

## 2014 American Society for Clinical Investigation Presidential Address

### Leading by example: pastors, mentors, physician-scientists, and the ASCI

Peter Tontonoz

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#### ASCI Presidential Address

Colleagues and friends, it has been my honor and privilege to serve as president of the ASCI for the past year. Thank you for this incredible opportunity. Throughout my time on the Council, I have been enriched by my interactions with the remarkable physician-scientist colleagues with whom I have had the pleasure to serve. I have been inspired by your dedication to academic medicine and to the Society. I have also witnessed the extraordinary dedication and sheer competence that John Hawley and Karen Guth bring to the day-to-day operations of the Society and the JCI. They make the jobs of the president and the Council easy, and they do so with professionalism, skill, and integrity. As I step down as president, I am confident that the scientific spirit within the Council will carry on through the leadership of incoming president Mukesh Jain and future presidents Levi Garraway and Vivian Cheung and that the new initiatives I will mention today will move forward. You are in good hands. In 2002, David Ginsburg gave one of the benchmark ASCI addresses of the modern era when he went meta and made a major topic of his address the choice of topics for prior ASCI presidential addresses (1). David showed a pie chart illustrating that essentially only five recurring subjects had been covered in [...]

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In 2002, David Ginsburg gave one of the benchmark ASCI addresses of the modern era when he went meta and made a major topic of his address the choice of topics for prior ASCI presidential addresses (1). David showed a pie chart illustrating that essentially only five recurring subjects had been covered in the then-93-year history of the ASCI. When one reads through prior presidential addresses, it is indeed remarkable how constant some of the major issues confronting our profession and the Society have been over the past 100 years.

Some of the trepidation felt by ASCI presidents as they stand here relates to the unique nature of the joint ASCI/AAP meeting. This group represents both the

Young Turks and the slightly more mature Turks. My pending inauguration into the AAP tomorrow night has given me a new perspective on this dichotomy. ASCI presidents are not only addressing their peers but also their heroes. What can I possibly add that has not already been said better by luminaries like Joe Goldstein and Bob Lefkowitz — especially since some of these people are here in the room?

Having pondered the issue for half a year and still having failed to escape the confines of David Ginsburg's pie chart, I

I promise that you are not going to get a sermon. Although my father is a priest, my wife is Jewish and I am a devout atheist, so I can assure you that the take-home messages here will be strictly nonsectarian. My career in science has been influenced by a series of figures who have led and inspired by the examples they set, by their actions and their presence as much as by their formal advice. Thus, my theme today is that one of the most important things we can do as academic physicians, as individuals, and as a society, is to lead by our example.

### Losing my religion

I was first introduced to the concept of leading by example through my father, the Rev. Dr. David Tontonoz, an Episcopal priest for 30 years until he retired a few years ago (Figure 1). Although it may seem like a contradiction to those of us who worship data and facts, he is both a man of faith and an intellectual. My father has a doctoral degree in psychology and did his thesis on Carl Jung. I remember when I was young that, among other pursuits, he loved to watch *Nova* on PBS and read *National Geographic* and also *Biblical Archaeology Review*, which, in a nutshell, documents exciting things recently dug up in the Middle East that date from biblical times. He respected science and understood that the earth was billions of years old, and for him, there was never a conflict between religion and science. In his mind, as long as God started it, the downstream details were up to us to work out.

Growing up the son of a preacher man is a unique experience. And, full disclosure here, for many years one of the things I remembered most vividly about my childhood was not being led by example but being used as the example. On the plus side, I was exposed early to the power of oratory and the importance of telling a good story — lessons very useful to the practice of academic medicine, as presenting one's work to others is an essential part of being a scientist. However, as you are probably aware, one of a priest's



**Figure 1**  
The Rev. Dr. David Tontonoz.

eventually asked myself a question that I am sure many prior orators on this stage have also posed to themselves: What makes me different from those who have gone before? Then it occurred to me that, certainly, I must be the only ASCI president in the history of the Society whose father was an Episcopal priest. Perhaps that gives me somewhat of a different perspective.

Lest you fear that I am going to blur the separation between church and society,

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**Figure 2**

My father with myself (left) and my brother Scott in 1970. I presume that of the three pipes in this picture, only my father's is lit.

principle duties each week is to deliver a (hopefully) inspiring sermon that translates something from the Bible into a pithy lesson relevant to the joys and trials of earthly life.

