FIGURE S1. Prediction of DNA-binding residues in Tau sequence. DNA-binding residues in the longest Tau sequence (441 amino acids) were evaluated using a web-based tool called BindN available at: (http://bioinfo.ggc.org/bindn+/).

BindN prediction of DNA-binding residues

Summary

Your sequence: sp|P10636-8|TAU_HUMAN Isoform Tau-4 of Microtubule-associated protein tau OS=Homo sapiens GN=MAPT

Input sequence length: 441 amino acids

Predicted binding sites: 147 residues

User-defined specificity: 80.00%

Estimated sensitivity: 56.96%

Overview

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Sequence:       MAEPRQEFEVMEDHAGTYGLGDRKDQGGYTMHQDQEGDTDAGLKESPLQTPTEDGSEEPG
Prediction:     ----+------------+----++-------------------+-+-----+--------
Confidence:     57464679999995972454465642452243488798388684352522363473545 5

Sequence:       SETSDAKSTPTAEDVTAPLVDEGAPGKQAAAQPHTEIPEGTTAEEAGIGDTPSLEDEAAG
Prediction:     +-+++-+++-+----------------++-------------------------------
Confidence:     43675375524745929899987955645652633575382265799764253897898 8

Sequence:       HVTQARMVSKSKDGTGSDDKKAKGADGKTKIATPRGAAPPGQKGQANATRIPAKTPPAPK
Prediction:     --++-+--+++++-+-+-+--++-+----+++--+-+-------+-+-+-++-+-++-+--+
Confidence:     36453925686853546235665432575833839544534284634479443582532 8

Sequence:       TPPSSGEPPKSGDRSGYSSPGSPGTPGSRSRTPSLPTPPTREPKKVAVVRTPPKSPSSAK
Prediction:     +++++-+--++--++-+++++++++++++++++--+--+++-++----+++-+++++-+
Confidence:     86678242257229727888485497699899692292279435456568553896992 9

Sequence:       SRLQTAPVPMPDLKNVKSKIGSTENLKHQPGGGKVQIINKKLDLSNVQSKCGSKDNIKHV
Prediction:     ++-++--------++-+++--++----------+-+----+---++--++--++------
Confidence:     79358748656675465673277226222354667456434757447356236832833 8

Sequence:       PGGGSVQIVYKPVDLSKVTSKCGSLGNIHHKPGGGQVEVKSEKLDFKDRVQSKIGSLDNI
Prediction:     ----+----------++-+++--+------+--------++-+-----+--+--------
Confidence:     45566625723485479567732566385353657272754547752577272542664 9

Sequence:       THVPGGGNKKIETHKLTFRENAKAKTDHGAEIVYKSPVVSGDTSPRHLSNVSSTGSIDMV
Prediction:     --------++--+-+-+-+-+-+-+-++--------++---+--+++++-++-+++-+----
Confidence:     34846442695362574282556558448877725424752355494485475734886 9

Sequence:       DSPQLATLADEVSASLAKQGL
Prediction:     ------------+----+---
Confidence:     92639838865945255736 7
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*** Prediction:  binding residues are labeled with '+' and in red;
                 non-binding residues labeled with '-' and in green.
*** Confidence:  from level 0 (lowest) to level 9 (highest).
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Details

