Stanford Immunology

Graduate Program Handbook
The PhD Program in Immunology is one of fourteen Stanford Biosciences programs. Our training philosophy is to provide outstanding training and education in immunology and to develop young investigators who will carry out innovative and groundbreaking research. We are committed to diversity, teaching, and excellence in research. We have a long tradition of collaboration among the immunology laboratories, with an emphasis on the application of cutting edge approaches to problems in cellular, molecular, computational, and clinical immunology.

Immunology faculty members are leaders in their respective areas of research, and often incorporate bench to bedside approaches. Our PhD core coursework requirements plus strong electives in related disciplines, provide an integrated curriculum that spans basic and clinical immunology. Students can choose from either the Molecular, Cellular, and Translational Immunology (MCTI) track or the Computational and Systems Immunology (CSI) track. Graduate students in immunology actively participate in seminars, journal clubs, and the annual Stanford Immunology Scientific Conference at Asilomar. Students have access to state-of-the-art research facilities in the immunology laboratories, located in various departments in the School of Medicine, the Department of Biology, and the Palo Alto Veteran's Administration Medical Center.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM LEADERSHIP AND ADMINISTRATION</td>
<td>5</td>
</tr>
<tr>
<td>PhD CURRICULUM</td>
<td>8</td>
</tr>
<tr>
<td>FOUNDATIONAL COURSES FOR BOTH MCTI AND CSI TRACKS</td>
<td>9</td>
</tr>
<tr>
<td>TRACK-SPECIFIC FOUNDATIONAL COURSES</td>
<td>10</td>
</tr>
<tr>
<td>FINANCIAL AID</td>
<td>12</td>
</tr>
<tr>
<td>FELLOWSHIPS FOR GRADUATE STUDENTS</td>
<td>14</td>
</tr>
<tr>
<td>TAX INFORMATION</td>
<td>16</td>
</tr>
<tr>
<td>THE JOURNEY BEGINS: FIRST YEAR ADVISING</td>
<td>17</td>
</tr>
<tr>
<td>FIRST YEAR ADVISING AND ORIENTATION TIME LINE</td>
<td>18</td>
</tr>
<tr>
<td>FAQS: CHOOSING LABS FOR ROTATIONS AND THESIS RESEARCH</td>
<td>19</td>
</tr>
<tr>
<td>INDIVIDUAL CAREER DEVELOPMENT PLAN</td>
<td>21</td>
</tr>
<tr>
<td>QUALIFYING EXAM PROCESS (AUTUMN, YEAR 2)</td>
<td>22</td>
</tr>
<tr>
<td>REQUIREMENTS FOR THIRD YEAR AND ABOVE</td>
<td>27</td>
</tr>
<tr>
<td>COMMITTEE MEETINGS</td>
<td>27</td>
</tr>
<tr>
<td>TEACHING ASSISTANTSHIPS</td>
<td>27</td>
</tr>
<tr>
<td>PhD THESIS DEFENSE</td>
<td>29</td>
</tr>
<tr>
<td>THE MCDEVITT PRIZE</td>
<td>33</td>
</tr>
<tr>
<td>LEADERSHIP OPPORTUNITIES</td>
<td>33</td>
</tr>
</tbody>
</table>
Program Leadership and Administration

Welcome to Stanford University!
We are excited that you have chosen Stanford University’s PhD Program in Immunology for your PhD studies. We hope this graduate handbook will provide you with information you need as you progress toward your PhD degree in Immunology.

Olivia Martinez, PhD
Director, Stanford Immunology and PhD Program in Immunology
omm@stanford.edu
**Graduate Program Committee:**

Olivia Martinez, PhD, Chair, Surgery/Abdominal Transplantation  
Sean Bendall, PhD, Pathology  
K. Christopher Garcia, PhD, Molecular & Cellular Physiology  
Aida Habtezion, MD, Medicine/Gastroenterology and Hepatology  
Purvesh Khatri, PhD, Chair, CSI track  
Sheri Krams, PhD, Surgery/Abdominal Transplantation  
Jonathan Maltzman, MD, PhD, Medicine/Nephrology  
Bali Pulendran, PhD, Pathology and Microbiology & Immunology

The Graduate Program Committee is responsible for the selection, admission, education and degree achievement of all pre-doctoral students in Immunology at Stanford. The Committee also sets programmatic policies for the graduate program.

**Program Administrator:**  
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650-725-5076

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650-725-9888

**Immunology Program Office:**  
1215 Welch Road, Modular B, Rooms 26, 30 and 55  
Stanford, CA. 94305-5422  
Fax: (650) 725-2628 Mail Code: 5422
## Overview of Program Training

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Tasks</th>
<th>Research</th>
<th>Coursework</th>
<th>Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR 1</td>
<td>Take required &amp; elective classes</td>
<td>40%</td>
<td>60%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Choose Thesis Lab</td>
<td>3 lab rotations</td>
<td>Immunology Startup</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Attendance at Annual Scientific Conference</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Foundations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Faculty Research Presentations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Scientific Conduct (Med 255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- MCTI Core</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- CSI Core</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Rotations Presentations (mid-June)</td>
<td></td>
</tr>
<tr>
<td>YEAR 2</td>
<td>Pass qualifying exam</td>
<td>70%</td>
<td>25%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Submit Petition for PhD Candidacy</td>
<td>Dissertation research</td>
<td>Qualifying Exam: General Oral Exam &amp; Research Proposal, before Dec 17th</td>
<td>Teaching assistantships</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Attend Science-in-Progress (SIP) – student seminars</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Annual Scientific Conference (talk or poster)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- MCTI Core/Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- CSI Core</td>
<td></td>
</tr>
<tr>
<td>YEAR 3</td>
<td>Submit Doctoral Dissertation Reading Committee form</td>
<td>90%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 thesis committee meeting</td>
<td>Annual Scientific Conference (talk or poster)</td>
<td>Teaching Assistantships</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Science-in-Progress (SIP) – student seminar presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- CSI Core/Electives</td>
<td></td>
</tr>
<tr>
<td>YEAR 4</td>
<td>Submit TGR form in Spr or Sum quarter</td>
<td>90%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 thesis committee meetings</td>
<td>Annual Scientific Conference (talk or poster)</td>
<td>Teaching assistantships</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Science-in-Progress (SIP) – student seminar presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- CSI/Electives</td>
<td></td>
</tr>
<tr>
<td>YEAR 5</td>
<td>PhD Orals Dissertation Defense</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 thesis committee meetings (Grad. program committee member must be present)</td>
<td>Annual Scientific Conference (talk or poster)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Science-in-Progress (SIP) – student seminars</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Petition to defend</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Dissertation defense</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Submission of the Dissertation to the Registrar by the University deadline; if deadline is missed, submit “Graduate Quarter” petition</td>
<td></td>
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</tbody>
</table>
PhD Curriculum

Candidates for PhD degrees at Stanford must satisfactorily complete a program of study that includes 135 units of graduate course work and research. At least 3 units must be taken with each of four different Stanford faculty members. Dr. Martinez will discuss and approve your selection of courses in your quarterly advising meetings. Study lists are submitted quarterly through Student AXESS with a total 10 units of coursework. Study lists containing less than 9 units do not meet the university’s minimum degree progress or visa requirements for international students. Study lists containing more than 10 units will trigger a larger student tuition bill, so please remember to register for 10 units only by the University deadline. There are serious financial consequences to missing these deadlines (a $200 late fee, losing the health care subsidy, etc.).

Graduate students (including MD/PhD students in the graduate student phase of their training) must take all required courses for a letter grade. A letter grade of “C” is considered a failing grade. The University requires that you maintain a 3.0 GPA in order to remain enrolled at Stanford University.

Written petitions for exemptions to core curriculum and lab rotation requirements are considered only in the first year. Approval is contingent upon special circumstances and is not routinely granted. Courses for the PhD degree in Immunology fall into 2 main areas: foundational and elective courses.
Core courses for both MCTI and CSI tracks

All students in the two tracks, Molecular, Cellular, and Translational Immunology (MCTI) and Computational and Systems Immunology (CSI) are required to enroll in the following core courses:

<table>
<thead>
<tr>
<th>Advanced Undergraduate Course (if needed)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>Dept</td>
</tr>
<tr>
<td>Molecular &amp; Cellular Immunology (Jones)</td>
<td>Bio</td>
</tr>
</tbody>
</table>

**Note:** For students who have not previously had an introductory Immunology course.

<table>
<thead>
<tr>
<th>Required Foundational Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>Dept</td>
</tr>
<tr>
<td>Foundations in Experimental Biology</td>
<td>Bios</td>
</tr>
<tr>
<td>Advanced Immunology I (Chien)</td>
<td>Imm</td>
</tr>
<tr>
<td>Advanced Immunology II (Blish)</td>
<td>Imm</td>
</tr>
<tr>
<td>Immunology Journal Club (Martinez)</td>
<td>Imm</td>
</tr>
<tr>
<td>Immunology Seminar Series (Alizadeh, Garcia)</td>
<td>Imm</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>Bio</td>
</tr>
<tr>
<td>Immunology Graduate Research</td>
<td>Imm</td>
</tr>
<tr>
<td>Teaching in Immunology</td>
<td>Imm</td>
</tr>
<tr>
<td>Responsible Conduct in Research</td>
<td>Med</td>
</tr>
<tr>
<td>Ethics, Science and Society</td>
<td>Imm</td>
</tr>
</tbody>
</table>

**The medical school course, “Responsible Conduct in Science,” Med 255, must be completed before the end of the first year. Students supported by the NIH or NSF must send a scanned copy of the certificate to the Program Administrator, who will inform NIH and NSF that this requirement has been completed.

***In the third through fifth years, students are required to take IMMUNOL 258, “Ethics Science and Society”, a refresher ethics course that is required by NIH and is offered every other year.
### Track-Specific Foundational Courses

Students must also complete requirements within their track.

#### Required Foundational Courses for Molecular, Cellular, and Translational Immunology Track (MCTI)

<table>
<thead>
<tr>
<th>Course</th>
<th>Dept</th>
<th>No</th>
<th>Qtr</th>
<th>Units</th>
<th>Yr</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Immunology III (Krams)</td>
<td>Imm</td>
<td>203</td>
<td>Sum</td>
<td>3</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Viruses (Monack)</td>
<td>MI</td>
<td>210</td>
<td>Aut</td>
<td>4</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Advanced Cell Biology</td>
<td>Bio</td>
<td>214</td>
<td>Win</td>
<td>4</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Introduction to Applied Tools in Computational and Systems Immunology (Maecker, Andorf)</td>
<td>Imm</td>
<td>206</td>
<td>Win</td>
<td>2</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

1 out of three possible courses

#### Suggested Elective Specialization Courses for Molecular, Cellular, and Translational Immunology Track (MCTI) (1 Required)

<table>
<thead>
<tr>
<th>Course</th>
<th>Dept</th>
<th>No</th>
<th>Qtr</th>
<th>Units</th>
<th>Yr</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumor Immunology (Engleman, Rothbard)</td>
<td>Imm</td>
<td>275</td>
<td>Aut</td>
<td>2</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cell Signaling</td>
<td>CSB</td>
<td>210</td>
<td>Win</td>
<td>4</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Biological Macromolecules</td>
<td>SBIO</td>
<td>241</td>
<td>Spr</td>
<td>3-5</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Developmental Biology</td>
<td>DBIO</td>
<td>210</td>
<td>Spr</td>
<td>4</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>Molecular and Genetic Basis of Cancer</td>
<td>CBIO</td>
<td>240</td>
<td>Aut</td>
<td>4</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

#### Required Foundational Courses for Computational and Systems Immunology Track (CSI). Note: This is the CSI core. CSI track students are also required to take several courses in the Immunology core, see above.

<table>
<thead>
<tr>
<th>Course</th>
<th>Dept</th>
<th>No</th>
<th>Qtr</th>
<th>Units</th>
<th>Yr</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming Methodology or equivalent</td>
<td>CS</td>
<td>106</td>
<td>AW</td>
<td>3-5</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>*</td>
</tr>
<tr>
<td>Programming Abstractions</td>
<td>CS</td>
<td>106</td>
<td>AW</td>
<td>3-5</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>**</td>
</tr>
<tr>
<td>Course Title</td>
<td>Dept</td>
<td>No.</td>
<td>Qtr</td>
<td>Units</td>
<td>Yr</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------------------------------------------</td>
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<td>------</td>
<td>-------</td>
<td>-------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>Introduction to Probability for Computer Scientists</td>
<td>CS</td>
<td>109</td>
<td>WS</td>
<td>3-5</td>
<td>1st or 2nd</td>
<td></td>
</tr>
<tr>
<td>Design and Analysis of Algorithms</td>
<td>CS</td>
<td>161</td>
<td>WS</td>
<td>3-5</td>
<td>1st or 2nd</td>
<td></td>
</tr>
<tr>
<td>Introduction to Applied Tools in Computational and Systems Immunology (Maecker, Andorf)</td>
<td>Imm</td>
<td>206</td>
<td>Win</td>
<td>2</td>
<td>1st</td>
<td>4th</td>
</tr>
<tr>
<td>Essential Methods in Computational and Systems Immunology (Mallick, Khatri)</td>
<td>Imm</td>
<td>207</td>
<td>Spr</td>
<td>3</td>
<td>1st</td>
<td>or 2nd</td>
</tr>
<tr>
<td>Seminars in Computational and Systems Immunology (Khatri, Kotecha)</td>
<td>Imm</td>
<td>310</td>
<td>Su</td>
<td>1</td>
<td>1st</td>
<td>2nd</td>
</tr>
<tr>
<td>Representations and Algorithms for Computational Molecular Biology</td>
<td>BioMe din</td>
<td>214</td>
<td>Aut</td>
<td>3-4</td>
<td>1st</td>
<td>2nd</td>
</tr>
<tr>
<td>2 Elective Courses</td>
<td>Dept</td>
<td>No.</td>
<td>Qtr</td>
<td>Units</td>
<td>Yr</td>
<td>Notes</td>
</tr>
<tr>
<td>Introduction to Biomedical Informatics Research Methodology</td>
<td>BioMe din</td>
<td>212</td>
<td>Spr</td>
<td>3-5</td>
<td>1st</td>
<td>2nd</td>
</tr>
<tr>
<td>Translational Informatics</td>
<td>BioMe din</td>
<td>217</td>
<td>Win</td>
<td>4</td>
<td>1st</td>
<td>2nd</td>
</tr>
<tr>
<td>Computational Methods for Biomedical Image Analysis and Interpretation</td>
<td>BioMe din</td>
<td>260</td>
<td>Spr</td>
<td>3-4</td>
<td>2nd</td>
<td>4th</td>
</tr>
<tr>
<td>Introduction to Numerical Methods for Engineering</td>
<td>CME</td>
<td>206</td>
<td>Spr</td>
<td>3</td>
<td>2nd</td>
<td>4th</td>
</tr>
<tr>
<td>Introduction to Linear Dynamical Systems</td>
<td>CME</td>
<td>263</td>
<td>Aut</td>
<td>Su</td>
<td>3</td>
<td>2nd</td>
</tr>
<tr>
<td>Randomized Algorithms and Probabilistic Analysis</td>
<td>CME</td>
<td>309</td>
<td>Aut</td>
<td>3</td>
<td>2nd</td>
<td>4th</td>
</tr>
<tr>
<td>Advanced Methods in Numerical Optimization</td>
<td>CME</td>
<td>334</td>
<td>Aut</td>
<td>3</td>
<td>2nd</td>
<td>4th</td>
</tr>
<tr>
<td>Convex Optimization I</td>
<td>CME</td>
<td>364</td>
<td>A</td>
<td>Win</td>
<td>3</td>
<td>2nd</td>
</tr>
<tr>
<td>Applied Fourier Analysis and Elements of Modern Signal Processing</td>
<td>CME</td>
<td>372</td>
<td>Win</td>
<td>3</td>
<td>2nd</td>
<td>4th</td>
</tr>
</tbody>
</table>
**Proficiency is required of all CSI Track students**

**Encouraged for CSI Track students**

In order to build their computational skill sets, CSI students may be advised to take additional courses by their thesis committees.

To see a description of the specific courses, please go to the *Explore Course* website and search for the course you are interested in.

[http://exploreCourses.stanford.edu/CourseSearch/](http://exploreCourses.stanford.edu/CourseSearch/)

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### Financial Aid

Immunology graduate students are supported from a variety of sources: NIH training grant fellowships, nationally competitive individual fellowships, university fellowships, foreign fellowships, and research assistantships. For students funded by fellowships, quarterly stipends are directly deposited into the students’ checking accounts usually on or before the first day of class (for direct deposit instructions, please go to: [https://axess.stanford.edu/](https://axess.stanford.edu/)). These stipends are supplemented up to the approved stipend level for the academic year, either as a stipend or a bi-weekly payment. Bi-weekly payments usually have taxes withdrawn whereas stipends do not; a student will receive a bi-weekly paycheck as either a supplement to a fellowship stipend or as a research assistantship in their 4th-5th years. Below is a typical funding schedule (Funding
In order to alleviate the stipend and tuition costs to the PhD advisor in the 5th year, immunology graduate students are encouraged to apply for both external (NIH, NSF) and internal fellowships (SGF, Mason Case, or BIO-X).

**Funding options:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Immunology Training Grant (primary funding for 3 years)</th>
<th>Immunology Program Flex Funds, stipend supplement</th>
<th>SGF (3 years)</th>
<th>NSF (3 years). Students are only allowed to apply twice.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Students are required to apply for at least 2 external fellowships (e.g., NSF, NIH, or NGSEG)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Year 2</td>
<td>Immunology Training Grant, 2nd year</td>
<td>School of Medicine stipend and tuition supplements from non-NIH sources</td>
<td>SGF, 2nd year</td>
<td>NSF, 1st or 2nd year</td>
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<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>NIH Minority Predoctoral Fellowship, 2nd year after Quals Part II</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Students apply for external and internal fellowships</strong></td>
</tr>
<tr>
<td>Year 3</td>
<td>Immunology Training Grant, 3rd and possibly last year</td>
<td>School of Medicine stipend and tuition supplements from non-NIH sources</td>
<td>SGF, 3rd and last year</td>
<td>NSF, 2nd or 3rd year</td>
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<td>NIH Minority Predoctoral Fellowship, 2nd or 3rd year</td>
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<td><strong>Students apply for external and internal fellowships</strong></td>
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<tr>
<td>Year 4</td>
<td>Immunology Training Grant, possible 4th and last year</td>
<td>School of Medicine stipend and tuition supplements from non-NIH sources</td>
<td>NSF, 3rd and last year</td>
<td>NIH Minority Predoctoral Fellowship, 3rd or 4th year; internal fellowships (Mason Case, Lieberman Fellowships, BIO-X)</td>
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<td></td>
<td>Research Assistantships; School of Medicine tuition supplements from non-NIH sources</td>
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<td></td>
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<td></td>
<td>TGR in Spring or Summer quarter</td>
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</tbody>
</table>
Students apply for external and internal fellowships

| Year 5 | Research Assistantships; Preceptor is responsible for both salary and TGR tuition. NIH Minority Predoctoral Fellowship, 5th and last year; internal fellowships (Mason Case, Lieberman Fellowships, BIO-X) TGR (Terminal graduate residence=lower tuition costs) Completion of other miscellaneous fellowships |
| Year 6 and beyond | Research Assistantships; Preceptor is responsible for both salary and TGR tuition. |

**Fellowships for Graduate Students**

The Immunology Program strongly encourages students to apply for external fellowships. The Program also allows students to keep all of the funds awarded as stipend, and will supplement if the award is less than the current Stanford stipend.

All students are encouraged to apply for the NSF Graduate Fellowship by the November deadline or other fellowships that may represent a student's specific interests.

For a comprehensive listing of fellowships, please consult [http://med.stanford.edu/rmg/funding/grad_student.html](http://med.stanford.edu/rmg/funding/grad_student.html)

Additional fellowships of interest:

<table>
<thead>
<tr>
<th>Fellowship</th>
<th>Deadline</th>
<th>Contact Information</th>
<th>Who’s eligible</th>
</tr>
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<tbody>
<tr>
<td>National Science Foundation Graduate Research Fellowship Program (GRFP) <a href="http://www.nsfgrfp.org/">http://www.nsfgrfp.org/</a></td>
<td>October</td>
<td>866-673-4737 (866-NSF-GRFP)</td>
<td>1) US Citizen 2) First year of Graduate school or first qtr of 2nd year (must have completed no more than 12 months of full-time graduate study) 3) Field of Study – research-based master's and doctoral</td>
</tr>
<tr>
<td>Program</td>
<td>Month</td>
<td>Fellowship Website or Contact Information</td>
<td>Eligibility</td>
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| The Paul and Daisy Soros       | November | [http://www.pdsoros.org/](http://www.pdsoros.org/)                               | 1) A New American (green card holder or naturalized citizen or child of naturalized citizens  
2) Under 31 years old  
3) A college senior or holder of a bachelor's degree  
4) Not beyond 2nd year in graduate degree program |
| American Association of         | American | [http://www.aauw.org](http://www.aauw.org)                                    | AAUW Fellowships support women doctoral candidates completing dissertations. Candidates must be U.S. citizens or permanent residents. Candidates are evaluated on the basis of scholarly excellence, the quality and originality of project design, and active commitment to helping women and girls through service in their communities, professions, or fields of research. **International Fellowships** are awarded for full-time study or research in the United States to women who are not United States citizens or permanent residents. Several fellowships are available for study outside of the U.S. |
| University Women (AAUW)        | Nov - Dec| [aauw@act.org](mailto:aauw@act.org) 319-337-1716                             |                                                                             |
| SDE/GWIS (Graduate Women in     | January  | [fellowshipsquestions@gwis.org](mailto:fellowshipsquestions@gwis.org) 919-668-1439 | Women holding a degree from a recognized institution of higher learning, of outstanding ability and promise in research, who are |
| Science) Fellowships            |          |                                                                                 |                                                                             |
Tax Information
Graduate students are supported by fellowship stipends or research assistantships. More information regarding the Student Graduate Financial payroll systems can be found on:

http://www.stanford.edu/group/fms/fingate/students/index.html

This website provides information on how to read and understand your university bill, tax information, payroll for graduate students on research assistantships.

1. If you are primarily supported by a fellowship, you are receiving a quarterly stipend. Stipend checks are issued the day before classes. Stanford does not withhold tax on quarterly stipends. The amount of tax varies according to total income, dependency status, treaty status for international students, and individual circumstances. The student is responsible for making quarterly estimated tax payments to the IRS and California’s state tax board. Students who are currently paying for their own tuition are issued a 1098T, which allows them to claim educational tax credits. You should NOT use the 1098T for tax purposes as your stipend and tuition are entirely covered by fellowship funds.

2. Students are paid on the 7th and 22nd of the month (or on the preceding work day if these dates fall on a weekend or holiday). Federal and state taxes from research assistantships should be filed on April 15th. Students can fill out an on-line W-4 application through Student AXESS. At the end of January, a W2 is sent annually to students supported by bi-weekly pay.

3. International students may receive tax assistance and may contact Bechtel to see what resources are available. Instead of a 1098-T, international students will receive a 1099-T (stipend pay) or 1042-S (bi-weekly pay). Fellowship stipends paid to non-U.S. residents are subject to a 14% withholding, regardless of the number of dependents.
The Office of Student Financial Services offers more tax information through their website: https://sfs.stanford.edu/taxes. To be absolutely certain about how to file your taxes, please consult a tax professional.

