



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 01:10 PM UTC

PDB ID : 3QDR / pdb_00003qdr
Title : Structural characterization of the interaction of colicin A, colicin N, and TolB with the TolAIII translocon
Authors : Li, C.
Deposited on : 2011-01-19
Resolution : 2.65 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

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

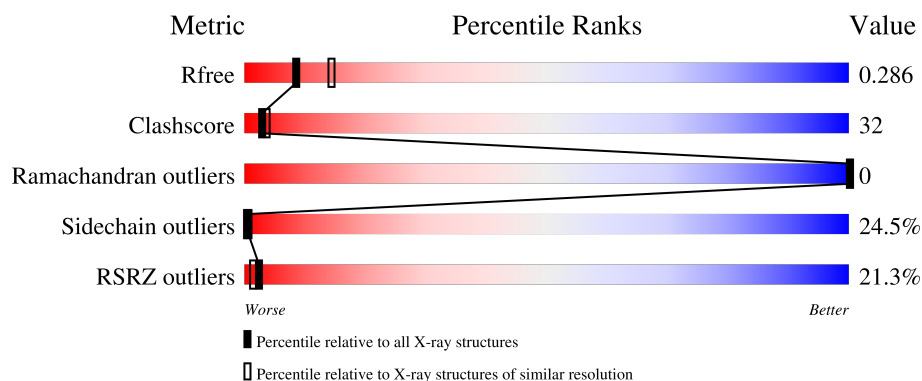
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.65 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}	180053	1110 (2.66-2.66)
Clashscore	190562	1141 (2.66-2.66)
Ramachandran outliers	187476	1126 (2.66-2.66)
Sidechain outliers	187428	1126 (2.66-2.66)
RSRZ outliers	180081	1110 (2.66-2.66)

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	127	6% 49% 17% 7% 27%
2	B	63	37% 24% 22% 29% 22%

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	TRS	A	501	-	X	-	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 1093 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 Protein tolA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	93	Total	C	N	O	S	0	1	0
			693	442	115	133	3			

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	295	HIS	-	expression tag	UNP P19934
A	296	HIS	-	expression tag	UNP P19934
A	297	HIS	-	expression tag	UNP P19934
A	298	HIS	-	expression tag	UNP P19934
A	299	HIS	-	expression tag	UNP P19934
A	300	HIS	-	expression tag	UNP P19934
A	301	MET	-	expression tag	UNP P19934

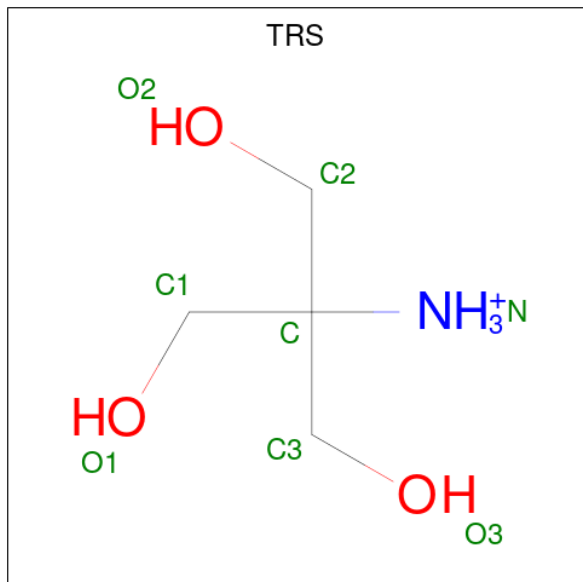
- Molecule 2 is a protein called Colicin-A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	49	Total	C	N	O	S	0	0	0
			366	228	65	70	3			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	51	GLY	-	expression tag	UNP P04480
B	52	SER	-	expression tag	UNP P04480
B	108	HIS	-	expression tag	UNP P04480
B	109	HIS	-	expression tag	UNP P04480
B	110	HIS	-	expression tag	UNP P04480
B	111	HIS	-	expression tag	UNP P04480
B	112	HIS	-	expression tag	UNP P04480
B	113	HIS	-	expression tag	UNP P04480

- Molecule 3 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (CCD ID: TRS) (formula: $C_4H_{12}NO_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			8	4	1	3		

