Full wwPDB EM Validation Report ⓘ

Jun 30, 2025 – 06:31 PM EDT

PDB ID	:	9E23 / pdb_00009e23
EMDB ID	:	EMD-47430
Title	:	Cryo-EM structure of Pre-Chi dynein tail
Authors	:	Nguyen, K.H.V.; Kendrick, A.A.; Leschziner, A.E.
Deposited on	:	2024-10-21
Resolution	:	6.20 Å(reported)

This is a Full wwPDB EM Validation 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:

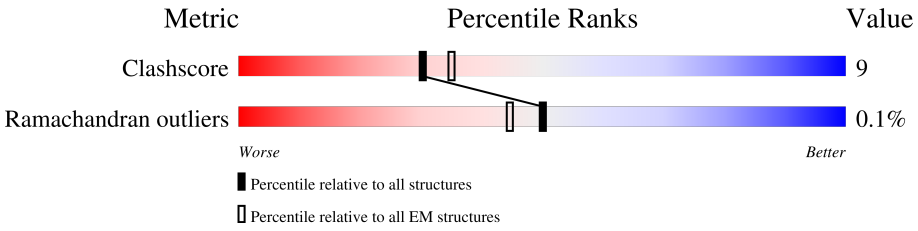
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 6.20 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	210492	15764
Ramachandran outliers	207382	16835

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 <=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	E	96	84% 16%
1	F	96	66% 34%
2	D	612	48% 20% 32%
2	H	612	57% 13% 30%
2	g	612	5% 95%
2	h	612	5% 95%
3	d	89	6% 91% 9%
3	i	89	19% 90% 10%
4	k	113	49% 82% 7% 11%

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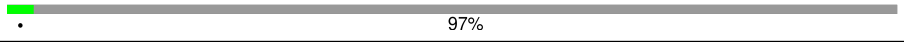
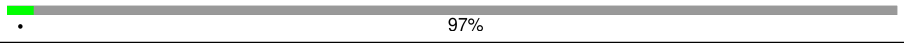
Mol	Chain	Length	Quality of chain
4	v	113	
5	B	492	
5	C	492	
6	A	4843	
6	G	4843	
6	e	4843	
6	f	4843	

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 21249 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 Dynein light chain roadblock-type 1.

Mol	Chain	Residues	Atoms	AltConf	Trace
1	E	96	Total C N O 477 285 96 96	0	0
1	F	96	Total C N O 477 285 96 96	0	0

- Molecule 2 is a protein called Isoform 2C of Cytoplasmic dynein 1 intermediate chain 2.

Mol	Chain	Residues	Atoms	AltConf	Trace
2	H	429	Total C N O 2118 1260 429 429	0	0
2	g	31	Total C N O 154 92 31 31	0	0
2	h	31	Total C N O 154 92 31 31	0	0
2	D	416	Total C N O 2054 1222 416 416	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	484	SER	THR	conflict	UNP Q13409
H	499	GLY	ASP	conflict	UNP Q13409
g	484	SER	THR	conflict	UNP Q13409
g	499	GLY	ASP	conflict	UNP Q13409
h	484	SER	THR	conflict	UNP Q13409
h	499	GLY	ASP	conflict	UNP Q13409
D	484	SER	THR	conflict	UNP Q13409
D	499	GLY	ASP	conflict	UNP Q13409

- Molecule 3 is a protein called Dynein light chain 1, cytoplasmic.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	d	89	Total 441	C 263	N 89	O 89	0	0
3	i	89	Total 441	C 263	N 89	O 89	0	0

- Molecule 4 is a protein called Dynein light chain Tctex-type 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	k	101	Total 498	C 296	N 101	O 101	0	0
4	v	101	Total 498	C 296	N 101	O 101	0	0

- Molecule 5 is a protein called Cytoplasmic dynein 1 light intermediate chain 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	B	324	Total 1604	C 956	N 324	O 324	0	0
5	C	324	Total 1604	C 956	N 324	O 324	0	0

- Molecule 6 is a protein called Cytoplasmic dynein 1 heavy chain 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	e	1152	Total 4608	C 2304	N 1152	O 1152	0	0
6	f	1151	Total 4609	C 2307	N 1151	O 1151	0	0
6	A	152	Total 756	C 452	N 152	O 152	0	0
6	G	152	Total 756	C 452	N 152	O 152	0	0

There are 792 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
e	-196	GLY	-	expression tag	UNP Q14204
e	-195	ASP	-	expression tag	UNP Q14204
e	-194	TYR	-	expression tag	UNP Q14204
e	-193	ASP	-	expression tag	UNP Q14204
e	-192	ILE	-	expression tag	UNP Q14204
e	-191	PRO	-	expression tag	UNP Q14204
e	-190	THR	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-189	THR	-	expression tag	UNP Q14204
e	-188	GLU	-	expression tag	UNP Q14204
e	-187	ASN	-	expression tag	UNP Q14204
e	-186	LEU	-	expression tag	UNP Q14204
e	-185	TYR	-	expression tag	UNP Q14204
e	-184	PHE	-	expression tag	UNP Q14204
e	-183	GLN	-	expression tag	UNP Q14204
e	-182	GLY	-	expression tag	UNP Q14204
e	-181	ASP	-	expression tag	UNP Q14204
e	-180	LYS	-	expression tag	UNP Q14204
e	-179	ASP	-	expression tag	UNP Q14204
e	-178	CYS	-	expression tag	UNP Q14204
e	-177	GLU	-	expression tag	UNP Q14204
e	-176	MET	-	expression tag	UNP Q14204
e	-175	LYS	-	expression tag	UNP Q14204
e	-174	ARG	-	expression tag	UNP Q14204
e	-173	THR	-	expression tag	UNP Q14204
e	-172	THR	-	expression tag	UNP Q14204
e	-171	LEU	-	expression tag	UNP Q14204
e	-170	ASP	-	expression tag	UNP Q14204
e	-169	SER	-	expression tag	UNP Q14204
e	-168	PRO	-	expression tag	UNP Q14204
e	-167	LEU	-	expression tag	UNP Q14204
e	-166	GLY	-	expression tag	UNP Q14204
e	-165	LYS	-	expression tag	UNP Q14204
e	-164	LEU	-	expression tag	UNP Q14204
e	-163	GLU	-	expression tag	UNP Q14204
e	-162	LEU	-	expression tag	UNP Q14204
e	-161	SER	-	expression tag	UNP Q14204
e	-160	GLY	-	expression tag	UNP Q14204
e	-159	CYS	-	expression tag	UNP Q14204
e	-158	GLU	-	expression tag	UNP Q14204
e	-157	GLN	-	expression tag	UNP Q14204
e	-156	GLY	-	expression tag	UNP Q14204
e	-155	LEU	-	expression tag	UNP Q14204
e	-154	HIS	-	expression tag	UNP Q14204
e	-153	ARG	-	expression tag	UNP Q14204
e	-152	ILE	-	expression tag	UNP Q14204
e	-151	ILE	-	expression tag	UNP Q14204
e	-150	PHE	-	expression tag	UNP Q14204
e	-149	LEU	-	expression tag	UNP Q14204
e	-148	GLY	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-147	LYS	-	expression tag	UNP Q14204
e	-146	GLY	-	expression tag	UNP Q14204
e	-145	THR	-	expression tag	UNP Q14204
e	-144	SER	-	expression tag	UNP Q14204
e	-143	ALA	-	expression tag	UNP Q14204
e	-142	ALA	-	expression tag	UNP Q14204
e	-141	ASP	-	expression tag	UNP Q14204
e	-140	ALA	-	expression tag	UNP Q14204
e	-139	VAL	-	expression tag	UNP Q14204
e	-138	GLU	-	expression tag	UNP Q14204
e	-137	VAL	-	expression tag	UNP Q14204
e	-136	PRO	-	expression tag	UNP Q14204
e	-135	ALA	-	expression tag	UNP Q14204
e	-134	PRO	-	expression tag	UNP Q14204
e	-133	ALA	-	expression tag	UNP Q14204
e	-132	ALA	-	expression tag	UNP Q14204
e	-131	VAL	-	expression tag	UNP Q14204
e	-130	LEU	-	expression tag	UNP Q14204
e	-129	GLY	-	expression tag	UNP Q14204
e	-128	GLY	-	expression tag	UNP Q14204
e	-127	PRO	-	expression tag	UNP Q14204
e	-126	GLU	-	expression tag	UNP Q14204
e	-125	PRO	-	expression tag	UNP Q14204
e	-124	LEU	-	expression tag	UNP Q14204
e	-123	MET	-	expression tag	UNP Q14204
e	-122	GLN	-	expression tag	UNP Q14204
e	-121	ALA	-	expression tag	UNP Q14204
e	-120	THR	-	expression tag	UNP Q14204
e	-119	ALA	-	expression tag	UNP Q14204
e	-118	TRP	-	expression tag	UNP Q14204
e	-117	LEU	-	expression tag	UNP Q14204
e	-116	ASN	-	expression tag	UNP Q14204
e	-115	ALA	-	expression tag	UNP Q14204
e	-114	TYR	-	expression tag	UNP Q14204
e	-113	PHE	-	expression tag	UNP Q14204
e	-112	HIS	-	expression tag	UNP Q14204
e	-111	GLN	-	expression tag	UNP Q14204
e	-110	PRO	-	expression tag	UNP Q14204
e	-109	GLU	-	expression tag	UNP Q14204
e	-108	ALA	-	expression tag	UNP Q14204
e	-107	ILE	-	expression tag	UNP Q14204
e	-106	GLU	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-105	GLU	-	expression tag	UNP Q14204
e	-104	PHE	-	expression tag	UNP Q14204
e	-103	PRO	-	expression tag	UNP Q14204
e	-102	VAL	-	expression tag	UNP Q14204
e	-101	PRO	-	expression tag	UNP Q14204
e	-100	ALA	-	expression tag	UNP Q14204
e	-99	LEU	-	expression tag	UNP Q14204
e	-98	HIS	-	expression tag	UNP Q14204
e	-97	HIS	-	expression tag	UNP Q14204
e	-96	PRO	-	expression tag	UNP Q14204
e	-95	VAL	-	expression tag	UNP Q14204
e	-94	PHE	-	expression tag	UNP Q14204
e	-93	GLN	-	expression tag	UNP Q14204
e	-92	GLN	-	expression tag	UNP Q14204
e	-91	GLU	-	expression tag	UNP Q14204
e	-90	SER	-	expression tag	UNP Q14204
e	-89	PHE	-	expression tag	UNP Q14204
e	-88	THR	-	expression tag	UNP Q14204
e	-87	ARG	-	expression tag	UNP Q14204
e	-86	GLN	-	expression tag	UNP Q14204
e	-85	VAL	-	expression tag	UNP Q14204
e	-84	LEU	-	expression tag	UNP Q14204
e	-83	TRP	-	expression tag	UNP Q14204
e	-82	LYS	-	expression tag	UNP Q14204
e	-81	LEU	-	expression tag	UNP Q14204
e	-80	LEU	-	expression tag	UNP Q14204
e	-79	LYS	-	expression tag	UNP Q14204
e	-78	VAL	-	expression tag	UNP Q14204
e	-77	VAL	-	expression tag	UNP Q14204
e	-76	LYS	-	expression tag	UNP Q14204
e	-75	PHE	-	expression tag	UNP Q14204
e	-74	GLY	-	expression tag	UNP Q14204
e	-73	GLU	-	expression tag	UNP Q14204
e	-72	VAL	-	expression tag	UNP Q14204
e	-71	ILE	-	expression tag	UNP Q14204
e	-70	SER	-	expression tag	UNP Q14204
e	-69	TYR	-	expression tag	UNP Q14204
e	-68	SER	-	expression tag	UNP Q14204
e	-67	HIS	-	expression tag	UNP Q14204
e	-66	LEU	-	expression tag	UNP Q14204
e	-65	ALA	-	expression tag	UNP Q14204
e	-64	ALA	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-63	LEU	-	expression tag	UNP Q14204
e	-62	ALA	-	expression tag	UNP Q14204
e	-61	GLY	-	expression tag	UNP Q14204
e	-60	ASN	-	expression tag	UNP Q14204
e	-59	PRO	-	expression tag	UNP Q14204
e	-58	ALA	-	expression tag	UNP Q14204
e	-57	ALA	-	expression tag	UNP Q14204
e	-56	THR	-	expression tag	UNP Q14204
e	-55	ALA	-	expression tag	UNP Q14204
e	-54	ALA	-	expression tag	UNP Q14204
e	-53	VAL	-	expression tag	UNP Q14204
e	-52	LYS	-	expression tag	UNP Q14204
e	-51	THR	-	expression tag	UNP Q14204
e	-50	ALA	-	expression tag	UNP Q14204
e	-49	LEU	-	expression tag	UNP Q14204
e	-48	SER	-	expression tag	UNP Q14204
e	-47	GLY	-	expression tag	UNP Q14204
e	-46	ASN	-	expression tag	UNP Q14204
e	-45	PRO	-	expression tag	UNP Q14204
e	-44	VAL	-	expression tag	UNP Q14204
e	-43	PRO	-	expression tag	UNP Q14204
e	-42	ILE	-	expression tag	UNP Q14204
e	-41	LEU	-	expression tag	UNP Q14204
e	-40	ILE	-	expression tag	UNP Q14204
e	-39	PRO	-	expression tag	UNP Q14204
e	-38	CYS	-	expression tag	UNP Q14204
e	-37	HIS	-	expression tag	UNP Q14204
e	-36	ARG	-	expression tag	UNP Q14204
e	-35	VAL	-	expression tag	UNP Q14204
e	-34	VAL	-	expression tag	UNP Q14204
e	-33	GLN	-	expression tag	UNP Q14204
e	-32	GLY	-	expression tag	UNP Q14204
e	-31	ASP	-	expression tag	UNP Q14204
e	-30	LEU	-	expression tag	UNP Q14204
e	-29	ASP	-	expression tag	UNP Q14204
e	-28	VAL	-	expression tag	UNP Q14204
e	-27	GLY	-	expression tag	UNP Q14204
e	-26	GLY	-	expression tag	UNP Q14204
e	-25	TYR	-	expression tag	UNP Q14204
e	-24	GLU	-	expression tag	UNP Q14204
e	-23	GLY	-	expression tag	UNP Q14204
e	-22	GLY	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
e	-21	LEU	-	expression tag	UNP Q14204
e	-20	ALA	-	expression tag	UNP Q14204
e	-19	VAL	-	expression tag	UNP Q14204
e	-18	LYS	-	expression tag	UNP Q14204
e	-17	GLU	-	expression tag	UNP Q14204
e	-16	TRP	-	expression tag	UNP Q14204
e	-15	LEU	-	expression tag	UNP Q14204
e	-14	LEU	-	expression tag	UNP Q14204
e	-13	ALA	-	expression tag	UNP Q14204
e	-12	HIS	-	expression tag	UNP Q14204
e	-11	GLU	-	expression tag	UNP Q14204
e	-10	GLY	-	expression tag	UNP Q14204
e	-9	HIS	-	expression tag	UNP Q14204
e	-8	ARG	-	expression tag	UNP Q14204
e	-7	LEU	-	expression tag	UNP Q14204
e	-6	GLY	-	expression tag	UNP Q14204
e	-5	LYS	-	expression tag	UNP Q14204
e	-4	PRO	-	expression tag	UNP Q14204
e	-3	GLY	-	expression tag	UNP Q14204
e	-2	LEU	-	expression tag	UNP Q14204
e	-1	GLY	-	expression tag	UNP Q14204
e	0	GLY	-	expression tag	UNP Q14204
e	1	SER	-	expression tag	UNP Q14204
f	-196	GLY	-	expression tag	UNP Q14204
f	-195	ASP	-	expression tag	UNP Q14204
f	-194	TYR	-	expression tag	UNP Q14204
f	-193	ASP	-	expression tag	UNP Q14204
f	-192	ILE	-	expression tag	UNP Q14204
f	-191	PRO	-	expression tag	UNP Q14204
f	-190	THR	-	expression tag	UNP Q14204
f	-189	THR	-	expression tag	UNP Q14204
f	-188	GLU	-	expression tag	UNP Q14204
f	-187	ASN	-	expression tag	UNP Q14204
f	-186	LEU	-	expression tag	UNP Q14204
f	-185	TYR	-	expression tag	UNP Q14204
f	-184	PHE	-	expression tag	UNP Q14204
f	-183	GLN	-	expression tag	UNP Q14204
f	-182	GLY	-	expression tag	UNP Q14204
f	-181	ASP	-	expression tag	UNP Q14204
f	-180	LYS	-	expression tag	UNP Q14204
f	-179	ASP	-	expression tag	UNP Q14204
f	-178	CYS	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-177	GLU	-	expression tag	UNP Q14204
f	-176	MET	-	expression tag	UNP Q14204
f	-175	LYS	-	expression tag	UNP Q14204
f	-174	ARG	-	expression tag	UNP Q14204
f	-173	THR	-	expression tag	UNP Q14204
f	-172	THR	-	expression tag	UNP Q14204
f	-171	LEU	-	expression tag	UNP Q14204
f	-170	ASP	-	expression tag	UNP Q14204
f	-169	SER	-	expression tag	UNP Q14204
f	-168	PRO	-	expression tag	UNP Q14204
f	-167	LEU	-	expression tag	UNP Q14204
f	-166	GLY	-	expression tag	UNP Q14204
f	-165	LYS	-	expression tag	UNP Q14204
f	-164	LEU	-	expression tag	UNP Q14204
f	-163	GLU	-	expression tag	UNP Q14204
f	-162	LEU	-	expression tag	UNP Q14204
f	-161	SER	-	expression tag	UNP Q14204
f	-160	GLY	-	expression tag	UNP Q14204
f	-159	CYS	-	expression tag	UNP Q14204
f	-158	GLU	-	expression tag	UNP Q14204
f	-157	GLN	-	expression tag	UNP Q14204
f	-156	GLY	-	expression tag	UNP Q14204
f	-155	LEU	-	expression tag	UNP Q14204
f	-154	HIS	-	expression tag	UNP Q14204
f	-153	ARG	-	expression tag	UNP Q14204
f	-152	ILE	-	expression tag	UNP Q14204
f	-151	ILE	-	expression tag	UNP Q14204
f	-150	PHE	-	expression tag	UNP Q14204
f	-149	LEU	-	expression tag	UNP Q14204
f	-148	GLY	-	expression tag	UNP Q14204
f	-147	LYS	-	expression tag	UNP Q14204
f	-146	GLY	-	expression tag	UNP Q14204
f	-145	THR	-	expression tag	UNP Q14204
f	-144	SER	-	expression tag	UNP Q14204
f	-143	ALA	-	expression tag	UNP Q14204
f	-142	ALA	-	expression tag	UNP Q14204
f	-141	ASP	-	expression tag	UNP Q14204
f	-140	ALA	-	expression tag	UNP Q14204
f	-139	VAL	-	expression tag	UNP Q14204
f	-138	GLU	-	expression tag	UNP Q14204
f	-137	VAL	-	expression tag	UNP Q14204
f	-136	PRO	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-135	ALA	-	expression tag	UNP Q14204
f	-134	PRO	-	expression tag	UNP Q14204
f	-133	ALA	-	expression tag	UNP Q14204
f	-132	ALA	-	expression tag	UNP Q14204
f	-131	VAL	-	expression tag	UNP Q14204
f	-130	LEU	-	expression tag	UNP Q14204
f	-129	GLY	-	expression tag	UNP Q14204
f	-128	GLY	-	expression tag	UNP Q14204
f	-127	PRO	-	expression tag	UNP Q14204
f	-126	GLU	-	expression tag	UNP Q14204
f	-125	PRO	-	expression tag	UNP Q14204
f	-124	LEU	-	expression tag	UNP Q14204
f	-123	MET	-	expression tag	UNP Q14204
f	-122	GLN	-	expression tag	UNP Q14204
f	-121	ALA	-	expression tag	UNP Q14204
f	-120	THR	-	expression tag	UNP Q14204
f	-119	ALA	-	expression tag	UNP Q14204
f	-118	TRP	-	expression tag	UNP Q14204
f	-117	LEU	-	expression tag	UNP Q14204
f	-116	ASN	-	expression tag	UNP Q14204
f	-115	ALA	-	expression tag	UNP Q14204
f	-114	TYR	-	expression tag	UNP Q14204
f	-113	PHE	-	expression tag	UNP Q14204
f	-112	HIS	-	expression tag	UNP Q14204
f	-111	GLN	-	expression tag	UNP Q14204
f	-110	PRO	-	expression tag	UNP Q14204
f	-109	GLU	-	expression tag	UNP Q14204
f	-108	ALA	-	expression tag	UNP Q14204
f	-107	ILE	-	expression tag	UNP Q14204
f	-106	GLU	-	expression tag	UNP Q14204
f	-105	GLU	-	expression tag	UNP Q14204
f	-104	PHE	-	expression tag	UNP Q14204
f	-103	PRO	-	expression tag	UNP Q14204
f	-102	VAL	-	expression tag	UNP Q14204
f	-101	PRO	-	expression tag	UNP Q14204
f	-100	ALA	-	expression tag	UNP Q14204
f	-99	LEU	-	expression tag	UNP Q14204
f	-98	HIS	-	expression tag	UNP Q14204
f	-97	HIS	-	expression tag	UNP Q14204
f	-96	PRO	-	expression tag	UNP Q14204
f	-95	VAL	-	expression tag	UNP Q14204
f	-94	PHE	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-93	GLN	-	expression tag	UNP Q14204
f	-92	GLN	-	expression tag	UNP Q14204
f	-91	GLU	-	expression tag	UNP Q14204
f	-90	SER	-	expression tag	UNP Q14204
f	-89	PHE	-	expression tag	UNP Q14204
f	-88	THR	-	expression tag	UNP Q14204
f	-87	ARG	-	expression tag	UNP Q14204
f	-86	GLN	-	expression tag	UNP Q14204
f	-85	VAL	-	expression tag	UNP Q14204
f	-84	LEU	-	expression tag	UNP Q14204
f	-83	TRP	-	expression tag	UNP Q14204
f	-82	LYS	-	expression tag	UNP Q14204
f	-81	LEU	-	expression tag	UNP Q14204
f	-80	LEU	-	expression tag	UNP Q14204
f	-79	LYS	-	expression tag	UNP Q14204
f	-78	VAL	-	expression tag	UNP Q14204
f	-77	VAL	-	expression tag	UNP Q14204
f	-76	LYS	-	expression tag	UNP Q14204
f	-75	PHE	-	expression tag	UNP Q14204
f	-74	GLY	-	expression tag	UNP Q14204
f	-73	GLU	-	expression tag	UNP Q14204
f	-72	VAL	-	expression tag	UNP Q14204
f	-71	ILE	-	expression tag	UNP Q14204
f	-70	SER	-	expression tag	UNP Q14204
f	-69	TYR	-	expression tag	UNP Q14204
f	-68	SER	-	expression tag	UNP Q14204
f	-67	HIS	-	expression tag	UNP Q14204
f	-66	LEU	-	expression tag	UNP Q14204
f	-65	ALA	-	expression tag	UNP Q14204
f	-64	ALA	-	expression tag	UNP Q14204
f	-63	LEU	-	expression tag	UNP Q14204
f	-62	ALA	-	expression tag	UNP Q14204
f	-61	GLY	-	expression tag	UNP Q14204
f	-60	ASN	-	expression tag	UNP Q14204
f	-59	PRO	-	expression tag	UNP Q14204
f	-58	ALA	-	expression tag	UNP Q14204
f	-57	ALA	-	expression tag	UNP Q14204
f	-56	THR	-	expression tag	UNP Q14204
f	-55	ALA	-	expression tag	UNP Q14204
f	-54	ALA	-	expression tag	UNP Q14204
f	-53	VAL	-	expression tag	UNP Q14204
f	-52	LYS	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-51	THR	-	expression tag	UNP Q14204
f	-50	ALA	-	expression tag	UNP Q14204
f	-49	LEU	-	expression tag	UNP Q14204
f	-48	SER	-	expression tag	UNP Q14204
f	-47	GLY	-	expression tag	UNP Q14204
f	-46	ASN	-	expression tag	UNP Q14204
f	-45	PRO	-	expression tag	UNP Q14204
f	-44	VAL	-	expression tag	UNP Q14204
f	-43	PRO	-	expression tag	UNP Q14204
f	-42	ILE	-	expression tag	UNP Q14204
f	-41	LEU	-	expression tag	UNP Q14204
f	-40	ILE	-	expression tag	UNP Q14204
f	-39	PRO	-	expression tag	UNP Q14204
f	-38	CYS	-	expression tag	UNP Q14204
f	-37	HIS	-	expression tag	UNP Q14204
f	-36	ARG	-	expression tag	UNP Q14204
f	-35	VAL	-	expression tag	UNP Q14204
f	-34	VAL	-	expression tag	UNP Q14204
f	-33	GLN	-	expression tag	UNP Q14204
f	-32	GLY	-	expression tag	UNP Q14204
f	-31	ASP	-	expression tag	UNP Q14204
f	-30	LEU	-	expression tag	UNP Q14204
f	-29	ASP	-	expression tag	UNP Q14204
f	-28	VAL	-	expression tag	UNP Q14204
f	-27	GLY	-	expression tag	UNP Q14204
f	-26	GLY	-	expression tag	UNP Q14204
f	-25	TYR	-	expression tag	UNP Q14204
f	-24	GLU	-	expression tag	UNP Q14204
f	-23	GLY	-	expression tag	UNP Q14204
f	-22	GLY	-	expression tag	UNP Q14204
f	-21	LEU	-	expression tag	UNP Q14204
f	-20	ALA	-	expression tag	UNP Q14204
f	-19	VAL	-	expression tag	UNP Q14204
f	-18	LYS	-	expression tag	UNP Q14204
f	-17	GLU	-	expression tag	UNP Q14204
f	-16	TRP	-	expression tag	UNP Q14204
f	-15	LEU	-	expression tag	UNP Q14204
f	-14	LEU	-	expression tag	UNP Q14204
f	-13	ALA	-	expression tag	UNP Q14204
f	-12	HIS	-	expression tag	UNP Q14204
f	-11	GLU	-	expression tag	UNP Q14204
f	-10	GLY	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
f	-9	HIS	-	expression tag	UNP Q14204
f	-8	ARG	-	expression tag	UNP Q14204
f	-7	LEU	-	expression tag	UNP Q14204
f	-6	GLY	-	expression tag	UNP Q14204
f	-5	LYS	-	expression tag	UNP Q14204
f	-4	PRO	-	expression tag	UNP Q14204
f	-3	GLY	-	expression tag	UNP Q14204
f	-2	LEU	-	expression tag	UNP Q14204
f	-1	GLY	-	expression tag	UNP Q14204
f	0	GLY	-	expression tag	UNP Q14204
f	1	SER	-	expression tag	UNP Q14204
A	-196	GLY	-	expression tag	UNP Q14204
A	-195	ASP	-	expression tag	UNP Q14204
A	-194	TYR	-	expression tag	UNP Q14204
A	-193	ASP	-	expression tag	UNP Q14204
A	-192	ILE	-	expression tag	UNP Q14204
A	-191	PRO	-	expression tag	UNP Q14204
A	-190	THR	-	expression tag	UNP Q14204
A	-189	THR	-	expression tag	UNP Q14204
A	-188	GLU	-	expression tag	UNP Q14204
A	-187	ASN	-	expression tag	UNP Q14204
A	-186	LEU	-	expression tag	UNP Q14204
A	-185	TYR	-	expression tag	UNP Q14204
A	-184	PHE	-	expression tag	UNP Q14204
A	-183	GLN	-	expression tag	UNP Q14204
A	-182	GLY	-	expression tag	UNP Q14204
A	-181	ASP	-	expression tag	UNP Q14204
A	-180	LYS	-	expression tag	UNP Q14204
A	-179	ASP	-	expression tag	UNP Q14204
A	-178	CYS	-	expression tag	UNP Q14204
A	-177	GLU	-	expression tag	UNP Q14204
A	-176	MET	-	expression tag	UNP Q14204
A	-175	LYS	-	expression tag	UNP Q14204
A	-174	ARG	-	expression tag	UNP Q14204
A	-173	THR	-	expression tag	UNP Q14204
A	-172	THR	-	expression tag	UNP Q14204
A	-171	LEU	-	expression tag	UNP Q14204
A	-170	ASP	-	expression tag	UNP Q14204
A	-169	SER	-	expression tag	UNP Q14204
A	-168	PRO	-	expression tag	UNP Q14204
A	-167	LEU	-	expression tag	UNP Q14204
A	-166	GLY	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-165	LYS	-	expression tag	UNP Q14204
A	-164	LEU	-	expression tag	UNP Q14204
A	-163	GLU	-	expression tag	UNP Q14204
A	-162	LEU	-	expression tag	UNP Q14204
A	-161	SER	-	expression tag	UNP Q14204
A	-160	GLY	-	expression tag	UNP Q14204
A	-159	CYS	-	expression tag	UNP Q14204
A	-158	GLU	-	expression tag	UNP Q14204
A	-157	GLN	-	expression tag	UNP Q14204
A	-156	GLY	-	expression tag	UNP Q14204
A	-155	LEU	-	expression tag	UNP Q14204
A	-154	HIS	-	expression tag	UNP Q14204
A	-153	ARG	-	expression tag	UNP Q14204
A	-152	ILE	-	expression tag	UNP Q14204
A	-151	ILE	-	expression tag	UNP Q14204
A	-150	PHE	-	expression tag	UNP Q14204
A	-149	LEU	-	expression tag	UNP Q14204
A	-148	GLY	-	expression tag	UNP Q14204
A	-147	LYS	-	expression tag	UNP Q14204
A	-146	GLY	-	expression tag	UNP Q14204
A	-145	THR	-	expression tag	UNP Q14204
A	-144	SER	-	expression tag	UNP Q14204
A	-143	ALA	-	expression tag	UNP Q14204
A	-142	ALA	-	expression tag	UNP Q14204
A	-141	ASP	-	expression tag	UNP Q14204
A	-140	ALA	-	expression tag	UNP Q14204
A	-139	VAL	-	expression tag	UNP Q14204
A	-138	GLU	-	expression tag	UNP Q14204
A	-137	VAL	-	expression tag	UNP Q14204
A	-136	PRO	-	expression tag	UNP Q14204
A	-135	ALA	-	expression tag	UNP Q14204
A	-134	PRO	-	expression tag	UNP Q14204
A	-133	ALA	-	expression tag	UNP Q14204
A	-132	ALA	-	expression tag	UNP Q14204
A	-131	VAL	-	expression tag	UNP Q14204
A	-130	LEU	-	expression tag	UNP Q14204
A	-129	GLY	-	expression tag	UNP Q14204
A	-128	GLY	-	expression tag	UNP Q14204
A	-127	PRO	-	expression tag	UNP Q14204
A	-126	GLU	-	expression tag	UNP Q14204
A	-125	PRO	-	expression tag	UNP Q14204
A	-124	LEU	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-123	MET	-	expression tag	UNP Q14204
A	-122	GLN	-	expression tag	UNP Q14204
A	-121	ALA	-	expression tag	UNP Q14204
A	-120	THR	-	expression tag	UNP Q14204
A	-119	ALA	-	expression tag	UNP Q14204
A	-118	TRP	-	expression tag	UNP Q14204
A	-117	LEU	-	expression tag	UNP Q14204
A	-116	ASN	-	expression tag	UNP Q14204
A	-115	ALA	-	expression tag	UNP Q14204
A	-114	TYR	-	expression tag	UNP Q14204
A	-113	PHE	-	expression tag	UNP Q14204
A	-112	HIS	-	expression tag	UNP Q14204
A	-111	GLN	-	expression tag	UNP Q14204
A	-110	PRO	-	expression tag	UNP Q14204
A	-109	GLU	-	expression tag	UNP Q14204
A	-108	ALA	-	expression tag	UNP Q14204
A	-107	ILE	-	expression tag	UNP Q14204
A	-106	GLU	-	expression tag	UNP Q14204
A	-105	GLU	-	expression tag	UNP Q14204
A	-104	PHE	-	expression tag	UNP Q14204
A	-103	PRO	-	expression tag	UNP Q14204
A	-102	VAL	-	expression tag	UNP Q14204
A	-101	PRO	-	expression tag	UNP Q14204
A	-100	ALA	-	expression tag	UNP Q14204
A	-99	LEU	-	expression tag	UNP Q14204
A	-98	HIS	-	expression tag	UNP Q14204
A	-97	HIS	-	expression tag	UNP Q14204
A	-96	PRO	-	expression tag	UNP Q14204
A	-95	VAL	-	expression tag	UNP Q14204
A	-94	PHE	-	expression tag	UNP Q14204
A	-93	GLN	-	expression tag	UNP Q14204
A	-92	GLN	-	expression tag	UNP Q14204
A	-91	GLU	-	expression tag	UNP Q14204
A	-90	SER	-	expression tag	UNP Q14204
A	-89	PHE	-	expression tag	UNP Q14204
A	-88	THR	-	expression tag	UNP Q14204
A	-87	ARG	-	expression tag	UNP Q14204
A	-86	GLN	-	expression tag	UNP Q14204
A	-85	VAL	-	expression tag	UNP Q14204
A	-84	LEU	-	expression tag	UNP Q14204
A	-83	TRP	-	expression tag	UNP Q14204
A	-82	LYS	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-81	LEU	-	expression tag	UNP Q14204
A	-80	LEU	-	expression tag	UNP Q14204
A	-79	LYS	-	expression tag	UNP Q14204
A	-78	VAL	-	expression tag	UNP Q14204
A	-77	VAL	-	expression tag	UNP Q14204
A	-76	LYS	-	expression tag	UNP Q14204
A	-75	PHE	-	expression tag	UNP Q14204
A	-74	GLY	-	expression tag	UNP Q14204
A	-73	GLU	-	expression tag	UNP Q14204
A	-72	VAL	-	expression tag	UNP Q14204
A	-71	ILE	-	expression tag	UNP Q14204
A	-70	SER	-	expression tag	UNP Q14204
A	-69	TYR	-	expression tag	UNP Q14204
A	-68	SER	-	expression tag	UNP Q14204
A	-67	HIS	-	expression tag	UNP Q14204
A	-66	LEU	-	expression tag	UNP Q14204
A	-65	ALA	-	expression tag	UNP Q14204
A	-64	ALA	-	expression tag	UNP Q14204
A	-63	LEU	-	expression tag	UNP Q14204
A	-62	ALA	-	expression tag	UNP Q14204
A	-61	GLY	-	expression tag	UNP Q14204
A	-60	ASN	-	expression tag	UNP Q14204
A	-59	PRO	-	expression tag	UNP Q14204
A	-58	ALA	-	expression tag	UNP Q14204
A	-57	ALA	-	expression tag	UNP Q14204
A	-56	THR	-	expression tag	UNP Q14204
A	-55	ALA	-	expression tag	UNP Q14204
A	-54	ALA	-	expression tag	UNP Q14204
A	-53	VAL	-	expression tag	UNP Q14204
A	-52	LYS	-	expression tag	UNP Q14204
A	-51	THR	-	expression tag	UNP Q14204
A	-50	ALA	-	expression tag	UNP Q14204
A	-49	LEU	-	expression tag	UNP Q14204
A	-48	SER	-	expression tag	UNP Q14204
A	-47	GLY	-	expression tag	UNP Q14204
A	-46	ASN	-	expression tag	UNP Q14204
A	-45	PRO	-	expression tag	UNP Q14204
A	-44	VAL	-	expression tag	UNP Q14204
A	-43	PRO	-	expression tag	UNP Q14204
A	-42	ILE	-	expression tag	UNP Q14204
A	-41	LEU	-	expression tag	UNP Q14204
A	-40	ILE	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-39	PRO	-	expression tag	UNP Q14204
A	-38	CYS	-	expression tag	UNP Q14204
A	-37	HIS	-	expression tag	UNP Q14204
A	-36	ARG	-	expression tag	UNP Q14204
A	-35	VAL	-	expression tag	UNP Q14204
A	-34	VAL	-	expression tag	UNP Q14204
A	-33	GLN	-	expression tag	UNP Q14204
A	-32	GLY	-	expression tag	UNP Q14204
A	-31	ASP	-	expression tag	UNP Q14204
A	-30	LEU	-	expression tag	UNP Q14204
A	-29	ASP	-	expression tag	UNP Q14204
A	-28	VAL	-	expression tag	UNP Q14204
A	-27	GLY	-	expression tag	UNP Q14204
A	-26	GLY	-	expression tag	UNP Q14204
A	-25	TYR	-	expression tag	UNP Q14204
A	-24	GLU	-	expression tag	UNP Q14204
A	-23	GLY	-	expression tag	UNP Q14204
A	-22	GLY	-	expression tag	UNP Q14204
A	-21	LEU	-	expression tag	UNP Q14204
A	-20	ALA	-	expression tag	UNP Q14204
A	-19	VAL	-	expression tag	UNP Q14204
A	-18	LYS	-	expression tag	UNP Q14204
A	-17	GLU	-	expression tag	UNP Q14204
A	-16	TRP	-	expression tag	UNP Q14204
A	-15	LEU	-	expression tag	UNP Q14204
A	-14	LEU	-	expression tag	UNP Q14204
A	-13	ALA	-	expression tag	UNP Q14204
A	-12	HIS	-	expression tag	UNP Q14204
A	-11	GLU	-	expression tag	UNP Q14204
A	-10	GLY	-	expression tag	UNP Q14204
A	-9	HIS	-	expression tag	UNP Q14204
A	-8	ARG	-	expression tag	UNP Q14204
A	-7	LEU	-	expression tag	UNP Q14204
A	-6	GLY	-	expression tag	UNP Q14204
A	-5	LYS	-	expression tag	UNP Q14204
A	-4	PRO	-	expression tag	UNP Q14204
A	-3	GLY	-	expression tag	UNP Q14204
A	-2	LEU	-	expression tag	UNP Q14204
A	-1	GLY	-	expression tag	UNP Q14204
A	0	GLY	-	expression tag	UNP Q14204
A	1	SER	-	expression tag	UNP Q14204
G	-196	GLY	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-195	ASP	-	expression tag	UNP Q14204
G	-194	TYR	-	expression tag	UNP Q14204
G	-193	ASP	-	expression tag	UNP Q14204
G	-192	ILE	-	expression tag	UNP Q14204
G	-191	PRO	-	expression tag	UNP Q14204
G	-190	THR	-	expression tag	UNP Q14204
G	-189	THR	-	expression tag	UNP Q14204
G	-188	GLU	-	expression tag	UNP Q14204
G	-187	ASN	-	expression tag	UNP Q14204
G	-186	LEU	-	expression tag	UNP Q14204
G	-185	TYR	-	expression tag	UNP Q14204
G	-184	PHE	-	expression tag	UNP Q14204
G	-183	GLN	-	expression tag	UNP Q14204
G	-182	GLY	-	expression tag	UNP Q14204
G	-181	ASP	-	expression tag	UNP Q14204
G	-180	LYS	-	expression tag	UNP Q14204
G	-179	ASP	-	expression tag	UNP Q14204
G	-178	CYS	-	expression tag	UNP Q14204
G	-177	GLU	-	expression tag	UNP Q14204
G	-176	MET	-	expression tag	UNP Q14204
G	-175	LYS	-	expression tag	UNP Q14204
G	-174	ARG	-	expression tag	UNP Q14204
G	-173	THR	-	expression tag	UNP Q14204
G	-172	THR	-	expression tag	UNP Q14204
G	-171	LEU	-	expression tag	UNP Q14204
G	-170	ASP	-	expression tag	UNP Q14204
G	-169	SER	-	expression tag	UNP Q14204
G	-168	PRO	-	expression tag	UNP Q14204
G	-167	LEU	-	expression tag	UNP Q14204
G	-166	GLY	-	expression tag	UNP Q14204
G	-165	LYS	-	expression tag	UNP Q14204
G	-164	LEU	-	expression tag	UNP Q14204
G	-163	GLU	-	expression tag	UNP Q14204
G	-162	LEU	-	expression tag	UNP Q14204
G	-161	SER	-	expression tag	UNP Q14204
G	-160	GLY	-	expression tag	UNP Q14204
G	-159	CYS	-	expression tag	UNP Q14204
G	-158	GLU	-	expression tag	UNP Q14204
G	-157	GLN	-	expression tag	UNP Q14204
G	-156	GLY	-	expression tag	UNP Q14204
G	-155	LEU	-	expression tag	UNP Q14204
G	-154	HIS	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-153	ARG	-	expression tag	UNP Q14204
G	-152	ILE	-	expression tag	UNP Q14204
G	-151	ILE	-	expression tag	UNP Q14204
G	-150	PHE	-	expression tag	UNP Q14204
G	-149	LEU	-	expression tag	UNP Q14204
G	-148	GLY	-	expression tag	UNP Q14204
G	-147	LYS	-	expression tag	UNP Q14204
G	-146	GLY	-	expression tag	UNP Q14204
G	-145	THR	-	expression tag	UNP Q14204
G	-144	SER	-	expression tag	UNP Q14204
G	-143	ALA	-	expression tag	UNP Q14204
G	-142	ALA	-	expression tag	UNP Q14204
G	-141	ASP	-	expression tag	UNP Q14204
G	-140	ALA	-	expression tag	UNP Q14204
G	-139	VAL	-	expression tag	UNP Q14204
G	-138	GLU	-	expression tag	UNP Q14204
G	-137	VAL	-	expression tag	UNP Q14204
G	-136	PRO	-	expression tag	UNP Q14204
G	-135	ALA	-	expression tag	UNP Q14204
G	-134	PRO	-	expression tag	UNP Q14204
G	-133	ALA	-	expression tag	UNP Q14204
G	-132	ALA	-	expression tag	UNP Q14204
G	-131	VAL	-	expression tag	UNP Q14204
G	-130	LEU	-	expression tag	UNP Q14204
G	-129	GLY	-	expression tag	UNP Q14204
G	-128	GLY	-	expression tag	UNP Q14204
G	-127	PRO	-	expression tag	UNP Q14204
G	-126	GLU	-	expression tag	UNP Q14204
G	-125	PRO	-	expression tag	UNP Q14204
G	-124	LEU	-	expression tag	UNP Q14204
G	-123	MET	-	expression tag	UNP Q14204
G	-122	GLN	-	expression tag	UNP Q14204
G	-121	ALA	-	expression tag	UNP Q14204
G	-120	THR	-	expression tag	UNP Q14204
G	-119	ALA	-	expression tag	UNP Q14204
G	-118	TRP	-	expression tag	UNP Q14204
G	-117	LEU	-	expression tag	UNP Q14204
G	-116	ASN	-	expression tag	UNP Q14204
G	-115	ALA	-	expression tag	UNP Q14204
G	-114	TYR	-	expression tag	UNP Q14204
G	-113	PHE	-	expression tag	UNP Q14204
G	-112	HIS	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-111	GLN	-	expression tag	UNP Q14204
G	-110	PRO	-	expression tag	UNP Q14204
G	-109	GLU	-	expression tag	UNP Q14204
G	-108	ALA	-	expression tag	UNP Q14204
G	-107	ILE	-	expression tag	UNP Q14204
G	-106	GLU	-	expression tag	UNP Q14204
G	-105	GLU	-	expression tag	UNP Q14204
G	-104	PHE	-	expression tag	UNP Q14204
G	-103	PRO	-	expression tag	UNP Q14204
G	-102	VAL	-	expression tag	UNP Q14204
G	-101	PRO	-	expression tag	UNP Q14204
G	-100	ALA	-	expression tag	UNP Q14204
G	-99	LEU	-	expression tag	UNP Q14204
G	-98	HIS	-	expression tag	UNP Q14204
G	-97	HIS	-	expression tag	UNP Q14204
G	-96	PRO	-	expression tag	UNP Q14204
G	-95	VAL	-	expression tag	UNP Q14204
G	-94	PHE	-	expression tag	UNP Q14204
G	-93	GLN	-	expression tag	UNP Q14204
G	-92	GLN	-	expression tag	UNP Q14204
G	-91	GLU	-	expression tag	UNP Q14204
G	-90	SER	-	expression tag	UNP Q14204
G	-89	PHE	-	expression tag	UNP Q14204
G	-88	THR	-	expression tag	UNP Q14204
G	-87	ARG	-	expression tag	UNP Q14204
G	-86	GLN	-	expression tag	UNP Q14204
G	-85	VAL	-	expression tag	UNP Q14204
G	-84	LEU	-	expression tag	UNP Q14204
G	-83	TRP	-	expression tag	UNP Q14204
G	-82	LYS	-	expression tag	UNP Q14204
G	-81	LEU	-	expression tag	UNP Q14204
G	-80	LEU	-	expression tag	UNP Q14204
G	-79	LYS	-	expression tag	UNP Q14204
G	-78	VAL	-	expression tag	UNP Q14204
G	-77	VAL	-	expression tag	UNP Q14204
G	-76	LYS	-	expression tag	UNP Q14204
G	-75	PHE	-	expression tag	UNP Q14204
G	-74	GLY	-	expression tag	UNP Q14204
G	-73	GLU	-	expression tag	UNP Q14204
G	-72	VAL	-	expression tag	UNP Q14204
G	-71	ILE	-	expression tag	UNP Q14204
G	-70	SER	-	expression tag	UNP Q14204

