



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 5, 2026 – 08:37 AM EDT

PDB ID : 1LKX / pdb_00001lkx
Title : MOTOR DOMAIN OF MYOE, A CLASS-I MYOSIN
Authors : Kollmar, M.; Durrwang, U.; Kliche, W.; Manstein, D.J.; Kull, F.J.
Deposited on : 2002-04-26
Resolution : 3.00 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

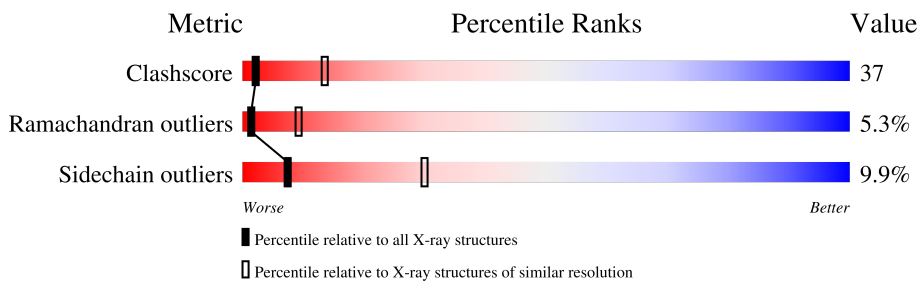
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)

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

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	697	
1	B	697	
1	C	697	
1	D	697	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 21265 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 MYOSIN IE HEAVY CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	650	Total	C	N	O	S	0	0	0
			5192	3285	890	988	29			
1	B	650	Total	C	N	O	S	0	0	0
			5188	3282	889	988	29			
1	C	679	Total	C	N	O	S	0	0	0
			5422	3427	932	1033	30			
1	D	660	Total	C	N	O	S	0	0	0
			5267	3329	903	1005	30			

There are 96 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	26	GLU	ASP	SEE REMARK 999	UNP Q03479
A	48	THR	ARG	SEE REMARK 999	UNP Q03479
A	77	MET	ILE	SEE REMARK 999	UNP Q03479
A	?	-	ILE	SEE REMARK 999	UNP Q03479
A	?	-	ARG	SEE REMARK 999	UNP Q03479
A	137	LEU	PHE	SEE REMARK 999	UNP Q03479
A	138	ASP	GLN	SEE REMARK 999	UNP Q03479
A	215	ASP	ASN	SEE REMARK 999	UNP Q03479
A	371	ILE	LEU	SEE REMARK 999	UNP Q03479
A	372	ILE	SER	SEE REMARK 999	UNP Q03479
A	373	ASN	ILE	SEE REMARK 999	UNP Q03479
A	374	CYS	VAL	SEE REMARK 999	UNP Q03479
A	375	THR	HIS	SEE REMARK 999	UNP Q03479
A	376	THR	ARG	SEE REMARK 999	UNP Q03479
A	378	LYS	-	SEE REMARK 999	UNP Q03479
A	380	PRO	THR	SEE REMARK 999	UNP Q03479
A	427	VAL	-	SEE REMARK 999	UNP Q03479
A	428	ARG	-	SEE REMARK 999	UNP Q03479
A	429	GLU	LYS	SEE REMARK 999	UNP Q03479
A	440	ASN	-	SEE REMARK 999	UNP Q03479
A	498	ILE	ASN	SEE REMARK 999	UNP Q03479

