wwPDB X-ray Structure Validation Summary Report (i)

Oct 26, 2023 – 01:41 PM EDT

PDB ID	:	3ALQ
Title	:	Crystal structure of TNF-TNFR2 complex
Authors	:	Mukai, Y.; Nakamura, T.; Yamagata, Y.; Tsutsumi, Y.
Deposited on	:	2010-08-06
Resolution	:	3.00 Å(reported)

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

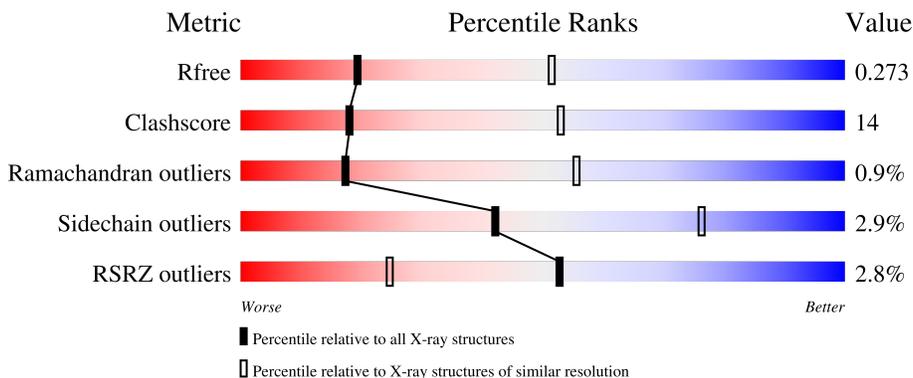|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 3.00 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	Percentile Ranks	Value
Rfree		0.273
Clashscore		14
Ramachandran outliers		0.9%
Sidechain outliers		2.9%
RSRZ outliers		2.8%

Worse   *Better*

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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 <=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	157	61% 29% • 10%
1	B	157	62% 27% • 10%
1	C	157	57% 31% • 10%
1	D	157	60% 29% • 10%
1	E	157	61% 29% 10%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	157	60% 29% 10%
2	R	173	6% 69% 22% 6%
2	S	173	5% 63% 30% 5%
2	T	173	68% 25% 6%
2	U	173	% 70% 22% 7%
2	V	173	10% 63% 29% 7%
2	W	173	3% 66% 27% 6%

2   Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 13927 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 Tumor necrosis factor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			
1	B	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			
1	C	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			
1	D	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			
1	E	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			
1	F	141	Total	C	N	O	S	0	0	0
			1097	700	188	206	3			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	11	MET	LYS	engineered mutation	UNP P01375
A	65	SER	LYS	engineered mutation	UNP P01375
A	90	PRO	LYS	engineered mutation	UNP P01375
A	98	ARG	LYS	engineered mutation	UNP P01375
A	112	ASN	LYS	engineered mutation	UNP P01375
A	128	PRO	LYS	engineered mutation	UNP P01375
B	11	MET	LYS	engineered mutation	UNP P01375
B	65	SER	LYS	engineered mutation	UNP P01375
B	90	PRO	LYS	engineered mutation	UNP P01375
B	98	ARG	LYS	engineered mutation	UNP P01375
B	112	ASN	LYS	engineered mutation	UNP P01375
B	128	PRO	LYS	engineered mutation	UNP P01375
C	11	MET	LYS	engineered mutation	UNP P01375
C	65	SER	LYS	engineered mutation	UNP P01375
C	90	PRO	LYS	engineered mutation	UNP P01375
C	98	ARG	LYS	engineered mutation	UNP P01375
C	112	ASN	LYS	engineered mutation	UNP P01375

