Full wwPDB EM Validation Report

Jun 9, 2025 – 06:37 PM JST

PDB ID	:	8IAI / pdb_00008iai
EMDB ID	:	EMD-35302
Title	:	Structure of mammalian spectrin-actin junctional complex of membrane skeleton, State II, Global map
Authors	:	Li, N.; Chen, S.; Gao, N.
Deposited on	:	2023-02-08
Resolution	:	3.50 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:

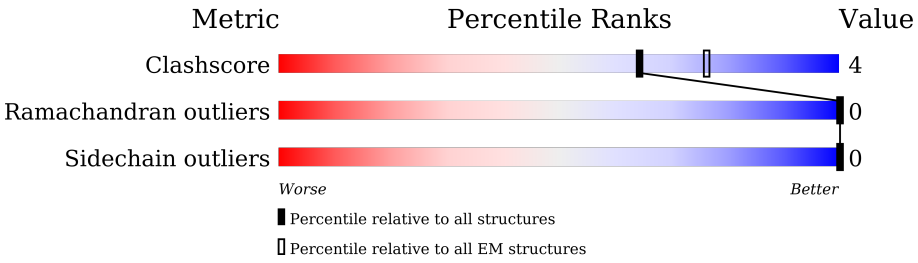
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.50 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
Sidechain outliers	206894	16415

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	1	744	6% 38% 7% 55%
1	2	744	11% 32% 7% 61%
1	9	744	7% 92%
2	3	724	12% 40% 6% 53%
2	4	724	10% 33% 64%
3	5	405	26% 71%
3	6	405	10% 25% 71%
3	7	405	5% 25% 71%

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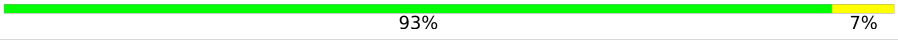
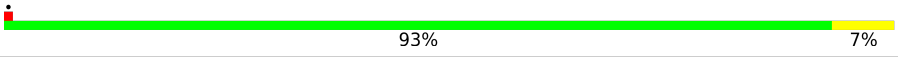
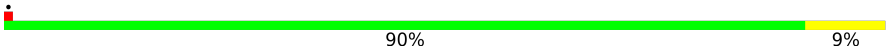
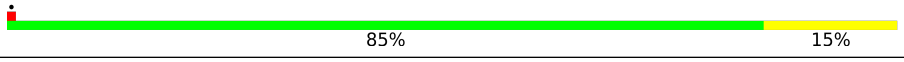
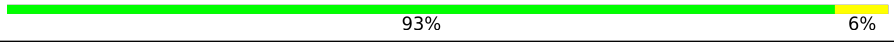
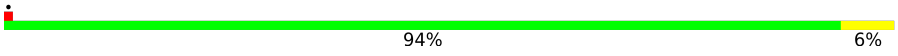
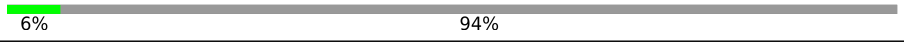
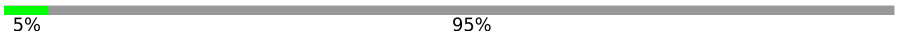
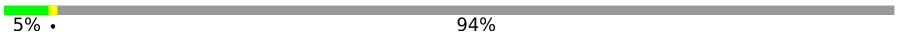
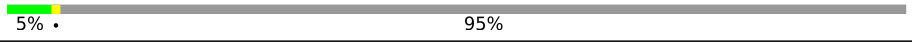
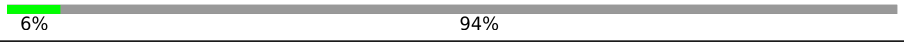
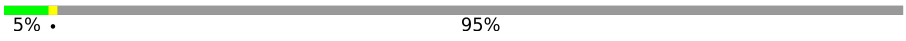
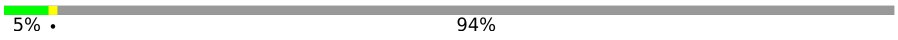
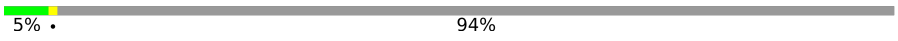
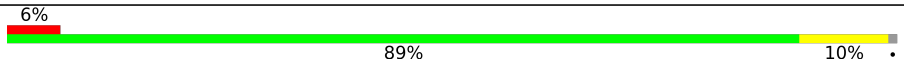
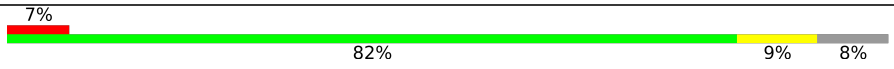
Mol	Chain	Length	Quality of chain
4	A	375	
4	B	375	
4	C	375	
4	D	375	
4	E	375	
4	F	375	
4	G	375	
4	H	375	
4	I	375	
4	J	375	
4	K	375	
5	M	2148	
5	N	2148	
5	O	2148	
5	P	2148	
5	Q	2148	
5	R	2148	
5	S	2148	
5	T	2148	
6	U	248	
7	V	248	
8	Y	359	
9	Z	107	

2 Entry composition (i)

There are 10 unique types of molecules in this entry. The entry contains 60300 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 Adducin 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	334	Total	C	N	O	S	0	0
			2578	1641	447	478	12		
1	2	290	Total	C	N	O	S	0	0
			2234	1426	386	412	10		
1	9	62	Total	C	N	O	S	0	0
			530	328	94	102	6		

- Molecule 2 is a protein called Beta-adducin.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	3	338	Total	C	N	O	S	0	0
			2639	1669	457	495	18		
2	4	262	Total	C	N	O	S	0	0
			2041	1296	351	378	16		

- Molecule 3 is a protein called Dematin actin binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	5	119	Total	C	N	O	S	0	0
			974	625	171	176	2		
3	6	119	Total	C	N	O	S	0	0
			927	595	157	173	2		
3	7	116	Total	C	N	O	S	0	0
			946	606	166	172	2		

- Molecule 4 is a protein called Actin, cytoplasmic 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	B	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	C	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	D	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	E	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	F	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	G	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	H	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	I	374	Total	C	N	O	S	0	0
			2917	1845	490	560	22		
4	J	371	Total	C	N	O	S	0	0
			2893	1833	487	551	22		
4	K	371	Total	C	N	O	S	0	0
			2889	1828	487	552	22		

- Molecule 5 is a protein called Spectrin beta chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	M	130	Total	C	N	O	S	0	0
			1065	671	200	188	6		
5	N	117	Total	C	N	O	S	0	0
			960	609	181	164	6		
5	O	131	Total	C	N	O	S	0	0
			1073	675	201	191	6		
5	P	117	Total	C	N	O	S	0	0
			960	609	181	164	6		
5	Q	129	Total	C	N	O	S	0	0
			1057	667	199	185	6		
5	R	117	Total	C	N	O	S	0	0
			960	609	181	164	6		
5	S	128	Total	C	N	O	S	0	0
			1048	660	197	185	6		
5	T	128	Total	C	N	O	S	0	0
			1048	660	197	185	6		

- Molecule 6 is a protein called Tropomyosin-1.9.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	U	247	Total	C	N	O	S	0	0
			2000	1213	358	422	7		

- Molecule 7 is a protein called Tropomyosin 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	V	246	Total	C	N	O	S	0	0
			2011	1218	362	421	10		

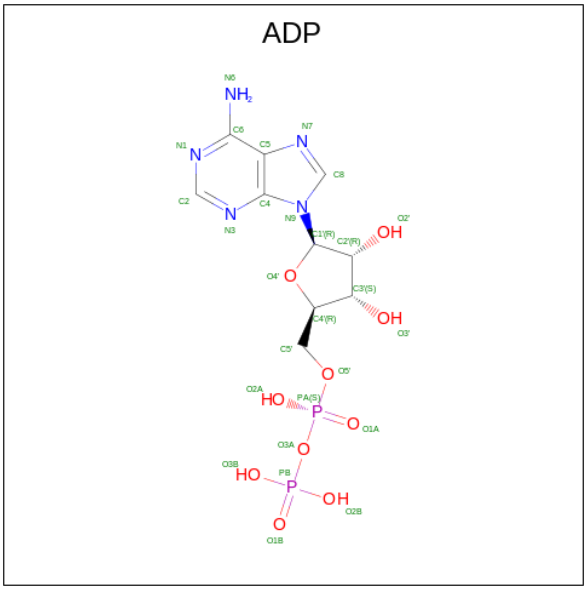
- Molecule 8 is a protein called Tropomodulin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Y	276	Total	C	N	O	S	0	0
			2119	1332	377	405	5		

- Molecule 9 is a protein called SH3 domain-binding glutamic acid-rich-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Z	98	Total	C	N	O	S	0	0
			798	513	131	151	3		

- Molecule 10 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



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

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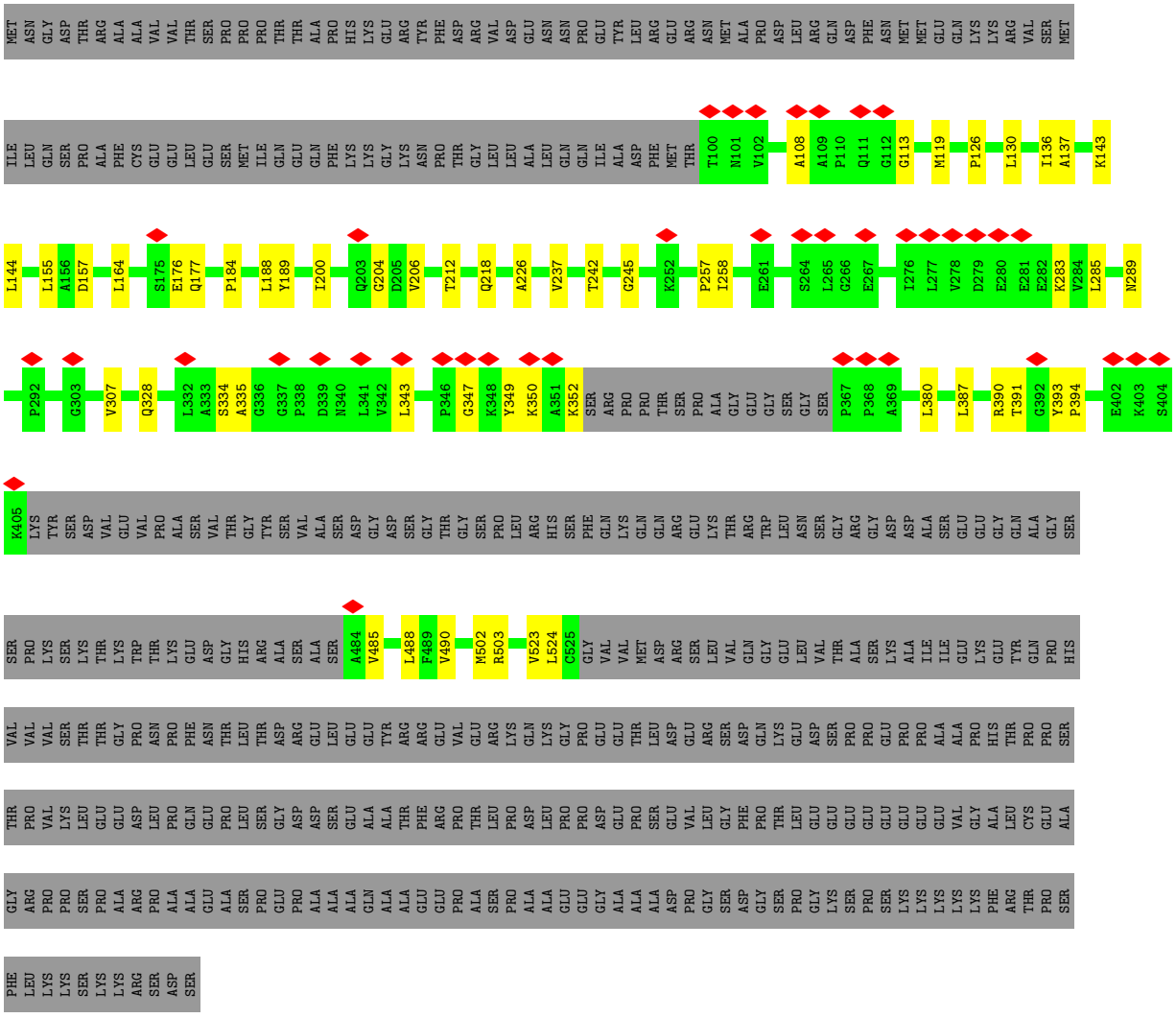
Mol	Chain	Residues	Atoms					AltConf
10	B	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	D	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	E	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	F	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	G	1	Total	C	N	O	P	0
			27	10	5	10	2	
10	H	1	Total	C	N	O	P	0
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

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.

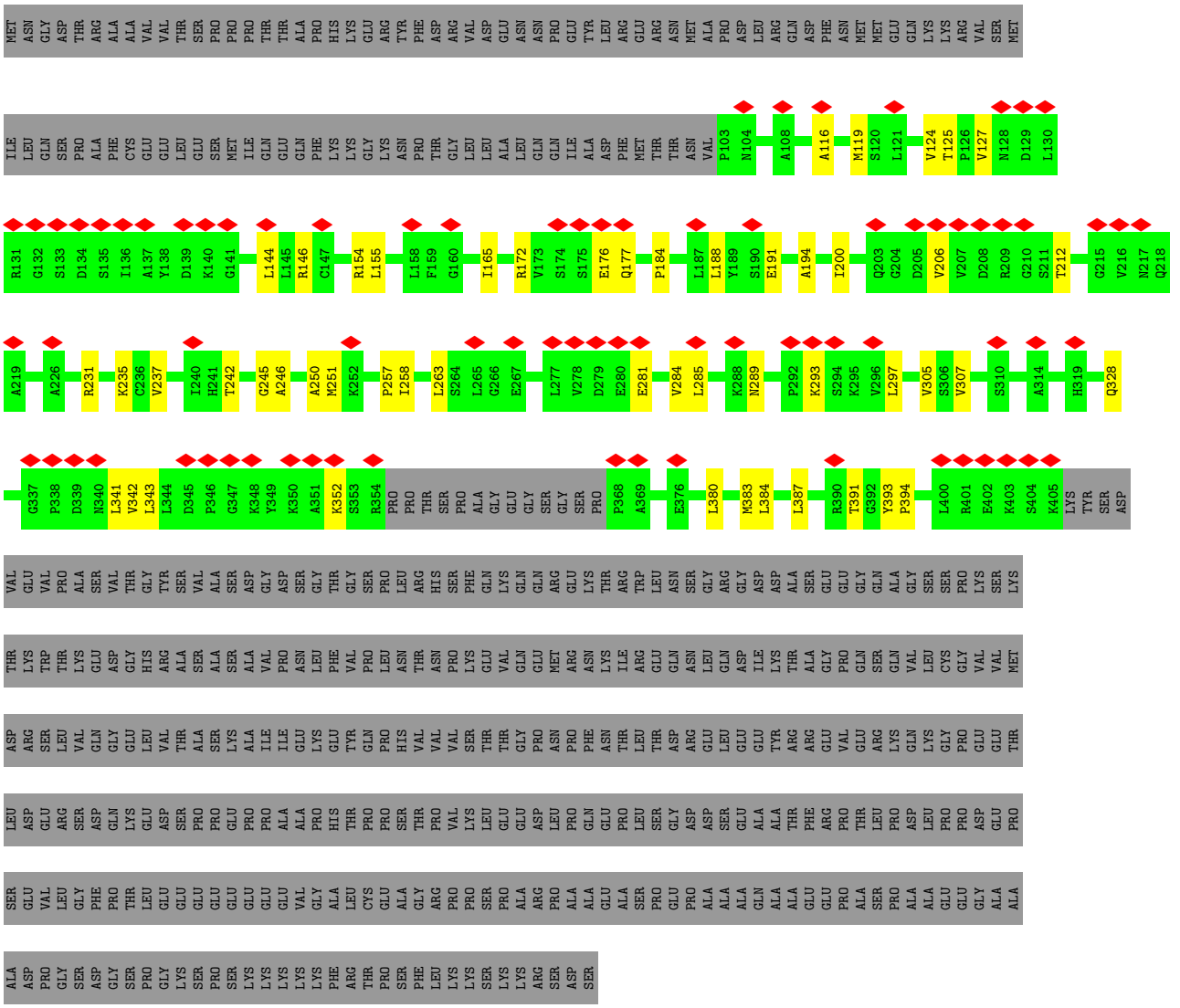
• Molecule 1: Adducin 1

Chain 1:



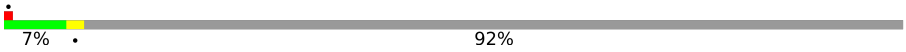
• Molecule 1: Adducin 1

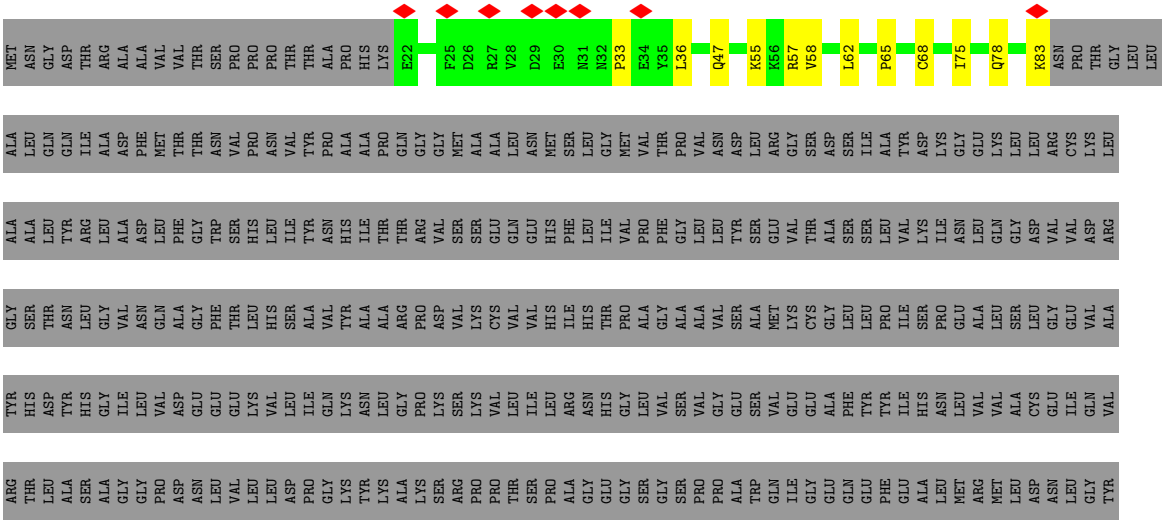
Chain 2:

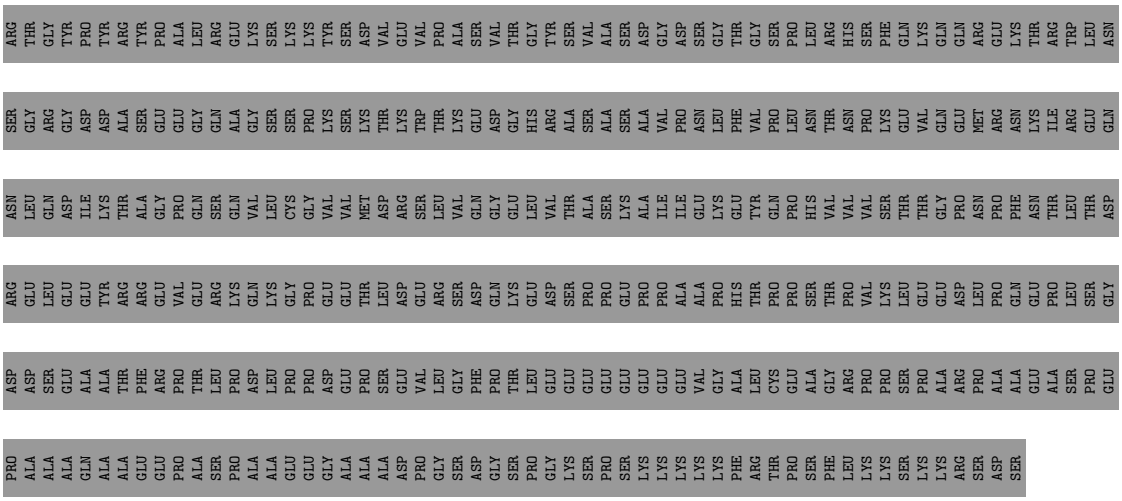


• Molecule 1: Adducin 1

Chain 9:

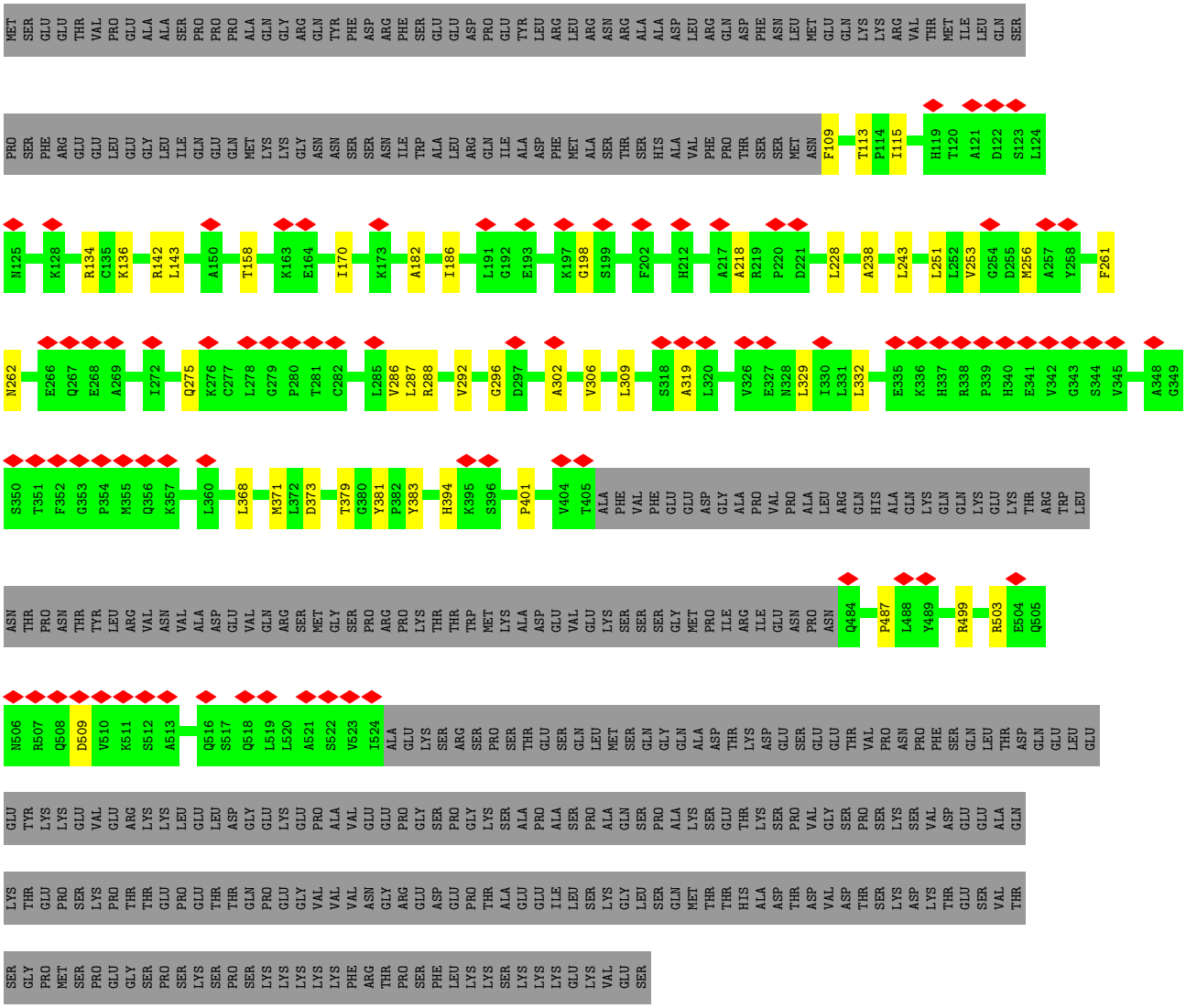






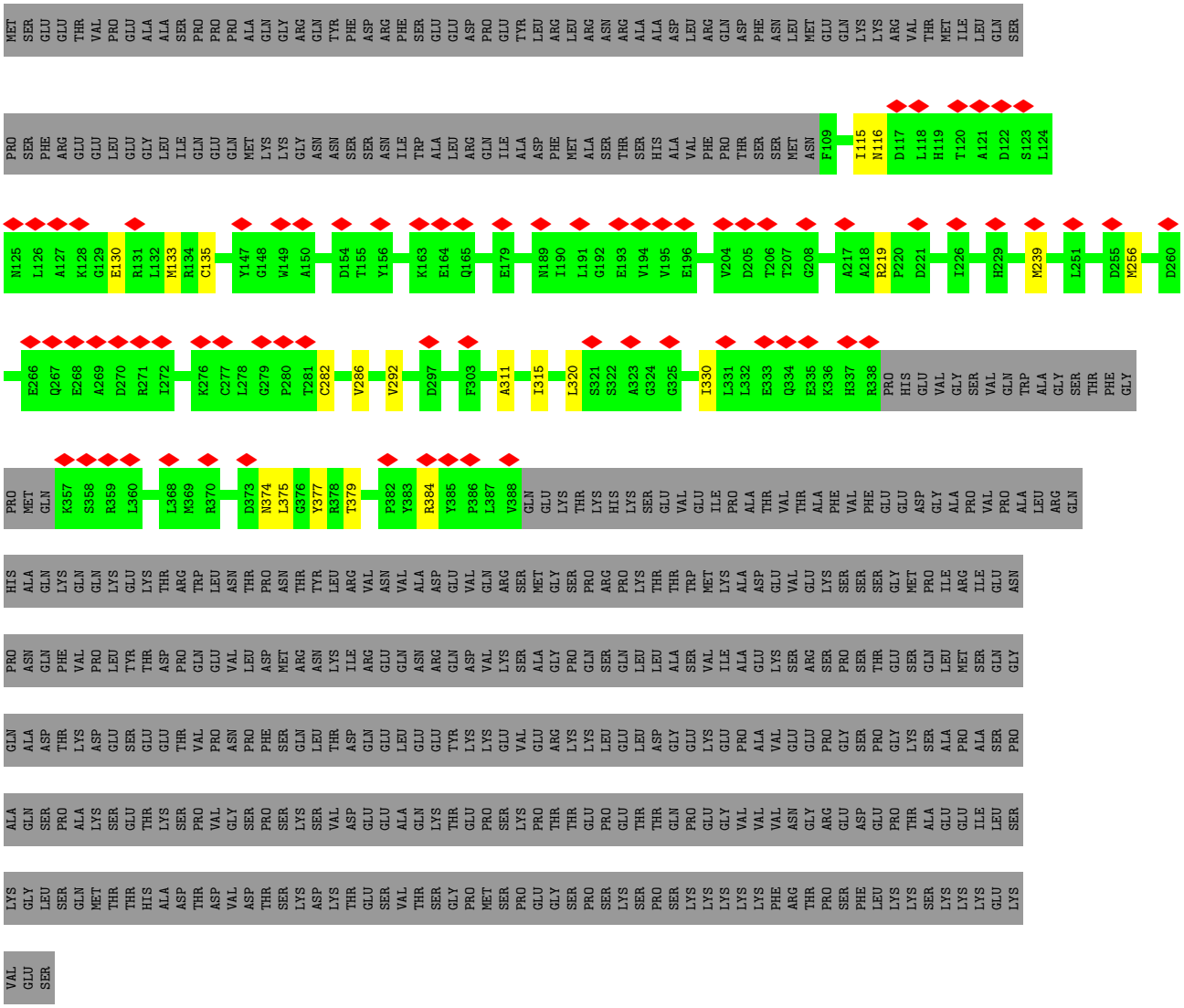
- Molecule 2: Beta-adducin

Chain 3:



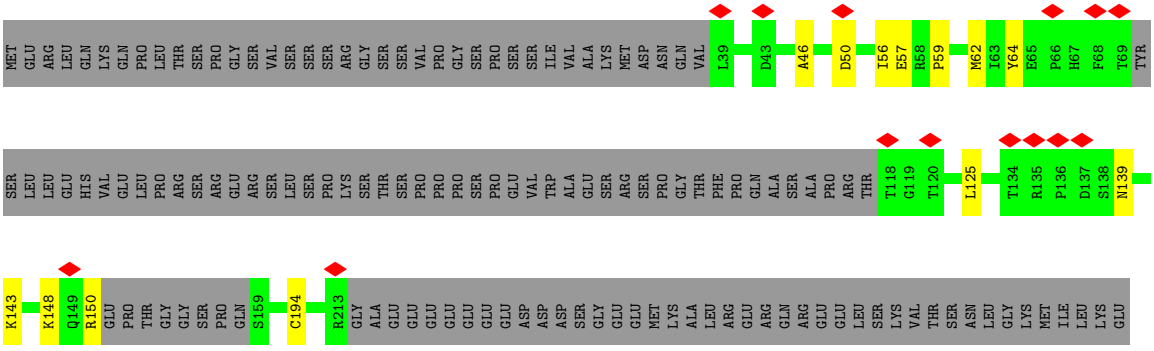
• Molecule 2: Beta-adducin

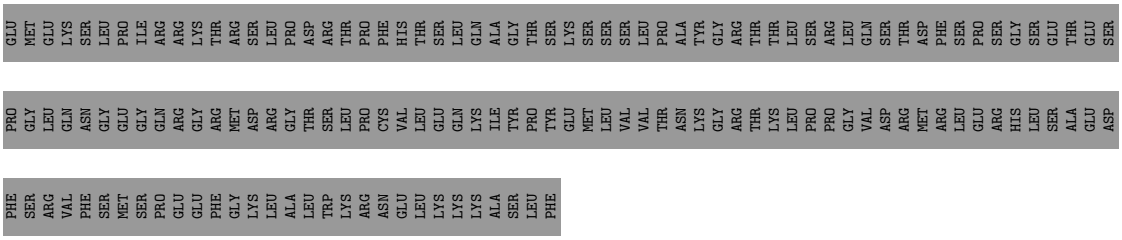
Chain 4:



