Full wwPDB X-ray Structure Validation Report (i)

May 13, 2024 – 03:13 pm BST

PDB ID	:	8Q1J
Title	:	LSD1 Y391K-CoREST bound to Acetylated K14 of Histone H3
Authors	:	Barone, M.; Mattevi, A.
Deposited on	:	2023-07-31
Resolution	:	2.87 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 (i) 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 (i)) were used in the production of this report:

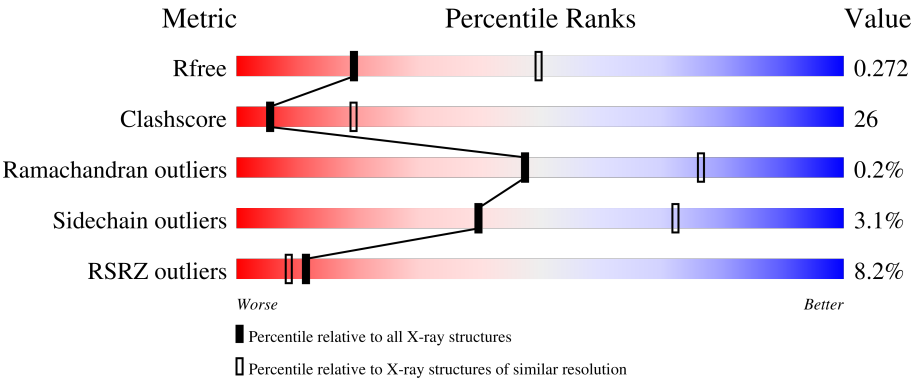
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.87 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}	130704	2691 (2.90-2.86)
Clashscore	141614	2947 (2.90-2.86)
Ramachandran outliers	138981	2868 (2.90-2.86)
Sidechain outliers	138945	2871 (2.90-2.86)
RSRZ outliers	127900	2629 (2.90-2.86)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% 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	730	6% 50% 38% . 9%
2	B	178	14% 36% 36% . 28%
3	C	21	24% 48% 29%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 6419 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 Lysine-specific histone demethylase 1A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	666	Total	C	N	O	S	0	0	0
			5214	3321	907	966	20			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	391	LYS	TYR	conflict	UNP O60341

- Molecule 2 is a protein called REST corepressor 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	129	Total	C	N	O	S	0	0	0
			1042	654	186	199	3			

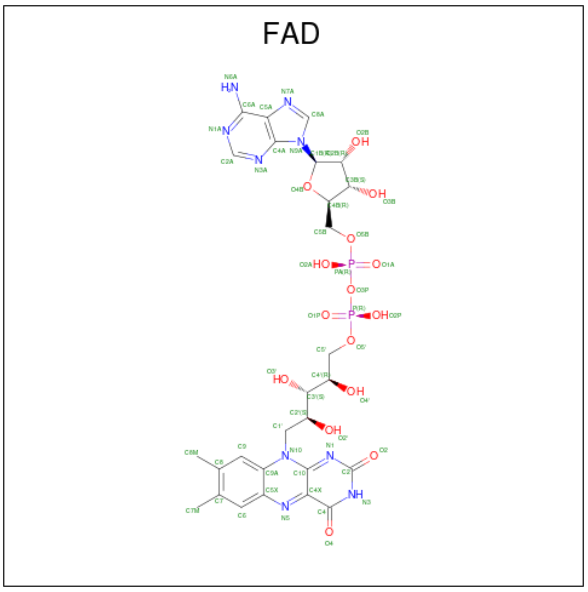
- Molecule 3 is a protein called Histone H3.3C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	15	Total	C	N	O	S	0	0	0
			110	64	24	21	1			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	4	MET	LYS	conflict	UNP Q6NXT2

- Molecule 4 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).



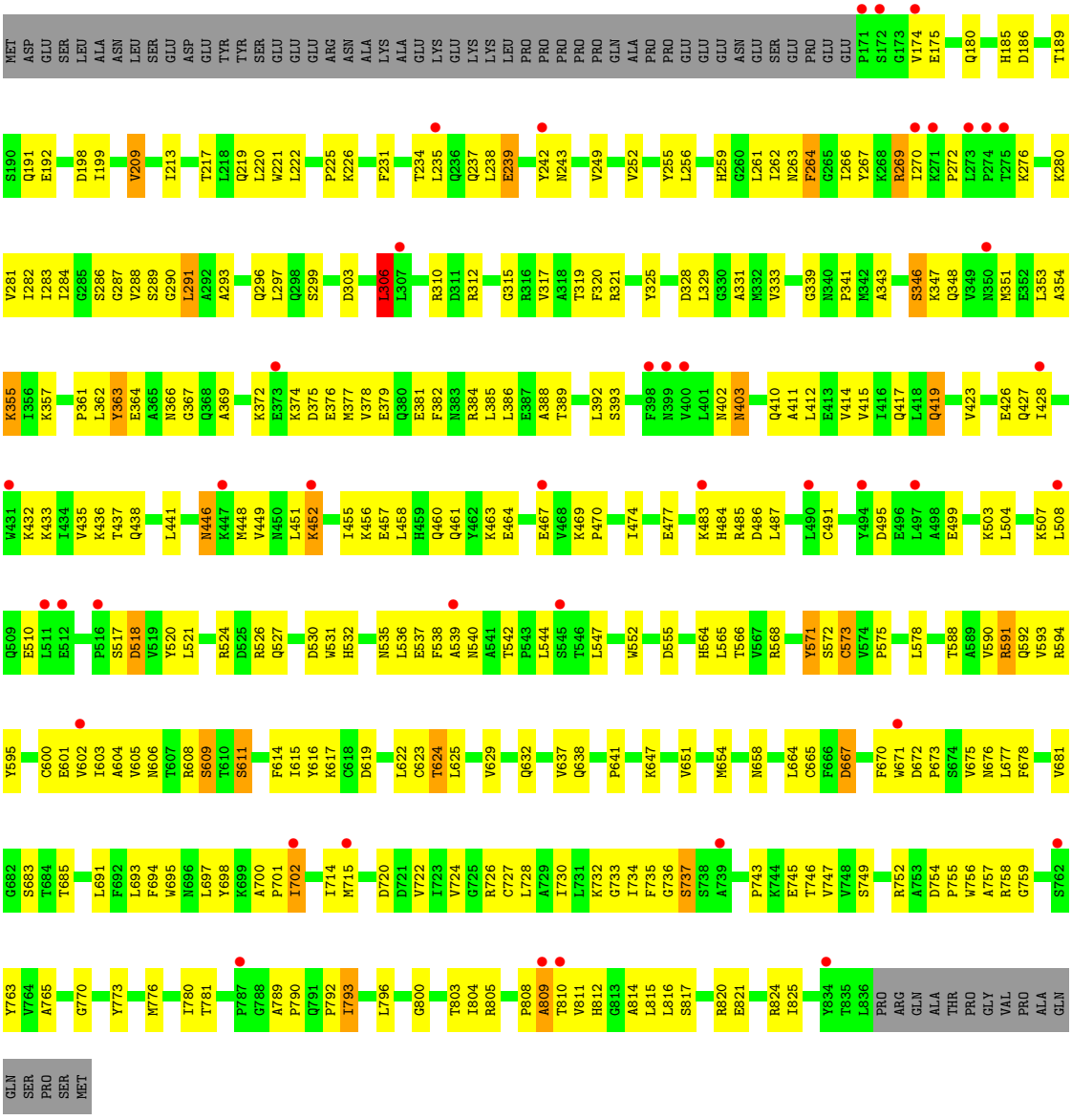
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
4	A	1	53	27	9	15	2	0	0

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.

