wwPDB EM Validation Summary Report (i)

Jan 20, 2026 – 10:23 AM EST

PDB ID	:	9Z9B / pdb_00009z9b
EMDB ID	:	EMD-73900
Title	:	Gated state sheep connexin-50 in DMPC nanodiscs at neutral pH
Authors	:	Jarodsky, J.M.; Myers, J.B.; Reichow, S.L.
Deposited on	:	2025-11-18
Resolution	:	2.70 Å(reported)
Based on initial model	:	7jjp

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 (i)) were used in the production of this report:

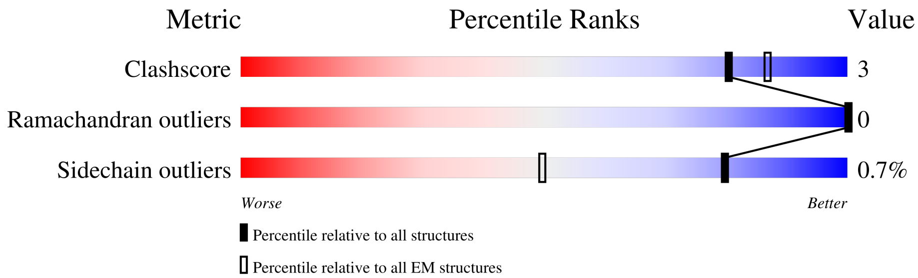
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

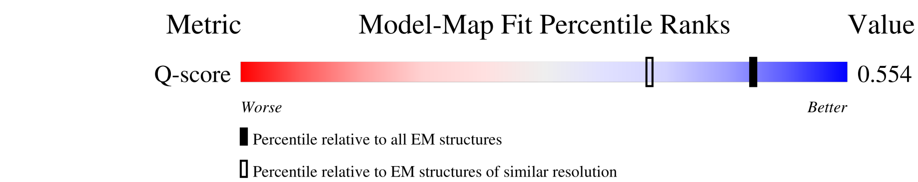
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.70 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	10327 (2.20 - 3.20)

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% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	440	40% • 58%
1	B	440	40% • 58%
1	C	440	40% • 58%
1	D	440	40% • 58%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	E	440	39% • 58%
1	F	440	39% • 58%
1	G	440	39% • 58%
1	H	440	40% • 58%
1	I	440	40% • 58%
1	J	440	40% • 58%
1	K	440	40% • 58%
1	L	440	39% • 58%

2 Entry composition (i)

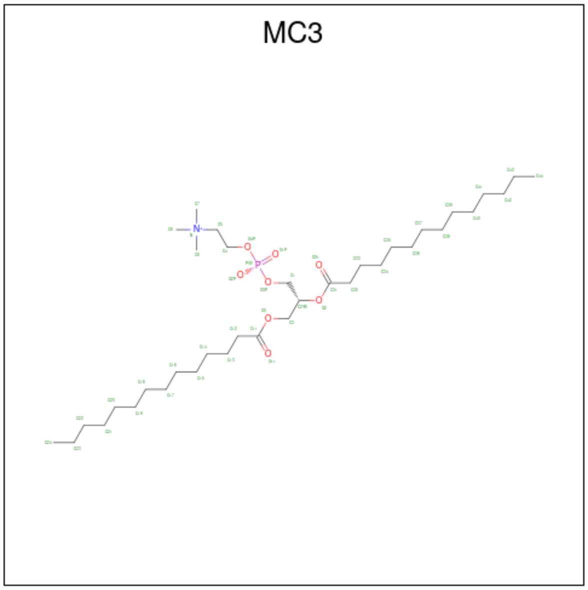
There are 2 unique types of molecules in this entry. The entry contains 40392 atoms, of which 20772 are hydrogens and 0 are deuteriums.

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 Gap junction alpha-8 protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	B	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	C	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	D	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	E	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	F	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	G	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	H	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	I	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	J	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	K	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0
1	L	184	Total 2815	C 951	H 1379	N 235	O 241	S 9	0	0

- Molecule 2 is 1,2-DIMYRISTOYL-RAC-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: MC3) (formula: $C_{36}H_{72}NO_8P$).



Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total C H 36 12 24	0
2	A	1	Total C H 39 13 26	0
2	A	1	Total C H 39 13 26	0
2	A	1	Total C H 30 10 20	0
2	A	1	Total C H 39 13 26	0
2	A	1	Total C H 18 6 12	0
2	A	1	Total C H 27 9 18	0
2	A	1	Total C H 33 11 22	0
2	A	1	Total C H 24 8 16	0
2	A	1	Total C H 39 13 26	0
2	A	1	Total C H 33 11 22	0
2	A	1	Total C H 36 12 24	0
2	A	1	Total C H 24 8 16	0
2	A	1	Total C H 30 10 20	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total C H O P 61 19 33 8 1	0
2	A	1	Total C H O P 43 13 21 8 1	0
2	B	1	Total C H 36 12 24	0
2	B	1	Total C H 39 13 26	0
2	B	1	Total C H 39 13 26	0
2	B	1	Total C H 30 10 20	0
2	B	1	Total C H 39 13 26	0
2	B	1	Total C H 18 6 12	0
2	B	1	Total C H 27 9 18	0
2	B	1	Total C H 33 11 22	0
2	B	1	Total C H 24 8 16	0
2	B	1	Total C H 39 13 26	0
2	B	1	Total C H 33 11 22	0
2	B	1	Total C H 36 12 24	0
2	B	1	Total C H 24 8 16	0
2	B	1	Total C H 30 10 20	0
2	B	1	Total C H O P 61 19 33 8 1	0
2	B	1	Total C H O P 43 13 21 8 1	0
2	C	1	Total C H 36 12 24	0
2	C	1	Total C H 39 13 26	0
2	C	1	Total C H 39 13 26	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	C	1	Total C H 30 10 20	0
2	C	1	Total C H 39 13 26	0
2	C	1	Total C H 18 6 12	0
2	C	1	Total C H 27 9 18	0
2	C	1	Total C H 33 11 22	0
2	C	1	Total C H 24 8 16	0
2	C	1	Total C H 39 13 26	0
2	C	1	Total C H 33 11 22	0
2	C	1	Total C H 36 12 24	0
2	C	1	Total C H 24 8 16	0
2	C	1	Total C H 30 10 20	0
2	C	1	Total C H O P 61 19 33 8 1	0
2	C	1	Total C H O P 43 13 21 8 1	0
2	D	1	Total C H 36 12 24	0
2	D	1	Total C H 39 13 26	0
2	D	1	Total C H 39 13 26	0
2	D	1	Total C H 30 10 20	0
2	D	1	Total C H 39 13 26	0
2	D	1	Total C H 18 6 12	0
2	D	1	Total C H 27 9 18	0
2	D	1	Total C H 33 11 22	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	D	1	Total C H 24 8 16	0
2	D	1	Total C H 39 13 26	0
2	D	1	Total C H 33 11 22	0
2	D	1	Total C H 36 12 24	0
2	D	1	Total C H 24 8 16	0
2	D	1	Total C H 30 10 20	0
2	D	1	Total C H O P 61 19 33 8 1	0
2	D	1	Total C H O P 43 13 21 8 1	0
2	E	1	Total C H 36 12 24	0
2	E	1	Total C H 39 13 26	0
2	E	1	Total C H 39 13 26	0
2	E	1	Total C H 30 10 20	0
2	E	1	Total C H 39 13 26	0
2	E	1	Total C H 18 6 12	0
2	E	1	Total C H 27 9 18	0
2	E	1	Total C H 33 11 22	0
2	E	1	Total C H 24 8 16	0
2	E	1	Total C H 39 13 26	0
2	E	1	Total C H 33 11 22	0
2	E	1	Total C H 36 12 24	0
2	E	1	Total C H 24 8 16	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	E	1	Total C H 30 10 20	0
2	E	1	Total C H O P 61 19 33 8 1	0
2	E	1	Total C H O P 43 13 21 8 1	0
2	F	1	Total C H 39 13 26	0
2	F	1	Total C H 33 11 22	0
2	F	1	Total C H 36 12 24	0
2	F	1	Total C H 24 8 16	0
2	F	1	Total C H 30 10 20	0
2	F	1	Total C H O P 61 19 33 8 1	0
2	F	1	Total C H O P 43 13 21 8 1	0
2	F	1	Total C H 36 12 24	0
2	F	1	Total C H 39 13 26	0
2	F	1	Total C H 39 13 26	0
2	F	1	Total C H 30 10 20	0
2	F	1	Total C H 39 13 26	0
2	F	1	Total C H 18 6 12	0
2	F	1	Total C H 27 9 18	0
2	F	1	Total C H 33 11 22	0
2	F	1	Total C H 24 8 16	0
2	G	1	Total C H 36 12 24	0
2	G	1	Total C H 39 13 26	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	G	1	Total C H 39 13 26	0
2	G	1	Total C H 30 10 20	0
2	G	1	Total C H 39 13 26	0
2	G	1	Total C H 18 6 12	0
2	G	1	Total C H 27 9 18	0
2	G	1	Total C H 33 11 22	0
2	G	1	Total C H O P 61 19 33 8 1	0
2	G	1	Total C H 24 8 16	0
2	G	1	Total C H 39 13 26	0
2	G	1	Total C H 33 11 22	0
2	G	1	Total C H 36 12 24	0
2	G	1	Total C H 24 8 16	0
2	G	1	Total C H 30 10 20	0
2	G	1	Total C H O P 61 19 33 8 1	0
2	G	1	Total C H O P 43 13 21 8 1	0
2	H	1	Total C H 36 12 24	0
2	H	1	Total C H 39 13 26	0
2	H	1	Total C H 39 13 26	0
2	H	1	Total C H 30 10 20	0
2	H	1	Total C H 39 13 26	0
2	H	1	Total C H 18 6 12	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	H	1	Total C H 27 9 18	0
2	H	1	Total C H 33 11 22	0
2	H	1	Total C H 24 8 16	0
2	H	1	Total C H 39 13 26	0
2	H	1	Total C H 33 11 22	0
2	H	1	Total C H 36 12 24	0
2	H	1	Total C H 24 8 16	0
2	H	1	Total C H 30 10 20	0
2	H	1	Total C H O P 61 19 33 8 1	0
2	H	1	Total C H O P 43 13 21 8 1	0
2	I	1	Total C H 36 12 24	0
2	I	1	Total C H 39 13 26	0
2	I	1	Total C H 39 13 26	0
2	I	1	Total C H 30 10 20	0
2	I	1	Total C H 39 13 26	0
2	I	1	Total C H 18 6 12	0
2	I	1	Total C H 27 9 18	0
2	I	1	Total C H 33 11 22	0
2	I	1	Total C H 24 8 16	0
2	I	1	Total C H 39 13 26	0
2	I	1	Total C H 33 11 22	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	I	1	Total C H 36 12 24	0
2	I	1	Total C H 24 8 16	0
2	I	1	Total C H 30 10 20	0
2	I	1	Total C H O P 61 19 33 8 1	0
2	I	1	Total C H O P 43 13 21 8 1	0
2	J	1	Total C H 36 12 24	0
2	J	1	Total C H 39 13 26	0
2	J	1	Total C H 39 13 26	0
2	J	1	Total C H 30 10 20	0
2	J	1	Total C H 39 13 26	0
2	J	1	Total C H 18 6 12	0
2	J	1	Total C H 27 9 18	0
2	J	1	Total C H 33 11 22	0
2	J	1	Total C H 24 8 16	0
2	J	1	Total C H 39 13 26	0
2	J	1	Total C H 33 11 22	0
2	J	1	Total C H 36 12 24	0
2	J	1	Total C H 24 8 16	0
2	J	1	Total C H 30 10 20	0
2	J	1	Total C H O P 61 19 33 8 1	0
2	J	1	Total C H O P 43 13 21 8 1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
2	K	1	Total C H 36 12 24	0
2	K	1	Total C H 39 13 26	0
2	K	1	Total C H 39 13 26	0
2	K	1	Total C H 30 10 20	0
2	K	1	Total C H 39 13 26	0
2	K	1	Total C H 18 6 12	0
2	K	1	Total C H 27 9 18	0
2	K	1	Total C H 33 11 22	0
2	K	1	Total C H 24 8 16	0
2	K	1	Total C H 39 13 26	0
2	K	1	Total C H 33 11 22	0
2	K	1	Total C H 36 12 24	0
2	K	1	Total C H 24 8 16	0
2	K	1	Total C H 30 10 20	0
2	K	1	Total C H O P 61 19 33 8 1	0
2	K	1	Total C H O P 43 13 21 8 1	0
2	L	1	Total C H 39 13 26	0
2	L	1	Total C H 33 11 22	0
2	L	1	Total C H 36 12 24	0
2	L	1	Total C H 24 8 16	0
2	L	1	Total C H 30 10 20	0

Continued on next page...

Continued from previous page...

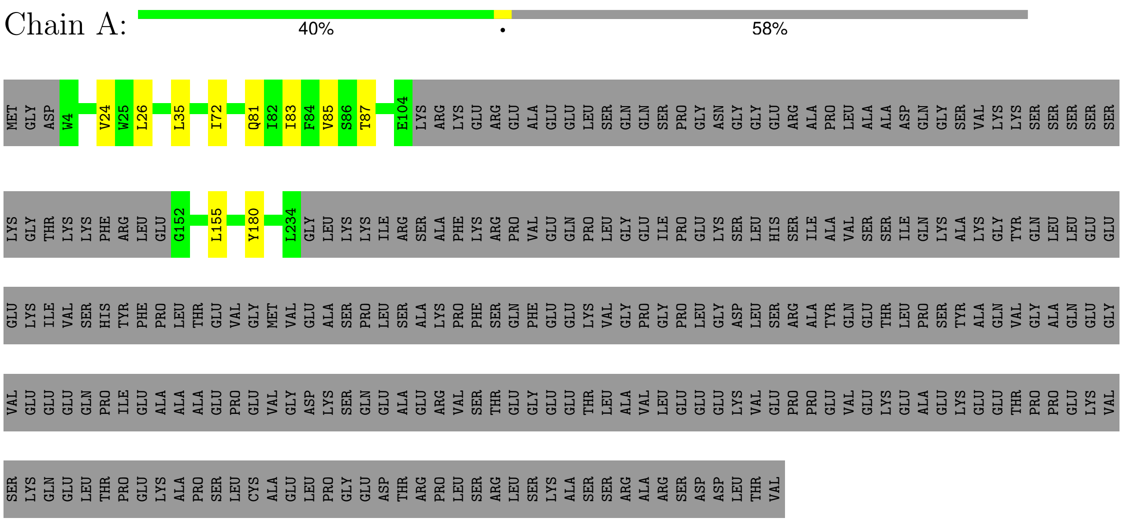
Mol	Chain	Residues	Atoms	AltConf
2	L	1	Total C H O P 43 13 21 8 1	0
2	L	1	Total C H 36 12 24	0
2	L	1	Total C H 39 13 26	0
2	L	1	Total C H 39 13 26	0
2	L	1	Total C H 30 10 20	0
2	L	1	Total C H 39 13 26	0
2	L	1	Total C H 18 6 12	0
2	L	1	Total C H 27 9 18	0
2	L	1	Total C H 33 11 22	0
2	L	1	Total C H 24 8 16	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

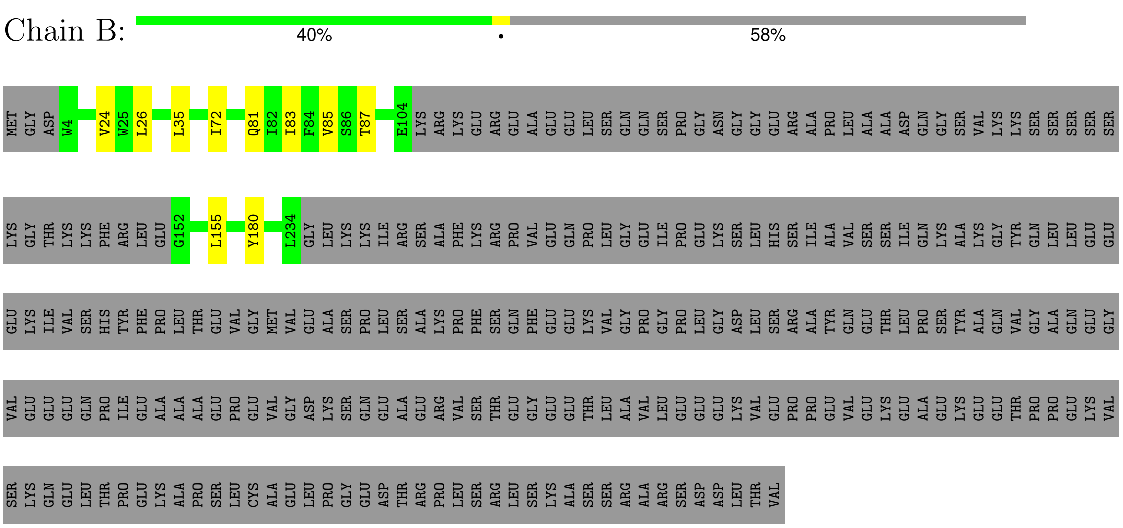
- Molecule 1: Gap junction alpha-8 protein

Chain A:



- Molecule 1: Gap junction alpha-8 protein

Chain B:



- Molecule 1: Gap junction alpha-8 protein

Chain C: 40% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN LEU LEU GLU GLU

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

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

SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

- Molecule 1: Gap junction alpha-8 protein

Chain D: 40% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN LEU LEU GLU GLU

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

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

SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

- Molecule 1: Gap junction alpha-8 protein

Chain E: 39% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

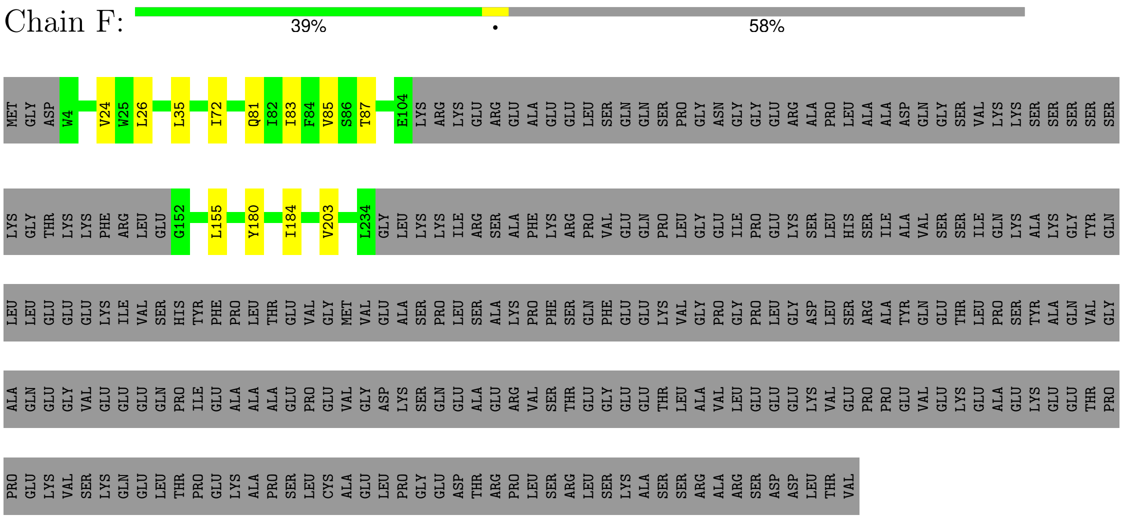
LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 I184 V203 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN

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

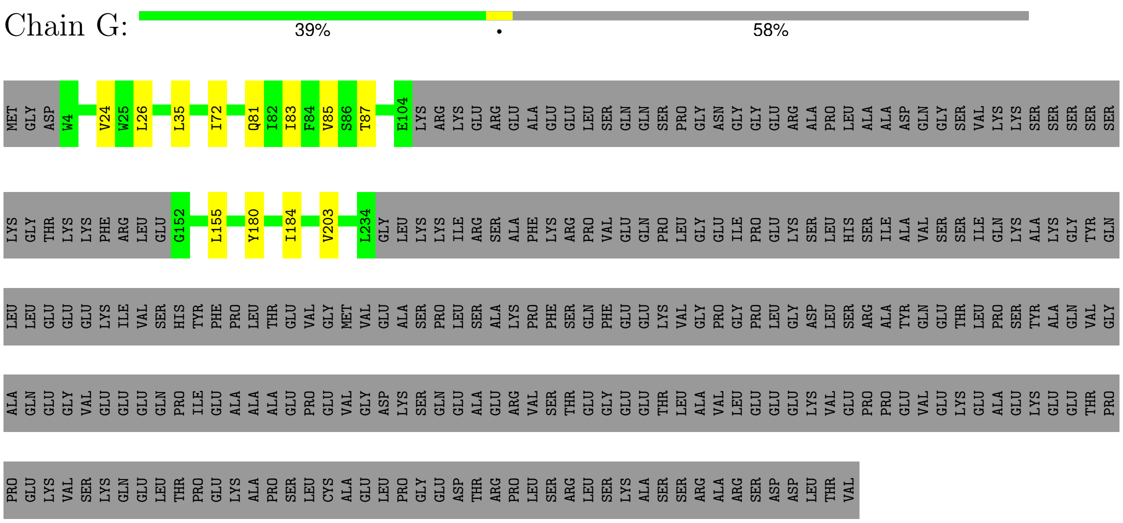
ALA GLN GLU GLY VAL GLU GLU GLU GLN PRO ILE GLU ALA ALA ALA GLU PRO GLU VAL GLY ASP LYS SER GLN GLU ALA GLU ARG VAL SER THR GLU GLY GLU GLU THR LEU ALA VAL LEU GLU GLU GLU LYS VAL GLU PRO PRO GLU VAL GLU LYS GLU ALA GLU LYS GLU GLU THR PRO

PRO GLU LYS VAL SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

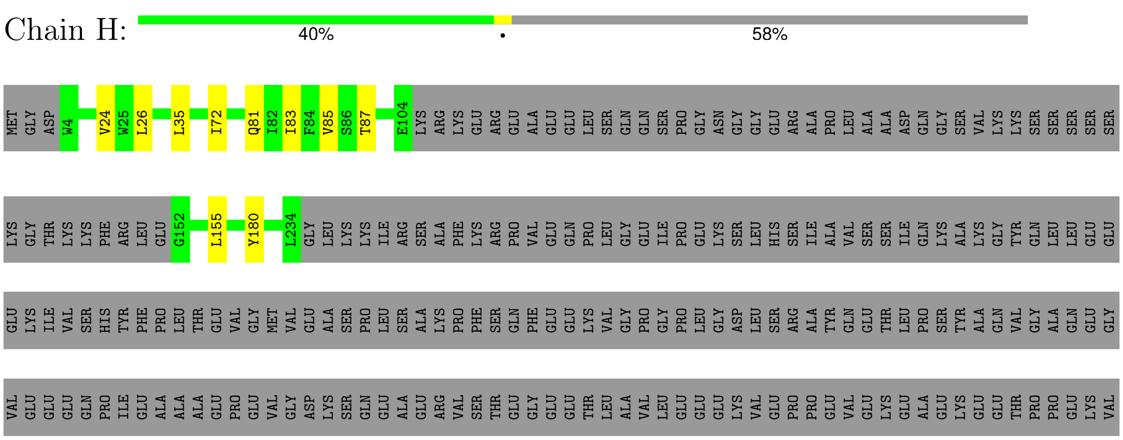
• Molecule 1: Gap junction alpha-8 protein



• Molecule 1: Gap junction alpha-8 protein



• Molecule 1: Gap junction alpha-8 protein



SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

• Molecule 1: Gap junction alpha-8 protein

Chain I: 40% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN LEU LEU GLU GLU

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

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

SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

• Molecule 1: Gap junction alpha-8 protein

Chain J: 40% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN LEU LEU GLU GLU

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

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

SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

• Molecule 1: Gap junction alpha-8 protein

Chain K: 40% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN LEU LEU GLU GLU

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

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

SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

- Molecule 1: Gap junction alpha-8 protein

Chain L: 39% • 58%

MET GLY ASP W4 V24 W25 L26 L35 I72 Q81 I82 I83 F84 V85 S86 T87 E104 LYS ARG LYS GLU ARG GLU ALA GLU GLU LEU SER GLN GLN SER PRO GLY ASN GLY GLY GLU ARG ALA PRO LEU ALA ALA ASP GLN GLY SER VAL LYS LYS SER SER SER SER SER

LYS GLY THR LYS LYS PHE ARG LEU GLU G152 L155 Y180 I184 V203 L234 GLY LEU LYS LYS ILE ARG SER ALA PHE LYS ARG PRO VAL GLU GLN PRO LEU GLY GLU ILE PRO GLU LYS SER LEU HIS SER ILE ALA VAL SER SER ILE GLN LYS ALA LYS GLY TYR GLN

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

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

PRO GLU LYS VAL SER LYS GLN GLU LEU THR PRO GLU LYS ALA PRO SER LEU CYS ALA GLU LEU PRO GLY GLU ASP THR ARG PRO LEU SER ARG LEU SER LYS ALA SER SER ARG ALA ARG SER ASP ASP LEU THR VAL

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D6	Depositor
Number of particles used	15342	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.294	Depositor
Minimum map value	-0.962	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.026	Depositor
Recommended contour level	0.04	Depositor
Map size (Å)	315.648, 315.648, 315.648	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.822, 0.822, 0.822	Depositor

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: MC3

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	0/1478	0.26	0/2020
1	B	0.14	0/1478	0.26	0/2020
1	C	0.14	0/1478	0.26	0/2020
1	D	0.14	0/1478	0.26	0/2020
1	E	0.14	0/1478	0.26	0/2020
1	F	0.14	0/1478	0.26	0/2020
1	G	0.14	0/1478	0.26	0/2020
1	H	0.14	0/1478	0.26	0/2020
1	I	0.14	0/1478	0.26	0/2020
1	J	0.14	0/1478	0.26	0/2020
1	K	0.14	0/1478	0.26	0/2020
1	L	0.14	0/1478	0.26	0/2020
All	All	0.14	0/17736	0.26	0/24240

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	1436	1379	1378	8	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1436	1379	1378	10	0
1	C	1436	1379	1378	8	0
1	D	1436	1379	1378	9	0
1	E	1436	1379	1378	11	0
1	F	1436	1379	1378	11	0
1	G	1436	1379	1378	10	0
1	H	1436	1379	1378	8	0
1	I	1436	1379	1378	10	0
1	J	1436	1379	1378	8	0
1	K	1436	1379	1378	9	0
1	L	1436	1379	1378	11	0
2	A	199	352	309	2	0
2	B	199	352	309	3	0
2	C	199	352	309	2	0
2	D	199	352	309	2	0
2	E	199	352	309	3	0
2	F	199	352	309	3	0
2	G	227	385	338	4	0
2	H	199	352	309	2	0
2	I	199	352	309	3	0
2	J	199	352	309	2	0
2	K	199	352	309	2	0
2	L	171	319	280	1	0
All	All	19620	20772	20244	101	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 3.

