



## Commitment to academia

# Culture at Iowa conducive to learning

Program combines quality education with invigorated molecular genetics

By Jennifer A. Webb

**Iowa City, IA**—With its small-town feel and old-fashioned friendliness, the University of Iowa's Department of Ophthalmology and Visual Sciences has long developed a reputation for educating its residents in a nurturing and supportive environment.

Amid all this camaraderie and collegiality exists a first-class research center focused on identifying the genes that underlie rare eye diseases and developing genetic treatments for them, and a clinical program dedicated to treating patients.

"Our keystone is our long history and the culture that was developed here," said Keith Carter, MD, department chairman and holder of the Lillian C. O'Brien and Dr. C.S. O'Brien Chair in ophthalmology. "The culture of sharing and support of one another is done very well here."



Dr. Carter

## Take-Home Message

The University of Iowa's Department of Ophthalmology and Visual Sciences has long developed a reputation for educating its residents in a nurturing and supportive environment. Amid all this camaraderie and collegiality exists a first-class research center focused on identifying the genes that underlie rare eye diseases and developing genetic treatments for them, and a clinical program dedicated to treating patients.

More than 350 medical students compete each year for five residency slots. Many potential residents say their advisers recommend Iowa for the manner in which residents are educated, Dr. Carter said.

Because the department is located in a city of 67,000 citizens, housing is affordable and residents and faculty alike walk or ride their bikes to work. It all makes for a comfortable place to live and work and raise a family—even on a resident's salary, said Tom A. Oetting, MD, professor of clinical ophthalmology and residency program director.

"We have a culture where residents are really important," Dr. Oetting said. "It sounds simplistic, but I think it's really here."

For example, every faculty member makes time to attend Grand Rounds each morning from 8 to 9 a.m.—prime time when they could be tending their own patients—and discuss each case with all the residents and fellows. It's a tradition that dates to the department's founding in 1925, and Dr. Oetting said it helps to bond the department and gives residents unique access to faculty members.

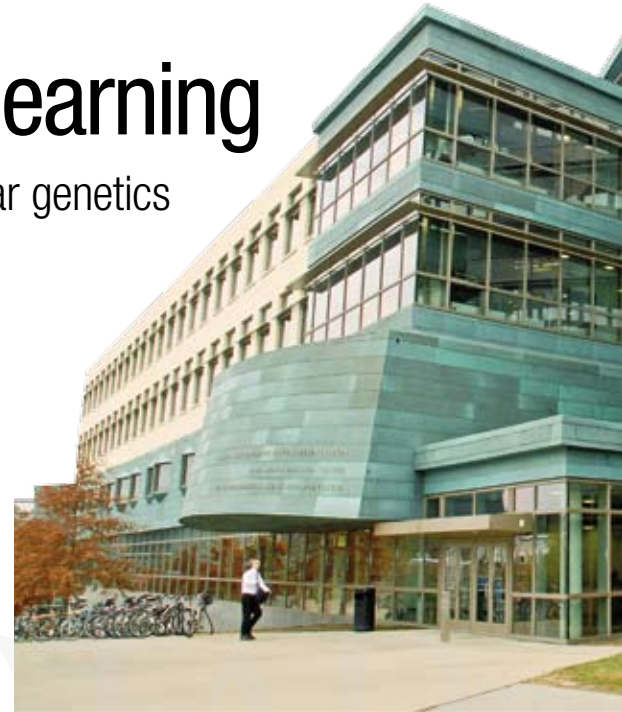
"We don't have a Taj Mahal made of marble somewhere, where all the faculty are," he said. "That makes it really nice for the residents; if they have a clinical question or a research project they're working on, they can walk around and get faculty help."

Residents experience their training in the university hospital and two Veteran's Administration clinical sites, in Des Moines, headed by Connie Grignon, MD, and Iowa City, where Dr. Oetting also is the chief. They also can apply for a two-week training experience outside the United States for exposure to different health delivery systems, Dr. Carter said.

## Striving for reduced complication rates

Four components of the surgical education program have proved beneficial to reducing complication rates, Dr. Oetting said. First, Emily Greenlee, MD, runs a structured wet lab and simulator during prime time each day—not at night or on weekends, Dr. Oetting noted—and introduces first-year residents to eye surgery.