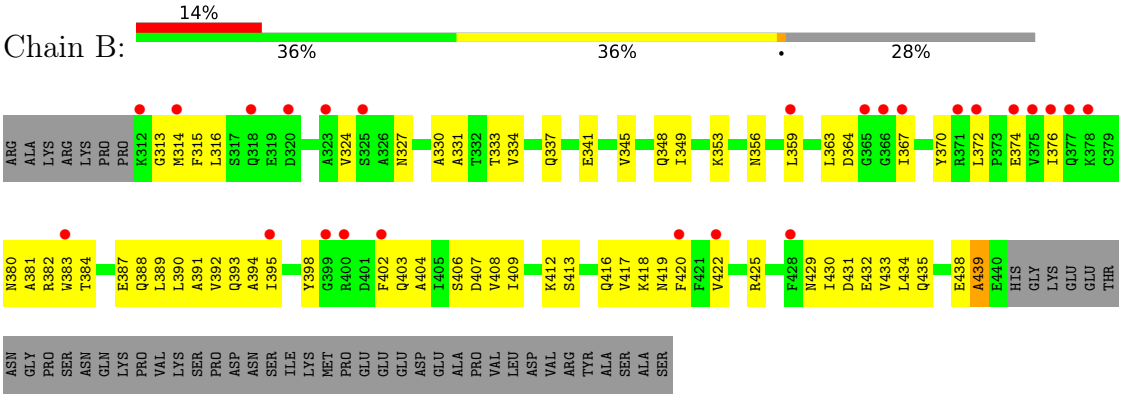
• Molecule 1: Lysine-specific histone demethylase 1A

Chain A:



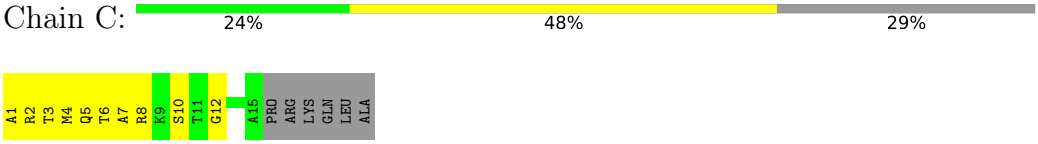
• Molecule 2: REST corepressor 1

Chain B:



• Molecule 3: Histone H3.3C

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	118.60Å 180.15Å 232.68Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.87 – 2.87 48.87 – 2.87	Depositor EDS
% Data completeness (in resolution range)	96.7 (48.87-2.87) 96.7 (48.87-2.87)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.06 (at 2.86Å)	Xtriage
Refinement program	PHENIX (1.19.2_4158)	Depositor
R, R_{free}	0.240 , 0.272 0.244 , 0.272	Depositor DCC
R_{free} test set	1933 reflections (3.49%)	wwPDB-VP
Wilson B-factor (Å^2)	89.8	Xtriage
Anisotropy	0.473	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 75.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6419	wwPDB-VP
Average B, all atoms (Å^2)	107.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.43% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ALY, 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	0.49	0/5327	0.83	15/7225 (0.2%)
2	B	0.42	0/1055	0.83	3/1422 (0.2%)
3	C	0.69	0/96	0.86	0/124
All	All	0.49	0/6478	0.83	18/8771 (0.2%)

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

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

There are no bond length outliers.

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	439	ALA	N-CA-C	-15.15	70.09	111.00
1	A	609	SER	CB-CA-C	12.82	134.46	110.10
1	A	809	ALA	CB-CA-C	-11.22	93.28	110.10
1	A	609	SER	N-CA-C	-9.97	84.09	111.00
1	A	737	SER	CB-CA-C	9.23	127.63	110.10
1	A	209	VAL	CB-CA-C	-8.83	94.62	111.40
1	A	369	ALA	CB-CA-C	-8.67	97.10	110.10
1	A	611	SER	CB-CA-C	-8.38	94.18	110.10
1	A	452	LYS	CB-CA-C	7.66	125.72	110.40
1	A	825	ILE	CB-CA-C	-7.62	96.36	111.60
1	A	611	SER	N-CA-C	6.95	129.76	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	702	ILE	N-CA-C	-6.62	93.12	111.00
2	B	439	ALA	C-N-CA	6.43	137.78	121.70
2	B	439	ALA	CB-CA-C	5.92	118.97	110.10
1	A	702	ILE	CB-CA-C	5.71	123.02	111.60
1	A	375	ASP	CB-CA-C	-5.57	99.26	110.40
1	A	306	LEU	CB-CG-CD2	-5.36	101.89	111.00
1	A	591	ARG	CB-CA-C	5.15	120.70	110.40

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	792	PRO	Peptide
2	B	439	ALA	Peptide

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	5214	0	5256	292	1
2	B	1042	0	1051	72	0
3	C	110	0	119	13	0
4	A	53	0	31	8	0
All	All	6419	0	6457	333	1

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 26.

