No technique has revolutionized modern medicine more than the ability to see inside the human body and inside its cells. The first method to visualize the internal body structure was invented by Roentgen in 8 Nov 1895. From then onwards, many modalities have been developed as biomedical imaging tools.

Nuclear Medicine techniques such as Single-photon emission tomography (SPECT), and positron-emission tomography (PET) have true molecular imaging capabilities to make pictures (scans) of molecular processes inside the body. All of these techniques require radiopharmaceuticals. Development of radiopharmaceuticals applies principles of medicinal chemistry plus added aspect of radiation. All new radiopharmaceuticals enter into the value chain of the medicinal product. Drug manufacturing process including radiopharmaceutical production requires adherence to the Good Manufacturing Practice to ensure safety and efficacy of the product as required by the Regulation. Currently approximately 700 cyclotrons are operating in the world to produce advance PET radiopharmaceuticals.

Singapore Radiopharmaceuticals Pte Ltd features a 16.5MeV cyclotron and a central radio pharmacy and producing [18F]FDG, sodium [18F]fluoride and [11C]acetate. We are planning to produce multiple advance radiopharmaceuticals soon. Selected manufacturing processes will be mentioned.

Few important facts on radiation will be described. Working in the drug manufacturing facility is a cohesive team work with advance level of knowledge which expects certain unique work ethics.