



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 24, 2025 – 02:54 am BST

PDB ID : 6GD9 / pdb_00006gd9
Title : Cytochrome c in complex with Sulfonato-calix[8]arene, P43212 form
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Deposited on : 2018-04-23
Resolution : 2.65 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 2.0
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

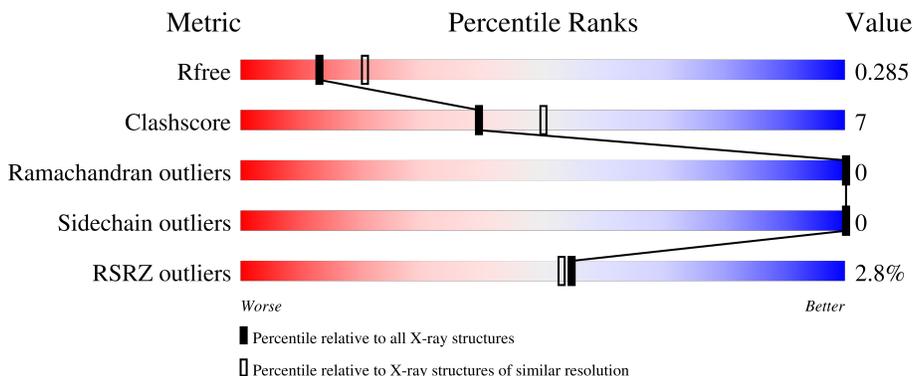
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.65 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}	164625	1003 (2.66-2.66)
Clashscore	180529	1063 (2.66-2.66)
Ramachandran outliers	177936	1052 (2.66-2.66)
Sidechain outliers	177891	1052 (2.66-2.66)
RSRZ outliers	164620	1003 (2.66-2.66)

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

Mol	Chain	Length	Quality of chain
1	A	108	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	EPE	A	207[A]	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	EPE	A	207[B]	-	-	-	X

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 1317 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.

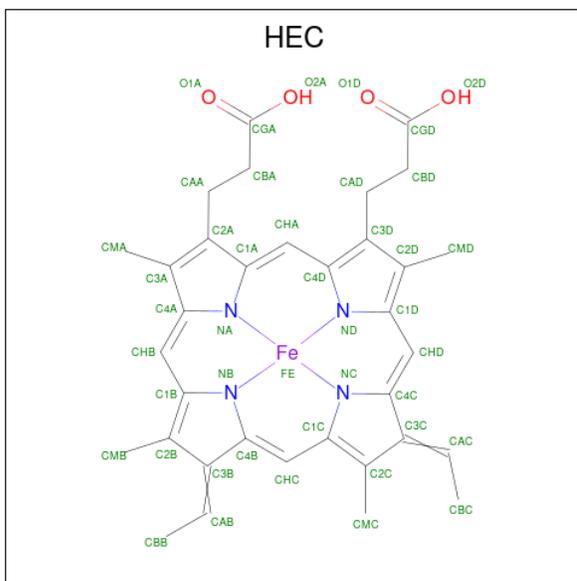
- Molecule 1 is a protein called Cytochrome c iso-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	108	846	534	151	157	4	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

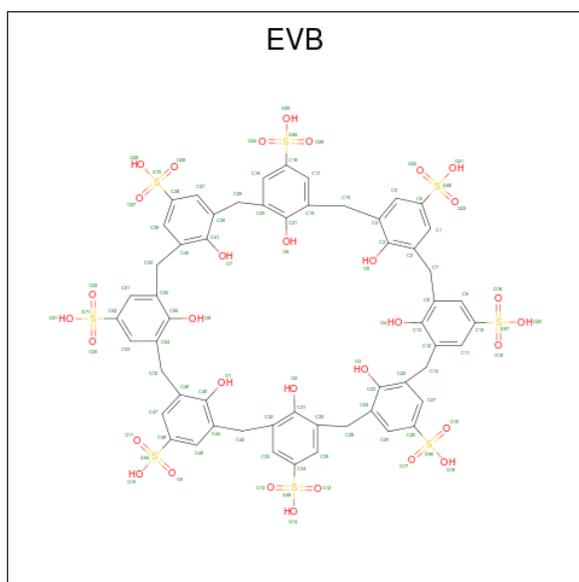
Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	ALA	-	expression tag	UNP P00044
A	102	THR	CYS	engineered mutation	UNP P00044

- Molecule 2 is HEME C (CCD ID: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



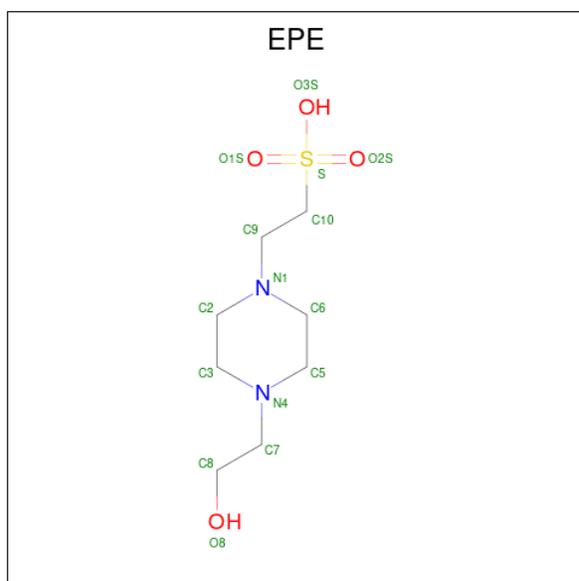
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	Fe	N	O		
2	A	1	43	34	1	4	4	0	0

- Molecule 3 is sulfonato-calix[8]arene (CCD ID: EVB) (formula: $C_{56}H_{48}O_{32}S_8$) (labeled as "Ligand of Interest" by depositor).