All (333) 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:A:664:LEU:HD11	1:A:727:CYS:SG	1.44	1.54
1:A:664:LEU:CD1	1:A:727:CYS:SG	2.17	1.30
1:A:485:ARG:CD	2:B:407:ASP:OD2	1.86	1.23
1:A:485:ARG:HD3	2:B:407:ASP:OD2	1.10	1.23

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:209:VAL:O	1:A:213:ILE:HD12	1.39	1.21
1:A:485:ARG:HD3	2:B:407:ASP:CG	1.63	1.19
1:A:520:TYR:O	1:A:521:LEU:HD23	1.58	1.03
1:A:280:LYS:HD2	1:A:303:ASP:HB3	1.48	0.94
1:A:594:ARG:HD2	1:A:601:GLU:CD	1.89	0.92
1:A:263:ASN:O	1:A:267:TYR:CE2	2.24	0.90
1:A:564:HIS:ND1	3:C:6:THR:HG22	1.85	0.90
1:A:281:VAL:HG21	1:A:297:LEU:HD13	1.52	0.89
1:A:594:ARG:HD2	1:A:601:GLU:OE2	1.74	0.87
1:A:664:LEU:HD12	1:A:727:CYS:SG	2.17	0.85
1:A:325:TYR:CE2	1:A:665:CYS:HB3	2.14	0.83
1:A:594:ARG:HD2	1:A:601:GLU:CG	2.08	0.82
1:A:217:THR:HG22	1:A:234:THR:HG21	1.61	0.82
1:A:333:VAL:HG11	3:C:6:THR:HG21	1.62	0.81
1:A:357:LYS:H	1:A:676:ASN:HD22	1.29	0.80
1:A:381:GLU:OE1	1:A:384:ARG:NH1	2.15	0.79
1:A:539:ALA:HB2	3:C:5:GLN:HG2	1.64	0.79
1:A:263:ASN:C	1:A:267:TYR:HE2	1.87	0.78
1:A:388:ALA:HB2	2:B:314:MET:HG2	1.64	0.78
2:B:416:GLN:HA	2:B:419:ASN:HB2	1.65	0.77
1:A:263:ASN:O	1:A:267:TYR:HE2	1.64	0.77
1:A:319:THR:HB	1:A:572:SER:HB3	1.66	0.77
1:A:594:ARG:HD2	1:A:601:GLU:HG3	1.67	0.76
1:A:310:ARG:HH12	1:A:756:TRP:HB2	1.50	0.76
1:A:606:ASN:O	1:A:609:SER:O	2.04	0.76
1:A:594:ARG:CD	1:A:601:GLU:OE2	2.34	0.76
1:A:263:ASN:C	1:A:267:TYR:CE2	2.59	0.76
1:A:355:LYS:H	1:A:355:LYS:HD2	1.50	0.75
1:A:331:ALA:HA	4:A:901:FAD:C4X	2.17	0.75
1:A:474:ILE:HG23	2:B:393:GLN:HE22	1.50	0.75
1:A:664:LEU:HD21	1:A:724:VAL:HG13	1.69	0.74
1:A:310:ARG:NH1	1:A:756:TRP:HB2	2.01	0.74
1:A:547:LEU:HD22	1:A:552:TRP:HB2	1.71	0.73
1:A:213:ILE:HG22	1:A:252:VAL:HG11	1.70	0.73
1:A:325:TYR:HE2	1:A:665:CYS:HB3	1.53	0.73
1:A:284:ILE:HG12	1:A:590:VAL:HG21	1.73	0.71
1:A:226:LYS:HE3	1:A:347:LYS:O	1.90	0.70
1:A:367:GLY:HA2	1:A:734:ILE:HD12	1.73	0.70
1:A:341:PRO:HG3	1:A:816:LEU:HD13	1.73	0.69
1:A:527:GLN:NE2	1:A:683:SER:O	2.25	0.69
1:A:384:ARG:NH2	1:A:419:GLN:OE1	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:266:ILE:N	1:A:348:GLN:OE1	2.24	0.69
1:A:385:LEU:HD23	1:A:415:VAL:HG12	1.73	0.69
1:A:526:ARG:NH1	1:A:685:THR:HG22	2.08	0.68
1:A:755:PRO:HA	1:A:758:ARG:NH1	2.08	0.68
2:B:422:VAL:HA	2:B:425:ARG:HG3	1.76	0.68
1:A:315:GLY:HA2	4:A:901:FAD:H3B	1.75	0.67
1:A:728:LEU:HD11	1:A:743:PRO:HD3	1.75	0.67
1:A:755:PRO:HA	1:A:758:ARG:HH12	1.60	0.66
2:B:402:PHE:CD2	2:B:418:LYS:HG2	2.31	0.66
1:A:331:ALA:HA	4:A:901:FAD:N5	2.10	0.66
1:A:185:HIS:CE1	1:A:186:ASP:HB3	2.31	0.66
1:A:800:GLY:O	1:A:803:THR:OG1	2.12	0.66
1:A:283:ILE:HG22	1:A:622:LEU:HB3	1.76	0.66
1:A:672:ASP:HB3	1:A:675:VAL:HG12	1.77	0.66
1:A:486:ASP:OD1	2:B:398:TYR:OH	2.09	0.65
2:B:382:ARG:O	2:B:412:LYS:NZ	2.29	0.65
1:A:677:LEU:HD11	3:C:7:ALA:HB2	1.77	0.65
1:A:438:GLN:HG2	1:A:508:LEU:HD11	1.79	0.65
1:A:526:ARG:NH1	1:A:530:ASP:OD1	2.28	0.65
2:B:413:SER:O	2:B:417:VAL:HG23	1.96	0.65
1:A:435:VAL:HG12	2:B:349:ILE:HG12	1.79	0.64
1:A:485:ARG:HD3	2:B:407:ASP:OD1	1.95	0.64
1:A:226:LYS:CE	1:A:347:LYS:O	2.45	0.64
1:A:402:ASN:O	1:A:403:ASN:HB2	1.98	0.63
1:A:180:GLN:HA	1:A:339:GLY:HA2	1.81	0.63
2:B:387:GLU:HA	2:B:390:LEU:HB2	1.80	0.62
2:B:389:LEU:O	2:B:393:GLN:HG3	1.99	0.62
1:A:362:LEU:HD11	1:A:531:TRP:CE2	2.34	0.62
1:A:221:TRP:HE1	1:A:264:PHE:HE1	1.47	0.62
1:A:437:THR:HG21	1:A:507:LYS:HE3	1.82	0.62
2:B:394:ALA:O	2:B:398:TYR:N	2.28	0.62
1:A:441:LEU:HD23	2:B:356:ASN:HD22	1.65	0.61
1:A:571:TYR:O	1:A:573:CYS:N	2.33	0.61
1:A:382:PHE:HA	1:A:385:LEU:HD12	1.83	0.61
1:A:698:TYR:HB2	1:A:702:ILE:HD12	1.81	0.61
1:A:287:GLY:HA3	4:A:901:FAD:O5B	2.01	0.60
1:A:221:TRP:CD1	1:A:262:ILE:HA	2.36	0.60
