



# Full wwPDB X-ray Structure Validation Report ⓘ

May 19, 2020 – 04:29 am BST

PDB ID : 1XB2  
Title : Crystal Structure of Bos taurus mitochondrial Elongation Factor Tu/Ts Complex  
Authors : Jeppesen, M.G.; Navratil, T.; Spremulli, L.L.; Nyborg, J.  
Deposited on : 2004-08-27  
Resolution : 2.20 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.

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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  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

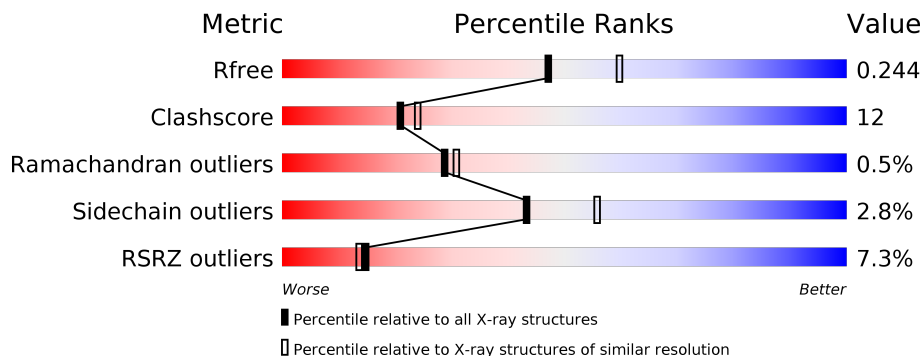
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.20 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	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

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  $\geq 3$ , 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	409	
2	B	291	

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 5294 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 Elongation factor Tu, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	N	O	S				Se
1	A	369	2864	1810	500	537	5	12	0	1	0

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	137	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	158	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	191	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	308	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	340	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	375	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	378	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	385	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	399	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	414	MSE	MET	MODIFIED RESIDUE	UNP P49410
A	442	MSE	MET	MODIFIED RESIDUE	UNP P49410

- Molecule 2 is a protein called Elongation factor Ts, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	276	2108	1329	369	399	11	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	339	LEU	-	EXPRESSION TAG	UNP P43896
B	340	GLU	-	EXPRESSION TAG	UNP P43896
B	341	HIS	-	EXPRESSION TAG	UNP P43896
B	342	HIS	-	EXPRESSION TAG	UNP P43896
B	343	HIS	-	EXPRESSION TAG	UNP P43896

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Chain	Residue	Modelled	Actual	Comment	Reference
B	344	HIS	-	EXPRESSION TAG	UNP P43896
B	345	HIS	-	EXPRESSION TAG	UNP P43896
B	346	HIS	-	EXPRESSION TAG	UNP P43896

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	152	Total O 152 152	0	0
3	B	170	Total O 170 170	0	0



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	94.00Å 149.30Å 70.00Å 90.00° 125.20° 90.00°	Depositor
Resolution (Å)	30.00 – 2.20 29.60 – 2.18	Depositor EDS
% Data completeness (in resolution range)	98.3 (30.00-2.20) 97.5 (29.60-2.18)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.47 (at 2.18Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, $R_{free}$	0.218 , 0.247 0.229 , 0.244	Depositor DCC
$R_{free}$ test set	3186 reflections (3.95%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	43.1	Xtrriage
Anisotropy	0.458	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 53.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	5294	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	52.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.76% 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	0.49	3/2906 (0.1%)	0.62	0/3917
2	B	0.35	0/2144	0.59	0/2889
All	All	0.44	3/5050 (0.1%)	0.61	0/6806

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	399	MSE	CG-SE	-5.78	1.75	1.95
1	A	414	MSE	SE-CE	-5.38	1.63	1.95
1	A	399	MSE	SE-CE	-5.15	1.65	1.95

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	2864	0	2917	94	0
2	B	2108	0	2135	32	0
3	A	152	0	0	16	0
3	B	170	0	0	4	0
All	All	5294	0	5052	122	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 12.

