



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 04:37 PM GMT

PDB ID : 4FLH  
Title : Crystal structure of human PI3K-gamma in complex with AMG511  
Authors : Whittington, D.A.; Tang, J.; Yakowec, P.  
Deposited on : 2012-06-14  
Resolution : 2.60 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  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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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 : 1.7 (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

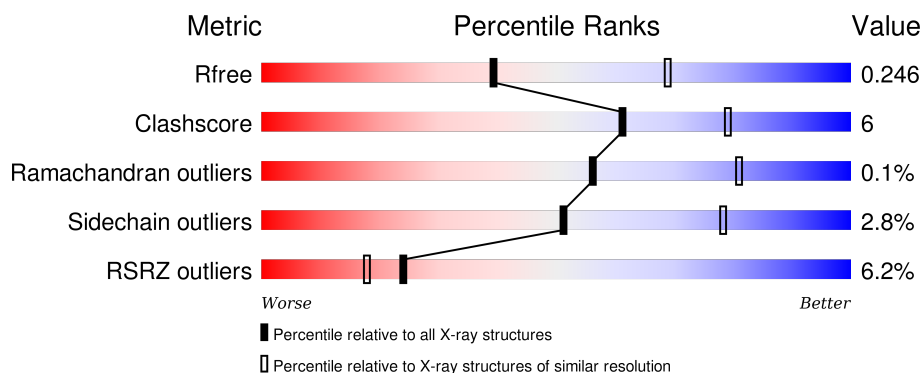
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.60 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	2328 (2.60-2.60)
Clashscore	102246	2679 (2.60-2.60)
Ramachandran outliers	100387	2635 (2.60-2.60)
Sidechain outliers	100360	2635 (2.60-2.60)
RSRZ outliers	91569	2334 (2.60-2.60)

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  $\geq 3$ , 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	960	<div> <div>5%</div> <div>76%</div> <div>11%</div> <div>•</div> <div>13%</div> </div>

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 6905 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 Phosphatidylinositol 4,5-bisphosphate 3-kinase catalytic subunit gamma isoform.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	840	Total	C	N	O	S	0	0	0
			6807	4377	1157	1239	34			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	143	GLY	-	EXPRESSION TAG	UNP P48736

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



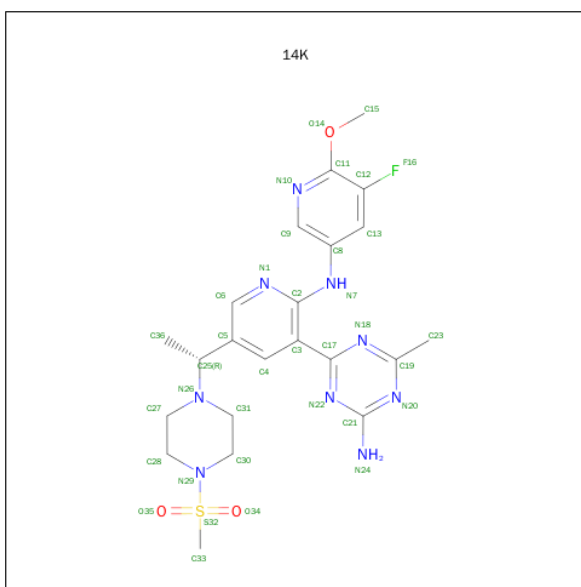
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is 4-(2-[(5-FLUORO-6-METHOXYPYRIDIN-3-YL)AMINO]-5-[(1R)-1-[4-(METHYLSULFONYL)PIPERAZIN-1-YL]ETHYL}PYRIDIN-3-YL)-6-METHYL-1,3,5-TRIAZIN-2-AMINE (three-letter code: 14K) (formula: C<sub>22</sub>H<sub>28</sub>FN<sub>9</sub>O<sub>3</sub>S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	F	N	O	S	
			36	22	1	9	3	1	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	42	Total	O	0	0
			42	42		

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 ( $\text{RSRZ} > 2$ ). 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.

- Chain A:
- 
- 76%
- 5% 11% 13%

## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	145.06 Å 67.80 Å 107.52 Å 90.00° 95.27° 90.00°	Depositor
Resolution (Å)	41.15 – 2.60 41.15 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.8 (41.15-2.60) 99.8 (41.15-2.60)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.21 (at 2.61 Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, $R_{free}$	0.200 , 0.244 0.202 , 0.246	Depositor DCC
$R_{free}$ test set	1632 reflections (5.34%)	DCC
Wilson B-factor (Å <sup>2</sup> )	65.7	Xtriage
Anisotropy	0.048	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 48.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 32197 reflections	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	6905	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.73% 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, 0.375 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: SO4, 14K

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	0.51	1/6952 (0.0%)	0.58	0/9404

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	413	TRP	CD2-CE2	5.17	1.47	1.41

There are no bond angle outliers.

