ANNUAL REPORT 2011

research  education  innovation
From the TSFRE President

TSFRE has joined the electronic age! We believe this new look and format for our Annual Report is one indication of our efforts to expand the scope and reach of our specialty’s major effort in funding support for research in cardiothoracic surgery.

This Annual Report contains a summary of the cutting edge research TSFRE has funded over the years, together with testimonials by those young surgeon scientists who have contributed so much to the delivery of optimal care for our patients. I would like to particularly call your attention to the excerpt of the article by Dr. David Jones entitled, “Why Research Awards Matter” which appeared in the JTCVS in May, 2011. It brilliantly summarizes the role TSFRE plays in supporting research and the benefits it brings to our specialty.

We are particularly proud of the career successes of the 18 recipients of the Nina Starr Braunwald Award which has been generously supported by Dr. Eugene Braunwald in memory of his wife, the first woman certified by the American Board of Thoracic Surgery. We also are delighted that through our joint funding efforts with the NHLBI and the NCI we have supported 18 recipients of KO8/K23 grants, 34 recipients of Research Grants and 39 recipients of Research Fellowships which provide for the expansion of careers in our specialty by young investigators.

During the past year, each member of the Board of Directors of the Foundation has pledged $10,000 in contributions to the organization as a visible demonstration of their commitment to supporting our research efforts.

TSFRE’s ability to continue to support these young surgeon-scientists is almost entirely dependent upon the support of all of us in the specialty. In these difficult economic times, we have not been able to depend upon major industry donors to the degree we experienced in our early years so I ask each of you to join your colleagues listed in this Annual Report as supporters of this most worthwhile cause and contribute early and often during the coming year so that we might continue to fulfill our mission of “Fostering the development of surgeon scientists in cardiothoracic surgery and increasing knowledge and innovation to benefit patient care.”

Alec Patterson, MD
TSFRE President

TSFRE Mission

Fostering the development of surgeon scientists in cardiothoracic surgery.
Increasing knowledge and innovation to benefit patient care.
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“A positive return on investment: Research funding by the Thoracic Surgery Foundation for Research and Education (TSFRE)”

David R. Jones, MD, Michael J. Mack, MD, G. Alexander Patterson, MD, Lawrence H. Cohn, MD

a Department of Surgery at the University of Virginia, Charlottesville, Va; b Cardiothoracic Associates of North Texas, Dallas, Tex; c Washington University, St Louis, Mo; d Brigham and Women's Hospital, Harvard University, Boston, Mass

Objectives: The Thoracic Surgery Foundation for Research and Education (TSFRE) was formed in 1991 with the primary goals of generating new knowledge and nurturing the development of surgeon–scientists. The purpose of this article is to determine how effective the TSFRE has been in achieving these goals.

Methods: A survey instrument was sent electronically to all former and current TSFRE research award recipients. Major themes included the benefits on TSFRE award recipients with respect to career choices of thoracic surgery, progress toward research independence, and the ability to leverage TSFRE funds to more substantive National Institutes of Health (NIH) awards. Success rates for NIH funding were confirmed using NIH Research Portfolio Online Reporting Tools.

Results: The total completed survey response rate was 70% (75/107). The response rates for each group were as follows: resident 74% (28/38), faculty 85% (29/34), Braunwald 50% (9/18), and TSFRE/NIH K-award 65% (11/17). The funding rate for all grants was 14% (90/619). For resident research awardees, 81% (34/42) are cardiothoracic surgeons or are thoracic surgery residents. The conversion rate for existing TSFRE/NIH co-sponsored K-awards to R01 grants is 40% at 5 years compared with a 20% K to R conversion rate for all NIH K-award recipients. K to R conversion rates for junior faculty grant awardees without a prior K-award is 44%, which is much higher than NIH rates for all new investigator R01 awards.

Conclusions: The return on investment for TSFRE funding for surgeon–scientists is resoundingly positive with respect to promoting careers in cardiothoracic surgery and to obtaining subsequent NIH funding for thoracic surgeon investigators.

Abbreviations and Acronyms
AATS = The American Association for Thoracic Surgery; NCI = National Cancer Institute; NHLBI = National Heart, Lung, and Blood Institute; NIH = National Institutes of Health; STS = The Society of Thoracic Surgeons; TSFRE = The Thoracic Surgery Foundation for Research and Education

Introduction
The Thoracic Surgery Foundation for Research and Education (TSFRE) was founded in 1991 by the 4 major thoracic surgical associations and societies. It is the primary mechanism through which the specialty of thoracic surgery supports the initial research efforts of residents interested in careers in thoracic surgery, as well as junior faculty members who have committed to having research as a critical part of their academic careers. The first TSFRE grants were awarded in 1993. TSFRE research award recipients are selected by the Foundation’s research committee comprising 12 to 15 North American thoracic surgeons. Approximately 3 to 5 awards are given annually, with most awards being for 2 years’ duration. All applicants receive a peer-reviewed scientific critique of their research plan regardless of the funding status of the proposal.

Since 1993 the TSFRE has made 90 awards totaling over $5 million in awards to general surgery residents and young academic thoracic surgeons. As part of these awards, the Nina S. Braunwald Award for women performing research in cardiovascular diseases was established in 1993 by her
husband to honor his wife's legacy. To date, over $1.5 million has been awarded to Braunwald recipients.

In 2002 the TSFRE partnered with the National Heart, Lung, and Blood Institute (NHLBI) and in 2005 the National Cancer Institute (NCI) to jointly sponsor Mentored Clinical Scientist Development Awards (K08) and Mentored Patient Oriented Research Career Development Awards (K23). These grant submissions receive the same National Institutes of Health (NIH) peer review as all other K-grants. TSFRE support is given only to funded recipients. Through this partnership, TSFRE was able to augment the salary support provided by the NHLBI or NCI for 17 K-award recipients. Support from the TSFRE for this important collaboration with the NIH thus far has been $4.4 million. Therefore, total TSFRE research support for 107 grants, including the Braunwald awards, over the past 18 years has been approximately $9.4 million.

To date there has been no analysis of how effective the investment of Foundation support has been in achieving one of the primary goals of the TSFRE—to nurture and support young thoracic surgeon–scientists. In an effort to address the “return on investment” by the TSFRE with respect to the development of future thoracic surgeon–scientists, we designed a specific survey instrument to query TSFRE awardees on how effective the TSFRE was in achieving this goal. The results and their implications are discussed in the subsequent report.

**Methods**

A 33-item survey instrument was sent electronically to all former and current TSFRE research award recipients. This also included recipients of co-sponsored K-awards as well as all the Nina Braunwald recipients. Major themes contained within the survey included the role of TSFRE in positively promoting our specialty, the impact of scientific mentorship, the ability of awardees to apply for and obtain NIH awards (both K- and R- awards), and the current job descriptions of the resident and faculty awardees. Individuals who had been awarded more than 1 TSFRE grant were asked to complete only 1 survey. Two follow-up electronic reminders were sent to those individuals who had not completed the initial survey.

To confirm the success rates for NIH funding for the entire cohort of TSFRE awardees, we used the NIH Research Portfolio Online Reporting Tools. All TSFRE awardees were screened using this mechanism and the result and type of award (ie, K08, R01, R21) were documented. The American Association for Thoracic Surgery (AATS) and The Society of Thoracic Surgeons (STS) membership was confirmed through the respective association membership rosters. Membership was assigned to each specific group on the basis of the type of award given to the individual. The Research Portfolio Online Reporting Tools findings and the survey responses were then collated and analyzed.

**Results**

**General Observations**

From 1993 to 2010, there were 619 grant submissions for resident, junior faculty, and Braunwald TSFRE awards. The average number of grants submitted annually is 39 (range 23–71). Ninety of these grants were awarded for an overall 14% funding rate. These included 38 resident fellowships, 34 junior faculty grants, and 18 Nina Braunwald grants. In addition to these funded grants, 17 NIH co-sponsored K08 and K23 grants were also awarded.

