Formulation Evaluation Of Mouth Dissolving Tablets Of

This book provides a unified mechanics and materials perspective on polymers: both the mathematics of viscoelasticity theory as well as the physical mechanisms behind polymer deformation processes. Introductory material on fundamental mechanics is included to provide a continuous baseline for readers from all disciplines. Introductory material on the chemical and molecular basis of polymers is also included, which is essential to the understanding of the thermomechanical response. This self-contained text covers the viscoelastic characterization of polymers including constitutive modeling, experimental methods, thermal response, and stress and failure analysis. Example problems are provided within the text as well as at the end of each chapter. New to this edition: · One new chapter on the use of nano-material inclusions for structural polymer applications and applications such as fiber-reinforced polymers and adhesively bonded structures · Brings up-to-date polymer production and sales data and equipment and procedures for evaluating polymer characterization and classification · The work serves as a comprehensive reference for advanced seniors seeking graduate level courses, first and second year graduate students, and practicing engineers

According to United States Pharmacopoeia, the orodispersible tablets may be defined as solid dosage form containing medicinal substance or active ingredient which disintegrates rapidly within a matter of seconds when placed upon the tongue. This means that the tablets dissolve or disintegrate in the oral cavity without use of water. In this regard, the tablets need to improve disintegration time, dispersion time, drug release studies, bioavailability and patient compliance and also need to mask the bitter taste of the drug and to maintain the drug stable at accelerated condition i.e. 40 C/75% RH up to 6 months period as per ICH guidelines. Tramadol HCl is centrally acting synthetic opioid analgesic for the treatment of moderate to severe pain and is readily soluble in water. The half life of the drug is around 5.5 hours. The MDT's place a major role for rapid onset of action for geriatrics, pediatrics and the patients who have less access of water. The drug itself having bitter taste, so the present authors developed mouth dissolving tablets of tramadol HCl with the aim to mask the bitter taste of the drug, to minimize the disintegration time and improve the drug release rate."

In the second edition of Pharmaceutical Dosage Forms and Drug Delivery the authors integrate aspects of physical pharmacy, biopharmaceuticals, drug delivery, and biotechnology, emphasizing the increased attention that the recent spectacular advances in dosage form design and drug delivery, gene therapy, and nanotechnology have brought to the field. Highlights of the Second Edition: Additional author Ajit S. Narang brings an industrial practitioner perspective with increased focus on pharmacy math and statistics, and powders and granules Reorganized into three parts: Introduction, Physicochemical Principles, and Dosage Forms Chapters on pharmaceutical calculations, compounding principles, and powders and granules provide a complete spectrum of application of pharmaceutical principles Expansion of review questions and answers clarifies concepts for students and adds to their grasp of key concepts covered in the chapter Coverage of complexation and protein binding aspects of physical pharmacy includes the basic concepts as well as recent progress in the field Although there are numerous books on the science of pharmaceutics and dosage form design, most cover different areas of the discipline and do not provide an integrated approach to the topics. This book not only provides a singular perspective of the overall field, but it supplies a unified source of information for students, instructors, and professionals.

This primary textbook for a first course in pharmacology offers an integrated, systems-based, and mechanism-based approach to understanding drug therapy. Each chapter focuses on a target organ system, begins with a clinical case, and incorporates cell biology, biochemistry, physiology, and pathophysiology to explain how and why different drug classes are effective for diseases in that organ system. Over 400 two-color illustrations show molecular, cellular, biochemical, and pathophysiologic processes underlying diseases and depict targets of drug therapy. Each Second Edition chapter includes a drug summary table presenting mechanism, clinical applications, adverse effects, contraindications, and therapeutic considerations. New chapters explain how drugs produce adverse effects and describe the life cycle of drug development. The fully searchable online text and an image bank are available on thePoint.

