

Preface

Primary liver cancer is the third most deadly and fifth most common cancer worldwide, with an estimated 877,000 new cases and almost as many deaths in 2007. Hepatocellular carcinoma (HCC) and cholangiocarcinoma (CC) are the major types of primary liver cancer. The 5 year survival rate of these cancers is less than 10% and during the last 50 years only minimal survival improvement has been realized. Although liver cancer is most frequent in sub-Saharan Africa and Asia, the incidence has increased sharply in the developed countries in recent years. The key etiological factors (i.e., Hepatitis B and C viruses, obesity, and type 2 diabetes) are known for HCC, but the etiological causes for CC are less well-defined. Furthermore, our current understanding of the molecular pathogenesis of primary liver cancer is still far from complete. Therefore, there is an urgent need for more comprehensive genetic and mechanistic understanding of primary liver cancer if improvements in treatment and prevention are to be realized.

Recent progress in the genetic and genomic understanding of liver cancer has generated both excitement and hope that this knowledge may offer approaches to improve the current situation. It is in this context that, we have brought together an international team of leading scientists and clinicians to prepare this monograph. The articles in this book provide an exciting overview of the most recent advances in the genetics, genomics, and biology of liver cancer, and how this new knowledge can be leveraged for improving diagnosis, treatment, and prevention of liver cancer. Each chapter starts with a state-of-the-art topic, ranging from genetics and environmental risk factors of liver cancer, genetics of liver development and pathogenesis, genetics and epigenetic changes associated with liver cancer, the utilities of genetic animal models, cancer stem cells, and translational genomics, to the relevance of these aspects to liver cancer. We are currently experiencing the most exciting time in liver cancer research with extraordinary opportunities for improving the treatment and prevention of this dreadful disease.

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