All (122) 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:308:MSE:HE3	1:A:313:LEU:HD22	1.58	0.84
1:A:361:LYS:HE3	1:A:367:HIS:NE2	1.94	0.83
1:A:183:ALA:HB3	1:A:187:GLN:OE1	1.82	0.79
1:A:361:LYS:HG3	1:A:367:HIS:CD2	2.18	0.78
1:A:182:LYS:HE2	3:A:587:HOH:O	1.83	0.77
1:A:162:ARG:HG3	1:A:206:PHE:HZ	1.48	0.76
2:B:279:LEU:HB2	2:B:294:THR:HG23	1.67	0.76
1:A:65:HIS:HD2	1:A:67:ASP:H	1.33	0.74
2:B:117:GLU:HG3	3:B:347:HOH:O	1.90	0.71
1:A:433:THR:HG22	3:A:586:HOH:O	1.90	0.70
2:B:183:SER:HB3	2:B:196:LYS:HD3	1.75	0.67
1:A:326:VAL:HG11	1:A:329:LEU:HD12	1.77	0.66
2:B:314:GLN:HB3	2:B:315:PRO:HD3	1.77	0.66
1:A:395:LYS:HD3	3:A:463:HOH:O	1.96	0.65
1:A:183:ALA:O	1:A:185:ALA:N	2.30	0.65
1:A:162:ARG:HG3	1:A:206:PHE:CZ	2.31	0.63
2:B:289:GLY:HA3	2:B:293:GLU:OE1	1.99	0.63
1:A:80:ILE:HD12	1:A:236:VAL:HG11	1.81	0.62
1:A:283:ILE:HD13	1:A:315:ARG:HH21	1.66	0.61
1:A:437:THR:HG22	1:A:438:ASP:OD2	2.00	0.61
1:A:65:HIS:CD2	1:A:67:ASP:H	2.18	0.60
1:A:301:THR:HG21	1:A:326:VAL:CG1	2.32	0.59
1:A:66:VAL:HG23	3:A:497:HOH:O	2.03	0.59
2:B:106:LYS:HD3	2:B:204:GLY:HA2	1.85	0.58
1:A:182:LYS:C	1:A:184:ASP:H	2.05	0.57
1:A:438:ASP:C	1:A:440:PRO:HD3	2.25	0.57
1:A:352:VAL:CG2	1:A:436:VAL:HG13	2.34	0.57
1:A:268:ILE:HG21	1:A:271:ARG:HD3	1.86	0.56
1:A:186:VAL:O	1:A:186:VAL:HG12	2.06	0.56
1:A:184:ASP:HB3	1:A:219:SER:HB2	1.88	0.56
1:A:297:LYS:HE3	1:A:299:ILE:HD11	1.86	0.55
2:B:259:LYS:HD3	2:B:260:ALA:N	2.21	0.55
2:B:272:HIS:CG	2:B:309:LEU:HD13	2.41	0.55
1:A:255:GLU:CD	1:A:255:GLU:H	2.10	0.55
1:A:416:LEU:HD22	1:A:436:VAL:HG21	1.90	0.54
1:A:119:ALA:C	1:A:120:ARG:HG3	2.26	0.54
1:A:184:ASP:C	1:A:186:VAL:H	2.09	0.54
1:A:443:THR:O	1:A:447:LYS:HG3	2.08	0.54
2:B:282:GLY:HA3	2:B:295:LYS:HB3	1.90	0.54
1:A:162:ARG:NH1	1:A:166:LEU:HD11	2.23	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:283:ILE:HD13	1:A:315:ARG:NH2	2.22	0.53
1:A:373:HIS:ND1	1:A:388:ARG:NH1	2.56	0.53
1:A:391:LEU:HD23	1:A:406:LEU:CD2	2.39	0.53
2:B:153:GLN:NE2	2:B:191:ARG:HE	2.07	0.53
1:A:162:ARG:NH1	3:A:531:HOH:O	2.43	0.52
2:B:272:HIS:CE1	2:B:276:MET:HG3	2.44	0.52
1:A:70:LYS:HG3	3:A:523:HOH:O	2.10	0.52
1:A:368:LYS:HB3	1:A:369:PRO:HD2	1.91	0.51
1:A:259:LEU:HD12	1:A:346:ILE:HD11	1.91	0.51
1:A:301:THR:HG21	1:A:326:VAL:HG13	1.93	0.50
1:A:385:MSE:SE	1:A:412:GLN:HG2	2.61	0.50
1:A:322:LEU:HD23	1:A:322:LEU:N	2.27	0.50
1:A:375[B]:MSE:HG2	1:A:388:ARG:HG3	1.93	0.50
2:B:162:CYS:C	2:B:164:ASN:H	2.15	0.50
1:A:222:CYS:HB3	1:A:227:ARG:O	2.12	0.49
1:A:135:LYS:HE2	1:A:357:TYR:CE1	2.46	0.49
1:A:301:THR:OG1	1:A:302:VAL:N	2.41	0.49
1:A:371:VAL:HG23	1:A:372:SER:N	2.27	0.49
1:A:56:PRO:HG2	1:A:120:ARG:HG2	1.94	0.49
1:A:56:PRO:O	1:A:120:ARG:HB3	2.13	0.48
1:A:444:GLU:O	1:A:448:ASN:ND2	2.46	0.48
1:A:445:GLU:HA	1:A:448:ASN:HD22	1.79	0.48
1:A:297:LYS:NZ	3:A:551:HOH:O	2.47	0.48
