

Biomedical Research from Ideation to Publication

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With the evolution of mankind, biomedical research has continued to contribute to improvement of quality of life and life style. Over many generations several noble minds and dedicated scientist have made this difficult task possible. However newer and much more challenging tasks remain ahead of us to be solved by the current and upcoming scientific community. A collateral process in achieving such tasks is by optimal training of the upcoming scientific community so has to prepare them to face and effectively solve the current challenges. While highly skilled mentors are extensively contributing to this training process, the availability of a well-written book detailing the fundamentals of biomedical research starting from conception of ideas for research to effectively communicating/commercializing the research findings can synergize/potentiate the training efforts. Hence the publication of this book has been very timely and necessary, which is skillfully edited by experts in biomedical research and is targeted at any one interested in establishing a carrier in biomedical research. The book has key sections detailing specific aspects of biomedical research written simplistically with illustrations for easy comprehension.

Section A consists of four chapters detailing on creative thinking, developing passion for research, identifying research problems and the concept of research hypothesis generation. Section B follows this with seven chapters on preclinical research. These chapters extensively cover topics on research protocol writing, critically planning experiments, selecting appropriate analysis approach in the areas of pharmacology, toxicology, ion channels, pharmaceuticals and drug delivery research. Additionally currently emerging science such as nanotechnology, pharmacogenomics and alternatives to animal experiments are also extensively explained with practical examples. Most scientific discovery starts with basic science research, which further grows in the preclinical research to ultimately mature and bare fruits in the clinical research. Concurring to this section C with five chapters details the concepts, study designs, study protocols, pharmacology, bioavailability/bioequivalence studies and the FDA regulations of clinical research. Every study performed either in the preclinical or clinical arena is incomplete without rigorous statistical design and analysis so as to extrapolate the findings of the research in a small but adequate number of subjects to

global population. Hence statistical evaluation is a very critical step in biomedical research and this is detailed in section D with three chapters on various aspects of statistics in biomedical research. It is needless to mention that innovative research don't popup like wild mushrooms, it rather always strikes a well prepared mind. One of the ways to prepare your mind to biomedical research is by critical evaluation of existing scientific literature. Section E with two chapters gives extensive details on effective review of literature and the various resources available to search scientific literature. Communication and networking is an essential part of progress, which can influence a change, and biomedical research is not an exception to this. With in this context every biomedical researcher should always remember the 3P concept i.e., patent, publish or perish (3P), without the first 2 the 3rd outcome is inevitable. Highlighting the first 2P concept is section F with eight chapters detailing on effective scientific writing and communication. While the section G with two chapters details on the tools for scholarly publications and available guidelines. Like how every business needs investment, globally the biomedical research is supported by grants and fellowships from various public and private agencies, which are very competitive. The section H with three chapters extensively describes how to be very competitive in writing successful grant and fellowship applications and the various funding opportunities available for biomedical researchers. However due to considerable philanthropic activities by noble minds and change of government policies these funding opportunities keep changing for better to further support biomedical research. Nevertheless scientific innovations, which is often serendipitous but always strikes a well prepared mind and section I details on the concept of how to be innovative in biomedical research carrier. Finally the last section J details on most important aspects of not only biomedical research but also of any human life, i.e., Integrity and ethics which are fundamental to innovations and discoveries which can positively influence a change in human/animal-kind..

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