



# wwPDB X-ray Structure Validation Summary Report

Feb 27, 2014 – 08:12 AM GMT

PDB ID : 1HT1  
Title : Nucleotide-Dependent Conformational Changes in a Protease-Associated ATPase HslU  
Authors : Wang, J.; Song, J.J.; Seong, I.S.; Franklin, M.C.; Kamtekar, S.; Eom, S.H.; Chung, C.H.  
Deposited on : 2000-12-27  
Resolution : 2.80 Å(reported)

This is a wwPDB validation summary report for a publicly released PDB entry.  
We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)  
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

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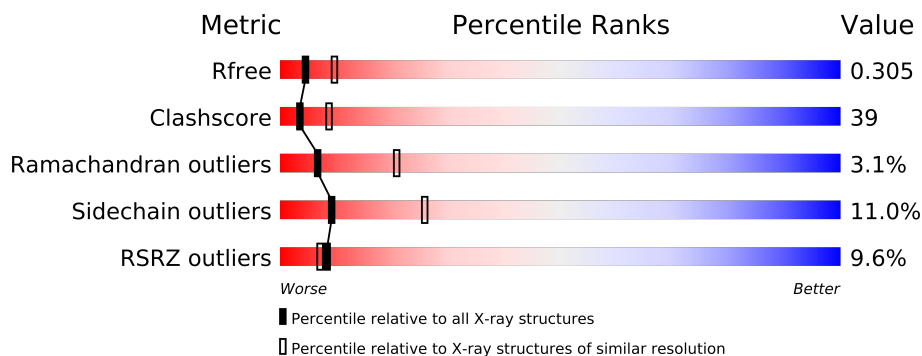
The following versions of software and data (see [references](#)) were used in the production of this report:

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


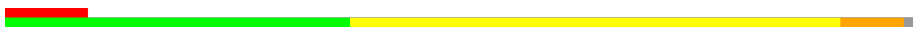
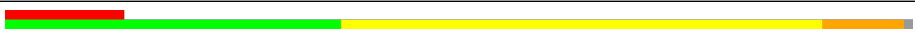
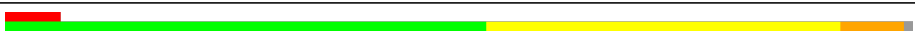
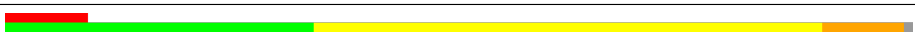

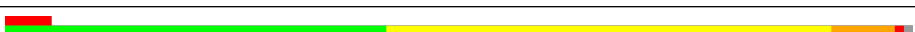

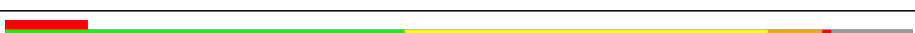
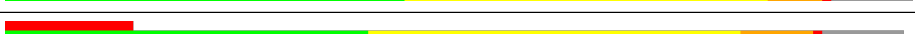


The reported resolution of this entry is 2.80 Å.

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))
$R_{free}$	66092	1799 (2.80-2.80)
Clashscore	79885	2295 (2.80-2.80)
Ramachandran outliers	78287	2252 (2.80-2.80)
Sidechain outliers	78261	2254 (2.80-2.80)
RSRZ outliers	66119	1802 (2.80-2.80)

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  $\geq 3$ , 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	A	175	
1	B	175	
1	C	175	
1	D	175	
1	V	175	
1	X	175	
1	Y	175	
1	Z	175	
2	E	449	
2	F	449	
2	G	449	
2	I	449	

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 23636 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 protein called HEAT SHOCK LOCUS HSLV.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	C	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	D	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	V	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	X	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	A	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	B	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	Z	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			
1	Y	174	Total	C	N	O	S	0	0	0
			1328	834	237	253	4			

- Molecule 2 is a protein called HEAT SHOCK LOCUS HSLU.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	408	Total	C	N	O	S	0	0	0
			3226	2014	577	625	10			
2	F	408	Total	C	N	O	S	0	0	0
			3226	2014	577	625	10			
2	G	408	Total	C	N	O	S	0	0	0
			3226	2014	577	625	10			
2	I	408	Total	C	N	O	S	0	0	0
			3226	2014	577	625	10			

There are 28 discrepancies between the modelled and reference sequences:

