Pharmacology Drug Discovery Voices Of Modern Biomedicine

A Pharmacology Primer: Techniques for More Effective and Strategic Drug Discovery, Fifth Edition features the latest ideas and research regarding the application of pharmacology to the process of drug discovery. Written by well-respected pharmacologist, Terry P. Kenakin, this primer is an indispensable resource for all those involved in drug discovery. This updated edition has been thoroughly revised to include material on quantifying drug efficacy through bias and cluster analysis, the impact of molecular dynamics and protein structural analysis, the real time kinetic analysis of drug effect, virtual screening for new drug chemical scaffolds, and much more. With full color illustrations and new examples throughout, this book remains a top reference for all industry and academic scientists that is also ideal for students directly involved in drug discovery or pharmacologic research. Highlights changes surrounding strategies for drug discovery, providing a comprehensive reference and featuring advances in the methods involved Includes multiple new sections, such as development and utilization of models in pharmacology, de-orphanization of new drug targets, predicting impact of disease on drug pharmacokinetics, and the impact of enzyme kinetics on drug-drug interactions Illustrates the application of rapid inexpensive assays to predict activity in the therapeutic setting, showing data outcomes and the limitations inherent in interpreting this data

Translational Medicine in CNS Drug Development, Volume 29, is the first book of its kind to offer a comprehensive overview of the latest developments in translational medicine and biomarker techniques. With extensive coverage on all aspects of biomarkers and personalized medicine, and numerous chapters devoted to the best strategies for developing drugs that target specific disorders, this book presents an essential reference for researchers in neuroscience and pharmacology who need the most up-to-date techniques for the successful development of drugs to treat central nervous system disorders. Despite increases in the number of individuals suffering from CNS-related disorders, the development and approval of drugs for their treatment have been hampered by inefficiencies in advancing compounds from preclinical discovery to the clinic. However, in the past decades, game-changing strides have been made in our understanding of the pathophysiology of CNS disorders and the relationship of drug exposure in plasma and CNS to pharmacodynamic measures in both animals and humans. Includes comprehensive coverage of biomarker tools and the role of personalized medicine in CNS drug development Discusses strategies for drug development for a full range of CNS indications, with particular attention to neuropsychiatric and neurocognitive disorders Includes chapters written by international experts from industry and academia

While biotechnological advances, genomics and high throughput screenings or combinatorial and asymmetric syntheses are opening new opportunities in drug discovery, the industry is facing serious innovation deficit. The total number of new molecules registered per year has dropped in contrast to expected increase. Post marketing failures of blockbuster drugs have become major concerns of industries. On the other side, globally there is a major shift to sue of traditional medicine involving complementary and alternative therapies. Ethnopharmacology and traditional medicines have contributed in past significantly in the process of natural product drug discovery. There are two clear tracks where ethnopharmacology has potential to contribute in future drug research. First, as a discovery engine to provide new targets, leads, and second, use of quality assured and standardized traditional medicines. In this scenario, it is important to understand the mechanisms of drug discovery and pharmaceutical development with a focus on herbal drugs and neutraceutical. This book provides historical perspective, future prospects and significance of ethnopharmacology in drug research. It also provides important steps in botanical drug discovery and development including bioprospecting, quality control, standardization, pharmaceutics, stability, pharmacokinetics, and bioavailability with examples from ethnopharmacology and herbal medicine. One of the important feature of this book is to give an excellent insight to Good Laboratory and Good Clinical Practices along with very useful summary steps involved in filing IND or NDA of botanical products. The book also gives Regulators' perspective of validating claims and how ethnopharmacological or traditional medicines need different approach.

June 07-08, 2017 Milan,. Italy Key Topics : Medicinal Chemistry, Synthetic Organic Chemistry, Drug Design and Drug Development, CADD (Computer Aided Drug Design), Bioorganic and Medicinal Chemistry, Pharmacology and toxicology, BioInorganic Chemistry, Organometallic Chemistry, Radiopharmaceuticals, Chemical Biology, Anticancer agents in Medicinal Chemistry, Pharmaceutical Industry, Clinical Pharmacology, Pharmaceutical Sciences, Bioisostere, Analytical Chemistry, Nanomedicine, Stereochemistry, Pharmacovigilance,

Focused on pediatric physiology, pharmacology, pharmacokinetics and pharmacodynamics, this book illustrates the differences between the pediatric population and adults; knowledge of extreme importance not only during pediatric drug development but also in the clinical practice. Physicians, nurses, clinical pharmacologists, researchers and healthcare professionals will find this an invaluable resource. With the advent of pediatric exclusivity, and requirements to conduct clinical studies in children, an emphasis has been placed on finding a safe and efficacious dose of a drug in children. Children are not ‘small adults’, and drug dosing in this population requires special consideration. There are subtle physiological and biochemical differences among neonates, infants, children, adolescents and adults and dosing in pediatrics requires proper understanding of these factors. Furthermore, dosing in children, as in adults, should be based on pharmacokinetic and pharmacodynamic data. This is an evolving area, as pediatric pharmacokinetic studies are becoming mandatory for getting approval of new drugs in this population.