The Journey Begins: First Year Advising

During the summer prior to enrolling for Autumn Quarter, first-year students are required to read Janeway's Immunobiology, 8th edition, in preparation for their graduate studies. The Graduate Program Director, Dr. Olivia Martinez, assists each incoming student in selecting courses and lab rotations for the first year and in choosing a lab for the dissertation research (please use the degree progress form at the back of this handbook to keep track of your milestones.) In the first-year advising meeting, Dr. Martinez will determine if the student’s undergraduate training in biology and cognate disciplines are equivalent to the required undergraduate Biology major curriculum at Stanford. If there are gaps in the undergraduate training, the first-year student and Dr. Martinez will design a specific first year curriculum. In the first year of graduate study only, Dr. Martinez will also consider petitions to waive or substitute courses for required courses.

Note: The Advisor-Advisee relationship is an important component of the graduate school experience. A description of the faculty and student roles from the Office of the Vice Provost of Graduate Education (VPGE) can be found on their website, http://vpge.stanford.edu/. When you have chosen a lab, you and your PI should fill out the Student Advisor Expectation Scales form found on the VPGE webpage http://vpge.stanford.edu/docs/adv_expectations.pdf. This form can provide a basis for conversations between students and advisors to align their expectations. Students are encouraged to meet weekly with their advisor regarding their thesis project and at least annually regarding career development.

The VPGE offers workshops that provide guidance with issues like advisor-student relationships, imposter syndrome, career development, how to find a postdoctoral position, etc.
The advising schedule for the entering class is as follows:

**First Year Advising and Orientation Time Line**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td><strong>September</strong></td>
<td>Advising Meetings with Olivia Martinez; determine individuals’ curriculum and autumn quarter lab rotations. Immunology Startup SBSA (Stanford Biosciences Student Association) camping trip with all First Years in the Biosciences</td>
</tr>
<tr>
<td><strong>November</strong></td>
<td>Immunology Scientific Conference (retreat) at Asilomar</td>
</tr>
<tr>
<td><strong>December</strong></td>
<td>End of Quarter meetings with Dr. Martinez; final exams begin. Identify and arrange winter quarter rotations.</td>
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<tr>
<td><strong>January</strong></td>
<td>First day of Winter quarter</td>
</tr>
<tr>
<td><strong>March</strong></td>
<td>End of Quarter meetings with Dr. Martinez; final exams begin. Identify and arrange spring quarter rotations. First day of Spring quarter</td>
</tr>
<tr>
<td><strong>June</strong></td>
<td>End of Quarter meetings with Dr. Martinez; final exams begin. If necessary, identify and arrange summer quarter rotations. First Year Rotations Presentations and Graduate Program Committee Advising. Students will present a 15-minute talk (10 minutes presentation, 5 minutes Q&amp;A) on one of their first-year rotations to the Graduate Program Committee and other first year students. In addition, students will meet individually with the Graduate Program Committee to review and discuss their academic progress and selection of a thesis lab.</td>
</tr>
<tr>
<td><strong>August</strong></td>
<td>Dr. Martinez will meet with the First years as a group, now rising Second Years, to go over the Qualifying General Oral Exam and Research Proposal Oral Exam, which must be completed by December 17. Teaching assistantships will also be discussed.</td>
</tr>
</tbody>
</table>
FAQS: Choosing Labs for Rotations and Thesis Research

1. How do you find a lab to rotate in?

The first step is to identify faculty members and labs where the research is of interest to you. You can find information on Immunology Faculty members and their research interests at the end of this Handbook and at: https://med.stanford.edu/immunol/faculty-2018-2019.html. It is a good idea to identify 3-5 labs of interest as soon as possible. Current graduate students are a good source of information about the research interests and styles of individual labs. Opportunities will be provided during the fall for you to meet faculty, including research talks at the Immunology retreat. You are encouraged to explore many options for lab rotations. Finally, you can always contact members of the Graduate Program Committee or Dr. Martinez if you need guidance in identifying or choosing a lab to rotate in.

2. When and how do you ask a faculty member if you can rotate in their lab?

It's easiest to email the Faculty member, tell them you are interested in rotating in their lab, and ask if they are taking rotation students. If so, arrange to meet with the Faculty member to discuss a potential rotation. At the meeting, you should discuss why you are interested in the lab and possible rotation projects. If you haven't already arranged your first rotation when you arrive for Orientation, you should start the process immediately. To arrange rotations for winter and spring quarters it is best to begin talking to faculty members about rotating by week 8 or 9 of the prior Quarter.

3. What should you expect to accomplish in your rotation?

The lab rotation is a chance to get familiar with the lab and to help you determine if it is a good fit for you. During your rotation, you should plan to spend most of the time that you are not in class, in the lab. If you do this, by the end of the Quarter you will have a good sense of the research going on in the lab and thesis projects you might be interested in as well as the culture and dynamics of the lab, and the mentorship style of the Faculty member. These are all important aspects of helping you chose a
lab. As a guideline, you are expected to make sufficient progress on your rotation project to give a 15-minute presentation to the Graduate Program Committee on your rotation research—you will be asked to present the work from one of your rotations to the Graduate Program Committee in June. Your rotation advisor will also expect you to present your work to the lab at the end of your rotation.

4. How many rotations should you do?

We expect that students will rotate in three labs (one each quarter) so that by June of their first year they are ready to choose a lab for their dissertation research. At least two of these rotations should be in Immunology labs. In some cases, students may wish to do a fourth rotation in the summer of their first year before choosing a lab.

5. What if you know the lab you are rotating in isn’t for you?

Sometimes you know immediately that the lab just isn’t a right fit for you and that is okay. In this case, it is important to advise Dr. Olivia Martinez and look for a new rotation. Rotations are for you to find the lab that is the best fit for you.

Rotation advice:

- Set up your rotations as early as possible.
- Talk to as many faculty (principal investigators, PIs) as possible, both about their work and the work of other potential labs.
- Attend multiple lab meetings in various labs of interest. This allows you to see the culture of the lab without committing to a full rotation. Also, you will be able to see the current status and future directions of many projects in the lab. Lab meetings are the best place to get the most current scoop on the PI’s research.
- Get the scoop on that lab from the other students in the department.
- Don’t be afraid to expose yourself to new and different areas of immunology that may appeal to you.
Advice on choosing a thesis lab
Your thesis lab is where you'll be spending a lot of time over the next few years, so do your best to find a place that feels comfortable for you. Important components of finding a good fit include the mentorship style of the PI and the scientific questions being addressed in the lab. Gain information by talking to as many current and former lab members, other students, and PIs to get information about a lab.

Typical questions to ask others and yourself when choosing a lab include:

- What is the PI's mentoring style? PI’s philosophy in dealing with people and publishing papers?
- How does the PI choose and distribute projects among lab members, and the role the student plays in decision-making?
- How much time does the PI spend with lab members?
- How much time is the PI away from the lab for travel?
- Does the PI help his/her people get good postdoc positions/jobs? Does s/he give career advice?
- How does the PI handle collaborations?
- What is the student: postdoc ratio? Few students and many postdocs have a different feel than many students and few postdocs.
- What the lab’s publication record, especially for graduate students? Have there been authorship conflicts? If so, why?
- How supportive is the PI of lifestyle choices (spouse, children, and other important non-lab commitments)?
- Are the people in the lab happy? Do they get along well and work together?
- How many hours do people work in the lab?
- What is the financial situation of the lab?
- What is the average time to completing a Ph.D. degree in the lab?

Individual Career Development Plan
The NIH requires an Individual Career Development Plan (IDP) for every graduate student and postdoctoral fellow. Students are expected to develop IDPs to assist them in shaping their graduate education and in
considering plans for after they complete their PhD. NIH considers the IDPs to be a useful tool to help graduate students identify their career goals and what they need to accomplish to achieve these goals. All Biosciences PhD candidates and advisors are expected to verify by August 1 each year that they have met, reviewed and discussed their IDP forms. More information on the IDP form and process can be found at https://biosciences.stanford.edu/current-students/idp/.

Requirements for Second Year

Students must complete all core course requirements by the end of their second year. Administration and evaluation of these requirements leading to PhD candidacy is the responsibility of the Graduate Program Committee; the student's dissertation committee is responsible for advising the student through the research and other courses as needed towards the completion of the PhD dissertation. Elective courses are agreed upon by the student, advisor, PhD Program Director, and dissertation committee. These courses may be chosen from graduate courses and seminars in any of the biomedical science departments and programs.

To continue to foster exposure of graduate students to a breadth of sub-fields across immunology, graduate students beyond the first year are required to attend at least 50% of the Immunology Seminars each quarter.

Students interested in TAing during their second year should refer to the TAship information on pages 27-29.

Qualifying Exam Process (Autumn, Year 2)

The qualifying exam includes a written thesis proposal and an oral exam by the thesis committee. The members of the thesis committee are chosen by the student and the PhD advisor. The Qualifying Exam Committee is composed of at least two members of Immunology Program faculty and may include the thesis advisor. The thesis advisor is not present for the qualifying examination.
For the written thesis proposal, the student will follow the instructions for an NIH research grant in terms of format, except that he/she may have only limited preliminary results. The written proposal should be 18 pages double-spaced, instead of the standard 13-page single-spaced NIH (RO1, PHS form 398) proposal. All tables, graphs, figures, diagrams, and charts must be included in the 18-page limit. Failure to follow the NIH format, including exceeding font size (Arial font, 11 pitch), 0.5” margins, or page limits may result in the Committee’s decision to have the student rewrite the thesis before giving a passing grade. It is strongly recommended that the student work closely with the Committee, particularly the Thesis Advisor, in preparing a hypothesis-driven thesis proposal. Students should review successful NIH grants prepared by Faculty members as a template. These are available through the Immunology Program Administrator. Please see specific instructions below for content and formatting for the thesis proposal:

- **Specific Aims.** List the broad, long-term objectives and what the specific research proposed is intended to accomplish. What is the problem you are trying to solve? Why is it important? Include the hypothesis. The hypothesis answers the questions: what is it that you intend to do? And why is the work important? The single, biggest mistake made in grant applications and thesis proposals is failure to succinctly state a testable hypothesis. PHS 398, Part I. Section 5.5.2: “State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.”

- **Research Strategy.** The Research Strategy is composed of three distinct sections: Significance, Innovation, and Approach. Note that the Approach section also includes preliminary studies. What is the current scientific background of the thesis project? The existing body of knowledge in the relevant areas of the thesis project should be critically evaluated. What gaps are there in this body of knowledge? Where does your thesis project fall? State concisely the importance of the research described by relating the specific aims to the broad
long-term objectives. The Research Strategy should be organized in the specified order with appropriate headings: Significance, Innovation, and Approach. The following is excerpted from PHS 398, Section 5.5.3:

(a) **Significance**

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) **Innovation**

- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

(c) **Approach**

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed separately in the Resource Sharing Plan, include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.
- Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised. A full
discussion on the use of Select Agents should appear in 5.5.11 below.

- If research on Human Embryonic Stem Cells (hESCs) is proposed but an approved cell line from the NIH hESC Registry cannot be identified, provide a strong justification for why an appropriate cell line cannot be chosen from the Registry at this time.

If the qualifying exam proposal has multiple Specific Aims, then the applicant may address Significance, Innovation and Approach for each Specific Aim individually, or may address Significance, Innovation and Approach for all of the Specific Aims collectively.

The student should include any preliminary studies that will help establish the appropriateness and feasibility of the thesis project. The student is expected to make use of the faculty advisor’s preliminary results if he/she has not already obtained a significant amount of preliminary results. In light of the early deadline for the General Orals and Qualifying Examination, Dec 17th, a student’s thesis project may change several months after the dissertation proposal is defended. If such a change occurs, the student should inform his/her Dissertation Proposal Committee by submitting a short, three-page written report describing the necessary changes. If no changes are necessary, then the student should proceed in a normal fashion, e.g., scheduling the annual dissertation committee meeting a year later.


c. Literature Cited. Literature citations should be listed at the end of the proposal. Each literature citation must include the title, names of all authors, book or journal, volume number, page numbers, and year of publication.