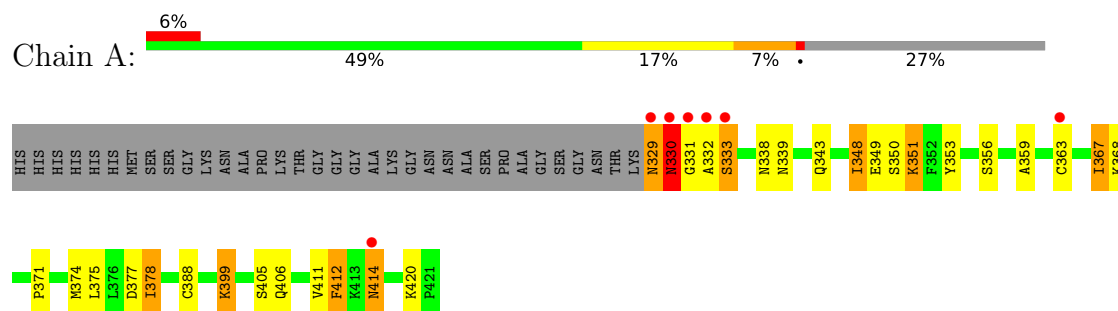
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	15	Total	O	0	0
			15	15		
4	B	11	Total	O	0	0
			11	11		

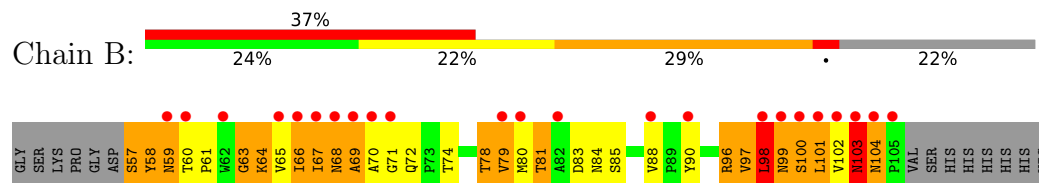
3 Residue-property plots

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: Protein tolA



• Molecule 2: Colicin-A



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	47.50Å 119.62Å 30.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	59.80 – 2.65 59.80 – 2.65	Depositor EDS
% Data completeness (in resolution range)	96.3 (59.80-2.65) 96.3 (59.80-2.65)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.13	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.92 (at 2.65Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, R_{free}	0.244 , 0.273 0.254 , 0.286	Depositor DCC
R_{free} test set	234 reflections (4.49%)	wwPDB-VP
Wilson B-factor (Å ²)	29.4	Xtriage
Anisotropy	0.185	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 47.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.88	EDS
Total number of atoms	1093	wwPDB-VP
Average B, all atoms (Å ²)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.83% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

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	0.85	1/699 (0.1%)	1.21	6/946 (0.6%)
2	B	1.11	3/374 (0.8%)	1.35	10/511 (2.0%)
All	All	0.95	4/1073 (0.4%)	1.26	16/1457 (1.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	68	ASN	CA-C	-6.09	1.47	1.53
1	A	414	ASN	C-O	-5.48	1.17	1.24
2	B	66	ILE	C-O	-5.35	1.18	1.24
2	B	104	ASN	C-N	5.31	1.43	1.34

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	330	ASN	N-CA-C	-11.16	101.14	112.97
2	B	68	ASN	CB-CA-C	-9.23	105.92	116.63
2	B	63	GLY	N-CA-C	7.84	121.67	110.46
2	B	90	TYR	N-CA-C	-7.33	95.20	110.80
2	B	59	ASN	N-CA-C	7.17	120.25	108.99
1	A	348	ILE	N-CA-C	-6.19	104.71	110.53
2	B	67	ILE	N-CA-C	5.85	121.51	109.34
1	A	333	SER	CA-C-N	5.82	126.57	119.99
1	A	333	SER	C-N-CA	5.82	126.57	119.99
2	B	98	LEU	N-CA-C	5.44	122.39	110.80
2	B	58	TYR	N-CA-C	5.33	116.09	108.74
2	B	99	ASN	CB-CA-C	-5.25	102.99	111.18
1	A	412	PHE	N-CA-C	5.24	119.31	113.02
2	B	69	ALA	N-CA-C	-5.24	99.64	110.80
2	B	103	ASN	N-CA-C	-5.18	98.60	107.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	359	ALA	N-CA-C	5.01	117.13	111.11

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	693	0	703	24	0
2	B	366	0	358	46	0
3	A	8	0	12	1	0
4	A	15	0	0	0	0
4	B	11	0	0	1	0
All	All	1093	0	1073	68	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 32.

