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Estrogen/androgen receptors & sex steroid hormone actions in human skin

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Abstract

Advancements in technology and the exchange of scientific information where physicians and patients have a greater awareness of dermal biology spotlight the estrogenic and androgenic hormone actions at sex steroid receptors that play important roles in dermal health. Traditional assays or protein analysis such as cell cultures are used to investigate the influence of a compound on human skin. Conversely, genetic strategies (gene array/mRNA levels) to identify and quantify gene expression are relatively new. Our approach has been to utilize both scientific tools, to examine sex steroid compounds to determine the mechanism of action in describing their ameliorating roles and functions in human skin. The most important steroid receptors in skin are estrogen and androgen receptors. Estrogen receptors (ER) are expressed as subtypes, estrogen receptor alpha (ER α) and estrogen receptor beta (ER β). The predominant subtype of ER in skin is ER β, in keratinocytes and fibroblasts. Androgen receptors (AR) are expressed at lower levels compared to ER β in fibroblasts of the dermis. The ER β and androgen receptors play important roles in human skin health. In general, activation of ER β enhances, whereas, activation of androgen receptors decreases skin health. This presentation will provide a review of skin characteristics, skin aging mechanisms, dermal applications, steroids (estrogens and androgens), sex steroid enzymes and their receptors.

Biography

Edwin Lephart completed his PhD from The University of Texas Southwestern Medical Center in Dallas, Texas, USA. He is professor and associate chairman of the Department of Physiology and Developmental Biology and professor of Neuroscience at Brigham Young University in Provo, Utah USA. He has published more than 80 papers, 10 book chapters and 120 scientific abstracts and studies health benefits of polyphenolic molecules in aging.