Full wwPDB X-ray Structure Validation Report (i)

Feb 1, 2016 – 08:20 PM GMT

PDB ID	:	4RK9
Title	:	CRYSTAL STRUCTURE OF SUGAR TRANSPORTER BL01359 FROM Bacillus licheniformis, TARGET EFI-510856, IN COMPLEX WITH STACHYOSE
Authors	:	Patskovsky, Y.; Toro, R.; Bhosle, R.; Al Obaidi, N.; Chamala, S.; Attonito, J.D.; Scott Glenn, A.; Chowdhury, S.; Lafleur, J.; Siedel, R.D.; Hillerich, B.; Love, J.; Whalen, K.L.; Gerlt, J.A.; Almo, S.C.; Enzyme Function Initiative (EFI)
Deposited on	:	2014-10-12
Resolution	:	2.15 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
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:

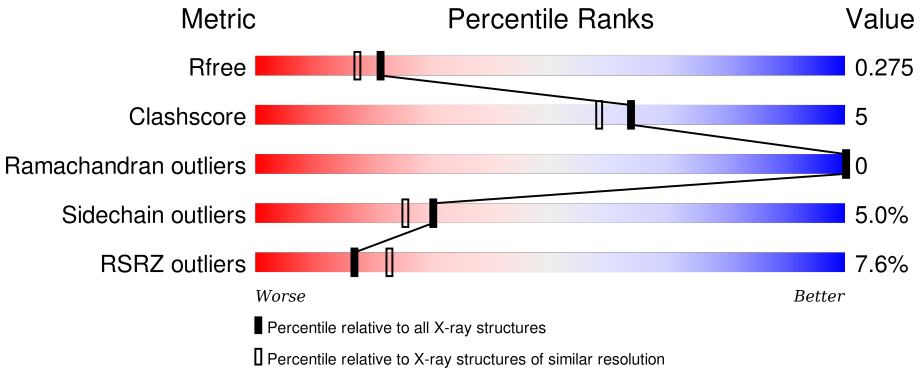
MolProbity	:	4.02b-467
Mogul	:	1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix)	:	1.9-1692
EDS	:	rb-20026688
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	trunk26865

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 2.15 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	1045 (2.16-2.16)
Clashscore	102246	1152 (2.16-2.16)
Ramachandran outliers	100387	1131 (2.16-2.16)
Sidechain outliers	100360	1131 (2.16-2.16)
RSRZ outliers	91569	1050 (2.16-2.16)

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	401	5% 81% 13%
1	B	401	10% 83% 13%

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
2	GLA	A	503	-	-	-	X

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 6432 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 Carbohydrate ABC transporter substrate-binding protein MsmE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	384	Total	C	N	O	S	0	0	0
			3082	1971	497	601	13			
1	B	384	Total	C	N	O	S	0	0	0
			3078	1969	494	602	13			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	17	SER	-	EXPRESSION TAG	UNP Q65LL6
A	18	MET	-	EXPRESSION TAG	UNP Q65LL6
B	17	SER	-	EXPRESSION TAG	UNP Q65LL6
B	18	MET	-	EXPRESSION TAG	UNP Q65LL6

- Molecule 2 is a polymer of unknown type called SUGAR (4-MER).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	4	Total	C	O	0	0
			45	24	21		
2	B	4	Total	C	O	0	0
			45	24	21		

- Molecule 3 is water.

