



wwPDB X-ray Structure Validation Summary Report

Feb 26, 2014 – 04:49 PM GMT

PDB ID : 2GXA
Title : Crystal structure of papillomavirus E1 hexameric helicase with ssDNA and MgADP
Authors : Enemark, E.J.; Joshua-Tor, L.
Deposited on : 2006-05-08
Resolution : 3.15 Å(reported)

This is a wwPDB validation summary report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

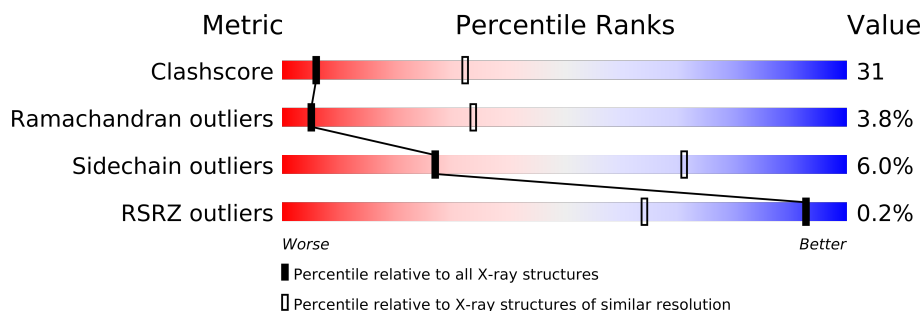
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Mogul	:	1.15 2013
Xtriage (Phenix)	:	dev-1323
EDS	:	stable22639
Percentile statistics	:	21963
Refmac	:	5.8.0049
CCP4	:	6.3.0 (Settle)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP)	:	stable22683

1 Overall quality at a glance

The reported resolution of this entry is 3.15 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	79885	1681 (3.22-3.10)
Ramachandran outliers	78287	1639 (3.22-3.10)
Sidechain outliers	78261	1638 (3.22-3.10)
RSRZ outliers	66119	1361 (3.22-3.10)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	M	13	
1	N	13	
2	A	274	
2	B	274	
2	C	274	
2	D	274	
2	E	274	
2	F	274	
2	G	274	
2	H	274	
2	I	274	
2	J	274	
2	K	274	
2	L	274	

The following table lists non-polymeric compounds that are outliers for geometric or electron-

density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
3	MG	J	30	-	X
4	CL	A	41	-	X

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 26374 atoms, of which 0 are hydrogen and 0 are deuterium.

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 DNA chain called 5'-D(*TP*TP*TP*TP*TP*TP*TP*TP*TP*TP*T)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	M	6	Total	C	N	O	P	0	0	0
			121	60	12	43	6			
1	N	7	Total	C	N	O	P	0	0	0
			141	70	14	50	7			

- Molecule 2 is a protein called Replication protein E1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	B	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	C	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	D	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	E	274	Total	C	N	O	S	0	0	0
			2177	1402	377	388	10			
2	F	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	G	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	H	274	Total	C	N	O	S	0	0	0
			2177	1402	377	388	10			
2	I	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	J	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			
2	K	273	Total	C	N	O	S	0	0	0
			2173	1400	376	387	10			
2	L	270	Total	C	N	O	S	0	0	0
			2140	1380	371	379	10			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	304	GLY	-	cloning artifact	UNP P03116
B	304	GLY	-	cloning artifact	UNP P03116
C	304	GLY	-	cloning artifact	UNP P03116
D	304	GLY	-	cloning artifact	UNP P03116
E	304	GLY	-	cloning artifact	UNP P03116
F	304	GLY	-	cloning artifact	UNP P03116
G	304	GLY	-	cloning artifact	UNP P03116
H	304	GLY	-	cloning artifact	UNP P03116
I	304	GLY	-	cloning artifact	UNP P03116
J	304	GLY	-	cloning artifact	UNP P03116
K	304	GLY	-	cloning artifact	UNP P03116
L	304	GLY	-	cloning artifact	UNP P03116

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	G	1	Total Mg 1 1	0	0
3	J	1	Total Mg 1 1	0	0
3	D	1	Total Mg 1 1	0	0
3	K	1	Total Mg 1 1	0	0
3	E	1	Total Mg 1 1	0	0
3	H	1	Total Mg 1 1	0	0
3	B	1	Total Mg 1 1	0	0
3	I	1	Total Mg 1 1	0	0
3	C	1	Total Mg 1 1	0	0
3	A	1	Total Mg 1 1	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