The Oral Examination is intended to test the student on the proposed research area but may also include an examination on general immunology knowledge. The format of the Oral Examination typically begins with a presentation of the thesis proposal. Students should prepare
a presentation of 45-50 minutes on the proposed research focusing on experimental design, data interpretation and potential problems. Preliminary data should be included. Faculty will question the student about the work, its interpretation, the methods, and background questions relevant to the proposal. The thesis mentor is not allowed to be present at the Oral Examination.

After the Oral Examination is completed the designated Chair of the Dissertation Proposal Committee and the thesis advisor will both provide a written evaluation (paragraph) and grade of the dissertation proposal. The Dissertation Proposal Form should be signed by all of the committee members and is available on http://med.stanford.edu/immunol/phd-program/resources.html. The evaluation will describe the strengths and weakness of the proposal. The letter grade will be entered into the university’s system and appear on the student’s transcript. A student receiving a grade lower than B, may be asked to rewrite the dissertation proposal. If the Dissertation Proposal Committee does not give a passing grade to the student’s rewritten version, then the Graduate Program Committee will meet to consider whether extenuating circumstances warrant permitting the student to be examined a second time. The second opportunity to take the Qualifying Exam should occur before the student’s third year begins. If so, the Graduate Program Committee will permit a second examination, or if he or she is given such an opportunity and fails the second examination, he or she will be dismissed from the Program. The dismissal shall be made in writing.

After successful completion of the Qualifying Examination, the student may apply for admission to Ph.D. candidacy (http://med.stanford.edu/immunol/phd-program/resources.html). Admission to Ph.D. candidacy means that the student has completed the Qualifying Examination and most of the course requirements of the Immunology Program and is now ready to begin thesis research leading to a dissertation and University oral exam. The Application for Candidacy for Doctoral Degree form must be filled out and submitted to the Program Administrator at the end of the winter quarter of the second year; timely submission of graduate paperwork is required for certifying satisfactory degree progress for many fellowships, in particular the NSF and the SGF.
The schedule will be adjusted to fit the needs of MOM, MSTP and MD/PhD students, or students who transfer from another program.

Requirements for Third Year and Above

Committee Meetings

Students are required by the University, Biosciences, and Immunology Program to hold annual committee meetings. Best practices for arranging committee meetings are:

- Send a Doodle calendar request to your committee members
- Consider and avoid the following reasons that may cause delay: committee members’ travel schedules, NIH grant deadlines, major program events such as admissions interview weekend, holidays, etc.
- The University Registrar encourages graduate students to meet with their thesis committees as a group and not one-on-one. This best practice avoids miscommunication.
- Annual meetings should be held regardless of obstacles in research progress.

The Annual Committee Meeting Form should be filled out and signed by all of the committee members in attendance at each meeting (http://med.stanford.edu/immunol/resources.html).

In the fourth and fifth years, students are expected to meet with their committees twice a year. In the fifth year (and beyond), a faculty member of the Graduate Program Committee should be present at these committee meetings. Dates of committee meetings for all immunology graduate students are reported to the Registrar.

Teaching Assistantships

To gain teaching experience, students are required to serve as teaching assistants in two immunology courses offered at the School of Medicine or in the Department of Biology. TAships are typically completed in Years 2-4. Before fulfilling their teaching assistantships, immunology graduate students must attend a teaching assistantship orientation offered at the beginning of every quarter by the Center for Teaching and Learning. MSTP students may submit one of their medical school TAships as a partial fulfillment of the TA requirement for the PhD in Immunology. MSTP
students must complete a second TAship from the list of courses. After completion of two TAships, immunology graduate students may TA for outside courses and earn TAship income.

The process for the TA matching system is described below:

1. The Chair of the Immunology Graduate Program Committee reviews both sets of applications and selects and matches the students to the appropriate courses based on the following criteria:
   a. Completion of the CTL teaching assistantship orientation, through workshop or on-line course
   b. Faculty need
   c. Students’ ranked preferences.

2. TAships must be completed in 2nd through 4th years of graduate student. The fifth year will be dedicated mainly to completing PhD research and submitting a required first author publication.

3. Results of the TA match system will be announced in August for students and their PhD advisors, and the course directors.

**Teaching Assistantships are available for the following courses:**

- Immunology Startup (3)
- Molecular and Cellular Immunology (4), Bio 230 and Bio 230A
- Computational and Systems Immunology (1), Imm 206A
- Advanced Immunology I (2), Imm 201
- Advanced Immunology II (2), Imm 202
- Advanced Immunology III (2), Imm 203
- Immunology in Human Health and Disease, required course for medical students (6-7), Imm 205
- Seminars in Immunology (1), Imm 311
- Tumor Immunology (2), Imm 275
- Neuroimmunity (1), Imm 286
- Immunology Journal Club (3 total, 1 TA per quarter), Imm 305
- Introduction to Applied Tools in Computational and Systems Immunology, (1) Imm 206
- Essential Methods in Computational and Systems Immunology, (1) Imm 207
Terminal Graduate Registration (TGR)

Terminal Graduate Registration (TGR) is reached when PhD students have completed the University’s residency requirement, been admitted to candidacy, completed 135 units of coursework, and submitted the Doctoral Dissertation Reading Committee form. TGR greatly reduces the tuition rate. When enrolling under TGR status, a student may only enroll in only 1-3 units of non-required coursework (with the Adviser’s knowledge), in addition to the 0 unit TGR course (Immunol 802). To be considered for TGR, the student must submit the TGR form to the Registrar prior to the beginning of the quarter for which the request is made.

PhD Thesis Defense

In preparation for the dissertation defense proposal, students are required to submit a Petition to Defend to Dr. Olivia Martinez. Before a graduate student can schedule his/her dissertation defense, s/he must have a first-author manuscript that has been submitted, is in press, or has been published. Once the Petition to Defend is approved, students may proceed with the dissertation defense process.

Before the defense, you should:

- Meet with all the members of your committee as often as possible in the months leading up to the exam. Be sure that they understand what you are doing, agree with your thesis statement and research plan.
- Develop your oral defense in consultation with your thesis advisor.
- Decide in advance what points you need to make, what background needs to be provided to the audience, and what you can leave out or save for questions (since you will always have more to say than is possible to include in an hour’s talk).
- Practice the talk with an audience. Make sure that you allow time for questions and answers. Go over the slides with your adviser. Avoid glibness or excessive informality; this is one time when the
presentation needs to be rather formal – you are trying to demonstrate that you are already master of a field and are striking out to break new and important ground of some kind. State your goals clearly; make sure people understand the motivation for what you are doing, as well as the technical details.

Because it is difficult to find times when all committee members can simultaneously set aside time for an oral exam, the student should schedule the orals at least two months prior to the anticipated date. You should plan on one hour for a public presentation, including time for questions from the audience, followed by 30-90 minutes of closed session with your committee, leading to a vote. This means that committee members should set aside 2.5-3 hours if at all possible.

When a date and time for the oral examination is identified, then consider who can serve as an orals chair for your exam committee. As the PhD Program in Immunology is an interdepartmental program, “…the chair of the examining committee may not have a full or joint appointment in the primary adviser’s major department and must have independence from the student and adviser.” (GAP 4.7, http://gap.stanford.edu/4-7.html). In addition, Dr. Martinez and the Program Office can help identify an orals chair: he or she must be a member of the Academic Council and may be a Professor Emeritus.

Your thesis should be submitted to your committee at least two weeks before your defense. The proposal document is supposed to be a complete and compelling document that outlines the problem, the literature review, and the plan going forward. It should be polished and have a full set of references, figures etc. It is NOT a draft dissertation but should be a compelling and complete proposal for work to be done. Although this document may yield significant fragments that end up in the final dissertation, it should present a defendable proposal. Its acceptability is judged by the oral defense committee, using their judgment. In general, “Acceptable” would be a complete document (text, figures, tables, complete references) that makes a scholarly case for the problem being addressed, relevant previous work, and presents a scientifically logical plan for how it will be approached. One possible outline would be:
The document should be fully referenced, with figures, tables, complete sentences, and no sections that are empty. There is no length requirement (or limit) but most dissertations are usually between 30-50, 1.5 spaced typed pages.

The student’s thesis advisor should read and approve the thesis document before it is sent to the committee.

In the case where the thesis advisor or one or more committee members is not satisfied by the written thesis, there are several options:

- The oral defense can be postponed (this would be an extraordinary event based on conversations with the advisor and program director, and would have to be considered well in advance of the scheduled date of the oral defense)
- The oral defense can go on, and if the oral defense and Q&A is an otherwise passing performance, the committee can either:
  
  1. Provide informal feedback about how to improve the document, or
  2. Grant a “conditional pass” conditioned on submission within a designated time of an acceptable thesis document.
  3. Work out an arrangement with your thesis advisor to assure that he or she has read all chapters of your thesis and has agreed that they are adequate no later than THREE WEEKS PRIOR TO YOUR EXAM. If your advisor has not seen drafts of all chapters by this time, and agreed that everything is on track, it is his or her responsibility to notify Student Services Officer that the scheduled exam should be cancelled; you will need to reschedule it at a time when the 3 week window is likely to be achievable
  4. Incorporate comments from your advisor and generate a final thesis for delivery to your committee no later than TWO WEEKS PRIOR TO YOUR EXAM. This provides your committee with enough time to have a reasonable chance of reading the document prior to your oral defense. Failure to meet this deadline will also trigger a cancellation of the oral exam by your thesis advisor so that the exam can be rescheduled for a time when the committee will have had adequate time to read the thesis.

It is a courtesy to provide your orals committee chair with a copy of the thesis and the Orals Guidelines, and to offer to meet with him/her before
the event. They will generally not require that you do this but make the offer.

Dissertation defenses are serious scientific presentations of a student’s dissertation research, similar to a postdoc interview talk, rather than a talk aimed at a lay audience. At the end of their PhD oral defense, students should limit acknowledgements to 1 slide.

Degree Conferral

In order to have your degree conferred, you must have completed all the University and Department requirements and submitted all work before the deadlines. The University imposes requirements such as residency, submission of official scores and transcripts, payment of fees, return of library books, etc., that the Immunology Program has no control over and sometimes no knowledge of. Please pay attention to the messages, letters, and notes you receive and respond to them in a timely manner.

Notice of Intention to Graduate

You must file a Notice of Intention to Graduate (“Apply to Graduate”) through AXESS for the quarter you complete the degree requirements. If you do not finish in time, you will need to annul the initial Intention to Graduate and submit a new one for the quarter in which you intend to finish. Please refer to the University calendar for deadlines. There are no exceptions for missed deadlines and is a hard and fast University rule. The deadlines are listed in AXESS and on the academic calendar.

Graduate Quarter

If you have completed everything except for completing and depositing the dissertation, you may submit that and graduate while registered for a “Graduation Quarter” your very last quarter. This “Graduation Quarter” option is available for only one quarter. You must be an active, registered student in TGR status and have defended your thesis in the prior quarter. You will still need to file an Intention to Graduate for that last quarter in
AXESS. A small tuition fee will be charged, and you will be considered a full-time student for various administrative purposes.

The McDevitt Prize
The Hugh McDevitt Prize recognizes and awards a graduating Ph.D. candidate in the Immunology Program for excellence in his or her doctoral dissertation research. The McDevitt Prize Award winner is chosen from a group of candidates who have defended and submitted their thesis to the Registrar in a given academic year. The criteria for selection are that the candidate's doctoral research is judged by the Graduate Program Committee to be of the highest quality in immunological research. The winner is announced at the annual Scientific Conference in Asilomar or at the Immunology Holiday Party. He or she will receive a certificate and $1,000 honorarium.