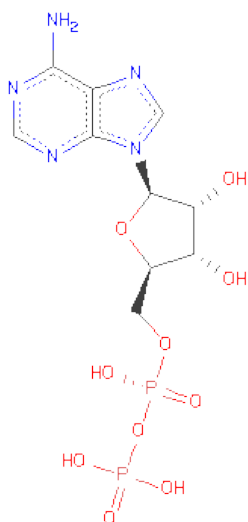
Chain	Residue	Modelled	Actual	Comment	Reference
E	-5	HIS	-	EXPRESSION TAG	UNP P0A6H5

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-4	HIS	-	EXPRESSION TAG	UNP P0A6H5
E	-3	HIS	-	EXPRESSION TAG	UNP P0A6H5
E	-2	HIS	-	EXPRESSION TAG	UNP P0A6H5
E	-1	HIS	-	EXPRESSION TAG	UNP P0A6H5
E	0	HIS	-	EXPRESSION TAG	UNP P0A6H5
E	1	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	-5	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	-4	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	-3	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	-2	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	-1	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	0	HIS	-	EXPRESSION TAG	UNP P0A6H5
F	1	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	-5	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	-4	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	-3	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	-2	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	-1	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	0	HIS	-	EXPRESSION TAG	UNP P0A6H5
G	1	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	-5	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	-4	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	-3	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	-2	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	-1	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	0	HIS	-	EXPRESSION TAG	UNP P0A6H5
I	1	HIS	-	EXPRESSION TAG	UNP P0A6H5

- Molecule 3 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).

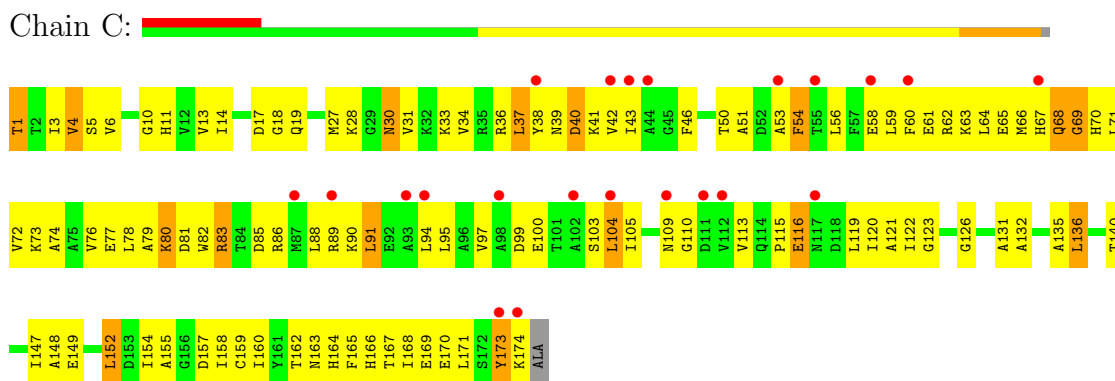


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	E	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
3	F	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
3	G	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
3	I	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

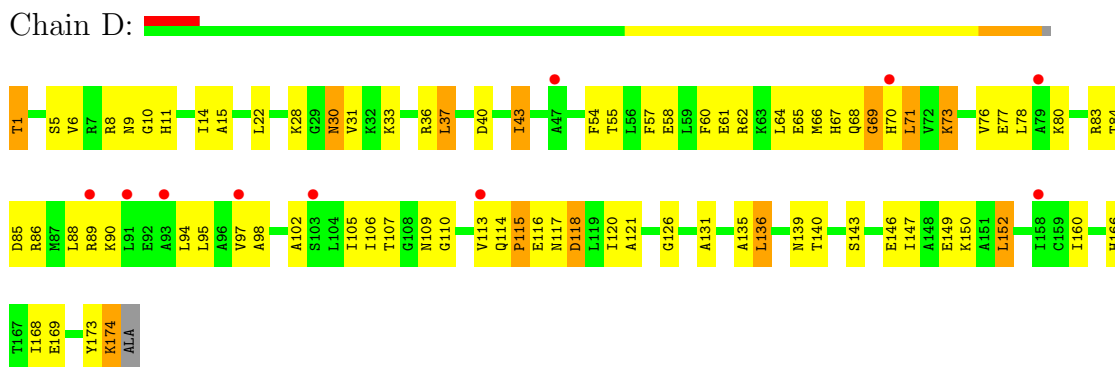
### 3 Residue-property plots

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.