The total completed survey response rate was 70% (75/107). The response rates for each group were as follows: resident 74% (28/38), faculty 85% (29/34), Braunwald 50% (9/18), and TSFRE/NIH K-award 65% (11/17). Eighty percent of all awards were given to men. Race distribution for the 75 respondents was white (65%), Asian (28%), Hispanic (3%), African American (1%), and other (3%). Eighty percent of TSFRE award recipients were between 35 and 50 years of age.
Resident Research Fellowships
One of the primary purposes for awarding research fellowships to general surgery residents is not only to instruct them in the scientific method, but also to introduce them to academic thoracic surgery. The results of our study show that 96% of resident grant awardees practice in an academic center, with nearly 50% having a faculty appointment. Over 75% of those who have a faculty appointment have their own laboratory and 32% have been successful in obtaining NIH funding, including R01, K08, and other awards. Perhaps more important, 77% of these fellowship awardees plan to apply to the NIH for funding in the future.

Interestingly, 85% of respondents believe that initial TSFRE funding was critical to launching their research careers. Moreover, 74% of respondents still collaborate with their scientific mentor and the majority of those respondents who are on the faculty have medical students and residents in their laboratories.

Junior Faculty Grants
Fourteen percent of the respondents in this category are women and 90% practice in an academic medical center (60% adult cardiac and 40% general thoracic). The majority are assistant (42%) or associate professors (31%). With respect to how they spend their time, 60% spend 20% to 50% of their time in research with only 13% spending more than 50% of their time in research-related activities (Table 1).

Seventy percent of respondents have their own laboratory and 35% (12/34) have been successful in securing NIH funding. Specifically, of those receiving NIH funding, 75% (9/12) have had an R01 award, 17% (2/12) have had a K-award, and 8% (1/12) have a U01 award (Table 1). Remarkably, for all junior faculty grant awardees from 1993 though 2006, 9 (39%) of 23 have made the conversion from TSFRE funding to an R01 award. There has been a slight decrease in the current NIH funding levels for all junior faculty grant awardees, with only 8% and 58% of recipients having K08 and R01 awards, respectively. There are, however, 11 TSFRE faculty grant awardees (2007 to the present) who should soon have enough experience to apply for NIH K- or R-awards.

In addition to their other research interests, 62% of respondents have been a principal investigator for one or more clinical trials at their institution. They are participating members in their professional associations with solid membership rates in the STS (76%) and the AATS (47%). Over 80% of respondents believe the TSFRE award was critical to launching their research careers, and like the fellowship awardees, over 90% have medical students and general surgery residents in their laboratories. Finally, 71% of these respondents still collaborate with their TSFRE mentors and 78% have encouraged residents in their own laboratories to apply for TSFRE funding.

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### TABLE 1: Characteristics of TSFRE award recipients

<table>
<thead>
<tr>
<th>TSFRE research award category</th>
<th>Resident</th>
<th>Junior faculty</th>
<th>Braunwald</th>
<th>NIH K08/23</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>38</td>
<td>34</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Male/female</td>
<td>32:6</td>
<td>33:1</td>
<td>0:18</td>
<td>16:1</td>
</tr>
<tr>
<td>NIH funding (%)</td>
<td>N/A</td>
<td>35</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>R01 funding (%)</td>
<td>N/A</td>
<td>39*</td>
<td>17</td>
<td>44†</td>
</tr>
<tr>
<td>≥50% fo time spent in research (%)</td>
<td>19</td>
<td>13</td>
<td>11</td>
<td>56</td>
</tr>
<tr>
<td>PI of a clinical trial</td>
<td>40</td>
<td>62</td>
<td>38</td>
<td>44</td>
</tr>
<tr>
<td>Collaboration with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>scientific mentor (%)</td>
<td>74</td>
<td>71</td>
<td>71</td>
<td>67</td>
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<tr>
<td>STS membership (%)</td>
<td>55</td>
<td>76</td>
<td>55</td>
<td>94</td>
</tr>
<tr>
<td>AATS membership (%)</td>
<td>10</td>
<td>47</td>
<td>28</td>
<td>53</td>
</tr>
</tbody>
</table>

TSFRE, Thoracic Surgery Foundation for Research and Education; NIH, National Institutes of Health; PI, Principal investigator; STS, The Society for Thoracic Surgeons; AATS, The American Association for Thoracic Surgery.

*Funding rate for all junior faculty from 1993 through 2006. †Either finished or have completed 4 years of their K-award.
Braunwald Grants
Applicants for the Braunwald award must be women with research proposals in cardiovascular or congenital heart disease. All of the respondents who are working are in academic surgery. A breakdown of respondent practice patterns reveals that 66% practice adult cardiac surgery, 16% surgery for congenital heart disease, and 16% are not practicing medicine at all. Unfortunately, 89% of Braunwald awardees spend less than 50% of their time doing research and 30% spend less than 1 day a week doing research (Table 1). Thirty-three percent of Braunwald recipients have their own laboratory, 38% have been the principal investigator on a clinical trial at their institution, and 4 (22%) of 18 have been successful in obtaining NIH funding. As would be expected, all of these awards came through the NHLBI. Membership rates in the STS and AATS are 55% and 28%, respectively. Interestingly, 22% (4/18) of the Braunwald award recipients who were general surgery residents chose not to pursue a career in cardiothoracic surgery.

TSFRE/NIH Co-Sponsored K-Awards
Since its inception there have been 17 K-awards co-sponsored by the NIH and the TSFRE. Interestingly, only 12% (2/17) of K-awardees had a history of any type of prior TSFRE funding. Only 1 woman has been a recipient of this K-award co-sponsorship. At the NHLBI there have been 18 applications with 12 funded (66% funding rate) and at the NCI there have been 20 applications with only 5 funded (25% funding rate). There have been 3 successful K23 awards and all these are funded through the NCI. On average, 4 K-grants are submitted annually to the NIH by cardiothoracic surgeons who checked the box on the NIH application to receive matching funds from the TSFRE.

In what is likely an honest assessment, only 56% of the respondents spend 50% or more of their time performing research. Of the 9 K-award recipients who have either finished or have completed 4 years of their K-award, 4 (44%) have converted it to an R01 award with all awards coming from the NHLBI.

Discussion
The degree of discretionary funding to support surgical researchers has decreased significantly as physician reimbursement rates from insurance carriers, including the Center for Medicare and Medicaid Services, has decreased significantly over the past 20 years. Current expectations for both faculty salary support and revenues to the medical center mandate that the majority of faculty effort be devoted to patient care. In addition to the demands of clinical practice, the number of thoracic surgeons who are performing research is thought to have decreased over the past decade. This is clearly related to linking physician remuneration to the generation of relative value units which, in our specialty, directly correlates to increasing time and effort. The domino effect of fewer surgical scientists is that there are then fewer appropriately trained mentors for residents and students interested in cardiothoracic surgical research. The importance of these mentor–mentee relationships is well documented and is further supported in this study, where over 70% of respondents still collaborate with their mentor and 70% have residents or students in their own research laboratories.

Unequivocal measures of the success of the TSFRE program are its ability to foster academic careers, to promote sustained interest in the discipline of cardiothoracic surgery, and to help produce the next generation of extramurally funded thoracic surgeon–scientists. Evidence for the impact of TSFRE on the first 2 goals is that 87% of TSFRE awardees practice in academic medical centers. In addition, of the 42 resident research awardees (including some residents who were Braunwald awardees) from 1993 to 2008, 81% (34/42) are cardiothoracic surgeons or are currently in a thoracic surgery residency program. It is impossible to ascertain whether residents working in thoracic surgeon–scientist’s laboratories were committed to a career in thoracic surgery before their research experience. It is our belief; however, that one reasonable interpretation is that some
residents who were initially undecided about a career choice were convinced that cardiothoracic surgery would be a rewarding career after completing their research experience.