1:A:325:TYR:CD2	1:A:665:CYS:HB3	2.37	0.60
1:A:665:CYS:HB2	1:A:745:GLU:O	2.01	0.60
1:A:361:PRO:HB2	1:A:363:TYR:HE1	1.67	0.60
1:A:209:VAL:O	1:A:213:ILE:CD1	2.32	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:334:VAL:HA	2:B:337:GLN:NE2	2.17	0.60
1:A:594:ARG:HB3	1:A:601:GLU:HG3	1.84	0.60
2:B:384:THR:OG1	2:B:387:GLU:OE2	2.15	0.60
1:A:485:ARG:NE	2:B:407:ASP:OD2	2.34	0.59
2:B:407:ASP:OD1	2:B:408:VAL:N	2.36	0.59
2:B:429:ASN:HB3	2:B:432:GLU:HG3	1.83	0.59
1:A:374:LYS:O	1:A:378:VAL:HG23	2.01	0.59
1:A:283:ILE:HD11	1:A:306:LEU:HD21	1.85	0.58
1:A:452:LYS:HZ2	2:B:363:LEU:C	2.06	0.58
1:A:263:ASN:O	1:A:267:TYR:CZ	2.56	0.58
1:A:357:LYS:H	1:A:676:ASN:ND2	2.00	0.58
1:A:449:VAL:HG23	2:B:363:LEU:HD21	1.85	0.58
1:A:724:VAL:HG11	1:A:746:THR:HG21	1.85	0.58
2:B:333:THR:HG22	2:B:337:GLN:HE22	1.68	0.58
2:B:380:ASN:OD1	2:B:381:ALA:N	2.36	0.58
1:A:452:LYS:NZ	2:B:363:LEU:HA	2.19	0.58
1:A:320:PHE:CE2	1:A:747:VAL:HG21	2.39	0.58
1:A:695:TRP:HH2	3:C:6:THR:HG1	1.52	0.57
1:A:536:LEU:HB3	1:A:544:LEU:HD21	1.87	0.57
1:A:571:TYR:O	1:A:572:SER:C	2.42	0.57
2:B:327:ASN:ND2	2:B:330:ALA:HB2	2.20	0.57
1:A:417:GLN:HG2	2:B:331:ALA:HB1	1.87	0.57
1:A:647:LYS:O	1:A:651:VAL:HG23	2.05	0.57
1:A:219:GLN:O	1:A:222:LEU:N	2.38	0.56
1:A:595:TYR:CZ	1:A:641:PRO:HD2	2.41	0.56
2:B:404:ALA:O	2:B:407:ASP:OD1	2.23	0.56
1:A:452:LYS:NZ	2:B:363:LEU:C	2.59	0.56
1:A:752:ARG:HE	1:A:759:GLY:HA2	1.70	0.56
2:B:391:ALA:HB2	2:B:409:ILE:HD11	1.87	0.56
1:A:487:LEU:HD22	2:B:372:LEU:HD22	1.86	0.56
2:B:345:VAL:HA	2:B:348:GLN:OE1	2.06	0.56
1:A:209:VAL:HG13	1:A:242:TYR:HD1	1.71	0.56
1:A:811:VAL:HG23	4:A:901:FAD:H2'	1.87	0.56
1:A:290:GLY:HA2	1:A:624:THR:HG21	1.88	0.55
1:A:385:LEU:HD23	1:A:415:VAL:CG1	2.35	0.55
1:A:757:ALA:O	1:A:758:ARG:HB2	2.05	0.55
1:A:485:ARG:HG2	2:B:398:TYR:HE2	1.72	0.55
1:A:537:GLU:HG2	1:A:542:THR:O	2.06	0.55
1:A:805:ARG:O	1:A:808:PRO:HD3	2.07	0.55
1:A:464:GLU:HA	1:A:467:GLU:HG2	1.86	0.55
1:A:588:THR:HG22	1:A:604:ALA:HB1	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:601:GLU:HB3	1:A:617:LYS:HD3	1.88	0.55
1:A:714:ILE:HG22	1:A:715:MET:HE2	1.88	0.55
1:A:720:ASP:O	1:A:724:VAL:HG23	2.05	0.55
1:A:808:PRO:O	1:A:810:THR:HG23	2.06	0.55
1:A:287:GLY:H	4:A:901:FAD:H4B	1.71	0.55
1:A:821:GLU:O	1:A:824:ARG:N	2.40	0.55
1:A:198:ASP:OD1	1:A:199:ILE:N	2.40	0.54
1:A:379:GLU:HG3	1:A:532:HIS:NE2	2.22	0.54
2:B:406:SER:HB2	2:B:417:VAL:HG21	1.89	0.54
1:A:441:LEU:HB3	2:B:356:ASN:ND2	2.22	0.54
1:A:658:ASN:ND2	1:A:752:ARG:HB2	2.23	0.54
1:A:773:TYR:CE1	1:A:808:PRO:HB3	2.43	0.54
1:A:591:ARG:O	1:A:637:VAL:HA	2.06	0.54
1:A:734:ILE:HG22	1:A:735:PHE:CD2	2.43	0.54
1:A:320:PHE:CD2	1:A:747:VAL:HG21	2.42	0.54
1:A:438:GLN:HE22	2:B:353:LYS:HA	1.73	0.53
1:A:601:GLU:HA	1:A:616:TYR:O	2.08	0.53
1:A:672:ASP:HB3	1:A:675:VAL:CG1	2.38	0.53
1:A:263:ASN:O	1:A:267:TYR:OH	2.23	0.53
1:A:237:GLN:N	1:A:237:GLN:OE1	2.42	0.53
1:A:389:THR:O	1:A:393:SER:N	2.40	0.53
1:A:566:THR:OG1	1:A:697:LEU:HD22	2.09	0.53
1:A:572:SER:O	1:A:575:PRO:HD2	2.09	0.52
1:A:623:CYS:SG	1:A:625:LEU:HB2	2.49	0.52
1:A:310:ARG:NH2	1:A:754:ASP:OD1	2.42	0.52
1:A:410:GLN:O	1:A:414:VAL:HG23	2.09	0.52
1:A:474:ILE:HD12	1:A:477:GLU:HB3	1.91	0.52
1:A:456:LYS:HG2	2:B:370:TYR:CE2	2.45	0.52
1:A:329:LEU:HD21	1:A:747:VAL:HG12	1.91	0.52
1:A:780:ILE:HB	1:A:796:LEU:HB3	1.91	0.52
1:A:381:GLU:OE2	1:A:520:TYR:OH	2.20	0.52
1:A:632:GLN:NE2	1:A:758:ARG:HH21	2.08	0.52
1:A:595:TYR:CE2	1:A:641:PRO:HD2	2.45	0.51
1:A:441:LEU:HB3	2:B:356:ASN:HD21	1.75	0.51
1:A:456:LYS:HG2	2:B:370:TYR:HE2	1.76	0.51
1:A:457:GLU:O	1:A:461:GLN:HG3	2.11	0.50
1:A:217:THR:HA	1:A:220:LEU:HD12	1.92	0.50
1:A:592:GLN:HG3	1:A:638:GLN:HB3	1.93	0.50
1:A:217:THR:CG2	1:A:234:THR:HG21	2.39	0.50
