wwPDB EM Validation Summary Report (i)

Jul 9, 2025 – 01:40 PM JST

PDB ID	:	9JLB / pdb_00009jlb
EMDB ID	:	EMD-61582
Title	:	Cryo-EM structure of phyB-PIF6beta complex
Authors	:	Jia, H.L.; Guan, Z.Y.; Ding, J.Y.; Wang, X.Y.; Ma, L.; Yin, P.
Deposited on	:	2024-09-18
Resolution	:	3.00 Å(reported)

This is a wwPDB EM 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/EMValidationReportHelp
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 (1)) were used in the production of this report:

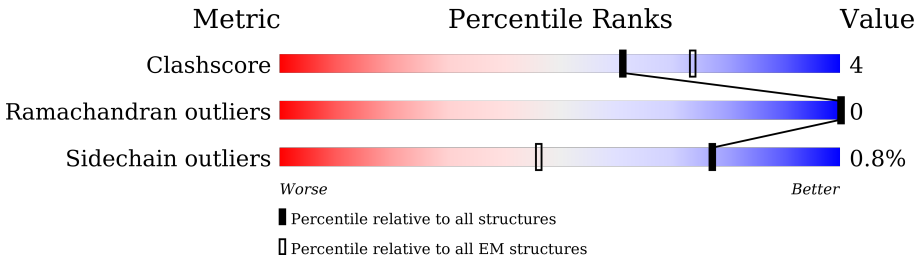
EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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%

Mol	Chain	Length	Quality of chain
1	A	1226	39% · 57%
1	C	1226	35% · 61%
2	B	241	15% · 82%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 16534 atoms, of which 8245 are hydrogens and 0 are deuteriums.

In the tables below, 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 Phytochrome B.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	533	Total	C	H	N	O	S	0	0
			8271	2622	4128	718	773	30		
1	C	476	Total	C	H	N	O	S	0	0
			7393	2345	3697	640	681	30		

There are 108 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-28	MET	-	initiating methionine	UNP P14713
A	-27	ASP	-	expression tag	UNP P14713
A	-26	TYR	-	expression tag	UNP P14713
A	-25	LYS	-	expression tag	UNP P14713
A	-24	ASP	-	expression tag	UNP P14713
A	-23	ASP	-	expression tag	UNP P14713
A	-22	ASP	-	expression tag	UNP P14713
A	-21	ASP	-	expression tag	UNP P14713
A	-20	LYS	-	expression tag	UNP P14713
A	-19	GLY	-	expression tag	UNP P14713
A	-18	ASP	-	expression tag	UNP P14713
A	-17	TYR	-	expression tag	UNP P14713
A	-16	LYS	-	expression tag	UNP P14713
A	-15	ASP	-	expression tag	UNP P14713
A	-14	ASP	-	expression tag	UNP P14713
A	-13	ASP	-	expression tag	UNP P14713
A	-12	ASP	-	expression tag	UNP P14713
A	-11	LYS	-	expression tag	UNP P14713
A	-10	ILE	-	expression tag	UNP P14713
A	-9	ASP	-	expression tag	UNP P14713
A	-8	TYR	-	expression tag	UNP P14713
A	-7	LYS	-	expression tag	UNP P14713
A	-6	ASP	-	expression tag	UNP P14713
A	-5	ASP	-	expression tag	UNP P14713
A	-4	ASP	-	expression tag	UNP P14713
A	-3	ASP	-	expression tag	UNP P14713