• Molecule 3: Dematin actin binding protein

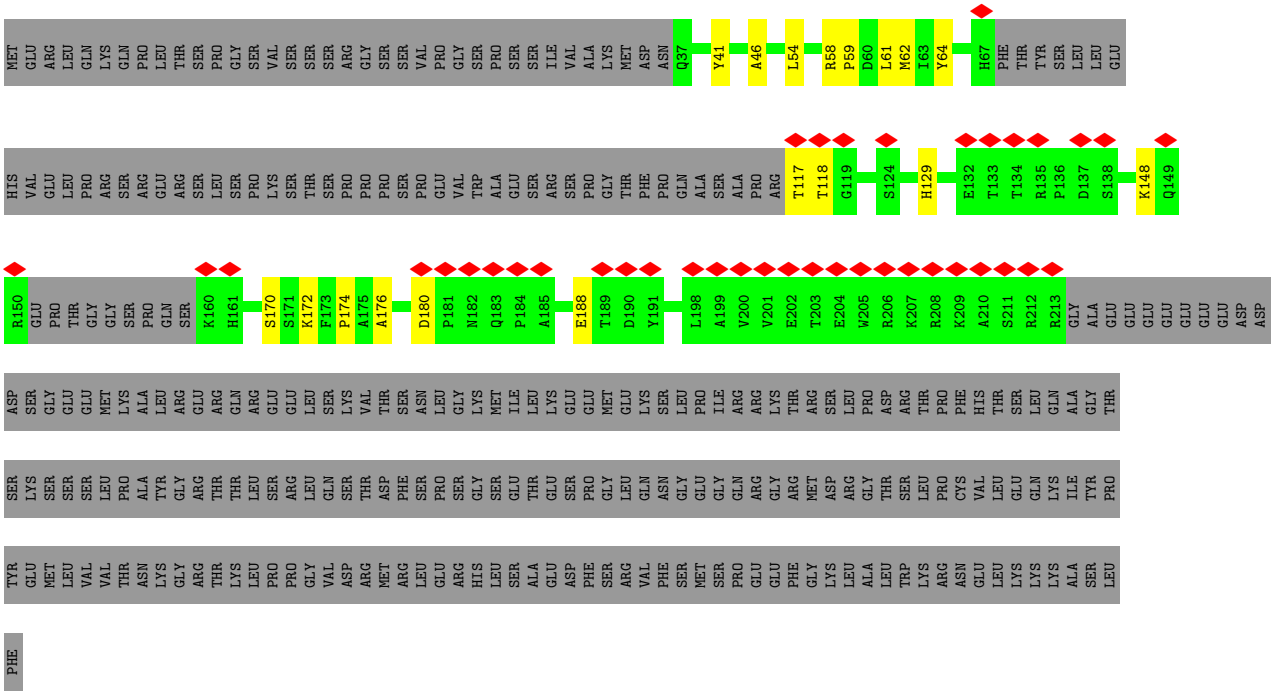
Chain 5:





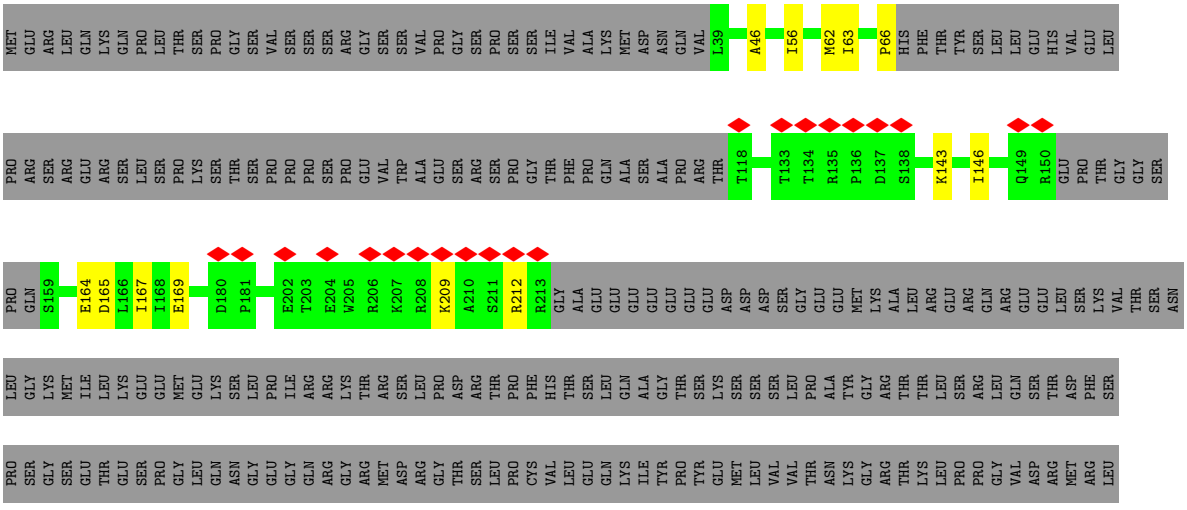
• Molecule 3: Dematin actin binding protein

Chain 6:



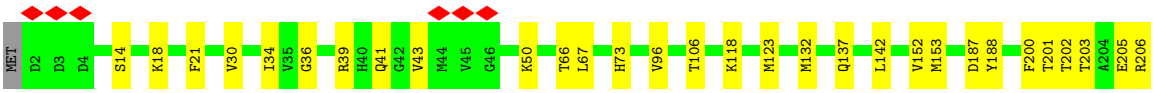
• Molecule 3: Dematin actin binding protein

Chain 7:



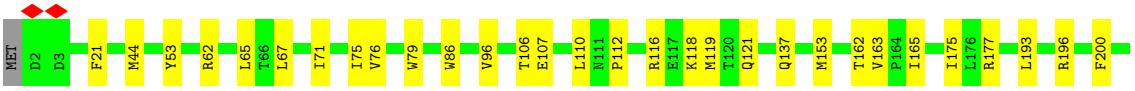
• Molecule 4: Actin, cytoplasmic 1

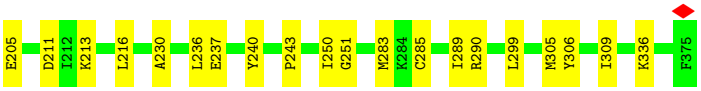
Chain A:



• Molecule 4: Actin, cytoplasmic 1

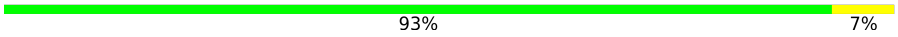
Chain B:





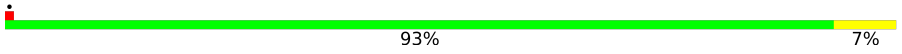
• Molecule 4: Actin, cytoplasmic 1

Chain C:



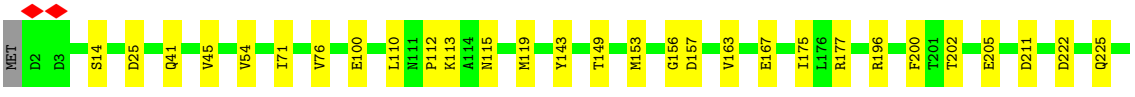
• Molecule 4: Actin, cytoplasmic 1

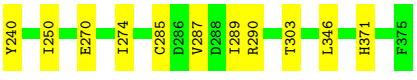
Chain D:



• Molecule 4: Actin, cytoplasmic 1

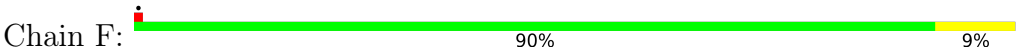
Chain E:

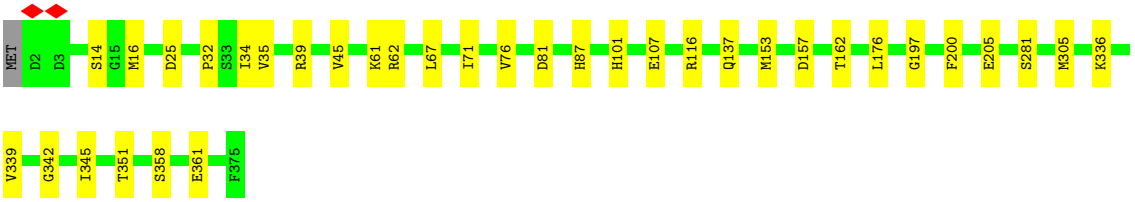




• Molecule 4: Actin, cytoplasmic 1

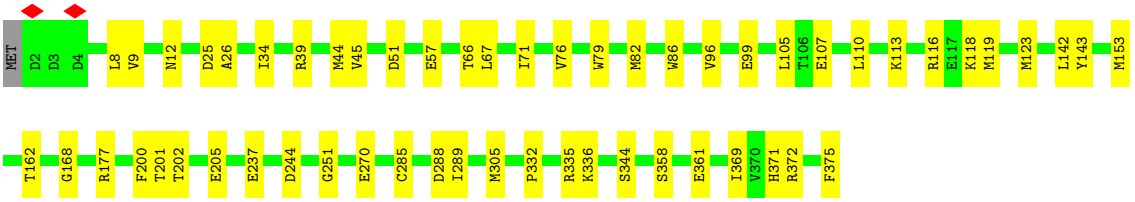
Chain F:





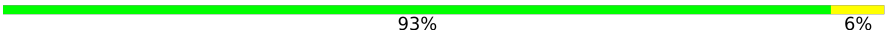
• Molecule 4: Actin, cytoplasmic 1

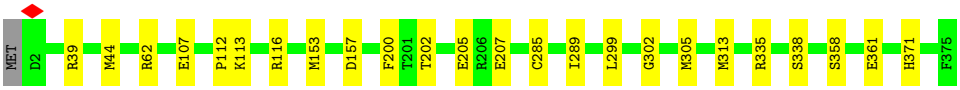
Chain G:



• Molecule 4: Actin, cytoplasmic 1

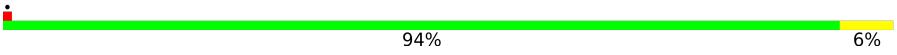
Chain H:





• Molecule 4: Actin, cytoplasmic 1

Chain I:

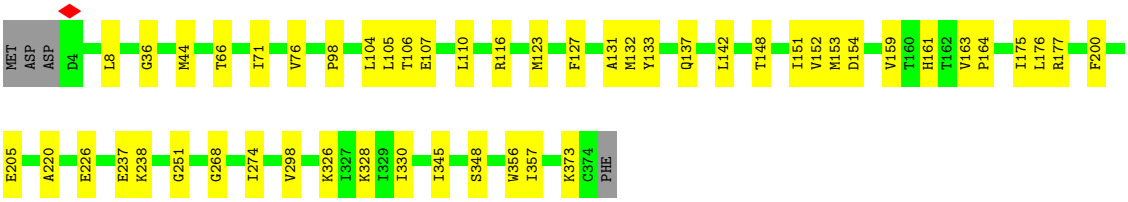


• Molecule 4: Actin, cytoplasmic 1

Chain J:

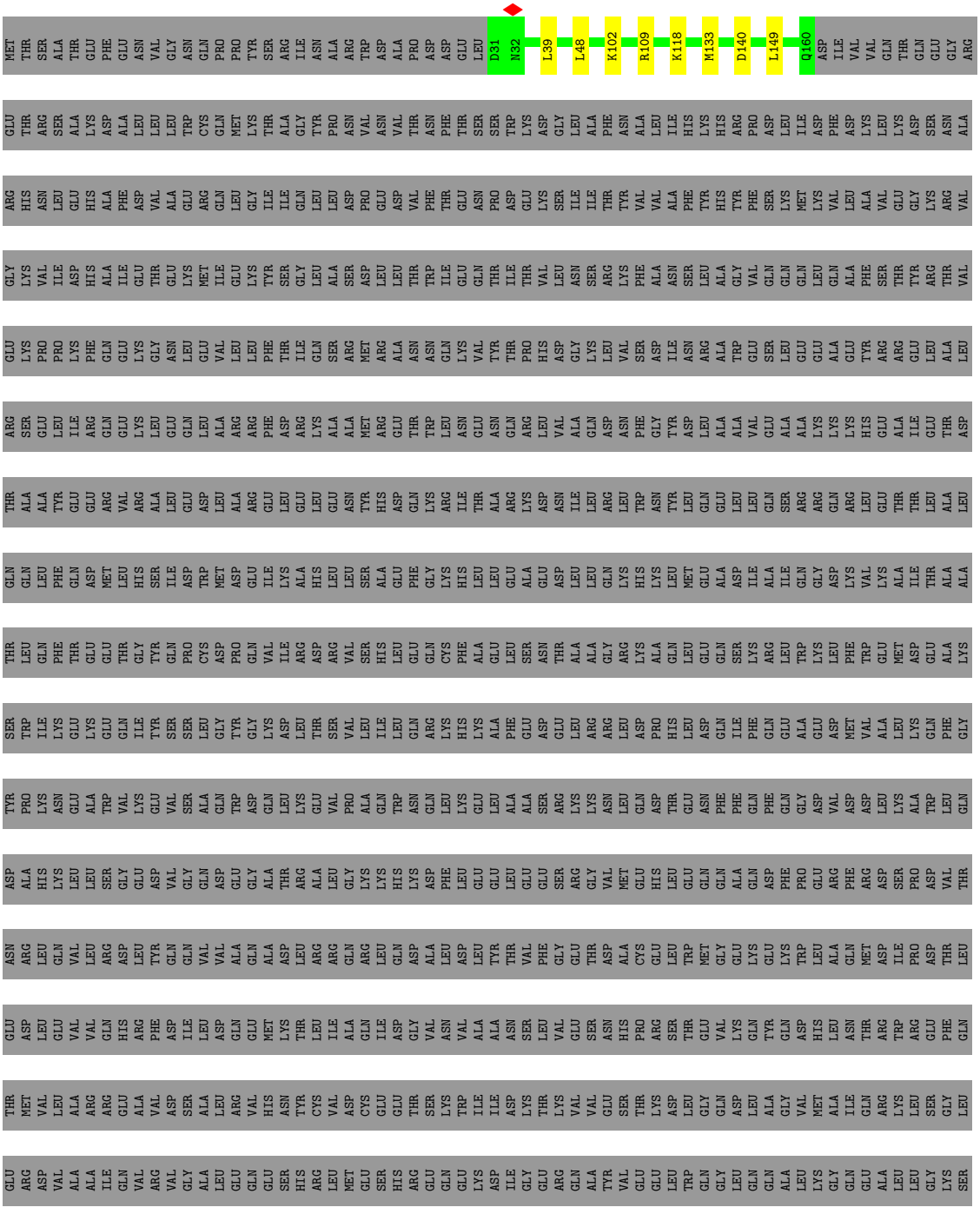
• Molecule 4: Actin, cytoplasmic 1

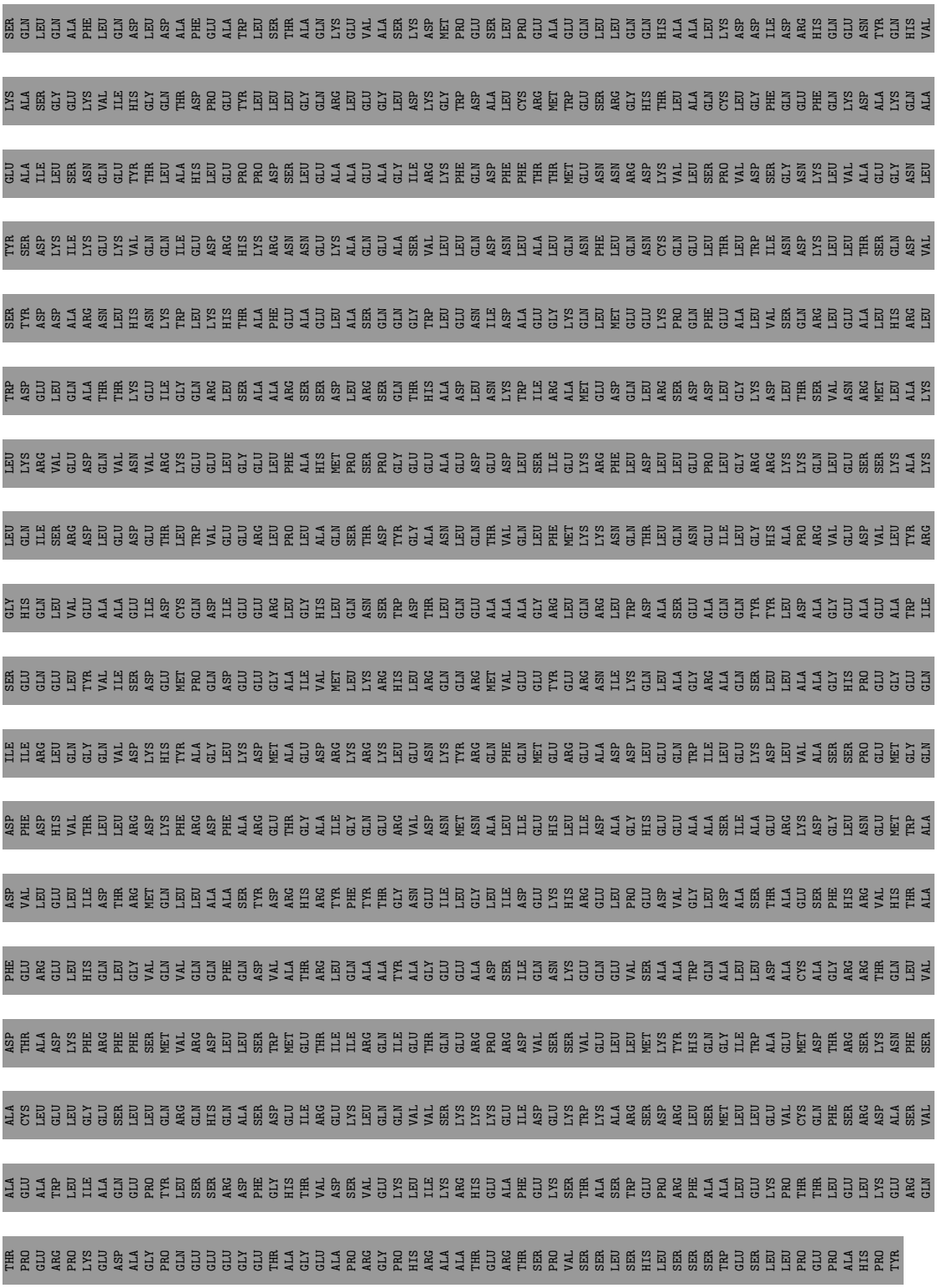
Chain K:



• Molecule 5: Spectrin beta chain

Chain M: 6% 94%

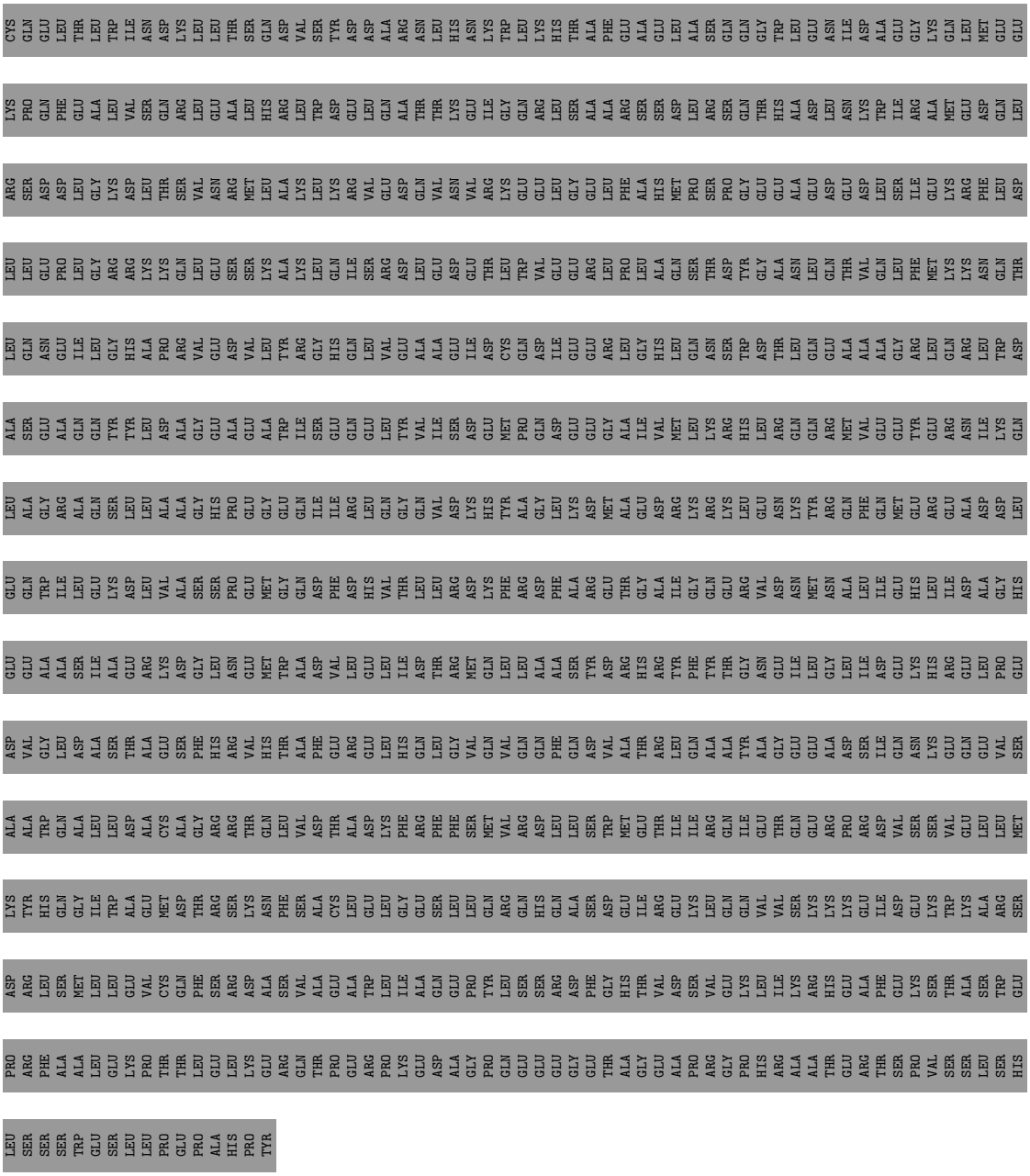




• Molecule 5: Spectrin beta chain

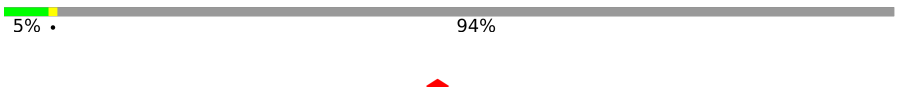
Chain N: 5% 95%

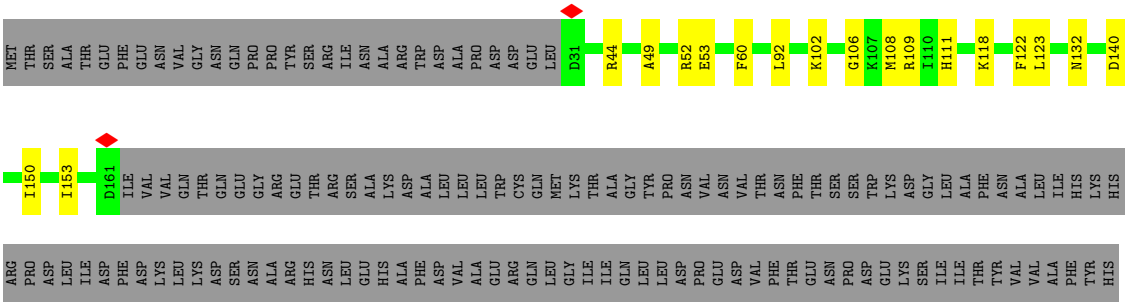
MET THR SER ALA THR GLU PHE GLU ASN VAL GLY ASN GLN PRO PRO TYR SER ARG ILE ASN ALA ARG TRP ASP ALA PRO ASP ASP GLU LEU ASP ASN ASP ASN SER SER ALA ARG LEU PHE GLU
R42 D50 E51 R52 E53 L68 S72 R86 E93 M99 L100 K105
I110 L113 Q158
ILE GLN ASP ILE VAL VAL GLN THR GLN GLU GLY ARG GLU THR ARG SER ALA LYS ASP ALA LEU LEU LEU TRP CYS GLN MET LYS THR ALA GLY TYR PRO ASN VAL ASN VAL THR ASN PHE THR SER SER TRP LYS ASP GLY LEU ALA PHE ASN LEU THR TRP ILE GLU GLN THR ILE THR VAL LYS ASP GLY LEU ASN SER ARG LYS PHE ALA ASN
HIS LYS HIS ARG PRO ASP LEU ILE ASP PHE ASP LYS ARG ASP SER ASN ALA ARG HIS ASN LEU GLU HIS ALA PHE ASP VAL ALA GLU ARG GLN LEU GLY ILE ILE GLN LEU LEU LEU ASP PRO GLU ASP VAL PHE THR GLU ASN PRO ASP GLU LYS SER ILE ILE THR TYR VAL ALA
PHE TYR HIS TYR PHE SER LYS MET LYS VAL LEU ALA VAL GLU GLY LYS ARG VAL GLY LYS VAL ILE ASP HIS ALA ILE GLU GLU THR GLU LYS MET ILE GLU LYS TYR SER GLY LEU ALA SER ASP LEU LEU THR TRP ILE GLU GLN THR ILE THR ASP VAL ASP ALA ASN
SER LEU ALA GLY VAL GLN GLN GLN LEU GLN ALA ALA GLU PHE SER THR TYR ARG THR VAL GLU LYS PRO PRO LYS PHE GLN GLU LYS GLY THR GLU VAL LEU LEU PHE THR ILE GLN SER ARG MET ARG ALA ASN ASN GLN LYS VAL TYR THR PRO HIS ASP GLY LYS LEU VAL SER ASP ILE
ASN ARG ALA TRP GLU SER LEU GLU GLU ALA ALA GLU TYR ARG SER GLU LEU ILE ARG GLN GLU LYS LEU GLU GLN LEU ALA ARG ARG PHE ASP ARG LYS ALA ALA MET ARG GLU THR TRP LEU ASN GLU ASN GLN ARG LEU ASP ASN PHE GLY TYR
ASP LEU ALA ALA VAL GLU ALA ALA LYS LYS HIS GLU ALA ILE GLU THR ASP THR ALA ALA ALA TYR GLU GLU ARG VAL ARG ALA LEU GLU ASP LEU ALA ARG GLU LEU GLU ASN TYR HIS ASP GLN LYS ARG ILE THR ALA ARG LYS ASP ASN ILE LEU ARG LEU TRP ASN TYR
LEU GLN GLU LEU GLN ARG ARG GLN ARG LEU GLU THR THR LEU ALA ALA LEU GLN GLN LEU ALA THR LEU GLU ILE ASP TRP MET ASP GLU ILE LYS ALA HIS LEU LEU SER ALA GLU PHE GLY HIS LEU LEU GLU GLU ALA GLU ASP LEU LEU GLN LYS HIS LEU
MET GLU ALA ASP ILE ALA ILE GLN GLY ASP LYS VAL LYS ALA ILE THR ALA ALA ALA THR LEU GLN PHE THR GLU GLU THR GLY TYR GLN PRO CYS ASP PRO GLN VAL ILE ARG ASP ARG VAL SER HIS LEU GLU GLN CYS PHE ALA GLU LEU SER ASN THR ALA ALA GLY ARG LYS ALA GLN
LEU GLU GLN SER LYS ARG LEU TRP LYS LEU PHE TRP GLU MET ASP GLU ALA LYS SER TRP ILE LYS GLU GLU LYS GLU GLN ILE TYR SER SER LEU GLY TYR GLY LYS ASP LEU THR SER VAL LEU ILE LEU GLN ARG LYS HIS LYS GLU LEU GLU GLU PHE GLU ARG ARG LEU ASP PRO HIS
LEU ASP GLN ILE PHE GLN GLU ALA GLU ASP MET VAL ALA LEU LYS GLN PHE GLY TYR PRO LYS ASN GLU ALA TRP VAL LYS GLU VAL SER ALA GLN GLN LEU ASP TRP ASN GLN LEU LYS GLU LEU ALA ALA SER ARG LYS LYS ASN LEU GLN ASP THR
GLU ASN PHE PHE GLN PHE GLN GLY ASP VAL ASP ASP ASP LEU LYS ALA TRP LEU GLN ASP ALA HIS LYS LEU LEU SER GLY GLU ASP VAL GLY GLN ASP GLU GLY GLY ALA THR ARG ALA LEU GLY LYS LYS HIS LYS ASP PHE LEU GLU GLU LEU GLU GLU GLU SER ARG GLY VAL MET GLU HIS LEU
GLU GLN GLN ALA GLN ASP PHE PRO GLU ARG ASP ASP SER PRO ASP VAL THR ASN ARG LEU GLN VAL VAL LEU ARG ASP LEU TYR GLN GLN VAL VAL ALA GLN GLU ALA ASP LEU ARG ARG ARG GLN ARG LEU GLN ASP ALA LEU ASP LEU TYR THR VAL PHE GLY GLU THR ASP ASP ALA CYS GLU LEU
TRP MET GLY GLU LYS GLU LYS TRP LEU ALA GLN MET ASP ILE PRO ASP THR LEU GLU ASP GLN GLU MET LYS THR LEU ILE ALA ASP LEU ASP GLY VAL ALA ASN SER LEU VAL GLU SER ASN HIS PRO ARG SER
THR GLU VAL LYS GLN TYR GLN ASP HIS LEU ASN THR ARG TRP ARG GLU PHE GLN THR MET VAL LEU ALA ARG GLU ALA VAL ASP SER ALA LEU ARG VAL HIS ASN TYR CYS VAL ASP CYS GLU GLU THR SER LYS TRP ILE ILE ASP LYS THR CYS VAL LYS ASP
LEU GLY GLN ASP LEU ALA GLY VAL MET ALA ILE GLN ARG LYS LEU SER GLY LEU GLU ARG LYS ASP VAL ALA ALA ILE GLN VAL ARG VAL GLY ALA LEU GLU GLN GLU SER HIS ARG LEU MET GLU GLN SER GLN ILE ASP GLY VAL ALA ASN SER LEU GLU ILE GLY GLU ARG GLN
TRP GLN GLY LEU GLN GLN ALA LEU LYS GLY GLN GLU ALA LEU GLN SER GLN LEU GLN ALA PHE LEU GLN ASP LEU ASP ALA PHE GLU GLU ALA TRP LEU GLN SER THR ALA GLN LYS GLU VAL ALA SER LYS ASP MET PRO GLU SER LEU PRO GLU ALA GLU GLN LEU GLN GLN
HIS ALA ALA LEU LYS ASP ARG HIS GLN GLU ASP ILE VAL LYS ALA SER GLY GLU LYS VAL ILE HIS GLY GLN THR ASP PRO GLU TYR LEU LEU LEU GLY GLN ARG LEU GLU GLY LEU ASP GLY GLY TRP ASP ALA LEU CYS ARG MET TRP GLU SER ARG GLY HIS
THR LEU ALA GLN CYS LEU GLY PHE GLN GLN GLU PHE GLN LYS ASP ALA ALA ILE LEU SER ASN GLN GLU TYR THR LEU ALA HIS LEU PRO GLU LEU SER GLU ALA ALA GLU ALA GLY ILE ARG LYS PHE GLN ASP PHE PHE THR MET GLU ASN ASP ASP
LYS VAL LEU SER GLY ASN LYS VAL LEU TYR SER ASN LEU GLU ILE LYS ALA GLN ARG ASN ASN GLU LYS ALA GLN GLU ALA SER VAL LEU LEU GLN ASP ASN LEU ALA GLN ASN PHE LEU GLN ASN

