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JOURNAL ARTICLE

Polyamine levels in testes and seminal vesicles from adult golden hamsters during gonadal regression-recrudescence

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The exposure of golden hamsters to short days results in early regression of the reproductive organs and subsequent spontaneous recrudescence characterized by active cellular regeneration and differentiation. Thus, adult male hamsters were subjected to short photoperiod (SP, 6L:18D) for 9, 12, 14, 16, 18, and 22 weeks or maintained under long photoperiod (LP, 14L:10D) for 22 weeks, to assess photoperiodic-related changes in testicular and seminal vesicle (SV) levels of polyamines (PA) that are involved in cell growth and differentiation. During the regression phase, the weights of the organs and the circulating levels of luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin, testosterone, dihydrotestosterone, and 5 alpha-androstane-3 alpha, 17 beta-diol were significantly diminished and, thereafter, during the recrudescence phase, they recovered total or partially their control values. In both tissues, the exposure to SP for 14-16 weeks resulted in an increase of PA concentrations, followed by a return to control levels in the recrudescence period. At the time of maximal tissue involution, the ornithine decarboxylase (ODC) activity (key regulatory enzyme of PA biosynthesis) showed a significant increase in testis, preceding the sharp peak of PA concentration. However, a marked decrease in ODC activity was detected in SV. The concentration of N-acetyl PA in SV showed an increment at 16 weeks of SP, while no modifications were detected in testicular concentration. When PA, N-acetyl PA, and ODC activity were expressed per testis and per SV, values fell significantly during the involution period, but in the recrudescence phase levels were recovered concomitantly with the restoration of the organ weight and function. In conclusion, the photoperiodic-related changes in PA and their N-acetyl derivatives might play a crucial role in regrowth and differentiation of the male sexual organs during the spontaneous recrudescence phase. Additionally, organ-specific regulation of the PA biosynthesis pathway could also take place.

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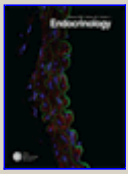
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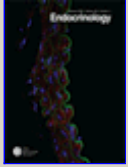
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Cyclooxygenase-2 and Prostaglandin F₂{ alpha} in Syrian Hamster Leydig Cells: Inhibitory Role on Luteinizing Hormone/Human Chorionic Gonadotropin-Stimulated Testosterone Production
Endocrinology, September 1, 2006; 147(9): 4476 - 4485.

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Direct Effect of Melatonin on Syrian Hamster Testes: Melatonin Subtype 1a Receptors, Inhibition of Androgen Production, and Interaction with the Local Corticotropin-Releasing Hormone System
Endocrinology, March 1, 2005; 146(3): 1541 - 1552.

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