2:B:242:LEU:HD21	2:B:244:LEU:HD21	1.95	0.48
2:B:233:ALA:HA	2:B:244:LEU:O	2.13	0.48
2:B:205:LYS:HD2	3:B:377:HOH:O	2.14	0.48
1:A:187:GLN:HG3	3:A:587:HOH:O	2.14	0.48
1:A:115:TYR:CE2	1:A:124:HIS:HB2	2.49	0.47
1:A:155:ASP:CG	3:A:603:HOH:O	2.53	0.47
1:A:353:GLU:OE2	1:A:440:PRO:HG2	2.14	0.47
2:B:175:GLY:HA3	2:B:217:TRP:CE2	2.50	0.47
2:B:188:GLY:HA3	3:B:479:HOH:O	2.15	0.47
1:A:80:ILE:HD13	1:A:233:LEU:HD12	1.96	0.47
1:A:163:GLU:HG3	2:B:140:PHE:O	2.15	0.47
1:A:56:PRO:N	3:A:554:HOH:O	2.48	0.47
1:A:257:PRO:HB2	3:A:466:HOH:O	2.14	0.46
1:A:82:ALA:HB3	3:A:565:HOH:O	2.15	0.46
1:A:159:PRO:CG	2:B:205:LYS:HE3	2.45	0.46
1:A:183:ALA:C	1:A:185:ALA:H	2.19	0.46
1:A:332:GLU:HG3	1:A:333:ASP:OD1	2.15	0.46
1:A:387:CYS:HB3	1:A:410:LEU:HD23	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:209:LYS:HB3	1:A:211:GLU:OE1	2.16	0.45
2:B:296:MET:HG2	2:B:309:LEU:HD22	1.98	0.45
1:A:182:LYS:C	1:A:184:ASP:N	2.70	0.45
1:A:375[A]:MSE:HG3	1:A:388:ARG:HG3	1.99	0.45
1:A:113:VAL:CG2	1:A:124:HIS:HB3	2.47	0.45
1:A:113:VAL:HG22	1:A:124:HIS:HB3	1.98	0.45
2:B:220:VAL:HG12	3:B:421:HOH:O	2.16	0.44
1:A:404:LEU:HD23	1:A:404:LEU:N	2.32	0.44
1:A:225:GLU:O	1:A:227:ARG:HG2	2.17	0.44
2:B:144:ASN:OD1	2:B:146:LYS:HB2	2.17	0.44
1:A:61:GLY:HA2	1:A:125:THR:O	2.19	0.43
1:A:159:PRO:HG2	2:B:205:LYS:HE3	2.00	0.43
1:A:73:LEU:HD21	1:A:239:LEU:CD2	2.48	0.43
2:B:165:LEU:HB3	2:B:166:LYS:H	1.67	0.43
2:B:175:GLY:HA3	2:B:217:TRP:NE1	2.33	0.43
2:B:176:PHE:O	2:B:177:LEU:HD23	2.18	0.43
2:B:182:LEU:O	2:B:185:LEU:HB2	2.18	0.43
1:A:176:VAL:O	1:A:213:THR:HG23	2.18	0.43
2:B:220:VAL:HG13	2:B:224:PHE:HB2	2.02	0.42
1:A:439:THR:N	1:A:440:PRO:HD3	2.34	0.42
1:A:253:ASP:HB3	1:A:256:LYS:HD2	2.01	0.42
1:A:308:MSE:HE3	1:A:313:LEU:CD2	2.41	0.42
1:A:356:VAL:O	1:A:403:ASP:HA	2.19	0.42
1:A:452:SER:HA	3:A:524:HOH:O	2.19	0.42
1:A:187:GLN:HB2	1:A:188:ASP:H	1.58	0.42
2:B:181:GLU:O	2:B:185:LEU:HD13	2.20	0.42
1:A:186:VAL:N	3:A:587:HOH:O	2.54	0.41
1:A:68:HIS:HB2	3:A:523:HOH:O	2.20	0.41
1:A:162:ARG:HD2	3:A:564:HOH:O	2.19	0.41
1:A:200:ARG:CZ	1:A:215:ILE:HD12	2.51	0.41
1:A:361:LYS:HE3	1:A:367:HIS:CD2	2.53	0.41
1:A:273:THR:O	1:A:325:LEU:HD12	2.21	0.41
2:B:193:GLY:HA3	2:B:197:ASP:OD2	2.20	0.41
2:B:247:TYR:CE2	2:B:327:GLU:HG3	2.56	0.41
1:A:135:LYS:HE2	1:A:357:TYR:CZ	2.56	0.41
1:A:65:HIS:HD2	1:A:67:ASP:N	2.12	0.40
1:A:361:LYS:CE	1:A:367:HIS:NE2	2.77	0.40
1:A:155:ASP:HA	2:B:73:SER:HB2	2.04	0.40
1:A:304:THR:HG23	1:A:327:ARG:HB2	2.04	0.40
1:A:391:LEU:HD23	1:A:406:LEU:HD22	2.03	0.40
1:A:351:LYS:HB2	1:A:442:MSE:SE	2.72	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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	366/409 (90%)	345 (94%)	18 (5%)	3 (1%)	19	19
2	B	274/291 (94%)	263 (96%)	11 (4%)	0	100	100
All	All	640/700 (91%)	608 (95%)	29 (4%)	3 (0%)	29	31

