



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 02:51 PM UTC

PDB ID : 6PFZ / pdb_00006pfz
Title : Structure of a NAD-Dependent Persulfide Reductase from *A. fulgidus*
Authors : Sazinsky, M.H.; Shabdar, S.; Garcia-Constineiras, A.; Crane III, E.J.
Deposited on : 2019-06-23
Resolution : 3.10 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 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

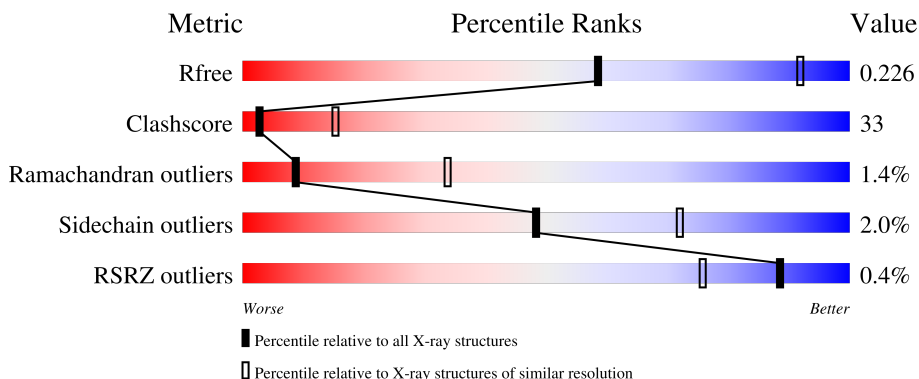
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

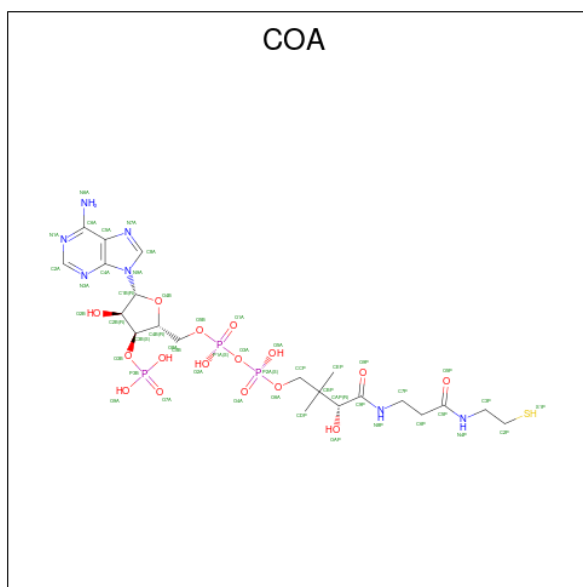
The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	551	
1	B	551	
1	C	551	
1	D	551	

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

- Molecule 3 is COENZYME A (CCD ID: COA) (formula: $C_{21}H_{36}N_7O_{16}P_3S$).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
3	D	1	Total	C	N	O	P	S	0	0
			48	21	7	16	3	1		
3	A	1	Total	C	N	O	P	S	0	0
			48	21	7	16	3	1		
3	B	1	Total	C	N	O	P	S	0	0
			48	21	7	16	3	1		
3	C	1	Total	C	N	O	P	S	0	0
			48	21	7	16	3	1		

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Ca	0	0
			1	1		
4	B	1	Total	Ca	0	0
			1	1		
4	C	2	Total	Ca	0	0
			2	2		

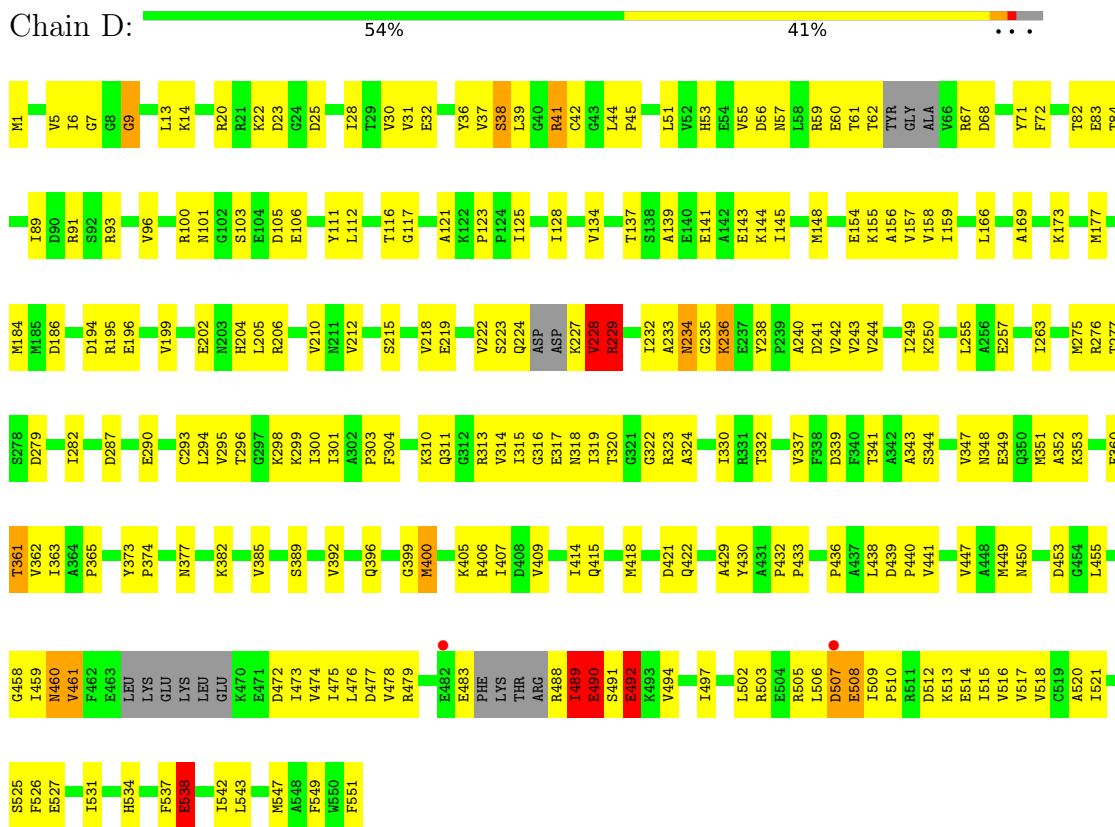
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	3	Total 3	O 3	0	0
5	B	11	Total 11	O 11	0	0

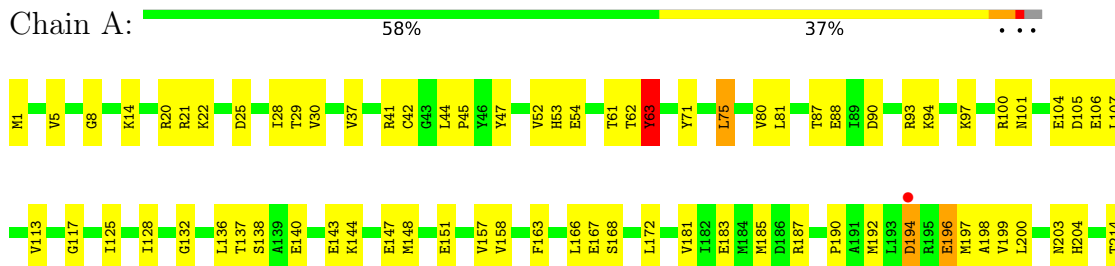
3 Residue-property plots [i](#)

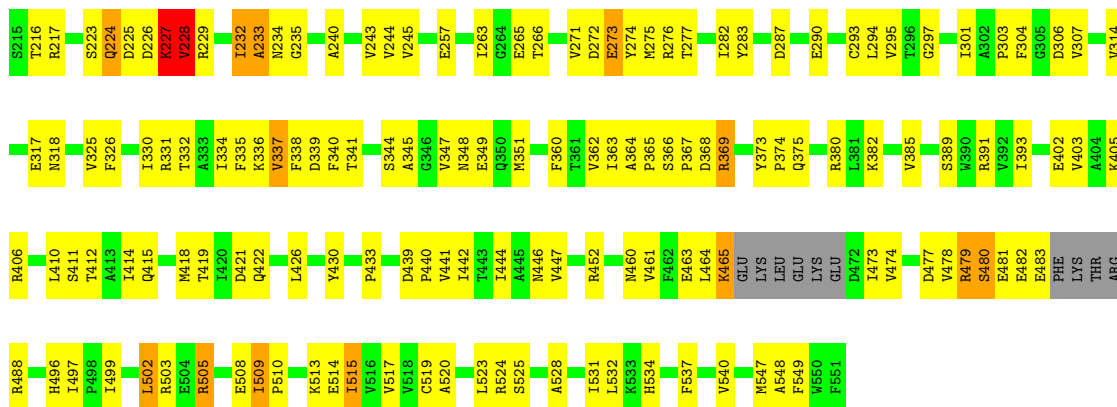
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: NADH oxidase (NoxA-3)

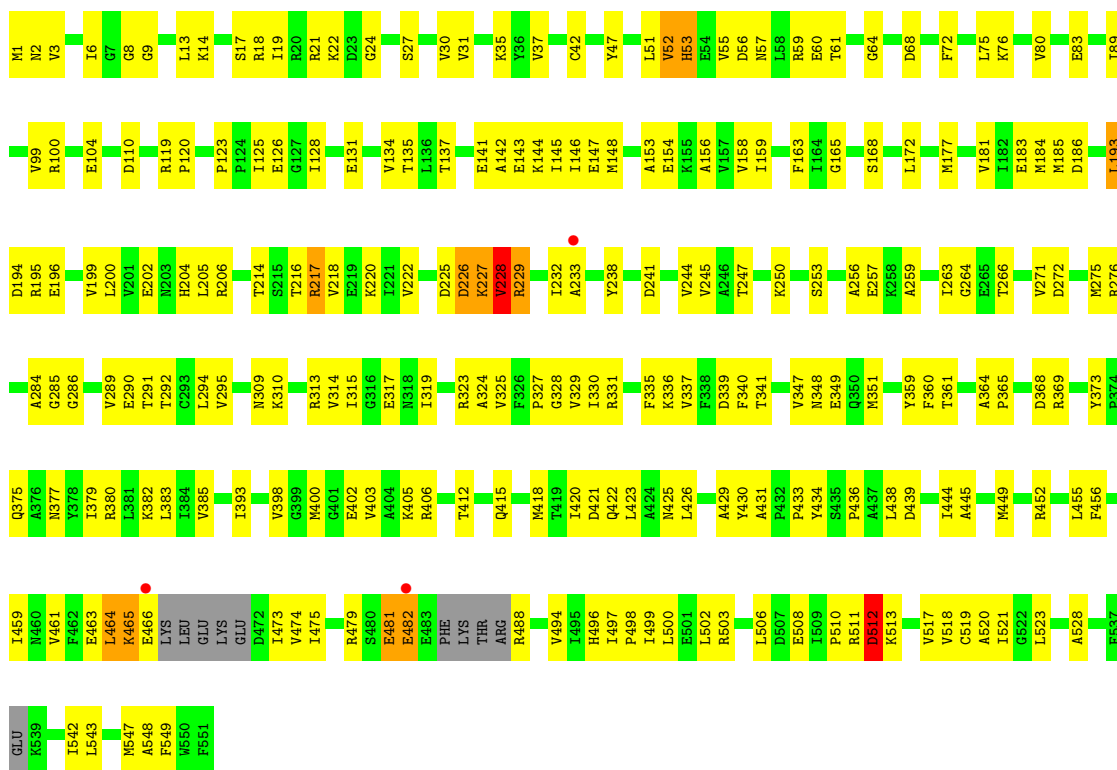


- Molecule 1: NADH oxidase (NoxA-3)

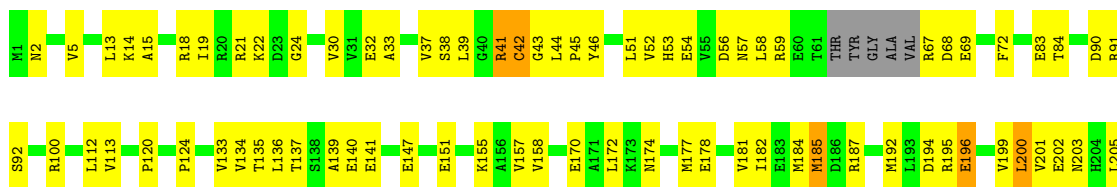


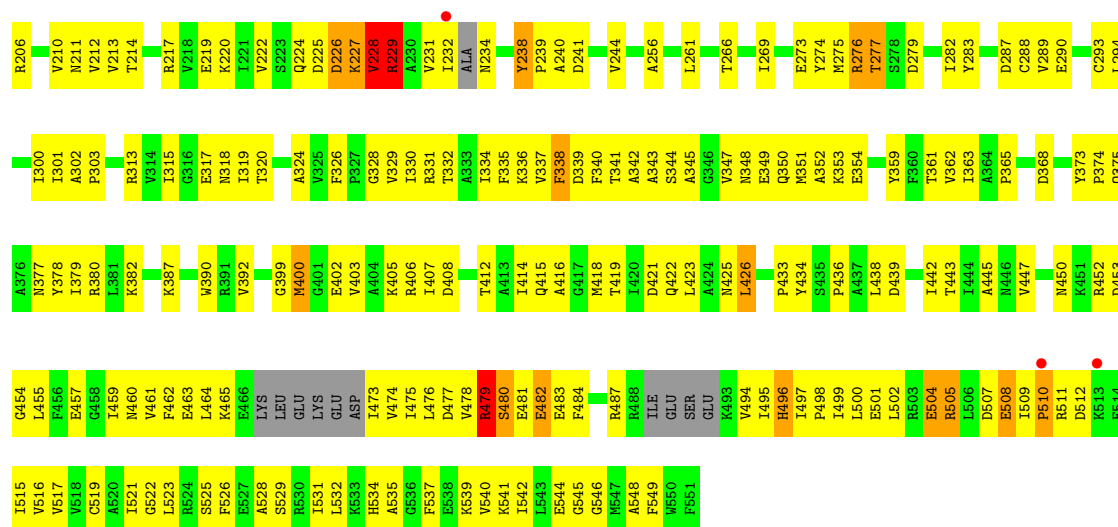


• Molecule 1: NADH oxidase (NoxA-3)



• Molecule 1: NADH oxidase (NoxA-3)





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	84.98Å 100.36Å 136.20Å 90.00° 91.89° 90.00°	Depositor
Resolution (Å)	39.48 – 3.10 39.48 – 3.10	Depositor EDS
% Data completeness (in resolution range)	97.9 (39.48-3.10) 97.9 (39.48-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.12	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.09 (at 2.77Å)	Xtrriage
Refinement program	PHENIX 1.10_2155	Depositor
R, R_{free}	0.202 , 0.229 0.204 , 0.226	Depositor DCC
R_{free} test set	2879 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	58.6	Xtrriage
Anisotropy	0.038	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 61.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.039 for h,-k,-l	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	16676	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 10.75% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.84	2/4139 (0.0%)	1.08	23/5609 (0.4%)
1	B	0.85	1/4163 (0.0%)	1.04	13/5634 (0.2%)
1	C	0.95	7/4079 (0.2%)	1.01	15/5527 (0.3%)
1	D	0.84	0/4099	1.08	21/5552 (0.4%)
All	All	0.87	10/16480 (0.1%)	1.05	72/22322 (0.3%)

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	496	HIS	CE1-NE2	-7.43	1.25	1.32
1	A	509	ILE	N-CA	-6.73	1.40	1.46
1	C	185	MET	SD-CE	-6.63	1.62	1.79
1	C	540	VAL	C-O	-6.18	1.17	1.24
1	C	496	HIS	CG-ND1	-5.97	1.31	1.38
1	A	54	GLU	CA-CB	5.92	1.64	1.53
1	C	238	TYR	C-O	-5.86	1.20	1.25
1	C	496	HIS	CG-CD2	-5.56	1.29	1.35
1	B	438	LEU	CA-C	-5.20	1.46	1.52
1	C	465	LYS	CA-C	-5.03	1.48	1.53

All (72) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	228	VAL	N-CA-C	12.06	134.42	109.34
1	A	63	TYR	N-CA-C	-10.16	96.83	110.55
1	A	232	ILE	N-CA-C	9.63	123.68	108.85
1	A	229	ARG	N-CA-C	9.28	122.70	108.42
1	C	502	LEU	N-CA-C	9.25	121.36	111.28
1	D	234	ASN	N-CA-C	-9.05	102.19	113.23
1	D	228	VAL	N-CA-C	8.98	128.02	109.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	227	LYS	N-CA-C	-8.73	92.20	110.80
1	C	53	HIS	N-CA-C	8.68	120.82	111.36
1	D	53	HIS	N-CA-C	8.50	120.63	111.36
1	A	509	ILE	O-C-N	8.39	128.01	121.46
1	D	389	SER	O-C-N	8.36	130.68	122.07
1	D	36	TYR	N-CA-C	8.27	122.11	108.96
1	A	53	HIS	N-CA-C	8.10	121.02	111.71
1	D	9	GLY	N-CA-C	-7.83	98.77	112.55
1	C	185	MET	N-CA-C	7.72	122.33	110.36
1	D	460	ASN	N-CA-C	7.68	121.77	109.79
1	D	477	ASP	CA-C-N	-7.43	113.19	122.93
1	D	477	ASP	C-N-CA	-7.43	113.19	122.93
1	B	100	ARG	N-CA-C	7.42	122.55	112.68
1	A	223	SER	N-CA-C	7.39	122.86	113.55
1	A	75	LEU	N-CA-C	7.25	121.39	112.54
1	D	103	SER	N-CA-C	-7.19	98.38	109.52
1	C	483	GLU	N-CA-C	-7.04	105.23	114.31
1	C	229	ARG	N-CA-C	-7.03	95.83	110.80
1	A	62	THR	N-CA-C	-7.02	103.62	111.28
1	B	513	LYS	N-CA-C	6.97	121.65	109.80
1	A	14	LYS	N-CA-C	-6.89	103.85	111.36
1	B	110	ASP	N-CA-C	-6.67	103.81	112.68
1	A	227	LYS	CA-C-N	6.66	133.96	121.97
1	A	227	LYS	C-N-CA	6.66	133.96	121.97
1	C	399	GLY	N-CA-C	6.66	118.88	110.96
1	C	482	GLU	N-CA-C	6.65	119.12	108.41
1	A	480	SER	N-CA-C	6.54	118.49	111.36
1	A	502	LEU	N-CA-C	6.53	118.39	111.28
1	B	499	ILE	N-CA-C	6.44	117.19	110.62
1	D	38	SER	N-CA-C	6.39	121.03	113.23
1	D	236	LYS	N-CA-C	-6.30	100.95	110.28
1	C	484	PHE	N-CA-C	-6.26	98.19	108.76
1	C	318	ASN	N-CA-C	6.20	118.11	111.36
1	A	479	ARG	N-CA-C	6.17	119.52	109.59
1	B	193	LEU	N-CA-C	6.14	117.90	109.18
1	D	507	ASP	N-CA-C	-6.10	97.91	108.52
1	C	400	MET	N-CA-C	6.03	117.94	111.36
1	C	504	GLU	N-CA-C	5.65	118.53	111.24
1	B	459	ILE	N-CA-C	5.63	118.03	108.86
1	A	509	ILE	C-N-CD	-5.62	101.98	125.00
1	B	52	VAL	N-CA-C	5.61	121.52	113.16
1	B	228	VAL	CA-C-N	5.49	132.03	121.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	228	VAL	C-N-CA	5.49	132.03	121.54
1	D	400	MET	N-CA-C	-5.49	100.23	109.07
1	A	227	LYS	N-CA-C	5.46	122.44	110.80
1	C	178	GLU	N-CA-C	-5.43	100.44	109.46
1	A	505	ARG	N-CA-C	5.42	119.20	107.49
1	A	463	GLU	N-CA-C	5.41	118.04	109.50
1	D	276	ARG	CA-C-N	5.37	133.04	122.73
1	D	276	ARG	C-N-CA	5.37	133.04	122.73
1	A	460	ASN	N-CA-C	-5.37	103.30	110.55
1	C	133	VAL	N-CA-C	-5.31	100.77	108.36
1	B	512	ASP	N-CA-C	-5.30	107.18	113.97
1	D	277	THR	OG1-CB-CG2	5.30	119.90	109.30
1	A	515	ILE	N-CA-C	5.29	115.92	108.36
1	D	41	ARG	N-CA-C	5.29	117.04	111.28
1	A	515	ILE	CB-CA-C	-5.24	103.71	110.84
1	D	477	ASP	O-C-N	-5.21	116.56	123.13
1	D	399	GLY	N-CA-C	5.20	117.76	110.38
1	C	487	ARG	N-CA-C	5.18	118.67	109.96
1	C	276	ARG	N-CA-C	-5.16	103.59	110.55
1	B	53	HIS	CB-CA-C	-5.12	110.69	116.63
1	A	273	GLU	CA-CB-CG	5.08	124.27	114.10
1	B	482	GLU	N-CA-C	5.08	121.61	110.80
1	D	503	ARG	O-C-N	5.05	127.47	122.12

There are no chirality outliers.

There are no planarity outliers.

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4081	0	4098	217	0
1	B	4106	0	4152	266	0
1	C	4023	0	4026	364	0
1	D	4044	0	4057	276	0
2	A	53	0	31	2	0
2	B	53	0	31	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	53	0	31	6	0
2	D	53	0	31	5	0
3	A	48	0	32	8	0
3	B	48	0	32	8	0
3	C	48	0	32	12	0
3	D	48	0	32	8	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	2	0	0	0	0
5	A	3	0	0	0	0
5	B	11	0	0	0	0
All	All	16676	0	16585	1092	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 33.

