Full wwPDB X-ray Structure Validation Report (i)

Feb 15, 2024 – 04:04 AM EST

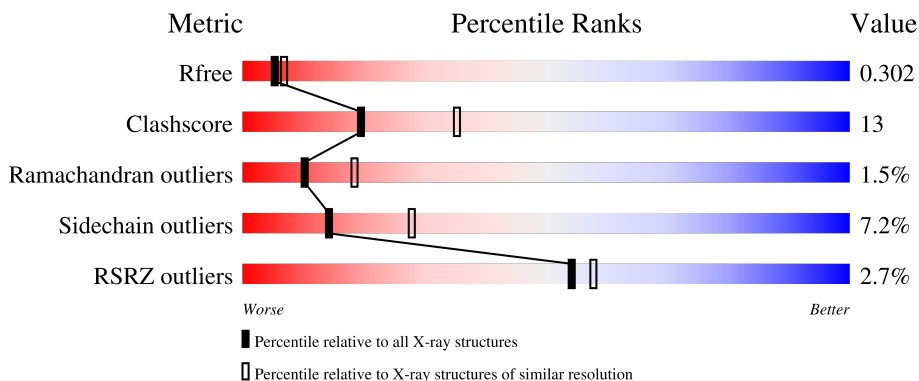|		
PDB ID	:	3NEW
Title	:	p38-alpha complexed with Compound 10
Authors	:	Goedken, E.R.; Comess, K.M.; Sun, C.; Argiriadi, M.; Jia, Y.; Quinn, C.M.; Banach, D.L.; Marcotte, D.; Borhani, D.
Deposited on	:	2010-06-09
Resolution	:	2.51 Å(reported)

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 2.51 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	Percentile Ranks	Value
Rfree		0.302
Clashscore		13
Ramachandran outliers		1.5%
Sidechain outliers		7.2%
RSRZ outliers		2.7%

Worse .... *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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 <=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	366	2% red; 57% green, 27% yellow, 6% · 9% grey

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 2738 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 Mitogen-activated protein kinase 14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	334	2714	1741	459	503	11	0	6	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	expression tag	UNP Q16539
A	-4	SER	-	expression tag	UNP Q16539
A	-3	HIS	-	expression tag	UNP Q16539
A	-2	MET	-	expression tag	UNP Q16539
A	-1	LEU	-	expression tag	UNP Q16539
A	0	GLU	-	expression tag	UNP Q16539
A	162	SER	CYS	engineered mutation	UNP Q16539

- Molecule 2 is 4-(trifluoromethyl)-3-[3-(trifluoromethyl)phenyl]-1,7-dihydro-6H-pyrazolo[3,4-b]pyridin-6-one (three-letter code: 3NE) (formula: $C_{14}H_7F_6N_3O$).
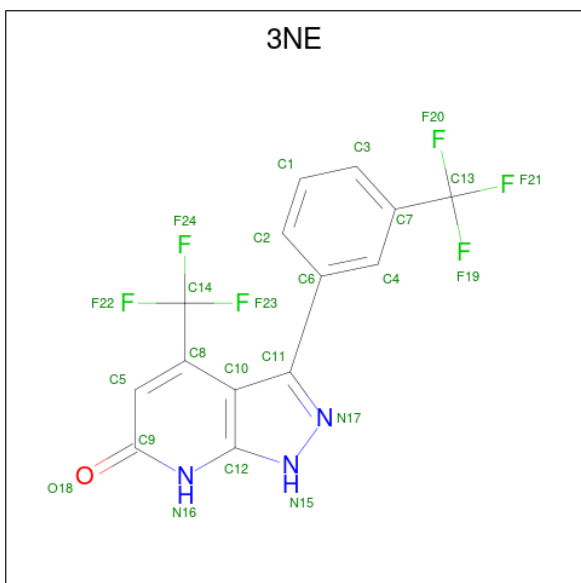
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 24	C 14	F 6	N 3	O 1	0	0

