

MICPS2-020-PS

## Imaging Non-Small Cell Lung Cancer EGFR Del19 and L858R with Radiolabeled Small Molecule

Muammar Fawwaz <sup>1,\*</sup>, Nurul Dwi Wulandari <sup>1</sup>, Masdiana Tahir <sup>1</sup>, Mamat Pratama <sup>1</sup>,  
Muzakkir Baits <sup>1</sup>, Emil Salim <sup>2</sup>

<sup>1</sup> *Laboratory of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Muslim Indonesia, Makassar, Indonesia*

<sup>2</sup> *Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia*

\*Corresponding author: [muammar.fawwaz@umi.ac.id](mailto:muammar.fawwaz@umi.ac.id)

### ABSTRACT

Non-Small Cell Lung Cancer (NSCLC) is the leading cause of cancer death with approximately 1.3 million deaths annually worldwide. Tyrosine Kinase Inhibitors (TKIs) targeting the Epidermal Growth Factor Receptor (EGFR) are used as therapy for NSCLC patients. However, patients receiving first and second-generation TKIs will usually develop drug resistance within 6-12 months after treatment. Resistance occurs because of EGFR mutations that interfere with the therapeutic process. Therefore, it's necessary to detect the type of EGFR mutation before treatment by TKIs. Molecular imaging techniques such as Positron Emission Tomography (PET) and Single Photon Emission Computed Tomography (SPECT) are promising non-invasive techniques for the detection of mutation. This study aims to review articles on radiotracers that have been developed to detect common EGFR mutations such as exon 19-del and exon 21 L858R mutation in NSCLC. The method in this research is to search for articles through international databases such as Scopus, Scifinder, and PubMed with inclusion and exclusion parameters. The results exhibited that several radiotracers were found that were selective for EGFR 19-del and L858R. However, some compounds need to be modified structurally to have high specificity.

**Keywords:** Del19, L747-A750, L858R, PET, radiotracer, SPECT