



# Common Mammalian Promoters

#### **Ectoderm: Neural**

Name	Tissue	Cell Type	Length (bp)	Name	Tissue	Cell Type	Length (bp)
Camk2a(long)	Forebrain	CA1 pyramidal cells of the hippocampus	8023	ProA1	Retina	Cone photoreceptor	2000
Camk2a(short)	Brain	Pyramidal neurons	1337	hRHO	Retina	Rod photoreceptor	839
Th	Brain	Dopaminergic neurons	3015	hBEST1	Retina	RPE	623
GFAP(long)	Brain	Astrocytes	2178	Hb9	Spinal cord	Motor neurons	4003
GFAP(short)	Brain	Astrocytes	681	NSE	Nervous system	Various neurons	1807
lba1	Brain	Microglia	1889	Nes	Nervous system at embryonic stage	Neural stem/progenitor cells	1566
SYN1	Brain	Mature neurons	469	Cnp	Nervous systems, testis, and thymus	Oligodendrocytes and Schwann cells	3046
Prnp	Brain, hippocampus, cerebellum, retina	Various CNS neurons	8365	Tuba1a	Nervous systems at embryonic and early postnatal stages	Developing neurons but not astrocytes or oligodendrocytes	1121

#### **Ectoderm: Surface**

Name	Tissue	Cell Type	Length (bp)
K14	Epidermis	Keratinocytes	2268
BK5	Epidermis	Keratinocytes	5200
mTyr	Epidermis	Melanocytes and melanoma cells	560
Col2a1	Cartilage	Chondrocytes	1033
Runx2	Bone	Early osteoblasts	2514
CD11b	Bone marrow	Mature myeloid cell lines	1795
Col1a1	Bone, tooth, and tendon	Osteoblasts and fibroblasts	3632
OC	Bone and cartilage	Osteoblasts, osteocytes and hypertrophic chondrocytes	2141
MMTV	Mammary gland	Ductal cells of the salivary gland, mammary epithelial cells	1315
Wap	Mammary gland	Alveolar epithelial cells of mammary tissue	2444

#### **Endoderm**

Name	Tissue	Cell Type	Length (bp)
Nanog	Embryonic inner cell mass	Pluripotent stem cells	1334
NPHS2	Kidney	Podocytes	2589
Afp	Liver	Hepatocytes	2810
Alb	Liver	Mature hepatocytes	2336
TBG	Liver	Hepatocytes	460
SPB	Lung	AT II cells and Clara cells	635
HIP	Pancreas	β cells	1867
lns2	Pancreas	Pancreatic β cells	705
Pdx1	Embryonic developing pancreas and adult pancreatic islets	Pancreatic progenitor cells and pancreatic β cells	2930
CD144	Lung, heart, ovary, spleen, and kidney glomeruli	Vascular endothelial cells	1599

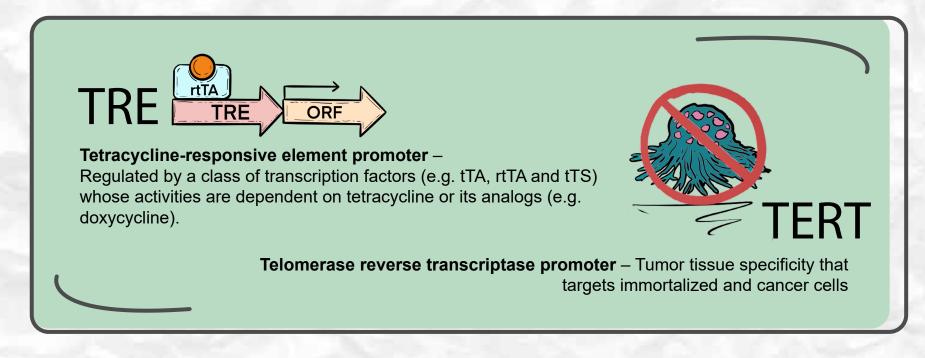
### Mesoderm

Name	Tissue	Cell Type	Length (bp)	Name	Tissue	Cell Type	Length (bp)
CD68(long)	Blood	Monocytes and macrophages	3079	Hcn4	Embryonic heart	Cardiomyocytes	2780
CD68(short)	Blood	Monocytes and macrophages	659	aP2	Fat	Adipocytes	3708
Tie1	Blood vessel	Endothelial cells	1142	Adipoq	Fat	Adipocytes	5411
Cd144	Blood vessels	Vascular endothelial cells	2510	Myog	Muscle	Myoblasts	1139
cTnT	Heart	Cardiomyocytes	413	ACTA1	Muscle	Myoblasts	2162
αMHC(long)	Heart	Cardiomyocytes	5464	SM22a	Adult smooth muscle	Vascular smooth muscle cells	2960
αMHC(short)	Heart	Cardiomyocytes	2833	EnSM22a	Adult smooth muscle	Vascular smooth muscle cells	594
MHCK7	Mouse skeletal and heart muscle	Differentiated postmitotic striated muscle cells	771				

## Mammalian Ubiquitous Promoters

Name	Application Notes	Length (bp)	
CMV	<ul><li>Strong promoter;</li><li>May have variable strength in some cell types</li></ul>	589	
CMV + intron	<ul> <li>Strong promoter;</li> <li>May have variable strength in some cell types;</li> <li>Presence of the beta-globin intron facilitates the nuclear export of mRNA by splicing and is predicted to enhance gene expression in eukaryotes</li> </ul>	1242	
EF1A	Strong promoter	1179	
EFS	Medium-strength promoter	232	
CAG	Strong promoter	1733	
CBh	Strong promoter	789	
CBA	Strong promoter	850	
SFFV	<ul> <li>Strong promoter;</li> <li>Drives high levels of gene expression, particularly in cell types of the myeloid lineage</li> </ul>	500	
MSCV	<ul> <li>Medium-strength promoter;</li> <li>Drives gene expression in most murine or human ES cell lines and other mammalian cell lines</li> </ul>	515	
SV40	Medium-strength promoter	344	
mPGK	Medium-strength promoter	511	
hPGK	Medium-strength promoter	505	
UBC	Weak promoter	1178	

#### Miscellaneous



VectorBuilder's innovative online vector design platform enables researchers to create their custom vectors with just a few mouse clicks. We provide end-to-end solutions for all gene delivery needs spanning both research and therapy.

