



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 1, 2016 – 10:00 AM GMT

PDB ID : 3KG2
Title : AMPA subtype ionotropic glutamate receptor in complex with competitive antagonist ZK 200775
Authors : Sobolevsky, A.I.; Rosconi, M.P.; Gouaux, E.
Deposited on : 2009-10-28
Resolution : 3.60 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 ⓘ 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 (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

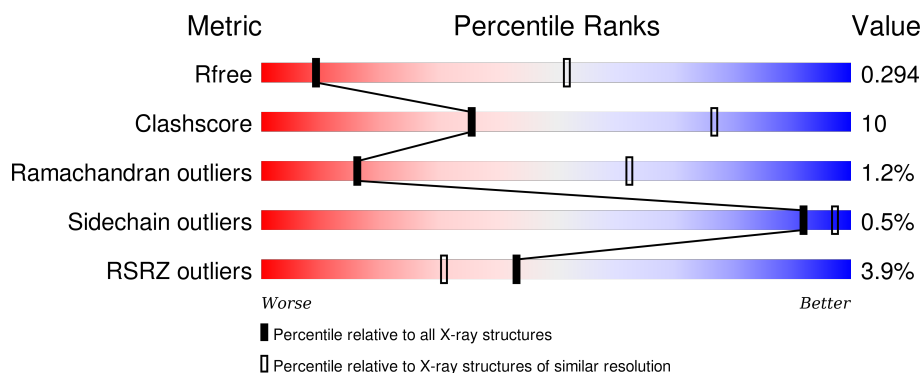
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 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	1408 (3.80-3.40)
Clashscore	102246	1010 (3.74-3.46)
Ramachandran outliers	100387	1007 (3.76-3.44)
Sidechain outliers	100360	1007 (3.76-3.44)
RSRZ outliers	91569	1003 (3.78-3.42)

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	A	823	
1	B	823	
1	C	823	
1	D	823	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 22686 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 Glutamate receptor 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	779	Total	C	N	O	S	0	0	0
			5600	3605	891	1077	27			
1	B	779	Total	C	N	O	S	0	0	0
			5600	3605	891	1077	27			
1	C	779	Total	C	N	O	S	0	0	0
			5600	3605	891	1077	27			
1	D	779	Total	C	N	O	S	0	0	0
			5600	3605	891	1077	27			

There are 68 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	241	GLU	ASN	ENGINEERED	UNP P19491
A	?	-	VAL	DELETION	UNP P19491
A	?	-	THR	DELETION	UNP P19491
A	?	-	LEU	DELETION	UNP P19491
A	?	-	PRO	DELETION	UNP P19491
A	?	-	SER	DELETION	UNP P19491
A	?	-	GLY	DELETION	UNP P19491
A	385	ASP	ASN	ENGINEERED	UNP P19491
A	392	GLN	ASN	ENGINEERED	UNP P19491
A	410	ALA	LYS	ENGINEERED	UNP P19491
A	413	ALA	GLU	ENGINEERED	UNP P19491
A	414	ALA	MET	ENGINEERED	UNP P19491
A	416	ALA	GLU	ENGINEERED	UNP P19491
A	589	ALA	CYS	ENGINEERED	UNP P19491
A	744	THR	ASN	VARIANT	UNP P19491
A	745	PRO	ALA	VARIANT	UNP P19491
A	754	SER	ASN	VARIANT	UNP P19491
B	241	GLU	ASN	ENGINEERED	UNP P19491
B	?	-	VAL	DELETION	UNP P19491
B	?	-	THR	DELETION	UNP P19491
B	?	-	LEU	DELETION	UNP P19491