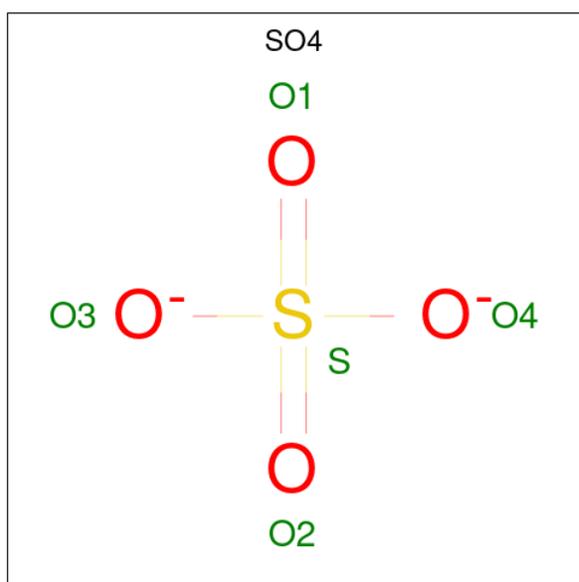
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
3	A	1	96	56	32	8	0	0
3	A	1	96	56	32	8	0	0
3	A	1	96	56	32	8	0	0

- Molecule 4 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (CCD ID: EPE) (formula: $C_8H_{18}N_2O_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	S	0	0
			15	8	2	4	1		
4	A	1	Total	C	N	O	S	0	0
			15	8	2	4	1		
4	A	1	Total	C	N	O	S	0	1
			30	16	4	8	2		
4	A	1	Total	C	N	O	S	0	1
			30	16	4	8	2		

- Molecule 5 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	O S	0	0
			5	4 1		
5	A	1	Total	O S	0	0
			5	4 1		
5	A	1	Total	O S	0	0
			5	4 1		

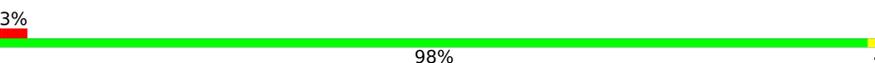
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	35	Total	O	0	0
			35	35		

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 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: Cytochrome c iso-1

Chain A:  98% .



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	101.59Å 101.59Å 86.52Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	71.83 – 2.65 71.83 – 2.65	Depositor EDS
% Data completeness (in resolution range)	99.8 (71.83-2.65) 99.8 (71.83-2.65)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.10 (at 2.65Å)	Xtrriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.243 , 0.286 0.243 , 0.285	Depositor DCC
R_{free} test set	688 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	39.9	Xtrriage
Anisotropy	0.332	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 28.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	1317	wwPDB-VP
Average B, all atoms (Å ²)	50.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.39% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: EVB, HEC, EPE, SO4

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	0.38	0/864	0.70	0/1155

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 [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	846	0	849	1	0
2	A	43	0	28	1	0
3	A	288	0	0	4	0
4	A	90	0	108	9	0
5	A	15	0	0	0	0
6	A	35	0	0	0	0
All	All	1317	0	985	15	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 7.

All (15) 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)
4:A:207[B]:EPE:H101	4:A:207[B]:EPE:N4	2.09	0.68
4:A:207[B]:EPE:N4	4:A:207[B]:EPE:C9	2.62	0.61
4:A:207[B]:EPE:N4	4:A:207[B]:EPE:C10	2.66	0.57
3:A:203:EVB:O7	3:A:203:EVB:O6	2.29	0.50
3:A:203:EVB:O2	3:A:203:EVB:O3	2.28	0.50
4:A:208[B]:EPE:N4	4:A:208[B]:EPE:C9	2.74	0.49
4:A:207[A]:EPE:H31	4:A:207[A]:EPE:H91	1.70	0.47
3:A:202:EVB:O1	3:A:202:EVB:O8	2.35	0.45
3:A:204:EVB:O1	3:A:204:EVB:O2	2.37	0.42
4:A:207[B]:EPE:H31	4:A:207[B]:EPE:H92	1.79	0.42
4:A:207[B]:EPE:H102	4:A:207[B]:EPE:H62	1.39	0.42
4:A:208[B]:EPE:N4	4:A:208[B]:EPE:H91	2.34	0.42
2:A:201:HEC:HMC3	2:A:201:HEC:CBC	2.51	0.41
4:A:207[A]:EPE:H82	4:A:207[A]:EPE:H32	1.79	0.41
1:A:33:HIS:O	1:A:38:ARG:NH2	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	106/108 (98%)	103 (97%)	3 (3%)	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 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	88/88 (100%)	88 (100%)	0	100 100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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](#)

13 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	EVB	A	203	-	104,104,104	2.21	8 (7%)	168,168,168	0.91	3 (1%)
4	EPE	A	208[B]	-	15,15,15	1.99	1 (6%)	18,20,20	1.11	3 (16%)
5	SO4	A	211	-	4,4,4	0.33	0	6,6,6	0.07	0
2	HEC	A	201	1	32,50,50	1.47	4 (12%)	24,82,82	1.44	3 (12%)
4	EPE	A	207[A]	-	15,15,15	1.95	1 (6%)	18,20,20	1.12	2 (11%)
5	SO4	A	210	-	4,4,4	0.34	0	6,6,6	0.07	0
5	SO4	A	209	-	4,4,4	0.33	0	6,6,6	0.08	0
4	EPE	A	206	-	15,15,15	1.99	1 (6%)	18,20,20	1.18	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	EPE	A	208[A]	-	15,15,15	2.03	1 (6%)	18,20,20	1.23	2 (11%)
4	EPE	A	205	-	15,15,15	2.00	1 (6%)	18,20,20	1.11	2 (11%)
4	EPE	A	207[B]	-	15,15,15	1.93	1 (6%)	18,20,20	1.16	2 (11%)
3	EVB	A	202	-	104,104,104	2.21	8 (7%)	168,168,168	0.90	4 (2%)
3	EVB	A	204	-	104,104,104	2.26	8 (7%)	168,168,168	0.91	2 (1%)

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	EVB	A	203	-	-	4/80/80/80	-
4	EPE	A	208[B]	-	-	5/9/19/19	0/1/1/1
2	HEC	A	201	1	-	2/10/54/54	-
4	EPE	A	207[A]	-	-	8/9/19/19	0/1/1/1
4	EPE	A	206	-	-	2/9/19/19	0/1/1/1
4	EPE	A	208[A]	-	-	6/9/19/19	0/1/1/1
4	EPE	A	205	-	-	2/9/19/19	0/1/1/1
4	EPE	A	207[B]	-	-	6/9/19/19	0/1/1/1
3	EVB	A	202	-	-	0/80/80/80	-
3	EVB	A	204	-	-	4/80/80/80	-

