Introduction: A Special Issue on Tumor Microenvironment Research in China and Asia

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Published online: 5 September 2012
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The tumor microenvironment consists of cancer cells and normal host cells, including vascular and lymphatic endothelial cells, fibroblasts and other site-specific stromal cells, and a variety of tumor-infiltrating lymphocytes, as well as an extracellular matrix, growth factors, cytokines, enzymes, and body fluids. The tumor microenvironment may be divided into primary tumor compartment and metastasis compartment, linked by blood and lymphatic vessels. Stephen Paget proposed the “seed and soil” hypothesis over 120 years ago (Lancet 1889, 133:571), laying down the foundations for what is now a rapidly growth field of research upon which gather biomedical researchers coming from a wide spectrum of disciplines. Worth noting is that many research laboratories in China are joining the effort in considerable force in this area. Major funding agencies in China, mainly the Chinese Ministry of Science and Technology (MOST) and National Natural Science Foundation of China (NSFC), not only markedly increased total amount of funding in recent years for biomedical research, but also recognized tumor microenvironment as a fundamentally important scientific question that merits support.

As evidenced in the presentations at the Cold Spring Harbor (Asia) and the International Cancer Microenvironment Society Joint Conference, November 13–17, 2012, in Suzhou, China, research interests in this field cover many pivotal aspects dealing with cancer metastatic niches, the role of specific organs in cancer incidence, progression and metastasis, the role of inflammation, hypoxia and oxidative stress, interactions between cancer-associated fibroblasts, macrophages and bone marrow-derived cells, the unique cancer tissue architecture associated to tumor stromagenesis, angiogenesis, and lymphangiogenesis, microenvironmental impact on cancer stem cells, and extracellular communication routes between cancer cells and host cells.

The Journal of Cancer Microenvironment puts together this collection of monographs, written mostly by researchers residing in China, to reflect current advances in the field. It is but a small window though which to gain a glimpse into the effort by basic biomedical researchers and clinicians in this part of the world to tackle a question as big and as complex as the tumor microenvironment. Reading through these monographs, we may find that this relatively new research field is forming in China, and we may look forward to exciting discoveries in the near future.

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