What you might not know is that priests, like comedians, work with the material they've got. And that brings us to the minus side: in the case of a priest who was the father of three boys, the material was *us*. Each Sunday morning, I would have to sit in the audience and hear how the fact that I did not eat my broccoli the night before illustrated how the kingdom of God was like a mustard seed and that we must be thankful for what we are given.

But in retrospect, with the benefit of age, I now recognize that my father epitomized someone who was passionate about his pursuits and driven by purpose, with a thirst for knowledge and deeper insight into the world. He was intellectually curious and a voracious reader. Although I personally found his belief in God to be incompatible with my view of the world, his example nevertheless inspired me. He was passionate about learning, and that was contagious.

My parents never overtly encouraged me to pursue science or medicine, and there is no history of physicians in my family. But, apparently, there was one key trait of the physician-scientist that my father attempted to instill in me from a young age. I did not actually recognize this until I read Joel Howell's history of the ASCI (Figure 2) (2). Howell documents that in the early days of the Society, there was an unofficial dress code for the Young Turks, who would arrive in turn at the podium with a similar outfit: "...white shirt with button-down collar, striped tie...charcoal gray slacks, her-ringbone jacket often with leather elbow patches, and well-shined black shoes. Almost all...were pipe smokers."

#### **Tending the flock: the art of being a scientific mentor**

I have had two outstanding scientific mentors in my career who also led by example, Bruce Spiegelman and Ron Evans. As I mentor my own trainees, I am constantly trying to emulate these two men. The thing is, neither of them ever said a word to me explicitly about how to make scientific

decisions, how to run a laboratory, or how to manage people. But they taught through their actions, outlook, and approach to scientific discovery, and today their trainees are directing research laboratories at institutions around the world.

To work with Bruce Spiegelman is to witness the embodiment of passion for science. I used to routinely arrive at my bench in the morning to find Bruce searching my desk for the latest autoradiogram, as we were purifying an adipocyte transcription factor called PPAR $\gamma$ . Witnessing Bruce's excitement over even small discoveries was inspiring and continuously reinforced my commitment to research as a career. After running my own laboratory now for 15 years, I recognize that people largely come in either getting it or not. You can't really instill what Bruce used to call the "fire in the belly." You mostly nurture it, but it is that nurturing that is one of a mentor's most important jobs.

Ron Evans taught me the importance of avoiding tunnel vision in the pursuit of one's scientific passions. Ron pays attention to everything. He is the guy in the front of the room who, after every scientific talk, asks the penetrating question — the one that dawns on you only after he poses it. He has an uncanny ability to synthesize information from disparate sources and to make new connections between his own research and the leading edges of other fields.

#### **Preach to the unconverted: be the public face of science**

So how can the ASCI and its membership lead by example? For one, we can be the public face of medical science. Another consequence of being the scientist son of a priest is a heightened sensitivity to the fraught relationship between religion and science in today's society. As my wife can attest from catching me yelling at the TV on more than one occasion, one of the things that rankles me most is seeing how religion is pitted against science in political discourse and in the media — as if there were multiple options to choose from, science and reality being only one of them.

It is fashionable today in some circles to use science as a wedge issue to score political points. To see some profess a disregard for science and scientists as if it were a badge of honor is depressing. I think it is incumbent upon us as individuals and as a society to counter this narrative and to be advocates for science. In her presiden-





**Figure 3**  
My father, the Episcopal priest, marrying his nonbelieving son to a nice Jewish girl.

tial address two years ago, Beth McNally outlined the importance of advocacy with the theme: “Yes we can” (3) Beth primarily stressed the need for advocacy for increased funding from the government and for better recognition of the importance of science on an institutional scale. To complement Beth, I would like to emphasize the need to do a better job sharing the excitement and promise of science with the broader public.

The truth is that many Americans get little exposure to science in school, including many humanities majors graduating from elite colleges. Increased appreciation for the importance of scientific discovery for human health will lead to broader support for scientific research as a fiscal priority. As Bill Hahn put it in his presidential address last year, “We need to get out there and argue our case” (4).

We also need more accessible public faces of science. I used to rib my father that the only talking heads speaking on behalf of religion on TV were extremists claiming

that the earth was 6,000 years old. The truth is that most religious people, including most clergy, accept evolution. “Where were those reasonable voices on TV and in the media?” I challenged him. But one could also fairly ask whether we are making enough of an effort to put a good face on science ourselves. Bill Nye did a wonderful job debating a creationist in a high-profile event last year. We need more accessible ambassadors for medical research.

