

Poster

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## Poster 35

### [P-35-01] Affective Responses to Stress and Genetic Variation of rs4570625 in Thai Medical Students

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Mental health challenges, including stress-related emotional difficulties, are common among medical students due to the demanding academic and clinical responsibilities. Multiple factors act in concert to produce variability in emotion, among them being genetic factors. Tryptophan Hydroxylase 2 (TPH2), a key enzyme in serotonin synthesis, has been implicated in individual differences in stress reactivity and affect regulation. This study examines the association between rs4570625 variation, and emotion response to psychosocial stressors.

The study involved 338 Thai preclinical medical students. Participants rated their emotion using the Thai adaptation of the Positive and Negative Affect Schedule (PANAS). Demographic variables, perceived psychosocial stressors, and preferred coping strategies were collected as potential covariates. Participants provided consent for the analysis of their leftover blood specimens, from which DNA was extracted for rs4570625 genotyping by TaqMan SNP Genotyping Assays with StepOnePlus® Real-Time PCR Systems. The genotype effects and interactions with stress on mood were analyzed using generalized linear models.

Controlled for stressors, coping preference, and other covariates, individuals with the T/T genotype reported significantly lower negative affect scores compared to the G/G group ( $B = -1.13$ ,  $p = 0.003$ ), with the G/T group also showing a smaller but significant effect ( $B = -0.70$ ,  $p = 0.038$ ). The T/T genotype was also associated with higher positive affect and moderated the negative impact of stressors on positive affect ( $B = 0.39$ ,  $p = 0.044$ ), preserving emotions under stress.

The rs4570625 with T allele, particularly in T/T homozygotes, appears to be associated with more favorable emotional profiles—lower negative affect and greater maintenance of positive affect under stress. These findings suggest a possible role of TPH2 genetic variation in emotional variation and resilience.