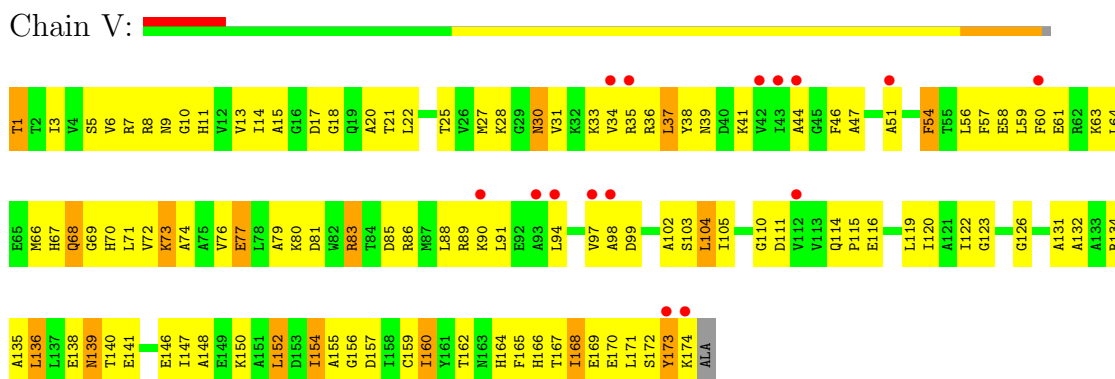
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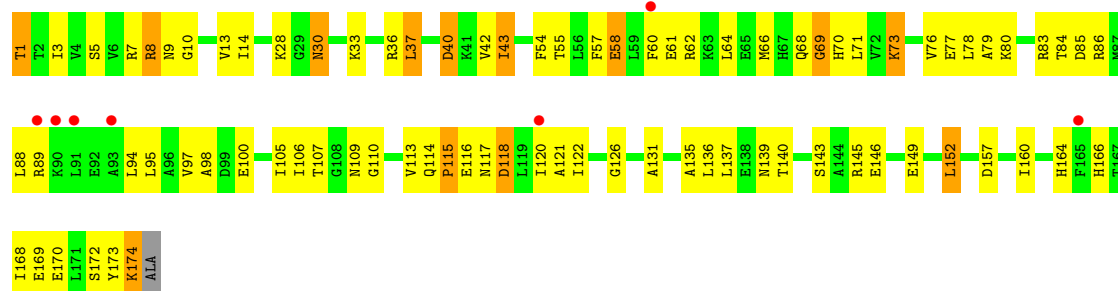
#### • Molecule 1: HEAT SHOCK LOCUS HSLV



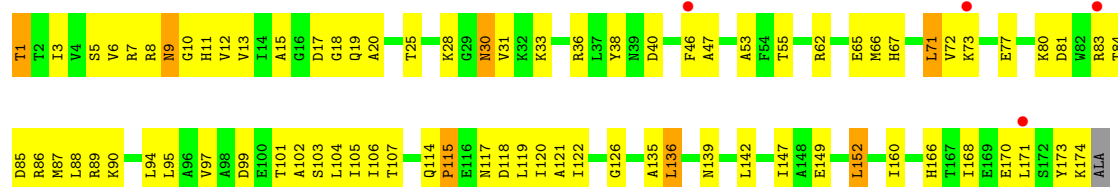
#### • Molecule 1: HEAT SHOCK LOCUS HSLV



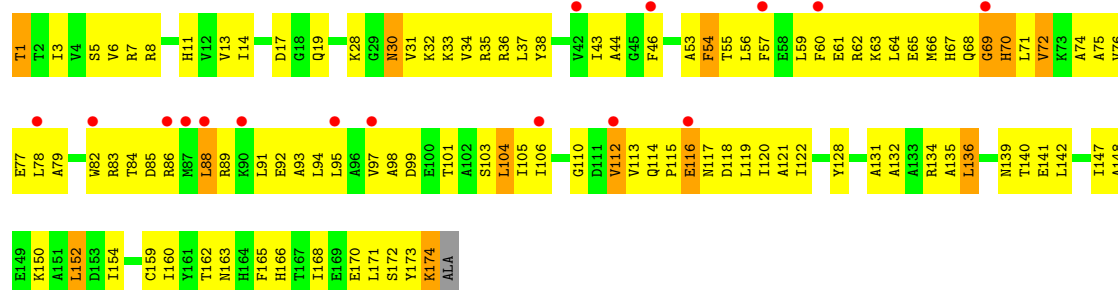
- Molecule 1: HEAT SHOCK LOCUS HSLV

Chain X: 

