## Pharmacological analysis of the AMP-activated protein kinase in the regulation of food intake in the blowfly, *Phormia regina*

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AMP-activated protein kinase (AMPK) is a serine/threonine kinase that is evolutionarily conserved from yeast to mammals and functions as a 'fuel gauge' to monitor cellular energy status. An important function of AMPK other than monitoring of cellular energy status was reported to be regulation of food intake by responding to hormonal and nutrient signals in the mouse hypothalamus. In this study, we examined the possibility that AMPK also contributes to the regulation of food intake in the blowfly. We first investigated whether pharmacological activation or inhibition of AMPK could affect the proportion of flies showing proboscis extension reflex (PER) to sucrose. Thorax injection of Compound C, the selective AMPK inhibitor, decreased the proportion of flies showing PER to sucrose. On the other hand, thorax injection of 5-aminoimidazole-4-carboxamide-1-β-d-ribofuranoside (AICAR), the pharmacological activator of AMPK, increased the proportion of flies showing PER to sucrose. We next examined whether the activation of AMPK modulates the amount of food intake in the fly. We observed that, the injection of AICAR increased the amount of food intake compared with controls. These results suggest that AMPK is a key enzyme in the regulation of food intake in the blowfly.