

# Scientists discover key factor in regulating placenta and fetal growth

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UK scientists have shown that a common biological protein molecule called SHP-2 is crucial for encouraging placenta growth. The research is published today in *Endocrinology*.

Dr Melissa Westwood, one of the team at the University of Manchester said: "For fetuses to grow well in the [womb](#) they need to get nutrients and [oxygen](#) from their mother. These come via the placenta and so as the fetus grows and its demand on mum increases, the placenta also must increase in size. If the placenta doesn't grow properly, the [fetus](#) is unable to receive all it needs from the mother and its growth is restricted. This can impact seriously on the health of the newborn. Furthermore we have learned recently that it dramatically increases the risk of ill health in adult life."

The researchers have investigated a group of proteins called the insulin-like growth factors (IGF). They have discovered that SHP-2, a molecule within placental cells, is a crucial mediator of the effects of IGFs in stimulating the placenta to grow.

Dr Westwood continued: "We know that placentas need an array of factors to support their growth, but until now we didn't realise that SHP-2 was so important for ensuring that these factors do their job."

"Research from our lab and others around the world suggests that the placentas of growth-restricted babies might not grow because they are resistant to the effects of growth factors. We know that in many tissues

in the body, SHP-2 is involved with the action of other growth factors - not just IGF. Targeting the mediators of growth factor actions rather than the growth factors themselves may be a good way to intervene in cases of growth restriction - a bit like sending a positive email to all your friends at the same time.

"However, any therapy based on this finding would have to be designed carefully. Most tissues of the body have SHP-2 doing one or more important jobs and so we would need to restrict therapy just to the [placenta](#). This is possible but certainly challenging."

Professor Janet Allen, Director of Research, BBSRC said: "This is a great example where understanding healthy growth and development can lead quickly to a better understanding of what goes on when things go wrong. This sort of fundamental research can underpin really important social and economic benefits in the future."

Source: Biotechnology and Biological Sciences Research Council ([news : web](#))

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