18F gases as PET tracers for ventilation studies
Diagnosis and prognosis of lung function in respiratory diseases
Priority date June 28, 2016

Novel gaseous F-18 based radiotracers for the diagnosis and prognosis of lung function in respiratory diseases and ventilation studies in different clinical settings.

Background:
Positron emitting-labelled gases for PET ventilation studies have been described based on Neon-19 or Nitrogen-13 labelled N₂. However, these isotopes are endowed with a very short half-life which impairs their widespread use and commercialization. Regarding SPECT, contrast agents currently in use are particle-based and produce hot spots in hypo-ventilated areas and remain in the lung for a long time, which might be a liability in terms of safety. Fluorine-18 (¹⁸F) is one of the standard labels for PET applications and has a much longer half-life than other isotopes (109.7 mins). ¹⁸F-labelled gases are the ideal radiotracers for ventilation studies.

Technology:
The present invention provides a process for the production of a pharmaceutical composition comprising ¹⁸F-labelled sulfur hexafluoride ([¹⁸F]SF₆) or carbon tetrafluoride ([¹⁸F]CF₄), the pharmaceutical composition itself and the use of this composition as an image contrast agent.

Example applications:
Ventilation studies for the diagnosis and prognosis of respiratory diseases in lung function studies in different clinical settings.

References: