R&E Grantee to Receive NCI/NIH R01 Grant for Research in Pediatric Brain Tumors

Perhaps it was growing up in Greece, the birthplace of great scholars and science, that enables A. Aria Tzika, Ph.D., to find inspiration to achieve great things. Her adopted mother, a maxillofacial surgeon, encouraged Dr. Tzika to go into academics. She came to the United States to earn her Ph.D. in physiology–anatomy from the University of California, Berkeley, with her sights set on one day being at Harvard University.

With the help of her mentors, in 1993 she received her appointment to Harvard. “To develop as a scientist, you must make the necessary contacts and keep those connections,” she said. Today Dr. Tzika is an assistant professor of surgery at Harvard Medical School and director of the NMR Surgical Laboratory, Department of Surgery at Massachusetts General Hospital.

In 1995 Dr. Tzika was awarded an RSNA Eastman Kodak Research Scholar Grant for her work on pediatric brain tumors. “The R&E Scholar Grant was the springboard to my current funding; it was one of the best things that has ever happened to me,” said Dr. Tzika. She has received several grants since, most recently and notably an outstanding score in NIH/NCI R01. Dr. Tzika explained that her grants have funded her research and appointments thus far in her career with no additional salary.

Her NIH/NCI R01 Grant, Pediatric Brain Tumor Characterization, focuses on developing a novel approach that combines magnetic resonance spectroscopy (MRS) and whole genome expression analyses for the characterization and prognostication of pediatric brain tumors.

“A. Aria Tzika, Ph.D.

The R&E Scholar Grant was the springboard to my current funding; it was one of the best things that has ever happened to me.”

A Newly Designed R&E Foundation Booth Unveiled at RSNA 2010

Additional Annual Meeting highlights on page 6.
tumors, the leading cause of death in children with cancer. The data derived from the study will help improve understanding of the biology of brain malignancy subtypes, an important step for novel drug development. A robust automated learning system that identifies combinatorial biomarker profiles and unique fingerprints that define specific tumor types will also be developed. “If diagnosis is improved, then not only will patients be spared the effects of inappropriate therapies, but the cost of treatment, which is the major healthcare expense, will also be reduced,” said Dr. Tzika.

A long time attendee of the RSNA annual meeting, Dr. Tzika feels it is the best meeting of its kind. “It is thrilling to see colleagues and friends from around the world, thousands of people all gathering to discuss new science and technology.” She also enjoys taking in the city of Chicago, experiencing new restaurants, museums, and cultural events. Music, the opera in particular, is another passion. Interestingly, her first name, Aria, means an air or melody in an opera. Dr. Tzika also enjoys playing the accordion, guitar and piano. Dr. Tzika enjoys skiing and spending time with her eight-year-old daughter who would like to be a brain surgeon when she grows up. “She’s my neurosurgeon in training.”

Foundation News

$28.8 Million Awarded to Past Grant Recipients through AHRQ’s CHOICE Program

The Agency for Healthcare Research and Quality (AHRQ) has awarded funding to Rebecca Smith-Bindman, M.D., a 1999 R&E Research Fellow Grant recipient; Jeffrey G. Jarvik, M.D., M.P.H., a 1994 R&E Research Seed Grant recipient; and Arthur E. Stillman, M.D., Ph.D., a 1992 R&E Research Seed Grant recipient. The grants are through the Clinical and Health Outcomes Initiative in Comparative Effectiveness (CHOICE) program, part of $473 million awarded by AHRQ through a number of patient-centered outcomes research programs.

R&E Foundation Grantee Named to Institute of Medicine by National Academy of Sciences

Richard L. Ehman, M.D., radiologist, researcher and past R&E grant recipient, received the honor this past fall. Selection to the Institute is one of the highest honors in medicine in the United States. In addition, Dr. Ehman was named the newest member of the RSNA Board of Directors at RSNA 2010.

Sortable Donor Wall Now Available

Look up donors by name or location at RSNA.org/Foundation.

