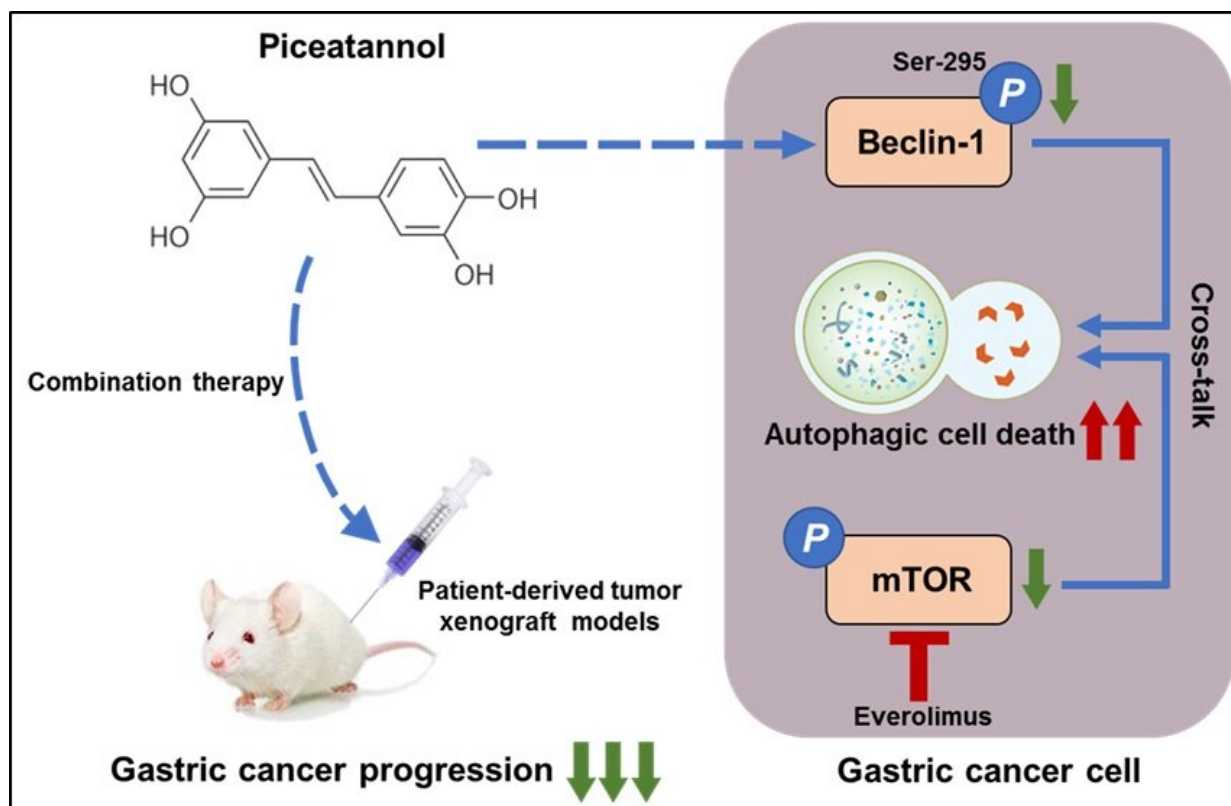


Chinese medicine ingredients found to generate autophagic flux to suppress tumor progression in gastric cancer

October 28 2022



Activation of Beclin-1 by piceatannol promotes autophagic flux in GC cells, and combined with everolimus, triggers autophagic death, ultimately inhibiting tumor progression, and providing a new approach to GC treatment. Credit: Science China Press

A diet of fresh fruits and vegetables may reduce the prevalence of cancers, including gastric cancer (GC). In addition, clinical studies have found that certain biologically active dietary molecules can inhibit multiple steps in the pathways associated with carcinogens.

Piceatannol (trans-3,4,3',5'-tetrahydroxystilbene), an analog of resveratrol, is a naturally occurring polyphenolic compound present in approximately 70 plant sources, including passion fruit, rhubarb, and legumes . This compound was first reported as a bioactive antitumor molecule in 2003.

Subsequent reports indicated that piceatannol affects diverse pathways and exerts an antitumor effect on several types of [cancer](#), including [colorectal cancer](#), [lung cancer](#), and lymphoma. Hence, piceatannol may be an effective drug for GC treatment. Indeed, investigating the effects induced by its comparative bioactive properties have become a focus in relevant research fields.

In a study published in *Science China Life Sciences*, a research team investigated piceatannol as a potential targeting agonist of Beclin-1, assessing its efficacy as an antitumor agent against GC. To this end, this group employed multiple human GC cell lines as well as a murine xenograft model. Results showed that piceatannol inhibits [cell proliferation](#) and enhances autophagic activity in GC cells.

Moreover, piceatannol was found to directly target Beclin-1 by inhibiting its phosphorylation at Ser-295, a canonical locus for the negative regulation of autophagic activity, thus, increasing autophagic flux through the Beclin-1-dependent pathway in GC cells. The team analyzed the synergistic antitumor activity of compounds known to regulate and interact with the Beclin-1 network.

Collectively, this research suggested that piceatannol, in combination

with the mTOR inhibitor, everolimus, exhibits strong synergistic effects over a wide range of dose responses, proving to be an attractive therapeutic strategy for GC.

More information: Longtao Huangfu et al, Piceatannol enhances Beclin-1 activity to suppress tumor progression and its combination therapy strategy with everolimus in gastric cancer, *Science China Life Sciences* (2022). [DOI: 10.1007/s11427-022-2185-9](https://doi.org/10.1007/s11427-022-2185-9)

Provided by Science China Press

Citation: Chinese medicine ingredients found to generate autophagic flux to suppress tumor progression in gastric cancer (2022, October 28) retrieved 8 May 2024 from <https://medicalxpress.com/news/2022-10-chinese-medicine-ingredients-autophagic-flux.html>

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