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	LYS	-	expression tag	UNP P14713
A	-1	GLY	-	expression tag	UNP P14713
A	0	SER	-	expression tag	UNP P14713
A	1173	LYS	-	expression tag	UNP P14713
A	1174	LEU	-	expression tag	UNP P14713
A	1175	GLY	-	expression tag	UNP P14713
A	1176	PRO	-	expression tag	UNP P14713
A	1177	GLU	-	expression tag	UNP P14713
A	1178	GLN	-	expression tag	UNP P14713
A	1179	LYS	-	expression tag	UNP P14713
A	1180	LEU	-	expression tag	UNP P14713
A	1181	ILE	-	expression tag	UNP P14713
A	1182	SER	-	expression tag	UNP P14713
A	1183	GLU	-	expression tag	UNP P14713
A	1184	GLU	-	expression tag	UNP P14713
A	1185	ASP	-	expression tag	UNP P14713
A	1186	LEU	-	expression tag	UNP P14713
A	1187	ASN	-	expression tag	UNP P14713
A	1188	SER	-	expression tag	UNP P14713
A	1189	ALA	-	expression tag	UNP P14713
A	1190	VAL	-	expression tag	UNP P14713
A	1191	ASP	-	expression tag	UNP P14713
A	1192	HIS	-	expression tag	UNP P14713
A	1193	HIS	-	expression tag	UNP P14713
A	1194	HIS	-	expression tag	UNP P14713
A	1195	HIS	-	expression tag	UNP P14713
A	1196	HIS	-	expression tag	UNP P14713
A	1197	HIS	-	expression tag	UNP P14713
C	-28	MET	-	initiating methionine	UNP P14713
C	-27	ASP	-	expression tag	UNP P14713
C	-26	TYR	-	expression tag	UNP P14713
C	-25	LYS	-	expression tag	UNP P14713
C	-24	ASP	-	expression tag	UNP P14713
C	-23	ASP	-	expression tag	UNP P14713
C	-22	ASP	-	expression tag	UNP P14713
C	-21	ASP	-	expression tag	UNP P14713
C	-20	LYS	-	expression tag	UNP P14713
C	-19	GLY	-	expression tag	UNP P14713
C	-18	ASP	-	expression tag	UNP P14713
C	-17	TYR	-	expression tag	UNP P14713
C	-16	LYS	-	expression tag	UNP P14713
C	-15	ASP	-	expression tag	UNP P14713

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-14	ASP	-	expression tag	UNP P14713
C	-13	ASP	-	expression tag	UNP P14713
C	-12	ASP	-	expression tag	UNP P14713
C	-11	LYS	-	expression tag	UNP P14713
C	-10	ILE	-	expression tag	UNP P14713
C	-9	ASP	-	expression tag	UNP P14713
C	-8	TYR	-	expression tag	UNP P14713
C	-7	LYS	-	expression tag	UNP P14713
C	-6	ASP	-	expression tag	UNP P14713
C	-5	ASP	-	expression tag	UNP P14713
C	-4	ASP	-	expression tag	UNP P14713
C	-3	ASP	-	expression tag	UNP P14713
C	-2	LYS	-	expression tag	UNP P14713
C	-1	GLY	-	expression tag	UNP P14713
C	0	SER	-	expression tag	UNP P14713
C	1173	LYS	-	expression tag	UNP P14713
C	1174	LEU	-	expression tag	UNP P14713
C	1175	GLY	-	expression tag	UNP P14713
C	1176	PRO	-	expression tag	UNP P14713
C	1177	GLU	-	expression tag	UNP P14713
C	1178	GLN	-	expression tag	UNP P14713
C	1179	LYS	-	expression tag	UNP P14713
C	1180	LEU	-	expression tag	UNP P14713
C	1181	ILE	-	expression tag	UNP P14713
C	1182	SER	-	expression tag	UNP P14713
C	1183	GLU	-	expression tag	UNP P14713
C	1184	GLU	-	expression tag	UNP P14713
C	1185	ASP	-	expression tag	UNP P14713
C	1186	LEU	-	expression tag	UNP P14713
C	1187	ASN	-	expression tag	UNP P14713
C	1188	SER	-	expression tag	UNP P14713
C	1189	ALA	-	expression tag	UNP P14713
C	1190	VAL	-	expression tag	UNP P14713
C	1191	ASP	-	expression tag	UNP P14713
C	1192	HIS	-	expression tag	UNP P14713
C	1193	HIS	-	expression tag	UNP P14713
C	1194	HIS	-	expression tag	UNP P14713
C	1195	HIS	-	expression tag	UNP P14713
C	1196	HIS	-	expression tag	UNP P14713
C	1197	HIS	-	expression tag	UNP P14713

- Molecule 2 is a protein called Transcription factor PIF6.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	B	43	Total	C	H	N	O	S	0	0
			712	227	348	61	73	3		