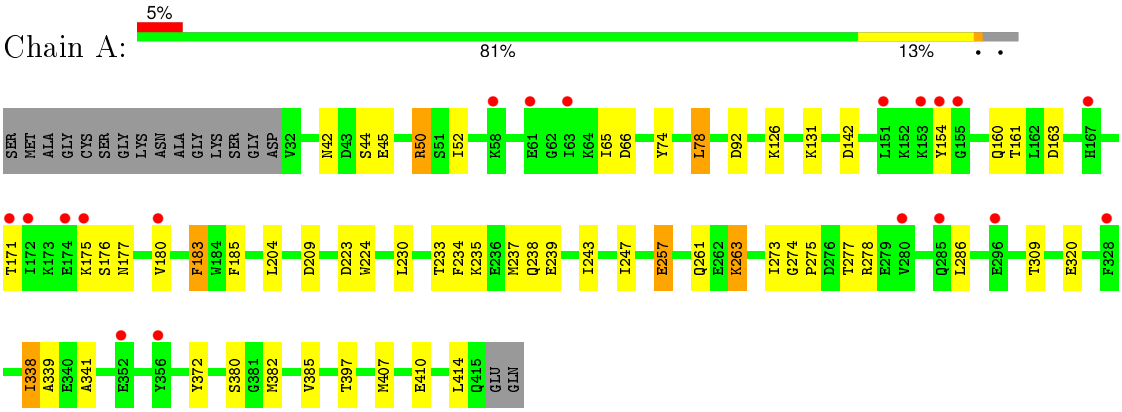
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	100	Total	O	0	0
			100	100		
3	B	82	Total	O	0	0
			82	82		

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.

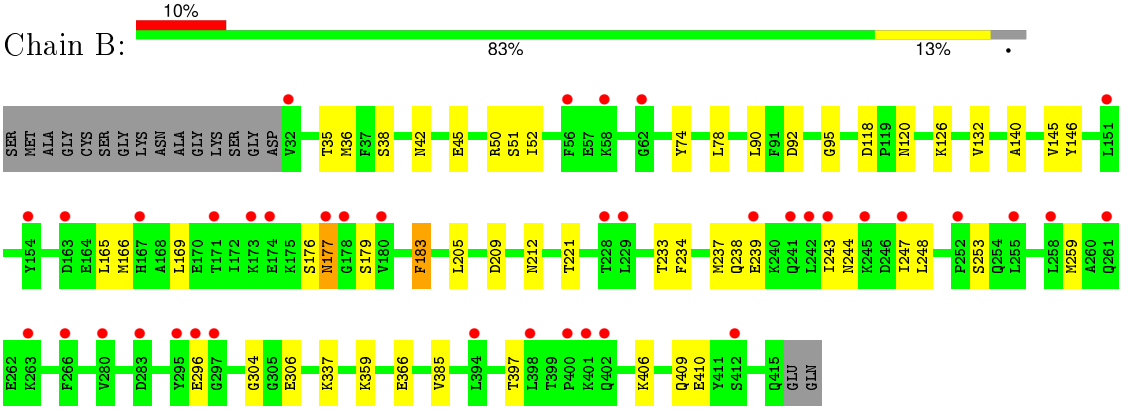
- Molecule 1: Carbohydrate ABC transporter substrate-binding protein MsmE

Chain A:



- Molecule 1: Carbohydrate ABC transporter substrate-binding protein MsmE

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	74.33Å 85.92Å 132.58Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.15 42.96 – 2.15	Depositor EDS
% Data completeness (in resolution range)	99.9 (50.00-2.15) 99.7 (42.96-2.15)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	4.41 (at 2.14Å)	Xtriage
Refinement program	REFMAC 5.8.0073	Depositor
R, R_{free}	0.194 , 0.272 0.202 , 0.275	Depositor DCC
R_{free} test set	1404 reflections (3.09%)	DCC
Wilson B-factor (Å^2)	39.0	Xtriage
Anisotropy	0.415	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 46.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Outliers	0 of 46946 reflections	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	6432	wwPDB-VP
Average B, all atoms (Å^2)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.24% 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: GLA, GLC, FRU

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	0.43	0/3155	0.60	1/4272 (0.0%)
1	B	0.42	0/3151	0.60	0/4268
All	All	0.43	0/6306	0.60	1/8540 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	78	LEU	CA-CB-CG	-6.15	101.15	115.30

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	3082	0	3013	36	0
1	B	3078	0	3007	28	0
2	A	45	0	39	0	0
2	B	45	0	39	0	0
3	A	100	0	0	4	0
3	B	82	0	0	1	0
All	All	6432	0	6098	64	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 5.