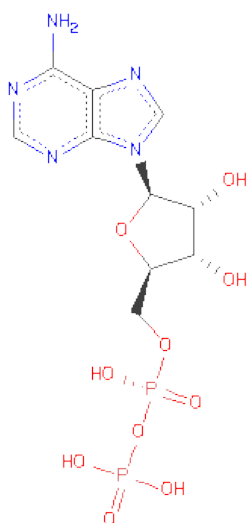
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	H	1	Total Cl 1 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	1	Total	Cl	0	0
			1	1		
4	A	1	Total	Cl	0	0
			1	1		

- Molecule 5 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
5	B	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
5	C	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
5	D	1	Total	C	N	O	P	10	0
			27	10	5	10	2		
5	E	1	Total	C	N	O	P	10	0
			27	10	5	10	2		
5	F	1	Total	C	N	O	P	10	0
			27	10	5	10	2		
5	G	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
5	H	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
5	J	1	Total	C	N	O	P	10	0
			27	10	5	10	2		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	K	1	Total	C	N	O	P	10	0
			27	10	5	10	2		
5	L	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

- Molecule 6 is water.

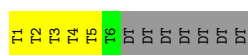
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	2	Total	O	0	0
			2	2		
6	B	3	Total	O	0	0
			3	3		
6	C	3	Total	O	0	0
			3	3		
6	D	1	Total	O	0	0
			1	1		
6	G	3	Total	O	0	0
			3	3		
6	H	2	Total	O	0	0
			2	2		
6	I	1	Total	O	0	0
			1	1		

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 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 ($RSRZ > 2$). 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.

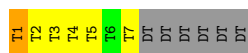
- Molecule 1: 5'-D(*TP*TP*TP*TP*TP*TP*TP*TP*TP*TP*TP*T)-3'

Chain M: 



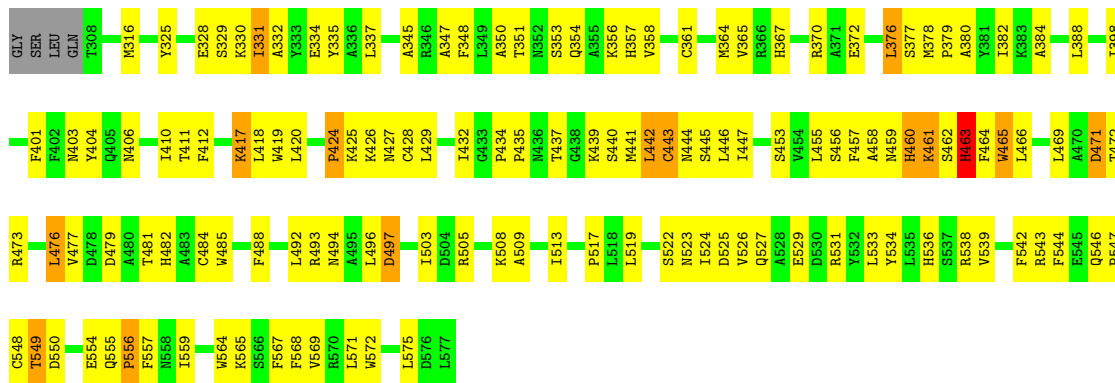
- Molecule 1: 5'-D(*TP*TP*TP*TP*TP*TP*TP*TP*TP*TP*TP*T)-3'

Chain N: 



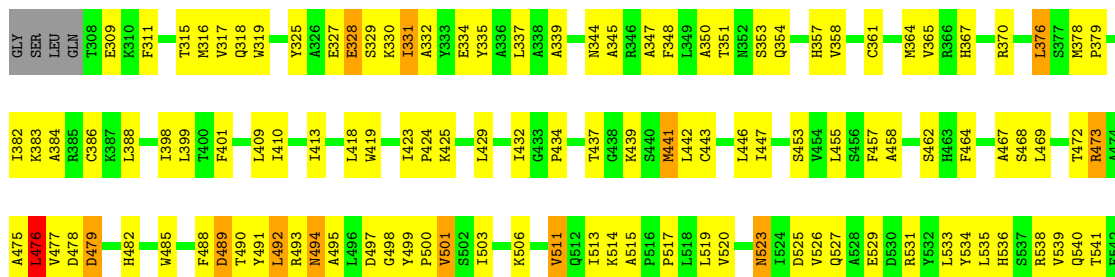
- Molecule 2: Replication protein E1

Chain A: 



