Figure 1: Transcription Factors List

Oncogenic TF	Why?	Primary Cancers
MYC	Amplified in cancer, genomic instability, and rapid proliferation.	Burkitt's lymphoma, breast cancer, lung cancer, colorectal cancer.
E2F1	Upregulated when Rb is lost. Unchecked S-phase entry and replication stress.	Retinoblastoma, osteosarcoma, and glioblastoma.
NF-κB	Drives chronic inflammation-associated cancers and resistance to apoptosis.	Colon cancer, pancreatic cancer, and multiple myeloma.
AP-1 (JUN, FOS, ATF2)	Activated by oncogenic RAS and MAPK signaling (promotes metastasis as well).	Melanoma, squamous, cell carcinoma, and breast cancer.
STAT3 & STAT5	Drive tumor immune evasion, resistance to apoptosis, and angiogenesis.	Glioblastoma, renal cell carcinoma, and pancreatic cancer.
HIF-1α	Helps tumor survive in low-oxygen environments by increasing angiogenesis.	Glioblastoma, renal cell carcinoma, and pancreatic cancer.
β-Catenin (Wnt Signaling)	Essential in stem cell renewal, and overactive in cancer with Wnt mutations.	Colon cancer, and hepatocellular carcinoma.
FOXM1	Overexpression leads to aneuploidy and chemotherapy resistance.	Breast cancer, prostate cancer, and lung cancer.
TP63/TP73 (p53 Family)	Dysregulated variants do tumor progression while suppressing p53-mediated cell death.	Squamous cell carcinoma, and lung cancer.
SOX2	It drives dedifferentiation and therapy resistance in cancer stem cells.	Glioblastoma, lung cancer, and prostate cancer.
ERα (Estrogen Receptor Alpha)	Drives hormone-dependent cancers.	Breast cancer, and ovarian cancer.
AR	Essential for prostrate cancer progression.	Prostate cancer.
GATA3	Overexpressed in hormone-dependent tumors.	Breast cancer, and T-cell leukemia.
ETS1	Activated in multiple solid tumors.	Prostate cancer, melanoma, and lung cancer.
ETS2	Implicated in aggressive tumors.	Colon cancer, and glioblastoma.
FOXA1	Essential in ER+ and AR+ cancers.	Breast cancer, and prostate cancer.
FOXC1	Linked to metastasis and drug resistance.	Triple-negative breast cancer, and leukemia.
FOXO3	Inactivation leads to unchecked proliferation.	Breast cancer, colon cancer, and glioblastoma.
NRF2 (NRE2L2)	Hyperactivation promotes drug resistance.	Lung cancer, and hepatocellular carcinoma.
RUNX1	Dysregulation linked to leukemogenesis.	Acute myeloid leukemia (AML), and chronic myeloid leukemia (CML)
RUNX2	Drives bone metastasis in solid tumors.	Breast cancer, and prostate cancer.

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TFE3	Fusion oncogenes drive tumor progression.	Renal cell carcinoma, and alveolar soft part carcinoma.
MITF	Overactivation promotes melanoma progression.	Melanoma.
PAX3 & PAX7	Fusion genes drive pediatric sarcomas.	Rhabdomyosarcoma.
PAX8	Drives tumor proliferation, and dedifferentiation.	Ovarian cancer, and thyroid cancer.
HOXA9	Aberrant activation causes leukemias.	AML and MDS.
HOXB13	Mutations drive prostate cancer aggressiveness.	Prostate cancer, and colorectal cancer.
MEF2C	Promotes leukmogenesis and therapy resistance.	AML and ALL.
MZF1	Hyperactive in aggressive cancers.	Breast cancer, and leukemia.
TWIST1 & TWIST2	Promote metastasis and therapy resistance.	Breast cancer, melanoma, and lung cancer.
ZEB1 & ZEB2	Drive stem-like properties in tumors.	Pancreatic cancer, and colorectal cancer.
YAP1 & TAZ (Hippo Pathway)	Hyperactive in stem-like cancer cells.	Liver cancer, mesothelioma, and glioblastoma.
TEAD1-4	Drive tumor growth and resistance.	Breast cancer, and liver cancer.
HHEX	Dysregulation contributes to leukemia.	AML
TCF7L2 (β-Catenin Cofactor)	Critical in Wnt-driven cancers.	Colon cancer, and endometrial cancer.
NKX2-1 (TTF1)	Mutation leads to lung carcinoma.	Lung cancer, and thyroid cancer.
PBX1	Drives leukemia progression.	ALL
GFI1	Promotes stemness in cancers.	Leukemia, and Medulloblastoma.
BACH1	Contributes to metastasis and therapy resistance.	Breast cancer, and lung cancer.