



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 06:25 PM UTC

PDB ID : 1H6V / pdb\_00001h6v  
Title : Mammalian thioredoxin reductase  
Authors : Sandalova, T.; Zhong, L.; Lindqvist, Y.; Holmgren, A.; Schneider, G.  
Deposited on : 2001-06-27  
Resolution : 3.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

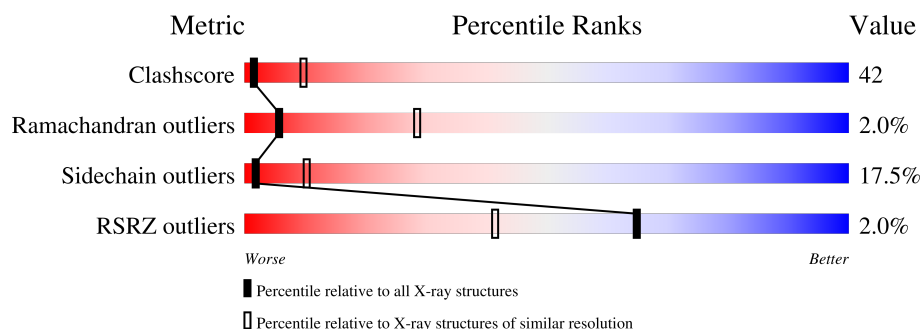
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 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	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

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

Mol	Chain	Length	Quality of chain
1	A	499	<div> <div>%</div> <div> <div></div> <div>35%</div> <div>50%</div> <div>13%</div> <div>.</div> </div> </div>
1	B	499	<div> <div>41%</div> <div>44%</div> <div>11%</div> <div>..</div> </div>
1	C	499	<div> <div>6%</div> <div>26%</div> <div>54%</div> <div>15%</div> <div>..</div> </div>
1	D	499	<div> <div>2%</div> <div>40%</div> <div>43%</div> <div>13%</div> <div>..</div> </div>
1	E	499	<div> <div>%</div> <div>44%</div> <div>40%</div> <div>13%</div> <div>..</div> </div>
1	F	499	<div> <div>%</div> <div>41%</div> <div>45%</div> <div>11%</div> <div>..</div> </div>

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 23075 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 THIOREDOXIN REDUCTASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	490	Total	C	N	O	S	0	0	0
			3764	2391	635	716	22			
1	B	487	Total	C	N	O	S	0	0	0
			3753	2387	633	713	20			
1	C	482	Total	C	N	O	S	0	0	0
			3707	2356	627	704	20			
1	D	487	Total	C	N	O	S	0	0	0
			3753	2387	633	713	20			
1	E	491	Total	C	N	O	S	0	0	0
			3773	2397	637	717	22			
1	F	490	Total	C	N	O	S	0	0	0
			3764	2391	635	716	22			

There are 11 discrepancies between the modelled and reference sequences:

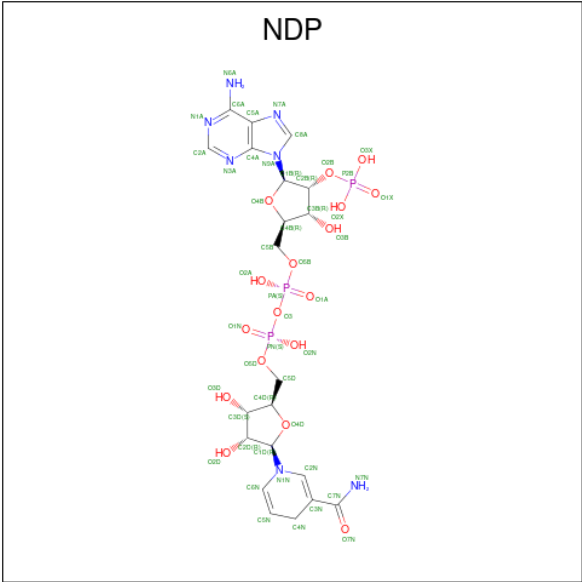
Chain	Residue	Modelled	Actual	Comment	Reference
A	52	ASN	ARG	conflict	UNP O89049
B	52	ASN	ARG	conflict	UNP O89049
C	52	ASN	ARG	conflict	UNP O89049
D	52	ASN	ARG	conflict	UNP O89049
E	52	ASN	ARG	conflict	UNP O89049
F	52	ASN	ARG	conflict	UNP O89049
A	497	CYS	SEL	engineered mutation	UNP O89049
B	497	CYS	SEL	engineered mutation	UNP O89049
C	497	CYS	SEL	engineered mutation	UNP O89049
D	497	CYS	SEL	engineered mutation	UNP O89049
E	497	CYS	SEL	engineered mutation	UNP O89049

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: C<sub>27</sub>H<sub>33</sub>N<sub>9</sub>O<sub>15</sub>P<sub>2</sub>).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	B	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	C	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	D	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	E	1	Total 53	C 27	N 9	O 15	P 2	0	0
2	F	1	Total 53	C 27	N 9	O 15	P 2	0	0

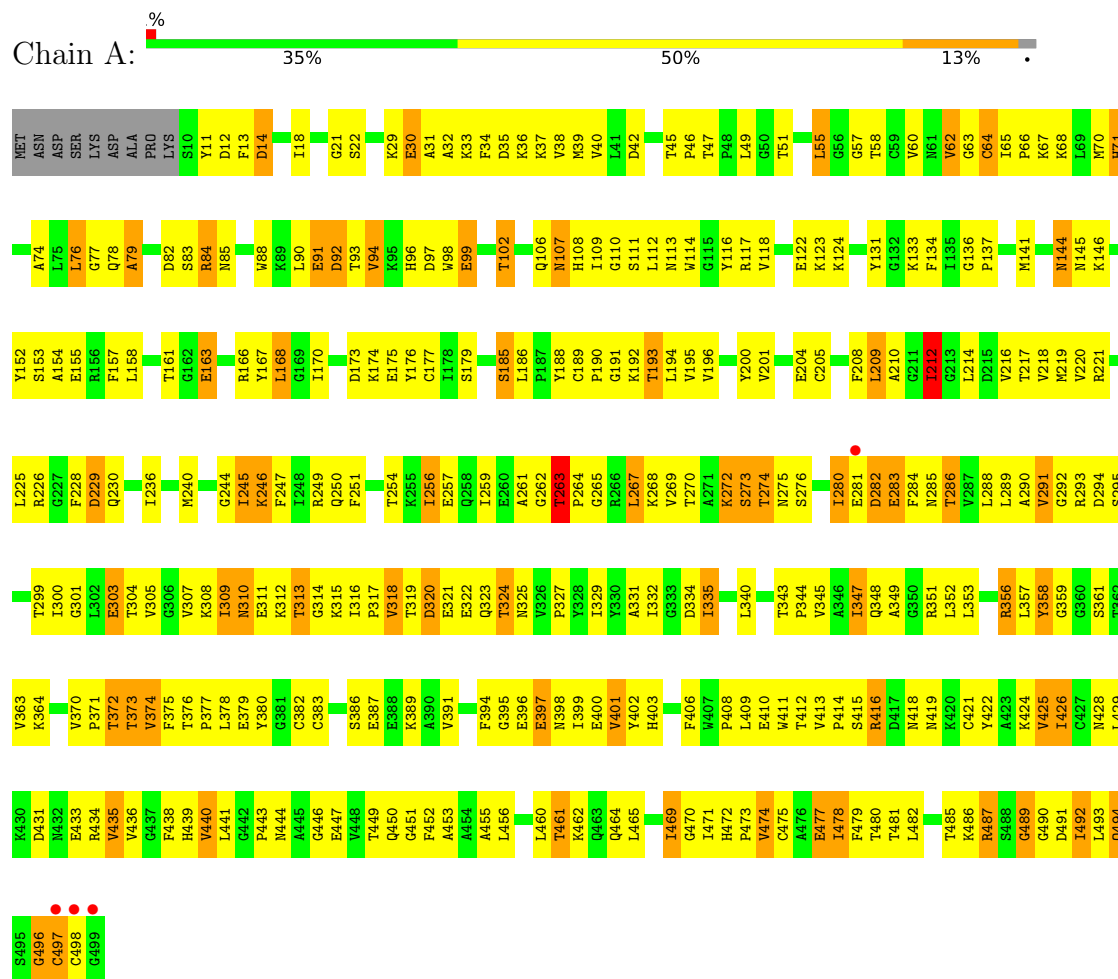
- Molecule 3 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula:  $\text{C}_{21}\text{H}_{30}\text{N}_7\text{O}_{17}\text{P}_3$ ).



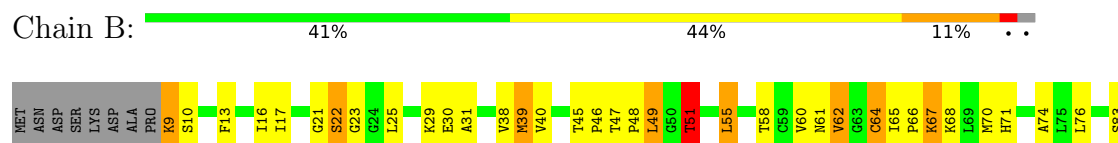
### 3 Residue-property plots

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 and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

#### • Molecule 1: THIOREDOXIN REDUCTASE

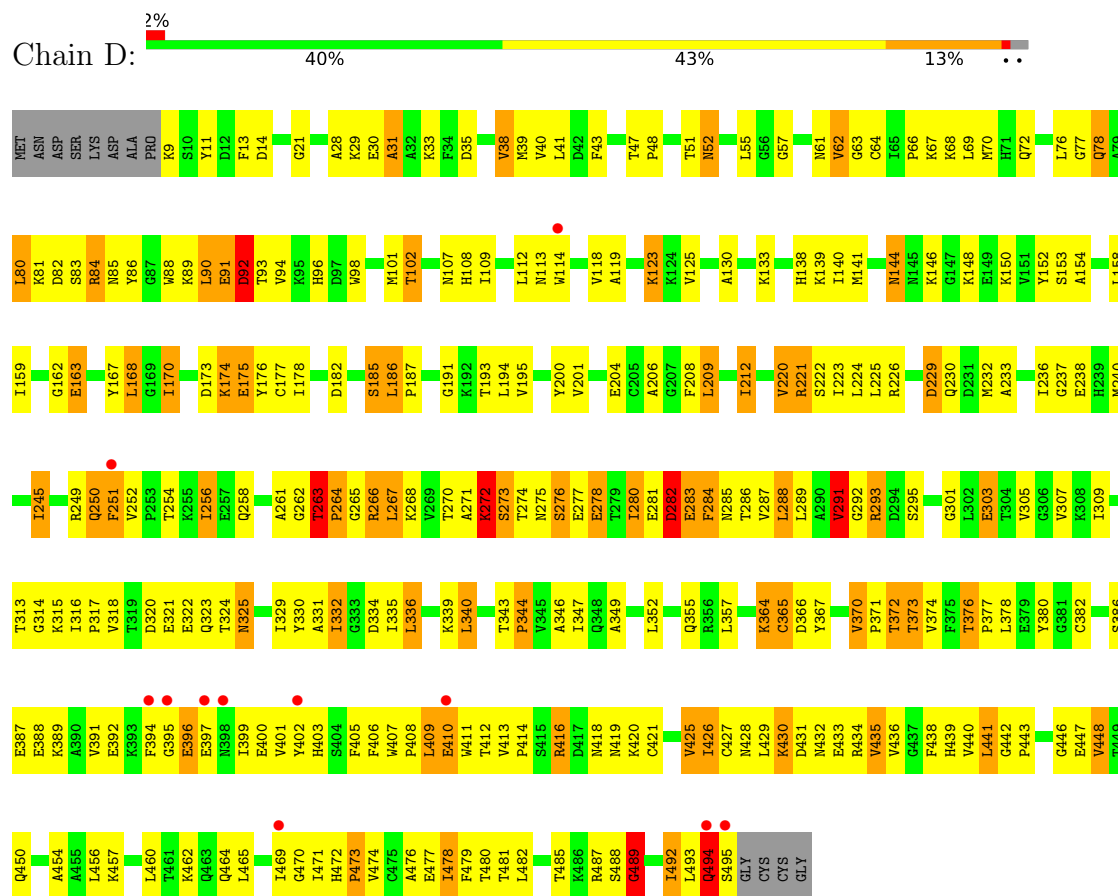


#### • Molecule 1: THIOREDOXIN REDUCTASE

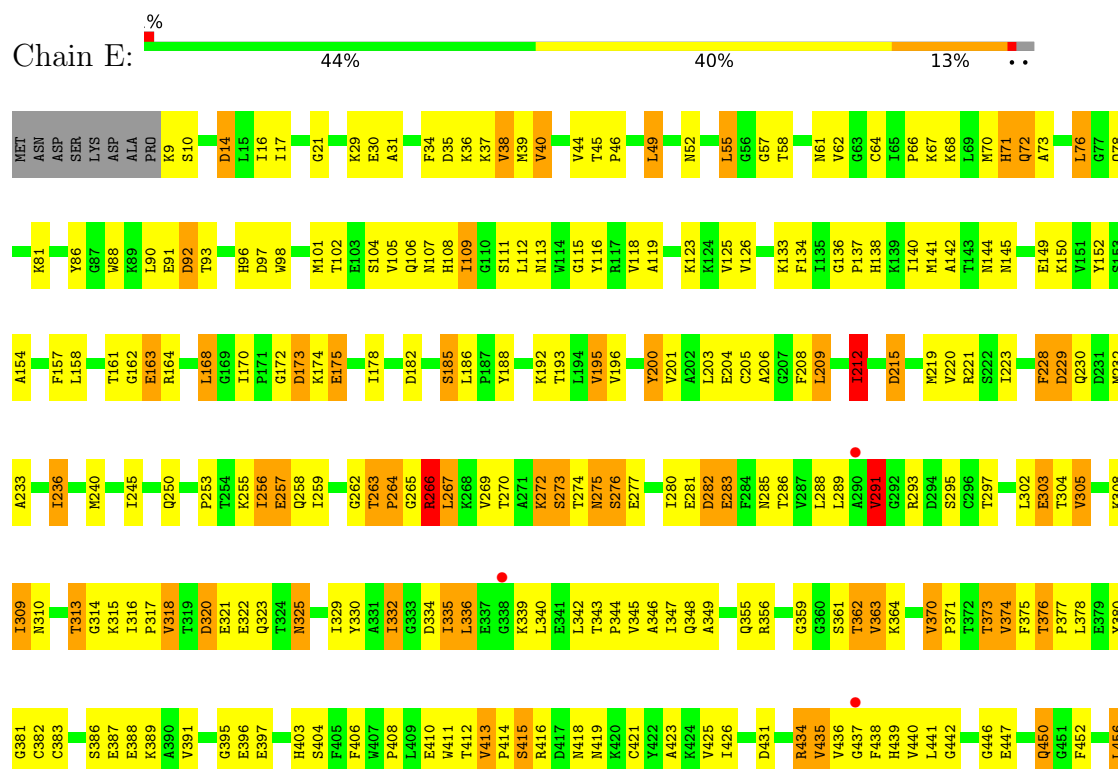




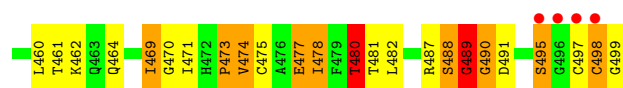
- Molecule 1: THIOREDOXIN REDUCTASE



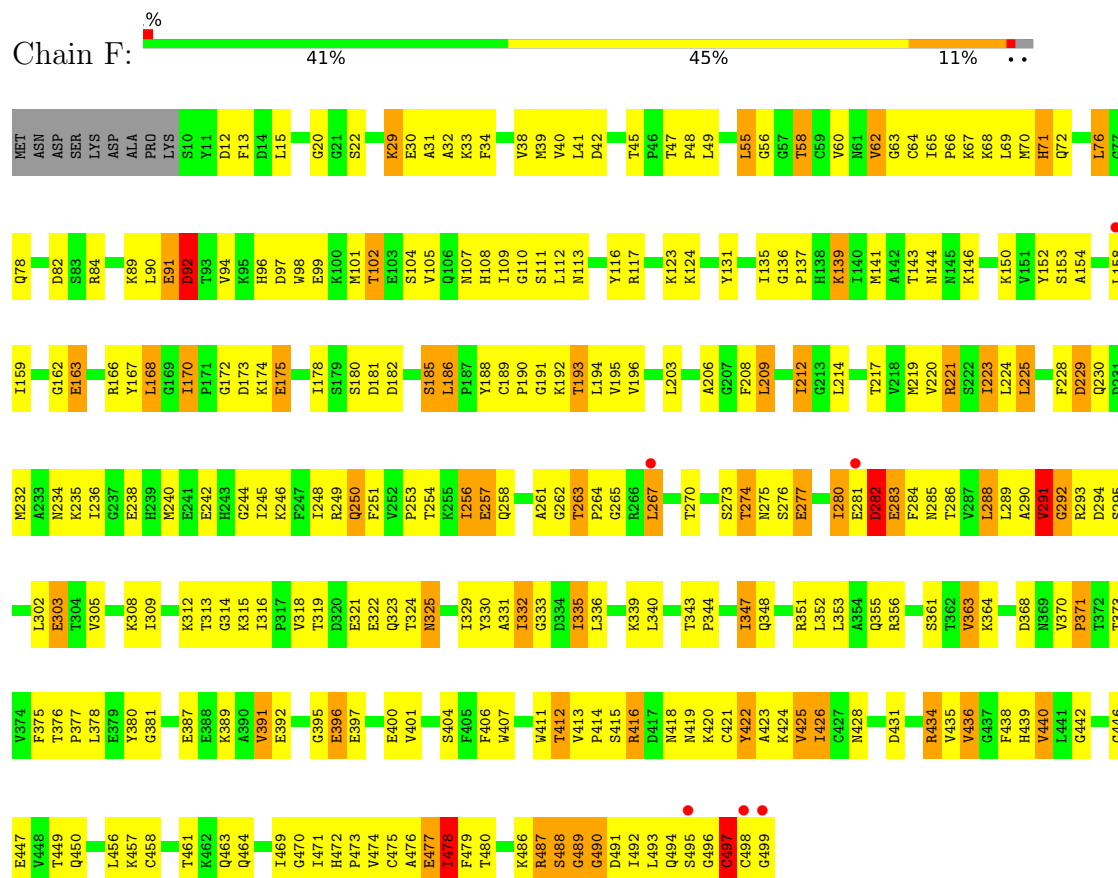
- Molecule 1: THIOREDOXIN REDUCTASE







- Molecule 1: THIOREDOXIN REDUCTASE



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	78.92Å 140.46Å 170.83Å 90.00° 94.64° 90.00°	Depositor
Resolution (Å)	30.00 – 3.00 30.00 – 3.00	Depositor EDS
% Data completeness (in resolution range)	92.4 (30.00-3.00) 92.7 (30.00-3.00)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.35 (at 3.00Å)	Xtriage
Refinement program	REFMAC	Depositor
R, $R_{free}$	0.224 , 0.263 0.258 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	61.1	Xtriage
Anisotropy	0.096	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.27 , 0.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.89	EDS
Total number of atoms	23075	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	14.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.82% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: NDP, FAD

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	1.22	16/3838 (0.4%)	1.38	33/5193 (0.6%)
1	B	1.18	9/3827 (0.2%)	1.34	19/5178 (0.4%)
1	C	1.08	10/3779 (0.3%)	1.36	30/5114 (0.6%)
1	D	1.26	10/3827 (0.3%)	1.40	29/5178 (0.6%)
1	E	1.26	12/3847 (0.3%)	1.42	28/5204 (0.5%)
1	F	1.03	5/3838 (0.1%)	1.31	22/5193 (0.4%)
All	All	1.18	62/22956 (0.3%)	1.37	161/31060 (0.5%)

All (62) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	290	ALA	CA-CB	-9.38	1.42	1.54
1	A	489	GLY	C-N	-8.80	1.24	1.33
1	E	105	VAL	CA-CB	-8.01	1.45	1.54
1	A	313	THR	C-O	-8.01	1.14	1.24
1	A	490	GLY	N-CA	-7.74	1.38	1.44
1	C	300	ILE	C-O	-7.63	1.13	1.23
1	D	340	LEU	CA-C	-7.42	1.44	1.52
1	E	489	GLY	C-O	-7.37	1.14	1.23
1	C	423	ALA	CA-C	-7.22	1.43	1.52
1	E	305	VAL	CA-CB	-7.02	1.45	1.55
1	F	407	TRP	C-O	-6.92	1.18	1.25
1	F	440	VAL	CA-CB	-6.76	1.46	1.54
1	D	245	ILE	CA-CB	-6.74	1.46	1.54
1	D	280	ILE	CA-CB	6.66	1.63	1.53
1	D	307	VAL	CA-CB	-6.58	1.46	1.54
1	A	74	ALA	CA-CB	-6.56	1.43	1.53
1	D	28	ALA	CA-CB	-6.53	1.43	1.53
1	A	94	VAL	CA-CB	-6.50	1.46	1.54
1	C	290	ALA	C-O	-6.29	1.15	1.25
1	C	290	ALA	CA-C	-6.27	1.48	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	31	ALA	CA-CB	-6.25	1.43	1.53
1	B	287	VAL	CA-CB	-6.23	1.46	1.53
1	E	376	THR	CA-CB	-6.21	1.44	1.53
1	A	290	ALA	C-O	-6.21	1.16	1.23
1	F	280	ILE	CA-CB	6.09	1.62	1.53
1	D	94	VAL	CA-CB	-6.04	1.47	1.54
1	C	492	ILE	CA-CB	-6.04	1.48	1.54
1	A	280	ILE	CA-CB	5.91	1.62	1.53
1	B	280	ILE	CA-CB	5.91	1.62	1.53
1	C	313	THR	C-O	-5.89	1.17	1.24
1	A	300	ILE	C-O	-5.89	1.17	1.24
1	B	425	VAL	CA-CB	-5.88	1.47	1.54
1	E	245	ILE	CA-CB	-5.77	1.47	1.54
1	B	195	VAL	CA-CB	-5.70	1.47	1.54
1	C	376	THR	CA-CB	-5.68	1.44	1.53
1	E	142	ALA	CA-CB	-5.68	1.45	1.53
1	C	65	ILE	CA-CB	-5.68	1.46	1.54
1	E	346	ALA	CA-CB	-5.65	1.44	1.53
1	A	489	GLY	C-O	-5.57	1.16	1.23
1	E	488	SER	CA-C	-5.57	1.45	1.52
1	E	498	CYS	CA-C	-5.56	1.45	1.53
1	B	455	ALA	CA-CB	-5.53	1.44	1.53
1	D	62	VAL	CA-CB	-5.50	1.47	1.54
1	F	489	GLY	C-O	-5.49	1.16	1.23
1	A	290	ALA	CA-CB	5.44	1.62	1.53
1	B	471	ILE	CA-CB	-5.40	1.47	1.54
1	F	436	VAL	CA-CB	-5.33	1.48	1.54
1	A	79	ALA	CA-CB	-5.31	1.44	1.53
1	E	495	SER	C-O	-5.27	1.17	1.24
1	A	245	ILE	CA-CB	-5.25	1.47	1.54
1	A	349	ALA	CA-CB	-5.21	1.45	1.53
1	A	210	ALA	CA-CB	-5.20	1.45	1.53
1	C	407	TRP	C-O	-5.19	1.20	1.25
1	D	357	LEU	C-O	-5.17	1.18	1.24
1	E	126	VAL	CA-CB	-5.15	1.47	1.54
1	B	407	TRP	C-O	-5.09	1.20	1.24
1	B	216	VAL	CA-CB	-5.07	1.48	1.54
1	E	495	SER	CA-C	-5.06	1.45	1.52
1	A	289	LEU	C-O	-5.06	1.17	1.24
1	D	29	LYS	CA-C	-5.05	1.46	1.52
1	B	119	ALA	CA-CB	-5.04	1.45	1.53
1	A	498	CYS	N-CA	-5.03	1.40	1.46

All (161) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	490	GLY	N-CA-C	-10.02	98.39	111.52
1	A	489	GLY	CA-C-N	-9.96	112.33	122.69
1	A	489	GLY	C-N-CA	-9.96	112.33	122.69
1	A	490	GLY	N-CA-C	-9.11	100.24	112.81
1	D	170	ILE	N-CA-C	9.03	117.42	109.02
1	D	273	SER	N-CA-C	8.94	121.47	108.34
1	C	320	ASP	N-CA-C	-8.38	104.08	112.97
1	A	289	LEU	CA-C-N	-7.78	109.83	120.87
1	A	289	LEU	C-N-CA	-7.78	109.83	120.87
1	D	273	SER	N-CA-CB	7.77	118.81	111.59
1	D	489	GLY	CA-C-N	-7.72	114.05	121.31
1	D	489	GLY	C-N-CA	-7.72	114.05	121.31
1	D	274	THR	CB-CA-C	-7.60	95.12	109.72
1	C	491	ASP	N-CA-C	-7.51	98.33	110.20
1	A	435	VAL	CB-CA-C	-7.48	103.15	111.23
1	A	71	HIS	N-CA-C	-7.34	103.27	111.28
1	D	370	VAL	CB-CA-C	7.18	118.14	110.53
1	C	186	LEU	CA-C-N	7.11	128.72	119.84
1	C	186	LEU	C-N-CA	7.11	128.72	119.84
1	C	283	GLU	N-CA-C	7.04	121.06	110.64
1	E	78	GLN	N-CA-C	-7.03	103.62	111.71
1	F	401	VAL	CB-CA-C	-6.92	101.99	110.99
1	C	46	PRO	N-CA-C	6.91	120.89	111.22
1	E	274	THR	N-CA-C	-6.84	104.51	112.92
1	F	478	ILE	CB-CA-C	-6.81	102.10	112.05
1	F	274	THR	N-CA-C	-6.79	104.97	112.72
1	B	126	VAL	CB-CA-C	-6.74	101.29	111.33
1	A	374	VAL	CB-CA-C	-6.70	101.80	110.98
1	C	300	ILE	O-C-N	-6.68	115.95	122.97
1	C	314	GLY	N-CA-C	-6.67	106.54	114.48
1	F	495	SER	CA-C-N	-6.66	108.35	121.41
1	F	495	SER	C-N-CA	-6.66	108.35	121.41
1	A	230	GLN	N-CA-C	6.63	119.35	111.33
1	B	216	VAL	N-CA-C	6.61	118.00	108.48
1	A	492	ILE	N-CA-C	-6.54	105.96	112.17
1	C	78	GLN	N-CA-C	-6.49	104.29	111.36
1	E	73	ALA	N-CA-C	-6.48	104.29	111.36
1	E	195	VAL	CB-CA-C	-6.42	101.66	110.77
1	C	484	VAL	CB-CA-C	-6.40	102.83	111.15
1	A	497	CYS	N-CA-C	6.39	119.02	108.99
1	F	496	GLY	N-CA-C	6.34	128.20	113.18
1	C	327	PRO	N-CA-C	6.29	125.42	112.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	374	VAL	CB-CA-C	-6.27	102.39	110.98
1	C	291	VAL	N-CA-C	6.21	122.26	109.34
1	A	436	VAL	CB-CA-C	-6.19	103.52	111.20
1	D	435	VAL	CB-CA-C	-6.19	104.60	111.35
1	E	488	SER	CA-C-O	6.19	125.79	118.79
1	A	263	THR	N-CA-C	-6.18	96.16	109.81
1	B	280	ILE	CB-CA-C	6.17	120.13	113.22
1	A	60	VAL	N-CA-C	6.14	116.92	110.72
1	E	488	SER	CB-CA-C	-6.12	99.94	109.80
1	E	415	SER	CB-CA-C	-6.11	103.19	112.11
1	F	371	PRO	CB-CA-C	-6.09	102.97	110.95
1	F	371	PRO	N-CD-CG	-6.09	94.06	103.20
1	B	489	GLY	N-CA-C	6.08	127.58	113.18
1	E	313	THR	OG1-CB-CG2	-6.07	97.16	109.30
1	B	275	ASN	N-CA-CB	-6.05	101.73	110.56
1	C	326	VAL	CA-C-N	6.05	127.40	119.84
1	C	326	VAL	C-N-CA	6.05	127.40	119.84
1	C	201	VAL	N-CA-C	6.04	116.70	110.36
1	E	14	ASP	N-CA-C	-6.04	104.99	112.90
1	A	212	ILE	N-CA-C	-5.96	105.94	112.80
1	F	206	ALA	N-CA-C	-5.95	104.79	111.28
1	C	264	PRO	N-CA-C	-5.93	100.25	112.47
1	C	492	ILE	N-CA-C	-5.93	107.35	113.10
1	F	62	VAL	CB-CA-C	-5.93	101.57	111.29
1	E	71	HIS	N-CA-C	-5.91	104.84	111.28
1	A	496	GLY	CA-C-N	-5.88	111.44	121.85
1	A	496	GLY	C-N-CA	-5.88	111.44	121.85
1	B	118	VAL	CB-CA-C	-5.88	104.20	112.14
1	E	305	VAL	CB-CA-C	-5.86	105.12	110.63
1	C	161	THR	N-CA-C	5.85	119.68	112.54
1	B	274	THR	CB-CA-C	-5.81	99.07	110.11
1	E	273	SER	CB-CA-C	-5.75	107.22	114.40
1	A	473	PRO	N-CD-CG	-5.68	96.98	103.80
1	A	494	GLN	N-CA-C	5.67	116.67	107.32
1	B	230	GLN	N-CA-C	5.62	118.94	111.75
1	E	488	SER	N-CA-C	-5.58	105.45	114.09
1	B	432	ASN	CB-CA-C	-5.53	102.34	111.36
1	A	299	THR	CB-CA-C	-5.53	103.45	111.14
1	E	374	VAL	CB-CA-C	-5.52	103.42	110.98
1	E	489	GLY	CA-C-N	-5.52	112.93	123.03
1	E	489	GLY	C-N-CA	-5.52	112.93	123.03
1	A	401	VAL	CB-CA-C	-5.51	103.82	110.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	477	GLU	N-CA-C	5.51	118.05	111.71
1	A	244	GLY	CA-C-N	-5.51	115.96	123.12
1	A	244	GLY	C-N-CA	-5.51	115.96	123.12
1	A	77	GLY	N-CA-C	-5.51	106.11	112.50
1	F	244	GLY	N-CA-C	5.50	122.41	114.10
1	C	45	THR	N-CA-C	-5.50	97.66	109.81
1	D	272	LYS	CA-C-N	-5.47	114.07	121.84
1	D	272	LYS	C-N-CA	-5.47	114.07	121.84
1	E	489	GLY	N-CA-C	5.46	126.13	113.18
1	E	320	ASP	N-CA-C	-5.46	106.65	113.15
1	B	206	ALA	N-CA-C	-5.44	105.35	111.28
1	D	206	ALA	N-CA-C	-5.44	105.35	111.28
1	F	497	CYS	N-CA-C	-5.42	96.35	107.67
1	E	435	VAL	CB-CA-C	-5.41	104.09	111.33
1	E	212	ILE	N-CA-C	-5.39	105.69	113.07
1	F	282	ASP	N-CA-C	-5.38	102.56	110.42
1	B	494	GLN	N-CA-C	5.37	122.25	110.80
1	E	363	VAL	CB-CA-C	-5.37	104.17	111.15
1	F	495	SER	N-CA-C	-5.37	104.67	111.11
1	F	71	HIS	N-CA-C	-5.36	104.84	111.33
1	D	263	THR	CA-C-N	-5.36	113.14	119.84
1	D	263	THR	C-N-CA	-5.36	113.14	119.84
1	C	327	PRO	CA-C-N	-5.35	113.58	122.08
1	C	327	PRO	C-N-CA	-5.35	113.58	122.08
1	F	292	GLY	N-CA-C	-5.34	103.27	110.80
1	A	273	SER	CB-CA-C	-5.32	107.75	114.40
1	D	274	THR	CA-C-N	-5.30	114.24	122.67
1	D	274	THR	C-N-CA	-5.30	114.24	122.67
1	D	14	ASP	N-CA-C	-5.29	105.42	111.14
1	F	316	ILE	N-CA-C	5.29	113.69	107.77
1	A	477	GLU	N-CA-C	5.27	117.77	111.71
1	F	45	THR	CA-C-N	5.27	125.20	119.78
1	F	45	THR	C-N-CA	5.27	125.20	119.78
1	C	89	LYS	CB-CA-C	-5.25	104.24	112.12
1	B	159	ILE	CB-CA-C	-5.24	105.57	111.23
1	F	477	GLU	N-CA-C	5.23	117.73	111.71
1	D	425	VAL	CA-C-N	-5.23	116.71	123.19
1	D	425	VAL	C-N-CA	-5.23	116.71	123.19
1	B	223	ILE	N-CA-CB	-5.22	106.12	112.07
1	A	320	ASP	N-CA-C	-5.21	106.95	113.15
1	B	375	PHE	N-CA-C	5.20	117.91	110.68
1	F	78	GLN	N-CA-C	-5.20	105.73	111.71

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	274	THR	N-CA-C	-5.20	106.78	113.02
1	A	263	THR	CA-C-N	-5.20	113.34	119.84
1	A	263	THR	C-N-CA	-5.20	113.34	119.84
1	A	91	GLU	CB-CA-C	-5.18	100.78	109.48
1	D	494	GLN	N-CA-C	5.18	121.82	110.80
1	D	370	VAL	CA-C-O	5.17	122.55	119.19
1	E	236	ILE	CB-CA-C	-5.17	105.27	112.04
1	E	264	PRO	N-CA-C	-5.17	101.82	112.47
1	C	492	ILE	CB-CA-C	-5.15	105.26	110.93
1	E	477	GLU	N-CA-C	5.14	117.63	111.71
1	C	326	VAL	CA-C-O	5.14	122.00	119.12
1	A	30	GLU	CB-CA-C	-5.13	103.00	110.95
1	C	369	ASN	CA-C-N	-5.13	118.32	123.04
1	C	369	ASN	C-N-CA	-5.13	118.32	123.04
1	C	169	GLY	N-CA-C	-5.12	108.17	115.64
1	C	477	GLU	N-CA-C	5.12	118.30	111.75
1	B	10	SER	N-CA-C	5.11	117.06	108.73
1	E	44	VAL	CB-CA-C	-5.10	104.10	111.19
1	B	51	THR	OG1-CB-CG2	-5.10	99.10	109.30
1	C	328	TYR	N-CA-C	-5.10	105.42	113.02
1	A	261	ALA	N-CA-C	-5.10	103.95	110.53
1	E	480	THR	N-CA-C	-5.10	107.06	113.28
1	C	425	VAL	CB-CA-C	-5.09	102.23	110.28
1	D	346	ALA	CA-C-N	-5.09	113.19	120.42
1	D	346	ALA	C-N-CA	-5.09	113.19	120.42
1	D	464	GLN	N-CA-C	-5.08	105.66	111.14
1	D	264	PRO	N-CA-C	-5.07	102.03	112.47
1	B	435	VAL	CB-CA-C	-5.06	105.83	111.35
1	D	282	ASP	N-CA-C	-5.05	103.04	110.42
1	E	266	ARG	N-CA-C	5.04	116.61	108.34
1	F	135	ILE	CB-CA-C	-5.04	105.71	110.65
1	D	113	ASN	CA-C-N	-5.04	111.86	121.94
1	D	113	ASN	C-N-CA	-5.04	111.86	121.94
1	D	159	ILE	CB-CA-C	-5.03	105.20	111.08
1	B	175	GLU	N-CA-C	5.03	117.65	111.82

There are no chirality outliers.

There are no planarity outliers.



## 5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of 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	3764	0	3764	331	0
1	B	3753	0	3763	302	0
1	C	3707	0	3721	485	0
1	D	3753	0	3761	315	0
1	E	3773	0	3777	275	0
1	F	3764	0	3764	317	0
2	A	53	0	31	6	0
2	B	53	0	31	10	0
2	C	53	0	31	15	0
2	D	53	0	31	4	0
2	E	53	0	31	3	0
2	F	53	0	31	5	0
3	A	39	0	18	2	0
3	B	39	0	18	8	0
3	C	39	0	18	6	0
3	D	39	0	18	6	0
3	E	39	0	18	1	0
3	F	39	0	18	4	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	3	0	0	2	0
4	D	1	0	0	0	0
4	E	2	0	0	1	0
4	F	1	0	0	0	0
All	All	23075	0	22844	1948	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 42.

