

Chapter 10. Two tasks



10.1 A classification problem

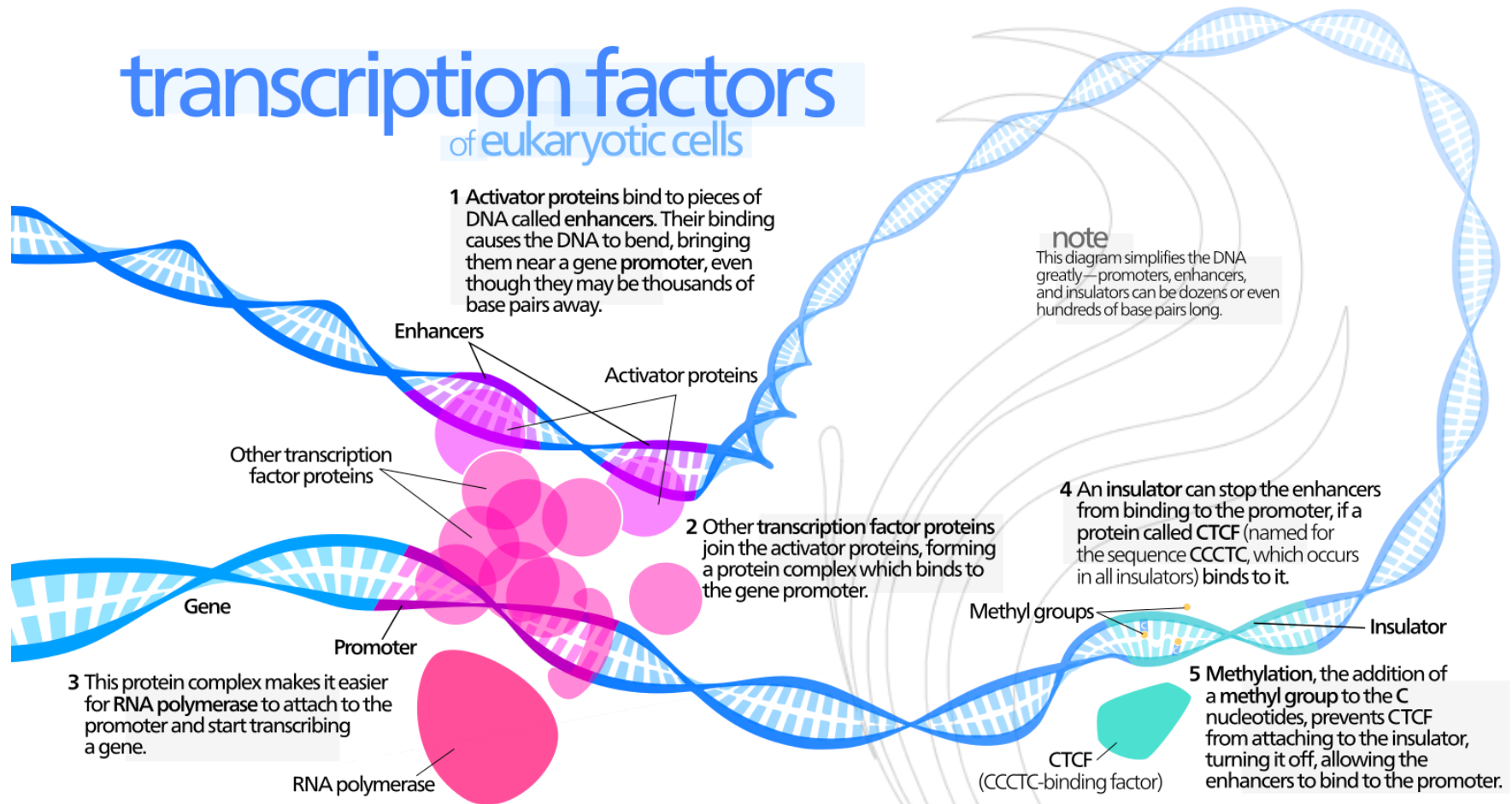
10.2 A regression problem



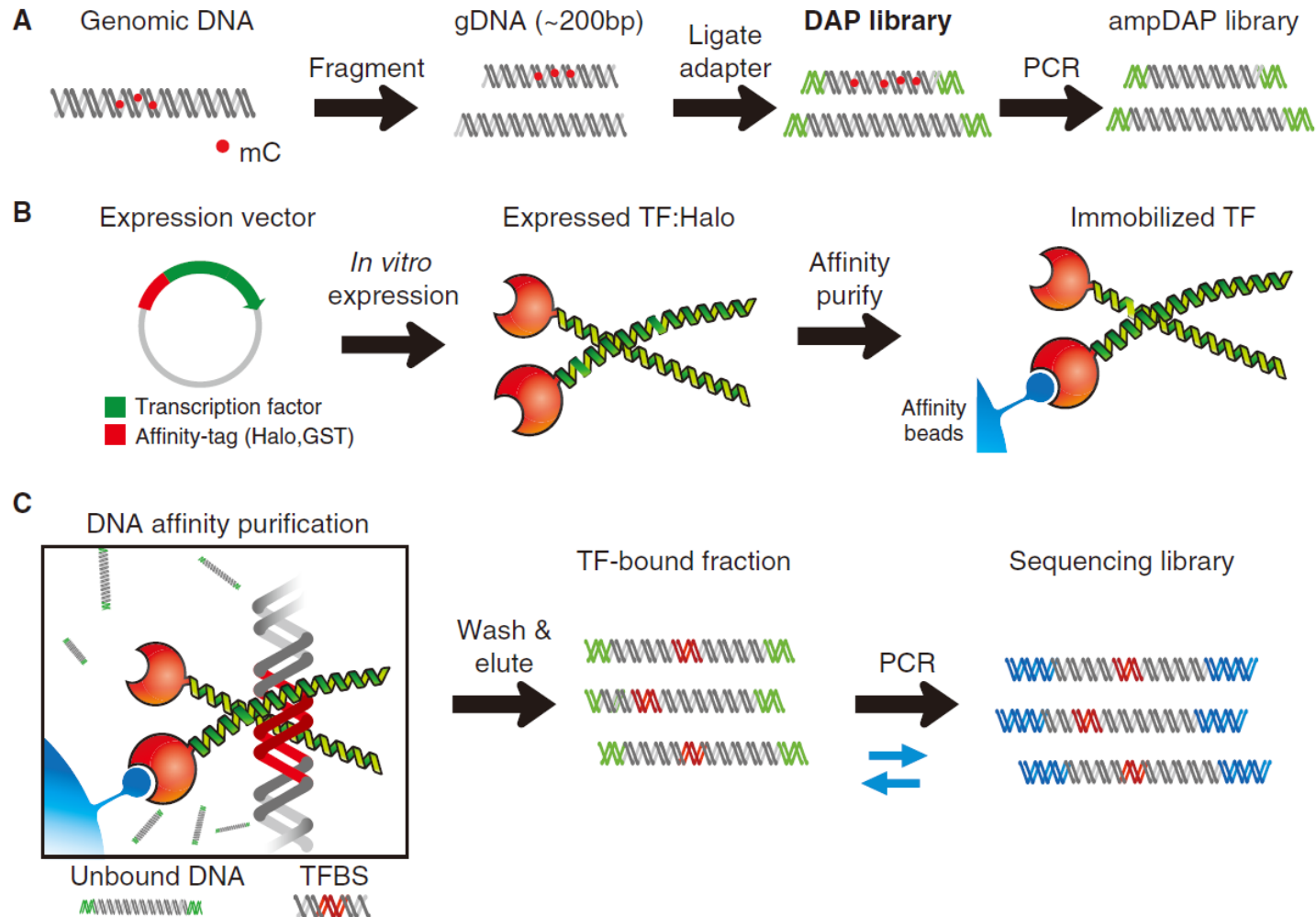
10.1 A classification problem



transcription factors of eukaryotic cells



Dap-Seq



Data



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1 >chr2 9886 10087
2 AGAACCAGAAGAGAATGCTTGGGGAGATAGAAGTGTGAGATAGTTCTCAAGCTAAGAAAGTTGTAAAAGCTAAGAACTAGCA
3 >chr2 12108196 12108397
4 GCCAATCATGTTTCAACTTATAAGGATAGAGAAAGGACTTAGCGTGGGAGACAAAGCAAGCCGTCACGATGATGCCACGTGT
5 >chr3 13591901 13592102
6 TTTTGGAGTCGAATATGACTTGATGTCATGTGTATGATTGAGTATAAGAACTTAAACCGCAACCCGATCTTAAAGGCGTAAG
7 >chr1 4264510 4264711
8 GATATAACGTAGCGAAGTGTTGCCACAGACGACGGAGAGACAAAAGATCGCTGACAAAGAGAGGATCTTTAGAACTGACGG
9 >chr3 22929346 22929547
10 GCTGGTATTGAATACGAGTTGGGCCCATTAACTGTGAGGCAACGAGCCGATCCAAAGCGGCCAGCTAGTGATGAAGCTGG
```

10.2 A Regression problem



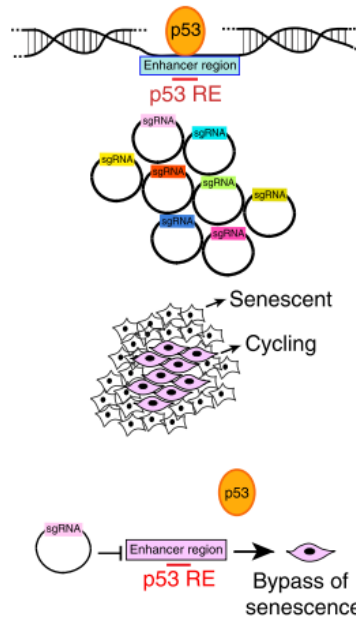
a

