Award Number: DAMD17-00-2-0002

TITLE: Support for the Resident Research Associateship Program with the U.S. Army Medical Research and Materiel Command

PRINCIPAL INVESTIGATOR: Judith K. Nyquist, Ph.D.

CONTRACTING ORGANIZATION: National Research Council
Washington, DC 2001-2736

REPORT DATE: February 2006

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.
Support for the Resident Research Associateship Program with the U.S. Army Medical Research and Materiel Command
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>1</td>
</tr>
<tr>
<td>SF 298</td>
<td>2</td>
</tr>
<tr>
<td>Cover Letter</td>
<td>4</td>
</tr>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>Publicity</td>
<td>5</td>
</tr>
<tr>
<td>Requests</td>
<td>5</td>
</tr>
<tr>
<td>Body</td>
<td>6</td>
</tr>
<tr>
<td>Competition</td>
<td>6</td>
</tr>
<tr>
<td>Associates' Citizenship</td>
<td>6</td>
</tr>
<tr>
<td>Associates' Activities</td>
<td>7</td>
</tr>
<tr>
<td>Conclusions</td>
<td>8</td>
</tr>
<tr>
<td>Summary of Attachments</td>
<td>8</td>
</tr>
<tr>
<td>Attachment 1</td>
<td>9</td>
</tr>
<tr>
<td>Attachment 2</td>
<td>12</td>
</tr>
<tr>
<td>Attachment 3</td>
<td>17</td>
</tr>
<tr>
<td>Appendices</td>
<td>20</td>
</tr>
<tr>
<td>Associate Final Reports</td>
<td>20</td>
</tr>
</tbody>
</table>
Re: Contract No. DAMD17-00-2-0002 Technical Report

Dear Ms. Pawlus:

The enclosed technical report is to fulfill our contractual obligations for:

<table>
<thead>
<tr>
<th>Contract</th>
<th>DAMD17-00-2-0002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Center</td>
<td>3556</td>
</tr>
<tr>
<td>Title</td>
<td>U.S. Army Medical Research and Materiel Command Resident Research Associateship Program</td>
</tr>
</tbody>
</table>

The report covers the period January 24, 2005, through January 23, 2006. This report fulfills contractual requirements for technical reports. The original report and three copies are enclosed for your use.

Sincerely yours,

Judith K. Nyquist, Ph.D.
Deputy Director and Program Administrator

Enclosures

cc: Sina Bavari, Ph.D., USAMRIID Laboratory Program Representative
    Michael Dubick, Ph.D., USAISR Laboratory Program Representative
    Brennie E. Hackley, Jr., Ph.D., USAMRICD Laboratory Program Representative
    Christopher A. Joyce, USARIEM Laboratory Program Representative
    Jaques Reifman, Ph.D., CBCR Laboratory Program Representative
    Sara W. Rothman, Ph.D., WRAIR Laboratory Program Representative
    NAS OCG (letter)
    Laboratory Contract File (letter)
Publicity

The National Academies Research Associateship Programs for the reporting period were announced to the scientific community, beginning in the fall of the preceding year. Publicity materials describing the National Research Council-U.S. Army Medical Research and Materiel Command (AMRMC) Programs were distributed in November to presidents, graduate deans, and heads of appropriate science and engineering departments and minority-affairs offices of all academic degree-granting institutions in the United States. An e-mail announcement of the programs was sent to these same contact points prior to each review deadline. Promotional materials were sent to Laboratory Program Representatives, Associateship Advisers, and other interested persons. General advertisements of programs were placed in leading scientific and engineering publications. Publicity materials and other related information were made available on the internet. Research Associateship Programs staff attended numerous professional scientific and engineering meetings and minority recruitment events to promote the various programs and to meet with prospective applicants throughout the year.

Requests

Application materials were distributed in response to specific requests for information about the AMRMC Research Associateship Program or as a result of general requests by persons whose fields of specialization appeared to be appropriate for the research opportunities available in the AMRMC laboratories.
Competition

Panel reviews of applicants for the Research Associateship Programs, including those with the U.S. Army Medical Research and Materiel Command, are conducted four times each year. The following is a breakdown of the action taken with the applications to the U.S. Army Medical Research and Materiel Command during the reporting period.

<table>
<thead>
<tr>
<th>Mar review of Feb app-05</th>
<th>May review of June app-05</th>
<th>Sept review of Aug app-05</th>
<th>Jan review of Nov app-05</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL APPLICATIONS</td>
<td>5</td>
<td>13</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Number of Applications Not Reviewed</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Number of Applications Reviewed</td>
<td>3</td>
<td>10</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Awards offered &amp; accepted</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Applications not recommended (did not pass Review)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recommended/no lab funds available</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Recommended/pending further lab action</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Awards withdrawn by RAP (NRC officially withdrew award after it had been accepted.)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Associates' Citizenship

Associates on tenure between January 24, 2005, and January 23, 2006 were citizens of the following countries:

39 U.S. citizens
2 U.S. permanent residents
1 India
1 Russia

11 J-1 research scholars
2 Australia
1 Belarus
1 France
1 Ghana
2 Israel
1 New Zealand
1 People's Republic of China
2 Russia

0 J-1 short-term scholars
0 F-1 students
Associates’ Activities

Associates who ended tenure during the report period were on tenure for an average of 30 months, ranging from 10 months to 44 months.

Of the 14 Associates who ended tenure during the report period, 9 (64%) submitted final reports. In the final reports, Associates indicated the following scholarly activity while on tenure.

24 Articles published in peer-reviewed journals 18 International presentations
7 Patent applications 34 Domestic presentations
3 Awards

After ending their tenure, Associates indicated their future plans as follows:

0 Remain at host agency as perm. employee 1 Research/teaching-foreign college/university
3 Remain at host agency as contract employee 1 Research/admin in industry
0 Research position at other US gov’t. lab 1 Research/admin in non-profit organization
0 Administrative position at US gov’t. lab 1 Postdoctoral research
0 Research position at foreign gov’t. lab 0 Self employed
1 Research/teaching-US college/university 1 Other (may include unemployed)

In their final reports, Associates were asked to evaluate certain aspects of their experiences on a scale of 1 (low) to 10 (high). The average rating for each item follows:

9.3 Short-term value Development of knowledge, skills, and research productivity
9.6 Long-term value How your Research Associateship affected your career to date
--- Laboratory Support Equipment, funding, orientation, safety and health training, etc.
--- Adviser Mentoring Quality of mentoring from the Research Adviser
9.9 LPR Quality of administrative support from the LPR
9.6 NRC Quality of administrative support from the NRC

Advisers also were asked to complete an evaluation of the Associate. The following summarizes the Adviser evaluations for Associates ending tenure during the report period. Of the 14 Associates who ended tenure, 5 (36%) Adviser evaluations were completed. Assessments were made on six criteria using the following rating scale: 1-below average, 2-average, 3-above average, 4-good, and 5-outstanding/exceptional. The average rating for each item follows:

3.6 Knowledge of field 3.8 Independence
3.6 Innovative thinking 3.8 Motivation
4.0 Research techniques 3.8 Overall scientific ability

The Adviser was asked, “Would you like this Associate as a professional colleague?” The Advisers responded in the following manner:

4 Yes 1 No Comment
-- No -- No Answer
Additional information about the Associates’ activities can be found in the attachments described below and the Appendix.

Attachment 1: Associates who were on tenure between January 24, 3005, and January 23, 2006. Included are the Associate’s laboratory center/division location, the starting and termination dates, and the names of their advisers. For those Associates who ended tenure during the report period, it is noted if the final and adviser evaluation reports have been received. Associates are required to submit final reports upon termination of tenure, and advisers are asked to submit a final evaluation of each Associate. Associates who have not submitted a final report have received follow-up correspondence.

Attachment 2: All recommended candidates by category (e.g., Recommended, Accepted, No Funding, Declined, etc.). This report includes information about citizenship, the PhD institution, the title of proposed research, proposed or actual starting date, and adviser.

Attachment 3: Summaries of Associate patent activity, if any, and Associate research during tenure as reported on the Associates’ termination reports. The summary of patent activity includes the patent application title, inventor(s), and date of application.