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	204	EVB	C52-S71	-8.18	1.59	1.77
3	A	203	EVB	C48-S64	-8.12	1.60	1.77
3	A	204	EVB	C18-S69	-8.09	1.60	1.77
3	A	204	EVB	C38-S70	-8.05	1.60	1.77
3	A	204	EVB	C10-S67	-8.03	1.60	1.77
3	A	202	EVB	C26-S66	-7.87	1.60	1.77
3	A	204	EVB	C34-S65	-7.85	1.60	1.77
3	A	203	EVB	C6-S68	-7.81	1.60	1.77
3	A	204	EVB	C48-S64	-7.80	1.60	1.77
3	A	202	EVB	C34-S65	-7.80	1.60	1.77
3	A	204	EVB	C26-S66	-7.79	1.60	1.77
3	A	202	EVB	C38-S70	-7.79	1.60	1.77
3	A	202	EVB	C6-S68	-7.77	1.60	1.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	202	EVB	C52-S71	-7.77	1.60	1.77
3	A	204	EVB	C6-S68	-7.77	1.60	1.77
3	A	202	EVB	C18-S69	-7.76	1.60	1.77
3	A	202	EVB	C10-S67	-7.75	1.60	1.77
3	A	203	EVB	C26-S66	-7.74	1.60	1.77
3	A	203	EVB	C10-S67	-7.72	1.60	1.77
3	A	203	EVB	C52-S71	-7.72	1.60	1.77
3	A	202	EVB	C48-S64	-7.64	1.61	1.77
3	A	203	EVB	C18-S69	-7.64	1.61	1.77
3	A	203	EVB	C38-S70	-7.60	1.61	1.77
4	A	208[B]	EPE	C10-S	-7.48	1.66	1.77
4	A	208[A]	EPE	C10-S	-7.47	1.66	1.77
3	A	203	EVB	C34-S65	-7.44	1.61	1.77
4	A	205	EPE	C10-S	-7.44	1.66	1.77
4	A	206	EPE	C10-S	-7.44	1.66	1.77
4	A	207[A]	EPE	C10-S	-7.32	1.67	1.77
4	A	207[B]	EPE	C10-S	-7.26	1.67	1.77
2	A	201	HEC	CBC-CAC	-4.17	1.33	1.49
2	A	201	HEC	CBB-CAB	-4.13	1.34	1.49
2	A	201	HEC	C4B-C3B	3.37	1.49	1.43
2	A	201	HEC	C2B-C3B	-3.15	1.37	1.40

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	201	HEC	CBD-CAD-C3D	-3.59	106.50	112.62
3	A	204	EVB	C28-C24-C23	-3.20	116.44	121.38
4	A	206	EPE	O2S-S-C10	3.20	110.77	106.92
4	A	208[A]	EPE	O3S-S-C10	3.07	110.73	105.77
3	A	204	EVB	C28-C24-C25	2.92	124.73	120.23
4	A	205	EPE	O3S-S-C10	2.78	110.27	105.77
2	A	201	HEC	CBA-CAA-C2A	-2.59	108.24	112.60
4	A	207[A]	EPE	O2S-S-C10	2.56	109.99	106.92
4	A	207[B]	EPE	O3S-S-C10	2.51	109.83	105.77
4	A	208[A]	EPE	C9-N1-C6	2.43	117.46	111.23
4	A	205	EPE	O2S-S-C10	2.42	109.83	106.92
3	A	202	EVB	C30-C28-C24	-2.34	106.23	112.67
3	A	203	EVB	O18-S67-C10	2.27	111.88	106.65
4	A	208[B]	EPE	O1S-S-C10	2.26	109.63	106.92
4	A	207[B]	EPE	O1S-S-C10	2.25	109.62	106.92
3	A	203	EVB	C7-C2-C3	-2.24	117.92	121.38
4	A	208[B]	EPE	O3S-S-C10	2.21	109.34	105.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	208[B]	EPE	O2S-S-C10	2.18	109.53	106.92
4	A	207[A]	EPE	O3S-S-C10	2.16	109.27	105.77
3	A	202	EVB	O17-S66-C26	2.12	111.53	106.65
2	A	201	HEC	O2A-CGA-CBA	2.04	120.60	114.03
3	A	203	EVB	O27-S70-C38	2.01	111.28	106.65
3	A	202	EVB	C36-C29-C20	-2.01	107.13	112.67
3	A	202	EVB	O25-S69-C18	2.01	111.87	106.69

There are no chirality outliers.

All (39) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	206	EPE	S-C10-C9-N1
4	A	207[A]	EPE	C8-C7-N4-C3
4	A	207[A]	EPE	S-C10-C9-N1
4	A	207[A]	EPE	C9-C10-S-O1S
4	A	207[A]	EPE	C9-C10-S-O2S
4	A	207[B]	EPE	C10-C9-N1-C6
4	A	207[B]	EPE	N4-C7-C8-O8
4	A	208[A]	EPE	C10-C9-N1-C6
4	A	208[A]	EPE	C9-C10-S-O2S
4	A	206	EPE	N4-C7-C8-O8
4	A	207[B]	EPE	C9-C10-S-O3S
4	A	208[A]	EPE	C9-C10-S-O3S
4	A	208[A]	EPE	N4-C7-C8-O8
4	A	208[B]	EPE	N4-C7-C8-O8
4	A	207[A]	EPE	C9-C10-S-O3S
3	A	204	EVB	C23-C24-C28-C30
3	A	204	EVB	C25-C24-C28-C30
4	A	207[A]	EPE	C10-C9-N1-C2
4	A	207[A]	EPE	C10-C9-N1-C6
4	A	207[B]	EPE	C10-C9-N1-C2
4	A	208[A]	EPE	C10-C9-N1-C2
4	A	208[B]	EPE	C10-C9-N1-C6
4	A	208[B]	EPE	C8-C7-N4-C3
3	A	203	EVB	C3-C2-C7-C8
3	A	203	EVB	C45-C46-C72-C54
3	A	204	EVB	C12-C14-C22-C23
4	A	205	EPE	C8-C7-N4-C5
4	A	207[B]	EPE	C9-C10-S-O1S
4	A	207[B]	EPE	C9-C10-S-O2S
4	A	208[A]	EPE	C9-C10-S-O1S

