

A LIFETIME LAYING THE FOUNDATIONS FOR TOMORROW'S DISCOVERIES

# The 2012 Academy Laureate, Stephen J. Ryan

BY LINDA ROACH, CONTRIBUTING WRITER



LAUREATE OF THE  
AMERICAN ACADEMY  
OF OPHTHALMOLOGY

**S**tephen J. Ryan, MD, has spent the last four decades harnessing the power of institutions for the good of patients and practitioners.

**BUILDING AN INSTITUTION.** In 1974, Dr. Ryan moved from Johns Hopkins to the University of Southern California (USC) to become the department chairman, as well as the first full-time faculty member in ophthalmology. In 1975, the Doheny Eye Institute relocated to the university and provided Dr. Ryan the opportunity to recruit and build the institute's department from the ground up.

Thus began the transformation of the institute into one of the top university-based ophthalmic teaching, clinical, and research centers. By wooing charitable foundations and individuals—including grateful patients—for capital donations, and advocating to Congress to increase funding for research grants, Dr. Ryan built Doheny into a respected institution. In 2011 alone, Doheny scientists received \$21.8 million in federal and state grants and published more than 180 scientific papers. Moreover, Doheny has seeded clinics and hospitals around the world

with ophthalmic physicians and vision scientists who have the medical, surgical, and intellectual tools required to deliver excellent patient care and establish cutting-edge research in their own institutions.

**MAKING A CLINICAL BREAKTHROUGH.** His accomplishments at Doheny alone might explain the Laureate Recognition Award that Dr. Ryan is receiving during the Opening Session. However, his impact on ophthalmology extends well beyond the role that the Doheny Institute has played in training over three decades' worth of residents, fellows, and international scholars. In addition, Dr. Ryan's decades of behind-the-scenes vision research continue to provide substantial benefit to patients today—every time an ophthalmologist injects an antiangiogenic drug into a patient's eye, every time a patient with age-related macular degeneration (AMD) hears the good news that the neovascularization is regressing, or every time that a patient thanks his lucky stars for the drug that is saving his sight.

It was Dr. Ryan who, in the late 1970s and early 1980s, designed and led the

basic science studies that would produce the first animal model of choroidal neovascularization that could be used to examine the pathogenesis and treatment of neovascular diseases such as AMD. This breakthrough set vision researchers on a road that eventually led to the antiangiogenic drug therapies that are helping patients today.

"This was not the type of work where drug company X releases drug Y that helps patients. This is the step prior to that," said Ronald E. Smith, MD, professor and chairman of the Doheny Institute's department of ophthalmology. He and Dr. Ryan have been friends since both were at Johns Hopkins. "Somebody has to create the model to study a disease before effective drugs and other treatments can be developed and tested."

But with a busy retina practice to attend to and his many administrative duties at USC in building a department, why did Dr. Ryan not leave the research to someone else?

"I'm a clinician interested in retinal diseases, which affect my patients," Dr. Ryan said. "As a clinician-scientist, I



**DR. RYAN** receives the Laureate Recognition Award during the Opening Session, which takes place Sunday, 8:30 to 10 a.m., in North Hall B. The award is given annually to honor physicians who have made the most significant contributions to ophthalmology leading to the prevention of blindness and restoration of sight worldwide.

## Academy News Interviews Ruth D. Williams, MD, About Her Presidential Award Selections

**A**s the 2012 Academy president, Ruth D. Williams, MD, has the privilege of inviting three individuals to be her Guests of Honor at the Joint Meeting and of selecting the recipient of the Academy's Distinguished Service Award. All of Dr. Williams' honorees have influenced her both personally and professionally. Below, Dr.

Williams shares with readers of *Academy News* her reasons for acknowledging these influential individuals and the selected organization. Today, Sunday, Dr. Williams recognizes each Guest of Honor and the Distinguished Service Award recipient at the Opening Session, which takes place from 8:30 to 10 a.m. in North Hall B.

