wwPDB X-ray Structure Validation Summary Report (i)

Sep 14, 2023 – 06:30 AM EDT

PDB ID	:	1QGW
Title	:	CRYSTAL STRUCTURE OF PHYCOERYTHRIN 545 FROM THE MARINE CRYPTOPHYTE RHODOMONAS CS24
Authors	:	Harrop, S.J.; Wilk, K.E.; Hiller, R.G.; Curmi, P.M.G.
Deposited on	:	1999-05-10
Resolution	:	1.63 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 (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:

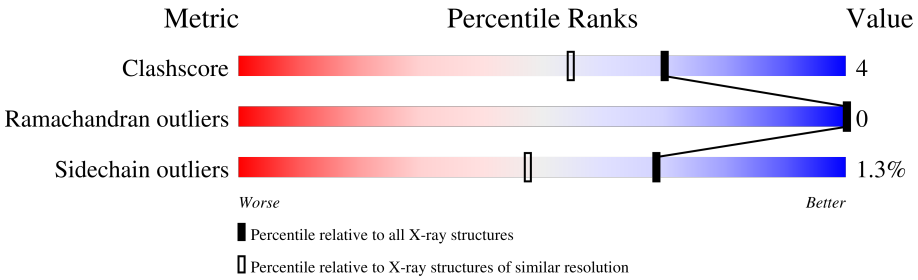
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 1.63 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	141614	3268 (1.66-1.62)
Ramachandran outliers	138981	3215 (1.66-1.62)
Sidechain outliers	138945	3215 (1.66-1.62)

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%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	76	95% 5%
2	B	67	93% 7%
3	C	177	90% 5% • 5%
3	D	177	94% 5% •

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 4788 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 PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (ALPHA-1 CHAIN)).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	76	567	348	98	117	4	6	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	4	LYZ	LYS	modified residue	UNP Q00433
A	10	GLN	LEU	conflict	UNP Q00433

- Molecule 2 is a protein called PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (ALPHA-2 CHAIN)).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	67	493	303	86	98	6	4	2	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	4	LYZ	LYS	modified residue	UNP Q00433

- Molecule 3 is a protein called PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (BETA CHAIN)).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	169	1236	759	215	252	10	28	4	0
3	D	177	1300	794	225	270	11	19	9	0

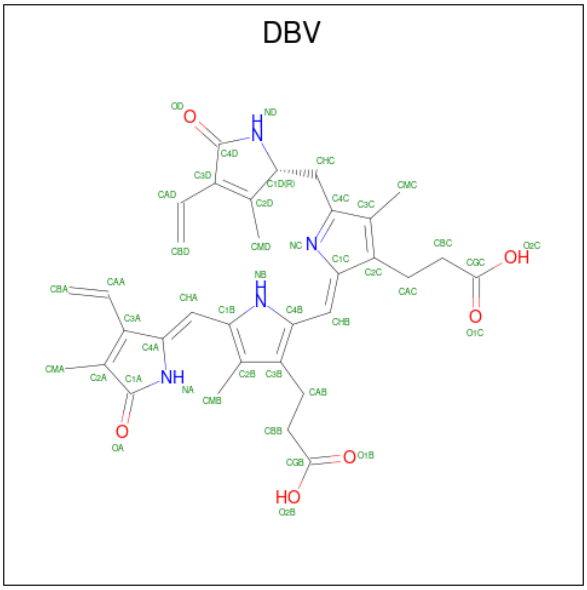
There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	50	CYS	VAL	conflict	UNP P27198
C	56	VAL	TYR	conflict	UNP P27198
C	61	CYS	GLU	conflict	UNP P27198
C	65	SER	HIS	conflict	UNP P27198
C	72	MEN	ASN	modified residue	UNP P27198
C	73	CYS	GLU	conflict	UNP P27198
D	50	CYS	VAL	conflict	UNP P27198
D	56	VAL	TYR	conflict	UNP P27198
D	61	CYS	GLU	conflict	UNP P27198
D	65	SER	HIS	conflict	UNP P27198
D	72	MEN	ASN	modified residue	UNP P27198
D	73	CYS	GLU	conflict	UNP P27198

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Mg 1 1	0	0
4	D	1	Total Mg 1 1	0	0

- Molecule 5 is 15,16-DIHYDROBILIVERDIN (three-letter code: DBV) (formula: $C_{33}H_{36}N_4O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O 43 33 4 6	0	0

Continued on next page...

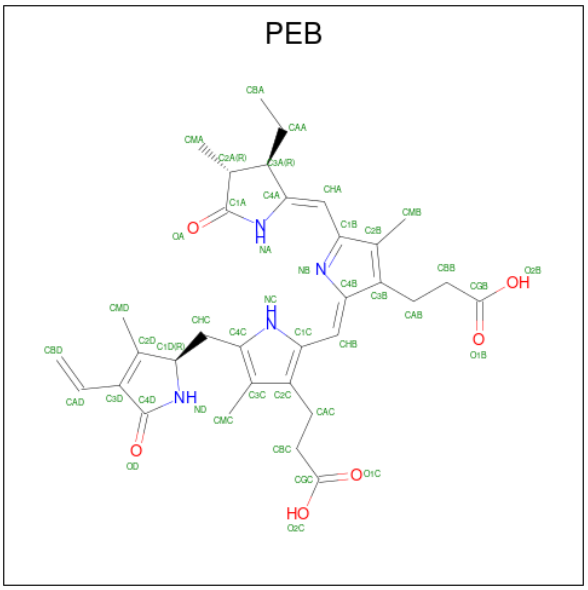
Continued from previous page...

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	B	1	Total	C	N	O	0	0
			43	33	4	6		

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	C	1	Total	Cl	0	0
			1	1		

- Molecule 7 is PHYCOERYTHROBILIN (three-letter code: PEB) (formula: $C_{33}H_{40}N_4O_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	C	1	Total	C	N	O	0	0
			43	33	4	6		
7	C	1	Total	C	N	O	0	0
			43	33	4	6		
7	C	1	Total	C	N	O	0	0
			43	33	4	6		
7	D	1	Total	C	N	O	0	0
			43	33	4	6		
7	D	1	Total	C	N	O	0	0
			43	33	4	6		
7	D	1	Total	C	N	O	0	0
			43	33	4	6		

- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	168	Total O 168 168	0	0
8	B	135	Total O 135 135	0	0
8	C	217	Total O 217 217	0	0
8	D	325	Total O 325 325	0	0

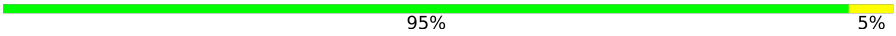
3 Residue-property plots (i)

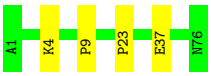
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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: PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (ALPHA-1 CHAIN))

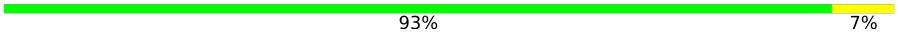
Chain A:

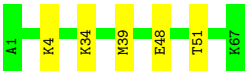




• Molecule 2: PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (ALPHA-2 CHAIN))

Chain B:



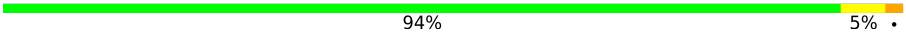


• Molecule 3: PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (BETA CHAIN))

Chain C:

• Molecule 3: PROTEIN (CRYPTOPHYTAN PHYCOERYTHRIN (BETA CHAIN))

Chain D:



4 Data and refinement statistics (i)

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

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	63.03Å 82.63Å 89.55Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 1.63	Depositor
% Data completeness (in resolution range)	95.4 (20.00-1.63)	Depositor
R_{merge}	0.04	Depositor
R_{sym}	0.04	Depositor
Refinement program	REFMAC	Depositor
R, R_{free}	0.149 , 0.188	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	4788	wwPDB-VP
Average B, all atoms (Å^2)	8.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MEN, PEB, MG, DBV, CL, LYZ

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	0.44	0/563	0.86	0/749
2	B	0.41	0/498	0.81	0/661
3	C	0.44	0/1258	0.90	3/1695 (0.2%)
3	D	0.45	1/1348 (0.1%)	0.88	5/1814 (0.3%)
All	All	0.44	1/3667 (0.0%)	0.88	8/4919 (0.2%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	7	ARG	CD-NE	-5.34	1.37	1.46

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	91	ARG	NE-CZ-NH2	-10.33	115.13	120.30
3	D	108	ARG	NE-CZ-NH2	7.33	123.96	120.30
3	C	7	ARG	NE-CZ-NH2	7.29	123.94	120.30
3	D	1	MET	CG-SD-CE	5.97	109.75	100.20
3	D	7	ARG	CD-NE-CZ	5.55	131.37	123.60

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	567	0	564	3	0
2	B	493	0	511	5	2
3	C	1236	0	1231	5	2
3	D	1300	0	1300	5	0
4	A	1	0	0	0	0
4	D	1	0	0	0	0
5	A	43	0	33	3	0
5	B	43	0	33	4	0
6	C	1	0	0	0	0
7	C	129	0	110	4	0
7	D	129	0	110	3	0
8	A	168	0	0	1	1
8	B	135	0	0	1	1
8	C	217	0	0	2	4
8	D	325	0	0	2	4
All	All	4788	0	3892	28	7

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 28 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)
3:C:115:GLU:HG3	8:C:1103:HOH:O	1.76	0.85
2:B:51:THR:HG21	8:D:1087:HOH:O	1.82	0.80
1:A:37:GLU:OE2	8:A:929:HOH:O	2.09	0.70
1:A:9:PRO:O	3:C:91:ARG:HD3	1.94	0.68
3:C:125:ASN:OD1	8:C:1115:HOH:O	2.14	0.64

The worst 5 of 7 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)
2:B:34:LYS:NZ	3:C:157:ASP:OD1[4_456]	1.73	0.47
8:A:1028:HOH:O	8:D:1103:HOH:O[3_555]	1.91	0.29
8:C:1047:HOH:O	8:D:912:HOH:O[3_555]	2.03	0.17
2:B:34:LYS:NZ	3:C:157:ASP:CG[4_456]	2.10	0.10
8:B:302:HOH:O	8:C:1097:HOH:O[1_455]	2.10	0.10

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	73/76 (96%)	72 (99%)	1 (1%)	0	100	100
2	B	66/67 (98%)	64 (97%)	2 (3%)	0	100	100
3	C	168/177 (95%)	167 (99%)	1 (1%)	0	100	100
3	D	182/177 (103%)	181 (100%)	1 (0%)	0	100	100
All	All	489/497 (98%)	484 (99%)	5 (1%)	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	60/60 (100%)	60 (100%)	0	100	100
2	B	52/50 (104%)	52 (100%)	0	100	100
3	C	138/141 (98%)	136 (99%)	2 (1%)	67	45
3	D	150/141 (106%)	147 (98%)	3 (2%)	55	29
All	All	400/392 (102%)	395 (99%)	5 (1%)	69	47

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	C	111	ASN
3	C	127	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	D	111	ASN
3	D	127	ASN
3	D	144	ASN

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

Mol	Chain	Res	Type
3	C	111	ASN
3	C	127	ASN
3	D	111	ASN
3	D	127	ASN
3	D	144	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

4 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	LYZ	B	4	2	7,9,10	0.71	0	4,10,12	3.83	2 (50%)
3	MEN	C	72	3	7,8,9	0.56	0	6,9,11	0.49	0
3	MEN	D	72	3	7,8,9	0.40	0	6,9,11	0.48	0
1	LYZ	A	4	1	7,9,10	0.65	0	4,10,12	2.20	2 (50%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	LYZ	B	4	2	-	1/8/9/11	-
3	MEN	C	72	3	-	2/7/8/10	-
3	MEN	D	72	3	-	2/7/8/10	-
1	LYZ	A	4	1	-	1/8/9/11	-

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	4	LYZ	OH-CD-CE	-6.24	88.08	109.33
2	B	4	LYZ	OH-CD-CG	-4.03	97.69	109.21
1	A	4	LYZ	OH-CD-CG	-3.70	98.63	109.21
1	A	4	LYZ	OH-CD-CE	-2.26	101.63	109.33

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	4	LYZ	O-C-CA-CB
2	B	4	LYZ	CG-CD-CE-NZ
3	D	72	MEN	CA-CB-CG-OD1
3	D	72	MEN	CA-CB-CG-ND2
3	C	72	MEN	CA-CB-CG-OD1

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)

Of 11 ligands modelled in this entry, 3 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	$\#\|Z\| > 2$
7	PEB	C	250	3	43,46,46	1.79	7 (16%)	45,67,67	2.01	13 (28%)
7	PEB	D	258	3	43,46,46	1.72	5 (11%)	45,67,67	2.11	10 (22%)
7	PEB	D	282	3	43,46,46	1.88	6 (13%)	45,67,67	2.00	10 (22%)
7	PEB	C	258	3	43,46,46	1.80	6 (13%)	45,67,67	2.11	7 (15%)
5	DBV	B	219	2	42,46,46	1.69	5 (11%)	42,67,67	1.60	8 (19%)
7	PEB	C	282	3	43,46,46	1.84	7 (16%)	45,67,67	2.02	12 (26%)
7	PEB	D	250	3	43,46,46	1.89	7 (16%)	45,67,67	2.02	15 (33%)
5	DBV	A	219	1	42,46,46	1.81	6 (14%)	42,67,67	1.54	8 (19%)

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
7	PEB	C	250	3	-	5/24/74/74	0/4/4/4
7	PEB	D	258	3	-	5/24/74/74	0/4/4/4
7	PEB	D	282	3	-	2/24/74/74	0/4/4/4
7	PEB	C	258	3	-	5/24/74/74	0/4/4/4
5	DBV	B	219	2	-	5/26/74/74	0/4/4/4
7	PEB	C	282	3	-	5/24/74/74	0/4/4/4
7	PEB	D	250	3	-	8/24/74/74	0/4/4/4
5	DBV	A	219	1	-	7/26/74/74	0/4/4/4

The worst 5 of 49 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	D	282	PEB	C2D-C3D	7.41	1.44	1.34
5	A	219	DBV	CHB-C1C	7.26	1.41	1.35
7	C	282	PEB	C2D-C3D	7.16	1.43	1.34
7	D	258	PEB	C2D-C3D	6.85	1.43	1.34
7	D	250	PEB	C2A-C1A	-6.68	1.46	1.52

The worst 5 of 83 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	D	258	PEB	C1C-CHB-C4B	10.06	140.83	128.81
7	C	258	PEB	C1C-CHB-C4B	9.92	140.66	128.81
7	D	282	PEB	C1C-CHB-C4B	8.65	139.14	128.81
7	C	282	PEB	C1C-CHB-C4B	8.23	138.64	128.81
7	C	250	PEB	C1C-CHB-C4B	7.69	137.99	128.81

There are no chirality outliers.

5 of 42 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	219	DBV	C2A-C3A-CAA-CBA
5	A	219	DBV	C4A-C3A-CAA-CBA
5	A	219	DBV	NB-C1B-CHA-C4A
5	A	219	DBV	C2B-C1B-CHA-C4A
5	B	219	DBV	C4A-C3A-CAA-CBA

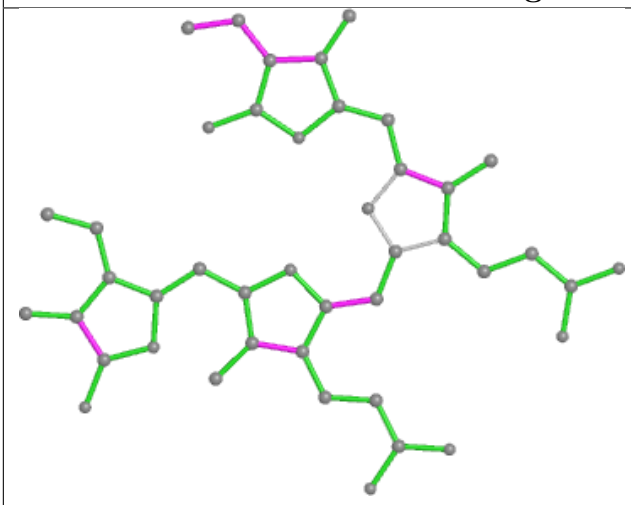
There are no ring outliers.

6 monomers are involved in 14 short contacts:

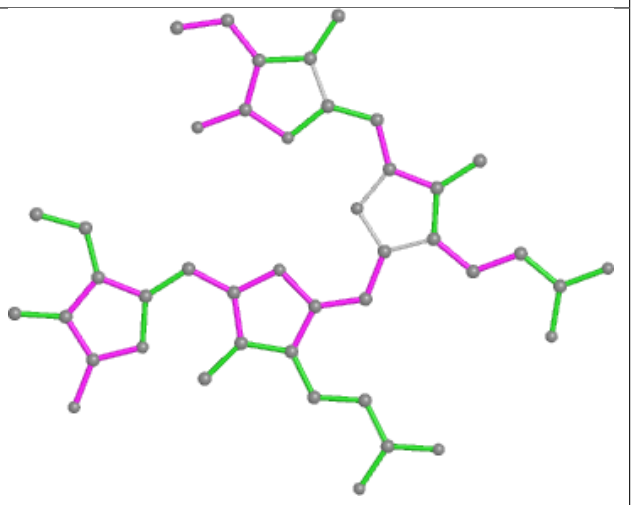
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	D	258	PEB	2	0
7	D	282	PEB	1	0
7	C	258	PEB	3	0
5	B	219	DBV	4	0
7	C	282	PEB	1	0
5	A	219	DBV	3	0

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 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.

