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: March 2007

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

**6. AUTHOR(S)**
Judith K. Nyquist, Ph.D.

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**
National Research Council
Washington, DC 2001-2736

**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

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For Abstract see report

**15. SUBJECT TERMS**
Infectious disease; combat casualty care; chemical and biological Medical defense; military operational medicine; biomedical research

**16. SECURITY CLASSIFICATION OF:**

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<th>a. REPORT</th>
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<th>c. THIS PAGE</th>
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Publicity

The National Academies Research Associateship Programs for the report period were announced to the scientific community 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 Army Medical Research and Materiel Command are conducted in March, June, September, and/or January of each year. The following is a breakdown of the action taken with the applications during the report period.

<table>
<thead>
<tr>
<th></th>
<th>Sept review of Aug app-06</th>
<th>Mar review of Feb app-06</th>
<th>June review of May app-06</th>
<th>Nov review of Jan app-07</th>
<th>TOTAL</th>
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<tr>
<td><strong>TOTAL APPLICATIONS</strong></td>
<td>3</td>
<td>11</td>
<td>5</td>
<td>8</td>
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<tr>
<td>Number of Applications Reviewed</td>
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<td>11</td>
<td>5</td>
<td>8</td>
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<tr>
<td>Applications not recommended (did not pass Review)</td>
<td>0</td>
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<td>0</td>
<td>1</td>
<td>1</td>
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<td><strong>Applications Recommended</strong> (passed Review)</td>
<td>3</td>
<td>11</td>
<td>5</td>
<td>7</td>
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<td>Awards offered</td>
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<td>9</td>
<td>3</td>
<td>4</td>
<td>19</td>
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<td>9</td>
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<td>4</td>
<td>19</td>
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<tr>
<td>Awards declined</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<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>
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<td>1</td>
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**Associates’ Citizenship**

Associates on tenure between 08/01/05 - 07/31/06 were citizens of the following countries:

37 U.S. citizens
6 U.S. permanent residents
1 India (Pending Perm. Residency)
2 Australia(J-1 Research Scholar)
1 Brazil(J-1 Research Scholar)
1 France(J-1 Research Scholar)
1 Germany(J-1 Research Scholar)
1 Ghana(J-1 Research Scholar)
1 Ireland(J-1 Research Scholar)
1 Japan(J-1 Research Scholar)
1 New Zealand(J-1 Research Scholar)
1 People’s Republic of China(F-1 OPT)
1 Russia(J-1 Research Scholar)
1 Thailand(J-1 Research Scholar)
<table>
<thead>
<tr>
<th>Associate Name</th>
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<th>Center</th>
<th>Tenure Dates</th>
<th>Termination Report</th>
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<tbody>
<tr>
<td>Andres, Devon Katherine</td>
<td>Dr. Radharaman Ray</td>
<td>U.S. Army Medical Research Institute of Chemical Defense</td>
<td>5/3/2006 - 5/2/2007</td>
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<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 - 1/11/2008</td>
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<tr>
<td>Bhonsle, Jayendra Bhausaheb</td>
<td>Dr. Donald P. Huddler</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>7/6/2004 - 1/5/2008</td>
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<td>Bradfute, Steven Blake</td>
<td>Dr. Thomas W. Getsbert</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>2/16/2005 - 2/15/2008</td>
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<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 - 9/10/2007</td>
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<tr>
<td>Cashman, Kathleen Anne</td>
<td>Dr. Mary C. Gattieri</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/11/2005 - 7/10/2007</td>
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<td>Curtis, Kristopher Michael</td>
<td>Dr. Michael D. Parker</td>
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<td>8/15/2003 - 10/6/2006 Received</td>
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<td>Dupuy, Lesley Conrad, Jr</td>
<td>Dr. Connie S. Schmaljohn</td>
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<td>5/2/2003 - 7/1/2006 Received</td>
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<td>Emerson, Ginny Leigh</td>
<td>Dr. Robert G. Ulrich</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>3/1/2004 - 4/14/2006 Received</td>
<td>Not Reed</td>
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<tr>
<td>Enterlein, Sven Gunter</td>
<td>Dr. Sina Bavari</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>12/18/2006 - 12/17/2007</td>
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<td>Foley, Desmond Hector</td>
<td>Dr. Richard C. Wilkerson</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>2/17/2004 - 9/16/2006 Received</td>
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<td>Fritz, Elizabeth Ann</td>
<td>Dr. Lisa E. Hensley</td>
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<td>3/3/2003 - 9/2/2006 Received</td>
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<td>Ghosh, Kashinath</td>
<td>Dr. Edgar D. Rowton</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>8/1/2005 - 10/31/2007</td>
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<td>Goff, Arthur James</td>
<td>Dr. Lisa E. Hensley</td>
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<td>8/20/2004 - 10/31/2006 Received</td>
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<td>Hoard-Fruchey, Heidi Marie</td>
<td>Dr. Michael Adler</td>
<td>U.S. Army Medical Research Institute of Chemical Defense</td>
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<td>Honko, Anna Nichole</td>
<td>Dr. Lisa E. Hensley</td>
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<td>6/1/2006 - 5/31/2008</td>
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<tr>
<td>Jensen, Victoria Margaret</td>
<td>Dr. Lisa E. Hensley</td>
<td>U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>7/19/2004 - 3/31/2007</td>
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<tr>
<td>Jirage, Dayadevi Balappa</td>
<td>Dr. Norman C. Waters</td>
<td>(S) Walter Reed Army Institute of Research</td>
<td>8/22/2005 - 10/10/2007</td>
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</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.
<table>
<thead>
<tr>
<th>Associate Name</th>
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<tr>
<td>Johnson, Erik Andrew</td>
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<td>Kaba, Stephen Abanega</td>
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<td>Keener, William Kelvin</td>
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<td>12/6/2004 - 2/28/2006</td>
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<td>Kremenchuk, Igor</td>
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<td>9/6/2005 - 9/1/2006</td>
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<td>Miroshnikova, Olga Vyacheslavovna</td>
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<td>2/25/2003 - 2/24/2006</td>
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</table>

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<th>Adviser Report</th>
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<td>Rupp, Tracy Lynn</td>
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<td>Swanson, Katherine Irene</td>
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<td>11/21/2005 - 11/20/2007</td>
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<td>Tonduli, Laura Sabina</td>
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<td>Toth, Stephen I.</td>
<td>(S) U.S. Army Medical Research Institute of Infectious Diseases</td>
<td>3/13/2006 - 3/12/2008</td>
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<td>Urso, Maria Laina</td>
<td>U.S. Army Research Institute of Environmental Medicine</td>
<td>7/10/2006 - 9/21/2006</td>
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<td>Wilson, Paul Anthony</td>
<td>Center for Biomedical Computations Research</td>
<td>12/1/2005 - 3/30/2007</td>
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</table>

56 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.
February 2006

1- Recommended

TANG, SHUANG
Citizenship: People's Republic of China
Adviser: Dr. Sina Bavari
Research Field: 3298
Research Title: Development of a Cell-Free System Utilizing Established Minigenome Replicons for the Study of Filovirus Transcription and Replication

Ph.D. Date: 2000
Shanghai Inst of Biochemistry

A- Accepted Award (9 Applicants listed)

ANDRES, DEVON K
Citizenship: United States
Adviser: Dr. Radharaman Ray
Research Field: A037
Research Title: Evaluation of a Short Peptide Inhibitor to Counteract Botulinum Neurotoxin A (BoNT/A) Poisoning In Vitro and In Vivo

Ph.D. Date: 2006
Oakland University/MI
Actual Starting Date: 5/03/06
Termination Date: 5/02/07

FURTADO, MARCIO D
Citizenship: Brazil
Adviser: Dr. Debra L. Yourick
Research Field: 1829
Research Title: Evaluation of the Effects of Neuroprotectants in a Model of Seizure Induced by Organophosphorous Compounds

Ph.D. Date: 2003
Sao Paulo, U
Actual Starting Date: 9/25/06
Termination Date: 9/24/07

HONKO, ANNA N
Citizenship: United States
Adviser: Dr. Lisa E. Hensley
Research Field: A033
Research Title: Optimization of a Recombinant Vaccine against Marburg Virus in Nonhuman Primates

Ph.D. Date: 2005
Wake Forest University/NC
Actual Starting Date: 6/01/06
Termination Date: 5/31/08

KEYSER, BRIAN M
Citizenship: United States
Adviser: Dr. Radharaman Ray
Research Field: 2969
Research Title: Characterization of Apoptotic Pathways Induced by Sulfur Mustard in Pulmonary Airway Epithelial Cells: In Vitro Studies

Ph.D. Date: 2006
Tulane Univ-Sch of Medicine/LA
Actual Starting Date: 5/04/06
Termination Date: 5/03/07

LIEPINSH, DMITRY
Citizenship: Latvia
Adviser: Dr. Urszula Krzych
Research Field: 3293
Research Title: Characterization of Hepatic Effector and Memory CD8+T Cells induced with Genetically Attenuated Plasmodium berghei Sporozites in Murine Model of Protective Immunity.

