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Titolo	Vascularization for Tissue Engineering and Regenerative Medicine [[electronic resource] /] / edited by Wolfgang Holnthoner, Andrea Banfi, James Kirkpatrick, Heinz Redl
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
Descrizione fisica	1 online resource (500 p. 50 illus., 25 illus. in color.)
Collana	Tissue Engineering and Regeneration
Disciplina	610.28
Soggetti	Biomedical engineering Biomedical materials Vascular surgery Regenerative medicine Tissue engineering Biomedical Engineering and Bioengineering Biomaterials Vascular Surgery Regenerative Medicine/Tissue Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Angiogenesis induction -- Physical stimulation -- Shockwave -- HIF stabilisation -- Angiogenic factors -- Slow release -- Angiogenic cells -- Lymphogenesis induction -- (Pre)vascularisation -- Channels for vascularisation -- Additive manufacturing -- Mechanical molds -- Lost molds -- Decellularized vessel trees -- Microvascular approaches -- Cellular network formation -- Dual level approach -- Vascular grafts.
Sommario/riassunto	This reference work presents the basic principles of angiogenesis induction, including the roles of signaling factors such as hypoxia-inducible factors, biophysical stimulation and angiogenic cells. The book also covers lymphogenesis induction. Both the established fundamentals in the field as well as new trends in the vascularization of engineered tissues are discussed. These include pre-vascularization strategies using preparation of channeled scaffolds and

preparation of decellularized blood vessel trees, approaches to inducing formation of microvasculature and approaches to inducing the growth of vascular networks. The authors expand on these concepts with current studies of dual-level approaches to engineer vascularized tissue composites. The book concludes with a discussion of current clinical approaches and the use of vascular grafts in the context of providing clinical practice with new tissue engineering strategies.