All (1948) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:98:TRP:NE1	1:C:190:PRO:HD2	1.54	1.21
1:C:98:TRP:CD1	1:C:189:CYS:HA	1.76	1.20
1:D:477:GLU:O	1:D:480:THR:HG22	1.49	1.13

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:378:LEU:HD13	1:C:441:LEU:HD11	1.13	1.12
1:C:98:TRP:CZ3	1:C:102:THR:HG23	1.85	1.12
1:F:478:ILE:N	1:F:478:ILE:HD12	1.62	1.11
1:C:98:TRP:HZ3	1:C:102:THR:HG23	1.00	1.11
1:C:18:ILE:HG13	1:C:18:ILE:O	1.47	1.10
1:D:303:GLU:OE1	1:D:303:GLU:N	1.84	1.10
1:B:371:PRO:HG3	1:B:453:ALA:HB2	1.34	1.10
1:F:168:LEU:HB3	1:F:170:ILE:HG23	1.35	1.04
1:A:263:THR:OG1	1:A:264:PRO:CD	2.07	1.03
1:C:72:GLN:HE21	1:D:410:GLU:HB3	1.18	1.01
1:C:378:LEU:HD13	1:C:441:LEU:CD1	1.90	1.01
1:C:172:GLY:HA2	1:C:175:GLU:HG3	1.36	1.01
1:C:255:LYS:HD2	1:C:270:THR:OG1	1.62	1.00
1:D:251:PHE:HD1	1:D:273:SER:HB2	1.22	1.00
1:C:320:ASP:O	1:C:364:LYS:HG3	1.62	1.00
1:A:98:TRP:NE1	1:A:102:THR:HG21	1.76	0.99
1:A:378:LEU:HG	1:A:441:LEU:HD11	1.44	0.98
1:D:320:ASP:OD2	1:D:364:LYS:NZ	1.97	0.98
1:E:289:LEU:O	1:E:291:VAL:HG22	1.64	0.97
1:B:67:LYS:HE2	1:B:204:GLU:OE1	1.63	0.97
1:F:238:GLU:O	1:F:242:GLU:HG3	1.64	0.97
1:E:263:THR:HB	1:E:264:PRO:HD3	1.46	0.97
1:F:426:ILE:HD11	1:F:436:VAL:HG23	1.43	0.97
1:F:361:SER:OG	1:F:363:VAL:HG23	1.63	0.96
1:D:325:ASN:HD22	1:D:325:ASN:N	1.62	0.96
1:C:272:LYS:HE3	1:C:276:SER:HA	1.49	0.95
1:B:67:LYS:HE2	1:B:204:GLU:CD	1.90	0.95
1:C:461:THR:OG1	1:C:464:GLN:HG3	1.66	0.94
1:C:426:ILE:HG22	1:C:437:GLY:HA3	1.49	0.94
1:A:478:ILE:HD12	1:A:478:ILE:N	1.83	0.94
1:E:256:ILE:HD13	1:E:269:VAL:HG22	1.47	0.94
1:F:223:ILE:HD11	1:F:230:GLN:CD	1.93	0.94
1:A:114:TRP:HB3	1:D:114:TRP:NE1	1.82	0.93
1:C:224:LEU:H	1:C:224:LEU:HD12	1.32	0.93
1:A:263:THR:OG1	1:A:264:PRO:HD3	1.66	0.93
1:A:353:LEU:HD12	1:A:356:ARG:HH21	1.34	0.92
1:B:65:ILE:HG22	1:B:66:PRO:HD3	1.51	0.92
1:C:403:HIS:CE1	1:C:492:ILE:HD11	2.05	0.92
1:A:348:GLN:HE22	1:A:351:ARG:NH1	1.66	0.92
1:C:258:GLN:HE22	1:C:261:ALA:HB2	1.33	0.92
1:E:303:GLU:OE2	1:E:304:THR:HG23	1.69	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:192:LYS:N	1:F:285:ASN:HD22	1.67	0.92
1:F:331:ALA:O	1:F:332:ILE:HD12	1.70	0.91
1:F:478:ILE:HD12	1:F:478:ILE:H	1.24	0.91
1:B:426:ILE:HG12	1:B:437:GLY:HA3	1.52	0.91
1:D:325:ASN:H	1:D:325:ASN:ND2	1.64	0.91
1:C:418:ASN:ND2	1:C:419:ASN:H	1.68	0.90
1:D:389:LYS:NZ	1:D:392:GLU:OE1	2.05	0.90
1:A:78:GLN:HE21	1:A:416:ARG:NH1	1.69	0.90
1:B:193:THR:HG22	1:B:286:THR:HB	1.51	0.89
1:C:220:VAL:HG21	1:C:249:ARG:NE	1.87	0.89
1:E:497:CYS:SG	1:F:116:TYR:CE2	2.66	0.89
1:B:313:THR:O	1:B:315:LYS:N	2.04	0.89
1:F:313:THR:O	1:F:315:LYS:N	2.05	0.88
1:D:270:THR:HG22	1:D:280:ILE:HA	1.55	0.88
1:F:39:MET:HE3	1:F:41:LEU:HD21	1.55	0.88
1:E:263:THR:CB	1:E:264:PRO:CD	2.51	0.88
1:F:191:GLY:O	1:F:193:THR:HG22	1.74	0.88
1:A:394:PHE:O	1:A:398:ASN:ND2	2.06	0.88
1:B:371:PRO:CG	1:B:453:ALA:CB	2.52	0.88
1:D:325:ASN:HD22	1:D:325:ASN:H	0.88	0.87
1:C:192:LYS:HE2	1:C:215:ASP:OD2	1.73	0.87
1:D:313:THR:O	1:D:315:LYS:N	2.06	0.87
1:A:318:VAL:CG1	1:A:322:GLU:HA	2.04	0.87
1:D:250:GLN:O	1:D:273:SER:CB	2.23	0.87
1:C:256:ILE:HD11	1:C:267:LEU:CD1	2.05	0.87
1:C:291:VAL:HG12	1:C:291:VAL:O	1.74	0.87
1:B:493:LEU:C	1:B:494:GLN:HG3	2.00	0.86
1:E:406:PHE:CZ	1:E:421:CYS:HB3	2.09	0.86
1:E:308:LYS:H	1:E:325:ASN:HD21	1.18	0.86
1:F:70:MET:HE2	1:F:101:MET:HE3	1.55	0.86
1:C:285:ASN:HD22	1:C:285:ASN:H	1.21	0.86
1:E:343:THR:HB	1:E:344:PRO:HD3	1.55	0.86
1:D:144:ASN:HD22	1:D:146:LYS:H	1.24	0.86
1:F:434:ARG:HH11	1:F:434:ARG:HG2	1.40	0.86
1:C:164:ARG:HB3	1:C:165:PRO:HD2	1.56	0.85
1:A:373:THR:HG23	1:B:471:ILE:HG21	1.58	0.85
1:B:262:GLY:O	1:B:263:THR:O	1.93	0.85
1:C:46:PRO:HB3	1:C:50:GLY:HA2	1.59	0.85
1:E:144:ASN:OD1	1:E:145:ASN:N	2.09	0.85
1:E:263:THR:OG1	1:E:264:PRO:HD2	1.75	0.85
1:B:192:LYS:H	1:B:285:ASN:HD22	1.25	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:96:HIS:HE1	1:D:86:TYR:O	1.58	0.85
1:E:434:ARG:HG2	1:E:434:ARG:HH11	1.41	0.85
1:A:318:VAL:HG11	1:A:322:GLU:HA	1.57	0.85
1:B:371:PRO:HG3	1:B:453:ALA:CB	2.06	0.85
1:B:371:PRO:CG	1:B:453:ALA:HB2	2.07	0.85
1:C:196:VAL:O	1:C:291:VAL:CG2	2.25	0.84
1:C:313:THR:OG1	1:C:315:LYS:HG3	1.77	0.84
1:A:66:PRO:HG3	1:A:109:ILE:HD11	1.59	0.84
1:B:66:PRO:HG3	1:B:109:ILE:HD11	1.59	0.84
1:C:96:HIS:CD2	1:C:212:ILE:HG13	2.11	0.84
1:F:325:ASN:ND2	1:F:325:ASN:H	1.73	0.84
1:A:220:VAL:HG21	1:A:249:ARG:HE	1.40	0.84
1:B:295:SER:HB3	1:B:335:ILE:HD12	1.57	0.84
1:A:308:LYS:H	1:A:325:ASN:ND2	1.75	0.83
1:D:407:TRP:CG	1:D:418:ASN:ND2	2.45	0.83
1:E:232:MET:HE1	1:E:441:LEU:HB2	1.60	0.83
1:A:98:TRP:O	1:A:102:THR:HG23	1.79	0.83
1:F:478:ILE:N	1:F:478:ILE:CD1	2.39	0.83
1:C:163:GLU:HB3	1:C:294:ASP:C	2.03	0.83
1:C:196:VAL:HG12	1:C:291:VAL:HG21	1.59	0.83
1:A:397:GLU:H	1:A:397:GLU:CD	1.81	0.83
1:C:447:GLU:OE2	1:D:474:VAL:HG13	1.78	0.83
1:A:493:LEU:O	1:A:494:GLN:HG2	1.79	0.83
1:B:131:TYR:CZ	2:B:600:FAD:N6A	2.46	0.83
1:F:275:ASN:ND2	1:F:275:ASN:O	2.12	0.83
1:C:98:TRP:CZ3	1:C:102:THR:CG2	2.61	0.82
1:E:374:VAL:HG12	1:E:376:THR:HG23	1.58	0.82
1:F:223:ILE:HD11	1:F:230:GLN:NE2	1.94	0.82
1:C:185:SER:O	1:C:187:PRO:HD3	1.79	0.82
1:C:208:PHE:CE1	1:C:209:LEU:HD22	2.13	0.82
1:C:383:CYS:SG	1:C:456:LEU:HD12	2.18	0.82
1:E:313:THR:O	1:E:315:LYS:N	2.12	0.82
1:C:403:HIS:NE2	1:C:492:ILE:HD11	1.94	0.82
1:D:98:TRP:NE1	1:D:102:THR:HG21	1.94	0.82
1:E:263:THR:HB	1:E:264:PRO:CD	2.10	0.82
1:E:490:GLY:N	4:E:2002:HOH:O	2.11	0.82
1:D:144:ASN:ND2	1:D:146:LYS:H	1.78	0.82
1:B:70:MET:SD	1:B:101:MET:HE3	2.19	0.82
1:A:99:GLU:HG2	1:D:146:LYS:HD3	1.59	0.81
1:D:52:ASN:HD22	1:D:52:ASN:N	1.78	0.81
1:A:65:ILE:HB	1:A:66:PRO:CD	2.09	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:353:LEU:HA	1:A:356:ARG:NH2	1.95	0.81
1:C:18:ILE:O	1:C:18:ILE:CG1	2.27	0.81
1:C:196:VAL:O	1:C:291:VAL:HG23	1.81	0.81
1:F:256:ILE:HD11	1:F:267:LEU:HB3	1.61	0.81
1:F:422:TYR:HD1	1:F:423:ALA:N	1.77	0.81
1:C:20:GLY:HA3	1:C:42:ASP:CG	2.06	0.81
1:C:230:GLN:O	1:C:234:ASN:ND2	2.13	0.81
1:B:223:ILE:HG13	1:B:230:GLN:OE1	1.81	0.81
1:C:418:ASN:HD22	1:C:419:ASN:H	1.28	0.81
1:D:51:THR:C	1:D:52:ASN:HD22	1.89	0.81
1:E:426:ILE:HG12	1:E:437:GLY:HA3	1.62	0.81
1:D:251:PHE:HA	1:D:273:SER:HB2	1.61	0.81
1:F:469:ILE:N	1:F:469:ILE:HD12	1.95	0.80
1:A:295:SER:HB3	1:A:335:ILE:HD12	1.62	0.80
1:B:426:ILE:CG1	1:B:437:GLY:HA3	2.12	0.80
1:A:353:LEU:HD12	1:A:356:ARG:NH2	1.96	0.80
1:A:478:ILE:HD12	1:A:478:ILE:H	1.43	0.80
1:C:168:LEU:HD22	1:C:289:LEU:HD21	1.61	0.80
1:C:98:TRP:HZ3	1:C:102:THR:CG2	1.90	0.80
1:B:150:LYS:HG2	1:B:152:TYR:CE1	2.17	0.80
1:C:477:GLU:HA	1:D:450:GLN:NE2	1.96	0.80
1:D:114:TRP:HZ3	1:D:118:VAL:HG21	1.47	0.80
1:A:358:TYR:N	1:A:358:TYR:CD1	2.49	0.79
1:D:114:TRP:CZ3	1:D:118:VAL:HG21	2.17	0.79
1:D:251:PHE:HD1	1:D:273:SER:CB	1.94	0.79
1:E:173:ASP:OD1	1:E:174:LYS:N	2.16	0.79
1:A:308:LYS:H	1:A:325:ASN:HD21	1.28	0.79
1:A:272:LYS:HE3	1:A:276:SER:HA	1.64	0.79
1:C:318:VAL:HG13	1:C:319:THR:O	1.81	0.79
1:C:239:HIS:ND1	1:C:378:LEU:HB2	1.97	0.79
1:C:378:LEU:CD1	1:C:441:LEU:HD11	2.05	0.79
1:E:203:LEU:HD22	1:E:240:MET:HE1	1.64	0.79
1:E:431:ASP:OD2	1:E:434:ARG:NH1	2.14	0.79
1:B:493:LEU:HD23	1:B:493:LEU:N	1.97	0.78
1:C:58:THR:O	1:C:63:GLY:N	2.16	0.78
1:E:150:LYS:HD3	1:E:152:TYR:OH	1.83	0.78
1:E:471:ILE:HG21	1:F:373:THR:HG23	1.66	0.78
1:A:67:LYS:NZ	1:A:204:GLU:OE1	2.16	0.78
1:C:310:ASN:ND2	1:C:312:LYS:H	1.82	0.78
1:E:320:ASP:OD2	1:E:364:LYS:NZ	2.15	0.78
1:F:422:TYR:CD1	1:F:423:ALA:N	2.52	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:313:THR:O	1:F:313:THR:OG1	1.94	0.78
1:C:106:GLN:O	1:C:109:ILE:HB	1.83	0.78
1:C:426:ILE:CG2	1:C:437:GLY:HA3	2.13	0.78
1:C:98:TRP:HD1	1:C:189:CYS:HA	1.45	0.78
1:C:472:HIS:HD2	1:C:477:GLU:OE2	1.67	0.77
1:B:67:LYS:CE	1:B:204:GLU:OE1	2.31	0.77
1:F:428:ASN:HD22	1:F:431:ASP:CB	1.96	0.77
1:A:310:ASN:C	1:A:310:ASN:HD22	1.92	0.77
1:A:418:ASN:HD22	1:A:419:ASN:H	1.33	0.77
1:F:305:VAL:HG11	1:F:329:ILE:HD11	1.66	0.77
1:B:291:VAL:HG22	3:B:601:NDP:C4A	2.15	0.77
1:C:67:LYS:HD3	1:C:204:GLU:HG2	1.66	0.77
1:A:262:GLY:O	1:A:263:THR:O	2.03	0.76
1:C:98:TRP:HE1	1:C:190:PRO:HD2	1.45	0.76
1:E:371:PRO:HB2	1:F:471:ILE:HD11	1.67	0.76
1:F:192:LYS:H	1:F:285:ASN:HD22	1.31	0.76
1:C:179:SER:H	1:C:182:ASP:HB2	1.49	0.76
1:D:168:LEU:HB3	1:D:170:ILE:HG23	1.66	0.76
1:A:84:ARG:HH11	1:A:84:ARG:HG3	1.51	0.76
1:D:473:PRO:HG2	1:D:473:PRO:O	1.84	0.76
1:F:493:LEU:O	1:F:494:GLN:HG2	1.85	0.76
1:D:407:TRP:HB2	1:D:418:ASN:HD21	1.51	0.76
1:C:161:THR:HG23	1:C:335:ILE:CD1	2.16	0.76
1:D:418:ASN:ND2	1:D:419:ASN:H	1.84	0.76
1:B:281:GLU:O	1:B:282:ASP:C	2.29	0.75
1:D:250:GLN:O	1:D:273:SER:HB2	1.85	0.75
1:F:20:GLY:N	1:F:42:ASP:OD1	2.15	0.75
1:F:380:TYR:OH	1:F:439:HIS:HD2	1.69	0.75
1:F:323:GLN:HA	1:F:330:TYR:CD1	2.20	0.75
1:B:373:THR:HG21	1:B:446:GLY:HA2	1.69	0.75
1:A:374:VAL:HG12	1:A:376:THR:HG23	1.68	0.75
1:A:378:LEU:HG	1:A:441:LEU:CD1	2.15	0.75
1:C:325:ASN:O	1:C:327:PRO:HD3	1.87	0.75
1:E:426:ILE:CG1	1:E:437:GLY:HA3	2.16	0.75
1:A:291:VAL:O	1:A:291:VAL:HG12	1.87	0.75
1:A:373:THR:HG21	1:A:446:GLY:HA2	1.66	0.74
1:A:418:ASN:ND2	1:A:419:ASN:H	1.84	0.74
1:D:291:VAL:HG13	1:D:291:VAL:O	1.87	0.74
1:C:263:THR:OG1	1:C:264:PRO:HD3	1.87	0.74
1:C:471:ILE:HG21	1:D:373:THR:HG23	1.69	0.74
1:E:192:LYS:H	1:E:285:ASN:HD22	1.35	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:373:THR:HG21	1:F:446:GLY:HA2	1.69	0.74
1:A:36:LYS:HG3	1:A:358:TYR:CD2	2.22	0.74
1:C:59:CYS:HA	1:C:63:GLY:HA3	1.69	0.74
1:C:67:LYS:HD3	1:C:204:GLU:CD	2.12	0.74
1:E:374:VAL:CG1	1:E:376:THR:HG23	2.16	0.74
1:E:86:TYR:O	1:F:96:HIS:HE1	1.71	0.74
1:E:115:GLY:HA3	1:F:497:CYS:SG	2.27	0.74
1:D:418:ASN:HD22	1:D:419:ASN:H	1.33	0.74
1:B:192:LYS:N	1:B:285:ASN:HD22	1.86	0.74
1:E:272:LYS:HE2	1:E:276:SER:HA	1.70	0.74
1:F:110:GLY:HA2	1:F:113:ASN:HD22	1.52	0.74
1:B:65:ILE:CG2	1:B:66:PRO:HD3	2.18	0.74
1:C:98:TRP:CE2	1:C:190:PRO:HD2	2.23	0.73
1:C:163:GLU:OE2	1:C:334:ASP:HB3	1.88	0.73
1:C:256:ILE:HD11	1:C:267:LEU:HD13	1.68	0.73
1:A:471:ILE:HG21	1:B:373:THR:HG23	1.70	0.73
1:C:70:MET:HE2	1:C:101:MET:HE3	1.70	0.73
1:C:178:ILE:HD13	1:C:178:ILE:N	2.04	0.73
1:C:258:GLN:NE2	1:C:261:ALA:HB2	2.02	0.73
1:E:39:MET:HE1	1:E:152:TYR:CD2	2.23	0.73
1:E:282:ASP:N	1:E:282:ASP:OD1	2.20	0.73
1:A:65:ILE:HB	1:A:66:PRO:HD2	1.71	0.73
1:C:220:VAL:HG23	1:C:249:ARG:HA	1.68	0.73
1:F:71:HIS:CD2	1:F:375:PHE:HB3	2.23	0.73
1:E:70:MET:HG2	1:E:101:MET:HE3	1.70	0.73
1:F:325:ASN:H	1:F:325:ASN:HD22	1.35	0.73
1:A:114:TRP:O	1:A:118:VAL:HG23	1.89	0.73
1:B:256:ILE:HD11	1:B:267:LEU:HD13	1.71	0.73
1:C:55:LEU:CD1	1:C:116:TYR:HB3	2.18	0.73
1:D:30:GLU:OE2	1:D:33:LYS:HE3	1.89	0.73
1:D:352:LEU:HD12	1:D:365:CYS:HB2	1.71	0.73
1:F:422:TYR:HD1	1:F:422:TYR:C	1.97	0.73
1:D:163:GLU:HB3	1:D:295:SER:HA	1.71	0.72
1:B:310:ASN:ND2	1:B:313:THR:H	1.87	0.72
1:B:39:MET:HB2	1:B:126:VAL:HB	1.72	0.72
1:C:343:THR:N	2:C:600:FAD:O3'	2.23	0.72
1:C:285:ASN:HD22	1:C:285:ASN:N	1.87	0.72
1:D:373:THR:HG21	1:D:446:GLY:HA2	1.69	0.72
1:D:394:PHE:HB2	1:D:399:ILE:HD11	1.70	0.72
1:D:119:ALA:O	1:D:123:LYS:HG3	1.88	0.72
1:B:191:GLY:O	1:B:193:THR:HG23	1.90	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:356:ARG:NH1	1:B:364:LYS:HA	2.05	0.72
1:C:188:TYR:CD2	1:C:263:THR:HG22	2.25	0.72
1:F:389:LYS:HD2	1:F:392:GLU:OE1	1.90	0.72
1:F:425:VAL:HG13	1:F:435:VAL:HG13	1.70	0.72
1:B:295:SER:HB3	1:B:335:ILE:CD1	2.19	0.72
1:C:178:ILE:HD13	1:C:178:ILE:H	1.54	0.72
1:E:404:SER:HB3	1:E:478:ILE:HD11	1.72	0.72
1:A:263:THR:OG1	1:A:264:PRO:HD2	1.89	0.71
1:B:229:ASP:C	1:B:229:ASP:OD1	2.32	0.71
1:D:251:PHE:CD1	1:D:273:SER:HB2	2.15	0.71
1:F:39:MET:CE	1:F:41:LEU:HD21	2.20	0.71
1:A:189:CYS:SG	1:A:214:LEU:HD21	2.30	0.71
1:F:263:THR:HB	1:F:264:PRO:HD3	1.72	0.71
1:A:310:ASN:ND2	1:A:312:LYS:H	1.88	0.71
1:B:64:CYS:SG	2:B:600:FAD:C4X	2.78	0.71
1:D:82:ASP:OD2	1:D:416:ARG:NH1	2.23	0.71
1:E:203:LEU:CD2	1:E:240:MET:HE1	2.19	0.71
1:B:403:HIS:CD2	1:B:492:ILE:HD13	2.25	0.71
1:C:309:ILE:HG22	1:C:316:ILE:HG12	1.71	0.71
1:A:167:TYR:CE2	1:A:174:LYS:HA	2.26	0.71
1:F:192:LYS:H	1:F:285:ASN:ND2	1.87	0.71
1:A:22:SER:OG	1:A:343:THR:HG23	1.90	0.71
1:A:379:GLU:O	1:A:441:LEU:HD12	1.91	0.71
1:D:67:LYS:NZ	1:D:204:GLU:OE1	2.21	0.71
1:E:410:GLU:OE2	1:F:68:LYS:NZ	2.22	0.71
1:C:19:GLY:HA2	2:C:600:FAD:N3A	2.05	0.71
1:C:425:VAL:HG13	1:C:435:VAL:HG13	1.71	0.71
1:E:373:THR:CG2	1:F:471:ILE:HG21	2.21	0.71
1:F:422:TYR:CD1	1:F:422:TYR:C	2.69	0.71
1:A:240:MET:HE2	1:A:247:PHE:HZ	1.55	0.71
1:C:23:GLY:N	2:C:600:FAD:O1P	2.22	0.71
1:D:254:THR:HG23	1:D:271:ALA:HA	1.72	0.71
1:E:263:THR:OG1	1:E:264:PRO:CD	2.39	0.71
1:B:425:VAL:HG13	1:B:435:VAL:HG13	1.72	0.70
1:D:411:TRP:C	1:D:414:PRO:HD2	2.15	0.70
1:F:406:PHE:CE1	1:F:421:CYS:HB3	2.26	0.70
1:C:404:SER:HA	1:C:492:ILE:CG2	2.21	0.70
1:E:262:GLY:O	1:E:263:THR:O	2.09	0.70
1:B:282:ASP:N	1:B:282:ASP:OD1	2.23	0.70
1:C:98:TRP:HE3	1:C:102:THR:OG1	1.75	0.70
1:E:461:THR:OG1	1:E:464:GLN:HG3	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:15:LEU:HB3	1:F:38:VAL:HG12	1.73	0.70
1:F:426:ILE:CD1	1:F:436:VAL:HG23	2.19	0.70
1:C:39:MET:HE2	1:C:41:LEU:HD21	1.73	0.70
1:E:281:GLU:O	1:E:282:ASP:C	2.34	0.70
1:A:310:ASN:HD22	1:A:311:GLU:N	1.90	0.70
1:C:258:GLN:HE22	1:C:261:ALA:CB	2.03	0.70
1:F:256:ILE:HD12	1:F:257:GLU:N	2.07	0.70
1:F:426:ILE:HD11	1:F:436:VAL:CG2	2.21	0.70
1:D:431:ASP:O	1:D:432:ASN:HB2	1.92	0.70
1:A:267:LEU:HD22	1:A:267:LEU:N	2.07	0.70
1:B:163:GLU:HB3	1:B:295:SER:HA	1.73	0.70
1:C:477:GLU:HA	1:D:450:GLN:HE21	1.54	0.70
1:A:90:LEU:HD21	1:B:90:LEU:HD21	1.73	0.69
1:A:471:ILE:HD11	1:B:371:PRO:HB3	1.74	0.69
1:B:474:VAL:O	1:B:477:GLU:HG2	1.91	0.69
1:E:14:ASP:OD2	1:E:37:LYS:N	2.24	0.69
1:A:158:LEU:HD11	1:A:332:ILE:CG1	2.21	0.69
1:A:281:GLU:O	1:A:282:ASP:C	2.35	0.69
1:D:400:GLU:OE2	1:D:487:ARG:HD2	1.92	0.69
1:B:291:VAL:HG22	3:B:601:NDP:N9A	2.07	0.69
1:B:401:VAL:HG22	1:B:426:ILE:HG22	1.72	0.69
1:C:186:LEU:HD12	1:C:190:PRO:HG3	1.72	0.69
1:E:450:GLN:HE22	1:F:470:GLY:HA2	1.57	0.69
1:A:263:THR:O	1:A:265:GLY:N	2.25	0.69
1:E:289:LEU:O	1:E:291:VAL:CG2	2.40	0.69
1:C:21:GLY:O	1:C:25:LEU:HG	1.92	0.69
1:C:67:LYS:HD3	1:C:204:GLU:CG	2.22	0.69
1:C:438:PHE:CE2	1:C:452:PHE:CG	2.80	0.69
1:E:473:PRO:O	1:F:68:LYS:HE3	1.93	0.69
1:A:373:THR:CG2	1:B:471:ILE:HG21	2.23	0.69
1:A:470:GLY:HA2	1:B:450:GLN:HE22	1.57	0.69
1:C:256:ILE:HD11	1:C:267:LEU:HD12	1.72	0.69
1:F:223:ILE:CG1	1:F:230:GLN:NE2	2.56	0.69
1:F:256:ILE:HD12	1:F:256:ILE:C	2.17	0.69
1:C:220:VAL:CG2	1:C:249:ARG:HA	2.22	0.69
1:A:65:ILE:CB	1:A:66:PRO:CD	2.71	0.69
1:A:78:GLN:NE2	1:A:416:ARG:NH1	2.40	0.69
1:C:42:ASP:OD1	1:C:43:PHE:N	2.25	0.69
1:C:411:TRP:C	1:C:414:PRO:HD2	2.17	0.68
1:D:266:ARG:HD2	1:D:283:GLU:OE1	1.93	0.68
1:C:418:ASN:ND2	1:C:419:ASN:N	2.38	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:315:LYS:HD3	1:C:337:GLU:HA	1.75	0.68
1:D:96:HIS:CD2	1:D:212:ILE:HG13	2.29	0.68
1:D:400:GLU:HG2	1:D:429:LEU:HD11	1.74	0.68
1:C:20:GLY:HA3	1:C:42:ASP:OD2	1.92	0.68
1:C:65:ILE:HG22	1:C:66:PRO:N	2.09	0.68
1:C:153:SER:HB3	4:C:2002:HOH:O	1.93	0.68
1:C:190:PRO:O	1:C:191:GLY:O	2.11	0.68
1:F:489:GLY:O	1:F:490:GLY:C	2.34	0.68
1:D:371:PRO:C	1:D:372:THR:HG22	2.18	0.68
1:E:323:GLN:HA	1:E:330:TYR:CD1	2.29	0.68
1:A:282:ASP:OD1	1:A:282:ASP:N	2.27	0.68
1:A:357:LEU:HB3	1:A:358:TYR:CE1	2.27	0.68
1:C:220:VAL:HG21	1:C:249:ARG:CZ	2.23	0.68
1:C:225:LEU:HD23	1:C:228:PHE:CD2	2.29	0.68
1:C:252:VAL:HG13	1:C:253:PRO:HD2	1.76	0.68
1:F:63:GLY:O	1:F:66:PRO:HD2	1.93	0.68
1:C:426:ILE:HG22	1:C:437:GLY:CA	2.23	0.68
1:E:308:LYS:H	1:E:325:ASN:ND2	1.90	0.68
1:F:263:THR:CB	1:F:264:PRO:CD	2.71	0.68
1:B:371:PRO:HG2	1:B:453:ALA:CB	2.24	0.68
1:C:31:ALA:O	1:C:33:LYS:N	2.27	0.68
1:A:250:GLN:O	1:A:273:SER:HB2	1.94	0.67
1:B:91:GLU:O	1:B:93:THR:N	2.27	0.67
1:C:188:TYR:CE1	1:C:263:THR:O	2.48	0.67
1:A:461:THR:HG23	1:A:464:GLN:OE1	1.94	0.67
1:C:36:LYS:O	1:C:38:VAL:HG13	1.94	0.67
1:C:161:THR:O	2:C:600:FAD:H52A	1.93	0.67
1:B:39:MET:HE1	1:B:152:TYR:CD2	2.29	0.67
1:B:291:VAL:CG2	3:B:601:NDP:C4A	2.73	0.67
1:E:275:ASN:O	1:E:276:SER:HB2	1.95	0.67
1:B:200:TYR:O	1:B:204:GLU:HG3	1.92	0.67
1:B:233:ALA:HA	1:B:236:ILE:HD12	1.76	0.67
1:B:238:GLU:O	1:B:242:GLU:HG3	1.95	0.67
1:A:318:VAL:HG12	1:A:319:THR:O	1.95	0.67
1:B:319:THR:HG23	1:B:323:GLN:O	1.95	0.67
1:F:49:LEU:HD22	1:F:49:LEU:N	2.09	0.67
1:B:250:GLN:O	1:B:273:SER:CB	2.43	0.67
1:C:188:TYR:O	1:C:190:PRO:HD3	1.94	0.67
1:D:38:VAL:HG23	1:D:125:VAL:HG13	1.77	0.67
1:D:167:TYR:HB3	1:D:173:ASP:OD2	1.95	0.67
1:F:150:LYS:HD3	1:F:152:TYR:OH	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:422:TYR:HE1	1:F:424:LYS:HB3	1.59	0.67
1:B:167:TYR:HB3	1:B:173:ASP:OD2	1.95	0.66
1:C:400:GLU:HA	1:C:400:GLU:OE1	1.94	0.66
1:E:473:PRO:O	1:E:473:PRO:HG2	1.94	0.66
1:F:361:SER:HG	1:F:363:VAL:HG23	1.59	0.66
1:F:428:ASN:HD22	1:F:431:ASP:HB2	1.59	0.66
1:A:114:TRP:HB3	1:D:114:TRP:HE1	1.59	0.66
1:A:378:LEU:CG	1:A:441:LEU:HD11	2.23	0.66
1:B:260:GLU:OE1	1:B:266:ARG:NH1	2.28	0.66
1:B:374:VAL:HG13	1:B:374:VAL:O	1.94	0.66
1:C:208:PHE:CD1	1:C:209:LEU:N	2.64	0.66
1:F:250:GLN:O	1:F:273:SER:HB3	1.94	0.66
1:D:480:THR:HG23	1:D:481:THR:HG23	1.76	0.66
1:F:281:GLU:O	1:F:282:ASP:C	2.36	0.66
1:F:380:TYR:OH	1:F:439:HIS:CD2	2.47	0.66
1:A:418:ASN:ND2	1:A:419:ASN:N	2.43	0.66
1:B:64:CYS:SG	2:B:600:FAD:C10	2.84	0.66
1:D:85:ASN:HB2	1:D:413:VAL:HG12	1.77	0.66
1:F:84:ARG:HH11	1:F:84:ARG:HB2	1.60	0.66
1:B:66:PRO:CG	1:B:109:ILE:HD11	2.26	0.66
1:E:98:TRP:CE2	1:E:102:THR:HG21	2.31	0.66
1:E:168:LEU:HD11	1:E:291:VAL:HG21	1.78	0.66
1:E:280:ILE:O	1:E:280:ILE:HG13	1.96	0.66
1:F:324:THR:OG1	1:F:329:ILE:O	2.10	0.66
1:C:208:PHE:HE1	1:C:209:LEU:HD22	1.55	0.66
1:C:159:ILE:HG12	1:C:330:TYR:O	1.95	0.66
1:C:325:ASN:H	1:C:325:ASN:HD22	1.41	0.66
1:E:411:TRP:C	1:E:414:PRO:HD2	2.21	0.66
1:B:144:ASN:OD1	1:B:145:ASN:N	2.29	0.66
1:F:396:GLU:C	1:F:396:GLU:CD	2.62	0.66
1:A:192:LYS:H	1:A:285:ASN:HD22	1.44	0.65
1:A:411:TRP:C	1:A:414:PRO:HD2	2.21	0.65
1:C:310:ASN:OD1	1:C:313:THR:HG23	1.96	0.65
1:E:49:LEU:HD22	1:E:49:LEU:N	2.12	0.65
1:C:176:TYR:CE2	1:C:258:GLN:HB3	2.31	0.65
1:C:191:GLY:O	1:C:193:THR:HG22	1.96	0.65
1:D:220:VAL:HG21	1:D:249:ARG:HE	1.61	0.65
1:B:120:LEU:HD22	1:B:125:VAL:HG11	1.79	0.65
1:C:170:ILE:HB	1:C:254:THR:O	1.97	0.65
1:C:492:ILE:O	1:C:492:ILE:HG22	1.97	0.65
1:D:343:THR:HB	1:D:344:PRO:CD	2.27	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:223:ILE:CD1	1:F:230:GLN:NE2	2.60	0.65
1:A:144:ASN:CG	1:A:145:ASN:N	2.54	0.65
1:B:91:GLU:OE1	1:B:92:ASP:N	2.30	0.65
1:B:399:ILE:HD12	1:B:427:CYS:O	1.96	0.65
1:C:183:LEU:C	1:C:185:SER:H	2.05	0.65
1:F:428:ASN:HD22	1:F:431:ASP:HB3	1.60	0.65
1:A:68:LYS:HG2	1:B:409:LEU:HD23	1.77	0.65
1:B:65:ILE:HG22	1:B:66:PRO:CD	2.26	0.65
1:E:343:THR:CB	1:E:344:PRO:HD3	2.26	0.65
1:E:431:ASP:CG	1:E:434:ARG:NH1	2.54	0.65
1:B:308:LYS:H	1:B:325:ASN:HD21	1.43	0.65
1:C:31:ALA:C	1:C:33:LYS:H	2.05	0.65
1:F:426:ILE:C	1:F:426:ILE:HD12	2.22	0.65
1:C:96:HIS:CE1	1:D:86:TYR:O	2.46	0.64
1:E:67:LYS:NZ	1:E:204:GLU:OE1	2.26	0.64
1:E:98:TRP:NE1	1:E:102:THR:HG21	2.12	0.64
1:E:423:ALA:HB3	1:E:478:ILE:HD13	1.79	0.64
1:A:373:THR:HG23	1:B:471:ILE:CG2	2.26	0.64
1:B:492:ILE:C	1:B:493:LEU:HD23	2.22	0.64
1:A:98:TRP:CD1	1:A:102:THR:HG21	2.31	0.64
1:A:291:VAL:CG1	3:A:601:NDP:C4A	2.75	0.64
1:B:263:THR:O	1:B:265:GLY:N	2.31	0.64
1:B:378:LEU:CD1	1:B:441:LEU:HG	2.27	0.64
1:C:291:VAL:HG13	3:C:601:NDP:N9A	2.12	0.64
1:D:262:GLY:O	1:D:263:THR:O	2.15	0.64
1:A:450:GLN:HE22	1:B:470:GLY:HA2	1.61	0.64
1:F:30:GLU:O	1:F:31:ALA:C	2.39	0.64
1:A:34:PHE:CE2	1:A:359:GLY:HA2	2.33	0.64
1:B:487:ARG:HG3	1:B:487:ARG:O	1.97	0.64
1:C:133:LYS:HD3	1:C:300:ILE:C	2.23	0.64
1:E:30:GLU:O	1:E:31:ALA:C	2.40	0.64
1:C:133:LYS:HD3	1:C:301:GLY:N	2.12	0.64
1:C:189:CYS:O	1:C:191:GLY:N	2.31	0.64
1:D:419:ASN:O	1:D:420:LYS:HD3	1.98	0.64
1:F:321:GLU:O	1:F:322:GLU:HB2	1.98	0.64
1:A:82:ASP:OD1	1:A:416:ARG:NH1	2.31	0.64
1:A:313:THR:O	1:A:313:THR:OG1	2.11	0.64
1:E:138:HIS:HD2	1:E:154:ALA:O	1.80	0.64
1:A:249:ARG:HB3	1:A:250:GLN:NE2	2.14	0.64
1:E:266:ARG:C	1:E:267:LEU:HD13	2.22	0.64
1:F:22:SER:HB3	1:F:343:THR:HG23	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:411:TRP:C	1:F:414:PRO:HD2	2.22	0.64
1:B:55:LEU:HD13	1:B:116:TYR:HB3	1.80	0.63
1:C:323:GLN:HB2	1:C:330:TYR:CE2	2.33	0.63
1:D:281:GLU:O	1:D:282:ASP:C	2.39	0.63
1:F:230:GLN:O	1:F:234:ASN:ND2	2.31	0.63
1:E:141:MET:HE1	1:E:149:GLU:OE2	1.98	0.63
1:E:186:LEU:HD22	1:E:188:TYR:CZ	2.34	0.63
1:C:374:VAL:O	1:C:374:VAL:HG12	1.97	0.63
1:E:38:VAL:CG2	1:E:125:VAL:HG13	2.27	0.63
1:E:72:GLN:HG3	1:E:76:LEU:HD22	1.80	0.63
1:E:98:TRP:O	1:E:102:THR:HG23	1.97	0.63
1:E:378:LEU:HD23	1:E:441:LEU:HD21	1.81	0.63
1:F:291:VAL:HG13	1:F:291:VAL:O	1.99	0.63
1:B:308:LYS:H	1:B:325:ASN:ND2	1.97	0.63
1:F:30:GLU:OE2	1:F:33:LYS:NZ	2.29	0.63
1:F:472:HIS:ND1	1:F:473:PRO:HA	2.12	0.63
1:A:240:MET:HE2	1:A:247:PHE:CZ	2.34	0.63
1:C:343:THR:HB	1:C:344:PRO:HD3	1.78	0.63
1:F:167:TYR:HB3	1:F:173:ASP:OD2	1.99	0.63
1:C:161:THR:HG23	1:C:335:ILE:HD11	1.80	0.63
1:A:357:LEU:C	1:A:358:TYR:HD1	2.07	0.63
1:C:441:LEU:HD12	1:C:441:LEU:C	2.23	0.63
1:E:91:GLU:O	1:E:93:THR:N	2.31	0.63
1:F:217:THR:HG23	1:F:246:LYS:HB2	1.81	0.63
1:C:173:ASP:O	1:C:177:CYS:HB2	1.99	0.62
1:C:208:PHE:O	1:C:209:LEU:C	2.42	0.62
1:F:380:TYR:CD1	1:F:380:TYR:C	2.72	0.62
1:A:30:GLU:O	1:A:31:ALA:C	2.41	0.62
1:C:291:VAL:O	1:C:291:VAL:CG1	2.47	0.62
1:D:284:PHE:CD1	1:D:284:PHE:N	2.67	0.62