All (1092) 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:495:ILE:CD1	1:C:508:GLU:HG2	1.37	1.54
1:C:495:ILE:HD11	1:C:508:GLU:CG	1.37	1.53
1:C:509:ILE:HG21	1:C:537:PHE:CE2	1.53	1.42
1:C:509:ILE:HG21	1:C:537:PHE:CZ	1.54	1.41
1:C:529:SER:CB	1:C:542:ILE:HD11	1.54	1.36
1:C:509:ILE:CG2	1:C:537:PHE:CE2	2.07	1.36
1:D:223:SER:HB2	1:D:227:LYS:N	1.39	1.35
1:C:529:SER:HB3	1:C:542:ILE:CD1	1.57	1.34
1:A:421:ASP:OD1	1:A:452:ARG:NH2	1.66	1.24
1:C:476:LEU:CD2	1:C:478:VAL:HG23	1.68	1.22
1:C:331:ARG:NH1	1:C:351:MET:SD	2.12	1.21
1:C:509:ILE:CG2	1:C:537:PHE:HE2	1.43	1.21
1:B:47:TYR:CZ	1:B:55:VAL:CG2	2.30	1.14
1:B:380:ARG:HH12	1:B:548:ALA:HB1	1.00	1.14
1:B:380:ARG:NH1	1:B:548:ALA:HB1	1.61	1.13
1:B:47:TYR:CZ	1:B:55:VAL:HG22	1.83	1.13
1:A:194:ASP:OD2	1:A:382:LYS:NZ	1.83	1.12
1:C:275:MET:CG	1:C:315:ILE:HD11	1.81	1.11
1:A:483:GLU:O	1:A:488:ARG:N	1.81	1.11
1:B:184:MET:HE3	1:B:217:ARG:NH2	1.65	1.11
1:B:47:TYR:CE1	1:B:55:VAL:HG22	1.86	1.09
1:C:84:THR:HG22	1:C:100:ARG:HG2	1.27	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:314:VAL:HB	1:D:324:ALA:HB1	1.27	1.09
1:A:232:ILE:O	1:A:235:GLY:N	1.88	1.07
1:A:421:ASP:CG	1:A:452:ARG:HH22	1.61	1.06
1:D:472:ASP:O	1:D:473:ILE:HG23	1.53	1.06
1:D:41:ARG:NH2	1:D:137:THR:HG23	1.70	1.06
1:A:473:ILE:HG23	1:A:514:GLU:O	1.53	1.06
1:C:275:MET:HG2	1:C:315:ILE:CD1	1.86	1.06
1:C:84:THR:HG21	1:C:100:ARG:HD3	1.41	1.03
1:B:47:TYR:CE1	1:B:55:VAL:CG2	2.44	1.01
1:C:42:CYS:HB2	3:C:902:COA:H21	1.38	1.01
1:B:461:VAL:HG21	1:B:549:PHE:O	1.60	1.00
1:B:1:MET:CE	1:B:3:VAL:CG2	2.39	1.00
1:C:232:ILE:CB	1:C:238:TYR:HE1	1.74	1.00
1:D:497:ILE:HD12	1:D:509:ILE:HD11	1.42	1.00
1:D:25:ASP:OD1	1:C:534:HIS:HE1	1.45	0.99
1:D:461:VAL:HG11	1:D:549:PHE:O	1.63	0.99
1:C:187:ARG:HH22	1:C:350:GLN:HE21	1.00	0.99
1:C:275:MET:HE1	1:C:326:PHE:HB3	1.40	0.99
1:D:461:VAL:HG21	1:D:549:PHE:HB3	1.45	0.98
1:B:184:MET:HE3	1:B:217:ARG:HH21	1.28	0.98
1:A:430:TYR:OH	3:B:902:COA:S1P	2.20	0.97
1:C:419:THR:HG22	1:C:421:ASP:H	1.23	0.97
1:C:42:CYS:HB2	3:C:902:COA:C2P	1.93	0.97
1:C:509:ILE:CG2	1:C:537:PHE:CZ	2.37	0.97
1:C:476:LEU:CD2	1:C:478:VAL:CG2	2.41	0.97
1:C:275:MET:HG2	1:C:315:ILE:HD11	1.41	0.96
1:C:5:VAL:CG2	1:C:30:VAL:HG22	1.94	0.96
1:D:223:SER:CB	1:D:227:LYS:N	2.29	0.95
1:C:32:GLU:OE2	2:C:901:FAD:O2B	1.85	0.95
1:D:439:ASP:OD1	1:D:440:PRO:HD2	1.66	0.95
1:D:224:GLN:H	1:D:227:LYS:N	1.64	0.95
1:C:400:MET:HE3	1:C:400:MET:HA	1.46	0.95
1:C:438:LEU:CD2	1:C:442:ILE:HG21	1.97	0.94
1:C:476:LEU:HD21	1:C:478:VAL:CG2	1.98	0.94
1:C:438:LEU:HD23	1:C:442:ILE:HG21	1.49	0.93
1:B:449:MET:HE3	1:B:452:ARG:NH2	1.83	0.93
1:C:222:VAL:CG2	1:C:229:ARG:CB	2.48	0.92
1:A:481:GLU:N	1:A:481:GLU:OE1	2.01	0.92
1:A:105:ASP:OD1	1:A:106:GLU:N	2.00	0.92
1:C:84:THR:HG22	1:C:100:ARG:CG	1.99	0.92
1:B:217:ARG:HG3	1:B:217:ARG:HH11	1.33	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:505:ARG:NH1	1:A:508:GLU:OE2	2.02	0.91
1:D:41:ARG:HH21	1:D:137:THR:HG23	1.28	0.91
1:B:463:GLU:HG3	1:B:464:LEU:N	1.84	0.91
1:B:184:MET:CE	1:B:217:ARG:NH2	2.32	0.91
1:B:222:VAL:HG11	1:B:229:ARG:HH11	1.36	0.91
1:A:216:THR:HB	1:A:233:ALA:HB3	1.50	0.91
1:B:463:GLU:O	1:B:465:LYS:N	2.04	0.90
1:C:509:ILE:HG23	1:C:537:PHE:HE2	1.35	0.90
1:C:42:CYS:SG	3:C:902:COA:H32	2.11	0.90
1:D:222:VAL:CG2	1:D:229:ARG:HB2	2.02	0.90
1:B:184:MET:CE	1:B:217:ARG:HH21	1.85	0.89
1:D:100:ARG:NH2	1:D:105:ASP:OD2	2.05	0.89
1:D:472:ASP:O	1:D:473:ILE:CG2	2.21	0.89
1:B:158:VAL:HG22	1:B:244:VAL:CG2	2.03	0.89
1:D:439:ASP:OD1	1:D:440:PRO:CD	2.22	0.88
1:B:463:GLU:CG	1:B:464:LEU:H	1.85	0.88
1:C:509:ILE:HG21	1:C:537:PHE:HZ	1.38	0.87
1:C:457:GLU:HB3	1:C:541:LYS:NZ	1.88	0.87
1:D:330:ILE:HG13	1:D:415:GLN:HG2	1.53	0.87
1:D:57:ASN:O	1:D:60:GLU:HG2	1.75	0.86
1:C:187:ARG:NH2	1:C:350:GLN:HE21	1.72	0.86
1:B:463:GLU:HG3	1:B:464:LEU:H	1.37	0.86
1:C:84:THR:CG2	1:C:100:ARG:HG2	2.05	0.85
1:A:217:ARG:H	1:A:233:ALA:HB2	1.42	0.85
1:D:461:VAL:HG21	1:D:549:PHE:CB	2.07	0.85
1:D:534:HIS:ND1	1:C:24:GLY:HA3	1.91	0.84
1:C:497:ILE:HG23	1:C:505:ARG:HD3	1.58	0.84
1:D:61:THR:O	1:D:62:THR:OG1	1.94	0.84
1:A:508:GLU:OE1	1:A:508:GLU:N	2.11	0.84
1:D:25:ASP:OD1	1:C:534:HIS:CE1	2.30	0.84
1:B:463:GLU:C	1:B:465:LYS:H	1.85	0.83
1:C:22:LYS:HB2	1:C:320:THR:HG21	1.61	0.83
1:C:222:VAL:HG22	1:C:229:ARG:O	1.79	0.83
1:B:380:ARG:HH12	1:B:548:ALA:CB	1.88	0.83
1:C:516:VAL:HG22	1:C:541:LYS:HB2	1.58	0.83
1:D:155:LYS:HD2	1:D:241:ASP:OD2	1.79	0.82
1:C:52:VAL:HG11	1:C:58:LEU:HD11	1.61	0.82
1:C:476:LEU:HD23	1:C:478:VAL:HG23	1.61	0.82
1:D:222:VAL:HG22	1:D:229:ARG:HB2	1.60	0.82
1:A:166:LEU:HD12	1:A:335:PHE:CE1	2.14	0.82
1:B:232:ILE:CB	1:B:238:TYR:HE1	1.93	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:157:VAL:HG23	1:C:240:ALA:HB2	1.60	0.82
1:D:507:ASP:O	1:D:508:GLU:HG2	1.79	0.82
1:C:277:THR:OG1	1:C:282:ILE:O	1.98	0.81
1:D:497:ILE:CD1	1:D:509:ILE:HD11	2.09	0.81
1:B:1:MET:CE	1:B:3:VAL:HG23	2.07	0.81
1:B:142:ALA:O	1:B:145:ILE:HG22	1.79	0.81
1:D:518:VAL:HG23	1:D:543:LEU:HD23	1.61	0.81
1:A:365:PRO:HB3	1:A:380:ARG:HG3	1.63	0.81
1:D:409:VAL:HG13	1:C:412:THR:HG21	1.61	0.81
1:D:20:ARG:HE	1:D:20:ARG:HA	1.43	0.81
1:A:47:TYR:HA	1:A:52:VAL:HG22	1.62	0.81
1:C:275:MET:CB	1:C:315:ILE:HD11	2.11	0.81
1:D:32:GLU:OE1	2:D:901:FAD:O2B	1.99	0.81
1:C:455:LEU:HD23	1:C:526:PHE:HZ	1.46	0.81
1:C:459:ILE:HD12	1:C:460:ASN:O	1.81	0.81
1:C:21:ARG:NE	3:C:902:COA:O9A	2.15	0.80
1:C:457:GLU:HB3	1:C:541:LYS:HZ2	1.46	0.80
1:C:275:MET:CG	1:C:315:ILE:CD1	2.53	0.80
1:A:232:ILE:O	1:A:234:ASN:N	2.15	0.80
1:D:154:GLU:HA	1:D:177:MET:HG2	1.63	0.80
1:C:187:ARG:HH22	1:C:350:GLN:NE2	1.80	0.79
1:B:125:ILE:HG22	1:B:128:ILE:HB	1.65	0.79
1:A:502:LEU:CD2	1:A:531:ILE:HD11	2.12	0.78
1:C:84:THR:CG2	1:C:100:ARG:CD	2.60	0.78
1:C:84:THR:CG2	1:C:100:ARG:HD3	2.12	0.78
1:A:502:LEU:HD22	1:A:531:ILE:HD11	1.64	0.78
1:C:525:SER:HB3	1:C:542:ILE:HG23	1.66	0.78
1:C:232:ILE:CB	1:C:238:TYR:CE1	2.65	0.78
1:C:275:MET:HE1	1:C:326:PHE:CB	2.12	0.77
1:C:187:ARG:HH12	1:C:350:GLN:NE2	1.82	0.77
1:D:432:PRO:HG3	1:C:42:CYS:O	1.84	0.77
1:C:155:LYS:HD2	1:C:241:ASP:OD2	1.84	0.77
1:D:84:THR:HG23	1:D:100:ARG:HB3	1.65	0.77
1:B:474:VAL:HG21	1:B:510:PRO:HD2	1.67	0.77
1:B:421:ASP:OD1	1:B:452:ARG:NH1	2.17	0.77
1:D:255:LEU:HD12	1:D:255:LEU:H	1.49	0.77
1:D:526:PHE:CD2	3:C:902:COA:H8A	2.21	0.76
1:D:491:SER:OG	1:D:492:GLU:N	2.14	0.76
1:D:6:ILE:CG2	1:D:116:THR:CG2	2.63	0.76
1:C:476:LEU:HD21	1:C:478:VAL:HG22	1.64	0.76
1:D:348:ASN:HB3	1:D:351:MET:HE2	1.66	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:158:VAL:HG22	1:D:244:VAL:HG22	1.67	0.76
1:D:194:ASP:OD2	1:D:349:GLU:HG3	1.85	0.76
1:D:313:ARG:NH1	3:D:902:COA:O7A	2.19	0.75
1:C:283:TYR:CD1	1:C:319:ILE:HD11	2.21	0.75
1:D:186:ASP:OD2	1:D:195:ARG:HD2	1.86	0.75
1:B:463:GLU:CG	1:B:464:LEU:N	2.44	0.75
1:B:465:LYS:CD	1:B:473:ILE:CD1	2.65	0.75
1:C:5:VAL:HG22	1:C:30:VAL:HG22	1.67	0.75
1:C:42:CYS:CB	3:C:902:COA:H21	2.17	0.75
1:D:304:PHE:C	2:D:901:FAD:O3'	2.29	0.75
1:B:21:ARG:NH2	3:B:902:COA:O5A	2.20	0.75
1:C:335:PHE:HE1	1:C:337:VAL:HG13	1.52	0.75
1:D:392:VAL:HG12	1:D:414:ILE:HG12	1.69	0.75
1:C:84:THR:HG21	1:C:100:ARG:CD	2.16	0.75
1:B:42:CYS:SG	3:B:902:COA:H32	2.25	0.75
1:B:449:MET:CE	1:B:452:ARG:NH2	2.50	0.74
1:D:41:ARG:HH21	1:D:137:THR:CG2	1.97	0.74
1:A:418:MET:HA	1:A:422:GLN:HE21	1.50	0.74
1:C:172:LEU:HD22	1:C:177:MET:HE3	1.68	0.74
1:D:526:PHE:HD2	3:C:902:COA:H8A	1.51	0.74
1:B:158:VAL:HG22	1:B:244:VAL:HG21	1.70	0.74
1:C:529:SER:CB	1:C:542:ILE:CD1	2.35	0.74
1:D:534:HIS:CE1	1:C:24:GLY:C	2.65	0.74
1:C:227:LYS:HG3	1:C:228:VAL:N	2.02	0.74
1:A:293:CYS:SG	1:A:331:ARG:NH2	2.60	0.74
1:C:275:MET:HB3	1:C:315:ILE:CD1	2.18	0.74
1:C:545:GLY:HA3	1:C:549:PHE:CE1	2.23	0.74
1:C:275:MET:HB3	1:C:315:ILE:HD11	1.70	0.73
1:D:294:LEU:HB2	1:D:330:ILE:HD11	1.70	0.73
1:D:483:GLU:O	1:D:488:ARG:N	2.21	0.73
1:B:418:MET:HA	1:B:422:GLN:HE21	1.53	0.73
1:B:421:ASP:CG	1:B:452:ARG:HH12	1.96	0.73
1:C:339:ASP:HB3	1:C:400:MET:HE1	1.70	0.73
1:C:172:LEU:HD22	1:C:177:MET:CE	2.18	0.73
1:C:419:THR:HG22	1:C:421:ASP:N	2.03	0.73
1:B:184:MET:HE3	1:B:217:ARG:CZ	2.19	0.73
1:B:465:LYS:HD3	1:B:473:ILE:HD11	1.70	0.73
1:A:464:LEU:HG	1:A:464:LEU:O	1.89	0.73
1:B:496:HIS:CD2	1:B:498:PRO:HD3	2.23	0.73
1:C:84:THR:CG2	1:C:100:ARG:CG	2.64	0.73
1:B:481:GLU:O	1:B:482:GLU:HB2	1.89	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:464:LEU:H	1:A:464:LEU:HD23	1.53	0.72
1:D:373:TYR:CZ	1:D:433:PRO:HB3	2.23	0.72
1:D:439:ASP:OD1	1:D:440:PRO:N	2.22	0.72
1:B:47:TYR:CE1	1:B:55:VAL:HG23	2.23	0.72
1:A:277:THR:HG22	1:A:282:ILE:O	1.90	0.72
1:B:465:LYS:CD	1:B:473:ILE:HD11	2.20	0.72
1:C:476:LEU:HD23	1:C:476:LEU:C	2.15	0.72
1:D:365:PRO:HG2	1:D:521:ILE:HG23	1.72	0.72
1:D:199:VAL:HG21	1:D:551:PHE:HZ	1.54	0.72
1:A:21:ARG:NH1	3:A:902:COA:O9A	2.23	0.71
1:B:1:MET:HE3	1:B:3:VAL:CG2	2.20	0.71
1:A:158:VAL:HG22	1:A:244:VAL:HG22	1.73	0.71
1:D:405:LYS:HA	1:C:405:LYS:HG3	1.72	0.71
1:A:21:ARG:NH2	3:A:902:COA:O4A	2.23	0.71
1:B:449:MET:HE3	1:B:452:ARG:HH22	1.52	0.71
1:B:313:ARG:NH1	3:B:902:COA:O7A	2.24	0.71
1:C:495:ILE:HD13	1:C:508:GLU:HG2	1.67	0.71
1:D:459:ILE:C	1:D:459:ILE:HD12	2.16	0.70
1:D:6:ILE:HG22	1:D:116:THR:CG2	2.22	0.70
1:C:227:LYS:C	1:C:228:VAL:HG22	2.15	0.70
1:A:196:GLU:O	1:A:199:VAL:HG12	1.91	0.70
1:A:217:ARG:N	1:A:233:ALA:HB2	2.06	0.70
1:C:275:MET:CB	1:C:315:ILE:CD1	2.69	0.70
1:D:42:CYS:SG	3:D:902:COA:H32	2.31	0.70
1:B:222:VAL:HG11	1:B:229:ARG:NH1	2.07	0.70
1:D:418:MET:HA	1:D:422:GLN:HE21	1.57	0.70
1:A:369:ARG:HH12	1:A:375:GLN:HB2	1.57	0.70
1:D:5:VAL:HB	1:D:30:VAL:HG22	1.72	0.69
1:D:432:PRO:CG	1:C:42:CYS:O	2.40	0.69
1:C:546:GLY:C	1:C:548:ALA:H	1.97	0.69
1:C:519:CYS:SG	1:C:522:GLY:N	2.63	0.69
1:A:166:LEU:CD1	1:A:335:PHE:CE1	2.74	0.69
1:B:143:GLU:HA	1:B:146:ILE:HG22	1.74	0.69
1:C:332:THR:HA	1:C:344:SER:O	1.92	0.69
1:C:504:GLU:O	1:C:505:ARG:O	2.09	0.69
1:A:194:ASP:CG	1:A:382:LYS:HZ3	1.95	0.69
1:A:63:TYR:HD1	1:A:63:TYR:H	1.41	0.69
1:B:1:MET:HE1	1:B:3:VAL:CG2	2.20	0.69
1:B:47:TYR:CZ	1:B:55:VAL:HG23	2.24	0.69
1:D:20:ARG:NH2	1:D:28:ILE:CD1	2.56	0.69
1:B:123:PRO:HD3	1:B:247:THR:HG21	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:227:LYS:C	1:B:228:VAL:HG22	2.17	0.69
1:C:517:VAL:N	1:C:541:LYS:O	2.25	0.68
1:D:348:ASN:OD1	1:D:349:GLU:N	2.26	0.68
1:A:166:LEU:HD12	1:A:335:PHE:CZ	2.29	0.68
1:C:335:PHE:CE1	1:C:337:VAL:HG13	2.29	0.68
1:D:6:ILE:CG2	1:D:116:THR:HG22	2.23	0.68
1:D:491:SER:O	1:D:492:GLU:HB2	1.92	0.68
1:B:204:HIS:HE1	1:B:339:ASP:H	1.39	0.68
1:B:276:ARG:NH1	1:B:323:ARG:HH12	1.92	0.68
1:C:509:ILE:HG22	1:C:537:PHE:CE2	2.21	0.68
1:A:479:ARG:O	1:A:496:HIS:CE1	2.47	0.67
1:B:276:ARG:HH12	1:B:323:ARG:HH12	1.43	0.67
1:B:214:THR:O	1:B:216:THR:HG23	1.95	0.67
1:B:1:MET:HE1	1:B:3:VAL:HG21	1.77	0.67
1:C:182:ILE:HD13	1:C:213:VAL:CG2	2.25	0.67
1:D:141:GLU:O	1:D:145:ILE:HD12	1.95	0.67
1:A:497:ILE:CD1	1:A:509:ILE:HD11	2.25	0.67
1:B:463:GLU:C	1:B:465:LYS:N	2.47	0.67
1:B:464:LEU:C	1:B:466:GLU:H	2.03	0.67
1:C:200:LEU:HD22	1:C:340:PHE:HE2	1.58	0.67
1:C:337:VAL:CG2	1:C:340:PHE:HB2	2.25	0.67
1:C:351:MET:HA	1:C:354:GLU:HG2	1.77	0.67
1:D:125:ILE:HG23	1:D:128:ILE:HB	1.77	0.66
1:C:158:VAL:HB	1:C:181:VAL:HG23	1.77	0.66
1:A:528:ALA:O	1:A:532:LEU:HD12	1.96	0.66
1:B:347:VAL:HG23	1:B:351:MET:HB2	1.77	0.66
1:A:482:GLU:C	1:A:483:GLU:HG3	2.21	0.66
1:C:227:LYS:O	1:C:228:VAL:HG13	1.96	0.66
1:C:499:ILE:HG23	1:C:500:LEU:N	2.10	0.66
1:C:337:VAL:HG21	1:C:340:PHE:HB2	1.76	0.66
1:B:512:ASP:OD2	1:B:512:ASP:N	2.28	0.66
1:C:147:GLU:O	1:C:151:GLU:HG3	1.96	0.66
1:C:476:LEU:HD22	1:C:478:VAL:HG23	1.70	0.66
1:D:478:VAL:O	1:D:479:ARG:HG3	1.96	0.66
1:A:330:ILE:HG13	1:A:415:GLN:HG2	1.78	0.66
1:D:20:ARG:HA	1:D:20:ARG:NE	2.11	0.65
1:C:84:THR:HG22	1:C:100:ARG:CD	2.25	0.65
1:C:335:PHE:HE1	1:C:337:VAL:CG1	2.09	0.65
1:B:135:THR:HG22	1:B:245:VAL:HG22	1.77	0.65
1:B:294:LEU:HD13	1:B:329:VAL:N	2.12	0.65
1:A:20:ARG:NH2	1:A:28:ILE:HD12	2.11	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:135:THR:O	1:B:141:GLU:HG2	1.96	0.65
1:C:313:ARG:NH1	3:C:902:COA:O7A	2.29	0.65
1:D:156:ALA:HB2	1:D:177:MET:CE	2.27	0.65
3:A:902:COA:S1P	1:B:430:TYR:OH	2.49	0.65
