wwPDB X-ray Structure Validation Summary Report (i)

May 29, 2024 – 10:11 AM JST

PDB ID	:	8XUD
Title	:	Crystal structure of adaptor NlpI in complex with endopeptidase MepS and PDZ-protease Prc
Authors	:	Tzeng, S.R.; Wang, S.; Huang, C.H.
Deposited on	:	2024-01-12
Resolution	:	3.49 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 (i)) were used in the production of this report:

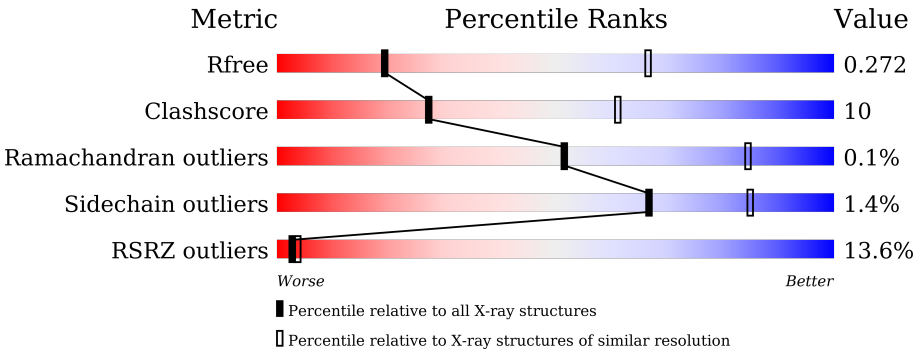
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

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 3.49 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	1659 (3.60-3.40)
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RSRZ outliers	127900	1559 (3.60-3.40)

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	297	75% 13% 11%
1	B	297	% 74% 15% 11%
2	C	688	24% 66% 27% • 6%
2	D	688	20% 67% 27% • 5%
3	I	168	3% 61% 23% • 15%
3	J	168	2% 65% 21% • 12%

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Mol	Chain	Length	Quality of chain
3	K	168	2% 62% 20% 17%
3	L	168	4% 76% 12% 12%
4	M	8	100%
5	N	9	100%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 19377 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 Lipoprotein NlpI.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	264	Total	C	N	O	S	0	0	0
			2141	1365	356	417	3			
1	B	264	Total	C	N	O	S	0	0	0
			2141	1365	356	417	3			

There are 44 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	MET	-	initiating methionine	UNP P0AFB1
A	-1	GLY	-	expression tag	UNP P0AFB1
A	0	SER	-	expression tag	UNP P0AFB1
A	1	SER	-	expression tag	UNP P0AFB1
A	2	HIS	-	expression tag	UNP P0AFB1
A	3	HIS	-	expression tag	UNP P0AFB1
A	4	HIS	-	expression tag	UNP P0AFB1
A	5	HIS	-	expression tag	UNP P0AFB1
A	6	HIS	-	expression tag	UNP P0AFB1
A	7	HIS	-	expression tag	UNP P0AFB1
A	8	SER	-	expression tag	UNP P0AFB1
A	9	SER	-	expression tag	UNP P0AFB1
A	10	GLY	-	expression tag	UNP P0AFB1
A	11	GLU	-	expression tag	UNP P0AFB1
A	12	ASN	-	expression tag	UNP P0AFB1
A	13	LEU	-	expression tag	UNP P0AFB1
A	14	TYR	-	expression tag	UNP P0AFB1
A	15	PHE	-	expression tag	UNP P0AFB1
A	16	GLN	-	expression tag	UNP P0AFB1
A	17	GLY	-	expression tag	UNP P0AFB1
A	18	HIS	-	expression tag	UNP P0AFB1
A	19	MET	-	expression tag	UNP P0AFB1
B	-2	MET	-	initiating methionine	UNP P0AFB1
B	-1	GLY	-	expression tag	UNP P0AFB1
B	0	SER	-	expression tag	UNP P0AFB1