1:A:518:ASP:OD1	1:A:518:ASP:N	2.43	0.50
3:C:2:ARG:NH1	3:C:10:SER:OG	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:3:THR:O	3:C:3:THR:HG22	2.12	0.50
1:A:474:ILE:HG23	2:B:393:GLN:NE2	2.22	0.50
1:A:423:VAL:HG11	1:A:520:TYR:HA	1.93	0.50
1:A:283:ILE:CG2	1:A:622:LEU:HB3	2.40	0.50
1:A:535:ASN:ND2	3:C:7:ALA:O	2.37	0.50
1:A:363:TYR:CE2	1:A:734:ILE:HG23	2.47	0.49
1:A:593:VAL:HG22	1:A:602:VAL:HG22	1.94	0.49
1:A:389:THR:HA	1:A:392:LEU:HB3	1.94	0.49
1:A:452:LYS:HZ3	2:B:363:LEU:HA	1.77	0.49
1:A:701:PRO:O	1:A:702:ILE:HG13	2.12	0.49
1:A:364:GLU:HA	1:A:681:VAL:HB	1.94	0.49
1:A:270:ILE:O	1:A:272:PRO:HD3	2.13	0.49
1:A:438:GLN:OE1	1:A:508:LEU:HD11	2.13	0.49
1:A:531:TRP:CH2	3:C:8:ARG:HG3	2.48	0.49
1:A:591:ARG:HG3	1:A:605:VAL:HG13	1.95	0.49
1:A:310:ARG:NH1	4:A:901:FAD:O2B	2.43	0.49
1:A:384:ARG:HD2	2:B:313:GLY:O	2.12	0.49
2:B:349:ILE:O	2:B:353:LYS:HB2	2.13	0.49
1:A:654:MET:HE2	1:A:773:TYR:HA	1.95	0.48
1:A:346:SER:HA	1:A:351:MET:HE2	1.94	0.48
1:A:571:TYR:C	1:A:573:CYS:N	2.66	0.48
1:A:354:ALA:HB2	1:A:568:ARG:HG3	1.95	0.48
2:B:383:TRP:CH2	2:B:412:LYS:HG3	2.48	0.48
1:A:614:PHE:O	1:A:615:ILE:HD13	2.14	0.48
1:A:231:PHE:CE2	1:A:249:VAL:HG12	2.49	0.48
1:A:238:LEU:HD21	1:A:242:TYR:HB2	1.95	0.48
1:A:283:ILE:HD11	1:A:306:LEU:CD2	2.44	0.48
1:A:484:HIS:ND1	2:B:372:LEU:HD23	2.28	0.48
1:A:732:LYS:HG2	1:A:737:SER:HA	1.95	0.48
1:A:594:ARG:HD3	1:A:601:GLU:OE2	2.14	0.48
1:A:189:THR:HG23	1:A:192:GLU:OE1	2.13	0.47
1:A:366:ASN:OD1	1:A:367:GLY:N	2.47	0.47
1:A:315:GLY:HA3	4:A:901:FAD:O2A	2.14	0.47
2:B:412:LYS:HB3	2:B:416:GLN:HG2	1.95	0.47
2:B:435:GLN:HA	2:B:438:GLU:HG3	1.96	0.47
1:A:651:VAL:HG22	1:A:776:MET:CE	2.44	0.47
1:A:438:GLN:HE22	2:B:353:LYS:CA	2.27	0.47
1:A:452:LYS:NZ	2:B:364:ASP:O	2.39	0.47
1:A:526:ARG:HG2	1:A:526:ARG:HH11	1.80	0.47
1:A:537:GLU:HG3	1:A:544:LEU:HG	1.97	0.47
1:A:555:ASP:OD2	1:A:808:PRO:HD2	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:651:VAL:HG22	1:A:776:MET:HE3	1.96	0.47
2:B:363:LEU:HD23	2:B:363:LEU:N	2.30	0.47
1:A:238:LEU:HD22	1:A:243:ASN:HB3	1.97	0.47
1:A:449:VAL:HG23	2:B:363:LEU:CD2	2.46	0.46
1:A:319:THR:HG22	1:A:321:ARG:HG3	1.98	0.46
2:B:403:GLN:O	2:B:406:SER:N	2.45	0.46
1:A:736:GLY:O	1:A:737:SER:C	2.52	0.46
2:B:341:GLU:HG3	2:B:341:GLU:O	2.15	0.46
1:A:317:VAL:HG22	1:A:331:ALA:HB3	1.98	0.46
2:B:395:ILE:HG22	2:B:433:VAL:HG12	1.97	0.46
1:A:458:LEU:HD11	1:A:486:ASP:HB3	1.98	0.46
1:A:671:TRP:O	1:A:673:PRO:HD3	2.15	0.46
2:B:425:ARG:HA	2:B:430:ILE:CD1	2.46	0.46
1:A:282:ILE:HD13	1:A:282:ILE:HA	1.83	0.45
1:A:319:THR:CB	1:A:572:SER:HB3	2.39	0.45
1:A:428:ILE:O	1:A:432:LYS:HB2	2.15	0.45
1:A:485:ARG:CZ	2:B:407:ASP:OD2	2.64	0.45
1:A:781:THR:HG23	1:A:793:ILE:O	2.17	0.45
1:A:362:LEU:C	1:A:363:TYR:HD1	2.20	0.45
1:A:367:GLY:HA3	1:A:733:GLY:O	2.16	0.45
1:A:310:ARG:HE	1:A:312:ARG:HH21	1.62	0.45
1:A:325:TYR:CD1	1:A:325:TYR:N	2.85	0.45
1:A:180:GLN:HE22	1:A:343:ALA:HB3	1.82	0.45
2:B:387:GLU:HB2	2:B:409:ILE:HD13	1.98	0.45
1:A:460:GLN:O	1:A:464:GLU:HG3	2.17	0.45
1:A:372:LYS:H	1:A:372:LYS:HD3	1.82	0.45
1:A:175:GLU:OE2	1:A:185:HIS:CG	2.70	0.45
1:A:329:LEU:HD23	1:A:749:SER:HB3	1.98	0.45
1:A:469:LYS:HA	1:A:469:LYS:HD3	1.71	0.45
1:A:474:ILE:HD12	1:A:474:ILE:HA	1.81	0.45
1:A:255:TYR:HD1	1:A:256:LEU:HD12	1.82	0.45
1:A:427:GLN:NE2	1:A:517:SER:O	2.39	0.45
1:A:603:ILE:HG23	1:A:615:ILE:CD1	2.46	0.45
1:A:217:THR:HG22	1:A:234:THR:CG2	2.40	0.44
1:A:288:VAL:HA	1:A:291:LEU:HD12	1.98	0.44
1:A:221:TRP:CZ3	1:A:225:PRO:HA	2.52	0.44
1:A:752:ARG:HE	1:A:759:GLY:CA	2.31	0.44
1:A:815:LEU:C	1:A:815:LEU:HD23	2.37	0.44
1:A:293:ALA:O	1:A:296:GLN:N	2.50	0.44
1:A:392:LEU:HD23	1:A:411:ALA:HB1	2.00	0.44