The worst 5 of 101 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:LEU:HD12	1:B:83:ILE:HD11	1.82	0.60
1:E:35:LEU:HD11	2:F:516:MC3:H181	1.84	0.59
2:G:510:MC3:H181	1:L:35:LEU:HD11	1.85	0.58
1:H:35:LEU:HD11	2:I:509:MC3:H181	1.85	0.58
1:B:35:LEU:HD11	2:C:509:MC3:H181	1.85	0.58

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	180/440 (41%)	180 (100%)	0	0	100	100
1	B	180/440 (41%)	180 (100%)	0	0	100	100
1	C	180/440 (41%)	180 (100%)	0	0	100	100
1	D	180/440 (41%)	180 (100%)	0	0	100	100
1	E	180/440 (41%)	180 (100%)	0	0	100	100
1	F	180/440 (41%)	180 (100%)	0	0	100	100
1	G	180/440 (41%)	180 (100%)	0	0	100	100
1	H	180/440 (41%)	180 (100%)	0	0	100	100
1	I	180/440 (41%)	180 (100%)	0	0	100	100
1	J	180/440 (41%)	180 (100%)	0	0	100	100
1	K	180/440 (41%)	180 (100%)	0	0	100	100
1	L	180/440 (41%)	180 (100%)	0	0	100	100
All	All	2160/5280 (41%)	2160 (100%)	0	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	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	B	152/385 (40%)	151 (99%)	1 (1%)	81	93

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	D	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	E	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	F	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	G	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	H	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	I	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	J	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	K	152/385 (40%)	151 (99%)	1 (1%)	81	93
1	L	152/385 (40%)	151 (99%)	1 (1%)	81	93
All	All	1824/4620 (40%)	1812 (99%)	12 (1%)	80	93

5 of 12 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	87	THR
1	I	87	THR
1	L	87	THR
1	J	87	THR
1	D	87	THR

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	K	57	GLN
1	J	57	GLN
1	G	57	GLN
1	F	57	GLN
1	I	57	GLN

5.3.3 RNA ⓘ

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)

192 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	$\#\|Z\| > 2$
2	MC3	H	513	-	7,7,45	0.26	0	6,6,53	0.19	0
2	MC3	A	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	I	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	L	501	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	J	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	K	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	L	504	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	K	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	E	511	-	10,10,45	0.23	0	9,9,53	0.18	0
2	MC3	G	510	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	B	509	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	G	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	F	509	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	G	512	-	10,10,45	0.23	0	9,9,53	0.17	0
2	MC3	G	516	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	I	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	B	514	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	B	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	C	503	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	J	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	D	514	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	B	504	-	9,9,45	0.23	0	8,8,53	0.19	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MC3	G	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	J	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	F	505	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	D	509	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	C	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	C	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	E	516	-	21,21,45	0.54	0	24,26,53	0.67	1 (4%)
2	MC3	F	504	-	7,7,45	0.26	0	6,6,53	0.19	0
2	MC3	B	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	B	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	L	503	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	J	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	A	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	F	503	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	I	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	H	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	L	508	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	L	512	-	5,5,45	0.27	0	4,4,53	0.17	0
2	MC3	B	513	-	7,7,45	0.25	0	6,6,53	0.18	0
2	MC3	A	509	-	7,7,45	0.55	0	6,6,53	0.38	0
2	MC3	E	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	J	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	K	502	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	F	506	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	E	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	E	513	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	I	509	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	J	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	H	507	-	8,8,45	0.25	0	7,7,53	0.18	0
2	MC3	I	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	D	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	A	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	E	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	J	513	-	7,7,45	0.26	0	6,6,53	0.19	0
2	MC3	J	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	B	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	G	503	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	J	509	-	7,7,45	0.56	0	6,6,53	0.39	0
2	MC3	A	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	A	516	-	21,21,45	0.54	0	24,26,53	0.67	1 (4%)
2	MC3	K	510	-	12,12,45	0.20	0	11,11,53	0.21	0
2	MC3	C	501	-	11,11,45	0.22	0	10,10,53	0.19	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MC3	F	513	-	5,5,45	0.27	0	4,4,53	0.17	0
2	MC3	K	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	G	514	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	G	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	K	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	C	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	E	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	A	513	-	7,7,45	0.26	0	6,6,53	0.19	0
2	MC3	B	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	H	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	I	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	L	514	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	H	504	-	9,9,45	0.24	0	8,8,53	0.20	0
2	MC3	E	503	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	E	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	C	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	L	502	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	C	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	F	502	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	E	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	J	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	L	515	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	C	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	D	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	H	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	F	515	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	G	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	E	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	L	513	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	C	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	K	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	A	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	C	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	B	506	-	5,5,45	0.27	0	4,4,53	0.17	0
2	MC3	B	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	G	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	C	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	H	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	K	509	-	7,7,45	0.55	0	6,6,53	0.38	0
2	MC3	L	505	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	L	510	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	G	502	-	12,12,45	0.22	0	11,11,53	0.21	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MC3	E	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	A	506	-	5,5,45	0.27	0	4,4,53	0.17	0
2	MC3	I	513	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	F	501	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	K	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	H	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	K	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	B	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	K	516	-	21,21,45	0.54	0	24,26,53	0.67	1 (4%)
2	MC3	K	513	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	K	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	J	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	B	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	B	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	A	514	-	9,9,45	0.23	0	8,8,53	0.18	0
2	MC3	F	512	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	I	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	D	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	I	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	I	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	A	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	D	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	F	507	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	D	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	A	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	D	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	D	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	J	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	H	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	K	505	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	H	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	C	507	-	8,8,45	0.25	0	7,7,53	0.18	0
2	MC3	C	509	-	7,7,45	0.55	0	6,6,53	0.39	0
2	MC3	L	509	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	B	502	-	12,12,45	0.23	0	11,11,53	0.22	0
2	MC3	I	507	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	J	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	A	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	F	510	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	I	510	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	A	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	J	508	-	10,10,45	0.23	0	9,9,53	0.22	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MC3	E	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	A	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	D	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	H	509	-	7,7,45	0.56	0	6,6,53	0.38	0
2	MC3	K	507	-	8,8,45	0.25	0	7,7,53	0.18	0
2	MC3	J	506	-	5,5,45	0.26	0	4,4,53	0.17	0
2	MC3	L	506	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	H	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	D	502	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	G	517	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	D	512	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	F	511	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	C	513	-	7,7,45	0.26	0	6,6,53	0.19	0
2	MC3	D	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	G	515	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	A	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	I	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	G	509	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	B	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	H	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	H	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	D	513	-	7,7,45	0.26	0	6,6,53	0.18	0
2	MC3	L	507	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	F	508	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	I	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	E	501	-	11,11,45	0.22	0	10,10,53	0.19	0
2	MC3	F	514	-	8,8,45	0.25	0	7,7,53	0.19	0
2	MC3	C	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	G	506	-	5,5,45	0.27	0	4,4,53	0.17	0
2	MC3	H	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	D	511	-	10,10,45	0.24	0	9,9,53	0.18	0
2	MC3	J	504	-	9,9,45	0.23	0	8,8,53	0.19	0
2	MC3	L	511	-	12,12,45	0.22	0	11,11,53	0.21	0
2	MC3	I	514	-	9,9,45	0.24	0	8,8,53	0.19	0
2	MC3	G	511	-	12,12,45	0.21	0	11,11,53	0.21	0
2	MC3	I	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	E	515	-	27,27,45	0.49	0	30,32,53	0.65	1 (3%)
2	MC3	F	516	-	7,7,45	0.56	0	6,6,53	0.38	0
2	MC3	G	513	-	11,11,45	0.24	0	10,10,53	0.18	0
2	MC3	K	503	-	12,12,45	0.22	0	11,11,53	0.22	0
2	MC3	E	509	-	7,7,45	0.56	0	6,6,53	0.38	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	MC3	D	516	-	21,21,45	0.55	0	24,26,53	0.67	1 (4%)
2	MC3	H	508	-	10,10,45	0.23	0	9,9,53	0.22	0
2	MC3	C	505	-	12,12,45	0.22	0	11,11,53	0.21	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MC3	H	513	-	-	0/5/5/49	-
2	MC3	A	507	-	-	0/6/6/49	-
2	MC3	I	503	-	-	0/10/10/49	-
2	MC3	L	501	-	-	0/10/10/49	-
2	MC3	J	502	-	-	0/10/10/49	-
2	MC3	K	501	-	-	0/9/9/49	-
2	MC3	L	504	-	-	0/5/5/49	-
2	MC3	K	504	-	-	0/7/7/49	-
2	MC3	E	511	-	-	0/8/8/49	-
2	MC3	G	510	-	-	1/5/5/49	-
2	MC3	B	509	-	-	1/5/5/49	-
2	MC3	G	505	-	-	0/10/10/49	-
2	MC3	F	509	-	-	0/10/10/49	-
2	MC3	G	512	-	-	0/8/8/49	-
2	MC3	G	516	-	-	15/29/29/49	-
2	MC3	I	506	-	-	0/3/3/49	-
2	MC3	B	514	-	-	0/7/7/49	-
2	MC3	B	515	-	-	15/29/29/49	-
2	MC3	C	503	-	-	0/10/10/49	-
2	MC3	J	516	-	-	13/23/23/49	-
2	MC3	D	514	-	-	0/7/7/49	-
2	MC3	B	504	-	-	0/7/7/49	-
2	MC3	G	507	-	-	0/6/6/49	-
2	MC3	J	512	-	-	0/9/9/49	-
2	MC3	F	505	-	-	0/7/7/49	-
2	MC3	D	509	-	-	1/5/5/49	-
2	MC3	C	506	-	-	0/3/3/49	-
2	MC3	C	512	-	-	0/9/9/49	-
2	MC3	E	516	-	-	13/23/23/49	-
2	MC3	F	504	-	-	0/5/5/49	-
2	MC3	B	516	-	-	13/23/23/49	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MC3	B	508	-	-	0/8/8/49	-
2	MC3	L	503	-	-	0/9/9/49	-
2	MC3	J	515	-	-	15/29/29/49	-
2	MC3	A	505	-	-	0/10/10/49	-
2	MC3	F	503	-	-	0/9/9/49	-
2	MC3	I	512	-	-	0/9/9/49	-
2	MC3	H	516	-	-	13/23/23/49	-
2	MC3	L	508	-	-	0/10/10/49	-
2	MC3	L	512	-	-	0/3/3/49	-
2	MC3	B	513	-	-	0/5/5/49	-
2	MC3	A	509	-	-	1/5/5/49	-
2	MC3	E	507	-	-	0/6/6/49	-
2	MC3	J	501	-	-	0/9/9/49	-
2	MC3	K	502	-	-	0/10/10/49	-
2	MC3	F	506	-	-	15/29/29/49	-
2	MC3	E	504	-	-	0/7/7/49	-
2	MC3	E	513	-	-	0/5/5/49	-
2	MC3	I	509	-	-	1/5/5/49	-
2	MC3	J	511	-	-	0/8/8/49	-
2	MC3	H	507	-	-	0/6/6/49	-
2	MC3	I	502	-	-	0/10/10/49	-
2	MC3	D	507	-	-	0/6/6/49	-
2	MC3	A	511	-	-	0/8/8/49	-
2	MC3	E	505	-	-	0/10/10/49	-
2	MC3	J	513	-	-	0/5/5/49	-
2	MC3	J	514	-	-	0/7/7/49	-
2	MC3	B	511	-	-	0/8/8/49	-
2	MC3	G	503	-	-	0/10/10/49	-
2	MC3	J	509	-	-	1/5/5/49	-
2	MC3	A	508	-	-	0/8/8/49	-
2	MC3	A	516	-	-	13/23/23/49	-
2	MC3	K	510	-	-	0/10/10/49	-
2	MC3	C	501	-	-	0/9/9/49	-
2	MC3	F	513	-	-	0/3/3/49	-
2	MC3	K	512	-	-	0/9/9/49	-
2	MC3	G	514	-	-	0/5/5/49	-
2	MC3	G	501	-	-	0/9/9/49	-
2	MC3	K	506	-	-	0/3/3/49	-
2	MC3	C	502	-	-	0/10/10/49	-
2	MC3	E	502	-	-	0/10/10/49	-
2	MC3	A	513	-	-	0/5/5/49	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MC3	B	507	-	-	0/6/6/49	-
2	MC3	H	505	-	-	0/10/10/49	-
2	MC3	I	505	-	-	0/10/10/49	-
2	MC3	L	514	-	-	0/8/8/49	-
2	MC3	H	504	-	-	0/7/7/49	-
2	MC3	E	503	-	-	0/10/10/49	-
2	MC3	E	508	-	-	0/8/8/49	-
2	MC3	C	514	-	-	0/7/7/49	-
2	MC3	L	502	-	-	0/8/8/49	-
2	MC3	C	515	-	-	15/29/29/49	-
2	MC3	F	502	-	-	0/8/8/49	-
2	MC3	E	514	-	-	0/7/7/49	-
2	MC3	J	507	-	-	0/6/6/49	-
2	MC3	L	515	-	-	1/5/5/49	-
2	MC3	C	504	-	-	0/7/7/49	-
2	MC3	D	506	-	-	0/3/3/49	-
2	MC3	H	501	-	-	0/9/9/49	-
2	MC3	F	515	-	-	0/8/8/49	-
2	MC3	G	504	-	-	0/7/7/49	-
2	MC3	E	510	-	-	0/10/10/49	-
2	MC3	L	513	-	-	0/6/6/49	-
2	MC3	C	516	-	-	13/23/23/49	-
2	MC3	K	515	-	-	15/29/29/49	-
2	MC3	A	503	-	-	0/10/10/49	-
2	MC3	C	508	-	-	0/8/8/49	-
2	MC3	B	506	-	-	0/3/3/49	-
2	MC3	B	512	-	-	0/9/9/49	-
2	MC3	G	508	-	-	0/8/8/49	-
2	MC3	C	510	-	-	0/10/10/49	-
2	MC3	H	503	-	-	0/10/10/49	-
2	MC3	K	509	-	-	1/5/5/49	-
2	MC3	L	505	-	-	0/7/7/49	-
2	MC3	L	510	-	-	0/7/7/49	-
2	MC3	G	502	-	-	0/10/10/49	-
2	MC3	E	512	-	-	0/9/9/49	-
2	MC3	A	506	-	-	0/3/3/49	-
2	MC3	I	513	-	-	0/5/5/49	-
2	MC3	F	501	-	-	0/10/10/49	-
2	MC3	K	508	-	-	0/8/8/49	-
2	MC3	H	506	-	-	0/3/3/49	-
2	MC3	K	511	-	-	0/8/8/49	-
2	MC3	B	501	-	-	0/9/9/49	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MC3	K	516	-	-	13/23/23/49	-
2	MC3	K	513	-	-	0/5/5/49	-
2	MC3	K	514	-	-	0/7/7/49	-
2	MC3	J	505	-	-	0/10/10/49	-
2	MC3	B	510	-	-	0/10/10/49	-
2	MC3	B	505	-	-	0/10/10/49	-
2	MC3	A	514	-	-	0/7/7/49	-
2	MC3	F	512	-	-	0/10/10/49	-
2	MC3	I	501	-	-	0/9/9/49	-
2	MC3	D	503	-	-	0/10/10/49	-
2	MC3	I	511	-	-	0/8/8/49	-
2	MC3	I	516	-	-	13/23/23/49	-
2	MC3	A	510	-	-	0/10/10/49	-
2	MC3	D	501	-	-	0/9/9/49	-
2	MC3	F	507	-	-	13/23/23/49	-
2	MC3	D	504	-	-	0/7/7/49	-
2	MC3	A	512	-	-	0/9/9/49	-
2	MC3	D	510	-	-	0/10/10/49	-
2	MC3	D	505	-	-	0/10/10/49	-
2	MC3	J	510	-	-	0/10/10/49	-
2	MC3	H	510	-	-	0/10/10/49	-
2	MC3	K	505	-	-	0/10/10/49	-
2	MC3	H	512	-	-	0/9/9/49	-
2	MC3	C	507	-	-	0/6/6/49	-
2	MC3	C	509	-	-	1/5/5/49	-
2	MC3	L	509	-	-	0/10/10/49	-
2	MC3	B	502	-	-	0/10/10/49	-
2	MC3	I	507	-	-	0/6/6/49	-
2	MC3	J	503	-	-	0/10/10/49	-
2	MC3	A	504	-	-	0/7/7/49	-
2	MC3	F	510	-	-	0/10/10/49	-
2	MC3	I	510	-	-	0/10/10/49	-
2	MC3	A	501	-	-	0/9/9/49	-
2	MC3	J	508	-	-	0/8/8/49	-
2	MC3	E	506	-	-	0/3/3/49	-
2	MC3	A	502	-	-	0/10/10/49	-
2	MC3	D	515	-	-	15/29/29/49	-
2	MC3	H	509	-	-	1/5/5/49	-
2	MC3	K	507	-	-	0/6/6/49	-
2	MC3	J	506	-	-	0/3/3/49	-
2	MC3	L	506	-	-	13/23/23/49	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MC3	H	502	-	-	0/10/10/49	-
2	MC3	D	502	-	-	0/10/10/49	-
2	MC3	G	517	-	-	13/23/23/49	-
2	MC3	D	512	-	-	0/9/9/49	-
2	MC3	F	511	-	-	0/7/7/49	-
2	MC3	C	513	-	-	0/5/5/49	-
2	MC3	D	508	-	-	0/8/8/49	-
2	MC3	G	515	-	-	0/7/7/49	-
2	MC3	A	515	-	-	15/29/29/49	-
2	MC3	I	504	-	-	0/7/7/49	-
2	MC3	G	509	-	-	15/29/29/49	-
2	MC3	B	503	-	-	0/10/10/49	-
2	MC3	H	514	-	-	0/7/7/49	-
2	MC3	H	515	-	-	15/29/29/49	-
2	MC3	D	513	-	-	0/5/5/49	-
2	MC3	L	507	-	-	0/9/9/49	-
2	MC3	F	508	-	-	0/9/9/49	-
2	MC3	I	508	-	-	0/8/8/49	-
2	MC3	E	501	-	-	0/9/9/49	-
2	MC3	F	514	-	-	0/6/6/49	-
2	MC3	C	511	-	-	0/8/8/49	-
2	MC3	G	506	-	-	0/3/3/49	-
2	MC3	H	511	-	-	0/8/8/49	-
2	MC3	D	511	-	-	0/8/8/49	-
2	MC3	J	504	-	-	0/7/7/49	-
2	MC3	L	511	-	-	0/10/10/49	-
2	MC3	I	514	-	-	0/7/7/49	-
2	MC3	G	511	-	-	0/10/10/49	-
2	MC3	I	515	-	-	15/29/29/49	-
2	MC3	E	515	-	-	15/29/29/49	-
2	MC3	F	516	-	-	1/5/5/49	-
2	MC3	G	513	-	-	0/9/9/49	-
2	MC3	K	503	-	-	0/10/10/49	-
2	MC3	E	509	-	-	1/5/5/49	-
2	MC3	D	516	-	-	13/23/23/49	-
2	MC3	H	508	-	-	0/8/8/49	-
2	MC3	C	505	-	-	0/10/10/49	-

There are no bond length outliers.

The worst 5 of 24 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L	506	MC3	O2P-P-O1P	2.30	119.80	110.83
2	A	516	MC3	O2P-P-O1P	2.29	119.76	110.83
2	I	516	MC3	O2P-P-O1P	2.29	119.74	110.83
2	B	516	MC3	O2P-P-O1P	2.28	119.73	110.83
2	G	517	MC3	O2P-P-O1P	2.28	119.73	110.83

There are no chirality outliers.

5 of 348 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	515	MC3	C1-C2-O2-C31
2	A	515	MC3	C32-C31-O2-C2
2	A	515	MC3	C1-O3P-P-O2P
2	A	515	MC3	C1-O3P-P-O4P
2	A	516	MC3	C1-O3P-P-O2P

There are no ring outliers.

24 monomers are involved in 29 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	510	MC3	1	0
2	B	509	MC3	1	0
2	G	516	MC3	1	0
2	B	515	MC3	2	0
2	D	509	MC3	1	0
2	J	515	MC3	1	0
2	A	509	MC3	1	0
2	F	506	MC3	2	0
2	I	509	MC3	1	0
2	J	509	MC3	1	0
2	C	515	MC3	1	0
2	L	515	MC3	1	0
2	K	515	MC3	1	0
2	K	509	MC3	1	0
2	C	509	MC3	1	0
2	D	515	MC3	1	0
2	H	509	MC3	1	0
2	A	515	MC3	1	0
2	G	509	MC3	2	0
2	H	515	MC3	1	0
2	I	515	MC3	2	0
2	E	515	MC3	2	0

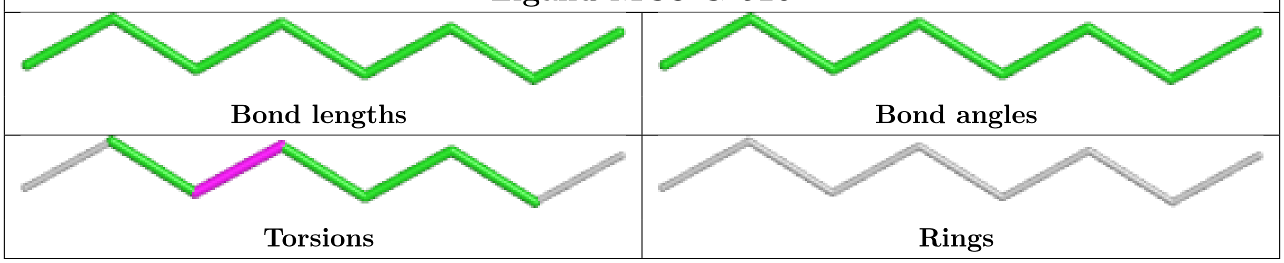
Continued on next page...