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1	SER	-	expression tag	UNP P0AFB1
B	2	HIS	-	expression tag	UNP P0AFB1
B	3	HIS	-	expression tag	UNP P0AFB1
B	4	HIS	-	expression tag	UNP P0AFB1
B	5	HIS	-	expression tag	UNP P0AFB1
B	6	HIS	-	expression tag	UNP P0AFB1
B	7	HIS	-	expression tag	UNP P0AFB1
B	8	SER	-	expression tag	UNP P0AFB1
B	9	SER	-	expression tag	UNP P0AFB1
B	10	GLY	-	expression tag	UNP P0AFB1
B	11	GLU	-	expression tag	UNP P0AFB1
B	12	ASN	-	expression tag	UNP P0AFB1
B	13	LEU	-	expression tag	UNP P0AFB1
B	14	TYR	-	expression tag	UNP P0AFB1
B	15	PHE	-	expression tag	UNP P0AFB1
B	16	GLN	-	expression tag	UNP P0AFB1
B	17	GLY	-	expression tag	UNP P0AFB1
B	18	HIS	-	expression tag	UNP P0AFB1
B	19	MET	-	expression tag	UNP P0AFB1

- Molecule 2 is a protein called Tail-specific protease.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	647	Total	C	N	O	S	0	0	0
			5134	3230	896	996	12			
2	D	651	Total	C	N	O	S	0	0	0
			5162	3247	903	1000	12			

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	452	ALA	SER	engineered mutation	UNP P23865
C	477	ALA	LYS	engineered mutation	UNP P23865
C	683	HIS	-	expression tag	UNP P23865
C	684	HIS	-	expression tag	UNP P23865
C	685	HIS	-	expression tag	UNP P23865
C	686	HIS	-	expression tag	UNP P23865
C	687	HIS	-	expression tag	UNP P23865
C	688	HIS	-	expression tag	UNP P23865
D	452	ALA	SER	engineered mutation	UNP P23865
D	477	ALA	LYS	engineered mutation	UNP P23865
D	683	HIS	-	expression tag	UNP P23865

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Chain	Residue	Modelled	Actual	Comment	Reference
D	684	HIS	-	expression tag	UNP P23865
D	685	HIS	-	expression tag	UNP P23865
D	686	HIS	-	expression tag	UNP P23865
D	687	HIS	-	expression tag	UNP P23865
D	688	HIS	-	expression tag	UNP P23865

- Molecule 3 is a protein called Murein DD-endopeptidase MepS/Murein LD-carboxypeptidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	I	142	Total	C	N	O	S	0	0	0
			1137	702	215	216	4			
3	J	147	Total	C	N	O	S	0	0	0
			1190	734	232	220	4			
3	K	140	Total	C	N	O	S	0	0	0
			1120	693	210	213	4			
3	L	148	Total	C	N	O	S	0	0	0
			1197	738	233	222	4			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	1	MET	-	initiating methionine	UNP P0AFV4
I	163	HIS	-	expression tag	UNP P0AFV4
I	164	HIS	-	expression tag	UNP P0AFV4
I	165	HIS	-	expression tag	UNP P0AFV4
I	166	HIS	-	expression tag	UNP P0AFV4
I	167	HIS	-	expression tag	UNP P0AFV4
I	168	HIS	-	expression tag	UNP P0AFV4
J	1	MET	-	initiating methionine	UNP P0AFV4
J	163	HIS	-	expression tag	UNP P0AFV4
J	164	HIS	-	expression tag	UNP P0AFV4
J	165	HIS	-	expression tag	UNP P0AFV4
J	166	HIS	-	expression tag	UNP P0AFV4
J	167	HIS	-	expression tag	UNP P0AFV4
J	168	HIS	-	expression tag	UNP P0AFV4
K	1	MET	-	initiating methionine	UNP P0AFV4
K	163	HIS	-	expression tag	UNP P0AFV4
K	164	HIS	-	expression tag	UNP P0AFV4
K	165	HIS	-	expression tag	UNP P0AFV4
K	166	HIS	-	expression tag	UNP P0AFV4
K	167	HIS	-	expression tag	UNP P0AFV4
K	168	HIS	-	expression tag	UNP P0AFV4

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Chain	Residue	Modelled	Actual	Comment	Reference
L	1	MET	-	initiating methionine	UNP P0AFV4
L	163	HIS	-	expression tag	UNP P0AFV4
L	164	HIS	-	expression tag	UNP P0AFV4
L	165	HIS	-	expression tag	UNP P0AFV4
L	166	HIS	-	expression tag	UNP P0AFV4
L	167	HIS	-	expression tag	UNP P0AFV4
L	168	HIS	-	expression tag	UNP P0AFV4

