

# wwPDB X-ray Structure Validation Summary Report (i)

Nov 6, 2023 – 06:20 PM EST

PDB ID : 6B2F

Title : Phosphotriesterase variant S5 + TS analogue

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Deposited on : 2017-09-20

Resolution : 1.77 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
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) 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 : 2.36

buster-report : 1.1.7 (2018)

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)

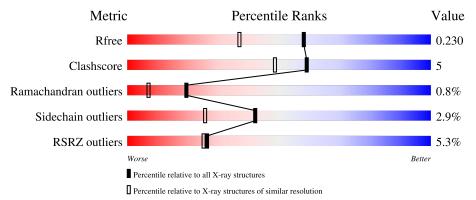
Validation Pipeline (wwPDB-VP) : 2.36

## 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure: X- $RAY\ DIFFRACTION$ 

The reported resolution of this entry is 1.77 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 $(\# \mathrm{Entries})$	$\begin{array}{c} {\rm Similar\ resolution} \\ (\#{\rm Entries},{\rm resolution\ range}(\mathring{\rm A})) \end{array}$
$R_{free}$	130704	9185 (1.80-1.76)
Clashscore	141614	10184 (1.80-1.76)
Ramachandran outliers	138981	10051 (1.80-1.76)
Sidechain outliers	138945	10050 (1.80-1.76)
RSRZ outliers	127900	9032 (1.80-1.76)

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	333	84%	10% • 5%
1	G	333	6% 85%	12% ••

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	MPD	G	2403	_	_	_	X



# 2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 5427 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 Phosphotriesterase.

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace		
1	A	318	Total 2530	C 1591	N 467	O 466	S 6	0	12	0
1	G	326	Total 2530	C 1592	N 460	O 472	S 6	0	5	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	216	LEU	PHE	conflict	UNP A0A060GYS1
A	233	ALA	ASP	conflict	UNP A0A060GYS1
A	254	SER	HIS	conflict	UNP A0A060GYS1
A	271	HIS	LEU	conflict	UNP A0A060GYS1
A	293	THR	MET	conflict	UNP A0A060GYS1
A	306	ILE	PHE	conflict	UNP A0A060GYS1
A	320	GLY	VAL	conflict	UNP A0A060GYS1
G	216	LEU	PHE	conflict	UNP A0A060GYS1
G	233	ALA	ASP	conflict	UNP A0A060GYS1
G	254	SER	HIS	conflict	UNP A0A060GYS1
G	271	HIS	LEU	conflict	UNP A0A060GYS1
G	293	THR	MET	conflict	UNP A0A060GYS1
G	306	ILE	PHE	conflict	UNP A0A060GYS1
G	320	GLY	VAL	conflict	UNP A0A060GYS1

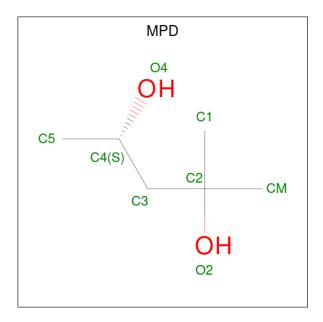
• Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Zn 2 2	0	0
2	G	2	Total Zn 2 2	0	0

• Molecule 3 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula:



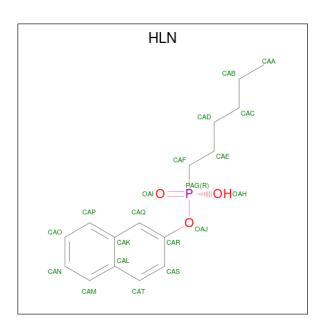
 $C_6H_{14}O_2$ ).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 8 6 2	0	0
3	A	1	Total C O 8 6 2	0	0
3	A	1	Total C O 8 6 2	0	0
3	A	1	Total C O 8 6 2	0	0
3	G	1	Total C O 8 6 2	0	0
3	G	1	Total C O 8 6 2	0	0

• Molecule 4 is hexyl(naphthalen-2-yloxy) phosphinic acid (three-letter code: HLN) (formula:  $C_{16}H_{21}O_3P$ ) (labeled as "Ligand of Interest" by depositor).