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-69	TYR	-	expression tag	UNP Q14204
G	-68	SER	-	expression tag	UNP Q14204
G	-67	HIS	-	expression tag	UNP Q14204
G	-66	LEU	-	expression tag	UNP Q14204
G	-65	ALA	-	expression tag	UNP Q14204
G	-64	ALA	-	expression tag	UNP Q14204
G	-63	LEU	-	expression tag	UNP Q14204
G	-62	ALA	-	expression tag	UNP Q14204
G	-61	GLY	-	expression tag	UNP Q14204
G	-60	ASN	-	expression tag	UNP Q14204
G	-59	PRO	-	expression tag	UNP Q14204
G	-58	ALA	-	expression tag	UNP Q14204
G	-57	ALA	-	expression tag	UNP Q14204
G	-56	THR	-	expression tag	UNP Q14204
G	-55	ALA	-	expression tag	UNP Q14204
G	-54	ALA	-	expression tag	UNP Q14204
G	-53	VAL	-	expression tag	UNP Q14204
G	-52	LYS	-	expression tag	UNP Q14204
G	-51	THR	-	expression tag	UNP Q14204
G	-50	ALA	-	expression tag	UNP Q14204
G	-49	LEU	-	expression tag	UNP Q14204
G	-48	SER	-	expression tag	UNP Q14204
G	-47	GLY	-	expression tag	UNP Q14204
G	-46	ASN	-	expression tag	UNP Q14204
G	-45	PRO	-	expression tag	UNP Q14204
G	-44	VAL	-	expression tag	UNP Q14204
G	-43	PRO	-	expression tag	UNP Q14204
G	-42	ILE	-	expression tag	UNP Q14204
G	-41	LEU	-	expression tag	UNP Q14204
G	-40	ILE	-	expression tag	UNP Q14204
G	-39	PRO	-	expression tag	UNP Q14204
G	-38	CYS	-	expression tag	UNP Q14204
G	-37	HIS	-	expression tag	UNP Q14204
G	-36	ARG	-	expression tag	UNP Q14204
G	-35	VAL	-	expression tag	UNP Q14204
G	-34	VAL	-	expression tag	UNP Q14204
G	-33	GLN	-	expression tag	UNP Q14204
G	-32	GLY	-	expression tag	UNP Q14204
G	-31	ASP	-	expression tag	UNP Q14204
G	-30	LEU	-	expression tag	UNP Q14204
G	-29	ASP	-	expression tag	UNP Q14204
G	-28	VAL	-	expression tag	UNP Q14204

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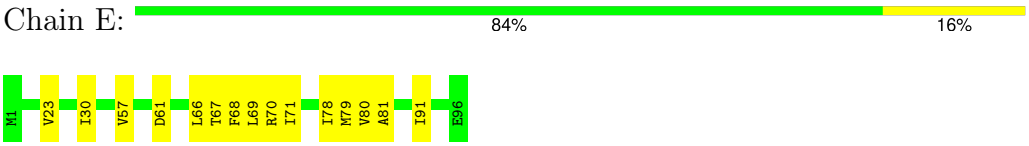
Chain	Residue	Modelled	Actual	Comment	Reference
G	-27	GLY	-	expression tag	UNP Q14204
G	-26	GLY	-	expression tag	UNP Q14204
G	-25	TYR	-	expression tag	UNP Q14204
G	-24	GLU	-	expression tag	UNP Q14204
G	-23	GLY	-	expression tag	UNP Q14204
G	-22	GLY	-	expression tag	UNP Q14204
G	-21	LEU	-	expression tag	UNP Q14204
G	-20	ALA	-	expression tag	UNP Q14204
G	-19	VAL	-	expression tag	UNP Q14204
G	-18	LYS	-	expression tag	UNP Q14204
G	-17	GLU	-	expression tag	UNP Q14204
G	-16	TRP	-	expression tag	UNP Q14204
G	-15	LEU	-	expression tag	UNP Q14204
G	-14	LEU	-	expression tag	UNP Q14204
G	-13	ALA	-	expression tag	UNP Q14204
G	-12	HIS	-	expression tag	UNP Q14204
G	-11	GLU	-	expression tag	UNP Q14204
G	-10	GLY	-	expression tag	UNP Q14204
G	-9	HIS	-	expression tag	UNP Q14204
G	-8	ARG	-	expression tag	UNP Q14204
G	-7	LEU	-	expression tag	UNP Q14204
G	-6	GLY	-	expression tag	UNP Q14204
G	-5	LYS	-	expression tag	UNP Q14204
G	-4	PRO	-	expression tag	UNP Q14204
G	-3	GLY	-	expression tag	UNP Q14204
G	-2	LEU	-	expression tag	UNP Q14204
G	-1	GLY	-	expression tag	UNP Q14204
G	0	GLY	-	expression tag	UNP Q14204
G	1	SER	-	expression tag	UNP Q14204

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 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.

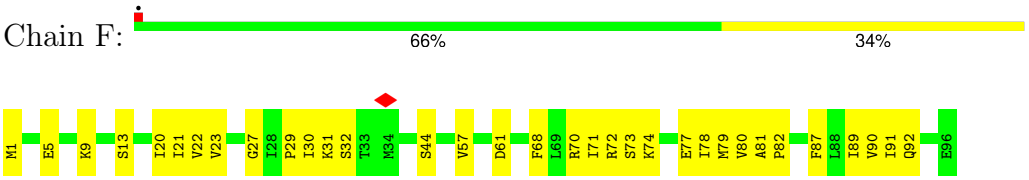
• Molecule 1: Dynein light chain roadblock-type 1

Chain E:



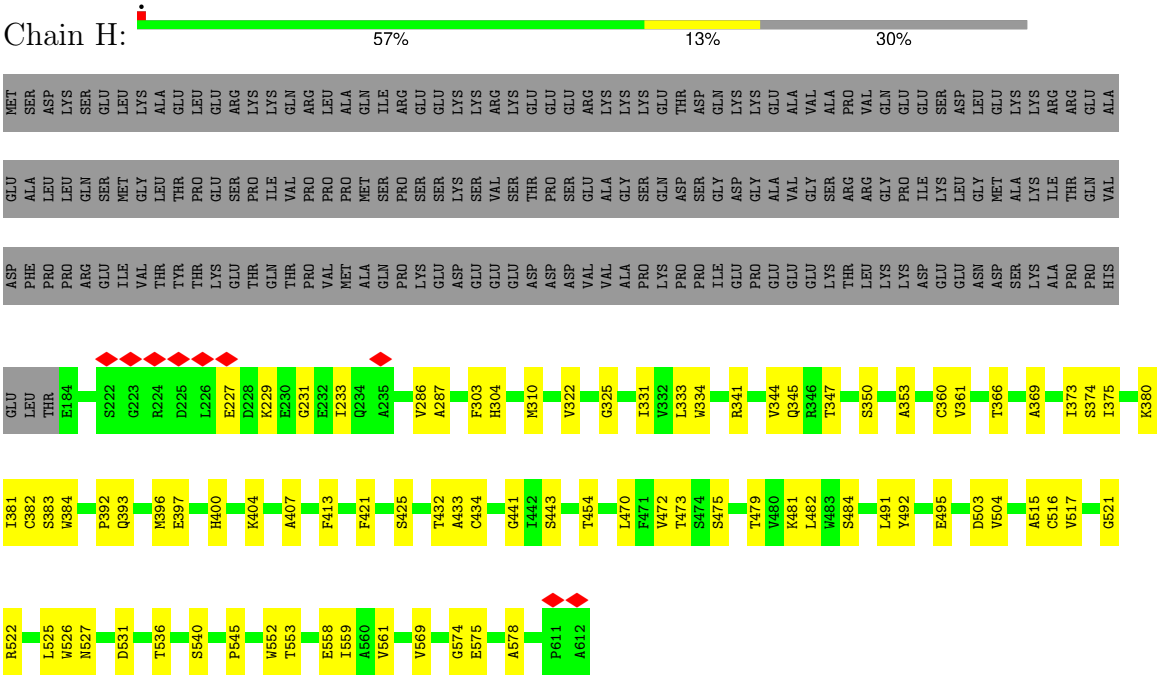
• Molecule 1: Dynein light chain roadblock-type 1

Chain F:



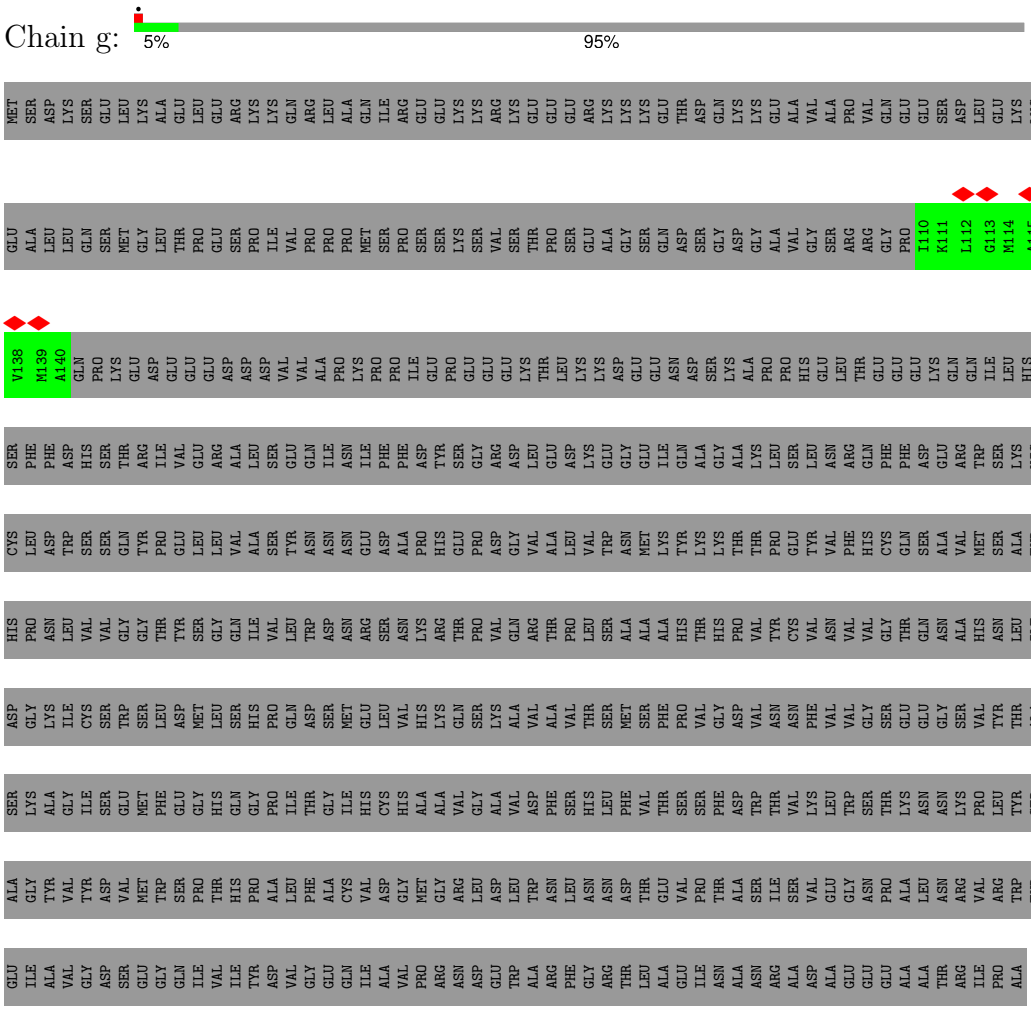
• Molecule 2: Isoform 2C of Cytoplasmic dynein 1 intermediate chain 2

Chain H:



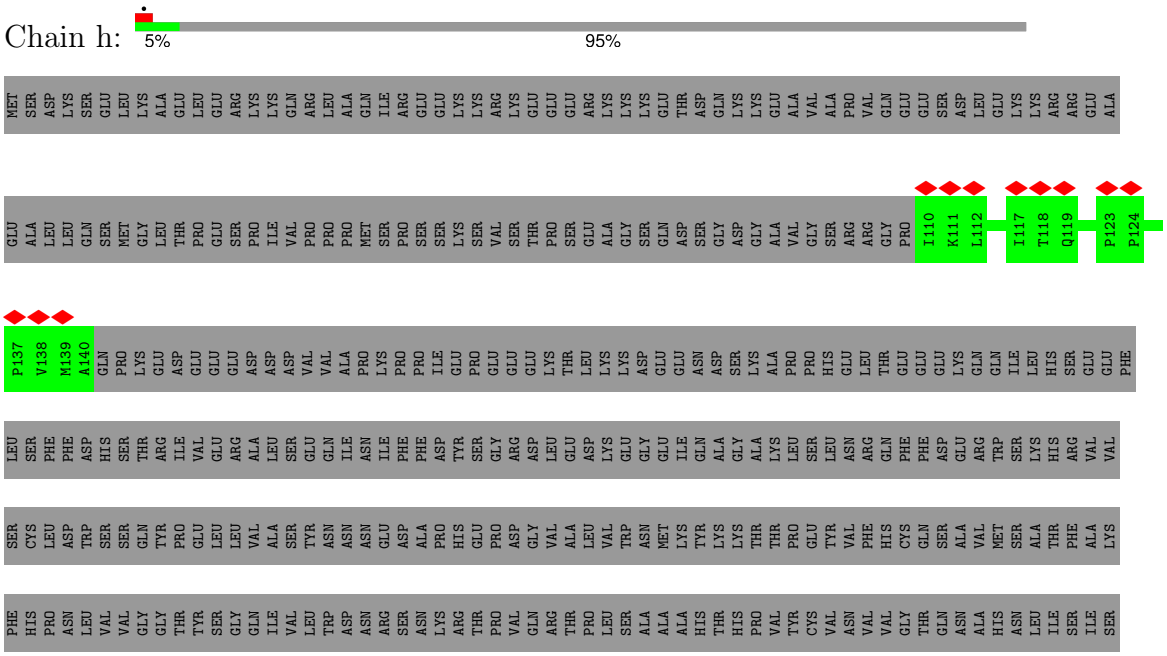
• Molecule 2: Isoform 2C of Cytoplasmic dynein 1 intermediate chain 2

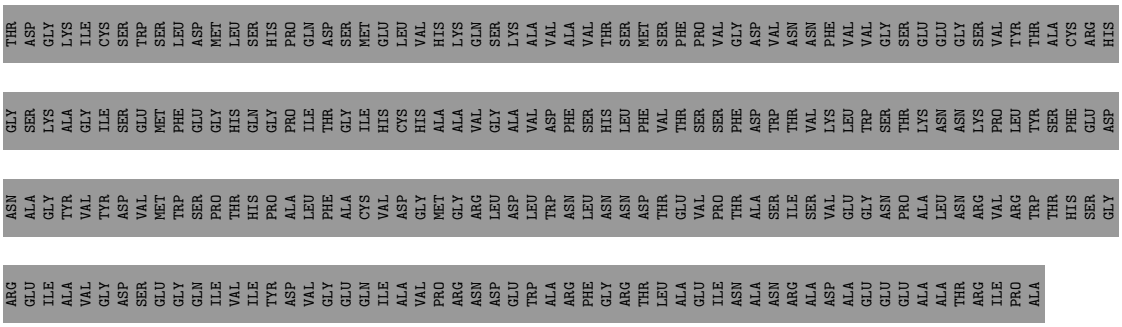
Chain g:



• Molecule 2: Isoform 2C of Cytoplasmic dynein 1 intermediate chain 2

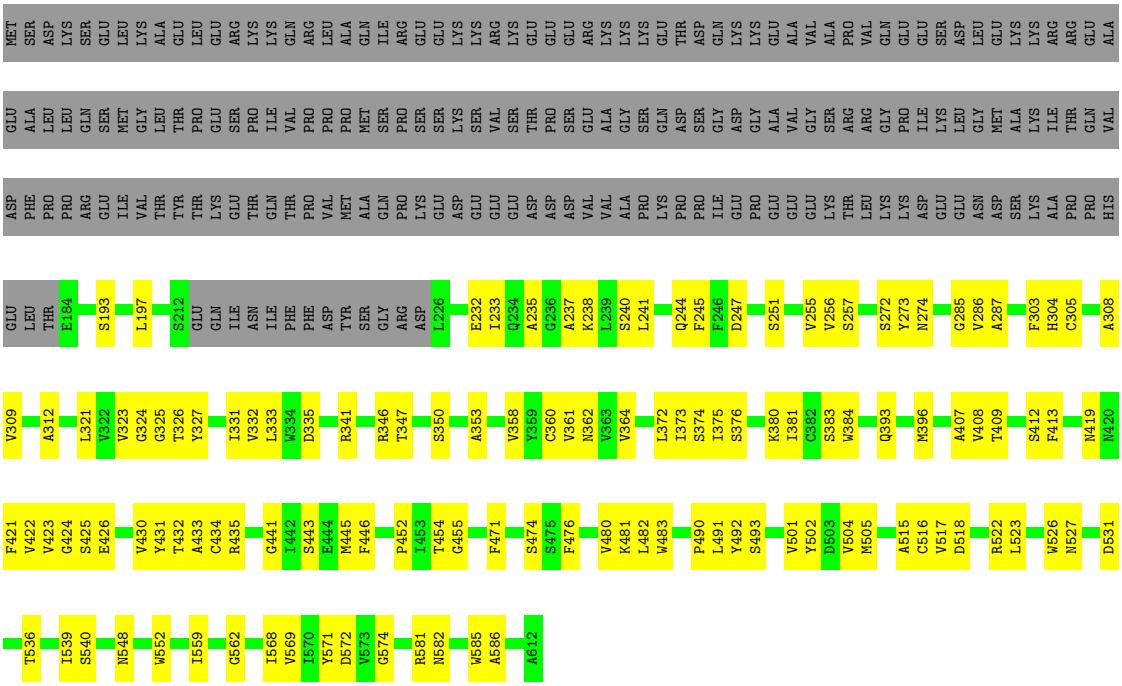
Chain h:





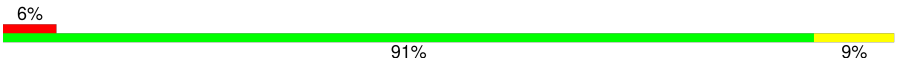
• Molecule 2: Isoform 2C of Cytoplasmic dynein 1 intermediate chain 2

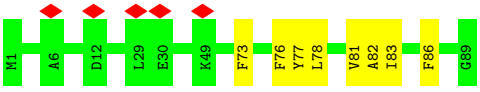
Chain D:



• Molecule 3: Dynein light chain 1, cytoplasmic

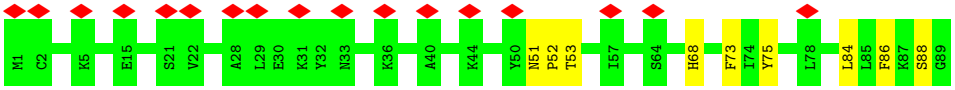
Chain d:





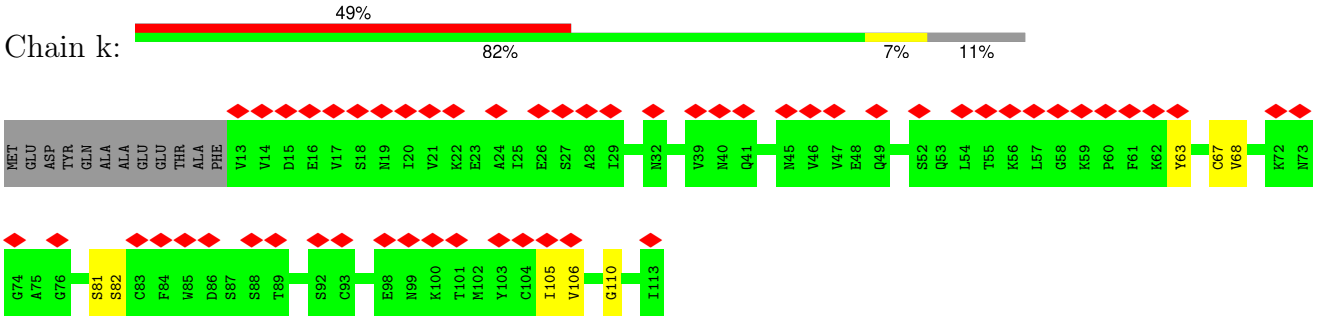
• Molecule 3: Dynein light chain 1, cytoplasmic

Chain i:



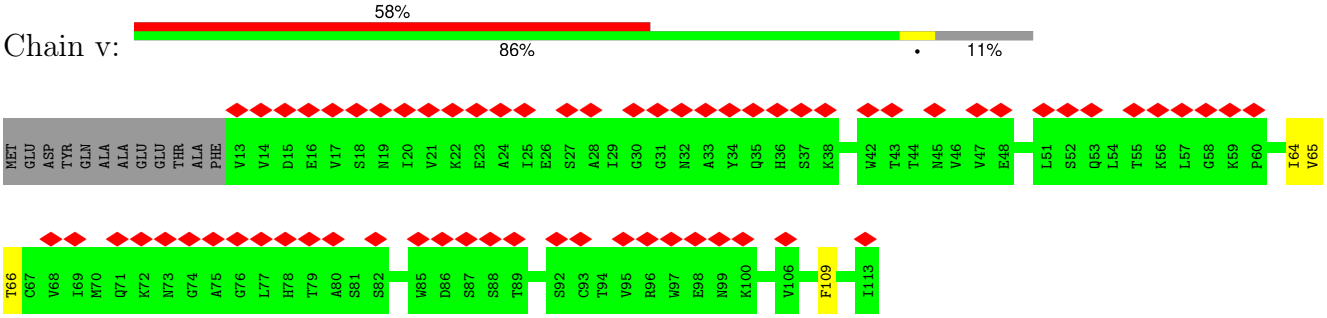
• Molecule 4: Dynein light chain Tctex-type 1

Chain k:



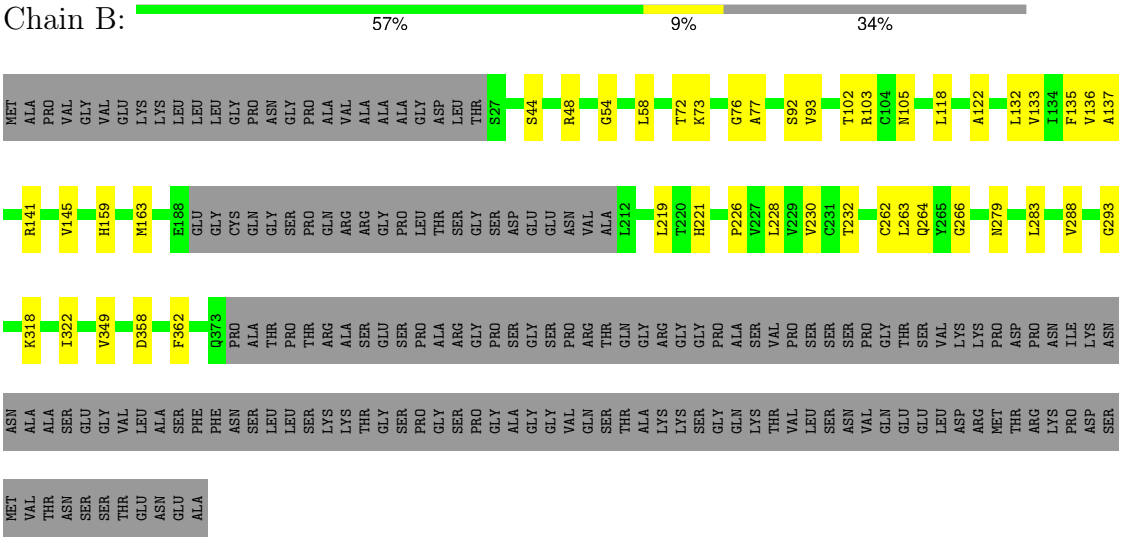
• Molecule 4: Dynein light chain Tctex-type 1

Chain v:



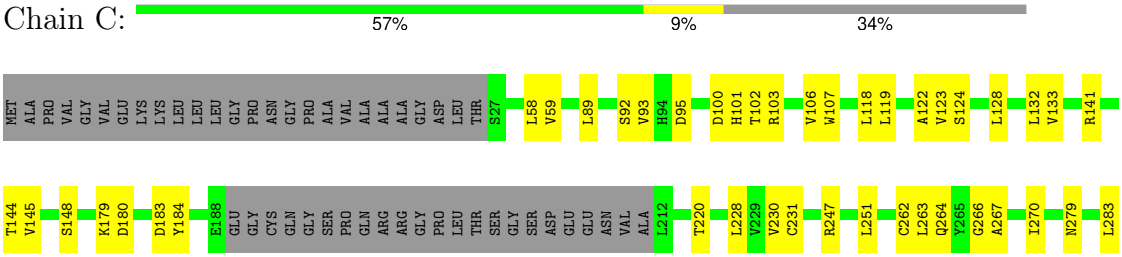
• Molecule 5: Cytoplasmic dynein 1 light intermediate chain 2

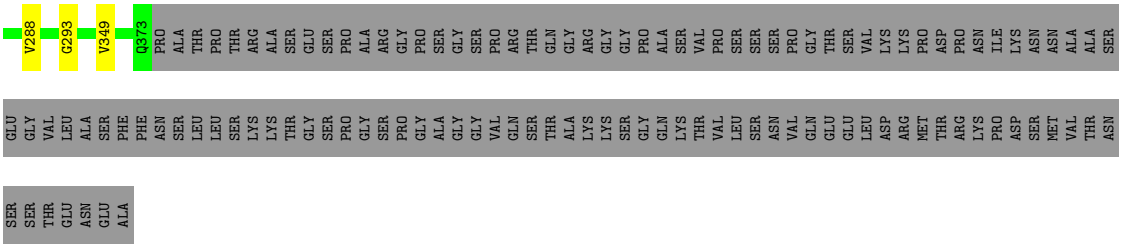
Chain B:



• Molecule 5: Cytoplasmic dynein 1 light intermediate chain 2

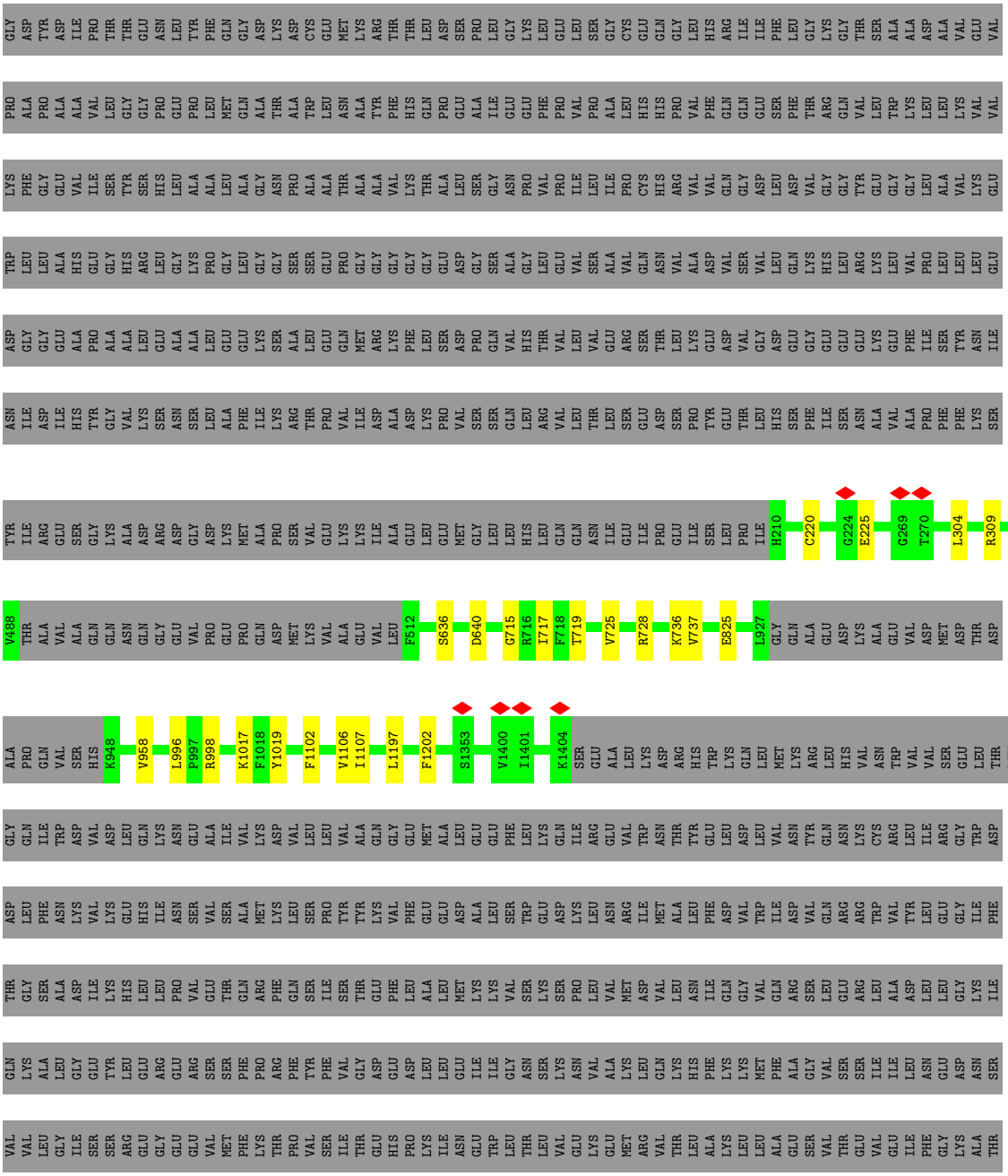
Chain C:

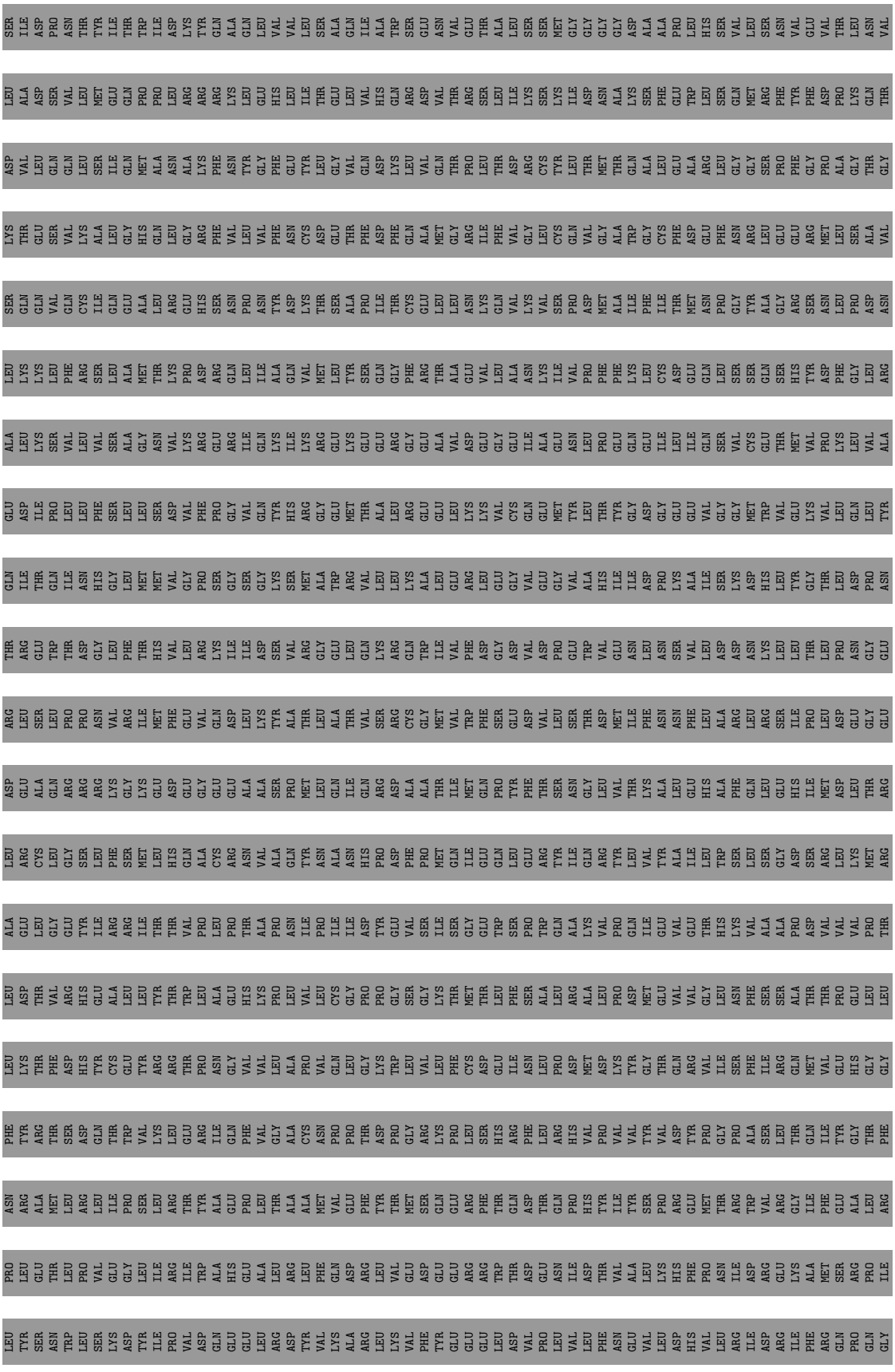


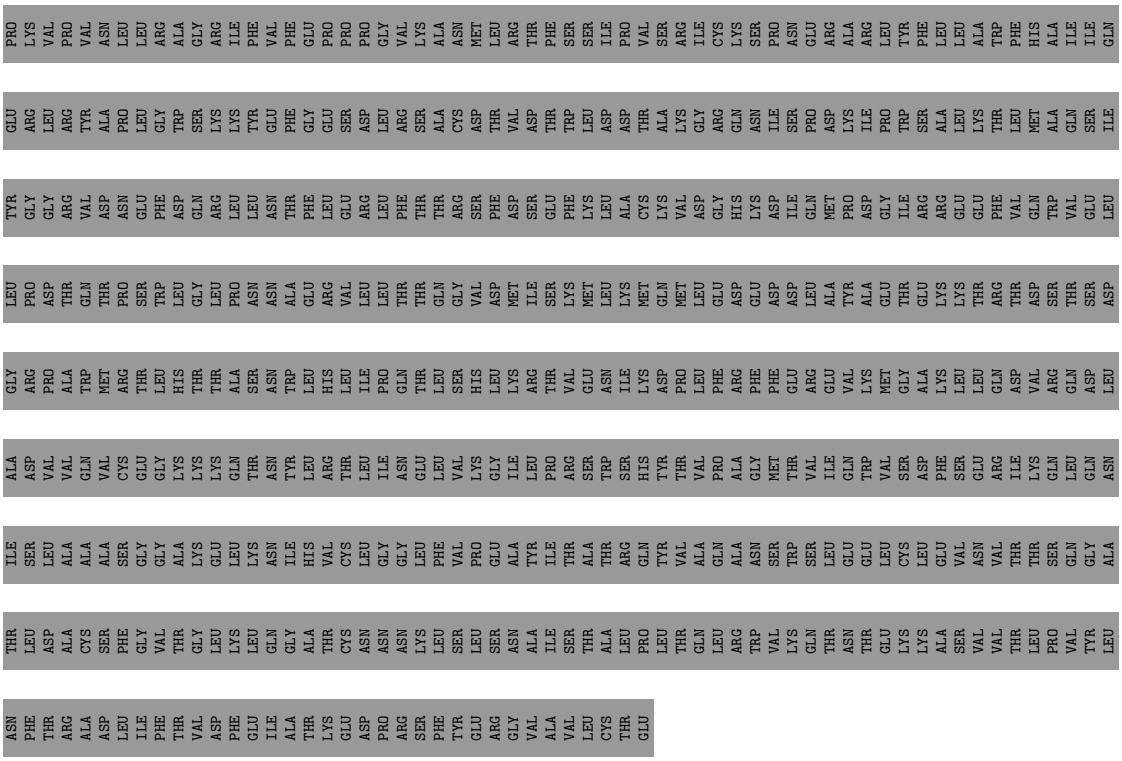


• Molecule 6: Cytoplasmic dynein 1 heavy chain 1

Chain e:

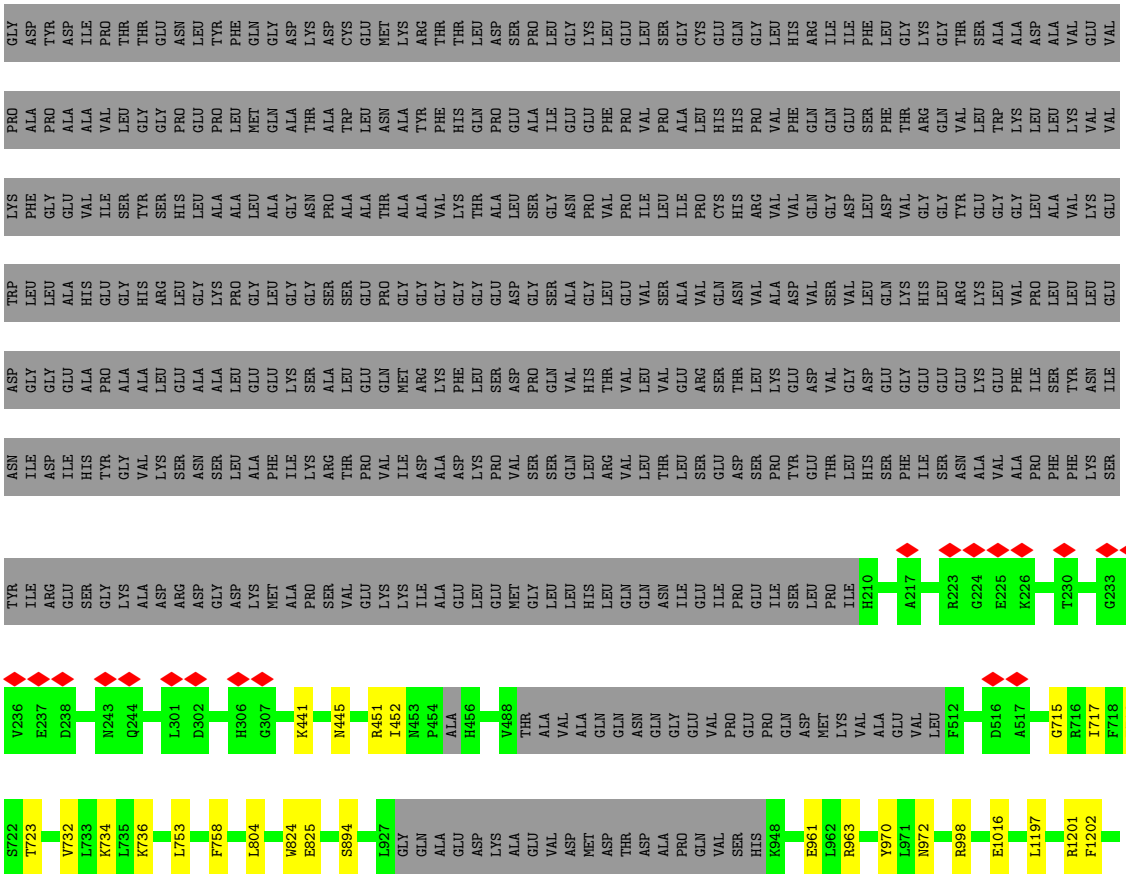



SER ILE ASP PRO ASN THR TYR ILE THR TRP ILE ASP LYS TYR GLN ALA GLN LEU VAL VAL LEU SER ALA GLN ILE ALA ALA PRO LEU HIS LEU SER VAL ASN VAL GLU VAL THR LEU ASN VAL
LEU ALA ASP SER VAL LEU MET GLU GLN PRO PRO LEU ARG ARG ARG LYS LEU GLU LEU ILE THR GLU LEU VAL HIS GLN ARG ASP VAL THR ARG SER LEU ILE LYS SER LYS ILE ASP ASN ALA LYS SER PHE GLU TRP LEU SER GLN MET ARG PHE TYR PHE ASP PRO LYS GLN THR
ASP VAL LEU GLN LEU SER ILE GLN MET ALA ASN ALA LYS PHE ASN TYR GLY PHE GLU TYR LEU GLY VAL GLN ASP LYS LEU VAL GLN THR PRO LEU THR ASP ARG CYS TYR LEU THR MET THR GLN ALA LEU GLU ALA ARG LEU GLY GLY SER PRO PHE GLY PRO ALA GLY THR GLY
LYS THR GLU SER VAL LYS ALA LEU GLY HIS GLN LEU GLY ARG PHE VAL LEU VAL PHE ASN CYS ASP GLU THR PHE ASP PHE GLN VAL GLY LEU CYS GLN VAL GLY ALA TRP GLY CYS PHE ASP GLU PHE ASN PRO GLU GLU ARG LEU GLU GLU ARG MET LEU SER ALA VAL
SER GLN GLN VAL GLN CYS ILE GLN GLU ALA LEU GLU ARG GLU HIS SER ASN PRO ASN TYR ASP LYS THR SER ALA PRO ILE THR CYS GLU LEU ASN LYS GLN VAL LYS VAL SER PRO ASP MET ALA ILE PHE ILE THR MET ASN PRO GLY TYR ALA GLY GLU LEU SER SER GLN GLU SER ASN LEU PRO ASP ASN
LEU LYS LYS LEU PHE ARG SER LEU ALA MET THR LYS PRO ASP ARG GLN LEU ILE ALA GLN VAL MET LEU TYR SER GLN GLY PHE ARG THR ALA GLU VAL LEU GLY GLU ALA ASN LYS ILE VAL PRO PHE PHE LYS LEU CYS ASP GLU GLN LEU SER SER GLN SER HIS TYR ASP PHE GLY LEU ARG
ALA LEU LYS SER VAL LEU VAL ARG GLU ARG ILE GLN LYS ILE LYS ARG GLU LYS GLU ARG GLY GLU ALA VAL ASP GLY GLU ILE ALA GLU ASN LEU PRO GLU GLN GLU ILE LEU ILE GLN SER VAL CYS GLU THR MET VAL PRO LYS LEU VAL ALA
GLU ASP ILE PRO LEU LEU PHE SER LEU LEU ARG GLU GLU MET THR ALA LEU ARG GLU LEU VAL ASP PHE PRO GLY VAL GLN TYR HIS ARG GLY GLU MET TYR LEU THR TYR GLY ASP GLY GLU GLU VAL GLY GLY MET TRP VAL GLU LYS VAL LEU GLN LEU TYR
GLN ILE THR GLN ILE ASN HIS GLY LEU MET MET VAL GLY PRO SER GLY SER GLY LYS SER MET ALA TRP ARG VAL LEU LEU LYS ALA LEU GLU ARG LEU GLU GLY VAL GLU GLY ILE ILE ASP PRO LYS ALA ILE SER LYS ASP HIS LEU TYR GLY THR LEU ASP PRO ASN
THR ARG GLU TRP THR ASP GLY LEU PHE THR HIS VAL LEU ARG LYS ILE ILE ASP SER VAL ARG GLY GLU GLN LYS ARG GLN TRP ILE VAL PHE ASP GLY ASP VAL ASP PRO GLU TRP VAL GLU GLN LYS ASN LEU ASN SER VAL LEU ASP ASP ASN LYS LEU LEU THR LEU PRO ASN GLY GLU
ARG LEU SER LEU PRO PRO ASN VAL ARG ILE MET PHE GLU VAL GLN ASP LEU LYS TYR ALA THR LEU ALA THR VAL SER ARG CYS GLY MET VAL TRP PHE SER GLU ASP VAL LEU SER THR ASP MET ILE PHE ASN ASN PHE LEU ALA ARG LEU ARG SER ILE PRO LEU GLU ASP GLU GLY GLU
ASP GLU ALA GLN ARG ASP ALA ALA THR ILE GLN ARG ASP ALA ALA THR ILE MET GLN PRO TYR PHE THR SER ASN GLY LEU VAL THR LYS ALA LEU GLU HIS ALA PHE GLN LEU GLU GLU HIS ILE MET ASP LEU ARG THR
LEU ARG CYS LEU GLY SER MET LEU HIS GLN ALA CYS ARG ASN VAL ALA ASN HIS PRO ASP PHE PRO MET GLN ILE GLU GLN LEU ASN ALA ALA ILE LEU TRP SER LEU SER GLY ASP SER ARG LEU LYS MET ARG
ALA GLU LEU GLY GLU TYR ILE ARG ARG ILE THR THR VAL PRO LEU PRO ILE ILE ASP TYR GLU VAL SER ILE SER GLY GLU TRP SER PRO TRP GLN ALA LYS VAL PRO GLN ILE GLU VAL GLU THR HIS LYS VAL PRO ASP VAL LEU PRO THR
LEU ASP THR VAL ARG ARG LEU LEU TYR THR TRP LEU CYS GLY PRO PRO GLY SER GLY LYS THR MET THR LEU PHE SER ALA LEU PRO ASP MET GLU VAL GLY LEU ASN PHE SER ILE SER ALA THR THR PRO VAL LEU
LEU LYS THR PHE ASP HIS TYR CYS GLU TYR ARG ARG THR PRO ASN GLY VAL GLN LEU GLY LYS TRP LEU VAL LEU PHE CYS ASP GLU ILE ASN LEU PRO ASP MET ASP LYS TYR GLY THR GLN ARG VAL ILE SER PHE ILE ARG GLN MET VAL GLU VAL GLY
PHE TYR ARG THR SER ASP GLN THR TRP VAL LYS GLU ARG ILE GLN PHE VAL GLY ALA CYS ASN PRO PRO THR ASP PRO GLY ARG LYS PRO LEU SER HIS ARG PHE LEU ARG HIS VAL PRO VAL TYR VAL ASP TYR PRO GLY PRO ALA SER LEU THR GLN ILE TYR GLY THR PHE
ASN ARG ALA MET LEU ARG LEU ILE ARG THR TYR ALA GLU PRO LEU THR ALA ALA MET VAL GLU PHE TYR THR MET SER GLN GLU ARG PHE THR GLN ASP THR GLN PRO HIS TYR ILE TYR SER PRO ARG GLU MET THR ARG TRP VAL ARG GLY ILE PHE GLU ALA LEU LEU ARG
PRO LEU GLU THR LEU PRO PHE GLN ASP ARG LEU VAL GLU ASP GLU GLU ARG ARG TRP THR ASP GLU ASN ILE ASP THR VAL ALA LEU LYS HIS PHE PRO ASN ARG GLU LYS ALA MET SER ARG PRO ILE
LEU TYR SER ASN TRP LEU SER LYS ASP ILE PRO ILE GLN GLU GLU LEU ARG ASP TYR VAL LYS ALA ARG LEU LYS VAL PHE TYR GLU GLU LEU ASP VAL PRO LEU VAL LEU PHE ASN GLU VAL LEU ASP HIS VAL LEU ARG ILE ASP ARG ILE PHE ARG GLN LEU VAL