1:C:135:ILE:HG12	1:C:136:GLY:N	2.14	0.62
1:C:322:GLU:OE1	1:C:356:ARG:NH2	2.32	0.62
1:D:258:GLN:NE2	1:D:261:ALA:HB2	2.15	0.62
1:E:471:ILE:CG2	1:F:373:THR:HG23	2.28	0.62
1:F:84:ARG:HB2	1:F:84:ARG:NH1	2.13	0.62
1:F:318:VAL:CG2	1:F:322:GLU:C	2.73	0.62
1:B:110:GLY:HA2	1:B:113:ASN:HD22	1.64	0.62
1:B:204:GLU:OE2	1:B:375:PHE:N	2.26	0.62
1:B:313:THR:O	1:B:313:THR:OG1	2.12	0.62
1:D:418:ASN:HD22	1:D:419:ASN:N	1.97	0.62
1:D:177:CYS:SG	1:D:256:ILE:HD13	2.40	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:448:VAL:HG22	1:D:476:ALA:HB2	1.82	0.62
1:E:9:LYS:HG3	1:E:10:SER:N	2.15	0.62
1:F:108:HIS:O	1:F:111:SER:HB3	1.99	0.62
1:D:208:PHE:CE1	1:D:209:LEU:HD13	2.35	0.62
1:E:108:HIS:O	1:E:111:SER:HB3	2.00	0.62
1:E:434:ARG:HH11	1:E:434:ARG:CG	2.11	0.62
1:F:97:ASP:C	1:F:97:ASP:OD1	2.43	0.62
1:F:343:THR:HB	1:F:344:PRO:HD3	1.80	0.62
1:A:378:LEU:HD23	1:A:441:LEU:HD21	1.82	0.62
1:C:18:ILE:HG12	1:C:159:ILE:HA	1.80	0.62
1:C:47:THR:HB	1:C:48:PRO:HD2	1.81	0.62
1:C:176:TYR:CD2	1:C:258:GLN:HB3	2.35	0.62
1:C:234:ASN:HD22	1:C:234:ASN:N	1.97	0.62
1:F:98:TRP:O	1:F:102:THR:HG23	2.00	0.62
1:C:18:ILE:HD11	1:C:159:ILE:HG23	1.81	0.61
1:C:404:SER:HA	1:C:492:ILE:HG23	1.82	0.61
1:C:406:PHE:CZ	1:C:421:CYS:HB3	2.35	0.61
1:E:321:GLU:O	1:E:322:GLU:HB2	1.99	0.61
1:F:141:MET:HE3	1:F:143:THR:OG1	1.99	0.61
1:A:65:ILE:HG22	1:A:66:PRO:HD3	1.83	0.61
1:C:98:TRP:CD1	1:C:190:PRO:HD2	2.33	0.61
1:C:194:LEU:HD23	1:C:194:LEU:C	2.25	0.61
1:C:472:HIS:CD2	1:C:473:PRO:HA	2.35	0.61
1:D:222:SER:OG	3:D:601:NDP:O3X	2.15	0.61
1:A:84:ARG:HG3	1:A:84:ARG:NH1	2.13	0.61
1:E:58:THR:HG21	1:E:293:ARG:NH2	2.16	0.61
1:F:70:MET:HG2	1:F:101:MET:HE3	1.82	0.61
1:C:234:ASN:HD22	1:C:234:ASN:H	1.47	0.61
1:C:328:TYR:CD1	1:C:329:ILE:HG13	2.35	0.61
1:E:373:THR:HG21	1:E:446:GLY:HA2	1.82	0.61
1:F:262:GLY:O	1:F:263:THR:O	2.18	0.61
1:C:98:TRP:CD1	1:C:189:CYS:CA	2.69	0.61
1:C:193:THR:HB	1:C:286:THR:HB	1.82	0.61
1:B:250:GLN:O	1:B:273:SER:HB2	2.00	0.61
1:F:370:VAL:HG23	1:F:370:VAL:O	2.01	0.61
1:A:410:GLU:OE2	1:B:68:LYS:NZ	2.34	0.61
1:B:29:LYS:CG	1:B:30:GLU:N	2.64	0.61
1:B:431:ASP:O	1:B:432:ASN:HB2	2.00	0.61
1:A:478:ILE:N	1:A:478:ILE:CD1	2.54	0.61
1:B:13:PHE:O	1:B:154:ALA:HA	2.00	0.61
1:B:256:ILE:CD1	1:B:267:LEU:HB3	2.31	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:163:GLU:HB3	1:C:294:ASP:O	2.00	0.61
1:C:418:ASN:HD22	1:C:419:ASN:N	1.98	0.61
1:E:477:GLU:O	1:E:480:THR:HB	2.01	0.61
1:A:374:VAL:CG1	1:A:376:THR:HG23	2.30	0.60
1:B:221:ARG:HD2	1:B:252:VAL:HG21	1.82	0.60
1:D:323:GLN:HG3	1:D:330:TYR:CE1	2.36	0.60
1:F:163:GLU:HB3	1:F:295:SER:HA	1.83	0.60
1:C:72:GLN:NE2	1:D:410:GLU:HB3	2.03	0.60
1:C:427:CYS:HB3	1:C:433:GLU:O	2.01	0.60
1:E:322:GLU:HG2	1:E:332:ILE:CD1	2.31	0.60
1:F:62:VAL:HG23	1:F:62:VAL:O	2.01	0.60
1:F:431:ASP:OD1	1:F:434:ARG:NH1	2.34	0.60
1:E:215:ASP:C	1:E:215:ASP:OD1	2.44	0.60
1:C:55:LEU:HD13	1:C:116:TYR:HB3	1.82	0.60
1:C:68:LYS:O	1:C:71:HIS:HB3	2.01	0.60
1:C:398:ASN:OD1	1:C:430:LYS:HG3	2.00	0.60
1:D:323:GLN:HA	1:D:330:TYR:CD1	2.37	0.60
1:F:461:THR:OG1	1:F:464:GLN:HG3	2.01	0.60
1:A:348:GLN:NE2	1:A:351:ARG:NH1	2.45	0.60
1:C:198:ALA:HB2	1:C:220:VAL:HG12	1.82	0.60
1:C:222:SER:OG	3:C:601:NDP:O3X	2.16	0.60
1:C:318:VAL:HG13	1:C:319:THR:N	2.15	0.60
1:C:405:PHE:H	1:C:492:ILE:HG22	1.66	0.60
1:D:51:THR:C	1:D:52:ASN:ND2	2.59	0.60
1:D:321:GLU:O	1:D:322:GLU:HB2	1.99	0.60
1:B:291:VAL:O	1:B:291:VAL:HG13	2.01	0.60
1:C:275:ASN:O	1:C:276:SER:HB2	2.00	0.60
1:A:324:THR:OG1	1:A:329:ILE:O	2.18	0.60
1:A:440:VAL:HB	1:A:479:PHE:HZ	1.67	0.60
1:D:77:GLY:O	1:D:80:LEU:HB2	2.02	0.60
1:E:58:THR:OG1	2:E:600:FAD:O1A	2.19	0.60
1:E:72:GLN:HA	1:E:72:GLN:HE21	1.67	0.60
1:B:16:ILE:HB	1:B:157:PHE:CE1	2.37	0.60
1:C:133:LYS:C	1:C:140:ILE:HG13	2.26	0.60
1:B:263:THR:CB	1:B:264:PRO:CD	2.80	0.60
1:A:96:HIS:HE1	1:B:86:TYR:O	1.84	0.59
1:B:193:THR:CG2	1:B:286:THR:HB	2.28	0.59
3:B:601:NDP:O1A	3:B:601:NDP:H52N	2.02	0.59
1:C:36:LYS:HE3	1:C:358:TYR:HD2	1.67	0.59
1:C:336:LEU:HB3	1:C:339:LYS:HG3	1.84	0.59
1:D:236:ILE:HG13	1:D:441:LEU:HD11	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:373:THR:HG21	1:A:446:GLY:CA	2.32	0.59
1:C:319:THR:C	1:C:321:GLU:H	2.08	0.59
1:F:263:THR:OG1	1:F:264:PRO:HD2	2.02	0.59
1:A:220:VAL:HG22	1:A:249:ARG:HA	1.84	0.59
1:C:47:THR:HB	1:C:48:PRO:CD	2.33	0.59
1:F:434:ARG:HE	1:F:461:THR:HG22	1.67	0.59
1:A:477:GLU:O	1:A:480:THR:HG22	2.03	0.59
1:C:58:THR:CB	2:C:600:FAD:O2A	2.51	0.59
1:C:302:LEU:HD21	1:C:309:ILE:HG12	1.85	0.59
1:E:221:ARG:NH1	3:E:601:NDP:O3X	2.36	0.59
1:F:173:ASP:OD1	1:F:174:LYS:N	2.34	0.59
1:F:203:LEU:HD12	1:F:225:LEU:HD21	1.84	0.59
1:A:447:GLU:CD	1:B:474:VAL:HG13	2.28	0.59
1:D:473:PRO:O	1:D:473:PRO:CG	2.47	0.59
1:E:272:LYS:HG2	1:E:273:SER:N	2.17	0.59
1:F:55:LEU:HD13	1:F:116:TYR:HB3	1.83	0.59
1:A:65:ILE:HB	1:A:66:PRO:HD3	1.85	0.59
1:C:190:PRO:O	1:C:191:GLY:C	2.46	0.59
1:C:255:LYS:O	1:C:255:LYS:HD3	2.02	0.59
1:A:65:ILE:CG2	1:A:66:PRO:HD3	2.33	0.59
1:B:167:TYR:CE2	1:B:174:LYS:HA	2.38	0.59
1:B:250:GLN:O	1:B:273:SER:HB3	2.02	0.59
1:C:263:THR:CB	1:C:264:PRO:HD3	2.32	0.59
1:C:438:PHE:HE2	1:C:452:PHE:CG	2.20	0.59
1:D:431:ASP:OD2	1:D:434:ARG:NH1	2.36	0.59
1:E:203:LEU:HD22	1:E:240:MET:CE	2.33	0.59
1:A:295:SER:CB	1:A:335:ILE:HD12	2.31	0.59
1:D:272:LYS:HE3	1:D:276:SER:HA	1.84	0.59
1:E:185:SER:O	1:E:186:LEU:C	2.43	0.59
1:E:418:ASN:ND2	1:E:419:ASN:H	1.99	0.59
1:A:114:TRP:CB	1:D:114:TRP:NE1	2.60	0.59
1:A:123:LYS:O	1:A:124:LYS:HB2	2.02	0.59
1:C:167:TYR:CE2	1:C:174:LYS:HA	2.38	0.59
1:F:336:LEU:HD23	1:F:339:LYS:HG3	1.85	0.59
1:C:167:TYR:HB3	1:C:173:ASP:OD2	2.03	0.58
1:C:183:LEU:O	1:C:185:SER:N	2.36	0.58
1:C:401:VAL:HG21	1:C:486:LYS:HD2	1.85	0.58
1:F:203:LEU:HD22	1:F:240:MET:HE1	1.84	0.58
1:C:150:LYS:HD2	1:C:152:TYR:OH	2.03	0.58
1:C:325:ASN:H	1:C:325:ASN:ND2	2.00	0.58
1:C:328:TYR:CE1	1:C:329:ILE:HG13	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:426:ILE:HD12	1:D:426:ILE:C	2.29	0.58
1:B:356:ARG:HH11	1:B:364:LYS:HA	1.67	0.58
1:C:22:SER:HB3	1:C:343:THR:HG23	1.85	0.58
1:D:158:LEU:HD11	1:D:332:ILE:HB	1.85	0.58
1:D:220:VAL:HG21	1:D:249:ARG:NE	2.17	0.58
1:F:263:THR:HB	1:F:264:PRO:CD	2.32	0.58
1:B:200:TYR:HB2	1:B:374:VAL:HG23	1.85	0.58
1:D:413:VAL:N	1:D:414:PRO:CD	2.66	0.58
1:E:322:GLU:HG2	1:E:332:ILE:HD12	1.85	0.58
1:E:499:GLY:HA3	1:F:29:LYS:HZ3	1.67	0.58
1:F:203:LEU:HD12	1:F:225:LEU:CD2	2.33	0.58
1:B:426:ILE:HG12	1:B:437:GLY:CA	2.31	0.58
1:C:285:ASN:H	1:C:285:ASN:ND2	1.98	0.58
1:D:162:GLY:O	1:D:335:ILE:HD11	2.03	0.58
1:F:168:LEU:HB3	1:F:170:ILE:CG2	2.24	0.58
1:F:315:LYS:HE3	1:F:336:LEU:O	2.04	0.58
1:D:98:TRP:O	1:D:102:THR:HG23	2.03	0.58
1:D:402:TYR:OH	1:D:433:GLU:OE1	2.19	0.58
1:E:158:LEU:HD11	1:E:332:ILE:HB	1.85	0.58
1:A:158:LEU:HD11	1:A:332:ILE:HG13	1.84	0.58
1:D:251:PHE:CD1	1:D:273:SER:CB	2.82	0.58
1:D:263:THR:HB	1:D:264:PRO:HD3	1.86	0.58
1:E:40:VAL:HG22	1:E:40:VAL:O	2.03	0.58
1:F:67:LYS:HE2	2:F:600:FAD:H6	1.86	0.58
1:F:193:THR:HB	1:F:286:THR:HB	1.86	0.58
1:F:318:VAL:HG21	1:F:322:GLU:C	2.28	0.58
1:A:250:GLN:O	1:A:251:PHE:CD1	2.57	0.58
1:A:358:TYR:N	1:A:358:TYR:HD1	2.02	0.58
1:B:22:SER:OG	1:B:343:THR:HG23	2.03	0.58
1:C:342:LEU:HB2	1:C:345:VAL:CG2	2.33	0.58
1:E:223:ILE:HD11	1:E:230:GLN:HG3	1.84	0.58
1:B:387:GLU:OE1	1:B:424:LYS:NZ	2.33	0.58
1:C:447:GLU:CD	1:D:474:VAL:HG13	2.29	0.58
1:C:473:PRO:O	1:C:473:PRO:HG2	2.04	0.58
1:D:425:VAL:HG13	1:D:435:VAL:HG13	1.86	0.58
1:B:394:PHE:CE2	1:B:428:ASN:ND2	2.72	0.57
1:B:431:ASP:OD2	1:B:434:ARG:NH1	2.37	0.57
1:C:318:VAL:CG1	1:C:319:THR:O	2.52	0.57
1:F:321:GLU:HG2	1:F:356:ARG:HH11	1.69	0.57
1:E:336:LEU:HB3	1:E:339:LYS:CG	2.34	0.57
1:F:232:MET:O	1:F:236:ILE:HG13	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:131:TYR:CE1	2:B:600:FAD:N6A	2.71	0.57
1:C:168:LEU:HD23	1:C:170:ILE:HD13	1.86	0.57
1:D:63:GLY:O	1:D:66:PRO:HD2	2.04	0.57
1:B:263:THR:OG1	1:B:264:PRO:HD2	2.04	0.57
1:E:410:GLU:HG2	1:F:72:GLN:NE2	2.19	0.57
1:F:186:LEU:HD12	1:F:188:TYR:O	2.04	0.57
1:A:406:PHE:CZ	1:A:421:CYS:HB3	2.39	0.57
1:C:98:TRP:CE3	1:C:102:THR:OG1	2.57	0.57
1:F:323:GLN:HG3	1:F:330:TYR:CE1	2.39	0.57
1:A:189:CYS:SG	1:A:190:PRO:HD2	2.45	0.57
1:A:205:CYS:HA	1:A:208:PHE:CE2	2.40	0.57
1:C:310:ASN:C	1:C:310:ASN:HD22	2.12	0.57
1:E:410:GLU:CG	1:F:72:GLN:NE2	2.67	0.57
1:F:400:GLU:OE1	1:F:487:ARG:NH1	2.38	0.57
1:B:368:ASP:O	1:B:369:ASN:HB2	2.05	0.57
1:D:178:ILE:HB	1:D:182:ASP:HB2	1.85	0.57
1:D:325:ASN:N	1:D:325:ASN:ND2	2.34	0.57
1:B:39:MET:HE1	1:B:152:TYR:CG	2.40	0.57
1:C:225:LEU:HB3	1:C:228:PHE:HB2	1.86	0.57
1:A:76:LEU:O	1:A:79:ALA:HB3	2.05	0.56
1:A:418:ASN:HD22	1:A:419:ASN:N	1.99	0.56
1:C:178:ILE:HB	1:C:182:ASP:HB2	1.86	0.56
1:C:223:ILE:O	1:C:223:ILE:CG1	2.52	0.56
1:D:30:GLU:O	1:D:33:LYS:HG3	2.05	0.56
1:A:90:LEU:HD21	1:B:90:LEU:CD2	2.35	0.56
1:A:220:VAL:HG21	1:A:249:ARG:NE	2.17	0.56
1:C:195:VAL:HB	1:C:218:VAL:HG22	1.87	0.56
1:C:366:ASP:C	1:C:366:ASP:OD1	2.48	0.56
1:D:426:ILE:HD12	1:D:427:CYS:N	2.20	0.56
1:F:258:GLN:HE22	1:F:261:ALA:HB2	1.69	0.56
1:F:440:VAL:O	1:F:440:VAL:HG13	2.04	0.56
1:B:91:GLU:OE1	1:B:91:GLU:C	2.48	0.56
1:C:137:PRO:O	1:C:138:HIS:HB2	2.05	0.56
1:E:411:TRP:O	1:E:414:PRO:HD2	2.06	0.56
1:E:471:ILE:HG21	1:F:373:THR:CG2	2.34	0.56
1:F:82:ASP:OD1	1:F:416:ARG:NH1	2.38	0.56
1:F:168:LEU:HD23	1:F:170:ILE:HD13	1.87	0.56
1:B:25:LEU:HD13	1:B:116:TYR:CD1	2.41	0.56
1:B:173:ASP:OD1	1:B:174:LYS:N	2.34	0.56
1:B:403:HIS:NE2	1:B:492:ILE:HD13	2.21	0.56
1:C:493:LEU:HD12	1:C:493:LEU:N	2.19	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:108:HIS:CE1	1:D:112:LEU:HD11	2.40	0.56
1:F:34:PHE:HZ	1:F:355:GLN:NE2	2.03	0.56
1:A:188:TYR:CD2	1:A:263:THR:HB	2.40	0.56
1:B:65:ILE:CB	1:B:66:PRO:CD	2.82	0.56
1:B:325:ASN:ND2	1:B:325:ASN:H	2.03	0.56
1:D:91:GLU:O	1:D:93:THR:N	2.39	0.56
1:D:250:GLN:O	1:D:251:PHE:CD1	2.59	0.56
1:D:317:PRO:C	1:D:318:VAL:HG13	2.31	0.56
1:D:407:TRP:CD2	1:D:418:ASN:CG	2.83	0.56
1:C:172:GLY:CA	1:C:175:GLU:HG3	2.24	0.56
1:D:434:ARG:HG2	1:D:434:ARG:HH11	1.71	0.56
1:E:170:ILE:HD11	1:E:253:PRO:HB2	1.86	0.56
1:A:474:VAL:HG13	1:B:447:GLU:CD	2.31	0.56
1:D:83:SER:HB2	1:D:88:TRP:HB2	1.87	0.56
1:F:96:HIS:CD2	1:F:212:ILE:HG13	2.41	0.56
1:B:263:THR:HB	1:B:264:PRO:HD3	1.88	0.56
1:C:283:GLU:H	1:C:283:GLU:CD	2.12	0.56
1:B:239:HIS:CE1	1:B:378:LEU:HB2	2.41	0.56
1:C:223:ILE:O	1:C:223:ILE:HG13	2.02	0.56
1:E:373:THR:HG23	1:F:471:ILE:CG2	2.36	0.56
1:E:431:ASP:CG	1:E:434:ARG:HH12	2.09	0.56
1:F:221:ARG:HH11	1:F:221:ARG:CG	2.19	0.56
1:A:343:THR:HB	1:A:344:PRO:HD3	1.88	0.55
1:B:321:GLU:O	1:B:322:GLU:HB2	2.04	0.55
1:C:200:TYR:O	1:C:204:GLU:HB2	2.06	0.55
1:D:62:VAL:O	1:D:62:VAL:HG23	2.04	0.55
1:D:303:GLU:H	1:D:303:GLU:CD	1.97	0.55
1:A:229:ASP:C	1:A:229:ASP:OD1	2.49	0.55
1:C:259:ILE:HG23	1:C:259:ILE:O	2.06	0.55
1:C:321:GLU:HG3	1:C:356:ARG:NH1	2.21	0.55
1:D:316:ILE:HG13	1:D:335:ILE:HG22	1.88	0.55
1:F:474:VAL:O	1:F:477:GLU:HG2	2.06	0.55
1:B:199:SER:HA	1:B:225:LEU:HD23	1.88	0.55
1:B:281:GLU:C	1:B:282:ASP:O	2.49	0.55
1:D:406:PHE:CZ	1:D:421:CYS:HB3	2.41	0.55
1:E:267:LEU:HD13	1:E:267:LEU:N	2.21	0.55
1:D:163:GLU:OE2	1:D:334:ASP:HB3	2.07	0.55
1:E:38:VAL:HG23	1:E:125:VAL:HG13	1.87	0.55
1:A:401:VAL:O	1:A:401:VAL:HG12	2.07	0.55
1:C:15:LEU:HD12	1:C:156:ARG:O	2.07	0.55
1:C:449:THR:O	1:C:450:GLN:C	2.49	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:47:THR:HG21	1:A:51:THR:OG1	2.07	0.55
1:A:320:ASP:OD1	1:A:320:ASP:C	2.50	0.55
1:A:357:LEU:C	1:A:358:TYR:CD1	2.85	0.55
1:C:66:PRO:HG3	1:C:109:ILE:HD11	1.88	0.55
1:D:324:THR:HG23	1:D:329:ILE:O	2.07	0.55
1:E:256:ILE:CD1	1:E:269:VAL:HG22	2.28	0.55
1:A:173:ASP:O	1:A:177:CYS:HB2	2.06	0.55
1:C:340:LEU:HG	1:C:370:VAL:HG21	1.88	0.55
1:D:175:GLU:OE1	1:D:175:GLU:N	2.39	0.55
1:F:158:LEU:HD12	1:F:159:ILE:N	2.22	0.55
1:A:108:HIS:O	1:A:111:SER:HB3	2.06	0.55
1:B:65:ILE:HB	1:B:66:PRO:CD	2.37	0.55
1:B:192:LYS:H	1:B:285:ASN:ND2	2.01	0.55
1:C:80:LEU:O	1:C:81:LYS:C	2.50	0.55
1:C:310:ASN:HD22	1:C:311:GLU:N	2.04	0.55
1:D:67:LYS:HD3	1:D:204:GLU:OE1	2.05	0.55
1:D:114:TRP:CZ3	1:D:118:VAL:CG2	2.90	0.55
1:D:407:TRP:CD1	1:D:418:ASN:HA	2.41	0.55
1:E:373:THR:HG23	1:F:471:ILE:HG21	1.89	0.55
1:F:291:VAL:O	1:F:291:VAL:CG1	2.53	0.55
1:C:21:GLY:HA2	1:C:57:GLY:HA3	1.88	0.55
1:C:228:PHE:O	1:C:229:ASP:C	2.48	0.55
1:D:194:LEU:HB2	1:D:284:PHE:CE2	2.42	0.55
1:E:141:MET:CE	1:E:149:GLU:OE2	2.55	0.55
1:E:497:CYS:SG	1:F:116:TYR:CD2	2.98	0.55
1:A:168:LEU:O	1:A:173:ASP:OD2	2.25	0.55
1:C:75:LEU:O	1:C:76:LEU:C	2.49	0.55
1:C:189:CYS:C	1:C:191:GLY:H	2.15	0.55
1:F:428:ASN:ND2	1:F:431:ASP:HB2	2.21	0.55
1:B:419:ASN:O	1:B:420:LYS:HD3	2.07	0.54
1:B:461:THR:OG1	1:B:464:GLN:HG3	2.07	0.54
1:E:192:LYS:N	1:E:285:ASN:HD22	2.02	0.54
1:C:72:GLN:HE21	1:D:410:GLU:CB	2.05	0.54
1:D:221:ARG:NH1	3:D:601:NDP:P2B	2.80	0.54
1:E:61:ASN:HA	1:E:109:ILE:HD13	1.88	0.54
1:F:68:LYS:HE2	1:F:375:PHE:CE2	2.43	0.54
1:F:343:THR:O	1:F:347:ILE:HG23	2.07	0.54
1:A:65:ILE:CB	1:A:66:PRO:HD3	2.37	0.54
1:A:196:VAL:O	1:A:291:VAL:HG22	2.07	0.54
1:C:47:THR:CB	1:C:48:PRO:CD	2.85	0.54
1:D:52:ASN:N	1:D:52:ASN:ND2	2.49	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:60:VAL:HG13	1:F:112:LEU:HD13	1.89	0.54
1:C:232:MET:O	1:C:233:ALA:C	2.48	0.54
1:C:308:LYS:H	1:C:325:ASN:ND2	2.06	0.54
1:C:309:ILE:O	1:C:309:ILE:HG13	2.07	0.54
1:E:38:VAL:HG22	1:E:125:VAL:HG22	1.89	0.54
1:E:70:MET:HG2	1:E:101:MET:CE	2.38	0.54
1:E:272:LYS:CE	1:E:276:SER:HA	2.37	0.54
1:F:13:PHE:O	1:F:154:ALA:HA	2.08	0.54
1:F:395:GLY:O	1:F:396:GLU:C	2.51	0.54
1:A:98:TRP:CD1	1:A:102:THR:CG2	2.90	0.54
1:A:272:LYS:CE	1:A:276:SER:HA	2.36	0.54
1:B:402:TYR:CE2	1:B:462:LYS:HE3	2.41	0.54
1:F:180:SER:O	1:F:181:ASP:C	2.51	0.54
1:F:277:GLU:OE1	1:F:277:GLU:HA	2.07	0.54
1:F:221:ARG:NH1	3:F:601:NDP:O3X	2.41	0.54
1:A:12:ASP:HB2	1:A:153:SER:O	2.08	0.54
1:A:400:GLU:OE1	1:A:400:GLU:HA	2.06	0.54
1:B:123:LYS:O	1:B:124:LYS:HB2	2.07	0.54
1:C:193:THR:OG1	1:C:194:LEU:N	2.39	0.54
1:E:232:MET:CE	1:E:441:LEU:HB2	2.34	0.54
1:E:305:VAL:O	1:E:305:VAL:HG12	2.08	0.54
1:C:286:THR:O	1:C:286:THR:HG22	2.07	0.54
1:C:328:TYR:CD1	1:C:328:TYR:C	2.85	0.54
1:C:370:VAL:HG23	1:C:370:VAL:O	2.07	0.54
1:D:236:ILE:CG1	1:D:441:LEU:HD11	2.38	0.54
1:D:343:THR:CB	1:D:344:PRO:CD	2.84	0.54
1:E:383:CYS:SG	1:E:456:LEU:HD12	2.48	0.54
1:A:98:TRP:HE1	1:A:102:THR:HG21	1.70	0.54
1:D:418:ASN:ND2	1:D:419:ASN:N	2.56	0.54
1:E:426:ILE:O	1:E:426:ILE:HG13	2.07	0.54
1:E:376:THR:O	1:E:377:PRO:C	2.50	0.53
1:A:90:LEU:CD2	1:B:90:LEU:HD21	2.36	0.53
1:A:177:CYS:SG	1:A:256:ILE:HD12	2.47	0.53
1:B:332:ILE:HG12	1:B:333:GLY:N	2.23	0.53
1:D:78:GLN:NE2	1:D:82:ASP:OD1	2.41	0.53
1:D:317:PRO:C	1:D:318:VAL:CG1	2.80	0.53
1:F:192:LYS:N	1:F:285:ASN:ND2	2.44	0.53
1:A:191:GLY:O	1:A:193:THR:CG2	2.56	0.53
1:A:313:THR:O	1:A:315:LYS:N	2.42	0.53
1:B:172:GLY:HA2	1:B:175:GLU:CG	2.37	0.53
1:B:222:SER:OG	3:B:601:NDP:O3X	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:43:PHE:HB2	1:C:130:ALA:C	2.33	0.53
1:C:376:THR:HB	1:C:377:PRO:CD	2.39	0.53
1:B:472:HIS:ND1	1:B:473:PRO:HA	2.23	0.53
1:C:192:LYS:HE2	1:C:215:ASP:CG	2.32	0.53
1:C:328:TYR:C	1:C:328:TYR:HD1	2.17	0.53
1:D:98:TRP:CE2	1:D:102:THR:HG21	2.43	0.53
1:D:229:ASP:C	1:D:229:ASP:OD1	2.52	0.53
1:D:478:ILE:HD12	1:D:478:ILE:N	2.24	0.53
1:F:470:GLY:HA2	1:F:480:THR:HG21	1.89	0.53
1:A:64:CYS:O	1:A:65:ILE:C	2.50	0.53
1:A:97:ASP:C	1:A:97:ASP:OD1	2.51	0.53
1:B:131:TYR:CE2	2:B:600:FAD:N6A	2.77	0.53
1:C:432:ASN:O	1:C:433:GLU:HB2	2.08	0.53
1:D:144:ASN:HD22	1:D:146:LYS:N	1.99	0.53
1:E:323:GLN:HB2	1:E:330:TYR:HE1	1.74	0.53
1:F:70:MET:HE2	1:F:101:MET:CE	2.33	0.53
1:A:99:GLU:CG	1:D:146:LYS:HD3	2.35	0.53
1:A:478:ILE:H	1:A:478:ILE:CD1	2.04	0.53
1:C:34:PHE:N	1:C:34:PHE:CD1	2.75	0.53
1:D:66:PRO:HG3	1:D:109:ILE:HD11	1.91	0.53
1:D:221:ARG:HH12	3:D:601:NDP:P2B	2.31	0.53
1:D:263:THR:CB	1:D:264:PRO:HD3	2.39	0.53
1:E:431:ASP:OD1	1:E:431:ASP:O	2.25	0.53
1:E:447:GLU:CD	1:F:474:VAL:HG13	2.33	0.53
1:F:318:VAL:HG23	1:F:323:GLN:O	2.09	0.53
1:B:91:GLU:O	1:B:92:ASP:C	2.51	0.53
1:B:281:GLU:O	1:B:282:ASP:O	2.26	0.53
1:C:103:GLU:O	1:C:107:ASN:HB2	2.08	0.53
1:D:272:LYS:CG	1:D:273:SER:N	2.70	0.53
1:F:438:PHE:CE1	1:F:479:PHE:CE1	2.96	0.53
1:A:249:ARG:HB3	1:A:250:GLN:HE22	1.73	0.53
1:C:58:THR:HB	2:C:600:FAD:O2A	2.09	0.53
1:C:376:THR:HB	1:C:377:PRO:HD2	1.90	0.53
1:F:194:LEU:HB2	1:F:284:PHE:CE2	2.44	0.53
1:A:163:GLU:HB3	1:A:295:SER:HA	1.91	0.53
1:C:421:CYS:HA	1:C:441:LEU:O	2.09	0.53
1:E:336:LEU:HB3	1:E:339:LYS:HG2	1.91	0.53
1:E:414:PRO:O	1:E:415:SER:HB2	2.09	0.53
1:B:263:THR:OG1	1:B:264:PRO:CD	2.57	0.52
1:C:404:SER:HA	1:C:492:ILE:HG21	1.89	0.52
1:E:173:ASP:OD1	1:E:173:ASP:C	2.52	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:22:SER:CB	1:F:343:THR:HG23	2.39	0.52
1:F:224:LEU:HD21	1:F:249:ARG:NH1	2.24	0.52
1:A:471:ILE:CG2	1:B:373:THR:HG23	2.39	0.52
1:B:371:PRO:CG	1:B:453:ALA:HB1	2.37	0.52
1:C:356:ARG:HG2	1:C:361:SER:O	2.07	0.52
1:C:477:GLU:O	1:C:478:ILE:C	2.47	0.52
1:D:144:ASN:HB2	1:D:148:LYS:O	2.09	0.52
1:D:396:GLU:C	1:D:396:GLU:CD	2.77	0.52
1:E:321:GLU:O	1:E:356:ARG:NH1	2.40	0.52
1:F:263:THR:O	1:F:265:GLY:N	2.42	0.52
1:A:98:TRP:NE1	1:A:102:THR:CG2	2.63	0.52
1:C:178:ILE:HD11	1:C:286:THR:HG22	1.90	0.52
1:C:221:ARG:O	1:C:250:GLN:HA	2.09	0.52
1:D:13:PHE:O	1:D:154:ALA:HA	2.09	0.52
1:F:70:MET:CE	1:F:101:MET:HE3	2.34	0.52
1:F:267:LEU:O	1:F:283:GLU:HA	2.10	0.52
1:A:220:VAL:O	1:A:220:VAL:HG23	2.08	0.52
1:A:273:SER:OG	1:A:275:ASN:HB3	2.09	0.52
1:A:411:TRP:O	1:A:414:PRO:HD2	2.09	0.52
1:B:29:LYS:HG2	1:B:30:GLU:N	2.24	0.52
1:C:229:ASP:C	1:C:229:ASP:OD1	2.53	0.52
1:C:291:VAL:HG13	3:C:601:NDP:C4A	2.39	0.52
1:A:321:GLU:O	1:A:322:GLU:HB2	2.09	0.52
1:A:424:LYS:HG2	1:A:439:HIS:HB2	1.91	0.52
1:C:60:VAL:O	1:C:109:ILE:HD13	2.08	0.52
1:E:205:CYS:HA	1:E:208:PHE:CE2	2.44	0.52
1:F:110:GLY:HA2	1:F:113:ASN:ND2	2.22	0.52
1:F:258:GLN:NE2	1:F:261:ALA:N	2.58	0.52
1:A:200:TYR:O	1:A:204:GLU:HG3	2.09	0.52
1:A:450:GLN:HE22	1:B:471:ILE:H	1.58	0.52
3:A:601:NDP:O2N	3:A:601:NDP:O5B	2.27	0.52
1:B:70:MET:SD	1:B:101:MET:CE	2.94	0.52
1:C:114:TRP:CE3	1:C:117:ARG:HD2	2.45	0.52
1:C:395:GLY:O	1:C:396:GLU:C	2.52	0.52
1:D:272:LYS:NZ	1:D:276:SER:HA	2.25	0.52
1:E:186:LEU:CD2	1:E:188:TYR:CZ	2.93	0.52
1:E:273:SER:CB	1:E:275:ASN:OD1	2.58	0.52
1:B:55:LEU:HD13	1:B:116:TYR:CB	2.40	0.52
1:C:71:HIS:O	1:C:74:ALA:HB3	2.10	0.52
1:D:250:GLN:O	1:D:273:SER:HB3	2.07	0.52
1:F:167:TYR:CE2	1:F:174:LYS:HA	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:319:THR:CG2	1:B:323:GLN:HB3	2.39	0.52
1:B:395:GLY:O	1:B:396:GLU:C	2.52	0.52
1:C:116:TYR:O	1:C:119:ALA:HB3	2.10	0.52
1:C:224:LEU:HD11	1:C:249:ARG:HH12	1.75	0.52
1:D:343:THR:HB	1:D:344:PRO:HD3	1.91	0.52
1:A:67:LYS:HD2	1:A:68:LYS:N	2.24	0.52
1:A:193:THR:HB	1:A:286:THR:O	2.10	0.52
1:C:278:GLU:C	1:C:278:GLU:CD	2.78	0.52
1:E:373:THR:HB	1:E:381:GLY:HA2	1.91	0.52
1:F:141:MET:CE	1:F:143:THR:OG1	2.58	0.52
1:F:336:LEU:HB3	1:F:339:LYS:HG2	1.92	0.52
1:A:82:ASP:OD2	1:A:416:ARG:NH1	2.40	0.52
1:C:114:TRP:O	1:C:118:VAL:HG23	2.10	0.52
1:D:336:LEU:HB3	1:D:339:LYS:CG	2.40	0.52
1:E:172:GLY:HA2	1:E:175:GLU:HG2	1.92	0.52
1:A:395:GLY:O	1:A:396:GLU:C	2.53	0.51
1:B:380:TYR:OH	1:B:439:HIS:HD2	1.93	0.51
1:C:308:LYS:H	1:C:325:ASN:HD21	1.58	0.51
1:C:348:GLN:O	1:C:352:LEU:HB2	2.10	0.51
1:A:310:ASN:HD22	1:A:312:LYS:H	1.58	0.51
1:B:61:ASN:HA	1:B:109:ILE:HD13	1.91	0.51
1:C:138:HIS:HD2	1:C:328:TYR:CE2	2.29	0.51
1:D:336:LEU:HB3	1:D:339:LYS:HG2	1.93	0.51
1:E:108:HIS:NE2	1:F:412:THR:HG21	2.25	0.51
1:E:203:LEU:HD22	1:E:240:MET:SD	2.50	0.51
1:A:29:LYS:HG3	1:A:30:GLU:N	2.24	0.51
1:A:440:VAL:HB	1:A:479:PHE:CZ	2.45	0.51
1:B:440:VAL:HG13	1:B:440:VAL:O	2.09	0.51
1:C:168:LEU:HB3	1:C:170:ILE:HG23	1.92	0.51
1:C:403:HIS:CE1	1:C:492:ILE:CD1	2.87	0.51
1:E:343:THR:HB	1:E:344:PRO:CD	2.35	0.51
1:E:450:GLN:NE2	1:F:470:GLY:HA2	2.23	0.51
1:F:469:ILE:N	1:F:469:ILE:CD1	2.67	0.51
1:B:30:GLU:O	1:B:31:ALA:C	2.53	0.51
1:B:277:GLU:HG2	1:B:278:GLU:N	2.25	0.51
1:C:161:THR:HG23	1:C:335:ILE:HD13	1.92	0.51
1:C:285:ASN:N	1:C:285:ASN:ND2	2.54	0.51
1:D:272:LYS:CE	1:D:276:SER:HA	2.41	0.51
1:D:402:TYR:CD2	1:D:462:LYS:HE2	2.45	0.51
1:E:343:THR:CB	1:E:344:PRO:CD	2.89	0.51
1:C:20:GLY:HA2	1:C:25:LEU:HD21	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:212:ILE:O	1:C:212:ILE:CG2	2.58	0.51
1:E:161:THR:HB	2:E:600:FAD:C8A	2.41	0.51
1:E:208:PHE:CE1	1:E:209:LEU:HD13	2.46	0.51
1:F:332:ILE:HG23	1:F:333:GLY:N	2.25	0.51
1:A:402:TYR:CD2	1:A:485:THR:HG22	2.45	0.51
1:C:98:TRP:O	1:C:102:THR:OG1	2.28	0.51
1:C:361:SER:OG	1:C:363:VAL:HG22	2.11	0.51
1:C:478:ILE:HD12	1:C:479:PHE:H	1.76	0.51
1:D:405:PHE:CD1	1:D:492:ILE:HD12	2.45	0.51
1:A:131:TYR:CE1	2:A:600:FAD:N6A	2.79	0.51
1:A:345:VAL:HG22	1:B:469:ILE:HD13	1.91	0.51
1:B:305:VAL:CG1	1:B:328:TYR:OH	2.59	0.51
1:B:409:LEU:O	1:B:412:THR:HG23	2.10	0.51
1:C:260:GLU:HB2	1:C:266:ARG:HB3	1.93	0.51
1:A:263:THR:O	1:A:264:PRO:C	2.50	0.51
1:A:380:TYR:OH	1:A:439:HIS:HD2	1.93	0.51
1:C:86:TYR:O	1:D:101:MET:HB2	2.10	0.51
1:C:405:PHE:H	1:C:492:ILE:CG2	2.22	0.51
1:C:412:THR:O	1:C:415:SER:N	2.40	0.51
1:D:291:VAL:HG22	3:D:601:NDP:C4A	2.41	0.51
1:F:434:ARG:HG2	1:F:434:ARG:NH1	2.20	0.51
1:A:308:LYS:N	1:A:325:ASN:HD21	2.03	0.51
1:A:318:VAL:HG13	1:A:322:GLU:HA	1.89	0.51
1:B:328:TYR:HD1	1:B:328:TYR:H	1.59	0.51
1:D:376:THR:HB	1:D:377:PRO:CD	2.41	0.51
1:E:68:LYS:O	1:E:71:HIS:HB3	2.11	0.51
1:F:281:GLU:OE1	1:F:281:GLU:HA	2.10	0.51