Second, surgeons allow residents to "back in"—and handle the sec-



Exterior of the Medical Education and Research Facility, which houses the majority of the research/labs at the University of Iowa.

## DisCoVisc®

Ophthalmic  
Viscosurgical  
Device

DisCoVisc® Ophthalmic Viscosurgical Device (Sodium Chondroitin Sulfate – Sodium Hyaluronate).

**Description:** DisCoVisc® Ophthalmic Viscosurgical Device has an intermediate cohesive/dispersible index (CDI) and can best be described as the first viscous dispersive viscoelastic and is optimized for the entire surgical procedure.

**Indications:** DisCoVisc® Ophthalmic Viscosurgical Device is indicated for use during surgery in the anterior segment of the eye. It is designed to create and maintain space, to protect the corneal endothelium and other intraocular tissues and to manipulate tissues during surgery. It may also be used to coat intraocular lenses and instruments during cataract extraction and IOL insertion.

**Warnings:** Failure to follow assembly instructions or use of an alternate cannula may result in cannula detachment and potential patient injury.

**Precautions:** Precautions are limited to those normally associated with the surgical procedure being performed. Although sodium hyaluronate and sodium chondroitin sulfate are highly purified biological polymers, the phy-

sician should be aware of the potential allergic risks inherent in the use of any biological material.

**Adverse Reactions:** DisCoVisc® Ophthalmic Viscosurgical Device was very well tolerated in nonclinical and clinical studies. A transient rise in intraocular pressure in the early postoperative period may be expected due to the presence of sodium hyaluronate, which has been shown to effect such a rise. It is therefore recommended that DisCoVisc be removed from the anterior chamber by thorough irrigation and/or aspiration at the end of surgery to minimize postoperative IOP increases. Do not overfill anterior chamber.

**ATTENTION:** Reference the Physician Labeling/Directions for Use for a complete listing of indications, warnings and precautions.

**CAUTION:** FEDERAL (USA) LAW RESTRICTS THIS DEVICE TO THE SALE BY OR ON THE ORDER OF A PHYSICIAN.

U.S. Patent Nos. 5,273,056; 5,876,379 and 6,051,560.

**Alcon®**

©2009 Alcon, Inc. VIS546-PI



Dr. Oetting



ond, less complicated half of a cataract surgery while they get accustomed to having an instrument inside the eye.

Third, they include deliberate practice of the capsulorhexis, where A. Tim Johnson, MD, PhD, has the resident do the rhexi, then reviews each case with the resident to provide feedback. And fourth, residents get formative feedback after each case, not at the end of their rotations.

A study of the surgical curriculum, published in November 2009 in the *Journal of Cataract & Refractive Surgery*, found a statistically significant reduction in the complication rate for third-year ophthalmic residents compared with those who trained before the curriculum was enhanced in 2003.

"As a result (of the enhanced curriculum), the complication rate was nearly cut in half," said Dr. Oetting, who co-authored the study.

The commitment to education extends beyond the residents through *EyeRounds.org*, an educational Web site that presents ophthalmology cases, tutorials, patient information, and more, for anyone to see. The brainchild of a former resident, Andrew Doan, MD, PhD, *EyeRounds.org* receives nearly 5,000 visits each week from around the world.

### Focus on research

Although the residency training has had a long history of excellence, the department made a commitment over the past decade to focus more attention on its research. In 2005, the department ranked 51st in the country for the amount of National Institutes of Health funding, but within four years it rose to 14th place.



Dr. Stone

That is due in large part to the efforts of Edwin M. Stone, MD, PhD, professor of ophthalmology, Howard Hughes Medical Institute Investigator and holder of the Seamans-Hauser Chair in molecular ophthalmology. Dr. Stone, who oversees the Carver Family Center for Macular Degeneration and the John and

Marcia Carver Nonprofit Genetic Testing Laboratory, is particularly interested in the molecular genetics of inherited eye disease.

