Supplementary Material

Supplementary Text S1

DNAshapeR Usage

DNAshapeR is a tool for predicting DNAshape data developed in R for ultra-fast, high-throughput prediction of DNA shape features. The package allows prediction, visualization and encoding of DNA shape features for statistical learning.

If you want to use it, you must first start R (version "4.4") and enter:

```
if (!require("BiocManager", quietly = TRUE))
    install.packages("BiocManager")
BiocManager::install("DNAshapeR")
```

However, its input must be in fasta file format, and the sequence files of the 165 datasets are in csv file format, so they need to be reformatted. The results are then predicted by the toolkit and then the results are saved.

Algorithm: Predicting DNA shape data

Input: DNA sequence data
Output: Shape data prediction files for five DNA shapes EP, HelT, MGW, ProT, Roll

```
for folder in all_folder:
    read csv file to data
    Create a vector of strings in fasta format fasta-sequences
    for row in data：
        put each row of data into fasta format into fasta-sequences
    write fasta data to fasta file
    use the getShape method to pass in a fasta file for prediction
    save results to file
end for
```

Supplementary Table S1

Table S1. Details of 165 ChIP-seq datasets, including the cell line to which it belongs, the TF line, the number of positive and negative samples, and source organism information.

Cell lines	TFs	Datasets	Train_dataset		Test_dataset		Source organism
			Number of positive samples	Number of negative samples	Number of positive samples	Number of negative samples	
HepG2	CTCF	wgEncodeAwgTfbsBroadHepg2CtcfUniPk	72324		18082		Human Hepatocellular Carcinoma Cells
			36196	36128	9007	9075	
	EZH2	wgEncodeAwgTfbsBroadHepg2Ezh239875UniPk	5235		1309		
			2618	2617	654	655	
	CEBPB	wgEncodeAwgTfbsHaibHepg2Cebpbsc150V0416101UniPk	28491		7123		
			14243	14248	3564	3559	
	ELF1	wgEncodeAwgTfbsHaibHepg2Elf1sc631V0416101UniPk	28315		7079		
			14232	14083	3465	3614	
	FOS	wgEncodeAwgTfbsHaibHepg2Fosl2V0416101UniPk	39678		9920		
			19899	19779	4900	5020	
	FOXA1	wgEncodeAwgTfbsHaibHepg2Foxa1sc101058V0416101UniPk	67550		16888		
			33729	33821	8490	8398	
	FOXA1	wgEncodeAwgTfbsHaibHepg2Foxa1sc6553V0416101UniPk	80224		20056		
			40132	40092	10008	10048	
	GABP	wgEncodeAwgTfbsHaibHepg2GabpPcr2xUniPk	15710		3928		
			7871	7839	1948	1980	
	HDAC	wgEncodeAwgTfbsHaibHepg2Hdac2sc6296V0416101UniPk	29865		7467		
			14926	14939	3740	3727	
	JUND	wgEncodeAwgTfbsHaibHepg2JundPcr1xUniPk	34142		8536		

		17095	17047	4244	4292
P300	wgEncodeAwgTfbsHaibHepg2P300V0416101UniPk	43721		10931	
		21887	21834	5439	5492
SIN3A	wgEncodeAwgTfbsHaibHepg2Sin3ak20Pcr1xUniPk	26051		6513	
		13007	13044	3275	3238
SP1	wgEncodeAwgTfbsHaibHepg2Sp1Pcr1xUniPk	39952		9988	
		19891	20061	5079	4909
SP2	wgEncodeAwgTfbsHaibHepg2Sp2V0422111UniPk	4152		1038	
		2085	2067	510	528
SRF	wgEncodeAwgTfbsHaibHepg2SrfV0416101UniPk	8372		2094	
		4203	4169	1030	1064
TAF1	wgEncodeAwgTfbsHaibHepg2Taf1Pcr2xUniPk	25369		6343	
		12702	12667	3154	3189
TEAD4	wgEncodeAwgTfbsHaibHepg2Tead4sc101184V0422111UniPk	23852		5964	
		11933	11919	2975	2989
YY1	wgEncodeAwgTfbsHaibHepg2Yy1sc281V0416101UniPk	27944		6986	
		14065	13879	3400	3586
CEBPB	wgEncodeAwgTfbsSydhHepg2CebpbForsklnUniPk	29012		7254	
		14496	14516	3638	3616
CEBPB	wgEncodeAwgTfbsSydhHepg2CebpbIggrabUniPk	89115		22279	
		44654	44461	11044	11235
CJUN	wgEncodeAwgTfbsSydhHepg2CjunIggrabUniPk	20036		5010	
		10001	10035	2522	2488
CORES T	wgEncodeAwgTfbsSydhHepg2Corestsc30189IggrabUniPk	8515		2129	
		4271	4244	1051	1078
JUND	wgEncodeAwgTfbsSydhHepg2JundIggrabUniPk	50878		12720	

			25448	25430	6351	6369	
	MAX	wgEncodeAwgTfbsSydhHepg2MaxIggrabUniPk	18774		4694		
			9382	9392	2352	2342	
	TBP	wgEncodeAwgTfbsSydhHepg2TbpIggrabUniPk	21732		5434		
			10857	10875	2726	2708	
	CMYC	wgEncodeAwgTfbsUtaHepg2CmycUniPk	7012		1754		
			3509	3503	874	880	
	CTCF	wgEncodeAwgTfbsBroadK562CtcfUniPk	80417		20105		
			40042	40375	10219	9886	
	EZH2	wgEncodeAwgTfbsBroadK562Ezh239875UniPk	2684		672		
			1366	1318	311	361	
	HDAC	wgEncodeAwgTfbsBroadK562Hdac2a300705aUniPk	8380		2096		
			4185	4195	1053	1043	
	HDAC	wgEncodeAwgTfbsBroadK562Hdac6a301341aUniPk	1779		445		
			884	895	228	217	
	CEBPB	wgEncodeAwgTfbsHaibK562Cebpbsc150V0422111UniPk	34747		8687		Human Chronic
K562			17353	17394	4364	4323	Myelogenous
	ELF1	wgEncodeAwgTfbsHaibK562Elf1sc631V0416102UniPk	43403		10851		Leukemia Cells
			21787	21616	5340	5511	
	FOS	wgEncodeAwgTfbsHaibK562Fosl1sc183V0416101UniPk	17569		4393		
			8782	8787	2199	2194	
	GABP	wgEncodeAwgTfbsHaibK562GabpV0416101UniPk	22387		5597		
			11191	11196	2801	2796	
	GATA2	wgEncodeAwgTfbsHaibK562Gata2sc267Pcr1xUniPk	30081		7521		
			15080	15001	3721	3800	
	HDAC	wgEncodeAwgTfbsHaibK562Hdac2sc6296V0416102UniPk	10539		2635		

		5288	5251	1299	1336
MAX	wgEncodeAwgTfbsHaibK562MaxV0416102UniPk	70233		17559	
		34919	35314	8977	8582
SIN3A	wgEncodeAwgTfbsHaibK562Sin3ak20V0416101UniPk	19993		4999	
		9982	10011	2514	2485
SRF	wgEncodeAwgTfbsHaibK562SrfV0416101UniPk	7414		1854	
		3725	3689	909	945
TAF1	wgEncodeAwgTfbsHaibK562Taf1V0416101UniPk	23428		5858	
		11726	11702	2917	2941
TEAD4	wgEncodeAwgTfbsHaibK562Tead4sc101184V0422111UniPk	48372		12094	
		24181	24191	6052	6042
YY1	wgEncodeAwgTfbsHaibK562Yy1V0416101UniPk	19684		492	
		9882	9802	2421	2501
YY1	wgEncodeAwgTfbsHaibK562Yy1V0416102UniPk	37296		9324	
		18598	18698	4712	4612
CEBPB	wgEncodeAwgTfbsSydhK562CebpbIggrabUniPk	60416		15104	
		30270	30146	7492	7612
FOS	wgEncodeAwgTfbsSydhK562CfosUniPk	11968		2992	
		5985	5983	1495	1497
CJUN	wgEncodeAwgTfbsSydhK562CjunUniPk	15460		3866	
		7788	7672	1875	1991
CORES T	wgEncodeAwgTfbsSydhK562Corestsc30189IggrabUniPk	56211		14053	
		28109	28102	7023	7030
GATA2	wgEncodeAwgTfbsSydhK562Gata2UcdUniPk	16649		4163	
		8323	8326	2083	2080
JUND	wgEncodeAwgTfbsSydhK562JundIggrabUniPk	62753		15689	

			31391	31362	7830	7859	
	MAX	wgEncodeAwgTfbsSydhK562MaxIggrabUniPk	49299		12325		
			24653	24646	6159	6166	
	P300	wgEncodeAwgTfbsSydhK562P300IggrabUniPk	40425		10107		
			20236	20189	5030	5077	
	TBP	wgEncodeAwgTfbsSydhK562TbpIggmusUniPk	27345		6837		
			13654	13691	3437	3400	
	YY1	wgEncodeAwgTfbsSydhK562Yy1UcdUniPk	7638		1910		
			3812	3826	962	948	
	FOS	wgEncodeAwgTfbsUchicagoK562EfosUniPk	16120		4030		
			8064	8056	2011	2019	
	GATA2	wgEncodeAwgTfbsUchicagoK562Egata2UniPk	18004		4502		
			9008	8996	2245	2257	
	HDAC	wgEncodeAwgTfbsUchicagoK562Ehdac8UniPk	2734		684		
			1376	1358	333	351	
	JUND	wgEncodeAwgTfbsUchicagoK562EjundUniPk	41771		10443		
			20954	20817	5153	5290	
	CTCF	wgEncodeAwgTfbsUtaK562CtcfUniPk	86808		21702		
			43374	43434	10881	10821	
A549	ELF1	wgEncodeAwgTfbsHaibA549Elf1V0422111Etoh02UniPk	13468		3368		Human Lung Adenocarcinoma Cells
			6782	6686	1636	1732	
	FOS	wgEncodeAwgTfbsHaibA549Fosl2V0422111Etoh02UniPk	44750		11188		
			22355	22395	5614	5574	
	FOXA1	wgEncodeAwgTfbsHaibA549Foxa1V0416102Dex100nmUniPk	12054		3014		
			6009	6045	1525	1489	
	GABP	wgEncodeAwgTfbsHaibA549GabpV0422111Etoh02UniPk	18315		4579		