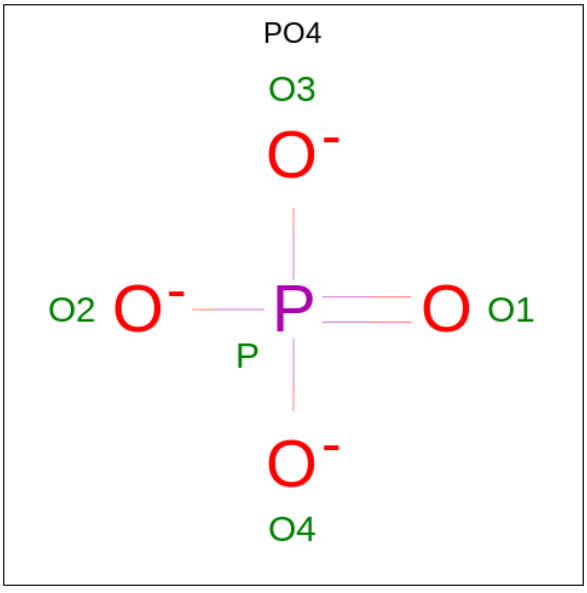
- Molecule 4 is a protein called Substrate peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	M	8	Total	C	N	O	0	0	0
			40	24	8	8			

- Molecule 5 is a protein called Substrate peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	N	9	Total	C	N	O	0	0	0
			45	27	9	9			

- Molecule 6 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	I	1	Total	O	P	0	0
			5	4	1		

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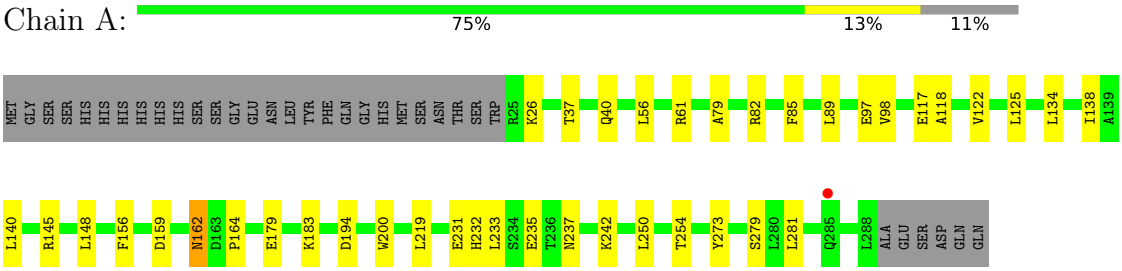
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	I	1	Total O P 5 4 1	0	0
6	I	1	Total O P 5 4 1	0	0
6	I	1	Total O P 5 4 1	0	0
6	J	1	Total O P 5 4 1	0	0
6	J	1	Total O P 5 4 1	0	0
6	J	1	Total O P 5 4 1	0	0
6	K	1	Total O P 5 4 1	0	0
6	K	1	Total O P 5 4 1	0	0
6	K	1	Total O P 5 4 1	0	0
6	K	1	Total O P 5 4 1	0	0
6	K	1	Total O P 5 4 1	0	0
6	L	1	Total O P 5 4 1	0	0
6	L	1	Total O P 5 4 1	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.

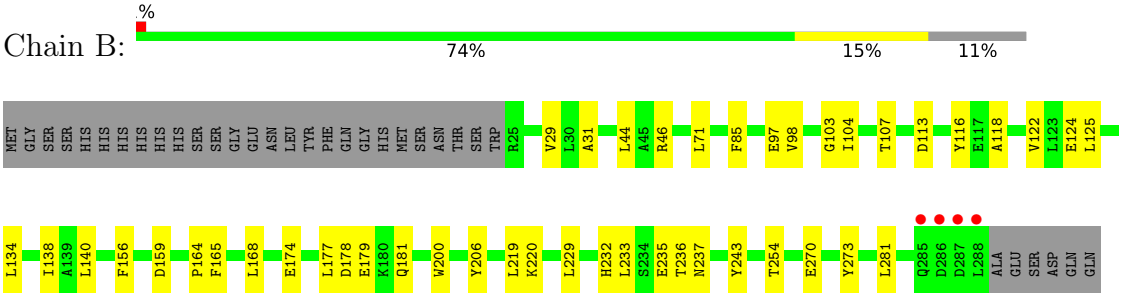
• Molecule 1: Lipoprotein NlpI

Chain A:



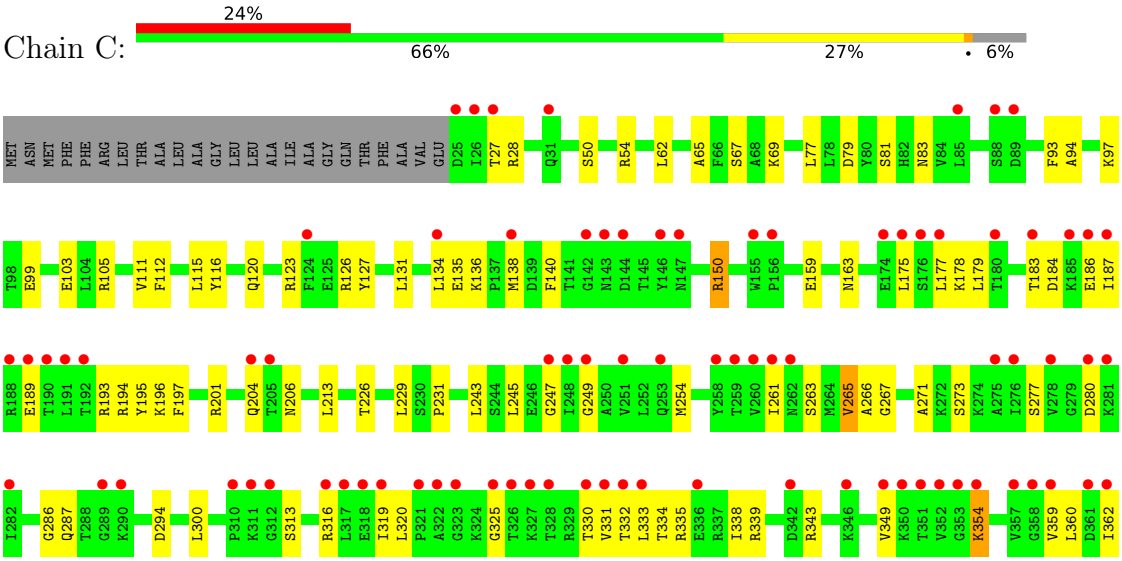
• Molecule 1: Lipoprotein NlpI

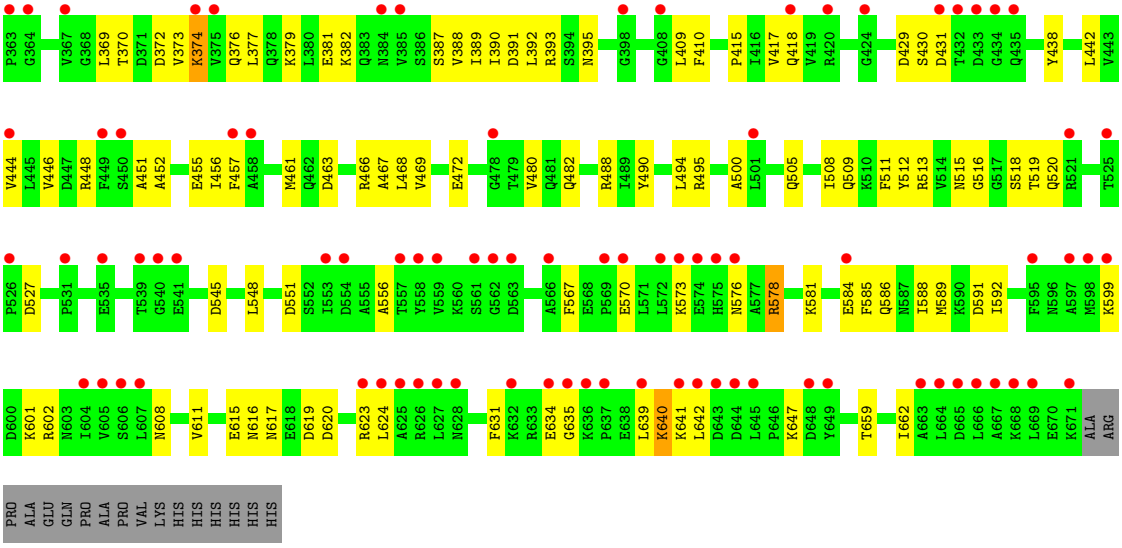
Chain B:



• Molecule 2: Tail-specific protease

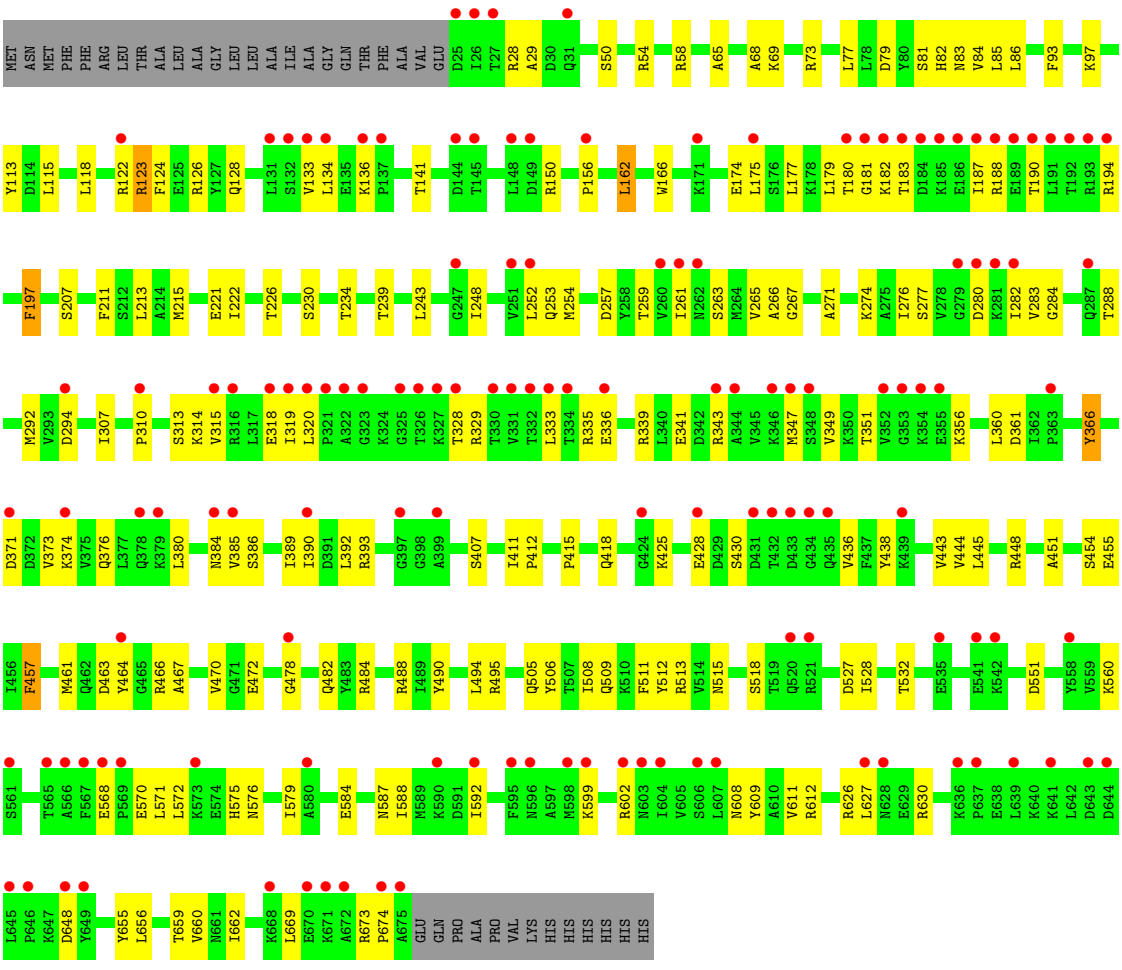
Chain C:





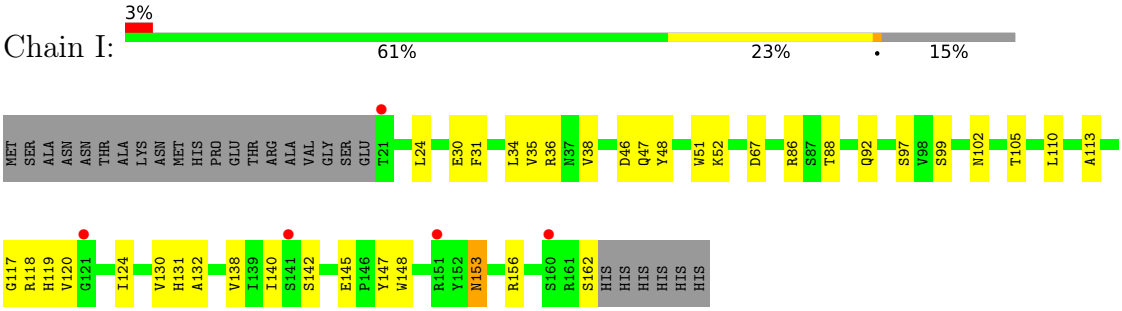
• Molecule 2: Tail-specific protease

Chain D:



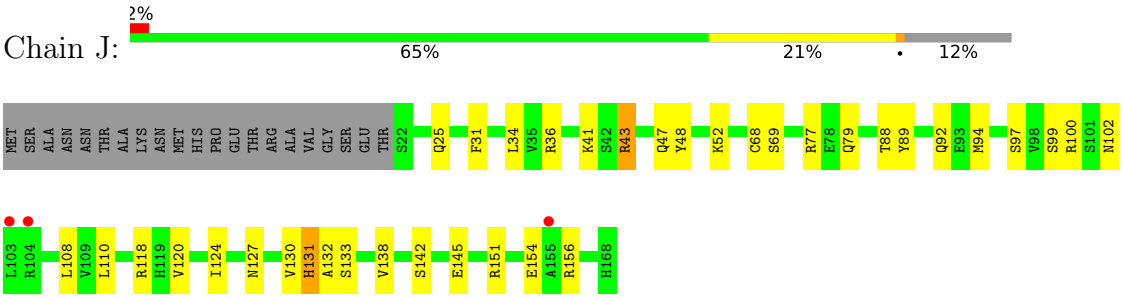
• Molecule 3: Murein DD-endopeptidase MepS/Murein LD-carboxypeptidase

Chain I:



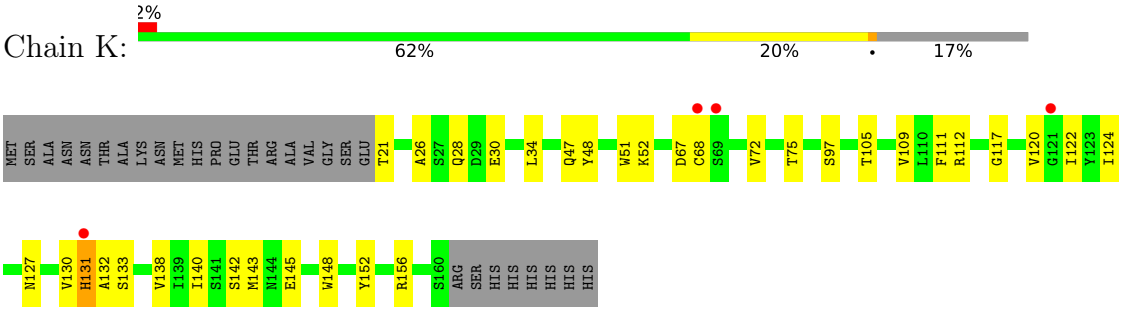
• Molecule 3: Murein DD-endopeptidase MepS/Murein LD-carboxypeptidase

Chain J:



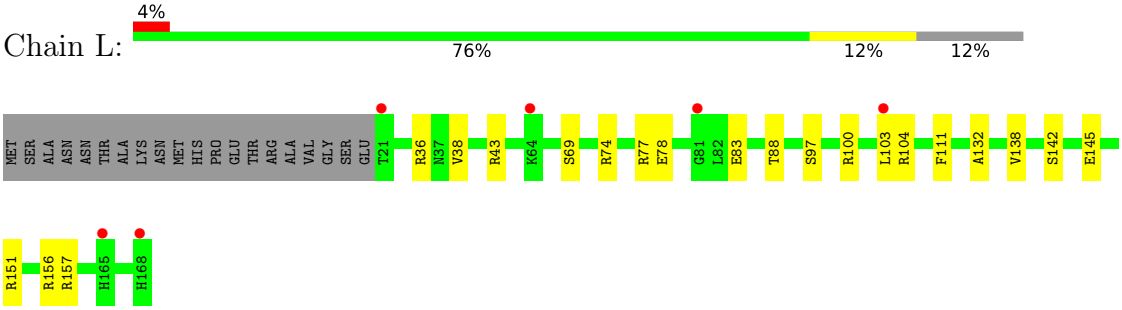
• Molecule 3: Murein DD-endopeptidase MepS/Murein LD-carboxypeptidase