There are 58 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-26	MET	-	initiating methionine	UNP Q8L5W7
B	-25	GLY	-	expression tag	UNP Q8L5W7
B	-24	SER	-	expression tag	UNP Q8L5W7
B	-23	SER	-	expression tag	UNP Q8L5W7
B	-22	HIS	-	expression tag	UNP Q8L5W7
B	-21	HIS	-	expression tag	UNP Q8L5W7
B	-20	HIS	-	expression tag	UNP Q8L5W7
B	-19	HIS	-	expression tag	UNP Q8L5W7
B	-18	HIS	-	expression tag	UNP Q8L5W7
B	-17	HIS	-	expression tag	UNP Q8L5W7
B	-16	SER	-	expression tag	UNP Q8L5W7
B	-15	SER	-	expression tag	UNP Q8L5W7
B	-14	GLY	-	expression tag	UNP Q8L5W7
B	-13	LEU	-	expression tag	UNP Q8L5W7
B	-12	VAL	-	expression tag	UNP Q8L5W7
B	-11	PRO	-	expression tag	UNP Q8L5W7
B	-10	ARG	-	expression tag	UNP Q8L5W7
B	-9	GLY	-	expression tag	UNP Q8L5W7
B	-8	SER	-	expression tag	UNP Q8L5W7
B	-7	HIS	-	expression tag	UNP Q8L5W7
B	-6	SER	-	expression tag	UNP Q8L5W7
B	-5	ASP	-	expression tag	UNP Q8L5W7
B	-4	GLU	-	expression tag	UNP Q8L5W7
B	-3	VAL	-	expression tag	UNP Q8L5W7
B	-2	ASP	-	expression tag	UNP Q8L5W7
B	-1	ALA	-	expression tag	UNP Q8L5W7
B	0	HIS	-	expression tag	UNP Q8L5W7
B	184	GLU	-	expression tag	UNP Q8L5W7
B	185	SER	-	expression tag	UNP Q8L5W7
B	186	ALA	-	expression tag	UNP Q8L5W7
B	187	TRP	-	expression tag	UNP Q8L5W7
B	188	SER	-	expression tag	UNP Q8L5W7
B	189	HIS	-	expression tag	UNP Q8L5W7
B	190	PRO	-	expression tag	UNP Q8L5W7
B	191	GLN	-	expression tag	UNP Q8L5W7
B	192	PHE	-	expression tag	UNP Q8L5W7
B	193	GLU	-	expression tag	UNP Q8L5W7

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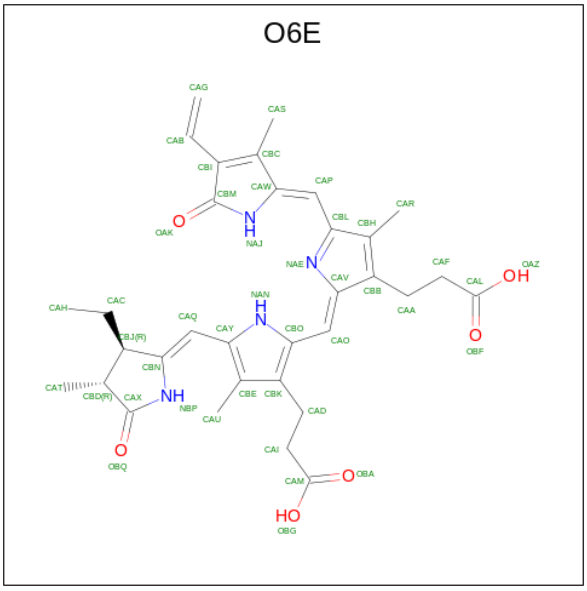
Chain	Residue	Modelled	Actual	Comment	Reference
B	194	LYS	-	expression tag	UNP Q8L5W7
B	195	GLY	-	expression tag	UNP Q8L5W7
B	196	GLY	-	expression tag	UNP Q8L5W7
B	197	GLY	-	expression tag	UNP Q8L5W7
B	198	SER	-	expression tag	UNP Q8L5W7
B	199	GLY	-	expression tag	UNP Q8L5W7
B	200	GLY	-	expression tag	UNP Q8L5W7
B	201	GLY	-	expression tag	UNP Q8L5W7
B	202	SER	-	expression tag	UNP Q8L5W7
B	203	GLY	-	expression tag	UNP Q8L5W7
B	204	GLY	-	expression tag	UNP Q8L5W7
B	205	SER	-	expression tag	UNP Q8L5W7
B	206	ALA	-	expression tag	UNP Q8L5W7
B	207	TRP	-	expression tag	UNP Q8L5W7
B	208	SER	-	expression tag	UNP Q8L5W7
B	209	HIS	-	expression tag	UNP Q8L5W7
B	210	PRO	-	expression tag	UNP Q8L5W7
B	211	GLN	-	expression tag	UNP Q8L5W7
B	212	PHE	-	expression tag	UNP Q8L5W7
B	213	GLU	-	expression tag	UNP Q8L5W7
B	214	LYS	-	expression tag	UNP Q8L5W7