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Chain	Residue	Modelled	Actual	Comment	Reference
A	604	VAL	ASP	SEE REMARK 999	UNP Q03479
A	681	ASN	ILE	SEE REMARK 999	UNP Q03479
A	683	THR	ARG	SEE REMARK 999	UNP Q03479
B	26	GLU	ASP	SEE REMARK 999	UNP Q03479
B	48	THR	ARG	SEE REMARK 999	UNP Q03479
B	77	MET	ILE	SEE REMARK 999	UNP Q03479
B	?	-	ILE	SEE REMARK 999	UNP Q03479
B	?	-	ARG	SEE REMARK 999	UNP Q03479
B	137	LEU	PHE	SEE REMARK 999	UNP Q03479
B	138	ASP	GLN	SEE REMARK 999	UNP Q03479
B	215	ASP	ASN	SEE REMARK 999	UNP Q03479
B	371	ILE	LEU	SEE REMARK 999	UNP Q03479
B	372	ILE	SER	SEE REMARK 999	UNP Q03479
B	373	ASN	ILE	SEE REMARK 999	UNP Q03479
B	374	CYS	VAL	SEE REMARK 999	UNP Q03479
B	375	THR	HIS	SEE REMARK 999	UNP Q03479
B	376	THR	ARG	SEE REMARK 999	UNP Q03479
B	378	LYS	-	SEE REMARK 999	UNP Q03479
B	380	PRO	THR	SEE REMARK 999	UNP Q03479
B	427	VAL	-	SEE REMARK 999	UNP Q03479
B	428	ARG	-	SEE REMARK 999	UNP Q03479
B	429	GLU	LYS	SEE REMARK 999	UNP Q03479
B	440	ASN	-	SEE REMARK 999	UNP Q03479
B	498	ILE	ASN	SEE REMARK 999	UNP Q03479
B	604	VAL	ASP	SEE REMARK 999	UNP Q03479
B	681	ASN	ILE	SEE REMARK 999	UNP Q03479
B	683	THR	ARG	SEE REMARK 999	UNP Q03479
C	26	GLU	ASP	SEE REMARK 999	UNP Q03479
C	48	THR	ARG	SEE REMARK 999	UNP Q03479
C	77	MET	ILE	SEE REMARK 999	UNP Q03479
C	?	-	ILE	SEE REMARK 999	UNP Q03479
C	?	-	ARG	SEE REMARK 999	UNP Q03479
C	137	LEU	PHE	SEE REMARK 999	UNP Q03479
C	138	ASP	GLN	SEE REMARK 999	UNP Q03479
C	215	ASP	ASN	SEE REMARK 999	UNP Q03479
C	371	ILE	LEU	SEE REMARK 999	UNP Q03479
C	372	ILE	SER	SEE REMARK 999	UNP Q03479
C	373	ASN	ILE	SEE REMARK 999	UNP Q03479
C	374	CYS	VAL	SEE REMARK 999	UNP Q03479
C	375	THR	HIS	SEE REMARK 999	UNP Q03479
C	376	THR	ARG	SEE REMARK 999	UNP Q03479
C	378	LYS	-	SEE REMARK 999	UNP Q03479

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Chain	Residue	Modelled	Actual	Comment	Reference
C	380	PRO	THR	SEE REMARK 999	UNP Q03479
C	427	VAL	-	SEE REMARK 999	UNP Q03479
C	428	ARG	-	SEE REMARK 999	UNP Q03479
C	429	GLU	LYS	SEE REMARK 999	UNP Q03479
C	440	ASN	-	SEE REMARK 999	UNP Q03479
C	498	ILE	ASN	SEE REMARK 999	UNP Q03479
C	604	VAL	ASP	SEE REMARK 999	UNP Q03479
C	681	ASN	ILE	SEE REMARK 999	UNP Q03479
C	683	THR	ARG	SEE REMARK 999	UNP Q03479
D	26	GLU	ASP	SEE REMARK 999	UNP Q03479
D	48	THR	ARG	SEE REMARK 999	UNP Q03479
D	77	MET	ILE	SEE REMARK 999	UNP Q03479
D	?	-	ILE	SEE REMARK 999	UNP Q03479
D	?	-	ARG	SEE REMARK 999	UNP Q03479
D	137	LEU	PHE	SEE REMARK 999	UNP Q03479
D	138	ASP	GLN	SEE REMARK 999	UNP Q03479
D	215	ASP	ASN	SEE REMARK 999	UNP Q03479
D	371	ILE	LEU	SEE REMARK 999	UNP Q03479
D	372	ILE	SER	SEE REMARK 999	UNP Q03479
D	373	ASN	ILE	SEE REMARK 999	UNP Q03479
D	374	CYS	VAL	SEE REMARK 999	UNP Q03479
D	375	THR	HIS	SEE REMARK 999	UNP Q03479
D	376	THR	ARG	SEE REMARK 999	UNP Q03479
D	378	LYS	-	SEE REMARK 999	UNP Q03479
D	380	PRO	THR	SEE REMARK 999	UNP Q03479
D	427	VAL	-	SEE REMARK 999	UNP Q03479
D	428	ARG	-	SEE REMARK 999	UNP Q03479
D	429	GLU	LYS	SEE REMARK 999	UNP Q03479
D	440	ASN	-	SEE REMARK 999	UNP Q03479
D	498	ILE	ASN	SEE REMARK 999	UNP Q03479
D	604	VAL	ASP	SEE REMARK 999	UNP Q03479
D	681	ASN	ILE	SEE REMARK 999	UNP Q03479
D	683	THR	ARG	SEE REMARK 999	UNP Q03479