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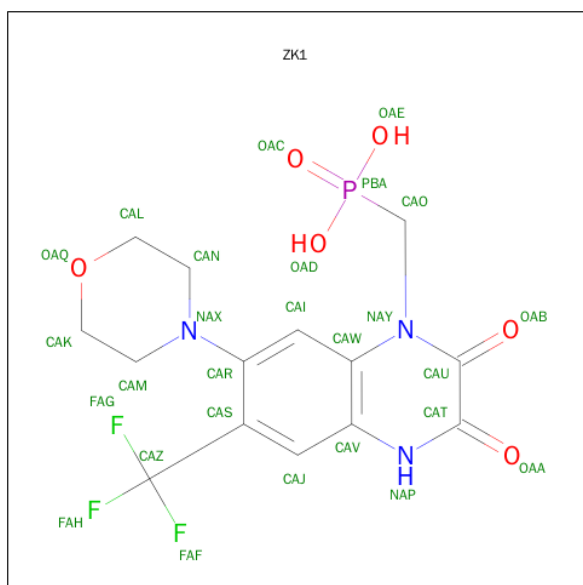
Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	PRO	DELETION	UNP P19491
B	?	-	SER	DELETION	UNP P19491
B	?	-	GLY	DELETION	UNP P19491
B	385	ASP	ASN	ENGINEERED	UNP P19491
B	392	GLN	ASN	ENGINEERED	UNP P19491
B	410	ALA	LYS	ENGINEERED	UNP P19491
B	413	ALA	GLU	ENGINEERED	UNP P19491
B	414	ALA	MET	ENGINEERED	UNP P19491
B	416	ALA	GLU	ENGINEERED	UNP P19491
B	589	ALA	CYS	ENGINEERED	UNP P19491
B	744	THR	ASN	VARIANT	UNP P19491
B	745	PRO	ALA	VARIANT	UNP P19491
B	754	SER	ASN	VARIANT	UNP P19491
C	241	GLU	ASN	ENGINEERED	UNP P19491
C	?	-	VAL	DELETION	UNP P19491
C	?	-	THR	DELETION	UNP P19491
C	?	-	LEU	DELETION	UNP P19491
C	?	-	PRO	DELETION	UNP P19491
C	?	-	SER	DELETION	UNP P19491
C	?	-	GLY	DELETION	UNP P19491
C	385	ASP	ASN	ENGINEERED	UNP P19491
C	392	GLN	ASN	ENGINEERED	UNP P19491
C	410	ALA	LYS	ENGINEERED	UNP P19491
C	413	ALA	GLU	ENGINEERED	UNP P19491
C	414	ALA	MET	ENGINEERED	UNP P19491
C	416	ALA	GLU	ENGINEERED	UNP P19491
C	589	ALA	CYS	ENGINEERED	UNP P19491
C	744	THR	ASN	VARIANT	UNP P19491
C	745	PRO	ALA	VARIANT	UNP P19491
C	754	SER	ASN	VARIANT	UNP P19491
D	241	GLU	ASN	ENGINEERED	UNP P19491
D	?	-	VAL	DELETION	UNP P19491
D	?	-	THR	DELETION	UNP P19491
D	?	-	LEU	DELETION	UNP P19491
D	?	-	PRO	DELETION	UNP P19491
D	?	-	SER	DELETION	UNP P19491
D	?	-	GLY	DELETION	UNP P19491
D	385	ASP	ASN	ENGINEERED	UNP P19491
D	392	GLN	ASN	ENGINEERED	UNP P19491
D	410	ALA	LYS	ENGINEERED	UNP P19491
D	413	ALA	GLU	ENGINEERED	UNP P19491
D	414	ALA	MET	ENGINEERED	UNP P19491

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Chain	Residue	Modelled	Actual	Comment	Reference
D	416	ALA	GLU	ENGINEERED	UNP P19491
D	589	ALA	CYS	ENGINEERED	UNP P19491
D	744	THR	ASN	VARIANT	UNP P19491
D	745	PRO	ALA	VARIANT	UNP P19491
D	754	SER	ASN	VARIANT	UNP P19491

- Molecule 2 is {[7-MORPHOLIN-4-YL-2,3-DIOXO-6-(TRIFLUOROMETHYL)-3,4-DIHYDROQUINOXALIN-1(2H)-YL]METHYL}PHOSPHONIC ACID (three-letter code: ZK1) (formula: C₁₄H₁₅F₃N₃O₆P).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	P	0	0
			27	14	3	3	6	1		
2	B	1	Total	C	F	N	O	P	0	0
			27	14	3	3	6	1		
2	C	1	Total	C	F	N	O	P	0	0
			27	14	3	3	6	1		
2	D	1	Total	C	F	N	O	P	0	0
			27	14	3	3	6	1		

- Molecule 3 is a polymer of unknown type called SUGAR (4-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	4	Total	C	N	O	0	0
			50	28	2	20		
3	B	4	Total	C	N	O	0	0
			50	28	2	20		