1:A:96:HIS:CD2	1:A:212:ILE:HG23	2.46	0.51
1:A:236:ILE:HD11	1:A:380:TYR:CD2	2.45	0.51
1:A:428:ASN:ND2	1:A:431:ASP:CB	2.74	0.51
1:B:67:LYS:HE2	1:B:204:GLU:OE2	2.10	0.51
1:C:67:LYS:HE2	2:C:600:FAD:H6	1.92	0.51
1:C:433:GLU:O	1:C:434:ARG:C	2.54	0.51
1:C:448:VAL:HG12	1:D:447:GLU:HB3	1.92	0.51
1:E:438:PHE:CZ	1:E:452:PHE:CD2	2.98	0.51
1:F:275:ASN:OD1	1:F:277:GLU:HG2	2.11	0.51
1:A:262:GLY:C	1:A:263:THR:O	2.54	0.50
1:A:480:THR:HG23	1:A:481:THR:HG23	1.93	0.50
1:B:68:LYS:HE2	1:B:375:PHE:CE2	2.46	0.50
1:B:402:TYR:HB3	1:B:482:LEU:HB3	1.93	0.50
1:D:478:ILE:HD12	1:D:479:PHE:N	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:140:ILE:HG23	1:E:140:ILE:O	2.10	0.50
1:E:426:ILE:HG12	1:E:437:GLY:CA	2.38	0.50
1:F:58:THR:HG22	1:F:62:VAL:CG2	2.41	0.50
1:A:39:MET:HE1	1:A:152:TYR:CG	2.46	0.50
1:B:67:LYS:NZ	2:B:600:FAD:O4	2.44	0.50
1:B:258:GLN:NE2	1:B:261:ALA:HB2	2.26	0.50
1:B:326:VAL:CG1	1:B:328:TYR:CE1	2.95	0.50
1:C:106:GLN:HA	1:C:109:ILE:HG13	1.93	0.50
1:C:220:VAL:HG21	1:C:249:ARG:CD	2.40	0.50
1:C:250:GLN:O	1:C:273:SER:HB2	2.11	0.50
1:D:317:PRO:O	1:D:318:VAL:HG12	2.11	0.50
2:A:600:FAD:O2A	2:A:600:FAD:O5'	2.27	0.50
1:C:55:LEU:HD22	1:C:56:GLY:N	2.26	0.50
1:C:63:GLY:O	1:C:64:CYS:C	2.53	0.50
1:C:205:CYS:C	1:C:207:GLY:N	2.66	0.50
1:C:223:ILE:HD12	1:C:230:GLN:NE2	2.26	0.50
1:C:255:LYS:HZ2	1:C:270:THR:HG21	1.77	0.50
1:F:273:SER:OG	1:F:275:ASN:HB3	2.12	0.50
1:C:66:PRO:O	1:C:70:MET:HB2	2.12	0.50
1:D:225:LEU:O	1:D:226:ARG:C	2.55	0.50
1:D:411:TRP:CE2	1:D:416:ARG:NH2	2.80	0.50
1:E:487:ARG:O	1:E:487:ARG:HG3	2.11	0.50
1:F:58:THR:OG1	2:F:600:FAD:O1A	2.29	0.50
1:F:348:GLN:HG2	1:F:351:ARG:NH1	2.27	0.50
1:A:268:LYS:HE2	1:A:280:ILE:HD12	1.93	0.50
1:B:168:LEU:HD13	1:B:168:LEU:N	2.27	0.50
1:C:58:THR:OG1	2:C:600:FAD:O2A	2.30	0.50
1:C:266:ARG:HG3	1:C:283:GLU:HB3	1.94	0.50
1:C:438:PHE:C	1:C:439:HIS:ND1	2.69	0.50
2:C:600:FAD:O1A	2:C:600:FAD:H5'1	2.12	0.50
1:A:387:GLU:OE2	1:A:486:LYS:NZ	2.42	0.50
1:A:438:PHE:CE2	1:A:452:PHE:CG	3.00	0.50
1:C:75:LEU:O	1:C:78:GLN:N	2.43	0.50
1:C:133:LYS:HA	1:C:301:GLY:H	1.77	0.50
1:C:252:VAL:CG1	1:C:253:PRO:HD2	2.42	0.50
1:C:387:GLU:HA	1:C:426:ILE:HD13	1.93	0.50
1:D:193:THR:HG23	1:D:286:THR:O	2.12	0.50
1:D:301:GLY:C	1:D:303:GLU:OE1	2.54	0.50
1:E:34:PHE:CE2	1:E:359:GLY:HA2	2.46	0.50
1:E:71:HIS:CD2	1:E:375:PHE:HB3	2.46	0.50
1:E:170:ILE:CD1	1:E:253:PRO:HB2	2.41	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:62:VAL:HG23	1:A:62:VAL:O	2.11	0.50
1:A:91:GLU:O	1:A:93:THR:N	2.45	0.50
1:A:204:GLU:OE2	1:A:375:PHE:N	2.40	0.50
1:C:220:VAL:CG2	1:C:249:ARG:HD2	2.41	0.50
1:C:365:CYS:SG	1:C:367:TYR:CZ	3.05	0.50
1:D:170:ILE:O	1:D:170:ILE:HG13	2.12	0.50
1:B:168:LEU:O	1:B:173:ASP:OD2	2.30	0.50
1:B:318:VAL:HG22	1:B:323:GLN:O	2.11	0.50
1:D:167:TYR:CE2	1:D:174:LYS:HA	2.46	0.50
1:E:195:VAL:HG21	1:E:206:ALA:HB2	1.93	0.50
1:F:34:PHE:HZ	1:F:355:GLN:HE22	1.58	0.50
1:B:172:GLY:O	1:B:175:GLU:HG2	2.12	0.50
1:B:262:GLY:C	1:B:263:THR:O	2.55	0.50
1:C:164:ARG:HB3	1:C:165:PRO:CD	2.36	0.50
1:F:172:GLY:HA2	1:F:175:GLU:CG	2.41	0.50
1:F:209:LEU:HG	1:F:214:LEU:HD12	1.94	0.50
1:F:434:ARG:HH11	1:F:434:ARG:CG	2.18	0.50
1:B:216:VAL:HG12	1:B:217:THR:N	2.26	0.49
1:B:472:HIS:HD1	1:B:473:PRO:HA	1.77	0.49
1:D:267:LEU:HD13	1:D:267:LEU:N	2.27	0.49
1:D:407:TRP:CB	1:D:418:ASN:HD21	2.22	0.49
1:E:162:GLY:O	1:E:335:ILE:HD11	2.12	0.49
1:F:318:VAL:HG23	1:F:323:GLN:C	2.37	0.49
1:C:163:GLU:O	1:C:164:ARG:HG2	2.12	0.49
1:C:209:LEU:HD12	1:C:214:LEU:HD12	1.94	0.49
1:E:413:VAL:N	1:E:414:PRO:CD	2.75	0.49
1:E:460:LEU:HA	1:F:458:CYS:SG	2.53	0.49
1:F:371:PRO:O	1:F:371:PRO:HG2	2.12	0.49
1:F:380:TYR:CD1	1:F:381:GLY:N	2.80	0.49
1:B:319:THR:HG21	1:B:323:GLN:HB3	1.93	0.49
1:C:43:PHE:HD1	1:C:44:VAL:O	1.95	0.49
1:C:225:LEU:HD12	1:C:225:LEU:N	2.27	0.49
1:D:249:ARG:HB3	1:D:250:GLN:NE2	2.27	0.49
1:E:119:ALA:O	1:E:123:LYS:HG3	2.12	0.49
1:F:270:THR:HG22	1:F:280:ILE:HG22	1.94	0.49
1:A:295:SER:HB3	1:A:335:ILE:CD1	2.39	0.49
1:C:239:HIS:CE1	1:C:378:LEU:HG	2.48	0.49
1:D:409:LEU:HD12	1:D:409:LEU:O	2.12	0.49
1:E:404:SER:CB	1:E:478:ILE:HD11	2.40	0.49
1:A:387:GLU:HA	1:A:426:ILE:HD13	1.94	0.49
1:C:225:LEU:HD12	1:C:225:LEU:H	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:342:LEU:HB2	1:C:345:VAL:HG21	1.93	0.49
1:D:270:THR:CG2	1:D:280:ILE:HG22	2.43	0.49
1:D:317:PRO:O	1:D:318:VAL:CG1	2.61	0.49
1:E:470:GLY:O	1:F:344:PRO:HG2	2.13	0.49
1:A:188:TYR:C	1:A:188:TYR:CD1	2.90	0.49
1:C:188:TYR:HD2	1:C:263:THR:HG22	1.75	0.49
1:C:401:VAL:HG22	1:C:486:LYS:HB2	1.93	0.49
1:D:454:ALA:O	1:D:457:LYS:HB2	2.13	0.49
1:E:406:PHE:CE2	1:E:421:CYS:HB3	2.45	0.49
1:E:418:ASN:ND2	1:E:419:ASN:N	2.60	0.49
1:A:55:LEU:HD13	1:A:116:TYR:HB3	1.93	0.49
1:A:78:GLN:HE21	1:A:416:ARG:HH11	1.53	0.49
1:B:163:GLU:OE2	1:B:334:ASP:HB3	2.13	0.49
1:C:30:GLU:HA	1:C:33:LYS:HD3	1.95	0.49
1:D:13:PHE:CE2	1:D:39:MET:HB2	2.47	0.49
1:D:380:TYR:OH	1:D:439:HIS:HD2	1.95	0.49
1:F:472:HIS:ND1	1:F:473:PRO:CA	2.76	0.49
1:A:451:GLY:HA2	1:B:452:PHE:CE1	2.48	0.49
1:B:376:THR:O	1:B:377:PRO:C	2.56	0.49
1:C:31:ALA:C	1:C:33:LYS:N	2.69	0.49
1:C:208:PHE:CD1	1:C:208:PHE:C	2.90	0.49
1:C:494:GLN:O	1:C:495:SER:O	2.30	0.49
1:E:361:SER:OG	1:E:363:VAL:HG23	2.13	0.49
1:A:68:LYS:NZ	1:B:473:PRO:O	2.41	0.49
1:A:428:ASN:ND2	1:A:431:ASP:HB3	2.28	0.49
1:A:496:GLY:C	1:A:497:CYS:SG	2.95	0.49
1:B:150:LYS:HG2	1:B:152:TYR:CZ	2.48	0.49
1:B:268:LYS:NZ	1:B:280:ILE:HD12	2.28	0.49
1:C:39:MET:HE2	1:C:41:LEU:CD2	2.41	0.49
1:E:317:PRO:C	1:E:318:VAL:CG2	2.86	0.49
1:E:418:ASN:HD21	1:E:495:SER:HB3	1.77	0.49
1:F:438:PHE:CE2	1:F:449:THR:HG23	2.48	0.49
1:A:134:PHE:HB2	1:A:301:GLY:O	2.13	0.49
1:A:217:THR:HA	1:A:246:LYS:O	2.12	0.49
1:A:449:THR:O	1:A:450:GLN:C	2.56	0.49
1:B:168:LEU:HD11	1:B:291:VAL:HG11	1.94	0.49
1:D:173:ASP:HB2	1:D:289:LEU:HD11	1.94	0.49
1:D:291:VAL:O	1:D:291:VAL:CG1	2.59	0.49
1:D:411:TRP:O	1:D:414:PRO:HD2	2.12	0.49
1:E:163:GLU:OE2	1:E:334:ASP:HB3	2.13	0.49
1:A:472:HIS:O	2:B:600:FAD:N3	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:153:SER:CB	4:C:2002:HOH:O	2.57	0.48
1:C:427:CYS:HB3	1:C:433:GLU:C	2.38	0.48
1:D:30:GLU:O	1:D:31:ALA:C	2.54	0.48
1:D:67:LYS:CD	1:D:204:GLU:OE1	2.61	0.48
1:D:232:MET:HE1	1:D:441:LEU:HB2	1.94	0.48
1:F:195:VAL:HG22	1:F:288:LEU:HB3	1.94	0.48
1:A:13:PHE:O	1:A:154:ALA:HA	2.12	0.48
1:A:443:PRO:O	1:A:444:ASN:HB2	2.12	0.48
1:B:180:SER:O	1:B:181:ASP:C	2.53	0.48
1:B:303:GLU:OE1	1:B:304:THR:HG23	2.13	0.48
1:B:434:ARG:HG2	1:B:434:ARG:HH11	1.79	0.48
1:C:305:VAL:HG11	1:C:329:ILE:HD11	1.95	0.48
1:D:395:GLY:O	1:D:396:GLU:C	2.56	0.48
1:E:91:GLU:C	1:E:93:THR:H	2.22	0.48
1:B:65:ILE:HB	1:B:66:PRO:HD2	1.95	0.48
1:B:263:THR:CB	1:B:264:PRO:HD3	2.42	0.48
1:B:292:GLY:C	1:B:293:ARG:HG2	2.38	0.48
1:C:172:GLY:HA3	1:C:256:ILE:CG2	2.42	0.48
1:C:316:ILE:CG2	1:C:324:THR:CG2	2.91	0.48
1:C:474:VAL:HG12	1:D:447:GLU:OE1	2.13	0.48
1:D:240:MET:HE2	1:D:245:ILE:HD13	1.95	0.48
1:D:275:ASN:ND2	1:D:277:GLU:HB3	2.28	0.48
1:E:200:TYR:O	1:E:201:VAL:C	2.56	0.48
1:E:425:VAL:HG13	1:E:435:VAL:HG13	1.95	0.48
1:F:412:THR:O	1:F:415:SER:N	2.46	0.48
1:A:212:ILE:HA	1:A:212:ILE:HD12	1.28	0.48
1:A:331:ALA:C	1:A:332:ILE:HG12	2.39	0.48
1:B:390:ALA:HB2	1:B:426:ILE:HD12	1.96	0.48
1:B:401:VAL:O	1:B:401:VAL:HG12	2.13	0.48
1:C:83:SER:HB3	1:C:88:TRP:HB2	1.96	0.48
1:C:114:TRP:CZ3	1:C:117:ARG:HD2	2.48	0.48
1:C:438:PHE:CE2	1:C:452:PHE:CB	2.96	0.48
1:F:478:ILE:HD13	1:F:479:PHE:N	2.28	0.48
1:B:374:VAL:CG1	1:B:380:TYR:HB3	2.43	0.48
1:C:30:GLU:O	1:C:31:ALA:C	2.56	0.48
1:C:72:GLN:OE1	1:C:72:GLN:HA	2.14	0.48
1:C:428:ASN:C	1:C:428:ASN:OD1	2.56	0.48
1:D:403:HIS:C	1:D:403:HIS:CD2	2.91	0.48
1:D:426:ILE:O	1:D:426:ILE:HG13	2.13	0.48
1:E:438:PHE:C	1:E:439:HIS:ND1	2.71	0.48
1:F:208:PHE:CE1	1:F:209:LEU:HD13	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:91:GLU:O	1:A:92:ASP:C	2.57	0.48
1:A:408:PRO:O	1:A:409:LEU:C	2.54	0.48
1:B:259:ILE:HD11	1:B:268:LYS:HB2	1.95	0.48
1:C:166:ARG:HD3	1:C:294:ASP:OD1	2.13	0.48
1:C:233:ALA:O	1:C:236:ILE:HB	2.14	0.48
1:C:411:TRP:O	1:C:414:PRO:HD2	2.12	0.48
1:D:78:GLN:HE21	1:D:416:ARG:NH1	2.12	0.48
1:A:275:ASN:CG	1:A:275:ASN:O	2.56	0.48
1:D:209:LEU:O	1:D:212:ILE:HG22	2.14	0.48
1:D:272:LYS:NZ	1:D:276:SER:OG	2.41	0.48
1:E:233:ALA:HA	1:E:236:ILE:HD12	1.96	0.48
1:E:323:GLN:HB2	1:E:330:TYR:CE1	2.49	0.48
1:E:325:ASN:ND2	1:E:325:ASN:H	2.10	0.48
1:F:486:LYS:O	1:F:488:SER:N	2.46	0.48
1:F:491:ASP:OD2	1:F:493:LEU:HB2	2.13	0.48
1:D:191:GLY:HA3	1:D:285:ASN:HD22	1.78	0.48
1:D:267:LEU:N	1:D:267:LEU:CD1	2.75	0.48
1:D:272:LYS:HG2	1:D:273:SER:N	2.28	0.48
1:D:407:TRP:CZ3	1:D:412:THR:HG22	2.49	0.48
1:E:267:LEU:O	1:E:283:GLU:HA	2.13	0.48
1:E:418:ASN:HD22	1:E:419:ASN:H	1.62	0.48
1:E:499:GLY:HA3	1:F:29:LYS:NZ	2.29	0.48
1:F:340:LEU:HG	1:F:370:VAL:HG21	1.95	0.48
1:A:267:LEU:N	1:A:267:LEU:CD2	2.74	0.48
1:B:448:VAL:HG22	1:B:476:ALA:HB2	1.94	0.48
1:B:488:SER:OG	1:B:489:GLY:N	2.43	0.48
1:C:178:ILE:HB	1:C:182:ASP:CB	2.43	0.48
1:C:258:GLN:NE2	1:C:260:GLU:O	2.47	0.48
1:E:308:LYS:N	1:E:325:ASN:HD21	1.99	0.48
1:F:368:ASP:O	1:F:457:LYS:NZ	2.46	0.48
1:B:318:VAL:HG22	1:B:323:GLN:C	2.39	0.48
1:B:443:PRO:O	1:B:444:ASN:C	2.55	0.48
1:D:402:TYR:HB3	1:D:482:LEU:HB3	1.95	0.48
1:D:402:TYR:N	1:D:402:TYR:CD1	2.82	0.48
1:D:407:TRP:CB	1:D:418:ASN:ND2	2.77	0.48
1:F:221:ARG:HH12	3:F:601:NDP:P2B	2.36	0.48
1:B:284:PHE:N	1:B:284:PHE:CD1	2.82	0.47
1:B:374:VAL:O	1:B:374:VAL:CG1	2.62	0.47
1:E:426:ILE:CG1	1:E:437:GLY:CA	2.88	0.47
1:E:473:PRO:O	1:E:473:PRO:CG	2.56	0.47
1:F:263:THR:OG1	1:F:264:PRO:CD	2.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:406:PHE:CE1	1:F:421:CYS:CB	2.94	0.47
1:A:331:ALA:O	1:A:332:ILE:HG12	2.14	0.47
1:B:313:THR:C	1:B:315:LYS:H	2.16	0.47
1:B:319:THR:C	1:B:321:GLU:H	2.21	0.47
1:C:134:PHE:HB2	1:C:301:GLY:O	2.13	0.47
1:C:205:CYS:O	1:C:207:GLY:N	2.47	0.47
1:C:232:MET:HE2	1:C:439:HIS:HB3	1.94	0.47
1:D:185:SER:O	1:D:186:LEU:C	2.57	0.47
1:E:273:SER:HB2	1:E:275:ASN:OD1	2.14	0.47
1:F:39:MET:HE1	1:F:152:TYR:CD1	2.50	0.47
1:F:185:SER:O	1:F:186:LEU:C	2.55	0.47
1:A:470:GLY:CA	1:B:450:GLN:HE22	2.25	0.47
1:B:205:CYS:HA	1:B:208:PHE:CE2	2.49	0.47
1:B:273:SER:OG	1:B:275:ASN:HB3	2.14	0.47
1:C:427:CYS:HA	1:C:434:ARG:O	2.14	0.47
1:D:378:LEU:HD11	1:D:442:GLY:HA2	1.96	0.47
1:E:178:ILE:HB	1:E:182:ASP:HB2	1.96	0.47
1:E:223:ILE:CD1	1:E:230:GLN:NE2	2.77	0.47
1:F:194:LEU:HD22	1:F:284:PHE:CE1	2.49	0.47
1:F:221:ARG:HH11	1:F:221:ARG:CB	2.27	0.47
1:A:348:GLN:HE22	1:A:351:ARG:HH12	1.57	0.47
1:B:383:CYS:SG	1:B:456:LEU:HD12	2.54	0.47
1:C:237:GLY:O	1:C:238:GLU:C	2.54	0.47
1:D:150:LYS:HG2	1:D:152:TYR:CZ	2.48	0.47
1:D:394:PHE:CE2	1:D:428:ASN:ND2	2.82	0.47
1:F:196:VAL:O	1:F:291:VAL:HG23	2.13	0.47
1:F:223:ILE:HG12	1:F:230:GLN:NE2	2.28	0.47
1:A:353:LEU:HA	1:A:356:ARG:HH21	1.78	0.47
1:C:167:TYR:HD2	1:C:173:ASP:O	1.98	0.47
1:C:321:GLU:O	1:C:322:GLU:HB2	2.13	0.47
1:C:403:HIS:CD2	1:C:492:ILE:HD11	2.48	0.47
1:E:70:MET:CG	1:E:101:MET:HE3	2.42	0.47
1:E:313:THR:O	1:E:313:THR:OG1	2.30	0.47
1:F:34:PHE:CZ	1:F:355:GLN:NE2	2.83	0.47
1:F:303:GLU:N	1:F:303:GLU:OE1	2.48	0.47
1:C:189:CYS:C	1:C:191:GLY:N	2.72	0.47
1:C:220:VAL:HG23	1:C:250:GLN:H	1.79	0.47
1:D:133:LYS:O	1:D:140:ILE:HG13	2.15	0.47
1:E:16:ILE:HB	1:E:157:PHE:CE1	2.50	0.47
1:E:263:THR:O	1:E:265:GLY:N	2.47	0.47
1:E:305:VAL:HG11	1:E:329:ILE:HD11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:163:GLU:HB3	1:F:294:ASP:C	2.40	0.47
1:A:47:THR:HG23	1:A:51:THR:O	2.15	0.47
1:A:83:SER:HB2	1:A:88:TRP:HB2	1.97	0.47
1:A:106:GLN:O	1:A:107:ASN:C	2.56	0.47
1:A:273:SER:OG	1:A:275:ASN:N	2.46	0.47
1:C:67:LYS:NZ	1:C:204:GLU:OE2	2.47	0.47
1:C:127:TYR:CD1	1:C:128:GLU:N	2.82	0.47
1:C:320:ASP:O	1:C:364:LYS:CG	2.49	0.47
1:D:352:LEU:O	1:D:355:GLN:HB2	2.15	0.47
1:E:30:GLU:OE1	1:E:355:GLN:NE2	2.45	0.47
1:E:212:ILE:HA	1:E:212:ILE:HD12	1.55	0.47
1:E:263:THR:CB	1:E:264:PRO:HD3	2.18	0.47
1:A:11:TYR:CE2	1:A:155:GLU:HG3	2.50	0.47
1:A:163:GLU:HB3	1:A:294:ASP:C	2.40	0.47
1:A:292:GLY:C	1:A:293:ARG:HG2	2.39	0.47
1:B:106:GLN:O	1:B:107:ASN:C	2.57	0.47
1:B:236:ILE:HG21	1:B:376:THR:HG21	1.96	0.47
1:C:371:PRO:HB3	1:C:453:ALA:HB2	1.97	0.47
1:D:303:GLU:N	1:D:303:GLU:CD	2.56	0.47
1:D:343:THR:CB	1:D:344:PRO:HD3	2.45	0.47
1:F:387:GLU:O	1:F:391:VAL:HG13	2.14	0.47
1:A:112:LEU:O	1:A:113:ASN:C	2.57	0.47
1:A:163:GLU:OE2	1:A:334:ASP:HB3	2.15	0.47
1:A:191:GLY:O	1:A:193:THR:HG22	2.15	0.47
1:A:471:ILE:HG13	1:B:371:PRO:HB2	1.97	0.47
1:A:475:CYS:O	1:A:478:ILE:HD11	2.15	0.47
1:C:18:ILE:HD11	1:C:159:ILE:CG2	2.45	0.47
1:C:70:MET:HB3	1:C:208:PHE:CE2	2.50	0.47
1:C:398:ASN:O	1:C:429:LEU:HB2	2.15	0.47
1:C:431:ASP:O	1:C:432:ASN:HB2	2.14	0.47
1:C:477:GLU:CA	1:D:450:GLN:HE21	2.24	0.47
1:E:173:ASP:CG	1:E:174:LYS:N	2.71	0.47
1:F:65:ILE:HD13	1:F:65:ILE:HA	1.71	0.47
1:F:273:SER:HB2	1:F:274:THR:H	1.51	0.47
1:F:469:ILE:HD12	1:F:469:ILE:H	1.79	0.47
1:A:348:GLN:HE22	1:A:351:ARG:CZ	2.24	0.47
1:B:9:LYS:HD2	1:B:9:LYS:O	2.14	0.47
1:B:144:ASN:CG	1:B:145:ASN:N	2.72	0.47
1:C:36:LYS:HE3	1:C:358:TYR:CD2	2.48	0.47
1:C:198:ALA:HB1	1:C:224:LEU:HA	1.97	0.47
1:C:221:ARG:NH1	3:C:601:NDP:O2X	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:220:VAL:CG2	1:D:249:ARG:HE	2.28	0.47
1:D:388:GLU:O	1:D:391:VAL:HG22	2.15	0.47
1:F:131:TYR:CD1	1:F:131:TYR:C	2.92	0.47
1:F:223:ILE:HG12	1:F:224:LEU:N	2.29	0.47
1:A:67:LYS:NZ	1:A:204:GLU:CD	2.73	0.46
1:B:98:TRP:HB3	1:B:189:CYS:HB2	1.97	0.46
1:C:316:ILE:CG2	1:C:324:THR:HG21	2.45	0.46
1:C:319:THR:OG1	1:C:323:GLN:O	2.33	0.46
1:C:474:VAL:HG12	1:C:475:CYS:N	2.29	0.46
1:D:47:THR:HB	1:D:48:PRO:HD2	1.96	0.46
1:D:440:VAL:O	1:D:440:VAL:HG13	2.14	0.46
1:E:112:LEU:O	1:E:113:ASN:C	2.59	0.46
1:E:186:LEU:HD22	1:E:188:TYR:CE2	2.50	0.46
1:E:378:LEU:HD11	1:E:442:GLY:HA2	1.96	0.46
1:F:418:ASN:O	1:F:420:LYS:HG2	2.15	0.46
1:A:292:GLY:O	1:A:293:ARG:HG2	2.15	0.46
1:A:491:ASP:OD2	1:A:493:LEU:HB2	2.15	0.46
1:D:114:TRP:CE3	1:D:114:TRP:O	2.68	0.46
1:E:313:THR:C	1:E:315:LYS:H	2.20	0.46
1:F:91:GLU:O	1:F:91:GLU:HG2	2.14	0.46
1:F:203:LEU:HD22	1:F:240:MET:CE	2.44	0.46
1:F:413:VAL:N	1:F:414:PRO:CD	2.77	0.46
1:B:220:VAL:HG21	1:B:249:ARG:NE	2.31	0.46
1:B:229:ASP:HB2	1:B:386:SER:HB2	1.98	0.46
1:B:426:ILE:CG1	1:B:437:GLY:CA	2.89	0.46
1:C:21:GLY:HA3	2:C:600:FAD:O3P	2.16	0.46
1:D:376:THR:HB	1:D:377:PRO:HD2	1.96	0.46
1:E:380:TYR:CE1	1:E:382:CYS:HB3	2.50	0.46
1:A:158:LEU:HD11	1:A:332:ILE:HG12	1.95	0.46
1:A:307:VAL:HG13	1:A:324:THR:HG21	1.97	0.46
1:A:310:ASN:C	1:A:310:ASN:ND2	2.64	0.46
1:A:425:VAL:HG13	1:A:435:VAL:HG13	1.96	0.46
1:B:229:ASP:OD1	1:B:231:ASP:N	2.48	0.46
1:B:254:THR:HG23	1:B:271:ALA:HA	1.97	0.46
1:B:482:LEU:HA	1:B:482:LEU:HD23	1.40	0.46
1:C:32:ALA:HB2	1:C:125:VAL:CG2	2.46	0.46
1:C:67:LYS:NZ	1:C:204:GLU:CD	2.73	0.46
1:C:183:LEU:C	1:C:185:SER:N	2.70	0.46
1:C:386:SER:OG	1:C:388:GLU:HG2	2.15	0.46
1:D:230:GLN:HB2	1:D:388:GLU:OE2	2.15	0.46
1:D:316:ILE:HG13	1:D:335:ILE:CG2	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:407:TRP:CD1	1:D:418:ASN:ND2	2.82	0.46
1:E:203:LEU:HD23	1:E:203:LEU:HA	1.56	0.46
1:E:431:ASP:OD1	1:E:431:ASP:C	2.58	0.46
1:E:474:VAL:O	1:E:475:CYS:C	2.58	0.46
1:F:229:ASP:OD2	1:F:232:MET:HG2	2.15	0.46
1:A:30:GLU:OE1	1:A:33:LYS:HD2	2.15	0.46
1:B:47:THR:HB	1:B:48:PRO:CD	2.46	0.46
1:C:307:VAL:HG21	1:C:329:ILE:HG21	1.97	0.46
1:C:412:THR:HB	1:D:108:HIS:CD2	2.50	0.46
1:D:98:TRP:NE1	1:D:102:THR:CG2	2.72	0.46
1:E:488:SER:O	1:E:489:GLY:C	2.55	0.46
1:A:134:PHE:CE1	1:A:157:PHE:CD2	3.04	0.46
1:A:348:GLN:NE2	1:A:351:ARG:CZ	2.79	0.46
1:B:356:ARG:HG2	1:B:361:SER:O	2.15	0.46
1:C:55:LEU:HD13	1:C:116:TYR:CB	2.44	0.46
1:C:203:LEU:HD22	1:C:240:MET:HE1	1.97	0.46
1:C:387:GLU:OE1	1:C:424:LYS:NZ	2.41	0.46
1:D:96:HIS:NE2	1:D:212:ILE:HG13	2.30	0.46
1:D:270:THR:HG21	1:D:280:ILE:HG22	1.97	0.46
1:E:134:PHE:HE1	1:E:157:PHE:CD2	2.34	0.46
1:E:395:GLY:O	1:E:396:GLU:C	2.59	0.46
1:A:469:ILE:HD13	1:A:469:ILE:N	2.31	0.46
1:B:23:GLY:HA3	1:B:332:ILE:HD13	1.98	0.46
1:B:172:GLY:HA2	1:B:175:GLU:HG2	1.96	0.46
1:B:374:VAL:HG12	1:B:380:TYR:HB3	1.97	0.46
1:C:158:LEU:HD11	1:C:332:ILE:HB	1.97	0.46
1:C:309:ILE:CG2	1:C:316:ILE:HG12	2.43	0.46
1:D:200:TYR:O	1:D:201:VAL:C	2.58	0.46
1:B:164:ARG:NH2	1:B:181:ASP:OD2	2.45	0.46
1:B:185:SER:O	1:B:186:LEU:C	2.58	0.46
1:C:194:LEU:HD22	1:C:287:VAL:HG13	1.98	0.46
1:D:90:LEU:N	1:D:90:LEU:CD2	2.78	0.46
1:D:469:ILE:CG2	1:D:470:GLY:N	2.79	0.46
1:E:38:VAL:HG22	1:E:125:VAL:HG13	1.98	0.46
1:F:313:THR:C	1:F:315:LYS:H	2.15	0.46
1:F:470:GLY:CA	1:F:480:THR:HG21	2.46	0.46
1:A:284:PHE:CD1	1:A:284:PHE:N	2.84	0.46
1:C:27:ALA:O	1:C:28:ALA:C	2.59	0.46
1:C:55:LEU:HD11	1:C:116:TYR:HB3	1.97	0.46
1:C:72:GLN:O	1:C:73:ALA:C	2.57	0.46
1:C:220:VAL:CG2	1:C:249:ARG:NE	2.70	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:393:LYS:HG2	1:C:394:PHE:CE1	2.51	0.46
1:C:422:TYR:CD1	1:C:422:TYR:C	2.94	0.46
1:D:258:GLN:HE22	1:D:261:ALA:HB2	1.79	0.46
1:D:263:THR:O	1:D:265:GLY:N	2.49	0.46
1:D:407:TRP:HB2	1:D:418:ASN:ND2	2.24	0.46
1:E:138:HIS:CD2	1:E:154:ALA:O	2.65	0.46
1:F:319:THR:C	1:F:321:GLU:H	2.23	0.46
1:A:14:ASP:OD2	1:A:37:LYS:N	2.47	0.46
1:A:471:ILE:HG21	1:B:373:THR:CG2	2.42	0.46
1:A:471:ILE:H	1:B:450:GLN:HE22	1.64	0.46
1:B:49:LEU:HA	1:B:49:LEU:HD13	1.65	0.46
1:B:120:LEU:HD22	1:B:125:VAL:CG1	2.45	0.46
1:E:49:LEU:N	1:E:49:LEU:CD2	2.78	0.46
1:E:281:GLU:OE1	1:E:281:GLU:HA	2.14	0.46
1:F:91:GLU:O	1:F:92:ASP:C	2.58	0.46
1:F:162:GLY:O	1:F:335:ILE:HD11	2.16	0.46
1:A:269:VAL:HG12	1:A:281:GLU:OE1	2.17	0.45
1:B:175:GLU:CD	1:B:175:GLU:H	2.24	0.45
1:B:348:GLN:NE2	1:B:351:ARG:HH12	2.13	0.45
1:B:403:HIS:CD2	1:B:403:HIS:C	2.94	0.45
1:B:418:ASN:OD1	1:B:419:ASN:N	2.47	0.45
1:B:461:THR:H	1:B:464:GLN:HG3	1.80	0.45
1:D:90:LEU:CD2	1:D:90:LEU:H	2.29	0.45
1:D:91:GLU:O	1:D:92:ASP:C	2.59	0.45
1:D:140:ILE:CG1	1:D:141:MET:N	2.79	0.45
1:D:282:ASP:OD1	1:D:282:ASP:N	2.48	0.45
1:F:498:CYS:SG	1:F:499:GLY:N	2.89	0.45
1:B:64:CYS:O	1:B:65:ILE:C	2.59	0.45
1:C:225:LEU:O	1:C:228:PHE:HB2	2.16	0.45
1:C:474:VAL:CG1	1:D:447:GLU:CD	2.89	0.45
1:C:477:GLU:CA	1:D:450:GLN:NE2	2.73	0.45
1:D:287:VAL:O	1:D:287:VAL:HG12	2.16	0.45
1:F:109:ILE:HA	1:F:112:LEU:HD12	1.99	0.45
1:F:168:LEU:O	1:F:173:ASP:OD2	2.33	0.45
1:F:396:GLU:O	1:F:396:GLU:OE2	2.33	0.45
1:F:428:ASN:ND2	1:F:431:ASP:CB	2.73	0.45
1:C:90:LEU:HG	1:C:91:GLU:N	2.32	0.45
1:C:181:ASP:N	1:C:181:ASP:OD1	2.48	0.45
1:C:473:PRO:O	1:C:473:PRO:CG	2.60	0.45
2:D:600:FAD:O2A	2:D:600:FAD:O5'	2.35	0.45
1:E:164:ARG:HD2	1:E:164:ARG:HA	1.73	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:450:GLN:NE2	1:B:471:ILE:H	2.14	0.45
1:B:305:VAL:HG12	1:B:328:TYR:OH	2.16	0.45
1:E:36:LYS:HA	1:E:36:LYS:HD3	1.76	0.45
1:F:250:GLN:O	1:F:251:PHE:CD1	2.69	0.45
1:F:406:PHE:HE2	1:F:423:ALA:HB2	1.82	0.45
1:F:478:ILE:HD13	1:F:479:PHE:H	1.81	0.45
1:A:114:TRP:HB3	1:D:114:TRP:CE2	2.50	0.45
1:A:435:VAL:HG23	1:A:460:LEU:O	2.17	0.45
1:B:228:PHE:O	1:B:229:ASP:C	2.60	0.45
1:C:170:ILE:HD12	1:C:254:THR:C	2.42	0.45
1:D:366:ASP:C	1:D:366:ASP:OD1	2.59	0.45
1:E:86:TYR:O	1:F:96:HIS:CE1	2.60	0.45
1:E:386:SER:O	1:E:387:GLU:C	2.56	0.45
1:F:55:LEU:HD22	1:F:56:GLY:N	2.31	0.45
1:A:133:LYS:NZ	1:A:141:MET:HE1	2.32	0.45
1:A:185:SER:O	1:A:186:LEU:C	2.59	0.45
1:B:21:GLY:HA3	2:B:600:FAD:O5B	2.17	0.45
1:C:98:TRP:HD1	1:C:189:CYS:CA	2.19	0.45
1:C:134:PHE:HB3	1:C:305:VAL:CG2	2.46	0.45
1:C:229:ASP:HB2	1:C:386:SER:HB2	1.99	0.45
1:D:69:LEU:O	1:D:72:GLN:HB3	2.16	0.45
1:D:138:HIS:HD2	1:D:154:ALA:O	1.99	0.45
1:E:136:GLY:O	1:E:137:PRO:C	2.59	0.45
1:F:292:GLY:O	1:F:293:ARG:HG2	2.16	0.45
1:A:167:TYR:HB3	1:A:173:ASP:OD2	2.17	0.45
1:A:412:THR:O	1:A:415:SER:N	2.48	0.45
1:B:426:ILE:O	1:B:426:ILE:HG13	2.16	0.45
1:C:65:ILE:C	1:C:67:LYS:N	2.73	0.45
1:C:76:LEU:O	1:C:79:ALA:HB3	2.17	0.45
1:C:291:VAL:CG1	3:C:601:NDP:C8A	2.95	0.45
1:C:342:LEU:O	1:C:345:VAL:HB	2.15	0.45
2:E:600:FAD:H9	2:E:600:FAD:H1'1	1.42	0.45
1:A:55:LEU:HD23	1:A:55:LEU:HA	1.54	0.45
1:A:357:LEU:HB3	1:A:358:TYR:CD1	2.51	0.45
1:B:17:ILE:HG12	1:B:158:LEU:HD23	1.98	0.45
1:B:65:ILE:CG2	1:B:66:PRO:CD	2.91	0.45
1:C:100:LYS:O	1:C:100:LYS:HD3	2.16	0.45
1:C:365:CYS:SG	1:C:367:TYR:CE2	3.10	0.45
1:A:134:PHE:HE1	1:A:157:PHE:CD2	2.34	0.45
1:A:403:HIS:CE1	1:A:486:LYS:HG3	2.52	0.45
1:B:335:ILE:HD12	1:B:335:ILE:HA	1.73	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:30:GLU:O	1:C:33:LYS:HB2	2.17	0.45
1:C:167:TYR:CD2	1:C:173:ASP:O	2.70	0.45
1:D:72:GLN:HA	1:D:72:GLN:HE21	1.81	0.45
1:D:84:ARG:HE	1:D:84:ARG:HB2	1.52	0.45
1:D:98:TRP:CD1	1:D:98:TRP:C	2.94	0.45
1:D:114:TRP:CE3	1:D:118:VAL:HG23	2.51	0.45
1:D:138:HIS:O	1:D:153:SER:HA	2.17	0.45
1:E:108:HIS:CE1	1:E:112:LEU:HD11	2.52	0.45
1:E:273:SER:OG	1:E:275:ASN:OD1	2.23	0.45
1:E:480:THR:HG22	1:E:481:THR:HG23	1.98	0.45
1:A:82:ASP:CG	1:A:416:ARG:NH1	2.75	0.45
1:A:176:TYR:HB3	1:A:267:LEU:CD1	2.47	0.45
1:A:195:VAL:HG22	1:A:288:LEU:HB3	1.98	0.45
1:B:216:VAL:CG1	1:B:217:THR:N	2.80	0.45
1:B:230:GLN:NE2	1:B:230:GLN:HA	2.32	0.45
1:B:256:ILE:O	1:B:256:ILE:HG13	2.12	0.45
1:C:109:ILE:O	1:C:112:LEU:N	2.50	0.45
1:C:172:GLY:HA3	1:C:256:ILE:HG22	1.99	0.45
1:C:409:LEU:O	1:C:409:LEU:HD12	2.17	0.45
1:D:61:ASN:C	1:D:62:VAL:CG1	2.89	0.45
1:D:266:ARG:C	1:D:267:LEU:HD13	2.42	0.45
1:E:228:PHE:N	1:E:228:PHE:CD1	2.85	0.45
1:E:408:PRO:HG2	1:E:411:TRP:CD2	2.51	0.45
1:F:150:LYS:HD3	1:F:152:TYR:CZ	2.51	0.45
1:B:141:MET:HE3	1:B:143:THR:OG1	2.17	0.44