All (64) 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:50:ARG:NH2	1:A:65:ILE:O	2.26	0.69
1:A:385:VAL:HG21	1:A:410:GLU:HG2	1.75	0.67
1:A:74:TYR:CE1	1:A:78:LEU:HD13	2.30	0.65
1:B:406:LYS:NZ	1:B:409:GLN:OE1	2.30	0.65
1:B:145:VAL:HG21	3:B:656:HOH:O	1.96	0.63
1:A:233:THR:HG22	1:A:237:MET:CE	2.30	0.62
1:A:42:ASN:HB2	3:A:630:HOH:O	2.00	0.61
1:B:118:ASP:HB3	1:B:120:ASN:ND2	2.16	0.60
1:B:126:LYS:HG2	1:B:132:VAL:HG22	1.85	0.58
1:B:74:TYR:CE1	1:B:78:LEU:HD13	2.38	0.57
1:A:223:ASP:O	1:A:224:TRP:HB2	2.03	0.57
1:B:118:ASP:HB3	1:B:120:ASN:HD21	1.69	0.56
1:B:221:THR:HG22	1:B:221:THR:O	2.05	0.55
1:A:74:TYR:CZ	1:A:78:LEU:HD13	2.42	0.55
1:A:142:ASP:OD2	1:A:372:TYR:OH	2.22	0.54
1:B:238:GLN:HB3	1:B:243:ILE:HD11	1.90	0.52
1:A:154:TYR:CD1	1:A:175:LYS:HD3	2.44	0.52
1:B:166:MET:HE1	1:B:169:LEU:HD12	1.92	0.52
1:A:274:GLY:N	1:A:275:PRO:HD2	2.25	0.52
1:B:244:ASN:OD1	1:B:244:ASN:N	2.43	0.51
1:B:385:VAL:HG21	1:B:410:GLU:HG2	1.91	0.51
1:B:42:ASN:HB2	1:B:45:GLU:HG2	1.92	0.51
1:A:171:THR:O	1:A:175:LYS:HB2	2.11	0.49
1:A:126:LYS:HA	1:A:131:LYS:O	2.11	0.49
1:A:257:GLU:O	1:A:261:GLN:HG2	2.11	0.49
1:A:277:THR:HG21	1:A:286:LEU:HD11	1.94	0.49
1:A:233:THR:HG22	1:A:237:MET:HE2	1.94	0.49
1:B:74:TYR:CZ	1:B:78:LEU:HD13	2.49	0.47
1:B:176:SER:O	1:B:179:SER:OG	2.33	0.47
1:B:166:MET:CE	1:B:169:LEU:HD12	2.44	0.47
1:A:382:MET:CE	1:A:414:LEU:HD12	2.45	0.47
1:B:165:LEU:O	1:B:169:LEU:HG	2.15	0.46
1:B:233:THR:HG22	1:B:237:MET:CE	2.45	0.46
1:A:176:SER:OG	1:A:180:VAL:HG22	2.16	0.46
1:B:36:MET:HA	1:B:90:LEU:O	2.17	0.45
1:A:273:ILE:O	1:A:277:THR:HG22	2.17	0.45
1:A:235:LYS:HD2	1:A:238:GLN:HE21	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:382:MET:HE2	1:A:414:LEU:CD1	2.48	0.44
1:A:380:SER:O	1:A:414:LEU:HD13	2.18	0.44
1:A:339:ALA:HA	3:A:669:HOH:O	2.16	0.44
1:B:205:LEU:O	1:B:212:ASN:HB2	2.17	0.44
1:A:204:LEU:HD22	1:A:230:LEU:HG	2.00	0.44
1:B:238:GLN:CB	1:B:243:ILE:HD11	2.48	0.43
1:A:183:PHE:O	1:A:243:ILE:HA	2.17	0.43
1:B:183:PHE:O	1:B:243:ILE:HA	2.18	0.43
1:A:92:ASP:HA	1:A:309:THR:O	2.19	0.43
1:B:247:ILE:HG23	1:B:248:LEU:N	2.33	0.43
1:A:385:VAL:HG12	1:A:407:MET:SD	2.59	0.43
1:A:238:GLN:HB3	1:A:243:ILE:HD11	2.01	0.43
1:B:140:ALA:O	1:B:304:GLY:HA2	2.18	0.42
1:A:338:ILE:HG22	3:A:692:HOH:O	2.19	0.42
1:B:38:SER:HA	1:B:92:ASP:HB2	2.01	0.42
1:A:382:MET:HE2	1:A:414:LEU:HD12	2.01	0.42
1:A:52:ILE:HD12	1:A:338:ILE:HD13	2.01	0.41
1:A:261:GLN:HG3	1:A:263:LYS:HG3	2.01	0.41
1:B:145:VAL:CG1	1:B:146:TYR:N	2.83	0.41
1:A:42:ASN:HB3	1:A:45:GLU:HG2	2.02	0.41
1:B:177:ASN:O	1:B:177:ASN:CG	2.58	0.41
1:A:183:PHE:CD1	1:A:185:PHE:CE1	3.09	0.41
1:A:185:PHE:HB2	1:A:247:ILE:CD1	2.51	0.41
1:A:45:GLU:HA	1:A:341:ALA:HB1	2.02	0.41
1:B:95:GLY:HA2	1:B:306:GLU:HB2	2.04	0.40
1:B:233:THR:HG22	1:B:237:MET:HE2	2.03	0.40
1:A:338:ILE:CG2	3:A:692:HOH:O	2.69	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	382/401 (95%)	374 (98%)	8 (2%)	0	100	100
1	B	382/401 (95%)	366 (96%)	16 (4%)	0	100	100
All	All	764/802 (95%)	740 (97%)	24 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	333/346 (96%)	316 (95%)	17 (5%)	29	24
1	B	333/346 (96%)	317 (95%)	16 (5%)	31	27
All	All	666/692 (96%)	633 (95%)	33 (5%)	30	25