Global identification of p53 binding sites at enhancer regions

Construction of CRISPR-p53-enhLib

Functional genetic screen (oncogene-induced senescence)

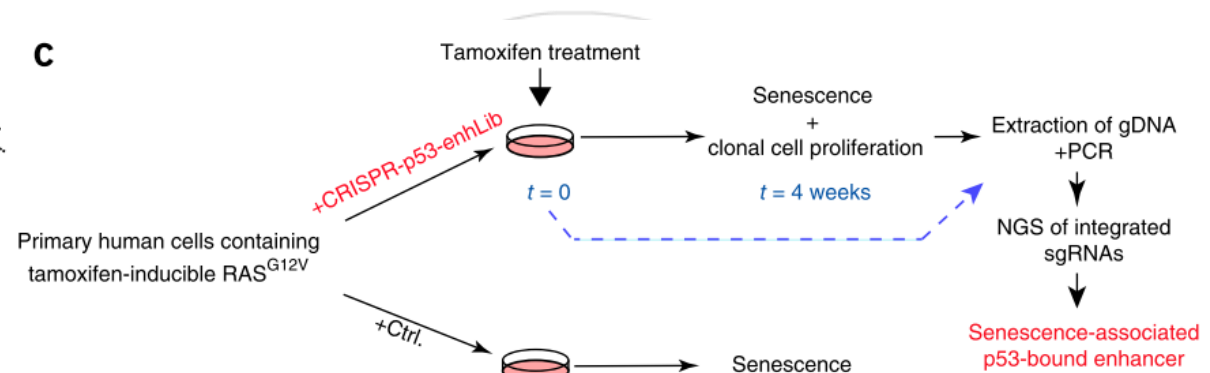
Annotation of functional p53-bound enhancers



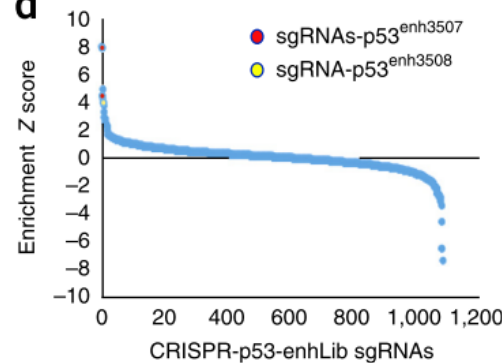
b

Multiple p53 ChIP-seq datasets

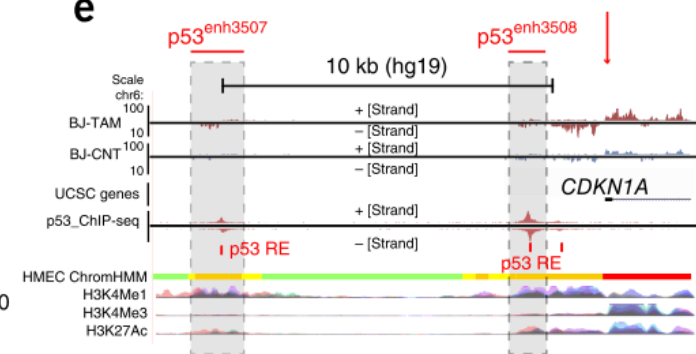
c



d



e



10.2 A Regression problem



1	p53_chipseq_ALL_3101_Hit1	chr3	194751916	194751934	7.87
2	p53_chipseq_ALL_3507_Hit1	chr6	36635046	36635064	7.80
3	p53_chipseq_ALL_55_Hit1	chr1	28678988	28679006	4.92
4	p53_chipseq_ALL_3507_Hit3	chr6	36635031	36635049	4.45
5	p53_chipseq_ALL_3508_Hit1	chr6	36644238	36644256	4.20
6	p53_chipseq_ALL_3519_Hit2	chr6	43064432	43064450	3.89
7	p53_chipseq_ALL_528_Hit1	chr10	92737319	92737337	3.79
8	p53_chipseq_ALL_3962_Hit1	chr8	124624776	124624794	2.86
9	p53_chipseq_ALL_632_Hit1	chr11	34707149	34707167	2.79
10	p53_chipseq_ALL_610_Hit1	chr11	9824009	9824027	2.76
11	p53_chipseq_ALL_1094_Hit1	chr14	51067111	51067129	2.69
12	p53_chipseq_ALL_3614_Hit1	chr7	5469022	5469040	2.50
13	p53_chipseq_ALL_356_Hit1	chr1	205267611	205267629	2.36
14	p53_chipseq_ALL_1857_Hit2	chr17	78668087	78668105	2.32
15	p53_chipseq_ALL_1123_Hit2	chr14	65147167	65147185	2.30
16	p53_chipseq_ALL_1646_Hit2	chr17	38738721	38738739	2.28
17	p53_chipseq_ALL_1843_Hit1	chr17	67866978	67866996	2.24
18	p53_chipseq_ALL_3304_Hit2	chr5	71203164	71203182	1.95
19	p53_chipseq_ALL_3635_Hit1	chr7	25011028	25011046	1.93
20	p53_chipseq_ALL_3288_Hit1	chr5	56363561	56363579	1.67
21	p53_chipseq_ALL_3602_Hit2	chr7	579659	579677	1.64
22	p53_chipseq_ALL_1298_Hit2	chr15	52121580	52121598	1.62
23	p53_chipseq_ALL_1643_Hit2	chr17	38627789	38627807	1.62
24	p53_chipseq_ALL_3118_Hit1	chr4	1772665	1772683	1.58
25	p53_chipseq_ALL_3023_Hit1	chr3	151555114	151555132	1.57

Supplementary Data. The genomic positions of 1130 sgRNAs and their experimental

sgRNA	chromosome	Start	End	Experimental Z-score