1:A:693:LEU:HD12	1:A:694:PHE:H	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:491:CYS:SG	2:B:367:ILE:HD12	2.58	0.44
1:A:238:LEU:HD23	1:A:239:GLU:N	2.33	0.44
1:A:363:TYR:CD2	1:A:734:ILE:HG23	2.53	0.44
2:B:333:THR:CG2	2:B:337:GLN:HE22	2.31	0.44
1:A:286:SER:O	1:A:291:LEU:HD11	2.18	0.43
1:A:678:PHE:CD1	1:A:678:PHE:C	2.91	0.43
2:B:431:ASP:OD1	2:B:431:ASP:N	2.51	0.43
2:B:374:GLU:OE1	2:B:376:ILE:HG23	2.18	0.43
1:A:325:TYR:N	1:A:325:TYR:HD1	2.17	0.43
1:A:412:LEU:HD12	1:A:412:LEU:HA	1.57	0.43
1:A:526:ARG:HH12	1:A:685:THR:HG22	1.79	0.43
1:A:625:LEU:HD22	1:A:629:VAL:HG11	2.00	0.43
1:A:691:LEU:N	1:A:691:LEU:HD12	2.34	0.43
1:A:770:GLY:O	1:A:805:ARG:HG3	2.18	0.43
3:C:4:MET:HE3	3:C:4:MET:HA	2.01	0.43
1:A:448:MET:HE2	2:B:363:LEU:HD12	2.00	0.43
1:A:452:LYS:NZ	2:B:363:LEU:CA	2.81	0.43
1:A:539:ALA:HB1	3:C:1:ALA:O	2.19	0.43
1:A:606:ASN:HD21	1:A:608:ARG:HH21	1.65	0.43
1:A:722:VAL:O	1:A:726:ARG:HG3	2.18	0.43
2:B:324:VAL:HG13	2:B:331:ALA:HB2	2.00	0.43
1:A:346:SER:HB3	1:A:351:MET:HE3	2.00	0.43
1:A:670:PHE:CD1	1:A:670:PHE:C	2.92	0.43
1:A:730:ILE:O	1:A:734:ILE:HD13	2.19	0.43
1:A:433:LYS:HD3	1:A:436:LYS:HD3	2.00	0.43
1:A:808:PRO:O	1:A:809:ALA:C	2.57	0.43
2:B:434:LEU:O	2:B:438:GLU:HG3	2.19	0.43
1:A:353:LEU:HD13	1:A:565:LEU:HD22	2.00	0.42
1:A:174:VAL:HG12	1:A:219:GLN:OE1	2.19	0.42
2:B:388:GLN:O	2:B:392:VAL:HG23	2.19	0.42
1:A:289:SER:HB3	1:A:814:ALA:HB1	2.00	0.42
1:A:507:LYS:HA	1:A:510:GLU:HG3	2.01	0.42
1:A:804:ILE:CD1	1:A:816:LEU:HB3	2.48	0.42
1:A:423:VAL:HG21	1:A:520:TYR:HB2	2.01	0.42
1:A:700:ALA:HB3	1:A:702:ILE:HD11	2.01	0.42
1:A:235:LEU:HD13	1:A:249:VAL:HG11	2.00	0.42
1:A:264:PHE:HD1	1:A:264:PHE:H	1.67	0.42
1:A:362:LEU:HD13	1:A:362:LEU:HA	1.76	0.42
1:A:266:ILE:HD11	1:A:578:LEU:HD12	2.01	0.42
1:A:363:TYR:HD2	1:A:734:ILE:HG13	1.84	0.42
1:A:540:ASN:CG	1:A:547:LEU:HD11	2.39	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:693:LEU:HD12	1:A:694:PHE:N	2.35	0.42
2:B:416:GLN:O	2:B:420:PHE:N	2.45	0.42
1:A:310:ARG:HE	1:A:312:ARG:NH2	2.18	0.42
2:B:315:PHE:O	2:B:316:LEU:HD23	2.20	0.42
1:A:353:LEU:HB3	1:A:565:LEU:CD2	2.50	0.41
1:A:354:ALA:HB2	1:A:568:ARG:HD2	2.02	0.41
1:A:374:LYS:HE2	1:A:524:ARG:HH11	1.84	0.41
1:A:817:SER:HB2	1:A:820:ARG:NH2	2.35	0.41
1:A:355:LYS:H	1:A:355:LYS:CD	2.23	0.41
1:A:446:ASN:OD1	2:B:359:LEU:HD11	2.20	0.41
1:A:664:LEU:HA	1:A:664:LEU:HD23	1.66	0.41
1:A:226:LYS:HE2	1:A:347:LYS:O	2.21	0.41
1:A:280:LYS:O	1:A:619:ASP:N	2.49	0.41
1:A:789:ALA:HB1	1:A:790:PRO:HD2	2.02	0.41
1:A:262:ILE:HG13	1:A:263:ASN:ND2	2.36	0.41
1:A:763:TYR:HE1	1:A:765:ALA:HA	1.85	0.41
1:A:419:GLN:HE21	1:A:419:GLN:HA	1.86	0.41
2:B:425:ARG:HA	2:B:430:ILE:HD13	2.02	0.41
1:A:191:GLN:HE21	1:A:259:HIS:CD2	2.39	0.41
1:A:604:ALA:O	1:A:614:PHE:N	2.50	0.41
1:A:269:ARG:HH12	1:A:299:SER:HB2	1.85	0.41
1:A:386:LEU:HB3	3:C:12:GLY:HA3	2.03	0.41
1:A:566:THR:HG21	1:A:697:LEU:HD13	2.03	0.41
1:A:458:LEU:HD23	1:A:458:LEU:HA	1.61	0.41
1:A:463:LYS:HD2	1:A:463:LYS:HA	1.78	0.41
1:A:469:LYS:HD3	1:A:470:PRO:HD2	2.03	0.41
1:A:483:LYS:HA	1:A:483:LYS:HD2	1.91	0.41
1:A:530:ASP:OD2	1:A:685:THR:HA	2.21	0.41
1:A:261:LEU:HA	1:A:261:LEU:HD23	1.77	0.40
1:A:503:LYS:HG3	1:A:504:LEU:HD13	2.03	0.40
1:A:538:PHE:O	1:A:539:ALA:C	2.58	0.40
1:A:667:ASP:OD1	1:A:667:ASP:N	2.38	0.40
1:A:451:LEU:O	1:A:452:LYS:C	2.60	0.40
1:A:297:LEU:HA	1:A:297:LEU:HD23	1.74	0.40
1:A:372:LYS:O	1:A:376:GLU:HG3	2.22	0.40
1:A:255:TYR:CD1	1:A:256:LEU:HD12	2.57	0.40
1:A:455:ILE:HD11	1:A:491:CYS:HA	2.03	0.40
1:A:600:CYS:O	1:A:617:LYS:HA	2.21	0.40
1:A:811:VAL:HG12	1:A:812:HIS:N	2.36	0.40
1:A:238:LEU:HD21	1:A:242:TYR:CB	2.52	0.40
1:A:695:TRP:HH2	3:C:6:THR:OG1	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:701:PRO:C	1:A:702:ILE:HG13	2.42	0.40