June 11-12, 2018 | Dublin, Ireland Key Topics : Neglected Tropical Diseases, Rare Pulmonary Diseases, Rare Diseases in Neurology, Rare Genetic Diseases, Scope of Orphan Drugs, Rare diseases of Endocrine System, Rare diseases of Immune System, Rare Cardiac Diseases, Rare Eye and Ear Diseases, Orphan Drugs Treatment for Rare Diseases, Rare Oral Diseases, Rare Hepatic Diseases, Rare Gastrointestinal Diseases, Rare Bacterial, Viral and Fungal infections, Rare diseases of Genitourinary System, Rare diseases in Nephrology, Rare Skin Diseases, Clinical Research on Orphan Drugs, Rare Morphological Diseases, Development of Orphan Products, Rare Diseases in Oncology, Rare Diseases in Anaesthesiology, Rare Diseases in Haematology, Orphan Drugs Market Research, Rare Gynaecological and Obstetrical Diseases, Pediatric Rare Diseases, Current Rare Diseases Research, Rare Diseases of Sexual Health, Rare Hereditary Diseases, Diagnosis and Treatment for Rare Diseases, Clinical case studies on Rare Diseases, Imaging of Rare Diseases, Other Rare Diseases,

Comprehensive Medicinal Chemistry III provides a contemporary and forward-looking critical analysis and summary of recent developments, emerging trends, and recently identified new areas where medicinal chemistry is having an impact. The discipline of medicinal chemistry continues to evolve as it adapts to new opportunities and strives to solve new challenges. These include drug targeting, biomolecular therapeutics, development of chemical biology tools, data collection and analysis, in silico models as predictors for biological properties, identification and

validation of new targets, approaches to quantify target engagement, new methods for synthesis of drug candidates such as green chemistry, development of novel scaffolds for drug discovery, and the role of regulatory agencies in drug discovery. Reviews the strategies, technologies, principles, and applications of modern medicinal chemistry Provides a global and current perspective of today's drug discovery process and discusses the major therapeutic classes and targets Includes a unique collection of case studies and personal assays reviewing the discovery and development of key drugs

August 13-14 2018 Dublin, Ireland Key Topics : Advanced Energy Materials, Hydrogen Energy, Solar Energy Materials, Polymer Materials, Advanced Nanomaterials, Energy Harvesting Materials, Nanotechnology and Energy Materials, Batteries and Energy Materials, Electric, Hybrid, and Fuel-Cell Vehicles, Mining, Metallurgy & Materials Science, Advanced Graphene Materials, Solid Electrolytes, Biomaterials and Surface Science Engineering, Electrical, Optical and Magnetic Materials, Fuel Cell Technology,

June 22-24, 2017 Paris, France Key Topics : Drug Toxicology, Food Toxicology, Nanotoxicology, Genetic Toxicology and Toxicity Testing, Pharmacology, Human & Health Toxicology, Toxicologic Pathology, Occupational Toxicology, Pesticide Chemistry and Toxicology, Reproductive and Developmental Toxicology, Toxicology, Pharmacology and Toxicology, Forensic Medicine and Toxicology, Toxicology of Metals, Toxicologists Meetings, Environmental Toxicology and Risk Assessment, Risk Assessment, Regulatory Toxicology, Toxicity of Consumer and Household Products, Translational Toxicology, Toxicology Databases and Informatics,

September 20-21, 2017 Dublin, Ireland Key Topics : Innovations in Pre-clinical Research, Stem Cell & Oncology Clinical Research, Design of Clinical Studies and Trials, Conducts of Clinical Trials, Biomedical Devices Clinical Research, Clinical Research and Trials on AIDS, Clinical Trials on Different Diseases, Clinical Data Management and Statistics, Clinical Trials in Developing Countries, Innovations in Clinical Trials, Future of Clinical Trials, GCP Learning and Best Practices, Risk Management at Research Site, Bioethics and Quality Regulation, Pharmacovigilance and Drug Safety, Clinical and Medical Case Reports, Transforming Trial Methodologies, Diabetes & Gastroenterology Clinical Research, Current Regulatory Trends in Drug Development, Clinical Nursing Research,

