



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 12:50 AM GMT

PDB ID : 2BVH
Title : CRYSTAL STRUCTURE OF 6-HYDOXY-D-NICOTINE OXIDASE FROM
ARTHROBACTER NICOTINOVORANS. CRYSTAL FORM 2 (P21)
Authors : Koetter, J.W.A.; Schulz, G.E.
Deposited on : 2005-06-28
Resolution : 2.90 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

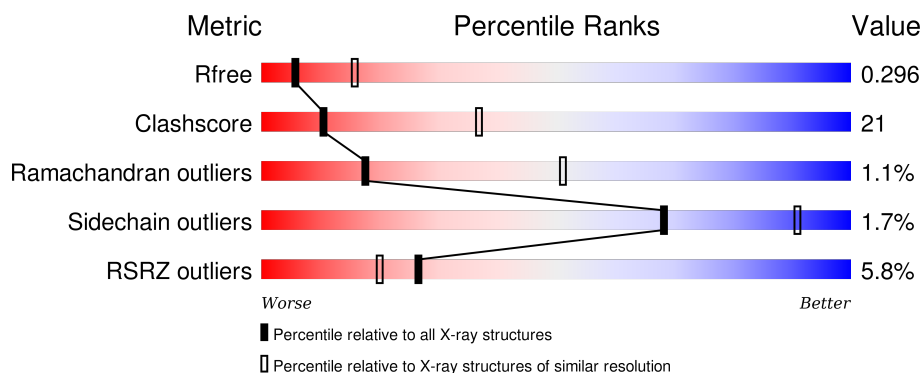
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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}	91344	1451 (2.90-2.90)
Clashscore	102246	1668 (2.90-2.90)
Ramachandran outliers	100387	1630 (2.90-2.90)
Sidechain outliers	100360	1632 (2.90-2.90)
RSRZ outliers	91569	1456 (2.90-2.90)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	459	<div> <div>4%</div> <div>64%</div> <div>34%</div> <div>..</div> </div>
1	B	459	<div> <div>7%</div> <div>63%</div> <div>34%</div> <div>..</div> </div>
1	C	459	<div> <div>6%</div> <div>64%</div> <div>34%</div> <div>..</div> </div>
1	D	459	<div> <div>6%</div> <div>63%</div> <div>34%</div> <div>..</div> </div>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 13808 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 6-HYDROXY-D-NICOTINE OXIDASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	453	Total	C	N	O	S	0	0	0
			3399	2133	596	656	14			
1	B	453	Total	C	N	O	S	0	0	0
			3399	2133	596	656	14			
1	C	453	Total	C	N	O	S	0	0	0
			3399	2133	596	656	14			
1	D	453	Total	C	N	O	S	0	0	0
			3399	2133	596	656	14			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	433	SER	CYS	ENGINEERED MUTATION	UNP Q8GAG1
B	433	SER	CYS	ENGINEERED MUTATION	UNP Q8GAG1
C	433	SER	CYS	ENGINEERED MUTATION	UNP Q8GAG1
D	433	SER	CYS	ENGINEERED MUTATION	UNP Q8GAG1

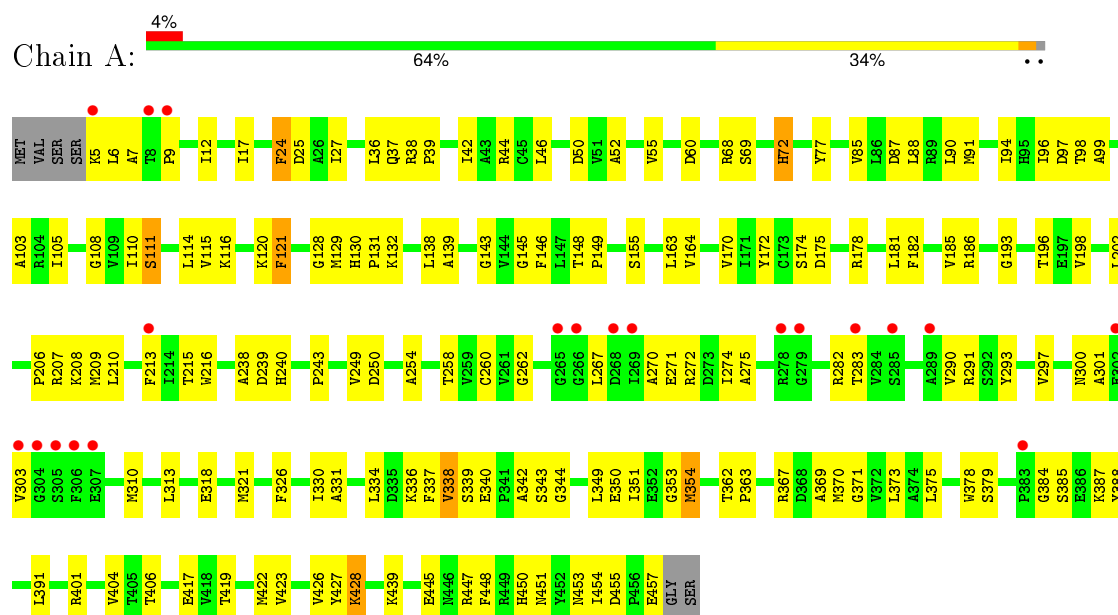
- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: C₂₇H₃₃N₉O₁₅P₂).



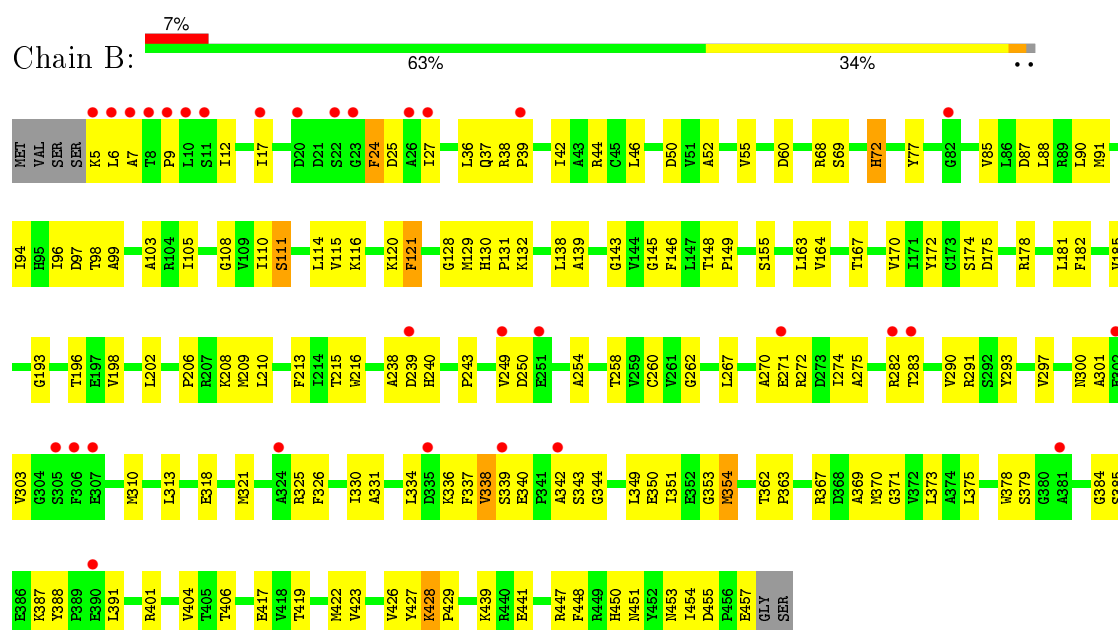
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

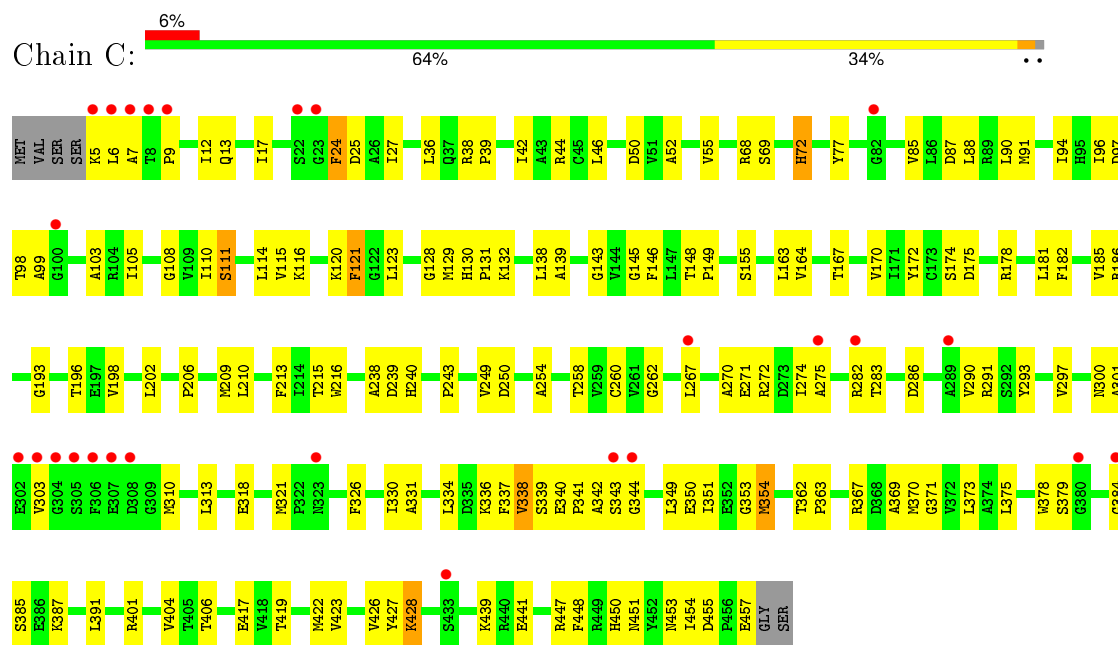
• Molecule 1: 6-HYDROXY-D-NICOTINE OXIDASE



