Understanding the Molecular Mechanisms Underlying the Anticancer Pathway of a Traditional Hawaiian Herb

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Neuroblastoma is one of the most severe tumors in young children with nearly 500 new cases reported each year. Although medications for this disease exist, current treatments are often inefficient and have detrimental side effects. As a result, there is an urgent demand for an effective yet safer anticancer reagent. In light of recent research, natural products derived from plants have been shown to be more tolerable anticancer reagents. Hawai?i is a place of exceptionally rich culture with extensive traditional medicinal knowledge. Native Hawaiians often took advantage of the biodiversity that Hawai?i boasted and used a variety of its herbs for disease treatment. However, due to the lack of research on these medicinal herbs' effects and molecular mechanisms, much of this cultural potential remains unrealized. Thus, this project aims to quantitatively analyze the effects of traditional Hawaiian herbal medicine and apply this knowledge into modern applications such as cancer treatment. Through a wide literature screening, Zingiber zerumbet was found to be a promising candidate for anticancer research due to its usage in native Hawaiian medicine. However, Zingiber zerumbet's effects on neuroblastoma have not been researched and more importantly, its detailed molecular mechanisms remain undiscovered, greatly hindering the development of a promising anticancer reagent. Here, the anticancer effects of Zingiber zerumbet were studied and more critically, a novel antioxidant mediated molecular mechanism underlying its anticancer activity was identified. By elucidating the anticancer mechanisms of Zingiber zerumbet, this research will be able to provide valuable information for the future design of safer anticancer drugs.

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