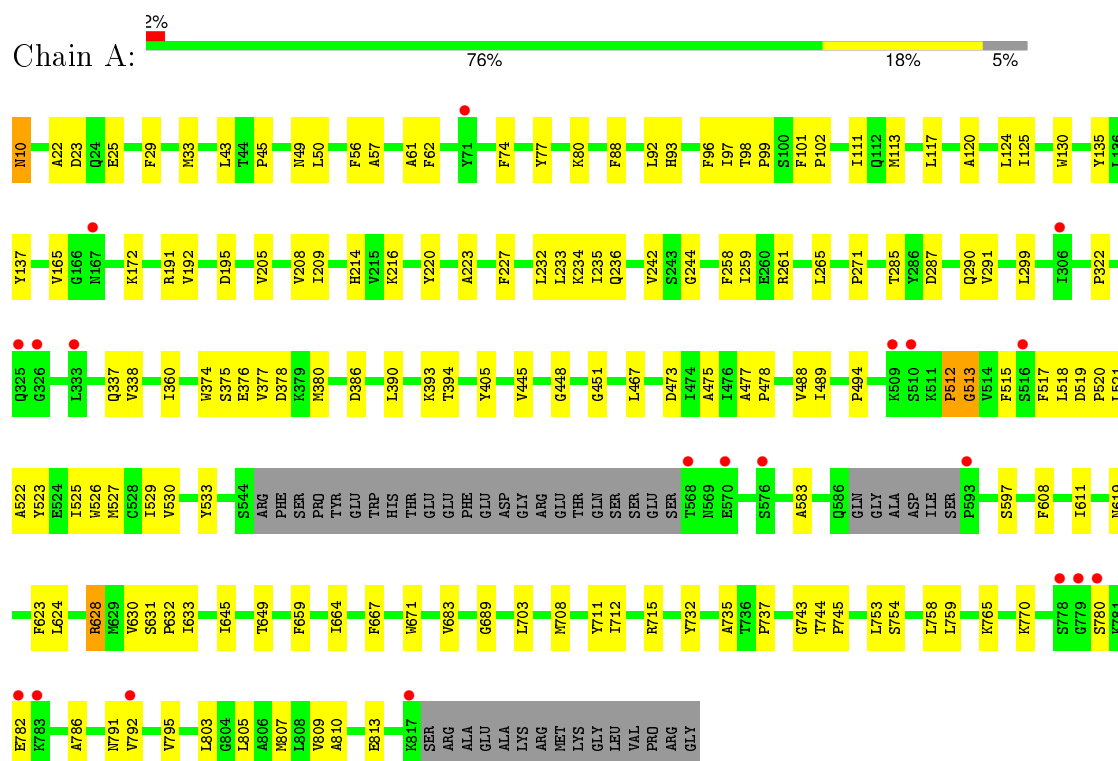
- Molecule 4 is a polymer of unknown type called SUGAR (3-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	C	3	Total	C	N	O	0	0
			39	22	2	15		
4	D	3	Total	C	N	O	0	0
			39	22	2	15		

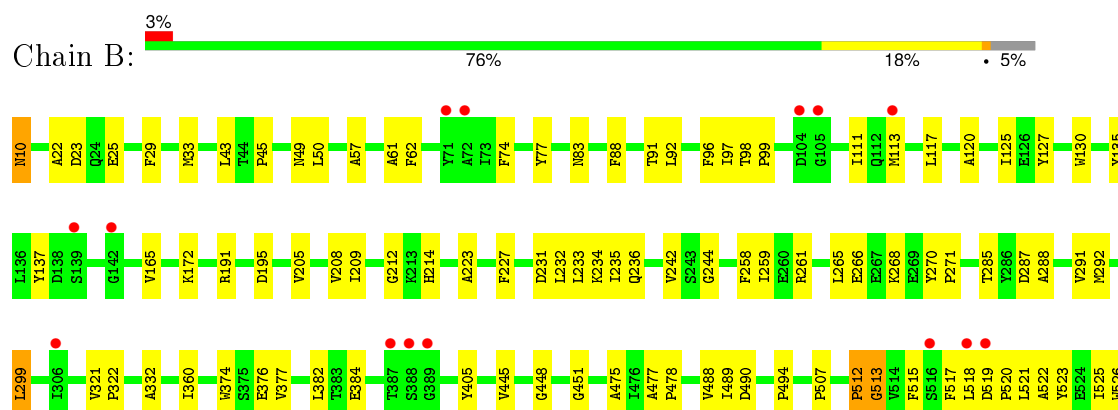
3 Residue-property plots [i](#)

