



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 23, 2024 – 01:03 AM EDT

PDB ID : 6SJH  
Title : Structure of the PRY-SPRY domain of human Trim16L/Trim70  
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Deposited on : 2019-08-13  
Resolution : 1.50 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](mailto: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>.

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

MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

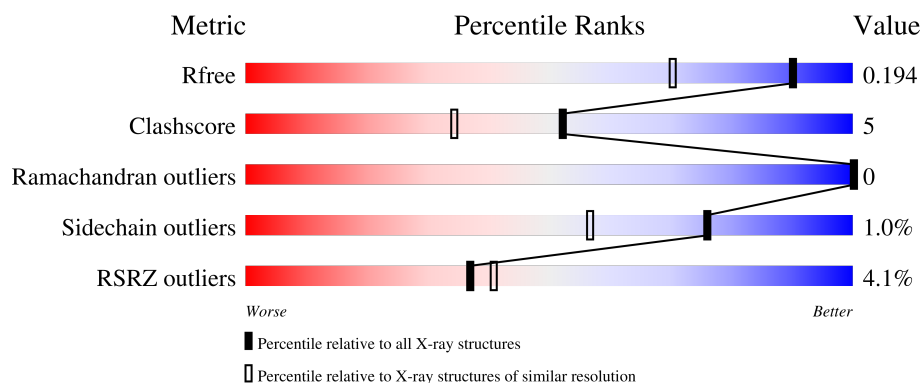
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.50 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))
$R_{free}$	130704	2936 (1.50-1.50)
Clashscore	141614	3144 (1.50-1.50)
Ramachandran outliers	138981	3066 (1.50-1.50)
Sidechain outliers	138945	3064 (1.50-1.50)
RSRZ outliers	127900	2884 (1.50-1.50)

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  $\geq 3$ , 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	A	190	<div> <div>4%</div> <div>86%</div> <div>12%</div> <div>.</div> </div>
1	B	190	<div> <div>7%</div> <div>87%</div> <div>10%</div> <div>..</div> </div>
1	C	190	<div> <div>%</div> <div>91%</div> <div>8%</div> <div>..</div> </div>

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 5410 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 Tripartite motif-containing protein 16-like protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	187	Total	C	N	O	S	0	6	0
			1591	1033	265	285	8			
1	B	185	Total	C	N	O	S	0	7	0
			1584	1030	263	284	7			
1	C	189	Total	C	N	O	S	0	4	0
			1598	1035	265	292	6			

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	143	GLY	-	expression tag	UNP Q309B1
A	144	SER	-	expression tag	UNP Q309B1
A	145	HIS	-	expression tag	UNP Q309B1
A	146	MET	-	expression tag	UNP Q309B1
A	171	GLN	ARG	conflict	UNP Q309B1
A	235	ARG	GLN	conflict	UNP Q309B1
A	241	ASN	SER	conflict	UNP Q309B1
A	277	ARG	TRP	conflict	UNP Q309B1
A	299	THR	SER	conflict	UNP Q309B1
B	143	GLY	-	expression tag	UNP Q309B1
B	144	SER	-	expression tag	UNP Q309B1
B	145	HIS	-	expression tag	UNP Q309B1
B	146	MET	-	expression tag	UNP Q309B1
B	171	GLN	ARG	conflict	UNP Q309B1
B	235	ARG	GLN	conflict	UNP Q309B1
B	241	ASN	SER	conflict	UNP Q309B1
B	277	ARG	TRP	conflict	UNP Q309B1
B	299	THR	SER	conflict	UNP Q309B1
C	143	GLY	-	expression tag	UNP Q309B1
C	144	SER	-	expression tag	UNP Q309B1
C	145	HIS	-	expression tag	UNP Q309B1
C	146	MET	-	expression tag	UNP Q309B1
C	171	GLN	ARG	conflict	UNP Q309B1

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Chain	Residue	Modelled	Actual	Comment	Reference
C	235	ARG	GLN	conflict	UNP Q309B1
C	241	ASN	SER	conflict	UNP Q309B1
C	277	ARG	TRP	conflict	UNP Q309B1
C	299	THR	SER	conflict	UNP Q309B1

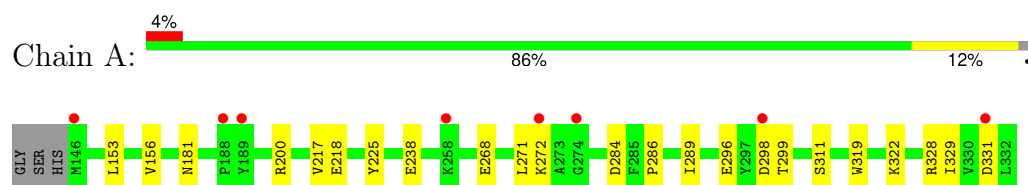
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	240	Total	O	0	0
			240	240		
2	B	169	Total	O	0	0
			169	169		
2	C	228	Total	O	0	0
			228	228		