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	44	SER
1	A	50	ARG
1	A	66	ASP
1	A	160	GLN
1	A	161	THR
1	A	163	ASP
1	A	177	ASN
1	A	183	PHE
1	A	209	ASP
1	A	234	PHE
1	A	239	GLU
1	A	257	GLU
1	A	263	LYS
1	A	278	ARG
1	A	320	GLU
1	A	338	ILE
1	A	397	THR
1	B	35	THR

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Mol	Chain	Res	Type
1	B	50	ARG
1	B	51	SER
1	B	52	ILE
1	B	177	ASN
1	B	183	PHE
1	B	209	ASP
1	B	234	PHE
1	B	239	GLU
1	B	253	SER
1	B	259	MET
1	B	296	GLU
1	B	337	LYS
1	B	359	LYS
1	B	366	GLU
1	B	397	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	139	GLN
1	A	238	GLN
1	A	254	GLN
1	B	120	ASN
1	B	402	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)

8 carbohydrates 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	$\#\|Z\| > 2$
2	GLC	A	501	2	11,11,12	0.67	0	14,15,17	0.95	0
2	GLA	A	502	2	11,11,12	0.43	0	14,15,17	1.03	0
2	GLA	A	503	2	11,11,12	0.29	0	14,15,17	1.03	2 (14%)
2	FRU	A	504	2	11,12,12	0.62	0	10,18,18	1.20	1 (10%)
2	GLC	B	501	2	11,11,12	0.59	0	14,15,17	0.90	0
2	GLA	B	502	2	11,11,12	0.86	0	14,15,17	2.22	4 (28%)
2	GLA	B	503	2	11,11,12	0.88	1 (9%)	14,15,17	3.02	4 (28%)
2	FRU	B	504	2	11,12,12	0.53	0	10,18,18	0.81	1 (10%)

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
2	GLC	A	501	2	-	0/2/19/22	0/1/1/1
2	GLA	A	502	2	-	0/2/19/22	0/1/1/1
2	GLA	A	503	2	-	0/2/19/22	0/1/1/1
2	FRU	A	504	2	-	0/5/24/24	0/1/1/1
2	GLC	B	501	2	-	0/2/19/22	0/1/1/1
2	GLA	B	502	2	-	0/2/19/22	0/1/1/1
2	GLA	B	503	2	-	0/2/19/22	0/1/1/1
2	FRU	B	504	2	-	0/5/24/24	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	503	GLA	C1-C2	2.19	1.57	1.52