Continued from previous page...

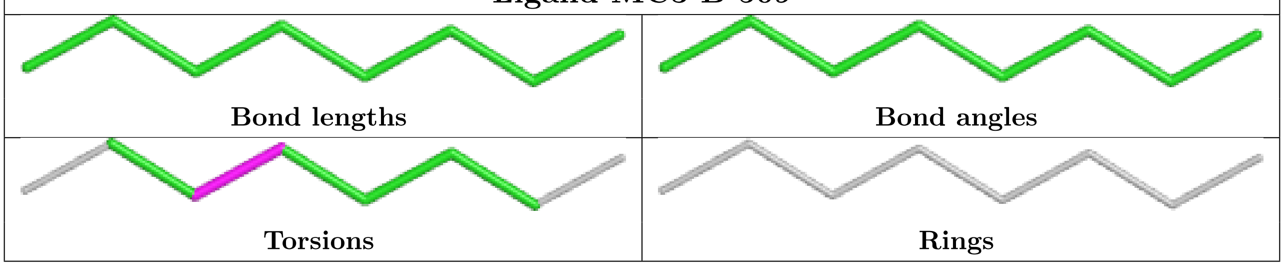
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	516	MC3	1	0
2	E	509	MC3	1	0

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.

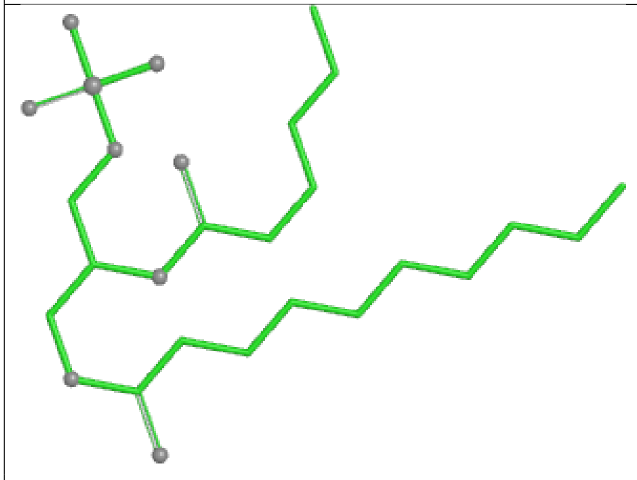
Ligand MC3 G 510



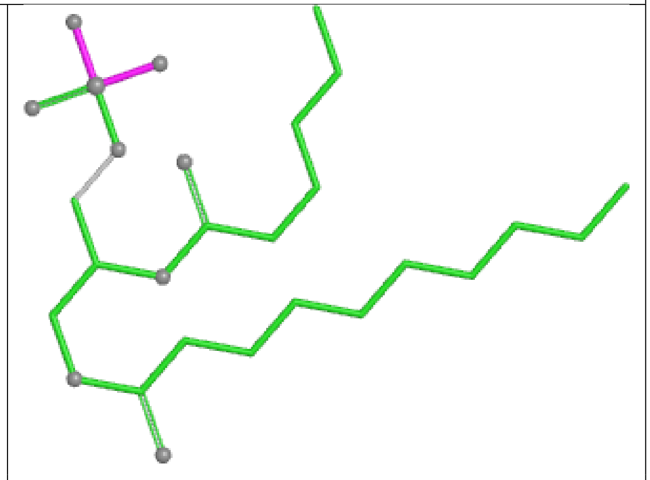
Ligand MC3 B 509



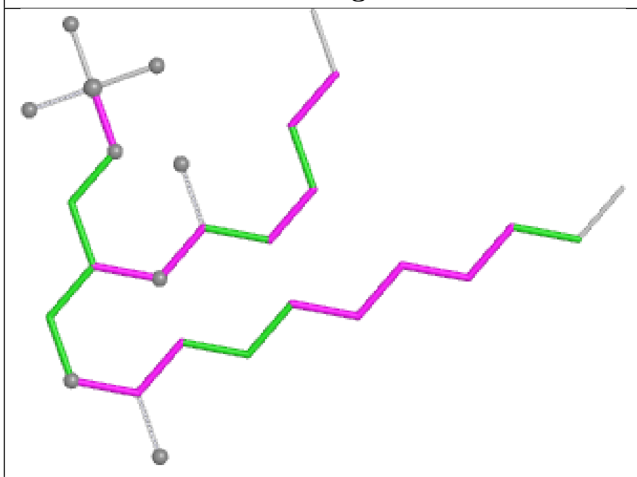
Ligand MC3 G 516



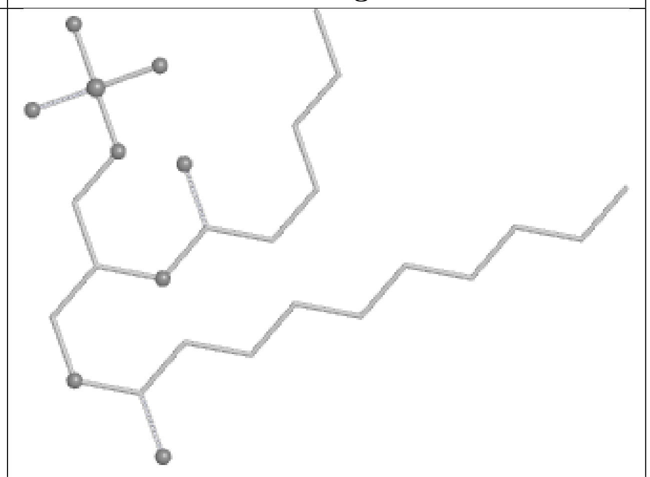
Bond lengths



Bond angles

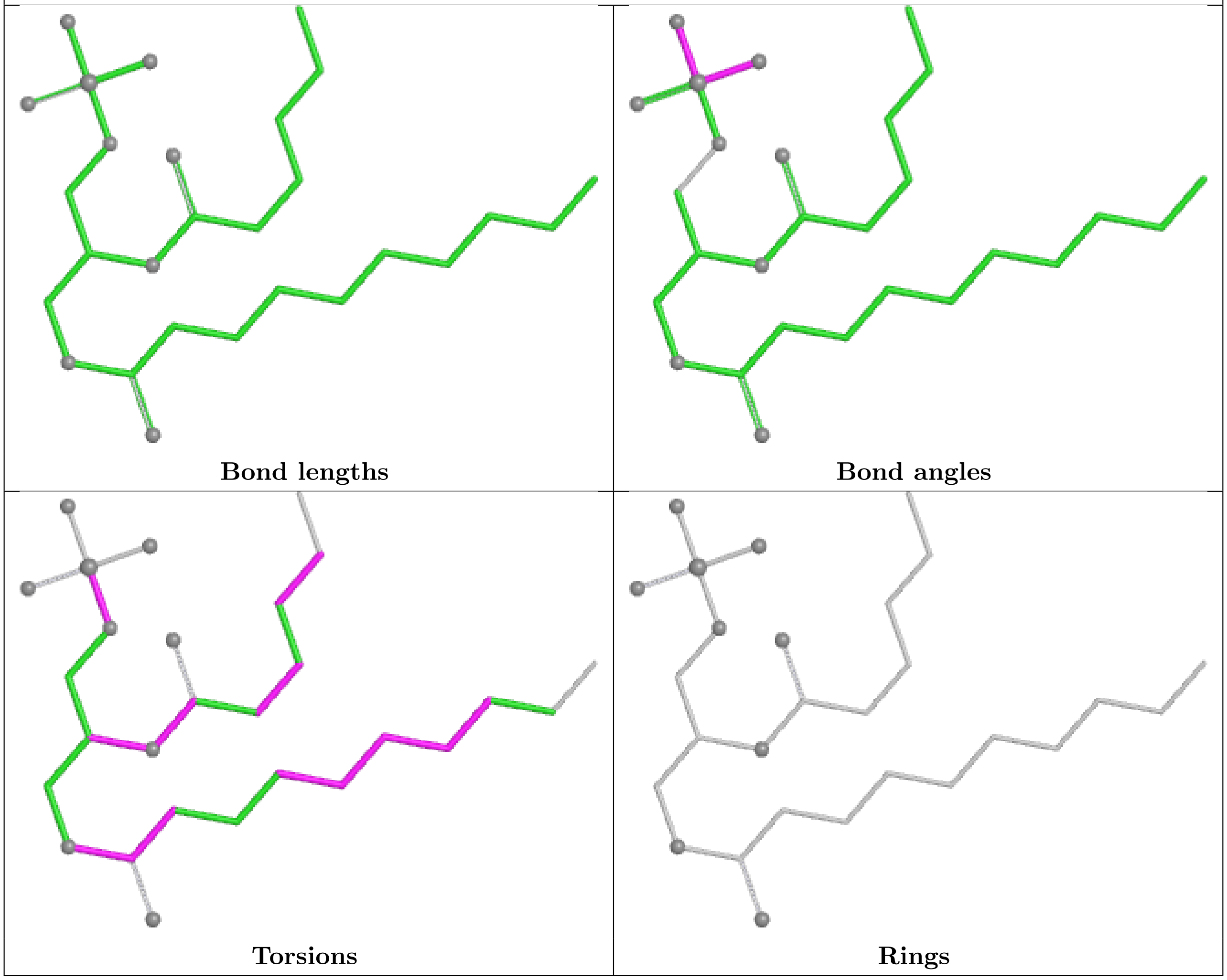


Torsions

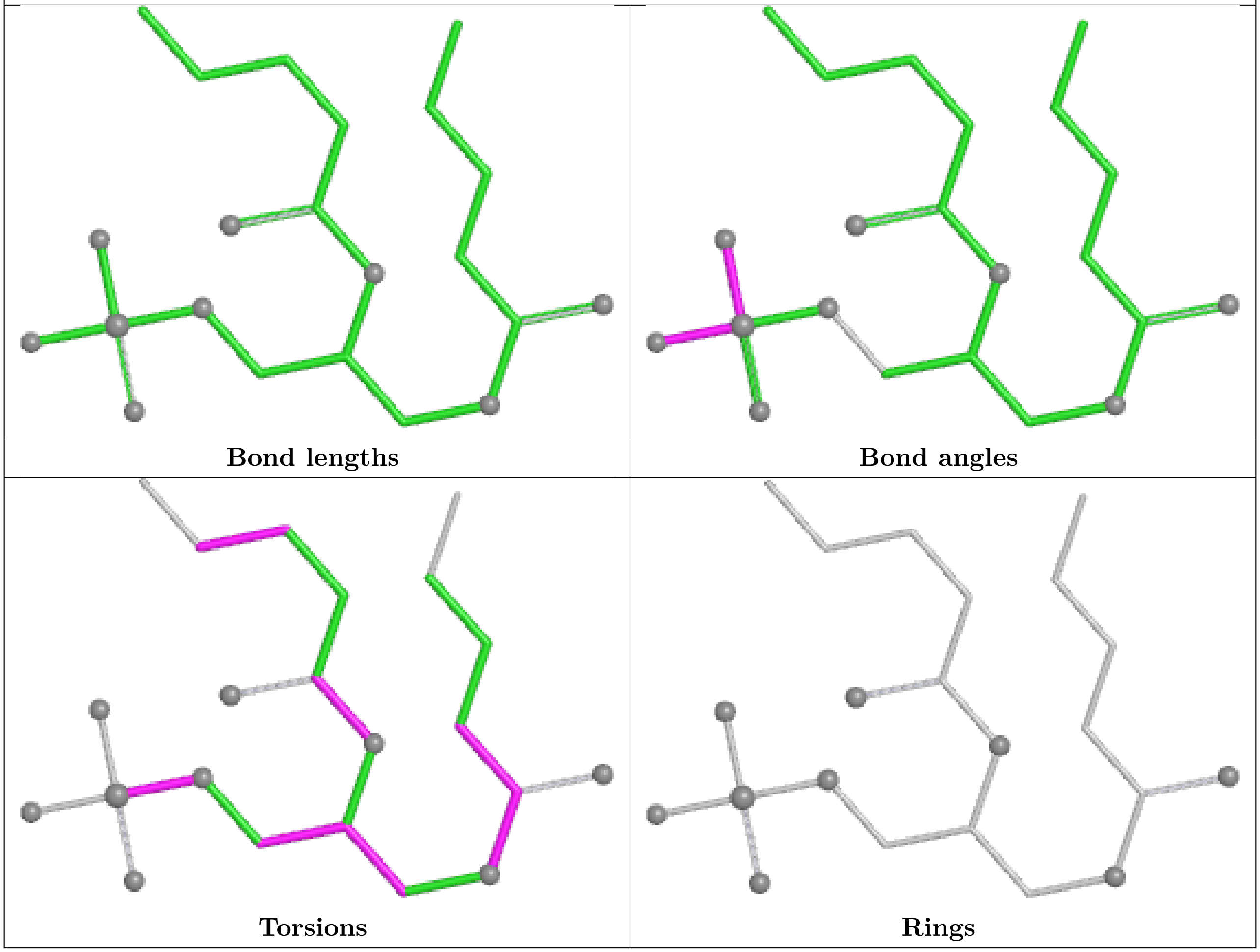


Rings

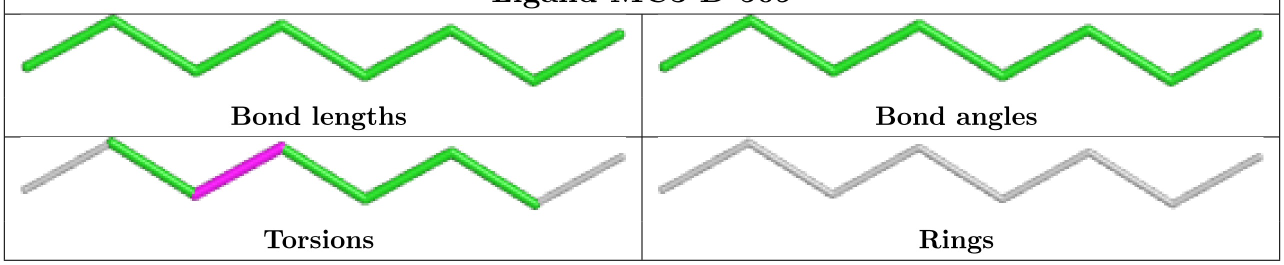
Ligand MC3 B 515



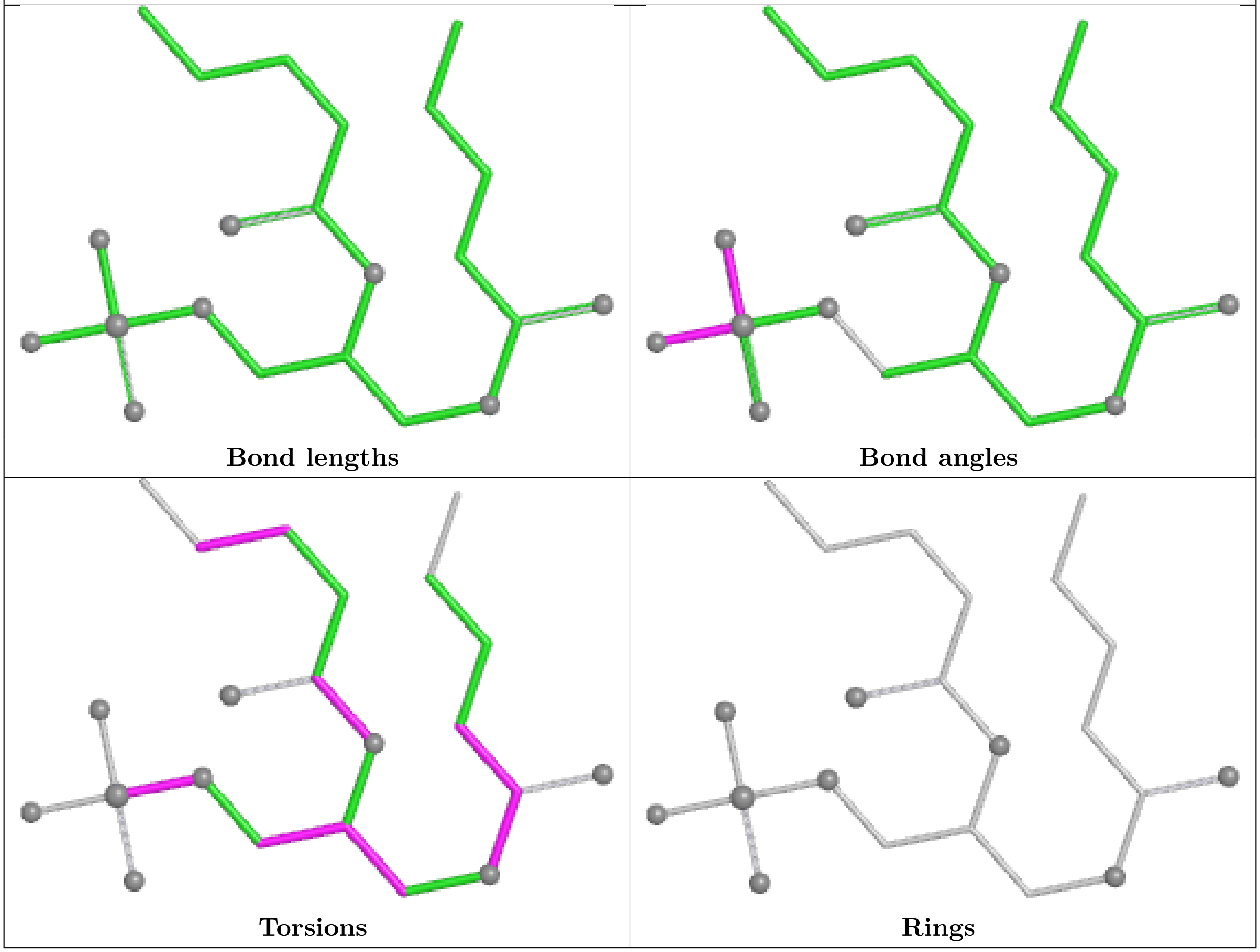
Ligand MC3 J 516



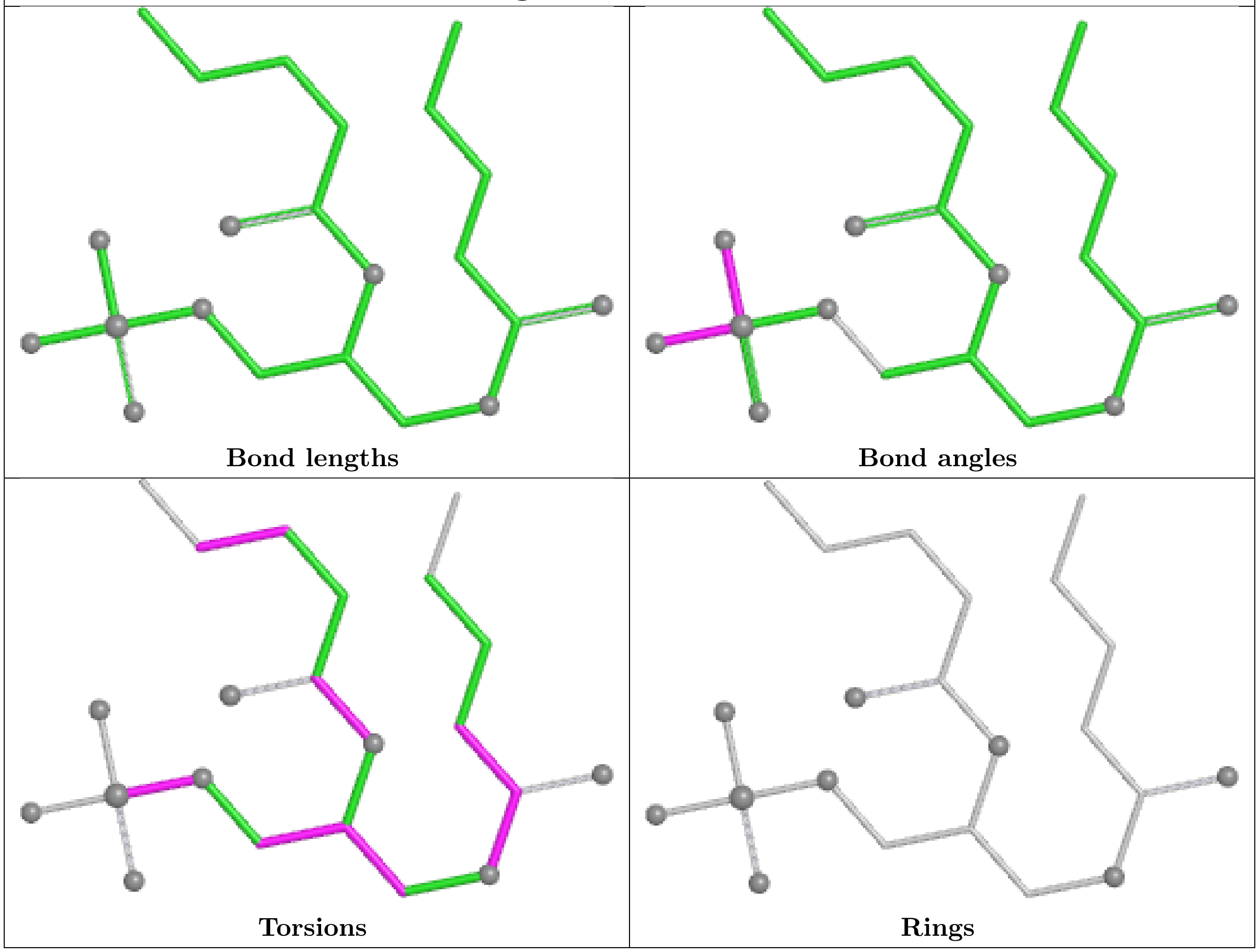
Ligand MC3 D 509



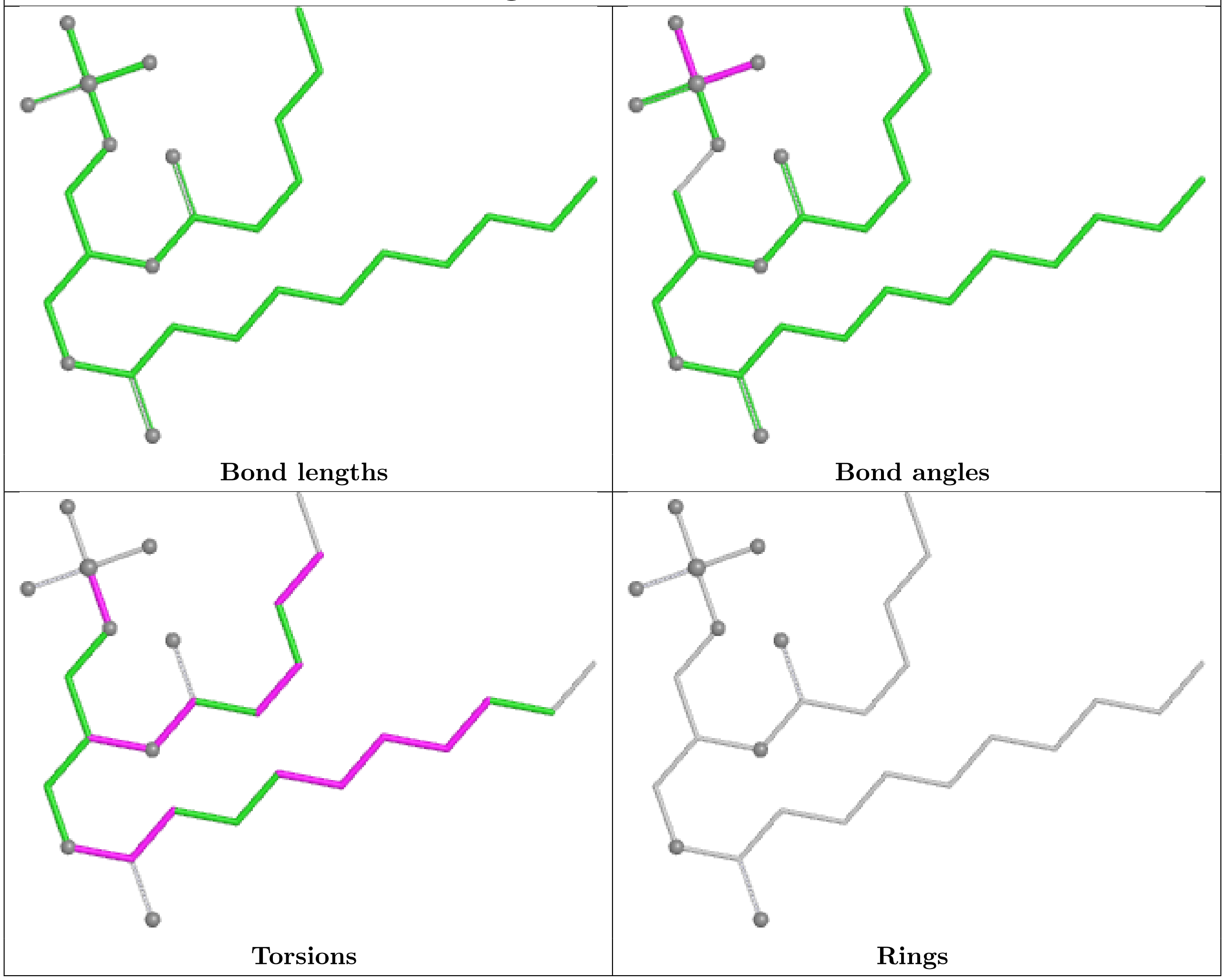
Ligand MC3 E 516



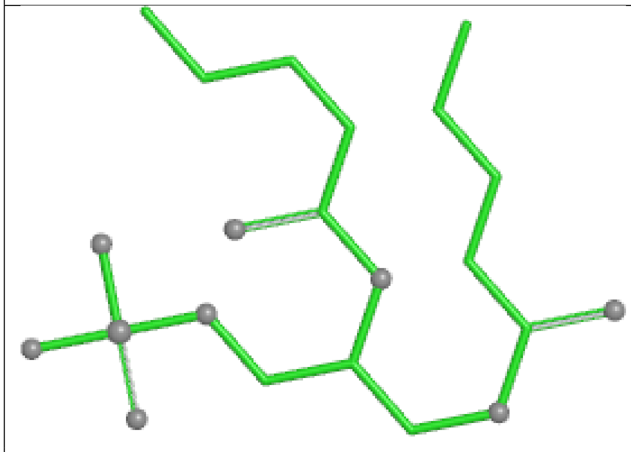
Ligand MC3 B 516

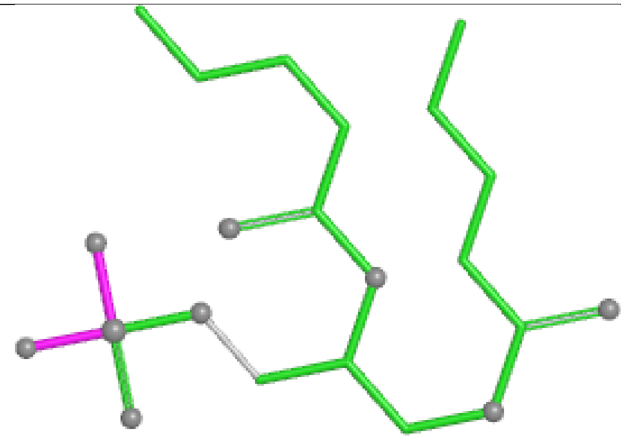