Appendix: Final reports received from the Associates who ended tenure during the report period.
# Associates On Tenure


## U.S. Army Medical Research and Materiel Command

<table>
<thead>
<tr>
<th>Associate Name</th>
<th>Adviser</th>
<th>Center</th>
<th>Tenure Dates Start/End</th>
<th>Termination Report</th>
<th>Adviser Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allon, Nahum</td>
<td></td>
<td>Walter Reed Army Institute of Research</td>
<td>10/11/2005 - 10/10/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beitzel, Brett Forrest</td>
<td>Dr. Connie S. Schmaljohn</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>1/12/2004 - 1/11/2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bradfute, Steven Blake</td>
<td>Dr. Thomas W. Geisbert</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>2/16/2005 - 2/15/2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brittingham, Katherine Tracey Cecil</td>
<td>Dr. Sina Bavari</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>9/11/2003 - 9/10/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cashman, Kathleen Anne</td>
<td>Dr. Mary C. Guttieri</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/11/2005 - 7/10/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chen, Yue-Qin</td>
<td>Dr. Thomas H. Hudson</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>2/11/2003 - 6/10/2003 Received</td>
<td>Received</td>
<td></td>
</tr>
<tr>
<td>Cote, Christopher Kevin</td>
<td>Dr. Susan L. Welkos</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>4/29/2002 - 10/28/2005 Received</td>
<td>Received</td>
<td></td>
</tr>
<tr>
<td>Curtis, Kristopher Michael</td>
<td>Dr. Thomas W. Geisbert</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>8/15/2003 - 8/14/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dupuy, Lesley Conrad, Jr</td>
<td>Dr. Connie S. Schmaljohn</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>5/2/2003 - 5/1/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filippov, Andrei Alexandrovich</td>
<td>Dr. Luther E. Lindler</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>7/18/2005 - 7/17/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ghosh, Kashinath</td>
<td>Dr. Edgar D. Rowton</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>8/1/2005 - 7/31/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goff, Arthur James</td>
<td>Dr. Lisa E. Hensley</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>8/20/2004 - 8/19/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoard-Fruchey, Heidi Marie</td>
<td>Dr. Michael Adler</td>
<td>U.S. Army Medical Research Institute of Chemical Defense</td>
<td>7/19/2004 - 7/18/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jensen, Victoria Margaret</td>
<td>Dr. Jay W. Hooper</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/19/2004 - 7/18/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jung, Bruce John</td>
<td>Dr. Tsung-Ming A. Shih</td>
<td>U.S. Army Medical Research Institute of Chemical Defense</td>
<td>7/14/2003 - 1/6/2006 Not Recd</td>
<td>Not Recd</td>
<td></td>
</tr>
</tbody>
</table>

+ (S) indicates the associate was a Senior.

Highlighted entries indicate no inquiry on the Award Init Screen but data on the Post Tenure Screen.
# Associates On Tenure

**1/24/2005 - 1/23/2006**

## U.S. Army Medical Research and Materiel Command

<table>
<thead>
<tr>
<th>Associate Name+ Adviser</th>
<th>Center</th>
<th>Tenure Dates Start/End</th>
<th>Termination Report</th>
<th>Adviser Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silvestri, Lynn Shiels</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>9/7/2004 - 9/6/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Sina Bavari</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swanson, Katherine Irene</td>
<td>Walter Reed Army Institute of Research</td>
<td>11/21/2005 - 11/20/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Russell E. Coleman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swenson, Dana Linne</td>
<td>(S) U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>3/13/2002 - 11/12/2005 Received</td>
<td>Received</td>
<td></td>
</tr>
<tr>
<td>Dr. Sina Bavari</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Connie S. Schmaljohn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Bhupendra P. Doctor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warfield, Kelly Lyn</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>6/17/2002 - 9/29/2005 Received</td>
<td>Received</td>
<td></td>
</tr>
<tr>
<td>Dr. Sina Bavari</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson, Paul Anthony</td>
<td>Center for Biomedical Computations Research</td>
<td>12/1/2005 - 11/30/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Jaques Reisman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yershov, Andrey Lvovich</td>
<td>(S) U.S. Army Institute of Surgical Research</td>
<td>10/15/2001 - 4/12/2005 Not Recd</td>
<td>Not Recd</td>
<td></td>
</tr>
<tr>
<td>Dr. Michael A. Dubick</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zollner, Gabriela Elaine</td>
<td>Walter Reed Army Institute of Research</td>
<td>4/22/2002 - 2/21/2005 Received</td>
<td>Not Recd</td>
<td></td>
</tr>
<tr>
<td>Dr. James W. Jones</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

53 Associates Listed

+ (S) indicates the associate was a Senior.

Highlighted entries indicate no entry on the Award Init Screen but data on the Post Tenure Screen.

**U.S. Army Medical Research and Materiel Command**

<table>
<thead>
<tr>
<th>Associate Name+ Adviser</th>
<th>Center</th>
<th>Tenure Dates Start/End</th>
<th>Termination Report</th>
<th>Adviser Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. David E. Lanar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Alan L. Schmaljohn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keener, William Kelvin</td>
<td>(S) U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>10/1/2004 - 9/30/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Mark A. Poli</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Klas, Sheri Denet</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>12/6/2004 - 12/5/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Robert G. Ulrich</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Anthony E. Pasateri</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Alan L. Schmaljohn</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Gary A. Rockwood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader, Haim Nissan</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>11/4/2002 - 11/2/2005</td>
<td>Received</td>
<td>Received</td>
</tr>
<tr>
<td>Dr. Richard K. Gordon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Andrew J. Young</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minsavage, Gary Dominic</td>
<td>U.S. Army Medical Research Institute of Chemical Defense</td>
<td>9/1/2004 - 11/18/2005</td>
<td>Received</td>
<td>Received</td>
</tr>
<tr>
<td>Dr. James F. Dillman, III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. At J. Lin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Robert G. Ulrich</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nephew, Benjamin C.</td>
<td>U.S. Army Research Institute of Environmental Medicine</td>
<td>10/12/2004 - 8/26/2005</td>
<td>Received</td>
<td>Received</td>
</tr>
<tr>
<td>Dr. Lisa R. Leon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. David E. Lanar</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Donald P. Huddell</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O'Brien, David Kenneth</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/1/2003 - 6/30/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Arthur M. Friedlander</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson, Brooke</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/14/2003 - 7/13/2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Arthur M. Friedlander</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Thomas J. Balkin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Victor A. Convertino</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Thomas J. Balkin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharkey, Curtis Matthew</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/12/2004 - 6/30/2005</td>
<td>Not Recd</td>
<td>Not Recd</td>
</tr>
<tr>
<td>Dr. Sina Bavari</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shurtleff, Amy Christine</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>5/21/2002 - 5/20/2005</td>
<td>Received</td>
<td>Received</td>
</tr>
<tr>
<td>Dr. Mary C. Gutierrez</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

+ (S) indicates the associate was a Senior.

Highlighted entries indicate no entry on the Award Init Screen but data on the Post Tenure Screen.
# Recommended Candidates
U.S. Army Medical Research and Materiel Command

## February 2005

### Accepted Award (2 Applicants listed)

<table>
<thead>
<tr>
<th>Name</th>
<th>Citizenship</th>
<th>Adviser</th>
<th>Research Field</th>
<th>Research Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>KABA, STEPHEN A</td>
<td>Ghana</td>
<td>Dr. David E. Lanar</td>
<td>Immunology</td>
<td>Nanoparticle Displayed Peptides as Malaria Vaccines</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAYLOR, SHANNON L</td>
<td>United States</td>
<td>Dr. Connie S. Schmaljohn</td>
<td>Virology</td>
<td>Hemorrhagic Fever Viruses and Antagonism of the Interferon Pathway</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## May 2005

### Recommended

<table>
<thead>
<tr>
<th>Name</th>
<th>Citizenship</th>
<th>Adviser</th>
<th>Research Field</th>
<th>Research Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUERNAOUI, SOUAD</td>
<td>Morocco</td>
<td>Dr. Russell E. Coleman</td>
<td>Entomology Parasitology</td>
<td>Chorology and Molecular Characterization of Leishmania Parasites and their Vectors in Iraq and Afghanistan</td>
</tr>
</tbody>
</table>

### Accepted Award (7 Applicants listed)

<table>
<thead>
<tr>
<th>Name</th>
<th>Citizenship</th>
<th>Adviser</th>
<th>Research Field</th>
<th>Research Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLON, NAHUM</td>
<td>Israel</td>
<td>Dr. Bhupendra P. Doctor</td>
<td>Medical Biochemistry</td>
<td>Development of Liposome Base Gene Delivery System</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GHOSH, KASHINATH</td>
<td>United States</td>
<td>Dr. Edgar D. Rowton</td>
<td>Entomology Parasitology</td>
<td>Natural Flora of Phlebotomus Papatasi and its Possible Use in Paratransgenesis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JIRAGE, DAYADEVI B</td>
<td>India</td>
<td>Dr. Norman C. Waters</td>
<td>Molecular Biology</td>
<td>Elucidation of Mechanisms of Cell Cycle Control in the Malaria Parasite Plasmodium falciparum</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
May 2005

A- Accepted Award (7 Applicants listed)

KREMENEVSKIY, IGOR
Citizenship: Belarus
Adviser: Dr. Anthony E. Pusateri
Research Field: Experimental Medicine
Research Title: Effect of Activated Recombinant Factor VII (rFVIIa) Administration on Survival in Swine during Hypovolemic Shock and Uncontrolled Hemorrhage
Ph.D. Date: 2004
Belarus Unknown
Actual Starting Date: 9/06/05
Termination Date: 9/05/06

NOBLE, SCHROEDER M
Citizenship: United States
Adviser: Dr. Donald P. Huddler
Research Field: Biochemistry Biophysics
Research Title: Structural Studies of the HSP90 Molecular Chaperone for the Development of Novel Inhibitors
Ph.D. Date: 2005
U of North Carolina-Chapel Hill
Actual Starting Date: 10/04/05
Termination Date: 10/03/06

