Farhad Hafezi, MD, PhD

Dr. Hafezi is a professor and chair of ophthalmology at the University of Geneva, Switzerland, and a clinical professor of ophthalmology at the Doheny Eye Institute in Los Angeles.

You hold academic positions in Europe and the United States. How has your exposure to both environments broadened your view of the practice of medicine and ophthalmology?

It is fascinating to see the similarities and the differences in both systems, especially in terms of research and clinical aspects. Although there are great similarities between Europe and the United States in terms of their inventive nature and surgical expertise, there are fundamental differences within their regulatory frameworks and entrepreneurial spirits. In Europe, for example, translational research initiative consortiums do not fully maximize their potential by establishing industrial partnerships for translating technology into commercialized products, whereas some governmental bodies in the United States, such as the National Science Foundation, foster such activities. In Europe, however, the ability to receive regulatory approval on innovative treatments and devices is more efficient than in the United States. European countries and the United States can both benefit from understanding and adapting each other's strengths in promoting translational research.

As an international expert in corneal collagen cross-linking (CXL) and a partner in the successful translation of CXL into clinical ophthalmology in 2002, what current research do you find most exciting in this area?

The potential for application of the CXL method as a means of treatment has not yet peaked in terms of its level of impact. Once validated by thorough research initiatives, in a few years at least three additional applications for CXL will be available: namely, in keratectasia, refractive surgery procedures, and corneal infection. These applications are possible because of the biomechanical and biochemical changes caused by the CXL process in the cornea.

I am particularly interested in the use of CXL to treat corneal infections, as they are one of the leading causes of global blindness. My colleagues and I recently founded a spin-off company (EMAGine SA) at the University of Geneva, supported with a patent portfolio of innovations, which will focus on developing a new device that mounts on a slit lamp. The device will revolutionize the current state-of-the-art treatment. We have shown in the laboratory the device's ability to reduce the number of bacteria in a corneal infection by 2 log units (99.9%) in about 3 minutes.

You have received many prestigious awards during your career. Is there one of which you are most proud?

Without hesitation, my first publication as a first author was the most exciting! After 4 painstaking years of experimental research, my article was published on the title page of the April 1997 edition of *Nature Medicine*.[1]

What forms of surgical instruction do you find most effective for ophthalmologists in training?

Although nothing can fully replace the surgical teacher sitting at the microscope next to the trainee, I am constantly amazed at the quality of the animations that are available today. Surgical skills have much to do with a precise and thorough understanding of anatomy. I remember how hard this was 20 years ago, when we had to rely on two-dimensional drawings and descriptive text only. Also, the superb quality of instructional videos is a great tool, especially for the surgeon at an intermediate level.

What do you consider to be your greatest personal achievement outside of your profession?

My greatest achievement thus far has been the birth and rearing of my two young daughters, Leilah and Lili. This achievement I share with my wife, Nikki. Although my personal and professional lives overlap, like most people in medicine I am above all grateful and thankful to have my family share in the ups and downs of this exciting rollercoaster ride. ■

This article is reprinted with permission from Cataract & Refractive Surgery Today Europe*'s April 2013 issue.*

1. Hafezi F, Steinbach JP, Marti A, et al. The absence of c-fos prevents light-induced apoptotic cell death of photoreceptors in retinal degeneration in vivo. *Nat Med*. 1997;3(3):346-349.