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New role of protein kinases in embryo development and cancer

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A group of protein kinases have been found to play an important role in embryo development and may even be a potential cancer drug target, says research led by Queen Mary University of London (QMUL) and the Francis Crick Institute, UK.

The study, published in *Cell Reports*, is the first description of knockouts of a whole family of protein kinases (PKN1-3) in mice and reveals roles in congenital birth defects such as spina bifida.

The team knocked out a whole kinase family but, unusually, only one member (PKN2) appeared to be important in development and warrants renewed attention.

The authors add that many of the functions already attributed to PKN have been largely, and possibly incorrectly, attributed to other kinase families, and hope that their current work raises the profile of this understudied kinase family.

PKN proteins are increasingly being recognised as important drug targets in cancer, and the team are currently using their models to test whether these kinases could be a drug target in pancreatic and breast cancer.

Dr Angus Cameron from QMUL's Barts Cancer Institute said: "It is often the case that proteins such as these are essential in development but not in adulthood. Indeed, we've shown that there's a limited need for this entire class of targets in adult mice. This is a positive sign for drug

development against this family of proteins, where its members have been highjacked in cancer."

Professor Peter Parker from the Francis Crick Institute concurs: "The prospects for therapeutics targeting this family are good, although further work will be required to fully elaborate dependencies in adults."

More information: Quetier et al.: "Knockout of the PKN family of Rho effector kinases reveals a non-redundant role for PKN2 in developmental mesoderm expansion." *Cell Reports* - January 26, 2016 issue. Published online on January 7th 2016.

Provided by Queen Mary, University of London