1:B:217:ARG:HG3	1:B:217:ARG:NH1	2.08	0.65
1:C:477:ASP:OD1	1:C:479:ARG:HB2	1.97	0.65
1:D:14:LYS:NZ	3:D:902:COA:O3A	2.30	0.64
1:D:222:VAL:HG22	1:D:229:ARG:CB	2.27	0.64
1:B:186:ASP:OD2	1:B:195:ARG:HD2	1.96	0.64
1:D:134:VAL:HG21	1:D:145:ILE:HD11	1.78	0.64
1:A:42:CYS:SG	3:A:902:COA:H32	2.38	0.64
1:B:232:ILE:CB	1:B:238:TYR:CE1	2.80	0.64
1:B:314:VAL:HG23	1:B:324:ALA:HB3	1.79	0.64
1:A:30:VAL:CG1	1:A:80:VAL:HG22	2.28	0.64
1:A:224:GLN:HB3	1:A:228:VAL:HG13	1.79	0.64
1:B:518:VAL:HG22	1:B:543:LEU:HD22	1.79	0.64
1:D:472:ASP:C	1:D:473:ILE:HG23	2.22	0.64
1:A:519:CYS:SG	1:A:520:ALA:N	2.70	0.64
1:B:227:LYS:O	1:B:228:VAL:HG13	1.97	0.64
1:D:310:LYS:HD3	1:C:425:ASN:HA	1.79	0.64
1:D:222:VAL:O	1:D:228:VAL:HA	1.97	0.64
1:B:275:MET:CB	1:B:315:ILE:HD11	2.28	0.64
1:C:476:LEU:HD23	1:C:476:LEU:O	1.98	0.64
1:B:227:LYS:O	1:B:228:VAL:HG22	1.98	0.64
1:C:363:ILE:HG22	1:C:382:LYS:HG3	1.80	0.64
1:D:421:ASP:OD2	1:D:449:MET:HE3	1.98	0.63
1:B:1:MET:HE2	1:B:3:VAL:HG23	1.78	0.63
1:C:5:VAL:HG21	1:C:30:VAL:HG22	1.80	0.63
1:C:222:VAL:HG22	1:C:229:ARG:C	2.22	0.63
1:C:497:ILE:CG2	1:C:505:ARG:HD3	2.28	0.63
1:C:42:CYS:HB2	3:C:902:COA:S1P	2.38	0.63
1:D:194:ASP:H	1:D:396:GLN:HE22	1.44	0.63
1:A:341:THR:HG23	1:A:403:VAL:CG2	2.28	0.63
1:C:546:GLY:C	1:C:548:ALA:N	2.53	0.63
1:B:383:LEU:HB2	1:B:444:ILE:HG12	1.80	0.63
1:B:195:ARG:O	1:B:199:VAL:HG13	1.98	0.63
1:C:41:ARG:C	1:C:43:GLY:H	2.07	0.63
1:C:438:LEU:HD22	1:C:442:ILE:CG2	2.28	0.63
1:D:227:LYS:C	1:D:228:VAL:HG22	2.23	0.63
1:B:465:LYS:HD2	1:B:473:ILE:CD1	2.28	0.63
1:B:17:SER:OG	1:B:76:LYS:NZ	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:479:ARG:O	1:C:480:SER:HB3	1.99	0.63
1:D:51:LEU:HD22	1:C:374:PRO:HG3	1.80	0.63
1:D:139:ALA:O	1:D:143:GLU:HG2	1.98	0.63
1:D:363:ILE:HG12	1:D:382:LYS:HG3	1.80	0.62
1:C:408:ASP:O	1:C:412:THR:HG23	1.98	0.62
1:A:47:TYR:CA	1:A:52:VAL:HG22	2.28	0.62
1:A:481:GLU:H	1:A:481:GLU:CD	2.07	0.62
2:B:901:FAD:HO4'	2:B:901:FAD:HO2'	1.46	0.62
1:A:138:SER:HB2	1:A:140:GLU:OE1	2.00	0.62
1:B:185:MET:HE2	1:B:185:MET:HA	1.81	0.62
1:C:157:VAL:HG23	1:C:240:ALA:CB	2.30	0.62
1:A:71:TYR:CZ	1:A:75:LEU:HD22	2.35	0.62
1:C:519:CYS:N	1:C:525:SER:OG	2.33	0.62
1:A:364:ALA:HB3	1:A:444:ILE:HD12	1.82	0.62
1:B:461:VAL:CG2	1:B:549:PHE:O	2.43	0.62
1:B:154:GLU:O	1:B:177:MET:HB3	2.00	0.62
1:C:228:VAL:HG23	1:C:240:ALA:O	1.99	0.62
1:C:438:LEU:CD2	1:C:442:ILE:CG2	2.76	0.62
1:C:438:LEU:HD22	1:C:442:ILE:HG21	1.79	0.62
1:C:201:VAL:O	1:C:205:LEU:HD12	2.00	0.61
1:D:20:ARG:NH2	1:D:28:ILE:HD12	2.15	0.61
1:A:406:ARG:NH1	1:A:439:ASP:OD2	2.33	0.61
1:B:47:TYR:CE1	1:B:53:HIS:O	2.53	0.61
1:C:330:ILE:HD13	1:C:415:GLN:HG3	1.82	0.61
1:C:545:GLY:CA	1:C:549:PHE:CE1	2.83	0.61
1:C:526:PHE:HA	1:C:542:ILE:HD13	1.82	0.61
1:D:91:ARG:HH11	1:D:279:ASP:HB2	1.66	0.61
1:C:222:VAL:HG21	1:C:229:ARG:CB	2.30	0.61
1:D:159:ILE:HG12	1:D:218:VAL:HG21	1.81	0.61
1:B:325:VAL:HG12	1:B:327:PRO:HD3	1.83	0.61
1:D:6:ILE:HG22	1:D:116:THR:HG22	1.83	0.61
1:D:59:ARG:HA	1:D:67:ARG:HH21	1.64	0.61
1:B:464:LEU:C	1:B:466:GLU:N	2.57	0.61
1:C:222:VAL:HG23	1:C:229:ARG:CB	2.28	0.61
1:D:290:GLU:OE1	1:D:299:LYS:HD3	2.01	0.61
1:B:120:PRO:HD3	1:B:137:THR:HG21	1.83	0.61
1:B:360:PHE:CZ	1:B:385:VAL:HG21	2.36	0.61
1:C:495:ILE:HD11	1:C:508:GLU:HG3	1.69	0.61
1:D:224:GLN:N	1:D:227:LYS:N	2.44	0.60
1:B:464:LEU:N	1:B:464:LEU:HD12	2.16	0.60
1:D:67:ARG:HG3	1:D:71:TYR:CD1	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:211:ASN:OD1	1:C:212:VAL:N	2.34	0.60
1:B:519:CYS:SG	1:B:520:ALA:N	2.74	0.60
1:D:295:VAL:HG23	1:D:296:THR:HG23	1.84	0.60
1:D:360:PHE:CE2	1:D:385:VAL:CG1	2.85	0.60
1:D:195:ARG:O	1:D:199:VAL:HG13	2.02	0.60
1:D:361:THR:HG23	1:D:382:LYS:HE3	1.84	0.60
1:C:200:LEU:HD22	1:C:340:PHE:CE2	2.35	0.60
1:A:373:TYR:CZ	1:A:433:PRO:HB3	2.36	0.60
1:C:187:ARG:HH12	1:C:350:GLN:HE22	1.50	0.60
1:C:224:GLN:O	1:C:225:ASP:HB2	2.02	0.60
1:D:236:LYS:HD3	1:D:238:TYR:OH	2.02	0.60
1:A:410:LEU:O	1:A:414:ILE:HG13	2.02	0.59
1:D:508:GLU:O	1:D:510:PRO:HD3	2.01	0.59
1:C:32:GLU:CD	2:C:901:FAD:HO2A	2.11	0.59
1:D:219:GLU:OE2	1:D:233:ALA:HA	2.02	0.59
1:B:226:ASP:OD1	1:B:226:ASP:N	2.33	0.59
1:D:295:VAL:CG2	1:D:347:VAL:HG23	2.32	0.59
1:A:194:ASP:CG	1:A:382:LYS:NZ	2.58	0.59
1:C:227:LYS:O	1:C:228:VAL:HG22	2.01	0.59
1:A:136:LEU:HD12	1:A:168:SER:OG	2.03	0.59
1:D:22:LYS:HD3	1:D:320:THR:HG21	1.85	0.59
1:D:337:VAL:HG23	1:D:337:VAL:O	2.02	0.59
1:D:32:GLU:O	1:D:83:GLU:N	2.36	0.59
1:D:436:PRO:HG2	1:D:438:LEU:O	2.03	0.59
1:A:42:CYS:HB2	3:A:902:COA:S1P	2.42	0.59
1:B:294:LEU:CD1	1:B:329:VAL:N	2.65	0.59
1:D:32:GLU:CD	2:D:901:FAD:HO2A	2.09	0.59
1:D:489:ILE:O	1:D:490:GLU:HB2	2.03	0.59
1:B:244:VAL:HG23	1:B:244:VAL:O	2.03	0.59
1:C:287:ASP:OD2	2:C:901:FAD:H5'1	2.03	0.59
1:A:474:VAL:CG2	1:A:513:LYS:HE3	2.33	0.59
1:B:47:TYR:OH	1:B:55:VAL:CG2	2.50	0.59
1:C:332:THR:HG22	1:C:345:ALA:CB	2.33	0.59
1:D:461:VAL:CG1	1:D:549:PHE:O	2.45	0.59
1:A:97:LYS:HE2	1:A:104:GLU:OE1	2.03	0.59
1:B:365:PRO:HG2	1:B:521:ILE:HB	1.84	0.59
1:C:475:ILE:HD11	1:C:494:VAL:HG22	1.85	0.59
1:D:144:LYS:O	1:D:148:MET:HG3	2.03	0.58
1:B:30:VAL:HG13	1:B:80:VAL:HA	1.85	0.58
1:C:275:MET:HG2	1:C:315:ILE:HD13	1.81	0.58
1:B:6:ILE:HA	1:B:31:VAL:HG22	1.83	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:231:VAL:O	1:C:231:VAL:HG23	2.01	0.58
1:D:314:VAL:HB	1:D:324:ALA:CB	2.19	0.58
1:D:525:SER:CB	1:D:542:ILE:HD11	2.33	0.58
1:B:228:VAL:O	1:B:229:ARG:HD2	2.03	0.58
1:D:360:PHE:CE2	1:D:385:VAL:HG11	2.39	0.58
1:C:365:PRO:HB3	1:C:380:ARG:HG2	1.85	0.58
1:A:331:ARG:NH1	1:A:351:MET:SD	2.77	0.58
1:C:495:ILE:HD11	1:C:508:GLU:CD	2.24	0.58
1:D:233:ALA:O	1:D:234:ASN:HB3	2.02	0.58
1:B:337:VAL:O	1:B:337:VAL:HG13	2.02	0.58
1:C:330:ILE:HG13	1:C:332:THR:HG23	1.85	0.58
1:B:295:VAL:HG23	1:B:330:ILE:HD12	1.84	0.58
1:D:37:VAL:HG13	1:D:37:VAL:O	2.03	0.58
1:B:369:ARG:HH12	1:B:375:GLN:HB2	1.69	0.58
1:C:181:VAL:HG12	1:C:212:VAL:HA	1.86	0.58
1:D:295:VAL:HG21	1:D:347:VAL:HG23	1.86	0.58
1:A:128:ILE:HD11	1:A:245:VAL:HG21	1.85	0.58
1:C:509:ILE:H	1:C:509:ILE:CD1	2.17	0.58
1:D:55:VAL:HG13	1:D:56:ASP:N	2.18	0.57
1:A:337:VAL:HG21	1:A:340:PHE:HB2	1.86	0.57
1:C:283:TYR:CD1	1:C:319:ILE:CD1	2.86	0.57
1:C:283:TYR:HB3	1:C:315:ILE:HG13	1.85	0.57
1:D:173:LYS:HD2	1:D:177:MET:O	2.04	0.57
1:D:494:VAL:O	1:D:494:VAL:HG13	2.03	0.57
1:B:496:HIS:CD2	1:B:496:HIS:C	2.81	0.57
1:C:349:GLU:OE1	1:C:359:TYR:OH	2.17	0.57
1:C:461:VAL:HG22	1:C:461:VAL:O	2.04	0.57
1:D:232:ILE:CB	1:D:238:TYR:HE1	2.17	0.57
1:B:347:VAL:HA	1:B:351:MET:HE3	1.85	0.57
1:D:13:LEU:HD22	1:D:72:PHE:CE1	2.39	0.57
1:D:257:GLU:HB2	1:D:263:ILE:CG1	2.34	0.57
1:C:18:ARG:NH1	3:C:902:COA:O7A	2.38	0.57
1:D:323:ARG:HD3	1:D:323:ARG:C	2.29	0.57
1:A:369:ARG:NH1	1:A:375:GLN:HB2	2.20	0.57
1:C:508:GLU:O	1:C:509:ILE:C	2.47	0.57
1:D:205:LEU:HB3	1:D:210:VAL:HG13	1.85	0.57
1:D:476:LEU:HD21	1:D:502:LEU:HD11	1.85	0.57
1:D:490:GLU:OE2	1:D:490:GLU:HA	2.04	0.57
1:A:515:ILE:O	1:A:540:VAL:HA	2.05	0.57
1:B:373:TYR:CZ	1:B:433:PRO:HB3	2.39	0.57
1:C:400:MET:HA	1:C:400:MET:CE	2.29	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:6:ILE:HG21	1:D:116:THR:CG2	2.33	0.57
1:D:257:GLU:HB2	1:D:263:ILE:HG13	1.87	0.57
1:A:464:LEU:O	1:A:465:LYS:C	2.47	0.57
1:C:459:ILE:HG23	1:C:541:LYS:HD2	1.86	0.57
1:D:360:PHE:CZ	1:D:385:VAL:HG11	2.39	0.57
1:B:1:MET:CE	1:B:3:VAL:HG21	2.30	0.57
1:A:295:VAL:HG23	1:A:330:ILE:HD12	1.85	0.57
1:C:339:ASP:HB3	1:C:400:MET:CE	2.34	0.57
1:C:515:ILE:HG22	1:C:539:LYS:O	2.04	0.57
1:C:545:GLY:HA3	1:C:549:PHE:CD1	2.40	0.57
1:A:194:ASP:OD1	1:A:349:GLU:HG3	2.05	0.57
1:D:6:ILE:HG22	1:D:116:THR:HG23	1.86	0.56
1:D:405:LYS:HG3	1:C:405:LYS:HG3	1.86	0.56
1:A:528:ALA:O	1:A:531:ILE:HG12	2.05	0.56
1:B:156:ALA:HB1	1:B:172:LEU:HD21	1.86	0.56
1:C:525:SER:O	1:C:542:ILE:CD1	2.53	0.56
1:A:224:GLN:O	1:A:225:ASP:HB3	2.05	0.56
1:A:426:LEU:O	1:B:310:LYS:NZ	2.38	0.56
1:B:61:THR:OG1	1:B:64:GLY:HA3	2.04	0.56
1:B:272:ASP:OD2	1:B:276:ARG:NH2	2.38	0.56
1:B:275:MET:HB2	1:B:315:ILE:CD1	2.35	0.56
1:C:497:ILE:HD12	1:C:509:ILE:HD11	1.87	0.56
1:A:265:GLU:O	1:A:265:GLU:HG3	2.06	0.56
1:B:18:ARG:NH1	3:B:902:COA:O7A	2.38	0.56
1:B:294:LEU:CD1	1:B:328:GLY:C	2.79	0.56
1:D:123:PRO:O	1:D:125:ILE:HG22	2.04	0.56
1:B:128:ILE:HD11	1:B:245:VAL:HG11	1.86	0.56
1:C:15:ALA:O	1:C:19:ILE:HG13	2.06	0.56
1:C:140:GLU:OE2	1:C:140:GLU:N	2.31	0.56
1:C:519:CYS:SG	1:C:522:GLY:CA	2.94	0.56
1:D:22:LYS:NZ	1:D:317:GLU:OE2	2.39	0.56
1:C:337:VAL:HG22	1:C:340:PHE:O	2.05	0.56
1:C:452:ARG:C	1:C:454:GLY:H	2.14	0.56
1:D:23:ASP:OD1	1:D:25:ASP:N	2.38	0.55
1:A:90:ASP:OD1	1:A:93:ARG:N	2.33	0.55
1:A:461:VAL:HG22	1:A:461:VAL:O	2.04	0.55
1:B:294:LEU:HD11	1:B:328:GLY:C	2.31	0.55
1:D:14:LYS:HZ2	3:D:902:COA:H121	1.69	0.55
1:A:406:ARG:HH11	1:A:439:ASP:CG	2.14	0.55
1:B:153:ALA:HB1	1:B:241:ASP:HB2	1.88	0.55
1:A:474:VAL:HG23	1:A:513:LYS:HE3	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:228:VAL:O	1:B:229:ARG:HG3	2.06	0.55
1:D:234:ASN:O	1:D:235:GLY:C	2.48	0.55
1:D:61:THR:C	1:D:62:THR:HG1	2.02	0.55
1:A:341:THR:CG2	1:A:403:VAL:HG22	2.37	0.55
1:D:518:VAL:CG2	1:D:543:LEU:HD23	2.32	0.55
1:B:47:TYR:CE2	1:B:55:VAL:HG22	2.40	0.55
1:C:220:LYS:H	1:C:231:VAL:CG2	2.19	0.55
1:C:332:THR:HG22	1:C:345:ALA:HA	1.89	0.55
1:D:332:THR:HA	1:D:344:SER:O	2.07	0.55
1:A:337:VAL:CG2	1:A:340:PHE:HB2	2.36	0.55
1:B:158:VAL:HG13	1:B:244:VAL:HG23	1.89	0.55
1:C:379:ILE:HD12	1:C:406:ARG:HG3	1.87	0.55
1:C:400:MET:HE3	1:C:400:MET:CA	2.30	0.55
1:C:457:GLU:HB3	1:C:541:LYS:HZ3	1.70	0.55
1:C:158:VAL:HG22	1:C:244:VAL:HG22	1.89	0.55
1:D:475:ILE:HG12	1:D:516:VAL:CG1	2.36	0.54
1:A:275:MET:HE3	1:A:326:PHE:HB3	1.88	0.54
1:D:93:ARG:HG3	1:D:93:ARG:HH11	1.73	0.54
1:A:369:ARG:HH12	1:A:375:GLN:CB	2.20	0.54
1:B:481:GLU:O	1:B:482:GLU:CB	2.55	0.54
1:A:301:ILE:O	1:A:303:PRO:HD3	2.07	0.54
1:D:293:CYS:HB2	1:D:300:ILE:HD13	1.90	0.54
1:A:523:LEU:HD12	3:B:902:COA:C2A	2.38	0.54
1:B:156:ALA:HB1	1:B:172:LEU:CD2	2.37	0.54
1:C:184:MET:HE1	1:C:217:ARG:NH1	2.23	0.54
1:C:337:VAL:O	1:C:338:PHE:C	2.50	0.54
1:D:534:HIS:ND1	1:C:24:GLY:CA	2.66	0.54
1:A:332:THR:HG23	1:A:345:ALA:HB2	1.90	0.54
1:C:511:ARG:O	1:C:512:ASP:HB2	2.06	0.54
1:A:479:ARG:O	1:A:496:HIS:HE1	1.89	0.54
1:B:253:SER:O	1:B:256:ALA:HB3	2.07	0.54
1:C:421:ASP:OD2	1:C:452:ARG:NH1	2.26	0.54
1:D:51:LEU:HD13	1:C:373:TYR:CE1	2.43	0.54
1:D:177:MET:HE1	1:D:242:VAL:HG21	1.89	0.54
1:D:348:ASN:HB3	1:D:351:MET:CE	2.36	0.54
1:D:525:SER:HB3	1:D:542:ILE:HD11	1.90	0.54
1:C:368:ASP:OD1	1:C:402:GLU:HB3	2.08	0.54
1:C:495:ILE:HD11	1:C:508:GLU:HG2	0.59	0.54
1:D:490:GLU:O	1:D:491:SER:HB2	2.07	0.54
1:D:1:MET:HE2	1:D:111:TYR:CD1	2.43	0.54
1:D:177:MET:HE1	1:D:242:VAL:CG2	2.38	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:478:VAL:O	1:D:478:VAL:HG23	2.08	0.53
1:B:222:VAL:O	1:B:228:VAL:HA	2.08	0.53
1:C:13:LEU:HD13	1:C:38:SER:HB2	1.90	0.53
1:D:362:VAL:HG21	1:D:447:VAL:HG12	1.90	0.53
1:A:29:THR:HG21	1:A:107:LEU:HD11	1.90	0.53
1:A:158:VAL:HB	1:A:181:VAL:HG22	1.90	0.53
1:B:291:THR:HG22	1:B:292:THR:H	1.74	0.53
1:C:293:CYS:HB2	1:C:300:ILE:HD13	1.90	0.53
1:A:405:LYS:HG3	1:B:405:LYS:HG3	1.89	0.53
1:A:523:LEU:HD12	3:B:902:COA:H2A	1.90	0.53
1:B:368:ASP:HB3	1:B:377:ASN:H	1.74	0.53
1:A:192:MET:HG2	1:A:344:SER:HB3	1.89	0.53
1:C:184:MET:HE1	1:C:217:ARG:CZ	2.38	0.53
1:C:457:GLU:CB	1:C:541:LYS:NZ	2.68	0.53
1:C:443:THR:O	1:C:447:VAL:HG23	2.09	0.53
1:A:157:VAL:HG23	1:A:240:ALA:HB2	1.90	0.53
1:D:318:ASN:ND2	1:D:324:ALA:HB3	2.24	0.53
1:B:134:VAL:HG23	1:B:244:VAL:HG12	1.91	0.53
1:C:509:ILE:CG2	1:C:537:PHE:HZ	2.07	0.53
1:D:169:ALA:HB1	1:D:210:VAL:HG21	1.90	0.53
1:D:314:VAL:CB	1:D:324:ALA:HB1	2.19	0.53
1:D:406:ARG:NH1	1:D:440:PRO:HD2	2.24	0.53
1:A:341:THR:HG23	1:A:403:VAL:HG22	1.90	0.53
1:A:534:HIS:CG	1:B:24:GLY:HA3	2.43	0.53
1:C:135:THR:H	1:C:141:GLU:HG2	1.72	0.53
1:C:187:ARG:NH1	1:C:350:GLN:NE2	2.55	0.53
1:D:458:GLY:HA2	1:D:542:ILE:HG22	1.91	0.53
1:A:71:TYR:CZ	1:A:75:LEU:CD2	2.92	0.53
1:A:347:VAL:HG12	1:A:393:ILE:O	2.09	0.53
1:B:347:VAL:HG12	1:B:393:ILE:O	2.08	0.53
1:D:37:VAL:O	1:D:38:SER:HB3	2.09	0.52
1:B:502:LEU:O	1:B:503:ARG:C	2.51	0.52
