

# Oculocutaneous Albinism in *Suncus murinus*: Establishment of a Strain and Identification of Its Responsible Gene

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### Abstract :

The house musk shrew *Suncus murinus* (Insectivora, Soricidae) is referred to as suncus in a laboratory context. Although the capture of albino-like shrews (wild suncus) has been reported previously, albino-like strains have never been established, and the molecular basis of the character has remained elusive. We have established an OCAO mutant strain (oculocutaneous albinism Okinawa), from a wild suncus with a white coat and red eyes, which was captured in 2002. During the course of establishing the strain, it was revealed that the albino-like phenotype was inherited in an autosomal recessive manner. To elucidate the molecular basis of this phenotype, we cloned the suncus cDNAs for tyrosinase (*Tyr*), pink-eyed dilution (*p*), and solute carrier family 45, member 2 (*Slc45a2*), since these genes are involved in oculocutaneous albinism in various species, including humans. Several polymorphisms were identified in these genes; however, linkage analysis excluded the involvement of *Tyr* and *p*. On the other hand, two amino acid substitutions (V240A and G366E) were identified in *Slc45a2* that cosegregated with the phenotype in the OCAO mutant strain. While V240A was also present in colored suncus collected from Okinawa, G366E was unique to the albino-like suncus and heterozygous carriers. Thus, we conclude that a mutation in *Slc45a2* (G366E) is responsible for an albino-like phenotype in *Suncus murinus*.

### Key Word :

melanocyte, membrane associated transporter protein, pink-eyed dilution, *Slc45a2*, tyrosinase

Volume 58, Number 1, - 2009, ISSN 1881-7122