



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 3, 2017 – 09:01 PM EDT

PDB ID : 2X1X
Title : CRYSTAL STRUCTURE OF VEGF-C IN COMPLEX WITH DOMAINS 2 AND 3 OF VEGFR2 IN A TETRAGONAL CRYSTAL FORM
Authors : Leppanen, V.-M.; Prota, A.E.; Jeltsch, M.; Anisimov, A.; Kalkkinen, N.; Strandin, T.; Lankinen, H.; Goldman, A.; Ballmer-Hofer, K.; Alitalo, K.
Deposited on : unknown
Resolution : 3.10 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 ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20029824
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
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-20029824

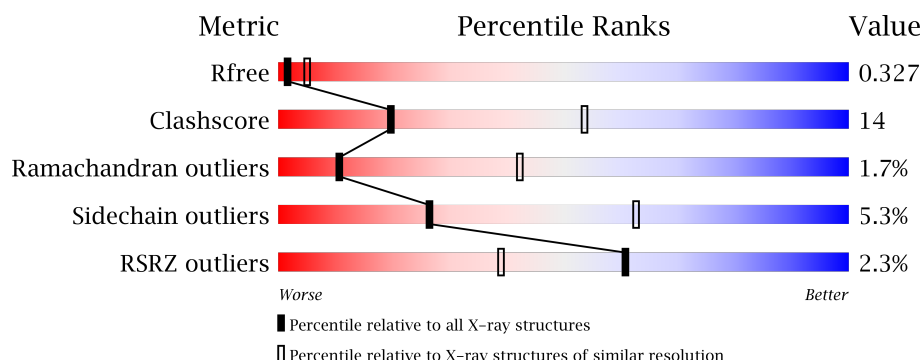
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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}	100719	1001 (3.12-3.08)
Clashscore	112137	1099 (3.12-3.08)
Ramachandran outliers	110173	1057 (3.12-3.08)
Sidechain outliers	110143	1057 (3.12-3.08)
RSRZ outliers	101464	1006 (3.12-3.08)

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 $\leq 5\%$. 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	E	110	
2	R	213	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAG	E	301	-	-	-	X
3	NAG	R	404	X	-	-	-

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 2488 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 VASCULAR ENDOTHELIAL GROWTH FACTOR C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	E	103	779	485	135	148	11	0	0	0

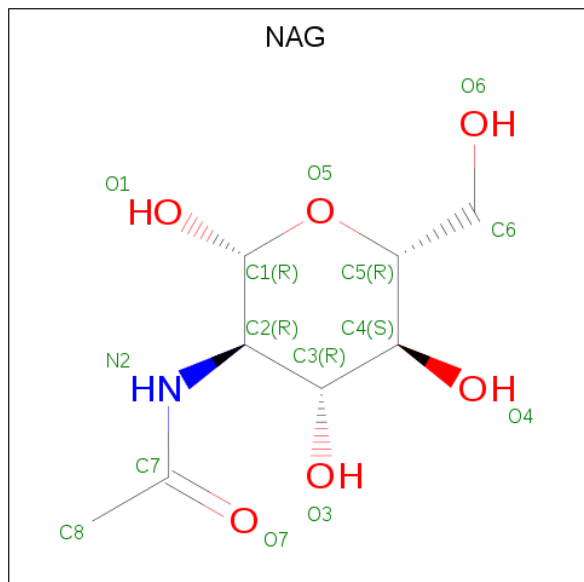
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	137	ALA	CYS	engineered mutation	UNP P49767

- Molecule 2 is a protein called VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR 2.