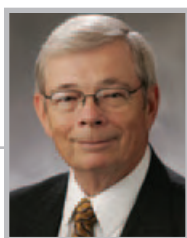
### GUEST OF HONOR



**Emily Y. Chew,  
MD, PhD**

Emily Chew is a distinguished scientist at the National Eye Institute. She is articulate and deeply respected by her peers. As deputy director of the Division of Epidemiology and Clinical Applications at the National Eye Institute, she has amassed extensive experience in designing and implementing NIH clinical trials. She has had leadership and data analysis roles in important studies including ETDRS, AREDS, and AREDS 2. In addition, she is currently president of the Macula Society. Of great importance to me, Emily developed this impressive career at a time when few role models existed for women. Along with her husband, ophthalmologist Robert Murphy, she has three daughters, now accomplished young women. Because of Emily Chew, I knew that I could achieve excellence in my career as I raised my own family.

### GUEST OF HONOR



**H. Dunbar  
Hoskins Jr., MD**

Dunbar Hoskins has shaped the profession of ophthalmology; he has also shaped me. More than 20 years ago, I was a Shaffer Fellow in glaucoma, and Dunbar was my teacher. Later, he provided the opportunity to begin my career in organized medicine as the Academy's delegate to the American Medical Association.

Dunbar's love of ophthalmology inspired me, and he modeled how extraordinary this life could be. A man of integrity and principles, Dunbar was fearless in speaking truth and in challenging me to think differently, but always with his winsome manner. Often dropping nuggets of terrific advice, including one quote I remember especially well, he said: "People may not remember what you say, but they will always remember how you say it." Because Dunbar believed in me, I believed in myself.

### GUEST OF HONOR

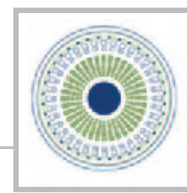


**Stephen C.  
Gieser, MD**

The first spouse ever to be recognized as a Guest of Honor, Stephen Gieser—my husband—is a fourth-generation physician and a third-generation ophthalmologist. Steve is a glaucoma consultant at the Wheaton Eye Clinic, in Illinois.

A characteristic of our life together—one fueled by his insatiable curiosity—is continuous learning. Steve turns every vacation, every activity, and, indeed, every day, into a classroom of discovery. He is a naturalist, a beekeeper, an amateur geologist, a classical music expert, a gardener extraordinaire; and he raises chickens. I thank him for tolerating conference calls, for managing children on the weekends when I am traveling, for cheerfully attending Academy spouse events, and for pushing me to be my best. Steve provides the support and teamwork that makes my career possible.

### DISTINGUISHED SERVICE AWARD



**National Alliance  
for Eye and Vision  
Research (NAEVR)**

Led by Board President Stephen J. Ryan, MD, and Executive Director James Jorkasky, NAEVR advocates for eye and vision research sponsored by the National Institutes of Health and the National Eye Institute. One of NAEVR's most effective strategies is gathering personal stories from eye patients: Real-life testimony about how vision research or ophthalmic innovation has affected a person's quality of life presents a powerful message to lawmakers. Steve Ryan has testified before Congress many times over the last 25 years to advocate for NIH/NEI ophthalmology funding. Jim Jorkasky dedicates his career to promoting vision research and patient education. NAEVR is an organization with a well-defined purpose that affects the careers of ophthalmologists and researchers; more importantly, it provides hope for those with ophthalmic disease.

wanted very much to understand the basic mechanisms and pathogenesis of these blinding disorders and, thereby, learn how best to develop logical therapeutic strategies to treat them.”

**DEVELOPING MODELS FOR HUMAN APPLICATION.** As a researcher, Dr. Ryan had one overarching goal earlier in his career: to advance animal models that could be used to study vitreoretinal disorders such as subretinal neovascularization. Beginning in the late 1970s, Dr. Ryan began publishing papers detailing his lab’s attempts to trigger choroidal neovascularization in rhesus monkeys. It took years for his team to succeed, however. “I was fortunate as a medical student at Johns Hopkins and as a resident at the Wilmer Eye Institute to learn the lesson that you can put in a tremendous amount of effort and not come up with an expected outcome of research,” said Dr. Ryan.

