



wwPDB EM Validation Summary Report ⓘ

Dec 8, 2025 – 06:38 PM JST

PDB ID : 8ZSR / pdb_00008zsr
EMDB ID : EMD-60425
Title : Complex I form respirasome open state bound by proguanil (SC-ProgO)
Authors : Teng, F.; He, Z.X.; Hu, Y.Q.; Xu, C.Y.; Guo, R.Y.; Zhou, L.
Deposited on : 2024-06-05
Resolution : 3.10 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

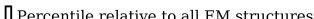
EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive 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

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ELECTRON MICROSCOPY

A.

| Metric | Percentile Rank | Value |
|--------|-----------------|-------|
|--------|-----------------|-------|












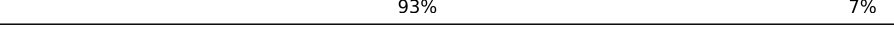

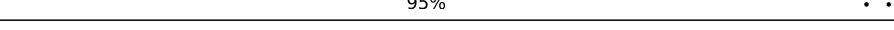
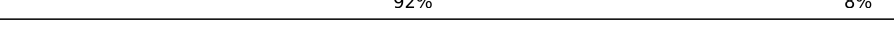
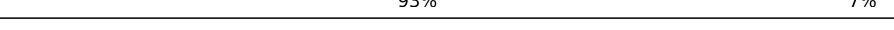



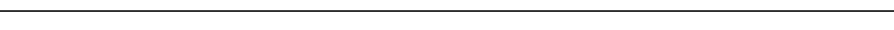

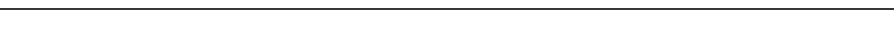
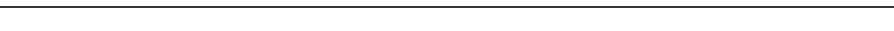




Similar EM resolution
(#Entries, resolution range(Å))

Quality of chain

Continued on next page...

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 5 | A5 | 112 |  91% 9% |
| 6 | A6 | 114 |  89% 11% |
| 7 | A7 | 112 |  78% 8% 13% |
| 8 | A8 | 171 |  80% 20% |
| 9 | A9 | 341 |  82% 16% .. |
| 10 | AB | 87 |  61% 28% 11% |
| 10 | AC | 87 |  80% 18% . |
| 11 | AK | 321 |  77% 22% . |
| 12 | AL | 140 |  88% 12% |
| 13 | AM | 144 |  88% 12% |
| 14 | AN | 142 |  85% 15% |
| 15 | B1 | 56 |  93% 7% |
| 16 | B2 | 67 |  85% 15% |
| 17 | B3 | 80 |  95% . . |
| 18 | B4 | 128 |  92% 8% |
| 19 | B5 | 138 |  93% 7% |
| 20 | B6 | 126 |  63% 17% 19% |
| 21 | B7 | 125 |  83% 17% |
| 22 | B8 | 156 |  92% 8% |
| 23 | B9 | 178 |  86% 14% |
| 24 | BK | 176 |  82% 16% . |
| 25 | BL | 102 |  86% 11% . |
| 26 | CA | 49 |  84% 16% |
| 27 | CB | 121 |  88% 12% |
| 28 | N1 | 318 |  80% 17% . |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 29 | N2 | 347 |  78%22% |
| 30 | N3 | 115 |  70%11%18% |
| 31 | N4 | 459 |  80%20% |
| 32 | N5 | 603 |  76%23% |
| 33 | N6 | 174 |  78%17%5% |
| 34 | S1 | 689 |  79%21%. |
| 35 | S2 | 430 |  76%21%.. |
| 36 | S3 | 208 |  84%16% |
| 37 | S4 | 124 |  88%12% |
| 38 | S5 | 105 |  83%17% |
| 39 | S6 | 96 |  93%7% |
| 40 | S7 | 156 |  83%15%. |
| 41 | S8 | 176 |  81%19% |
| 42 | V1 | 431 |  81%18% |
| 43 | V2 | 217 |  88%12% |
| 44 | V3 | 42 |  76%24% |

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

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 53 | XEW | N1 | 403 | - | X | - | - |
| 53 | XEW | S2 | 501 | - | X | - | - |

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 68306 atoms, of which 0 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 NADH-ubiquinone oxidoreductase chain 4L.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 1 | 4L | 98 | Total | C | N | O | S | 0 | 0 |
| | | | 748 | 493 | 113 | 128 | 14 | | |
| | | | | | | | | | |

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 2 | A1 | 70 | Total | C | N | O | S | 0 | 0 |
| | | | 562 | 361 | 101 | 94 | 6 | | |
| | | | | | | | | | |

- Molecule 3 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 3 | A2 | 85 | Total | C | N | O | S | 0 | 0 |
| | | | 686 | 431 | 128 | 125 | 2 | | |
| | | | | | | | | | |

- Molecule 4 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 4 | A3 | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 643 | 417 | 110 | 115 | 1 | | |
| | | | | | | | | | |

- Molecule 5 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 5 | A5 | 112 | Total | C | N | O | S | 0 | 0 |
| | | | 910 | 588 | 154 | 165 | 3 | | |
| | | | | | | | | | |

- Molecule 6 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 6 | A6 | 114 | Total | C | N | O | S | 0 | 0 |
| | | | 967 | 617 | 178 | 167 | 5 | | |

- Molecule 7 is a protein called Complex I-B14.5a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 7 | A7 | 97 | Total | C | N | O | S | 0 | 0 |
| | | | 780 | 491 | 147 | 139 | 3 | | |

- Molecule 8 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 8 | A8 | 171 | Total | C | N | O | S | 0 | 0 |
| | | | 1398 | 887 | 250 | 251 | 10 | | |

- Molecule 9 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 9 | A9 | 337 | Total | C | N | O | S | 0 | 0 |
| | | | 2703 | 1750 | 472 | 472 | 9 | | |

- Molecule 10 is a protein called Acyl carrier protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 10 | AB | 77 | Total | C | N | O | S | 0 | 0 |
| | | | 624 | 402 | 93 | 124 | 5 | | |
| 10 | AC | 87 | Total | C | N | O | S | 0 | 0 |
| | | | 702 | 452 | 103 | 142 | 5 | | |

- Molecule 11 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 11 | AK | 320 | Total | C | N | O | S | 0 | 0 |
| | | | 2590 | 1649 | 440 | 491 | 10 | | |

- Molecule 12 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12 | AL | 140 | Total | C | N | O | S | 0 | 0 |
| | | | 1021 | 651 | 174 | 190 | 6 | | |

- Molecule 13 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13 | AM | 144 | Total | C | N | O | S | 0 | 0 |
| | | | 1204 | 770 | 218 | 212 | 4 | | |

- Molecule 14 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14 | AN | 142 | Total | C | N | O | S | 0 | 0 |
| | | | 1173 | 755 | 203 | 206 | 9 | | |

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 15 | B1 | 56 | Total | C | N | O | S | 0 | 0 |
| | | | 479 | 311 | 88 | 79 | 1 | | |

- Molecule 16 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 2, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|-----|---|---------|-------|
| 16 | B2 | 67 | Total | C | N | O | S | 0 | 0 |
| | | | 584 | 385 | 95 | 103 | 1 | | |

- Molecule 17 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17 | B3 | 80 | Total | C | N | O | S | 0 | 0 |
| | | | 641 | 418 | 108 | 114 | 1 | | |

- Molecule 18 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 18 | B4 | 128 | Total | C | N | O | 0 | 0 |
| | | | 1062 | 691 | 182 | 189 | | |

- Molecule 19 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19 | B5 | 138 | Total | C | N | O | S | 0 | 0 |
| | | | 1151 | 754 | 195 | 199 | 3 | | |

- Molecule 20 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20 | B6 | 102 | Total | C | N | O | S | 0 | 0 |
| | | | 870 | 568 | 155 | 146 | 1 | | |

- Molecule 21 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 21 | B7 | 125 | Total | C | N | O | S | 0 | 0 |
| | | | 1068 | 663 | 204 | 190 | 11 | | |

- Molecule 22 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22 | B8 | 156 | Total | C | N | O | S | 0 | 0 |
| | | | 1315 | 853 | 213 | 241 | 8 | | |

- Molecule 23 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23 | B9 | 178 | Total | C | N | O | S | 0 | 0 |
| | | | 1534 | 982 | 279 | 265 | 8 | | |

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24 | BK | 174 | Total | C | N | O | S | 0 | 0 |
| | | | 1456 | 913 | 264 | 271 | 8 | | |

- Molecule 25 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25 | BL | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 828 | 531 | 137 | 156 | 4 | | |

- Molecule 26 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 26 | CA | 49 | Total | C | N | O | 0 | 0 |
| | | | 417 | 276 | 71 | 70 | | |

- Molecule 27 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27 | CB | 121 | Total | C | N | O | S | 0 | 0 |
| | | | 1000 | 650 | 173 | 171 | 6 | | |

- Molecule 28 is a protein called NADH-ubiquinone oxidoreductase chain 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 28 | N1 | 309 | Total | C | N | O | S | 0 | 0 |
| | | | 2440 | 1636 | 375 | 408 | 21 | | |

- Molecule 29 is a protein called NADH-ubiquinone oxidoreductase chain 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 29 | N2 | 347 | Total | C | N | O | S | 0 | 0 |
| | | | 2710 | 1782 | 420 | 462 | 46 | | |

- Molecule 30 is a protein called NADH-ubiquinone oxidoreductase chain 3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30 | N3 | 94 | Total | C | N | O | S | 0 | 0 |
| | | | 752 | 513 | 109 | 125 | 5 | | |

- Molecule 31 is a protein called NADH-ubiquinone oxidoreductase chain 4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 31 | N4 | 459 | Total | C | N | O | S | 0 | 0 |
| | | | 3631 | 2412 | 572 | 609 | 38 | | |

- Molecule 32 is a protein called NADH-ubiquinone oxidoreductase chain 5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 32 | N5 | 603 | Total | C | N | O | S | 0 | 0 |
| | | | 4785 | 3173 | 741 | 820 | 51 | | |

- Molecule 33 is a protein called NADH-ubiquinone oxidoreductase chain 6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 33 | N6 | 166 | Total | C | N | O | S | 0 | 0 |
| | | | 1259 | 844 | 180 | 224 | 11 | | |

- Molecule 34 is a protein called NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|----|---------|-------|
| 34 | S1 | 685 | Total | C | N | O | S | 0 | 0 |
| | | | 5266 | 3303 | 918 | 1006 | 39 | | |

- Molecule 35 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 35 | S2 | 420 | Total | C | N | O | S | 0 | 0 |
| | | | 3385 | 2166 | 579 | 616 | 24 | | |

- Molecule 36 is a protein called Complex I-30kD.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 36 | S3 | 208 | Total | C | N | O | S | 0 | 0 |
| | | | 1738 | 1124 | 298 | 314 | 2 | | |

- Molecule 37 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37 | S4 | 124 | Total | C | N | O | S | 0 | 0 |
| | | | 1007 | 637 | 179 | 188 | 3 | | |

- Molecule 38 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38 | S5 | 105 | Total | C | N | O | S | 0 | 0 |
| | | | 867 | 550 | 161 | 150 | 6 | | |

- Molecule 39 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39 | S6 | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 741 | 452 | 140 | 146 | 3 | | |

- Molecule 40 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 40 | S7 | 156 | Total | C | N | O | S | 0 | 0 |
| | | | 1248 | 794 | 227 | 213 | 14 | | |

- Molecule 41 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 41 | S8 | 176 | Total | C | N | O | S | 0 | 0 |
| | | | 1412 | 887 | 243 | 269 | 13 | | |

- Molecule 42 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 42 | V1 | 431 | Total | C | N | O | S | 0 | 0 |
| | | | 3316 | 2092 | 592 | 612 | 20 | | |

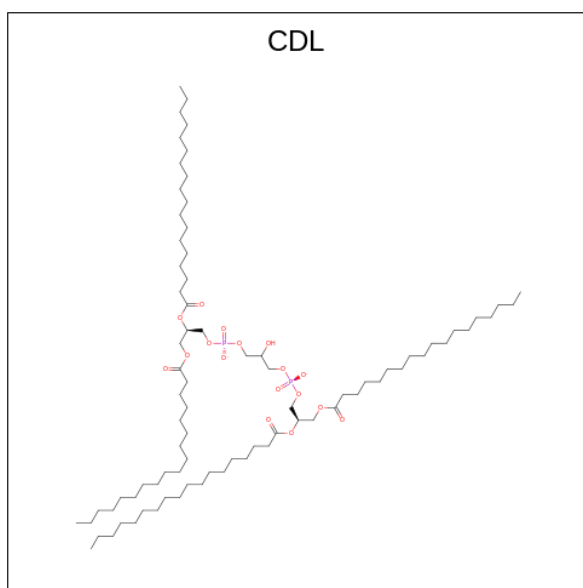
- Molecule 43 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 43 | V2 | 217 | Total | C | N | O | S | 0 | 0 |
| | | | 1671 | 1065 | 281 | 315 | 10 | | |

- Molecule 44 is a protein called NADH:ubiquinone oxidoreductase subunit V3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 44 | V3 | 42 | Total | C | N | O | S | 0 | 0 |
| | | | 355 | 219 | 67 | 68 | 1 | | |

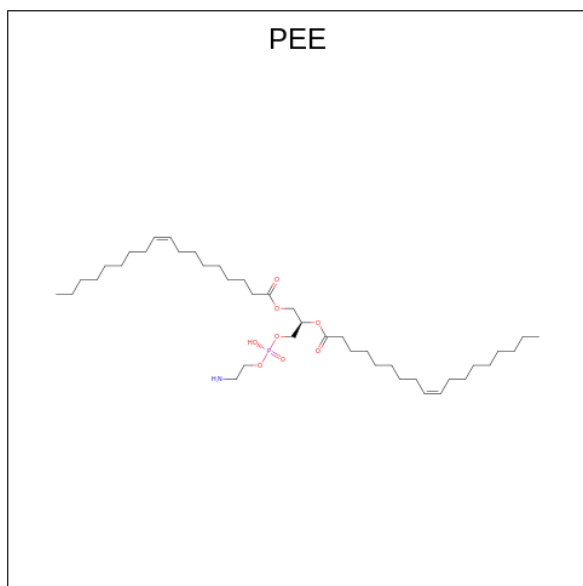
- Molecule 45 is CARDIOLIPIN (CCD ID: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



| Mol | Chain | Residues | Atoms | | | | AltConf |
|-----|-------|----------|-------|----|----|---|---------|
| 45 | 4L | 1 | Total | C | O | P | 0 |
| | | | 92 | 73 | 17 | 2 | |
| 45 | A7 | 1 | Total | C | O | P | 0 |
| | | | 94 | 75 | 17 | 2 | |
| 45 | A8 | 1 | Total | C | O | P | 0 |
| | | | 77 | 58 | 17 | 2 | |
| 45 | AL | 1 | Total | C | O | P | 0 |
| | | | 94 | 75 | 17 | 2 | |
| 45 | AL | 1 | Total | C | O | P | 0 |
| | | | 90 | 71 | 17 | 2 | |
| 45 | B4 | 1 | Total | C | O | P | 0 |
| | | | 62 | 43 | 17 | 2 | |
| 45 | B5 | 1 | Total | C | O | P | 0 |
| | | | 98 | 79 | 17 | 2 | |
| 45 | N2 | 1 | Total | C | O | P | 0 |
| | | | 68 | 49 | 17 | 2 | |
| 45 | N4 | 1 | Total | C | O | P | 0 |
| | | | 100 | 81 | 17 | 2 | |
| 45 | N5 | 1 | Total | C | O | P | 0 |
| | | | 82 | 63 | 17 | 2 | |
| 45 | N5 | 1 | Total | C | O | P | 0 |
| | | | 100 | 81 | 17 | 2 | |
| 45 | S8 | 1 | Total | C | O | P | 0 |
| | | | 100 | 81 | 17 | 2 | |

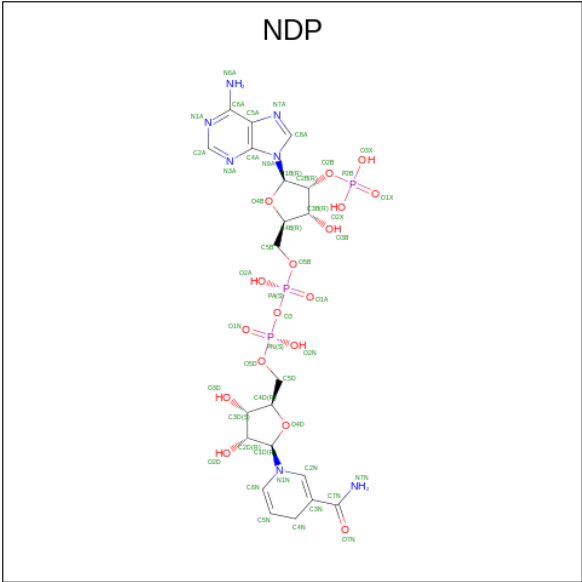
- Molecule 46 is 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (CCD ID: PEE) (formula:

C₄₁H₇₈NO₈P).



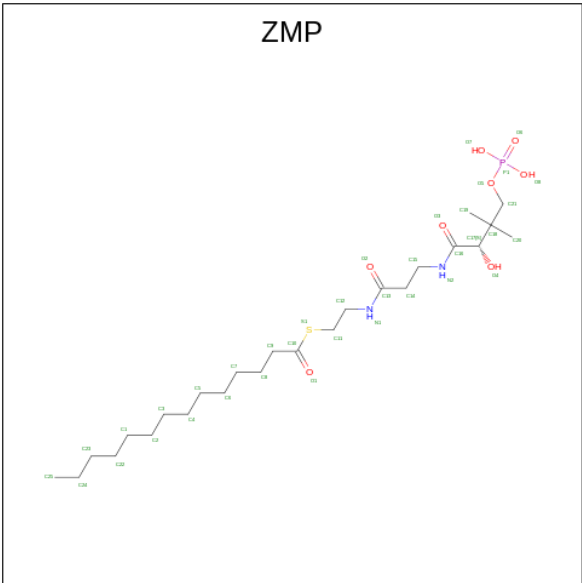
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 46 | A3 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |
| 46 | AL | 1 | Total | C | N | O | P | 0 |
| | | | 46 | 36 | 1 | 8 | 1 | |
| 46 | B4 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |
| 46 | N1 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |
| 46 | N1 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |
| 46 | N2 | 1 | Total | C | N | O | P | 0 |
| | | | 48 | 38 | 1 | 8 | 1 | |
| 46 | N5 | 1 | Total | C | N | O | P | 0 |
| | | | 46 | 36 | 1 | 8 | 1 | |
| 46 | N5 | 1 | Total | C | N | O | P | 0 |
| | | | 40 | 30 | 1 | 8 | 1 | |
| 46 | N5 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |
| 46 | N5 | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |

- Molecule 47 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula: C₂₁H₃₀N₇O₁₇P₃).



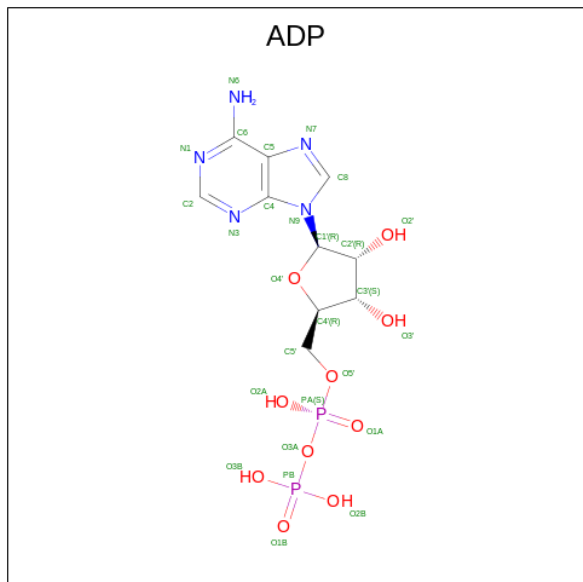
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| 47 | A9 | 1 | Total | C | N | O | P | 0 |
| | | | 48 | 21 | 7 | 17 | 3 | |

- Molecule 48 is S-[2-({N-[(2S)-2-hydroxy-3,3-dimethyl-4-(phosphonoxy)butanoyl]-beta-alanyl}amino)ethyl] tetradecanethioate (CCD ID: ZMP) (formula: C₂₅H₄₉N₂O₈PS) (labeled as "Ligand of Interest" by depositor).



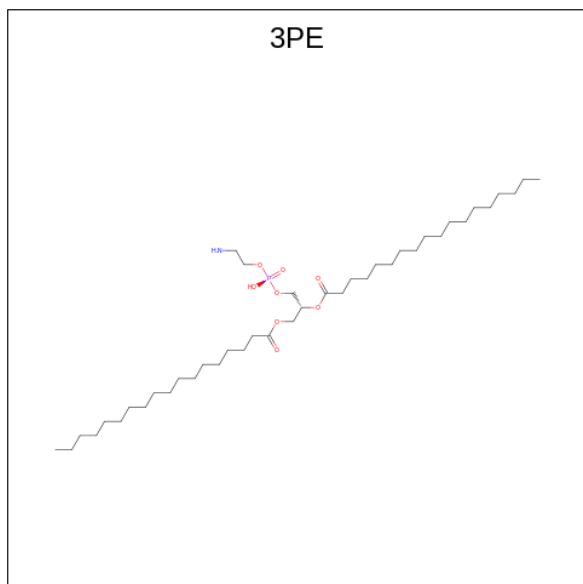
| Mol | Chain | Residues | Atoms | | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---|---------|
| 48 | AB | 1 | Total | C | N | O | P | S | 0 |
| | | | 36 | 25 | 2 | 7 | 1 | 1 | |
| 48 | AC | 1 | Total | C | N | O | P | S | 0 |
| | | | 36 | 25 | 2 | 7 | 1 | 1 | |

- Molecule 49 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
| 49 | AK | 1 | Total | C | N | O | P | 0 |
| | | | 27 | 10 | 5 | 10 | 2 | |

- Molecule 50 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (CCD ID: 3PE) (formula: $C_{41}H_{82}NO_8P$).



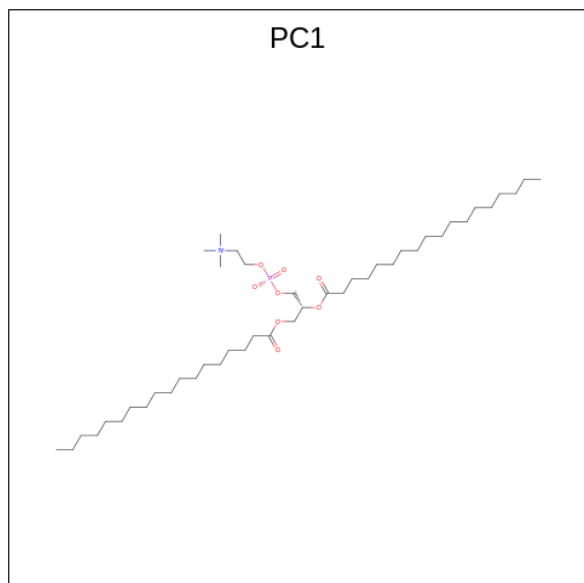
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 50 | AL | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |

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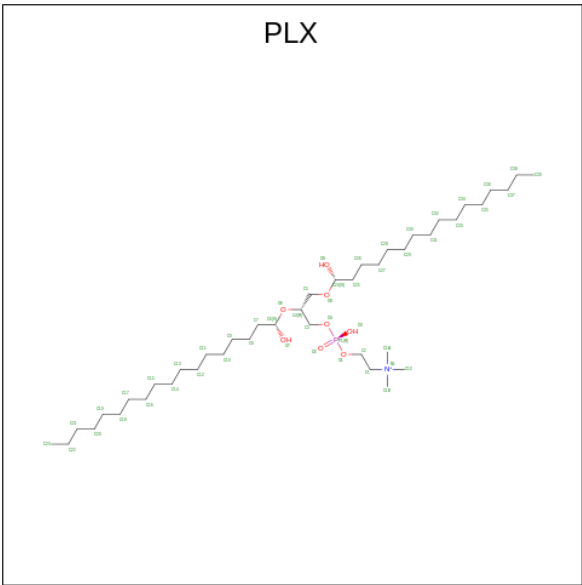
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 50 | B8 | 1 | Total | C | N | O | P | 0 |
| | | | 32 | 22 | 1 | 8 | 1 | |
| 50 | CA | 1 | Total | C | N | O | P | 0 |
| | | | 51 | 41 | 1 | 8 | 1 | |

- Molecule 51 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: PC1) (formula: $C_{44}H_{88}NO_8P$).



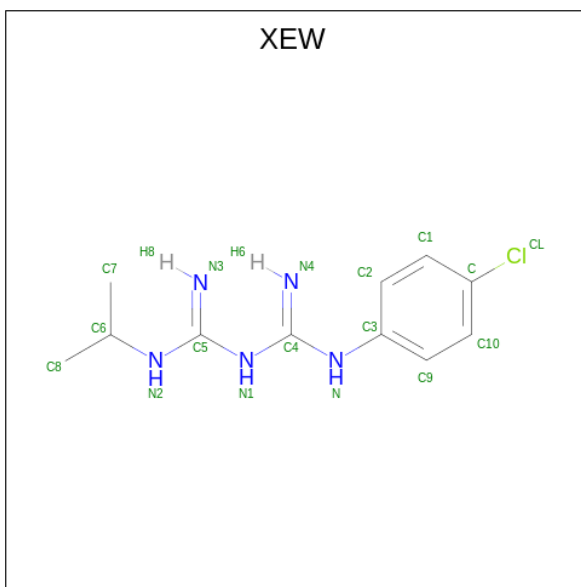
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 51 | AL | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 21 | 1 | 8 | 1 | |
| 51 | B5 | 1 | Total | C | N | O | P | 0 |
| | | | 54 | 44 | 1 | 8 | 1 | |
| 51 | B7 | 1 | Total | C | N | O | P | 0 |
| | | | 54 | 44 | 1 | 8 | 1 | |
| 51 | N1 | 1 | Total | C | N | O | P | 0 |
| | | | 54 | 44 | 1 | 8 | 1 | |
| 51 | N1 | 1 | Total | C | N | O | P | 0 |
| | | | 54 | 44 | 1 | 8 | 1 | |
| 51 | S7 | 1 | Total | C | N | O | P | 0 |
| | | | 54 | 44 | 1 | 8 | 1 | |

- Molecule 52 is (9R,11S)-9-([[(1S)-1-HYDROXYHEXADECYL]OXY}METHYL)-2,2-DIMETHYL-5,7,10-TRIOXA-2LAMBDA 5 -AZA-6LAMBDA 5 -PHOSPHAOCTACOSANE-6,6,11-TRIOL (CCD ID: PLX) (formula: $C_{42}H_{89}NO_8P$) (labeled as "Ligand of Interest" by depositor).



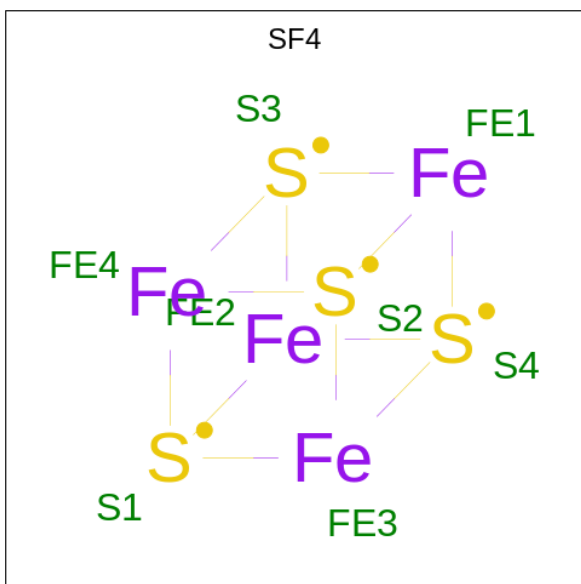
| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 52 | AM | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |
| 52 | AM | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |
| 52 | B5 | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |
| 52 | CB | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |
| 52 | N3 | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |
| 52 | N4 | 1 | Total | C | N | O | P | 0 |
| | | | 47 | 37 | 1 | 8 | 1 | |
| 52 | N4 | 1 | Total | C | N | O | P | 0 |
| | | | 52 | 42 | 1 | 8 | 1 | |

- Molecule 53 is N-(4-chlorophenyl)-N'-(propan-2-yl)triimidodicarbonic diamide (CCD ID: XEW) (formula: C₁₁H₁₆ClN₅) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms | | | | AltConf |
|-----|-------|----------|-------|----|----|---|---------|
| 53 | N1 | 1 | Total | C | Cl | N | 0 |
| | | | 17 | 11 | 1 | 5 | |
| 53 | S2 | 1 | Total | C | Cl | N | 0 |
| | | | 17 | 11 | 1 | 5 | |

- Molecule 54 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).



