

EFFECTS OF OREXIN-A ON RAT THERMOREGULATION: THE ROLES OF PROSTAGLANDIN E₂

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The hypothalamus plays a central role in the integrated control of thermoregulation. A novel neuropeptides called orexins have been identified and distributed densely in the hypothalamus. The present study wants to elucidate the mechanism of orexin on thermoregulation. Male Sprague-Dawley rats were used in this study. The effects of orexin on colonic temperature in unanesthetized rats acclimated to a rat restraining stock. Colonic temperature was measured by using copper-constantan thermocouples. Cerebral prostaglandin E₂ (PGE₂) was determined by ELISA. All drugs were prepared in pyrogen-free glassware and containers. Intracerebroventricle administration of orexin induced dose-dependent rise in the colonic temperature. Pretreatment of indomethacin, a PGE₂ synthesis inhibitor, significantly attenuated the fever induced by orexin injection. Our results suggest that the effect of orexin on thermoregulation were mediated by PGE₂.

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