

## **Testicular biopsy material and its aspects for the sperm selection in vitro by using microfluidics**

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The testis is an immune privilege area for the maintenance of spermatogenesis against to any pathogen from the interstitial area. With the BTB integrity there is a qualified selection for the mature sperm until the lumen migration which is sperm release progress. Spermiogenesis help for the sperm morphology to get its expected pattern for the fertilization with its packaged DNA and its cytoplasmic proteins and miRNAs. In summary, in IVF clinics, TESE can be all increased the sperm selection quality more than before by using additional methods as BTB integrity assay or ASA incubation, Sertoli cell co-culturing or seminiferous tubule tissue organoids in different cases, which depends on the patient's background like testicular cancer or lymphoma in puberty. We suggest maintaining the natural selection of the sperm for the IVF patient by using the microfluidics technology in our university hospital. Our project results with the Andrology Department give us that TESE can be useful for the maintenance of the spermatogenic cell differentiation in microfluidics with gene detection inside of the interstitial area mimicking side of Lab-on-a CHIP.