Docket #: S07-119

The Mighty Mouse: Ubiquitous Expression of Tri-Fusion Imaging Multimodality Reporter Gene in a Transgenic Mouse

Transgenic mice carrying reporter genes are extremely useful tools in modern biomedical science to unravel various underlying molecular mechanisms crucial for normal development, as well as, disease progression. It is possible to follow molecular events with high sensitivity and specificity from anywhere deep inside the body using non-invasive imaging technologies such as optical bioluminescence, optical fluorescence, positron emission tomography (PET), and single photon computed tomography (SPECT). Stanford researchers have created a transgenic mouse harboring a triple fusion reporter gene comprised of a bioluminescence, fluorescence and a PET reporter gene. This transgenic mouse will be a powerful device for studying many biological processes and will lead to important discoveries. For example, stem cells isolated from different lineages from this mouse can be implanted in a wild type mouse and can be repeatedly observed for their potential to develop into different tissue types. We can also follow organ transplantation process over time by non-invasive imaging. In many ways this transgenic mouse will lead to important observations and discoveries in a wide range of medical areas.

Related Technology

- S04-036: Multimodality Imaging

Applications

- Transgenic mice are a useful tool to unravel various underlying molecular mechanisms crucial for normal development, as well as, disease progression.

- Transgenic mice harboring a triple fusion reporter gene will be a powerful device for studying many biological processes and lead to important discoveries.
- Application can be in a wide range of medical areas.

Advantages

- Transgenic mice can be imaged using three modalities and therefore, signals can be visualized from any depths of the body with high sensitivity and high resolution.

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