

**SERUM CONCENTRATIONS OF ALBUMIN AND
COMMON GENETIC VARIANTS OF X-LINKED
NEUROLIGIN 4 ON 73KB: TAICHUNG COMMUNITY
HEALTH STUDY FOR ELDER (TCHS-E)**

探討老人血清白蛋白濃度受 NLGN4X 基因多型性的影響

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Background: Serum albumin level has been used as markers of nutritional status. Malnutrition is defined as “a state induced by nutrient deficiency that may be improved solely by administration of nutrients.” Persons who are at increased nutritional risk are associated with inflammation. Common genetic variants (rs1840485 and rs7885458) of X-linked neuroligin 4 on 73kb have been reported to be associated with fibrinogen level by a genome-wide association study. The aim of this study was to determine if single nucleotide polymorphisms (SNP) rs1840485 and rs7885458 of X-linked neuroligin 4 on 73kb are associated with albumin in Taiwanese elders.

Methods: Two SNPs (rs1840485 and rs7885458) of X-linked neuroligin 4 on 73kb were genotyped in a total of 472 unrelated elders (251 males and 221 females). Both of these two SNPs have two alleles, A and G, resulting in three genotypes, A homozygotes (AA), heterozygotes (AG), and G homozygotes (GG). Linkage disequilibrium (LD) was analyzed for these two SNPs. Serum albumin concentration was analyzed by a biochemical autoanalyzer (Beckman Cou, Fullerton, CA, USA) and low albumin was defined as albumin ≤ 3.8 g/ml (33 elders as low albumin and 439 elders as normal albumin).

Results: The minor allele frequency of rs1840485 and rs7885458 were A and G, respectively, which corresponding to proportions of 0.0096 and 0.1004, respectively. After adjusting for age and gender, our study indicates that SNP rs7885458 G/A genotype was significantly associated with decreased albumin ($\beta = -0.146$ mg/dL, $p < 0.05$) but SNP rs1840485 was not associated with albumin. In addition, the adjusted odds ratios of low albumin were 3.02 (95% CI: 1.39-6.55) among elders with SNP rs7885458 G/A genotypes compared with elders with GG genotype. After adjusting for age and gender, our study indicates that elders with A-A-G haplotype was significantly associated with decreased albumin ($\beta = -0.08$ g/ml, $p = 0.028$) compared to those with A-G-A haplotype, but A-A-G haplotype was not found enhance the risk of abnormal albumin.

Conclusion: We conclude that polymorphism rs7885458 in the X-linked neuroligin 4 on 73kb affects albumin, indicating rs7885458 appears to be a susceptibility biomarker of albumin. But further study may be required.