SENIOR SCIENTIST

Profile

A highly motivated, goal-driven, team-oriented Scientist, with solid scientific background and broad industry experience in drug delivery and formulation development/optimization. Track record of creativity and productivity in fast-paced multi-disciplinary environment. Demonstrated to be proactive and strategic in trouble-shooting and problem-solving for technical challenges. Experience in managing teams, developing work plans, screening CROs, writing protocols and reports, and presenting results. Formulation Expertise in parenteral formulation development of various APIs, including small molecule, oligonucleotide aptamer, peptide, dsDNA, and siRNA, for systemic or ocular drug delivery. Proficiency in pre-formulation screening to optimize solubility, compatibility, and stability. Solid background in polymer chemistry, biocompatible/biodegradable materials. Accomplishment Invented pamoic acid encapsulation method, which ensured success of important partner projects, and established internal technique platform for slow release formulations. Introduced new types of surfactants, which significantly broadened BIND formulation capability by enabling more diverse formulation conditions, such as using different counter ions, solvents, and buffers. Lab Techniques Processing/delivery technologies: microfluidic, homogenization, sonication, spray-drying, dialysis, autoclave sterilization, ball milling, lyophilization, iontophoresis. Analytical instrument experience: HPLC, UV/VIS, GPC, DSC, TGA, DCA, Fluorescence spectrophotometer, UV/Vis, FTIR, Viscometer, Osmometer, Conductivity meter, MicroCalorimetry/ITC. Particle analysis skills: particle size and distribution, ACI fine particle fractions, tapped density, and zeta potential. pKa and LogP/LogD measurement using Sirius T3. DNA/RNA analysis skills: Gel electrophoresis, Oligreen quantitation, plate reader. Morphology and drug distribution studies: SEM, standard light microscopy, confocal fluorescence microscopy, pXRD. Tissue processing techniques: ocular tissue dissections, tissue homogenization/extraction, SpeedVac, ultra centrifugation.

Professional Experience

Senior scientist

January 2011 to Current Emd Millipore ï¼ Wilbraham , MA

- R&D scientist in Accurins development and technology transfer.
- Controlled release nanoparticle development, encapsulating various compounds, including small molecular APIs, peptides, endosomal escape agents, fluorescence markers, targeting polymers, dsDNA, siRNA, as well as other matrix property modulators.
- Led and performed investigative studies on solvents, surfactants, polymers, as well as formulations conditions impact on NPs properties.
- Identified novel nanoparticle matrix materials which applied to challenging API formulation and obtained well controlled release.
- Initiated and performed polymer/material-related studies in understanding material interaction, stability, and impact on API stability and release behavior.
- Originated and led nanoparticle imaging characterization work, and successfully developed new program for processing TEM and SEM images, with quality equal to commercial vendor but much lower expenses.
- Screened API and excipient solubility, stability, and compatibility in formulation conditions and during storage.
- Led a small group of research associate, summer interns, and temp to support formulation projects in broad areas.
- Evaluated/made recommendations on new technology or instruments for potential application in BIND formulation work.

Specialist

January 2010 to January 2010 Cornerstone Building Brands ï¼ Usa â— Richmond , VA

- Biomaterials Development for Tissue Engineering R&D scientist in protein-based novel biomaterials development and technology transfer.
- Coordinating activities and managing contract research organization (CRO) for drug delivery study.
- Developing clinical trial sample process and analysis plans by evaluation of test methods and drafting protocols.
- Preparing documents for commercial returned product evaluation.
- Assessed BET method transfer through FDA-regulated study design, execution, and data analysis, and made results-based recommendations to management for decision making.
- Screened and identified service vendors for various outsourcing tests.
- Generated and reviewed study designs, technical reports, and standard operating procedures.
- Participated in traceability/reproducibility evaluations, and technology transfer to manufacture sites.
- Trained for amino acid analysis and routing QC activities for GMP lab environment monitoring.