			9203	9112	2244	2335	
	SIN3A	wgEncodeAwgTfbsHaibA549Sin3ak20V0422111Etoh02UniPk	9516		2380		
			4765	4751	1183	1197	
	TAF1	wgEncodeAwgTfbsHaibA549Taf1V0422111Etoh02UniPk	15691		3923		
			7833	7858	1974	1949	
	CEBPB	wgEncodeAwgTfbsSydhA549CebpbIggrabUniPk	60745		15187		
			30409	30336	7557	7630	
H1hesc	CTCF	wgEncodeAwgTfbsBroadH1hescCtcfUniPk	103174		25794		Human Embryonic Stem Cells
			51646	51528	12838	12956	
	FOS	wgEncodeAwgTfbsHaibH1hescFosl1sc183V0416102UniPk	1758		440		
			875	883	224	216	
	GABP	wgEncodeAwgTfbsHaibH1hescGabpPcr1xUniPk	8968		2242		
			4490	4478	1115	1127	
	HDAC	wgEncodeAwgTfbsHaibH1hescHdac2sc6296V0416102UniPk	8953		2239		
			4472	4481	1124	1115	
	SP1	wgEncodeAwgTfbsHaibH1hescSp1Pcr1xUniPk	23648		5912		
			11833	11815	2947	2965	
	SP2	wgEncodeAwgTfbsHaibH1hescSp2V0422111UniPk	3830		958		
			1915	1915	479	479	
	SRF	wgEncodeAwgTfbsHaibH1hescSrfPcr1xUniPk	8009		2003		
			4008	4001	998	1005	
	TEAD4	wgEncodeAwgTfbsHaibH1hescTead4sc101184V0422111UniPk	31233		7809		
			15632	15601	3889	3920	
	YY1	wgEncodeAwgTfbsHaibH1hescYy1sc281V0416102UniPk	28672		7168		
			14357	14315	3563	3605	
	CEBPB	wgEncodeAwgTfbsSydhH1hescCebpbIggrabUniPk	24472		6118		

		12295	12177	3001	3117		
TBP	wgEncodeAwgTfbsSydhH1hescCtbp2UcdUniPk	11228		2808			
		5625	5603	1393	1415		
JUND	wgEncodeAwgTfbsSydhH1hescJundIggrabUniPk	15019		3755			
		7532	7487	1855	1900		
MAX	wgEncodeAwgTfbsSydhH1hescMaxUcdUniPk	17553		4389			
		8709	8844	2262	2127		
SIN3A	wgEncodeAwgTfbsSydhH1hescSin3anb6001263IggrabUniPk	33697		8425			
		16812	16885	4249	4176		
CMYC	wgEncodeAwgTfbsUtaH1hescCmycUniPk	1939		485			
		971	968	241	244		
CTCF	wgEncodeAwgTfbsUtaH1hescCtcfUniPk	67601		16901			
		33756	33845	8495	8406		
CTCF	wgEncodeAwgTfbsBroadHelas3CtcfUniPk	81049		20263			
		40493	40556	10163	10100		
EZH2	wgEncodeAwgTfbsBroadHelas3Ezh239875UniPk	2840		710			
		1404	1436	371	339		
POL2B	wgEncodeAwgTfbsBroadHelas3Pol2bUniPk	4779		1195			
		2385	2394	602	593		
GABP	wgEncodeAwgTfbsHaibHelas3GabpPcr1xUniPk	10494		2624		HelaS3	Human Cervical Carcinoma Cells
		5231	5263	1328	1296		
CEBPB	wgEncodeAwgTfbsSydhHelas3CebpbIggrabUniPk	94892		23724			
		47379	47513	11930	11794		
FOS	wgEncodeAwgTfbsSydhHelas3CfosUniPk	14494		3624			
		7251	7243	1808	1816		
CJUN	wgEncodeAwgTfbsSydhHelas3CjunIggrabUniPk	34089		8523			

			17057	17032	4249	4274	
	HAE2F1	wgEncodeAwgTfbsSydhHelas3Hae2f1UniPk	15990		3998		
			7993	7997	2001	1997	
	JUND	wgEncodeAwgTfbsSydhHelas3JundIggrabUniPk	49201		12301		
			24647	24554	6104	6197	
	MAX	wgEncodeAwgTfbsSydhHelas3MaxIggrabUniPk	46209		11553		
			23129	23080	5752	5801	
	P300	wgEncodeAwgTfbsSydhHelas3P300sc584sc584IggrabUniPk	40262		10066		
			20156	20106	5008	5058	
	STAT3	wgEncodeAwgTfbsSydhHelas3Stat3IggrabUniPk	21563		5391		
			10740	10823	2737	2654	
	CTCF	wgEncodeAwgTfbsUtaHelas3CtcfUniPk	90883		22721		
			45460	45423	11343	11378	
IMR90	CEBPB	wgEncodeAwgTfbsSydhImr90CebpbIggrabUniPk	109712		27428		Human Fetal Lung Fibroblast Cells
			54861	54851	13710	13718	
Dnd41	CTCF	wgEncodeAwgTfbsBroadDnd41CtcfUniPk	77531		19383		Human T-cell Leukemia Cells
			38783	38748	9674	9709	
	EZH2	wgEncodeAwgTfbsBroadDnd41Ezh239875UniPk	2681		671		
			1329	1352	348	323	
	CTCF	wgEncodeAwgTfbsBroadGm12878CtcfUniPk	69435		17359		Human B-Lymphoblastoid Cells
			34753	34682	8644	8715	
	ELF1	wgEncodeAwgTfbsHaibGm12878Elf1sc631V0416101UniPk	35684		8922		
			17857	17827	4446	4476	
	GABP	wgEncodeAwgTfbsHaibGm12878GabpPcr2xUniPk	10211		2553		
			5106	5105	1276	1277	
	P300	wgEncodeAwgTfbsHaibGm12878P300Pcr1xUniPk	8052		2014		

		4034	4018	999	1015
Pax5	wgEncodeAwgTfbsHaibGm12878Pax5c20Pcr1xUniPk	39841		9961	
		20004	19837	4897	5064
Pax5	wgEncodeAwgTfbsHaibGm12878Pax5n19Pcr1xUniPk	31012		7754	
		15487	15525	3896	3858
TAF1	wgEncodeAwgTfbsHaibGm12878Taf1Pcr1xUniPk	22305		5577	
		11154	11151	2787	2790
YY1	wgEncodeAwgTfbsHaibGm12878Yy1sc281Pcr1xUniPk	48142		12036	
		24010	24132	6079	5957
FOS	wgEncodeAwgTfbsSydhGm12878CfosUniPk	3488		872	
		1749	1739	431	441
JUND	wgEncodeAwgTfbsSydhGm12878JundUniPk	3892		974	
		1974	1918	459	515
MAX	wgEncodeAwgTfbsSydhGm12878MaxIggmusUniPk	19747		4937	
		9872	9875	2470	2467
NFKB	wgEncodeAwgTfbsSydhGm12878NfkbTnfaIggrabUniPk	26700		6676	
		13345	13355	3343	3333
P300	wgEncodeAwgTfbsSydhGm12878P300bUniPk	9697		2425	
		4880	4817	1181	1244
STAT3	wgEncodeAwgTfbsSydhGm12878Stat3IggmusUniPk	10185		2547	
		5118	5067	1248	1299
TBP	wgEncodeAwgTfbsSydhGm12878TbpIggmusUniPk	23278		5820	
		11684	11594	2865	2955
CMYC	wgEncodeAwgTfbsUtaGm12878CmycUniPk	5830		1458	
		2923	2907	721	737
CTCF	wgEncodeAwgTfbsUtaGm12878CtcfUniPk	75536		18884	

			37790	37746	9420	9464	
Hmec	CTCF	wgEncodeAwgTfbsBroadHmecCtcfUniPk	61801		15451		Human Mammary Epithelial Cells
			30852	30949	7774	7677	
Hsmm	CTCF	wgEncodeAwgTfbsBroadHsmmCtcfUniPk	79036		19760		Human Skeletal Muscle Myoblast Cells
			39592	39444	9806	9954	
	EZH2	wgEncodeAwgTfbsBroadHsmmEzh239875UniPk	2464		616		
			1239	1225	300	316	
	CTCF	wgEncodeAwgTfbsBroadHsmmtCtcfUniPk	74404		18602		
			37327	37077	9176	9426	
Huvec	CTCF	wgEncodeAwgTfbsBroadHuvecCtcfUniPk	58102		14526		Human Umbilical Vein Endothelial Cells
			29058	29044	7256	7270	
	EZH2	wgEncodeAwgTfbsBroadHuvecEzh239875UniPk	6788		1698		
			3397	3391	845	853	
	POL2B	wgEncodeAwgTfbsBroadHuvecPol2bUniPk	8334		2084		
			4187	4147	1022	1062	
	FOS	wgEncodeAwgTfbsSydhHuvecCfosUcdUniPk	72961		18241		
			36461	36500	9140	9101	
	CJUN	wgEncodeAwgTfbsSydhHuvecCjunUniPk	46128		11532		
			23077	23051	5753	5779	
	GATA2	wgEncodeAwgTfbsSydhHuvecGata2UcdUniPk	42681		10671		
			21339	21342	5337	5334	
	MAX	wgEncodeAwgTfbsSydhHuvecMaxUniPk	14409		3603		
			7214	7195	1792	1811	
Nha	CTCF	wgEncodeAwgTfbsBroadNhaCtcfUniPk	59652		14914		Human Adrenal Cortex Cells
			29817	29835	7466	7448	
Nhdfad	CTCF	wgEncodeAwgTfbsBroadNhdfadCtcfUniPk	75851		18963		

