

Better adjuvants for paediatric vaccines

In their first year, children receive vaccinations against dangerous infections but achieve protection only after several booster vaccinations. This is because elements of their immune systems are not fully mature and do not function in the same way as an adult's immune system. This leaves a so called 'window of vulnerability' before booster vaccinations can be administered and take effect.

To maximise the effectiveness of vaccines, adjuvants can be added to boost the immune response. Since most vaccines and adjuvants are developed and tested in adults; effective adjuvants for the paediatric population are likely being overlooked.

Dr Kiva Brennan's research aims to narrow this window of vulnerability by identifying and developing better adjuvants thereby improving paediatric responses to vaccines. The impact of improving the efficacy of paediatric vaccines could change millions of families' lives globally.

The impact of the TCD MED Research Award

Adjuvants, such as ALUM, can improve the body's response to a vaccine and are routinely added to many vaccines. Dr Brennan has identified a family of innate immune receptors which are functionally intact in neonatal cells, identifying a new paediatric-specific adjuvant, and has carried out extensive in vitro studies using cord blood cells. To progress this research, vaccination and safety studies in neonatal non-human primates (NHPs) are needed, which this award will facilitate.

"This NHP study will provide critical information on whether an innovative adjuvant can improve current ALUM-containing vaccine responses in neonates & infants in vivo."

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