wwPDB X-ray Structure Validation Summary Report (i)

Nov 1, 2023 – 11:40 AM EDT

PDB ID	:	3QD6
Title	:	Crystal structure of the CD40 and CD154 (CD40L) complex
Authors	:	Lee, J.-O.; Kim, Y.J.; Song, D.H.; Kim, H.M.; Park, B.S.
Deposited on	:	2011-01-18
Resolution	:	3.50 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 (i) 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 (i)) were used in the production of this report:

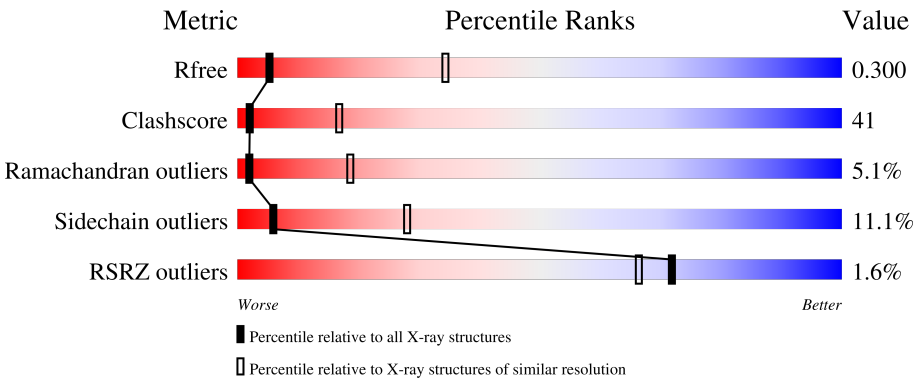
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.50 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	1659 (3.60-3.40)
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RSRZ outliers	127900	1559 (3.60-3.40)

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	149	3%; 44%; 36%; 9%; •; 9%
1	B	149	%; 38%; 45%; 7%; •; 9%
1	C	149	4%; 40%; 43%; 7%; •; 9%
1	D	149	40%; 42%; 9%; •; 9%
1	E	149	%; 44%; 39%; 7%; •; 9%

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Mol	Chain	Length	Quality of chain
1	F	149	39% 41% 11% 9%
2	R	177	24% 32% 8% 36%
2	S	177	2% 28% 31% 8% 33%
2	T	177	20% 34% 10% • 36%
2	U	177	3% 33% 29% 5% 33%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAG	C	1411	-	-	-	X

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 9896 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 CD40 ligand.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	135	1033	658	178	193	4	0	0	0
1	B	135	1033	658	178	193	4	0	0	0
1	C	135	1033	658	178	193	4	0	0	0
1	D	135	1033	658	178	193	4	0	0	0
1	E	135	1033	658	178	193	4	0	0	0
1	F	135	1033	658	178	193	4	0	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	113	ALA	-	expression tag	UNP P29965
A	114	ASP	-	expression tag	UNP P29965
A	115	PRO	-	expression tag	UNP P29965
B	113	ALA	-	expression tag	UNP P29965
B	114	ASP	-	expression tag	UNP P29965
B	115	PRO	-	expression tag	UNP P29965
C	113	ALA	-	expression tag	UNP P29965
C	114	ASP	-	expression tag	UNP P29965
C	115	PRO	-	expression tag	UNP P29965
D	113	ALA	-	expression tag	UNP P29965
D	114	ASP	-	expression tag	UNP P29965
D	115	PRO	-	expression tag	UNP P29965
E	113	ALA	-	expression tag	UNP P29965
E	114	ASP	-	expression tag	UNP P29965
E	115	PRO	-	expression tag	UNP P29965
F	113	ALA	-	expression tag	UNP P29965
F	114	ASP	-	expression tag	UNP P29965

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Chain	Residue	Modelled	Actual	Comment	Reference
F	115	PRO	-	expression tag	UNP P29965

- Molecule 2 is a protein called Tumor necrosis factor receptor superfamily member 5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	R	114	886	532	154	184	16	0	0	0
			Total	C	N	O	S			
2	S	119	921	554	159	192	16	0	0	0
			Total	C	N	O	S			
2	T	114	886	532	154	184	16	0	0	0
			Total	C	N	O	S			
2	U	119	921	554	159	192	16	0	0	0