Leadership Opportunities
The Immunology Program encourages student involvement and feedback to improve the quality of academic and social experiences. The following positions are held by students, and elections are held annually at the last Journal Club meeting before the summer term. This year’s leadership group is as follows:

- Student Director for Immunology Seminars – Geoff Ivison
- Student Representative to the Executive Committee- Sarah Barnes
- Student Representatives to the Graduate Program Committee – Miles Linde
  Student Representative to the Admissions Committee: Amber Moore (MCTI) and Geoff Ivison (CSI)
- First-year Advising Committee: Lawrence Bai, Erin McCaffrey
- Social Activities Committee: Josselyn Pena, Kelly McGill, Hunter Martinez and Bryan Cannon
Program Activities/Events

Stanford Immunology Seminar Series: The Stanford Immunology Program Seminar Series is held on Tuesdays at 4:30 pm. Nationally and internationally recognized speakers present research seminars to the Stanford Immunology community. Graduate students participate in extending invitations to speakers and in hosting speakers.

Science-in-Progress Talks (SIP): The SIP format features research presentations by both senior graduate students and postdoctoral fellows to the immunology community. The purpose of a Science-in-Progress talk is to gain more practice in presentation skills, to present your work to the immunology community, and to get useful feedback on both your presentation and your work. The SIP Talks begin in the Autumn quarter 2018 and will continue until the end of Summer quarter 2019.

Graduate Student Journal Club (Imm 305) is held on Tuesdays, 5:30-6:30 pm immediately after the Immunology Seminar Series. The purpose of a journal club presentation is to gain practice in oral presentation skills, and to learn to present and fairly critique a published paper in some area of immunology.

Stanford Immunology Summer Barbeque: The Summer Barbeque is held in late June or early July of each year in the MSOB Courtyard/lawn area. It is traditionally organized by First Year students and is attended by graduate students, post-docs, faculty and staff of Stanford Immunology.

Annual Immunology Scientific Conference: The Annual Scientific Conference is held on the California coast at the Asilomar Conference Center in Pacific Grove and is attended by students, staff, postdocs and program faculty of Stanford Immunology. Immunology graduate students are required to give one poster and one scientific presentation at Asilomar during their years in the Program.
Immunology Graduate Student Directory ‘18-‘19

First Years:

Julia Adamska    Rotating    jadamska@stanford.edu

Frank Buquicchio    Rotating    fbuquicc@stanford.edu

Lilit Grigoryan    Rotating    lilitg@stanford.edu

Naomi Haddock    Rotating    nhaddock@stanford.edu

Candace Liu    Rotating    cliu72@stanford.edu

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Joy Pai  Rotating  joypai@stanford.edu

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Second Years:

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Jack Silberstein
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Brenda Velasco
Shizuru bvelasco@stanford.edu
Third Years:

<table>
<thead>
<tr>
<th>Name</th>
<th>Mentor 1</th>
<th>Mentor 2</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justin Arredondo-Guerrero</td>
<td>Mackall/ Meyer</td>
<td></td>
<td><a href="mailto:juarredo@stanford.edu">juarredo@stanford.edu</a></td>
</tr>
<tr>
<td>Lawrence Bai</td>
<td>Habtezion/ Khatri</td>
<td></td>
<td><a href="mailto:lawrence.bai@stanford.edu">lawrence.bai@stanford.edu</a></td>
</tr>
<tr>
<td>Graham Barlow</td>
<td>Nolan/ Bollyky</td>
<td></td>
<td><a href="mailto:gbarlow@stanford.edu">gbarlow@stanford.edu</a></td>
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<tr>
<td>Kartik Bhamidipati</td>
<td>Robinson</td>
<td></td>
<td><a href="mailto:kbham@stanford.edu">kbham@stanford.edu</a></td>
</tr>
<tr>
<td>Rebeccah Brewer</td>
<td>Robinson</td>
<td></td>
<td><a href="mailto:rcbrewer@stanford.edu">rcbrewer@stanford.edu</a></td>
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<tr>
<td>Amy Fan</td>
<td>Majeti</td>
<td></td>
<td><a href="mailto:amyfan@stanford.edu">amyfan@stanford.edu</a></td>
</tr>
<tr>
<td>Caleb Glassman</td>
<td>Garcia</td>
<td></td>
<td><a href="mailto:cglassma@stanford.edu">cglassma@stanford.edu</a></td>
</tr>
</tbody>
</table>
PhD Program in Immunology

2018-2019 PhD Handbook

Erin McCaffrey  Angelo  erinmcc@stanford.edu

Aditya Rao  Khatri  adityamr@stanford.edu

Fourth Years:

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James Harden  Krams  jaharden@Stanford.edu

Geoffrey Ivison  Blish/Bendall  givison@stanford.edu

Miles Linde  Majeti  mlinde@stanford.edu
<table>
<thead>
<tr>
<th>Name</th>
<th>Advisor</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelly McGill</td>
<td>Utz/Khatri</td>
<td><a href="mailto:kmcgill@stanford.edu">kmcgill@stanford.edu</a></td>
</tr>
<tr>
<td>Julia McKechnie</td>
<td>Blish</td>
<td><a href="mailto:jmckluna@stanford.edu">jmckluna@stanford.edu</a></td>
</tr>
<tr>
<td>Payton Marshall</td>
<td>Bollyky</td>
<td><a href="mailto:pmarshal@stanford.edu">pmarshal@stanford.edu</a></td>
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<tr>
<td>Yoni Samuel Rubin</td>
<td>Habtezion/Robinson</td>
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<tr>
<td>Jia Toh</td>
<td>Martinez/Khatri</td>
<td><a href="mailto:jiayingt@stanford.edu">jiayingt@stanford.edu</a></td>
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<tr>
<td>Nora Vivanco Gonzalez</td>
<td>Palmer/Bendall</td>
<td><a href="mailto:nvivanco@stanford.edu">nvivanco@stanford.edu</a></td>
</tr>
<tr>
<td>Bryan Xie</td>
<td>Meyer/Negrin</td>
<td><a href="mailto:bryanxie@stanford.edu">bryanxie@stanford.edu</a></td>
</tr>
</tbody>
</table>
Fifth Years:

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Sixth Years:

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Jonathan Wosen  Mellins  jwosen@stanford.edu

**Seventh Years+:**

Ian Linde  Engleman  ilinde@stanford.edu

Cesar Lopez Angel  Davis  cjlopez@stanford.edu

Jared Honeycutt  Monack  jaredh@stanford.edu
The research interests of our faculty cover the major areas of modern immunology, including cellular immunology, molecular immunology, clinical immunology, structural immunology, and systems immunology. Research includes studies of the development and function of T- and B-lymphocytes, natural killer cells, regulatory T-cells, dendritic cells and the specific tissues and organs that contribute to host defenses. The program has a strong molecular component, and many of the laboratories have focused on key molecules in the induction and expression of immune responsiveness. These include the molecules encoded by the major histocompatibility complex, T cell receptors, immunoglobulins, costimulatory and accessory molecules, adhesion molecules, (including selectins and integrins), chemokines and chemoattractant receptors, and cytokines and their receptors. Studies in progress include analysis of gene regulation using microarrays and robotic sequencers and studies of the 3-dimensional structure of important immune system molecules by protein crystallography. A number of faculty are focusing on the cellular interactions involving cells of the immune system during their development, activation, and regulation, from the architecture of the "immunological synapses" to the specific receptors, molecular interactions, signaling cascades, and transcription factors involved. Another major strength of the program is the development and application of new tools and technologies available to immunologists that are well supported by key laboratories and core facilities available to the Immunology Program. These include the CyTOF Mass Cytometer, single cell analyses for antigen receptors and effector molecules, confocal microscopy for cell imaging, cDNA microarrays of both mouse and human genes for expression profiling, large scale antibody arrays for detection proteins, lipids and carbohydrates, MHC-peptide tetramers for identification of antigen specific T cells, and innovative computational and systems approaches to immunological problems. Important core facilities include the FACS Facility, the Protein and Nucleic Acid Facility, the Cell Imaging Facility, and the Human Immune Monitoring Core for state-of-the-art immune monitoring in clinical and translational studies.
Leveraging Stanford's strength in basic immunology, many Stanford Immunology faculty apply basic findings to clinical diseases, including autoimmune diseases such as type I diabetes mellitus, multiple sclerosis, lupus, and rheumatoid arthritis, infectious diseases, allergy, transplant rejection and tolerance, and cancer. Array methodologies for autoantibody detection in autoimmune patients and functional T-cell profiling in vaccine studies have also been pioneered at Stanford. Finally, Stanford Immunology faculty have demonstrated unanticipated roles for immune-derived cells and factors fields ranging from metabolism to neuroscience to aging, thereby opening new areas of investigation.

Immunology PhD Program Faculty are affiliated with the following departments, divisions, and institutes:

**Departments:**
- Biology
- Biochemistry
- Bioengineering
- Biomedical Data Science
- Biophysics
- Chemical and Systems Biology
- Chemistry
- Computer Science
- Developmental Biology
- Genetics
- Health Research and Policy – Biostatistics
- Infectious Diseases and Geographic Medicine
- Microbiology and Immunology
- Molecular and Cellular Physiology
- Neurology and Neurological Sciences
- Neurosurgery
- Otolaryngology
- Pathology
- Psychiatry and Behavioral Sciences
- Structural Biology
- Surgery
- Urology

**Department of Medicine/Divisions:**
- Blood and Bone Marrow Transplantation
- Cardiovascular Medicine
- Endocrinology, Gerontology and Metabolism
- Gastroenterology and Hepatology
Hematology
Nephrology
Oncology
Immunology and Rheumatology
Infectious Diseases
Pulmonary and Critical Care
Radiology

Department of Pediatrics/Divisions:
Human Gene Therapy
Immunology and Allergy
Infectious Diseases
Neonatology
Stem Cell and Regenerative Medicine
Systems Medicine

Institutes:
Stanford Cancer Institute
Institute of Immunity, Transplantation, and Infection
Stanford Institute for NeuroInnovation and Translational Neuroscience
Institute for Stem Cell Biology and Regenerative Medicine

Immunology Graduate Program Faculty Profiles and Contact Information

For more detailed information on each of the following faculty members, please visit their Stanford Community Academic Profile (http://med.stanford.edu/profiles/) or go to the faculty directory on the Immunology website (https://med.stanford.edu/immunol/faculty-2018-2019.html).

