

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Summary of previously reported genetic studies on skin color.

File Name: Supplementary Data 2

Description: Characteristics of the study participants in discovery set.

File Name: Supplementary Data 3

Description: The interplay between sun exposure variable and age group on skin color.

File Name: Supplementary Data 4

Description: Detailed summary statistics for the 26 lead variants in the discovery and replication GWAS.

File Name: Supplementary Data 5

Description: Independent nonsynonymous variants associated with skin color were identified from a meta-analysis of GWAS ($P < 5.44e-06$).

File Name: Supplementary Data 6

Description: Characteristics of the study participants in the replication set.

File Name: Supplementary Data 7

Description: Characteristics of the study participants in the cross-validation group.

File Name: Supplementary Data 8

Description: The power-adjusted transferability (PAT) ratio of the lead variants in the replication cohort and 10-fold cross-validation of GWAS.

File Name: Supplementary Data 9

Description: SNP-based heritability estimates of female subgroups according to age and partitioned heritability by LD quartiles and MAF quintiles.

File Name: Supplementary Data 10

Description: Functional enrichment analysis using DEPICT at skin color trait-associated loci.

File Name: Supplementary Data 11

Description: Colocalization between GWAS results and eQTL in multiple tissues (PP.H4 > 0.8 were considered as colocalized).

File Name: Supplementary Data 12

Description: Single-cell level gene expression of CIE LAB value-associated genes.

File Name: Supplementary Data 13

Description: Worldwide allele frequency of GWAS lead variants, absolute latitude, and mean annual solar radiation.

File Name: Supplementary Data 14

Description: Characteristics of the unrelated study participants by polygenic score group.