- Molecule 2: Replication protein E1

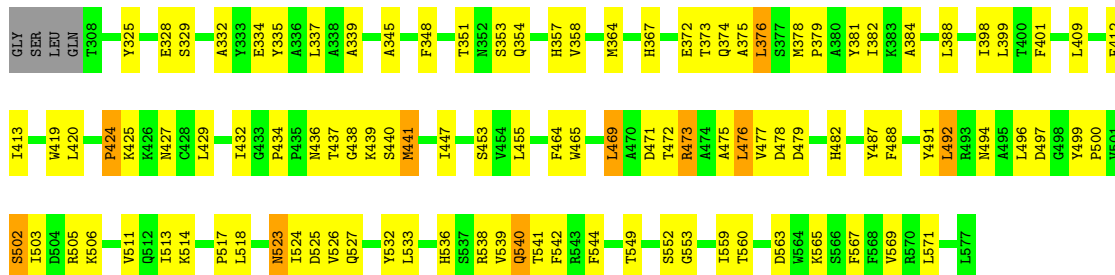
Chain B: 





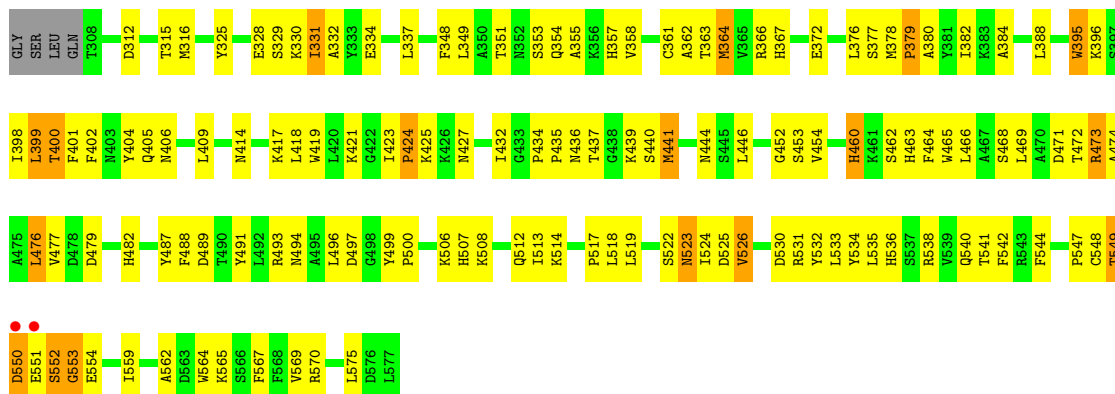
• Molecule 2: Replication protein E1

Chain C:



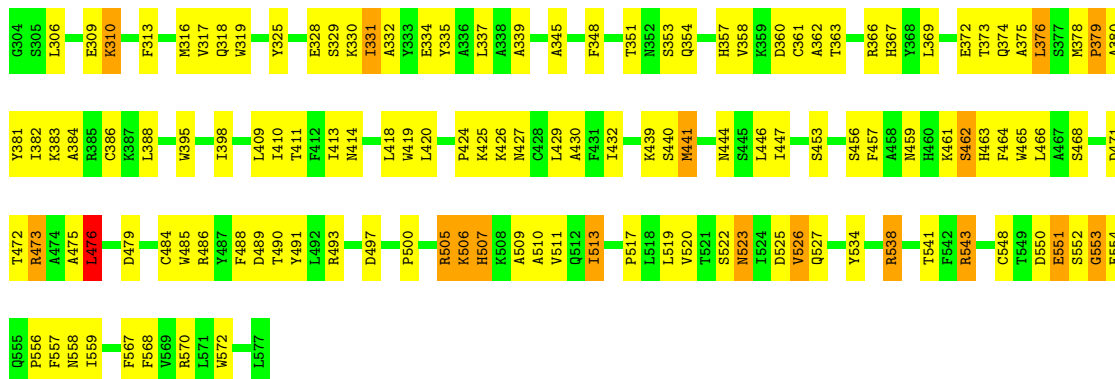
• Molecule 2: Replication protein E1

Chain D:



• Molecule 2: Replication protein E1

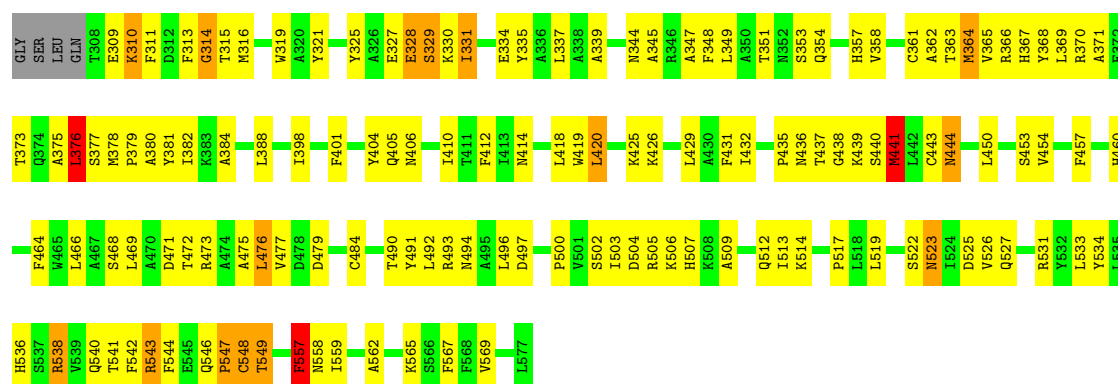
Chain E:



• Molecule 2: Replication protein E1

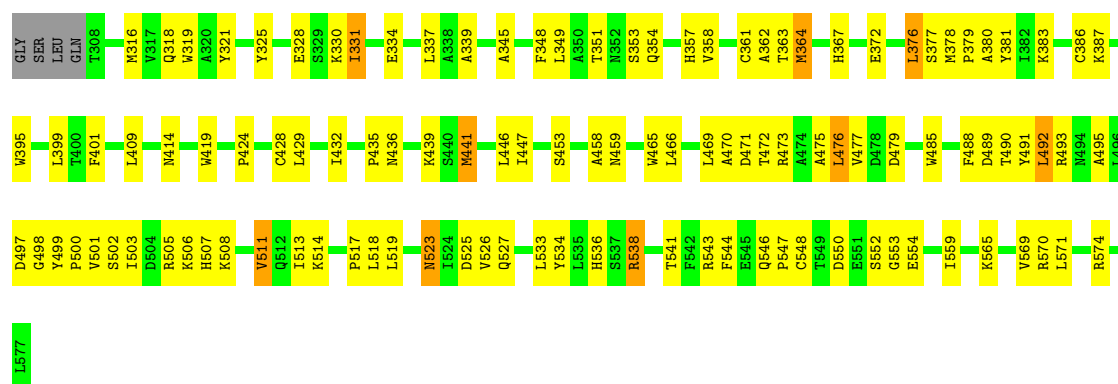
Chain F:





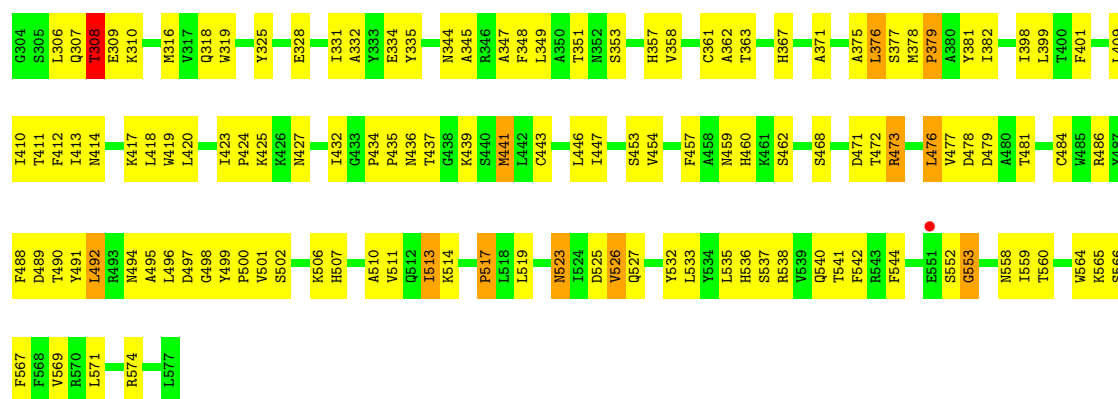
• Molecule 2: Replication protein E1

Chain G:



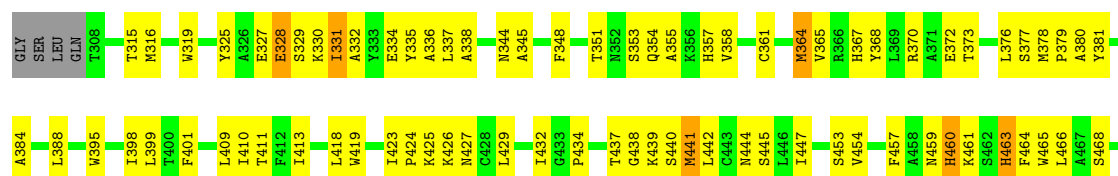
• Molecule 2: Replication protein E1

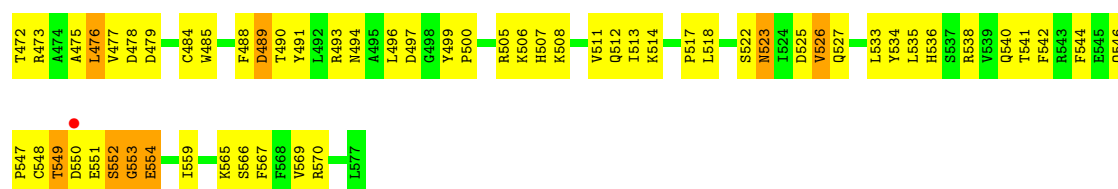
Chain H:



• Molecule 2: Replication protein E1

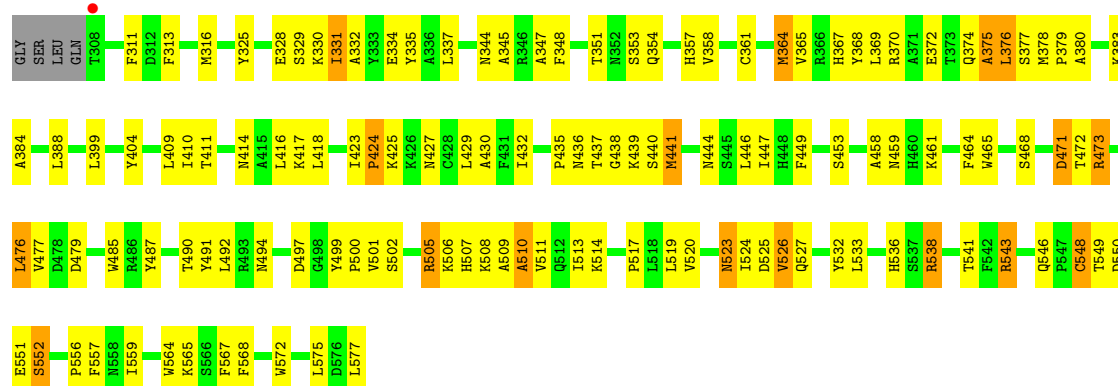
Chain I:





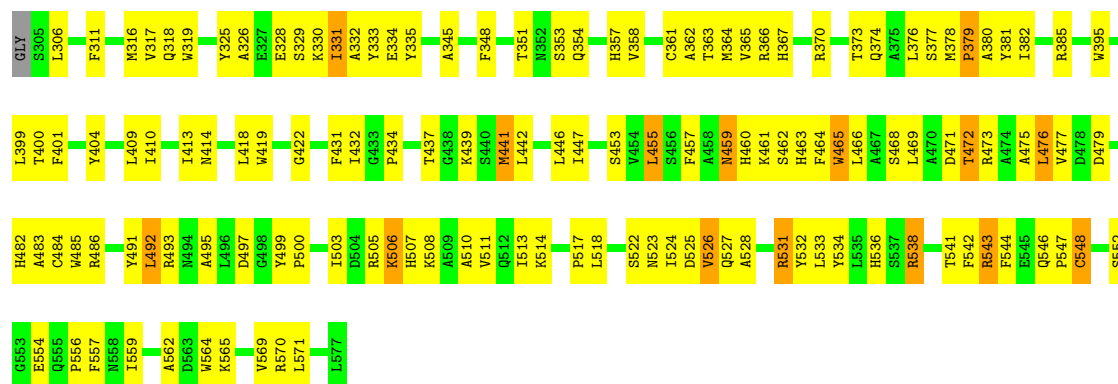
• Molecule 2: Replication protein E1

Chain J:



• Molecule 2: Replication protein E1

Chain K:





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	100.51Å 100.88Å 125.02Å 92.60° 111.46° 106.01°	Depositor
Resolution (Å)	44.65 – 3.15 44.65 – 3.11	Depositor EDS
% Data completeness (in resolution range)	91.9 (44.65-3.15) 92.0 (44.65-3.11)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.33 (at 3.12Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.239 , 0.298 0.226 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	DCC
Wilson B-factor (Å ²)	74.0	Xtriage
Anisotropy	0.151	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.25 , 22.9	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 75699 reflections	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	26374	wwPDB-VP
Average B, all atoms (Å ²)	74.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.23% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

