

عنوان مقاله:

Cloning challenges, current and future applications

محل انتشار:

چهارمین کنگره بین‌المللی تولیدمثل (سال: 1397)

تعداد صفحات اصل مقاله: 2

نویسنده:

Abolfazl Shirazi - Reproductive Biotechnology Research Center, Avicenna Research Institute, ACECR, Tehran, Iran -
Department of Gametes and Cloning, Research Institute of Animal Embryo Technology, Shahrekord University,
Shahrekord, Iran

خلاصه مقاله:

More than two decades have passed since Dolly the sheep became the first mammal to be cloned using fully differentiated somatic adult cells. Cloning has now been successfully used on more than 21 species. The advent of cloning told the scientific community that reprogramming adult mammalian cells was possible, leading to the development of technology capable reverting adult cells back into stem cells. Generating stem cells from adult cells, induced pluripotent stem (iPS) cells, in addition to the widespread uses in both research, therapeutics, and regenerative medicine, have reduced the demand for embryonic stem cells, which raises further ethical concerns. On the other hand, advances in gene editing techniques, using CRISPR-Cas9, have opened up new windows to biomedical scientists. Currently, several commercial companies, either independently or as a joint venture, offer services that use this technology for various purposes. To solve future food shortage by the chance to replicate the best animals and therefore enables them to produce a superior quality of products in a shorter time and the potential application of reproductive and therapeutic cloning in the fields of medicine and agriculture in order to test new drugs and treatment strategies are other advantages of this technology. To save endangered species, production of drug-sniffing dogs or those glows in the dark, creation of cattle that cannot develop mad cow disease, production of transgenic cow capable of lactation of human protein in milk are some of the applications of animal cloning. Additionally, the sex, genetic traits and the commercial value of the animals can be known before birth. As part of the upcoming program, De-extinction or bring back the extinct species and to preserve endangered species; setting up the Frozen Zoo that now stores 9,000 vertebrate cells belonging to more than 1,000 different species, are another applications of this technology. In animal cloning, in addition to concern for the reduction of the gene pool, almost 90 per cent of attempts at cloning fail and if it leads to a successful clone, there is still potential for many abnormalities such as organs malformation, deficiencies in the immune system as well as the possible premature ageing. Therefore, animal rights campaigners have condemned this procedure. In 2016, however, a long term study on some cloned sheep found no evidence of a detrimental long-term effect of cloning. Sometimes abnormal cloned fetuses may ... develop to term, resulting in abnormalities at birth. In large offspring syndrome, as one of the cloning c

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/744651>