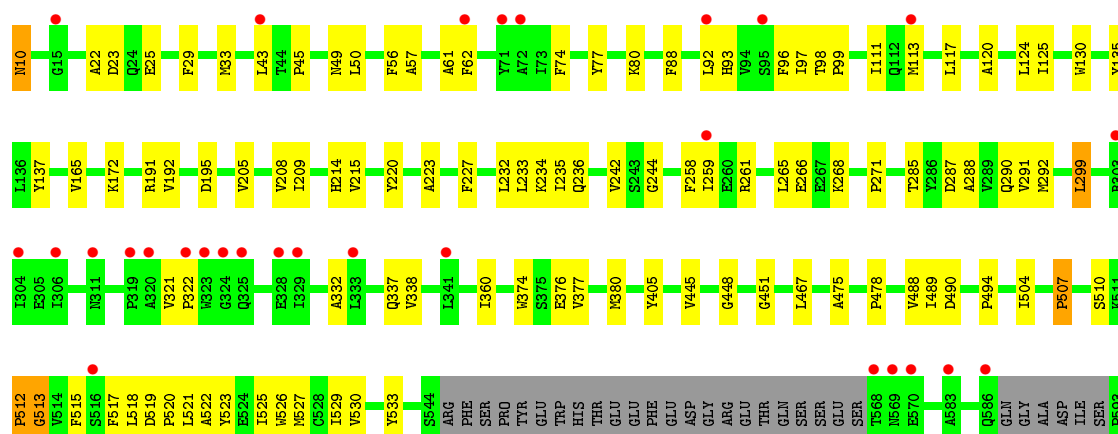
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according 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.

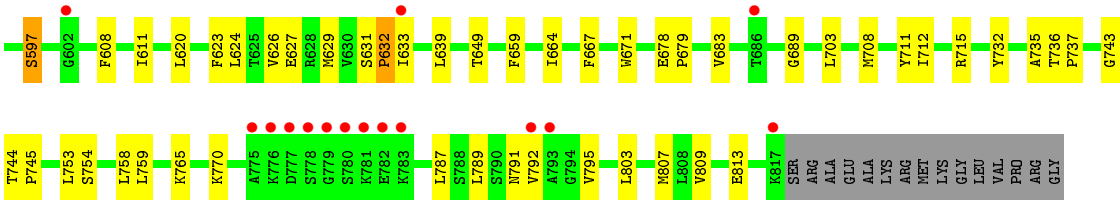
• Molecule 1: Glutamate receptor 2



• Molecule 1: Glutamate receptor 2







4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	90.72Å 109.85Å 161.13Å 85.32° 84.75° 78.92°	Depositor
Resolution (Å)	49.89 – 3.60 49.89 – 3.60	Depositor EDS
% Data completeness (in resolution range)	98.8 (49.89-3.60) 96.8 (49.89-3.60)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.15 (at 3.57Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.286 , 0.296 0.285 , 0.294	Depositor DCC
R_{free} test set	3484 reflections (5.29%)	DCC
Wilson B-factor (Å ²)	136.5	Xtriage
Anisotropy	0.162	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.23 , 89.0	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.35$	Xtriage
Outliers	0 of 69354 reflections	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	22686	wwPDB-VP
Average B, all atoms (Å ²)	179.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.26% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: BMA, NAG, ZK1

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	0.21	0/5721	0.41	3/7837 (0.0%)
1	B	0.21	0/5721	0.35	0/7837
1	C	0.21	0/5721	0.42	3/7837 (0.0%)
1	D	0.21	0/5721	0.35	0/7837
All	All	0.21	0/22884	0.38	6/31348 (0.0%)

There are no bond length outliers.

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	C	628	ARG	NE-CZ-NH1	-13.84	113.38	120.30
1	A	628	ARG	NE-CZ-NH2	-12.58	114.01	120.30
1	C	628	ARG	NE-CZ-NH2	11.87	126.24	120.30
1	A	628	ARG	NE-CZ-NH1	11.15	125.87	120.30
1	A	628	ARG	CD-NE-CZ	5.71	131.59	123.60

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	5600	0	5083	116	0
1	B	5600	0	5084	116	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	5600	0	5083	109	0
1	D	5600	0	5083	120	0
2	A	27	0	13	0	0
2	B	27	0	13	1	0
2	C	27	0	13	1	0
2	D	27	0	13	1	0
3	A	50	0	43	3	0
3	B	50	0	43	1	0
4	C	39	0	34	1	0
4	D	39	0	34	2	0
All	All	22686	0	20539	420	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 10.

