Table-1 : Regulatory DNA elements

Element	Properties	Detection methods	References
Promoters: Start-sites for RNA polymerase. DNA elements that control the initiation of transcription.	● core-promoters (sites for assembly of RNAP-II complex) extend usually a hundred base-pairs around transcription start sites (TSS) and contain certain well-studied DNA motifs. ● Classified structurally into “broad” and “sharp” ● Classified functionally into “tissue-specific” (low CpG content in mammals, sharp TSS, and TATA-box enrichment), “ubiquitous” (CpG islands in mammals, broad TSS, and TATA-box depletion) , and “developmental” (large CpG island in mammals, and Inr elements).	CAGE, GRO-seq, RNAP-II ChIP-seq	184, 185, 186, 158, 187
Enhancers: DNA elements that enhance the expression of a gene	● Binding sites for transcription factors. ● Can be present near or far from target genes ● Control developmental and tissue specific genes or activate genes in response to signalling pathways ● Participate in chromatin looping	ChIP-Seq, STARR-seq	188, 189, 190, 191 , 192, 26,193, 194
Insulators: DNA elements that block the effects of enhancers and protect a gene from encroachment of neighbouring silencing or activating signals	● Organize chromatin into independent domains ● Enhancer blocking or barrier activity ● Multiple elements identified in flies, such as su(Hw), BEAF32 and Zw5 ● CTCF as a single prominent insulator in mammals .	ChIP-Seq, In-situ Hi-C	195, 196, 26, 197,198

Silencers: Regions that nucleate the silencing of gene expression, mainly by recruiting the repressive chromatin marks	• Silencers promote establishment of heterochromatin through interaction with Polycomb and HP1 proteins. • Shown to be required for inheritance of repressed state in yeast	ChIP-Seq	[199, 200]
Transposons: Mobile genetic elements in the genome.	• Propagate themselves in the “host” genome via wide range of mechanisms during evolution • provide various means of gene regulation, including silencing through the spread of heterochromatin, genomic imprinting, paramutation and acting as hotspots for recombination . • Important role in the evolution of species	RNA-seq, DNA-seq	[201, 202, 203, 204]