Immunoengineering Postdoctoral Training (ImEPosT) Program

- Interdisciplinary training
- Science communications
- Innovation for tomorrow’s PIs

Supported by training grant from the NIAID # T32-AI153020
Discovery, technology, and innovation must work hand-in-hand to bring about impactful solutions.
What is Immunoengineering?

**IMMUNOLOGY**

Understanding which components of the immune system are active in certain kinds of disease

**ENGINEERING**

Manipulating components to create a desired response

= New therapies and diagnostics
An internal **fellowship** program that funds early-stage postdoctoral researchers for 2 years while they pursue interdisciplinary training in immunoengineering.
ImEPosT Objectives

• Promote **interdisciplinarity** through **dual mentorship**

• Improve ability of bioengineers, immunologists, and clinicians to speak each others’ language

• Empower trainees to bring **STEM participation** to a **broader public**

• Enhance **soft skills** in grant writing, mentorship, and critical thinking

• Personalize **professional development** and competitiveness for the academic job market
APPLICATION PROCESS

Eligibility, application components, and timeline
Eligibility

- **US citizens** or **permanent residents** only
- Within **three years** after receiving doctoral degree*
- Proposed research project in **immunoengineering, immunology**, or **bioengineering**
- Women, underrepresented minorities, and economically disadvantaged applicants **highly encouraged** to apply!

*Exceptions will be entertained for delays (e.g., due to maternity/paternity) or deferral of postdoctoral training (e.g., due to time spent in industry or non-academic setting).
Application Components

NIH-style biosketch (use postdoctoral biosketch template or SciENcv)

Proposed Research & Training (2 pages) encompassing:
• Summary of ongoing projects
• Research goals
• Career goals
• Alignment of ImEPoS7 objectives with personal research & career goals

Joint letter of support from proposed individualized career development committee (like a thesis committee of 3-5 members)

Proposed review article topic (alternatively, a published review or an editor’s invitation to mentor to submit)

Teaching statement summarizing:
• Teaching experience
• Experience developing courses, demos, & workshops
• Strategies you’ve used to distill concepts to non-experts
• Prior mentoring experience (e.g. undergrads, techs)
# Application Timeline

<table>
<thead>
<tr>
<th>To-Do Items</th>
<th>Key Dates and Deadlines</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td>Formulate research project and identify collaborators</td>
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<tr>
<td>Prepare application materials</td>
<td><strong>Deadline:</strong> May 14, 2021</td>
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<tr>
<td>Committee evaluates applications</td>
<td>Decisions: May 31, 2021</td>
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<tr>
<td>Home dept HR and ImEPoS T team prepare appointments</td>
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<tr>
<td>Postdoctoral fellow appointments begin</td>
<td>July 1, 2021</td>
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**Winter Quarter (Jan - Mar)**: April, May, June
TRAINING PROGRAM
Research & Career Development
Empowering postdocs to become tomorrow’s principal investigators

- Research in immunoengineering or quantitative immunology
- Activities aligned with Individual Development Plan (IDP)

**DELIVERABLES**
- Publications
- Patents
- Annual IDP and Survey
# Activities and Deliverables Outside the Lab
Fostering development of well-rounded and responsible researchers

<table>
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<tr>
<th>ImEPoS T Requirements</th>
<th>Objectives</th>
<th>Example Activities</th>
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</table>
| Cross-disciplinary education in immunology and bioengineering | Immunologists can take quantitative or bioengineering courses, while bioengineers can take immunology courses | - Short courses in immunology (AAI)  
- Short courses in coding for biologists (Inst of Systems Biology or CSHL) |
| Communications of results with scientific community       | Present research at conferences specific to field and build a network around work | - Poster or podium talk at specialized conference  
- Participate in Immunoengineering Science Hour and annual research day |
| Communications of science with general public             | Build ability to communicate and engage younger students with STEM fields possibilities and pathways | - PME science communications workshops and training  
- Science communications and outreach component of ImEPoS T program (Mandatory in year 1 of appointment)*  
- Leading an MSI Jr Science Café engagement and a City Colleges program instructional unit |
| Professional Development Activities                      | Improve the readiness of fellows for demands of an academic career as a PI | - Reinforce principles of responsible conduct of research  
- Grant and proposal writing workshop  
- Mock interviews and chalk-talks |
# Professional Development I: Responsible Conduct of Rigorous & Reproducible Research

<table>
<thead>
<tr>
<th>NIH-Mandated Elements</th>
<th>Minimum Evidence (Reportable to the NIH)</th>
<th>How to Fulfill</th>
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<tbody>
<tr>
<td>General instruction in responsible conduct of research (RCR).</td>
<td>Maintain 8h in-person instruction every 2 yrs</td>
<td>Enroll in <a href="#">Institute for Translational Medicine’s annual July-August RCR course</a>.</td>
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<tr>
<td>Rigor, strengths, and weaknesses of prior research in the topic of choice.</td>
<td>Clear evidence of incorporation of continual literature review into postdoctoral research.</td>
<td>Draft a review article in the field of research (recall that application requests a proposal of a topic or an invitation to the PI).</td>
</tr>
<tr>
<td>Rigorous experimental detail for robust &amp; unbiased results, and transparent reporting of experimental design, methodology, and analytical approaches.</td>
<td>Attendance in RCR modules focused on data presentation and ownership, academic fraud and misconduct, and ethical treatment of animal/human subjects</td>
<td>Complete the <a href="#">Institute for Translational Medicine RCR course</a>.</td>
</tr>
<tr>
<td>Consideration of biological variables and genotypic/phenotypic differences and relevance in experimental models.</td>
<td>Participation in a face-to-face seminar, as it pertains to <em>in vitro, in vivo, and human subjects</em> work.</td>
<td>Complete the <a href="#">Institute for Translational Medicine RCR course</a>.</td>
</tr>
<tr>
<td>Authentication of key biological and chemical resources, and how storage and environmental conditions might affect variability.</td>
<td>Participation in a reagent storage and authentication seminar.</td>
<td>Complete the <a href="#">Institute for Translational Medicine RCR course</a>.</td>
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Professional Development II: Grant & Proposal Writing, Mock Academic Interviews

