

# Sardjito Hospital Doctor Examines Autophagy Expression of Breast Cancer Patient

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Doctor of Dr. Sardjito General Hospital, R. Artanto Wahyono, has examined the association between expression of Beclin-1 and mTOR autophagy-related proteins with clinicopathological characteristics, recurrence, and survival rate in operable breast cancer patients.

Autophagy itself acts as a mechanism for responding to stress to protect cancer cells from low nutrient supply or therapeutic effects.

“The metabolic adaptation of cancer cells is essential for the adaptation to tumor microenvironment and for maintenance of tumor growth. Autophagy is a catabolic pathway with a fundamental role in this adaptation,” he explained in his doctoral thesis public examination at Faculty of Medicine, Public Health, and Nursing, Monday (7/23).

Depending on the context, he said, autophagy can cause cell death or improve tumor inhibition. Malignant transformation is often associated with emphasis on autophagy. The implication of tumor suppressors such as Beclin-1 on autophagic pathway indicates the important role of autophagy deficiency in cancer formation.



“The question about whether autophagic activity in cells leads to death or is it actually an attempt to support survival rate as a cellular stress response has been discussed with great controversy,” he added.

Three main modules of autophagy initiation found three essential substances, including mTOR, Beclin-1, and Ca<sup>2+</sup>. Artanto argued that it is important to find out whether the substances are present since the early stage of breast cancer. This is related to therapy failures although the standard process is implemented.

He said autophagy-related proteins Beclin-1 and mTOR can be examined in breast cancer tumor tissue obtained from mastectomy surgery. It is important to know the expression of autophagy-related proteins Beclin-1 and mTOR with locoregional recurrence, distant metastasis, and survival rate in operable breast cancer.

“This study showed no association between the studied clinicopathologic status with the expression of mTOR and Beclin-1. In the survival rate analysis, there is no statistically significant association between mTOR and Beclin-1 expression with locoregional recurrence, distant metastasis, and survival rate.”

He added the expression and roles of autophagy are different in tumorigenesis. Both can also be different in the process of recurrence and metastasis. Additionally, breast cancer patients can have different outcomes due to the autophagy process in cancer stem cells. In this circumstance, cancer stem cells use the autophagy process to survive a life-threatening environment.

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