ABOUT NON-SMALL CELL LUNG CANCER (NSCLC)

What is NSCLC?

- Non-small cell lung cancer (NSCLC) is one of the two major types of lung cancer. The other major type is small-cell lung cancer (SCLC)
- Lung cancer (both small cell and non-small cell) is the second most common cancer in both men and women[1]
- NSCLC accounts for approximately 85% of lung cancers[2]
- NSCLC is typically diagnosed in patients over the age of 65 and the average age at diagnosis is 70[1]
- Roughly 70% of patients with NSCLC have locally advanced or metastatic disease when they are diagnosed.[3] This means that their cancer has spread from the site of origin[2]
- Many NSCLCs are associated with mutations in the KRAS gene
  - KRAS mutations (KRAS positive) are present in approximately 25% of NSCLC adenocarcinomas (cancer that begins in glandular cells found in the tissues that line the lungs and other organs)[3]
  - One of the most common types of KRAS mutations is G12V, which are present in approximately 7% of NSCLC[4]

Symptoms[5]

Most lung cancers do not cause any symptoms until they have spread.

Symptoms may include:

- A cough that doesn't go away
- Chest discomfort or pain
- Wheezing
- Blood in sputum (mucus coughed up from the lungs)
- Hoarseness
- Loss of appetite
- Weight loss for no known reason
- Fatigue
- Trouble swallowing
- Swelling in the face and/or veins in the neck

Risk Factors[6]

Smoking is the major risk factor for NSCLC.

Other risk factors may include:

- Exposure to secondhand smoke
- Exposure to chemicals in the workplace such as asbestos and arsenic
- Exposure to radiation
- Living in an area with air pollution
- Infection with the human immunodeficiency virus (HIV)
- A family history of lung cancer

Treatments & Experimental Therapies

- Treatment options for NSCLC include surgery, radiation therapy, chemotherapy, targeted therapy and immunotherapy[6]
- Mutated forms of the RAS gene are present in about 30% of all human cancers. These RAS mutant (RAS positive) tumors historically have been difficult to treat[7]
- Currently available options for patients with KRAS-positive (KRAS+) NSCLC, a type of RAS mutation, are associated with resistance and toxicity. Other experimental treatment options with potential to address these challenges are currently being investigated, click here to learn more: RAMP202study.com

References: 1. American Cancer Society. Key Statistics for Lung Cancer. Available at: https://www.cancer.org/cancer/lung-cancer/about/key-statistics.html. Accessed December 9, 2020. **2.** Molina, Julian R., Non–Small Cell Lung Cancer: Epidemiology, Risk Factors, Treatment, and Survivorship. National Institute of Health. Mayo Foundation for Medical Education and Research. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/ MC2718421/pdf/nihms121782.pdf. Accessed December 9, 2020. **3.** Roman, Marta, et al. KRAS oncogene in non-small cell lung cancer: clinical perspectives on the treatment of an old target. Molecular Cancer (2018) 17:33. **4.** TCGA PanCancer Atlas (cBioPortal analysis) **5.** American Cancer Society. Signs and Symptoms of Lung Cancer. Available at: https://www.cancer.org/cancer/lung-cancer/detection-diagnosis-staging/signs-symptoms.html. Accessed December 9, 2020. **6.** National Cancer Institute. General Information About Non-Small Cell Lung Cancer. Available at: https://www.cancer.gov/types/lung/patient/non-small-cell-lung-treatment-pdq#_118. Accessed December 9, 2020. **7.** Baines, A. T., Xu, D., & Der, C. J. (2011). Inhibition of Ras for cancer treatment: the search continues. Future medicinal chemistry, 3(14), 1787–1808. https://doi.org/10.4155/fmc.11.121.

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