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"Lipid" nuclear receptors in male fertility

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Abstract

Lipid homeostasis is crucial for optimal cellular functions. Male reproductive system has been demonstrated to be dependent on cholesterol homeostasis. As first evidence, cholesterol is the precursor for steroid synthesis. Moreover, many experimental and clinical data have highlighted the importance of lipid metabolism in the control of male fertility and more particularly testicular physiology.

Next to the major roles of steroid receptors in male reproductive function; "orphan" and "adopted" nuclear receptors (NR), such as the Liver X Receptors (LXRs), the Proliferating Peroxisomal Activated Receptors (PPARs) or the Liver Receptor Homolog-1 (LRH-1), have been involved in the impact of lipids on testis. This is supported by data obtained from several transgenic mouse models.

The several roles of these NRs depend on their distinct expression patterns in the male genital tract. Here, we will focus on some orphans and adopted NRs which have been defined as sensors of lipid homeostasis

Increasing our knowledge of the roles of these NRs in male germ cell differentiation could help in proposing new approaches to either treat infertile men or define new strategies for contraception.

Biography

Volle has completed his Ph.D at the age of 28 years from Blaise Pascal University, Clermont-Ferrand, FRANCE (Pr. Lobaccaro's lab) and postdoctoral studies *from Institut de Génétique, de Biologie Moleculaire et Cellulaire*, Illkirch, France (Pr. Auwerx's lab). He is principal investigator in the *Génétique, Reproduction et Development* in Clermont-Ferrand. David VOLLE has been working on nuclear receptor and steroids for 13 years. His researches are focused on testis physiology and male infertility. He has published more than 29 papers in reputed journals and he is serving as an editorial board member of reputed, PLOSone and Spermatogenesis.