Driver TFs in the stomach

Postnatal	Embryo	Evidence	Common role	Other tissue
BARX1		Associated with differentiation of stomach epithelia (NCBI)[1], associate with esophageal squamous cell carcinoma[2]		
BATF		Unknown	A negative regulator of AP-1/ATF transcriptional events[3, 4]	
ESRRB		Unknown	Steroid hormone receptors[5]	
ESRRG		Unknown	Function as a transcriptional activator of Dnmt1[6], essential for adaptive thermogenesis[7]	Involve in cardiac functions[8]
FOXA1	FOXA1	Drive gastric differentiation, Play roles in human gastric cancer[9-12]		
FOXA2	FOXA2	Drive gastric differentiation[12]		
FOXA3	FOXA3	Unknown		Regulate hepatocellular carcinoma[13]
FOXF1		Play roles in gastric cancer progression[14, 15]		
FOXF2	FOXF2	Suppresses gastric cancer[16]		
FOXL1		Indicates prognosis for gastric cancer patients[17]		Inhibits tumor aggressiveness and predicts outcome in human pancreatic cancer[18]

GATA1		Unknown	Play roles in erythroid and megakaryocytic differentiation[19]	Involve in familial dyserythropoietic anaemia and thrombocytopenia[20]
GATA4		Epigenetically silenced in gastric cancer[21], promotes gastric cancer development[22]		
GATA5		Epigenetically silenced in gastric cancer[21]		
HNF4A		Play roles in human gastric cancer[23]		
POU5F1		Play roles in gastric carcinoma[24-26]		
ELF3	ELF3	Unknown		Involve in squamous epithelial differentiation[27]
PITX1		Involve in gastric cancer[28]	Involve in organ development[29] and left-right asymmetry (NCBI). A suppressor of RAS activity and tumorigenicity[30]	
SOX15		Unknown	Regulate embryonic development and in the determination of the cell fate	Candidate tumor suppressor in pancreatic cancer[31]
SOX18		Promote gastric cancer metastasis[32]	Involve in endothelial specific signature[33]	
SOX2		Regulate gene expression in the stomach[34, 35]	Control human ES cell growth and differentiation[36-38]	Associate with anophthalmia[39]
SOX21		Unknown	Bivalent gene[40]	

SOX7		Endoderm progenitors[41]	Involve in the regulation of embryonic development and in the determination of the cell fate (NCBI)[42]	
SP5		Unknown	Regulate WNT transcriptional programs[43]	
SPDEF	SPDEF	Overexpressed in gastric cancer[44]		Play an important role in breast tumorigenesis[45-47]
	ISL1	Involve in gastric cancer[48, 49]		
	NKX6.3	Involve in development of gastrointestinal tract[50, 51]		
	ONECUT3	Unknown	Remodel chromatin accessibility[52]	
	PDX1	Act as a tumor suppressor in gastric cancer[53, 54]		

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Driver TFs in the neural cell

Embryo	Evidence	Common role	Other tissue
DLX5	Play an important role for the development of gamma-aminobutyric acid (GABA)-ergic neurons[1]		
FOXG1	Regulate neuron differentiation[2]		
HES4	Regulate striatal degeneration in postmortem Huntington brains[3]		
ISL1	Required for the generation of motor neurons[4]		
NKX6.1	Marker for Duodenal Neuroendocrine Tumors[5]		
PAX6	Plays a key role in human brain development[6]		
POU3F1	Regulate Schwann cell differentiation[7]		
POU3F2	Nervous-system specific POU domain transcription factor[8]		
POU3F3	Involved in the development of the central nervous system[9]		
SOX11	Function in the developing nervous system (NCBI)[10]		
TBR1	Involve in the organization of the dorsal telencephalon[11]		
ZIC1	Involved in Dandy-Walker malformation[12]		
ZNF32	Unknown		Induces anoikis resistance in hepatocellular carcinoma[13]
DBX2	Control of interneuron fate in the developing spinal cord[14]		