Mol	Chain	Residues	Atoms				ZeroOcc	AltConf		
4	Λ	٨	٨	1	Total	С	О	Р	0	0
4	A	1	20	16	3	1	0	U		
1	С	1	Total	С	О	Р	0	0		
4	G	1	20	16	3	1	U			

### • Molecule 5 is water.

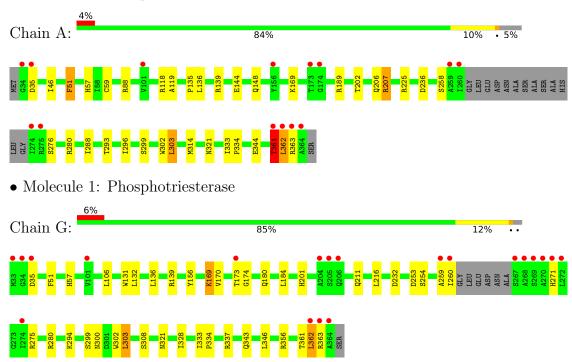
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	131	Total O 131 131	0	0
5	G	144	Total O 144 144	0	0



# 3 Residue-property plots (i)

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: Phosphotriesterase





# 4 Data and refinement statistics (i)

Property	Value	Source	
Space group	P 21 21 2	Depositor	
Cell constants	84.66Å 85.02Å 87.94Å	Depositor	
a, b, c, $\alpha$ , $\beta$ , $\gamma$	$90.00^{\circ}$ $90.00^{\circ}$ $90.00^{\circ}$	_	
Resolution (Å)	30.56 - 1.77	Depositor	
recsolution (11)	30.56 - 1.77	EDS	
% Data completeness	97.8 (30.56-1.77)	Depositor	
(in resolution range)	97.9 (30.56-1.77)	EDS	
$R_{merge}$	(Not available)	Depositor	
$R_{sym}$	(Not available)	Depositor	
$\frac{\mathrm{R}_{sym}}{\langle I/\sigma(I)\rangle^{-1}}$	1.12 (at 1.77Å)	Xtriage	
Refinement program	PHENIX (1.11.1_2575: ???)	Depositor	
D D.	0.196 , $0.230$	Depositor	
$R, R_{free}$	0.196 , $0.230$	DCC	
$R_{free}$ test set	3055 reflections $(5.04%)$	wwPDB-VP	
Wilson B-factor (Å <sup>2</sup> )	19.6	Xtriage	
Anisotropy	0.474	Xtriage	
Bulk solvent $k_{sol}(e/Å^3)$ , $B_{sol}(Å^2)$	0.34, 47.8	EDS	
L-test for twinning <sup>2</sup>	$< L >=0.47, < L^2>=0.30$	Xtriage	
	0.027 for -h,l,k		
	0.029 for -l,-k,-h		
Estimated twinning fraction	0.025 for k,h,-l	Xtriage	
	0.013 for k,l,h		
	0.013 for $l,h,k$		
$F_o, F_c$ correlation	0.96	EDS	
Total number of atoms	5427	wwPDB-VP	
Average B, all atoms (Å <sup>2</sup> )	26.0	wwPDB-VP	

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 5.24% of the height of the origin peak. No significant pseudotranslation is detected.

<sup>&</sup>lt;sup>2</sup>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.



<sup>&</sup>lt;sup>1</sup>Intensities estimated from amplitudes.

## 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: MPD, ZN, KCX, HLN

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		
IVIOI	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5	
1	A	0.39	0/2560	0.60	1/3469 (0.0%)	
1	G	0.37	0/2561	0.60	0/3474	
All	All	0.38	0/5121	0.60	1/6943 (0.0%)	

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	$\mathbf{Z}$	$Observed(^{o})$	$\operatorname{Ideal}(^{o})$
1	A	361	THR	C-N-CA	5.93	136.53	121.70

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	2530	0	2565	25	0
1	G	2530	0	2558	21	1
2	A	2	0	0	0	0
2	G	2	0	0	0	0
3	A	32	0	56	5	0
3	G	16	0	28	2	0
4	A	20	0	20	0	0
4	G	20	0	20	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	131	0	0	3	0
5	G	144	0	0	2	0
All	All	5427	0	5247	49	1

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 5.