- Molecule 3 is 3-[5-[[(3 {R},4 {R})-3-ethyl-4-methyl-5-oxidanylidene-3,4-dihydropyrrol-2-yl]methyl]-2-[[5-[(4-ethyl-3-methyl-5-oxidanylidene-pyrrol-2-yl)methyl]-3-(3-hydroxy-3-oxopropyl)-4-methyl-1 {H}-pyrrol-2-yl]methyl]-4-methyl-1 {H}-pyrrol-3-yl]propanoic acid (CCD ID: O6E) (formula: $C_{33}H_{38}N_4O_6$) (labeled as "Ligand of Interest" by depositor).



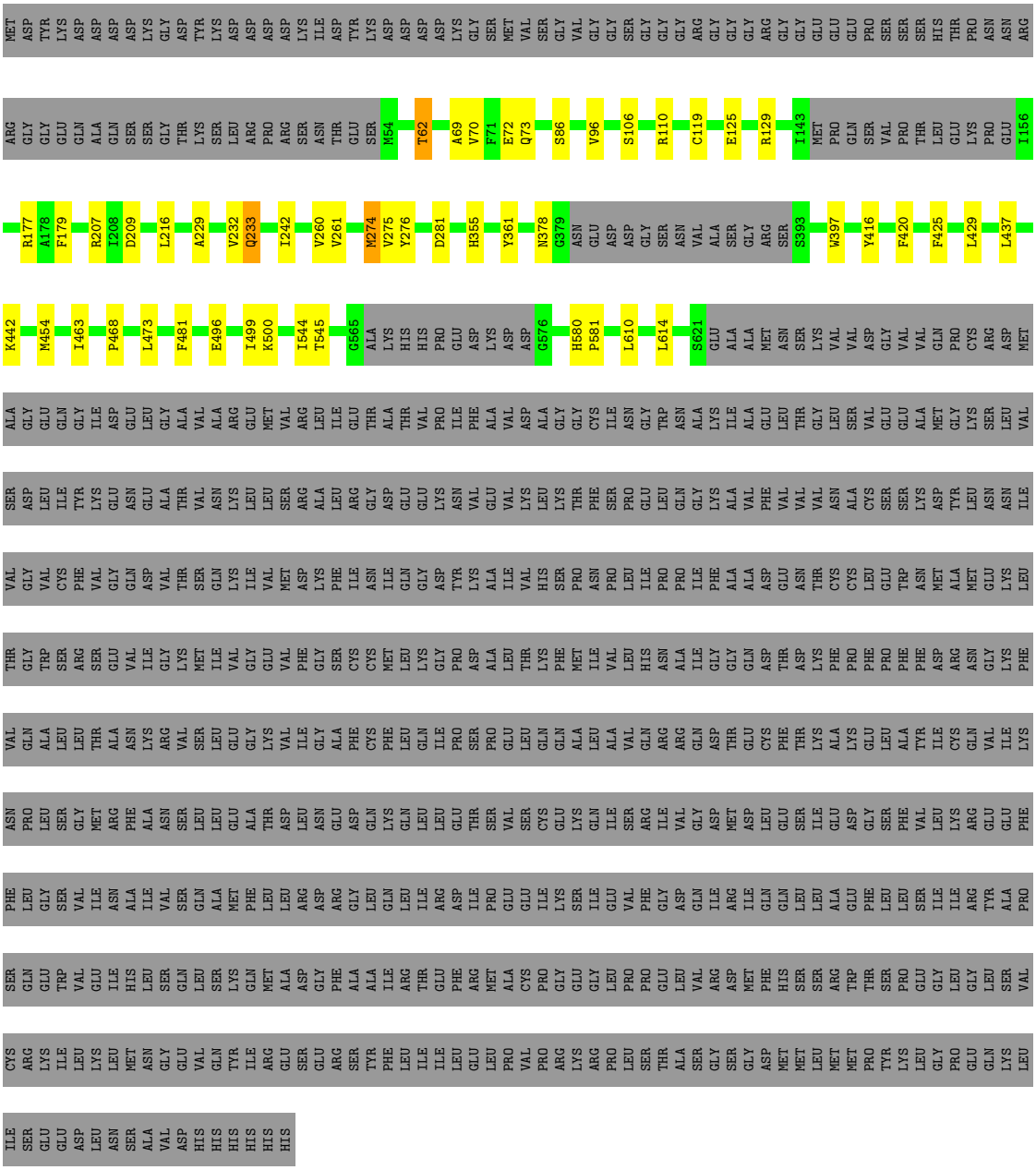
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	H	N	O	0
			79	33	36	4	6	
3	C	1	Total	C	H	N	O	0
			79	33	36	4	6	

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. 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.