Position	Residue	SVM Output	Prediction*	Confidence**
1	M	-0.6034	-	0.5131
2	A	-1.1052	-	0.7452
3	E	-0.4262	-	0.4369
4	P	-0.9774	-	0.6823
5	R	0.5335	+	0.4931
6	Q	-0.8462	-	0.6191
7	E	-1.0572	-	0.7200
8	F	-1.5745	-	0.9212
9	E	-1.6820	-	0.9472
10	V	-2.1632	-	0.9903
11	M	-1.8088	-	0.9700
12	E	-1.7193	-	0.9536
13	D	-1.5711	-	0.9208
14	H	-0.7701	-	0.5834
15	A	-1.5388	-	0.9123
16	G	-1.1358	-	0.7578
17	T	0.2844	-	0.2236
18	Y	0.4408	+	0.4507
19	G	-0.7818	-	0.5881
20	L	-0.4413	-	0.4436
21	G	-0.4025	-	0.4273
22	D	-1.0010	-	0.6948
23	R	0.6905	+	0.5604
24	K	0.7712	+	0.6055
25	D	-0.4248	-	0.4361
26	Q	0.2937	-	0.2214
27	G	-0.4176	-	0.4328
28	G	-0.6426	-	0.5269
29	Y	0.3224	-	0.2142
30	T	0.3536	-	0.2058
31	M	-0.3656	-	0.4147
32	H	-0.1675	-	0.3459
33	Q	-0.3996	-	0.4262
34	D	-1.4230	-	0.8747
35	Q	-1.2534	-	0.8080
36	E	-1.0705	-	0.7281
37	G	-1.5867	-	0.9239
38	D	-1.3630	-	0.8514
39	T	-0.2707	-	0.3825
40	D	-1.3040	-	0.8269
41	A	-1.2766	-	0.8161
42	G	-0.9865	-	0.6864
43	L	-1.2890	-	0.8208
44	K	0.3939	+	0.4350
45	E	-0.2340	-	0.3673
46	S	0.5973	+	0.5189
47	P	0.2388	-	0.2328
48	L	-0.7018	-	0.5523
49	Q	0.0330	-	0.2866
50	T	0.0683	-	0.2775
51	P	-0.2478	-	0.3731
52	T	0.8456	+	0.6525
53	E	-0.0877	-	0.3197
54	D	-0.4522	-	0.4494
55	G	-1.2224	-	0.7953
56	S	-0.1175	-	0.3305
57	E	-0.6321	-	0.5220
58	E	-0.4745	-	0.4592
59	P	-0.5932	-	0.5097
60	G	-0.6721	-	0.5392
61	S	0.4639	+	0.4590
62	E	-0.0575	-	0.3127

63	T	0.7663	+	0.6018
64	S	0.9663	+	0.7060
65	D	0.6241	+	0.5290
66	A	-0.0891	-	0.3206
67	K	1.0146	+	0.7373
68	S	0.7472	+	0.5908
69	T	0.7136	+	0.5751
70	P	0.2002	-	0.2439
71	T	0.5129	+	0.4839
72	A	-1.0494	-	0.7167
73	E	-0.3938	-	0.4239
74	D	-0.6967	-	0.5500
75	V	-1.5796	-	0.9223
76	T	0.0736	-	0.2758
77	A	-1.5701	-	0.9202
78	P	-1.3327	-	0.8403
79	L	-1.7668	-	0.9630
80	V	-1.7942	-	0.9669
81	D	-1.7276	-	0.9550
82	E	-1.2527	-	0.8075
83	G	-1.1962	-	0.7836
84	A	-1.5700	-	0.9200
85	P	-0.6141	-	0.5164
86	G	-0.6751	-	0.5409
87	K	0.8804	+	0.6664
88	Q	0.4737	+	0.4618
89	A	-0.6643	-	0.5358
90	A	-0.8400	-	0.6159
91	A	-0.8004	-	0.5975
92	Q	0.0396	-	0.2841
93	P	-0.9159	-	0.6503
94	H	-0.2637	-	0.3792
95	T	-0.1933	-	0.3545
96	E	-0.6369	-	0.5245
97	I	-1.0454	-	0.7148
98	P	-0.5913	-	0.5095
99	E	-0.3119	-	0.3962
100	G	-1.3960	-	0.8647
101	T	0.0462	-	0.2823
102	T	0.2661	-	0.2283
103	A	-0.8524	-	0.6211
104	E	-0.7947	-	0.5948
105	E	-1.0318	-	0.7083
106	A	-1.6981	-	0.9502
107	G	-1.7603	-	0.9616
108	I	-1.1645	-	0.7684
109	G	-1.0094	-	0.6994
110	D	-0.5122	-	0.4745
111	T	0.0563	-	0.2797
112	P	-0.7108	-	0.5552
113	S	-0.1462	-	0.3387
114	L	-1.2385	-	0.8019
115	E	-1.5558	-	0.9172
116	D	-1.1965	-	0.7836
117	E	-1.4657	-	0.8897
118	A	-1.8587	-	0.9777
119	A	-1.3723	-	0.8561
120	G	-1.2641	-	0.8117
121	H	-0.1220	-	0.3322
122	V	-0.8512	-	0.6209
123	T	0.4942	+	0.4756
124	Q	0.7012	+	0.5641
125	A	-0.2642	-	0.3800
126	R	1.9166	+	0.9788
127	M	0.0571	-	0.2791