PICCHIONI, DANTE
Citizenship: United States
Adviser: Dr. Thomas J. Balkin
Research Field: Experimental Psychology
Research Title: Predicting Individual Differences in Response to Sleep Deprivation
Ph.D. Date: 2005
Univ of Southern Mississippi
Actual Starting Date: 7/05/05
Termination Date: 7/04/06

SWANSON, KATHERINE I
Citizenship: United States
Adviser: Dr. Russell E. Coleman
Research Field: Entomology
Research Title: Determination of Genetic Diversity of Phlebotomine Sand Flies and Leishmania Parasites in Iraq and Afghanistan
Ph.D. Date: 2005
Johns Hopkins University/MD
Actual Starting Date: 11/21/05
Termination Date: 11/20/06

W- Withdrew after Review/Recommend

RICHARDS, STEPHANIE L
Citizenship: United States
Adviser: Dr. Russell E. Coleman
Research Field: Entomology
Research Title: Spatial Analysis of Environmental Variables in Relation to the Distribution of Phlebotomine Sand Flies (Diptera: Psychodidae) Infected with 'Leishmania' in Iraq
Ph.D. Date: 2005
North Carolina State U-Raleigh

August 2005

Z- Recommended/No Funding

GRABKO, VLADIMIR I
Citizenship: Russia
Adviser: Dr. Wendell D. Zollinger
Research Field: Bacteriology Pub Health
Research Title: Expression of Recombinant Proteins of Neisseria Meningitis
Ph.D. Date: 1975
Inst Molecular Bio & Genetics/Ukr

Inst Molecular Bio & Genetics/Ukr
August 2005

1- Recommended (3 Applicants listed)

GOVINDARAJ, KRISHNAMURTHY
Citizenship: India
Adviser: Dr. George C. Tsokos
Research Field: Medicine
Research Title: Induction of Effective and Long-lasting Protective Immune Response to the Malaria Circumporozoite Protein
Ph.D. Date: 1997
All India I Med Sci

SPRING, MICHELE D
Citizenship: United States
Adviser: Dr. David E. Lanar
Research Field: Immunoparasitology
Research Title: Analysis of Immune Responses to Apical Membrane Antigen-1 (AMA-1) in Human
Ph.D. Date: 1999
Vanderbilt Univ-Sch of Med/TN

WEEKS, CHRISTINE M
Citizenship: United States
Adviser: Dr. George C. Tsokos
Research Field: Immunology
Research Title: Modulation of Gut Ischemia-Reperfusion Injury in Mice by Selective B-Lymphocyte Depletion with Anti-CD20 Monoclonal Antibody
Ph.D. Date: 2003
Harvard Univ Medical School/MA

A- Accepted Award (4 Applicants listed)

GLYNN, AUDREY R
Citizenship: United States
Adviser: Dr. Douglas S. Reed
Research Field: Immunology
Research Title: An In Vivo Non-Human Primate Model for Studying the Th1/Th2 Response of a Candidate Plague Vaccine
Ph.D. Date: 2005
Tulane University of Louisiana
Expected Starting Date: 7/02/06
Termination Date: 7/01/07

JONES, JULI E
Citizenship: United States
Adviser: Dr. Allen Cymerman
Research Field: Applied Biology
Research Title: Effect of Erythropoietin Administration on the Prevention of AMS and Cognitive Performance Deficits in Humans Ascending to High Altitude
Ph.D. Date: 2002
U of Massachusetts-Amherst
Actual Starting Date: 2/06/06
Termination Date: 2/05/07

RUPP, TRACY L
Citizenship: United States
Adviser: Dr. Thomas J. Balkin
Research Field: Fatigue
Research Title: Promotion of Rapid Performance Recovery Following Sleep Restriction
Ph.D. Date: 2005
Brown University/RI
Actual Starting Date: 1/23/06
Termination Date: 1/22/07
August 2005

1- Recommended (3 Applicants listed)

GOVINDARAJ, KRISHNAMURTHY  
Citizenship: India  
Adviser: Dr. George C. Tsokos  
Research Field: Medicine  
Research Title: Induction of Effective and Long-lasting Protective Immune Response to the Malaria Circumsporozoite Protein

SPRING, MICHELE D  
Citizenship: United States  
Adviser: Dr. David E. Lanar  
Research Field: Immunoparasitology  
Research Title: Analysis of Immune Responses to Apical Membrane Antigen-1 (AMA-1) in Human

WEEKS, CHRISTINE M  
Citizenship: United States  
Adviser: Dr. George C. Tsokos  
Research Field: Immunology  
Research Title: Modulation of Gut Ischemia-Reperfusion Injury in Mice by Selective B-Lymphocyte Depletion with Anti-CD20 Monoclonal Antibody

A- Accepted Award (4 Applicants listed)

GLYNN, AUDREY R  
Citizenship: United States  
Adviser: Dr. Douglas S. Reed  
Research Field: Immunology  
Research Title: An In Vivo Non-Human Primate Model for Studying the Th1/Th2 Response of a Candidate Plague Vaccine

JONES, JULI E  
Citizenship: United States  
Adviser: Dr. Allen Cymerman  
Research Field: Applied Biology  
Research Title: Effect of Erythropoietin Administration on the Prevention of AMS and Cognitive Performance Deficits in Humans Ascending to High Altitude

RUPP, TRACY L  
Citizenship: United States  
Adviser: Dr. Thomas J. Balkin  
Research Field: Fatigue  
Research Title: Promotion of Rapid Performance Recovery Following Sleep Restriction
August 2005

**A- Accepted Award** (4 Applicants listed)

WILSON, PAUL A  
Citizenship: United States  
Adviser: Dr. Jaques Reifman  
Research Field: Structural Biology  
Research Title: Development of Accurate and Scalable Algorithms for Genome-wide Protein Structure Prediction  
Ph.D. Date: 2004  
University of Montana  
Actual Starting Date: 12/01/05  
Termination Date: 11/30/06

November 2005

**1- Recommended** (3 Applicants listed)

DHAKED, RAM K  
Citizenship: India  
Adviser: Dr. Charles B. Millard  
Research Field: Biochemistry  
Research Title: Development of Novel Bifunctional Inhibitors Against Toxin Molecules for Biodefence  
Ph.D. Date: 2004  
Jiwaji University/India

NANDA, NAVREET K  
Citizenship: United States  
Adviser: Dr. Sina Bavari  
Research Field: Immunology  
Research Title: Role of HLA-DM in Host Susceptibility against Burkholderia mallei and Burkholderia pseudomallei  
Ph.D. Date: 1985  
All India I Med Sci

PERRONE, LUCY A  
Citizenship: United States  
Adviser: Dr. Lisa E. Hensley  
Research Field: Infectious Diseases  
Research Title: Investigating Mechanisms and Counter-measures of Coagulopathy During Marburg Virus Infection in Non-human Primates  
Ph.D. Date: 2006  
U of Texas, Medical Br-Galveston

**A- Accepted Award**

TOTH, STEPHEN I  
Citizenship: Australia  
Adviser: Dr. Syed A. Ahmed  
Research Field: Structural Biology  
Research Title: Structural Biology Study: Light Chain of Botulism Toxins  
Ph.D. Date: 1990  
University of Sydney/Australia  
Expected Starting Date: 3/13/06  
Termination Date: 3/12/07
Associate Patent Activity  
U.S. Army Medical Research and Materiel Command

**U.S. Army Medical Research and Materiel Command**

**Minsavage, Gary Dominic**  9/01/2004  11/18/2005

1  Patent Title: Novel reporter genes for toxicant screening

   Co-authors: Gary D. Minsavage and James F. Dillman  
   Date Applied For:  Date Approved For:

2  Patent Title: Caffeic acid phenethyl ester to alter bifunctional alkylating agent-induced signaling

   Co-authors: Gary D. Minsavage and James F. Dillman  
   Date Applied For:  Date Approved For:

3  Patent Title: TNFalpha family aptamers to inhibit TNFalpha-mediated signaling

   Co-authors: Gary D. Minsavage and James F. Dillman  
   Date Applied For:  Date Approved For:

**Swenson, Dana Linne**  3/13/2002  11/12/2005

1  Patent Title: Generation of virus-like particles and use as panfilovirus vaccine.

   Co-authors: Sina Bavari, M. Javad Aman, Alan L. Schmaljohn, Kelly L. Warfield, and Dana L. Swenson.  
   Date Applied For:  4/13/2005  Date Approved For:
Chen, Yue-Qin  2/11/2003  6/10/2005

1 Molecular mechanisms of sulfur mustard induced apoptosis: Figured out the molecular mechanisms of sulfur mustard vesicant-induced cell death. Based on the findings, a model of sulfur mustard-induced apoptosis was established.
2 Experimental therapeutics of anti sulphur mustard: 3-Deaza-aristeromycin (DZAr) was found to inhibit apoptosis of keratinocytes induced by sulfur mustard efficiently. The postulated mechanisms of DZAr inhibiting apoptosis were discussed.
3 Anti-malaria therapies: Molecular target for inhibit malaria protein mature: Cloned and characterized methionine aminopeptidase 2 (MetAP2) from mice Plasmodium berghei. MetAP2 is a good candidate for molecular target design of anti-malaria.
4 Probing the active site of a plasmodial cyclin dependent protein kinase: Elicit the effect of the mutations on Pmk1 activity, identify amino acids that are essential for activity and can be exploited for structure based drug design.
5 Identification of interacting proteins with plasmodial cyclin dependent kinases using a bacterial two-hybrid system: Hits from the screen have been found that most of them are involved in DNA replication, DNA repair, gene expression, and etc.

Cote, Christopher Kevin  4/29/2002  10/28/2005

1 Protective antigen (PA) was found to be associated with recently germinated spores, and the PA could not be attributed to spore purification procedures.
2 Macrophages were shown to be important for host survival of anthrax; fewer macrophages meant shorter survival time while additional macrophages augmented survival times.
3 Neither depleting or augmenting neutrophil populations significantly affected the outcome of a B. anthracis infection.
4 Neutrophils seem to have an indirect role in the host immune response to B. anthracis spores, whereas macrophages have a direct role (ie. killing or translocation of spores).
5 Spore coat proteins and proteins associated with spore germination were evaluated as potential vaccine candidates.

Leader, Haim Nissan  11/04/2002  11/02/2005

1 Focused on the design and the synthesis of affinity ligands-procainamide analogs for coupling to polyurethane prepolymer (toluene disocyanate).
2 Five psi-3-amino acid-procainamide ligands have been synthesized and were characterized for purity and structural elucidation by TLC and 1H and 13C NMR spectroscopy.
3 These spacer-ligand molecules were coupled through their free amino group to the polyurethane-prepolymer, which produced a cross-linked polyurethane matrix containing the affinity ligands.
4 To extend these observations, the suitability of the affinity sponge for another protein was proposed.

Minsavage, Gary Dominic  9/01/2004  11/18/2005

1 Proteomics approaches revealed soman-induced tyrosine phosphorylation changes within 30 minutes of exposure.
2 Proteomics approaches revealed HI-6/atropine-induced tyrosine phosphorylation changes within 30 minutes of exposure.
3 Bifunctional alkylating agents induce p53 and nonclassical nuclear factor-kappa B (NF-kB) signaling.
4 Bifunctional alkylating agent-induced signaling is inhibited by caffeic acid phenethyl ester.
5 A common mechanism of therapeutic action against bifunctional alkylating agent may be mediated through antioxidant/electrophilic response element signaling activated by Nrf2.
6 TNFalpha family aptamers inhibit TNFalpha-mediated NF-kB activity.

Nepew, Benjamin C.  10/12/2004  8/26/2005

1 Post-surgical growth in transient receptor potential vanilloid 1 (TRPV1) knockout mice does not differ from C57BL/6J wildtype mice.
2 TRPV1 receptor modulates Tc and activity following surgery.
3 TRPV1 mediates thermoregulatory responses to acute stressors such as cage change and cage switch.
4 TRPV1 mice accumulate a greater thermal load during heating than C57BL/6J wildtype mice due to an increase in ascending thermal area.
5 Despite accumulating a greater thermal load, there was no increased mortality in TRPV1 knockout mice compared to C57BL/6J wildtype controls.
Shurtleff, Amy Christine  5/21/2002  5/20/2005
1 Developed a naked DNA vaccine expressing Lassa virus glycoproteins.
2 Tested protective efficacy of DNA vaccine against Lassa fever in guinea pig infection model using gene gun vaccination.
3 Developed an infection model for Lassa virus in mice.
4 Collaborated with Viropharma, Inc. and SIGA Technologies to test novel compounds with effective antiviral properties.
5 Investigated the role of serum complement activation in Lassa virus infection.

Swenson, Dana Linne  3/13/2002  11/12/2005
1 Investigated the ability of virus-like particles (VLPs) to be used as vaccines for filoviral infections. Developed Ebola and Marburg VLP vaccines and showed efficacy in rodents and nonhuman primates.
2 Evaluated antisense compounds as a therapeutic for filoviral infections in vitro and in vivo. Showed efficacy of antisense compounds in rodents and nonhuman primates.

1 Investigated the ability of virus-like particles (VLPs) to be used as vaccines for filoviral infections. Developed Ebola and Marburg VLP vaccines and showed efficacy in rodents and nonhuman primates.
2 Evaluated antisense compounds as a therapeutic for filoviral infections in vitro and in vivo. Showed efficacy of antisense compounds in rodents and nonhuman primates.

Zollner, Gabriela Elaine  4/22/2002  2/21/2005
1 The first-generation (F1) progeny of wild-caught anophelines (from cow-baited traps) feed more readily when allowed to feed directly on human skin compared to feeding on human blood that has been placed in a membrane feeding system.
2 Following indirect membrane or direct mosquito feedings, gametocytemic patients are less infective to wild-caught mosquitoes than lab-colonized mosquitoes. The intensity of P. vivax (Pv) infection is unrelated to starting patient gametocytaemia.
3 Immunofluorescent staining of Pv sexual stage parasites using anti-Pvs25 mAb is more effective than direct hemacytometer counts and Giemsa staining to determine absolute densities of ookinetes.
4 The development of mature Pv ookinetes in the midguts of lab-colonized An. dirus, An. sawad, and An. minimus mosquitoes is asynchronous. Overall, parasite populations incur a 40-fold loss in abundance from the gametocyte to the oocyst lifestages.
5 Following membrane feeding with natural Pv isolates, the invasion of sporozoites into the salivary glands of An. dirus and An. minimus mosquito is highly efficient (approx. 75% and 60%, respectively).
Research Associateship Programs

FINAL REPORT

Print Layout View

Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name
   Chen
2) FORWARDING Address (to which your tax statement will be mailed)
   Res. or Inst. Biotechnology Research Center,
   Zhongshan University
   Street Rd Xingang West 135
   City, State Zip Guangzhou, Guangdong 510275, P.R.China
3) Today's Date
   June 4, 2005
4) Agency
   AMRMC
   Laboratory or NASA Center
   WRAIR
5) Name of Research Associateship Programs Adviser
   Thomas H. Hudson
6) TITLE OF RESEARCH PROPOSAL
   (1) Expression and Regulation of Genes involved in Apoptosis by Sulfur Mustard and 2-chloroethyethyl
   (2) Elicit the mechanisms of cell cycle control within the malaria parasite Plasmodium falciparum
7) SUMMARY OF RESEARCH DURING TENURE
   Itemize significant findings in concise form, utilizing key concepts/words.
   1) Molecular mechanisms of sulfur mustard induced apoptosis:
      Figured out the molecular mechanisms of sulfur mustard vesicant-induced cell death. Based on the findings, a model of
      sulphur mustard-induced apoptosis was established.
   2) Experimental therapeutics of anti sulphur mustard:
      3-Deaza-aristeromycin (DZAri) was found to inhibit apoptosis of keratinocytes induced by sulfur mustard efficiently. The
      postulated mechanisms of DZAri inhibiting apoptosis were discussed.
   3) Anti-malaria therapeutics: Molecular target for inhibit malaria protein mature:
      Cloned and characterized methionine aminopeptidase 2 (MetAP2) from mice Plasmodium berghei. MetAP2 is a good
      candidate for molecular target design of anti-malaria.
   4) Probing the active site of a plasmodial cyclin dependent protein kinase: elicit the effect of the mutations on Pfmrk activity,
      identify amino acids that are essential for activity and can be exploited for structure based drug design.
   5) Identification of interacting proteins with plasmodial cyclin dependent kinases using a bacterial two-hybrid system:
      Hits from the screen have been found that most of them are involved in DNA replication, DNA repair, gene expression, and etc.
8) RESEARCH IN PROGRESS
   Describe in no more than 100 words.
   During current tenue, we have developed a bacterial Two-Hybrid system to identify the endogenous substrate of Pfmrk from
   the malaria parasite. From this screen, we have identified several proteins involved in DNA replication and cell cycle control
   that interact with Pfmrk. These proteins include Histone H1, Replication Licensing factor (RLF), and Replication Factor C-5
   (RF-C5). All of these proteins have been shown to interact with CDKs in other eukaryotic cells which support our
   identification of true protein-protein interactions conserved in the malaria parasite.
   The work in progress id to characterize those interactions with the plasmodial CDKs in an effort to support our
   identification of true protein-protein interactions in the malaria parasite.
9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
   Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.
a) Publications in peer-reviewed journals

b) Books, book chapters, other publications

c) Manuscripts in preparation, manuscripts submitted
   1. Sulfur mustard triggers apoptosis via activation of CDC42-MAPK pathway
      (submitted)
   2. Probing the active site of a plasmodial cyclin dependent protein kinase: the role of key amino acids in substrate and inhibitor binding
      (submitted)
   3. Prophylactic Protection by 3-Deaza-aristeromycin (DZAr) against Apoptosis Induced by Sulfur Mustard in Human Keratinocytes
      (In preparation)

10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
    Provide titles, inventors, and dates of applications.