Ph.D. Date: 2003
Russian Academy of Medical Sci
Actual Starting Date: 4/18/06
Termination Date: 4/17/08
February 2006

A- Accepted Award  (9 Applicants listed)

REEVES, TONY E  
Ph.D. Date: 2006  
Citizenship: United States  
Texas A&M University  
Adviser: Dr. David E. Lenz  
Actual Starting Date: 6/01/06  
Research Field: 0931  
Termination Date: 5/31/07  
Research Title: Generation and Characterization of Antibodies Specific to Organophosphorus Nerve Agents and Similar Neurotoxic Compounds for the Immunodetection of Nerve Agents

RUFF, ALBERT L  
Ph.D. Date: 1998  
Citizenship: United States  
Johns Hopkins University/MD  
Adviser: Dr. James F. Dillman, III  
Actual Starting Date: 6/28/06  
Research Field: 2968  
Termination Date: 6/27/08  
Research Title: Investigation of Sulfur Mustard Induced Signal Transduction Pathways in Ocular Cells

SHIRAKI, HIROAKI  
Ph.D. Date: 2001  
Citizenship: Japan  
Kyoto University/Japan  
Adviser: Dr. Ai J. Lin  
Actual Starting Date: 11/13/06  
Research Field: 0926  
Termination Date: 11/12/07  
Research Title: Lead Optimization of 8-Aminoquinoline Derivatives as Antimalarial Agents

YOKOTA, MIYO  
Ph.D. Date: 1997  
Citizenship: Japan  
University of Tennessee-Knoxville  
Adviser: Dr. Larry G. Berglund  
Actual Starting Date: 3/29/06  
Research Field: P137  
Termination Date: 3/28/08  
Research Title: Identifying Human Individual Variability for Thermal Strain Models

W- Withdrew after Review/Recommend

DEYDE, VAROUGH M  
Ph.D. Date: 2004  
Citizenship: Mauritania  
University of Nevada  
Adviser: Dr. Jay W. Hooper  
Research Field: 2740  
Research Title: Evaluation and Efficacy of Ribavirin and Neutralizing Antibody Treatment in Lethal Infection of Hamsters with Andes Virus

May 2006

1- Recommended

ROCHON, GILBERT L  
Ph.D. Date: 1999  
Citizenship: United States  
Massachusetts Inst of Technology  
Adviser: Dr. Samuel K. Martin  
Research Field: 2820  
Research Title: Satellite Remote Sensing and Spatial Database Development in Support of Monitoring and Mitigating Incidence of Avian Influenza
May 2006

A- Accepted Award (3 Applicants listed)

MCGANN, PATRICK T
Citizenship: Ireland
Adviser: Dr. Apurba K. Bhattacharjee
Research Field: 2740
Research Title: Survival and Replication of Francisella tularensis in Macrophage
Ph.D. Date: 2004
Ireland, Natl U Of
Actual Starting Date: 1/08/07
Termination Date: 1/07/08

TAKHAMPUNYA, RATREE
Citizenship: Thailand
Adviser: Dr. Huo-Shu H. Huong
Research Field: 3297
Research Title: Assessing the Potential Attenuation Mutations and Genetic Stability of WRAI/GSK Attenuated Dengue Vaccines Recovered from Human Volunteers and Aedes aegypti Vector in Dengue Endemic Areas
Ph.D. Date: 2006
Mahidol U
Actual Starting Date: 12/04/06
Termination Date: 12/03/07

URSO, MARIA L
Citizenship: United States
Adviser: Dr. Edward J. Zambraski
Research Field: 2826
Research Title: Effects of Prior Injury on Skeletal Muscle Inflammatory Pathways in Response to Disuse and Reloading
Ph.D. Date: 2006
U of Massachusetts-Amherst
Actual Starting Date: 7/10/06
Termination Date: 9/21/06

8- Declined

AMITAI, GABRIEL
Citizenship: Israel
Adviser: Dr. Charles B. Millard
Research Field: 0999
Research Title: Engineering Cell-Free and Polymer-Bound a/b Hydrolase Haloalkane Dehalogenases in Combination with other Enzymes for the Enhanced Catalytic Scavenging of Xenobiotics
Ph.D. Date: 1981
Weizmann Inst of Science/Israel

August 2006

A- Accepted Award (3 Applicants listed)

ENTERLEIN, SVEN G
Citizenship: Germany
Adviser: Dr. Sina Bavari
Research Field: 3298
Research Title: Mutational Analysis of the Structure Function Relationship of Ebola Virus Matrix Protein VP40
Ph.D. Date: 2005
Marburg, Univ of/Germany
Actual Starting Date: 12/18/06
Termination Date: 12/17/07

HAMMERBECK, CHRISTOPHER D
Citizenship: United States
Adviser: Dr. Jay W. Hooper
Research Field: A033
Research Title: Elucidating the Role of Cell-Mediated Immunity in the Pathogenesis of Hantavirus Infection Using the Andes Virus/Hamster Lethal Disease Model
Ph.D. Date: 2006
University of Minnesota-Twin Cit
Actual Starting Date: 4/10/07
Termination Date: 4/09/08
August 2006

A- Accepted Award (3 Applicants listed)

LING, YUN
Citizenship: People's Republic of China
Adviser: Dr. Ashima Saxena
Research Field: 2969
Research Title: Mutagenesis and Computational Investigations of Reactivation Mechanism of Nerve Agent-Inhibited Human Acetylcholinesterase by Oximes

Ph.D. Date: 2006
U of Maryland-Baltimore County
Actual Starting Date: 12/04/06
Termination Date: 12/03/07

November 2006

1- Recommended (2 Applicants listed)

ACKERMAN, MICHAEL S
Citizenship: United States
Adviser: Dr. Charles B. Millard
Research Field: 8046
Research Title: Disruption of a Putative Vascular Leak Peptide Motif in the Ricin Toxin A-Chain Vaccine Candidate

Ph.D. Date: 2003
Johns Hopkins U-Medical Instrs./MD

HATHAWAY, KYLE C
Citizenship: United States
Adviser: Dr. Rodney L. Coldren
Research Field: A008
Research Title: Developing Improved Methods for the Recombinant Expression of Avian Influenza Surface Antigens

Ph.D. Date: 2006
Melbourne, U

A- Accepted Award (4 Applicants listed)

BANKS, ERIC A
Citizenship: United States
Adviser: Dr. Thomas J. Walters
Research Field: 0999
Research Title: PPAR Agonists as Potential Therapeutics for Muscle Atrophy Associated with Major Burn Injury

Ph.D. Date: 2007
U of Tex-Hlth Sci Ct-San Antonio
Expected Starting Date: 5/01/07
Termination Date: 4/30/08

BIGINNS, JULIA E
Citizenship: United States
Adviser: Dr. Sina Bavari
Research Field: 3298
Research Title: The Role of Host Proteins Incorporated into the Ebola Virus Envelope in Enhanced Infectivity

Ph.D. Date: 2007
Baylor College of Medicine/TX
Actual Starting Date: 3/19/07
Termination Date: 3/18/08

OTTO, TAMARA C
Citizenship: United States
Adviser: Dr. David E. Lenz
Research Field: 1880
Research Title: Mutations in Human Paraoxonase 1: Design of a Bioscavenger

Ph.D. Date: 2001
University of Florida
Actual Starting Date: 3/01/07
Termination Date: 2/29/08
November 2006

A- Accepted Award  (4 Applicants listed)
SILLERJACKSON, ARLENE J
Citizenship: United States  Ph.D. Date: 2006
Adviser: Dr. Phillip D. Bowman  U of North Tex, Health Science Ct
Research Field: 2990  Expected Starting Date: 5/01/07
Research Title: Determination of the Temporal Presence of Growth Factors in Healing and Nonhealing Bone
Defects  Termination Date: 4/30/08

W- Withdrew after Review/Recommend
MUJER, CESAR V
Citizenship: United States  Ph.D. Date: 1989
Adviser: Dr. M. S. Ibrahim  Ohio State University
Research Field: A072
Research Title: Proteomic Analysis of Orthopoxvirus and Host Response Proteins and Development of Interfering
RNA Therapeutics
Curtis, Kristopher Michael  
8/15/2003  10/06/2006
1. Infection of non-human primates (NHP) with wild-type and infectious clone derived EBOV is indistinguishable.
2. EBOV glycoprotein editing site mutations are not well tolerated and revert to wild-type upon infection of NHPs.
3. EBOV glycoprotein cleavage site mutations reveal that this site may not be an ideal target for antiviral strategies.

Dupuy, Lesley Conrad, Jr  
5/02/2003  7/01/2006
1. Individual DNA vaccines expressing the structural proteins of Venezuelan (VEEV), eastern (EEEV), and western (WEEV) equine encephalitis virus are immunogenic in mice following particle bombardment (gene gun) delivery.
2. WEEV and WEEV DNA vaccines delivered in this manner confer protective immunity against homologous viral aerosol challenge in ~80% of vaccinated mice, while the EEEV DNA vaccine is not protective.
3. The immunogenicity and protective efficacy of these individual DNA vaccines is not significantly altered when they are delivered in combination by gene gun.
4. Cationic lipid and liquid jet injection are viable alternatives to the gene gun for delivery of the VEEV DNA vaccine, while delivery of this vaccine by transcutaneous chemical, microneedle injection, and skin dermabrasion is not as efficacious.
5. Certain encephalitic alphavirus envelope glycoprotein variants created by directed molecular evolution (gene shuffling) displayed increased cross-reactivity against VEEV, EEEV, and WEEV and offered complete protection against VEEV aerosol challenge.

Foley, Desmond Hector  
1. A molecular phylogeny of the Australasian Anopheles annulipes complex showed it was monophyletic, comprised a cool adapted southern clade and warm adapted northern clade, and is the most species-rich Anopheles complex, with over 17 sibling species.
2. A novel Bayesian clustering approach, using the program STRUCTURE, was applied to allozyme data of the Anopheles annulipes complex to demonstrate its utility for detecting species-level genetic divergence, as well as population structure.
3. The WRBU's online Systematic Catalog revealed new findings about mosquito biogeography, such as a positive log-log species-area relationship, and that island nations are more species-rich and have higher endemicity than do mainland nations.
4. Analysis of a database of over 43,000 mosquito collection records and 492 species from the Neotropics revealed the location of hotspots in species-richness and endemicity and suggested areas where mosquito inventory needs are greatest.
5. Ecological niche modelling of collection records revealed the potential distribution of malaria vectors in Korea and SE Asia. A website, www.mosquitomap.org is being developed to host global mosquito occurrence data and distribution maps.

Fritz, Elizabeth Ann  
3/03/2003  9/02/2006
1. Identified changes in the cellular immune response and identified viral targeted cell populations in Variola-infected nonhuman primates—first study known.
2. Identified and tested a successful alternate route of exposure for refinement of the Monkeypox nonhuman primate model.
3. Identified changes in the cellular immune response in Marburg (C67)-infected nonhuman primates.
4. Identified through evaluation novel therapeutics for filovirus infection—studies are the basis for continuing testing in nonhuman primates.
5. Developed and refined cytotoxic T-cell assays for testing vaccines and therapeutics in nonhuman primates.

Goff, Arthur James  
8/20/2004  10/31/2006
1. We have engineered a cowpox virus expressing the green fluorescent protein (gGFP) under control of vaccinia virus (VV) early/late promoter.
2. Using the above mentioned recombinant virus we tested a novel class of drugs for anti-cowpox activity in mice.
3. Also using the mouse model of cowpox virus infection, we developed a model for vaccinia-induced myocarditis.
4. We also engineered a GFP-expressing Monkeypox virus (MPX-eGFP) that was used in conjunction with whole body fluorescence resonance imaging to develop a disease progression model for intravenous infection of Monkeypox in non-human primates.
1 Stability of BoNT/A and /B recombinant light chains (rLC) was assessed in 7 solutions with greatest stability in intracellular buffer followed by 40 mM HEPES pH 7.3. Both were more stable in water than expected with half-lives of >1 week.
2 BoNT/A rLC stability increases with increasing milkfat, but milkfat content did not affect BoNT/B rLC stability, suggesting lipids play a role in BoNT/A stability and factors contributing to stability may be serotype specific.
3 Compound 35 inhibits BoNT/A, /B, and /E rLC activities, and is a potential broad range inhibitor of BoNT activity.
4 Two derivatives of compound 35 also inhibit BoNT/A and BoNT/B activity, suggesting that derivatives of compound 35 may be useful for treatment of BoNT intoxication.
5 In collaboration with CPT Angela Purcell, a capillary electrophoresis assay was developed for BoNT/A and /E activity.