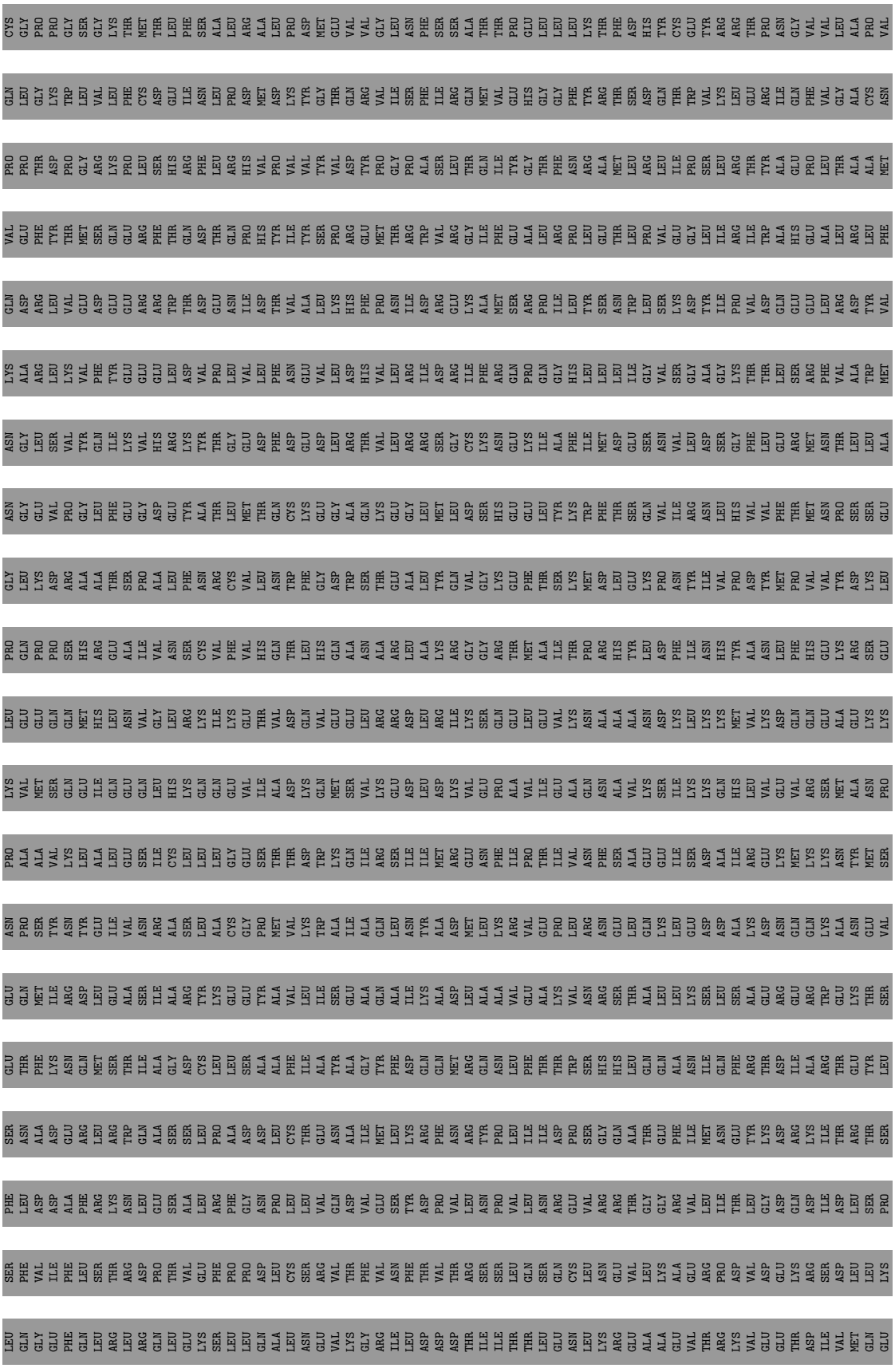


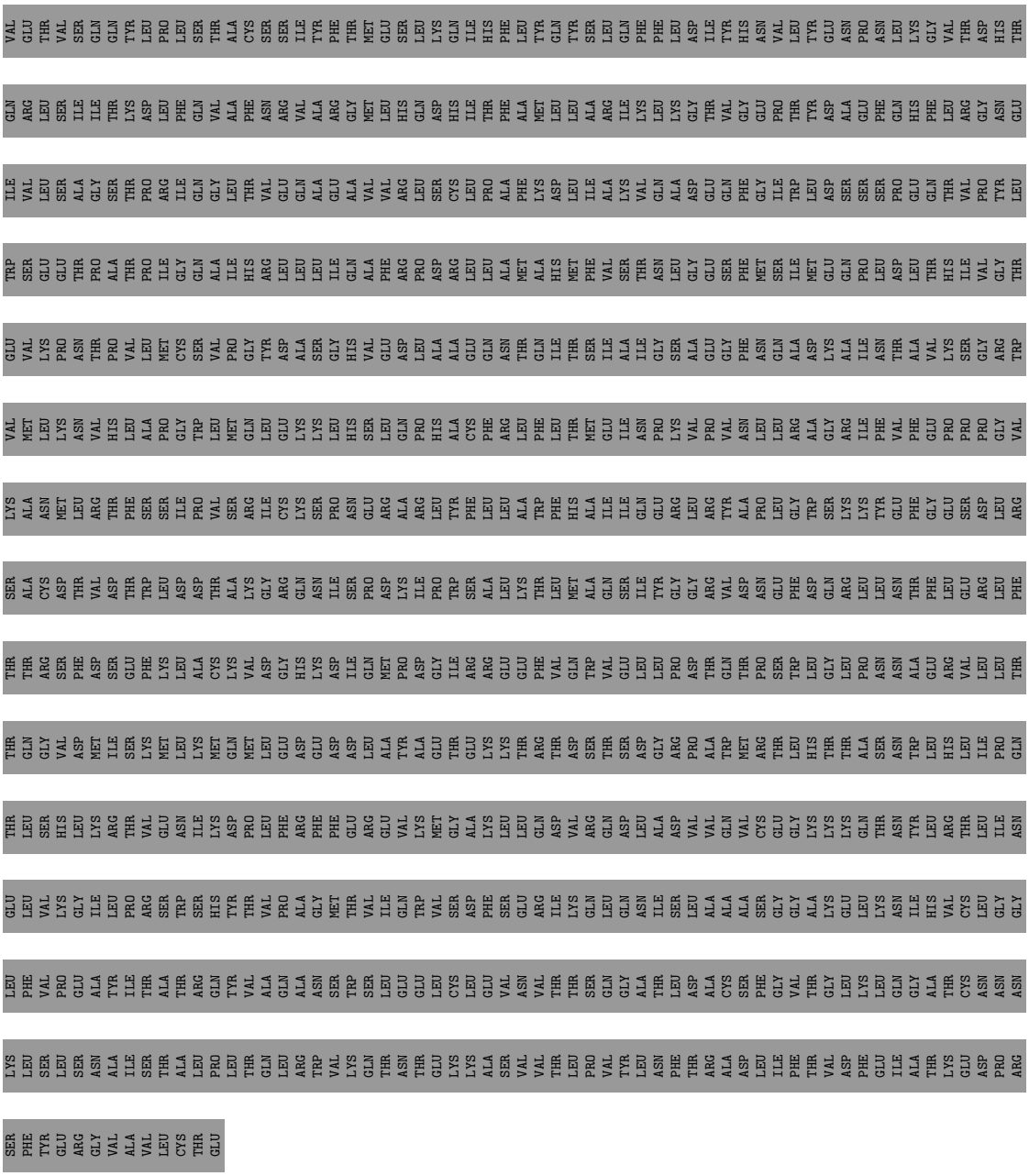
• Molecule 6: Cytoplasmic dynein 1 heavy chain 1

Chain f:



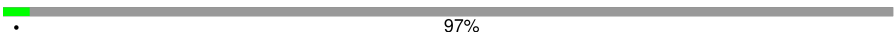
V1236
L1311
L1312
P1350
I1401
E1402
L1403
K1404

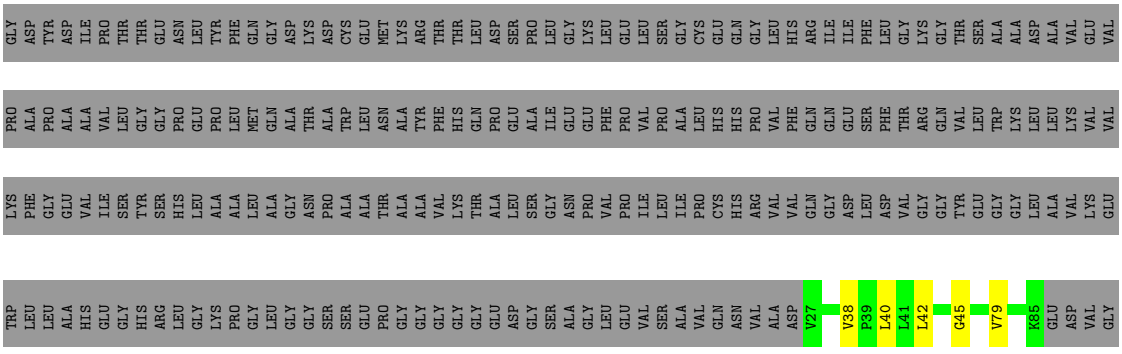

CYS GLY PRO PRO GLY SER GLY LYS THR MET THR LEU PHE SER ALA LEU ARG ALA LEU PRO ASP MET GLU VAL VAL GLY LEU ASN PHE SER SER ALA THR THR PRO GLU LEU LEU LEU LYS THR PHE ASP HIS TYR CYS GLU TYR ARG ARG THR PRO ASN GLY VAL VAL LEU ALA PRO VAL
GLN LEU GLY LYS TRP LEU VAL LEU PHE CYS ASP GLU ILE ASN LEU PRO ASP MET ASP LYS TYR GLY THR GLN ARG VAL ILE SER PHE ILE ARG GLN MET VAL GLU HIS GLY GLY PHE TYR ARG THR SER ASP GLN THR TRP VAL LYS LEU GLU ARG THR TYR ALA GLU PRO GLN PHE VAL GLY ALA CYS ASN
PRO PRO THR ASP PRO GLY ARG LYS PRO LEU SER HIS ARG PHE LEU ARG HIS VAL PRO VAL VAL TYR VAL ASP TYR PRO GLY PRO ALA SER LEU THR GLN ILE TYR GLY THR PHE ASN ARG ALA MET LEU ARG LEU ILE PRO SER LEU ARG THR TYR ALA GLU PRO LEU THR ALA ALA MET
VAL GLU PHE TYR THR MET SER GLN GLU ARG PHE THR GLN ASP THR GLN PRO HIS TYR ILE TYR SER PRO ARG GLU MET THR ARG TRP VAL ARG GLY ILE PHE GLU ALA LEU ARG PRO VAL GLU GLY LEU ILE ARG ILE TRP ALA HIS GLU ALA LEU THR ARG LEU PHE
GLN ASP ARG LEU VAL GLU ASP GLU GLU ARG ARG TRP THR ASP GLU ASN ILE ASP THR VAL ALA LEU LYS HIS PHE PRO ASN ILE ASP ARG GLU LYS ALA MET SER ARG PRO ILE LEU TYR SER ASN TRP LEU SER LYS ASP TYR ILE ARG GLN GLU LEU PRO VAL GLU GLY LEU ILE ARG ILE TRP ALA HIS GLU ALA LEU ARG ASP TYR VAL
LYS ALA ARG LEU LYS VAL PHE TYR GLU GLU GLU LEU ASP VAL PRO LEU VAL LEU PHE ASN GLU VAL LEU ASP HIS VAL LEU ARG ILE ASP ARG GLU LYS ALA PHE ARG GLN PRO GLN GLY HIS LEU LEU LEU ILE GLY VAL SER LYS ASP TYR ILE PRO VAL LYS HIS THR THR LEU SER ARG PHE VAL ALA TRP MET
ASN GLY LEU SER VAL TYR GLN ILE LYS VAL HIS ARG LYS TYR THR GLY GLU ASP PHE ASP GLU ASP LEU ARG THR VAL LEU ARG ARG SER GLY CYS LYS ASN GLU LYS ILE ALA PHE ILE MET ASP GLU SER ASN VAL LEU ASP SER GLY PHE LEU GLU ARG MET ASN THR LEU LEU ALA
ASN GLY GLU VAL PRO GLY PHE GLU GLY ASP GLU TYR ALA THR LEU MET THR GLN CYS LYS GLU GLY ALA GLN LYS GLU GLY LEU MET LEU ASP SER HIS GLU GLU LEU TRP PHE THR SER GLN VAL SER GLY ASP SER GLY PHE LEU GLU ARG MET ASN PRO SER SER GLU
GLY LEU LYS ASP ARG ALA ALA THR SER PRO ALA THR GLU GLY ASP TRP SER THR GLU ALA ASN ALA GLN LYS GLU GLY ALA TRP PHE THR SER GLN VAL ILE ARG ASN LEU HIS VAL VAL PHE THR MET ASP GLU LYS PRO ASP TYR MET PRO VAL VAL TYR ASP LYS LEU
PRO GLN PRO PRO SER HIS ARG GLU ALA ILE VAL ASN SER CYS VAL PHE VAL HIS GLN THR LEU HIS GLN ALA ASN ALA ARG LEU ALA LYS ARG GLY GLY ARG THR MET ALA ILE THR PRO ARG HIS TYR LEU ASP PHE ILE ASN HIS TYR ILE VAL PRO ASP TYR MET PRO VAL VAL TYR ASP LYS LEU
LEU GLU GLU GLN MET HIS LEU ASN VAL GLY LEU GLY LYS ILE LYS GLU THR VAL ASP GLN LEU GLU GLU LEU ARG ARG ASP LEU ARG ILE LYS SER GLN GLU LEU LEU GLU VAL LYS ASN ALA ALA ASN ASP LYS LEU ASP GLN GLN GLU GLU ALA GLU LYS LYS
LYS VAL MET SER GLN GLU VAL ILE GLN GLU ASP GLN GLN MET SER VAL LYS GLU ASP LEU ASP LYS VAL GLU PRO ALA VAL ILE GLU ALA GLN ASN ALA VAL LYS SER ILE LYS LYS GLN HIS LEU VAL GLU GLU VAL ARG SER MET ALA ASN PRO
PRO ALA ALA VAL LYS LEU ALA GLU SER ILE CYS LEU LEU LEU GLY GLU SER THR THR ASP TRP LYS GLN ILE ARG SER ILE ILE LEU MET ARG GLU ASN PHE SER ALA GLU GLU ILE SER ASP ALA ILE LYS ARG GLU ASN TYR MET SER
ASN PRO SER TYR ASN TYR GLU ILE VAL ASN ARG ALA ALA ILE ALA GLN LEU ASN TYR ALA ASP MET LEU LYS ARG GLU ASN PHE SER GLU LEU GLN LYS LEU GLU ASP ASP ALA ILE ARG GLU LEU ASP ALA LYS ASP ASN GLN GLN LYS ALA ASN GLU VAL
GLU GLN MET ILE ARG ASP LEU GLU ALA SER ILE ILE ALA ALA ASP LEU ALA ALA LYS VAL ASN ARG SER THR ALA LEU LEU LYS SER LEU GLU ARG GLU LYS MET LYS ASP GLN GLN LYS ALA ASN GLU VAL
GLU THR PHE LYS ASN GLN MET SER THR ILE ILE ALA TYR ALA GLY TYR PHE ASP GLN GLN MET ARG GLN ASN LEU PHE THR THR TRP SER HIS LEU GLN GLN ALA ASN ILE GLN PHE ARG THR ASP ILE ALA ARG THR GLU TYR LEU
SER ASN ALA ASP GLU ARG TRP ALA ASP LEU CYS THR GLU ASN ALA ILE MET LEU LYS ARG PHE ASN ARG TYR PRO LEU ILE ILE ASP PRO SER GLY GLN ALA THR GLU PHE ILE MET ASN GLU GLY LYS ASP ARG LYS ILE THR ARG THR SER
PHE LEU ASP ASP GLU ARG LYS ASN ASP ASP ALA LEU PRO ALA ASP PRO LEU LEU ILE ILE ASP PRO VAL LEU LEU ASN PRO VAL LEU ASN ARG GLU VAL ARG ARG THR GLY GLY ARG VAL LEU ILE THR LEU GLY ASP GLN ASP ILE ILE ASP LEU PRO
SER PHE VAL ILE PHE LEU SER THR ARG ASP PRO THR THR PHE VAL ASN ARG SER SER LEU GLN CYS LEU ASN GLU VAL LEU LYS ALA GLU ARG PRO GLU GLU LYS GLY ARG SER ASP LEU LEU LYS
LEU GLN GLY GLU PHE GLN ARG LEU ARG GLU ASP ASP THR ILE ILE THR THR LEU GLU GLU ASN LEU LYS ARG GLU ALA ALA GLU VAL THR ARG LYS VAL GLU GLU THR ASP ILE VAL MET GLN GLU
LEU GLN GLY GLU PHE GLN LEU ARG LEU ASP THR ILE LEU ILE THR THR LEU GLU ASN LEU LYS ARG GLU ALA ALA GLU VAL THR ARG LYS VAL GLU GLU THR ASP ILE VAL MET GLN GLU

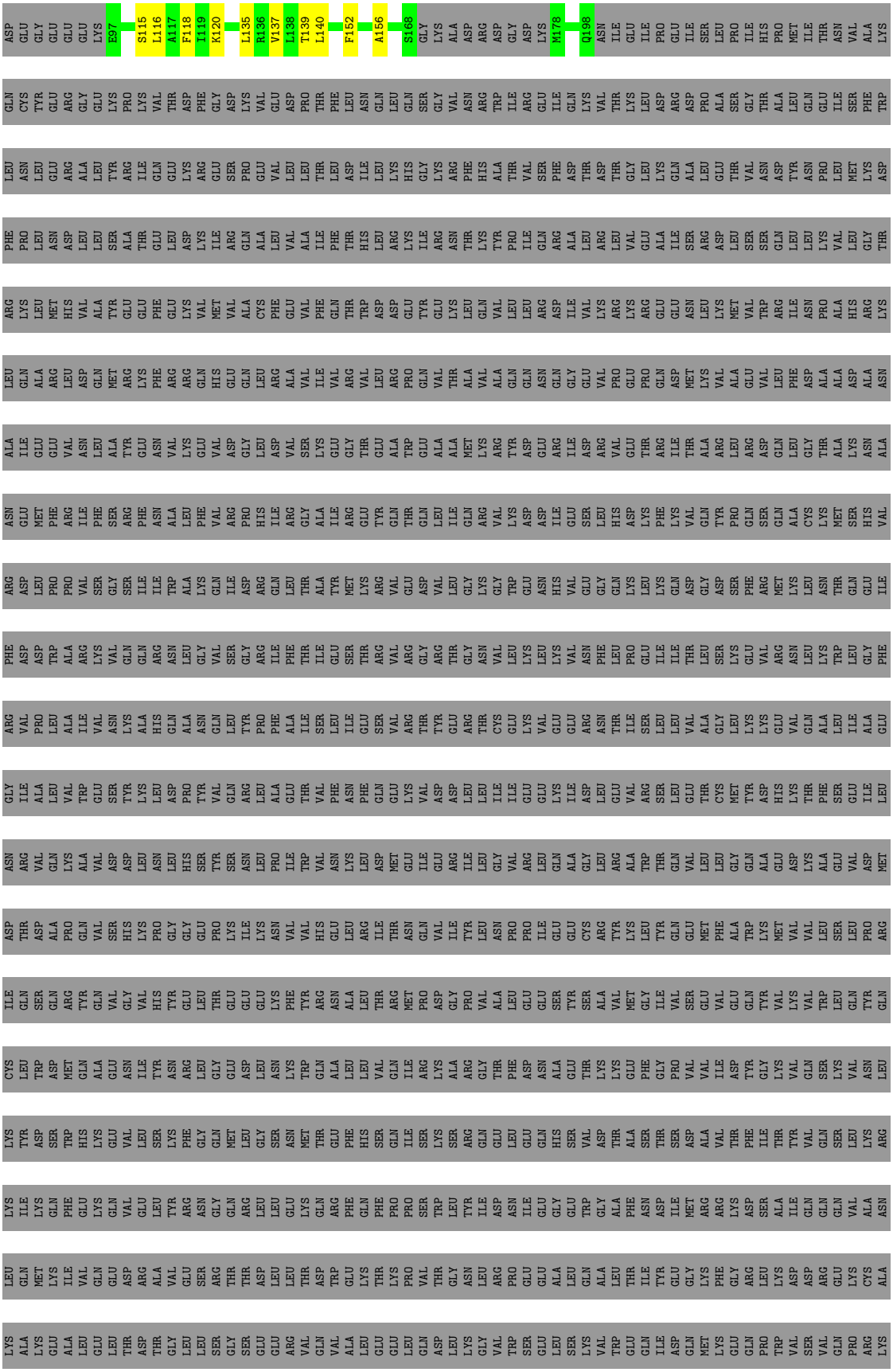


• Molecule 6: Cytoplasmic dynein 1 heavy chain 1

Chain A:



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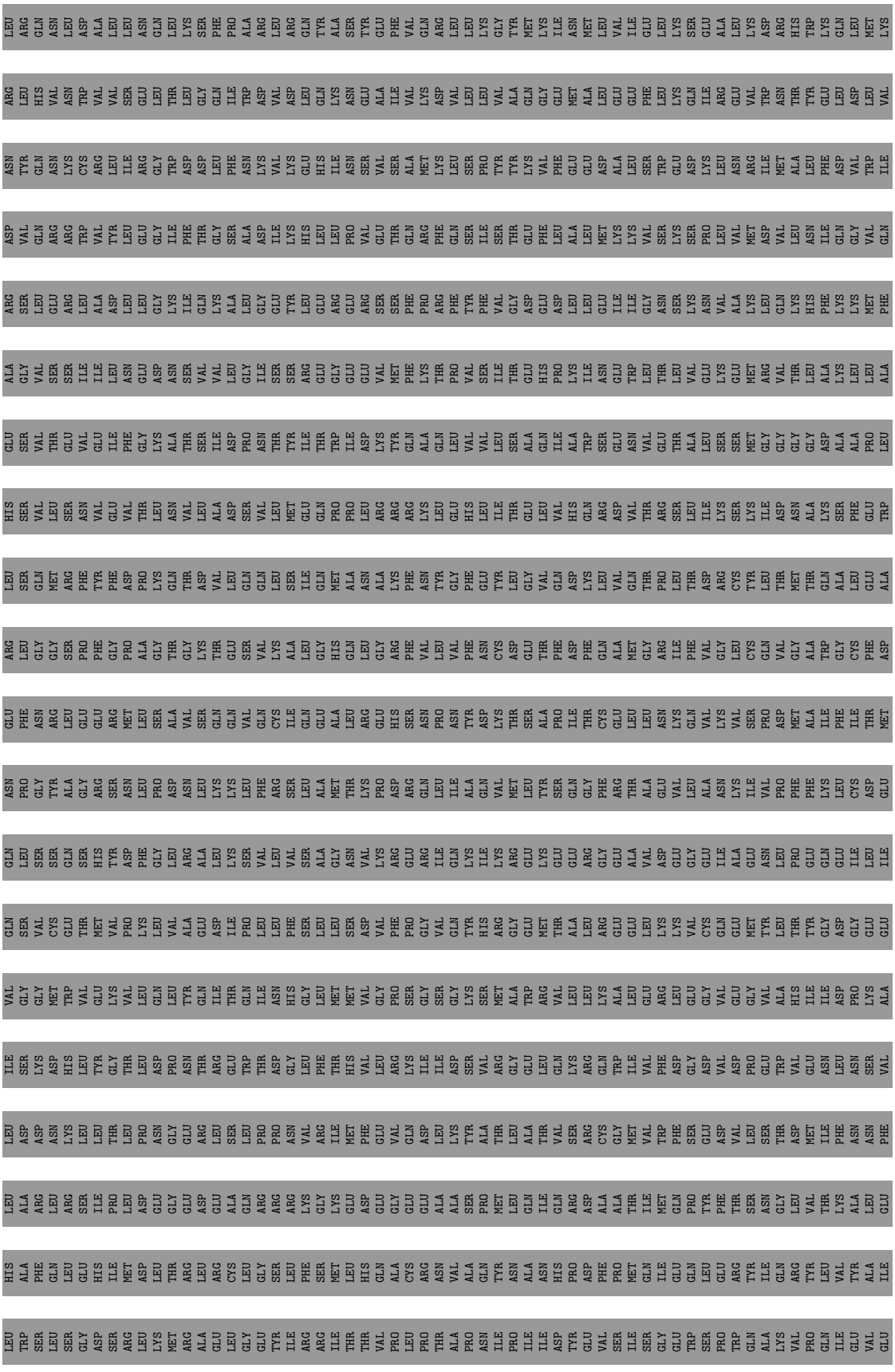
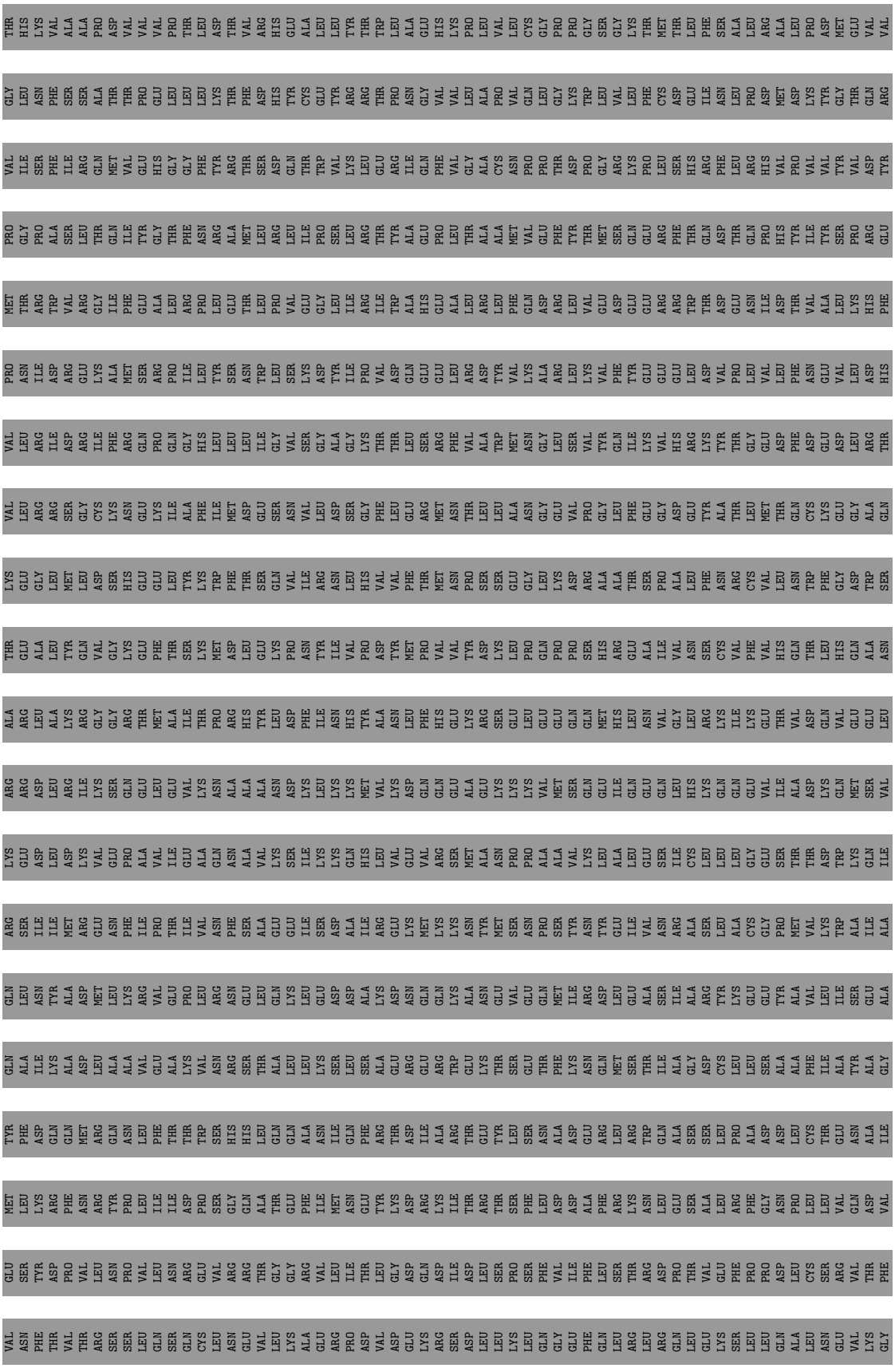
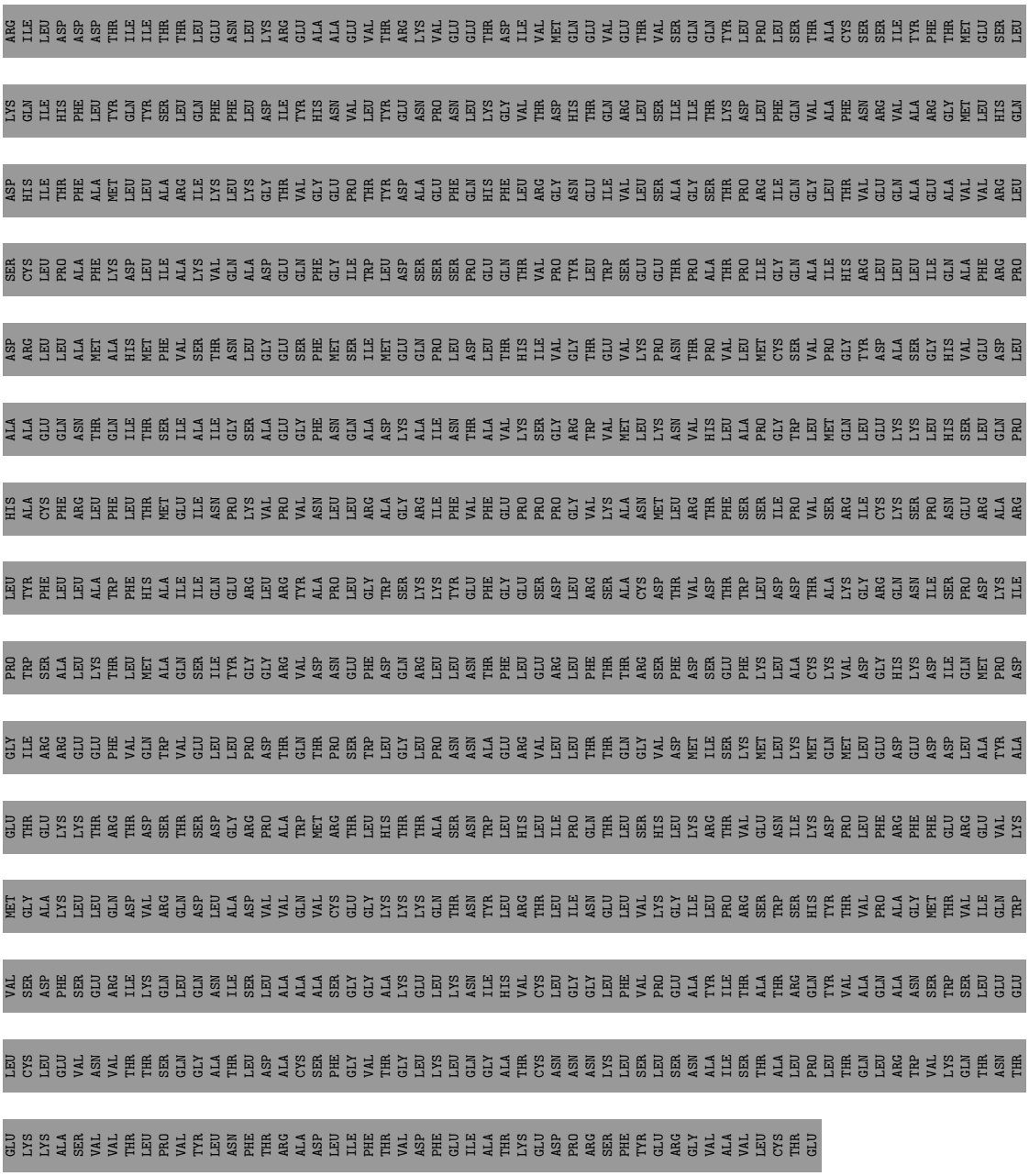
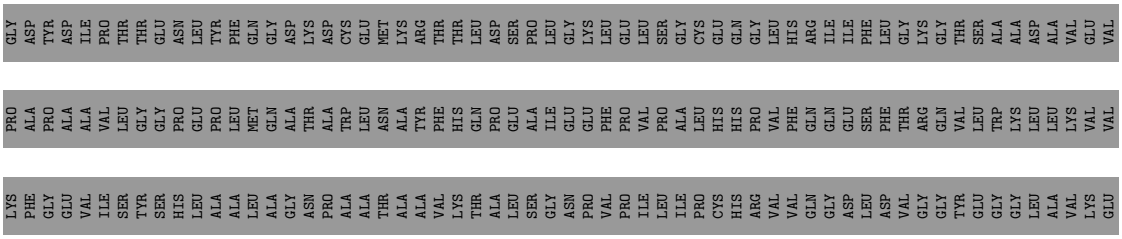

