:CZ	1:A:171:LEU:HD13	2.36	0.61
1:A:306:GLN:OE1	1:A:357:LEU:HA	2.01	0.61
1:B:283:LEU:O	1:B:349:GLY:HA3	2.01	0.61
1:A:43:LYS:O	1:A:45:GLN:N	2.33	0.60
1:A:206:ASN:OD1	1:A:208:GLU:N	2.30	0.60
1:A:279:TYR:HA	1:A:395:LEU:HD21	1.83	0.60
1:B:188:THR:HB	1:B:189:PRO:HD2	1.81	0.60
1:B:43:LYS:O	1:B:45:GLN:N	2.33	0.60
1:B:51:TYR:CZ	1:B:171:LEU:HD13	2.36	0.60
1:B:102:ILE:HG12	1:B:175:SER:HB2	1.83	0.60
1:B:507:LEU:HD23	1:B:510:MET:HE3	1.82	0.60
1:B:532:LYS:NZ	1:B:541:ILE:O	2.32	0.60
1:A:102:ILE:HG12	1:A:175:SER:HB2	1.83	0.60
1:A:414:ILE:HD11	2:A:600:FAA:C8M	2.31	0.60
1:B:62:HIS:ND1	1:B:62:HIS:N	2.47	0.60
1:A:40:ILE:CD1	1:A:57:THR:HG22	2.31	0.60
1:A:517:TYR:CE1	1:B:217:LEU:HB2	2.37	0.60
1:B:506:HIS:ND1	1:B:508:ALA:N	2.48	0.60
1:A:108:TYR:HD1	1:A:505:THR:C	2.05	0.60
1:B:279:TYR:HA	1:B:395:LEU:HD21	1.83	0.60
1:A:79:ASN:O	1:A:82:ASP:HB2	2.02	0.59
1:B:108:TYR:HD1	1:B:505:THR:C	2.05	0.59
1:A:74:ILE:HG22	1:A:75:VAL:N	2.16	0.59
1:B:79:ASN:O	1:B:82:ASP:HB2	2.02	0.59
1:B:94:SER:HA	1:B:540:ILE:HD11	1.85	0.59
1:B:24:PHE:O	1:B:28:ILE:HG13	2.02	0.59
1:B:160:LEU:O	1:B:163:LYS:N	2.30	0.59
1:B:177:LEU:HG	1:B:265:ILE:HG21	1.85	0.59
1:B:539:GLY:O	1:B:543:PRO:HG3	2.03	0.59
1:B:210:LEU:HD23	1:B:211:ARG:N	2.18	0.59
1:A:237:LYS:HD2	1:B:500:TRP:HE1	1.68	0.59
1:B:189:PRO:HD3	1:B:307:ASN:HB3	1.84	0.59
1:B:273:PRO:O	1:B:359:GLY:HA2	2.03	0.59
1:B:414:ILE:HD11	2:B:600:FAA:C8M	2.32	0.59
1:A:24:PHE:O	1:A:28:ILE:HG13	2.02	0.59
1:A:189:PRO:HD3	1:A:307:ASN:HB3	1.84	0.59
1:A:10:LEU:CD2	1:A:42:SER:HA	2.32	0.59
1:A:173:GLY:N	1:A:408:TYR:HE1	2.01	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:LEU:HD23	1:A:211:ARG:N	2.18	0.59
1:A:361:GLU:HB3	1:A:362:PRO:HD3	1.85	0.59
1:A:539:GLY:O	1:A:543:PRO:HG3	2.03	0.59
1:B:361:GLU:HB3	1:B:362:PRO:HD3	1.85	0.59
1:A:183:ARG:NH2	1:B:247:GLY:O	2.35	0.58
1:A:309:PRO:HB2	1:A:353:PHE:HE1	1.68	0.58
1:A:94:SER:HA	1:A:540:ILE:HD11	1.84	0.58
1:A:156:GLU:HB2	1:A:161:ARG:NH2	2.17	0.58
1:B:223:PRO:HD2	1:B:224:GLU:OE2	2.04	0.58
1:B:309:PRO:HB2	1:B:353:PHE:HE1	1.68	0.58
1:A:273:PRO:O	1:A:359:GLY:HA2	2.03	0.58
1:A:502:GLU:HG2	1:A:503:TYR:N	2.17	0.58
1:B:502:GLU:HG2	1:B:503:TYR:H	1.69	0.58
1:A:95:PHE:O	1:A:540:ILE:HD12	2.03	0.58
1:A:324:LYS:HB2	1:A:416:TRP:CD2	2.39	0.58
1:A:502:GLU:HG2	1:A:503:TYR:H	1.69	0.58
1:B:502:GLU:HG2	1:B:503:TYR:N	2.17	0.58
1:A:223:PRO:HD2	1:A:224:GLU:OE2	2.04	0.58
1:B:324:LYS:HB2	1:B:416:TRP:CD2	2.39	0.58
1:A:330:ARG:NH1	1:A:338:GLU:OE1	2.37	0.58
1:B:10:LEU:CD2	1:B:42:SER:HA	2.32	0.58
1:B:62:HIS:CG	1:B:66:GLN:HG3	2.39	0.58
1:B:330:ARG:NH1	1:B:338:GLU:OE1	2.37	0.58
1:A:104:ARG:C	1:A:106:SER:H	2.07	0.58
1:B:173:GLY:N	1:B:408:TYR:HE1	2.01	0.58
1:B:487:LEU:HD11	1:B:491:LEU:HD11	1.86	0.58
1:B:95:PHE:O	1:B:540:ILE:HD12	2.03	0.58
1:A:62:HIS:CG	1:A:66:GLN:HG3	2.39	0.57
1:A:241:LEU:HB3	1:B:463:ARG:O	2.04	0.57
1:A:177:LEU:HG	1:A:265:ILE:HG21	1.85	0.57
1:A:414:ILE:CD1	2:A:600:FAA:HM71	2.31	0.57
1:B:156:GLU:HB2	1:B:161:ARG:NH2	2.17	0.57
1:B:210:LEU:HD23	1:B:210:LEU:C	2.25	0.57
1:A:210:LEU:HD23	1:A:210:LEU:C	2.25	0.57
1:B:40:ILE:CD1	1:B:57:THR:HG22	2.31	0.57
1:B:78:ARG:HB2	1:B:82:ASP:OD2	2.04	0.57
1:A:354:TYR:CD2	1:A:395:LEU:HD13	2.40	0.57
1:B:480:GLN:HA	1:B:483:LYS:CG	2.34	0.57
1:B:488:MET:O	1:B:492:ILE:HG13	2.05	0.57
1:A:338:GLU:O	1:A:342:ILE:HG13	2.04	0.57
1:B:276:TYR:HE2	1:B:403:GLN:NE2	2.02	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:338:GLU:O	1:B:342:ILE:HG13	2.04	0.57
1:B:417:LEU:HD23	1:B:417:LEU:N	2.19	0.57
1:A:78:ARG:HB2	1:A:82:ASP:OD2	2.04	0.57
1:A:480:GLN:HA	1:A:483:LYS:CG	2.34	0.57
1:A:248:PRO:HG3	1:B:257:SER:CB	2.34	0.57
1:A:552:GLN:CD	1:A:552:GLN:H	2.08	0.57
1:A:276:TYR:HE2	1:A:403:GLN:NE2	2.02	0.57
1:A:359:GLY:O	1:A:364:ARG:NE	2.38	0.57
1:B:224:GLU:CD	1:B:224:GLU:H	2.08	0.57
1:B:359:GLY:O	1:B:364:ARG:NE	2.38	0.57
1:B:429:ALA:O	1:B:465:MET:N	2.37	0.57
1:A:325:ARG:C	1:A:327:TYR:H	2.08	0.57
1:A:312:ARG:NH1	1:A:316:LEU:HG	2.20	0.56
1:A:506:HIS:ND1	1:A:508:ALA:N	2.48	0.56
1:A:507:LEU:HD23	1:A:510:MET:HE3	1.87	0.56
1:B:104:ARG:C	1:B:106:SER:H	2.07	0.56
1:A:238:ILE:HD11	1:B:429:ALA:HA	1.87	0.56
1:A:478:LEU:CD1	1:A:478:LEU:H	2.19	0.56
1:A:488:MET:O	1:A:492:ILE:HG13	2.05	0.56
1:A:324:LYS:HA	1:A:416:TRP:CZ3	2.41	0.56
1:A:407:THR:OG1	1:A:408:TYR:N	2.37	0.56
1:A:487:LEU:HD11	1:A:491:LEU:HD11	1.86	0.56
1:B:324:LYS:HA	1:B:416:TRP:CZ3	2.41	0.56
1:A:167:ASP:OD1	1:A:186:GLY:HA3	2.05	0.56
1:B:52:MET:O	1:B:53:LYS:HG3	2.06	0.56
1:B:312:ARG:NH1	1:B:316:LEU:HG	2.20	0.56
1:B:354:TYR:CD2	1:B:395:LEU:HD13	2.40	0.56
1:A:52:MET:O	1:A:53:LYS:HG3	2.06	0.56
1:A:177:LEU:HG	1:A:265:ILE:HG22	1.86	0.56
1:B:177:LEU:HG	1:B:265:ILE:HG22	1.86	0.56
1:B:169:PRO:HG3	1:B:193:HIS:HE1	1.71	0.56
1:A:224:GLU:CD	1:A:224:GLU:H	2.08	0.56
1:A:169:PRO:HG3	1:A:193:HIS:HE1	1.71	0.55
1:B:62:HIS:H	1:B:62:HIS:HD1	1.51	0.55
1:B:167:ASP:OD1	1:B:186:GLY:HA3	2.05	0.55
1:A:39:VAL:HG22	1:A:73:ALA:HB2	1.89	0.55
1:B:9:PRO:HA	1:B:40:ILE:O	2.07	0.55
1:B:478:LEU:H	1:B:478:LEU:CD1	2.19	0.55
1:A:300:ARG:HE	1:A:309:PRO:HD2	1.72	0.55
1:A:132:GLU:HG2	1:A:133:VAL:H	1.71	0.55
1:A:494:ASP:O	1:A:497:ALA:HB3	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:282:THR:C	1:B:283:LEU:HD23	2.27	0.55
1:B:552:GLN:CD	1:B:552:GLN:H	2.08	0.55
1:B:300:ARG:HE	1:B:309:PRO:HD2	1.72	0.55
1:B:385:PHE:O	1:B:388:ASP:N	2.40	0.55
1:A:62:HIS:H	1:A:62:HIS:HD1	1.51	0.55
1:A:152:HIS:CE1	1:A:161:ARG:NH2	2.75	0.55
1:A:332:GLU:HB3	1:A:333:PRO:HD2	1.89	0.55
1:B:325:ARG:C	1:B:327:TYR:H	2.08	0.55
1:B:494:ASP:O	1:B:497:ALA:HB3	2.06	0.55
1:B:407:THR:OG1	1:B:408:TYR:N	2.37	0.54
1:A:237:LYS:HD2	1:B:500:TRP:CD1	2.42	0.54
1:A:429:ALA:O	1:A:465:MET:N	2.37	0.54
1:A:522:SER:O	1:A:526:ARG:HG2	2.08	0.54
1:A:104:ARG:O	1:A:106:SER:N	2.38	0.54
1:B:206:ASN:OD1	1:B:208:GLU:N	2.30	0.54
1:B:458:PHE:N	1:B:458:PHE:CD1	2.74	0.54
1:A:9:PRO:HA	1:A:40:ILE:O	2.07	0.54
1:A:97:LEU:HD23	1:A:119:VAL:HB	1.90	0.54
1:A:282:THR:C	1:A:283:LEU:HD23	2.27	0.54
1:A:429:ALA:HB2	1:A:439:GLN:HE22	1.73	0.54
1:B:522:SER:O	1:B:526:ARG:HG2	2.08	0.54
1:A:458:PHE:N	1:A:458:PHE:CD1	2.75	0.54
1:B:97:LEU:HD23	1:B:119:VAL:HB	1.90	0.54
1:B:152:HIS:CE1	1:B:161:ARG:NH2	2.75	0.54
1:B:39:VAL:HG22	1:B:73:ALA:HB2	1.89	0.54
1:B:61:HIS:CB	1:B:421:ALA:HB1	2.31	0.54
1:B:414:ILE:CD1	2:B:600:FAA:HM71	2.31	0.54
1:A:59:ASP:N	1:A:112:ALA:HB2	2.23	0.53
1:A:385:PHE:O	1:A:388:ASP:N	2.40	0.53
1:B:142:VAL:HB	1:B:146:VAL:HG21	1.90	0.53
1:A:181:VAL:O	1:A:255:SER:HB2	2.08	0.53
1:A:315:LEU:HA	1:A:318:ALA:HB3	1.90	0.53
1:A:102:ILE:HG21	1:A:104:ARG:HD2	1.90	0.53