Johnson, Erik Andrew  1/03/2005  1/02/2007
1 Morris water maze (MVM) is not a good behavioral model for repeated, low dose soman or sarin exposure.
2 Repeated, low dose exposures to soman do not lead to cytoskeletal or synaptic derangements nor does this exposure paradigm result in increased apoptosis in hippocampus or parietal cortex.
3 Repeated, low dose exposures to soman does lead to significant changes in glutamate receptor immunoreactivity though the ramifications of this are not fully known.
4 Characterized sixteen different antibodies for cross-species immunoreactivity in guinea pigs and wrote protocols to describe the process.
5 Acute exposure to soman reveals no significant changes in synaptic or certain cytoskeletal protein immunoreactivities though significant changes were observed in neuron and astrocyte-specific proteins.

1 Identified two different HLA-A2 restricted CTL epitopes from Yersinia pestis
2 Discovered which human cell types can be infected by Yersinia pestis

1 We finished the model development phase. There were tested respiratory and metabolic acidosis models in pigs. It was confirmed some previously established procedures concerning anesthesia, catheters, and monitoring of hemodynamics.
2 Our experiments showed respiratory as well as metabolic acidosis induced the development of coagulopathy in the pigs. The restoration of pH did not restore blood coagulation.
3 Adding rFVIIa to pig plasma in vitro in dose 1.26ug/ml final plasma concentration increased the maximal thrombin generation, however it did not completely correct coagulopathy.
4 It was studied the effects different fluid solutions (Hextend and Lactated Ringer) on coagulation function of normal and hypothermic human plasma in vitro with and without 90ug/kg rFVIIa (1.26ug/ml final plasma concentration).
5 We modified the thrombin generation test (developed by Hemker H.C. et al. 1993; 2003), this assay is suitable for detecting treatment-depending changes in the kinetic of thrombin generation and monitoring the pharmacokinetics of rFVIIa.

1 Repeated exposure to CWNA at doses that produce behavioral effects often also induces overt toxicity. Doses of CWNA that produce overt toxicity may produce behavioral alterations that persist months after exposure.
2 Guinea pigs are suitable subjects for evaluating the behavioral effects of drugs and toxics. Guinea pigs do not seem to perform well in tasks that require the animal to travel in open spaces (i.e., radial arm maze, open field).
3 Conducted dose-response study of GB with animals performing under progressive ratio schedule. Conducted dose-response study of VX with animals performing under progressive ratio schedule. Evaluated ability of animals to learn new task after VX.
4 Guinea pigs perform qualitatively similar to other rodent species on a variety of operant behavior tasks including: active avoidance, multiple schedules of reinforcement, simple schedules of reinforcement, delayed matching and discrimination.
1 Designed and synthesized novel anti-malarial drugs.
2 Conducted multiple-step synthesis of Michael acceptor-based peptidomimetic inhibitors.
3 Improved existing methods of peptide synthesis to optimize product yield and selectivity.
4 Developed new approaches to overcome Mitsunobu reaction separation problem of the final product from by-product.
5 Investigated Structure-Activity Relationship of compounds obtained.

Pearson, Brooke 7/14/2003 10/13/2006
1 We determined the extent of the antibody response to the three components of the anthrax toxin: PA, LF, and EF.
2 I have demonstrated that these antibodies are capable of blocking serum conversion of the full-length protective antigen (PA) to its active form.
3 These antibodies can also block the binding of full-length PA to the surface of cells.
4 I also demonstrated that the antibodies are able to block the cleavage of PA after it is already bound to cells.
5 Additionally, we demonstrated that antisera inhibits the enzymatic activity of the LF toxin.

1 Effective siRNA against components of the Ebola and Marburg polymerase complexes (L, VP35, VP30, and NP) were identified.
2 siRNAs were evaluated by Western blot after transfection of cells with siRNA and expression vectors. Transfection of cells with siRNA in various combinations followed by virus infection was effective in reducing virus titers.
3 Transfection of siRNA into mice by hydrodynamic shearing did not protect mice from death from Ebola virus infection.
4 The amount of siRNA used, the delivery method, and lack of siRNA chemical modification for in vivo delivery likely contributed to the mouse study results.

1 We build up a reliable and reproducible ex vivo method that mimics the in vivo situation of a subject pretreated with cholinesterase reversible inhibitors and then exposed to organophosphate agents (OPS).
2 With this method, we determined for 5 pretreatments (pyridostigmine, physostigmine, huperzine, tacrine and galanthamine) with kinetics of inhibition and recovery of cholinesterases activities after various OPs exposures (MEPQ or DEPQ or soman).
3 We compared these inhibitors between them to determine which one seem to be the more efficient when used a pretreatment of a nerve agent intoxication.
4 We also determined the tissue distribution of exogenous human serum butyrylcholinesterase after intra muscular administration.

Urso, Maria Laina 7/10/2006 9/21/2006
1 Refined Research proposal and learned additional laboratory techniques necessary to execute proposed experimental design.
2 Submitted a research proposal to the Scientific Review Committee to conduct a pilot experiment on pre-existing human samples. The purpose of this work is to explore the effects of muscle injury (due to resistance exercise) on protease activity.
Utilization of an Ebola Virus Reverse Genetics System to Identify Critical Mechanisms in Disease Pathogenesis

7) SUMMARY OF RESEARCH DURING TENURE Itemize significant findings in concise form, utilizing key concepts/words.
   1) Infection of non-human primates (NHP) with wild-type and infectious clone derived EBOV is indistinguishable
   2) EBOV glycoprotein editing site mutations are not well tolerated and revert to wild-type upon infection of NHPs
   3) EBOV glycoprotein cleavage site mutations reveal that this site may not be an ideal target for antiviral strategies
   4)
   5)
   (USMA Davies Fellow: please add summary of teaching, including classes taught.)

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

For the purposes of in vitro replication and in vivo pathogenesis studies, work was initiated towards the construction of EBOV encoding green fluorescent protein. Additionally, recombinant viruses encoding mutations in the immunosuppressive and mucin-like domains of the glycoprotein were planned to evaluate their role in viral pathogenesis. This work is in the early stages of development. A mucin-like domain mutant has been constructed, but has not yet been recovered from the infectious clone system, while strategies for generating the immunosuppressive domain mutant are ongoing.
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


Zhongyu Zhu1, Samitabh Chakraborti1, Xiaodong Xiao, Yuxian He, Ponraj Prabakaran, Igor A. Sidorov, Lisa E Hensley, Yang Feng1, Kristopher M Curtis, Shibo Jiang, and Dimiter S. Dimitrov. Potent Neutralization of SARS Coronavirus Isolates by a Cross-Reactive Human Monoclonal Antibody. Manuscript in preparation for submission to PNAS

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
Research Scientist I

15) POST-TENURE ORGANIZATION Provide name and address of organization.
IDEXX, One IDEXX Dr., Westbrook ME 04092

16) POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.
- 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
7 Development of knowledge, skills, and research productivity
Comments
The NRC program provides a great opportunity for post-doctoral research. I feel as though I was given an opportunity to work in a unique environment.

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

LAB SUPPORT
7 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments
The environment at USAMRIID, and my lab in particular, was not very conducive for post-doctoral research. However, this has little to do with the NRC program itself. There is a total lack of communication and collaboration within USAMRIID, both between laboratories and with the NRC itself. This often leads to a feeling of isolation.

ADVISER/MENTOR SUPPORT
5 Quality of mentoring from the Lab NRC Adviser (USMA Mentor, if applicable)
Comments
This rating is specific to Dr. Tom Geisbert, as he gave very limited mentorship during my NRC tenure at USAMRIID. I have recently learned that Dr. Geisbert received his Ph.D. the same year I received mine (2003), and I believe this explains his deficiencies with respect to mentorship. His lack of experience supervising personnel and serving as a mentor has really put the post-docs in his lab at a disadvantage.

I would rate Mike Parker, who recently became my advisor, as an 8.

LPR SUPPORT
7 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.

I would agree that it is the job of NRC associates to screen prospective mentors and choose a mentor wisely, but I think some scrutinizing of potential NRC advisors by the NRC would help prevent negative experiences.

US Postal Service mailing address
Research Associateship Programs
The National Academies
500 Fifth Street NW
Washington, DC 20001

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

Research Associateship Programs
cc:

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

ID# 0380170

Rev. 08/2006
cost-center #
# Research Associateship Programs

## FINAL REPORT

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>
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<tbody>
<tr>
<td>Dupuy, Jr.</td>
<td>Lesley</td>
<td>C.</td>
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</table>

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<tr>
<th>2) FORWARDING Address (to which your tax statement will be mailed)</th>
<th>3) Today's Date</th>
<th>4) Agency</th>
<th>Laboratory or NASA Center</th>
<th>Division / Branch / Directorate</th>
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<td>FORWARDING Phone(s) and E-Mail (if known)</td>
<td>June 26, 2006</td>
<td>AMRMC</td>
<td>AMRHD</td>
<td>Virology</td>
</tr>
<tr>
<td>Home Phone: 301-305-6863</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Alt. Phone: 301-619-4109</td>
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<tr>
<td>E-mail: <a href="mailto:lesley.dupuy@amedd.army.mil">lesley.dupuy@amedd.army.mil</a></td>
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<td>Dates of Tenure: from May 2, 2003 to June 30, 2006</td>
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</table>

5) Name of Research Associateship Programs Adviser

Connie S. Schmaljohn

6) TITLE OF RESEARCH PROPOSAL

Evaluation Of Multivalent DNA Vaccine Strategies For Encephalitic Alphavirus Immunization

7) SUMMARY OF RESEARCH DURING TENURE

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

1) Individual DNA vaccines expressing the structural proteins of Venezuelan (VEEV), eastern (EEEV), and western (WEEV) equine encephalitis virus are immunogenic in mice following particle bombardment (gene gun) delivery.