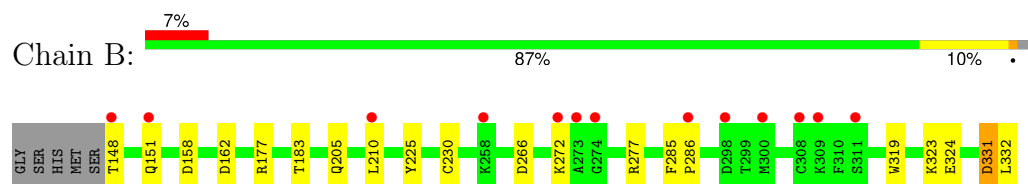
### 3 Residue-property plots [i](#)

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.

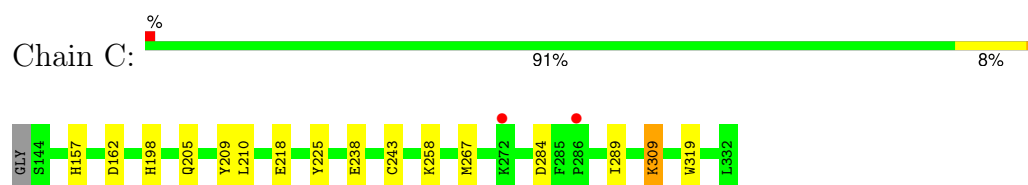
- Molecule 1: Tripartite motif-containing protein 16-like protein



- Molecule 1: Tripartite motif-containing protein 16-like protein



- Molecule 1: Tripartite motif-containing protein 16-like protein



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	72.78Å 95.77Å 116.09Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	30.00 – 1.50 45.38 – 1.14	Depositor EDS
% Data completeness (in resolution range)	88.3 (30.00-1.50) 82.2 (45.38-1.14)	Depositor EDS
$R_{merge}$	0.07	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	0.96 (at 1.14Å)	Xtriage
Refinement program	PHENIX	Depositor
R, $R_{free}$	0.181 , 0.212 0.163 , 0.194	Depositor DCC
$R_{free}$ test set	2000 reflections (0.82%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	21.5	Xtriage
Anisotropy	0.051	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.36 , 55.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.98	EDS
Total number of atoms	5410	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.79% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>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.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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	0.33	0/1661	0.58	0/2252
1	B	0.34	0/1656	0.57	0/2246
1	C	0.34	0/1662	0.57	0/2255
All	All	0.34	0/4979	0.58	0/6753

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 [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	1591	0	1530	17	0
1	B	1584	0	1529	17	0
1	C	1598	0	1521	17	0
2	A	240	0	0	8	2
2	B	169	0	0	5	1
2	C	228	0	0	7	1
All	All	5410	0	4580	51	2

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 5.

