



"Identifying the important pathways in inflammation-associated disease will lead to new therapeutics that change the way we live and improve both the quality and longevity of our lives." Ben

Dr Ben Roediger is investigating the mechanisms by which inflammation contributes to chronic inflammatory diseases, including allergic disease and cancer. Ben knows first-hand how devastating these conditions can be. Both his father and brother suffered from eczema and asthma. His father was the only one in his school with asthma when he was a child, but cases of allergic disease have been steadily rising in Western society, with as many as one in four children now having eczema and one in nine Australians have asthma. Scientists are still working to understand what is causing the rise and how to better treat these diseases.

Ben recalls his brother suffering terrible asthma, and his parents taking him to hospital many times to treat potentially deadly attacks. Ben's brother still lives with asthma but thanks to medical advancements, it is now better managed with modern medication. The eczema however, still effects every area of his life, "It's really tough, my brother feels unable to fulfil his potential," says Ben. The disease, with no known cure, can cause depression, social anxiety, affect self-esteem and relationships "Just because eczema isn't lethal, does not mean it's not crippling," says Ben.

Ben's own son was also hospitalised with viral bronchitis, often a harbinger of asthma in later childhood. "He was a tiny baby, just struggling to breathe, his chest wheezing. It was hard to see" says Ben.

In the light of his family history, it is surprising that Ben himself doesn't suffer an allergic or inflammatory disease, but after witnessing so much suffering by loved ones, it is no wonder why Ben has been drawn towards this specific area of medical research. He is now a much respected, important part of the effort to understand these diseases and find cures or better, more effective treatments, improving the quality of life for those suffering like his brother, son and father.

Ben's family are very proud of the career path he has chosen, despite opting not to follow in his parent's footsteps. Both Ben's father and mother are pilots, connecting over their common love. Ben's mother was somewhat of an aviation pioneer, first learning to fly in the 1960's when it was much more 'acceptable' for women to be air hostesses. His father flew domestic planes for Ansett. Both are now in their 70's and his mother still flies planes.

Being an internationally recognised researcher, Ben travels internationally for work but it's not something he enjoys, being 6.1ft tall! We are glad medical research became Ben's passion and that he is working hard to uncover the mysteries of inflammatory diseases, alongside other talented scientists all over the globe!

It is predicted that by 2050 the number of patients affected by allergic diseases in Australia will increase by 70% to 7.7 million people.¹

Many of us have experienced an allergic reaction to something we have been introduced to – pollen, animals, insect bites, food and medication are common triggers that induce a response from our bodies such as itching, watery eyes, sneezing, swelling or breathing difficulties. These physical symptoms arise from an inflammatory response to that allergen which is our immune system's attempt to protect us.

Allergic diseases are among the fastest growing chronic health conditions in Australia¹ and currently there are no known cures for allergic diseases.

Exactly why some of us develop atopic diseases such as atopic dermatitis (eczema), allergic rhinitis (hay fever), asthma and food allergies is still unknown. For some people a genetic tendency to develop these classic allergic diseases is attributed, for others, environmental factors play a significant role and a combination of both is believed to account for most.

What we do know is that whilst most of these conditions are not considered life-threatening, for individuals with chronic forms of atopic disease, it is the daily trauma of living with the condition that dramatically and tragically impacts their quality of life, more than most of us can start to imagine.

Chronic atopic diseases are often disabling and can prevent individuals from leading the life they deserve. Current treatment options can involve hours of time and attention each day, physical appearance, constant pain or trouble breathing, inhibit sleep and socialisation which can lead to depression.

For children living with chronic conditions education can be impacted and for adults the inability to work creates a financial burden for them and their families. With no known cure for these life impacting diseases – the thought of a lifetime living with the condition is sometimes just too much for some – with suicide considered an option to end the pain and emotional suffering.

We also know that multiple allergic diseases commonly occur in the same individual and therefore management can be complex not only for the patient but for their treating physicians.

There is discussion taking place globally that suggests that people with allergies and asthma could be more likely to develop a psychiatric disorder. Certainly, the prevalence of depression and anxiety is higher amongst children with asthma, which has been associated with anxiety, depression, emotional and behavioural problems.

It is estimated that 1 in 5 Australians are living with at least one allergic disease.¹

Dr Ben Roediger, Head of Centenary's Skin Imaging and Inflammation Laboratory, knows only too well the effect allergic conditions can have on loved ones. A number of Dr Roediger's family, in particular his brother, are living with chronic atopic diseases. Seeing firsthand how his brother, now an adult, has been impacted by eczema and asthma all his life, contributes to Dr Roediger's quest to better understand the pathways underlying the pathogenesis of eczema, asthma and allergy.

Dr Roediger and his team's research combines cutting edge technology with sophisticated models to visualise and functionally characterise immune cell function and is focused on gaining a greater understanding of the cellular and molecular mechanisms of inflammation. Their ultimate goal – to contribute to reversing the increasing number of human lives burdened by chronic inflammatory disease.

"Inflammation plays a central role in almost every chronic disease, including eczema, diabetes, liver cirrhosis, heart disease and cancer. The atopic inflammatory conditions, particularly eczema and asthma, disproportionately affect young people (in Western countries, one in five children will develop atopic dermatitis and one in nine Australians have asthma), and have lifelong consequences, even when children grow out of the disease. For those whom the condition remains lifelong, the effect on quality of life can be devastating. We are interested in understanding the precipitating events that lead to atopic inflammation and allergic sensitization. A better understanding of these early life events will lead to more therapeutic options for management and prevention of disease," says Dr Roediger.

Medical research such as that of Dr Roediger and his team, is our best hope of understanding inflammation as a key driver of allergy, so as to enable us to improve the quality of life for those individuals living with these diseases, their families and the community as a whole.

Allergic diseases affect the whole community not just the individuals who live with the conditions.

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¹Mullins RJ, et al. the economic impact of allergic disease in Australia: not to be sneezed at. ASCIA/Access Economics Report, November 2007.