Full wwPDB Geometry-Only Validation Report

May 14, 2020 – 07:49 am BST

PDB ID	:	1ZVO
Title	:	Semi-extended solution structure of human myeloma immunoglobulin D determined by constrained X-ray scattering
Authors	:	Sun, Z.; Almogren, A.; Furtado, P.B.; Chowdhury, B.; Kerr, M.A.; Perkins, S.J.
Deposited on	:	2005-06-02
Resolution	:	Not provided

This is a Full wwPDB Geometry-Only 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 following versions of software and data (see references (1)) were used in the production of this report:

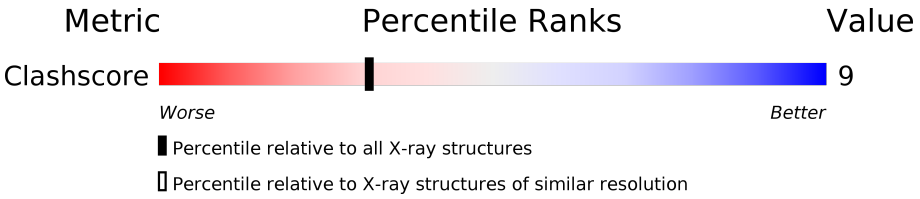
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
SOLUTION SCATTERING

The reported resolution of this entry is unknown.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	-

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	214	100%
1	B	214	100%
2	C	512	98% .
2	D	512	98% .

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 1452 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 myeloma immunoglobulin D lambda.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
1	A	214	Total C 214 214	0	0	214
1	B	214	Total C 214 214	0	0	214

- Molecule 2 is a protein called Immunoglobulin delta heavy chain.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	C	512	Total C 512 512	0	0	512
2	D	512	Total C 512 512	0	0	512

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

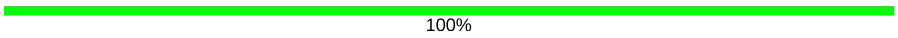
Note EDS was not executed.

- Molecule 1: myeloma immunoglobulin D lambda

Chain A:

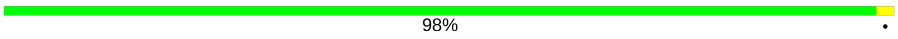
- Molecule 1: myeloma immunoglobulin D lambda

Chain B:



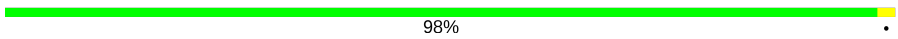
- Molecule 2: Immunoglobulin delta heavy chain

Chain C:



- Molecule 2: Immunoglobulin delta heavy chain

Chain D:



4 Model quality

4.1 Standard geometry

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).

There are no protein, RNA or DNA chains available to summarize Z scores of covalent bonds and angles.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

4.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	214	0	0	1	0
1	B	214	0	0	1	0
2	C	512	0	0	12	0
2	D	512	0	0	12	0
All	All	1452	0	0	13	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 9.

All (13) 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)
2:C:293:HIS:CA	2:D:287:THR:CA	2.30	1.10
2:C:278:GLU:CA	2:D:384:SER:CA	2.30	1.10
2:C:326:LEU:CA	2:D:275:LYS:CA	2.47	0.92
2:C:278:GLU:CA	2:D:383:PRO:CA	2.60	0.80
2:C:323:GLY:CA	2:D:280:GLN:CA	2.59	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:295:GLN:CA	2:D:281:GLU:CA	2.66	0.73
1:B:214:SER:CA	2:C:232:SER:CA	2.69	0.71
2:C:355:GLY:CA	2:D:278:GLU:CA	2.68	0.71
1:A:214:SER:CA	2:D:232:SER:CA	2.69	0.70
2:C:326:LEU:CA	2:D:276:GLU:CA	2.77	0.61
2:C:280:GLN:CA	2:D:385:LEU:CA	2.82	0.57
2:C:292:SER:CA	2:D:287:THR:CA	2.85	0.55
2:C:276:GLU:CA	2:D:386:PRO:CA	2.86	0.53

There are no symmetry-related clashes.

4.3 Torsion angles

4.3.1 Protein backbone

There are no protein backbone outliers to report in this entry.

4.3.2 Protein sidechains

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

4.3.3 RNA

There are no RNA molecules in this entry.

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 carbohydrates in this entry.

4.6 Ligand geometry

There are no ligands in this entry.

4.7 Other polymers (i)

There are no such residues in this entry.

4.8 Polymer linkage issues (i)

There are no chain breaks in this entry.