wwPDB X-ray Structure Validation Summary Report (i)

May 26, 2016 – 07:49 PM EDT

PDB ID	:	5FLJ
Title	:	enzyme-substrate-dioxygen complex of Ni-quercetinase
Authors	:	Jeoung, J.-H.; Nianios, D.; Fetzner, S.; Dobbek, H.
Deposited on	:	2015-10-26
Resolution	:	1.82 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
http://wwpdb.org/validation/2016/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

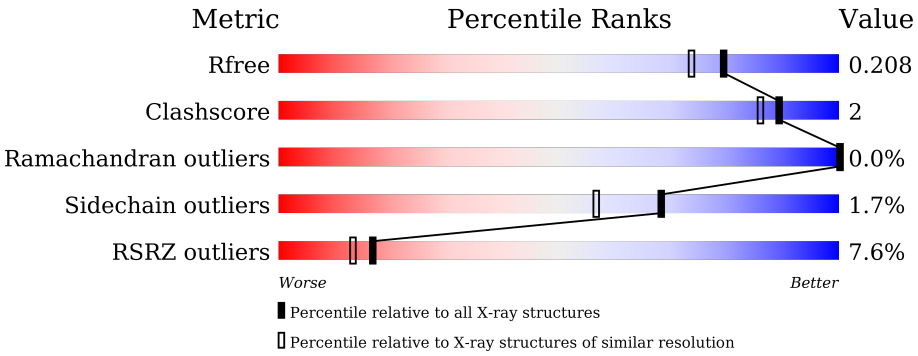
MolProbity	:	4.02b-467
Mogul	:	1.7.1 (RC1), CSD as537be (2016)
Xtriage (Phenix)	:	1.9-1692
EDS	:	rb-20027674
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	rb-20027674

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 1.82 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}	91344	5422 (1.84-1.80)
Clashscore	102246	6347 (1.84-1.80)
Ramachandran outliers	100387	6276 (1.84-1.80)
Sidechain outliers	100360	6276 (1.84-1.80)
RSRZ outliers	91569	5439 (1.84-1.80)

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 >=3, 2, 1 and 0 types of geometric quality criteria. 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	186	12% 94%
1	B	186	5% 95%
1	C	186	10% 92% 6%
1	D	186	5% 92% 6%
1	E	186	4% 90% 8%
1	F	186	5% 92% 6%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	G	186	4% 92% 6%
1	H	186	5% 90% 8%
1	I	186	9% 92% 6%
1	J	186	9% 89% 10%
1	K	186	10% 92% 6%
1	L	186	12% 91% 8%

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	QUE	E	301	-	-	-	X
3	QUE	H	301	-	-	-	X
3	QUE	L	301	-	-	-	X
4	DMS	A	1185	-	-	-	X
4	DMS	B	1186	-	-	-	X
4	DMS	D	1186	-	-	-	X
4	DMS	D	1187	-	-	-	X
4	DMS	D	1188	-	-	-	X
4	DMS	E	1186	-	-	-	X
4	DMS	E	1187	-	-	-	X
4	DMS	F	1186	-	-	-	X
4	DMS	G	1186	-	-	-	X
4	DMS	H	1186	-	-	-	X
4	DMS	H	1187	-	-	-	X
4	DMS	I	1186	-	-	-	X
4	DMS	J	1186	-	-	-	X
4	DMS	K	1186	-	-	-	X
4	DMS	L	1186	-	-	-	X
5	OXY	C	302	-	-	X	X
5	OXY	F	302	-	-	X	X

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 19465 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 QUERCETINASE QUED.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	182	Total	C	N	O	S	0	3	0
			1484	956	256	269	3			
1	B	183	Total	C	N	O	S	0	3	0
			1493	959	261	270	3			
1	C	183	Total	C	N	O	S	0	6	0
			1511	971	266	270	4			
1	D	183	Total	C	N	O	S	0	4	0
			1493	959	259	271	4			
1	E	183	Total	C	N	O	S	0	3	0
			1486	954	256	272	4			
1	F	183	Total	C	N	O	S	0	1	0
			1479	950	257	269	3			
1	G	183	Total	C	N	O	S	0	3	0
			1488	956	258	270	4			
1	H	183	Total	C	N	O	S	0	3	0
			1488	956	257	271	4			
1	I	183	Total	C	N	O	S	0	2	0
			1485	954	258	270	3			
1	J	183	Total	C	N	O	S	0	1	0
			1478	949	256	270	3			
1	K	183	Total	C	N	O	S	0	1	0
			1479	950	257	269	3			
1	L	184	Total	C	N	O	S	0	1	0
			1485	953	257	272	3			

- Molecule 2 is NICKEL (II) ION (three-letter code: NI) (formula: Ni).