1:B:156:GLU:CB	1:B:161:ARG:HE	2.21	0.53
1:A:185:VAL:HG12	1:A:186:GLY:N	2.24	0.53
1:A:422:HIS:HD1	1:A:422:HIS:H	1.57	0.53
1:B:185:VAL:HG12	1:B:186:GLY:N	2.24	0.53
1:B:300:ARG:CA	1:B:305:LEU:HB2	2.37	0.53
1:B:315:LEU:O	1:B:319:ALA:N	2.29	0.53
1:B:315:LEU:HA	1:B:318:ALA:HB3	1.90	0.53
1:A:58:HIS:C	1:A:112:ALA:HB2	2.29	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:36:ASN:HB3	1:B:76:ALA:HB3	1.91	0.53
1:B:351:TRP:O	1:B:352:ASN:OD1	2.27	0.53
1:B:59:ASP:N	1:B:112:ALA:HB2	2.23	0.53
1:B:181:VAL:O	1:B:255:SER:HB2	2.08	0.53
1:B:429:ALA:HB2	1:B:439:GLN:HE22	1.73	0.53
2:A:600:FAA:C6P	2:A:600:FAA:C10	2.87	0.53
1:A:36:ASN:HB3	1:A:76:ALA:HB3	1.90	0.53
1:A:289:LEU:HD23	1:A:437:MET:CE	2.36	0.53
1:A:504:ARG:NH2	2:A:600:FAA:O3'	2.41	0.53
1:B:422:HIS:HD1	1:B:422:HIS:H	1.57	0.53
1:B:543:PRO:HB3	1:B:550:PRO:CG	2.39	0.53
1:A:24:PHE:CE1	1:A:28:ILE:HD12	2.44	0.52
1:A:202:VAL:HG23	1:A:261:ILE:N	2.24	0.52
1:A:156:GLU:CB	1:A:161:ARG:HE	2.21	0.52
1:A:363:ILE:HD11	1:B:366:VAL:HG11	1.90	0.52
1:B:99:PRO:HA	1:B:121:LEU:HB3	1.91	0.52
1:B:238:ILE:HG22	1:B:238:ILE:O	2.09	0.52
1:A:238:ILE:O	1:A:238:ILE:HG22	2.09	0.52
1:A:171:LEU:HD12	3:A:602:HOH:O	2.09	0.52
1:B:348:LEU:HB3	1:B:352:ASN:HD21	1.74	0.52
1:B:504:ARG:NH2	2:B:600:FAA:O3'	2.41	0.52
1:A:142:VAL:HB	1:A:146:VAL:HG21	1.90	0.52
1:A:316:LEU:HD11	1:A:413:TRP:CD1	2.44	0.52
1:A:463:ARG:NH2	1:B:138:ALA:O	2.38	0.52
1:B:58:HIS:C	1:B:112:ALA:HB2	2.29	0.52
1:B:297:ARG:HB2	1:B:431:VAL:HG12	1.91	0.52
2:B:600:FAA:C10	2:B:600:FAA:C6P	2.87	0.52
1:A:99:PRO:HA	1:A:121:LEU:HB3	1.92	0.52
1:A:348:LEU:HB3	1:A:352:ASN:HD21	1.74	0.52
1:A:543:PRO:HB3	1:A:550:PRO:CG	2.39	0.52
1:B:202:VAL:HG23	1:B:261:ILE:N	2.24	0.52
1:B:332:GLU:HB3	1:B:333:PRO:HD2	1.89	0.52
1:B:426:SER:O	1:B:502:GLU:HG3	2.10	0.52
1:A:95:PHE:CD1	1:A:119:VAL:HG23	2.45	0.52
1:B:426:SER:N	1:B:427:PRO:HD3	2.22	0.52
1:A:107:GLY:HA2	1:A:422:HIS:O	2.10	0.52
1:A:297:ARG:HB2	1:A:431:VAL:HG12	1.91	0.52
1:B:520:ASN:O	1:B:521:ASN:HB2	2.09	0.52
1:A:57:THR:O	1:A:70:LEU:HD12	2.10	0.52
1:A:409:ASP:OD1	1:A:409:ASP:N	2.43	0.52
1:A:426:SER:N	1:A:427:PRO:HD3	2.22	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:316:LEU:HD11	1:B:413:TRP:CD1	2.44	0.52
1:A:300:ARG:CA	1:A:305:LEU:HB2	2.37	0.52
1:A:253:LEU:HD21	1:B:253:LEU:CD1	2.39	0.51
1:B:24:PHE:CE1	1:B:28:ILE:HD12	2.44	0.51
1:B:289:LEU:HD23	1:B:437:MET:CE	2.36	0.51
1:B:409:ASP:N	1:B:409:ASP:OD1	2.43	0.51
1:A:351:TRP:O	1:A:352:ASN:OD1	2.27	0.51
1:B:104:ARG:O	1:B:106:SER:N	2.38	0.51
1:B:317:ASP:O	1:B:321:LEU:HG	2.10	0.51
1:A:108:TYR:HE1	1:A:505:THR:HA	1.75	0.51
1:A:385:PHE:HB3	1:A:386:PRO:HD2	1.92	0.51
1:B:57:THR:O	1:B:70:LEU:HD12	2.10	0.51
1:B:107:GLY:HA2	1:B:422:HIS:O	2.10	0.51
1:B:108:TYR:HE1	1:B:505:THR:HA	1.75	0.51
1:B:275:GLY:HA3	1:B:359:GLY:O	2.11	0.51
1:A:269:LEU:O	1:B:463:ARG:NH2	2.44	0.51
1:A:317:ASP:O	1:A:321:LEU:HG	2.10	0.51
1:B:102:ILE:HG21	1:B:104:ARG:HD2	1.90	0.51
1:B:132:GLU:HG2	1:B:133:VAL:H	1.71	0.51
1:B:217:LEU:HD12	1:B:218:PRO:HD2	1.92	0.51
1:B:444:LYS:HE3	3:B:608:HOH:O	2.10	0.51
1:B:511:ASP:HB2	3:B:612:HOH:O	2.11	0.51
1:A:315:LEU:O	1:A:319:ALA:N	2.29	0.51
1:A:520:ASN:O	1:A:521:ASN:HB2	2.09	0.51
1:B:160:LEU:HD23	1:B:163:LYS:HD2	1.93	0.51
1:B:385:PHE:HB3	1:B:386:PRO:HD2	1.92	0.51
1:B:543:PRO:HB3	1:B:550:PRO:HG2	1.93	0.51
1:A:160:LEU:HD23	1:A:163:LYS:HD2	1.93	0.51
1:A:275:GLY:HA3	1:A:359:GLY:O	2.11	0.51
1:A:323:ASP:OD1	1:A:326:SER:N	2.34	0.51
1:B:45:GLN:HG2	1:B:46:ILE:N	2.25	0.51
1:B:95:PHE:CD1	1:B:119:VAL:HG23	2.45	0.51
1:B:502:GLU:HG2	1:B:504:ARG:H	1.75	0.51
1:A:61:HIS:CB	1:A:421:ALA:HB1	2.31	0.51
1:A:527:PHE:O	1:A:530:VAL:HB	2.11	0.51
1:A:479:ILE:HD12	1:A:479:ILE:N	2.26	0.51
1:B:479:ILE:N	1:B:479:ILE:HD12	2.26	0.50
1:B:383:PHE:C	1:B:384:TYR:CD1	2.85	0.50
1:A:45:GLN:HG2	1:A:46:ILE:N	2.25	0.50
1:A:194:TRP:HH2	1:A:200:MET:HE1	1.76	0.50
1:A:383:PHE:C	1:A:384:TYR:CD1	2.85	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:443:THR:HB	1:A:454:PHE:HE2	1.76	0.50
1:B:108:TYR:CD1	1:B:505:THR:C	2.85	0.50
1:B:155:LEU:N	1:B:155:LEU:HD23	2.19	0.50
1:B:276:TYR:CE2	1:B:403:GLN:NE2	2.79	0.50
1:B:537:PRO:CD	1:B:538:ASN:H	2.22	0.50
1:A:346:LEU:HB3	1:A:348:LEU:CD1	2.42	0.50
1:A:426:SER:C	1:A:502:GLU:HG3	2.32	0.50
1:A:437:MET:HE3	1:A:437:MET:HA	1.93	0.50
1:B:443:THR:HB	1:B:454:PHE:HE2	1.76	0.50
1:A:74:ILE:CG2	1:A:75:VAL:N	2.75	0.50
1:A:417:LEU:CB	1:A:418:PRO:HD2	2.38	0.50
1:A:426:SER:O	1:A:502:GLU:HG3	2.10	0.50
1:A:543:PRO:HB3	1:A:550:PRO:HG2	1.93	0.50
1:B:45:GLN:CG	1:B:46:ILE:N	2.74	0.50
1:A:80:VAL:CG1	1:A:209:LEU:HD21	2.38	0.50
1:A:400:LYS:HB3	1:A:405:ILE:HB	1.94	0.50
1:A:437:MET:O	1:A:440:TYR:HB3	2.12	0.50
1:B:426:SER:C	1:B:502:GLU:HG3	2.32	0.50
1:A:217:LEU:HD12	1:A:218:PRO:HD2	1.92	0.50
1:A:502:GLU:HG2	1:A:504:ARG:H	1.75	0.50
1:B:194:TRP:O	1:B:197:HIS:CD2	2.64	0.50
1:B:218:PRO:O	1:B:220:PRO:HD3	2.12	0.50
1:B:437:MET:O	1:B:440:TYR:HB3	2.12	0.50
1:A:156:GLU:HB2	1:A:161:ARG:HE	1.76	0.50
1:A:378:ILE:HG22	1:A:381:VAL:HG23	1.94	0.50
1:B:24:PHE:CE1	1:B:28:ILE:CD1	2.95	0.50
1:B:527:PHE:O	1:B:530:VAL:HB	2.11	0.50
1:A:217:LEU:HD12	1:A:218:PRO:HD3	1.93	0.50
1:A:276:TYR:CE2	1:A:403:GLN:NE2	2.79	0.50
1:B:354:TYR:HD2	1:B:395:LEU:HD13	1.76	0.50
1:A:45:GLN:C	1:A:47:VAL:N	2.65	0.49
1:B:400:LYS:HB3	1:B:405:ILE:HB	1.94	0.49
1:A:354:TYR:HD2	1:A:395:LEU:HD13	1.76	0.49
1:B:45:GLN:O	1:B:47:VAL:N	2.45	0.49
1:A:45:GLN:O	1:A:47:VAL:N	2.45	0.49
1:A:194:TRP:O	1:A:197:HIS:CD2	2.64	0.49
1:A:537:PRO:CD	1:A:538:ASN:H	2.22	0.49
1:B:45:GLN:C	1:B:47:VAL:N	2.65	0.49
1:B:74:ILE:CG2	1:B:75:VAL:N	2.75	0.49
1:A:439:GLN:OE1	1:A:467:HIS:HB2	2.13	0.49
1:A:530:VAL:HG13	3:A:628:HOH:O	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:37:VAL:HA	1:B:74:ILE:O	2.12	0.49
1:A:388:ASP:N	1:A:388:ASP:OD1	2.45	0.49
1:A:18:LEU:HG	1:A:22:ASN:ND2	2.28	0.49
1:A:505:THR:CG2	1:A:509:PHE:HB2	2.41	0.49
1:B:217:LEU:HD12	1:B:218:PRO:HD3	1.93	0.49
1:B:332:GLU:CB	1:B:333:PRO:CD	2.89	0.49
1:B:346:LEU:HB3	1:B:348:LEU:CD1	2.42	0.49
1:B:426:SER:H	1:B:502:GLU:CD	2.16	0.49
1:A:24:PHE:CE1	1:A:28:ILE:CD1	2.95	0.49
1:A:221:LYS:O	1:A:222:ARG:HB3	2.13	0.49
1:B:18:LEU:HB3	3:B:622:HOH:O	2.11	0.49
1:B:439:GLN:OE1	1:B:467:HIS:HB2	2.13	0.49
1:A:61:HIS:CD2	1:A:422:HIS:H	2.31	0.49
1:B:384:TYR:O	1:B:385:PHE:HD1	1.95	0.49
1:B:457:THR:CG2	1:B:458:PHE:N	2.75	0.49
1:A:156:GLU:CA	1:A:161:ARG:HE	2.26	0.49
1:A:229:LYS:HB3	1:A:231:GLU:CD	2.34	0.49
1:A:426:SER:H	1:A:502:GLU:CD	2.16	0.49
1:B:431:VAL:HG22	1:B:465:MET:HG3	1.95	0.49
1:A:16:LEU:HG	1:A:17:SER:N	2.27	0.48
1:A:384:TYR:O	1:A:385:PHE:HD1	1.95	0.48