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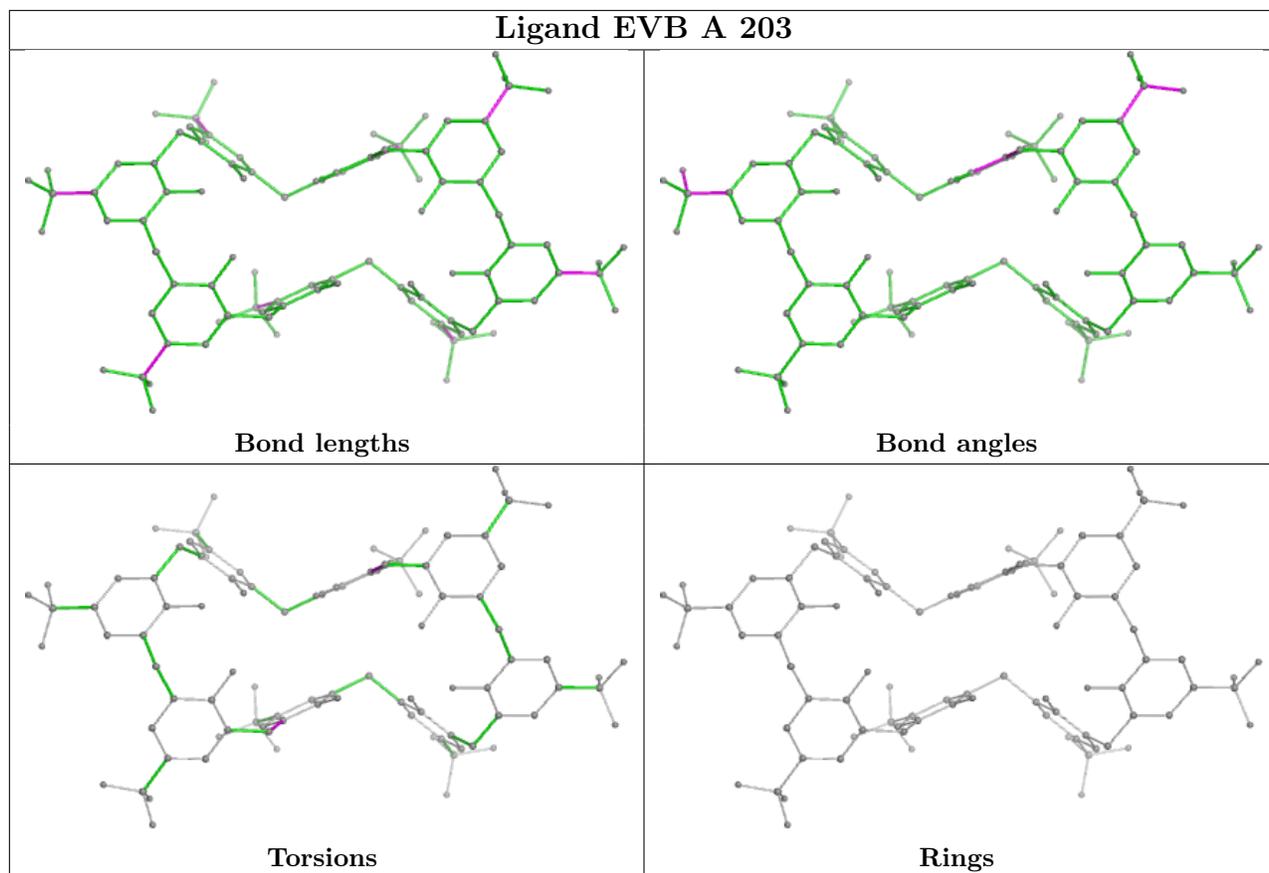
Mol	Chain	Res	Type	Atoms
3	A	203	EVB	C1-C2-C7-C8
3	A	203	EVB	C47-C46-C72-C54
3	A	204	EVB	C12-C14-C22-C27
4	A	207[A]	EPE	N4-C7-C8-O8
4	A	205	EPE	C8-C7-N4-C3
4	A	208[B]	EPE	C8-C7-N4-C5
4	A	208[B]	EPE	C10-C9-N1-C2
2	A	201	HEC	CAA-CBA-CGA-O2A
2	A	201	HEC	CAA-CBA-CGA-O1A

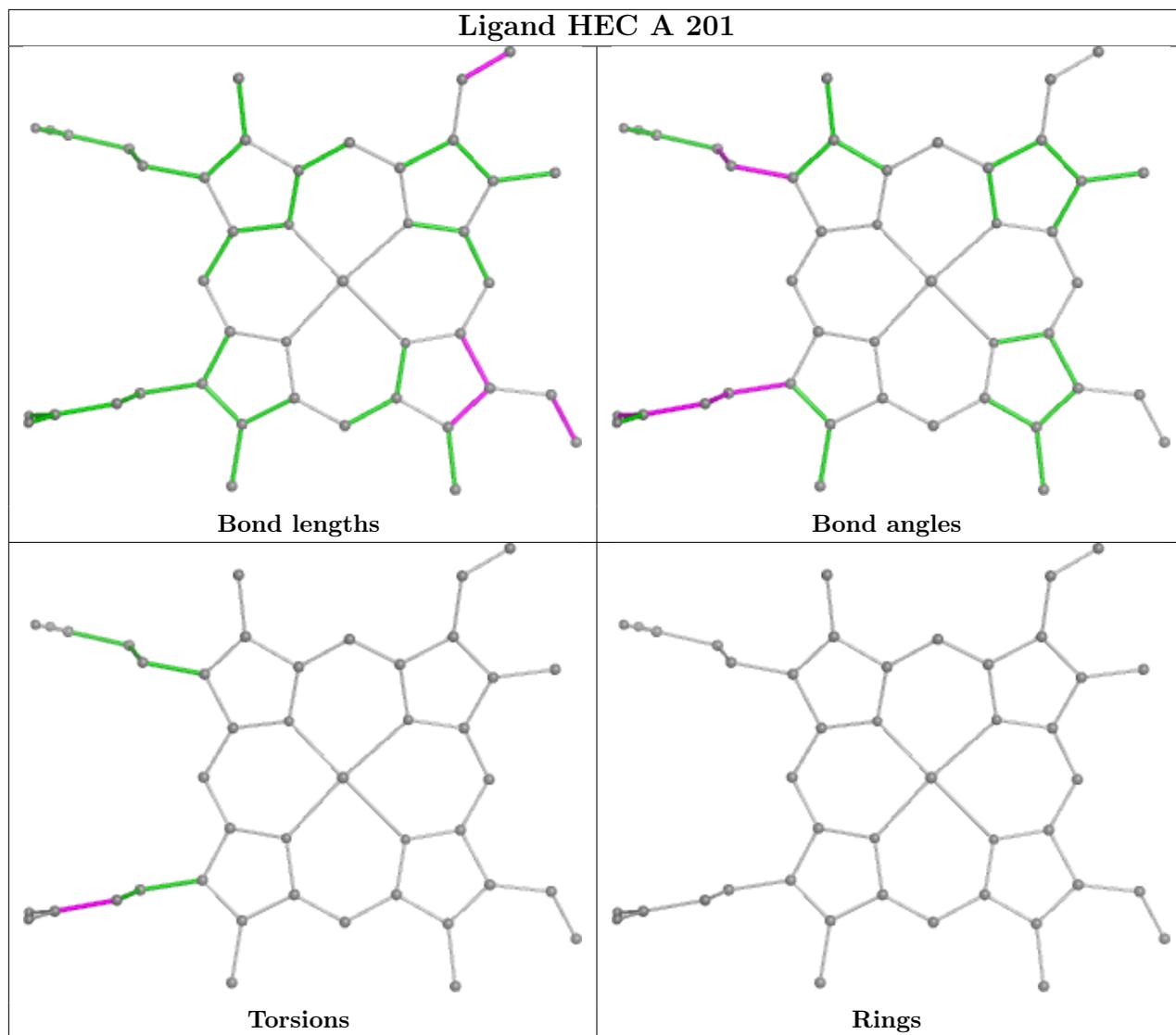
There are no ring outliers.

