



# Full wwPDB X-ray Structure Validation Report ⓘ

Sep 5, 2023 – 06:36 AM EDT

PDB ID : 3U74  
Title : Crystal structure of stabilized human uPAR mutant  
Authors : Huang, M.D.; Xu, X.; Yuan, C.  
Deposited on : 2011-10-13  
Resolution : 2.39 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](mailto: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>.

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The following versions of software and data (see [references ⓘ](#)) 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 : 2.35  
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) : 2.35

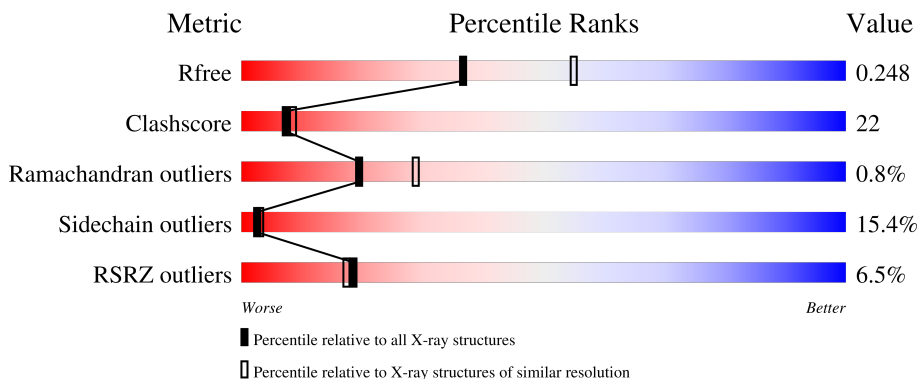
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.39 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	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

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  $\geq 3$ , 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	U	283	
2	A	2	

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 2081 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 Urokinase plasminogen activator surface receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	U	263	2017	1207	371	403	36	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	47	CYS	HIS	engineered mutation	UNP Q03405
U	259	CYS	ASN	engineered mutation	UNP Q03405

- Molecule 2 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	A	2	28	16	2	10	0	0	0

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	U	1	14	8	1	5	0	0

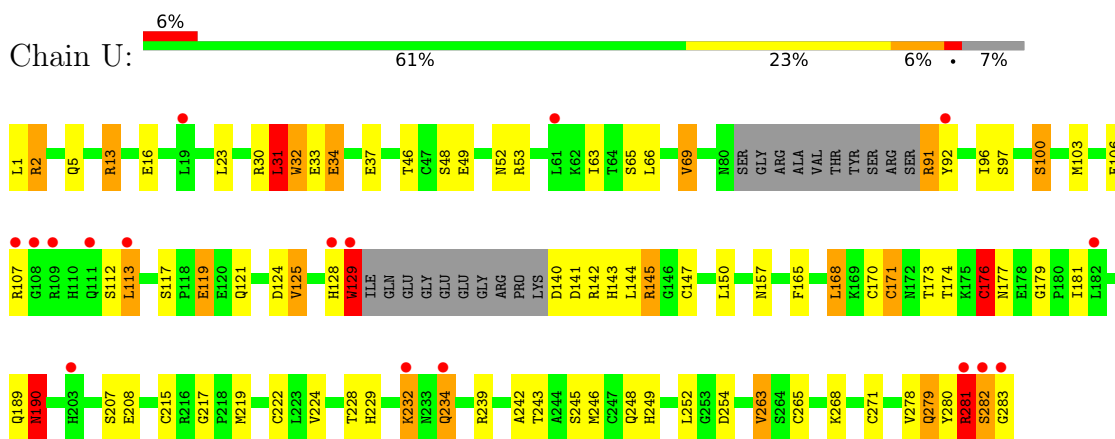
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
4	U	22	22	22	0	0

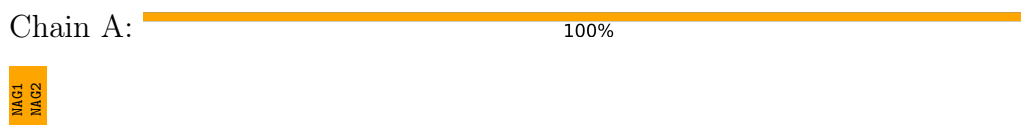
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Urokinase plasminogen activator surface receptor



- Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



## 4 Data and refinement statistics i

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	111.23Å 111.23Å 78.57Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	33.04 – 2.39 33.04 – 2.39	Depositor EDS
% Data completeness (in resolution range)	99.0 (33.04-2.39) 99.0 (33.04-2.39)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.52 (at 2.39Å)	Xtrriage
Refinement program	REFMAC 5.6.0117	Depositor
R, $R_{free}$	0.213 , 0.252 0.213 , 0.248	Depositor DCC
$R_{free}$ test set	706 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	54.0	Xtrriage
Anisotropy	0.370	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 50.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.033 for h,-h-k,-l	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	2081	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	71.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.88% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: 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	U	0.84	2/2048 (0.1%)	0.99	8/2756 (0.3%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	U	32	TRP	CD2-CE2	5.20	1.47	1.41
1	U	129	TRP	CD2-CE2	5.13	1.47	1.41

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	U	176	CYS	CA-CB-SG	-8.62	98.49	114.00
1	U	13	ARG	NE-CZ-NH2	-7.99	116.31	120.30
1	U	263	VAL	CB-CA-C	-6.64	98.78	111.40
1	U	239	ARG	NE-CZ-NH2	-6.55	117.02	120.30
1	U	190	ASN	CB-CA-C	-5.96	98.48	110.40
1	U	13	ARG	NE-CZ-NH1	5.93	123.27	120.30
1	U	31	LEU	CA-CB-CG	5.39	127.70	115.30
1	U	150	LEU	CB-CG-CD1	-5.29	102.01	111.00

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	U	2017	0	1872	86	0
2	A	28	0	25	3	0
3	U	14	0	13	0	0
4	U	22	0	0	2	0
All	All	2081	0	1910	89	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 22.

