

Challenging the totipotency of a zygote

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Although the literature describes the mammalian zygote as a totipotent cell, one researcher challenges this view and has proposed a revised alternative model of mammalian cellular totipotency. The basis for this new model and its implications and potential applications are presented in an article published in *Stem Cells and Development*.



"On Mammalian Totipotency—What Is the Molecular Underpinning for the Totipotency of a Zygote?" is the work of Kejin Hu, Ph.D., University of Alabama at Birmingham. Dr. Hu explores the concept of a totipotency—the ability of a stem cell to give rise to any cell type or a blastomere to form a complete embryo—from a molecular perspective. He defines three main aspects of totipotency: genetic, epigenetic, and biochemical (the capacity to be reprogrammed to epigenetic totipotency). While a zygote is genetically totipotent, it is not epigenetically totipotent. It does, however, have the capacity for reprogramming to a totipotent state. Based on these conclusions, Dr. Hu developed his revised model for the capacity for cellular totipotency.

"*Stem Cells and Development* values a continuing and evolving discourse on this fascinating and contentious topic," says Editor-in-Chief Graham C. Parker, Ph.D., The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI.

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More information: Kejin Hu, On Mammalian Totipotency: What Is the Molecular Underpinning for the Totipotency of Zygote?, *Stem Cells and Development* (2019). DOI: 10.1089/scd.2019.0057

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