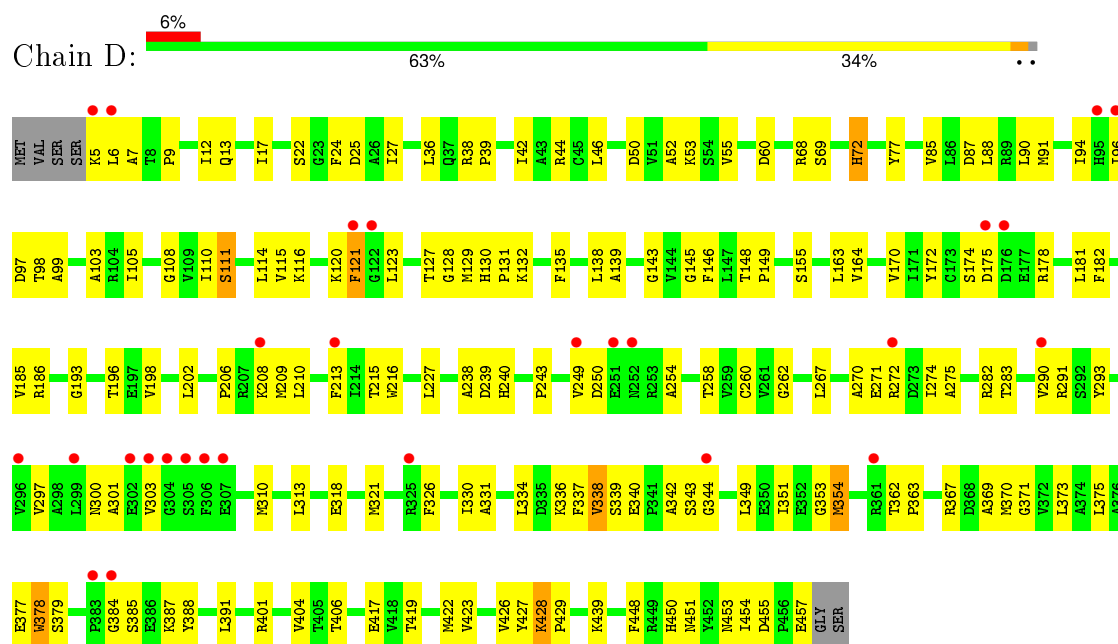
• Molecule 1: 6-HYDROXY-D-NICOTINE OXIDASE



• Molecule 1: 6-HYDROXY-D-NICOTINE OXIDASE



• Molecule 1: 6-HYDROXY-D-NICOTINE OXIDASE



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	103.32Å 90.94Å 104.44Å 90.00° 100.31° 90.00°	Depositor
Resolution (Å)	44.30 – 2.90 44.37 – 2.70	Depositor EDS
% Data completeness (in resolution range)	99.7 (44.30-2.90) 98.7 (44.37-2.70)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.16 (at 2.69Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.274 , 0.297 0.274 , 0.296	Depositor DCC
R_{free} test set	2134 reflections (5.05%)	DCC
Wilson B-factor (Å ²)	42.2	Xtriage
Anisotropy	0.385	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 39.4	EDS
Estimated twinning fraction	0.024 for l,-k,h	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Outliers	0 of 51903 reflections	Xtriage
F_o, F_c correlation	0.86	EDS
Total number of atoms	13808	wwPDB-VP
Average B, all atoms (Å ²)	47.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 10.05% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.43	0/3465	0.69	2/4706 (0.0%)
1	B	0.43	0/3465	0.69	2/4706 (0.0%)
1	C	0.43	0/3465	0.69	2/4706 (0.0%)
1	D	0.43	0/3465	0.69	2/4706 (0.0%)
All	All	0.43	0/13860	0.69	8/18824 (0.0%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	163	LEU	CA-CB-CG	5.47	127.87	115.30
1	A	163	LEU	CA-CB-CG	5.46	127.86	115.30
1	B	163	LEU	CA-CB-CG	5.46	127.86	115.30
1	C	163	LEU	CA-CB-CG	5.46	127.85	115.30
1	C	262	GLY	N-CA-C	-5.12	100.29	113.10
1	A	262	GLY	N-CA-C	-5.12	100.31	113.10
1	B	262	GLY	N-CA-C	-5.11	100.32	113.10
1	D	262	GLY	N-CA-C	-5.11	100.32	113.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3399	0	3344	162	2
1	B	3399	0	3344	149	0
1	C	3399	0	3344	144	2
1	D	3399	0	3344	159	1
2	A	53	0	30	7	0
2	B	53	0	30	7	0
2	C	53	0	30	7	0
2	D	53	0	30	7	0
All	All	13808	0	13496	584	3

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 21.

All (584) 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:441:GLU:HG3	1:D:7:ALA:HB1	1.31	1.09
1:C:441:GLU:HG3	1:D:7:ALA:CB	1.84	1.07
1:A:7:ALA:CB	1:B:441:GLU:HA	1.98	0.93
1:A:282:ARG:HE	1:A:283:THR:N	1.67	0.92
1:C:282:ARG:HE	1:C:283:THR:N	1.67	0.91
1:A:120:LYS:CA	1:D:53:LYS:HE2	2.01	0.91
1:D:282:ARG:HE	1:D:283:THR:N	1.67	0.91
1:B:282:ARG:HE	1:B:283:THR:N	1.67	0.90
1:C:72:HIS:CE1	2:C:600:FAD:HM71	2.13	0.83
1:D:72:HIS:CE1	2:D:600:FAD:HM71	2.13	0.83
1:A:72:HIS:CE1	2:A:600:FAD:HM71	2.13	0.83
1:B:72:HIS:CE1	2:B:600:FAD:HM71	2.13	0.83
1:A:120:LYS:HB3	1:D:53:LYS:HE2	1.59	0.83
1:A:120:LYS:CB	1:D:53:LYS:HE2	2.10	0.81
1:A:207:ARG:NH1	1:D:13:GLN:HG2	1.97	0.79
1:C:167:THR:HG22	1:D:60:ASP:HB3	1.65	0.79
1:A:120:LYS:HB3	1:D:53:LYS:CE	2.14	0.78
1:D:210:LEU:HD12	1:D:270:ALA:HB1	1.67	0.76
1:B:210:LEU:HD12	1:B:270:ALA:HB1	1.67	0.76
1:C:210:LEU:HD12	1:C:270:ALA:HB1	1.67	0.76
1:B:282:ARG:HA	1:B:282:ARG:NE	2.01	0.75
1:C:282:ARG:NE	1:C:282:ARG:HA	2.01	0.75
1:A:282:ARG:NE	1:A:282:ARG:HA	2.01	0.75
1:A:7:ALA:HB1	1:B:441:GLU:HA	1.69	0.74
1:C:441:GLU:HG3	1:D:7:ALA:HB2	1.70	0.74
1:A:427:TYR:O	1:A:428:LYS:HB2	1.88	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:282:ARG:NE	1:D:282:ARG:HA	2.01	0.74
1:A:210:LEU:HD12	1:A:270:ALA:HB1	1.67	0.73
1:B:271:GLU:OE1	1:B:271:GLU:HA	1.88	0.73
1:A:373:LEU:HG	1:A:375:LEU:CD1	2.18	0.73
1:C:373:LEU:HG	1:C:375:LEU:CD1	2.18	0.73
1:C:427:TYR:O	1:C:428:LYS:HB2	1.88	0.73
1:B:373:LEU:HG	1:B:375:LEU:CD1	2.18	0.73
1:D:427:TYR:O	1:D:428:LYS:HB2	1.88	0.72
1:B:427:TYR:O	1:B:428:LYS:HB2	1.88	0.72
1:D:373:LEU:HG	1:D:375:LEU:CD1	2.19	0.72
1:C:98:THR:HG23	1:C:121:PHE:HD1	1.55	0.72
1:A:98:THR:HG23	1:A:121:PHE:HD1	1.55	0.72
1:C:271:GLU:OE1	1:C:271:GLU:HA	1.88	0.72
1:A:271:GLU:OE1	1:A:271:GLU:HA	1.88	0.72
1:C:250:ASP:OD2	1:C:254:ALA:HB3	1.90	0.71
1:D:422:MET:O	1:D:426:VAL:HG23	1.91	0.71
1:B:250:ASP:OD2	1:B:254:ALA:HB3	1.90	0.71
1:B:98:THR:HG23	1:B:121:PHE:HD1	1.55	0.71
1:C:422:MET:O	1:C:426:VAL:HG23	1.91	0.71
1:A:422:MET:O	1:A:426:VAL:HG23	1.91	0.71
1:D:271:GLU:OE1	1:D:271:GLU:HA	1.88	0.71
1:D:131:PRO:CG	1:D:301:ALA:HB2	2.21	0.70
1:D:250:ASP:OD2	1:D:254:ALA:HB3	1.90	0.70
1:A:250:ASP:OD2	1:A:254:ALA:HB3	1.90	0.70
1:D:72:HIS:HE1	2:D:600:FAD:HM71	1.57	0.70
1:D:129:MET:HG3	1:D:145:GLY:HA2	1.73	0.70
1:B:72:HIS:HE1	2:B:600:FAD:HM71	1.57	0.70
1:B:422:MET:O	1:B:426:VAL:HG23	1.91	0.70
1:A:129:MET:HG3	1:A:145:GLY:HA2	1.73	0.70
1:B:131:PRO:CG	1:B:301:ALA:HB2	2.21	0.70
1:B:129:MET:HG3	1:B:145:GLY:HA2	1.73	0.70
1:A:131:PRO:CG	1:A:301:ALA:HB2	2.21	0.69
1:C:131:PRO:CG	1:C:301:ALA:HB2	2.21	0.69
1:D:98:THR:HG23	1:D:121:PHE:HD1	1.55	0.69
1:D:331:ALA:HA	1:D:334:LEU:HD21	1.75	0.69
1:C:129:MET:HG3	1:C:145:GLY:HA2	1.74	0.69
1:B:331:ALA:HA	1:B:334:LEU:HD21	1.75	0.69
1:A:72:HIS:HE1	2:A:600:FAD:HM71	1.57	0.68
1:A:103:ALA:HB2	1:A:202:LEU:HD11	1.76	0.68
1:C:103:ALA:HB2	1:C:202:LEU:HD11	1.76	0.68
1:C:282:ARG:HE	1:C:282:ARG:C	1.97	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:120:LYS:HA	1:D:53:LYS:HE2	1.76	0.68
1:D:131:PRO:HG3	1:D:301:ALA:HB2	1.76	0.68
1:B:131:PRO:HG3	1:B:301:ALA:HB2	1.76	0.67
1:B:282:ARG:HE	1:B:282:ARG:CA	2.08	0.67
1:B:103:ALA:HB2	1:B:202:LEU:HD11	1.76	0.67
1:A:282:ARG:HE	1:A:282:ARG:C	1.97	0.67
1:A:331:ALA:HA	1:A:334:LEU:HD21	1.75	0.67
1:A:131:PRO:HG3	1:A:301:ALA:HB2	1.76	0.67
1:C:331:ALA:HA	1:C:334:LEU:HD21	1.74	0.67
1:D:103:ALA:HB2	1:D:202:LEU:HD11	1.76	0.67
1:D:282:ARG:HE	1:D:283:THR:H	1.43	0.67
1:A:282:ARG:HE	1:A:282:ARG:CA	2.08	0.67
1:C:282:ARG:HE	1:C:283:THR:H	1.43	0.67
1:C:131:PRO:HG3	1:C:301:ALA:HB2	1.76	0.67
1:A:105:ILE:CD1	1:A:114:LEU:HD22	2.25	0.67
1:C:105:ILE:CD1	1:C:114:LEU:HD22	2.25	0.67
1:B:282:ARG:C	1:B:282:ARG:HE	1.97	0.66
1:A:282:ARG:HH21	1:A:283:THR:H	1.43	0.66
1:D:282:ARG:C	1:D:282:ARG:HE	1.97	0.66
1:C:282:ARG:HE	1:C:282:ARG:CA	2.08	0.66
1:D:282:ARG:HE	1:D:282:ARG:CA	2.08	0.66
1:B:282:ARG:HH21	1:B:283:THR:H	1.44	0.66
1:C:441:GLU:O	1:D:7:ALA:HB3	1.95	0.66
1:A:282:ARG:HE	1:A:283:THR:H	1.43	0.66
1:D:282:ARG:HH21	1:D:283:THR:H	1.44	0.66
1:B:282:ARG:HE	1:B:283:THR:H	1.43	0.66
1:C:72:HIS:HE1	2:C:600:FAD:HM71	1.57	0.66
1:C:105:ILE:HD13	1:C:114:LEU:HD22	1.78	0.66
1:D:105:ILE:CD1	1:D:114:LEU:HD22	2.25	0.66
1:D:105:ILE:HD13	1:D:114:LEU:HD22	1.78	0.65
1:C:282:ARG:HH21	1:C:283:THR:H	1.44	0.65
1:B:105:ILE:CD1	1:B:114:LEU:HD22	2.25	0.65
1:A:207:ARG:HH11	1:D:13:GLN:HG2	1.61	0.65
1:B:105:ILE:HD13	1:B:114:LEU:HD22	1.78	0.64
1:C:441:GLU:CG	1:D:7:ALA:HB1	2.19	0.64
1:D:373:LEU:HG	1:D:375:LEU:HD11	1.80	0.64
1:A:105:ILE:HD13	1:A:114:LEU:HD22	1.78	0.64
1:A:282:ARG:CA	1:A:282:ARG:NE	2.61	0.64
1:B:282:ARG:CA	1:B:282:ARG:NE	2.61	0.64
1:C:282:ARG:NE	1:C:282:ARG:CA	2.61	0.64
1:B:373:LEU:HG	1:B:375:LEU:HD11	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:120:LYS:CB	1:D:53:LYS:CE	2.74	0.63
1:A:373:LEU:HG	1:A:375:LEU:HD11	1.80	0.63
1:D:282:ARG:NE	1:D:282:ARG:CA	2.61	0.63
1:A:91:MET:HE1	1:A:196:THR:HB	1.81	0.63
1:A:120:LYS:O	1:D:53:LYS:HE2	1.98	0.63
1:B:267:LEU:HA	1:B:270:ALA:HB3	1.81	0.62
1:C:91:MET:HE1	1:C:196:THR:HB	1.81	0.62
1:B:91:MET:HE1	1:B:196:THR:HB	1.81	0.62
1:D:91:MET:HE1	1:D:196:THR:HB	1.81	0.62
1:C:373:LEU:HG	1:C:375:LEU:HD11	1.80	0.62
1:C:267:LEU:HA	1:C:270:ALA:HB3	1.81	0.61
1:D:44:ARG:NH1	1:D:87:ASP:OD2	2.34	0.61
1:C:44:ARG:NH1	1:C:87:ASP:OD2	2.34	0.61
1:A:44:ARG:NH1	1:A:87:ASP:OD2	2.34	0.61
1:C:373:LEU:HG	1:C:375:LEU:HD12	1.83	0.61
1:D:267:LEU:HA	1:D:270:ALA:HB3	1.81	0.60
1:B:44:ARG:NH1	1:B:87:ASP:OD2	2.34	0.60
1:C:441:GLU:O	1:D:7:ALA:CB	2.49	0.60
1:A:267:LEU:HA	1:A:270:ALA:HB3	1.81	0.60
1:A:90:LEU:HD22	1:C:13:GLN:OE1	2.01	0.60
1:A:367:ARG:HG2	1:A:367:ARG:HH11	1.67	0.59
1:A:340:GLU:HG3	1:A:343:SER:HB2	1.84	0.59
1:A:373:LEU:HG	1:A:375:LEU:HD12	1.83	0.59
1:B:373:LEU:HG	1:B:375:LEU:HD12	1.83	0.59
1:D:373:LEU:HG	1:D:375:LEU:HD12	1.83	0.59
1:B:367:ARG:HG2	1:B:367:ARG:HH11	1.67	0.59
1:C:340:GLU:HG3	1:C:343:SER:HB2	1.84	0.59
1:B:72:HIS:CE1	2:B:600:FAD:C7M	2.86	0.59
1:A:46:LEU:HD21	1:C:13:GLN:OE1	2.03	0.59
1:A:120:LYS:HA	1:D:53:LYS:CE	2.33	0.58
1:D:367:ARG:HH11	1:D:367:ARG:HG2	1.67	0.58
1:C:121:PHE:N	1:C:121:PHE:HD2	2.02	0.58
1:A:138:LEU:HD23	1:A:138:LEU:C	2.24	0.58
1:C:367:ARG:HG2	1:C:367:ARG:HH11	1.67	0.58
1:B:282:ARG:HE	1:B:282:ARG:HA	1.66	0.58
1:A:207:ARG:HD3	1:D:13:GLN:NE2	2.19	0.57
1:D:340:GLU:HG3	1:D:343:SER:HB2	1.84	0.57
1:A:115:VAL:HG21	1:A:297:VAL:HG11	1.86	0.57
1:A:121:PHE:HD2	1:A:121:PHE:N	2.02	0.57
1:C:138:LEU:C	1:C:138:LEU:HD23	2.24	0.57
1:B:115:VAL:HG21	1:B:297:VAL:HG11	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:340:GLU:HG3	1:B:343:SER:HB2	1.84	0.57
1:A:96:ILE:HB	1:A:121:PHE:CE1	2.39	0.57
1:D:72:HIS:CE1	2:D:600:FAD:C7M	2.86	0.57
1:B:96:ILE:HB	1:B:121:PHE:CE1	2.39	0.57
1:C:318:GLU:O	1:C:406:THR:HG23	2.05	0.57
1:B:121:PHE:N	1:B:121:PHE:CD2	2.73	0.57
1:D:138:LEU:HD23	1:D:138:LEU:C	2.24	0.57
1:B:272:ARG:O	1:B:275:ALA:HB3	2.05	0.57
1:D:272:ARG:O	1:D:275:ALA:HB3	2.05	0.57
1:A:72:HIS:CE1	2:A:600:FAD:C7M	2.86	0.57
1:B:318:GLU:O	1:B:406:THR:HG23	2.05	0.57
1:B:138:LEU:C	1:B:138:LEU:HD23	2.24	0.57
1:D:115:VAL:HG21	1:D:297:VAL:HG11	1.87	0.57
1:C:96:ILE:HB	1:C:121:PHE:CE1	2.39	0.56
1:A:318:GLU:O	1:A:406:THR:HG23	2.05	0.56
1:C:272:ARG:O	1:C:275:ALA:HB3	2.05	0.56
1:C:121:PHE:CD2	1:C:121:PHE:N	2.73	0.56
1:A:121:PHE:CD2	1:A:121:PHE:N	2.73	0.56
1:D:282:ARG:HA	1:D:282:ARG:HE	1.66	0.56
1:D:96:ILE:HB	1:D:121:PHE:CE1	2.39	0.56
1:D:318:GLU:O	1:D:406:THR:HG23	2.05	0.56
1:C:72:HIS:CE1	2:C:600:FAD:C7M	2.86	0.56
1:D:210:LEU:HD13	1:D:274:ILE:HG13	1.88	0.56
1:B:121:PHE:HD2	1:B:121:PHE:N	2.02	0.56
1:C:115:VAL:HG21	1:C:297:VAL:HG11	1.86	0.56
1:D:121:PHE:N	1:D:121:PHE:HD2	2.02	0.56
1:D:249:VAL:HG22	1:D:337:PHE:HB3	1.87	0.56
1:B:210:LEU:HD13	1:B:274:ILE:HG13	1.88	0.56
1:A:272:ARG:O	1:A:275:ALA:HB3	2.05	0.56
1:A:210:LEU:HD13	1:A:274:ILE:HG13	1.88	0.56
1:C:249:VAL:HG22	1:C:337:PHE:HB3	1.87	0.56
1:B:455:ASP:OD1	1:B:457:GLU:N	2.39	0.55
1:A:216:TRP:NE1	1:A:283:THR:HG22	2.21	0.55
1:A:120:LYS:C	1:D:53:LYS:HE2	2.27	0.55
1:C:210:LEU:HD13	1:C:274:ILE:HG13	1.88	0.55
1:D:121:PHE:N	1:D:121:PHE:CD2	2.73	0.55
1:B:249:VAL:HG22	1:B:337:PHE:HB3	1.88	0.55
1:A:282:ARG:HE	1:A:282:ARG:HA	1.66	0.55
1:C:375:LEU:N	1:C:375:LEU:HD12	2.22	0.55
1:A:249:VAL:HG22	1:A:337:PHE:HB3	1.87	0.55
1:A:375:LEU:N	1:A:375:LEU:HD12	2.22	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:318:GLU:HB3	1:C:369:ALA:HB3	1.89	0.55
1:D:455:ASP:OD1	1:D:457:GLU:N	2.39	0.55
1:C:216:TRP:NE1	1:C:283:THR:HG22	2.21	0.55
1:B:216:TRP:NE1	1:B:283:THR:HG22	2.21	0.55
1:D:375:LEU:N	1:D:375:LEU:HD12	2.22	0.55
1:A:318:GLU:HB3	1:A:369:ALA:HB3	1.89	0.55
1:B:401:ARG:HG3	1:B:401:ARG:HH11	1.72	0.55
1:D:216:TRP:NE1	1:D:283:THR:HG22	2.21	0.54
1:B:375:LEU:HD12	1:B:375:LEU:N	2.22	0.54
1:A:401:ARG:HH11	1:A:401:ARG:HG3	1.72	0.54
1:A:88:LEU:O	1:A:108:GLY:HA3	2.08	0.54
1:C:39:PRO:HB3	1:C:85:VAL:HG23	1.89	0.54
1:C:401:ARG:HG3	1:C:401:ARG:HH11	1.72	0.54
1:B:97:ASP:OD1	1:B:99:ALA:HB3	2.08	0.54
1:D:88:LEU:O	1:D:108:GLY:HA3	2.08	0.54
1:D:401:ARG:HG3	1:D:401:ARG:HH11	1.73	0.54
1:C:455:ASP:OD1	1:C:457:GLU:N	2.39	0.54
1:A:39:PRO:HB3	1:A:85:VAL:HG23	1.89	0.54
1:D:318:GLU:HB3	1:D:369:ALA:HB3	1.89	0.54
1:D:300:ASN:HA	1:D:303:VAL:HG22	1.90	0.54
1:B:300:ASN:HA	1:B:303:VAL:HG22	1.90	0.54
1:B:88:LEU:O	1:B:108:GLY:HA3	2.08	0.53
1:C:300:ASN:HA	1:C:303:VAL:HG22	1.90	0.53
1:B:210:LEU:HD12	1:B:270:ALA:CB	2.38	0.53
1:D:97:ASP:OD1	1:D:99:ALA:HB3	2.08	0.53
1:A:60:ASP:CB	1:B:167:THR:HG22	2.38	0.53
1:B:120:LYS:C	1:B:121:PHE:HD2	2.12	0.53
1:A:97:ASP:OD1	1:A:99:ALA:HB3	2.08	0.53
1:C:120:LYS:C	1:C:121:PHE:HD2	2.12	0.53
1:A:46:LEU:HD11	1:C:13:GLN:HE22	1.74	0.53
1:C:97:ASP:OD1	1:C:99:ALA:HB3	2.08	0.53
1:C:342:ALA:C	1:C:344:GLY:H	2.12	0.53
1:D:282:ARG:NE	1:D:283:THR:N	2.49	0.53
1:A:60:ASP:HB3	1:B:167:THR:HG22	1.91	0.53
1:A:300:ASN:HA	1:A:303:VAL:HG22	1.90	0.53
1:A:342:ALA:C	1:A:344:GLY:H	2.12	0.53
1:D:120:LYS:C	1:D:121:PHE:HD2	2.12	0.53
1:B:318:GLU:HB3	1:B:369:ALA:HB3	1.89	0.53
1:D:39:PRO:HB3	1:D:85:VAL:HG23	1.89	0.53
1:A:120:LYS:C	1:A:121:PHE:HD2	2.12	0.53
1:B:39:PRO:HB3	1:B:85:VAL:HG23	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:88:LEU:O	1:C:108:GLY:HA3	2.08	0.53
1:A:455:ASP:OD1	1:A:457:GLU:N	2.39	0.52
1:A:5:LYS:HZ2	1:A:6:LEU:HB2	1.75	0.52
1:A:60:ASP:CG	1:B:167:THR:HG22	2.30	0.52
1:A:210:LEU:HD12	1:A:270:ALA:CB	2.38	0.52
1:D:342:ALA:C	1:D:344:GLY:H	2.12	0.52
1:B:342:ALA:C	1:B:344:GLY:H	2.12	0.51
1:B:215:THR:HG23	1:B:258:THR:OG1	2.10	0.51
1:C:282:ARG:HA	1:C:282:ARG:HE	1.66	0.51
2:C:600:FAD:H51A	2:C:600:FAD:O4'	2.10	0.51
2:B:600:FAD:H51A	2:B:600:FAD:O4'	2.10	0.51
2:D:600:FAD:O4'	2:D:600:FAD:H51A	2.10	0.51
1:C:46:LEU:HD23	1:C:90:LEU:HB3	1.92	0.51
1:A:69:SER:HB2	2:A:600:FAD:O1P	2.10	0.51
1:A:215:THR:HG23	1:A:258:THR:OG1	2.10	0.51
1:A:282:ARG:NH2	1:A:283:THR:H	2.08	0.51
1:A:282:ARG:NE	1:A:283:THR:N	2.49	0.51
1:B:282:ARG:NH2	1:B:283:THR:H	2.08	0.51
1:C:282:ARG:NH2	1:C:283:THR:H	2.08	0.51
1:D:282:ARG:NE	1:D:283:THR:H	2.09	0.51
1:B:116:LYS:O	1:B:120:LYS:HG3	2.11	0.51
1:C:69:SER:HB2	2:C:600:FAD:O1P	2.10	0.51
1:B:69:SER:HB2	2:B:600:FAD:O1P	2.10	0.51
1:A:116:LYS:O	1:A:120:LYS:HG3	2.11	0.50
1:D:282:ARG:NH2	1:D:283:THR:H	2.08	0.50
1:C:210:LEU:HD12	1:C:270:ALA:CB	2.38	0.50
1:D:116:LYS:O	1:D:120:LYS:HG3	2.11	0.50
1:D:215:THR:HG23	1:D:258:THR:OG1	2.10	0.50
1:A:98:THR:CG2	1:A:121:PHE:HD1	2.25	0.50
1:D:69:SER:HB2	2:D:600:FAD:O1P	2.10	0.50
1:C:215:THR:HG23	1:C:258:THR:OG1	2.10	0.50
1:A:46:LEU:HD23	1:A:90:LEU:HB3	1.92	0.50
1:B:451:ASN:O	1:B:453:ASN:N	2.44	0.50
1:A:451:ASN:O	1:A:453:ASN:N	2.44	0.50
1:C:451:ASN:O	1:C:453:ASN:N	2.44	0.50
2:A:600:FAD:O4'	2:A:600:FAD:H51A	2.10	0.49
1:D:148:THR:N	1:D:149:PRO:CD	2.75	0.49
1:B:46:LEU:HD23	1:B:90:LEU:HB3	1.92	0.49
1:D:451:ASN:O	1:D:453:ASN:N	2.44	0.49
1:A:143:GLY:HA2	2:A:600:FAD:O2	2.12	0.49
1:D:46:LEU:HD23	1:D:90:LEU:HB3	1.92	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:148:THR:N	1:A:149:PRO:CD	2.75	0.49
1:C:143:GLY:HA2	2:C:600:FAD:O2	2.13	0.49
1:D:210:LEU:HD12	1:D:270:ALA:CB	2.38	0.49
1:A:445:GLU:HG3	1:B:60:ASP:O	2.12	0.49
1:C:116:LYS:O	1:C:120:LYS:HG3	2.11	0.49
1:B:326:PHE:O	1:B:330:ILE:HG12	2.13	0.49
1:D:326:PHE:O	1:D:330:ILE:HG12	2.13	0.49
1:A:321:MET:HG3	1:A:404:VAL:HG12	1.94	0.49
1:A:337:PHE:O	1:A:338:VAL:HB	2.12	0.49
1:A:213:PHE:CE1	1:A:260:CYS:HB2	2.48	0.49
1:A:120:LYS:CA	1:D:53:LYS:CE	2.81	0.49
1:C:148:THR:N	1:C:149:PRO:CD	2.75	0.49
1:B:321:MET:CG	1:B:404:VAL:HA	2.43	0.49
1:D:17:ILE:HD13	1:D:27:ILE:HG13	1.95	0.49
1:D:337:PHE:O	1:D:338:VAL:HB	2.12	0.49
1:D:321:MET:CG	1:D:404:VAL:HA	2.43	0.49
1:C:213:PHE:CE1	1:C:260:CYS:HB2	2.48	0.49
1:D:213:PHE:CE1	1:D:260:CYS:HB2	2.48	0.49
1:C:5:LYS:HD2	1:C:5:LYS:C	2.33	0.49
1:A:326:PHE:O	1:A:330:ILE:HG12	2.13	0.49
1:D:143:GLY:HA2	2:D:600:FAD:O2	2.12	0.48
1:C:337:PHE:O	1:C:338:VAL:HB	2.12	0.48
1:B:321:MET:HG3	1:B:404:VAL:HG12	1.94	0.48
1:A:17:ILE:HD13	1:A:27:ILE:HG13	1.95	0.48
1:B:148:THR:N	1:B:149:PRO:CD	2.75	0.48
1:D:321:MET:HG3	1:D:404:VAL:HG12	1.94	0.48
1:B:5:LYS:C	1:B:5:LYS:HD2	2.33	0.48
1:A:336:LYS:HA	1:A:391:LEU:HD11	1.95	0.48
1:B:143:GLY:HA2	2:B:600:FAD:O2	2.13	0.48
1:C:455:ASP:C	1:C:457:GLU:H	2.17	0.48
1:C:17:ILE:HD13	1:C:27:ILE:HG13	1.95	0.48
1:B:213:PHE:CE1	1:B:260:CYS:HB2	2.48	0.48
1:A:5:LYS:C	1:A:5:LYS:HD2	2.34	0.48
1:D:131:PRO:HG2	1:D:301:ALA:HB2	1.96	0.48
1:B:455:ASP:C	1:B:457:GLU:H	2.17	0.48
1:C:321:MET:CG	1:C:404:VAL:HA	2.43	0.48
1:C:326:PHE:O	1:C:330:ILE:HG12	2.13	0.48
1:A:282:ARG:NE	1:A:283:THR:H	2.09	0.48
1:C:321:MET:HG3	1:C:404:VAL:HG12	1.94	0.48
1:D:5:LYS:HD2	1:D:5:LYS:C	2.34	0.48
1:B:282:ARG:NE	1:B:283:THR:H	2.10	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:337:PHE:O	1:B:338:VAL:HB	2.12	0.48
1:D:455:ASP:C	1:D:457:GLU:H	2.17	0.48
1:B:42:ILE:HG12	1:B:85:VAL:HB	1.96	0.48
1:A:455:ASP:C	1:A:457:GLU:H	2.17	0.48
1:B:336:LYS:HA	1:B:391:LEU:HD11	1.95	0.48
1:D:42:ILE:HG12	1:D:85:VAL:HB	1.96	0.48
1:A:321:MET:CG	1:A:404:VAL:HA	2.43	0.48
1:C:336:LYS:HA	1:C:391:LEU:HD11	1.95	0.48
1:C:282:ARG:NE	1:C:283:THR:H	2.09	0.47
1:C:72:HIS:HB2	2:C:600:FAD:O2P	2.15	0.47
1:C:310:MET:HE1	1:C:379:SER:HA	1.97	0.47
1:B:131:PRO:HG2	1:B:301:ALA:HB2	1.96	0.47
1:A:174:SER:HA	1:A:182:PHE:CD1	2.50	0.47
1:C:340:GLU:CG	1:C:343:SER:HB2	2.45	0.47
1:D:340:GLU:CG	1:D:343:SER:HB2	2.45	0.47
1:D:336:LYS:HA	1:D:391:LEU:HD11	1.95	0.47
1:D:209:MET:O	1:D:290:VAL:HA	2.15	0.47
1:C:209:MET:O	1:C:290:VAL:HA	2.15	0.47
1:B:72:HIS:HB2	2:B:600:FAD:O2P	2.14	0.47
1:B:340:GLU:CG	1:B:343:SER:HB2	2.45	0.47
1:D:401:ARG:NH1	1:D:401:ARG:HG3	2.30	0.47
1:A:42:ILE:HG12	1:A:85:VAL:HB	1.96	0.47
1:D:290:VAL:C	1:D:291:ARG:HG3	2.35	0.47
1:B:174:SER:HA	1:B:182:PHE:CD1	2.50	0.47
1:C:174:SER:HA	1:C:182:PHE:CD1	2.50	0.47
1:B:290:VAL:C	1:B:291:ARG:HG3	2.35	0.47
1:B:209:MET:O	1:B:290:VAL:HA	2.15	0.47
1:B:17:ILE:HD13	1:B:27:ILE:HG13	1.95	0.47
1:A:209:MET:O	1:A:290:VAL:HA	2.15	0.47
1:C:42:ILE:HG12	1:C:85:VAL:HB	1.96	0.47
1:A:321:MET:HG3	1:A:404:VAL:HA	1.97	0.47
1:C:172:TYR:O	1:C:178:ARG:HD2	2.15	0.47
1:D:72:HIS:HB2	2:D:600:FAD:O2P	2.15	0.47
1:D:172:TYR:O	1:D:178:ARG:HD2	2.15	0.47
1:D:174:SER:HA	1:D:182:PHE:CD1	2.50	0.47
1:C:401:ARG:HG3	1:C:401:ARG:NH1	2.30	0.46
1:C:164:VAL:HG22	1:C:170:VAL:HG22	1.97	0.46
1:B:98:THR:CG2	1:B:121:PHE:HD1	2.25	0.46
1:C:131:PRO:HG2	1:C:301:ALA:HB2	1.96	0.46
1:B:401:ARG:NH1	1:B:401:ARG:HG3	2.30	0.46
1:C:290:VAL:C	1:C:291:ARG:HG3	2.35	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:321:MET:HG3	1:B:404:VAL:HA	1.97	0.46
1:B:52:ALA:O	1:B:55:VAL:HG22	2.15	0.46
1:C:282:ARG:NE	1:C:283:THR:N	2.49	0.46
1:A:290:VAL:C	1:A:291:ARG:HG3	2.35	0.46
1:C:52:ALA:O	1:C:55:VAL:HG22	2.15	0.46
1:A:164:VAL:HG22	1:A:170:VAL:HG22	1.97	0.46
1:A:72:HIS:HB2	2:A:600:FAD:O2P	2.15	0.46
1:A:340:GLU:CG	1:A:343:SER:HB2	2.45	0.46
1:C:98:THR:CG2	1:C:121:PHE:HD1	2.25	0.46
1:D:164:VAL:HG22	1:D:170:VAL:HG22	1.97	0.46
1:A:419:THR:O	1:A:423:VAL:HG23	2.16	0.46
1:A:131:PRO:HG2	1:A:301:ALA:HB2	1.96	0.46
1:B:111:SER:O	1:B:115:VAL:HG23	2.16	0.46
1:A:313:LEU:HD13	1:A:417:GLU:OE2	2.16	0.46
1:A:7:ALA:HB1	1:B:441:GLU:HG3	1.98	0.46
1:A:111:SER:O	1:A:115:VAL:HG23	2.16	0.46
1:B:419:THR:O	1:B:423:VAL:HG23	2.16	0.46
1:A:172:TYR:O	1:A:178:ARG:HD2	2.15	0.46
1:D:52:ALA:O	1:D:55:VAL:HG22	2.15	0.46
1:B:367:ARG:HG2	1:B:367:ARG:NH1	2.30	0.46
1:C:313:LEU:HD13	1:C:417:GLU:OE2	2.16	0.46
1:B:164:VAL:HG22	1:B:170:VAL:HG22	1.97	0.46
1:C:385:SER:C	1:C:387:LYS:H	2.19	0.46
1:A:7:ALA:HB1	1:B:441:GLU:CA	2.40	0.46
1:D:114:LEU:HD12	1:D:114:LEU:O	2.16	0.46
1:C:111:SER:O	1:C:115:VAL:HG23	2.16	0.45
1:C:321:MET:HG3	1:C:404:VAL:HA	1.97	0.45
1:C:419:THR:O	1:C:423:VAL:HG23	2.16	0.45
1:B:313:LEU:HD13	1:B:417:GLU:OE2	2.16	0.45
1:D:98:THR:CG2	1:D:121:PHE:HD1	2.25	0.45
1:A:114:LEU:O	1:A:114:LEU:HD12	2.16	0.45
1:A:385:SER:C	1:A:387:LYS:H	2.19	0.45
1:A:52:ALA:O	1:A:55:VAL:HG22	2.16	0.45
1:D:439:LYS:HE2	1:D:454:ILE:O	2.16	0.45
1:D:111:SER:O	1:D:115:VAL:HG23	2.16	0.45
1:A:401:ARG:HG3	1:A:401:ARG:NH1	2.30	0.45
1:D:313:LEU:HD13	1:D:417:GLU:OE2	2.16	0.45
1:B:385:SER:C	1:B:387:LYS:H	2.19	0.45
1:A:60:ASP:OD1	1:B:167:THR:HA	2.16	0.45
1:B:46:LEU:CD2	1:B:90:LEU:HB3	2.47	0.45
1:D:321:MET:HG3	1:D:404:VAL:HA	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:146:PHE:HB2	1:D:293:TYR:HE1	1.82	0.45
1:C:114:LEU:HD12	1:C:114:LEU:O	2.16	0.45
1:C:367:ARG:HG2	1:C:367:ARG:NH1	2.30	0.45
1:D:46:LEU:CD2	1:D:90:LEU:HB3	2.47	0.45
1:C:384:GLY:O	1:C:387:LYS:HB3	2.17	0.45
1:D:419:THR:O	1:D:423:VAL:HG23	2.16	0.45
1:A:367:ARG:NH1	1:A:367:ARG:HG2	2.30	0.45
1:D:238:ALA:HB1	1:D:354:MET:HG3	1.99	0.45
1:C:439:LYS:HE2	1:C:454:ILE:O	2.17	0.45
1:A:146:PHE:HB2	1:A:293:TYR:HE1	1.82	0.45
1:C:146:PHE:HB2	1:C:293:TYR:HE1	1.82	0.45
1:B:238:ALA:HB1	1:B:354:MET:HG3	1.99	0.45
1:D:5:LYS:HZ2	1:D:6:LEU:HB2	1.81	0.45
1:C:46:LEU:CD2	1:C:90:LEU:HB3	2.47	0.45
1:B:172:TYR:O	1:B:178:ARG:HD2	2.15	0.45
1:B:130:HIS:CE1	1:B:132:LYS:HB2	2.52	0.45
1:B:146:PHE:HB2	1:B:293:TYR:HE1	1.82	0.45
1:B:114:LEU:O	1:B:114:LEU:HD12	2.16	0.45
1:A:384:GLY:O	1:A:387:LYS:HB3	2.17	0.45
1:B:351:ILE:HA	1:B:371:GLY:O	2.17	0.45
1:D:384:GLY:O	1:D:387:LYS:HB3	2.17	0.45
1:C:351:ILE:HA	1:C:371:GLY:O	2.17	0.45
1:B:97:ASP:CG	1:B:97:ASP:O	2.55	0.45
1:A:439:LYS:HE2	1:A:454:ILE:O	2.16	0.45
1:A:120:LYS:HB3	1:D:53:LYS:HE3	1.96	0.45
1:C:97:ASP:O	1:C:97:ASP:CG	2.55	0.45
1:A:46:LEU:CD2	1:A:90:LEU:HB3	2.47	0.44
1:C:130:HIS:CE1	1:C:132:LYS:HB2	2.52	0.44
1:A:130:HIS:CE1	1:A:132:LYS:HB2	2.52	0.44
1:B:175:ASP:N	1:B:175:ASP:OD1	2.48	0.44
1:C:175:ASP:OD1	1:C:175:ASP:N	2.48	0.44
1:D:351:ILE:HA	1:D:371:GLY:O	2.17	0.44
1:B:439:LYS:HE2	1:B:454:ILE:O	2.16	0.44
1:B:310:MET:HE1	1:B:379:SER:HA	1.99	0.44
1:A:175:ASP:N	1:A:175:ASP:OD1	2.48	0.44
1:A:238:ALA:HB1	1:A:354:MET:HG3	1.99	0.44
1:B:105:ILE:HG13	1:B:198:VAL:HG12	2.00	0.44
1:D:130:HIS:CE1	1:D:132:LYS:HB2	2.52	0.44
1:A:310:MET:HE1	1:A:379:SER:HA	1.99	0.44
1:D:367:ARG:NH1	1:D:367:ARG:HG2	2.30	0.44
1:D:385:SER:C	1:D:387:LYS:H	2.19	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:351:ILE:HA	1:A:371:GLY:O	2.17	0.44
1:A:447:ARG:HA	1:A:447:ARG:HD3	1.86	0.44
1:D:338:VAL:HG22	1:D:339:SER:N	2.33	0.43
1:B:384:GLY:O	1:B:387:LYS:HB3	2.17	0.43
1:C:238:ALA:HB1	1:C:354:MET:HG3	1.99	0.43
1:C:181:LEU:HD12	1:C:185:VAL:HG23	1.99	0.43
1:B:318:GLU:HA	1:B:370:MET:O	2.19	0.43
1:C:5:LYS:HZ2	1:C:6:LEU:HB2	1.83	0.43
1:B:338:VAL:HG22	1:B:339:SER:N	2.33	0.43
1:C:105:ILE:HG13	1:C:198:VAL:HG12	2.00	0.43
1:A:342:ALA:C	1:A:344:GLY:N	2.72	0.43
1:B:181:LEU:HD12	1:B:185:VAL:HG23	1.99	0.43
1:D:175:ASP:OD1	1:D:175:ASP:N	2.48	0.43
1:B:282:ARG:NE	1:B:283:THR:N	2.49	0.43
1:B:5:LYS:HZ2	1:B:6:LEU:HB2	1.84	0.43
1:B:5:LYS:NZ	1:B:6:LEU:HB2	2.34	0.43
1:A:338:VAL:HG22	1:A:339:SER:N	2.33	0.43
1:A:181:LEU:HD12	1:A:185:VAL:HG23	1.99	0.43
1:D:181:LEU:HD12	1:D:185:VAL:HG23	1.99	0.43
1:C:193:GLY:HA2	1:C:448:PHE:CE2	2.54	0.43
1:C:213:PHE:CE1	1:C:260:CYS:SG	3.12	0.43
1:C:249:VAL:HG23	1:C:249:VAL:O	2.19	0.43
1:D:97:ASP:CG	1:D:97:ASP:O	2.55	0.43
1:B:213:PHE:CE1	1:B:260:CYS:SG	3.12	0.43
1:A:193:GLY:HA2	1:A:448:PHE:CE2	2.54	0.43
1:B:193:GLY:HA2	1:B:448:PHE:CE2	2.54	0.43
1:D:5:LYS:NZ	1:D:6:LEU:HB2	2.34	0.43
1:C:342:ALA:C	1:C:344:GLY:N	2.72	0.43
1:D:105:ILE:HG13	1:D:198:VAL:HG12	2.00	0.42
1:D:310:MET:HE3	1:D:379:SER:HB2	2.00	0.42
1:D:310:MET:HE1	1:D:379:SER:HA	2.01	0.42
1:D:249:VAL:HG23	1:D:249:VAL:O	2.19	0.42
1:A:213:PHE:CE1	1:A:260:CYS:SG	3.12	0.42
1:D:193:GLY:HA2	1:D:448:PHE:CE2	2.54	0.42
1:A:239:ASP:C	1:A:240:HIS:CD2	2.93	0.42
1:C:210:LEU:HA	1:C:210:LEU:HD23	1.89	0.42
1:D:334:LEU:HA	1:D:337:PHE:CD2	2.54	0.42
1:A:97:ASP:O	1:A:97:ASP:CG	2.55	0.42
1:A:36:LEU:O	1:A:38:ARG:HG2	2.19	0.42
1:A:334:LEU:HA	1:A:337:PHE:CD2	2.54	0.42
1:D:330:ILE:HD12	1:D:349:LEU:CD2	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:239:ASP:C	1:B:240:HIS:CD2	2.93	0.42
1:C:239:ASP:C	1:C:240:HIS:CD2	2.93	0.42
1:B:36:LEU:O	1:B:38:ARG:HG2	2.20	0.42
1:C:338:VAL:HG22	1:C:339:SER:N	2.33	0.42
1:A:105:ILE:HG13	1:A:198:VAL:HG12	2.00	0.42
1:C:318:GLU:HA	1:C:370:MET:O	2.19	0.42
1:A:318:GLU:HA	1:A:370:MET:O	2.19	0.42
1:C:243:PRO:HD2	1:C:353:GLY:HA2	2.01	0.42
1:D:36:LEU:O	1:D:38:ARG:HG2	2.19	0.42
1:C:94:ILE:HA	1:C:105:ILE:HG22	2.02	0.42
1:C:340:GLU:HB2	1:C:343:SER:HB2	2.02	0.42
1:C:110:ILE:O	1:C:111:SER:C	2.58	0.42
1:A:330:ILE:HD12	1:A:349:LEU:CD2	2.50	0.42
1:D:206:PRO:HD2	1:D:293:TYR:HB2	2.02	0.42
1:B:243:PRO:HD2	1:B:353:GLY:HA2	2.01	0.42
1:C:362:THR:HB	1:C:363:PRO:HD2	2.02	0.42
1:D:12:ILE:HB	1:D:50:ASP:CG	2.40	0.42
1:C:334:LEU:HA	1:C:337:PHE:CD2	2.54	0.42
1:A:340:GLU:HB2	1:A:343:SER:HB2	2.02	0.42
1:D:318:GLU:HA	1:D:370:MET:O	2.19	0.42
1:C:5:LYS:NZ	1:C:6:LEU:HB2	2.34	0.42
1:B:206:PRO:HD2	1:B:293:TYR:HB2	2.02	0.42
1:A:362:THR:HB	1:A:363:PRO:HD2	2.02	0.42
1:A:12:ILE:HB	1:A:50:ASP:CG	2.40	0.42
1:B:447:ARG:HD3	1:B:447:ARG:HA	1.86	0.42
1:B:249:VAL:HG23	1:B:249:VAL:O	2.19	0.42
1:D:340:GLU:HB2	1:D:343:SER:HB2	2.02	0.42
1:C:139:ALA:O	1:C:155:SER:HB3	2.20	0.42
1:A:139:ALA:O	1:A:155:SER:HB3	2.20	0.42
1:A:7:ALA:HB3	1:B:441:GLU:HA	1.92	0.42
1:B:334:LEU:HA	1:B:337:PHE:CD2	2.54	0.42
1:D:213:PHE:CE1	1:D:260:CYS:SG	3.12	0.42
1:C:330:ILE:HD12	1:C:349:LEU:CD2	2.50	0.42
1:D:243:PRO:HD2	1:D:353:GLY:HA2	2.01	0.42
1:D:239:ASP:C	1:D:240:HIS:CD2	2.93	0.42
1:D:77:TYR:HB3	1:D:450:HIS:O	2.20	0.42
1:C:123:LEU:HA	1:C:123:LEU:HD23	1.75	0.42
1:D:362:THR:HB	1:D:363:PRO:HD2	2.02	0.42
1:B:321:MET:HA	1:B:321:MET:HE2	2.01	0.41
1:B:6:LEU:HG	1:B:7:ALA:N	2.35	0.41
1:C:206:PRO:HD2	1:C:293:TYR:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:362:THR:HB	1:B:363:PRO:HD2	2.02	0.41
1:C:36:LEU:O	1:C:38:ARG:HG2	2.19	0.41
1:C:12:ILE:HB	1:C:50:ASP:CG	2.40	0.41
1:A:5:LYS:NZ	1:A:6:LEU:HB2	2.34	0.41
1:B:428:LYS:HA	1:B:429:PRO:HD3	1.93	0.41
1:B:120:LYS:C	1:B:121:PHE:CD2	2.93	0.41
1:B:94:ILE:HA	1:B:105:ILE:HG22	2.02	0.41
1:B:340:GLU:HB2	1:B:343:SER:HB2	2.02	0.41
1:B:342:ALA:C	1:B:344:GLY:N	2.72	0.41
1:B:330:ILE:HD12	1:B:349:LEU:CD2	2.50	0.41
1:A:206:PRO:HD2	1:A:293:TYR:HB2	2.02	0.41
1:D:6:LEU:HG	1:D:7:ALA:N	2.35	0.41
1:D:110:ILE:O	1:D:111:SER:C	2.58	0.41
1:B:375:LEU:CD1	1:B:375:LEU:N	2.84	0.41
1:A:94:ILE:HA	1:A:105:ILE:HG22	2.02	0.41
1:D:94:ILE:HA	1:D:105:ILE:HG22	2.02	0.41
1:A:110:ILE:O	1:A:111:SER:C	2.58	0.41
1:D:342:ALA:C	1:D:344:GLY:N	2.72	0.41
1:B:310:MET:HE3	1:B:379:SER:HB2	2.02	0.41
1:A:77:TYR:HB3	1:A:450:HIS:O	2.20	0.41
1:A:6:LEU:HG	1:A:7:ALA:N	2.35	0.41
1:C:6:LEU:HG	1:C:7:ALA:N	2.35	0.41
1:B:12:ILE:HB	1:B:50:ASP:CG	2.40	0.41
1:B:325:ARG:HA	1:B:325:ARG:HD2	1.91	0.41
1:C:447:ARG:HD3	1:C:447:ARG:HA	1.86	0.41
1:D:428:LYS:HA	1:D:429:PRO:HD3	1.93	0.41
1:A:249:VAL:HG23	1:A:249:VAL:O	2.19	0.41
1:C:24:PHE:O	1:C:27:ILE:N	2.54	0.41
1:B:24:PHE:O	1:B:27:ILE:N	2.54	0.41
1:B:139:ALA:O	1:B:155:SER:HB3	2.20	0.41
1:A:243:PRO:HD2	1:A:353:GLY:HA2	2.01	0.41
1:C:77:TYR:HB3	1:C:450:HIS:O	2.20	0.41
1:D:375:LEU:N	1:D:375:LEU:CD1	2.84	0.41
1:D:387:LYS:CG	1:D:388:TYR:N	2.84	0.41
1:D:139:ALA:O	1:D:155:SER:HB3	2.20	0.41
1:D:377:GLU:O	1:D:378:TRP:HB3	2.21	0.41
1:D:120:LYS:C	1:D:121:PHE:CD2	2.93	0.41
1:A:128:GLY:HA3	1:A:138:LEU:HD11	2.02	0.41
1:B:110:ILE:O	1:B:111:SER:C	2.58	0.41
1:A:24:PHE:O	1:A:27:ILE:N	2.54	0.41
1:B:387:LYS:CG	1:B:388:TYR:N	2.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:77:TYR:HB3	1:B:450:HIS:O	2.20	0.41
1:D:227:LEU:HD12	1:D:227:LEU:HA	1.92	0.41
1:A:375:LEU:N	1:A:375:LEU:CD1	2.84	0.41
1:A:330:ILE:HD12	1:A:349:LEU:HD22	2.03	0.41
1:B:37:GLN:OE1	1:B:37:GLN:N	2.50	0.41
1:C:340:GLU:HA	1:C:341:PRO:HD2	1.95	0.40
1:D:330:ILE:HD12	1:D:349:LEU:HD22	2.03	0.40
1:A:387:LYS:CG	1:A:388:TYR:N	2.84	0.40
1:D:208:LYS:O	1:D:267:LEU:HD21	2.21	0.40
1:B:210:LEU:HA	1:B:210:LEU:HD23	1.89	0.40
1:C:186:ARG:O	1:C:363:PRO:HD2	2.22	0.40
1:A:208:LYS:O	1:A:267:LEU:HD21	2.21	0.40
1:D:186:ARG:O	1:D:363:PRO:HD2	2.22	0.40
1:A:37:GLN:N	1:A:37:GLN:OE1	2.50	0.40
1:B:208:LYS:O	1:B:267:LEU:HD21	2.21	0.40
1:A:350:GLU:OE2	1:A:375:LEU:HD21	2.22	0.40
1:B:350:GLU:OE2	1:B:375:LEU:HD21	2.22	0.40
1:A:186:ARG:O	1:A:363:PRO:HD2	2.22	0.40
1:D:127:THR:HG22	1:D:135:PHE:CD1	2.57	0.40
1:C:350:GLU:OE2	1:C:375:LEU:HD21	2.22	0.40
1:C:128:GLY:HA3	1:C:138:LEU:HD11	2.02	0.40
1:D:128:GLY:HA3	1:D:138:LEU:HD11	2.02	0.40
1:B:128:GLY:HA3	1:B:138:LEU:HD11	2.02	0.40
1:C:330:ILE:HD12	1:C:349:LEU:HD22	2.03	0.40
1:D:123:LEU:HA	1:D:123:LEU:HD23	1.75	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:22:SER:OG	1:D:428:LYS:NZ[2_656]	2.07	0.13
1:A:282:ARG:CD	1:C:286:ASP:OD2[1_455]	2.13	0.07
1:A:282:ARG:CD	1:C:286:ASP:CG[1_455]	2.15	0.05

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	451/459 (98%)	404 (90%)	42 (9%)	5 (1%)	17	51
1	B	451/459 (98%)	404 (90%)	42 (9%)	5 (1%)	17	51
1	C	451/459 (98%)	404 (90%)	42 (9%)	5 (1%)	17	51
1	D	451/459 (98%)	404 (90%)	42 (9%)	5 (1%)	17	51
All	All	1804/1836 (98%)	1616 (90%)	168 (9%)	20 (1%)	17	51

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	24	PHE
1	A	338	VAL
1	B	24	PHE
1	B	338	VAL
1	C	24	PHE
1	C	338	VAL
1	D	24	PHE
1	D	338	VAL
1	A	25	ASP
1	B	25	ASP
1	C	25	ASP
1	D	25	ASP
1	A	428	LYS
1	B	428	LYS
1	C	428	LYS
1	D	428	LYS
1	A	9	PRO
1	B	9	PRO
1	C	9	PRO
1	D	9	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	353/358 (99%)	347 (98%)	6 (2%)	68	91
1	B	353/358 (99%)	347 (98%)	6 (2%)	68	91
1	C	353/358 (99%)	347 (98%)	6 (2%)	68	91
1	D	353/358 (99%)	347 (98%)	6 (2%)	68	91
All	All	1412/1432 (99%)	1388 (98%)	24 (2%)	68	91