1:A:457:THR:CG2	1:A:458:PHE:N	2.75	0.48
1:B:378:ILE:HG22	1:B:381:VAL:HG23	1.94	0.48
1:A:37:VAL:HA	1:A:74:ILE:O	2.12	0.48
1:A:65:ASP:O	1:A:68:TYR:HB2	2.13	0.48
1:A:387:GLU:HB2	3:A:606:HOH:O	2.13	0.48
1:B:80:VAL:CG1	1:B:209:LEU:HD21	2.38	0.48
1:B:156:GLU:HB2	1:B:161:ARG:HE	1.76	0.48
1:B:197:HIS:HB2	1:B:265:ILE:HD11	1.95	0.48
1:A:218:PRO:O	1:A:220:PRO:HD3	2.12	0.48
1:B:18:LEU:HG	1:B:22:ASN:ND2	2.28	0.48
1:B:221:LYS:O	1:B:222:ARG:HB3	2.13	0.48
1:B:16:LEU:HG	1:B:17:SER:N	2.27	0.48
1:B:61:HIS:CD2	1:B:422:HIS:H	2.31	0.48
1:B:323:ASP:OD1	1:B:326:SER:N	2.35	0.48
1:A:7:PHE:HA	1:A:22:ASN:OD1	2.14	0.48
1:A:454:PHE:HZ	1:A:467:HIS:CE1	2.32	0.48
2:A:600:FAA:C4	2:A:600:FAA:C1P	2.82	0.48
1:B:229:LYS:HB3	1:B:231:GLU:CD	2.34	0.48
1:B:454:PHE:HZ	1:B:467:HIS:CE1	2.32	0.48
1:A:108:TYR:CD1	1:A:505:THR:C	2.85	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:90:ALA:HB1	1:B:540:ILE:HG23	1.96	0.48
1:B:156:GLU:CA	1:B:161:ARG:HE	2.26	0.48
1:A:22:ASN:O	1:A:25:ILE:HG22	2.14	0.48
1:A:452:LEU:HD23	1:A:452:LEU:HA	1.31	0.48
1:B:56:HIS:HB2	1:B:74:ILE:HD13	1.96	0.48
1:B:65:ASP:O	1:B:68:TYR:HB2	2.13	0.48
1:B:143:GLU:HB3	1:B:144:PRO:HD2	1.96	0.48
1:A:177:LEU:C	1:A:177:LEU:HD23	2.33	0.48
1:A:197:HIS:HB2	1:A:265:ILE:HD11	1.95	0.48
1:A:431:VAL:HG22	1:A:465:MET:HG3	1.95	0.48
1:A:36:ASN:OD1	1:A:76:ALA:HB3	2.14	0.48
1:A:385:PHE:HB3	1:A:386:PRO:CD	2.44	0.48
1:B:330:ARG:HH22	1:B:335:SER:HB3	1.79	0.48
1:A:90:ALA:HB1	1:A:540:ILE:HG23	1.96	0.48
1:A:97:LEU:HD22	1:A:119:VAL:HB	1.94	0.48
1:B:36:ASN:OD1	1:B:76:ALA:HB3	2.14	0.48
1:B:385:PHE:HB3	1:B:386:PRO:CD	2.43	0.48
1:B:388:ASP:N	1:B:388:ASP:OD1	2.45	0.48
1:B:97:LEU:HD22	1:B:119:VAL:HB	1.94	0.47
1:B:173:GLY:H	1:B:408:TYR:HE1	1.62	0.47
1:B:177:LEU:HD23	1:B:177:LEU:C	2.33	0.47
1:A:242:PHE:HA	1:A:243:PRO:HD3	1.38	0.47
1:A:502:GLU:HB3	1:A:513:ILE:HD13	1.96	0.47
1:B:200:MET:HE2	1:B:251:ASP:CB	2.36	0.47
1:A:330:ARG:HH22	1:A:335:SER:HB3	1.79	0.47
1:A:338:GLU:O	1:A:341:LYS:HB2	2.14	0.47
1:A:398:ARG:HB3	1:A:402:MET:HE2	1.96	0.47
1:B:276:TYR:OH	1:B:399:ASP:O	2.24	0.47
1:B:398:ARG:HB3	1:B:402:MET:HE2	1.96	0.47
1:B:417:LEU:CB	1:B:418:PRO:HD2	2.38	0.47
1:B:148:TYR:HB2	1:B:172:GLY:O	2.15	0.47
1:B:155:LEU:HD23	1:B:155:LEU:HA	1.38	0.47
1:B:198:SER:O	1:B:266:GLY:HA3	2.14	0.47
1:B:427:PRO:HD2	1:B:467:HIS:O	2.15	0.47
1:A:147:THR:HB	1:A:173:GLY:O	2.15	0.47
1:A:248:PRO:HD3	1:B:256:GLN:O	2.14	0.47
1:B:332:GLU:HB3	1:B:333:PRO:HD3	1.96	0.47
1:B:401:THR:C	1:B:403:GLN:H	2.18	0.47
1:A:45:GLN:CG	1:A:46:ILE:N	2.74	0.47
1:A:330:ARG:NH1	1:A:338:GLU:CD	2.68	0.47
1:A:427:PRO:HD2	1:A:467:HIS:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:463:ARG:NH2	1:B:269:LEU:O	2.47	0.47
1:A:100:ILE:O	1:A:100:ILE:HG13	2.14	0.47
1:A:143:GLU:HB3	1:A:144:PRO:HD2	1.96	0.47
1:A:198:SER:O	1:A:266:GLY:HA3	2.14	0.47
1:A:201:GLU:HG2	1:A:263:THR:HG1	1.79	0.47
1:B:7:PHE:HA	1:B:22:ASN:OD1	2.14	0.47
1:B:22:ASN:O	1:B:25:ILE:HG22	2.14	0.47
1:B:147:THR:HB	1:B:173:GLY:O	2.15	0.47
1:B:168:VAL:HA	1:B:169:PRO:HD3	1.66	0.47
1:B:272:ASN:HA	1:B:273:PRO:HD3	1.55	0.47
1:B:295:ILE:HD12	1:B:378:ILE:HD11	1.97	0.47
1:B:339:LEU:HD12	1:B:350:ARG:CZ	2.45	0.47
1:A:25:ILE:CG2	1:A:26:GLN:N	2.78	0.47
1:A:148:TYR:HB2	1:A:172:GLY:O	2.15	0.47
1:A:525:LEU:O	1:A:529:GLU:HG3	2.15	0.47
1:B:480:GLN:HG3	1:B:483:LYS:HD2	1.97	0.47
1:A:401:THR:C	1:A:403:GLN:H	2.17	0.47
1:B:338:GLU:O	1:B:341:LYS:HB2	2.14	0.47
1:B:505:THR:CG2	1:B:509:PHE:HB2	2.41	0.47
1:A:10:LEU:HD21	1:A:42:SER:N	2.31	0.46
1:A:182:GLU:OE1	1:A:256:GLN:HG2	2.15	0.46
1:A:290:LYS:O	1:A:290:LYS:HG3	2.15	0.46
1:A:295:ILE:HD12	1:A:378:ILE:HD11	1.97	0.46
1:A:339:LEU:HD12	1:A:350:ARG:CZ	2.45	0.46
1:B:502:GLU:HB3	1:B:513:ILE:HD13	1.96	0.46
1:A:244:TYR:CD1	1:A:244:TYR:N	2.82	0.46
1:A:269:LEU:HD23	1:A:269:LEU:HA	1.77	0.46
1:A:332:GLU:CB	1:A:333:PRO:CD	2.89	0.46
1:A:198:SER:HB2	1:A:268:TRP:CZ2	2.50	0.46
1:B:10:LEU:HD21	1:B:42:SER:N	2.31	0.46
1:B:139:TYR:HE2	1:B:241:LEU:CD1	2.29	0.46
1:B:238:ILE:HA	1:B:241:LEU:HD22	1.98	0.46
1:A:90:ALA:O	1:A:94:SER:N	2.48	0.46
1:A:204:LEU:HD22	1:B:527:PHE:CE1	2.50	0.46
1:B:127:MET:O	1:B:143:GLU:HB3	2.16	0.46
1:B:198:SER:HB2	1:B:268:TRP:CZ2	2.50	0.46
1:A:36:ASN:CB	1:A:76:ALA:HB3	2.46	0.46
1:A:127:MET:O	1:A:143:GLU:HB3	2.16	0.46
1:A:173:GLY:H	1:A:408:TYR:HE1	1.62	0.46
1:A:332:GLU:HB3	1:A:333:PRO:HD3	1.96	0.46
1:A:423:LEU:CD2	1:A:488:MET:HE2	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:16:LEU:HD12	1:B:16:LEU:HA	1.50	0.46
1:B:93:PHE:O	1:B:94:SER:HB2	2.16	0.46
1:B:132:GLU:CG	1:B:133:VAL:N	2.72	0.46
1:B:182:GLU:OE1	1:B:256:GLN:HG2	2.15	0.46
1:B:460:VAL:HG12	1:B:461:GLY:O	2.15	0.46
1:A:45:GLN:C	1:A:47:VAL:H	2.18	0.46
1:A:139:TYR:HE2	1:A:241:LEU:CD1	2.29	0.46
1:A:550:PRO:HB2	1:A:552:GLN:HE21	1.80	0.46
1:B:371:ILE:O	1:B:374:ALA:N	2.49	0.46
1:B:549:TRP:HA	1:B:550:PRO:HD3	1.75	0.46
1:A:13:PRO:HD3	1:A:117:GLY:O	2.16	0.46
1:A:56:HIS:HB2	1:A:74:ILE:HD13	1.96	0.46
1:A:480:GLN:HG3	1:A:483:LYS:HD2	1.97	0.46
1:B:437:MET:HE3	1:B:437:MET:HA	1.96	0.46
1:B:480:GLN:HA	1:B:483:LYS:HG3	1.98	0.46
1:B:525:LEU:O	1:B:529:GLU:HG3	2.15	0.46
1:A:72:SER:HB3	1:A:117:GLY:O	2.16	0.46
1:A:93:PHE:O	1:A:94:SER:HB2	2.16	0.46
1:A:217:LEU:HD12	1:A:217:LEU:HA	1.33	0.46
1:A:305:LEU:HD23	1:A:305:LEU:HA	1.82	0.46
1:B:330:ARG:NH1	1:B:338:GLU:CD	2.68	0.46
1:B:346:LEU:HB3	1:B:348:LEU:HD11	1.98	0.46
1:A:237:LYS:HG3	1:A:238:ILE:HG12	1.98	0.46
1:B:11:THR:HG22	1:B:117:GLY:HA3	1.98	0.46
1:B:45:GLN:C	1:B:47:VAL:H	2.18	0.46
1:B:156:GLU:HA	1:B:161:ARG:HE	1.81	0.46
1:B:550:PRO:CB	1:B:552:GLN:NE2	2.77	0.46
1:A:167:ASP:OD2	1:A:191:GLY:HA2	2.16	0.46
1:A:244:TYR:OH	1:B:195:MET:HG2	2.16	0.46
1:A:280:LEU:HD12	1:A:353:PHE:O	2.16	0.46
1:A:330:ARG:NH1	1:A:338:GLU:OE2	2.49	0.46
1:A:371:ILE:O	1:A:374:ALA:N	2.49	0.46
1:B:484:VAL:O	1:B:487:LEU:HB3	2.16	0.46
1:A:62:HIS:CD2	1:A:66:GLN:HB2	2.51	0.45
1:B:242:PHE:HA	1:B:243:PRO:HD3	1.38	0.45
1:B:244:TYR:N	1:B:244:TYR:CD1	2.82	0.45
1:B:480:GLN:HA	1:B:483:LYS:CE	2.46	0.45
1:A:40:ILE:HD11	1:A:57:THR:CG2	2.42	0.45
1:A:132:GLU:O	1:A:140:CYS:HA	2.16	0.45
1:A:156:GLU:HA	1:A:161:ARG:HE	1.81	0.45
1:A:295:ILE:CG2	1:A:375:PHE:CE1	3.00	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:299:LEU:HB2	1:A:305:LEU:HD12	1.98	0.45
1:A:484:VAL:O	1:A:487:LEU:HB3	2.16	0.45
1:B:90:ALA:O	1:B:94:SER:N	2.48	0.45
1:B:100:ILE:O	1:B:100:ILE:HG13	2.14	0.45
1:B:132:GLU:O	1:B:140:CYS:HA	2.16	0.45
1:B:280:LEU:HD12	1:B:353:PHE:O	2.16	0.45
1:A:480:GLN:HA	1:A:483:LYS:CE	2.46	0.45
1:B:13:PRO:HD3	1:B:117:GLY:O	2.16	0.45
1:B:62:HIS:N	1:B:62:HIS:HD1	2.12	0.45
