



wwPDB EM Validation Summary Report ⓘ

Nov 19, 2022 – 07:53 AM EST

PDB ID : 7LFH
EMDB ID : EMD-23302
Title : Cryo-EM structure of NLRP3 double-ring cage, 6-fold (12-mer)
Authors : Andreeva, L.; Rawson, S.; Wu, H.
Deposited on : 2021-01-17
Resolution : 4.20 Å (reported)
Based on initial model : 6NPY

This is a wwPDB EM 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/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

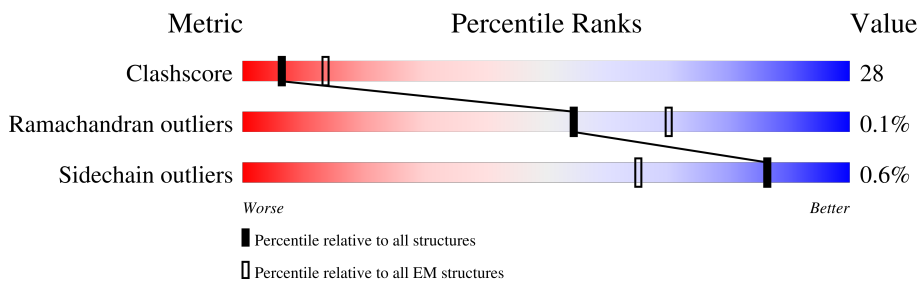
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1037	
1	B	1037	
1	C	1037	
1	D	1037	
1	E	1037	
1	F	1037	
1	G	1037	
1	H	1037	

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Mol	Chain	Length	Quality of chain
1	I	1037	
1	J	1037	
1	K	1037	
1	L	1037	

2 Entry composition i

There is only 1 type of molecule in this entry. The entry contains 76884 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 NACHT, LRR and PYD domains-containing protein 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	806	6407	4099	1089	1166	53	0	0
1	B	806	6407	4099	1089	1166	53	0	0
1	C	806	6407	4099	1089	1166	53	0	0
1	D	806	6407	4099	1089	1166	53	0	0
1	E	806	6407	4099	1089	1166	53	0	0
1	F	806	6407	4099	1089	1166	53	0	0
1	G	806	6407	4099	1089	1166	53	0	0
1	H	806	6407	4099	1089	1166	53	0	0
1	I	806	6407	4099	1089	1166	53	0	0
1	J	806	6407	4099	1089	1166	53	0	0
1	K	806	6407	4099	1089	1166	53	0	0
1	L	806	6407	4099	1089	1166	53	0	0

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP Q8R4B8
A	-2	ARG	-	expression tag	UNP Q8R4B8
A	-1	SER	-	expression tag	UNP Q8R4B8
A	0	ALA	-	expression tag	UNP Q8R4B8
B	-3	GLY	-	expression tag	UNP Q8R4B8
B	-2	ARG	-	expression tag	UNP Q8R4B8

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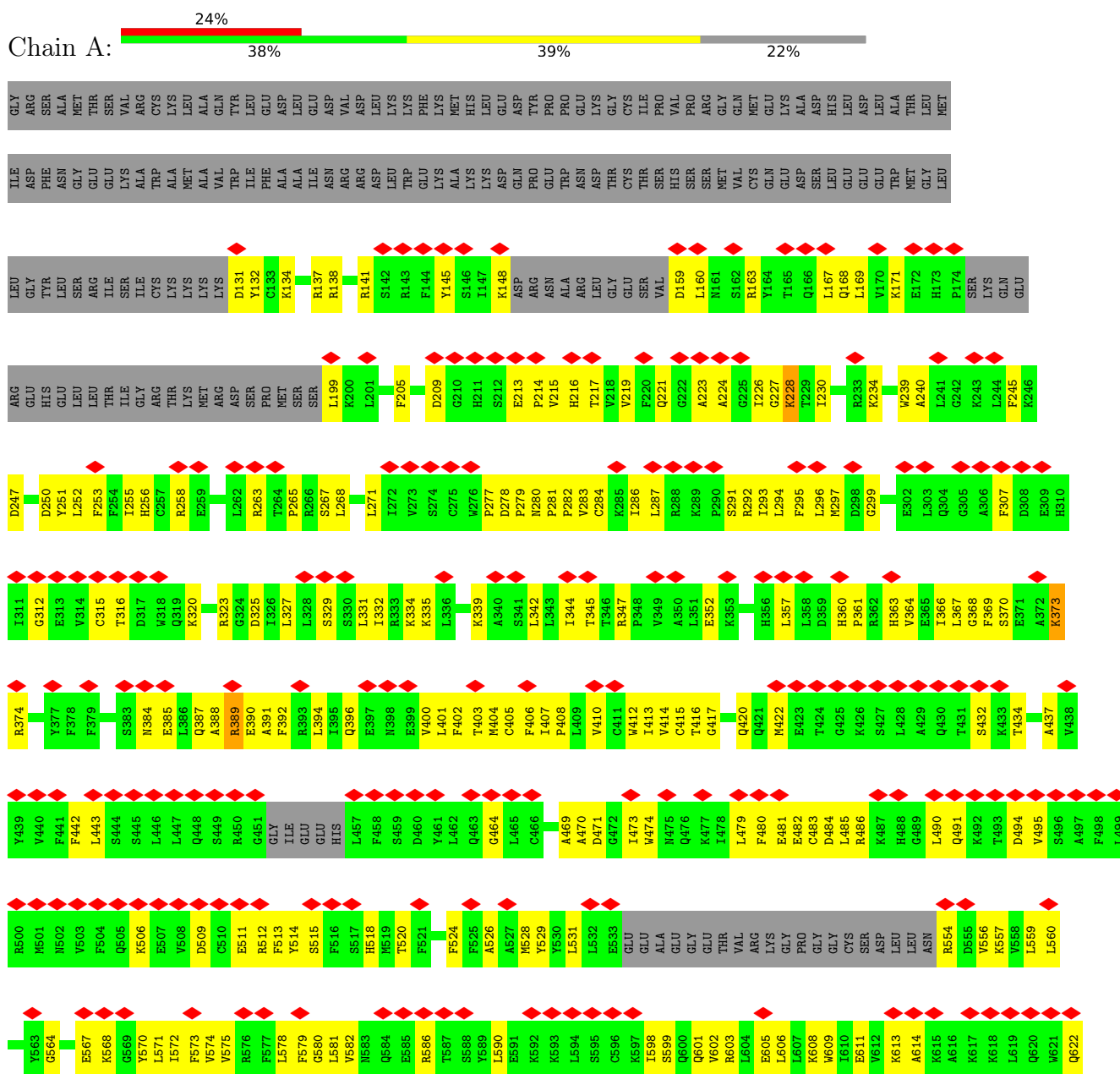
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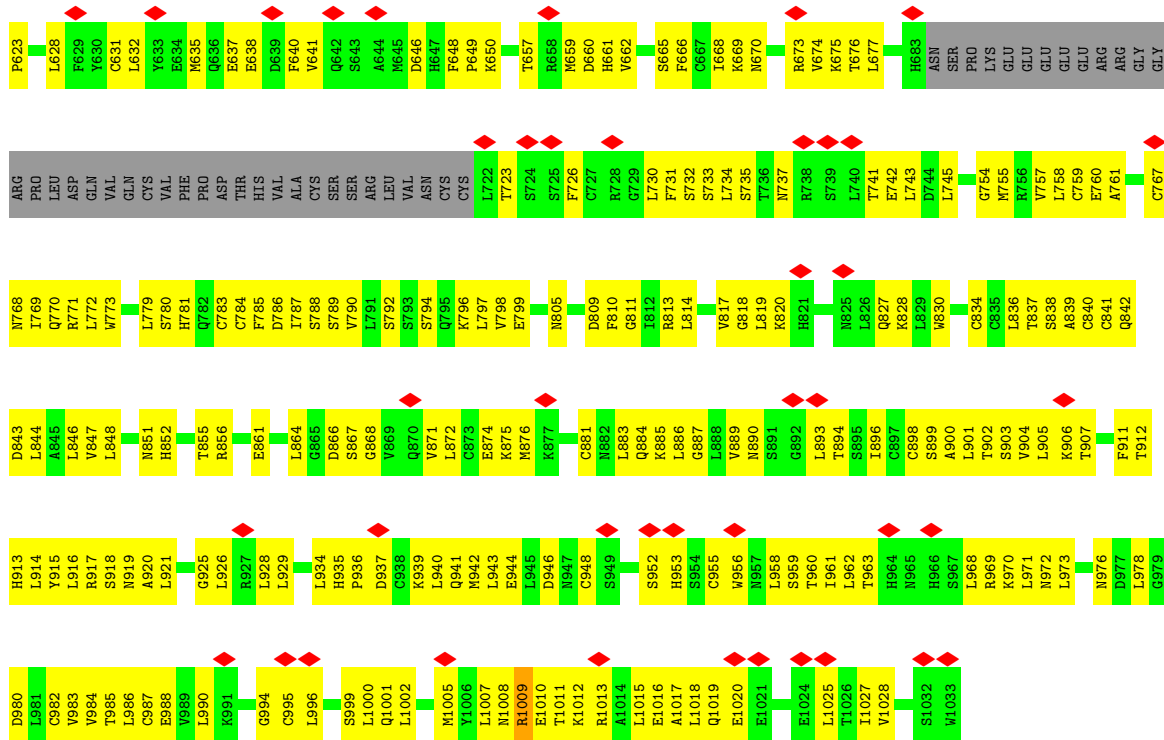
Chain	Residue	Modelled	Actual	Comment	Reference
B	-1	SER	-	expression tag	UNP Q8R4B8
B	0	ALA	-	expression tag	UNP Q8R4B8
C	-3	GLY	-	expression tag	UNP Q8R4B8
C	-2	ARG	-	expression tag	UNP Q8R4B8
C	-1	SER	-	expression tag	UNP Q8R4B8
C	0	ALA	-	expression tag	UNP Q8R4B8
D	-3	GLY	-	expression tag	UNP Q8R4B8
D	-2	ARG	-	expression tag	UNP Q8R4B8
D	-1	SER	-	expression tag	UNP Q8R4B8
D	0	ALA	-	expression tag	UNP Q8R4B8
E	-3	GLY	-	expression tag	UNP Q8R4B8
E	-2	ARG	-	expression tag	UNP Q8R4B8
E	-1	SER	-	expression tag	UNP Q8R4B8
E	0	ALA	-	expression tag	UNP Q8R4B8
F	-3	GLY	-	expression tag	UNP Q8R4B8
F	-2	ARG	-	expression tag	UNP Q8R4B8
F	-1	SER	-	expression tag	UNP Q8R4B8
F	0	ALA	-	expression tag	UNP Q8R4B8
G	-3	GLY	-	expression tag	UNP Q8R4B8
G	-2	ARG	-	expression tag	UNP Q8R4B8
G	-1	SER	-	expression tag	UNP Q8R4B8
G	0	ALA	-	expression tag	UNP Q8R4B8
H	-3	GLY	-	expression tag	UNP Q8R4B8
H	-2	ARG	-	expression tag	UNP Q8R4B8
H	-1	SER	-	expression tag	UNP Q8R4B8
H	0	ALA	-	expression tag	UNP Q8R4B8
I	-3	GLY	-	expression tag	UNP Q8R4B8
I	-2	ARG	-	expression tag	UNP Q8R4B8
I	-1	SER	-	expression tag	UNP Q8R4B8
I	0	ALA	-	expression tag	UNP Q8R4B8
J	-3	GLY	-	expression tag	UNP Q8R4B8
J	-2	ARG	-	expression tag	UNP Q8R4B8
J	-1	SER	-	expression tag	UNP Q8R4B8
J	0	ALA	-	expression tag	UNP Q8R4B8
K	-3	GLY	-	expression tag	UNP Q8R4B8
K	-2	ARG	-	expression tag	UNP Q8R4B8
K	-1	SER	-	expression tag	UNP Q8R4B8
K	0	ALA	-	expression tag	UNP Q8R4B8
L	-3	GLY	-	expression tag	UNP Q8R4B8
L	-2	ARG	-	expression tag	UNP Q8R4B8
L	-1	SER	-	expression tag	UNP Q8R4B8
L	0	ALA	-	expression tag	UNP Q8R4B8

