

# Distinguished Rheumatologist: Dr. Edward Keystone

Why did you become a rheumatologist? What or who influenced you along the way to do so?

Having completed a year of laboratory research on rheumatoid arthritis as an allergy fellow, I was asked by Dr. Murray Urowitz, Dr. Hugh Smythe and Dr. Metro Ogryzlo to enter the field of rheumatology. I couldn't resist. Who could? Best thing I ever did.

Why is it important to you to work as a consultant to the pharmaceutical and biotechnology industry and as a member of numerous biopharmaceutical advisory boards?

Despite the concept that industry was the "dark side," I came to realize that it was the pharmaceutical/biotechnology industry that generated all of the novel therapies that would be "game changers" in the field. I loved the idea of being at the forefront of the new wave of therapies that would substantially improve the lives of our patients.

You have been the recipient of numerous accolades over your career, including being chosen an "Alumnus of Influence" by the University College of the University of Toronto in 2012 and "Rheumatologist of the Year" by the Ontario Rheumatology Association in 2014. What was your first thought when you learned you won this CRA award?

I was gratified by the concept that my peers chose me as a leader amongst such a group of respected colleagues who are dedicated to making a difference to our patients.

In 2003, you established The Rebecca MacDonald Centre for Arthritis and Autoimmune Disease – a centre devoted to research of genomics, therapeutics, and outcomes in autoimmune inflammatory joint disease. As Director of the Centre and head of the Advanced Therapeutics Division, what led you to focus your research on novel therapeutics in rheumatoid arthritis?

At the time I chose to enter the field of therapeutics, I realized that a sea of change was coming to the field of rheumatology with the advent of biologics. As an immunologist,



I was particularly excited by the concept of selective targeting of the specific inflammatory molecules driving the disease in rheumatoid arthritis.

In concert with Dr. Katherine Siminovitch, you are currently developing the Centre for Excellence in Personalized Medicine in Arthritis and Autoimmune Disease at Mount Sinai Hospital. What are you hoping to see with the development of this program and how will it impact the rheumatology landscape?

I believe that an understanding of the genetic influences in our autoimmune disorders is the only way to have a better understanding of the pathogenesis of these conditions with a view to predicting who will get them, what will be the outcome and, particularly, how to select the right drug for the right person at the right time through personalized medicine.

What major changes to the landscape of rheumatology have you witnessed over the course of your career?

I have been extremely fortunate to witness the concept of selective targeting of pathogenic molecules in arthritis through biologics and new targeted small molecules in the form of JAK inhibitors. This is the most amazing time ever in the history of the treatment of rheumatic diseases. We have gone from needing 40 dedicated inpatient beds for rheumatology patients in Toronto hospitals in the 1970s to needing only three dedicated beds in the city in 2019. That says it all.

What is the greatest professional and organizational challenge you have faced, and how did you address/overcome this challenge?

Raising sufficient funds to create a personalized medicine program in our Centre of Excellence at Mount Sinai Hospital. I addressed the challenge by not quitting, ever!

How has your work helped shape the field of rheumatology here and elsewhere?

My work has been dedicated to enhancing the acquisition of new and novel therapies in Canada and educating my

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colleagues as to how to optimize the best way to improve outcomes.

**What do you foresee as challenges to Canadian rheumatologists in the future and what can individual rheumatologists and the CRA do to meet these challenges?**

I see a major challenge in enticing Canadian rheumatologists into basic laboratory research in the field as a consequence of dwindling resources from government and elsewhere. With the advent of biosimilars, industry funding is also being eroded for investigator-initiated studies and observational databases.

**Given your extensive work in the field of rheumatic diseases, where do you anticipate clinical research moving within the next decade?**

Translational research from bench to bedside to understand the fundamentals of the pathogenic process driving the diseases, and applying them to improve the outcomes using personalized medical approaches.

**Your identical twin is also a world-renowned physician. How has that relationship influenced your medical career?**

My career was strongly influenced by my older brother who convinced me that I could be a teacher in the field of medicine. We succeeded in undergraduate courses by working together and trying to compete with each other at the highest levels. As the Gold Medalist in our U of T medical school class, and a recipient of the Order of Canada, my brother, Jay, set a high standard for me to live up to. In the end we both turned out to be educators in the field of therapeutics. How amazing and truly gratifying.

**Two “Keystone rules” are often cited when discussing the outcomes of RA trials. How did you come up with those? Will any therapies eventually improve on the outcomes cited by these rules? Which ones?**

I came up with the “Keystone Rules” with my interest in therapeutics by scanning the literature on all of the new therapies and realized that these rules applied to the responses to all the new agents. It was truly an epiphany! The most recently developed JAK inhibitors will improve the outcomes set out by the Keystone Rules. I’m happy about that!

**You are known to have a great interest in animals, particularly horses. Have you learned anything from animals that helps in your day-to-day life in medicine?**

My wife introduced me to horses while I was doing research in London, England. We were learning to jump but I went over the bar more than my horse, so I learned a lot about humility. Riding was a great source of relaxation (once I learned to ride) and a way to get into the country and away from the madding crowd.

**What do you like most about living in Ontario?**

The ability to live near the city and still enjoy the beautiful countryside.

**What is your dream vacation destination?**

Just living on my farm with my family and enjoying my three dogs, two cats and one horse running around.

**What book would you bring with you on a deserted island?**

I wouldn’t go to a deserted island. I am a lousy swimmer, but I love the idea.

P.S. I never read books outside of medicine – no time!

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