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	191	SER	-	expression tag	UNP P25942
R	192	GLY	-	expression tag	UNP P25942
R	193	ARG	-	expression tag	UNP P25942
R	194	LEU	-	expression tag	UNP P25942
R	195	VAL	-	expression tag	UNP P25942
R	196	PRO	-	expression tag	UNP P25942
R	197	ARG	-	expression tag	UNP P25942
S	191	SER	-	expression tag	UNP P25942
S	192	GLY	-	expression tag	UNP P25942
S	193	ARG	-	expression tag	UNP P25942
S	194	LEU	-	expression tag	UNP P25942
S	195	VAL	-	expression tag	UNP P25942
S	196	PRO	-	expression tag	UNP P25942
S	197	ARG	-	expression tag	UNP P25942
T	191	SER	-	expression tag	UNP P25942
T	192	GLY	-	expression tag	UNP P25942
T	193	ARG	-	expression tag	UNP P25942
T	194	LEU	-	expression tag	UNP P25942
T	195	VAL	-	expression tag	UNP P25942
T	196	PRO	-	expression tag	UNP P25942
T	197	ARG	-	expression tag	UNP P25942
U	191	SER	-	expression tag	UNP P25942
U	192	GLY	-	expression tag	UNP P25942
U	193	ARG	-	expression tag	UNP P25942
U	194	LEU	-	expression tag	UNP P25942

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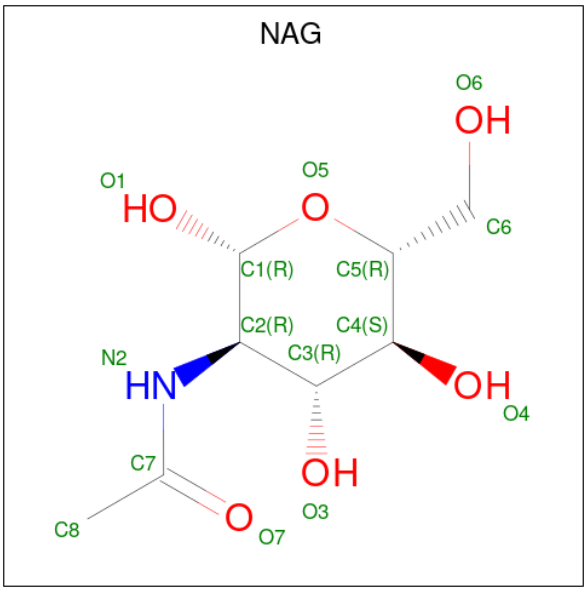
Chain	Residue	Modelled	Actual	Comment	Reference
U	195	VAL	-	expression tag	UNP P25942
U	196	PRO	-	expression tag	UNP P25942
U	197	ARG	-	expression tag	UNP P25942

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



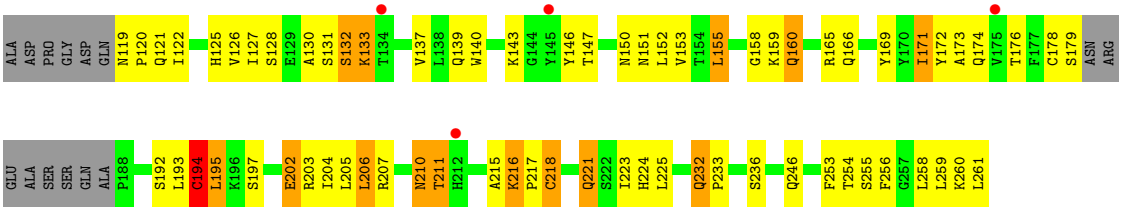
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	A	1	14	8	1	5	0	0
3	B	1	14	8	1	5	0	0
3	C	1	14	8	1	5	0	0
3	D	1	14	8	1	5	0	0
3	E	1	14	8	1	5	0	0
3	F	1	14	8	1	5	0	0

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.