1:B:277:GLN:O	1:B:356:ALA:HA	2.17	0.45
1:A:93:PHE:N	1:A:93:PHE:CD1	2.85	0.45
1:A:460:VAL:HG12	1:A:461:GLY:O	2.15	0.45
1:B:18:LEU:HD12	1:B:18:LEU:HA	1.65	0.45
1:B:290:LYS:O	1:B:290:LYS:HG3	2.15	0.45
1:B:507:LEU:HA	1:B:510:MET:HE2	1.94	0.45
1:A:506:HIS:CG	1:A:507:LEU:N	2.84	0.45
1:B:59:ASP:HA	1:B:60:PRO:HD3	1.80	0.45
1:B:201:GLU:HG2	1:B:263:THR:HG1	1.80	0.45
1:B:299:LEU:HB2	1:B:305:LEU:HD12	1.98	0.45
1:B:330:ARG:NH1	1:B:338:GLU:OE2	2.49	0.45
1:B:393:SER:HB3	1:B:396:ARG:HG3	1.98	0.45
1:A:11:THR:HG22	1:A:117:GLY:HA3	1.98	0.45
1:B:25:ILE:CG2	1:B:26:GLN:N	2.78	0.45
1:B:40:ILE:O	1:B:40:ILE:HG22	2.16	0.45
1:B:72:SER:HB3	1:B:117:GLY:O	2.16	0.45
1:B:506:HIS:CG	1:B:507:LEU:N	2.84	0.45
1:A:183:ARG:HH22	1:B:247:GLY:C	2.19	0.45
1:A:480:GLN:HA	1:A:483:LYS:HG3	1.98	0.45
1:B:167:ASP:OD2	1:B:191:GLY:HA2	2.16	0.45
1:A:40:ILE:O	1:A:40:ILE:HG22	2.16	0.45
1:A:277:GLN:O	1:A:356:ALA:HA	2.17	0.45
1:A:417:LEU:HD23	1:A:417:LEU:N	2.19	0.45
1:B:40:ILE:HD11	1:B:57:THR:CG2	2.42	0.45
1:A:384:TYR:CD1	1:A:384:TYR:N	2.85	0.45
1:B:180:ALA:O	1:B:194:TRP:HE3	2.00	0.45
1:B:194:TRP:HH2	1:B:200:MET:HE1	1.81	0.45
1:B:389:THR:HB	1:B:390:PRO:CD	2.47	0.45
2:B:600:FAA:C4	2:B:600:FAA:C1P	2.82	0.45
1:A:248:PRO:HG3	1:B:257:SER:HB3	1.97	0.45
1:A:309:PRO:CB	1:A:353:PHE:HE1	2.29	0.45
1:B:536:ASP:HA	1:B:537:PRO:HD3	1.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:550:PRO:HB2	1:B:552:GLN:HE21	1.80	0.45
1:A:139:TYR:CE2	1:A:241:LEU:CD1	3.00	0.44
1:A:151:LEU:O	1:A:155:LEU:HG	2.17	0.44
1:B:93:PHE:CD1	1:B:93:PHE:N	2.85	0.44
1:B:237:LYS:HG3	1:B:238:ILE:HG12	1.98	0.44
1:B:426:SER:HB2	1:B:502:GLU:HG3	1.99	0.44
1:A:220:PRO:HD2	3:A:620:HOH:O	2.17	0.44
1:A:308:VAL:HG13	1:A:460:VAL:O	2.17	0.44
1:A:426:SER:HB2	1:A:502:GLU:HG3	1.99	0.44
1:A:487:LEU:CD1	1:A:491:LEU:HD11	2.47	0.44
1:B:102:ILE:HD13	1:B:102:ILE:HA	1.71	0.44
1:B:139:TYR:CE2	1:B:241:LEU:CD1	2.99	0.44
1:B:142:VAL:HB	1:B:146:VAL:CG2	2.47	0.44
1:B:283:LEU:O	1:B:349:GLY:CA	2.66	0.44
1:B:295:ILE:CG2	1:B:375:PHE:CE1	3.00	0.44
1:B:346:LEU:HB2	1:B:348:LEU:HD12	1.99	0.44
1:B:36:ASN:CB	1:B:76:ALA:HB3	2.46	0.44
1:B:131:LEU:HD11	1:B:143:GLU:HG3	2.00	0.44
1:B:270:MET:HA	1:B:271:PRO:HD2	1.78	0.44
1:B:309:PRO:CB	1:B:353:PHE:HE1	2.29	0.44
1:B:487:LEU:CD1	1:B:491:LEU:HD11	2.47	0.44
1:B:513:ILE:O	1:B:516:THR:HG23	2.18	0.44
1:A:16:LEU:HD12	1:A:16:LEU:HA	1.50	0.44
1:A:121:LEU:HD12	1:A:121:LEU:HA	1.44	0.44
1:A:131:LEU:HD11	1:A:143:GLU:HG3	2.00	0.44
1:A:313:HIS:HB2	1:A:351:TRP:CH2	2.52	0.44
1:A:513:ILE:O	1:A:516:THR:HG23	2.17	0.44
1:B:313:HIS:HB2	1:B:351:TRP:CH2	2.52	0.44
1:B:384:TYR:CD1	1:B:384:TYR:N	2.85	0.44
1:B:478:LEU:CD1	1:B:478:LEU:N	2.80	0.44
1:A:408:TYR:O	1:A:411:LEU:HD12	2.18	0.44
1:A:506:HIS:CE1	1:A:507:LEU:HB2	2.53	0.44
1:B:62:HIS:CD2	1:B:66:GLN:HB2	2.51	0.44
1:B:408:TYR:O	1:B:411:LEU:HD12	2.18	0.44
1:A:142:VAL:HB	1:A:146:VAL:CG2	2.47	0.44
1:A:195:MET:CE	1:B:195:MET:HE1	2.48	0.44
1:A:291:GLN:O	1:A:295:ILE:HG13	2.18	0.44
1:A:300:ARG:HE	1:A:309:PRO:CD	2.31	0.44
1:A:393:SER:HB3	1:A:396:ARG:HG3	1.99	0.44
1:B:151:LEU:HD12	1:B:151:LEU:O	2.18	0.44
1:A:346:LEU:HB3	1:A:348:LEU:HD11	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:83:VAL:HG23	1:B:127:MET:HE1	1.99	0.44
1:B:90:ALA:HB1	1:B:95:PHE:O	2.18	0.44
1:B:231:GLU:H	1:B:231:GLU:HG2	0.94	0.44
1:B:291:GLN:O	1:B:295:ILE:HG13	2.18	0.44
1:B:300:ARG:HE	1:B:309:PRO:CD	2.31	0.44
1:A:168:VAL:HA	1:A:169:PRO:HD3	1.66	0.44
1:A:550:PRO:CB	1:A:552:GLN:NE2	2.77	0.44
1:B:48:ASP:HA	1:B:58:HIS:HE2	1.83	0.44
1:A:102:ILE:CG2	1:A:104:ARG:HD2	2.48	0.44
1:A:151:LEU:O	1:A:151:LEU:HD12	2.18	0.44
1:A:238:ILE:HA	1:A:241:LEU:HD22	1.98	0.44
1:A:432:SER:HB3	1:A:435:ASP:HB2	2.00	0.44
1:A:447:CYS:O	1:A:452:LEU:N	2.49	0.44
1:B:188:THR:CB	1:B:189:PRO:HD2	2.47	0.44
1:A:155:LEU:HD23	1:A:155:LEU:HA	1.38	0.43
1:A:156:GLU:HG3	1:A:161:ARG:CZ	2.48	0.43
1:A:180:ALA:O	1:A:194:TRP:HE3	2.00	0.43
1:A:195:MET:HE1	1:B:195:MET:CE	2.48	0.43
1:A:346:LEU:HB2	1:A:348:LEU:HD12	1.99	0.43
1:B:89:LEU:HA	1:B:89:LEU:HD23	1.44	0.43
1:B:151:LEU:O	1:B:155:LEU:HG	2.17	0.43
1:B:156:GLU:HG3	1:B:161:ARG:CZ	2.48	0.43
1:A:332:GLU:CB	1:A:333:PRO:HD3	2.49	0.43
1:A:385:PHE:HB2	3:A:606:HOH:O	2.18	0.43
1:A:389:THR:HB	1:A:390:PRO:CD	2.47	0.43
1:A:478:LEU:CD1	1:A:478:LEU:N	2.80	0.43
1:B:269:LEU:HD23	1:B:269:LEU:HA	1.77	0.43
1:B:307:ASN:HB3	1:B:358:TYR:CE1	2.53	0.43
1:B:308:VAL:HG13	1:B:460:VAL:O	2.17	0.43
1:A:179:ASN:OD1	1:A:184:GLY:HA3	2.19	0.43
1:A:201:GLU:O	1:A:262:VAL:HG13	2.18	0.43
1:A:222:ARG:HB2	1:A:223:PRO:CD	2.47	0.43
1:B:447:CYS:O	1:B:452:LEU:N	2.49	0.43
1:A:90:ALA:HB1	1:A:95:PHE:O	2.18	0.43
1:A:247:GLY:HA2	1:B:256:GLN:HB3	2.00	0.43
1:B:25:ILE:HD12	1:B:25:ILE:HA	1.74	0.43
1:B:179:ASN:OD1	1:B:184:GLY:HA3	2.19	0.43
1:A:14:PRO:HG3	1:A:558:TRP:CZ2	2.53	0.43
1:A:250:ILE:HD12	1:A:254:PHE:HE2	1.84	0.43
1:A:307:ASN:HB3	1:A:358:TYR:CE1	2.53	0.43
1:B:102:ILE:CG2	1:B:104:ARG:HD2	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:139:TYR:CD1	1:B:139:TYR:C	2.92	0.43
1:B:280:LEU:CD1	1:B:281:ILE:N	2.78	0.43
1:A:90:ALA:HB2	1:A:97:LEU:HD11	2.01	0.43
1:A:156:GLU:CG	1:A:161:ARG:NH2	2.82	0.43
1:B:14:PRO:HG3	1:B:558:TRP:CZ2	2.53	0.43
1:B:421:ALA:HA	3:B:636:HOH:O	2.18	0.43
1:B:432:SER:HB3	1:B:435:ASP:HB2	2.00	0.43
1:A:29:ILE:C	1:A:31:ILE:H	2.21	0.43
1:A:48:ASP:HA	1:A:58:HIS:HE2	1.83	0.43
1:A:230:PRO:HA	1:A:233:GLN:CD	2.39	0.43
1:B:156:GLU:CG	1:B:161:ARG:NH2	2.82	0.43
1:B:316:LEU:HA	1:B:316:LEU:HD12	1.69	0.43
1:B:506:HIS:CE1	1:B:507:LEU:HB2	2.53	0.43
1:B:540:ILE:O	1:B:540:ILE:HG22	2.18	0.43
1:A:83:VAL:HG23	1:A:127:MET:HE1	2.01	0.43
1:A:139:TYR:CD1	1:A:139:TYR:C	2.92	0.43
1:A:200:MET:HE2	1:A:251:ASP:CB	2.35	0.43
1:A:550:PRO:HB2	1:A:552:GLN:CG	2.42	0.43
1:B:29:ILE:C	1:B:31:ILE:H	2.21	0.43
1:B:121:LEU:HD12	1:B:121:LEU:HA	1.44	0.43
1:B:230:PRO:HA	1:B:233:GLN:CD	2.39	0.43
1:A:299:LEU:CB	1:A:305:LEU:HG	2.49	0.43
1:B:290:LYS:HB2	1:B:437:MET:SD	2.59	0.43
1:B:332:GLU:CB	1:B:333:PRO:HD3	2.49	0.43
1:B:452:LEU:HD23	1:B:452:LEU:HA	1.31	0.43
1:A:545:LYS:HE3	1:A:546:SER:OG	2.19	0.42
1:B:283:LEU:O	1:B:350:ARG:N	2.48	0.42
1:B:368:TRP:HA	1:B:368:TRP:CE3	2.54	0.42
1:A:361:GLU:HB2	1:A:364:ARG:NH2	2.34	0.42
1:B:359:GLY:HA3	1:B:360:PRO:HD3	1.79	0.42
1:A:316:LEU:HD11	1:A:413:TRP:NE1	2.34	0.42
1:A:370:THR:O	1:A:374:ALA:N	2.52	0.42
1:B:137:GLY:O	1:B:138:ALA:HB3	2.19	0.42
1:B:201:GLU:O	1:B:262:VAL:HG13	2.19	0.42
1:B:299:LEU:CB	1:B:305:LEU:HG	2.49	0.42
1:A:36:ASN:HB3	1:A:76:ALA:O	2.20	0.42
1:A:88:GLY:O	1:A:92:LYS:N	2.51	0.42
1:A:429:ALA:O	1:A:465:MET:HB2	2.19	0.42
