

# Study may pave way for effective treatment of premature labour

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Dr. Sylvain Chemtob

(PhysOrg.com) -- The name is anything but exciting - and yet the compound known as PDC113.824 may have a very exciting future. It is the precursor of a drug which may one day provide effective treatment for the common and very serious problem of preterm birth. "We are excited about this compound because it belongs to a new class of drug, and because it has potential to prevent premature labour, possibly with fewer side effects than current treatments," says MUHC researcher in endocrinology Dr. Stephane Laporte, corresponding author of a recent study of PDC113.824, published in collaboration with Université de Montreal (UdeM) and other Quebec research centres, in the *Journal of Biological Chemistry*.

“At the moment little is known about how [preterm birth](#) can be

prevented and although clinical interventions have focused on inhibiting uterine contraction there are no consensus treatments for premature labour,” adds Dr. Sylvain Chemtob, a professor of the Faculty of Medicine at UdeM and researcher at the Research Centre of the CHU Sainte-Justine. “The drugs available today are ineffective and can have side effects for mother and unborn child. Development of this compound is especially significant because it has a different, more targeted mode of action than conventional pharmaceuticals, and therefore may cause fewer side effects.”

An effective treatment to reduce the risk of preterm birth is urgently needed. According to the Society of Obstetricians and Gynaecologists of Canada, premature labour is one of the most common problems in pregnancy and the cause of 75 per cent of all newborn deaths in babies without birth defects.

Compound PDC113.824 is one of an emerging class of pharmaceuticals known as biased allosteric drugs. This class of drugs interacts with receptors on the cell's surface in a different way than conventional drugs, and produces different effects. “Think of the cell as a model train set,” explains Dr. Laporte, who is also an associate professor of medicine at McGill University. “In this analogy, conventional drugs make the train speed up or slow down. Allosteric biased drugs, on the other hand, while they can change the speed of the train, may actually also switch the train to a different track.”

The compound studied by Dr. Laporte and his colleagues from UdeM not only acts on different cell receptors than those usually targeted in the uterus, but can modify the cell's usual response to stimulation by natural substances - a property known as “bias.” Neither allosteric drugs nor biased drugs are completely new, but there are very few examples of compounds, which have both these properties.

This class of drugs is of great interest to pharmaceutical companies as they offer the potential for new therapeutic agents with increased efficacy and selectivity. A few such drugs are already in use.

Provided by University of Montreal

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