1:C:14:LYS:HE3	3:C:902:COA:H121	1.91	0.52
1:B:406:ARG:NH1	1:B:439:ASP:OD2	2.42	0.52
1:B:465:LYS:HD2	1:B:473:ILE:HD13	1.92	0.52
1:D:155:LYS:HD2	1:D:241:ASP:CG	2.34	0.52
1:C:532:LEU:O	1:C:535:ALA:HB3	2.10	0.52
1:B:42:CYS:HB2	3:B:902:COA:H21	1.92	0.52
2:D:901:FAD:O2'	2:D:901:FAD:O4'	2.16	0.52
1:B:464:LEU:O	1:B:466:GLU:N	2.42	0.52
1:C:525:SER:O	1:C:542:ILE:HD13	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:9:GLY:HA3	2:D:901:FAD:O1P	2.09	0.52
1:C:187:ARG:N	1:C:187:ARG:CD	2.73	0.52
1:C:301:ILE:O	1:C:303:PRO:HD3	2.09	0.52
1:C:497:ILE:HG23	1:C:505:ARG:CD	2.35	0.52
1:D:6:ILE:CG2	1:D:116:THR:HG23	2.37	0.52
1:A:314:VAL:O	1:A:318:ASN:ND2	2.39	0.52
1:D:39:LEU:HA	1:D:59:ARG:HG2	1.91	0.52
1:D:349:GLU:O	1:D:353:LYS:HG2	2.10	0.52
1:A:22:LYS:HE2	1:A:317:GLU:OE2	2.10	0.52
1:B:52:VAL:HG12	1:B:52:VAL:O	2.10	0.52
1:B:275:MET:HB2	1:B:315:ILE:HD11	1.92	0.52
1:B:364:ALA:HB3	1:B:444:ILE:HD12	1.92	0.52
1:C:509:ILE:CD1	1:C:509:ILE:N	2.73	0.52
1:C:545:GLY:CA	1:C:549:PHE:HE1	2.23	0.52
1:D:20:ARG:O	1:D:20:ARG:HD3	2.09	0.52
1:D:117:GLY:HA2	1:D:287:ASP:HB2	1.90	0.52
1:D:343:ALA:HB3	1:D:407:ILE:HG13	1.92	0.52
1:A:20:ARG:CZ	1:A:28:ILE:HD12	2.39	0.52
1:B:47:TYR:CD1	1:B:55:VAL:HG22	2.42	0.52
1:C:2:ASN:OD1	1:C:2:ASN:N	2.40	0.52
1:C:423:LEU:HD23	1:C:445:ALA:HB2	1.90	0.52
1:C:22:LYS:HD3	1:C:320:THR:OG1	2.10	0.52
1:B:349:GLU:OE2	1:B:359:TYR:CE2	2.63	0.51
1:C:196:GLU:OE2	1:C:196:GLU:HA	2.09	0.51
1:A:187:ARG:HB2	1:A:198:ALA:HB1	1.91	0.51
1:B:430:TYR:CD1	1:B:436:PRO:O	2.63	0.51
1:C:546:GLY:O	1:C:548:ALA:N	2.43	0.51
1:B:227:LYS:C	1:B:228:VAL:CG2	2.84	0.51
1:C:5:VAL:HB	1:C:113:VAL:HB	1.92	0.51
1:D:112:LEU:HD23	1:D:282:ILE:HG12	1.91	0.51
1:B:57:ASN:HA	1:B:60:GLU:HG2	1.93	0.51
1:B:184:MET:HE1	1:B:217:ARG:NH2	2.23	0.51
1:B:341:THR:O	1:B:398:VAL:HA	2.11	0.51
1:C:455:LEU:HD23	1:C:526:PHE:CZ	2.36	0.51
1:C:457:GLU:CB	1:C:541:LYS:HZ3	2.22	0.51
1:D:527:GLU:O	1:D:531:ILE:HG13	2.11	0.51
1:A:75:LEU:HG	1:A:75:LEU:O	2.11	0.51
1:C:462:PHE:O	1:C:464:LEU:N	2.44	0.51
1:C:505:ARG:C	1:C:507:ASP:H	2.18	0.51
1:A:274:TYR:O	1:A:275:MET:HB2	2.10	0.51
2:C:901:FAD:O2'	2:C:901:FAD:O4'	2.21	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:134:VAL:CG2	1:D:244:VAL:HG12	2.41	0.51
1:B:200:LEU:HD13	1:B:380:ARG:HD3	1.92	0.51
1:A:25:ASP:OD1	1:A:25:ASP:O	2.29	0.51
1:B:119:ARG:NH2	1:B:250:LYS:HD2	2.26	0.51
1:B:463:GLU:HG2	1:B:464:LEU:H	1.71	0.51
1:B:518:VAL:CG1	1:B:547:MET:HE1	2.40	0.51
1:A:168:SER:O	1:A:172:LEU:HB2	2.11	0.51
1:B:380:ARG:HB3	1:B:549:PHE:HZ	1.75	0.51
1:A:71:TYR:CE1	1:A:75:LEU:HD22	2.46	0.51
1:B:518:VAL:HG22	1:B:543:LEU:CD2	2.40	0.51
1:A:348:ASN:CG	1:A:351:MET:HE2	2.36	0.50
1:D:301:ILE:O	1:D:303:PRO:HD3	2.11	0.50
1:A:214:THR:O	1:A:216:THR:HG23	2.10	0.50
1:C:339:ASP:CB	1:C:400:MET:HE1	2.39	0.50
1:A:61:THR:HB	1:A:63:TYR:CE1	2.46	0.50
1:A:439:ASP:O	1:A:440:PRO:C	2.52	0.50
1:B:449:MET:CE	1:B:452:ARG:HH22	2.16	0.50
1:D:156:ALA:HB2	1:D:177:MET:HE2	1.94	0.50
1:A:157:VAL:O	1:A:243:VAL:HA	2.12	0.50
1:B:2:ASN:HB3	1:B:27:SER:HB3	1.94	0.50
1:C:363:ILE:HG12	1:C:544:GLU:HB3	1.92	0.50
1:D:505:ARG:O	1:D:506:LEU:HD23	2.11	0.50
1:D:537:PHE:C	1:D:538:GLU:CG	2.85	0.50
1:A:547:MET:O	1:A:548:ALA:C	2.51	0.50
1:B:380:ARG:NH1	1:B:548:ALA:CB	2.52	0.50
1:C:273:GLU:OE2	1:C:273:GLU:HA	2.10	0.50
1:C:275:MET:CE	1:C:326:PHE:HB3	2.26	0.50
1:C:509:ILE:N	1:C:509:ILE:HD12	2.25	0.50
1:C:419:THR:H	1:C:422:GLN:HG2	1.75	0.50
1:A:224:GLN:HB3	1:A:228:VAL:CG1	2.41	0.50
1:A:266:THR:HG23	1:A:290:GLU:OE2	2.11	0.50
1:A:272:ASP:OD1	1:A:274:TYR:N	2.45	0.50
1:C:196:GLU:OE1	1:C:460:ASN:HB2	2.11	0.50
1:D:20:ARG:HH21	1:D:28:ILE:CD1	2.23	0.50
1:D:222:VAL:CG2	1:D:229:ARG:CB	2.84	0.50
1:D:318:ASN:HD21	1:D:324:ALA:HB3	1.76	0.50
1:A:360:PHE:CE2	1:A:385:VAL:CG1	2.94	0.50
1:A:368:ASP:OD1	1:A:402:GLU:HB3	2.12	0.50
1:A:200:LEU:HD11	1:A:549:PHE:CE2	2.47	0.49
1:A:391:ARG:HA	1:A:419:THR:HA	1.94	0.49
1:A:497:ILE:HD12	1:A:509:ILE:HD11	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:479:ARG:HH22	1:B:488:ARG:N	2.10	0.49
1:C:199:VAL:HG22	1:C:203:ASN:OD1	2.12	0.49
1:A:100:ARG:O	1:A:101:ASN:HB2	2.11	0.49
1:C:33:ALA:O	1:C:83:GLU:HA	2.12	0.49
1:B:47:TYR:OH	1:B:55:VAL:HG23	2.11	0.49
1:B:217:ARG:NH1	1:B:217:ARG:CG	2.72	0.49
1:C:337:VAL:HG23	1:C:340:PHE:H	1.76	0.49
1:C:477:ASP:OD1	1:C:479:ARG:CB	2.60	0.49
1:D:507:ASP:C	1:D:508:GLU:HG2	2.36	0.49
1:B:285:GLY:HA2	1:B:289:VAL:HG21	1.95	0.49
1:C:276:ARG:HG3	1:C:283:TYR:CE2	2.48	0.49
1:C:436:PRO:HG2	1:C:438:LEU:O	2.12	0.49
1:A:373:TYR:CG	1:A:374:PRO:HD2	2.47	0.49
1:A:421:ASP:CG	1:A:452:ARG:NH2	2.44	0.49
1:B:360:PHE:CE2	1:B:385:VAL:CG2	2.96	0.49
1:C:455:LEU:CD2	1:C:526:PHE:HZ	2.22	0.49
1:D:100:ARG:O	1:D:101:ASN:HB2	2.11	0.49
1:D:488:ARG:O	1:D:490:GLU:N	2.45	0.49
1:A:330:ILE:HG13	1:A:415:GLN:CG	2.41	0.49
1:D:68:ASP:O	1:D:71:TYR:HB3	2.13	0.49
1:B:143:GLU:HA	1:B:146:ILE:CG2	2.40	0.49
1:C:157:VAL:CG2	1:C:240:ALA:HB2	2.35	0.49
1:C:184:MET:SD	1:C:217:ARG:HG2	2.52	0.49
1:C:361:THR:HG23	1:C:382:LYS:HE3	1.94	0.49
1:D:41:ARG:HH22	1:D:137:THR:HG23	1.68	0.49
1:D:227:LYS:C	1:D:228:VAL:CG2	2.85	0.49
1:D:406:ARG:NH1	1:D:439:ASP:OD1	2.37	0.49
1:A:232:ILE:C	1:A:234:ASN:N	2.70	0.49
1:B:295:VAL:HG23	1:B:330:ILE:CD1	2.42	0.49
1:B:369:ARG:NH1	1:B:375:GLN:HB2	2.28	0.49
1:C:317:GLU:O	1:C:320:THR:OG1	2.23	0.49
1:D:121:ALA:HA	1:D:250:LYS:HE3	1.95	0.48
1:A:287:ASP:OD2	2:A:901:FAD:O3'	2.27	0.48
1:B:47:TYR:HE1	1:B:53:HIS:O	1.96	0.48
1:B:340:PHE:CE1	1:B:400:MET:HG3	2.47	0.48
1:C:206:ARG:HA	1:C:210:VAL:O	2.13	0.48
1:C:294:LEU:HD21	1:C:328:GLY:HA3	1.95	0.48
1:C:335:PHE:CE2	1:C:342:ALA:HB3	2.48	0.48
1:C:227:LYS:HG3	1:C:228:VAL:H	1.74	0.48
1:B:456:PHE:CD1	1:B:542:ILE:HG21	2.48	0.48
1:C:187:ARG:N	1:C:187:ARG:HD2	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:228:VAL:HG23	1:D:240:ALA:O	2.13	0.48
1:B:158:VAL:HG22	1:B:244:VAL:HG22	1.89	0.48
1:D:537:PHE:C	1:D:538:GLU:HG2	2.39	0.48
1:C:199:VAL:O	1:C:202:GLU:HB3	2.13	0.48
1:C:474:VAL:CG1	1:C:515:ILE:HD12	2.44	0.48
1:A:199:VAL:O	1:A:203:ASN:OD1	2.32	0.48
1:A:341:THR:HG23	1:A:403:VAL:HG21	1.95	0.48
1:C:349:GLU:O	1:C:353:LYS:HG3	2.14	0.48
1:D:347:VAL:CG1	1:D:352:ALA:HB2	2.44	0.48
1:A:132:GLY:HA2	1:A:148:MET:SD	2.54	0.48
1:C:266:THR:OG1	1:C:290:GLU:HG3	2.14	0.48
1:A:503:ARG:NH1	1:B:75:LEU:O	2.47	0.48
1:C:22:LYS:NZ	1:C:317:GLU:OE1	2.43	0.48
1:C:287:ASP:OD1	1:C:303:PRO:HA	2.14	0.48
1:D:91:ARG:HD2	1:D:279:ASP:HB2	1.95	0.47
1:D:228:VAL:O	1:D:229:ARG:HD3	2.14	0.47
1:A:5:VAL:HG13	1:A:113:VAL:HB	1.96	0.47
1:A:505:ARG:HG3	1:A:505:ARG:O	2.13	0.47
1:B:431:ALA:HB3	1:B:434:TYR:HD2	1.79	0.47
1:C:495:ILE:CD1	1:C:508:GLU:CG	2.29	0.47
1:D:125:ILE:CG2	1:D:128:ILE:HB	2.43	0.47
1:A:257:GLU:HB2	1:A:263:ILE:HG13	1.96	0.47
3:A:902:COA:C2A	1:B:523:LEU:HD12	2.44	0.47
1:C:13:LEU:HD22	1:C:72:PHE:CE2	2.50	0.47
1:A:185:MET:HG3	1:A:190:PRO:HG3	1.96	0.47
1:A:389:SER:OG	1:A:391:ARG:HG2	2.15	0.47
1:C:90:ASP:OD1	1:C:92:SER:OG	2.30	0.47
1:C:275:MET:HB3	1:C:315:ILE:HD12	1.95	0.47
1:C:341:THR:CG2	1:C:403:VAL:HG22	2.43	0.47
1:A:63:TYR:CD1	1:A:63:TYR:N	2.73	0.47
1:C:220:LYS:N	1:C:231:VAL:CG2	2.77	0.47
1:B:360:PHE:CZ	1:B:385:VAL:CG2	2.97	0.47
1:B:488:ARG:O	1:B:488:ARG:HG2	2.15	0.47
1:C:187:ARG:HA	1:C:214:THR:HG21	1.95	0.47
1:D:409:VAL:HG21	1:C:408:ASP:HB3	1.97	0.47
1:B:276:ARG:HH12	1:B:323:ARG:NH1	2.10	0.47
1:B:291:THR:HG22	1:B:328:GLY:HA2	1.96	0.47
1:C:56:ASP:OD2	1:C:59:ARG:NH1	2.47	0.47
1:C:222:VAL:O	1:C:228:VAL:HA	2.15	0.47
1:B:1:MET:HE3	1:B:3:VAL:HG22	1.95	0.47
1:B:154:GLU:HG3	1:B:177:MET:HA	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:194:ASP:OD2	1:B:349:GLU:HG3	2.15	0.47
1:B:286:GLY:O	1:B:289:VAL:HB	2.14	0.47
1:D:450:ASN:ND2	1:D:526:PHE:HE2	2.12	0.47
1:D:461:VAL:HG21	1:D:549:PHE:HB2	1.93	0.47
1:B:291:THR:CG2	1:B:328:GLY:HA2	2.44	0.47
1:A:341:THR:HB	1:B:434:TYR:OH	2.14	0.47
1:A:519:CYS:HB3	1:A:525:SER:OG	2.15	0.47
1:C:41:ARG:C	1:C:43:GLY:N	2.73	0.47
1:D:89:ILE:HG23	1:D:96:VAL:HG22	1.95	0.47
1:D:488:ARG:HA	1:D:547:MET:CE	2.45	0.47
1:B:47:TYR:CD1	1:B:53:HIS:O	2.68	0.47
1:B:461:VAL:O	1:B:461:VAL:HG22	2.14	0.47
1:C:499:ILE:CG2	1:C:500:LEU:N	2.78	0.47
1:A:61:THR:C	1:A:63:TYR:O	2.58	0.46
1:A:360:PHE:CE2	1:A:385:VAL:HG13	2.51	0.46
1:A:439:ASP:O	1:A:442:ILE:N	2.48	0.46
1:B:126:GLU:CD	1:B:220:LYS:HE3	2.40	0.46
1:B:502:LEU:CD2	1:B:506:LEU:HD21	2.46	0.46
1:B:549:PHE:CD1	1:B:549:PHE:N	2.82	0.46
1:C:362:VAL:HG21	1:C:447:VAL:HG12	1.96	0.46
3:D:902:COA:H8A	1:C:526:PHE:CD2	2.49	0.46
1:A:419:THR:H	1:A:422:GLN:HG2	1.80	0.46
1:A:480:SER:OG	1:A:481:GLU:OE1	2.25	0.46
1:C:526:PHE:HA	1:C:542:ILE:CD1	2.46	0.46
1:A:304:PHE:HB3	2:A:901:FAD:O2	2.16	0.46
1:B:125:ILE:CG2	1:B:128:ILE:HB	2.41	0.46
1:B:347:VAL:HG23	1:B:351:MET:CB	2.44	0.46
1:C:112:LEU:CD2	1:C:282:ILE:HG23	2.45	0.46
1:C:199:VAL:HG13	1:C:200:LEU:N	2.31	0.46
1:C:387:LYS:HA	1:C:390:TRP:CZ3	2.50	0.46
1:D:125:ILE:CD1	1:D:218:VAL:HG12	2.46	0.46
1:B:542:ILE:HG21	1:B:542:ILE:HD13	1.65	0.46
1:C:58:LEU:N	1:C:58:LEU:HD12	2.30	0.46
1:C:195:ARG:O	1:C:196:GLU:C	2.59	0.46
1:C:368:ASP:HB3	1:C:377:ASN:H	1.81	0.46
1:C:464:LEU:HD23	1:C:464:LEU:HA	1.63	0.46
1:D:93:ARG:HG3	1:D:93:ARG:NH1	2.30	0.46
1:D:489:ILE:O	1:D:489:ILE:HG22	2.13	0.46
1:D:510:PRO:C	1:D:512:ASP:H	2.24	0.46
1:A:272:ASP:OD1	1:A:275:MET:N	2.48	0.46
1:A:362:VAL:HG21	1:A:447:VAL:HG12	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:283:TYR:CE1	1:C:319:ILE:CD1	2.98	0.46
1:C:373:TYR:CG	1:C:374:PRO:HD2	2.51	0.46
1:A:363:ILE:HG12	1:A:382:LYS:HG3	1.97	0.46
1:B:348:ASN:H	1:B:351:MET:HE3	1.80	0.46
1:C:475:ILE:HD12	1:C:475:ILE:O	2.16	0.46
1:C:498:PRO:HB2	1:C:501:GLU:HG3	1.98	0.46
1:D:67:ARG:HG3	1:D:71:TYR:CE1	2.51	0.46
1:D:134:VAL:HG23	1:D:244:VAL:HG12	1.97	0.46
1:D:475:ILE:HG12	1:D:516:VAL:HG12	1.97	0.46
1:A:47:TYR:HA	1:A:52:VAL:CG2	2.39	0.46
1:C:39:LEU:HD11	1:C:139:ALA:HB2	1.98	0.46
1:C:475:ILE:HD12	1:C:475:ILE:C	2.41	0.46
1:A:148:MET:HE2	1:A:148:MET:HB3	1.87	0.46
1:A:477:ASP:OD1	1:A:479:ARG:HB3	2.16	0.46
1:A:509:ILE:CG2	1:A:515:ILE:HD13	2.45	0.46
1:B:144:LYS:O	1:B:148:MET:HG3	2.16	0.46
1:B:402:GLU:OE2	1:B:402:GLU:HA	2.15	0.46
1:B:475:ILE:HG22	1:B:494:VAL:HG23	1.97	0.46
1:B:497:ILE:HG13	1:B:497:ILE:O	2.16	0.46
1:D:158:VAL:HG22	1:D:244:VAL:CG2	2.41	0.46
1:A:187:ARG:HB2	1:A:198:ALA:CB	2.44	0.46
1:B:154:GLU:O	1:B:154:GLU:HG3	2.16	0.46
1:B:202:GLU:HG2	1:B:206:ARG:NH2	2.31	0.46
1:C:5:VAL:HG12	1:C:113:VAL:HB	1.97	0.46
1:C:287:ASP:OD2	2:C:901:FAD:H3'	2.16	0.46
1:D:406:ARG:HH11	1:D:439:ASP:CG	2.20	0.46
1:A:93:ARG:NH2	1:A:106:GLU:OE2	2.49	0.46
1:A:478:VAL:HA	1:A:497:ILE:O	2.15	0.46
1:B:216:THR:HB	1:B:233:ALA:HB3	1.98	0.46
1:C:196:GLU:OE2	1:C:196:GLU:CA	2.63	0.46
1:C:256:ALA:O	1:C:261:LEU:HB2	2.16	0.46
1:C:275:MET:CB	1:C:315:ILE:HD12	2.46	0.46
1:C:416:ALA:HB3	1:C:418:MET:HG3	1.98	0.46
1:D:476:LEU:HD23	1:D:517:VAL:HG22	1.98	0.45
1:A:477:ASP:OD1	1:A:477:ASP:C	2.58	0.45
1:B:131:GLU:HB2	1:B:226:ASP:HB3	1.98	0.45
1:B:205:LEU:HD21	1:B:337:VAL:CG2	2.46	0.45
1:C:32:GLU:CD	2:C:901:FAD:O2B	2.56	0.45
1:C:185:MET:HB3	1:C:185:MET:HE3	1.59	0.45
1:C:302:ALA:HB2	1:C:329:VAL:HG21	1.98	0.45
1:C:474:VAL:HG11	1:C:515:ILE:HD12	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:202:GLU:HG3	1:D:212:VAL:HG11	1.97	0.45
1:B:423:LEU:HD12	1:B:426:LEU:HD22	1.96	0.45
1:C:219:GLU:HB2	1:C:231:VAL:HG23	1.98	0.45
1:D:318:ASN:HA	1:D:322:GLY:H	1.80	0.45
1:A:232:ILE:C	1:A:234:ASN:H	2.24	0.45
1:B:163:PHE:HB2	1:B:335:PHE:HB3	1.99	0.45
1:C:38:SER:O	1:C:38:SER:OG	2.32	0.45
1:C:373:TYR:CZ	1:C:433:PRO:HB3	2.51	0.45
1:A:502:LEU:CD2	1:A:531:ILE:CD1	2.91	0.45
1:C:37:VAL:O	1:C:38:SER:HB3	2.16	0.45
1:C:134:VAL:HG23	1:C:244:VAL:HG12	1.98	0.45
1:C:545:GLY:O	1:C:548:ALA:HB3	2.17	0.45
1:B:204:HIS:HE1	1:B:339:ASP:N	2.12	0.45
1:C:202:GLU:HG2	1:C:206:ARG:NH2	2.31	0.45
1:C:336:LYS:NZ	1:C:338:PHE:O	2.49	0.45
1:C:418:MET:HE1	1:C:426:LEU:HG	1.98	0.45
1:D:534:HIS:ND1	1:C:24:GLY:C	2.74	0.45
1:A:8:GLY:O	1:A:37:VAL:HG23	2.17	0.45
1:A:21:ARG:NH2	3:A:902:COA:O5A	2.50	0.45
1:A:293:CYS:O	1:A:297:GLY:N	2.46	0.45
1:C:196:GLU:OE1	1:C:460:ASN:OD1	2.34	0.45