p53_chipseq_ALL_3101_Hit1	chr3	194751916	194751934	7.87
p53_chipseq_ALL_3507_Hit1	chr6	36635046	36635064	7.8
p53_chipseq_ALL_55_Hit1	chr1	28678988	28679006	4.92
p53_chipseq_ALL_3507_Hit3	chr6	36635031	36635049	4.45
p53_chipseq_ALL_3508_Hit1	chr6	36644238	36644256	4.2
p53_chipseq_ALL_3519_Hit2	chr6	43064432	43064450	3.89
p53_chipseq_ALL_528_Hit1	chr10	92737319	92737337	3.79
p53_chipseq_ALL_3962_Hit1	chr8	124624776	124624794	2.86
p53_chipseq_ALL_632_Hit1	chr11	34707149	34707167	2.79
p53_chipseq_ALL_610_Hit1	chr11	9824009	9824027	2.76
p53_chipseq_ALL_1094_Hit1	chr14	51067111	51067129	2.69
p53_chipseq_ALL_3614_Hit1	chr7	5469022	5469040	2.5
p53_chipseq_ALL_356_Hit1	chr1	205267611	205267629	2.36
p53_chipseq_ALL_1857_Hit2	chr17	78668087	78668105	2.32
p53_chipseq_ALL_1123_Hit2	chr14	65147167	65147185	2.3
p53_chipseq_ALL_1646_Hit2	chr17	38738721	38738739	2.28
p53_chipseq_ALL_1843_Hit1	chr17	67866978	67866996	2.24
p53_chipseq_ALL_3304_Hit2	chr5	71203164	71203182	1.95