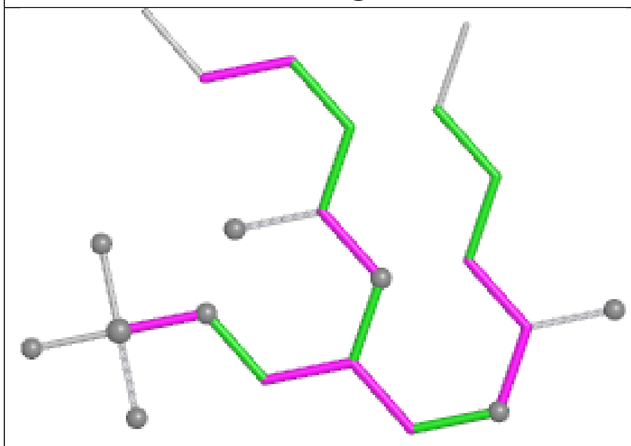
Ligand MC3 J 515

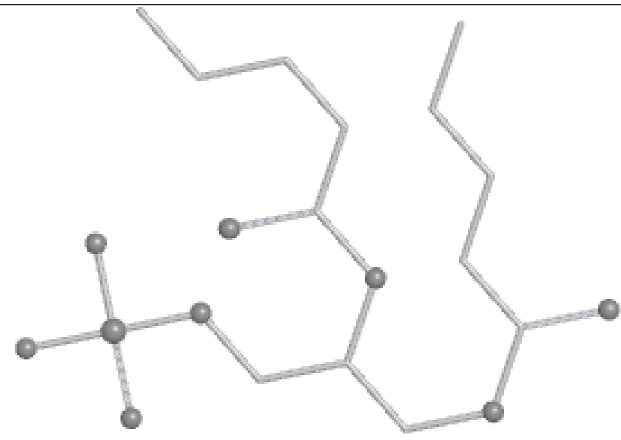


Ligand MC3 H 516

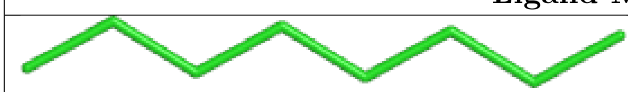

Bond lengths

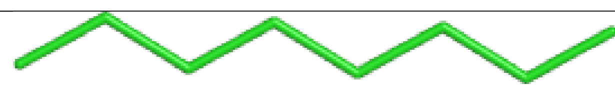

Bond angles

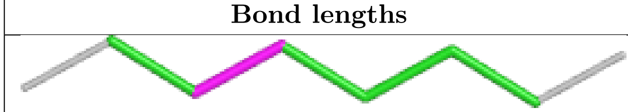

Torsions

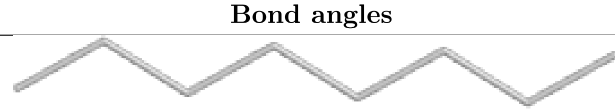

Rings

Ligand MC3 A 509

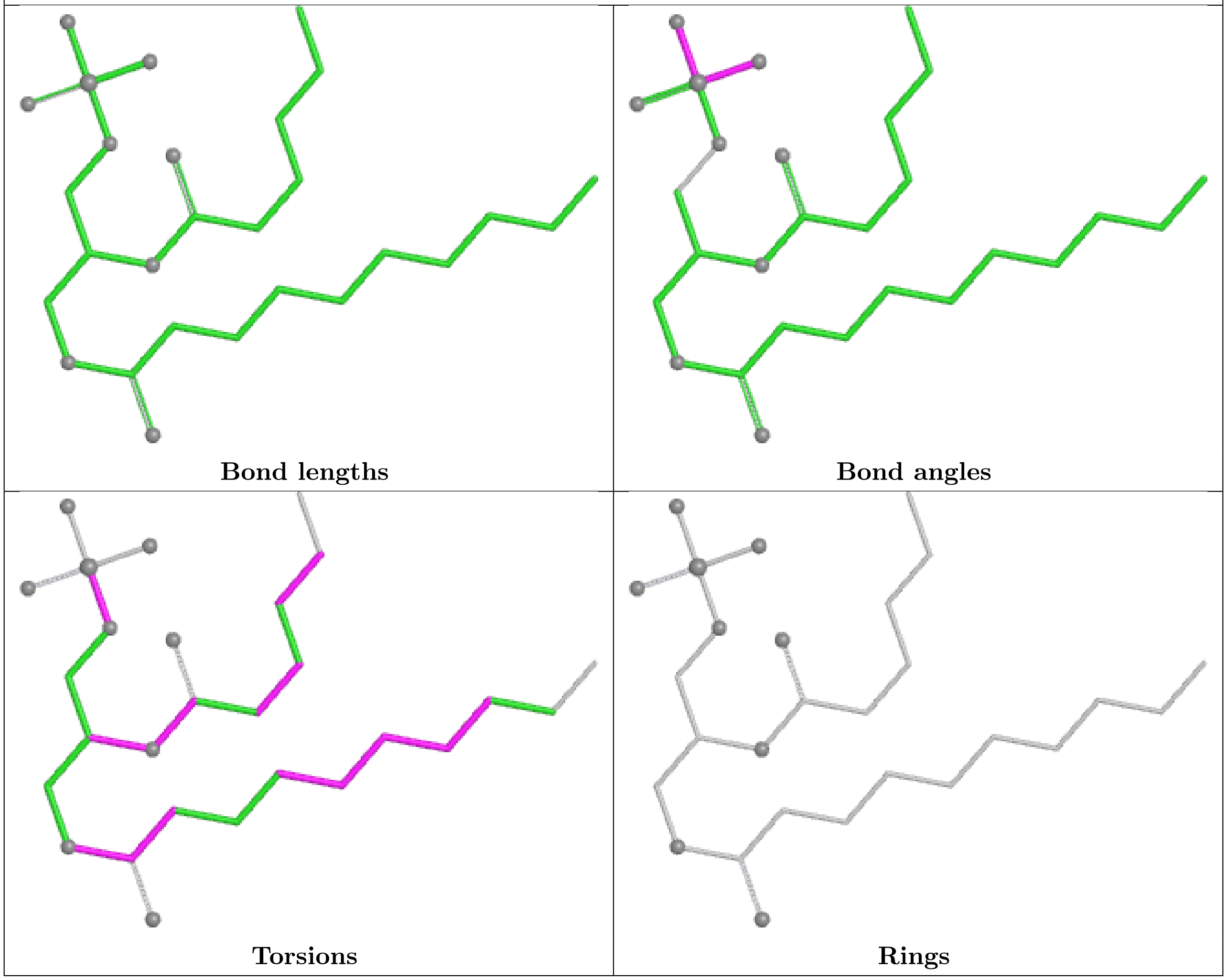

Bond lengths


Bond angles

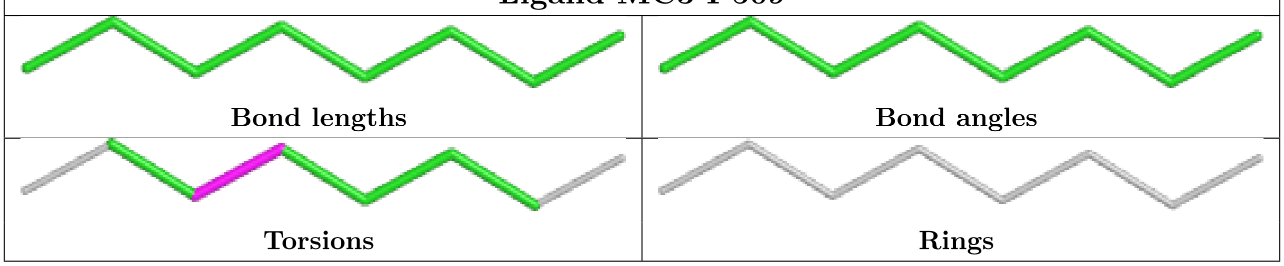

Torsions


Rings

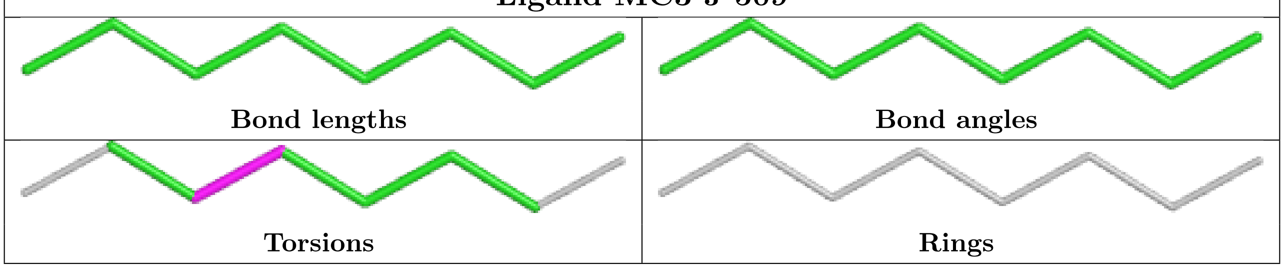
Ligand MC3 F 506



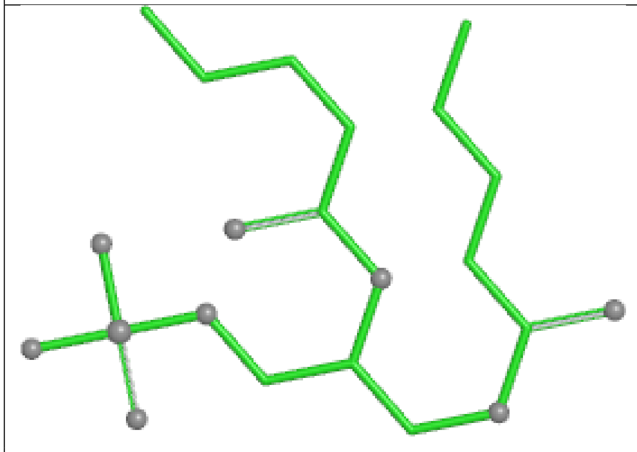
Ligand MC3 I 509



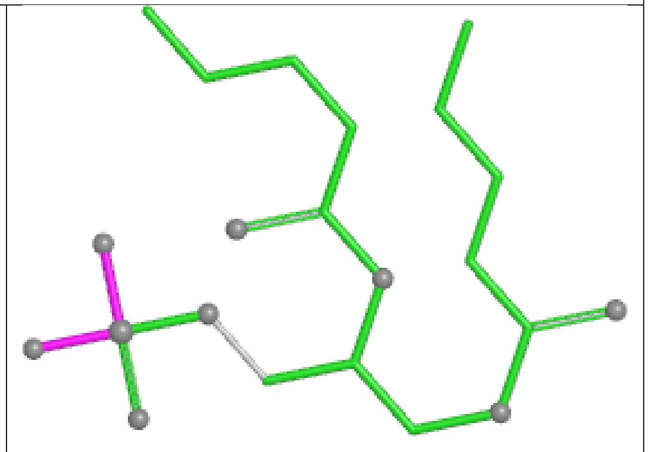
Ligand MC3 J 509



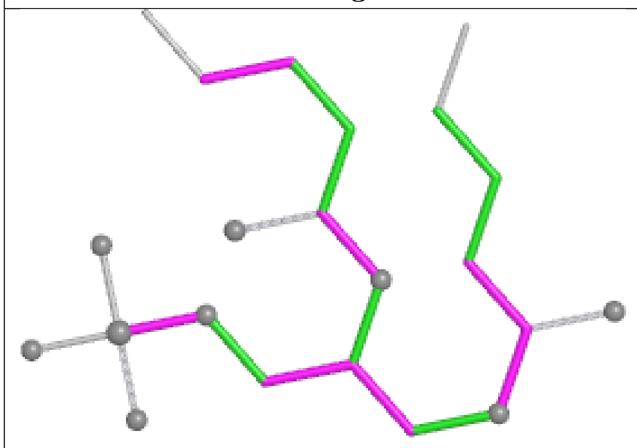
Ligand MC3 A 516



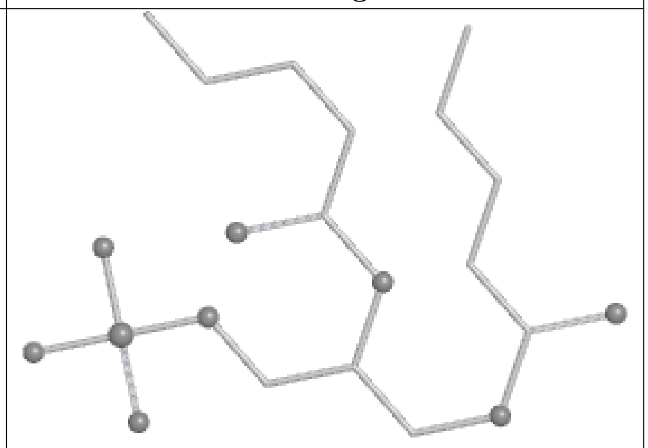
Bond lengths



Bond angles

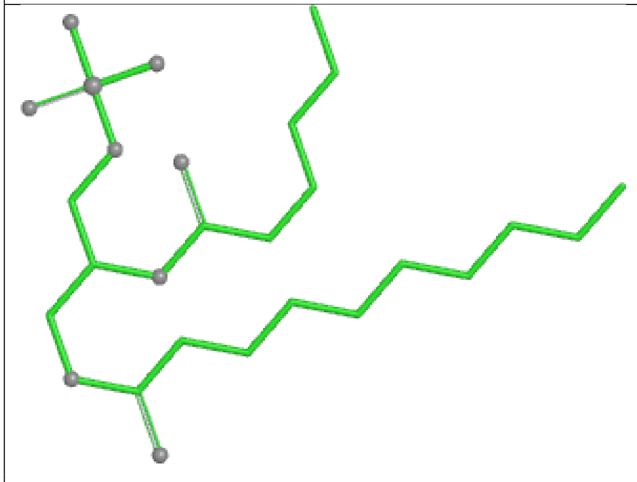


Torsions

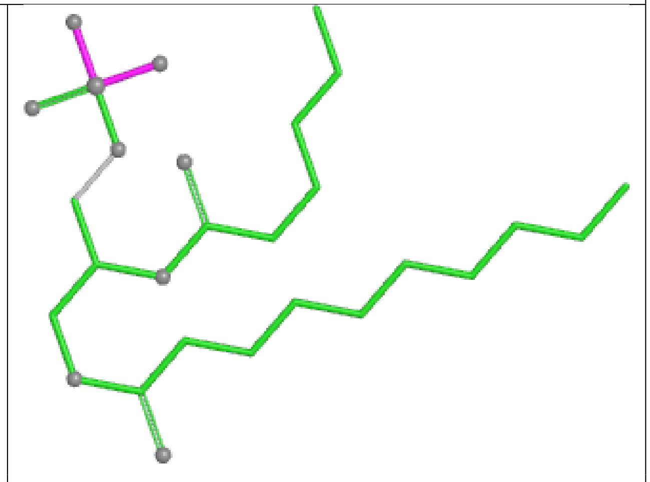