Chain K:



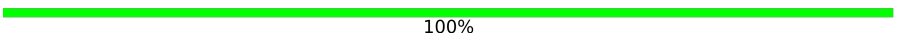
• Molecule 3: Murein DD-endopeptidase MepS/Murein LD-carboxypeptidase

Chain L:



• Molecule 4: Substrate peptide

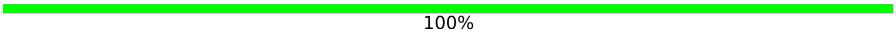
Chain M:



There are no outlier residues recorded for this chain.

• Molecule 5: Substrate peptide

Chain N:



There are no outlier residues recorded for this chain.

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α, β, γ	230.41Å 230.41Å 182.91Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.91 – 3.49 29.91 – 3.49	Depositor EDS
% Data completeness (in resolution range)	97.4 (29.91-3.49) 97.4 (29.91-3.49)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.15 (at 3.47Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.235 , 0.272 0.238 , 0.272	Depositor DCC
R_{free} test set	1994 reflections (3.26%)	wwPDB-VP
Wilson B-factor (Å^2)	118.6	Xtriage
Anisotropy	0.410	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 136.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	19377	wwPDB-VP
Average B, all atoms (Å^2)	182.0	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 41.78 % 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 2.2456e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[1] Intensities estimated from amplitudes.

[2] 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.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PO4

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	0.24	0/2185	0.43	0/2964
1	B	0.24	0/2185	0.43	0/2964
2	C	0.25	0/5221	0.53	0/7051
2	D	0.25	0/5250	0.51	0/7091
3	I	0.25	0/1156	0.55	0/1550
3	J	0.25	0/1215	0.55	0/1630
3	K	0.25	0/1139	0.55	0/1528
3	L	0.24	0/1222	0.57	0/1640
All	All	0.25	0/19573	0.51	0/26418

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 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	2141	0	2072	29	0
1	B	2141	0	2072	27	0
2	C	5134	0	5146	130	0
2	D	5162	0	5176	125	0
3	I	1137	0	1118	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	J	1190	0	1153	25	0
3	K	1120	0	1100	25	0
3	L	1197	0	1160	15	0
4	M	40	0	13	0	0
5	N	45	0	13	0	0
6	I	20	0	0	1	0
6	J	15	0	0	1	0
6	K	25	0	0	0	0
6	L	10	0	0	0	0
All	All	19377	0	19023	386	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 10.

The worst 5 of 386 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)
2:D:282:ILE:HD13	2:D:318:GLU:HB2	1.66	0.78
2:D:243:LEU:HG	2:D:366:TYR:CZ	2.22	0.73
3:J:69:SER:OG	3:J:88:THR:OG1	2.06	0.73
2:C:265:VAL:HG23	2:C:271:ALA:HB2	1.70	0.73
2:C:131:LEU:HD21	2:C:195:TYR:HB3	1.69	0.72

There are no symmetry-related clashes.

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	262/297 (88%)	255 (97%)	7 (3%)	0	100	100
1	B	262/297 (88%)	255 (97%)	7 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
2	C	645/688 (94%)	592 (92%)	52 (8%)	1 (0%)	47 81
2	D	649/688 (94%)	591 (91%)	56 (9%)	2 (0%)	41 75
3	I	140/168 (83%)	132 (94%)	8 (6%)	0	100 100
3	J	145/168 (86%)	135 (93%)	10 (7%)	0	100 100
3	K	138/168 (82%)	129 (94%)	9 (6%)	0	100 100
3	L	146/168 (87%)	136 (93%)	10 (7%)	0	100 100
All	All	2387/2642 (90%)	2225 (93%)	159 (7%)	3 (0%)	51 84

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	267	GLY
2	D	266	ALA
2	C	265	VAL

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	225/254 (89%)	222 (99%)	3 (1%)	69 86
1	B	225/254 (89%)	223 (99%)	2 (1%)	78 90
2	C	557/588 (95%)	547 (98%)	10 (2%)	59 81
2	D	559/588 (95%)	551 (99%)	8 (1%)	67 85
3	I	124/146 (85%)	122 (98%)	2 (2%)	62 83
3	J	129/146 (88%)	126 (98%)	3 (2%)	50 77
3	K	122/146 (84%)	121 (99%)	1 (1%)	81 91
3	L	130/146 (89%)	130 (100%)	0	100 100
All	All	2071/2268 (91%)	2042 (99%)	29 (1%)	67 85