Welcome 2011 R&E Foundation Board of Trustees

Theresa C. McLoud, M.D., Chair
E. Russell Ritenour, Ph.D., Secretary
Hedvig Hricak, M.D., Ph.D., Dr (hc), Treasurer
James P. Borgstede, M.D.
Sarah S. Donaldson, M.D.
Burton P. Drayer, M.D.
Richard L. Ehman, M.D.
G. Scott Gazelle, M.D., P.h.D.
Valerie P. Jackson, M.D.
Gregory C. Karnaze, M.D. (Not available for group photo)
Thomas N. McCausland (Not available for group photo)
Carestream Health has been a long-time partner of the R&E Foundation. Since 1989, Carestream (then Eastman Kodak) has endowed a Research Scholar Grant award. “We believe strongly in continuous innovation through research, both within our company as well as in partnership with our customers and with the radiology profession. It is through this research that breakthroughs emerge that significantly improve the quality and cost of patient care. This benefits all of us and society as a whole,” said Diana Nole, President, Digital Medical Solutions, Carestream Health.

Michael S. Gee, M.D., Ph.D., from Massachusetts General Hospital, is the current recipient being funded for his project, Evaluation of Diagnostic Magnetic Resonance (DMR) Technology for Molecular Characterization of Cancer Cells from Percutaneous Image-Guided Biopsy Specimens.

With a broad portfolio of products, solutions and services, Carestream Health has been an industry leader for over 100 years. Carestream Health’s innovative suite of solutions serves the needs of the following markets: medical imaging and healthcare IT, molecular imaging, non-destructive testing, and dental imaging and practice management software. Clinics, single hospitals, large networks and even entire countries use Carestream Health’s solutions to advance their radiology and IT systems. “We have as a core value within the company of not just having innovation for innovation sake, but rather innovation that always has the goal of lowering costs while improving patient care. Examples of this are our DRX and SuperPACS products, which reflect our commitment to deliver solutions that streamline workflow, offer greater productivity and provide real value to healthcare providers,” said Ms. Nole.

Executives from the Vanguard and Exhibitors Circle programs gathered in Chicago during RSNA 2010 for the RSNA Corporate Donor Reception. During the reception it was noted that eighteen Carestream Healthcare grantees had presentations at RSNA 2010, evidence that funded grants continue to provide R&D for years beyond the initial project. Vanguard companies have pledged more than $21 million to support the Foundation’s mission of funding research and education grants. The RSNA R&E Foundation would like to thank all fourteen Vanguard corporations for their support.

Behind the Scenes of the R&E Foundation

A Closer Look at the Finance Committee

The R&E Foundation has a full-time staff that oversees fundraising efforts, grant administration, and its board and committee affairs. Dozens of volunteers lend their advice and expertise in various capacities to ensure the Foundation is able to fund the best science and education in a fiscally responsible manner.

The Finance Committee oversees all Foundation financial matters, including monitoring the performance of invested assets, the Foundation’s revenue and expenses, and the ratio of administrative expenses to grant program expenses. This committee reviews the annual budget and general financial condition of the Foundation and develops recommendations on fiscal matters to the Board of Trustees.

GET INVOLVED

Interested in volunteering on a committee? Contact Sena Leach, assistant director, board and committee affairs, at 1-630-571-7810 or sleach@rsna.org.
Visionaries in Practice Profile

Private Practices and Academic Institutions Coming Together to Support Valuable ‘R&D’

The Foundation created the Visionaries in Practice (VIP) Giving Program for private practices and academic institutions to help fund radiologic research and sustain the advancements on which their practices are built.

“High-tech businesses invest at least 10 percent of their revenues in research and development. Radiology has to do the same and our academic departments have to play, and pay, our appropriate share,” said R. Nick Bryan, M.D., Chair, Radiology, University of Pennsylvania Health System, a VIP Practice Donor.

