

## Short CV – Tatjana S Kostic

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### Education:

- 1991 BSc in Biology (Faculty of Sciences at University of Novi Sad; <http://www.pmf.uns.ac.rs/en>)
- 1994 MSc in Neuroscience (Center for multidisciplinary sciences UBG; <http://www.bg.ac.rs/en>)
- 1997 PhD in Reproductive Endocrinology (FSUNS; <http://www.pmf.uns.ac.rs/en>)
- 2002 Postdoctoral fellow in Cell Signaling (SCS, ERRB, NICHD, NIH; <http://www.nichd.nih.gov>)

### Study visits:

06/10/1999 – 10/01/2002: *Postdoctoral Fellow* - SCS, ERRB, NICHD, NIH, Bethesda, MD, USA.  
Summer 2007, 2008, 2009, 2011, 2012, 2013 - *Visiting Scientist* - SCS, PND, NICHD, NIH, USA.

### Career:

- 1992 – 1999 Teaching Assistant of Animal Physiology (FSUNS; <http://www.pmf.uns.ac.rs/en>)
- 1999 – Nov 2002 Assistant Professor of Animal Physiology (FSUNS; <http://www.pmf.uns.ac.rs/en>)
- 1999 – 2002 Post-doctoral fellow in Cell Signaling (SCS, NICHD, NIH; <http://www.nichd.nih.gov>)
- 2002 – June 2008 Associate Professor of Animal Physiology (FSUNS; <http://www.pmf.uns.ac.rs/en>)
- July 2008 – pres. Professor of Animal Physiology (FSUNS; <http://www.pmf.uns.ac.rs/en>)

### Teaching (Bachelor, Master, PhD level):

Basic physiology (45 hours/year), Animal physiology (45 hours/year), Comparative animal physiology (22 hours/year), Molecular & cellular physiology (45 hours/year), Mechanisms of cell communication (15 hours/year), Molecular & cellular immunology (15 hours/year), Reproductive physiology (15 hours/year), Reproductive endocrinology (15 hours/year).

### Mentoring

PhD candidates: 5 (1 completed)  
Master candidates: 17 (15 completed)  
Diploma candidates: 23 (all completed)

**Languages:** English, Slovenian

**Research area:** Cell signaling, reproductive endocrinology, stress, aging, biological clock

### Ongoing Research Support

ON173057, Kostic T (PI), 01/01/2011 – 31/12/2015, MESTD, Project: “*Molecular mechanisms and signal transduction pathways involved in regulation of steroidogenesis and adaptation of Leydig cells to disturbed homeostasis*”, Role: Principal Investigator.

Bilateral cooperation Serbia-Slovenia, Kostic T (PI), 01/01/2014 – 31/12/2015, MESTD, Project: “*Synchronization of the Leydig cell circadian timing system: coupling cAMP signaling to clock*”, Role: Principal Investigator.

APV970, Andric S (PI), 01/06/2011 – 31/12/2015, APV Province Committee for Science and Technology Project: “*Signaling pathways and molecular mechanisms involved in maintenance of sex steroids homeostasis*”, Role: Co-investigator.

Serbian Academy of Sciences – Academy of Sciences of the Czech Republic Andric S (PI) 01/01/2014 – 31/12/2017, Project: “*The CNG channels in Leydig cell – identification, characterization and functional coupling to testosterone production*”, Role: Co-investigator.

COST Action: BM1105 0, 01/04/2012 – 31/03/2016 Project: “*GnRH network – Neuroendocrine Control of Reproduction*”, Role: MC substitute for basic science from Serbia.

COST Action: BM1402, 01/12/2014 – 30/11/2018 Project: “*Development of a European network for preclinical testing of interventions in mouse models of age and age-related diseases (MouseAGE)*” Role: Investigator.