5 of 29 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	C	640	LYS
3	J	131	HIS
2	D	197	PHE
3	I	153	ASN
2	D	162	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
2	D	418	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

14 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	$\#\|Z\| > 2$
6	PO4	K	205	-	4,4,4	0.92	0	6,6,6	0.43	0
6	PO4	L	202	-	4,4,4	0.92	0	6,6,6	0.44	0
6	PO4	I	202	-	4,4,4	0.91	0	6,6,6	0.46	0
6	PO4	K	203	-	4,4,4	0.92	0	6,6,6	0.43	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	PO4	K	204	-	4,4,4	0.91	0	6,6,6	0.43	0
6	PO4	J	203	-	4,4,4	0.92	0	6,6,6	0.43	0
6	PO4	L	201	-	4,4,4	0.93	0	6,6,6	0.46	0
6	PO4	K	202	-	4,4,4	0.92	0	6,6,6	0.43	0
6	PO4	I	201	-	4,4,4	0.94	0	6,6,6	0.41	0
6	PO4	K	201	-	4,4,4	0.92	0	6,6,6	0.42	0
6	PO4	J	202	-	4,4,4	0.92	0	6,6,6	0.43	0
6	PO4	I	203	-	4,4,4	0.91	0	6,6,6	0.47	0
6	PO4	J	201	-	4,4,4	0.92	0	6,6,6	0.39	0
6	PO4	I	204	-	4,4,4	0.92	0	6,6,6	0.43	0

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.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	I	201	PO4	1	0
6	J	201	PO4	1	0

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

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^{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>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	264/297 (88%)	0.03	1 (0%) 92 90	75, 100, 148, 257	0
1	B	264/297 (88%)	-0.00	4 (1%) 73 68	75, 102, 153, 250	0
2	C	647/688 (94%)	1.17	167 (25%) 0 0	116, 237, 331, 402	0
2	D	651/688 (94%)	1.07	136 (20%) 1 1	117, 235, 329, 487	0
3	I	142/168 (84%)	0.38	5 (3%) 44 39	90, 124, 178, 230	0
3	J	147/168 (87%)	0.04	3 (2%) 65 60	102, 136, 188, 303	0
3	K	140/168 (83%)	0.25	4 (2%) 51 45	90, 117, 170, 229	0
3	L	148/168 (88%)	0.14	6 (4%) 37 33	89, 145, 188, 271	0
4	M	0/8	-	-	-	-
5	N	0/9	-	-	-	-
All	All	2403/2659 (90%)	0.66	326 (13%) 3 4	75, 165, 311, 487	0

The worst 5 of 326 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	358	GLY	14.8
2	D	131	LEU	10.5
2	D	323	GLY	10.4
2	D	432	THR	9.3
2	C	607	LEU	9.1

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 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	B-factors(Å^2)	Q<0.9
6	PO4	K	201	5/5	0.69	0.25	175,185,221,227	0
6	PO4	K	204	5/5	0.75	0.25	182,187,222,240	0
6	PO4	I	202	5/5	0.79	0.22	164,164,192,200	0
6	PO4	K	203	5/5	0.84	0.20	165,177,211,226	0
6	PO4	I	201	5/5	0.85	0.23	195,204,212,215	0
6	PO4	J	203	5/5	0.86	0.21	162,199,226,242	0
6	PO4	I	203	5/5	0.86	0.25	120,169,174,175	0
6	PO4	I	204	5/5	0.88	0.50	176,180,209,227	0
6	PO4	L	202	5/5	0.88	0.28	136,166,191,204	0
6	PO4	K	202	5/5	0.90	0.17	131,149,177,193	0
6	PO4	J	202	5/5	0.91	0.19	143,144,153,162	0
6	PO4	L	201	5/5	0.92	0.19	122,157,181,208	0
6	PO4	K	205	5/5	0.93	0.17	121,138,170,188	0
6	PO4	J	201	5/5	0.97	0.25	123,127,178,192	0

6.5 Other polymers (i)

There are no such residues in this entry.