



wwPDB X-ray Structure Validation Summary Report ⓘ

May 13, 2020 – 07:59 pm BST

PDB ID : 4AB7
Title : Crystal structure of a tetrameric acetylglutamate kinase from *Saccharomyces cerevisiae* complexed with its substrate N- acetylglutamate
Authors : de Cima, S.; Gil-Ortiz, F.; Crabeel, M.; Fita, I.; Rubio, V.
Deposited on : 2011-12-07
Resolution : 3.25 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 ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) 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 : 2.11
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) : 2.11

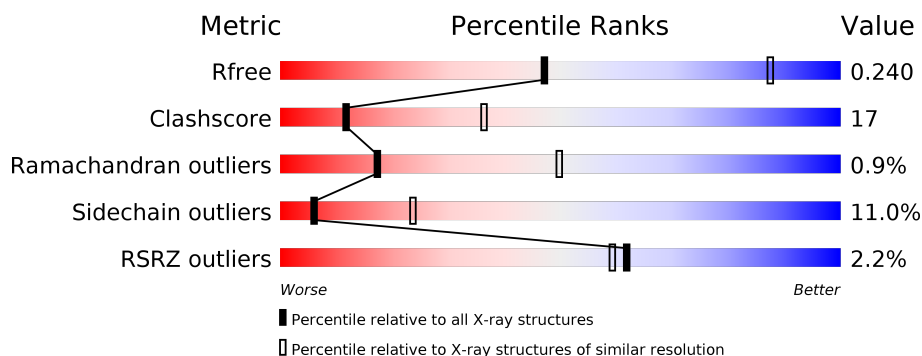
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.25 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}	130704	1191 (3.30-3.22)
Clashscore	141614	1251 (3.30-3.22)
Ramachandran outliers	138981	1229 (3.30-3.22)
Sidechain outliers	138945	1228 (3.30-3.22)
RSRZ outliers	127900	1154 (3.30-3.22)

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 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 $\leq 5\%$. 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	464	
1	B	464	
1	C	464	
1	D	464	
1	E	464	
1	F	464	

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Mol	Chain	Length	Quality of chain
1	G	464	
1	H	464	

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
2	NLG	D	1503	-	-	X	-

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 26320 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 PROTEIN ARG5,6, MITOCHONDRIAL.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	405	Total	C	N	O	S	0	0	0
			3140	2002	525	604	9			
1	B	436	Total	C	N	O	S	0	0	0
			3400	2164	572	655	9			
1	C	436	Total	C	N	O	S	0	0	0
			3394	2161	569	655	9			
1	D	405	Total	C	N	O	S	0	0	0
			3140	2002	525	604	9			
1	E	405	Total	C	N	O	S	0	0	0
			3142	2002	527	604	9			
1	F	436	Total	C	N	O	S	0	0	0
			3402	2167	571	655	9			
1	G	436	Total	C	N	O	S	0	0	0
			3396	2161	571	655	9			
1	H	422	Total	C	N	O	S	0	0	0
			3280	2093	547	631	9			

There are 64 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	50	MET	-	expression tag	UNP Q01217
A	51	GLY	-	expression tag	UNP Q01217
A	52	HIS	-	expression tag	UNP Q01217
A	53	HIS	-	expression tag	UNP Q01217
A	54	HIS	-	expression tag	UNP Q01217
A	55	HIS	-	expression tag	UNP Q01217
A	56	HIS	-	expression tag	UNP Q01217
A	57	HIS	-	expression tag	UNP Q01217
B	50	MET	-	expression tag	UNP Q01217
B	51	GLY	-	expression tag	UNP Q01217
B	52	HIS	-	expression tag	UNP Q01217
B	53	HIS	-	expression tag	UNP Q01217
B	54	HIS	-	expression tag	UNP Q01217

