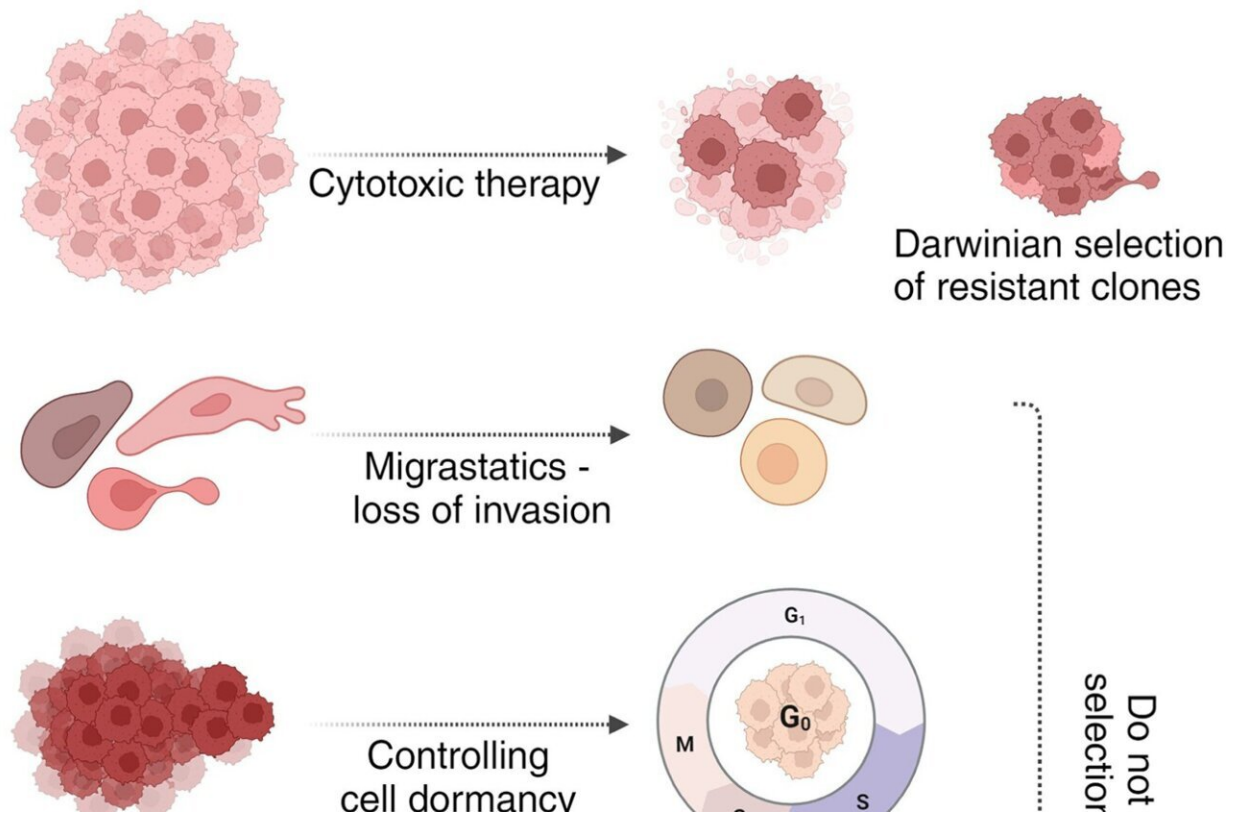


Development in cancer treatment focuses on re-educating cells to combat resistance

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Overview of strategies for cancer treatment avoiding Darwinian selection of resistant clones.

In a development in cancer research, scientists are exploring new therapeutic strategies that move beyond traditional cytotoxic treatments,

which have historically targeted uncontrolled cell proliferation.

"These conventional methods often result in the survival of resistant cancer cells, ultimately leading to [tumor progression](#) and treatment failures," said correspondent author of the study, professor Jan Brábek from the Faculty of Science, Charles University. In response, researchers are now focusing on alternative approaches aimed at modifying cancer cell behavior to prevent the development of resistance.

The work is [published](#) in the journal *Trends in Molecular Medicine*.

The new strategies, as detailed in recent scientific findings, include:

1. Controlling Cell Dormancy—By regulating the dormancy of cancer cells, researchers aim to prevent them from proliferating uncontrollably.
2. Transdifferentiation Therapy—This approach encourages cancer cells to change into less harmful types, potentially reducing their malignancy.
3. Normalizing the Cancer Microenvironment—By correcting the environment around cancer cells, this strategy aims to inhibit their growth and invasiveness.
4. Migrastatic Therapy—Focusing on preventing the migration of [cancer cells](#), this [therapy](#) aims to stop cancer from spreading to other parts of the body.

"Unlike traditional methods, these innovative approaches do not provide resistant cells with a direct proliferative advantage. This key difference means that even if some cells adapt, they do not lead to aggressive or resistant tumors," said Brábek.

Thus, these strategies hold substantial promise in effectively delaying or even preventing the development of therapy-resistant tumors, offering

new hope to patients worldwide.

More information: Aneta Škarková et al, Educate, not kill: treating cancer without triggering its defenses, *Trends in Molecular Medicine* (2024). [DOI: 10.1016/j.molmed.2024.04.003](https://doi.org/10.1016/j.molmed.2024.04.003)

Provided by Charles University

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