All (89) 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:U:279:GLN:HE22	1:U:283:GLY:CA	1.57	1.18
1:U:280:TYR:HA	1:U:281:ARG:NH1	1.59	1.18
1:U:279:GLN:HE22	1:U:283:GLY:HA2	1.02	1.16
1:U:282:SER:N	1:U:283:GLY:HA2	1.55	1.12
1:U:279:GLN:NE2	1:U:283:GLY:HA2	1.73	1.02
1:U:281:ARG:C	1:U:283:GLY:HA2	1.81	0.98
1:U:281:ARG:C	1:U:283:GLY:CA	2.35	0.94
1:U:232:LYS:HD3	1:U:234:GLN:HE22	1.35	0.92
1:U:280:TYR:HA	1:U:281:ARG:HH11	1.32	0.90
1:U:282:SER:N	1:U:283:GLY:CA	2.37	0.86
1:U:279:GLN:HE22	1:U:283:GLY:C	1.79	0.85
1:U:125:VAL:HB	1:U:168:LEU:HD22	1.57	0.84
1:U:280:TYR:HA	1:U:281:ARG:HH12	1.45	0.82
1:U:49:GLU:HG2	1:U:249:HIS:HB3	1.63	0.81
2:A:1:NAG:O6	2:A:2:NAG:C1	2.29	0.79
1:U:279:GLN:NE2	1:U:283:GLY:C	2.36	0.78
1:U:279:GLN:NE2	1:U:283:GLY:CA	2.38	0.77
1:U:103:MET:HG2	1:U:106:GLU:HG3	1.65	0.76
1:U:279:GLN:HE21	1:U:282:SER:H	1.31	0.76
1:U:279:GLN:NE2	1:U:282:SER:H	1.86	0.74
1:U:232:LYS:HB2	1:U:234:GLN:NE2	2.07	0.70
1:U:279:GLN:NE2	1:U:282:SER:N	2.39	0.69
1:U:103:MET:HG2	1:U:106:GLU:CG	2.26	0.66
1:U:176:CYS:SG	1:U:177:ASN:N	2.68	0.65
1:U:280:TYR:CA	1:U:281:ARG:HH11	2.05	0.65
2:A:1:NAG:O6	2:A:2:NAG:N2	2.30	0.63
1:U:279:GLN:OE1	1:U:283:GLY:C	2.38	0.62
1:U:280:TYR:O	1:U:282:SER:N	2.34	0.60
1:U:23:LEU:CD1	1:U:48:SER:HA	2.32	0.59
1:U:281:ARG:CA	1:U:283:GLY:HA2	2.31	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:U:113:LEU:HD13	1:U:147:CYS:SG	2.43	0.58
1:U:49:GLU:HG2	1:U:249:HIS:CB	2.32	0.58
1:U:232:LYS:HD3	1:U:234:GLN:NE2	2.14	0.58
1:U:190:ASN:ND2	1:U:217:GLY:O	2.32	0.57
1:U:49:GLU:CG	1:U:249:HIS:HB3	2.33	0.56
1:U:281:ARG:HA	1:U:283:GLY:HA3	1.87	0.56
1:U:281:ARG:CA	1:U:283:GLY:CA	2.84	0.56
1:U:242:ALA:HB1	1:U:246:MET:HB3	1.88	0.56
1:U:281:ARG:HH11	1:U:281:ARG:N	2.03	0.56
1:U:103:MET:HE2	1:U:107:ARG:HG3	1.89	0.55
1:U:281:ARG:HA	1:U:283:GLY:CA	2.37	0.54
1:U:279:GLN:CD	1:U:283:GLY:C	2.66	0.54
1:U:129:TRP:C	1:U:129:TRP:CD2	2.84	0.52
1:U:2:ARG:HH11	1:U:2:ARG:HB3	1.75	0.51
1:U:145:ARG:NH2	1:U:179:GLY:O	2.42	0.51
1:U:32:TRP:CE3	1:U:63:ILE:HD12	2.45	0.51
1:U:279:GLN:OE1	1:U:283:GLY:OXT	2.29	0.50
1:U:281:ARG:C	1:U:283:GLY:HA3	2.30	0.49
1:U:23:LEU:HB2	1:U:46:THR:HG23	1.95	0.49
1:U:268:LYS:O	1:U:271:CYS:SG	2.71	0.49
1:U:23:LEU:HD11	1:U:48:SER:HA	1.95	0.49
1:U:91:ARG:HB3	1:U:92:TYR:CD2	2.48	0.48
1:U:100:SER:O	1:U:103:MET:N	2.44	0.48
1:U:157:ASN:HB3	1:U:245:SER:OG	2.14	0.48
1:U:32:TRP:HB2	1:U:37:GLU:OE1	2.13	0.48
1:U:33:GLU:O	1:U:34:GLU:C	2.52	0.48
1:U:128:HIS:HE1	1:U:165:PHE:HD2	1.62	0.47
1:U:229:HIS:O	1:U:232:LYS:O	2.31	0.47
1:U:32:TRP:HE3	1:U:63:ILE:HD12	1.79	0.47
1:U:106:GLU:H	1:U:106:GLU:CD	2.15	0.47
1:U:173:THR:O	1:U:176:CYS:HB3	2.14	0.47
1:U:96:ILE:HG22	1:U:97:SER:N	2.30	0.47
1:U:124:ASP:CG	1:U:145:ARG:HD2	2.36	0.47
1:U:128:HIS:CE1	1:U:165:PHE:HB3	2.50	0.46
1:U:53:ARG:NE	4:U:605:HOH:O	2.48	0.46
2:A:1:NAG:C6	2:A:2:NAG:HN2	2.28	0.46
1:U:215:CYS:HB3	1:U:219:MET:O	2.16	0.45
1:U:23:LEU:HB2	1:U:46:THR:CG2	2.46	0.45
1:U:52:ASN:OD1	1:U:69:VAL:HA	2.17	0.45
1:U:281:ARG:CA	1:U:283:GLY:HA3	2.47	0.44
1:U:280:TYR:C	1:U:282:SER:N	2.70	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:U:30:ARG:HB2	1:U:65:SER:HB3	2.01	0.43
1:U:96:ILE:CG2	1:U:97:SER:N	2.81	0.43
1:U:246:MET:HE2	1:U:252:LEU:HD23	1.99	0.43
1:U:2:ARG:NH1	1:U:16:GLU:OE1	2.52	0.43
1:U:31:LEU:HD22	1:U:31:LEU:N	2.34	0.43
1:U:141:ASP:HB3	1:U:143:HIS:CE1	2.54	0.42
1:U:279:GLN:CD	1:U:283:GLY:O	2.58	0.42
1:U:208:GLU:OE1	1:U:208:GLU:N	2.45	0.42
1:U:121:GLN:HB3	1:U:171:CYS:O	2.20	0.42
1:U:243:THR:HB	4:U:609:HOH:O	2.19	0.42
1:U:279:GLN:OE1	1:U:283:GLY:O	2.37	0.42
1:U:280:TYR:C	1:U:281:ARG:HH11	2.22	0.42
1:U:143:HIS:O	1:U:144:LEU:HD23	2.19	0.41
1:U:128:HIS:HB3	1:U:141:ASP:HA	2.02	0.41
1:U:53:ARG:NH1	1:U:254:ASP:HB3	2.36	0.41
1:U:280:TYR:C	1:U:282:SER:H	2.24	0.41
1:U:117:SER:HG	1:U:119:GLU:CD	2.21	0.40
1:U:222:CYS:O	1:U:265:CYS:HA	2.21	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	U	257/283 (91%)	245 (95%)	10 (4%)	2 (1%)	<b>19</b> <b>29</b>