The worst 5 of 49 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic	Clash
		${ m distance}({ m \AA})$	overlap (Å)
1:A:314:MET:SD	5:A:2521:HOH:O	2.33	0.85
1:A:207[A]:ARG:NH1	1:A:236:ASP:OD2	2.16	0.78
1:A:118[A]:ARG:NH1	5:A:2504:HOH:O	2.29	0.66
1:A:288:ILE:HG12	1:A:293:THR:HG22	1.79	0.64
3:A:2407:MPD:O4	3:A:2407:MPD:O2	2.17	0.61

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	$\begin{array}{c} {\rm Interatomic} \\ {\rm distance} \ ({\rm \AA}) \end{array}$	Clash overlap (Å)
1:G:271:HIS:O	1:G:280:ARG:NH2[2_555]	2.06	0.14

## 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	325/333~(98%)	313 (96%)	10 (3%)	2 (1%)	25 11	
1	G	327/333~(98%)	313 (96%)	11 (3%)	3 (1%)	17 5	
All	All	652/666 (98%)	626 (96%)	21 (3%)	5 (1%)	19 7	

All (5) Ramachandran outliers are listed below:



Mol	Chain	Res	Type
1	G	275	ARG
1	G	362	LEU
1	A	362	LEU
1	A	363	ARG
1	G	363	ARG

#### 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	264/264 (100%)	254 (96%)	10 (4%)	33 16		
1	G	264/264 (100%)	258 (98%)	6 (2%)	50 34		
All	All	528/528 (100%)	512 (97%)	16 (3%)	42 24		

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	299	SER
1	G	254	SER
1	A	303	LEU
1	G	216	LEU
1	A	299	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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	T	Chain	Dag	T inle	Bond lengths			Bond angles		
IVIOI	Type	Chain	nes	Link	Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	KCX	G	169	1,2	9,11,12	1.24	2 (22%)	5,12,14	1.78	2 (40%)
1	KCX	A	169	1,2	9,11,12	1.26	1 (11%)	5,12,14	1.22	1 (20%)

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.

$\mathbf{Mol}$	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	KCX	G	169	1,2	-	0/9/10/12	-
1	KCX	A	169	1,2	-	2/9/10/12	-

#### All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(A)	$Ideal(\AA)$
1	A	169	KCX	CE-NZ	2.88	1.52	1.46
1	G	169	KCX	OQ1-CX	2.69	1.26	1.21
1	G	169	KCX	CE-NZ	2.11	1.51	1.46

#### All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	$\mathbf{Z}$	$Observed(^o)$	$Ideal(^{o})$
1	G	169	KCX	OQ1-CX-NZ	-3.28	119.87	124.96
1	A	169	KCX	OQ1-CX-NZ	-2.57	120.98	124.96
1	G	169	KCX	CE-NZ-CX	-2.12	118.49	121.89

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	169	KCX	C-CA-CB-CG
1	A	169	KCX	O-C-CA-CB

There are no ring outliers.

1 monomer is involved in 1 short contact:



Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	G	169	KCX	1	0

### 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry (i)

Of 12 ligands modelled in this entry, 4 are monoatomic - leaving 8 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	Во	ond leng	ths	Bond angles		
WIOI	Type	Chain	nes	Lilik	Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	MPD	G	2405	-	7,7,7	0.70	0	9,10,10	0.29	0
4	HLN	G	2404	2	21,21,21	2.18	3 (14%)	25,28,28	0.99	1 (4%)
3	MPD	A	2405	-	7,7,7	0.68	0	9,10,10	0.37	0
3	MPD	G	2403	_	7,7,7	0.75	0	9,10,10	0.41	0
3	MPD	A	2403	_	7,7,7	0.66	0	9,10,10	0.35	0
4	HLN	A	2404	2	21,21,21	2.08	2 (9%)	25,28,28	1.30	2 (8%)
3	MPD	A	2407	-	7,7,7	0.64	0	9,10,10	0.58	0
3	MPD	A	2406	-	7,7,7	0.65	0	9,10,10	0.51	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	MPD	G	2405	-	-	1/5/5/5	-
4	HLN	G	2404	2	-	8/12/12/12	0/2/2/2
3	MPD	A	2405	-	-	0/5/5/5	-
3	MPD	G	2403	-	-	1/5/5/5	-
3	MPD	A	2403	-	-	1/5/5/5	-
4	HLN	A	2404	2	-	4/12/12/12	0/2/2/2
3	MPD	A	2407	-	-	1/5/5/5	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	MPD	A	2406	-	-	3/5/5/5	-