LEU ARG GLN ASN LEU ASP ALA LEU LEU ASN GLN LEU LYS SER PHE PRO ALA ARG LEU ARG GLN TYR ALA SER TYR GLU PHE VAL GLN ARG LEU LEU LYS GLY TYR MET LYS ILE ASN MET LEU VAL ILE GLU LEU LYS SER GLU ALA LEU LYS ASP ARG HIS TRP LYS GLN LEU MET LYS
ARG LEU HIS VAL ASN TRP VAL VAL SER GLU LEU THR LEU GLY GLN ILE TRP ASP VAL ASP LEU GLN LYS ASN GLU ALA ILE VAL LYS ASP VAL LEU LEU VAL ALA GLN GLY GLU MET ALA LEU GLU GLU PHE LEU LYS GLN ILE ARG GLU VAL TRP ASN THR TYR GLU LEU ASP VAL
ASN TYR GLN ASN LYS CYS ARG LEU ILE ARG GLY TRP ASP ASP LEU PHE ASN LYS VAL LYS GLU HIS ILE ASN SER VAL SER ALA MET LYS LEU SER PRO TYR TYR LYS VAL PHE GLU GLU ASP ALA LEU SER TRP GLU ASP LYS LEU ASN ASN VAL ASP VAL TRP ILE
ASP VAL GLN ARG ARG TRP VAL TYR LEU GLU GLY ILE PHE THR GLY SER ALA ASP ILE LYS HIS LEU LEU PRO VAL GLU THR GLN ARG PHE GLN SER ILE SER THR GLU PHE LEU ALA LEU MET LYS LYS VAL SER LYS SER PRO LEU VAL MET ASP VAL LEU LEU ASN ILE GLN GLY VAL
ARG SER LEU GLU ARG LEU ALA ASP LEU LEU GLY LYS ILE GLN LYS ALA LEU GLY GLU TYR LEU GLU ARG GLU ARG GLU ARG SER SER PHE PRO ARG PHE TYR PHE VAL GLY ASP GLU ASP LEU LEU GLU ILE ILE GLY ASN SER LYS SER PRO LEU VAL ALA LYS LEU GLN LYS HIS PHE LYS LYS MET PHE
ALA GLY VAL SER SER ILE ILE LEU ASN GLU ASP GLY LEU GLY ILE SER SER SER ARG GLU GLY GLU GLU VAL MET PHE LYS THR PRO VAL SER ILE THR GLU HIS PRO LYS ILE ASN GLU TRP LEU THR LEU VAL GLU LYS ASN VAL ALA LYS LEU LEU ALA
GLU SER VAL THR GLU VAL GLU ILE PHE GLY LYS ALA THR SER ILE ASP PRO ASN THR TYR ILE THR TRP ILE ASP LYS TYR GLN ALA ALA GLN LEU VAL VAL LEU SER ALA GLN ILE ALA TRP SER GLU ASN VAL THR LEU ALA ALA LEU SER SER GLU MET GLY GLY GLY ASP ALA ALA PRO LEU
HIS SER VAL LEU SER ASN VAL GLU VAL THR LEU GLU ASN VAL ALA LEU LEU MET GLU GLN PRO PRO LEU ARG ARG LYS LEU GLU HIS LEU ILE THR GLU LEU VAL LEU HIS GLN ARG ASP VAL THR ARG SER LEU ILE LYS SER LYS ILE ASP ASN ALA LYS SER PHE GLU TRP
LEU SER GLN MET ARG PHE TYR PHE ASP PRO LYS GLN THR ASP VAL LEU GLN GLN LEU SER ILE GLN MET ALA ASN ALA LYS PHE ASN TYR GLY PHE GLU TYR LEU GLY VAL GLN THR PRO LEU THR ASP ARG CYS TYR LEU THR MET THR GLN ALA LEU GLU GLU
ARG LEU GLY GLY SER PRO PHE GLY PRO ALA GLY GLY THR GLY LYS THR GLU SER VAL LYS ALA LEU GLY HIS GLN LEU GLY GLY ARG PHE VAL LEU VAL PHE ASN CYS ASP GLU THR PHE ASP PHE GLN ALA MET GLY ARG ILE PHE VAL GLY LEU CYS GLN VAL GLY ALA TRP GLY CYS PHE ASP
GLU PHE ASN ARG LEU GLU GLU ARG MET LEU SER ALA VAL SER ILE GLN GLN VAL GLN CYS ILE GLN GLU ALA LEU ARG GLU HIS SER ASN PRO ASN TYR ASP LYS THR SER ALA PRO ILE THR CYS GLU LEU LEU LEU ASN LYS GLN VAL LYS VAL PRO ASP MET ALA ILE PHE ILE THR MET
ASN PRO GLY TYR ALA GLY ARG SER ASN LEU PRO PRO ASP ASN LEU LYS LYS LEU PHE ARG SER LEU ALA MET THR LYS PRO ASP ARG GLN LEU ILE ALA GLN VAL MET LEU TYR SER GLN GLY PHE ARG THR ALA GLU VAL LEU ALA ASN LYS GLN VAL LYS VAL SER PRO ASP MET ALA ILE PHE LYS LEU CYS ASP GLU
GLN LEU SER SER GLN HIS TYR ASP PHE GLY LEU ARG ALA LEU LYS SER VAL LEU VAL SER ALA GLY ASN VAL LYS ARG GLU GLU ARG GLY GLU ILE GLN LYS ILE LYS ARG GLU GLU ARG GLY GLU ALA VAL ASP GLU GLY GLY GLU ILE ALA GLU GLN ASN LEU PRO GLU GLN GLU LEU ILE
GLN SER VAL CYS GLU THR MET VAL PRO LYS LEU VAL ALA GLU LEU ILE PRO LEU LEU PHE SER LEU LEU SER ASP VAL PHE PRO GLY VAL GLN LYS TYR HIS ARG GLY GLU MET THR ALA LEU ARG GLU LEU LEU LYS LYS VAL CYS GLN GLU GLU MET TYR LEU THR TYR GLY ASP GLY GLU
VAL GLY GLY MET TRP VAL LEU GLN LEU TYR GLN ILE THR GLN ILE ASN HIS GLY LEU MET MET VAL GLY PRO SER GLY SER GLY LYS SER MET ALA TRP ARG VAL LEU LEU LEU LYS ALA LEU GLU LEU GLY VAL ALA HIS ILE ILE ASP PRO LYS ALA
ILE SER LYS ASP HIS LEU TYR GLY THR LEU ASP PRO ASN THR ARG GLU TRP THR ASP GLY LEU PHE THR HIS VAL LEU ARG LYS ILE ILE ASP SER VAL ARG GLY GLU LEU GLN LYS ARG GLN TRP ILE VAL PHE ASP GLY ASP VAL ASP PRO GLU GLN ILE ASN LEU ASN SER VAL
LEU ASP ASN LYS LEU PRO ASN GLY GLU ARG LEU SER LEU PRO PRO ASN VAL ARG ILE MET PHE GLU VAL GLN ASP LEU LYS TYR ALA THR LEU GLN LEU PRO ASN THR VAL SER ARG CYS GLY MET VAL TRP PHE SER GLU ASP VAL ASP PRO SER GLU ASP VAL ASP SER GLU PRO ASN
LEU ALA ARG LEU ILE PRO LEU ASP GLU GLY GLU ALA ALA SER PRO MET LEU GLN ILE GLN ARG ASP ALA ALA THR ILE MET GLN PRO TYR PHE THR ASP VAL LEU SER THR ASP GLY LEU VAL THR LYS GLU ASN LEU ASP ASN
HIS ALA PHE GLN LEU MET ASP LEU THR ARG LEU GLY SER LEU PHE SER MET LEU HIS GLN ALA CYS ARG ASN VAL ALA PRO ASN GLN TYR ASN ALA ASN HIS PRO ASP PHE PRO MET GLN ILE GLU GLN LEU GLU ARG TYR ILE GLN ARG LEU VAL TYR ILE ILE
LEU TRP SER LEU SER GLY ASP SER ARG ALA LEU LYS MET ARG ALA GLU LEU GLY GLU TYR ILE ARG ARG ILE THR THR VAL PRO LEU PRO THR ALA PRO ASN ILE PRO ILE ILE ILE ASP TYR GLU VAL SER ILE SER GLY GLU TRP SER PRO TRP GLN ALA LYS VAL PRO GLN ILE GLU VAL GLU

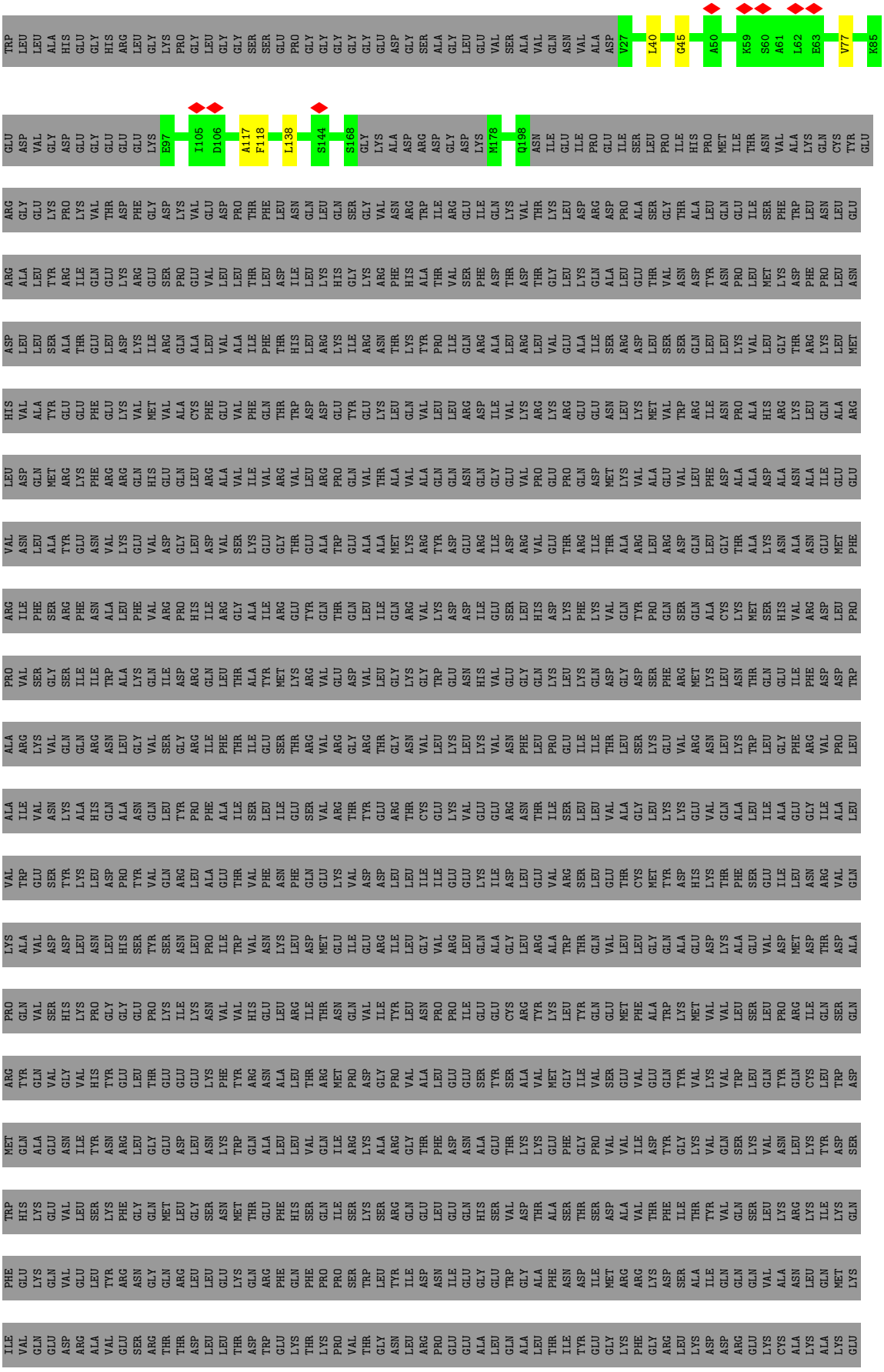

THR HIS LYS VAL ALA ALA PRO ASP VAL VAL VAL PRO THR LEU ASP THR VAL ARG HIS GLU ALA LEU LEU TYR THR TRP LEU ALA GLU HIS LYS PRO LEU VAL LEU CYS GLY PRO PRO GLY SER GLY LYS THR MET THR LEU PHE SER ALA LEU ARG ALA LEU PRO ASP MET GLU VAL VAL
GLY LEU ASN PHE SER SER ALA THR THR PRO GLU LEU LEU LEU LYS THR PHE ASP HIS TYR CYS GLU TYR VAL LYS LEU GLU ARG ARG THR PRO ASN GLY VAL VAL LEU ALA PRO VAL GLN LEU GLY LYS TRP LEU VAL LEU PHE CYS ASP GLU ILE ASN LEU PRO ASP MET ASP LYS TYR GLY THR GLN ARG
VAL ILE SER PHE ILE ARG GLN MET VAL GLU HIS GLY GLY PHE TYR ARG THR SER ASP GLN THR TRP VAL LYS LEU GLU ARG GLN PHE VAL GLY ALA CYS ASN PRO PRO THR ASP PRO GLY ARG LYS PRO LEU SER HIS ARG PHE LEU ARG HIS VAL PRO VAL VAL TYR VAL ASP TYR
PRO GLY PRO ALA SER LEU THR GLN ILE TYR GLY THR PHE ASN ARG ALA ALA MET LEU ARG LEU ILE PRO SER LEU ARG THR GLN LEU PRO LEU THR THR TYR ALA GLU PRO GLY LEU THR TYR THR MET SER GLN GLU ARG PHE THR GLN ASP THR GLN ILE ASP PRO GLU GLU ARG
MET THR ARG TRP VAL ARG GLY ILE PHE GLU ALA LEU ARG PRO LEU GLU THR LEU PRO VAL LEU GLY GLY LEU ILE ARG TRP ALA HIS GLU ALA LEU LEU ARG LEU PHE GLN ASP ARG LEU VAL GLU ASP GLU ASP THR VAL ALA LEU LYS HIS PHE
PRO ASN ILE ASP ARG GLU LYS ALA MET SER ARG PRO ILE LEU TYR SER ASN TRP LEU SER LYS ASP TYR ILE PRO VAL ASP GLN GLU GLU LEU ASP VAL PRO LEU GLU VAL LEU PHE ASN GLU VAL LEU ASP HIS
VAL LEU ARG ILE ASP ARG GLN PRO GLN GLY HIS LEU LEU LEU ILE GLY VAL SER GLY ALA GLY LYS THR THR LEU GLU SER ARG PHE VAL ALA LEU TRP MET ASN GLY LEU SER VAL TYR GLN ILE LYS VAL HIS ARG LYS TYR THR GLY GLU ASP PHE ASP GLU ASP LEU ARG THR
VAL LEU ARG ARG SER GLY CYS LYS ASN GLU LYS ILE ALA PHE ILE MET ASP GLU SER ASN VAL LEU ASP SER GLY PHE LEU GLU ARG MET ASN THR LEU LEU ALA ASN GLY GLU VAL PRO GLY LEU PHE GLU GLY ASP GLU TYR ALA THR GLY GLU ASP PHE ASP GLU ASP LEU ALA GLN
LYS GLU GLY LEU MET LEU GLU GLU LEU TYR LYS TRP PHE THR SER GLN VAL ILE LEU HIS VAL VAL PHE THR MET ASN PRO SER SER GLU GLY LEU LYS ASP ARG ALA ALA THR SER PRO ALA LEU PHE ASN ARG CYS VAL LEU ASN TRP PHE GLY ASP TRP SER
THR GLU ALA LEU TYR GLN VAL GLY GLY LYS GLU PHE THR SER LYS MET ASP LEU GLU LYS PRO ASN TYR ILE VAL PRO ASP TYR ASP PRO VAL PRO MET PRO PRO SER HIS ARG GLU ALA ILE VAL ASN SER CYS VAL PHE VAL HIS GLN THR LEU HIS GLN ALA ASN
ALA ARG LEU ALA LYS ARG GLY GLY ARG THR MET ALA ILE THR PRO ARG HIS TYR LEU ASP PHE ILE ASN HIS TYR ALA ASN LEU PHE HIS GLU LYS ARG SER GLU LEU GLU GLU GLN GLN MET HIS LEU ASN VAL GLY LEU ARG LYS ILE LYS GLU THR VAL ASP GLN LEU
ARG ARG ASP LEU ARG GLU LEU GLN GLU VAL LYS SER LYS LEU LYS LYS MET VAL LYS ASP GLN GLN GLU ALA GLU LYS LYS LYS VAL MET SER GLN GLU ILE GLN GLU GLN LEU HIS LYS GLN GLU GLN GLU VAL ILE ALA ASP LYS GLN GLN VAL GLU VAL
LYS GLU ASP LEU ASP LYS VAL GLU PRO ALA VAL ILE GLU ALA GLN ASN ALA ALA VAL LYS SER ILE LYS LYS GLN HIS LEU VAL GLU VAL ARG SER MET ALA ASN PRO PRO ALA ALA VAL LYS LEU ALA LEU GLU GLU SER ILE CYS LEU LEU LEU LEU GLY GLU SER THR THR ASP GLU
ARG SER ILE ILE MET ARG GLU GLU ASN PHE ILE PRO THR ILE VAL ASN PHE SER ALA GLU GLU ILE SER ASP ALA ILE ARG GLU LYS MET LYS LYS ASN TYR MET SER ASN PRO SER TYR ASN TYR GLU ILE VAL ASN ARG ALA SER LEU LEU ALA CYS GLY PRO MET VAL LYS TRP ALA
GLN LEU ASN TYR ALA ASP MET LEU LYS ARG VAL GLU PRO LEU ARG ASN GLU ASP ASP LEU GLU ALA LYS ASP ASN GLN GLN LYS ALA ASN GLU VAL GLU ASP LEU GLU GLU ALA ASN GLU GLN MET ILE ARG ASP LEU GLU ALA SER ILE ALA ALA ARG TYR LYS GLU GLU TYR ALA VAL ALA GLU SER GLU ALA
GLN ALA ILE LYS ALA ASP VAL ALA GLU LEU LEU LYS SER LEU SER ALA GLU ARG GLU ARG TRP GLU LYS THR SER GLU THR PHE LYS ASN GLN MET SER THR ILE ALA GLY ASP CYS LEU LEU LEU SER ALA ALA ALA PHE ILE ALA TYR ALA GLY
TYR PHE ASP GLN GLN MET ARG GLN ASN LEU PHE THR THR TRP SER HIS HIS LEU GLN PHE ARG THR ASP ILE ALA ARG THR GLU TYR LEU SER ASN ALA ASP GLU ARG LEU ARG TRP GLN ALA SER SER LEU PRO ALA ASP ASP LEU CYS THR GLU ASN ILE ALA
MET LEU LYS ARG PHE ASN ARG TYR PRO LEU ILE ILE ASP PRO SER GLY GLN ALA THR GLU GLU PHE ILE MET ASN GLU TYR PRO LYS ASP ARG LYS ILE THR ARG THR SER PHE LEU ASP ASP ALA PHE ARG LYS ASN LEU GLU SER ALA LEU LEU ARG PHE GLY ASN PRO LEU LEU LEU VAL GLN ASP VAL
GLU SER TYR ASP PRO VAL LEU LEU ASN PRO GLU ILE THR LEU GLY ASP GLN ASP ILE ASP LEU SER PRO SER PHE VAL ILE PHE LEU SER THR ARG ASP PRO THR VAL GLU PHE PRO PRO ASP LEU CYS SER ARG VAL PHE ASP
VAL ASN PHE THR VAL THR ARG SER SER CYS LYS ASN GLU LYS ILE ALA PHE ILE MET GLU VAL ASP LEU LEU LEU LYS LEU GLN GLY GLU PHE GLN LEU ARG LEU ARG GLN LEU GLU LYS SER LEU GLN ALA LEU ASN GLU VAL LYS GLY



• Molecule 6: Cytoplasmic dynein 1 heavy chain 1

Chain G: 97%

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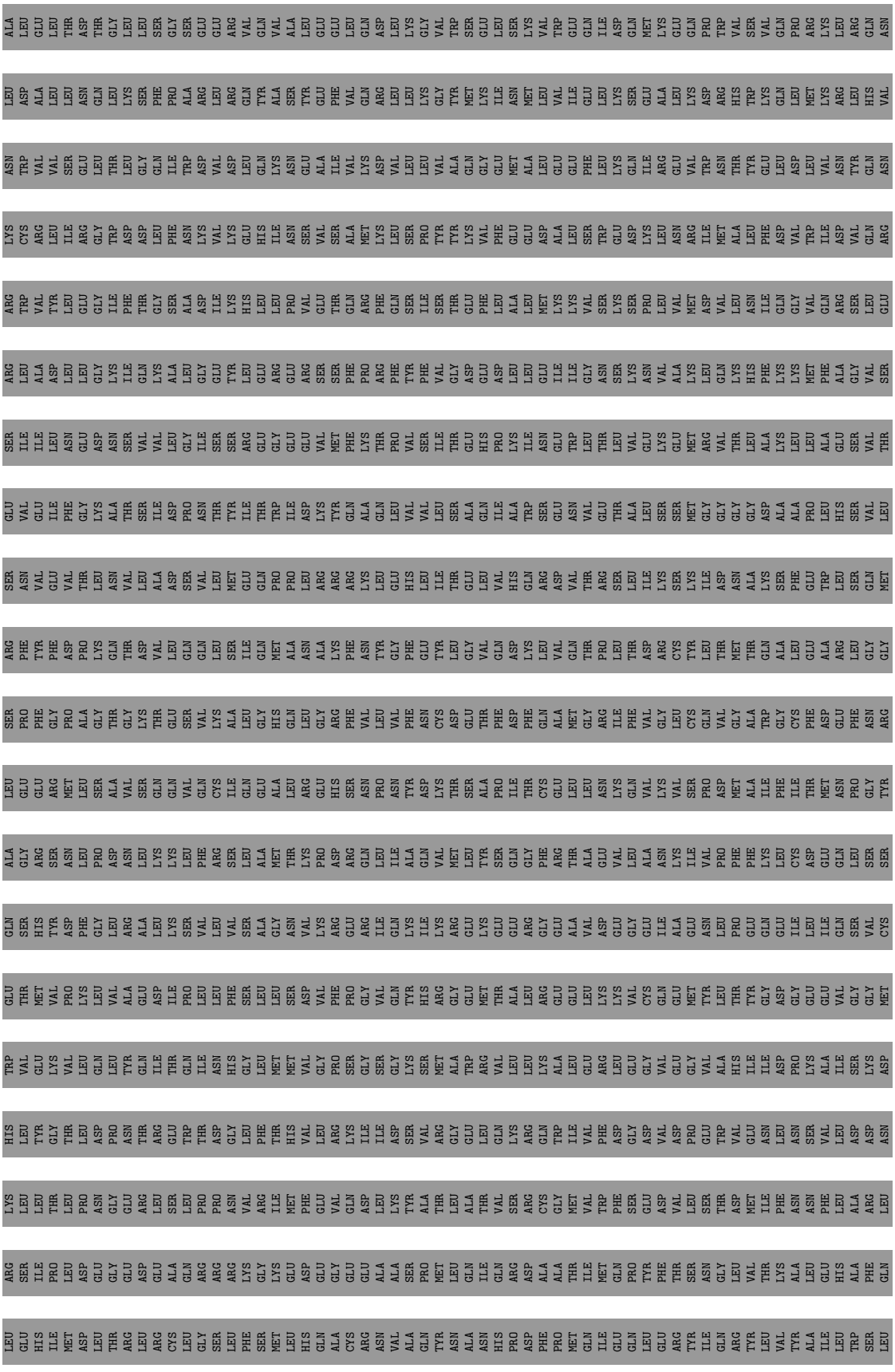
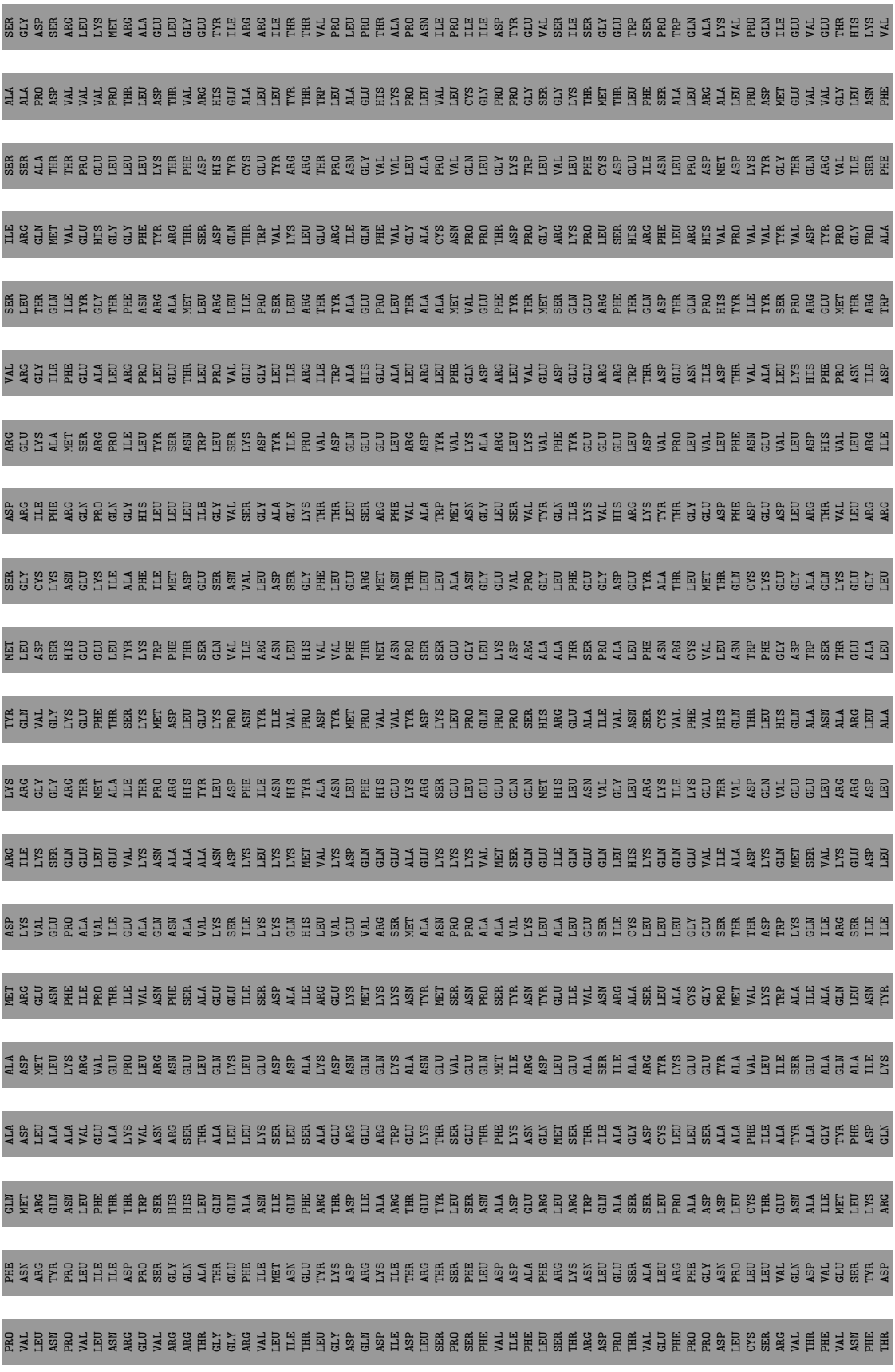

