Ultra structure Study of Hair Damage After Ultraviolet Irradiations

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
قَالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا
عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ
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Contents

List of Abbreviations

APM	:	Arrector pili muscle
CMC	:	Cell membrane complex
Cr	:	Cellular remanants
CTS	:	Connective tissue sheath
DP	:	Dermal papillae
EM	:	Electromagnetic
FCU	:	Fiber cuticle
FCUSM	:	Fiber cuticle surface membrane
HF	:	Hair follicle
IFs	:	Intermediate filaments
IRS	:	Inner root sheath
NB-UVB	:	Narrow band ultraviolet B
ORS	:	Outer root sheath
PAS	:	Periodic-acid-Schiff
RH	:	Relative humidity
SCs	:	Stem cells
SG	:	Sebaceous gland
UVR	:	Ultraviolet rays

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Introduction

Hair is a "keratinized" thread like outgrowth from the skin of mammals. It's a thin, flexible shaft of horny hard cells that develops from a cylindrical invagination of the epithelium. The most obvious function of the hair follicle is to produce a hair shaft, or fibre that fulfill a number of functions, such as, protection against environmental trauma and social communication ***(Stenn and Paus, 2001; Botchkarev and Paus, 2003).***

The human hair follicle is a unique appendage which results from epithelio-mesenchymal interactions between epidermal keratinocytes committed to hair-specific differentiation and cluster of dermal fibroblasts that form follicular papilla. This appendage is one of the most complex miniorgans of the human body, with more than 20 different cell types ***(Botchkarev and Paus, 2003; Bernard, 2005).***

Hairs are found over the entire surface of the skin, with the exception of glabrous skin of the palms, soles, glans penis and vulval introitus. The density of follicles is greatest on the face. Three types of hair are recognized which are lanugo, vellus and terminal hairs ***(Gawkrodger, 1997).***