### Don’t be an unpersuadable

In his recent book, *The Unpersuadables: Adventures with the Enemies of Science*, the journalist Will Storr offers a look at the mindset behind some high-profile science antagonists, including a climate change denier and a well-known creationist. Storr attempts to explain why people cling to their strongly held beliefs even when confronted with facts that discredit those beliefs. Central to Storr’s thesis is the idea that the human mind is wired to view the

world through its own internal narrative. This is fundamentally how we make sense of the world; we interpret what we experience in the context of these preconceived story lines.

At the end of his book, Storr engages in a bit of self-reflection and wonders how often his own preferred story lines cloud his perception of facts and reality. As we work to counter the antisience narratives of the unpersuadables, we must be self-aware enough to not become them ourselves. One of the lasting lessons I learned from my mentors Bruce Spiegelman and Ron Evans was the importance of being skeptical. Because, as Storr illustrates so vividly, once you have a good story in your head, it is really difficult to burst that bubble. As scientists, we must constantly check ourselves to ensure that we are interpreting our results in a truly objective fashion and not clinging to select pieces of data that fit our internal narrative.

In my own life, my father led by showing that he was not immutable in his belief system. This is another picture of my father in a different setting. Here he is: the Episcopal priest, standing under a Chupa, marrying his nonbelieving son to a nice Jewish girl (Figure 3). Was this a picture he envisioned when he first became a priest many years ago? Probably not...but he adapted.

Just as we as individual scientists must strive to be open to facts that counter our deeply held expectations, so must the ASCI. It is important that the ASCI be flexible and that it adapt to the needs of the academic scientist of the time. The ASCI, like any organization, has had to grapple over the years with the fundamental issue of who can be a member. The age limit of 45 for admission to the Society has been in place for as long as anyone currently at the ASCI can remember, at least since the 70s or 80s.

But this criterion was not handed down by Moses, as evidenced by the fact that Samuel Meltzer, founder of the ASCI, was actually 59 years old at the time of the first ASCI meeting in 1909. Today, the independent academic scientist is older than his or her peers were even 20 years ago. The average age of a first-time R01 recipient is now over 40. The ASCI Council has been concerned about this trend for a number of years, because in this reality, a society with an age cutoff of 45 years for admission was heading for extinction.

To adapt to this new reality, we instituted a major change in the admission criteria for ASCI membership through a series of bylaw



changes that have appeared on the ballot over the past 2 years. In 2012, the membership approved a change in the transition age of Active members to Senior status from 51 years to 56 years. This change paved the way for a second bylaw revision enacted in 2013 that increased the maximum age for admission from 45 years to 50 years.

This past fall was the first ASCI admissions cycle with the new age limits. As you can see, the number of nominations this year rose slightly to 198, and we admitted 76 new members. It is noteworthy that a large proportion of the nominations received were for candidates between the ages of 46 and 50 years, reflecting considerable interest from this population. It is also noteworthy that the success rates for those above and below the age of 45 were roughly comparable. Furthermore, just as in previous years, most successful candidates were admitted on their first nomination. Thus, the majority of those admitted aged 46 years and older were first-time nominees who otherwise would have been left out of the Society.

Our initial experience with the new policy has reinforced the sense of the Council that there was a need for this change, and the community is responding favorably to this change by nominating highly qualified candidates to the ASCI.

### Be evangelists for basic science

In his opening address at the first ASCI meeting in 1909, Samuel Meltzer stressed that “Contemporary clinical research should not be founded on the ‘dead house’ science of pathology that had characterized the previous generation, but on the active progressive science of physiology.” I’d like to update that a bit, and not just because I’m a pathologist. If Meltzer were here today, I suspect he would state that contemporary clinical research should be founded on molecular biology and genetics. Like many ASCI presidents past, I am also going to emphasize ASCI’s unique position as an advocate for research. But not the exact flavor of research you might be expecting. I am going to go to bat for the flies, worms, yeast, fish, and mice.

Many of you will recall that a few years ago, my colleague Paul Mischel focused his presidential address on the joys of patient-oriented research (5). He advocated an active role for the ASCI in the promotion of translational science and championed the *JCI* as its ideal showcase. While I certainly agree with Paul about the

importance of translation, I would like to advance a complementary view that physicians must also be vocal advocates for basic science, which, in these times of limited funding and resources, is getting a bad name. In my view, the ASCI should be an advocate for excellence in all science: basic, translational, and clinical. For who is better suited than academic physicians to make the case for the importance of basic science to medicine?

