Open Innovation In Drug Discovery Using Specialised

Collaborative Innovation in Drug DiscoveryStrategies for Public and Private PartnershipsJohn Wiley & Sons
The Future of Drug Discovery: Who decides which diseases to treat? provides a timely and detailed look at the efforts of the pharmaceutical industry and how they relate, or should relate, to societal needs. The authors posit that as a result of increasing risk aversion and accelerated savings in research and development, the industry is not developing drugs for increasingly prevalent diseases, such as Alzheimer's disease, untreatable pain, antibiotics and more. This book carefully exposes the gap between the medicines and therapies we need and the current business path. By analyzing the situation and discussing prospects for the next decade, the The Future of Drug Discovery is a timely book for all those who care about the development needs for drugs for disease. Provides an in-depth, broad perspective on the crisis in drug industry Exposes the disconnect between what society needs and what the drug companies are working on Analyses and projects over 10 years into the future Explains what it means for scientists and society Determines what is needed to be done to make sure that the industry responds to society's needs, remains commercially attractive and answers the question as to who decides which diseases to treat
' Open Innovation: A Multifaceted Perspective unveils research on open innovation from multidisciplinary perspectives and with practical insights from leaders and policy-makers. The first section addresses the links between open innovation and various disciplines, methods, concepts and policy instruments. The second section reviews selectively the literature, focusing essentially on open service innovation and innovation in financial services industries. It also explores different forms and types of practices reflecting the adoption and implementation of open innovation. The third section focuses on the management of open innovation, paying specific attention to the individual, intra- and inter-organizational levels. Contents:Part I:Unfolding Fifty Shades of Open Innovation: Stimulating Insights & Foresights (Anne-Laure Mention and Marko Torkkeli)Open Questions about Open Innovations (Leonid Chechurin)Open Data For Open Science: Aspirations, Realities, Challenges and Opportunities (Vera Lipton)Open Innovation or Innovation in the Open? An Exploration of the Strategy–Innovation Link in Five Scale-Intensive Services (Karl Joachim Breunig, Tor Helge Aas and Katja Maria Hydle)Sustainable Innovation: Solving Wicked Problems Through Innovation (Antti Hautamäki and Kaisa Oksanen)Futures of Innovation Systems and Innovation Management: Open Innovation Paradigm Analysed from Futures Perspectives (Jari Kaivo-oja and Teemu Santonen)Leveraging Design Thinking to Innovate (Denis Dennehy, Frederic Adam and Fergal Carton)Open Innovation Adoption Practices and Evaluation Methods in the Global Process Industry (Jarkko Pellikka, Miika Kajanus and Marko Seppänen)Open Innovation Networks: Exploring Actor Roles and Network Orchestration in Living Lab (Dimitri Schuurman, Bram Lievens, Carina Veeckman, Lieven De Marez and Pieter Ballon)Open Innovation and Territory (Marcin Baron)Living Labs and Open Innovation in European Context (Bror Salmelin)Part II:The Feasibility of Open Service Innovation (Tor Helge Aas and Per Egil Pedersen)Financial Services and Open Innovation (Patrick Schueffel and Iustin Vadana)How to Motivate and Reward Customers in an Online Co-Creation Process? (Maria Antikainen and Marketta Niemelä)Customer Involvement in Innovation in Service Sector (Jaakko Paasi)Can Crowdsourcing Platforms Be Used in B2B Innovation? (Hannu Kärkkäinen, Jari Jussila, Jani Multasuo and Nina Helander)Crowdsourcing for Value Creation in Lean Start-Ups (Pia Erkinheimo, Hannu Kärkkäinen and Jari Jussila)Open Innovation in University–Industry Collaboration: Communities of Practice (Päivi Iskanius)Characteristics of Open Innovation Cultures in Different Regional Contexts (Peter Prud''homme van Reine)Ambidextrous Organisational and Individual Competencies in OI: The Dawn of a New Research