Our study also strongly supports the positive impact of TSFRE funding on helping support the next generation of extramurally funded thoracic surgeon–scientists. Recent analyses by the NIH suggest that from 1972 to 2008 the conversion rates from K08 to R01 awards after the first year of the K08, for all institutes, regardless of principal investigator specialty, are 20%, 43%, and 47% at 5, 10, and 15 years, respectively.1 Although there are no current data on K to R conversion rates specific to cardiothoracic surgeons, data presented in this report demonstrate that 44% of our co-sponsored NIH/TSFRE K-awardees now have R01 funding at an average of 5 years from the first year of their K08 award. This compares very favorably with the 20% K to R conversion rate at 5 years for all NIH K-award recipients noted above. Further evidence of the impact on TSFRE funding facilitating NIH R01 awards for junior faculty members without prior K-award funding is the nearly 40% R01 funding rate, which is extraordinarily high. This is contrasted to the fiscal year 2010 R01 funding rate of 20% for all new investigators, regardless of degree (ie, MD, PhD, or MD/PhD), NIH institute, or prior K-award.1

Although these observations regarding the impact of TSFRE funding on thoracic surgeon–scientist career development are certainly positive and reinforcing, the percent effort dedicated to research as reported by the study respondents is far too low to maintain viable research programs or for thoracic surgeons to move from mentored to independent research careers. This is most certainly related to the heavy demands of clinical care on the researcher, as previously discussed. Failure to address this culture, however, will undoubtedly contribute to even fewer applications to the NIH, which has been shown by Ratcliffe and associates4 to be the primary determinant of the decreased per capita funding for cardiothoracic surgeons relative to the entirety of the NIH.4

Careful analysis of this report also reveals 2 obvious and important opportunities for improvement going forward. First, the percent of women TSFRE awardees, particularly at the junior faculty (14%) and the TSFRE/NIH co-sponsored K-award (6%) levels, is unacceptably low. One reason for this is the relatively small numbers of women faculty in academic cardiothoracic surgery, which results in fewer applications for research funding to the TSFRE and to the NIH. Other reasons include a lack of female scientific mentors and role models for both female thoracic surgeons and female general surgery residents. The other observation from this study is the poor correlation between award of a Braunwald grant and a future research career in academic surgery. The attrition rate away from research careers of Braunwald awardees certified by the American Board of Thoracic Surgery appears to be too high. Only 22% (4/18) of individuals have received NIH funding (3 R01 and 1 K08 awards). When only cardiothoracic surgeons (not the 4 general surgery residents who received the award) are considered, the rate improves to 29% (4/14), which is better. Although one interpretation of these data would be that better selection of the Braunwald awardee may improve subsequent returns on that investment, other, perhaps more plausible, reasons exist. These include the pressures of having and raising children and, once in practice, the lack of female surgical mentors and colleagues, which can lead to isolation and disillusionment regarding the importance of research in their careers.

The limitations of this type of study include the self-reporting associated with survey instruments, failure to have all TSFRE awardees participate in the study, and the lack of a control group. It is unlikely that the respondents overstated the positive and more subjective aspects of the award. With respect to the possibility of reporting inaccurate NIH funding success, the secondary assessment using the NIH Research Portfolio Online Reporting Tools1 should have obviated that possibility. There was a 71% overall response rate, which is actually very good for studies such as this.
A survey of over 30 large e-mail surveys demonstrated an overall response rate of only 38%. It is also possible that the lower response rate (50%) from the Braunwald awardees may possibly introduce an inaccurate reporting of the effect of TSFRE funding on that group. Finally, although there is no possibility of a control group in a study of this type, we were able to compare the K to R conversion rates and overall R01 funding rates of our TSFRE grant recipients to similar groups from the NIH database.

In summary, the results of this study on the impact of TSFRE funding on the career development and academic success of cardiothoracic surgeons suggests that this mechanism of support is meeting, and in some cases exceeding, the goals of the Foundation. The return on investment of TSFRE funding is robust and needs to be continued and supported. Remarkably, over 80% of general surgery residents funded through TSFRE have chosen a career in cardiothoracic surgery. Almost 90% of respondents reported that TSFRE funding was critical to launching their research careers. TSFRE awardees have a very high rate of obtaining R01 funding (with or without an initial K-award) relative to NIH data on R01 applicant funding success rates. Finally, this study suggests several opportunities to improve the TSFRE funding mechanism, but also highlights the importance of our specialty in continuing to support all thoracic surgical scientists, particularly women.

Footnotes
Disclosures: Authors have nothing to disclose with regard to commercial support.

References
2. Ozomaro U, Gutierrez JC, Bryne MM, Zimmers TA, Koniaris LG. How important is the contribution of surgical specialties to a medical school’s NIH funding?. J Surg Res. 2007;141:16-21
Research Award Winners
TSFRE Research Awards

2011

TSFRE RESEARCH FELLOWSHIPS:
Antonio D. Lassaletta, M.D., Alpert Medical School, Brown University
"Improving Myocardial Perfusion in a Diabetic Swine Model of Chronic Cardiac Ischemia"

Smita Sihag, M.D., Massachusetts General Hospital
"Gene Expression Signatures and Mechanistic Pathways of Tolerance and Rejection in Orthotopic Swine Lung Allografts"

TSFRE RESEARCH GRANTS:
Jules Lin, M.D., University of Michigan
“The Role of Dkk-3 Overexpression in the Invasion and Metastasis of Esophageal Adenocarcinoma as a Downstream Mediator of the TGF-beta Pathway”

2010

Nicholas D. Andersen, M.D.
One Year Research Fellowship
“Calcium Signaling Regulates Cardiomyocyte Growth in Hypoplastic Left Heart Syndrome”
Duke University Medical Center

David N. Anderson, M.D.
One Year Research Fellowship
“SCCR0 (DCUN1D1) is Essential for Cellular Transformation”
Memorial Sloan Kettering Cancer Center

Alejandro Bribriesco, B.S., M.D.
One Year Research Fellowship
“Role of Non-Alloimmune Stimuli in Airway Epithelial Cell Differentiation after Lung Transplantation”
Washington University

William Hiesinger, M.D.
One Year Research Fellowship
“Myocardial Angiogenic Tissue Engineering Via Ex-Vivo Modified Stem Cell Matrix”
University of Pennsylvania

Mark Onaitis, M.D.
Two Year Research Grant
“The Mechanism of Sox2 in Lung Cancer Development”
Duke University

Thomas B. Reece, M.D.
Two Year Research Grant
“The Role of Specific Adenosine Receptor Activation In Ischemic Preconditioning of the Spinal Cord”
University of Colorado

Brendon M. Stiles, M.D.
Two Year Research Grant
“Disseminated Tumor Cells in the Bone Marrow of Patients With Surgically Resectable Non-Small Cell Lung Cancer: Comparative Genomic Analysis to Matched Primary Tumors”
Weill Medical College, Cornell University

Jennifer C. Hirsch, M.D., M.S.
Two Year Nina Starr Braunwald Career Development
“Development of a Congenital Heart Assessment of Sensory and Motor Status (CHASMS) Instrument for Infants Following Cardiac Surgery”
University of Michigan

2009

Karen M. Kim, M.D.
2 Year Research Fellowship
“The Effect of Donor Brain Death and Prolonged Cold Ischemia on Cardiac Allograft Tolerance in Miniature Swine”
Massachusetts General Hospital

Alykhan Nagji, M.D.
1 Year Research Fellowship
“Effect of Combined Histone Deacetylase Inhibitors and Proteasome Inhibitors on Epithelial-Mesenchymal-Transition in Non-Small Cell Lung Cancer Cells”
University of Virginia

Ashish Shah M.D.
2 Year Research Grant
“Consequences of Phosphodiesterase Type 5 Inhibition on Nitric Oxide Synthase Biochemistry in Experimental Lung Transplantation”
Johns Hopkins University

Onkar Khullar, M.D.
1 Year LUNGevity Foundation/TSFRE Research Fellowship
“Prevention of Nodal Metastasis in Lung Cancer via Lymphatic Trafficking of Paclitaxel-Loaded Expansile Nanoparticles”
Brigham & Women’s Hospital