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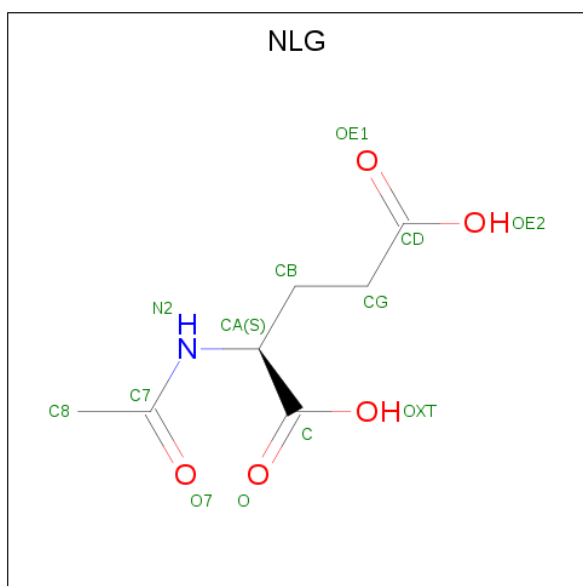
Chain	Residue	Modelled	Actual	Comment	Reference
B	55	HIS	-	expression tag	UNP Q01217
B	56	HIS	-	expression tag	UNP Q01217
B	57	HIS	-	expression tag	UNP Q01217
C	50	MET	-	expression tag	UNP Q01217
C	51	GLY	-	expression tag	UNP Q01217
C	52	HIS	-	expression tag	UNP Q01217
C	53	HIS	-	expression tag	UNP Q01217
C	54	HIS	-	expression tag	UNP Q01217
C	55	HIS	-	expression tag	UNP Q01217
C	56	HIS	-	expression tag	UNP Q01217
C	57	HIS	-	expression tag	UNP Q01217
D	50	MET	-	expression tag	UNP Q01217
D	51	GLY	-	expression tag	UNP Q01217
D	52	HIS	-	expression tag	UNP Q01217
D	53	HIS	-	expression tag	UNP Q01217
D	54	HIS	-	expression tag	UNP Q01217
D	55	HIS	-	expression tag	UNP Q01217
D	56	HIS	-	expression tag	UNP Q01217
D	57	HIS	-	expression tag	UNP Q01217
E	50	MET	-	expression tag	UNP Q01217
E	51	GLY	-	expression tag	UNP Q01217
E	52	HIS	-	expression tag	UNP Q01217
E	53	HIS	-	expression tag	UNP Q01217
E	54	HIS	-	expression tag	UNP Q01217
E	55	HIS	-	expression tag	UNP Q01217
E	56	HIS	-	expression tag	UNP Q01217
E	57	HIS	-	expression tag	UNP Q01217
F	50	MET	-	expression tag	UNP Q01217
F	51	GLY	-	expression tag	UNP Q01217
F	52	HIS	-	expression tag	UNP Q01217
F	53	HIS	-	expression tag	UNP Q01217
F	54	HIS	-	expression tag	UNP Q01217
F	55	HIS	-	expression tag	UNP Q01217
F	56	HIS	-	expression tag	UNP Q01217
F	57	HIS	-	expression tag	UNP Q01217
G	50	MET	-	expression tag	UNP Q01217
G	51	GLY	-	expression tag	UNP Q01217
G	52	HIS	-	expression tag	UNP Q01217
G	53	HIS	-	expression tag	UNP Q01217
G	54	HIS	-	expression tag	UNP Q01217
G	55	HIS	-	expression tag	UNP Q01217
G	56	HIS	-	expression tag	UNP Q01217

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Chain	Residue	Modelled	Actual	Comment	Reference
G	57	HIS	-	expression tag	UNP Q01217
H	50	MET	-	expression tag	UNP Q01217
H	51	GLY	-	expression tag	UNP Q01217
H	52	HIS	-	expression tag	UNP Q01217
H	53	HIS	-	expression tag	UNP Q01217
H	54	HIS	-	expression tag	UNP Q01217
H	55	HIS	-	expression tag	UNP Q01217
H	56	HIS	-	expression tag	UNP Q01217
H	57	HIS	-	expression tag	UNP Q01217

- Molecule 2 is N-ACETYL-L-GLUTAMATE (three-letter code: NLG) (formula: C₇H₁₁NO₅).