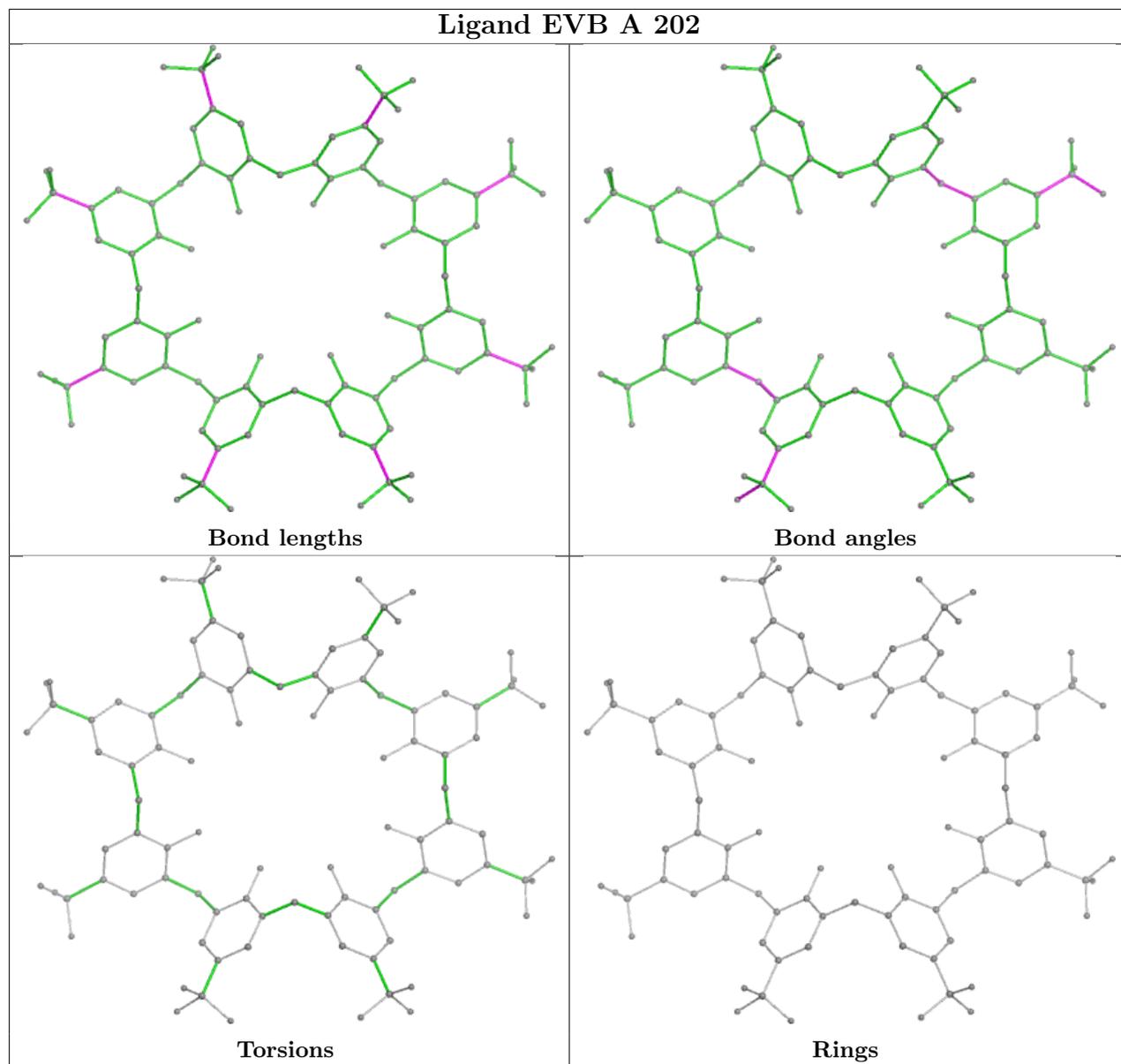
7 monomers are involved in 14 short contacts:

