Cell-cell communication in testicular toxicity

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Adverse trends in male reproductive health are a topic of both public concern and scientific interest. The exposure to contaminants, namely endocrine-disrupting chemicals (EDCs), is discussed as one of the major causes of male reproductive health outcomes such as testicular malformations, a decline in semen quantity and quality, and testicular cancer. This talk will address a specific role of cell-cell communication in endocrine disruption and male reproductive toxicity. We systematically studied testicular gap junctional intercellular communication (GJIC) and their building blocks, proteins connexins, as a target for EDCs in somatic testicular Leydig and Sertoli cells. Our study indicates that the prioritized environmental contaminants and their mixtures might disrupt testicular homeostasis and functions via disruption of testicular GJIC and dysregulation of junctional and non-junctional functions of connexin 43 in somatic testicular cells.