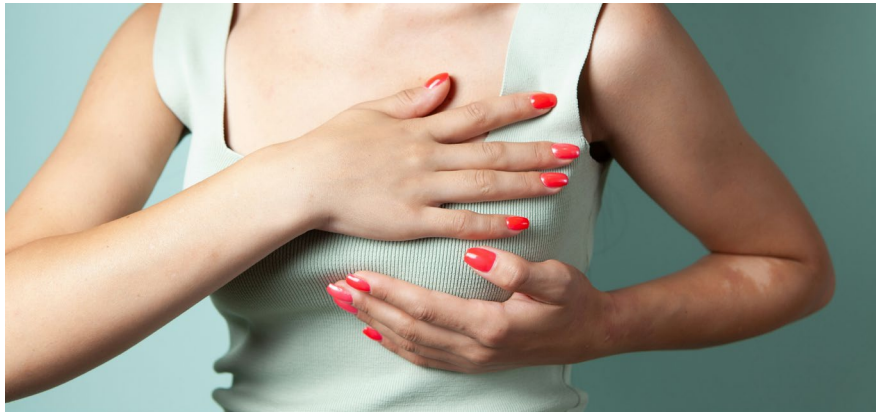
Technology Offer CSIC/AH/056

CCTBloCk, repurposed drugs as breast cancer therapy



Two repurposed drugs have been identified that act by inhibiting CCT, an essential chaperone in tumor proteostasis and the folding of key proteins for tumor proliferation, migration, and invasiveness.

Intellectual Property

European patent has been filed

Stage of development

Efficacy tested in cellular models

Intended Collaboration

Licensing and/or co-development

Contact

Ana Sanz Herrero, PhD

Vice-presidency for Innovation and Transfer

ana.sanz@cnb.csic.es
comercializacion@csic.es

Market need

There is a significant need for the development of new therapies for triple-negative breast cancer (TNBC) primarily due to its aggressiveness, its lack of the three hormone receptors used in standard therapies, and the heavy reliance of current therapies on chemotherapy. Approved treatments have improved the field but have not closed the efficacy gap, especially in metastatic and difficult-to-treat TNBC. Ongoing clinical development and market growth reflect a sustained demand for more effective, targeted, and durable therapies.

Proposed solution

CCT levels are associated with the prognosis and survival of triple-negative breast cancer (TNBC). In TNBC model cells, the compounds have been shown to inhibit cell growth significantly more effectively than in healthy cells (IC50 2-8 μM). Furthermore, these molecules reduce the migratory capacity of tumor cells. This effect is related to impaired formation of actin filaments, one of the substrates of CCT.

Additionally, for one of the compounds, a high-resolution 3D reconstruction of the drug bound to the protein has been generated, enabling the future development of new drugs targeting this protein.

Competitive advantages

- The compounds target a relatively unexplored target, the CCT chaperone.
- Beyond its application in breast cancer, this strategy could be extrapolated to other tumors with overexpression or functional dependence on CCT.
- The research group's expertise in the purification, characterization, and structural analysis of CCT provides a particularly strong position to develop drugs targeting this pathway.