In a finished nutraceutical product, flavors play an integral role. Flavor Development for Functional Foods and Nutraceuticals is about the crucial role added flavors play in any nutraceutical product. It describes the various extraction techniques that are being adopted for manufacturing flavors from natural raw materials. Yield and retention of aromatic components during several extraction methods and flavor encapsulation techniques for thermal degradable food components are discussed. Advanced methods of flavor extraction techniques like supercritical C02 extraction are emphasized. The safety and quality aspects of flavor incorporation in food processing industries are reviewed with respect to international regulations. The importance of flavor in the nutraceuticals industry is also discussed. In addition, the book stresses the functional value and organoleptic acceptability towards product optimization/formulation. Features: Explains how flavors play an integral role in a finished nutraceutical product Describes the various extraction techniques that are being adopted for manufacturing flavors from natural raw materials Covers flavor encapsulation techniques for thermal degradable food components Provides an introduction to the history of how some natural flavor ingredients, botanicals, and extracts were used in ancient times in Ayurveda and herbal medicine This is an ideal reference book for the flavor chemists, food scientists, nutraceutical formulators, and students and academicians who are working in the area of nutraceutical, supplement, and functional food development and provides very useful information to help them select appropriate flavors for their products. Also available in the Nutraceuticals: Basic Research/Clinical Applications Series: Flavors for Nutraceuticals and Functional Foods, edited by M. Selvamuthukumaran and Yashwant Pathak (ISBN: 978-1-1380-6417-1) Antioxidant Nutraceuticals: Preventive and Healthcare Applications, edited by Chuanhai Cao, Sarvadaman Pathak, Kiran Patil (ISBN 978-1-4987-3703-6) Food By-product Based Functional Food Powders, edited by Özlem Toku?o?lu (ISBN 978-1-4822-2437-5)

Pharmaceutical Drug Delivery Systems and Vehicles focuses on the fundamental principles while touching upon the advances in the pharma field with coverage of the basic concepts, fundamental principles, biomedical rationales, preparative and characterization techniques, and potential applications of pharmaceutical drug delivery systems and vehicles.

In the present study, formulation of Fast dissolving film containing antihistaminic drug Desloratadine was designed to achieve immediate release of drug from the dosage form, to increase therapeutic efficacy and to improve patient compliance in case of allergy. The combination of drug with suitable polymers such as HPMC E-5 and HPMC E-15 helps in providing quick onset of action. The basic aim of this work is to produce immediate release action of drug from the film. Fast dissolving film was prepared by solvent casting method using PEG 400 as plasticizer. A full factorial design was used to study the effect of HPMC E-5 and HPMC E-15 on disintegration time, thickness and folding endurance of the film. The responses were analyzed using ANOVA and by the polynomial equation. All the formulations were then evaluated for disintegration time, weight variation, and drug content and dissolution studies. Stability study shows that there was no significant change in physical appearance, disintegration time, thickness, drug content and In vitro drug release of the formulation. Fast dissolving film is an innovative concept for quick release of the drug.

Martin's Physical Pharmacy and Pharmaceutical Sciences is considered the most comprehensive text available on the application of the physical, chemical and biological principles in the pharmaceutical sciences. It helps students, teachers, researchers, and industrial pharmaceutical scientists use elements of biology, physics, and chemistry in their work and study. Since the first edition was published in 1960, the text has been and continues to be a required text for the core courses of Pharmaceutics, Drug Delivery, and Physical Pharmacy. The Sixth Edition features expanded content on drug delivery, solid

oral dosage forms, pharmaceutical polymers and pharmaceutical biotechnology, and updated sections to cover advances in nanotechnology.

Fast dissolving films have become popular as a new delivery system because they are easy to administer and sudden onset of drug action is possible as the films are taken through the sublingual route. In present study Zolmitriptan fast dissolving sublingual films were prepared which allow fast, reproducible drug dissolution in the oral cavity, thus bypassing first pass metabolism to provide rapid onset of drug action. The fast dissolving films were prepared by solvent casting method. Low viscosity grade of hydroxylpropyl methylcellulose (HPMC E5) and maltodextrin were used as film forming polymer due to their hydrophilic nature. Proposed combination provides acceptable dissolving criteria owing to HPMC E5 and better mechanical properties due to maltodextrin. Propylene glycol, citric acid, mannitol and mango flavour were used as a plasticizer, saliva stimulating agent, sweetener and flavouring agent respectively. Drug-excipients compatibility study was done using FT-IR spectroscopy. The prepared films were evaluated for thickness, weight variation, disintegration time, surface pH, folding endurance, drug content, in vitro dissolution, tensile strength and % elongation.

