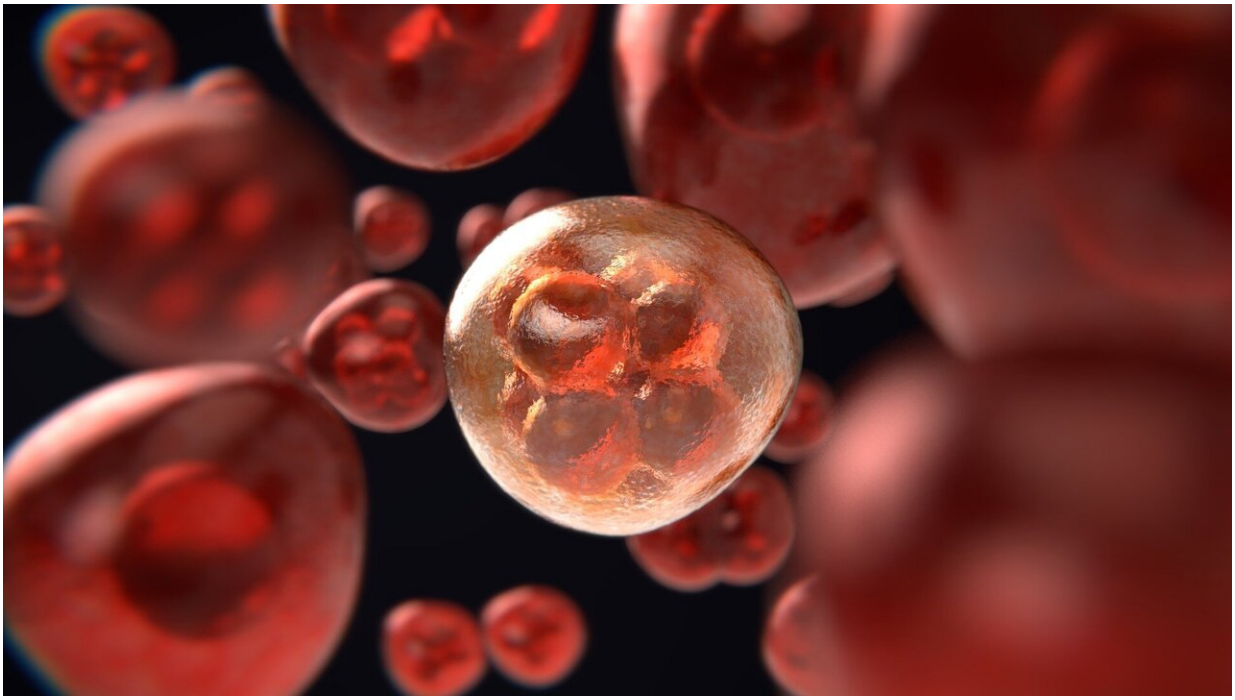
Cytostatic persister cancer cells: Therapeutic opportunities and challenges

December 13 2023



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A new editorial paper titled "Therapeutic potentials and challenges of cytostatic persister cancer cells" has been published in *Oncotarget*.

Cancer cells that remain viable despite treatment constitute a persister condition that is implicated in residual diseases and a source from which resistant clones and relapses can emerge. Unlike resistant cells that are

capable of cycling under therapy, persister cancer cells stay viable but assume a quiescent or non-proliferating state that is reversible upon treatment discontinuation. A source of persisters that has been under extensive study is drug-tolerant persisters, a small cancer cell population that can withstand the selection pressure of cytotoxic treatment and have been attributed to failure in achieving complete response.

It is well-recognized that many targeted therapeutic agents possess cytostatic effects that suppress growth without directly inducing cell death. While representing favorable responses, treatment-mediated cytostatic conditions require continual maintenance and intrinsically confer an obligate persister population throughout therapy. However, few efforts have focused on understanding the properties of such cytostatic persisters and exploring their therapeutic potentials.

In their new editorial, researchers Paul Y. Kim and Cheuk T. Leung from the University of Minnesota Medical School discuss recent studies from their group exploring the cellular controls in persister cancer cells under treatment-mediated cytostatic conditions and devised strategies for targeting to reduce cancer recurrence. Findings shed light on the cellular controls in cytostatic persisters and highlighted that treatment-mediated cytostatic condition before resistance emerges is a viable targeting venue to reduce cancer recurrence.

"The distinct vulnerabilities of cytostatic and drug-tolerant persisters imply that administering multiple targeted regimens would be necessary to effectively deplete the persister reservoirs in patients under cancer treatments," the authors state.

More information: Paul Y. Kim et al, Therapeutic potentials and challenges of cytostatic persister cancer cells, *Oncotarget* (2023). DOI: 10.18632/oncotarget.28488