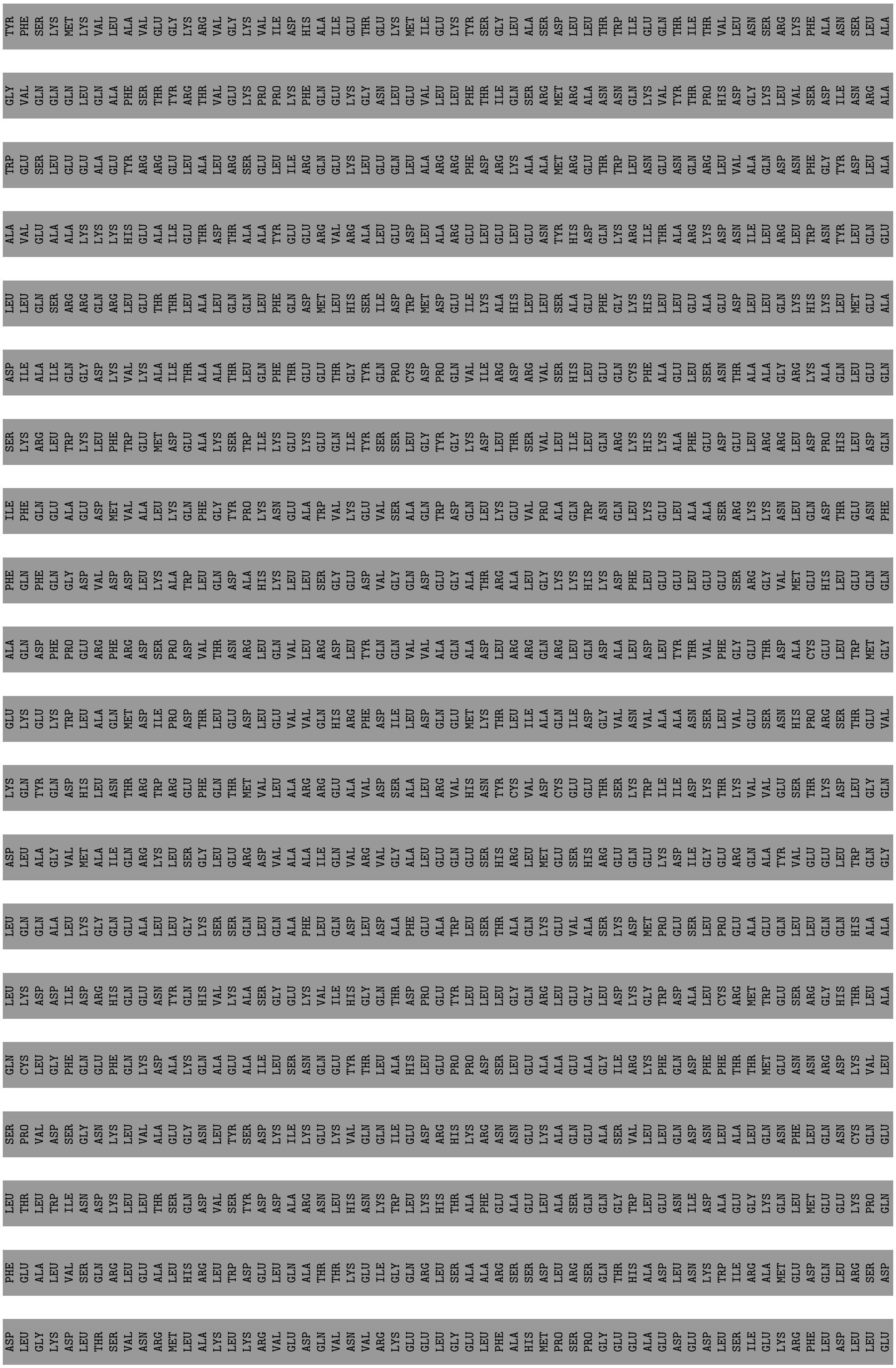


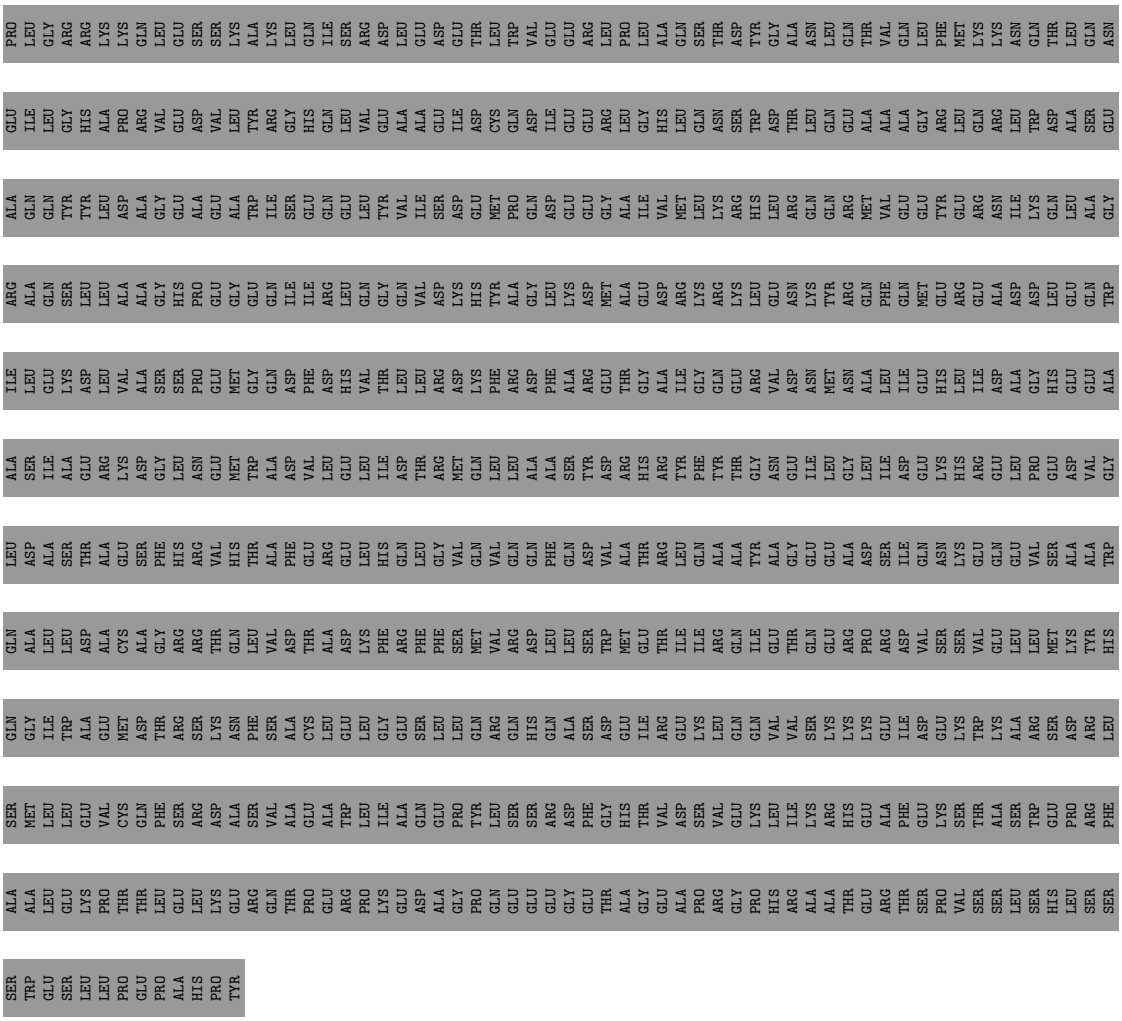
• Molecule 5: Spectrin beta chain

Chain O:



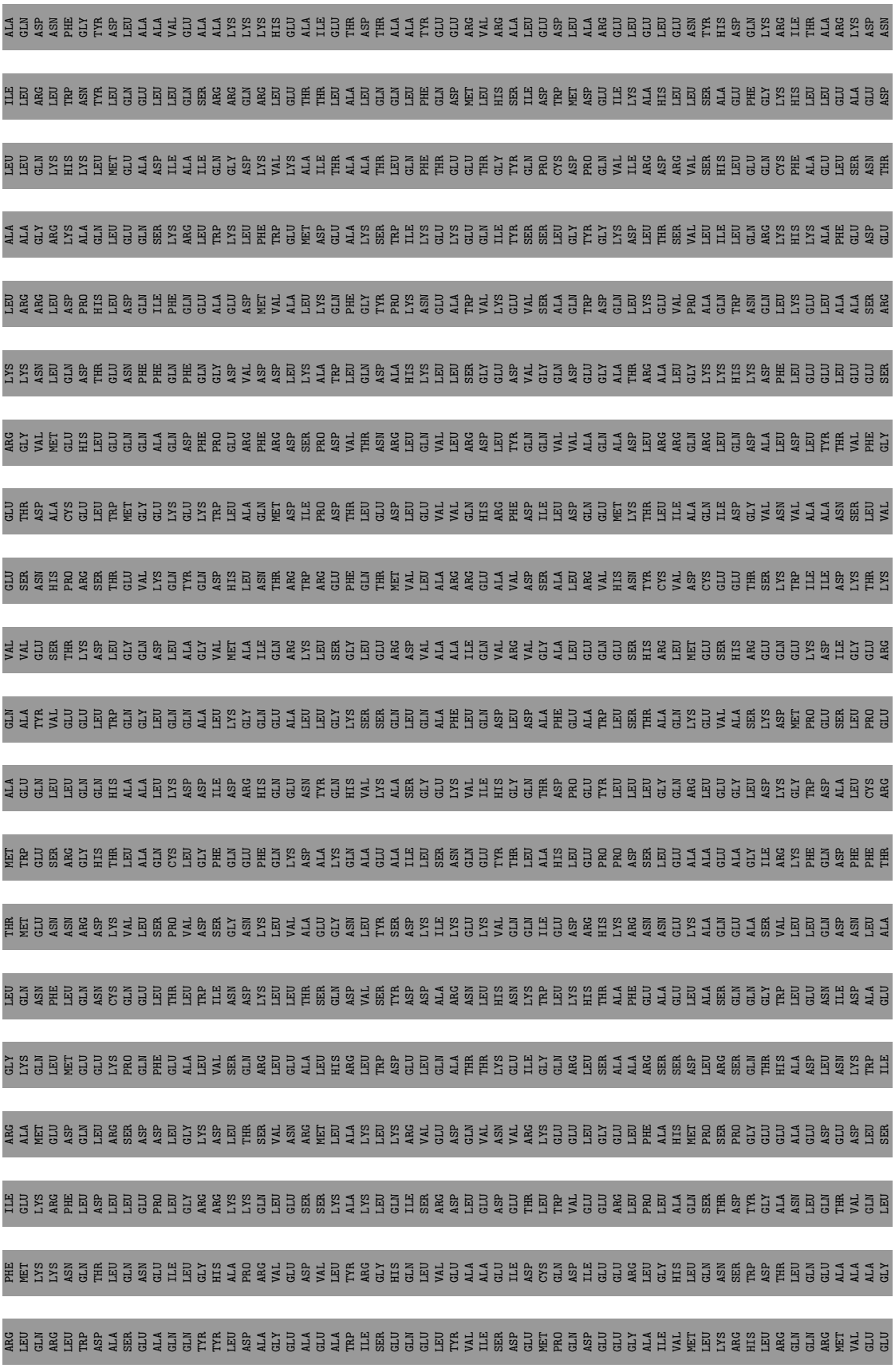


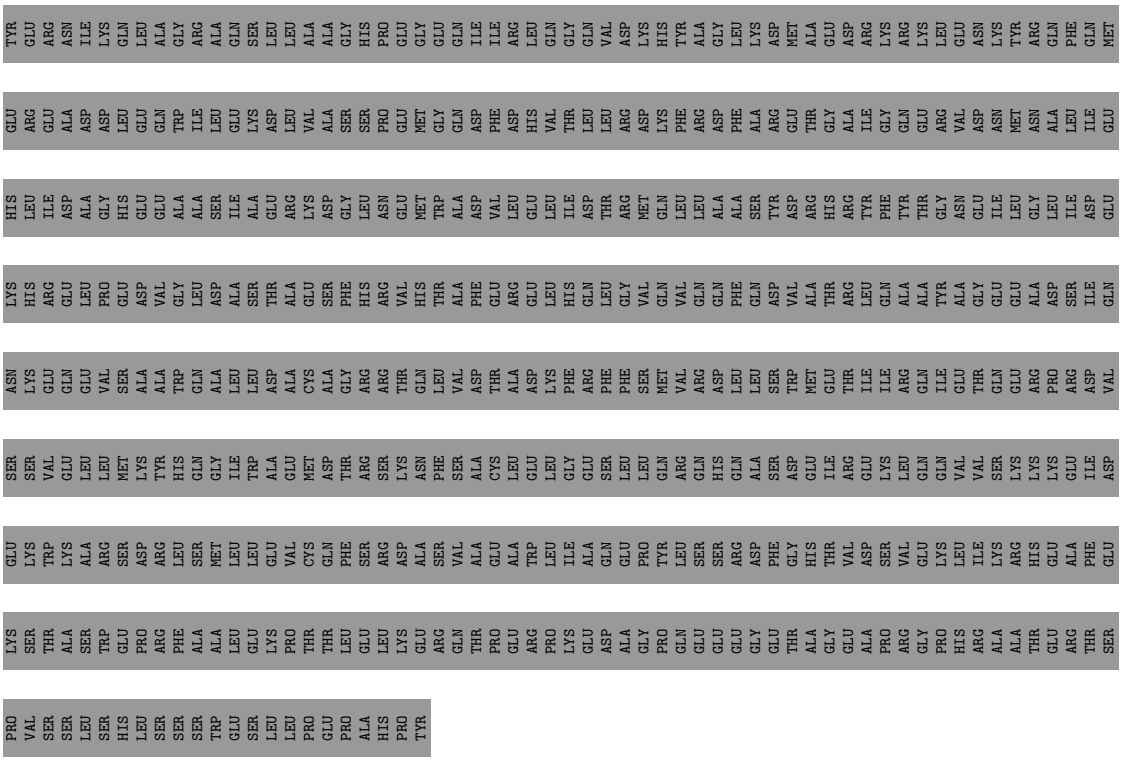

TYR PHE SER LYS MET LYS VAL LEU ALA VAL GLU GLY LYS ARG VAL GLY LYS VAL ILE ASP HIS ALA ILE GLU THR GLU LYS MET ILE GLU LYS TYR SER GLY LEU ALA SER ASP LEU LEU THR TRP ILE GLU GLN THR ILE THR VAL LEU ASN SER ARG LYS PHE ALA ASN SER LEU ALA
GLY VAL GLN GLN GLN LEU GLN ALA PHE SER THR TYR ARG THR VAL GLU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



• Molecule 5: Spectrin beta chain

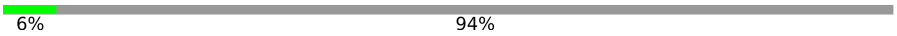
Chain P: 5% 95%

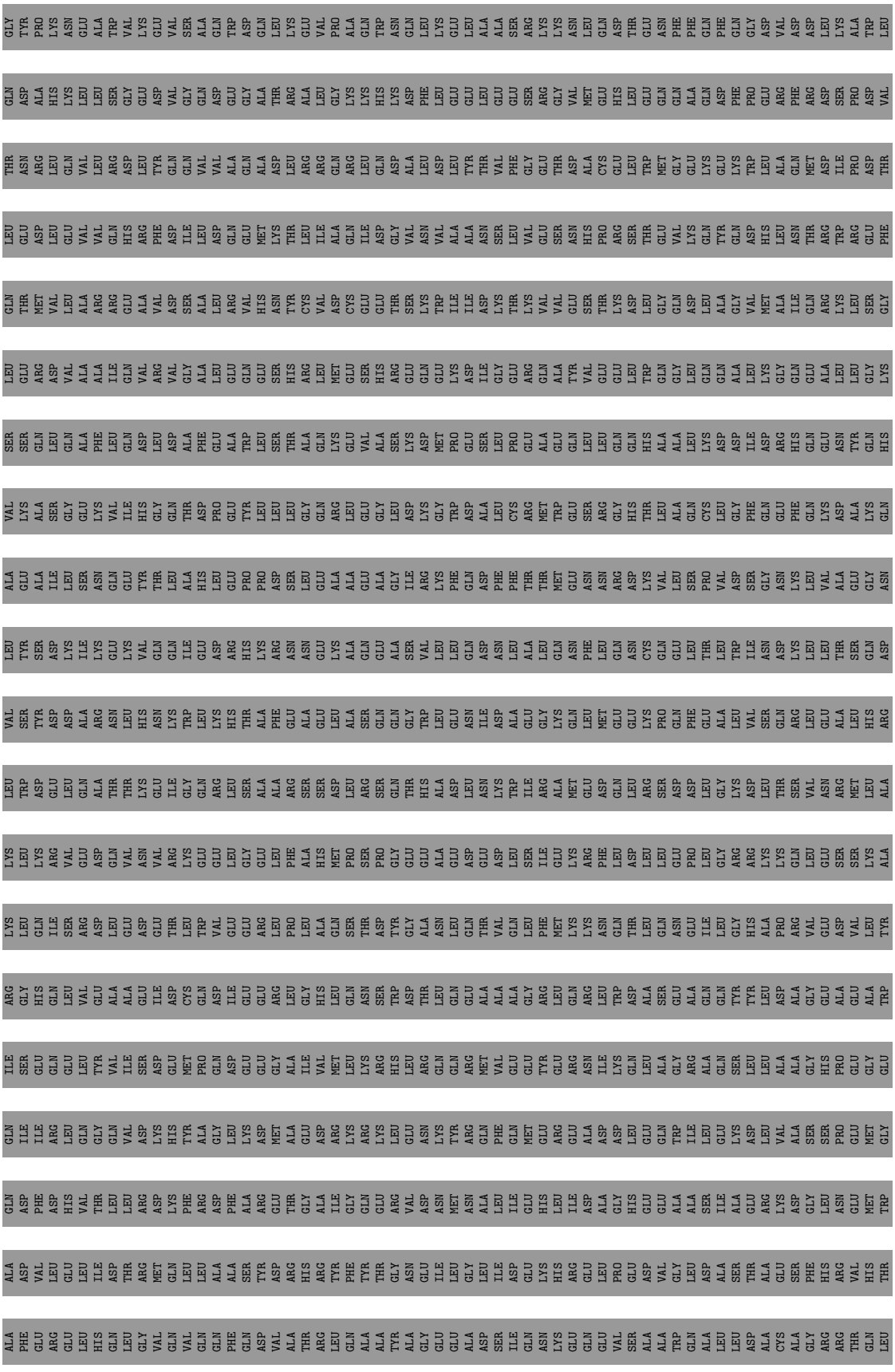


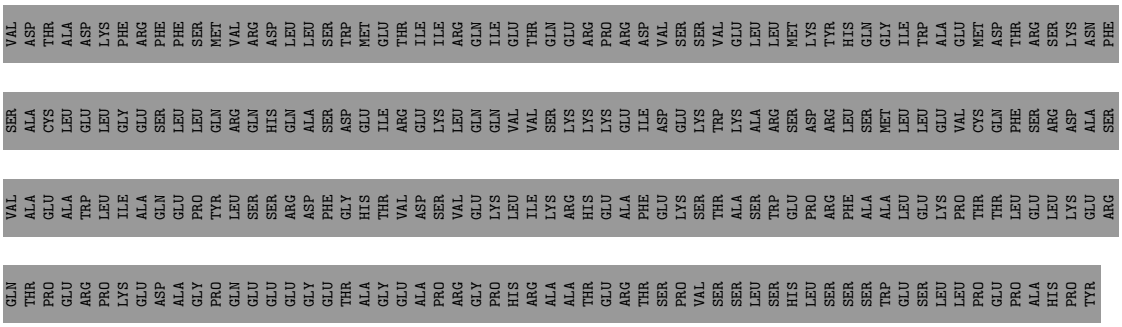


• Molecule 5: Spectrin beta chain

Chain Q:

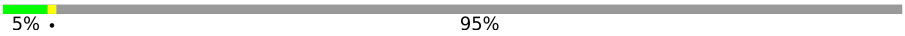


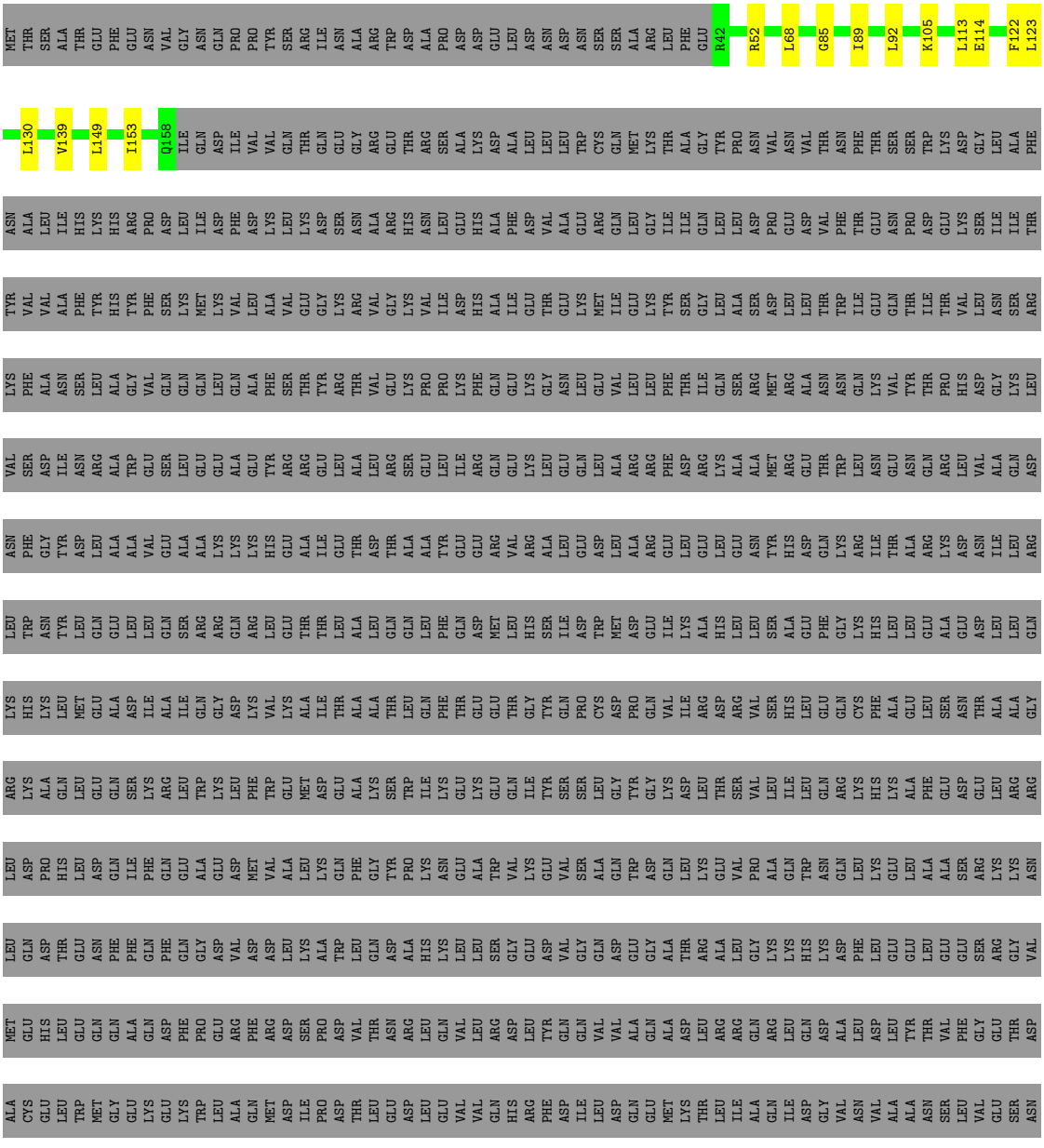


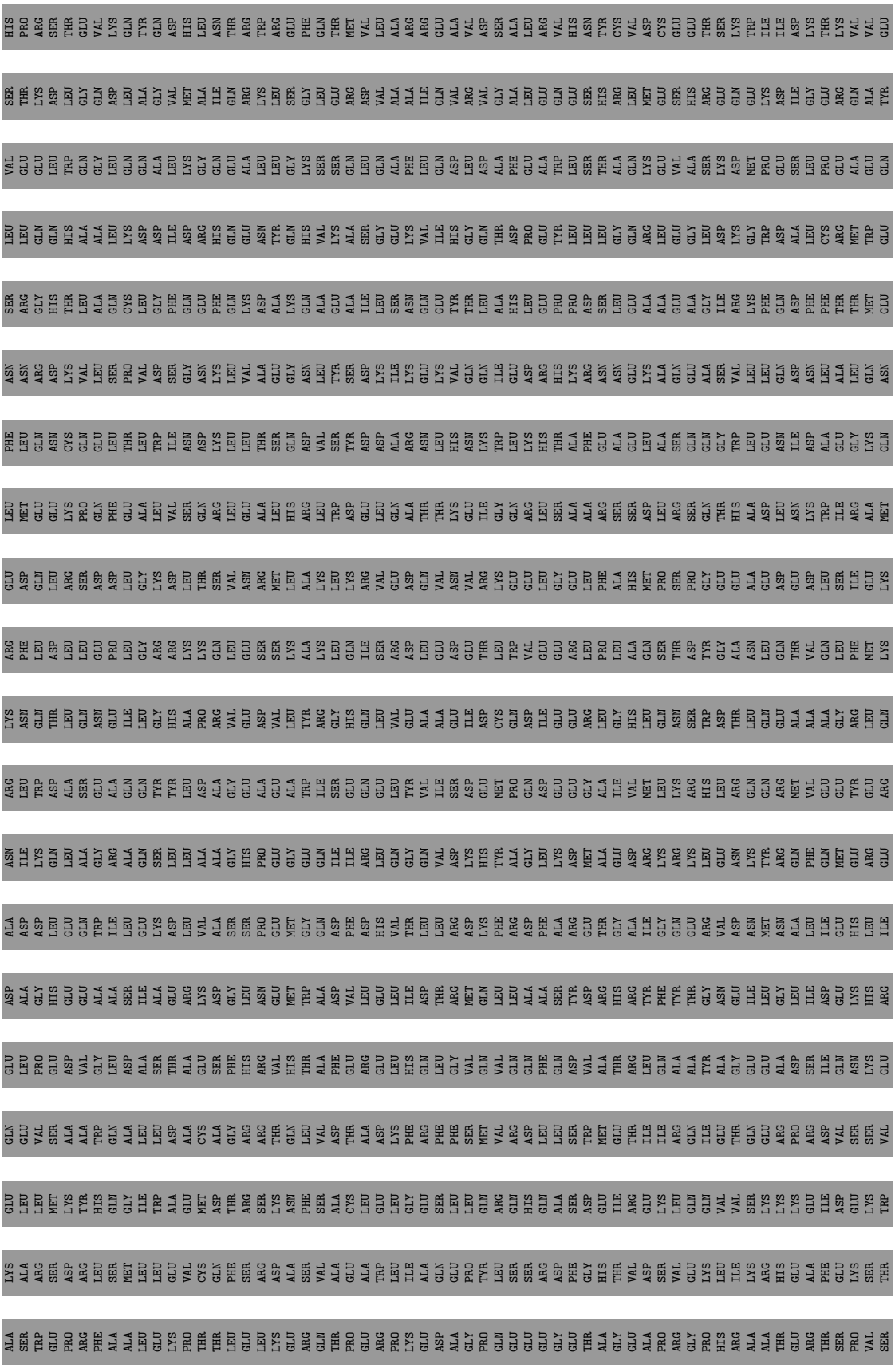


• Molecule 5: Spectrin beta chain

Chain R:

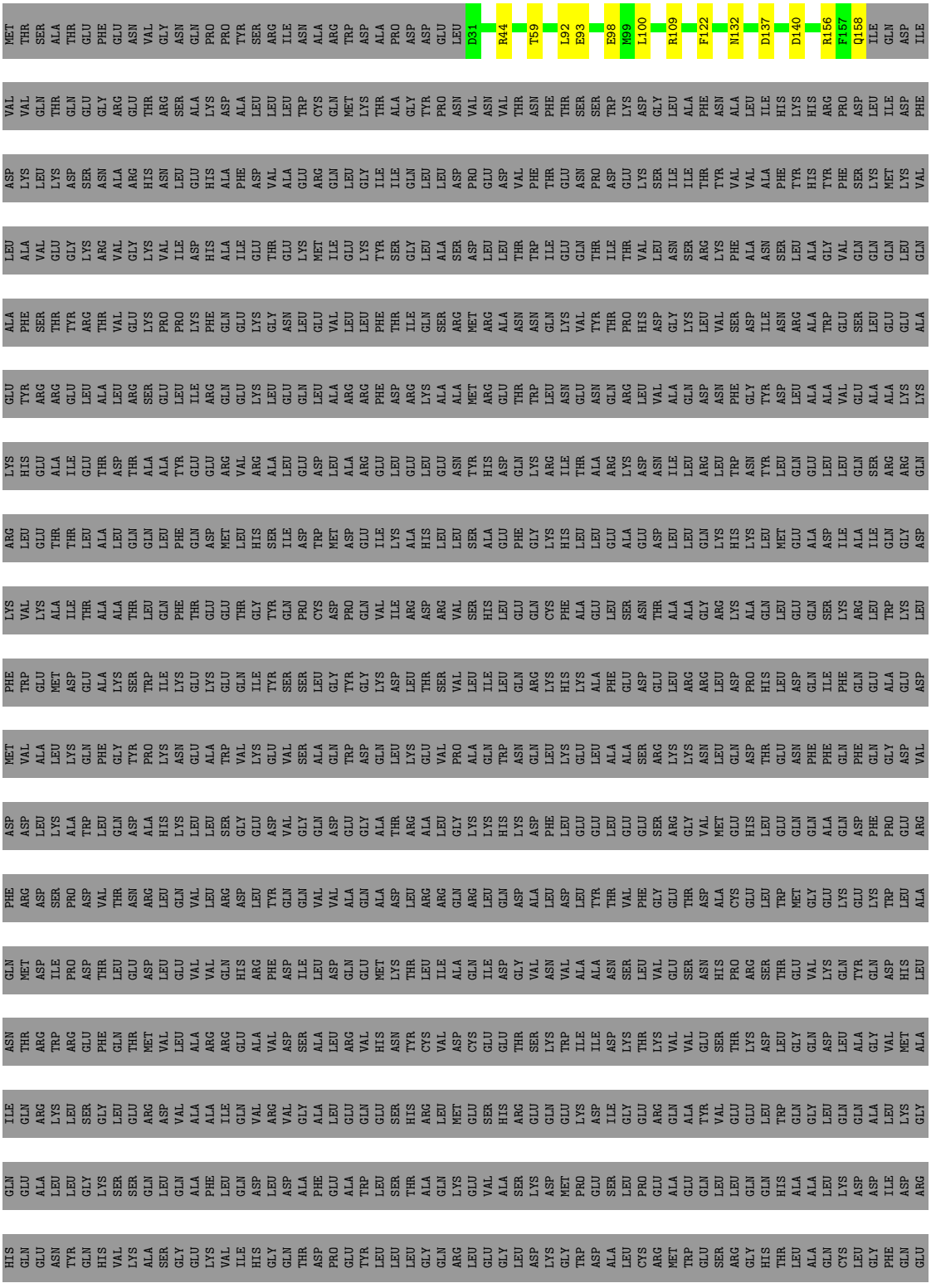


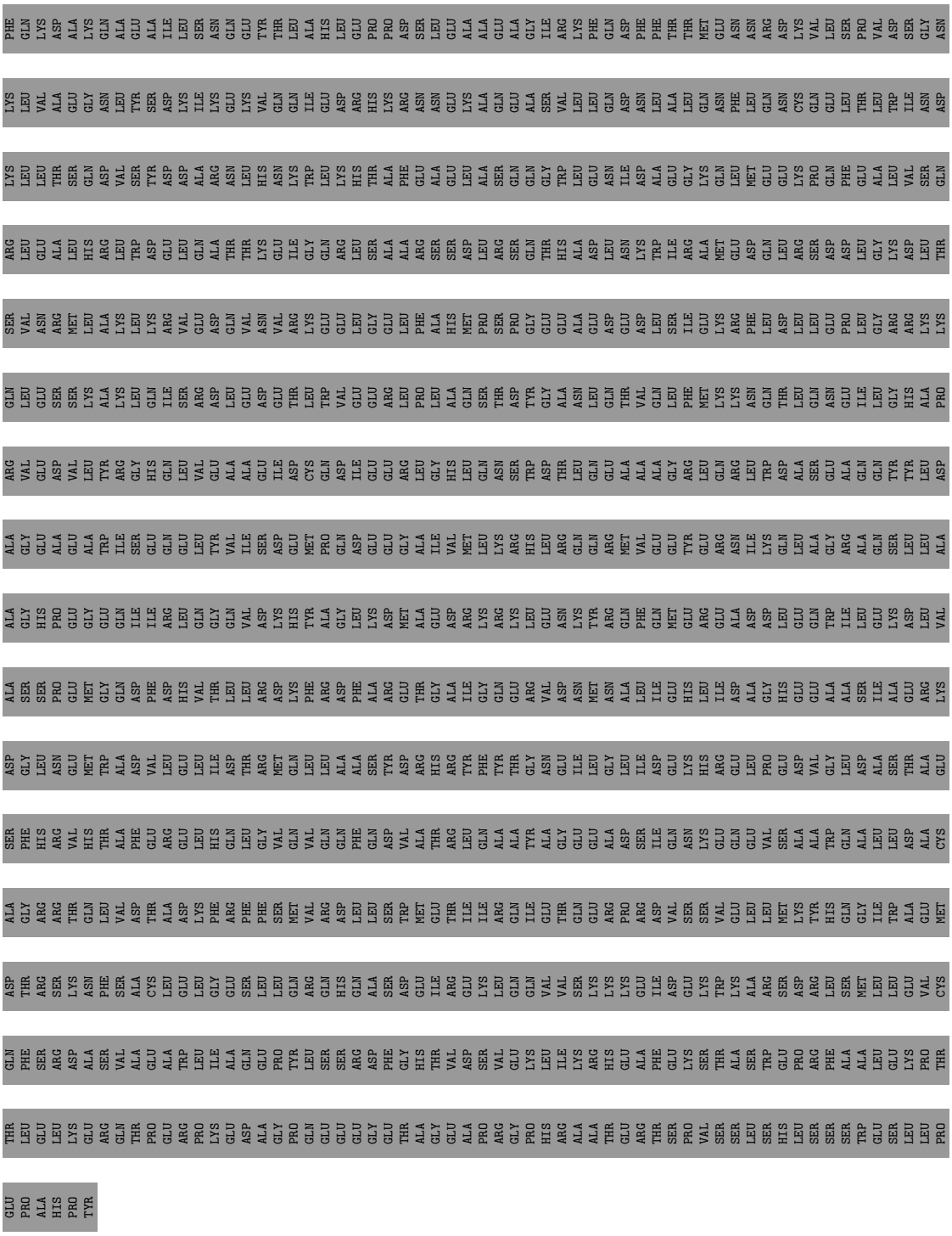




• Molecule 5: Spectrin beta chain

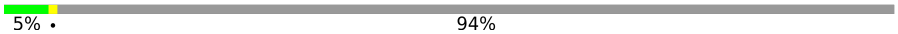
Chain S: 5% • 94%

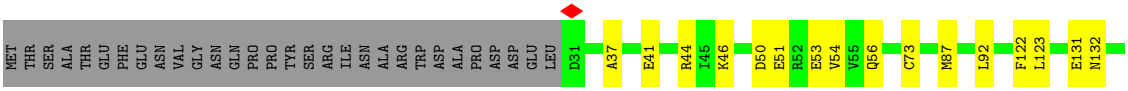


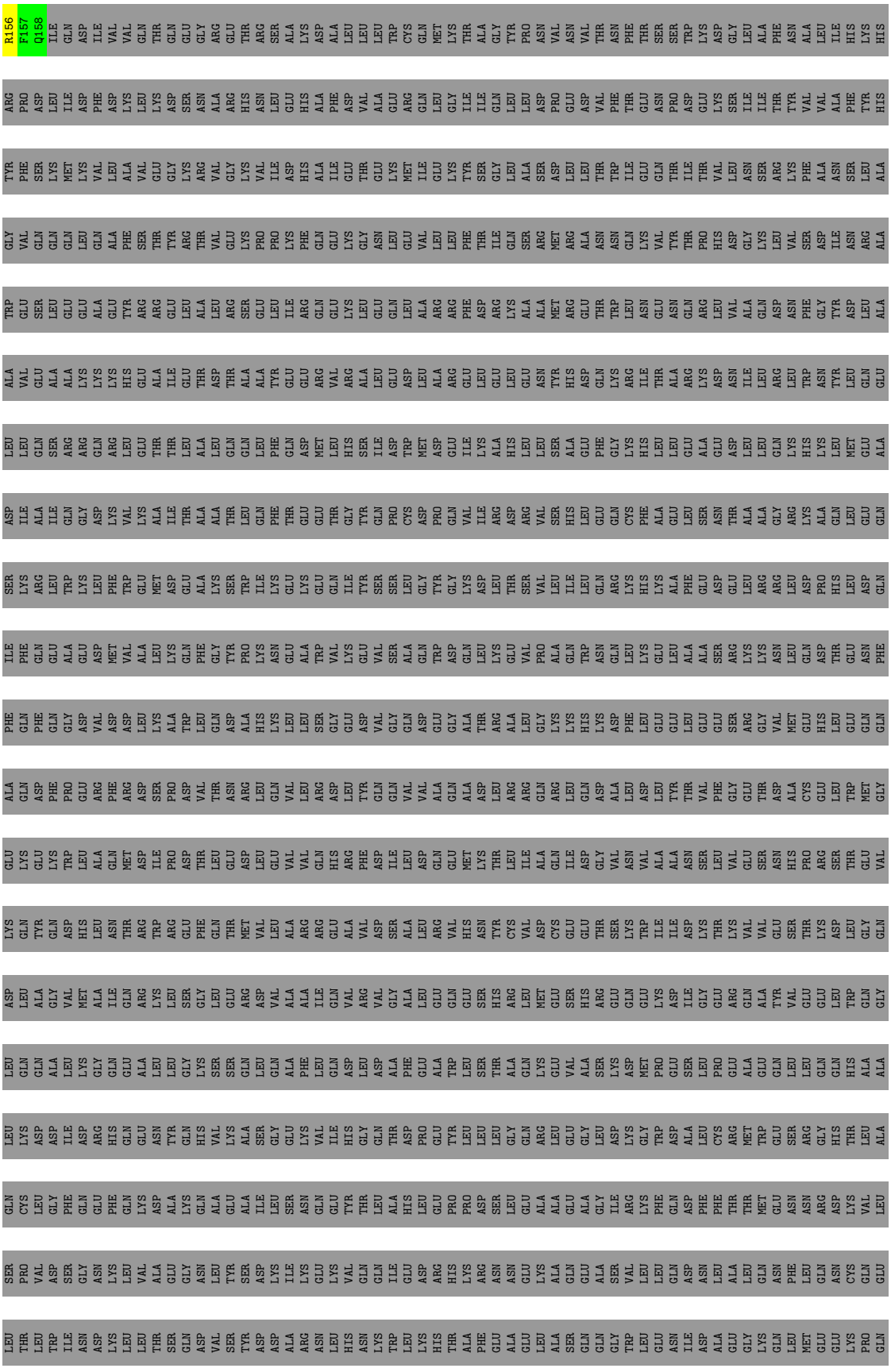


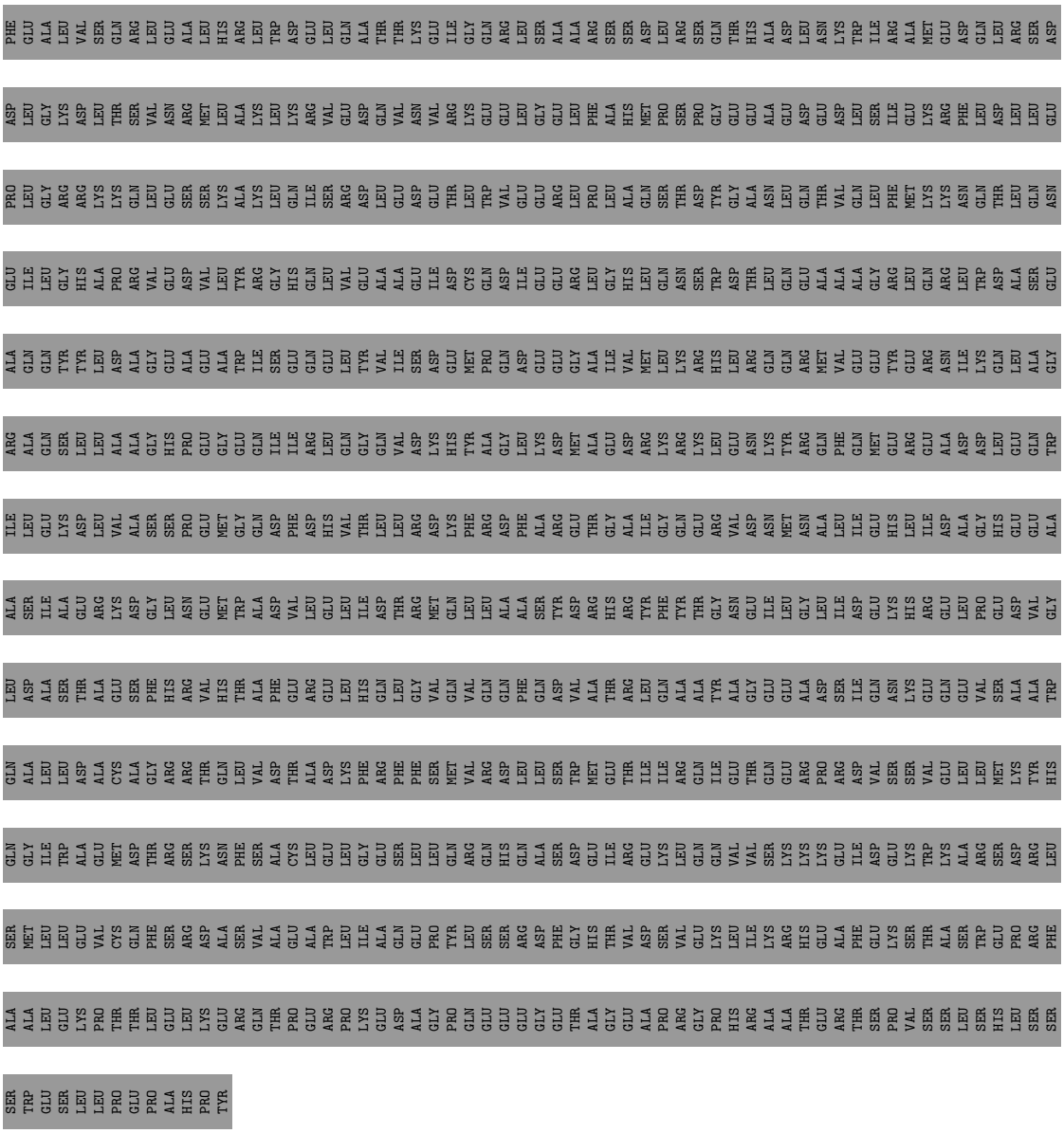
• Molecule 5: Spectrin beta chain

Chain T:



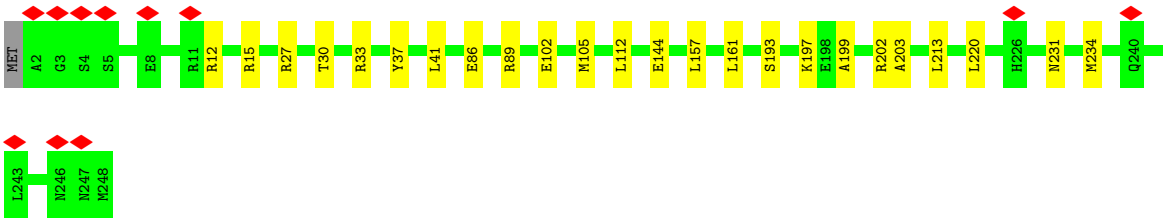



R156
F157
Q158



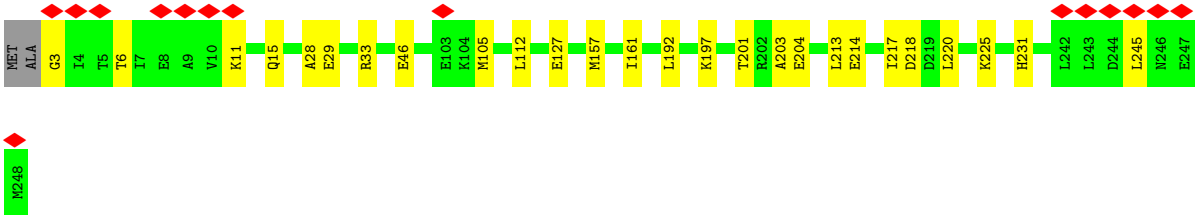
• Molecule 6: Tropomyosin-1.9

Chain U:

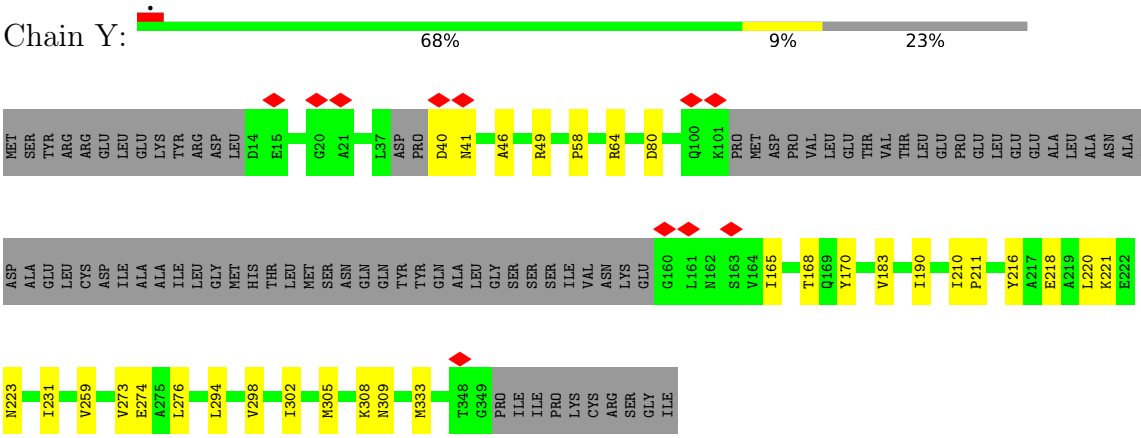


• Molecule 7: Tropomyosin 3

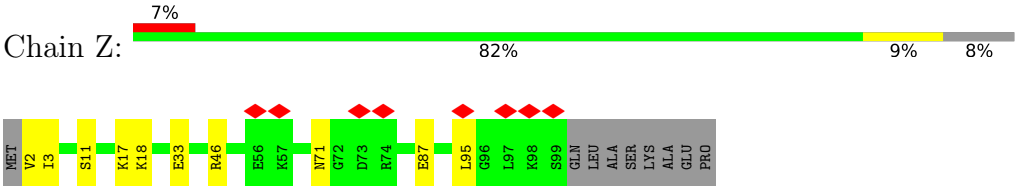
Chain V:



• Molecule 8: Tropomodulin-1



• Molecule 9: SH3 domain-binding glutamic acid-rich-like protein



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	68000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	34.4	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	3.014	Depositor
Minimum map value	-1.436	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.069	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	657.6, 657.6, 657.6	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.37, 1.37, 1.37	Depositor

5 Model quality

5.1 Standard geometry

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	1	0.17	0/2631	0.45	0/3572
1	2	0.18	0/2282	0.47	0/3095
1	9	0.27	0/538	0.72	0/715
2	3	0.16	0/2692	0.41	0/3646
2	4	0.18	0/2081	0.46	0/2816
3	5	0.15	0/1005	0.42	0/1367
3	6	0.17	0/955	0.46	0/1307
3	7	0.17	0/975	0.46	0/1326
4	A	0.14	0/2980	0.38	0/4035
4	B	0.14	0/2980	0.38	0/4035
4	C	0.14	0/2980	0.36	0/4035
4	D	0.15	0/2980	0.37	0/4035
4	E	0.14	0/2980	0.35	0/4035
4	F	0.14	0/2980	0.37	0/4035
4	G	0.13	0/2980	0.33	0/4035
4	H	0.14	0/2980	0.36	0/4035
4	I	0.13	0/2980	0.34	0/4035
4	J	0.15	0/2956	0.35	0/4002
4	K	0.14	0/2951	0.39	0/3997
5	M	0.17	0/1080	0.44	0/1448
5	N	0.18	0/974	0.51	0/1305
5	O	0.18	0/1088	0.42	0/1459
5	P	0.21	0/974	0.60	1/1305 (0.1%)
5	Q	0.16	0/1072	0.41	0/1437
5	R	0.17	0/974	0.41	0/1305
5	S	0.17	0/1063	0.39	0/1425
5	T	0.19	0/1063	0.54	1/1425 (0.1%)
6	U	0.30	0/2007	0.47	0/2677
7	V	0.32	0/2016	0.51	0/2687
8	Y	0.18	0/2149	0.43	0/2905
9	Z	0.22	0/817	0.57	0/1099
All	All	0.17	0/61163	0.42	2/82635 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	P	53	GLU	CA-CB-CG	5.20	124.49	114.10
5	T	53	GLU	CA-CB-CG	5.09	124.28	114.10

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	2578	0	2602	35	0
1	2	2234	0	2251	31	0
1	9	530	0	513	8	0
2	3	2639	0	2636	28	0
2	4	2041	0	2043	14	0
3	5	974	0	973	10	0
3	6	927	0	895	16	0
3	7	946	0	950	9	0
4	A	2917	0	2879	30	0
4	B	2917	0	2879	30	0
4	C	2917	0	2879	17	0
4	D	2917	0	2879	16	0
4	E	2917	0	2879	31	0
4	F	2917	0	2879	22	0
4	G	2917	0	2879	40	0
4	H	2917	0	2879	16	0
4	I	2917	0	2879	18	0
4	J	2893	0	2867	22	0
4	K	2889	0	2862	31	0
5	M	1065	0	1109	5	0
5	N	960	0	1016	6	0
5	O	1073	0	1113	11	0
5	P	960	0	1016	10	0
5	Q	1057	0	1105	7	0
5	R	960	0	1016	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	S	1048	0	1090	11	0
5	T	1048	0	1090	12	0
6	U	2000	0	1997	22	0
7	V	2011	0	2017	22	0
8	Y	2119	0	2109	22	0
9	Z	798	0	781	8	0
10	A	27	0	12	1	0
10	B	27	0	12	1	0
10	C	27	0	12	1	0
10	D	27	0	12	0	0
10	E	27	0	12	1	0
10	F	27	0	12	0	0
10	G	27	0	12	0	0
10	H	27	0	12	1	0
10	I	27	0	12	0	0
10	J	27	0	12	0	0
10	K	27	0	12	0	0
All	All	60300	0	60094	471	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 4.

