



# Research Features.

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## A MARVELLOUS MIND

An exclusive feature with  
Dr Nicolas Bazan

### **WHO: MARIE-PAULE KIENY**

The Assistant Director-General of the World Health Organization explains their R&D Blueprint action plan, detailing the importance of research to prepare for the next big epidemic.

### **ALZHEIMER'S RESEARCH UK**

Dr David Reynolds, Chief Scientific Officer of Alzheimer's Research UK tells us more about the research his organisation is conducting, emphasising why science cannot afford to forget about dementia.

### **EUROPEAN STROKE ORGANISATION**

*Research Features* speaks to Dr Valeria Caso, President of ESO, to find out about the organisation's work and the impact they are having in the field of stroke research.



Dr Bazan with Larry Hollier, MD, FACS (Chancellor, LSUHSC at New Orleans, Professor of Surgery) with a molecular model of neuroprotection D1 (NPD1), the centre of their collaboration on concussion and traumatic brain injury

## Connections: the importance of mentoring and collaboration to research success

**Dr Nicolas Bazan** is well-known for his scientific rigour and the exciting developments he has made in the world of neuroscience. Those who haven't met him, however, might not be aware of the warmth and care that the man behind the science brings to his professional relationships. We wanted to find out more about how Dr Bazan has built up an extensive network of collaborators and colleagues and the effect this has had on his work.

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Scientific research cannot stand alone; it builds on the work that has come before it and lays the foundation for future research. In a similar way, scientists themselves cannot afford to act as islands in the ocean of global research. Dr Bazan has recognised this from the beginning of his career and takes great care to ensure that the voices of his colleagues, collaborators and students are listened to and appreciated.

#### COLLABORATION

Dr Bazan has collaborated with many scientists throughout his career. His work on docosanoids was, he says, 'enriched' by the collaboration with Prof Charles N Serhan



from Harvard Medical School in Boston, Prof Nicos Petasis at USC in Los Angeles and others: 'Dr Petasis and Dr Alvarez-Builla are exceptionally talented medicinal chemists with whom we have developed these, and other, new molecules through collaboration'. Interdisciplinary cooperation was also a significant part of Dr Bazan's work in the biotech company he set up 16 years ago to develop novel analgesics (pain medication).

This was one of the first biotech companies in New Orleans and collaboration was key to its success, involving experts in medicinal chemistry (Prof Julio Alvarez-Builla Gomez at the University of Alcalá in Spain), pharmacologists (Dr Dennis Paul, LSU and Anthony Vaccarino, UNO) and other physiologists and biochemists.

As Dr Bazan says, 'Their expertise was critical; collaborators are the intellectual pieces of a puzzle'. Now Dr Bazan has set up another company with his son Hernan Bazan, MD, a clinician-scientist interested in post-surgical pain, to develop a new generation of non-addictive painkillers, similar to acetaminophen (paracetamol in the UK) that, unlike this drug, is non-toxic to the kidneys and liver. As proof of the collaborative success, the company will soon be patenting second generation analgesics.

Dr Bazan has also patented a family of compounds developed with Prof Alvarez-Builla that might help treat epileptogenesis (the process by which a normal brain develops epilepsy). He explains how he feels lucky that inventions can stem from the

work in his laboratory: 'All of a sudden, you have an invention and then that invention becomes a patent, a potential innovative idea.' He describes himself as 'only the little inventor' – the university owns all the patents and outside companies then license them and try to apply them. Having successfully set up companies in the past, he sees no reason not to do it again. He is now starting another company with the aim of using collaboration to speed up the development of these molecules into potential therapies.

#### INSPIRATION

As well as those scientists that Dr Bazan has collaborated with on specific projects, he has also been influenced by multiple others. As a medical student, he worked in his spare time in the Institute of Biology (Tucuman) under Prof Else Brauckmann and Francisco ▶

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Barbieri on early amphibian development. In the summer he worked under Prof Hugo Pablo Chiodi at the institute of High Altitude Biology (Jujuy, Argentina) where he became interested in responses to hypoxia and brown adipose tissue. At the same time, he met several prominent Argentine scientists who he found inspirational: Bernardo Houssay, physiologist and Nobel Laureate; Luis Leloir, physician, biochemist and Chemistry Nobel Laureate; and noted neurobiologist Eduardo De Robertis. He also cites an early visit by Sir John Gurdon to his Argentine laboratory in 1973 and the conversations they had as a strong positive influence on his research programme. He credits another Nobel Laureate, Eddy Fischer, as having offered 'friendship, generosity and insightfulness' that has been important to him in the past two decades. Sir John Vane, renowned pharmacologist and joint recipient (with Bengt Samuelsson and Sune Bergström) of the Nobel Prize in Physiology or Medicine, was also a close friend to Dr Bazan for many decades. The two scientists often visited each other in London and New Orleans. 'He was', says Dr Bazan 'exemplary to me in many ways'. Dr Bazan became the President in 1994 of the William Harvey Medical Research Foundation to support the research at The William Harvey Research Institute, St. Bartholomew's Hospital Medical College in London, established by Sir John Vane.