Agenda (Joachim Hafkesbrink and Markus Schroll)Understanding Open Service Innovation and the Role of Intermediaries (Wil Janssen, Timber Haaker and Harry Bouwman)Intra-Organisational Knowledge Flows: A Coopetition Perspective on Post-Acquisition and -Merger Activities (Audrey Depeige and Stavros Sindakis)Management of Diversity in Open Innovation Processes (Teemu Santonen) Readership: Graduate students, researchers, innovation managers, executives, policy makers in the field of innovation. Key Features:Multidisciplinary and inter disciplinarityTheory, Practice and Policy perspectives with contributors from all these economic segmentsDiversity of themes coveredKeywords:Open Innovation;Innovation Management;Innovation Economics;Crowdsourcing;Living Labs;Ecosystems;Skills and Competencies;Quadruple Helix Model;Communities of Practice;Strategy;Open Data;Multidisciplinary "In a world of accelerating change, open innovation is of growing interest to both researchers and practitioners as a powerful mechanism for understanding and driving renewal of smart service systems and networks. This book provides multiple perspectives on open innovation theory and practice for academic, industry, and government leaders including public policy makers seeking sustainable economic growth. The breadth and depth of the chapters is wonderful stimulation for inspiring needed ''adaptive T-shaped makers'' of tomorrow''s innovation ecosystems." Dr James C Spohrer Director, IBM University Programs (IBM UP) and Cognitive Systems Institute "How best to innovate and grow in an open internet world economy? This book takes Open Innovation into the real world. Required reading for all who want faster innovation now." Robert Madelin Director-General for DG CONNECT: Communications Networks, Content and Technology, European Commission '
The father of "open innovation" is back with his most significant book yet. Henry Chesbrough's acclaimed book Open Innovation described a new paradigm for management in the 21st century. Open Services Innovation offers a new approach that demonstrates how open innovation combined with a services approach to business is an effective and powerful way to grow and compete in our increasingly services-driven economy. Chesbrough shows how companies in any industry can make the critical shift from product- to service-centric thinking, from closed to open innovation where co-creating with customers enables sustainable business models that drive continuous value creation for customers. He maps out a strategic approach and proven framework that any individual, business unit, company, or industry can put to work for renewed growth and profits. The book includes guidance and compelling examples for small and large companies, services businesses, and emerging economies, as well as a path forward for the innovation industry. "Whether you are managing a product or a service, your business needs to become more open and more inclusive in order to be more innovative. Open Services Innovation will be an invaluable guide to intrepid managers who commit to making that journey." —GARY HAMEL, visiting professor, London Business School; director, Management Lab; and author, The Future of Management "I tore out page after page to share with my leaders. Chesbrough has pioneered an entire rethink of business innovation that's rich in concept, deeply explained, with tools ready to use in every industry." —SCOTT COOK, founder and chairman of the executive committee, Intuit "Focusing on core competence often tempts managers to keep continuing what succeeded in the past. A far more important question is what capabilities are critical in the future, and Chesbrough shows how to ask and answer these issues." —CLAYTON CHRISTENSEN, Robert & Jane Cizik Professor of Business Administration, Harvard Business School, and author, The Innovator's Dilemma "To thrive, businesses will need to master the lessons of open service innovation. Here is their one-stop guidebook with important lessons clearly and compellingly presented." —JAMES C. SPOHRER, director, IBM University Programs World-Wide "Open Innovation pioneer Henry Chesbrough breaks new ground with Open Services Innovation, a persuasive argument for the power of co-creation in the world of services." —TOM KELLEY, general manager, IDEO, and author, The Ten Faces of Innovation, The Art of Innovation "With his trademark style of beautifully explained examples, Henry Chesbrough shows how open service innovation and new

