

**Postdoctoral Fellowships are available immediately in the Innate Immunity Group at the University of Pennsylvania to conduct research in the following areas:**

### **Complement Inhibitors**

The focus of this project is to design analogs of the peptidic C3 inhibitor Compstatin and other novel complement inhibitors, characterize and optimize their efficacy and pharmacokinetic profiles, and test their therapeutic potential in disease models.

Candidates should have a Ph.D. or M.D. with a strong background in peptide synthesis, protein expression/purification, materials science, medicinal chemistry, and/or pharmaceutical sciences. One to three years of post-graduate experience in one or more of these areas, as well as experience or familiarity in innate immunity, complement biology, and/or therapeutic immune modulation, is preferable. Excellent communication skills and the ability to multitask in a fast-paced environment are essential.

### **Complement Protein Interaction Network**

The focus of this project is to study at the molecular level the interactions of complement components, receptors, regulators, and inhibitors using state-of-the-art technologies including SPR, ITC, BIND, AlphaScreen, etc.

Candidates should have a Ph.D. or M.D. with a strong background in molecular and structural biology, gene expression, and protein biochemistry including protein expression and purification. One to three years of post-graduate experience in one or more of these areas, as well as experience or familiarity in innate immunity, complement biology, and/or therapeutic immune modulation, is preferable. Excellent communication skills and the ability to multitask in a fast-paced environment are essential.

### **Complement Signaling and Crosstalk**

The aim of this project is to understand how complement induces and mediates cellular responses in inflammation and homeostasis, and how it crosstalks with other cellular and humoral pathways.

Candidates should have a Ph.D. or M.D. with a strong background in immunology (innate immunity), cell biology and cell-based assays (FACS, calcium mobilization, phagocytosis, etc.), and pathway analysis. One to three years of post-graduate experience in one or more of these areas (especially FACS), as well as experience or familiarity in innate immunity and/or complement biology, is preferable. Excellent communication skills and the ability to multitask in a fast-paced environment are essential. An ability to work with experimental animals is highly desirable.

### **Complement in Immune & Inflammatory diseases**

The goal of this project is to develop and apply various disease models using human samples and laboratory animals (mice, non-human primates) to

understand the involvement of complement in human disease and to evaluate novel complement inhibitors.

Candidates should have a Ph.D. or M.D. with a background in human pathology, including the analysis of human and animal cells and tissue. The ability to work with experimental animals is required, and previous experience with animal models of disease is advantageous. Excellent communication skills and the ability to multitask in a fast-paced environment are essential.

### **Immune Evasion Strategies of Microorganisms**

The focus of this project is to study the interplay between complement, innate immunity and human pathogens with the goals of elucidating microbial immune evasion mechanisms (e.g., by *Staphylococcus aureus*, herpes and orthopox viruses) and designing novel inhibitors with therapeutic potential.

Candidates should have a Ph.D. or M.D. with a strong background in molecular biology, microbiology, and protein biochemistry. One to three years of post-graduate experience in one or more of these areas, as well as experience or familiarity in innate immunity, complement biology, and/or therapeutic immune modulation, is preferable. Excellent communication skills and the ability to multitask in a fast-paced environment are essential.

### **Proteomics & Mass Spectrometry**

The candidate will be involved in collaborative research projects applying advanced mass spectrometry methods, including drug monitoring (e.g., in human, rodent and primate plasma samples), protein/peptide characterization, and structural analysis (HDX-MS) in all of the above projects.

The candidate should have a Ph.D. or M.D. in biochemistry, analytical chemistry or related fields with experience in HPLC, mass spectrometry, protein analysis, and/or bioinformatics. Previous experience with biological or pharmaceutical applications of mass spectrometry is a plus, as is experience or familiarity in innate immunity and/or complement biology. Excellent communication skills are essential.

### **Computational methods in complement research**

The candidate will be involved in projects that aim to understand the basis of protein-protein interactions in the complement system using bioinformatic tools such as modeling/docking, molecular dynamics, and electrostatic calculations. Projects will also include the pathway analysis of immune processes based on genomic and proteomic data.

The candidate should have a Ph.D. or M.D. in bioinformatics, genomics, and/or bioengineering, with a strong computational background and experience in programming, database management, and state-of-the-art software tools (e.g., AutoDock, PyMOL, Ingenuity). The successful candidate is a scientist fascinated with biology/immunology, though formal training in biology/immunology is not necessary. Excellent communication skills are

essential.

Contact: John D. Lambris, Ph.D.

E:mail: [lambris@upenn.edu](mailto:lambris@upenn.edu)

[www.innateimmunity.org](http://www.innateimmunity.org)

[www.lambris.com](http://www.lambris.com)