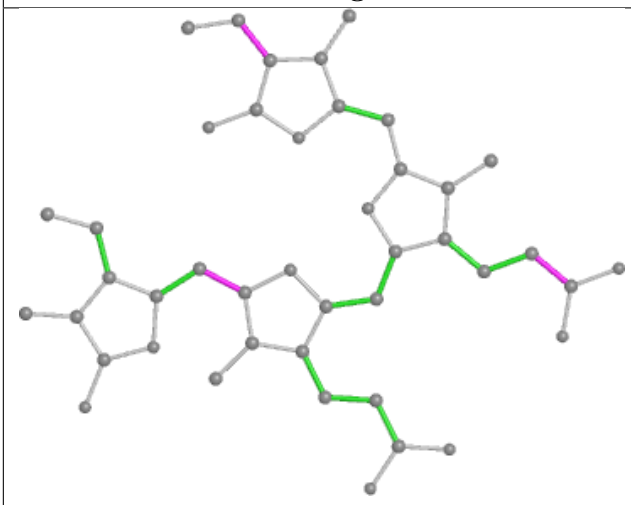
Ligand PEB C 250



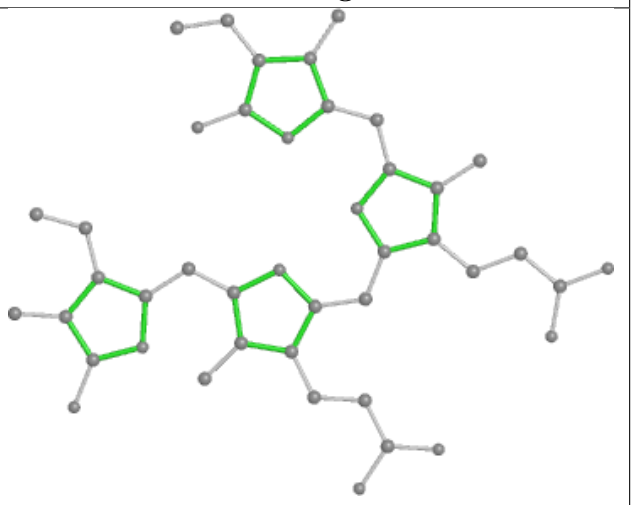
Bond lengths



Bond angles

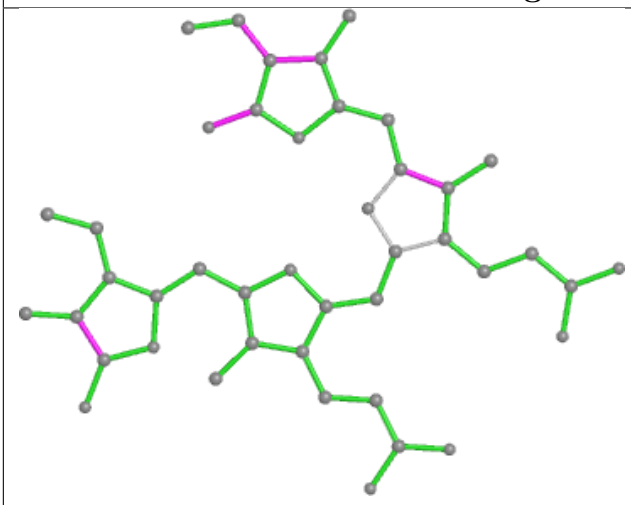


Torsions

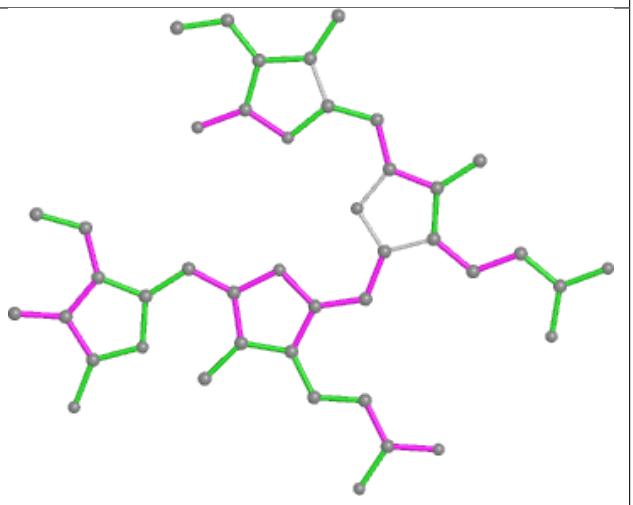


Rings

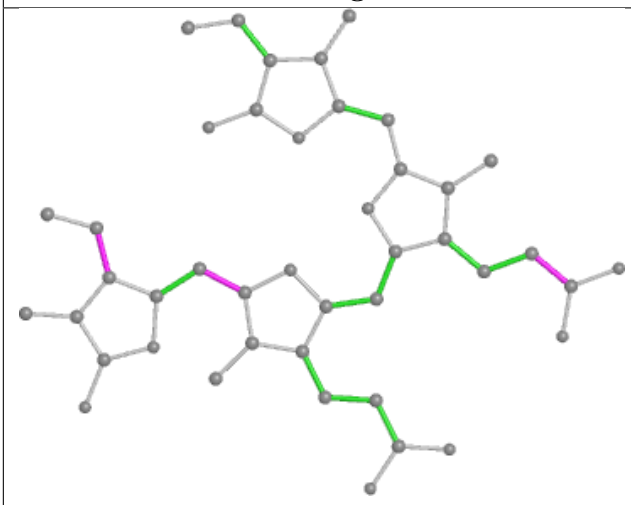
Ligand PEB D 258



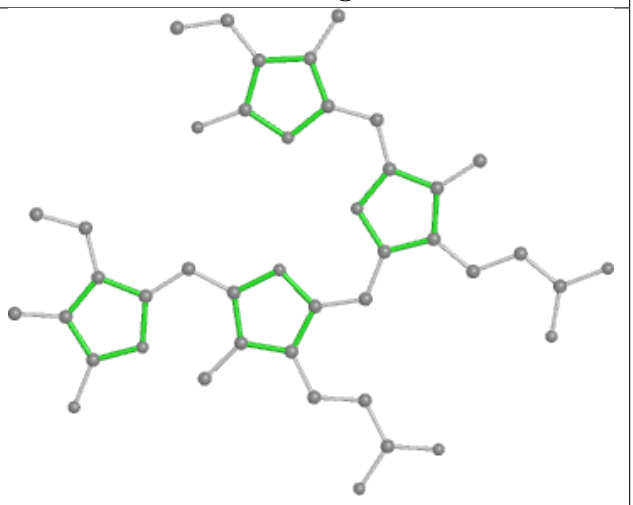
Bond lengths