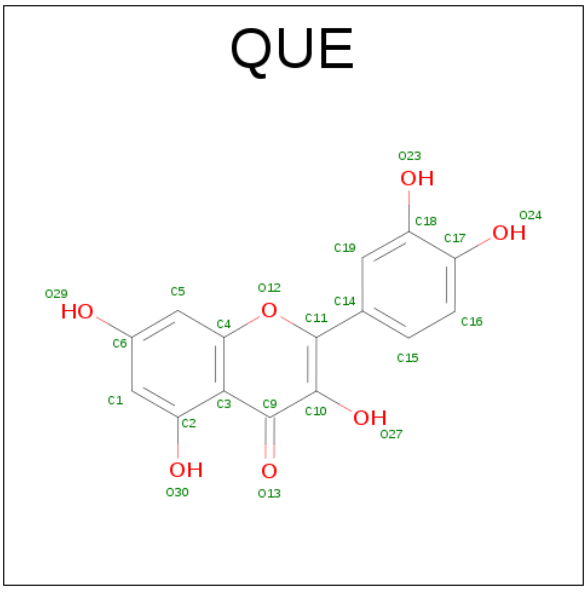
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	G	1	Total	Ni	0	0
			1	1		
2	J	1	Total	Ni	0	0
			1	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	D	1	Total Ni 1 1	0	0
2	K	1	Total Ni 1 1	0	0
2	E	1	Total Ni 1 1	0	0
2	H	1	Total Ni 1 1	0	0
2	B	1	Total Ni 1 1	0	0
2	I	1	Total Ni 1 1	0	0
2	C	1	Total Ni 1 1	0	0
2	A	1	Total Ni 1 1	0	0
2	L	1	Total Ni 1 1	0	0
2	F	1	Total Ni 1 1	0	0

- Molecule 3 is 3,5,7,3',4'-PENTAHYDROXYFLAVONE (three-letter code: QUE) (formula: $C_{15}H_{10}O_7$).



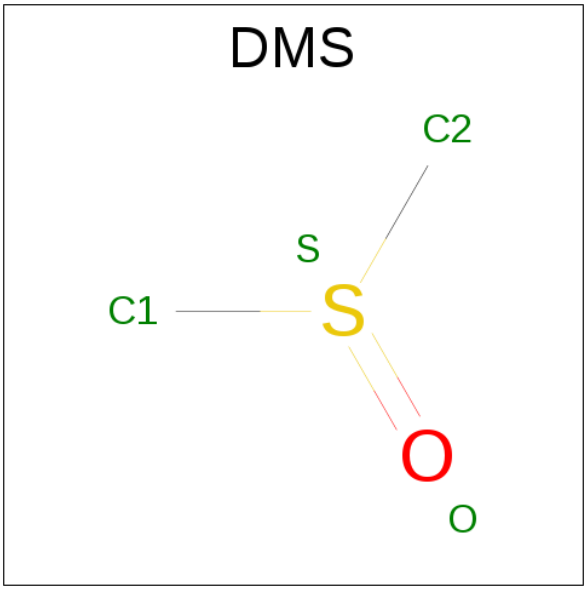
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 22 15 7	0	0

Continued on next page...

Continued from previous page...

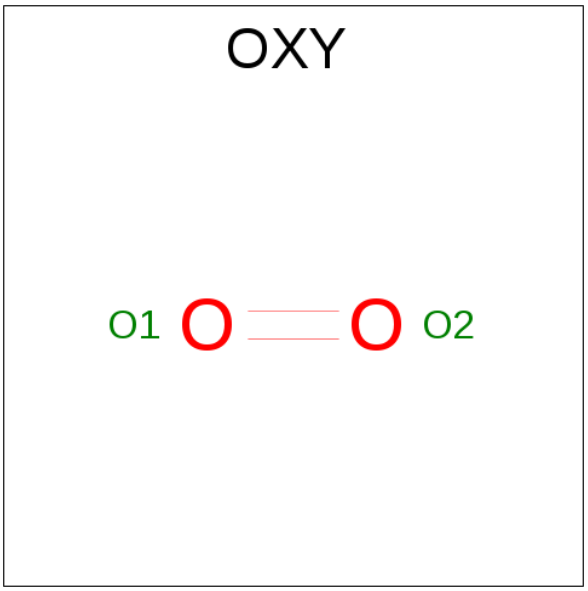
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total C O 22 15 7	0	0
3	C	1	Total C O 22 15 7	0	0
3	D	1	Total C O 22 15 7	0	0
3	E	1	Total C O 22 15 7	0	0
3	F	1	Total C O 22 15 7	0	0
3	G	1	Total C O 22 15 7	0	0
3	H	1	Total C O 22 15 7	0	0
3	I	1	Total C O 22 15 7	0	0
3	J	1	Total C O 22 15 7	0	0
3	K	1	Total C O 22 15 7	0	0
3	L	1	Total C O 22 15 7	0	0