All (471) 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:U:231:ASN:HA	6:U:234:MET:HE2	1.73	0.70
2:3:218:ALA:HB2	2:3:275:GLN:HG2	1.74	0.69
5:N:93:GLU:HB3	5:N:100:LEU:HD13	1.74	0.69
4:D:153:MET:HG2	4:D:162:THR:HG22	1.76	0.67
6:U:161:LEU:HD13	7:V:161:ILE:HG22	1.75	0.67
4:A:153:MET:HE1	4:A:274:ILE:HB	1.77	0.66
1:1:523:VAL:O	5:S:158:GLN:NE2	2.28	0.66
4:F:153:MET:HG2	4:F:162:THR:HG22	1.77	0.66
1:2:258:ILE:HD13	1:2:341:LEU:HD13	1.78	0.66
4:B:110:LEU:O	4:B:177:ARG:NH1	2.27	0.65
4:K:357:ILE:HG12	4:K:373:LYS:HD2	1.79	0.65
4:G:110:LEU:O	4:G:177:ARG:NH1	2.30	0.64
4:D:42:GLY:HA3	4:D:47:MET:HE1	1.80	0.64
8:Y:46:ALA:HA	8:Y:49:ARG:HD3	1.80	0.64
8:Y:273:VAL:HG21	8:Y:302:ILE:HG13	1.80	0.64
3:6:46:ALA:O	5:P:52:ARG:NH1	2.30	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:J:106:THR:HB	4:J:137:GLN:HG2	1.81	0.63
1:1:335:ALA:HA	2:4:239:MET:HE1	1.79	0.63
4:G:153:MET:HG2	4:G:162:THR:HG22	1.79	0.63
1:1:108:ALA:HB1	1:1:113:GLY:HA2	1.81	0.62
4:E:110:LEU:O	4:E:177:ARG:NH1	2.33	0.62
2:4:219:ARG:HH22	2:4:282:CYS:H	1.48	0.62
1:1:136:ILE:HD11	4:K:148:THR:H	1.64	0.62
9:Z:2:VAL:HG23	9:Z:33:GLU:HG3	1.81	0.62
4:J:110:LEU:HB2	4:J:177:ARG:HD3	1.82	0.61
4:G:305:MET:HE1	4:G:336:LYS:HD2	1.82	0.60
4:G:369:ILE:HD12	4:G:372:ARG:HH11	1.66	0.60
8:Y:210:ILE:HG13	8:Y:211:PRO:HD3	1.83	0.60
4:E:200:PHE:HB3	4:E:205:GLU:HB3	1.83	0.60
4:K:159:VAL:HG21	4:K:177:ARG:HE	1.67	0.59
2:3:487:PRO:HD3	4:J:355:MET:HE1	1.84	0.59
4:B:283:MET:SD	4:B:290:ARG:NH1	2.74	0.59
5:S:93:GLU:HG2	5:S:100:LEU:HD13	1.85	0.59
1:2:172:ARG:HD2	1:2:235:LYS:HG2	1.83	0.59
4:C:190:MET:HG3	4:C:209:VAL:HG11	1.83	0.59
3:7:56:ILE:HD13	3:7:62:MET:HE2	1.84	0.59
4:F:342:GLY:HA2	4:F:345:ILE:HD12	1.85	0.59
8:Y:273:VAL:HG23	8:Y:305:MET:HE3	1.84	0.58
1:1:188:LEU:HD12	2:3:371:MET:HE3	1.83	0.58
1:1:188:LEU:HD11	2:3:368:LEU:HD22	1.85	0.58
4:E:202:THR:OG1	4:E:205:GLU:OE1	2.20	0.58
4:H:202:THR:OG1	4:H:205:GLU:OE1	2.21	0.58
4:K:200:PHE:HB3	4:K:205:GLU:HB3	1.85	0.58
4:E:290:ARG:NH1	4:G:244:ASP:OD1	2.34	0.58
8:Y:273:VAL:HA	8:Y:276:LEU:HD23	1.86	0.58
4:E:25:ASP:OD2	5:O:44:ARG:NH1	2.37	0.57
5:P:110:ILE:HA	5:P:113:LEU:HD12	1.86	0.57
2:3:186:ILE:HG22	2:3:198:GLY:H	1.69	0.57
4:B:106:THR:HB	4:B:137:GLN:HG2	1.86	0.57
4:J:158:GLY:H	4:J:181:ALA:HB1	1.70	0.57
1:2:285:LEU:O	1:2:289:ASN:HB2	2.05	0.57
4:A:203:THR:HA	4:A:206:ARG:HB2	1.86	0.57
4:G:107:GLU:OE2	4:G:116:ARG:NE	2.38	0.57
4:J:207:GLU:OE1	4:J:210:ARG:NH2	2.38	0.57
3:6:62:MET:HE2	3:6:64:TYR:HE1	1.70	0.57
4:A:39:ARG:NH2	9:Z:87:GLU:O	2.38	0.57
4:C:28:ARG:NH1	5:M:48:LEU:O	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:503:ARG:NH2	4:I:145:SER:O	2.38	0.56
2:3:401:PRO:HB3	7:V:218:ASP:HB2	1.86	0.56
1:1:157:ASP:HB2	1:1:189:TYR:HB3	1.87	0.56
4:G:202:THR:OG1	4:G:205:GLU:OE1	2.16	0.56
5:N:50:ASP:HA	5:N:53:GLU:HG2	1.87	0.56
3:5:139:ASN:O	3:5:143:LYS:NZ	2.38	0.56
4:B:121:GLN:HE22	8:Y:333:MET:HA	1.71	0.56
5:P:129:HIS:NE2	5:P:131:GLU:OE2	2.37	0.56
5:O:102:LYS:O	5:O:118:LYS:NZ	2.36	0.56
4:E:112:PRO:HG3	4:F:197:GLY:HA2	1.88	0.56
4:A:202:THR:OG1	4:A:205:GLU:OE1	2.20	0.56
1:1:130:LEU:HD22	1:1:143:LYS:HG3	1.88	0.55
3:5:125:LEU:HD12	4:E:41:GLN:HE21	1.70	0.55
4:G:358:SER:HB3	4:G:361:GLU:HG3	1.88	0.55
4:K:163:VAL:HG12	4:K:175:ILE:HG23	1.89	0.55
1:2:246:ALA:HB3	2:4:315:ILE:HD12	1.89	0.55
1:2:242:THR:HG23	1:2:245:GLY:H	1.72	0.55
4:I:107:GLU:OE2	4:I:116:ARG:NE	2.40	0.55
5:M:109:ARG:NH2	5:M:140:ASP:OD1	2.40	0.55
1:1:200:ILE:HG22	1:1:206:VAL:HA	1.89	0.55
1:1:184:PRO:HG3	1:1:212:THR:HG21	1.89	0.55
4:A:123:MET:HG2	4:A:132:MET:HG3	1.89	0.55
4:H:107:GLU:OE2	4:H:116:ARG:NE	2.40	0.55
4:K:107:GLU:OE2	4:K:116:ARG:NE	2.39	0.55
4:D:12:ASN:HD21	4:D:86:TRP:HE1	1.54	0.54
4:D:167:GLU:HG3	4:F:61:LYS:HE3	1.89	0.54
7:V:29:GLU:OE2	7:V:33:ARG:NH1	2.40	0.54
1:2:258:ILE:HD11	2:3:238:ALA:HB1	1.89	0.54
2:4:116:ASN:ND2	2:4:135:CYS:SG	2.79	0.54
3:6:172:LYS:NZ	4:E:100:GLU:OE1	2.37	0.54
4:H:358:SER:HB3	4:H:361:GLU:HG3	1.90	0.54
3:7:212:ARG:NH2	6:U:144:GLU:OE1	2.41	0.54
4:G:168:GLY:HA2	4:I:44:MET:HG3	1.87	0.54
4:E:143:TYR:HE2	4:E:346:LEU:HD13	1.71	0.54
4:A:202:THR:HG22	9:Z:87:GLU:HA	1.90	0.54
6:U:86:GLU:OE2	6:U:89:ARG:NH1	2.41	0.54
4:I:54:VAL:HG12	5:S:132:ASN:HD22	1.73	0.54
5:T:51:GLU:HA	5:T:54:VAL:HG22	1.90	0.54
1:1:347:GLY:HA2	1:1:350:LYS:HE3	1.89	0.54
4:B:216:LEU:HD21	8:Y:165:ILE:HD13	1.89	0.54
2:3:373:ASP:OD2	2:3:383:TYR:OH	2.21	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:4:286:VAL:HG22	2:4:292:VAL:HG12	1.90	0.54
4:A:201:THR:OG1	8:Y:64:ARG:NH2	2.41	0.54
4:G:57:GLU:OE1	5:Q:132:ASN:ND2	2.40	0.54
4:C:187:ASP:OD1	4:C:206:ARG:NH1	2.41	0.53
7:V:11:LYS:HD3	7:V:15:GLN:HE22	1.72	0.53
1:1:258:ILE:HD11	1:1:328:GLN:HA	1.88	0.53
1:2:191:GLU:OE2	2:4:374:ASN:ND2	2.40	0.53
4:J:42:GLY:HA3	4:J:47:MET:HE1	1.90	0.53
4:C:71:ILE:HD11	4:C:82:MET:HE1	1.88	0.53
4:I:54:VAL:H	5:S:132:ASN:ND2	2.06	0.53
4:G:237:GLU:HG2	4:G:251:GLY:HA2	1.90	0.53
8:Y:276:LEU:O	8:Y:309:ASN:ND2	2.42	0.53
1:1:144:LEU:HD11	1:1:394:PRO:HG3	1.89	0.53
1:2:342:VAL:HG21	2:3:288:ARG:HD3	1.91	0.53
4:G:34:ILE:HD12	4:G:67:LEU:HD22	1.91	0.53
1:1:226:ALA:HB2	1:1:283:LYS:HG2	1.89	0.53
4:A:369:ILE:HD12	4:A:372:ARG:HH11	1.74	0.53
4:B:243:PRO:O	9:Z:46:ARG:NH1	2.41	0.53
4:J:200:PHE:HB3	4:J:205:GLU:HB3	1.91	0.53
1:2:380:LEU:HA	1:2:383:MET:HG2	1.91	0.52
4:I:50:LYS:NZ	5:S:137:ASP:OD1	2.41	0.52
5:O:109:ARG:NH2	5:O:140:ASP:OD1	2.42	0.52
6:U:213:LEU:HD12	7:V:217:ILE:HD13	1.90	0.52
4:D:191:LYS:O	4:D:194:THR:OG1	2.27	0.52
4:K:237:GLU:HG2	4:K:251:GLY:HA2	1.91	0.52
1:2:352:LYS:HD2	2:3:262:ASN:HB3	1.90	0.52
1:2:144:LEU:HD11	1:2:394:PRO:HG3	1.90	0.52
6:U:157:LEU:HD22	7:V:157:MET:HB3	1.90	0.52
1:1:200:ILE:HD12	1:1:204:GLY:HA2	1.92	0.52
4:A:332:PRO:O	4:A:335:ARG:NH1	2.42	0.52
4:D:71:ILE:HD11	4:D:82:MET:HE1	1.91	0.52
4:A:188:TYR:HB2	4:A:267:LEU:HD21	1.92	0.52
4:C:196:ARG:NH1	4:C:250:ILE:O	2.43	0.52
4:E:14:SER:HB2	4:E:157:ASP:HB3	1.91	0.52
3:6:188:GLU:OE1	5:Q:106:GLY:N	2.43	0.52
1:2:251:MET:HE1	1:2:328:GLN:HE22	1.74	0.51
4:B:196:ARG:NH1	4:B:250:ILE:O	2.43	0.51
9:Z:71:ASN:ND2	9:Z:95:LEU:O	2.43	0.51
4:H:335:ARG:HA	4:H:338:SER:HB2	1.92	0.51
6:U:112:LEU:HD13	7:V:112:LEU:HA	1.91	0.51
2:3:228:LEU:HD11	2:3:306:VAL:HG13	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:6:170:SER:OG	3:6:176:ALA:O	2.29	0.51
4:K:110:LEU:O	4:K:177:ARG:NH1	2.43	0.51
5:R:123:LEU:HD11	5:R:153:ILE:HD11	1.92	0.51
1:2:165:ILE:HG23	1:2:188:LEU:HD23	1.93	0.51
3:5:64:TYR:OH	4:D:25:ASP:O	2.29	0.51
5:M:102:LYS:O	5:M:118:LYS:NZ	2.44	0.50
4:F:34:ILE:HD12	4:F:67:LEU:HD22	1.92	0.50
4:G:200:PHE:HB3	4:G:205:GLU:HB3	1.93	0.50
3:7:63:ILE:HG22	3:7:66:PRO:HD2	1.92	0.50
4:G:201:THR:HG23	4:G:202:THR:HG23	1.94	0.50
1:9:83:LYS:NZ	4:K:133:TYR:OH	2.43	0.50
4:G:332:PRO:O	4:G:335:ARG:NH1	2.45	0.50
4:A:14:SER:N	10:A:401:ADP:O2B	2.45	0.50
7:V:214:GLU:HA	7:V:217:ILE:HD12	1.94	0.50
1:1:490:VAL:HG11	4:K:44:MET:H	1.75	0.50
8:Y:231:ILE:HD11	8:Y:259:VAL:HG12	1.92	0.50
2:3:319:ALA:HB1	2:3:329:LEU:HD11	1.93	0.50
4:G:8:LEU:HD21	4:G:96:VAL:HG21	1.94	0.50
3:6:54:LEU:HD13	5:R:105:LYS:HB3	1.93	0.49
4:K:71:ILE:HG12	4:K:76:VAL:HG12	1.94	0.49
3:7:46:ALA:HB3	5:R:52:ARG:HG3	1.93	0.49
4:G:143:TYR:OH	4:I:45:VAL:N	2.44	0.49
4:E:196:ARG:NH1	4:E:250:ILE:O	2.45	0.49
4:F:305:MET:HE2	4:F:336:LYS:HB2	1.94	0.49
4:I:25:ASP:OD2	5:S:44:ARG:NH1	2.45	0.49
5:S:156:ARG:O	5:S:156:ARG:NH1	2.41	0.49
3:6:41:TYR:OH	4:F:101:HIS:NE2	2.39	0.49
4:A:50:LYS:NZ	8:Y:80:ASP:OD1	2.45	0.49
4:B:153:MET:HE3	4:B:299:LEU:HD22	1.93	0.49
5:P:127:ARG:HB2	5:P:156:ARG:HH21	1.76	0.49
1:1:137:ALA:HB2	2:3:394:HIS:CE1	2.48	0.49
4:G:105:LEU:HD11	4:G:123:MET:HE3	1.95	0.49
8:Y:294:LEU:HD12	8:Y:298:VAL:HG11	1.94	0.49
4:C:355:MET:HG3	4:E:45:VAL:HG21	1.94	0.49
4:F:14:SER:HB2	4:F:157:ASP:HB3	1.94	0.49
4:J:188:TYR:HB2	4:J:267:LEU:HD21	1.95	0.49
4:H:200:PHE:HB3	4:H:205:GLU:HB3	1.95	0.49
3:7:209:LYS:HE2	3:7:212:ARG:HH21	1.77	0.49
4:D:104:LEU:HD12	4:D:133:TYR:HB3	1.95	0.49
5:Q:39:LEU:HD11	7:V:127:GLU:HG2	1.95	0.49
8:Y:305:MET:HA	8:Y:308:LYS:HG2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:204:GLY:HA3	1:1:218:GLN:HG2	1.95	0.48
1:2:231:ARG:NH1	1:2:293:LYS:O	2.45	0.48
4:D:285:CYS:HB3	4:D:289:ILE:HD11	1.94	0.48
4:G:26:ALA:HB1	5:Q:45:ILE:HD13	1.95	0.48
4:J:87:HIS:ND1	5:T:131:GLU:OE2	2.46	0.48
5:P:53:GLU:HA	5:P:56:GLN:HB3	1.95	0.48
4:E:157:ASP:OD1	10:E:401:ADP:O3'	2.28	0.48
4:G:51:ASP:OD1	4:G:51:ASP:N	2.46	0.48
4:G:288:ASP:OD2	4:I:62:ARG:NE	2.42	0.48
5:R:92:LEU:HD13	5:R:122:PHE:HD2	1.78	0.48
1:1:524:LEU:HD21	5:S:59:THR:HG21	1.94	0.48
4:I:285:CYS:HB3	4:I:289:ILE:HD11	1.93	0.48
1:2:116:ALA:HA	1:2:119:MET:HE2	1.96	0.48
2:4:130:GLU:HA	2:4:133:MET:HG3	1.94	0.48
4:G:79:TRP:HH2	4:G:119:MET:HG3	1.79	0.48
6:U:220:LEU:HD22	7:V:220:LEU:HB3	1.95	0.48
8:Y:220:LEU:HD12	8:Y:223:ASN:HB3	1.93	0.48
3:6:117:THR:OG1	3:6:118:THR:N	2.46	0.48
3:6:129:HIS:HA	4:G:45:VAL:HG12	1.96	0.48
4:A:334:GLU:OE1	6:U:15:ARG:NH2	2.46	0.48
4:E:156:GLY:O	4:E:303:THR:OG1	2.31	0.48
4:J:91:TYR:OH	5:T:156:ARG:NH2	2.46	0.48
5:S:109:ARG:NH2	5:S:140:ASP:OD1	2.46	0.48
4:A:285:CYS:HB3	4:A:289:ILE:HD11	1.95	0.48
4:K:154:ASP:HB3	4:K:161:HIS:CE1	2.48	0.48
4:K:105:LEU:HD11	4:K:123:MET:HE3	1.96	0.47
5:M:39:LEU:HD11	7:V:46:GLU:HB3	1.95	0.47
4:E:71:ILE:HG12	4:E:76:VAL:HB	1.95	0.47
4:J:107:GLU:OE2	4:J:116:ARG:NE	2.41	0.47
4:A:236:LEU:O	4:A:254:ARG:NH1	2.46	0.47
5:O:49:ALA:O	5:O:53:GLU:HG3	2.14	0.47
1:2:146:ARG:NH1	1:2:194:ALA:O	2.40	0.47
4:B:211:ASP:OD2	4:B:240:TYR:OH	2.31	0.47
1:1:126:PRO:HB3	1:1:390:ARG:HH11	1.78	0.47
4:G:12:ASN:HD21	4:G:82:MET:HE2	1.80	0.47
4:H:157:ASP:OD1	10:H:401:ADP:O3'	2.29	0.47
1:1:391:THR:HG23	1:1:393:TYR:H	1.80	0.47
4:A:187:ASP:OD1	4:A:206:ARG:NH1	2.47	0.47
4:A:247:VAL:HB	8:Y:58:PRO:HA	1.97	0.47
4:B:53:TYR:HD2	4:B:65:LEU:HD11	1.79	0.47
4:C:99:GLU:HG2	4:C:100:GLU:HG3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:4:115:ILE:HG21	2:4:379:THR:HG22	1.96	0.47
3:6:180:ASP:OD1	3:6:180:ASP:N	2.44	0.47
4:E:285:CYS:HB3	4:E:289:ILE:HD11	1.97	0.47
4:G:285:CYS:HB3	4:G:289:ILE:HD11	1.96	0.47
1:1:257:PRO:HG2	1:1:343:LEU:HD11	1.96	0.47
2:3:113:THR:OG1	2:3:142:ARG:NH2	2.45	0.47
4:A:106:THR:HB	4:A:137:GLN:HG2	1.96	0.47
4:A:222:ASP:HB3	4:A:225:GLN:HB2	1.96	0.47
4:B:71:ILE:HG12	4:B:76:VAL:HG22	1.97	0.47
5:O:92:LEU:HD13	5:O:122:PHE:HD2	1.79	0.47
3:6:172:LYS:HZ3	4:E:100:GLU:HB3	1.79	0.47
2:3:136:LYS:HE3	2:3:381:TYR:HE1	1.80	0.46
4:C:112:PRO:HG3	4:D:197:GLY:HA2	1.97	0.46
4:G:71:ILE:HG12	4:G:76:VAL:HG22	1.96	0.46
5:N:86:ARG:HH22	5:N:105:LYS:HA	1.80	0.46
2:3:158:THR:HG22	2:3:170:ILE:HG22	1.97	0.46
4:B:153:MET:HG2	4:B:162:THR:HG22	1.96	0.46
4:K:326:LYS:HD2	7:V:225:LYS:HE3	1.97	0.46
4:K:220:ALA:HB1	4:K:226:GLU:HG3	1.97	0.46
8:Y:190:ILE:HG23	8:Y:223:ASN:HD22	1.80	0.46
1:1:334:SER:HB3	2:4:320:LEU:HD23	1.97	0.46
4:A:200:PHE:HB3	4:A:205:GLU:HB3	1.96	0.46
7:V:3:GLY:N	7:V:6:THR:HG1	2.13	0.46
9:Z:3:ILE:HD13	9:Z:71:ASN:HB3	1.97	0.46
1:1:242:THR:HG23	1:1:245:GLY:H	1.79	0.46
4:C:361:GLU:OE1	4:C:373:LYS:NZ	2.45	0.46
5:O:106:GLY:HA3	5:O:111:HIS:CG	2.51	0.46
1:2:391:THR:HG23	1:2:393:TYR:H	1.81	0.46
2:3:296:GLY:HA3	2:3:302:ALA:HB2	1.98	0.46
3:6:174:PRO:O	5:O:52:ARG:NH1	2.49	0.46
4:J:173:HIS:CE1	4:K:268:GLY:HA3	2.50	0.46
5:R:113:LEU:HD23	5:R:139:VAL:HG21	1.98	0.46
2:3:509:ASP:OD1	5:T:44:ARG:NH1	2.47	0.46
3:5:194:CYS:HB2	5:O:108:MET:HE2	1.98	0.46
4:D:242:LEU:HD12	4:D:246:GLN:HB2	1.97	0.46
4:K:151:ILE:HA	4:K:164:PRO:HA	1.97	0.46
5:Q:130:LEU:HB3	5:Q:133:MET:HG3	1.97	0.46
1:2:281:GLU:HA	1:2:284:VAL:HG12	1.97	0.46
6:U:193:SER:HB2	7:V:192:LEU:HD21	1.98	0.46
4:B:21:PHE:HZ	4:B:96:VAL:HG11	1.80	0.46
4:B:75:ILE:HD12	4:B:112:PRO:HD2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:358:SER:HB3	4:F:361:GLU:HG3	1.97	0.45
2:3:115:ILE:HG21	2:3:379:THR:HG22	1.98	0.45
4:K:106:THR:HB	4:K:137:GLN:HG2	1.98	0.45
2:3:134:ARG:HB3	2:3:182:ALA:HB1	1.98	0.45
4:B:213:LYS:NZ	4:B:306:TYR:OH	2.41	0.45
4:C:215:LYS:HD2	4:C:240:TYR:HE1	1.81	0.45
1:1:285:LEU:O	1:1:289:ASN:HB2	2.17	0.45
1:2:155:LEU:HD11	1:2:380:LEU:HB3	1.98	0.45
1:9:75:ILE:O	1:9:78:GLN:HG3	2.16	0.45
4:C:143:TYR:OH	4:E:45:VAL:O	2.33	0.45
4:A:118:LYS:HD2	4:A:118:LYS:HA	1.81	0.45
4:C:306:TYR:HD2	4:C:309:ILE:HD11	1.81	0.45
2:4:384:ARG:HA	2:4:384:ARG:HD2	1.80	0.45
4:E:115:ASN:O	4:E:119:MET:HG3	2.17	0.45
4:E:163:VAL:HG12	4:E:175:ILE:HG23	1.98	0.45
4:H:302:GLY:O	4:H:305:MET:HB2	2.17	0.45
2:3:251:LEU:HD11	2:3:332:LEU:HD11	1.99	0.45
5:Q:109:ARG:NH2	5:Q:140:ASP:OD1	2.49	0.45
5:T:92:LEU:HD13	5:T:122:PHE:HD2	1.82	0.45
4:B:163:VAL:HG12	4:B:175:ILE:HG23	1.98	0.45
4:F:35:VAL:HG21	4:F:81:ASP:HB3	1.97	0.45
6:U:203:ALA:HB2	7:V:203:ALA:HB2	1.98	0.45
4:B:200:PHE:HB3	4:B:205:GLU:HB3	1.99	0.45
1:1:485:VAL:HB	1:1:488:LEU:HB2	1.99	0.45
4:C:342:GLY:HA2	4:C:345:ILE:HD12	1.99	0.44
4:F:107:GLU:OE2	4:F:116:ARG:NE	2.50	0.44
8:Y:218:GLU:HA	8:Y:221:LYS:HE3	1.99	0.44
4:C:25:ASP:OD1	4:C:25:ASP:N	2.50	0.44
4:E:71:ILE:HA	4:E:76:VAL:HA	1.98	0.44
1:1:119:MET:HB2	1:1:387:LEU:HD21	1.98	0.44
4:I:156:GLY:O	4:I:303:THR:OG1	2.34	0.44
4:K:36:GLY:HA2	4:K:66:THR:O	2.16	0.44
3:7:146:ILE:HG22	4:G:358:SER:HB2	1.99	0.44
4:B:230:ALA:HB2	4:B:236:LEU:HD12	2.00	0.44
4:H:285:CYS:HB3	4:H:289:ILE:HD11	2.00	0.44
2:4:311:ALA:O	2:4:315:ILE:HG12	2.16	0.44
1:2:127:VAL:HG11	1:2:154:ARG:HG3	1.99	0.44
3:7:143:LYS:HB2	3:7:143:LYS:HE3	1.80	0.44
1:9:55:LYS:HB3	1:9:57:ARG:HD3	2.00	0.44
4:A:36:GLY:HA2	4:A:66:THR:O	2.18	0.44
4:C:157:ASP:OD1	10:C:401:ADP:O3'	2.30	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:N:110:ILE:HA	5:N:113:LEU:HD12	2.00	0.44
1:1:349:TYR:O	1:1:352:LYS:NZ	2.49	0.44
1:9:33:PRO:HA	1:9:36:LEU:HB3	1.99	0.44
4:A:41:GLN:HB3	4:A:43:VAL:HG23	1.99	0.44
4:A:142:LEU:HB2	4:A:152:VAL:HG21	1.99	0.44
4:B:285:CYS:HB3	4:B:289:ILE:HD11	1.99	0.44
4:F:176:LEU:HD12	4:F:281:SER:HB2	1.99	0.44
4:K:238:LYS:HE3	4:K:238:LYS:HB3	1.89	0.44
5:T:37:ALA:O	5:T:41:GLU:HG2	2.17	0.44
1:2:257:PRO:HG2	1:2:343:LEU:HD22	2.00	0.44
4:A:34:ILE:HG21	4:A:67:LEU:HD23	2.00	0.44
4:B:86:TRP:HH2	4:B:119:MET:HG2	1.83	0.44
4:F:200:PHE:HB3	4:F:205:GLU:HG3	2.00	0.44
5:P:86:ARG:NH2	5:P:104:THR:O	2.51	0.44
6:U:30:THR:HA	6:U:33:ARG:HE	1.82	0.44
6:U:197:LYS:HA	6:U:197:LYS:HD3	1.75	0.43
4:B:62:ARG:HG2	4:B:67:LEU:HD11	1.99	0.43
4:E:211:ASP:OD2	4:E:240:TYR:OH	2.30	0.43
7:V:201:THR:O	7:V:204:GLU:HG3	2.18	0.43
8:Y:274:GLU:HA	8:Y:305:MET:SD	2.57	0.43
4:B:165:ILE:HG21	4:D:44:MET:HE3	2.00	0.43
4:E:143:TYR:CE2	4:E:346:LEU:HD13	2.51	0.43
1:1:176:GLU:CD	1:1:177:GLN:H	2.27	0.43
4:E:143:TYR:HE1	4:G:44:MET:HE3	1.83	0.43
4:C:180:LEU:HD21	4:C:261:LEU:HA	1.99	0.43
1:2:237:VAL:HG22	1:2:307:VAL:HG12	2.01	0.43
2:3:286:VAL:HG22	2:3:292:VAL:HG12	2.01	0.43
4:F:351:THR:OG1	5:R:114:GLU:OE2	2.34	0.43
4:G:25:ASP:N	4:G:25:ASP:OD1	2.51	0.43
3:5:50:ASP:OD1	3:5:50:ASP:N	2.48	0.43
3:6:58:ARG:HH21	3:6:61:LEU:HD13	1.83	0.43
4:H:113:LYS:HB3	4:H:371:HIS:CE1	2.54	0.43
6:U:234:MET:HE1	7:V:231:HIS:ND1	2.34	0.43
1:2:200:ILE:HG22	1:2:206:VAL:HA	2.01	0.43
3:5:56:ILE:HD12	3:5:62:MET:HE2	2.01	0.43
4:A:73:HIS:NE2	9:Z:18:LYS:HG3	2.33	0.43
4:F:62:ARG:HG2	4:F:67:LEU:HD11	2.00	0.43
4:J:81:ASP:O	4:J:85:ILE:HD12	2.19	0.43
4:J:163:VAL:HG12	4:J:175:ILE:HG12	2.00	0.43
5:R:85:GLY:O	5:R:89:ILE:HD12	2.19	0.43
5:T:46:LYS:O	5:T:50:ASP:HB2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:118:LYS:HD2	4:G:118:LYS:HA	1.86	0.43
4:J:122:ILE:O	4:J:126:THR:OG1	2.33	0.43
7:V:213:LEU:O	7:V:217:ILE:HG13	2.17	0.43
3:5:57:GLU:HA	5:P:107:LYS:HB2	2.00	0.43
1:9:65:PRO:O	1:9:68:CYS:N	2.52	0.43
4:D:99:GLU:HG2	4:D:100:GLU:HG3	2.01	0.43
6:U:102:GLU:O	6:U:105:MET:HB2	2.18	0.43
3:5:148:LYS:O	3:5:150:ARG:NH1	2.52	0.42
4:A:18:LYS:HG2	4:A:30:VAL:HG22	2.01	0.42
3:6:58:ARG:HA	3:6:59:PRO:HD3	1.81	0.42
4:A:220:ALA:O	4:A:312:ARG:NH1	2.49	0.42
4:E:287:VAL:HG13	4:G:244:ASP:HB2	2.00	0.42
4:K:142:LEU:HB2	4:K:152:VAL:HG11	2.01	0.42
4:K:153:MET:HE1	4:K:274:ILE:HD12	2.00	0.42
5:R:149:LEU:O	5:R:153:ILE:HG12	2.19	0.42
4:E:113:LYS:HG2	4:E:371:HIS:CE1	2.54	0.42
4:G:270:GLU:OE1	4:H:39:ARG:NH1	2.53	0.42
2:3:253:VAL:HG22	2:3:309:LEU:HD12	2.00	0.42
4:G:86:TRP:HH2	4:G:119:MET:HG2	1.83	0.42
4:G:113:LYS:HG2	4:G:371:HIS:CE1	2.55	0.42
2:3:243:LEU:HB3	2:3:256:MET:HE1	2.01	0.42
4:G:116:ARG:NH2	4:G:375:PHE:O	2.40	0.42
5:S:98:GLU:OE2	5:S:98:GLU:N	2.52	0.42
2:3:143:LEU:HD22	2:3:368:LEU:HD12	2.01	0.42
3:5:46:ALA:O	5:N:52:ARG:NH1	2.52	0.42
4:A:333:PRO:HG2	6:U:15:ARG:HH22	1.84	0.42
4:H:153:MET:HE2	4:H:313:MET:HE2	2.01	0.42
4:K:131:ALA:HB1	4:K:356:TRP:HB3	2.01	0.42
6:U:12:ARG:HA	6:U:15:ARG:HD2	2.01	0.42
1:2:176:GLU:CD	1:2:177:GLN:H	2.27	0.42
4:G:142:LEU:HD12	4:G:142:LEU:HA	1.92	0.42
6:U:37:TYR:CZ	6:U:41:LEU:HD11	2.55	0.42
1:2:184:PRO:HG3	1:2:212:THR:HG21	2.02	0.42
2:4:256:MET:SD	2:4:256:MET:N	2.92	0.42
3:6:62:MET:HE1	4:F:25:ASP:HB2	2.01	0.42
4:I:25:ASP:OD1	4:I:25:ASP:N	2.50	0.42
6:U:199:ALA:HA	6:U:202:ARG:HE	1.84	0.42
4:J:54:VAL:O	5:T:132:ASN:ND2	2.53	0.42
4:J:275:HIS:CD2	4:J:316:GLU:HB3	2.55	0.42
4:I:153:MET:HG3	4:I:162:THR:HG22	2.02	0.41
4:K:298:VAL:HG12	4:K:330:ILE:HB	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:M:133:MET:HE2	5:M:149:LEU:HB2	2.03	0.41
5:P:90:LYS:HA	5:P:93:GLU:HB2	2.02	0.41
4:I:80:ASP:O	4:I:84:LYS:HG3	2.20	0.41
4:J:294:TYR:HB2	4:J:325:MET:HE2	2.02	0.41
5:N:68:LEU:HD23	5:N:68:LEU:HA	1.92	0.41
8:Y:183:VAL:O	8:Y:216:TYR:OH	2.32	0.41
2:3:499:ARG:HH21	2:3:503:ARG:NH2	2.18	0.41
1:9:62:LEU:HD21	4:K:348:SER:HB3	2.01	0.41
4:B:237:GLU:HA	4:B:251:GLY:HA2	2.01	0.41
4:D:62:ARG:HH11	4:D:207:GLU:HB2	1.85	0.41
4:G:44:MET:HE2	4:G:44:MET:HB3	1.92	0.41
4:J:57:GLU:HB2	5:T:132:ASN:HD21	1.85	0.41
4:K:98:PRO:HB2	4:K:127:PHE:HB3	2.02	0.41
5:Q:33:ASP:OD1	5:Q:34:ASN:N	2.53	0.41
1:1:155:LEU:HD11	1:1:380:LEU:HB3	2.02	0.41
3:5:59:PRO:HA	3:5:62:MET:HE3	2.03	0.41
4:H:200:PHE:HD1	4:H:205:GLU:HG2	1.85	0.41
2:3:261:PHE:HB2	2:3:287:LEU:HD22	2.01	0.41
3:6:148:LYS:HD2	3:6:148:LYS:HA	1.83	0.41
3:7:164:GLU:HA	3:7:167:ILE:HG22	2.02	0.41
4:E:222:ASP:HB3	4:E:225:GLN:HB3	2.02	0.41
4:F:71:ILE:HG12	4:F:76:VAL:HG22	2.03	0.41
4:I:188:TYR:HB2	4:I:267:LEU:HD21	2.02	0.41
9:Z:11:SER:O	9:Z:17:LYS:NZ	2.43	0.41
3:7:165:ASP:O	3:7:169:GLU:HG3	2.21	0.41
4:B:107:GLU:OE2	4:B:116:ARG:NE	2.54	0.41
4:G:39:ARG:HB3	4:G:66:THR:HG23	2.03	0.41
4:H:62:ARG:HH11	4:H:207:GLU:HB2	1.86	0.41
4:H:153:MET:HE3	4:H:299:LEU:HD22	2.01	0.41
4:B:44:MET:HE3	4:B:44:MET:HA	2.02	0.41
4:J:34:ILE:HD11	4:J:59:GLN:HB2	2.03	0.41
4:K:105:LEU:HD12	4:K:132:MET:HE2	2.03	0.41
4:B:305:MET:SD	4:B:336:LYS:HB2	2.59	0.41
4:B:306:TYR:HB2	4:B:309:ILE:HD11	2.02	0.41
4:D:25:ASP:OD1	4:D:25:ASP:N	2.49	0.41
4:E:153:MET:HE1	4:E:274:ILE:HD12	2.02	0.41
4:J:285:CYS:HB3	4:J:289:ILE:HD11	2.02	0.41
1:1:164:LEU:HD23	1:1:164:LEU:HA	1.93	0.41
1:1:380:LEU:HD23	1:1:380:LEU:HA	1.91	0.41
1:2:155:LEU:HD12	1:2:384:LEU:HD11	2.03	0.41
2:4:375:LEU:HD23	2:4:377:TYR:HE1	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:44:MET:HE2	4:H:44:MET:HB3	1.96	0.41
4:K:8:LEU:O	4:K:104:LEU:N	2.47	0.41
4:K:176:LEU:HD23	4:K:176:LEU:HA	1.84	0.41
4:K:326:LYS:HE2	4:K:328:LYS:HD2	2.01	0.41
5:P:147:LEU:HD23	5:P:147:LEU:HA	1.92	0.41
5:T:123:LEU:HD23	5:T:123:LEU:HA	1.88	0.41
6:U:27:ARG:HE	7:V:28:ALA:HB1	1.85	0.41
1:1:237:VAL:HG22	1:1:307:VAL:HG12	2.03	0.41
1:2:297:LEU:HB3	1:2:305:VAL:HG13	2.03	0.41
4:A:21:PHE:HZ	4:A:96:VAL:HG11	1.86	0.41
4:B:79:TRP:CE2	4:B:118:LYS:HG2	2.56	0.41
4:C:14:SER:HB2	4:C:157:ASP:HB3	2.03	0.41
4:I:3:ASP:OD1	4:I:3:ASP:N	2.53	0.41
5:O:123:LEU:HD11	5:O:153:ILE:HD11	2.03	0.41
5:T:73:CYS:HB3	5:T:87:MET:HE1	2.02	0.41
7:V:197:LYS:HA	7:V:197:LYS:HD3	1.81	0.41
4:E:149:THR:HB	4:E:167:GLU:H	1.86	0.40
4:E:270:GLU:OE1	4:F:39:ARG:NH1	2.54	0.40
4:F:87:HIS:HB3	5:P:131:GLU:HG3	2.03	0.40
4:J:95:ARG:HG3	5:T:56:GLN:HE22	1.87	0.40
5:R:68:LEU:HD23	5:R:68:LEU:HA	1.95	0.40
5:S:92:LEU:HD13	5:S:122:PHE:HD2	1.86	0.40
1:1:502:MET:SD	4:I:348:SER:OG	2.68	0.40
1:2:387:LEU:O	2:3:109:PHE:N	2.54	0.40
8:Y:40:ASP:HB3	8:Y:41:ASN:H	1.72	0.40
1:9:47:GLN:HG2	6:U:202:ARG:NH1	2.36	0.40
4:F:137:GLN:HB3	4:F:339:VAL:HG21	2.02	0.40
4:G:99:GLU:H	4:G:99:GLU:HG2	1.67	0.40
4:H:112:PRO:HG3	4:I:197:GLY:HA2	2.03	0.40
8:Y:168:THR:HG22	8:Y:170:TYR:H	1.85	0.40
1:2:124:VAL:HG12	1:2:125:THR:HG23	2.03	0.40
1:2:250:ALA:O	2:4:330:ILE:HG12	2.22	0.40
4:E:54:VAL:HB	5:O:132:ASN:HD22	1.86	0.40
5:O:60:PHE:HB3	5:O:150:ILE:HG21	2.03	0.40
5:R:123:LEU:HD13	5:R:130:LEU:HD11	2.04	0.40
6:U:105:MET:HE1	7:V:105:MET:N	2.37	0.40
1:2:263:LEU:HD23	1:2:263:LEU:HA	1.84	0.40
1:9:58:VAL:HA	4:K:345:ILE:HD11	2.02	0.40
4:B:193:LEU:HD23	4:B:193:LEU:HA	1.94	0.40
4:B:213:LYS:NZ	10:B:401:ADP:O2'	2.43	0.40
4:D:143:TYR:OH	4:F:45:VAL:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:16:MET:HG2	4:F:32:PRO:HA	2.02	0.40
4:G:9:VAL:HG21	4:G:344:SER:HA	2.02	0.40
7:V:245:LEU:HD23	7:V:245:LEU:HA	1.92	0.40
8:Y:298:VAL:O	8:Y:302:ILE:HD12	2.21	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	1	328/744 (44%)	319 (97%)	9 (3%)	0	100	100
1	2	286/744 (38%)	273 (96%)	13 (4%)	0	100	100
1	9	60/744 (8%)	57 (95%)	3 (5%)	0	100	100
2	3	334/724 (46%)	322 (96%)	12 (4%)	0	100	100
2	4	258/724 (36%)	249 (96%)	9 (4%)	0	100	100
3	5	113/405 (28%)	108 (96%)	5 (4%)	0	100	100
3	6	113/405 (28%)	106 (94%)	7 (6%)	0	100	100
3	7	110/405 (27%)	104 (94%)	6 (6%)	0	100	100
4	A	372/375 (99%)	359 (96%)	13 (4%)	0	100	100
4	B	372/375 (99%)	365 (98%)	7 (2%)	0	100	100
4	C	372/375 (99%)	364 (98%)	8 (2%)	0	100	100
4	D	372/375 (99%)	364 (98%)	8 (2%)	0	100	100
4	E	372/375 (99%)	362 (97%)	10 (3%)	0	100	100
4	F	372/375 (99%)	362 (97%)	10 (3%)	0	100	100
4	G	372/375 (99%)	368 (99%)	4 (1%)	0	100	100
4	H	372/375 (99%)	363 (98%)	9 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	I	372/375 (99%)	365 (98%)	7 (2%)	0	100	100
4	J	369/375 (98%)	359 (97%)	10 (3%)	0	100	100
4	K	369/375 (98%)	359 (97%)	10 (3%)	0	100	100
5	M	128/2148 (6%)	125 (98%)	3 (2%)	0	100	100
5	N	115/2148 (5%)	113 (98%)	2 (2%)	0	100	100
5	O	129/2148 (6%)	128 (99%)	1 (1%)	0	100	100
5	P	115/2148 (5%)	111 (96%)	4 (4%)	0	100	100
5	Q	127/2148 (6%)	123 (97%)	4 (3%)	0	100	100
5	R	115/2148 (5%)	113 (98%)	2 (2%)	0	100	100
5	S	126/2148 (6%)	124 (98%)	2 (2%)	0	100	100
5	T	126/2148 (6%)	125 (99%)	1 (1%)	0	100	100
6	U	245/248 (99%)	245 (100%)	0	0	100	100
7	V	244/248 (98%)	244 (100%)	0	0	100	100
8	Y	270/359 (75%)	260 (96%)	10 (4%)	0	100	100
9	Z	96/107 (90%)	93 (97%)	3 (3%)	0	100	100
All	All	7524/27166 (28%)	7332 (97%)	192 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1	280/626 (45%)	280 (100%)	0	100	100
1	2	239/626 (38%)	239 (100%)	0	100	100
1	9	59/626 (9%)	59 (100%)	0	100	100
2	3	292/637 (46%)	292 (100%)	0	100	100
2	4	224/637 (35%)	224 (100%)	0	100	100
3	5	109/364 (30%)	109 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	6	100/364 (28%)	100 (100%)	0	100	100
3	7	106/364 (29%)	106 (100%)	0	100	100
4	A	317/318 (100%)	317 (100%)	0	100	100
4	B	317/318 (100%)	317 (100%)	0	100	100
4	C	317/318 (100%)	317 (100%)	0	100	100
4	D	317/318 (100%)	317 (100%)	0	100	100
4	E	317/318 (100%)	317 (100%)	0	100	100
4	F	317/318 (100%)	317 (100%)	0	100	100
4	G	317/318 (100%)	317 (100%)	0	100	100
4	H	317/318 (100%)	317 (100%)	0	100	100
4	I	317/318 (100%)	317 (100%)	0	100	100
4	J	314/318 (99%)	314 (100%)	0	100	100
4	K	314/318 (99%)	314 (100%)	0	100	100
5	M	119/1870 (6%)	119 (100%)	0	100	100
5	N	107/1870 (6%)	107 (100%)	0	100	100
5	O	120/1870 (6%)	120 (100%)	0	100	100
5	P	107/1870 (6%)	107 (100%)	0	100	100
5	Q	118/1870 (6%)	118 (100%)	0	100	100
5	R	107/1870 (6%)	107 (100%)	0	100	100
5	S	117/1870 (6%)	117 (100%)	0	100	100
5	T	117/1870 (6%)	117 (100%)	0	100	100
6	U	213/214 (100%)	213 (100%)	0	100	100
7	V	215/216 (100%)	215 (100%)	0	100	100
8	Y	223/318 (70%)	223 (100%)	0	100	100
9	Z	89/96 (93%)	89 (100%)	0	100	100
All	All	6542/23546 (28%)	6542 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (56) such sidechains are listed below:

Mol	Chain	Res	Type
1	1	128	ASN

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Mol	Chain	Res	Type
1	1	239	HIS
1	1	241	HIS
1	1	302	HIS
1	2	328	GLN
2	3	273	ASN
2	3	289	ASN
2	3	308	HIS
2	3	310	GLN
2	3	394	HIS
2	3	500	ASN
2	4	328	ASN
2	4	337	HIS
3	6	149	GLN
1	9	50	ASN
4	A	40	HIS
4	A	41	GLN
4	A	275	HIS
4	A	296	ASN
4	A	353	GLN
4	A	354	GLN
4	B	121	GLN
4	B	246	GLN
4	B	353	GLN
4	B	354	GLN
4	C	161	HIS
4	C	246	GLN
4	C	296	ASN
4	C	353	GLN
4	D	40	HIS
4	E	41	GLN
4	E	354	GLN
4	F	41	GLN
4	G	12	ASN
4	G	115	ASN
4	H	115	ASN
4	I	87	HIS
4	I	88	HIS
4	I	92	ASN
4	J	115	ASN
4	J	128	ASN
4	J	280	ASN
5	O	67	HIS

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Mol	Chain	Res	Type
5	R	129	HIS
5	S	67	HIS
5	S	129	HIS
5	S	132	ASN
5	S	158	GLN
5	T	34	ASN
7	V	44	GLN
7	V	117	HIS
7	V	235	GLN
8	Y	223	ASN
8	Y	290	GLN
8	Y	318	HIS
8	Y	334	ASN

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

11 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
10	ADP	G	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.51	4 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
10	ADP	I	401	-	24,29,29	0.95	1 (4%)	29,45,45	1.46	4 (13%)
10	ADP	C	401	-	24,29,29	0.96	1 (4%)	29,45,45	1.51	4 (13%)
10	ADP	J	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.48	4 (13%)
10	ADP	K	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.45	4 (13%)
10	ADP	H	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.46	4 (13%)
10	ADP	A	401	-	24,29,29	0.96	1 (4%)	29,45,45	1.44	4 (13%)
10	ADP	D	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.51	4 (13%)
10	ADP	F	401	-	24,29,29	0.95	1 (4%)	29,45,45	1.47	4 (13%)
10	ADP	E	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.50	4 (13%)
10	ADP	B	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.48	4 (13%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	ADP	G	401	-	-	4/12/32/32	0/3/3/3
10	ADP	I	401	-	-	5/12/32/32	0/3/3/3
10	ADP	C	401	-	-	4/12/32/32	0/3/3/3
10	ADP	J	401	-	-	5/12/32/32	0/3/3/3
10	ADP	K	401	-	-	5/12/32/32	0/3/3/3
10	ADP	H	401	-	-	5/12/32/32	0/3/3/3
10	ADP	A	401	-	-	6/12/32/32	0/3/3/3
10	ADP	D	401	-	-	3/12/32/32	0/3/3/3
10	ADP	F	401	-	-	5/12/32/32	0/3/3/3
10	ADP	E	401	-	-	4/12/32/32	0/3/3/3
10	ADP	B	401	-	-	3/12/32/32	0/3/3/3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	D	401	ADP	C5-C4	2.49	1.47	1.40
10	A	401	ADP	C5-C4	2.48	1.47	1.40
10	F	401	ADP	C5-C4	2.47	1.47	1.40
10	K	401	ADP	C5-C4	2.47	1.47	1.40
10	G	401	ADP	C5-C4	2.47	1.47	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	H	401	ADP	C5-C4	2.47	1.47	1.40
10	C	401	ADP	C5-C4	2.47	1.47	1.40
10	B	401	ADP	C5-C4	2.46	1.47	1.40
10	J	401	ADP	C5-C4	2.45	1.47	1.40
10	E	401	ADP	C5-C4	2.43	1.47	1.40
10	I	401	ADP	C5-C4	2.42	1.47	1.40

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	D	401	ADP	PA-O3A-PB	-3.88	119.53	132.83
10	C	401	ADP	PA-O3A-PB	-3.75	119.95	132.83
10	E	401	ADP	PA-O3A-PB	-3.73	120.03	132.83
10	J	401	ADP	PA-O3A-PB	-3.70	120.11	132.83
10	G	401	ADP	PA-O3A-PB	-3.66	120.26	132.83
10	B	401	ADP	PA-O3A-PB	-3.59	120.50	132.83
10	G	401	ADP	C3'-C2'-C1'	3.58	106.36	100.98
10	F	401	ADP	PA-O3A-PB	-3.53	120.71	132.83
10	I	401	ADP	PA-O3A-PB	-3.51	120.77	132.83
10	F	401	ADP	C3'-C2'-C1'	3.44	106.16	100.98
10	K	401	ADP	PA-O3A-PB	-3.43	121.04	132.83
10	B	401	ADP	C3'-C2'-C1'	3.39	106.08	100.98
10	A	401	ADP	C3'-C2'-C1'	3.39	106.08	100.98
10	E	401	ADP	C3'-C2'-C1'	3.39	106.08	100.98
10	D	401	ADP	C3'-C2'-C1'	3.38	106.07	100.98
10	H	401	ADP	C3'-C2'-C1'	3.37	106.05	100.98
10	K	401	ADP	C3'-C2'-C1'	3.36	106.04	100.98
10	J	401	ADP	C3'-C2'-C1'	3.34	106.00	100.98
10	C	401	ADP	C3'-C2'-C1'	3.31	105.96	100.98
10	H	401	ADP	PA-O3A-PB	-3.31	121.48	132.83
10	C	401	ADP	N3-C2-N1	-3.15	123.76	128.68
10	I	401	ADP	C3'-C2'-C1'	3.13	105.69	100.98
10	D	401	ADP	N3-C2-N1	-3.12	123.80	128.68
10	A	401	ADP	PA-O3A-PB	-3.11	122.14	132.83
10	A	401	ADP	N3-C2-N1	-3.09	123.86	128.68
10	I	401	ADP	N3-C2-N1	-3.08	123.86	128.68
10	G	401	ADP	N3-C2-N1	-3.08	123.86	128.68
10	B	401	ADP	N3-C2-N1	-3.07	123.88	128.68
10	E	401	ADP	N3-C2-N1	-3.05	123.91	128.68
10	H	401	ADP	N3-C2-N1	-3.02	123.95	128.68
10	J	401	ADP	N3-C2-N1	-3.02	123.95	128.68
10	K	401	ADP	N3-C2-N1	-3.02	123.96	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	F	401	ADP	N3-C2-N1	-2.98	124.01	128.68
10	A	401	ADP	C4-C5-N7	-2.60	106.69	109.40
10	D	401	ADP	C4-C5-N7	-2.59	106.70	109.40
10	F	401	ADP	C4-C5-N7	-2.59	106.70	109.40
10	I	401	ADP	C4-C5-N7	-2.56	106.73	109.40
10	H	401	ADP	C4-C5-N7	-2.56	106.73	109.40
10	G	401	ADP	C4-C5-N7	-2.55	106.74	109.40
10	J	401	ADP	C4-C5-N7	-2.54	106.75	109.40
10	B	401	ADP	C4-C5-N7	-2.53	106.76	109.40
10	E	401	ADP	C4-C5-N7	-2.53	106.77	109.40
10	K	401	ADP	C4-C5-N7	-2.51	106.78	109.40
10	C	401	ADP	C4-C5-N7	-2.46	106.83	109.40

There are no chirality outliers.

All (49) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	A	401	ADP	PA-O3A-PB-O3B
10	A	401	ADP	C5'-O5'-PA-O1A
10	A	401	ADP	C5'-O5'-PA-O2A
10	B	401	ADP	C5'-O5'-PA-O1A
10	B	401	ADP	C5'-O5'-PA-O2A
10	C	401	ADP	C5'-O5'-PA-O1A
10	C	401	ADP	C5'-O5'-PA-O2A
10	D	401	ADP	C5'-O5'-PA-O1A
10	D	401	ADP	C5'-O5'-PA-O2A
10	E	401	ADP	C5'-O5'-PA-O1A
10	E	401	ADP	C5'-O5'-PA-O2A
10	F	401	ADP	PA-O3A-PB-O3B
10	F	401	ADP	C5'-O5'-PA-O1A
10	F	401	ADP	C5'-O5'-PA-O2A
10	G	401	ADP	C5'-O5'-PA-O1A
10	G	401	ADP	C5'-O5'-PA-O2A
10	H	401	ADP	PA-O3A-PB-O3B
10	H	401	ADP	C5'-O5'-PA-O1A
10	H	401	ADP	C5'-O5'-PA-O2A
10	I	401	ADP	C5'-O5'-PA-O1A
10	I	401	ADP	C5'-O5'-PA-O2A
10	J	401	ADP	PA-O3A-PB-O3B
10	J	401	ADP	C5'-O5'-PA-O1A
10	J	401	ADP	C5'-O5'-PA-O2A
10	K	401	ADP	C5'-O5'-PA-O1A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
10	K	401	ADP	C5'-O5'-PA-O2A
10	C	401	ADP	PA-O3A-PB-O1B
10	G	401	ADP	PA-O3A-PB-O1B
10	I	401	ADP	PA-O3A-PB-O1B
10	K	401	ADP	PA-O3A-PB-O1B
10	E	401	ADP	PA-O3A-PB-O1B
10	J	401	ADP	PA-O3A-PB-O1B
10	I	401	ADP	PA-O3A-PB-O3B
10	K	401	ADP	PA-O3A-PB-O3B
10	A	401	ADP	PA-O3A-PB-O1B
10	F	401	ADP	PA-O3A-PB-O1B
10	A	401	ADP	PA-O3A-PB-O2B
10	A	401	ADP	C5'-O5'-PA-O3A
10	B	401	ADP	C5'-O5'-PA-O3A
10	C	401	ADP	C5'-O5'-PA-O3A
10	D	401	ADP	C5'-O5'-PA-O3A
10	E	401	ADP	C5'-O5'-PA-O3A
10	F	401	ADP	C5'-O5'-PA-O3A
10	G	401	ADP	C5'-O5'-PA-O3A
10	H	401	ADP	C5'-O5'-PA-O3A
10	I	401	ADP	C5'-O5'-PA-O3A
10	J	401	ADP	C5'-O5'-PA-O3A
10	K	401	ADP	C5'-O5'-PA-O3A
10	H	401	ADP	PA-O3A-PB-O1B

There are no ring outliers.

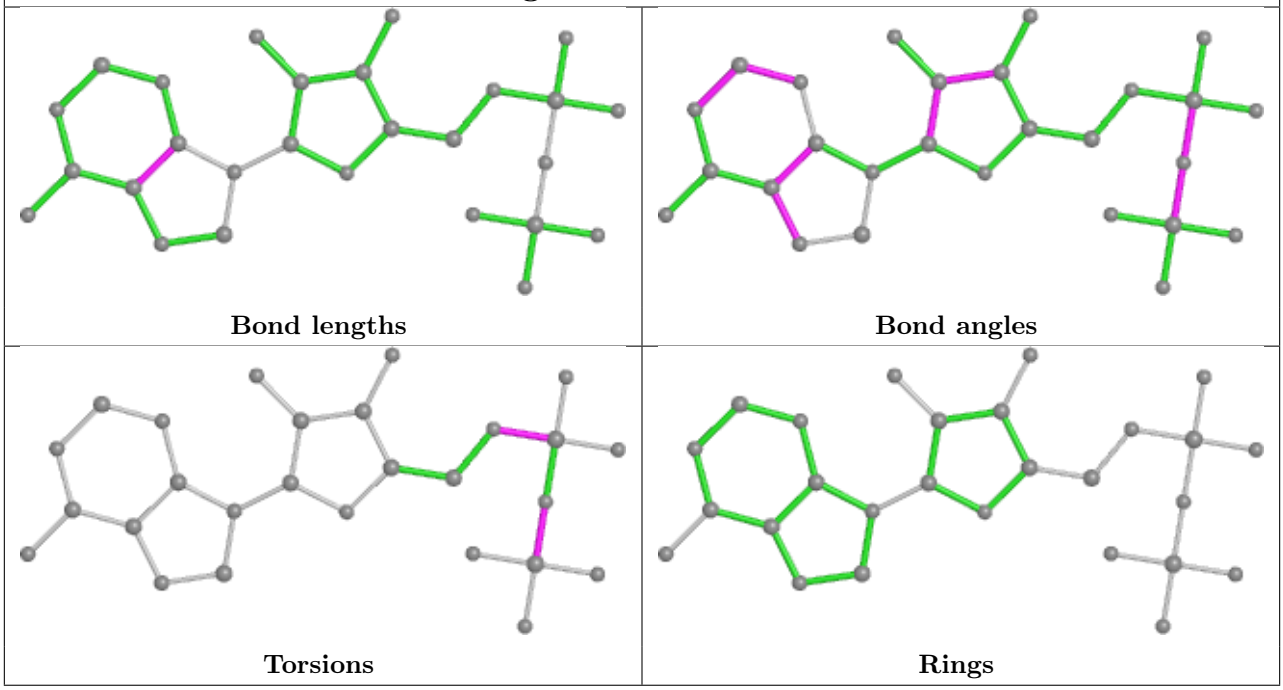
5 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	C	401	ADP	1	0
10	H	401	ADP	1	0
10	A	401	ADP	1	0
10	E	401	ADP	1	0
10	B	401	ADP	1	0

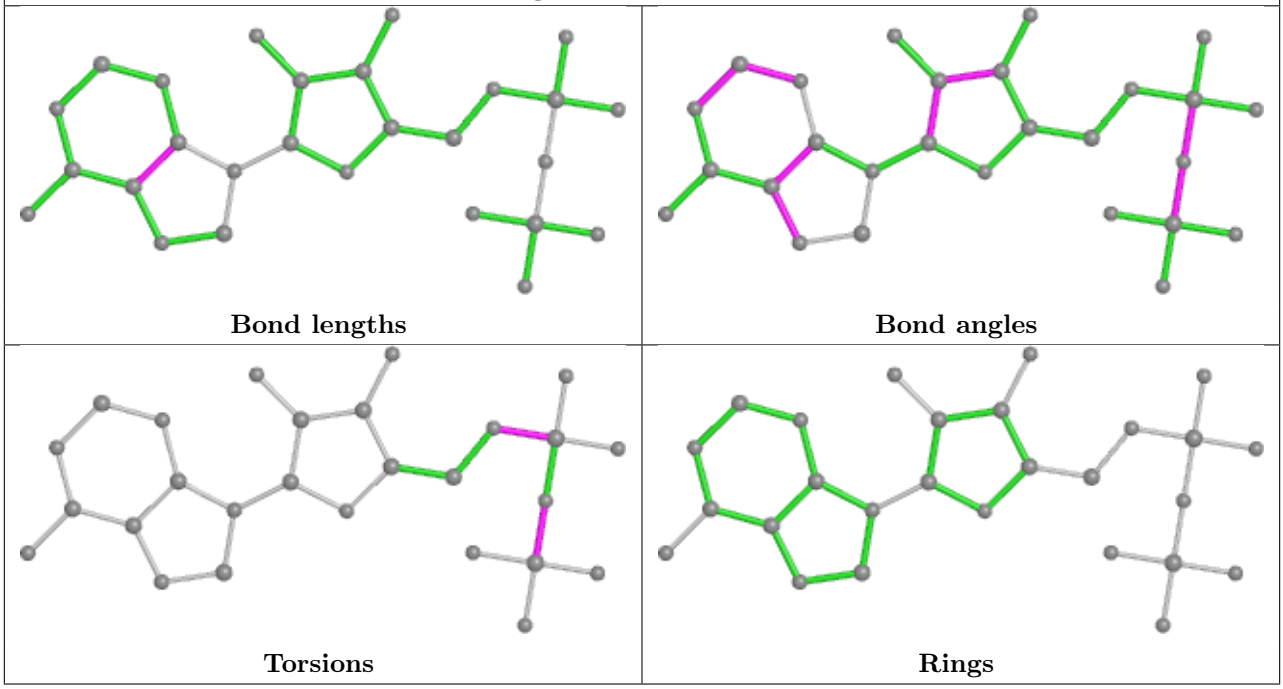
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

