

Multimodality Contrast Agents

Xiaoyuan Chen

Laboratory of Molecular Imaging and Nanomedicine, National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health

Contrast agents are essential in molecular imaging. Properly designed contrast agents, including suitably labeled cells, nanoparticles, antibodies, proteins, peptides, aptamers, and small molecules, can be applied to measure the physiological and biological targets in a quantitative and visible way in living subjects. The contrast can be produced via passive and or active accumulation of a given molecular imaging probe. The signal to be detected by a molecular imaging device can be 'always on' or activated at the target of interest. Despite the unique features of different imaging techniques, there is no single imaging modality that can replace the other imaging modalities. With the co-registration or hybridization of different imaging modalities with complimentary imaging features, there is a need of multimodality contrast agents. This talk will be exemplified by cases of making single modality contrast agents and then proper combination of different tags/labels to synthesize multimodality contrast agents.