All (51) 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:A:331:ASP:OD1	2:A:401:HOH:O	1.91	0.87
1:B:230[B]:CYS:SG	2:B:442:HOH:O	2.34	0.86
1:A:298:ASP:OD2	2:A:402:HOH:O	1.92	0.86
1:A:331:ASP:O	2:A:404:HOH:O	2.01	0.79
1:A:311[B]:SER:OG	2:A:403:HOH:O	2.00	0.78
1:A:322:LYS:NZ	2:A:406:HOH:O	2.14	0.74
1:A:328:ARG:NH2	2:A:401:HOH:O	2.21	0.73
1:B:148:THR:HG21	2:B:541:HOH:O	1.93	0.69
1:A:153:LEU:HA	1:A:156:VAL:HG23	1.74	0.68
1:A:238:GLU:OE1	2:A:405:HOH:O	2.10	0.68
1:C:157:HIS:HD2	2:C:567:HOH:O	1.76	0.68
1:B:158[B]:ASP:OD1	1:B:177[B]:ARG:NH2	2.27	0.67
1:B:148:THR:N	2:B:401:HOH:O	2.29	0.64
1:B:272:LYS:HB2	1:B:272:LYS:NZ	2.11	0.64
1:B:210:LEU:HD23	1:B:285:PHE:CD1	2.33	0.63
1:B:210:LEU:HD23	1:B:285:PHE:HD1	1.66	0.60
1:C:157:HIS:CD2	2:C:567:HOH:O	2.52	0.60
1:C:309:LYS:NZ	2:C:407:HOH:O	2.38	0.57
1:C:284:ASP:HB3	1:C:289:ILE:HB	1.87	0.56
1:B:286:PRO:HG2	2:B:484:HOH:O	2.07	0.53
1:B:323[B]:LYS:HG2	1:B:324:GLU:HG3	1.91	0.52
1:C:162:ASP:HA	1:C:205[A]:GLN:HG2	1.92	0.51
1:B:272:LYS:HB2	1:B:272:LYS:HZ2	1.75	0.50
1:A:286:PRO:HG2	2:A:482:HOH:O	2.11	0.50
1:A:218:GLU:HB2	1:A:328:ARG:HG2	1.96	0.48
1:B:331:ASP:OD1	1:B:332:LEU:N	2.46	0.48
1:C:198:HIS:CE1	1:C:238:GLU:HG2	2.50	0.46
1:C:209:TYR:O	1:C:210:LEU:HB2	2.16	0.46
1:A:284:ASP:HB3	1:A:289:ILE:HB	1.97	0.46
1:C:309:LYS:O	1:C:309:LYS:HD2	2.15	0.46
1:B:183:THR:O	1:B:323[A]:LYS:HG3	2.16	0.45
1:A:181:ASN:HD21	1:A:200[B]:ARG:HH11	1.64	0.45
1:A:225:TYR:HB2	1:A:319:TRP:HB3	1.98	0.44
1:C:209:TYR:CE2	1:C:210:LEU:HG	2.52	0.44
1:C:225:TYR:HB2	1:C:319:TRP:HB3	1.99	0.44
1:B:272:LYS:NZ	1:B:272:LYS:CB	2.81	0.44
1:C:284:ASP:OD2	2:C:401:HOH:O	2.20	0.44
1:A:296:GLU:HB2	1:A:299:THR:OG1	2.18	0.43
1:A:217:VAL:HG12	1:A:329:ILE:HD13	2.00	0.43
1:B:277:ARG:NH2	2:B:417:HOH:O	2.52	0.43
1:C:198:HIS:HE1	2:C:568:HOH:O	2.01	0.43
1:B:162:ASP:HA	1:B:205[A]:GLN:HG2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:258:LYS:HB2	1:C:258:LYS:HE2	1.71	0.42
1:C:218[A]:GLU:OE2	2:C:402:HOH:O	2.21	0.42
1:B:148:THR:HG23	1:B:151:GLN:H	1.84	0.42
1:C:198:HIS:ND1	1:C:238:GLU:HG2	2.34	0.41
1:C:267:MET:HB2	2:C:482:HOH:O	2.20	0.41
1:A:271:LEU:C	1:A:272:LYS:HD2	2.41	0.41
1:C:162:ASP:CA	1:C:205[A]:GLN:HG2	2.50	0.41
1:A:298:ASP:OD1	1:A:298:ASP:N	2.53	0.40
1:B:225:TYR:HB2	1:B:319:TRP:HB3	2.04	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:567:HOH:O	2:B:526:HOH:O[3_554]	1.79	0.41
2:A:620:HOH:O	2:C:581:HOH:O[3_554]	2.01	0.19

## 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	A	191/190 (100%)	184 (96%)	7 (4%)	0	100	100
1	B	190/190 (100%)	183 (96%)	7 (4%)	0	100	100
1	C	191/190 (100%)	189 (99%)	2 (1%)	0	100	100
All	All	572/570 (100%)	556 (97%)	16 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

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	A	173/169 (102%)	172 (99%)	1 (1%)	86	74
1	B	172/169 (102%)	170 (99%)	2 (1%)	71	48
1	C	173/169 (102%)	171 (99%)	2 (1%)	71	48
All	All	518/507 (102%)	513 (99%)	5 (1%)	76	57

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	268	GLU
1	B	266	ASP
1	B	331	ASP
1	C	243	CYS
1	C	309	LYS

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

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry

There are no ligands in this entry.

## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	187/190 (98%)	0.16	8 (4%) 35 39	19, 25, 44, 86	0
1	B	185/190 (97%)	0.36	13 (7%) 16 17	21, 28, 53, 72	0
1	C	189/190 (99%)	0.15	2 (1%) 80 84	19, 25, 46, 58	0
All	All	561/570 (98%)	0.22	23 (4%) 37 41	19, 26, 48, 86	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	273	ALA	5.6
1	A	298	ASP	4.4
1	B	148	THR	4.4
1	A	331	ASP	4.2
1	B	298	ASP	4.2
1	B	210	LEU	4.1
1	A	146	MET	3.5
1	B	272	LYS	3.3
1	C	272	LYS	3.2
1	B	311	SER	3.1
1	B	274	GLY	3.0
1	C	286	PRO	2.8
1	B	286	PRO	2.7
1	B	309	LYS	2.6
1	B	258	LYS	2.5
1	A	272	LYS	2.4
1	A	188	PRO	2.3
1	A	258	LYS	2.3
1	A	274	GLY	2.2
1	A	189	TYR	2.2
1	B	308	CYS	2.1
1	B	151	GLN	2.0
1	B	300	MET	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 monosaccharides in this entry.

## 6.4 Ligands [i](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.