

# Mum's genes work with baby's to prevent obesity

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Dr Andrew Ward led the study.

It's long been known that babies who have a low birth weight have an increased risk of diabetes and obesity in later life. This developmental programming can be influenced by environmental factors, but little is known about how genetics play a role in this process.

A recent paper published in *PLoS Biology*, has identified a gene that is responsible for programming early growth by controlling the flow of nutrients between mother and baby during pregnancy and lactation.

The researchers showed that in mice, a gene called Grb10 is present in both mother and baby and controls the supply and demand of nutrients passing through the placenta and breast tissue. Grb10 also influences lean:fat proportions in the adult body. Since the gene, also present in humans, links early growth with body mass in later life it is likely to be a 'programming factor' and thus could have profound implications for the prevention of common metabolic health problems in adults.

The work was lead by Dr Andrew Ward who explained: "Babies that experience poor growth in [early life](#) are at greatly increased risk of problems such as obesity, diabetes and heart disease. The health risk is life-long and is said to be 'programmed' during early life.

"The genetic programming factors are still unclear, but we think Grb10 fits the bill. A special feature of the gene is that it appears to control both nutrient supply from the mother and nutrient demand from offspring, suggesting it has evolved these complementary roles in mother and offspring to optimise offspring growth."

Dr Michael Cowley carried out much of the work whilst a PhD student at Bath, and is now a London Law Trust Medal Fellow at King's College London. He commented: "Understanding the genetic basis of early life programming may allow us in the future to develop strategies to prevent common health problems by identifying those at highest risk and developing simple interventions, such as dietary advice or supplements that could be offered to pregnant and breastfeeding mothers."

Dr Ward has recently been awarded a £0.5m grant from the Medical Research Council to follow up his initial research.

He said: "Our next challenge will be to confirm the role of the Grb10 gene in early life programming of long-term health; determine exactly how it works in both mother and offspring and potentially identify other

programming [genes](#)."

**More information:** View the full research paper:  
[www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1001799](http://www.plosbiology.org/article/info%3Adoi%2F10.1371%2Fjournal.pbio.1001799)

Provided by University of Bath

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