3 Residue-property plots

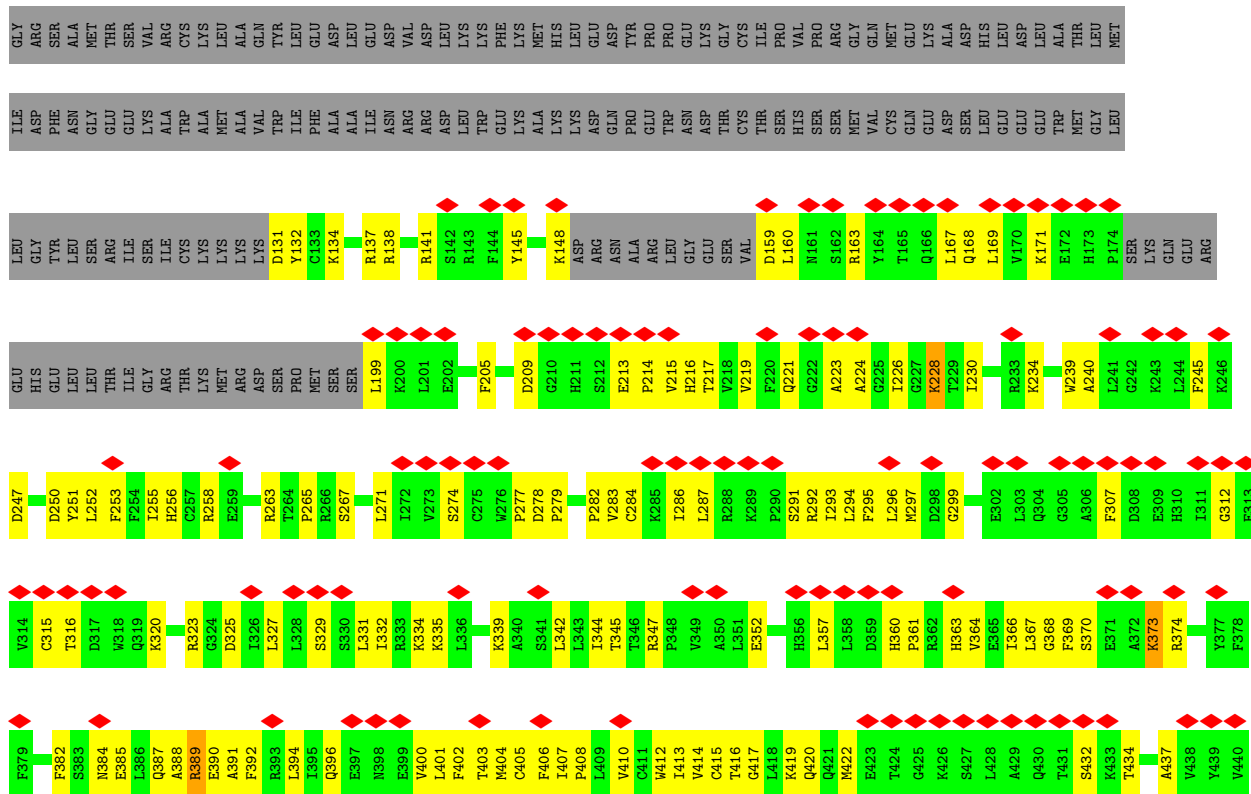
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

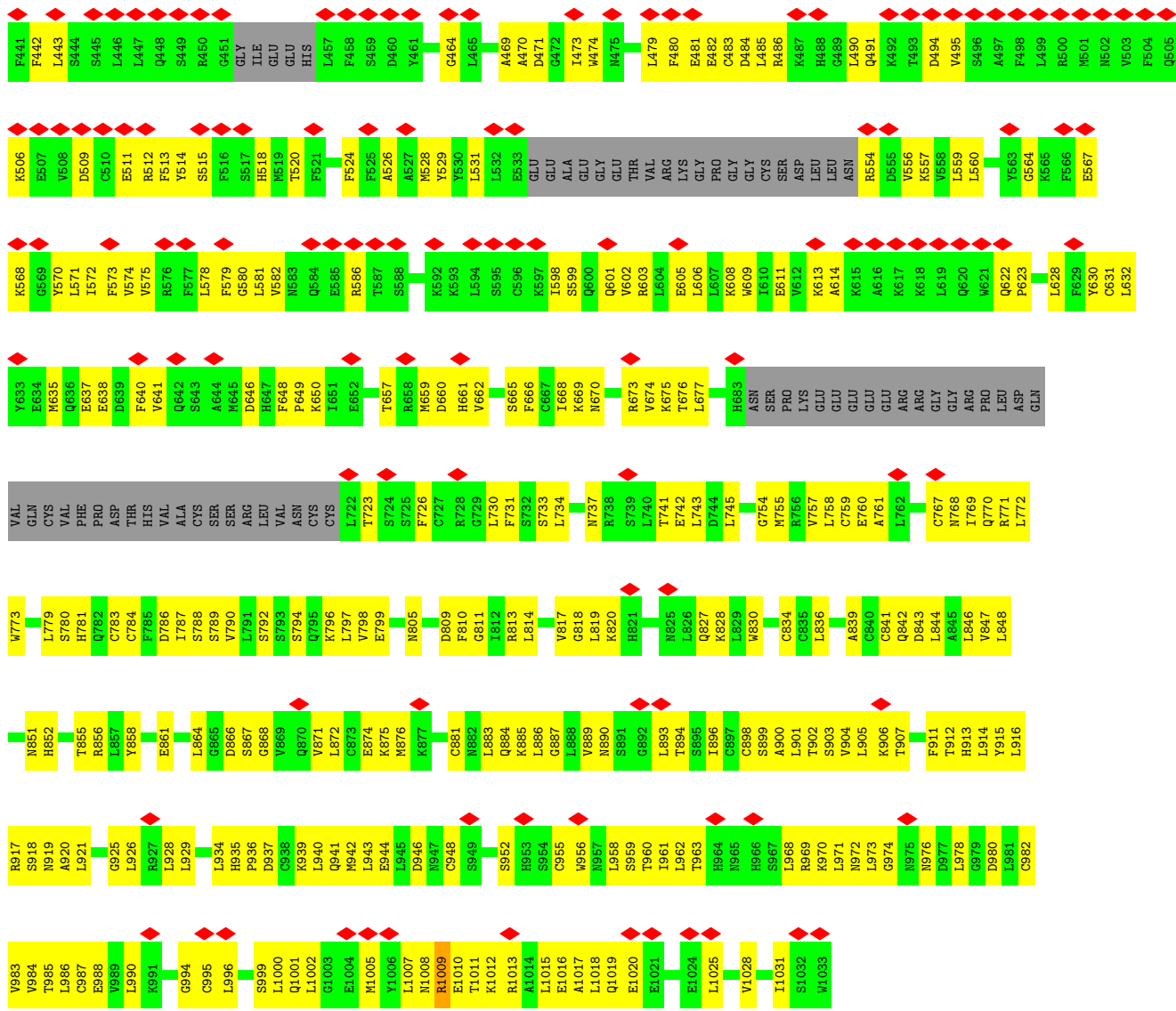
- Molecule 1: NACHT, LRR and PYD domains-containing protein 3



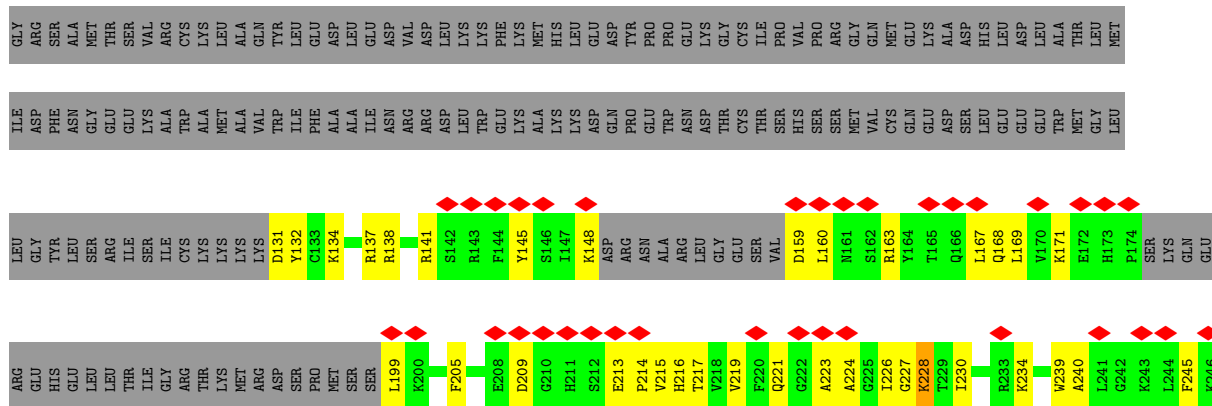


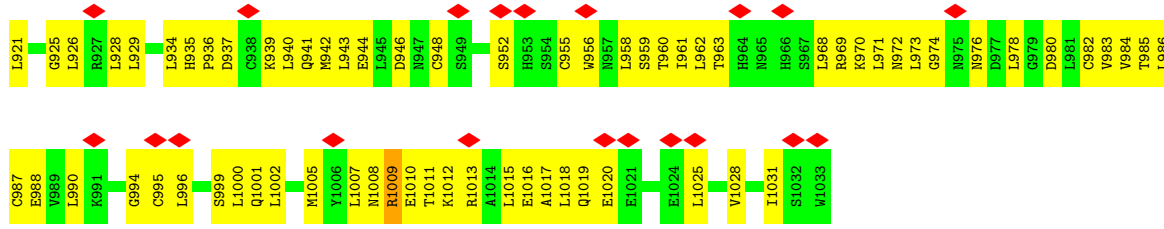
● Molecule 1: NACHT, LRR and PYD domains-containing protein 3