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	128	PRO	LYS	engineered mutation	UNP P01375
D	11	MET	LYS	engineered mutation	UNP P01375
D	65	SER	LYS	engineered mutation	UNP P01375
D	90	PRO	LYS	engineered mutation	UNP P01375
D	98	ARG	LYS	engineered mutation	UNP P01375
D	112	ASN	LYS	engineered mutation	UNP P01375
D	128	PRO	LYS	engineered mutation	UNP P01375
E	11	MET	LYS	engineered mutation	UNP P01375
E	65	SER	LYS	engineered mutation	UNP P01375
E	90	PRO	LYS	engineered mutation	UNP P01375
E	98	ARG	LYS	engineered mutation	UNP P01375
E	112	ASN	LYS	engineered mutation	UNP P01375
E	128	PRO	LYS	engineered mutation	UNP P01375
F	11	MET	LYS	engineered mutation	UNP P01375
F	65	SER	LYS	engineered mutation	UNP P01375
F	90	PRO	LYS	engineered mutation	UNP P01375
F	98	ARG	LYS	engineered mutation	UNP P01375
F	112	ASN	LYS	engineered mutation	UNP P01375
F	128	PRO	LYS	engineered mutation	UNP P01375

- Molecule 2 is a protein called Tumor necrosis factor receptor superfamily member 1B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	R	162	Total 1222	C 735	N 222	O 241	S 24	0	0	0
2	S	164	Total 1232	C 740	N 224	O 244	S 24	0	0	0
2	T	162	Total 1222	C 735	N 222	O 241	S 24	0	0	0
2	U	161	Total 1215	C 731	N 221	O 239	S 24	0	0	0
2	V	161	Total 1215	C 731	N 221	O 239	S 24	0	0	0
2	W	162	Total 1222	C 735	N 222	O 241	S 24	0	0	0

- Molecule 3 is COBALT (II) ION (three-letter code: CO) (formula: Co).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	R	1	Total 1	Co 1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	S	1	Total 1	Co 1	0	0
3	T	1	Total 1	Co 1	0	0
3	U	1	Total 1	Co 1	0	0
3	V	1	Total 1	Co 1	0	0
3	W	1	Total 1	Co 1	0	0

- Molecule 4 is water.

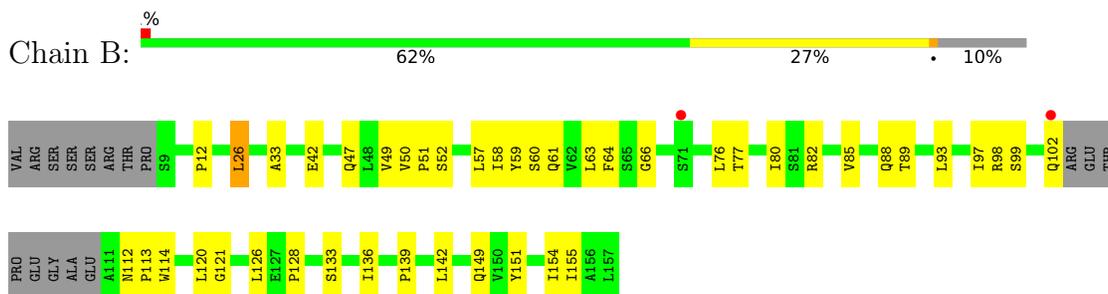| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total 1	O 1	0	0
4	B	1	Total 1	O 1	0	0
4	C	1	Total 1	O 1	0	0
4	D	2	Total 2	O 2	0	0
4	E	1	Total 1	O 1	0	0
4	F	1	Total 1	O 1	0	0
4	R	1	Total 1	O 1	0	0
4	T	1	Total 1	O 1	0	0
4	U	2	Total 2	O 2	0	0