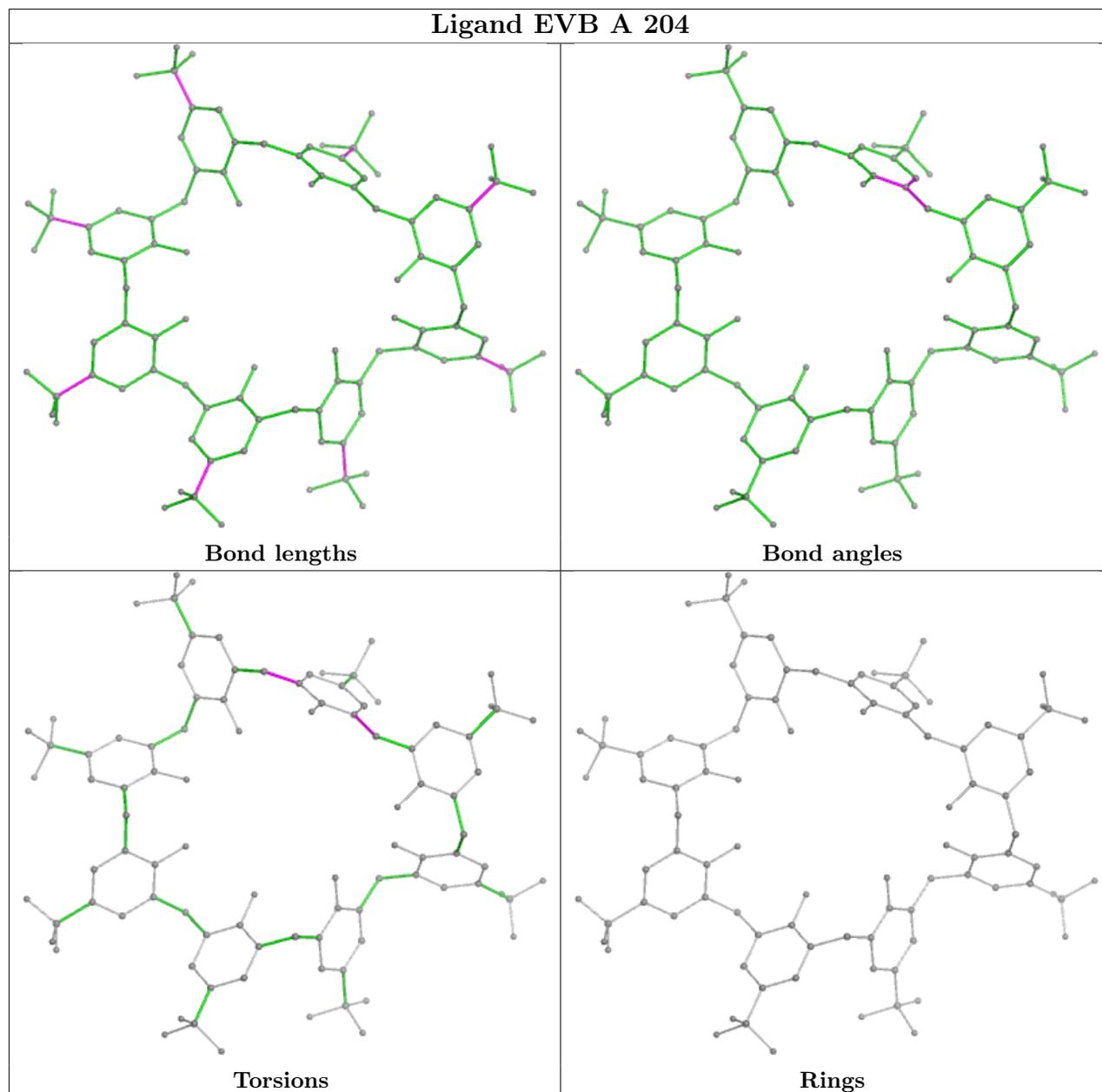
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	203	EVB	2	0
4	A	208[B]	EPE	2	0
2	A	201	HEC	1	0
4	A	207[A]	EPE	2	0
4	A	207[B]	EPE	5	0
3	A	202	EVB	1	0
3	A	204	EVB	1	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	108/108 (100%)	-0.00	3 (2%) 55 53	30, 40, 57, 78	0

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	-5	ALA	4.4
1	A	-2	LYS	3.0
1	A	44	GLU	2.6

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

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q < 0.9' lists the number of atoms with occupancy less than 0.9.

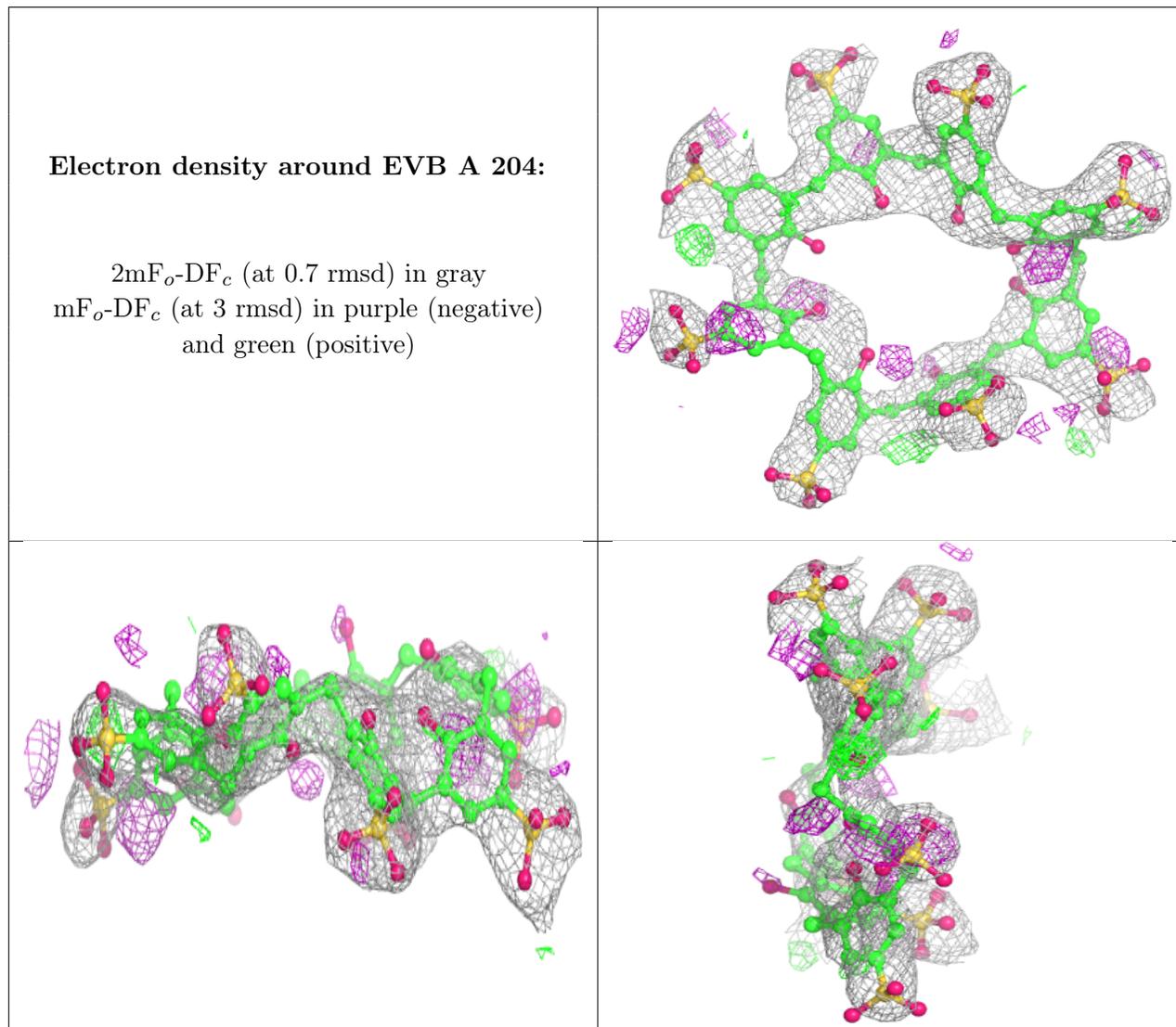
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	SO4	A	210	5/5	0.57	0.17	106,108,108,109	0
4	EPE	A	207[B]	15/15	0.58	0.50	75,80,84,84	15
4	EPE	A	207[A]	15/15	0.58	0.50	71,76,79,79	15
3	EVB	A	204	96/96	0.72	0.25	87,122,135,135	0