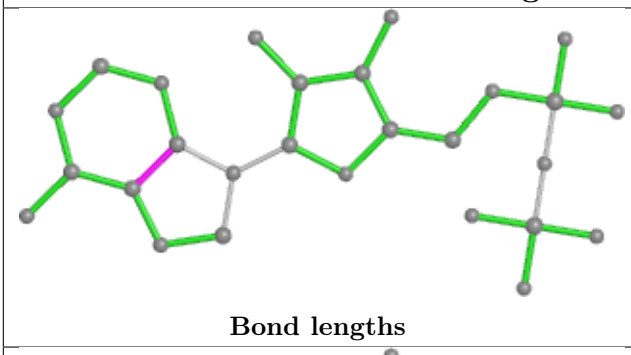
Ligand ADP G 401



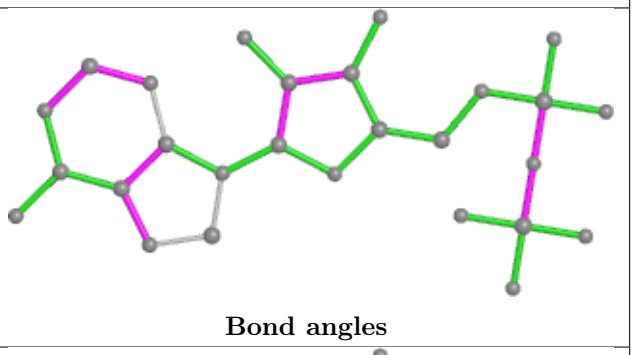
Ligand ADP I 401



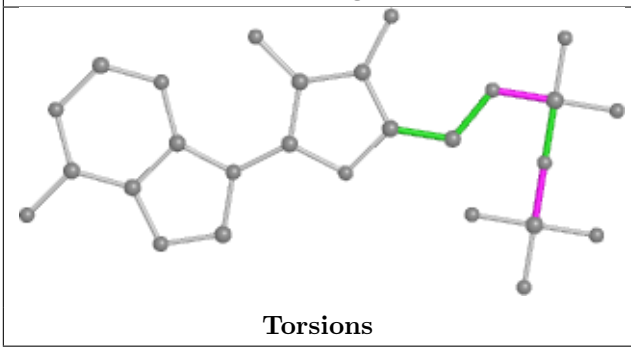
Ligand ADP C 401



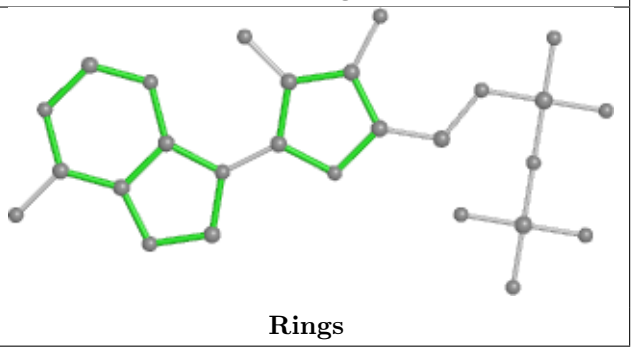
Bond lengths



Bond angles

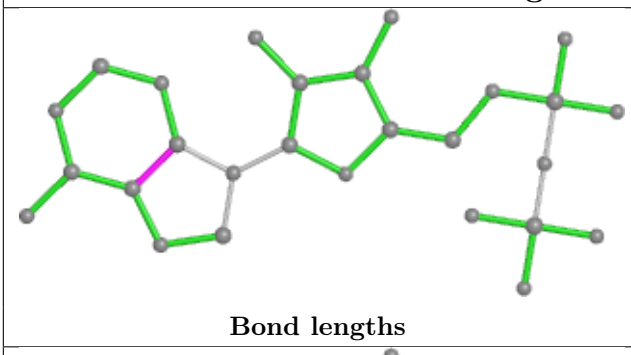


Torsions

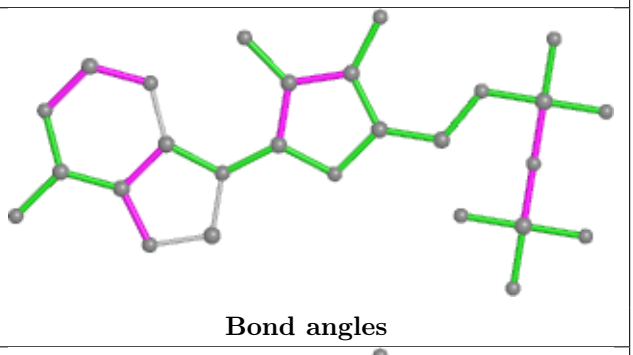


Rings

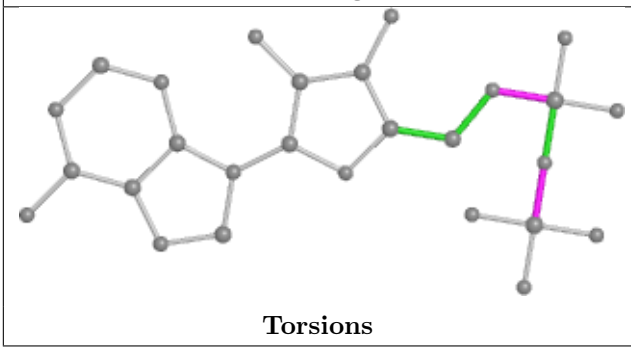
Ligand ADP J 401



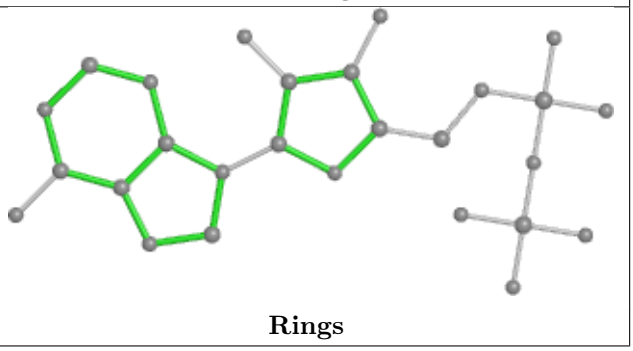
Bond lengths



Bond angles

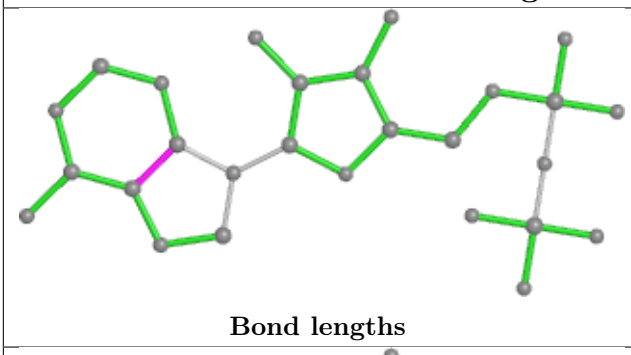


Torsions

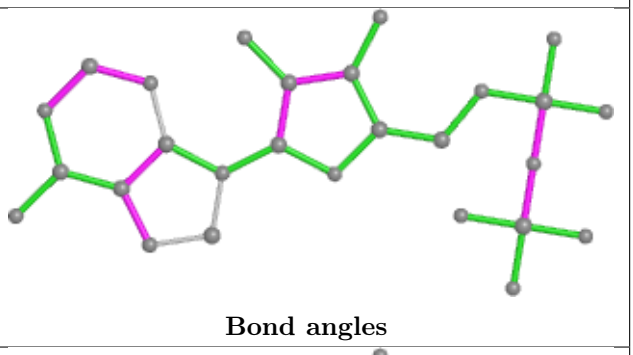


Rings

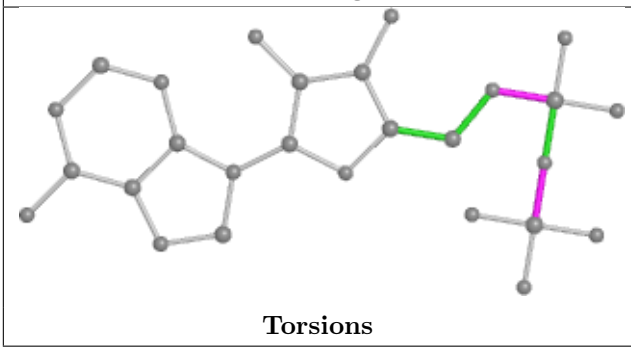
Ligand ADP K 401



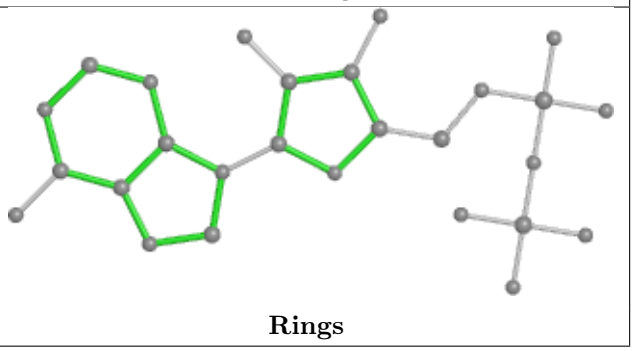
Bond lengths



Bond angles

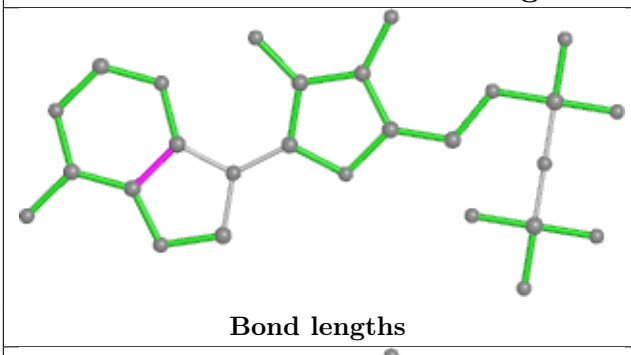


Torsions

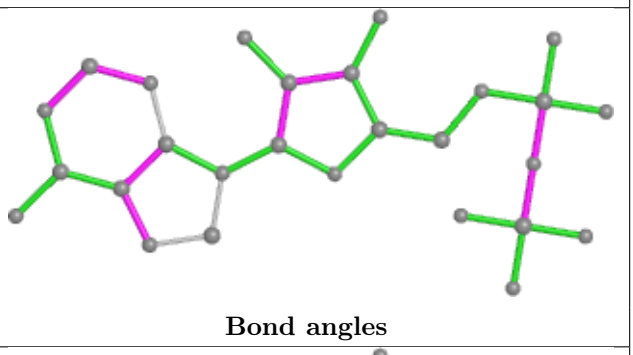


Rings

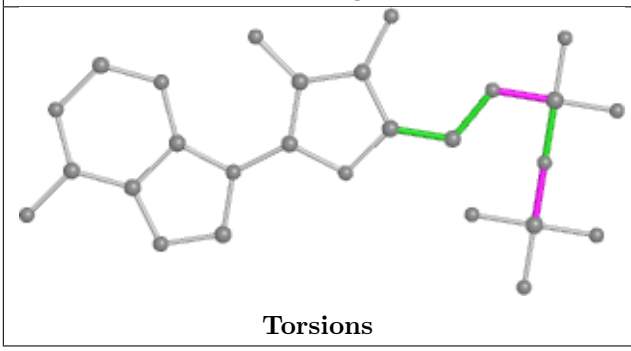
Ligand ADP H 401



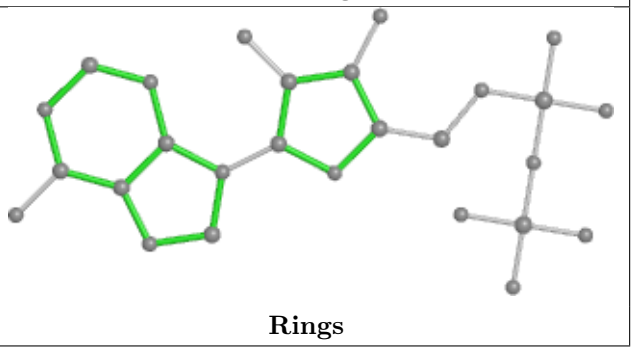
Bond lengths



Bond angles

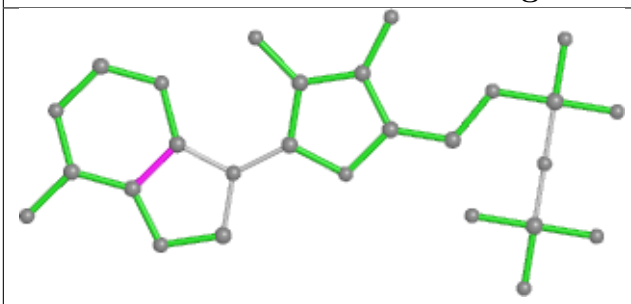


Torsions

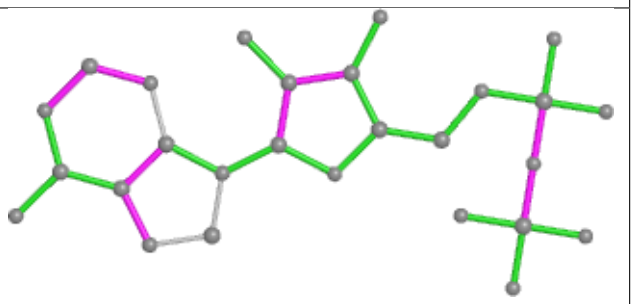


Rings

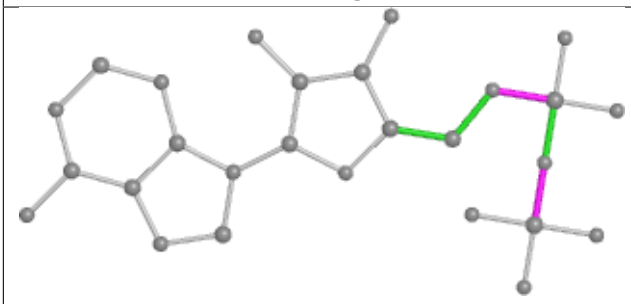
Ligand ADP A 401



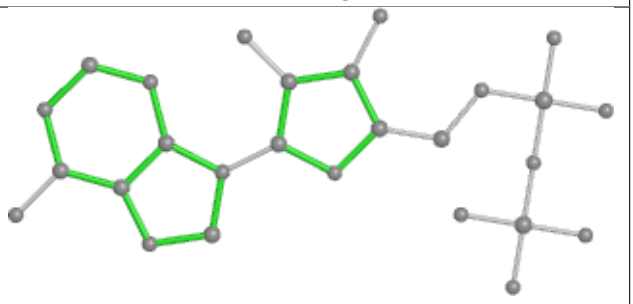
Bond lengths



Bond angles

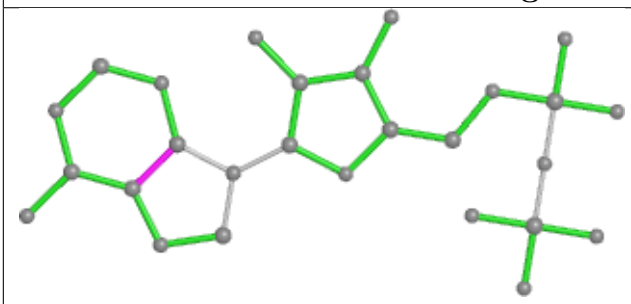


Torsions

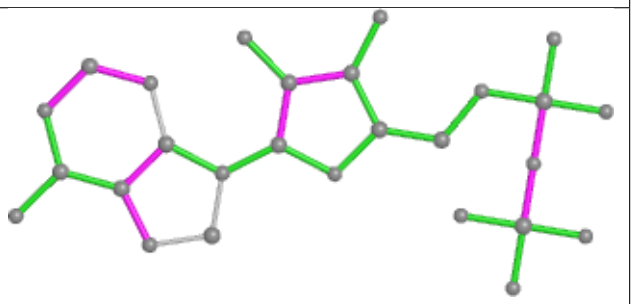


Rings

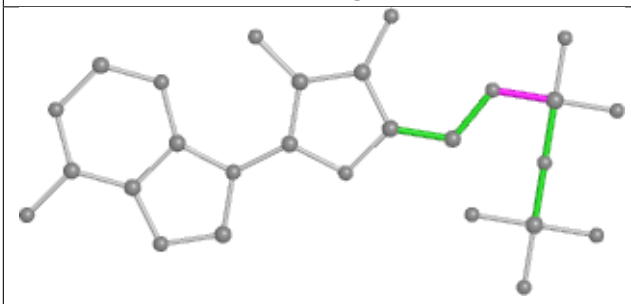
Ligand ADP D 401



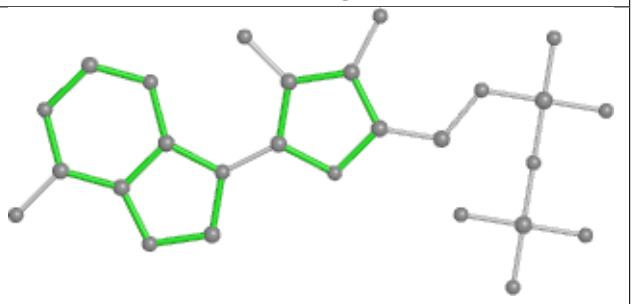
Bond lengths



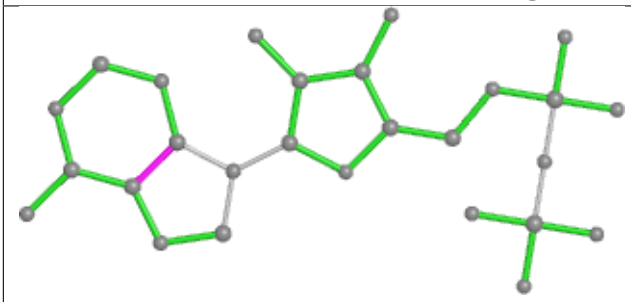
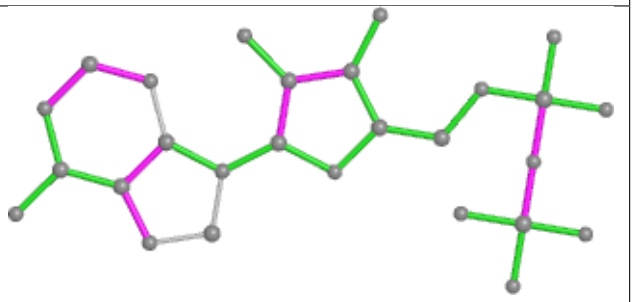
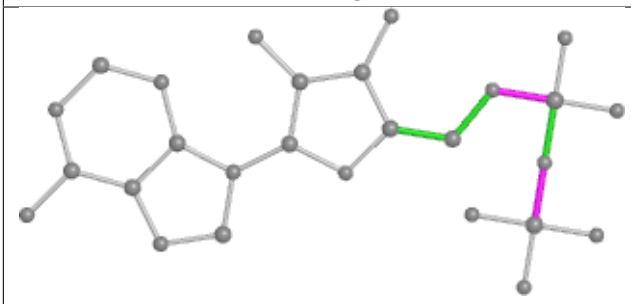
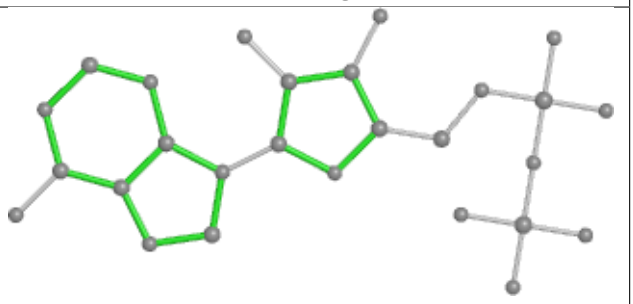
Bond angles

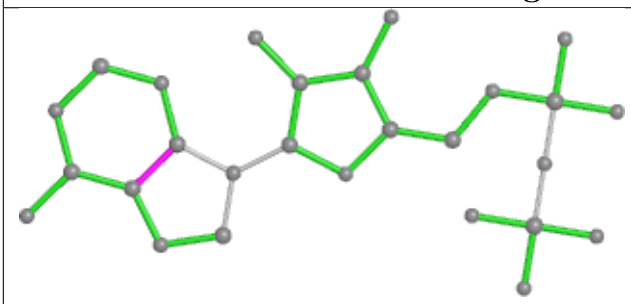
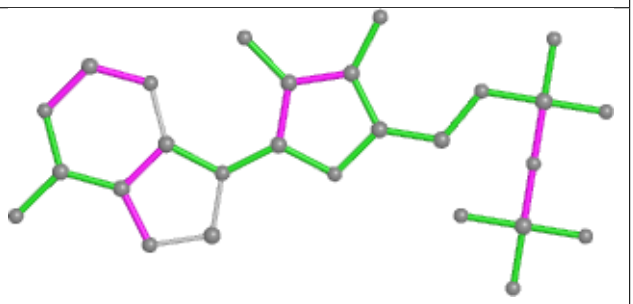
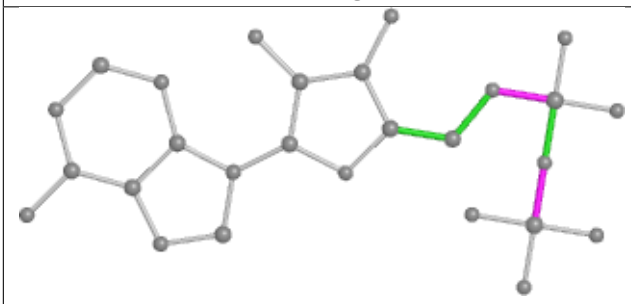
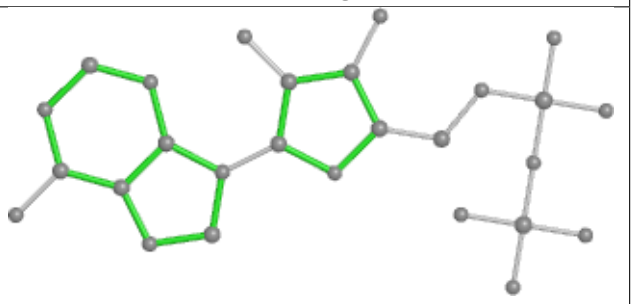


Torsions

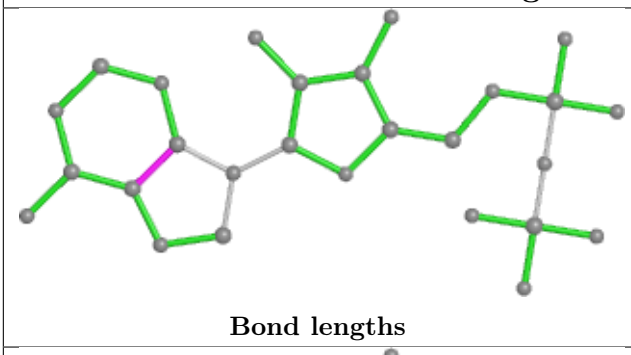


Rings

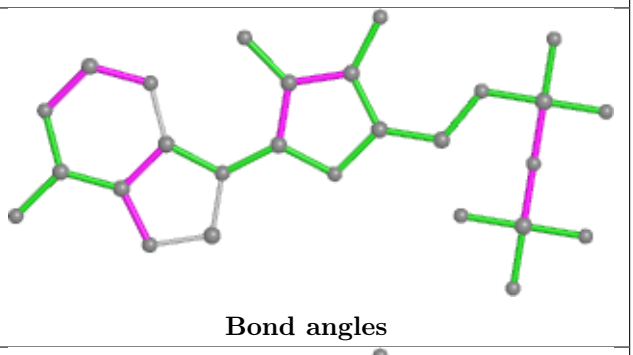
Ligand ADP F 401	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand ADP E 401	
 Bond lengths	 Bond angles
 Torsions	 Rings

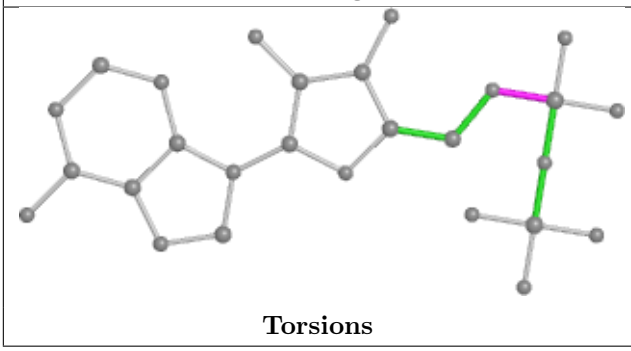
Ligand ADP B 401



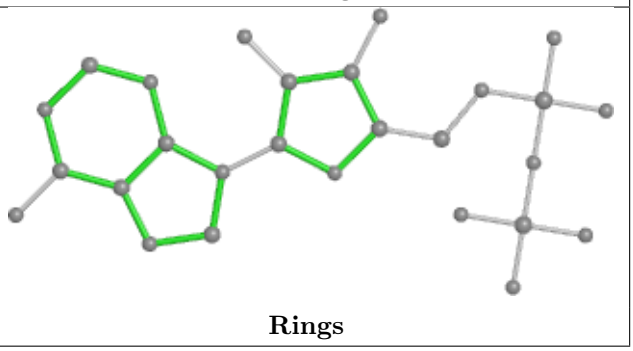
Bond lengths



Bond angles



Torsions



Rings

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.

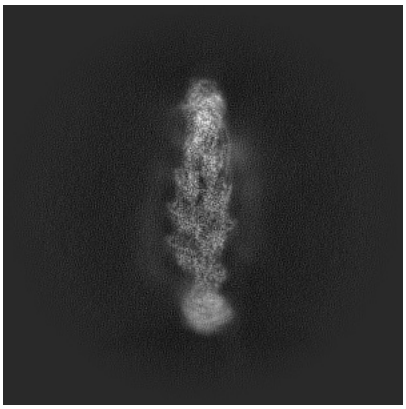
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-35302. These allow visual inspection of the internal detail of the map and identification of artifacts.

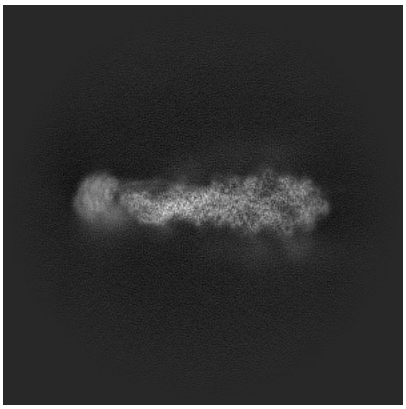
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

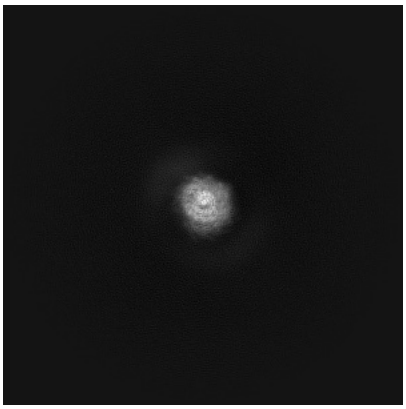
6.1.1 Primary map



X

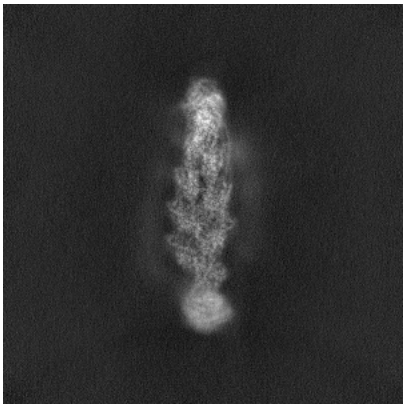


Y

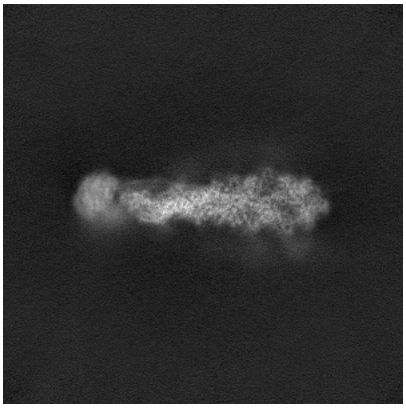


Z

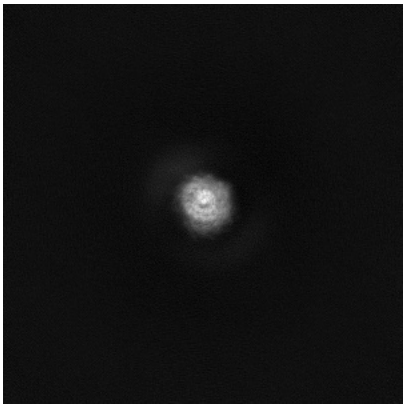
6.1.2 Raw map



X



Y

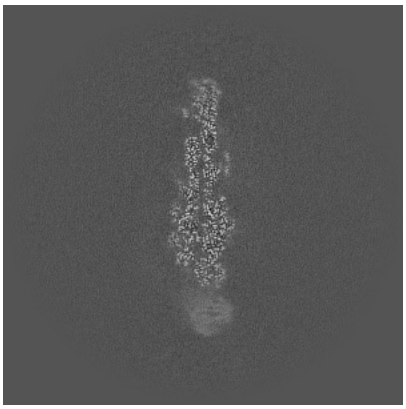


Z

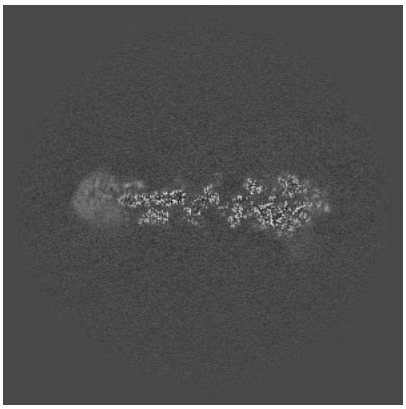
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

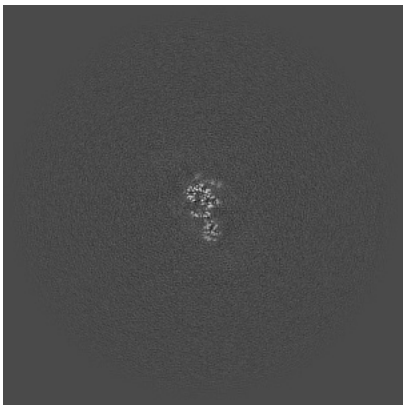
6.2.1 Primary map



X Index: 240

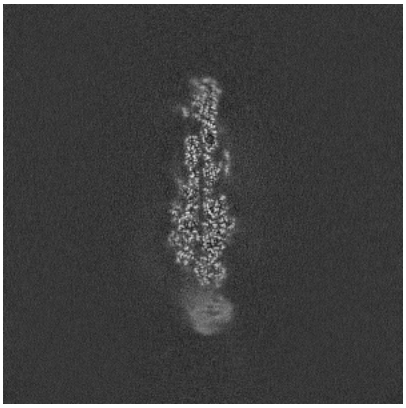


Y Index: 240

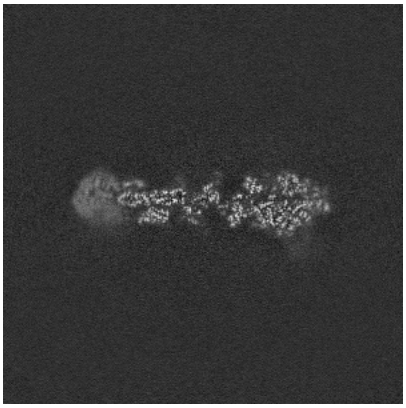


Z Index: 240

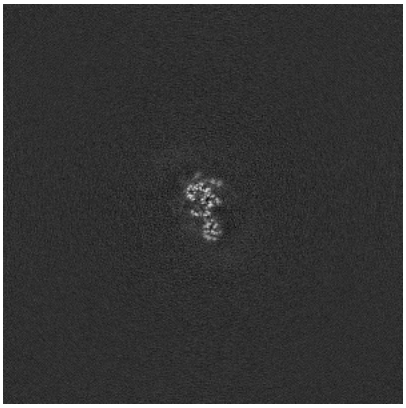
6.2.2 Raw map



X Index: 240



Y Index: 240

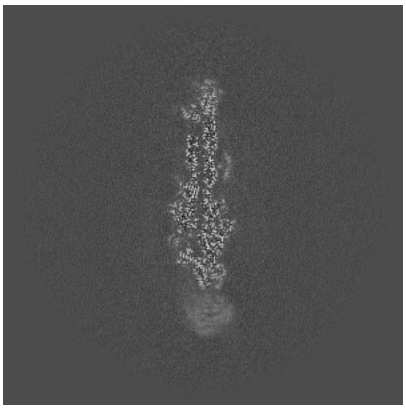


Z Index: 240

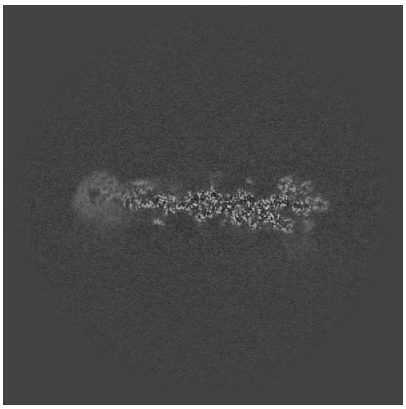
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

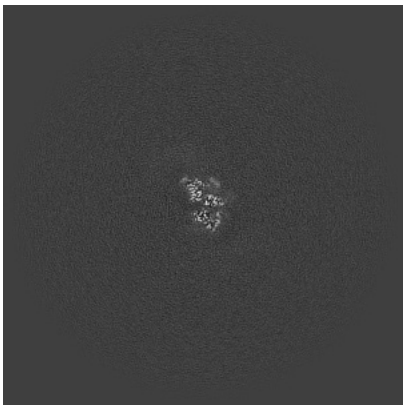
6.3.1 Primary map



X Index: 242

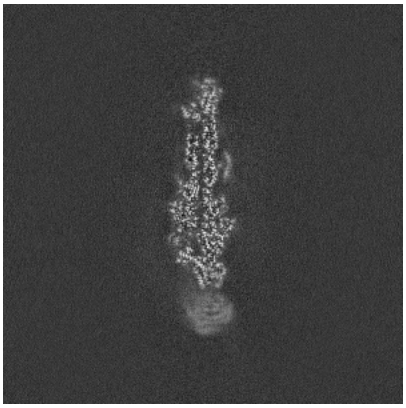


Y Index: 247

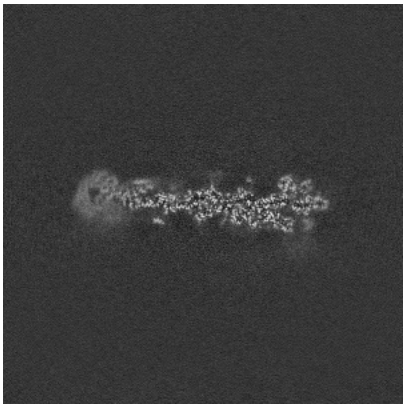


Z Index: 249

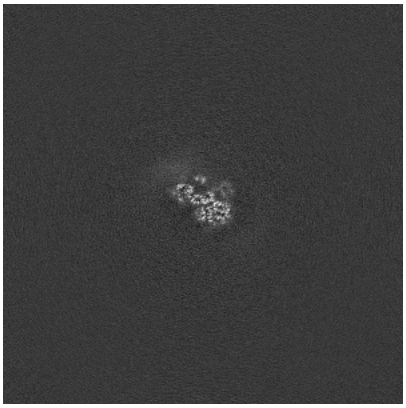
6.3.2 Raw map



X Index: 242



Y Index: 247

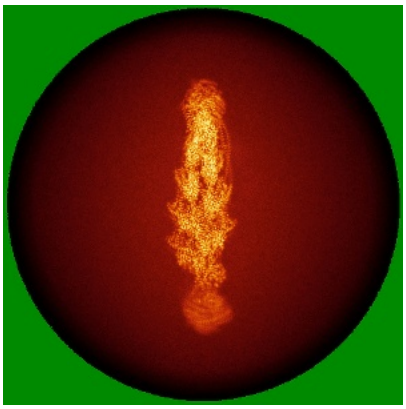


Z Index: 298

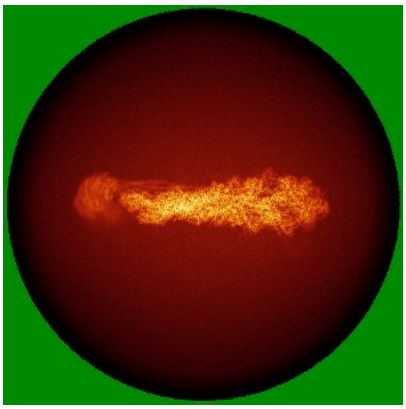
The images above show the largest variance slices of the map in three orthogonal directions.