128	V	-0.5860	-	0.5077
129	S	0.8261	+	0.6341
130	K	1.3919	+	0.8876
131	S	0.9276	+	0.6931
132	K	1.3822	+	0.8866
133	D	0.6322	+	0.5355
134	G	-0.1951	-	0.3552
135	T	0.7186	+	0.5770
136	G	-0.3952	-	0.4245
137	S	0.8294	+	0.6359
138	D	0.1160	-	0.2650
139	D	-0.2944	-	0.3892
140	K	0.6732	+	0.5530
141	K	0.8340	+	0.6406
142	A	-0.9141	-	0.6500
143	K	0.5748	+	0.5069
144	G	-0.3796	-	0.4191
145	A	-0.3000	-	0.3914
146	D	-0.0100	-	0.2981
147	G	-0.6714	-	0.5387
148	K	0.9790	+	0.7161
149	T	0.6486	+	0.5419
150	K	1.2888	+	0.8645
151	I	-0.2981	-	0.3908
152	A	-0.2666	-	0.3809
153	T	1.2031	+	0.8369
154	P	-0.2953	-	0.3898
155	R	1.6951	+	0.9539
156	G	-0.5708	-	0.5011
157	A	-0.3556	-	0.4109
158	A	-0.4996	-	0.4711
159	P	-0.5841	-	0.5072
160	P	-0.0878	-	0.3197
161	G	-0.3855	-	0.4212
162	Q	0.3376	-	0.2102
163	K	1.2206	+	0.8424
164	G	-0.3671	-	0.4155
165	Q	0.9146	+	0.6885
166	A	-0.3168	-	0.3975
167	N	0.4469	+	0.4525
168	A	-0.5494	-	0.4911
169	T	1.0852	+	0.7714
170	R	1.8837	+	0.9751
171	I	-0.3303	-	0.4023
172	P	0.4842	+	0.4682
173	A	-0.3085	-	0.3948
174	K	0.6899	+	0.5604
175	T	1.2349	+	0.8461
176	P	0.3717	-	0.2005
177	P	0.6705	+	0.5521
178	A	-0.1316	-	0.3344
179	P	0.2243	-	0.2369
180	K	1.3449	+	0.8829
181	T	1.4000	+	0.8903
182	P	0.9012	+	0.6783
183	P	0.8019	+	0.6240
184	S	1.0849	+	0.7714
185	S	1.1498	+	0.8065
186	G	0.2171	-	0.2383
187	E	0.4251	+	0.4442
188	P	0.2580	-	0.2291
189	P	0.0042	-	0.2942
190	K	0.6420	+	0.5392
191	S	0.9715	+	0.7088
192	G	0.3117	-	0.2175

193	D	0.1083	-	0.2677
194	R	1.6055	+	0.9401
195	S	1.0445	+	0.7530
196	G	0.1656	-	0.2533
197	Y	1.1151	+	0.7862
198	S	1.2461	+	0.8498
199	S	1.1774	+	0.8230
200	P	1.1657	+	0.8184
201	G	0.3964	+	0.4350
202	S	1.2047	+	0.8387
203	P	0.7371	+	0.5889
204	G	0.3740	+	0.4304
205	T	1.6617	+	0.9493
206	P	1.0339	+	0.7447
207	G	0.8372	+	0.6415
208	S	1.5066	+	0.9235
209	R	2.4845	+	0.9862
210	S	1.1399	+	0.8009
211	R	2.3622	+	0.9862
212	T	1.4740	+	0.9134
213	P	0.9324	+	0.6949
214	S	1.6547	+	0.9484
215	L	0.0585	-	0.2789
216	P	0.2151	-	0.2387
217	T	1.4460	+	0.9041
218	P	0.3492	-	0.2069
219	P	0.2557	-	0.2294
220	T	1.0394	+	0.7484
221	R	1.4728	+	0.9134
222	E	0.3788	+	0.4323
223	P	-0.2093	-	0.3598
224	K	0.5986	+	0.5189
225	K	0.4467	+	0.4525
226	V	-0.6472	-	0.5286
227	A	-0.8099	-	0.6031
228	V	-0.6208	-	0.5181
229	V	-0.8680	-	0.6273
230	R	1.3671	+	0.8848
231	T	0.5734	+	0.5069
232	P	0.6464	+	0.5419
233	P	-0.1616	-	0.3428
234	K	1.2997	+	0.8691
235	S	1.5270	+	0.9290
236	P	0.9268	+	0.6931
237	S	1.6114	+	0.9419
238	S	1.5715	+	0.9355
239	A	0.1592	-	0.2548
240	K	1.7701	+	0.9631
241	S	1.1076	+	0.7797
242	R	1.8351	+	0.9687
243	L	-0.1167	-	0.3303
244	Q	0.6160	+	0.5272
245	T	1.1448	+	0.8046
246	A	-1.1302	-	0.7561
247	P	-0.4751	-	0.4598
248	V	-1.2462	-	0.8050
249	P	-0.9473	-	0.6662
250	M	-0.5743	-	0.5033
251	P	-0.8083	-	0.6020
252	D	-0.8155	-	0.6064
253	L	-1.0558	-	0.7192
254	K	0.6810	+	0.5576
255	N	0.4833	+	0.4682
256	V	-0.9728	-	0.6806
257	K	0.6457	+	0.5410