Bond angles

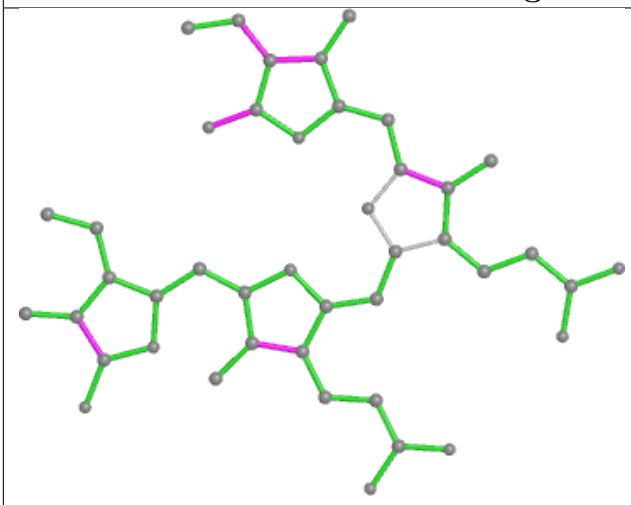


Torsions

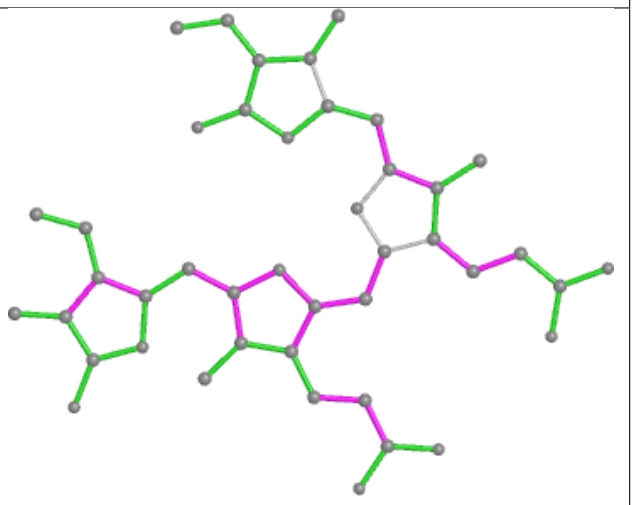


Rings

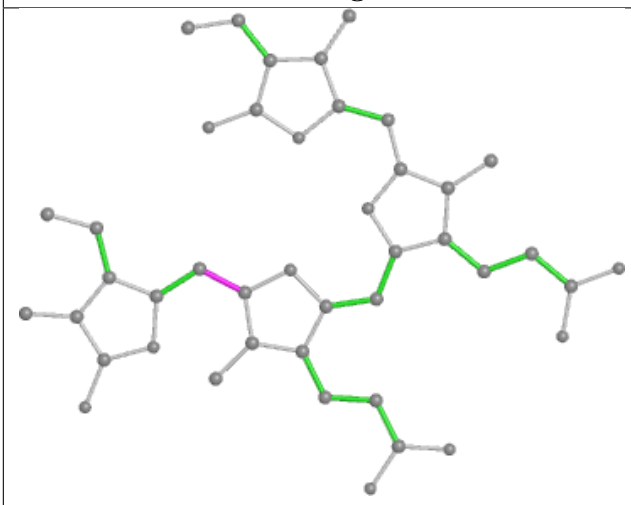
Ligand PEB D 282



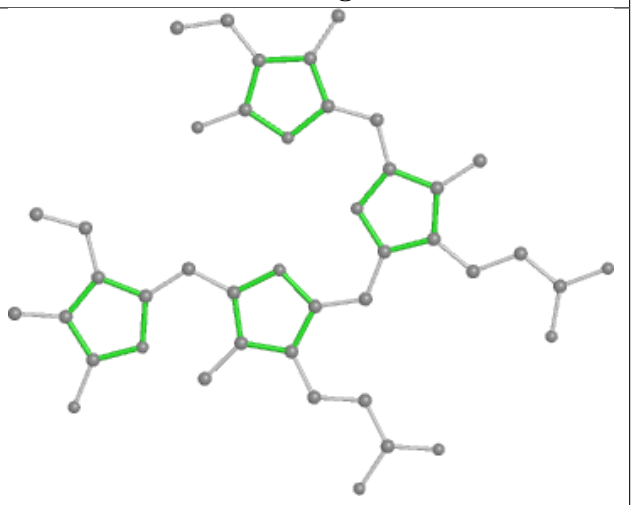
Bond lengths



Bond angles

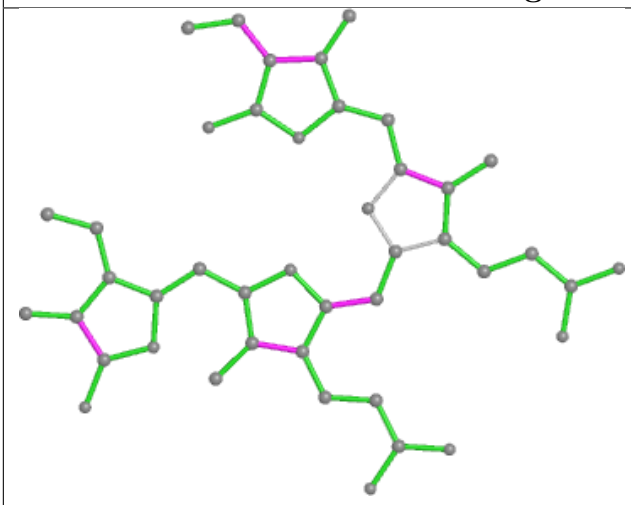


Torsions

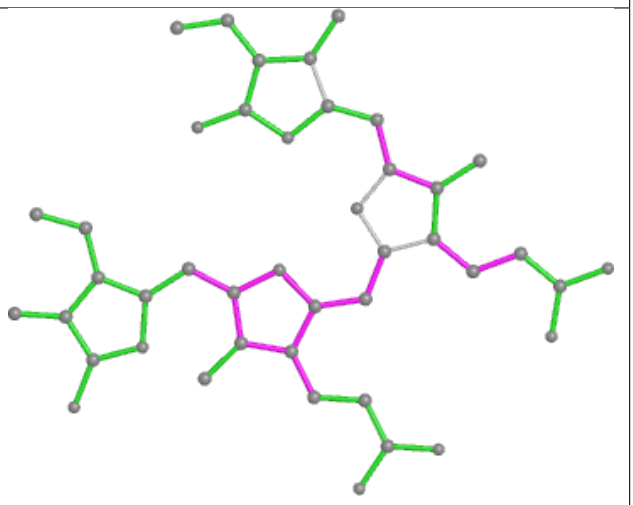


