

## A promising drug to treat lung cancer

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*A clinical study reports that the specific blocking of a receptor essential to tumor progression significantly improves the survival of patients with lung cancer.*

One of the greatest advances in cancer treatment has been the development of targeted therapies, capable of specifically blocking the biochemical activity of oncogenes involved in the uncontrolled growth of cancer cells.

One of the best-known examples is undoubtedly trastuzumab (Herceptin), an antibody which specifically neutralizes the HER-2/neu oncogene present on the surface of breast cells and which has completely revolutionized the treatment of breast cancer in recent years.

### LUNG CANCER

Lung cancer remains the leading cause of cancer-related death, being alone responsible for nearly two million deaths annually worldwide.

This high mortality is due to the great difficulty in effectively treating this cancer: for example, the 5-year survival rate for the most common lung cancer (non-small cell lung cancer or NSCLC) is, all stages combined, only 30%.

The development of new therapeutic approaches is therefore obviously required if we want to reduce the ravages caused by this cancer.

### ONCOGENE NEUTRALIZED

Biochemical analysis of NSCLC lung cancers has shown that about 25% of them have a mutation in the gene that codes for a receptor called EGFR (this percentage is even higher in lung cancers affecting non-smokers).

This therefore suggests that therapies that specifically target this oncogene could interfere with the progression of several lung cancers and have very positive repercussions on patient survival.

One such drug is osimertinib (Tagrisso®), an EGFR receptor tyrosine kinase inhibitor that was developed to selectively block cell growth signals dictated by this receptor.

According to the results of a study recently published in the prestigious *New England Journal of Medicine*, this therapeutic strategy is very promising, as the drug significantly increases the survival of patients with lung cancer who have this EGFR mutation (1).

This randomized study was double-blind (neither the patients nor the doctors knew the nature of the treatment administered) and included 682 patients with stage IB-IIIa non-small cell lung cancer who tested positive for the presence of mutated EGFR.

Following surgical tumor resection, patients were randomly separated into two groups and treated with either placebo or osimertinib 80 mg daily for a period of three years (or less if cancer recurred) to determine the effect of the drug on overall survival.



The results obtained are spectacular: in all patients, the 5-year survival rate increased from 78% for the placebo group to 88% for the group treated with osimertinib.

This reduction in mortality is even more striking when the analysis is restricted to patients with more advanced stage (IIIa) cancer, the 5-year survival rate increasing from only 67% for the placebo to 85% for treatment with the drug.

These are quite remarkable results, especially considering how resistant lung cancer is usually to most new treatments.

- (1) Tsuboi M et al. Overall survival with osimertinib in resected EGFR-mutated NSCLC. *N. Engl. J. Med.*, 2023 Jun 4. doi: 10.1056/NEJMoa2304594. Online ahead of print.