- Molecule 2 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

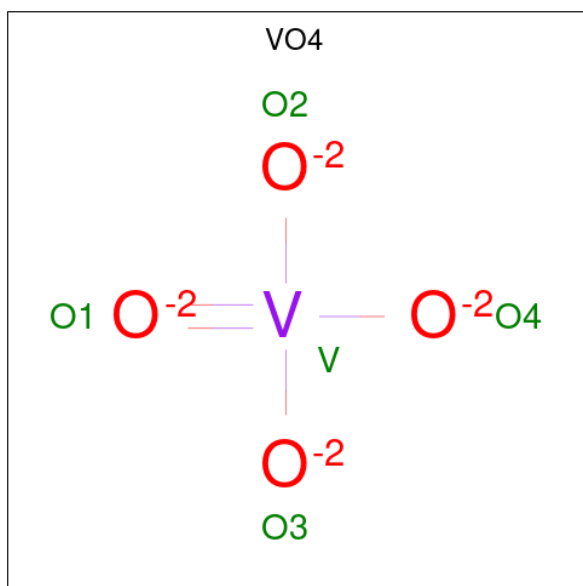
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Mg 1 1	0	0
2	B	1	Total Mg 1 1	0	0
2	C	1	Total Mg 1 1	0	0

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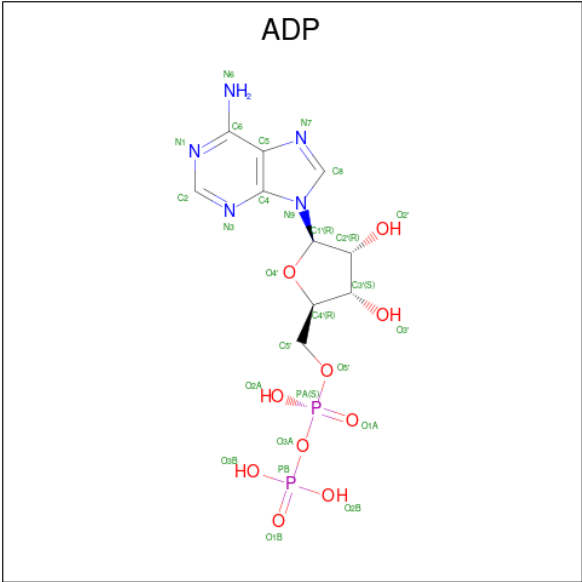
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	D	1	Total	Mg	0	0
			1	1		

- Molecule 3 is VANADATE ION (CCD ID: VO4) (formula: O_4V).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	V	0	0
			5	4	1		
3	B	1	Total	O	V	0	0
			5	4	1		
3	C	1	Total	O	V	0	0
			5	4	1		
3	D	1	Total	O	V	0	0
			5	4	1		

- Molecule 4 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
4	B	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
4	C	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
4	D	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

- Molecule 5 is water.

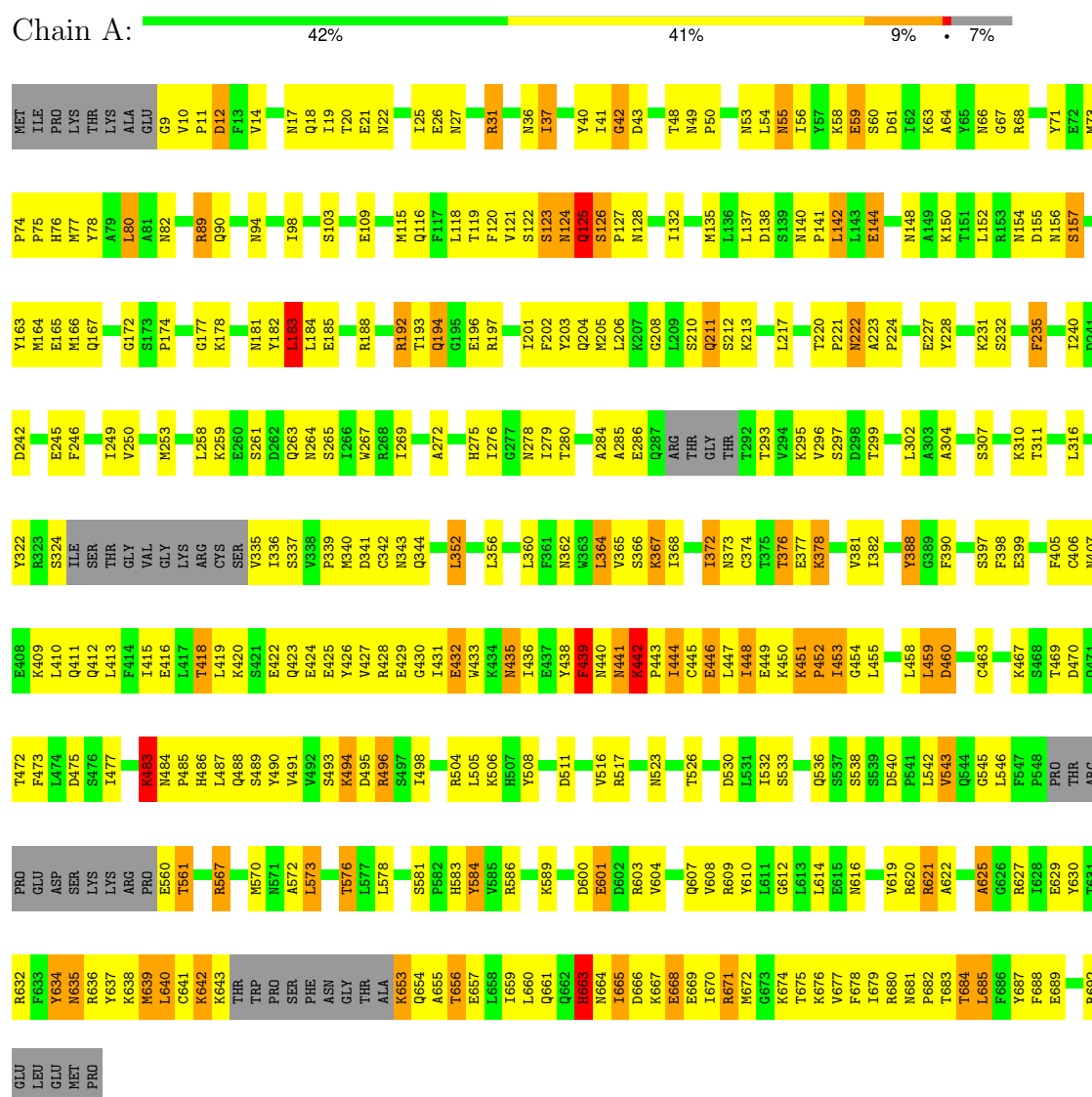
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	18	Total	O	0	0
			18	18		
5	B	16	Total	O	0	0
			16	16		
5	C	19	Total	O	0	0
			19	19		
5	D	11	Total	O	0	0
			11	11		