ALA LEU GLU LEU THR ASP THR GLY LEU LEU SER GLY SER GLU GLU ARG VAL GLN VAL ALA LEU GLU GLU LEU GLN ASP GLN MET LYS GLU GLN PRO TRP VAL SER VAL GLN PRO ARG LYS LEU ARG GLN ASN
LEU ASP ALA LEU LEU ASN GLN LEU LYS SER PHE PRO ALA ARG LEU ARG GLN TYR ALA SER TYR GLU PHE VAL GLN ARG LEU LEU LYS GLY TYR MET LYS ILE GLU LEU SER LYS VAL TRP GLU GLN ILE ASP GLN MET LYS SER GLU ALA LEU LYS SER GLN LEU MET LYS ARG LEU HIS VAL
ASN TRP VAL VAL SER GLU LEU THR LEU GLY GLN ILE TRP ASP VAL ASP LEU GLN LYS ASN GLU ALA ILE VAL LYS ASP VAL LEU LYS GLN ILE GLU GLU PHE LEU LYS GLN SER GLU ARG GLU VAL TRP ASN THR TYR GLU LEU ASP GLU LEU GLU ASP LEU VAL ASN TYR GLN ASN
LYS CYS ARG LEU ILE ARG GLY TRP ASP ASP LEU PHE ASN LYS VAL LYS GLU HIS ILE ASN SER VAL SER ALA MET LYS LEU SER PRO TYR TYR LYS VAL PHE GLU GLU MET ALA LEU GLU ASP ALA LEU SER TRP GLU ASP LEU LYS GLN SER LEU GLU ASP VAL TRP GLU ASP VAL ASP ARG ILE MET ALA LEU LEU GLN ILE PHE THR GLY GLY SER ALA ASP ILE LYS HIS LEU LEU PRO VAL GLU THR GLN ARG PHE GLN SER THR GLU PHE LEU ALA LEU MET LYS LYS VAL SER LYS SER PRO LEU VAL MET ASP VAL LEU ASN ILE ASP LYS VAL GLY GLN GLY VAL LEU ARG GLN
ARG LEU ALA ASP LEU LEU GLY LYS ILE GLN LYS ALA LEU GLY GLU TYR LEU GLU ARG GLU LEU PRO PHE TYR PRO ARG PHE GLN SER PRO LEU VAL MET ASP ASN SER LYS ASN VAL ALA LYS LEU GLN GLN LYS HIS PHE LYS LYS MET PHE ALA GLY VAL SER
SER ILE ILE LEU ASN GLU ASP ASN SER VAL VAL LEU GLY ILE SER SER ARG GLU GLY GLU GLU VAL MET PHE LYS THR PRO VAL SER ILE THR GLU HIS PRO LYS ILE ASN GLU TRP LEU THR LEU VAL GLU LYS TYR GLN LEU MET ARG VAL THR GLY GLY GLY ASP ALA LYS LEU LEU LEU ALA GLU SER VAL THR
GLU VAL GLU ILE PHE GLY LYS ALA THR SER ILE ASP PRO ASN THR TYR ILE THR TRP ILE ASP LYS TYR GLN ALA GLN LEU VAL VAL LEU SER ALA GLN ILE GLU ASN VAL GLU THR ALA LEU SER SER MET GLY GLY GLY GLY ASP ALA ALA ALA PRO LEU HIS SER VAL LEU
SER ASN VAL GLU VAL THR LEU ASN VAL LEU ALA ASP SER VAL LEU MET GLU GLN PRO PRO LEU GLU ARG ARG ARG LYS LEU GLU ILE THR GLU LEU VAL HIS GLN ARG ASP VAL THR ARG SER LEU ILE LYS SER LYS ILE ASP ASN ALA LYS SER PHE GLU TRP LEU GLN ARG PHE
ARG PHE TYR PHE ASP PRO LYS GLN THR ASP VAL LEU GLN GLN GLN VAL LEU ASP LYS LEU GLN ILE ALA LYS PHE ASN TYR GLY PHE GLU TYR LEU GLY VAL GLN ASP LYS LEU VAL GLN THR PRO LEU THR ASP ARG CYS TYR LEU THR MET THR GLN ALA LEU GLU ALA ARG LEU GLY GLY
SER PRO PHE GLY PRO ALA GLY THR GLY LYS THR GLU SER VAL LYS ALA LEU GLY HIS GLN LEU GLY ARG PHE VAL LEU LEU VAL PHE ASN CYS ASP GLU THR PHE ASP PHE GLN ALA MET GLY ARG ILE PHE VAL GLY GLY LEU CYS GLN VAL GLY ALA TRP GLY CYS PHE ASP GLU PHE ASN ARG
LEU GLU GLU ARG MET LEU SER GLN GLN GLN VAL GLN CYS ILE GLN GLU ALA LEU ARG GLU HIS SER ASN PRO ASN TYR ASP LYS THR SER ALA PRO ILE THR CYS GLU LEU LEU ASN LYS GLN VAL LYS VAL SER PRO ASP MET ALA ILE PHE PHE ILE THR MET ASN PRO GLY TYR
ALA GLY ARG SER ASN LEU PRO ASP ASN LEU LYS LYS PHE ARG SER LEU ALA MET THR LYS PRO ASP ARG GLN LEU ILE ALA ASN LEU MET VAL LEU ASN GLN VAL MET LEU LEU TYR SER GLN GLU ALA ASP VAL LEU ALA ASN LYS ILE VAL PRO PHE PHE LYS LEU CYS ASP GLU GLN ILE SER SER
GLN SER HIS TYR ASP PHE GLY LEU ARG ALA LEU LYS SER VAL LEU VAL SER ALA GLY ASN VAL LYS ARG GLU ARG GLU ARG GLU ILE GLN LYS ILE LYS ARG GLU LYS GLU GLU ALA VAL ASP GLU GLY GLU ILE ALA ALA GLU ASN LEU PRO GLU GLN GLU ILE LEU ILE GLN SER VAL CYS
GLU THR MET VAL PRO LYS LEU GLU ASP ILE PRO LEU LEU PHE SER LEU LEU SER ASP VAL PHE PRO GLY VAL GLN TYR HIS ARG GLY GLU MET THR ALA LEU ARG GLU LEU LYS LYS VAL CYS GLN GLU MET TYR LEU THR TYR GLY ASP GLU GLU LEU CYS ASP GLU ILE GLN SER LEU GLY
TRP VAL GLU LYS VAL LEU GLN LEU TYR GLN ILE THR GLN ILE MET MET VAL GLY PRO SER GLY SER GLY LYS SER MET ALA TRP ARG VAL LEU LYS ALA LEU GLU ARG LEU GLU GLY VAL ALA HIS ILE ILE ASP PRO LYS ALA ILE SER LYS ASP
HIS LEU TYR GLY THR LEU ASP PRO ASN THR ARG LEU ARG LYS ILE ILE ASP SER VAL ARG GLY GLU LEU GLN LYS ARG GLN TRP ILE VAL PHE ASP GLY ASP VAL LEU ASN SER VAL GLU ILE ASP ASN
LYS LEU LEU THR GLU GLY CYS ARG LEU GLN ILE MET PHE GLU VAL GLN ASP LEU LYS TYR ALA THR LEU ALA THR VAL SER ARG CYS GLY MET VAL TRP PHE SER GLU ASP VAL LEU SER THR ASP MET ILE PHE ASN ASN PHE LEU ALA ARG LEU
ARG SER ILE PRO LEU ASP GLU GLY GLU ALA ASP GLU GLN ILE GLN ARG ARG ARG LYS GLY LYS GLU GLU ALA ALA SER PRO MET LEU GLN ILE GLU ARG ARG ASP ALA ALA THR ILE MET GLN PRO TYR PHE THR SER ASN GLY LEU VAL LEU GLU ASP ALA ILE HIS ALA PHE GLN
LEU GLU HIS ILE MET ASP LEU THR ARG TYR ASN ALA ASN VAL ALA GLN TYR ASN ALA ASP PRO MET GLN ILE GLU GLN LEU GLU ARG TYR ILE GLN ARG TYR LEU VAL LYS ALA ILE LEU TRP SER LEU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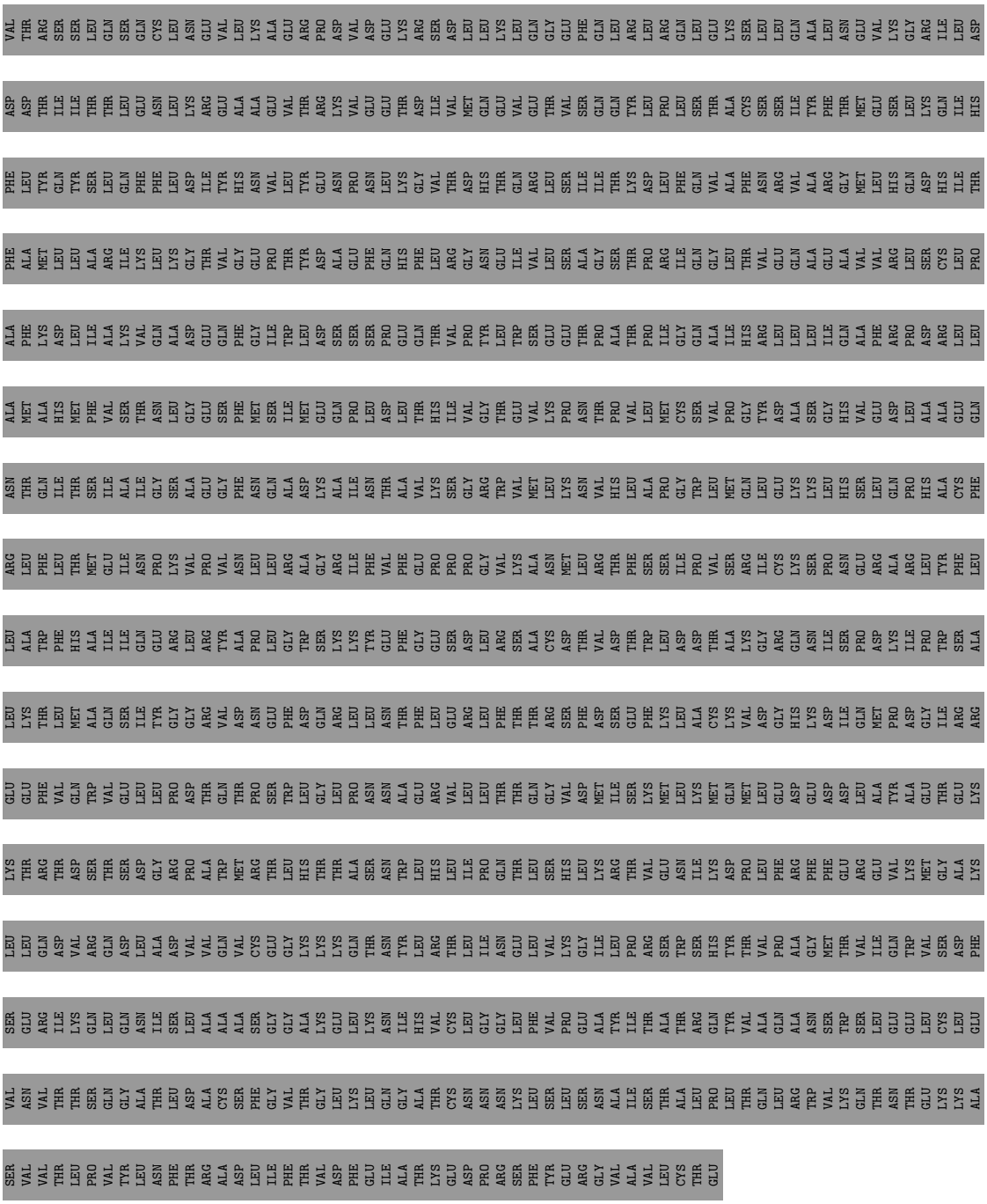
ALA ALA PRO ASP VAL VAL VAL PRO THR LEU ASP THR VAL ARG HIS GLU ALA LEU LEU TYR THR TRP LEU ALA GLU HIS LYS PRO LEU VAL LEU GLN CYS GLY PRO PRO PRO GLY SER GLY LYS THR MET THR LEU PHE SER ALA LEU LEU ARG ALA LEU VAL LEU PRO ASP MET GLU VAL VAL GLY LEU ASN PHE
SER SER ALA THR THR PRO GLU LEU LEU LEU LYS THR PHE ASP HIS TYR CYS GLU TYR ARG ARG THR PRO ASN GLY VAL VAL LEU ALA PRO VAL GLN LEU GLY LYS TRP LEU VAL LEU PHE CYS ASP GLU ILE ASN LEU PRO ASP MET ASP LYS TYR GLY THR GLN ARG VAL ILE SER PHE
ILE ARG GLN MET VAL GLU HIS GLY GLY PHE TYR ARG THR SER ASP GLN THR TRP VAL LYS LEU GLU ARG ILE GLN PHE VAL GLY ALA CYS ASN PRO PRO THR ASP PRO GLY SER HIS ARG PHE LEU ARG HIS VAL PRO VAL VAL TYR VAL ASP PRO GLY ARG LYS PRO LEU SER HIS ARG PHE VAL GLY ALA LEU ARG LEU LYS HIS PHE PRO ASN ILE ILE ASP
SER LEU THR GLN ILE TYR GLY THR PHE ASN ARG ALA MET LEU ARG LEU ILE PRO SER LEU ARG THR TYR ALA GLU PRO LEU THR ALA ALA ALA MET VAL GLU SER ARG GLN GLU ARG PHE THR GLN ASP THR GLN PRO HIS TYR ILE THR MET GLN ARG VAL ASP TYR PRO GLU MET PRO
VAL ARG GLY ILE PHE GLU ALA LEU ARG PRO LEU GLU THR LEU PRO VAL GLU GLY LEU ILE ARG ILE TRP ALA HIS GLU ALA LEU ARG LEU PHE GLN LYS GLU ASP GLU ASN ILE ASP THR GLN VAL ALA LEU LYS HIS PHE PRO ASN ILE ASP
ARG GLU LYS ALA MET SER ARG PRO ILE LEU TYR SER ASN TRP LEU SER LYS ASP TYR ILE PRO VAL ASP GLN GLU GLU LEU ARG ASP TYR VAL LYS ALA ARG LEU LYS VAL PHE TYR GLU GLU GLU ARG LEU ASP PHE HIS VAL LEU ARG ILE
ASP ARG ILE PHE ARG GLN PRO GLN GLY HIS LEU LEU LEU ILE GLY VAL SER GLY ALA GLY LYS THR THR LEU SER ARG PHE VAL ALA TRP MET ASN GLY LEU SER VAL TYR GLN ILE LYS VAL HIS ARG LYS TYR THR GLY GLU ASP VAL LEU ARG ARG ARG
SER GLY CYS LYS ASN GLU LYS ILE ALA PHE ILE MET ASP GLU SER ASN VAL LEU GLU ARG MET ASN THR LEU LEU ALA ASN GLY GLU VAL PRO GLY LEU PHE GLU GLY GLU ASP ASP ASP ASP ASP LEU GLY LEU
MET LEU ASP SER HIS GLU GLU LEU TYR LYS TRP PHE THR SER GLN VAL ILE ARG ASN LEU HIS VAL VAL PHE THR MET ASN PRO SER SER GLU GLY LEU LYS ASP ARG ALA ALA THR SER PRO ALA LEU PHE ASN ARG CYS VAL LEU ASN TRP PHE GLY ASP TRP SER THR GLU ALA LEU
TYR GLN VAL GLY LYS GLU PHE THR SER LYS MET ASP LEU GLU LYS PRO ASN TYR ILE VAL PRO ASP TYR MET PRO VAL VAL TYR ASP LYS LEU PRO GLN PRO PRO SER HIS ARG GLU ALA ILE VAL ASN SER CYS VAL PHE VAL HIS GLN THR LEU HIS GLN ALA ASN SER ARG LEU ALA
LYS ARG GLY GLY ARG THR MET ALA ILE THR PRO ARG HIS TYR LEU ASP PHE ILE ASN HIS TYR GLU LYS ARG SER GLU LEU GLU GLU GLN GLN MET HIS LEU ASN VAL GLY LEU ARG LYS ILE LYS GLU THR VAL GLU GLU LEU ARG ARG ASP LEU
ARG ILE LYS SER GLN GLU VAL LYS ASN ASP LYS LEU LYS LYS MET VAL LYS ASP GLN GLN GLU ALA GLU LYS LYS LYS VAL MET SER GLN GLU ILE GLN GLU GLN LEU HIS LYS GLN GLN GLU VAL ILE ALA ASP LYS GLN MET SER VAL LYS GLU ILE
ASP LYS VAL GLU PRO ALA VAL ILE GLU ALA GLN ASN ASP SER ILE LYS ALA VAL GLU VAL GLU VAL ARG SER MET ALA ASN PRO PRO ALA ALA VAL LYS LEU ALA LEU GLU SER ILE CYS LEU LEU LEU LEU GLY GLU SER THR THR ASP TRP LYS GLN LEU ILE ARG SER ILE
MET ARG GLU ASN PHE ILE VAL ASN PHE SER ALA ALA GLU GLU ILE SER ASP ALA ILE ARG GLU LYS LYS ASN TYR MET SER ASN PRO SER TYR ASN TYR GLU ILE VAL ASN ARG ALA SER LEU ALA CYS GLY PRO MET VAL LYS TRP ALA ILE ALA GLN LEU ASN TYR
ALA ASP MET LEU LYS ARG GLU LEU LEU GLN LYS LEU GLU ASP ASP ASN GLN LYS ALA ASP ALA LYS ASP ASN GLU VAL GLU GLN MET ILE ARG ASP LEU GLU ALA SER ILE ALA ARG TYR LYS GLU GLU TYR ALA VAL ALA GLN LEU ALA LYS
ALA ASP LEU ALA GLU LEU LEU SER LEU SER ALA GLU ARG TRP GLU LYS THR SER GLU THR PHE LYS ASN GLN MET SER ARG LEU GLN ILE ALA GLY ASP CYS LEU LEU SER ALA ALA PHE ILE ALA ALA GLY TYR ALA LEU ILE ASP GLN
GLN MET ARG GLN ASN LEU PHE THR THR TRP SER HIS HIS LEU GLN GLN ALA ASN ILE ALA ARG THR GLU TYR LEU SER HIS GLN PHE ARG THR ASP ILE ALA SER SER LEU PRO ALA ASP ASP CYS THR GLU GLU ASN ALA PHE GLY ASN PRO LEU CYS THR GLU ASN ARG LYS
PHE ASN ARG TYR PRO LEU ILE ILE ASP PRO SER GLY HIS GLN ALA THR GLU PHE ILE MET ASN GLU TYR LYS ASP ARG LYS ILE THR ARG THR SER PHE LEU ASP ASP ALA PHE ARG LYS ASN LEU GLU SER ALA LEU ARG PHE GLY ASN PRO LEU LEU VAL GLN ASP VAL GLU ASN ILE ILE
PRO VAL LEU ASN ARG GLU VAL ARG VAL LEU ILE ILE THR LEU GLY ASP GLN ASP ILE LEU SER PRO SER PHE VAL ILE PHE LEU SER THR ARG ASP PRO THR VAL GLU PHE PRO PRO ASP LEU CYS SER VAL ARG VAL THR PHE VAL ASN PHE THR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ASP ASP THR ILE ILE THR THR LEU GLU ASN LEU LYS ARG GLU ALA ALA GLU VAL THR ARG LYS VAL GLU GLU THR ASP ILE VAL MET GLN GLU VAL GLU THR VAL SER GLN GLN TYR LEU PRO LEU SER THR ALA CYS SER SER SER ILE TYR PHE THR MET GLU SER LEU LYS GLN ILE HIS
PHE LEU TYR GLN TYR SER LEU GLN PHE PHE LEU ASP ILE TYR HIS ASN VAL LEU TYR GLU ASN GLY VAL THR ASP HIS THR GLN ARG LEU SER ILE ILE THR LYS ASP LEU PHE GLN VAL ALA PHE ASN ARG VAL ALA ARG GLY MET LEU HIS GLN ASP SER CYS LEU PRO
PHE ALA MET LEU LEU ALA ARG ILE LYS LEU LYS GLY THR VAL GLY GLU PRO THR TYR ASP ALA GLU PHE GLN HIS PHE LEU ARG GLY ASN GLU ILE VAL LEU SER ALA GLY SER THR PRO ARG ILE GLN GLY LEU THR VAL GLU GLN ALA GLU ALA VAL VAL ARG LEU SER CYS LEU
ALA PHE LYS ASP LEU ILE ALA LYS VAL GLN ALA ASP GLU GLN PHE GLY ILE TRP LEU ASP SER SER PRO GLU GLN THR PRO ALA THR PRO ILE GLY GLN ALA ILE HIS ARG LEU LEU LEU ILE GLN ALA PHE ARG PRO ASP ARG LEU LEU
ALA MET ALA HIS MET PHE VAL SER THR ASN LEU GLY GLU SER PHE MET SER ILE MET GLU GLN LEU ASP LEU GLU THR HIS ILE VAL GLY THR GLU VAL THR PRO VAL LEU MET CYS SER VAL PRO GLY TYR ASP ALA SER GLY HIS VAL GLU ASP PRO GLU LEU
ASN THR GLN ILE THR SER ILE ALA ILE GLY SER ALA GLU GLY PHE ASN GLN ALA ASP LYS ALA ILE ASN THR ALA VAL LYS SER GLY ARG TRP VAL MET LEU LYS ASN VAL HIS LEU ALA PRO GLY TRP LEU MET GLN LEU GLU LYS LYS LYS LEU HIS SER LEU GLN PRO HIS ALA CYS PHE
ARG LEU PHE LEU THR MET GLU ILE ASN PRO LYS VAL PRO VAL ASN LEU LEU ARG ALA GLY ARG ILE PHE VAL PHE GLU PRO PRO PRO GLY VAL LYS ALA ASN MET LEU ARG THR PHE SER SER ILE PRO LEU SER ARG ILE CYS LYS SER GLY LEU GLU ILE ASN PRO LYS ALA ARG LEU TYR PHE LEU
LEU ALA TRP PHE HIS ALA ILE ILE GLN GLU ARG LEU ARG TYR ALA PRO LEU GLY TRP SER LYS LYS TYR GLU PHE GLY GLU SER ASP LEU ARG SER ALA CYS ASP THR VAL ASP THR TRP LEU ASP ASP THR ALA LYS GLY ARG GLN ASN ILE SER PRO ASP LYS ILE PRO TRP SER ALA
LEU LYS THR LEU MET ALA GLN SER ILE TYR GLY GLY ARG VAL ASP ASN GLU PHE ASP GLN ARG LEU LEU ASN THR PHE LEU GLU ARG LEU PHE THR THR THR ARG SER PHE ASP SER GLU PHE LYS LEU ALA CYS LYS VAL ASP GLY HIS LYS ASP ILE GLN MET PRO ASP GLY ILE ARG ARG
GLU GLU PHE VAL GLN TRP VAL GLU LEU LEU PRO ASP THR GLN THR PRO SER TRP LEU GLY LEU PRO ASN ASN ALA GLU ARG VAL LEU LEU THR THR GLN THR THR LEU SER LYS MET LEU LYS MET GLN MET LEU GLU ASP GLU ASP ASP LEU ALA TYR ALA GLU THR GLU LYS
LYS THR ARG THR ASP SER THR SER ASP GLY ARG PRO ALA TRP MET ARG THR LEU HIS THR THR THR ALA SER ASN TRP LEU HIS LEU ILE PRO GLN THR THR LEU SER HIS LEU LYS ARG THR VAL GLU ASN ILE LYS ASP PRO LEU PHE ARG PHE PHE GLU ARG GLU ALA MET PRO ALA GLY ALA LYS
LEU LEU GLN ASP VAL ARG GLN ASP LEU ALA ASP VAL VAL GLN VAL CYS GLU GLY LYS LYS LYS GLN THR ASN TYR LEU ARG THR LEU ILE ASN GLU LEU VAL LYS GLY ILE LEU PRO ARG SER TRP SER HIS TYR THR VAL PRO ALA GLY MET THR VAL ILE GLN GLU TRP VAL SER ASP PHE
SER GLU ARG ILE LYS GLN LEU GLN ASN LEU ILE SER LEU ALA ALA ALA SER GLY GLY ALA LYS GLU LEU LYS ASN ILE HIS VAL CYS LEU GLY GLY LEU PHE VAL PRO GLU ALA ALA THR ALA THR ARG GLN TYR VAL ALA GLN ALA ASN SER TRP SER LEU GLU GLU LEU CYS LEU GLU
VAL ASN VAL THR THR SER GLN GLY ALA THR LEU ASP ASP ALA CYS SER PHE GLY VAL THR GLY LYS ALA CYS ASN ASN ASN ASN LYS LEU SER LEU SER ASN ALA ILE SER THR ALA LEU PRO LEU THR GLN LEU ARG TRP VAL LYS GLN THR ASN THR GLU LYS LYS ALA
SER VAL VAL THR LEU PRO VAL TYR LEU ASN PHE THR ARG ALA ASP LEU ILE PHE THR VAL ASP PHE GLU ILE ALA THR LYS GLU ASP PRO ARG SER PHE TYR GLU ARG GLY VAL ALA VAL LEU CYS THR GLU

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	12517	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	55	Depositor
Minimum defocus (nm)	610	Depositor
Maximum defocus (nm)	3250	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.431	Depositor
Minimum map value	-0.194	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.014	Depositor
Recommended contour level	0.0339	Depositor
Map size (Å)	388.96, 388.96, 388.96	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.935, 0.935, 0.935	Depositor

5 Model quality

5.1 Standard geometry

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	E	0.15	0/476	0.35	0/663
1	F	0.21	0/476	0.40	0/663
2	D	0.18	0/2052	0.36	0/2854
2	H	0.19	0/2117	0.39	0/2946
2	g	0.09	0/153	0.21	0/212
2	h	0.13	0/153	0.32	0/212
3	d	0.12	0/440	0.37	0/612
3	i	0.10	0/440	0.28	0/612
4	k	0.09	0/497	0.23	0/690
4	v	0.10	0/497	0.27	0/690
5	B	0.26	0/1602	0.43	0/2230
5	C	0.22	0/1602	0.39	0/2230
6	A	0.10	0/753	0.27	0/1047
6	G	0.11	0/753	0.38	0/1047
6	e	0.18	0/4605	0.32	0/5751
6	f	0.18	0/4605	0.32	0/5753
All	All	0.18	0/21221	0.35	0/28212

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	E	477	0	204	10	0
1	F	477	0	204	22	0
2	D	2054	0	943	75	0
2	H	2118	0	971	48	0
2	g	154	0	65	0	0
2	h	154	0	65	0	0
3	d	441	0	204	5	0
3	i	441	0	204	4	0
4	k	498	0	225	5	0
4	v	498	0	225	3	0
5	B	1604	0	700	22	0
5	C	1604	0	700	27	0
6	A	756	0	333	8	0
6	G	756	0	333	3	0
6	e	4608	0	1207	12	0
6	f	4609	0	1210	15	0
All	All	21249	0	7793	254	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 9.

