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Bacterial overexpression and purification of Vps34-binding domain of Beclin 1

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Beclin 1 recruits several autophagy-specific factors such as ATG14L and UVRAG, on the catalytic subunit of Class III Phosphatidylinositol-3-kinase (known as Vps34) to form an autophagy-initiating PIK3C3/VPS34 complex. Beclin 1 contains several characteristic protein-protein interaction domains for a variety of proteins that determine the function of the resulting complex. Therefore, the investigation of these domains is important to understand the roles of Beclin 1 as a scaffolding subunit of PIK3C3/VPS34 complex. In the present study, we have prepared the bacterial overexpression system to obtain Vps34-binding domain of Beclin 1 (Vps34-BD), but the proteins was quite unstable and presented as an inclusion body in *E. coli*. With several condition tests for protein expression and purification, we have set up the optimized protocol with the denaturing purification method. Vps34-binding assay has confirmed that the bacterially-purified Vps34-BD is soluble and functional.

Biography

Juneyoung Jung has completed his undergraduate study in Daejin University, Korea. Currently, he is a graduate student of Master/PhD combined program in the Department of Life and Nanopharmaceutical Sciences Graduate School, Kyung Hee University, South Korea. His research project is to developed inhibitory peptides in autophagy. He was involved in a project of a protein fragment of Beclin 1 that is known to be a binding domain of VPS34 purification using *E. coli*. Presently, he continues work on the development of specific peptides which has inhibitory effect on VPS34 complex.

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