

〈講 演〉

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日本人集団における皮膚色素沈着と関連する SNP の進化遺伝学的解析

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**Evolutionary Genetic Analysis of SNPs Associated with Skin Pigmentation
in the Japanese Population**

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Abstract

In a recent genome-wide association study, seven single nucleotide polymorphisms (SNPs) associated with tanning ability in the Japanese population were identified. To assess the tanning ability of individuals, the present study calculated a sunburn type score (STS), reflecting tanning ability, based on the effect sizes of these SNPs and individual genotypes. The population-averaged STS (PA-STS) for the 47 prefectures of Japan revealed that Fukui, Miyagi, Nagasaki, Fukuoka, Ibaraki, and Tottori prefectures exhibited a tendency towards lighter skin, while Nara, Shiga, Oita, and Kagawa prefectures exhibited a tendency towards darker skin. At the prefecture level, no significant association was observed between PA-STS and factors such as latitude (p -value = 0.85, $R^2 = 7.7 \times 10^{-4}$), average elevation (p -value = 0.21, $R^2 = 0.034$), or July's maximum UV index (p -value = 0.41, $R^2 = 0.015$). These findings imply that regional variations in skin color among Japanese individuals have not been solely shaped by natural selection. Furthermore, when the mean STS was estimated for 19 Jomon individuals, it was significantly smaller than that of modern Japanese, suggesting that the Jomon people had a darker skin color compared to modern Japanese.

Key words: pigmentation, SNP, Japanese, Jomon people, skin color.