1:B:225:LEU:O	1:B:226:ARG:C	2.59	0.44
1:C:415:SER:O	1:C:415:SER:OG	2.29	0.44
1:C:443:PRO:O	1:C:444:ASN:C	2.59	0.44
1:C:451:GLY:O	1:C:454:ALA:HB3	2.17	0.44
1:C:461:THR:HG1	1:C:464:GLN:HG3	1.77	0.44
1:E:318:VAL:HG12	1:E:323:GLN:O	2.16	0.44
1:F:194:LEU:HB2	1:F:284:PHE:CZ	2.52	0.44
1:F:318:VAL:HG21	1:F:322:GLU:HA	1.99	0.44
1:F:472:HIS:CE1	1:F:473:PRO:HB3	2.51	0.44
1:A:471:ILE:CG1	1:B:371:PRO:HB2	2.47	0.44
1:B:55:LEU:CD1	1:B:116:TYR:HB3	2.46	0.44
1:B:98:TRP:CB	1:B:189:CYS:HB2	2.48	0.44
1:B:151:VAL:HG12	1:B:152:TYR:N	2.31	0.44
1:C:58:THR:HG1	2:C:600:FAD:PA	2.40	0.44
1:C:130:ALA:HB1	1:C:143:THR:O	2.17	0.44
1:C:186:LEU:HA	1:C:187:PRO:HD2	1.78	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:309:ILE:HG21	1:D:309:ILE:HD13	1.64	0.44
1:E:91:GLU:C	1:E:93:THR:N	2.75	0.44
1:E:266:ARG:NH1	1:E:283:GLU:OE1	2.48	0.44
1:A:117:ARG:NH2	1:D:107:ASN:ND2	2.65	0.44
1:A:413:VAL:N	1:A:414:PRO:CD	2.81	0.44
1:A:487:ARG:HE	1:A:487:ARG:HB2	1.60	0.44
1:B:399:ILE:HD12	1:B:399:ILE:HA	1.47	0.44
1:C:49:LEU:HD13	1:C:49:LEU:HA	1.84	0.44
1:C:162:GLY:HA3	2:C:600:FAD:O1A	2.18	0.44
1:C:353:LEU:O	1:C:354:ALA:C	2.58	0.44
1:D:43:PHE:HB2	1:D:130:ALA:C	2.42	0.44
1:F:221:ARG:NH1	1:F:221:ARG:HG2	2.32	0.44
1:F:343:THR:N	1:F:344:PRO:CD	2.80	0.44
1:A:192:LYS:N	1:A:285:ASN:HD22	2.13	0.44
1:A:303:GLU:OE1	1:A:304:THR:HG23	2.17	0.44
1:B:172:GLY:C	1:B:175:GLU:HG2	2.42	0.44
1:C:20:GLY:HA3	1:C:42:ASP:CB	2.47	0.44
1:D:86:TYR:CZ	1:D:413:VAL:HB	2.51	0.44
1:E:39:MET:HE1	1:E:152:TYR:CG	2.50	0.44
1:E:228:PHE:O	1:E:229:ASP:C	2.61	0.44
1:E:410:GLU:HG3	1:F:72:GLN:NE2	2.31	0.44
1:F:208:PHE:O	1:F:209:LEU:C	2.57	0.44
1:A:29:LYS:CG	1:A:30:GLU:N	2.79	0.44
1:A:216:VAL:CG1	1:A:217:THR:N	2.80	0.44
1:A:351:ARG:NH2	1:A:352:LEU:HD21	2.33	0.44
1:A:376:THR:O	1:A:377:PRO:C	2.60	0.44
1:E:269:VAL:O	1:E:281:GLU:HB2	2.17	0.44
1:E:272:LYS:HG2	1:E:273:SER:H	1.82	0.44
1:F:49:LEU:N	1:F:49:LEU:CD2	2.78	0.44
1:C:99:GLU:O	1:C:100:LYS:C	2.60	0.44
1:C:209:LEU:HD13	1:C:209:LEU:HA	1.67	0.44
1:C:319:THR:C	1:C:321:GLU:N	2.75	0.44
1:C:401:VAL:O	1:C:401:VAL:HG23	2.18	0.44
1:C:472:HIS:CD2	1:C:477:GLU:OE2	2.59	0.44
1:D:343:THR:HG22	1:D:344:PRO:HD3	2.00	0.44
1:E:316:ILE:HA	1:E:317:PRO:HD3	1.88	0.44
1:E:412:THR:O	1:E:415:SER:N	2.48	0.44
1:F:42:ASP:HA	2:F:600:FAD:N3A	2.33	0.44
1:F:418:ASN:OD1	1:F:419:ASN:N	2.50	0.44
1:A:428:ASN:ND2	1:A:431:ASP:HB2	2.32	0.44
1:C:332:ILE:CG2	1:C:333:GLY:N	2.80	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:76:LEU:HD23	1:D:76:LEU:HA	1.77	0.44
1:D:90:LEU:C	1:D:90:LEU:HD23	2.41	0.44
1:D:237:GLY:O	1:D:238:GLU:C	2.58	0.44
1:A:161:THR:HB	2:A:600:FAD:C8A	2.48	0.44
1:C:425:VAL:CG1	1:C:435:VAL:HG13	2.44	0.44
1:C:455:ALA:O	1:C:456:LEU:C	2.61	0.44
1:C:477:GLU:O	1:C:480:THR:HG23	2.17	0.44
1:D:186:LEU:HA	1:D:187:PRO:HD3	1.67	0.44
1:D:281:GLU:HA	1:D:281:GLU:OE1	2.17	0.44
1:D:313:THR:C	1:D:315:LYS:H	2.17	0.44
1:E:462:LYS:NZ	1:E:482:LEU:O	2.41	0.44
1:F:82:ASP:OD2	1:F:416:ARG:NH1	2.51	0.44
1:A:136:GLY:O	1:A:137:PRO:C	2.59	0.44
1:A:335:ILE:HD12	1:A:335:ILE:HA	1.79	0.44
1:A:482:LEU:HD23	1:A:482:LEU:HA	1.78	0.44
1:C:65:ILE:HG22	1:C:66:PRO:CD	2.48	0.44
1:C:188:TYR:CD1	1:C:263:THR:O	2.71	0.44
1:C:194:LEU:HD23	1:C:195:VAL:N	2.33	0.44
1:C:239:HIS:CE1	1:C:378:LEU:HB2	2.53	0.44
1:D:61:ASN:C	1:D:62:VAL:HG13	2.42	0.44
1:D:280:ILE:O	1:D:281:GLU:C	2.61	0.44
1:E:196:VAL:O	1:E:291:VAL:HG13	2.17	0.44
1:E:233:ALA:O	1:E:236:ILE:HB	2.18	0.44
1:A:371:PRO:C	1:A:372:THR:HG22	2.43	0.43
1:A:422:TYR:HE2	1:A:424:LYS:HE2	1.82	0.43
1:B:68:LYS:O	1:B:71:HIS:HB3	2.18	0.43
1:B:83:SER:HB2	1:B:88:TRP:CD1	2.53	0.43
1:C:190:PRO:C	1:C:191:GLY:O	2.60	0.43
1:C:196:VAL:O	1:C:291:VAL:HG22	2.14	0.43
1:C:208:PHE:HD1	1:C:209:LEU:N	2.13	0.43
1:C:376:THR:CB	1:C:377:PRO:CD	2.94	0.43
1:D:389:LYS:HD2	1:D:389:LYS:HA	1.83	0.43
1:F:39:MET:HE3	1:F:41:LEU:CD2	2.38	0.43
1:F:378:LEU:HD11	1:F:442:GLY:HA2	2.00	0.43
1:B:220:VAL:HG21	1:B:249:ARG:HE	1.83	0.43
1:B:305:VAL:HG11	1:B:329:ILE:HD11	2.00	0.43
1:C:39:MET:HE1	1:C:152:TYR:CZ	2.53	0.43
1:C:137:PRO:O	1:C:138:HIS:CB	2.66	0.43
1:C:239:HIS:O	1:C:240:MET:C	2.61	0.43
1:C:258:GLN:CD	1:C:260:GLU:O	2.61	0.43
1:E:106:GLN:OE1	1:E:185:SER:HB3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:373:THR:CG2	1:F:471:ILE:CG2	2.92	0.43
1:E:380:TYR:CD1	1:E:380:TYR:C	2.94	0.43
1:E:469:ILE:HG23	1:E:470:GLY:N	2.32	0.43
1:A:493:LEU:O	1:A:494:GLN:CG	2.57	0.43
1:B:186:LEU:HD12	1:B:190:PRO:HG3	2.00	0.43
1:B:219:MET:HE3	1:B:253:PRO:HG3	1.99	0.43
1:D:30:GLU:CD	1:D:33:LYS:HE3	2.43	0.43
1:D:292:GLY:C	1:D:293:ARG:HG2	2.42	0.43
1:E:209:LEU:O	1:E:212:ILE:HG22	2.18	0.43
1:B:16:ILE:HB	1:B:157:PHE:CD1	2.53	0.43
1:B:336:LEU:HB3	1:B:339:LYS:HG2	2.00	0.43
1:C:158:LEU:HA	1:C:330:TYR:O	2.18	0.43
1:C:256:ILE:HG12	1:C:257:GLU:N	2.32	0.43
1:C:307:VAL:HG13	1:C:325:ASN:HD21	1.84	0.43
1:D:263:THR:CB	1:D:264:PRO:CD	2.96	0.43
1:D:316:ILE:O	1:D:318:VAL:HG13	2.18	0.43
1:D:488:SER:OG	1:D:489:GLY:N	2.51	0.43
1:F:446:GLY:O	1:F:447:GLU:C	2.59	0.43
1:A:189:CYS:HA	1:A:190:PRO:HD3	1.85	0.43
1:A:307:VAL:HA	1:A:325:ASN:HD21	1.83	0.43
1:B:136:GLY:O	1:B:137:PRO:C	2.61	0.43
1:B:248:ILE:CD1	1:B:281:GLU:OE2	2.67	0.43
1:B:256:ILE:HD11	1:B:267:LEU:HB3	2.00	0.43
1:B:387:GLU:O	1:B:391:VAL:HG13	2.19	0.43
1:B:387:GLU:HG3	1:B:401:VAL:HG21	2.01	0.43
1:C:25:LEU:HD11	1:C:55:LEU:HD22	2.00	0.43
1:C:41:LEU:CD1	1:C:130:ALA:HB3	2.48	0.43
1:C:212:ILE:HD12	1:C:212:ILE:HA	1.78	0.43
1:D:39:MET:HE1	1:D:152:TYR:CG	2.54	0.43
1:D:80:LEU:HD23	1:D:80:LEU:HA	1.74	0.43
1:D:331:ALA:O	1:D:332:ILE:HD13	2.19	0.43
1:E:88:TRP:HE3	1:F:94:VAL:HG12	1.83	0.43
1:E:97:ASP:O	1:E:98:TRP:C	2.61	0.43
1:E:475:CYS:HB2	1:F:447:GLU:OE1	2.19	0.43
1:F:90:LEU:HD23	1:F:90:LEU:HA	1.55	0.43
1:F:112:LEU:O	1:F:113:ASN:C	2.61	0.43
1:F:235:LYS:HE2	1:F:422:TYR:CD2	2.53	0.43
1:A:98:TRP:CD1	1:A:98:TRP:C	2.97	0.43
1:B:411:TRP:CD1	1:B:411:TRP:N	2.85	0.43
1:C:98:TRP:NE1	1:C:190:PRO:CD	2.49	0.43
1:C:108:HIS:O	1:C:109:ILE:C	2.58	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:255:LYS:HZ3	1:C:270:THR:HG23	1.82	0.43
1:C:310:ASN:ND2	1:C:310:ASN:C	2.76	0.43
1:D:212:ILE:HD12	1:D:212:ILE:HA	1.57	0.43
1:A:13:PHE:HE2	1:A:152:TYR:CD2	2.37	0.43
1:A:112:LEU:HA	1:A:112:LEU:HD23	1.55	0.43
1:A:122:GLU:OE1	1:A:122:GLU:HA	2.18	0.43
1:B:45:THR:HA	1:B:46:PRO:HD3	1.73	0.43
1:B:454:ALA:O	1:B:457:LYS:HB2	2.18	0.43
3:B:601:NDP:H8A	3:B:601:NDP:H51A	2.00	0.43
1:D:70:MET:HE2	1:D:101:MET:HE3	2.01	0.43
1:D:376:THR:O	1:D:377:PRO:C	2.61	0.43
1:E:403:HIS:CD2	1:E:403:HIS:C	2.96	0.43
1:F:225:LEU:HD12	1:F:228:PHE:CD2	2.53	0.43
1:A:18:ILE:HG21	1:A:18:ILE:HD13	1.72	0.43
1:A:281:GLU:C	1:A:282:ASP:O	2.60	0.43
1:B:465:LEU:HD21	1:B:479:PHE:O	2.19	0.43
1:B:478:ILE:H	1:B:478:ILE:HG13	1.35	0.43
1:C:161:THR:N	1:C:335:ILE:HD11	2.33	0.43
1:C:166:ARG:HB2	1:C:294:ASP:OD1	2.19	0.43
1:C:309:ILE:O	1:C:310:ASN:C	2.60	0.43
1:C:413:VAL:N	1:C:414:PRO:CD	2.82	0.43
1:D:413:VAL:N	1:D:414:PRO:HD3	2.34	0.43
1:E:375:PHE:CD1	1:E:375:PHE:N	2.87	0.43
1:F:209:LEU:HA	1:F:209:LEU:HD12	1.63	0.43
1:F:325:ASN:ND2	1:F:325:ASN:N	2.51	0.43
1:F:376:THR:O	1:F:377:PRO:C	2.62	0.43
1:A:280:ILE:HG13	1:A:280:ILE:O	2.19	0.43
1:B:91:GLU:C	1:B:93:THR:N	2.77	0.43
1:B:209:LEU:HB3	1:B:216:VAL:HG21	1.99	0.43
1:C:313:THR:OG1	1:C:314:GLY:N	2.52	0.43
1:D:195:VAL:HG22	1:D:288:LEU:HB2	2.00	0.43
1:E:90:LEU:HA	1:E:90:LEU:HD23	1.74	0.43
1:E:140:ILE:O	1:E:140:ILE:CG2	2.67	0.43
1:E:228:PHE:O	1:E:230:GLN:N	2.50	0.43
1:F:318:VAL:CG2	1:F:323:GLN:O	2.67	0.43
1:F:422:TYR:CE1	1:F:424:LYS:HB3	2.48	0.43
1:A:144:ASN:OD1	1:A:146:LYS:N	2.51	0.43
1:C:205:CYS:O	1:C:206:ALA:C	2.61	0.43
1:C:343:THR:N	1:C:344:PRO:CD	2.82	0.43
1:D:386:SER:O	1:D:387:GLU:C	2.62	0.43
1:E:192:LYS:HG3	1:E:215:ASP:OD1	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:373:THR:HG21	1:E:446:GLY:CA	2.47	0.43
1:F:217:THR:HA	1:F:246:LYS:O	2.19	0.43
1:A:273:SER:OG	1:A:274:THR:N	2.49	0.42
1:A:475:CYS:O	1:A:478:ILE:CD1	2.66	0.42
1:A:487:ARG:O	1:A:487:ARG:HG3	2.17	0.42
1:D:80:LEU:O	1:D:83:SER:OG	2.36	0.42
1:D:232:MET:CE	1:D:441:LEU:HB2	2.49	0.42
2:D:600:FAD:H1'1	2:D:600:FAD:H9	1.81	0.42
1:E:257:GLU:H	1:E:257:GLU:HG2	1.72	0.42
1:E:335:ILE:HD12	1:E:335:ILE:HA	1.76	0.42
1:F:47:THR:HB	1:F:48:PRO:HD2	2.00	0.42
1:F:438:PHE:CE1	1:F:479:PHE:CZ	3.07	0.42
2:F:600:FAD:O2A	2:F:600:FAD:O5'	2.37	0.42
1:A:280:ILE:O	1:A:281:GLU:C	2.62	0.42
1:A:282:ASP:O	1:A:284:PHE:CE1	2.72	0.42
1:A:325:ASN:O	1:A:327:PRO:HD3	2.19	0.42
1:B:74:ALA:HA	1:B:212:ILE:CD1	2.50	0.42
1:B:173:ASP:CG	1:B:174:LYS:N	2.77	0.42
1:B:386:SER:O	1:B:387:GLU:C	2.62	0.42
1:B:403:HIS:CD2	1:B:492:ILE:CD1	3.01	0.42
1:C:441:LEU:CD1	1:C:441:LEU:C	2.91	0.42
1:E:17:ILE:HG12	1:E:158:LEU:HD23	2.00	0.42
1:E:168:LEU:N	1:E:168:LEU:CD1	2.81	0.42
1:E:310:ASN:ND2	1:E:313:THR:HG23	2.34	0.42
1:F:323:GLN:CA	1:F:330:TYR:CD1	2.98	0.42
1:A:371:PRO:HB2	1:B:471:ILE:HD11	2.01	0.42
1:A:464:GLN:O	1:A:465:LEU:C	2.61	0.42
1:B:60:VAL:HG13	1:B:112:LEU:CD1	2.49	0.42
2:B:600:FAD:H9	2:B:600:FAD:H1'1	1.65	0.42
1:C:18:ILE:HG21	1:C:18:ILE:HD13	1.73	0.42
1:D:411:TRP:CZ2	1:D:443:PRO:HG3	2.54	0.42
1:F:223:ILE:HD11	1:F:230:GLN:CG	2.49	0.42
1:F:477:GLU:O	1:F:478:ILE:C	2.60	0.42
1:C:34:PHE:HZ	1:C:355:GLN:HE22	1.68	0.42
1:D:114:TRP:CE3	1:D:118:VAL:CG2	3.01	0.42
1:D:158:LEU:HA	1:D:330:TYR:O	2.20	0.42
1:E:21:GLY:HA2	1:E:57:GLY:HA3	2.02	0.42
1:E:380:TYR:OH	1:E:439:HIS:HD2	2.02	0.42
1:F:217:THR:HG23	1:F:246:LYS:CB	2.48	0.42
1:A:70:MET:O	1:A:71:HIS:C	2.57	0.42
1:A:334:ASP:OD2	2:A:600:FAD:H5'1	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:168:LEU:N	1:B:168:LEU:CD1	2.81	0.42
1:B:292:GLY:O	1:B:293:ARG:HG2	2.19	0.42
1:B:449:THR:O	1:B:450:GLN:C	2.61	0.42
1:C:134:PHE:CG	1:C:305:VAL:HG21	2.54	0.42
1:C:212:ILE:O	1:C:212:ILE:HG23	2.18	0.42
1:C:224:LEU:H	1:C:224:LEU:CD1	2.01	0.42
1:D:114:TRP:HE3	1:D:118:VAL:HG23	1.84	0.42
1:D:223:ILE:HG12	1:D:226:ARG:NH2	2.34	0.42
1:E:66:PRO:O	1:E:67:LYS:C	2.61	0.42
1:F:221:ARG:CG	1:F:221:ARG:NH1	2.80	0.42
1:B:112:LEU:O	1:B:113:ASN:C	2.62	0.42
1:B:403:HIS:O	1:B:403:HIS:HD2	2.03	0.42
1:C:40:VAL:HG12	1:C:126:VAL:O	2.18	0.42
1:C:291:VAL:HG13	3:C:601:NDP:C8A	2.49	0.42
1:C:336:LEU:HD23	1:C:336:LEU:HA	1.79	0.42
1:C:348:GLN:NE2	1:C:352:LEU:HD22	2.34	0.42
1:C:386:SER:O	1:C:387:GLU:C	2.62	0.42
1:D:43:PHE:HD2	1:D:130:ALA:HA	1.85	0.42
1:D:186:LEU:HA	1:D:186:LEU:HD23	1.71	0.42
1:D:194:LEU:HD22	1:D:284:PHE:CZ	2.54	0.42
1:D:334:ASP:OD1	2:D:600:FAD:H5'2	2.20	0.42
1:F:309:ILE:O	1:F:309:ILE:HG13	2.10	0.42
1:F:351:ARG:NH2	1:F:352:LEU:HD21	2.35	0.42
1:A:67:LYS:HD2	1:A:67:LYS:C	2.44	0.42
1:A:316:ILE:HA	1:A:317:PRO:HD3	1.88	0.42
1:B:161:THR:HB	2:B:600:FAD:C8A	2.49	0.42
1:B:272:LYS:HG2	1:B:273:SER:N	2.35	0.42
1:C:365:CYS:SG	1:C:365:CYS:O	2.77	0.42
1:C:429:LEU:HD12	1:C:429:LEU:HA	1.70	0.42
1:C:473:PRO:HG2	1:D:68:LYS:HD3	2.01	0.42
1:D:41:LEU:N	1:D:41:LEU:HD23	2.35	0.42
1:D:400:GLU:HG2	1:D:429:LEU:CD1	2.44	0.42
1:E:96:HIS:CD2	1:E:212:ILE:HG13	2.55	0.42
1:F:186:LEU:HD22	1:F:186:LEU:HA	1.71	0.42
1:F:426:ILE:CD1	1:F:436:VAL:CG2	2.92	0.42
1:A:45:THR:HA	1:A:46:PRO:HD3	1.81	0.42
1:C:192:LYS:O	1:C:192:LYS:HG2	2.18	0.42
1:C:373:THR:OG1	1:D:471:ILE:HG21	2.19	0.42
1:D:86:TYR:HE1	1:D:414:PRO:HG3	1.84	0.42
1:D:224:LEU:O	1:D:225:LEU:C	2.63	0.42
1:D:494:GLN:HE21	1:D:494:GLN:HB2	1.72	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:60:VAL:CG1	1:F:112:LEU:HD13	2.49	0.42
1:A:58:THR:O	1:A:63:GLY:N	2.53	0.42
1:A:85:ASN:HB2	1:A:413:VAL:HG12	2.02	0.42
1:A:144:ASN:CG	1:A:145:ASN:H	2.23	0.42
1:A:267:LEU:O	1:A:283:GLU:CB	2.68	0.42
1:A:323:GLN:NE2	1:A:327:PRO:HA	2.35	0.42
1:A:397:GLU:CD	1:A:397:GLU:N	2.61	0.42
1:B:16:ILE:HD13	1:B:16:ILE:HG21	1.77	0.42
1:B:168:LEU:CD1	1:B:291:VAL:HG11	2.49	0.42
1:B:432:ASN:O	1:B:433:GLU:HB2	2.20	0.42
1:C:65:ILE:C	1:C:67:LYS:H	2.28	0.42
1:C:164:ARG:HH11	1:C:165:PRO:HD2	1.85	0.42
1:C:422:TYR:CE1	1:C:424:LYS:HB3	2.55	0.42
1:D:208:PHE:O	1:D:209:LEU:C	2.61	0.42
1:D:221:ARG:HB2	1:D:252:VAL:HG22	2.01	0.42
1:D:233:ALA:O	1:D:236:ILE:HB	2.20	0.42
1:D:266:ARG:C	1:D:267:LEU:CD1	2.93	0.42
1:D:407:TRP:CE3	1:D:412:THR:HG22	2.54	0.42
1:E:67:LYS:HB3	1:E:67:LYS:HE2	1.80	0.42
1:F:12:ASP:HB2	1:F:153:SER:O	2.20	0.42
1:F:116:TYR:O	1:F:117:ARG:C	2.63	0.42
1:F:195:VAL:HG22	1:F:288:LEU:CB	2.50	0.42
1:F:321:GLU:HG2	1:F:356:ARG:NH1	2.35	0.42
1:F:449:THR:O	1:F:450:GLN:C	2.61	0.42
1:A:263:THR:CB	1:A:264:PRO:CD	2.97	0.42
1:A:380:TYR:CD1	1:A:380:TYR:C	2.95	0.42
1:A:429:LEU:HD23	1:A:433:GLU:HG2	2.02	0.42
1:B:47:THR:HG21	1:B:182:ASP:OD1	2.20	0.42
1:C:34:PHE:HZ	1:C:355:GLN:NE2	2.18	0.42
1:C:85:ASN:OD1	1:C:85:ASN:N	2.52	0.42
1:C:98:TRP:HE1	1:C:190:PRO:CD	2.23	0.42
1:D:343:THR:HB	1:D:344:PRO:HD2	1.99	0.42
1:D:478:ILE:HD12	1:D:479:PHE:H	1.84	0.42
3:D:601:NDP:O2N	3:D:601:NDP:O2A	2.38	0.42
1:E:55:LEU:HD13	1:E:116:TYR:HB3	2.02	0.42
1:E:302:LEU:HA	1:E:302:LEU:HD23	1.75	0.42
1:E:371:PRO:HB2	1:F:471:ILE:CD1	2.44	0.42
1:E:426:ILE:CD1	1:E:436:VAL:HG23	2.49	0.42
1:F:72:GLN:HG3	1:F:76:LEU:HD22	2.01	0.42
1:F:189:CYS:HA	1:F:190:PRO:HD3	1.96	0.42
1:C:191:GLY:O	1:C:193:THR:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:325:ASN:ND2	1:C:325:ASN:N	2.68	0.41
1:D:343:THR:CG2	1:D:344:PRO:HD3	2.50	0.41
1:E:469:ILE:CG2	1:E:470:GLY:N	2.79	0.41
1:F:178:ILE:HB	1:F:182:ASP:HB2	2.02	0.41
1:F:221:ARG:NH1	3:F:601:NDP:P2B	2.93	0.41
1:F:475:CYS:O	1:F:476:ALA:C	2.59	0.41
1:A:383:CYS:SG	1:A:456:LEU:HD12	2.60	0.41
1:B:221:ARG:NH1	3:B:601:NDP:C4A	2.83	0.41
1:C:21:GLY:HA2	1:C:57:GLY:CA	2.50	0.41
1:C:53:TRP:HB2	1:C:61:ASN:OD1	2.20	0.41
1:C:266:ARG:C	1:C:267:LEU:HD23	2.45	0.41
1:C:401:VAL:CG2	1:C:486:LYS:HB2	2.50	0.41
1:D:195:VAL:HG22	1:D:288:LEU:CB	2.50	0.41
1:E:471:ILE:HD12	1:F:450:GLN:HB2	2.02	0.41
1:E:497:CYS:SG	1:F:112:LEU:CD2	3.08	0.41
1:F:136:GLY:O	1:F:137:PRO:C	2.63	0.41
1:F:158:LEU:HD22	1:F:353:LEU:HD23	2.02	0.41
1:F:168:LEU:HD21	1:F:253:PRO:HG2	2.02	0.41
1:A:176:TYR:HB3	1:A:267:LEU:HD12	2.02	0.41
1:A:191:GLY:O	1:A:193:THR:HG23	2.19	0.41
1:A:225:LEU:HD23	1:A:225:LEU:HA	1.79	0.41
1:B:58:THR:HG23	1:B:62:VAL:HG23	2.02	0.41
1:B:182:ASP:O	1:B:183:LEU:C	2.61	0.41
1:B:491:ASP:OD1	1:B:493:LEU:HG	2.19	0.41
1:C:43:PHE:CD1	1:C:44:VAL:O	2.73	0.41
1:C:88:TRP:CZ3	1:D:96:HIS:HB2	2.55	0.41
1:C:326:VAL:HA	1:C:327:PRO:HD2	1.92	0.41
2:C:600:FAD:H1'1	2:C:600:FAD:H9	1.79	0.41
1:E:370:VAL:O	1:E:370:VAL:CG2	2.67	0.41
1:F:221:ARG:HH11	1:F:221:ARG:HB3	1.85	0.41
1:F:291:VAL:O	3:F:601:NDP:H52A	2.19	0.41
1:F:318:VAL:HG22	1:F:319:THR:H	1.85	0.41
1:F:318:VAL:HG22	1:F:319:THR:N	2.34	0.41
1:F:493:LEU:O	1:F:494:GLN:CG	2.64	0.41
1:A:91:GLU:HG3	1:A:93:THR:H	1.85	0.41
1:A:200:TYR:O	1:A:201:VAL:C	2.63	0.41
1:A:403:HIS:ND1	1:A:422:TYR:OH	2.39	0.41
1:A:471:ILE:H	1:B:450:GLN:NE2	2.19	0.41
2:A:600:FAD:HM71	2:A:600:FAD:HM83	1.79	0.41
1:B:163:GLU:HB3	1:B:294:ASP:C	2.46	0.41
1:C:69:LEU:HD23	1:C:69:LEU:HA	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:179:SER:N	1:C:182:ASP:HB2	2.27	0.41
1:C:272:LYS:HG3	1:C:273:SER:H	1.85	0.41
1:D:176:TYR:CE1	1:D:258:GLN:OE1	2.74	0.41
1:D:408:PRO:O	1:D:409:LEU:C	2.62	0.41
1:E:269:VAL:HG12	1:E:270:THR:N	2.35	0.41
1:E:332:ILE:HD11	1:E:349:ALA:HB1	2.01	0.41
1:E:388:GLU:HG2	1:E:389:LYS:N	2.34	0.41
1:E:440:VAL:O	1:E:440:VAL:HG13	2.19	0.41
1:F:426:ILE:CD1	1:F:426:ILE:C	2.90	0.41
1:A:84:ARG:HH11	1:A:84:ARG:CG	2.26	0.41
1:A:318:VAL:HG13	1:A:322:GLU:CA	2.49	0.41
1:B:308:LYS:N	1:B:325:ASN:HD21	2.14	0.41
1:C:183:LEU:HD21	1:C:209:LEU:HD21	2.02	0.41
1:C:267:LEU:HD23	1:C:267:LEU:N	2.35	0.41
1:C:297:THR:HG21	1:C:316:ILE:HD11	2.01	0.41
1:E:440:VAL:HG22	1:E:441:LEU:N	2.35	0.41
1:F:288:LEU:HD22	1:F:290:ALA:H	1.86	0.41
1:F:438:PHE:HE2	1:F:449:THR:HG23	1.84	0.41
1:A:30:GLU:C	1:A:32:ALA:N	2.78	0.41
1:A:225:LEU:O	1:A:226:ARG:C	2.63	0.41
1:B:86:TYR:CE2	1:B:414:PRO:HD3	2.54	0.41
1:C:418:ASN:O	1:C:419:ASN:C	2.63	0.41
1:C:452:PHE:O	1:C:455:ALA:N	2.53	0.41
1:C:478:ILE:HD12	1:C:478:ILE:N	2.36	0.41
1:D:401:VAL:HG22	1:D:426:ILE:HB	2.03	0.41
1:E:305:VAL:HG11	1:E:329:ILE:CD1	2.49	0.41
1:E:317:PRO:C	1:E:318:VAL:HG22	2.45	0.41
1:F:137:PRO:O	1:F:139:LYS:N	2.53	0.41
1:F:292:GLY:C	1:F:293:ARG:HG2	2.45	0.41
1:A:450:GLN:HE22	1:B:470:GLY:CA	2.32	0.41
1:B:336:LEU:HB3	1:B:339:LYS:CG	2.51	0.41
1:B:402:TYR:CD1	1:B:402:TYR:N	2.89	0.41
1:D:21:GLY:HA3	2:D:600:FAD:O5B	2.20	0.41
1:E:158:LEU:HA	1:E:330:TYR:O	2.21	0.41
1:F:109:ILE:HG22	1:F:113:ASN:HD21	1.86	0.41
1:F:212:ILE:HD12	1:F:212:ILE:HA	1.67	0.41
1:F:406:PHE:CZ	1:F:421:CYS:HB3	2.56	0.41
1:B:464:GLN:O	1:B:465:LEU:C	2.64	0.41
1:C:168:LEU:HD12	1:C:168:LEU:HA	1.66	0.41
1:C:188:TYR:O	1:C:190:PRO:CD	2.66	0.41
1:D:460:LEU:HD21	1:D:465:LEU:HD13	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:45:THR:HA	1:E:46:PRO:HD3	1.78	0.41
1:E:497:CYS:SG	1:F:112:LEU:HD22	2.61	0.41
1:F:30:GLU:C	1:F:32:ALA:N	2.77	0.41
2:F:600:FAD:H8A	2:F:600:FAD:H2B	1.79	0.41
1:A:21:GLY:HA2	1:A:57:GLY:HA3	2.02	0.41
1:A:34:PHE:CE2	1:A:359:GLY:CA	3.03	0.41
1:A:66:PRO:O	1:A:67:LYS:C	2.63	0.41
1:A:170:ILE:HB	1:A:254:THR:O	2.21	0.41
1:A:194:LEU:HD11	1:A:219:MET:HE2	2.03	0.41
1:A:209:LEU:HD12	1:A:209:LEU:HA	1.78	0.41
1:A:274:THR:H	1:A:274:THR:HG23	1.48	0.41
1:A:371:PRO:HB3	1:A:453:ALA:HB2	2.03	0.41
1:A:386:SER:HB3	1:A:389:LYS:HB2	2.03	0.41
1:A:496:GLY:C	1:A:497:CYS:HG	2.28	0.41
1:B:194:LEU:HB2	1:B:284:PHE:CE2	2.56	0.41
1:B:477:GLU:O	1:B:478:ILE:C	2.60	0.41
1:C:42:ASP:HA	2:C:600:FAD:N3A	2.36	0.41
1:C:170:ILE:O	1:C:173:ASP:OD1	2.39	0.41
1:C:260:GLU:CB	1:C:266:ARG:HB3	2.51	0.41
1:C:322:GLU:O	1:C:330:TYR:HD2	2.03	0.41
1:C:440:VAL:O	1:C:440:VAL:HG13	2.20	0.41
1:D:67:LYS:HD2	1:D:67:LYS:C	2.46	0.41
1:D:278:GLU:OE2	1:D:280:ILE:HG23	2.21	0.41
1:D:367:TYR:CD1	1:D:367:TYR:N	2.88	0.41
1:D:397:GLU:H	1:D:397:GLU:HG2	1.54	0.41
1:E:67:LYS:O	1:E:68:LYS:C	2.63	0.41
1:E:98:TRP:C	1:E:98:TRP:CD1	2.98	0.41
1:E:219:MET:HE2	1:E:219:MET:HB2	1.76	0.41
1:E:255:LYS:HE3	1:E:270:THR:HG21	2.03	0.41
1:E:303:GLU:CD	1:E:303:GLU:N	2.78	0.41
1:E:361:SER:OG	1:E:362:THR:N	2.54	0.41
1:F:475:CYS:O	1:F:477:GLU:N	2.54	0.41
1:F:489:GLY:O	1:F:490:GLY:O	2.37	0.41
1:A:343:THR:O	1:A:347:ILE:HG23	2.21	0.41
1:A:344:PRO:HG3	1:B:472:HIS:HB2	2.02	0.41
1:A:382:CYS:HA	1:A:438:PHE:O	2.21	0.41
1:C:58:THR:HG21	1:C:293:ARG:HH22	1.86	0.41
1:C:205:CYS:C	1:C:207:GLY:H	2.28	0.41
1:C:376:THR:O	1:C:377:PRO:C	2.62	0.41
1:D:288:LEU:HA	1:D:288:LEU:HD23	1.78	0.41
1:D:386:SER:OG	1:D:389:LYS:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:472:HIS:HA	1:D:473:PRO:HA	1.82	0.41
1:E:91:GLU:O	1:E:92:ASP:C	2.64	0.41
1:E:163:GLU:HB3	1:E:295:SER:HA	2.03	0.41
1:F:101:MET:O	1:F:105:VAL:HG23	2.21	0.41
1:A:438:PHE:CD1	1:A:438:PHE:C	2.99	0.40
1:C:20:GLY:CA	1:C:42:ASP:HB2	2.51	0.40
1:C:337:GLU:O	1:C:339:LYS:HG2	2.21	0.40
1:D:163:GLU:HB3	1:D:295:SER:CA	2.46	0.40
1:D:411:TRP:NE1	1:D:416:ARG:NH2	2.69	0.40
1:E:342:LEU:O	1:E:345:VAL:HB	2.20	0.40
1:F:39:MET:SD	1:F:41:LEU:HD21	2.61	0.40
1:F:65:ILE:HB	1:F:66:PRO:HD3	2.02	0.40
1:A:455:ALA:O	1:A:456:LEU:C	2.63	0.40
1:B:101:MET:O	1:B:102:THR:C	2.61	0.40
1:B:221:ARG:HD3	3:B:601:NDP:C2A	2.51	0.40
1:C:70:MET:HB3	1:C:208:PHE:CD2	2.57	0.40
1:D:67:LYS:HE2	1:D:67:LYS:HB3	1.84	0.40
1:D:430:LYS:HE3	1:D:430:LYS:HB2	1.52	0.40
1:E:477:GLU:O	1:E:478:ILE:C	2.61	0.40
1:A:319:THR:C	1:A:321:GLU:H	2.29	0.40
1:A:402:TYR:CD1	1:A:462:LYS:HE2	2.56	0.40
1:B:144:ASN:CG	1:B:145:ASN:H	2.29	0.40
1:C:41:LEU:C	2:C:600:FAD:H2A	2.47	0.40
1:C:105:VAL:O	1:C:106:GLN:C	2.64	0.40
1:D:292:GLY:HA2	3:D:601:NDP:O2N	2.21	0.40
1:D:382:CYS:HA	1:D:438:PHE:O	2.20	0.40
1:D:494:GLN:O	1:D:495:SER:C	2.64	0.40
1:E:86:TYR:O	1:F:101:MET:HB2	2.22	0.40
1:F:68:LYS:O	1:F:69:LEU:C	2.61	0.40
1:F:158:LEU:HD12	1:F:158:LEU:C	2.46	0.40
1:F:166:ARG:HG3	1:F:294:ASP:OD2	2.21	0.40
1:F:221:ARG:HH11	1:F:221:ARG:HG2	1.85	0.40
1:F:302:LEU:HD23	1:F:302:LEU:HA	1.76	0.40
1:F:413:VAL:HB	1:F:414:PRO:HD3	2.04	0.40
1:A:42:ASP:OD1	2:A:600:FAD:H1B	2.22	0.40
1:A:195:VAL:HB	1:A:218:VAL:HG22	2.03	0.40
1:A:228:PHE:O	1:A:229:ASP:C	2.62	0.40
1:A:497:CYS:SG	1:B:112:LEU:HD22	2.61	0.40
1:B:47:THR:HG1	1:B:51:THR:H	1.70	0.40
1:B:267:LEU:O	1:B:283:GLU:HA	2.21	0.40
1:B:371:PRO:HD3	1:B:383:CYS:SG	2.61	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:461:THR:HG23	1:C:464:GLN:OE1	2.21	0.40
1:D:21:GLY:HA2	1:D:57:GLY:HA3	2.03	0.40
1:D:324:THR:HB	1:D:325:ASN:HD22	1.84	0.40
1:D:332:ILE:HA	1:D:332:ILE:HD12	1.53	0.40
1:E:309:ILE:HD13	1:E:309:ILE:HG21	1.58	0.40
1:F:123:LYS:O	1:F:124:LYS:HB2	2.21	0.40
1:A:110:GLY:O	1:A:111:SER:C	2.65	0.40
1:A:154:ALA:HB3	1:A:157:PHE:CE1	2.56	0.40
1:A:309:ILE:HA	1:A:317:PRO:HD3	2.04	0.40
1:A:318:VAL:CG1	1:A:322:GLU:CA	2.89	0.40
1:B:319:THR:C	1:B:321:GLU:N	2.80	0.40
1:C:277:GLU:OE1	1:C:277:GLU:HA	2.20	0.40
1:C:438:PHE:C	1:C:438:PHE:CD1	2.99	0.40
1:D:9:LYS:HB3	1:D:11:TYR:CE1	2.57	0.40
1:D:193:THR:HG22	1:D:194:LEU:N	2.37	0.40
1:D:209:LEU:HA	1:D:209:LEU:HD12	1.75	0.40
1:D:332:ILE:HD11	1:D:349:ALA:HB1	2.03	0.40
1:E:258:GLN:HA	1:E:267:LEU:HD12	2.04	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	488/499 (98%)	445 (91%)	36 (7%)	7 (1%)	9	36
1	B	485/499 (97%)	436 (90%)	40 (8%)	9 (2%)	6	30
1	C	480/499 (96%)	395 (82%)	70 (15%)	15 (3%)	3	19
1	D	485/499 (97%)	439 (90%)	37 (8%)	9 (2%)	6	30
1	E	489/499 (98%)	441 (90%)	39 (8%)	9 (2%)	6	31
1	F	488/499 (98%)	438 (90%)	40 (8%)	10 (2%)	6	28