3 Residue-property plots ⓘ

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.
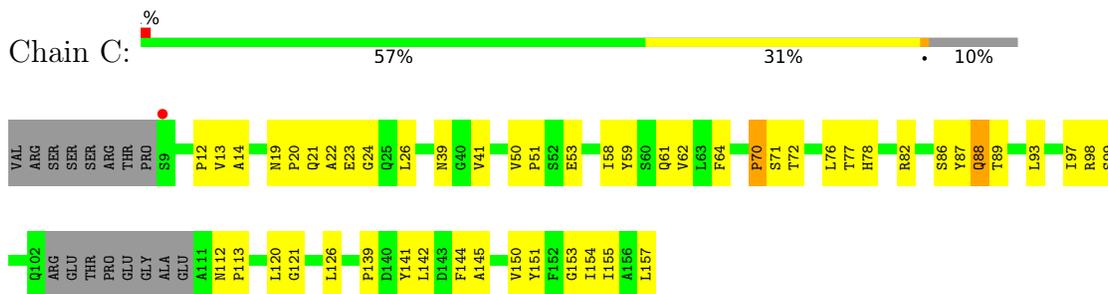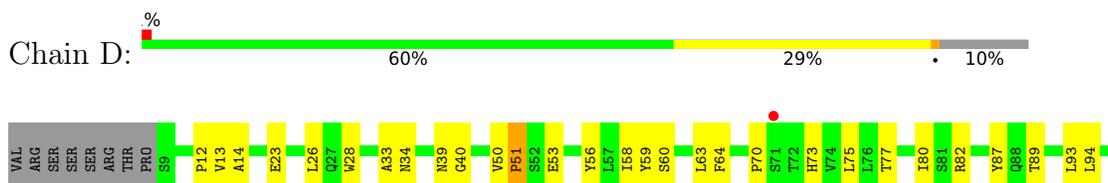
• Molecule 1: Tumor necrosis factor

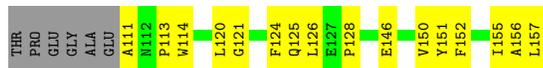• Molecule 1: Tumor necrosis factor

• Molecule 1: Tumor necrosis factor

• Molecule 1: Tumor necrosis factor
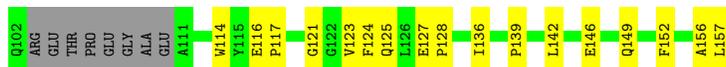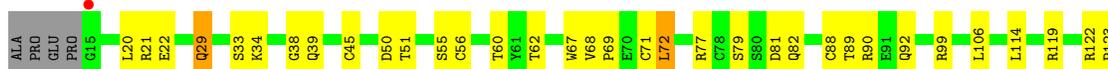
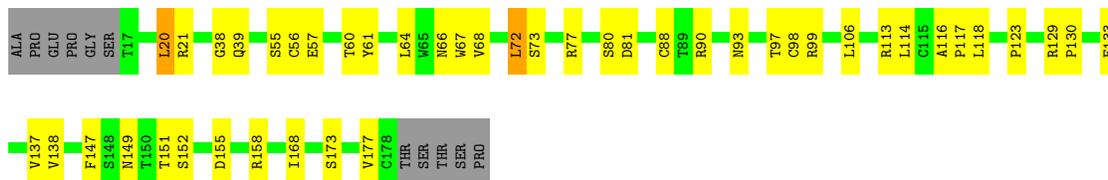I97 R98 S99 P100 C101 Q102 ARG GLU THR PRO GLU GLY ALA GLU A111 N112 P113 E116 Y119 L120 G121 F124 Q125 L126 E127 P128 Y141 A145 Q149 I155 A156 L157

• Molecule 1: Tumor necrosis factor

Chain E:

VAL ARG SER SER ARG THR PRO S9 P12 V13 A14 A18 N19 P20 Q21 A22 W28 R31 R32 G40 V41 V50 P51 S52 I58 Y59 S60 Q61 F64 S65 S71 L76 T77 I80 S81 R82 T89 L93 L94 I97 R98 Q102 ARG GLU

THR PRO GLU GLY ALA GLU A111 N112 P113 W114 L120 G121 F124 Q125 L126 E127 P128 E146 V150 Y151 F152 I155 A156 L157

• Molecule 1: Tumor necrosis factor

Chain F:

VAL ARG SER SER ARG THR PRO S9 P12 V16 P20 Q21 A33 N34 G40 V41 E42 V49 V50 P51 S52 E53 I58 Y59 S60 F64 S65 P70 L75 L76 I80 S81 R82 I83 A84 Y87 Q88 T89 P90 V91 N92 L93 R98 S99 P100 C101

Q102 ARG GLU THR PRO GLU GLY ALA GLU A111 W114 Y115 E116 P117 G121 G122 V123 F124 Q125 L126 E127 P128 I136 P139 L142 E146 Q149 F152 A156 L157

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain R:

ALA PRO GLU PRO GLY SER T17 C18 R19 L20 R21 Q26 G38 K42 V43 D50 T51 V52 C56 E57 T60 Y61 T62 Q63 W67 L72 T89 R90 E91 Q92 N93 T97 C98 R113 L114 R122 P123 V127 A128 R129 P130 G131 T132 E133 V138 C139

K140 P144 G145 T146 F147 S148 N149 T150 T151 C157 R158 P159 H160 Q161 I162 V166 A167 I168 P169 S173 C178 THR SER THR SER PRO

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain S:

ALA PRO GLU PRO G15 L20 R21 E22 Q29 S33 K34 G38 Q39 C45 D50 T51 S55 C56 T60 Y61 T62 W67 V68 P69 E70 C71 L72 R77 C78 S79 S80 D81 Q82 C88 T89 R90 E91 Q92 R99 L106 L114 R119 R122 P123

G124 F125 G126 V127 A128 R129 P130 D136 C139 K140 P141 C142 A143 P144 G145 T146 F147 S152 D155 I156 C157 R158 P159 N164 V165 V166 A167 A172 C178 THR SER THR SER PRO

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain T:

ALA PRO GLU PRO GLY SER T17 L20 R21 G38 Q39 S55 C56 E57 T60 Y61 L64 W65 N66 W67 V68 L72 S73 R77 S80 D81 C88 T89 R90 N93 T97 C98 R99 L106 R113 L114 C115 A116 P117 L118 P123 R129 P130 E133

V137 V138 F147 S148 N149 T150 T151 S152 D155 R158 I168 S173 V177 C178 THR SER THR PRO

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain U:

ALA PRO GLU PRO GLY SER THR C18 R19 L20 R21 E22 Q29 S33 K34 C35 G38 Q39 C56 E57 D58 S59 T60 Q63 C71 L72 R77 E84 A87 C88 T89 R90 N93 R94 W102 K108 Q109 A116 P117 R122 P123 T132 E133 T146

T150 T151 R158 P159 I168 M174 V177 C178 THR SER THR PRO

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain V:

ALA PRO GLU PRO GLY SER THR C18 R19 L20 R21 E22 Y23 Y24 D25 Q26 T27 A28 Q29 M30 C31 C32 S33 K34 C35 G38 Q39 C45 T46 K47 T48 S49 D50 C56 E57 D58 S59 T60 Y61 T62 Q63 L64 C71 T89 R90 E91 Q92 N93 T97 C98 R99 Y103

L106 S107 K108 Q109 R113 L114 L118 R119 K120 C121 R122 P123 G124 F125 R129 P130 G131 T132 E133 T134 S135 D136 V137 P141 C142 T151 S152 S153 Q161 I162 C163 N164 P169 A172 C178 THR SER THR PRO

• Molecule 2: Tumor necrosis factor receptor superfamily member 1B

Chain W:

ALA PRO GLU PRO GLY SER T17 L20 R21 A28 Q29 K34 V43 K47 V52 C56 E57 D58 S59 T60 Y61 L64 W65 N66 W67 V68 S80 D81 Q86 R90 N93 R94 I95 C96 T97 C98 R99 K108 Q109 L114 R122 P123 G124 F125

A128 R129 T132 E133 T134 K140 P141 C142 A143 F147 S148 N149 T150 T151 S152 D155 R158 I162 I168 A172 D175 A176 V177 C178 THR SER THR PRO