			37984	37867	9423	9540	Human Dermal Fibroblast Adult
Nhek	CTCF	wgEncodeAwgTfbsBroadNhekCtcfUniPk	72955		18239		Human Renal Proximal Tubule Epithelial Cells
			36566	36389	9031	9208	
	POL2B	wgEncodeAwgTfbsBroadNhekPol2bUniPk	9046		2262		
			4516	4530	1138	1124	
Nhlf	CTCF	wgEncodeAwgTfbsBroadNhlfCtcfUniPk	61337		15335		Human Lung Fibroblast
			30645	30692	7691	7644	
Osteobl	CTCF	wgEncodeAwgTfbsBroadOsteoblCtcfUniPk	86148		21538		Human Osteoblast
			42935	43213	10908	10630	
Ecc1	FOXA1	wgEncodeAwgTfbsHaibEcc1Foxa1sc6553V0416102Dm002p1hUniPk	9283		2321		Human Endometrial Carcinoma Cells
			4671	4612	1131	1190	
Gm12891	Pax5	wgEncodeAwgTfbsHaibGm12891Pax5c20V0416101UniPk	4979		1245		Human B-Lymphocyte
			2497	2482	615	630	
	NFKB	wgEncodeAwgTfbsSydhGm12891NfkbTnfaIggrabUniPk	45032		11258		
			22489	22543	5656	5602	
Gm12892	PAX5	wgEncodeAwgTfbsHaibGm12892Pax5c20V0416101UniPk	16284		4072		Human B-Lymphocyte
			8076	8208	2102	1970	
	TAF1	wgEncodeAwgTfbsHaibGm12892Taf1V0416102UniPk	14776		3694		
			7381	7395	1854	1840	
	YY1	wgEncodeAwgTfbsHaibGm12892Yy1V0416101UniPk	24763		6191		
			12306	12457	3171	3020	
	NFKB	wgEncodeAwgTfbsSydhGm12892NfkbTnfaIggrabUniPk	12865		3217		
			6423	6442	1618	1599	
Hct116	YY1	wgEncodeAwgTfbsHaibHct116Yy1sc281V0416101UniPk	20043		5011		Human Colon Carcinoma Cells
			9998	10045	2529	2482	
Panc1	SIN3A	wgEncodeAwgTfbsHaibPanc1Sin3ak20V0416101UniPk	11289		2823		

			5690	5599	1366	1457	Human Pancreatic Carcinoma Cells
Sknshra	P300	wgEncodeAwgTfbsHaibSknshraP300V0416102UniPk	73086		18272		Human Neuroblastoma Cells
			36487	36599	9192	9080	
	YY1	wgEncodeAwgTfbsHaibSknshraYy1sc281V0416102UniPk	24422		6106		
			12189	12233	3075	3031	
T47d	P300	wgEncodeAwgTfbsHaibT47dP300V0416102Dm002p1hUniPk	21969		5493		Human Breast Carcinoma Cells
			10977	10992	2754	2739	
	FOXA1	wgEncodeAwgTfbsHaibT47dFoxa1sc6553V0416102Dm002p1hUniPk	65257		16315		
			32624	32633	8162	8153	
	GATA3	wgEncodeAwgTfbsHaibT47dGata3sc268V0416102Dm002p1hUniPk	58292		14574		
			29070	29222	7363	7211	
Gm10847	NFKB	wgEncodeAwgTfbsSydhGm10847NfkbTnfaIggrabUniPk	14545		3637		Human Prostate Carcinoma Cells
			7234	7311	1857	1780	
Nb4	CMYC	wgEncodeAwgTfbsSydhNb4CmycUniPk	41251		10313		Human Acute Promyelocytic Leukemia Cells
			20572	20679	5210	5103	
	MAX	wgEncodeAwgTfbsSydhNb4MaxUniPk	54438		13610		
			27209	27229	6815	6795	
Sknsh	TAF1	wgEncodeAwgTfbsHaibSknshTaf1V0416101UniPk	21908		5478		Human Neuroblastoma Cells
			11002	10906	2691	2787	
Gm18526	NFKB	wgEncodeAwgTfbsSydhGm18526NfkbTnfaIggrabUniPk	4820		1206		Human Lymphoblast Cells
			2395	2425	617	589	
Gm19099	NFKB	wgEncodeAwgTfbsSydhGm19099NfkbTnfaIggrabUniPk	12190		3048		Human Lymphoblast Cells
			6073	6117	1546	1502	
Mcf10aes	FOS	wgEncodeAwgTfbsSydhMcf10aesCfosTam112hHvdUniPk	143425		35857		Human Mammary Epithelial Cells
			71850	71575	17791	18066	

	FOS	wgEncodeAwgTfbsSydhMcf10aesCfosTam14hHvdUniPk	134080		33520		
			67066	67014	16734	16786	
	FOS	wgEncodeAwgTfbsSydhMcf10aesCfosTamHvdUniPk	109454		27364		
			54707	54747	13702	13662	
	STAT3	wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01bUniPk	70411		17603		
			35281	35130	8726	8877	
	STAT3	wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01cUniPk	64587		16147		
			32324	32263	8043	8104	
	STAT3	wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01UniPk	19377		4845		
			9713	9664	2398	2447	
	STAT3	wgEncodeAwgTfbsSydhMcf10aesStat3Tam112hHvdUniPk	62265		15567		
			31109	31156	7807	7760	
	STAT3	wgEncodeAwgTfbsSydhMcf10aesStat3TamUniPk	69246		17312		
			34662	34584	8617	8695	
Nt2d1	YY1	wgEncodeAwgTfbsSydhNt2d1Yy1UcdUniPk	7465		1867		Human Embryonic Carcinoma Cells
			3690	3775	976	891	
Shsy5y	GATA2	wgEncodeAwgTfbsSydhShsy5yGata2UcdUniPk	55936		13984		Human Neuroblastoma Cells
			27935	28001	7025	6959	
	GATA3	wgEncodeAwgTfbsSydhShsy5yGata3sc269sc269UcdUniPk	24948		6238		
			12440	12508	3153	3085	
Mcf7	GATA3	wgEncodeAwgTfbsSydhMcf7Gata3UcdUniPk	9585		2397		Human Breast Carcinoma Cells
			4793	4792	1198	1199	
	HAE2F1	wgEncodeAwgTfbsSydhMcf7Hae2f1UcdUniPk	30704		7676		
			15377	15327	3813	3863	
	CTCF	wgEncodeAwgTfbsUtaMcf7CtcfUniPk	90049		22513		
			45057	44992	11224	11289	

Supplementary Table S2

Table S2. Partial Hyper-parameter settings of TEMNet.

parameters	Search space	optimal parameter
Epoch	15,40,60,100	40
Learning rate	0.01,0.001,0.0015,0.0018,0.002	0.0018
Batch size	32,64,128	64
Optimizer	Adam, AdamW, SGD	AdamW
dropout ratio	0.1,0.2,0.4,0.6	0.4
EMA factor	1,2,4	4
MLP hidden units	[512,192,1]	[512,192,1]

Supplementary Table S3

Table S3. The detailed settings of the sequence data section.

Architectures	Settings	Output shape
Bi-LSTM Layer	input_size=12 hidden_size=64 num_layers=2	(64,99,128)
Res1	input_channels=128 output channels=128 num_residuals=2	(64,128,1,99)
Res2	input_channels=128 output channels=256 num_residuals=2	(64,256,1,50)
Convolution_seq Layer1	Batch Norm-feature=256 ELU kernel number = 256 kernel size = (1, 3) stride = (1, 1)	(64,256,1,48)
Dropout Layer	dropout=0.4	(64,256,1,48)
Convolution_seq Layer2	Batch Norm-feature=256 ELU kernel number = 256 kernel size = (1, 3) stride = (1, 1)	(64,256,1,46)
Max-pooling Layer1	kernel size=(1, 3) stride = (1, 1)	(64,256,1,44)

Supplementary Table S4

Table S4. The detailed settings of the shape data section.

Architectures	Settings	Output shape
Conv_to_TA	input_channels=1 output channels=8 kernel size = (1, 1)	(64,8,5,101)
TA Layer	input_channels=8 output channels=64	(64,256,1,7)
Convolution_shape Layer1	kernel number = 64 kernel size = (1, 3) stride = (1, 1) ELU Batch Norm-feature=64	(64,256,1,7)
Max-pooling Layer1	kernel size=(1, 3) stride = (1, 1)	(64,256,1,5)
Dropout Layer	dropout=0.4	(64,256,1,5)
Bi-LSTM Layer	input_size=5 hidden_size=5 num_layers=16	(64,256,10)
Convolution_shape Layer2	Batch Norm-feature=64 ELU kernel number = 64 kernel size = (1, 3) stride = (1, 1)	(64,256,1,10)
Max-pooling Layer2	kernel size=(1, 3) stride = (1, 1)	(64,256,1,8)

Supplementary Table S5

Table S5. The detailed settings of the enhanced fusion feature extraction modules.

Architectures	Settings	Output shape
EMA	channels=256 factor=4	(64,256,1,52)
Convolution Layer1	kernel number = 256 kernel size = (1, 5) stride = (1, 1) ELU Batch Norm-feature=512	(64,256,1,48)
Max-pooling Layer1	kernel size=(1, 3) stride = (1, 1)	(64,256,1,46)

Supplementary Table S6

Table S6. Overlap of all transcription factors in 165 ChIP-seq datasets.

Cell lines	TF lines
Cells: HepG2 & K562	Shared transcription factors (18): CEBPB, COREST, CTCF, ELF1, EZH2, FOS, GABP, HDAC, CJUN, JUND, MAX, P300, SIN3A, SRF, TAF1, TBP, TEAD4, YY1
Cells: HepG2 & A549	Shared transcription factors (7): CEBPB, ELF1, FOS, FOXA1, GABP, SIN3A, TAF1
Cells: HepG2 & H1hesc	Shared transcription factors (15): CEBPB, CTCF, FOS, GABP, HDAC, CJUN, MAX, CMYC, SIN3A, SP1, SP2, SRF, TBP, TEAD4, YY1
Cells: HepG2 & HeLaS3	Shared transcription factors (9): CEBPB, CTCF, EZH2, FOS, GABP, CJUN, JUND, MAX, P300
Cells: HepG2 & IMR90	Shared transcription factors (1): CEBPB
Cells: HepG2 & Dnd41	Shared transcription factors (2): CTCF, EZH2
Cells: HepG2 & Gm12878	Shared transcription factors (11): CTCF, ELF1, FOS, GABP, JUND, MAX, CMYC, P300, TAF1, TBP, YY1
Cells: HepG2 & Hmec	Shared transcription factors (1): CTCF
Cells: HepG2 & Hsmm	Shared transcription factors (2): CTCF, EZH2
Cells: HepG2 & Huvec	Shared transcription factors (5): CTCF, EZH2, FOS, CJUN, MAX
Cells: HepG2 & Nha	Shared transcription factors (1): CTCF
Cells: HepG2 & Nhdfad	Shared transcription factors (1): CTCF
Cells: HepG2 & NHEK	Shared transcription factors (1): CTCF
Cells: HepG2 & NHLF	Shared transcription factors (1): CTCF
Cells: HepG2 & Osteobl	Shared transcription factors (1): CTCF
Cells: HepG2 & Ecc1	Shared transcription factors (1): FOXA1
Cells: HepG2 & Gm12892	Shared transcription factors (2): TAF1, YY1
Cells: HepG2 & HCT116	Shared transcription factors (1): YY1
Cells: HepG2 & Panc1	Shared transcription factors (1): SIN3A
Cells: HepG2 & SkNSHRA	Shared transcription factors (2): P300, YY1
Cells: HepG2 & T47D	Shared transcription factors (2): FOXA1, P300
Cells: HepG2 & NB4	Shared transcription factors (2): MAX, CMYC
Cells: HepG2 & SkNSH	Shared transcription factors (1): TAF1
Cells: HepG2 & Mcf10aes	Shared transcription factors (1): FOS
Cells: HepG2 & NT2D1	Shared transcription factors (1): YY1
Cells: HepG2 & MCF7	Shared transcription factors (1): CTCF
Cells: K562 & A549	Shared transcription factors (6): CEBPB, ELF1, FOS, GABP, SIN3A, TAF1
Cells: K562 & H1hesc	Shared transcription factors (12): CEBPB, CTCF, FOS, GABP, HDAC, CJUN, MAX, SIN3A, SRF, TBP, TEAD4, YY1
Cells: K562 & HeLaS3	Shared transcription factors (9): CEBPB, CTCF, EZH2, FOS, GABP, CJUN, JUND, MAX, P300
Cells: K562 & IMR90	Shared transcription factors (1): CEBPB