2) The VEEV and WEEV DNA vaccines delivered in this manner confer protective immunity against homologous viral aerosol challenge in ~80% of vaccinated mice, while the EEEV DNA vaccine is not protective.

3) The immunogenicity and protective efficacy of these individual DNA vaccines is not significantly altered when they are delivered in combination by gene gun.

4) Cationic lipid and liquid jet injection are viable alternatives to the gene gun for delivery of the VEEV DNA vaccine, while delivery of this vaccine by transcutaneous chemical, microneedle injection, and skin dermabrasion is not as efficacious.

5) Certain encephalitic alphavirus envelope glycoprotein variants created by directed molecular evolution (gene shuffling) displayed increased cross-reactivity against VEEV, EEEV, and WEEV and offered complete protection against VEEV aerosol challenge.

8) RESEARCH IN PROGRESS

Describe in no more than 100 words.

Several research projects have been started during my tenure as an NRC Associate which will be continued as I transition into an investigator role at my host institution. These include continued evaluation of the immunogenicity and protective efficacy of individual and combined DNA vaccines for VEEV, EEEV, and WEEV in mouse and nonhuman primate models of infection; continued evaluation of different delivery mechanisms for VEEV, EEEV, and WEEV DNA vaccines including cationic lipid, electroporation, and liquid jet injection delivery; and, evaluation of gene-shuffled EEEV and WEEV envelope glycoprotein variants for improved cross-reactivity, immunogenicity, and protective efficacy.

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
Principal Investigator

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

U.S. Army Medical Research Institute of Infectious Diseases
Virology Division
1425 Porter Street
Fort Detrick, MD 21702
16) POST-TENURE POSITION STATUS / CATEGORY

☐ Remain at Host Agency as Permanent Employee
☒ Remain at Host Agency as Contract/Temporary Employee
Abbreviate Host Laboratory/Center AMRIID
☐ 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
☒ Development of knowledge, skills, and research productivity

Comments
My NRC Research Associateship at AMRIID provided me with an excellent opportunity to expand my knowledge and research skills into the area of vaccine development for highly pathogenic viruses with a focus on DNA vaccines. It also allowed me to improve my project management ability as I coordinated multiple research projects and was responsible for interaction with collaborating partners from industry.

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

Comments
This award provided me with the opportunity to perform research in a top-notch government laboratory setting and has helped to steer my career in the direction of government research. I will continue to pursue research as an investigator at my host institution following completion of my associateship.

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

Comments
There was no lack of equipment or funding support during my tenure at my host institution and laboratory. I was provided with the opportunity to learn to safely perform research on highly pathogenic viruses requiring high level biosafety containment.

ADVISER SUPPORT
☒ Quality of mentoring from the Adviser

Comments
My advisor was fully supportive of my research endeavors during my associateship. She provided me with the proper level of expert guidance while allowing me adequate room to pursue the research to the fullest levels of my ability without unnecessary restriction.

LPR SUPPORT
☒ Quality administrative support from the LPR

Comments
The LPR was fully supportive of my research during my associateship. He provided me with the administrative support necessary for seamless integration into my host institution during my tenure.

NRC SUPPORT
☒ Quality of administrative support from the NRC

Comments
The NRC provided excellent support during my tenure and was always very helpful in assisting me in all administrative matters related to my associateship.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

I feel that the NRC Research Associateship Program represents one of the best, if not the very best, postdoctoral research programs available. Therefore, I have no obvious suggestions for program improvement.
# FINAL REPORT

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 |  
|---------------------------------|---------------------------------|
| Emerson                         | First Name                      |
|                                 | Ginny                           |
| 2) FORWARDING Address (for tax statement / final stipend check) | FORWARDING Phone(s) and E-Mail (if known) |
| 2910 Clairmont Rd. Apt 2325, Atlanta GA 30329 | Home phone: (202) 421-3380 |
|                                 | Alt. phone:                     |
|                                 | E-mail: ginny.emerson@alumni.gwu.edu |
| 3) Today's Date:                | Dates of Tenure:                |
| April 12, 2006                  | from March 1, 2004 to April 14, 2006 |
| 4) Agency                       | Laboratory or NASA Center       |
| AMRMC                           | USAMRIID                        |
| 5) NAME OF RESEARCH ADVISER     | Virology / Integrated Toxicology |
| Sofi Ibrahim / Robert Ulrich    |                                 |
| 6) TITLE OF RESEARCH PROPOSAL   |                                 |
| Poxvirus genomics               |                                 |
| 7) SUMMARY OF RESEARCH DURING TENURE | Itemize significant findings in concise form, utilizing key concepts/words. |
| 1)                                | 2)                                |
| 3)                                | 4)                                |
| 5)                                | 8) RESEARCH IN PROGRESS | Describe in no more than 100 words. |
| My current work with Dr. Ulrich involves the use of whole proteome microarray chips of poxviruses to profile humoral responses to vaccines. Identifying viral antigens commonly recognized by antibodies of vaccinated individuals is an important step toward understanding of the humoral immune response to disease. This can be achieved by visualizing serum antibodies bound to viral antigens on a chip. Once defined, these proteins may act as correlates of immunity in testing new vaccines and provide new targets for vaccine development. |
| 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 | None |
b) Books, book chapters, other publications

None

c) Manuscripts in preparation, manuscripts submitted

I am currently involved in preparing a manuscript with Dr. Robert Ulrich and others regarding serum antibody profiling of human smallpox vaccinees using a whole proteome chip of vaccinia virus.

10 PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM THE 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

None
We will be presenting a poster on the above mentioned work (manuscripts in prep) at the upcoming research festival held here at Ft. Detrick.

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

None

13) **PROFESSIONAL AWARDS RECEIVED DURING TENURE**

None

14) **POST-TENURE POSITION TITLE**

Biologist/ Ecologist

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

Centers for Disease Control and Prevention, Atlanta GA

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

- [x] Research Position at Another US Government Laboratory
- [ ] Administrative Position at US Government Laboratory
- [ ] Research Position at Foreign Government Laboratory
- [ ] Remain at Host Agency as Permanent Employee
- [ ] Remain at Host Agency as Contract/Temporary Employee
- [ ] Abbreviate Host Laboratory/Center
- [ ] 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 RESEARCH ASSOCIATESHIP PROGRAM
On a scale of 1–10 (poor - excellent), please rate the following:

SHORT TERM VALUE
7.00 Development of knowledge, skills, and research productivity
Comments
I basically lost 23 months of productivity with my first adviser. Fortunately, I learned a lot on my own and the 10 weeks with Dr. Ulrich have been pleasantly productive.

LONG TERM VALUE
8 How the National Academies Associateship award affected your career to date
Comments
I think the award itself is an asset to my career, as well as the experience with Dr. Ulrich.

LAB SUPPORT
9 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments
My initial situation was a bit of a travesty, but my current environment is very good (leading edge, forward thinking, enthusiastic about incorporating new technology and new techniques).

ADVISER SUPPORT
9 Quality of mentoring from the Adviser
Comments
Mentoring from my first adviser was deplorable, however Dr. Ulrich has been outstanding.

LPR SUPPORT
8 Quality administrative support from the LPR
Comments
The LPR found a new adviser for me to work with (quite singlehandedly) and I am very grateful, however I am disappointed that more was not done to protect future associates from ending up in the same situation.

NRC SUPPORT
10 Quality of administrative support from the NRC
Comments
The administrative staff has always been very helpful, courteous and supportive.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
Perhaps enhanced screening of advisers would ensure a better experience for future associates. Unfortunately, local politics outside the purview of the NRC undoubtedly play a role in sustaining the tenure of certain individuals.

Foley, D.H. (in prep.). Species delimitation by Bayesian clustering of individual genotype data.

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.
Washington Entomological Society, Washington DC

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE
Research Associate

15) POST-TENURE ORGANIZATION
Provide name and address of organization.
National Museum of Natural History,
Smithsonian Institution
10th & Constitution Avenue NW
Washington DC 20560

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 Laboratory/Center
☐ 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
☐ Development of knowledge, skills, and research productivity
   Comments

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

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

ADVISER SUPPORT
☐ Quality of mentoring from the Adviser
   Comments

LPR SUPPORT
☐ Quality administrative support from the LPR
   Comments

NRC SUPPORT
☐ Quality of administrative support from the NRC
   Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
Perhaps the NRC website could add something along the lines of: "Tips and advice from previous NRCs" (with a disclaimer)?
# FINAL REPORT

<table>
<thead>
<tr>
<th>Associate Last or Family Name</th>
<th>FirstName</th>
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<tbody>
<tr>
<td>Fritz</td>
<td>A</td>
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<th>FORWARDING Address (to which your tax statement will be mailed)</th>
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<tr>
<td>Res. or Inst. Elizabeth Fritz</td>
</tr>
<tr>
<td>Street 34170 Ahalt Drive</td>
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<td>City, State Zip Bluemont, VA 20135</td>
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<thead>
<tr>
<th>FORWARDING Phone(s) and E-Mail (if known)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Phone: 304-724-7997</td>
</tr>
<tr>
<td>Alt. Phone: 703-999-2726</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:lizfritz4@yahoo.com">lizfritz4@yahoo.com</a></td>
</tr>
</tbody>
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<table>
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<tr>
<th>Today's Date</th>
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<tbody>
<tr>
<td>September 18, 2006</td>
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</table>

<table>
<thead>
<tr>
<th>Agency</th>
<th>Laboratory or Center</th>
<th>Division / Branch / Directorate</th>
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<tr>
<td>AMRMC</td>
<td>USAMRIID</td>
<td>Virology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Research Associateship Programs Adviser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa E. Hensley</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TITLE OF RESEARCH PROPOSAL</th>
</tr>
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<tbody>
<tr>
<td>Modulation of the immune response during smallpox and monkeypox infections</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUMMARY OF RESEARCH DURING TENURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Identified changes in the cellular immune response and identified viral targeted cell populations in Variola-infected nonhuman primates—first study known.</td>
</tr>
<tr>
<td>2) Identified and tested a successful alternate route of exposure for refinement of the Monkeypox nonhuman primate model.</td>
</tr>
<tr>
<td>3) Identified changes in the cellular immune response in Marburg (C67)-infected nonhuman primates.</td>
</tr>
<tr>
<td>4) Identified through evaluation novel therapeutics for filovirus infection—studies are the basis for continuing testing in nonhuman primates.</td>
</tr>
<tr>
<td>5) Developed and refined cytotoxic T-cell assays for testing vaccines and therapeutics in nonhuman primates.</td>
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<tr>
<th>RESEARCH IN PROGRESS</th>
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<tbody>
<tr>
<td>Describe in no more than 100 words.</td>
</tr>
<tr>
<td>1. Further refinement of alternate routes of exposure for the Monkeypox nonhuman primate model.</td>
</tr>
<tr>
<td>2. Continuation of evaluating the changes in immune cell populations and host cytokine/chemokine profiles in response to orthopoxvirus infection.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PUBLICATIONS AND PAPERS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide complete citations: author(s), title, full name of journal, volume number, page number(s), and year of publication.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>a) Publications in peer-reviewed journals</th>
</tr>
</thead>
</table>


b) Books, book chapters, other publications


c) Manuscripts in preparation, manuscripts submitted


10) PATENT OR COPYRIGHT APPLICATIONS结果 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.
2005 NCI-Frederick-USAMRIID Summer Student Seminar Series. Frederick, Maryland; August 2005: Understanding Ebola and Marburg Virus Pathogenesis.

