

New drug screening identifies chemical agents with potent anti-cancer activity

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Drugs already approved for clinical use across a variety of therapeutic categories can be screened to identify effective agents for thyroid cancer according to a recent study accepted for publication in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism (JCEM)*. These findings could rapidly be implemented into a clinical trial to test how effective the treatment would be.

The discovery of new chemical agents capable of modulating a disease is a long and expensive process. An alternative approach that is just beginning to be explored is the potential repurposing of already established drugs which have been approved for clinical use. The current study examined the newly assembled National Institutes of Health (NIH) Chemical Genomic Center's pharmaceutical collection, which contains 2,816 approved drugs and bioactive compounds and sought to identify agents with an anti-cancer effect in [thyroid cancer](#) cell lines.

"To our knowledge, this is the first study to use such a large collection of clinical drugs to test anti-proliferative effect in cancer cells," said Electron Kebebew, MD, of the National Cancer Institute in Bethesda, MD and lead author of the study. "The compounds found to have potent activity in our screen represent possible opportunities to repurpose these drugs for the treatment of patients with aggressive recurrent or metastatic thyroid cancer."

In this study, researchers used a quantitative high-throughput screening (qHTS) approach to examine the effect of 2,816 clinically approved

drugs on thyroid cancer cells. qHTS is a titration-based screening paradigm where compounds are screened at multiple concentrations. By employing this approach, researchers found numerous agents across different therapeutic categories and mode of action that had an anti-cancer effect.

"Clinicians can more readily translate these findings into therapy when the [drug](#) characteristics are well-known. The drugs can then be used in developing clinical trials or in some cases for off-label use," said Kebebew. "Furthermore, qHTS could be used for identifying therapeutics not only for cancer, but for many other diseases."

More information: The article, "Quantitative high-throughput drug screening identifies novel classes of drugs with anticancer activity in thyroid cancer cells: Opportunities for repurposing," appears in the March 2012 issue of *JCEM*.

Provided by The Endocrine Society

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