



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 4, 2023 – 07:28 PM EDT

PDB ID : 6OJF
Title : Dimeric structure of LRRK2 GTPase domain
Authors : Hoang, Q.Q.; Wu, C.X.; Liao, J.; Park, Y.
Deposited on : 2019-04-11
Resolution : 1.60 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

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtrriage (Phenix) : 1.13
EDS : **FAILED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

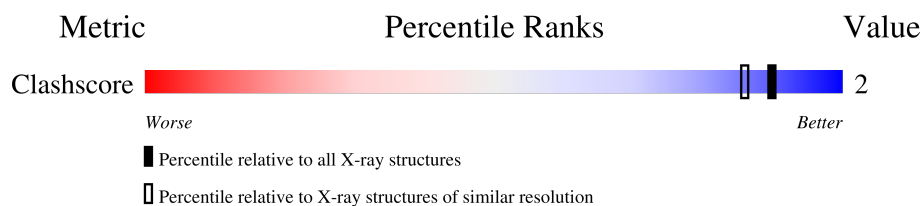
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.60 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))
Clashscore	141614	3665 (1.60-1.60)

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 3252 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 Leucine-rich repeat serine/threonine-protein kinase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	188	1477	936	264	270	7	0	2	0
1	B	186	1488	942	263	273	10	0	3	0

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1315	MET	-	initiating methionine	UNP Q5S007
A	1316	GLY	-	expression tag	UNP Q5S007
A	1317	SER	-	expression tag	UNP Q5S007
A	1318	SER	-	expression tag	UNP Q5S007
A	1319	HIS	-	expression tag	UNP Q5S007
A	1320	HIS	-	expression tag	UNP Q5S007
A	1321	HIS	-	expression tag	UNP Q5S007
A	1322	HIS	-	expression tag	UNP Q5S007
A	1323	HIS	-	expression tag	UNP Q5S007
A	1324	HIS	-	expression tag	UNP Q5S007
A	1325	SER	-	expression tag	UNP Q5S007
A	1326	GLN	-	expression tag	UNP Q5S007
A	1327	ASP	-	expression tag	UNP Q5S007
A	1328	PRO	-	expression tag	UNP Q5S007
A	1460	ALA	LYS	engineered mutation	UNP Q5S007
A	1463	ALA	LYS	engineered mutation	UNP Q5S007
B	1315	MET	-	initiating methionine	UNP Q5S007
B	1316	GLY	-	expression tag	UNP Q5S007
B	1317	SER	-	expression tag	UNP Q5S007
B	1318	SER	-	expression tag	UNP Q5S007
B	1319	HIS	-	expression tag	UNP Q5S007
B	1320	HIS	-	expression tag	UNP Q5S007
B	1321	HIS	-	expression tag	UNP Q5S007
B	1322	HIS	-	expression tag	UNP Q5S007
B	1323	HIS	-	expression tag	UNP Q5S007

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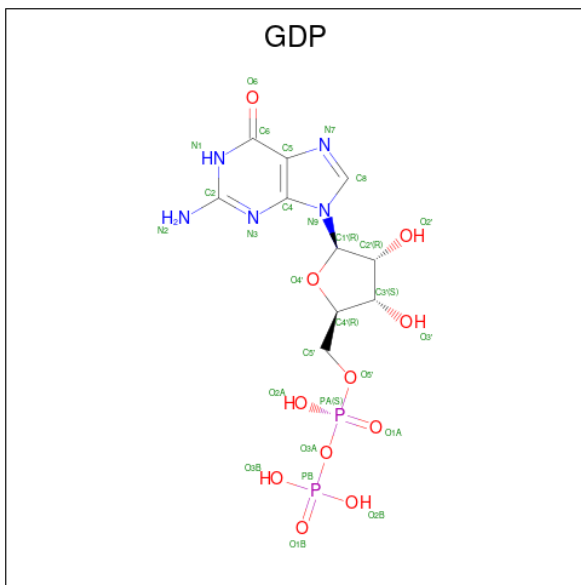
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Chain	Residue	Modelled	Actual	Comment	Reference
B	1324	HIS	-	expression tag	UNP Q5S007
B	1325	SER	-	expression tag	UNP Q5S007
B	1326	GLN	-	expression tag	UNP Q5S007
B	1327	ASP	-	expression tag	UNP Q5S007
B	1328	PRO	-	expression tag	UNP Q5S007
B	1460	ALA	LYS	engineered mutation	UNP Q5S007
B	1463	ALA	LYS	engineered mutation	UNP Q5S007