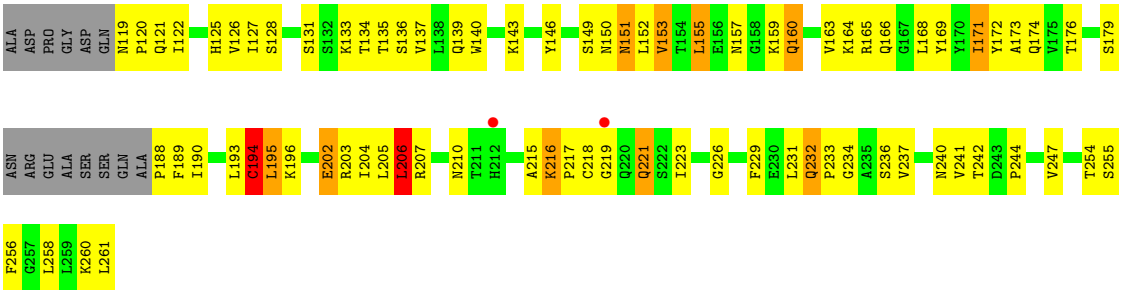
• Molecule 1: CD40 ligand

Chain A:



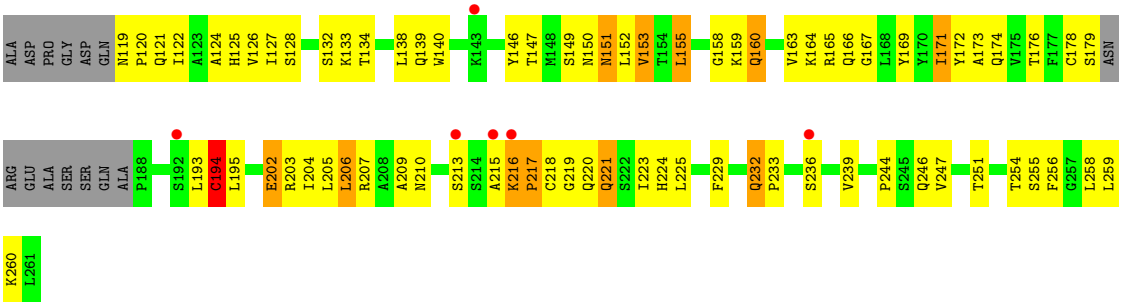
• Molecule 1: CD40 ligand

Chain B:



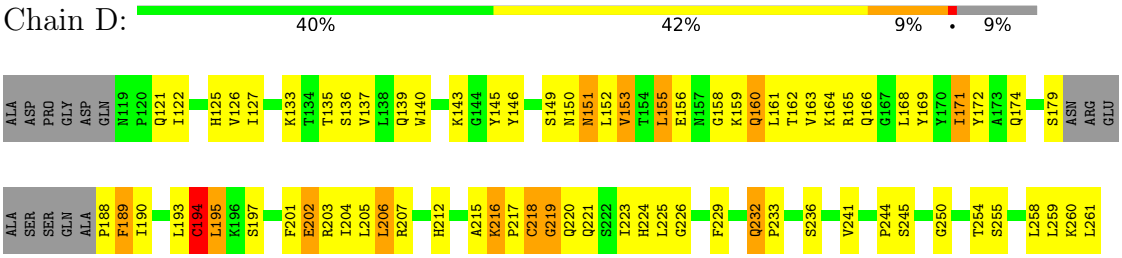
• Molecule 1: CD40 ligand

Chain C:



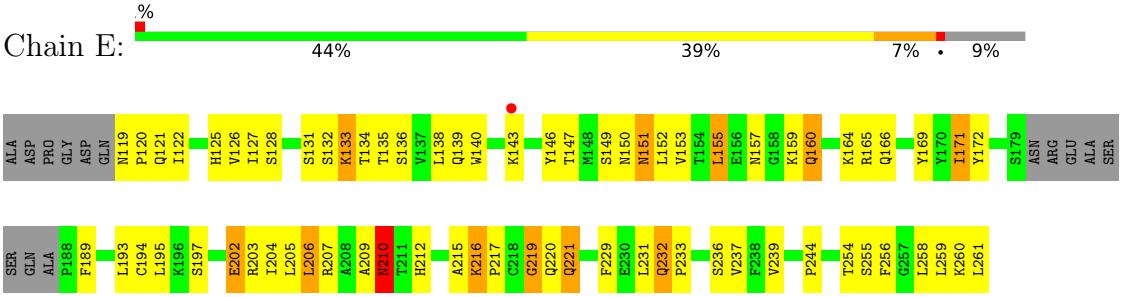
• Molecule 1: CD40 ligand

Chain D:



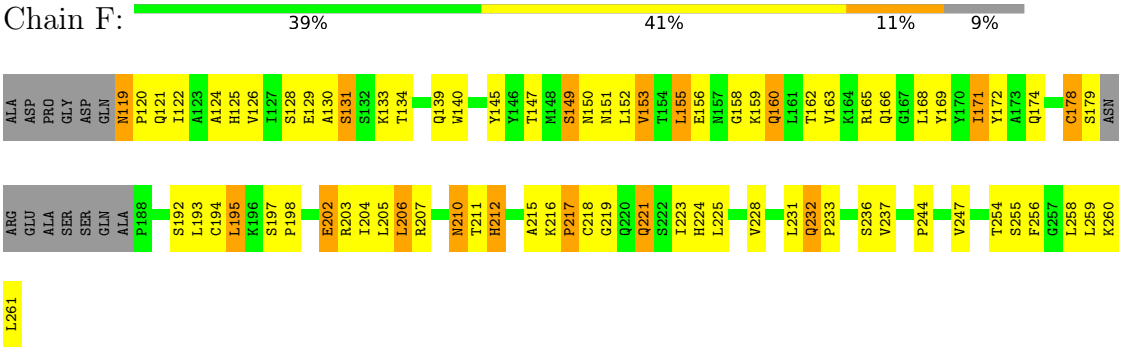
• Molecule 1: CD40 ligand

Chain E:



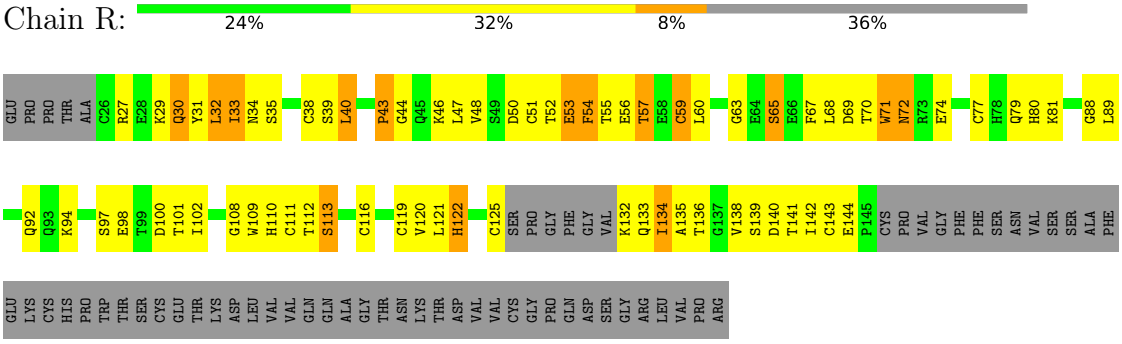
• Molecule 1: CD40 ligand

Chain F:



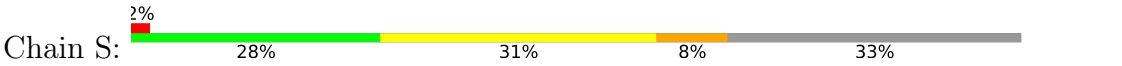
• Molecule 2: Tumor necrosis factor receptor superfamily member 5

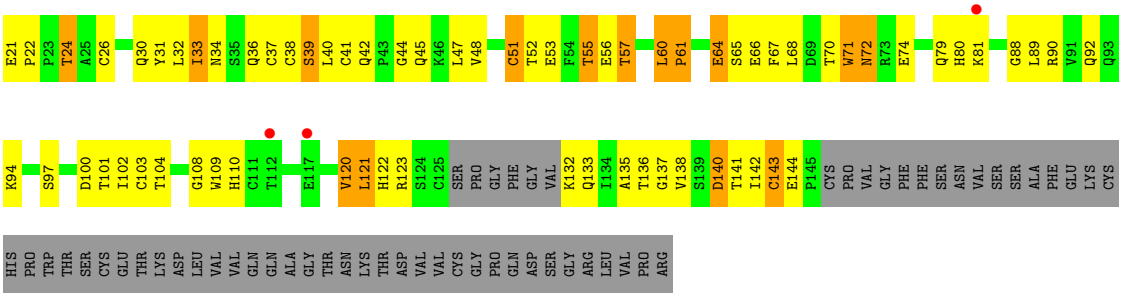
Chain R:



• Molecule 2: Tumor necrosis factor receptor superfamily member 5

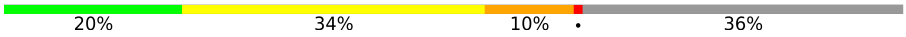
Chain S:

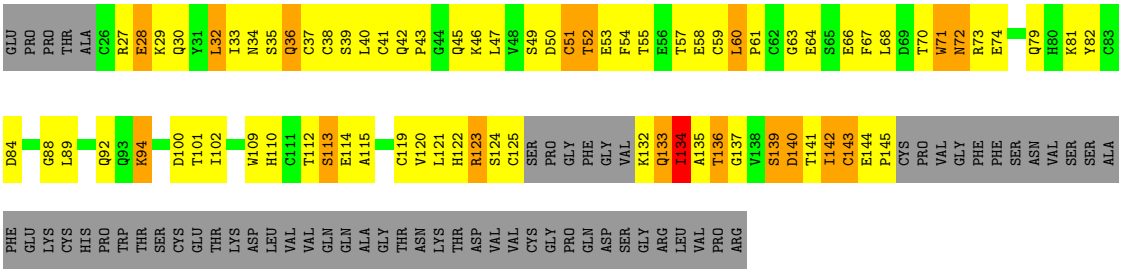




- Molecule 2: Tumor necrosis factor receptor superfamily member 5

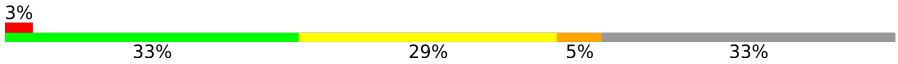
Chain T:

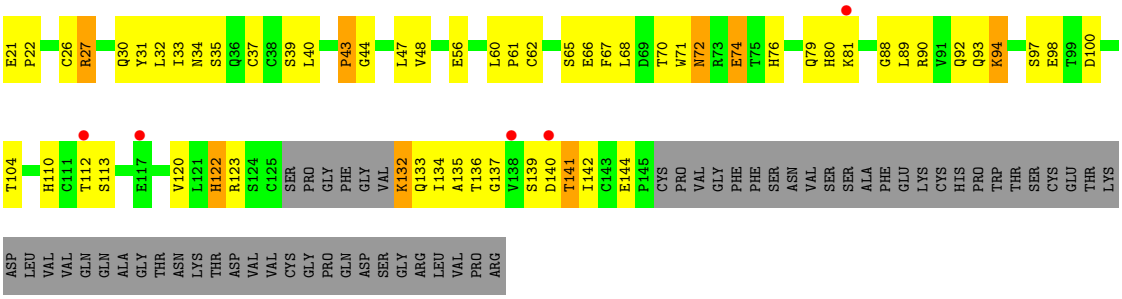




- Molecule 2: Tumor necrosis factor receptor superfamily member 5

Chain U:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 65	Depositor
Cell constants a, b, c, α, β, γ	133.21Å 133.21Å 211.15Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	114.96 – 3.50 115.36 – 3.50	Depositor EDS
% Data completeness (in resolution range)	92.9 (114.96-3.50) 92.7 (115.36-3.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	2.07 (at 3.49Å)	Xtriage
Refinement program	CNS 1.3	Depositor
R, R_{free}	0.245 , 0.298 0.246 , 0.300	Depositor DCC
R_{free} test set	1209 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å^2)	76.1	Xtriage
Anisotropy	0.002	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 58.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.45$, $< L^2 > = 0.27$	Xtriage
Estimated twinning fraction	0.064 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.83	EDS
Total number of atoms	9896	wwPDB-VP
Average B, all atoms (Å^2)	68.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.20% 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 (i)