258	S	0.8210	+	0.6332
259	K	1.0902	+	0.7742
260	I	-0.0890	-	0.3203
261	G	0.0310	-	0.2867
262	S	0.9769	+	0.7134
263	T	0.9518	+	0.7014
264	E	0.3577	-	0.2052
265	N	0.3379	-	0.2102
266	L	-0.9543	-	0.6706
267	K	0.3500	-	0.2066
268	H	0.1142	-	0.2656
269	Q	0.0843	-	0.2734
270	P	-0.1243	-	0.3328
271	G	-0.7264	-	0.5609
272	G	-0.3938	-	0.4239
273	G	-0.8066	-	0.6006
274	K	0.7862	+	0.6147
275	V	-1.1958	-	0.7834
276	Q	0.3741	+	0.4304
277	I	-0.7411	-	0.5692
278	I	-0.9992	-	0.6937
279	N	-0.3781	-	0.4186
280	K	-0.2174	-	0.3630
281	K	0.5264	+	0.4885
282	L	-1.2142	-	0.7914
283	D	-0.7220	-	0.5591
284	L	-1.0407	-	0.7122
285	S	0.5157	+	0.4848
286	N	0.5424	+	0.4977
287	V	-1.1439	-	0.7600
288	Q	-0.0521	-	0.3114
289	S	0.6564	+	0.5475
290	K	0.9053	+	0.6811
291	C	0.2905	-	0.2225
292	G	-0.2208	-	0.3642
293	S	0.8557	+	0.6562
294	K	1.2087	+	0.8406
295	D	-0.1970	-	0.3559
296	N	0.0045	-	0.2942
297	I	-1.4423	-	0.8823
298	K	-0.0228	-	0.3019
299	H	-0.2196	-	0.3639
300	V	-1.2526	-	0.8075
301	P	-0.5564	-	0.4936
302	G	-0.8044	-	0.5994
303	G	-0.6089	-	0.5147
304	G	-0.9263	-	0.6564
305	S	0.8599	+	0.6571
306	V	-0.8742	-	0.6316
307	Q	0.3552	-	0.2055
308	I	-0.7169	-	0.5570
309	V	-1.1252	-	0.7539
310	Y	0.0881	-	0.2723
311	K	-0.1550	-	0.3423
312	P	-0.3440	-	0.4066
313	V	-1.2494	-	0.8059
314	D	-0.5731	-	0.5030
315	L	-0.5027	-	0.4720
316	S	1.0883	+	0.7733
317	K	1.4263	+	0.9005
318	V	-0.7559	-	0.5759
319	T	0.8048	+	0.6267
320	S	1.0661	+	0.7613
321	K	1.0346	+	0.7447
322	C	-0.0756	-	0.3169