1:A:507:LEU:HD23	1:A:510:MET:CE	2.50	0.42
1:B:90:ALA:HB2	1:B:97:LEU:HD11	2.01	0.42
1:A:195:MET:HE1	1:B:195:MET:HE1	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:309:PRO:CB	1:A:353:PHE:CE1	3.03	0.42
1:A:346:LEU:CB	1:A:348:LEU:CD1	2.97	0.42
1:A:368:TRP:HA	1:A:368:TRP:CE3	2.55	0.42
1:A:537:PRO:CD	1:A:538:ASN:N	2.82	0.42
1:A:549:TRP:HA	1:A:550:PRO:HD3	1.75	0.42
1:B:361:GLU:N	1:B:364:ARG:HH21	2.18	0.42
1:B:545:LYS:HE3	1:B:546:SER:OG	2.19	0.42
1:A:202:VAL:CG2	1:A:261:ILE:N	2.83	0.42
1:A:257:SER:CB	1:B:248:PRO:HG3	2.50	0.42
1:B:370:THR:O	1:B:374:ALA:N	2.52	0.42
1:B:448:GLN:HB3	1:B:449:GLU:H	1.53	0.42
1:A:40:ILE:CD1	1:A:57:THR:CG2	2.98	0.42
1:A:200:MET:CE	1:A:251:ASP:CB	2.95	0.42
1:A:231:GLU:H	1:A:231:GLU:HG2	0.94	0.42
1:A:290:LYS:HB2	1:A:437:MET:SD	2.59	0.42
1:B:202:VAL:CG2	1:B:261:ILE:N	2.83	0.42
1:B:378:ILE:HA	1:B:379:PRO:HD2	1.78	0.42
1:A:102:ILE:HB	2:A:600:FAA:O2P	2.19	0.42
1:B:10:LEU:CD2	1:B:41:SER:C	2.88	0.42
1:B:102:ILE:HB	2:B:600:FAA:O2P	2.19	0.42
1:B:354:TYR:HD2	1:B:395:LEU:CD1	2.33	0.42
1:B:361:GLU:HB2	1:B:364:ARG:NH2	2.34	0.42
1:B:445:LYS:HE2	1:B:449:GLU:OE2	2.20	0.42
1:A:10:LEU:CD2	1:A:41:SER:C	2.88	0.42
1:A:283:LEU:O	1:A:349:GLY:CA	2.66	0.42
1:A:283:LEU:O	1:A:350:ARG:N	2.48	0.42
1:A:527:PHE:CE1	1:B:204:LEU:HD22	2.55	0.42
1:B:36:ASN:HB3	1:B:76:ALA:O	2.19	0.42
1:B:108:TYR:HA	1:B:506:HIS:HA	2.02	0.42
1:B:282:THR:O	1:B:283:LEU:HD23	2.20	0.42
1:B:317:ASP:O	1:B:320:VAL:HB	2.20	0.42
1:B:516:THR:C	1:B:518:ASN:H	2.23	0.42
1:A:229:LYS:HB2	1:A:231:GLU:HG3	2.02	0.41
1:A:327:TYR:O	1:A:328:SER:HB2	2.19	0.41
1:B:95:PHE:CE1	1:B:119:VAL:CG2	3.00	0.41
1:B:327:TYR:O	1:B:328:SER:HB2	2.19	0.41
1:B:346:LEU:CB	1:B:348:LEU:CD1	2.97	0.41
1:B:429:ALA:O	1:B:465:MET:HB2	2.20	0.41
1:B:532:LYS:NZ	1:B:541:ILE:HB	2.35	0.41
1:A:89:LEU:HA	1:A:89:LEU:HD23	1.45	0.41
1:A:155:LEU:HD23	1:A:155:LEU:N	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:282:THR:O	1:A:283:LEU:HD23	2.20	0.41
1:A:532:LYS:NZ	1:A:541:ILE:HB	2.35	0.41
1:B:69:PHE:HB3	1:B:113:PRO:O	2.20	0.41
1:B:102:ILE:HG22	1:B:104:ARG:H	1.85	0.41
1:B:229:LYS:HB2	1:B:231:GLU:HG3	2.02	0.41
1:B:250:ILE:HD12	1:B:254:PHE:HE2	1.84	0.41
1:B:314:ILE:HG22	1:B:350:ARG:O	2.20	0.41
1:A:172:GLY:HA3	1:A:408:TYR:CE1	2.55	0.41
1:A:502:GLU:CG	1:A:503:TYR:N	2.82	0.41
1:B:361:GLU:O	1:B:365:ARG:HB2	2.21	0.41
1:A:33:GLY:C	1:A:35:GLU:N	2.73	0.41
1:A:102:ILE:HG22	1:A:104:ARG:H	1.85	0.41
1:A:138:ALA:HA	1:A:164:LEU:HD21	2.03	0.41
1:B:222:ARG:HB2	1:B:223:PRO:CD	2.47	0.41
1:B:278:SER:OG	1:B:399:ASP:OD2	2.28	0.41
1:B:283:LEU:HD23	1:B:283:LEU:N	2.35	0.41
2:B:600:FAA:H6P	2:B:600:FAA:C9A	2.50	0.41
1:A:317:ASP:O	1:A:320:VAL:HB	2.20	0.41
1:A:361:GLU:N	1:A:364:ARG:HH21	2.18	0.41
1:A:454:PHE:CD1	1:A:455:ILE:N	2.89	0.41
1:A:520:ASN:O	1:A:521:ASN:CB	2.68	0.41
1:A:540:ILE:O	1:A:540:ILE:HG22	2.18	0.41
1:B:351:TRP:HA	1:B:351:TRP:HE3	1.81	0.41
1:A:137:GLY:O	1:A:138:ALA:HB3	2.19	0.41
1:A:188:THR:CB	1:A:189:PRO:HD2	2.47	0.41
1:A:363:ILE:N	1:A:363:ILE:CD1	2.80	0.41
1:A:368:TRP:NE1	1:A:372:LYS:HD2	2.36	0.41
1:A:370:THR:O	1:A:374:ALA:HB2	2.20	0.41
1:B:297:ARG:HG2	1:B:298:PRO:HD3	2.03	0.41
1:B:307:ASN:N	1:B:307:ASN:OD1	2.50	0.41
1:B:316:LEU:HD11	1:B:413:TRP:NE1	2.34	0.41
1:B:505:THR:CG2	1:B:506:HIS:N	2.74	0.41
1:A:69:PHE:HB3	1:A:113:PRO:O	2.20	0.41
1:A:278:SER:OG	1:A:399:ASP:OD2	2.28	0.41
1:B:200:MET:CE	1:B:251:ASP:CB	2.95	0.41
1:B:309:PRO:CB	1:B:353:PHE:CE1	3.03	0.41
1:B:341:LYS:HA	1:B:344:LYS:HE2	2.03	0.41
1:B:537:PRO:CD	1:B:538:ASN:N	2.82	0.41
1:A:132:GLU:CG	1:A:133:VAL:N	2.72	0.41
1:A:311:ILE:HG12	1:A:353:PHE:CD1	2.56	0.41
1:A:387:GLU:C	1:A:389:THR:H	2.24	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:172:GLY:HA3	1:B:408:TYR:CE1	2.55	0.41
1:B:283:LEU:HA	1:B:284:PRO:HD3	1.76	0.41
1:A:58:HIS:CD2	1:A:59:ASP:O	2.74	0.41
1:A:112:ALA:O	1:A:507:LEU:HD11	2.21	0.41
1:A:272:ASN:OD1	1:A:273:PRO:HD2	2.21	0.41
1:A:314:ILE:HG22	1:A:350:ARG:O	2.20	0.41
1:A:437:MET:CE	1:A:437:MET:HA	2.51	0.41
1:A:479:ILE:HG22	1:A:483:LYS:HE3	2.02	0.41
2:A:600:FAA:H6P	2:A:600:FAA:C9A	2.50	0.41
1:B:108:TYR:CE1	1:B:505:THR:CA	3.04	0.41
1:B:166:LEU:HD23	1:B:269:LEU:CD2	2.50	0.41
1:B:166:LEU:HD23	1:B:166:LEU:HA	1.82	0.41
1:B:202:VAL:CG2	1:B:203:VAL:N	2.84	0.41
1:B:217:LEU:HD12	1:B:217:LEU:HA	1.33	0.41
1:B:272:ASN:OD1	1:B:273:PRO:HD2	2.21	0.41
1:B:342:ILE:HD13	1:B:342:ILE:HG21	1.83	0.41
1:B:368:TRP:NE1	1:B:372:LYS:HD2	2.36	0.41
1:B:421:ALA:O	1:B:472:VAL:HA	2.21	0.41
1:B:478:LEU:N	1:B:478:LEU:HD12	2.36	0.41
1:A:98:TRP:CD2	1:A:113:PRO:HA	2.56	0.41
1:A:272:ASN:HA	1:A:273:PRO:HD3	1.55	0.41
1:A:361:GLU:O	1:A:365:ARG:HB2	2.21	0.41
1:A:383:PHE:CD1	1:A:383:PHE:N	2.89	0.41
1:A:478:LEU:N	1:A:478:LEU:HD12	2.36	0.41
1:A:545:LYS:C	1:A:547:GLY:N	2.72	0.41
1:B:370:THR:O	1:B:374:ALA:HB2	2.20	0.41
1:B:434:GLU:HB3	1:B:435:ASP:H	1.70	0.41
1:B:520:ASN:O	1:B:521:ASN:CB	2.68	0.41
1:B:550:PRO:HB2	1:B:552:GLN:CG	2.42	0.41
1:A:166:LEU:HD23	1:A:269:LEU:CD2	2.50	0.40
1:A:378:ILE:HA	1:A:379:PRO:HD2	1.78	0.40
1:A:421:ALA:O	1:A:472:VAL:HA	2.21	0.40
1:A:445:LYS:HE2	1:A:449:GLU:OE2	2.20	0.40
1:B:98:TRP:CD2	1:B:113:PRO:HA	2.56	0.40
1:A:27:ASP:N	1:A:27:ASP:OD1	2.54	0.40
1:A:59:ASP:HA	1:A:60:PRO:HD3	1.80	0.40
1:A:517:TYR:OH	1:B:214:MET:CE	2.69	0.40
1:B:8:ARG:HA	1:B:9:PRO:HD2	1.90	0.40
1:B:27:ASP:N	1:B:27:ASP:OD1	2.54	0.40
1:B:58:HIS:HD2	1:B:59:ASP:O	2.04	0.40
1:B:222:ARG:HA	1:B:223:PRO:HD3	1.63	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:310:THR:HA	1:B:459:THR:HA	2.03	0.40
1:B:387:GLU:C	1:B:389:THR:H	2.24	0.40
1:B:454:PHE:CD1	1:B:455:ILE:N	2.89	0.40
1:A:8:ARG:H	1:A:8:ARG:HG3	1.61	0.40
1:A:108:TYR:HA	1:A:506:HIS:HA	2.02	0.40
1:A:283:LEU:HA	1:A:284:PRO:HD3	1.76	0.40
1:A:341:LYS:HA	1:A:344:LYS:HE2	2.03	0.40
1:A:516:THR:C	1:A:518:ASN:H	2.23	0.40
1:B:10:LEU:HD21	1:B:42:SER:C	2.42	0.40
1:B:33:GLY:C	1:B:35:GLU:N	2.73	0.40
1:B:40:ILE:CD1	1:B:57:THR:CG2	2.98	0.40
1:B:112:ALA:O	1:B:507:LEU:HD11	2.21	0.40
1:A:308:VAL:HA	1:A:309:PRO:HD2	1.87	0.40
1:B:54:PRO:HD3	1:B:104:ARG:HH21	1.86	0.40
1:B:138:ALA:HA	1:B:164:LEU:HD21	2.03	0.40
1:B:188:THR:CB	1:B:189:PRO:CD	2.98	0.40
1:B:311:ILE:HG12	1:B:353:PHE:CD1	2.56	0.40
1:B:552:GLN:CD	1:B:552:GLN:N	2.75	0.40
1:A:108:TYR:CE1	1:A:505:THR:HA	2.56	0.40
1:A:156:GLU:CB	1:A:161:ARG:HH21	2.27	0.40
1:A:342:ILE:O	1:A:342:ILE:HG22	2.22	0.40
1:A:421:ALA:HB3	1:A:473:PHE:CZ	2.57	0.40
1:B:75:VAL:O	1:B:77:PRO:HD2	2.22	0.40
1:B:344:LYS:HG3	1:B:345:GLN:N	2.37	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	553/560 (99%)	470 (85%)	69 (12%)	14 (2%)	5 14