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE
Guest Researcher

15) POST-TENURE ORGANIZATION Provide name and address of organization.
USAMRIID, Frederick, Maryland

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

☐ Remain at Host Agency as Permanent Employee
☒ Remain at Host Agency as Contract/Tempoary Employee

Abbreviate Host Laboratory/Center USAMRIID

☐ 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
9 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
Washington, DC 20001

ID# 0275480

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

Rev. 07/2006
cc: Research Associateship Programs
cost-center 

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

cc: Research Associateship Programs

Rev. 07/2006
cc: Research Associateship Programs
cost-center #
RETURN this form directly to the NRC as an E-mail attachment, or print out and mail or fax.

1) Associate Last or Family Name  
  Goff

2) FORWARDING Address (to which your tax statement will be mailed)  
  Forw. Address
  Res. or Inst. Residence  
  Street: 5337 Duke Court  
  City, State Zip Frederick, MD 21703

3) Today's Date  
  November 28, 2006

4) Agency  
  Laboratory or Center  
  Division / Directorate / Department
  AMRMC  
  USAMRIID  
  Virology

5) Name of Laboratory NRC Adviser (and USMA Mentor, if applicable)  
  Lisa Hensley, Ph.D.

6) TITLE OF RESEARCH PROPOSAL  
  Clinical management plan for Orthopox virus infection

7) SUMMARY OF RESEARCH DURING TENURE  
   Itemize significant findings in concise form, utilizing key concepts/words.
   1) We have engineered a cowpox virus expressing the green fluorescent protein (eGFP) under control of the vaccinia virus (VV) early/late promoter.
   2) Using the above mentioned recombinant virus we tested a novel class of drugs for anti-cowpox activity in mice.
   3) Also using the mouse model of cowpox virus infection, we developed a model for vaccinia-induced myocarditis.
   4) We also engineered a GFP-expressing Monkeypox virus (MPX-eGFP) that was used in conjunction with whole body fluorescence resonance imaging to develop a disease progression model for intravenous infection of Monkeypox in non-human primates.
   5)
   (USMA Davies Fellow: please add summary of teaching, including classes taught.)

8) RESEARCH IN PROGRESS  
   Describe in no more than 100 words.
   Currently there are no pathophysiological data regarding the clinical manifestations of orthopoxvirus infection in humans and furthermore no treatment plan. The research in progress will provide guidance for the treatment and care of orthopox virus infected humans. A novel wireless total implant telemetry system is used to monitor in real time the changes in several physiologic parameters in response to infection and treatment. These physiologic changes are correlated to serum cytokine levels and viral load. First, an initial observational study to follow simple clinical parameters in monkeys challenged by the intravenous route with monkeypox virus was done. Next a controlled treatment trial will employ a clinical management plan based on the World Health Organization’s plan for the management of dengue haemorrhagic fever/dengue shock syndrome (DHF/DSS) in humans.

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
      Goff, A.J. and Paragas, J.  A Survey of Antiviral Drugs for Bioweapons. Accepted for publication in Antiviral Chemistry and Chemotherapy
   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


Using whole-body fluorescence reflective imaging (FRI), we were able to spatially and temporally monitor cowpox virus (CPV) replication in vivo. Smallpox and other orthopox viruses pose a significant bioterrorism and public health threat. There is a need to develop antiviral and vaccine strategies. For this reason, it is necessary to establish animal models that approximate the disease course of a human Variola virus infection. We have engineered a CPV expressing the green fluorescent protein (eGFP) under control of the vaccinia virus (VV) early/late promoter between the counterparts of VV Copenhagen genes J4R and J5L (CPV-eGFP). Adding eGFP to the CPV genome allowed for whole-body FRI of viral replication in vivo. Single-step growth curves of CPV and CPV-eGFP were comparable. The engineered virus had plaque morphology similar to that of the wild-type virus, in addition to expressing eGFP. In i.p.-infected mice, CPV-eGFP had an LD50 of 5.5 Log10 as compared to 4.8 Log10 for the wild-type virus (X2(1)=5.05, p=0.0247). Although there was a statistical difference in the LD50, there was no statistical difference for the mean time to death (CPV=7.0, CPV-eGFP=6.4, X2(1)=1.39, p=0.2390). Using whole-body FRI, CPV-eGFP was first detected in the mesenteric tissue above the small intestine on day 1 post-infection. On day 3, GFP signal was detected in all of the mesentry of the abdomen. The infection spread to the upper gastrointestinal tract and cells surrounding the liver on day 4. The virus infected all the organs in the lower abdomen by day 5 and had infected most major organs, except the heart and brain, by day 6. In addition, we were able to correlate viral load with disease progression, allowing for a more complete understanding of poxvirus infections.


Background
Smallpox and other Orthopox viruses pose a significant bioterrorism and public health threat. There is a need to develop antiviral and vaccine strategies. For this reason, it is necessary to establish animal models that approximate the disease course of a human Variola virus infection.

Methods
We engineered a cowpox virus (CPV) expressing the green fluorescent protein (eGFP) under control of the vaccinia virus (VV) early/late promoter between the counterparts of VV Copenhagen genes J4R and J5L (CPV-eGFP). Adding eGFP to the CPV genome allowed for whole-body fluorescence reflective imaging (FRI) of viral replication in vivo.

Results
Single-step growth curves of CPV and CPV-eGFP were comparable. The engineered virus had plaque morphology similar to that of the wild-type virus, in addition to expressing eGFP. In i.p.-infected mice, CPV-eGFP had an LD50 of 5.5 Log10 as compared to 4.8 Log10 for the wild-type virus (X2(1)=5.05, p=0.0247). Although there was a statistical difference in the LD50, there was no statistical difference for the mean time to death (CPV=7.0, CPV-eGFP=6.4, X2(1)=1.39, p=0.2390). Using whole-body FRI, CPV-eGFP was first detected in the mesenteric tissue above the small intestine on day 1 post-infection. On day 3, GFP signal was detected in all of the mesentry of the abdomen. The infection spread to the upper gastrointestinal tract and cells surrounding the liver on day 4. The virus infected all the organs in the lower abdomen by day 5 and had infected most major organs, except the brain, by day 6. In addition, we were able to correlate viral load with disease progression, allowing for a more complete understanding of poxvirus infections.

Conclusions
Using FRI, we were able to spatially and temporally monitor CPV replication in vivo.

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

PROFESSIONAL AWARDS RECEIVED DURING TENURE

POST-TENURE POSITION TITLE
Research Scientist Level 4/Virologist

POST-TENURE ORGANIZATION Provide name and address of organization.
USAMRIID

POST-TENURE POSITION STATUS / CATEGORY Please indicate only one.
☐ Remain at Host Agency as Permanent Employee ☒ Remain at Host Agency as Contract/Temporary Employee
17) APPRAISAL OF RESEARCH ASSOCIATESHIP PROGRAM
On a scale of 1 – 10 (poor - excellent), please rate the following:

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

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

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

ADVISER/MENTOR SUPPORT
☐ Quality of mentoring from the Lab NRC Adviser (USMA Mentor, if applicable)
   Comments

LPR SUPPORT
☐ Quality administrative support from the LPR
   Comments

NRC SUPPORT
☐ Quality of administrative support from the NRC
   Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
6) TITLE OF RESEARCH PROPOSAL

Characterization of botulinum toxin light chain stability and endoprotease activity

7) SUMMARY OF RESEARCH DURING TENURE

1) Stability of BoNT/A and /B recombinant light chains (rLC) was assessed in 7 solutions with greatest stability in intracellular buffer followed by 40 mM HEPES pH 7.3. Both were more stable in water than expected with half-lives of >1 week.

2) BoNT/A rLC stability increases with increasing milkfat, but milkfat content did not affect BoNT/B rLC stability, suggesting lipids play a role in BoNT/A stability and factors contributing to stability may be serotype specific.

3) Compound 35 inhibits BoNT/A, /B, and /E LC activities, and is a potent broad range inhibitor of BoNT activity.

4) Two derivatives of compound 35 also inhibit BoNT/A and BoNT/B activity, suggesting that derivatives of compound 35 may be useful for treatment of BoNT intoxication.

5) In collaboration with CPT Angela Purcell, a capillary electrophoresis assay was developed for BoNT/A and /E activity.

8) RESEARCH IN PROGRESS

CPT Angela Purcell will continue using the developed CE assay to further characterize the activities of BoNTs. The stability studies have been completed. The compound 35 characterization will continue in the laboratory by other members.

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


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.
17 Nov 2004 Briefing for potential NRC candidates. Botulinum toxins: stability and therapeutics. USAMRICD, Aberdeen Proving Grounds, MD
28 Sept 2005 USAMRICD Expanded Staff Seminar. A capillary electrophoresis-based assay for botulinum neurotoxin catalytic activity. USAMRICD, Aberdeen Proving Grounds, MD

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

14) POST-TENURE POSITION TITLE
STAS contractor

15) POST-TENURE ORGANIZATION Provide name and address of organization.
USAMRICD
3100 Ricketts Point Rd
APG-EA, MD 21010

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 USAMRICD
☐ 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
☐ Development of knowledge, skills, and research productivity
Comments
I think I could have been more productive if the amount of paperwork and mandatory training sessions (POSII, drug abuse/alcoholism, etc.) was reduced. I think I lost about a month to a month and a half every year to the training sessions alone.
L O N G  T E R M  V A L U E

How the National Academies Associateship award affected your career to date

Comments

I felt isolated from the scientific community at large by the lack of seminars involving speakers from other institutes (especially academic institutes).

L A B  S U P P O R T

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

Comments

Funding was not a problem. A proper orientation is needed for NRC associates at USAMRICD to introduce the government system of paperwork and training.

