ABOUT NON-SMALL CELL LUNG CANCER (NSCLC)

WHAT IS NSCLC?

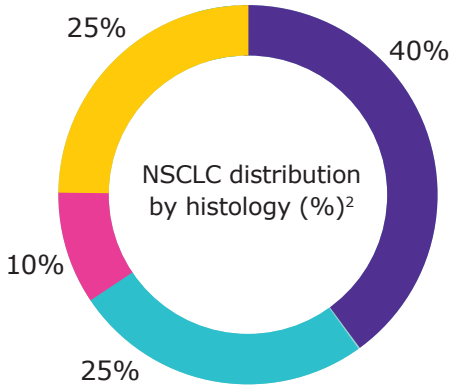
NSCLC is considered the most common type of lung cancer, accounting for 85% of all cases, and is categorized into sub-types:[1]

Adenocarcinoma: Occurs in about 40% of patients with NSCLC.[2] Usually found in the outer parts of the lung prior to metastases.[1] While this type is found mainly in current/former smokers, it's the most common lung cancer seen in non-smokers.[1] It is more common in women than in men, and it is more likely to occur in younger people (ages 20-46) than other types of lung cancer.[2,3]

Squamous cell carcinoma: Occurs in about 25% of patients with NSCLC.[2] This type starts in squamous cells (flat cells that line the inside of the airways in the lungs) and is commonly linked to a history of smoking. This type tends to be found in the central part of the lungs, near a main airway (bronchus).[1]

Large cell (undifferentiated) carcinoma: Occurs in about 10% of patients with NSCLC.[2] This type is harder to treat due to rapid growth and metastases.[1]

Other subtypes: Other subtypes of NSCLC, such as adenosquamous carcinoma and sarcomatoid carcinoma, are much less common.[2]



SYMPTOMS

Depending on the individual, NSCLC symptoms may not appear until the cancer has advanced.

The most common symptoms may include:[4,5]

- A persistent, worsening cough or worsening of chronic cough
- Cough producing blood
- Chest pain or painful breathing
- Shortness of breath, wheezing
- Unexplained weight loss
- Hoarseness
- Fatigue
- Loss of appetite
- Lung infections such as bronchitis and pneumonia that won't go away
- Bone pain (advanced stage)
- Headaches or seizures due to brain metastases (advanced stage)
- Lumps in lymph nodes (advanced stage)

RISK FACTORS FOR NSCLC INCLUDE:[6,7]

- Smoking
- Secondhand smoke
- Radon exposure
- Asbestos exposure
- Arsenic in drinking water
- Radiation therapy for other cancers
- Air pollution
- Genetics

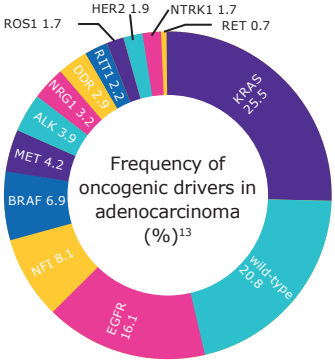
INCIDENCE

Lung cancer is a leading newly diagnosed cancer worldwide and the second most commonly diagnosed cancer in the U.S. each year.[8,9] Globally and in the U.S., lung cancer is the leading cause of cancer-related mortality.[8,9] NSCLC accounts for about 85% of lung cancers.[1]

Over 2 million people are estimated to be diagnosed with lung cancer annually, with 1.9 million deaths worldwide in 2017.[8] In the U.S., it is estimated that 228,820 new cases of lung cancer will be diagnosed in 2020, and 135,720 people will die of this disease.[9]

Approximately 50% of patients with NSCLC may harbor a known primary oncogenic driver.[10,11] There are more than a dozen primary oncogenic drivers in NSCLC.[12] These oncogenic driver mutations, which include *KRAS*, *EGFR*, *ALK*, *MET* and *ROS1*, among others, occur in approximately 50% of patients with NSCLC.[10]

These mutations can be found via biomarker testing, which may help determine the best treatment path.[13]



DIAGNOSIS & PROGNOSIS

About 57% of U.S. patients with NSCLC are diagnosed when the disease has already spread (metastasized).[14] The 5-year overall survival (OS) rate is about 32% for regionally advanced disease and about 6% for metastatic disease.[14] When the disease is caught earlier and patients are diagnosed with localized disease that has not yet spread, the survival rate is about 60%.[14] Treatments and biomarker testing have become more advanced over time to target even the rarest of NSCLC subtypes.[15]

ADVANCES IN THE TREATMENT OF NSCLC

Treatment of NSCLC involves a range of approaches.[16] In the early stages, NSCLC can be effectively treated by surgical resection.[16] Advanced NSCLC usually has a poor prognosis.[16] In recent years, advances in precision medicine, targeted immunotherapy and biomarker testing (via tissue and liquid biopsies) have significantly improved diagnosis and options for patients with even the rarest of NSCLC subtypes.[15]

EMD Serono is committed to researching additional areas of MET dysregulation. *MET* alterations are rare, as *MET*ex14 skipping and *MET* amplification have been identified as oncogenic drivers in 3% to 4%, and 1% to 5% of patients with NSCLC, respectively.[17,18] According to preclinical and clinical evidence, MET activation is a primary oncogenic driver in lung cancer and a secondary driver to acquired resistance to targeted therapy in other lung cancers.[18]

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about EMD Serono, Inc.

EMD Serono - the biopharmaceutical business of Merck KGaA, Darmstadt, Germany in the U.S. and Canada - is engaged in the discovery, research and development of medicines for patients with difficult to treat diseases.

The business is committed to transforming lives by developing and delivering meaningful solutions that help address the therapeutic and support needs of individual patients. Building on a proven legacy and deep expertise in neurology, fertility and endocrinology, EMD Serono is developing potential new oncology and immuno-oncology medicines while continuing to explore potential therapeutic options for MS and other immunologic diseases. Today, the business has approximately 1,500 employees around the country with commercial, clinical and research operations based in the company's home state of Massachusetts. www.emdserono.com.

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