



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 18, 2023 – 09:08 am GMT

PDB ID : 3ZNG
Title : Ankyrin repeat and SOCS-box protein 9 (ASB9) in complex with ElonginB and ElonginC
Authors : Thomas, J.; Van Molle, I.; Ciulli, A.
Deposited on : 2013-02-14
Resolution : 2.85 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 ⓘ 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:

MolProbity : 4.02b-467
Xtrriage (Phenix) : 1.13
EDS : **FAILED**
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) : 2.36

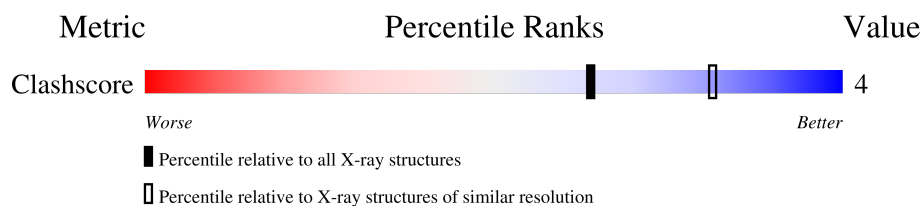
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	3438 (2.90-2.82)

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 6525 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 ANKYRIN REPEAT AND SOCS BOX PROTEIN 9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	258	1945	1226	353	353	13	0	1	0
1	D	259	1951	1228	356	354	13	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	34	MET	-	expression tag	UNP Q96DX5
A	295	ALA	-	expression tag	UNP Q96DX5
A	296	GLU	-	expression tag	UNP Q96DX5
A	297	ASN	-	expression tag	UNP Q96DX5
A	298	LEU	-	expression tag	UNP Q96DX5
A	299	TYR	-	expression tag	UNP Q96DX5
A	300	PHE	-	expression tag	UNP Q96DX5
A	301	GLN	-	expression tag	UNP Q96DX5
D	34	MET	-	expression tag	UNP Q96DX5
D	295	ALA	-	expression tag	UNP Q96DX5
D	296	GLU	-	expression tag	UNP Q96DX5
D	297	ASN	-	expression tag	UNP Q96DX5
D	298	LEU	-	expression tag	UNP Q96DX5
D	299	TYR	-	expression tag	UNP Q96DX5
D	300	PHE	-	expression tag	UNP Q96DX5
D	301	GLN	-	expression tag	UNP Q96DX5

- Molecule 2 is a protein called TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	84	641	416	102	118	5	0	0	0
2	E	84	658	431	101	121	5	0	1	0

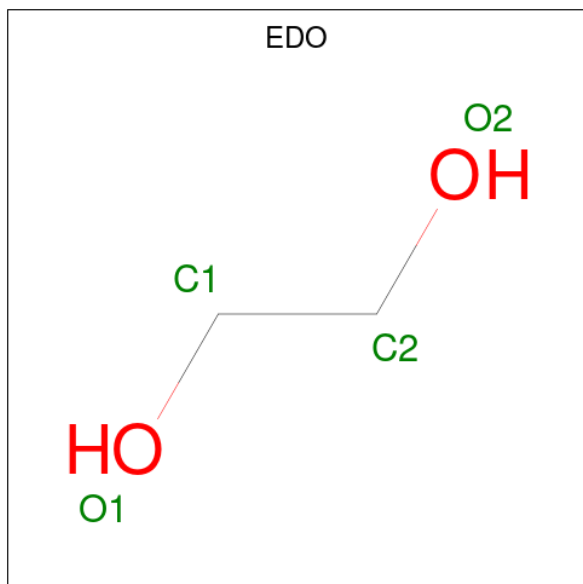
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	16	MET	-	expression tag	UNP Q15369
E	16	MET	-	expression tag	UNP Q15369

- Molecule 3 is a protein called TRANSCRIPTION ELONGATION FACTOR B POLYPEPTIDE 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	70	Total	C	N	O	S	0	0	0
			487	309	81	95	2			
3	F	105	Total	C	N	O	S	0	0	0
			804	512	134	154	4			

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			4	2	2		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	23	Total	O	0	0
			23	23		
5	B	1	Total	O	0	0
			1	1		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	5	Total O 5 5	0	0
5	D	4	Total O 4 4	0	0
5	E	2	Total O 2 2	0	0

SEQUENCE-PLOTS INFOmissingINFO

3 Data and refinement statistics i

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

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	114.11Å 103.13Å 109.90Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.64 – 2.85	Depositor
% Data completeness (in resolution range)	99.1 (50.64-2.85)	Depositor
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.62 (at 2.86Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.195 , 0.242	Depositor
Wilson B-factor (Å ²)	68.7	Xtrriage
Anisotropy	0.262	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.024 for l,-k,h	Xtrriage
Total number of atoms	6525	wwPDB-VP
Average B, all atoms (Å ²)	73.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.70% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

4 Model quality [i](#)

4.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: EDO

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.48	0/1993	0.62	0/2713
1	D	0.45	0/1995	0.58	0/2715
2	B	0.44	0/655	0.58	0/889
2	E	0.42	0/673	0.58	0/911
3	C	0.37	0/496	0.60	0/678
3	F	0.40	0/821	0.57	0/1115
All	All	0.44	0/6633	0.59	0/9021

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 [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1945	0	1902	10	0
1	D	1951	0	1922	17	0
2	B	641	0	601	4	0
2	E	658	0	632	13	0
3	C	487	0	424	4	0
3	F	804	0	784	10	0
4	A	4	0	6	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	23	0	0	0	0
5	B	1	0	0	1	0
5	C	5	0	0	0	0
5	D	4	0	0	0	0
5	E	2	0	0	0	0
All	All	6525	0	6271	53	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 4.

All (53) 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:E:18[A]:TYR:HB2	2:E:33:ARG:HB2	1.65	0.78
2:E:81:VAL:O	2:E:84:THR:HG22	1.94	0.68
3:C:8:ARG:HG2	3:C:13:THR:HG23	1.76	0.66
1:D:209:THR:HG22	1:D:211:SER:H	1.59	0.66
2:E:85:ASN:ND2	2:E:85:ASN:O	2.30	0.65
1:A:209:THR:HG22	1:A:211:SER:H	1.62	0.63
1:D:83:SER:O	1:D:87:ILE:HG13	2.04	0.57
3:F:24:VAL:HB	3:F:53:ASP:HA	1.86	0.56
3:F:23:THR:HA	3:F:56:THR:HA	1.88	0.56
2:E:86:SER:HB3	2:E:87:SER:HB3	1.88	0.55
1:D:148:GLU:H	1:D:148:GLU:CD	2.11	0.55
2:E:19:VAL:HG12	2:E:33:ARG:HA	1.92	0.52
3:F:63:THR:HG22	3:F:64:SER:H	1.74	0.51
2:E:85:ASN:O	2:E:85:ASN:CG	2.49	0.51
3:F:61:GLY:O	3:F:66:THR:HG21	2.10	0.51
1:D:265:ARG:NH2	2:E:97:PRO:HG3	2.26	0.49
1:D:286:ASP:OD1	1:D:287:LEU:N	2.45	0.49
1:A:166:HIS:CE1	1:A:167:LEU:HG	2.49	0.48
1:D:212:GLU:HG2	1:D:245:LEU:HD13	1.95	0.48
1:A:212:GLU:OE2	1:D:51:SER:OG	2.29	0.47
3:C:16:THR:OG1	3:C:17:ASP:N	2.48	0.47
3:F:79:PHE:O	3:F:86:GLU:HG2	2.15	0.47
1:D:180:ARG:HA	1:D:214:LEU:HD21	1.97	0.46
2:E:41:THR:O	2:E:45:MET:HG3	2.16	0.46
3:F:26:GLU:O	3:F:30:ILE:HG12	2.16	0.46
1:A:265:ARG:HD2	1:A:265:ARG:HA	1.78	0.45
2:E:25:ASP:O	3:F:11:LYS:NZ	2.45	0.45
1:A:180:ARG:HA	1:A:214:LEU:HD21	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:209:THR:HG22	1:D:211:SER:N	2.30	0.44
3:C:4:PHE:CE1	3:C:69:PRO:HG3	2.52	0.44
2:B:25:ASP:OD1	2:B:25:ASP:N	2.51	0.44
1:D:187:LEU:HD11	1:D:218:LEU:HD23	2.00	0.44
1:A:236:VAL:HA	1:A:249:PHE:HD2	1.83	0.44
1:D:38:SER:HB3	1:D:41:HIS:ND1	2.32	0.44
1:D:265:ARG:HA	1:D:265:ARG:HD2	1.81	0.44
2:E:84:THR:O	2:E:85:ASN:HB3	2.18	0.44
2:E:78:THR:HG22	3:F:69:PRO:HB3	2.00	0.43
2:E:80:LYS:O	2:E:84:THR:HB	2.19	0.43
1:A:236:VAL:O	1:A:239:VAL:HG13	2.19	0.43
1:A:265:ARG:NH2	2:B:97:PRO:HG3	2.33	0.43
1:D:219:MET:HE1	1:D:252:ARG:HG3	2.01	0.43
1:D:36:ASP:HB3	1:D:37:TRP:H	1.62	0.42
1:D:147:VAL:H	1:D:147:VAL:HG12	1.62	0.42
1:A:245:LEU:HD23	1:A:245:LEU:HA	1.86	0.42
3:C:99:LEU:HD12	3:C:100:PRO:HD2	2.01	0.42
1:D:283:LEU:O	1:D:288:LYS:HE3	2.20	0.42
2:B:41:THR:O	2:B:45:MET:HG3	2.20	0.41
1:D:139:HIS:CE1	1:D:164:ILE:HG13	2.56	0.41
2:E:62:PHE:CE1	2:E:110:LEU:HD21	2.55	0.41
1:A:184:LYS:O	1:A:188:GLU:HG3	2.20	0.41
2:B:18:TYR:N	5:B:2001:HOH:O	2.52	0.41
3:F:84:THR:OG1	3:F:85:PHE:N	2.53	0.40
3:F:38:PRO:HA	3:F:39:PRO:HD3	1.99	0.40

There are no symmetry-related clashes.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

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

4.3.2 Protein sidechains [i](#)

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

4.3.3 RNA [i](#)

There are no RNA molecules in this entry.

4.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

4.6 Ligand geometry [i](#)

1 ligand is modelled in this entry.

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.

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.

5 Fit of model and data [i](#)

5.1 Protein, DNA and RNA chains [i](#)

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

5.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.3 Carbohydrates [i](#)

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

5.4 Ligands [i](#)

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

5.5 Other polymers [i](#)

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