The application of drug delivery is a valuable, cost-effective lifecycle management resource. By endowing drugs with new and innovative therapeutic benefits, drug delivery systems extend products' profitable lifecycle, giving pharmaceutical companies competitive and financial advantages, and providing patients with improved medications. Formulation development is now being used to create new dosage forms for existing products, which not only reduces the time and expense involved in new drug development, but also helps with regard to patent protection and bypassing existing patents. Today's culture demands convenience, a major factor determining adherence to drug therapy. Over the past few years, patient convenience-oriented research in the field of drug delivery has yielded a range of innovative drug-delivery options. As a result, various drug-delivery systems, including medicated chewing gums, oral dispersible tablets, medicated lozenges and lollipops, have now hit the market and are very popular. These dosage forms offer a highly convenient way to dose medications, not only for special population groups with swallowing difficulties, such as children and the elderly, but for the general populace as well. This book provides valuable insights into a number of formulation design approaches that are currently being used, or could be used, to provide new benefits from existing drug molecules.

Fast dissolving film can be defined as a dosage form, which when placed in the oral cavity it rapidly disintegrates and dissolves to release the medication for oral mucosal absorption or allow for the gastrointestinal absorption to be achieved when swallowed. Ketotifen Fumarate (KF), antiasthmatic and antiallergic has oral bioavailability of 50% due to hepatic first pass metabolism. This study aims to formulate ketotifen fumarate as oral dissolving films, to improve the bioavailability by avoiding hepatic first-pass metabolism. Nineteen formulas were prepared using solvent-casting method, and the effect of different formulation variables on the physical and mechanical properties of the prepared films, besides to the drug release behavior was evaluated. The prepared oral film of ketotifen fumarate that contains HPMC (6cp) showed the fastest in- vivo/in- vitro disintegration time among other investigated polymers. The results also showed that as the concentration of HPMC decreased, both the disintegration and the drug release rates increased, it was also seen that the disintegration and the drug release rate increased significantly as the concentration of tween 80 is increased

A reference compendium for professionals working in tablet making, this three-volume set provides essential information on solid dosage forms and discusses the processes employed in manufacturing, bioavailability, and compression tooling. It is a key resource for undergraduate and graduate students in pharmacy as well as a reference for product development, hospital pharmacists, and regulatory personnel. It has been called "the best and most complete in the field" by the Journal of Controlled Release.

Loratadine is a non sedative anti-histaminic drug. Its major use is in control of congestion, sneezing, runny nose and itching that a patient suffers with an allergic attack or an infection. It has poor solubility in water. Therefore, the solubility and drug release were enhanced using the solid dispersion technique and fast dissolving tablet were formulated. Solid dispersion prepared using Poloxamer 407, PEG 6000 and urea. The solid dispersion were evaluated for saturation solubility, drug content and in vitro dissolution study and it was characterized using FT-IR, X-RD, SEM and DSC study. The fast dissolving tablets of loratadine was formulated using crospovidone and crosscarmelose sodium by direct compression method. The tablets were evaluated for thickness, hardness, weight variation, friability, disintegration time and % in vitro drug release. A 32 factorial design was used to study the effect of Loratadine: Poloxamer 407 and crospovidone on disintegration time and % in vitro drug release. The responses were analyzed using ANOVA. The obtained model was validated & optimized formulation was prepared as suggested by the software.