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2915/2994 (97%)	2594 (89%)	262 (9%)	59 (2%)	6	28

All (59) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	263	THR
1	A	489	GLY
1	B	92	ASP
1	B	263	THR
1	B	314	GLY
1	B	489	GLY
1	C	32	ALA
1	C	184	PHE
1	C	190	PRO
1	C	191	GLY
1	C	192	LYS
1	C	489	GLY
1	D	92	ASP
1	D	263	THR
1	D	314	GLY
1	D	489	GLY
1	E	263	THR
1	E	314	GLY
1	E	489	GLY
1	F	263	THR
1	F	314	GLY
1	A	314	GLY
1	C	287	VAL
1	E	92	ASP
1	E	283	GLU
1	F	92	ASP
1	F	283	GLU
1	F	487	ARG
1	F	490	GLY
1	A	92	ASP
1	C	206	ALA
1	C	327	PRO
1	C	396	GLU
1	D	144	ASN
1	D	494	GLN
1	E	229	ASP
1	F	144	ASN

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Mol	Chain	Res	Type
1	F	229	ASP
1	A	229	ASP
1	A	291	VAL
1	C	44	VAL
1	C	113	ASN
1	D	35	ASP
1	D	229	ASP
1	E	35	ASP
1	A	35	ASP
1	B	144	ASN
1	B	282	ASP
1	B	229	ASP
1	B	291	VAL
1	C	62	VAL
1	E	291	VAL
1	F	488	SER
1	F	291	VAL
1	D	291	VAL
1	E	62	VAL
1	C	264	PRO
1	B	62	VAL
1	C	473	PRO

### 5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	406/414 (98%)	340 (84%)	66 (16%)	2	12
1	B	405/414 (98%)	335 (83%)	70 (17%)	2	10
1	C	400/414 (97%)	319 (80%)	81 (20%)	1	7
1	D	405/414 (98%)	333 (82%)	72 (18%)	2	10
1	E	407/414 (98%)	338 (83%)	69 (17%)	2	11
1	F	406/414 (98%)	340 (84%)	66 (16%)	2	12
All	All	2429/2484 (98%)	2005 (82%)	424 (18%)	2	10

All (424) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	14	ASP
1	A	38	VAL
1	A	40	VAL
1	A	49	LEU
1	A	55	LEU
1	A	62	VAL
1	A	64	CYS
1	A	76	LEU
1	A	84	ARG
1	A	94	VAL
1	A	99	GLU
1	A	102	THR
1	A	107	ASN
1	A	144	ASN
1	A	163	GLU
1	A	166	ARG
1	A	168	LEU
1	A	175	GLU
1	A	179	SER
1	A	185	SER
1	A	193	THR
1	A	209	LEU
1	A	212	ILE
1	A	221	ARG
1	A	245	ILE
1	A	246	LYS
1	A	256	ILE
1	A	257	GLU
1	A	259	ILE
1	A	267	LEU
1	A	270	THR
1	A	272	LYS
1	A	282	ASP
1	A	283	GLU
1	A	286	THR
1	A	303	GLU
1	A	305	VAL
1	A	309	ILE
1	A	310	ASN
1	A	318	VAL
1	A	324	THR
1	A	335	ILE

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Mol	Chain	Res	Type
1	A	340	LEU
1	A	347	ILE
1	A	356	ARG
1	A	358	TYR
1	A	361	SER
1	A	363	VAL
1	A	364	LYS
1	A	370	VAL
1	A	372	THR
1	A	373	THR
1	A	391	VAL
1	A	397	GLU
1	A	399	ILE
1	A	416	ARG
1	A	425	VAL
1	A	426	ILE
1	A	434	ARG
1	A	440	VAL
1	A	461	THR
1	A	469	ILE
1	A	474	VAL
1	A	478	ILE
1	A	487	ARG
1	A	492	ILE
1	B	9	LYS
1	B	22	SER
1	B	38	VAL
1	B	39	MET
1	B	40	VAL
1	B	49	LEU
1	B	51	THR
1	B	55	LEU
1	B	64	CYS
1	B	67	LYS
1	B	76	LEU
1	B	84	ARG
1	B	89	LYS
1	B	91	GLU
1	B	92	ASP
1	B	94	VAL
1	B	99	GLU
1	B	107	ASN

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Mol	Chain	Res	Type
1	B	111	SER
1	B	163	GLU
1	B	168	LEU
1	B	175	GLU
1	B	185	SER
1	B	186	LEU
1	B	194	LEU
1	B	209	LEU
1	B	212	ILE
1	B	220	VAL
1	B	221	ARG
1	B	223	ILE
1	B	256	ILE
1	B	257	GLU
1	B	263	THR
1	B	268	LYS
1	B	269	VAL
1	B	272	LYS
1	B	276	SER
1	B	278	GLU
1	B	280	ILE
1	B	282	ASP
1	B	288	LEU
1	B	293	ARG
1	B	297	THR
1	B	303	GLU
1	B	305	VAL
1	B	310	ASN
1	B	318	VAL
1	B	325	ASN
1	B	332	ILE
1	B	335	ILE
1	B	336	LEU
1	B	340	LEU
1	B	344	PRO
1	B	347	ILE
1	B	362	THR
1	B	370	VAL
1	B	371	PRO
1	B	373	THR
1	B	377	PRO
1	B	391	VAL

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Mol	Chain	Res	Type
1	B	397	GLU
1	B	399	ILE
1	B	416	ARG
1	B	424	LYS
1	B	425	VAL
1	B	464	GLN
1	B	469	ILE
1	B	478	ILE
1	B	487	ARG
1	B	494	GLN
1	C	16	ILE
1	C	37	LYS
1	C	40	VAL
1	C	45	THR
1	C	52	ASN
1	C	55	LEU
1	C	64	CYS
1	C	70	MET
1	C	76	LEU
1	C	91	GLU
1	C	98	TRP
1	C	100	LYS
1	C	102	THR
1	C	104	SER
1	C	109	ILE
1	C	135	ILE
1	C	138	HIS
1	C	139	LYS
1	C	141	MET
1	C	143	THR
1	C	152	TYR
1	C	153	SER
1	C	159	ILE
1	C	161	THR
1	C	163	GLU
1	C	168	LEU
1	C	175	GLU
1	C	178	ILE
1	C	180	SER
1	C	193	THR
1	C	209	LEU
1	C	212	ILE

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Mol	Chain	Res	Type
1	C	220	VAL
1	C	224	LEU
1	C	234	ASN
1	C	255	LYS
1	C	258	GLN
1	C	259	ILE
1	C	260	GLU
1	C	263	THR
1	C	267	LEU
1	C	269	VAL
1	C	274	THR
1	C	276	SER
1	C	278	GLU
1	C	283	GLU
1	C	285	ASN
1	C	288	LEU
1	C	289	LEU
1	C	297	THR
1	C	312	LYS
1	C	313	THR
1	C	318	VAL
1	C	319	THR
1	C	324	THR
1	C	325	ASN
1	C	327	PRO
1	C	328	TYR
1	C	332	ILE
1	C	347	ILE
1	C	348	GLN
1	C	352	LEU
1	C	363	VAL
1	C	365	CYS
1	C	372	THR
1	C	376	THR
1	C	378	LEU
1	C	385	LEU
1	C	389	LYS
1	C	397	GLU
1	C	399	ILE
1	C	401	VAL
1	C	404	SER
1	C	409	LEU

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Mol	Chain	Res	Type
1	C	410	GLU
1	C	429	LEU
1	C	441	LEU
1	C	469	ILE
1	C	478	ILE
1	C	480	THR
1	C	488	SER
1	D	38	VAL
1	D	40	VAL
1	D	52	ASN
1	D	55	LEU
1	D	64	CYS
1	D	78	GLN
1	D	80	LEU
1	D	81	LYS
1	D	84	ARG
1	D	89	LYS
1	D	90	LEU
1	D	91	GLU
1	D	92	ASP
1	D	102	THR
1	D	123	LYS
1	D	139	LYS
1	D	163	GLU
1	D	168	LEU
1	D	174	LYS
1	D	175	GLU
1	D	185	SER
1	D	186	LEU
1	D	209	LEU
1	D	212	ILE
1	D	220	VAL
1	D	221	ARG
1	D	250	GLN
1	D	251	PHE
1	D	256	ILE
1	D	263	THR
1	D	266	ARG
1	D	267	LEU
1	D	268	LYS
1	D	272	LYS
1	D	276	SER

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Mol	Chain	Res	Type
1	D	278	GLU
1	D	282	ASP
1	D	283	GLU
1	D	284	PHE
1	D	288	LEU
1	D	291	VAL
1	D	293	ARG
1	D	303	GLU
1	D	305	VAL
1	D	325	ASN
1	D	332	ILE
1	D	336	LEU
1	D	340	LEU
1	D	344	PRO
1	D	347	ILE
1	D	364	LYS
1	D	365	CYS
1	D	370	VAL
1	D	372	THR
1	D	373	THR
1	D	376	THR
1	D	396	GLU
1	D	409	LEU
1	D	410	GLU
1	D	416	ARG
1	D	426	ILE
1	D	430	LYS
1	D	436	VAL
1	D	441	LEU
1	D	448	VAL
1	D	456	LEU
1	D	473	PRO
1	D	478	ILE
1	D	485	THR
1	D	492	ILE
1	D	493	LEU
1	D	494	GLN
1	E	29	LYS
1	E	38	VAL
1	E	40	VAL
1	E	49	LEU
1	E	52	ASN

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Mol	Chain	Res	Type
1	E	55	LEU
1	E	64	CYS
1	E	72	GLN
1	E	76	LEU
1	E	81	LYS
1	E	104	SER
1	E	107	ASN
1	E	109	ILE
1	E	118	VAL
1	E	133	LYS
1	E	163	GLU
1	E	168	LEU
1	E	173	ASP
1	E	175	GLU
1	E	185	SER
1	E	193	THR
1	E	200	TYR
1	E	209	LEU
1	E	212	ILE
1	E	215	ASP
1	E	220	VAL
1	E	228	PHE
1	E	250	GLN
1	E	256	ILE
1	E	257	GLU
1	E	259	ILE
1	E	266	ARG
1	E	267	LEU
1	E	272	LYS
1	E	275	ASN
1	E	276	SER
1	E	277	GLU
1	E	282	ASP
1	E	286	THR
1	E	288	LEU
1	E	291	VAL
1	E	297	THR
1	E	303	GLU
1	E	309	ILE
1	E	318	VAL
1	E	325	ASN
1	E	332	ILE

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Mol	Chain	Res	Type
1	E	335	ILE
1	E	336	LEU
1	E	340	LEU
1	E	347	ILE
1	E	348	GLN
1	E	362	THR
1	E	370	VAL
1	E	373	THR
1	E	391	VAL
1	E	397	GLU
1	E	413	VAL
1	E	416	ARG
1	E	434	ARG
1	E	450	GLN
1	E	456	LEU
1	E	469	ILE
1	E	473	PRO
1	E	474	VAL
1	E	478	ILE
1	E	480	THR
1	E	491	ASP
1	E	498	CYS
1	F	29	LYS
1	F	40	VAL
1	F	55	LEU
1	F	58	THR
1	F	64	CYS
1	F	76	LEU
1	F	89	LYS
1	F	91	GLU
1	F	92	ASP
1	F	99	GLU
1	F	102	THR
1	F	104	SER
1	F	107	ASN
1	F	139	LYS
1	F	146	LYS
1	F	163	GLU
1	F	168	LEU
1	F	170	ILE
1	F	175	GLU
1	F	185	SER

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Mol	Chain	Res	Type
1	F	186	LEU
1	F	193	THR
1	F	209	LEU
1	F	212	ILE
1	F	219	MET
1	F	220	VAL
1	F	221	ARG
1	F	223	ILE
1	F	225	LEU
1	F	245	ILE
1	F	248	ILE
1	F	250	GLN
1	F	254	THR
1	F	256	ILE
1	F	257	GLU
1	F	267	LEU
1	F	276	SER
1	F	277	GLU
1	F	282	ASP
1	F	288	LEU
1	F	289	LEU
1	F	291	VAL
1	F	303	GLU
1	F	308	LYS
1	F	312	LYS
1	F	325	ASN
1	F	332	ILE
1	F	335	ILE
1	F	347	ILE
1	F	363	VAL
1	F	364	LYS
1	F	391	VAL
1	F	396	GLU
1	F	397	GLU
1	F	404	SER
1	F	412	THR
1	F	416	ARG
1	F	422	TYR
1	F	425	VAL
1	F	426	ILE
1	F	434	ARG
1	F	456	LEU

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Mol	Chain	Res	Type
1	F	463	GLN
1	F	478	ILE
1	F	492	ILE
1	F	497	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (92) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	72	GLN
1	A	78	GLN
1	A	96	HIS
1	A	113	ASN
1	A	250	GLN
1	A	285	ASN
1	A	310	ASN
1	A	325	ASN
1	A	348	GLN
1	A	418	ASN
1	A	419	ASN
1	A	432	ASN
1	A	439	HIS
1	A	450	GLN
1	B	96	HIS
1	B	106	GLN
1	B	107	ASN
1	B	113	ASN
1	B	129	ASN
1	B	239	HIS
1	B	285	ASN
1	B	310	ASN
1	B	325	ASN
1	B	439	HIS
1	B	444	ASN
1	B	450	GLN
1	C	71	HIS
1	C	72	GLN
1	C	96	HIS
1	C	129	ASN
1	C	138	HIS
1	C	230	GLN
1	C	234	ASN
1	C	243	HIS

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Mol	Chain	Res	Type
1	C	250	GLN
1	C	258	GLN
1	C	285	ASN
1	C	310	ASN
1	C	325	ASN
1	C	348	GLN
1	C	355	GLN
1	C	418	ASN
1	C	439	HIS
1	C	444	ASN
1	C	472	HIS
1	D	52	ASN
1	D	61	ASN
1	D	72	GLN
1	D	78	GLN
1	D	96	HIS
1	D	106	GLN
1	D	107	ASN
1	D	108	HIS
1	D	138	HIS
1	D	144	ASN
1	D	250	GLN
1	D	258	GLN
1	D	275	ASN
1	D	285	ASN
1	D	325	ASN
1	D	348	GLN
1	D	403	HIS
1	D	418	ASN
1	D	439	HIS
1	D	472	HIS
1	D	494	GLN
1	E	72	GLN
1	E	138	HIS
1	E	230	GLN
1	E	285	ASN
1	E	325	ASN
1	E	418	ASN
1	E	419	ASN
1	E	439	HIS
1	E	450	GLN
1	F	71	HIS

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Mol	Chain	Res	Type
1	F	72	GLN
1	F	78	GLN
1	F	96	HIS
1	F	107	ASN
1	F	113	ASN
1	F	230	GLN
1	F	234	ASN
1	F	239	HIS
1	F	250	GLN
1	F	258	GLN
1	F	285	ASN
1	F	325	ASN
1	F	355	GLN
1	F	419	ASN
1	F	428	ASN
1	F	439	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

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

12 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	FAD	B	600	-	58,58,58	1.26	7 (12%)	85,89,89	1.95	22 (25%)
2	FAD	C	600	-	58,58,58	1.41	9 (15%)	85,89,89	1.85	23 (27%)
3	NDP	F	601	-	42,42,52	1.84	11 (26%)	60,65,80	1.67	14 (23%)
3	NDP	E	601	-	42,42,52	1.77	10 (23%)	60,65,80	1.70	14 (23%)
2	FAD	E	600	-	58,58,58	1.29	6 (10%)	85,89,89	2.14	28 (32%)
3	NDP	A	601	-	42,42,52	1.71	10 (23%)	60,65,80	1.69	14 (23%)
2	FAD	A	600	-	58,58,58	1.27	6 (10%)	85,89,89	1.71	22 (25%)
3	NDP	B	601	-	42,42,52	2.06	11 (26%)	60,65,80	1.56	12 (20%)
2	FAD	D	600	-	58,58,58	1.60	10 (17%)	85,89,89	1.77	23 (27%)
3	NDP	D	601	-	42,42,52	1.74	10 (23%)	60,65,80	1.75	13 (21%)
3	NDP	C	601	-	42,42,52	1.69	9 (21%)	60,65,80	1.91	15 (25%)
2	FAD	F	600	-	58,58,58	1.13	5 (8%)	85,89,89	1.73	18 (21%)

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	FAD	B	600	-	-	3/34/50/50	0/6/6/6
2	FAD	C	600	-	-	10/34/50/50	0/6/6/6
3	NDP	F	601	-	-	5/27/56/77	0/4/4/5
3	NDP	E	601	-	-	5/27/56/77	0/4/4/5
2	FAD	E	600	-	-	10/34/50/50	0/6/6/6
3	NDP	A	601	-	-	11/27/56/77	0/4/4/5
2	FAD	A	600	-	-	10/34/50/50	0/6/6/6
3	NDP	B	601	-	-	6/27/56/77	0/4/4/5
2	FAD	D	600	-	-	5/34/50/50	0/6/6/6
3	NDP	D	601	-	-	10/27/56/77	0/4/4/5
3	NDP	C	601	-	-	5/27/56/77	0/4/4/5
2	FAD	F	600	-	-	14/34/50/50	0/6/6/6

All (104) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	601	NDP	C5A-C4A	6.24	1.50	1.39
3	D	601	NDP	C5A-C4A	5.76	1.49	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	601	NDP	C5A-C4A	5.47	1.48	1.39
3	F	601	NDP	C5A-C4A	5.21	1.48	1.39
3	E	601	NDP	C5A-C4A	4.84	1.47	1.39
3	C	601	NDP	C5A-C4A	4.78	1.47	1.39
2	D	600	FAD	P-O3P	4.70	1.64	1.59
3	C	601	NDP	P2B-O3X	4.34	1.70	1.54
3	B	601	NDP	P2B-O3X	4.27	1.70	1.54
3	B	601	NDP	C2A-N1A	4.23	1.41	1.33
3	A	601	NDP	P2B-O2X	4.19	1.70	1.54
3	B	601	NDP	C5A-C6A	4.07	1.52	1.41
3	B	601	NDP	P2B-O2X	4.03	1.69	1.54
3	E	601	NDP	P2B-O2X	3.99	1.69	1.54
3	E	601	NDP	P2B-O3X	3.92	1.69	1.54
3	F	601	NDP	P2B-O3X	3.91	1.69	1.54
3	F	601	NDP	P2B-O2X	3.85	1.69	1.54
2	C	600	FAD	PA-O3P	3.84	1.63	1.59
3	D	601	NDP	P2B-O3X	3.83	1.69	1.54
3	C	601	NDP	P2B-O2X	3.77	1.68	1.54
3	D	601	NDP	P2B-O2X	3.73	1.68	1.54
2	C	600	FAD	C4X-N5	3.71	1.38	1.30
2	D	600	FAD	C2A-N1A	3.71	1.40	1.33
3	A	601	NDP	PN-O2N	3.62	1.72	1.55
3	F	601	NDP	C5A-C6A	3.59	1.51	1.41
3	A	601	NDP	P2B-O3X	3.52	1.67	1.54
3	E	601	NDP	PA-O2A	3.52	1.71	1.55
2	E	600	FAD	C4X-N5	3.51	1.38	1.30
2	F	600	FAD	C4X-N5	3.45	1.38	1.30
2	D	600	FAD	C5'-C4'	3.35	1.56	1.51
3	A	601	NDP	PA-O2A	3.31	1.70	1.55
3	D	601	NDP	PN-O2N	3.26	1.70	1.55
2	A	600	FAD	C4X-N5	3.25	1.37	1.30
2	C	600	FAD	P-O3P	3.24	1.63	1.59
3	D	601	NDP	PA-O2A	3.22	1.70	1.55
3	E	601	NDP	PN-O2N	3.22	1.70	1.55
3	C	601	NDP	PN-O2N	3.21	1.70	1.55
2	D	600	FAD	C5A-N7A	-3.20	1.33	1.39
3	F	601	NDP	PN-O2N	3.20	1.70	1.55
3	C	601	NDP	PA-O2A	3.20	1.70	1.55
2	B	600	FAD	C2A-N1A	3.19	1.39	1.33
3	F	601	NDP	PA-O2A	3.17	1.70	1.55
3	B	601	NDP	PA-O2A	3.13	1.69	1.55
3	B	601	NDP	C6A-N6A	3.06	1.42	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	600	FAD	C2A-N3A	3.04	1.39	1.33
2	E	600	FAD	C2A-N3A	3.03	1.39	1.33
3	E	601	NDP	PN-O3	3.00	1.62	1.59
2	B	600	FAD	C2A-N3A	2.97	1.39	1.33
2	F	600	FAD	C2A-N1A	2.95	1.39	1.33
2	B	600	FAD	C4X-N5	2.93	1.37	1.30
3	E	601	NDP	C4A-N9A	-2.91	1.31	1.37
3	D	601	NDP	C8A-N7A	2.91	1.37	1.31
2	E	600	FAD	C8A-N7A	2.91	1.37	1.31
3	B	601	NDP	C4A-N9A	-2.88	1.31	1.37
2	D	600	FAD	C2A-N3A	2.86	1.39	1.33
3	B	601	NDP	PN-O2N	2.85	1.68	1.55
2	D	600	FAD	C9A-N10	-2.85	1.36	1.41
2	B	600	FAD	C4X-C10	-2.81	1.35	1.44
3	D	601	NDP	C5A-N7A	-2.80	1.34	1.39
3	C	601	NDP	C5A-N7A	-2.79	1.34	1.39
2	C	600	FAD	C8A-N7A	2.79	1.37	1.31
2	A	600	FAD	C2A-N1A	2.79	1.38	1.33
3	E	601	NDP	C5A-C6A	2.76	1.48	1.41
2	A	600	FAD	C5A-N7A	-2.76	1.34	1.39
3	E	601	NDP	C8A-N7A	2.75	1.37	1.31
3	F	601	NDP	PN-O3	2.71	1.62	1.59
2	D	600	FAD	C8A-N7A	2.68	1.36	1.31
3	F	601	NDP	C6A-N6A	2.67	1.41	1.34
2	C	600	FAD	C5'-C4'	2.66	1.55	1.51
3	B	601	NDP	C5A-N7A	-2.64	1.34	1.39
2	C	600	FAD	C2A-N3A	2.60	1.38	1.33
2	C	600	FAD	C2A-N1A	2.60	1.38	1.33
2	D	600	FAD	C4X-N5	2.59	1.36	1.30
3	A	601	NDP	C5A-N7A	-2.58	1.34	1.39
3	A	601	NDP	C8A-N7A	2.54	1.36	1.31
3	A	601	NDP	C5A-C6A	2.50	1.48	1.41
3	D	601	NDP	PN-O3	2.46	1.62	1.59
2	D	600	FAD	C4X-C10	-2.43	1.37	1.44
2	C	600	FAD	C10-N1	2.42	1.38	1.33
3	C	601	NDP	P2B-O2B	2.41	1.63	1.59
2	F	600	FAD	C10-N1	2.36	1.38	1.33
2	E	600	FAD	C2A-N1A	2.35	1.38	1.33
3	F	601	NDP	C5A-N7A	-2.33	1.34	1.39
2	E	600	FAD	C9A-N10	-2.31	1.37	1.41
2	A	600	FAD	C4X-C10	-2.31	1.37	1.44
2	F	600	FAD	C2A-N3A	2.29	1.38	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	601	NDP	C5A-C6A	2.28	1.47	1.41
2	B	600	FAD	C8A-N7A	2.26	1.36	1.31
3	F	601	NDP	C8A-N7A	2.26	1.36	1.31
3	B	601	NDP	C8A-N7A	2.25	1.36	1.31
3	F	601	NDP	PA-O3	2.25	1.61	1.59
2	A	600	FAD	C9A-C5X	-2.23	1.37	1.41
2	F	600	FAD	C5A-N7A	-2.19	1.35	1.39
3	E	601	NDP	PA-O3	2.19	1.61	1.59
3	C	601	NDP	C5A-C6A	2.17	1.47	1.41
2	B	600	FAD	C5'-C4'	2.17	1.54	1.51
2	D	600	FAD	PA-O3P	2.15	1.61	1.59
2	C	600	FAD	C5A-N7A	-2.14	1.35	1.39
3	C	601	NDP	C8A-N7A	2.13	1.35	1.31
2	E	600	FAD	C10-N1	2.10	1.37	1.33
2	B	600	FAD	O4B-C4B	-2.09	1.40	1.45
3	A	601	NDP	C4A-N9A	-2.08	1.33	1.37
3	D	601	NDP	C5B-C4B	2.05	1.57	1.51
3	A	601	NDP	PA-O3	2.01	1.61	1.59

All (218) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	600	FAD	C5X-C9A-N10	6.23	123.61	117.97
2	B	600	FAD	N3A-C2A-N1A	-5.88	119.68	128.58
2	C	600	FAD	N3A-C2A-N1A	-5.76	119.87	128.58
2	F	600	FAD	N3A-C2A-N1A	-5.68	119.99	128.58
2	E	600	FAD	C5A-C4A-N3A	-5.55	119.08	126.72
2	D	600	FAD	N3A-C2A-N1A	-5.46	120.32	128.58
2	B	600	FAD	C4-N3-C2	-5.28	116.27	125.64
3	C	601	NDP	C5A-C4A-N3A	-5.23	119.52	126.72
2	C	600	FAD	C5A-C4A-N3A	-5.15	119.62	126.72
2	A	600	FAD	N3A-C2A-N1A	-5.13	120.81	128.58
3	C	601	NDP	N3A-C4A-N9A	4.85	135.42	127.17
2	B	600	FAD	C5A-C4A-N3A	-4.85	120.04	126.72
2	F	600	FAD	C5A-C4A-N3A	-4.83	120.07	126.72
3	A	601	NDP	C5A-C4A-N3A	-4.76	120.16	126.72
3	C	601	NDP	O3B-C3B-C4B	-4.73	97.50	111.08
3	F	601	NDP	C5A-C4A-N3A	-4.68	120.28	126.72
2	B	600	FAD	O3B-C3B-C4B	-4.63	97.78	111.08
2	D	600	FAD	C4X-C10-N10	4.62	123.10	116.48
3	D	601	NDP	C5A-C4A-N3A	-4.62	120.36	126.72
2	E	600	FAD	N9A-C8A-N7A	-4.53	107.51	113.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	600	FAD	N3A-C2A-N1A	-4.52	121.74	128.58
2	C	600	FAD	C2B-C3B-C4B	-4.32	94.25	102.61
2	D	600	FAD	N9A-C8A-N7A	-4.22	107.94	113.94
2	B	600	FAD	O4-C4-C4X	-4.18	115.50	126.53
2	B	600	FAD	N9A-C8A-N7A	-4.11	108.11	113.94
2	E	600	FAD	O4B-C1B-N9A	4.11	115.98	108.09
3	D	601	NDP	N3A-C2A-N1A	-4.09	122.39	128.58
3	D	601	NDP	N3A-C4A-N9A	4.08	134.11	127.17
3	A	601	NDP	N3A-C4A-N9A	4.05	134.06	127.17
2	E	600	FAD	C9A-C5X-N5	-3.99	118.22	122.45
2	E	600	FAD	C4-N3-C2	-3.96	118.61	125.64
2	E	600	FAD	C2A-N3A-C4A	3.95	121.48	111.83
2	D	600	FAD	C4-N3-C2	-3.93	118.66	125.64
2	A	600	FAD	C5A-C4A-N3A	-3.90	121.35	126.72
3	F	601	NDP	C4A-C5A-N7A	-3.85	106.17	110.58
3	F	601	NDP	N3A-C2A-N1A	-3.85	122.75	128.58
3	D	601	NDP	C2B-C1B-N9A	-3.84	107.44	113.75
3	D	601	NDP	C2A-N1A-C6A	3.83	125.02	118.73
2	E	600	FAD	C4A-C5A-N7A	-3.77	106.27	110.58
2	A	600	FAD	N9A-C8A-N7A	-3.73	108.65	113.94
2	E	600	FAD	C9-C9A-N10	-3.72	116.86	121.85
3	E	601	NDP	C4A-N9A-C8A	3.69	109.61	105.74
3	E	601	NDP	N3A-C2A-N1A	-3.66	123.04	128.58
3	F	601	NDP	C2A-N3A-C4A	3.64	120.71	111.83
3	F	601	NDP	N3A-C4A-N9A	3.62	133.32	127.17
3	E	601	NDP	C2B-C1B-N9A	-3.60	107.82	113.75
3	C	601	NDP	C3B-C2B-C1B	-3.57	95.97	102.81
2	B	600	FAD	C4X-C4-N3	3.57	122.33	113.25
2	F	600	FAD	N9A-C8A-N7A	-3.52	108.94	113.94
2	E	600	FAD	C5A-N7A-C8A	3.51	108.96	103.45
2	F	600	FAD	C5A-N7A-C8A	3.46	108.89	103.45
2	C	600	FAD	C2A-N3A-C4A	3.44	120.23	111.83
3	C	601	NDP	N3A-C2A-N1A	-3.42	123.40	128.58
2	C	600	FAD	N3A-C4A-N9A	3.41	132.96	127.17
2	B	600	FAD	O3'-C3'-C2'	-3.40	101.20	108.93
2	D	600	FAD	C5A-C4A-N3A	-3.40	122.04	126.72
2	F	600	FAD	C2A-N3A-C4A	3.39	120.11	111.83
3	C	601	NDP	C2A-N3A-C4A	3.38	120.09	111.83
2	F	600	FAD	N3A-C4A-N9A	3.37	132.89	127.17
2	C	600	FAD	C4-N3-C2	-3.36	119.68	125.64
2	D	600	FAD	C6A-C5A-C4A	3.35	121.76	117.18
3	D	601	NDP	O5B-C5B-C4B	3.35	120.40	108.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	600	FAD	C2B-C1B-N9A	-3.35	104.99	113.30
2	A	600	FAD	C4X-C10-N10	3.34	121.27	116.48
2	B	600	FAD	C2A-N3A-C4A	3.34	119.98	111.83
2	E	600	FAD	C4X-C4-N3	3.30	121.65	113.25
2	B	600	FAD	N3A-C4A-N9A	3.30	132.77	127.17
2	E	600	FAD	C5A-C4A-N9A	3.29	109.39	105.81
3	E	601	NDP	C5A-C4A-N3A	-3.27	122.21	126.72
2	A	600	FAD	O5B-C5B-C4B	-3.26	97.89	108.99
3	C	601	NDP	C2B-C3B-C4B	3.24	108.96	101.99
3	D	601	NDP	C2A-N3A-C4A	3.24	119.74	111.83
2	A	600	FAD	C4-N3-C2	-3.23	119.90	125.64
2	F	600	FAD	O4B-C1B-N9A	3.21	114.26	108.09
2	B	600	FAD	C4X-C10-N1	-3.21	116.71	124.59
2	B	600	FAD	C9A-C5X-N5	-3.21	119.05	122.45
3	A	601	NDP	N3A-C2A-N1A	-3.21	123.73	128.58
3	C	601	NDP	C2B-C1B-N9A	3.17	118.97	113.75
2	D	600	FAD	C4X-C4-N3	3.17	121.32	113.25
2	A	600	FAD	O4'-C4'-C5'	-3.16	103.01	109.99
2	F	600	FAD	C4-N3-C2	-3.16	120.02	125.64
2	A	600	FAD	O3B-C3B-C4B	-3.16	102.01	111.08
3	B	601	NDP	P2B-O2B-C2B	-3.16	115.00	123.43
2	F	600	FAD	C4X-C10-N10	3.15	120.99	116.48
3	B	601	NDP	C4A-C5A-N7A	-3.15	106.99	110.58
3	A	601	NDP	C2A-N3A-C4A	3.14	119.50	111.83
3	E	601	NDP	P2B-O2B-C2B	-3.13	115.06	123.43
2	A	600	FAD	C5A-N7A-C8A	3.13	108.37	103.45
3	B	601	NDP	C2B-C1B-N9A	-3.12	108.62	113.75
2	D	600	FAD	O2-C2-N1	-3.07	116.70	121.80
2	C	600	FAD	C5A-C6A-N6A	-3.06	115.70	123.29
2	B	600	FAD	C5A-N7A-C8A	3.06	108.25	103.45
3	E	601	NDP	C2A-N3A-C4A	3.05	119.28	111.83
3	B	601	NDP	C4A-N9A-C8A	3.04	108.93	105.74
2	D	600	FAD	C5A-N7A-C8A	3.00	108.17	103.45
3	E	601	NDP	C4A-N9A-C1B	-2.99	119.64	126.63
3	E	601	NDP	C6A-C5A-N7A	2.99	137.85	132.09
3	D	601	NDP	O2X-P2B-O2B	2.98	117.46	105.85
3	B	601	NDP	O4D-C4D-C3D	2.97	107.38	104.63
2	C	600	FAD	C6A-C5A-C4A	2.94	121.19	117.18
3	E	601	NDP	C2A-N1A-C6A	2.92	123.53	118.73
3	F	601	NDP	C2A-N1A-C6A	2.92	123.53	118.73
2	C	600	FAD	C4X-C10-N10	2.91	120.64	116.48
2	F	600	FAD	C4X-C4-N3	2.90	120.63	113.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	600	FAD	C2A-N3A-C4A	2.90	118.91	111.83
2	D	600	FAD	C10-C4X-N5	-2.87	118.95	124.81
3	F	601	NDP	C5A-N7A-C8A	2.87	107.96	103.45
2	E	600	FAD	C4X-C10-N1	-2.86	117.59	124.59
3	E	601	NDP	O2N-PN-O3	2.85	114.98	107.27
2	E	600	FAD	O2P-P-O3P	-2.84	99.61	107.27
2	D	600	FAD	C5X-C9A-N10	2.83	120.53	117.97
2	F	600	FAD	C6A-C5A-C4A	2.83	121.04	117.18
2	A	600	FAD	C9A-C5X-N5	-2.81	119.47	122.45
2	E	600	FAD	C1'-N10-C9A	-2.81	115.18	120.63
2	A	600	FAD	C5X-C9A-N10	2.80	120.50	117.97
3	A	601	NDP	O3B-C3B-C2B	-2.78	103.42	111.19
3	E	601	NDP	N3A-C4A-N9A	2.77	131.88	127.17
3	B	601	NDP	C4B-O4B-C1B	2.76	115.56	109.47
2	A	600	FAD	C4A-C5A-N7A	-2.74	107.45	110.58
3	C	601	NDP	O4D-C4D-C3D	2.74	107.16	104.63
2	B	600	FAD	C4-C4X-C10	2.73	121.62	116.93
2	C	600	FAD	O5B-PA-O1A	2.71	119.66	108.94
3	A	601	NDP	C4A-C5A-N7A	-2.69	107.51	110.58
3	A	601	NDP	O5B-C5B-C4B	2.68	118.13	108.99
2	C	600	FAD	C4X-C4-N3	2.68	120.08	113.25
2	E	600	FAD	C6-C5X-N5	2.68	122.89	118.44
3	B	601	NDP	O5B-C5B-C4B	2.67	118.09	108.99
2	C	600	FAD	O4B-C4B-C3B	-2.67	99.85	105.15
2	A	600	FAD	C10-C4X-N5	-2.67	119.36	124.81
2	C	600	FAD	C10-C4X-N5	-2.65	119.39	124.81
2	C	600	FAD	C5X-C9A-N10	2.65	120.36	117.97
3	E	601	NDP	C1D-C2D-C3D	2.65	105.86	101.63
2	B	600	FAD	C5X-C9A-N10	2.64	120.35	117.97
2	E	600	FAD	O4-C4-C4X	-2.63	119.59	126.53
3	B	601	NDP	O2B-C2B-C3B	2.61	121.04	111.68
3	F	601	NDP	C4A-N9A-C8A	2.60	108.47	105.74
3	A	601	NDP	O2N-PN-O3	-2.59	100.26	107.27
2	D	600	FAD	C2A-N3A-C4A	2.57	118.10	111.83
2	E	600	FAD	N3A-C4A-N9A	2.56	131.52	127.17
3	B	601	NDP	C1D-C2D-C3D	2.55	105.71	101.63
2	E	600	FAD	O2'-C2'-C3'	2.55	115.21	109.25
3	E	601	NDP	C4A-C5A-N7A	-2.54	107.67	110.58
2	F	600	FAD	C10-C4X-N5	-2.54	119.62	124.81
3	A	601	NDP	C4A-N9A-C8A	2.54	108.40	105.74
2	B	600	FAD	C10-N1-C2	2.51	122.28	116.85
3	C	601	NDP	C4A-N9A-C8A	2.50	108.37	105.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	600	FAD	C4A-N9A-C8A	2.50	108.36	105.74
3	C	601	NDP	O3B-C3B-C2B	-2.49	104.21	111.19
3	D	601	NDP	C4A-N9A-C8A	2.49	108.35	105.74
2	D	600	FAD	C3B-C2B-C1B	-2.46	96.82	101.46
2	C	600	FAD	C5A-N7A-C8A	2.45	107.30	103.45
2	F	600	FAD	O4-C4-N3	-2.44	115.52	120.11
2	E	600	FAD	C4X-C10-N10	2.44	119.97	116.48
3	C	601	NDP	C1D-C2D-C3D	2.43	105.52	101.63
3	A	601	NDP	C2A-N1A-C6A	2.43	122.73	118.73
2	D	600	FAD	O4B-C1B-C2B	-2.43	101.41	106.62
2	B	600	FAD	C4X-C10-N10	2.43	119.96	116.48
2	C	600	FAD	C4X-C10-N1	-2.42	118.65	124.59
3	B	601	NDP	C5A-C4A-N3A	-2.42	123.38	126.72
2	B	600	FAD	C4A-N9A-C8A	2.41	108.27	105.74
3	F	601	NDP	O5B-C5B-C4B	2.40	117.18	108.99
3	D	601	NDP	C4A-C5A-N7A	-2.40	107.83	110.58
3	E	601	NDP	N9A-C8A-N7A	-2.40	110.53	113.94
2	C	600	FAD	PA-O5B-C5B	2.40	135.10	121.35
2	E	600	FAD	O2A-PA-O3P	2.40	113.75	107.27
2	F	600	FAD	C4A-C5A-N7A	-2.39	107.84	110.58
3	F	601	NDP	O3B-C3B-C4B	-2.39	104.22	111.08
3	A	601	NDP	C1D-C2D-C3D	2.39	105.45	101.63
2	C	600	FAD	N9A-C8A-N7A	-2.39	110.55	113.94
2	D	600	FAD	C9A-C5X-N5	-2.38	119.93	122.45
2	A	600	FAD	C4X-C4-N3	2.37	119.30	113.25
2	E	600	FAD	C3B-C2B-C1B	-2.37	96.98	101.46
3	F	601	NDP	C1D-C2D-C3D	2.36	105.40	101.63
3	F	601	NDP	C6A-C5A-N7A	2.35	136.63	132.09
2	E	600	FAD	O3B-C3B-C4B	-2.35	104.34	111.08
2	A	600	FAD	O2A-PA-O3P	2.34	113.59	107.27
2	A	600	FAD	C6A-C5A-C4A	2.33	120.35	117.18
2	A	600	FAD	C1'-C2'-C3'	2.29	115.88	109.66
3	D	601	NDP	C1D-C2D-C3D	2.29	105.30	101.63
2	C	600	FAD	O2B-C2B-C3B	-2.28	104.52	111.82
3	D	601	NDP	N6A-C6A-N1A	2.27	123.42	118.38
2	D	600	FAD	C4-C4X-N5	2.25	121.32	118.21
2	D	600	FAD	O2-C2-N3	2.24	122.88	118.58
2	F	600	FAD	C4-C4X-N5	2.24	121.30	118.21
2	B	600	FAD	C6-C5X-C9A	2.24	122.12	119.05
3	A	601	NDP	C2B-C1B-N9A	-2.23	110.08	113.75
3	B	601	NDP	N3A-C4A-N9A	2.23	130.96	127.17
2	A	600	FAD	O4'-C4'-C3'	2.22	114.45	109.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	600	FAD	O4B-C1B-C2B	-2.21	101.88	106.62
2	C	600	FAD	O4B-C1B-C2B	-2.18	101.96	106.62
2	E	600	FAD	C10-N1-C2	2.17	121.55	116.85
2	C	600	FAD	C5B-C4B-C3B	2.16	122.98	115.21
2	E	600	FAD	C9A-N10-C10	-2.15	117.47	120.75
2	C	600	FAD	O2B-C2B-C1B	-2.15	102.71	110.10
3	B	601	NDP	C5A-N7A-C8A	2.14	106.81	103.45
3	D	601	NDP	O5B-PA-O1A	2.13	117.39	108.94
3	C	601	NDP	O4B-C1B-C2B	-2.12	102.94	106.59
3	C	601	NDP	C5A-N7A-C8A	2.12	106.78	103.45
2	B	600	FAD	C4A-C5A-N7A	-2.11	108.17	110.58
3	C	601	NDP	N6A-C6A-N1A	2.11	123.08	118.38
2	B	600	FAD	C5A-C6A-N1A	2.11	122.87	117.51
2	D	600	FAD	N3A-C4A-N9A	2.10	130.74	127.17
2	B	600	FAD	O2'-C2'-C3'	2.09	114.13	109.25
3	F	601	NDP	N9A-C8A-N7A	-2.07	111.00	113.94
3	A	601	NDP	O4B-C4B-C5B	-2.07	102.71	109.33
2	D	600	FAD	O4-C4-C4X	-2.07	121.07	126.53
2	D	600	FAD	O2B-C2B-C1B	-2.06	103.01	110.10
2	A	600	FAD	N3A-C4A-N9A	2.06	130.67	127.17
2	C	600	FAD	C4-C4X-C10	2.04	120.43	116.93
2	E	600	FAD	C4-C4X-C10	2.03	120.42	116.93
3	F	601	NDP	N6A-C6A-N1A	2.03	122.90	118.38
2	A	600	FAD	O4-C4-N3	-2.03	116.30	120.11
2	A	600	FAD	O3'-C3'-C2'	-2.02	104.33	108.93
2	F	600	FAD	O4'-C4'-C3'	2.02	113.98	109.25
2	D	600	FAD	C4X-C10-N1	-2.01	119.65	124.59
2	E	600	FAD	C4A-N9A-C8A	2.01	107.85	105.74
3	A	601	NDP	C5A-N7A-C8A	2.01	106.61	103.45
2	D	600	FAD	C4A-C5A-N7A	-2.00	108.29	110.58

