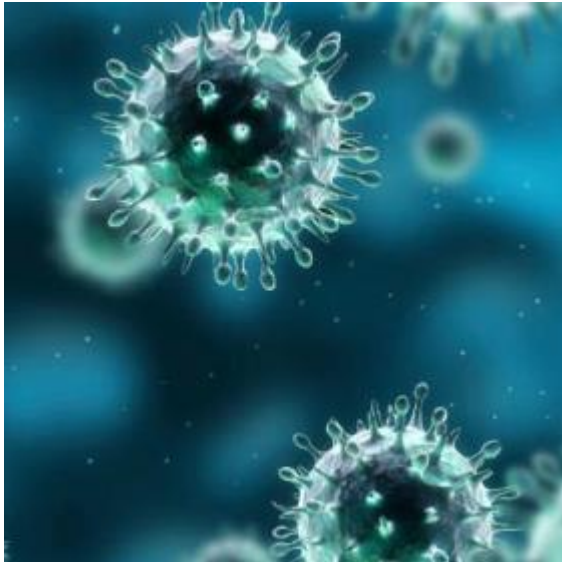


## Genetic variation in the Epstein-Barr Virus

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An article published recently in the journal *PLOS One* led by Western Australian researchers Dr Monica Tschochner and Dr David Nolan from Murdoch University in Perth, has found new evidence that genetic vulnerability may contribute to the role that the Epstein-Barr Virus (EBV) plays in MS risk.

Dr Nolan currently has a [MS Research Australia Project Grant](#) with full funding support from the MS Society of WA, to undertake this work looking at the genetics of the EBV and its relationship to MS risk.

Exposure to EBV is a known risk factor for MS and antibodies to EBV (evidence of a previous or current infection with EBV) are found much more frequently in people with MS compared to the general population.

By analysing the DNA sequences of EBV found in blood samples from 73 people with MS, the researchers were able to identify several different strains of EBV that were carried by this group of people, suggesting that there is no single strain of EBV that is 'causing', or contributing to MS. Previous research also suggests that the strains found in people with MS were not significantly different to those in individuals who do not have MS.

The researchers also identified that the different EBV strains showed significant interaction with several known MS risk genes, providing clues into a potential mechanism for how the immune system fails to recognise 'self' and 'other' in MS. The researchers suggest that certain genetic variations could dampen the virus-specific immune responses, and inadvertently trigger inflammatory autoimmune responses in vulnerable individuals. Further research will help to understand specifically how this interaction influences the immune system in MS.

The results of this research provide further support that an individual's genetic background may influence how they respond to EBV exposure and hence influence their risk of developing MS.

In addition to supporting this work by Dr Nolan and his colleagues on EBV, MS Research Australia has also been supporting the work of [Professor Michael Pender](#) at the University of Queensland for many years. His work reveals differences in the profile of immune cells in people with MS that may make them less efficient at clearing EBV infected cells from the body. Professor Pender is now collaborating with researchers at the Queensland Institute of Medical Research to conduct a preliminary study of a potential treatment for MS that aims to enhance the immune response to EBV.

These parallel research programs by Dr Nolan's and Professor Pender's teams directly complement each other, and together they will improve our understanding of how genes and environmental factors such as EBV can interact to contribute to MS. The work of Dr Nolan's team shows that there is no single strain of EBV that is more strongly associated with MS,

meaning that techniques such as Professor Pender's may be able to target EBV without needing to be strain-specific and may therefore have broad application and benefits for people with MS.