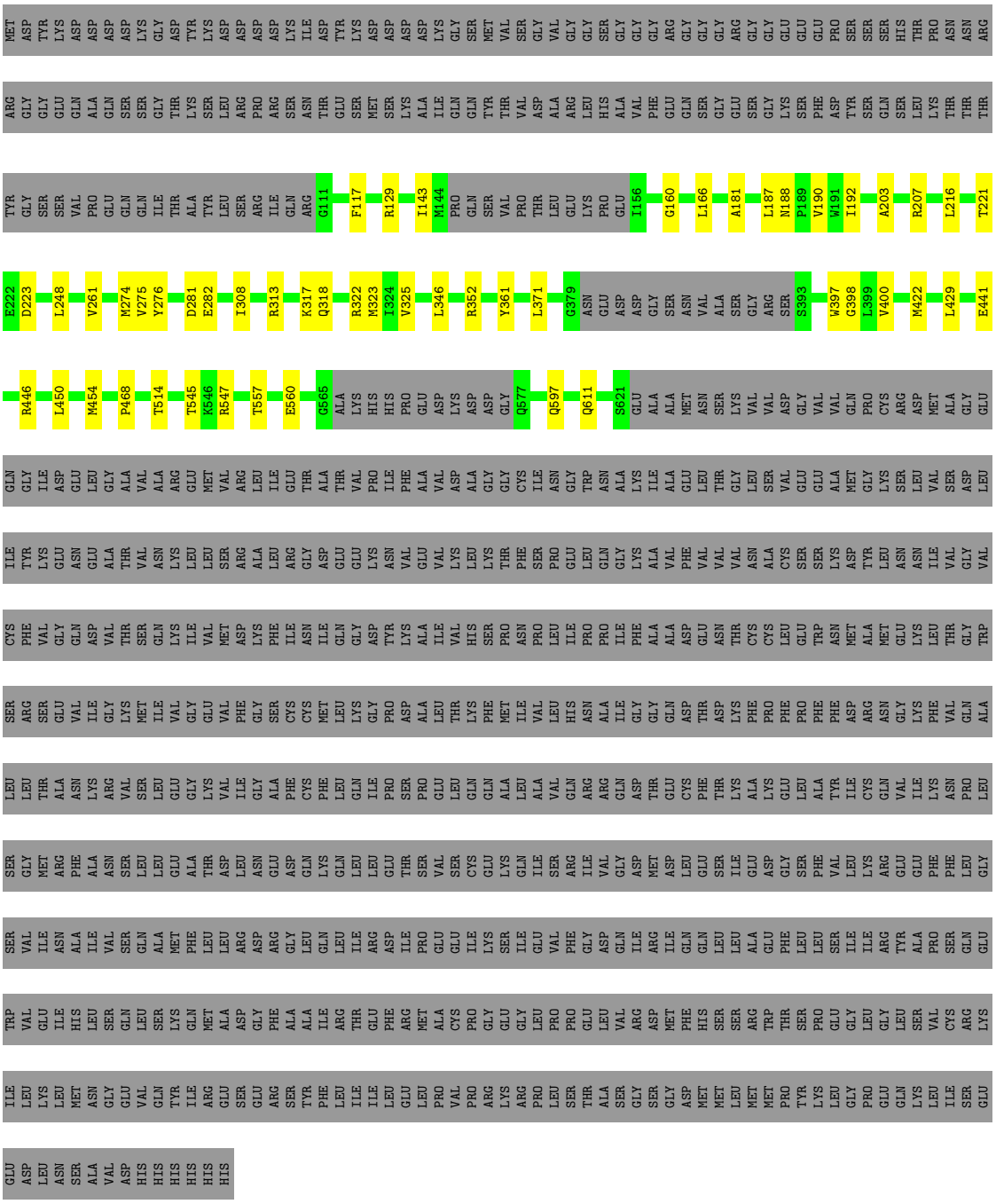
- Molecule 1: Phytochrome B

Chain A:



• Molecule 1: Phytochrome B

Chain C:



• Molecule 2: Transcription factor PIF6

Chain B:

ILE ILE HIS GLY GLY GLY GLY ALA ILE THR ASN LEU GLY ASP THR GLN VAL VAL PRO GLN SER HIS VAL ALA ALA ALA HIS GLU THR ASN MET LEU GLU GLU SER ASN LYS HIS VAL ASP ASP SER GLU THR LEU LYS ALA SER SER SER LYS ARG MET MET VAL ASP TYR HIS ASN ARG LYS

LYS ILE LYS PHE ILE PRO PRO ASP GLU GLN SER VAL VAL ALA ASP ARG SER PHE LYS LEU GLY PHE ASP THR SER SER VAL GLY PHE THR GLU ASP SER GLU GLY SER MET TYR LEU SER SER SER LEU ASP ASP GLU SER ASP ASP ALA ARG PRO GLN VAL PRO ALA ARG THR ARG LYS

ALA LEU GLU SER ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER GLY GLY GLY SER GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	429631	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TECNAI F30	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1400	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: O6E

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	0.13	0/4225	0.27	0/5717
1	C	0.12	0/3770	0.26	0/5103
2	B	0.09	0/367	0.20	0/486
All	All	0.12	0/8362	0.26	0/11306

There are no bond length outliers.

There are no bond angle outliers.

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	4143	4128	4129	35	0
1	C	3696	3697	3696	37	0
2	B	364	348	348	5	0
3	A	43	36	0	1	0
3	C	43	36	0	1	0
All	All	8289	8245	8173	69	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 4.

The worst 5 of 69 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:560:GLU:OE1	1:C:597:GLN:NE2	2.02	0.92
1:C:450:LEU:O	1:C:454:MET:HE3	1.90	0.71
1:A:378:ASN:ND2	1:C:248:LEU:O	2.28	0.67
1:C:560:GLU:N	1:C:560:GLU:OE2	2.28	0.65
1:A:274:MET:HE3	1:A:276:TYR:OH	1.97	0.63

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	525/1226 (43%)	513 (98%)	12 (2%)	0	100	100
1	C	468/1226 (38%)	458 (98%)	10 (2%)	0	100	100
2	B	39/241 (16%)	39 (100%)	0	0	100	100
All	All	1032/2693 (38%)	1010 (98%)	22 (2%)	0	100	100

There are no Ramachandran outliers to report.

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 PDB entries followed by that with respect to all EM entries.

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	451/1044 (43%)	446 (99%)	5 (1%)	70	87

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	C	402/1044 (38%)	400 (100%)	2 (0%)	86 94
2	B	39/206 (19%)	39 (100%)	0	100 100
All	All	892/2294 (39%)	885 (99%)	7 (1%)	77 90

5 of 7 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	416	TYR
1	A	437	LEU
1	C	318	GLN
1	C	317	LYS
1	A	274	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 8 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	328	ASN
1	C	279	HIS
1	A	577	GLN
1	A	510	HIS
1	C	235	GLN

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)

2 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	$\#\|Z\| > 2$
3	O6E	C	1201	1	42,46,46	1.24	5 (11%)	50,67,67	1.86	7 (14%)
3	O6E	A	1201	1	42,46,46	1.46	9 (21%)	50,67,67	1.69	11 (22%)

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	O6E	C	1201	1	-	15/25/74/74	0/4/4/4
3	O6E	A	1201	1	-	12/25/74/74	0/4/4/4

The worst 5 of 14 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1201	O6E	CAB-CBI	-3.60	1.37	1.47
3	C	1201	O6E	CAB-CBI	-3.46	1.38	1.47
3	A	1201	O6E	CAP-CBL	-3.23	1.32	1.40
3	A	1201	O6E	OBG-CAM	-2.75	1.21	1.30
3	C	1201	O6E	CAP-CBL	-2.60	1.34	1.40

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	1201	O6E	CAH-CAC-CBJ	9.08	133.68	113.47
3	A	1201	O6E	CAC-CBJ-CBN	5.39	126.50	112.67
3	A	1201	O6E	CAS-CBC-CAW	4.86	130.24	124.17
3	C	1201	O6E	CAO-CAV-NAE	-4.00	123.27	128.83
3	A	1201	O6E	CBD-CBJ-CBN	3.03	105.88	101.34

There are no chirality outliers.

5 of 27 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1201	O6E	CAH-CAC-CBJ-CBD
3	A	1201	O6E	CBN-CAQ-CAY-NAN
3	A	1201	O6E	CBN-CAQ-CAY-CBE
3	A	1201	O6E	CAV-CAO-CBO-NAN
3	A	1201	O6E	CAV-CAO-CBO-CBK

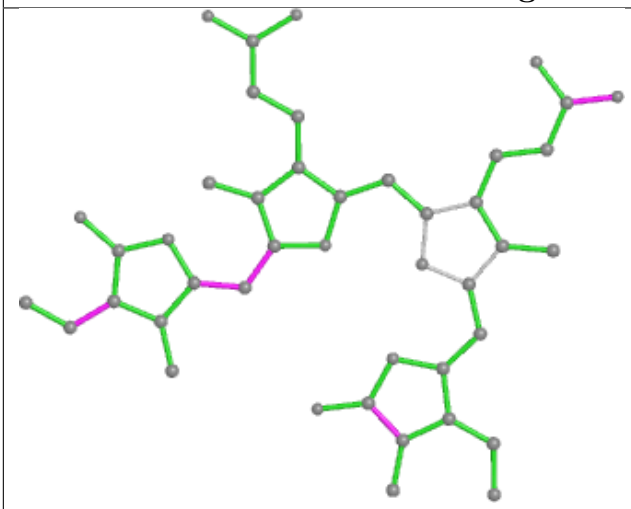
There are no ring outliers.

2 monomers are involved in 2 short contacts:

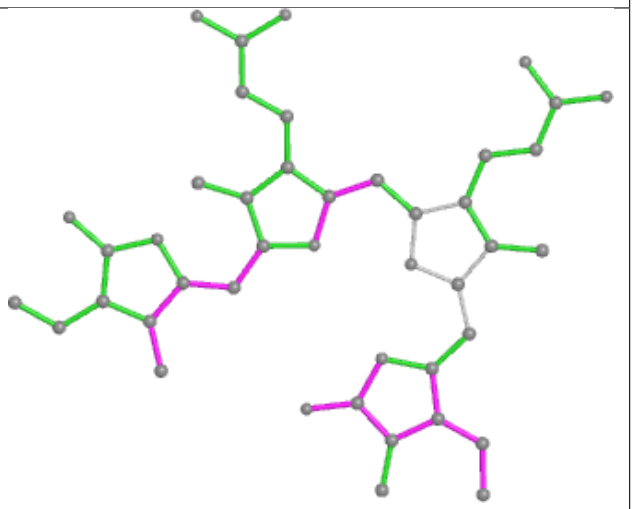
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	1201	O6E	1	0
3	A	1201	O6E	1	0

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.

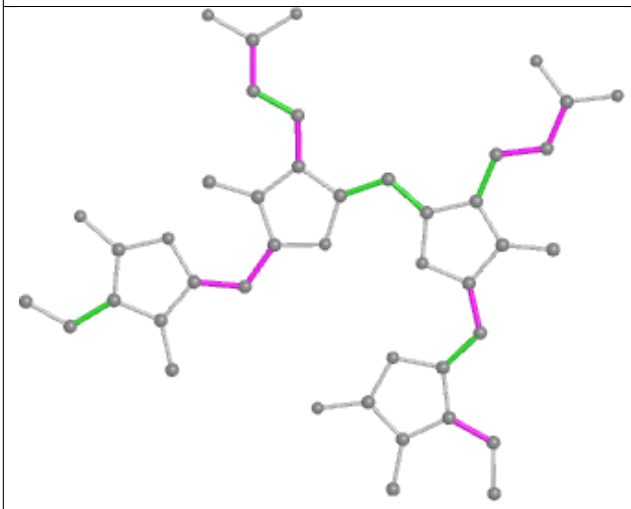
Ligand O6E C 1201



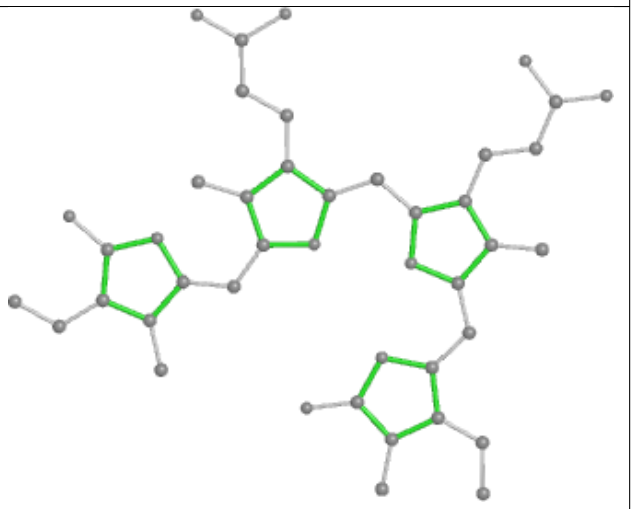
Bond lengths



Bond angles

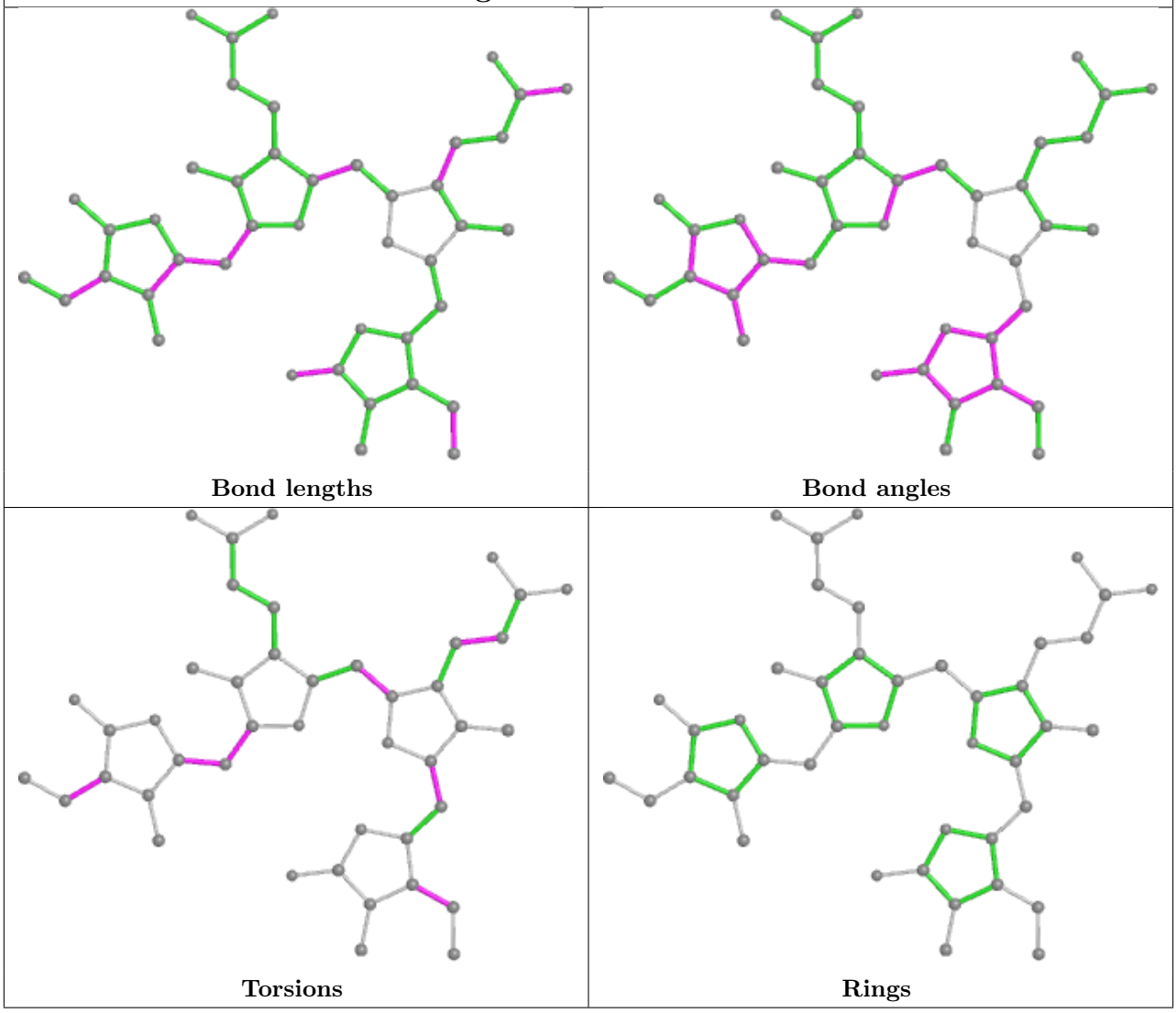


Torsions



Rings

Ligand O6E A 1201



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.