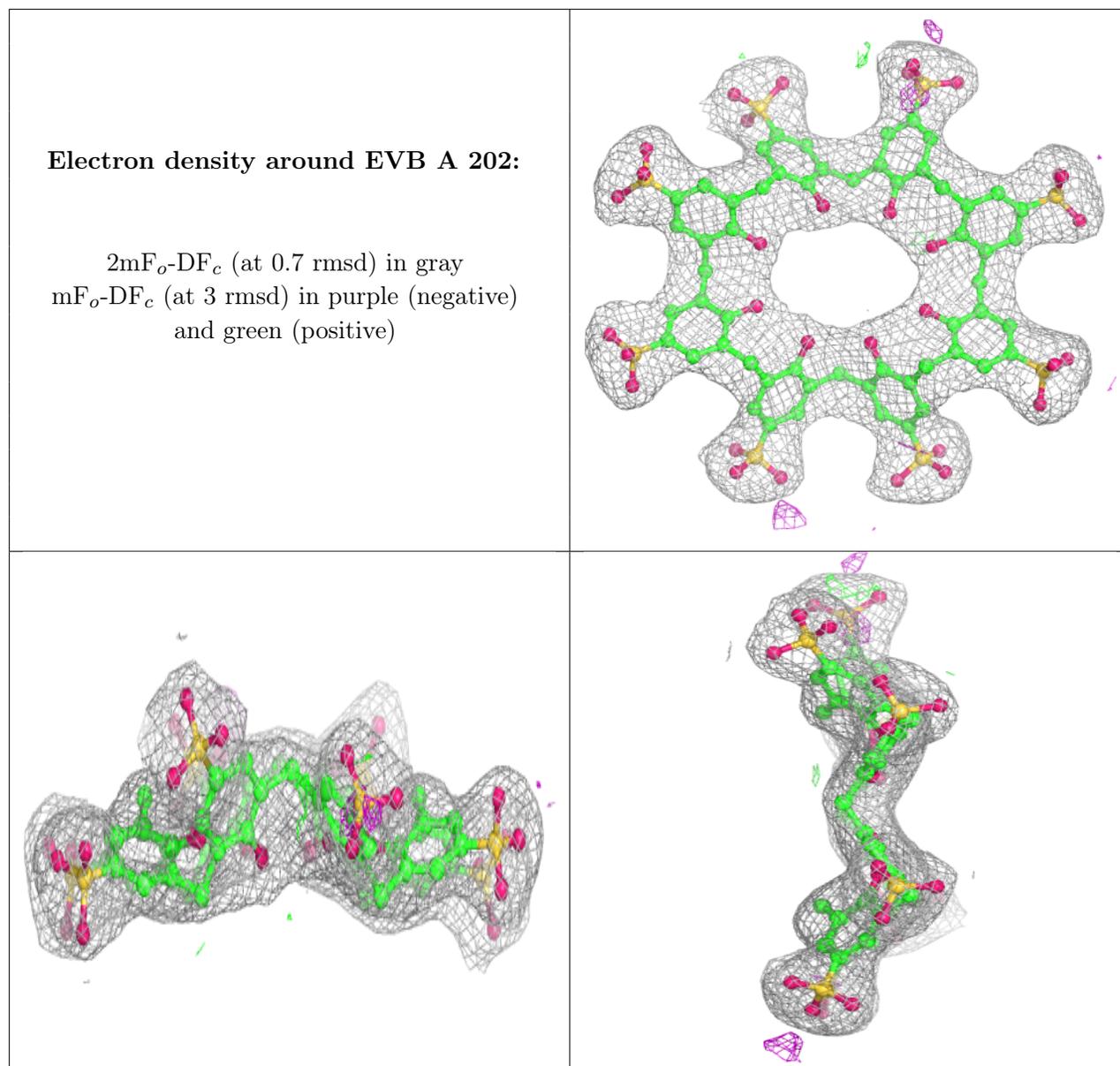
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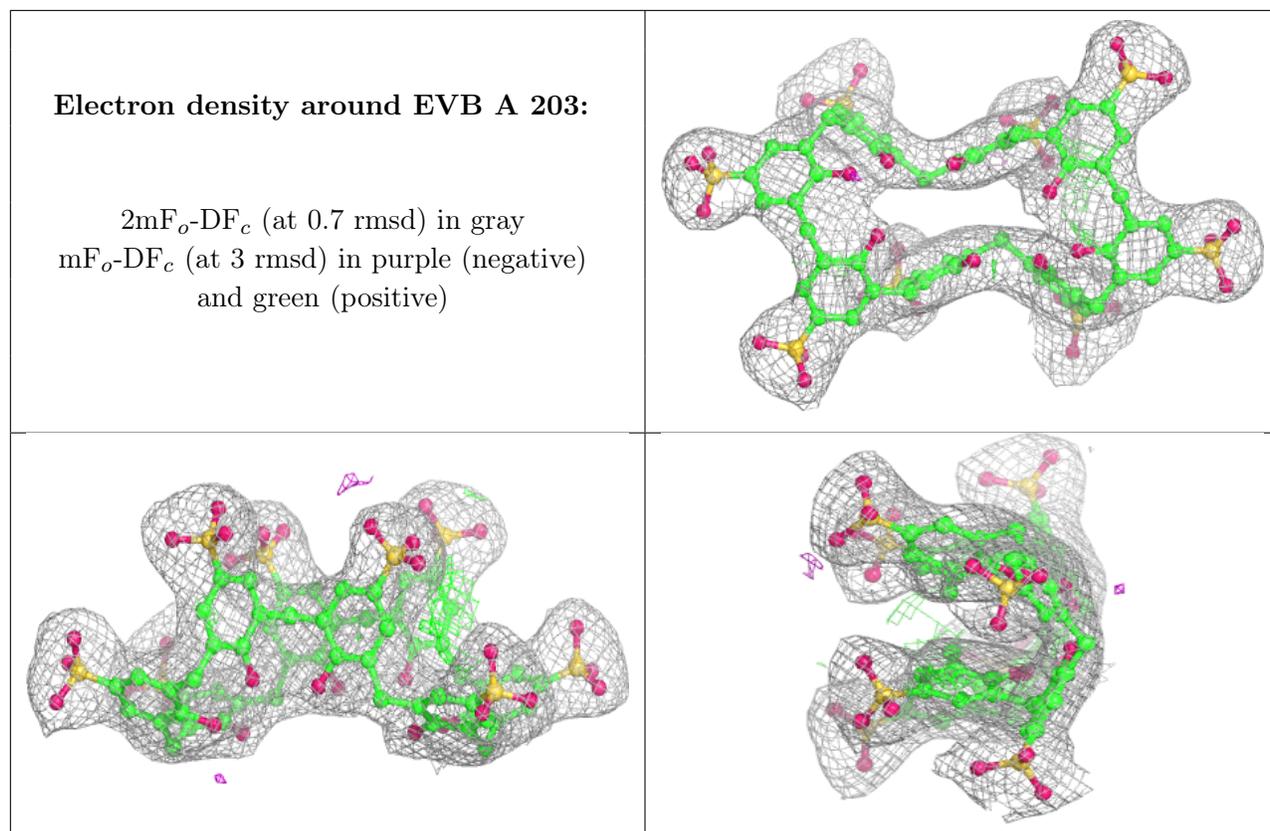
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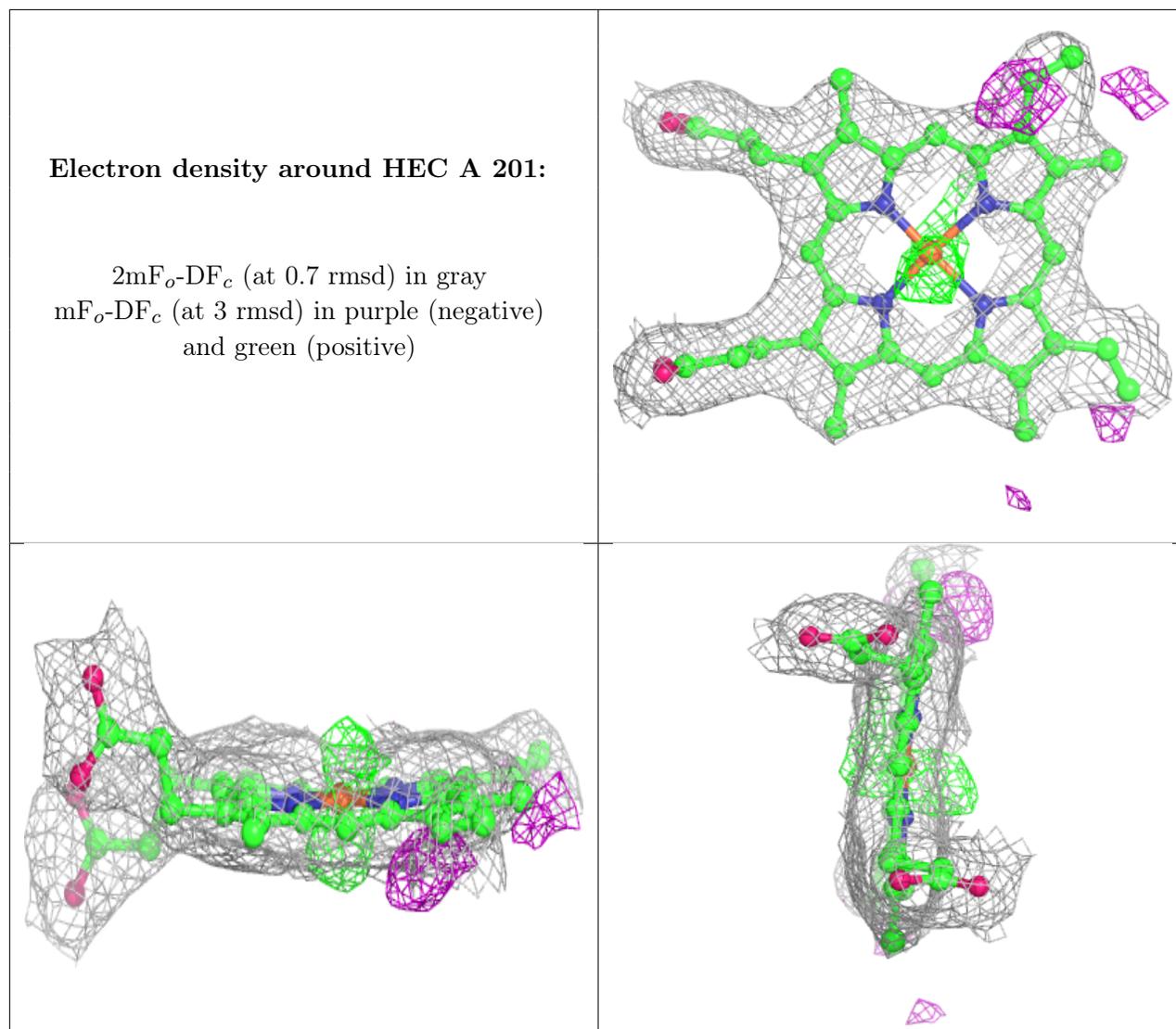
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	SO4	A	209	5/5	0.82	0.14	97,98,99,99	0
4	EPE	A	208[A]	15/15	0.85	0.26	82,87,91,91	15
4	EPE	A	208[B]	15/15	0.85	0.26	58,61,65,65	15
4	EPE	A	206	15/15	0.86	0.29	114,123,134,134	0
4	EPE	A	205	15/15	0.87	0.24	82,86,87,87	0
5	SO4	A	211	5/5	0.89	0.21	44,44,45,45	5
3	EVB	A	202	96/96	0.97	0.08	36,39,42,43	0
3	EVB	A	203	96/96	0.97	0.08	39,42,44,45	0
2	HEC	A	201	43/43	0.98	0.09	30,32,34,35	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.









6.5 Other polymers [i](#)

There are no such residues in this entry.