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
    Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International
   1. Norman C. Waters, Michelle Chen, Jeanne Geyer, Sean T. Prigge
      Probing the active site of a plasmodial cyclin dependent protein kinase: The role of key amino acids in substrate and inhibitor binding
      2004 International Molecular Parasitology Meeting XV, September 19-23, 2004, Woods Hole, USA (Poster)

   2. Norman C. Waters, April K. Kathcart, Edison A. Cortes, Richard A. Dennull, Apurba K. Bhattacharjee, Sean T. Prigge, Yueqin (Michelle) Chen
      Rational inhibitor design of Plasmodial Cyclin dependent protein kinase (CDKs)
      2005 Key stone Symposia on Drugs Against Protozoan Parasites: Target Selection, Structural Biology and Medicinal Chemistry
      Colorado USA, April 9-13 (Poster)

Domestic
      3-Deaza-aristeromycin (DZAr) Abrogates Apoptosis Induced by Sulfur Mustard in Human Keratinocytes
      Joint Scientific Conference on Chemical & Biological Defense Research, Towson, MD, Nov. 17-20, 2003. (Oral presentation and Poster)

   2. Yueqin(Michelle) Chen, Diana Caridha, Peter K. Chiang, William J. Smith, and Peng Zhang
      Molecular mechanisms of sulfur mustard vesicant-induced cell death: early and late cell Response
      Joint Scientific Conference on Chemical & Biological Defense Research, Towson, MD, Nov. 17-20, 2003. (Oral presentation and Poster)

   3. Yueqin(Michelle) Chen, Norman C. Waters
      Identification of interacting proteins with plasmodial cyclin dependent kinases using a bacterial two-hybrid system.
      53rd Annual Meeting of American Society of Tropical Medicine and Hygiene
      November 7 - 11, 2004, Miami, Florida USA

12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE
14) **POST-TENURE POSITION TITLE**

Professor in Molecular Biology

15) **POST-TENURE ORGANIZATION** Provide name and address of organization.

Biotechnology Research Center, Zhongshan University, Guangzhou, 510275, P.R.China

16) **POST-TENURE POSITION STATUS / CATEGORY** Please indicate only one.

- [ ] Remain at Host Agency as Permanent Employee
- [ ] Remain at Host Agency as Contract/Temporary Employee
- [ ] Research Position at Another US Government Laboratory
- [ ] Administrative Position at US Government Laboratory
- [ ] Research Position at Foreign Government Laboratory
- [ ] Other: specify _____

- [ ] Research/Teaching at US College/University
- [ ] Research/Teaching at Foreign College/University
- [x] Research/Administration in Industry
- [ ] Research/Administration in Non-Profit Organization
- [ ] Postdoctoral Research
- [ ] Self Employed

17) **APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM** Please rate each of the following on a scale of 1 (poor) to 10 (excellent).

**Your experience as a National Academies Research Associate in this federal Laboratory**

- **2** Short-term value: development of knowledge, skills, and research productivity
  
  Comments:

- **2** Long-term value: how the National Academies Associateship award affected your career to date
  
  Comments:
  I have learned a great deal about career developer and I am certain that the skills I have acquired will be of value throughout my career.

**Administrative Support**

- **10** Quality of the support you received from the federal Laboratory

- **10** Quality of the support you received from the on-site and off-site Research Associateship Programs' representatives
  
  (Leave blank, if not applicable - e.g., NIST)

  
  Comments on both/either:

18) **PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.**
THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Research Associateship Programs

FINAL REPORT
Print Layout View

Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name  First Name  M.I.
Cote  Christopher  K
2) FORWARDING Address (to which your tax statement will be mailed)
Res. or Inst. Chris Cote
Street 1598 Dockside Drive
City, State Zip Frederick, MD 21701

3) Today's Date
October 4, 2005

4) Agency  Laboratory or NASA Center  Division / Branch / Directorate
AMRMC  USAMRIID  Bacteriology Division

5) Name of Research Associateship Programs Adviser
Susan L. Welkos

6) TITLE OF RESEARCH PROPOSAL
The roles of macrophages and neutrophils in the early host response to infection with Bacillus anthracis spores

7) SUMMARY OF RESEARCH DURING TENURE
Itemize significant findings in concise form, utilizing key concepts/words.

1) Protective antigen (PA) was found to be associated with recently germinated spores, and the PA could not be attributed to spore purification procedures

2) Macrophages were shown to be important for host survival of anthrax; fewer macrophages meant shorter survival time while additional macrophages augmented survival times

3) Neither depleting or augmenting neutrophil populations significantly affected the outcome of a B. anthracis infection

4) Neutrophils seem to have an indirect role in the host immune response to B. anthracis spores, whereas macrophages have a direct role (i.e. killing or translocation of spores)

5) Spore coat proteins and proteins associated with spore germination were evaluated as potential vaccine candidates

8) RESEARCH IN PROGRESS
Describe in no more than 100 words.

Continue to examine host phagocyte-B. anthracis spore interactions in vivo

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals


b) Books, book chapters, other publications

c) Manuscripts in preparation, manuscripts submitted

Cote, C. K., N. van Rooijen, and S. L. Welkos. The roles of macrophages and neutrophils in the early host response to Bacillus anthracis spores in a mouse model of infection. Manuscript IN PRESS INfection and Immunity.


10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR Conferences
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International


Domestic


12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES
Include dates, names and locations of seminars.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE
Outstanding poster presentations at the Fort Detrick Spring Research Festival (2003 and 2004)
USAMRRIID Award of Safety Excellence, 2005
14) POST-TENURE POSITION TITLE
Microbiologist

15) POST-TENURE ORGANIZATION Provide name and address of organization.
USAMRIID, Bacteriology Division

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.
☐ Remain at Host Agency as Permanent Employee
☒ Remain at Host Agency as Contract/Temporary Employee
Abbreviate Host Laboratory/Center RIIID
☐ Research Position at Another US Government Laboratory
☐ Administrative Position at US Government Laboratory
☐ Research Position at Foreign Government Laboratory
☐ Research/Teaching at US College/University
☐ Research/Teaching at Foreign College/University
☐ Research/Administration in Industry
☐ Research/Administration in Non-Profit Organization
☐ Postdoctoral Research
☐ Self Employed
☐ Other: specify __________

17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM
On a scale of 1 – 10 (poor - excellent), please rate the following:

SHORT TERM VALUE
10 Development of knowledge, skills, and research productivity
Comments

LONG TERM VALUE
10 How the National Academies Associateship award affected your career to date
Comments

LAB SUPPORT
10 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments

ADVISER SUPPORT
10 Quality of mentoring from the Adviser
Comments

LPR SUPPORT
10 Quality administrative support from the LPR
Comments

NRC SUPPORT
10 Quality of administrative support from the NRC
Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Research Associateship Programs

FINAL REPORT
Print Layout View

Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name
   Leader

2) FORWARDING Address (to which your-tax statement will be mailed)
   Haim
   FORWARDING Phone(s) and E-Mail (if known)
   Home Phone: 972-3-6449253
   Alt. Phone: E-mail: haimleader@hotmail.com

3) Today's Date
   Dates of Tenure
   from November 4, 2002 to November 2, 2005

4) Agency
   Laboratory or NASA Center
   Division / Branch / Directorate
   AMRMC WRAIR Biochemistry

5) Name of Research Associateship Programs Adviser
   Richrd K. Gordon

6) TITLE OF RESEARCH PROPOSAL
   Purification of Proteins with Macroaffinity Ligands Sponges (Polyurethane impregnated Ligands)

7) SUMMARY OF RESEARCH DURING TENURE
   It must be possible to present important findings in concise form, utilizing key concepts/words.

   1) The first part of the project focused on the design and the synthesis of affinity ligands-procainamide analogues for coupling to a polyurethane prepolymer (toluene diisocyanate). These ligands consist of 3 parts: (a) terminal free NH₂ group to which coupling to the sponge prepolymer would occur; (b) hydrocarbon chain from 6 to 12 carbon length, to permit sufficient distance between the sponge and the active ligand end to spacially interact with the ChE active site and (c) an affinity ligand molecule (like procainamide in the case of ChEs) at the other end of the molecule.

   2) Five ω-amino acid-procainamide ligands have been synthesized and were characterized for purity and structural elucidation by TLC and ¹H and ¹³C NMR spectroscopy.

   3) These spacers-ligand molecules were coupled through their free amino group to the polyurethane-prepolymer, which produced a cross-linked polyurethane matrix containing the affinity ligands. The data obtained indicates that the optimal hydrocarbon chains for the affinity ligand procainamide polyurethane prepolymer is C₇ to C₁₁ and the C₁₀ and C₁₁ were the most effective ligands to bind the ChEs. Thus we have demonstrated the importance of chain length for high binding capacity of AChE.