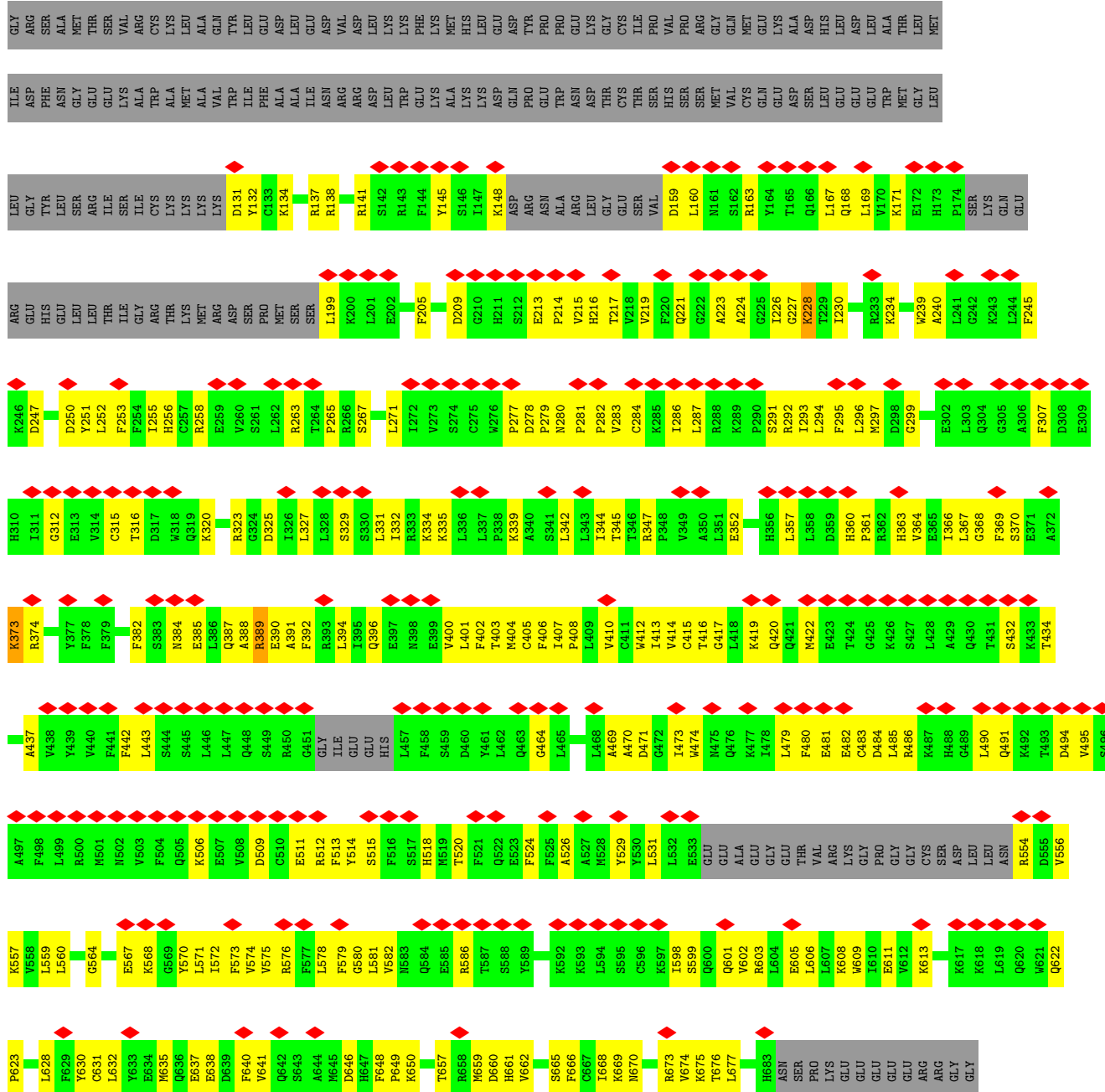


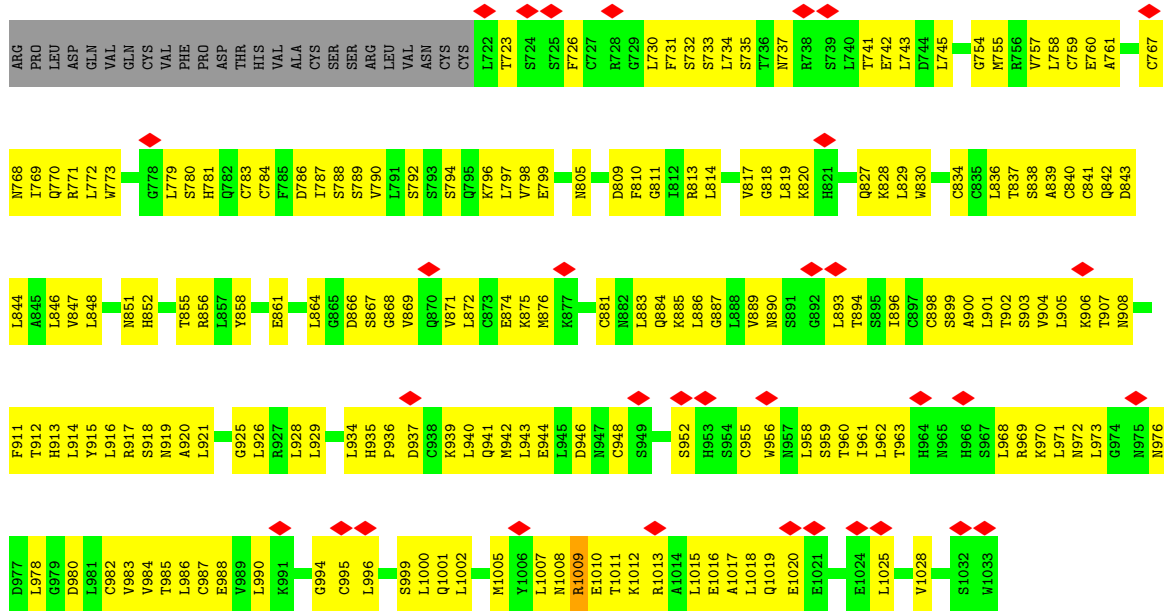
● Molecule 1: NACHT, LRR and PYD domains-containing protein 3



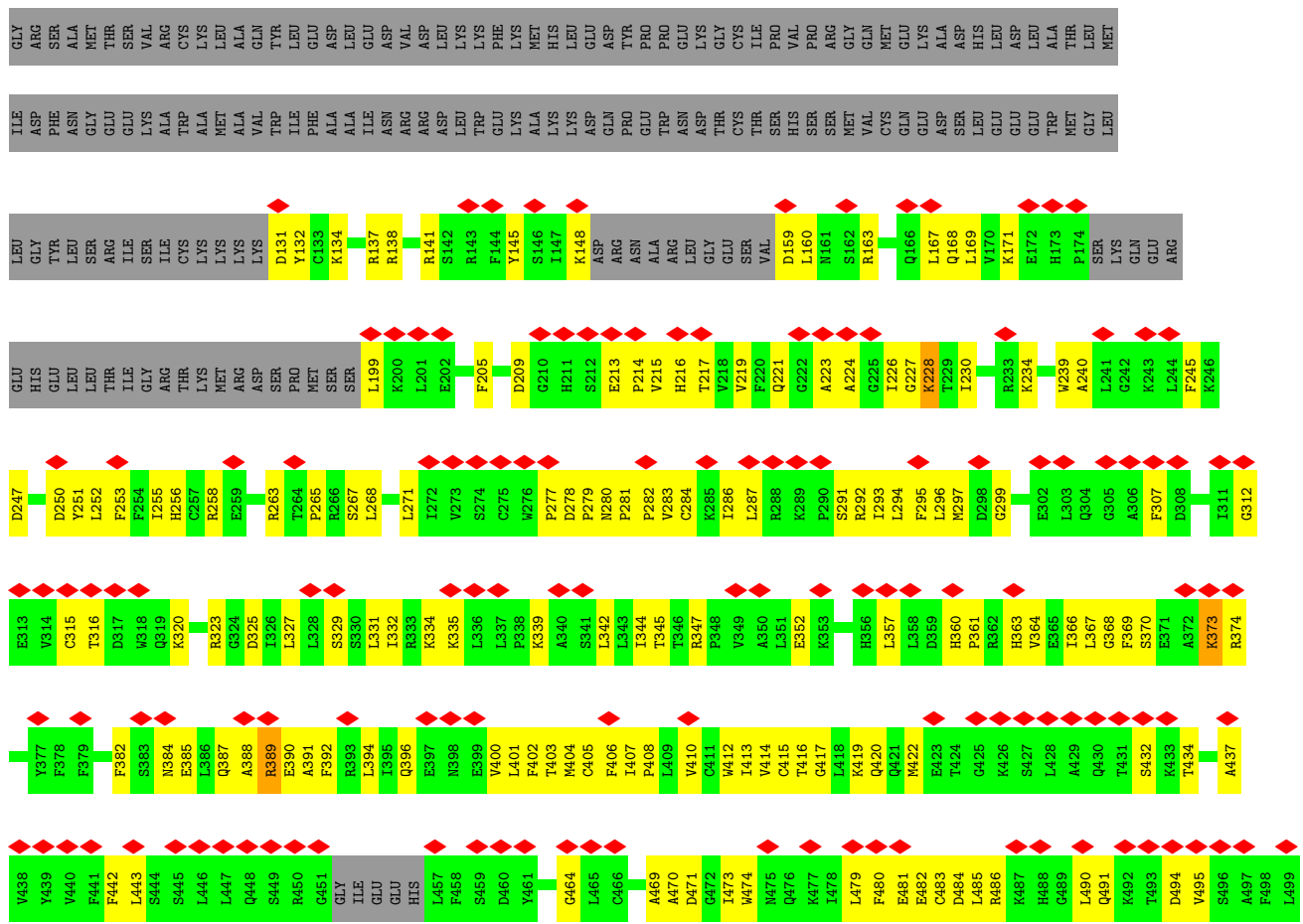


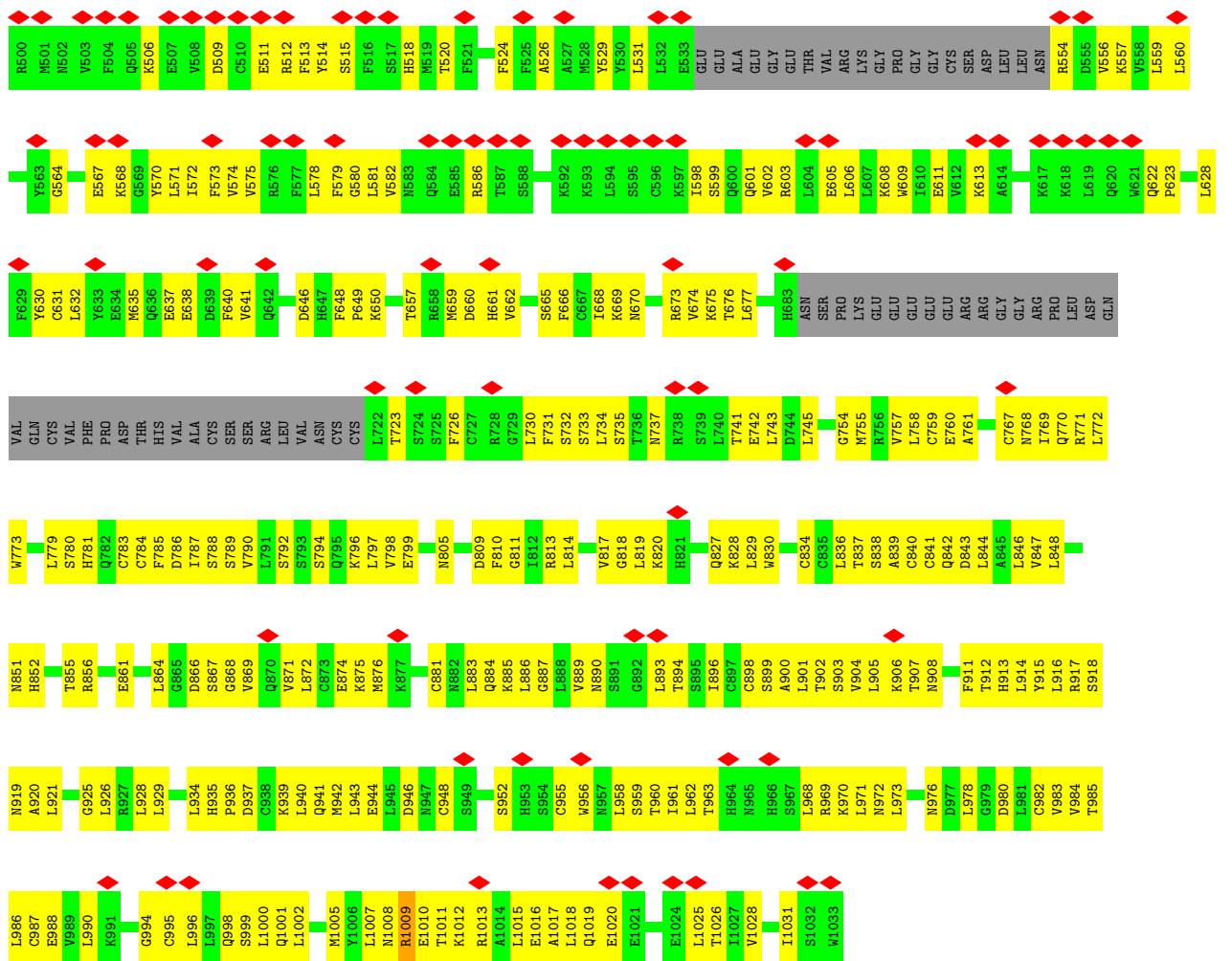
● Molecule 1: NACHT, LRR and PYD domains-containing protein 3