The objective of the present study was the formulation and evaluation of Nebivolol Hcl fast dissolving tablet by solid dispersions. Fast dissolving tablets are novel types of tablets that dissolve / disintegrate / disperse in saliva within few seconds without water.The major category of Nebivolol Hcl is in the treatment of hypertension, adrenergic beta-antagonist and vasodilator. It is a poorly soluble and require enhancement of solubility and dissolution rate in its formulation development.

Fast Dissolving/Disintegrating Dosage Forms (FDDFs) have been commercially available since the late 1990s. FDDFs were initially available as orodispersible tablets, and later, as orodipsersible films for treating specific populations (pediatrics, geriatrics, and psychiatric patients). Granules, pellets and mini tablets are among latest additions to these dosage forms, which are still in the development pipeline. As drug delivery systems, FDDFs enable quicker onset of action, immediate drug delivery, and sometimes offer bioavailability benefits due to buccal/sublingual absorption. With time, FDDF have evolved to deliver drugs in a sustained and controlled manner. Their current market and application is increasing in demands with advances in age adapted dosage forms for different patients and changing regulatory requirements that warrant mandatory assessments of new drugs and drug products before commercial availability. This book presents detailed information about FDDFs from their inception to recent developments. Readers will learn about the technical details of various FDDF manufacturing methods, formulation aspects, evaluation and methods to conduct clinical studies. The authors also give examples of marketed fast disintegrating/dissolving drug products in US, Europe, Japan, and India. This reference is ideal for pharmacology students at all levels seeking information about this specific form of drug delivery and formulation.

Joint Diseases: Advances in Research and Treatment: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Joint Diseases. The editors have built Joint Diseases: Advances in Research and Treatment: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Joint Diseases 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 Joint Diseases: Advances in Research and Treatment: 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/.

In recent years, emerging trends in the design and development of drug products have indicated ever greater need for integrated characterization of excipients and in-depth understanding of their roles in drug delivery applications. This book presents a concise summary of relevant scientific and mechanistic information that can aid the use of excipients in formulation design and drug delivery applications. Each chapter is contributed by chosen experts in their respective fields, which affords truly in-depth perspective into a spectrum of excipient-focused topics. This

book captures current subjects of interest – with the most up to date research updates – in the field of pharmaceutical excipients. This includes areas of interest to the biopharmaceutical industry users, students, educators, excipient manufacturers, and regulatory bodies alike.

Profiles of Drug Substances, Excipients, and Related Methodology, Volume 45, presents comprehensive reviews of drug substances and additional materials, with critical review chapters that summarize information related to the characterization of drug substances and excipients. The series encompasses review articles, with this release focusing on Azilsartan Medoxomil, Piroxicam, Carbetapentane Citrate, Emtricitabine, Etrlotinib, Isotretinoin and Meloxicam. Contains contributions from leading authorities Informs and updates on all the latest developments in the field of drug substances, excipients and methodologies

This book describes the theories, applications, and challenges for different oral controlled release formulations. This book differs from most in its focus on oral controlled release formulation design and process development. It also covers the related areas like preformulation, biopharmaceutics, in vitro-in vivo correlations (IVIVC), quality by design (QbD), and regulatory issues.

This work provides a description of the principles of experimental design and their application to pharmaceutical research. It includes worked examples taken from a wide variety of pharmaceutical techniques and processes.

The present study was aimed to formulate and evaluate Fast Dissolving Sublingual Tablets of Ivabradine Hydrochloride, a selective If current inhibitor to reduce ischemic condition in Stable Angina. Efficacy of sublingual administration, higher permeability of drug and improvement in bioavailability achievement for drug were the factors that lead to the development of the present work. Compatibility studies of drug and polymer were performed by FTIR and demonstrated no interaction between drug and excipients. Tablets were prepared by direct compression using different concentration of Croscarmellose sodium and Crospovidone. Pre-compression parameters for blend were in the range. Prepared tablets were evaluated for disintegration time, wetting time, Water absorption ratio, %CDR and Ex-vivo permeability study. Formulation F6 (3% CCS, 4.5% CP) was found to be the optimized and showed disintegration time of 25 sec. In vitro drug release was found within 7 minutes and maximum relative permeability from F6 was up to 21 minutes. Dosage form also showed better stability criteria. From the results it was concluded that prepared FDTs executed faster release of IBH with improved characteristic