Our Immunology program faculty are UTL (University Tenure Line and on the Academic Council), NTL-R, (Non-Tenure Line, Research and on the Academic Council), or MCL (Medical Clinical Line and non-Academic Council). MCL faculty primarily have clinical responsibilities and may or may not be eligible to act as graduate student advisors. Students seeking to include MCL faculty as members of their theses committees must first obtain approval from the Director of the Graduate Program, Dr. Olivia Martinez.
<table>
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<tr>
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<th>Name</th>
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<th>Email</th>
<th>Research</th>
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<tr>
<td>X</td>
<td></td>
<td>Aghaeepour, Nima, PhD</td>
<td>Medicine/Anesthesiology</td>
<td><a href="mailto:naghaeep@stanford.edu">naghaeep@stanford.edu</a></td>
<td>Developing machine learning algorithms for analysis of immunological datasets to integrate them with other omics modalities and predict clinical outcomes</td>
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<tr>
<td>X</td>
<td>X</td>
<td>Alizadeh, Ash, MD, PhD</td>
<td>Medicine/Oncology</td>
<td><a href="mailto:arasha@stanford.edu">arasha@stanford.edu</a></td>
<td>Systems Immunology &amp; Oncogenomics of B-cell Lymphomas</td>
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<td>X</td>
<td></td>
<td>Altman, Russ, PhD</td>
<td>Bioengineering</td>
<td><a href="mailto:russ.altman@stanford.edu">russ.altman@stanford.edu</a></td>
<td>Computational technologies applied to molecular biology problems of medical relevance</td>
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<td>X</td>
<td></td>
<td>Andresson, Katrin, MD</td>
<td>Neurology</td>
<td><a href="mailto:kandreas@stanford.edu">kandreas@stanford.edu</a></td>
<td>Investigating the role that innate immune responses play in the initiation and progression of neurological diseases</td>
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<td>X</td>
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<td>Angelo, Robert Michael, MD, PhD</td>
<td>Pathology</td>
<td><a href="mailto:mangelo0@stanford.edu">mangelo0@stanford.edu</a></td>
<td>Multiplexed ion beam imaging (MIBI); cancer immunotherapies</td>
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<td>Bacchetta, Rosa, MD</td>
<td>Pediatrics (Stem Cell Transplantation)</td>
<td><a href="mailto:rosab@stanford.edu">rosab@stanford.edu</a></td>
<td>Understanding immune regulation in health and disease; Clinical manifestations, immune mechanisms, and curative treatments</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>Bendall, Sean, PhD</td>
<td>Pathology</td>
<td><a href="mailto:bendall@stanford.edu">bendall@stanford.edu</a></td>
<td>Human hematopoietic and immune hierarchies in human health and disease</td>
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<td>X</td>
<td></td>
<td>Blish, Catherine, MD, PhD</td>
<td>Medicine – Infectious Diseases</td>
<td><a href="mailto:cblish@stanford.edu">cblish@stanford.edu</a></td>
<td>Immunity to HIV and other viral pathogens; immune regulation during pregnancy</td>
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<td>Bertaina, Alice, MD, PhD</td>
<td>Pediatrics (Stem Cell Transplantation)</td>
<td><a href="mailto:aliceb1@stanford.edu">aliceb1@stanford.edu</a></td>
<td>Allogeneic HSCT in pediatric patients affected by hematological malignancies or nonmalignant disorders</td>
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<td>Bertozzi, Carolyn, PhD</td>
<td>Chemistry</td>
<td><a href="mailto:bertozzi@stanford.edu">bertozzi@stanford.edu</a></td>
<td>Profiling changes in cell surface glycosylation associated with cancer, inflammation and bacterial infection</td>
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<td>Bollyky, Paul, MD, PhD</td>
<td>Medicine – Infectious Diseases</td>
<td><a href="mailto:pbollyky@stanford.edu">pbollyky@stanford.edu</a></td>
<td>How the local tissue microenvironment contributes to immunity and immune regulation</td>
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<td>Boothroyd, John, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:jboothr@stanford.edu">jboothr@stanford.edu</a></td>
<td>How Toxoplasma manipulates the host's immune response and avoids clearance</td>
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<td>Boyd, Scott, MD, PhD</td>
<td>Pathology</td>
<td><a href="mailto:sboyd1@stanford.edu">sboyd1@stanford.edu</a></td>
<td>High-throughput characterization of B cells and T cells in immune disorders</td>
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<td>Butcher, Eugene, MD</td>
<td>Pathology</td>
<td>eb <a href="mailto:butcher@stanford.edu">butcher@stanford.edu</a></td>
<td>Cellular trafficking in lymphoid development, immune homeostasis, immunity and immunopathogenesis</td>
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<td>Kwok Fai Chan, Charles, PhD</td>
<td>Surgery (Plastic and Reconstructive Surgery)</td>
<td><a href="mailto:chazchan@stanford.edu">chazchan@stanford.edu</a></td>
<td>Cancer research, bone rejuvenation and skin ageing</td>
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<td>Chien, Yuehhsiu, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:chien@stanford.edu">chien@stanford.edu</a></td>
<td>Antigen recognition and function of lymphocytes in health and disease</td>
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<td>Chu, Gilbert, MD, PhD</td>
<td>Medicine/Oncology; Biochemistry</td>
<td><a href="mailto:chu@stanford.edu">chu@stanford.edu</a></td>
<td>Molecular basis for DNA repair by non-homologous end joining</td>
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<td>Cleary, Michael, MD</td>
<td>Pathology; Pediatrics</td>
<td><a href="mailto:mcleary@stanford.edu">mcleary@stanford.edu</a></td>
<td>The molecular pathogenesis of cancer</td>
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<td></td>
<td>Cochran, Jennifer, PhD</td>
<td>Bioengineering</td>
<td><a href="mailto:jennifer.cochran@stanford.edu">jennifer.cochran@stanford.edu</a></td>
<td>Using interdisciplinary approaches to develop new technologies for basic science and biomedical applications</td>
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<td>Crabtree, Gerald, PhD</td>
<td>Pathology (and HHMI) and Developmental Biology</td>
<td><a href="mailto:crabtree@stanford.edu">crabtree@stanford.edu</a></td>
<td>The interface of signaling and chromatin in lymphocyte development and function</td>
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<td>Czechowicz, Agnieszka, MD, PhD</td>
<td>Pediatrics (Stem Cell Transplantation )</td>
<td><a href="mailto:aneeshka@stanford.edu">aneeshka@stanford.edu</a></td>
<td>Understanding how hematopoietic stem cells interact with their microenvironment</td>
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<td>Davis, Mark M, PhD</td>
<td>Microbiology &amp; Immunology (and HHMI)</td>
<td><a href="mailto:mmdavis@stanford.edu">mmdavis@stanford.edu</a></td>
<td>Lymphocyte recognition and human immunology</td>
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<td>Davis, Ronald, PhD</td>
<td>Biochemistry</td>
<td><a href="mailto:rdavis@stanford.edu">rdavis@stanford.edu</a></td>
<td>Large-scale studies of relationship between immune repertoire, HLA &amp; diseases.</td>
</tr>
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<td>Engleman, Edgar, MD</td>
<td>Pathology; Medicine/Immunology and Rheumatology</td>
<td><a href="mailto:edgareng@stanford.edu">edgareng@stanford.edu</a></td>
<td>Immune mechanisms in pathogenesis and treatment of cancer and autoimmune disease</td>
</tr>
<tr>
<td>X</td>
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<td>Fathman, Garry, MD</td>
<td>Medicine/Immunology &amp; Rheumatology</td>
<td><a href="mailto:cfathman@stanford.edu">cfathman@stanford.edu</a></td>
<td>Studies of gene expression to identify biomarkers of risk, progression, and etiology in T1D</td>
</tr>
<tr>
<td>MCTI</td>
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<td>Felsher, Dean, MD, PhD</td>
<td>Medicine/Oncology; Pathology</td>
<td><a href="mailto:dfelsher@stanford.edu">dfelsher@stanford.edu</a></td>
<td>Immune regulation of tumorigenesis</td>
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<td>Fire, Andrew, PhD</td>
<td>Genetics</td>
<td><a href="mailto:afire@stanford.edu">afire@stanford.edu</a></td>
<td>Diversity of antibody and small RNA responses in infection and genome defense</td>
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<td>Galli, Stephen, MD</td>
<td>Pathology; Microbiology &amp; Immunology</td>
<td><a href="mailto:sgalli@stanford.edu">sgalli@stanford.edu</a></td>
<td>The development of mast cells and basophils, and their roles in health &amp; disease</td>
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<td>Garcia, K. Chris, PhD</td>
<td>Molecular and Cellular Physiology; Structural Biology</td>
<td><a href="mailto:kgarcia@stanford.edu">kgarcia@stanford.edu</a></td>
<td>Receptor signaling and structure</td>
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<td>Gentles, Andrew, PhD</td>
<td>Medicine (BMIR); Biomedical Data Science</td>
<td><a href="mailto:andrewg@stanford.edu">andrewg@stanford.edu</a></td>
<td>Computational systems biology of human disease.</td>
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<td>Goronzy, Jorg J, MD</td>
<td>Medicine/Immunology &amp; Rheumatology</td>
<td><a href="mailto:igoronzy@stanford.edu">igoronzy@stanford.edu</a></td>
<td>T cell homeostasis and function with age</td>
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<td>Greenleaf, William, PhD</td>
<td>Genetics</td>
<td><a href="mailto:wgp@stanford.edu">wgp@stanford.edu</a></td>
<td>Developing methods to probe both the structure and function of molecules encoded by the genome</td>
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<td>Habtezion, Aida, MD</td>
<td>Medicine/Gastroenterology and Hepatology</td>
<td><a href="mailto:aida.habtezion@stanford.edu">aida.habtezion@stanford.edu</a></td>
<td>Leukocyte recruitment and immune responses in diseases affecting digestive organs</td>
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<td>Han, May, MD</td>
<td>Neurology and Neurological Sciences</td>
<td><a href="mailto:mayhan@stanford.edu">mayhan@stanford.edu</a></td>
<td>Multiple sclerosis Neuromyelitis optica Autoimmune CNS disorders</td>
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<td>Herzenberg Leonore (Lee), D.Sci.</td>
<td>Genetics</td>
<td><a href="mailto:leehertz@stanford.edu">leehertz@stanford.edu</a></td>
<td>B-cell development, Ig rearrangement and repertoire analysis, T regulation of antibody responses, FACs</td>
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<td>Howitt, Michael</td>
<td>Pathology</td>
<td><a href="mailto:mhowitt@stanford.edu">mhowitt@stanford.edu</a></td>
<td>How intestinal microbes shape our immune system to promote both health and disease</td>
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<td>Idoyaga, Julia, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:jidoyaga@stanford.edu">jidoyaga@stanford.edu</a></td>
<td>Dendritic cells, immunobiology, and vaccine development</td>
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<td>Jagannathan, Pras, MD</td>
<td>Medicine/Infectious Diseases</td>
<td><a href="mailto:pras@stanford.edu">pras@stanford.edu</a></td>
<td>Translational immunology research focused on pathogen-specific cellular immune responses</td>
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<td>Jaiswal, Siddhartha, MD</td>
<td>Pathology</td>
<td><a href="mailto:sjaiswal@stanford.edu">sjaiswal@stanford.edu</a></td>
<td>Somatic Mutations in Aging</td>
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<td>Jardetzky, Theodore, PhD</td>
<td>Structural Biology, Biophysics</td>
<td><a href="mailto:tjardetz@stanford.edu">tjardetz@stanford.edu</a></td>
<td>Structures and mechanisms of macromolecular complexes important in viral pathogenesis, allergic hypersensitivities</td>
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<td>X</td>
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<td>Jones, Patricia, PhD</td>
<td>Biology</td>
<td><a href="mailto:patjones@stanford.edu">patjones@stanford.edu</a></td>
<td>Mechanisms regulating immune responses, especially innate immunity</td>
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<td>Khatri, Purvesh, PhD</td>
<td>Medicine/BMIR</td>
<td><a href="mailto:pkhatri@stanford.edu">pkhatri@stanford.edu</a></td>
<td>Translational bioinformatics approaches to translation medicine</td>
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<td>Kim, Peter, PhD</td>
<td>Biochemistry, ChEM-H</td>
<td><a href="mailto:kimpeter@stanford.edu">kimpeter@stanford.edu</a></td>
<td>Viral Membrane fusion and its inhibition</td>