The worst 5 of 420 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:B:626:VAL:HB	1:C:628:ARG:HH11	1.24	0.99
1:D:649:THR:HG22	1:D:703:LEU:HB2	1.68	0.76
1:A:525:ILE:HG12	1:B:789:LEU:HD13	1.68	0.76
1:B:649:THR:HG22	1:B:703:LEU:HB2	1.68	0.76
1:A:649:THR:HG22	1:A:703:LEU:HB2	1.68	0.75

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	773/823 (94%)	709 (92%)	54 (7%)	10 (1%)	15 60
1	B	773/823 (94%)	712 (92%)	52 (7%)	9 (1%)	16 62

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	C	773/823 (94%)	714 (92%)	49 (6%)	10 (1%)	15 60
1	D	773/823 (94%)	710 (92%)	55 (7%)	8 (1%)	19 66
All	All	3092/3292 (94%)	2845 (92%)	210 (7%)	37 (1%)	16 62

5 of 37 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	172	LYS
1	B	172	LYS
1	B	512	PRO
1	C	172	LYS
1	D	172	LYS

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	534/697 (77%)	531 (99%)	3 (1%)	90 97
1	B	534/697 (77%)	532 (100%)	2 (0%)	93 98
1	C	534/697 (77%)	530 (99%)	4 (1%)	88 96
1	D	534/697 (77%)	532 (100%)	2 (0%)	93 98
All	All	2136/2788 (77%)	2125 (100%)	11 (0%)	92 97

5 of 11 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	299	LEU
1	C	10	ASN
1	C	787	LEU
1	B	10	ASN
1	C	628	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 6 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	619	ASN
1	D	344	ASN
1	C	83	ASN
1	B	83	ASN
1	D	337	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

14 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	$\# Z > 2$
3	NAG	A	834	1,3	14,14,15	0.47	0	15,19,21	0.77	1 (6%)
3	NAG	A	835	3	14,14,15	0.48	0	15,19,21	0.78	1 (6%)
3	BMA	A	836	3	11,11,12	0.60	0	14,15,17	0.50	0
3	BMA	A	837	3	11,11,12	0.61	0	14,15,17	0.50	0
3	NAG	B	834	1,3	14,14,15	0.48	0	15,19,21	0.69	0
3	NAG	B	835	3	14,14,15	0.46	0	15,19,21	0.81	1 (6%)
3	BMA	B	836	3	11,11,12	0.61	0	14,15,17	0.57	0
3	BMA	B	837	3	11,11,12	0.64	0	14,15,17	0.65	0
4	NAG	C	834	1,4	14,14,15	0.47	0	15,19,21	0.93	1 (6%)
4	NAG	C	835	4	14,14,15	0.46	0	15,19,21	0.85	1 (6%)
4	BMA	C	836	4	11,11,12	0.61	0	14,15,17	0.53	0
4	NAG	D	834	1,4	14,14,15	0.48	0	15,19,21	0.70	0
4	NAG	D	835	4	14,14,15	0.47	0	15,19,21	0.79	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	BMA	D	836	4	11,11,12	0.61	0	14,15,17	0.55	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	A	834	1,3	-	0/6/23/26	0/1/1/1
3	NAG	A	835	3	-	0/6/23/26	0/1/1/1
3	BMA	A	836	3	-	0/2/19/22	0/1/1/1
3	BMA	A	837	3	-	0/2/19/22	0/1/1/1
3	NAG	B	834	1,3	-	0/6/23/26	0/1/1/1
3	NAG	B	835	3	-	0/6/23/26	0/1/1/1
3	BMA	B	836	3	-	0/2/19/22	0/1/1/1
3	BMA	B	837	3	-	0/2/19/22	0/1/1/1
4	NAG	C	834	1,4	-	0/6/23/26	0/1/1/1
4	NAG	C	835	4	-	0/6/23/26	0/1/1/1
4	BMA	C	836	4	-	0/2/19/22	0/1/1/1
4	NAG	D	834	1,4	-	0/6/23/26	0/1/1/1
4	NAG	D	835	4	-	0/6/23/26	0/1/1/1
4	BMA	D	836	4	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	834	NAG	C1-O5-C5	2.05	114.85	112.25
3	A	835	NAG	C1-O5-C5	2.11	114.93	112.25
4	D	835	NAG	C1-O5-C5	2.11	114.93	112.25
3	B	835	NAG	C1-O5-C5	2.21	115.05	112.25
4	C	834	NAG	C1-O5-C5	2.25	115.11	112.25