Let me give you a few examples of what I perceive to be the problem. Picture a study section at which an application (not mine) is being reviewed that proposes to follow up the discovery of a novel gene whose mutation results in a dramatic metabolic phenotype in mice. One of the panelists criticizes the application, arguing that “Since there is no published GWAS signal at this locus, the gene is not relevant to human disease and therefore not worth studying in mice.” Set aside the fact that the absence of a genetic signal at a particular locus is not evidence of anything, in my view, such critiques underappreciate the potential value of studying fundamental biological processes in model organisms.

As another example, a paper (also not mine) reporting a provocative phenotype stemming from the knockout of a conserved gene in a model organism submitted to a prominent journal was recently rejected on the basis that “The relevance of your findings and the clinical significance to human disease states were not convincingly demonstrated.”

Finally, in an effort to satisfy this request to show relevance to human disease, I now routinely end the specific aims page for all my grant applications with something to the effect of: “These studies may lead to the development of new therapies for cardiovascular disease.” I presume almost everyone does this now. And we all recognize how arrogant this sounds, but, unfortunately, such exaggerated claims are now routinely expected.

Obviously, reviewers and journals must make judgment calls, and the peer-review process is an imperfect human endeavor. Yes, it is valid to assign a higher funding priority to those applications that we strongly believe have a greater potential for translational impact. But we must also be cognizant of the limitations of our foresight. Implicit in these comments that I have cited is the problematic assumption that we can predict with reasonable confidence which basic science endeavors will

have important implications for human health and which will not. But history shows that we are frequently not that good at making such assessments.

Consider, for example, my own field of lipid metabolism. There have been few major advances in the treatment of atherosclerotic cardiovascular disease since the introduction of statins — certainly nothing with comparable impact. A number of recent candidate drugs have failed to show meaningful improvement in outcomes in late-stage clinical trials. These expensive failures are actually driving many pharmaceutical companies out of the business of cardiovascular drugs altogether.

I would argue that recognizing the importance of translation and human data is different than trying to dictate human “relevance” from the top down. We should not forget that some of the discoveries in the age of molecular biology that have turned out to have the greatest impact on human health have come from careful basic science. And in some cases, it is likely that the line of investigation that led to these discoveries could have been labeled by current study sections as “lacking in human disease relevance.”

One example that has always stuck in my mind over the years comes from my time as a graduate student in Bruce Spiegelman’s laboratory. I was stunned to hear one morning that our neighbor Richard Kolodner had discovered a gene involved in human colon cancer. I was surprised, because Richard was a yeast geneticist studying DNA mismatch repair. He didn’t work on mammals, let alone humans or cancer. He was a basic scientist doing work that, at least on the surface, did not have obvious relevance to human disease. But it turns out that Richard’s meticulous elucidation of the biological function of the MSH gene in yeast provided the critical insight that led to the identification of its human homolog as the gene most commonly mutated in hereditary nonpolyposis colorectal cancer. The key to the discovery was understanding the conserved biological function of the gene, and figuring that out required the tractable system of a model organism.

Charles Sawyers, former ASCI President and Stanley J. Korsmeyer Award winner, touched upon this issue in his 2008 presidential address (6). He recounted the path to the implementation of the tyrosine kinase inhibitors imatinib and dasatinib as drugs for CML and spoke of the critical

**Table 1**

2014 ASCI Council Young Physician-Scientist Awards

<b>Jason Andrews, M.D.</b> Stanford University School of Medicine	<b>Stephanie Eisenbarth, M.D., Ph.D.</b> Yale University School of Medicine	<b>Ann Mullally, M.D.</b> Dana-Farber Cancer Institute
<b>Justin R. Bailey, M.D., Ph.D.</b> Johns Hopkins University School of Medicine	<b>Joshua A. Englert, M.D.</b> Harvard Medical School	<b>Eirini Papapetrou, M.D., Ph.D.</b> University of Washington
<b>David Barbie, M.D.</b> Dana-Farber Cancer Institute	<b>Jorge L. Gamboa, M.D., Ph.D.</b> Vanderbilt University School of Medicine	<b>Sudarshan Rajagopal, M.D., Ph.D.</b> Duke University Medical Center
<b>Sami Barmada, M.D., Ph.D.</b> University of Michigan	<b>Don Gibbons, M.D., Ph.D.</b> MD Anderson Cancer Center	<b>Stacey Rentschler, M.D., Ph.D.</b> Washington University School of Medicine
<b>Daniel E. Bauer, M.D., Ph.D.</b> Boston Children's Hospital	<b>Anna Greka, M.D., Ph.D.</b> Harvard Medical School	<b>Andrew Rhim, M.D.</b> University of Michigan
<b>Trevor Burt, M.D.</b> University of California, San Francisco	<b>Alan Hanash, M.D., Ph.D.</b> Memorial Sloan Kettering Cancer Center	<b>Matthew Riese, M.D., Ph.D.</b> Medical College of Wisconsin
<b>Ping Chi, M.D., Ph.D.</b> Memorial Sloan-Kettering Cancer Center	<b>Mark Hatley, M.D., Ph.D.</b> St. Jude Children's Research Hospital	<b>Chetan Seshadri, M.D.</b> University of Washington
<b>Matthew M. Churpek, M.D., M.P.H., Ph.D.</b> University of Chicago	<b>Mohit Jain, M.D., Ph.D.</b> University of California, San Diego	<b>Anthony Shum, M.D.</b> University of California, San Francisco
<b>Ajai Dandekar, M.D., Ph.D.</b> University of Washington	<b>Brian S. Kim, M.D.</b> University of Pennsylvania	<b>Emily K. Sims, M.D.</b> Indiana University School of Medicine
<b>Andrew Dauber, M.D., M.M.Sc.</b> Boston Children's Hospital	<b>Conor Liston, M.D., Ph.D.</b> Weill Cornell Medical College	<b>Scott Soleimanpour, M.D.</b> University of Michigan Medical School
<b>Marco L. Davila, M.D., Ph.D.</b> Vanderbilt University	<b>Randy Longman, M.D., Ph.D.</b> Weill Cornell Medical College	<b>Stephanie B. Troy, M.D.</b> Eastern Virginia Medical School

role that his collaboration with crystallographer John Kuriyan played. "Imagine if John Kuriyan had not been funded to study the basic structural biology of kinases," Charles mused. I would submit that the substantial impact that Kuriyan's work would ultimately have on human disease was likely not obvious at the time his crystallography grant was being reviewed.

Finally, Laurie Glimcher's elegant talk from just a few hours ago provides a great example of the importance of serendipity and an open mind in scientific discovery. Who could have predicted that an effort to identify factors involved in T cell development would lead to new therapies for osteoporosis?

Don't get me wrong: I am not saying that the ASCI should not champion translational science. It should. What I am arguing is that we should take care to ensure that it is not a zero-sum game. We should not back ourselves into a corner and accept the false choice of advocating either translational or basic science. We physician-scientists need basic science too, even if our personal focus is translation to humans. We use it; we build on it; basic biology is the root structure from which translational medical research grows.

Yes, it is critical to validate discoveries made in lower organisms and extend them to humans and to understand species-specific differences. Absolutely, it is essential to study human subjects in order to translate basic discovery into therapy. Yes, as Rick Lifton illustrated earlier today, it is possible that advances in human genetics may help us to identify better drug targets. Without a doubt, we must sympathize with the desire of politicians and taxpayers to receive a good return on their investment in the form of new therapies and improved public health. But in our zeal to promote translational science and medicine, we must take care not to sideline or devalue basic research.

Combined with the budgetary realities that are driving down paylines, a failure to support basic science could eventually erode the broad scientific base upon which transformative discoveries of the future will rest. Even the true visionaries require a rich scientific literature on which to draw. A system that funds only the top 5% of grants may or may not succeed in funding the most transformative scientists, but it will certainly fail to keep the base stable. Markedly shrinking the pool of academic researchers and driving worthy investiga-

tors out of research surely will not benefit the overall effort to improve human health.

### Missions for the future

Over the past few years, the ASCI Council has discussed ways in which the ASCI could be more active in its leadership in the scientific community. Currently there are 12 ASCI Council members who serve the Society in an official capacity. But we have more than 800 Active members and more than 2,000 Senior or Emeritus members. Surely, others would be willing to devote some of their time to special subcommittees tasked with expanding the influence of the ASCI into particular arenas such as fundraising, outreach to MSTP programs, advocacy, education, and other initiatives.

I wanted to take a few minutes tonight to touch upon a number of ways that the ASCI might take a more active role going forward. Incoming president Mukesh Jain, in particular, has been a strong proponent of a more active ASCI, and I am confident that some of the fledgling ideas that have been hatched in the Council over the past few years will be nurtured and matured during his tenure and those of future presidents Levi Garraway and Vivian Cheung.