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: Mitogen-activated protein kinase 14
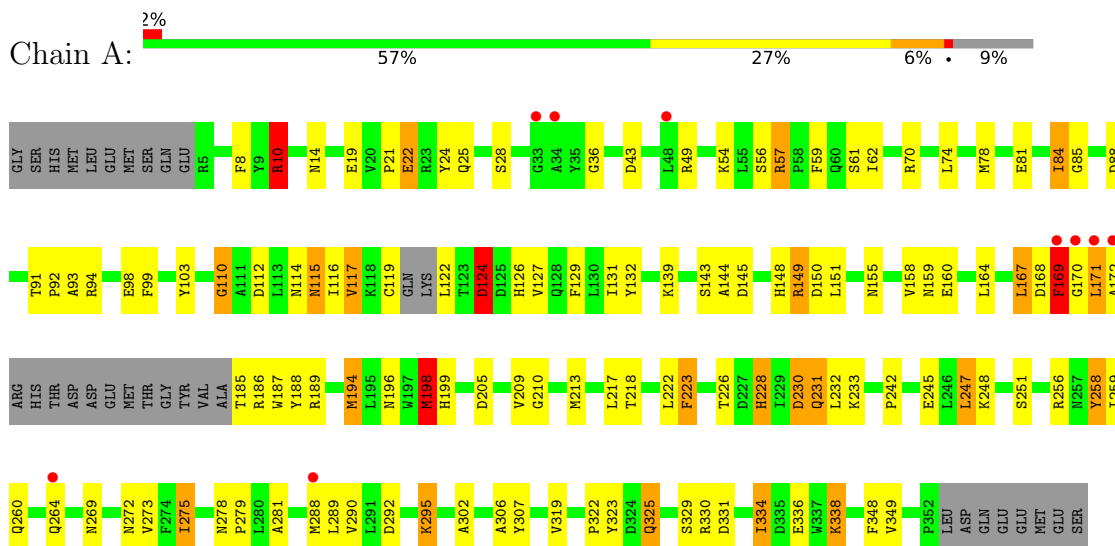
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	64.91Å　　74.48Å　　77.89Å 90.00°　　90.00°　　90.00°	Depositor
Resolution (Å)	49.88　–　2.51 49.86　–　2.51	Depositor EDS
% Data completeness (in resolution range)	(Not available) (49.88-2.51) 99.0 (49.86-2.51)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.74 (at 2.51Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.214　,　0.306 0.212　,　0.302	Depositor DCC
R_{free} test set	657 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å^2)	47.3	Xtriage
Anisotropy	0.128	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 38.9	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.022 for -h,l,k	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	2738	wwPDB-VP
Average B, all atoms (Å^2)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.10% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: 3NE

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	1.68	37/2775 (1.3%)	1.38	23/3767 (0.6%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