There are no chirality outliers.

All (94) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	600	FAD	O4'-C4'-C5'-O5'
2	A	600	FAD	C5'-O5'-P-O2P
2	A	600	FAD	C5'-O5'-P-O3P
2	C	600	FAD	N10-C1'-C2'-O2'
2	C	600	FAD	N10-C1'-C2'-C3'
2	C	600	FAD	C2'-C3'-C4'-O4'
2	C	600	FAD	C2'-C3'-C4'-C5'

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Mol	Chain	Res	Type	Atoms
2	C	600	FAD	O3'-C3'-C4'-O4'
2	D	600	FAD	PA-O3P-P-O5'
2	E	600	FAD	C5'-O5'-P-O2P
2	F	600	FAD	C2'-C3'-C4'-O4'
2	F	600	FAD	O3'-C3'-C4'-O4'
2	F	600	FAD	O3'-C3'-C4'-C5'
2	F	600	FAD	PA-O3P-P-O5'
3	A	601	NDP	C5D-O5D-PN-O3
3	A	601	NDP	C5D-O5D-PN-O1N
3	A	601	NDP	C5D-O5D-PN-O2N
3	A	601	NDP	O4D-C4D-C5D-O5D
3	A	601	NDP	C3D-C4D-C5D-O5D
3	C	601	NDP	O4B-C4B-C5B-O5B
3	C	601	NDP	PA-O3-PN-O5D
3	C	601	NDP	C5D-O5D-PN-O3
3	D	601	NDP	C5B-O5B-PA-O3
3	D	601	NDP	C5D-O5D-PN-O2N
3	F	601	NDP	C5D-O5D-PN-O3
3	F	601	NDP	C5D-O5D-PN-O1N
3	F	601	NDP	C5D-O5D-PN-O2N
2	C	600	FAD	C3B-C4B-C5B-O5B
3	B	601	NDP	O4D-C4D-C5D-O5D
3	C	601	NDP	C3B-C4B-C5B-O5B
2	C	600	FAD	O3'-C3'-C4'-C5'
2	F	600	FAD	C2'-C3'-C4'-C5'
3	E	601	NDP	C4D-C5D-O5D-PN
2	B	600	FAD	O4B-C4B-C5B-O5B
3	B	601	NDP	C3D-C4D-C5D-O5D
3	D	601	NDP	O4B-C4B-C5B-O5B
3	D	601	NDP	C3B-C4B-C5B-O5B
3	E	601	NDP	O4D-C4D-C5D-O5D
2	B	600	FAD	C3B-C4B-C5B-O5B
2	C	600	FAD	O4B-C4B-C5B-O5B
2	D	600	FAD	C3B-C4B-C5B-O5B
2	F	600	FAD	C3B-C4B-C5B-O5B
3	E	601	NDP	C3B-C4B-C5B-O5B
3	E	601	NDP	C3D-C4D-C5D-O5D
2	D	600	FAD	O4B-C4B-C5B-O5B
2	E	600	FAD	O4B-C4B-C5B-O5B
2	E	600	FAD	C3B-C4B-C5B-O5B
2	F	600	FAD	O4B-C4B-C5B-O5B
3	E	601	NDP	O4B-C4B-C5B-O5B

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Mol	Chain	Res	Type	Atoms
2	A	600	FAD	C3B-C4B-C5B-O5B
2	A	600	FAD	O4B-C4B-C5B-O5B
3	D	601	NDP	C4B-C5B-O5B-PA
2	A	600	FAD	PA-O3P-P-O5'
2	E	600	FAD	PA-O3P-P-O5'
3	A	601	NDP	PN-O3-PA-O5B
3	F	601	NDP	PA-O3-PN-O5D
2	E	600	FAD	C2B-C1B-N9A-C8A
2	F	600	FAD	C2B-C1B-N9A-C8A
2	E	600	FAD	P-O3P-PA-O2A
3	B	601	NDP	PA-O3-PN-O1N
3	D	601	NDP	PN-O3-PA-O2A
3	B	601	NDP	C4D-C5D-O5D-PN
3	C	601	NDP	C4B-C5B-O5B-PA
3	F	601	NDP	C2B-O2B-P2B-O1X
2	A	600	FAD	C5B-O5B-PA-O1A
2	A	600	FAD	C5'-O5'-P-O1P
2	C	600	FAD	C5B-O5B-PA-O2A
2	C	600	FAD	C5B-O5B-PA-O3P
2	E	600	FAD	C5'-O5'-P-O1P
2	F	600	FAD	C5'-O5'-P-O1P
2	F	600	FAD	C5'-O5'-P-O2P
2	F	600	FAD	C5'-O5'-P-O3P
3	D	601	NDP	C5B-O5B-PA-O1A
3	D	601	NDP	C5D-O5D-PN-O3
3	D	601	NDP	C5D-O5D-PN-O1N
2	A	600	FAD	P-O3P-PA-O2A
2	D	600	FAD	P-O3P-PA-O2A
2	B	600	FAD	C2B-C1B-N9A-C8A
3	A	601	NDP	C4B-C5B-O5B-PA
3	A	601	NDP	C2B-O2B-P2B-O1X
3	A	601	NDP	PA-O3-PN-O1N
3	B	601	NDP	PA-O3-PN-O2N
3	B	601	NDP	C4B-C5B-O5B-PA
2	F	600	FAD	C2B-C1B-N9A-C4A
2	F	600	FAD	O4B-C1B-N9A-C8A
2	A	600	FAD	P-O3P-PA-O1A
2	D	600	FAD	P-O3P-PA-O1A
2	E	600	FAD	P-O3P-PA-O1A
2	E	600	FAD	PA-O3P-P-O2P
3	D	601	NDP	PN-O3-PA-O1A
2	E	600	FAD	O4B-C1B-N9A-C8A

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Mol	Chain	Res	Type	Atoms
3	A	601	NDP	C3B-C4B-C5B-O5B
3	A	601	NDP	C2B-O2B-P2B-O3X
2	F	600	FAD	PA-O3P-P-O2P

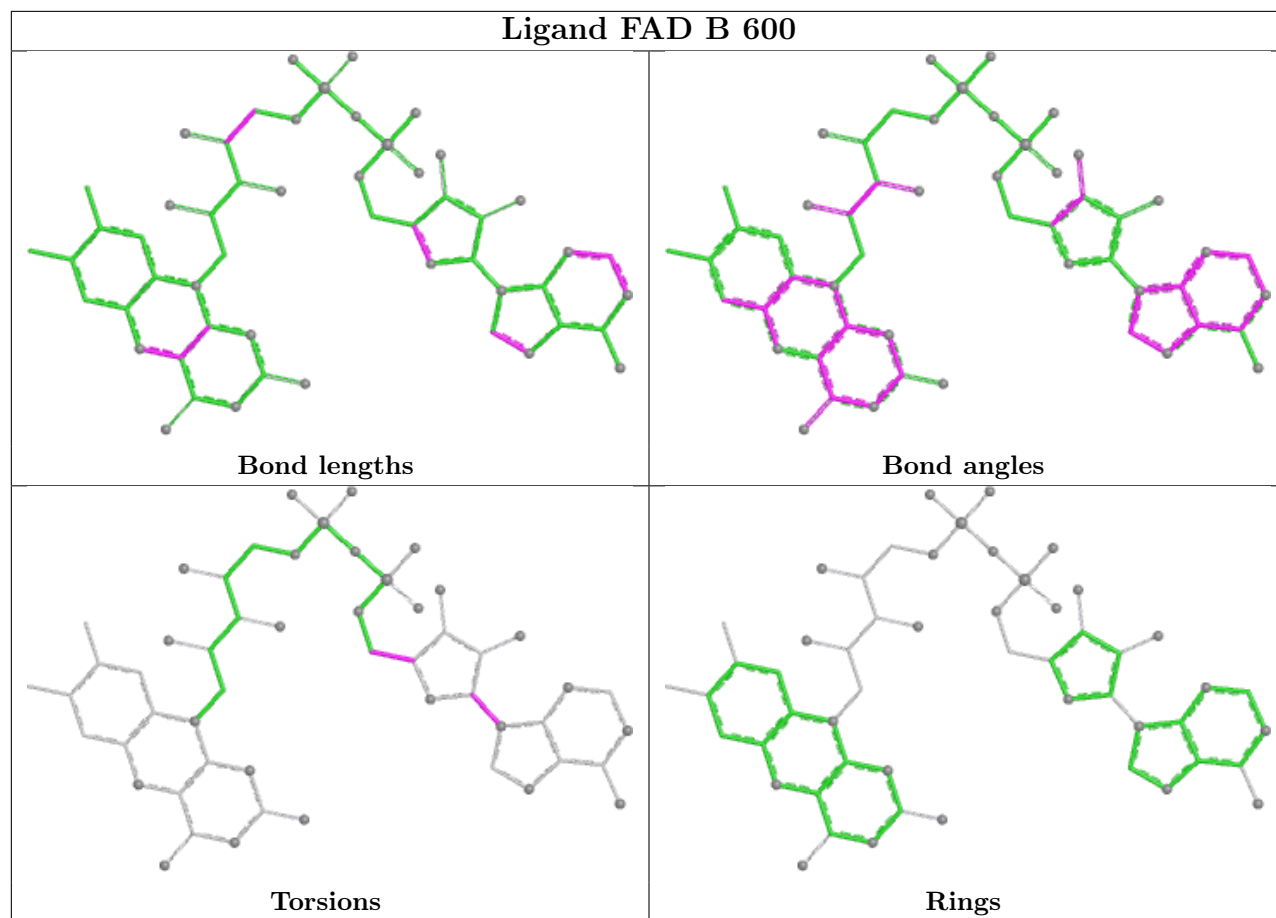
There are no ring outliers.

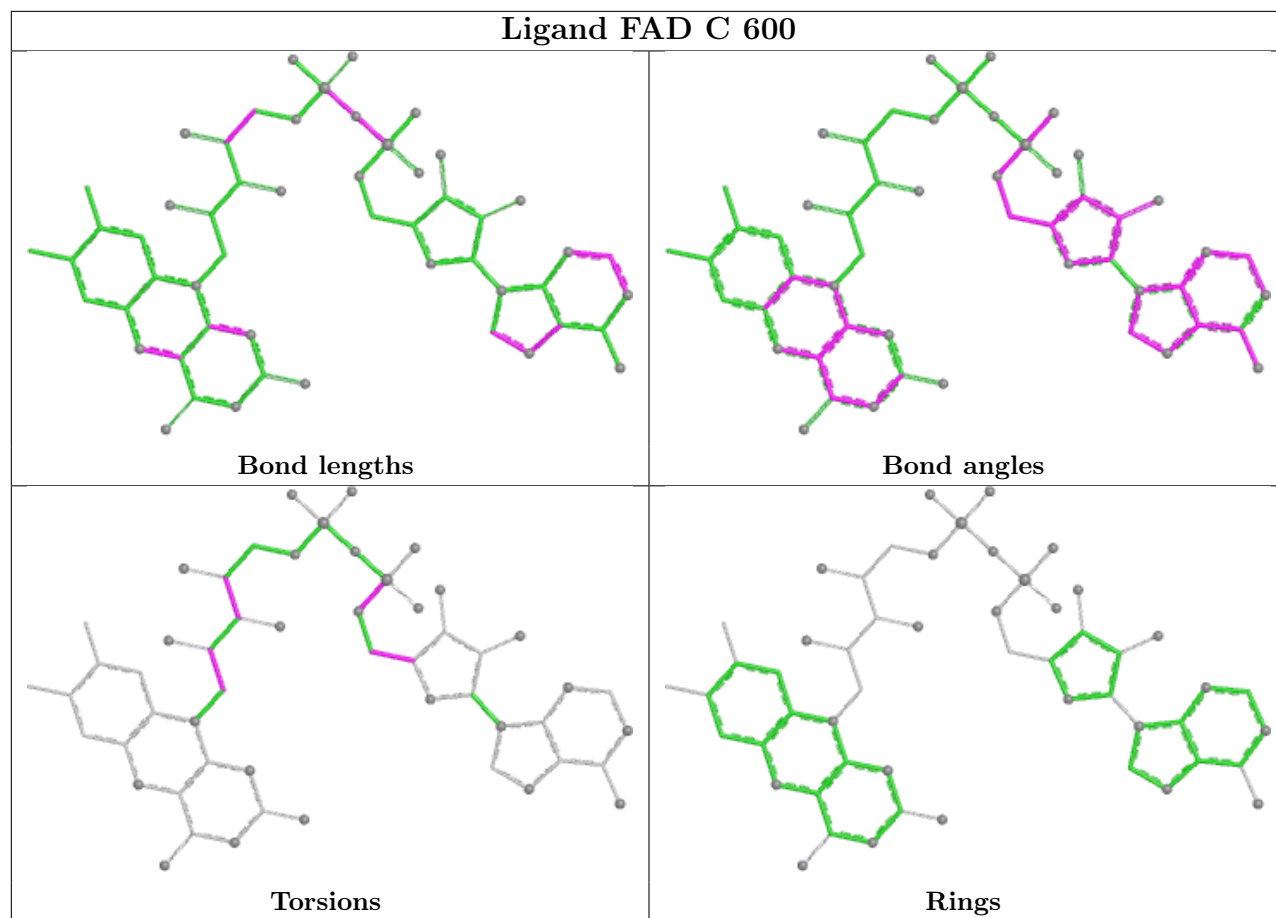
12 monomers are involved in 70 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	600	FAD	10	0
2	C	600	FAD	15	0
3	F	601	NDP	4	0
3	E	601	NDP	1	0
2	E	600	FAD	3	0
3	A	601	NDP	2	0
2	A	600	FAD	6	0
3	B	601	NDP	8	0
2	D	600	FAD	4	0
3	D	601	NDP	6	0
3	C	601	NDP	6	0
2	F	600	FAD	5	0

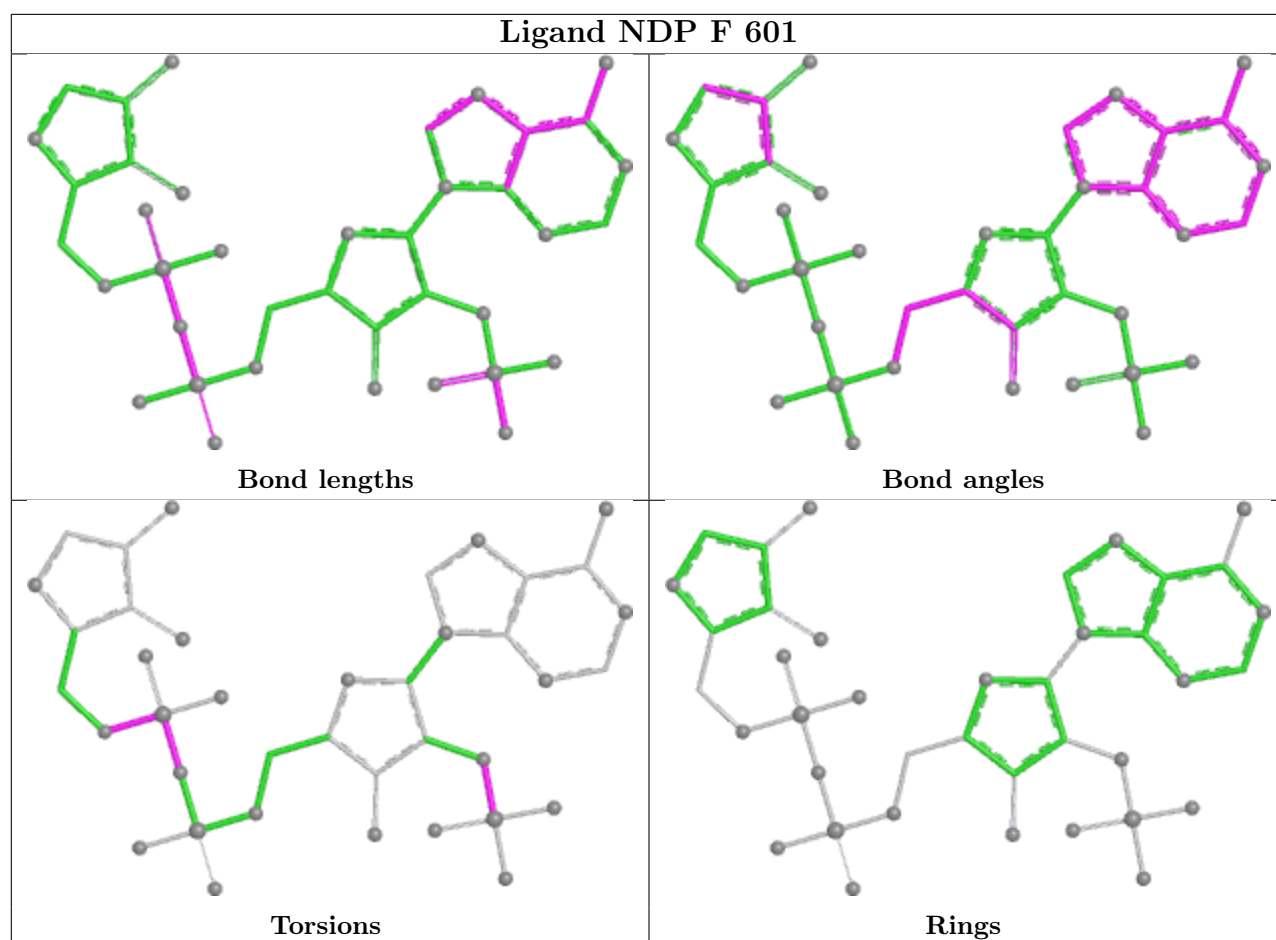
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