All (68) 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:367:ILE:HG22	1:A:378:ILE:HD12	1.09	1.06
1:A:367:ILE:HG22	1:A:378:ILE:CD1	1.86	1.05
2:B:67:ILE:HG22	2:B:67:ILE:O	1.64	0.95
2:B:79:VAL:O	2:B:79:VAL:HG22	1.63	0.95
1:A:329:ASN:CG	1:A:330:ASN:N	2.22	0.95
1:A:367:ILE:CG2	1:A:378:ILE:HD12	1.99	0.92
2:B:68:ASN:HD22	2:B:72:GLN:HB2	1.33	0.91
1:A:329:ASN:CG	1:A:330:ASN:H	1.78	0.90
1:A:363:CYS:HG	1:A:388:CYS:HG	1.19	0.88
2:B:78:THR:HA	4:B:16:HOH:O	1.76	0.85
2:B:67:ILE:O	2:B:67:ILE:CG2	2.30	0.79
2:B:79:VAL:O	2:B:79:VAL:CG2	2.30	0.79
2:B:59:ASN:HB3	2:B:64:LYS:HG2	1.63	0.78
2:B:80:MET:HA	2:B:84:ASN:HD21	1.50	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:102:VAL:HG13	2:B:102:VAL:O	1.85	0.75
2:B:68:ASN:HB2	2:B:72:GLN:O	1.87	0.73
1:A:406[B]:GLN:H	1:A:406[B]:GLN:CD	1.97	0.73
1:A:330:ASN:ND2	1:A:333:SER:OG	2.21	0.73
2:B:97:VAL:CG2	2:B:98:LEU:H	2.04	0.71
2:B:97:VAL:HG22	2:B:98:LEU:N	2.06	0.70
1:A:367:ILE:CG2	1:A:378:ILE:CD1	2.66	0.67
2:B:59:ASN:HB3	2:B:64:LYS:CG	2.24	0.67
1:A:329:ASN:C	1:A:331:GLY:H	2.03	0.66
2:B:97:VAL:CG2	2:B:98:LEU:N	2.59	0.66
1:A:331:GLY:O	1:A:332:ALA:HB3	1.95	0.65
2:B:58:TYR:O	2:B:65:VAL:N	2.28	0.65
2:B:97:VAL:HG22	2:B:98:LEU:H	1.63	0.61
1:A:363:CYS:SG	1:A:388:CYS:HA	2.39	0.61
1:A:367:ILE:HD11	1:A:412:PHE:HD1	1.65	0.61
2:B:74:THR:HA	2:B:78:THR:O	2.01	0.61
2:B:68:ASN:ND2	2:B:72:GLN:HB2	2.10	0.60
2:B:57:SER:N	2:B:66:ILE:HA	2.16	0.59
2:B:81:THR:O	2:B:85:SER:CB	2.52	0.58
2:B:69:ALA:C	2:B:71:GLY:H	2.10	0.58
2:B:81:THR:O	2:B:85:SER:HB2	2.05	0.56
2:B:69:ALA:O	2:B:70:ALA:HB3	2.07	0.54
2:B:78:THR:HG21	2:B:98:LEU:CD2	2.39	0.53
2:B:98:LEU:CD1	2:B:99:ASN:H	2.22	0.53
1:A:351:MLY:HH13	1:A:399:LYS:HG3	1.91	0.52
2:B:57:SER:N	2:B:65:VAL:O	2.43	0.51
1:A:351:MLY:HH11	1:A:399:LYS:HE3	1.91	0.51
1:A:329:ASN:ND2	1:A:330:ASN:N	2.59	0.51
2:B:60:THR:HB	2:B:61:PRO:HD2	1.91	0.51
2:B:102:VAL:O	2:B:102:VAL:CG1	2.57	0.51
2:B:60:THR:N	2:B:63:GLY:O	2.43	0.51
2:B:74:THR:HG22	2:B:79:VAL:HA	1.93	0.51
2:B:100:SER:O	2:B:103:ASN:HB2	2.12	0.50
1:A:371:PRO:HD3	2:B:67:ILE:HD12	1.96	0.47
1:A:374:MET:HE2	2:B:96:ARG:CZ	2.44	0.47
2:B:101:LEU:H	2:B:101:LEU:HD13	1.79	0.46
2:B:69:ALA:C	2:B:71:GLY:N	2.71	0.46
2:B:60:THR:HB	2:B:61:PRO:CD	2.46	0.46
2:B:98:LEU:HD12	2:B:99:ASN:H	1.81	0.45
1:A:368:LYS:HD2	1:A:377:ASP:HB3	1.99	0.45
2:B:85:SER:OG	2:B:96:ARG:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:353:TYR:O	3:A:501:TRS:H11	2.17	0.44
2:B:78:THR:HG21	2:B:98:LEU:HD22	1.99	0.44
2:B:78:THR:CG2	2:B:98:LEU:CD2	2.95	0.43
2:B:104:ASN:OD1	2:B:104:ASN:N	2.48	0.43
1:A:329:ASN:C	1:A:331:GLY:N	2.71	0.43
2:B:81:THR:O	2:B:85:SER:HB3	2.17	0.43
2:B:97:VAL:HG23	2:B:98:LEU:H	1.82	0.43
2:B:85:SER:OG	2:B:96:ARG:CG	2.67	0.43
2:B:78:THR:O	2:B:78:THR:HG22	2.20	0.42
1:A:367:ILE:HD11	1:A:412:PHE:CD1	2.51	0.42
2:B:81:THR:C	2:B:83:ASP:H	2.27	0.42
1:A:411:VAL:O	1:A:414:ASN:O	2.37	0.41

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	91/127 (72%)	84 (92%)	7 (8%)	0	100	100
2	B	47/63 (75%)	37 (79%)	10 (21%)	0	100	100
All	All	138/190 (73%)	121 (88%)	17 (12%)	0	100	100

There are no Ramachandran outliers to report.