All (37) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	258	TYR	CE2-CZ	9.37	1.50	1.38
1	A	245	GLU	CG-CD	9.21	1.65	1.51
1	A	24	TYR	CB-CG	8.75	1.64	1.51
1	A	132	TYR	CD1-CE1	8.23	1.51	1.39
1	A	349	VAL	CB-CG2	8.11	1.69	1.52
1	A	24	TYR	CD2-CE2	7.23	1.50	1.39
1	A	143	SER	CB-OG	7.20	1.51	1.42
1	A	325	GLN	CD-NE2	6.89	1.50	1.32
1	A	10	ARG	CG-CD	6.84	1.69	1.51
1	A	129	PHE	CD1-CE1	6.71	1.52	1.39
1	A	81	GLU	CB-CG	-6.54	1.39	1.52
1	A	129	PHE	CE2-CZ	6.36	1.49	1.37
1	A	336	GLU	CD-OE1	6.30	1.32	1.25
1	A	323	TYR	CD1-CE1	6.24	1.48	1.39
1	A	322	PRO	N-CA	6.23	1.57	1.47
1	A	258	TYR	CD2-CE2	6.20	1.48	1.39
1	A	258	TYR	CD1-CE1	6.14	1.48	1.39
1	A	189	ARG	CB-CG	6.06	1.69	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	258	TYR	CG-CD1	5.87	1.46	1.39
1	A	81	GLU	CD-OE1	5.83	1.32	1.25
1	A	160	GLU	CG-CD	5.72	1.60	1.51
1	A	169	PHE	CB-CG	-5.58	1.41	1.51
1	A	231	GLN	CB-CG	5.46	1.67	1.52
1	A	233	LYS	CB-CG	5.39	1.67	1.52
1	A	319	VAL	CB-CG2	5.31	1.64	1.52
1	A	273	VAL	CB-CG1	5.29	1.64	1.52
1	A	338	LYS	CD-CE	5.29	1.64	1.51
1	A	306	ALA	N-CA	5.28	1.56	1.46
1	A	218	THR	CA-CB	5.26	1.67	1.53
1	A	187	TRP	CG-CD1	5.25	1.44	1.36
1	A	233	LYS	CE-NZ	5.25	1.62	1.49
1	A	223	PHE	CG-CD2	5.23	1.46	1.38
1	A	302	ALA	CA-CB	-5.23	1.41	1.52
1	A	198	MET	CG-SD	5.21	1.94	1.81
1	A	22	GLU	CG-CD	5.21	1.59	1.51
1	A	84	ILE	CB-CG2	5.09	1.68	1.52
1	A	57	ARG	NE-CZ	5.08	1.39	1.33

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	194	MET	CG-SD-CE	-11.78	81.35	100.20
1	A	57	ARG	NE-CZ-NH1	7.64	124.12	120.30
1	A	230	ASP	CB-CG-OD1	7.55	125.10	118.30
1	A	330	ARG	NE-CZ-NH1	6.93	123.76	120.30
1	A	289	LEU	CB-CG-CD1	6.88	122.70	111.00
1	A	245	GLU	OE1-CD-OE2	-6.79	115.15	123.30
1	A	43	ASP	CB-CG-OD1	6.31	123.98	118.30
1	A	334	ILE	CG1-CB-CG2	-5.74	98.78	111.40
1	A	168	ASP	CB-CG-OD2	5.66	123.40	118.30
1	A	232	LEU	CB-CG-CD2	-5.62	101.45	111.00
1	A	188	TYR	CD1-CE1-CZ	-5.49	114.86	119.80
1	A	70	ARG	NE-CZ-NH1	5.39	123.00	120.30
1	A	155	ASN	CB-CA-C	5.39	121.18	110.40
1	A	292	ASP	CB-CG-OD1	5.37	123.13	118.30
1	A	159	ASN	CB-CA-C	-5.35	99.69	110.40
1	A	85	GLY	N-CA-C	-5.34	99.75	113.10
1	A	222	LEU	CB-CG-CD1	5.33	120.06	111.00
1	A	331	ASP	CB-CG-OD2	5.29	123.07	118.30
1	A	49	ARG	NE-CZ-NH1	5.24	122.92	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	149	ARG	NE-CZ-NH1	-5.21	117.69	120.30
1	A	139	LYS	CD-CE-NZ	-5.18	99.80	111.70
1	A	124	ASP	N-CA-C	5.11	124.79	111.00
1	A	330	ARG	NE-CZ-NH2	-5.03	117.79	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	110	GLY	Peptide

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	2714	0	2697	70	0
2	A	24	0	7	0	0
All	All	2738	0	2704	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 13.