**CROSSING BORDERS**

The international aspect of Bazan's connections continues to grow. He has



been involved with a 'superb' programme in Germany called the DZNE from their very beginning and says he finds it 'very rewarding to see that active discoveries are happening and being actively translated into patients'.

He has also built bridges between science and the arts, embracing two disciplines that are often seen as polar opposites. His writing has led to two of his novels being published and it is clear that he places a high value on helping creativity and science work together: 'I believe that when you're thinking about brain function and retina function, all of a sudden you're involved in big concepts, trying to figure out how nature helped put cells together that yield sight and cognition

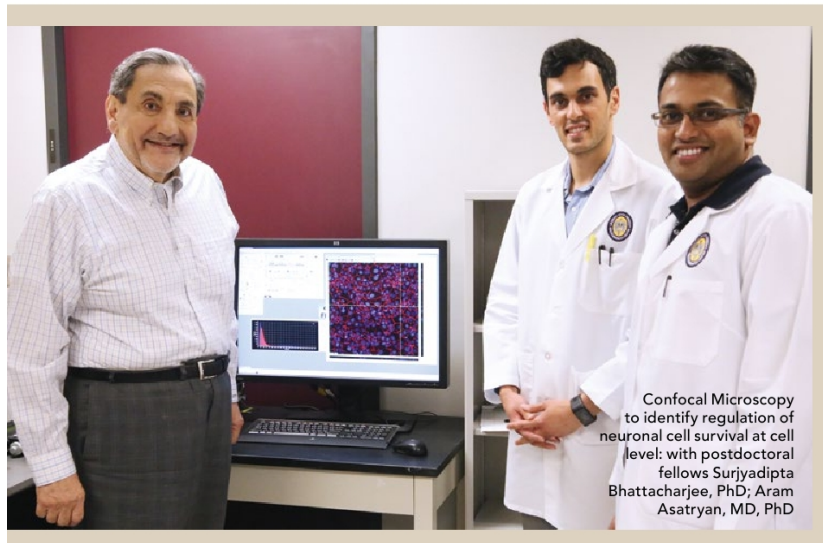
Microfluidic technology for next-generation sequencing: Marie-Audrey Kautzmann, PhD (Fellow); Jessica Heap (Research Associate)

as an output. I believe writing about what I'm interested in, in a more general way, is an outlet to express interpretations of what might be going on in biology and medicine. So, the connection with writing and with art is an outlet.' He also emphasises the importance of collaboration in this arena, pointing to his 'great collaborators' Richie Adams and Brent Caballero who he worked with to adapt one of his books for the big screen. Adams helped with the screenplay and was a 'superb director' and Dr Bazan collaborated with both of them, plus 'the splendid cast and dedicated crew ... to make the film happen'.