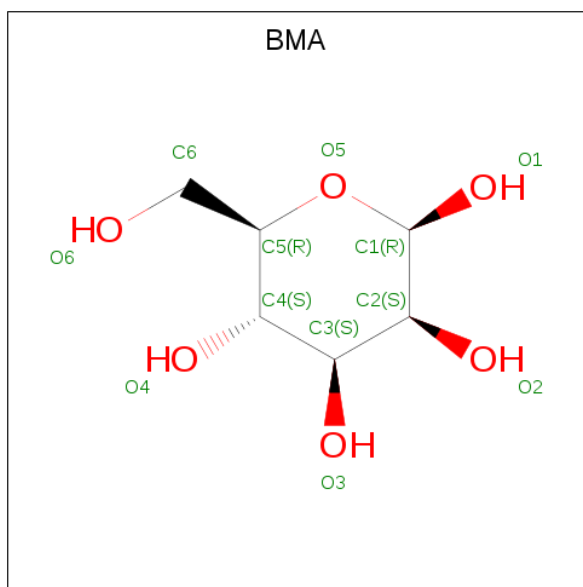
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	R	201	1548	984	262	292	10	0	0	0

- Molecule 3 is N-ACETYL-D-GLUCOSAMINE (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

- Molecule 4 is BETA-D-MANNOSE (three-letter code: BMA) (formula: $C_6H_{12}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	E	1	Total	C	O	0	0
			11	6	5		
4	E	1	Total	C	O	0	0
			11	6	5		

- Molecule 5 is MERCURY (II) ION (three-letter code: HG) (formula: Hg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	R	1	Total Hg 1 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	E	4	Total O 4 4	0	0
6	R	8	Total O 8 8	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 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.

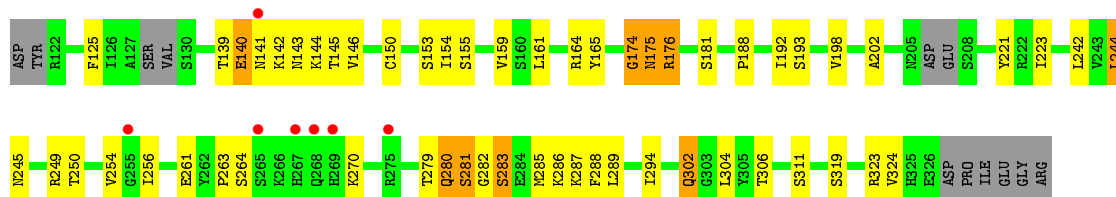
- Molecule 1: VASCULAR ENDOTHELIAL GROWTH FACTOR C

Chain E: 



- Molecule 2: VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR 2

Chain R: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 42 21 2	Depositor
Cell constants a, b, c, α , β , γ	88.73 Å 88.73 Å 105.27 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	37.00 – 3.10 67.85 – 3.10	Depositor EDS
% Data completeness (in resolution range)	100.0 (37.00-3.10) 99.9 (67.85-3.10)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	6.93 (at 3.13 Å)	Xtriage
Refinement program	REFMAC 5.5.0072	Depositor
R, R_{free}	0.266 , 0.334 0.256 , 0.327	Depositor DCC
R_{free} test set	809 reflections (11.12%)	DCC
Wilson B-factor (Å ²)	65.9	Xtriage
Anisotropy	0.360	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 60.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.87	EDS
Total number of atoms	2488	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.11% 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: BMA, NAG, HG

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	E	0.38	0/795	0.54	0/1077
2	R	0.41	0/1577	0.54	0/2135
All	All	0.40	0/2372	0.54	0/3212

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	E	779	0	751	18	0
2	R	1548	0	1523	52	0
3	E	56	0	48	0	0
3	R	70	0	63	1	0
4	E	22	0	20	0	0
5	R	1	0	0	0	0
6	E	4	0	0	0	0
6	R	8	0	0	0	0
All	All	2488	0	2405	70	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 14.