February 20-21, 2017 Berlin, Germany Key Topics : Materials Science and Engineering, Nanotechnology, Biomaterials and Healthcare, Materials in Industry, Materials Chemistry, Materials Physics, Energy Materials, Metallurgy and Materials Science, Advanced Materials and Devices, Characterization and Testing of Materials, Entrepreneurs Investment Meet,

This book engages in a critical discussion on how to respect and promote patients' autonomy in difficult cases such as palliative care and end-of-life decisions. These cases pose specific epistemic, normative, and practical problems, and the book elucidates the connection between the practical implications of the theoretical debate on respecting autonomy, on the one hand, and specific questions and challenges that arise in medical practice, on the other hand. Given that the idea of personal autonomy includes the notion of authenticity as one of its core components, the book explicitly includes discussions on underlying theories of the self. In doing so, it brings together original contributions and novel insights for "applied" scenarios based on interdisciplinary collaboration between German and Serbian scholars from philosophy, sociology, and law. It is of benefit to anyone cherishing autonomy in medical ethics and medical practice.

A Pharmacology PrimerTechniques for More Effective and Strategic Drug DiscoveryAcademic Press

March 19-21, 2018 | Berlin, Germany Key Topics : Drug Targeting and Design, Drug Delivery Technologies, Nanoparticulate Drug Delivery Systems, Pharmaceutical Nanotechnology, Nanomedicine and Nanotechnology, Smart Drug Delivery Systems, Biomaterials in Drug Delivery, Vaccine Drug Delivery Systems, Medical Devices for Drug Delivery, Peptides and Protein Drug Delivery, Green & Sustainable Pharma, 2D & 3D Printing in Drug Delivery, Pre-Formulation & Formulation Aspects, Pharmacokinetics and Pharmacodynamics in drugs, Routes of Drug Delivery, Nanotechnology in Drug Delivery, Global Drug Delivery Policy, Biomedicine and Pharmacotherapy,

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.

The appreciation of risk like the awareness of beauty lies very much in the eyes of the beholder. It involves a value judgement and can never be absolute. Yet paradoxically, modern society is demanding ever greater degrees of safety in the medicines it takes, to the extent that nothing short of the total absence of risk will be tolerated. Since 1960, and mainly as a result of the thalidomide tragedy, governmental regulation of testing and use of new medicines has grown apace throughout the world. It has derived impetus not only from the understandable wish of the public to seek protection, but also from the anxiety of bureaucrats and politicians not to be seen to have made mistakes. Both these concerns have been inflamed by the recognition of the media that all drugs make news and horror drugs make the best news of all. Prior to this time the physician and his cures enjoyed a relatively supportive public. It was true that quacks existed and were recognized as such but, in the main, people wanted to take medicines and expected them to do them good.

A Pharmacology Primer: Techniques for More Effective and Strategic Drug Discovery, 4th Edition features the latest ideas and research about the application of pharmacology to the process of drug discovery to equip readers with a deeper understanding of the complex and rapid changes in this field. Written by well-respected pharmacologist, Terry P. Kenakin, this primer is an indispensable resource for all those involved in drug discovery. This edition has been thoroughly revised to include material on data-driven drug discovery, biased signaling, structure-based drug design, drug activity screening, drug development (including pharmacokinetics and safety Pharmacology), and much more. With more color illustrations, examples, and exercises throughout, this book remains a top reference for all industry and academic scientists and students directly involved in drug

discovery, or pharmacologic research. Highlights changes surrounding the strategy of drug discovery to provide you with a comprehensive reference featuring advances in the methods involved in lead optimization and more effective drug discovery Includes a new chapter on data-driven drug discovery in terms of the optimal design of pharmacological experiments to identify mechanism of action of new molecules Illustrates the application of rapid inexpensive assays to predict activity in the therapeutic setting, showing data outcomes and the limitations inherent in interpreting this data