1:C:508:GLU:C	1:C:509:ILE:O	2.58	0.45
1:D:510:PRO:O	1:D:512:ASP:N	2.48	0.45
1:A:163:PHE:O	1:A:167:GLU:HG3	2.17	0.45
1:B:8:GLY:HA3	1:B:37:VAL:HG23	1.99	0.45
1:C:275:MET:HG3	1:C:315:ILE:HD11	1.89	0.45
1:C:450:ASN:O	1:C:455:LEU:HB3	2.17	0.45
1:C:477:ASP:C	1:C:479:ARG:H	2.25	0.45
1:D:234:ASN:O	1:D:236:LYS:N	2.50	0.45
1:D:534:HIS:CE1	1:C:24:GLY:O	2.70	0.45
1:A:75:LEU:HB2	1:B:500:LEU:HD23	1.98	0.45
1:D:14:LYS:NZ	3:D:902:COA:P2A	2.90	0.45
1:D:157:VAL:O	1:D:243:VAL:HA	2.17	0.45
1:D:295:VAL:HG13	1:D:330:ILE:HD12	1.98	0.45
1:C:5:VAL:CB	1:C:113:VAL:HB	2.47	0.45
1:C:194:ASP:O	1:C:195:ARG:C	2.59	0.45
1:C:529:SER:HB3	1:C:542:ILE:HD11	0.63	0.45
1:D:234:ASN:C	1:D:236:LYS:N	2.74	0.45
1:D:473:ILE:HG22	1:D:514:GLU:HB3	1.98	0.45
1:B:158:VAL:HB	1:B:181:VAL:HG22	1.99	0.45
1:B:217:ARG:H	1:B:233:ALA:HB2	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:379:ILE:CG2	1:B:403:VAL:HG12	2.46	0.45
1:D:341:THR:HG23	1:C:434:TYR:OH	2.17	0.44
1:D:400:MET:HE3	1:D:400:MET:HB2	1.65	0.44
1:A:360:PHE:CZ	1:A:385:VAL:HG11	2.52	0.44
1:B:135:THR:HG22	1:B:245:VAL:CG2	2.47	0.44
1:B:225:ASP:C	1:B:226:ASP:OD1	2.60	0.44
1:B:294:LEU:HD11	1:B:328:GLY:CA	2.47	0.44
1:B:331:ARG:CZ	1:B:351:MET:SD	3.04	0.44
1:C:515:ILE:O	1:C:515:ILE:HG23	2.17	0.44
1:D:315:ILE:O	1:D:319:ILE:HG12	2.18	0.44
1:D:360:PHE:CE2	1:D:385:VAL:HG13	2.52	0.44
1:A:61:THR:O	1:A:63:TYR:O	2.34	0.44
1:A:273:GLU:HB3	1:A:325:VAL:CG2	2.47	0.44
1:A:330:ILE:HA	1:A:330:ILE:HD13	1.59	0.44
1:B:22:LYS:NZ	1:B:22:LYS:HB3	2.33	0.44
1:B:418:MET:HA	1:B:422:GLN:NE2	2.29	0.44
1:A:464:LEU:H	1:A:464:LEU:CD2	2.23	0.44
1:D:82:THR:HG22	1:D:83:GLU:HG3	1.99	0.44
1:B:183:GLU:HG3	1:B:185:MET:H	1.83	0.44
1:D:14:LYS:HZ1	3:D:902:COA:P2A	2.40	0.44
1:D:361:THR:CG2	1:D:382:LYS:HE3	2.46	0.44
1:D:520:ALA:O	1:D:521:ILE:HD12	2.17	0.44
1:A:366:SER:OG	1:A:367:PRO:HD2	2.17	0.44
1:A:439:ASP:O	1:A:441:VAL:N	2.50	0.44
1:B:217:ARG:O	1:B:233:ALA:HB2	2.17	0.44
1:C:5:VAL:CG1	1:C:113:VAL:HB	2.48	0.44
1:D:520:ALA:C	1:D:521:ILE:HD12	2.42	0.44
1:A:44:LEU:N	1:A:45:PRO:HD2	2.33	0.44
1:A:295:VAL:HG23	1:A:330:ILE:CD1	2.48	0.44
1:A:509:ILE:HA	1:A:510:PRO:HD2	1.66	0.44
1:B:373:TYR:CE2	1:B:433:PRO:HB3	2.52	0.44
1:C:22:LYS:CB	1:C:320:THR:HG21	2.42	0.44
1:C:348:ASN:C	1:C:348:ASN:OD1	2.61	0.44
1:D:353:LYS:HB3	1:D:353:LYS:HE2	1.62	0.44
1:D:406:ARG:HB3	1:D:441:VAL:HG23	2.00	0.44
1:B:275:MET:HE3	1:B:284:ALA:O	2.18	0.44
1:B:380:ARG:HB3	1:B:549:PHE:CZ	2.53	0.44
1:C:187:ARG:CZ	1:C:350:GLN:HE21	2.29	0.44
1:C:200:LEU:CD1	1:C:380:ARG:HD2	2.48	0.44
1:D:38:SER:O	1:D:38:SER:OG	2.31	0.44
1:D:316:GLY:O	1:D:320:THR:HG22	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:360:PHE:CD2	1:D:385:VAL:HG13	2.53	0.44
1:B:13:LEU:HD12	1:B:72:PHE:CE1	2.53	0.44
1:C:91:ARG:HH11	1:C:279:ASP:HB2	1.83	0.44
1:D:6:ILE:HG22	1:D:6:ILE:O	2.17	0.44
1:D:7:GLY:N	1:D:31:VAL:O	2.47	0.44
1:D:453:ASP:HB2	1:D:455:LEU:CD1	2.48	0.44
1:A:406:ARG:HB3	1:A:441:VAL:HG23	1.99	0.44
1:A:517:VAL:HG23	1:A:540:VAL:CG2	2.47	0.44
1:B:349:GLU:OE2	1:B:359:TYR:OH	2.18	0.44
1:B:479:ARG:NH2	1:B:488:ARG:N	2.65	0.44
1:B:496:HIS:NE2	1:B:498:PRO:HD3	2.33	0.44
1:C:43:GLY:O	1:C:44:LEU:C	2.61	0.44
1:C:419:THR:HG22	1:C:421:ASP:HB2	2.00	0.44
1:D:121:ALA:H	1:D:249:ILE:HA	1.83	0.43
1:D:330:ILE:HG13	1:D:415:GLN:CG	2.38	0.43
1:B:285:GLY:CA	1:B:289:VAL:HG21	2.48	0.43
1:B:465:LYS:HD3	1:B:473:ILE:CD1	2.37	0.43
1:C:68:ASP:OD1	1:C:68:ASP:N	2.40	0.43
1:D:20:ARG:CZ	1:D:28:ILE:HD12	2.48	0.43
1:D:55:VAL:CG1	1:D:56:ASP:N	2.80	0.43
1:A:336:LYS:HG2	1:A:337:VAL:O	2.18	0.43
1:B:61:THR:OG1	1:B:64:GLY:CA	2.66	0.43
1:C:67:ARG:HH21	3:C:902:COA:H131	1.83	0.43
1:C:182:ILE:HD13	1:C:213:VAL:HG22	1.96	0.43
1:C:224:GLN:C	1:C:226:ASP:N	2.73	0.43
1:D:105:ASP:OD1	1:D:106:GLU:N	2.44	0.43
1:D:542:ILE:HG21	1:D:542:ILE:HD13	1.65	0.43
1:B:196:GLU:CD	1:B:196:GLU:H	2.25	0.43
1:C:170:GLU:O	1:C:174:ASN:OD1	2.36	0.43
1:C:499:ILE:HG23	1:C:500:LEU:H	1.78	0.43
1:D:377:ASN:HB3	1:D:400:MET:O	2.18	0.43
1:A:41:ARG:NH1	1:A:137:THR:O	2.51	0.43
1:A:360:PHE:CD2	1:A:385:VAL:HG13	2.52	0.43
1:A:497:ILE:HD11	1:A:509:ILE:HD11	2.01	0.43
1:B:14:LYS:HD2	1:B:309:ASN:HB3	1.99	0.43
1:B:385:VAL:HG11	1:B:420:ILE:HG21	2.00	0.43
1:B:385:VAL:HG11	1:B:420:ILE:CG2	2.48	0.43
1:C:269:ILE:CG2	1:C:277:THR:CG2	2.95	0.43
1:D:405:LYS:HG3	1:C:405:LYS:HA	2.00	0.43
1:B:51:LEU:HD23	1:B:51:LEU:HA	1.84	0.43
1:C:476:LEU:HD22	1:C:478:VAL:CG2	2.37	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:202:GLU:O	1:D:205:LEU:HB2	2.19	0.43
1:D:409:VAL:CG2	1:C:408:ASP:HB3	2.49	0.43
1:A:306:ASP:OD1	1:A:307:VAL:N	2.51	0.43
1:D:41:ARG:NH2	1:D:137:THR:CG2	2.58	0.43
1:D:184:MET:O	1:D:215:SER:HA	2.19	0.43
1:A:22:LYS:HD3	1:B:455:LEU:HD11	2.01	0.43
1:A:276:ARG:HG2	1:A:283:TYR:CZ	2.54	0.43
1:A:360:PHE:CE2	1:A:385:VAL:HG11	2.53	0.43
1:C:438:LEU:HD22	1:C:442:ILE:HG22	1.99	0.43
1:D:196:GLU:CD	1:D:363:ILE:HD11	2.44	0.43
1:A:204:HIS:CE1	1:A:339:ASP:HB2	2.54	0.43
1:A:481:GLU:N	1:A:481:GLU:CD	2.73	0.43
1:B:134:VAL:CG2	1:B:244:VAL:HG12	2.48	0.43
1:B:463:GLU:O	1:B:464:LEU:C	2.61	0.43
1:C:341:THR:HB	1:C:403:VAL:HG22	2.00	0.43
1:C:378:TYR:CE2	1:C:521:ILE:HD13	2.54	0.43
1:C:528:ALA:O	1:C:531:ILE:HB	2.18	0.43
1:D:374:PRO:HG3	1:C:51:LEU:HD22	2.01	0.43
1:B:9:GLY:HA3	2:B:901:FAD:O1P	2.18	0.43
1:B:406:ARG:HH11	1:B:439:ASP:CG	2.27	0.43
1:C:57:ASN:OD1	1:C:57:ASN:N	2.51	0.43
1:C:120:PRO:HD3	1:C:137:THR:HG21	2.01	0.43
1:C:361:THR:CG2	1:C:382:LYS:HE3	2.49	0.43
1:D:438:LEU:HA	1:D:438:LEU:HD23	1.80	0.43
1:B:228:VAL:O	1:B:229:ARG:CG	2.66	0.43
1:B:517:VAL:HG11	1:B:528:ALA:HB3	1.99	0.43
1:B:518:VAL:HG11	1:B:547:MET:HE1	2.00	0.43
1:C:135:THR:O	1:C:141:GLU:HG2	2.18	0.43
1:C:347:VAL:HG12	1:C:352:ALA:HB2	2.01	0.43
1:C:482:GLU:OE1	1:C:496:HIS:HD2	2.02	0.43
1:D:549:PHE:N	1:D:549:PHE:CD1	2.87	0.42
1:A:338:PHE:CD1	1:A:338:PHE:N	2.81	0.42
1:A:426:LEU:HD12	1:B:415:GLN:OE1	2.19	0.42
1:A:446:ASN:HB3	1:B:313:ARG:NH1	2.34	0.42
1:B:496:HIS:HD2	1:B:498:PRO:HD3	1.78	0.42
1:C:220:LYS:HB3	1:C:231:VAL:HG21	2.01	0.42
1:C:227:LYS:C	1:C:228:VAL:CG2	2.83	0.42
1:D:461:VAL:CG2	1:D:549:PHE:HB2	2.49	0.42
1:A:183:GLU:HG3	1:A:185:MET:H	1.83	0.42
1:C:43:GLY:C	1:C:45:PRO:HD2	2.44	0.42
1:C:194:ASP:OD2	1:C:349:GLU:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:288:CYS:SG	1:C:289:VAL:HG23	2.59	0.42
1:A:166:LEU:CD1	1:A:335:PHE:CZ	3.00	0.42
1:A:197:MET:HE3	1:A:197:MET:HB3	1.91	0.42
1:A:406:ARG:HB3	1:A:441:VAL:CG2	2.50	0.42
1:C:225:ASP:O	1:C:226:ASP:HB2	2.19	0.42
1:C:545:GLY:HA2	1:C:549:PHE:HE1	1.83	0.42
1:D:20:ARG:HH21	1:D:28:ILE:HD11	1.83	0.42
1:B:330:ILE:HD13	1:B:330:ILE:HA	1.70	0.42
1:C:452:ARG:C	1:C:454:GLY:N	2.78	0.42
1:D:67:ARG:HG3	1:D:71:TYR:CG	2.55	0.42
1:B:52:VAL:O	1:B:53:HIS:HB2	2.19	0.42
1:B:159:ILE:HD13	1:B:218:VAL:HG21	2.01	0.42
1:B:349:GLU:OE2	1:B:359:TYR:HE2	2.03	0.42
1:D:166:LEU:HD23	1:D:166:LEU:HA	1.86	0.42
1:C:374:PRO:O	1:C:375:GLN:HB2	2.19	0.42
1:A:412:THR:HG23	1:B:418:MET:HE1	2.00	0.42
1:A:473:ILE:CG2	1:A:474:VAL:N	2.82	0.42
1:B:165:GLY:O	1:B:168:SER:HB2	2.20	0.42
1:B:506:LEU:C	1:B:508:GLU:H	2.27	0.42
1:C:343:ALA:HB3	1:C:407:ILE:HG13	2.02	0.42
1:C:525:SER:C	1:C:542:ILE:HD13	2.43	0.42
1:B:465:LYS:HD2	1:B:473:ILE:HD11	1.95	0.42
1:C:54:GLU:OE2	1:C:54:GLU:HA	2.19	0.42
1:C:439:ASP:O	1:C:443:THR:HG23	2.20	0.42
1:B:99:VAL:HA	1:B:104:GLU:HA	2.01	0.42
1:B:379:ILE:HB	1:B:403:VAL:HG12	2.02	0.42
1:D:148:MET:HE2	1:D:242:VAL:HG12	2.01	0.41
1:D:459:ILE:HD12	1:D:459:ILE:O	2.19	0.41
1:A:117:GLY:HA2	1:A:287:ASP:HB2	2.02	0.41
1:B:275:MET:HB3	1:B:315:ILE:HD11	2.00	0.41
1:C:136:LEU:HA	1:C:136:LEU:HD22	1.83	0.41
1:A:271:VAL:HB	1:A:275:MET:HA	2.03	0.41
1:A:508:GLU:O	1:A:510:PRO:CD	2.68	0.41
1:C:497:ILE:HD12	1:C:509:ILE:CD1	2.48	0.41
1:D:22:LYS:HE2	1:D:22:LYS:HB3	1.80	0.41
1:D:148:MET:CE	1:D:242:VAL:HG12	2.49	0.41
1:D:228:VAL:O	1:D:229:ARG:CD	2.68	0.41
1:D:474:VAL:HG13	1:D:515:ILE:HG12	2.02	0.41
1:A:369:ARG:NH1	1:A:375:GLN:CB	2.81	0.41
1:B:22:LYS:HD2	1:B:317:GLU:OE2	2.20	0.41
1:B:271:VAL:HB	1:B:275:MET:HA	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:361:THR:HG21	1:B:382:LYS:HE3	2.02	0.41
1:A:90:ASP:O	1:A:94:LYS:N	2.54	0.41
1:A:166:LEU:HD13	1:A:335:PHE:CE1	2.54	0.41
1:A:226:ASP:O	1:A:227:LYS:CB	2.68	0.41
1:A:325:VAL:O	1:B:425:ASN:ND2	2.47	0.41
1:A:499:ILE:HD12	1:A:524:ARG:HB3	2.02	0.41
1:B:445:ALA:O	1:B:449:MET:HG3	2.20	0.41
1:C:509:ILE:HG23	1:C:537:PHE:CE2	2.21	0.41
1:C:517:VAL:HB	1:C:542:ILE:HG12	2.02	0.41
1:D:204:HIS:CE1	1:D:339:ASP:HB2	2.55	0.41
1:A:87:THR:C	1:A:88:GLU:HG2	2.45	0.41
1:A:143:GLU:O	1:A:144:LYS:C	2.63	0.41
1:A:158:VAL:HG22	1:A:244:VAL:CG2	2.46	0.41
1:A:479:ARG:HB3	1:A:479:ARG:HE	1.78	0.41
1:C:332:THR:HG22	1:C:345:ALA:CA	2.51	0.41
1:C:473:ILE:HD12	1:C:473:ILE:N	2.35	0.41
1:D:459:ILE:HD12	1:D:460:ASN:O	2.20	0.41
1:D:537:PHE:O	1:D:538:GLU:HG3	2.21	0.41
1:A:482:GLU:C	1:A:483:GLU:CG	2.90	0.41
1:A:509:ILE:HG22	1:A:537:PHE:CE1	2.56	0.41
1:C:419:THR:CG2	1:C:421:ASP:HB2	2.51	0.41
1:A:144:LYS:O	1:A:148:MET:HG3	2.21	0.41
1:A:271:VAL:HA	1:A:276:ARG:O	2.21	0.41
1:A:426:LEU:HD21	1:B:412:THR:HG23	2.02	0.41
1:C:5:VAL:HG12	1:C:113:VAL:CG2	2.51	0.41
1:C:525:SER:HB3	1:C:542:ILE:CG2	2.44	0.41
1:D:298:LYS:HG2	1:D:299:LYS:N	2.35	0.41
1:B:35:LYS:HE2	1:B:83:GLU:OE2	2.21	0.41
1:B:56:ASP:HA	1:B:59:ARG:CG	2.51	0.41
1:D:20:ARG:NE	1:D:20:ARG:CA	2.76	0.41
1:D:154:GLU:CA	1:D:177:MET:HG2	2.42	0.41
1:D:206:ARG:NH1	1:D:212:VAL:HG13	2.36	0.41
1:D:330:ILE:HA	1:D:330:ILE:HD13	1.72	0.41
1:D:430:TYR:CD1	1:D:430:TYR:C	2.97	0.41
1:D:432:PRO:HG2	1:C:42:CYS:O	2.20	0.41
1:D:506:LEU:HD23	1:D:506:LEU:HA	1.84	0.41
1:D:506:LEU:O	1:D:508:GLU:N	2.53	0.41
1:A:81:LEU:HD12	1:A:81:LEU:N	2.36	0.41
1:A:125:ILE:HD13	1:A:125:ILE:HG21	1.88	0.41
1:A:294:LEU:HB2	1:A:330:ILE:HD11	2.02	0.41
1:A:345:ALA:CB	1:A:411:SER:HB3	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:59:ARG:HH22	1:B:68:ASP:HB3	1.86	0.41
1:B:264:GLY:HA3	1:B:290:GLU:OE2	2.20	0.41
1:B:456:PHE:CD1	1:B:542:ILE:CG2	3.04	0.41
1:C:43:GLY:O	1:C:46:TYR:N	2.54	0.41
1:C:52:VAL:HG13	1:C:57:ASN:HB2	2.02	0.41
1:C:69:GLU:CD	1:C:69:GLU:H	2.29	0.41
1:C:192:MET:HE3	1:C:192:MET:HB3	1.75	0.41
1:C:224:GLN:C	1:C:226:ASP:H	2.29	0.41
1:D:194:ASP:OD1	1:D:348:ASN:OD1	2.38	0.41
1:D:275:MET:HE2	1:D:311:GLN:HB3	2.02	0.41
1:A:1:MET:HE2	1:A:1:MET:HB3	1.63	0.41
1:A:21:ARG:NH2	3:A:902:COA:H52A	2.35	0.41
1:A:334:ILE:HB	1:B:429:ALA:HB1	2.03	0.41
1:B:19:ILE:HD11	1:B:319:ILE:HD12	2.02	0.41
1:B:89:ILE:HB	1:B:259:ALA:HB2	2.02	0.41
1:D:323:ARG:C	1:D:323:ARG:CD	2.93	0.40
3:D:902:COA:O5B	1:C:523:LEU:HD21	2.21	0.40
1:B:1:MET:HE3	1:B:3:VAL:HG23	1.89	0.40
1:B:30:VAL:CG1	1:B:80:VAL:HG22	2.51	0.40
1:B:474:VAL:HG21	1:B:510:PRO:CD	2.43	0.40
1:C:225:ASP:O	1:C:226:ASP:CB	2.69	0.40
1:C:317:GLU:HG2	1:C:324:ALA:HB2	2.03	0.40
1:C:392:VAL:HG23	1:C:414:ILE:CG1	2.52	0.40
1:D:1:MET:HE2	1:D:111:TYR:CE1	2.56	0.40
1:D:228:VAL:O	1:D:229:ARG:CG	2.69	0.40
1:D:429:ALA:HB1	1:C:334:ILE:HB	2.03	0.40
1:A:185:MET:HE2	1:A:185:MET:HA	2.03	0.40
1:A:272:ASP:OD1	1:A:272:ASP:C	2.64	0.40
1:B:8:GLY:HA2	1:B:13:LEU:CD2	2.51	0.40
1:C:269:ILE:H	1:C:269:ILE:HG13	1.71	0.40
1:D:44:LEU:N	1:D:45:PRO:HD2	2.36	0.40
1:D:57:ASN:C	1:D:59:ARG:H	2.29	0.40
1:D:494:VAL:O	1:D:494:VAL:CG1	2.69	0.40
1:B:257:GLU:HB2	1:B:263:ILE:HG13	2.04	0.40
2:B:901:FAD:HM83	2:B:901:FAD:HM71	1.87	0.40
1:C:274:TYR:O	1:C:275:MET:CB	2.69	0.40
1:C:510:PRO:O	1:C:511:ARG:CB	2.70	0.40
1:D:520:ALA:HA	1:D:547:MET:HB2	2.04	0.40
1:B:348:ASN:H	1:B:351:MET:CE	2.34	0.40
1:C:41:ARG:O	1:C:43:GLY:N	2.55	0.40
1:C:232:ILE:C	1:C:234:ASN:N	2.79	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:479:ARG:HB3	1:C:480:SER:H	1.70	0.40
1:A:147:GLU:O	1:A:151:GLU:HG3	2.21	0.40
1:A:473:ILE:HG22	1:A:474:VAL:N	2.36	0.40
1:B:266:THR:OG1	1:B:290:GLU:HG3	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	535/551 (97%)	506 (95%)	24 (4%)	5 (1%)	14	44
1	B	533/551 (97%)	494 (93%)	36 (7%)	3 (1%)	21	52
1	C	525/551 (95%)	476 (91%)	36 (7%)	13 (2%)	4	21
1	D	526/551 (96%)	492 (94%)	26 (5%)	8 (2%)	8	32
All	All	2119/2204 (96%)	1968 (93%)	122 (6%)	29 (1%)	9	34