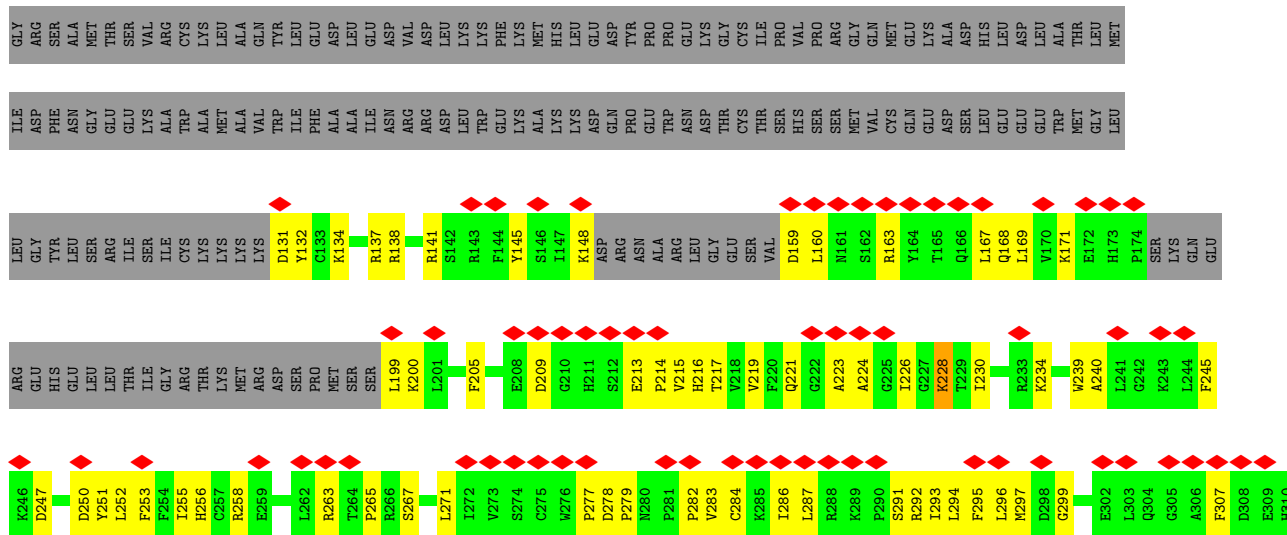


● Molecule 1: NACHT, LRR and PYD domains-containing protein 3

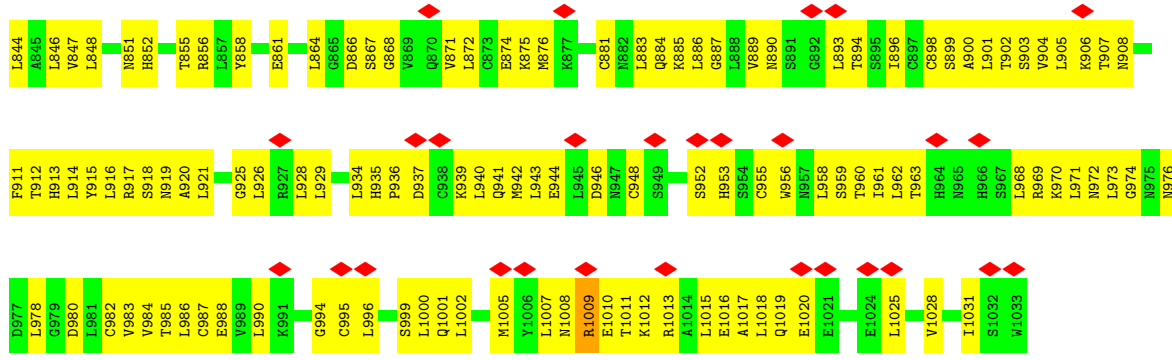




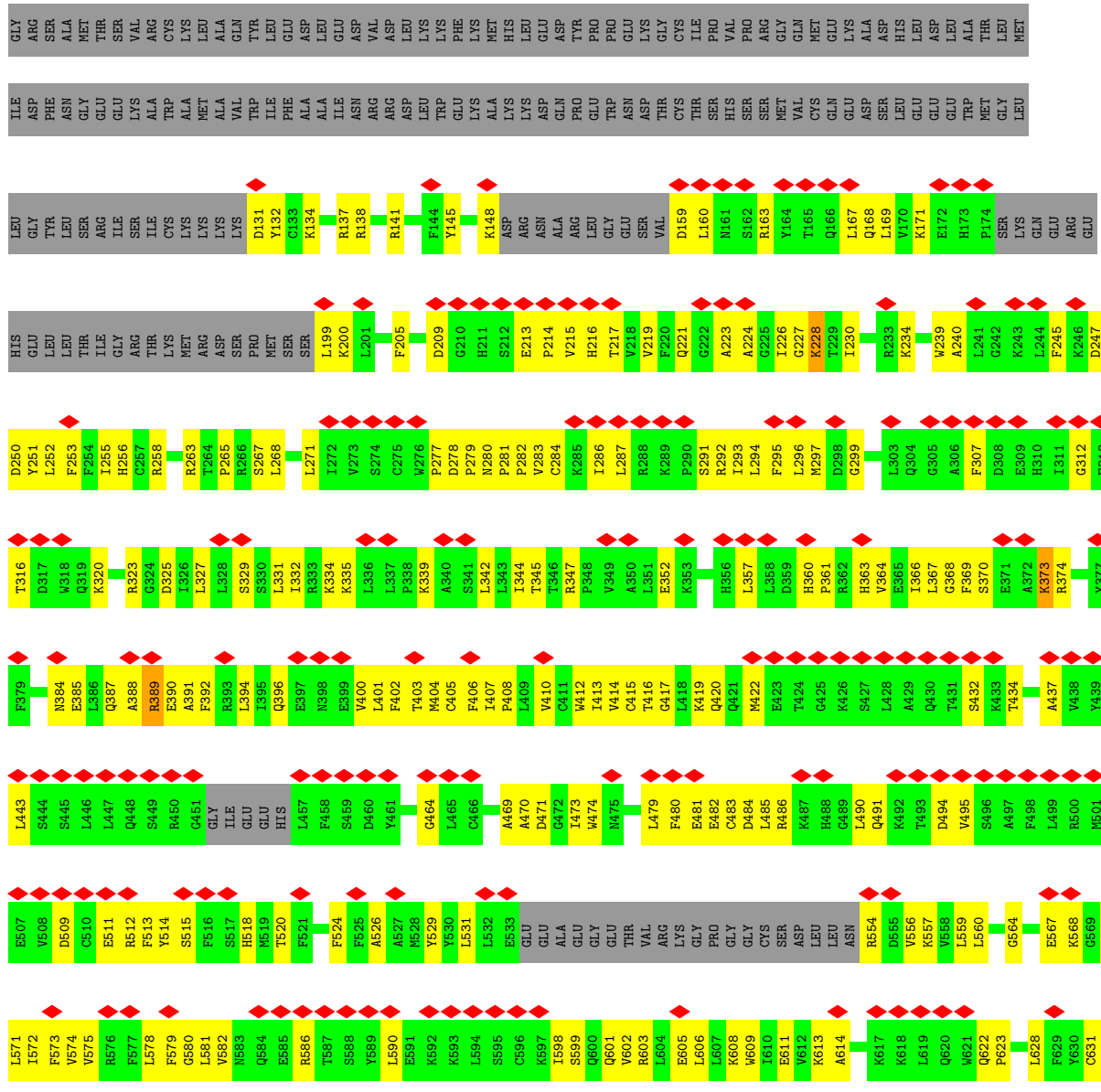
● Molecule 1: NACHT, LRR and PYD domains-containing protein 3

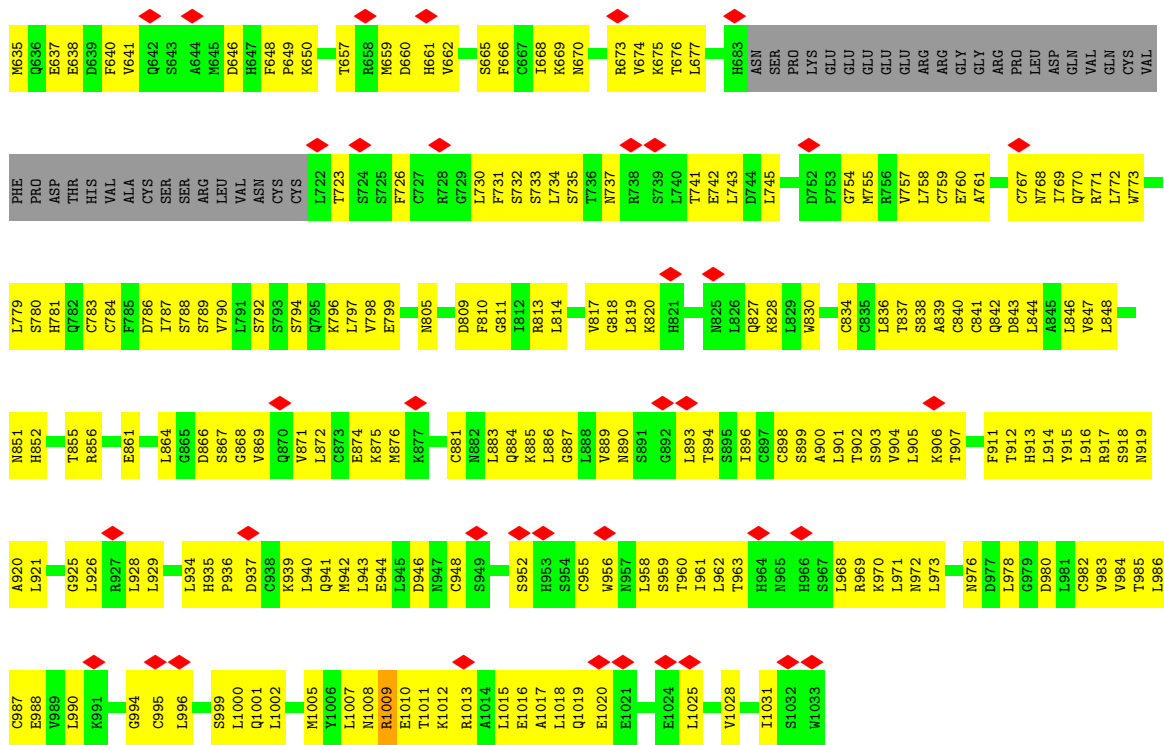


L981	C982	Y983	Y984	T985	L986	C987	E988	Y989	L990	L991	G994	C995	L996	S999	L1000	L1001	L1002	M1005	Y1006	L1007	M1008	E1010	L1009	R1010	L1011	L1012	R1013	A1014	L1015	E1016	A1017	L1018	C955	Q1019	E1020	E1021	E1024	L1025	Y1028	I1031	S1032	W1033															
L848	N851	H852	T855	L856	Y858	E861	L864	G865	D866	S867	C868	L869	Q870	L871	L872	C873	E874	K875	M876	K877	C881	N882	L883	Q884	K885	L886	G887	L888	L889	N890	S891	L892	T894	S895	C897	C898	S899	A900	T902	S903	V904	L905	K906	C841	Q842	D843	L844	L845	L846	T912	L913	L914	D980				
B771	L772	W773	L779	S780	H781	G782	C783	L784	D786	V641	Q642	S643	A644	W645	D646	H647	F648	P649	K650	T657	R658	D659	V662	S665	F666	C667	L668	K669	N670	C671	H672	R673	V674	K675	T676	L677	H683	ASN	PRO	LYS	GLU	GLU	GLU	GLU	ARG	ARG	GLY	GLY	PRO	LEU	ASP	Q770					
Y915	L916	R917	Y918	N919	A920	L921	G925	L926	R927	L928	L929	L934	H935	P936	D937	C938	K939	Q940	M942	L943	E944	L945	N947	C948	N949	L952	S952	H953	S954	C955	W956	N957	L958	S959	T960	I961	L962	T963	H964	N965	H966	S967	L968	R969	K970	L971	N972	L973	G974	N975	N976	D977	L978	G979	D980		
G631	L632	Y633	E634	M635	H636	E637	D639	F640	V641	Q642	S643	A644	W645	D646	H647	F648	P649	K650	T657	R658	D659	V662	S665	F666	C667	L668	K669	N670	C671	H672	R673	V674	K675	T676	L677	H683	ASN	PRO	LYS	GLU	GLU	GLU	GLU	ARG	ARG	GLY	GLY	PRO	LEU	ASP	Q770						
K568	G569	Y570	L571	L572	F573	W574	Y575	H576	V577	L578	F579	G580	L581	V582	N583	Q584	E585	R586	T587	K592	K593	L594	S595	L596	C597	I598	S599	Q600	Q601	H602	R603	L604	E605	L606	L607	K608	H609	E611	V612	K613	A614	A615	K617	R618	L619	Q620	H621	Q622	P623	S624	E627	L628	F629	Y630			
F442	L443	S444	S445	L446	L447	Q448	S449	R450	G451	ILE	GLY	GLU	GLU	HIS	L457	F458	S459	D460	Y461	G464	L465	A469	A470	D471	G472	I473	W474	N475	Q476	C477	L478	L479	F480	E481	E482	C483	D484	L485	R486	K487	H488	G489	L490	Q491	K492	T493	D494	V495	S496	A497	F498	L499	R500	M501	N502	F504	
F378	F379	N384	E385	L386	Q387	R388	E389	F391	F392	R393	L394	I395	Q396	E397	N398	F399	V400	F402	M404	C405	L407	P408	L409	V410	C411	W412	I413	V414	C415	T416	G417	L418	K419	Q420	Q421	M422	E423	T424	G425	K426	S427	L428	A429	Q430	T431	S432	K433	T434	A437	V438	Y439	V440	F441				
C315	T316	D317	Q318	Q319	K320	R323	G324	L325	I326	L327	L328	L329	S330	L331	I332	R333	K334	K335	L336	L337	P338	K339	A340	M341	L342	L343	L344	T345	R346	R347	P348	V349	C415	L416	G417	L418	K419	Q420	Q421	M422	E423	T424	G425	K426	S427	L428	A429	Q430	T431	S432	K433	T434	A437	V438	Y439	V440	F441
D250	Y251	L252	F253	F254	H255	C257	R258	R263	T264	P265	R266	S267	L271	I272	V273	S274	C275	W276	D277	D278	M280	H281	P282	V283	C284	K285	L286	L287	R288	K289	P290	S291	R292	I293	L294	F295	L296	M297	D298	G299	E302	L303	Q304	G305	A306	F307	D308	E309	H310	L311	G312	E313	V314				
GLU	HIS	GLU	LEU	THR	THR	ILE	GLY	THR	THR	LYS	LYS	ARG	ASP	ASP	SER	PRO	MET	SER	SER	L199	K200	L201	F205	D209	G210	H211	S212	E213	P214	V215	H216	T217	V218	V219	F220	Q221	G222	A223	A224	G225	C227	K228	T229	I230	R233	K234	W239	L241	G242	K243	L244	F245	K246	D247			
LEU	GLY	TYR	LEU	SER	ARG	ILE	SER	CYS	LYS	LYS	LYS	D131	Y132	C133	K134	R137	R138	R141	F144	Y145	S146	I147	K148	ASP	ASN	ALA	ARG	LEU	GLY	GLU	SER	VAL	D159	L160	H161	S162	R163	Y164	T165	Q166	L167	Q168	L169	V170	K171	E172	H173	P174	SER	LYS	GLN	GLU	ARG				

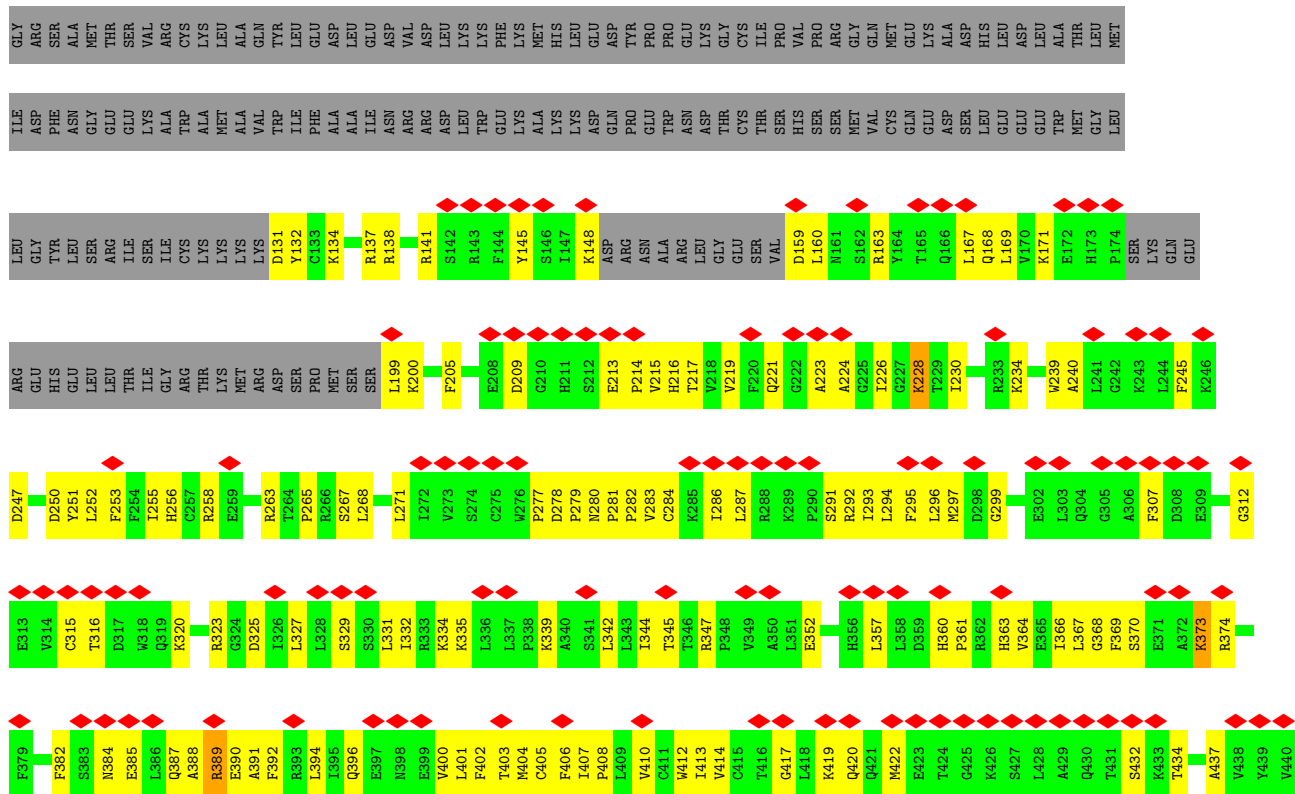


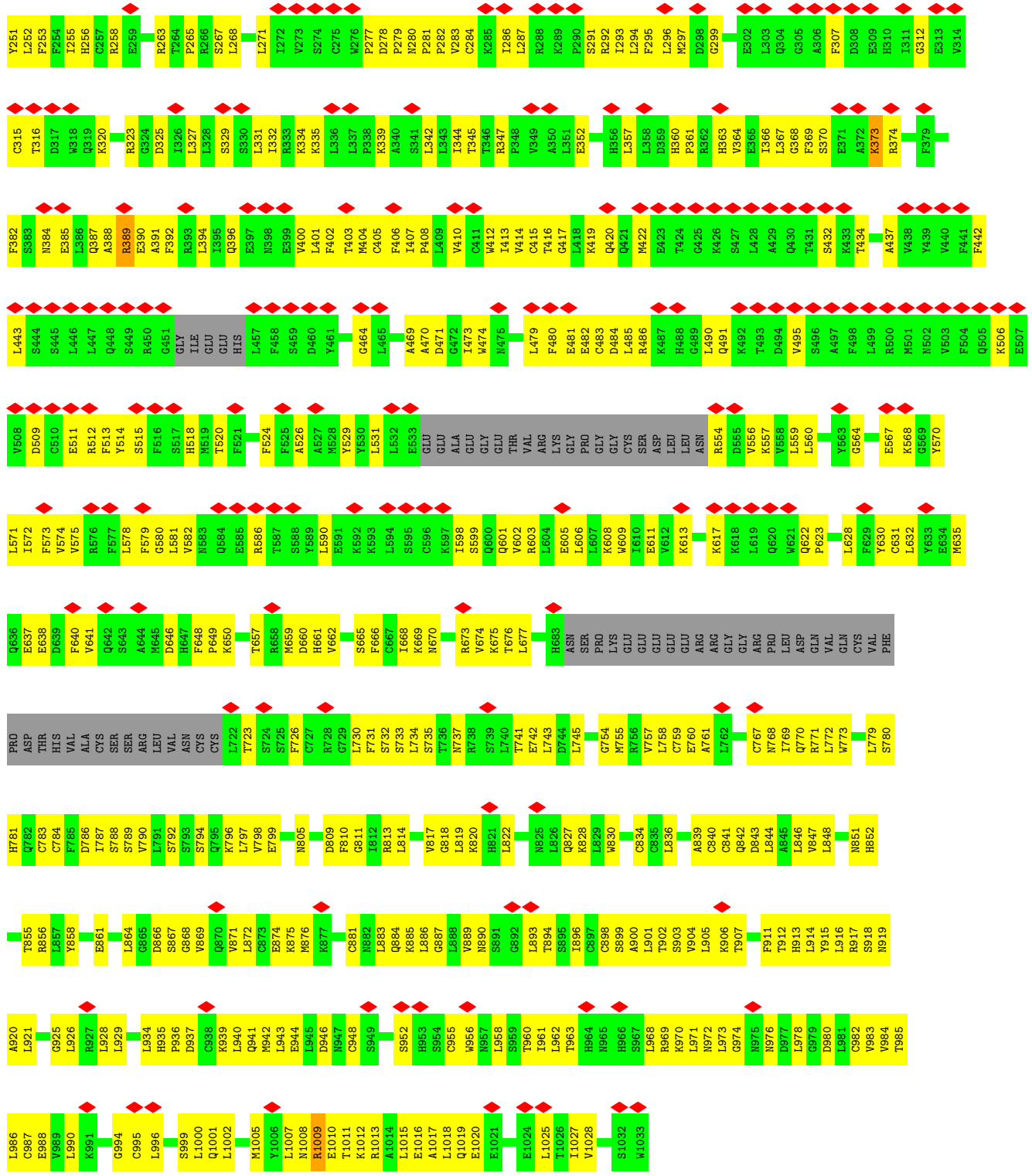
● Molecule 1: NACHT, LRR and PYD domains-containing protein 3