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

6 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	834	NAG	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	835	NAG	1	0
3	B	834	NAG	1	0
3	B	835	NAG	1	0
4	C	835	NAG	1	0
4	D	834	NAG	2	0

5.6 Ligand geometry [i](#)

4 ligands 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	ZK1	A	833	-	28,29,29	3.05	13 (46%)	36,45,45	1.77	4 (11%)
2	ZK1	B	833	-	28,29,29	3.06	13 (46%)	36,45,45	1.77	4 (11%)
2	ZK1	C	833	-	28,29,29	3.04	13 (46%)	36,45,45	1.78	4 (11%)
2	ZK1	D	833	-	28,29,29	3.05	13 (46%)	36,45,45	1.78	4 (11%)

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	ZK1	A	833	-	-	0/13/23/23	0/3/3/3
2	ZK1	B	833	-	-	0/13/23/23	0/3/3/3
2	ZK1	C	833	-	-	0/13/23/23	0/3/3/3
2	ZK1	D	833	-	-	0/13/23/23	0/3/3/3

The worst 5 of 52 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	833	ZK1	CAN-NAX	2.03	1.49	1.46
2	B	833	ZK1	CAN-NAX	2.06	1.49	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	833	ZK1	CAN-NAX	2.09	1.49	1.46
2	D	833	ZK1	CAN-NAX	2.10	1.49	1.46
2	B	833	ZK1	PBA-CAO	2.11	1.86	1.81

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	833	ZK1	CAI-CAR-NAX	-2.82	118.94	122.71
2	C	833	ZK1	CAI-CAR-NAX	-2.76	119.02	122.71
2	B	833	ZK1	CAI-CAR-NAX	-2.74	119.05	122.71
2	D	833	ZK1	CAI-CAR-NAX	-2.73	119.06	122.71
2	B	833	ZK1	CAV-CAW-NAY	3.31	120.14	117.62

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	833	ZK1	1	0
2	C	833	ZK1	1	0
2	D	833	ZK1	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	A	779/823 (94%)	-0.12	20 (2%) 59 44	108, 154, 266, 372	0
1	B	779/823 (94%)	-0.13	21 (2%) 58 43	105, 152, 270, 342	0
1	C	779/823 (94%)	0.02	35 (4%) 37 26	125, 196, 287, 349	0
1	D	779/823 (94%)	0.02	44 (5%) 28 19	115, 177, 287, 356	0
All	All	3116/3292 (94%)	-0.05	120 (3%) 43 31	105, 169, 281, 372	0

The worst 5 of 120 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	72	ALA	8.5
1	C	71	TYR	7.7
1	D	72	ALA	7.7
1	D	778	SER	7.4
1	D	568	THR	7.1

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, 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	BMA	B	836	11/12	0.92	0.14	-	209,209,209,209	0
3	BMA	A	837	11/12	0.70	0.43	-	292,292,292,292	0
4	NAG	C	835	14/15	0.30	0.52	-	274,274,274,274	0
3	NAG	A	835	14/15	0.72	0.34	-	277,277,277,277	0
3	NAG	B	835	14/15	0.92	0.12	-	187,187,187,187	0
4	BMA	D	836	11/12	0.87	0.15	-	265,265,265,265	0
3	BMA	B	837	11/12	0.71	0.22	-	242,242,242,242	0
4	NAG	D	835	14/15	0.83	0.17	-	283,283,283,283	0
4	NAG	C	834	14/15	0.30	0.31	-	415,415,415,415	0
4	NAG	D	834	14/15	0.82	0.24	-	267,267,267,267	0
3	NAG	A	834	14/15	0.66	0.27	-	253,253,253,253	0
3	NAG	B	834	14/15	0.91	0.17	-	195,195,195,195	0
4	BMA	C	836	11/12	0.43	0.46	-	345,345,345,345	0
3	BMA	A	836	11/12	0.72	0.37	-	303,303,303,303	0

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
2	ZK1	B	833	27/27	0.74	0.34	1.48	160,160,160,160	0
2	ZK1	D	833	27/27	0.86	0.27	0.03	162,162,162,162	0
2	ZK1	C	833	27/27	0.85	0.23	-0.54	162,162,162,162	0
2	ZK1	A	833	27/27	0.90	0.18	-1.10	108,108,108,108	0

6.5 Other polymers [i](#)

There are no such residues in this entry.