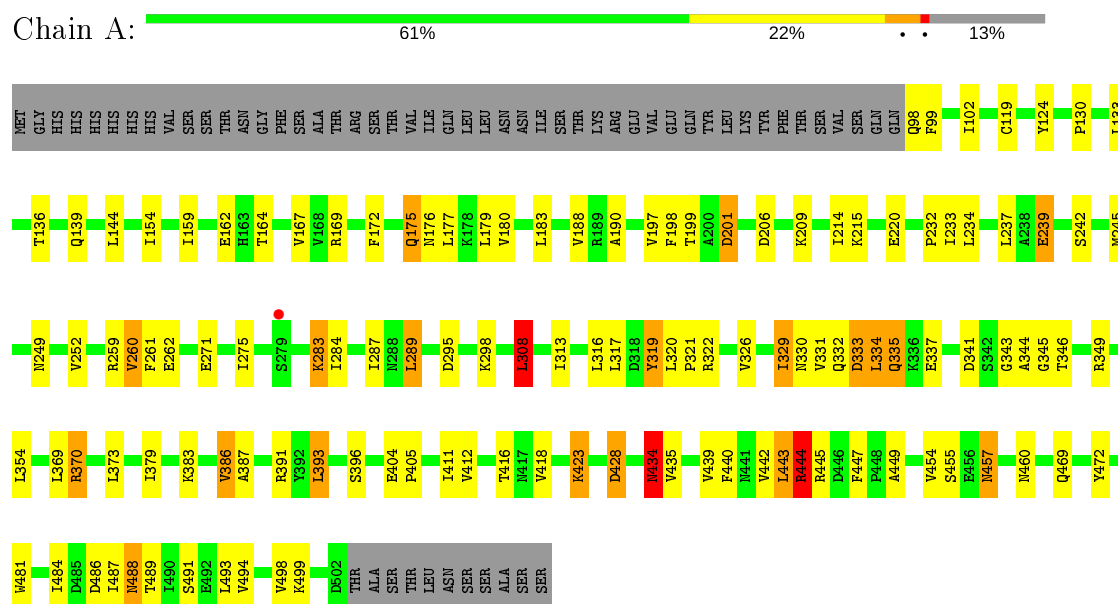


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	D	1	Total	C	N	O	0	0
			13	7	1	5		
2	H	1	Total	C	N	O	0	0
			13	7	1	5		

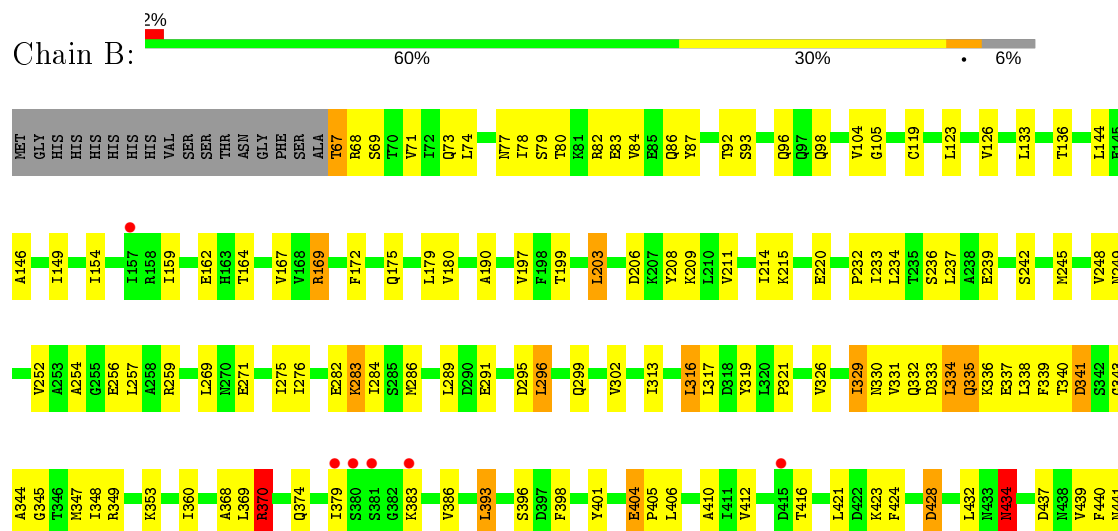
3 Residue-property plots

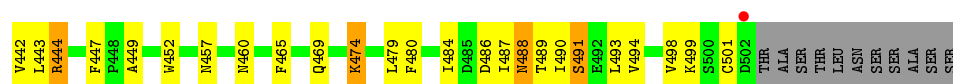
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are 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: PROTEIN ARG5,6, MITOCHONDRIAL