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	553/560 (99%)	470 (85%)	69 (12%)	14 (2%)	5	14
All	All	1106/1120 (99%)	940 (85%)	138 (12%)	28 (2%)	5	14

All (28) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	44	ASP
1	B	44	ASP
1	A	30	ARG
1	A	46	ILE
1	A	328	SER
1	B	30	ARG
1	B	46	ILE
1	B	328	SER
1	A	105	ASN
1	A	199	GLY
1	A	508	ALA
1	B	105	ASN
1	B	199	GLY
1	A	329	SER
1	A	408	TYR
1	B	329	SER
1	B	408	TYR
1	B	508	ALA
1	A	388	ASP
1	B	388	ASP
1	A	248	PRO
1	B	248	PRO
1	A	390	PRO
1	B	390	PRO
1	A	60	PRO
1	B	60	PRO
1	A	223	PRO
1	B	223	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	475/482 (98%)	452 (95%)	23 (5%)	25	53
1	B	475/482 (98%)	452 (95%)	23 (5%)	25	53
All	All	950/964 (98%)	904 (95%)	46 (5%)	25	53

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	10	LEU
1	A	63	VAL
1	A	65	ASP
1	A	95	PHE
1	A	114	ARG
1	A	128	ASN
1	A	134	ASN
1	A	220	PRO
1	A	231	GLU
1	A	241	LEU
1	A	251	ASP
1	A	310	THR
1	A	346	LEU
1	A	363	ILE
1	A	373	ASP
1	A	409	ASP
1	A	413	TRP
1	A	435	ASP
1	A	437	MET
1	A	443	THR
1	A	466	HIS
1	A	478	LEU
1	A	552	GLN
1	B	10	LEU
1	B	63	VAL
1	B	65	ASP
1	B	95	PHE
1	B	114	ARG
1	B	128	ASN
1	B	134	ASN
1	B	220	PRO
1	B	231	GLU
1	B	241	LEU
1	B	251	ASP

