

# Matcha green tea kills cancer stem cells in tests

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Matcha, the green tea packed with antioxidants, is often hailed as containing properties which prevent disease. Scientists in Salford, UK have shed a ray of light on the claim by testing it on cancer stem cells –

with surprising results.

In research published in the journal *Aging*, a team from the Biomedical Research Centre at the University of Salford, used metabolic phenotyping on cell lines of breast [cancer stem cells](#) and found that matcha "shifted [cancer](#) cells towards a quiescent metabolic state" and stopped their spread at a relatively low concentration (0.2 mg/ml).

They also found that the signaling pathways that promote cancer stem cells indicated that matcha "strongly affected mTOR signals, weakening components of the 40S ribosome." This raised the possibility that matcha could be used in place of chemical drugs such as rapamycin.

Michael Lisanti, professor of translational medicine at the centre, explained: "Matcha [green tea](#) is a natural product used as a dietary supplement with great potential for a range of treatments. But the molecular mechanism underpinning all that remains largely unknown.

"By using metabolic phenotyping, we found that the tea is suppressing oxidative mitochondrial metabolism – in other words, it is preventing the cells from 're-fuelling,' and therefore, they become inactive and die.

"The effects on human [breast cancer cells](#) were very striking, the active ingredients in matcha having a surgical effect in knocking out certain signalling pathways. Our results are consistent with the idea that matcha may have significant therapeutic potential, mediating the metabolic reprogramming of cancer cells."

The team, which specialises in identifying nontoxic methods of killing cancer stem cells, recently found that an Earl Grey tea ingredient, bergamot, kills [cancer cells](#) and works as an anti-cholesterol agent.

**More information:** Gloria Bonuccelli et al. Matcha green tea (MGT)

inhibits the propagation of cancer stem cells (CSCs), by targeting mitochondrial metabolism, glycolysis and multiple cell signalling pathways, *Aging* (2018). [DOI: 10.18632/aging.101483](https://doi.org/10.18632/aging.101483)

Provided by University of Salford

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