Engineering a Novel Oleocanthal-Based Nanocarrier for Drug Delivery

Nguyen, Mai

There are currently many drawbacks associated with using nano- drug carriers. In order to remediate some of those drawbacks, research will be conducted on engineering a novel oleocanthal nanocarrier and investigated on cancerous and noncancerous breast cells. By employing oleocanthal as a carrier for drug delivery, this could provide the potential for amplified cancer treatment when coupled a reliable drug. For this research study, oleocanthal was isolated from extra- virgin olive oil. Oleocanthal, in the concentrations of low, medium, and high, were added to the cells. Cell viability between the cancerous and noncancerous cells was analyzed in order to investigate lysosome differentiation induced by oleocanthal. The researcher initially hypothesized that oleocanthal would be able to differentiate between cancerous and noncancerous cells, the isolated phenol would be able to decrease cancerous breast cell viability. Following 48 hours after treatment of oleocanthal, there was a negative correlation between cell viability in the cancerous cells. The noncancerous breast cells showed very little significant variability in cell viability upon addition of the oleocanthal, meaning that the phenol does have the potential to differentiate between cancerous and noncancerous cells. With further research, being able to definitely conclude cancer cell sensitivity to this compound could make it highly desired for therapeutic methods and treatments. The next step to this project would be to actually create a novel drug carrier using oleocanthal that will have the capacity to effectively carry drugs and transform cancer treatment.

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