HOXA5	Involve in Multiple Sclerosis[15]		
LBX1	May be involved in spinal cord and hindbrain differentiation[16]		
LMX1B	Associated with sporadic Parkinson's disease[17]		
MEOX2	Play role in neurovascular dysfunction in Alzheimer disease[18]		
RFX4	Critical for brain development[19]		
SOX10	Involve in Dom Hirschsprung[20, 21]		
SOX5	Important developmental modulators in spinal cord oligodendrocytes[22]		
HOXB9	Major expressed in central nervous system[23]		
NEUROD2	Associated with neurocognitive dysfunctions in schizophrenia and schizoaffective disorder[24]		
NKX3.1	Unknown	Play an essential role in iPSC reprogramming[25]	
OLIG1	Play role in oligodendrocyte progenitor development[26]. Required to repair demyelinated lesions in the CNS[27]. Involve in human glial brain tumors[28]		
OLIG2	Necessary for specification of both oligodendrocytes and motor neurons[29, 30]. Involve in human glial brain tumors[28]		

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Driver TFs in the lung

Postnatal	Embryo	Evidence	Common role	Other tissue
LMO2		Unknown		Crucial role in hematopoietic development[1, 2]
NKX2.1	NKX2.1	Regulation of lung development and surfactant homeostasis[3], Prognostic role in lung adenocarcinoma[4]		Thyroid-specific transcription factor (NCBI)
ZNF524		Unknown		
ELF3		Play roles in lung adenocarcinoma[5]		
FOSB		Play roles in non-small cell lung cancer[6]	Regulate cell proliferation, differentiation, and transformation[7, 8]	
FOXA2	FOXA2	Tumor suppressor in lung cancer[9]	Interact with chromatin[10, 11]	Hepatocyte nuclear factors (NCBI)
GLI1		Essential in the formation of lung, trachea and oesophagus (GLI2/3)[12]	Kruppel family of zinc finger proteins[13, 14], activated by the sonic hedgehog signal transduction cascade and regulates stem cell proliferation[15].	
HNF1B		Expression in human respiratory epithelial cells[16]	Binds to DNA as either a homodimer, or a heterodimer[17]	

NR0B1		Play role in lung adenocarcinoma[18]	Acts as a dominant-negative regulator of transcription which is mediated by the retinoic acid receptor	Involve in male to female sex reversal[19], regulate steroidogenesis[20]
SPI1		Regulate human alveolar macrophage differentiation[21]		
ARID5A		Unknown	Corepressor for estrogen receptor alpha[22]	
	FOXA1	Play role in lung cancer[23, 24]		
	FOXF1	Activate of lung-specific genes[25], play role in lung cancer[26]		
	FOXF2	Transcriptionally activate several lung-specific genes[25], inhibit invasion and metastasis in lung cancers[27]		
	CEBPD	Promote metastasis of lung adenocarcinoma[28, 29]		
	EHF	Modify CF lung disease severity[30]		
	SOX5	Necessary for lung development[31]		
	IRX3	Unknown		Play a role in an early step of neural development[32]
	MEOX2	Determine lung cancer chemoresistance and prognosis[33]		
	NKX3.1	Unknown		Involve in human prostate cancers[34]

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Driver TFs in the liver

Postnatal	Embryo	Evidence	Common role	Other tissue
ARNTL2		Unknown	A transcriptionally active heterodimer with the circadian CLOCK protein[1]	
ETV4		Unknown		Involve in prostate cancer[2]
FOXA1	FOXA1	Transcriptional activators for liver-specific transcripts[3]		
FOXA2		Regulate hepatocellular carcinoma[4]		
FOXA3	FOXA3	Regulate hepatocyte-specific genes[5]		
FOXM1		Play roles in Hepatocellular Carcinoma[6-8]	Required for execution of the mitotic programme and chromosome stability[9]	
HLF		Promote hepatocellular carcinoma development[10]		
HNF1A		Required for the expression of several liver-specific genes[11]		
HNF1B		Required for the expression of several liver-specific		

		genes[11], regulate hepatocellular carcinoma[12]		
HNF4A	HNF4A	Controls the expression of hepatocyte nuclear factor 1 alpha[13], play roles in hepatocellular carcinoma[14]		
HNF4G		Induction of Hepatic Metabolic Functions[15]		
MLXIPL	MLXIPL	Link to liver lipogenesis[16] and function[17]		
NR1H4		A nuclear receptor for bile acids[18]		
NR1I2		Mediated sterol clearance[19], control metabolism of environmental compounds[20]		
NR5A1		Unknown	Maintain dynamic homeostatic responses in stress and reproduction[21]	Involve in sex determination[22]
SP5		Unknown	Regulates WNT transcriptional programs[23]	
ONECUT2		Function in liver[24]		
TBX15		Regulate cancer cells apoptosis[25]		
	CDX2	Important in hepatocellular carcinomas diagnostic[26]		
	CEBPB	Liver-enriched transcriptional activator protein[27]		
	CEBPD	Involve in hepatic lipogenesis[28] and hepatocellular carcinoma[29]		
	HOXD12	Involve in accurate axial body patterning[30]		