business models can help you escape this product commodity trap and bring you to the next level of competition." —ALEX OSTERWALDER, author, Business Model Generation "Open Services Innovation shows how a business can redefine itself as a service organisation and tap into faster growth through shared innovation." —SIR TERRY LEAHY, chief executive, Tesco "Chesbrough shows how innovating openly with a services mindset can make you a market leader." —CHARLENE LI, author, Open Leadership, and founder, Altimeter Group
The information revolution has made for a radically more fluid knowledge environment, and the growth of venture capital has created inexorable pressure towards fast commercialisation of existing technologies Companies that don't use the technologies they develop are likely to lose them. Key features Over the past several years, Hank Chesbrough has done excellent research and writing on the commercialisation of technology and the changing role and context for R&D. This book represents a powerful synthesis of that work in the form of a new paradigm for managing corporate research and bringing new technologies to market Chesbrough impressively articulates his ideas and how they connect to each other, weaving several disparate areas of work R&D, corporate venturing, spinoffs, licensing and intellectual property into a single coherent framework.
This myth-busting book shows large companies can construct a strategy, system, and culture of innovation that creates sustained growth. Every company wants to grow, and the most proven way is through innovation. The conventional wisdom is that only disruptive, nimble startups can innovate; once a business gets bigger and more complex corporate arteriosclerosis sets in. Gary Pisano's remarkable research conducted over three decades, and his extraordinary on-the ground experience with big companies and fast-growing ones that have moved beyond the start-up stage, provides new thinking about how the scale of bigger companies can be leveraged for advantage in innovation. He begins with the simply reality that bigger companies are, well, different. Demanding that they "be like Uber" is no more realistic than commanding your dog to speak French. Bigger companies are complex. They need to sustain revenue streams from existing businesses, and deal with Wall Street's demands. These organizations require a different set of management practices and approaches--a discipline focused on the strategies, systems and culture for taking their companies to the next level. Big can be beautiful, but it requires creative construction by leaders to avoid the creative destruction that is all-too-often the fate of too many.
This practical guide for advanced students and decision-makers in the pharma and biotech industry presents key success factors in R&D along with value creators in pharmaceutical innovation. A team of editors and authors with extensive experience in academia and industry and at some of the most prestigious business schools in Europe discusses in detail the innovation process in pharma as well as common and new research and innovation strategies. In doing so, they cover collaboration and partnerships, open innovation, biopharmaceuticals, translational medicine, good manufacturing practice, regulatory affairs, and portfolio management. Each chapter covers controversial aspects of recent developments in the pharmaceutical industry, with the aim of stimulating productive debates on the most effective and efficient innovation processes. A must-have for young professionals and MBA students preparing to enter R&D in pharma or biotech as well as for students on a combined BA/biomedical and natural sciences program.
Despite considerable technological advances, the pharmaceutical industry is experiencing a severe innovation deficit, especially in the discovery of new drugs. Innovative Approaches in Drug Discovery: Ethnopharmacology, Systems Biology and Holistic Targeting provides a critical review and analysis of health, disease and medicine, and explores possible reasons behind the present crisis in drug discovery. The authors illustrate the benefits of systems biology and pharmacogenomics approaches, and advocate the expansion from disease-centric discovery to person-centric therapeutics involving holistic, multi-target, whole systems approaches. This book lays a path for reigniting

pharmaceutical innovation through a disciplined reemergence of pharmacognosy, embracing open innovation models and collaborative, trusted public-private partnerships. With unprecedented advances made in the development of biomedically-relevant tools and technologies, the need is great and the time is now for a renewed commitment towards expanding the repertoire of medicines. By incorporating real-life examples and state-of-the-art reviews, this book provides valuable insights into the discovery and development strategies for professionals, academicians, and students in the pharmaceutical sciences. Analyzes the reasons behind historical drug failures to provide valuable insights on lessons learned Uses current scientific research to promote learning from traditional knowledge systems and through the integration of traditional and western medicines Discusses advances in technologies and systems biology to support the transition from formulation discovery to therapeutic discovery

Disintegrated or distributed innovation, collaborative innovation, collective invention, collegial innovation, free innovation, open knowledge disclosure, free knowledge disclosure: are these all the same thing? This shows us there is some confusion regarding open innovation, or at least there is a need to cast a wider net around what open innovation is all about. The prevailing thought is that open innovation allows organizations to simultaneously expand their breadth of ideas, opportunities, and know-how while minimizing the technical and market risks associated with innovation. As a result, open innovation appears to come with little down side. Del Giudice, Della Peruta, and Carayannis fill the gap in our understanding of this emerging research field of open innovation. Their work depicts the major tendencies of publications through identifying the main themes in literature and investigating the research frontier. It also discusses potentially important fields of investigation that are still left rather unexplored. Many technical obstacles to effective innovation no longer exist: today, companies possess global networks that can connect with knowledge from virtually any source. Today's challenge is to collaboratively transform that knowledge into higher-value innovation. Their book introduces groundbreaking strategies and models for consistently achieving this goal. Authors Alpheus Bingham and Dwayne Spradlin draw on their own experience building InnoCentive, the pioneering global platform for open innovation (a.k.a. "crowdsourcing"). Writing for business executives, R&D leaders, and innovation strategists, Bingham and Spradlin demonstrate how to dramatically increase the flow of high-value ideas and innovative solutions both within enterprises and beyond their boundaries. They show: Why open innovation works so well. How to use open innovation to become more agile and entrepreneurial. How to access Idea Markets more quickly, and get more value from them. How to overcome new forms of "Not Invented Here" syndrome. How to implement cultural, organizational, and management changes that lead to greater innovation. New trends in open innovation–and the opportunities they present. The authors present many new open innovation case studies, from P&G and Eli Lilly to NASA and the City of Chicago.