### The ASCI Council Young Physician-Scientist Awards

Last year, we initiated a new program aimed at increasing our outreach to and engagement of physician-scientist trainees. The ASCI Council Young-Physician Scientist Awards provide a mechanism of recognizing promising physician-scientists funded by NIH K-series grants. This program brings some of the brightest young stars in our field to the annual meeting, providing them a forum in which to present their work and an opportunity to network with the ASCI and AAP communities. This year, we recognized 33 outstanding scientists from institutions across the country (Table 1). I would like to congratulate each of you on this recognition and welcome you to the meeting. I would also encourage you to make the most of the opportunity. Seek out one or more of the luminaries you have always wanted to meet and engage them.

### A goal for the future: research funding for young physician-scientists

Another way the ASCI could lead by example would be to take an active role in providing strategic research funding for young physician-scientists. Such a program was actually established in the past but could not be sustained. In the past, the ASCI was able to support grant initiatives with funds from *JCI* income and investment returns from a superheated stock market, but this is not a viable model for the future.

The *JCI* is self-supporting and is holding its own in this difficult publishing environment, but the days when the *JCI* could subsidize other ASCI programs are over. The reality is that a sustainable grants program will require an endowment dedicated for that purpose. The ASCI has not historically been involved in fundraising, but perhaps now is the time.

This year, the ASCI Council designated \$1,200,000 to a special project fund in an effort to catalyze the creation of a sustainable resource that can fund grants to young investigators. For such a program to be successful, we obviously need to attract outside support, and this will be a long-term project for successive councils. But the current Council felt that it was important to set an example and to demonstrate the ASCI's

commitment to this effort. We hope to use these funds to attract matching funds from individuals and philanthropies. This effort is very much a work in progress, and it represents new territory for the ASCI. But it is in keeping with the belief of the Council that the ASCI has the potential to become a more active society that can lead in ways that extend beyond the recognition of excellence in its members.

### A goal for the future: create strategic partnerships

Another mechanism through which the ASCI can expand its impact is engaging in strategic partnerships. One such example of a successful partnership is the joint effort of the ASCI and the Harrington Discovery Institute to establish the Harrington Prize for Innovation in Medicine. It has been a pleasure to work with Harrington Institute Director Jonathan Stamler and his board over the past two years on this endeavor. This inaugural award will be presented tomorrow morning to Harry Dietz from Johns Hopkins University for his groundbreaking work on Marfan syndrome. The partnership between ASCI and the Harrington Discovery Institute has expanded the ability of the ASCI to recognize and showcase excellence in biomedical science.

### Keeping the faith

If one reads through the collection of prior presidential addresses, it is clear that some themes have been common throughout the history of the Society. Funding has almost always been bad, and the physician-scientist has been on the verge of extinction for 105 years now. At the same time, there is no denying that some things are changing.

We face a very real challenge in encouraging our best and brightest to continue to choose academic research as their devotion. In my 15 years running a research laboratory, I have noticed a change in the attitudes of young scientists coming to work with me. They are more anxious about the future. They are much more concerned with the prospect of grant funding than I ever was at their career stage. It is also impossible not to notice that many of my best graduate students and postdocs are not Americans. And returning to their home country after postdoctoral training

is now a competitive option for many of my most promising trainees.

But it is incumbent upon us as individuals and as a society to keep the faith. Samuel Meltzer identified one of the key obligations of society membership as the duty to "further the objectives of the society in the diffusion of the scientific spirit, particularly among his or her students and professional associates" (2). We must continue to nurture and disseminate what Bob Lefkowitz referred to in his 1988 ASCI presidential address as the "spirit of science" (7). To quote Dr. Lefkowitz, "It is in the instilling and nurturing of this spirit in our students and fellows that constitutes perhaps the most important opportunity that we will have to have an impact on their careers. The true spirit of science concerns an attitude or approach to scientific investigations that inspires, pervades, and permeates the entire enterprise."

We should not forget that we are truly lucky to be able to earn a living while satisfying our intellectual curiosity, pursuing our passions, and working for the public good. Few professions have a greater potential for improving the human condition than that of the physician-scientist. Now more than ever in these challenging times, it is critical that we maintain the scientific spirit, that we keep the faith, pass it on to our trainees, peers, and to society as a whole, and lead by our example. Thank you.

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