**Publications:** 51 peer-review publication; 625 hetero-citations, *h-index* 14 (source: SCOPUS 2000-2015).

**Relevant publications (up to 5):**

- Baburski AZ, Sokanovic SJ, Radovic SM, Bjelic MM, Andric SA & **Kostic TS** (2016). Circadian rhythm of the Leydig cells endocrine function is attenuated during aging. *Exp Gerontol* 73: 5-13.
- Gak IA\*, Radovic SM\*, Dukic AR, Janjic MM, Stojkov-Mimic NJ, **Kostic TS** & Andric SA (2015). Stress stimulates mitochondrial biogenesis to preserve steroidogenesis in Leydig cells of adult rats. *BBA Mol Cell Res* 1853: 2217-2227.
- Baburski AZ, Sokanovic SJ, Janjic MM, Stojkov NJ, Bjelic MM, Andric SA & **Kostic TS** (2015). Melatonin replacement restores the circadian behavior in adult rat Leydig cells after pinealectomy. *Mol Cell Endo* 413: 26-35.
- Stojkov-Mimic NJ, Bjelic MM, Radovic SM, Mihajlovic AI, Sokanovic SJ, Baburski AZ, Janjic MM, **Kostic TS** & Andric SA (2015). Intratesticular alpha1-adrenergic receptors mediate stress-disturbed transcription of steroidogenic stimulator NUR77 as well as steroidogenic repressors DAX1 and ARR19 in Leydig cells of adult rats. *Mol Cell Endo* 412: 309-319.
- Bjelic MM, Stojkov NJ, Radovic SM, Baburski AZ, Janjic MM, **Kostic TS** & Andric SA (2015). Prolonged *in vivo* administration of Testosterone-enanthate, the widely used and abused anabolic androgenic steroid, disturbs prolactin and cAMP signaling in Leydig cells of adult rats. *J Steroid Biochem Mol Biol* 149: 58-69.
- Bjelic MM, Stojkov NJ, Mihajlovic AI, Baburski AZ, Sokanovic SJ, Janjic MM, **Kostic TS** & Andric SA (2014). Molecular adaptations of testosterone-producing Leydig cells during systemic *in vivo* blockade of the androgen receptor. *Mol Cell Endo* 396 (1-2): 10-25.
- Sokanovic SJ, Janjic MM, Stojkov NJ, Baburski AZ, Bjelic MM, Andric SA & **Kostic TS** (2014). Age-related changes in cAMP and MAPK signaling in Leydig cells of Wistar rats. *Exp Gerontol* 58: 19-29.
- Stojkov NJ, Baburski AZ, Bjelic MM, Sokanovic SJ, Mihajlovic AI, Drljaca DM, Janjic MM, **Kostic TS** & Andric SA (2014). *In vivo* blockade of alpha1-adrenergic receptors mitigates stress-disturbed cAMP & cGMP signaling in Leydig cells. *Mol Hum Reprod* 20 (1):77-88.
- Stojkov NJ, Janjic MM, **Kostic TS** & Andric SA (2013). *In vitro* blockade of  $\alpha$ 1-adrenergic receptors ( $\alpha$ 1-ADRs) affects testosterone production in Leydig cells of adult rats. *Biol Serb* 35 (1-2):48-56.
- Sokanovic SJ, Baburski AZ, Janjic MM, Stojkov NJ, Bjelic MM, Lalosevic D, Andric SA, Stojilkovic SS & **Kostic TS** (2013). The opposing roles of nitric oxide and cGMP in the age-associated decline in rat testicular steroidogenesis. *Endocrinology* 154(10): 3914-3924.
- Stojkov NJ, Baburski AZ, Janjic MM, Bjelic MM, Mihajlovic AI, Drljaca DM, Sokanovic SJ, **Kostic TS** & Andric SA (2013) Sustained *in vivo* blockade alpha1-adrenergic receptors prevented some of stress-triggered effects on steroidogenic machinery in Leydig cells. *Am J Physiol Endocrinol Metab* 305 (2): E194-E204.
- Stojkov NJ, Janjic MM, **Kostic TS** & Andric SA (2013) Orally applied Doxazosin disturbed testosterone homeostasis and changed the transcriptional profile of steroidogenic machinery, cAMP/cGMP signaling and adrenergic receptors in Leydig cells of adult rats. *Andrology* 1 (2): 332-347.
- Andric SA, Kojic Z, Bjelic MM, Mihajlovic AI, Baburski AZ, Sokanovic SJ, Janjic MM, Stojkov NJ, Stojilkovic SS & **Kostic TS** (2013). The opposite role of glucocorticoid and alpha1-adrenergic receptors in stress-triggered apoptosis of Leydig cells. *Am J Physiol Endocrinol Metab* 304 (1): E51-E59.