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

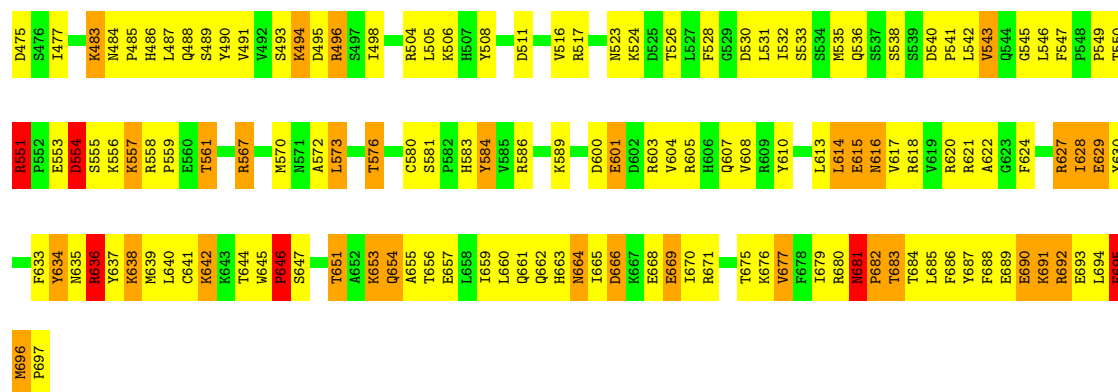
Note EDS was not executed.