- Molecule 4 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	B	1	Total	C	O	S	0	0
			4	2	1	1		
4	D	1	Total	C	O	S	0	0
			4	2	1	1		
4	D	1	Total	C	O	S	0	0
			4	2	1	1		
4	D	1	Total	C	O	S	0	0
			4	2	1	1		
4	E	1	Total	C	O	S	0	0
			4	2	1	1		
4	E	1	Total	C	O	S	0	0
			4	2	1	1		
4	F	1	Total	C	O	S	0	0
			4	2	1	1		
4	G	1	Total	C	O	S	0	0
			4	2	1	1		
4	H	1	Total	C	O	S	0	0
			4	2	1	1		
4	H	1	Total	C	O	S	0	0
			4	2	1	1		
4	I	1	Total	C	O	S	0	0
			4	2	1	1		
4	J	1	Total	C	O	S	0	0
			4	2	1	1		
4	K	1	Total	C	O	S	0	0
			4	2	1	1		
4	L	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 5 is OXYGEN MOLECULE (three-letter code: OXY) (formula: O_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total O 2 2	0	0
5	F	1	Total O 2 2	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	112	Total O 112 112	0	0
6	B	119	Total O 119 119	0	0
6	C	124	Total O 124 124	0	0
6	D	119	Total O 119 119	0	0
6	E	121	Total O 121 121	0	0
6	F	105	Total O 105 105	0	0
6	G	123	Total O 123 123	0	0
6	H	105	Total O 105 105	0	0
6	I	100	Total O 100 100	0	0
6	J	81	Total O 81 81	0	0

Continued on next page...

Continued from previous page...

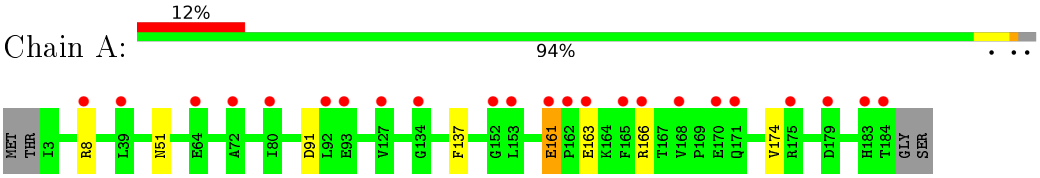
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	K	82	Total O 82 82	0	0
6	L	85	Total O 85 85	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

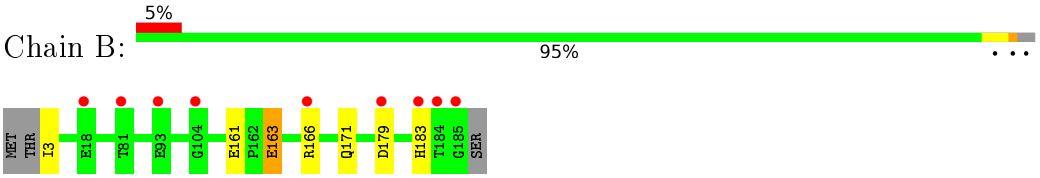
- Molecule 1: QUERCETINASE QUED

Chain A:



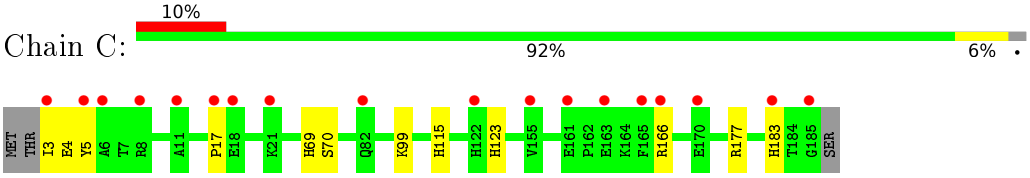
- Molecule 1: QUERCETINASE QUED

Chain B:



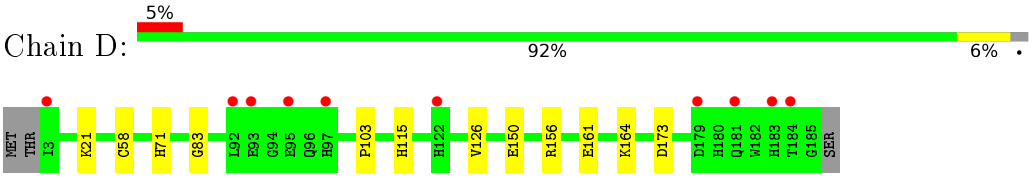
- Molecule 1: QUERCETINASE QUED

Chain C:



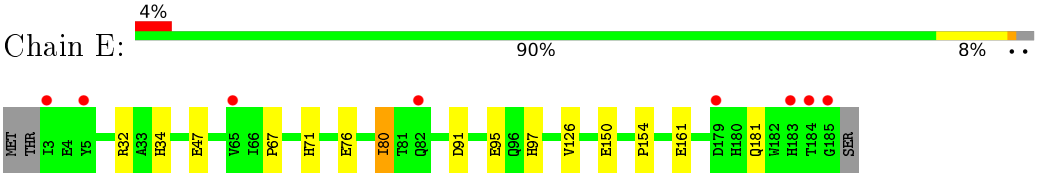
- Molecule 1: QUERCETINASE QUED

Chain D:



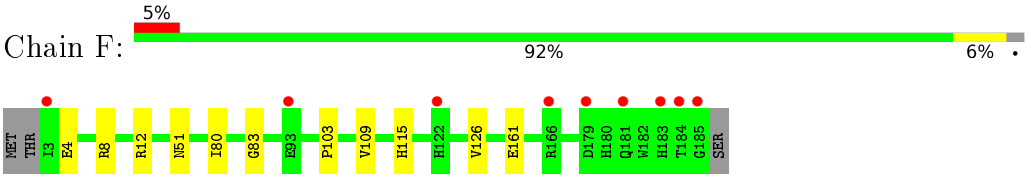
- Molecule 1: QUERCETINASE QUED

Chain E:



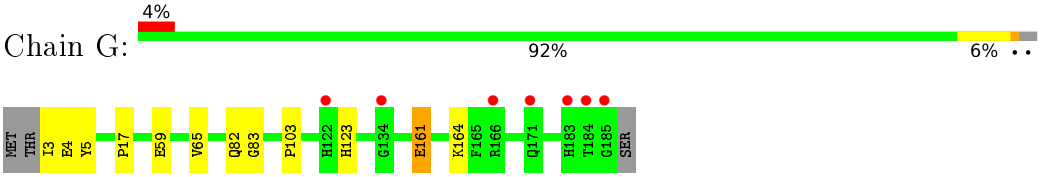
- Molecule 1: QUERCETINASE QUED

Chain F:



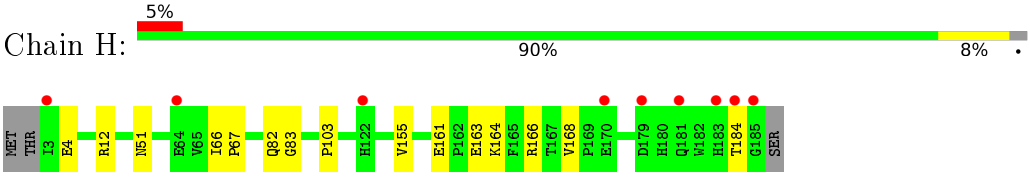
• Molecule 1: QUERCETINASE QUED

Chain G:



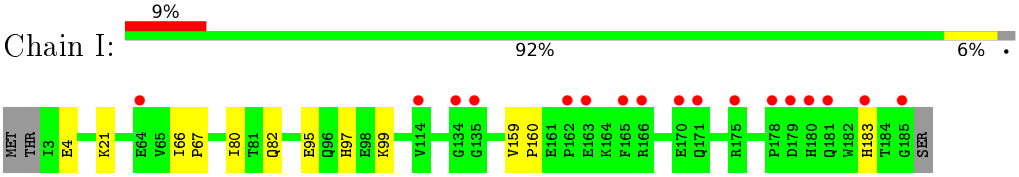
• Molecule 1: QUERCETINASE QUED

Chain H:



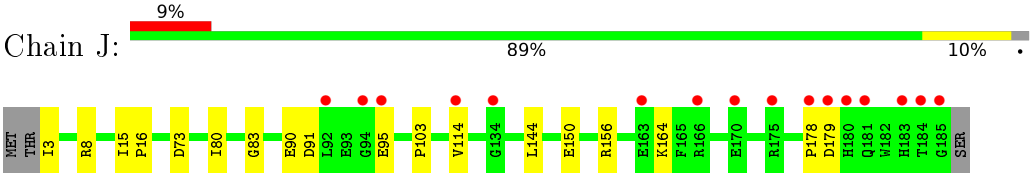
• Molecule 1: QUERCETINASE QUED

Chain I:



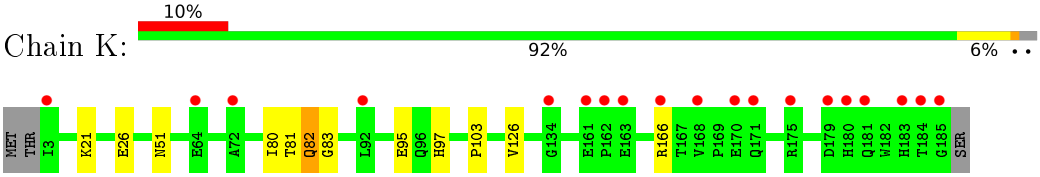
• Molecule 1: QUERCETINASE QUED

Chain J:



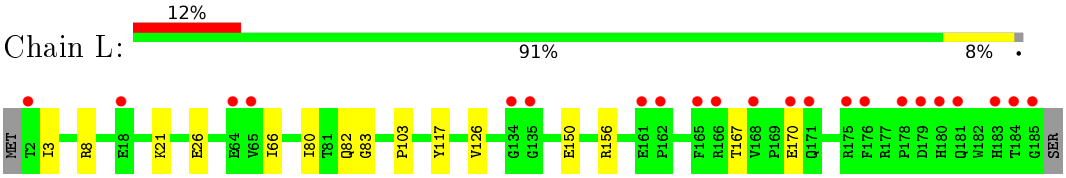
• Molecule 1: QUERCETINASE QUED

Chain K:



• Molecule 1: QUERCETINASE QUED

Chain L:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	102.81Å 114.59Å 105.99Å 90.00° 95.61° 90.00°	Depositor
Resolution (Å)	38.80 – 1.82 47.91 – 1.82	Depositor EDS
% Data completeness (in resolution range)	96.1 (38.80-1.82) 96.1 (47.91-1.82)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.36 (at 1.82Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.164 , 0.208 0.164 , 0.208	Depositor DCC
R_{free} test set	10532 reflections (5.00%)	DCC
Wilson B-factor (Å^2)	30.6	Xtriage
Anisotropy	0.120	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 57.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.008 for l,-k,h	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	19465	wwPDB-VP
Average B, all atoms (Å^2)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.92% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: NI, DMS, QUE, OXY

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	0.41	0/1543	0.57	0/2095
1	B	0.43	0/1553	0.55	0/2108
1	C	0.43	0/1581	0.55	0/2147
1	D	0.45	0/1556	0.57	0/2113
1	E	0.44	0/1545	0.56	0/2098
1	F	0.43	0/1533	0.55	0/2082
1	G	0.47	0/1548	0.59	0/2102
1	H	0.45	0/1548	0.58	0/2102
1	I	0.41	0/1542	0.55	0/2094
1	J	0.38	0/1531	0.53	0/2079
1	K	0.42	0/1533	0.57	0/2082
1	L	0.38	0/1538	0.53	0/2089
All	All	0.43	0/18551	0.56	0/25191

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	1484	0	1412	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1493	0	1413	2	0
1	C	1511	0	1438	6	0
1	D	1493	0	1411	10	0
1	E	1486	0	1402	10	0
1	F	1479	0	1392	5	0
1	G	1488	0	1405	6	0
1	H	1488	0	1403	9	0
1	I	1485	0	1400	6	0
1	J	1478	0	1393	10	0
1	K	1479	0	1392	8	0
1	L	1485	0	1400	10	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	J	1	0	0	0	0
2	K	1	0	0	0	0
2	L	1	0	0	0	0
3	A	22	0	6	0	0
3	B	22	0	6	0	0
3	C	22	0	7	3	0
3	D	22	0	8	1	0
3	E	22	0	6	0	0
3	F	22	0	6	2	0
3	G	22	0	7	0	0
3	H	22	0	6	0	0
3	I	22	0	6	0	0
3	J	22	0	7	0	0
3	K	22	0	7	0	0
3	L	22	0	6	0	0
4	A	4	0	6	0	0
4	B	4	0	6	0	0
4	D	12	0	18	2	0
4	E	8	0	12	1	0
4	F	4	0	6	0	0
4	G	4	0	6	0	0
4	H	8	0	12	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	I	4	0	6	1	0
4	J	4	0	6	1	0
4	K	4	0	6	0	0
4	L	4	0	6	0	0
5	C	2	0	0	3	0
5	F	2	0	0	3	0
6	A	112	0	0	1	0
6	B	119	0	0	1	0
6	C	124	0	0	1	0
6	D	119	0	0	2	0
6	E	121	0	0	4	0
6	F	105	0	0	0	0
6	G	123	0	0	2	0
6	H	105	0	0	1	0
6	I	100	0	0	1	0
6	J	81	0	0	4	0
6	K	82	0	0	0	0
6	L	85	0	0	0	0
All	All	19465	0	17029	86	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 2.