All (70) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:R:280:GLN:HA	2:R:282:GLY:N	1.59	1.16
2:R:280:GLN:CA	2:R:282:GLY:H	1.66	1.07
1:E:194:GLN:HB3	1:E:195:GLY:HA3	1.36	1.04
2:R:279:THR:O	2:R:281:SER:HB3	1.62	1.00
2:R:280:GLN:HA	2:R:282:GLY:H	0.83	0.97
1:E:194:GLN:CB	1:E:195:GLY:HA3	2.07	0.83
2:R:140:GLU:HB2	2:R:221:TYR:HE2	1.49	0.77
2:R:142:LYS:HB3	2:R:143:ASN:HA	1.68	0.76
1:E:146:VAL:HG23	1:E:147:ALA:H	1.51	0.75
2:R:264:SER:O	2:R:270:LYS:HE3	1.90	0.70
1:E:160:TYR:HB2	1:E:205:ASN:HD21	1.62	0.65
2:R:250:THR:HG21	2:R:256:ILE:HD11	1.80	0.64
2:R:280:GLN:CA	2:R:282:GLY:N	2.41	0.62
1:E:194:GLN:CB	1:E:195:GLY:CA	2.77	0.62
2:R:245:ASN:ND2	3:R:402:NAG:C1	2.66	0.59
1:E:144:PHE:HD2	1:E:146:VAL:CG1	2.16	0.58
2:R:141:ASN:HB3	2:R:144:LYS:HA	1.85	0.57
2:R:146:VAL:HG11	2:R:192:ILE:HD11	1.88	0.56
2:R:141:ASN:HB2	2:R:142:LYS:HA	1.88	0.55
2:R:141:ASN:H	2:R:141:ASN:HD22	1.53	0.55
1:E:144:PHE:HD2	1:E:146:VAL:HG12	1.72	0.55
2:R:279:THR:O	2:R:281:SER:CB	2.46	0.55
2:R:164:ARG:HD3	2:R:165:TYR:CZ	2.42	0.54
2:R:280:GLN:H	2:R:280:GLN:CD	2.10	0.54
1:E:190:VAL:HA	1:E:191:PRO:C	2.28	0.54
1:E:146:VAL:HG23	1:E:147:ALA:N	2.24	0.51
2:R:280:GLN:HB3	2:R:282:GLY:HA2	1.91	0.51
2:R:250:THR:CG2	2:R:256:ILE:HD11	2.39	0.51
2:R:280:GLN:CB	2:R:282:GLY:H	2.22	0.51
2:R:261:GLU:OE2	2:R:261:GLU:HA	2.11	0.51
2:R:141:ASN:H	2:R:141:ASN:ND2	2.09	0.50
2:R:302:GLN:HG3	2:R:324:VAL:H	1.75	0.50
2:R:280:GLN:HB3	2:R:282:GLY:N	2.25	0.50
2:R:282:GLY:O	2:R:283:SER:O	2.29	0.50
2:R:145:THR:HA	2:R:188:PRO:HA	1.93	0.49
2:R:280:GLN:CB	2:R:282:GLY:N	2.75	0.49
1:E:170:GLY:H	1:E:214:LYS:HE3	1.77	0.49
2:R:140:GLU:CB	2:R:221:TYR:HE2	2.23	0.49
1:E:138:ILE:CG2	1:E:143:GLU:HG3	2.43	0.48
1:E:178:THR:HG23	1:E:206:HIS:HD2	1.77	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:138:ILE:HG23	1:E:143:GLU:HG3	1.94	0.48
2:R:142:LYS:CB	2:R:143:ASN:HA	2.41	0.48
2:R:280:GLN:HB3	2:R:282:GLY:CA	2.43	0.48
2:R:155:SER:HA	2:R:181:SER:OG	2.14	0.47
1:E:175:ASN:ND2	1:E:178:THR:OG1	2.46	0.47
2:R:242:LEU:HD11	2:R:244:LEU:HD13	1.97	0.47
2:R:223:ILE:HA	2:R:250:THR:HG22	1.97	0.46
2:R:174:GLY:HA2	2:R:175:ASN:HA	1.50	0.46
2:R:154:ILE:HG22	2:R:155:SER:N	2.31	0.46
1:E:205:ASN:C	1:E:205:ASN:HD22	2.20	0.45
2:R:242:LEU:HD23	2:R:294:ILE:HD12	1.98	0.45
2:R:306:THR:HG23	2:R:319:SER:HB3	1.99	0.44
2:R:249:ARG:HD3	2:R:287:LYS:HE2	1.99	0.44
2:R:250:THR:OG1	2:R:288:PHE:HE1	1.99	0.44
2:R:286:LYS:HD3	2:R:288:PHE:HZ	1.82	0.44
2:R:263:PRO:HD3	2:R:304:LEU:O	2.17	0.44
1:E:194:GLN:HB3	1:E:195:GLY:CA	2.25	0.44
2:R:302:GLN:HG3	2:R:323:ARG:HA	1.99	0.43
2:R:159:VAL:HG22	2:R:202:ALA:HB2	2.00	0.43
2:R:245:ASN:ND2	2:R:289:LEU:HD11	2.34	0.42
2:R:125:PHE:CE1	2:R:150:CYS:HB3	2.54	0.42
2:R:175:ASN:O	2:R:176:ARG:HB2	2.20	0.42
2:R:153:SER:HB2	2:R:154:ILE:HD12	2.01	0.42
2:R:161:LEU:HD11	2:R:198:VAL:HB	2.02	0.42
1:E:160:TYR:HB2	1:E:205:ASN:ND2	2.32	0.42
1:E:144:PHE:HB3	1:E:146:VAL:HG13	2.01	0.42
2:R:254:VAL:HG13	2:R:311:SER:HB2	2.01	0.41
2:R:279:THR:OG1	2:R:285:MET:O	2.31	0.41
2:R:125:PHE:HE1	2:R:150:CYS:HB3	1.85	0.40
2:R:143:ASN:C	2:R:145:THR:H	2.23	0.40