Companies have to innovate to stay competitive, and they have to collaborate with other organizations to innovate effectively. Although the benefits of "open innovation" have been described in detail before, underlying mechanisms how companies can be successful open innovators have not be understood well. A growing community of innovation management researchers started to develop different frameworks to understand open innovation in a more systematic way. This book provides a thorough examination of research conducted to date on open innovation, as well as a comprehensive overview of what will be the most important, most

promising and most relevant research topics in this area during the next decade. "Open Innovation: Researching a new paradigm" (OUP 2006) was the first initiative to bring open innovation closer to the academic community. Open innovation research has since then been growing in an exponential way and research has evolved in different and unexpected directions. As the research field is growing, it becomes increasingly difficult for young (and even experienced scholars) to keep an overview of the most important trends in open innovation research, of the research topics that are most promising for the coming years, and of the most interesting management challenges that are emerging in organizations practicing open innovation. In the spirit of an open approach to innovation, the editors have engaged other scholars and practitioners to contribute some of their interesting insights in this book.Companies have to innovate to stay competitive, and they have to collaborate with other organizations to innovate effectively. Although the benefits of "open innovation" have been described in detail before, mechanisms underlying how companies can be successful "open innovators" have not be understood well. A growing community of innovation management researchers started to develop different frameworks to understand open innovation in a more systematic way.

Phenotypic drug discovery has been highlighted in the past decade as an important strategy in the discovery of new medical entities. How many marketed drugs are derived from phenotypic screens? From the most recent examples, what were the factors enabling target identification and validation? This book answers these questions by elaborating on fundamental capabilities required for phenotypic drug discovery and using case studies to illustrate approaches and key success factors. Written and edited by experienced practitioners from both industry and academia, this publication will equip researchers with a thought-provoking guide to the application and future development of contemporary phenotypic drug discovery for clinical success.

The Pharmaceutical Industry has been undergoing a major transformation since the heady days of 'big pharma' in the 1970s and 80s. Patent expiry, the rise of generics, and the decline of the blockbuster drug have all changed the landscape over the last 10-15 years. It's an environment where products can take 10 years or more to come to market, billions are spent on research and development, jobs are being shed in the western pharma homelands and regulators and the public are more demanding than ever. So what part is Knowledge Management playing and going to play in this vital international industry? Knowledge Management (KM) has many facets from providing comprehensive knowledge bases for workers, through the sharing of advice and problem solving, to providing an environment for innovation and change. This book, focusing on research and development, and manufacturing-based companies, explores how a range of techniques and approaches have been applied in the unique environment of the Pharmaceutical Industry, and examine how it can help the industry in the 21st century. Whilst the book is centered on the Pharmaceutical Industry, its objective will be to discuss and demonstrate how Knowledge Management can be applied in a variety of environments, and with a range of cultural issues. KM practitioners, and potential practitioners, both within and outside the Pharmaceutical Industry, will be able to gain valuable guidance and advice from both the examples of good practice and the lessons learned by the authors and contributors.

LOS ANGELES TIMES AND PUBLISHERS WEEKLY BESTSELLER * The powerful memoir of a young doctor and former college

athlete diagnosed with a rare disease who spearheaded the search for a cure--and became a champion for a new approach to medical research. "A wonderful and moving chronicle of a doctor's relentless pursuit, this book serves both patients and physicians in demystifying the science that lies behind medicine."--Siddhartha Mukherjee, New York Times bestselling author of The Emperor of All Maladies and The Gene David Fajgenbaum, a former Georgetown quarterback, was nicknamed the Beast in medical school, where he was also known for his unmatched mental stamina. But things changed dramatically when he began suffering from inexplicable fatigue. In a matter of weeks, his organs were failing and he was read his last rites. Doctors were baffled by his condition, which they had yet to even diagnose. Floating in and out of consciousness, Fajgenbaum prayed for a second chance, the equivalent of a dramatic play to second the game into overtime. Miraculously, Fajgenbaum survived--only to endure repeated near-death relapses from what would eventually be identified as a form of Castleman disease, an extremely deadly and rare condition that acts like a cross between cancer and an autoimmune disorder. When he relapsed while on the only drug in development and realized that the medical community was unlikely to make progress in time to save his life, Fajgenbaum turned his desperate hope for a cure into concrete action: Between hospitalizations he studied his own charts and tested his own blood samples, looking for clues that could unlock a new treatment. With the help of family, friends, and mentors, he also reached out to other Castleman disease patients and physicians, and eventually came up with an ambitious plan to crowdsource the most promising research questions and recruit world-class researchers to tackle them. Instead of waiting for the scientific stars to align, he would attempt to align them himself. More than five years later and now married to his college sweetheart, Fajgenbaum has seen his hard work pay off: A treatment he identified has induced a tentative remission and his novel approach to collaborative scientific inquiry has become a blueprint for advancing rare disease research. His incredible story demonstrates the potency of hope, and what can happen when the forces of determination, love, family, faith, and serendipity collide. Praise for Chasing My Cure "A page-turning chronicle of living, nearly dying, and discovering what it really means to be invincible in hope."--Angela Duckworth, #1 New York Times bestselling author of Grit "[A] remarkable memoir . . . Fajgenbaum writes lucidly and movingly . . . Fajgenbaum's stirring account of his illness will inspire readers."--Publishers Weekly

