

About Applied Biomimetic (AB)

Applied Biomimetic Inc. (www.appliedbiomimetic.com)

Applied Biomimetic is a leader in the convergence of polymer and protein membrane technology. We have developed a high-performance membrane platform for water, life science, industrial biotech, food, and dairy separation applications.

Nature's ability to separate chemical elements at the molecular level with the use of highly specialized proteins in the channels of cell walls was the subject of [a 2003 Nobel Prize in Chemistry](#). AB has developed advanced capabilities in the expression, purification, and production scale-up of porins from biological sources methods. When these proteins are embedded it into a robust polymer structure, this achieves a unique membrane performance profile.

Our core technology is based on new chemistry and manufacturing methods to achieve highly permeable membrane material with narrow molecular size exclusion cut-off. By adding an active protein layer, the membranes will separate constituents at the ion level.

AB is focusing on the development of a wide range of applications for its patented technology. The aim is to provide disruptive solutions for the water treatment, health, food, and other industries enabling these industries to enhance their products, reduce costs, and save energy. The membranes are designed to withstand challenging and sometimes harsh environment in various industrial applications.

The company started-up its own manufacturing facility in 2019 to produce an ultrafiltration product that was originally developed in 2016 as a support substrate for a biomimetic membrane but has been successfully supplied in the food, dairy, and industrial bio-tech markets. The UF element product is currently in use at several sites in a live production environment in the US, Europe, and Asia Pacific, and it helps customer achieve high efficiency molecular separation in these "high value" fluid streams.

About the Role

As part of its expansion, AB is adding a new role of Scientist I at the Gaithersburg site. This is an opportunity to join a growing organization and be part of a dedicated and innovative team.

Work Location

AB's main office is in Gaithersburg, Maryland. This position is in the Gaithersburg office.

JOB DESCRIPTION

Job Title: Scientist I

Department/Job ID: Protein Chemistry and Engineering

Reports To: Senior Scientist, Protein Development

Direct Reports (if any): N/A

Job Overview: The Scientist I within the protein group will be responsible for and provide project support for various aspects of integral membrane protein design, expression, and purification for downstream QC incorporation studies with liposomes and polymersomes. The candidate will collaboratively work with the Sr. Scientist and other team members with the protein and polymer groups and will be responsible for aiding the implementation of R&D project plans, including tasks, deliverables, milestones, and timelines set by the Sr. Scientist.

Role: Protein design, expression, and purification for downstream Liposome and Polymersome QC

- Prepare new SOPs or use established SOPs to independently carry out membrane protein expression and purification for downstream biochemical and biophysical analysis
- Use molecular biology / cloning techniques to design protein constructs which result in efficient purification schemes of membrane proteins
- Use molecular modelling techniques to examine protein structures to design / engineer point mutations to increase stability or yield of integral membrane proteins
- Prepare necessary raw materials in laboratory processes e.g., buffers, solvents, media, etc.
- Perform pilot / microscale experiments to find conditions to improve protein expression, stability, and yield with downstream processes in mind
- Perform robust data analysis of data from lab experiments and being responsible for documentation and reporting of technical progress and results in the form of detailed reports
- Use advanced curve fitting algorithms to analyze data
- Be accountable for project deliverables and communicate status and other related information to management and project team members.
- Be focused on details and efficiency in the laboratory as well as having an interdisciplinary approach to the tasks at hand while exercising good laboratory practice.
- Collaboratively work with team members within the Protein group and from other groups within the R&D division to provide research plans, perform and analyze additional experiments and present the results to the department and / or the R&D team.
- Participate in the general upkeep and maintenance of the laboratory facilities and equipment according to OSHA standards
- Provide support to Sr. Scientist in structural biology efforts to decipher protein structure in High resolution and in developing and implementing new strategies involving novel nano bioconjugates
- Perform periodic literature searches to be aware of new cutting-edge technology within the field of interest to the group
- Propose, plan, conduct and present new research by collecting and analyzing new scientific data while simultaneously coordinating research projects across teams
- Review trends in synthetic biology and participate in company IP process
- Contribute to advancing company “know-how”
- Manage research activities of junior research associates and lab technicians as necessary

Requirements:

- BS/MS (graduate degree preferred) degree in Life Sciences, e.g., Biochemistry, Biophysics, or Molecular Biophysics
- Minimum of 4-5 years of experience working in an industrial bio-technology research laboratory (preferred) or academia on integral membrane protein expression and purification for downstream activities
- Knowledge and experience with integral membrane protein expression systems and aseptic techniques
- Experience with a wide range of analytical tools and techniques for use in laboratory, incl. FPLC, HPLC, Stopped-Flow, DLS, microscopy, NMR, TEM, etc.
- Experience with large scale bacterial fermentation is required
- Knowledge of fitting software and other advanced software packages such as Origin, MATLAB etc.
- Excellent analytical skills
- Ability to thrive in a fast-paced environment, work short cycle times and flexible hours if required, and deliver results under pressure
- Good communication and team working skills
- Ability to work independently and proactively in a fast-paced and collaborative environment
- Self-motivated and be able to handle multiple challenging targets with flexibility in adjusting priorities for project support
- Familiarity with protein structural biology
- Experience with Bioinformatics based multiple sequence alignment and protein molecular modelling (homology modelling) tools such as ROBETTA, AlphaFold (DeepMind), MODELLER, UCSF Chimera, PyMOL, Schrodinger, etc.
- Familiarity with Molecular dynamics simulations using an array of forcefields
- A natural curiosity and interest in new technology and ground-breaking scientific developments
- US work permit

Additional Qualifications:

- Experience with protein structure determination using X-ray crystallography, NMR spectroscopy or single particle Cryo-EM would be a plus
- Familiarity with the use of Artificial intelligence and Machine learning / Deep learning-based algorithms to create mathematical models and simulations using high performance computing would be a plus
- Familiarity with Linux OS and computer programming languages for data mining (such as R or python) would be a plus
- Good general IT-skills, incl. knowledge of MS Office / SharePoint and other standard software packages.