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Mg 2 2	0	0
2	B	2	Total Mg 2 2	0	0

- Molecule 3 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O P 28 10 5 11 2	0	0
3	B	1	Total C N O P 28 10 5 11 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	97	Total 102	O 102	0	5
4	B	121	Total 125	O 125	0	4

SEQUENCE-PLOTS INFOmissingINFO

3 Data and refinement statistics i

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	44.63Å 101.88Å 44.61Å 90.00° 100.95° 90.00°	Depositor
Resolution (Å)	43.82 – 1.60	Depositor
% Data completeness (in resolution range)	97.4 (43.82-1.60)	Depositor
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	226.39 (at 1.59Å)	Xtrriage
Refinement program	REFMAC 5.8.0253	Depositor
R, R_{free}	0.143 , 0.158	Depositor
Wilson B-factor (Å ²)	31.1	Xtrriage
Anisotropy	0.101	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.089 for l,-k,h	Xtrriage
Total number of atoms	3252	wwPDB-VP
Average B, all atoms (Å ²)	40.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.77% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² Theoretical 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.

4 Model quality

4.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GDP, MG

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	0.65	0/1509	0.72	0/2037
1	B	0.64	0/1514	0.71	0/2040
All	All	0.64	0/3023	0.72	0/4077

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

4.2 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	1477	0	1476	5	0
1	B	1488	0	1494	9	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
3	A	28	0	12	0	0
3	B	28	0	12	0	0
4	A	102	0	0	0	0
4	B	125	0	0	1	0
All	All	3252	0	2994	11	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 2.

All (11) 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:1389:VAL:HB	1:B:1333:ASN:HB2	1.84	0.59
1:A:1505:ILE:HG12	1:B:1378:ILE:HG21	1.86	0.57
1:B:1332:TYR:CE2	1:B:1399:GLU:HG2	2.40	0.56
1:B:1379:GLN:HA	1:B:1386:ARG:NH2	2.24	0.53
1:B:1334:ARG:HH12	1:B:1412:ARG:HG3	1.75	0.51
1:A:1368:THR:HG21	4:B:1742:HOH:O	2.12	0.49
1:A:1380:ILE:HD13	1:B:1509:LEU:HD11	1.95	0.48
1:A:1340:VAL:HB	1:A:1434:TRP:CZ3	2.51	0.46
1:B:1432:LYS:N	1:B:1433:PRO:HD2	2.34	0.43
1:B:1414:LEU:HD13	1:B:1446:PRO:HG2	2.00	0.42
1:B:1416:LEU:HD21	1:B:1450:VAL:HG21	2.01	0.42

There are no symmetry-related clashes.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

There are no protein backbone outliers to report in this entry.

4.3.2 Protein sidechains [i](#)

There are no protein residues with a non-rotameric sidechain to report in this entry.

4.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

4.6 Ligand geometry [i](#)

Of 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

4.7 Other polymers [i](#)

There are no such residues in this entry.

4.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

5 Fit of model and data

5.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

5.2 Non-standard residues in protein, DNA, RNA chains

EDS failed to run properly - this section is therefore empty.

5.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

5.4 Ligands

EDS failed to run properly - this section is therefore empty.

5.5 Other polymers

EDS failed to run properly - this section is therefore empty.