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)
1:A:84:ILE:CD1	1:A:84:ILE:CG1	1.74	1.57
1:A:10:ARG:HB2	1:A:10:ARG:NH1	1.73	1.01
1:A:10:ARG:HB2	1:A:10:ARG:CZ	2.00	0.92
1:A:210:GLY:HA2	1:A:288[A]:MET:HE3	1.60	0.84
1:A:210:GLY:HA2	1:A:288[A]:MET:CE	2.09	0.81
1:A:84:ILE:CD1	1:A:84:ILE:CB	2.60	0.79
1:A:62:ILE:HG13	1:A:334:ILE:HG13	1.67	0.77
1:A:22:GLU:O	1:A:25:GLN:NE2	2.19	0.75
1:A:210:GLY:CA	1:A:288[A]:MET:HE3	2.19	0.72
1:A:116:ILE:CD1	1:A:158:VAL:HG21	2.22	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:116:ILE:HD12	1:A:158:VAL:HG21	1.74	0.70
1:A:205:ASP:O	1:A:209:VAL:HG23	1.94	0.68
1:A:148:HIS:CD2	1:A:169:PHE:HA	2.34	0.63
1:A:116:ILE:O	1:A:119:CYS:N	2.33	0.61
1:A:114:ASN:O	1:A:116:ILE:N	2.33	0.61
1:A:19[B]:GLU:HB2	1:A:92:PRO:HG3	1.82	0.60
1:A:281:ALA:HB2	1:A:307:TYR:CE1	2.38	0.59
1:A:127:VAL:HG21	1:A:217:LEU:HD23	1.86	0.57
1:A:148:HIS:O	1:A:149:ARG:HB2	2.04	0.57
1:A:194:MET:HE1	1:A:231:GLN:HB3	1.87	0.56
1:A:59:PHE:CE2	1:A:338:LYS:HA	2.40	0.56
1:A:278:ASN:OD1	1:A:278:ASN:C	2.45	0.55
1:A:10:ARG:CZ	1:A:10:ARG:CB	2.83	0.54
1:A:194:MET:CE	1:A:231:GLN:HB3	2.38	0.54
1:A:210:GLY:HA2	1:A:288[A]:MET:HE1	1.90	0.54
1:A:226:THR:HG23	1:A:230:ASP:OD1	2.07	0.53
1:A:114:ASN:C	1:A:116:ILE:H	2.12	0.53
1:A:242:PRO:HG2	1:A:259[A]:ILE:CG2	2.41	0.51
1:A:74:LEU:O	1:A:78:MET:HG2	2.10	0.50
1:A:194:MET:HE1	1:A:228:HIS:HA	1.93	0.50
1:A:198:MET:HG2	1:A:199:HIS:CE1	2.47	0.50
1:A:223:PHE:HB2	1:A:231:GLN:HE22	1.77	0.50
1:A:114:ASN:C	1:A:116:ILE:N	2.65	0.50
1:A:242:PRO:HG2	1:A:259[A]:ILE:HG21	1.93	0.50
1:A:54:LYS:HG3	1:A:103:TYR:CE2	2.48	0.49
1:A:272:ASN:O	1:A:275:ILE:HG23	2.13	0.49
1:A:112:ASP:OD1	1:A:112:ASP:C	2.52	0.48
1:A:8:PHE:HA	1:A:21:PRO:HA	1.95	0.48
1:A:198:MET:HG2	1:A:199:HIS:ND1	2.28	0.47
1:A:112:ASP:O	1:A:115:ASN:HB2	2.14	0.47
1:A:93:ALA:HB2	1:A:99:PHE:HA	1.97	0.46
1:A:94:ARG:HG2	1:A:98:GLU:OE1	2.16	0.46
1:A:290:VAL:HG11	1:A:295:LYS:HB2	1.98	0.46
1:A:278:ASN:OD1	1:A:279:PRO:N	2.49	0.45
1:A:116:ILE:HD11	1:A:158:VAL:HG21	1.97	0.45
1:A:223:PHE:CB	1:A:231:GLN:HE22	2.29	0.44
1:A:144:ALA:O	1:A:145:ASP:HB3	2.18	0.44
1:A:150:ASP:HB2	1:A:172:ALA:HB3	1.99	0.44
1:A:36:GLY:HA2	1:A:56[B]:SER:OG	2.18	0.43
1:A:144:ALA:O	1:A:145:ASP:CB	2.66	0.43
1:A:88:ASP:HA	1:A:348:PHE:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:164:LEU:C	1:A:164:LEU:HD23	2.39	0.43
1:A:10:ARG:HB2	1:A:10:ARG:HH11	1.74	0.43
1:A:148:HIS:CG	1:A:151:LEU:HD13	2.53	0.43
1:A:116:ILE:HD11	1:A:158:VAL:CG2	2.49	0.42
1:A:167:LEU:H	1:A:167:LEU:HG	1.72	0.42
1:A:74:LEU:HD12	1:A:171:LEU:HD23	2.01	0.42
1:A:84:ILE:HD13	1:A:84:ILE:HG21	2.00	0.42
1:A:334:ILE:HG21	1:A:334:ILE:HD13	1.77	0.42
1:A:57:ARG:HH11	1:A:57:ARG:HG3	1.83	0.42
1:A:57:ARG:HG3	1:A:57:ARG:NH1	2.36	0.41
1:A:275:ILE:HD12	1:A:275:ILE:H	1.84	0.41
1:A:149:ARG:HH11	1:A:149:ARG:HD2	1.73	0.41
1:A:122:LEU:HD23	1:A:126:HIS:HD2	1.86	0.41
1:A:116:ILE:O	1:A:117:VAL:C	2.59	0.40
1:A:185:THR:HG23	1:A:186:ARG:H	1.86	0.40
1:A:131:ILE:HG13	1:A:213:MET:HB2	2.03	0.40
1:A:247:LEU:HD11	1:A:260:GLN:HG3	2.03	0.40
1:A:91:THR:OG1	1:A:92:PRO:HD2	2.22	0.40
1:A:269:ASN:HB3	1:A:272:ASN:ND2	2.36	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	333/366 (91%)	301 (90%)	27 (8%)	5 (2%)	10	18