Open Innovation through Strategic Alliances demonstrates the vital role and applications of strategic alliances between firms and research organizations in creating and applying knowledge for the development of new products, technologies, or business models.

?This book contains some contributions obtained from Project ECO2015-70262-R "Influence of openness on eco-innovaTin in agro-food industries". This Project has been funded by the former Spanish Ministry of Economy and Competitiveness. The main objective of this research is to analyse the influence of open innovation strategies on the development of environmental innovations in the agro-food companies. Eco-innovation has generated a growing body of theoretical and empirical contributions from both quantitative and qualitative perspectives in the last years and this book contains some examples of research and case studies on the topic.

Pharmaceutical giants have been doubling their investments in drug development, only to see new drug approvals to remain constant for the past decade. This book investigates and highlights a set of proactive strategies, aimed at generating sustainable competitive advantage for its protagonists based on value-generating business practices. We focus on three sources of pharmaceutical innovation: new management methods in the drug development pipeline, new technologies as enablers for cutting-edge R&D, and new forms of internationalisation, such as outside-in innovation in the early phases of R&D.

In an era of an economy based on knowledge and Web 2.0 technology, knowledge is the foundation for improving the decision-making processes and relations between people both in and outside of an organization. Providing new and unique sources of knowledge outside organizations enables innovation and shapes competitive advantage. Crowdsourcing and Knowledge Management in Contemporary Business Environments is a collection of innovative research on the methods and applications of crowdsourcing in collaboration, idea implementation, and organizational development. Highlighting a range of topics including data analytics, crowd computing, and open innovation, this book is ideally designed for business managers, business professionals, business and social researchers, graduate-level students, and academicians seeking current research on the mechanisms of knowledge management in crowdsourcing.

Natural products hold a prominent position in the current discovery and development of drugs and have diverse indications for both human and animal health. Plants, in particular, play a leading role as a source of specialized metabolites with medical effects. Other organisms, such as marine and terrestrial animals and microorganisms, produce very important drug candidate molecules. Specialized metabolites from these varied natural sources can be used directly as bioactive compounds or drug precursors. In addition, due to their broad chemical diversity, they can act as drug prototypes and/or be used as pharmacological tools for different targets. Some examples of natural metabolites that have been developed into useful medical drug are cardiotonic digoxin from Digitalis sp., antimalarial artemisinin from Artemisia annua, anti-cancer taxol from Taxus sp., or podophyllotoxin from Podophyllum peltatum, which served as a synthetic model for the anti-cancer etoposide. The study of natural products is still attracting great scientific attention and their current importance, as a valuable lead for drug discovery, is undebatable. I cordially invite authors to contribute original articles, as well as survey articles, that give the readers of Molecules **MOLECULES NEEDS TO BE ITALICIZED** updated and new perspectives on natural products in drug discovery, including but not limited to natural sources, identification and separation of bioactive phytochemicals, standardization, new biological targets, pre-clinical and clinical trials, pharmacological effects/side effects, and bioassays.

This study has emerged from an ongoing program of trilateral cooperation between WHO, WTO and WIPO. It responds to an increasing demand, particularly in developing countries, for strengthened capacity for informed policy-making in areas of intersection between health, trade and IP, focusing on access to and innovation of medicines and other medical technologies.