- Andric SA, Janjic MM, Stojkov NJ & **Kostic TS** (2012) NO-cGMP signaling increases the mitochondrial membrane potential and affects androgenesis in Leydig cells. *Biol Serb* 34 (1): 12-16.
- Janjic MM, Stojkov NJ, Andric SA & **Kostic TS** (2012) Anabolic-androgenic steroids induce apoptosis and NOS2 (nitric oxide synthase 2) in adult rat Leydig cells following *in vivo* exposure. *Reprod Toxicol* 34(4):686-693.
- Janjic MM, Stojkov NJ, Bjelic MM, Mihajlovic AI, Andric SA & **Kostic TS** (2012) Transient rise of serum testosterone level after single sildenafil treatment of adult male rats *J Sex Med* 10 (9): 2534-2543.
- Stojkov NJ, Janjic MM, Bjelic MM, Mihajlovic AI, **Kostic TS** & Andric SA (2012) Repeated immobilization stress disturbed steroidogenic machinery & stimulated the expression of cAMP signaling elements & adrenergic receptors in Leydig cells. *Am J Physiol Endocrinol Metab* 302(10): E1239-E1251.
- **Kostic TS**, Stojkov NJ, Bjelic MM, Mihajlovic AI, Janjic MM & Andric SA. (2011) Pharmacological doses of testosterone up-regulated androgen receptor (AR) and 3-beta-hydroxysteroid dehydrogenase/delta-5-delta-4 isomerase (3bHSD) and impaired Leydig cells steroidogenesis in adult rat. *Toxicol Sci* 121(2): 397-407.
- Andric SA, Janjic MM, Stojkov NJ & **Kostic TS** (2010): Sildenafil treatment *in vivo* stimulates Leydig cell steroidogenesis via cAMP and cGMP signaling pathway. *Am J Physiol Endocrinol Metab* 299(4): E544-E450.
- Andric SA, Janjic MM, Stojkov NJ & **Kostic TS** (2010): Testosterone-induced modulation of Nitric Oxide-cGMP signaling pathway and androgenesis in the rat Leydig cells. *Biol Reprod* 83(3): 434-442.
- **Kostic TS**, Stojkov NJ, Janjic MM & Andric SA (2010): Structural complexity of the testis and PKG-I/StAR interaction regulate the Leydig cell adaptive response to repeated immobilization stress. *Int J Androl* 33(5): 717-729.
- **Kostic TS**, Stojkov NJ, Janjic MM, Maric D & Andric SA (2008): The adaptive response of adult rat Leydig cells to repeated immobilization stress: Role of PKA and StAR protein. *Stress* 11(5): 370-380.
- Andric SA, Janjic MM, Stojkov NJ & **Kostic TS** (2007): Protein kinase G – mediated stimulation of basal Leydig cell steroidogenesis. *Am J Physiol Endocrinol Metab* 293 (5): E1399-E1408.
- Andric SA, **Kostic TS** & Stojilkovic SS (2006): Contribution of multidrug resistance protein - MRP5 in control of cGMP intracellular signaling in anterior pituitary cells. *Endocrinology* 147 (7): 3435-3445.
- Andric NL, **Kostic TS**, Zoric SN, Stanic BD, Andric SA, Kovacevic R Z (2006): Effect of a PCB-based transformer oil on testicular steroidogenesis and xenobiotics-metabolizing enzymes. *Reprod Toxicol* 22: 102-110.
- Mirkov S, Djordjevic A, Andric N, Andric S, **Kostic T**, Bogdanovic G, Vojinovic-Miloradov M & Kovacevic R (2004): Nitric oxide-scavenging activity of polyhydroxylated fullerene C60(OH)24. *Nitric Oxide* 11: 200-206.
- **Kostic TS**, Andric SA & Stojilkovic SS (2004): Receptor-controlled phosphorylation of  $\alpha 1$  soluble guanylyl cyclase enhances nitric oxide-dependent cyclic guanosine 5'-monophosphate production in pituitary cells. *Mol Endocrinol* 18 (2): 458-470.
- Andric NL, Andric SA, Zoric SN, **Kostic TS**, Stojilkovic SS & Kovacevic RK (2003): Parallelism and dissociation in the actions of Aroclor 1260-based transformer fluid on testicular androgenesis and antioxidant enzymes. *Toxicology* 194 (1-2): 65-75.