● Molecule 1: NACHT, LRR and PYD domains-containing protein 3





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D6	Depositor
Number of particles used	122941	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	53.225	Depositor
Minimum defocus (nm)	-800	Depositor
Maximum defocus (nm)	-2400	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.730	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.031	Depositor
Recommended contour level	0.09	Depositor
Map size (Å)	422.4, 422.4, 422.4	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.825, 0.825, 0.825	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.28	0/6527	0.56	0/8804
1	B	0.28	0/6527	0.56	0/8804
1	C	0.28	0/6527	0.56	0/8804
1	D	0.28	0/6527	0.56	0/8804
1	E	0.28	0/6527	0.56	0/8804
1	F	0.28	0/6527	0.56	0/8804
1	G	0.28	0/6527	0.56	0/8804
1	H	0.28	0/6527	0.56	0/8804
1	I	0.28	0/6527	0.56	0/8804
1	J	0.28	0/6527	0.56	0/8804
1	K	0.28	0/6527	0.56	0/8804
1	L	0.28	0/6527	0.56	0/8804
All	All	0.28	0/78324	0.56	0/105648

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 [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	6407	0	6446	367	0
1	B	6407	0	6446	365	0
1	C	6407	0	6446	370	0
1	D	6407	0	6446	365	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	6407	0	6446	368	0
1	F	6407	0	6446	374	0
1	G	6407	0	6446	371	0
1	H	6407	0	6446	370	0
1	I	6407	0	6446	366	0
1	J	6407	0	6446	367	0
1	K	6407	0	6446	361	0
1	L	6407	0	6446	367	0
All	All	76884	0	77352	4371	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 28.

The worst 5 of 4371 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:K:785:PHE:HB3	1:L:810:PHE:HZ	1.35	0.92
1:C:810:PHE:HZ	1:D:785:PHE:HB3	1.31	0.91
1:A:773:TRP:HH2	1:L:1013:ARG:HG2	1.39	0.88
1:A:385:GLU:HA	1:A:389:ARG:HH12	1.44	0.83
1:J:385:GLU:HA	1:J:389:ARG:HH12	1.44	0.83

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 PDB entries followed by that with respect to all EM entries.

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	794/1037 (77%)	688 (87%)	105 (13%)	1 (0%)	51 85
1	B	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51 85
1	C	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51 85

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51	85
1	E	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51	85
1	F	794/1037 (77%)	688 (87%)	105 (13%)	1 (0%)	51	85
1	G	794/1037 (77%)	688 (87%)	105 (13%)	1 (0%)	51	85
1	H	794/1037 (77%)	690 (87%)	103 (13%)	1 (0%)	51	85
1	I	794/1037 (77%)	690 (87%)	103 (13%)	1 (0%)	51	85
1	J	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51	85
1	K	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51	85
1	L	794/1037 (77%)	689 (87%)	104 (13%)	1 (0%)	51	85
All	All	9528/12444 (77%)	8267 (87%)	1249 (13%)	12 (0%)	54	85

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	571	LEU
1	B	571	LEU
1	C	571	LEU
1	D	571	LEU
1	E	571	LEU

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 PDB entries followed by that with respect to all EM entries.

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	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	B	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	C	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	D	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	E	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	F	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	G	720/937 (77%)	716 (99%)	4 (1%)	86	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	H	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	I	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	J	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	K	720/937 (77%)	716 (99%)	4 (1%)	86	92
1	L	720/937 (77%)	716 (99%)	4 (1%)	86	92
All	All	8640/11244 (77%)	8592 (99%)	48 (1%)	86	92

5 of 48 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	228	LYS
1	I	1009	ARG
1	H	373	LYS
1	I	228	LYS
1	J	373	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 48 such sidechains are listed below:

Mol	Chain	Res	Type
1	H	670	ASN
1	I	976	ASN
1	H	737	ASN
1	I	670	ASN
1	J	737	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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.

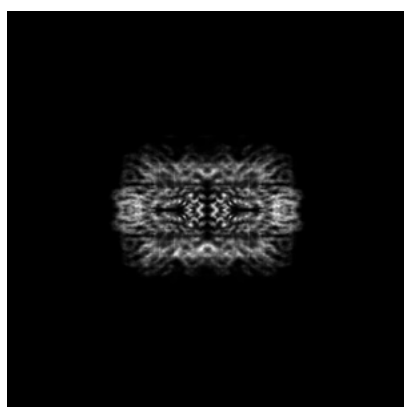
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-23302. These allow visual inspection of the internal detail of the map and identification of artifacts.

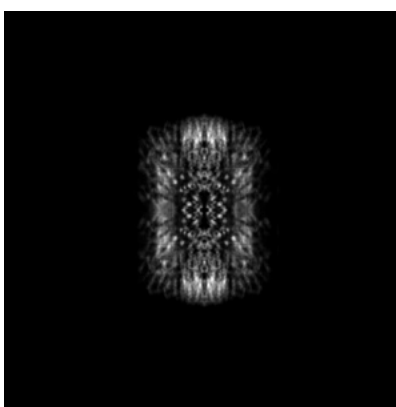
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

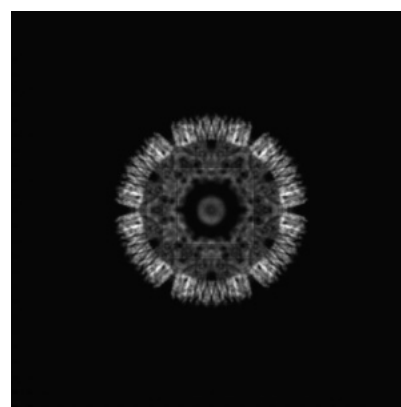
6.1.1 Primary map



X



Y

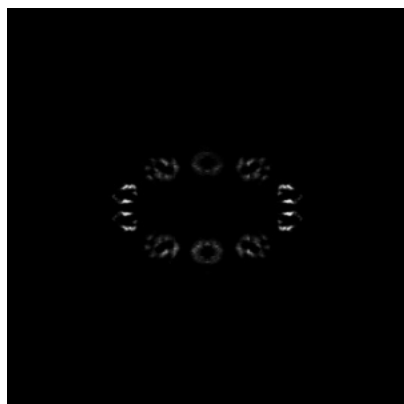


Z

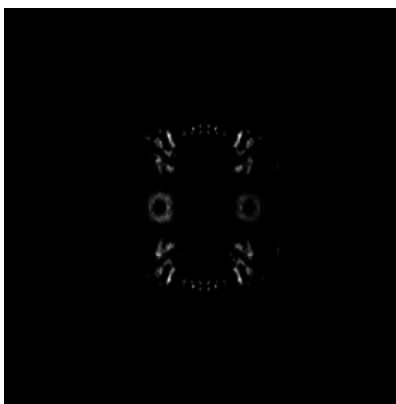
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 256



Y Index: 256

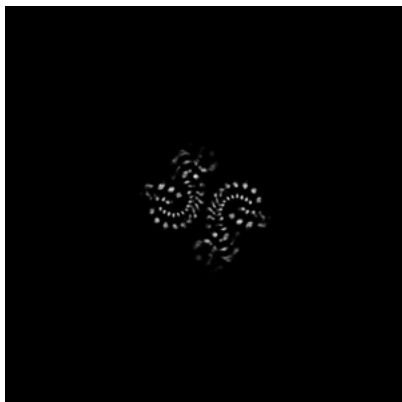


Z Index: 256

The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

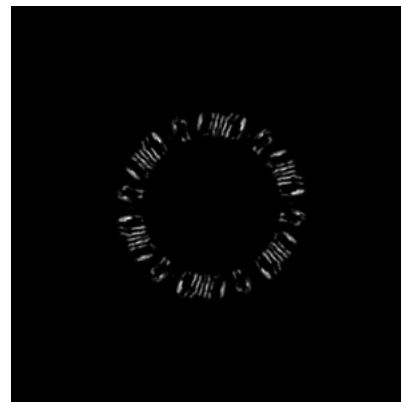
6.3.1 Primary map



X Index: 348



Y Index: 323



Z Index: 266

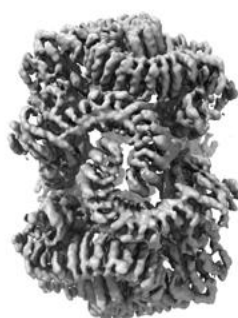
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.09. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

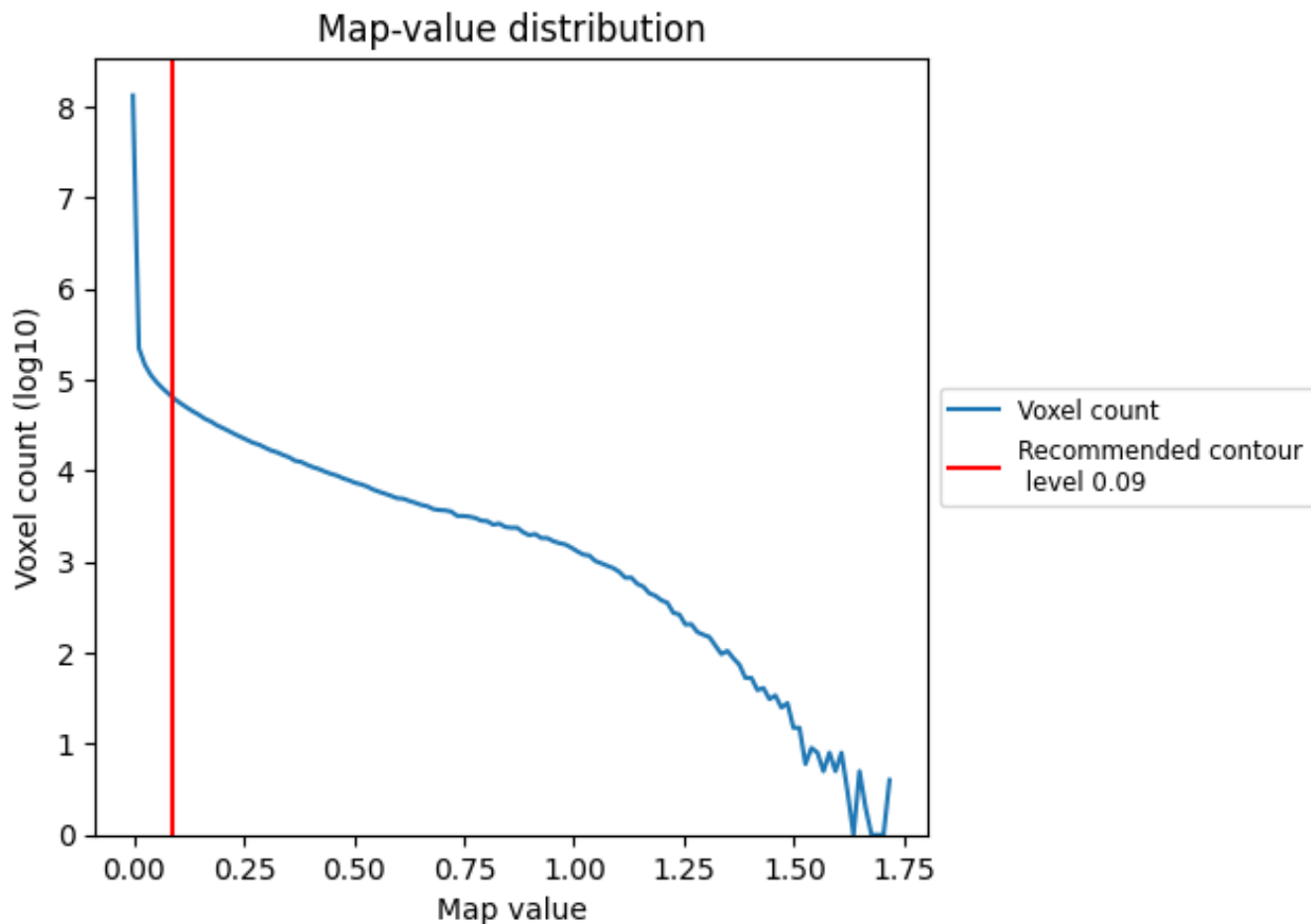
6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

