Nanomaterials Synthesis: Bio-Chemical Engineer

Applied Quantum Materials Inc.
B211, 2011 - 94 St
Edmonton, AB, T6N 1H1
Full-time, permanent position, 40-hour work week, located in Edmonton.
Benefits include medical, dental, and vision insurance and paid vacation.

Company Description

AQM is a privately held R&D and product development company that manufactures innovative nanomaterials for research and commercial markets. Our mission is to develop high-performance nano-enabled products, based on sustainable and innovative solutions, that advance and improve society. We manufacture different variants of Group 14 nanomaterials and nanocomposites for a wide range of applications including nanolithography, quantum dot sensors, energy, medical devices, and optical systems. We're passionate about what we do and are looking for smart, energetic, and self-motivated individuals who take pride in their work to join our innovative team in this transformational industry.

Job Description

- The candidate will utilize their expertise in biochemistry, cell and molecular biology, physics, and engineering to create, conceptualize, refine, and design new processes employing living cells, microorganisms, or biological molecules to develop biomedical products.
- This role involves working with a cross-functional team to support nanomaterials characterization, to advance and commercialize biomedical materials.
- The candidate will support key processes in the development life cycle by using their expertise to design, plan, and execute R&D studies (cell viability assays, proliferation assays, cytotoxicity assays, animal and bench-testing lab and flow cytometry techniques) in line with project deliverables and timeline.
- The candidate will be responsible for preparing specification sheets, and carefully following standard operating procedures for the development of new nanomaterials, nanocomposites, and polymer synthesis.
- This position involves the synthesis of modified surface functionalized silicon quantum dots and manufacturing of a variety of nanomaterials for use in a wide range of applications such as biosensing, and biological imaging and facilitate large-scale production of nanoparticles.
- The candidate will perform all applicable analytical testing based on nanomaterials specification and written procedures, record results and generate reports. Prepare and deliver presentations for internal and external stakeholders' meetings to discuss results.

Qualifications

- Doctoral degree in chemical engineering with a strong background in inorganic synthesis and silicon-based nanomaterials and silicon quantum dots.

- Experience with analytical, physical, and inorganic chemistry laboratory procedures, techniques, and equipment.
- Experience fabricating, functionalizing, and processing nanomaterials.
- Ability to multi-task, handle frequently changing job functions, and rapidly learn new techniques and approaches.
- Ability to rapidly acquire new skills, as needed.
- A positive and team-oriented attitude with a high attention to detail, accuracy, and precision.
- Carefully documents all experimental procedures, observations, and methodology.
- Must be a Canadian citizen or preparing for permanent residency status.

Knowledge, Experience, and Analytical Skills

- Experience with running reactions under an inert atmosphere (Schlenk line and glove box) and handling of air and moisture-sensitive, flammable, corrosive and/or toxic chemicals.
- Basic experience with the synthesis of inorganic nanostructures (silicon nanoparticles, quantum dots, magnetic beads).
- Experience in preclinical chemistry and bioconjugation is a major asset.
- Knowledge in delivery of nucleic acids (mRNA, siRNA, CRISPR components) to cells with hands-on experience in primary cell culture workflows, especially primary human T cells, and familiarity with a wide range of cell and molecular biology techniques such as cell flow cytometry and ELISA.
- Relevant hands-on laboratory experience using in vitro cell culture systems (cell lines and/or primary cells) and plate-based assays (luminescence, fluorescence, UV-absorbance).
- Perform and troubleshoot cell-based (primary) experiments and assays to determine the biological activity of nanoparticles in vitro including routine validation studies.
- Experience using high-level characterization techniques and interpretation of scanning electron microscopy (SEM), Transmission Electron Microscopy (TEM), and X-ray powder diffraction (XRD) data, differential scanning calorimeter (DSC), universal testing machine, optical contact angle meter (OCA), atomic force microscopy (AFM), gas chromatography–flame ionization detector (GC-FID), nuclear magnetic resonance spectroscopy (NMR), and thermogravimetric analysis (TGA).
- Excellent demonstrated communication (both verbal and written), interpersonal, strong planning, and outstanding problem-solving skills.
- Ability to keep organized data and records and writing of standard operating procedures.
- Proficiency in Microsoft Office computer software (Word, Excel, PowerPoint, SharePoint), Adobe Photoshop, Minitab, MATLAB, Origin, and GraphPad Prism.
- Must be proficient in English to communicate with colleagues and follow safety requirements at work and in the laboratory.

Application Process

Qualified candidates should submit a resume and cover letter to contact@aqmaterials.com The cover letter should include information and specific examples on how your previous experience relates to the job requirements and your availability. You will not be considered without a cover letter.

We thank all applicants for their interest; however, only those individuals selected for an interview will be contacted.