The pharmaceutical industry is one of today's most dynamic and complex industries, involving commercialization of cutting-edge scientific research, a huge web of stakeholders (from investors to doctors), multi-stage supply chains, fierce competition in the race to market, and a challenging regulatory environment. The stakes are high, with each new product raising the prospect of spectacular success—or failure. Worldwide revenues are approaching $1 trillion; in the U.S. alone, marketing for pharmaceutical products is, itself, a multi-billion dollar industry. In this volume, the editors showcase contributions from experts around the world to capture the state of the art in research, analysis, and practice, and covering the full spectrum of topics relating to innovation and marketing, including R&D, promotion, pricing, branding, competitive strategy, and portfolio management. Chapters include such features as: · An extensive literature review, including coverage of

research from fields other than marketing · an overview of how practitioners have addressed the topic · introduction of relevant analytical tools, such as statistics and ethnographic studies · suggestions for further research by scholars and students The result is a comprehensive, state-of-the-art resource that will be of interest to researchers, policymakers, and practitioners, alike.

Globalization has created an increase in the number of business opportunities presented to enterprises. A competitive market places demands on businesses to think differently and follow new approaches to managing their business goals and remaining acceptable to suppliers and service providers. Effective Open Innovation Strategies in Modern Business: Emerging Research and Opportunities is a comprehensive resource that focuses on the importance of interdisciplinary concepts in open innovation projects. Using case illustrations, the book examines concepts such as virtual reality, knowledge harvesting, and business process reengineering in relation to open innovation initiatives. As a publication exploring the areas of management and information technology disciplines, this resource is useful for corporate executives, business managers, entrepreneurs, business professionals, and graduate-level students seeking current research on business innovation techniques and approaches.

The concept of open innovation (OI) has become a very popular topic during the last decade, with increasing number of SMEs embracing OI practices to gain competitive advantage. This edited volume is a timely opportunity to gather research on OI in SMEs, to investigate how OI is managed and implemented to determine the peculiarities compared to OI management in large companies, and to specify the consequences for future OI research.The book offers insights into the following topics: The state of the art on open innovation in SMEs; adopting open innovation in SMEs; interorganizational networks and innovation ecosystems; sectoral patterns of open innovation in SMEs; and measuring, evaluating and stimulating open innovation in SMEs.

"Addressing a number of practical implications for the promotion of the pharmaceutical industry, this book will be of enormous interest to students, researchers and academics specializing in science and technology studies, and the management of technology and innovation. Practitioners, managers, and policy planners within the pharmaceutical industry will also deem this book invaluable."--BOOK JACKET.

Of the thousands of novel compounds that a drug discovery project team invents and that bind to the therapeutic target, typically only a fraction of these have sufficient ADME/Tox properties to become a drug product. Understanding ADME/Tox is critical for all drug researchers, owing to its increasing importance in advancing high quality candidates to clinical studies and the processes of drug discovery. If the properties are weak, the candidate will have a high risk of failure or be less desirable as a drug product. This book is a tool and resource for scientists engaged in, or preparing for, the selection and optimization process. The authors describe how properties affect in vivo pharmacological activity and impact in vitro assays. Individual drug-like properties are discussed from a practical point of view, such as solubility, permeability and metabolic stability, with regard to fundamental understanding, applications of property data in drug discovery and examples of structural modifications that have achieved improved property performance. The authors also review various methods for the screening (high throughput), diagnosis (medium throughput) and in-depth (low throughput) analysis of drug properties. * Serves as an essential working handbook aimed at scientists and students in medicinal chemistry * Provides practical, step-by-step guidance on property fundamentals, effects, structure-property relationships, and structure modification strategies * Discusses improvements in pharmacokinetics from a

practical chemist's standpoint

Improving and Accelerating Therapeutic Development for Nervous System Disorders is the summary of a workshop convened by the IOM Forum on Neuroscience and Nervous System Disorders to examine opportunities to accelerate early phases of drug development for nervous system drug discovery. Workshop participants discussed challenges in neuroscience research for enabling faster entry of potential treatments into first-in-human trials, explored how new and emerging tools and technologies may improve the efficiency of research, and considered mechanisms to facilitate a more effective and efficient development pipeline. There are several challenges to the current drug development pipeline for nervous system disorders. The fundamental etiology and pathophysiology of many nervous system disorders are unknown and the brain is inaccessible to study, making it difficult to develop accurate models. Patient heterogeneity is high, disease pathology can occur years to decades before becoming clinically apparent, and diagnostic and treatment biomarkers are lacking. In addition, the lack of validated targets, limitations related to the predictive validity of animal models - the extent to which the model predicts clinical efficacy - and regulatory barriers can also impede translation and drug development for nervous system disorders. Improving and Accelerating Therapeutic Development for Nervous System Disorders identifies avenues for moving directly from cellular models to human trials, minimizing the need for animal models to test efficacy, and discusses the potential benefits and risks of such an approach. This report is a timely discussion of opportunities to improve early drug development with a focus toward preclinical trials.