5.1 Standard geometry (i)

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

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	0.58	1/1055 (0.1%)	0.73	0/1427
1	B	0.56	1/1055 (0.1%)	0.73	2/1427 (0.1%)
1	C	0.51	1/1055 (0.1%)	0.70	0/1427
1	D	0.55	1/1055 (0.1%)	0.71	1/1427 (0.1%)
1	E	0.49	0/1055	0.69	0/1427
1	F	0.51	0/1055	0.69	0/1427
2	R	0.42	0/901	0.61	0/1218
2	S	0.43	0/938	0.66	0/1271
2	T	0.43	0/901	0.67	0/1218
2	U	0.42	0/938	0.65	0/1271
All	All	0.50	4/10008 (0.0%)	0.69	3/13540 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	194	CYS	CB-SG	7.17	1.94	1.82
1	D	194	CYS	CB-SG	6.53	1.93	1.82
1	B	194	CYS	CB-SG	5.67	1.91	1.82
1	C	194	CYS	CB-SG	5.36	1.91	1.82

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	194	CYS	CA-CB-SG	6.36	125.45	114.00
1	D	194	CYS	CA-CB-SG	5.36	123.64	114.00
1	B	206	LEU	CA-CB-CG	5.16	127.18	115.30

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	1033	0	1030	83	0
1	B	1033	0	1031	96	0
1	C	1033	0	1030	86	0
1	D	1033	0	1030	81	0
1	E	1033	0	1030	80	0
1	F	1033	0	1030	86	0
2	R	886	0	803	80	0
2	S	921	0	835	67	0
2	T	886	0	803	95	0
2	U	921	0	835	60	0
3	A	14	0	13	0	0
3	B	14	0	13	4	0
3	C	14	0	13	1	0
3	D	14	0	13	1	0
3	E	14	0	13	1	0
3	F	14	0	13	3	0
All	All	9896	0	9535	788	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 41.

The worst 5 of 788 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:T:136:THR:HG22	2:T:139:SER:HB2	1.25	1.16
1:D:259:LEU:HD22	1:E:261:LEU:HD21	1.27	1.15
1:B:171:ILE:HD11	1:B:193:LEU:HD11	1.32	1.11
1:E:166:GLN:HB2	1:E:233:PRO:HD3	1.32	1.11
1:E:216:LYS:HB2	1:E:217:PRO:HD3	1.28	1.08

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	131/149 (88%)	107 (82%)	18 (14%)	6 (5%)	2	21
1	B	131/149 (88%)	106 (81%)	21 (16%)	4 (3%)	4	30
1	C	131/149 (88%)	106 (81%)	22 (17%)	3 (2%)	6	36
1	D	131/149 (88%)	109 (83%)	16 (12%)	6 (5%)	2	21
1	E	131/149 (88%)	111 (85%)	16 (12%)	4 (3%)	4	30
1	F	131/149 (88%)	109 (83%)	13 (10%)	9 (7%)	1	12
2	R	110/177 (62%)	82 (74%)	16 (14%)	12 (11%)	0	6
2	S	115/177 (65%)	78 (68%)	34 (30%)	3 (3%)	5	33
2	T	110/177 (62%)	80 (73%)	20 (18%)	10 (9%)	1	8
2	U	115/177 (65%)	86 (75%)	23 (20%)	6 (5%)	2	18
All	All	1236/1602 (77%)	974 (79%)	199 (16%)	63 (5%)	2	19

5 of 63 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	132	SER
1	A	133	LYS
1	A	216	LYS
1	B	216	LYS
1	D	216	LYS

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	114/124 (92%)	100 (88%)	14 (12%)	4	23
1	B	114/124 (92%)	104 (91%)	10 (9%)	10	38
1	C	114/124 (92%)	102 (90%)	12 (10%)	7	31
1	D	114/124 (92%)	103 (90%)	11 (10%)	8	34
1	E	114/124 (92%)	101 (89%)	13 (11%)	5	26
1	F	114/124 (92%)	100 (88%)	14 (12%)	4	23
2	R	106/160 (66%)	97 (92%)	9 (8%)	10	39
2	S	110/160 (69%)	93 (84%)	17 (16%)	2	16
2	T	106/160 (66%)	91 (86%)	15 (14%)	3	19
2	U	110/160 (69%)	101 (92%)	9 (8%)	11	40
All	All	1116/1384 (81%)	992 (89%)	124 (11%)	6	28

5 of 124 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	210	ASN
2	T	123	ARG
1	F	206	LEU
2	T	92	GLN
2	U	56	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 47 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	210	ASN
2	S	30	GLN
1	F	119	ASN
1	F	160	GLN
2	S	110	HIS

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 (i)

