

## **Consideration on Molecular Imaging Technology as a Tool for Drug Research and Development**

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Molecular imaging technology such as positron emission tomography (PET) and magnetic resonance imaging (MRI) are known as powerful tools for clinical diagnosis in neurology, oncology and so on. As applications to new drug research and development, there are three methodologies which are PK (Pharmacokinetics), PD (Pharmacodynamics), and efficacy study. When we use these methodologies for the drug research, we must consider construction of technological environment (tracer, animal model, imaging analysis software, and clinical database) and regulatory environment for GMP and GCP level. Additionally, concept of microdosing and exploratory clinical study was proposed in western countries and the Japanese public comments on microdosing study was also announced on Dec. 28th 2007. However they may be still in learning phase, we must meet with complexity, high cost, and indigestion. To promote molecular imaging technology into the drug research, integration of the scientists between academia and industry is important because it needs many type of the advanced technologies and skills.