   4) To extend these observations I proposed to demonstrate the suitability of the affinity sponge for another protein. We set out to replace the procainamide with a pseudotripeptide, a selective and very potent botulinum toxin inhibitor (1). (see structure below):

   ![Structure of the pseudotripeptide](image-url)
5) The synthesis of the pseudotripeptide is very complex one and was based on four major steps; (a) synthesis of the key intermediate synthon 16; (b) synthesis of the pseudodipeptide 17; (c) coupling of the synthon 16 with the dipeptide 17 to get the protected pseudotripeptide 18; (d) deprotecting 18 using liquid HF to get the final un unprotected pseudotripeptide (see scheme and structures below):

Synthesis of Synthon 16

(a) nBuLi 2.5 M/hexane, THF, HMDS; (b) citric acid 10%, THF; (c) NEt3, (Boc)2O, DMF; (d) LiOH, LiBr, nBu4NBr, acetonitrile; (e) iBuOCOCl, NMM, THF; (f) diazomethane followed by silver benzoate, NEt3, methanol; (g) nBuLi 1.6 M/hexane, HMDS, THF then HMDS, 1-(4-methoxybenzyldisulfaryl)-2,4-dinitrobenzene; (h) bis(tributyltin) oxide, acetonitrile.

R₁=COOtBu  R₂=-(4-MeO)Bn  R₃=NHBOc  n=1
Unfortunately the hydrogen fluoride (HF) deprotection step turned to be a very "unclean" reaction, leading to several side reaction products. We are facing some problems in the separation process in order to isolate and to purify the tripeptide. It seems that the only way to do it is by using semi preparative HPLC system combined with a LC/MS system, by which we will be able to validate the identity of the desired tripeptide. We are now in the phase of developing the appropriate analytical procedures by which we will be able to complete the goal of the project.

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals

b) Books, book chapters, other publications

c) Manuscripts in preparation, manuscripts submitted

10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International

Domestic

12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE

15) POST-TENURE ORGANIZATION Provide name and address of organization.

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.

☐ Remain at Host Agency as Permanent Employee
☐ Remain at Host Agency as Contract/Temporary Employee
☐ Research Position at Another US Government Laboratory
☐ Administrative Position at US Government Laboratory
☐ Research Position at Foreign Government Laboratory
☐ Research/Teaching at US College/University
☐ Research/Teaching at Foreign College/University
☐ Research/Administration in Industry
☐ Research/Administration in Non-Profit Organization
☐ Postdoctoral Research
☐ Self Employed
☐ Other: specify consultant
17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM
On a scale of 1 – 10 (poor - excellent), please rate the following:

SHORT TERM VALUE
9 Development of knowledge, skills, and research productivity
   Comments

LONG TERM VALUE
8 How the National Academies Associateship award affected your career to date
   Comments

LAB SUPPORT
10 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
   Comments

ADVISER SUPPORT
10 Quality of mentoring from the Adviser
   Comments

LPR SUPPORT
10 Quality administrative support from the LPR
   Comments

NRC SUPPORT
10 Quality of administrative support from the NRC
   Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

The program is a very successful idea. In order to improve it, one should think how to solve and overcome some of the administrative visa (J-1) barriers, although I’m aware of the security issues.
RETURN this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

Minsavage

2) FORWARDING Address to which your tax statement will be mailed

Res. or Inst.
Street 360 Taylor Ave. APT# 13-D
City, State Zip Easton, PA 18042

3) Today's Date
November 1, 2005

4) Agency Laboratory or NASA Center Division / Branch / Directorate
AMRMC Dillman Research Division/Cell and Mol Branch

5) Name of Research Associateship Programs Adviser
Dr. James F. Dillman, III

6) TITLE OF RESEARCH PROPOSAL
Proteomic analysis of phosphorylated proteins following exposure to organophosphorus nerve agents

7) SUMMARY OF RESEARCH DURING TENURE
Itemize significant findings in concise form, utilizing key concepts/words.

1) Proteomic approaches revealed soman-induced tyrosine phosphorylation changes within 30 min of exposure
2) Proteomics approaches revealed HI-6/atropine-induced tyrosine phosphorylation changes within 30 min after exposure
3) Bifunctional alkylating agents induce p53 and nonclassical nuclear factor-kappa B (NF-kB) signaling
4) Bifunctional alkylating agent-induced signaling is inhibited by caffeic acid phenethyl ester
5) A common mechanism of therapeutic action against bifunctional alkylating agent may be mediated through antioxidant/electrophilic response element signaling activated by Nrf2
6) TNalpha family aptamers inhibit TNalpha-mediated NF-kB activity

8) RESEARCH IN PROGRESS
Describe in no more than 100 words.
Maldi-TOF/TOF mass spectrometry will be utilized to identify soman- and HI-6/atropine-induced tyrosine phosphorylated proteins. This will contribute to identification of critical targets for development of therapeutics for OP-induced toxic responses. Molecular mechanisms of bifunctional alkylating agent- and therapeutic-induced p53, NF-kB and Nrf2 responses (utilizing novel reporter gene systems) will be further delineated to identify therapeutic targets. Aptamers will be further examined for there utility in development as medical countermeasures against chemical warfare agents and for their potential to be developed for toxicant-related “protein signature chips.”

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.
a) Publications in peer-reviewed journals
b) Books, book chapters, other publications
c) Manuscripts in preparation, manuscripts submitted
Minsavage, G.D. and Dillman, J.F. III (2005) Bifunctional alkylating agent-induced p53 and nonclassical nuclear factor-kappa B (NF-kB) responses are inhibited by caffeic acid phenethyl ester (CAPE) in human keratinocytes (submitted)
Excellent research environment (mentor, funding and equipment) that allowed tremendous productivity

LONG TERM VALUE
10 How the National Academies Associateship award affected your career to date

Comments
Acquired contacts and non-research skills that have helped my career greatly progress

LAB SUPPORT
10 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.

Comments
Outstanding support in the Dillman labs at USAMRICD

ADVISER SUPPORT
10 Quality of mentoring from the Adviser

Comments
Dr. Dillman has provided the highest quality of mentorship—allowing me to work independently while offering advice and help when requested or needed

LPR SUPPORT
5 Quality administrative support from the LPR

Comments
The administrative support from the LPR was of high quality (relatively little help was needed throughout my tenure)

NRC SUPPORT
10 Quality of administrative support from the NRC

Comments
The administrative support from everyone at the NRC was outstanding. Prompt and thorough. Thank you very much!!

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

Based on discussions with current graduate students, I would suggest that the NRC and each individual institution consider a stipend increase to match that offered to postdocs that work in academia. The stipend for an NRSA has risen over the past few years relatively dramatically. A similar increase for NRC stipends may maintain one of the competitive advantages of pursuing a NRC position.

US Postal Service mailing address
Research Associateship Programs
The National Academies
500 Fifth Street, NW [GR 322A]
Washington, DC 20001

THIS FORM SHOULD BE E-MAILED
directly to your NRC coordinator
website
www.national-academies.org/rap

Express Delivery address
Research Associateship Programs
The National Academies
2001 Wisconsin Avenue, NW [GR 322A]
Washington, DC 20007

n:\AO Forms
ID#

Research Associateship Programs
cc:
Rev. 05/2005
cost-center #
# FINAL REPORT

Print Layout View

Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

<table>
<thead>
<tr>
<th>1) Associate Last or Family Name</th>
<th>First Name</th>
<th>M.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephew</td>
<td>Benjamin</td>
<td>C.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2) FORWARDING Address (to which your tax statement will be mailed)</th>
<th>FORWARDING Phone(s) and E-Mail (if known)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res. or Inst.</td>
<td>Home Phone: 508-698-9636</td>
</tr>
<tr>
<td>Street 9 Putnam Rd. #8</td>
<td>Alt. Phone:</td>
</tr>
<tr>
<td>City, State Zip Foxboro, MA 02035</td>
<td>E-mail: <a href="mailto:bcnephew@aol.com">bcnephew@aol.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Today's Date</th>
<th>Dates of Tenure</th>
<th>from October 15, 2004 to August 26, 2005</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4) Agency</th>
<th>Laboratory or NASA Center</th>
<th>Division / Branch / Directorate</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMRMC</td>
<td>USARIEM</td>
<td>Thermal and Mountain Medicine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5) Name of Research Associateship Programs Adviser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa R. Leon, Ph.D.</td>
</tr>
</tbody>
</table>

6) **TITLE OF RESEARCH PROPOSAL**

   Mechanisms of Heat Stress Recovery in Mice

7) **SUMMARY OF RESEARCH DURING TENURE** Itemize significant findings in concise form, utilizing key concepts/words.

   1) Post-surgical growth in transient receptor potential vanilloid 1 (TRPV1) knockout mice does not differ from C57BL/6J wildtype mice.

   2) TRPV1 receptor modulates Tc and activity following surgery.

   3) TRPV1 mediates thermoregulatory responses to acute stressors such as cage change and cage switch.