Rings

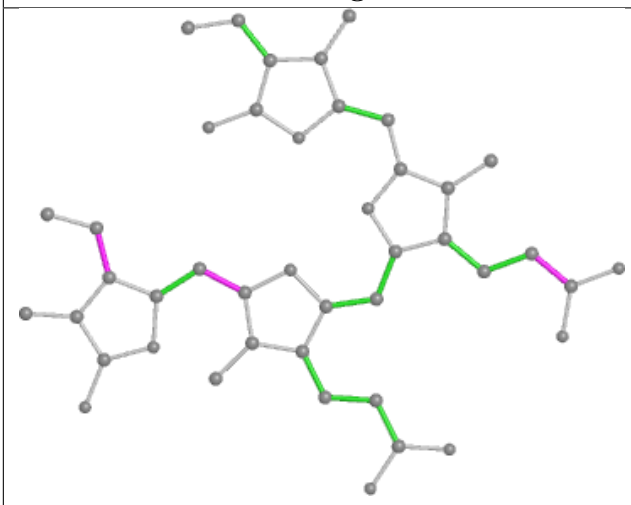
Ligand PEB C 258



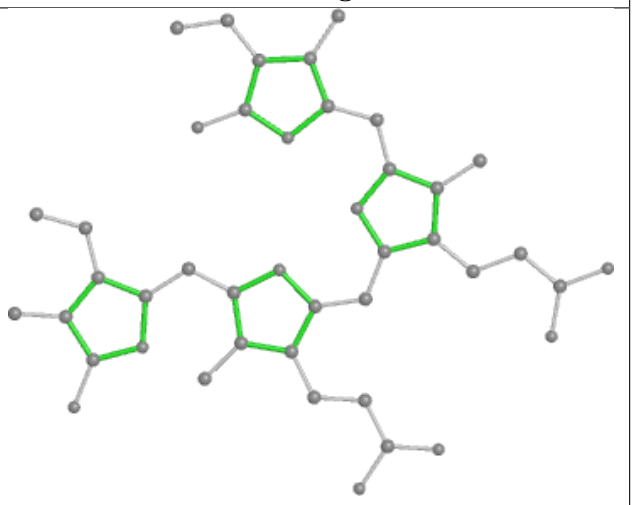
Bond lengths



Bond angles

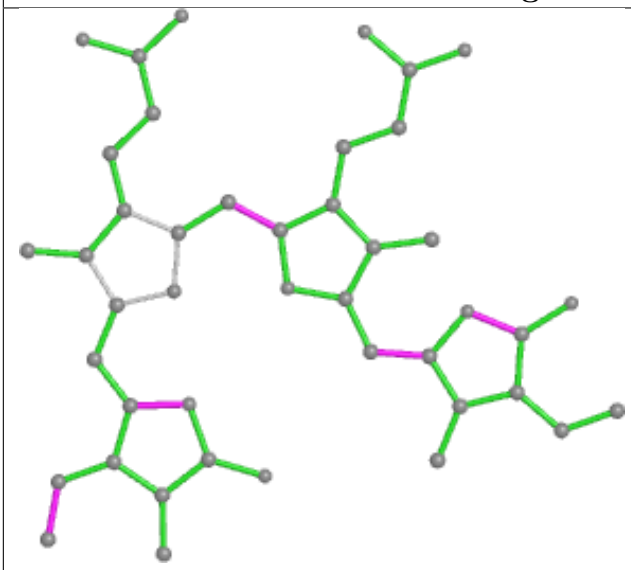


Torsions

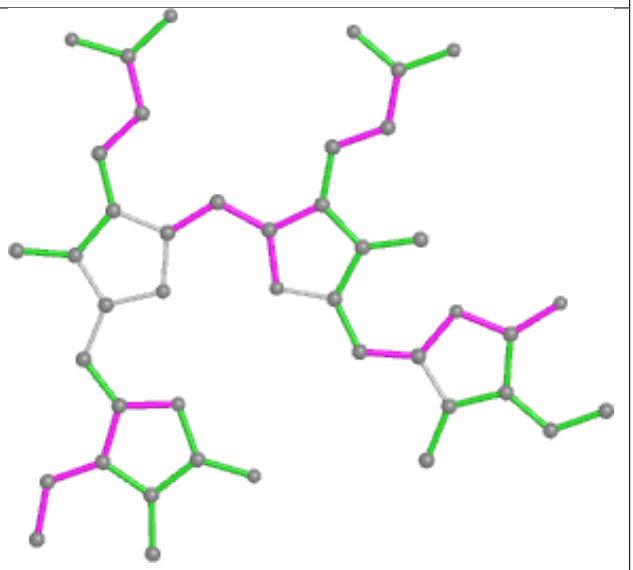


Rings

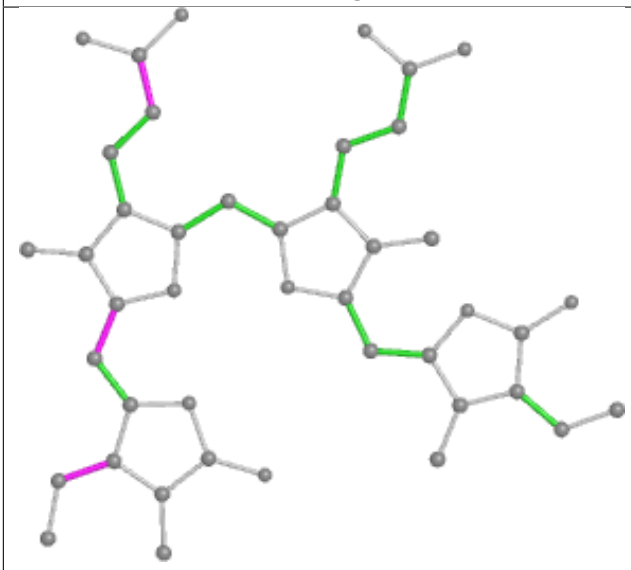
Ligand DBV B 219



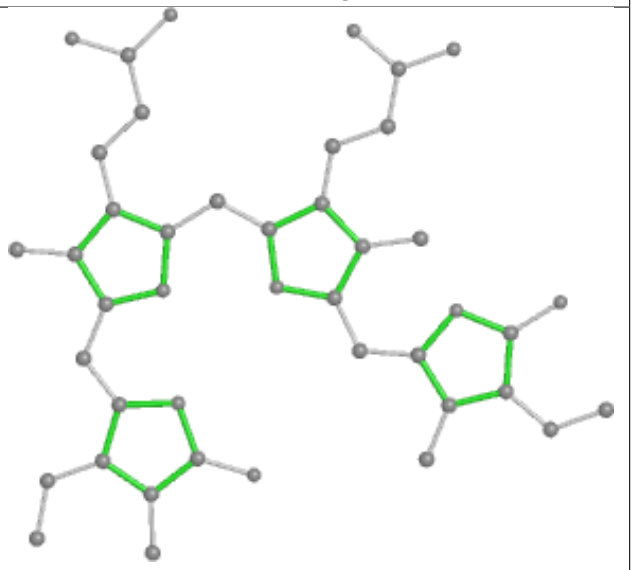