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	U	281	ARG
1	U	34	GLU

### 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	U	234/250 (94%)	198 (85%)	36 (15%)	<b>2</b> <b>3</b>

All (36) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	U	1	LEU
1	U	2	ARG
1	U	5	GLN
1	U	13	ARG
1	U	31	LEU
1	U	66	LEU
1	U	69	VAL
1	U	91	ARG
1	U	100	SER
1	U	112	SER
1	U	113	LEU
1	U	119	GLU
1	U	125	VAL
1	U	129	TRP
1	U	140	ASP
1	U	142	ARG
1	U	145	ARG
1	U	168	LEU
1	U	170	CYS
1	U	171	CYS
1	U	174	THR
1	U	176	CYS
1	U	181	ILE
1	U	189	GLN
1	U	190	ASN
1	U	207	SER
1	U	224	VAL
1	U	228	THR
1	U	232	LYS
1	U	234	GLN

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Mol	Chain	Res	Type
1	U	248	GLN
1	U	263	VAL
1	U	278	VAL
1	U	279	GLN
1	U	281	ARG
1	U	282	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	U	128	HIS
1	U	234	GLN
1	U	279	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](#)

2 monosaccharides 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	NAG	A	1	2,1	14,14,15	0.71	0	17,19,21	2.47	2 (11%)
2	NAG	A	2	2	14,14,15	0.69	0	17,19,21	1.98	6 (35%)

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	NAG	A	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	A	2	2	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1	NAG	C2-N2-C7	-8.95	110.16	122.90
2	A	2	NAG	O5-C1-C2	-4.43	104.29	111.29
2	A	2	NAG	C2-N2-C7	-3.98	117.23	122.90
2	A	1	NAG	O5-C1-C2	-3.72	105.41	111.29
2	A	2	NAG	C6-C5-C4	-2.49	107.17	113.00
2	A	2	NAG	C4-C3-C2	2.48	114.66	111.02
2	A	2	NAG	C3-C4-C5	2.41	114.54	110.24
2	A	2	NAG	O3-C3-C4	-2.10	105.49	110.35

There are no chirality outliers.

All (4) torsion outliers are listed below:

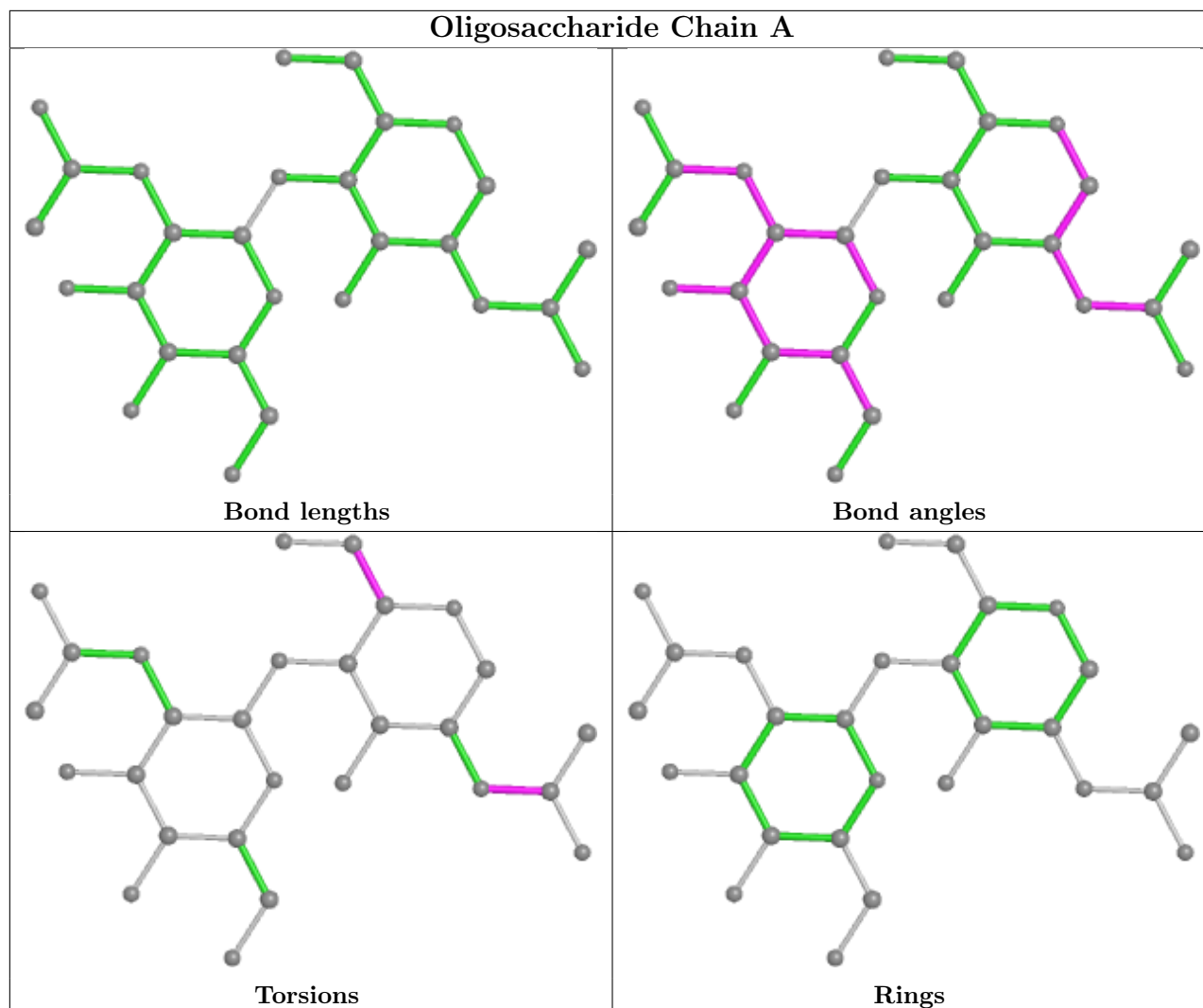
Mol	Chain	Res	Type	Atoms
2	A	1	NAG	C4-C5-C6-O6
2	A	1	NAG	O5-C5-C6-O6
2	A	1	NAG	C8-C7-N2-C2
2	A	1	NAG	O7-C7-N2-C2

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2	NAG	3	0
2	A	1	NAG	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.



## 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	NAG	U	503	1	14,14,15	1.79	4 (28%)	17,19,21	2.75	7 (41%)

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	U	503	1	-	2/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	U	503	NAG	O5-C1	-3.77	1.37	1.43
3	U	503	NAG	C7-N2	3.15	1.45	1.34
3	U	503	NAG	O3-C3	-2.35	1.37	1.43
3	U	503	NAG	C1-C2	-2.33	1.48	1.52

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	U	503	NAG	C1-O5-C5	9.32	124.82	112.19
3	U	503	NAG	C6-C5-C4	-2.84	106.36	113.00
3	U	503	NAG	O5-C5-C4	2.61	117.18	110.83
3	U	503	NAG	C8-C7-N2	2.53	120.38	116.10
3	U	503	NAG	O5-C5-C6	2.25	110.73	107.20
3	U	503	NAG	C4-C3-C2	-2.13	107.89	111.02
3	U	503	NAG	C2-N2-C7	-2.03	120.01	122.90

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	U	503	NAG	O5-C5-C6-O6
3	U	503	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

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 [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	U	263/283 (92%)	0.43	17 (6%) <b>18</b> <b>17</b>	41, 64, 106, 140	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	U	283	GLY	6.2
1	U	19	LEU	6.0
1	U	282	SER	4.4
1	U	109	ARG	4.1
1	U	234	GLN	3.7
1	U	107	ARG	3.5
1	U	281	ARG	3.4
1	U	61	LEU	3.3
1	U	92	TYR	2.8
1	U	182	LEU	2.7
1	U	129	TRP	2.7
1	U	108	GLY	2.2
1	U	203	HIS	2.1
1	U	113	LEU	2.1
1	U	128	HIS	2.1
1	U	232	LYS	2.1
1	U	111	GLN	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.

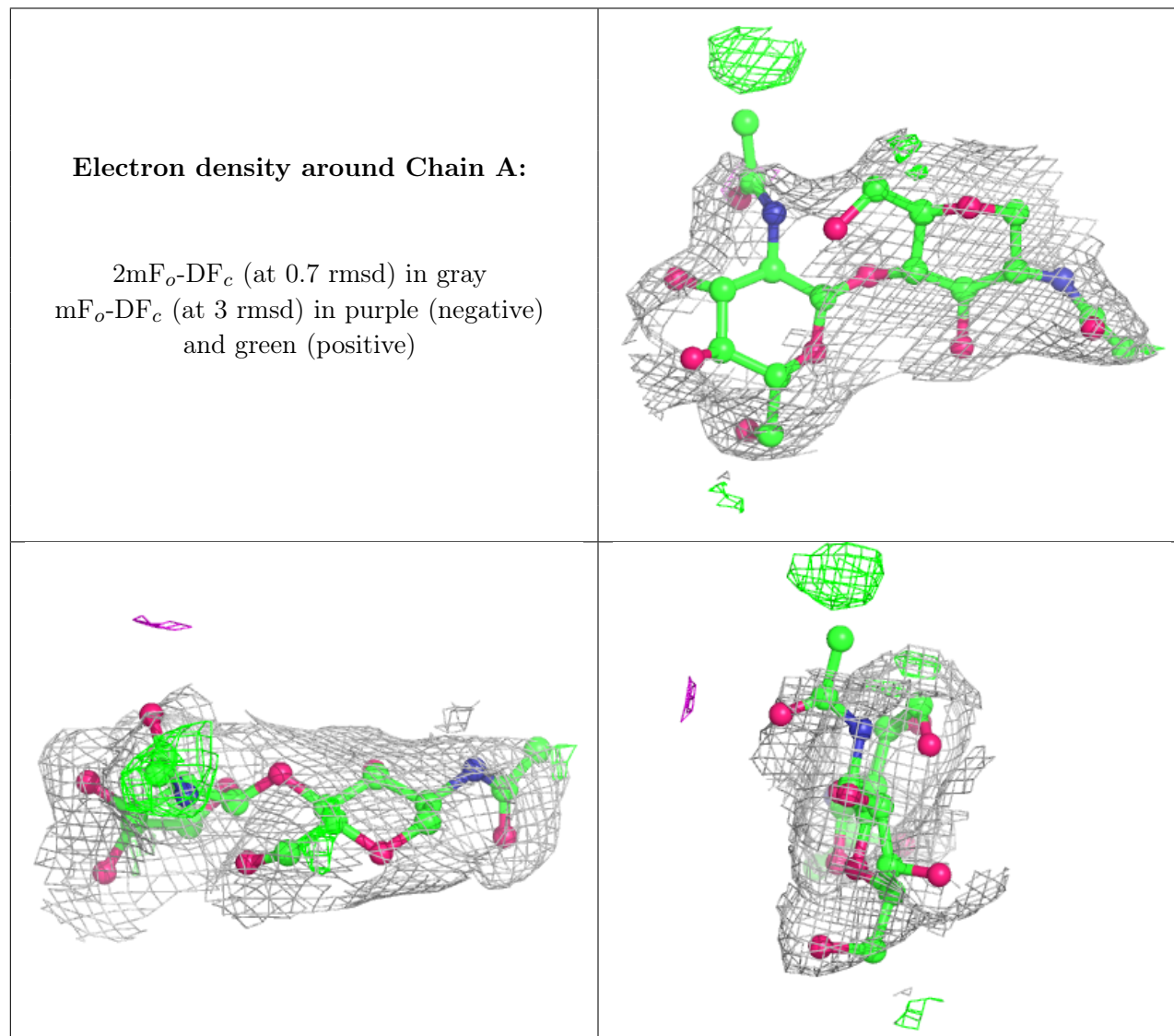
### 6.3 Carbohydrates [i](#)

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. The B-factors column lists the minimum,

median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	NAG	A	1	14/15	0.85	0.15	99,115,141,149	0
2	NAG	A	2	14/15	0.86	0.15	117,141,160,162	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.



## 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, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
3	NAG	U	503	14/15	0.85	0.27	99,111,118,131	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.