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Sommario/riassunto	Positron emission tomography (PET) and single-photon emission computed tomography (SPECT) are in vivo molecular imaging techniques which are widely used in nuclear medicine for the diagnosis and treatment follow-up of many major diseases. They use biomolecules as probes, which are labeled with radionuclides of short half-lives, synthesized prior to the imaging studies. These probes are called radiopharmaceuticals. Their design and development require a rather interdisciplinary process involving many different disciplines of natural and health sciences. In addition to their diagnostic and therapeutic purposes in the field of nuclear medicine, radiopharmaceuticals provide powerful tools for in vivo pharmacology during the process of pre-clinical drug development to identify new drug targets, investigate the pathophysiology of diseases, discover potential drug candidates, and evaluate the pharmacokinetics and pharmacodynamics of drugs in vivo. Furthermore, they allow molecular imaging studies in various small-animal models of disease, including genetically engineered animals. The current collection of articles provides unique examples covering all major aspects in the field.