All (1) 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:A:591:ARG:NH1	1:A:611:SER:O[2_565]	1.98	0.22

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	664/730 (91%)	613 (92%)	49 (7%)	2 (0%)	41 70
2	B	127/178 (71%)	118 (93%)	9 (7%)	0	100 100
3	C	12/21 (57%)	10 (83%)	2 (17%)	0	100 100
All	All	803/929 (86%)	741 (92%)	60 (8%)	2 (0%)	47 76

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	403	ASN
1	A	793	ILE

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	566/623 (91%)	545 (96%)	21 (4%)	34 66
2	B	113/156 (72%)	113 (100%)	0	100 100
3	C	9/14 (64%)	9 (100%)	0	100 100
All	All	688/793 (87%)	667 (97%)	21 (3%)	40 72

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	239	GLU
1	A	264	PHE
1	A	269	ARG
1	A	276	LYS
1	A	291	LEU
1	A	306	LEU
1	A	328	ASP
1	A	346	SER
1	A	355	LYS
1	A	363	TYR
1	A	377	MET
1	A	419	GLN
1	A	426	GLU
1	A	446	ASN
1	A	495	ASP
1	A	499	GLU
1	A	518	ASP
1	A	571	TYR
1	A	573	CYS
1	A	624	THR
1	A	667	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	394	HIS
1	A	399	ASN
1	A	632	GLN
1	A	676	ASN
1	A	806	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	$\#\|Z\| > 2$
3	ALY	C	14	3	10,11,12	0.39	0	7,12,14	0.30	0

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
3	ALY	C	14	3	-	3/9/10/12	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	14	ALY	CH3-CH-NZ-CE
3	C	14	ALY	CE-CD-CG-CB
3	C	14	ALY	OH-CH-NZ-CE

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

1 ligand is 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	$\#\|Z\| > 2$
4	FAD	A	901	-	53,58,58	0.51	0	68,89,89	0.87	4 (5%)

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
4	FAD	A	901	-	-	13/30/50/50	0/6/6/6

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	901	FAD	O5'-P-O1P	-3.57	95.12	109.07
4	A	901	FAD	O2P-P-O5'	2.75	120.53	107.75
4	A	901	FAD	O2A-PA-O1A	2.70	125.61	112.24
4	A	901	FAD	C5A-C6A-N6A	2.12	123.57	120.35

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	901	FAD	C5B-O5B-PA-O1A
4	A	901	FAD	C2'-C3'-C4'-O4'

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Mol	Chain	Res	Type	Atoms
4	A	901	FAD	O3'-C3'-C4'-C5'
4	A	901	FAD	C2'-C3'-C4'-C5'
4	A	901	FAD	O4'-C4'-C5'-O5'
4	A	901	FAD	C3'-C4'-C5'-O5'
4	A	901	FAD	PA-O3P-P-O5'
4	A	901	FAD	C5B-O5B-PA-O3P
4	A	901	FAD	C5'-O5'-P-O3P
4	A	901	FAD	C5'-O5'-P-O2P
4	A	901	FAD	O3'-C3'-C4'-O4'
4	A	901	FAD	O4B-C4B-C5B-O5B
4	A	901	FAD	C5'-O5'-P-O1P

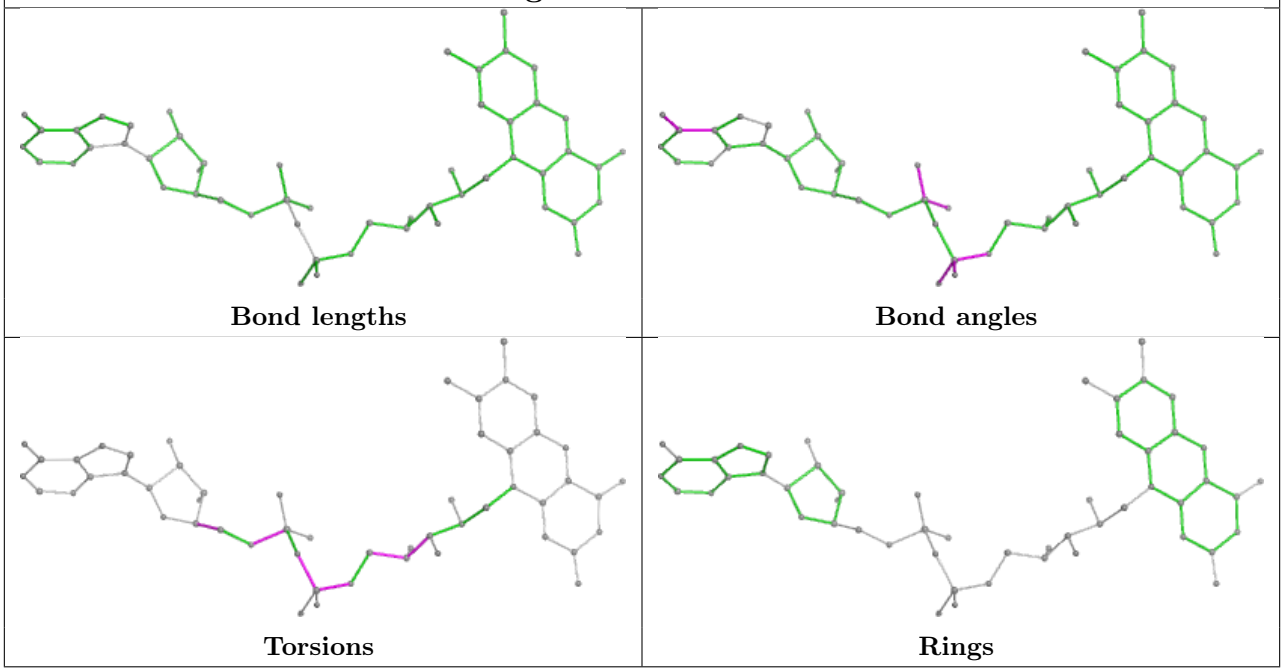
There are no ring outliers.