Cells: K562 & Dnd41	Shared transcription factors (2): CTCF, EZH2
Cells: K562 & Gm12878	Shared transcription factors (10): CTCF, ELF1, FOS, GABP, JUND, MAX, P300, TAF1, TBP, YY1
Cells: K562 & Hmec	Shared transcription factors (1): CTCF
Cells: K562 & Hsmm	Shared transcription factors (2): CTCF, EZH2
Cells: K562 & Huvec	Shared transcription factors (6): CTCF, EZH2, FOS, GATA2, CJUN, MAX
Cells: K562 & Nha	Shared transcription factors (1): CTCF
Cells: K562 & Nhdfad	Shared transcription factors (1): CTCF
Cells: K562 & NHEK	Shared transcription factors (1): CTCF
Cells: K562 & NHLF	Shared transcription factors (1): CTCF
Cells: K562 & Osteobl	Shared transcription factors (1): CTCF
Cells: K562 & Gm12892	Shared transcription factors (2): TAF1, YY1
Cells: K562 & HCT116	Shared transcription factors (1): YY1
Cells: K562 & Panc1	Shared transcription factors (1): SIN3A
Cells: K562 & SkNSHRA	Shared transcription factors (2): P300, YY1
Cells: K562 & T47D	Shared transcription factors (1): P300
Cells: K562 & NB4	Shared transcription factors (1): MAX
Cells: K562 & SkNSH	Shared transcription factors (1): TAF1
Cells: K562 & Mcf10aes	Shared transcription factors (1): FOS
Cells: K562 & NT2D1	Shared transcription factors (1): YY1
Cells: K562 & Shsy5y	Shared transcription factors (1): GATA2
Cells: K562 & MCF7	Shared transcription factors (1): CTCF
Cells: A549 & H1hesc	Shared transcription factors (4): CEBPB, FOS, GABP, SIN3A
Cells: A549 & HeLaS3	Shared transcription factors (3): CEBPB, FOS, GABP
Cells: A549 & IMR90	Shared transcription factors (1): CEBPB
Cells: A549 & Gm12878	Shared transcription factors (4): ELF1, FOS, GABP, TAF1
Cells: A549 & Huvec	Shared transcription factors (1): FOS
Cells: A549 & Ecc1	Shared transcription factors (1): FOXA1
Cells: A549 & Gm12892	Shared transcription factors (1): TAF1
Cells: A549 & Panc1	Shared transcription factors (1): SIN3A
Cells: A549 & T47D	Shared transcription factors (1): FOXA1
Cells: A549 & SkNSH	Shared transcription factors (1): TAF1
Cells: A549 & Mcf10aes	Shared transcription factors (1): FOS
Cells: H1hesc & HeLaS3	Shared transcription factors (6): CEBPB, CTCF, FOS, GABP, CJUN, MAX
Cells: H1hesc & IMR90	Shared transcription factors (1): CEBPB
Cells: H1hesc & Dnd41	Shared transcription factors (1): CTCF
Cells: H1hesc & Gm12878	Shared transcription factors (7): CTCF, FOS, GABP, MAX, CMYC, TBP, YY1
Cells: H1hesc & Hmec	Shared transcription factors (1): CTCF
Cells: H1hesc & Hsmm	Shared transcription factors (1): CTCF
Cells: H1hesc & Huvec	Shared transcription factors (4): CTCF, FOS, CJUN, MAX
Cells: H1hesc & Nha	Shared transcription factors (1): CTCF
Cells: H1hesc & Nhdfad	Shared transcription factors (1): CTCF
Cells: H1hesc & NHEK	Shared transcription factors (1): CTCF

Cells: H1hesc & NHLF	Shared transcription factors (1): CTCF
Cells: H1hesc & Osteobl	Shared transcription factors (1): CTCF
Cells: H1hesc & Gm12892	Shared transcription factors (1): YY1
Cells: H1hesc & HCT116	Shared transcription factors (1): YY1
Cells: H1hesc & Panc1	Shared transcription factors (1): SIN3A
Cells: H1hesc & SkNSHRA	Shared transcription factors (1): YY1
Cells: H1hesc & NB4	Shared transcription factors (2): MAX, CMYC
Cells: H1hesc & Mcf10aes	Shared transcription factors (1): FOS
Cells: H1hesc & NT2D1	Shared transcription factors (1): YY1
Cells: H1hesc & MCF7	Shared transcription factors (1): CTCF
Cells: HeLaS3 & IMR90	Shared transcription factors (1): CEBPB
Cells: HeLaS3 & Dnd41	Shared transcription factors (2): CTCF, EZH2
Cells: HeLaS3 & Gm12878	Shared transcription factors (7): CTCF, FOS, GABP, JUND, MAX, P300, STAT3
Cells: HeLaS3 & Hmec	Shared transcription factors (1): CTCF
Cells: HeLaS3 & Hsmm	Shared transcription factors (2): CTCF, EZH2
Cells: HeLaS3 & Huvec	Shared transcription factors (6): CTCF, EZH2, FOS, CJUN, MAX, POL2B
Cells: HeLaS3 & Nha	Shared transcription factors (1): CTCF
Cells: HeLaS3 & Nhdfad	Shared transcription factors (1): CTCF
Cells: HeLaS3 & NHEK	Shared transcription factors (2): CTCF, POL2B
Cells: HeLaS3 & NHLF	Shared transcription factors (1): CTCF
Cells: HeLaS3 & Osteobl	Shared transcription factors (1): CTCF
Cells: HeLaS3 & SkNSHRA	Shared transcription factors (1): P300
Cells: HeLaS3 & T47D	Shared transcription factors (1): P300
Cells: HeLaS3 & NB4	Shared transcription factors (1): MAX
Cells: HeLaS3 & Mcf10aes	Shared transcription factors (2): FOS, STAT3
Cells: HeLaS3 & MCF7	Shared transcription factors (2): CTCF, HAE2F1
Cells: Dnd41 & Gm12878	Shared transcription factors (1): CTCF
Cells: Dnd41 & Hmec	Shared transcription factors (1): CTCF
Cells: Dnd41 & Hsmm	Shared transcription factors (2): CTCF, EZH2
Cells: Dnd41 & Huvec	Shared transcription factors (2): CTCF, EZH2
Cells: Dnd41 & Nha	Shared transcription factors (1): CTCF
Cells: Dnd41 & Nhdfad	Shared transcription factors (1): CTCF
Cells: Dnd41 & NHEK	Shared transcription factors (1): CTCF
Cells: Dnd41 & NHLF	Shared transcription factors (1): CTCF
Cells: Dnd41 & Osteobl	Shared transcription factors (1): CTCF
Cells: Dnd41 & MCF7	Shared transcription factors (1): CTCF
Cells: Gm12878 & Hmec	Shared transcription factors (1): CTCF
Cells: Gm12878 & Hsmm	Shared transcription factors (1): CTCF
Cells: Gm12878 & Huvec	Shared transcription factors (3): CTCF, FOS, MAX
Cells: Gm12878 & Nha	Shared transcription factors (1): CTCF
Cells: Gm12878 & Nhdfad	Shared transcription factors (1): CTCF
Cells: Gm12878 & NHEK	Shared transcription factors (1): CTCF
Cells: Gm12878 & NHLF	Shared transcription factors (1): CTCF

Cells: Gm12878 & Osteobl	Shared transcription factors (1): CTCF
Cells: Gm12878 & Gm12891	Shared transcription factors (2): NFKB, PAX5
Cells: Gm12878 & Gm12892	Shared transcription factors (4): NFKB, PAX5, TAF1, YY1
Cells: Gm12878 & HCT116	Shared transcription factors (1): YY1
Cells: Gm12878 & SkNSHRA	Shared transcription factors (2): P300, YY1
Cells: Gm12878 & T47D	Shared transcription factors (1): P300
Cells: Gm12878 & Gm10847	Shared transcription factors (1): NFKB
Cells: Gm12878 & NB4	Shared transcription factors (2): MAX, CMYC
Cells: Gm12878 & SkNSH	Shared transcription factors (1): TAF1
Cells: Gm12878 & Gm18526	Shared transcription factors (1): NFKB
Cells: Gm12878 & Gm19099	Shared transcription factors (1): NFKB
Cells: Gm12878 & Mcf10aes	Shared transcription factors (2): FOS, STAT3
Cells: Gm12878 & NT2D1	Shared transcription factors (1): YY1
Cells: Gm12878 & MCF7	Shared transcription factors (1): CTCF
Cells: Hmec & Hsmm	Shared transcription factors (1): CTCF
Cells: Hmec & Huvec	Shared transcription factors (1): CTCF
Cells: Hmec & Nha	Shared transcription factors (1): CTCF
Cells: Hmec & Nhdfad	Shared transcription factors (1): CTCF
Cells: Hmec & NHEK	Shared transcription factors (1): CTCF
Cells: Hmec & NHLF	Shared transcription factors (1): CTCF
Cells: Hmec & Osteobl	Shared transcription factors (1): CTCF
Cells: Hmec & MCF7	Shared transcription factors (1): CTCF
Cells: Hsmm & Huvec	Shared transcription factors (2): CTCF, EZH2
Cells: Hsmm & Nha	Shared transcription factors (1): CTCF
Cells: Hsmm & Nhdfad	Shared transcription factors (1): CTCF
Cells: Hsmm & NHEK	Shared transcription factors (1): CTCF
Cells: Hsmm & NHLF	Shared transcription factors (1): CTCF
Cells: Hsmm & Osteobl	Shared transcription factors (1): CTCF
Cells: Hsmm & MCF7	Shared transcription factors (1): CTCF
Cells: Huvec & Nha	Shared transcription factors (1): CTCF
Cells: Huvec & Nhdfad	Shared transcription factors (1): CTCF
Cells: Huvec & NHEK	Shared transcription factors (2): CTCF, POL2B
Cells: Huvec & NHLF	Shared transcription factors (1): CTCF
Cells: Huvec & Osteobl	Shared transcription factors (1): CTCF
Cells: Huvec & NB4	Shared transcription factors (1): MAX
Cells: Huvec & Mcf10aes	Shared transcription factors (1): FOS
Cells: Huvec & Shsy5y	Shared transcription factors (1): GATA2
Cells: Huvec & MCF7	Shared transcription factors (1): CTCF
Cells: Nha & Nhdfad	Shared transcription factors (1): CTCF
Cells: Nha & NHEK	Shared transcription factors (1): CTCF
Cells: Nha & NHLF	Shared transcription factors (1): CTCF
Cells: Nha & Osteobl	Shared transcription factors (1): CTCF
Cells: Nha & MCF7	Shared transcription factors (1): CTCF