   4) TRPV1 mice accumulate a greater thermal load during heating than C57BL/6J wildtype mice due to an increase in ascending thermal area.

   5) Despite accumulating a greater thermal load, there was no increased mortality in TRPV1 knockout mice compared to C57BL/6J wildtype controls.

8) **RESEARCH IN PROGRESS** Describe in no more than 100 words.

   The animal facility was shut down for construction in May following the TRPV1 knockout mouse studies, so further animal studies were not possible.

9) **PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH**

   Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

   a) Publications in peer-reviewed journals

   b) Books, book chapters, other publications

   c) Manuscripts in preparation, manuscripts submitted

   Enhanced Thermoregulatory Response to Heat Exposure in TRPV1 Knockout Mice

   B.C. Nephew and L.R. Leon

10) **PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH**

    Provide titles, inventors, and dates of applications.
11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

Domestic
Surgical recovery and circadian temperature and activity rhythms of transient receptor potential vanilloid 1 (TRPV 1) knockout mice
Nephew, B.C., and Leon, L.R.
Experimental Biology 2005, San Diego

12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE
Assistant Professor of Biology, Regis College

15) POST-TENURE ORGANIZATION Provide name and address of organization.
Regis College, Weston, MA 02493

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.
- [ ] Remain at Host Agency as Permanent Employee
- [ ] Remain at Host Agency as Contract/Temporary Employee
- [x] Research Position at Another US Government Laboratory
- [ ] Administrative Position at US Government Laboratory
- [ ] Research Position at Foreign Government Laboratory
- [x] Research/Teaching at US College/University
- [ ] Research/Teaching at Foreign College/University
- [ ] Research/Administration in Industry
- [ ] Research/Administration in Non-Profit Organization
- [ ] Postdoctoral Research
- [ ] Self Employed
- [ ] Other: specify ______

17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM
On a scale of 1 – 10 (poor - excellent), please rate the following:

SHORT TERM VALUE

[10] Development of knowledge, skills, and research productivity
Comments

LONG TERM VALUE

[9] How the National Academies Associateship award affected your career to date
Comments

LAB SUPPORT

[10] Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments

ADVISER SUPPORT

[9] Quality of mentoring from the Adviser
Comments

LPR SUPPORT

[9] Quality administrative support from the LPR
Comments

NRC SUPPORT

[9] Quality of administrative support from the NRC
Comments
Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name
Shurtleff

2) FORWARDING Address (for tax statement / final stipend check)
622 W. Wedgewood Way, Manteca, CA 95336

3) Today's Date
May 25, 2005

4) Agency
AMRMC
Laboratory or NASA Center

5) NAME OF RESEARCH ADVISER
Mary C. Guttieri, Ph.D.

6) TITLE OF RESEARCH PROPOSAL
Development of human monoclonal antibody therapy to Lassa Fever

7) SUMMARY OF RESEARCH DURING TENURE
Itemize significant findings in concise form, utilizing key concepts/words.

1) Developed a naked DNA vaccine expressing Lassa virus glycoproteins
2) Tested protective efficacy of DNA vaccine against Lassa fever in guinea pig infection model using gene gun vaccination
3) Developed an infection model for Lassa virus in mice
4) Collaborated with Viropharma, Inc. and SIGA Technologies to test novel compounds with effective antiviral properties
5) Investigated the role of serum complement activation in Lassa virus infection

8) RESEARCH IN PROGRESS
Describe in no more than 100 words.
The research projects sponsored by this fellowship have been devoted to the development and testing of potential vaccines, anti-viral drugs and/or anti-viral therapeutics against Lassa virus. A DNA vaccine has been developed and tested in guinea pigs and mice infected with Lassa virus, and a VSV vectored vaccine was also tested in non-human primates. Anti-viral compounds and peptides produced by some collaborators were tested for their ability to inactivate Lassa virus in vitro, and potentially effective drug candidates will be further tested in the guinea pig model for Lassa virus infection.

9) PUBLICATIONS AND PAPERS RESULTING FROM THE NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals

b) Books, book chapters, other publications


c) Manuscripts in preparation, manuscripts submitted


10 PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM THE NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International


Domestic


12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.

June 4, 2004 Approaches for Controlling Lassa Virus Infection: Analysis of a DNA vaccine and steps towards Immunotherapy. Given at the La Jolla Institute for Allergy and Immunology, La Jolla, CA.


13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

Threat Assessment Project Funded at USAMRIID (9/03-9/04) Granted by the Biothreat Assessment Support Center (BASC) at the National Biodefense Analysis and Countermeasures

14) POST-TENURE POSITION TITLE

Molecular Biologist, Vaccine Development

15) POST-TENURE ORGANIZATION Provide name and city of organization.

SRI International, Inc.
Menlo Park, CA

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.

[ ] Remain at Host Agency as Permanent Employee
[ ] Remain at Host Agency as Contract/Temporary Employee
[ ] Research Position at Another US Government Laboratory
[ ] Administrative Position at US Government Laboratory
[ ] Research Position at Foreign Government Laboratory
[ ] Research/Teaching at US College/University
[ ] Research/Teaching at Foreign College/University
[ ] Research/Administration in Industry
[ ] Research/Admin in Non-Profit Organization
[ ] Postdoctoral Research
[ ] Self Employed
[ ] Other: specify

17) APPRAISAL OF THE ASSOCIATESHIP PROGRAM Please rate each of the following

Your experience as a National Academies Research Associate in this federal Laboratory 1 (poor) to 10 (excellent)

10 Short-term value: development of knowledge, skills, and research productivity

Comments:

The research opportunities at USAMRIID were very productive and gave me room to develop collaborations.
\textbf{FINAL REPORT}

Print Layout View

Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name

Swenson

2) FORWARDING Address (to which your tax statement will be mailed)

Res. or Inst.
Street 8105 Stone Ridge Dr
City, State Zip Frederick, MD 21702

3) Today's Date

November 12, 2005

4) Agency

AMMRC

Laboratory or NASA Center

USAMRIID

5) Name of Research Associateship Programs Adviser

Sina Bavari

6) TITLE OF RESEARCH PROPOSAL

Study of vaccines and therapeutics for filoviral infections

7) SUMMARY OF RESEARCH DURING TENURE

Itemize significant findings in concise form, utilizing key concepts/words.

1) Investigated the ability of virus-like particles (VLPs) to be used as vaccines for filoviral infections. Developed Ebola and Marburg VLP vaccines and showed efficacy in rodents and nonhuman primates.

2) Evaluated antisense compounds as a therapeutic for filoviral infections in vitro and in vivo. Showed efficacy of antisense compounds in rodents and nonhuman primates.

3)

4)

5)

8) RESEARCH IN PROGRESS

Describe in no more than 100 words.

Studies are being performed with mixtures of eVLP and mVLP as a pan-filovirus vaccine in non-human primates. We will assess the ability of this vaccine to induce immune responses and to protect against diverse filovirus challenges of EBOV and MARV in the nonhuman primate model. Studies are also currently underway in mice and guinea pigs to assess and optimize the route and dose of antisense compounds to prevent or treat EBOV and MARV infections. Future studies will include assessing the most promising candidates in non-human primates.

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH

Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals


b) Books, book chapters, other publications

Invited reviews:


Book chapters:


c) Manuscripts in preparation, manuscripts submitted


10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH

Provide titles, inventors, and dates of applications.


11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES

Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International


Domestic


12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE

Microbiologist

15) POST-TENURE ORGANIZATION Provide name and address of organization.

USAMRIID, 1425 Porter Street, Fort Detrick, MD 21702

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.

☐ Remain at Host Agency as Permanent Employee
☒ Remain at Host Agency as Contract/Temporary Employee
☐ Research Position at Another US Government Laboratory
☐ Administrative Position at US Government Laboratory
☐ Research Position at Foreign Government Laboratory
☐ Research/Teaching at US College/University
☐ Research/Teaching at Foreign College/University
☐ Research/Administration in Industry
☐ Research/Administration in Non-Profit Organization
☐ Postdoctoral Research
☐ Self Employed
☐ Other: specify ______

17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM

On a scale of 1 - 10 (poor - excellent), please rate the following:

SHORT TERM VALUE

10 Development of knowledge, skills, and research productivity

Comments

LONG TERM VALUE

10 How the National Academies Associateship award affected your career to date

Comments

LAB SUPPORT

10 Quality of support--equipment, funding, orientation, safety and health guidelines, etc.

Comments

The infrastructure available at USAMRIID has allowed me to pursue many avenues of research that I may not have been able to investigate at other institutions

ADVISER SUPPORT

10 Quality of mentoring from the Adviser

Comments

Dr. Bavari recognized and acknowledged my previous experience and allowed me to pursue my research in an independent manner but was available for help and discussions as required. The perfect mentor for someone in my position.