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	68	ARG
1	A	72	HIS
1	A	111	SER
1	A	121	PHE
1	A	354	MET
1	A	378	TRP
1	B	68	ARG
1	B	72	HIS
1	B	111	SER
1	B	121	PHE
1	B	354	MET
1	B	378	TRP
1	C	68	ARG
1	C	72	HIS
1	C	111	SER
1	C	121	PHE
1	C	354	MET
1	C	378	TRP
1	D	68	ARG
1	D	72	HIS
1	D	111	SER
1	D	121	PHE
1	D	354	MET
1	D	378	TRP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	13	GLN
1	A	450	HIS
1	B	13	GLN

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Mol	Chain	Res	Type
1	B	450	HIS
1	C	450	HIS
1	D	13	GLN
1	D	450	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
2	FAD	A	600	1	48,58,58	1.16	4 (8%)	54,89,89	2.20	10 (18%)
2	FAD	B	600	1	48,58,58	1.17	4 (8%)	54,89,89	2.20	10 (18%)
2	FAD	C	600	1	48,58,58	1.17	4 (8%)	54,89,89	2.19	10 (18%)
2	FAD	D	600	1	48,58,58	1.16	4 (8%)	54,89,89	2.20	10 (18%)

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	600	1	-	0/30/50/50	0/6/6/6
2	FAD	B	600	1	-	0/30/50/50	0/6/6/6
2	FAD	C	600	1	-	0/30/50/50	0/6/6/6
2	FAD	D	600	1	-	0/30/50/50	0/6/6/6

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	600	FAD	O4B-C1B	2.46	1.44	1.41
2	A	600	FAD	O4B-C1B	2.47	1.44	1.41
2	B	600	FAD	O4B-C1B	2.50	1.44	1.41
2	C	600	FAD	O4B-C1B	2.51	1.44	1.41
2	B	600	FAD	PA-O1A	2.77	1.61	1.51
2	D	600	FAD	PA-O1A	2.77	1.61	1.51
2	A	600	FAD	PA-O1A	2.78	1.61	1.51
2	C	600	FAD	PA-O1A	2.80	1.61	1.51
2	A	600	FAD	C10-N1	2.88	1.40	1.35
2	D	600	FAD	C10-N1	2.89	1.40	1.35
2	B	600	FAD	C10-N1	2.91	1.40	1.35
2	C	600	FAD	C10-N1	2.92	1.40	1.35
2	D	600	FAD	C4-N3	3.97	1.40	1.33
2	C	600	FAD	C4-N3	3.99	1.40	1.33
2	A	600	FAD	C4-N3	4.00	1.40	1.33
2	B	600	FAD	C4-N3	4.03	1.40	1.33

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	600	FAD	N3A-C2A-N1A	-9.87	121.33	128.89
2	B	600	FAD	N3A-C2A-N1A	-9.84	121.36	128.89
2	A	600	FAD	N3A-C2A-N1A	-9.82	121.37	128.89
2	C	600	FAD	N3A-C2A-N1A	-9.79	121.40	128.89
2	B	600	FAD	O3P-P-O5'	-5.07	89.47	102.94
2	D	600	FAD	O3P-P-O5'	-5.07	89.49	102.94
2	C	600	FAD	O3P-P-O5'	-5.07	89.50	102.94
2	A	600	FAD	O3P-P-O5'	-5.06	89.51	102.94
2	C	600	FAD	O2P-P-O3P	-3.21	90.52	105.09
2	A	600	FAD	O2P-P-O3P	-3.21	90.53	105.09
2	D	600	FAD	O2P-P-O3P	-3.21	90.55	105.09
2	B	600	FAD	O2P-P-O3P	-3.20	90.56	105.09
2	C	600	FAD	P-O3P-PA	-3.14	123.92	132.73
2	A	600	FAD	P-O3P-PA	-3.13	123.94	132.73
2	D	600	FAD	P-O3P-PA	-3.12	123.97	132.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	600	FAD	P-O3P-PA	-3.10	124.01	132.73
2	B	600	FAD	C4X-C4-N3	-2.41	120.29	123.59
2	A	600	FAD	C4X-C4-N3	-2.40	120.31	123.59
2	D	600	FAD	C4X-C4-N3	-2.39	120.32	123.59
2	C	600	FAD	C4X-C4-N3	-2.38	120.34	123.59
2	A	600	FAD	C4X-C10-N10	-2.35	119.14	120.52
2	B	600	FAD	C4X-C10-N10	-2.35	119.14	120.52
2	D	600	FAD	C4X-C10-N10	-2.33	119.15	120.52
2	C	600	FAD	C4X-C10-N10	-2.30	119.17	120.52
2	C	600	FAD	O3P-PA-O5B	2.20	108.77	102.94
2	D	600	FAD	O3P-PA-O5B	2.20	108.78	102.94
2	B	600	FAD	O3P-PA-O5B	2.21	108.79	102.94
2	A	600	FAD	O3P-PA-O5B	2.21	108.80	102.94
2	D	600	FAD	O5'-P-O1P	2.90	120.88	109.62
2	B	600	FAD	O5'-P-O1P	2.91	120.91	109.62
2	C	600	FAD	O5'-P-O1P	2.91	120.91	109.62
2	A	600	FAD	O5'-P-O1P	2.91	120.92	109.62
2	C	600	FAD	C4X-N5-C5X	4.84	122.33	116.76
2	A	600	FAD	C4X-N5-C5X	4.87	122.37	116.76
2	B	600	FAD	C4X-N5-C5X	4.90	122.40	116.76
2	D	600	FAD	C4X-N5-C5X	4.91	122.41	116.76
2	C	600	FAD	C4-N3-C2	5.76	120.22	115.25
2	D	600	FAD	C4-N3-C2	5.79	120.25	115.25
2	A	600	FAD	C4-N3-C2	5.79	120.25	115.25
2	B	600	FAD	C4-N3-C2	5.83	120.29	115.25

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 28 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	600	FAD	7	0
2	B	600	FAD	7	0
2	C	600	FAD	7	0
2	D	600	FAD	7	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	453/459 (98%)	0.18	20 (4%) 38 32	8, 32, 83, 154	0
1	B	453/459 (98%)	0.46	31 (6%) 20 14	22, 46, 97, 168	0
1	C	453/459 (98%)	0.50	26 (5%) 27 21	18, 42, 92, 164	0
1	D	453/459 (98%)	0.53	28 (6%) 24 17	23, 47, 98, 169	0
All	All	1812/1836 (98%)	0.42	105 (5%) 26 20	8, 42, 95, 169	0

All (105) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	302	GLU	8.3
1	C	303	VAL	7.7
1	C	305	SER	7.7
1	A	305	SER	6.7
1	D	302	GLU	6.2
1	C	307	GLU	6.2
1	B	305	SER	6.0
1	C	306	PHE	5.7
1	A	5	LYS	5.6
1	A	266	GLY	5.5
1	B	23	GLY	5.2
1	D	383	PRO	5.1
1	A	303	VAL	5.1
1	D	306	PHE	5.0
1	A	306	PHE	4.9
1	D	303	VAL	4.7
1	D	304	GLY	4.7
1	B	7	ALA	4.5
1	C	5	LYS	4.4
1	D	251	GLU	4.3
1	C	7	ALA	4.2

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Mol	Chain	Res	Type	RSRZ
1	B	8	THR	4.2
1	D	121	PHE	4.0
1	D	305	SER	4.0
1	D	307	GLU	3.9
1	B	306	PHE	3.9
1	A	9	PRO	3.9
1	D	6	LEU	3.8
1	B	22	SER	3.8
1	C	8	THR	3.6
1	D	299	LEU	3.6
1	C	100	GLY	3.6
1	B	9	PRO	3.5
1	D	122	GLY	3.5
1	A	268	ASP	3.5
1	B	302	GLU	3.4
1	D	361	ARG	3.4
1	A	302	GLU	3.4
1	C	6	LEU	3.3
1	C	433	SER	3.3
1	C	344	GLY	3.3
1	D	96	ILE	3.2
1	A	285	SER	3.1
1	B	5	LYS	3.1
1	C	23	GLY	3.0
1	C	380	GLY	3.0
1	D	344	GLY	3.0
1	A	279	GLY	3.0
1	C	22	SER	3.0
1	B	283	THR	2.9
1	B	249	VAL	2.9
1	D	5	LYS	2.9
1	A	8	THR	2.9
1	B	10	LEU	2.8
1	B	26	ALA	2.8
1	B	6	LEU	2.8
1	D	176	ASP	2.8
1	C	289	ALA	2.7
1	B	282	ARG	2.7
1	C	282	ARG	2.7
1	B	342	ALA	2.6
1	B	27	ILE	2.6
1	D	213	PHE	2.6

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Mol	Chain	Res	Type	RSRZ
1	C	384	GLY	2.5
1	D	296	VAL	2.5
1	A	269	ILE	2.5
1	B	381	ALA	2.5
1	D	252	ASN	2.5
1	B	339	SER	2.4
1	B	11	SER	2.4
1	B	324	ALA	2.4
1	A	383	PRO	2.4
1	C	9	PRO	2.4
1	D	95	HIS	2.4
1	B	17	ILE	2.3
1	C	308	ASP	2.3
1	C	343	SER	2.3
1	A	289	ALA	2.3
1	B	307	GLU	2.3
1	D	249	VAL	2.3
1	B	82	GLY	2.3
1	D	384	GLY	2.3
1	B	390	GLU	2.2
1	D	325	ARG	2.2
1	B	39	PRO	2.2
1	D	208	LYS	2.1
1	C	82	GLY	2.1
1	A	265	GLY	2.1
1	C	304	GLY	2.1
1	A	307	GLU	2.1
1	D	175	ASP	2.1
1	B	251	GLU	2.1
1	A	213	PHE	2.1
1	C	275	ALA	2.1
1	A	304	GLY	2.1
1	B	335	ASP	2.1
1	A	278	ARG	2.1
1	B	239	ASP	2.0
1	D	290	VAL	2.0
1	B	20	ASP	2.0
1	C	323	ASN	2.0
1	B	271	GLU	2.0
1	D	272	ARG	2.0
1	A	283	THR	2.0
1	C	267	LEU	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 carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(\AA^2)	Q<0.9
2	FAD	A	600	53/53	0.95	0.23	1.85	27,30,39,40	0
2	FAD	B	600	53/53	0.92	0.21	0.71	41,45,54,54	0
2	FAD	C	600	53/53	0.93	0.21	0.43	37,40,49,50	0
2	FAD	D	600	53/53	0.95	0.21	0.33	42,46,55,55	0

6.5 Other polymers [i](#)

There are no such residues in this entry.