• Molecule 1: MYOSIN IE HEAVY CHAIN

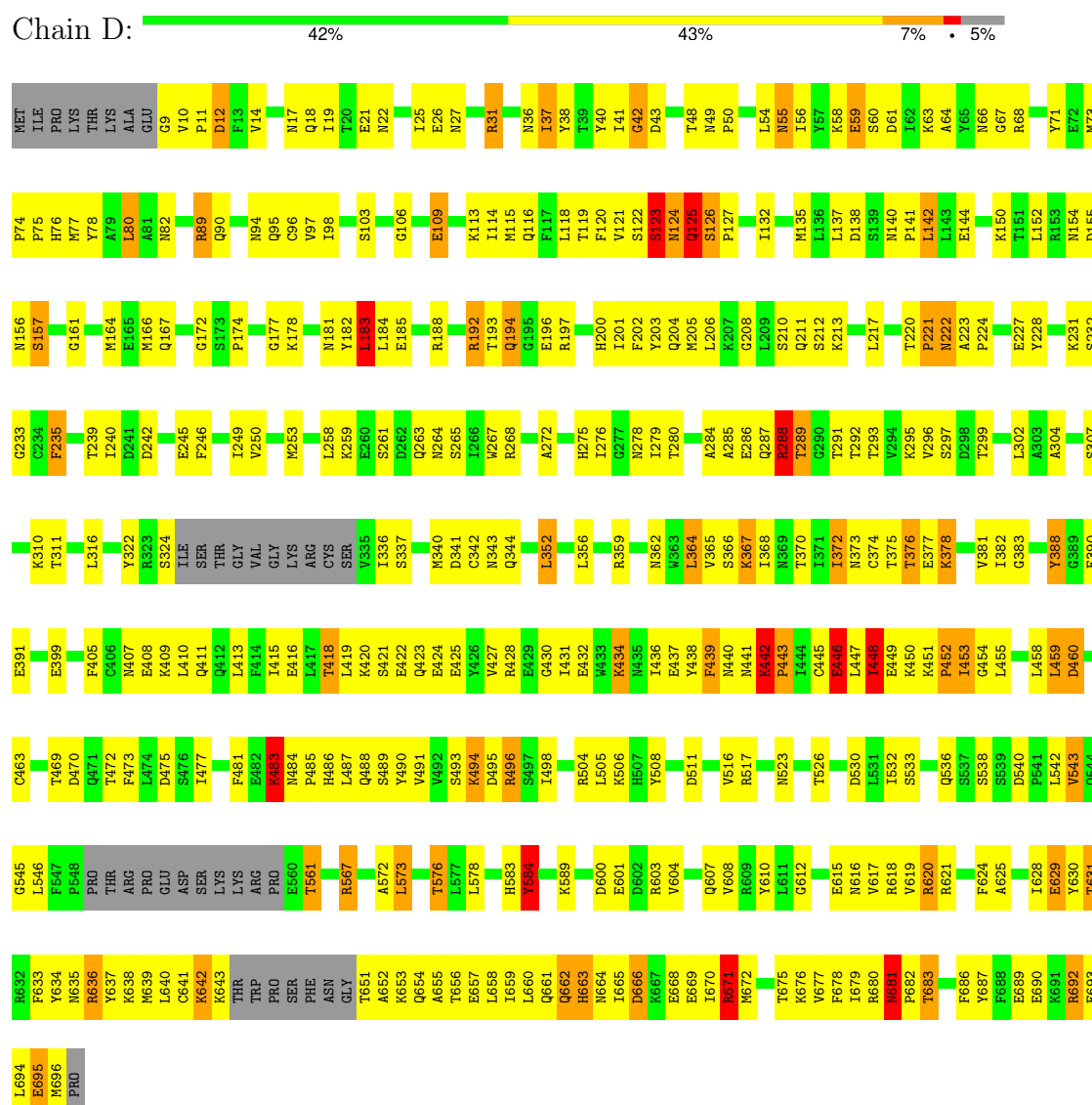


• Molecule 1: MYOSIN IE HEAVY CHAIN





• Molecule 1: MYOSIN IE HEAVY CHAIN



4 Data and refinement statistics

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

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	51.82Å 143.67Å 236.05Å 90.00° 94.86° 90.00°	Depositor
Resolution (Å)	50.00 – 3.00	Depositor
% Data completeness (in resolution range)	(Not available) (50.00-3.00)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.228 , 0.273	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	21265	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ADP, VO4

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	0/5280	0.94	18/7108 (0.3%)
1	B	0.46	0/5276	0.91	13/7104 (0.2%)
1	C	0.53	0/5521	0.96	23/7442 (0.3%)
1	D	0.50	0/5356	0.94	18/7212 (0.2%)
All	All	0.50	0/21433	0.94	72/28866 (0.2%)

There are no bond length outliers.

The worst 5 of 72 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	441	ASN	N-CA-C	-10.71	100.26	113.97
1	A	125	GLN	N-CA-C	-10.57	100.93	114.04
1	B	125	GLN	N-CA-C	-9.98	101.67	114.04
1	D	125	GLN	N-CA-C	-9.84	101.04	113.43
1	C	125	GLN	N-CA-C	-9.77	101.92	114.04

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	5192	0	5189	397	0
1	B	5188	0	5182	379	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	5422	0	5415	443	0
1	D	5267	0	5265	384	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	5	0	0	1	0
3	B	5	0	0	0	0
3	C	5	0	0	1	0
3	D	5	0	0	1	0
4	A	27	0	12	2	0
4	B	27	0	12	2	0
4	C	27	0	12	2	0
4	D	27	0	12	3	0
5	A	18	0	0	5	0
5	B	16	0	0	2	0
5	C	19	0	0	2	0
5	D	11	0	0	2	0
All	All	21265	0	21099	1570	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 37.

