Ovarian Club XIV: 7- 9 November | Paris, France

Title: *Bioengineering an ovary*

There are several patient groups that desire restoration of ovarian function for hormones and/or fertility. These groups include patients with idiopathic, genetic, or chemically-induced reduction in ovarian function, such as cancer survivors whose life-saving treatments caused a decline in their ovarian reserve. Therefore, women or girls who desire fertility preservation, but cannot be hormonally stimulated to produce and cryopreserve eggs prior to a potentially sterilizing treatment or progression of disease, can opt to remove and cryopreserve ovarian tissue. Current restoration techniques hold a risk of reintroducing disease and ovarian tissue transplants often provide a narrow window of restored natural fertility and hormone function. Our research focuses on the environment of the follicles to better understand the cues that trigger or suppress ovarian follicle activation. Our objective is to create a bioprosthetic ovary that can restore long-term function. Our initial results in mice underscore the importance of the bioactive scaffold architecture in supporting folliculogenesis and our current investigations will lead to an informed scaffold design that can replace potentially metastatic tissue and provide sustained fertility and ovarian hormone support.