The R&E Foundation is the first step for radiologic investigators, and a recent analysis demonstrated that for every dollar awarded by the Foundation, grant recipients receive $30 in additional funding from sources such as the NIH and Department of Defense. In 2010, practices from around the country donated over $335,000 to the Foundation. It was the VIP program’s most successful year since its inception in 2005. We hope to continue and expand the program’s success in the new year.

VIP Practices and individual members within each practice receive benefits during the annual meeting, including access to the Donor Lounge, early hotel registration, and complimentary lunch. Year-round benefits include a discount on RSNA educational products, complimentary preferred job postings in Radiology ($500 value), a recognition plaque, use of the RSNA R&E Donor logo and more. Benefits vary by donation level.

Thank You
2010 VIP Practices

PLATINUM VIP ($75,000)
Austin Radiological Association, Austin, TX

SILVER VIP ($25,000)
Catawba Radiological Associates, Hickory, NC
Radiological Associates of Sacramento Medical Group, Inc., Sacramento, CA

BRONZE VIP ($10,000)
Asheville Radiology Associates, Asheville, NC
Birmingham Radiological Group, Birmingham, AL
Charlotte Radiology, Charlotte, NC
Eastern Radiologists, Greenville, NC
Foundation Radiology Group, Pittsburgh, PA
Greensboro Radiology, Greensboro, NC

Jefferson Radiology, East Hartford, CT
Johns Hopkins Medicine, Baltimore, MD
McHenry Radiologists & Imaging Associates, McHenry, IL
Mecklenburg Radiology Associates, Charlotte, NC
Medical Center Radiologists, Inc., Norfolk, VA
Northwest Radiology Network, Indianapolis, IN
Radia, Everett, WA
Radiology Associates, P.A., Little Rock, AR
Radiology Imaging Associates, P.C., Denver, CO
Raleigh Radiology, Raleigh, NC
Southeast Radiology, Ltd., Upland, PA
St. Paul Radiology Foundation, St. Paul, MN
University of Pennsylvania Health System, Philadelphia, PA
West Reading Radiology Associates, West Reading, PA

To learn more or become a VIP practice, contact Robert Leigh, Manager, Fund Development at 1-630-590-7760 or Rleigh@RSNA.org.
Jennifer Jones, M.D., Ph.D.
Radiation Oncology, Stanford University, Stanford, Calif
2008 RSNA Research Resident

Project Title: Strategic Design of Novel Radiation and Immunotherapeutic Combinations: Selective Targeting of Radiation-Induced Changes in Costimulatory Pathways

Specific Aim 1: To delineate changes in immune cell subsets and costimulatory/coinhibitory receptors after RT

Specific Aim 2: To test whether blockade of RT-induced inhibitory receptors improves anti-tumor responses after RT + IT

Summary Statement
Immunotherapy (IT) affords the promise of new treatments for cancer, and there is growing interest in combining IT with radiation therapy (RT). The major goals of IT are to activate the immune system, eradicate malignant cells, and generate long-lasting anti-tumor immunological memory. Successful combinations of external beam RT and IT can be designed in such a way that RT achieves local tumor control and induces an anti-tumor immune response against distant metastasis.

In order to assist in the design of effective IT + RT combination therapies, the goals of this project were to determine the effects of RT on 1) the survival of critical populations of immune cells, 2) the expression of key costimulatory and coinhibitory molecules, and 3) the efficacy of costimulation-enhancing IT. By quantifying the effects of RT on the cells and receptors that orchestrate immune responses, our results confirm that radiation changes cell phenotypes in the immune system and that the inherent plasticity of the immune system that typifies its response to other stimuli is reflected in the changes observed after exposure to radiation. This phenotypic plasticity presented unanticipated challenges to our analysis of the cell profiles after radiation, but modifications to the experimental methods were incorporated so that the results can be understood in the intended manner and simultaneously provide insight into RT-induced morphological changes in immune cell subsets. Furthermore, this research led to our discovery of a novel class of biomarkers that we hope will facilitate optimal design of RT + IT combination therapies in the future.

