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A melanocyte-specific complementary DNA clone whose expression is inducible by melanotropin and isobutylmethyl xanthine

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Kwon, Byoung S.; Halaban, Ruth; Kim, Gwan S.; Usack, Lynn; Pomerantz, Seymour; Haq, Asifa K.

Molecular Biology & Medicine (1987), 4(6), 339-55
CODEN: MBIMDG; ISSN: 0735-1313. English.

Two groups of cDNA clones were isolated by screening a λ gt11 cDNA library of normal human melanocytes with anityrosinase antibodies; one group of 13 was related to the human tyrosinase gene. The properties of the other group of three cDNA clones were investigated by the use of a representative clone, Pmel 17-1. The cDNA hybridized to an mRNA species of approx. 2600 bases from human and murine melanocytes. The transcript of Pmel 17-1 (17-1 mRNA) was expressed preferentially in melanocytes, and its abundance paralleled the melanin content. The expression of Pmel 17-1 mRNA increased after stimulation of human and murine melanoma cells with agents that increase the levels of melanization.

Immunocompetition assays with monoclonal antibodies to gp75, a known pigmentation-associated antigen of melanocytes, suggested that Pmel 17-1 encodes a 75,000 Mr glycoprotein that is highly abundant in melanotic cells and shares some immunol. homol. with tyrosinase. The gene for Pmel 17-1 did not map at or near the c-albino locus in mice. The cDNA of Pmel 17-1 detected a single hybridizing restriction fragment in both human and murine DNA, indicating that the gene has been conserved between these two species and exists as a single gene in each.

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