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	E	101/110 (92%)	96 (95%)	4 (4%)	1 (1%)	18	57
2	R	195/213 (92%)	180 (92%)	11 (6%)	4 (2%)	8	36
All	All	296/323 (92%)	276 (93%)	15 (5%)	5 (2%)	11	42

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	146	VAL
2	R	283	SER
2	R	176	ARG
2	R	174	GLY
2	R	281	SER

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	E	90/100 (90%)	83 (92%)	7 (8%)	15	48
2	R	173/192 (90%)	166 (96%)	7 (4%)	36	73
All	All	263/292 (90%)	249 (95%)	14 (5%)	26	63

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	120	LYS
1	E	123	ASP
1	E	126	TRP
1	E	144	PHE
1	E	192	LEU
1	E	194	GLN
1	E	205	ASN
2	R	139	THR

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Mol	Chain	Res	Type
2	R	140	GLU
2	R	175	ASN
2	R	193	SER
2	R	244	LEU
2	R	280	GLN
2	R	302	GLN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	115	ASN
1	E	175	ASN
1	E	205	ASN
2	R	141	ASN
2	R	175	ASN
2	R	245	ASN
2	R	325	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 1 is monoatomic - leaving 11 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	$\# Z > 2$
3	NAG	E	301	3	14,14,15	0.58	0	15,19,21	1.83	2 (13%)
3	NAG	E	302	3,4	14,14,15	0.50	0	15,19,21	1.03	1 (6%)
4	BMA	E	303	3	11,11,12	0.68	0	13,15,17	0.97	1 (7%)
3	NAG	E	304	3	14,14,15	0.39	0	15,19,21	1.13	2 (13%)
3	NAG	E	305	3,4	14,14,15	0.59	0	15,19,21	1.08	1 (6%)
4	BMA	E	306	3	11,11,12	0.74	0	13,15,17	0.67	0
3	NAG	R	402	3	14,14,15	0.56	0	15,19,21	1.12	0
3	NAG	R	403	3	14,14,15	0.47	0	15,19,21	0.94	0
3	NAG	R	404	2	14,14,15	0.60	0	15,19,21	1.83	3 (20%)
3	NAG	R	405	3	14,14,15	0.70	0	15,19,21	1.53	4 (26%)
3	NAG	R	406	3	14,14,15	0.53	0	15,19,21	0.73	0