Cells: Nhdfad & NHEK	Shared transcription factors (1): CTCF
Cells: Nhdfad & NHLF	Shared transcription factors (1): CTCF
Cells: Nhdfad & Osteobl	Shared transcription factors (1): CTCF
Cells: Nhdfad & MCF7	Shared transcription factors (1): CTCF
Cells: NHEK & NHLF	Shared transcription factors (1): CTCF
Cells: NHEK & Osteobl	Shared transcription factors (1): CTCF
Cells: NHEK & MCF7	Shared transcription factors (1): CTCF
Cells: NHLF & Osteobl	Shared transcription factors (1): CTCF
Cells: NHLF & MCF7	Shared transcription factors (1): CTCF
Cells: Osteobl & MCF7	Shared transcription factors (1): CTCF
Cells: Ecc1 & T47D	Shared transcription factors (1): FOXA1
Cells: Gm12891 & Gm12892	Shared transcription factors (2): NFKB, PAX5
Cells: Gm12891 & Gm10847	Shared transcription factors (1): NFKB
Cells: Gm12891 & Gm18526	Shared transcription factors (1): NFKB
Cells: Gm12891 & Gm19099	Shared transcription factors (1): NFKB
Cells: Gm12892 & HCT116	Shared transcription factors (1): YY1
Cells: Gm12892 & SkNSHRA	Shared transcription factors (1): YY1
Cells: Gm12892 & Gm10847	Shared transcription factors (1): NFKB
Cells: Gm12892 & SkNSH	Shared transcription factors (1): TAF1
Cells: Gm12892 & Gm18526	Shared transcription factors (1): NFKB
Cells: Gm12892 & Gm19099	Shared transcription factors (1): NFKB
Cells: Gm12892 & NT2D1	Shared transcription factors (1): YY1
Cells: HCT116 & SkNSHRA	Shared transcription factors (1): YY1
Cells: HCT116 & NT2D1	Shared transcription factors (1): YY1
Cells: SkNSHRA & T47D	Shared transcription factors (1): P300
Cells: SkNSHRA & NT2D1	Shared transcription factors (1): YY1
Cells: T47D & Shsy5y	Shared transcription factors (1): GATA3
Cells: T47D & MCF7	Shared transcription factors (1): GATA3
Cells: Gm10847 & Gm18526	Shared transcription factors (1): NFKB
Cells: Gm10847 & Gm19099	Shared transcription factors (1): NFKB
Cells: Gm18526 & Gm19099	Shared transcription factors (1): NFKB
Cells: Shsy5y & MCF7	Shared transcription factors (1): GATA3

Supplementary Table S7

Table S7. The predicted results of Baseline model MLSNet on 165 ChIP-seq datasets.

Datasets	ACC	ROC-AUC	PR-AUC
wgEncodeAwgTfbsBroadDnd41CtcfUniPk	0.931383	0.978935	0.981499
wgEncodeAwgTfbsBroadDnd41Ezh239875UniPk	0.684054	0.763665	0.777782
wgEncodeAwgTfbsBroadGm12878CtcfUniPk	0.919005	0.967925	0.97387
wgEncodeAwgTfbsBroadH1hescCtcfUniPk	0.935915	0.979972	0.981384
wgEncodeAwgTfbsBroadHelas3CtcfUniPk	0.898929	0.958678	0.966446
wgEncodeAwgTfbsBroadHelas3Ezh239875UniPk	0.669014	0.718492	0.714489
wgEncodeAwgTfbsBroadHelas3Pol2bUniPk	0.658577	0.733351	0.726391
wgEncodeAwgTfbsBroadHepg2CtcfUniPk	0.938834	0.979465	0.98238
wgEncodeAwgTfbsBroadHepg2Ezh239875UniPk	0.692131	0.758046	0.731459
wgEncodeAwgTfbsBroadHmecCtcfUniPk	0.948029	0.984691	0.98702
wgEncodeAwgTfbsBroadHsmmCtcfUniPk	0.939727	0.981969	0.983883
wgEncodeAwgTfbsBroadHsmmEzh239875UniPk	0.668831	0.72786	0.691017
wgEncodeAwgTfbsBroadHsmmtCtcfUniPk	0.923772	0.971531	0.976061
wgEncodeAwgTfbsBroadHuvecCtcfUniPk	0.934462	0.978041	0.981534
wgEncodeAwgTfbsBroadHuvecEzh239875UniPk	0.723204	0.792442	0.788499
wgEncodeAwgTfbsBroadHuvecPol2bUniPk	0.684741	0.754966	0.739432
wgEncodeAwgTfbsBroadK562CtcfUniPk	0.883263	0.948445	0.958535
wgEncodeAwgTfbsBroadK562Ezh239875UniPk	0.659226	0.692076	0.640563
wgEncodeAwgTfbsBroadK562Hdac2a300705aUniPk	0.690363	0.770552	0.769026
wgEncodeAwgTfbsBroadK562Hdac6a301341aUniPk	0.626966	0.683827	0.696264
wgEncodeAwgTfbsBroadNhaCtcfUniPk	0.93087	0.976827	0.980711
wgEncodeAwgTfbsBroadNhdfadCtcfUniPk	0.933608	0.979407	0.982107
wgEncodeAwgTfbsBroadNhekCtcfUniPk	0.922035	0.971363	0.976117
wgEncodeAwgTfbsBroadNhekPol2bUniPk	0.661804	0.727633	0.731647
wgEncodeAwgTfbsBroadNhlfCtcfUniPk	0.92403	0.973042	0.977121
wgEncodeAwgTfbsBroadOsteoblCtcfUniPk	0.907048	0.961431	0.968994
wgEncodeAwgTfbsHaibA549Elf1V0422111Etoh02UniPk	0.801366	0.884143	0.895746
wgEncodeAwgTfbsHaibA549Fosl2V0422111Etoh02UniPk	0.882195	0.946655	0.953464
wgEncodeAwgTfbsHaibA549Foxa1V0416102Dex100nmUniPk	0.836762	0.91422	0.917299
wgEncodeAwgTfbsHaibA549GabpV0422111Etoh02UniPk	0.805634	0.881963	0.889299
wgEncodeAwgTfbsHaibA549Sin3ak20V0422111Etoh02UniPk	0.701681	0.766675	0.781758
wgEncodeAwgTfbsHaibA549Taf1V0422111Etoh02UniPk	0.706857	0.775306	0.779464
wgEncodeAwgTfbsHaibEcc1Foxa1sc6553V0416102Dm002p1hUniPk	0.854373	0.920472	0.92928
wgEncodeAwgTfbsHaibGm12878Elf1sc631V0416101UniPk	0.806209	0.891855	0.898718
wgEncodeAwgTfbsHaibGm12878GabpPcr2xUniPk	0.834313	0.910046	0.921586
wgEncodeAwgTfbsHaibGm12878P300Pcr1xUniPk	0.770109	0.850329	0.858236
wgEncodeAwgTfbsHaibGm12878Pax5c20Pcr1xUniPk	0.832246	0.909798	0.914445

