WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Oct 3, 2023 – 12:32 AM EDT

PDB ID : 6TZL

Title : The structure of the Streptococcus gordonii surface protein SspB in complex with TEV peptide provides clues to the adherence of oral streptococcal adherence to salivary agglutinin

Authors : Schormann, N.; Deivanayagam, C.

Deposited on : 2019-08-12

Resolution : 1.60 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.60 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 14201 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Surface protein adhesin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	388	Total	C	N	O	S	0	4	0
			3023	1900	501	614	8			
1	B	384	Total	C	N	O	S	0	6	0
			3007	1888	498	613	8			
1	C	404	Total	C	N	O	S	0	2	0
			3135	1973	521	633	8			
1	D	399	Total	C	N	O	S	0	2	0
			3092	1948	511	625	8			

There are 88 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	433	MET	-	expression tag	UNP C9E3B4
A	434	ALA	-	expression tag	UNP C9E3B4
A	435	SER	-	expression tag	UNP C9E3B4
A	436	MET	-	expression tag	UNP C9E3B4
A	437	THR	-	expression tag	UNP C9E3B4
A	438	GLY	-	expression tag	UNP C9E3B4
A	439	GLY	-	expression tag	UNP C9E3B4
A	440	GLN	-	expression tag	UNP C9E3B4
A	441	GLN	-	expression tag	UNP C9E3B4
A	442	MET	-	expression tag	UNP C9E3B4
A	443	GLY	-	expression tag	UNP C9E3B4
A	444	ARG	-	expression tag	UNP C9E3B4
A	445	ILE	-	expression tag	UNP C9E3B4
A	446	GLN	-	expression tag	UNP C9E3B4
A	850	LEU	-	expression tag	UNP C9E3B4
A	851	GLU	-	expression tag	UNP C9E3B4
A	852	HIS	-	expression tag	UNP C9E3B4
A	853	HIS	-	expression tag	UNP C9E3B4
A	854	HIS	-	expression tag	UNP C9E3B4
A	855	HIS	-	expression tag	UNP C9E3B4
A	856	HIS	-	expression tag	UNP C9E3B4

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Chain	Residue	Modelled	Actual	Comment	Reference
A	857	HIS	-	expression tag	UNP C9E3B4
B	433	MET	-	expression tag	UNP C9E3B4
B	434	ALA	-	expression tag	UNP C9E3B4
B	435	SER	-	expression tag	UNP C9E3B4
B	436	MET	-	expression tag	UNP C9E3B4
B	437	THR	-	expression tag	UNP C9E3B4
B	438	GLY	-	expression tag	UNP C9E3B4
B	439	GLY	-	expression tag	UNP C9E3B4
B	440	GLN	-	expression tag	UNP C9E3B4
B	441	GLN	-	expression tag	UNP C9E3B4
B	442	MET	-	expression tag	UNP C9E3B4
B	443	GLY	-	expression tag	UNP C9E3B4
B	444	ARG	-	expression tag	UNP C9E3B4
B	445	ILE	-	expression tag	UNP C9E3B4
B	446	GLN	-	expression tag	UNP C9E3B4
B	850	LEU	-	expression tag	UNP C9E3B4
B	851	GLU	-	expression tag	UNP C9E3B4
B	852	HIS	-	expression tag	UNP C9E3B4
B	853	HIS	-	expression tag	UNP C9E3B4
B	854	HIS	-	expression tag	UNP C9E3B4
B	855	HIS	-	expression tag	UNP C9E3B4
B	856	HIS	-	expression tag	UNP C9E3B4
B	857	HIS	-	expression tag	UNP C9E3B4
C	433	MET	-	expression tag	UNP C9E3B4
C	434	ALA	-	expression tag	UNP C9E3B4
C	435	SER	-	expression tag	UNP C9E3B4
C	436	MET	-	expression tag	UNP C9E3B4
C	437	THR	-	expression tag	UNP C9E3B4
C	438	GLY	-	expression tag	UNP C9E3B4
C	439	GLY	-	expression tag	UNP C9E3B4
C	440	GLN	-	expression tag	UNP C9E3B4
C	441	GLN	-	expression tag	UNP C9E3B4
C	442	MET	-	expression tag	UNP C9E3B4
C	443	GLY	-	expression tag	UNP C9E3B4
C	444	ARG	-	expression tag	UNP C9E3B4
C	445	ILE	-	expression tag	UNP C9E3B4
C	446	GLN	-	expression tag	UNP C9E3B4
C	850	LEU	-	expression tag	UNP C9E3B4
C	851	GLU	-	expression tag	UNP C9E3B4
C	852	HIS	-	expression tag	UNP C9E3B4
C	853	HIS	-	expression tag	UNP C9E3B4
C	854	HIS	-	expression tag	UNP C9E3B4

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Chain	Residue	Modelled	Actual	Comment	Reference
C	855	HIS	-	expression tag	UNP C9E3B4
C	856	HIS	-	expression tag	UNP C9E3B4
C	857	HIS	-	expression tag	UNP C9E3B4
D	433	MET	-	expression tag	UNP C9E3B4
D	434	ALA	-	expression tag	UNP C9E3B4
D	435	SER	-	expression tag	UNP C9E3B4
D	436	MET	-	expression tag	UNP C9E3B4
D	437	THR	-	expression tag	UNP C9E3B4
D	438	GLY	-	expression tag	UNP C9E3B4
D	439	GLY	-	expression tag	UNP C9E3B4
D	440	GLN	-	expression tag	UNP C9E3B4
D	441	GLN	-	expression tag	UNP C9E3B4
D	442	MET	-	expression tag	UNP C9E3B4
D	443	GLY	-	expression tag	UNP C9E3B4
D	444	ARG	-	expression tag	UNP C9E3B4
D	445	ILE	-	expression tag	UNP C9E3B4
D	446	GLN	-	expression tag	UNP C9E3B4
D	850	LEU	-	expression tag	UNP C9E3B4
D	851	GLU	-	expression tag	UNP C9E3B4
D	852	HIS	-	expression tag	UNP C9E3B4
D	853	HIS	-	expression tag	UNP C9E3B4
D	854	HIS	-	expression tag	UNP C9E3B4
D	855	HIS	-	expression tag	UNP C9E3B4
D	856	HIS	-	expression tag	UNP C9E3B4
D	857	HIS	-	expression tag	UNP C9E3B4

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O_4S) (labeled as "Ligand of Interest" by depositor).

SO4

O1

O

O3 O⁻ — S — O⁻ O4

S

O

O2

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

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	499	Total 499	O 499	0	0
3	B	457	Total 457	O 457	0	0
3	C	510	Total 510	O 510	0	0
3	D	448	Total 448	O 448	0	0

MolProbity and EDS failed to run properly - this section is therefore empty.

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

3 Data and refinement statistics (i)

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	65.97Å 133.33Å 246.07Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.96 – 1.60	Depositor
% Data completeness (in resolution range)	99.8 (34.96-1.60)	Depositor
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	1.75 (at 1.60Å)	Xtriage
Refinement program	REFMAC 5.8.0253	Depositor
R, R_{free}	0.180 , 0.193	Depositor
Wilson B-factor (Å^2)	19.8	Xtriage
Anisotropy	0.226	Xtriage
L-test for twinning[2]	$<\lvert L \rvert> = 0.49$, $<L^2> = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	14201	wwPDB-VP
Average B, all atoms (Å^2)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.12% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $<\lvert L \rvert>$, $<L^2>$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

4 Model quality ⓘ

4.1 Standard geometry ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles ⓘ

4.3.1 Protein backbone ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA ⓘ

MolProbity failed to run properly - this section is therefore empty.

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

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

4.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

4.6 Ligand geometry ⓘ

6 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	SO4	B	901	-	4,4,4	0.38	0	6,6,6	0.05	0
2	SO4	A	1001	-	4,4,4	0.40	0	6,6,6	0.07	0
2	SO4	A	1002	-	4,4,4	0.38	0	6,6,6	0.04	0
2	SO4	D	902	-	4,4,4	0.38	0	6,6,6	0.05	0
2	SO4	D	901	-	4,4,4	0.39	0	6,6,6	0.05	0
2	SO4	D	903	-	4,4,4	0.38	0	6,6,6	0.05	0

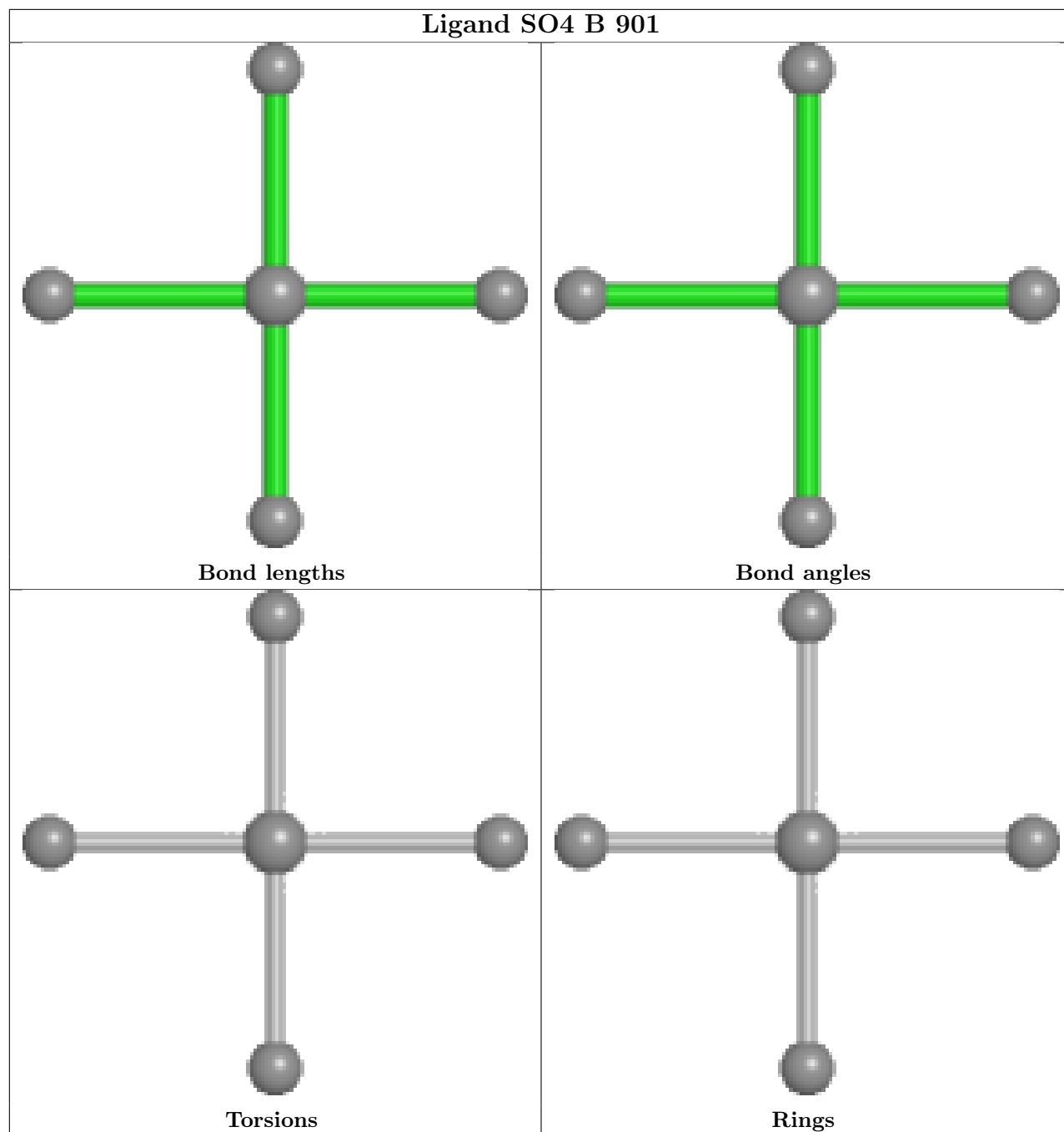There are no bond length outliers.

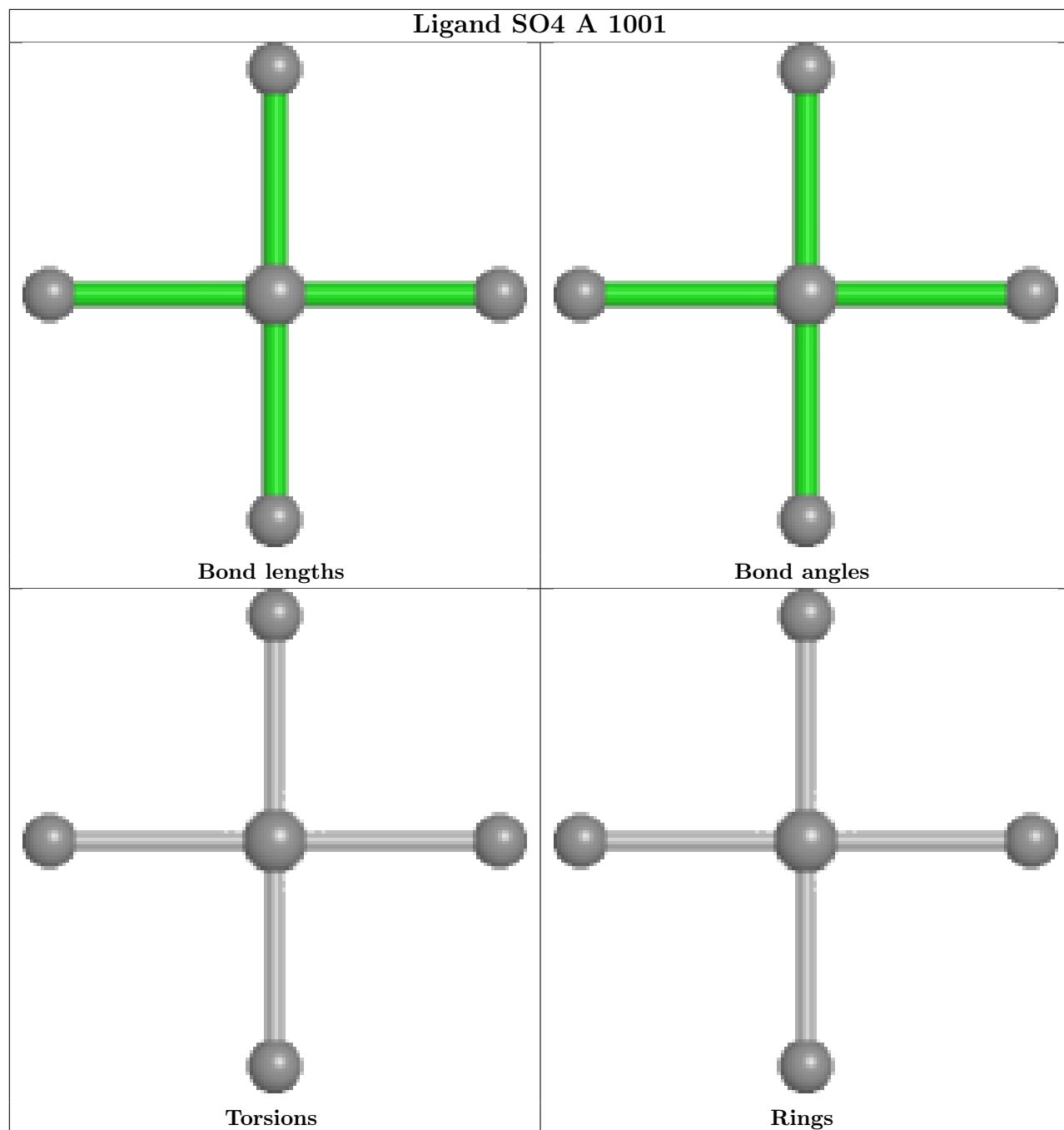There are no bond angle outliers.

There are no chirality outliers.
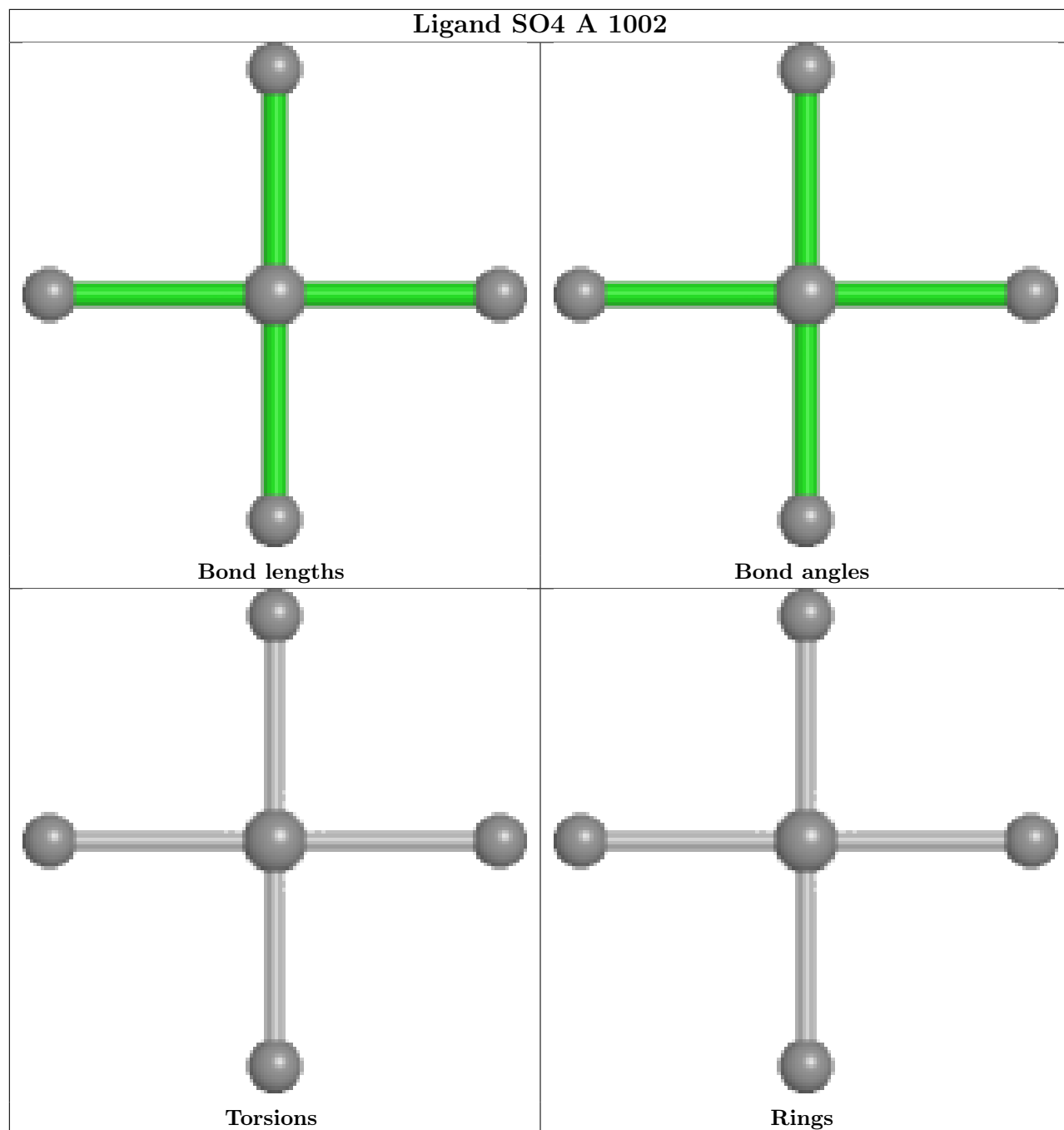
There are no torsion outliers.
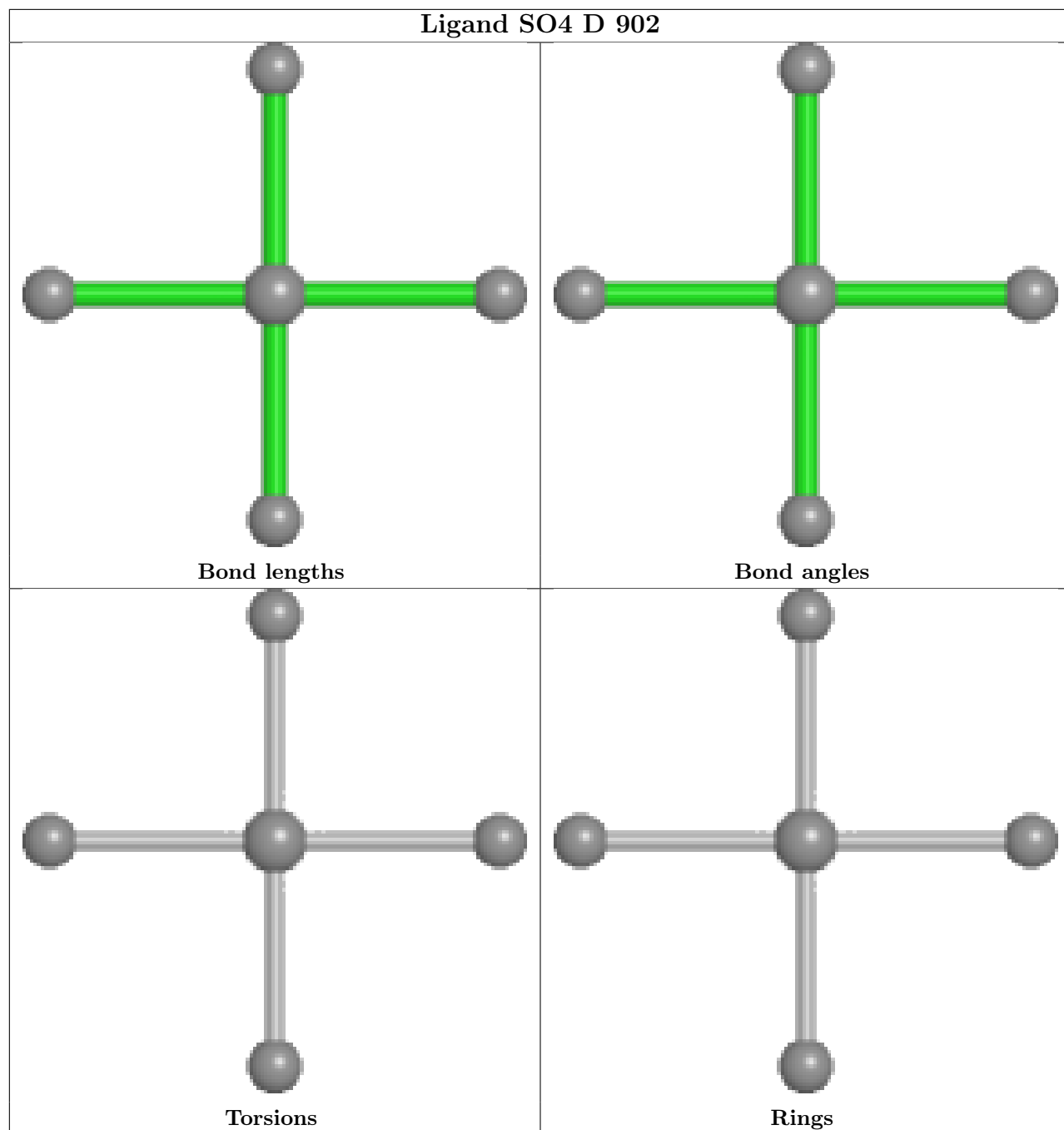
There are no ring outliers.
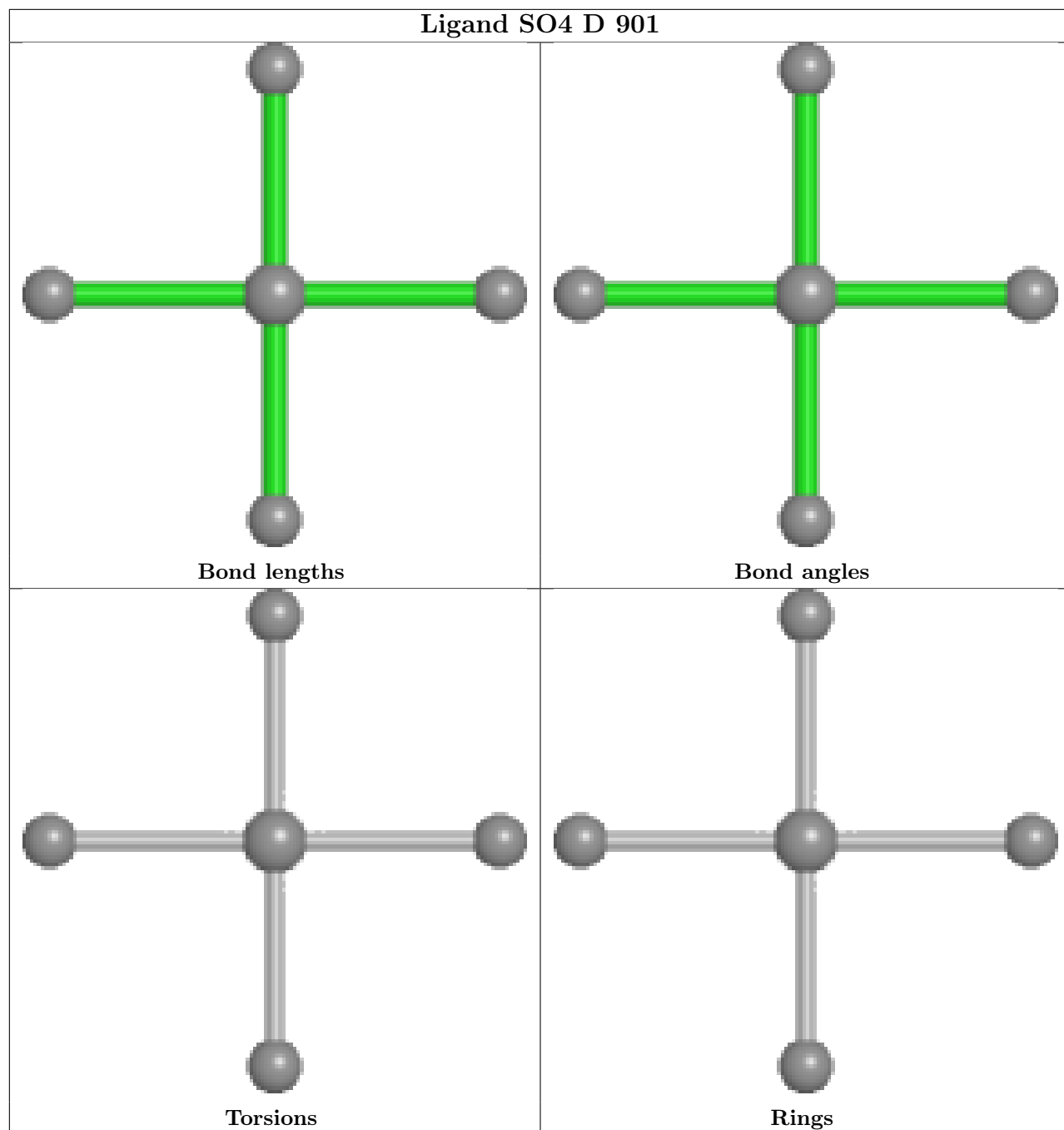
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.
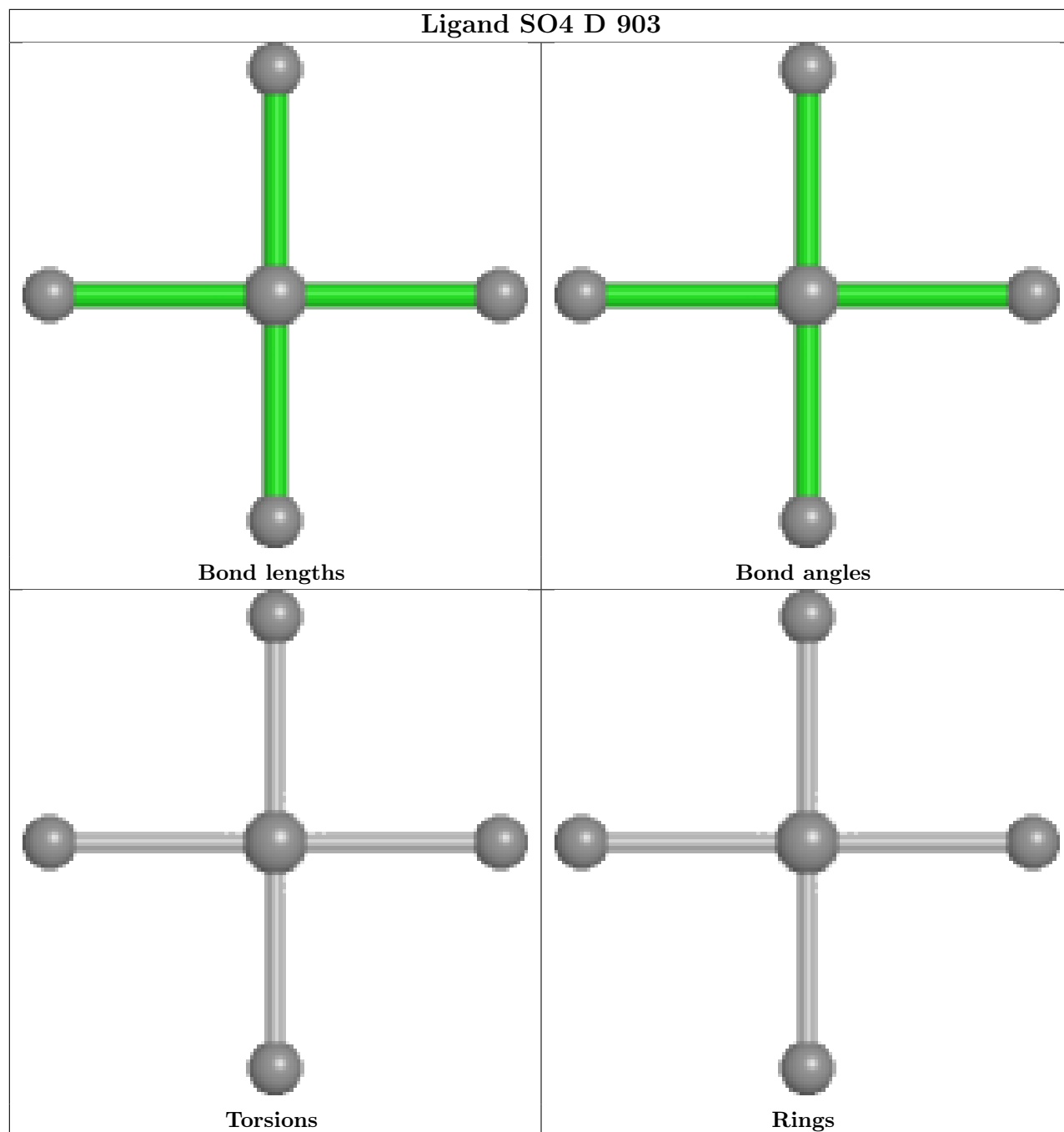
Ligand SO4 B 901

Bond lengths

Bond angles

Torsions

Rings

Ligand SO4 A 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand SO4 A 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand SO4 D 902

Bond lengths

Bond angles

Torsions

Rings

Ligand SO4 D 901

Bond lengths

Bond angles

Torsions

Rings

Ligand SO4 D 903

Bond lengths

Bond angles

Torsions

Rings

4.7 Other polymers ⓘ

There are no such residues in this entry.

4.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

5 Fit of model and data ⓘ

5.1 Protein, DNA and RNA chains ⓘ

EDS failed to run properly - this section is therefore empty.

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

EDS failed to run properly - this section is therefore empty.

5.3 Carbohydrates ⓘ

EDS failed to run properly - this section is therefore empty.

5.4 Ligands ⓘ

EDS failed to run properly - this section is therefore empty.

5.5 Other polymers ⓘ

EDS failed to run properly - this section is therefore empty.