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	228	VAL
1	D	489	ILE
1	D	492	GLU
1	A	227	LYS
1	A	233	ALA
1	B	464	LEU
1	C	229	ARG
1	C	479	ARG
1	C	480	SER
1	C	505	ARG
1	C	510	PRO

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Mol	Chain	Res	Type
1	D	229	ARG
1	A	194	ASP
1	A	228	VAL
1	C	196	GLU
1	C	226	ASP
1	C	228	VAL
1	C	463	GLU
1	D	538	GLU
1	B	465	LYS
1	C	42	CYS
1	D	490	GLU
1	D	508	GLU
1	B	228	VAL
1	C	338	PHE
1	C	453	ASP
1	D	461	VAL
1	A	337	VAL
1	C	124	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	423/446 (95%)	417 (99%)	6 (1%)	59 76
1	B	428/446 (96%)	418 (98%)	10 (2%)	44 70
1	C	415/446 (93%)	405 (98%)	10 (2%)	43 69
1	D	420/446 (94%)	413 (98%)	7 (2%)	53 74
All	All	1686/1784 (94%)	1653 (98%)	33 (2%)	48 72

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	229	ARG
1	D	361	THR
1	D	489	ILE

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Mol	Chain	Res	Type
1	D	490	GLU
1	D	492	GLU
1	D	513	LYS
1	D	538	GLU
1	A	63	TYR
1	A	196	GLU
1	A	224	GLN
1	A	228	VAL
1	A	369	ARG
1	A	465	LYS
1	B	147	GLU
1	B	193	LEU
1	B	217	ARG
1	B	226	ASP
1	B	228	VAL
1	B	229	ARG
1	B	336	LYS
1	B	481	GLU
1	B	511	ARG
1	B	512	ASP
1	C	41	ARG
1	C	200	LEU
1	C	227	LYS
1	C	228	VAL
1	C	239	PRO
1	C	277	THR
1	C	426	LEU
1	C	479	ARG
1	C	481	GLU
1	C	508	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	57	ASN
1	D	101	ASN
1	D	396	GLN
1	D	422	GLN
1	D	460	ASN
1	D	496	HIS
1	A	57	ASN
1	A	375	GLN

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Mol	Chain	Res	Type
1	A	422	GLN
1	A	496	HIS
1	B	2	ASN
1	B	204	HIS
1	C	101	ASN
1	C	350	GLN
1	C	425	ASN
1	C	534	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](#)

Of 12 ligands modelled in this entry, 4 are monoatomic - leaving 8 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	FAD	A	901	-	58,58,58	2.08	17 (29%)	85,89,89	1.98	24 (28%)
3	COA	D	902	-	47,50,50	2.41	11 (23%)	69,75,75	2.30	25 (36%)
3	COA	C	902	-	47,50,50	2.61	13 (27%)	69,75,75	2.63	30 (43%)
3	COA	B	902	-	47,50,50	2.48	12 (25%)	69,75,75	2.19	19 (27%)
3	COA	A	902	-	47,50,50	2.59	13 (27%)	69,75,75	2.46	24 (34%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	FAD	C	901	-	58,58,58	2.02	18 (31%)	85,89,89	1.85	24 (28%)
2	FAD	B	901	-	58,58,58	1.95	18 (31%)	85,89,89	1.73	18 (21%)
2	FAD	D	901	-	58,58,58	1.86	17 (29%)	85,89,89	1.86	20 (23%)

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	A	901	-	-	11/34/50/50	0/6/6/6
3	COA	D	902	-	-	5/48/64/64	0/3/3/3
3	COA	C	902	-	-	13/48/64/64	0/3/3/3
3	COA	B	902	-	-	13/48/64/64	0/3/3/3
3	COA	A	902	-	-	22/48/64/64	0/3/3/3
2	FAD	C	901	-	-	10/34/50/50	0/6/6/6
2	FAD	B	901	-	-	3/34/50/50	0/6/6/6
2	FAD	D	901	-	-	5/34/50/50	0/6/6/6

All (119) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	902	COA	P2A-O3A	8.33	1.68	1.59
3	A	902	COA	P1A-O3A	7.26	1.67	1.59
3	C	902	COA	P1A-O3A	6.87	1.66	1.59
3	A	902	COA	P2A-O3A	6.72	1.66	1.59
3	D	902	COA	P2A-O3A	6.43	1.66	1.59
3	D	902	COA	P1A-O3A	6.29	1.66	1.59
3	B	902	COA	P1A-O3A	6.20	1.66	1.59
3	B	902	COA	C9P-N8P	5.84	1.47	1.33
3	C	902	COA	C9P-N8P	5.74	1.47	1.33
3	B	902	COA	C5P-N4P	5.68	1.46	1.33
3	B	902	COA	P2A-O3A	5.63	1.65	1.59
3	D	902	COA	C5P-N4P	5.51	1.46	1.33
3	A	902	COA	C9P-N8P	5.42	1.46	1.33
3	D	902	COA	C9P-N8P	5.15	1.45	1.33
3	A	902	COA	C5A-N7A	5.07	1.48	1.39
3	B	902	COA	C6A-N6A	4.97	1.46	1.34
3	C	902	COA	C5P-N4P	4.91	1.45	1.33
2	D	901	FAD	C4-N3	-4.74	1.30	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	902	COA	O4B-C1B	4.72	1.52	1.42
2	A	901	FAD	C4-N3	-4.66	1.30	1.38
2	B	901	FAD	C4-N3	-4.60	1.30	1.38
3	A	902	COA	C5P-N4P	4.59	1.44	1.33
2	C	901	FAD	C4-N3	-4.53	1.30	1.38
3	C	902	COA	C6A-N6A	4.46	1.45	1.34
3	A	902	COA	C6A-N6A	4.41	1.45	1.34
3	A	902	COA	C5A-C4A	4.28	1.46	1.39
3	D	902	COA	C6A-N6A	4.24	1.45	1.34
2	A	901	FAD	C8A-N9A	-4.16	1.30	1.37
2	C	901	FAD	C2-N3	-4.12	1.29	1.39
2	C	901	FAD	PA-O3P	-4.10	1.55	1.59
3	B	902	COA	C5A-N7A	4.06	1.46	1.39
2	C	901	FAD	P-O3P	-4.06	1.55	1.59
3	C	902	COA	C2B-C3B	-4.03	1.44	1.53
2	A	901	FAD	C5X-N5	-4.01	1.32	1.39
3	D	902	COA	C5A-N7A	3.91	1.46	1.39
3	D	902	COA	O4B-C1B	3.90	1.51	1.42
3	B	902	COA	C5A-C4A	3.87	1.46	1.39
2	A	901	FAD	PA-O3P	-3.87	1.55	1.59
2	A	901	FAD	C2-N3	-3.87	1.30	1.39
3	C	902	COA	O4B-C1B	3.85	1.50	1.42
3	C	902	COA	C5A-N7A	3.84	1.46	1.39
2	D	901	FAD	C2-N3	-3.81	1.30	1.39
2	D	901	FAD	C5A-N7A	-3.79	1.32	1.39
2	C	901	FAD	C5A-N7A	-3.78	1.32	1.39
2	A	901	FAD	C5A-N7A	-3.75	1.32	1.39
2	B	901	FAD	C5A-N7A	-3.71	1.32	1.39
3	B	902	COA	O4B-C1B	3.70	1.50	1.42
3	D	902	COA	C2B-C3B	-3.70	1.44	1.53
2	C	901	FAD	C9A-C5X	3.69	1.47	1.41
2	A	901	FAD	C4A-N9A	-3.63	1.30	1.37
2	C	901	FAD	C5X-N5	-3.62	1.32	1.39
2	B	901	FAD	C8A-N9A	-3.61	1.31	1.37
3	B	902	COA	C2B-C3B	-3.58	1.45	1.53
2	A	901	FAD	C9A-C5X	3.56	1.46	1.41
2	B	901	FAD	P-O3P	-3.55	1.55	1.59
2	A	901	FAD	P-O3P	-3.53	1.55	1.59
2	D	901	FAD	C8A-N9A	-3.45	1.31	1.37
2	B	901	FAD	C5X-N5	-3.44	1.33	1.39
2	C	901	FAD	C8A-N9A	-3.41	1.31	1.37
2	D	901	FAD	C5X-N5	-3.37	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	901	FAD	C9A-C5X	3.36	1.46	1.41
2	B	901	FAD	C4A-N9A	-3.34	1.30	1.37
3	C	902	COA	C5A-C4A	3.31	1.45	1.39
3	A	902	COA	C2B-C3B	-3.27	1.45	1.53
2	A	901	FAD	C4'-C3'	-3.18	1.47	1.53
2	B	901	FAD	C2-N3	-3.15	1.32	1.39
3	D	902	COA	C5A-C4A	3.13	1.44	1.39
2	C	901	FAD	C4A-N9A	-3.03	1.31	1.37
3	A	902	COA	C8A-N7A	2.91	1.37	1.31
3	A	902	COA	O4B-C4B	2.90	1.51	1.45
2	B	901	FAD	C6-C7	-2.90	1.35	1.39
2	D	901	FAD	C4A-N9A	-2.90	1.31	1.37
2	A	901	FAD	C6-C7	-2.86	1.35	1.39
2	C	901	FAD	C5A-C4A	2.82	1.44	1.39
2	B	901	FAD	C9A-C5X	2.73	1.45	1.41
2	D	901	FAD	C6-C7	-2.71	1.35	1.39
3	C	902	COA	P3B-O9A	-2.70	1.44	1.54
3	D	902	COA	O4B-C4B	2.69	1.51	1.45
2	D	901	FAD	C5A-C4A	2.64	1.43	1.39
2	A	901	FAD	C2'-C3'	-2.55	1.49	1.53
3	C	902	COA	O4B-C4B	2.55	1.50	1.45
2	A	901	FAD	C6-C5X	-2.54	1.36	1.40
2	C	901	FAD	C6-C7	-2.53	1.36	1.39
2	B	901	FAD	C4'-C3'	-2.49	1.49	1.53
2	A	901	FAD	C5A-C4A	2.48	1.43	1.39
2	D	901	FAD	O4B-C4B	-2.47	1.39	1.45
2	B	901	FAD	P-O2P	-2.46	1.43	1.55
2	A	901	FAD	P-O2P	-2.42	1.44	1.55
2	B	901	FAD	P-O1P	-2.40	1.42	1.50
3	B	902	COA	C8A-N7A	2.37	1.36	1.31
2	B	901	FAD	C6-C5X	-2.34	1.36	1.40
2	C	901	FAD	PA-O2A	-2.33	1.44	1.55
2	D	901	FAD	C2B-C3B	-2.33	1.47	1.53
2	C	901	FAD	O4B-C4B	-2.32	1.39	1.45
3	A	902	COA	P1A-O5B	2.32	1.68	1.59
2	C	901	FAD	C6-C5X	-2.32	1.36	1.40
2	D	901	FAD	P-O3P	-2.31	1.57	1.59
2	D	901	FAD	C1'-C2'	-2.31	1.49	1.52
3	B	902	COA	O4B-C4B	2.29	1.50	1.45
3	C	902	COA	P3B-O3B	2.29	1.63	1.59
2	B	901	FAD	C1'-C2'	-2.25	1.49	1.52
2	C	901	FAD	C9-C8	-2.24	1.36	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	901	FAD	C2B-C3B	-2.21	1.47	1.53
2	A	901	FAD	PA-O2A	-2.16	1.45	1.55
3	B	902	COA	C4A-N9A	-2.14	1.33	1.37
2	D	901	FAD	PA-O2A	-2.13	1.45	1.55
2	D	901	FAD	C4'-C3'	-2.13	1.49	1.53
2	A	901	FAD	P-O1P	-2.09	1.43	1.50
2	D	901	FAD	P-O2P	-2.09	1.45	1.55
3	C	902	COA	P3B-O8A	-2.09	1.47	1.54
2	C	901	FAD	P-O2P	-2.08	1.45	1.55
2	C	901	FAD	C2B-C3B	-2.08	1.47	1.53
2	B	901	FAD	PA-O2A	-2.08	1.45	1.55
2	B	901	FAD	O4B-C4B	-2.07	1.40	1.45
2	B	901	FAD	C5A-C4A	2.07	1.42	1.39
2	C	901	FAD	C8-C7	2.06	1.45	1.40
2	D	901	FAD	C6-C5X	-2.05	1.36	1.40
3	D	902	COA	C3B-C4B	-2.04	1.47	1.52
3	A	902	COA	P2A-O5A	-2.01	1.46	1.55

All (184) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	902	COA	C4A-N9A-C8A	8.40	114.56	105.74
3	D	902	COA	C4A-N9A-C8A	8.12	114.26	105.74
3	A	902	COA	C4A-N9A-C8A	7.84	113.97	105.74
3	A	902	COA	C2P-C3P-N4P	-7.53	95.22	112.31
3	B	902	COA	C4A-N9A-C8A	7.33	113.44	105.74
2	A	901	FAD	C4'-C3'-C2'	-6.62	102.56	113.57
2	D	901	FAD	C5A-C4A-N3A	-6.34	117.99	126.72
2	A	901	FAD	C5A-C4A-N3A	-6.08	118.34	126.72
3	D	902	COA	N3A-C4A-N9A	5.98	137.34	127.17
3	B	902	COA	O4B-C1B-N9A	5.89	119.39	108.09
2	B	901	FAD	C5A-C4A-N3A	-5.82	118.71	126.72
2	C	901	FAD	C5A-C4A-N3A	-5.76	118.79	126.72
3	C	902	COA	N3A-C4A-N9A	5.67	136.81	127.17
3	C	902	COA	CEP-CBP-CCP	-5.45	99.22	108.22
3	A	902	COA	CEP-CBP-CAP	5.41	117.99	108.77
2	D	901	FAD	N3A-C4A-N9A	5.30	136.18	127.17
3	D	902	COA	C5A-C4A-N3A	-5.20	119.56	126.72
3	A	902	COA	N3A-C4A-N9A	5.11	135.86	127.17
3	A	902	COA	P3B-O3B-C3B	-4.86	110.44	123.43
3	C	902	COA	C5A-C4A-N3A	-4.84	120.06	126.72
3	D	902	COA	C6P-C7P-N8P	-4.73	101.93	112.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	901	FAD	N3A-C4A-N9A	4.70	135.16	127.17
2	C	901	FAD	N3A-C4A-N9A	4.59	134.98	127.17
3	C	902	COA	O4B-C1B-N9A	4.50	116.73	108.09
3	D	902	COA	C4B-O4B-C1B	-4.47	99.59	109.47
3	C	902	COA	O6A-CCP-CBP	-4.36	103.53	110.55
3	A	902	COA	C5A-C4A-N3A	-4.34	120.74	126.72
2	A	901	FAD	N3A-C4A-N9A	4.23	134.37	127.17
2	A	901	FAD	C2A-N3A-C4A	4.22	122.14	111.83
3	B	902	COA	N3A-C4A-N9A	4.22	134.35	127.17
2	A	901	FAD	N3A-C2A-N1A	-4.19	122.25	128.58
3	B	902	COA	CEP-CBP-CAP	4.18	115.90	108.77
3	C	902	COA	N3A-C2A-N1A	-4.15	122.31	128.58
3	B	902	COA	C5B-C4B-C3B	-4.14	100.59	114.38
3	A	902	COA	C6P-C7P-N8P	-4.14	103.20	112.00
2	A	901	FAD	C4A-C5A-N7A	-4.11	105.88	110.58
2	D	901	FAD	C2A-N3A-C4A	4.06	121.75	111.83
3	B	902	COA	C4B-O4B-C1B	-4.06	100.50	109.47
2	C	901	FAD	C4'-C3'-C2'	-4.06	106.82	113.57
2	D	901	FAD	O3B-C3B-C2B	-4.01	98.96	111.82
3	A	902	COA	C4B-O4B-C1B	-4.00	100.63	109.47
3	C	902	COA	CDP-CBP-CCP	-3.93	101.74	108.22
3	A	902	COA	N3A-C2A-N1A	-3.90	122.68	128.58
2	C	901	FAD	N3A-C2A-N1A	-3.88	122.70	128.58
3	B	902	COA	C5A-C4A-N3A	-3.84	121.42	126.72
3	C	902	COA	C4B-O4B-C1B	-3.84	100.98	109.47
3	C	902	COA	C2P-C3P-N4P	-3.80	103.68	112.31
2	B	901	FAD	C2A-N3A-C4A	3.80	121.10	111.83
3	B	902	COA	C7P-C6P-C5P	-3.79	106.07	112.39
3	D	902	COA	N3A-C2A-N1A	-3.74	122.93	128.58
2	C	901	FAD	O3B-C3B-C2B	-3.71	99.91	111.82
2	C	901	FAD	C2A-N3A-C4A	3.71	120.90	111.83
2	D	901	FAD	N3A-C2A-N1A	-3.70	122.99	128.58
3	B	902	COA	C3P-N4P-C5P	-3.64	116.05	122.82
2	A	901	FAD	O3B-C3B-C2B	-3.63	100.18	111.82
3	C	902	COA	C6P-C7P-N8P	-3.62	104.29	112.00
3	C	902	COA	O9P-C9P-N8P	-3.60	115.36	122.98
2	D	901	FAD	O2B-C2B-C3B	-3.60	100.27	111.82
3	D	902	COA	C5B-C4B-C3B	-3.54	102.60	114.38
3	C	902	COA	O5A-P2A-O3A	3.50	116.73	107.27
2	B	901	FAD	C4A-N9A-C8A	3.49	109.40	105.74
2	C	901	FAD	C4X-C10-N1	-3.45	116.13	124.59
2	B	901	FAD	N3A-C2A-N1A	-3.44	123.38	128.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	901	FAD	C4X-C10-N1	-3.42	116.19	124.59
2	C	901	FAD	O2B-C2B-C3B	-3.41	100.88	111.82
3	C	902	COA	CEP-CBP-CDP	3.32	115.82	109.20
3	C	902	COA	CAP-C9P-N8P	3.31	122.76	116.48
2	C	901	FAD	C4A-C5A-N7A	-3.31	106.80	110.58
3	C	902	COA	N9A-C8A-N7A	-3.26	109.31	113.94
3	D	902	COA	C7P-C6P-C5P	-3.24	107.00	112.39
2	D	901	FAD	C4X-C10-N1	-3.23	116.67	124.59
2	C	901	FAD	C4-N3-C2	-3.22	119.93	125.64
2	D	901	FAD	C4A-N9A-C8A	3.20	109.09	105.74
2	D	901	FAD	C4A-C5A-N7A	-3.19	106.94	110.58
2	B	901	FAD	C4A-C5A-N7A	-3.13	107.00	110.58
3	D	902	COA	N9A-C8A-N7A	-3.10	109.53	113.94
3	C	902	COA	O3B-C3B-C2B	-3.08	100.63	111.68
2	A	901	FAD	O2'-C2'-C3'	-3.04	102.13	109.25
2	C	901	FAD	C4A-N9A-C8A	3.04	108.93	105.74
3	A	902	COA	O4B-C1B-C2B	-3.03	100.12	106.62
2	C	901	FAD	C4X-C10-N10	3.02	120.81	116.48
2	B	901	FAD	O3B-C3B-C2B	-3.01	102.16	111.82
2	A	901	FAD	C4-N3-C2	-3.00	120.31	125.64
2	D	901	FAD	C4'-C3'-C2'	-2.98	108.61	113.57
3	B	902	COA	N3A-C2A-N1A	-2.93	124.14	128.58
3	A	902	COA	O4B-C1B-N9A	2.93	113.71	108.09
2	A	901	FAD	C6A-C5A-N7A	2.89	137.66	132.09
3	A	902	COA	CAP-C9P-N8P	2.89	121.97	116.48
3	D	902	COA	C7P-N8P-C9P	-2.86	117.42	122.55
3	D	902	COA	C5A-C6A-N6A	-2.86	116.22	123.29
3	C	902	COA	C2A-N3A-C4A	2.85	118.78	111.83
3	D	902	COA	C2A-N3A-C4A	2.82	118.73	111.83
2	B	901	FAD	C4X-C10-N1	-2.82	117.68	124.59
3	C	902	COA	CDP-CBP-CAP	2.82	113.57	108.77
3	C	902	COA	O3A-P1A-O1A	2.79	119.10	110.70
3	B	902	COA	C6P-C5P-N4P	2.77	121.40	116.34
3	A	902	COA	C2A-N3A-C4A	2.76	118.56	111.83
3	C	902	COA	C1B-N9A-C8A	-2.75	120.99	127.09
3	C	902	COA	C4A-C5A-N7A	-2.73	107.46	110.58
2	B	901	FAD	O2B-C2B-C3B	-2.72	103.11	111.82
3	C	902	COA	O8A-P3B-O3B	2.70	116.37	105.85
3	A	902	COA	O9P-C9P-N8P	-2.70	117.27	122.98
3	B	902	COA	C4A-C5A-N7A	-2.68	107.52	110.58
2	A	901	FAD	O2A-PA-O1A	2.66	124.81	112.44
3	A	902	COA	C2B-C1B-N9A	2.65	119.90	113.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	901	FAD	O3P-P-O1P	-2.65	102.72	110.70
3	A	902	COA	C7P-C6P-C5P	-2.65	107.98	112.39
2	B	901	FAD	C4-C4X-N5	2.64	121.86	118.21
2	C	901	FAD	C9A-N10-C10	-2.64	116.72	120.75
2	B	901	FAD	C4'-C3'-C2'	-2.63	109.20	113.57
2	D	901	FAD	C4-C4X-N5	2.62	121.83	118.21
2	A	901	FAD	C9A-N10-C10	-2.61	116.77	120.75
2	B	901	FAD	N9A-C8A-N7A	-2.59	110.26	113.94
3	B	902	COA	N9A-C8A-N7A	-2.59	110.26	113.94
3	C	902	COA	O5B-C5B-C4B	2.58	117.79	108.99
2	D	901	FAD	C5A-N7A-C8A	2.58	107.50	103.45
2	D	901	FAD	C4-N3-C2	-2.58	121.06	125.64
2	C	901	FAD	C2A-N1A-C6A	2.58	122.96	118.73
2	A	901	FAD	O2B-C2B-C3B	-2.55	103.64	111.82
2	C	901	FAD	N3-C2-N1	2.54	124.90	119.50
2	A	901	FAD	O4-C4-C4X	-2.53	119.84	126.53
2	A	901	FAD	N3-C2-N1	2.53	124.87	119.50
3	D	902	COA	C2P-C3P-N4P	-2.52	106.58	112.31
3	C	902	COA	O2B-C2B-C3B	-2.52	104.14	111.19
2	A	901	FAD	C2A-N1A-C6A	2.51	122.85	118.73
3	D	902	COA	C5A-C4A-N9A	-2.49	103.09	105.81
3	D	902	COA	O5A-P2A-O3A	2.49	114.01	107.27
2	C	901	FAD	O2'-C2'-C3'	-2.48	103.44	109.25
2	D	901	FAD	C4X-C4-N3	2.48	119.56	113.25
3	D	902	COA	N6A-C6A-N1A	2.48	123.89	118.38
3	A	902	COA	O2B-C2B-C1B	2.48	118.63	110.10
3	C	902	COA	C5A-C4A-N9A	-2.46	103.12	105.81
2	C	901	FAD	C5A-N7A-C8A	2.46	107.32	103.45
2	C	901	FAD	C10-N1-C2	2.44	122.14	116.85
3	D	902	COA	C1B-N9A-C8A	-2.44	121.69	127.09
2	A	901	FAD	C4X-C10-N10	2.41	119.94	116.48
2	B	901	FAD	C5A-N7A-C8A	2.40	107.22	103.45
3	A	902	COA	O5B-C5B-C4B	2.39	117.14	108.99
3	B	902	COA	CAP-C9P-N8P	2.38	121.00	116.48
3	C	902	COA	C5B-C4B-C3B	-2.38	106.46	114.38
3	C	902	COA	O2A-P1A-O1A	-2.37	101.42	112.44
3	B	902	COA	C2A-N1A-C6A	2.37	122.62	118.73
2	B	901	FAD	C4X-C10-N10	2.36	119.86	116.48
2	D	901	FAD	O4-C4-C4X	-2.36	120.30	126.53
2	A	901	FAD	O4'-C4'-C3'	-2.36	103.73	109.25
2	C	901	FAD	C2B-C3B-C4B	2.34	107.13	102.61
2	B	901	FAD	O4'-C4'-C3'	-2.33	103.80	109.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	901	FAD	N9A-C8A-N7A	-2.32	110.64	113.94
2	C	901	FAD	C4X-C4-N3	2.32	119.16	113.25
3	A	902	COA	N9A-C8A-N7A	-2.32	110.65	113.94
2	A	901	FAD	C4A-N9A-C8A	2.31	108.17	105.74
2	A	901	FAD	C5A-N7A-C8A	2.31	107.08	103.45
3	A	902	COA	CDP-CBP-CCP	2.31	112.04	108.22
3	B	902	COA	O9A-P3B-O7A	-2.28	101.95	110.83
2	B	901	FAD	O2'-C2'-C3'	-2.28	103.91	109.25
3	D	902	COA	O8A-P3B-O7A	-2.28	101.96	110.83
2	A	901	FAD	C2B-C3B-C4B	2.27	106.99	102.61
2	C	901	FAD	N9A-C8A-N7A	-2.26	110.72	113.94
3	C	902	COA	O5A-P2A-O4A	-2.26	101.92	112.44
3	A	902	COA	O5A-P2A-O4A	-2.26	101.93	112.44
2	C	901	FAD	C5B-C4B-C3B	-2.24	107.14	115.21
2	D	901	FAD	C10-N1-C2	2.24	121.70	116.85
3	B	902	COA	O5A-P2A-O4A	-2.24	102.05	112.44
3	B	902	COA	O5P-C5P-C6P	-2.22	118.00	122.02
3	D	902	COA	P1A-O5B-C5B	-2.22	108.66	121.35
3	A	902	COA	C5A-C4A-N9A	-2.21	103.40	105.81
2	A	901	FAD	C4X-C4-N3	2.21	118.87	113.25
3	D	902	COA	O8A-P3B-O3B	2.20	114.43	105.85
2	D	901	FAD	C2B-C3B-C4B	2.20	106.86	102.61
3	A	902	COA	C5B-C4B-C3B	-2.17	107.15	114.38
2	A	901	FAD	C10-N1-C2	2.16	121.53	116.85
3	C	902	COA	C2B-C3B-C4B	2.16	107.02	103.24
2	B	901	FAD	C6A-C5A-N7A	2.14	136.21	132.09
3	D	902	COA	C4A-C5A-N7A	-2.10	108.18	110.58
2	C	901	FAD	O4-C4-C4X	-2.08	121.06	126.53
2	C	901	FAD	C6A-C5A-N7A	2.07	136.08	132.09
3	D	902	COA	P3B-O3B-C3B	-2.07	117.91	123.43
3	A	902	COA	C5A-C6A-N6A	-2.06	118.18	123.29
3	D	902	COA	C2B-C1B-N9A	2.06	118.41	113.30
3	D	902	COA	O2A-P1A-O1A	-2.04	102.95	112.44
2	D	901	FAD	N3-C2-N1	2.04	123.83	119.50
3	D	902	COA	O2A-P1A-O3A	2.03	112.75	107.27
2	B	901	FAD	C4-N3-C2	-2.02	122.06	125.64
3	B	902	COA	O9A-P3B-O3B	2.00	113.66	105.85