wgEncodeAwgTfbsHaibGm12878Pax5n19Pcr1xUniPk	0.808099	0.88815	0.896811
wgEncodeAwgTfbsHaibGm12878Taf1Pcr1xUniPk	0.744128	0.832202	0.835027
wgEncodeAwgTfbsHaibGm12878Yy1sc281Pcr1xUniPk	0.834746	0.915139	0.926646
wgEncodeAwgTfbsHaibGm12891Pax5c20V0416101UniPk	0.807229	0.896443	0.90654
wgEncodeAwgTfbsHaibGm12892Pax5c20V0416101UniPk	0.765963	0.848828	0.861437
wgEncodeAwgTfbsHaibGm12892Taf1V0416102UniPk	0.743097	0.823011	0.836808
wgEncodeAwgTfbsHaibGm12892Yy1V0416101UniPk	0.836537	0.912981	0.922372
wgEncodeAwgTfbsHaibH1hescFosl1sc183V0416102UniPk	0.770455	0.843833	0.85889
wgEncodeAwgTfbsHaibH1hescGabpPcr1xUniPk	0.81802	0.898473	0.908975
wgEncodeAwgTfbsHaibH1hescHdac2sc6296V0416102UniPk	0.758374	0.843766	0.847192
wgEncodeAwgTfbsHaibH1hescSp1Pcr1xUniPk	0.787043	0.871835	0.884026
wgEncodeAwgTfbsHaibH1hescSp2V0422111UniPk	0.834029	0.911317	0.927223
wgEncodeAwgTfbsHaibH1hescSrfPcr1xUniPk	0.857214	0.934828	0.944412
wgEncodeAwgTfbsHaibH1hescTead4sc101184V0422111UniPk	0.900884	0.960806	0.964175
wgEncodeAwgTfbsHaibH1hescYy1sc281V0416102UniPk	0.841936	0.921276	0.928696
wgEncodeAwgTfbsHaibHct116Yy1sc281V0416101UniPk	0.828178	0.908509	0.918338
wgEncodeAwgTfbsHaibHelas3GabpPcr1xUniPk	0.851753	0.930709	0.940412
wgEncodeAwgTfbsHaibHepg2Cebpbsc150V0416101UniPk	0.925453	0.975556	0.975155
wgEncodeAwgTfbsHaibHepg2Elf1sc631V0416101UniPk	0.870603	0.939161	0.941903
wgEncodeAwgTfbsHaibHepg2Fosl2V0416101UniPk	0.861794	0.933547	0.940625
wgEncodeAwgTfbsHaibHepg2Foxa1sc101058V0416101UniPk	0.891461	0.95675	0.958348
wgEncodeAwgTfbsHaibHepg2Foxa1sc6553V0416101UniPk	0.896191	0.961496	0.962664
wgEncodeAwgTfbsHaibHepg2GabpPcr2xUniPk	0.82943	0.907914	0.913619
wgEncodeAwgTfbsHaibHepg2Hdac2sc6296V0416101UniPk	0.810767	0.893342	0.898611
wgEncodeAwgTfbsHaibHepg2JundPcr1xUniPk	0.842901	0.920085	0.928811
wgEncodeAwgTfbsHaibHepg2P300V0416101UniPk	0.839722	0.920391	0.920613
wgEncodeAwgTfbsHaibHepg2Sin3ak20Pcr1xUniPk	0.741133	0.821614	0.825352
wgEncodeAwgTfbsHaibHepg2Sp1Pcr1xUniPk	0.826992	0.908769	0.915159
wgEncodeAwgTfbsHaibHepg2Sp2V0422111UniPk	0.884393	0.93792	0.951629
wgEncodeAwgTfbsHaibHepg2SrfV0416101UniPk	0.84766	0.917703	0.926138
wgEncodeAwgTfbsHaibHepg2Taf1Pcr2xUniPk	0.741447	0.825202	0.82891
wgEncodeAwgTfbsHaibHepg2Tead4sc101184V0422111UniPk	0.822602	0.899445	0.906996
wgEncodeAwgTfbsHaibHepg2Yy1sc281V0416101UniPk	0.799742	0.884955	0.890597
wgEncodeAwgTfbsHaibK562Cebpbsc150V0422111UniPk	0.88926	0.952391	0.955761
wgEncodeAwgTfbsHaibK562Elf1sc631V0416102UniPk	0.881209	0.948885	0.950052
wgEncodeAwgTfbsHaibK562Fosl1sc183V0416101UniPk	0.918279	0.96787	0.973419
wgEncodeAwgTfbsHaibK562GabpV0416101UniPk	0.8392	0.910302	0.918737
wgEncodeAwgTfbsHaibK562Gata2sc267Pcr1xUniPk	0.879271	0.949102	0.950084
wgEncodeAwgTfbsHaibK562Hdac2sc6296V0416102UniPk	0.76926	0.857183	0.862063
wgEncodeAwgTfbsHaibK562MaxV0416102UniPk	0.808474	0.891237	0.899345
wgEncodeAwgTfbsHaibK562Sin3ak20V0416101UniPk	0.754351	0.835194	0.843336
wgEncodeAwgTfbsHaibK562SrfV0416101UniPk	0.807983	0.893244	0.907457
wgEncodeAwgTfbsHaibK562Taf1V0416101UniPk	0.757255	0.842193	0.849593
wgEncodeAwgTfbsHaibK562Tead4sc101184V0422111UniPk	0.83314	0.911957	0.916261

wgEncodeAwgTfbsHaibK562Yy1V0416101UniPk	0.822633	0.904474	0.909564
wgEncodeAwgTfbsHaibK562Yy1V0416102UniPk	0.833226	0.911497	0.920185
wgEncodeAwgTfbsHaibPanc1Sin3ak20V0416101UniPk	0.716259	0.784473	0.777016
wgEncodeAwgTfbsHaibSknshraP300V0416102UniPk	0.813923	0.894883	0.898154
wgEncodeAwgTfbsHaibSknshraYy1sc281V0416102UniPk	0.809532	0.893332	0.90613
wgEncodeAwgTfbsHaibSknshTaf1V0416101UniPk	0.761957	0.846508	0.848549
wgEncodeAwgTfbsHaibT47dFoxa1sc6553V0416102Dm002p1hUniPk	0.883727	0.952107	0.954791
wgEncodeAwgTfbsHaibT47dGata3sc268V0416102Dm002p1hUniPk	0.843626	0.920193	0.925541
wgEncodeAwgTfbsHaibT47dP300V0416102Dm002p1hUniPk	0.786638	0.86937	0.878348
wgEncodeAwgTfbsSydhA549CebpbIggrabUniPk	0.936854	0.981587	0.98178
wgEncodeAwgTfbsSydhGm10847NfkbTnfaIggrabUniPk	0.792136	0.874644	0.891187
wgEncodeAwgTfbsSydhGm12878CfosUniPk	0.904817	0.95916	0.96366
wgEncodeAwgTfbsSydhGm12878JundUniPk	0.883984	0.947757	0.94863
wgEncodeAwgTfbsSydhGm12878MaxIggmusUniPk	0.751874	0.830228	0.836492
wgEncodeAwgTfbsSydhGm12878NfkbTnfaIggrabUniPk	0.808868	0.887945	0.899284
wgEncodeAwgTfbsSydhGm12878P300bUniPk	0.836701	0.917869	0.921895
wgEncodeAwgTfbsSydhGm12878Stat3IggmusUniPk	0.699647	0.768726	0.768187
wgEncodeAwgTfbsSydhGm12878TbpIggmusUniPk	0.718213	0.797681	0.79992
wgEncodeAwgTfbsSydhGm12891NfkbTnfaIggrabUniPk	0.811423	0.894198	0.904253
wgEncodeAwgTfbsSydhGm12892NfkbTnfaIggrabUniPk	0.807585	0.889827	0.899876
wgEncodeAwgTfbsSydhGm18526NfkbTnfaIggrabUniPk	0.77529	0.868841	0.886885
wgEncodeAwgTfbsSydhGm19099NfkbTnfaIggrabUniPk	0.83727	0.915208	0.922405
wgEncodeAwgTfbsSydhH1hescCebpbIggrabUniPk	0.940994	0.980968	0.981415
wgEncodeAwgTfbsSydhH1hescCtbp2UcdUniPk	0.714744	0.786515	0.779844
wgEncodeAwgTfbsSydhH1hescJundIggrabUniPk	0.850866	0.922618	0.931695
wgEncodeAwgTfbsSydhH1hescMaxUcdUniPk	0.831625	0.912096	0.923262
wgEncodeAwgTfbsSydhH1hescSin3anb6001263IggrabUniPk	0.764273	0.843652	0.854328
wgEncodeAwgTfbsSydhHelas3CebpbIggrabUniPk	0.890111	0.955572	0.957035
wgEncodeAwgTfbsSydhHelas3CfosUniPk	0.906181	0.958632	0.962822
wgEncodeAwgTfbsSydhHelas3CjunIggrabUniPk	0.889006	0.948849	0.954519
wgEncodeAwgTfbsSydhHelas3Hae2f1UniPk	0.7994	0.882538	0.881846
wgEncodeAwgTfbsSydhHelas3JundIggrabUniPk	0.900333	0.962108	0.96595
wgEncodeAwgTfbsSydhHelas3MaxIggrabUniPk	0.793214	0.877546	0.883539
wgEncodeAwgTfbsSydhHelas3P300sc584sc584IggrabUniPk	0.843235	0.922123	0.925146
wgEncodeAwgTfbsSydhHelas3Stat3IggrabUniPk	0.806344	0.888229	0.900157
wgEncodeAwgTfbsSydhHepg2CebpbForsklnUniPk	0.906121	0.965568	0.966741
wgEncodeAwgTfbsSydhHepg2CebpbIggrabUniPk	0.944522	0.985682	0.984664
wgEncodeAwgTfbsSydhHepg2CjunIggrabUniPk	0.920758	0.974116	0.977406
wgEncodeAwgTfbsSydhHepg2Corestsc30189IggrabUniPk	0.728041	0.804817	0.812041
wgEncodeAwgTfbsSydhHepg2JundIggrabUniPk	0.937657	0.980928	0.982658
wgEncodeAwgTfbsSydhHepg2MaxIggrabUniPk	0.788453	0.875346	0.883789
wgEncodeAwgTfbsSydhHepg2TbpIggrabUniPk	0.740707	0.816423	0.819975
wgEncodeAwgTfbsSydhHuvecCfosUcdUniPk	0.890412	0.953708	0.958956
wgEncodeAwgTfbsSydhHuvecCjunUniPk	0.9158	0.969384	0.970294

wgEncodeAwgTfbsSydhHuvecGata2UcdUniPk	0.816699	0.894341	0.902744
wgEncodeAwgTfbsSydhHuvecMaxUniPk	0.854843	0.931578	0.938125
wgEncodeAwgTfbsSydhImr90CebpbIggrabUniPk	0.921212	0.974108	0.97376
wgEncodeAwgTfbsSydhK562CebpbIggrabUniPk	0.933528	0.978588	0.978788
wgEncodeAwgTfbsSydhK562CfosUniPk	0.929813	0.976659	0.977674
wgEncodeAwgTfbsSydhK562CjunUniPk	0.911278	0.964107	0.966948
wgEncodeAwgTfbsSydhK562Corestsc30189IggrabUniPk	0.831068	0.90996	0.915279
wgEncodeAwgTfbsSydhK562Gata2UcdUniPk	0.865962	0.932108	0.935383
wgEncodeAwgTfbsSydhK562JundIggrabUniPk	0.874307	0.945385	0.95086
wgEncodeAwgTfbsSydhK562MaxIggrabUniPk	0.810304	0.892472	0.899479
wgEncodeAwgTfbsSydhK562P300IggrabUniPk	0.841496	0.917289	0.923006
wgEncodeAwgTfbsSydhK562TbpIggmusUniPk	0.761445	0.842508	0.856971
wgEncodeAwgTfbsSydhK562Yy1UcdUniPk	0.906283	0.961118	0.968112
wgEncodeAwgTfbsSydhMcf10aesCfosTam112hHvdUniPk	0.920601	0.973563	0.972678
wgEncodeAwgTfbsSydhMcf10aesCfosTam14hHvdUniPk	0.914618	0.970603	0.969884
wgEncodeAwgTfbsSydhMcf10aesCfosTamHvdUniPk	0.924682	0.975335	0.975009
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01bUniPk	0.885815	0.956421	0.958414
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01cUniPk	0.893417	0.958347	0.959764
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01UniPk	0.866047	0.941835	0.944056
wgEncodeAwgTfbsSydhMcf10aesStat3Tam112hHvdUniPk	0.892914	0.957136	0.957279
wgEncodeAwgTfbsSydhMcf10aesStat3TamUniPk	0.896604	0.960399	0.961494
wgEncodeAwgTfbsSydhMcf7Gata3UcdUniPk	0.742178	0.813795	0.822749
wgEncodeAwgTfbsSydhMcf7Hae2f1UcdUniPk	0.746092	0.824242	0.822316
wgEncodeAwgTfbsSydhNb4CmycUniPk	0.798022	0.881542	0.892365
wgEncodeAwgTfbsSydhNb4MaxUniPk	0.820647	0.904675	0.913223
wgEncodeAwgTfbsSydhNt2d1Yy1UcdUniPk	0.884306	0.948301	0.959181
wgEncodeAwgTfbsSydhShsy5yGata2UcdUniPk	0.843535	0.919913	0.926432
wgEncodeAwgTfbsSydhShsy5yGata3sc269sc269UcdUniPk	0.809875	0.891084	0.899551
wgEncodeAwgTfbsUchicagoK562EfosUniPk	0.921588	0.970935	0.97494
wgEncodeAwgTfbsUchicagoK562Egata2UniPk	0.776322	0.852574	0.86101
wgEncodeAwgTfbsUchicagoK562Ehdac8UniPk	0.606725	0.66428	0.655445
wgEncodeAwgTfbsUchicagoK562EjundUniPk	0.836924	0.914314	0.923331
wgEncodeAwgTfbsUtaGm12878CmycUniPk	0.717421	0.802359	0.797928
wgEncodeAwgTfbsUtaGm12878CtcfUniPk	0.946727	0.986632	0.987452
wgEncodeAwgTfbsUtaH1hescCmycUniPk	0.589691	0.637882	0.633928
wgEncodeAwgTfbsUtaH1hescCtcfUniPk	0.936335	0.981175	0.981722
wgEncodeAwgTfbsUtaHelas3CtcfUniPk	0.953479	0.988409	0.988162
wgEncodeAwgTfbsUtaHepg2CmycUniPk	0.783352	0.862151	0.865412
wgEncodeAwgTfbsUtaK562CtcfUniPk	0.953276	0.989175	0.989909
wgEncodeAwgTfbsUtaMcf7CtcfUniPk	0.913517	0.968951	0.971436
Average	**0.830613**	**0.8999187**	**0.903489**

Supplementary Table S8

Table S8. The predicted results of TEMNet model on 165 ChIP-seq datasets.

Datasets	ACC	ROC-AUC	PR-AUC
wgEncodeAwgTfbsBroadDnd41CtcfUniPk	0.938244854	0.979842319	0.982335791
wgEncodeAwgTfbsBroadDnd41Ezh239875UniPk	0.681073025	0.722616633	0.746194129
wgEncodeAwgTfbsBroadGm12878CtcfUniPk	0.919811049	0.969662639	0.974733854
wgEncodeAwgTfbsBroadH1hescCtcfUniPk	0.940296193	0.982077631	0.983176469
wgEncodeAwgTfbsBroadHelas3CtcfUniPk	0.903420027	0.959800309	0.966564838
wgEncodeAwgTfbsBroadHelas3Ezh239875UniPk	0.629577465	0.666507645	0.688002994
wgEncodeAwgTfbsBroadHelas3Pol2bUniPk	0.665271967	0.715565877	0.711253279
wgEncodeAwgTfbsBroadHepg2CtcfUniPk	0.943147882	0.981135725	0.983318456
wgEncodeAwgTfbsBroadHepg2Ezh239875UniPk	0.685255921	0.742636039	0.730988837
wgEncodeAwgTfbsBroadHmecCtcfUniPk	0.949906155	0.985958169	0.988300017
wgEncodeAwgTfbsBroadHsmmCtcfUniPk	0.935475709	0.981190542	0.982556603
wgEncodeAwgTfbsBroadHsmmEzh239875UniPk	0.652597403	0.681822496	0.656390764
wgEncodeAwgTfbsBroadHsmmtCtcfUniPk	0.926298248	0.973834378	0.977712438
wgEncodeAwgTfbsBroadHuvecCtcfUniPk	0.938042131	0.979479829	0.982917867
wgEncodeAwgTfbsBroadHuvecEzh239875UniPk	0.704946996	0.781104674	0.777258146
wgEncodeAwgTfbsBroadHuvecPol2bUniPk	0.690019194	0.759606915	0.748357153
wgEncodeAwgTfbsBroadK562CtcfUniPk	0.890823178	0.950091544	0.960465874
wgEncodeAwgTfbsBroadK562Ezh239875UniPk	0.626488095	0.643402778	0.647234878
wgEncodeAwgTfbsBroadK562Hdac2a300705aUniPk	0.703244275	0.760920495	0.75393973
wgEncodeAwgTfbsBroadK562Hdac6a301341aUniPk	0.660674157	0.69280055	0.695007795
wgEncodeAwgTfbsBroadNhaCtcfUniPk	0.942134907	0.979063232	0.981840439
wgEncodeAwgTfbsBroadNhdfadCtcfUniPk	0.939988398	0.981760928	0.983565755
wgEncodeAwgTfbsBroadNhekCtcfUniPk	0.924008992	0.970954965	0.97454672
wgEncodeAwgTfbsBroadNhekPol2bUniPk	0.669761273	0.726115461	0.721226787
wgEncodeAwgTfbsBroadNhlfCtcfUniPk	0.92905119	0.973058447	0.976488231
wgEncodeAwgTfbsBroadOsteoblCtcfUniPk	0.913408859	0.967749584	0.974038944
wgEncodeAwgTfbsHaibA549Elf1V0422111Etoh02UniPk	0.814726841	0.886791208	0.899212849
wgEncodeAwgTfbsHaibA549Fosl2V0422111Etoh02UniPk	0.891759028	0.956239425	0.962500211
wgEncodeAwgTfbsHaibA549Foxa1V0416102Dex100nmUniPk	0.844061048	0.916477337	0.921560229
wgEncodeAwgTfbsHaibA549GabpV0422111Etoh02UniPk	0.814588338	0.886954505	0.899662
wgEncodeAwgTfbsHaibA549Sin3ak20V0422111Etoh02UniPk	0.697478992	0.759389316	0.760396318
wgEncodeAwgTfbsHaibA549Taf1V0422111Etoh02UniPk	0.711700229	0.792604006	0.798883826
wgEncodeAwgTfbsHaibEcc1Foxa1sc6553V0416102Dm002p1hUniPk	0.853511417	0.919626047	0.926584589
wgEncodeAwgTfbsHaibGm12878Elf1sc631V0416101UniPk	0.818202197	0.898459199	0.904723084
wgEncodeAwgTfbsHaibGm12878GabpPcr2xUniPk	0.845671759	0.923768236	0.930935823
wgEncodeAwgTfbsHaibGm12878P300Pcr1xUniPk	0.77408143	0.849189091	0.853291204
wgEncodeAwgTfbsHaibGm12878Pax5c20Pcr1xUniPk	0.832245758	0.910788971	0.913293374
wgEncodeAwgTfbsHaibGm12878Pax5n19Pcr1xUniPk	0.810033531	0.891573538	0.899264774
wgEncodeAwgTfbsHaibGm12878Taf1Pcr1xUniPk	0.769948001	0.851413179	0.858930624

wgEncodeAwgTfbsHaibGm12878Yy1sc281Pcr1xUniPk	0.847374543	0.924277509	0.934971554
wgEncodeAwgTfbsHaibGm12891Pax5c20V0416101UniPk	0.781526104	0.866349206	0.876257766
wgEncodeAwgTfbsHaibGm12892Pax5c20V0416101UniPk	0.76154224	0.845505731	0.854979189
wgEncodeAwgTfbsHaibGm12892Taf1V0416102UniPk	0.760422306	0.841000363	0.851884797
wgEncodeAwgTfbsHaibGm12892Yy1V0416101UniPk	0.841705702	0.921612252	0.931035484
wgEncodeAwgTfbsHaibH1hescFosl1sc183V0416102UniPk	0.752272727	0.816695602	0.827300771
wgEncodeAwgTfbsHaibH1hescGabpPcr1xUniPk	0.820695807	0.89675435	0.906234575
wgEncodeAwgTfbsHaibH1hescHdac2sc6296V0416102UniPk	0.762840554	0.843671704	0.842844906
wgEncodeAwgTfbsHaibH1hescSp1Pcr1xUniPk	0.793978349	0.880811423	0.88921095
wgEncodeAwgTfbsHaibH1hescSp2V0422111UniPk	0.838204593	0.908996213	0.92425261
wgEncodeAwgTfbsHaibH1hescSrfPcr1xUniPk	0.863205192	0.934748103	0.944334227
wgEncodeAwgTfbsHaibH1hescTead4sc101184V0422111UniPk	0.897682162	0.958290521	0.960731624
wgEncodeAwgTfbsHaibH1hescYy1sc281V0416102UniPk	0.850027902	0.928450639	0.934750261
wgEncodeAwgTfbsHaibHct116Yy1sc281V0416101UniPk	0.83675913	0.910365466	0.919715015
wgEncodeAwgTfbsHaibHelas3GabpPcr1xUniPk	0.86242378	0.930268528	0.939332485
wgEncodeAwgTfbsHaibHepg2Cebpbsc150V0416101UniPk	0.930787589	0.978947636	0.978739592
wgEncodeAwgTfbsHaibHepg2Elf1sc631V0416101UniPk	0.867777935	0.937968946	0.941470744
wgEncodeAwgTfbsHaibHepg2Fosl2V0416101UniPk	0.866935484	0.937104114	0.943224547
wgEncodeAwgTfbsHaibHepg2Foxa1sc101058V0416101UniPk	0.899928944	0.961409911	0.961920987
wgEncodeAwgTfbsHaibHepg2Foxa1sc6553V0416101UniPk	0.905065816	0.963882601	0.964745418
wgEncodeAwgTfbsHaibHepg2GabpPcr2xUniPk	0.829175153	0.904262725	0.910500008
wgEncodeAwgTfbsHaibHepg2Hdac2sc6296V0416101UniPk	0.817195661	0.897438227	0.902667737
wgEncodeAwgTfbsHaibHepg2JundPcr1xUniPk	0.848172446	0.927091166	0.934683421
wgEncodeAwgTfbsHaibHepg2P300V0416101UniPk	0.854450645	0.930327681	0.931638099
wgEncodeAwgTfbsHaibHepg2Sin3ak20Pcr1xUniPk	0.761860894	0.839849356	0.846064579
wgEncodeAwgTfbsHaibHepg2Sp1Pcr1xUniPk	0.84020825	0.917129821	0.923991026
wgEncodeAwgTfbsHaibHepg2Sp2V0422111UniPk	0.88150289	0.937069222	0.94706665
wgEncodeAwgTfbsHaibHepg2SrfV0416101UniPk	0.842406877	0.915098274	0.923762458
wgEncodeAwgTfbsHaibHepg2Taf1Pcr2xUniPk	0.754374901	0.837108994	0.839211399
wgEncodeAwgTfbsHaibHepg2Tead4sc101184V0422111UniPk	0.833836351	0.909497626	0.915469472
wgEncodeAwgTfbsHaibHepg2Yy1sc281V0416101UniPk	0.803320928	0.884208974	0.88701783
wgEncodeAwgTfbsHaibK562Cebpbsc150V0422111UniPk	0.896051571	0.958575176	0.962408701
wgEncodeAwgTfbsHaibK562Elf1sc631V0416102UniPk	0.887291494	0.951840055	0.952257349
wgEncodeAwgTfbsHaibK562Fosl1sc183V0416101UniPk	0.918506715	0.96987412	0.975481957
wgEncodeAwgTfbsHaibK562GabpV0416101UniPk	0.848132928	0.920227244	0.925782509
wgEncodeAwgTfbsHaibK562Gata2sc267Pcr1xUniPk	0.888844569	0.954513819	0.954771589
wgEncodeAwgTfbsHaibK562Hdac2sc6296V0416102UniPk	0.775711575	0.857067044	0.858203341
wgEncodeAwgTfbsHaibK562MaxV0416102UniPk	0.827381969	0.906165435	0.914786173
wgEncodeAwgTfbsHaibK562Sin3ak20V0416101UniPk	0.774954991	0.857435944	0.859621808
wgEncodeAwgTfbsHaibK562SrfV0416101UniPk	0.81175836	0.886690997	0.901108556
wgEncodeAwgTfbsHaibK562Taf1V0416101UniPk	0.771423694	0.852644227	0.858182722
wgEncodeAwgTfbsHaibK562Tead4sc101184V0422111UniPk	0.843889532	0.921291035	0.924808906
wgEncodeAwgTfbsHaibK562Yy1V0416101UniPk	0.831369362	0.907280706	0.910400954
wgEncodeAwgTfbsHaibK562Yy1V0416102UniPk	0.841377091	0.917944367	0.925745083