Clinical Significance
This research is the first of its kind to systematically evaluate and identify optimal immunotherapy targets for use in RT + IT combinations. The ultimate possibility of this research is that targets identified in this project may enable us to have systemic therapeutic effects when delivering local radiation for the treatment of metastatic or systemic malignancies.

Impact of Funding on Publications/Grant Applications
The funding for this project enabled me to conduct new research in an area not previously funded or investigated in our department or by others. Because of the exploratory nature of these studies, initial funding for this project was absolutely crucial to our ability to launch a new area of research. We have obtained additional grants to fund further research in this area, including an institutional grant and a Leukemia & Lymphoma Society Translational Research Project award. These grants have provided $50,000 for the study of these RT + IT therapies in GI/pancreas cancer models and $600,000 for further study of these RT + IT therapies in the treatment of lymphomas.

Interested in learning about grant opportunities?
Contact Scott Walter, M.S., assistant director of grant administration at swalter@rsna.org or 1-630-571-7816.
R&E: What influenced you to pursue a career in radiology?
DR. AGRAWAL: As a board certified pediatrician, I became fascinated with radiology during my pediatric radiology rotation. MRI’s ability to image the nervous system in such a great detail amazed me and I wanted to pursue radiology. The American Board of Radiology was starting a pilot project for pediatricians to pursue radiology under the PEDRAP program and I was selected.

R&E: What has been your most rewarding experience in the field thus far?
DR. AGRAWAL: I am a final year resident in radiology. I have had many experiences where radiological diagnosis was the most important link in the chain of steps helping the patient. It is an extremely satisfying feeling when referring physicians and patients come and say “thank you” for your contributions from behind the scenes in the dark reading rooms.

R&E: You attended RSNA 2010. What do you enjoy most about the meeting?
DR. AGRAWAL: This past November, I met with colleagues from all over the world at RSNA 2010. I attended great presentations from some nationally and internationally well known radiologists. The conference gives me an opportunity to present my work to radiologists from around the globe. The meeting gives an insight to where radiology is headed and what all new developments are in process that are available to help our patients.

R&E: What is your area of research?
DR. AGRAWAL: I am presently conducting a prospective study on interpretation bias introduced by prior reports/alliterative error.

R&E: You recently became an RSNA Presidents Circle member. Why do you feel it is important to support the RSNA R&E Foundation?
DR. AGRAWAL: Supporting research and education in a field which has influenced my whole life is my way of saying thank you to radiology, my passion.

R&E Foundation Highlights of the RSNA 2010 Annual Meeting

- More than 200 current and former R&E Foundation Grant recipients presented at the meeting.

- The RSNA Services area located in the upper level Lakeside Center unveiled a clean, cohesive new look at RSNA 2010. An engaging design centered on donor photos at the R&E booth was one of the many highlights.

- A “casino night” fundraiser organized by Frank J. Rybicki III, M.D., Ph.D. and the Applied Imaging Science Laboratory at Brigham and Women’s Hospital raised $1,500 to benefit Foundation grant programs.

- The R&E Foundation Board of Trustees, Committee Members, and Volunteers gathered to conduct their meetings in Chicago.

- A jazz concert benefiting the Foundation hosted by neuroradiologist and musician Craig Russo, M.D., raised $1,300.

- Donors who contributed $250 or more enjoyed the perks of the Donor Lounge all week, including light snacks, coffee and beverages, computers, and a place to relax.

- Donors in the Visionary, Legacy, Presidents Circle, Vanguard and Visionaries in Practice programs enjoyed the Distinguished Donor Reception held annually at the Union League Club.
Because of generous donors like you, **70 grants** are under way.

See the entire list at [RSNA.org/Foundation](http://RSNA.org/Foundation).