“We tried all sorts of approaches in our neovascularization studies that did not work or were not reproducible,” he added. “I was injecting blood beneath the retina. We were injecting eyes with different lytic enzymes that we thought might result in breaks in Bruch’s membrane. We did a lot of work both here at Doheny and earlier

at Wilmer that did not pan out. We experienced a great deal of failure.”

Eventually, Dr. Ryan and his lab members used an argon laser at intense, nontherapeutic settings to produce the injury that caused development of neovascularization beneath the monkeys’ retinas. It was an exciting time, Dr. Smith recalled: “His lab team met every week in his office or in the conference room right next to my office. They had been trying for years to develop the model. I remember that when the model worked and was reproducible, there was a lot of excitement and celebration in that conference room. When you work on something for months or years, then of course there’s a lot of excitement.” Dr. Ryan and his colleagues then used further experiments to refine the model and to study different therapeutic interventions.

**CONNECTING TRAUMA WITH RETINAL DETACHMENT.** Dr. Ryan’s lab also produced other animal models useful for studying ocular trauma and its vitreoretinal complications, including retinal detachment and the role of tractional forces on the retina. This effort resulted in his second major contribution to better patient care.

“His model of ocular trauma of the

posterior segment of the eye led to our understanding of how retinal detachments occur following trauma,” Dr. Smith said. “Prior to his animal work, many considered a rhegmatogenous mechanism. Dr. Ryan and his colleagues showed that it was not primarily rhegmatogenous, but rather the wound-healing response that led to a tractional retinal detachment.” Dr. Smith added, “There was a big argument many years ago about removing the blood after a vitreous hemorrhage. The animal model clarified when to remove the blood via vitrectomy. That was another very important outgrowth of his research in animals that was directly translated into human care in patients undergoing vitrectomy after penetrating ocular injuries.”

When Dr. Ryan was invited to deliver the 49th Edward Jackson Memorial Lecture at the Academy’s Annual Meeting in 1992, he chose to present his work on the mechanisms of wound healing and resultant tractional retinal detachment as a big-picture discussion, covering traction after penetrating ocular injuries and proliferative diabetic retinopathy, as well as vitreoretinopathy after rhegmatogenous retinal detachments.

“When I was a resident, the prevalent view was that a rhegmatogenous component was the main mechanism of retinal detachment after penetrating injuries to the posterior segment,” Dr. Ryan said. “We were able to demonstrate that tractional—not rhegmatogenous—detachment was the key mechanism. That’s a fundamentally important distinction, because that means that it’s the wound-healing process that leads to the detachment.”

Dr. Ryan added, “When the myofibroblasts proliferate, they contract and pull on the vitreous collagen or on the retina itself, and via that mechanism, their force is exerted and the retina detaches. We were able to sort out that pathogenesis and show that by interrupting the process—by removing the stimulus, i.e., the blood from the injury—we had removed the trigger for the wound-healing response and resultant retinal detachment.”

**LEADERSHIP ON MANY FRONTS: EDUCATION, RESEARCH, AND PUBLISHING.** Dr. Ryan now holds the Grace and Emery Beardley Chair of Ophthalmology at USC’s Keck School of Medicine. He also is well known for editing *Retina*, an authoritative three-volume reference work with more than 3,000 pages and hundreds of contributors, soon to appear in its fifth edition in 2012.

“I am a proud believer that *Retina* is the standard in the field,” Dr. Ryan said. “Since our field of retina is so dynamic, my fellow authors and editors have done a great job [for the book] to still be at the top of the field 20 years later.”

And most of his research has taken



**UNDER THE INFLUENCE OF A GIANT.** Dr. Ryan (back, left) with his mentor, Dr. Maumenee (front, center). Also included: Walter J. Stark, MD (back, center), C. P. Wilkinson, MD (back, right), Mrs. Maumenee (front, left) and Mrs. Wilkinson (front, right).

place while he juggled major administrative roles at USC and elsewhere. In addition to leading Doheny since 1975, Dr. Ryan chaired USC’s department of ophthalmology from 1974 to 1995 and he was dean of the medical school, and senior vice president of the university from 1991 to 2004. His efforts on behalf of ophthalmology also include founding the National Alliance for Eye and Vision Research to advocate for research funding.