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<td>Kirkegaard, Karla, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:karlak@stanford.edu">karlak@stanford.edu</a></td>
<td>Using SHAPE, ChIRP, other deep sequencing approaches to fathom pathogen-host interactions</td>
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<td>Kraams, Sheri, PhD</td>
<td>Surgery/Abdominal Transplantation</td>
<td><a href="mailto:smkrams@stanford.edu">smkrams@stanford.edu</a></td>
<td>Transplant Immunology, MicroRNAs, NK cell activation receptors</td>
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<td>Levy, Ron, MD</td>
<td>Medicine/Oncology</td>
<td><a href="mailto:levy@stanford.edu">levy@stanford.edu</a></td>
<td>The immune system and cancer</td>
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<td>Levy, Shoshana, PhD</td>
<td>Medicine/Oncology</td>
<td><a href="mailto:slevey@stanford.edu">slevey@stanford.edu</a></td>
<td>Role of the tetraspanin CD81 in the immune system and disease pathogenesis</td>
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<td>X</td>
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<td>Lewis, David B., MD</td>
<td>Pediatrics/Immunology and Allergy</td>
<td><a href="mailto:dblewis@stanford.edu">dblewis@stanford.edu</a></td>
<td>Identification and characterization of newly recent thymic emigrants or RTEs), and novel adjuvants for respiratory viruses</td>
</tr>
<tr>
<td>X</td>
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<td>Lewis, Richard, PhD</td>
<td>Molecular and Cellular Physiology</td>
<td><a href="mailto:rslewis@stanford.edu">rslewis@stanford.edu</a></td>
<td>Mechanisms and functions of store-operated calcium channels</td>
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<td>Li, Lingyin, PhD</td>
<td>Biochemistry, ChEM-H</td>
<td><a href="mailto:lingyinl@stanford.edu">lingyinl@stanford.edu</a></td>
<td>Innate immune signaling and cancer therapeutics</td>
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<td>Mackall, Crystal, MD</td>
<td>Pediatrics-Hematology/OncoLOGY</td>
<td><a href="mailto:cmackall@stanford.edu">cmackall@stanford.edu</a></td>
<td>Effectiveness of existing cancer immunotherapies and development of novel immunotherapies</td>
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<tr>
<td>X</td>
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<td>Maecker, Holden, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:maecker@stanford.edu">maecker@stanford.edu</a></td>
<td>Immune profiling: T cell response signatures to chronic pathogens and cancer</td>
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<td>X</td>
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<td>Majeti, Ravi, MD, PhD</td>
<td>Medicine/Hematology Institute for Stem Cell Biology and Regenerative Medicine</td>
<td><a href="mailto:rmajeti@stanford.edu">rmajeti@stanford.edu</a></td>
<td>Development of therapeutic antibodies directed against CD47 and/or additional protein markers present in much larger amounts on the external surface of the LSC compared to the</td>
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<td>Mallick, Parag, PhD</td>
<td>Radiology</td>
<td><a href="mailto:paragm@stanford.edu">paragm@stanford.edu</a></td>
<td>Translation of multi-omic discovery into precision diagnostics</td>
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<td>X</td>
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<td>Maltzman, Jonathan, MD, PhD</td>
<td>Medicine/Nephrology</td>
<td><a href="mailto:maltzman@stanford.edu">maltzman@stanford.edu</a></td>
<td>CD4+ memory T cell maintenance</td>
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<td>Martinez, Olivia, PhD</td>
<td>Surgery/Abdominal Transplant</td>
<td><a href="mailto:cmnm@stanford.edu">cmnm@stanford.edu</a></td>
<td>Transplant immunology; immune regulation in host-pathogen interactions and alloactivation</td>
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<td>Mellins, Elizabeth, MD</td>
<td>Pediatrics – Human Gene Therapy</td>
<td><a href="mailto:mellins@stanford.edu">mellins@stanford.edu</a></td>
<td>Regulation of immunity by MHC class II in health/disease</td>
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<td>Meyer, Everett, MD, PhD</td>
<td>Med/Bone Marrow Transplantation, MCL</td>
<td><a href="mailto:evmeyer@stanford.edu">evmeyer@stanford.edu</a></td>
<td>Bone marrow transplantation and immunotherapeutics</td>
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<td>Michie, Sara A., MD</td>
<td>Pathology</td>
<td><a href="mailto:smichie@stanford.edu">smichie@stanford.edu</a></td>
<td>Lymphocyte migration in autoimmune diseases</td>
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<td>Mignot, Emmanuel, MD</td>
<td>Psychiatry and Behavioral Sciences - Sleep Center</td>
<td><a href="mailto:mignot@stanford.edu">mignot@stanford.edu</a></td>
<td>Autoimmunity of the brain and narcolepsy</td>
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<td>Miklos, David, MD, PhD</td>
<td>Medicine/ Blood and Marrow Transplantation, MCL</td>
<td><a href="mailto:dmiklos@stanford.edu">dmiklos@stanford.edu</a></td>
<td>Hematopoietic cell transplantation and alloimmunity</td>
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<td>Monack, Denise, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:dmonack@stanford.edu">dmonack@stanford.edu</a></td>
<td>Co-evolution of immune systems and bacterial pathogen virulence strategies</td>
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<td>Montgomery, Stephen</td>
<td>Pathology/Geneetics</td>
<td><a href="mailto:smontgom@stanford.edu">smontgom@stanford.edu</a></td>
<td>Understanding the effects of genome variation on cellular phenotypes and</td>
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<td>Pediatrics – Immunology and Allergy, MCL</td>
<td><a href="mailto:knadeau@stanford.edu">knadeau@stanford.edu</a></td>
<td>Mechanisms of immune dysfunction in primary immune disease (PID), allergy, and asthma.</td>
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<td>Nayak, Jayakar, MD, PhD</td>
<td>Otolaryngology/Neurosurgery</td>
<td><a href="mailto:jnayak@stanford.edu">jnayak@stanford.edu</a></td>
<td>Upper Airway Stem Cell Biology</td>
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<td>Negrin, Robert, MD</td>
<td>Medicine/ Blood &amp; Marrow Transplantation</td>
<td><a href="mailto:negrs@stanford.edu">negrs@stanford.edu</a></td>
<td>Hematopoietic cell transplantation, immune regulation and cellular immunotherapy</td>
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<td>Newman, Aaron, PhD</td>
<td>Biomedical Data Science</td>
<td><a href="mailto:amnewman@stanford.edu">amnewman@stanford.edu</a></td>
<td>Studying the cellular organization of complex tissues, with a focus on determining the phenotypic diversity and clinical significance of tumor cell subsets</td>
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<td>Nicolls, Mark, MD</td>
<td>Medicine/ Pulmonary and Critical Care Medicine</td>
<td><a href="mailto:mnicolls@stanford.edu">mnicolls@stanford.edu</a></td>
<td>Lung immunology in pulmonary hypertension and transplantation.</td>
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<td>Nolan, Garry, PhD</td>
<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:gnolan@stanford.edu">gnolan@stanford.edu</a></td>
<td>Single cell proteomics and genomics of cancer, stem cells, &amp; autoimmunity</td>
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<td>Palmer, Theo, PhD</td>
<td>Neurosurgery</td>
<td><a href="mailto:tpalmer@stanford.edu">tpalmer@stanford.edu</a></td>
<td>Neural stem cells and inflammation</td>
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<td>Parham, Peter, PhD</td>
<td>Structural Biology; Microbiology &amp; Immunology</td>
<td><a href="mailto:peropa@stanford.edu">peropa@stanford.edu</a></td>
<td>Evolution of human immune system diversity</td>
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<td>Pulendran, Bali, PhD</td>
<td>Pathology/Microbiology &amp; Immunology</td>
<td><a href="mailto:bpulend@stanford.edu">bpulend@stanford.edu</a></td>
<td>Understanding the fundamental mechanisms by which DCs control innate and adaptive immune responses</td>
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<td>Quake, Stephen, PhD</td>
<td>Bioengineering</td>
<td><a href="mailto:quake@stanford.edu">quake@stanford.edu</a></td>
<td>Computational studies of integrated microfluidics and large scale biological automation in immunology</td>
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<td>Medicine/Immunology and Rheumatology</td>
<td><a href="mailto:wrobins@stanford.edu">wrobins@stanford.edu</a></td>
<td>Translational research in autoimmunity, with a focus on rheumatoid arthritis</td>
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<td>Roncarolo, Maria Grazia, MD</td>
<td>Pediatrics-Translational &amp; Regenerative Medicine</td>
<td><a href="mailto:mg1@stanford.edu">mg1@stanford.edu</a></td>
<td>Regulatory T cells and tolerance mechanisms in transplantation, allergy and other conditions</td>
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<td>Microbiology &amp; Immunology</td>
<td><a href="mailto:david.schneider@stanford.edu">david.schneider@stanford.edu</a></td>
<td>Balancing tolerance and resistance of infections</td>
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<td>Medicine/Blood and Marrow Transplantation</td>
<td><a href="mailto:jshizuru@stanford.edu">jshizuru@stanford.edu</a></td>
<td>Cellular and molecular basis of resistance to engraftment of transplanted allogeneic bone marrow (BM) cells</td>
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<td><a href="mailto:mpsnyder@stanford.edu">mpsnyder@stanford.edu</a></td>
<td>Large scale functional genomics and proteomics</td>
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<td><a href="mailto:raysobel@stanford.edu">raysobel@stanford.edu</a></td>
<td>Immunopathogenetic mechanisms in CNS diseases</td>
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<td>Steinman, Lawrence, MD</td>
<td>Neurology and Neurological Sciences; Pediatrics</td>
<td><a href="mailto:steinman@stanford.edu">steinman@stanford.edu</a></td>
<td>Genetic basis of autoimmune neural disease</td>
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<td>Strober, Samuel, MD</td>
<td>Medicine/Immunology and Rheumatology</td>
<td><a href="mailto:satrober@stanford.edu">satrober@stanford.edu</a></td>
<td>Immune tolerance in transplantation and autoimmunity</td>
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<td>Sunwoo, John, MD, PhD</td>
<td>Otolaryngology</td>
<td><a href="mailto:johnsunwoo@stanford.edu">johnsunwoo@stanford.edu</a></td>
<td>Understanding how NK cells, in the broader context of the host immune system, protect against developing and metastasizing tumor cells</td>
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<td>Tibshirani, Robert, PhD</td>
<td>Health Research and Policy – Biostatistics</td>
<td><a href="mailto:robert.tibshirani@stanford.edu">robert.tibshirani@stanford.edu</a></td>
<td>Applied statistics and biostatistics in immunological research</td>
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<td>Utz, Paul (PJ), MD</td>
<td>Medicine/Immunology and Rheumatology</td>
<td><a href="mailto:pjutz@stanford.edu">pjutz@stanford.edu</a></td>
<td>Protein and peptide arrays, biomarkers, autoantibodies, and autoimmunity</td>
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<td>Wang, Taia, MD,PhD</td>
<td>Medicine (Infectious Diseases)</td>
<td><a href="mailto:taiawang@stanford.edu">taiawang@stanford.edu</a></td>
<td>IgG repertoire diversity is a central driver of heterogeneity in human immune functioning and susceptibility to diseases</td>
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<td>Weissman, Irving, MD</td>
<td>Institute of Stem Cell Biology and Regenerative Medicine, Developmental Biology, Biology; Pathology</td>
<td><a href="mailto:irv@stanford.edu">irv@stanford.edu</a></td>
<td>Stem cell biology and regenerative medicine</td>
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<td>Weyand, Cornelia, MD, PhD</td>
<td>Medicine/Immunology and Rheumatology</td>
<td><a href="mailto:cweyand@stanford.edu">cweyand@stanford.edu</a></td>
<td>Telomere biology and genomic stress in autoimmunity and inflammation</td>
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<td>Wu, Joseph, MD, PhD</td>
<td>Medicine/Radiology</td>
<td><a href="mailto:joewu@stanford.edu">joewu@stanford.edu</a></td>
<td>Stem cell biology -- ESC, iPSC, immunology</td>
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<td>X</td>
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<td>Wu, Joy, MD, PhD</td>
<td>Medicine – Endocrinology, Gerontology and Metabolism</td>
<td><a href="mailto:jywu1@stanford.edu">jywu1@stanford.edu</a></td>
<td>Mechanisms guiding the differentiation of mesenchymal stem cells, and how mesenchymal lineages support hematopoiesis in the bone marrow</td>
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</table>
Graduate Student Life