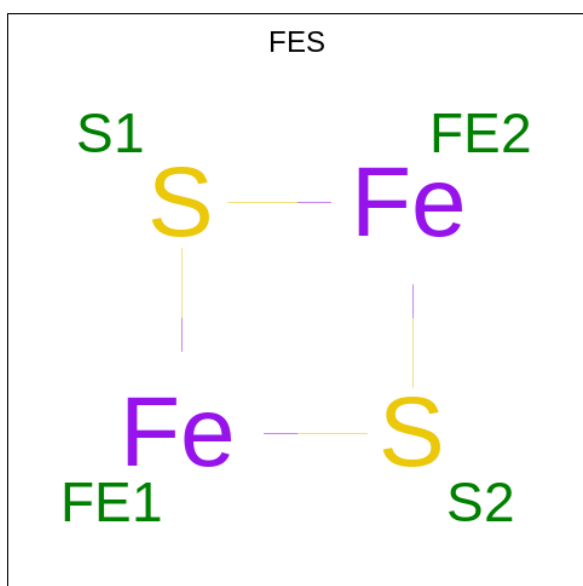
| Mol | Chain | Residues | Atoms | | | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 54 | S1 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |

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| Mol | Chain | Residues | Atoms | | | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 54 | S1 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |
| 54 | S7 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |
| 54 | S8 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |
| 54 | S8 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |
| 54 | V1 | 1 | Total | Fe | S | 0 |
| | | | 8 | 4 | 4 | |

- Molecule 55 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).



| Mol | Chain | Residues | Atoms | | | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 55 | S1 | 1 | Total | Fe | S | 0 |
| | | | 4 | 2 | 2 | |
| 55 | V2 | 1 | Total | Fe | S | 0 |
| | | | 4 | 2 | 2 | |

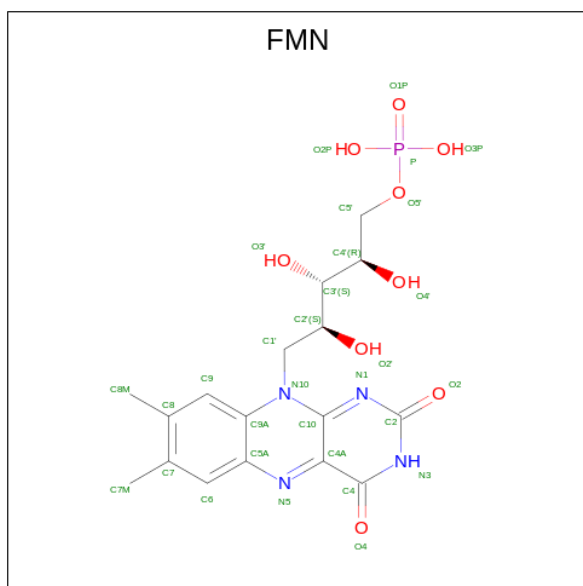
- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 56 | S1 | 1 | Total | Mg | 0 |
| | | | 1 | 1 | |

- Molecule 57 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| 57 | S6 | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |

- Molecule 58 is FLAVIN MONONUCLEOTIDE (CCD ID: FMN) (formula: $C_{17}H_{21}N_4O_9P$).

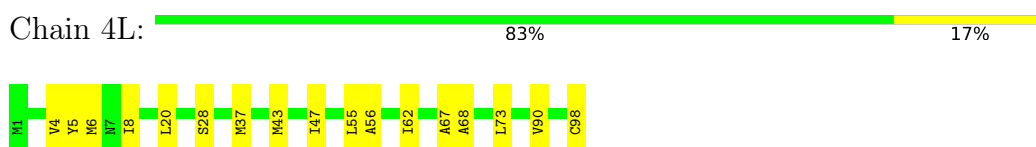


| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 58 | V1 | 1 | Total | C | N | O | P | 0 |
| | | | 31 | 17 | 4 | 9 | 1 | |

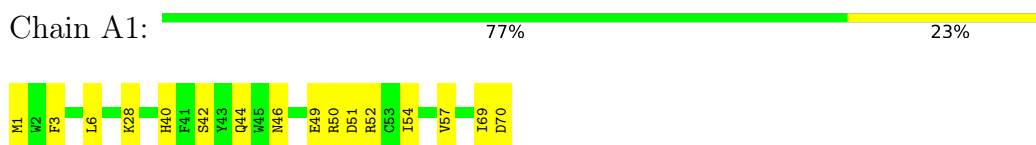
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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.

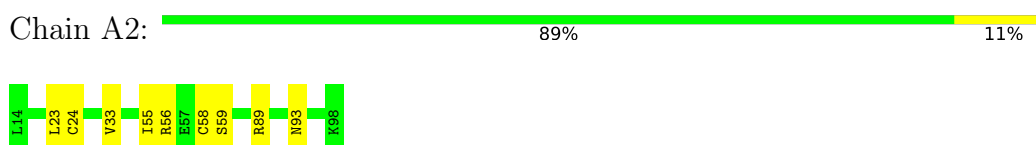
- Molecule 1: NADH-ubiquinone oxidoreductase chain 4L



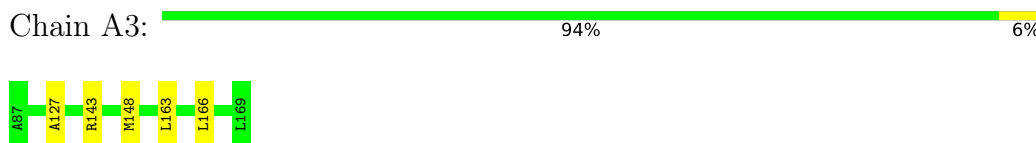
- Molecule 2: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1



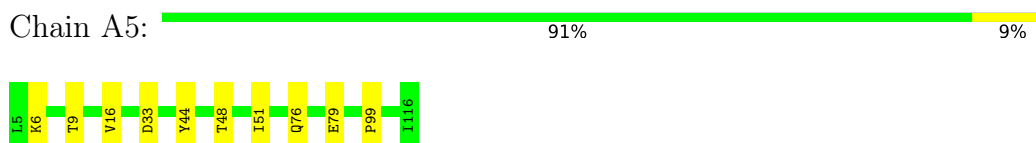
- Molecule 3: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2




- Molecule 4: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3

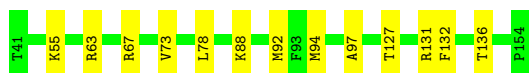


- Molecule 5: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5




- Molecule 6: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6

Chain A6:  89% 11%




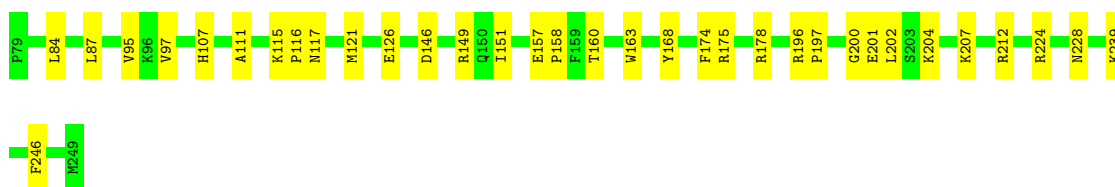
- Molecule 7: Complex I-B14.5a

Chain A7:  78% 8% 13%




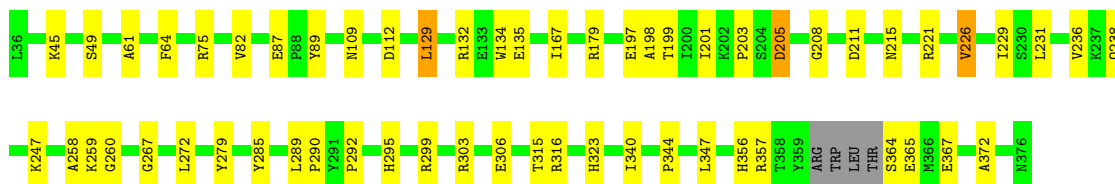
- Molecule 8: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8

Chain A8:  80% 20%



- Molecule 9: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial

Chain A9:  82% 16% ..




- Molecule 10: Acyl carrier protein

Chain AB:  61% 28% 11%



- Molecule 10: Acyl carrier protein

Chain AC:  80% 18% .



- Molecule 11: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial

| | | |
|------|------|------|
| V300 | F171 | ARG |
| R328 | H188 | L38 |
| W355 | K193 | T51 |
| L386 | H204 | K60 |
| K357 | V205 | G61 |
| | V206 | T63 |
| | V207 | V64 |
| | V213 | D65 |
| | Q217 | G66 |
| | L220 | N67 |
| | Q221 | I68 |
| | N225 | K82 |
| | E228 | L85 |
| | M229 | F88 |
| | N241 | P89 |
| | K244 | E90 |
| | K245 | A91 |
| | F247 | G92 |
| | L248 | I93 |
| | M251 | H94 |
| | C255 | P105 |
| | E256 | Q109 |
| | V257 | Y120 |
| | L258 | Y131 |
| | Q259 | Q134 |
| | V260 | S135 |
| | S261 | W136 |
| | A262 | L137 |
| | E263 | Y138 |
| | E264 | R141 |
| | E266 | Q144 |
| | E269 | A148 |
| | Y277 | L152 |
| | L278 | L153 |
| | K282 | G158 |
| | G283 | V159 |
| | P284 | W160 |
| | D287 | L161 |
| | Q288 | E162 |
| | | R163 |
| | | Y166 |
| | | S167 |

- | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| A2 | K3 | T4 | K8 | T32 | T36 | V36 | G67 | R81 | N89 | Y108 | G109 | C115 | M118 | G119 | L120 | T121 | L124 | G128 | Q129 | V141 |
|----|----|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|

- E2 R25 R29 R34 Y4.4 Q5.4 F55 R58 H59 W75 E95 R88 R106 I109 H113 Y127 T130 V138 K145

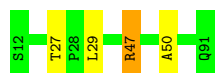
- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| A3 | K7 | P26 | G29 | L43 | S49 | M50 | M51 | R57 | E63 | R68 | I69 | A70 | L71 | M72 | P73 | Q85 | R88 | E93 | I97 | M98 | V101 | P102 | D103 | M120 | M121 | G122 | E123 | T144 |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|

-
- Diagram illustrating a sequence of nodes: N3, R9, R30, E33, R47, K58. Nodes N3 and K58 are green, while R9, R30, E33, and R47 are yellow. They are connected by horizontal lines.

-
- | Item | Count |
|------|-------|
| V52 | 1 |
| P56 | 1 |
| R57 | 1 |
| F61 | 1 |
| L64 | 1 |
| T65 | 1 |
| Q68 | 1 |
| L69 | 1 |
| M79 | 1 |
| D90 | 1 |
| P101 | 1 |
| E118 | 1 |

- 

Chain B3:  95%



- Molecule 18: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4

Chain B4:  92%



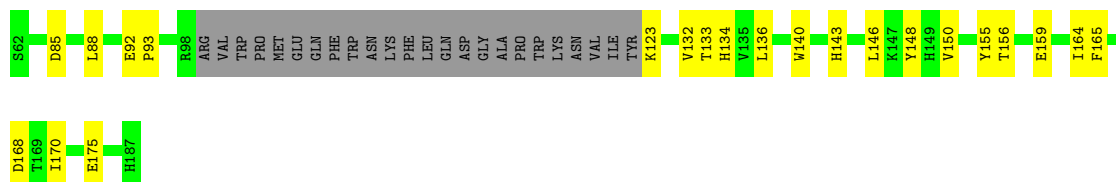
- Molecule 19: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial

Chain B5:  93%




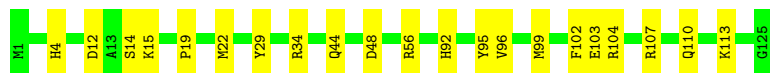
- Molecule 20: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6

Chain B6:  63%



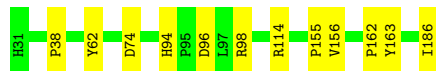
- Molecule 21: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7

Chain B7:  83%




- Molecule 22: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial

Chain B8:  92%



- Molecule 23: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9

Chain B9:  86%



- Molecule 24: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10

Chain BK: 82% 16%



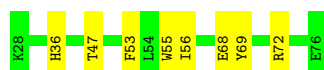
- Molecule 25: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial

Chain BL: 86% 11%



- Molecule 26: NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial

Chain CA: 84% 16%



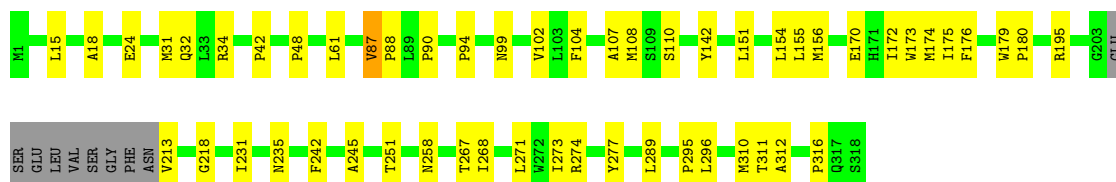
- Molecule 27: NADH dehydrogenase [ubiquinone] 1 subunit C2

Chain CB: 88% 12%



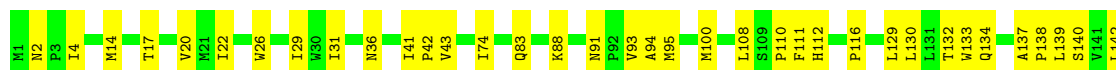
- Molecule 28: NADH-ubiquinone oxidoreductase chain 1

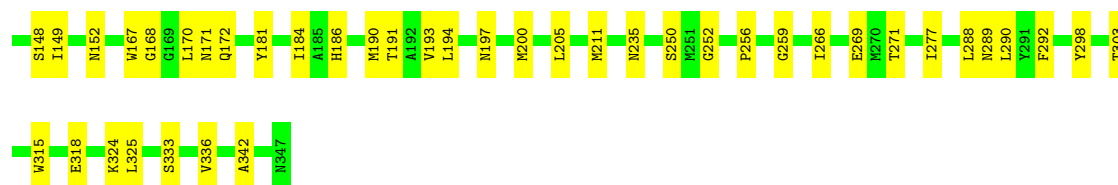
Chain N1: 80% 17%



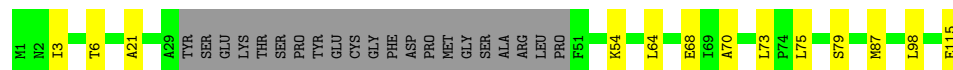
- Molecule 29: NADH-ubiquinone oxidoreductase chain 2

Chain N2: 78% 22%

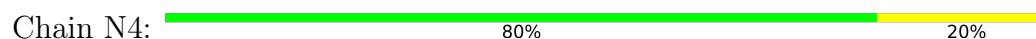




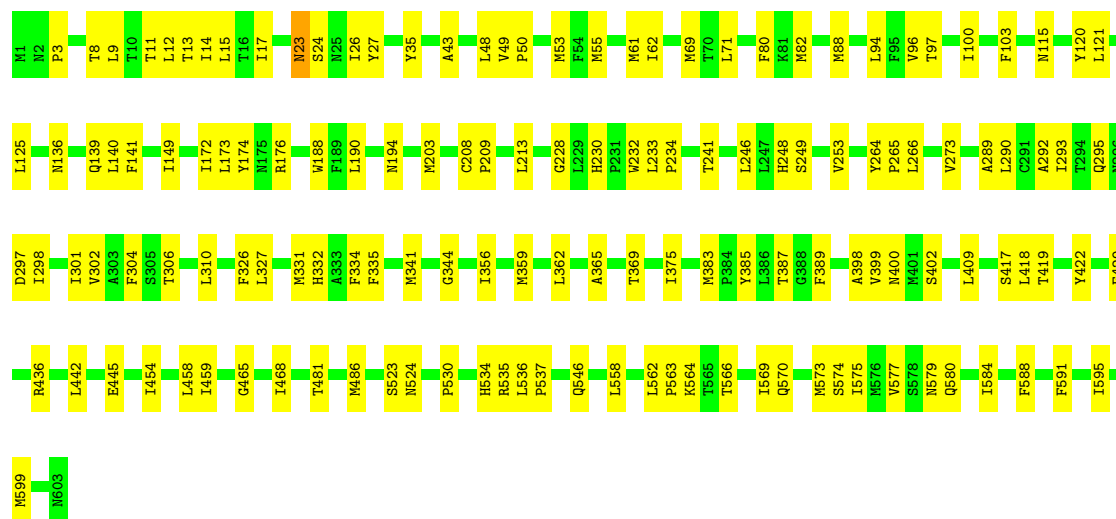
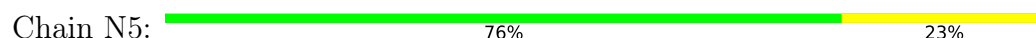
• Molecule 30: NADH-ubiquinone oxidoreductase chain 3



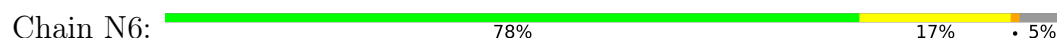
• Molecule 31: NADH-ubiquinone oxidoreductase chain 4

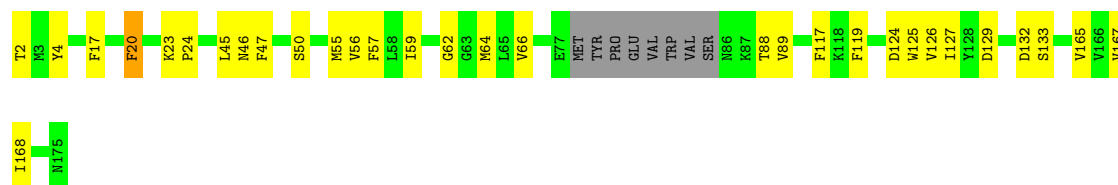


• Molecule 32: NADH-ubiquinone oxidoreductase chain 5



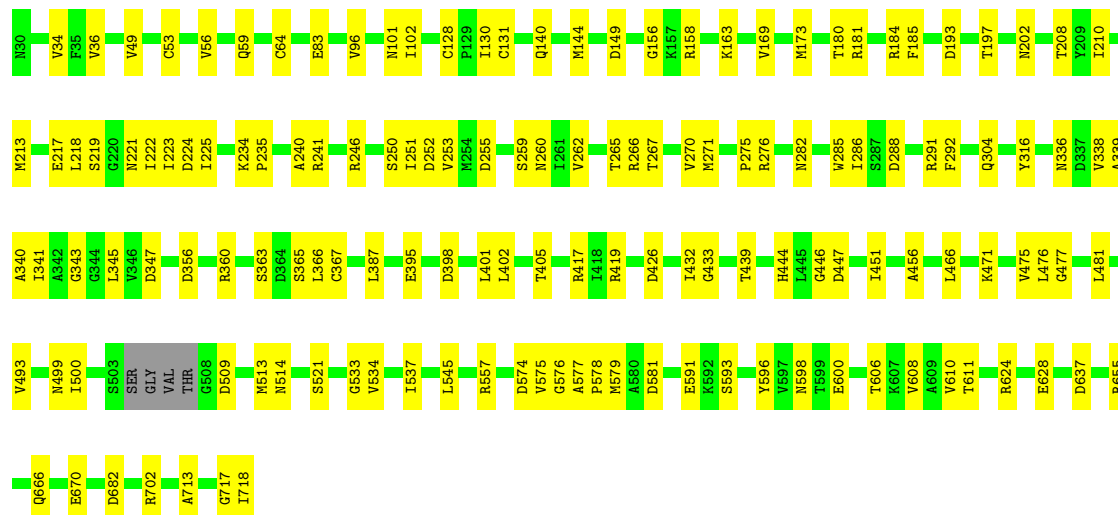
• Molecule 33: NADH-ubiquinone oxidoreductase chain 6





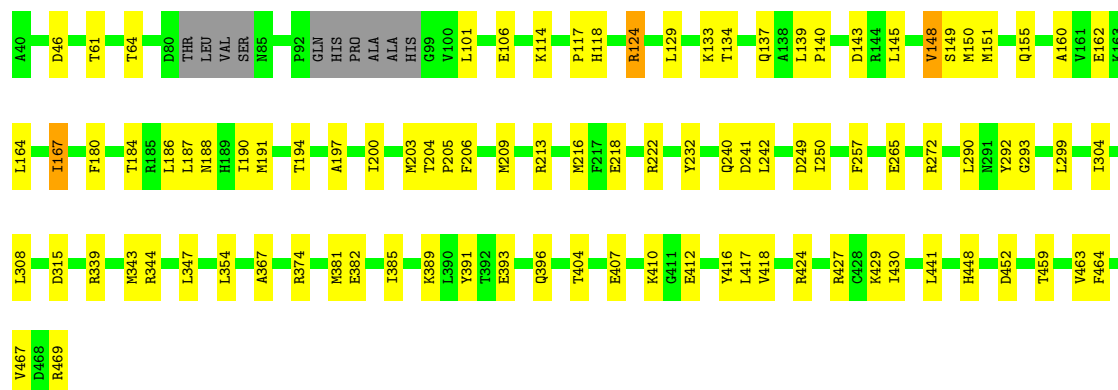
- Molecule 34: NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial

Chain S1: 79% 21% .



- Molecule 35: NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial

Chain S2: 76% 21% ..




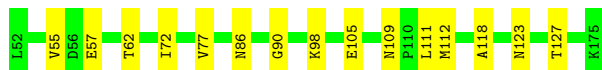
- Molecule 36: Complex I-30kD

Chain S3: 84% 16%


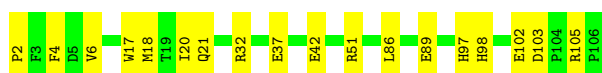


E250

- Molecule 37: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

Chain S4:  88% 12%



- Molecule 38: NADH dehydrogenase [ubiquinone] iron-sulfur protein 5

Chain S5:  83% 17%



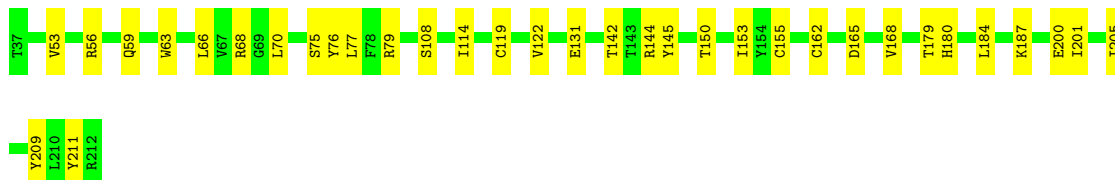
- Molecule 39: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial

Chain S6:  93% 7%



- Molecule 40: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial

Chain S7:  83% 15%


- Molecule 41: NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial

Chain S8:  81% 19%


- Molecule 42: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

Chain V1:  81% 18%



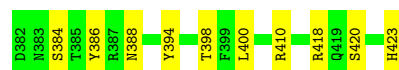

- Molecule 43: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial

Chain V2: 88% 12%



- Molecule 44: NADH:ubiquinone oxidoreductase subunit V3

Chain V3: 76% 24%



4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 133663 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 51.9 | Depositor |
| Minimum defocus (nm) | 600 | Depositor |
| Maximum defocus (nm) | 1800 | Depositor |
| Magnification | 105000 | Depositor |
| Image detector | FEI FALCON IV (4k x 4k) | Depositor |
| Maximum map value | 58.499 | Depositor |
| Minimum map value | -23.662 | Depositor |
| Average map value | 0.001 | Depositor |
| Map value standard deviation | 1.002 | Depositor |
| Recommended contour level | 0.05 | Depositor |
| Map size (Å) | 576.0, 576.0, 576.0 | wwPDB |
| Map dimensions | 480, 480, 480 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.2, 1.2, 1.2 | Depositor |

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: XEW, PC1, 3PE, CDL, SF4, MG, ADP, PEE, FES, 2MR, FMN, ZN, NDP, ZMP, PLX

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 | 4L | 0.10 | 0/759 | 0.23 | 0/1029 |
| 2 | A1 | 0.10 | 0/577 | 0.31 | 1/777 (0.1%) |
| 3 | A2 | 0.09 | 0/697 | 0.24 | 0/938 |
| 4 | A3 | 0.09 | 0/664 | 0.22 | 0/912 |
| 5 | A5 | 0.08 | 0/929 | 0.19 | 0/1258 |
| 6 | A6 | 0.09 | 0/991 | 0.21 | 0/1335 |
| 7 | A7 | 0.08 | 0/798 | 0.21 | 0/1079 |
| 8 | A8 | 0.09 | 0/1436 | 0.23 | 0/1938 |
| 9 | A9 | 0.10 | 0/2777 | 0.25 | 0/3762 |
| 10 | AB | 0.07 | 0/633 | 0.21 | 0/851 |
| 10 | AC | 0.10 | 0/714 | 0.22 | 0/965 |
| 11 | AK | 0.11 | 0/2650 | 0.27 | 0/3588 |
| 12 | AL | 0.10 | 0/1042 | 0.21 | 0/1411 |
| 13 | AM | 0.09 | 0/1245 | 0.22 | 0/1694 |
| 14 | AN | 0.11 | 0/1204 | 0.23 | 0/1624 |
| 15 | B1 | 0.10 | 0/491 | 0.23 | 0/663 |
| 16 | B2 | 0.10 | 0/610 | 0.23 | 0/836 |
| 17 | B3 | 0.10 | 0/660 | 0.24 | 0/892 |
| 18 | B4 | 0.12 | 0/1092 | 0.24 | 0/1481 |
| 19 | B5 | 0.12 | 0/1184 | 0.26 | 0/1603 |
| 20 | B6 | 0.13 | 0/897 | 0.28 | 0/1219 |
| 21 | B7 | 0.10 | 0/1092 | 0.23 | 0/1459 |
| 22 | B8 | 0.10 | 0/1371 | 0.23 | 0/1875 |
| 23 | B9 | 0.11 | 0/1590 | 0.24 | 0/2155 |
| 24 | BK | 0.11 | 0/1489 | 0.25 | 0/2008 |
| 25 | BL | 0.12 | 0/851 | 0.26 | 0/1155 |
| 26 | CA | 0.08 | 0/430 | 0.19 | 0/581 |
| 27 | CB | 0.11 | 0/1031 | 0.25 | 0/1394 |
| 28 | N1 | 0.13 | 0/2511 | 0.29 | 0/3433 |
| 29 | N2 | 0.14 | 0/2773 | 0.30 | 0/3768 |
| 30 | N3 | 0.11 | 0/769 | 0.25 | 0/1050 |
| 31 | N4 | 0.15 | 0/3723 | 0.31 | 0/5078 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------|-------------|----------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 32 | N5 | 0.14 | 0/4914 | 0.31 | 0/6683 |
| 33 | N6 | 0.10 | 0/1289 | 0.26 | 0/1744 |
| 34 | S1 | 0.12 | 0/5353 | 0.29 | 0/7251 |
| 35 | S2 | 0.13 | 0/3459 | 0.27 | 0/4683 |
| 36 | S3 | 0.11 | 0/1789 | 0.26 | 0/2436 |
| 37 | S4 | 0.10 | 0/1030 | 0.24 | 0/1391 |
| 38 | S5 | 0.09 | 0/889 | 0.23 | 0/1190 |
| 39 | S6 | 0.10 | 0/755 | 0.26 | 0/1018 |
| 40 | S7 | 0.12 | 0/1279 | 0.24 | 0/1730 |
| 41 | S8 | 0.12 | 0/1443 | 0.27 | 0/1952 |
| 42 | V1 | 0.12 | 0/3391 | 0.28 | 0/4583 |
| 43 | V2 | 0.11 | 0/1711 | 0.26 | 0/2328 |
| 44 | V3 | 0.07 | 0/365 | 0.19 | 0/493 |
| All | All | 0.12 | 0/67347 | 0.26 | 1/91293 (0.0%) |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 2 | A1 | 57 | VAL | N-CA-C | -5.08 | 107.51 | 112.29 |