Sai Yendamuri, M.D.
2 Year LUNGevity Foundation/TSFRE Research Grant
“A MicroRNA Profile to Predict Recurrence After Surgical Resection of Stage I Non-Small Cell Lung Cancer”
Roswell Park Cancer Institute

Arnar Geirsson, M.D.
2 Year Career Development Award
“Role of Micro RNA in Cardiac Ischemia and Heart Failure”
Yale University

2008

Jane Yanagawa, M.D.
1 Year Research Fellowship
“The Role of Snail in the Regulation of the Invasive Phenotype in Non-Small Cell Lung Cancer”
University of California, Los Angeles

Juan A. Crestanello, M.D.
2 Year Research Grant
“Post Conditioning, Free Oxygen Radical Generation and Mitochondrial Function”
Ohio State University

Gorav Ailawadi, M.D.
2 Year Research Grant
“The Effects of IL-1 Beta on Smooth Muscle Cell Phenotype during Experimental Aortic Aneurysm Formation”
University of Virginia

Kimberly L. Gandy, M.D., Ph.D.
2 Year Nina Starr Braunwald Career Development Award
“The Use of Autologous Hematopoietic Stem Cells in Tolerance Induction for Organ Transplantation”
Medical College of Wisconsin
2007
Mark S. Bleiweis, M.D.
2 Year Career Development Award
“Cell Therapy for RV Failure in Tetralogy of Fallot”
University of Florida

Michael Argenziano, M.D.
2 Year Career Development Award
“Remodeling of the TASK-1 Potassium Current in Atrial Fibrillation: A Novel Therapeutic Target”
Columbia-Presbyterian

Lorenzo E. Ferri, M.D.
2 Year Research Grant
“Mechanisms of Esophageal Cancer Metastasis: The Role of Cell Adhesion Molecules on the Migratory Ability of Esophageal Cancer Cells”
McGill University

Jennifer S. Lawton, M.D.
2 Year Nina Starr Braunwald Career Development Award
“The Role of the Mitochondrial KATP Channel in Myocyte Volume Response to Stress”
Washington University

Rosemary F. Kelly, M.D.
2 Year Nina Starr Braunwald Career Development Award
“Revascularization of Chronic Hibernating Myocardium Reverses Reduction in Regional Function and Normalized Bioenergetic Adaptations of the Mitochondria”
University of Minnesota

2005
Madison C. Cuffy, MD
2 Year TSFRE Research Fellowship
“The Role of Indoleamine 2, 3 Dioxygenase on Modulating Immune Responses in Inflammatory Arterial Diseases”
Yale University School of Medicine

Andrew J. Kaufman, MD
2 Year TSFRE Research Fellowship
“Functional Analysis of Squamous Cell Carcinoma Related Oncogene (SCCRO) in the Sonic Hedgehog Pathway”
Memorial Sloan-Kettering Cancer Center

Tom C. Nguyen, MD
2 Year TSFRE Research Fellowship
“Biomechanics of the Cardiac Support Device in Heart Failure: new Answers to an Old Problem”
Stanford University

Barbara L. Robinson, MD
2 Year Nina Starr Braunwald Research Fellowship
“The Stunned Heart and Cardiac Surgery: Apoptosis/Necrosis and the Role of Heat Shock Proteins”
Boston Children’s Hospital

Hisasha Sahara, MD
2 Year TSFRE Research Fellowship
“Indirect Recognition of Collagen (TypeV) in the Pathogenesis of Lung Allograft Rejection”
Massachusetts General Hospital, Harvard Medical School

Ara A. Vaporiyan, MD
2 Year TSFRE Research Grant
“Effect of Inflammatory Gene Polymorphism in the Development of Atrial Fibrillation After Pulmonary Resection”
University of Texas, M.D. Anderson Cancer Center

2004
Allen Cheng, MD
2 year TSFRE Research Fellowship
“Effects of Undersized Mitral Annuloplasty on Regional LV Transmural Dynamics in Chronic Ischemic Mitral Regurgitation”
Stanford University

Peter S. Dahlberg, MD, PhD
2 year TSFRE Research Grant
“ERBB2 Amplifications in Esophageal Adenocarcinoma”
University of Minnesota

Kenneth R. McCurry, MD
5 year TSFRE/NHLBI Mentored Clinical Scientist Development Award
“Cytoprotective Effect of CO in Lung Ischemia/Reperfusion”
University of Pittsburgh

Bao-Ngoc Nguyen, MD
2 year Nina Starr Braunwald Research Fellowship
“CCRS in Cardiac Allograft Vasculopathy”
University of Maryland

Robert S. Poston, MD
2 year TSFRE Research Grant
“Determining the Viability of Heats from Non-Heart Beating Donors”
University of Maryland

Danny Ramzy, MD
2 year TSFRE Research Fellowship
“CRP and Endothelin-1 in Endothelial Dysfunction: The Role of Protein Kinase Activity”
University of Toronto

Nathalie Roy, MD
2 year TSFRE Research Fellowship
“Engineering of Conduction Tissue for Cardiac Implantation”
Children’s Hospital Boston

Y. Joseph Woo, MD
5 Year TSFRE/NHLBI Mentored Clinical Scientist Development Award
“Angiogenesis and Cardiac Growth as Heart Failure Therapy”
University of Pennsylvania
2003
Anthony Azakie, MD
5 year TSFRE/NHLBI Mentored Clinical Scientist Development Award (K08)
“Developmental Regulation of Cardiac Gene Expression”
University of California, San Francisco

Anthony Caffarelli, MD
2 year TSFRE / FACT Research Fellowship
“Transplantation of Early Differentiated Cardiomyocytes into Postinfarcted Murine Hearts”
Stanford University

Paul Kirshbom, MD
2 year TSFRE Career Development Award
“Induction of Hypoxia Inducible Factor as a Neurologic Protection Strategy”
Emory University

John Langenfeld, MD
2 year TSFRE Research Grant
“The Role of Bone Morphogenetic Protein-2 in Differentiating Embryonic Stem Cells into Endothelial Cells”
Robert Wood Johnson

Mark D. Peterson, MD
2 year Laszlo N. Tauber Research Grant
“Monocyte and Endothelial Interactions in the Pathogenesis of Delayed Xenograft Rejection”
Toronto General Hospital

Duy Kham Pham, MD
2 year Nina Starr Braunwald Research Fellowship
“Functional Characterization of SCRO in Lung Cancer”
Duke University Medical Center

2002
Leora Balsam, MD
2 year Braunwald Research Fellowship
“From Marrow to Heart: Myocardial Regeneration with Bone Marrow Cells”
Stanford University

Yolanda Colson, MD
2 year Thoracic Surgery Research Grant
“Identifying the Tumor Stem Cell in Malignant Mesothelioma”
Brigham and Women’s Hospital

Tara Karamlou, MD
2 year Braunwald Research Fellowship
“Volume Overload in the Ovine Fetus Alters Cardiomyocyte and Coronary Growth”
Oregon Health Sciences University

Robert Korst, MD
2 year Thoracic Surgery Research Grant
“Enhancement of vaccine-mediated, CD8+ Tcell -Specific Anti-Tumor Ummunity by in vivo manipulation of the tumor cell surface”
Memorial Sloan-Kettering Cancer Center

Michael Mulligan, MD
5 year TSFRE/NHLBI Mentored Clinical Scientist Development Award
“Calcineurin Inhibition: Lung Reperfusion Injury”
University of Washington, Seattle

2001
Richard G. Battafarano, MD
2 year Thoracic Surgery Foundation Research Grant
“Cell Cycle Mutations in Esophageal Cancer”
Washington University School of Medicine

Marc R. Moon, MD
2 year Thoracic Surgery Foundation Research Grant
“Pathophysiology and Treatment of Chronic Pulmonary Hypertension”
Washington University School of Medicine