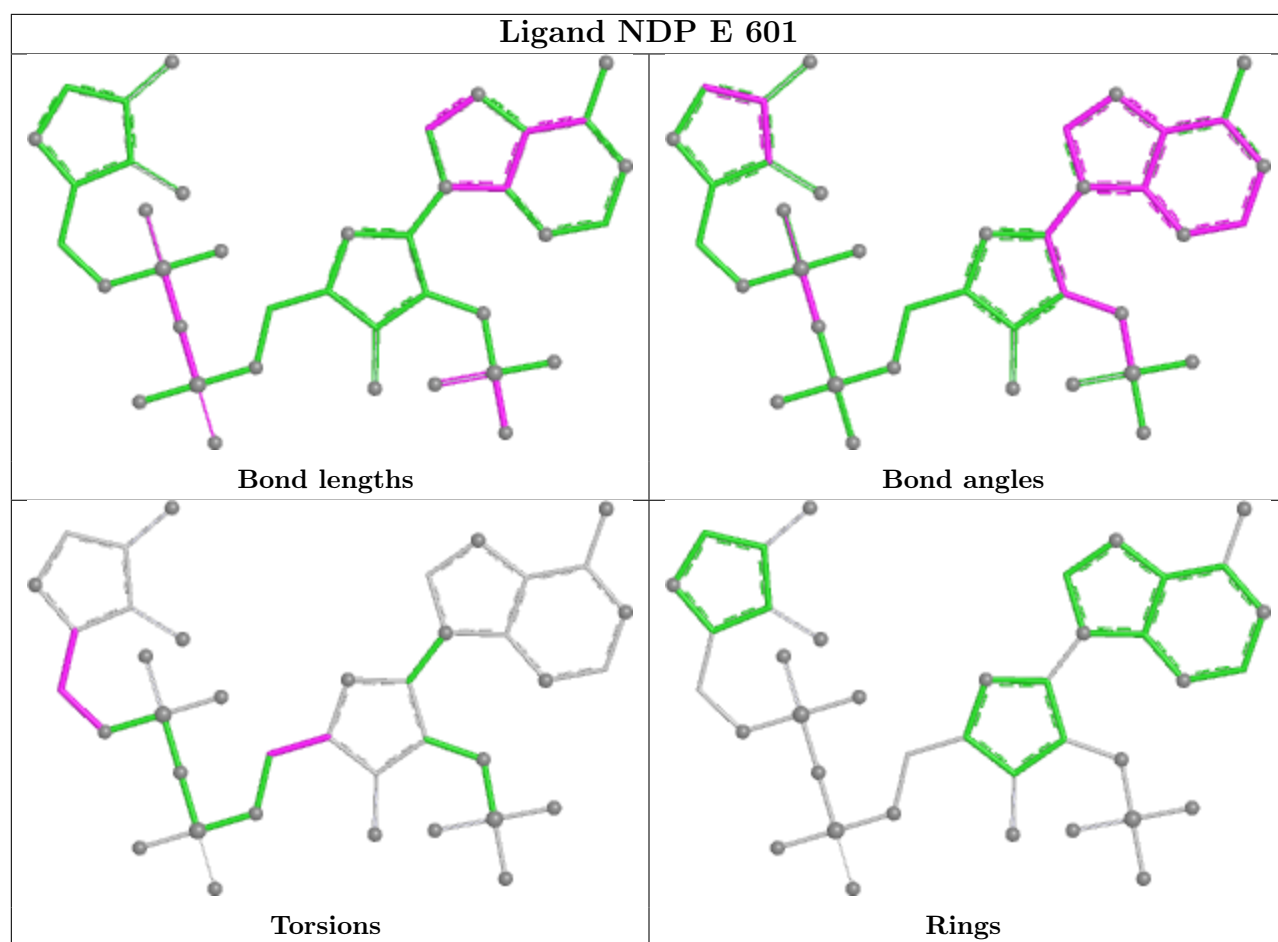
## Ligand FAD B 600



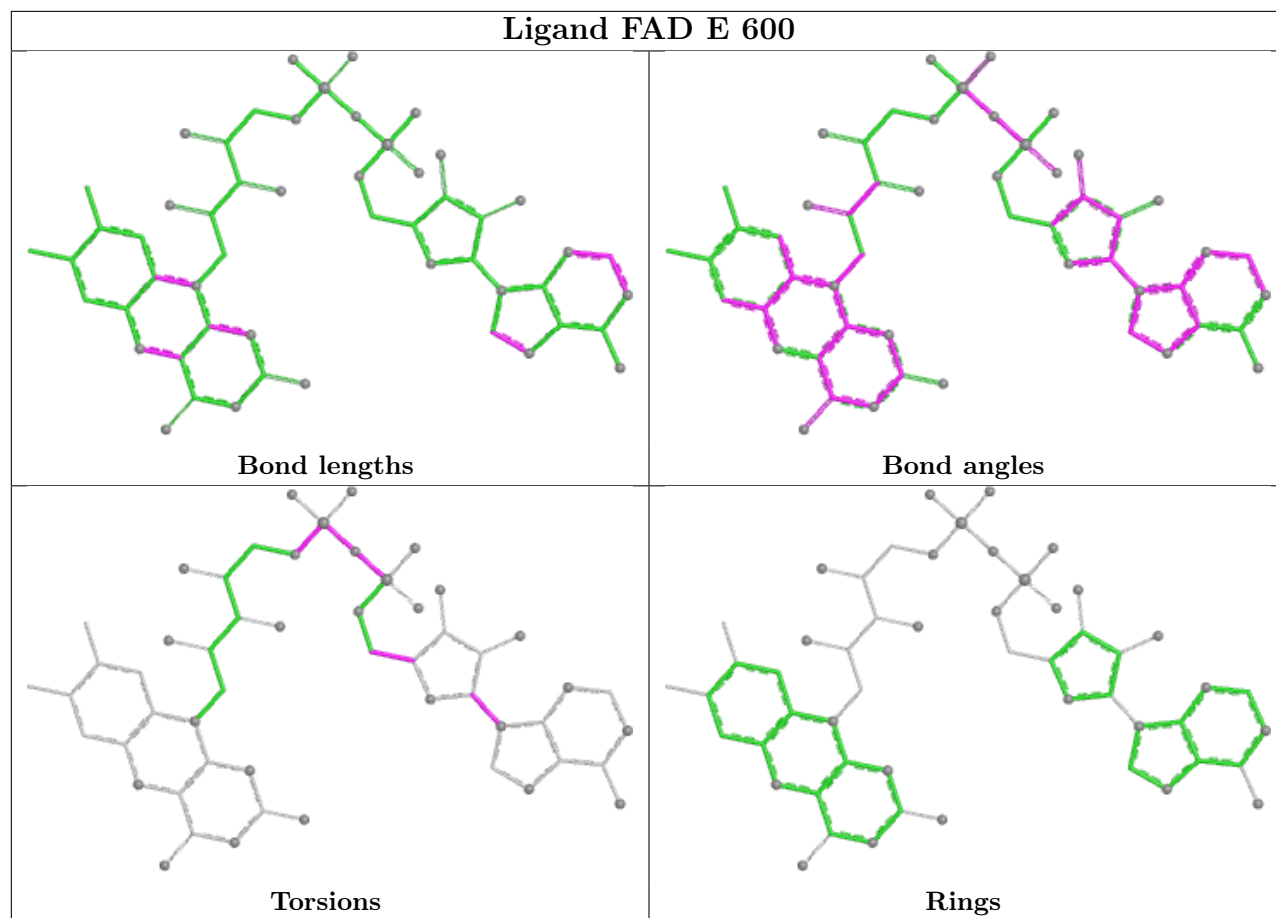


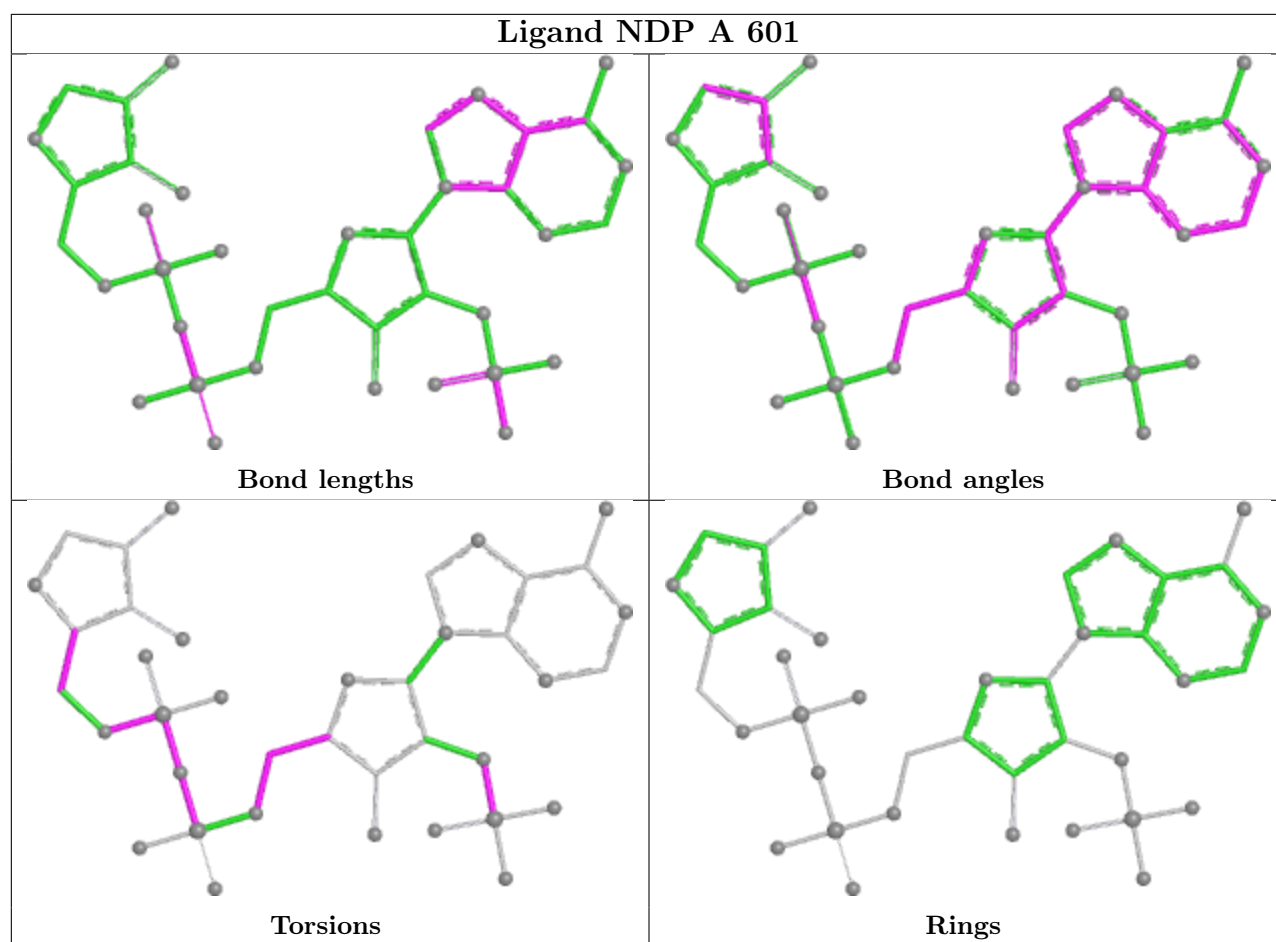




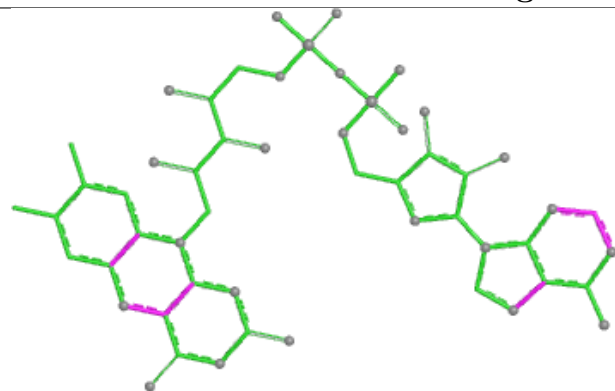


## Ligand FAD E 600

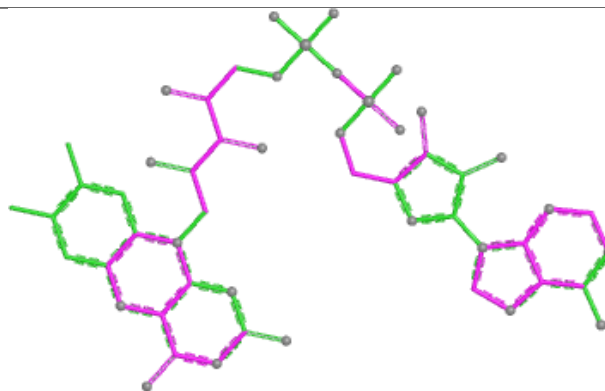




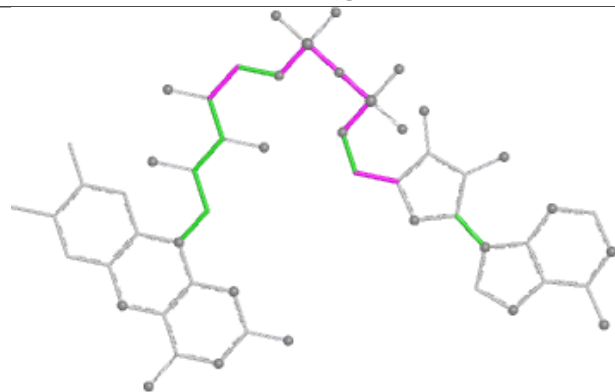
## Ligand FAD A 600



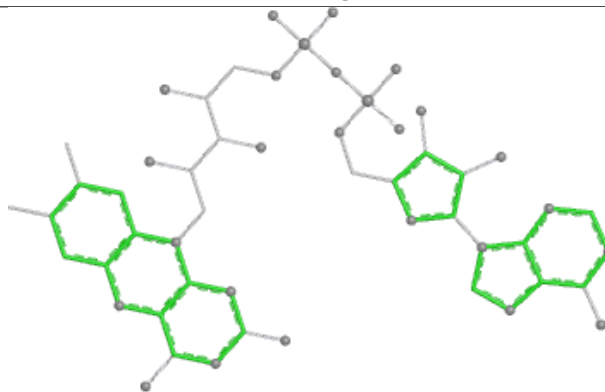
Bond lengths



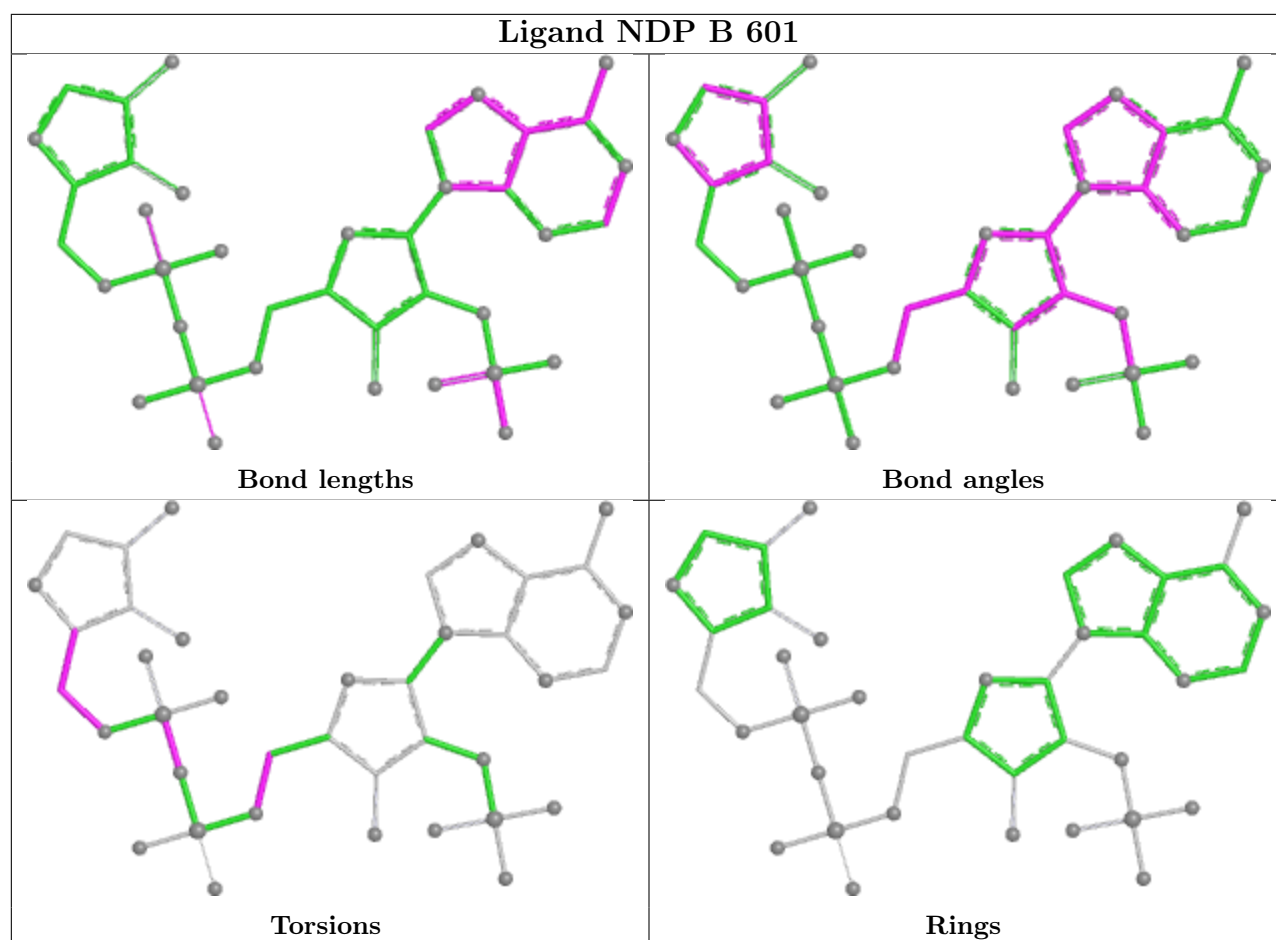
Bond angles

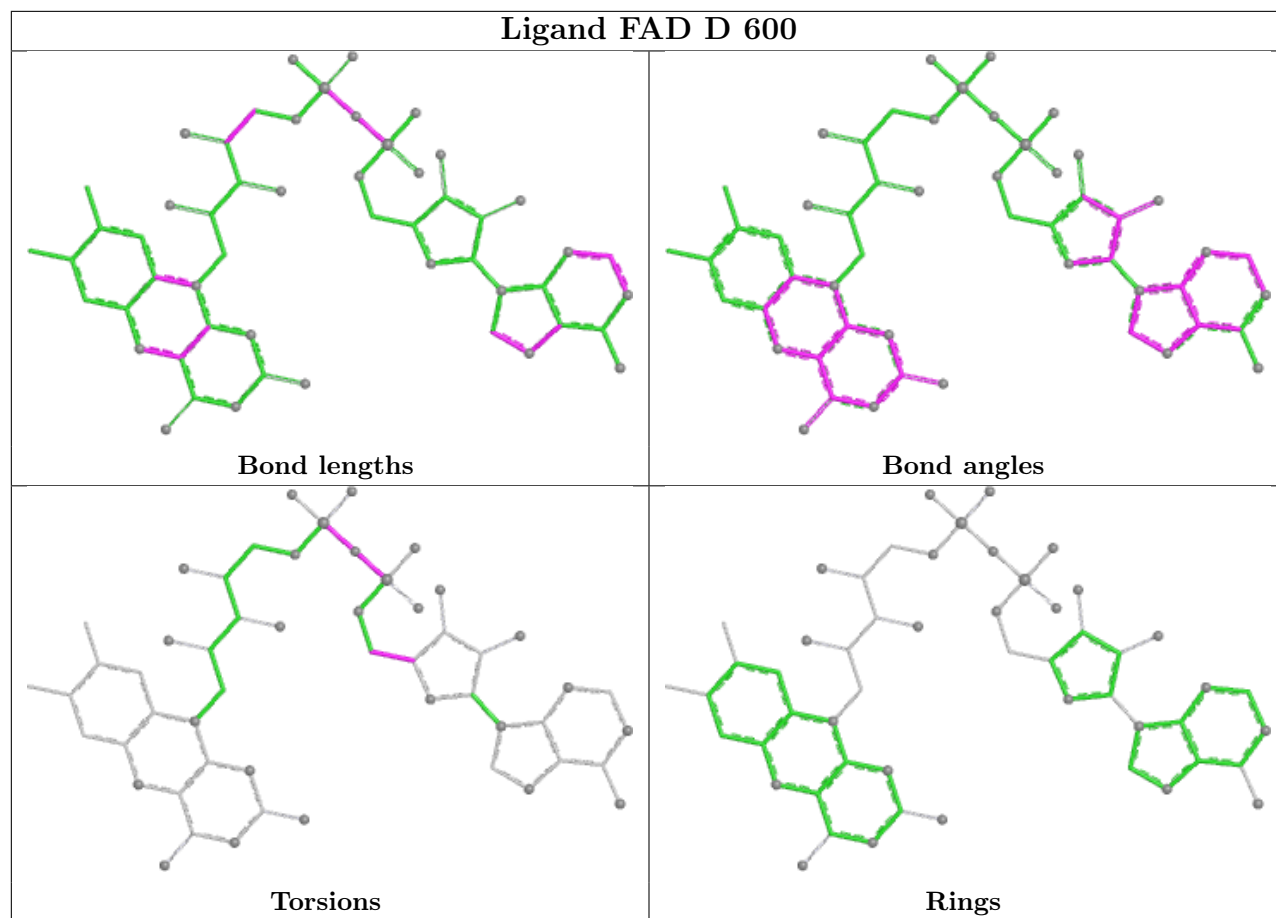


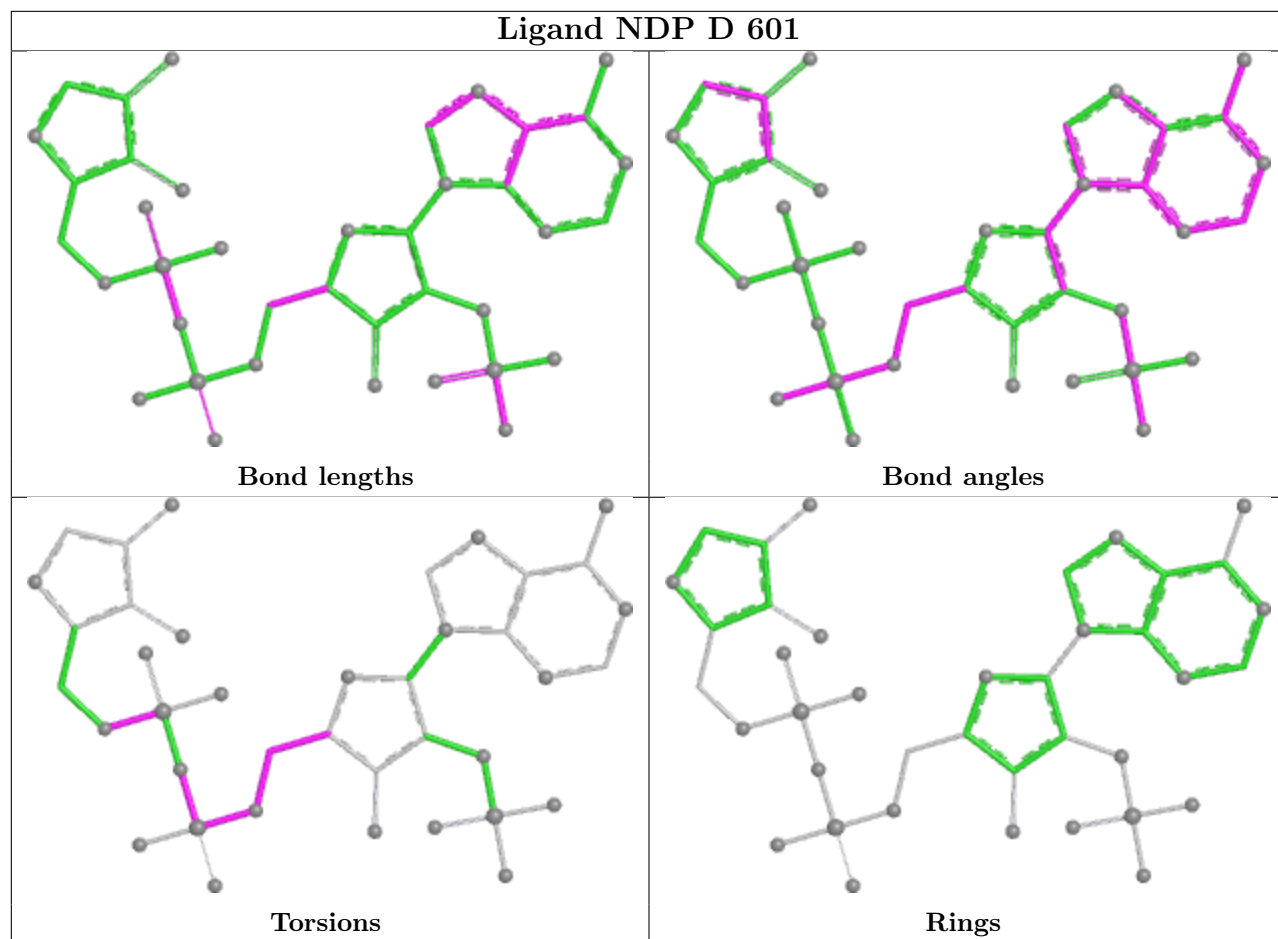
Torsions



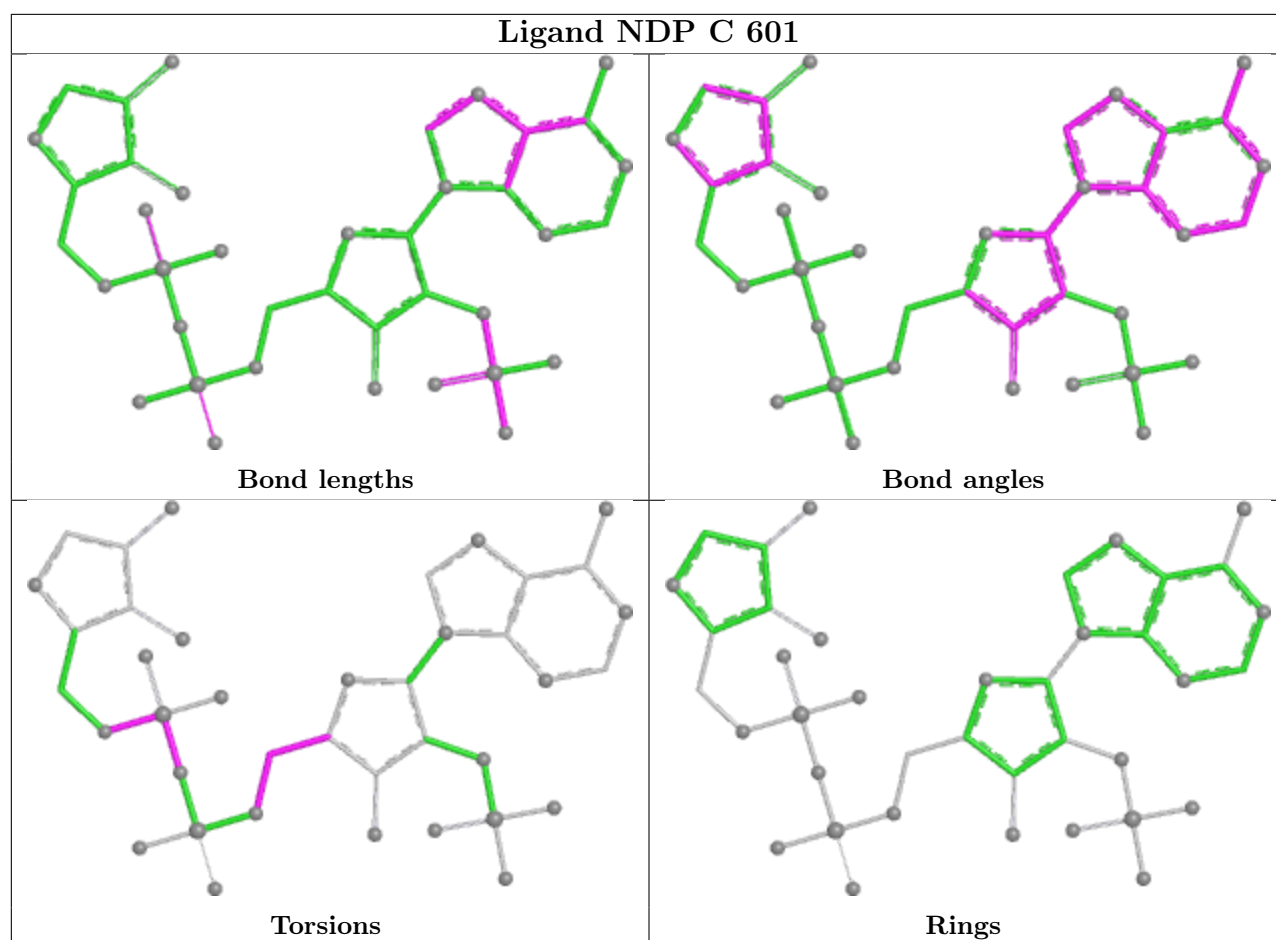
Rings

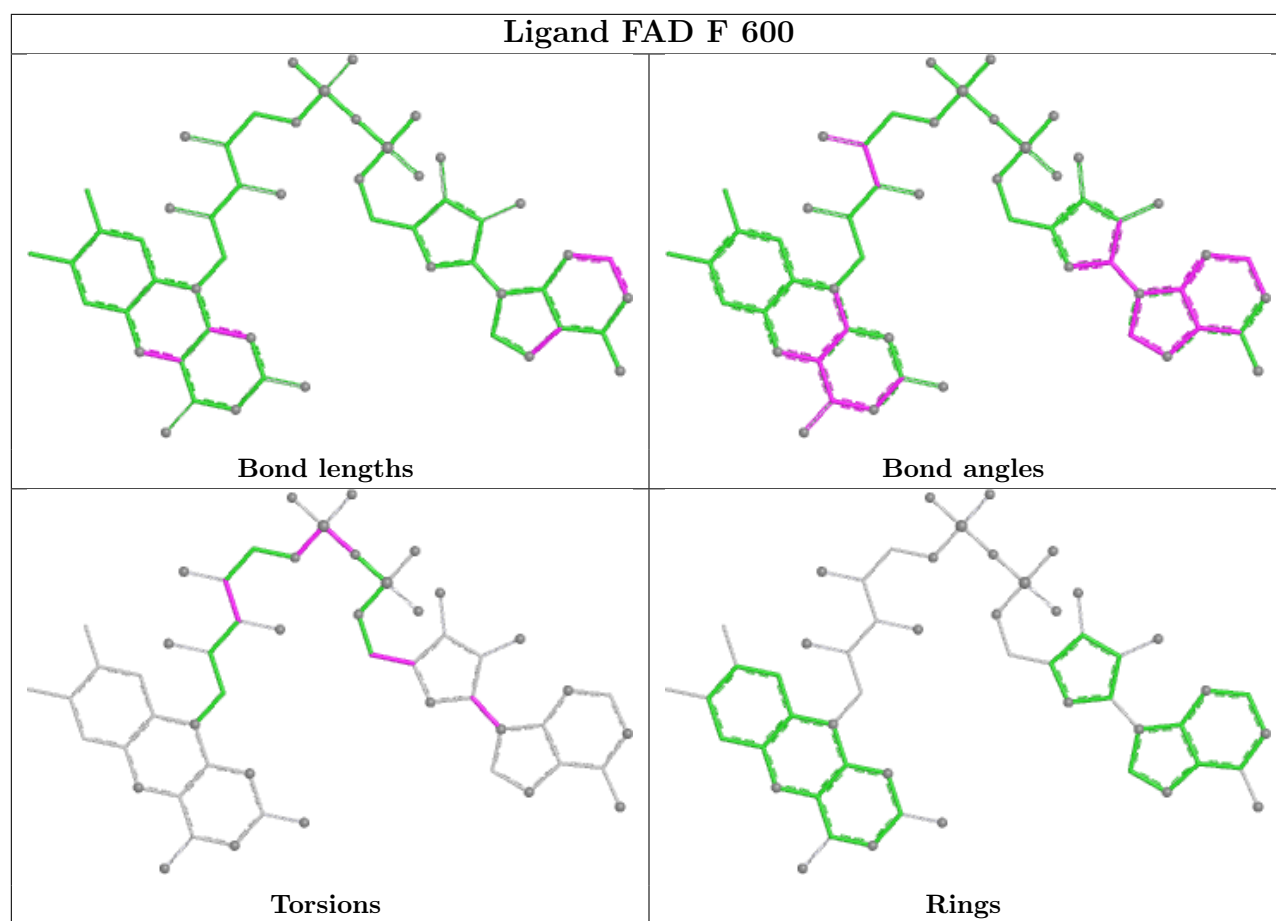












## 5.7 Other polymers [i](#)

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 ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2		OWAB(Å <sup>2</sup> )	Q < 0.9
1	A	490/499 (98%)	-0.11	4 (0%)	82 64	7, 13, 20, 48	0
1	B	487/499 (97%)	-0.16	2 (0%)	88 76	6, 13, 20, 39	0
1	C	482/499 (96%)	0.50	30 (6%)	26 14	6, 13, 19, 44	0
1	D	487/499 (97%)	0.08	11 (2%)	61 38	6, 12, 19, 38	0
1	E	491/499 (98%)	-0.05	7 (1%)	73 51	7, 13, 20, 48	0
1	F	490/499 (98%)	0.02	6 (1%)	76 55	6, 13, 20, 48	0
All	All	2927/2994 (97%)	0.05	60 (2%)	65 41	6, 13, 20, 48	0

All (60) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	497	CYS	7.4
1	E	495	SER	6.2
1	C	297	THR	5.5
1	C	335	ILE	4.7
1	F	499	GLY	4.3
1	A	281	GLU	4.2
1	C	256	ILE	4.1
1	C	306	GLY	3.8
1	E	496	GLY	3.7
1	C	331	ALA	3.5
1	C	302	LEU	3.3
1	E	498	CYS	3.2
1	C	307	VAL	3.2
1	C	18	ILE	3.2
1	C	134	PHE	3.1
1	A	498	CYS	3.0
1	D	114	TRP	3.0
1	F	495	SER	3.0
1	D	251	PHE	3.0

*Continued on next page...*

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Mol	Chain	Res	Type	RSRZ
1	D	494	GLN	3.0
1	C	19	GLY	2.9
1	A	499	GLY	2.8
1	C	182	ASP	2.8
1	B	92	ASP	2.7
1	B	281	GLU	2.7
1	F	267	LEU	2.7
1	C	296	CYS	2.7
1	F	498	CYS	2.7
1	A	497	CYS	2.6
1	D	398	ASN	2.6
1	C	154	ALA	2.5
1	D	394	PHE	2.5
1	D	495	SER	2.4
1	C	329	ILE	2.4
1	F	281	GLU	2.4
1	C	35	ASP	2.4
1	C	132	GLY	2.4
1	C	24	GLY	2.3
1	C	27	ALA	2.3
1	C	300	ILE	2.3
1	C	15	LEU	2.3
1	C	275	ASN	2.3
1	C	116	TYR	2.3
1	C	280	ILE	2.3
1	E	290	ALA	2.3
1	D	402	TYR	2.2
1	E	338	GLY	2.2
1	C	281	GLU	2.2
1	C	142	ALA	2.2
1	D	395	GLY	2.1
1	D	397	GLU	2.1
1	E	437	GLY	2.1
1	C	140	ILE	2.1
1	D	469	ILE	2.1
1	D	410	GLU	2.1
1	F	158	LEU	2.1
1	C	16	ILE	2.1
1	C	283	GLU	2.0
1	C	56	GLY	2.0
1	C	305	VAL	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 6.4 Ligands [i](#)

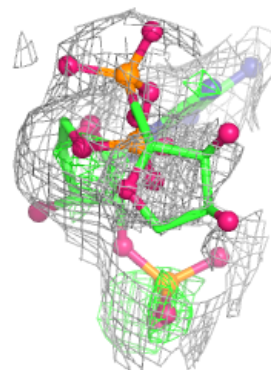
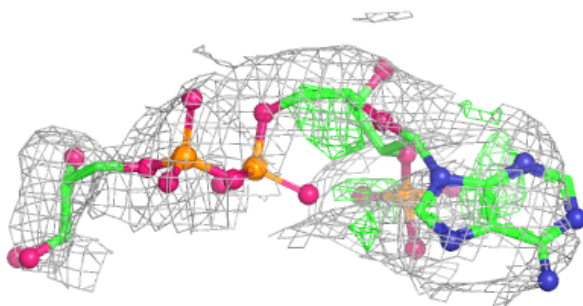
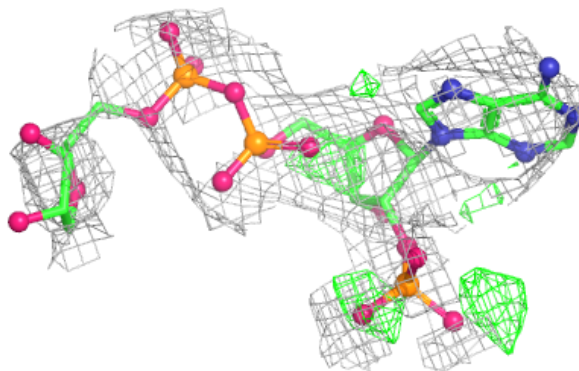
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	NDP	C	601	39/48	0.72	0.16	82,92,100,101	0
3	NDP	F	601	39/48	0.76	0.19	72,95,112,112	0
2	FAD	C	600	53/53	0.79	0.16	34,45,49,51	0
3	NDP	D	601	39/48	0.80	0.14	44,55,77,77	0
3	NDP	A	601	39/48	0.83	0.13	41,49,78,78	0
3	NDP	E	601	39/48	0.85	0.15	45,52,76,79	0
2	FAD	F	600	53/53	0.90	0.12	27,33,53,55	0
3	NDP	B	601	39/48	0.90	0.12	31,50,69,71	0
2	FAD	E	600	53/53	0.91	0.16	10,17,54,56	0
2	FAD	A	600	53/53	0.92	0.11	14,24,36,36	0
2	FAD	D	600	53/53	0.93	0.17	20,29,40,47	0
2	FAD	B	600	53/53	0.94	0.11	18,26,42,46	0

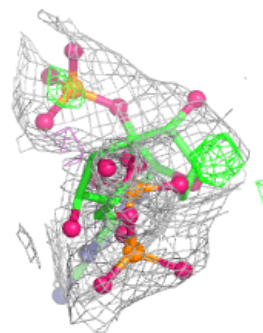
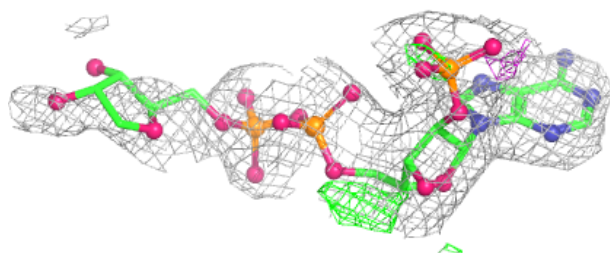
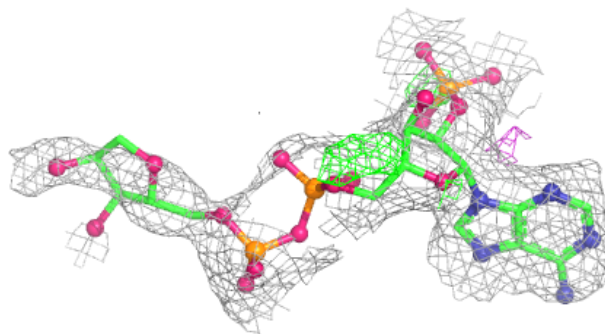
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around NDP C 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

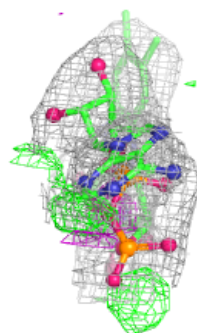
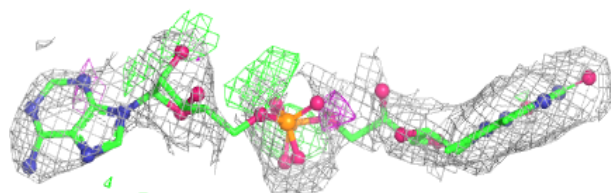
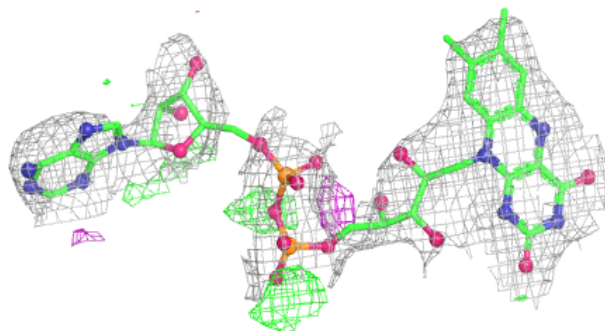
**Electron density around NDP F 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

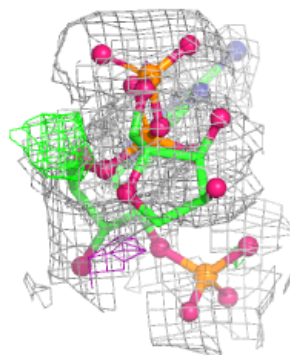
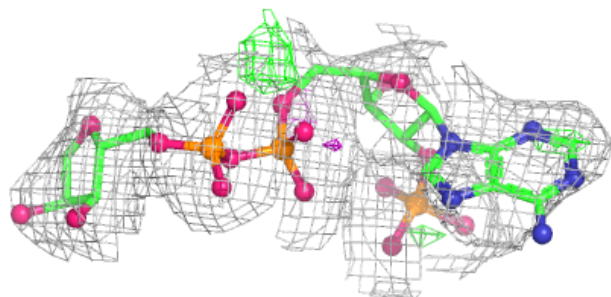
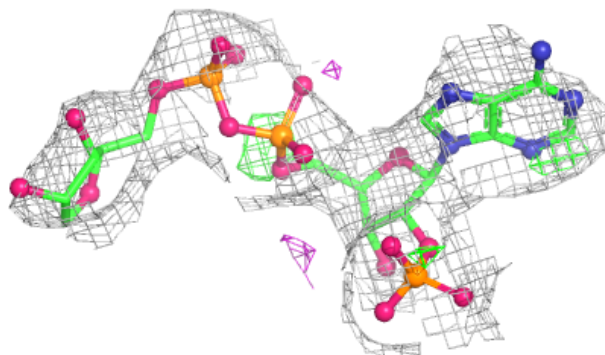


**Electron density around FAD C 600:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around NDP D 601:**

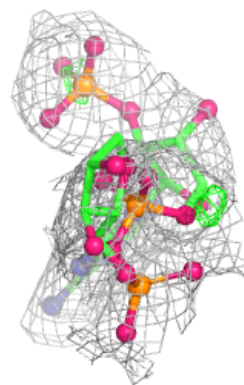
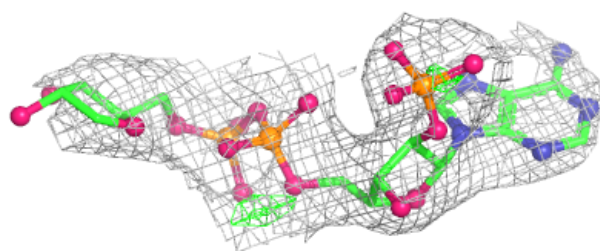
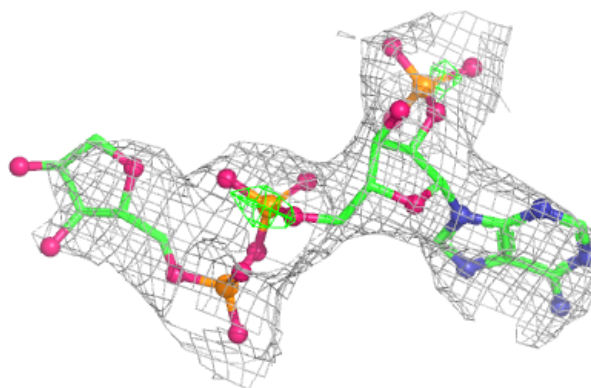
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



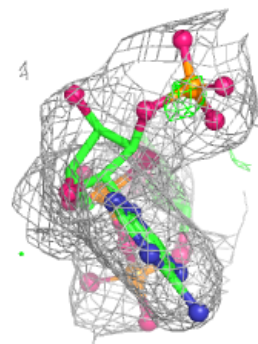
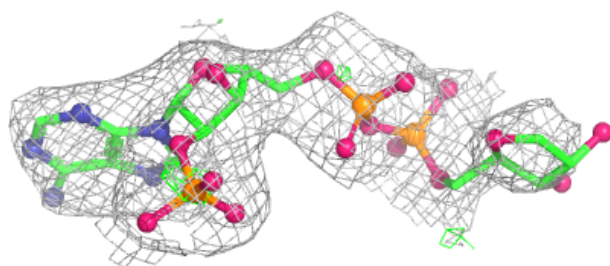
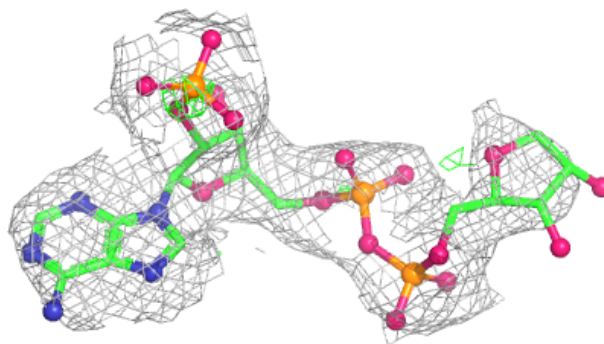


**Electron density around NDP A 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around NDP E 601:**

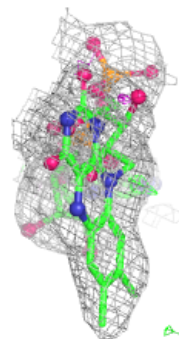
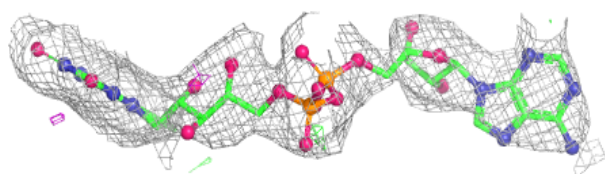
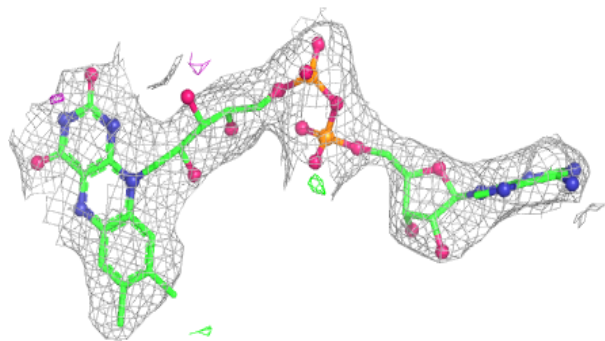
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



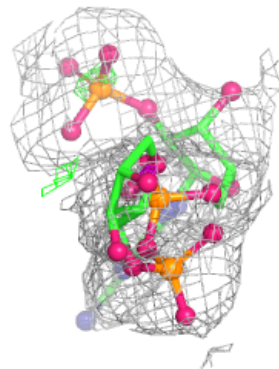
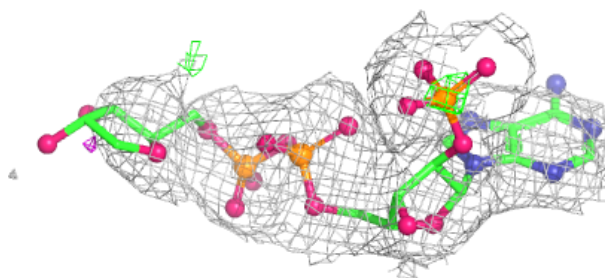
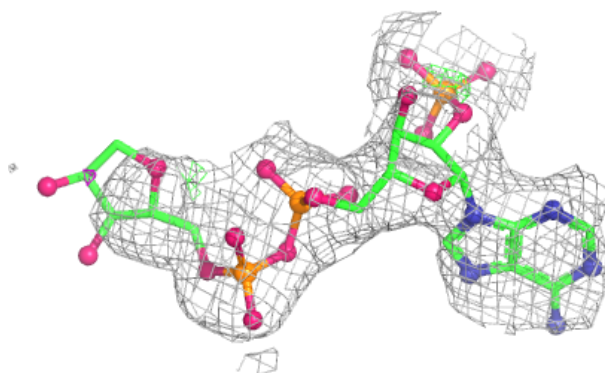


**Electron density around FAD F 600:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

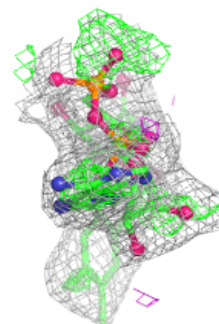
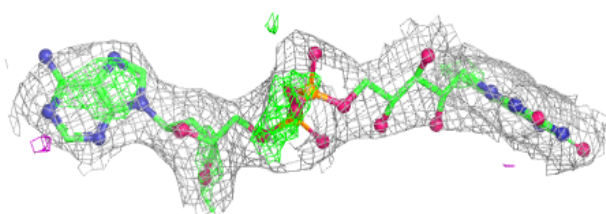
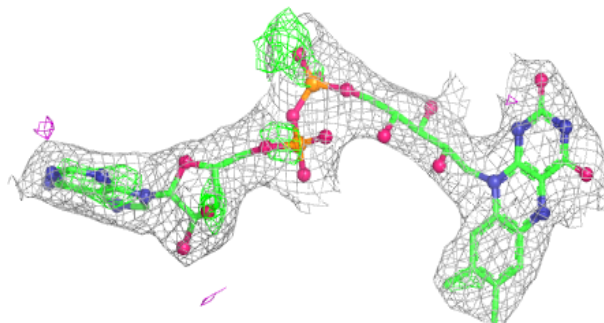
**Electron density around NDP B 601:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

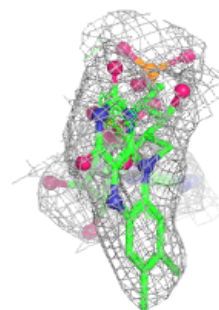
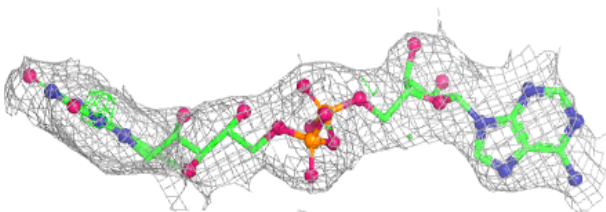
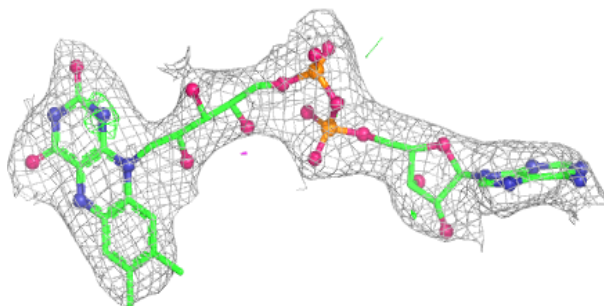


**Electron density around FAD E 600:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

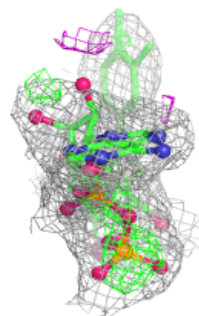
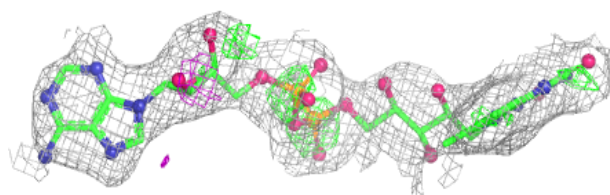
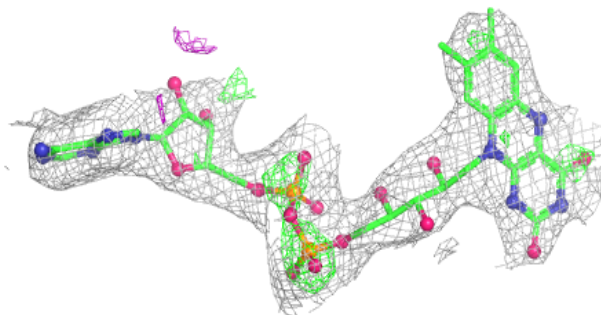
**Electron density around FAD A 600:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

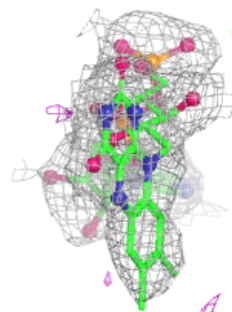
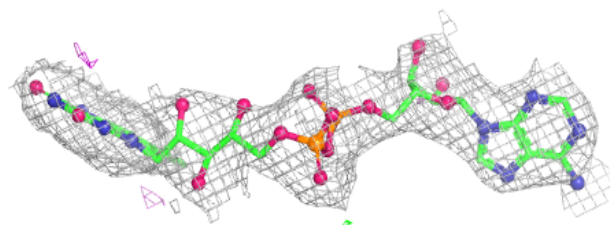
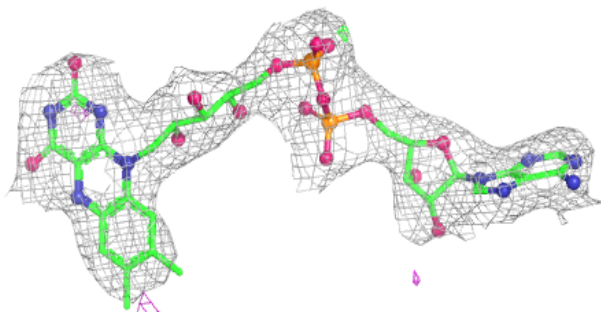


**Electron density around FAD D 600:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around FAD B 600:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



## 6.5 Other polymers [i](#)

There are no such residues in this entry.