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## Redundant Angiogenic Signaling and Tumor Drug Resistance

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*Abbreviations:* ALK1, activin receptor-like kinase1; ANG/Ang, angiopoietin; Bcl-xL, b-cell lymphoma-extra large; BM, bone marrow; BMDCs, bone marrow derived cells; BMP, bone morphogenetic protein; Bv8, bombina variagata peptide 8; CAFs, cancer/carcinoma associated fibroblasts; CCL, C-C motif ligand; CD, cluster differentiation; CEPs, circulating endothelial progenitors; c-MET, cellular MET, also HGF receptor; COUP-TFII, chicken ovalbumin upstream promoter transcription factor II; COX, cyclooxygenase; CSCs, cancer stem cells; CSF-1, colony stimulating factor-1; CXCL, C-X-C motif ligand; CXCR4, C-X-C chemokine receptor 4; Dll4, delta like 4 ligand; DSL, Delta, Serrate, Lag2; ECM, extra cellular matrix; ECs, endothelial cells; EGF, epidermal growth factor; EGFR, epidermal growth factor receptor; EMA, European medicines agency; EMT, epithelial-mesenchymal transition; ENG, endoglin; EPCs, endothelial progenitor cells; Eph, epherin; ERK, extracellular signal-regulated kinase; FAK, focal adhesion kinase; FDA, food and drug administration; FGF, fibroblast growth factor; FGFR, fibroblast growth factor receptor; Fzd, Frizzled; GBM, glioblastoma multiforme; G-CSF, granulocyte-colony stimulating factor; GSK3 $\beta$ , glycogen synthase 3 beta; HETE, hydroxyeicosatetraenoic acid; HGF, hepatocyte growth factor; HIF-1 $\alpha$ , hypoxia inducible factor 1 $\alpha$ ; HUVEC, human umbilical vein endothelial cells; IL, interleukin; IMG, intussusceptive microvascular growth; JAG1, Jagged-1; JAK, janus kinase; KLEIP, kelch-like Ect2-interacting protein; MAPK, mitogen-activated protein kinase; M-CSF, macrophage- colony stimulating factor; MDR, multidrug resistance; MMPs, matrix metalloproteinases; MMTV, mouse mammary tumor virus; mTOR, mammalian target of rapamycin; NF- $\kappa$ B, nuclear factor- $\kappa$ B; NICD, notch intracellular domain; NRP, neuropilin; NSCLC, non-small cell lung cancer; PCs, pericytes; PDGF, platelet derived growth factor; PDGFR, platelet derived growth factor receptor; Phd2, prolyl hydroxylase 2; PI3K, phosphatidylinositol 3-kinase; PKC, protein kinase C; PLC $\gamma$ -PKC, phospholipase C $\gamma$ -protein kinase; PLGF, placental growth factor; PNETs, pancreatic neuroendocrine tumors; PyMT, polyomavirus middle T antigen; RAF, rapidly accelerated fibrosarcoma; RAS, ra(t) s(arcoma); RCC, renal cell carcinoma; RTK, receptor tyrosine kinase; SCF, stem cell factor; SCID, severe combined immunodeficiency; SDF-1 $\alpha$ , stromal-derived factor 1 $\alpha$ ; STAT, signal transducer and

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