There are no chirality outliers.

All (82) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	901	FAD	C5B-O5B-PA-O1A
2	A	901	FAD	C3'-C4'-C5'-O5'
2	A	901	FAD	O4'-C4'-C5'-O5'
2	A	901	FAD	C5'-O5'-P-O3P
2	A	901	FAD	PA-O3P-P-O5'
2	C	901	FAD	O4B-C4B-C5B-O5B
2	C	901	FAD	C3'-C4'-C5'-O5'
2	C	901	FAD	O4'-C4'-C5'-O5'
2	C	901	FAD	C5'-O5'-P-O1P
2	C	901	FAD	C5'-O5'-P-O2P
2	C	901	FAD	C5'-O5'-P-O3P
3	D	902	COA	P2A-O3A-P1A-O5B
3	D	902	COA	CCP-O6A-P2A-O4A
3	D	902	COA	S1P-C2P-C3P-N4P
3	A	902	COA	C5B-O5B-P1A-O1A
3	A	902	COA	C5B-O5B-P1A-O2A
3	A	902	COA	C5B-O5B-P1A-O3A
3	A	902	COA	CAP-CBP-CCP-O6A
3	A	902	COA	OAP-CAP-CBP-CCP
3	A	902	COA	OAP-CAP-CBP-CEP
3	A	902	COA	N8P-C9P-CAP-OAP
3	B	902	COA	N8P-C9P-CAP-OAP
3	C	902	COA	O4B-C4B-C5B-O5B
3	C	902	COA	C5B-O5B-P1A-O1A
3	C	902	COA	C9P-CAP-CBP-CEP
3	C	902	COA	S1P-C2P-C3P-N4P
2	D	901	FAD	O4B-C4B-C5B-O5B
2	D	901	FAD	C3B-C4B-C5B-O5B
2	C	901	FAD	C3B-C4B-C5B-O5B
3	C	902	COA	C3B-C4B-C5B-O5B
3	A	902	COA	O4B-C4B-C5B-O5B
3	B	902	COA	C4B-C3B-O3B-P3B
3	C	902	COA	C4B-C3B-O3B-P3B
3	B	902	COA	C2B-C3B-O3B-P3B
3	C	902	COA	C2B-C3B-O3B-P3B
3	A	902	COA	O9P-C9P-CAP-OAP
3	B	902	COA	O9P-C9P-CAP-OAP
3	A	902	COA	OAP-CAP-CBP-CDP
2	C	901	FAD	P-O3P-PA-O1A
3	A	902	COA	C3B-C4B-C5B-O5B
2	C	901	FAD	PA-O3P-P-O5'
3	C	902	COA	P2A-O3A-P1A-O5B
3	A	902	COA	C2B-C1B-N9A-C4A

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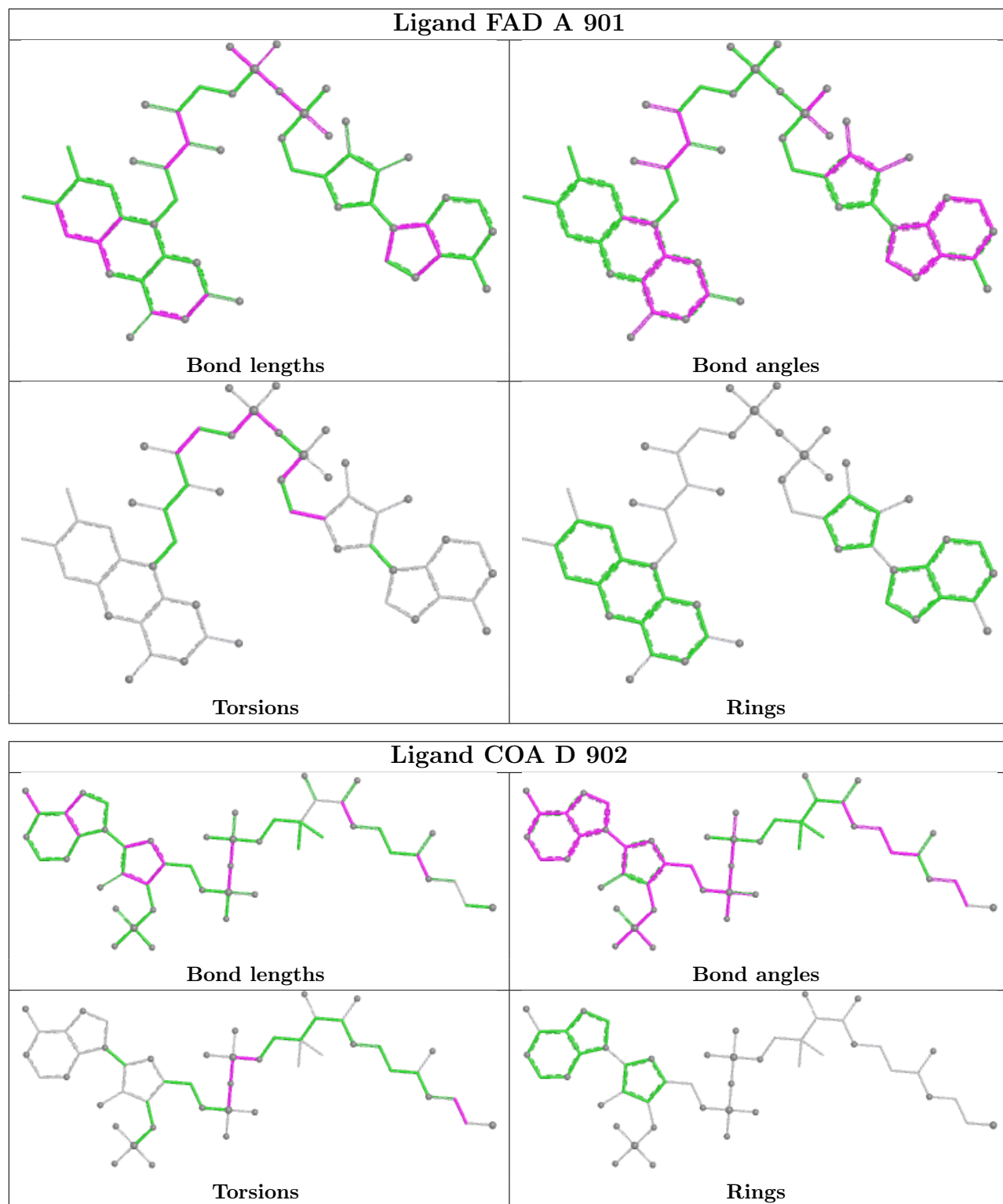
Mol	Chain	Res	Type	Atoms
3	B	902	COA	C3B-C4B-C5B-O5B
3	D	902	COA	P1A-O3A-P2A-O5A
3	A	902	COA	CDP-CBP-CCP-O6A
3	A	902	COA	CEP-CBP-CCP-O6A
3	B	902	COA	CDP-CBP-CCP-O6A
3	B	902	COA	CEP-CBP-CCP-O6A
3	A	902	COA	S1P-C2P-C3P-N4P
3	B	902	COA	S1P-C2P-C3P-N4P
2	D	901	FAD	C5B-O5B-PA-O2A
2	D	901	FAD	C5B-O5B-PA-O3P
2	A	901	FAD	C5B-O5B-PA-O1A
2	A	901	FAD	C5B-O5B-PA-O2A
2	A	901	FAD	C5B-O5B-PA-O3P
2	A	901	FAD	C5'-O5'-P-O1P
2	B	901	FAD	C5'-O5'-P-O3P
3	A	902	COA	CCP-O6A-P2A-O4A
3	B	902	COA	C5B-O5B-P1A-O1A
3	A	902	COA	C2B-C1B-N9A-C8A
3	C	902	COA	OAP-CAP-CBP-CEP
2	C	901	FAD	P-O3P-PA-O2A
3	A	902	COA	P1A-O3A-P2A-O5A
3	C	902	COA	C3B-O3B-P3B-O9A
2	A	901	FAD	O4B-C4B-C5B-O5B
3	A	902	COA	C3B-O3B-P3B-O7A
3	B	902	COA	C3B-O3B-P3B-O7A
2	A	901	FAD	PA-O3P-P-O1P
3	B	902	COA	P1A-O3A-P2A-O4A
3	C	902	COA	O4B-C1B-N9A-C8A
3	D	902	COA	P1A-O3A-P2A-O4A
3	C	902	COA	P1A-O3A-P2A-O4A
3	C	902	COA	P1A-O3A-P2A-O5A
3	A	902	COA	O9P-C9P-CAP-CBP
3	B	902	COA	O9P-C9P-CAP-CBP
2	B	901	FAD	O4B-C4B-C5B-O5B
3	A	902	COA	N8P-C9P-CAP-CBP
3	A	902	COA	O4B-C1B-N9A-C8A
2	B	901	FAD	C3B-C4B-C5B-O5B
3	B	902	COA	O4B-C1B-N9A-C8A
2	A	901	FAD	PA-O3P-P-O2P

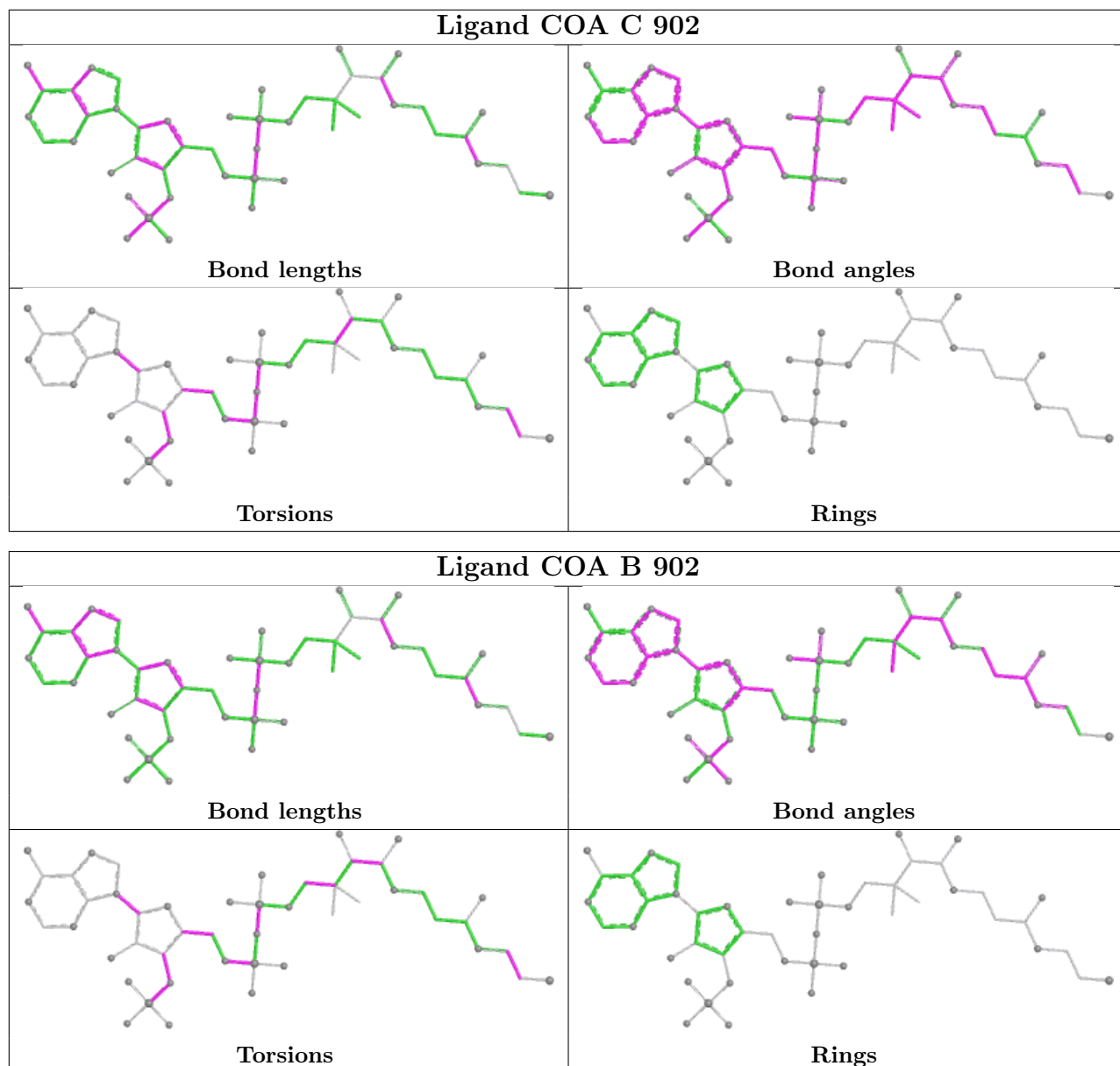
There are no ring outliers.

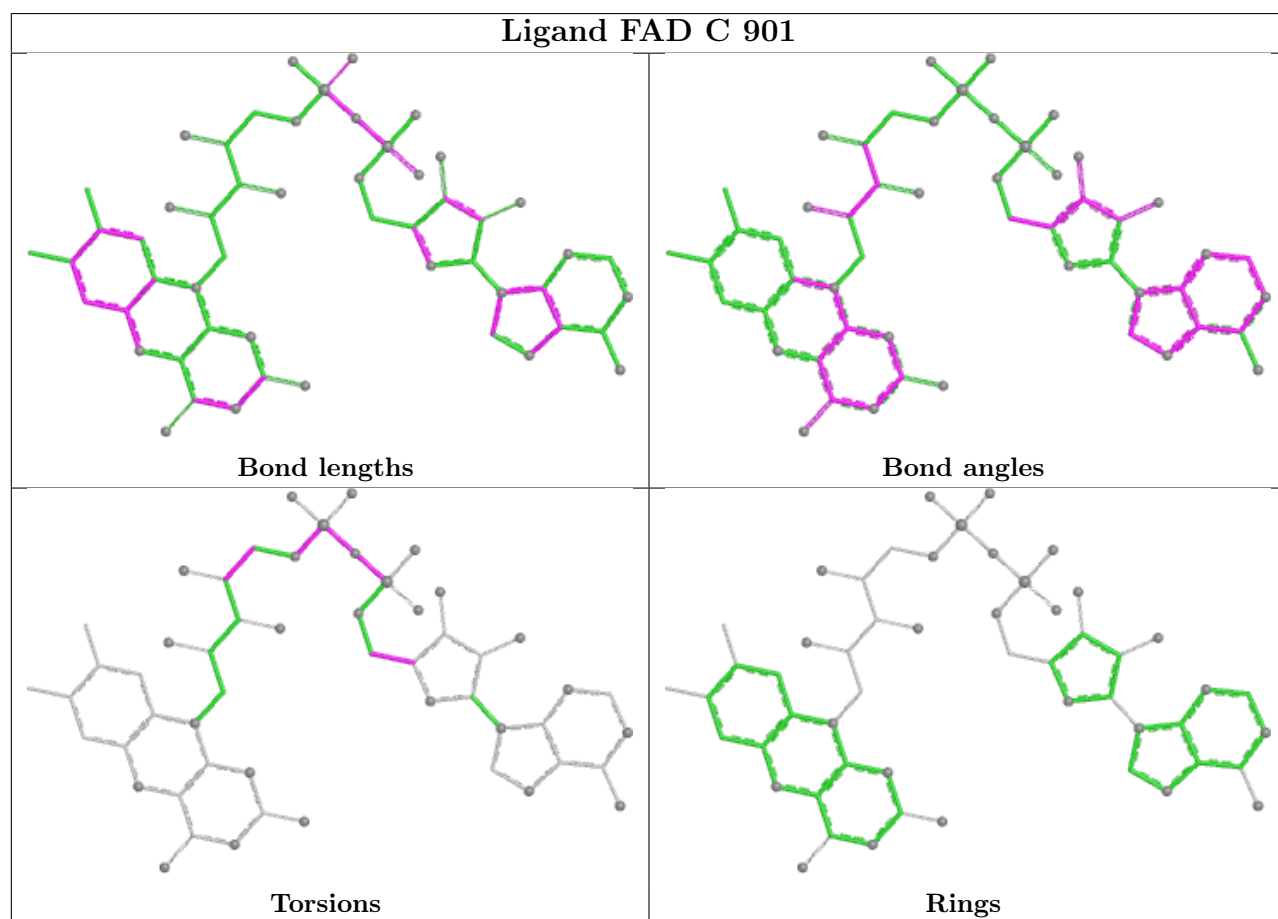
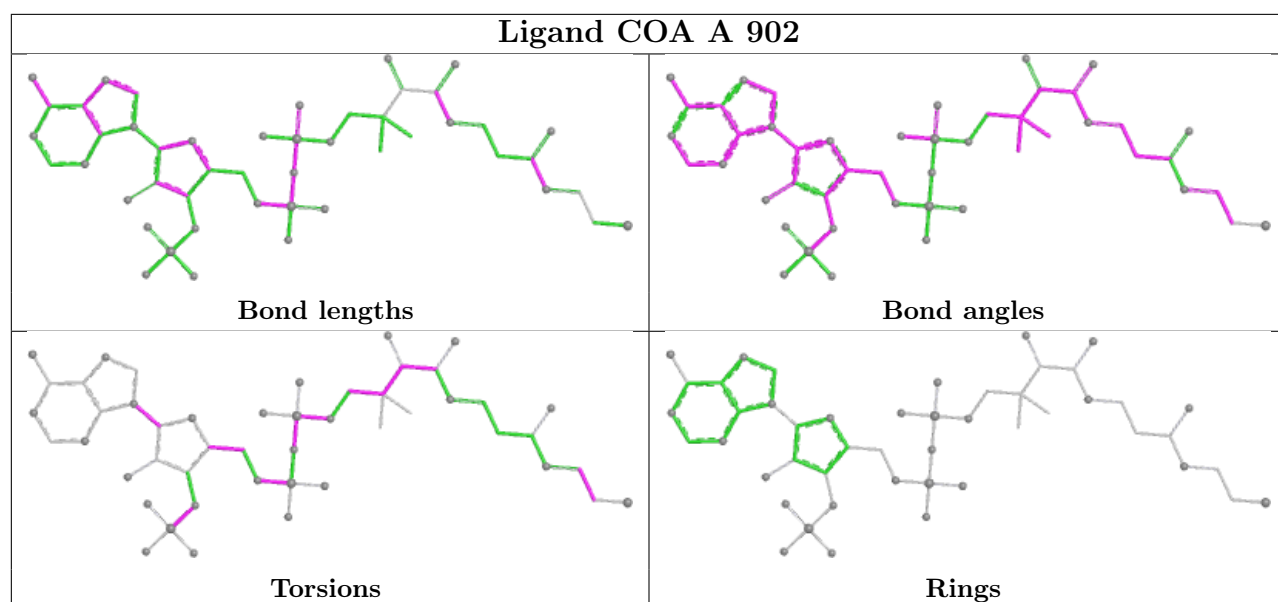
8 monomers are involved in 52 short contacts:

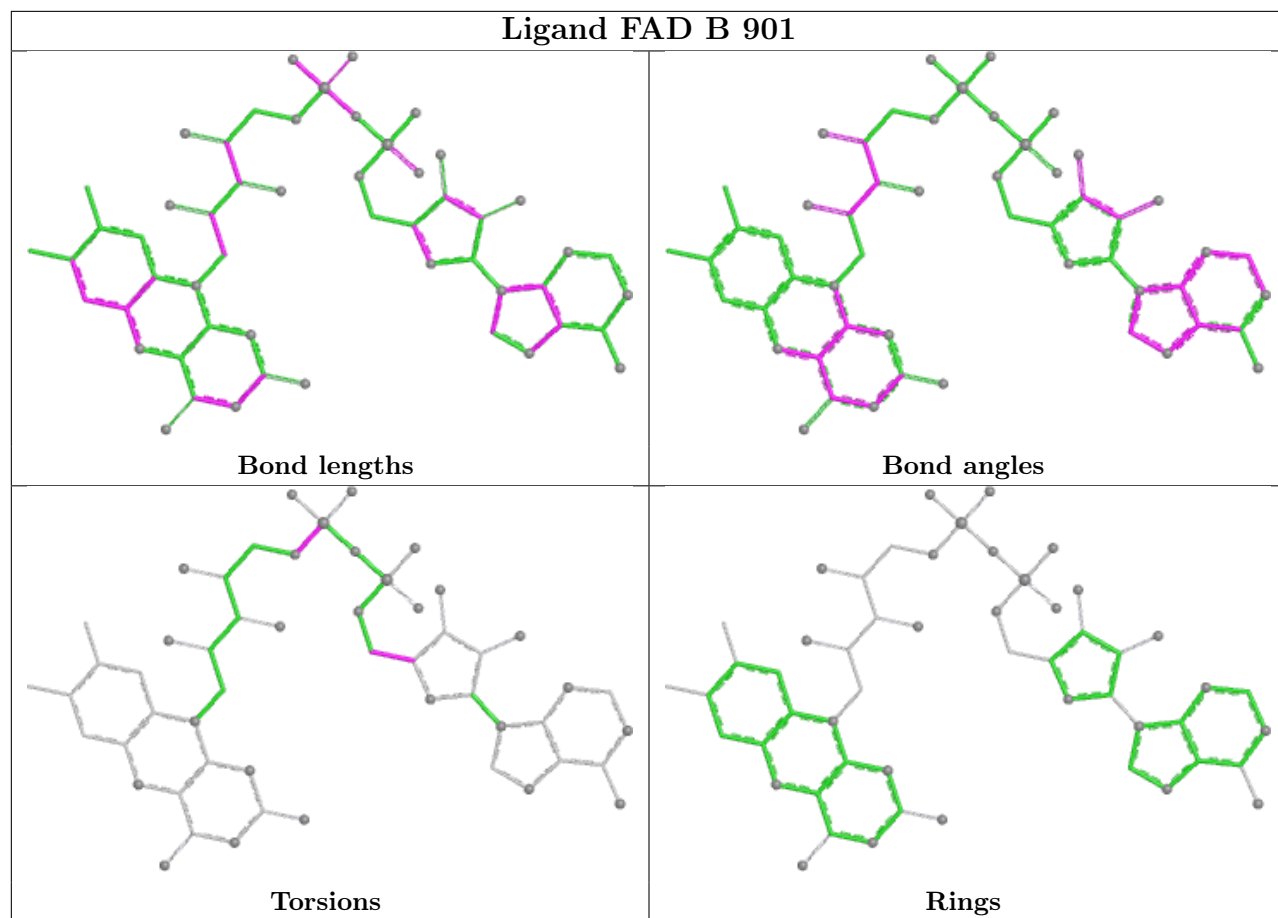
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	901	FAD	2	0
3	D	902	COA	8	0
3	C	902	COA	12	0
3	B	902	COA	8	0
3	A	902	COA	8	0
2	C	901	FAD	6	0
2	B	901	FAD	3	0
2	D	901	FAD	5	0

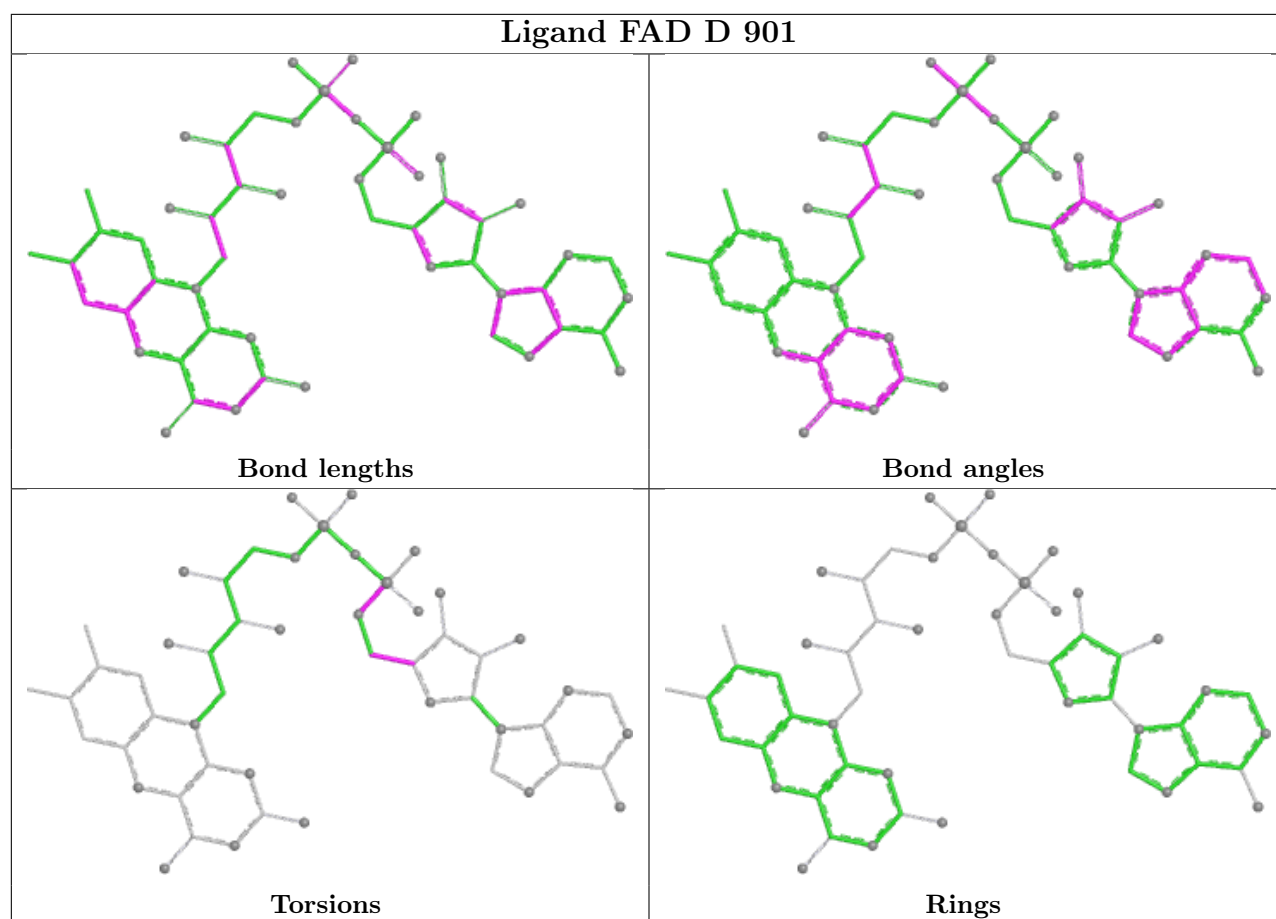
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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











5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th 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 ²)	Q<0.9
1	A	541/551 (98%)	-0.27	1 (0%) 91 83	26, 47, 71, 87	0
1	B	541/551 (98%)	-0.24	3 (0%) 85 70	23, 48, 72, 97	0
1	C	535/551 (97%)	-0.04	3 (0%) 85 70	39, 60, 84, 174	0
1	D	536/551 (97%)	-0.17	2 (0%) 88 76	33, 58, 83, 112	0
All	All	2153/2204 (97%)	-0.18	9 (0%) 88 76	23, 53, 79, 174	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	194	ASP	3.7
1	D	507	ASP	2.5
1	C	513	LYS	2.4
1	B	233	ALA	2.3
1	D	482	GLU	2.2
1	B	482	GLU	2.2
1	C	232	ILE	2.2
1	B	466	GLU	2.1
1	C	510	PRO	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

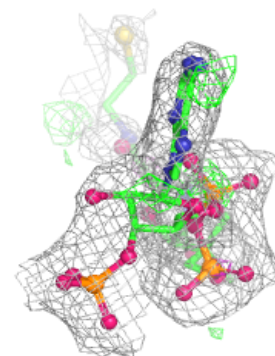
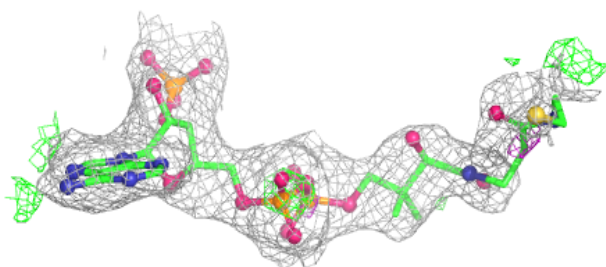
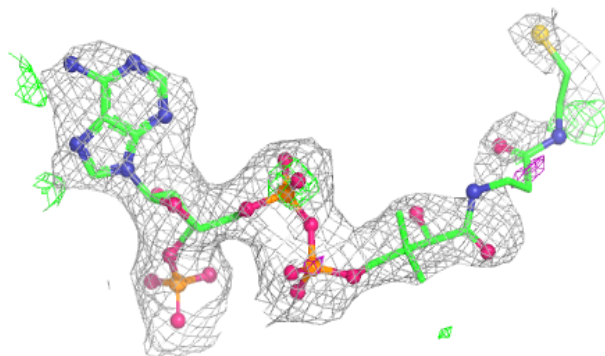
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	CA	A	903	1/1	0.76	0.37	122,122,122,122	0
4	CA	C	904	1/1	0.78	0.24	102,102,102,102	0
4	CA	B	903	1/1	0.85	0.20	69,69,69,69	0
3	COA	D	902	48/48	0.88	0.12	34,60,89,221	0
4	CA	C	903	1/1	0.90	0.09	62,62,62,62	0
3	COA	B	902	48/48	0.91	0.11	37,62,88,91	0
3	COA	A	902	48/48	0.92	0.10	31,53,84,91	0
3	COA	C	902	48/48	0.92	0.12	41,79,121,123	0
2	FAD	B	901	53/53	0.94	0.11	39,64,80,101	0
2	FAD	C	901	53/53	0.94	0.08	27,45,61,74	0
2	FAD	D	901	53/53	0.96	0.07	28,47,63,67	0
2	FAD	A	901	53/53	0.96	0.07	29,45,56,68	0

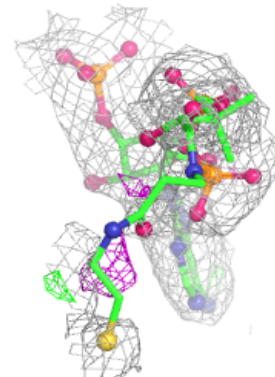
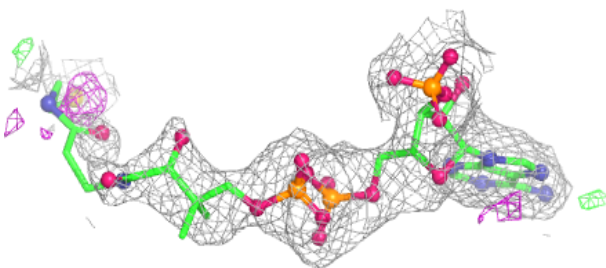
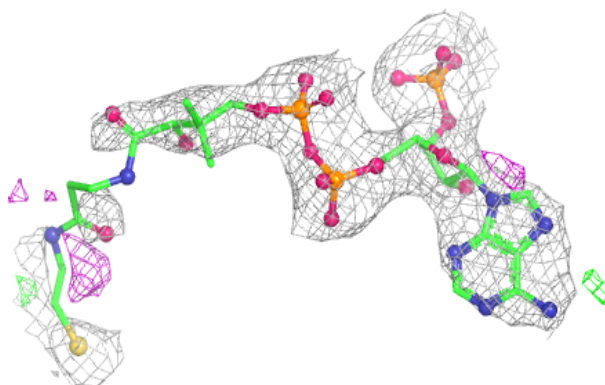
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around COA D 902:

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

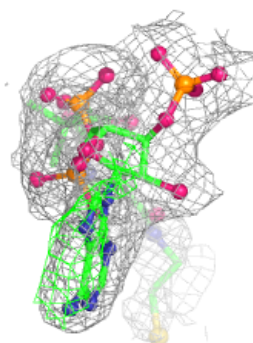
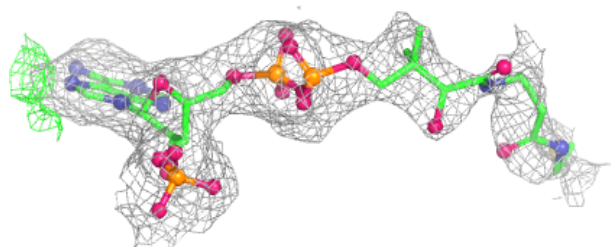
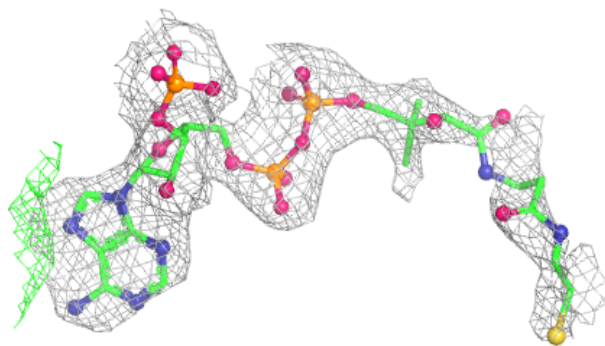
**Electron density around COA B 902:**

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

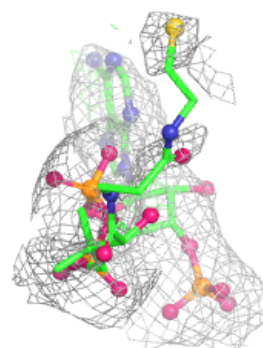
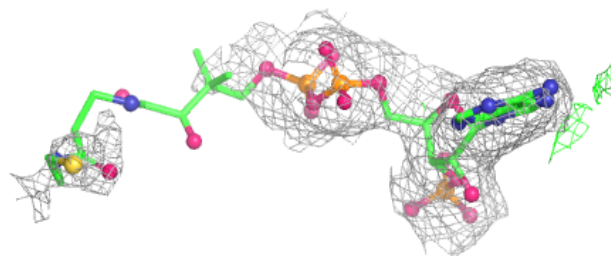
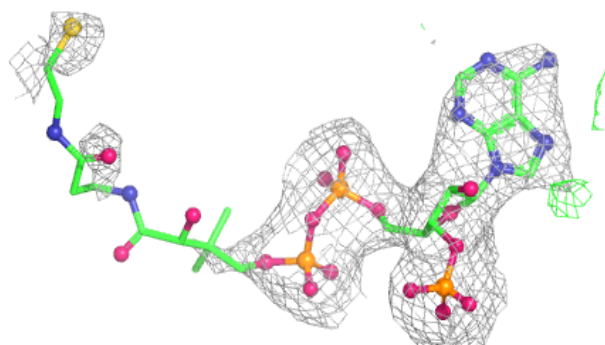


Electron density around COA A 902:

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

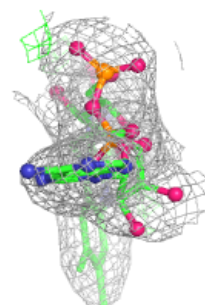
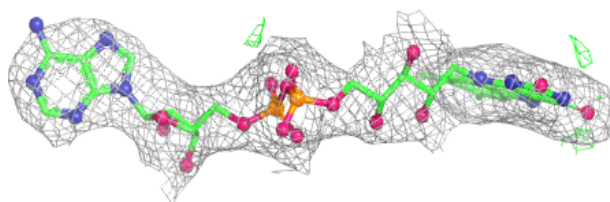
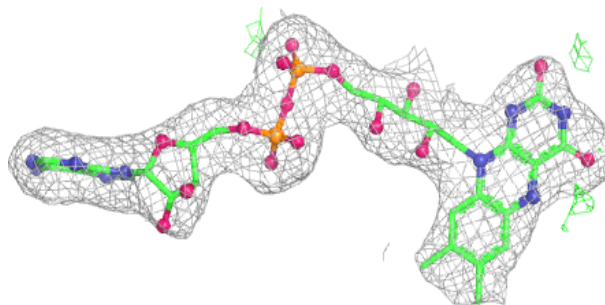
**Electron density around COA C 902:**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

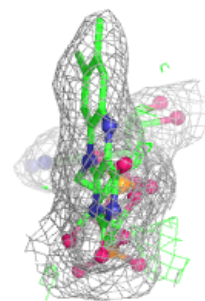
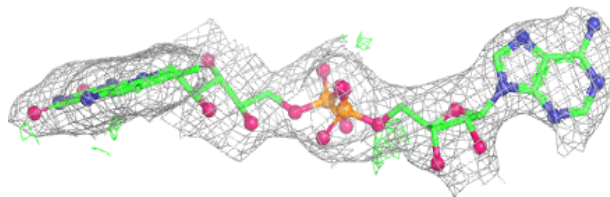
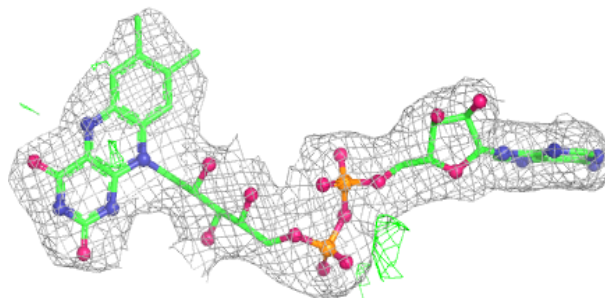


Electron density around FAD B 901:

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

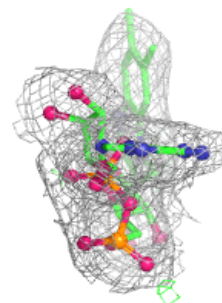
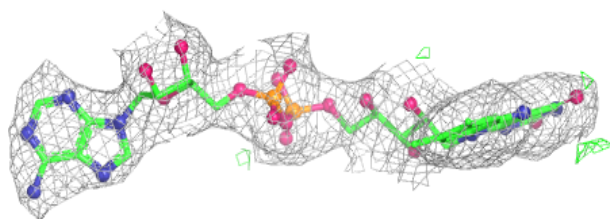
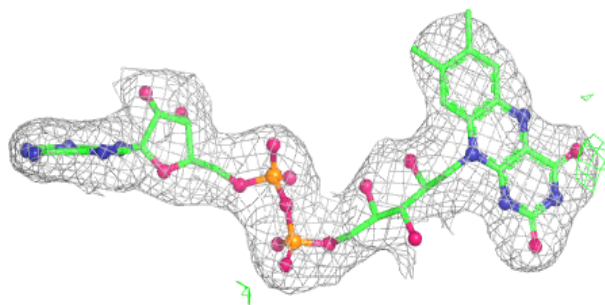
**Electron density around FAD C 901:**

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

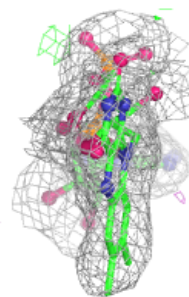
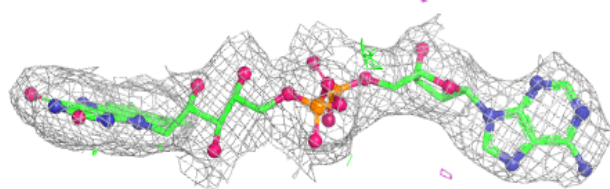
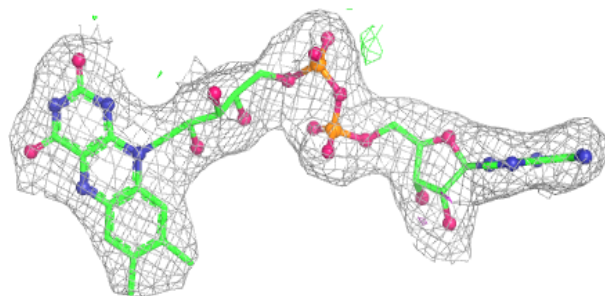


Electron density around FAD D 901:

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

**Electron density around FAD A 901:**

$2mF_o-DF_c$ (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.