Neuroreceptor and neurotransmitter imaging is a new developed domain in the study of nervous nuclear medicine in the 21st century. Recently in the biological area, the exploration of receptor function and its biological characteristics in molecular medical level and the diagnosis and management of receptor disorders are an advanced domain of international medical science investigation. The neuroreceptor and neurotransmitter imaging in vivo using radioligand is a new molecular medicine of medical tracing technique combined with molecular biology and nuclear medicine, i.e. the molecular nuclear medicine will be a new means applied for detecting functional brain abnormalities in nuclear neurology.

Neuroreceptor and neurotransmitter imaging with radionuclide tracing in vivo have been greatly developed recently. Distribution, density, and activity of receptors in the brain can be visualized by the radioligands labeled for emission computed tomography (ECT), including PET (positron emission tomography) and SPECT (single photon emission computed tomography). The continual emergence of new positron radiopharmaceuticals, especial positron neuroreceptor and neurotransmitter imaging agents, further promotes and extends the clinical applications of PET, PET/CT and PET/MR. The researches on PET, PET/CT and PET/MR have become an attractive area now. The functional and quantitative imaging for several receptors, such as dopamine receptors and dopamine neurotransmitter, serotonin receptors, cholinergic receptors, benzodiazepine receptors, and opioid receptors, have clinical importance. The preparation of neuroreceptor and neurotransmitter imaging agent, foundation of physio-mathematical model, and the development of nuclear medicine instrument are the main points. In present review, we will concentrate on introducing the development of neuroreceptor and neurotransmitter imaging.

**Study in vivo on Neuroreceptor and Neurotransmitter Imaging with Radionuclide Tracing**

**Biography**

Rong Fu Wang has completed his MD at the age of 27 years from Fujian Medical University in 1982, postdoctoral studies from Paris V University School of Medicine in 1993 and his PhD at the age of 40 years from Toulous III University in 1995. He is the director of Department of Nuclear Medicine, Peking University Health Science Center. The research interests of Dr. Wang include experimental study and clinical application of molecular and clinical nuclear medicine. He has published more than 400 papers in reputed journals and has been serving as many editorial board member of reputed journals at home and abroad. He has published 3 monographs, and has got 3 patents of invention and 3 provincial and ministerial Awards.

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