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	184	ASP
1	A	187	GLN
1	A	183	ALA

### 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	314/331 (95%)	306 (98%)	8 (2%)	47	60
2	B	228/240 (95%)	221 (97%)	7 (3%)	40	51
All	All	542/571 (95%)	527 (97%)	15 (3%)	43	56

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	120	ARG
1	A	163	GLU
1	A	211	GLU
1	A	227	ARG
1	A	255	GLU
1	A	298	ASN
1	A	372	SER
1	A	433	THR
2	B	64	MET
2	B	117	GLU
2	B	166	LYS
2	B	234	MET
2	B	259	LYS
2	B	294	THR
2	B	319	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	65	HIS
1	A	298	ASN
1	A	448	ASN
2	B	153	GLN
2	B	163	GLN
2	B	314	GLN

### 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

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	358/409 (87%)	0.47	37 (10%) <b>6</b> <b>5</b>	27, 53, 86, 97	0
2	B	276/291 (94%)	0.20	9 (3%) 46 44	26, 42, 74, 94	0
All	All	634/700 (90%)	0.35	46 (7%) <b>15</b> <b>14</b>	26, 48, 83, 97	0

All (46) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	186	VAL	6.8
1	A	452	SER	5.7
1	A	183	ALA	5.3
1	A	428	ASN	4.6
1	A	121	HIS	3.9
1	A	252	ARG	3.6
1	A	184	ASP	3.5
1	A	229	PRO	3.4
1	A	367	HIS	3.4
1	A	112	HIS	3.3
1	A	313	LEU	3.3
2	B	190	GLU	3.3
2	B	189	PRO	3.2
1	A	221	LEU	3.1
1	A	150	VAL	3.0
1	A	151	VAL	3.0
1	A	149	LEU	2.9
1	A	178	VAL	2.9
2	B	291	GLU	2.9
1	A	373	HIS	2.8
1	A	185	ALA	2.7
1	A	117	THR	2.7
1	A	255	GLU	2.7
1	A	370	PHE	2.6

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Mol	Chain	Res	Type	RSRZ
2	B	240	HIS	2.6
1	A	362	GLU	2.5
2	B	331	GLY	2.5
2	B	97	LYS	2.5
1	A	331	ARG	2.5
2	B	109	ARG	2.4
1	A	283	ILE	2.3
1	A	444	GLU	2.3
2	B	206	LEU	2.3
1	A	361	LYS	2.2
1	A	295	HIS	2.2
1	A	224	LEU	2.2
1	A	161	THR	2.2
2	B	90	GLN	2.1
1	A	57	HIS	2.1
1	A	448	ASN	2.1
1	A	119	ALA	2.1
1	A	148	ILE	2.0
1	A	253	ASP	2.0
1	A	211	GLU	2.0
1	A	269	PRO	2.0
1	A	118	ALA	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 carbohydrates 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.