Pharmaceutics is one of the most diverse subject areas in all of pharmaceutical science. In brief, it is concerned with the scientific and technological aspects of the design and manufacture of dosage forms or medicines. An understanding of pharmaceutics is therefore vital for all pharmacists and those pharmaceutical scientists who are involved with converting a drug or a potential drug into a medicine that can be delivered safely, effectively and conveniently to the patient. Now in its fourth edition, this best-selling textbook in pharmaceutics has been brought completely up to date to reflect the rapid advances in delivery methodologies by eye and injection, advances in drug formulations and delivery methods for special groups (such as children and the elderly), nanomedicine, and pharmacognosy. At the same time the editors have striven to maintain the accessibility of the text for students of pharmacy, preserving the balance between being a suitably pitched introductory text and a clear reflection of the state of the art. provides a logical, comprehensive account of drug design and manufacture includes the science of formulation and drug delivery designed and written for newcomers to the design of dosage forms New to this edition New editor: Kevin Taylor, Professor of Clinical Pharmaceutics, School of Pharmacy, University of London. Twenty-two new contributors. Six new chapters covering parenteral and ocular delivery; design and administration of medicines for the children and elderly; the latest in plant medicines; nanotechnology and nanomedicines, and the delivery of biopharmaceuticals. Thoroughly revised and updated throughout.

Formulation and Evaluation of Mouth Dissolving TabletsFormulation and Evaluation of Mouth Dissolving Tablets of MidazolamLAP Lambert Academic Publishing

This publication is based on peer-reviewed manuscripts from the 2019 Conference on Drug Design & Discovery Technologies (CDDT) held at Ramaiah University of Applied Sciences, India. Providing a wide range of up to date topics on the latest advancements in drug design and discovery technologies, this book ensures the reader receives a good understanding of the scope of the field. Aimed at scientists, students, regulators, academics and consultants throughout the world, this book is an ideal resource for anyone interested in the state of the art in drug design and discovery.

Biopolymer Membranes and Films: Health, Food, Environment, and Energy Applications presents the latest techniques for the design and preparation of biopolymer-based membranes and films, leading to a range of cutting-edge applications. The first part of the book introduces the fundamentals of biopolymers, two-dimensional systems, and the characterization of biopolymer membranes and films, considering physicochemical, mechanical and barrier properties. Subsequent sections are organized by application area, with each chapter explaining how biopolymer-based membranes or films can be developed for specific innovative uses across the health, food, environmental and energy sectors. This book is a valuable resource for researchers, scientists and advanced students involved in biopolymer science, polymer membranes and films, polymer chemistry and materials science, as well as for those in industry and academia who are looking to develop materials for advanced applications in the health, food science, environment or energy industries. Presents detailed coverage of a range of novel applications in key strategic areas across health, food, environment and energy Considers the difficulties associated with two-dimensional materials Assists the reader in selecting the best materials and properties for specific applications Helps researchers, scientists and engineers combine the enhanced properties of membranes and films with the sustainable characteristics of biopolymer-based materials

The development of paediatric medicines can be challenging since this is a different patient population with specific needs. A medicine designed for use in paediatric patients must consider the following aspects: patient population variability; the need for dose flexibility; route of administration; patient compliance; excipient tolerability. For example, the toxicity of excipients may differ in children compared to adults and children have different taste preferences. Globally, about 75% of drugs do not carry regulatory approval for use

in children; worldwide, many medications prescribed for the treatment of paediatric diseases are used off-label, and less than 20% of package inserts have sufficient information for treating children. This book provides an update on both state-of-the-art methodology and operational challenges in paediatric formulation design and development. It aims at re-evaluating what is needed for more progress in the design and development of age-appropriate treatments for paediatric diseases, focusing on: formulation development; drug delivery design; efficacy, safety, and tolerability of drugs and excipients.