Bond lengths



Bond angles

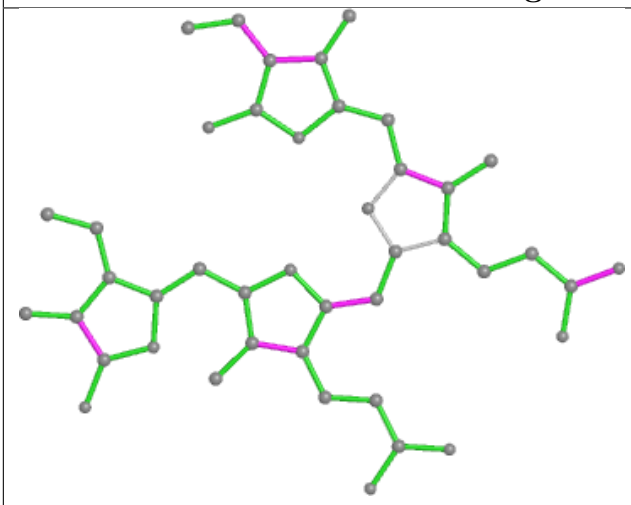


Torsions

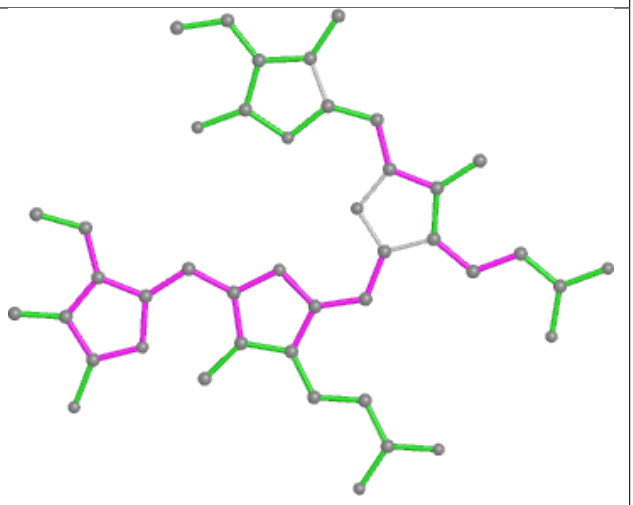


Rings

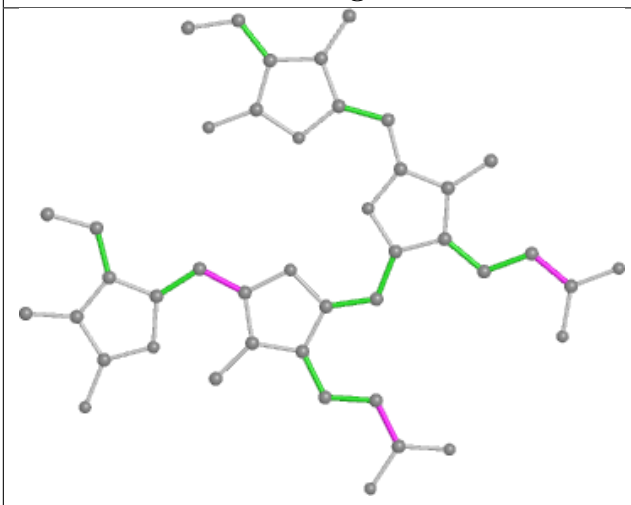
Ligand PEB C 282



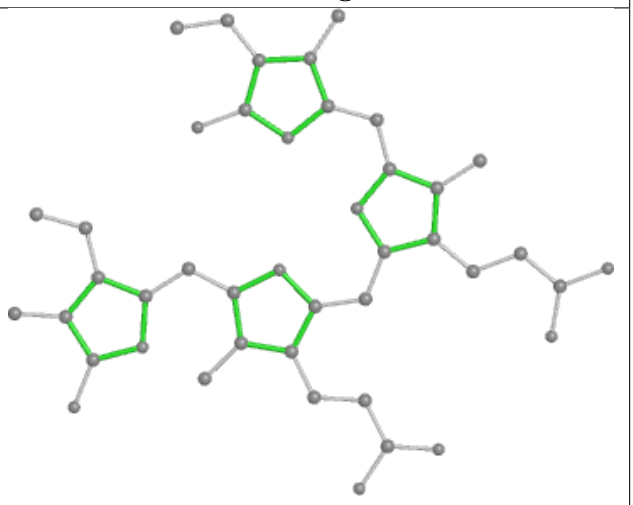
Bond lengths



Bond angles

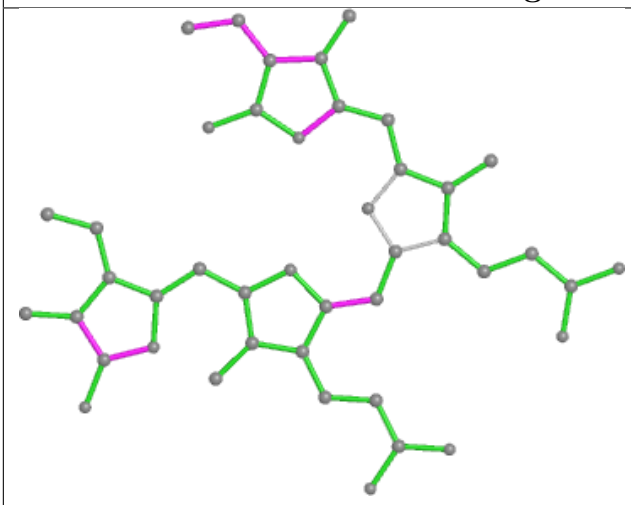


Torsions

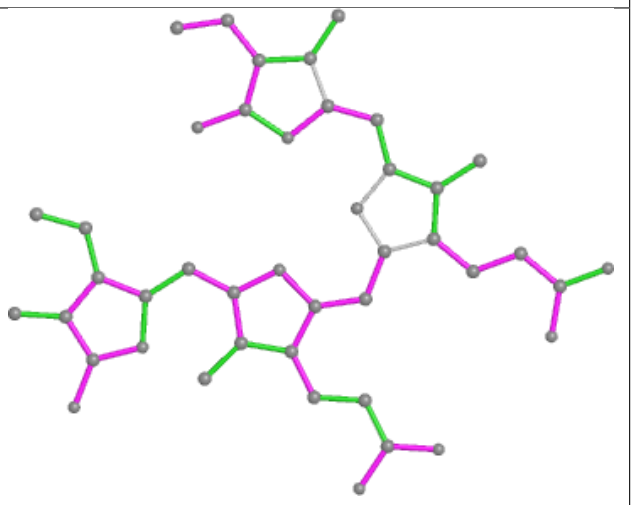


