LRBA: A Possible Key Player in Cancer Cell Autophagy

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Chemotherapy is frequently the only viable treatment for cancer patients. But tumor cells are capable of adapting and developing resistance to this treatment. Autophagy, the cell's recycling process, is thought to be key in tumor cells' ability to become chemoresistant. By studying how autophagy is regulated, specific proteins may be identified that can serve as potential therapeutic targets to override chemoresistance. Atg9, one core regulator of autophagy, was recently found to interact frequently with LRBA in a mass spectrometry analysis. LRBA is a novel regulator of human immune disorders, but little is known about it in the context of cancer cell autophagy. In my experiment, I aimed to identify whether LRBA plays a role in cancer cell autophagy by conducting a colocalization experiment of LRBA and Atg9. I found that the proteins strongly colocalized under basal conditions, thus possibly indicating LRBA as a key to autophagosomal vesicle trafficking. More research is being conducted, including a colocalization of LRBA with LC3 and Atg9 under nutrient-deprived conditions in order to gauge the impact of LRBA on autophagic activity.

Awards Won: