

# Food has a power: Erucin for a new promising therapeutic strategy against breast cancer

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Breast cancer is the most frequent form of cancer occurring in women of any age. Among the different types, the triple-negative breast cancer (TNBC) subtype is recognized as the most severe form, being associated with the highest mortality rate. Currently, there are no effective treatments for TNBC. For this reason, the research of novel therapeutics is urgently needed. Natural products and their analogs have historically made a major contribution to pharmacotherapy and the treatment of various human diseases, including cancer. In this study, we explored the potential anti-cancer effects of erucin, the most abundant H<sub>2</sub>S-releasing isothiocyanate present in arugula (*Eruca sativa*) in MDA-MB-231 cells, a validated in vitro model of TNBC. We found that erucin, in a concentration-dependent manner, significantly inhibited MDA-MB-231 cell proliferation by inducing apoptosis and autophagy. Additionally, erucin prevented intracellular ROS generation promoting the expression of key antioxidant genes and halted MDA-MB-231 cell migration, invasion, and colony formation. In conclusion, using a cellular and molecular biology approach, we show that the consumption of erucin could represent a novel and promising strategy for intervention against TNBC.

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