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	110	GLY
1	A	115	ASN

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Mol	Chain	Res	Type
1	A	124	ASP
1	A	170	GLY
1	A	117	VAL

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	298/325 (92%)	276 (93%)	22 (7%)	13	27

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	10	ARG
1	A	14	ASN
1	A	28	SER
1	A	61	SER
1	A	124	ASP
1	A	167	LEU
1	A	169	PHE
1	A	171	LEU
1	A	196	ASN
1	A	198	MET
1	A	228	HIS
1	A	247	LEU
1	A	248	LYS
1	A	251	SER
1	A	256	ARG
1	A	258	TYR
1	A	264	GLN
1	A	275	ILE
1	A	295	LYS
1	A	325	GLN
1	A	329[A]	SER
1	A	329[B]	SER

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	126	HIS
1	A	196	ASN
1	A	272	ASN
1	A	325	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 ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

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	$\#|Z| > 2$
2	3NE	A	361	-	23,26,26	2.01	5 (21%)	28,41,41	4.77	16 (57%)

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	3NE	A	361	-	-	4/12/16/16	0/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	361	3NE	O18-C9	6.09	1.36	1.24
2	A	361	3NE	C10-C8	-3.40	1.40	1.47
2	A	361	3NE	N17-N15	-2.90	1.32	1.37
2	A	361	3NE	C9-N16	-2.75	1.33	1.37
2	A	361	3NE	C5-C8	2.47	1.38	1.34

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	361	3NE	C5-C9-N16	16.38	129.28	115.81
2	A	361	3NE	C14-C8-C10	8.94	123.78	119.85
2	A	361	3NE	O18-C9-C5	-6.99	115.67	125.47
2	A	361	3NE	C10-C8-C5	-6.41	115.28	120.87
2	A	361	3NE	O18-C9-N16	-6.39	115.05	120.59
2	A	361	3NE	F21-C13-C7	5.37	124.71	112.93
2	A	361	3NE	F22-C14-C8	4.88	117.51	112.49
2	A	361	3NE	F23-C14-C8	4.41	117.03	112.49
2	A	361	3NE	C3-C7-C4	4.11	124.22	117.91
2	A	361	3NE	C7-C4-C6	-3.45	117.77	121.97
2	A	361	3NE	C3-C7-C13	-3.08	115.07	119.97
2	A	361	3NE	C14-C8-C5	3.07	120.92	119.08
2	A	361	3NE	C1-C3-C7	-2.74	117.88	120.76
2	A	361	3NE	F19-C13-C7	-2.29	107.89	112.93
2	A	361	3NE	N16-C12-N15	2.22	125.50	122.21
2	A	361	3NE	F20-C13-C7	-2.12	108.27	112.93

