**Lung Cancer Fact Sheet**

**Lung Cancer**, a cancer that forms in tissues of the lung, usually in the cells lining air passages, has traditionally been classified into two major types: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). About 85 percent of all lung cancers are identified as non-small cell, and approximately 75 percent of these are metastatic, or advanced, at diagnosis. Recent findings have changed our understanding of the disease, and today lung cancer is known to be made up of many distinct subsets of cancer that can be classified by a number of factors, including histology and the molecular make-up of the tumor.

**Facts and Figures**
- An estimated 1.6 million new cases of lung cancer were diagnosed worldwide in 2008, accounting for about 13 percent of total cancer diagnoses. An estimated 226,160 new cases of lung cancer are expected to be diagnosed in the U.S. in 2012, accounting for 13 percent of total cancer diagnoses.
- Lung cancer is the leading cause of cancer death worldwide in both men and women, with an estimated 1.4 million deaths each year.
- More people die of lung cancer in the U.S. than of colon, breast and prostate cancers combined.
- An estimated 160,340 deaths, accounting for about 27 percent of all cancer deaths, are expected to occur in the U.S. in 2012.
- Since 1987, more women in the U.S. have died each year from lung cancer than from breast cancer.
- The U.S. incidence of lung cancer is 62.0 of every 100,000 patients; mortality is 52.5 of every 100,000 patients.

**Risk Factors**
- Lung cancer affects a diverse group of people, including the young and non-smokers.
- Some lung cancer risk factors may include:
  - Smoking cigarettes or cigars
  - Exposure to second-hand smoke, asbestos, radon, chromium, arsenic, soot or tar
  - Treatment with radiation therapy to the breast or chest
  - Personal or family history of the disease
- Historically, smoking was seen as the major risk factor in developing lung cancer. Recent figures show that in the U.S., while smoking is a significant factor, about 13 percent of lung cancers are unrelated to smoking.
- Most lung cancers do not cause any symptoms until the disease has already reached an advanced stage. Even when symptoms do appear, they are often mistaken for other health problems.

**Non-Small Cell Lung Cancer**
- NSCLC is a disease in which malignant cells form in the tissues of the lung. Historically, NSCLC has been categorized by histology to include adenocarcinoma, squamous cell carcinoma and large cell carcinoma.
  - Adenocarcinoma, which accounts for about 40 percent of NSCLC cases, is usually found in the outer region of the lung.
  - Squamous cell carcinoma, which accounts for about 25 to 30 percent of all NSCLC cases, tends to be located in the middle of the lungs, and is more often linked to a history of smoking.
  - Large cell carcinoma, which accounts for about 10 to 15 percent of NSCLC cases, may appear in any part of the lung, and tends to grow and spread quickly.
  - Several less common histologies are classified as NSCLC, including pleomorphic, carcinoid tumor, salivary gland carcinoma, unclassified carcinoma, mixed histology, and not otherwise specified (NOS) due to small specimen size or poorly differentiated histology.
- With the increased understanding of molecular abnormalities in lung cancer, recent research efforts have focused on the identification of molecular targets. This knowledge has been used to develop targeted therapies and guide treatment decisions in increasingly segmented patient populations. At the same time, the oncology community is continuing to better understand how tumor histology plays a role in treatment outcomes, and how each of these factors must be considered in order to choose the most appropriate therapy for each individual.
  - Mutations in the EGFR occur in 10 to 20 percent of NSCLC tumors.
o Preliminary epidemiology suggests that approximately 3-5 percent of NSCLC tumors are ALK-positive.

- NSCLC is a difficult disease to treat, particularly in the metastatic or advanced setting (Stage IIIIB/IV). In these patients, the five-year survival rate is only 6 percent.19
- The current standard of care with chemotherapy based regimens for advanced NSCLC demonstrates a response rate of about 15-35 percent, with a median progression free survival (PFS) of 4.5 to 6.2 months.20

NSCLC Treatment

Current treatment options for NSCLC include surgery, radiation therapy, chemotherapy, targeted therapy, or some combination of these, depending on the type of cancer, stage of the disease and overall health and age of the patient.7

- With the identification and increased understanding of molecular abnormalities in lung cancer, research efforts have focused on identifying molecular targets and using this knowledge to develop molecular-targeted therapies and guide treatment decisions.
- Targets currently being used or investigated in the treatment of NSCLC include the human epidermal growth factor (HER) family of receptors, EGFR, KRAS, ALK, PI3K/AKT/mTOR, IGF-1R, MET and ROS.21

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