



# What shapes the human immune system?

**Michelle Linterman** Babraham Institute

7.30pm, Monday 31st October, 2016

Storey's Way, Cambridge CB3 0DS

## Event Information

CSAR lectures are open to all: CSAR members are admitted free, pupils and students may register for free membership at the lecture reception desk. Non-members are asked to make a nominal donation of £3.00.

**Location:** Wolfson Lecture Theatre, Churchill College, Storey's Way, Cambridge, CB3 0DS

**Refreshments:** Coffee and biscuits are available in the Wolfson Foyer from around 7pm. Before lectures, attendees can use the college canteen for dinner (from 5:45pm) and, after lectures, the bar. Cash can be used at both.

**Car parking:** Attendees may park in the Senior Car Park on Churchill Road off Storey's Way. More parking is available further along Churchill Road, and in the Möller Centre at the far end.

**Membership:** There is a range of membership options; just ask at the reception desk in the lecture theatre foyer before the talk.

## Michelle writes:

*"Raising a child together has a greater effect on your immune system than the seasonal 'flu vaccine or travellers' gastroenteritis!*

*Our research took a detailed look at the immune systems of 670 people, ranging from 2-86 years of age, to understand more about what drives variation in our immune systems between individuals. From an assessment of the effects of a range of factors, including age, gender and obesity, one of the most potent factors that altered an individual's immune system was whether they co-parented a child. Individuals who lived together and shared a child showed a 50% reduction in the variation between their two immune systems, compared with the diversity seen in the wider population.*

*Participants in the study were assessed over a period of three years. Regularly monitoring their immune systems showed that the individuals maintained a stable immune landscape over time, even after their immune systems were triggered into action by the seasonal 'flu vaccine or gastroenteritis. The researchers found that following immune challenge, our immune systems tend to bounce back to the original steady state, demonstrating the elastic potential of our immune system. In assessing the effect of other factors on the immune system, such as age, obesity, gender, anxiety and depression, the study found that age is a crucial factor in shaping the immunological landscape, agreeing with the age-related decline seen in response to vaccination and reduced resistance to infection."*

Michelle Linterman is Group Leader at the Babraham Institute and a Fellow at Churchill College. Her laboratory's principle research focus is on how different cell types collaborate in the germinal centre to generate a robust antibody response following vaccination. Vaccination is one of the most successful, cost-effective interventions for combating infectious disease. Despite this enormous success, there are still multiple circumstances that require a vaccination solution, including vaccines that protect against HIV and malaria, and a way to improve vaccine efficacy in the later years of life. An understanding of the cellular and molecular basis of a productive germinal centre response may be the key to rational vaccine design in cases where breakthroughs in vaccine development are needed.

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