A D V I S E R  S U P P O R T

Quality of mentoring from the Adviser

Comments

I decline evaluation of my adviser.

L P R  S U P P O R T

Quality administrative support from the LPR

Comments

USAMRICD needs to clarify procedure when Dr. Hackley is not available for approval and signatures.

N R C  S U P P O R T

Quality of administrative support from the NRC

Comments

My questions were always answered in a timely manner and making travel plans for conferences always went smoothly.

You have a great staff!


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

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

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

cc: Research Associateship Programs
ID# cost-center #
Research Associateship Programs

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

1) Associate Last or Family Name  
   Johnson

2) FORWARDING Address (to which your tax statement will be mailed)  
   Res. or Inst.
   Street 1402 Dalmation Dr APT T3
   City, State Zip 21017
   Forwarding Phone(s) and E-Mail (if known)
   Home Phone: 352-514-8564
   Alt. Phone: 352-514-8562
   E-mail: erik.a.johnson1@us.army.mil

3) Today's Date  
   January 16, 2007

4) Agency  
   Laboratory or Center  
   AMRMC  

   Dates of Tenure  
   from January 3, 2005 to January 3, 2007

5) Name of Laboratory NRC Adviser (and USMA Mentor, if applicable)  
   Gary Rockwood & Robert K Kan

6) TITLE OF RESEARCH PROPOSAL  
   Investigation of the Biochemical Basis of Behavioral Deficits Seen after Exposure to Low Level Chemical Warfare Nerve Agents in Guinea Pigs

7) SUMMARY OF RESEARCH DURING TENURE  
   Itemize significant findings in concise form, utilizing key concepts/words.
   1) Morris water maze (MWM) is not a good behavioral model for repeated, low dose soman or sarin exposure.
   2) Repeated, low dose exposures to soman do not lead to cytoskeletal or synaptic derangements nor dose this exposure paradigm result in increased apoptosis in hippocampus or parietal cortex.
   3) Repeated, low dose exposures to soman does lead to significant changes in glutamate receptor immunoreactivity though the ramifications of this are not fully known.
   4) Characterized sixteen different antibodies for cross-species immunoreactivity in guinea pigs and wrote protocols to describe the process.
   5) Acute exposure to soman reveals no significant changes in synaptic or certain cytoskeletal protein immunoreactivities though significant changes were observed in neuron and astrocyte-specific proteins.
   (USMA Davies Fellow: please add summary of teaching, including classes taught.)

8) RESEARCH IN PROGRESS  
   Describe in no more than 100 words.
   My current research is focused on the role of inflammatory mediators in the observed brain pathology of acute soman exposure. We have found several key inflammatory cytokines and chemokines are upregulated early following soman exposure. Current data suggests that inflammation likely plays an integral role in the progression, severity and lethality of acute soman exposure even with antidote pretreatment.

9) PUBLICATIONS AND PAPERS RESULTING FROM NRC 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
      none
   b) Books, book chapters, other publications
   c) Manuscripts in preparation, manuscripts submitted


10) **PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NRC 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

none
Domestic

E.A. Johnson, K.S. Daugherty, S.J. Gallagher & S.M. DeFord., REPEATED SUB-LETHAL EXPOSURE TO SOMAN PRODUCES SIGNIFICANT CHANGES IN GLUTAMATE RECEPTOR IMMUNOREACTIVITY IN THE ABSENCE OF SIGNIFICANT BEHAVIORAL CHANGES AS MEASURED BY THE MORRIS WATER MAZE. Society for Neuroscience National Meeting, 10/06, Atlanta, GA

E.A. Johnson, K.S. Daugherty, S.J. Gallagher and S.M. DeFord, REPEATED SUB-LETHAL EXPOSURE TO SOMAN PRODUCES SIGNIFICANT CHANGES IN GLUTAMATE RECEPTOR IMMUNOREACTIVITY IN THE ABSENCE OF SIGNIFICANT BEHAVIORAL CHANGES AS MEASURED BY THE MORRIS WATER MAZE. Bioscience Review 06/06, Hunt Valley, MD

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

12/06, Expression of inflammatory mediators following acute soman exposure. Aberdeen Proving Ground -Edgewood Area, MD

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

none

14) POST-TENURE POSITION TITLE

STAS contractor with Battelle

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

Same as before (USAMRICD)

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

Remain at Host Agency as Permanent Employee
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

7 How the NRC Associateship award affected your career to date
 Comments

LAB SUPPORT

10 Quality of support--equipment, funding, orientation, safety and health guidelines, etc.
 Comments
 All top notch. Funding was never an issue.

ADVISER/MENTOR SUPPORT

10 Quality of mentoring from the Lab NRC Adviser (USMA Mentor, if applicable)
 Comments
 Dr. Kan has been magnificent. He has really helped me grow as a scientist. Dr. Rockwood and I had very limited interaction. My work was outside the realm of his expertise.

LPR SUPPORT

5 Quality administrative support from the Agency/Lab NRC Program Representative (LPR)
 Comments
 I had very little interaction with Dr. Hackley, though he was helpful when I could find him. Dr. Kan is too new to properly evaluate but I think he will be much more hands on.

NRC SUPPORT

10 Quality of administrative support from the NRC
 Comments
18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
I think a better screening method for potential mentors would be very helpful. Though I had pretty good luck with my mentors, I know many of the other mentors around the institute were not suitable. Also, a more clearly defined status as NRC fellows is absolutely necessary for tax purposes. I know all the NRCS here I talked to raised red flags with the IRS every year that taxes was filed. Better guidance form the NRC is necessary with perhaps a form letter that can be sent to the IRS during filing or more clear instructions.

Mail & Delivery Address
NRC Research Associateship Programs
The National Academies
500 Fifth Street NW, 5th Fl Rm. 568
Washington, DC 20001

THIS FORM SHOULD BE E-MAILED directly to your NRC coordinator
http://www7.national-academies.org/rap

Suggestions for, or problems with, forms should be directed to the forms manager,
Suzanne White, at swhite@nas.edu

ID# 0499190
Rev.10/2006
cost-center #
Research Associateship Programs

FINAL REPORT

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  
Klas

2) FORWARDING Address (for tax statement / final stipend check)  
1909 Chambers Dr.  
Bozeman, MT 59715

3) Today's Date  
February 23, 2006

4) Agency  
AMRMC

Laboratory  
USAMRIID

5) NAME OF RESEARCH ADVISER  
Robert G. Ulrich

6) TITLE OF RESEARCH PROPOSAL

Generation and immunization of HLA*A201 restricted peptides from the pCD1 plasmid of Yersinia pestis to elicit specific Tc

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

1) Identified 2 different HLA-A2 restricted CTL epitopes from Yersinia pestis

2) Discovered which human cell types can be infected by Yersinia pestis

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

During this first year we have successfully generated 3 peptides from the F1 protein of Yersinia pestis that were specific for the human HLA-A2 molecule. We picked the highest scoring peptides based on a mathematical algorithm (http://www.syfpeithi.de/Scripts/MHCServer.dll/Info.htm). These peptides were used in standard CTL assays to assess the ability of Y.pestis stimulated human T-cells to recognize the aforementioned peptides in a secondary response. The results from these experiments yielded 1 peptide (peptide A) that essentially every donor tested responded to favorably. Peptide B was responded to by approximately 60% of the donors, but the response was not as robust as peptide A. The final peptide was not responded to by any of the donors and therefore has become the negative control for the remainder of the studies.

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

Human immune cells have different susceptibilities to infection with *Yersinia pestis*.

Identification of HLA-A201 restricted CD8 epitopes from the F1 protein of *Yersinia pestis*.

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
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
Post-doctoral scientist

15) POST-TENURE ORGANIZATION Provide name and city of organization.
Ligocyte Pharmaceuticals
Bozeman, MT

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/Teaching at US College/University
- [ ] Research/Teaching at Foreign College/University
- [ ] Research/Administration in Industry
- [ ] Research/Admin in Non-Profit Organization
- [x] 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
8.00 Development of knowledge, skills, and research productivity

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

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

ADVISER SUPPORT
10 Quality of mentoring from the Adviser

LPR SUPPORT
10 Quality administrative support from the LPR

NRC SUPPORT
10 Quality of administrative support from the NRC

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
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
Kremenetsky

2) FORWARDING Address (to which your tax statement will be mailed)
Res. or Inst. c/o Alena Nareika
Street 1714 N. Woodmere Dr., Apt. 21
City, State Zip Charleston, SC, 29407

3) Today's Date
August 15, 2006

4) Agency Laboratory or Center Division / Branch / Directorate
AMRMC USA ISR Hemostasis

5) Name of Research Associateship Programs Adviser
Anthony E. Pusateri/Michail A. Dubiel

6) TITLE OF RESEARCH PROPOSAL
"Effect of Activated Recombinant Factor VII (rFVIIa) Administration on Survival in Swine during Hypovolemic Shock and Uncontrolled Hemorrhage"

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

1) We finished the model development phase. There were tested respiratory and metabolic acidosis models in pigs. It was confirmed some previously established procedures concerning anesthesia, catheters, and monitoring of hemodynamics.

2) Our experiments showed respiratory as well as metabolic acidosis induced the development of coagulopathy in the pigs. The restoration of pH did not restore blood coagulation.

3) Adding rFVIIa to pig plasma in vitro in dose 1.26µg/ml final plasma concentration increased the maximal thrombin generation, however it did not completely correct coagulopathy.

4) It was studied the effects different fluid solutions (Fextend and Lactated Ringer) on coagulation function of normal and hypothermic human plasma in vitro with and without 90µg/kg rFVIIa (1.26µg/ml final plasma concentration).

5) We modified the thrombin generation test (developed by Hemker H.C. et al. 1993; 2003). This assay is suitable for detecting treatment-dependent changes in the kinetic of thrombin generation and monitoring the pharmacokinetics of rFVIIa.

8) RESEARCH IN PROGRESS Describe in no more than 100 words.
It was developed an experimental animal model of acidosis. The results of in vitro experiments provide further experimental evidence that rFVIIa may be useful in treating hemorrhage in trauma patients despite hemodilution from massive fluid resuscitation or presence of hypothermia and acidosis. The effects of rFVIIa will be tested on this acidosis model as well as hemorrhagic shock model in US Army ISR.

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
NO

b) Books, book chapters, other publications
NO

c) Manuscripts in preparation, manuscripts submitted
NO

10) PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.
NO
11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.