Oral films, also called oral wafers, are intended for the application in the oral cavity and they are an innovative and promising dosage form especially for use in pediatrics and geriatrics. On the one hand the studies focused on the development of such a dosage form for pediatric use with an appropriate active substance. On the other hand it was planned to develop adequate analytical methods for their characterization as well as improving already existing approaches. Drug-free films were prepared according to the patent literature starting with a pre-evaluation of different film formers such as cellulose ethers, polyethylene glycol-polyvinyl alcohol copolymer (Kollicoat® IR), pullulan and sodium alginate. Gelatin, hypromellose, polyvinyl alcohol and pullulan were evaluated for further use in drug-loaded oral films in which caffeine was chosen as the API. The best compromise between fast dissolution and pleasant taste was shown for oral films made of gelatin and pullulan. Improving their palatability by using different sweeteners, flavors and dyes led to two formulations with pleasant taste without any bitterness. The oral films, based on different formulations, were evaluated with regard to their morphology, mechanical and thermal properties. Recrystallization of caffeine occurred within the drug-loaded oral wafers, which led to non-uniform distribution of API and caused limited content uniformity for oral wafers made of gelatin and one hypromellose type (HM50PA2910). Furthermore, residual solvent was determined by different methods. In the formulations that contained ethanol as solvent, this alcohol could not be quantified in the finished products making the oral wafers safe for pediatric use. The results from the investigations of osmolalities of dissolved films in appropriate medium showed values far below the critical threshold for cell necrosis which additionally approves the applicability of oral wafers to pediatrics. An attempt to simulate the disintegration and dissolution behavior in the human oral cavity was made by developing methods using a fiber-optic sensor, contact angle meter or determination of swelling. Since only a small amount of saliva is present in the oral cavity, the development of an adequate method proved to be difficult. It was revealed that oral wafers showed fast-dissolving behavior, both in vitro and in vivo, although they had a drug-load of 10 mg caffeine. However, the present study revealed that recrystallization of API may be problematic. Further studies should be aimed at preventing the recrystallization which occurred in the case of caffeine. The developed approaches, especially for dissolution testing, should be improved to better mimic the natural conditions. Adequate methods to determine mucoadhesion are another possibility for prediction of the suitability of film formers for use in the oral cavity. Ultimately, the packaging of those oral wafers will play a considerable role in ascertaining and increasing their stability. In conclusion, in the present work, the development of oral drug-loaded wafers was successful. Although the wafers contain 10 mg caffeine, which is a bitter tasting substance, the taste was assessed as comfortable and pleasant. The manufactured oral wafers were characterized by several methods and found out to be stable even without primary packaging. An evaluation of appropriate film formers for oral use could be undertaken.

The book with title Formulation and Evaluation of Fast Dissolving Film of Lamotrigine included Fast dissolving film is the oral film intended to be dissolved in mouth to ensure quick release of medicament. Fast dissolving film of anti-epileptic drug Lamotrigine which release the drug in a second to treat emergency condition occurred due to epilepsy.Faster onset of action in bipolar disease and in epileptic condition.

In recent years there has been an explosion of interest in the production of nanoscale fibres for drug delivery and tissue engineering. Nanofibres in Drug Delivery aims to outline to new researchers in the field the utility of nanofibres in drug delivery, and to explain to them how to prepare fibres in the laboratory. The book begins with a brief discussion of the main concepts in pharmaceutical science. The authors then introduce the key techniques that can be used for fibre production and explain briefly the theory behind them. They discuss the experimental implementation of fibre production, starting with the simplest possible set-up and then moving on to consider more complex arrangements. As they do so, they offer advice from their own experience of fibre production, and use examples from current literature to show how each particular type of fibre can be applied to drug delivery. They also consider how fibre production could be moved beyond the research laboratory into industry, discussing regulatory and scale-up aspects.