September 11-12, 2017 Paris, France Key Topics : Industrial Forum of Radiology, Medical Image Processing, Ophthalmic Imaging, Radiography, Radiology and Nuclear medicine, Computer- assisted tomography, Elastography, Pathology Imaging, Molecular Imaging, Applications of Imaging, Advances in Medical Imaging, Advances in Cancer Imaging and Diagnosis, Fusion of Imaging modalities, Clinical Research and Trials on AIDS / Cancer / Diabetes, Pre-Clinical Research, Future of Clinical Trials, Clinical Data Management and Statistics, Clinical and Medical case reports, Clinical Trial Supply Management, Clinical Trials on different Diseases, Entrepreneurs Investment Meet, Innovations in Clinical Trials, Case Reports and Clinical research on Cardiology, Imaging in Gastroenterology, Cardiac imaging, Dentistry Imaging, Dentistry Clinical Research, Pediatric Radiology, Neuroradiology, Clinical Research on Neuroscience, Clinical Research's on Gastroenterology,

Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Molecular Pharmacology. The editors have built Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Molecular Pharmacology in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

A Comprehensive Guide to Toxicology in Nonclinical Drug Development, Second Edition, is a valuable reference designed to provide a complete understanding of all aspects of nonclinical toxicology in the development of small molecules and biologics. This updated edition has been reorganized and expanded to include important topics such as stem cells in nonclinical toxicology, inhalation and dermal toxicology, pitfalls in drug development, biomarkers in toxicology, and more. Thoroughly updated to reflect the latest scientific advances and with increased coverage of international regulatory guidelines, this second edition is an essential and practical resource for all toxicologists involved in nonclinical testing in industry, academic, and regulatory settings. Provides unique content that is not always covered together in one comprehensive resource, including chapters on stem cells, abuse liability, biomarkers, inhalation toxicology, biostatistics, and more Updated with the latest international guidelines for nonclinical toxicology in both small and large molecules Incorporates practical examples in order to illustrate day-to-day activities and the expectations associated with working in nonclinical toxicology

June 29-30, 2017 Madrid, Spain Key Topics : Health Economics, Health Economics and Policy, Health Economics and Health Care Services, Health Economics and Pharmaceutical Manufacturers, Health Economics and Health Insurance, Health Economics and Outcome Research, Health Economics and Econometrics, Health Economics and Health Statistics, Health Economics Modelling, Health Economics and Behavioural economics, Health Economics and Public health economics, Health Economics and Health care Markets, Health Economics and Financing, Health Economics and International Economics, Health care services and insurance, Economics of Health innovation, Hospital Services, Outcome Research and Epidemiology, Economic Epidemiology, Health Economics and Macroeconomics,

July 31-Aug 02, 2017 Milan, Italy Key Topics : Neuroimmunology and Neuroinflammation, Molecular Neuropharmacology, Clinical Neuropharmacology, Psychopharmacology, Neurochemical Transmission, Behavioral and Addiction Neuropharmacology, Neurotechnology, Neuroendocrinology, Alzheimer's Disease and Dementia, Parkinson's Disease, Neuroethics, Future Aspects of Neuropharmacology, Case Study Reports, Neural Stem Cell,

Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Pharmacology, Pharmacy, Drug Research, and Drug Innovation. The editors have built Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Pharmacology, Pharmacy, Drug Research, and Drug Innovation in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Pharmacology, Pharmacy, Drug Research, and Drug Innovation: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

June 15-17, 2017 London, UK Key Topics : Natural Products, New Sources and Approaches to Natural Products, Natural Products Chemistry, Natural Products Drug Discovery, Phytomedicine and Phytochemistry, Medicinal Natural Products, Natural Products as Anti-Cancer Drugs, Marine: The Ultimate Source of Bioactives and Drug Metabolites, Marine Biotechnology, Marine Natural Products Drug Discovery, Development of Marine Drugs and Natural Products, Bioactive Natural Products, Bioactive Natural Products from Marine Bacteria, Marine Probiotics and Prebiotics, A Promising Future for Marine Drugs and Natural Products, Entrepreneurs Investment Meet,

Argues that doctors are deliberately misinformed by profit-seeking pharmaceutical companies that casually withhold information about drug efficacy and side effects, explaining the process of pharmaceutical data manipulation and its global consequences. By the best-selling author of Bad Science.

"Covers the two-sided nature of polypharmacology--its contribution to adverse drug reactions and its benefit in certain therapeutic drug classes. Addresses the important topic of polypharmacology in drug discovery, a subject that has not been thoroughly covered outside of scattered journal articles Overviews state-of-the-art approaches and developments to help readers understand concepts and issues related to polypharmacology"--Provided by publisher.

Reviews cooperative efforts among Federal and international agencies responsible for medical research on experimental drugs and regulation of pharmaceutical industry marketing practices. Includes review of thalidomide marketing and use.