The worst 5 of 1570 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:131:ARG:HD3	1:D:259:LYS:HE2	1.24	1.17
1:C:635:ASN:HA	1:C:638:LYS:HD2	1.28	1.16
1:D:642:LYS:H	1:D:642:LYS:HD2	1.00	1.09
1:B:656:THR:HG21	1:B:677:VAL:HG21	1.37	1.06
1:C:288:ARG:HD3	1:C:288:ARG:H	1.22	1.03

There are no symmetry-related clashes.

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	640/697 (92%)	529 (83%)	80 (12%)	31 (5%)	2	11
1	B	640/697 (92%)	541 (84%)	64 (10%)	35 (6%)	1	8
1	C	675/697 (97%)	553 (82%)	80 (12%)	42 (6%)	1	6
1	D	652/697 (94%)	557 (85%)	66 (10%)	29 (4%)	2	12
All	All	2607/2788 (94%)	2180 (84%)	290 (11%)	137 (5%)	1	9

5 of 137 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	124	ASN
1	A	157	SER
1	A	376	THR
1	A	439	PHE
1	A	442	LYS

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	575/616 (93%)	521 (91%)	54 (9%)	8	32
1	B	574/616 (93%)	520 (91%)	54 (9%)	8	32
1	C	601/616 (98%)	537 (89%)	64 (11%)	6	27
1	D	583/616 (95%)	525 (90%)	58 (10%)	7	30
All	All	2333/2464 (95%)	2103 (90%)	230 (10%)	7	30

5 of 230 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	125	GLN
1	D	663	HIS
1	C	434	LYS

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Mol	Chain	Res	Type
1	D	642	LYS
1	D	367	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 108 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	55	ASN
1	C	313	GLN
1	D	395	ASN
1	C	76	HIS
1	C	156	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](#)

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	$\# Z > 2$
4	ADP	C	891	2,3	28,29,29	1.44	4 (14%)	43,45,45	1.02	2 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	VO4	B	795	2,4	0,4,4	-	-	-		
4	ADP	A	791	2,3	28,29,29	1.42	4 (14%)	43,45,45	1.15	3 (6%)
3	VO4	A	792	2,4	0,4,4	-	-	-		
3	VO4	C	892	2,4	0,4,4	-	-	-		
4	ADP	B	794	2,3	28,29,29	1.47	4 (14%)	43,45,45	1.11	3 (6%)
3	VO4	D	895	2,4	0,4,4	-	-	-		
4	ADP	D	894	2,3	28,29,29	1.47	4 (14%)	43,45,45	1.07	4 (9%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	ADP	A	791	2,3	-	1/16/32/32	0/3/3/3
4	ADP	C	891	2,3	-	2/16/32/32	0/3/3/3
4	ADP	D	894	2,3	-	1/16/32/32	0/3/3/3
4	ADP	B	794	2,3	-	0/16/32/32	0/3/3/3

The worst 5 of 16 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	794	ADP	C2-N1	4.74	1.42	1.33
4	D	894	ADP	C2-N1	4.10	1.41	1.33
4	A	791	ADP	C2-N1	4.06	1.41	1.33
4	C	891	ADP	C2-N1	3.88	1.40	1.33
4	A	791	ADP	C4-N3	3.51	1.41	1.34

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	791	ADP	O3'-C3'-C2'	2.57	120.06	111.82
4	C	891	ADP	O3'-C3'-C2'	2.53	119.93	111.82
4	B	794	ADP	O3'-C3'-C4'	2.53	118.34	111.08
4	C	891	ADP	O3'-C3'-C4'	2.53	118.34	111.08
4	D	894	ADP	O3'-C3'-C2'	2.50	119.84	111.82

There are no chirality outliers.

All (4) torsion outliers are listed below:

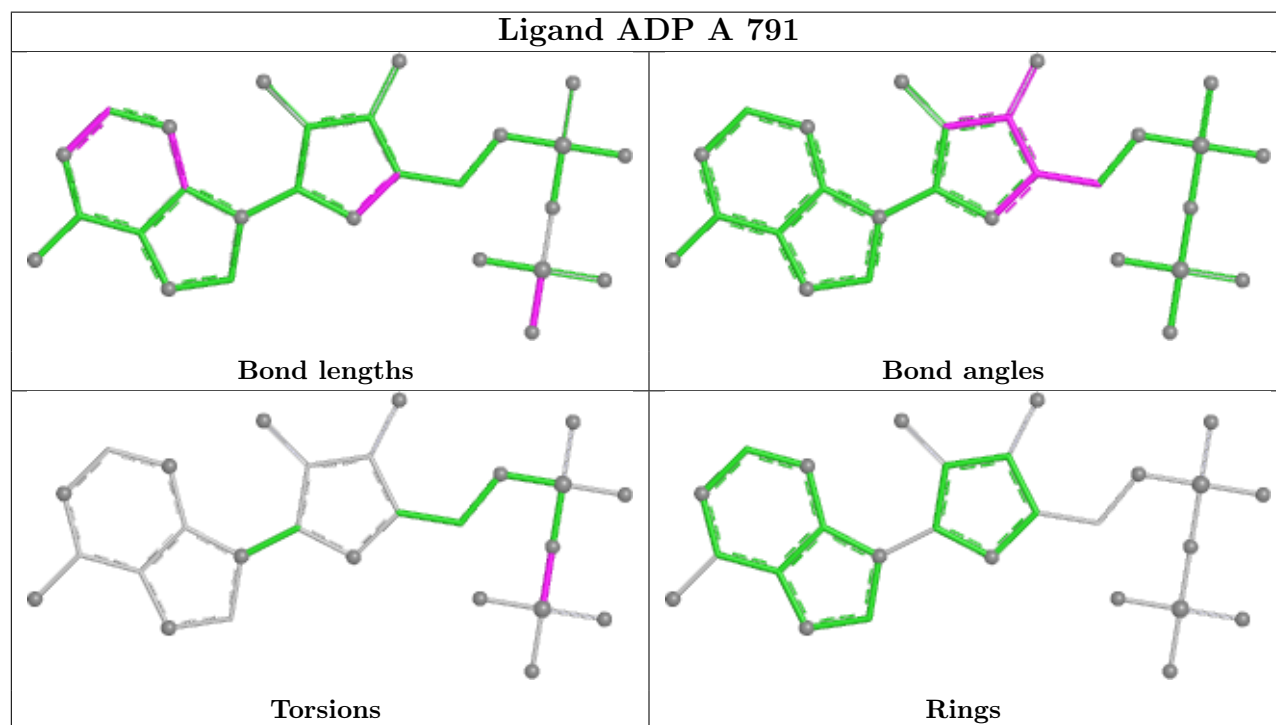
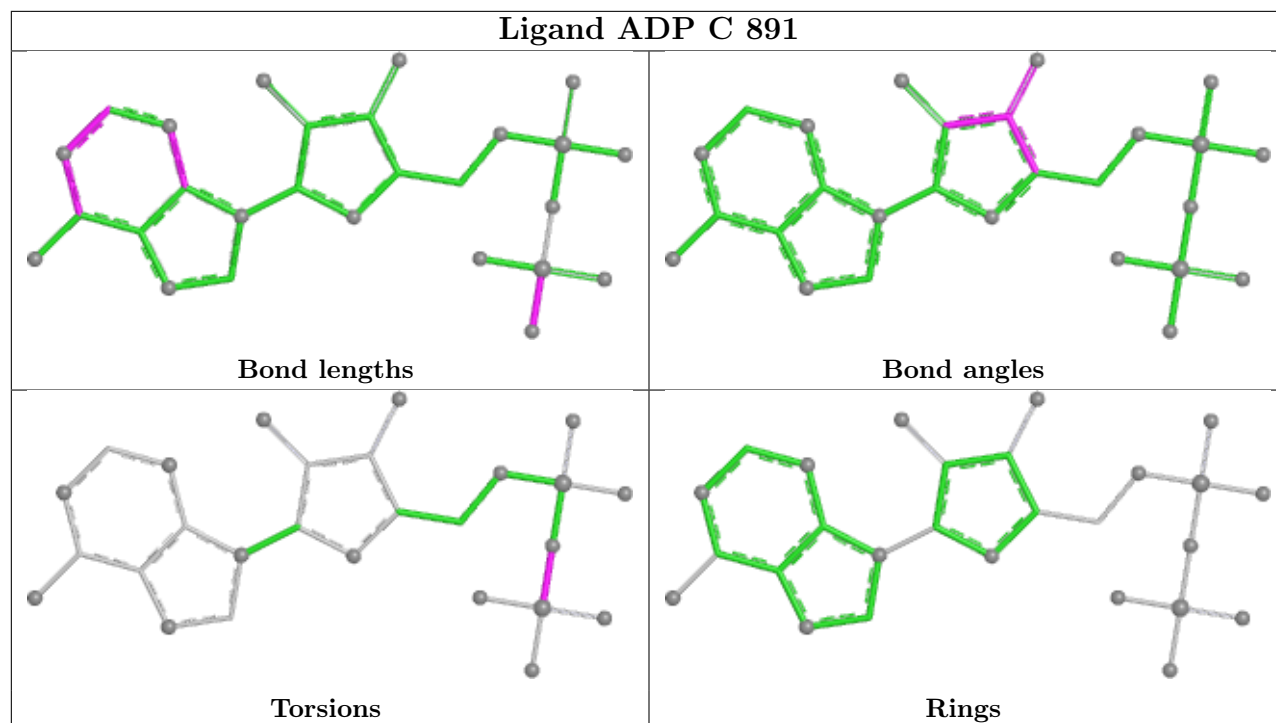
Mol	Chain	Res	Type	Atoms
4	A	791	ADP	PA-O3A-PB-O3B
4	C	891	ADP	PA-O3A-PB-O1B
4	C	891	ADP	PA-O3A-PB-O2B
4	D	894	ADP	PB-O3A-PA-O2A