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Mol	Chain	Res	Type
1	B	310	THR
1	B	346	LEU
1	B	363	ILE
1	B	373	ASP
1	B	409	ASP
1	B	413	TRP
1	B	435	ASP
1	B	437	MET
1	B	443	THR
1	B	466	HIS
1	B	478	LEU
1	B	552	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	58	HIS
1	A	66	GLN
1	A	91	ASN
1	A	152	HIS
1	A	197	HIS
1	A	240	HIS
1	A	277	GLN
1	A	403	GLN
1	A	467	HIS
1	A	485	GLN
1	A	520	ASN
1	A	552	GLN
1	B	58	HIS
1	B	66	GLN
1	B	91	ASN
1	B	152	HIS
1	B	197	HIS
1	B	240	HIS
1	B	277	GLN
1	B	403	GLN
1	B	467	HIS
1	B	485	GLN
1	B	520	ASN
1	B	552	GLN

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](#)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	FAA	A	600	1	60,67,67	0.78	2 (3%)	74,102,102	1.69	7 (9%)
2	FAA	B	600	1	60,67,67	0.77	2 (3%)	74,102,102	1.69	7 (9%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	FAA	A	600	1	-	11/34/54/54	0/7/7/7
2	FAA	B	600	1	-	11/34/54/54	0/7/7/7