Vacation Policy

Students may have up to 4 weeks of vacation a year. First Year students must check with Dr. Olivia Martinez before making travel arrangements as taking vacation for more than four weeks will impact your degree progress. Second year and above students must have permission of their PI to take vacation. Students should plan their personal vacation carefully. It is not advised to travel during the quarter if you are taking courses. **First-year students should not plan vacation during the Rotation Presentations in June.**

Personal Support Services

Dr. Olivia Martinez is always available to discuss personal concerns of students, and to recommend further conversations with the Advising Deans and/or one of the organizations or services below.

Graduate Life Office (GLO)

[http://glo.stanford.edu/](http://glo.stanford.edu/); (650) 736-7078 for appointments; (650) 723-8222 Ext. 25085 for 24/7 crisis assistance

The Graduate Life Office (GLO), a unit in the Student Affairs division, is here for you as a source of comprehensive and impartial guidance and information about all aspects of life as a graduate student. We can help you with many personal, academic, and financial issues, or direct you to someone who can.
Counseling and Psychological Services (CAPS)

https://vaden.stanford.edu/caps-and-wellness/wellness-and-health-promotion-services ; (650)723-3785

https://mentalhealth.stanford.edu/

CAPS, located on the second floor of Vaden Health Center, offers, without charge, evaluations and brief counseling to any registered Stanford student who has paid the health fee, regardless of what insurance they have. Short-term counseling is defined as evaluation and treatment up to 10 visits a year. For couples’ counseling, only one person needs to be a registered student. Only students requesting or requiring longer, ongoing, psychotherapy incur fees. An initial assessment to determine whether medication is appropriate is free of charge; medication management is charged on a co-pay or fee for service basis.

Assistance is available for students experiencing personal problems or difficult situations while at Stanford, including stress, anxiety, depression, relationship distress, low self-esteem, procrastination, sexual concerns, sexual assault/harassment, or family problems. Emergency response is available 24/7. Workshops and groups to support student adjustment at Stanford and to help with personal and social difficulties that interfere with academic and social functioning are also offered. African American, Asian American, Chicano/Latino, and gay counselors are available upon request. Services are confidential. The School of Medicine is not informed about students using CAPS without the student’s explicit permission.

If longer-term treatment is indicated, it may be available through CAPS under certain circumstances or through community providers. The School of Medicine Financial Aid Office can assist students by helping to arrange for a special loan to meet the financial need for such treatment.

Students can be seen on an urgent basis the same day. A clinician is on-call 24 hours a day for emergencies and can be reached by calling (650) 723-3785; or, for sexual harassment and sexual assault counseling, (650) 725-9955.

Biosciences Peer Mentors (BioPeers)
The Biosciences Peer Mentors (BioPeers) provide free and private peer-to-peer support for the Biosciences graduate student community. BioPeers are graduate students in their second year or higher who have volunteered to help their peers cope with the feelings of stress, inadequacy, or uncertainty that are often experienced during graduate school. BioPeers are trained to provide nonjudgmental support through listening, informal counseling techniques, and campus and community referrals.

If you’d like to talk to a peer mentor, you can contact one of us directly via email, or use the Contact the BioPeers form.

Wellness and Health Promotion Services (HPS)

Stanford University has a Wellness Network, [https://biosciences.stanford.edu/current-students/resources/health-and-wellness-resources/](https://biosciences.stanford.edu/current-students/resources/health-and-wellness-resources/), that provides links to all university resources on wellness. Students with any issues relating to psychological and physical health can find links to resources for immediate or longer-term assistance.

HPS helps students to make informed, healthy decisions about their lifestyle and behavior through education and support. Areas of expertise include alcohol, tobacco, and other drug use; nutrition, weight management, body image and eating disorders, sexual assault and harassment; sexual health, relationships, intimacy, and gender issues.

Services include individual preventive counseling and resource referral, speakers, programs, events and workshops at student residences, community centers, student organizations, and for new students. HPS also trains student volunteers and sponsors a variety of health outreach projects and events. Most services are free. Please call (650) 723-0821 for further information.

University Ombudsperson
David Rasch, Stanford University Ombuds, Mariposa House, 585 Capistrano Way, Room 210 (650) 723-3682 rasch@stanford.edu http://www.stanford.edu/dept/ombuds/

The Ombudsperson’s task is to protect the interests and rights of members of the Stanford community from injustices or abuses of discretion, from gross inefficiency, from unnecessary delay and complication in the administration of University rules and regulations, and from inconsistency, unfairness, unresponsiveness, and prejudice in the individual's experience with University activities. The Ombudsperson’s office exists to receive, examine, and channel the complaints and grievances of members of the Stanford community, and to secure expeditious and impartial redress.

Any troublesome matter in the University community may be discussed in confidence with the University Ombuds. Services of the office are available to students, staff, and faculty. Although possessing no decision-making authority, the Ombuds has wide powers of inquiry. The Ombuds can refer matters to the proper person or office expeditiously and also provides conflict resolution services.

**The Bridge Peer Counseling Center**

581 Capistrano Way, (650) 723-3392 (24 hours a day), https://stanfordbridge.wordpress.com/

The Bridge is a group of trained student counselors providing free, confidential, 24-hour peer counseling services to Stanford and the neighboring community. As peer counselors, they are there to listen, to explore feelings or just to talk. Their goal is to help you to develop your own solutions to problems or uncertainties that you may be dealing with. All services are free and confidential.

During the academic year, The Bridge takes calls 24 hours a day by phone and is open for drop-in visitors from 9 a.m. to 12 a.m. midnight. The schedule may vary when classes are not in session.

**Disabilities: Office of Accessible Education (OAE)**
The Office of Accessible Education (OAE) is the campus office designated to work with Stanford students with disabilities, at both the undergraduate and graduate levels (including the professional schools).

https://oae.stanford.edu/students

The OAE provides a wide array of support services, accommodations, and programs to remove barriers to full participation in the life of the university.

Working collaboratively, the student and OAE staff members develop and implement an accommodation plan tailored to the student's disability-related needs. Accommodations include, but are not limited to:

- Note taking
- Oral or sign language interpretation
- Steno captioning
- Examination accommodations
- Modifications in course load
- Braille embossing
- Electronic text (e-text) Housing accommodations
- Students with disabilities for which they may need accommodations should call and register with the OAE as soon as possible by phoning the main office at (650) 723-1066.
- Each student bears the responsibility of initiating a disability-related request for accommodations with the OAE prior to the time such an accommodation is needed. In addition, it is the responsibility of the student to: as early as possible register with the OAE and submit documentation of disability as a prerequisite to receiving accommodation, and to notify the OAE immediately if an accommodation is not being provided correctly or in a timely fashion.

Stanford Access - Stanford Access offers complimentary curb-to-curb service to all eligible students, faculty, or staff with a disability or medical condition. For more information on hours of operation and how to arrange for on-campus rides, please visit our website:
https://transportation.stanford.edu/maps-resources-and-access/stanford-access
Schwab Learning Center - Through a generous endowment from Charles and Helen Schwab, the Schwab Learning Center (SLC) was established to provide Stanford students with Learning Disabilities and Attention Deficit Hyperactivity Disorder (ADHD) a supportive academic environment through enhanced programs and service. SLC programs and services are offered on both the main campus and at the Stanford School of Medicine. Among the services offered are:

- Consultation and referral for students with suspected learning differences
- One-on-one learning strategies
- Academic tutoring

Assistive Technology - The OAE provides trainings and screenings on a variety of assistive computer technologies and software applications. Screenings create an opportunity for students and the OAE staff to review and discuss various assistive technologies and software applications that may prove useful. Services include:

- One-on-one training for assistive technology and adaptive software
- Software for speech recognition, text-to-speech applications, screen readers and screen magnification. Alternative input devices such as specialized keyboards and mouse substitutes
- Whiteboards capture devices to enhance studying
- Ergonomic computer workstations
- Refreshable Braille display
- CCTV video magnifiers
- The Alternate Format Production Facility has the capacity to convert print text to electronic text (e-text), large print, or Braille using high-speed scanners, specialized software applications, and Braille embossers.

For more information, visit our website: https://oae.stanford.edu/assessment-training

Voice: (650) 723-1066
FAX: (650) 723-5301
Sexual Assault Resources

Vaden Health Center offers several services for students who experience sexual assault or relationship violence on or off campus. http://vaden.stanford.edu/sexual-assault. For a full listing of resources, please consult: https://notalone.stanford.edu/. For life-threatening emergencies call 911 or go to the nearest hospital. For non-emergency assistance call Stanford’s Sexual Assault Hotline 650-725-9955.

Health Care

While at Stanford, your health care resources include the following:

- Access to Vaden Health Center – All students can access Vaden Health Center services during their academic careers at Stanford. As a member of the Stanford campus community all services are geared to your well-being. Vaden Health Center services include primary care, counseling and psychological services, radiology, lab, pharmacy, physical therapy and nutrition.

- Insurance – You will need health insurance when accessing health care outside of Vaden. Examples of services that require health insurance are referrals to specialists, inpatient care, emergency care, and services while away from campus (such as when traveling within the US or internationally).

Cardinal Care is a comprehensive health plan specifically designed for Stanford students. Coverage is worldwide. It includes medical, surgical, mental health care, hospitalization, emergency care and pharmaceuticals. Cardinal Care is administered and insured by Health Net of California (for medical benefits) and MHN (for mental health benefits). The 2015-2016 Cardinal Care health plan offers dental coverage. You can learn more about Stanford Health Care at: https://vaden.stanford.edu/.

Note: After you defend and submit your thesis, you must inform the Vaden Health Center that you wish to cancel your health insurance for the
following quarter. If you do not do this, Vaden Health Center will automatically bill your student account and you will be expected to cover it. Please be sure to email healthinsurance@stanford.edu to inform them of your last quarter at Stanford.

**Student Organizations**

**Stanford Biosciences Association (SBSA)** is an organization created by graduate students enrolled in the Biosciences programs. SBSA organizes seminars, career fairs and other meetings that address areas of particular interest to graduate students. This student-led organization has sponsored presentations on employment opportunities and trends in academia as well as in business. SBSA hosts an array of social gatherings, from ski trips to barbeques – all designed to bring graduate students together in relaxed and informal surroundings.

**Biomedical Association in the Interest of Minority Students (BioAIMS)** is an organization that aims to provide a welcoming environment and a platform from which graduate students of multiple backgrounds and identities can share their unique perspectives and experiences. Furthermore, they work to promote student diversity at Stanford with particular emphasis on the recruitment, retention and well-being of underrepresented minorities (URMs) in the sciences. BioAIMS has organized retreats for team-building and networking (Biosciences and Genetics Diversity Retreat) and held events that allowed students to explore job opportunities in the public and private sectors with regard to policy (Diversifying Academia and Beyond Career Development Trip).

**Student Housing**

Graduate students live in various apartment communities:
- Escondido Village – Apartments on eastside of campus - largest graduate community on campus
- Escondido South – Townhouses
- Rains Houses – Apartments
- Munger Graduate Residences – Apartments – priority given to Law School students
• Off-campus subsidized – Apartment complexes in Menlo Park, Mountain View and Palo Alto.

Couples housing and housing for students with children is also available. Housing applications for Autumn Quarter are due in the spring prior. For information on student housing, please visit the Student Housing website: http://www.stanford.edu/dept/rde/cgi-bin/drupal/housing/.

Housing rents and fees will be deducted directly from a fellowship stipend at the beginning of every quarter. If you are paid bi-weekly and wish to deduct a monthly amount directly from your check, please contact the Student Services Center (Tressider) to set up this arrangement.

Career Advice
The School of Medicine Career Center provides critical support for the exploration of career options, development of professional skill sets, and connections to opportunities. For more information, please visit their website at: http://med.stanford.edu/careercenter/.

The Career Development Center, or CDC, is a division of Student Affairs supporting the career development of undergraduates and graduate students. Limited services are also available to student spouses and domestic partners. For more information, please visit their website at: http://studentaffairs.stanford.edu/cdc.