International
NO

Domestic

12) SEMINARS OR LECTURES DELIVERED AT UNIVERSITIES AND/OR INSTITUTES Include dates, names and locations of seminars.
NO

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE
NO

14) POST-TENURE POSITION TITLE
Postdoctoral Research Fellowship

15) POST-TENURE ORGANIZATION Provide name and address of organization.
Department of Experimental Pathology and Transfusiology
Republican Scientific-Practical Centre of Hematology and Transfusiology.
160 Dolginovskiy Tract, Minsk 220059, Belarus

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
NO

LONG TERM VALUE
☐ 10 How the National Academies Associateship award affected your career to date
Comments
I hope it will be in the future. I've gained experience.

LAB SUPPORT
☐ 8 Quality of support--equipment, funding, orientation, safety and health guidelines, etc.
Comments
There was some problem to get regular internet access.

ADVISOR SUPPORT
☐ 10 Quality of mentoring from the Advisor
Comments
I satisfied quality of mentoring from my adviser Dr. Tony pusateri as well as Dr. Michael Dubick.

LPR SUPPORT
☐ 10 Quality administrative support from the LPR
Comments
NO

NRC SUPPORT
☐ 10 Quality of administrative support from the NRC
Comments
I greatly appreciate quality administrative support from the NRC. The staff is very qualified and ready to help in different situations.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT:

NO

<table>
<thead>
<tr>
<th>US Postal Service mailing address</th>
<th>THIS FORM SHOULD BE E-MAILED directly to your NRC coordinator website</th>
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<td>cc: Research Associateship Programs</td>
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</tbody>
</table>
FINAL REPORT

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
   Langston

2) FORWARDING Address (to which your tax statement will be mailed)
   Res. or Inst. Residence
   Street 2124 Fallston Road
   City, State Zip Fallston, MD 21047

3) Today's Date
   May 12, 2006

4) Agency
   Laboratory or NASA Center
   Division / Branch / Directorate
   AMRMC
   USAMRMCID
   Analytical Toxicology/Neurobehavioral To

5) Name of Research Associateship Programs Adviser
   Gary A. Rockwood

6) TITLE OF RESEARCH PROPOSAL
   Development of a Guinea Pig Test Battery to Assess the Behavioral Effects of Exposure to Chemical Warfare Nerve Agents

7) SUMMARY OF RESEARCH DURING TENURE
   Itemize significant findings in concise form, utilizing key concepts/words.
   1) Repeated exposure to CWNA at doses that produce behavioral effects often also induces overt toxicity. Doses of CWNA that produce overt toxicity may produce behavioral alterations that persist months after exposure.
   2) Guinea pigs are suitable subjects for evaluating the behavioral effects of drugs and toxicants. Guinea pigs do not seem to perform well in tasks that require the animal to travel in open spaces (i.e., radial arm maze, open field).
   3) Conducted dose-response study of GB with animals performing under progressive ratio schedule. Conducted dose-response study of VX with animals performing under progressive ratio schedule. Evaluated ability of animals to learn new task after VX.
   4) Guinea pigs perform qualitatively similar to other rodent species on a variety of operant behavior tasks including: active avoidance, multiple schedules of reinforcement, simple schedules of reinforcement, delayed matching and discrimination.

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

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
      N/A
   c) Manuscripts in preparation, manuscripts submitted
10 PATENT OR COPYRIGHT APPLICATIONS RESULTING FROM NATIONAL ACADEMIES ASSOCIATESHIP RESEARCH
Provide titles, inventors, and dates of applications.

n/a

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

International

n/a

Domestic


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

N/A

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

N/A

14) POST-TENURE POSITION TITLE

STAS subcontractor

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

USAMRICD
3100 Ricketts Point Road
Aberdeen Proving Ground, MD 21010

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 USAMRICD
☐ 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 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

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

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

Administrative Support

☐ 5 Quality of the support you received from the federal Laboratory

☐ 7 Quality of the support you received from the Research Associateship Programs staff (Leave blank, if not applicable – e.g., NIST)
18) **PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.**

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<td>Miroshnikova</td>
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<th>FORWARDING Address (to which your tax statement will be mailed)</th>
<th>FORWARDING Phone(s) and E-Mail (if known)</th>
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<tbody>
<tr>
<td>Res. or Inst. Natalia Dyatkin</td>
<td>Home Phone: 650-949-2790</td>
</tr>
<tr>
<td>Street 150 Pocleti Way</td>
<td>Alt. Phone: 301-512-8565</td>
</tr>
<tr>
<td>City, State Zip Mountain View, CA 94040</td>
<td>E-mail: <a href="mailto:olga.mirosh@gmail.com">olga.mirosh@gmail.com</a></td>
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<td>February 17, 2006</td>
<td>from February 24, 2003 to February 24, 2006</td>
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<th>Agency</th>
<th>Laboratory or Center</th>
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<tr>
<td>AMRMC</td>
<td>WRAIR</td>
<td>Experimental Therapeutics</td>
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</table>

5) Name of Research Associateship Programs Adviser

Dr. Lin, A. J.

6) TITLE OF RESEARCH PROPOSAL

Potential Inhibitors of Malaria Parasites.

7) SUMMARY OF RESEARCH DURING TENURE

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

1) Designed and synthesized novel antimalarial drugs.
2) Conducted multiple-step synthesis of Michal acceptor-based peptidomimetic inhibitors.
3) Improved existing methods of peptide synthesis to optimize product yield and selectivity.
4) Developed new approaches to overcome Mitsunobu reaction separation problem of the final product from hyproduct, dcarboalkoxy hydrazine (DCH).
5) Investigated Structure-Activity Relationship of compounds obtained.

8) RESEARCH IN PROGRESS

Describe in no more than 100 words.

Finishing up the project and prepare manuscript for publication.

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

N/A

b) Books, book chapters, other publications

N/A
c) Manuscripts in preparation, manuscripts submitted


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

Provide titles, inventors, and dates of applications.

N/A

11) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES

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

International

N/A

Domestic

Extending our design and synthesis of novel peptidomimetic antimalarials based on a Michael acceptor core, our efforts are directed toward lengthening of the peptide chain by addition of extra amino acids, such as phenylglycine, phenylalanine and homophenylalanine, into the Michael acceptor backbone. Peptide coupling of the Michael acceptor with amino acids resulted in a mixture of diastereomers, which were successfully separated by column chromatography. The purified isomers were coupled with a 5-substituted aminopyrimidinyl carboxyl acid to give the final products 1a–3a and 1b-3b in high yield. The products were evaluated for their in vitro antimalarial activities against Plasmodium falciparum.

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

N/A

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE

N/A

14) POST-TENURE POSITION TITLE

Research Chemist

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

Walter Reed Army Inst. of Research
Department of Med. Chemistry
503 Robert Grant Ave
Silver Spring, MD 20910

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 WRAIR
☐ 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

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directly to your NRC coordinator
website
www.national-academies.org/cap

ID#

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

Rev. 01/2006

cost-center #
**FINAL REPORT**

**Print Layout View**

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<td>Pearson</td>
<td>Brooke</td>
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<th>4) Agency</th>
<th>5) Name of Research Associateship Programs Adviser</th>
<th>6) TITLE OF RESEARCH PROPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res. or Inst. Street 104 Park Ave #202 City, State Zip Gaithersburg, MD 20877</td>
<td>September 26, 2006</td>
<td>AMRMC</td>
<td>Dr. Arthur Friedlander</td>
<td>Characterization of the Antibody Response to Inhalational Anthrax in Humans</td>
</tr>
</tbody>
</table>

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

1) We determined the extent of the antibody response to the three components of the anthrax toxin: PA, LF and EF.

2) I have demonstrated that these antibodies are capable of blocking serum conversion of the full-length protective antigen (PA) to its active form.

3) These antibodies can also block the binding of full-length PA to the surface of cells.

4) I also demonstrated that the antibodies are able to block the cleavage of PA after it is already bound to cells.

5) Additionally, we demonstrated that antisera inhibits the enzymatic activity of the LF toxin.

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

In order to further characterize the human immune response to anthrax, a collaboration with Diversa corporation has been established. This collaboration will allow me to identify the anthrax proteins which are immunogenic to humans. Toward this goal a method is was developed for purifying anthrax bacilli membranes which were sent to Diversa to be analyzed using sera from human survivors of anthrax infection via PF2D technology. The identified proteins, which we refer to as the "immunome," represent the portion of the anthrax proteome which is immunogenic in humans. The individual immunoreactive proteins are currently being identified via mass spec. analysis

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

Pearson, B; Little, SF; Tobery, SA; Panchal, R; Friedlander, AM. "Functional Analysis of the Human Immune Response to the Toxins of Bacillus anthracis"

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

Pearson, B; Little, SF; Tobery, SA; Panchal, R; Friedlander, AM. "Functional Analysis of the Human Immune Response to Anthrax Lethal and Edema Toxins". Bacillus - ACT 2005 International Conference. Santa Fe, NM

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
Senior Scientist

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

Cubic Applications, Inc.
5695 King Center Drive / Suite 300
Alexandria, VA 22315

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
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☐ 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

☐ Development of knowledge, skills, and research productivity
Comments

LONG TERM VALUE

☐ How the National Academies Associateship award affected your career to date
Comments

LAB SUPPORT

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

ADVISER SUPPORT

☐ Quality of mentoring from the Adviser
Comments

Dr. Friedlander is a very busy man and is often not at USAMRIID. This being said I think he worked hard to be available for me when I requested his help and guidance. However, if I didn’t ask to see him, I often wouldn’t see him for months at a time. In many ways it is nice to be trusted to work on your own. Personally I think I would have liked to have a more interactive mentorship.

LPR SUPPORT

☐ Quality administrative support from the LPR
Comments

I don’t know what “LPR” stands for. If that means the lab I worked then I think the support I received administratively was excellent.