Meena Nathan, MBBS, FRCS (Edin), FRCS (Glas)
2 year Braunwald Research Fellowship
“The Stunned Heart and Cardiac Surgery; Apoptosis/Necrosis”
Brigham and Women’s Hospital

Alfred C. Nicolosi, MD
2 year Thoracic Surgery Research Grant
“Effects of Stretch on the Myopathic Heart”
Medical College of Wisconsin

2000
Paul M. Kirshbom, MD
1 year Thoracic Surgery Foundation Research Grant
“Matrix Metalloproteinases and Pulmonary Vascular Remodeling”
Children’s Hospital of Pennsylvania

Raja S. Mahidhara, MD
2 year Thoracic Surgery Foundation Research Fellowship
“Nitric Oxide Prevents Cardiac Allograft Vasculopathy”
University of Pittsburgh

Steffen Pfeiffer, MD
2 year Thoracic Surgery Foundation Research Fellowship
“Anti-CD40L Therapy for hDAF+ Pig-to-Primate Cardiac Xenotransplantation”
Vanderbilt University Medical Center

Wilson Y. Szeto, MD
2 year Thoracic Surgery Foundation Research Fellowship
“The Immunologic Mechanism of Cardiac Allograft Vasculopathy in Rat Chimeric Organ Transplantation”
Hospital of the University of Pennsylvania

Mohan Thanikachalam, MD
2 year Thoracic Surgery Foundation Research Fellowship
“The Role of p53 in the Nitric Oxide Synthase (iNOS)-Mediated Inhibition of Cardiac Allograft Vasculopathy (CAV)”
University of Miami

Thomas K. Waddell, Ph.D., MD
2 year Thoracic Surgery Foundation Research Grant
“The Role of Bcl-2 Family Proteins in TNF-mediated NF-κB Activation”
Toronto General Hospital and the University of Toronto
<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Fellowship Type</th>
<th>Research Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>James S. Allan, MD</td>
<td>2 year Thoracic Surgery Foundation Research Grant</td>
<td>“The Effect of Nitric Oxide on the Development of Obliterative Bronchiolitis in MHC-Defined Miniature Swine”</td>
<td>Massachusetts General Hospital</td>
</tr>
<tr>
<td></td>
<td>Kathryn Quadracci Flores, MD</td>
<td>2 year Nina S. Braunwald Research Fellowship</td>
<td>“Upregulation of Angiogenic Growth Factors and Their Receptors as a Mechanism for TMR”</td>
<td>Brigham and Women’s Hospital</td>
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<tr>
<td></td>
<td>Richard W. Kim, MD</td>
<td>2 year Baxter Healthcare Corporation Research Fellowship</td>
<td>“In Vivo Effects of Bcl-2 and Survivin Gene Transfer”</td>
<td>Yale University School of Medicine</td>
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<td></td>
<td>Baiya Krishnadasan, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Endothelial Cell Signal Transduction Pathways Activated by Oxidant Stress”</td>
<td>University of Washington</td>
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<td></td>
<td>Sang Lee, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Myocardial Angiogenesis Using VEGF, FGF, and Their Receptors”</td>
<td>University of California, San Diego</td>
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<td></td>
<td>Kenneth McCurry, MD</td>
<td>2 year Thoracic Surgery Foundation Career Development Award</td>
<td>“Alloresponse to Aerosolized iNOS Gene in Lung Transplants”</td>
<td>University of Pittsburgh</td>
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<td></td>
<td>Christopher L. Skelly, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Attenuation of Vein Graft Intimal Hyperplasia Through Gene Transfer”</td>
<td>University of Chicago</td>
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<td></td>
<td>Edward Yiming Woo, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Augmentation of HSV-based Oncolytic Therapy by Producer Cells”</td>
<td>University of Pennsylvania</td>
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<tr>
<td>1998</td>
<td>Daniel Kreisel, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Allorecognition Pathways in Murine Cardiac Transplantation”</td>
<td>University of Pennsylvania</td>
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<td></td>
<td>Paul Lee, MD</td>
<td>1.5 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Angiogenic Effects of VEGF and iNOS Gene Therapy in Ischemic Heart”</td>
<td>University of Pittsburgh</td>
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<td></td>
<td>Elizabeth Northrop Morgan, MD</td>
<td>2 year Nina S. Braunwald Research Fellowship</td>
<td>“The Role of NF-κB in Myocardial Ischemia-Reperfusion Injury”</td>
<td>University of Washington</td>
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<td></td>
<td>Michael Smith, MD</td>
<td>1 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Immune Mechanisms of Bronchiolitis Obliterans Syndrome”</td>
<td>Washington University</td>
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<td></td>
<td>Vinod Thourani, MD</td>
<td>1 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Myocardial Protection Using a Novel Adenosine A3-Receptor Approach”</td>
<td>Emory University School of Medicine</td>
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<tr>
<td></td>
<td>Tomasz Timek, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Mitral Valvular-Subvalvular Complex in Tachycardia-Induced Cardiomyopathy”</td>
<td>Stanford University School of Medicine</td>
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<tr>
<td></td>
<td>Edward Boyle, MD</td>
<td>1 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“The Role of Tissue Factor in Ischemia-Reperfusion Injury”</td>
<td>University of Washington</td>
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<tr>
<td>1997</td>
<td>Seth Force, MD</td>
<td>2 year Thoracic Surgery Foundation Research Fellowship</td>
<td>“Role of p53 Tumor Suppressor Gene in Malignant Mesothelioma Pathogenesis”</td>
<td>University of Pittsburgh</td>
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<td></td>
<td>Si M. Pham, MD</td>
<td>1 year Thoracic Surgery Foundation Research Grant</td>
<td>“Nitric Oxide in Allograft Vasculopathy”</td>
<td>University of Pittsburgh</td>
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<td></td>
<td>Todd Rosengart, MD</td>
<td>2 year Thoracic Surgery Foundation Research Grant</td>
<td>“Growth Factors and Angiogenesis: Implications for Biologic Revascularization of Ischemic Tissues”</td>
<td>Cornell University Medical College</td>
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<tr>
<td></td>
<td>David Schrump, MD</td>
<td>2 year Thoracic Surgery Foundation Research Grant</td>
<td>“Molecular Analysis of Esophageal Adenocarcinogenesis”</td>
<td>University of Texas, Anderson Cancer Center</td>
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<td></td>
<td>Patricia Thistlethwaite, MD</td>
<td>2 year Nina S. Braunwald Career Development Award</td>
<td>“Expression of Angiogenesis Factors in the Heart by Adenovirus Mediated Gene Therapy”</td>
<td>University of Pittsburgh</td>
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</tbody>
</table>
1996
Mary Mancini, MD
2 year Nina S. Braunwald Career Development Award
“The Role of Platelet Derived Growth Factor in Allograft Vascular Disease”
Louisiana State University

Joseph Gorman, MD
1 year Thoracic Surgery Foundation Research Fellowship
“Pathogenesis and Repair of Ischemic Mitral Regurgitation”
Hospital of the University of Pennsylvania

Si M. Pham, MD
1 year Thoracic Surgery Foundation Research Grant
“Nitric Oxide in Allograft Vasculopathy”
University of Pittsburgh

Joren Madsen, MD
1 year Thoracic Surgery Foundation Research Grant
“Cardiac Allograft Vasculopathy in Miniature Swine”
Massachusetts General Hospital

Robert Poston, Jr., MD
1 year Thoracic Surgery Foundation Research Fellowship
“Generation of Allograft Specific Tolerance with Combination Ex Vivo Antisense ICAM-1 and Systematic Anti-LFA MAB”
Stanford University Medical Center

John Mannion, MD
1 year Thoracic Surgery Foundation Research Grant
“Basic Fibroblast Growth Factor Protects Ischemic Skeletal Muscle During Long-term Electrical Stimulation”
Thomas Jefferson University

Andrew Sherman, MD
1 year Thoracic Surgery Foundation Research Fellowship
“Gene Expression of Sarcoplasmic Reticular Regulatory Proteins in Myocardial Hibernation”
Northwestern University Medical School