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

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	M	0.83	1/132 (0.8%)	0.93	0/200
1	N	0.76	1/154 (0.6%)	0.82	0/234
2	A	0.71	4/2199 (0.2%)	0.89	6/2985 (0.2%)
2	B	0.48	0/2199	0.69	1/2985 (0.0%)
2	C	0.43	0/2199	0.62	0/2985
2	D	0.41	0/2199	0.61	0/2985
2	E	0.42	0/2236	0.64	2/3033 (0.1%)
2	F	0.42	0/2199	0.64	0/2985
2	G	0.43	0/2199	0.61	0/2985
2	H	0.44	0/2236	0.64	0/3033
2	I	0.41	0/2199	0.62	0/2985
2	J	0.42	0/2199	0.63	0/2985
2	K	0.44	0/2232	0.65	0/3028
2	L	0.39	0/2199	0.73	3/2985 (0.1%)
All	All	0.46	6/26781 (0.0%)	0.67	12/36393 (0.0%)

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	497	ASP	CB-CG	-10.66	1.29	1.51
2	A	484	CYS	CB-SG	-7.33	1.69	1.82
1	M	1	DT	OP3-P	-6.40	1.53	1.61
1	N	1	DT	OP3-P	-6.28	1.53	1.61
2	A	464	PHE	CB-CG	-5.80	1.41	1.51

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	497	ASP	CB-CG-OD1	-15.82	104.06	118.30
2	L	500	PRO	CA-N-CD	-10.02	97.47	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	L	499	TYR	C-N-CD	-7.52	104.06	120.60
2	A	497	ASP	OD1-CG-OD2	7.47	137.50	123.30
2	E	476	LEU	CA-CB-CG	6.49	130.22	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	M	121	0	73	15	0
1	N	141	0	85	19	0
2	A	2140	0	2078	161	0
2	B	2140	0	2078	127	0
2	C	2140	0	2078	92	0
2	D	2140	0	2078	122	0
2	E	2177	0	2124	113	0
2	F	2140	0	2078	134	0
2	G	2140	0	2078	99	0
2	H	2177	0	2125	127	0
2	I	2140	0	2077	132	0
2	J	2140	0	2078	118	0
2	K	2173	0	2121	139	0
2	L	2140	0	2078	279	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
3	H	1	0	0	0	0
3	I	1	0	0	0	0
3	J	1	0	0	0	0
3	K	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	1	0	0	0	0
4	B	1	0	0	2	0
4	H	1	0	0	0	0
5	A	27	0	12	4	0
5	B	27	0	12	5	0
5	C	27	0	12	4	0
5	D	27	0	12	2	0
5	E	27	0	12	2	0
5	F	27	0	12	11	0
5	G	27	0	12	3	0
5	H	27	0	12	5	0
5	J	27	0	12	1	0
5	K	27	0	12	1	0
5	L	27	0	12	3	0
6	A	2	0	0	0	0
6	B	3	0	0	0	0
6	C	3	0	0	0	0
6	D	1	0	0	0	0
6	G	3	0	0	0	0
6	H	2	0	0	0	0
6	I	1	0	0	0	0
All	All	26374	0	25361	1595	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 31.

The worst 5 of 1595 close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:A:534:TYR:HE2	2:A:538:ARG:NH1	1.19	1.34
2:A:534:TYR:CE2	2:A:538:ARG:NH1	1.95	1.33
2:L:444:ASN:HD21	2:L:521:THR:HG21	1.05	1.15
2:L:505:ARG:HH21	2:L:511:VAL:HB	1.08	1.10
2:L:512:GLN:O	2:L:513:ILE:HG13	1.51	1.10

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone ⓘ

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	
2	A	268/274 (98%)	212 (79%)	48 (18%)	8 (3%)	7	41
2	B	268/274 (98%)	221 (82%)	40 (15%)	7 (3%)	8	46
2	C	268/274 (98%)	232 (87%)	32 (12%)	4 (2%)	15	63
2	D	268/274 (98%)	224 (84%)	31 (12%)	13 (5%)	3	26
2	E	272/274 (99%)	229 (84%)	34 (12%)	9 (3%)	6	38
2	F	268/274 (98%)	215 (80%)	40 (15%)	13 (5%)	3	26
2	G	268/274 (98%)	225 (84%)	37 (14%)	6 (2%)	10	51
2	H	272/274 (99%)	227 (84%)	38 (14%)	7 (3%)	8	46
2	I	268/274 (98%)	220 (82%)	39 (15%)	9 (3%)	6	37
2	J	268/274 (98%)	218 (81%)	42 (16%)	8 (3%)	7	41
2	K	271/274 (99%)	219 (81%)	42 (16%)	10 (4%)	5	34
2	L	268/274 (98%)	180 (67%)	60 (22%)	28 (10%)	1	6
All	All	3227/3288 (98%)	2622 (81%)	483 (15%)	122 (4%)	5	34

5 of 122 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	376	LEU
2	A	549	THR
2	A	556	PRO
2	B	376	LEU
2	C	376	LEU

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	
2	A	218/230 (95%)	210 (96%)	8 (4%)	45	86
2	B	218/230 (95%)	207 (95%)	11 (5%)	34	78
2	C	218/230 (95%)	207 (95%)	11 (5%)	34	78
2	D	218/230 (95%)	207 (95%)	11 (5%)	34	78
2	E	224/230 (97%)	208 (93%)	16 (7%)	21	64
2	F	218/230 (95%)	202 (93%)	16 (7%)	20	63
2	G	218/230 (95%)	205 (94%)	13 (6%)	27	71
2	H	224/230 (97%)	209 (93%)	15 (7%)	23	66
2	I	218/230 (95%)	208 (95%)	10 (5%)	37	80
2	J	218/230 (95%)	204 (94%)	14 (6%)	25	68
2	K	224/230 (97%)	208 (93%)	16 (7%)	21	64
2	L	218/230 (95%)	201 (92%)	17 (8%)	18	59
All	All	2634/2760 (95%)	2476 (94%)	158 (6%)	27	71

5 of 158 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	F	543	ARG
2	H	318	GLN
2	L	473	ARG
2	G	318	GLN
2	G	476	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 76 such sidechains are listed below:

Mol	Chain	Res	Type
2	F	523	ASN
2	H	427	ASN
2	L	427	ASN
2	G	318	GLN
2	G	444	ASN

5.3.3 RNA ⓘ

There are no RNA chains 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 ⓘ

Of 24 ligands modelled in this entry, 13 are monoatomic - leaving 11 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	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
5	ADP	A	1	3	29,29,29	1.30	3 (10%)	45,45,45	2.45	11 (24%)
5	ADP	B	2	3	29,29,29	1.14	3 (10%)	45,45,45	2.41	11 (24%)
5	ADP	C	3	3	29,29,29	1.16	2 (6%)	45,45,45	2.35	10 (22%)
5	ADP	D	4	3	29,29,29	1.13	2 (6%)	45,45,45	2.33	9 (20%)
5	ADP	E	5	3	29,29,29	1.13	1 (3%)	45,45,45	2.30	10 (22%)
5	ADP	F	6	-	29,29,29	1.12	1 (3%)	45,45,45	2.36	9 (20%)
5	ADP	G	7	3	29,29,29	1.36	2 (6%)	45,45,45	2.41	11 (24%)
5	ADP	H	8	3	29,29,29	1.11	2 (6%)	45,45,45	2.42	10 (22%)
5	ADP	J	9	3	29,29,29	1.14	2 (6%)	45,45,45	2.33	10 (22%)
5	ADP	K	10	3	29,29,29	1.17	1 (3%)	45,45,45	2.25	10 (22%)
5	ADP	L	11	3	29,29,29	2.10	7 (24%)	45,45,45	3.16	21 (46%)

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
5	ADP	A	1	3	-	0/16/32/32	0/1/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	ADP	B	2	3	-	0/16/32/32	0/1/3/3
5	ADP	C	3	3	-	0/16/32/32	0/1/3/3
5	ADP	D	4	3	-	0/16/32/32	0/1/3/3
5	ADP	E	5	3	-	0/16/32/32	0/1/3/3
5	ADP	F	6	-	-	0/16/32/32	0/1/3/3
5	ADP	G	7	3	-	0/16/32/32	0/1/3/3
5	ADP	H	8	3	-	0/16/32/32	0/1/3/3
5	ADP	J	9	3	-	0/16/32/32	0/1/3/3
5	ADP	K	10	3	-	0/16/32/32	0/1/3/3
5	ADP	L	11	3	-	0/16/32/32	0/1/3/3