323	G	0.1139	-	0.2661
324	S	0.7446	+	0.5889
325	L	-0.9250	-	0.6553
326	G	-0.8704	-	0.6287
327	N	-0.1096	-	0.3284
328	I	-1.3911	-	0.8639
329	H	-0.5726	-	0.5027
330	H	-0.2338	-	0.3673
331	K	0.6133	+	0.5263
332	P	-0.2195	-	0.3639
333	G	-0.9891	-	0.6887
334	G	-0.7797	-	0.5873
335	G	-1.0485	-	0.7166
336	Q	0.1644	-	0.2534
337	V	-1.1493	-	0.7631
338	E	0.0221	-	0.2894
339	V	-1.0898	-	0.7372
340	K	0.5605	+	0.5041
341	S	0.3877	+	0.4341
342	E	-0.6012	-	0.5123
343	K	0.5455	+	0.4977
344	L	-1.1774	-	0.7758
345	D	-1.0697	-	0.7278
346	F	-0.6611	-	0.5348
347	K	0.2811	-	0.2241
348	D	-0.6341	-	0.5233
349	R	1.1312	+	0.7935
350	V	-1.1415	-	0.7597
351	Q	0.1007	-	0.2697
352	S	0.9651	+	0.7051
353	K	0.3274	-	0.2122
354	I	-0.6801	-	0.5433
355	G	-0.5193	-	0.4778
356	S	0.2720	-	0.2273
357	L	-0.8580	-	0.6237
358	D	-0.8412	-	0.6167
359	N	-0.5502	-	0.4914
360	I	-1.6403	-	0.9373
361	T	-0.1698	-	0.3466
362	H	-0.3878	-	0.4222
363	V	-1.2568	-	0.8092
364	P	-0.3567	-	0.4111
365	G	-0.9447	-	0.6652
366	G	-0.4522	-	0.4494
367	G	-0.3601	-	0.4125
368	N	0.2156	-	0.2387
369	K	0.7708	+	0.6055
370	K	1.4566	+	0.9088
371	I	-0.6683	-	0.5372
372	E	-0.2556	-	0.3762
373	T	0.9232	+	0.6931
374	H	0.1370	-	0.2603
375	K	0.7216	+	0.5788
376	L	-1.0320	-	0.7089
377	T	0.5518	+	0.4995
378	F	-0.0124	-	0.2986
379	R	1.1763	+	0.8230
380	E	0.2685	-	0.2278
381	N	0.5534	+	0.5005
382	A	-0.7482	-	0.5728
383	K	0.8511	+	0.6553
384	A	-0.7667	-	0.5820
385	K	0.7438	+	0.5889
386	T	1.2256	+	0.8433
387	D	-0.4247	-	0.4361

388	H	-0.3792	-	0.4191
389	G	-1.2514	-	0.8072
390	A	-1.4683	-	0.8908
391	E	-1.0548	-	0.7187
392	I	-1.0628	-	0.7234
393	V	-1.2063	-	0.7875
394	Y	0.2768	-	0.2255
395	K	0.7100	+	0.5724
396	S	0.3778	+	0.4323
397	P	0.0441	-	0.2828
398	V	-0.5236	-	0.4794
399	V	-1.0648	-	0.7247
400	S	0.7448	+	0.5889
401	G	0.1724	-	0.2516
402	D	-0.0550	-	0.3120
403	T	0.6814	+	0.5576
404	S	0.6118	+	0.5263
405	P	0.5082	+	0.4811
406	R	2.1295	+	0.9862
407	H	0.4353	+	0.4498
408	L	-0.3556	-	0.4109
409	S	1.2668	+	0.8535
410	N	0.6643	+	0.5493
411	V	-0.4872	-	0.4661
412	S	0.9848	+	0.7207
413	S	0.6936	+	0.5622
414	T	1.0090	+	0.7364
415	G	-0.3125	-	0.3966
416	S	0.4316	+	0.4470
417	I	-1.3087	-	0.8297
418	D	-1.2657	-	0.8120
419	M	-0.8742	-	0.6316
420	V	-1.6310	-	0.9352
421	D	-1.6963	-	0.9498
422	S	0.1585	-	0.2550
423	P	-0.8601	-	0.6244
424	Q	-0.2506	-	0.3744
425	L	-1.5438	-	0.9136
426	A	-1.3080	-	0.8297
427	T	-0.2619	-	0.3784
428	L	-1.3501	-	0.8466
429	A	-1.4861	-	0.8972
430	D	-0.9217	-	0.6525
431	E	-0.7843	-	0.5892
432	V	-1.9236	-	0.9828
433	S	0.4356	+	0.4498
434	A	-0.7294	-	0.5622
435	S	0.3566	-	0.2055
436	L	-0.6999	-	0.5516
437	A	-0.7588	-	0.5772
438	K	0.9774	+	0.7152
439	Q	-0.0668	-	0.3147
440	G	-0.8329	-	0.6123
441	L	-1.0253	-	0.7056

* The output threshold used for prediction is 0.3725.
** The confidence value is (1 - sensitivity) for positive predictions, and (1 - specificity) for negative predictions.