All (254) 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)
6:e:1102:PHE:H	6:e:1107:ILE:H	1.31	0.78
2:D:522:ARG:HA	2:D:540:SER:HA	1.74	0.69
5:C:119:LEU:O	5:C:123:VAL:N	2.26	0.68
6:A:152:PHE:O	6:A:156:ALA:HB3	1.94	0.68
1:E:68:PHE:HA	1:E:81:ALA:HB2	1.75	0.68
2:H:413:PHE:HA	2:H:421:PHE:HA	1.76	0.68
5:B:262:CYS:O	5:B:266:GLY:N	2.28	0.67
6:A:40:LEU:HA	6:A:45:GLY:HA2	1.77	0.67
2:H:470:LEU:HA	2:H:484:SER:HA	1.77	0.66
5:C:230:VAL:HA	5:C:270:ILE:H	1.61	0.66
1:F:21:ILE:HA	1:F:32:SER:HA	1.76	0.66
2:H:287:ALA:HB3	2:H:303:PHE:H	1.61	0.65
2:D:408:VAL:HA	2:D:425:SER:HA	1.78	0.65
2:D:483:TRP:HA	2:D:490:PRO:HA	1.78	0.65
2:D:233:ILE:HA	2:D:237:ALA:HB3	1.78	0.65
2:H:575:GLU:HA	2:H:578:ALA:HB3	1.80	0.64
5:B:92:SER:HA	5:B:103:ARG:HA	1.80	0.64
2:D:309:VAL:HA	2:D:326:THR:HA	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:504:VAL:HA	2:H:516:CYS:HA	1.80	0.64
6:f:961:GLU:N	6:f:972:ASN:O	2.32	0.63
6:f:1197:LEU:O	6:f:1202:PHE:N	2.27	0.63
6:e:1197:LEU:O	6:e:1202:PHE:N	2.31	0.63
1:F:78:ILE:HA	1:F:91:ILE:HA	1.82	0.62
3:i:68:HIS:HA	3:i:88:SER:HA	1.82	0.62
2:D:376:SER:H	2:D:380:LYS:H	1.47	0.62
2:D:409:THR:N	2:D:424:GLY:O	2.34	0.61
2:H:304:HIS:N	2:H:341:ARG:O	2.33	0.61
2:D:323:VAL:HA	2:D:333:LEU:HA	1.82	0.61
2:D:430:VAL:N	2:D:446:PHE:O	2.31	0.61
5:B:219:LEU:N	5:B:263:LEU:O	2.33	0.61
2:D:321:LEU:HA	2:D:335:ASP:HA	1.83	0.61
3:d:73:PHE:HA	3:d:86:PHE:HA	1.82	0.61
5:C:288:VAL:O	5:C:293:GLY:N	2.33	0.61
5:C:119:LEU:HA	5:C:122:ALA:HB3	1.82	0.61
2:D:548:ASN:H	2:D:562:GLY:HA3	1.66	0.61
4:k:63:TYR:HA	4:k:110:GLY:HA2	1.83	0.61
2:D:238:LYS:HA	2:D:574:GLY:H	1.65	0.60
2:D:287:ALA:HB3	2:D:303:PHE:H	1.66	0.60
5:B:288:VAL:O	5:B:293:GLY:N	2.34	0.60
1:E:67:THR:H	1:F:73:SER:HA	1.67	0.60
2:D:481:LYS:HA	2:D:493:SER:HA	1.84	0.60
2:D:504:VAL:HA	2:D:516:CYS:HA	1.84	0.59
6:e:719:THR:O	6:e:736:LYS:N	2.33	0.59
2:H:552:TRP:HA	2:H:559:ILE:HA	1.85	0.59
2:D:255:VAL:O	2:D:274:ASN:N	2.30	0.59
2:D:581:ARG:O	2:D:585:TRP:N	2.33	0.59
2:H:472:VAL:HA	2:H:482:LEU:HA	1.84	0.59
5:B:141:ARG:O	5:B:145:VAL:N	2.36	0.58
2:D:384:TRP:HA	2:D:393:GLN:H	1.67	0.58
1:E:23:VAL:HA	1:E:30:ILE:H	1.67	0.58
5:C:124:SER:O	5:C:128:LEU:N	2.34	0.58
5:B:221:HIS:N	5:B:264:GLN:O	2.35	0.58
3:d:77:TYR:HA	3:d:82:ALA:HA	1.84	0.58
2:H:333:LEU:O	2:H:344:VAL:N	2.35	0.58
6:f:719:THR:N	6:f:736:LYS:O	2.36	0.58
1:F:77:GLU:N	1:F:92:GLN:O	2.36	0.58
5:C:93:VAL:H	5:C:103:ARG:HA	1.68	0.58
2:D:423:VAL:O	2:D:431:TYR:N	2.37	0.58
2:D:523:LEU:N	2:D:539:ILE:O	2.30	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:70:ARG:HA	1:E:79:MET:HA	1.86	0.57
1:F:71:ILE:N	1:F:78:ILE:O	2.32	0.57
2:H:286:VAL:HA	2:H:304:HIS:HA	1.86	0.57
2:D:452:PRO:O	2:D:476:PHE:N	2.37	0.57
2:D:372:LEU:N	2:D:384:TRP:O	2.35	0.57
2:D:332:VAL:HA	2:D:346:ARG:HA	1.87	0.57
2:D:325:GLY:HA2	2:D:331:ILE:HA	1.86	0.57
2:H:432:THR:O	2:H:443:SER:N	2.27	0.56
2:D:482:LEU:O	2:D:491:LEU:N	2.38	0.56
5:C:141:ARG:O	5:C:145:VAL:N	2.35	0.56
6:G:40:LEU:HA	6:G:45:GLY:HA2	1.86	0.56
2:D:286:VAL:HA	2:D:304:HIS:HA	1.86	0.56
1:F:71:ILE:O	1:F:78:ILE:N	2.39	0.56
5:C:95:ASP:O	5:C:100:ASP:N	2.39	0.56
1:F:23:VAL:HA	1:F:29:PRO:HA	1.88	0.56
1:F:72:ARG:HA	1:F:77:GLU:HA	1.88	0.56
4:k:67:CYS:HA	4:k:106:VAL:HA	1.88	0.56
5:C:144:THR:O	5:C:148:SER:N	2.34	0.56
2:D:381:ILE:N	2:D:396:MET:O	2.35	0.56
2:H:310:MET:N	2:H:325:GLY:O	2.35	0.55
2:D:308:ALA:O	2:D:327:TYR:N	2.31	0.55
2:D:552:TRP:HA	2:D:559:ILE:HA	1.89	0.55
2:D:257:SER:N	2:D:272:SER:O	2.40	0.55
2:D:454:THR:N	2:D:474:SER:O	2.40	0.55
2:D:413:PHE:HA	2:D:421:PHE:HA	1.87	0.55
2:D:360:CYS:O	2:D:375:ILE:N	2.39	0.55
2:H:374:SER:N	2:H:382:CYS:O	2.40	0.54
2:H:454:THR:H	2:H:475:SER:HA	1.72	0.54
5:B:118:LEU:O	5:B:122:ALA:N	2.36	0.54
5:B:58:LEU:N	5:B:132:LEU:O	2.38	0.54
2:D:285:GLY:O	2:D:305:CYS:N	2.40	0.54
2:D:501:VAL:HA	2:D:518:ASP:HA	1.89	0.54
2:H:473:THR:O	2:H:481:LYS:N	2.38	0.54
4:k:81:SER:HA	4:v:66:THR:HA	1.88	0.54
6:e:996:LEU:O	6:e:1019:TYR:N	2.41	0.54
5:B:133:VAL:N	5:B:226:PRO:O	2.40	0.53
6:f:715:GLY:HA2	6:f:825:GLU:H	1.73	0.53
6:f:723:THR:O	6:f:732:VAL:N	2.40	0.53
6:A:120:LYS:HA	6:A:135:LEU:HA	1.91	0.53
2:H:366:THR:N	2:H:369:ALA:O	2.42	0.53
1:E:69:LEU:N	1:E:80:VAL:O	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:57:VAL:O	1:E:61:ASP:N	2.33	0.53
2:H:381:ILE:N	2:H:396:MET:O	2.37	0.53
5:B:358:ASP:O	5:B:362:PHE:N	2.34	0.53
5:C:93:VAL:O	5:C:102:THR:N	2.39	0.53
2:D:244:GLN:HA	2:D:569:VAL:HA	1.91	0.53
5:C:262:CYS:O	5:C:267:ALA:N	2.42	0.53
5:C:59:VAL:N	5:C:107:TRP:O	2.40	0.53
2:D:527:ASN:O	2:D:531:ASP:N	2.37	0.52
5:C:279:ASN:O	5:C:283:LEU:N	2.38	0.52
5:B:318:LYS:O	5:B:322:ILE:N	2.38	0.52
2:H:473:THR:N	2:H:481:LYS:O	2.41	0.52
5:B:279:ASN:O	5:B:283:LEU:N	2.41	0.52
2:D:474:SER:HA	2:D:480:VAL:HA	1.91	0.52
1:F:70:ARG:HA	1:F:79:MET:HA	1.92	0.51
2:H:350:SER:N	2:H:353:ALA:HB3	2.25	0.51
4:k:68:VAL:N	4:k:105:ILE:O	2.38	0.51
6:e:717:ILE:O	6:e:737:VAL:N	2.42	0.51
2:D:471:PHE:O	2:D:483:TRP:N	2.42	0.51
1:F:27:GLY:HA2	1:F:44:SER:HA	1.92	0.51
4:v:64:ILE:O	4:v:109:PHE:N	2.43	0.51
6:e:725:VAL:N	6:e:728:ARG:O	2.43	0.51
2:H:482:LEU:N	2:H:492:TYR:O	2.35	0.51
3:d:78:LEU:N	3:d:81:VAL:O	2.39	0.51
2:D:421:PHE:N	2:D:433:ALA:O	2.39	0.51
6:e:715:GLY:O	6:e:825:GLU:N	2.43	0.51
2:D:482:LEU:N	2:D:492:TYR:O	2.44	0.51
2:D:505:MET:N	2:D:515:ALA:O	2.43	0.51
2:H:380:LYS:HA	2:H:397:GLU:HA	1.93	0.51
6:A:79:VAL:O	6:A:116:LEU:N	2.44	0.51
2:D:372:LEU:O	2:D:384:TRP:N	2.44	0.51
6:A:116:LEU:HA	6:A:139:THR:HA	1.93	0.51
2:D:362:ASN:O	2:D:373:ILE:N	2.44	0.51
2:D:526:TRP:HA	2:D:536:THR:H	1.75	0.51
1:F:68:PHE:HA	1:F:81:ALA:HA	1.93	0.50
2:D:431:TYR:HA	2:D:445:MET:HA	1.92	0.50
1:F:80:VAL:HA	1:F:89:ILE:HA	1.93	0.50
2:D:376:SER:H	2:D:380:LYS:N	2.08	0.50
2:H:373:ILE:HA	2:H:383:SER:HA	1.94	0.50
2:H:421:PHE:O	2:H:433:ALA:N	2.39	0.50
2:H:333:LEU:N	2:H:345:GLN:O	2.44	0.50
2:H:482:LEU:O	2:H:491:LEU:N	2.43	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A:118:PHE:HA	6:A:137:VAL:HA	1.94	0.50
2:D:240:SER:O	2:D:572:ASP:N	2.35	0.50
2:D:247:ASP:O	2:D:251:SER:N	2.36	0.50
6:e:304:LEU:O	6:e:309:ARG:N	2.45	0.50
2:D:419:ASN:C	2:D:435:ARG:H	2.19	0.50
2:H:361:VAL:HA	2:H:374:SER:HA	1.94	0.49
2:H:479:THR:HA	2:H:495:GLU:HA	1.93	0.49
3:i:75:TYR:HA	3:i:84:LEU:HA	1.93	0.49
5:B:137:ALA:O	5:B:232:THR:N	2.44	0.49
2:D:455:GLY:O	2:D:474:SER:N	2.45	0.49
6:f:963:ARG:N	6:f:970:TYR:O	2.45	0.49
2:D:361:VAL:HA	2:D:374:SER:HA	1.94	0.49
2:H:561:VAL:N	2:H:569:VAL:O	2.34	0.49
1:E:69:LEU:HA	1:F:71:ILE:HA	1.93	0.49
1:F:22:VAL:N	1:F:31:LYS:O	2.46	0.49
2:H:227:GLU:O	2:H:231:GLY:N	2.43	0.49
2:H:526:TRP:HA	2:H:536:THR:H	1.78	0.49
2:D:364:VAL:H	2:D:372:LEU:HA	1.77	0.49
5:C:89:LEU:N	5:C:106:VAL:O	2.45	0.48
2:H:553:THR:N	2:H:558:GLU:O	2.44	0.48
2:H:561:VAL:O	2:H:569:VAL:N	2.36	0.48
2:D:350:SER:H	2:D:353:ALA:HB3	1.78	0.48
2:H:434:CYS:O	2:H:441:GLY:N	2.46	0.48
5:C:118:LEU:O	5:C:122:ALA:N	2.45	0.48
1:F:22:VAL:O	1:F:30:ILE:N	2.47	0.48
5:B:72:THR:O	5:B:77:ALA:N	2.35	0.48
2:D:430:VAL:O	2:D:446:PHE:N	2.38	0.48
2:D:241:LEU:HA	2:D:571:TYR:HA	1.95	0.48
2:D:304:HIS:N	2:D:341:ARG:O	2.35	0.48
5:C:180:ASP:O	5:C:184:TYR:N	2.46	0.48
5:C:262:CYS:O	5:C:266:GLY:N	2.47	0.48
2:D:324:GLY:O	2:D:332:VAL:N	2.47	0.47
6:A:115:SER:O	6:A:140:LEU:N	2.39	0.47
2:H:527:ASN:O	2:H:531:ASP:N	2.40	0.47
1:F:1:MET:O	1:F:5:GLU:N	2.41	0.47
2:D:312:ALA:HA	2:D:324:GLY:HA2	1.96	0.47
2:D:350:SER:N	2:D:353:ALA:HB3	2.30	0.47
6:f:715:GLY:HA2	6:f:825:GLU:N	2.29	0.47
6:f:998:ARG:N	6:f:1016:GLU:O	2.48	0.47
2:H:522:ARG:HA	2:H:540:SER:HA	1.97	0.46
5:B:54:GLY:O	5:B:105:ASN:N	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C:95:ASP:H	5:C:101:HIS:HA	1.80	0.46
5:B:135:PHE:N	5:B:228:LEU:O	2.49	0.46
3:i:52:PRO:HA	3:i:53:THR:HA	1.53	0.46
2:D:412:SER:O	2:D:422:VAL:N	2.49	0.46
5:C:179:LYS:O	5:C:183:ASP:N	2.39	0.46
6:f:715:GLY:O	6:f:824:TRP:N	2.36	0.46
1:F:57:VAL:O	1:F:61:ASP:N	2.42	0.46
3:d:76:PHE:O	3:d:83:ILE:N	2.49	0.46
5:C:231:CYS:N	5:C:270:ILE:O	2.48	0.46
2:D:434:CYS:O	2:D:441:GLY:N	2.47	0.46
5:C:93:VAL:N	5:C:102:THR:O	2.49	0.46
2:H:515:ALA:HA	2:H:525:LEU:HA	1.98	0.45
2:D:358:VAL:HA	2:D:376:SER:HA	1.98	0.45
2:H:521:GLY:N	2:H:545:PRO:O	2.50	0.45
2:H:400:HIS:O	2:H:404:LYS:N	2.49	0.45
6:e:220:CYS:O	6:e:225:GLU:N	2.36	0.45
6:f:721:GLU:O	6:f:734:LYS:N	2.44	0.45
1:E:66:LEU:HA	1:F:74:LYS:H	1.82	0.45
1:F:82:PRO:HA	1:F:87:PHE:HA	1.98	0.45
2:H:503:ASP:O	2:H:517:VAL:N	2.42	0.45
2:D:193:SER:O	2:D:197:LEU:N	2.37	0.45
5:C:58:LEU:N	5:C:132:LEU:O	2.50	0.45
6:e:958:VAL:H	6:e:1106:VAL:N	2.14	0.45
6:e:998:ARG:N	6:e:1017:LYS:O	2.32	0.45
2:D:407:ALA:O	2:D:426:GLU:N	2.30	0.45
2:H:384:TRP:HA	2:H:392:PRO:HA	1.99	0.44
2:H:407:ALA:O	2:H:425:SER:HA	2.16	0.44
3:d:77:TYR:HA	3:d:83:ILE:H	1.82	0.44
2:H:229:LYS:O	2:H:233:ILE:N	2.50	0.44
1:F:9:LYS:O	1:F:13:SER:N	2.51	0.44
5:B:93:VAL:O	5:B:102:THR:N	2.42	0.44
2:D:232:GLU:HA	2:D:235:ALA:HB3	2.00	0.44
1:F:20:ILE:HA	1:F:90:VAL:HA	2.00	0.44
2:H:360:CYS:O	2:H:375:ILE:N	2.33	0.43
2:D:432:THR:O	2:D:443:SER:N	2.35	0.43
2:H:574:GLY:O	2:H:578:ALA:N	2.46	0.43
6:e:636:SER:O	6:e:640:ASP:N	2.51	0.43
6:f:1197:LEU:O	6:f:1201:ARG:N	2.52	0.43
2:D:502:TYR:N	2:D:517:VAL:O	2.51	0.43
5:C:247:ARG:O	5:C:251:LEU:N	2.41	0.43
2:H:331:ILE:O	2:H:347:THR:N	2.32	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:159:HIS:O	5:B:163:MET:N	2.52	0.42
5:C:220:THR:N	5:C:264:GLN:O	2.52	0.42
2:D:582:ASN:O	2:D:586:ALA:N	2.45	0.42
2:H:383:SER:O	2:H:393:GLN:N	2.53	0.42
5:B:44:SER:O	5:B:48:ARG:N	2.52	0.42
5:B:135:PHE:O	5:B:230:VAL:N	2.53	0.42
6:f:753:LEU:O	6:f:758:PHE:N	2.41	0.42
2:H:322:VAL:N	2:H:334:TRP:O	2.45	0.42
5:C:263:LEU:C	5:C:266:GLY:H	2.28	0.42
2:H:322:VAL:O	2:H:334:TRP:N	2.48	0.42
2:D:245:PHE:O	2:D:568:ILE:N	2.37	0.42
2:D:373:ILE:HA	2:D:383:SER:HA	2.01	0.42
5:B:136:VAL:HA	5:B:230:VAL:H	1.84	0.42
2:D:331:ILE:O	2:D:347:THR:N	2.53	0.42
4:k:82:SER:N	4:v:65:VAL:O	2.48	0.42
6:G:117:ALA:N	6:G:138:LEU:O	2.53	0.41
1:E:71:ILE:N	1:E:78:ILE:O	2.53	0.41
1:E:78:ILE:HA	1:E:91:ILE:HA	2.01	0.41
1:F:21:ILE:O	1:F:89:ILE:N	2.50	0.41
6:f:441:LYS:O	6:f:445:ASN:N	2.48	0.41
5:B:73:LYS:C	5:B:76:GLY:H	2.28	0.41
5:C:92:SER:HA	5:C:103:ARG:HA	2.02	0.41
6:A:38:VAL:O	6:A:42:LEU:N	2.41	0.41
2:D:381:ILE:O	2:D:396:MET:N	2.54	0.41
5:C:133:VAL:O	5:C:228:LEU:N	2.49	0.41
2:D:256:VAL:HA	2:D:273:TYR:HA	2.02	0.41
2:D:383:SER:O	2:D:393:GLN:N	2.54	0.41
3:i:73:PHE:HA	3:i:86:PHE:HA	2.02	0.41
6:f:717:ILE:O	6:f:719:THR:N	2.54	0.41
6:f:804:LEU:O	6:f:894:SER:N	2.53	0.40
6:G:77:VAL:O	6:G:118:PHE:N	2.39	0.40

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	E	94/96 (98%)	78 (83%)	16 (17%)	0	100	100
1	F	94/96 (98%)	82 (87%)	12 (13%)	0	100	100
2	D	412/612 (67%)	368 (89%)	44 (11%)	0	100	100
2	H	427/612 (70%)	384 (90%)	43 (10%)	0	100	100
2	g	29/612 (5%)	28 (97%)	1 (3%)	0	100	100
2	h	29/612 (5%)	23 (79%)	6 (21%)	0	100	100
3	d	87/89 (98%)	80 (92%)	7 (8%)	0	100	100
3	i	87/89 (98%)	82 (94%)	4 (5%)	1 (1%)	12	47
4	k	99/113 (88%)	96 (97%)	3 (3%)	0	100	100
4	v	99/113 (88%)	98 (99%)	1 (1%)	0	100	100
5	B	320/492 (65%)	285 (89%)	34 (11%)	1 (0%)	37	73
5	C	320/492 (65%)	292 (91%)	27 (8%)	1 (0%)	37	73
6	A	146/4843 (3%)	140 (96%)	6 (4%)	0	100	100
6	G	146/4843 (3%)	142 (97%)	4 (3%)	0	100	100
6	e	1146/4843 (24%)	1087 (95%)	59 (5%)	0	100	100
6	f	1143/4843 (24%)	1073 (94%)	67 (6%)	3 (0%)	37	73
All	All	4678/23400 (20%)	4338 (93%)	334 (7%)	6 (0%)	50	83

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	C	349	VAL
6	f	451	ARG
6	f	452	ILE
5	B	349	VAL
6	f	1236	VAL
3	i	51	ASN

5.3.2 Protein sidechains (i)

There are no protein residues with a non-rotameric sidechain to report in this entry.

5.3.3 RNA

There are no RNA molecules 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 oligosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

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.

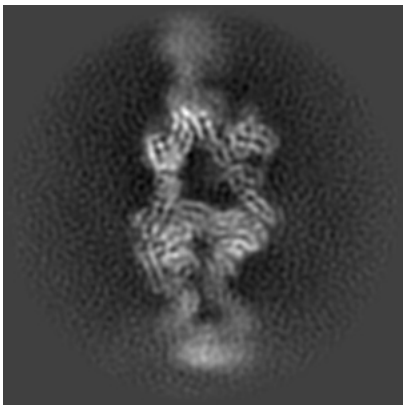
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-47430. These allow visual inspection of the internal detail of the map and identification of artifacts.

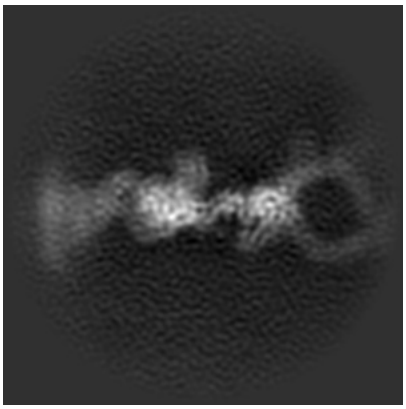
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

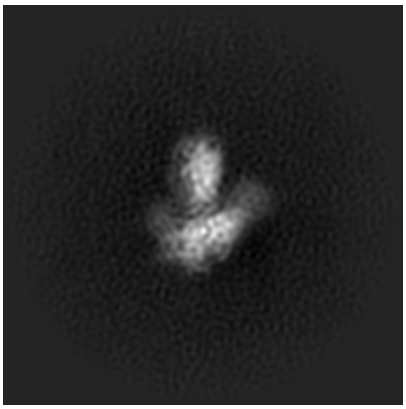
6.1.1 Primary map



X

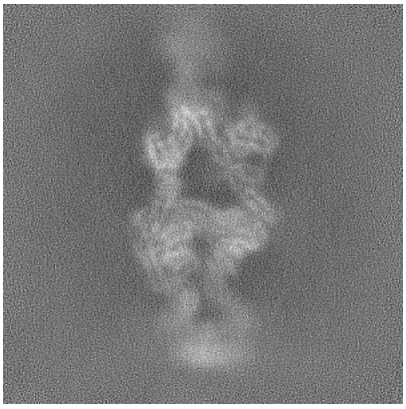


Y

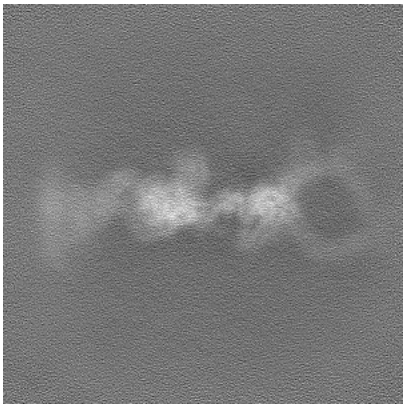


Z

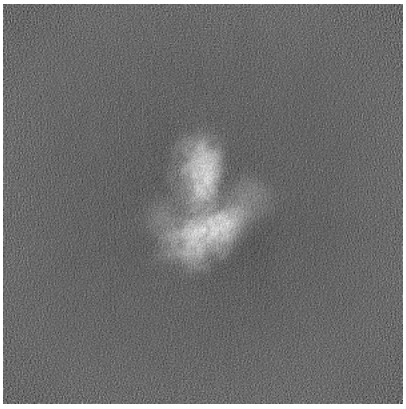
6.1.2 Raw map



X



Y

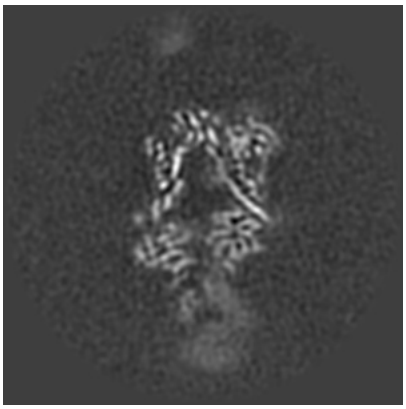


Z

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

6.2 Central slices (i)

6.2.1 Primary map



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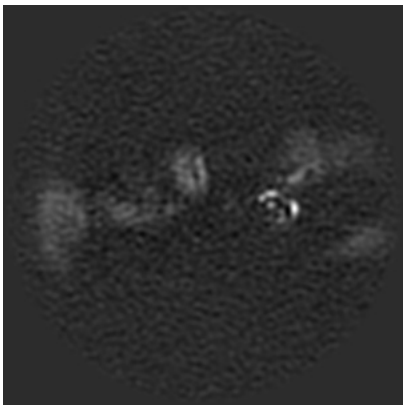
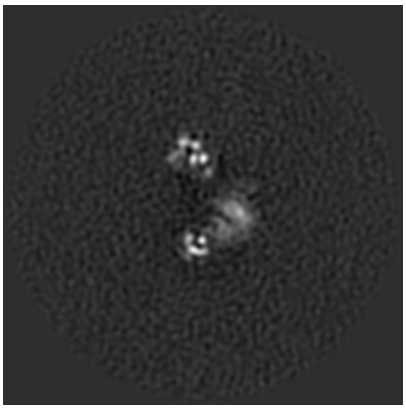
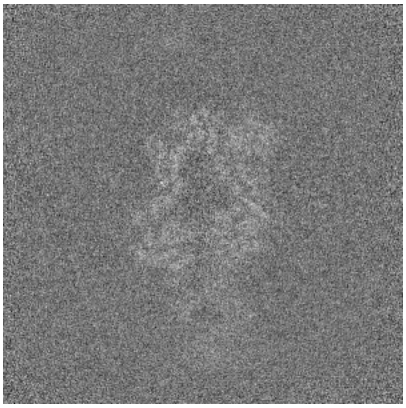


Y Index: 208

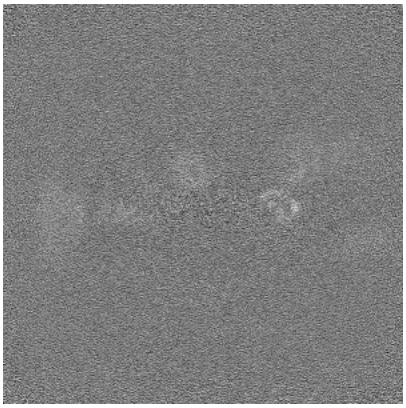


Z Index: 208

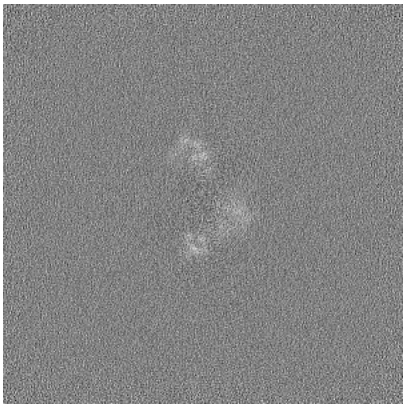
6.2.2 Raw map



X Index: 208



Y Index: 208



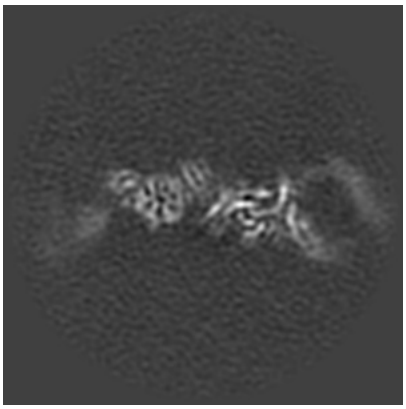
Z Index: 208

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

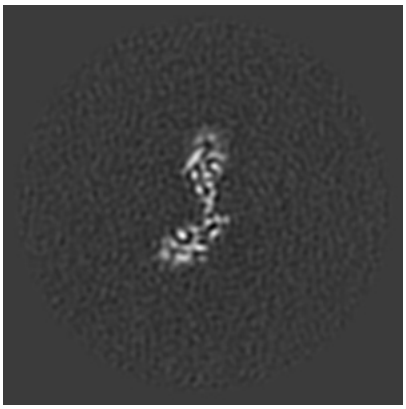
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 206