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	6807	0	6851	75	0
2	A	20	0	0	0	0
3	A	36	0	28	1	0
4	A	42	0	0	0	0
All	All	6905	0	6879	76	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 6.

All (76) 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:745:VAL:O	1:A:749:ILE:HD13	1.77	0.85
1:A:767:LEU:HD22	1:A:803:VAL:HG23	1.62	0.80
1:A:272:LEU:HB3	1:A:305:VAL:HG21	1.71	0.72
1:A:947:ARG:NH2	1:A:963:ILE:O	2.23	0.71
1:A:629:GLN:HG2	1:A:1029:ILE:HD11	1.73	0.71
1:A:733:THR:HG22	1:A:737:GLN:HE21	1.57	0.69
1:A:220:ILE:HD11	1:A:287:ILE:HD13	1.76	0.68
1:A:767:LEU:HD22	1:A:803:VAL:CG2	2.25	0.67
1:A:786:PRO:HD2	1:A:878:MET:CE	2.24	0.66
1:A:1060:ASN:HD21	1:A:1063:ASP:HB2	1.61	0.65
1:A:786:PRO:HD2	1:A:878:MET:HE2	1.80	0.64
1:A:907:LEU:HD23	1:A:994:VAL:HG21	1.81	0.63
1:A:555:LEU:HD11	1:A:575:LEU:HD23	1.81	0.61
1:A:273:ARG:O	1:A:305:VAL:HG23	2.02	0.60
1:A:176:THR:HG23	1:A:674:ASP:HB2	1.85	0.58
1:A:830:ILE:HG21	1:A:878:MET:HE3	1.84	0.57
1:A:319:ARG:NH1	1:A:320:LYS:O	2.38	0.56
1:A:838:LEU:HD12	1:A:877:GLY:HA3	1.87	0.56
1:A:739:ILE:HD12	1:A:739:ILE:C	2.27	0.55
1:A:629:GLN:HG3	1:A:1029:ILE:HG13	1.87	0.55
1:A:903:LYS:HB3	1:A:906:VAL:HG23	1.88	0.55
1:A:476:ARG:HG2	1:A:520:LEU:HD12	1.89	0.54
1:A:583:LEU:HD22	1:A:610:LEU:CD1	2.38	0.54
1:A:830:ILE:HD13	1:A:878:MET:HE3	1.89	0.53
1:A:735:GLN:O	1:A:739:ILE:HG23	2.08	0.53
1:A:548:PRO:HG2	1:A:551:LEU:HD12	1.91	0.52
1:A:855:TRP:CE3	1:A:862:LEU:HD13	2.44	0.52
1:A:162:VAL:HG13	1:A:177:ARG:HD2	1.92	0.51
1:A:651:LEU:HD22	1:A:655:ASP:HB3	1.93	0.51
1:A:240:THR:HG23	1:A:243:ALA:H	1.76	0.51
1:A:271:VAL:HG13	1:A:282:VAL:HG12	1.93	0.50
1:A:1069:LEU:HD23	1:A:1072:ILE:HD12	1.93	0.50
1:A:287:ILE:HD12	1:A:288:LYS:N	2.27	0.50
1:A:158:ILE:HG23	1:A:703:ILE:HD13	1.93	0.49
1:A:235:VAL:HG13	1:A:239:ASP:OD2	2.13	0.49
1:A:830:ILE:HD13	1:A:878:MET:CE	2.43	0.49
