Chinese ($p=0.049$) and in Caucasians ($p=0.028$). In GSE11430 monocyte samples, UBE2L6 (201649_at) was significantly correlated with STAT1 (200887_s_at) ($r=0.93$, $p=0.021$), but not correlated in macrophage samples ($p=0.986$). STAT1 binding peak was enriched up to 277 in UBE2L6 region, strongly implying STAT1 directly regulated UBE2L6 expression. UBE2L6 gene encodes a member of the E2 ubiquitin-conjugating enzyme family for protein degradation. It was reported UBE2L6 was involved in the interferon and NF-κB pathways, which were likely to increase osteoclastogenesis.

Conclusions: UBE2L6 gene was highly correlated and directly regulated by STAT1, and both played important roles in bone metabolism.

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THE JOINT EFFECT OF VITAMIN D RECEPTOR GENOTYPE AND PHYSICAL ACTIVITY ON OSTEOPOROSIS IN COMMUNITY-DWELLING ELDERS IN TAIWAN: TAICHUNG COMMUNITY HEALTH STUDY FOR ELDERS (TCHS-E)

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Aims: The aim of this study was to evaluate the joint association of the vitamin D receptor (VDR) variability and physical activity with osteoporosis (OST), by investigating two single-nucleotide polymorphisms (SNPs) in community-dwelling elders in Taiwan.

Methods: Subjects comprised 103 OST cases (36 men and 67 women) and 369 controls (215 men and 154 women). Mean ages (73.8 years) of the two groups were similar. SNPs rs2239185 and rs3782905 of the VDR gene were evaluated. BMD of the lumbar spine (L1-L4, LS), femoral neck (FN), and total hip (TH) were measured with DXA (GE-Lunar DPX Pro, Lunar Corporation, Madison, WI, USA). OST for each specific site was defined as a person whose site-specific BMD T-score value≤-2.5 SD according to the WHO diagnostic criteria. Individuals with physical activities were those who had been currently involved in regular leisure time activities at least once a week for at least 30 min for at least 6 months.

Results: No remarkable sex difference in genotype distribution was detected for all polymorphisms. The minor alleles of SNPs rs2239185 and rs3782905 were A (men: 32.2 %, women: 28.4 %) and C (men: 25.6 %, women: 32.6 %), respectively. We observed significant joint effects of physical activity and SNP rs2239185 on overall OST, OST at FN, and OST at LS in men. Inactive men carrying the AG or AA genotype of SNP rs2239185 had a significantly higher risk of overall OST, OST at FN, and OST at LS than those active men carrying the GG genotype (odds ratio [95%CI]: 3.57 [1.10–11.65], 5.06 [1.08–23.71], and 4.74 [1.43–15.70], respectively). Similarly, our study demonstrated that there existed significant joint effects of physical activity and SNP rs3782905 on OST at FN in women. Inactive women with the CC genotype of SNP rs3782905 had a significantly higher risk of OST at FN than those active women with the GG genotype (5.33 [1.23–23.06]). Moreover, in women with physical activity, those carrying the CC genotype of SNP rs3782905 were significantly at higher risk for overall OST (2.50 [1.15–5.47]) and OST at TH (3.60 [1.02–12.69]) than those carrying the GG genotype. Among individuals with the GG genotype of SNP rs3782905, no physical activity was associated with an increasing risk on OST at TH in women (3.80 [1.11–13.05]) and OST at LS in men (3.74 [1.22–11.45]).

Conclusions: We conclude there exists a joint association of polymorphisms in VDR gene and physical activity on the risk of osteoporosis for elders in Taiwan.

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BIVARIATE GENOMEWIDE ASSOCIATION ANALYSES IDENTIFIED GENETIC PLEIOTROPIC EFFECTS FOR ALCOHOL DRINKING AND BONE MINERAL DENSITY IN CAUCASIANS

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Aims: Several experiments indicated alcohol intake and BMD might share common genetic pathways. The present study in the whole genome level was to explore the candidate SNPs/genes related with both phenotypes.