

Protein proves influential to healthy immune system

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Researchers have discovered that the protein Myb plays a vital role in keeping our immune system healthy, and preventing the development of immune and inflammatory diseases.

Preclinical findings revealed that Myb gives [immune cells](#) called regulatory T (Treg) [cells](#) the 'authority' to control the strength of the [immune response](#) depending on the level of 'threat', from minor infections to aggressive diseases.

Without this regulatory influence, the immune system is at risk of overreacting to the threat, leading to the development of inflammatory diseases.

Published in *Immunity*, the study was led by Dr Shelia Dias and Professor Stephen Nutt, in collaboration with a team of immunologists and bioinformaticians at the Walter and Eliza Hall Institute.

Dr Dias said this was the first indication that Myb played an influential role in the immune system.

"For decades Myb has been associated with the formation of multiple types of cancer," Dr Dias said.

"Our studies have revealed Myb is also important for influencing the function of Treg cells. We found where Myb was lacking, so too was the ability of Treg cells to control the immune response."

Dr Dias said the immune system was constantly responding to a spectrum of threats, from minor infections to life-threatening diseases, and researchers all over the world were investigating how the immune system is coordinated and carefully controlled for good health.

"There are many different cell types in the immune system, each with a specific duty to carry out. When any of these cells fail to fulfil their duty, there is a risk to health," Dr Dias said.

"We were fascinated to find that, without the influence of Myb, Treg cells would allow the immune response to spin out of control, resulting in severe inflammation pretty much everywhere - whether in the lungs, liver, intestine or skin," she said.

Professor Nutt said increasing our knowledge of the mechanisms that controlled the immune response was vital for understanding how immune and [inflammatory diseases](#) arise and, ultimately, developing more effective treatments.

"Now that we know Myb has a defining role in the immune system, we are seeking to understand exactly how Myb gives Treg cells the authority to carry out their duty," Professor Nutt said.

"If we can figure out how Myb is influencing Treg cells in the [immune system](#), we may be able to manipulate this activity to our advantage and help regulate the immune response where it is at risk of becoming hyperactive."

"Longer-term, we hope to expand this research into a clinical setting in order to see if our findings can be applied to human immunology," he said.

Provided by Walter and Eliza Hall Institute

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