The worst 5 of 26 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	L	11	ADP	C2'-C1'	5.39	1.61	1.53
5	L	11	ADP	O4'-C1'	5.28	1.49	1.41
5	G	7	ADP	O4'-C1'	4.24	1.47	1.41
5	L	11	ADP	PA-O3A	-4.06	1.52	1.59
5	A	1	ADP	O4'-C1'	3.94	1.47	1.41

The worst 5 of 122 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	11	ADP	C4'-O4'-C1'	-10.30	98.57	109.75
5	G	7	ADP	N3-C2-N1	-9.31	120.92	128.71
5	E	5	ADP	N3-C2-N1	-9.10	121.10	128.71
5	H	8	ADP	PA-O3A-PB	-9.04	105.19	131.68
5	B	2	ADP	N3-C2-N1	-9.03	121.16	128.71

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

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	M	6/13 (46%)	-0.61	0	100	100	60, 67, 70, 143	0
1	N	7/13 (53%)	-0.91	0	100	100	53, 64, 110, 140	0
2	A	270/274 (98%)	-0.36	0	100	100	25, 55, 147, 188	0
2	B	270/274 (98%)	-0.41	0	100	100	25, 49, 123, 195	0
2	C	270/274 (98%)	-0.17	0	100	100	27, 67, 154, 200	0
2	D	270/274 (98%)	-0.30	2 (0%)	84	35	32, 69, 151, 194	0
2	E	274/274 (100%)	-0.38	0	100	100	25, 64, 131, 205	0
2	F	270/274 (98%)	-0.34	0	100	100	26, 60, 131, 202	0
2	G	270/274 (98%)	-0.32	0	100	100	25, 63, 129, 192	0
2	H	274/274 (100%)	-0.31	1 (0%)	90	49	26, 60, 135, 205	0
2	I	270/274 (98%)	-0.25	1 (0%)	90	49	25, 69, 153, 192	0
2	J	270/274 (98%)	-0.29	1 (0%)	90	49	27, 63, 136, 205	0
2	K	273/274 (99%)	-0.35	0	100	100	25, 59, 150, 198	0
2	L	270/274 (98%)	0.01	3 (1%)	77	25	38, 119, 186, 205	0
All	All	3264/3314 (98%)	-0.29	8 (0%)	93	64	25, 64, 154, 205	0

The worst 5 of 8 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	550	ASP	3.2
2	D	551	GLU	3.2
2	I	550	ASP	3.0
2	J	308	THR	3.0
2	H	551	GLU	2.8

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 ⓘ

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, 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	RSR	LLDF	B-factors(Å ²)	Q<0.9
3	MG	J	30	1/1	0.33	4.48	36,36,36,36	0
4	CL	A	41	1/1	0.26	2.40	70,70,70,70	0
5	ADP	B	2	27/27	0.23	1.92	55,69,88,88	0
3	MG	E	25	1/1	0.21	1.63	30,30,30,30	0
3	MG	G	27	1/1	0.18	1.18	33,33,33,33	0
5	ADP	E	5	27/27	0.21	1.17	77,105,195,195	10
5	ADP	L	11	27/27	0.24	1.08	84,142,198,198	0
3	MG	B	22	1/1	0.17	1.01	25,25,25,25	0
5	ADP	H	8	27/27	0.23	0.74	70,94,123,123	0
3	MG	I	29	1/1	0.21	0.59	55,55,55,55	0
3	MG	A	21	1/1	0.18	0.50	25,25,25,25	0
5	ADP	G	7	27/27	0.18	0.46	58,70,90,90	0
5	ADP	A	1	27/27	0.18	0.40	31,65,66,66	0
3	MG	H	28	1/1	0.17	0.26	25,25,25,25	0
5	ADP	F	6	27/27	0.20	0.26	65,130,198,198	10
4	CL	B	42	1/1	0.16	0.23	73,73,73,73	0
5	ADP	K	10	27/27	0.22	0.20	67,74,133,133	10
5	ADP	D	4	27/27	0.22	0.02	81,119,162,162	10
5	ADP	C	3	27/27	0.19	-0.32	70,80,100,100	0
3	MG	K	31	1/1	0.15	-0.59	51,51,51,51	0
3	MG	D	24	1/1	0.13	-0.64	50,50,50,50	0
5	ADP	J	9	27/27	0.18	-0.74	89,126,182,182	10
3	MG	C	23	1/1	0.11	-1.68	25,25,25,25	0
4	CL	H	48	1/1	0.06	-2.09	80,80,80,80	0

6.5 Other polymers ⓘ

There are no such residues in this entry.