ImEPoS-T-funded opportunities at UChicago

Grant & Proposal Writing Workshops
• Together with fellows appointed to Prof. Anne Sperling’s Respiratory Training Grant for 2021-22.

Mock Academic Interviews
• Contact ImEPoS-T PIs (Profs. Swartz & Alegre) to schedule

Optional Career-Specific Interests
• Center for Teaching workshops & certification
• Polsky Center programs on entrepreneurship
• myCHOICE workshops and programming
• Office of Clinical Research Fundamentals Certificate
Science Communications & Outreach Program
Building interest and fluency in STEM among Chicago’s most underserved

Training in Science Communications
• Completion of a virtual course based on Northwestern University’s SCOPE curriculum
• In-person workshops with Laura Rico-Beck (PME Asst Dean for Education & Outreach)

Museum of Science & Industry Junior Science Café
• Share personal journey into STEM career
• Hands-on engagement with audience of K-12 students, often from underserved populations

City Colleges of Chicago STEM Pathways
• Lectures, discussions, and lab demos describing the frontiers of immunology and bioengineering
• Audience enriched for non-traditional students and underserved populations looking to transfer to four-year STEM degree programs
Legislation that established the NRSA awards (the PHS Act - 42 U.S.C. 288 §487) requires postdoctoral trainees to pay back the federal government for the **first twelve months** of fellowship support. Expect to sign a **PHS 6031 form** indicating your understanding of this policy.

**DISCHARGE OF PAYBACK OBLIGATIONS ACHIEVABLE VIA:**

- Completion of the second year of ImEPosT training support
- Engaging in twelve months of health-related research, training, or teaching

**Full details on the governing policy may be found here:**
Acknowledging Federal Funding
Citing fund support ensures support for future postdocs

LANGUAGE
[Postdoc Name] acknowledges support via a training grant from the NIH National Institute of Allergy & Infectious Diseases (NIAID # T32-AI153020). The content herein is solely the responsibility of the authors and does not necessarily represent the official views of the NIAID.

OPEN-ACCESS & DATA SHARING
Receiving federal funding necessitates a responsibility to commit to depositing publications and data in the NIH’s repositories. Examples:

• Final published manuscripts to Pubmed Central
• Sequencing data to Sequence Read Archive (SRA)
• Genomics/Transcriptomics data to Gene Expression Omnibus (GEO)
TECHNICAL DETAILS

Getting nitty-gritty on Postdoctoral Fellow appointments and what they mean for awardees
# Differences Between Postdoctoral Scholars and Fellows

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Postdoctoral Scholar</th>
<th>Postdoctoral Fellow</th>
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<tbody>
<tr>
<td>University Employee?</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Salary Levels</td>
<td>Defined by NRSA Guidelines</td>
<td>Defined by NRSA Guidelines</td>
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<tr>
<td>Benefits Eligible?</td>
<td>Yes</td>
<td>No, but can purchase from Gallagher</td>
</tr>
<tr>
<td>Retirement Benefits?</td>
<td>Yes, deducted at payroll. Employer contributions begin after 1 year at UChicago</td>
<td>Included in supplemental stipend from PI. UChicago not allowed to make employer contributions to 403(b) plan.</td>
</tr>
<tr>
<td>Health Insurance Expenses</td>
<td>$1,032/yr</td>
<td>$5,092.80/yr</td>
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<tr>
<td>via Gallagher; sample numbers</td>
<td></td>
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<tr>
<td>for Single, PPO plan</td>
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<tr>
<td>Portion of Health Insurance</td>
<td>-</td>
<td>$1,600.00/yr</td>
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<tr>
<td>Covered by Training Grant</td>
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<tr>
<td>Portion of Health Insurance</td>
<td>-</td>
<td>$1,800.00/yr</td>
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<tr>
<td>Covered by PI (Supplementary</td>
<td></td>
<td></td>
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<tr>
<td>Stipend, Other Funds)</td>
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<tr>
<td>Short/Long-Term Disability</td>
<td>Purchase via Gallagher</td>
<td>Purchase via Gallagher</td>
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<tr>
<td>Insurance</td>
<td>Purchase via Gallagher</td>
<td>Purchase via Gallagher</td>
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What to Expect During Onboarding/Offboarding
Smoothly transitioning from a postdoc scholar to a fellow and then back

Training Grant Admin and Human Resources office of your PI’s primary department will process all paperwork.

- **HR** will request documentation for internal processing of Form 11F
- Provide **Training Grant Admin** with ORCiD and LinkedIn profile
- **Notify** your PI if you need additional medical insurance coverage (for double or family coverage)

**Reappointments** (to continue to year 2 of support):

- Discuss and co-sign **Individual Development Plan** with your mentor
- Complete the **Annual Survey** (progress report)
Contacts

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