He currently serves as president of both Doheny and the National Alliance for Eye and Vision Research; chairman of the board of the Arnold and Mabel Beckman Foundation; and as a board member of Allergan, Johns Hopkins Medicine, Johns Hopkins International, and the W. M. Keck Foundation. Dr. Ryan is also home secretary of the prestigious Institute of Medicine (IOM) of the National Academy of Sciences; former chairman of the IOM Membership Committee; and a board member of the International Council of Ophthalmology.

**TRACING HIS ROOTS.** Dr. Ryan credits his interest in research, education, and international ophthalmology to a giant of academic and clinical ophthalmology: A. Edward Maumenee, MD, director of the Wilmer Eye Institute at Johns Hopkins from 1955 to 1978. “Everything for me started when I was a medical student at Johns Hopkins in the 1960s. I was very fortunate to be under the influence of Ed Maumenee,” Dr. Ryan said.

In his introduction to an oral history of Dr. Maumenee’s professional recollections, Dr. Ryan credited “The Prof” with influencing his medical career from the very beginning:

“As a first-year Hopkins medical student, I entertained thoughts of being a cardiac or neurosurgeon. However, once The Prof made a summer research job available to me at Wilmer, my future course in following my ultimate role model and mentor, Ed Maumenee, had begun. On a very personal basis, he is the reason I look forward to going to work every day in academic ophthalmology.”

Today, Dr. Ryan continues to steer the Doheny Eye Institute as its president, and in the lab, he is trying to make yet another big contribution to clinicians. The target this time is intraocular cellular proliferation.

## ETHICS EVENTS IN CHICAGO

**Medical Ethics in the Hot Seat: How Compliance With the Academy’s Code of Ethics Can Turn a Good Litigation Defense Into a Great One.** (312). **When:** Monday, 9-10 a.m. **Where:** Room S106a. **Access:** Academy Plus course pass required.

In a hypothetical malpractice litigation against an ophthalmologist, the importance of several components of ethical practice will be highlighted: adequate informed consent, adequate pretreatment assessment, appropriate postoperative care, and compliant advertising practices. The dramatization will demonstrate that compliance with the Academy’s Code of Ethics will not only benefit your patients and your practice but could also determine one’s defense against allegations of medical negligence.

**The Institutional Review Board Submission Process: Why Should I Care, and What If I Don’t?** (574). **When:** Tuesday, 2-3 p.m. **Where:** Room S106a. **Access:** Academy Plus course pass required.

This course will define “research” and the Institutional Review Board (IRB) process in terms of potential ethical issues. The discussion will include existing regulations for ethical research in all settings and types of IRB review (full, expedited, exempt), statutory authority of the Office for Human Research Protections (OHRP), specific regulations and ethical imperatives impacting all human research (prospective and retrospective), and special informed consent required by research.

Via case studies, participants will discuss the following: real-life obstacles in publishing research results if no IRB was consulted prior to the start of research, compassionate care vs. research in off-label drug use with resulting publication of results, the potential pressure to enroll patients in a study where payment is made for each enrollee, and prospective vs. retrospective research practices. The potential consequences of not following ethical practices in IRB submission will also be discussed.

**Breakfast With the Experts.** (B112, B113, B269, B270, B271, and B451). **When:** Sunday through Tuesday, 7:30- 8:30 a.m. **Where:** Hall A. **Access:** Ticket required.

### Sunday, Nov. 11:

- Ethical Relationships Between Physicians and Industry (B112)
- Ethical Expert Witness Testimony: What You Should Know (B113)

### Monday, Nov. 12:

- Ethical Dilemmas in Emergency Ophthalmic Care (B269)
- Clinical Practice vs. Research: Ethical Distinctions (B270)
- Practical Aspects of Ethical Comanagement (B271)

### Tuesday, Nov. 13:

- The Ethics of Informed Consent (B451)

**For more information** on ethics courses and CME, the Academy’s Code of Ethics, policies, opinions, guidelines, and more, please visit [www.aao.org/about/ethics](http://www.aao.org/about/ethics).