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	361	3NE	F23-C14-C8-C5
2	A	361	3NE	F23-C14-C8-C10
2	A	361	3NE	F24-C14-C8-C5
2	A	361	3NE	F24-C14-C8-C10

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand 3NE A 361

Bond lengths

Bond angles

Torsions

Rings
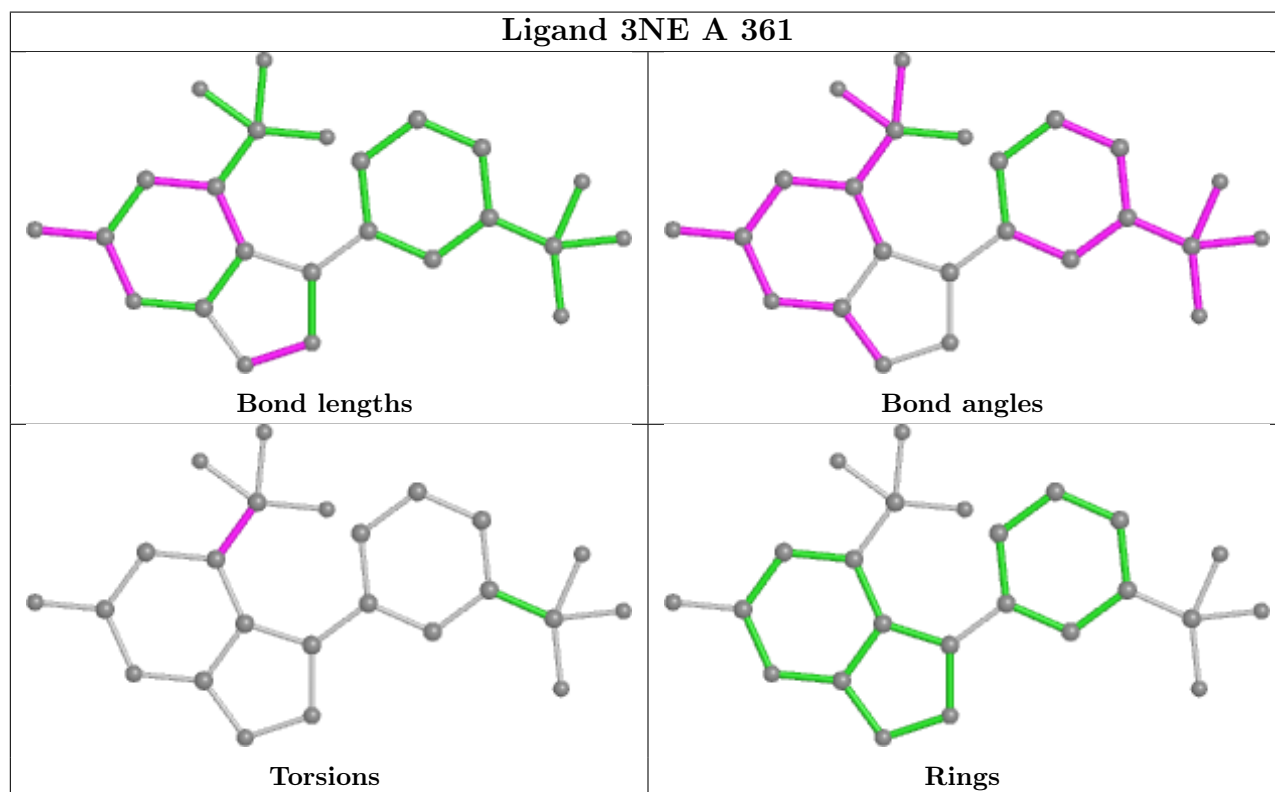
5.7 Other polymers ⓘ

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 ⓘ

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(Å²)	Q<0.9
1	A	334/366 (91%)	-0.11	9 (2%)	54	58	21, 42, 67, 93	1 (0%)