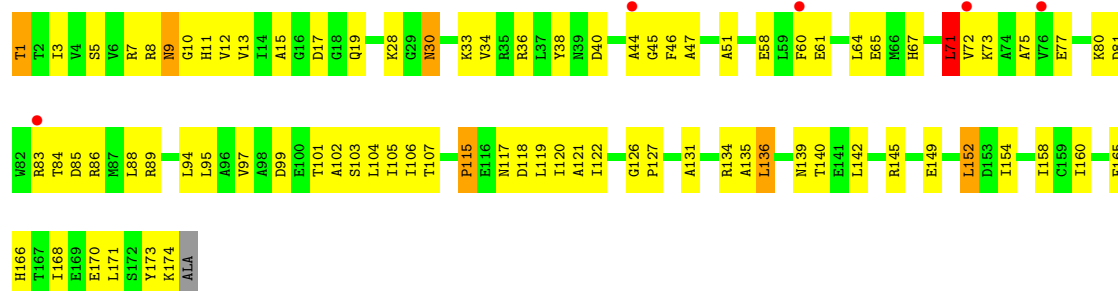
- Molecule 1: HEAT SHOCK LOCUS HSLV

Chain A: 

- Molecule 1: HEAT SHOCK LOCUS HSLV

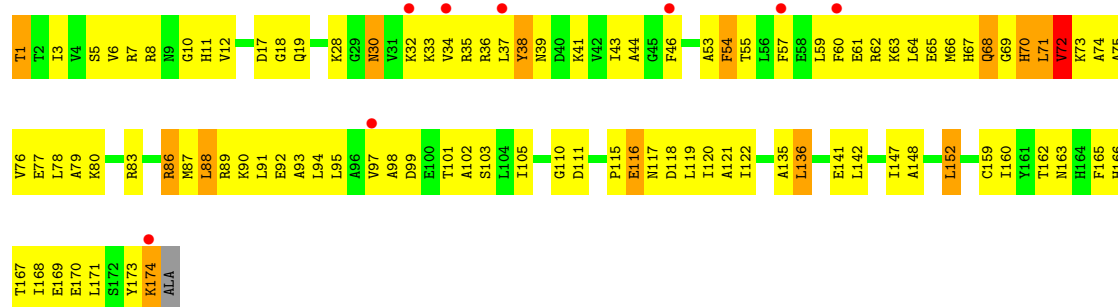
Chain B: 

- Molecule 1: HEAT SHOCK LOCUS HSLV

Chain Z: 

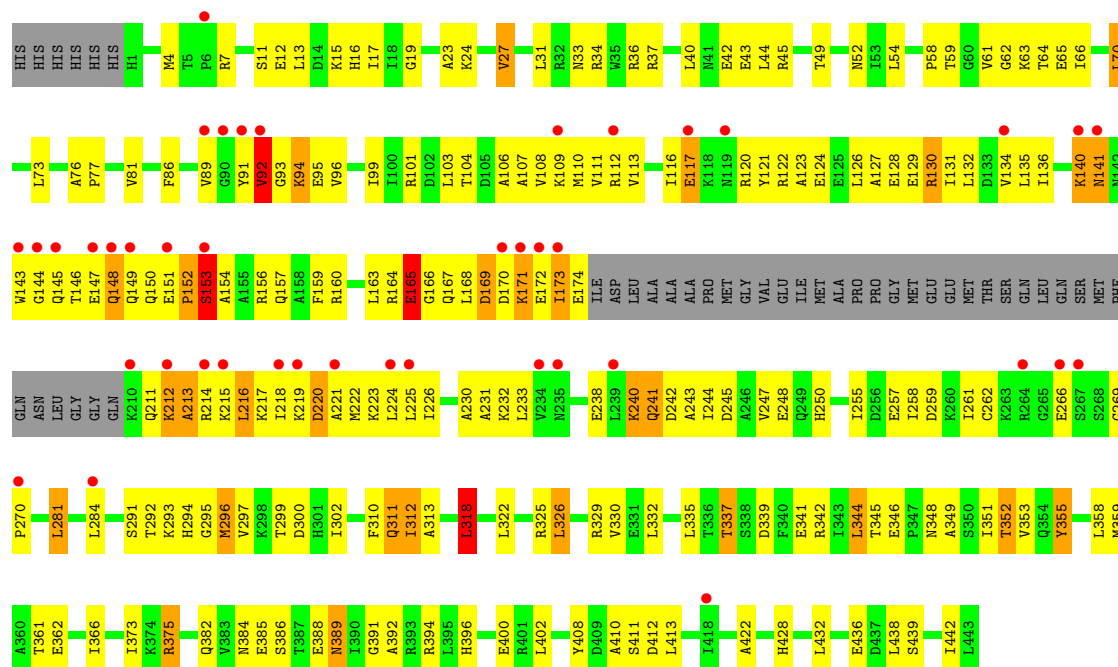
- Molecule 1: HEAT SHOCK LOCUS HSLV

Chain Y: 