NRC SUPPORT

☐ Quality of administrative support from the NRC
Comments
I really had no contract with the NRC other than in the application and renewal process. Even then the forms were sent to me and I filled them out and then sent them back.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

US Postal Service mailing address
Research Associateship Programs
The National Academies
500 Fifth Street NW
Washington, DC 20001

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

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website
www.national-academies.org/rap

Research Associateship Programs

ID# 0381600

Rev. 07/2006

ce:

cost-center #
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1) Associate Last or Family Name
   Silvestri

2) FORWARDING Address (to which your tax statement will be mailed)
   Res. or Inst.
   Street 201 Plantation Club Dr #1510
   City, State Zip Melbourne, FL 32940

3) Today's Date
   January 10, 2006

4) Agency
   AMRMC

5) Laboratory or NASA Center
   USAMRIID

6) Division / Branch / Directorate
   Bacteriology

7) Name of Research Associatehip Programs Adviser
   Sina Bavari

8) TITLE OF RESEARCH PROPOSAL
   Identification of Inhibitors of Filovirus RNA Polymerases

9) SUMMARY OF RESEARCH DURING TENURE
   Itemize significant findings in concise form, utilizing key concepts/words.
   1) Effective siRNA against components of the Ebola and Marburg polymerase complexes (L, VP35, VP30, and NP) were identified.
   2) siRNAs were evaluated by Western blot after transfection of cells with siRNA and expression vectors. Transfection of cells with siRNA in various combinations followed by virus infection was effective in reducing virus titers.
   3) Transfection of siRNA into mice by hydrodynamic shear did not protect mice from death from Ebola virus infection.
   4) The amount of siRNA used, the delivery method, and lack of siRNA chemical modification for in vivo delivery likely contributed to the mouse study results.

10) RESEARCH IN PROGRESS
    Describe in no more than 100 words.
    The identified siRNA sequences will be chemically modified to suit in vivo applications and re-tested in mice. Cellular targets for RNAi that may delay the function of the filovirus polymerase complex will be investigated.

11) 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

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    Provide titles, inventors, and dates of applications.

13) PRESENTATIONS AT SCIENTIFIC MEETINGS OR CONFERENCES
    Provide complete references: author(s), title, abstract/proceeding citation, meeting name and location.
    International
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.
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- Research/Administration in Industry
- Research/Administration in Non-Profit Organization
- Postdoctoral Research
- Self Employed
- Other: specify N/A

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

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

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

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

ADVISER SUPPORT
- Quality of mentoring from the Adviser
  Comments

LPR SUPPORT
- Quality administrative support from the LPR
  Comments

NRC SUPPORT
- Quality of administrative support from the NRC
  Comments

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.
<table>
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<th>m:\AO Forms</th>
<th>Research Associateship Programs</th>
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**FINAL REPORT**

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

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<tr>
<td>1) Associate Last or Family Name</td>
<td>First Name</td>
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<td>M.I.</td>
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<tr>
<td>2) FORWARDING Address (to which your tax statement will be mailed)</td>
<td>FORWARDING Phone(s) and E-Mail (if known)</td>
</tr>
<tr>
<td>Res. or Inst.</td>
<td>Home Phone: 240-505-4127</td>
</tr>
<tr>
<td>Street 208 cours de le Libération</td>
<td>Alt. Phone: 301-319-3008</td>
</tr>
<tr>
<td>City, State Zip 38100 Grenoble FRANCE</td>
<td>E-mail: <a href="mailto:laura.tonduli@na.amedd.army.mil">laura.tonduli@na.amedd.army.mil</a></td>
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<tr>
<td>3) Today's Date</td>
<td>Dates of Tenure</td>
</tr>
<tr>
<td>November, 8th, 2006</td>
<td>from February 17, 2004 to December 15, 2006</td>
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<td>4) Agency</td>
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<td>Biochemistry</td>
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<td>5) Name of Laboratory NRC Adviser (and USMA Mentor, if applicable)</td>
<td>Division / Directorate / Department</td>
</tr>
<tr>
<td>Dr Bhupendra P Doctor</td>
<td>Funds de Commission</td>
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<tr>
<td>6) TITLE OF RESEARCH PROPOSAL</td>
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<tr>
<td>EVALUATION OF VARIOUS REVERSIBLE ACETYLCHOLINESTERASE INHIBITORS AS POTENTIAL PRETREATMENTS AGAINST ORGANOPHOSPHATE INTOXICATION</td>
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</tbody>
</table>

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

1) We build up a reliable and reproducible ex vivo method that mimics the in vivo situation of a subject pretreated with cholinesterase reversible inhibitors and then exposed to organophosphate agents (OPS).

2) With this method, we determined for 5 pretreatments (pyridostigmine, physostigmine, huperzine, tacrine and galanthamine) the kinetics of inhibition and recovery of cholinesterases activities after various OPs exposures (MEPQ or DEPQ or soman).

3) We compared these inhibitors between them to determine which one seem to be the more efficient when used as a pretreatment of a nerve agent intoxication.

4) We also determined the tissue distribution of exogenous human serum butyrylcholinesterase after intra muscular administration.

5) (USMA Davies Fellow: please add summary of teaching, including classes taught.)

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

We have investigated the efficacy of pyridostigmine, physostigmine, huperzine, tacrine and galanthamine as potential pretreatments against organophosphate intoxication (MEPQ, DEPQ or soman) using unprocessed guinea pig, rhesus monkey or human blood.

Results showed that the time for recovery of AChE activity varied with the reversible inhibitor, the OP and the species used. With MEPQ, protected AChE activity completely recovered in most of the cases whereas with DEPQ, only part of it recovered. Recovery times were usually longer for AChE protected with tacrine and galanthamine compared with AChE protected with huperzine or pyridostigmine. Data obtained after soman exposure are still in progress.

**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
- Tonduli LS, Tipparaju P, Doctor BP, Saxena A. Screening of reversible cholinesterase inhibitors as potential pretreatments for organophosphate toxicity (manuscript in preparation)

- Sun W, Tonduli L, Doctor BP, Saxena A. Tissue distribution of human serum butyrylcholinesterase in guinea pigs (manuscript 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

- Tonduli LS, Doctor BP, Saxena A. (Oct 2005) An ex vivo approach for the evaluation of reversible inhibitors as potential pretreatments against organophosphate toxicity. VIIIth International Meeting on Cholinesterases, Perugia, Italy.
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
Unknown at that time

15) POST-TENURE ORGANIZATION Provide name and address of organization.
Unknown at that time

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 ______
- Research Position at Another US Government Laboratory
- Administrative Position at US Government Laboratory
- Research Position at Foreign Government Laboratory

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

SHORT TERM VALUE
8 Development of knowledge, skills, and research productivity
Comments
This fellowship allowed me to better understand the mechanisms involved in nerve agents intoxication and improved my expertise in the chemical warfare field.

LONG TERM VALUE
4 How the National Academies Associateship award affected your career to date
Comments
The NRC gave me the opportunity to work in a foreign laboratory and thus to have a different approach of the research in my field.

LAB SUPPORT
10 Quality of support—equipment, funding, orientation, safety and health guidelines, etc.
Comments
All equipments and products I need to perform my work were available at all time.

ADVISER/MENTOR SUPPORT
- Quality of mentoring from the Lab NRC Adviser (USMA Mentor, if applicable)
Comments
I had the chance to have two advisers, Dr Doctor and Dr Saxena who helped me make the most of my experience here. They both integrated me in the team very quickly and had always been very motivating and supportive.

LPR SUPPORT
8 Quality administrative support from the LPR
Comments
Dr Sara Rothman had been very precious in solving all the issues I had.

NRC SUPPORT
8 Quality of administrative support from the NRC
Comments
All NRC staff had been helpful and trustworthy in answering my questions.
THE NATIONAL ACADEMIES  
Advisers to the Nation on Science, Engineering, and Medicine  
National Research Council

FINAL REPORT
Print Layout View

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

1) Associate Last or Family Name  
Urso

2) FORWARDING Address (to which your tax statement will be mailed)  
Res. or Inst.  
Street 6 Walden Drive, Unit 5  
City, State Zip Natick, MA 01760

3) Today's Date  
September 18, 2006

4) Agency  
AMRM

Laboratory or Center  
ARIEM

Division / Directorate / Department  
Military Performance Division

5) Name of Laboratory NRC Adviser (and USMA Mentor, if applicable)  
Dr. Edward J. Zambraski

6) TITLE OF RESEARCH PROPOSAL  
Effects of Prior Injury on Skeletal Muscle Inflammatory Pathways in Response to Disuse and Reloading

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

   1) Refined research proposal and learned additional laboratory techniques necessary to execute proposed experimental design.

   2) Submitted a research proposal to the Scientific Review Committee to conduct a pilot experiment on pre-existing human samples. The purpose of this work is to explore the effects of muscle injury (due to resistance exercise) on protease activity.

   3)  

   4)  

   5)  

   (USMA Davies Fellow: please add summary of teaching, including classes taught.)

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

   Awaiting clearance from the Scientific Review Committee to conduct pilot experiment. Once pilot experiment is complete, I will begin work on the larger proposal.

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  
N/A

   b) Books, book chapters, other publications  
N/A

   c) Manuscripts in preparation, manuscripts submitted  
N/A

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

   N/A

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

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

13) PROFESSIONAL AWARDS RECEIVED DURING TENURE 
N/A

14) POST-TENURE POSITION TITLE 
U.S. Army Officer, Rank-Captain, AOC- Biochemist

15) POST-TENURE ORGANIZATION  Provide name and address of organization. 
Department of the Army, 1 Reserve Way, St. Louis, MO 63132 
Station: USARIEM, Kansas St., BLDG. 42, Natick, MA 01760

16) POST-TENURE POSITION STATUS / CATEGORY  Please indicate only one. 
☑ Remain at Host Agency as Permanent Employee  ☐ Research/Teaching at US College/University
☐ Remain at Host Agency as Contract/Temporary Employee  ☐ Research/Teaching at Foreign College/University
☐ Research Position at Another US Government Laboratory  ☐ Research/Administration in Industry
☐ Administrative Position at US Government Laboratory  ☐ Research/Administration in Non-Profit Organization
☐ Research Position at Foreign Government Laboratory  ☐ 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 
This award afforded me the unique opportunity to develop my own research ideas and protocols and work at my own pace.

LONG TERM VALUE 
10 How the National Academies Associateship award affected your career to date 
Comments 
This award placed me in an environment where I was exposed to non-traditional career options. I am now going to serve my country as a research scientist for the US Army.

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

ADVISER/MENTOR SUPPORT 
10 Quality of mentoring from the Lab NRC Adviser (USMA Mentor, if applicable) 
Comments 
Dr. Zambraski evaluated each of my ideas, discussed the scientific merit, and provided adequate guidance to insure that my research and learning experiences were optimal.

LPR SUPPORT 
9 Quality administrative support from the LPR 
Comments

NRC SUPPORT 
10 Quality of administrative support from the NRC 
Comments 
The NRC was extremely helpful during my tenure, but most importantly, when I decided to change my career plans and become an officer in the US Army, the NRC team was extremely supportive and allowed for a seamless transition.

18) PLEASE PROVIDE ANY SUGGESTIONS FOR PROGRAM IMPROVEMENT.

US Postal Service mailing address  THIS FORM SHOULD BE E-MAILED  Express Delivery address