- Andric SA, Andric NL, Zoric S, **Kostic T** & Kovacevic RK (2003): Effects of polychlorinated biphenyl-containing and –free transformer fluids on testicular enzyme activities. *Fresenius Environmental Bulletin* 12: 245-249.
- Andric N, Andric S, Zoric S, **Kostic T** & Kovacevic RK (2002): Effects of commercial PCB mixture on rat testicular enzyme activities. *Proceedings of the 6<sup>th</sup> International Symposium Interdisciplinary Regional Research* (Hungar, Romania, SERBIA and MONTENEGRO). University of Novi Sad, SERBIA and MONTENEGRO, CD 0103:1-6.
- **Kostic TS**, Andric SA, Tomic M & Stojilkovic SS (2002): Calcium-independent and cAMP-dependent modulation of soluble guanylyl cyclase activity by G-protein coupled receptors in pituitary cells. *J Biol Chem* 277(19):16412-16418.
- Andric NL, Andric SA, **Kostic TS**, Dragisic SM SS & Kovacevic RK (2002): Inhibitor effects of L-arginine methyl ester on antioxidant enzymes and stress-impaired steroidogenesis in rat testes. *Review of Research, Faculty of Science, Biology Series* 30: 43-57.
- Andric S.A., **Kostic T.S.**, Dragisic S.M., Andric N., Stojilkovic S.S. and Kovacevic R. (2001): Testicular enzymes as sensor to chemical stresors. *Biomarkers of Environmental Contamination, Proceeding*: T3-01.
- Andric SA, **Kostic TS**, Dragisic SM, Stojilkovic SS & Kovacevic RZ (2001): Acute *in vivo* and *in vitro* effects of Aroclors on rat testicular steroidogenesis. In: *PCBs-Recent Advances in the Environmental Toxicology and Health Effects*, edited by Larry W. Robertson and Larry G. Hansen. The University Press of Kentucky, pp 303-307.
- **Kostic TS**, Andric SA & Stojilkovic SS (2001): Spontaneous and receptor-controlled soluble guanylyl cyclase activity in anterior pituitary cells. *Mol Endocrinol* 15 (6): 1010-1022.
- Andric SA, **Kostic TS**, Tomic M, Koshimizu T & Stojilkovic SS (2000): Dependence of soluble guanylyl cyclase activity on calcium signaling in pituitary cells. *J Biol Chem* 276: 844-849.
- **Kostic TS**, Andric SA, Maric D & Kovacevic RZ (2000): Inhibitory effects of stress-activated nitric oxide on antioxidant enzymes and testicular steroidogenesis. *J Steroid Biochem Molec Biol* 75 (4-5): 299-306.
- Grubor-Lajsic G, Andric SA, Andric N, Dragisic S, Taski K, Stanic B, **Kostic T** and Kovacevic R (2000): Antioxidant enzymes changes in aquatic biota – an answer to oil refinery spills. *Central European Journal of Occupational and Environmental Medicine* 6 (2-3): 189-193.
- Andric SA, **Kostic TS**, Dragisic SM, Andric NL, Stojilkovic SS, Kovacevic RZ (2000): Acute effects of polychlorinated biphenyl-containing and –free transformer fluids on rat testicular steroidogenesis. *Environ Health Perspect* 108: 955-959.
- Andric SA, **Kostic TS**, Stojilkovic SS & Kovacevic R (2000): Inhibition of rat testicular androgenesis by a polychlorinated biphenyl mixture Aroclor 1248. *Biol Reprod* 62: 1882-1888.
- **Kostic TS**, Andric SA, Maric D, Stojilkovic SS & Kovacevic R (1999): Involvement of inducible nitric oxide synthase in stress-impaired testicular steroidogenesis. *J Endocrinol* 163: 409-416.
- **Kostic TS**, Andric SA, Dragisic SM, Kovacevic R & Maric D (1999): Nitric oxide is involved in down regulation of testicular steroidogenesis in stress conditions. *Internat Symp Interdiscip Region Research, Proceedings, part II*: 483-486.
- Andric S, **Kostic TS**, Vojinovic-Miloradov M, Dragisic SM, Stojilkovic SS & Kovacevic R (1999): Acute effects of PCB- and mineral oil-based dielectric fluids on antioxidant enzyme activities in adult rat testis. *Internat Symp Interdiscip Region Research, Proceeding, part II*: 915-918.