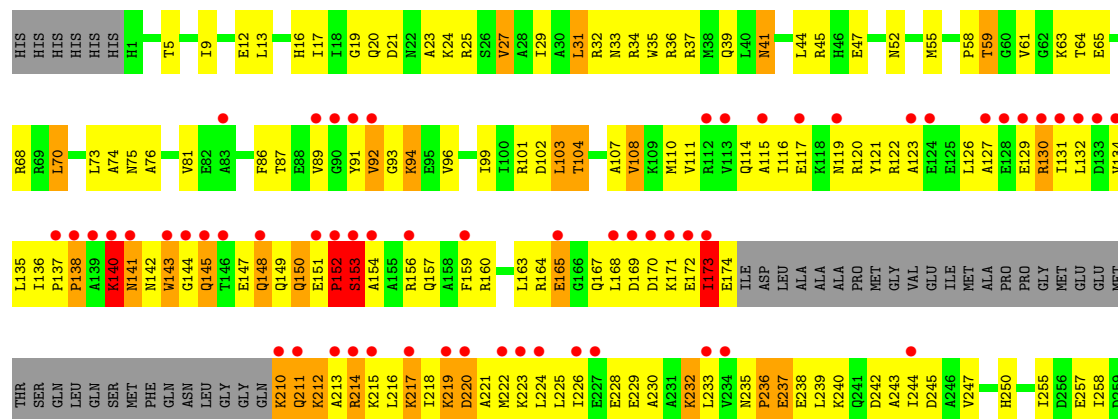
• Molecule 2: HEAT SHOCK LOCUS HSLU

Chain E:

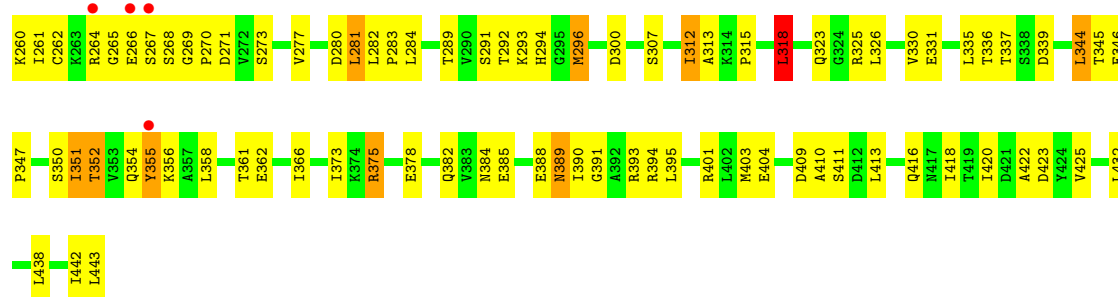


• Molecule 2: HEAT SHOCK LOCUS HSLU

Chain F:

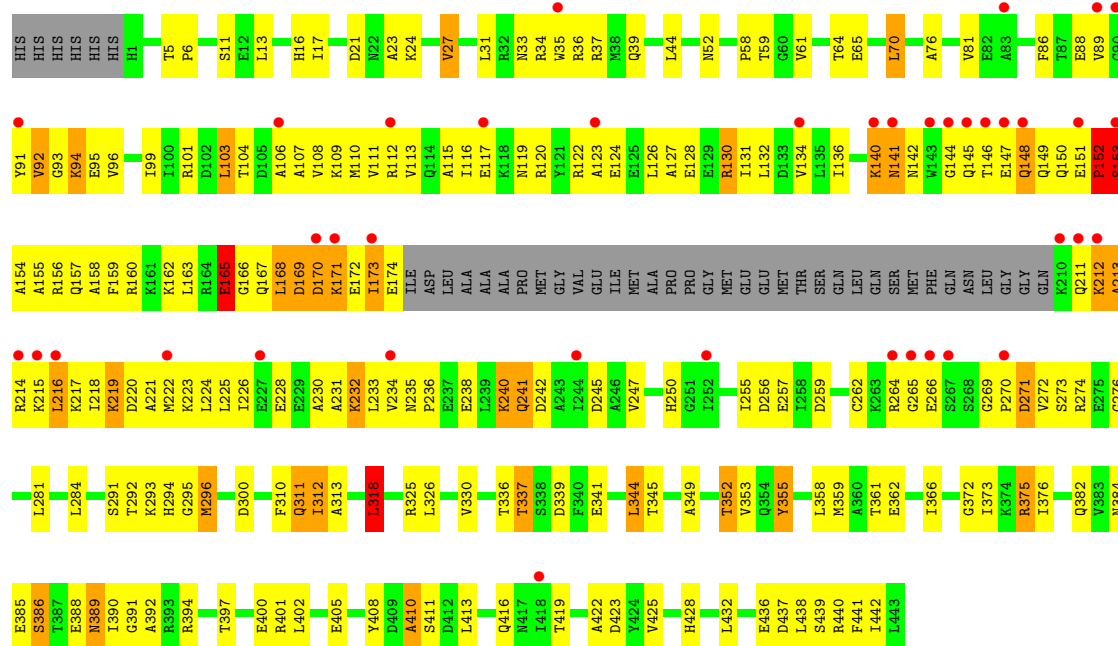






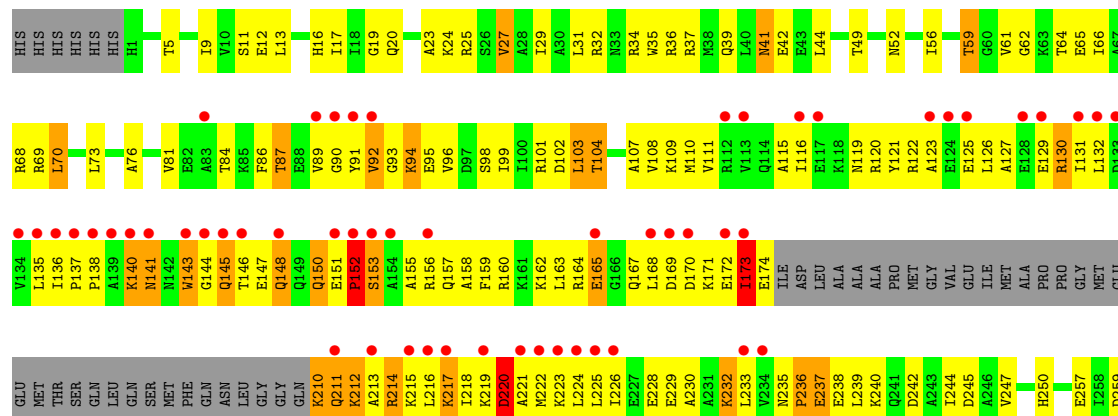
• Molecule 2: HEAT SHOCK LOCUS HSLU

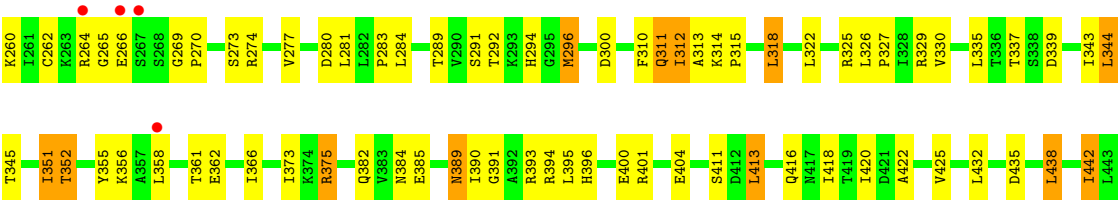
Chain G:



• Molecule 2: HEAT SHOCK LOCUS HSLU

Chain I:





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 3 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	172.02Å 172.02Å 276.57Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	29.62 – 2.80 29.62 – 2.80	Depositor EDS
% Data completeness (in resolution range)	92.5 (29.62-2.80) 92.5 (29.62-2.80)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.49 (at 2.80Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, $R_{free}$	0.261 , 0.309 0.257 , 0.305	Depositor DCC
$R_{free}$ test set	10933 reflections (11.26%)	DCC
Wilson B-factor (Å <sup>2</sup> )	67.6	Xtriage
Anisotropy	0.378	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 32.7	EDS
Estimated twinning fraction	0.499 for -h,-k,l	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtriage
Outliers	3 of 119676 reflections (0.003%)	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	23636	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	68.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 60.98 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 1.4024e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup>Intensities 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: ADP

