



Stem Cells and Cancer (Cancer Drug Discovery and Development)

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Significance of Stem Cells to Tumor Development

Cancer stem cells remain a controversial topic and the criteria that define cancer stem cells are continuing to evolve. A recent surge in stem cell research has ignited a field of discovery into many human diseases including diabetes, neuropathologies, and cancer. By replacing specific differentiated cells that have either been lost or died, stem cell therapy proves to be a very promising approach to the treatment of many debilitating diseases. Though stem cells may provide therapeutic benefit under certain conditions, they are also often implicated in the initiation, progression, and therapeutic resistance of malignant disease.

This first edition of *Stem Cells and Cancer* is intended to give a current perspective on the role of stem cells in cancer and strategies for novel therapies directed toward tumor stem cells. The current cancer stem cell hypothesis is presented in several chapters with distinctions made between the hierarchical and stochastic models of tumor cell development. "Stemness," self-renewal, pluripotency, clonality, and tumorigenicity are important concepts applied towards defining cancer stem cells. Signaling pathways such as Wnt, Sonic Hedgehog, Notch, and Bmi-1 that are involved in differentiation, proliferation, and survival are implicated in the malignant process. Additional chapters address the identification of cancer stem cell populations through the evaluation of molecular markers such as CD133, CD44, and CD24, for example, or by Hoescht dye exclusion to recognize 'side populations.' Mesenchymal and hematopoietic stem cells are described as well as mouse models that are employed to elucidate the properties and functionality of stem cells in cancer and the stem cell niche. This book encompasses a wide variety of human cancers that include but are not limited to leukemia, gliomas, breast, and prostate cancers. Resistance to conventional therapies, genetic versus epigenetic changes that affect therapeutic response and strategies to prevent disease recurrence are challenges have been incorporated into this volume. *Stem Cells and Cancer* represents a compendium of cutting edge research by experts in the field and will be instrumental in the study of this intriguing line of investigation for many years to come.

Rebecca Bagley is a senior scientist at Genzyme Corporation and has worked in the biotechnology industry for 20 years with degrees in biology from Wellesley College and Harvard University. Her expertise in drug development spans a wide range of approaches including immunotherapies, gene and protein therapies, and small molecule delivery with publications in journals such as *Molecular Cancer Therapeutics*, *Cancer Research*, and *Microvascular Research*. Her current research focuses on stem cells, tumor vasculature, and

target validation.

Dr. Beverly A. Teicher is Vice President of Oncology Research at Genzyme Corporation. Dr. Teicher completed a PhD in Bioorganic Chemistry at the Johns Hopkins University and postdoctoral training at Yale University School of Medicine. Dr. Teicher joined Dana-Farber Cancer Institute as an Assistant Professor of Pathology and rose to Associate Professor of Medicine and Radiation Therapy, Harvard Medical School at Dana-Farber Cancer Institute and Joint Center for Radiation Therapy. Dr. Teicher is an active member of the international scientific community having authored or co-authored more than 400 scientific publications. She has edited eight books, is senior editor for the journal *Clinical Cancer Research* and is series editor for the *Cancer Drug Discovery and Development* book series.

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Bobby Miller:

A lot of people always spent their particular free time to vacation or maybe go to the outside with them loved ones or their friend. Do you realize? Many a lot of people spent they free time just watching TV, or playing video games all day long. If you want to try to find a new activity here is look different you can read any book. It is really fun for yourself. If you enjoy the book that you simply read you can spent 24 hours a day to reading a guide. The book Stem Cells and Cancer (Cancer Drug Discovery and Development) it is quite good to read. There are a lot of individuals who recommended this book. These people were enjoying reading this book. In the event you did not have enough space to deliver this book you can buy typically the e-book. You can m0ore very easily to read this book through your smart phone. The price is not too costly but this book possesses high quality.

Donald Mobley:

Reading can called brain hangout, why? Because when you are reading a book particularly book entitled Stem Cells and Cancer (Cancer Drug Discovery and Development) your thoughts will drift away trough every dimension, wandering in each aspect that maybe unidentified for but surely can become your mind friends. Imaging each and every word written in a book then become one contact form conclusion and explanation this maybe you never get prior to. The Stem Cells and Cancer (Cancer Drug Discovery and Development) giving you one more experience more than blown away your thoughts but also giving you useful facts for your better life within this era. So now let us show you the relaxing pattern is your body and mind will be pleased when you are finished examining it, like winning a casino game. Do you want to try this extraordinary paying spare time activity?

Susan Bondurant:

This Stem Cells and Cancer (Cancer Drug Discovery and Development) is great reserve for you because the content which can be full of information for you who all always deal with world and still have to make decision every minute. This particular book reveal it details accurately using great coordinate word or we can state no rambling sentences inside. So if you are read that hurriedly you can have whole data in it. Doesn't

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