- Kovacevic R, Andric S, **Kostic T**, Lazetic B & Pekaric-Nadj N (1999): The effect of chronic exposure of male rats to 50 Hz magnetic field: III Steroidogenic capacity of whole testes and Leydig cells *in vitro*. *Bull Exp Biol Med* 45: 135-138.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1998): Stress and paracrine regulation of Leydig cell function. In: *Basic and clinical aspects of the theory of functional systems*. Eds. B. Lazetic, K.V. Sudakov & P.K. Anokhin: 215-221.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1998): The involvement of nitric oxide in immobilization stress impaired testicular steroidogenesis. *Eu J Pharmacol* 346: 267-273.
- **Kostic T**, Andric S, Kovacevic R & Maric D. (1998): The effect of acute stress and opioid antagonists on the activity of NADPH-P450 reductase in rat Leydig cells. *J Steroid Biochem Molec Biol* 66: 51-54.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1998): Is nitric oxide involved in stress-impaired testicular steroidogenesis? *Proc Nat Sci Matica Srpska* 94: 53-62.
- Andric S, **Kostic T**, Sakac M, Medic-Mijacevic L, Gasi K & Kovacevic R (1998): Biological characterization of some novel 5-androstene derivatives as potential antiandrogens. *Proc Nat. Sci Matica Srpska* 94: 43-51.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1998): The effect of short-term immobilization stress on rat Leydig cell steroidogenesis. *Proc Nat Sci Fac Nat Sci* 27-28: 58-63.
- Andric S, **Kostic T**, Lazetic B, Pekaric-Nadj N & Kovacevic R (1998): The effects of chronic exposure of male rats to 50 Hz magnetic field on the steroidogenic capacity of whole testes and Leydig cells *in vitro*. *Proc Nat Sci Fac Nat Sci* 27-28: 46-50.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1997): The effect of opioid antagonists in local regulation of testicular response to acute stress in adult rats. *Steroids* 62: 703-708.
- **Kostic T**, Andric S, Kovacevic R & Maric D (1996): The effect of opioid antagonists on testicular response to acute stress in adult rats. *Yugoslav Physiol Pharmacol Acta* 32: 197-203.