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	502	GLA	C6-C5-C4	-4.62	101.62	113.02
2	A	504	FRU	O1-C1-C2	-3.03	105.51	111.39
2	A	503	GLA	O3-C3-C2	-2.19	106.05	110.00
2	B	502	GLA	O2-C2-C3	-2.10	105.89	110.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	504	FRU	O1-C1-C2	-2.02	107.47	111.39
2	A	503	GLA	C1-O5-C5	2.04	114.84	112.25
2	B	503	GLA	O4-C4-C5	2.22	115.12	109.24
2	B	503	GLA	O2-C2-C1	2.84	114.90	109.21
2	B	502	GLA	O6-C6-C5	3.52	122.96	111.33
2	B	502	GLA	O5-C5-C6	4.40	116.88	107.35
2	B	503	GLA	C1-C2-C3	4.68	115.08	109.54
2	B	503	GLA	C1-O5-C5	8.91	123.55	112.25

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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^{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	384/401 (95%)	0.12	19 (4%) 33 44	28, 55, 94, 116	0
1	B	384/401 (95%)	0.47	39 (10%) 9 15	31, 65, 110, 143	0
All	All	768/802 (95%)	0.30	58 (7%) 17 23	28, 59, 104, 143	0

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	62	GLY	5.4
1	B	400	PRO	4.0
1	B	242	LEU	3.9
1	B	394	LEU	3.8
1	A	63	ILE	3.8
1	B	245	LYS	3.5
1	B	154	TYR	3.4
1	B	174	GLU	3.3
1	B	401	LYS	3.3
1	A	58	LYS	3.2
1	B	295	TYR	3.2
1	B	58	LYS	3.1
1	B	180	VAL	3.1
1	A	171	THR	3.1
1	B	266	PHE	2.9
1	A	61	GLU	2.9
1	B	171	THR	2.9
1	B	243	ILE	2.9
1	B	398	LEU	2.7
1	B	412	SER	2.7
1	B	402	GLN	2.7
1	A	175	LYS	2.6
1	B	163	ASP	2.6
1	B	258	LEU	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	352	GLU	2.5
1	A	180	VAL	2.5
1	B	178	GLY	2.5
1	B	247	ILE	2.5
1	A	155	GLY	2.5
1	A	153	LYS	2.4
1	A	328	PHE	2.4
1	B	177	ASN	2.4
1	B	228	THR	2.4
1	B	263	LYS	2.4
1	B	283	ASP	2.3
1	B	280	VAL	2.3
1	A	151	LEU	2.3
1	B	151	LEU	2.3
1	B	255	LEU	2.3
1	B	229	LEU	2.3
1	B	296	GLU	2.3
1	B	297	GLY	2.3
1	A	296	GLU	2.3
1	A	172	ILE	2.3
1	B	167	HIS	2.3
1	A	280	VAL	2.2
1	B	252	PRO	2.2
1	B	261	GLN	2.2
1	A	174	GLU	2.2
1	B	239	GLU	2.2
1	A	285	GLN	2.1
1	B	241	GLN	2.1
1	A	167	HIS	2.1
1	A	154	TYR	2.1
1	B	173	LYS	2.0
1	B	56	PHE	2.0
1	A	356	TYR	2.0
1	B	32	VAL	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)

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
2	GLA	A	503	11/12	0.98	0.16	2.90	21,31,34,37	0
2	GLA	B	503	11/12	0.95	0.13	1.04	31,36,44,49	0
2	FRU	A	504	12/12	0.97	0.13	0.12	27,39,47,52	0
2	GLA	B	502	11/12	0.93	0.12	-0.54	24,45,64,70	0
2	GLC	A	501	11/12	0.98	0.12	-0.68	36,38,44,45	0
2	FRU	B	504	12/12	0.95	0.12	-0.74	37,47,55,71	0
2	GLC	B	501	11/12	0.95	0.10	-1.02	27,39,53,54	0
2	GLA	A	502	11/12	0.96	0.09	-1.42	29,35,40,41	0

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.