Fast Dissolving Tablets of Thiabendazole is designed for Providing the better and effective treatment against Helminthiasis. Fast Dissolving Tablet of Thiabendazole is designed with the aim to enhance the bioavailability of the dosage form. Helminthiasis infection is very common in urban areas and particularly in the childrens that are playing in soil so the Fast dissolving tablet of Thiabendazole provide cidal action by inhibiting the enzyme fumarate reductase so it provide a safest action and effective treatment.

Oral delivery is currently the gold standard in the pharmaceutical industry where it is regarded as the safest, most convenient and most economical method of drug delivery having the highest patient compliance. This tablet format is designed to allow administration of an oral solid dose form in the absence of water or fluid intake. Such tablets readily dissolve or disintegrate in the saliva generally within

This volume provides readers with the basic principles and fundamentals of extrusion technology and a detailed description of the practical applications of a variety of extrusion processes, including various pharma grade extruders. In addition, the downstream production of films, pellets and tablets, for example, for oral and other delivery routes, are presented and discussed utilizing melt extrusion. This book is the first of its kind that discusses extensively the well-developed science of extrusion technology as applied to pharmaceutical drug product development and manufacturing. By covering a wide range of relevant topics, the text brings together all technical information necessary to develop

and market pharmaceutical dosage forms that meet current quality and regulatory requirements. As extrusion technology continues to be refined further, usage of extruder systems and the array of applications will continue to expand, but the core technologies will remain the same.

3D printing is forecast to revolutionise the pharmaceutical sector, changing the face of medicine development, manufacture and use. Potential applications range from pre-clinical drug development and dosage form design through to the fabrication of functionalised implants and regenerative medicine. Within clinical pharmacy practice, printing technologies may finally lead to the concept of personalised medicines becoming a reality. This volume aims to be the definitive resource for anyone thinking of developing or using 3D printing technologies in the pharmaceutical sector, with a strong focus on the translation of printing technologies to a clinical setting. This text brings together leading experts to provide extensive information on an array of 3D printing techniques, reviewing the current printing technologies in the pharmaceutical manufacturing supply chain, in particular, highlighting the state-of-the-art applications in medicine and discussing modern drug product manufacture from a regulatory perspective. This book is a highly valuable resource for a range of demographics, including academic researchers and the pharmaceutical industry, providing a comprehensive inventory detailing the current and future applications of 3D printing in pharmaceuticals. Abdul W. Basit is Professor of Pharmaceutics at the UCL School of Pharmacy, University College London. Abdul's research sits at the interface between pharmaceutical science and gastroenterology, forging links between basic science and clinical outcomes. He leads a large and multidisciplinary research group, and the goal of his work is to further the understanding of gastrointestinal physiology by fundamental research. So far, this knowledge has been translated into the design of new technologies and improved disease treatments, many of which are currently in late-stage clinical trials. He has published over 350 papers, book chapters and abstracts and delivered more than 250 invited research presentations. Abdul is also a serial entrepreneur and has filed 25 patents and founded 3 pharmaceutical companies (Kuecept, Intract Pharma, FabRx). Abdul is a frequent speaker at international conferences, serves as a consultant to many pharmaceutical companies and is on the advisory boards of scientific journals, healthcare organisations and charitable bodies. He is the European Editor of the International Journal of Pharmaceutics. Abdul was the recipient of the Young Investigator Award in Pharmaceutics and Pharmaceutical Technology from the American Association of Pharmaceutical Scientists (AAPS) and is the only non-North American scientist to receive this award. He was also the recipient of the Academy of Pharmaceutical Sciences (APS) award. Simon Gaisford holds a Chair in Pharmaceutics and is Head of the Department of Pharmaceutics at the UCL School of Pharmacy, University College London. He has published 110 papers, 8 book chapters and 4 authored books. His research is focused on novel technologies for manufacturing medicines, particularly using ink-jet printing and 3D printing, and he is an expert in the physico-chemical characterisation of compounds and formulations with thermal methods and calorimetry.