



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 08:28 AM UTC

PDB ID : 7POX / pdb_00007pox
Title : TNKS2 in complex with OM-1700, treated with H2O2
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Deposited on : 2021-09-10
Resolution : 2.50 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	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

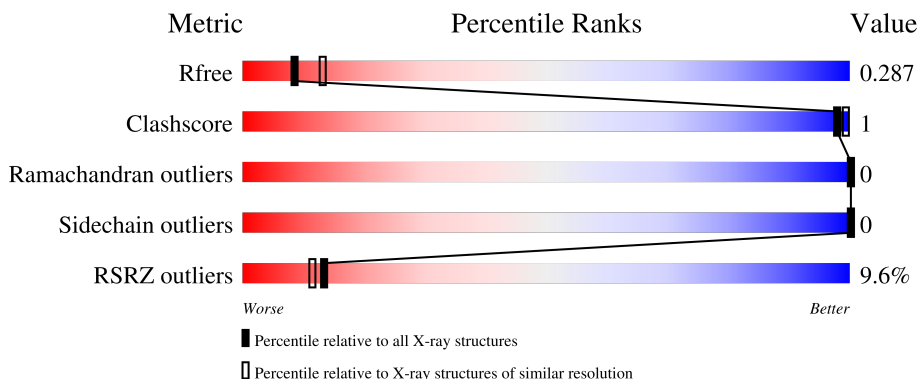
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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))
R_{free}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (2.50-2.50)

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 of 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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	AAA	219	9% 81% 18%
1	BBB	219	8% 87% 11%

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 3210 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 Poly [ADP-ribose] polymerase tankyrase-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	AAA	180	Total	C	N	O	S	0	0	0
			1483	942	265	267	9			
1	BBB	196	Total	C	N	O	S	0	5	0
			1627	1026	296	295	10			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AAA	944	SER	-	expression tag	UNP Q9H2K2
AAA	945	MET	-	expression tag	UNP Q9H2K2
BBB	944	SER	-	expression tag	UNP Q9H2K2
BBB	945	MET	-	expression tag	UNP Q9H2K2

- Molecule 2 is a ligand with the chemical component id N8K but its atom names do not match the existing wwPDB Chemical Component Dictionary definition for N8K. ERROR THIS SHOULD NOT HAPPEN FOLLOWING ANNOTATION.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	AAA	1	Total	C	F	N	O	0	0
			34	25	1	6	2		
2	BBB	1	Total	C	F	N	O	0	0
			34	25	1	6	2		

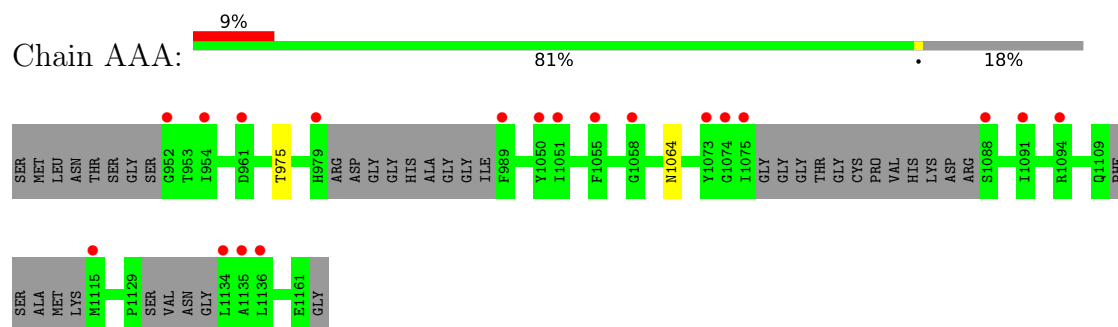
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	AAA	10	Total	O	0	0
			10	10		
3	BBB	22	Total	O	0	0
			22	22		

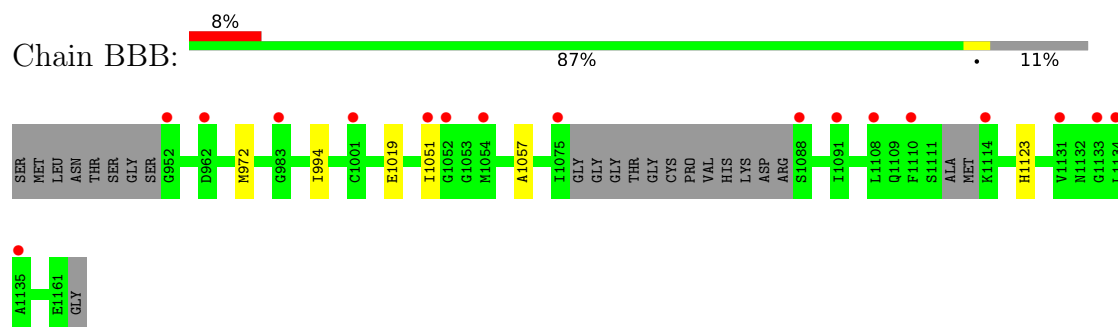
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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: Poly [ADP-ribose] polymerase tankyrase-2



- Molecule 1: Poly [ADP-ribose] polymerase tankyrase-2



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	41.64Å 76.44Å 147.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.44 – 2.50 41.44 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.3 (41.44-2.50) 99.3 (41.44-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.13 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.248 , 0.280 0.250 , 0.287	Depositor DCC
R_{free} test set	847 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	46.3	Xtriage
Anisotropy	0.904	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 23.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	3210	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.81% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: N8K

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	AAA	0.97	0/1519	1.30	0/2041
1	BBB	0.98	0/1673	1.30	0/2249
All	All	0.98	0/3192	1.30	0/4290

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	AAA	1483	0	1427	1	0
1	BBB	1627	0	1562	3	0
2	AAA	34	0	0	0	0
2	BBB	34	0	0	0	0
3	AAA	10	0	0	0	0
3	BBB	22	0	0	0	0
All	All	3210	0	2989	4	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 1.

All (4) close contacts within the same asymmetric unit are listed below, sorted by their clash

magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BBB:1051:ILE:HA	1:BBB:1057:ALA:HB2	1.91	0.51
1:AAA:975:THR:HB	1:AAA:1064:ASN:HA	1.95	0.48
1:BBB:1019:GLU:OE1	1:BBB:1123:HIS:HE1	2.04	0.41
1:BBB:972:MET:HG2	1:BBB:994:ILE:HD11	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	AAA	170/219 (78%)	166 (98%)	4 (2%)	0	100	100
1	BBB	195/219 (89%)	188 (96%)	7 (4%)	0	100	100
All	All	365/438 (83%)	354 (97%)	11 (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 X-ray entries followed by that with respect to entries of similar resolution.

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	AAA	159/185 (86%)	159 (100%)	0	100	100
1	BBB	174/185 (94%)	174 (100%)	0	100	100
All	All	333/370 (90%)	333 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 2 ligands modelled in this entry, 2 could not be matched to an existing wwPDB Chemical Component Dictionary definition at this stage - leaving 0 for Mogul analysis.

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.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	AAA	180/219 (82%)	0.86	19 (10%) 11 9	45, 58, 93, 118	0
1	BBB	196/219 (89%)	0.67	17 (8%) 16 14	25, 54, 91, 113	5 (2%)
All	All	376/438 (85%)	0.76	36 (9%) 13 11	25, 56, 92, 118	5 (1%)

All (36) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	AAA	1073	TYR	4.4
1	BBB	1075	ILE	4.3
1	AAA	1091	ILE	4.3
1	AAA	1134	LEU	4.2
1	BBB	1131	VAL	3.9
1	BBB	1051	ILE	3.5
1	AAA	1075	ILE	3.5
1	AAA	1051	ILE	3.3
1	AAA	1058	GLY	3.3
1	BBB	1052	GLY	3.2
1	BBB	1134	LEU	3.2
1	AAA	989	PHE	3.1
1	AAA	952	GLY	3.1
1	AAA	979	HIS	3.0
1	BBB	1133	GLY	3.0
1	AAA	1088	SER	3.0
1	BBB	1114	LYS	2.7
1	BBB	962[A]	ASP	2.7
1	AAA	1136	LEU	2.5
1	AAA	1094	ARG	2.5
1	AAA	1115	MET	2.5
1	AAA	1135	ALA	2.5
1	BBB	1091	ILE	2.4
1	BBB	1088	SER	2.4

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Mol	Chain	Res	Type	RSRZ
1	BBB	983	GLY	2.4
1	BBB	1110	PHE	2.4
1	BBB	952	GLY	2.3
1	AAA	954	ILE	2.2
1	BBB	1054	MET	2.2
1	BBB	1108	LEU	2.2
1	BBB	1135	ALA	2.2
1	AAA	1074	GLY	2.1
1	AAA	1055	PHE	2.1
1	BBB	1001[A]	CYS	2.1
1	AAA	961	ASP	2.0
1	AAA	1050	TYR	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	N8K	AAA	1201	34/34	0.88	0.12	44,51,56,59	0
2	N8K	BBB	1201	34/34	0.91	0.10	47,51,59,63	0

6.5 Other polymers [i](#)

There are no such residues in this entry.