Rings

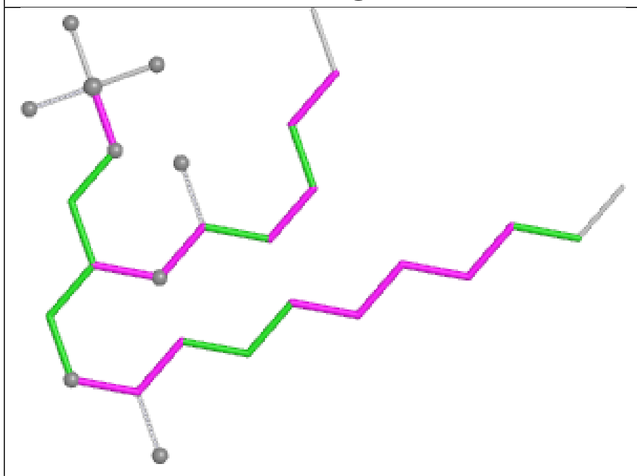
Ligand MC3 C 515



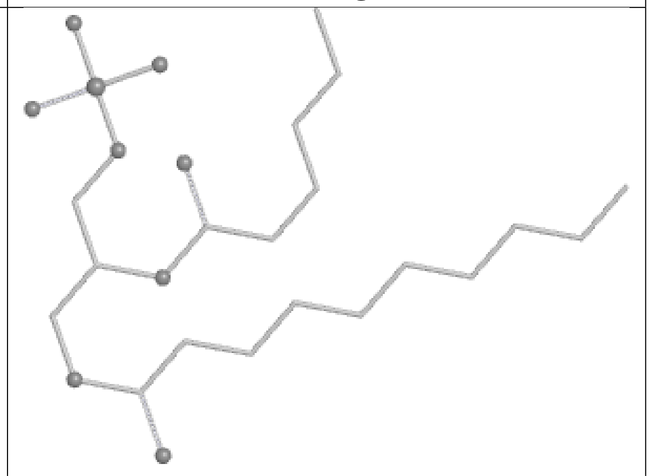
Bond lengths



Bond angles

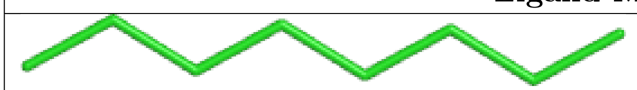


Torsions

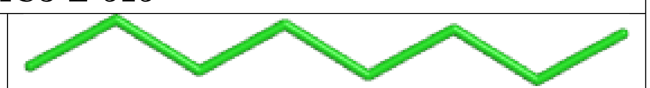


Rings

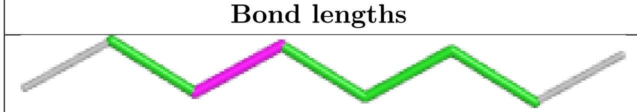
Ligand MC3 L 515



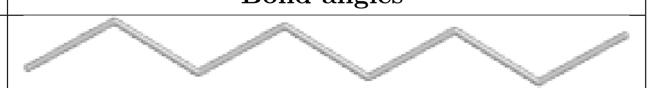
Bond lengths



Bond angles

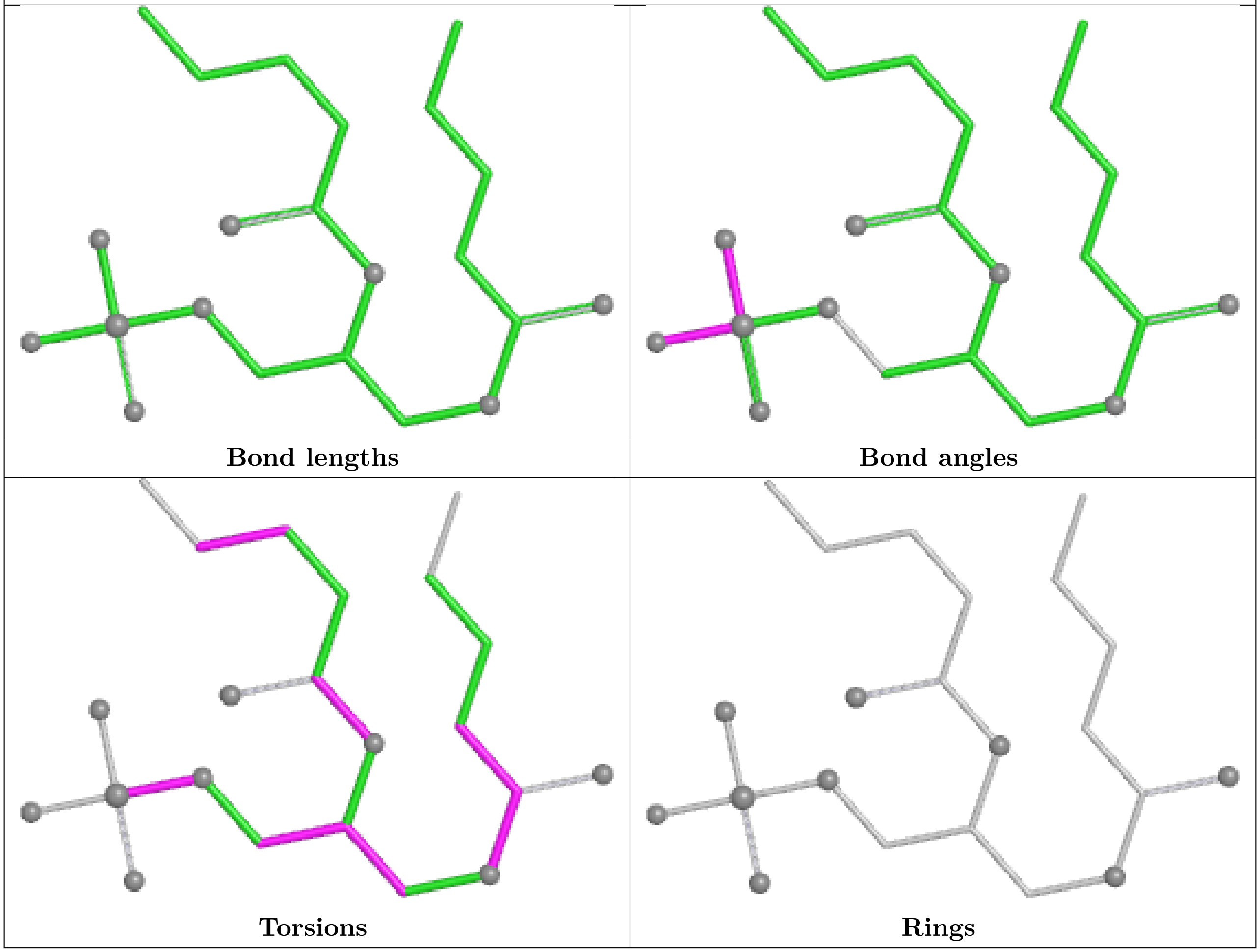


Torsions

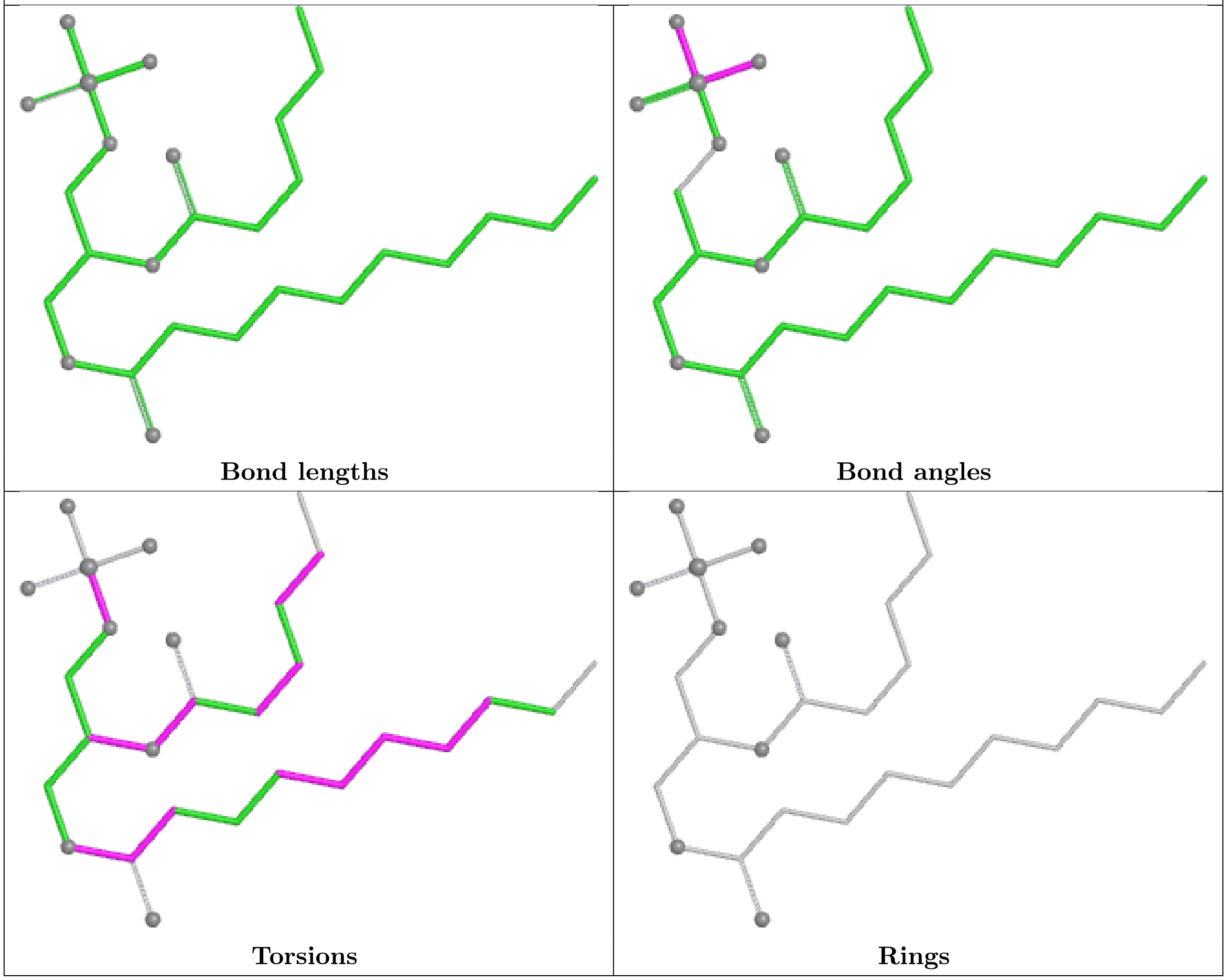


Rings

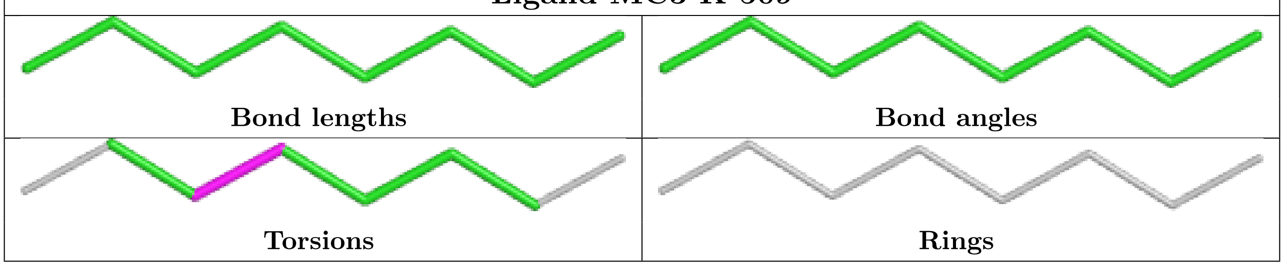
Ligand MC3 C 516

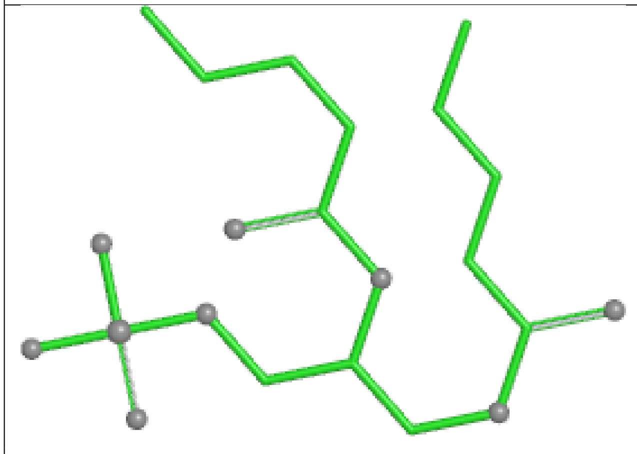
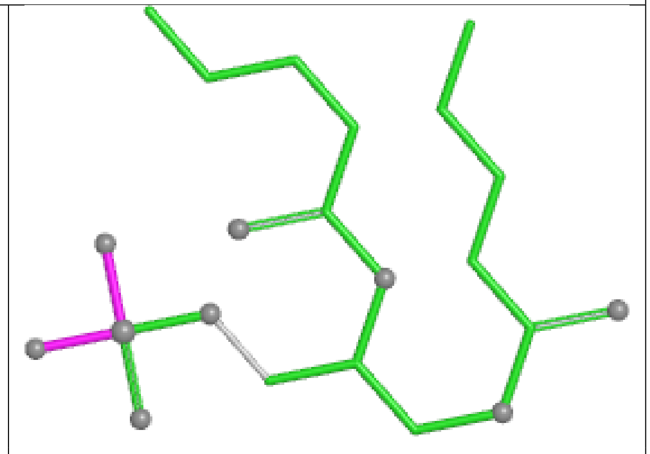
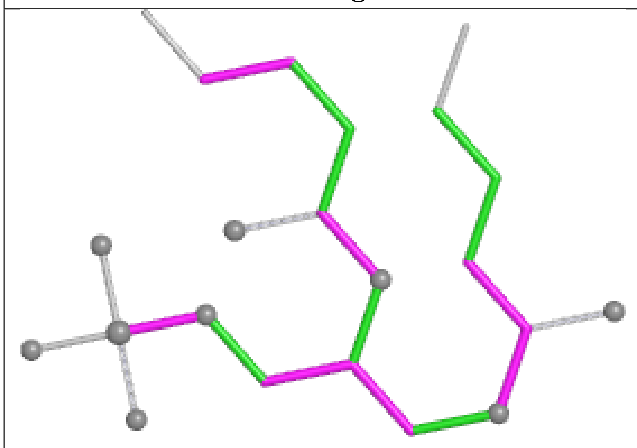
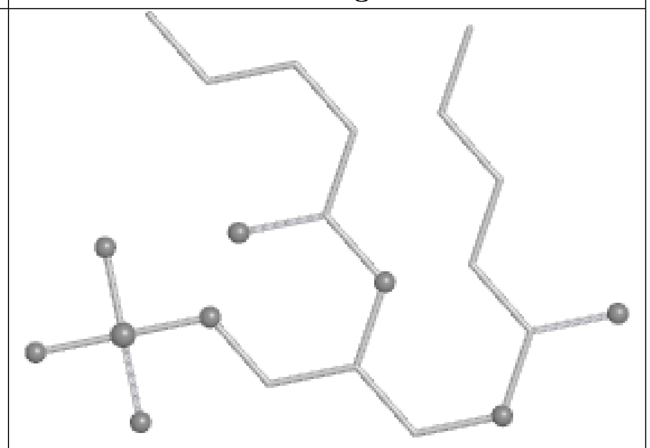


Ligand MC3 K 515

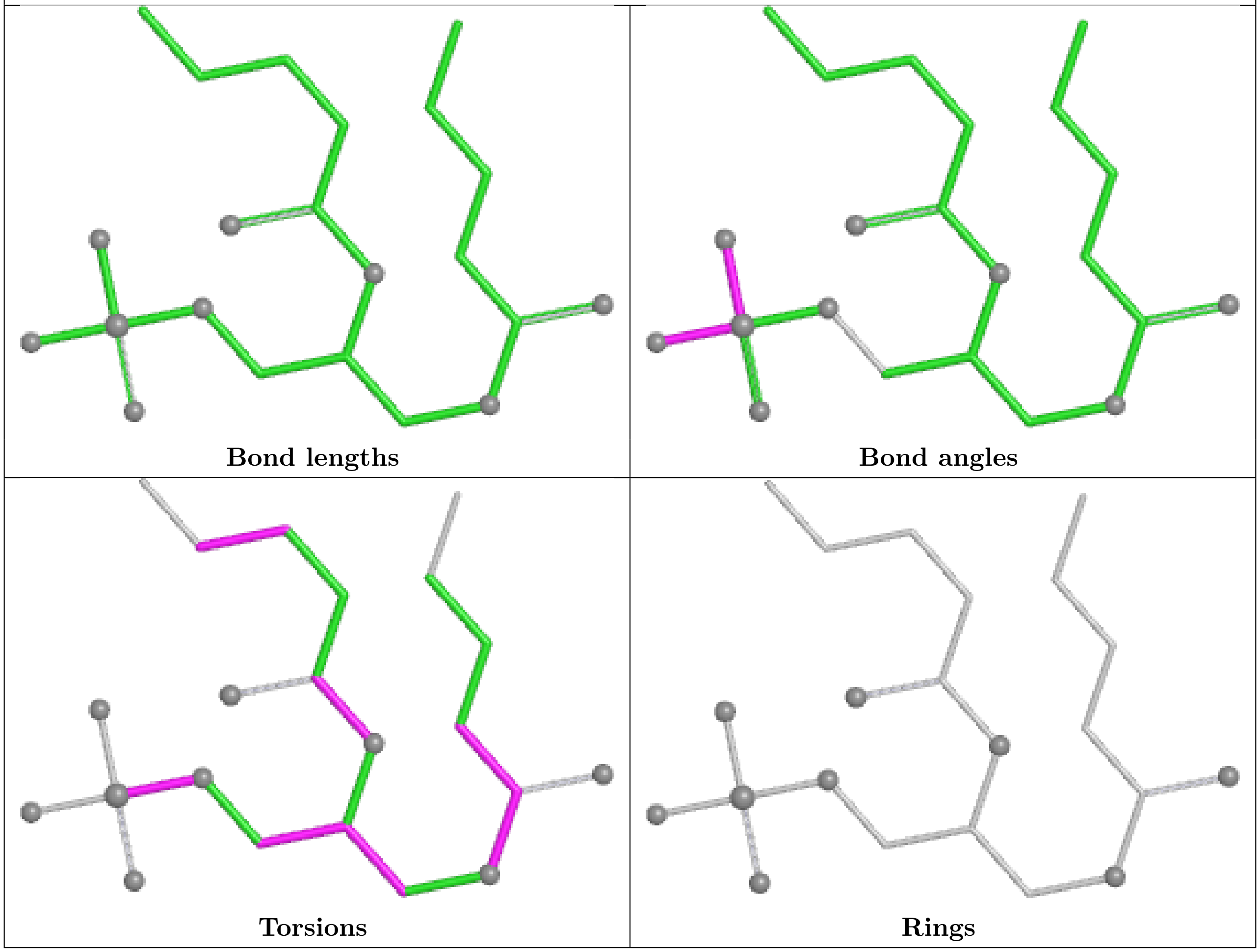


Ligand MC3 K 509



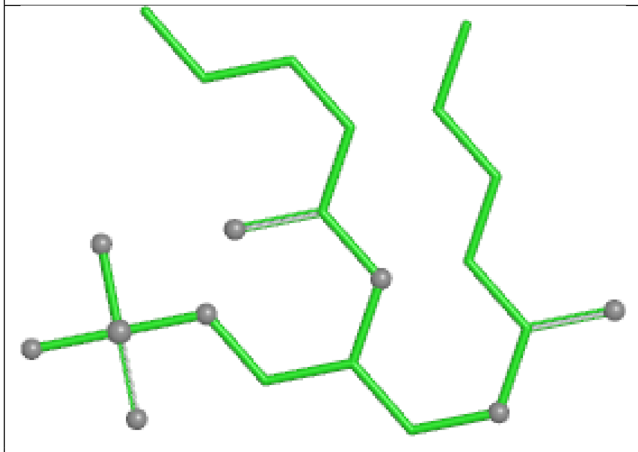
Ligand MC3 K 516	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand MC3 I 516