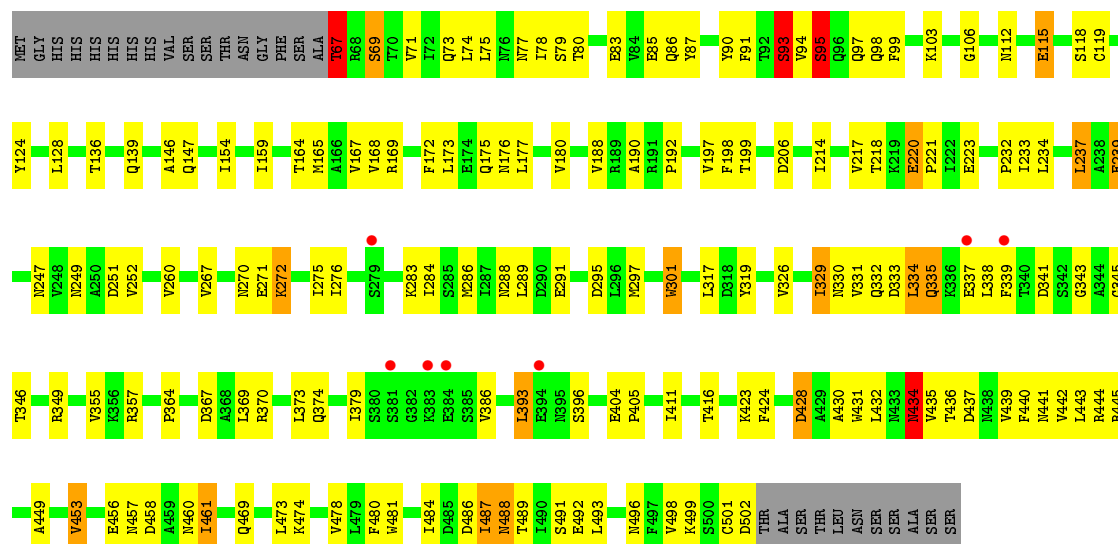


• Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL

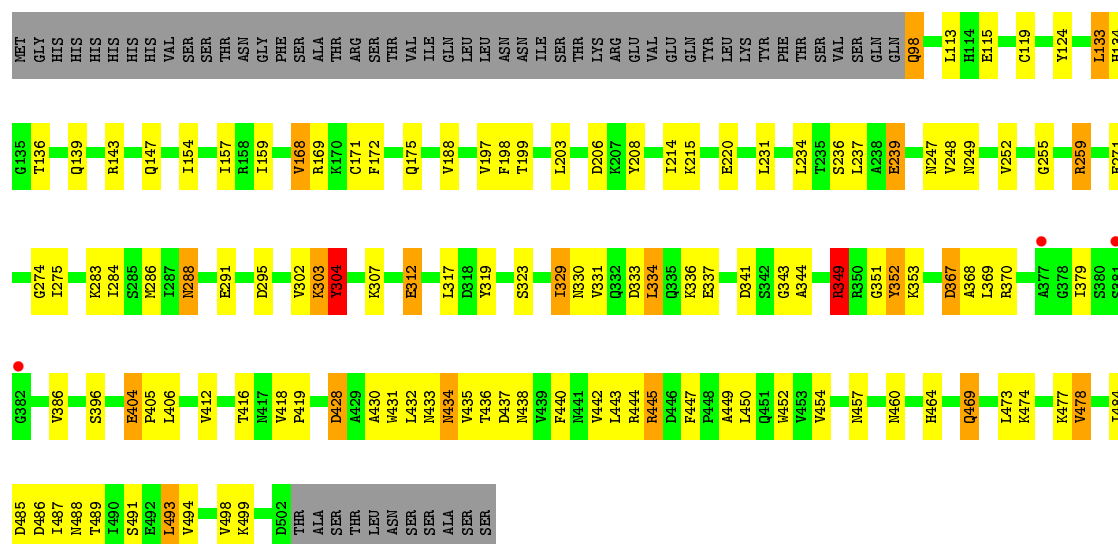




• Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL

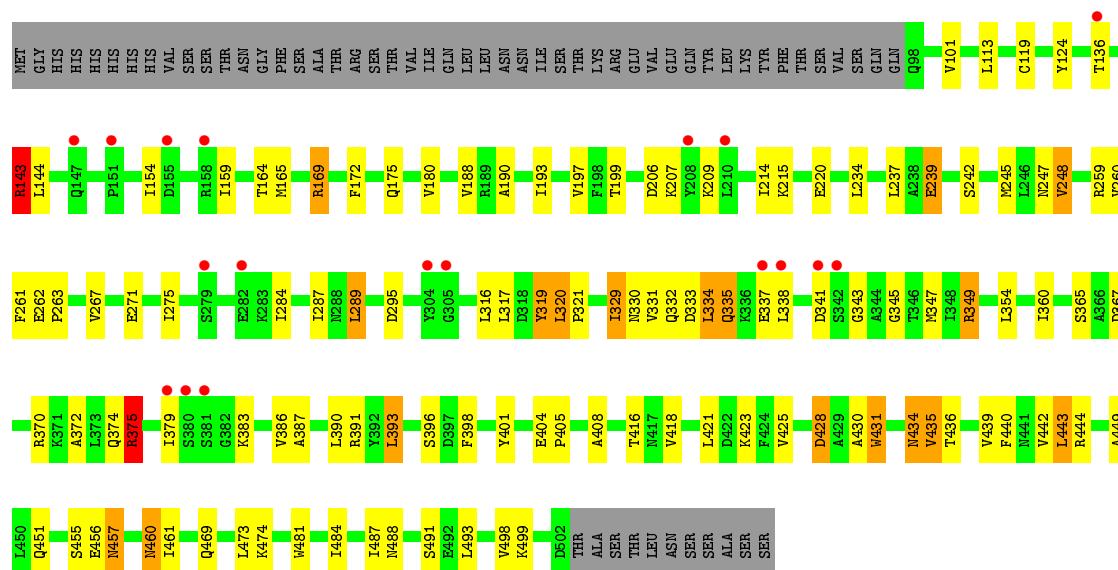


• Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL

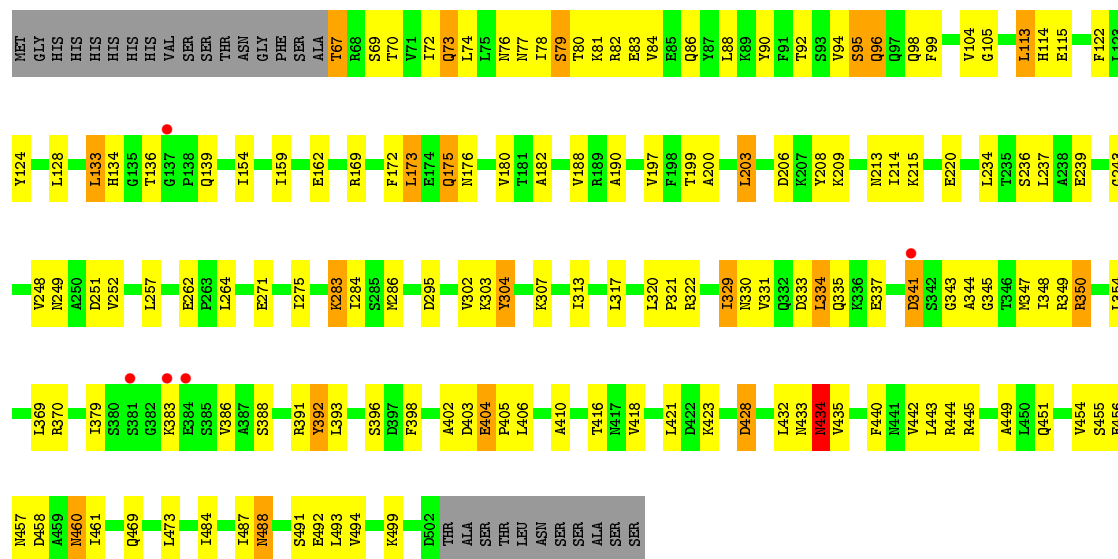


• Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL

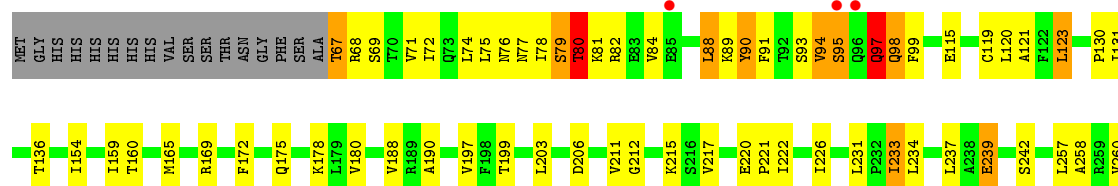


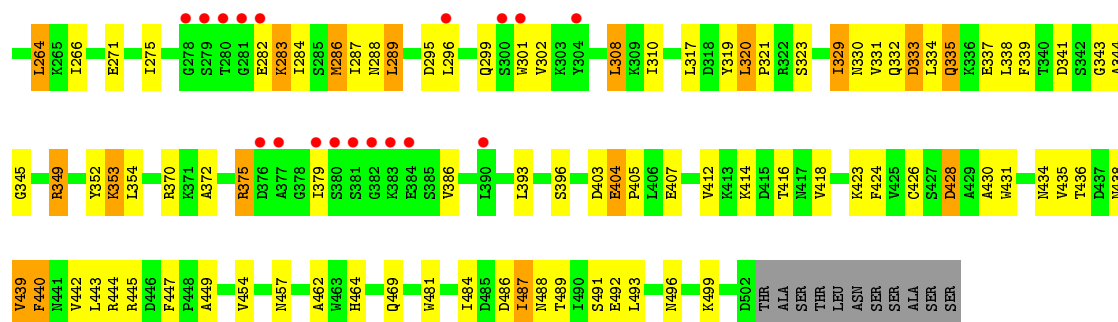


- Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL

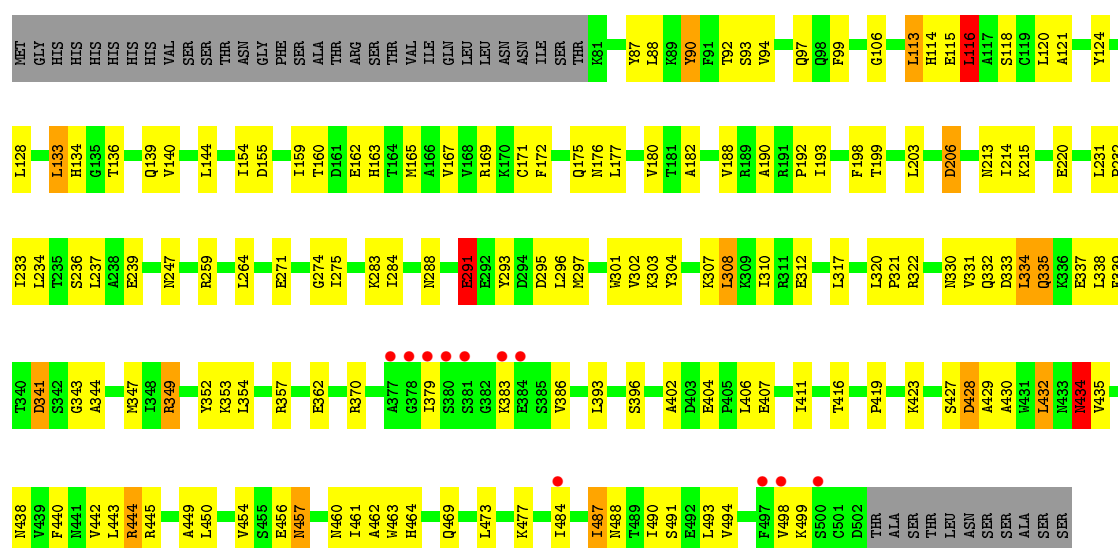


- Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL





• Molecule 1: PROTEIN ARG5,6, MITOCHONDRIAL



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	92.88Å 103.27Å 111.31Å 77.31° 89.27° 70.43°	Depositor
Resolution (Å)	108.36 – 3.25 48.66 – 3.25	Depositor EDS
% Data completeness (in resolution range)	96.2 (108.36-3.25) 95.6 (48.66-3.25)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.96 (at 3.25Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.193 , 0.238 0.196 , 0.240	Depositor DCC
R_{free} test set	2874 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	81.9	Xtriage
Anisotropy	0.066	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 63.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	26320	wwPDB-VP
Average B, all atoms (Å ²)	93.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.32% 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, 0.333 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: NLG

