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A glance on animal sperm banking literature over the last decade

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The increase in the global population threatens the diversity of AnGRs (Animal Genetic Resources) both in livestock, critical for food security and rural development and in animals in the wildness, fundamental to keep the natural heritage and our future as specie. Animal sperm banking is a relevant tool to maintain such diversity and a retrospective analysis of the literature in this area has been performed to provide information on trends in the last decade. A total of 692 peer reviewed manuscripts related to animal (non-human) sperm banking were screened using the Pubmed® searching engine among those published from 2004 to mid 2014. Descriptive statistics were obtained with the SPSS®v15.0.1 software after classifying manuscripts according to four different parameters: Country of origin, specie studied, objective of the research and preservation method used. According to results, five countries (Spain, USA, Japan, Brazil and Australia) have conducted the 53.14% of studies in animal sperm banking sampled. Also, the 63% of the studies are focused on domestic species and certain research topics have been tested more recurrently than others. These are the optimization of the preservation protocol and the testing of the sperm viability, these topics accounting for 70.58% of the studies sampled. Finally, cryopreservation has been the predominant preservation model adopted (90.08%).

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Ovarian tissue preservation and cross species transplantation (Marmoset-Monkey to Mouse)

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Cryopreservation of ovarian tissue has been taken at several levels as it helps in maintaining safe genome of female for production of next generation. For this objective, transplantation of the tissue in a model is needed. Marmoset monkey (*Callithrix jacchus*) has been advocated an alternative model to large size monkeys. However, there are several challenges to shift to the new model. Cryopreservation of ovarian tissues of the marmoset monkey from adult and young animals have been evaluated using dimethyl sulphoxide (DMSO), 1,2-propanediol (PrOH) or ethyl glycol (EG) using slow freezing protocol. After xenografting in nude mice, the follicles were compared in fresh, cryopreserved and xenografted tissues. When compared to fresh, cryopreservation decreased number of follicles to one third in DMSO, one fifth in PrOH and one sixth in EG. After xenografting in nude mice, the survival of follicles in adult tissue was twice in DMSO group than PrOH group. Prepubertal tissue did not show this difference for primordial follicles, but primary follicles were marginally better in DMSO group. Therefore, for adult marmoset monkey DMSO seems better cryoprotectant for ovarian cryopreservation for xenografting of its tissue. Prepubertal ovarian tissues could survive almost to a similar level in all three cryoprotectants (DMSO, PrOH and EG). This is an indication that the prepubertal tissue has greater tolerance to cryo-injuries. Staining with Proliferating Cell Nuclear Antigen indicated survival of the cells in the xenografted tissue. In human both DMSO and PrOH have been reported equally well but DMSO has been superior in certain aspects.

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