

P019 The role of androgen receptor pathway in transcriptional regulation of *DHCR24* gene

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Seladin-1 (encoded by the *DHCR24* gene) is the terminal enzyme in cholesterol biosynthesis pathway as well as a protein involved in signal transduction in response to oxidative stress, while its downregulation in hippocampal neurons is considered a hallmark of Alzheimer's Disease (AD). Shedding light on regulation of seladin-1 is crucial for clarifying its essential and apparently unrelated functions. Nevertheless, mechanisms of transcriptional regulation of *DHCR24* expression have not been thoroughly studied yet.

Recent studies on prostate cancer cells provide indirect hints that *DHCR24* may be regulated on transcriptional level by the androgen receptor pathway. These findings agree with our hypothesis based on preliminary results regarding regulation of *DHCR24* in the neuroblastoma cell line SH-SY5Y commonly used as model of neuronal cells. Downregulation of *DHCR24* in AD might at the same time be cause and result of dysregulation of androgen signalling. Taking into account that cholesterol is the indispensable precursor for neurosteroidogenesis which is a high priority source of androgens in neuronal cells, it is probable that declining level of testosterone in ageing persons and especially in AD can contribute to reduced expression of *DHCR24* which in turn can result in a further reduction in androgen level in neurons *via* disruption of neurosteroidogenesis. Thus, our research aims to establish the role of androgen receptor pathway in regulation of *DHCR24* expression by use of luciferase reporter assay, real-time RT-PCR and Western blotting.