1 monomer is involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	901	FAD	8	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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand FAD A 901



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	666/730 (91%)	0.77	41 (6%) 20 16	66, 100, 134, 155	0
2	B	129/178 (72%)	1.02	25 (19%) 1 1	101, 135, 159, 172	0
3	C	14/21 (66%)	0.49	0 100 100	86, 94, 103, 106	0
All	All	809/929 (87%)	0.80	66 (8%) 11 8	66, 106, 144, 172	0

All (66) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	398	PHE	5.8
1	A	171	PRO	5.0
2	B	367	ILE	5.0
2	B	376	ILE	4.9
2	B	325	SER	4.1
2	B	312	LYS	4.1
2	B	402	PHE	3.9
1	A	273	LEU	3.7
1	A	172	SER	3.7
1	A	174	VAL	3.7
1	A	400	VAL	3.6
1	A	270	ILE	3.5
1	A	516	PRO	3.4
1	A	490	LEU	3.4
2	B	371	ARG	3.4
2	B	375	VAL	3.4
1	A	307	LEU	3.3
2	B	395	ILE	3.1
1	A	715	MET	3.1
1	A	242	TYR	3.0
1	A	271	LYS	3.0
1	A	235	LEU	2.9
2	B	366	GLY	2.9

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Mol	Chain	Res	Type	RSRZ
2	B	323	ALA	2.9
2	B	320	ASP	2.9
2	B	374	GLU	2.8
2	B	359	LEU	2.8
2	B	378	LYS	2.7
1	A	431	TRP	2.7
2	B	383	TRP	2.7
1	A	274	PRO	2.6
1	A	834	TYR	2.6
1	A	399	ASN	2.6
2	B	422	VAL	2.6
1	A	497	LEU	2.5
1	A	511	LEU	2.5
2	B	365	GLY	2.5
1	A	373	GLU	2.5
1	A	350	ASN	2.4
1	A	508	LEU	2.4
2	B	372	LEU	2.4
1	A	702	ILE	2.4
2	B	318	GLN	2.3
2	B	400	ARG	2.3
2	B	420	PHE	2.3
1	A	512	GLU	2.3
1	A	762	SER	2.3
1	A	494	TYR	2.3
2	B	428	PHE	2.2
1	A	545	SER	2.2
1	A	602	VAL	2.1
1	A	671	TRP	2.1
1	A	483	LYS	2.1
1	A	810	THR	2.1
1	A	739	ALA	2.1
1	A	539	ALA	2.1
1	A	809	ALA	2.1
1	A	275	THR	2.1
2	B	377	GLN	2.1
1	A	428	ILE	2.0
2	B	399	GLY	2.0
1	A	447	LYS	2.0
1	A	467	GLU	2.0
2	B	314	MET	2.0
1	A	787	PRO	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	452	LYS	2.0

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} 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
3	ALY	C	14	12/13	0.87	0.23	91,105,121,126	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

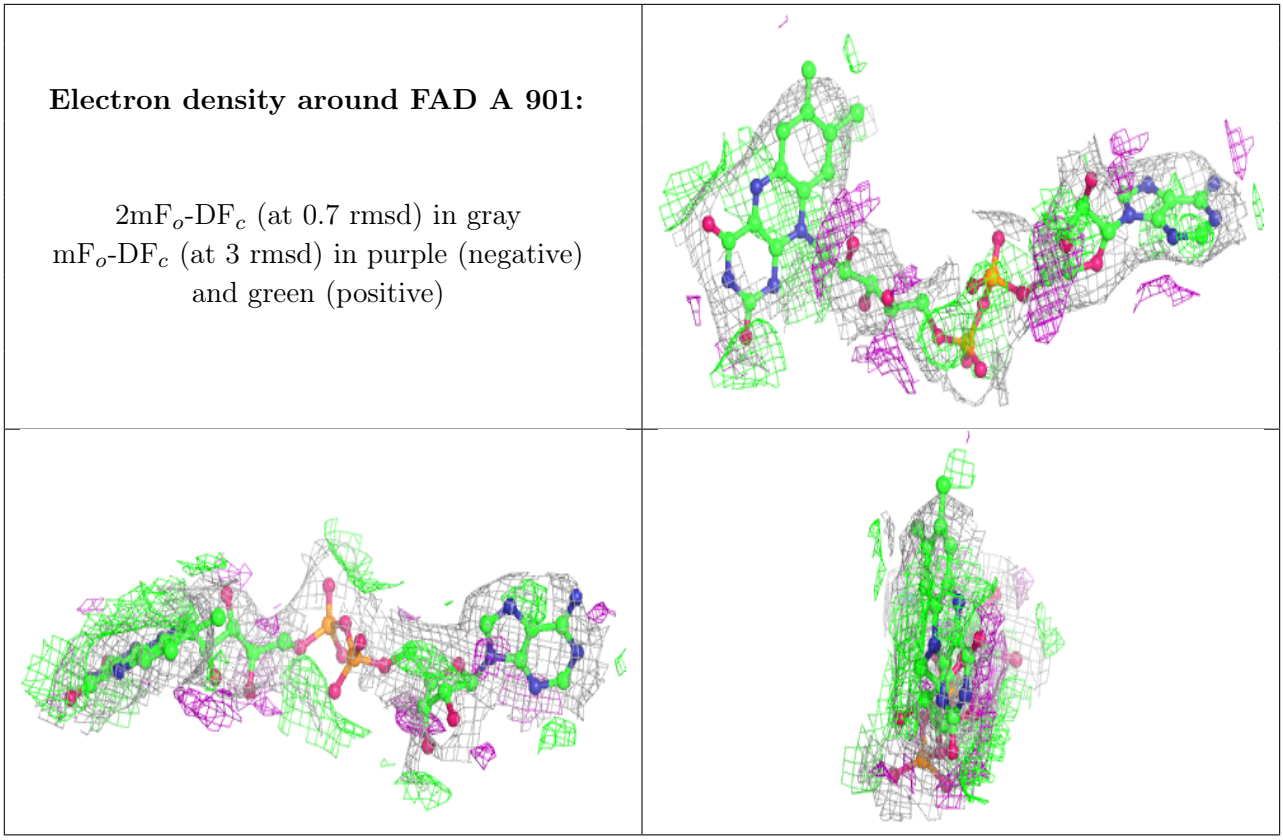
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' 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	FAD	A	901	53/53	0.92	0.27	66,78,91,93	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 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.