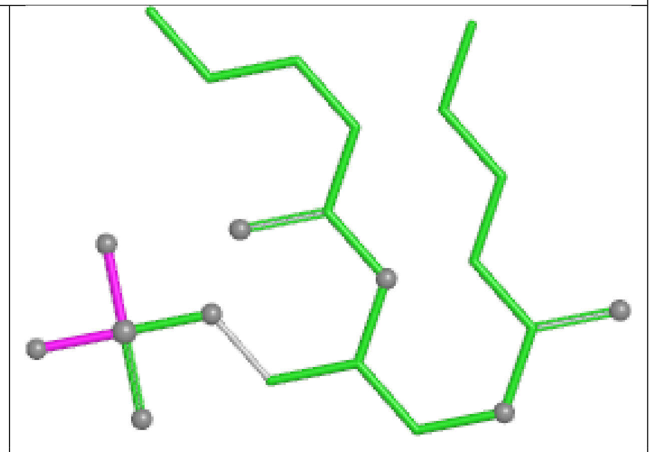


Bond lengths | Bond angles | Torsions | Rings

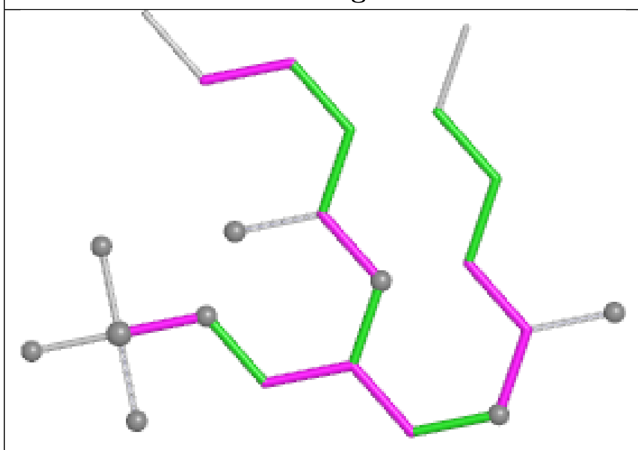
Ligand MC3 F 507



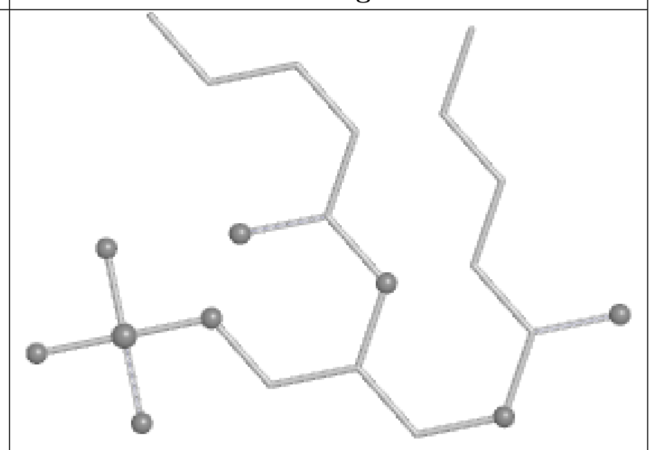
Bond lengths



Bond angles

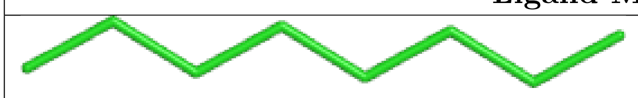


Torsions

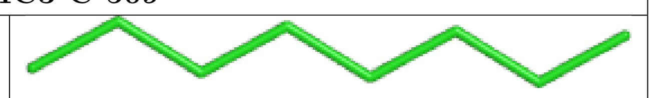


Rings

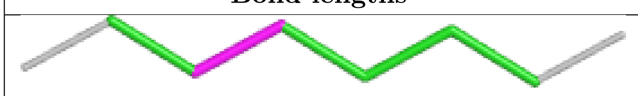
Ligand MC3 C 509



Bond lengths



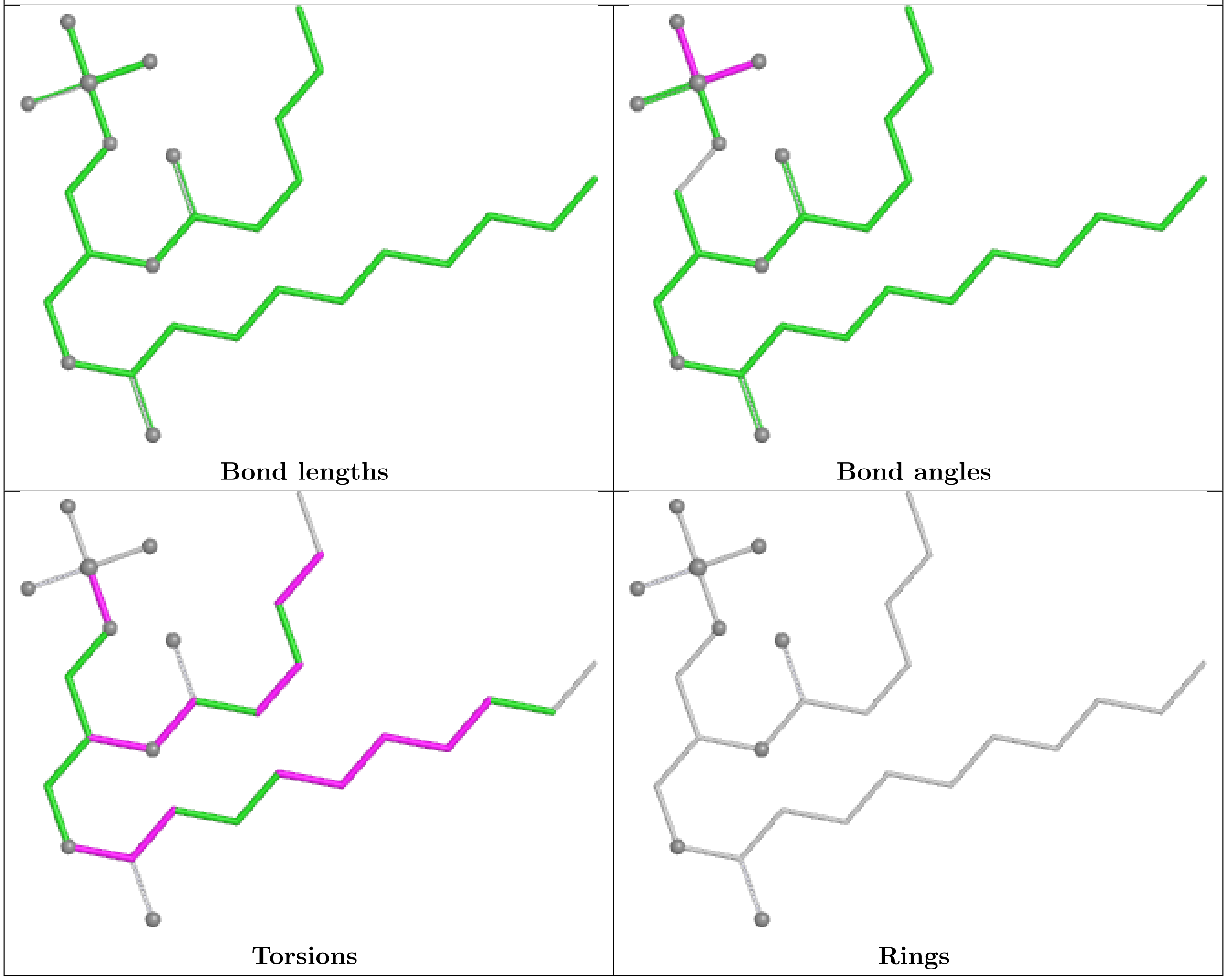
Bond angles



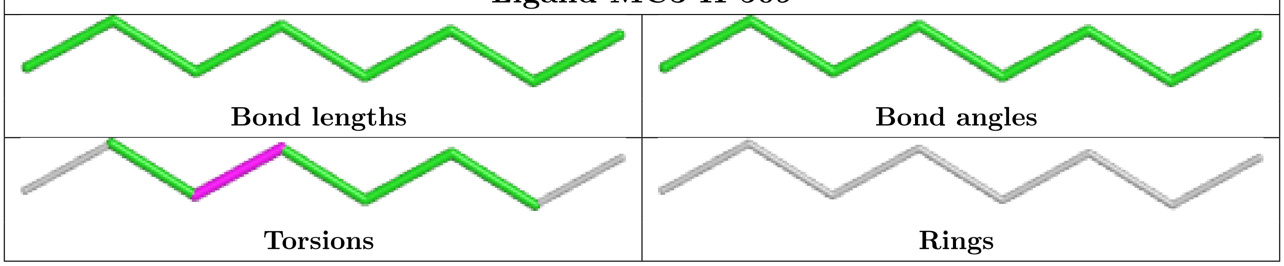
Torsions

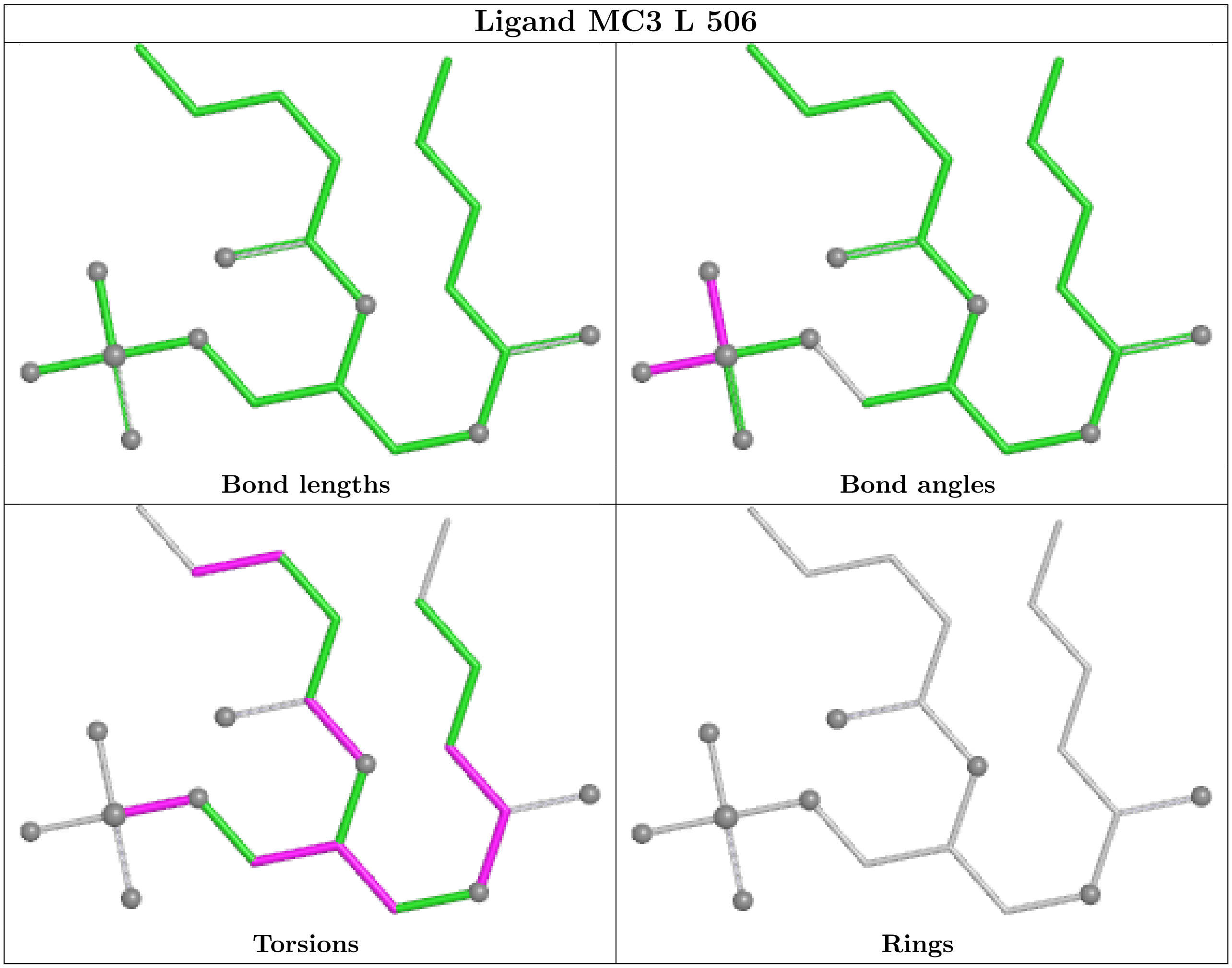
Rings

Ligand MC3 D 515

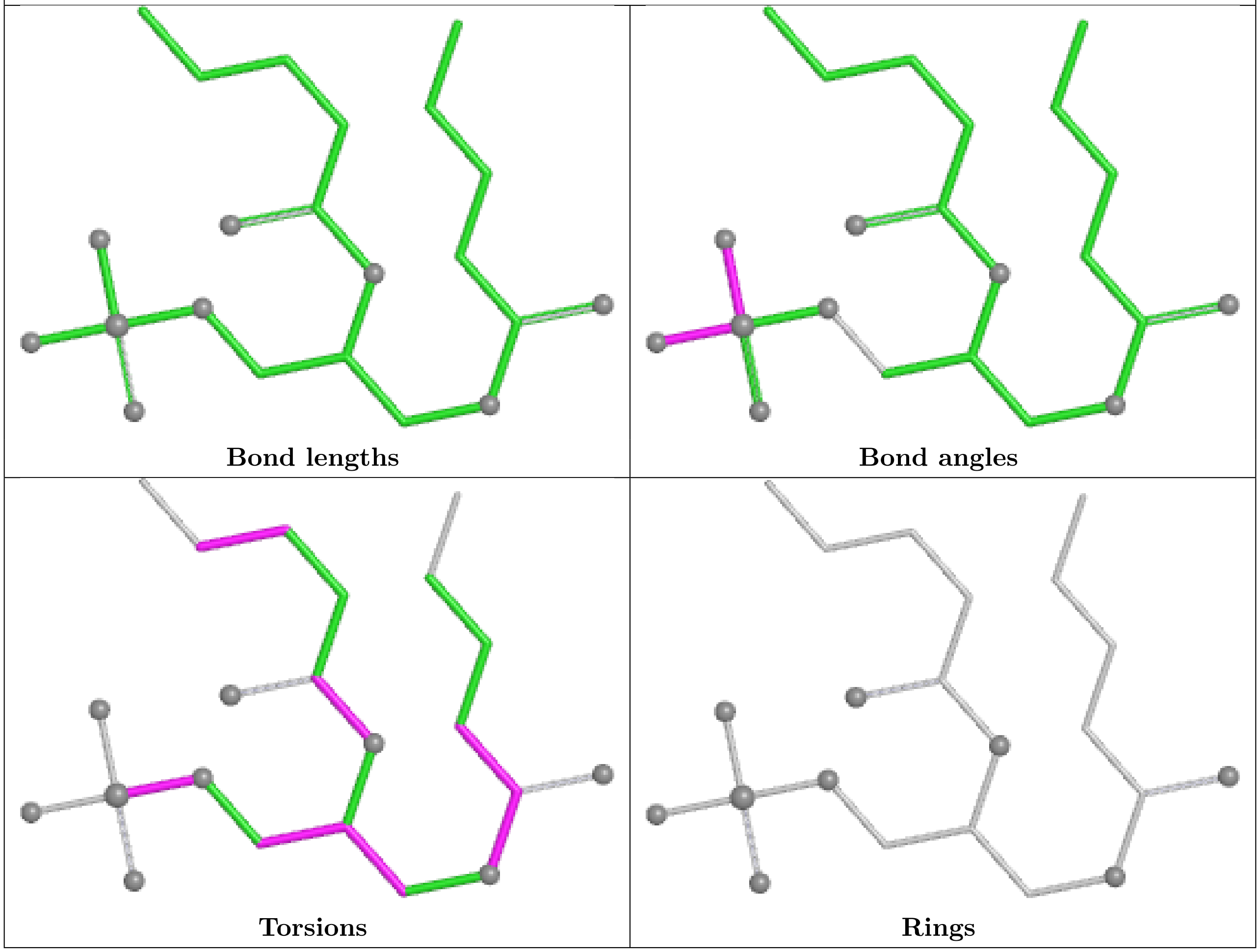


Ligand MC3 H 509

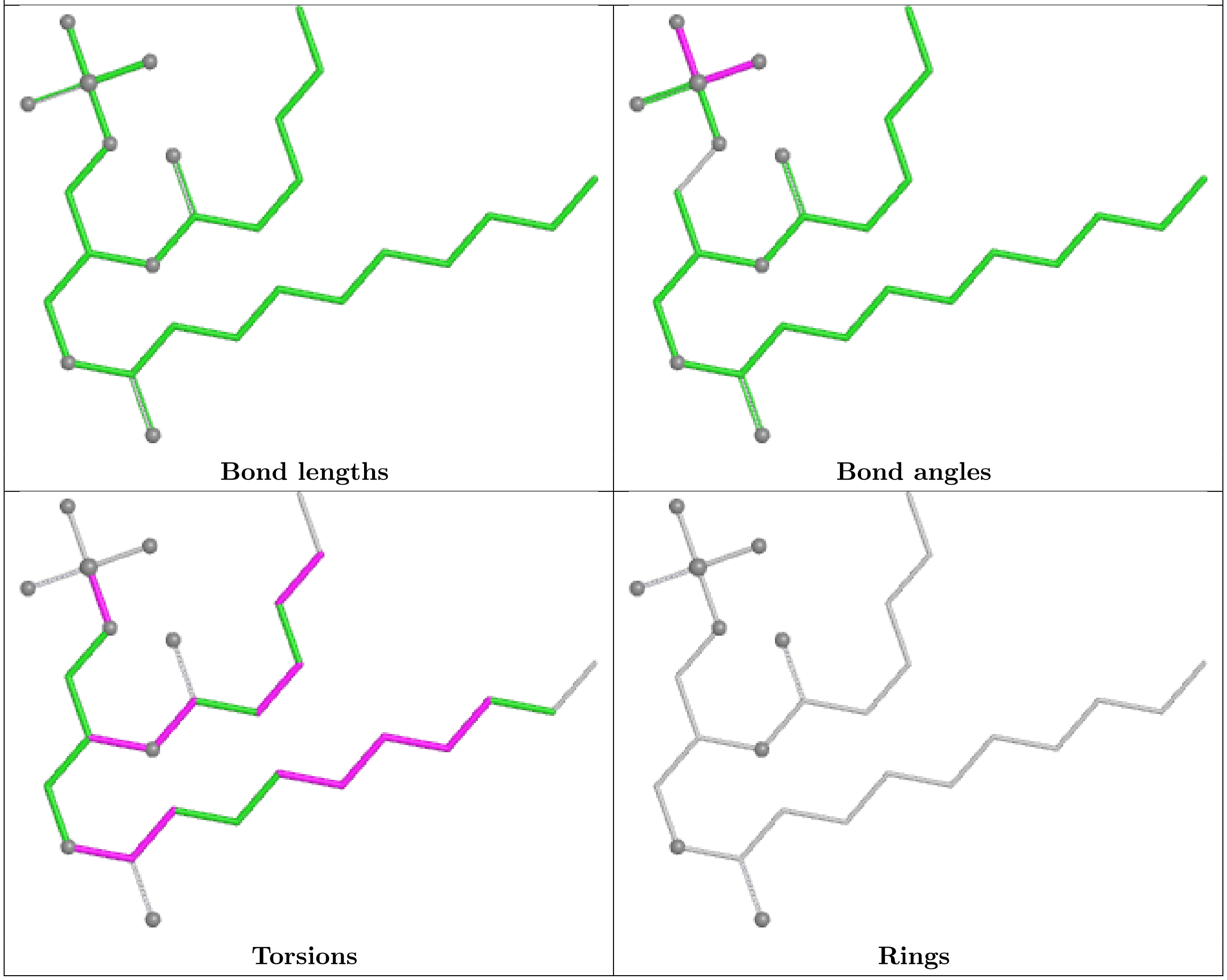



Ligand MC3 L 506
Bond lengths
Bond angles
Torsions
Rings

Ligand MC3 G 517



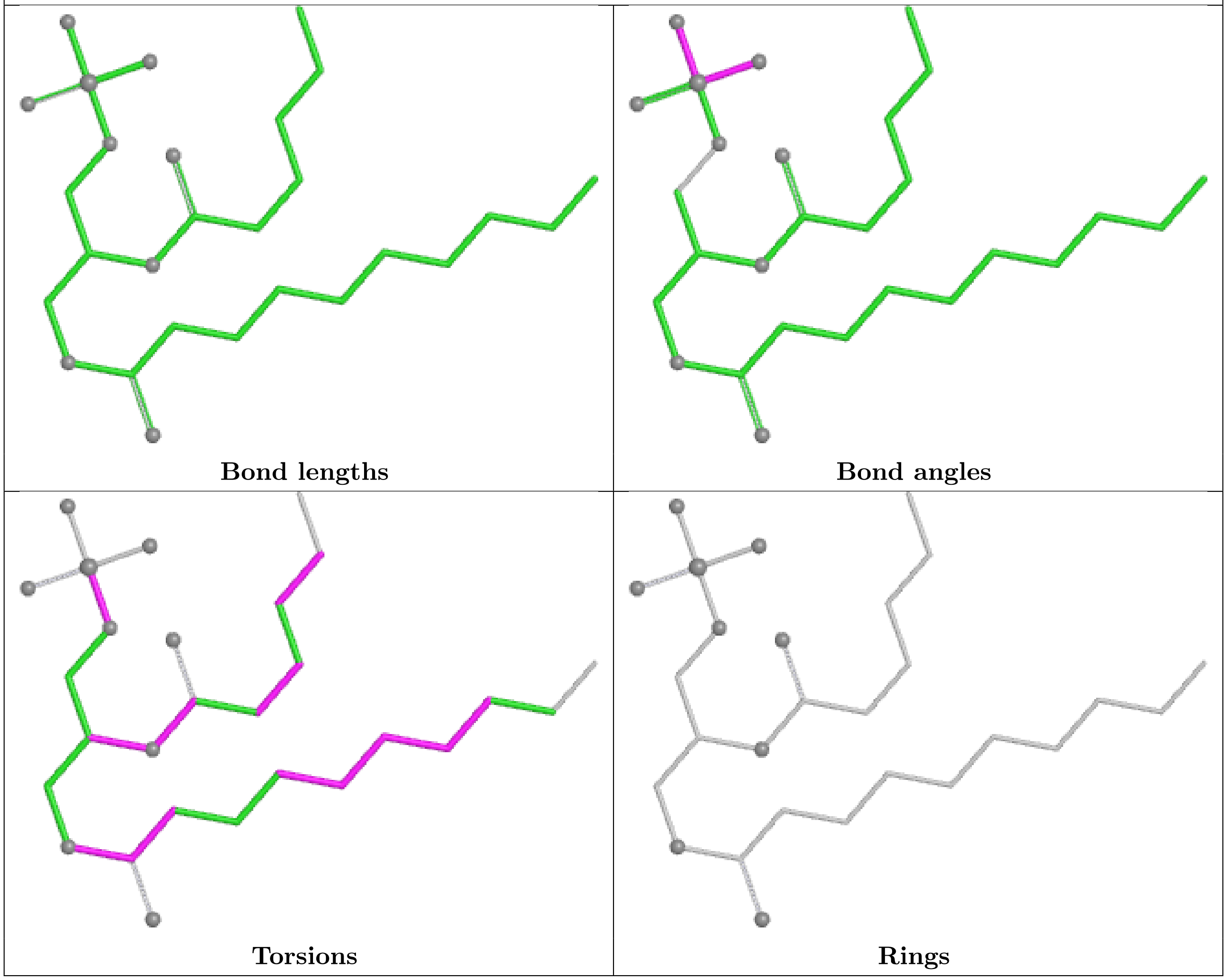
Ligand MC3 A 515



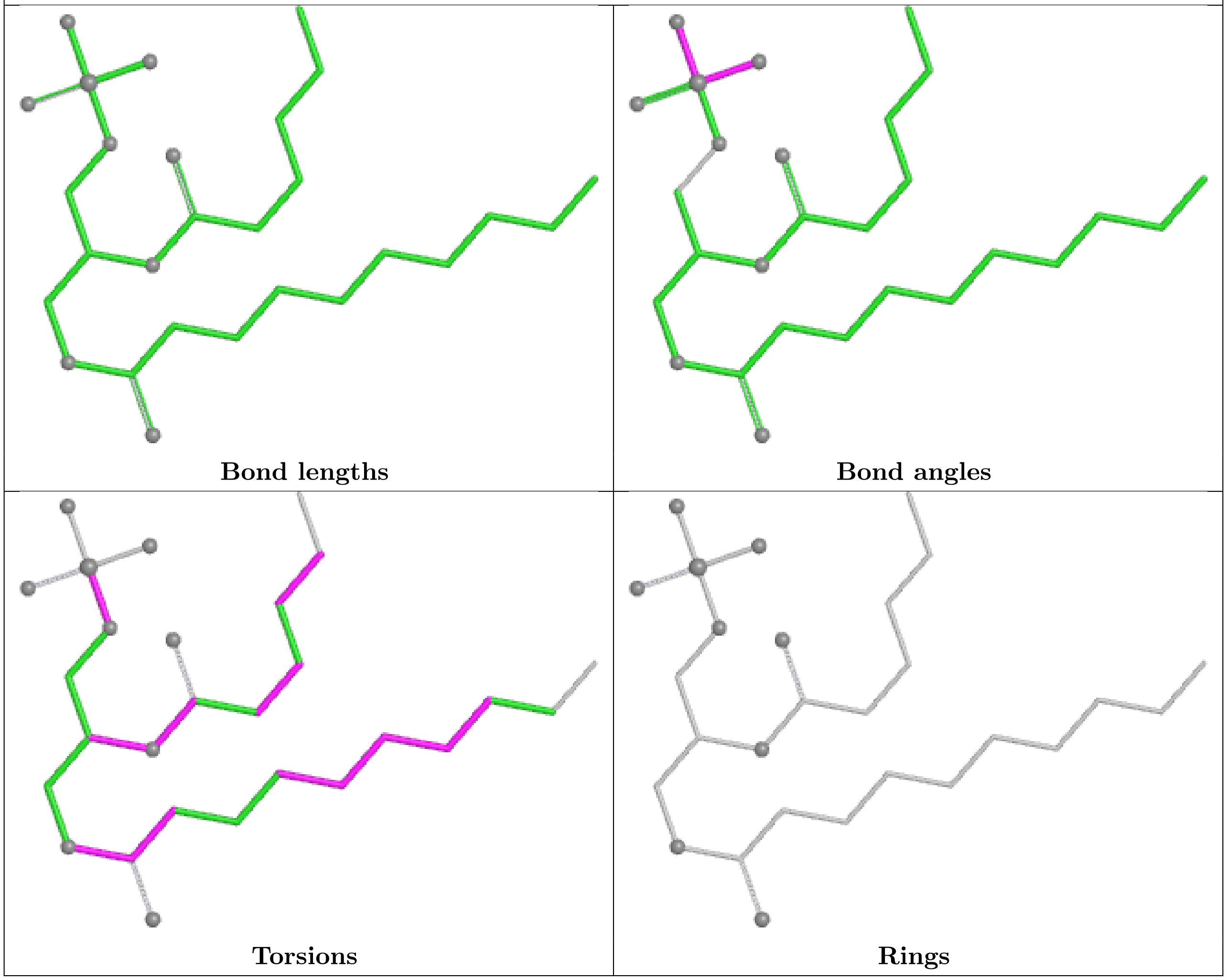
Bond lengths **Bond angles**

Torsions **Rings**

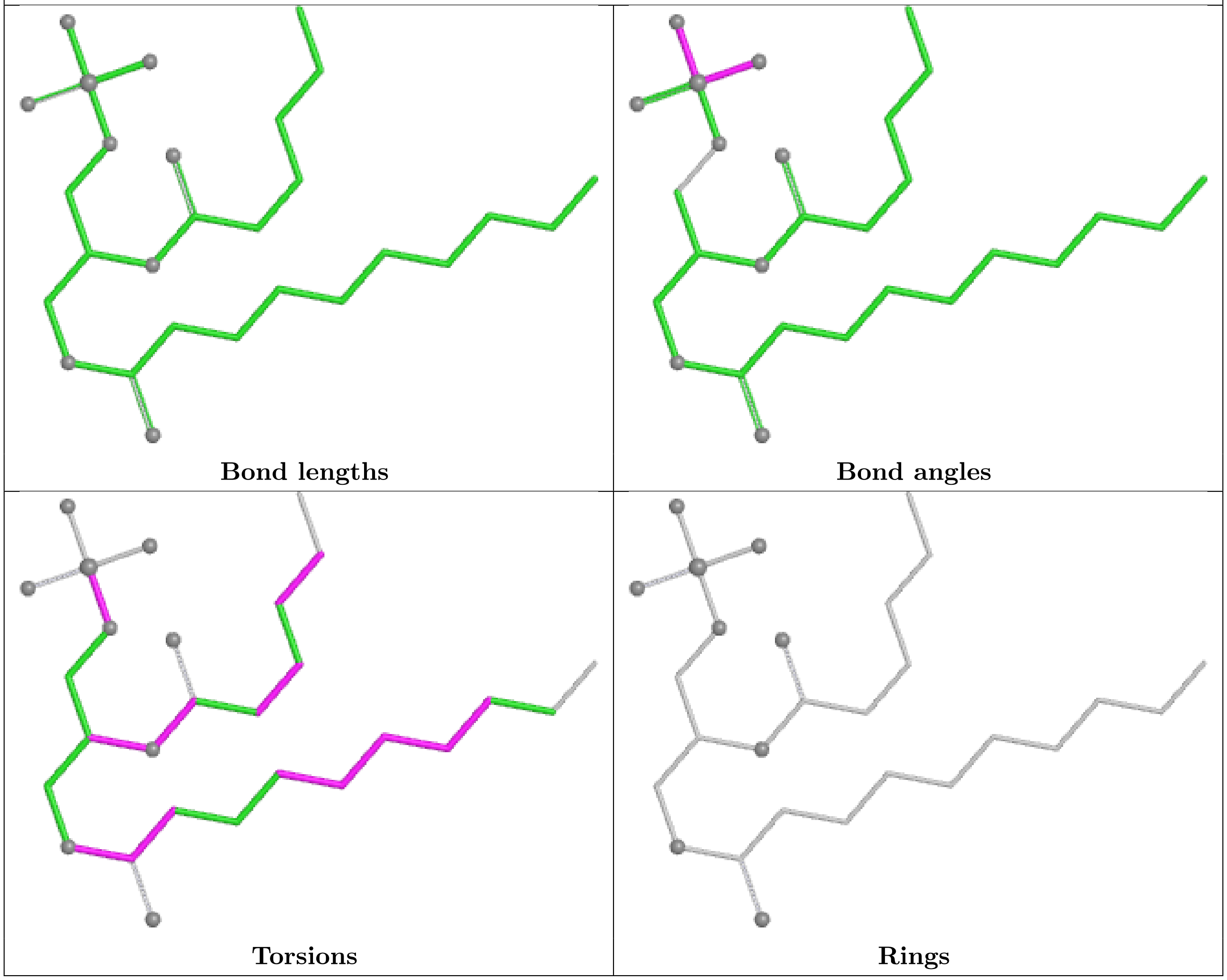
Ligand MC3 G 509



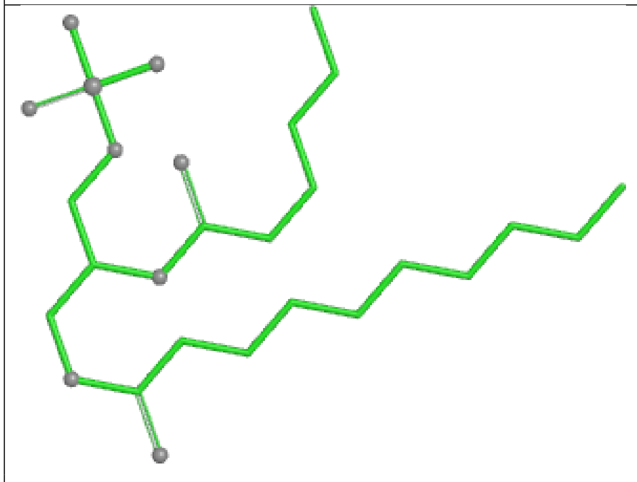
Ligand MC3 H 515

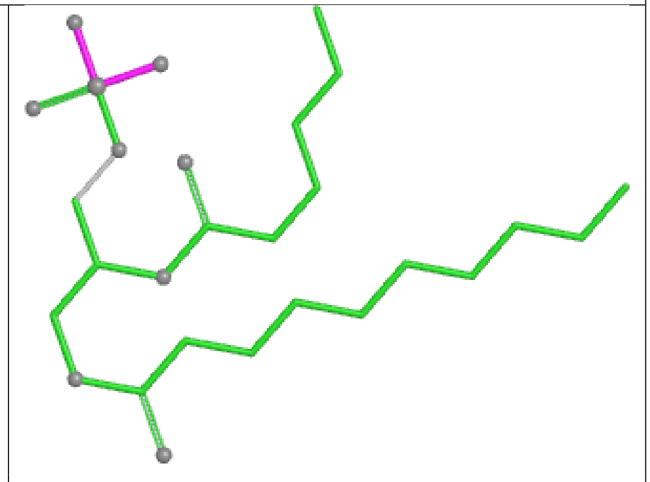


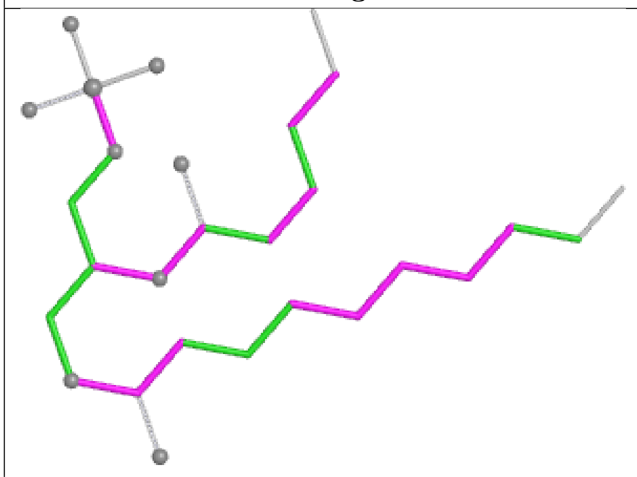
Ligand MC3 I 515

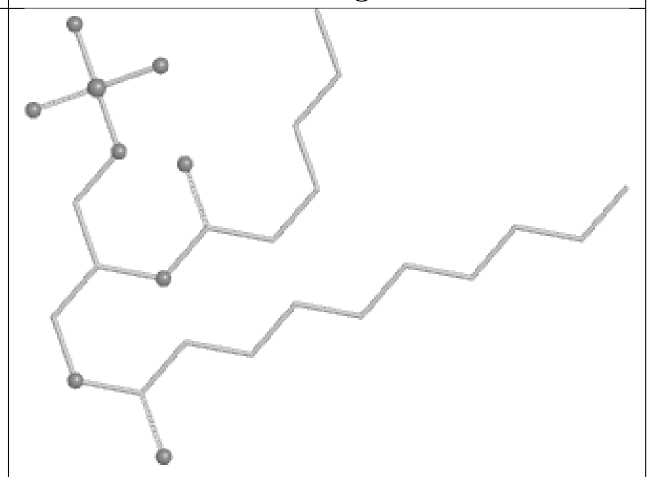


Ligand MC3 E 515

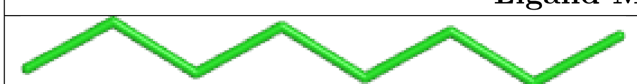

Bond lengths

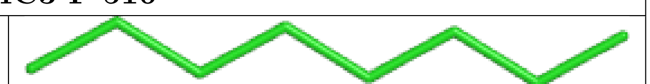

Bond angles

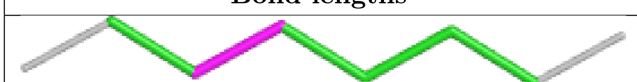

Torsions


Rings

Ligand MC3 F 516

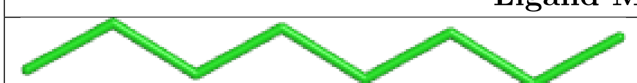

Bond lengths

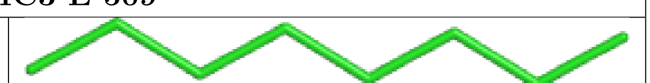

Bond angles

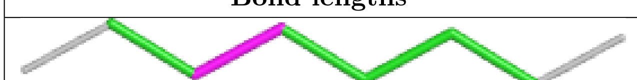

Torsions


Rings

Ligand MC3 E 509

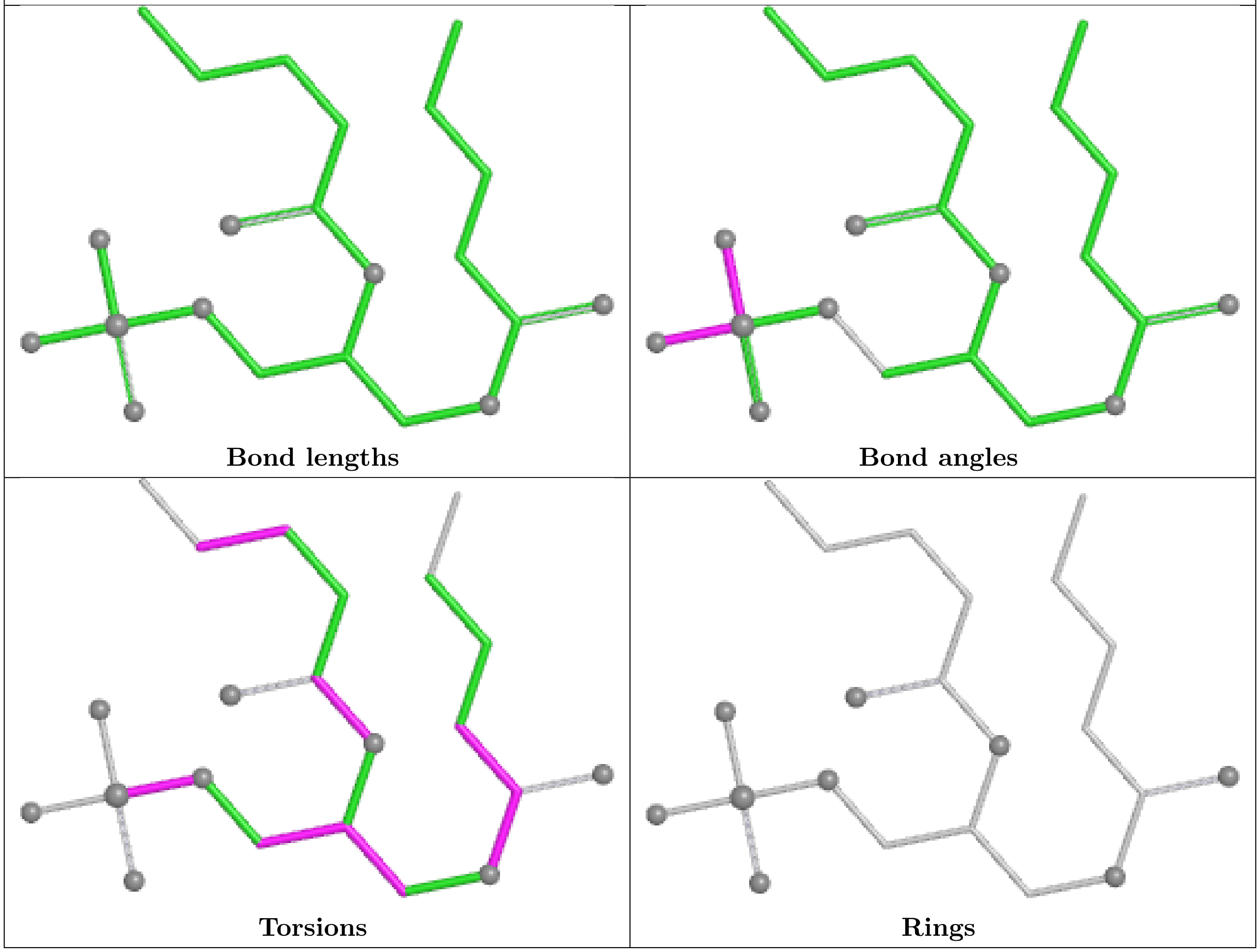

Bond lengths


Bond angles


Torsions


Rings

Ligand MC3 D 516



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.

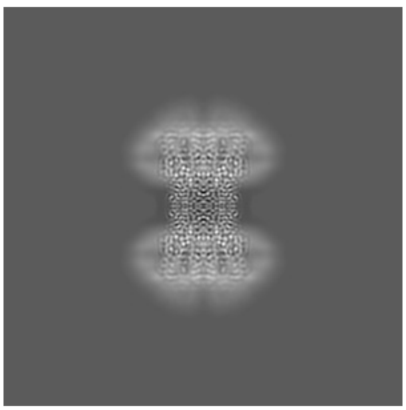
6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-73900. These allow visual inspection of the internal detail of the map and identification of artifacts.