Focusing on in vitro and intracellular RNA structure formation, RNA Folding: Methods and Protocols provides a comprehensive collection of experimental protocols which are suitable to dissect RNA folding pathways and to characterize the structure of RNA folding intermediates at nucleotide or even atomic resolution. The presented techniques include powerful tools with a long tradition in RNA research as well as more advanced, novel methods, thus the methods span multiple disciplines, including molecular biology, biochemistry, biophysics, and computational biology. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Practical and authoritative, RNA Folding: Methods and Protocols serves as a vital reference for researchers attempting to gain insights into the secrets of this astounding macromolecule.

WIPO Re:Search aims to catalyze the development of medical products for neglected tropical diseases, malaria and tuberculosis through innovative research partnerships and knowledge sharing.

Following significant advances in deep learning and related areas interest in artificial intelligence (AI) has rapidly grown. In particular, the application of AI in drug discovery provides an opportunity to tackle challenges that previously have been difficult to solve, such as predicting properties, designing molecules and optimising synthetic routes. Artificial Intelligence in Drug Discovery aims to introduce the reader to AI and machine learning tools and techniques, and to outline specific challenges including designing new molecular structures, synthesis planning and simulation. Providing a wealth of information from leading experts in

the field this book is ideal for students, postgraduates and established researchers in both industry and academia.
One of the major shortcomings of the current drug discovery and development process is the inability to bridge the gap between early stage discoveries and pre-clinical research in order to advance innovations beyond the discovery phase. This book examines a drug discovery and development model, where the respective expertise of academia and industry are brought together to take promising discoveries through to proof of concept, providing a means to de-risk the drug discovery and development process. Within the context of integrated health management domains, pharmacoinformatics aims at maximizing the benefits from the use of information systems and technologies for the provision of decision support tools necessary for improved drug management, use, and administration practices. Pharmacoinformatics and Drug Discovery Technologies: Theories and Applications offers the latest the field has to offer to practitioners and academics alike, presented through theoretical frameworks, case studies, and future directions. This vital resource gathers an integrated pattern of high quality publications from around the world providing current, cutting-edge, and provocative scientific work in the three domains of pharmacoinformatics: decision making domains, knowledge utilization and representation environment, and the technological and infrastructural context.
Open innovation increases the profit of companies and organizations via the input and the adoption of new ideas that are transformed into new processes, products, and services. Yet, how do we ensure that adopters of such innovations focus on relevant problems and use appropriate methods? How should we manage open innovation technologies? How can we exploit distributed knowledge and inventions? And how can we promote them successfully on the market? With valuable lessons to be learned from academic research and industrial experiences of e.g. Intel, Nokia, Philips Healthcare, small municipalities, e-learning platforms and user communities, this book focuses on some of the key dimensions of open innovation and open innovation technologies. It is divided into three themes: theme 1 deals with open innovation as it is in use today, including theoretical underpinnings and lessons from related research fields. Theme 2 analyzes the use of open innovation in organizations today in order to extract best practices. Theme 3 presents forward-looking theoretical research as well as practical future uses of open innovation. Each chapter addresses the particular topics by presenting experiences and results gained in real life projects and/or by empirical research, and clearly states its purpose and how readers are supposed to benefit from it. Overall, the objectives of this book are to advance and disseminate research on systematic open innovation, and to make its results available to practitioners. Thus, the intended target audience includes the international academic community, industrial enterprises, and public authorities.
Real-world evidence (RWE) has been at the forefront of pharmaceutical innovations. It plays an important role in transforming drug development from a process aimed at meeting regulatory expectations to an operating model that leverages data from disparate sources to aid business, regulatory, and healthcare decision making. Despite its many benefits, there is no single book systematically covering the latest development in the field. Written specifically for pharmaceutical practitioners, Real-World Evidence in Drug Development and Evaluation, presents a wide range of RWE

applications throughout the lifecycle of drug product development. With contributions from experienced researchers in the pharmaceutical industry, the book discusses at length RWE opportunities, challenges, and solutions. Features Provides the first book and a single source of information on RWE in drug development Covers a broad array of topics on outcomes- and value-based RWE assessments Demonstrates proper Bayesian application and causal inference for real-world data (RWD) Presents real-world use cases to illustrate the use of advanced analytics and statistical methods to generate insights Offers a balanced discussion of practical RWE issues at hand and technical solutions suitable for practitioners with limited data science expertise