Senior Scientist

January 2008 to January 2010 Emd Millipore ï¼ Bedford , MA

- R&D scientist in colloidal formulation development for non-invasive transscleral ocular delivery.
- Successfully developed fabrication method for polymer-based nanoparticles meeting desired specifications to achieve corporate technical milestones on time; encapsulated two low MW drugs with high drug loading; investigated the stability and in vitro dissolution of fabricated nanoparticles.
- Managed internal iontophoretic delivery project of nanoparticles using in vitro and ex vivo models; successfully identified critical parameters for nanoparticle iontophoretic delivery.
- Led two proof-of-concept projects on third party's samples iontophoretic delivery to support corporate business development.
- Invented and optimized a novel micelle-based colloidal formulation to enhance drug bioavailability, designed and executed its in vitro iontophoretic delivery studies.
- Conducted peptide liquid formulation optimization to enhance transscleral delivery, tested and characterized its delivery profiles and storage stability.
- Successfully developed analysis and bioanalysis methods for ocular tissues dosed with small molecule or peptide formulations.
- Evaluated new techniques, and made result-based recommendations to management teams.
- Co-authored three provisional IP submissions and three international conference presentations.

Senior Scientist
January 2006 to January2008 Emd Millipore ï¼ Buenos Aires , AR

- R&D scientist in pre-formulation and formulation development for inhalable or injectable drug delivery.
- Identified scientific rationale for an existing problem in a spray-dried powder, and modified the spray-drying method to achieve significant improvement on drug distribution in final product.
- As team leader of a feasibility study on inhalable formulation, created roadmap, identified critical factors, and organized multi-disciplinary activities to ensure seamless collaboration and team productivity to achieve project goals on-time and on-budget.
- Designed, performed, and documented two in vitro release mechanism studies on peptide-loaded microspheres in supporting New Drug Application (NDA) submissions; delivered high quality data in understanding degradation and dissolution kinetics; successfully enhanced the team's prediction power in formulation design for in-vitro in-vivo correlation (IVIVC) development.
- Led or participated in short-term problem-solving projects in supporting of QA/QC or manufacturing.
- Wrote technical reports; drafted study protocols; presented results to groups, teams, and company partner; represented formulation group in CMC team.

Scientist
January 2004 to January 2005 Planet Pharma ï¼ Brooklyn Center , MN

- Chemistry and Drug Delivery R&D scientist developing nucleic acid-based therapeutics formulations for sustained drug delivery to the back of the eye.
- Successfully developed PLGA microspheres encapsulating oligonucleotide aptamer, and studied in vitro release kinetics under different conditions.
- Demonstrated relationship of microsphere properties with fabrication parameters through experiment design and implementation.
- Explored degradation patterns of oligonucleotide, proposed and investigated stability models for improving long-term stability of entrapped oligonucleotide.

Research Scientist
January 1999 to January 2004 Amazon ï¼ Puyallup , WA

- Principle synthetic and material scientist in multiple interdisciplinary projects.
- Designed and carried micro-organic synthesis of biocompatible and water-soluble metallofullerene, which initiated the development of a novel injectable contrast reagent for radio-diagnosis.
- Synthesized and characterized extensive customer-designed materials for inter-department and industry customers, which led to more than fifty publications and presentations.
- Developed efficient synthetic procedures with fewer steps and higher total yield, compared to conventional synthetic methods, for novel host compounds; prepared self-assembly complexes with significantly high binding constants.
- Supervised graduate and undergraduate students in the lab; maintained lab records and instruments.

Education
Ph. D : Polymer Chemistry Molecular Engineering Peking University ï¼ City , China Polymer Chemistry Molecular Engineering Thesis Title: Synthesis and Characterization of Poly (ester-ether) Copolymers and Study of Their Drug Delivery Systems
Master Degree : Synthetic Polymer Chemistry China Academy of Sciences ï¼ City , China Synthetic Polymer Chemistry Thesis Title: Synthesis and Free Radical Ringopening Polymerization of Spiro Orthoester Monomers
Bachelor Degree : Chemistry Nankai University ï¼ City , China Chemistry
Affiliations
Postgraduate course of Hands-on Tablet Technology * Statistics Short Course, University of Wisconsin Crystallization Process Development Short Course, ACS * JMP Software: Statistical Data Exploration Evonik's 10th International Controlled Release Workshop * JMP Software: Design and Analysis of Experiments Nanoparticle characterization workshop, Malvern * JMP Software: ANOVA and Regression Leading and Managing Effective Teams course
Work History
Company Name
Additional Information

- Patents and Publications (Available upon request)

Skills
acid, API, BIND, budget, business development, Chemistry, concept, data analysis, decision making, Delivery, diagnosis, drafting, experiment design, feasibility study, GMP, imaging, IP, team leader, managing, materials, novel, optimization, presentations, problem-solving, protocols, publications, quality, QA, radio, research, routing, scientific