Elanie Tseng, MD
2 year Nina S. Braunwald Research Fellowship
“The Role of Nitric Oxide in Mediating Neurologic Injury in a Canine Model of Hypothermic Circulatory Arrest”
Johns Hopkins Hospital

1995
Margaret Allen, MD
2 year Nina S. Braunwald Career Development Award
“To Expand the Scope of Research on Adhesion Molecules”
University of Washington School of Medicine

Julie Glasson, MD
Thoracic Surgery Foundation Research Fellowship
“The Importance of Preservation of the Chordae Tendineae During Mitral Valve Replacement”
Stanford University

Richard Embrey, MD
1 year Thoracic Surgery Foundation Research Grant
“Mechanisms of Coronary Microvascular Abnormalities Due to Cardiopulmonary Bypass and Cardioplegia”
Medical College of Virginia

Jennifer Walker, MD
2 year Nina S. Braunwald Research Fellowship
“The Direct Effects of Acute Administration of 3, 5, 3’Triiodo-L-Thyronine on Isolated Myocyte Function”
Medical University of South Carolina

1993

TSFRE Annual Report 2011
In the Words of Past Winners – the Direct Impact of TSFRE Dollars on Research

Dan Kriesel, MD
Recipient, TSFRE Research Fellowship and TSFRE Matching Funds for an NHLBI K08
Support from the TSFRE has been instrumental in advancing my career as an academic thoracic surgeon and has allowed me to develop an independent laboratory investigating mechanisms that contribute to the high failure rates of lung transplants. Matching funds helped protect my time and enabled me to generate experimental data that ultimately led to successfully competing for R01 funding. As the future of our specialty undoubtedly depends on the development of surgeon-scientists, I strongly believe that the TSFRE fulfills a unique and vital mission.

Christine Lau, MD
Recipient TSFRE Matching Funds for an NHLBI K08
The matching TSFRE/K08 award has been absolutely critical in allowing me to continue my research efforts. I have had the opportunity to interact with top scientists in my field because of the freedom these extra funds have provided me. I am indebted greatly to the TSFRE and hope to make them proud to have supported me.

Joseph Woo, MD
Recipient TSFRE Matching Funds for an NHLBI K08
The TSFRE has been absolutely critical to my research career development. The Joint NIH/TSFRE K08 that I was fortunate to receive provided a strong foundation for research training and subsequent NIH R01 submission.

James S. Allan, MD
Research Grant Winner
The first grant that I ever received was from the TSFRE. The research supported by this grant was instrumental in my securing further funding, including major funding from the NIH. I am now proud to contribute to the organization that supported me at the start of my career.

Todd Rosengart, MD
The TSFRE grant we received was an invaluable aid in the growth of our research program. More than ten years later, we are able to continue our research efforts, today, through NIH funding, in no small part because of the early help we received from the TSFRE.

Joren Madsen, MD
Research Grant Winner
The TSFRE grant awarded to me 16 years ago jump started my career in academic surgery as it provided the funds I required to generate preliminary data for my first NIH grant submission. As importantly, the award conveyed to my clinical and administrative colleagues the legitimacy of my scientific ideas and of my decision to combine science and surgery.

Surgeon scientists have changed the world by not only practicing advanced surgery but by advancing the practice of surgery. Sadly, they are a vanishing breed, succumbing in part to the economic pressures of our
times. The TSGRE represents a beacon of hope for young surgeon scientists who are still willing to fight to see their dreams to change the world realized, but they need your help.

Jennifer Dale Walker, MD

Receiving the first Nina S. Braunwald Award from the TSFRE as a rising 3rd year general surgery resident in 1993 allowed me to pursue two productive years of cardiothoracic research at MUSC under the direction of Francis G. Spinale, MD, PhD. The publications and presentations of this research at the AATS and STS assisted in obtaining my cardiothoracic residency and ultimately my staff position in 2000 as a cardiac surgeon at Massachusetts General Hospital where I run a very productive cardiac simulation teaching laboratory.

The TSFRE has funded many such awards over the ensuing almost two decades which continues to help eager young physicians advance the quality of research and clinical advances in cardiothoracic surgery. However, the resources are limited and depend on our support of these awards as a way of giving back to the TSFRE for the foundations’ contribution to each of our careers.

Marc Moon, MD

Research Grant Winner

In today's environment, it is very difficult to receive NIH or NCI funding for topics of research that could be considered “surgically relevant”. Study sections are filled with reviewers who do not understand the potential importance of, or future impact on patient care that the types of research we perform can yield. The research grant I received from the TSFRE provided the “peer validation” that functionally “opened the door” for me to NIH funding and was essential to advance my academic career.

The only way that the TSFRE can continue to provide this type of essential support for young thoracic surgical investigators is through the generous donations provided by the thoracic surgical community, in general, and by you, the reader, in specific.

David Schrump, MD

TSFRE funding was critical in supporting my research endeavors early in my career. Specifically, a TSFRE grant enabled me to initiate a series of translational experiments, which continued upon my recruitment to the National Cancer Institute, and provided the rationale for two clinical trials. More recently, the Alley-Sheridan Scholarship from the TSFRE enabled me to attend the Leadership Program in Health Policy and Management at Brandeis University. This experience compelled me to obtain a MBA in Medical Services Management from Johns Hopkins University, which has enabled me to become a more effective leader. As NIH funding continues to diminish, the TSFRE will become increasingly important for supporting academic endeavors of thoracic surgeons aspiring to be clinician-scientists within our specialty.

Yolonda Colson, MD

Research Grant and Simulation Award Winner

TSFRE believed in me early in my career, when it really matters, by getting my lab started through a TSFRE Research Grant. That first TSFRE grant has now multiplied over the years into 15 other grants, including 3 grants from the NIH and NCI. All of these grants have funded new clinically relevant ideas for the future of cardiothoracic surgery.

Supporting our young surgeons is the best way to invest in our future and to ensure that new research relevant to cardiothoracic surgery has a chance at larger funding. What started out as $50,000 from the TSFRE for my research project has resulted in over $4 million of funding for my lab – all in research advancing the future of cardiothoracic surgery. Even the stock market doesn’t give you that kind of return on investment!
SIMULATION AWARDS

SIMULATION AWARDS - 2011
Michael Argenziano, MD
Columbia University College of Physicians and Surgeons
New York, NY
“Coronary Anastomosis Simulation: A New Paradigm in Surgical Education?” 1 Year $15,000

Thomas Bilfinger, MD
Stony Brook University School of Medicine
Stony Brook, NY
“Cardiothoracic Surgical Simulation: Identifying Achievable Benchmark Comparisons” 1 Year $5,985

John Ikonomidis, MD, PhD
Medical University of South Carolina
Charleston, SC
“Multi-Disciplinary Simulation and Training in Cardiac Surgical Crisis Management” 1 Year $23,500

SIMULATION AWARDS - 2010
Raphael Bueno, MD
Brigham and Women’s Hospital
Boston, MA
Simulation-Based Curriculum Development for Intraoperative Decision Making and Technical Performance: Cognitive Task Analysis for Video-Assisted Thoracoscopic Surgery (VATS) Lobectomy 1 Year $8,450

Shari Meyerson, MD
University of Arizona
Tucson, AZ
Validation of a Thoracoscopic Lobectomy Simulator 1 Year $10,725

Richard Feins, MD
University of North Carolina
Chapel Hill, NC
Multicenter Cardiac Simulator Beta Testing 1 Year $12,225

Joanna Chikwe, MD
Mount Sinai Medical Center
New York, NY
High Fidelity Simulation in Preparing Medical Students for Integrated Cardiothoracic Residency Training 1 Year $15,225

Leora Balsam, MD
New York University
New York, NY
Simulator For Conventional and Limited Access Mitral Valve Surgery 1 Year $15,525