6 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	NAG	B	1411	1	14,14,15	0.78	1 (7%)	17,19,21	0.75	0
3	NAG	E	1411	1	14,14,15	0.90	1 (7%)	17,19,21	1.41	3 (17%)
3	NAG	C	1411	1	14,14,15	0.77	0	17,19,21	0.90	1 (5%)
3	NAG	F	1411	1	14,14,15	1.03	1 (7%)	17,19,21	0.78	0
3	NAG	D	1411	1	14,14,15	0.89	1 (7%)	17,19,21	0.74	0
3	NAG	A	1411	1	14,14,15	0.74	1 (7%)	17,19,21	0.98	1 (5%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	B	1411	1	-	4/6/23/26	0/1/1/1
3	NAG	E	1411	1	-	3/6/23/26	0/1/1/1
3	NAG	C	1411	1	-	4/6/23/26	0/1/1/1
3	NAG	F	1411	1	-	6/6/23/26	0/1/1/1
3	NAG	D	1411	1	-	4/6/23/26	0/1/1/1
3	NAG	A	1411	1	-	3/6/23/26	0/1/1/1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1411	NAG	C1-C2	2.33	1.55	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1411	NAG	C1-C2	2.16	1.55	1.52
3	E	1411	NAG	C4-C5	2.11	1.57	1.53
3	B	1411	NAG	C1-C2	2.03	1.55	1.52
3	D	1411	NAG	C1-C2	2.02	1.55	1.52

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	E	1411	NAG	C2-N2-C7	-2.73	119.01	122.90
3	E	1411	NAG	C4-C3-C2	-2.71	107.04	111.02
3	E	1411	NAG	C1-O5-C5	2.59	115.71	112.19
3	A	1411	NAG	C3-C4-C5	-2.22	106.28	110.24
3	C	1411	NAG	C3-C4-C5	2.16	114.10	110.24

There are no chirality outliers.

5 of 24 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1411	NAG	C3-C2-N2-C7
3	A	1411	NAG	C8-C7-N2-C2
3	A	1411	NAG	O7-C7-N2-C2
3	B	1411	NAG	C8-C7-N2-C2
3	B	1411	NAG	O7-C7-N2-C2

There are no ring outliers.

5 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1411	NAG	4	0
3	E	1411	NAG	1	0
3	C	1411	NAG	1	0
3	F	1411	NAG	3	0
3	D	1411	NAG	1	0

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 (i)

6.1 Protein, DNA and RNA chains (i)

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	135/149 (90%)	0.25	4 (2%) 50 44	29, 58, 89, 97	0
1	B	135/149 (90%)	0.20	2 (1%) 73 68	29, 58, 84, 88	0
1	C	135/149 (90%)	0.37	6 (4%) 34 30	29, 59, 91, 99	0
1	D	135/149 (90%)	0.17	0 100 100	27, 56, 79, 94	0
1	E	135/149 (90%)	0.30	1 (0%) 87 83	29, 59, 89, 98	0
1	F	135/149 (90%)	0.25	0 100 100	29, 59, 91, 96	0
2	R	114/177 (64%)	-0.09	0 100 100	60, 88, 106, 112	0
2	S	119/177 (67%)	0.29	3 (2%) 57 51	41, 71, 110, 115	0
2	T	114/177 (64%)	0.10	0 100 100	58, 79, 112, 119	0
2	U	119/177 (67%)	0.20	5 (4%) 36 32	43, 75, 101, 105	0
All	All	1276/1602 (79%)	0.21	21 (1%) 72 66	27, 65, 101, 119	0

The worst 5 of 21 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	213	SER	3.7
2	U	117	GLU	3.0
2	S	112	THR	3.0
2	U	112	THR	2.8
1	A	134	THR	2.8

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)

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	NAG	C	1411	14/15	0.73	0.49	88,94,97,97	0
3	NAG	F	1411	14/15	0.76	0.33	75,81,82,83	0
3	NAG	E	1411	14/15	0.77	0.34	74,79,81,81	0
3	NAG	D	1411	14/15	0.83	0.23	84,89,92,92	0
3	NAG	B	1411	14/15	0.88	0.17	81,84,86,86	0
3	NAG	A	1411	14/15	0.89	0.23	78,82,86,87	0

6.5 Other polymers (i)

There are no such residues in this entry.