

## **Exploring “Direct” Gametes Production by Somatic Cells Haploidy.**

Generation of “artificial” gametes from Primordial Germ Cells (PGCs) differentiated from Embryonic Stem Cells (ES), or Induced Pluripotent Cells (iPCs) is the latest challenge to provide infertile couple with the possibility to have biological offspring. However, the differentiation of PGCs *in vitro*, and their commitment to become mature gametes from both sexes *in vitro* is a long process, completed to date in mouse only. Moreover, the separation of the early PGCs is possible only thanks to the expression of tagged PGCs markers in ES or iPCs cell lines; thus, an unsuitable approach for generating gametes for reproduction purposes. A simpler approach, that I will address in my talk, is the possibility to induce haploidy of protaminized somatic cells by exploiting the meiotic machinery of Germinal Vesicle stage oocytes for the generation of artificial gametes.