Yolonda Colson, MD
Brigham and Women’s Hospital
Boston, MA
Exportable Crisis Management Assessment Curriculum (ECMAC) 1 Year $15,800
Blair Marshall, MD  
Georgetown University Hospital  
Washington, DC  
Development of Task Specific Cardiothoracic Simulation Models for Independent Study and Skill Acquisition  
1 Year  $22,050

SIMULATION AWARDS - 2009

Emile Bacha, MD  
Children's Hospital Boston  
Boston, MA  
Improving performance of emergent ECMO cannulation in Pediatric Cardiac Surgery using High-Fidelity Simulation  
1 Year  $18,000

Yvonne Carter, MD  
Georgetown University Medical Center  
Washington, DC  
Development of a Minimally Invasive Simulator for Thoracic Surgery Training  
1 Year  $18,000

James Fann, MD  
Stanford University and VA Palo Alto HCS  
Stanford, CA  
Simulation in Cardiac Valve Surgery and Cardiac Surgery Crisis Management  
2 Years  $18,000

Richard Feins, MD  
University of North Carolina  
Chapel Hill, NC  
Thoracic Resection Simulation  
1 Year  $18,000

Eugene Grossi  
NYU School of Medicine  
New York, NY  
Cognitive Task Training for Right Upper Lobe Resection Simulator  
1 Year  $18,000

Nabil Rizk, MD  
Memorial Sloan-Kettering Cancer Center  
New York, NY  
Thoracic Endoscopic Surgery Simulator  
1 Year  $6,200

Ashish Shah, MD  
Johns Hopkins Medical Institute  
Baltimore, MD  
Simulation Training for Post Operative Cardiac Instability and Collapse  
1 Year  $3,700
Alley Sheridan and NHLBI/NCI Awards

2011 ALLEY SHERIDAN AWARD RECIPIENTS

William L. Holman, M.D.
University of Alabama at Birmingham Div of CT Surgery
Birmingham, AL

Tuan Nguyenduy, M.D.
Foothills Cardiothoracic
Spartanburg, SC

Basel Ramlawi, M.D.
Methodist DeBakey Heart & Vascular Center
Houston, TX

Bruce R. Rosengard, M.D.
Massachusetts General Hospital
Boston, MA

Mark D. Widmann, M.D.
North Jersey Thoracic Surgical Associates
Morristown, NJ

NHLBI/NCI Award Recipients

TSFRE K08 K23 AWARDS

Michael S. Mulligan, MD
University of Washington
Project: Calcineurin Inhibition in Lung Reperfusion Injury

Anthony Azakie, MD
University of California, San Francisco
Project: Developmental Regulation of Cardiac Gene Expression

Y. Joseph Woo, MD
University of Pennsylvania
Project: Angiogenesis and Cardiac Growth as Heart Failure Therapy

Kenneth R. McCurry, MD
University of Pittsburgh
Project: Cytoprotective Effect of CO in Lung Ischemia/Reperfusion

Scott A. LeMaire, MD
Baylor College of Medicine
Project: Matrix Metalloproteinases in Thoracic Aortic Dissection

Malcolm V. Brock, MD
Johns Hopkins University
Project: Screening for Lung Cancer in the HIV Patient
Daniel Kreisel, MD  
Washington University  
Project: Vascular Endothelium Directs the Development of Regulatory T Cells  
NHLBI K08  
July 1, 2006 – June 30, 2011

Michael J. Mann, MD  
University of California, San Francisco  
Project: The Role of S1P Signaling in Surgical Cardiac Remodeling  
NHLBI K08  
July 1, 2006 – June 30, 2011

Shahab Akhter, MD  
University of Cincinnati  
Project: Myocardial Regulation of BARK1 by Protein Kinase C  
NHLBI K08  
July 1, 2006 – June 30, 2011

Andrew C. Chang, MD  
University of Michigan  
Project: Predictors of Therapeutic Response in the Treatment of Esophageal Adenocarcinoma  
NCI K08  
July 1, 2008 – June 30, 2013

Sasha A. Krupnick, MD  
Washington University  
Project: The Role of Non-Hematopoietic Cells in Tumor Tolerance Induction  
NCI K08  
July 1, 2008 – June 30, 2013

Chukwumere E. Nwogu, MD  
Roswell Park Cancer Institute  
Project: Radioguided Detection of Lymph Node Metastasis in Non-Small Cell Lung Cancer  
NCI K23  
July 1, 2008 – June 30, 2013

Christine L. Lau, MD  
University of Virginia  
Project: Adenosine 2A Receptor Signaling in Lung Transplant Injury and Rejection  
NHLBI K08  
July 1, 2009 – June 30, 2014

Jay M. Lee, MD  
UCLA Medical Center  
Project: Gene Modified Dendritic Cell Therapy in Lung Cancer  
NCI K23  
July 1, 2009 – June 30, 2014

Sunjay Kaushal, PhD, MD  
Children’s Memorial Hospital, Chicago  
Project: Characterization of Cell-Based Therapy for Congenital Heart Patients  
NHLBI K08  
July 1, 2009 – June 30, 2014

Gorav Ailawadi, MD  
University of Virginia  
Project: The Effects of KLF4 in Experimental Aortic Aneurysm Formation  
NHLBI K08  
July 1, 2010 – June 30, 2015

Matthew J. Schuchert, MD  
University of Pittsburgh  
Project: Enhancement of Hematopoietic Stem Cell Engraftment with CD8+ Marrow Progenitors  
NHLBI K08  
July 1, 2010 – June 30, 2015

Michael Halkos, MD  
Emory University  
Project: Operative Strategies to Reduce Stroke after Coronary Artery Bypass Surgery  
NHLBI K23  
July 1, 2011 – June 30, 2016

Sai Yendamuri, MD  
Roswell Park Cancer Institute  
Project: MicroRNA Profiling to Predict Recurrence after Resection of Early Lung Cancer  
NCI K23  
July 1, 2012 – June 30, 2017
Jennifer S. Lawton, MD, is currently an Associate Professor of Surgery in the Division of Cardiothoracic Surgery at the Washington University School of Medicine in St. Louis. She received her B.S. from Allegheny College in Pennsylvania, and then went on to medical school at Hahnemann University in Philadelphia, where she graduated with honors in the top 10% of her class. She completed her internship and residency at the Medical College of Virginia, and during that time served for 2 years as a Research Fellow in their Cardiovascular Laboratory. She completed a Fellowship in Cardiothoracic Surgery at Penn State Hershey Medical Center in 2001. Dr. Walker has been named to “Best Doctors in St. Louis” for the past three years, and was selected to attend the 2009 and 2010 American Association for Thoracic Surgery (AATS) Leadership Academy.

In 2007, Dr. Lawton received the Nina Starr Braunwald Career Development Award from the TSFRE, for her research project “The Role of Mitochondrial KATP Channel in Myocyte Volume Response to Stress.” Subsequently she received grants from the American Heart Association, as well as an R01 from the NIH, for continuation of this research.

The importance of the Nina Starr Braunwald Award to the development of the careers of surgeon researchers is expressed in the words of Dr. Lawton:

I was honored to receive the Nina Starr Braunwald Award from the TSFRE from 2007-2009. This award was instrumental in launching my academic career, establishing my laboratory, providing me with the preliminary data necessary to obtain an NIH R01 from the NHLBI, and my promotion to Associate Professor with tenure at Washington University.

I am extremely grateful to Dr. Eugene Braunwald and to those who have supported the TSFRE for this amazing opportunity and support. It is vitally important for our specialty and our patients that we as surgeons continue to perform translational research; therefore, I urge others to support, and to continue to support, the TSFRE and surgical scientists.
Nina Starr Braunwald (1928-1992) received her M.D. from New York University in 1952. She trained in surgery at Bellevue Hospital and then at Georgetown University Hospital, where she served as Chief Resident in General Surgery. Subsequently, she trained in cardiovascular surgery at the National Heart (now the Heart, Lung and Blood) Institute, joined the staff of the Institute and became the Deputy Chief of the Surgery Branch (Division). She then joined the Department of Surgery at the new University of California, San Diego School of Medicine, where she established the program in cardiovascular surgery. In 1972, Nina Braunwald joined the faculty at Harvard Medical School and held appointments in the Cardiothoracic Surgical Divisions of the Brigham and Women’s Hospital, Children’s Hospital and the West Roxbury Veterans Administration Hospital.