	PITX1	Unknown	A key specificity factor in HIF-1α dependent responses in hypoxic cancers [31]	
	GATA1	Involve in Down syndrome fetal liver precede acquisition[32]		
	GFI1B	Regulate cells of hematopoietic lineage[33-35]		
	KLF1	Regulate haematopoiesis in fetal liver[36]		
	TAL1	Involve in early hematopoiesis[37]		

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Driver TFs in the kidney

Embryo	Evidence	Common role	Other tissue
ELF5	Unknown		Inhibits the epithelial-mesenchymal transition in mammary gland development and breast cancer metastasis[1]
HNF1A	Drives endocytosis in the proximal tubule[2]		
HNF1B	Function in nephron development[3]		

HOXD11	Involved in congenital renal malformations[4]		
PAX2	Involved in renal hypoplasia[5]		
PAX8	Candidate oncogene in renal cell carcinoma[6]		
POU3F3	Involve in esophageal squamous cell carcinoma cells[7]		
WT1	Play an essential role in the normal development of the urogenital system[8], it is mutated in a small subset of patients with Wilms tumor[9, 10]		
HOXD10	Involve in kidney development[11], may play a continuing role in adult genitourinary tract function[12]		
HOXA9	Unknown		Modulate endothelial cell migration and tube formation[13]
HOXB7	Unknown		Regulate myelomonocytic differentiation[14]
HOXB8	Unknown		Involve in differentiation of primary myeloid progenitors[15]
HOXB9	Unknown	Accelerate DNA damage responses[16]	Mediates lung adenocarcinoma metastasis[17]
HOXC10	Unknown		Reflects the prognosis of ESCC patients[18]
HOXD9	Unknown	Play an important role in morphogenesis in all multicellular organisms (NCBI)	

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Driver TFs in the intestine

Postnatal	Embryo	Evidence	Common role	Other tissue
CDX1	CDX1	Regulate enterocyte differentiation[1, 2]		
CDX2	CDX2	Regulate embryonic development of the intestinal tract[3], relate to colon cancer[4]		
ELF3	ELF3	Regulate periampullary tumor[5]		
FOXA3		Unknown		Regulate hepatocellular carcinoma[6]
GATA4		Unknown		associated with Human Pancreatic Development[7]
GATA5		Activate the intestinal lactase-phlorizin hydrolase promoter[8]		
HBP1		Unknown	Regulate cell cycle and differentiation[9, 10]	

HNF1A	HNF1A	Unknown		Play role in maturity-onset diabetes[11], expressed in human liver[12]
HNF1B		Unknown		Expressed in human liver[12, 13], function in nephron development[14]
HNF4A	HNF4A	May play a role in development of intestines (NCBI)	Controls the expression of several genes[15]	
HNF4G	HNF4G	Unknown	Constitutively binds fatty acids[16]	Hepatocyte nuclear factor 4
ISL1		Unknown		central to the development of pancreatic cell lineages[17], is required for multiple aspects of cardiogenesis [18], heart progenitors generate diverse multipotent cardiovascular cell lineages[19]
ISX	ISX	Participate in the maintenance of vitamin A[20]	A member of the RAXLX homeobox gene family (NCBI)	
MLXIPL	MLXIPL	Associated with plasma triglycerides[21]		
NR1I2	NR1I2	Steroid and xenobiotic-sensing nuclear receptor[22]		
NR5A2		Represses bile acid biosynthesis[23]		

PDX1		Unknown		Involve in the early development of the pancreas[24]
EHF		Unknown	Involved in epithelial differentiation[25] and carcinogenesis[26]	
MYB		Involve in colorectal carcinoma[27]	Regulate hematopoiesis[28]	Drive alternate cell fates in adenoid cystic carcinoma[29]
	CEBPA		Involve in cell cycle regulation[30], body weight homeostasis[31]	
	FOXA1		Interact with chromatin[32]	Hepatocyte nuclear factors[33]

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