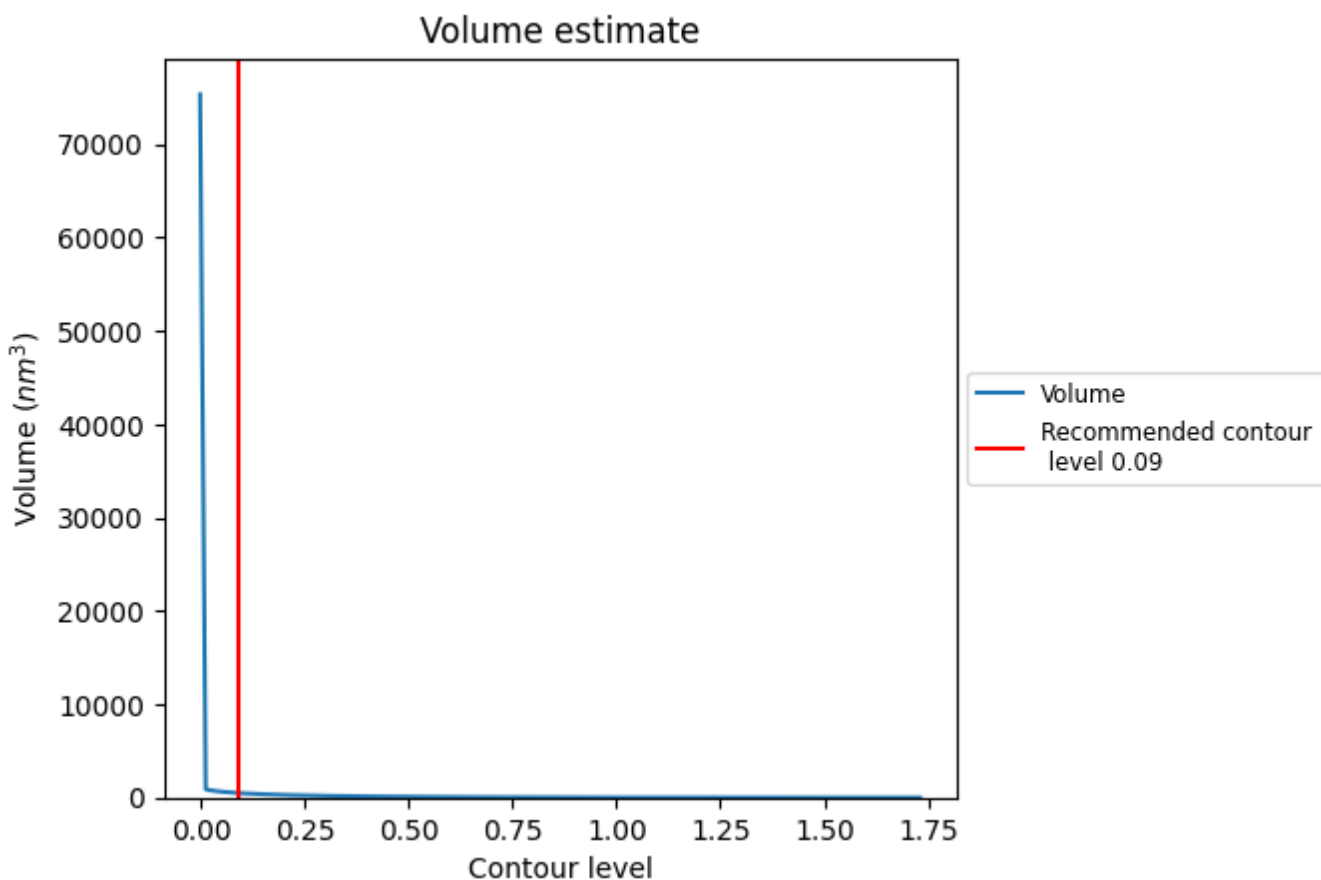
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

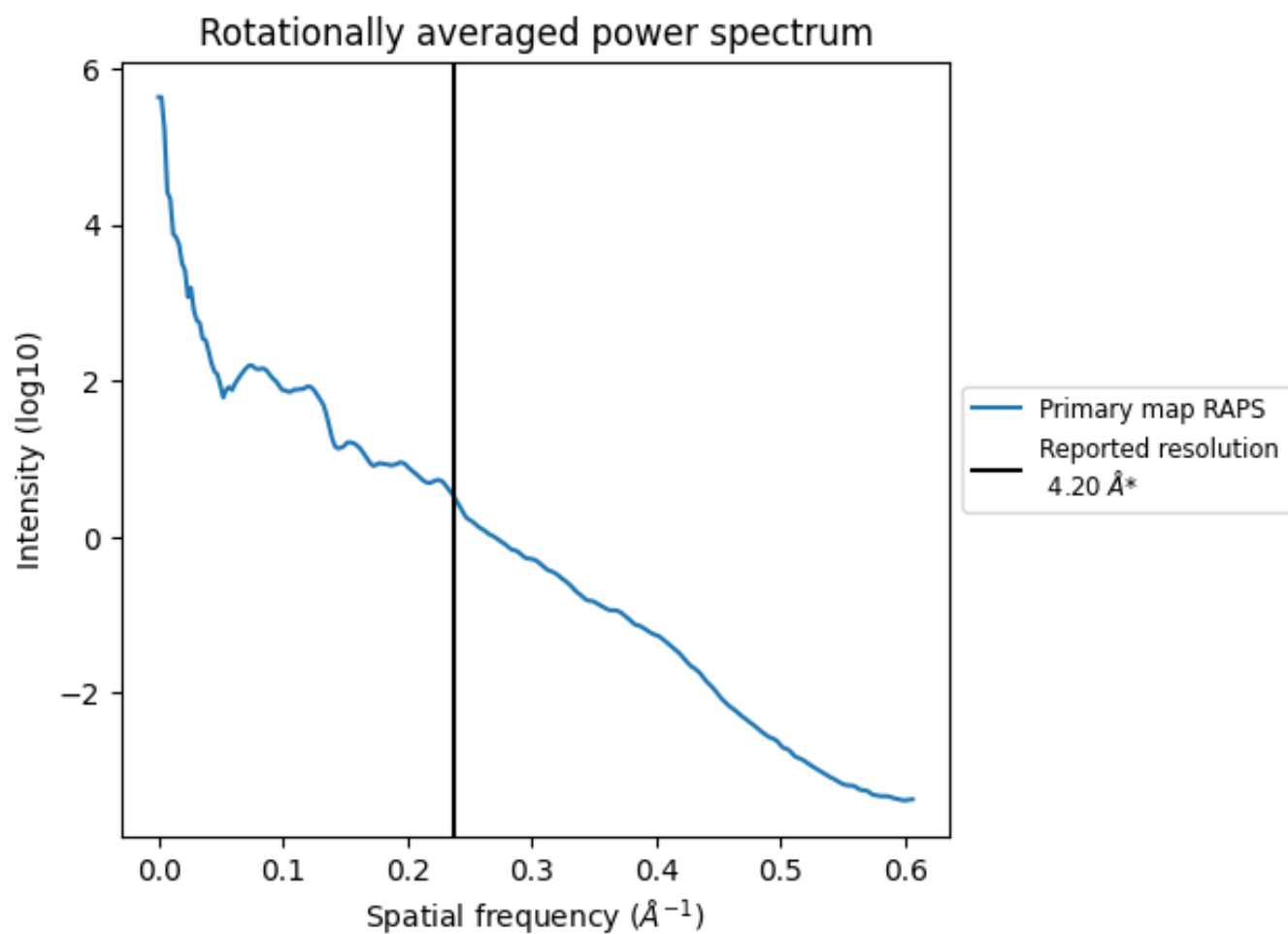
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 489 nm^3 ; this corresponds to an approximate mass of 442 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

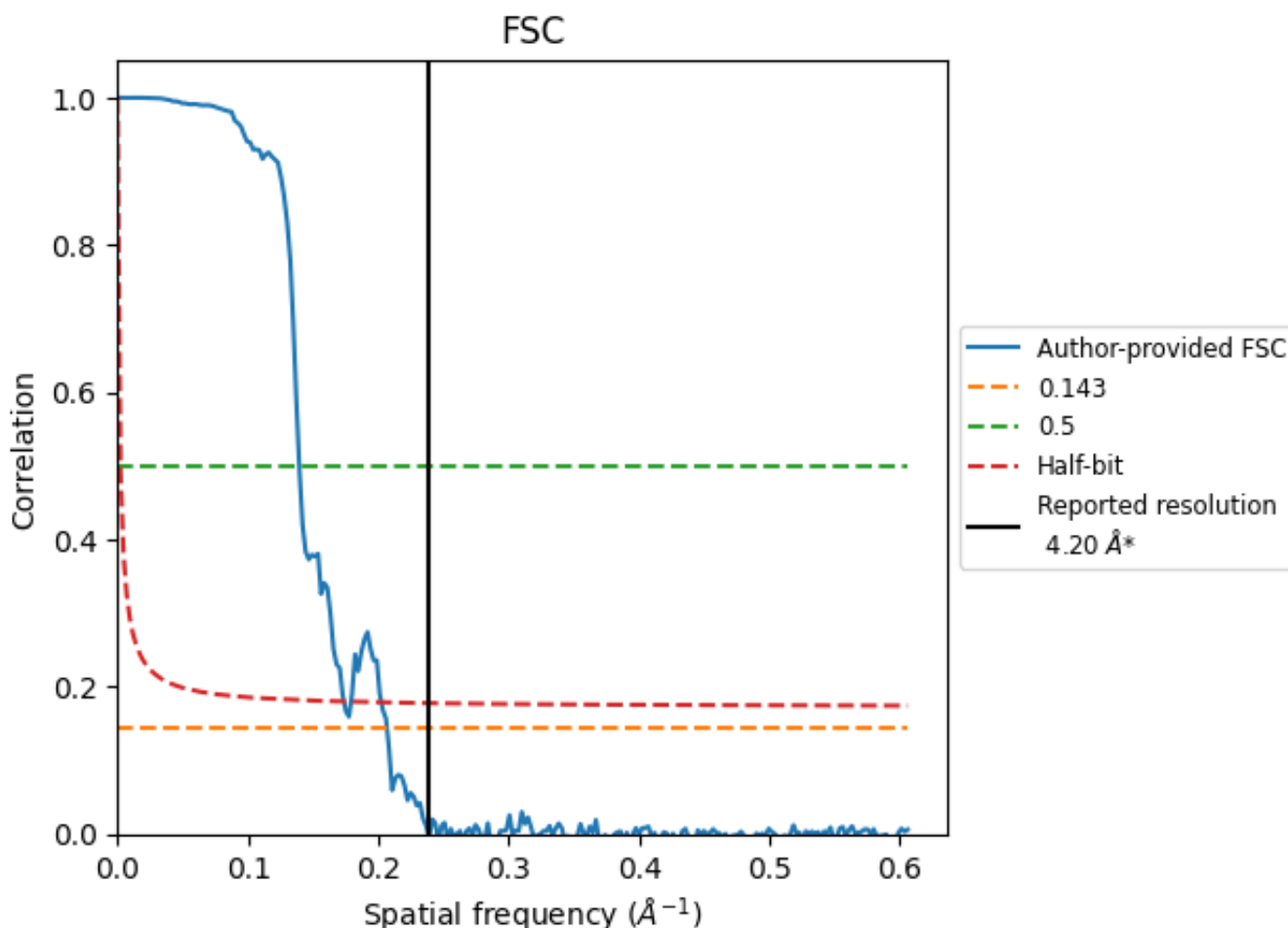


*Reported resolution corresponds to spatial frequency of 0.238\AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.238 Å⁻¹