Rings

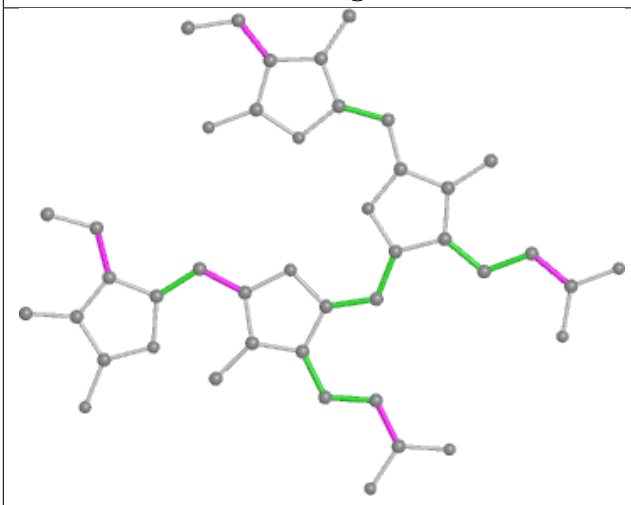
Ligand PEB D 250



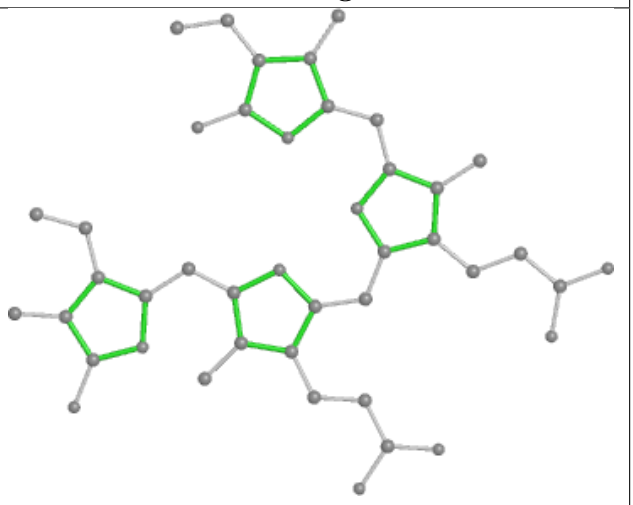
Bond lengths



Bond angles

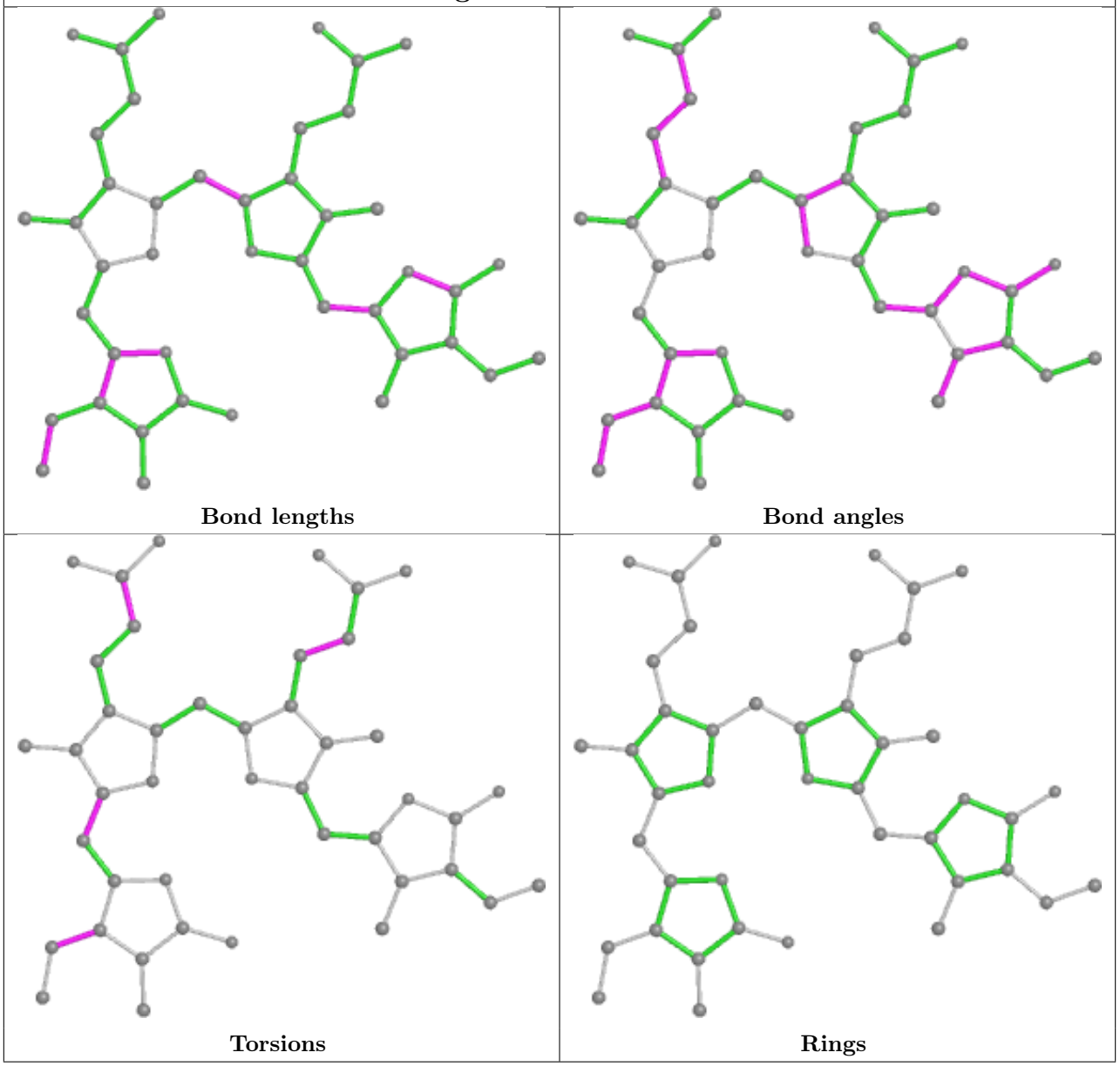


Torsions



Rings

Ligand DBV A 219



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

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.