Profitable innovation doesn't just happen. It must be managed, measured, and properly executed, and few companies know how to accomplish this effectively. Making Innovation Work presents a formal innovation process proven to work at HP, Microsoft and Toyota, to help ordinary managers drive top and bottom line growth from innovation. The authors have drawn on their unsurpassed innovation consulting experience -- as well as the most thorough review of innovation research ever performed. They'll show what works, what doesn't, and how to use management tools to dramatically increase the payoff from innovation investments. Learn how to define the right strategy for effective innovation; how to structure an organization to innovate best; how to implement management systems to assess ongoing innovation; how to incentivize teams to deliver, and much more. This book offers the first authoritative guide to using metrics at every step of the innovation process -- from idea creation and selection through prototyping and commercialization. This updated edition refreshes the examples used throughout the book and features a new introduction that gives currency to the principles covered throughout.

The major purpose of this book is to clarify the importance of non-technological factors in innovation to cope with contemporary complex societal issues while critically reconsidering the relations between science, technology, innovation (STI), and society. For a few decades now, innovation—mainly derived from technological advancement—has been considered a driving force of economic and societal development and prosperity. With that in mind, the following questions are dealt with in this book: What are the non-technological sources of innovation? What can the progress of STI bring to humankind? What roles will society be expected to play in the new model of innovation? The authors argue that the majority of so-called technological innovations are actually socio-technical innovations, requiring huge resources for financing activities, adapting regulations, designing adequate policy frames, and shaping new uses and new users while having the appropriate interaction with society. This book gathers multi- and trans-disciplinary approaches in innovation that go beyond technology and take into account the inter-relations with social and human phenomena. Illustrated by carefully chosen examples and based on broad and well-informed analyses, it is highly recommended to

readers who seek an in-depth and up-to-date integrated overview of innovation in its non-technological dimensions.
In todays world, we live with the notion that economic health and firm competitiveness are closely tied. Innovation and creativity play a significant role in achieving economic, social, and technological advancement, contributing to a nation's prosperity and leading to job growth for a country. Industries can capitalize on economic benefits through the development and commercialization of innovative products. This also works for consumers, who prefer to purchase safe, guaranteed products, believing that the IP rights of the products are worth protecting both nationally and internationally. The topics covered in this book include an "Introduction to Intellectual Property Rights," "Patenting in the Pharmaceutical Industry," "Towards More Inclusive IP Analysis by Frontier Tools," "Patent Data in Economic Analysis," "How to Elaborate and Interpret an Expert Report on the Design Area," and "Host-Country Patenting and Inventorship in Emerging Countries."
This report reviews the important role of medicines in health sytems, describes recent trends in pharmaceutical expenditure and financing, and summarises the approaches used by OECD countries to determine coverage and pricing. Can academia save the pharmaceutical industry? The pharmaceutical industry is at a crossroads. The urgent needfor novel therapies cannot stem the skyrocketing costs andplummeting productivity plaguing R&D, and many key products arefacing patent expiration. Dr. Rathnam Chaguturu presents a case forcollaboration between the pharmaceutical industry and academia thatcould reverse the industry's decline. CollaborativeInnovation in Drug Discovery: Strategies for Public and PrivatePartnerships provides insight into the potential synergyof basing R&D in academia while leaving drug companies to turnhits into marketable products. As Founder and CEO ofiDDPartners, focused on pharmaceutical innovation, Foundingpresident of the International Chemical Biology Society, and SeniorDirector-Discovery Sciences, SRI International, Dr. Chaguturu hasassembled a panel of experts from around the world to weigh in onissues that affect the two driving forces in medicaladvancement. Gain global perspectives on the benefits and potential issuessurrounding collaborative innovation Discover how industries can come together to prevent another"Pharma Cliff" Learn how nonprofits are becoming the driving force behindinnovation Read case studies of specific academia-pharma partnerships forreal-life examples of successful collaboration Explore government initiatives that help foster cooperationbetween industry and academia Dr. Chaguturu's thirty-five years of experience inacademia and industry, managing new lead discovery projects andforging collaborative partnerships with academia, diseasefoundations, nonprofits, and government agencies lend him aninformative perspective into the issues facing pharmaceuticalprogress. In Collaborative Innovation in Drug Discovery:Strategies for Public and Private Partnerships, he and hisexpert team provide insight into the various nuances of thedebate.