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	172	ALA	6.5
1	A	169	PHE	5.0
1	A	170	GLY	4.8
1	A	34	ALA	3.3
1	A	288[A]	MET	2.9
1	A	171	LEU	2.7
1	A	48	LEU	2.4
1	A	264	GLN	2.1
1	A	33	GLY	2.0

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

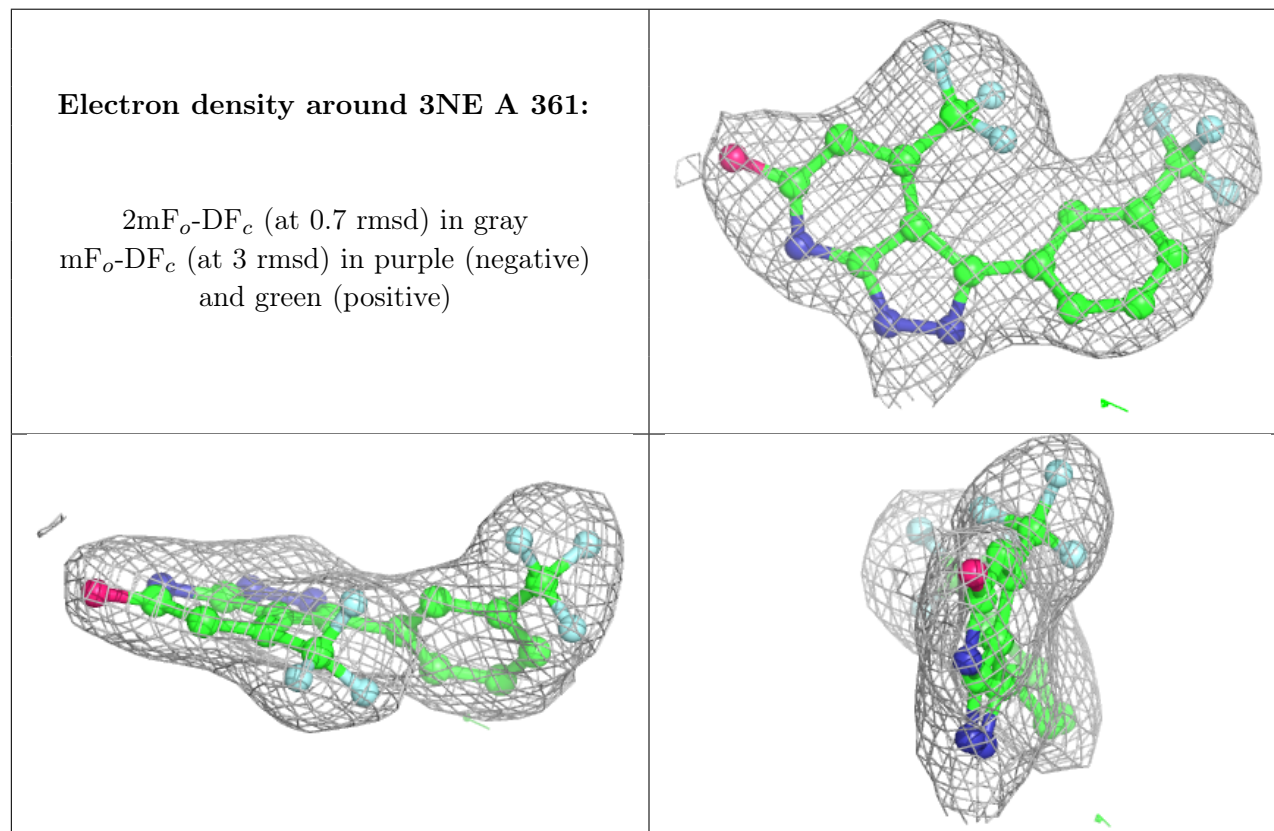There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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
2	3NE	A	361	24/24	0.96	0.15	39,50,56,58	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around 3NE A 361:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.