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	0.75	1/3195 (0.0%)	0.90	6/4329 (0.1%)
1	B	0.80	2/3458 (0.1%)	0.96	10/4685 (0.2%)
1	C	0.78	4/3452 (0.1%)	0.94	8/4678 (0.2%)
1	D	0.75	2/3195 (0.1%)	0.94	5/4329 (0.1%)
1	E	0.71	2/3197 (0.1%)	0.89	8/4332 (0.2%)
1	F	0.76	1/3460 (0.0%)	0.93	9/4686 (0.2%)
1	G	0.74	3/3454 (0.1%)	0.99	13/4681 (0.3%)
1	H	0.75	3/3338 (0.1%)	0.92	8/4522 (0.2%)
All	All	0.76	18/26749 (0.1%)	0.93	67/36242 (0.2%)

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	B	0	2
1	C	0	1
1	F	0	2
1	G	0	1
All	All	0	6

The worst 5 of 18 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	481	TRP	CD2-CE2	6.25	1.48	1.41
1	G	481	TRP	CD2-CE2	6.19	1.48	1.41
1	H	463	TRP	CD2-CE2	6.03	1.48	1.41
1	D	452	TRP	CD2-CE2	5.69	1.48	1.41
1	H	274	GLY	N-CA	-5.59	1.37	1.46

The worst 5 of 67 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	375	ARG	NE-CZ-NH2	-21.70	109.45	120.30
1	G	375	ARG	NE-CZ-NH1	18.23	129.41	120.30
1	E	143	ARG	NE-CZ-NH1	10.68	125.64	120.30
1	E	375	ARG	NE-CZ-NH2	-9.21	115.69	120.30
1	B	370	ARG	NE-CZ-NH1	9.04	124.82	120.30

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	92	THR	Peptide
1	B	96	GLN	Peptide
1	C	95	SER	Peptide
1	F	95	SER	Peptide
1	F	96	GLN	Peptide

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	3140	0	3153	101	1
1	B	3400	0	3418	135	0
1	C	3394	0	3407	129	1
1	D	3140	0	3153	116	0
1	E	3142	0	3153	107	1
1	F	3402	0	3429	151	1
1	G	3396	0	3407	153	1
1	H	3280	0	3286	100	1
2	D	13	0	9	10	0
2	H	13	0	9	2	0
All	All	26320	0	26424	916	3

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 17.

The worst 5 of 916 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:474:LYS:HE2	1:B:501:CYS:SG	1.27	1.67
1:B:474:LYS:CE	1:B:501:CYS:SG	2.09	1.38
1:F:72:ILE:O	1:G:89:LYS:NZ	1.65	1.29
1:B:379:ILE:HD11	1:B:423:LYS:NZ	1.52	1.23
1:B:379:ILE:HG21	1:B:386:VAL:CG2	1.72	1.20

All (3) 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	Interatomic distance (Å)	Clash overlap (Å)
1:A:488:ASN:OD1	1:H:362:GLU:OE2[1_554]	1.75	0.45
1:E:207:LYS:NZ	1:G:282:GLU:OE2[1_545]	2.14	0.06
1:C:146:ALA:O	1:F:433:ASN:ND2[1_655]	2.19	0.01

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	403/464 (87%)	371 (92%)	29 (7%)	3 (1%)	22	56
1	B	434/464 (94%)	397 (92%)	32 (7%)	5 (1%)	13	43
1	C	434/464 (94%)	397 (92%)	33 (8%)	4 (1%)	17	50
1	D	403/464 (87%)	370 (92%)	31 (8%)	2 (0%)	29	62
1	E	403/464 (87%)	369 (92%)	31 (8%)	3 (1%)	22	56
1	F	434/464 (94%)	395 (91%)	36 (8%)	3 (1%)	22	56
1	G	434/464 (94%)	392 (90%)	36 (8%)	6 (1%)	11	40
1	H	420/464 (90%)	386 (92%)	30 (7%)	4 (1%)	15	47
All	All	3365/3712 (91%)	3077 (91%)	258 (8%)	30 (1%)	17	50