Dr. Braunwald’s major research interest focused on artificial heart valves. She developed a flexible polyurethane mitral valve with Teflon chordae tendinea that she implanted into dogs. In 1960, at the age of 32, she led the operative team that implanted this artificial mitral valve, which she personally designed and fabricated, into a human. The patient survived to leave the hospital and did well clinically for several months. This landmark operation, the first successful human heart valve replacement, was described in a report that she senior authored and which was exhibited at the NIH in 2011. She then developed a totally cloth-covered mechanical prosthesis – the Braunwald-Cutter valve – which was successfully implanted into thousands of patients in the late 1960s and early 1970s. She developed the stented aortic homograft. She also pioneered the use of tissue culture techniques to develop nonthrombogenic surfaces or prosthetic valves and circulatory assist devices.

At the NIH and UCSD Nina Braunwald supervised the training of a number of postdoctoral fellows, some of whom went on to illustrious careers. At Harvard Medical School and its teaching hospitals, she was active in the instruction of medical students and surgical housestaff. For 5 years she was active in the MD/PhD medical scientist program at Harvard. Dr. Braunwald achieved many first. She was the first woman to carry out open heart surgery, the first woman to be certified by the American Board of Cardiothoracic Surgery, and the first woman to be elected to the American Association for Thoracic Surgery. The Association of Women Surgeons presented her with its Distinguished Member Award and subsequent to her passing in 1992 established the annual Nina S. Braunwald Award as its highest honor.

Like all successful surgeons, she possessed the combination of manual dexterity, an instinct for three-dimensional human anatomy, and a desire for a “hands on” approach to the solution of clinical problems. She published more than 110 papers in her lifetime. However, she was first and foremost a “cutting surgeon” who reveled in exercising her considerably operative skills, judgment at the operating table, and coolness under the extreme pressure to which all cardiac surgeons were subjected in the early years of the field. In the early 1960s she received considerable public attention, following articles in Life and Time magazines in which she was described as one of the country’s young “movers and shakers”. She won numerous awards and, as the first female cardiac surgeon who was also a wife and mother, became a favored subject for Sunday magazines. She did not seek the publicity and was not a strident feminist but found it necessary to struggle incessantly for her professional opportunities. Later, she became increasingly concerned with the serious problems faced by women in academic surgery.

The “mommy track” was never an option for a woman trying to make a place for herself in what in the early 1960s was exclusively a man’s world. Nevertheless, she cared deeply for her family, took enormous pride in the accomplishments of her three daughters, and took delight in her grandchildren. She found time to pursue her hobbies of painting and sculpture and for horseback riding, her favorite sport. Were Nina Braunwald alive today, she would be enormously pleased by the growing number of active women cardiac surgeons and surely she would have rejoiced to see...
the very talented women now training in the field. She would have seen this development as an outstanding example of the improvement of the human condition that occurs when artificial barriers are lifted and all members of society are given the opportunity to live up to their fullest potential. Her earnings as a surgeon have been donated to the Thoracic Surgery Foundation for Research and Education for the advancement of women in academic cardiovascular surgery.

Learn more about EUGENE BRAUNWALD, MD

EUGENE BRAUNWALD, M.D. is the Distinguished Hersey Professor of Medicine at Harvard Medical School, and the founding Chairman of the TIMI Study Group at the Brigham and Women’s Hospital.

Dr. Braunwald received his medical training at New York University and completed his Medical Residency at the Johns Hopkins Hospital. He served as the first Chief of the Cardiology Branch and as Clinical Director of the National Heart, Lung and Blood Institute, founding Chairman of the Department of Medicine at the University of California, San Diego. From 1972 to 1996 he was Chairman of the Department of Medicine at the Brigham and Women’s Hospital. He was a founding trustee and Chief Academic Officer of Partners HealthCare System.

Dr. Braunwald’s first major paper was published in Circulation Research in July 1954, and he has been a major force in cardiology in the past half century. His early work focused on the control of ventricular function and he was the first to measure both left ventricular ejection fraction and left ventricular dp/dt in patients. His group showed the first neurohumoral defect in human heart failure, defined the pathophysiology of hypertrophic cardiomyopathy and demonstrated salvage of ischemic myocardium following coronary occlusion. They defined myocardial stunning and ventricular modeling following myocardial infarction. For the past 26 years, as Chairman of the TIMI Study Group, he and his colleagues demonstrated improved patient survival with a patent coronary artery which led to the widely accepted “open artery hypotheses.” They were the first to show the benefit of preventing adverse remodeling of the infarcted ventricle with ACE inhibition. In the PROVE-IT TIMI 2 Trial, in 2004, they demonstrated the benefit of more intensive reduction of LDL in high risk coronary artery patients, which has already changed practice guidelines and will favorably affect the lives of millions.

Dr. Braunwald has been an editor of Harrison’s Principles of Internal Medicine for 12 editions, and the founding editor of Heart Disease, now in its 9th Edition, the most influential textbooks in their fields.

Science Watch listed Dr. Braunwald as the most frequently cited author in Cardiology; he has an H index of 177. Based on his contributions, Dr. Braunwald has received numerous honors and awards including the Distinguished Scientist Award of the American College of Cardiology, Research Achievement, and Herrick Awards of the American Heart Association, the Gold Medal of the European Society of Cardiology and is the recipient of eighteen honorary degrees from distinguished universities throughout the world. Dr. Braunwald was the first cardiologist elected to the National Academy of Sciences of the United States. The living Nobel Prize winners in medicine voted Dr. Braunwald as “the person who has contributed the most to cardiology in recent years”.

Lawrence H. Cohn, M.D., FACS and Eugene Braunwald, MD

Chairman of the Department of Medicine at the Brigham and Women’s Hospital. He was a founding trustee and Chief Academic Officer of Partners HealthCare System.
Make a Difference by Planning for the Future...

The Heritage Society
Leaving a lasting legacy for future generations of surgeon researchers

What we do for the upcoming generation makes a difference! TSFRE helps to make sure cardiothoracic surgery will remain wonderful and exciting and of service to patients. My provision for the Heritage Fund, and potentially your contribution, could help to attract candidates to our specialty and to support a budding cardiothoracic surgery career – potentially even one of our own grandchildren. Colleagues and friends, consider looking ahead and being generous to TSFRE via the Heritage Fund.

John Benfield, MD
Past President, TSFRE

Heritage Society
The Heritage Society includes individuals and families that have provided for estate gifts to the TSFRE. The 11 members listed below exemplify extraordinary commitment to the TSFRE, and belief in the value of the work of the researchers that the TSFRE supports.

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The impetus behind legacy giving is expressed in the comments of Betsy and Hal Urschel, below:

The TSFRE was founded by Ralph Alley in the 1980’s to “compliment” the science and practice of medicine. Its original purpose was to encourage and nurture the “human,” “caring” side of medicine that is often neglected as practice and research take priority. Dr. Alley wanted to highlight our relationships with our patients, spouses and families. In his primary endeavor, he strove for excellence, which he defined as:

EXCELLENCE IS A RESULT OF:
CARING MORE THAN OTHERS THINK IS WISE,
DREAMING MORE THAN OTHERS THINK IS PRACTICAL,
RISKING MORE THAN OTHERS THINK IS SAFE, AND
EXPECTING MORE THAN OTHERS THINK IS POSSIBLE.

Support the organization that supports excellence in cardiothoracic surgery – the TSFRE.


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A tax-wise gift of stock or real estate can provide generous support for the Thoracic Surgery Foundation for Research and Education. Almost any type of real property – a personal residence, a farm, a vacation home, a commercial building or a parcel of land – can constitute a gift. Gifts of securities or real estate are tax deductible and free of capital gains tax.

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