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

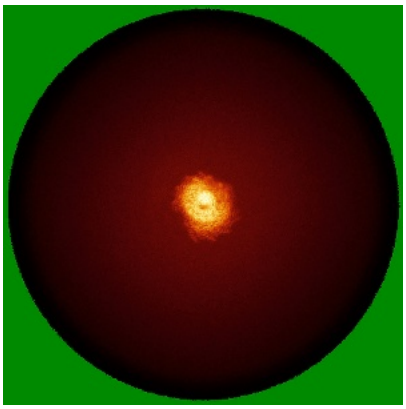
6.4.1 Primary map



X

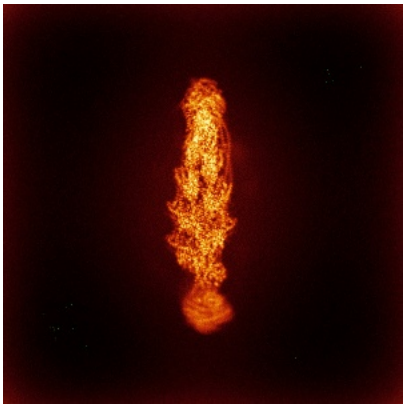


Y

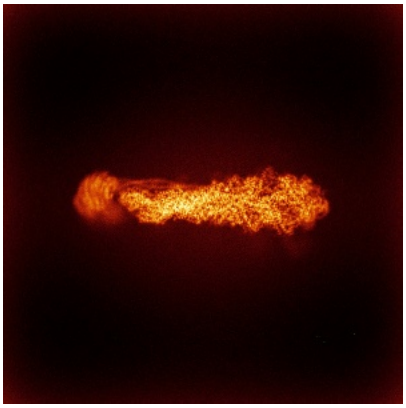


Z

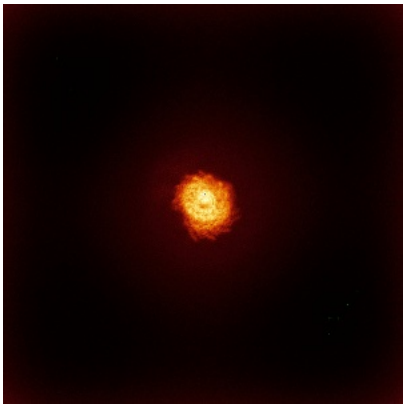
6.4.2 Raw map



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 0.4. 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.

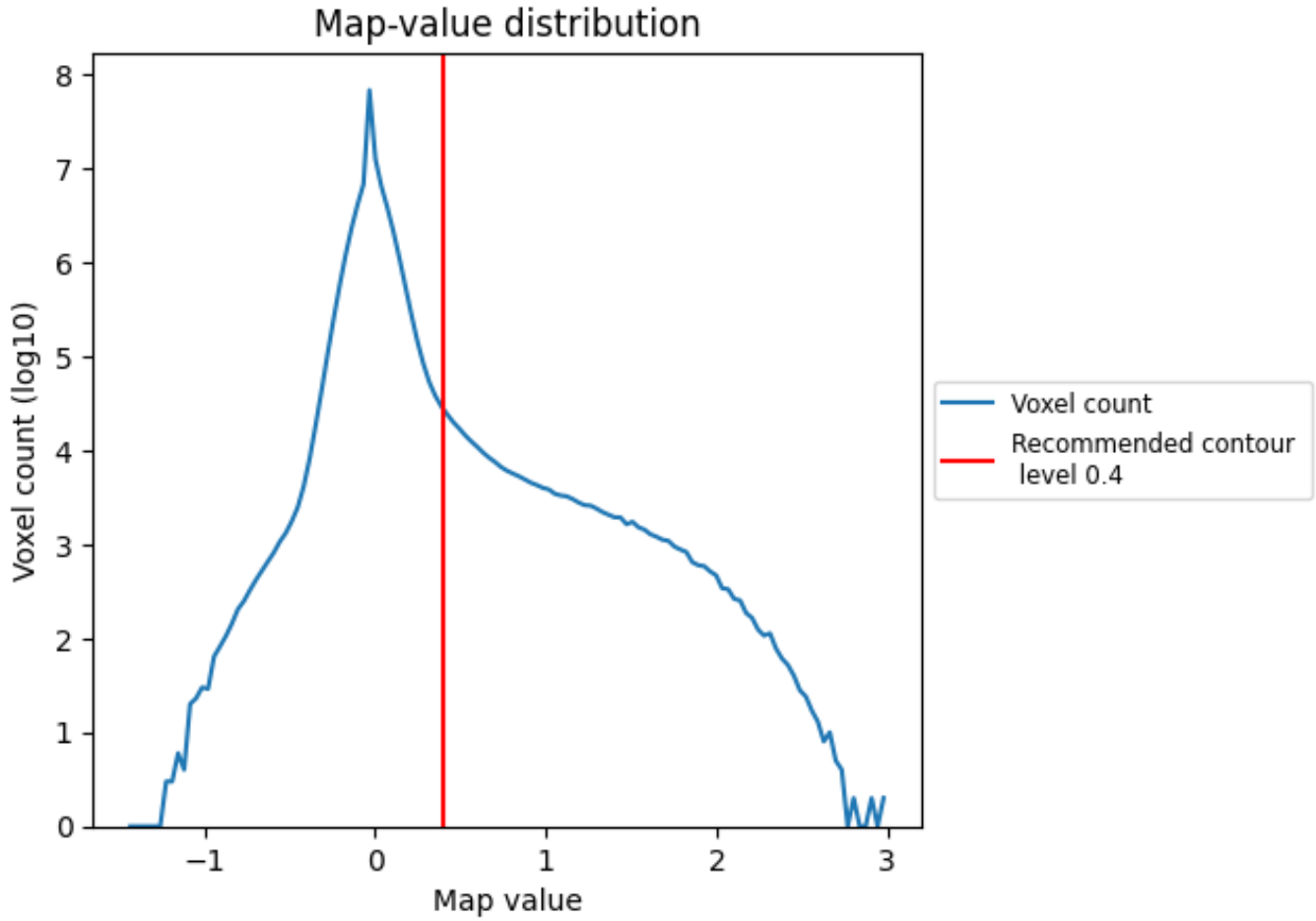
6.6 Mask visualisation (i)

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

7 Map analysis

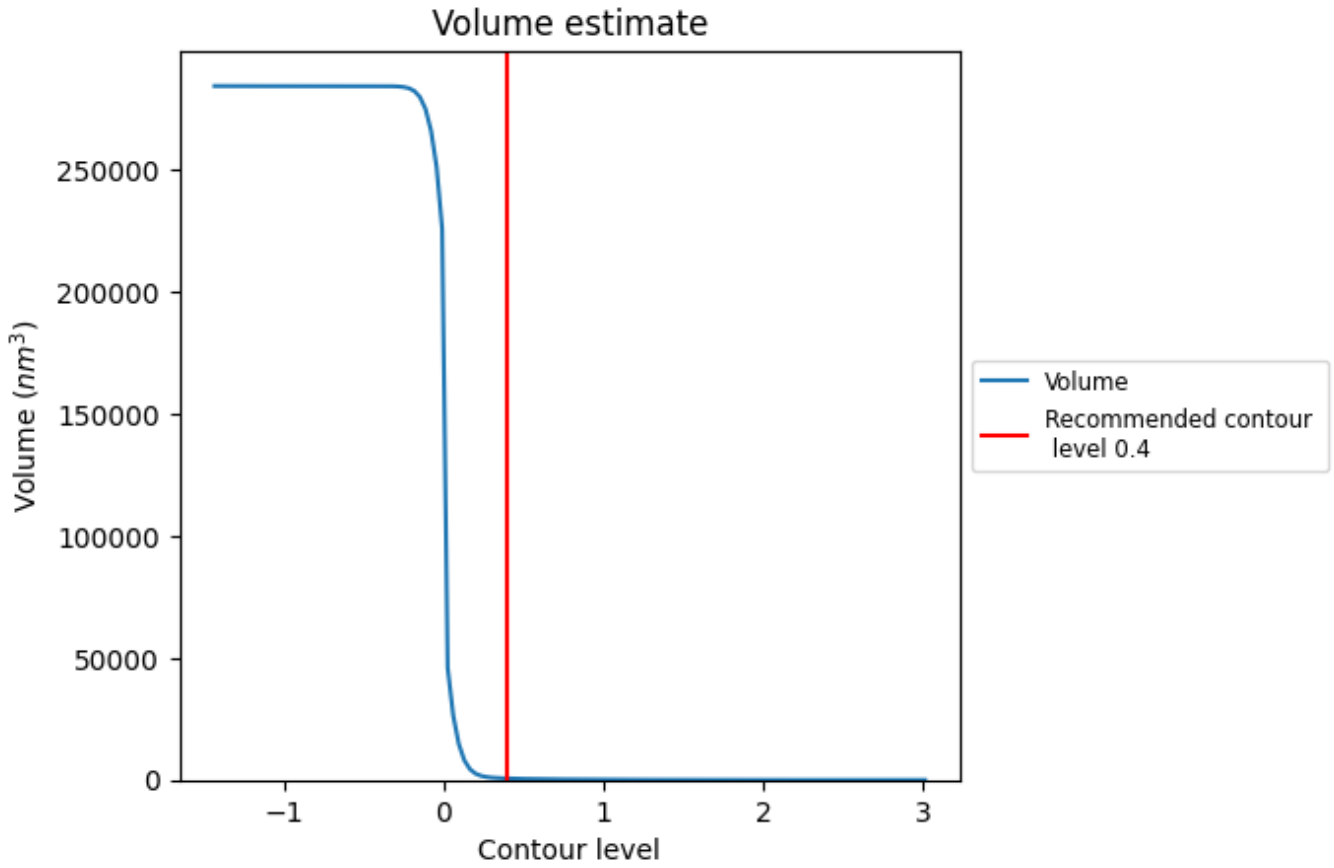
This section contains the results of statistical analysis of the map.

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.

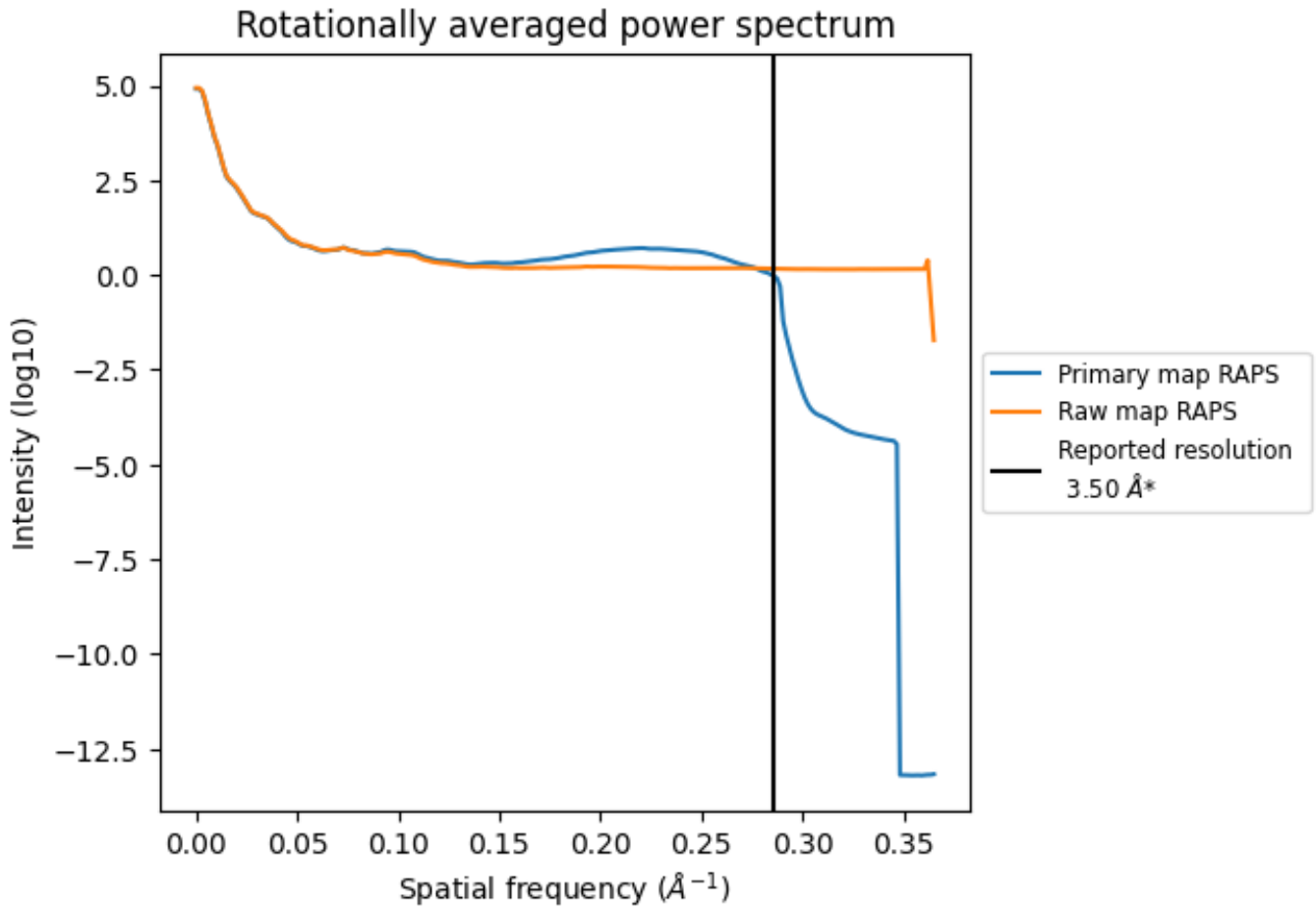
7.2 Volume estimate



The volume at the recommended contour level is 611 nm^3; this corresponds to an approximate mass of 552 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)

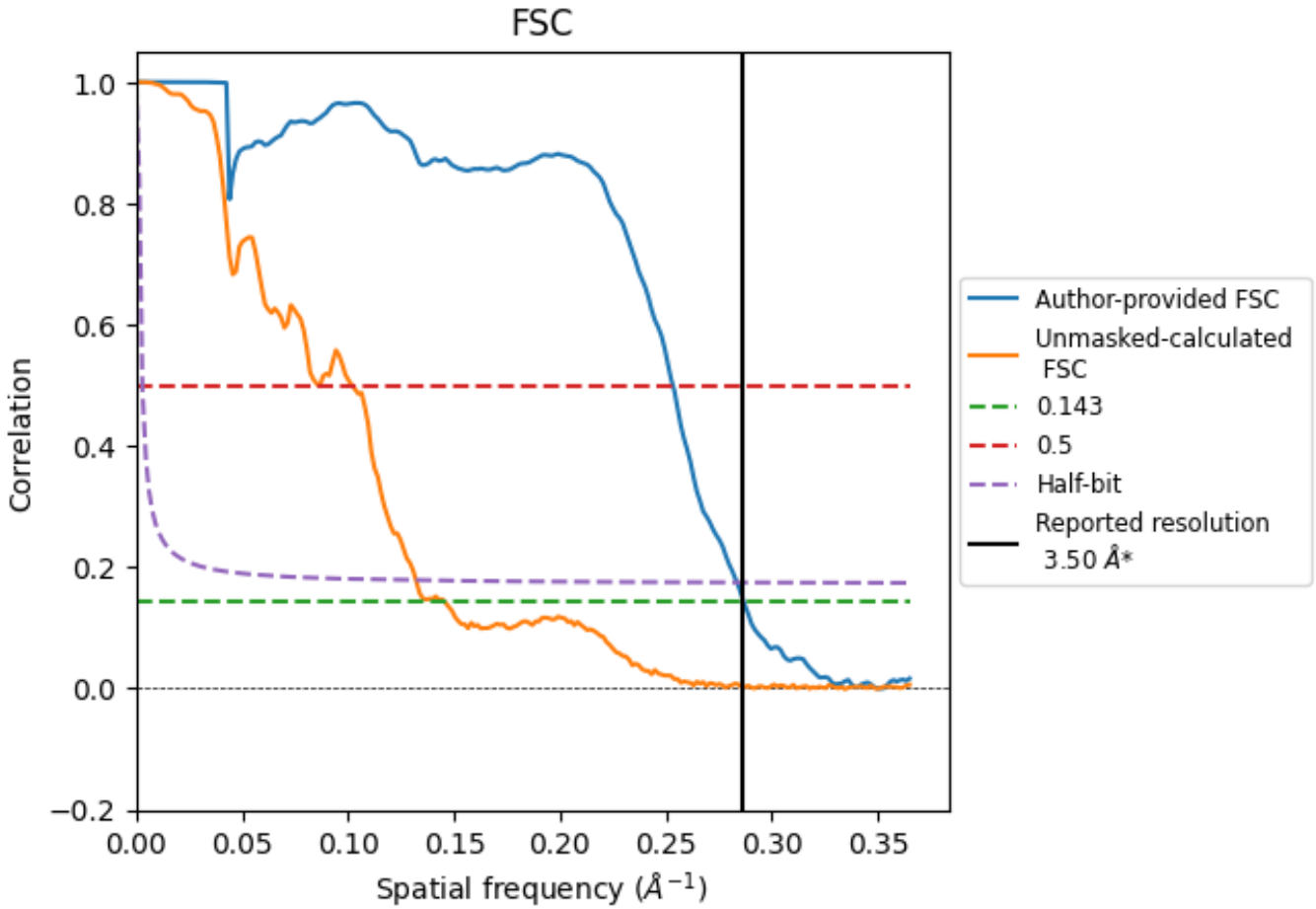


*Reported resolution corresponds to spatial frequency of 0.286 $Å^{-1}$

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 0.286 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.49	3.95	3.53
Unmasked-calculated*	6.87	11.63	7.57

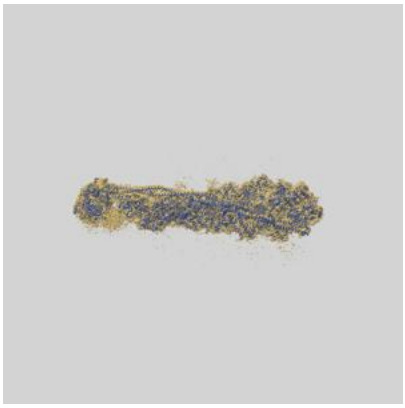
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.87 differs from the reported value 3.5 by more than 10 %

9 Map-model fit

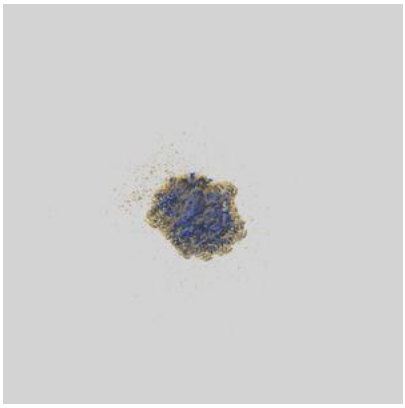
This section contains information regarding the fit between EMDB map EMD-35302 and PDB model 8IAI. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay

X



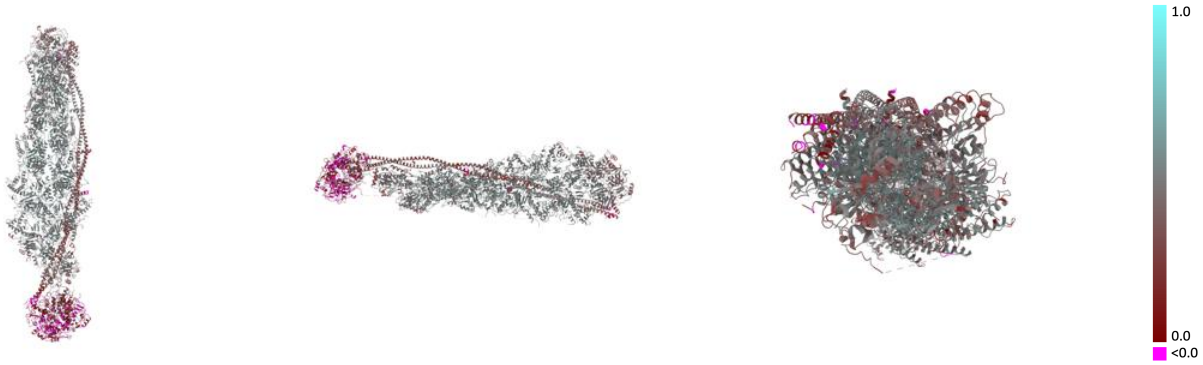
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.4 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.

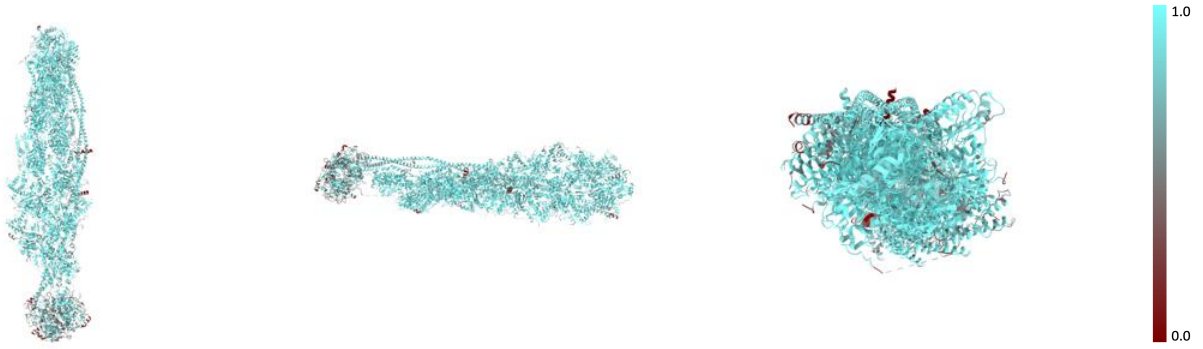
9.2 Q-score mapped to coordinate model (i)



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.

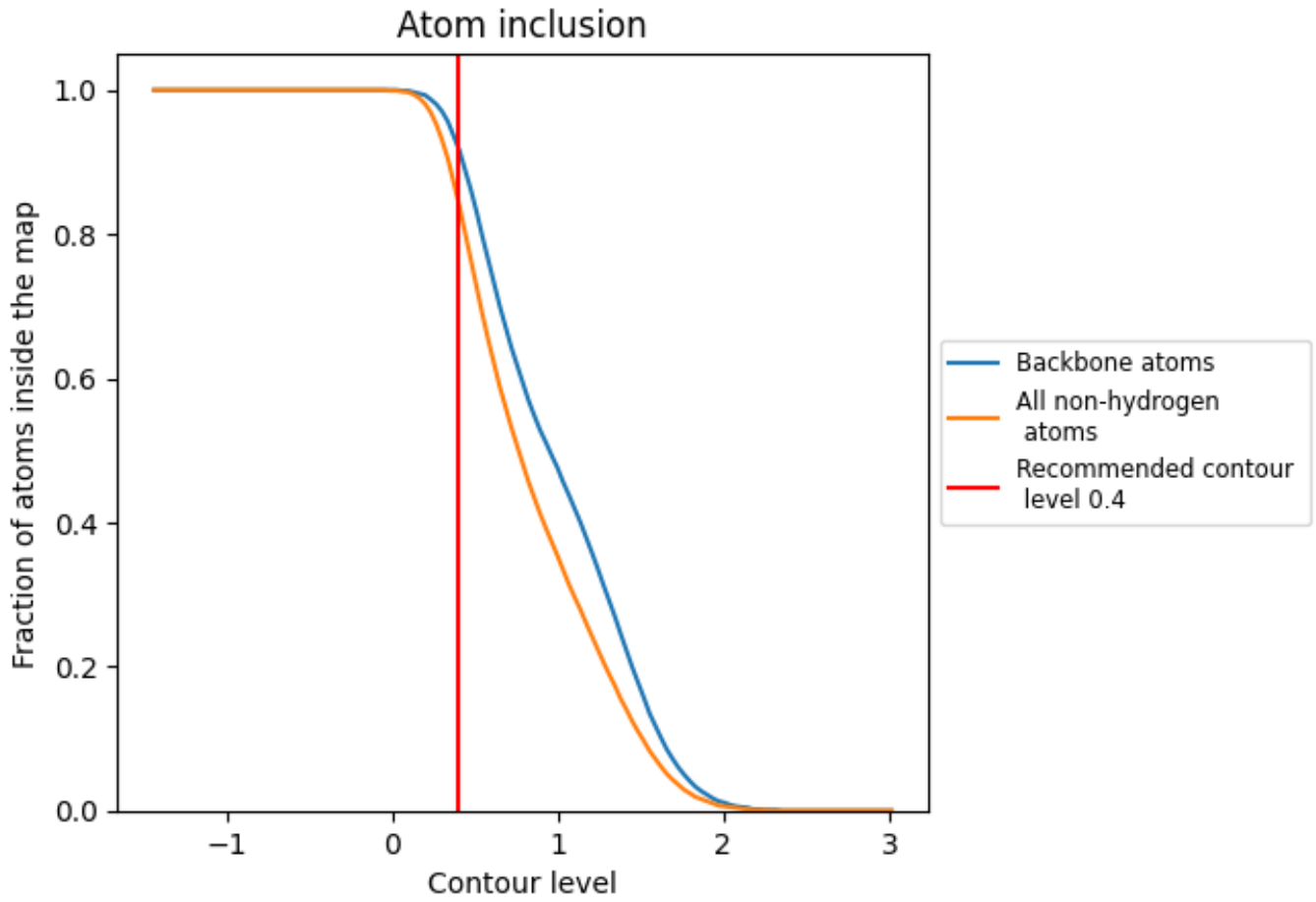
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.4).

9.4 Atom inclusion (i)



At the recommended contour level, 92% of all backbone atoms, 85% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8460	0.4110
1	0.7230	0.2240
2	0.5850	0.0740
3	0.5790	0.1360
4	0.5950	0.1000
5	0.7280	0.4080
6	0.5690	0.3750
7	0.6410	0.3880
9	0.7350	0.2980
A	0.9090	0.4370
B	0.9320	0.4840
C	0.9420	0.5100
D	0.9410	0.5100
E	0.9430	0.5180
F	0.9380	0.5130
G	0.9480	0.5210
H	0.9340	0.5120
I	0.9470	0.5130
J	0.9350	0.4900
K	0.9170	0.4540
M	0.9110	0.4610
N	0.7830	0.4440
O	0.9140	0.4890
P	0.9130	0.4710
Q	0.9210	0.4860
R	0.9230	0.4740
S	0.9160	0.4770
T	0.8640	0.4470
U	0.7660	0.3230
V	0.7360	0.3040
Y	0.8190	0.3670
Z	0.7240	0.3690