Study programme(s): Doctoral

Level:

Course title: Reproductive Toxicology

Lecturer: Nebojsa Andric PhD, Kristina Pogrmic-Majkic PhD

Status: Elective

ECTS:

Requirements:

Learning objectives

The course provides knowledge about the impact of chemicals from the environment (with emphasis on the chemicals with endocrine disruptors potential) on the reproductive function.

Learning outcomes

After complition of the course, it is expected that students (i) gain knowledge about mechanism and the effect of the environmental chemicals on the reproductive systems and fertility (ii) understand research in the filed of reproductive toxicology.

Syllabus

Theoretical instruction

Environmental chemicals as endocrine disruptors. Molecular mechanism of endocrine disrupton. Fetal and neontal exposure to endocrine disruptors and implications on adult reproductive function: ovarian and testicular dysgenesis syndrom. Adult exposure and impacts on reproductive health and fertility. Enviromental chemicals and related systems that have implication for reproduction: neuroendocrine and immune systems. Toxicological testing*: in vitro* and *in vivo* tests and chemical risk assessments

Practical instruction

Experimental models: primary culture of immature and preovulatory granulosa cells; analysis of signlaning pathways and functions of granulosa cells after chemicals exposure in different experimental conditions; analysis of the results and preparation of manuscripts

Literature

Schug, T. T., Janesick, A., Blumberg, B. and Heindel, J. J. (2011) 'Endocrine disrupting chemicals and disease susceptibility', The Journal of steroid biochemistry and molecular biology 127(3-5): 204-15. Mark-Kappeler, C. J., Hoyer, P. B. and Devine, P. J. (2011) 'Xenobiotic Effects on Ovarian Preantral Follicles', Biology of reproduction. Blumberg, B., Iguchi, T. and Odermatt, A. (2011) 'Endocrine disrupting chemicals', The Journal of steroid biochemistry and molecular biology 127(1-2): 1-3. Craig, Z. R., Wang, W. and Flaws, J. A. (2011) 'Endocrine-disrupting chemicals in ovarian function: effects on steroidogenesis, metabolism and nuclear receptor signaling', *Reproduction* 142(5): 633-46. Woodruff, T.J., Janssen, S.J., Guillette Jr, L.J., Giudice, L.C. (2010) 'Environmental Impacts on Reproductive Health and Fertility, Cambridge University Press.

Weekly teaching load				Other:
Lectures:	Exercises:	Other forms of teaching:	Student research:	

Teaching methodology

Lectures, experimental work, analysis and presentation of experimental results, presentation of the articles from the filed of the reproductive toxicology (journal club)

Grading method (maximal number of points 100)

Experimental work – 40 points
Presentation of the results – 10 points
Exam- 50 points