#### All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	$\mathbf{Z}$	$\operatorname{Observed}(\operatorname{\AA})$	Ideal(A)
4	G	2404	HLN	PAG-OAJ	7.85	1.66	1.58
4	A	2404	HLN	PAG-OAJ	7.32	1.66	1.58
4	A	2404	HLN	PAG-CAF	4.83	1.87	1.80
4	G	2404	HLN	PAG-CAF	4.50	1.86	1.80
4	G	2404	HLN	PAG-OAH	-2.45	1.50	1.56

#### All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	$\mathbf{Z}$	$\mathbf{Observed}(^o)$	$Ideal(^{o})$
4	A	2404	HLN	OAJ-PAG-OAI	-4.47	102.79	113.39
4	G	2404	HLN	CAD-CAE-CAF	-2.93	106.32	112.61
4	A	2404	HLN	OAH-PAG-CAF	2.79	112.07	105.63

There are no chirality outliers.

5 of 19 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2406	MPD	C2-C3-C4-C5
4	A	2404	HLN	CAR-OAJ-PAG-CAF
4	G	2404	HLN	CAE-CAF-PAG-OAH
4	G	2404	HLN	CAE-CAF-PAG-OAI
4	G	2404	HLN	CAE-CAF-PAG-OAJ

There are no ring outliers.

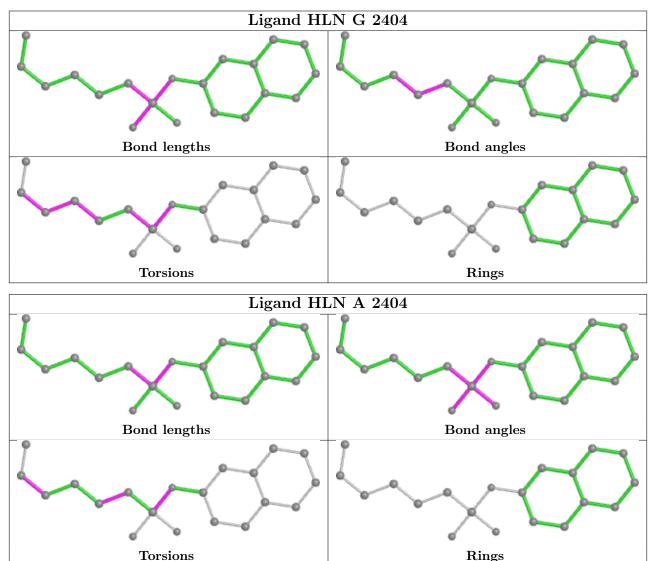
4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	2405	MPD	2	0
3	A	2405	MPD	1	0
3	A	2407	MPD	3	0
3	A	2406	MPD	1	0

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.



## 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,  $95^{th}$  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 $>$	$\#\mathrm{RSRZ}{>}2$		$\mathbf{OWAB}(\mathbf{\mathring{A}}^2)$	Q < 0.9
1	A	317/333 (95%)	0.18	14 (4%) 34 32	2	13, 22, 41, 67	0
1	G	325/333~(97%)	0.35	20 (6%) 20 19	9	14, 25, 50, 82	0
All	All	642/666 (96%)	0.27	34 (5%) 26 25	5	13, 24, 46, 82	0

The worst 5 of 34 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	268	ALA	13.7
1	A	274	ILE	13.1
1	G	33	MET	11.1
1	G	267	SER	10.6
1	G	270	ALA	10.2

## 6.2 Non-standard residues in protein, DNA, RNA chains (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,  $95^{th}$  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	$\operatorname{Res}$	Atoms	RSCC	RSR	$\mathbf{B} ext{-}\mathbf{factors}(\mathbf{\mathring{A}}^2)$	Q<0.9
1	KCX	G	169	12/13	0.93	0.17	15,18,25,28	0
1	KCX	A	169	12/13	0.96	0.16	13,15,20,21	0

## 6.3 Carbohydrates (i)

There are no monosaccharides in this entry.



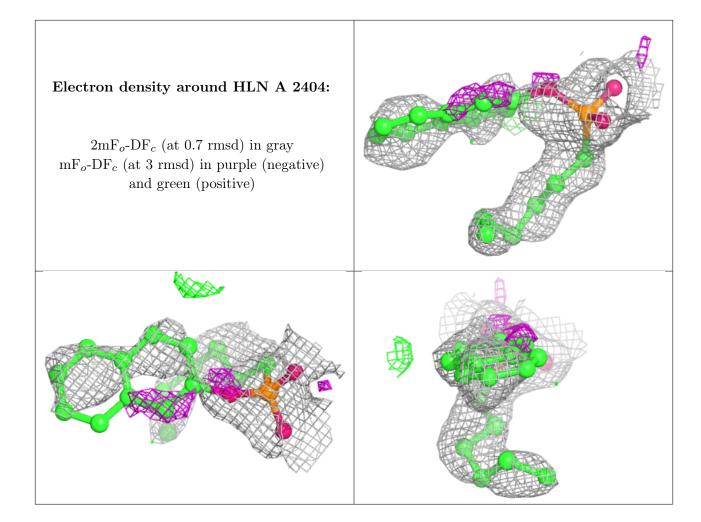
## 6.4 Ligands (i)

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. The B-factors column lists the minimum, median,  $95^{th}$  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.

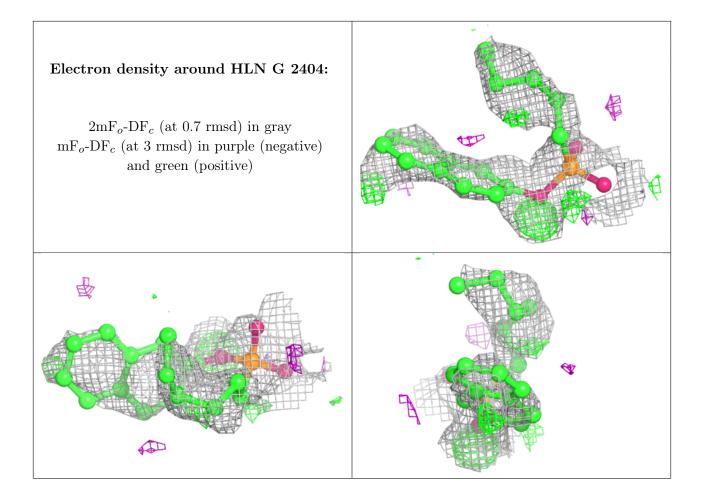
Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\mathbf{B} ext{-}\mathbf{factors}(\mathbf{\mathring{A}}^2)$	Q<0.9
3	MPD	A	2407	8/8	0.63	0.31	35,40,40,42	0
3	MPD	G	2403	8/8	0.63	0.42	39,40,43,44	0
3	MPD	A	2405	8/8	0.77	0.25	41,44,45,46	0
3	MPD	A	2406	8/8	0.78	0.32	42,44,46,47	0
3	MPD	G	2405	8/8	0.78	0.30	47,50,51,52	0
3	MPD	A	2403	8/8	0.79	0.26	39,41,44,45	0
4	HLN	A	2404	20/20	0.89	0.21	22,52,74,74	0
4	HLN	G	2404	20/20	0.91	0.21	24,47,62,62	0
2	ZN	A	2402	1/1	0.99	0.06	19,19,19,19	1
2	ZN	G	2402	1/1	0.99	0.05	23,23,23,23	1
2	ZN	G	2401	1/1	1.00	0.05	16,16,16,16	1
2	ZN	A	2401	1/1	1.00	0.06	16,16,16,16	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.









## 6.5 Other polymers (i)

There are no such residues in this entry.

