

An Overview on Melanin

Shankar Kumar*

Department of Dermatology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

Description

Melanin is a term which represents for a group of natural pigments found in most organisms. Melanin word is derived from Greek which means black or dark. Melanin is produced through a multistage chemical process known as melanogenesis, in which the oxidation of the amino acid tyrosine is followed by polymerization. These pigments are produced in a specialized group of cells is called as melanocytes. Eumelanin, pheomelanin, neuromelanin, allomelanin, and pyomelanin are the five primary kinds of melanin. The most prevalent form is eumelanin, which comes in two varieties: brown and black eumelanin. Pheomelanin is a cysteine derivative with polybenzothiazine parts that are responsible for the colour of red hair, as well as other pigments. The brain contains neuromelanin. It has been studied for its efficacy in treating neurodegenerative illnesses such as Parkinson's disease. Both allomelanin and pyomelanin are nitrogen-free melanins.

Melanin is the fundamental determinant of skin colour in humans. Hair, the pigmented tissue beneath the iris of the eye, and the stria vascularis of the inner ear all contain it. The medulla and pigment-bearing neurons inside parts of the brainstem, such as the locus coeruleus, are melanin-containing structures in the brain. It can also be found in the adrenal gland's zona reticularis.

Melanin is produced in the skin by melanocytes, which are situated in the epidermis's basal layer. Although all humans have a similar number of melanocytes in their skin, several people and ethnic groups have different quantities of melanin produced by their melanocytes. Albinism is a condition in which some people's bodies produce very little or no melanin. Because melanin is made up of numerous smaller component molecules, there are many different varieties of melanin, each with its own proportions and bonding patterns. Human skin and hair contain both pheomelanin and

eumelanin, however eumelanin is the most prevalent melanin in humans and the one most likely to be missing in albinism.

Eumelanin

Brown eumelanin and black eumelanin are two different forms of eumelanin. The pattern of polymeric linkages in those two forms of eumelanin chemically differs from one another. Grey hair is caused by a minor amount of black eumelanin in the absence of other pigments. In the absence of additional pigments, a modest amount of brown eumelanin generates yellow (blond) hair.

Pheomelanin

Pheomelanins give skin a yellowish to reddish tint. Lips, nipples, glans of the penis, and vagina are particularly high in pheomelanins. When a minor amount of brown eumelanin in hair is combined with red pheomelanin, the result is orange hair, which is commonly referred to as "red" or "ginger" hair. Pheomelanin is also found in the skin, hence redheads' skin often has a reddish tint to it.

Neuromelanin

Neuromelanin (NM) is a dark insoluble polymer pigment produced by catecholaminergic neurons in certain populations in the brain. Humans have the most NM, which is found in smaller quantities in other primates and is completely absent in many other animals. Although human NM has been proven to readily bind transition metals like iron as well as other potentially hazardous compounds, its biological role is unknown.

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*Address to Correspondence: Dr. Shankar Kumar, Department of Dermatology, All India Institute of Medical Sciences, Rajasthan, India ; E-mail: kumar627@gmail.com

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