LPR SUPPORT
18) **PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.**

<table>
<thead>
<tr>
<th>US Postal Service mailing address</th>
<th>THIS FORM SHOULD BE E-MAILED directly to your NRC coordinator website</th>
<th>Express Delivery address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Associateship Programs</td>
<td><a href="http://www.national-academies.org/rap">www.national-academies.org/rap</a></td>
<td>Research Associateship Programs</td>
</tr>
<tr>
<td>The National Academies</td>
<td></td>
<td>The National Academies</td>
</tr>
<tr>
<td>500 Fifth Street, NW [GR 322A]</td>
<td></td>
<td>2001 Wisconsin Avenue, NW [GR 322A]</td>
</tr>
<tr>
<td>Washington, DC 20001</td>
<td></td>
<td>Washington, DC 20007</td>
</tr>
</tbody>
</table>

n3AO Forms

ID#

cc: Research Associateship Programs

Rev. 08/2005
cost-center #
Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name

Warfield

2) FORWARDING Address (to which your tax statement will be mailed)

Res. or Inst.
Street 2640 Inwood Drive
City, State Zip Adamstown, MD 21710

3) Today's Date

30 Sep 05

4) Agency

Laboratory or NASA Center

AMRMC

5) Name of Research Associateship Programs Adviser

Sina Bavari

6) TITLE OF RESEARCH PROPOSAL

Study of vaccines and therapeutics for filoviruses

7) SUMMARY OF RESEARCH DURING TENURE

Itemize significant findings in concise form, utilizing key concepts/words.
1) Investigated the ability of virus-like particles (VLPs) to be used as vaccines for filoviral infections. Developed Ebola and Marburg VLP vaccines and showed efficacy in rodents and nonhuman primates.
2) Evaluated antisense compounds as a therapeutic for filoviral infections in vitro and in vivo. Showed efficacy of antisense compounds in rodents and nonhuman primates.
3)
4)
5)

8) RESEARCH IN PROGRESS

Describe in no more than 100 words.

Studies are being performed with mixtures of eVLP and mVLP used as a vaccine in non-human primates. We will assess the ability of this single vaccine to induce immune responses, determine if they are similar to the eVLP and mVLP, when administered alone, and finally we will determine the ability of the eVLP and mVLP pan-filovirus vaccine to protect against diverse filovirus challenges of EBOV and MARV in the nonhuman primate model. Studies are also currently underway in mice and guinea pigs to assess and optimize the route and dose of antisense compounds to prevent or treat EBOV and MARV infections. Future studies will include assessing the most promising candidates in non-human primates.

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH

Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals


b) Books, book chapters, other publications

Invited reviews:


Book chapters:


c) Manuscripts in preparation, manuscripts submitted


10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH

Provide titles, inventors, and dates of applications.


11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES

Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International


Domestic


12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES

include dates, names and locations of seminars.

2004 Lecturer for graduate level courses, George Mason and John Hopkins University

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE

Subject Matter Expert I
15) POST-TENURE ORGANIZATION  Provide name and address of organization.

USAMRIID, 1425 Porter Street, Fort Detrick, MD 21702

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.

☐ Remain at Host Agency as Permanent Employee
☒ Remain at Host Agency as Contract/Temporary Employee
Abbreviate Host Laboratory/Center RID
☐ Research Position at Another US Government Laboratory
☐ Administrative Position at US Government Laboratory
☐ Research Position at Foreign Government Laboratory

☐ Research/Teaching at US College/University
☐ Research/Teaching at Foreign College/University
☐ Research/Administration in Industry
☐ Research/Administration in Non-Profit Organization
☐ Postdoctoral Research
☐ Self-Employed
☐ Other: specify _______

17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM

On a scale of 1 – 10 (poor - excellent), please rate the following:

SHORT TERM VALUE
10 Development of knowledge, skills, and research productivity
Comments

LONG TERM VALUE
10 How the National Academies Associateship award affected your career to date
Comments

LAB SUPPORT
10 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments

ADVISER SUPPORT
10 Quality of mentoring from the Adviser
Comments

LPR SUPPORT
10 Quality administrative support from the LPR
Comments

NRC SUPPORT
10 Quality of administrative support from the NRC
Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT:

US Postal Service mailing address
Research Associateship Programs
The National Academies
500 Fifth Street, NW [GR 322A]
Washington, DC 20001

THIS FORM SHOULD BE E-MAILED directly to your NRC coordinator website www.national-academies.org/rap

Research Associateship Programs

Express Delivery address
Research Associateship Programs
The National Academies
2001 Wisconsin Avenue, NW [GR 322A]
Washington, DC 20007

Rev. 08/2005
cost-center #
Return this form directly to the National Academies as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name
Zollner

2) FORWARDING Address (to which your tax statement will be mailed)
USAMC-AFRIMS, APO AP 96546

3) Today's Date
February 17, 2005

4) Agency | Laboratory or NASA Center | Division / Branch / Directorate
AMRMC | USAMC | AFRIMS

5) Name of Research Associateship Programs Adviser
LTC James W. Jones, Ph.D.

6) TITLE OF RESEARCH PROPOSAL
Population dynamics of malaria sporogony in Thailand.

7) SUMMARY OF RESEARCH DURING TENURE
Itemize significant findings in concise form, utilizing key concepts/words.

1) The first-generation (F1) progeny of wild-caught anophelines (from cow-baited traps) feed more readily when allowed to feed directly on human skin compared to feeding on human blood that has been placed in a membrane feeding system.

2) Following indirect membrane or direct mosquito feedings, gametocytogenic patients are less infective to wild-caught mosquitoes than lab-colonized mosquitoes. The intensity of P. vivax (Pv) infection is unrelated to starting patient gametocytemia.

3) Immunofluorescent staining of Pv sexual stage parasites using anti-Pvs25 mAb is more effective than direct hemacytometer counts and Giemsa staining to determine absolute densities of ookinete.

4) The development of mature Pv ookinete in the midguts of lab-colonized An. dirus, An. sawad. and An. minimus mosquitoes is asynchronous. Overall, parasite populations incur a 40-fold loss in abundance from the gametocyte to the oocyst lifestages.

5) Following membrane feeding with natural Pv isolates, the invasion of sporozoites into the salivary glands of An. dirus and An. minimus mosquito is highly efficient (approx. 75% and 60%, respectively).

8) RESEARCH IN PROGRESS
Describe in no more than 100 words.

Studies to examined early P. vivax sporogonic development in wild-caught (vs. lab-colonized) mosquitoes will continue in Mae Sot (symptomatic malaria) and Kong Mong Tha (asymptomatic malaria).

Data analysis and publication of results relating to a large project, which aims to identify key host and mosquito factors that effect the transmission of falciparum and vivax malaria in western Thailand, are currently underway. A series of 5+ papers derived from this project will be published in 2005-06.

9) PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.

a) Publications in peer-reviewed journals


b) Books, book chapters, other publications
None
c) Manuscripts in preparation, manuscripts submitted


10 PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.

None

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International


Domestic


12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES
Include dates, names and locations of seminars.


• 2004. Malaria transmission in a remote village in western Thailand: An entomological perspective. National Institute of Allergy and Infectious Diseases, Rockville, MD.

• 2003. Malaria studies in Thailand. Biology Department, University of North Dakota, Grand Forks, ND.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE
None

14) POST-TENURE POSITION TITLE
Research Entomologist

15) POST-TENURE ORGANIZATION
Provide name and address of organization.

Department of Entomology, WRAIR, 503 Robert Grant Ave, Silver Spring, MD 20910

16) POST-TENURE POSITION STATUS / CATEGORY
Please indicate only one.
17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM

Please rate each of the following on a scale of 1 (poor) to 10 (excellent).

Your experience as a National Academies Research Associate in this federal Laboratory

Short-term value: development of knowledge, skills, and research productivity

Comments: During my tenure I developed many entomology, parasitology and molecular biology skills related to my project. I also acquired several skills (e.g. diplomacy and networking) whose importance I only began to realize later on. AFRIMS provided a highly productive research environment, but there were not many opportunities for intellectual discourse with AFRIMS staff.

Long-term value: how the National Academies Associateship award affected your career to date

Comments: My Associateship Award is a solid stepping stone to another exciting and challenging position as a Research Entomologist at WRAIR (Dept. of Entomology).

Administrative Support

Quality of the support you received from the federal Laboratory

Quality of the support you received from the Research Associateship Programs staff

(Leave blank, if not applicable – e.g., NIST)

Comments: At the beginning of my tenure at AFRIMS, the quality of support from RAP staff was hampered by a lack of information in processing administrative matters for NRC Associates based overseas. RAP support improved immensely once a system was in place.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

The NRC Associateship Program is invaluable for the career development of young postdocs. To ensure the continued success of the Program, it is important that NRC Associates work in an environment that is intellectually stimulating.

US Postal Service mailing address
Research Associateship Programs
The National Academies
500 Fifth Street, NW [GR 322A]
Washington, DC 20001

fax
202 – 334 – 2759
rap@nas.edu

website
www.national-academies.org/rap

Express Delivery address
Research Associateship Programs
The National Academies
2001 Wisconsin Avenue, NW [GR 322A]
Washington, DC 20007

n3AO Forms
ID:

cc:

Research Associateship Programs
Rev. 09/2002
cost-center #