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Salmonella research improves understanding of immune defence

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Australian researchers have discovered that vitamin B metabolites produced by *Salmonella* bacteria can activate the immune system, a finding that could lead to new treatments for gut and lung diseases.

Dr Ligong Liu and Professor David Fairlie from The University of Queensland's Institute for Molecular Bioscience (IMB) joined a team led by Professor James McCluskey from the University of Melbourne and Professor Jamie Rossjohn from Monash University to study how Salmonella, a bacterium that causes food poisoning, activates certain immune cells.

"Mucosal T cells (MAIT cells) are especially important in the gastrointestinal tract and the lungs for protecting against bacterial infections," Dr Liu said.

"Our role was to help the team identify what compounds, produced in Salmonella broths, were responsible for activating MAIT cells," Professor David Fairlie, who led the chemistry studies at IMB, said.

"The team found that specific metabolites of Vitamin B, which are uniquely synthesised by certain bacteria, act as red flags that activate MAIT cells."

"This is the first time that small organic compounds have been found to activate such immune cells and may lead to a new understanding of immune defence."

The research, published today in the print edition of *Nature*, was supported by the National Health and Medical Research Council (NHMRC) and the Australian Research Council (ARC).