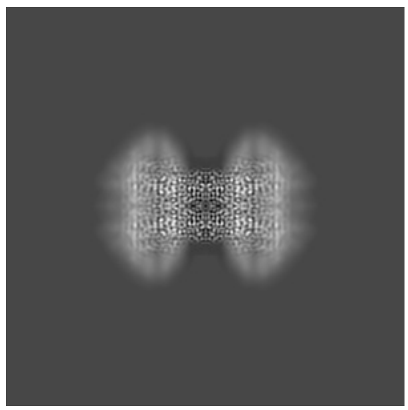
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

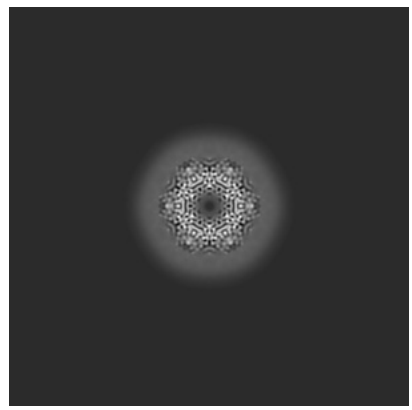
6.1.1 Primary map



X

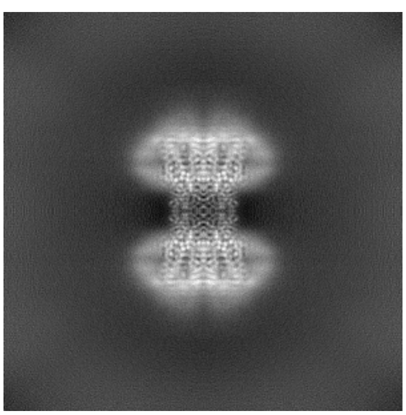


Y

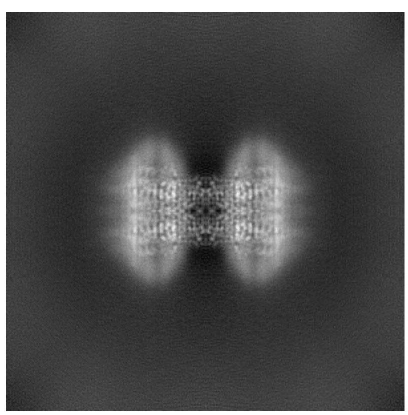


Z

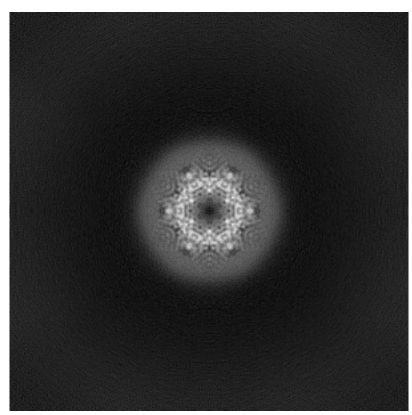
6.1.2 Raw map



X



Y

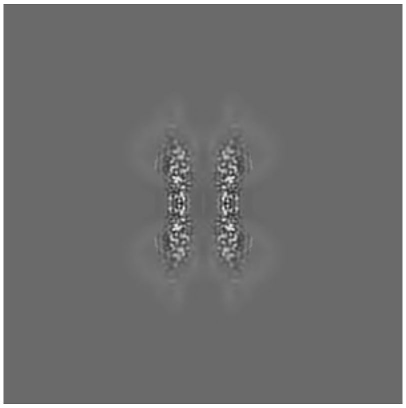


Z

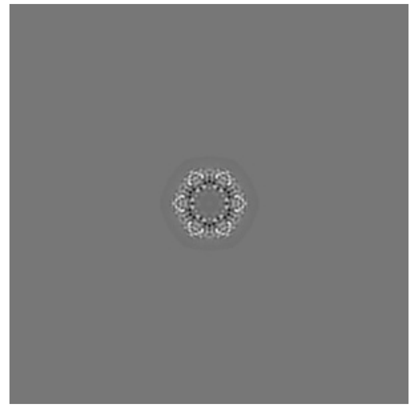
The images above show the map projected in three orthogonal directions.

6.2 Central slices

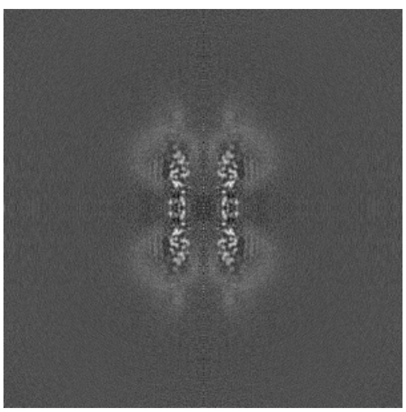
6.2.1 Primary map

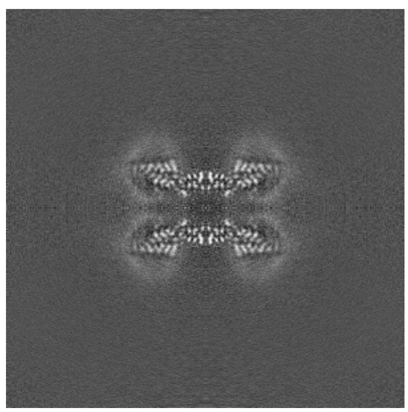

X Index: 192

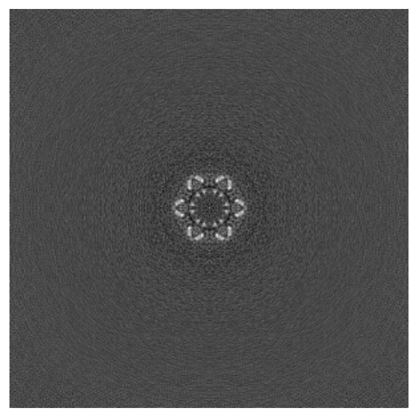

Y Index: 192


Z Index: 192

6.2.2 Raw map


X Index: 192

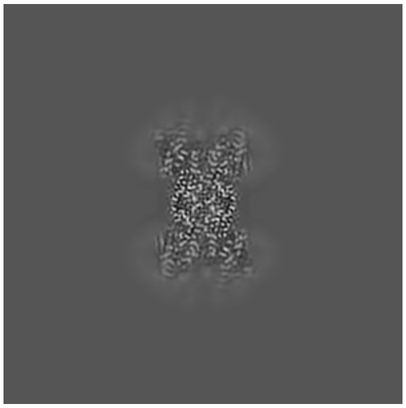

Y Index: 192


Z Index: 192

The images above show central slices of the map in three orthogonal directions.

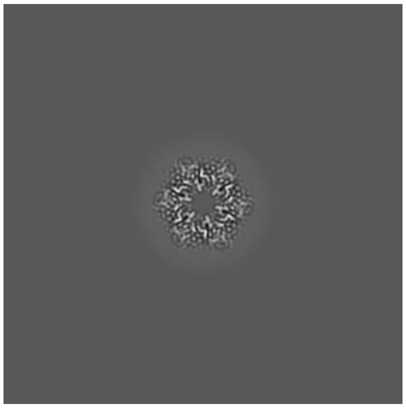
6.3 Largest variance slices

6.3.1 Primary map



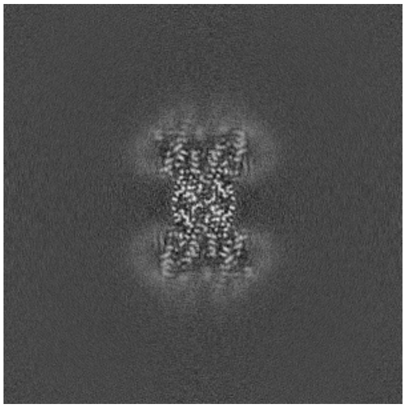
X Index: 175

Y Index: 172

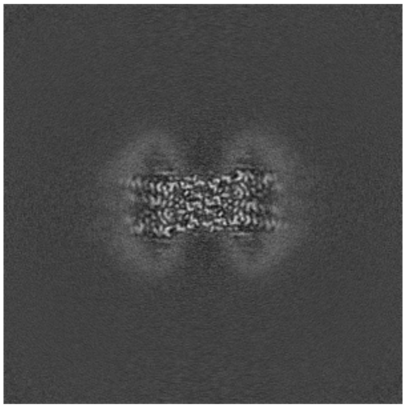


Z Index: 162

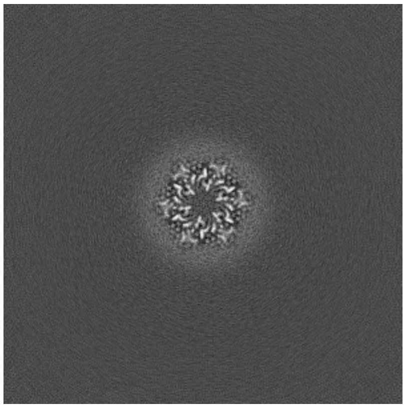
6.3.2 Raw map



X Index: 175



Y Index: 172

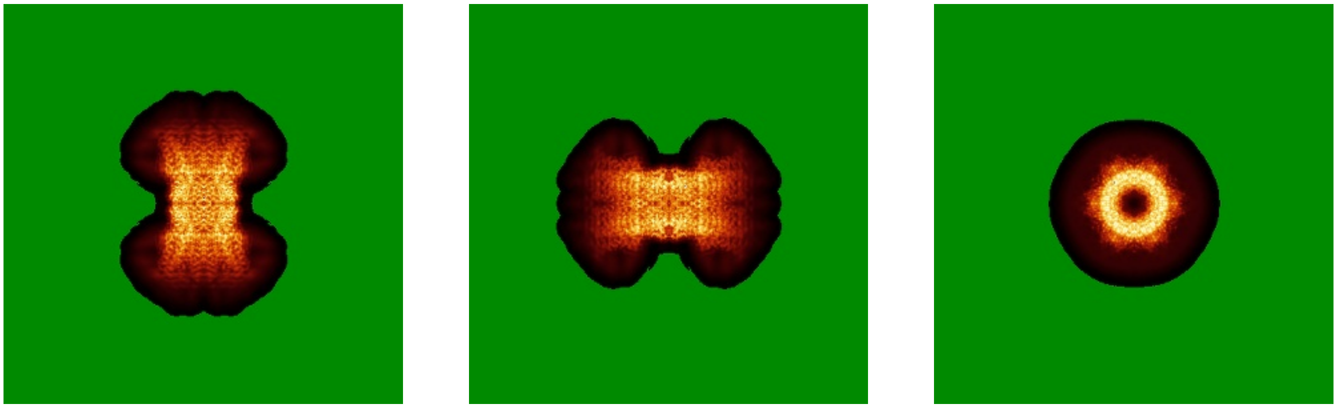


Z Index: 222

The images above show the largest variance slices of the map in three orthogonal directions.

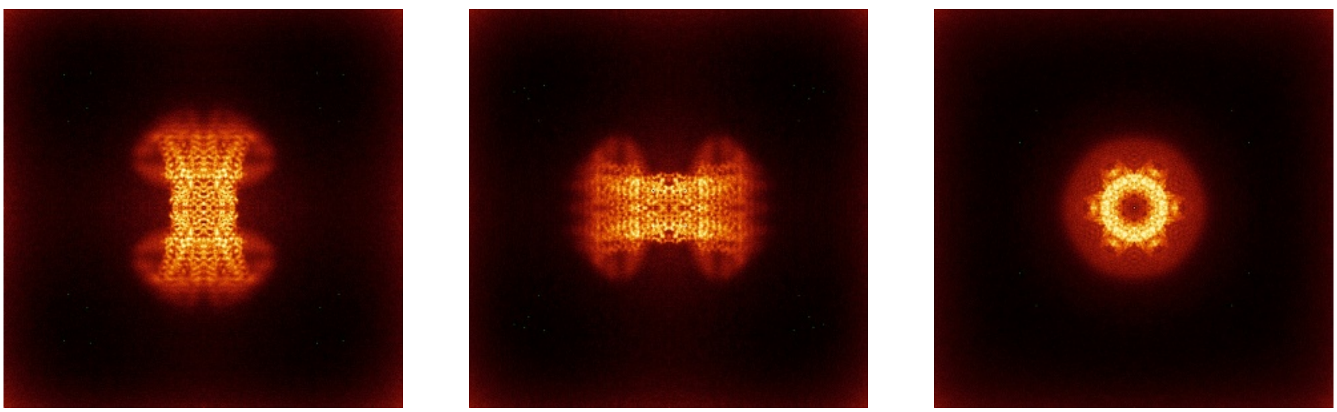
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



X Y Z

6.4.2 Raw map



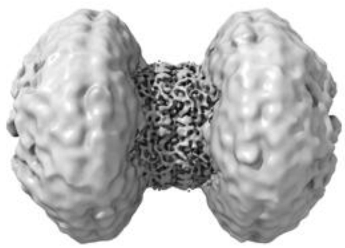
X Y Z

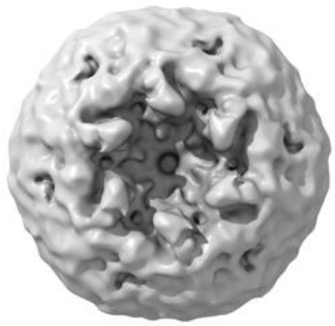
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map

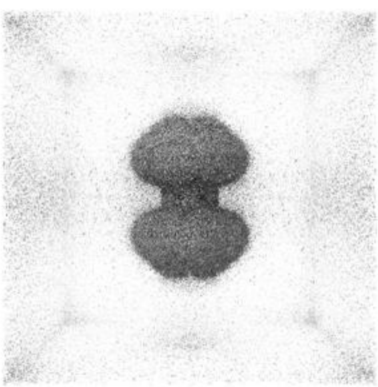

X

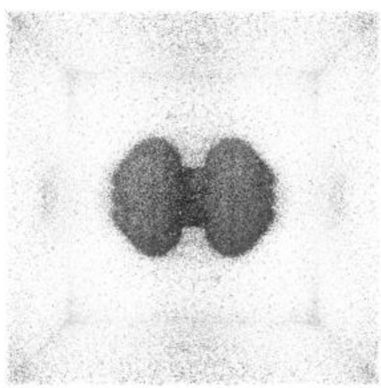

Y

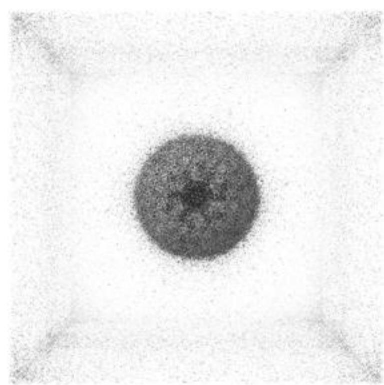

Z

The images above show the 3D surface view of the map at the recommended contour level 0.04. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map


