

Title DEVELOPING OF HUMAN CHROMOGRANIN A
PROTEIN AS AN ANTI-COAGULATION AGENT

Author Thidarat Promma

Advisor Associate Professor Sukkid Yasotornsrikul, Ph.D.

Co-Advisor Sittiruk Roytrakul, Ph.D.

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ABSTRACT

Chromogranin A (CgA) is secreted from chromaffin cells in adrenal medulla and processed by plasmin to bioactive peptides that feed back to regulate secretagogue-stimulated release. Recent studies suggest a novel role of recombinant chromogranin A the ability to enhance plasminogen activation. However, the structural region on chromogranin A responsible for the enhancement of plasminogen activation is not yet understood. The objective of this study was to reconstruct recombinant human CgA clones with various lengths in order to identify the structural region responsible for the enhancement of the plasminogen activation. pET21b(+)-human CgA plasmid was constructed by PCR amplification. The recombinant human CgA fragments lacking self-termination codon were cloned into the expression vector, pET21b(+). The recombinant hCgA-His6 proteins were expressed, characterized by western blotting, and purified. Their plasminogen activation function were assessed and evaluated. Our data showed that the truncated hCgA₁₋₂₄₉ is the best enhancer of plasminogen activation. The data suggest that the CgA demonstrated a far better enhancer property for plasminogen/plasmin activation process via tPA than the control at the neutral pH approximately one order of magnitude. This study revealed a novel regulatory mechanism of neurotransmitter release by plasminogen/plasmin activation by tPA with the CgA enhancer in neuroendocrine system.