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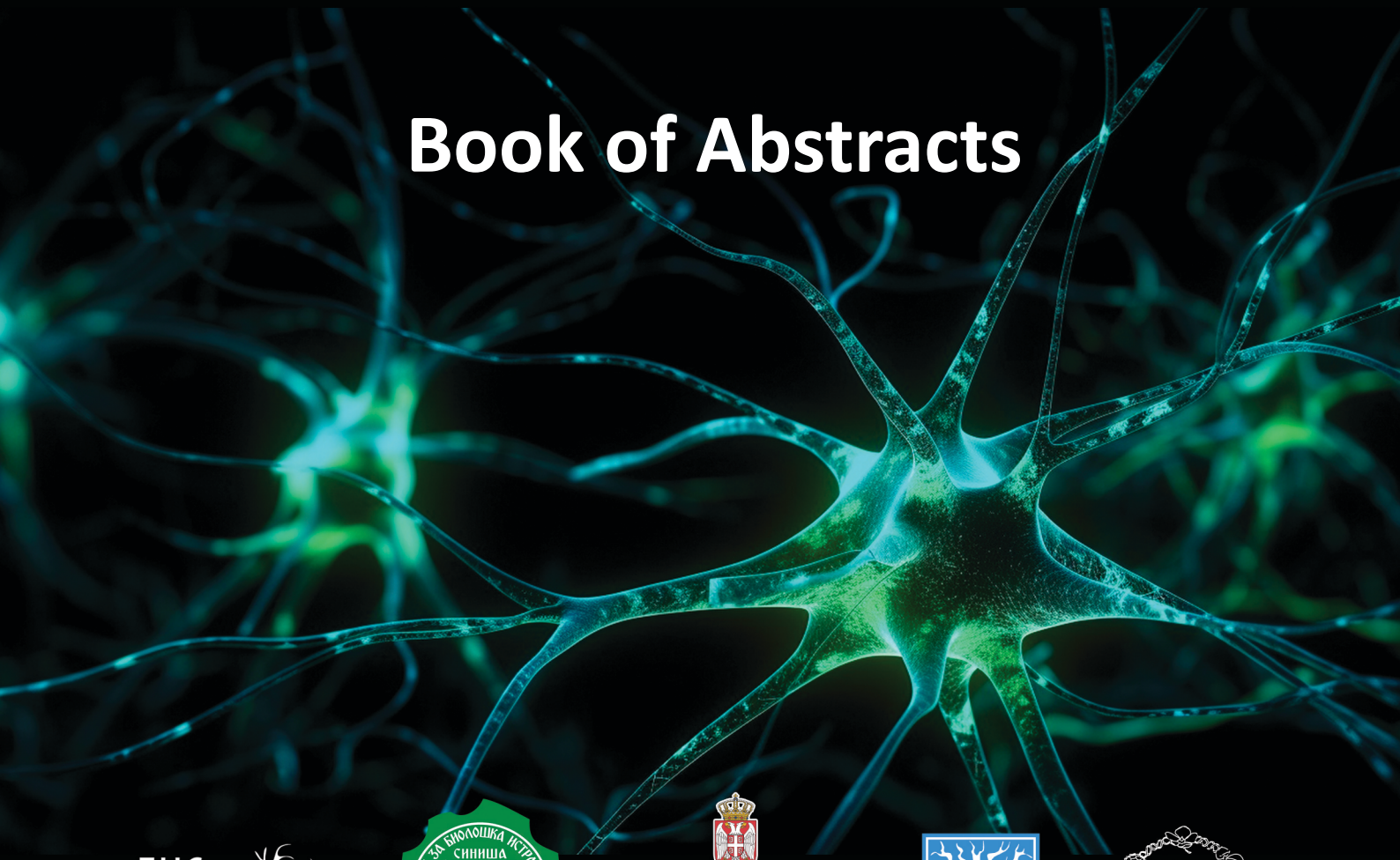

Book of Abstracts

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Effects of long-term caloric restriction on pituitary-gonadal axis functionality of aged male *Wistar* rats

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Here we analyzed effect of long-term (18 months) caloric restriction (60% reduction in daily food intake) on pituitary-gonadal axis functionality during male rat aging. As it was expected, serum and testicular testosterone (T) levels were significantly reduced in intact 24-month-old rats comparing to 6-month-old controls. Decreased T synthesis and production was accompanied by decreased expression of *Lhr*, steroidogenic genes/protein *(Star/*StAR*, Cyp11a1, Cyp17a1, Hsd3b1, Hsd17b3*) and *Insl3* expression. Pituitary expression profiles of *Lhb*, *Fshb Cga, Gnrhr, Prl and Pomc* were not changed during aging while *Prlr* showed significantly decreased expression level at the age of 24 months. Decrement in testosterone production was accompanied by increased serum levels of total cholesterol, LDL and triglycerides. Serum levels of HDL and VitaminD were not changed with aging. The caloric restriction additionally decreased T levels in the serum and testicular extracts of aged animals as well as the expression of the *Star*, *Cyp11a1 and Ldlr* in the testicular tissue without affecting expression profile of genes responsible for *de novo* synthesis of cholesterol (*Npc1*, *Hmgcr*, *Cyp46, Screbf1, Soat1*). At the same time we were able to detect elevated expression of *Lhb* and *Fshb* in the pituitary tissue. The treatment decreased levels of total cholesterol, triglycerides, VitaminD and elevated HDL. In line with the obtained results it is likely that primary hypogonadism has been presented in our model with the evidence that long-term caloric restriction has no beneficial effects on testosterone homeostasis during rat aging.