

Book review:

Little, CD, Mironov V, Sage E: Vascular morphogenesis: in vivo, in vitro, in mente.

Birkhäuser, Boston, Basel, Berlin, 1998, ISBN 3-7643-3920-9, Series Cardiovascular Molecular Morphogenesis, CHF 158.00

The development of new vessels is of major importance in the recognition, understanding, and therapy of various diseases such as cancer, heart infarction or injuries. Whereas the endothelial cells were considered to be simply responsible to assure connection and intact surface of vessels, it has been recently recognized that these cells play an active and important role in inflammation, coagulation and repair of the vascular system. Especially the development of the vascular system within an embryo has been the subject of intensive research, and there is no doubt that the interaction between endothelial cells and smooth muscle cells is responsible to form the vascular network seen in adult organs. The same holds true for the vascular system in cancer or inflammation. The textbook on vascular morphogenesis is divided into three parts: The first chapter describes the vascular morphogenesis in vivo. It focuses on the various known growth factors and explains the different steps in creating a tubular growth and network in blood vessels and the corresponding lymphatic vessels. In addition to the biochemical analyses detailed correlation to the three dimensional growth of vessels is included. The chapter is terminated with consideration on knockout studies in mice giving insights into genetic control of the vascular morphogenesis. The second part deals with in vitro techniques and presents information on in vitro culture models on the formation of vessels and their function. The third part discusses aspects of the formed vascular network. Theories on network formation including mathematical modeling and the fractal nature of spatial flow distribution are presented. Thus, the textbook comprises in vivo observations, in vitro models and derived theories of the formation of vessels and their interconnection. It is well written, and the reader is carefully guided through the chapters. Several black and white figures are included to visualize the experimental findings and theoretical considerations. The textbook can be recommended to young researchers and scientists who want to inform themselves or want to get fruitful ideas to be implemented in related issues such as cancer research or tissue farming.

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