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**These Bright Minds Thank You!**

Qian Dong, M.D.  
**Bracco Diagnostics/RSNA Research Scholar Grant, Radiology, University of Michigan Hospitals and Health Centers**  
Quantitative Imaging in Soft Tissue Sarcomas: Use of MRI Diffusion and MRI Perfusion Biomarkers to Predict Early Response to Neoadjuvant Chemotherapy

Andrew Cordle, M.D., Ph.D.  
**Adele Swenson Research Resident Grant, Radiology, MetroHealth Medical Center**  
**Neuro-Inflammatory Imaging: Superparamagnetic Iron Oxide Nanoparticle Labeling of Reactive Monocytes in Alzheimer’s Disease**

Chan Hong Moon, Ph.D.  
**Agfa HealthCare/RSNA Research Scholar Grant, Radiology, University of Pittsburgh**  
Sodium/Proton MR Imaging of Knee Cartilage in Osteoarthritis

Agnes Bahng, B.S.  
**RSNA Research Medical Student Grant, Radiation Oncology, Hospital of the University of Pennsylvania**  
Determination of Prognostic Factors for Vaginal Stenosis Associated with Intravaginal High-Dose Rate Brachytherapy in Patients with Endometrial Carcinoma

Hee Kyung Kim, M.D.  
**Fujifilm Medical Systems/RSNA Research Seed Grant, Radiology, Cincinnati Children’s Hospital**  
T2 Relaxation Time Mapping (T2 Map) as a Quantitative and Objective Measure of Inflammation and Fatty Infiltration of the Muscles in Children with Duchenne Muscular Dystrophy (DMD)

Ben Paxton, M.D.  
**Toshiba America Medical Systems/RSNA Research Resident Grant, Diagnostic Radiology, Duke University Medical Center**  
Catheter-directed Gastric Artery Embolization for Long Term Modulation of Systemic Ghrelin Levels in a Porcine Model

Habib Rahbar, M.D.  
**RSNA Research Fellow Grant, Radiology, University of Washington**  
Risk-Stratification of Ductal Carcinoma in Situ (DCIS): Development of a Predictive Model Incorporating Dynamic-Contrast-Enhanced and Diffusion Weighted MRI Characteristics at 3T for Discrimination of DCIS Subtypes

Joseph Ippolito, M.D., Ph.D.  
**RSNA Research Resident Grant, Radiology, Mallinckrodt Institute of Radiology, Washington University**  
High Throughput RNA Interference and Pharmaceutical Screens of GABA Metabolism in Prostate Cancer Hypoxia

Jie Li, M.D.  
**Derek Harwood-Nash Education Scholar Grant, Radiology, Beijing Cancer Hospital and Beijing Institute for Cancer Research, Peking University School of Oncology**  
Developing an Educational Program on Breast Imaging for the Chinese Radiology Society with International Cooperation

Mannudeep K. Kalra, M.D.  
**GE Healthcare/RSNA Education Scholar Grant, Radiology, Massachusetts General Hospital**  
CT Virtual Autopsy for Radiation Dose Reduction and Radiological-Pathological Correlation Training Programs
Ways to Give to the R&E Foundation

Charitable Gift Annuity

The Legacy Donor program has expanded its planned giving options to include Charitable Gift Annuities. Through a Charitable Gift Annuity you’ll receive current and future savings on income taxes and fixed payment for life, for you and your spouse. To see how an annuity can benefit you or you and your spouse, go to RSNA.org/PlannedGiving and click on Gift Calculator. Enter your information and receive a customized summary of your benefits. For more information on Charitable Gift Annuities and other ways to leave a planned gift, contact Karena Galvin, director, R&E Foundation at 1-630-590-7742 or kgalvin@rsna.org.

FIND YOUR GIFT ANNUITY RATE

ONE LIFE

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*Current rates may vary.

ONLINE GIFT CALCULATOR

John Smith, M.D.

ASSUMPTIONS

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BENEFITS

- Immediate Charitable Deduction to Dr. Smith: $2,484.50
- Annual Payment: $560.00
- Tax Free Portion: $410.48
- Ordinary Income: $149.52

View your customized annuity benefit summary at RSNA.org/PlannedGiving.