1:A:891:ILE:HG22	1:A:906:VAL:HG12	1.94	0.49
1:A:629:GLN:HG2	1:A:1029:ILE:CD1	2.42	0.49
1:A:198:MET:SD	1:A:282:VAL:HG11	2.53	0.48
1:A:855:TRP:CD2	1:A:862:LEU:HD13	2.49	0.47
1:A:760:SER:OG	1:A:763:VAL:HG23	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:767:LEU:CD2	1:A:803:VAL:HG23	2.41	0.47
1:A:1018:LEU:HD11	1:A:1065:LYS:HE2	1.95	0.47
1:A:372:VAL:HG12	1:A:373:LEU:N	2.30	0.47
1:A:579:ARG:HG2	1:A:610:LEU:HD22	1.97	0.47
3:A:1205:14K:N18	3:A:1205:14K:N7	2.58	0.47
1:A:363:VAL:HG23	1:A:520:LEU:CD2	2.46	0.45
1:A:397:ARG:NE	1:A:415:GLU:O	2.49	0.45
1:A:273:ARG:C	1:A:305:VAL:HG23	2.37	0.45
1:A:177:ARG:NE	1:A:718:GLU:OE2	2.50	0.45
1:A:583:LEU:HD22	1:A:610:LEU:HD11	1.98	0.45
1:A:463:TYR:CE1	1:A:501:LYS:HA	2.52	0.45
1:A:786:PRO:HD2	1:A:878:MET:HE1	1.95	0.45
1:A:935:TYR:O	1:A:939:THR:HG23	2.18	0.44
1:A:733:THR:HG22	1:A:737:GLN:NE2	2.29	0.44
1:A:640:VAL:O	1:A:643:ILE:HG12	2.17	0.44
1:A:776:ASN:HD22	1:A:777:SER:H	1.65	0.44
1:A:945:GLY:O	1:A:986:VAL:HG23	2.18	0.44
1:A:390:GLY:N	1:A:636:SER:OG	2.50	0.43
1:A:1070:ASP:O	1:A:1074:VAL:HG23	2.19	0.43
1:A:237:PRO:HA	1:A:287:ILE:HD11	2.01	0.43
1:A:579:ARG:CG	1:A:610:LEU:HD22	2.49	0.43
1:A:1010:GLN:O	1:A:1014:VAL:HG23	2.18	0.42
1:A:576:TRP:CH2	1:A:579:ARG:HD2	2.54	0.42
1:A:651:LEU:HD22	1:A:655:ASP:CB	2.50	0.42
1:A:220:ILE:CD1	1:A:287:ILE:HD13	2.48	0.41
1:A:622:LEU:HD21	1:A:651:LEU:CD2	2.50	0.41
1:A:176:THR:HG23	1:A:674:ASP:CB	2.50	0.41
1:A:576:TRP:CZ3	1:A:579:ARG:HD2	2.55	0.41
1:A:916:PRO:HG2	1:A:917:THR:HG23	2.01	0.41
1:A:1060:ASN:HD22	1:A:1060:ASN:H	1.68	0.41
1:A:1048:ILE:O	1:A:1051:ILE:HG22	2.21	0.41
1:A:576:TRP:CZ3	1:A:596:VAL:HG22	2.56	0.40
1:A:732:PHE:O	1:A:736:VAL:HG23	2.20	0.40
1:A:271:VAL:HG13	1:A:282:VAL:CG1	2.52	0.40
1:A:390:GLY:CA	1:A:636:SER:OG	2.68	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	820/960 (85%)	789 (96%)	30 (4%)	1 (0%)	56 81