X


Y


Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

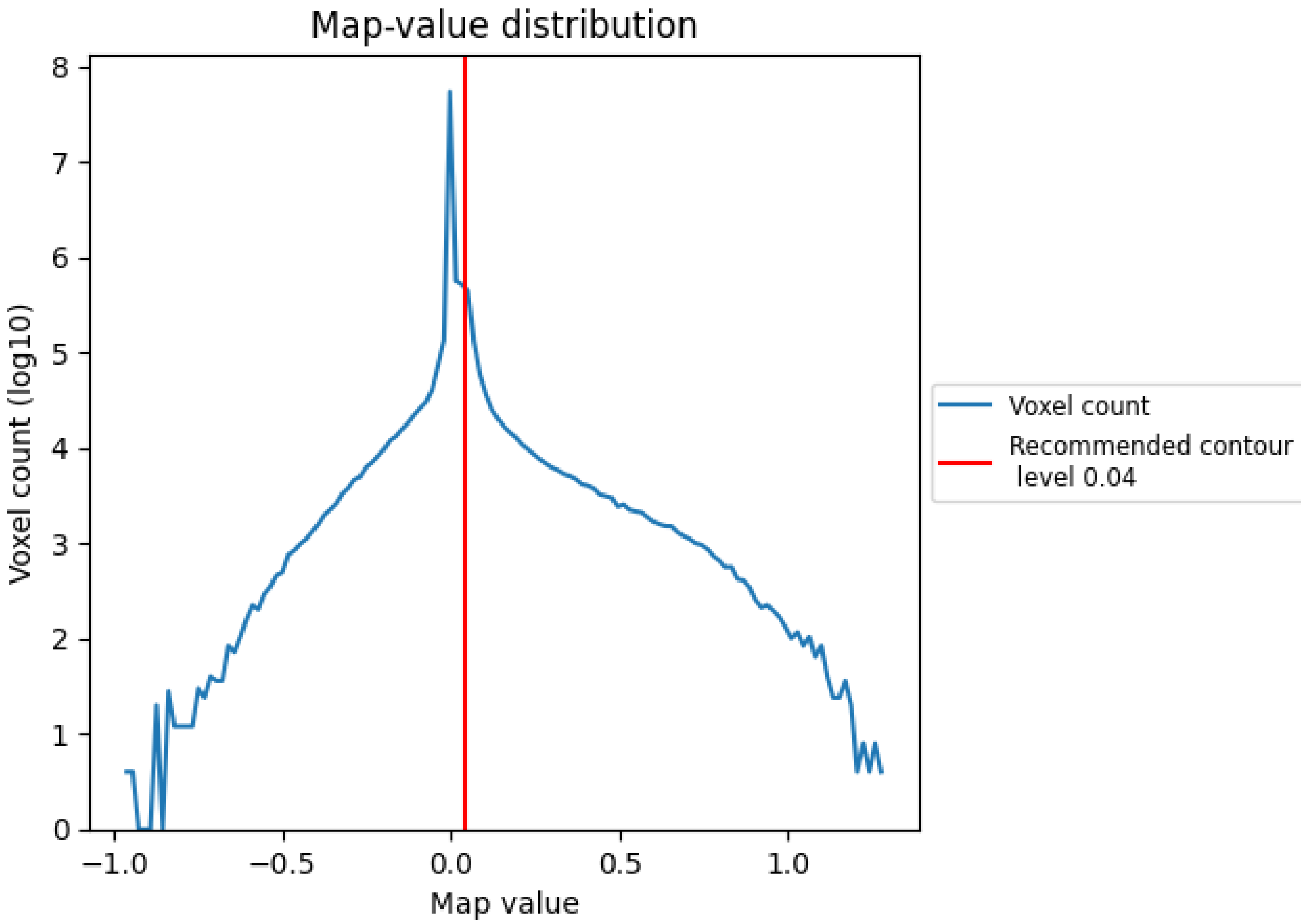
6.6 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis (i)

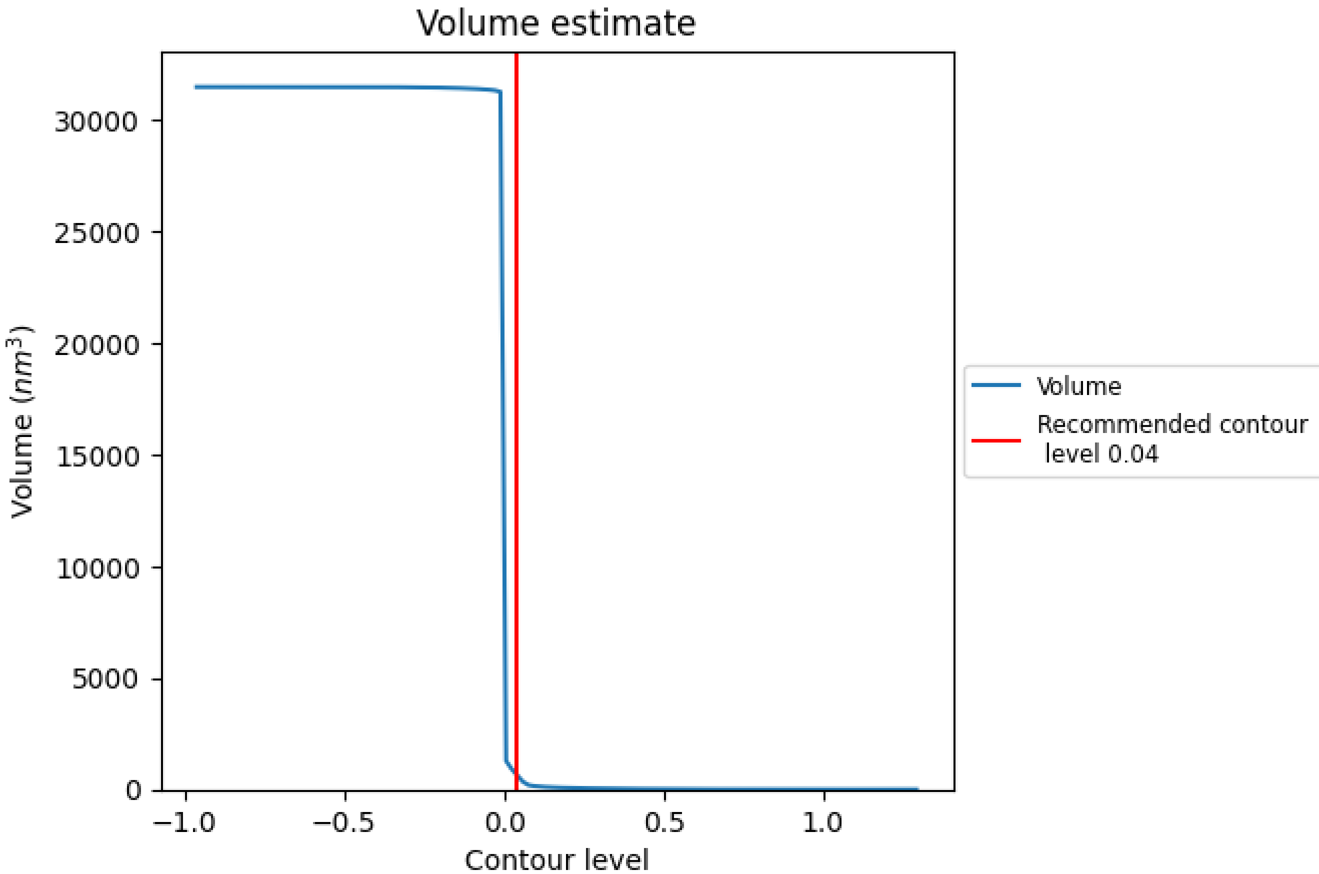
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution (i)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

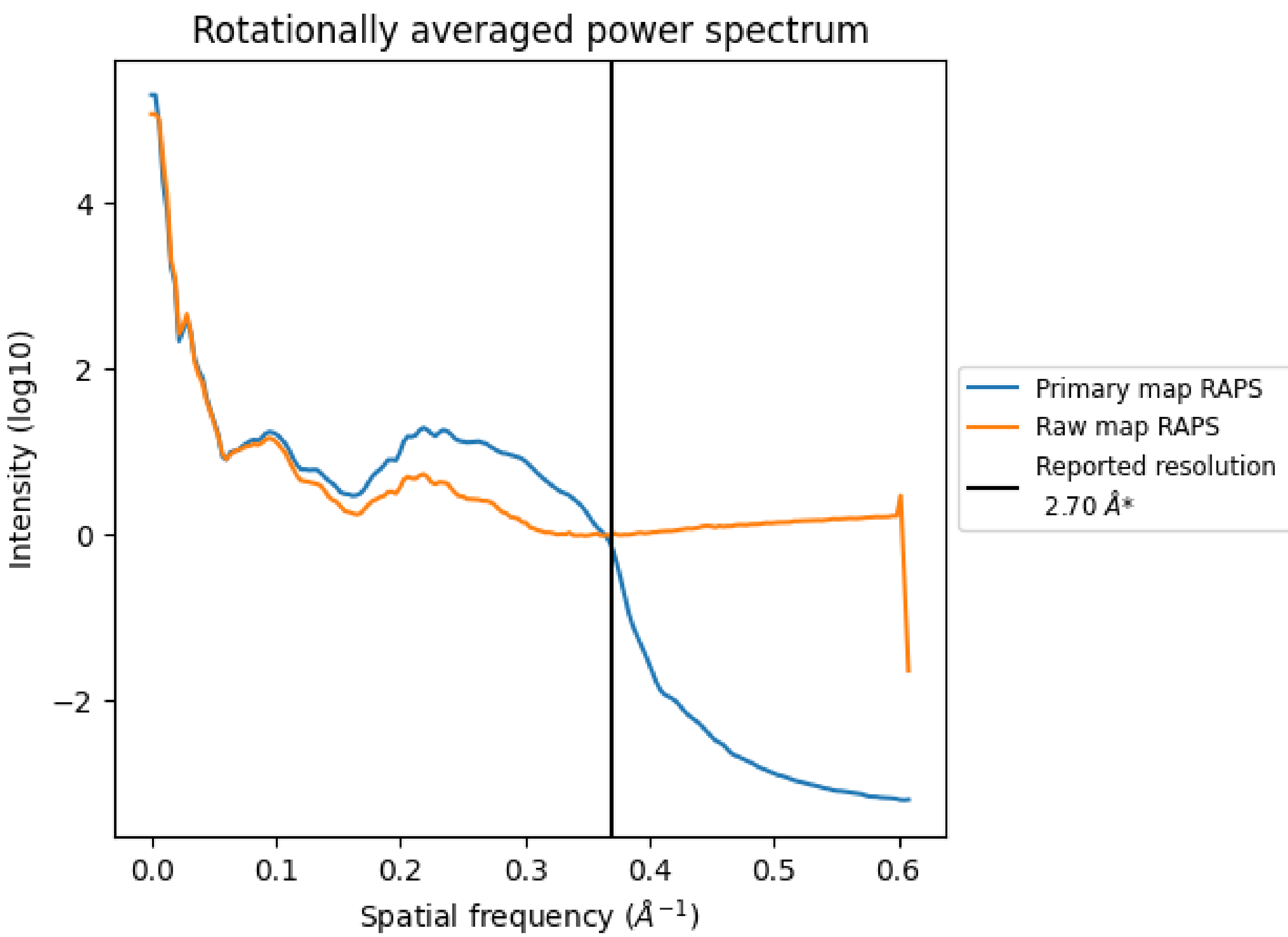
7.2 Volume estimate (i)



The volume at the recommended contour level is 665 nm^3; this corresponds to an approximate mass of 601 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

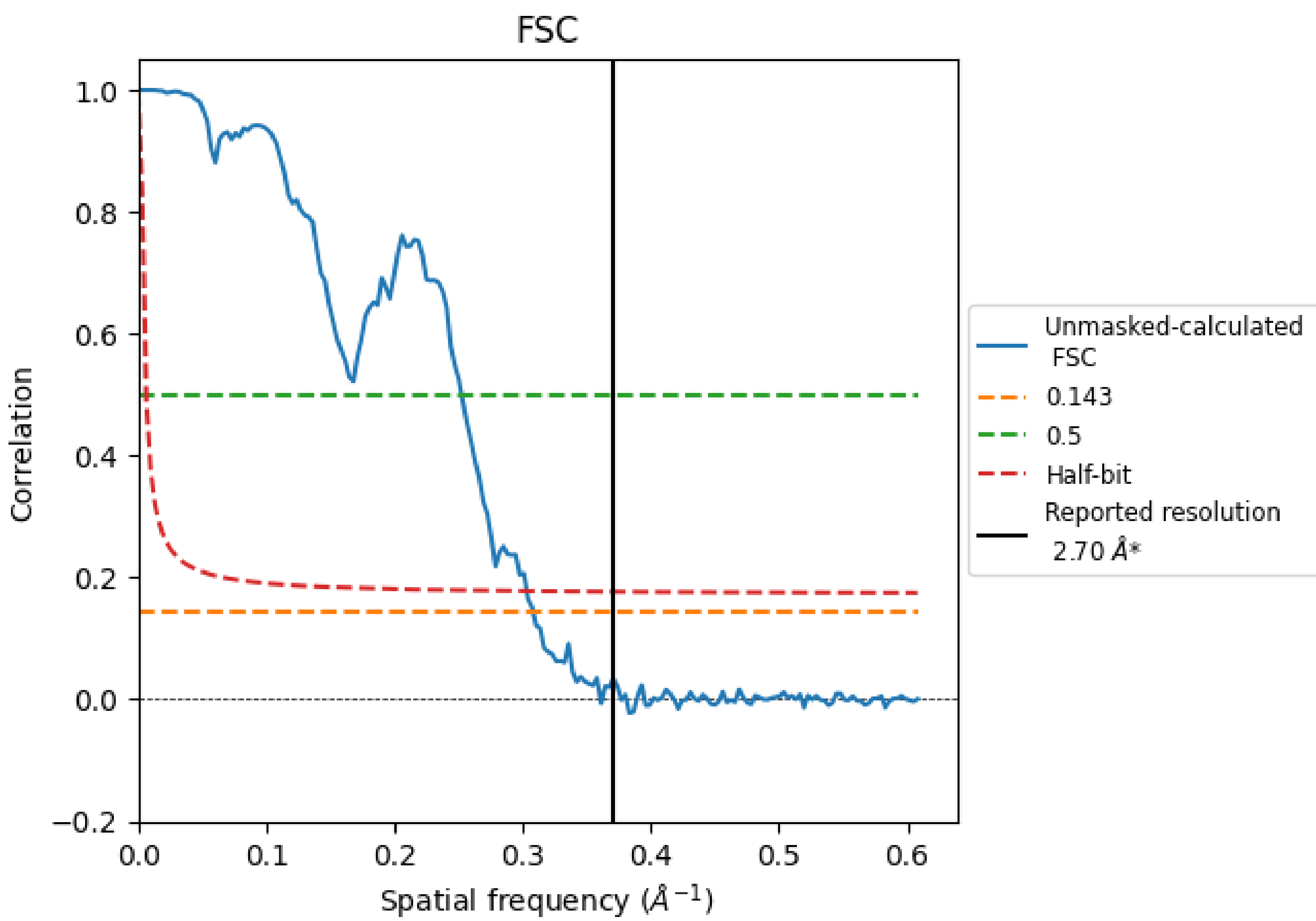


*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

8 Fourier-Shell correlation (i)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC (i)



*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

8.2 Resolution estimates (i)

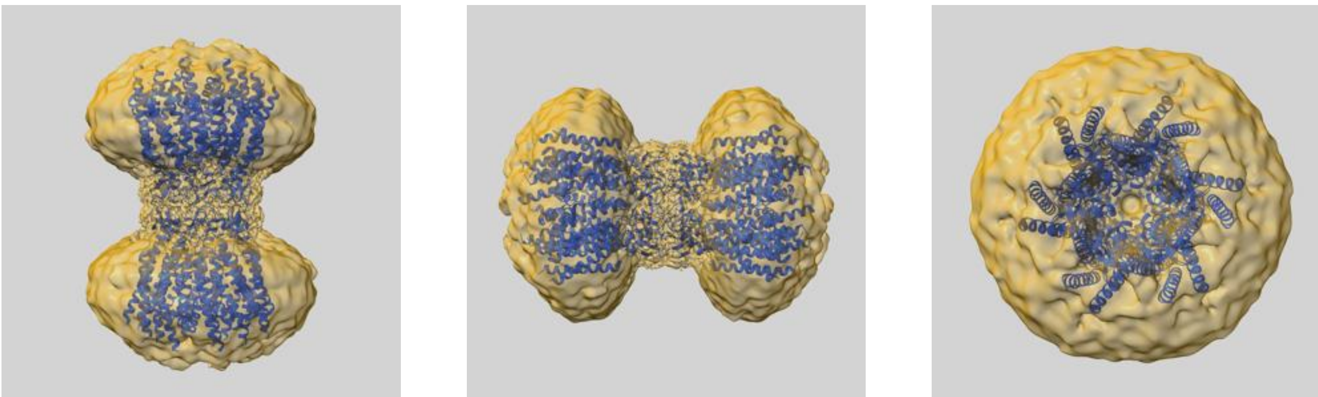
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.24	3.96	3.30

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.24 differs from the reported value 2.7 by more than 10 %

9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-73900 and PDB model 9Z9B. Per-residue inclusion information can be found in section 3 on page 15.

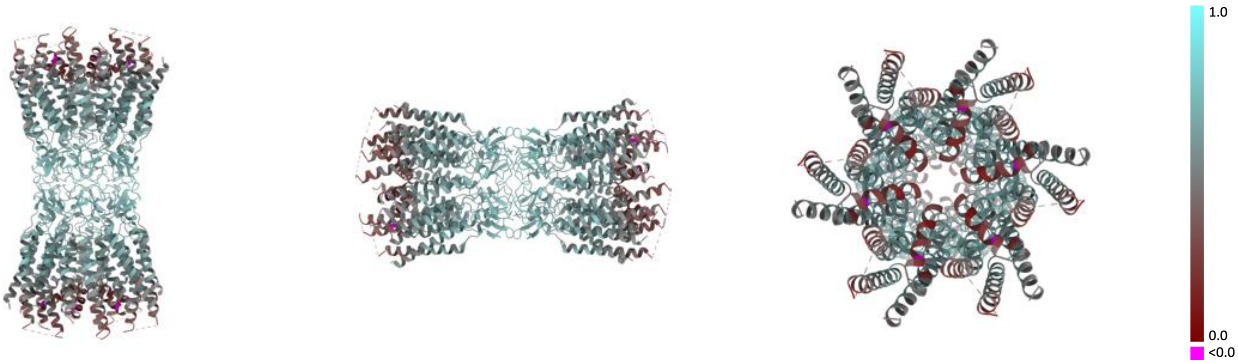
9.1 Map-model overlay (i)



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

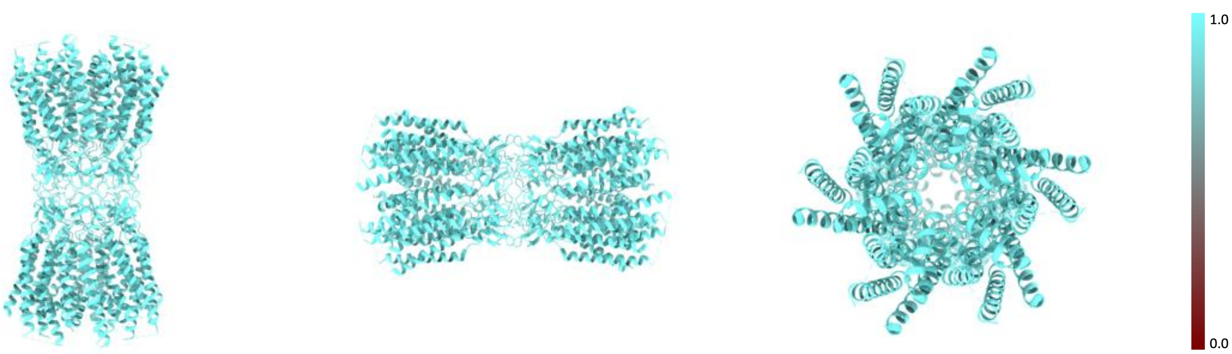
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

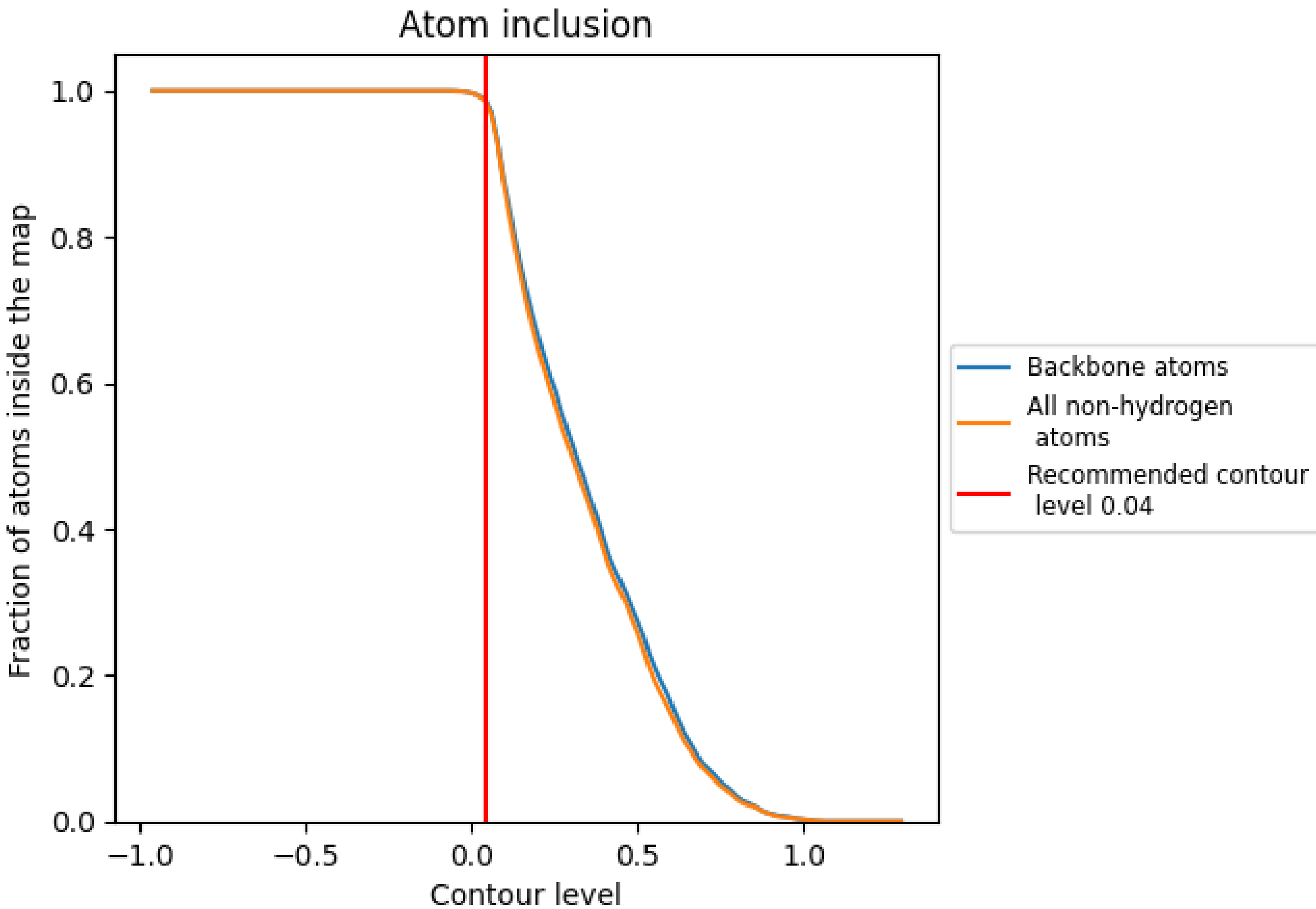
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.04).

9.4 Atom inclusion (i)



At the recommended contour level, 99% of all backbone atoms, 99% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9870	0.5540
A	0.9900	0.5560
B	0.9880	0.5530
C	0.9880	0.5540
D	0.9890	0.5560
E	0.9880	0.5540
F	0.9890	0.5550
G	0.9870	0.5530
H	0.9890	0.5560
I	0.9870	0.5540
J	0.9880	0.5530
K	0.9880	0.5510
L	0.9860	0.5520