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	74.47Å 117.36Å 246.84Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.96 – 3.00 49.96 – 2.95	Depositor EDS
% Data completeness (in resolution range)	99.5 (49.96-3.00) 98.6 (49.96-2.95)	Depositor EDS
R_{merge}	0.18	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.04 (at 2.96Å)	Xtriage
Refinement program	PHENIX 1.5_2	Depositor
R, R_{free}	0.213 , 0.281 0.206 , 0.273	Depositor DCC
R_{free} test set	4618 reflections (10.07%)	wwPDB-VP
Wilson B-factor (Å^2)	54.6	Xtriage
Anisotropy	0.561	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 42.1	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	13927	wwPDB-VP
Average B, all atoms (Å^2)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.50% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: CO

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	0.26	0/1123	0.46	0/1534
1	B	0.26	0/1123	0.46	0/1534
1	C	0.25	0/1123	0.45	0/1534
1	D	0.25	0/1123	0.46	0/1534
1	E	0.24	0/1123	0.44	0/1534
1	F	0.24	0/1123	0.44	0/1534
2	R	0.26	0/1246	0.44	0/1692
2	S	0.30	0/1256	0.47	0/1705
2	T	0.28	0/1246	0.46	0/1692
2	U	0.25	0/1239	0.46	0/1682
2	V	0.25	0/1239	0.44	0/1682
2	W	0.25	0/1246	0.45	0/1692
All	All	0.26	0/14210	0.45	0/19349

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	A	1097	0	1073	32	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1097	0	1073	34	0
1	C	1097	0	1073	37	0
1	D	1097	0	1073	34	0
1	E	1097	0	1073	37	0
1	F	1097	0	1073	33	0
2	R	1222	0	1143	34	0
2	S	1232	0	1151	33	0
2	T	1222	0	1143	25	0
2	U	1215	0	1136	33	0
2	V	1215	0	1136	42	0
2	W	1222	0	1143	33	0
3	R	1	0	0	0	0
3	S	1	0	0	0	0
3	T	1	0	0	0	0
3	U	1	0	0	0	0
3	V	1	0	0	0	0
3	W	1	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	2	0	0	0	0
4	E	1	0	0	0	0
4	F	1	0	0	0	0
4	R	1	0	0	0	0
4	T	1	0	0	0	0
4	U	2	0	0	0	0
All	All	13927	0	13290	368	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 14.

The worst 5 of 368 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:V:132:THR:HG22	2:V:134:THR:H	1.27	0.99
2:S:56:CYS:HB3	2:S:60:THR:HG23	1.50	0.93
2:W:56:CYS:HB3	2:W:60:THR:HG23	1.47	0.93
2:V:56:CYS:HB3	2:V:60:THR:HG23	1.56	0.84
2:U:56:CYS:HB3	2:U:60:THR:HG23	1.59	0.84

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	A	137/157 (87%)	134 (98%)	3 (2%)	0	100	100
1	B	137/157 (87%)	128 (93%)	9 (7%)	0	100	100
1	C	137/157 (87%)	126 (92%)	8 (6%)	3 (2%)	6	31
1	D	137/157 (87%)	126 (92%)	8 (6%)	3 (2%)	6	31
1	E	137/157 (87%)	129 (94%)	8 (6%)	0	100	100
1	F	137/157 (87%)	128 (93%)	8 (6%)	1 (1%)	22	60
2	R	160/173 (92%)	139 (87%)	17 (11%)	4 (2%)	5	28
2	S	162/173 (94%)	142 (88%)	18 (11%)	2 (1%)	13	48
2	T	160/173 (92%)	145 (91%)	14 (9%)	1 (1%)	25	64
2	U	159/173 (92%)	143 (90%)	16 (10%)	0	100	100
2	V	159/173 (92%)	146 (92%)	13 (8%)	0	100	100
2	W	160/173 (92%)	148 (92%)	10 (6%)	2 (1%)	12	45
All	All	1782/1980 (90%)	1634 (92%)	132 (7%)	16 (1%)	17	55