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	600	FAA	C5X-N5	-2.41	1.36	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	600	FAA	C5X-N5	-2.36	1.36	1.40
2	B	600	FAA	C9A-N10	-2.06	1.37	1.41
2	A	600	FAA	C9A-N10	-2.00	1.37	1.41

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	600	FAA	C7P-N5-C5X	-11.26	102.71	119.14
2	B	600	FAA	C7P-N5-C5X	-11.26	102.72	119.14
2	B	600	FAA	C1P-C7P-N5	-4.14	106.81	113.02
2	A	600	FAA	C1P-C7P-N5	-4.11	106.85	113.02
2	B	600	FAA	C6-C5X-N5	-2.94	116.92	120.47
2	A	600	FAA	C6-C5X-N5	-2.91	116.96	120.47
2	B	600	FAA	P-O5'-C5'	2.45	136.03	121.68
2	A	600	FAA	P-O5'-C5'	2.45	136.03	121.68
2	A	600	FAA	C5A-C6A-N6A	2.40	123.99	120.35
2	B	600	FAA	C5A-C6A-N6A	2.40	123.99	120.35
2	B	600	FAA	C4-N3-C2	-2.15	121.67	125.64
2	A	600	FAA	C4-N3-C2	-2.13	121.72	125.64
2	A	600	FAA	O4-C4-C4X	-2.11	123.31	128.06
2	B	600	FAA	O4-C4-C4X	-2.07	123.39	128.06

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	600	FAA	C1P-C7P-N5-C4X
2	A	600	FAA	N10-C1'-C2'-O2'
2	A	600	FAA	N10-C1'-C2'-C3'
2	B	600	FAA	C1P-C7P-N5-C4X
2	B	600	FAA	N10-C1'-C2'-O2'
2	B	600	FAA	N10-C1'-C2'-C3'
2	A	600	FAA	O3'-C3'-C4'-O4'
2	B	600	FAA	O3'-C3'-C4'-O4'
2	A	600	FAA	C2'-C3'-C4'-O4'
2	B	600	FAA	C2'-C3'-C4'-O4'
2	A	600	FAA	O4B-C4B-C5B-O5B
2	B	600	FAA	O4B-C4B-C5B-O5B
2	A	600	FAA	C2'-C3'-C4'-C5'
2	B	600	FAA	C2'-C3'-C4'-C5'
2	A	600	FAA	C4'-C5'-O5'-P
2	B	600	FAA	C4'-C5'-O5'-P

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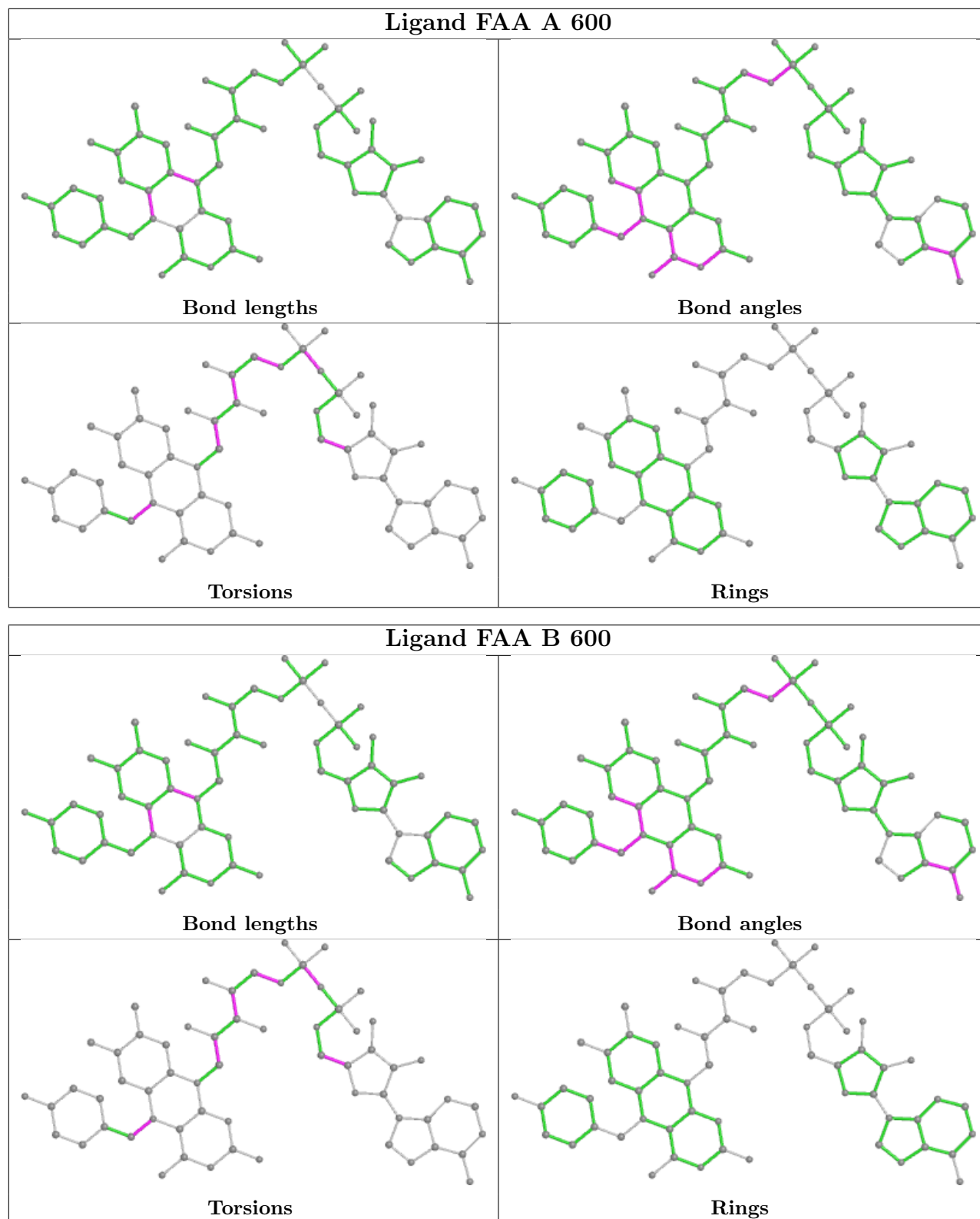
Mol	Chain	Res	Type	Atoms
2	A	600	FAA	PA-O3P-P-O2P
2	B	600	FAA	PA-O3P-P-O2P
2	A	600	FAA	O3'-C3'-C4'-C5'
2	B	600	FAA	O3'-C3'-C4'-C5'
2	A	600	FAA	PA-O3P-P-O1P
2	B	600	FAA	PA-O3P-P-O1P

There are no ring outliers.

2 monomers are involved in 26 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	600	FAA	13	0
2	B	600	FAA	13	0

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



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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

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

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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.