The worst 5 of 86 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)
3:F:301:QUE:C10	5:F:302:OXY:O1	2.34	0.76
3:C:301:QUE:C10	5:C:302:OXY:O2	2.34	0.75
4:I:1186:DMS:O	6:I:2057:HOH:O	2.03	0.74
1:H:82:GLN:HE22	1:L:82[B]:GLN:HE22	1.36	0.72
1:H:163:GLU:OE2	1:H:166:ARG:NH2	2.23	0.71

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	183/186 (98%)	178 (97%)	5 (3%)	0	100	100
1	B	184/186 (99%)	179 (97%)	5 (3%)	0	100	100
1	C	187/186 (100%)	185 (99%)	2 (1%)	0	100	100
1	D	185/186 (100%)	184 (100%)	1 (0%)	0	100	100
1	E	184/186 (99%)	182 (99%)	2 (1%)	0	100	100
1	F	182/186 (98%)	179 (98%)	3 (2%)	0	100	100
1	G	184/186 (99%)	182 (99%)	2 (1%)	0	100	100
1	H	184/186 (99%)	183 (100%)	1 (0%)	0	100	100
1	I	183/186 (98%)	180 (98%)	3 (2%)	0	100	100
1	J	182/186 (98%)	177 (97%)	4 (2%)	1 (0%)	34	17
1	K	182/186 (98%)	181 (100%)	1 (0%)	0	100	100
1	L	183/186 (98%)	182 (100%)	1 (0%)	0	100	100
All	All	2203/2232 (99%)	2172 (99%)	30 (1%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	J	178	PRO

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	156/156 (100%)	153 (98%)	3 (2%)	65	52
1	B	156/156 (100%)	151 (97%)	5 (3%)	46	28
1	C	159/156 (102%)	156 (98%)	3 (2%)	65	52
1	D	157/156 (101%)	157 (100%)	0	100	100
1	E	156/156 (100%)	154 (99%)	2 (1%)	76	67

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	F	154/156 (99%)	151 (98%)	3 (2%)	65 52
1	G	156/156 (100%)	154 (99%)	2 (1%)	76 67
1	H	156/156 (100%)	154 (99%)	2 (1%)	76 67
1	I	155/156 (99%)	152 (98%)	3 (2%)	65 52
1	J	154/156 (99%)	152 (99%)	2 (1%)	76 67
1	K	154/156 (99%)	150 (97%)	4 (3%)	54 37
1	L	155/156 (99%)	153 (99%)	2 (1%)	76 67
All	All	1868/1872 (100%)	1837 (98%)	31 (2%)	68 57

5 of 31 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	51	ASN
1	G	161	GLU
1	K	166	ARG
1	F	161	GLU
1	H	51	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
1	F	82	GLN
1	G	123	HIS
1	J	180	HIS
1	E	97	HIS
1	H	171	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)

Of 41 ligands modelled in this entry, 12 are monoatomic - leaving 29 for Mogul analysis.

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	$\#\|Z\| > 2$
4	DMS	A	1185	-	3,3,3	0.60	0	3,3,3	0.49	0
3	QUE	A	301	2	20,24,24	1.37	3 (15%)	27,36,36	1.83	5 (18%)
4	DMS	B	1186	-	3,3,3	0.54	0	3,3,3	0.41	0
3	QUE	B	301	2	20,24,24	1.17	2 (10%)	27,36,36	1.93	6 (22%)
3	QUE	C	301	2	20,24,24	1.00	1 (5%)	27,36,36	0.98	1 (3%)
5	OXY	C	302	2	1,1,1	0.23	0	0,0,0	0.00	-
4	DMS	D	1186	-	3,3,3	0.60	0	3,3,3	0.41	0
4	DMS	D	1187	-	3,3,3	0.63	0	3,3,3	0.50	0
4	DMS	D	1188	-	3,3,3	0.66	0	3,3,3	0.70	0
3	QUE	D	301	2	20,24,24	1.37	3 (15%)	27,36,36	1.99	6 (22%)
4	DMS	E	1186	-	3,3,3	0.57	0	3,3,3	0.37	0
4	DMS	E	1187	-	3,3,3	0.64	0	3,3,3	0.56	0
3	QUE	E	301	2	20,24,24	1.78	6 (30%)	27,36,36	1.85	4 (14%)
4	DMS	F	1186	-	3,3,3	0.60	0	3,3,3	0.61	0
3	QUE	F	301	2	20,24,24	1.08	1 (5%)	27,36,36	1.16	3 (11%)
5	OXY	F	302	2	1,1,1	0.22	0	0,0,0	0.00	-
4	DMS	G	1186	-	3,3,3	0.70	0	3,3,3	0.27	0
3	QUE	G	301	2	20,24,24	1.64	4 (20%)	27,36,36	1.91	7 (25%)
4	DMS	H	1186	-	3,3,3	0.63	0	3,3,3	0.58	0
4	DMS	H	1187	-	3,3,3	0.65	0	3,3,3	0.52	0
3	QUE	H	301	2	20,24,24	1.59	5 (25%)	27,36,36	1.98	6 (22%)
4	DMS	I	1186	-	3,3,3	0.54	0	3,3,3	0.32	0
3	QUE	I	301	2	20,24,24	1.43	3 (15%)	27,36,36	1.87	5 (18%)
4	DMS	J	1186	-	3,3,3	0.60	0	3,3,3	0.41	0
3	QUE	J	301	2	20,24,24	1.47	3 (15%)	27,36,36	1.76	5 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	DMS	K	1186	-	3,3,3	0.59	0	3,3,3	0.27	0
3	QUE	K	301	2	20,24,24	1.31	3 (15%)	27,36,36	1.93	6 (22%)
4	DMS	L	1186	-	3,3,3	0.65	0	3,3,3	0.52	0
3	QUE	L	301	2	20,24,24	1.56	3 (15%)	27,36,36	1.89	5 (18%)

