07 April 2021

Postdoctoral Research Fellows – Immunology/Vaccinology

Multiple postdoctoral research fellowships are available in the Dowling, van Haren and Levy Labs within in the Precision Vaccine Program (PVP), Division of Infectious Diseases at Boston Children’s Hospital and Harvard Medical School. The PVP was founded by Prof. Ofer Levy in 2016 and he is the current Program Director. Positions may be mentored or co- mentored by the PVP lab PIs on the projects listed below. Up to 4 positions are available.

Our overarching goals are to unravel the molecular mechanisms underlying distinct immune responses of vulnerable human populations (e.g., the young, elderly or immunocompromised) and apply discoveries to adjuvant and vaccine development. Our approach combines age- and species-specific screens with a focus on functional, biochemical and systems immunology readouts in relevant in vitro and in vivo model systems. Furthermore, our scope also includes vaccine/adjuvant development towards Phase I/II human clinical trials of novel and investigational vaccines. Specifically, we are looking for candidates in the areas of:

Position 1 - Adjuvant Discovery: The postdoc will lead projects related to high-throughput screening, small molecules adjuvant discovery, evaluation of PRR agonist receptor identification and signal transduction pathway activation, in vitro and in vivo modeling, overseeing adjuvant medicinal chemistry, formulation, and delivery of vaccines. Our primary objective will be discovery and development of vaccines against SARS-CoV-2, tuberculosis (TB) and influenza that are safe and highly effective for infants and elders. This position is largely funded by NIH/NIAID grants and contracts and supplemented by sponsored agreements with pharmaceutical companies.

Position 2 - Adjuvant Development: The postdoc will lead projects related to on understanding mechanistic immune responses in populations that are distinct by age (including newborns and elders) and/or immune status (immune-compromised, substance use disorder) and employ discoveries in these areas to advance vaccine development. Approaches will include human in vitro modeling, systems vaccinology, in vivo modeling utilizing murine and non-human primates, overseeing adjuvant medicinal chemistry, formulation and delivery of adjuvanted vaccines, vaccine formulation toxicology, IND-enabling activities of pertussis and anti-opioid vaccines, and Phase I/II clinical trials. This position is funded by an NIH Contract and philanthropic funding.

Position 3 - Adjuvant Mechanism of Action: The postdoc will lead projects related to understanding the mechanistic correlates of adjuvanticity in age-(newborns/elders) and species-specific model systems. Focus will include in vitro modeling of both innate and adaptive immunity, modeling cell mediated immunity in vitro and ex vivo, in vivo modeling utilizing genetic modification of murine strains, formulation, and delivery of adjuvanted vaccines. Systems biology approaches are employed for hypothesis generation and testing, such as transcriptomics, proteomics, metabolomics and mass cytometry (CyTOF). This position is funded by a Bill and Melinda Gates Foundation grant and multiple NIH grants.

Position 4 – Additional positions may become available to expand projects related to those listed in Positions 1 and 2.
Qualifications:

- A doctoral degree (PhD and/or MD) is required (or soon to be completed), together with a strong track record of productivity, as evidenced by first-authored publications in peer-reviewed scientific journals.
- The ideal candidate(s) will have a track record of applying innovative experimental strategies to tackle important biologic problems, together with the communication and interpersonal skills required to make a positive contribution to a thriving intellectual environment.
- Experience of maintaining good collaborative external and internal communications a bonus, with a focus on team science and some willingness to contribute to project management.
- Experience of use of animal models, such as mice, pig, human primates a plus, but not required.
- Experience of human in vitro modeling, such as Dendritic Cell, T cell evaluation a plus, but not required.
- Prior experience in studying distinct human populations that vary by age, sex, underlying disease or other demographic features is a plus.

Application information:

- Review of applications will begin immediately. Applications will be considered on a rolling basis.
- Full-time position with competitive salary/benefits commensurate with experience. The position(s) is fully funded and may be held for up to 5 years.
- To apply, interested candidates should please email a curriculum vitae (CV) listing the names and contact information for at least two references, a brief statement or cover letter of research interests, motivation and experience (no more than ~1 page), and a publication/manuscript/pre-print the candidate has written, to Dr. David Dowling (david.dowling@childrens.harvard.edu) and Dr. Simon Van Haren (Simon.VanHaren@childrens.harvard.edu).

Learn more about us:

- BCH Website: bit.ly/PrecVaccines
- Twitter: @PrecVaccines