wgEncodeAwgTfbsHaibPanc1Sin3ak20V0416101UniPk	0.720864329	0.798366748	0.791917771
wgEncodeAwgTfbsHaibSknshraP300V0416102UniPk	0.817972855	0.899633282	0.903155547
wgEncodeAwgTfbsHaibSknshraYy1sc281V0416102UniPk	0.823616115	0.902178518	0.910701885
wgEncodeAwgTfbsHaibSknshTaf1V0416101UniPk	0.770719241	0.858029203	0.855898054
wgEncodeAwgTfbsHaibT47dFoxa1sc6553V0416102Dm002p1hUniPk	0.887404229	0.953981541	0.955508057
wgEncodeAwgTfbsHaibT47dGata3sc268V0416102Dm002p1hUniPk	0.84266502	0.921220095	0.925995224
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wgEncodeAwgTfbsSydhGm12878CfosUniPk	0.916284404	0.969211505	0.973951486
wgEncodeAwgTfbsSydhGm12878JundUniPk	0.887063655	0.953112507	0.944728076
wgEncodeAwgTfbsSydhGm12878MaxIggmusUniPk	0.750658295	0.84024984	0.848607631
wgEncodeAwgTfbsSydhGm12878NfkbTnfaIggrabUniPk	0.823547034	0.90496498	0.913296038
wgEncodeAwgTfbsSydhGm12878P300bUniPk	0.854020619	0.927518303	0.929402657
wgEncodeAwgTfbsSydhGm12878Stat3IggmusUniPk	0.7133883	0.77975816	0.762465385
wgEncodeAwgTfbsSydhGm12878TbpIggmusUniPk	0.726804124	0.80803631	0.808148451
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wgEncodeAwgTfbsSydhGm12892NfkbTnfaIggrabUniPk	0.804787069	0.889031966	0.899828688
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wgEncodeAwgTfbsSydhH1hescCebpbIggrabUniPk	0.940013076	0.980297713	0.981378624
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wgEncodeAwgTfbsSydhH1hescMaxUcdUniPk	0.835725678	0.914782654	0.9252514
wgEncodeAwgTfbsSydhH1hescSin3anb6001263IggrabUniPk	0.774005935	0.853333109	0.862854182
wgEncodeAwgTfbsSydhHelas3CebpbIggrabUniPk	0.89908953	0.962117286	0.962821607
wgEncodeAwgTfbsSydhHelas3CfosUniPk	0.908664459	0.961285775	0.964413256
wgEncodeAwgTfbsSydhHelas3CjunIggrabUniPk	0.895006218	0.963698952	0.966689938
wgEncodeAwgTfbsSydhHelas3Hae2f1UniPk	0.804902451	0.887083249	0.885005964
wgEncodeAwgTfbsSydhHelas3JundIggrabUniPk	0.909275669	0.96426356	0.968008247
wgEncodeAwgTfbsSydhHelas3MaxIggrabUniPk	0.799532589	0.882533307	0.888705136
wgEncodeAwgTfbsSydhHelas3P300sc584sc584IggrabUniPk	0.862904828	0.932760726	0.935303541
wgEncodeAwgTfbsSydhHelas3Stat3IggrabUniPk	0.832313114	0.906535079	0.915614615
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wgEncodeAwgTfbsSydhHepg2CebpbIggrabUniPk	0.951075003	0.987613691	0.986390925
wgEncodeAwgTfbsSydhHepg2CjunIggrabUniPk	0.931337325	0.977064453	0.980014141
wgEncodeAwgTfbsSydhHepg2Corestsc30189IggrabUniPk	0.723950211	0.792063288	0.790943713
wgEncodeAwgTfbsSydhHepg2JundIggrabUniPk	0.942610063	0.980936423	0.982734822
wgEncodeAwgTfbsSydhHepg2MaxIggrabUniPk	0.804644227	0.886499743	0.896870929
wgEncodeAwgTfbsSydhHepg2TbpIggrabUniPk	0.745675377	0.830294142	0.833558922
wgEncodeAwgTfbsSydhHuvecCfosUcdUniPk	0.904007456	0.962739697	0.966301137
wgEncodeAwgTfbsSydhHuvecCjunUniPk	0.920915713	0.973255375	0.974752553
wgEncodeAwgTfbsSydhHuvecGata2UcdUniPk	0.830475119	0.907489062	0.91267871
wgEncodeAwgTfbsSydhHuvecMaxUniPk	0.861504302	0.935076042	0.940436617

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wgEncodeAwgTfbsSydhK562CjunUniPk	0.915416451	0.96681855	0.969365022
wgEncodeAwgTfbsSydhK562Corestsc30189IggrabUniPk	0.83967836	0.919201014	0.924371559
wgEncodeAwgTfbsSydhK562Gata2UcdUniPk	0.874369445	0.943658832	0.947027574
wgEncodeAwgTfbsSydhK562JundIggrabUniPk	0.882529161	0.950057479	0.954460958
wgEncodeAwgTfbsSydhK562MaxIggrabUniPk	0.821095335	0.902409336	0.907394154
wgEncodeAwgTfbsSydhK562P300IggrabUniPk	0.848224003	0.924772793	0.930654576
wgEncodeAwgTfbsSydhK562TbpIggmusUniPk	0.770074594	0.847193774	0.857659615
wgEncodeAwgTfbsSydhK562Yy1UcdUniPk	0.908900524	0.960002237	0.967232588
wgEncodeAwgTfbsSydhMcf10aesCfosTam112hHvdUniPk	0.926039546	0.977172444	0.976988413
wgEncodeAwgTfbsSydhMcf10aesCfosTam14hHvdUniPk	0.92073389	0.974091128	0.974056617
wgEncodeAwgTfbsSydhMcf10aesCfosTamHvdUniPk	0.930236807	0.978566201	0.978550419
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01bUniPk	0.899846617	0.964487735	0.965044946
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01cUniPk	0.90363535	0.965210171	0.967265016
wgEncodeAwgTfbsSydhMcf10aesStat3Etoh01UniPk	0.879463364	0.949127764	0.949864281
wgEncodeAwgTfbsSydhMcf10aesStat3Tam112hHvdUniPk	0.903385366	0.964423911	0.964508149
wgEncodeAwgTfbsSydhMcf10aesStat3TamUniPk	0.903766174	0.966186617	0.96721173
wgEncodeAwgTfbsSydhMcf7Gata3UcdUniPk	0.738840217	0.817760279	0.825586536
wgEncodeAwgTfbsSydhMcf7Hae2f1UcdUniPk	0.761073476	0.846028876	0.848384672
wgEncodeAwgTfbsSydhNb4CmycUniPk	0.811597013	0.891449537	0.899663695
wgEncodeAwgTfbsSydhNb4MaxUniPk	0.835488611	0.915115739	0.92222883
wgEncodeAwgTfbsSydhNt2d1Yy1UcdUniPk	0.886448848	0.947972438	0.958286795
wgEncodeAwgTfbsSydhShsy5yGata2UcdUniPk	0.857766018	0.932689791	0.939159018
wgEncodeAwgTfbsSydhShsy5yGata3sc269sc269UcdUniPk	0.826066047	0.907616527	0.914292386
wgEncodeAwgTfbsUchicagoK562EfosUniPk	0.933746898	0.97290435	0.97786723
wgEncodeAwgTfbsUchicagoK562Egata2UniPk	0.788982674	0.865200766	0.875915122
wgEncodeAwgTfbsUchicagoK562Ehdac8UniPk	0.609649123	0.649983317	0.651924804
wgEncodeAwgTfbsUchicagoK562EjundUniPk	0.848032175	0.922753039	0.932791608
wgEncodeAwgTfbsUtaGm12878CmycUniPk	0.729080933	0.798785043	0.789938136
wgEncodeAwgTfbsUtaGm12878CtcfUniPk	0.951916967	0.985791413	0.986897351
wgEncodeAwgTfbsUtaH1hescCmycUniPk	0.632989691	0.645857425	0.623722268
wgEncodeAwgTfbsUtaH1hescCtcfUniPk	0.941482752	0.982555959	0.982618877
wgEncodeAwgTfbsUtaHelas3CtcfUniPk	0.95695612	0.987293192	0.987160311
wgEncodeAwgTfbsUtaHepg2CmycUniPk	0.789931585	0.857649912	0.861308417
wgEncodeAwgTfbsUtaK562CtcfUniPk	0.955994839	0.988598867	0.989214392
wgEncodeAwgTfbsUtaMcf7CtcfUniPk	0.917158975	0.968807619	0.970049539
Average	**0.837094712**	**0.902132217**	**0.906037431**