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 | 4L | 748 | 0 | 799 | 14 | 0 |
| 2 | A1 | 562 | 0 | 557 | 11 | 0 |
| 3 | A2 | 686 | 0 | 699 | 5 | 0 |
| 4 | A3 | 643 | 0 | 642 | 5 | 0 |
| 5 | A5 | 910 | 0 | 950 | 6 | 0 |
| 6 | A6 | 967 | 0 | 972 | 13 | 0 |
| 7 | A7 | 780 | 0 | 808 | 8 | 0 |
| 8 | A8 | 1398 | 0 | 1372 | 29 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 9 | A9 | 2703 | 0 | 2720 | 33 | 0 |
| 10 | AB | 624 | 0 | 625 | 17 | 0 |
| 10 | AC | 702 | 0 | 694 | 12 | 0 |
| 11 | AK | 2590 | 0 | 2553 | 45 | 0 |
| 12 | AL | 1021 | 0 | 1025 | 13 | 0 |
| 13 | AM | 1204 | 0 | 1162 | 11 | 0 |
| 14 | AN | 1173 | 0 | 1166 | 20 | 0 |
| 15 | B1 | 479 | 0 | 486 | 2 | 0 |
| 16 | B2 | 584 | 0 | 529 | 8 | 0 |
| 17 | B3 | 641 | 0 | 620 | 3 | 0 |
| 18 | B4 | 1062 | 0 | 1072 | 9 | 0 |
| 19 | B5 | 1151 | 0 | 1164 | 8 | 0 |
| 20 | B6 | 870 | 0 | 890 | 18 | 0 |
| 21 | B7 | 1068 | 0 | 1041 | 18 | 0 |
| 22 | B8 | 1315 | 0 | 1208 | 10 | 0 |
| 23 | B9 | 1534 | 0 | 1470 | 20 | 0 |
| 24 | BK | 1456 | 0 | 1426 | 26 | 0 |
| 25 | BL | 828 | 0 | 788 | 8 | 0 |
| 26 | CA | 417 | 0 | 422 | 6 | 0 |
| 27 | CB | 1000 | 0 | 994 | 11 | 0 |
| 28 | N1 | 2440 | 0 | 2546 | 47 | 0 |
| 29 | N2 | 2710 | 0 | 2874 | 59 | 0 |
| 30 | N3 | 752 | 0 | 802 | 11 | 0 |
| 31 | N4 | 3631 | 0 | 3839 | 67 | 0 |
| 32 | N5 | 4785 | 0 | 4933 | 104 | 0 |
| 33 | N6 | 1259 | 0 | 1261 | 24 | 0 |
| 34 | S1 | 5266 | 0 | 5296 | 88 | 0 |
| 35 | S2 | 3385 | 0 | 3323 | 68 | 0 |
| 36 | S3 | 1738 | 0 | 1693 | 24 | 0 |
| 37 | S4 | 1007 | 0 | 1008 | 12 | 0 |
| 38 | S5 | 867 | 0 | 871 | 15 | 0 |
| 39 | S6 | 741 | 0 | 701 | 5 | 0 |
| 40 | S7 | 1248 | 0 | 1254 | 19 | 0 |
| 41 | S8 | 1412 | 0 | 1363 | 31 | 0 |
| 42 | V1 | 3316 | 0 | 3272 | 51 | 0 |
| 43 | V2 | 1671 | 0 | 1673 | 18 | 0 |
| 44 | V3 | 355 | 0 | 329 | 9 | 0 |
| 45 | 4L | 92 | 0 | 137 | 2 | 0 |
| 45 | A7 | 94 | 0 | 141 | 3 | 0 |
| 45 | A8 | 77 | 0 | 98 | 5 | 0 |
| 45 | AL | 184 | 0 | 268 | 17 | 0 |
| 45 | B4 | 62 | 0 | 68 | 1 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 45 | B5 | 98 | 0 | 149 | 2 | 0 |
| 45 | N2 | 68 | 0 | 80 | 4 | 0 |
| 45 | N4 | 100 | 0 | 156 | 3 | 0 |
| 45 | N5 | 182 | 0 | 270 | 10 | 0 |
| 45 | S8 | 100 | 0 | 156 | 11 | 0 |
| 46 | A3 | 51 | 0 | 82 | 3 | 0 |
| 46 | AL | 46 | 0 | 69 | 1 | 0 |
| 46 | B4 | 51 | 0 | 82 | 0 | 0 |
| 46 | N1 | 102 | 0 | 164 | 10 | 0 |
| 46 | N2 | 48 | 0 | 73 | 1 | 0 |
| 46 | N5 | 188 | 0 | 287 | 13 | 0 |
| 47 | A9 | 48 | 0 | 26 | 1 | 0 |
| 48 | AB | 36 | 0 | 47 | 4 | 0 |
| 48 | AC | 36 | 0 | 47 | 4 | 0 |
| 49 | AK | 27 | 0 | 12 | 3 | 0 |
| 50 | AL | 51 | 0 | 82 | 3 | 0 |
| 50 | B8 | 32 | 0 | 38 | 0 | 0 |
| 50 | CA | 51 | 0 | 82 | 3 | 0 |
| 51 | AL | 31 | 0 | 36 | 4 | 0 |
| 51 | B5 | 54 | 0 | 88 | 4 | 0 |
| 51 | B7 | 54 | 0 | 88 | 3 | 0 |
| 51 | N1 | 108 | 0 | 176 | 9 | 0 |
| 51 | S7 | 54 | 0 | 88 | 2 | 0 |
| 52 | AM | 104 | 0 | 176 | 8 | 0 |
| 52 | B5 | 52 | 0 | 88 | 2 | 0 |
| 52 | CB | 52 | 0 | 88 | 5 | 0 |
| 52 | N3 | 52 | 0 | 88 | 3 | 0 |
| 52 | N4 | 99 | 0 | 163 | 8 | 0 |
| 53 | N1 | 17 | 0 | 0 | 0 | 0 |
| 53 | S2 | 17 | 0 | 0 | 0 | 0 |
| 54 | S1 | 16 | 0 | 0 | 1 | 0 |
| 54 | S7 | 8 | 0 | 0 | 0 | 0 |
| 54 | S8 | 16 | 0 | 0 | 2 | 0 |
| 54 | V1 | 8 | 0 | 0 | 0 | 0 |
| 55 | S1 | 4 | 0 | 0 | 0 | 0 |
| 55 | V2 | 4 | 0 | 0 | 0 | 0 |
| 56 | S1 | 1 | 0 | 0 | 0 | 0 |
| 57 | S6 | 1 | 0 | 0 | 0 | 0 |
| 58 | V1 | 31 | 0 | 19 | 0 | 0 |
| All | All | 68306 | 0 | 69604 | 926 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

The worst 5 of 926 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) |
|-------------------|-------------------|--------------------------|-------------------|
| 44:V3:420:SER:HG | 44:V3:423:HIS:HD1 | 1.14 | 0.95 |
| 20:B6:88:LEU:HD22 | 20:B6:92:GLU:HG2 | 1.62 | 0.81 |
| 21:B7:92:HIS:HD1 | 32:N5:481:THR:HG1 | 1.29 | 0.79 |
| 9:A9:198:ALA:O | 9:A9:260:GLY:HA2 | 1.84 | 0.77 |
| 42:V1:110:PRO:HB3 | 42:V1:152:ARG:HD3 | 1.67 | 0.76 |

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 | 4L | 96/98 (98%) | 94 (98%) | 2 (2%) | 0 | 100 | 100 |
| 2 | A1 | 68/70 (97%) | 68 (100%) | 0 | 0 | 100 | 100 |
| 3 | A2 | 83/85 (98%) | 80 (96%) | 3 (4%) | 0 | 100 | 100 |
| 4 | A3 | 81/83 (98%) | 77 (95%) | 4 (5%) | 0 | 100 | 100 |
| 5 | A5 | 110/112 (98%) | 108 (98%) | 2 (2%) | 0 | 100 | 100 |
| 6 | A6 | 112/114 (98%) | 108 (96%) | 4 (4%) | 0 | 100 | 100 |
| 7 | A7 | 93/112 (83%) | 93 (100%) | 0 | 0 | 100 | 100 |
| 8 | A8 | 169/171 (99%) | 164 (97%) | 5 (3%) | 0 | 100 | 100 |
| 9 | A9 | 333/341 (98%) | 325 (98%) | 8 (2%) | 0 | 100 | 100 |
| 10 | AB | 75/87 (86%) | 72 (96%) | 3 (4%) | 0 | 100 | 100 |
| 10 | AC | 85/87 (98%) | 85 (100%) | 0 | 0 | 100 | 100 |
| 11 | AK | 318/321 (99%) | 307 (96%) | 11 (4%) | 0 | 100 | 100 |
| 12 | AL | 138/140 (99%) | 137 (99%) | 1 (1%) | 0 | 100 | 100 |
| 13 | AM | 142/144 (99%) | 142 (100%) | 0 | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|----------------|------------|---------|----------|-------------|-----|
| 14 | AN | 140/142 (99%) | 138 (99%) | 2 (1%) | 0 | 100 | 100 |
| 15 | B1 | 54/56 (96%) | 52 (96%) | 2 (4%) | 0 | 100 | 100 |
| 16 | B2 | 65/67 (97%) | 65 (100%) | 0 | 0 | 100 | 100 |
| 17 | B3 | 78/80 (98%) | 76 (97%) | 2 (3%) | 0 | 100 | 100 |
| 18 | B4 | 126/128 (98%) | 123 (98%) | 3 (2%) | 0 | 100 | 100 |
| 19 | B5 | 136/138 (99%) | 133 (98%) | 3 (2%) | 0 | 100 | 100 |
| 20 | B6 | 98/126 (78%) | 96 (98%) | 2 (2%) | 0 | 100 | 100 |
| 21 | B7 | 123/125 (98%) | 121 (98%) | 2 (2%) | 0 | 100 | 100 |
| 22 | B8 | 154/156 (99%) | 152 (99%) | 2 (1%) | 0 | 100 | 100 |
| 23 | B9 | 176/178 (99%) | 176 (100%) | 0 | 0 | 100 | 100 |
| 24 | BK | 172/176 (98%) | 165 (96%) | 7 (4%) | 0 | 100 | 100 |
| 25 | BL | 97/102 (95%) | 89 (92%) | 8 (8%) | 0 | 100 | 100 |
| 26 | CA | 47/49 (96%) | 47 (100%) | 0 | 0 | 100 | 100 |
| 27 | CB | 119/121 (98%) | 118 (99%) | 1 (1%) | 0 | 100 | 100 |
| 28 | N1 | 305/318 (96%) | 293 (96%) | 12 (4%) | 0 | 100 | 100 |
| 29 | N2 | 345/347 (99%) | 333 (96%) | 12 (4%) | 0 | 100 | 100 |
| 30 | N3 | 90/115 (78%) | 88 (98%) | 2 (2%) | 0 | 100 | 100 |
| 31 | N4 | 457/459 (100%) | 453 (99%) | 4 (1%) | 0 | 100 | 100 |
| 32 | N5 | 601/603 (100%) | 576 (96%) | 25 (4%) | 0 | 100 | 100 |
| 33 | N6 | 162/174 (93%) | 152 (94%) | 10 (6%) | 0 | 100 | 100 |
| 34 | S1 | 681/689 (99%) | 650 (95%) | 31 (5%) | 0 | 100 | 100 |
| 35 | S2 | 413/430 (96%) | 399 (97%) | 14 (3%) | 0 | 100 | 100 |
| 36 | S3 | 206/208 (99%) | 201 (98%) | 5 (2%) | 0 | 100 | 100 |
| 37 | S4 | 122/124 (98%) | 120 (98%) | 2 (2%) | 0 | 100 | 100 |
| 38 | S5 | 103/105 (98%) | 100 (97%) | 3 (3%) | 0 | 100 | 100 |
| 39 | S6 | 94/96 (98%) | 92 (98%) | 2 (2%) | 0 | 100 | 100 |
| 40 | S7 | 154/156 (99%) | 151 (98%) | 3 (2%) | 0 | 100 | 100 |
| 41 | S8 | 174/176 (99%) | 170 (98%) | 4 (2%) | 0 | 100 | 100 |
| 42 | V1 | 429/431 (100%) | 413 (96%) | 16 (4%) | 0 | 100 | 100 |
| 43 | V2 | 215/217 (99%) | 207 (96%) | 8 (4%) | 0 | 100 | 100 |
| 44 | V3 | 40/42 (95%) | 39 (98%) | 1 (2%) | 0 | 100 | 100 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| All | All | 8079/8299 (97%) | 7848 (97%) | 231 (3%) | 0 | 100 | 100 |

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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 | 4L | 85/85 (100%) | 85 (100%) | 0 | 100 | 100 |
| 2 | A1 | 58/58 (100%) | 58 (100%) | 0 | 100 | 100 |
| 3 | A2 | 76/76 (100%) | 76 (100%) | 0 | 100 | 100 |
| 4 | A3 | 69/69 (100%) | 69 (100%) | 0 | 100 | 100 |
| 5 | A5 | 99/99 (100%) | 98 (99%) | 1 (1%) | 73 | 86 |
| 6 | A6 | 107/107 (100%) | 107 (100%) | 0 | 100 | 100 |
| 7 | A7 | 87/97 (90%) | 86 (99%) | 1 (1%) | 70 | 84 |
| 8 | A8 | 153/153 (100%) | 152 (99%) | 1 (1%) | 81 | 90 |
| 9 | A9 | 291/295 (99%) | 286 (98%) | 5 (2%) | 56 | 78 |
| 10 | AB | 71/80 (89%) | 71 (100%) | 0 | 100 | 100 |
| 10 | AC | 80/80 (100%) | 79 (99%) | 1 (1%) | 65 | 82 |
| 11 | AK | 283/284 (100%) | 277 (98%) | 6 (2%) | 48 | 72 |
| 12 | AL | 101/101 (100%) | 100 (99%) | 1 (1%) | 73 | 86 |
| 13 | AM | 130/130 (100%) | 128 (98%) | 2 (2%) | 60 | 80 |
| 14 | AN | 123/123 (100%) | 123 (100%) | 0 | 100 | 100 |
| 15 | B1 | 53/53 (100%) | 52 (98%) | 1 (2%) | 52 | 75 |
| 16 | B2 | 62/62 (100%) | 62 (100%) | 0 | 100 | 100 |
| 17 | B3 | 62/62 (100%) | 61 (98%) | 1 (2%) | 58 | 79 |
| 18 | B4 | 113/113 (100%) | 113 (100%) | 0 | 100 | 100 |
| 19 | B5 | 121/121 (100%) | 121 (100%) | 0 | 100 | 100 |
| 20 | B6 | 97/119 (82%) | 96 (99%) | 1 (1%) | 73 | 86 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 21 | B7 | 112/112 (100%) | 112 (100%) | 0 | 100 | 100 |
| 22 | B8 | 141/141 (100%) | 141 (100%) | 0 | 100 | 100 |
| 23 | B9 | 159/159 (100%) | 159 (100%) | 0 | 100 | 100 |
| 24 | BK | 155/156 (99%) | 154 (99%) | 1 (1%) | 84 | 91 |
| 25 | BL | 91/94 (97%) | 90 (99%) | 1 (1%) | 70 | 84 |
| 26 | CA | 45/45 (100%) | 45 (100%) | 0 | 100 | 100 |
| 27 | CB | 108/108 (100%) | 107 (99%) | 1 (1%) | 75 | 88 |
| 28 | N1 | 267/275 (97%) | 263 (98%) | 4 (2%) | 60 | 80 |
| 29 | N2 | 311/311 (100%) | 311 (100%) | 0 | 100 | 100 |
| 30 | N3 | 82/100 (82%) | 82 (100%) | 0 | 100 | 100 |
| 31 | N4 | 410/410 (100%) | 408 (100%) | 2 (0%) | 86 | 92 |
| 32 | N5 | 537/537 (100%) | 535 (100%) | 2 (0%) | 89 | 94 |
| 33 | N6 | 132/140 (94%) | 127 (96%) | 5 (4%) | 28 | 59 |
| 34 | S1 | 576/579 (100%) | 573 (100%) | 3 (0%) | 86 | 92 |
| 35 | S2 | 362/370 (98%) | 360 (99%) | 2 (1%) | 84 | 91 |
| 36 | S3 | 190/190 (100%) | 190 (100%) | 0 | 100 | 100 |
| 37 | S4 | 112/112 (100%) | 111 (99%) | 1 (1%) | 75 | 88 |
| 38 | S5 | 93/93 (100%) | 92 (99%) | 1 (1%) | 70 | 84 |
| 39 | S6 | 79/79 (100%) | 79 (100%) | 0 | 100 | 100 |
| 40 | S7 | 132/132 (100%) | 127 (96%) | 5 (4%) | 28 | 59 |
| 41 | S8 | 151/151 (100%) | 150 (99%) | 1 (1%) | 81 | 90 |
| 42 | V1 | 344/344 (100%) | 340 (99%) | 4 (1%) | 67 | 83 |
| 43 | V2 | 183/183 (100%) | 182 (100%) | 1 (0%) | 86 | 92 |
| 44 | V3 | 41/41 (100%) | 41 (100%) | 0 | 100 | 100 |
| All | All | 7134/7229 (99%) | 7079 (99%) | 55 (1%) | 77 | 89 |

5 of 55 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | N4 | 8 | THR |
| 33 | N6 | 56 | VAL |
| 43 | V2 | 137 | THR |
| 41 | S8 | 179 | THR |
| 31 | N4 | 375 | LEU |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 109 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30 | N3 | 28 | ASN |
| 32 | N5 | 348 | HIS |
| 42 | V1 | 303 | HIS |
| 31 | N4 | 83 | HIS |
| 32 | N5 | 72 | GLN |

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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 |
| 35 | 2MR | S2 | 124 | 35 | 10,12,13 | 2.44 | 2 (20%) | 5,13,15 | 0.99 | 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 |
|-----|------|-------|-----|------|---------|------------|-------|
| 35 | 2MR | S2 | 124 | 35 | - | 3/10/13/15 | - |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|------|-------------|----------|
| 35 | S2 | 124 | 2MR | CZ-NE | 5.19 | 1.45 | 1.34 |
| 35 | S2 | 124 | 2MR | CZ-NH2 | 5.10 | 1.44 | 1.33 |

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------------|
| 35 | S2 | 124 | 2MR | NE-CD-CG-CB |
| 35 | S2 | 124 | 2MR | CA-CB-CG-CD |
| 35 | S2 | 124 | 2MR | CG-CD-NE-CZ |

There are no ring outliers.

1 monomer is involved in 1 short contact:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 35 | S2 | 124 | 2MR | 1 | 0 |

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 55 ligands modelled in this entry, 2 are monoatomic - leaving 53 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 | $\# Z > 2$ |
| 54 | SF4 | V1 | 501 | 42 | 0,12,12 | - | - | - | | |
| 54 | SF4 | S8 | 301 | 41 | 0,12,12 | - | - | - | | |
| 45 | CDL | B5 | 202 | - | 97,97,99 | 0.30 | 0 | 103,109,111 | 0.27 | 0 |
| 46 | PEE | N5 | 705 | - | 50,50,50 | 1.32 | 5 (10%) | 53,55,55 | 1.18 | 3 (5%) |
| 54 | SF4 | S1 | 801 | 34 | 0,12,12 | - | - | - | | |
| 49 | ADP | AK | 401 | - | 24,29,29 | 0.94 | 1 (4%) | 29,45,45 | 1.46 | 4 (13%) |
| 58 | FMN | V1 | 502 | - | 33,33,33 | 0.21 | 0 | 48,50,50 | 0.46 | 0 |
| 46 | PEE | AL | 204 | - | 45,45,50 | 1.38 | 5 (11%) | 48,50,55 | 1.19 | 4 (8%) |
| 52 | PLX | CB | 201 | - | 51,51,51 | 1.11 | 5 (9%) | 55,59,59 | 0.88 | 1 (1%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|-----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 45 | CDL | B4 | 202 | - | 61,61,99 | 0.37 | 0 | 67,73,111 | 0.36 | 0 |
| 45 | CDL | N2 | 401 | - | 67,67,99 | 0.35 | 0 | 73,79,111 | 0.30 | 0 |
| 46 | PEE | B4 | 201 | - | 50,50,50 | 1.33 | 5 (10%) | 53,55,55 | 1.17 | 3 (5%) |
| 52 | PLX | B5 | 201 | - | 51,51,51 | 1.11 | 4 (7%) | 55,59,59 | 0.91 | 1 (1%) |
| 51 | PC1 | B5 | 203 | - | 53,53,53 | 0.31 | 0 | 59,61,61 | 0.46 | 0 |
| 52 | PLX | N3 | 201 | - | 51,51,51 | 1.11 | 4 (7%) | 55,59,59 | 0.88 | 1 (1%) |
| 54 | SF4 | S7 | 301 | 40 | 0,12,12 | - | - | - | - | - |
| 55 | FES | V2 | 301 | 43 | 0,4,4 | - | - | - | - | - |
| 53 | XEW | S2 | 501 | - | 15,17,17 | 5.96 | 15 (100%) | 19,22,22 | 2.44 | 4 (21%) |
| 51 | PC1 | N1 | 401 | - | 53,53,53 | 0.29 | 0 | 59,61,61 | 0.27 | 0 |
| 46 | PEE | A3 | 201 | - | 50,50,50 | 1.32 | 5 (10%) | 53,55,55 | 1.15 | 4 (7%) |
| 45 | CDL | N4 | 503 | - | 99,99,99 | 0.30 | 0 | 105,111,111 | 0.27 | 0 |
| 45 | CDL | S8 | 303 | - | 99,99,99 | 0.30 | 0 | 105,111,111 | 0.27 | 0 |
| 50 | 3PE | AL | 203 | - | 50,50,50 | 0.30 | 0 | 53,55,55 | 0.28 | 0 |
| 45 | CDL | AL | 201 | - | 93,93,99 | 0.31 | 0 | 99,105,111 | 0.39 | 0 |
| 45 | CDL | N5 | 703 | - | 81,81,99 | 0.32 | 0 | 87,93,111 | 0.31 | 0 |
| 46 | PEE | N1 | 405 | - | 50,50,50 | 1.32 | 5 (10%) | 53,55,55 | 1.20 | 3 (5%) |
| 46 | PEE | N2 | 402 | - | 47,47,50 | 1.36 | 5 (10%) | 50,52,55 | 1.21 | 4 (8%) |
| 52 | PLX | AM | 201 | - | 51,51,51 | 1.11 | 4 (7%) | 55,59,59 | 0.87 | 1 (1%) |
| 54 | SF4 | S8 | 302 | 41 | 0,12,12 | - | - | - | - | - |
| 46 | PEE | N5 | 702 | - | 39,39,50 | 1.49 | 5 (12%) | 41,44,55 | 1.17 | 2 (4%) |
| 46 | PEE | N5 | 706 | - | 50,50,50 | 1.32 | 5 (10%) | 53,55,55 | 1.15 | 2 (3%) |
| 47 | NDP | A9 | 401 | - | 45,52,52 | 0.52 | 0 | 53,80,80 | 0.53 | 1 (1%) |
| 45 | CDL | A8 | 301 | - | 76,76,99 | 0.34 | 0 | 82,88,111 | 0.35 | 0 |
| 51 | PC1 | S7 | 302 | - | 53,53,53 | 0.29 | 0 | 59,61,61 | 0.27 | 0 |
| 50 | 3PE | B8 | 201 | - | 31,31,50 | 0.38 | 0 | 34,36,55 | 0.34 | 0 |
| 52 | PLX | N4 | 502 | - | 51,51,51 | 1.11 | 4 (7%) | 55,59,59 | 0.89 | 1 (1%) |
| 46 | PEE | N5 | 701 | - | 45,45,50 | 1.39 | 5 (11%) | 48,50,55 | 1.18 | 4 (8%) |
| 51 | PC1 | N1 | 402 | - | 53,53,53 | 0.29 | 0 | 59,61,61 | 0.28 | 0 |
| 53 | XEW | N1 | 403 | - | 15,17,17 | 5.98 | 15 (100%) | 19,22,22 | 2.32 | 3 (15%) |
| 45 | CDL | AL | 202 | - | 89,89,99 | 0.32 | 0 | 95,101,111 | 0.40 | 0 |
| 45 | CDL | A7 | 201 | - | 93,93,99 | 0.30 | 0 | 99,105,111 | 0.28 | 0 |
| 50 | 3PE | CA | 101 | - | 50,50,50 | 0.31 | 0 | 53,55,55 | 0.28 | 0 |
| 52 | PLX | N4 | 501 | - | 46,46,51 | 1.15 | 5 (10%) | 50,54,59 | 0.86 | 1 (2%) |
| 48 | ZMP | AC | 201 | 10 | 29,35,36 | 0.65 | 1 (3%) | 34,42,45 | 0.64 | 0 |
| 52 | PLX | AM | 202 | - | 51,51,51 | 1.10 | 4 (7%) | 55,59,59 | 0.89 | 1 (1%) |
| 51 | PC1 | B7 | 201 | - | 53,53,53 | 0.30 | 0 | 59,61,61 | 0.29 | 0 |
| 54 | SF4 | S1 | 802 | 34 | 0,12,12 | - | - | - | - | - |
| 51 | PC1 | AL | 205 | - | 30,30,53 | 0.37 | 0 | 36,38,61 | 0.33 | 0 |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 48 | ZMP | AB | 201 | 10 | 29,35,36 | 0.63 | 1 (3%) | 34,42,45 | 0.78 | 1 (2%) |
| 45 | CDL | 4L | 201 | - | 91,91,99 | 0.31 | 0 | 97,103,111 | 0.27 | 0 |
| 45 | CDL | N5 | 704 | - | 99,99,99 | 0.30 | 0 | 105,111,111 | 0.28 | 0 |
| 55 | FES | S1 | 803 | 34 | 0,4,4 | - | - | - | - | - |
| 46 | PEE | N1 | 404 | - | 50,50,50 | 1.33 | 6 (12%) | 53,55,55 | 1.18 | 4 (7%) |

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 |
|-----|------|-------|-----|------|---------|----------------|---------|
| 54 | SF4 | V1 | 501 | 42 | - | - | 0/6/5/5 |
| 54 | SF4 | S8 | 301 | 41 | - | - | 0/6/5/5 |
| 45 | CDL | B5 | 202 | - | - | 19/108/108/110 | - |
| 46 | PEE | N5 | 705 | - | - | 25/54/54/54 | - |
| 54 | SF4 | S1 | 801 | 34 | - | - | 0/6/5/5 |
| 49 | ADP | AK | 401 | - | - | 2/12/32/32 | 0/3/3/3 |
| 58 | FMN | V1 | 502 | - | - | 5/18/18/18 | 0/3/3/3 |
| 46 | PEE | AL | 204 | - | - | 23/49/49/54 | - |
| 52 | PLX | CB | 201 | - | - | 22/55/55/55 | - |
| 45 | CDL | B4 | 202 | - | - | 17/72/72/110 | - |
| 45 | CDL | N2 | 401 | - | - | 17/78/78/110 | - |
| 46 | PEE | B4 | 201 | - | - | 17/54/54/54 | - |
| 52 | PLX | B5 | 201 | - | - | 18/55/55/55 | - |
| 51 | PC1 | B5 | 203 | - | - | 18/57/57/57 | - |
| 52 | PLX | N3 | 201 | - | - | 17/55/55/55 | - |
| 54 | SF4 | S7 | 301 | 40 | - | - | 0/6/5/5 |
| 55 | FES | V2 | 301 | 43 | - | - | 0/1/1/1 |
| 53 | XEW | S2 | 501 | - | - | 4/12/12/12 | 0/1/1/1 |
| 51 | PC1 | N1 | 401 | - | - | 13/57/57/57 | - |
| 46 | PEE | A3 | 201 | - | - | 18/54/54/54 | - |
| 45 | CDL | N4 | 503 | - | - | 20/110/110/110 | - |
| 45 | CDL | S8 | 303 | - | - | 14/110/110/110 | - |
| 50 | 3PE | AL | 203 | - | - | 9/54/54/54 | - |
| 45 | CDL | AL | 201 | - | - | 25/104/104/110 | - |
| 45 | CDL | N5 | 703 | - | - | 28/92/92/110 | - |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------------|---------|
| 46 | PEE | N1 | 405 | - | - | 27/54/54/54 | - |
| 46 | PEE | N2 | 402 | - | - | 20/51/51/54 | - |
| 52 | PLX | AM | 201 | - | - | 24/55/55/55 | - |
| 54 | SF4 | S8 | 302 | 41 | - | - | 0/6/5/5 |
| 46 | PEE | N5 | 702 | - | - | 23/43/43/54 | - |
| 46 | PEE | N5 | 706 | - | - | 23/54/54/54 | - |
| 47 | NDP | A9 | 401 | - | - | 7/30/77/77 | 0/5/5/5 |
| 45 | CDL | A8 | 301 | - | - | 23/87/87/110 | - |
| 51 | PC1 | S7 | 302 | - | - | 19/57/57/57 | - |
| 50 | 3PE | B8 | 201 | - | - | 6/35/35/54 | - |
| 52 | PLX | N4 | 502 | - | - | 18/55/55/55 | - |
| 46 | PEE | N5 | 701 | - | - | 19/49/49/54 | - |
| 51 | PC1 | N1 | 402 | - | - | 13/57/57/57 | - |
| 53 | XEW | N1 | 403 | - | - | 4/12/12/12 | 0/1/1/1 |
| 45 | CDL | AL | 202 | - | - | 18/100/100/110 | - |
| 45 | CDL | A7 | 201 | - | - | 16/104/104/110 | - |
| 50 | 3PE | CA | 101 | - | - | 14/54/54/54 | - |
| 52 | PLX | N4 | 501 | - | - | 26/50/50/55 | - |
| 48 | ZMP | AC | 201 | 10 | - | 12/40/42/43 | - |
| 52 | PLX | AM | 202 | - | - | 17/55/55/55 | - |
| 51 | PC1 | B7 | 201 | - | - | 9/57/57/57 | - |
| 54 | SF4 | S1 | 802 | 34 | - | - | 0/6/5/5 |
| 51 | PC1 | AL | 205 | - | - | 8/34/34/57 | - |
| 48 | ZMP | AB | 201 | 10 | - | 18/40/42/43 | - |
| 45 | CDL | 4L | 201 | - | - | 16/102/102/110 | - |
| 45 | CDL | N5 | 704 | - | - | 20/110/110/110 | - |
| 55 | FES | S1 | 803 | 34 | - | - | 0/1/1/1 |
| 46 | PEE | N1 | 404 | - | - | 27/54/54/54 | - |

The worst 5 of 114 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 53 | S2 | 501 | XEW | C4-N | 12.31 | 1.53 | 1.37 |
| 53 | N1 | 403 | XEW | C4-N | 11.97 | 1.52 | 1.37 |
| 53 | S2 | 501 | XEW | C4-N4 | 8.41 | 1.52 | 1.29 |
| 53 | S2 | 501 | XEW | C5-N3 | 8.40 | 1.52 | 1.29 |
| 53 | N1 | 403 | XEW | C4-N4 | 8.39 | 1.52 | 1.29 |

The worst 5 of 53 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 53 | S2 | 501 | XEW | C5-N1-C4 | -7.01 | 113.00 | 125.27 |
| 53 | N1 | 403 | XEW | C6-N2-C5 | 6.93 | 137.31 | 124.11 |
| 53 | S2 | 501 | XEW | C6-N2-C5 | 6.48 | 136.44 | 124.11 |
| 53 | N1 | 403 | XEW | C5-N1-C4 | -5.18 | 116.21 | 125.27 |
| 46 | N1 | 405 | PEE | O2-C10-C11 | 4.31 | 120.79 | 111.50 |

There are no chirality outliers.