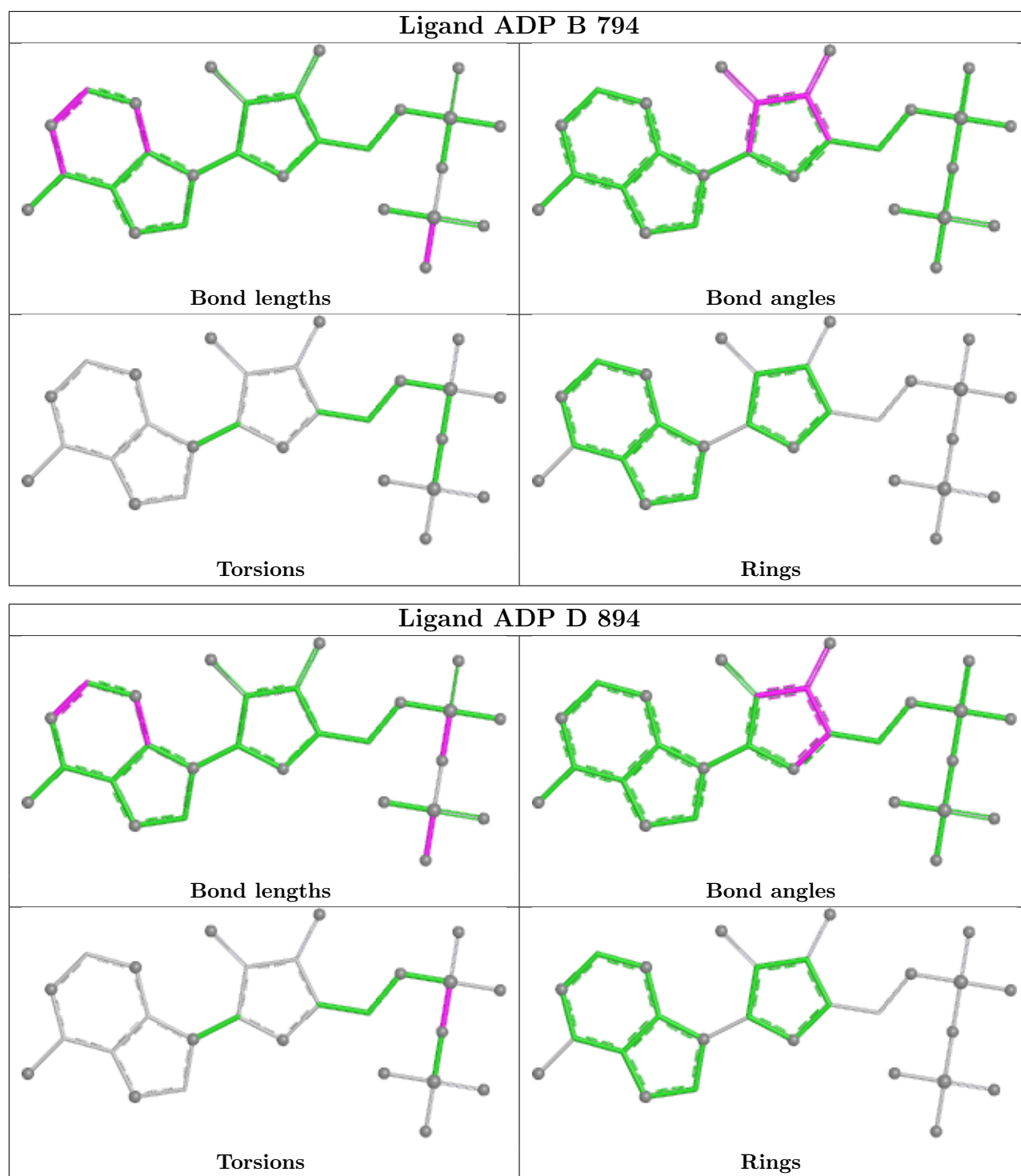
There are no ring outliers.

7 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	891	ADP	2	0
4	A	791	ADP	2	0
3	A	792	VO4	1	0
3	C	892	VO4	1	0
4	B	794	ADP	2	0
3	D	895	VO4	1	0
4	D	894	ADP	3	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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

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

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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.