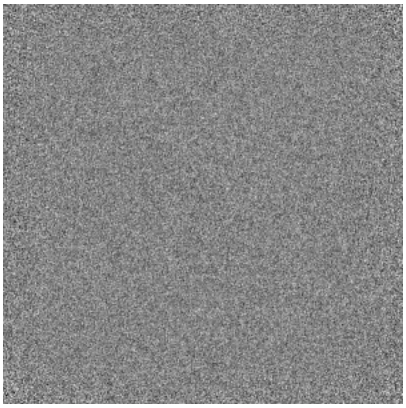


Y Index: 179

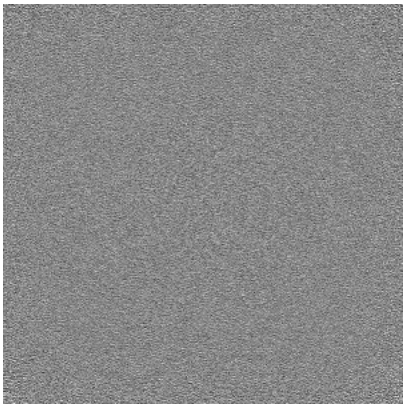


Z Index: 269

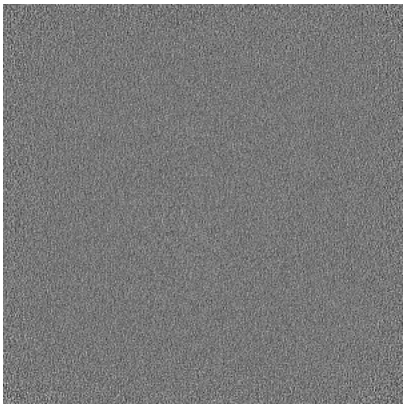
6.3.2 Raw map



X Index: 0



Y Index: 0

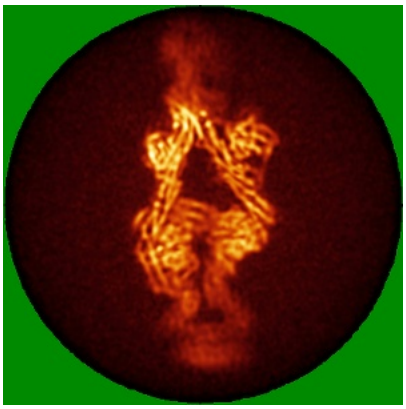


Z Index: 0

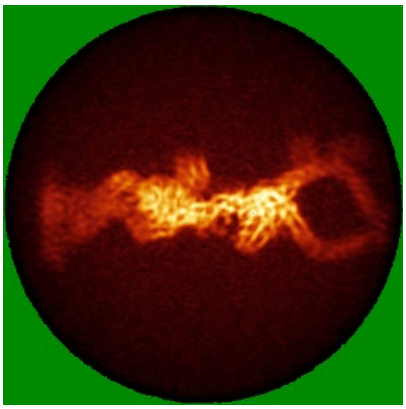
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

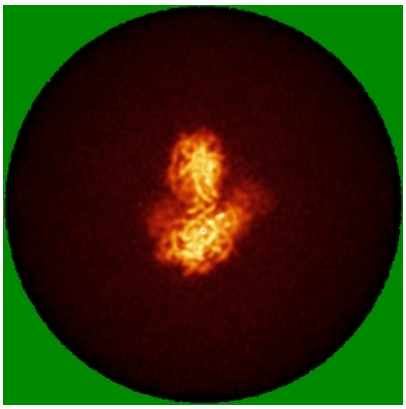
6.4.1 Primary map



X

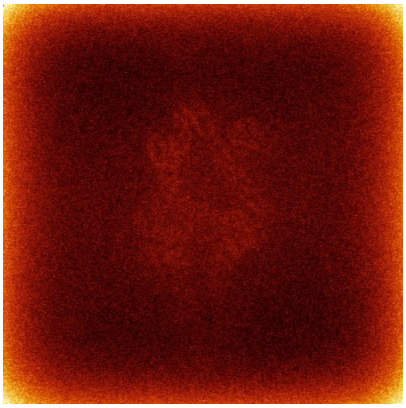


Y

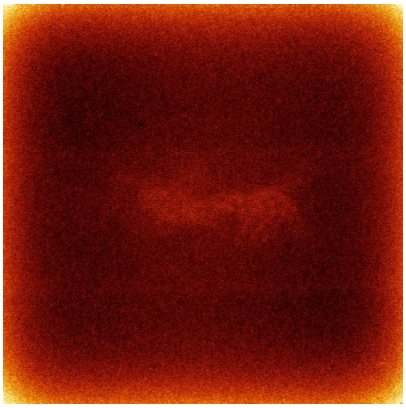


Z

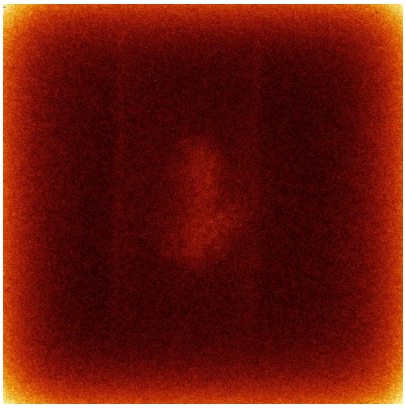
6.4.2 Raw map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

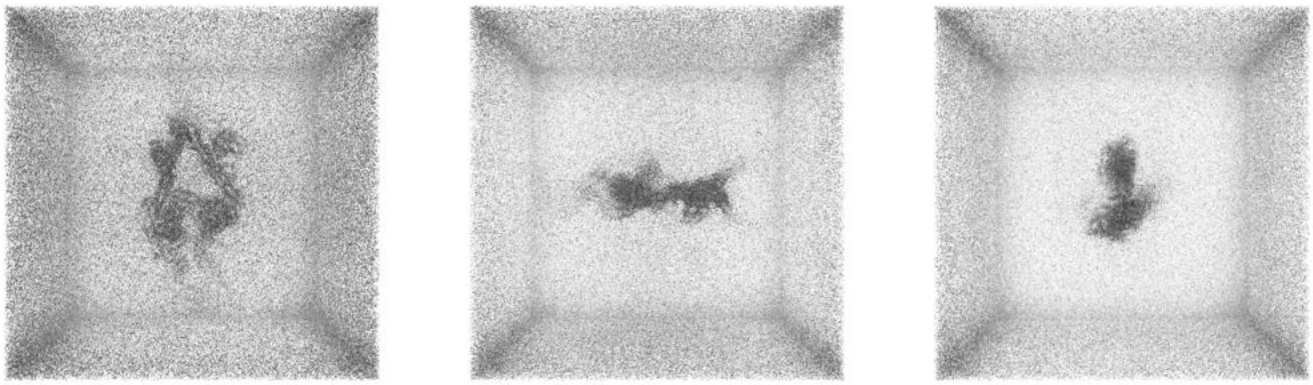
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0339. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

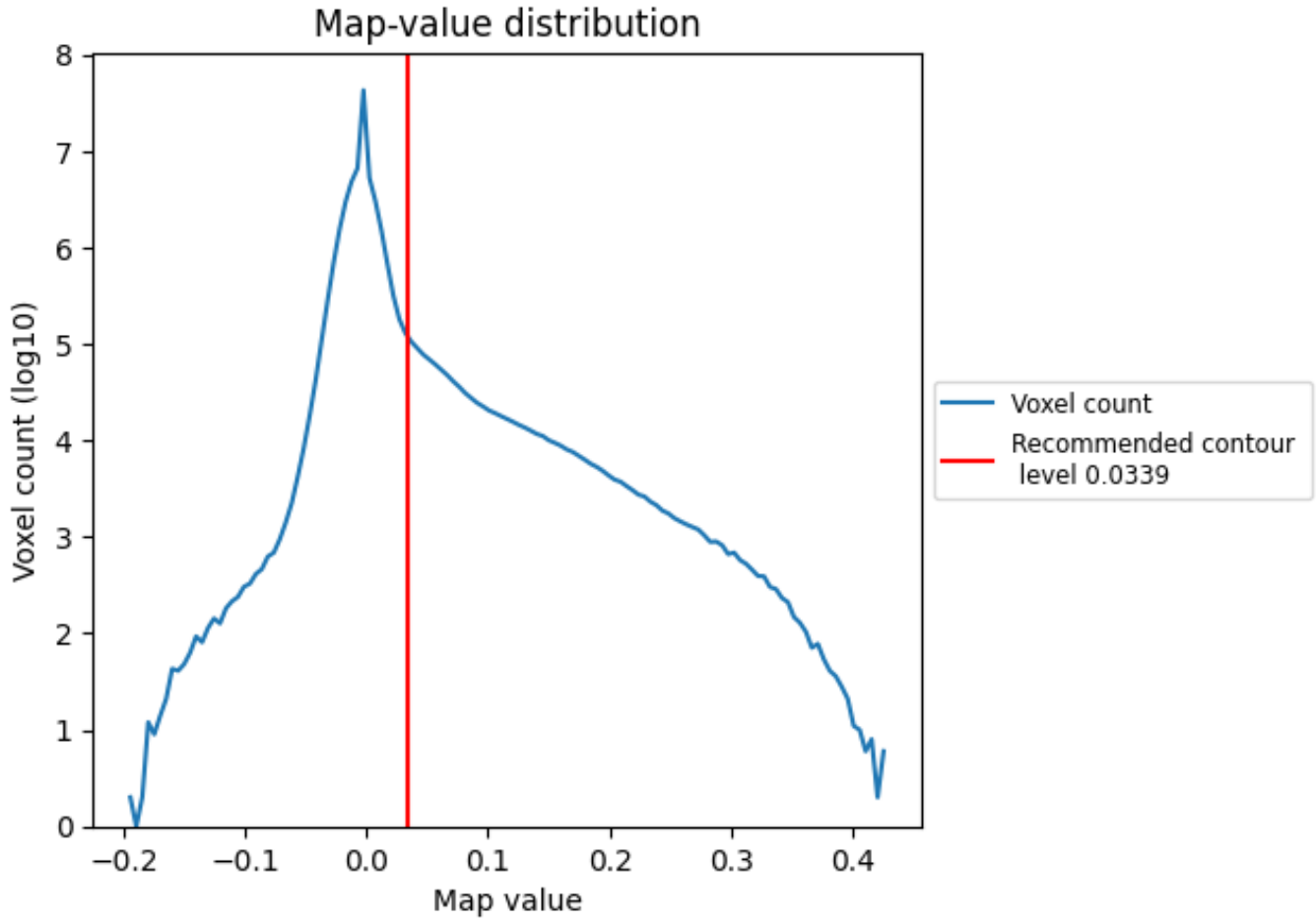
6.6 Mask visualisation (i)

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

7 Map analysis

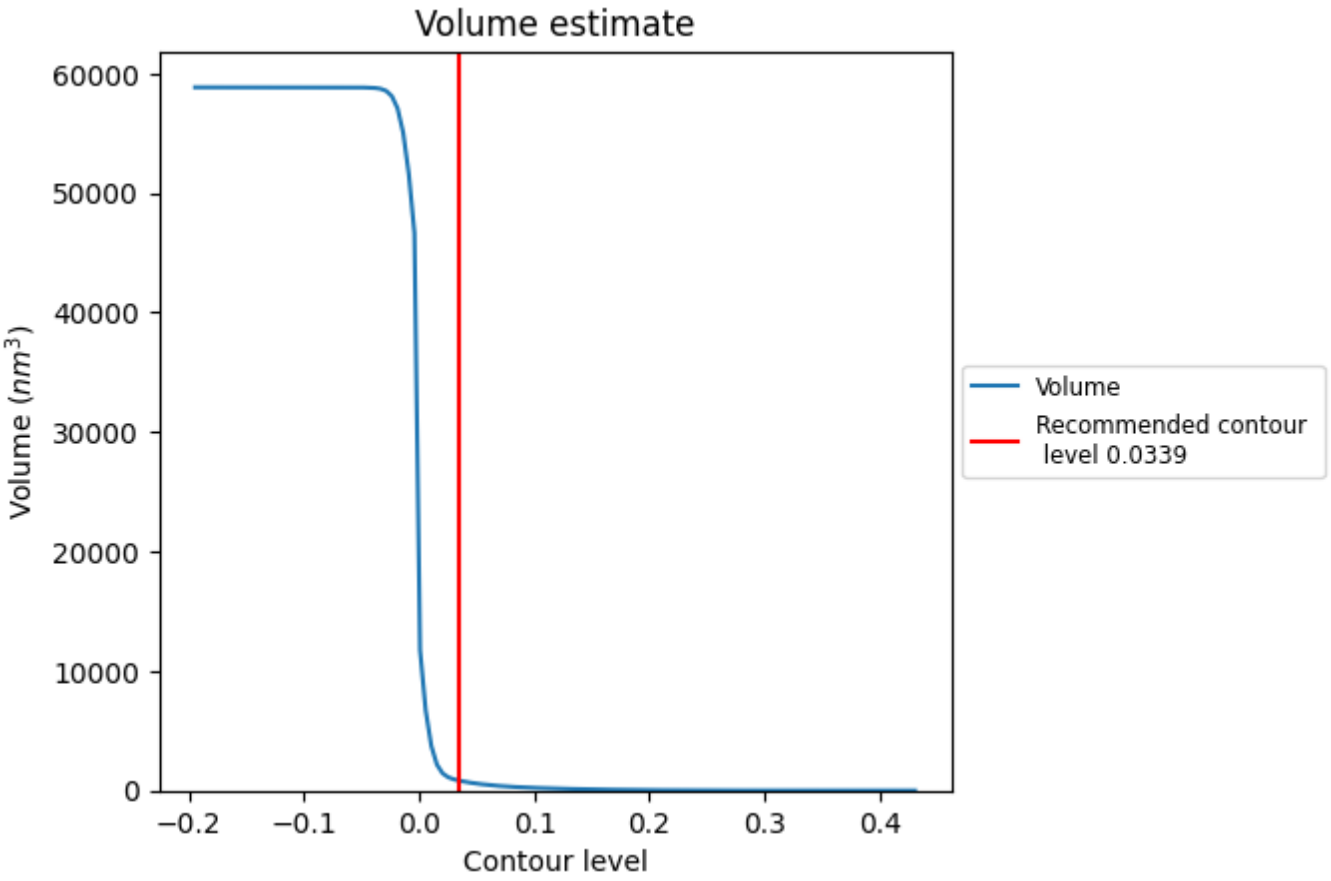
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

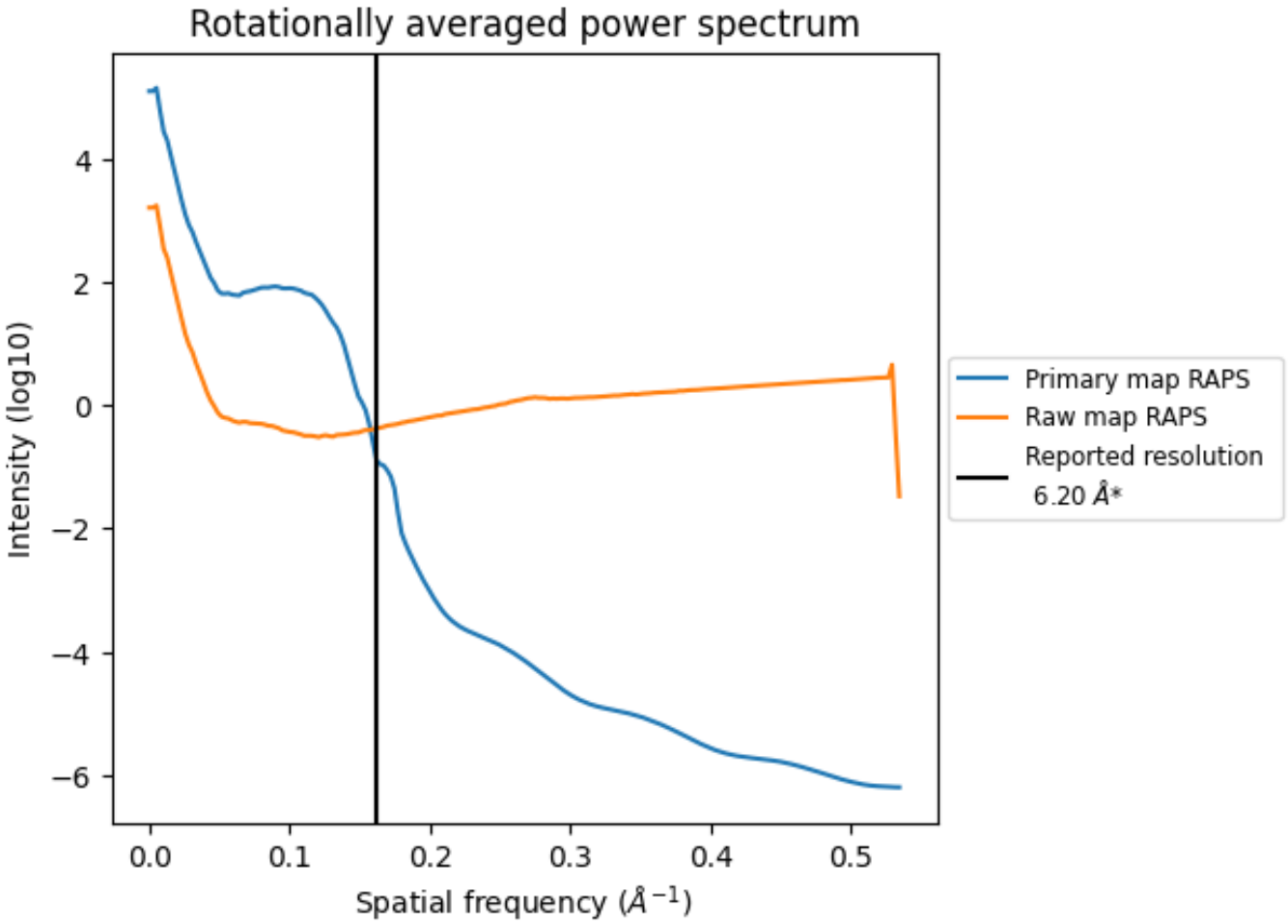
7.2 Volume estimate



The volume at the recommended contour level is 854 nm^3; this corresponds to an approximate mass of 772 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)

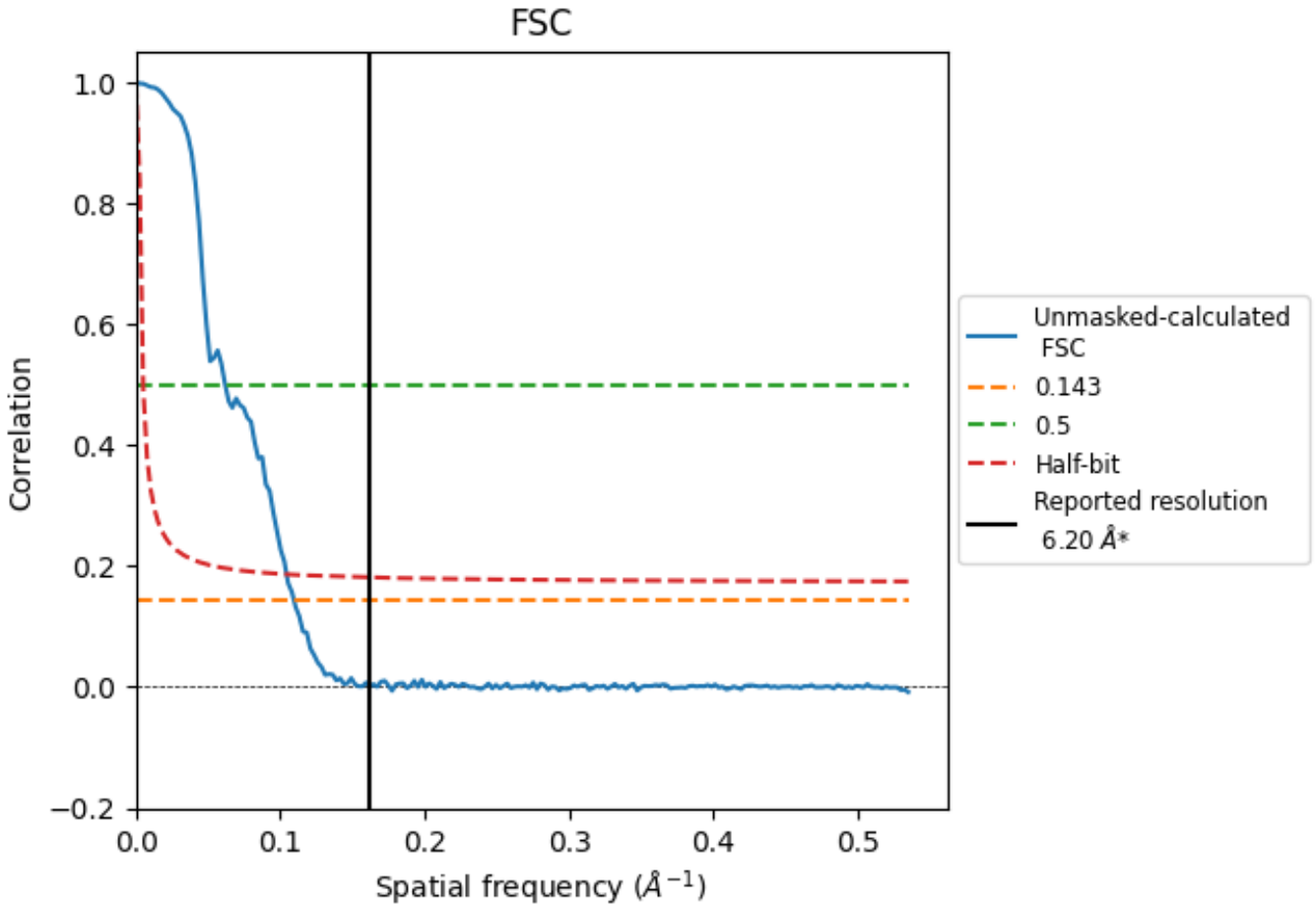


*Reported resolution corresponds to spatial frequency of 0.161 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.161 Å^{-1}

8.2 Resolution estimates (i)

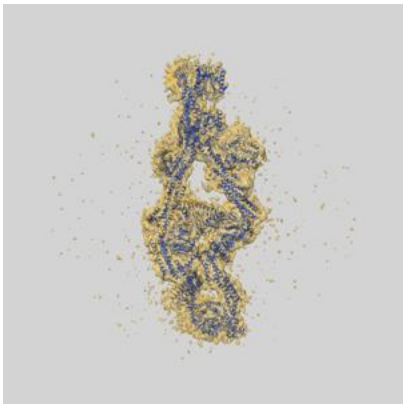
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	9.14	16.18	9.58

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 9.14 differs from the reported value 6.2 by more than 10 %

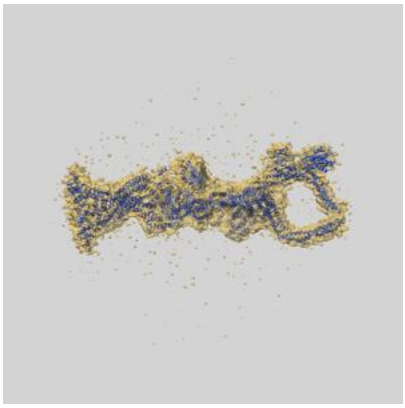
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-47430 and PDB model 9E23. Per-residue inclusion information can be found in section 3 on page 25.

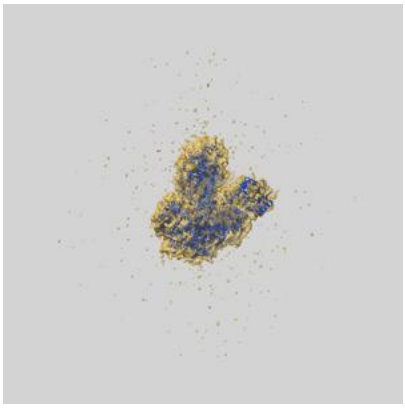
9.1 Map-model overlay



X



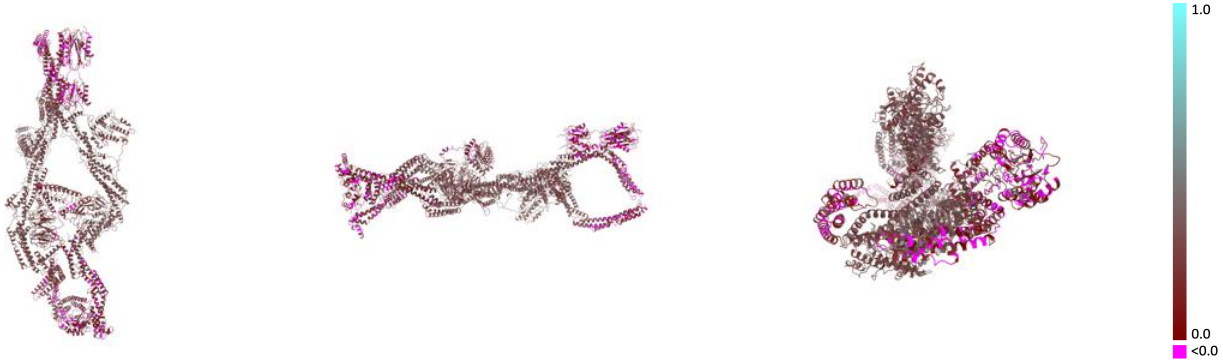
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0339 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.

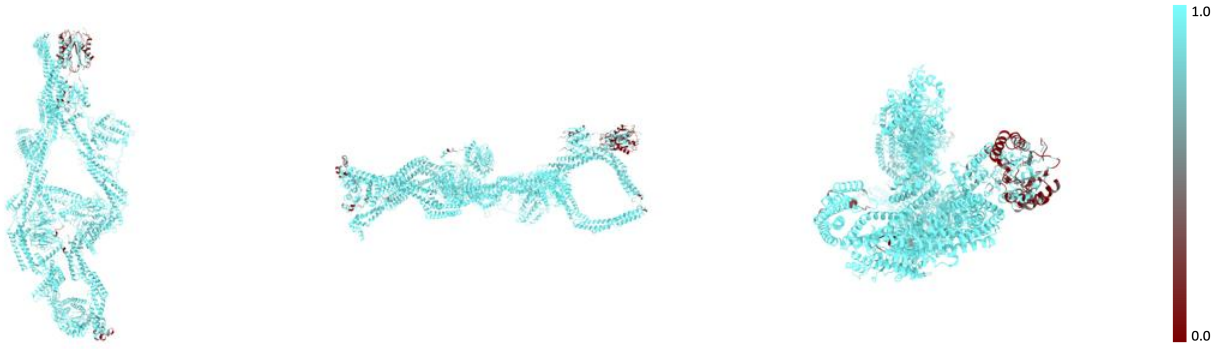
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

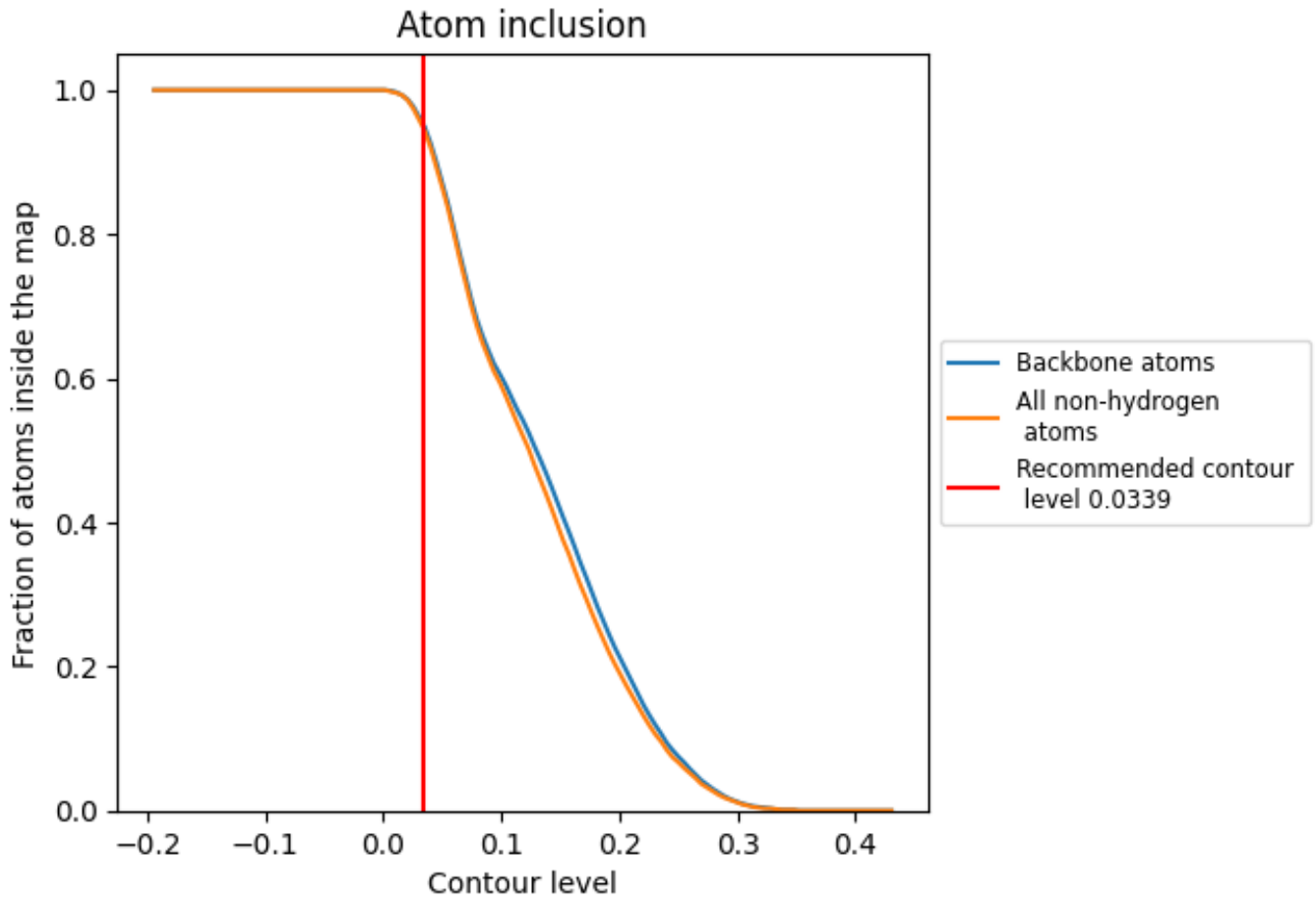
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.0339).

9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 95% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.0339) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9470	0.2380
A	0.9920	0.1480
B	0.9990	0.3100
C	0.9990	0.3080
D	1.0000	0.2770
E	0.9960	0.2240
F	0.9770	0.2410
G	0.9170	0.1320
H	0.9750	0.2620
d	0.9210	0.1720
e	0.9910	0.2410
f	0.9700	0.2480
g	0.7340	0.2210
h	0.6560	0.1760
i	0.8030	0.0820
k	0.4560	0.0940
v	0.3510	0.0840