

Laboratory for Chronobiology and Aging

Reproduction, Circadian Rhythm, Aging, Testosterone, Steroidogenic Cells

Laboratory for Chronobiology and Aging (ChronAge) investigates circadian and homeostatic regulation of reproduction and physiological processes governed by reproductive hormones.

The aim of our research is to understand the temporal organization of signaling network in cells that produce reproductive hormones during life and especially in aging. We also study metabolic changes in aging caused by low level of reproductive hormones in order to provide novel ways to intervene in the aging process and potentially ameliorate health decline that occurs at advancing ages.

Current topics:

- Ways of synchronization of peripheral clocks located in cells of reproductive axis with master regulator of rhythm;
- Effects of aging and stress on circadian system and rhythmic gonadal function;
- Circadian signaling and puberty;
- Signaling network involved in development of age-related hypogonadism (pharmacological manipulation of different metabolic processes);
- Low testosterone as a marker of aging: slowing-down age-related hypogonadism by pharmacological manipulation of cGMP signaling.



SELECTED EQUIPMENT

- Accredited animal facility (*Wistar* rats and mice) enabling performance of experiments in different environments (light regime, temperature...); equipped with tools for monitoring the rat physical activity at given time intervals (Running wheels);
- Equipment for *in vitro* experiment with tissue cultures as well as primary and immortalized cell lines from mice, rats and humans.
- Equipment for molecular investigation of the expression of the genes, as well as proteins interactions and functions within the cells.

CONTACT PERSON

Dr Tatjana Kostic, Full Professor; tatjana.kostic@dbe.uns.ac.rs; tel: +381 21 485 2674

SELECTED PROJECTS

Title: "Molecular mechanisms and signal transduction pathways involved in regulation of steroidogenesis and adaptation of Leydig cells on disturbed homeostasis".

Type: Basic research project.

Duration: 01.01.2011.-31.12.2019.

Contact person:

Prof. Dr Tatjana Kostic.

Title: "Are the reproductive hormones link between stress, metabolic syndrome and aging?"

Type: Basic research project.

Duration: 01.06.2014.-31.12.2019.

Contact person:

Prof. Dr Silvana Andric

Title: "The CNG channels in Leydig cell - identification, characterization and functional coupling to testosterone production".

Type: Basic research project.

Duration: 01.01.2015.-31.12.2020.

Contact person:

Prof. Dr Silvana Andric

COLLABORATIONS

- National Institute of Child Health and Human Disease; National Institutes of Health (Bethesda, Maryland, USA)
- Department of Biology, University of Fribourg, Fribourg, Switzerland
- Institute of Biochemistry, Faculty of Medicine, University of Ljubljana, Slovenia