8.2 Resolution estimates [i](#)

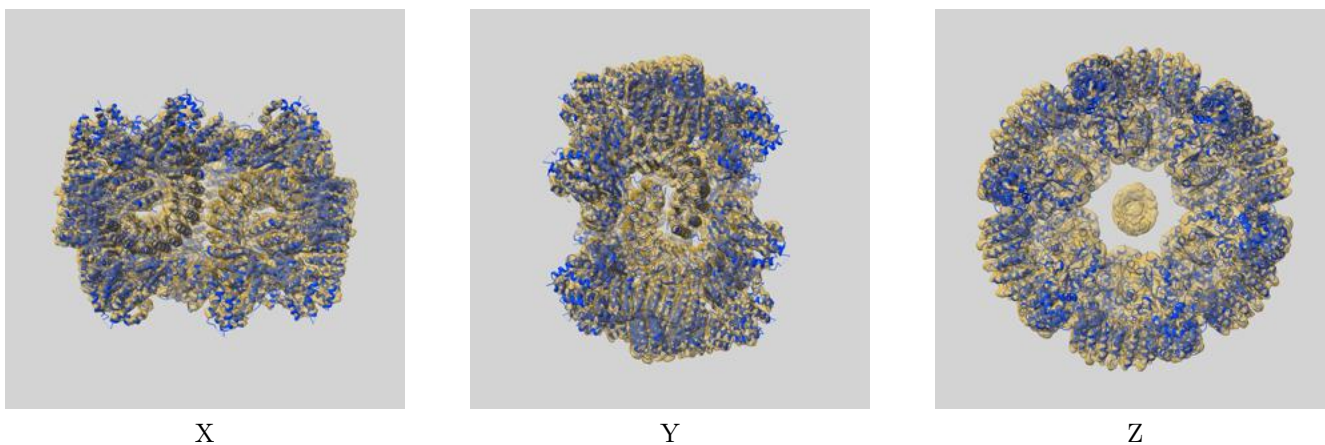
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	4.84	7.17	5.76
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 4.84 differs from the reported value 4.2 by more than 10 %

9 Map-model fit [i](#)

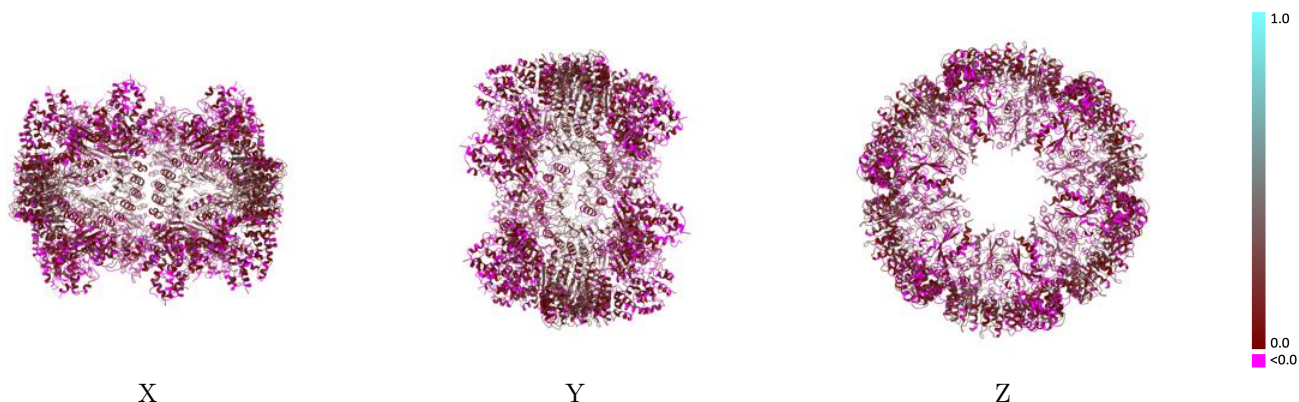
This section contains information regarding the fit between EMDB map EMD-23302 and PDB model 7LFH. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



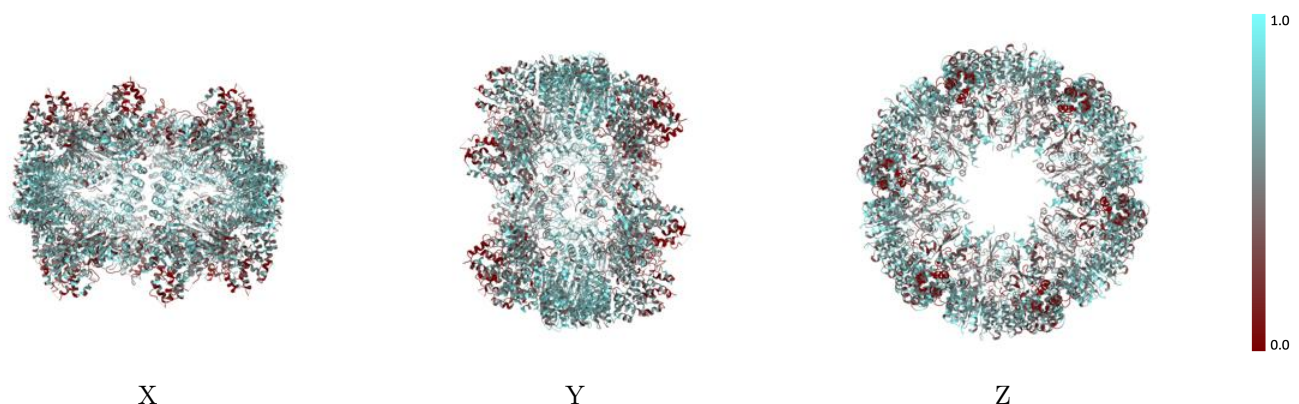
The images above show the 3D surface view of the map at the recommended contour level 0.09 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



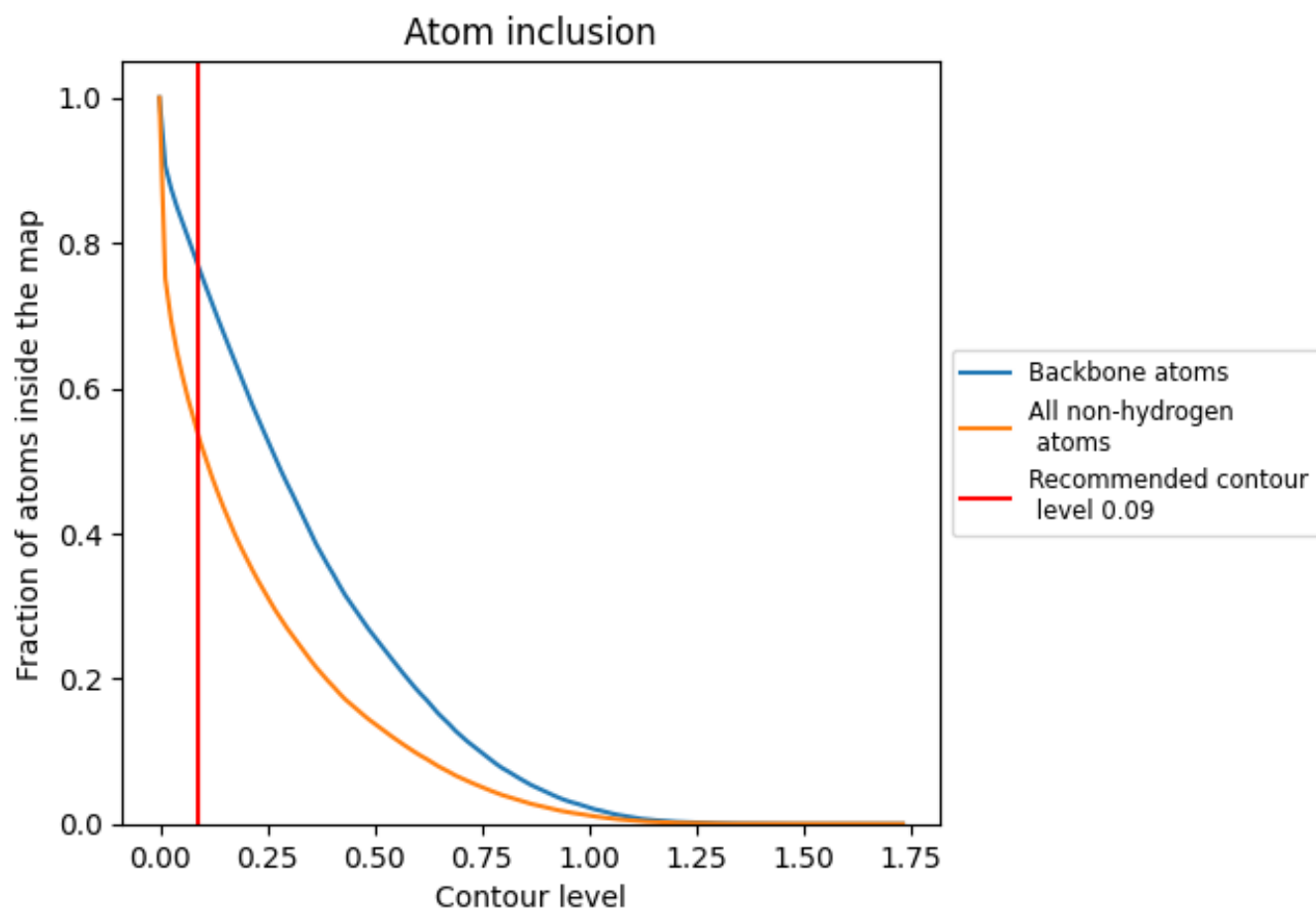
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.09).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 77% of all backbone atoms, 53% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.09) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5324	 0.1150
A	 0.5313	 0.1180
B	 0.5356	 0.1150
C	 0.5023	 0.1070
D	 0.5537	 0.1190
E	 0.5161	 0.1140
F	 0.5429	 0.1160
G	 0.5201	 0.1120
H	 0.5280	 0.1140
I	 0.5185	 0.1140
J	 0.5426	 0.1160
K	 0.5375	 0.1180
L	 0.5602	 0.1170