5 of 758 torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 45 | 4L | 201 | CDL | CA2-OA2-PA1-OA3 |
| 45 | 4L | 201 | CDL | CA2-OA2-PA1-OA4 |
| 45 | 4L | 201 | CDL | CA3-OA5-PA1-OA2 |
| 45 | 4L | 201 | CDL | CA3-OA5-PA1-OA3 |
| 45 | 4L | 201 | CDL | CA3-OA5-PA1-OA4 |

There are no ring outliers.

42 monomers are involved in 146 short contacts:

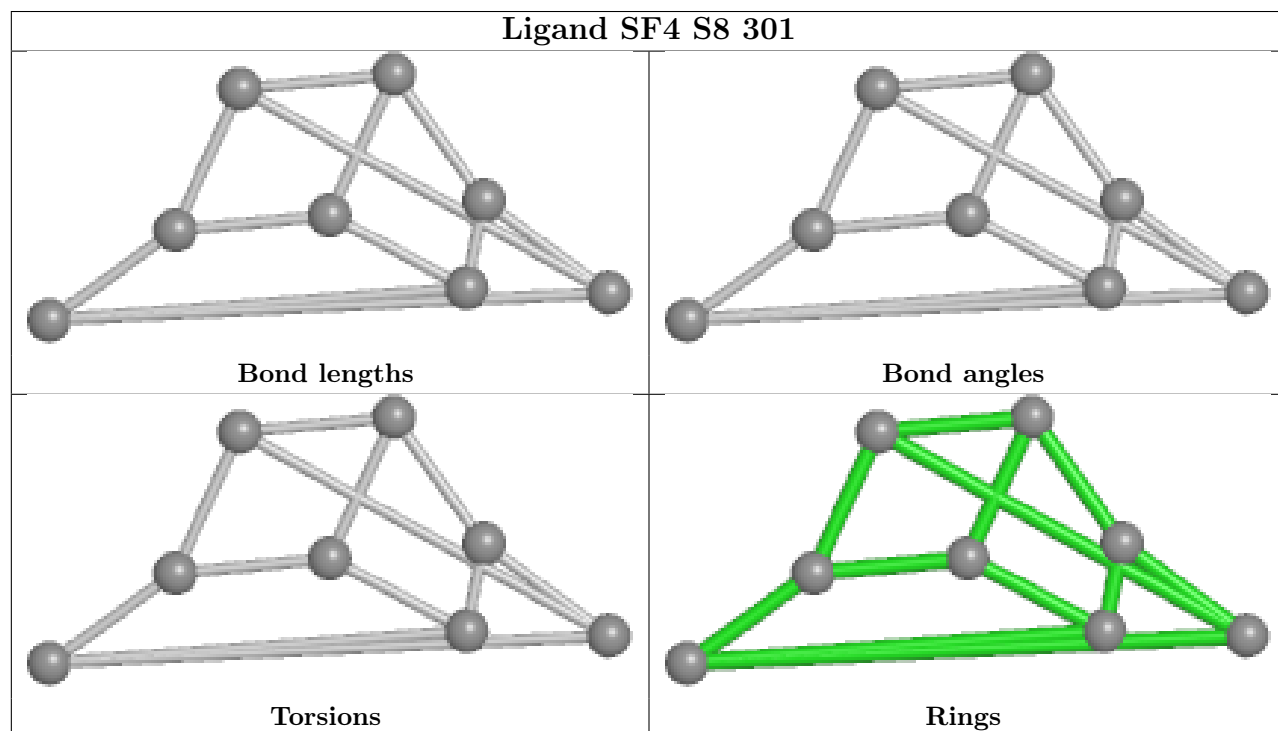
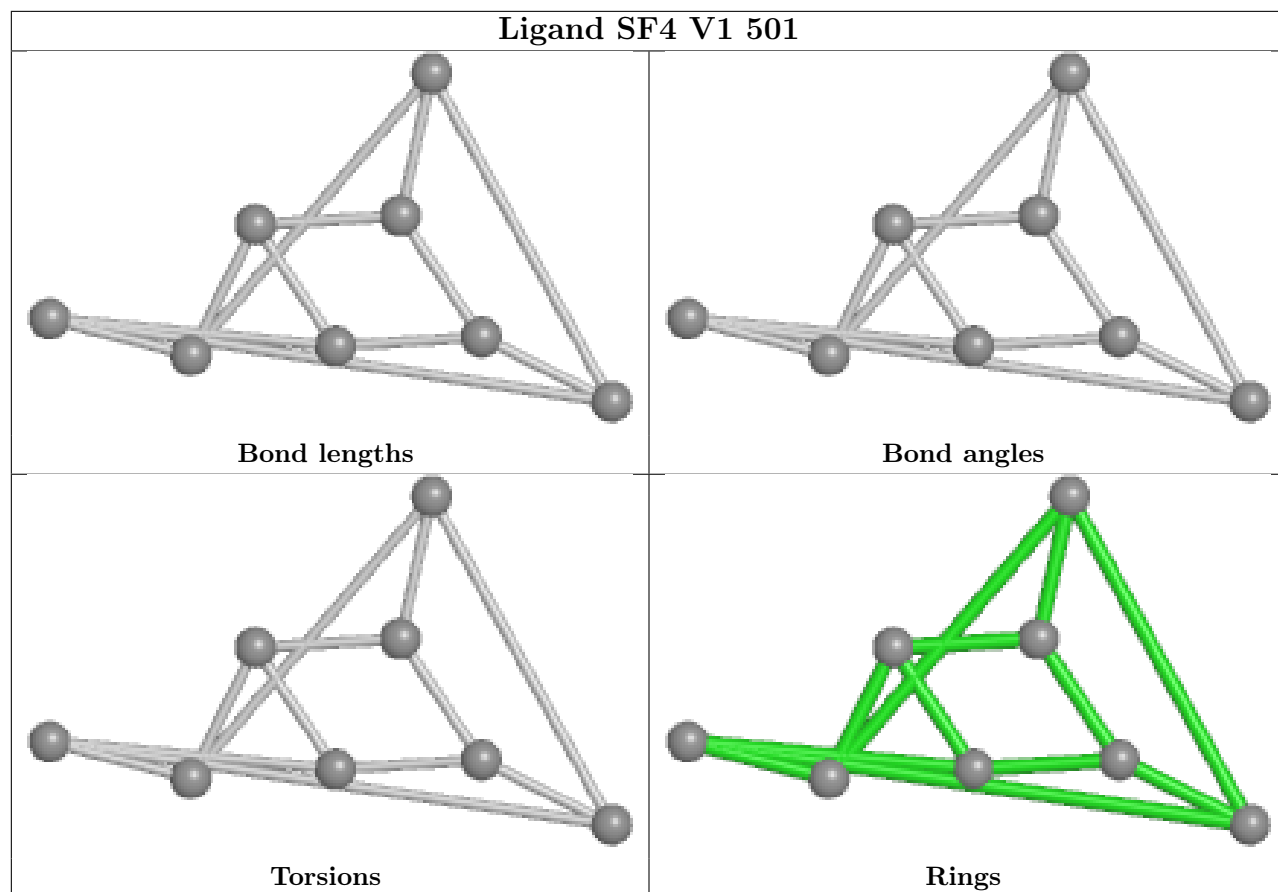
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 54 | S8 | 301 | SF4 | 1 | 0 |
| 45 | B5 | 202 | CDL | 2 | 0 |
| 49 | AK | 401 | ADP | 3 | 0 |
| 46 | AL | 204 | PEE | 1 | 0 |
| 52 | CB | 201 | PLX | 5 | 0 |
| 45 | B4 | 202 | CDL | 1 | 0 |
| 45 | N2 | 401 | CDL | 4 | 0 |
| 52 | B5 | 201 | PLX | 2 | 0 |
| 51 | B5 | 203 | PC1 | 4 | 0 |
| 52 | N3 | 201 | PLX | 3 | 0 |
| 51 | N1 | 401 | PC1 | 6 | 0 |
| 46 | A3 | 201 | PEE | 3 | 0 |
| 45 | N4 | 503 | CDL | 3 | 0 |
| 45 | S8 | 303 | CDL | 11 | 0 |
| 50 | AL | 203 | 3PE | 3 | 0 |
| 45 | AL | 201 | CDL | 11 | 0 |
| 45 | N5 | 703 | CDL | 8 | 0 |
| 46 | N1 | 405 | PEE | 9 | 0 |
| 46 | N2 | 402 | PEE | 1 | 0 |
| 52 | AM | 201 | PLX | 7 | 0 |
| 54 | S8 | 302 | SF4 | 1 | 0 |

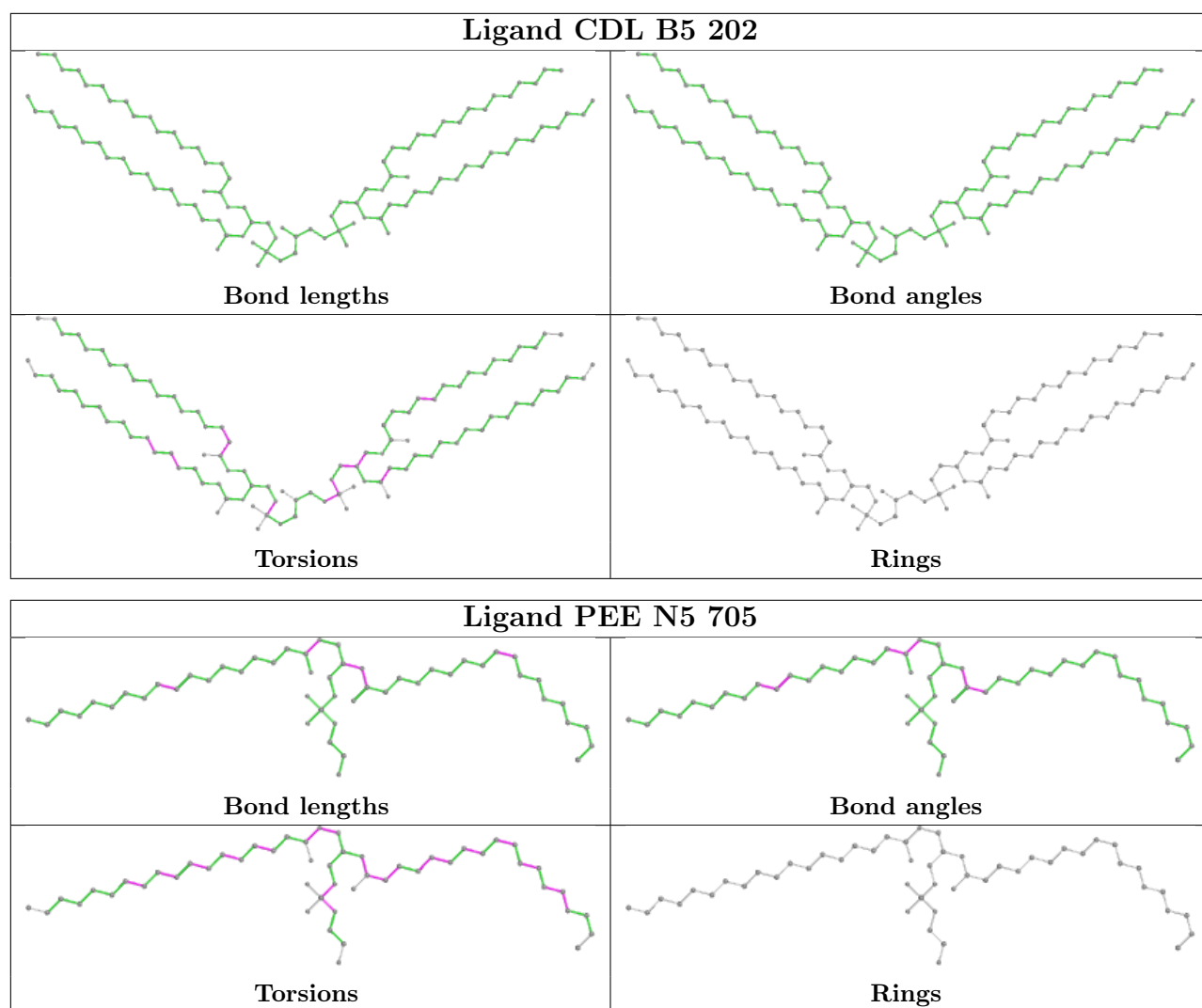
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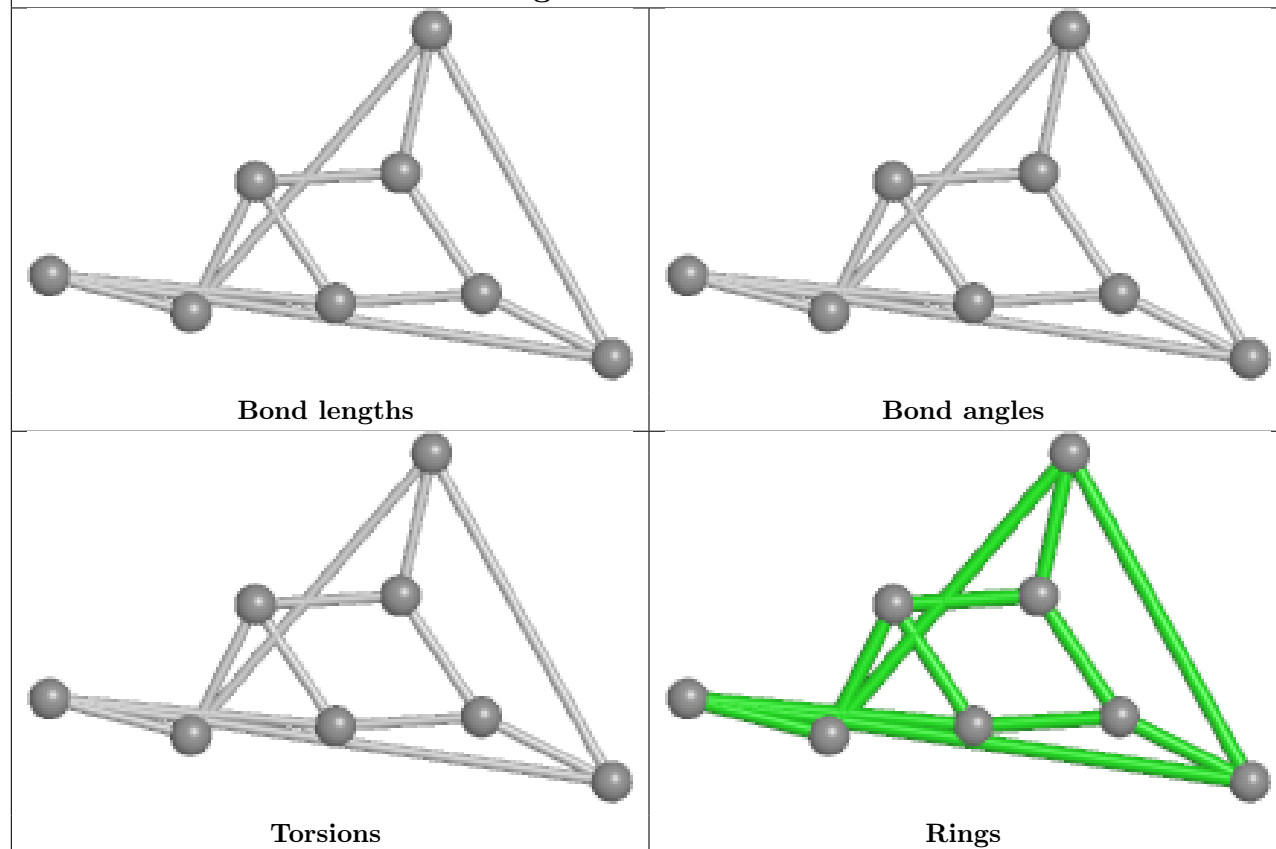
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 46 | N5 | 702 | PEE | 3 | 0 |
| 46 | N5 | 706 | PEE | 9 | 0 |
| 47 | A9 | 401 | NDP | 1 | 0 |
| 45 | A8 | 301 | CDL | 5 | 0 |
| 51 | S7 | 302 | PC1 | 2 | 0 |
| 52 | N4 | 502 | PLX | 6 | 0 |
| 46 | N5 | 701 | PEE | 1 | 0 |
| 51 | N1 | 402 | PC1 | 3 | 0 |
| 45 | AL | 202 | CDL | 7 | 0 |
| 45 | A7 | 201 | CDL | 3 | 0 |
| 50 | CA | 101 | 3PE | 3 | 0 |
| 52 | N4 | 501 | PLX | 2 | 0 |
| 48 | AC | 201 | ZMP | 4 | 0 |
| 52 | AM | 202 | PLX | 3 | 0 |
| 51 | B7 | 201 | PC1 | 3 | 0 |
| 54 | S1 | 802 | SF4 | 1 | 0 |
| 51 | AL | 205 | PC1 | 4 | 0 |
| 48 | AB | 201 | ZMP | 4 | 0 |
| 45 | 4L | 201 | CDL | 2 | 0 |
| 45 | N5 | 704 | CDL | 2 | 0 |
| 46 | N1 | 404 | PEE | 1 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

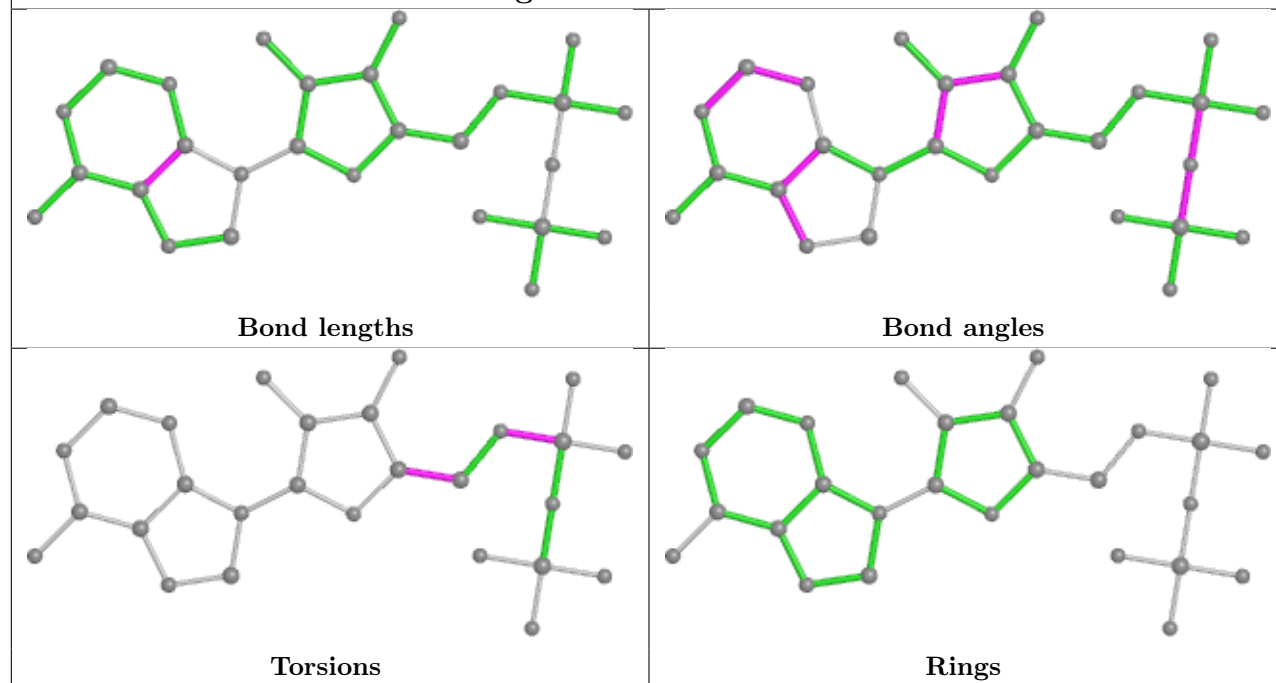




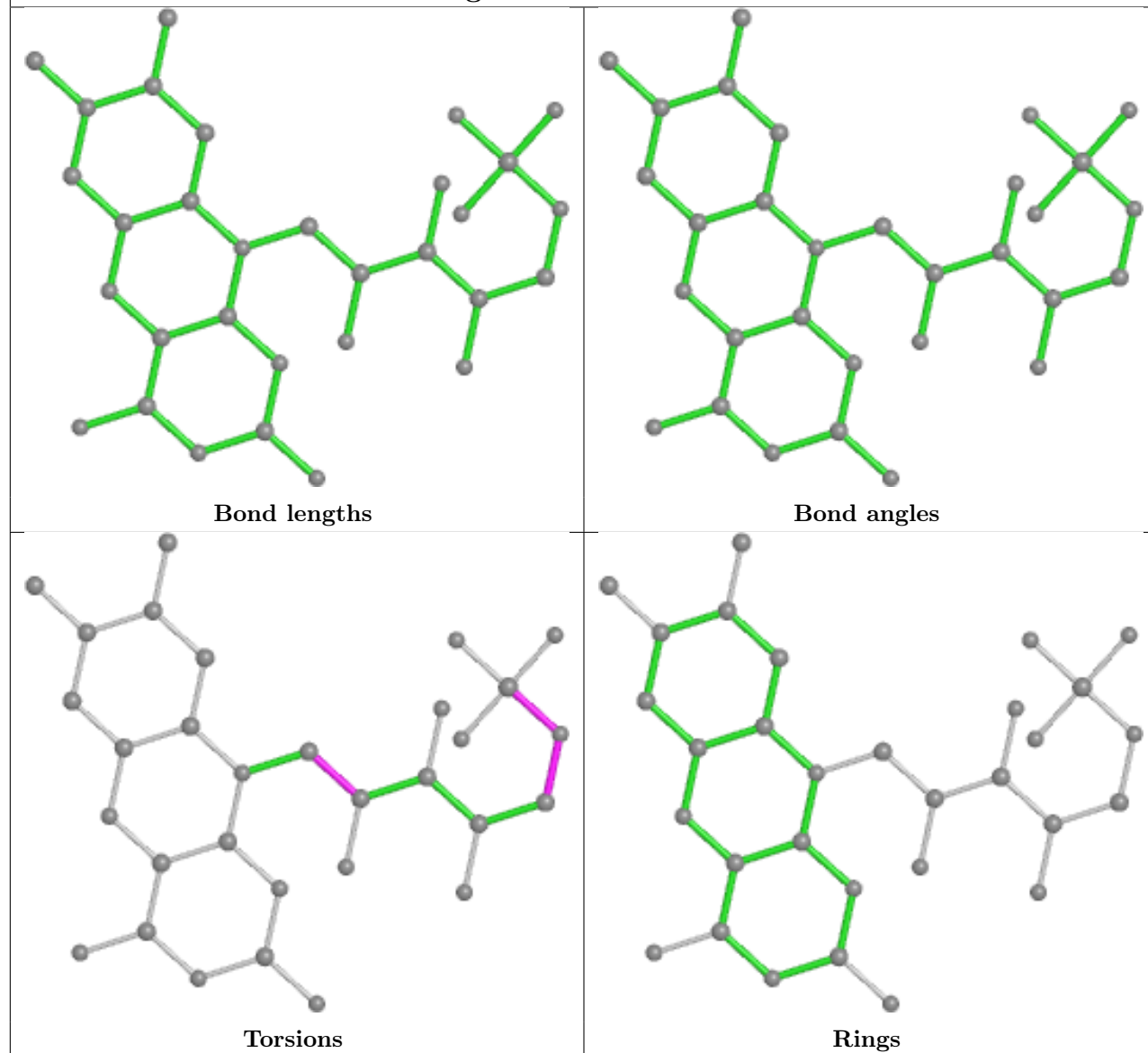
Ligand SF4 S1 801



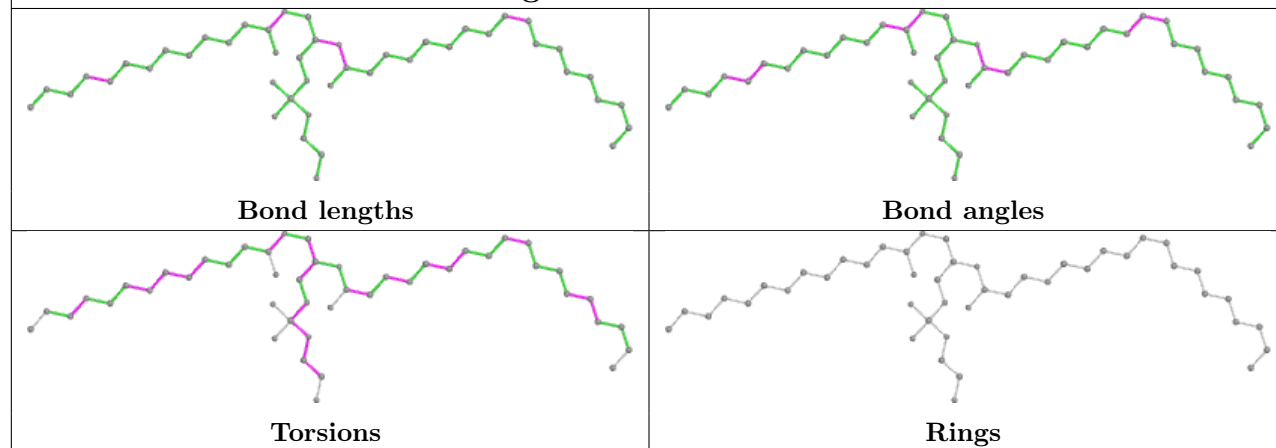
Ligand ADP AK 401

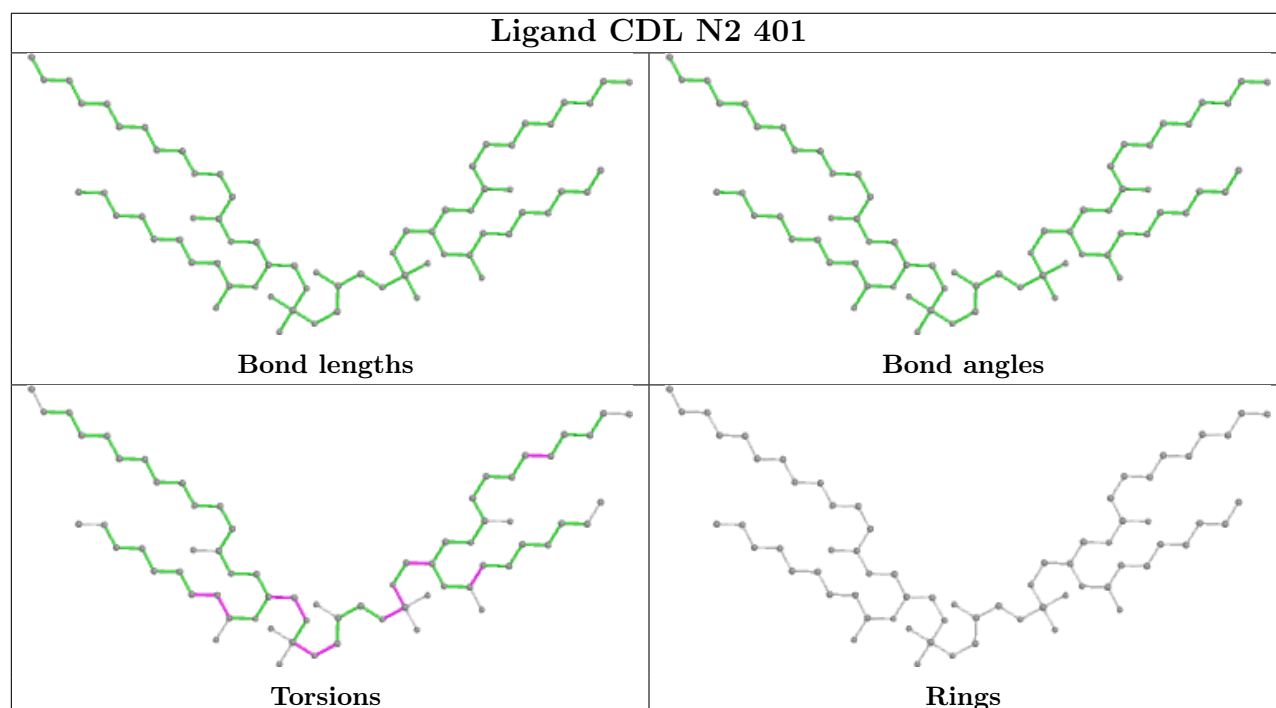
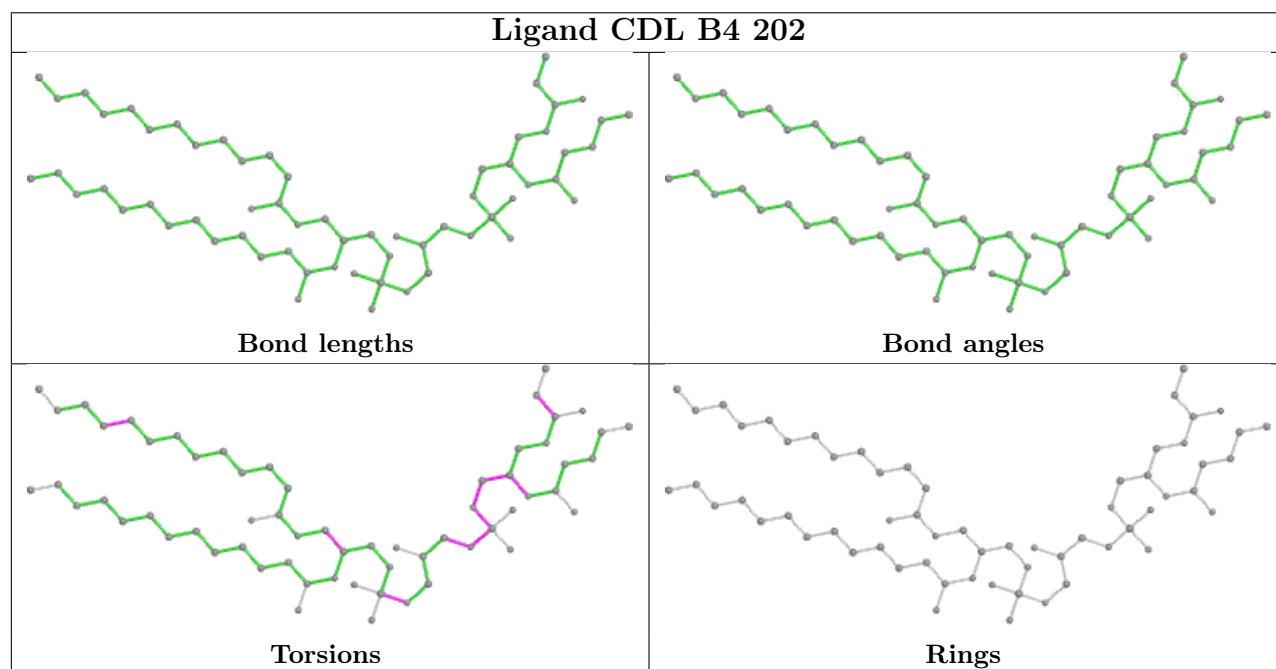
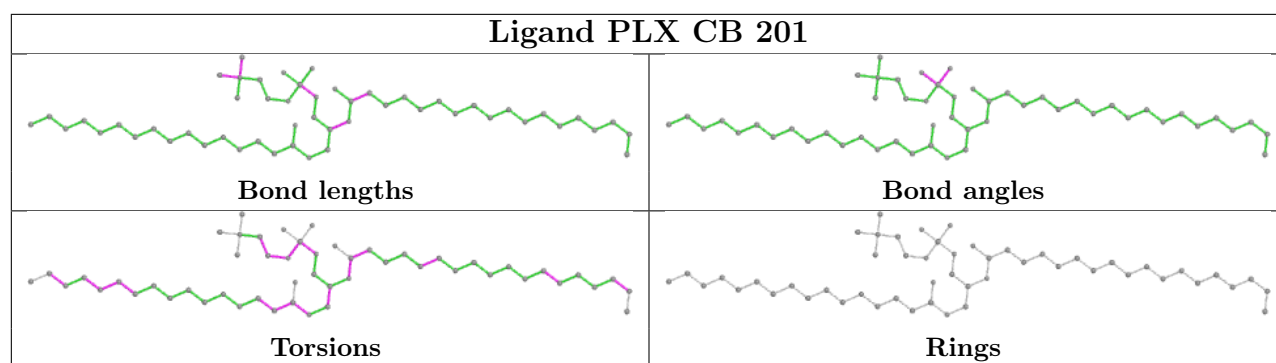


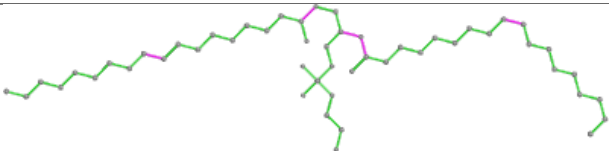
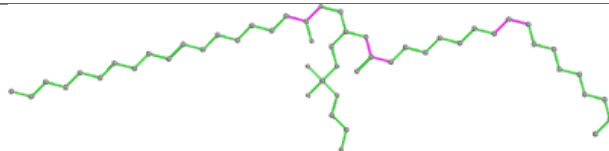
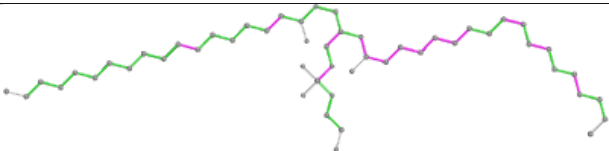
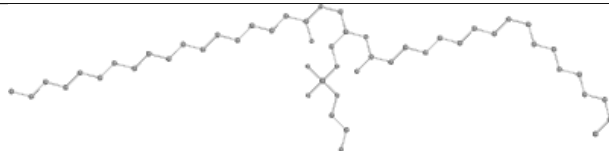
Ligand FMN V1 502

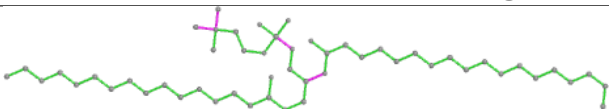
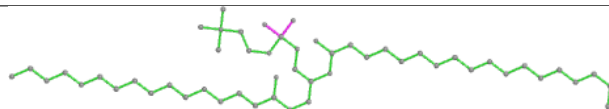
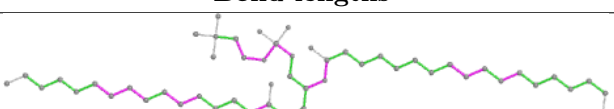
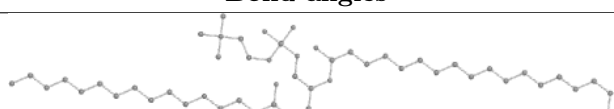


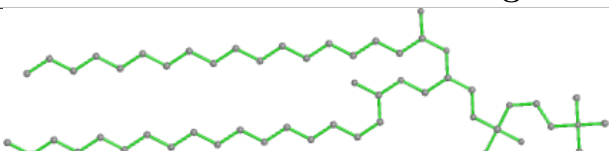
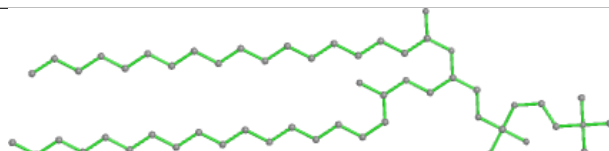
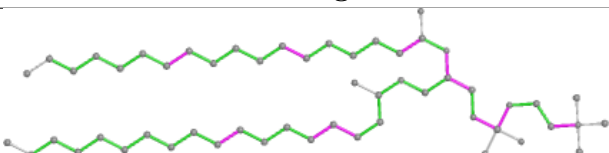
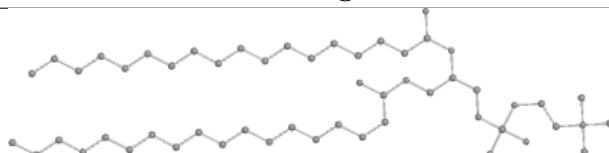
Ligand PEE AL 204

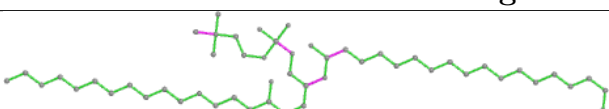
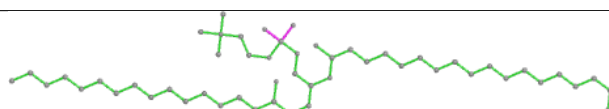
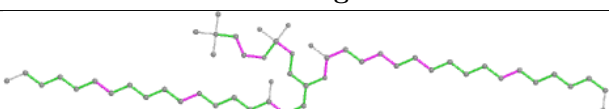
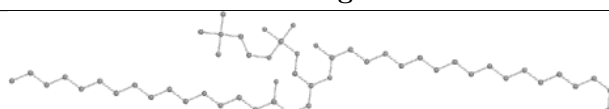


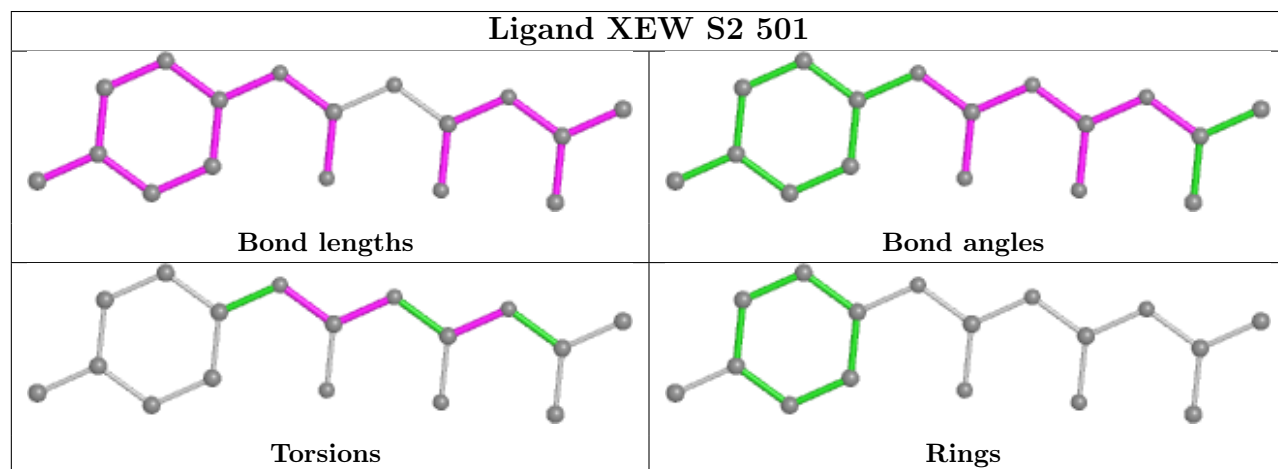
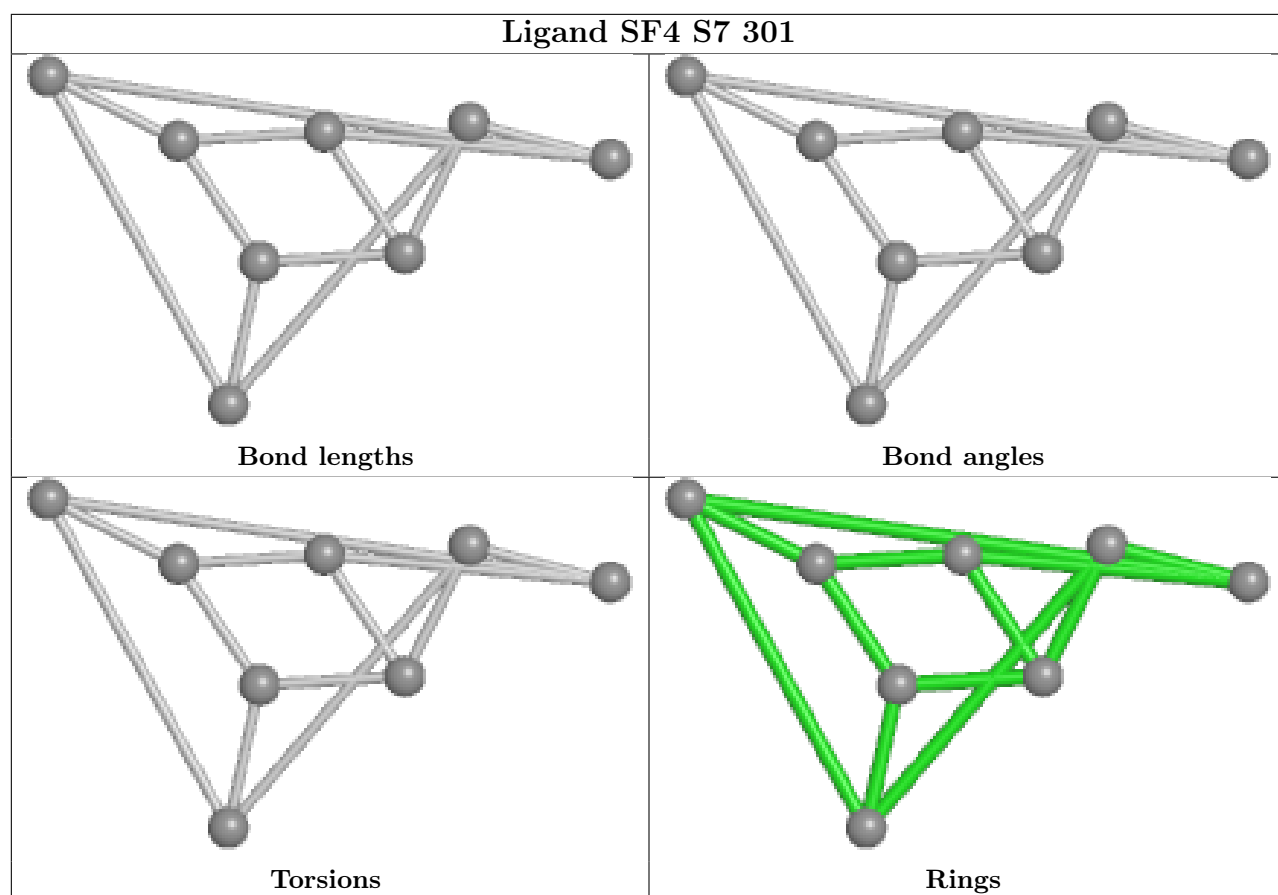


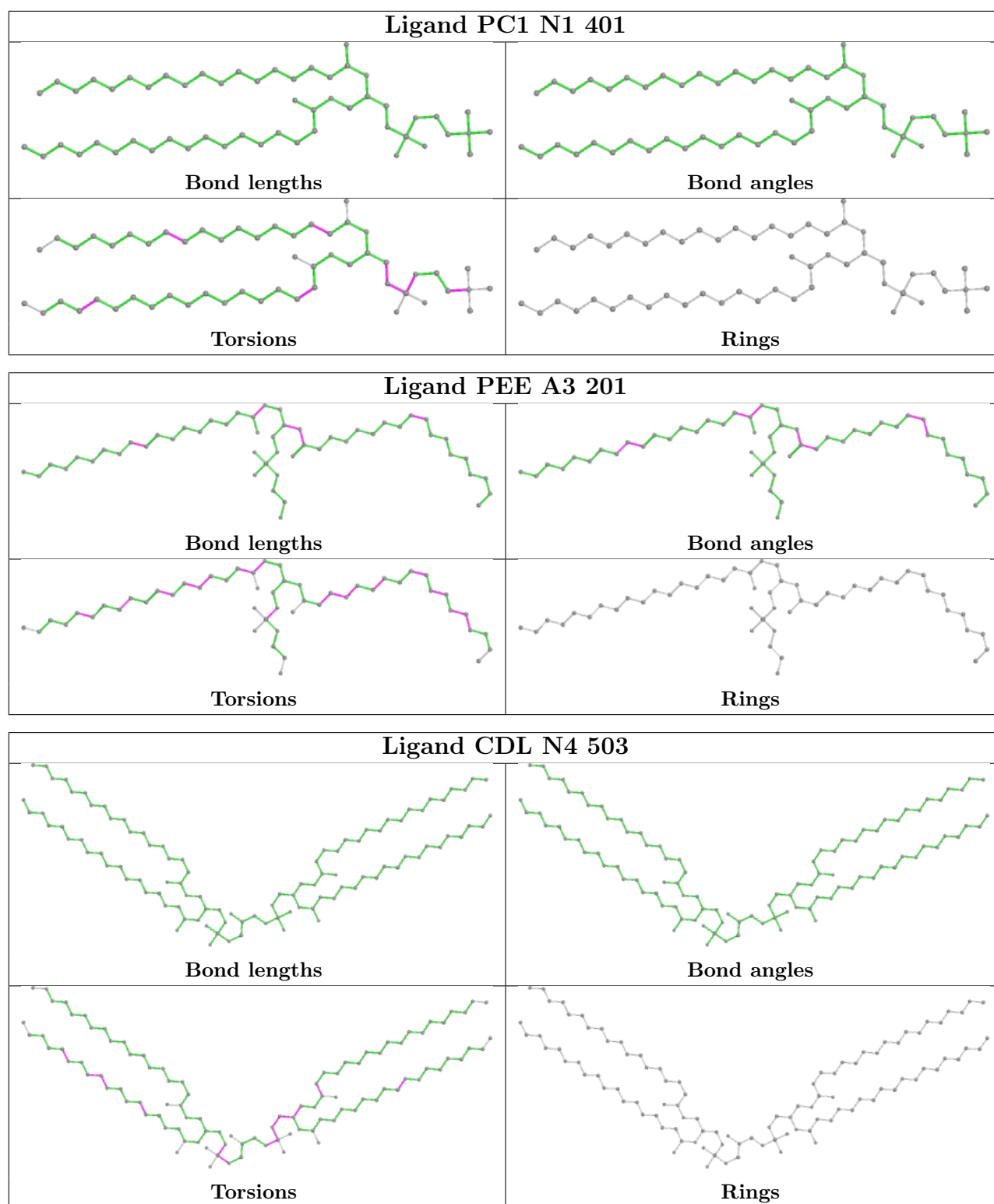
| Ligand PEE B4 201 | |
|---|--|
|  |  |
| Bond lengths | Bond angles |
|  |  |
| Torsions | Rings |

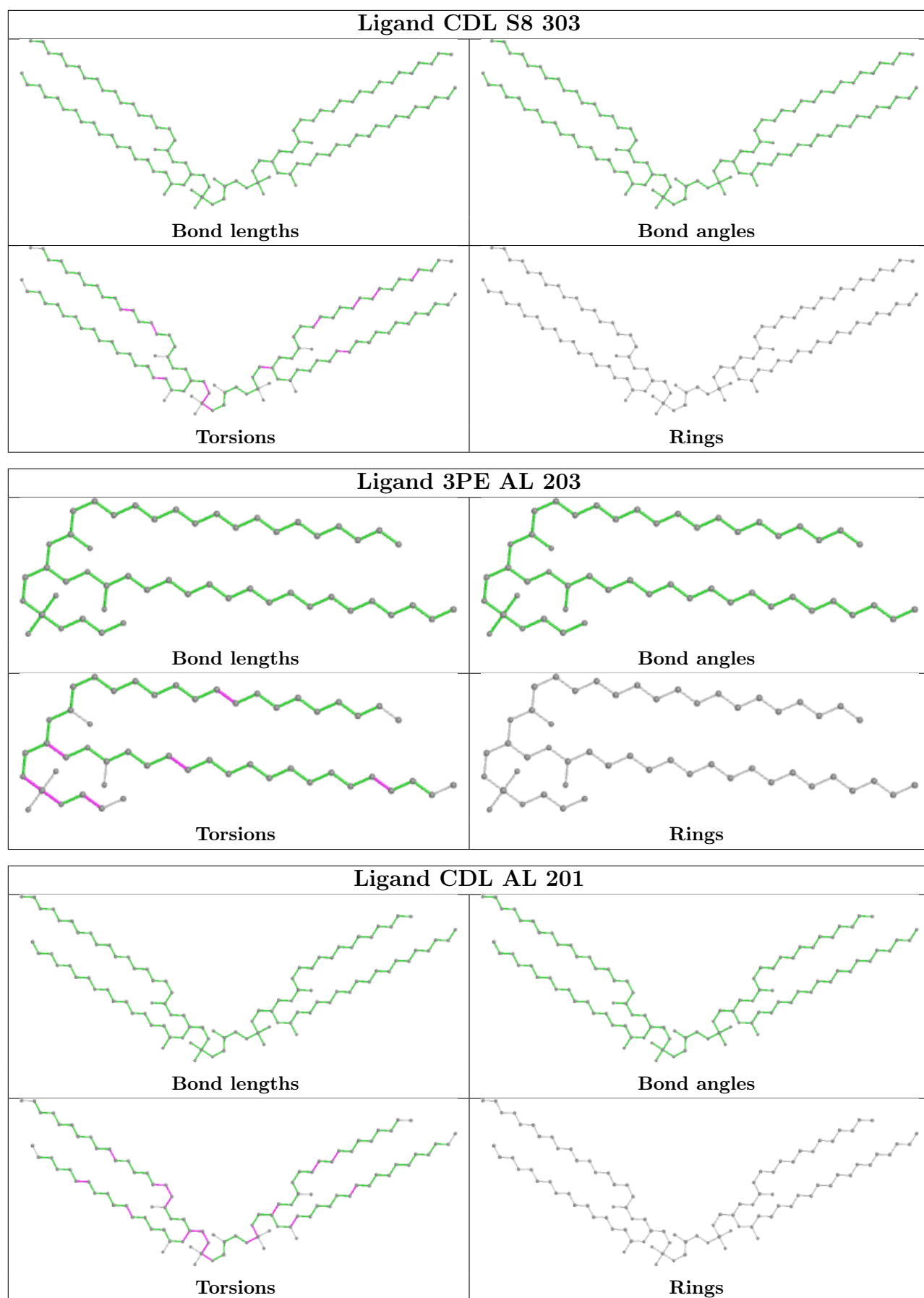
| Ligand PLX B5 201 | |
|---|--|
|  |  |
| Bond lengths | Bond angles |
|  |  |
| Torsions | Rings |

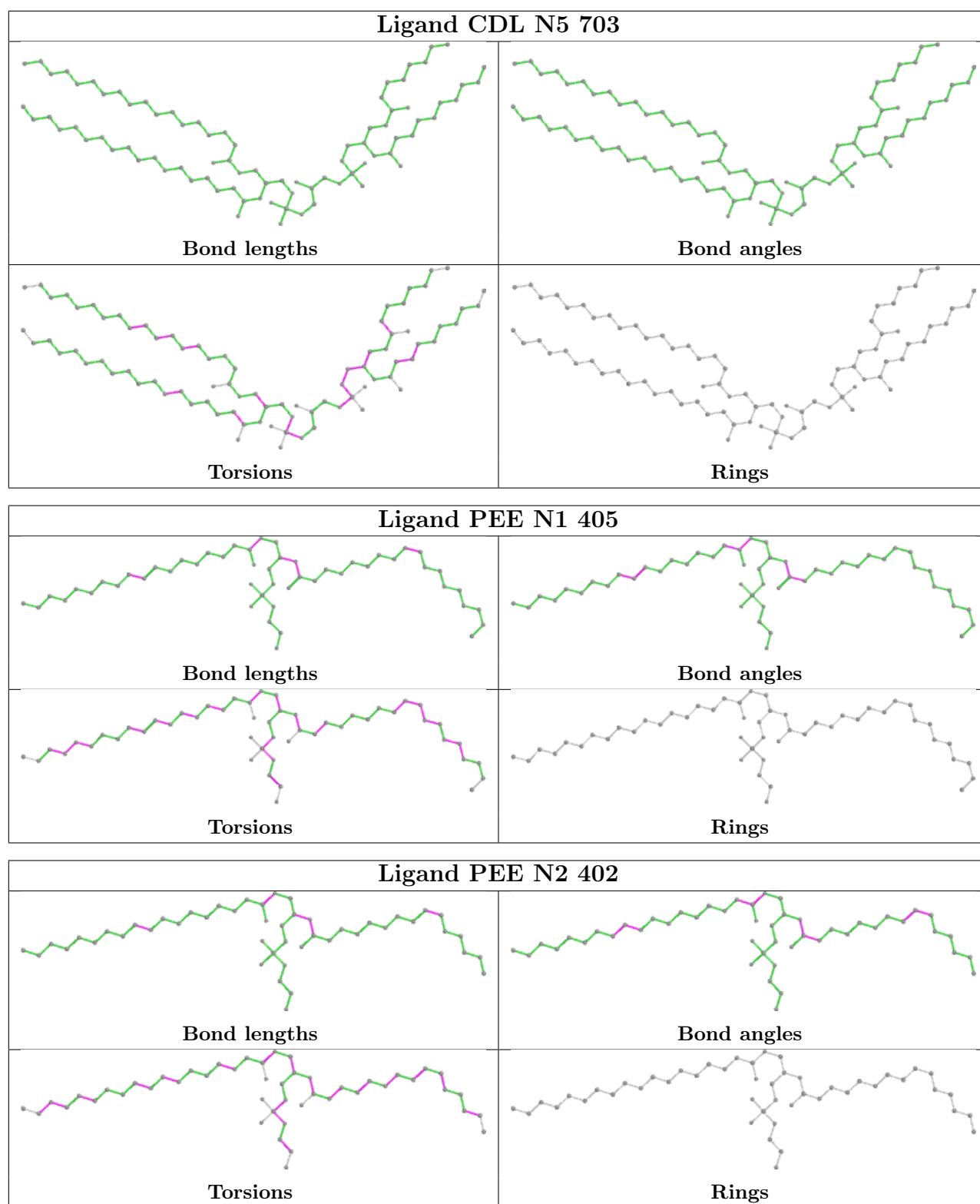
| Ligand PC1 B5 203 | |
|---|--|
|  |  |
| Bond lengths | Bond angles |
|  |  |
| Torsions | Rings |

| Ligand PLX N3 201 | |
|---|--|
|  |  |
| Bond lengths | Bond angles |
|  |  |
| Torsions | Rings |

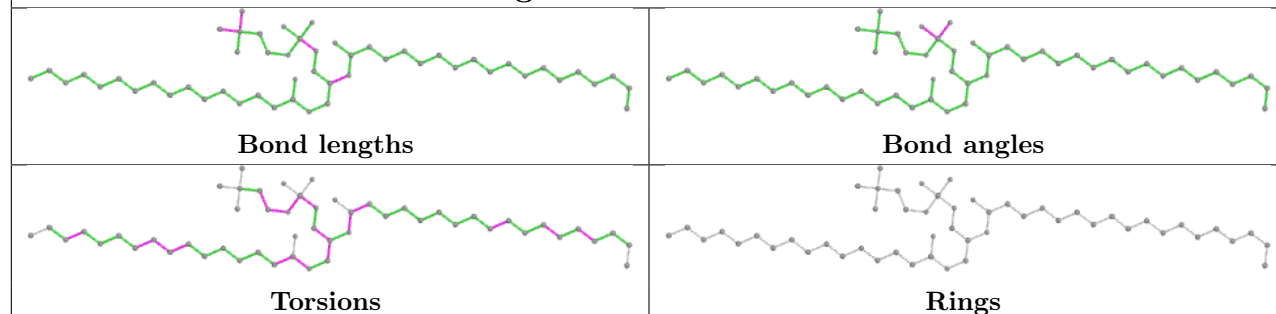




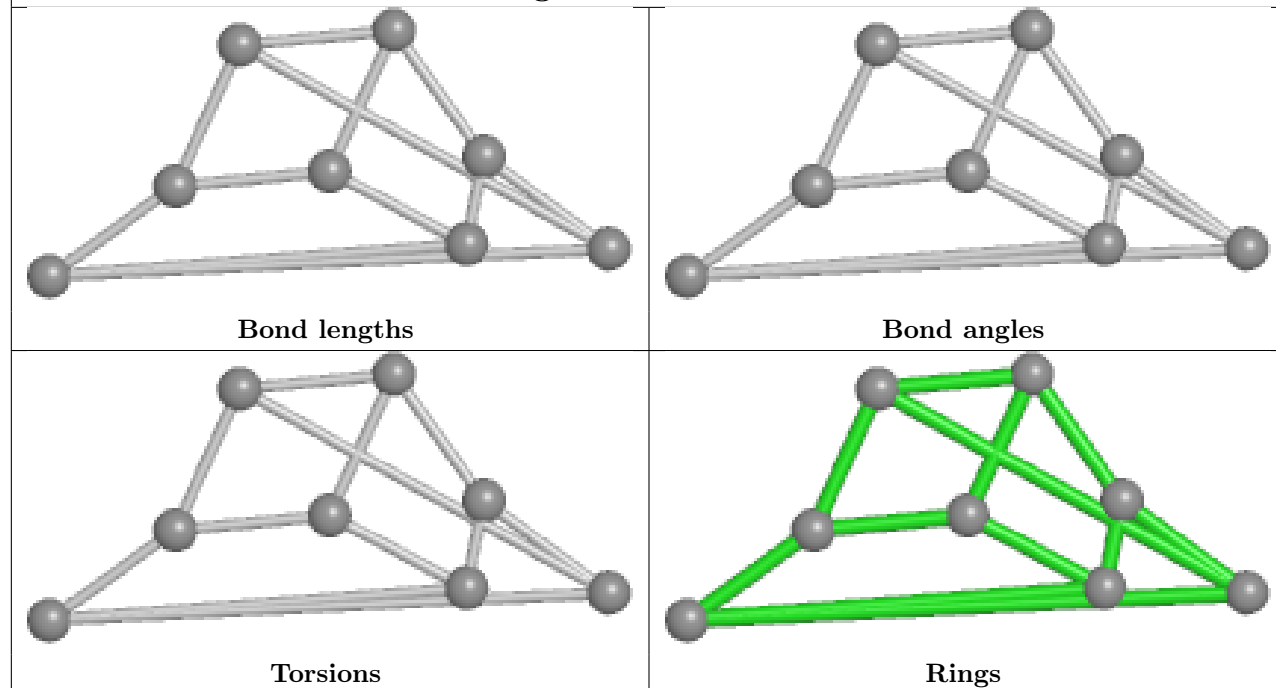




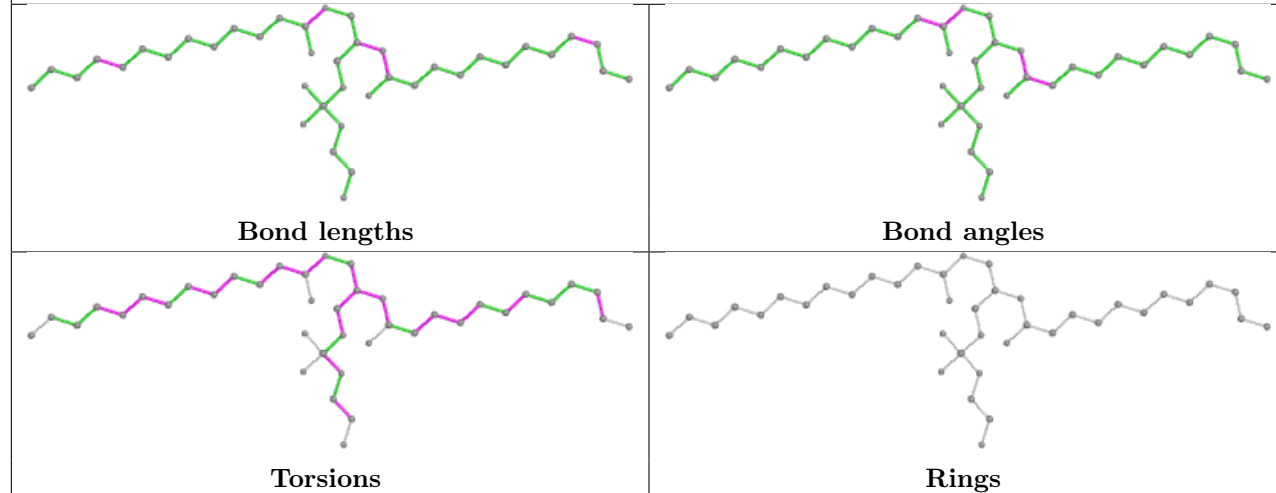
Ligand PLX AM 201

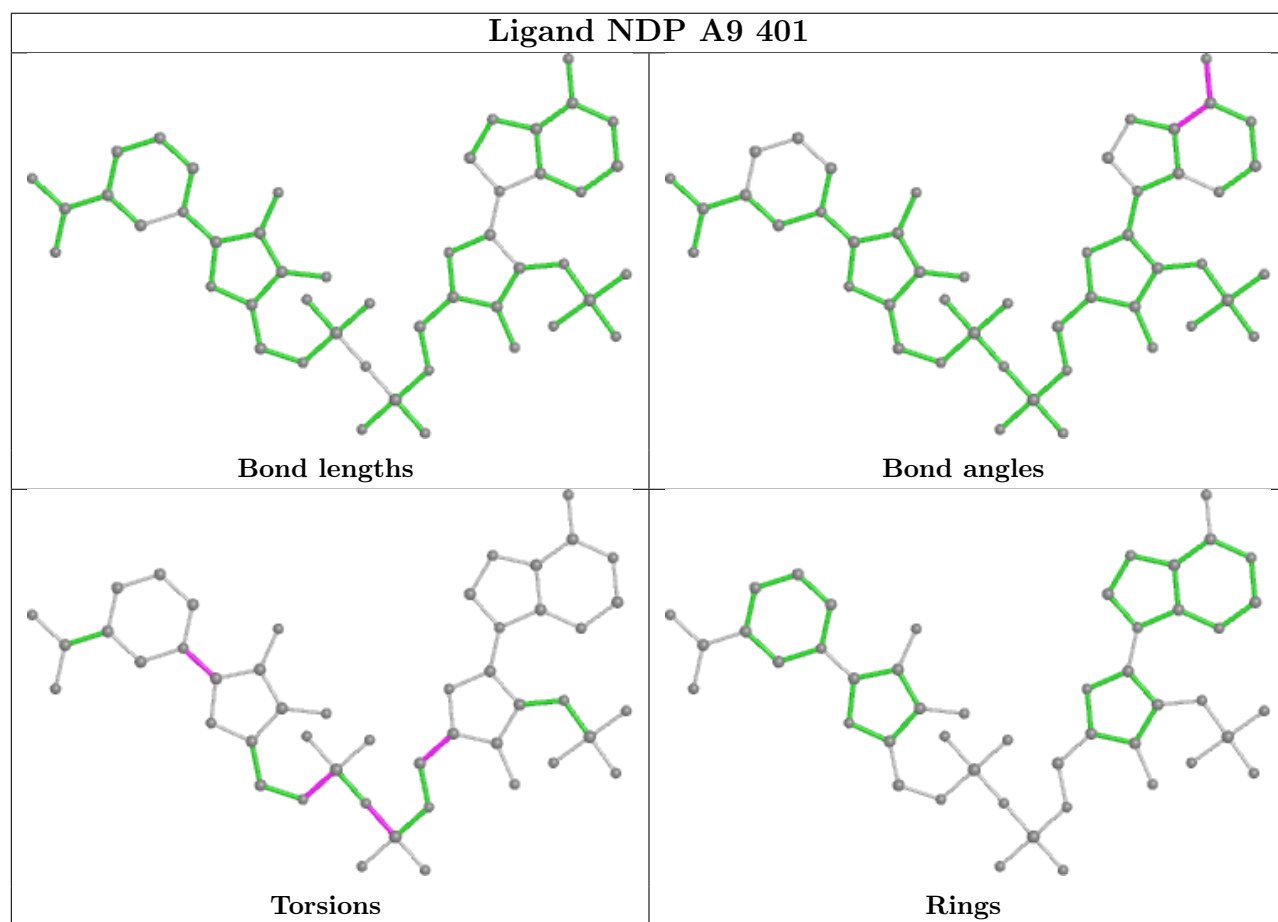
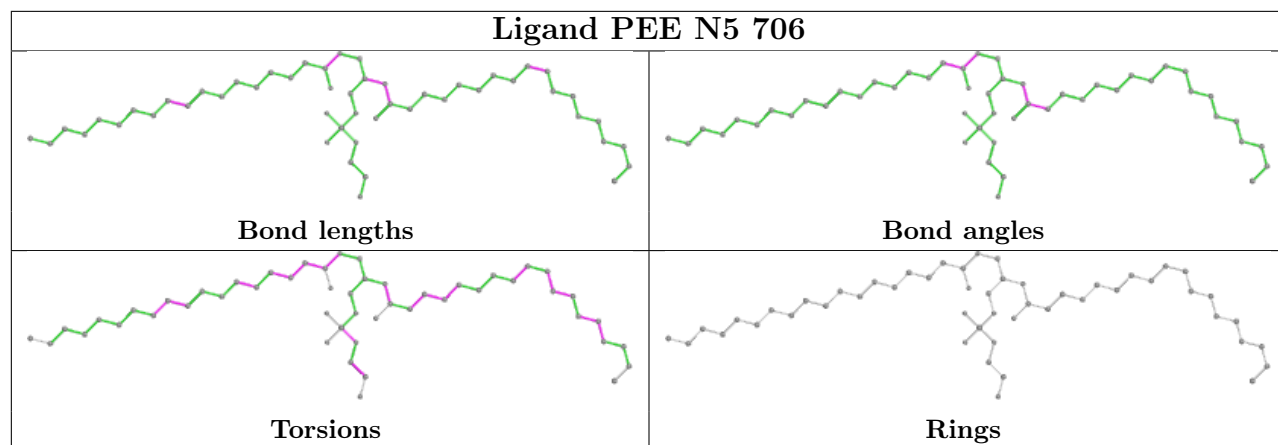


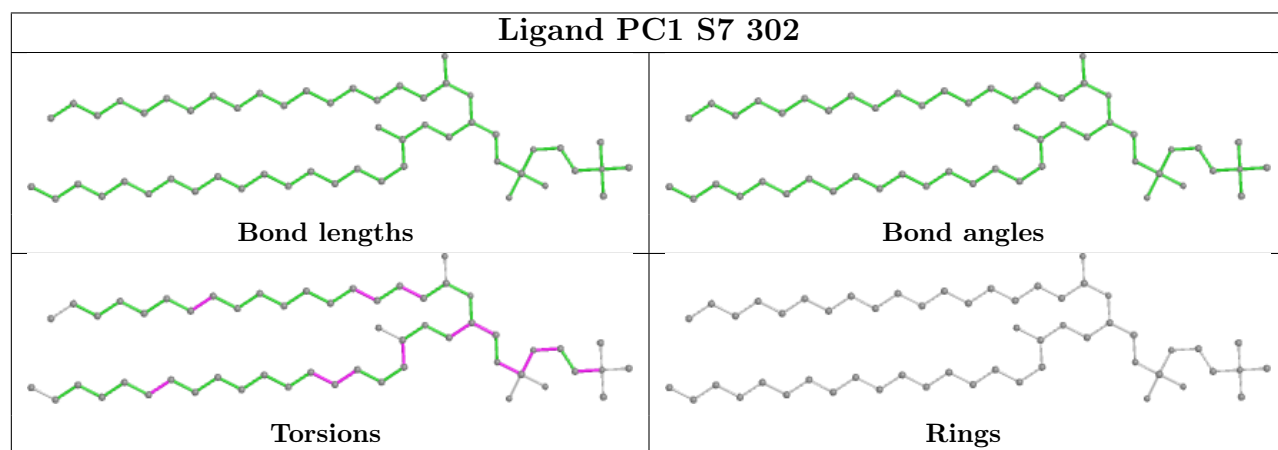
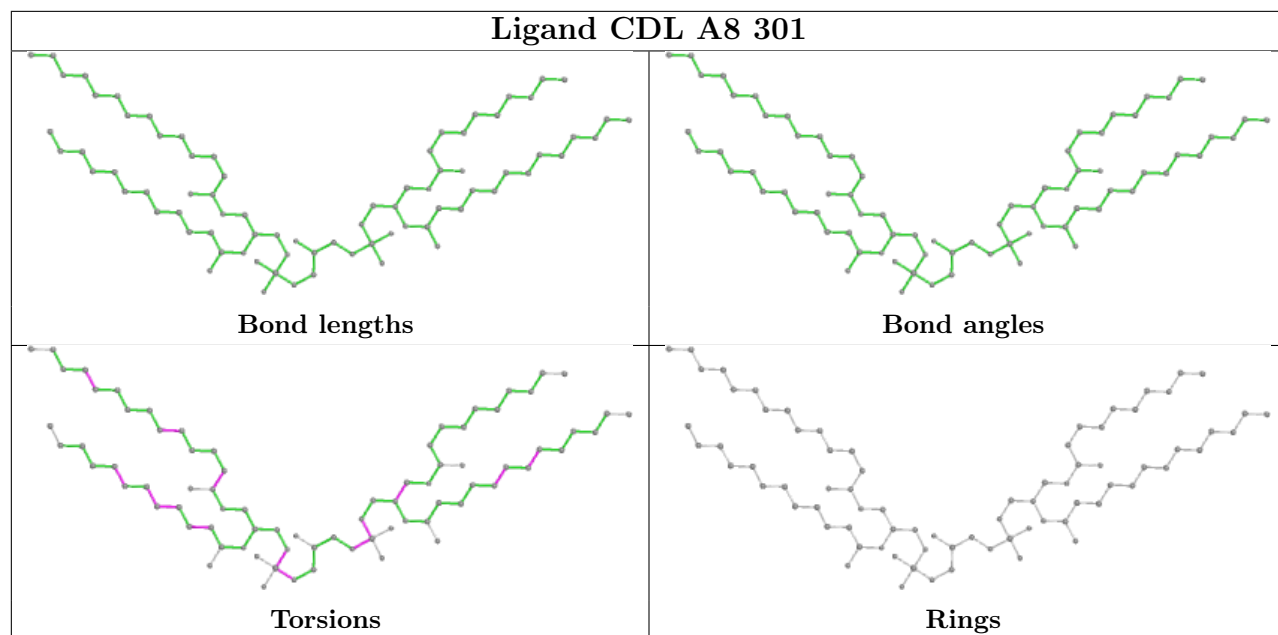
Ligand SF4 S8 302

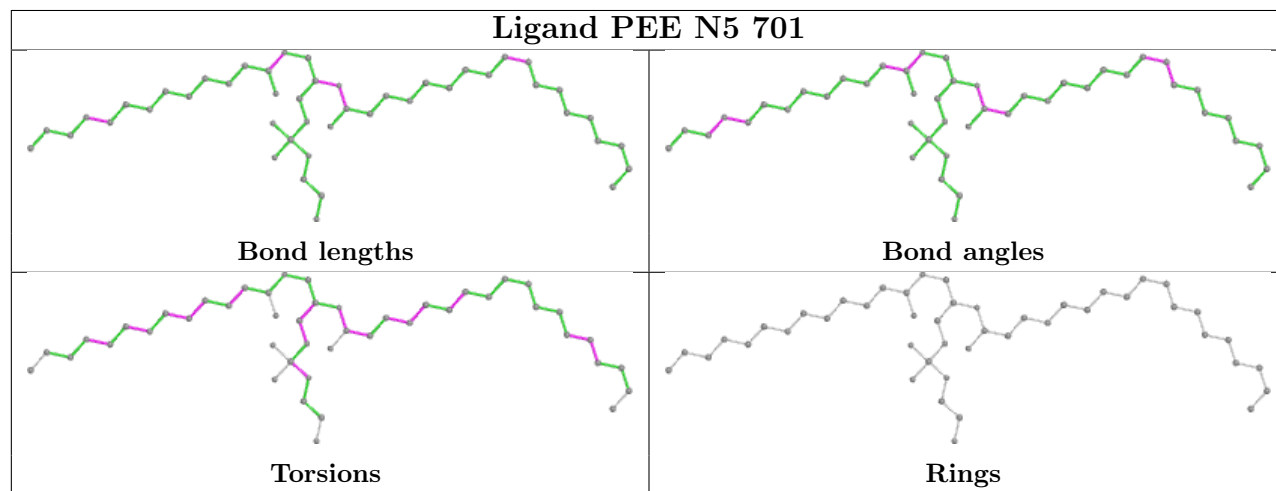
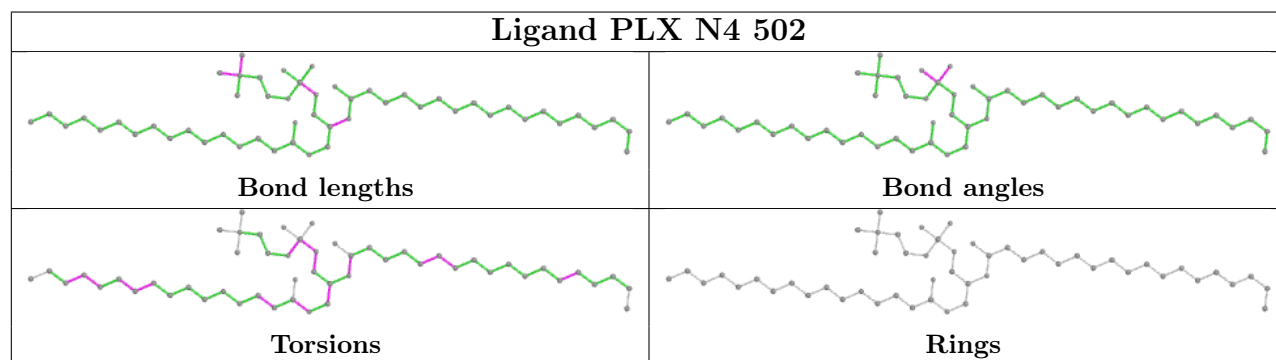
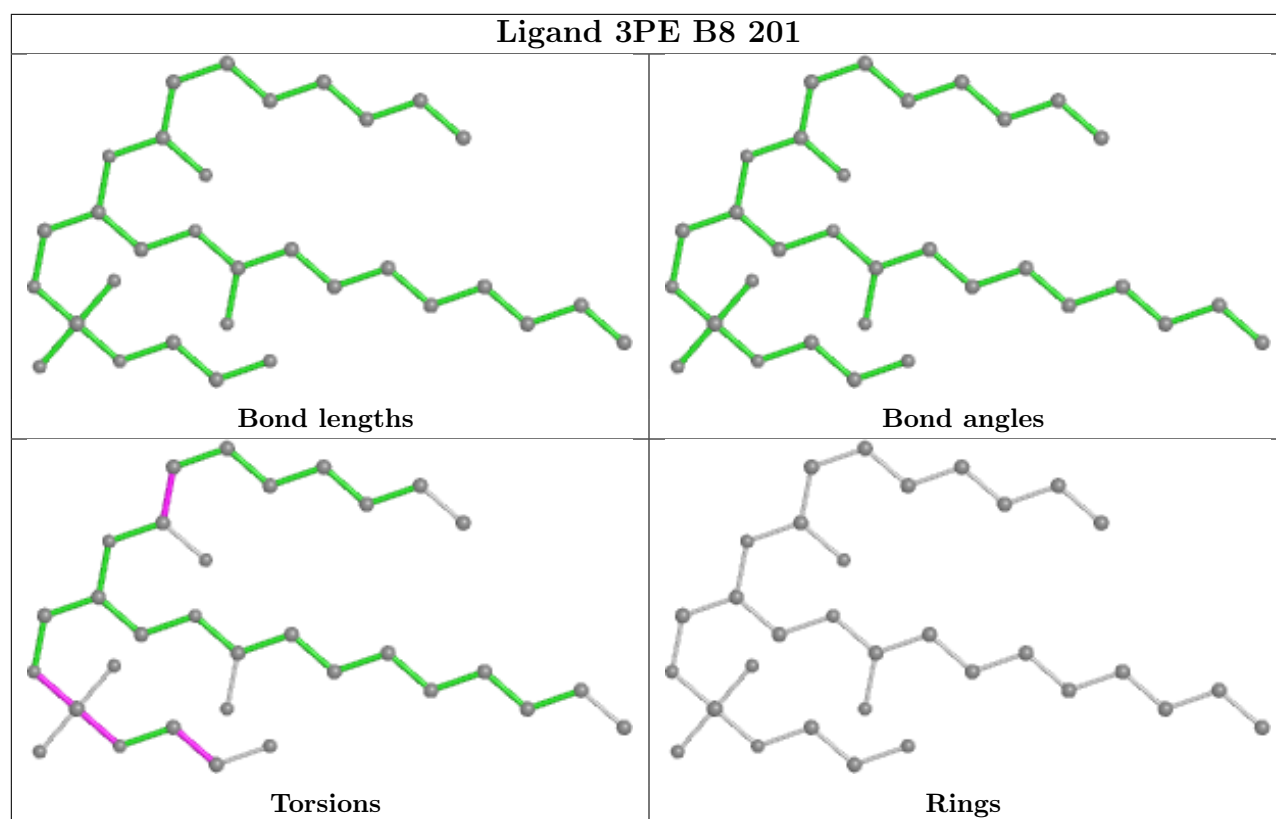


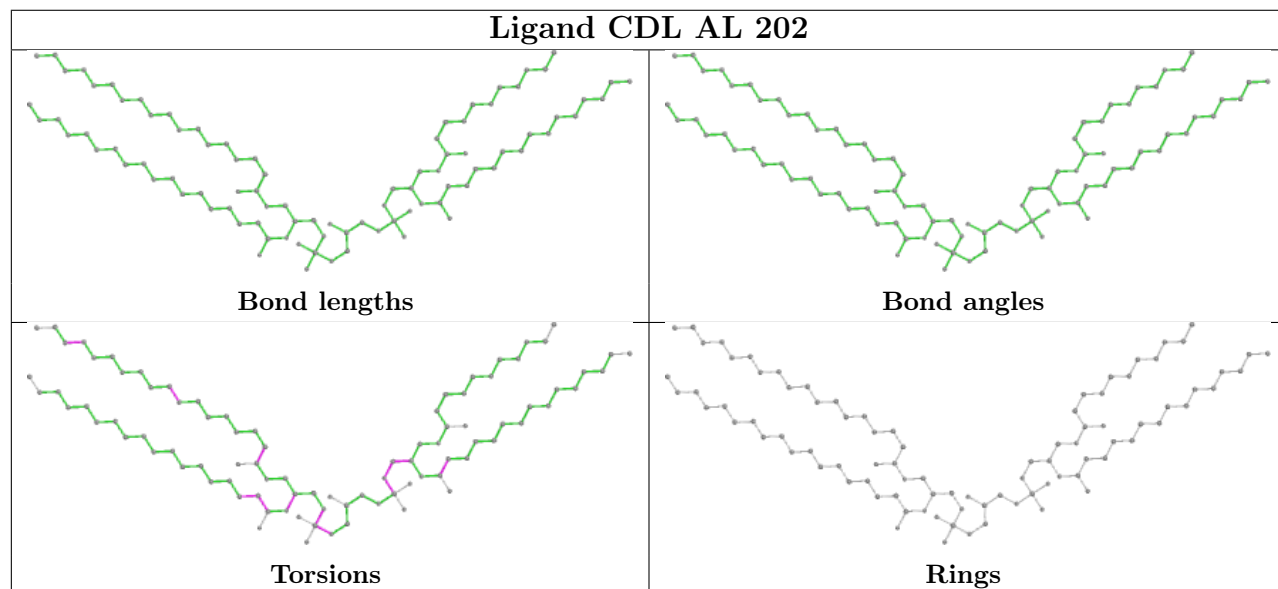
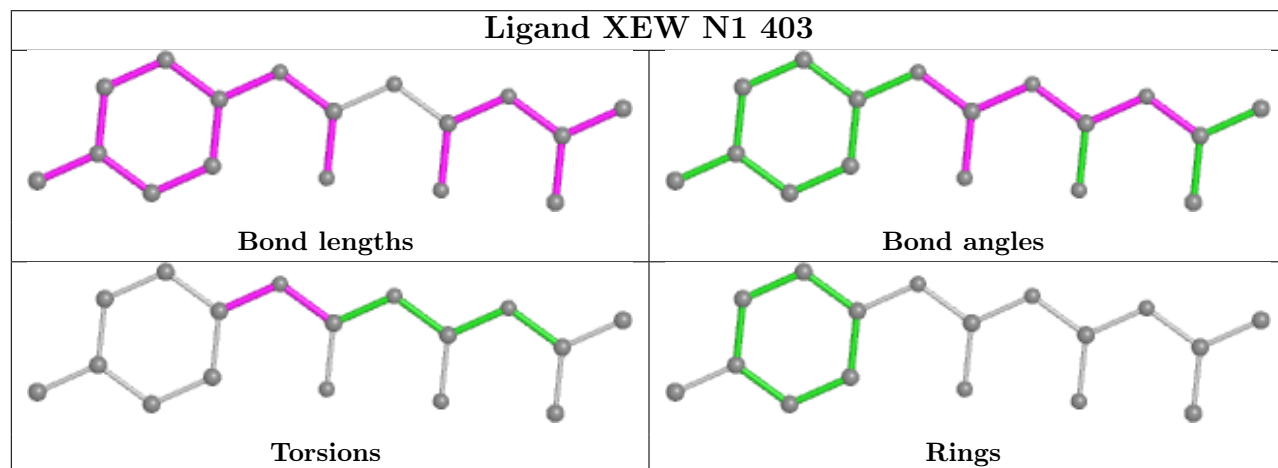
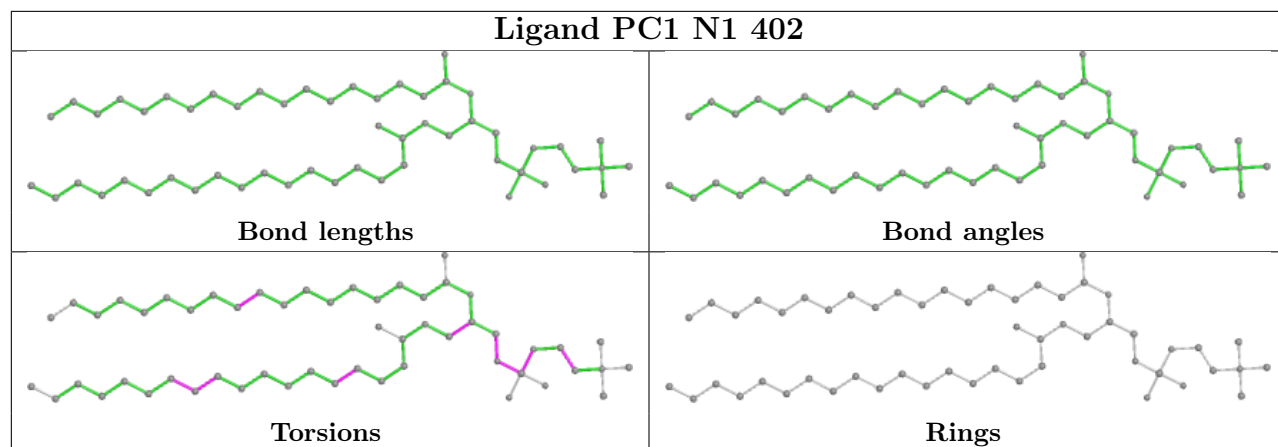
Ligand PEE N5 702

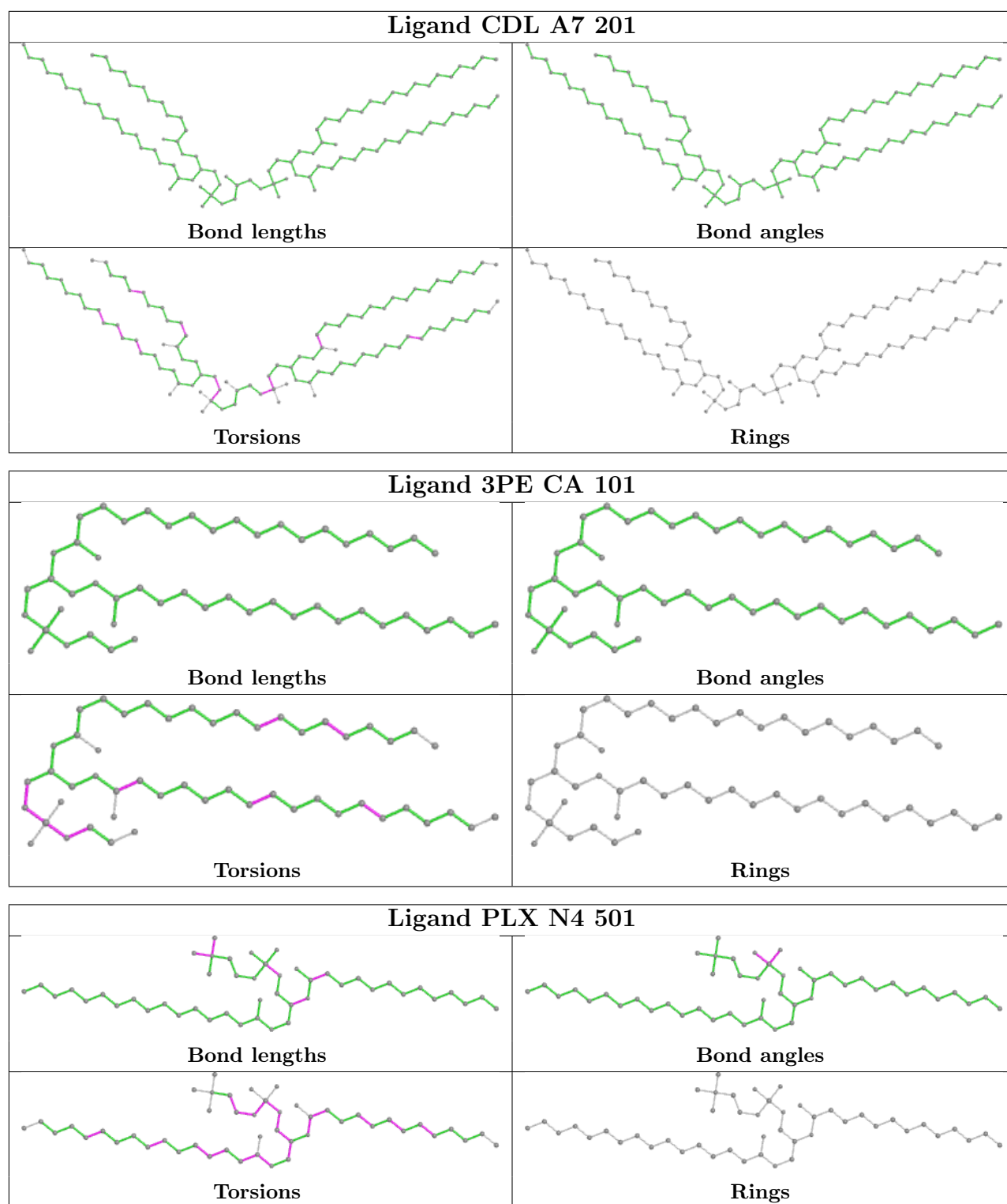


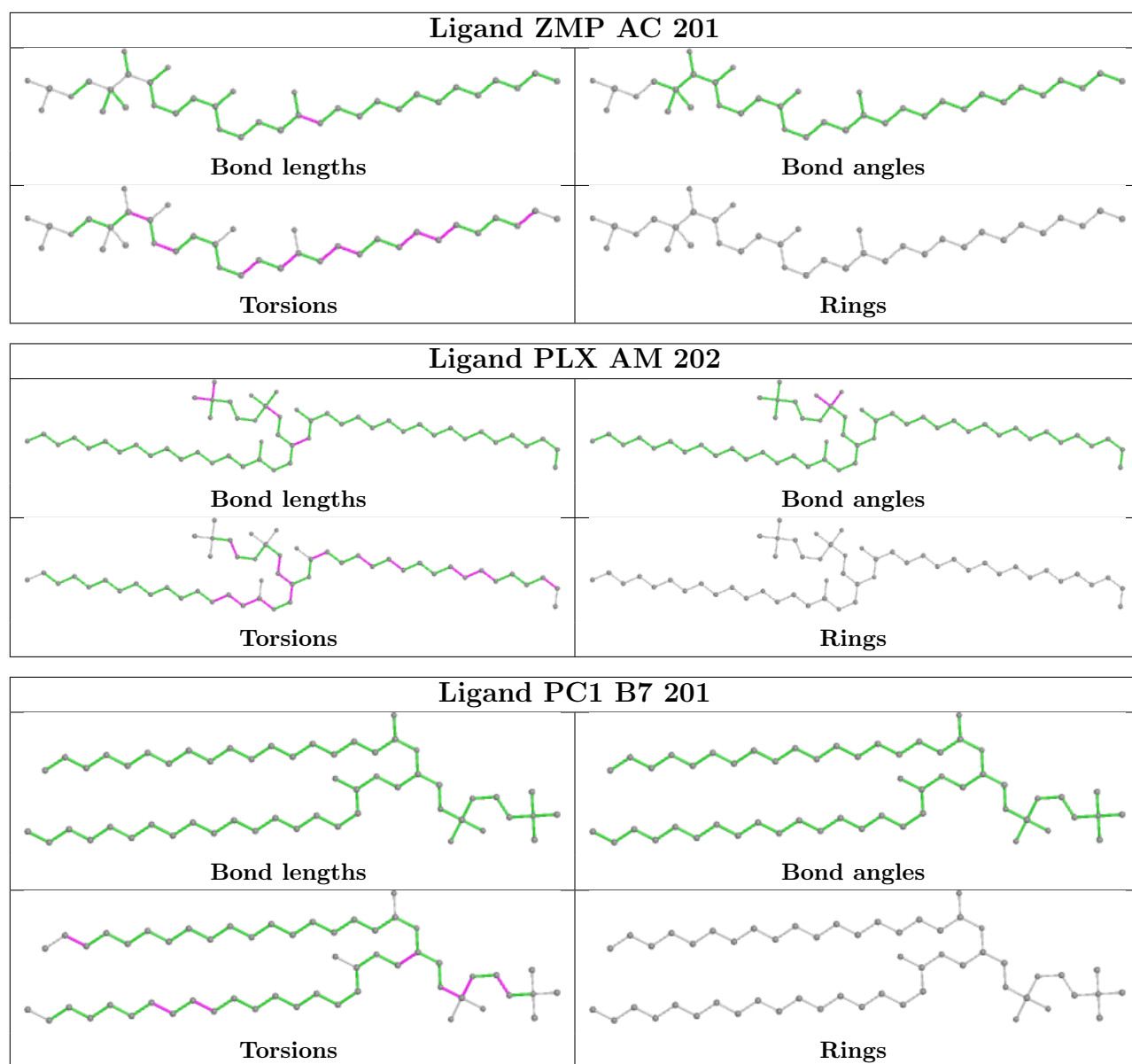


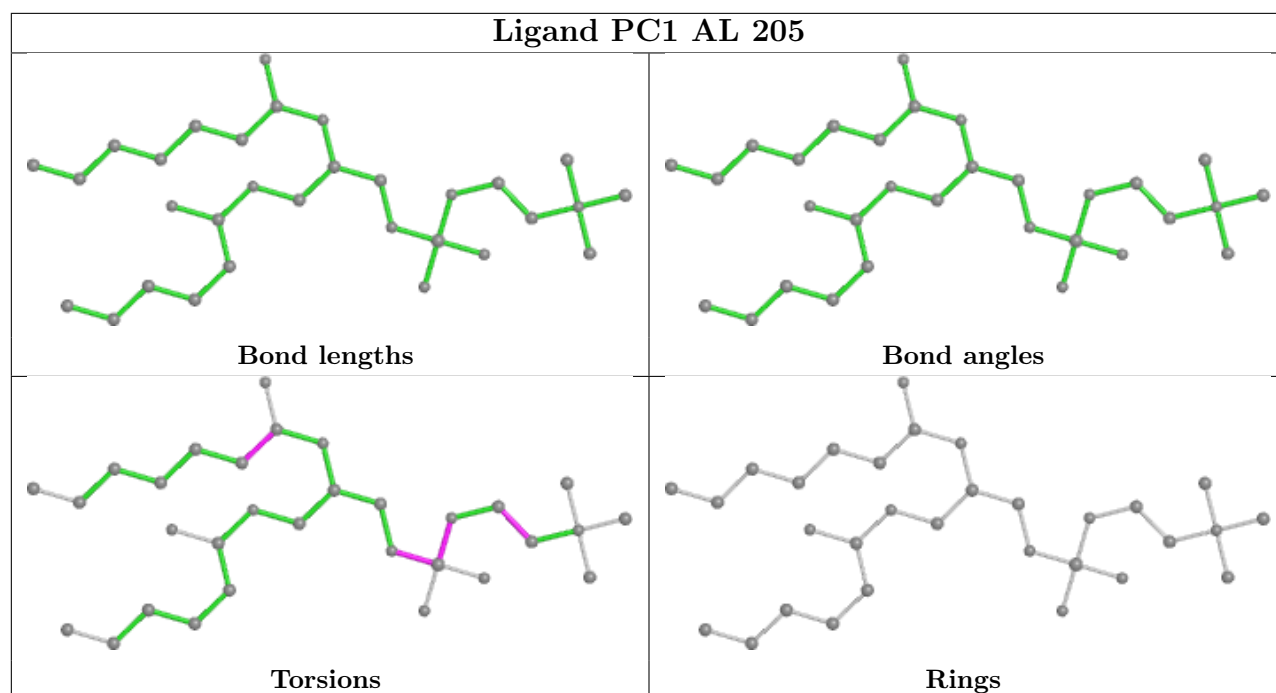
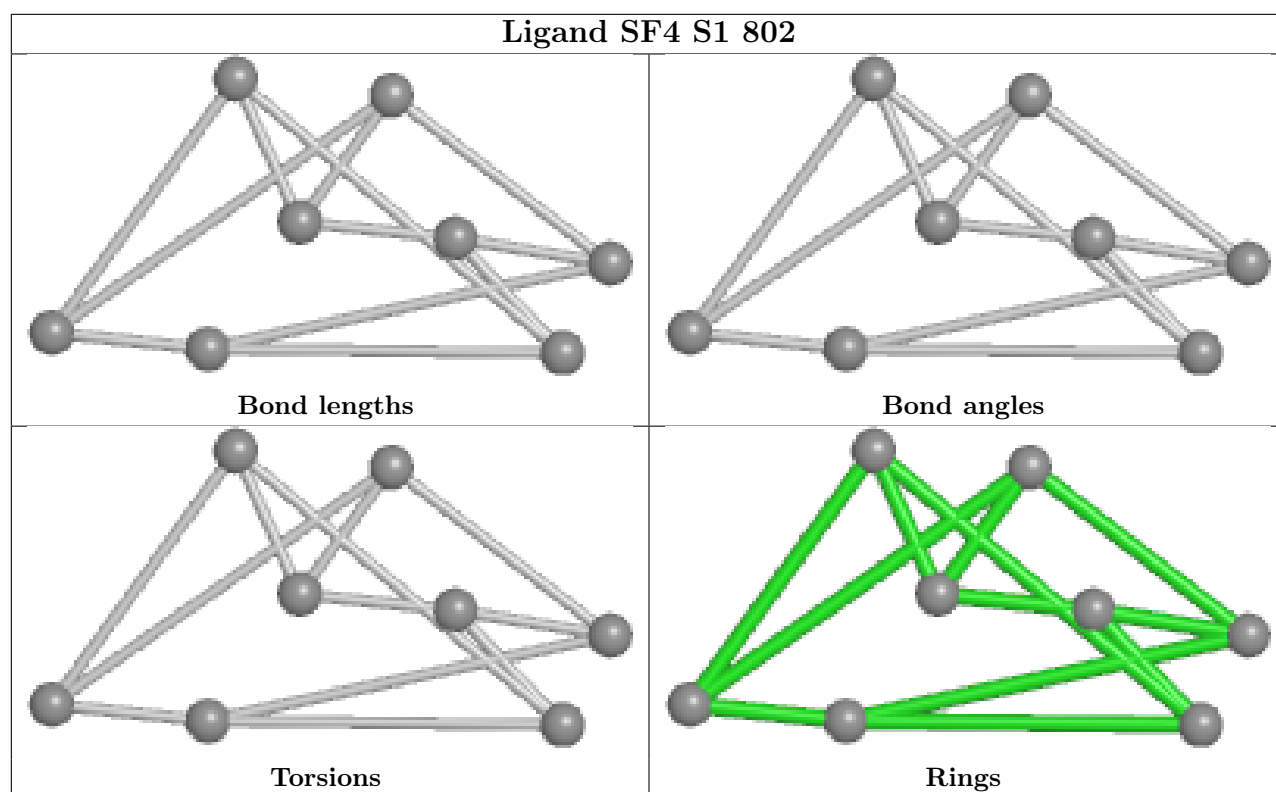


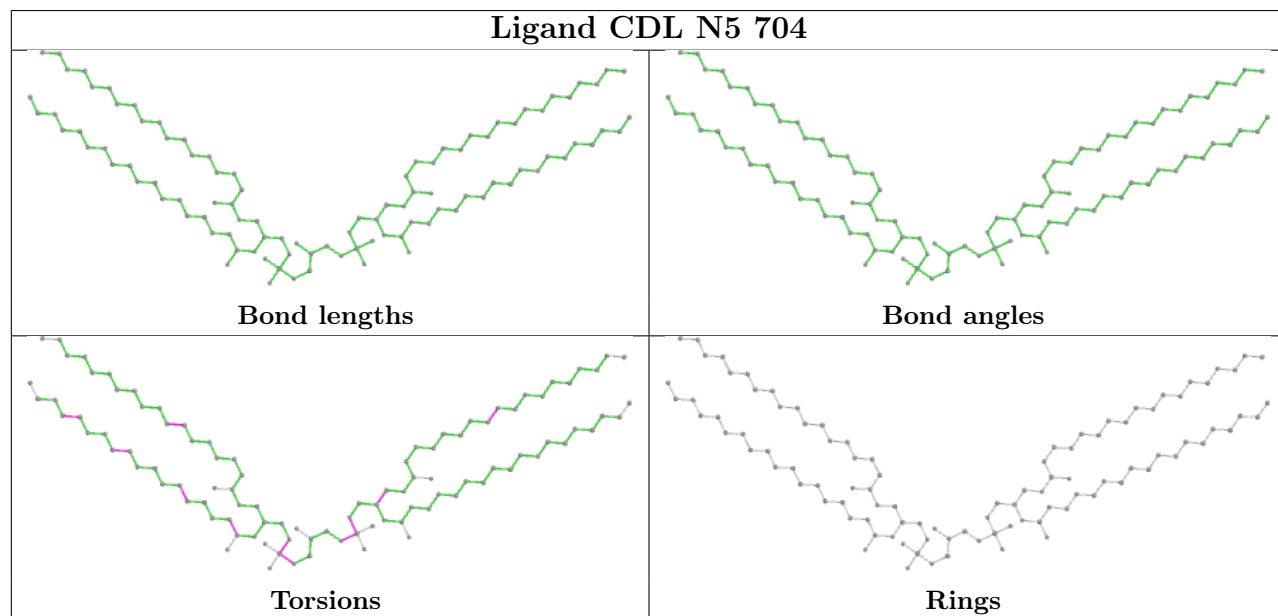
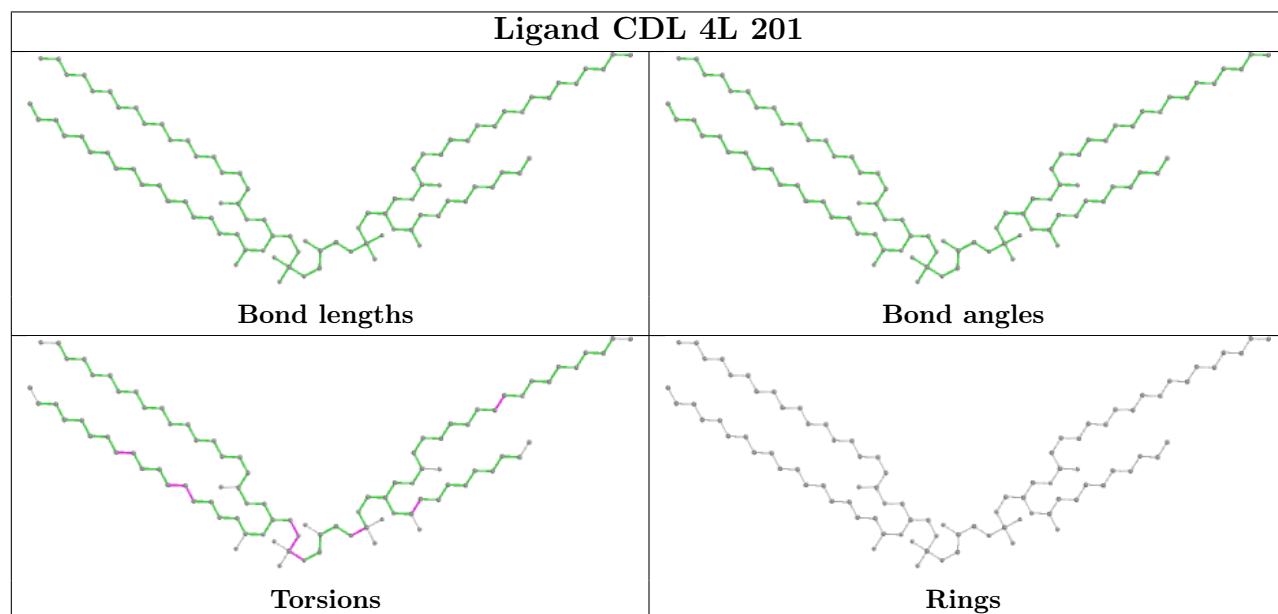
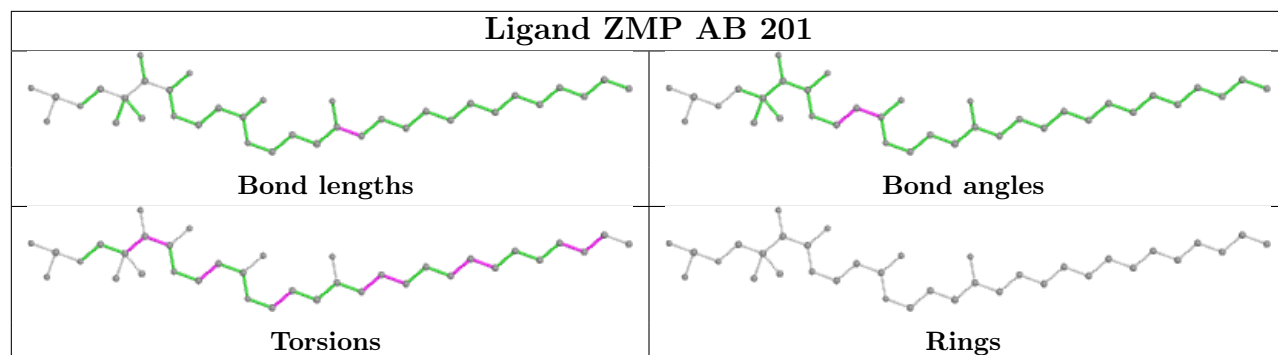


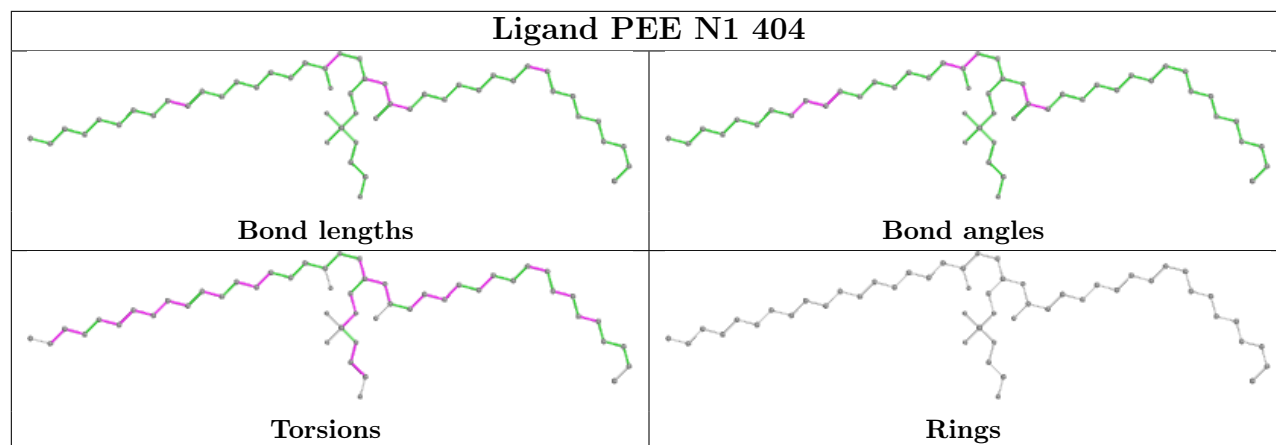












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

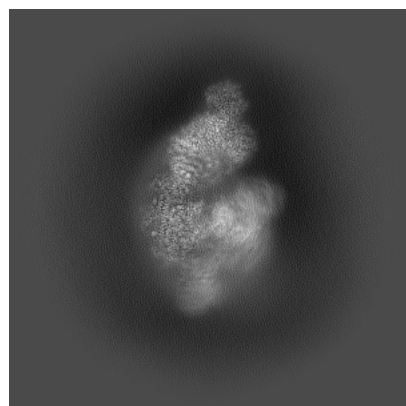
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-60425. These allow visual inspection of the internal detail of the map and identification of artifacts.

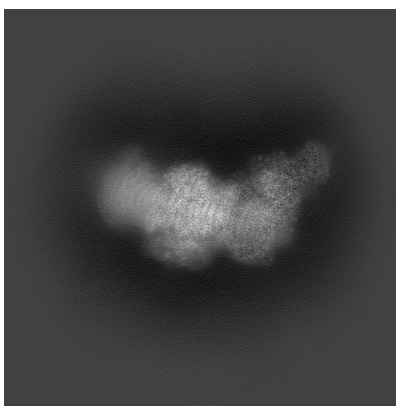
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

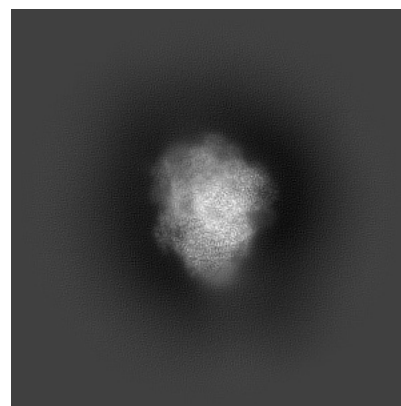
6.1.1 Primary map



X

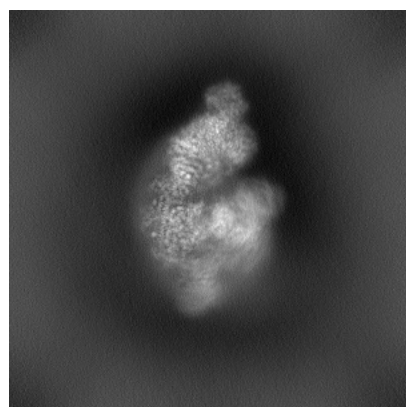


Y

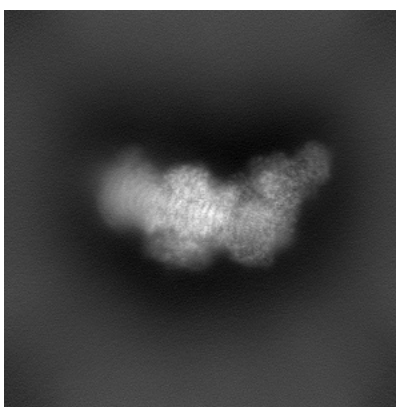


Z

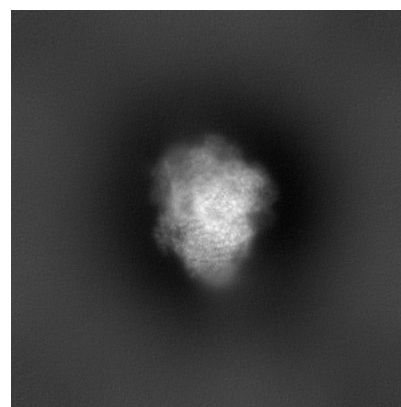
6.1.2 Raw map



X



Y

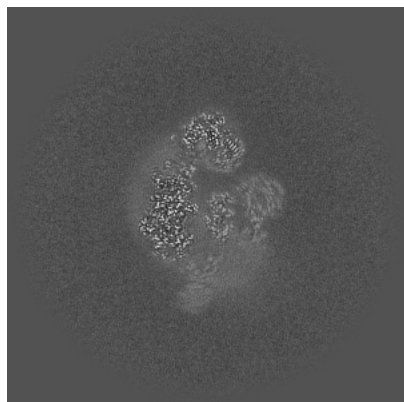


Z

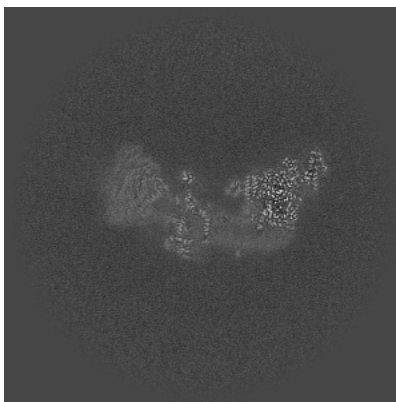
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

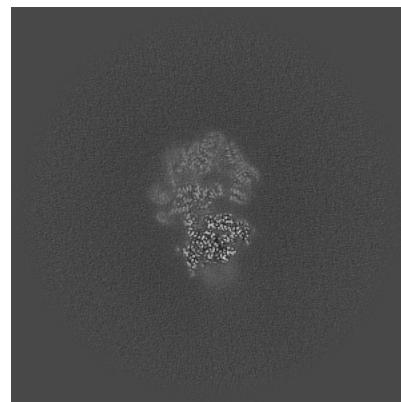
6.2.1 Primary map



X Index: 240

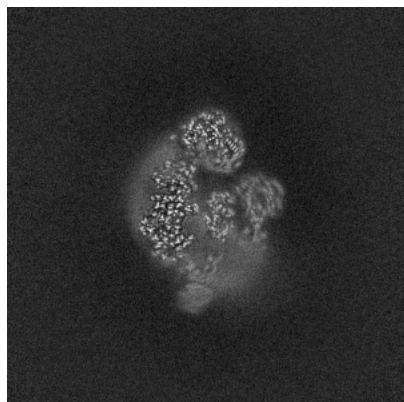


Y Index: 240



Z Index: 240

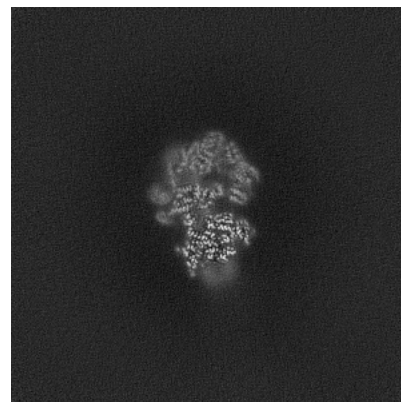
6.2.2 Raw map



X Index: 240



Y Index: 240

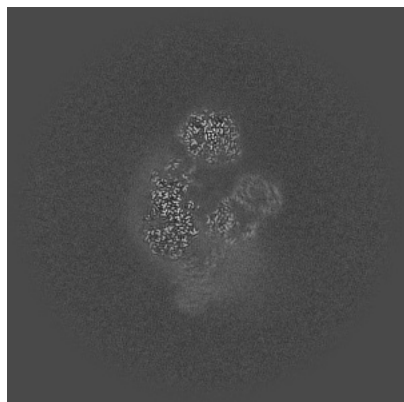


Z Index: 240

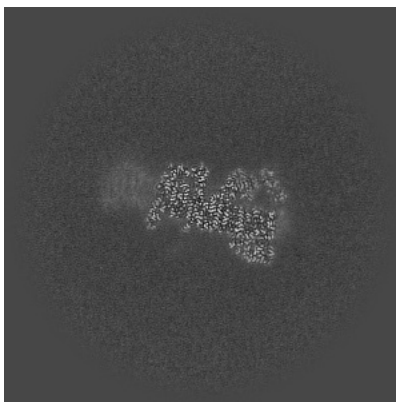
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

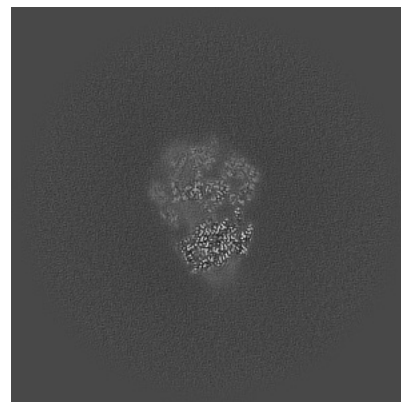
6.3.1 Primary map



X Index: 247

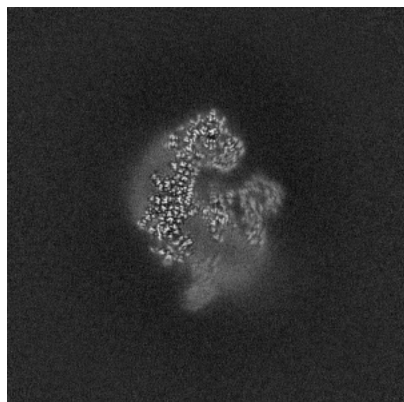


Y Index: 207

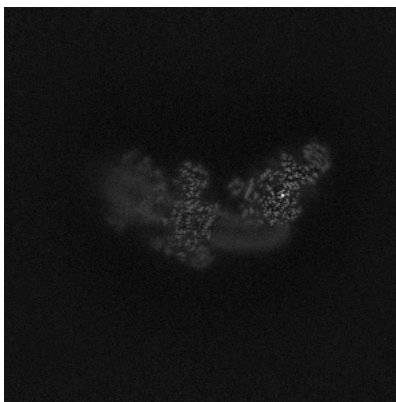


Z Index: 230

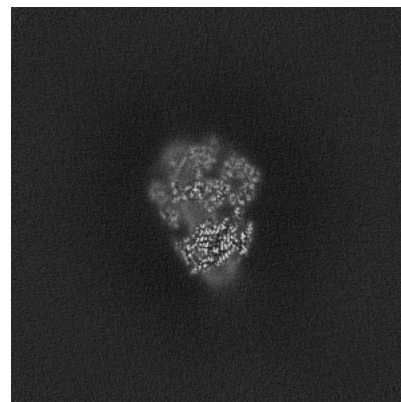
6.3.2 Raw map



X Index: 235



Y Index: 249

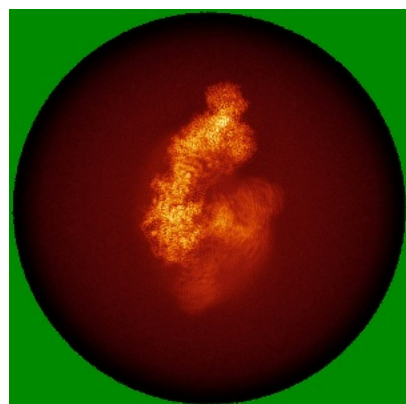


Z Index: 230

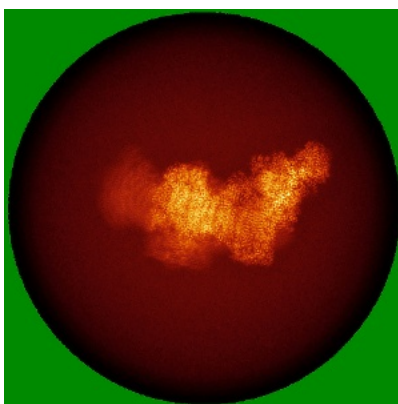
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

