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Synthesis and biological evaluation of novel 16-dehydropregnenolone acetate derivatives having an ester function at C-3 and triazole ring at C-21 on the 5 α -reductase isoenzymes and on cancer cells lines

Aylin Viviana Silva Ortiz

Universidad Nacional Autónoma de México, México

Nowadays, Prostate Cancer (PC) and Benign Prostatic Hyperplasia (BPH) are two of the major conditions that affect the male population over 45 years old. The PC occupies the second place worldwide in tumors cause death, while the BPH is the second cause of surgery in some countries as the United States. Both diseases are directly related to the excess of androgens in the body. The main androgens produced by the body are Testosterone (T) and Dihydrotestosterone (DHT). Testosterone, the best known androgen, is converted to DHT, a more potent androgen, by the action of 5 α -reductase isoenzymes. DHT is responsible for sending a signal to the prostate for it to grow, affecting the development of both diseases. Since the inhibition of 5 α -reductase only stops the androgenic action of the testosterone but not his physiological actions, it reduces secondary effects, making this field of research attractive. The aim of this study was design and synthesize new 16-dehydropregnenolone acetate derivatives containing triazole ring at C-21 and a linear ester moiety at C-3 of the steroidal skeleton having potential inhibitory activity against the 5 α -reductase isoenzyme, determine the binding to Androgen Receptor (AR) and the cytotoxic activity on a panel of human cancer cells: PC-3 (prostate), MCF-7 (breast) and SKLU-1 (lung). Furthermore, a study of molecular modeling on AR (rat and human) was done. The results obtained in this study indicated that these steroidal molecules could have anticancer properties and could be used in hormonal therapy.

Biography

Aylin Viviana Silva Ortiz is pursuing PhD from Universidad Nacional Autonoma de Mexico (UNAM). She has a grade in Chemistry and a grade in Music with specialty in Cello. She has 2 papers in reputed journals and 6 months of experience working in Nutrition Institute and Medical Science Salvador Zubiran in Mexico City with specialty in Reproduction Biology. Her work is focus to cancer hormonal treatment and the synthesis of hormonal derivates implemented the concept of green chemistry.

aylinsilva@hotmail.es

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