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1079	GLY

### 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	756/857 (88%)	735 (97%)	21 (3%)	51 78

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	162	VAL
1	A	185	MET
1	A	194	LYS
1	A	379	LEU
1	A	397	ARG
1	A	591	LYS
1	A	601	GLN
1	A	636	SER
1	A	707	ARG
1	A	728	MET

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Mol	Chain	Res	Type
1	A	739	ILE
1	A	776	ASN
1	A	778	GLN
1	A	823	LEU
1	A	899	THR
1	A	905	GLU
1	A	917	THR
1	A	959	ASN
1	A	962	HIS
1	A	1003	SER
1	A	1060	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	153	GLN
1	A	459	GLN
1	A	601	GLN
1	A	619	GLN
1	A	646	GLN
1	A	737	GLN
1	A	769	GLN
1	A	773	ASN
1	A	776	ASN
1	A	959	ASN
1	A	1023	HIS
1	A	1060	ASN
1	A	1085	ASN

### 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 ⓘ

There are no carbohydrates in this entry.

## 5.6 Ligand geometry

5 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	SO4	A	1201	-	4,4,4	0.40	0	6,6,6	0.29	0
2	SO4	A	1202	-	4,4,4	0.51	0	6,6,6	0.20	0
2	SO4	A	1203	-	4,4,4	0.39	0	6,6,6	0.11	0
2	SO4	A	1204	-	4,4,4	0.44	0	6,6,6	0.17	0
3	14K	A	1205	-	39,39,39	1.83	4 (10%)	51,57,57	2.56	19 (37%)

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	SO4	A	1201	-	-	0/0/0/0	0/0/0/0
2	SO4	A	1202	-	-	0/0/0/0	0/0/0/0
2	SO4	A	1203	-	-	0/0/0/0	0/0/0/0
2	SO4	A	1204	-	-	0/0/0/0	0/0/0/0
3	14K	A	1205	-	-	0/24/34/34	0/4/4/4

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1205	14K	C3-C17	-4.09	1.40	1.48
3	A	1205	14K	C8-N7	-2.95	1.34	1.40
3	A	1205	14K	O34-S32	6.04	1.50	1.43
3	A	1205	14K	O35-S32	6.92	1.51	1.43

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1205	14K	O35-S32-O34	-7.05	108.85	118.66
3	A	1205	14K	C30-N29-S32	-7.00	108.68	115.99

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1205	14K	N18-C17-N22	-4.09	118.85	125.37
3	A	1205	14K	C28-N29-S32	-4.04	111.77	115.99
3	A	1205	14K	C8-C9-N10	-3.80	121.59	124.57
3	A	1205	14K	C5-C6-N1	-3.75	119.66	124.87
3	A	1205	14K	C12-C11-N10	-3.13	118.85	122.34
3	A	1205	14K	N20-C21-N22	-2.99	120.62	125.53
3	A	1205	14K	N20-C19-N18	-2.67	120.33	125.58
3	A	1205	14K	C15-O14-C11	-2.48	114.84	117.31
3	A	1205	14K	C28-N29-C30	-2.17	109.56	112.20
3	A	1205	14K	C3-C2-N1	-2.10	119.44	121.57
3	A	1205	14K	C9-N10-C11	2.42	121.94	116.51
3	A	1205	14K	C4-C5-C6	2.58	119.61	116.78
3	A	1205	14K	C3-C17-N22	2.58	121.86	117.43
3	A	1205	14K	C21-N20-C19	2.79	119.14	115.35
3	A	1205	14K	C21-N22-C17	3.37	120.04	114.25
3	A	1205	14K	C6-N1-C2	3.50	123.22	116.30
3	A	1205	14K	O35-S32-N29	6.20	113.20	106.99

There are no chirality outliers.

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	A	1205	14K	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, 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	A	840/960 (87%)	0.30	52 (6%) 24 18	36, 74, 123, 169	0

All (52) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1042	LEU	5.3
1	A	1041	GLN	4.7
1	A	145	GLU	4.6
1	A	373	LEU	4.5
1	A	226	ARG	4.2
1	A	228	THR	3.7
1	A	457	LYS	3.6
1	A	404	PHE	3.2
1	A	234	LYS	3.2
1	A	1092	LEU	3.1
1	A	532	HIS	3.1
1	A	248	PHE	3.1
1	A	379	LEU	2.9
1	A	231	GLN	2.9
1	A	778	GLN	2.9
1	A	270	PHE	2.9
1	A	378	ASP	2.9
1	A	995	MET	2.8
1	A	531	LYS	2.8
1	A	352	VAL	2.8
1	A	823	LEU	2.7
1	A	152	ARG	2.6
1	A	1084	PHE	2.5
1	A	212	TRP	2.5
1	A	320	LYS	2.4
1	A	847	ILE	2.4
1	A	919	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	895	THR	2.3
1	A	749	ILE	2.3
1	A	319	ARG	2.3
1	A	353	SER	2.3
1	A	307	LEU	2.2
1	A	215	ILE	2.2
1	A	227	SER	2.2
1	A	896	VAL	2.2
1	A	321	GLU	2.2
1	A	664	VAL	2.2
1	A	461	LEU	2.1
1	A	220	ILE	2.1
1	A	1007	GLN	2.1
1	A	235	VAL	2.1
1	A	249	PHE	2.1
1	A	529	LEU	2.1
1	A	660	LEU	2.0
1	A	998	SER	2.1
1	A	987	LEU	2.0
1	A	436	GLY	2.0
1	A	967	HIS	2.0
1	A	1090	LEU	2.0
1	A	1068	PHE	2.0
1	A	999	GLY	2.0
1	A	911	LEU	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](#)

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, 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
2	SO4	A	1204	5/5	0.92	0.26	0.53	92,103,112,124	0
2	SO4	A	1201	5/5	0.92	0.19	-0.28	82,94,97,99	0
3	14K	A	1205	36/36	0.98	0.14	-1.26	43,54,59,68	0
2	SO4	A	1202	5/5	0.95	0.12	-1.35	65,67,74,77	0
2	SO4	A	1203	5/5	0.95	0.21	-3.85	104,105,111,111	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.