

Researchers identified a protein useful in predicting the risk of pulmonary metastases in breast cancer patients

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Researchers from the Bellvitge Biomedical Research Institute (IDIBELL) have shown that breast cancer cells that metastasize to the lung express a higher level of the protein peroxiredoxin 2 (PRDX2). The study suggests that the modulation of the levels of this protein could be a new therapeutic strategy to prevent lung metastases. The study results have been advanced in the online edition of the journal *Oncogene*.

PRDX2 is an oxidation-reduction enzyme that protects cells against [free radicals](#) and hence from oxidative stress. This is necessary in [lung cells](#) living in an environment with plenty of oxygen. In [breast cancer cells](#), overexpression of PRDX2 also protects against oxidative stress and promotes growth and proliferation in the lungs, i.e. metastasis.

New therapeutic and preventive approach

The team coordinated by the researcher of the Biological clues of the invasive and metastatic phenotype group at IDIBELL, Àngels Sierra, conducted several experiments in cell lines and in mice animal models which show that low levels of PRDX2's expression in tumour cells are sufficient to stop metastatic process in the lung.

"These findings," said Sierra, "suggest that modifying the expression of PRDX2 could lead to a new therapeutic approach to prevent lung metastases, as there are drugs already being tested in other diseases,

capable of inhibiting the protein".

For Sierra, the next step "is to validate a sufficient number of patients with high expression of this protein as a risk biomarker of lung metastases in [breast cancer](#). So, these patients could receive adjuvant therapy to chemotherapy to prevent lung metastases."

This study has been also developed by researchers from the INSERM of Lyon, the Biomedical Research Institute of Lleida, the University of Barcelona and the Institute of Photonic Sciences (ICFO).

Provided by IDIBELL

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