

Worldwide, lung cancer is the most-common cancer among men in terms of both incidence and mortality and among women has the third-highest incidence, and is second after breast cancer in mortality. The highest rates are in North America, Europe, and East Asia. Rates in Africa and South Asia are much lower.

The vast majority (85%) of cases of lung cancer are due to long-term cigarette smoking. About 10–15% of cases occur in people who have never smoked. These cases are often a consequence of a combination of genetic factors and exposure to asbestos, second-hand smoke, or other forms of air pollution (smog).

Avoidance of risk factors, including smoking and air pollution, is the primary method of prevention. Treatment and its efficacy depends on the type of cancer, the degree of spread, and the person's health. Most cases are not curable. Common treatments include surgery, chemotherapy, and radiotherapy. These treatments generally involve highly toxic compounds and their application is considerably limited due to the high incidence of adverse side effects. Nanotechnology seems to be an attractive alternative to traditional treatment as it is able to reduce the amount of drugs to be administered.

This project aims at designing and characterizing polymeric nanoparticles to be efficient carriers in the delivery of anti-cancer drugs applied directly via inhalation.