

STH INTERNATIONAL CONFERENCE ON ADVANCED PHARMACOLOGY & TOXICOLOGY RESEARCH

November 14-15, 2025 | Lisbon, Portugal



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Twinning and Individuation: An Appraisal of the Current Model and Ethical Implications

Discourses on human embryo experimentation often refer to monozygotic twinning and individuation. A criterion to establish regulations that guide human embryo research proposes that individuation is achieved once the embryo ceases to have the potential for dividing into two or more viable entities at about 15 days of gestational age. This standard is based on an updated version of a developmental model initially proposed by George Corner. A fundamental problem with this approach is the model's lack of sufficient evidence to explain adequately human embryo twinning and, consequently, to serve as a basis to establish appropriate ethical guidelines for embryo experimentation. In addition, subsequent formulations of Corner's model added an extension of blastomere totipotency to different moments of gestation, without a proper scientific basis. The model is also challenged by monozygotic twinnings that result in placental and amniotic arrangements incompatible with Corner's framework. Investigations into the physiology of fertilisation and of the zygote suggest that individuation may occur at a very early stage. An alternative description of monozygotic twinning may explain better sesquizygotic twinning events and serve to re-evaluate the individuation criterion. The study aims to investigate deficiencies in the embryology of this model and assess their ethical implications.

Biography

Dr. Francis J. O'Keeffe is a faculty member in the School of Medicine at The University of Notre Dame Australia, Sydney (NSW 2010). His scholarly work explores ethical dimensions of human development, with particular interest in twinning, individuation, and the moral challenges that arise at the intersection of biology and identity. Dr. O'Keeffe's research emphasizes critical ethical analysis, responsible clinical reasoning, and the integration of philosophical inquiry into contemporary medical education and practice.