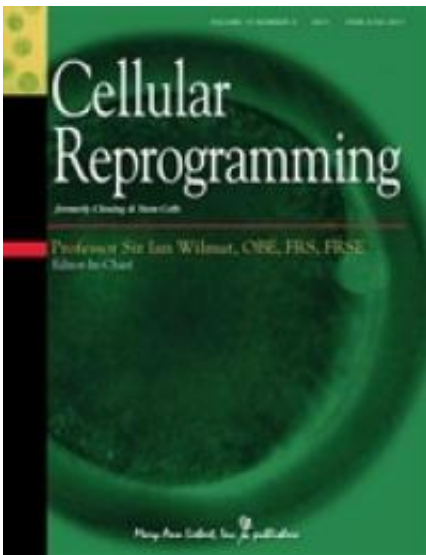


# Inadequate supply of protein building blocks may explain pregnancy failures in bovine cloning experiments

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Cellular Reprogramming is the premier journal dedicated to providing new insights on the etiology, development, and potential treatment of various diseases through reprogramming cellular mechanisms. Credit: Copyright 2011 Mary Ann Liebert, Inc. publishers

Amino acids, the building blocks of proteins, are essential to support the normal growth of a developing embryo and the placenta. An insufficient supply of amino acids in the mother's uterus caused by abnormal maternal-embryo interactions may explain the developmental abnormalities and complications of pregnancy that result in the death of

cloned bovine embryos, according to a cutting-edge article in the peer-reviewed journal *Cellular Reprogramming* published by Mary Ann Liebert, Inc.

Anna Groebner, Technische Universitaet Muenchen (Freising, Germany), and colleagues from Ludwig-Maximilians-Universitaet (Muenchen, Germany), Bavarian Health and Food Safety Authority (Oberschleissheim, Germany), and Bavarian State Institute for Agriculture (Grub, Germany), describe an experiment in which they compared the amino acid concentrations in the uterine contents from pregnant cows carrying embryos created either by in vitro fertilization (IVF) or by [somatic cell nuclear transfer](#) (SCNT). In SCNT an adult animal is cloned by transferring the DNA-containing nucleus from one of its cells into a [donor egg](#) that lacks a nucleus, and then implanting the cloned embryo into the uterus of a recipient mother. Severe placental and development abnormalities are not uncommon.

The authors show that the concentrations of several amino acids were reduced in samples from SCNT pregnancies compared to IVF pregnancies during the period preceding implantation of the embryos in the uterine lining. They report these findings and comment on their implications in the article entitled "Reduced [Amino Acids](#) in the Bovine Uterine Lumen of Cloned versus In Vitro Fertilized Pregnancies Prior to Implantation."

"These results reveal that cloned embryos are sometimes unable to establish a normal relationship with the maternal environment. This important new insight highlights the importance and potential benefit of research to understand the mechanisms that are involved," says Professor Sir Ian Wilmut, OBE, FRS, FRSE, Editor-in-Chief of *Cellular Reprogramming* and director of the MRC Centre for Regenerative Medicine in Edinburgh.

**More information:** The article is available online at  
<http://www.liebertpub.com/cell>.

Provided by Mary Ann Liebert, Inc.

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