June 21-22, 2018 Rome, Italy Key Topics : Pre-Clinical and Clinical Trials, Adverse Drug Reactions, Pharmacovigilance and Risk Management, Good Pharmacovigilance Practice, Pharmacy Practices and its Challenges, Biopharmaceutical Sciences, Clinical Trials on Various Disorders, Data Quality Management and Analysis, Pharmacovigilance Significance & Scope, Diversity in Industrial Clinical Trials and Clinical Research, Clinical Research and Statistics, Case Report in Clinical Trials, Drug Safety, Clinical Data Base Management, PV Consultings and Business Opportunity, Regulatory Affairs, Entrepreneurs Investment Meet,

Children in the developed world have never enjoyed better medical care: mortality has decreased and many fatal diseases of the past can today be prevented or even cured. However, the current practice of pharmacotherapy in children does not reflect existing scientific knowledge and has come under scrutiny by paediatricians, pharmacists and regulatory authorities. In order to advance the development of medicines tailored to paediatric needs, US and EU legislators have taken action, and the WHO has initiated a global paediatric campaign. This book gives an overview over the worldwide activities that increasingly include children in the development of new medicines. Triggered by both a better understanding of how the child's body develops as well as recent legislation in the USA and in Europe, this comprises dosing, ethics, age-appropriate pharmaceutical forms and clinical trials, to name just a few aspects.A wide spectrum of readers will profit from this book, including paediatricians, pharmacists, general practitioners and health care professionals involved in child care and paediatric research, clinical trial personnel, patient advocacy groups, ethics committees, politicians, parents and interested lay persons.

Nervous system diseases and disorders are highly prevalent and substantially contribute to the overall disease burden. Despite significant information provided by the use of animal models in the understanding of the biology of nervous system disorders and the development of therapeutics; limitations have also been identified. Treatment options that are high in efficacy and low in side effects are still lacking for many diseases and, in some cases are nonexistent. A particular problem in drug development is the high rate of attrition in Phase II and III clinical trials. Why do many therapeutics show promise in preclinical animal models but then fail to elicit predicted effects when tested in humans? On March 28 and 29, 2012, the Institute of Medicine Forum on Neuroscience and Nervous System Disorders convened the workshop "Improving Translation of Animal Models for Nervous System Disorders" to discuss potential opportunities for maximizing the translation of new therapies from animal models to clinical practice. The primary focus of the workshop was to examine mechanisms for increasing the efficiency of translational neuroscience research through discussions about how and when to use animal models most effectively and then best approaches for the interpretation of the data collected. Specifically, the workshop objectives were to: discuss key issues that contribute to poor translation of animal models in nervous system disorders, examine case studies that highlight successes and failures in the development and application of animal models, consider strategies to increase the scientific rigor of preclinical efficacy testing, explore the benefits and challenges to developing standardized animal and behavioral models. Improving the Utility and Translation of Animal Models for Nervous System Disorders: Workshop Summary also identifies methods to facilitate development of corresponding animal and clinical endpoints, indentifies methods that would maximize bidirectional translation between basic and clinical research and determines the next steps that will be critical for improvement of the development and testing of animal models of disorders of the nervous system.

July 02-04, 2018 Berlin, Germany Key topics : Toxicology, Clinical & Medical Toxicology, Food and Nutritional Toxicology, Environmental Toxicology, Industrial & Occupational Toxicology, Systems Toxicology, Immunotoxicology, Chemical Carcinogenesis, Methods for Toxicity Testing, Risk Assessment, Toxicity Testing Markets, Emerging Toxicology Concepts, Molecular and Biochemical Toxicology, Reproductive and Developmental Toxicology, Genetic Toxicology, Drug Toxicology, Product Development Toxicology, Pharmacology, Developmental Pharmacology, Applied Pharmacology,

June 14-15, 2018 Barcelona,Spain Key Topics : Medicinal Chemistry, Pharmaceutical Sciences, Drug Design and Drug Development, CADD (Computer Aided Drug Design), Bioorganic and Medicinal Chemistry, Pharmacology and toxicology, Anticancer agents in Medicinal Chemistry, Analytical Chemistry, Pharmaceutical Industry, Organic Chemistry, Clinical Pharmacology, Evolution of Organic and Medicinal Chemistry in Pharma, Organic and Medicinal Chemistry Technologies for Drug Discovery, QSAR (Quantitative Structure-Activity Relationship) Fragment-Based Drug Design, Applications of Organic and Medicinal Chemistry in Drug Discovery, Market Dynamics, Conclusions and Future Trends, Medicinal Plants,

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