5 of 16 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	70	PRO
1	F	70	PRO
2	S	167	ALA
1	C	22	ALA
1	D	51	PRO

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	A	119/133 (90%)	115 (97%)	4 (3%)	37	72
1	B	119/133 (90%)	118 (99%)	1 (1%)	81	93
1	C	119/133 (90%)	117 (98%)	2 (2%)	60	85
1	D	119/133 (90%)	117 (98%)	2 (2%)	60	85
1	E	119/133 (90%)	118 (99%)	1 (1%)	81	93
1	F	119/133 (90%)	117 (98%)	2 (2%)	60	85
2	R	143/152 (94%)	139 (97%)	4 (3%)	43	77
2	S	144/152 (95%)	137 (95%)	7 (5%)	25	61
2	T	143/152 (94%)	134 (94%)	9 (6%)	18	51
2	U	142/152 (93%)	137 (96%)	5 (4%)	36	71
2	V	142/152 (93%)	138 (97%)	4 (3%)	43	77
2	W	143/152 (94%)	139 (97%)	4 (3%)	43	77
All	All	1571/1710 (92%)	1526 (97%)	45 (3%)	42	76

5 of 45 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	T	106	LEU
2	U	150	THR
2	T	129	ARG
2	U	29	GLN
2	V	62	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 38 such sidechains are listed below:

Mol	Chain	Res	Type
2	U	109	GLN
2	W	92	GLN
2	V	29	GLN
2	V	161	GLN
2	W	164	ASN

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 monosaccharides in this entry.

5.6   Ligand geometry ⓘ

Of 6 ligands modelled in this entry, 6 are monoatomic - 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	A	141/157 (89%)	-0.26	1 (0%)	87	69	30, 40, 76, 105	0
1	B	141/157 (89%)	-0.21	2 (1%)	75	49	29, 40, 75, 111	0
1	C	141/157 (89%)	-0.30	1 (0%)	87	69	31, 40, 73, 92	0
1	D	141/157 (89%)	-0.22	1 (0%)	87	69	32, 44, 75, 95	0
1	E	141/157 (89%)	-0.18	2 (1%)	75	49	34, 52, 81, 99	0
1	F	141/157 (89%)	-0.18	0	100	100	37, 51, 69, 97	0
2	R	162/173 (93%)	0.25	10 (6%)	20	7	32, 68, 108, 117	0
2	S	164/173 (94%)	0.19	8 (4%)	29	11	34, 67, 102, 111	0
2	T	162/173 (93%)	-0.07	0	100	100	38, 58, 73, 84	0
2	U	161/173 (93%)	0.07	2 (1%)	79	54	38, 60, 83, 94	0
2	V	161/173 (93%)	0.54	17 (10%)	6	2	58, 76, 115, 132	0
2	W	162/173 (93%)	0.26	6 (3%)	41	17	46, 68, 87, 97	0
All	All	1818/1980 (91%)	0.00	50 (2%)	53	25	29, 55, 96, 132	0

The worst 5 of 50 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	71	SER	3.7
1	D	71	SER	3.7
2	S	128	ALA	3.7
2	S	139	CYS	3.7
2	R	162	ILE	3.5

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

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)

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(Å^2)	Q<0.9
3	CO	V	5	1/1	0.90	0.13	71,71,71,71	0
3	CO	T	3	1/1	0.96	0.18	52,52,52,52	0
3	CO	R	2	1/1	0.97	0.20	45,45,45,45	0
3	CO	W	6	1/1	0.97	0.20	63,63,63,63	0
3	CO	S	1	1/1	0.98	0.18	57,57,57,57	0
3	CO	U	4	1/1	0.99	0.17	48,48,48,48	0

6.5 Other polymers (i)

There are no such residues in this entry.