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	0.46	0/1345	0.72	0/1817
1	B	0.41	0/1345	0.66	0/1817
1	C	0.44	0/1345	0.66	0/1817
1	D	0.37	0/1345	0.65	0/1817
1	V	0.45	0/1345	0.64	0/1817
1	X	0.36	0/1345	0.64	0/1817
1	Y	0.41	0/1345	0.67	0/1817
1	Z	0.46	0/1345	0.72	0/1817
2	E	0.42	0/3266	0.69	3/4400 (0.1%)
2	F	0.45	1/3266 (0.0%)	0.69	2/4400 (0.0%)
2	G	0.43	1/3266 (0.0%)	0.69	4/4400 (0.1%)
2	I	0.42	0/3266	0.68	2/4400 (0.0%)
All	All	0.43	2/23824 (0.0%)	0.68	11/32136 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	219	LYS	C-N	5.58	1.46	1.34
2	F	152	PRO	CA-C	-5.43	1.42	1.52

The worst 5 of 11 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	318	LEU	CA-CB-CG	6.46	130.16	115.30
2	I	220	ASP	CB-CA-C	-6.40	97.59	110.40
2	G	318	LEU	CA-CB-CG	6.35	129.90	115.30
2	G	152	PRO	C-N-CA	-5.99	106.72	121.70
2	F	152	PRO	CA-N-CD	-5.91	103.23	111.50

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	A	1328	0	1348	96	0
1	B	1328	0	1348	126	0
1	C	1328	0	1348	140	0
1	D	1328	0	1348	87	0
1	V	1328	0	1348	143	0
1	X	1328	0	1348	98	0
1	Y	1328	0	1348	121	0
1	Z	1328	0	1348	101	0
2	E	3226	0	3294	260	1
2	F	3226	0	3293	265	1
2	G	3226	0	3294	280	0
2	I	3226	0	3293	303	0
3	E	27	0	12	3	0
3	F	27	0	12	3	0
3	G	27	0	12	3	0
3	I	27	0	12	4	0
All	All	23636	0	24006	1871	1

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 39.

The worst 5 of 1871 close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:E:152:PRO:O	2:E:154:ALA:CA	1.83	1.25
2:E:152:PRO:C	2:E:154:ALA:H	1.27	1.15
2:E:152:PRO:C	2:E:154:ALA:N	1.80	1.12
1:B:135:ALA:HB1	1:Z:136:LEU:HD13	1.21	1.12
2:F:216:LEU:HG	2:F:221:ALA:HB2	1.25	1.11

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	Distance(Å)	Clash(Å)
2:E:7:ARG:NH2	2:F:409:ASP:OD2[2_665]	2.06	0.14

## 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	
1	A	172/175 (98%)	151 (88%)	17 (10%)	4 (2%)	10	31
1	B	172/175 (98%)	138 (80%)	27 (16%)	7 (4%)	4	14
1	C	172/175 (98%)	140 (81%)	27 (16%)	5 (3%)	7	23
1	D	172/175 (98%)	146 (85%)	23 (13%)	3 (2%)	14	42
1	V	172/175 (98%)	144 (84%)	25 (14%)	3 (2%)	14	42
1	X	172/175 (98%)	148 (86%)	20 (12%)	4 (2%)	10	31
1	Y	172/175 (98%)	136 (79%)	26 (15%)	10 (6%)	3	7
1	Z	172/175 (98%)	150 (87%)	18 (10%)	4 (2%)	10	31
2	E	404/449 (90%)	349 (86%)	46 (11%)	9 (2%)	10	32
2	F	404/449 (90%)	343 (85%)	45 (11%)	16 (4%)	5	14
2	G	404/449 (90%)	344 (85%)	45 (11%)	15 (4%)	5	16
2	I	404/449 (90%)	347 (86%)	43 (11%)	14 (4%)	6	18
All	All	2992/3196 (94%)	2536 (85%)	362 (12%)	94 (3%)	7	21

5 of 94 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	116	GLU
1	V	116	GLU
1	Y	54	PHE
1	Y	68	GLN
1	Y	71	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	
1	A	136/136 (100%)	129 (95%)	7 (5%)	33	69
1	B	136/136 (100%)	125 (92%)	11 (8%)	17	43
1	C	136/136 (100%)	121 (89%)	15 (11%)	9	26
1	D	136/136 (100%)	124 (91%)	12 (9%)	14	38
1	V	136/136 (100%)	119 (88%)	17 (12%)	7	19
1	X	136/136 (100%)	124 (91%)	12 (9%)	14	38
1	Y	136/136 (100%)	127 (93%)	9 (7%)	24	56
1	Z	136/136 (100%)	128 (94%)	8 (6%)	28	62
2	E	350/383 (91%)	308 (88%)	42 (12%)	7	21
2	F	350/383 (91%)	301 (86%)	49 (14%)	5	15
2	G	350/383 (91%)	307 (88%)	43 (12%)	7	20
2	I	350/383 (91%)	301 (86%)	49 (14%)	5	15
All	All	2488/2620 (95%)	2214 (89%)	274 (11%)	9	26

