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# The Significance of Elemene in the Chemotherapy for Lung Cancer

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## DESCRIPTION

Elemene has been used extensively in the preceding ten years to treat a range of tumours, minimise the negative effects of chemotherapy, and increase the effectiveness of numerous anticancer drugs. It is a promising lung cancer treatment, according to further studies. However, the elemene's hydrophobic property, low stability, and insufficient absorption limited its practical application. Thanks to the advancement of new excipients and cutting-edge technology, numerous distinctive formulations of elemene have greatly improved, providing a positive outlook for the drug's clinical application. As a medication delivery system for elemene, liposomes provide a number of benefits over traditional formulations. In this paper, we present an overview of the most recent advances in lung cancer prevention strategies [1].

According to cancer statistic data from 2011, lung cancer, which is the leading cause of mortality in the United States with 556,500 fatalities, causes up to 163.700 more deaths than the combined number of deaths from malignancies of the breast, genital system, and urinary system. Lung cancer has become an epidemic illness, with over one million fatalities and a sharply rising number of new cases worldwide each year. The best treatment for lung cancer is surgical resection, but due to the growth of metastases, more than 75% of patients would prefer chemotherapy. Platinum-based chemotherapy regimens have always been the norm in clinics, despite the fact that the majority of patients' current diagnoses are unsatisfactory and their 5-year survival rates are barely 10-15% [2].

Lung cancer, the top cause of death in the United States with 556,500 fatalities, is responsible for up to 163.700 more deaths than the sum of deaths from cancers of the breast, genital system, and urinary system put together. With more than a million fatalities and a significant increase in the number of new cases worldwide each year, lung cancer has emerged as an epidemic disease. The optimum course of action for lung cancer is surgical resection, although more than 75% of patients would choose chemotherapy due to the spread of metastases.

Despite the fact that the majority of patients' current diagnoses are unsatisfactory and their 5-year survival rates are about 10-15%, platinum-based chemotherapy regimens have historically been the standard in clinics [3].

Taxanes, like other antimitotic medications, might have normal side effects include neutropenia, alopecia, allergic reaction, neuropathy, and fatigue. In recent years, lung cancer patients have received a lot of clinical treatment using taxanes. It would be advantageous to investigate and create a novel, efficient candidate medicine in order to decrease overlapping unfavourable effect profiles and partially eradicate the resistance of tumour cells. This would considerably progress the chemotherapy for lung cancer. Elemene, a sesquiterpene vinyl monomer first identified from the rhizome of Zingiberaceae *Curcuma* wenyujin, is present in more than 50 Chinese herbs and plants. It has the structural formula 1,4-diisopropyl-1-methyl-1-vinylcyclohexane. Through in vivo and in vitro research, elemene has demonstrated direct and indirect major suppressive effects on a variety of tumours, including inducing tumour cell death, lowering tumour cell growth, inhibiting antitumor metastasis, and maintaining active immunity. Additionally, elemene has a wider range of uses because it is less expensive and has less adverse effects [4].

Contrary to bone marrow, liver, and heart toxicities so far, reports of elemene side effects regarding minor fever, gastrointestinal issues, and local pain have also been made. In clinical settings, elemene is used alone or in combination with other chemotherapeutics to treat a variety of malignancies, including breast, gastrointestinal, lung, and other cancer problems. It also increases patient immunity. The therapeutic benefits of this are substantial. Recent pharmacological research has shown that the drug elemene is effective in treating a variety of hyperplastic and proliferative illnesses, such as melanoma, lung tumours, ovarian tumours, and prostatic hypertrophy [5].

It appears that a elemene is an important source of cancer chemotherapy for pharmaceuticals because of the bioactivities stated above formulations with the suffix elemene have been used for

injection, emulsion injection, freeze-dried powder, and aerosol. China has created and used an injectable emulsion of elemene for the treatment of cancer since 1995. Following that, the SFDA in China approved an injection preparation developed by CSPC Pharmaceutical Limited Cooperation (China) for the treatment of brain tumours and other carcinomas. This preparation contains 85% elemene [6].

## CONCLUSION

Since the liposome demonstrates a variety of advantageous qualities,it has attracted a lot of interest from researchers as a potential pharmaceutical delivery system. For instance, it can achieve lymphatic directionality, long-term sustained release, and target direction action, as well as enhance medicine stability and reduce toxicity. Development of elemene as a chemotherapeutic medication based on the significant antitumor activity and low degree of toxicity indicated above would be a potential option for further in-depth investigation. We first evaluated the most recent pharmacological studies on the potential of elemene to treat lung cancer in this paper. The creation of the elemene anti-lung cancer liposome delivery system was then discussed.

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