Dr. Stone has led a team of researchers to identify genes associated with rare eye diseases, and has developed tests for 20 eye diseases that they offer at a low cost designed not to generate a profit. Because some

See **Iowa** on page 26



**"Ahmed valve implantation may be preferable in patients with uncontrolled progressive secondary Glaucoma because it can be effective in eyes with a high risk of filter failure"**

Kafkala, C., A. Hynes, et al. (2005). "Ahmed valve implantation for uncontrolled pediatric Uveitic Glaucoma." *J Aapos* 9(4): 336-40.



 **New World Medical, Inc.**

[www.ahmedvalve.com](http://www.ahmedvalve.com)

800.832.5327



The exterior of the Pomerantz Family Pavilion, which houses the eye clinic. (Photos courtesy of University of Iowa, Department of Ophthalmology and Visual Sciences)

## Iowa

Continued from page 25

of the diseases are so rare—with only four or five new cases identified in the United States each year—the tests would not be commercially viable and patients would be denied access to them, Dr. Stone said. After working more than a decade to clear political, financial, and legal hurdles, the Carver Lab now offers some tests for as little as \$91.

Part of that work includes “Project 3000,” which was formed to identify the estimated 3,000 people in the United States with Leber’s congenital amaurosis (LCA). Together with the Chicago Cubs, the Boston Celtics, and two foundations, the Carver Lab is working to find and test patients with LCA to determine the genes responsible for LCA, find cures, and make available a nonprofit genetic test.

To date, the project has identified about 1,300 individuals with LCA, including 85% of patients under age 10 and 65% of patients under age 20, Dr. Stone said.

“We have this thing set up where, in addition to spreading awareness, we’ve also raised money to pay for the testing for patients who can’t afford it,” he added. “There is no—zero—financial barrier for patients getting tested for [LCA].” (For further information on this program, see Pages 44 and 45 of this issue.)

The department recently became one of several sites approved for gene replacement therapy, and will collaborate with other departments, including the Children’s Hospital of Philadelphia, to advance this area of research.

### Working together

Such collaboration is typical for the department, which has some 25 faculty members doing research within the Carver Family Center for Macular Degeneration.

## By the numbers

The University of Iowa’s Department of Ophthalmology and Visual Sciences was founded in 1925 by Cecil S. O’Brien, MD. Its mission is to provide the highest-quality, accessible, and cost-effective patient care while contributing to the global effort to alleviate all diseases of the eye through teaching and research.

- Nearly 40 faculty: clinical, clinician-scientists, and researchers:
  - 29 faculty engaged directly or collaboratively in basic vision research
  - 2 are Howard Hughes Medical Institute Investigators
- Number of patient visits: 65,435 for FY09
- Number of procedures: 11,575 for FY09
- About 62,000 square feet of clinical space
- Total research funding: \$9,278,675 for FY09; \$10,686,598 for FY08; department rank 14th in 2009 NIH funding
- Residents: 15 (five each year), with statewide and international rotations
- Fellows: 12 clinical fellows
- Publications: more than 150 articles published in 2009 by faculty, residents, and other staff
- Service areas include: comprehensive; contact lens; corneal disease and refractive surgery; glaucoma; neuro-ophthalmology; oculoplastics, orbital and oncology; optometry; pediatric ophthalmology and strabismus; retina/vitreous; vascular; vision rehabilitation; and pathology
- More than \$5 million was given in philanthropic gifts in FY09
- Named endowed chairpersons and professorships: 13 (10 currently filled)

Ophthalmology Times / Source: University of Iowa Department of Ophthalmology and Visual Sciences

“These people belong to 13 different departments and four colleges here at the university,” Dr. Stone said. “That’s pretty unusual to have people ranging from pediatrics, and ophthalmology, and molecular biology, and computer engineering, and public health, and so forth, all working together on these blinding eye diseases. We’re pretty proud of the interdisciplinary work here at Iowa, but also of the relationships we have with many of the major academic eye programs in the country.”

Only by working together in interdisciplinary and inter-departmental collaborations will researchers be able to tackle the roots of very complex eye diseases, he said.

“As we attempt these very large efforts, going up against things like macular degeneration, the most common cause of blindness, it will require spanning departments and institutions to succeed,” he said. “No one person, no one institution is going to solve this kind of problem alone.” **OT**