5 of 274 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	E	337	THR
2	F	152	PRO
2	I	232	LYS
2	E	355	TYR
2	F	68	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 92 such sidechains are listed below:

Mol	Chain	Res	Type
2	E	348	ASN
2	F	141	ASN
2	I	150	GLN
2	E	382	GLN
2	E	428	HIS

### 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 ⓘ

4 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$
3	ADP	E	450	-	29,29,29	1.54	8 (27%)	45,45,45	1.55	6 (13%)
3	ADP	F	1450	-	29,29,29	1.52	5 (17%)	45,45,45	1.56	6 (13%)
3	ADP	G	2450	-	29,29,29	1.56	8 (27%)	45,45,45	1.59	7 (15%)
3	ADP	I	3450	-	29,29,29	1.51	6 (20%)	45,45,45	1.58	6 (13%)

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	ADP	E	450	-	-	0/16/32/32	0/1/3/3
3	ADP	F	1450	-	-	0/16/32/32	0/1/3/3
3	ADP	G	2450	-	-	0/16/32/32	0/1/3/3
3	ADP	I	3450	-	-	0/16/32/32	0/1/3/3



The worst 5 of 27 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	2450	ADP	C8-N7	-3.76	1.27	1.34
3	E	450	ADP	C8-N7	-3.70	1.27	1.34
3	F	1450	ADP	C8-N7	-3.69	1.27	1.34
3	I	3450	ADP	C8-N7	-3.61	1.27	1.34
3	G	2450	ADP	C2'-C1'	2.72	1.57	1.53

The worst 5 of 25 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	I	3450	ADP	C4'-O4'-C1'	6.51	116.82	109.75
3	G	2450	ADP	C4'-O4'-C1'	6.40	116.70	109.75
3	E	450	ADP	C4'-O4'-C1'	6.29	116.58	109.75
3	F	1450	ADP	C4'-O4'-C1'	6.27	116.56	109.75
3	F	1450	ADP	N3-C2-N1	-4.59	124.87	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	174/175 (99%)	0.57	4 (2%) 57 58	30, 54, 89, 98	0
1	B	174/175 (99%)	0.69	16 (9%) 9 7	36, 68, 101, 102	0
1	C	174/175 (99%)	0.73	22 (12%) 4 3	54, 81, 100, 102	0
1	D	174/175 (99%)	0.57	10 (5%) 23 23	49, 71, 97, 100	0
1	V	174/175 (99%)	0.63	15 (8%) 11 9	54, 80, 98, 102	0
1	X	174/175 (99%)	0.51	7 (4%) 36 37	51, 70, 98, 101	0
1	Y	174/175 (99%)	0.62	8 (4%) 31 31	36, 68, 100, 102	0
1	Z	174/175 (99%)	0.55	5 (2%) 49 50	30, 55, 90, 97	0
2	E	408/449 (90%)	0.73	42 (10%) 7 6	32, 59, 102, 102	0
2	F	408/449 (90%)	1.01	63 (15%) 3 2	33, 61, 102, 102	0
2	G	408/449 (90%)	0.75	40 (9%) 8 6	32, 59, 102, 102	0
2	I	408/449 (90%)	0.96	59 (14%) 3 3	32, 60, 102, 102	0
All	All	3024/3196 (94%)	0.75	291 (9%) 8 7	30, 63, 102, 102	0

The worst 5 of 291 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	G	90	GLY	10.8
2	G	144	GLY	9.9
2	F	90	GLY	9.6
2	F	141	ASN	8.4
2	F	144	GLY	8.2

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	ADP	G	2450	27/27	0.26	0.99	38,46,58,59	0
3	ADP	F	1450	27/27	0.26	0.89	47,51,56,58	0
3	ADP	E	450	27/27	0.25	0.64	40,46,58,58	0
3	ADP	I	3450	27/27	0.23	0.37	45,49,54,55	0

### 6.5 Other polymers ⓘ

There are no such residues in this entry.