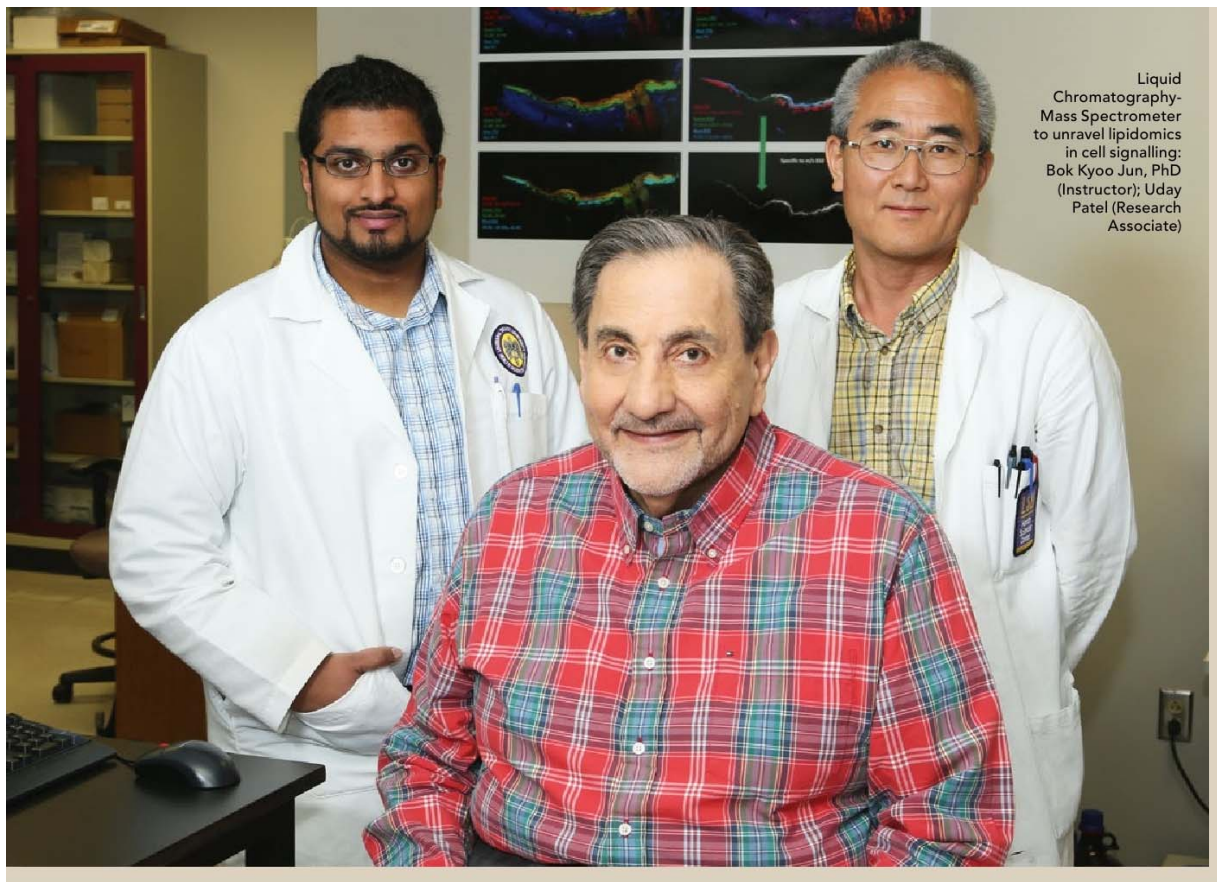
**MENTORING**

However, despite these connections within the research sphere and beyond, Dr Bazan has lacked a clear sustained mentor in his career. He likens himself to a professional 'orphan' without one defined person to turn to for advice and support. Perhaps, he suggests, that is why now, as an experienced scientist, he places such value on mentoring.

Dr Bazan was confronted with the responsibilities of mentoring at an earlier age (28) than most. Having recently returned to Argentina and founded a new school, he was responsible for a department and institute of young scientists. He is often asked why he left his successful post in Toronto to return to Argentina. Dr Bazan gives his reasons simply: 'The single most important reason was my desire to contribute to the development of scientists and to contribute to advancing



Confocal Microscopy to identify regulation of neuronal cell survival at cell level: with postdoctoral fellows Suriyadipta Bhattacharjee, PhD; Aram Asatryan, MD, PhD



Liquid Chromatography-Mass Spectrometer to unravel lipidomics in cell signalling: Bok Kyoo Jun, PhD (Instructor); Uday Patel (Research Associate)

academic excellence in the country where I was born, as I had been doing in Canada.'

#### LEADING THE WAY

Here, he made the decision to lead by example, something he has continued throughout his career: 'Rather than preaching about dedication, focus, study, effort, etc. I have done it, spontaneously. I strongly believe that by leading by example in mentoring and other ways of life, we reach farther and more profoundly into others.'

In 2000 he conceptualised, wrote and directed the grant entitled 'Mentoring Neuroscientists in Louisiana', funded by NIH. This was the first of its kind in the state of Louisiana. Now in its 15th year, the grant can be considered to have been a great success and has served as a model for several others. It puts into

practice several of Dr Bazan's ideas around the importance of mentoring promising young faculty members and supporting young scientists through their early careers.

He feels strongly that there are huge benefits for the mentor as well as the mentee saying, 'It is a great reward to see independently successful scientists that trained under you.' However, he is humble about the effects he has had on those he has tutored in this way: 'Their successes are their own ... I was just a facilitator to develop their early talent as a mentor.'

And that is the most important element of Dr Bazan's approach to collaboration – his emphasis is on how he can support those around him rather than what they can do for him. George M Carman, Chief Scientific

Officer at the New Jersey Institute for Food, Nutrition, & Health, Rutgers University, sums it up perfectly: 'His scientific accomplishments notwithstanding, his greatest contribution is his dedication to the people that work under his tutelage, his associates, and scientific colleagues at large. Dr Bazan is an unassuming person who makes others feel valued, and facilitates the advancement of others.'

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