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
4	DMS	A	1185	-	-	0/0/0/0	0/0/0/0
3	QUE	A	301	2	-	0/4/4/4	0/3/3/3
4	DMS	B	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	B	301	2	-	0/4/4/4	0/3/3/3
3	QUE	C	301	2	-	0/4/4/4	0/3/3/3
5	OXY	C	302	2	-	0/0/0/0	0/0/0/0
4	DMS	D	1186	-	-	0/0/0/0	0/0/0/0
4	DMS	D	1187	-	-	0/0/0/0	0/0/0/0
4	DMS	D	1188	-	-	0/0/0/0	0/0/0/0
3	QUE	D	301	2	-	0/4/4/4	0/3/3/3
4	DMS	E	1186	-	-	0/0/0/0	0/0/0/0
4	DMS	E	1187	-	-	0/0/0/0	0/0/0/0
3	QUE	E	301	2	-	0/4/4/4	0/3/3/3
4	DMS	F	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	F	301	2	-	0/4/4/4	0/3/3/3
5	OXY	F	302	2	-	0/0/0/0	0/0/0/0
4	DMS	G	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	G	301	2	-	0/4/4/4	0/3/3/3
4	DMS	H	1186	-	-	0/0/0/0	0/0/0/0
4	DMS	H	1187	-	-	0/0/0/0	0/0/0/0
3	QUE	H	301	2	-	0/4/4/4	0/3/3/3
4	DMS	I	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	I	301	2	-	0/4/4/4	0/3/3/3
4	DMS	J	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	J	301	2	-	0/4/4/4	0/3/3/3
4	DMS	K	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	K	301	2	-	0/4/4/4	0/3/3/3
4	DMS	L	1186	-	-	0/0/0/0	0/0/0/0
3	QUE	L	301	2	-	0/4/4/4	0/3/3/3

The worst 5 of 37 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	301	QUE	O27-C10	-2.98	1.25	1.35
3	C	301	QUE	O27-C10	-2.90	1.25	1.35
3	H	301	QUE	O24-C17	-2.28	1.31	1.36
3	E	301	QUE	C18-C17	-2.20	1.36	1.40
3	H	301	QUE	C18-C17	-2.07	1.36	1.40

The worst 5 of 59 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	301	QUE	C10-C9-C3	-5.33	113.58	121.27
3	K	301	QUE	C10-C9-C3	-5.28	113.66	121.27
3	D	301	QUE	C10-C9-C3	-5.01	114.05	121.27
3	I	301	QUE	C10-C9-C3	-4.97	114.10	121.27
3	B	301	QUE	C10-C9-C3	-4.94	114.14	121.27

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

9 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	301	QUE	3	0
5	C	302	OXY	3	0
4	D	1188	DMS	2	0
3	D	301	QUE	1	0
4	E	1187	DMS	1	0
3	F	301	QUE	2	0
5	F	302	OXY	3	0
4	I	1186	DMS	1	0
4	J	1186	DMS	1	0

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^{th} 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	182/186 (97%)	0.67	23 (12%) 5 4	25, 40, 72, 89	0
1	B	183/186 (98%)	0.28	9 (4%) 33 27	22, 39, 70, 86	0
1	C	183/186 (98%)	0.45	18 (9%) 10 7	22, 38, 70, 112	0
1	D	183/186 (98%)	0.15	10 (5%) 29 23	23, 34, 66, 86	0
1	E	183/186 (98%)	0.24	8 (4%) 38 31	24, 36, 67, 95	0
1	F	183/186 (98%)	0.21	9 (4%) 33 27	24, 37, 71, 102	0
1	G	183/186 (98%)	0.11	7 (3%) 44 38	24, 34, 66, 102	0
1	H	183/186 (98%)	0.11	9 (4%) 33 27	23, 34, 64, 94	0
1	I	183/186 (98%)	0.49	17 (9%) 11 8	25, 42, 74, 105	0
1	J	183/186 (98%)	0.46	16 (8%) 13 10	27, 46, 87, 98	0
1	K	183/186 (98%)	0.52	19 (10%) 8 6	26, 43, 74, 114	0
1	L	184/186 (98%)	0.41	22 (11%) 6 4	25, 46, 79, 94	0
All	All	2196/2232 (98%)	0.34	167 (7%) 17 13	22, 39, 74, 114	0

The worst 5 of 167 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	K	185	GLY	9.1
1	F	185	GLY	7.0
1	K	183	HIS	6.6
1	C	3	ILE	6.4
1	G	183	HIS	6.1

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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95^{th} 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	LLDF	B-factors(Å^2)	Q<0.9
4	DMS	E	1186	4/4	0.88	0.58	16.32	59,63,65,66	4
5	OXY	C	302	2/2	0.93	0.29	14.41	34,34,34,36	2
4	DMS	D	1186	4/4	0.89	0.50	13.50	21,41,44,57	4
4	DMS	H	1186	4/4	0.93	0.36	11.05	45,49,61,82	4
3	QUE	E	301	22/22	0.73	0.41	11.00	21,38,44,52	22
4	DMS	B	1186	4/4	0.88	0.43	10.87	25,31,55,65	4
4	DMS	L	1186	4/4	0.97	0.33	10.82	34,57,61,82	4
4	DMS	J	1186	4/4	0.91	0.44	10.26	46,51,59,75	4
5	OXY	F	302	2/2	0.98	0.26	9.17	35,35,35,36	2
4	DMS	A	1185	4/4	0.94	0.56	8.40	51,53,60,64	4
4	DMS	D	1188	4/4	0.88	0.23	6.31	19,45,70,72	4
4	DMS	D	1187	4/4	0.84	0.58	6.02	32,51,57,59	4
4	DMS	I	1186	4/4	0.94	0.40	5.87	24,33,64,66	4
4	DMS	F	1186	4/4	0.86	0.49	5.81	46,49,53,59	4
4	DMS	G	1186	4/4	0.93	0.15	4.02	38,39,40,43	4
3	QUE	H	301	22/22	0.81	0.19	3.05	27,39,47,59	22
4	DMS	K	1186	4/4	0.94	0.20	3.01	40,42,97,103	4
4	DMS	H	1187	4/4	0.93	0.26	2.89	32,49,53,58	4
3	QUE	L	301	22/22	0.74	0.20	2.51	35,43,53,54	22
4	DMS	E	1187	4/4	0.90	0.23	2.47	43,53,57,60	4
3	QUE	F	301	22/22	0.81	0.15	1.67	33,40,47,51	22
3	QUE	B	301	22/22	0.86	0.15	1.43	33,41,49,62	22
3	QUE	I	301	22/22	0.86	0.14	0.85	35,43,49,56	22
3	QUE	D	301	22/22	0.88	0.11	0.73	26,31,34,43	22
3	QUE	J	301	22/22	0.86	0.14	0.72	38,49,56,56	22
3	QUE	A	301	22/22	0.82	0.14	0.62	32,43,51,60	22
3	QUE	K	301	22/22	0.85	0.13	0.55	31,38,46,53	22
3	QUE	G	301	22/22	0.89	0.12	0.54	25,33,41,43	22
3	QUE	C	301	22/22	0.89	0.12	0.51	28,34,42,47	22

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å^2)	Q<0.9
2	NI	J	300	1/1	0.97	0.06	-	42,42,42,42	0
2	NI	G	300	1/1	0.99	0.10	-	28,28,28,28	0
2	NI	H	300	1/1	1.00	0.09	-	30,30,30,30	0
2	NI	C	300	1/1	0.98	0.10	-	30,30,30,30	0
2	NI	E	300	1/1	0.99	0.10	-	31,31,31,31	0
2	NI	K	300	1/1	0.98	0.05	-	36,36,36,36	0
2	NI	D	300	1/1	0.99	0.07	-	30,30,30,30	0
2	NI	I	300	1/1	0.96	0.07	-	35,35,35,35	0
2	NI	A	300	1/1	0.97	0.07	-	35,35,35,35	0
2	NI	B	300	1/1	0.99	0.07	-	34,34,34,34	0
2	NI	F	300	1/1	0.99	0.10	-	31,31,31,31	0
2	NI	L	300	1/1	0.96	0.07	-	37,37,37,37	0

6.5 Other polymers (i)

There are no such residues in this entry.