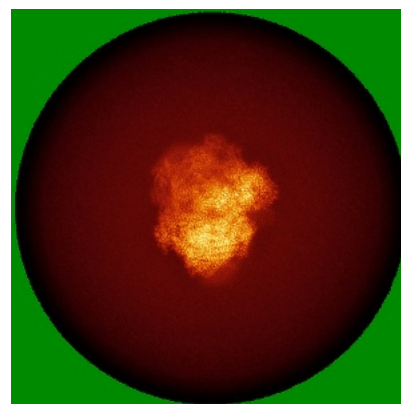
6.4.1 Primary map



X

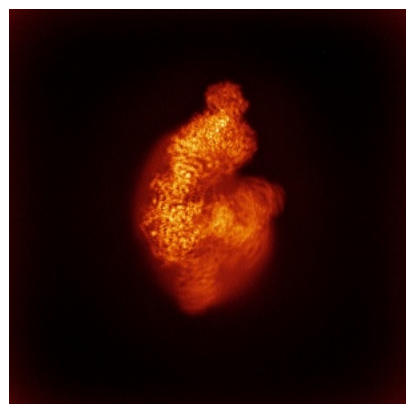


Y

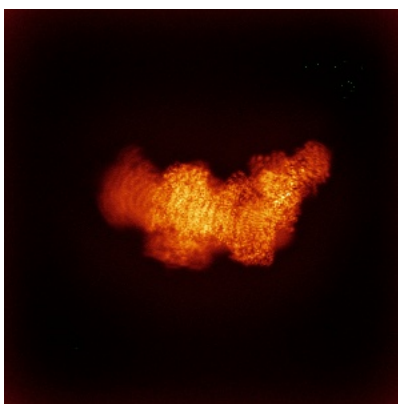


Z

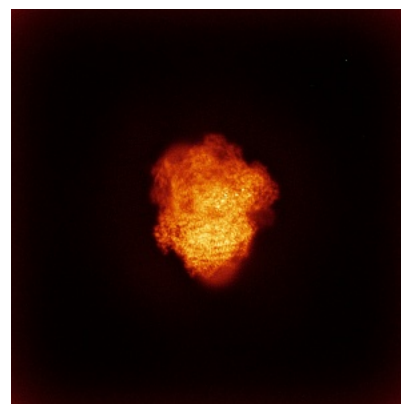
6.4.2 Raw map



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



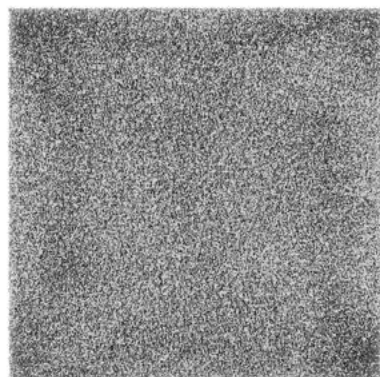
Y



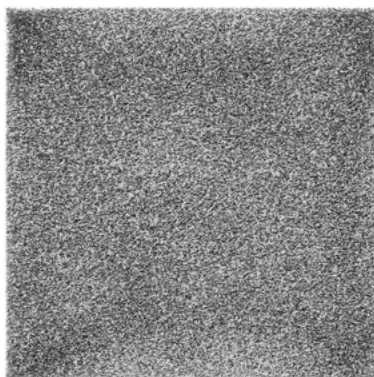
Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

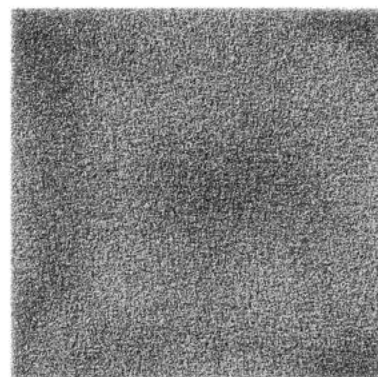
6.5.2 Raw map



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 shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

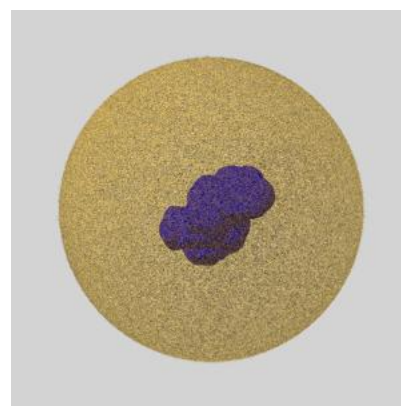
6.6.1 emd_60425_msk_1.map [i](#)



X



Y

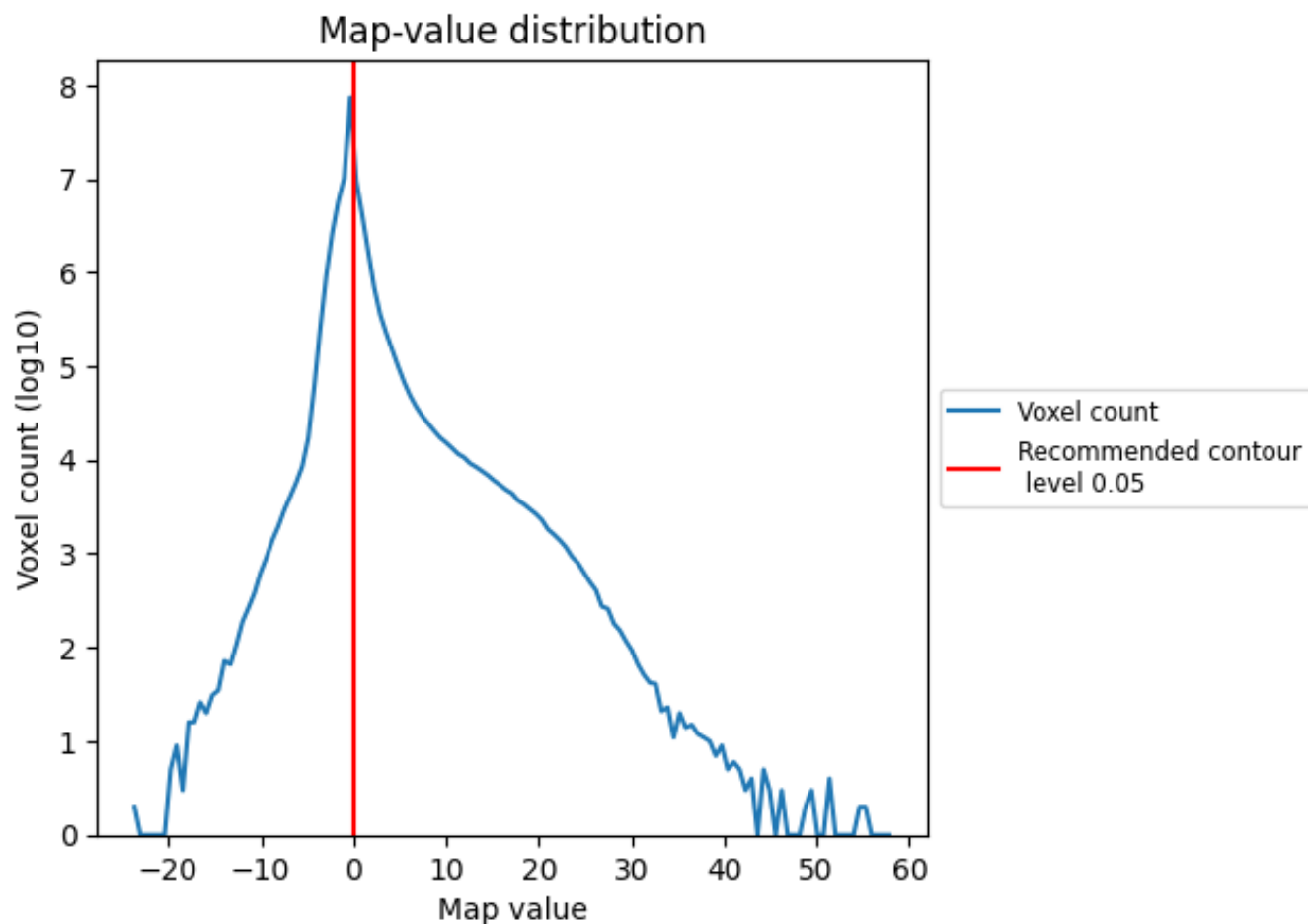


Z

7 Map analysis [i](#)

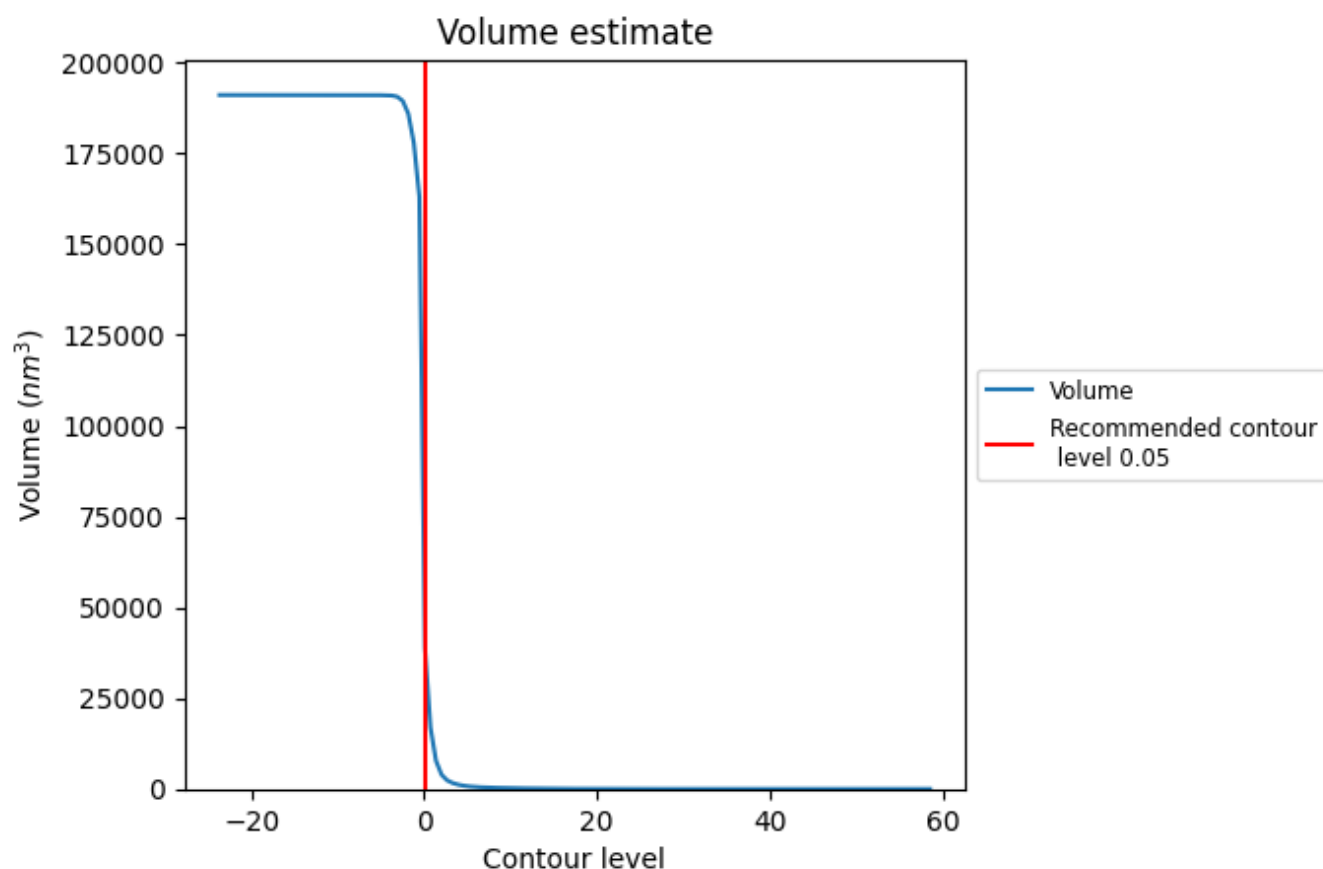
This section contains the results of statistical analysis of the map.

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.

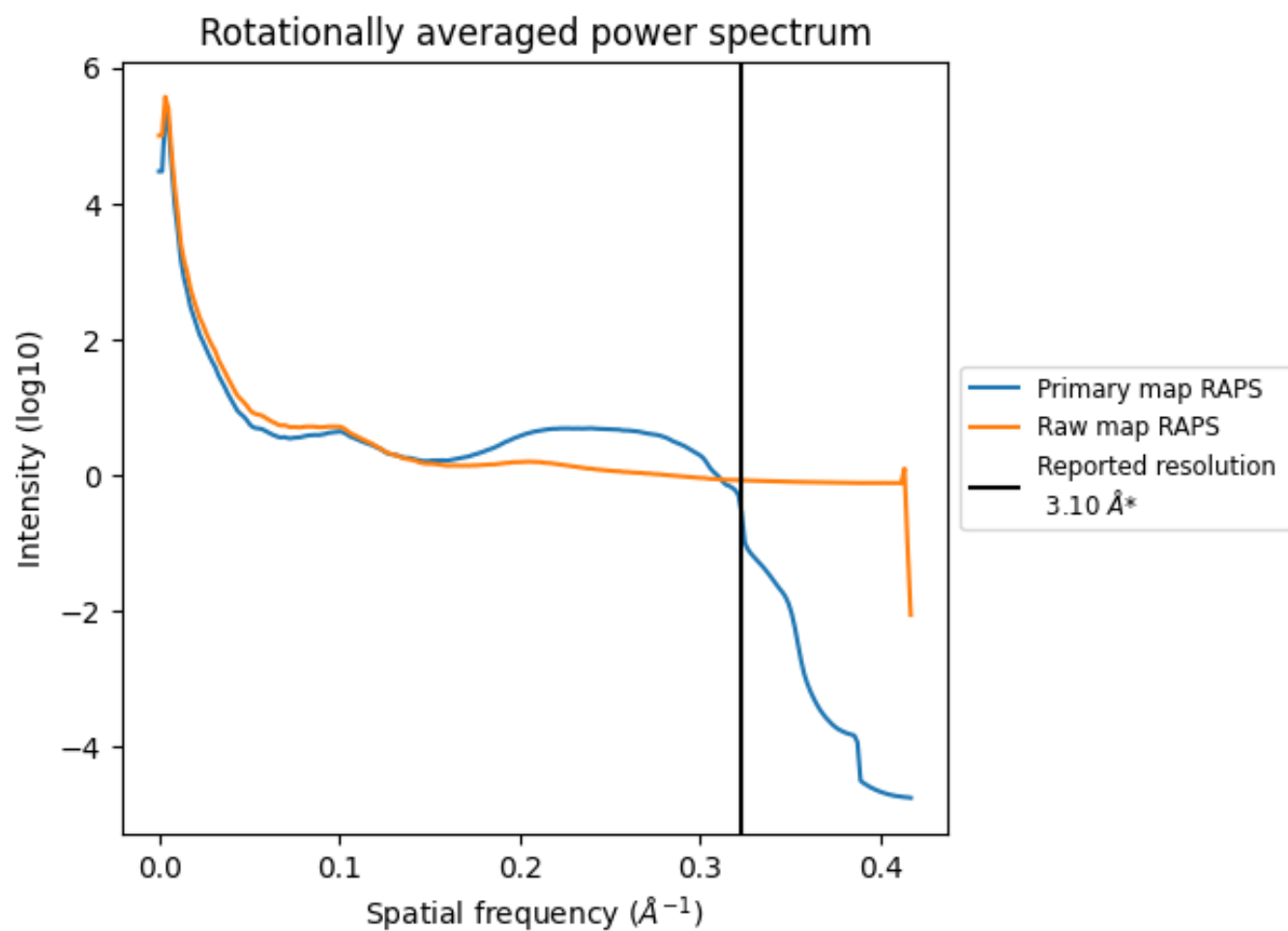
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 46179 nm^3 ; this corresponds to an approximate mass of 41715 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 ⓘ

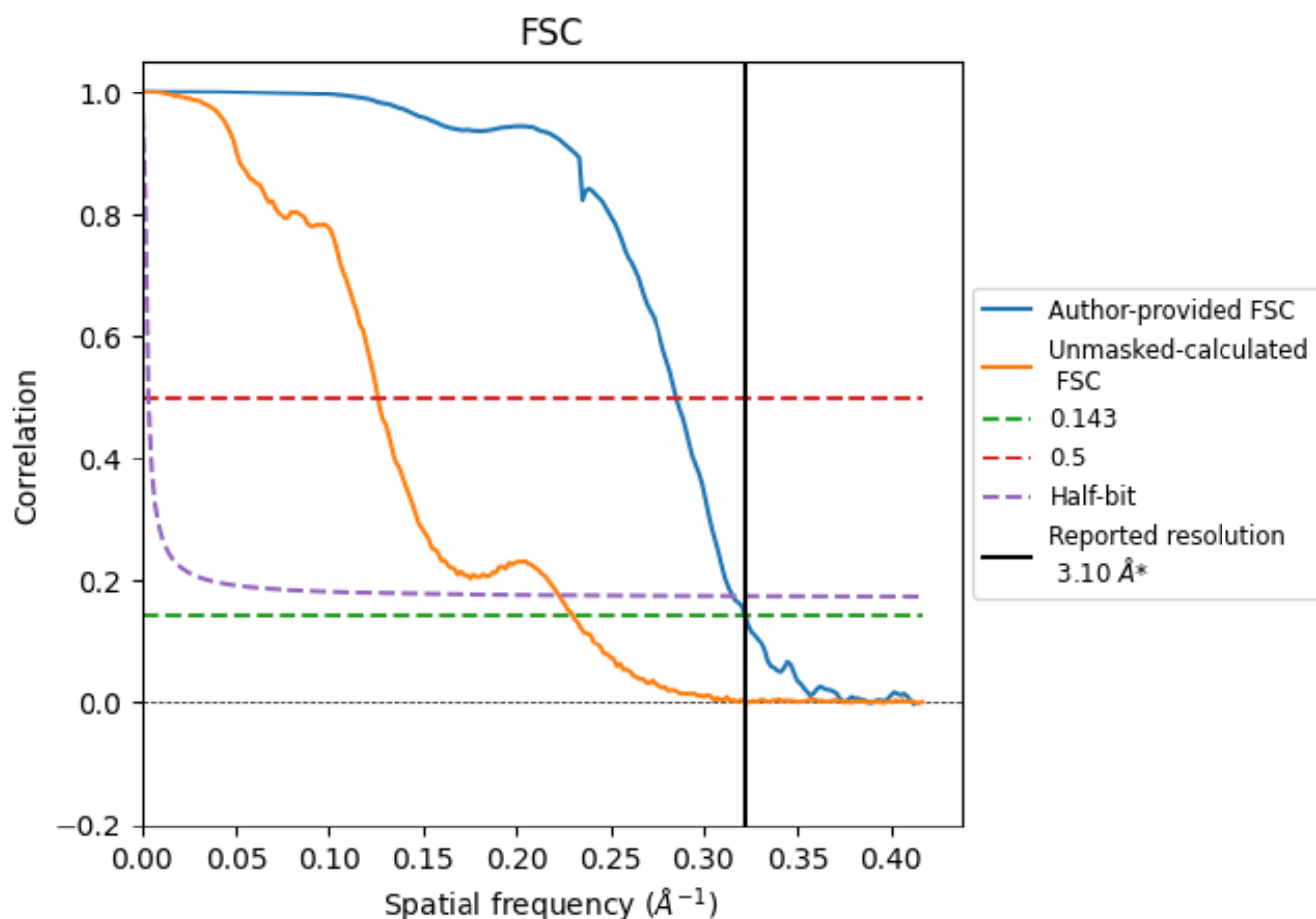


*Reported resolution corresponds to spatial frequency of 0.323 \AA^{-1}

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 0.323 \AA^{-1}

8.2 Resolution estimates [i](#)

| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---------------------------|------------------------------------|------|----------|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.10 | - | - |
| Author-provided FSC curve | 3.10 | 3.50 | 3.17 |
| Unmasked-calculated* | 4.35 | 7.94 | 4.49 |

*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 4.35 differs from the reported value 3.1 by more than 10 %

9 Map-model fit [i](#)

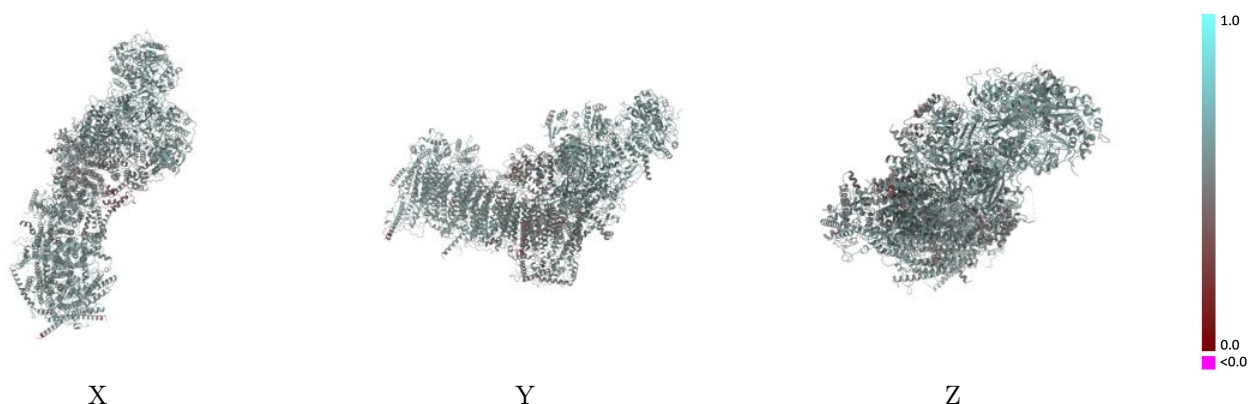
This section contains information regarding the fit between EMDB map EMD-60425 and PDB model 8ZSR. Per-residue inclusion information can be found in section [3](#) on page [21](#).

9.1 Map-model overlay [i](#)



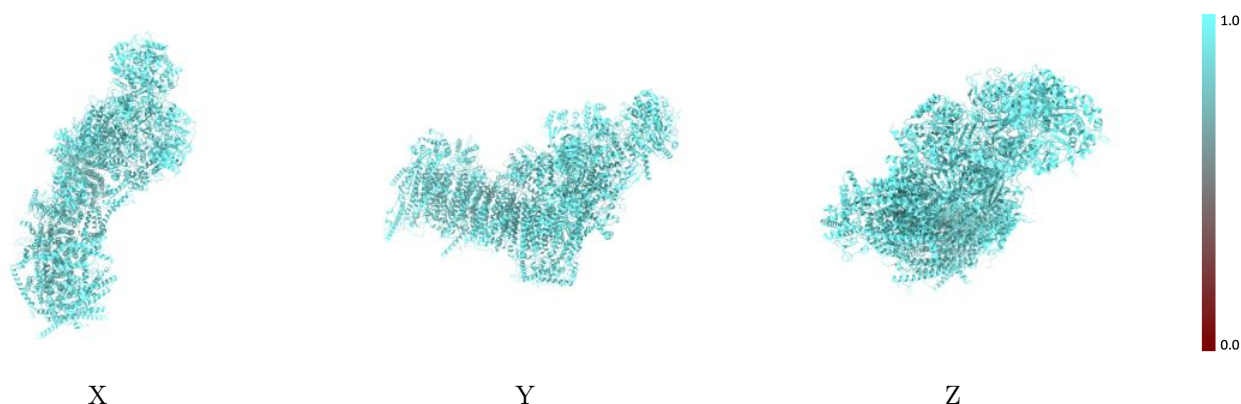
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



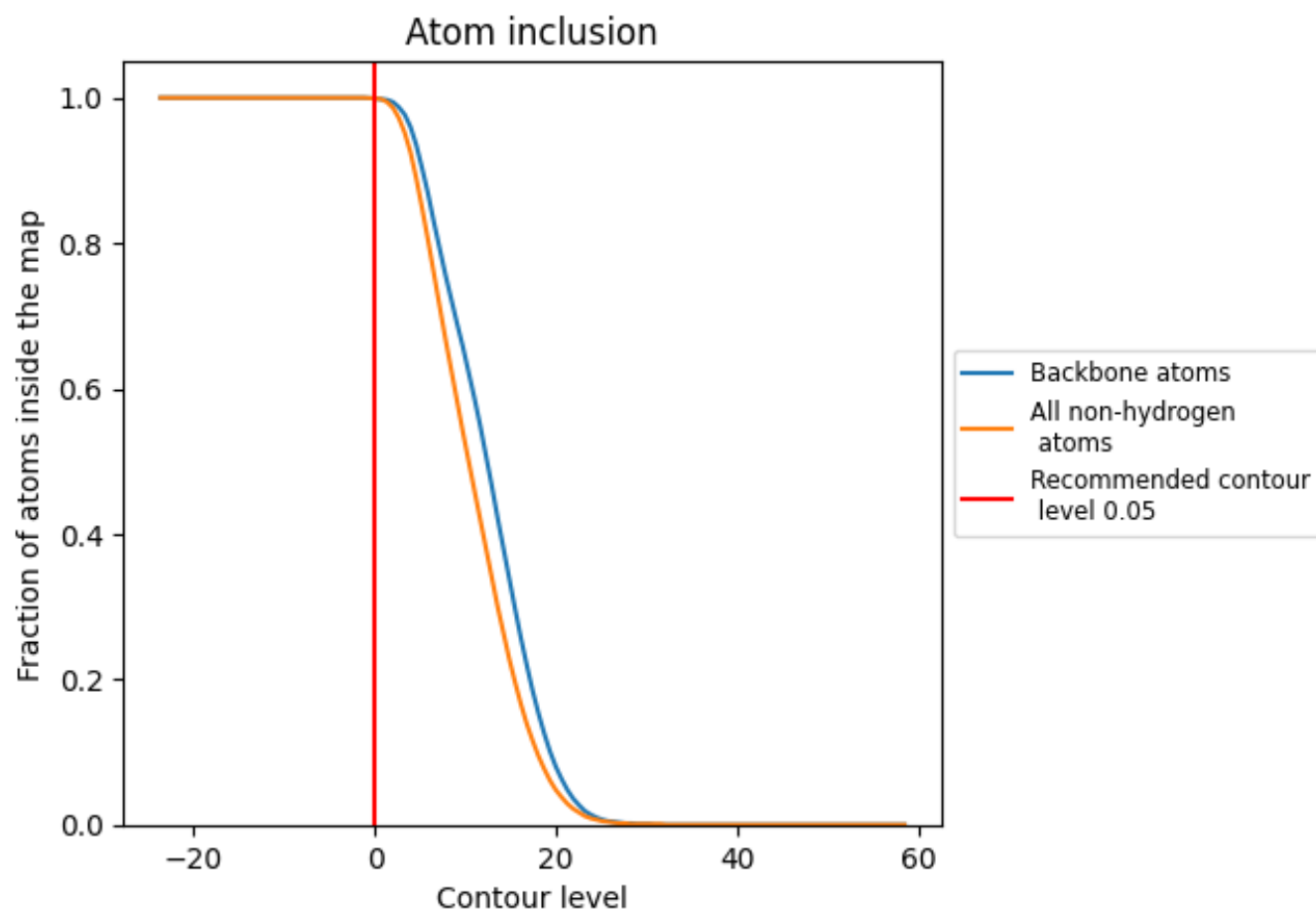
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.05).







































































9.4 Atom inclusion ⓘ



At the recommended contour level, 100% of all backbone atoms, 100% 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 (0.05) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|--|--|
| All |  0.9990 |  0.5500 |
| 4L |  0.9990 |  0.5330 |
| A1 |  1.0000 |  0.5390 |
| A2 |  0.9970 |  0.5430 |
| A3 |  1.0000 |  0.5220 |
| A5 |  1.0000 |  0.5030 |
| A6 |  1.0000 |  0.5200 |
| A7 |  1.0000 |  0.5290 |
| A8 |  0.9990 |  0.5370 |
| A9 |  1.0000 |  0.5060 |
| AB |  1.0000 |  0.3990 |
| AC |  1.0000 |  0.5670 |
| AK |  0.9970 |  0.5040 |
| AL |  1.0000 |  0.5380 |
| AM |  0.9990 |  0.5370 |
| AN |  1.0000 |  0.5280 |
| B1 |  1.0000 |  0.5330 |
| B2 |  1.0000 |  0.5560 |
| B3 |  1.0000 |  0.5340 |
| B4 |  1.0000 |  0.5590 |
| B5 |  0.9980 |  0.5710 |
| B6 |  0.9990 |  0.5370 |
| B7 |  1.0000 |  0.5400 |
| B8 |  0.9990 |  0.5680 |
| B9 |  0.9990 |  0.5740 |
| BK |  1.0000 |  0.5500 |
| BL |  0.9990 |  0.5570 |
| CA |  0.9980 |  0.5290 |
| CB |  1.0000 |  0.5710 |
| N1 |  0.9990 |  0.5400 |
| N2 |  1.0000 |  0.5650 |
| N3 |  1.0000 |  0.5210 |
| N4 |  0.9980 |  0.5760 |
| N5 |  1.0000 |  0.5730 |
| N6 |  1.0000 |  0.4680 |



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| Chain | Atom inclusion | Q-score |
|-------|--|--|
| S1 |  0.9990 |  0.5810 |
| S2 |  0.9990 |  0.5610 |
| S3 |  1.0000 |  0.5730 |
| S4 |  1.0000 |  0.5590 |
| S5 |  1.0000 |  0.5230 |
| S6 |  0.9990 |  0.5540 |
| S7 |  1.0000 |  0.5580 |
| S8 |  0.9990 |  0.5660 |
| V1 |  0.9970 |  0.5730 |
| V2 |  0.9990 |  0.5670 |
| V3 |  1.0000 |  0.5720 |