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	70/92 (76%)	55 (79%)	15 (21%)	1	1
2	B	41/53 (77%)	29 (71%)	12 (29%)	0	0
All	All	111/145 (77%)	84 (76%)	27 (24%)	1	0

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	329	ASN
1	A	330	ASN
1	A	338	ASN
1	A	339	ASN
1	A	343	GLN
1	A	348	ILE
1	A	349	GLU
1	A	350	SER
1	A	356	SER
1	A	367	ILE
1	A	375	LEU
1	A	378	ILE
1	A	399	LYS
1	A	405	SER
1	A	420	LYS
2	B	57	SER
2	B	64	LYS
2	B	78	THR
2	B	79	VAL
2	B	81	THR
2	B	88	VAL
2	B	96	ARG
2	B	97	VAL
2	B	98	LEU
2	B	100	SER
2	B	101	LEU
2	B	103	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	330	ASN

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Mol	Chain	Res	Type
2	B	68	ASN
2	B	76	ASN
2	B	84	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	$\# Z > 2$
1	MLY	A	351	1	9,10,11	0.55	0	6,11,13	2.37	2 (33%)

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
1	MLY	A	351	1	-	4/8/9/11	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	351	MLY	CH2-NZ-CH1	4.03	120.04	109.72
1	A	351	MLY	CH2-NZ-CE	3.26	123.68	110.75

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	351	MLY	N-CA-CB-CG
1	A	351	MLY	C-CA-CB-CG
1	A	351	MLY	CD-CE-NZ-CH1
1	A	351	MLY	CA-CB-CG-CD

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	351	MLY	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	TRS	A	501	-	7,7,7	0.68	0	9,9,9	1.81	3 (33%)

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	TRS	A	501	-	-	9/9/9/9	-

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	501	TRS	C2-C-C1	3.01	118.67	110.66
3	A	501	TRS	C3-C-C1	-2.37	104.34	110.66
3	A	501	TRS	C3-C-N	2.32	114.09	108.17

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	501	TRS	C2-C-C1-O1
3	A	501	TRS	C3-C-C1-O1
3	A	501	TRS	N-C-C1-O1
3	A	501	TRS	C1-C-C2-O2
3	A	501	TRS	C3-C-C2-O2
3	A	501	TRS	N-C-C2-O2
3	A	501	TRS	C2-C-C3-O3
3	A	501	TRS	C1-C-C3-O3
3	A	501	TRS	N-C-C3-O3

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	501	TRS	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

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	92/127 (72%)	0.48	7 (7%)	20 15	11, 22, 36, 52	1 (1%)
2	B	49/63 (77%)	2.00	23 (46%)	0 0	31, 56, 70, 76	0
All	All	141/190 (74%)	1.01	30 (21%)	2 1	11, 28, 59, 76	1 (0%)

All (30) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	332	ALA	7.6
1	A	331	GLY	6.7
2	B	102	VAL	4.8
1	A	329	ASN	4.7
1	A	330	ASN	4.7
2	B	105	PRO	4.5
2	B	101	LEU	4.4
2	B	69	ALA	3.8
2	B	70	ALA	3.7
2	B	99	ASN	3.6
2	B	67	ILE	3.4
2	B	82	ALA	3.1
1	A	333	SER	2.9
2	B	104	ASN	2.8
2	B	62	TRP	2.8
2	B	60	THR	2.7
2	B	79	VAL	2.7
2	B	90	TYR	2.6
2	B	100	SER	2.6
2	B	103	ASN	2.6
2	B	59	ASN	2.4
1	A	363	CYS	2.4
2	B	98	LEU	2.4
2	B	88	VAL	2.4

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Mol	Chain	Res	Type	RSRZ
2	B	68	ASN	2.3
2	B	80	MET	2.2
2	B	66	ILE	2.2
1	A	414	ASN	2.1
2	B	65	VAL	2.1
2	B	71	GLY	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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
1	MLY	A	351	11/12	0.96	0.09	12,12,22,23	0

6.3 Carbohydrates [i](#)

There are no oligosaccharides 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	TRS	A	501	8/8	0.76	0.23	61,61,63,64	0

6.5 Other polymers [i](#)

There are no such residues in this entry.