5 of 30 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	416	THR
1	A	487	ILE
1	B	416	THR
1	C	93	SER
1	C	416	THR

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	340/397 (86%)	300 (88%)	40 (12%)	5	21
1	B	371/397 (94%)	328 (88%)	43 (12%)	5	22
1	C	370/397 (93%)	333 (90%)	37 (10%)	7	27
1	D	340/397 (86%)	299 (88%)	41 (12%)	5	20
1	E	340/397 (86%)	307 (90%)	33 (10%)	8	29
1	F	372/397 (94%)	334 (90%)	38 (10%)	7	27
1	G	370/397 (93%)	331 (90%)	39 (10%)	7	25
1	H	355/397 (89%)	312 (88%)	43 (12%)	5	20
All	All	2858/3176 (90%)	2544 (89%)	314 (11%)	6	24

5 of 314 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	349	ARG
1	E	333	ASP
1	H	303	LYS
1	D	396	SER
1	D	493	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 72 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	374	GLN

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Mol	Chain	Res	Type
1	E	438	ASN
1	H	176	ASN
1	D	433	ASN
1	D	488	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

2 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	NLG	D	1503	-	6,12,12	2.80	3 (50%)	7,15,15	3.82	4 (57%)
2	NLG	H	1503	-	6,12,12	2.04	1 (16%)	7,15,15	1.72	3 (42%)

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	NLG	D	1503	-	-	4/7/13/13	-
2	NLG	H	1503	-	-	2/7/13/13	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1503	NLG	C8-C7	-5.91	1.38	1.50
2	H	1503	NLG	C8-C7	-4.72	1.40	1.50
2	D	1503	NLG	CA-N2	2.37	1.49	1.46
2	D	1503	NLG	CB-CA	2.34	1.56	1.53

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	1503	NLG	CB-CA-N2	6.95	120.31	110.19
2	D	1503	NLG	CA-N2-C7	5.88	128.90	122.44
2	D	1503	NLG	C8-C7-N2	3.12	121.39	116.10
2	H	1503	NLG	O7-C7-C8	-2.87	116.72	122.06
2	D	1503	NLG	O7-C7-C8	-2.34	117.71	122.06

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1503	NLG	CB-CA-N2-C7
2	D	1503	NLG	C8-C7-N2-CA
2	D	1503	NLG	O7-C7-N2-CA
2	D	1503	NLG	CA-CB-CG-CD
2	H	1503	NLG	CA-CB-CG-CD

There are no ring outliers.

2 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1503	NLG	10	0
2	H	1503	NLG	2	0

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(Å ²)	Q<0.9
1	A	405/464 (87%)	-0.33	1 (0%) 95 95	46, 81, 135, 187	0
1	B	436/464 (93%)	-0.27	7 (1%) 72 69	37, 73, 149, 245	0
1	C	436/464 (93%)	-0.31	7 (1%) 72 69	35, 73, 151, 219	0
1	D	405/464 (87%)	-0.28	3 (0%) 87 88	45, 80, 142, 205	0
1	E	405/464 (87%)	0.10	18 (4%) 34 32	55, 103, 230, 344	0
1	F	436/464 (93%)	-0.28	5 (1%) 80 80	45, 83, 151, 217	0
1	G	436/464 (93%)	-0.02	21 (4%) 30 28	53, 96, 184, 263	0
1	H	422/464 (90%)	-0.12	11 (2%) 56 52	50, 86, 170, 237	0
All	All	3381/3712 (91%)	-0.19	73 (2%) 62 59	35, 84, 166, 344	0

The worst 5 of 73 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	383	LYS	8.0
1	G	96	GLN	7.4
1	E	341	ASP	6.8
1	G	381	SER	6.4
1	B	380	SER	6.4

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 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. 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(\AA^2)	Q<0.9
2	NLG	H	1503	13/13	0.91	0.27	64,81,101,106	0
2	NLG	D	1503	13/13	0.95	0.18	48,59,72,79	0

6.5 Other polymers [i](#)

There are no such residues in this entry.