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	E	301	3	-	0/6/23/26	0/1/1/1
3	NAG	E	302	3,4	-	0/6/23/26	0/1/1/1
4	BMA	E	303	3	-	0/2/19/22	0/1/1/1
3	NAG	E	304	3	-	0/6/23/26	0/1/1/1
3	NAG	E	305	3,4	-	0/6/23/26	0/1/1/1
4	BMA	E	306	3	-	0/2/19/22	0/1/1/1
3	NAG	R	402	3	-	0/6/23/26	0/1/1/1
3	NAG	R	403	3	-	0/6/23/26	0/1/1/1
3	NAG	R	404	2	1/1/5/7	0/6/23/26	0/1/1/1
3	NAG	R	405	3	-	0/6/23/26	0/1/1/1
3	NAG	R	406	3	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	R	404	NAG	O5-C1-C2	-5.50	103.82	111.47
3	E	301	NAG	O5-C1-C2	-4.65	105.01	111.47
3	R	405	NAG	C1-O5-C5	-2.67	108.48	112.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	304	NAG	C4-C3-C2	-2.36	107.56	111.02
3	R	405	NAG	O5-C1-C2	-2.16	108.47	111.47
3	E	302	NAG	C4-C3-C2	-2.01	108.07	111.02
4	E	303	BMA	C3-C4-C5	2.19	114.07	110.22
3	E	304	NAG	C1-O5-C5	2.22	115.22	112.17
3	R	404	NAG	C1-C2-N2	2.38	114.56	110.49
3	R	404	NAG	C1-O5-C5	2.56	115.69	112.17
3	E	305	NAG	C4-C3-C2	2.60	114.83	111.02
3	R	405	NAG	C3-C4-C5	2.81	115.16	110.22
3	R	405	NAG	C4-C3-C2	3.19	115.69	111.02
3	E	301	NAG	C3-C4-C5	4.24	117.69	110.22

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	R	404	NAG	C1

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	R	402	NAG	1	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å ²)	Q<0.9
1	E	103/110 (93%)	0.07	0	100 100	33, 48, 71, 91	0
2	R	201/213 (94%)	0.09	7 (3%)	44 22	26, 54, 81, 99	0
All	All	304/323 (94%)	0.08	7 (2%)	61 39	26, 52, 79, 99	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	R	141	ASN	3.8
2	R	268	GLN	3.6
2	R	267	HIS	3.5
2	R	275	ARG	2.8
2	R	265	SER	2.4
2	R	255	GLY	2.2
2	R	269	HIS	2.2

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [i](#)

There are no 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, 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	LLDF	B-factors(\AA^2)	Q<0.9
3	NAG	E	301	14/15	0.83	0.30	3.08	72,83,87,94	0
3	NAG	E	304	14/15	0.80	0.33	1.80	72,76,77,77	0
3	NAG	R	403	14/15	0.83	0.34	-	84,86,89,89	0
3	NAG	R	402	14/15	0.88	0.27	-	73,76,78,80	0
4	BMA	E	306	11/12	0.53	0.44	-	86,89,92,92	0
3	NAG	E	305	14/15	0.85	0.24	-	74,76,78,82	0
5	HG	R	401	1/1	0.98	0.07	-	140,140,140,140	0
3	NAG	E	302	14/15	0.57	0.42	-	98,102,106,110	0
4	BMA	E	303	11/12	0.54	0.34	-	112,114,115,116	0
3	NAG	R	406	14/15	0.79	0.18	-	107,108,109,109	0
3	NAG	R	404	14/15	0.68	0.28	-	90,93,96,97	0
3	NAG	R	405	14/15	0.84	0.27	-	99,101,104,105	0

6.5 Other polymers [i](#)

There are no such residues in this entry.