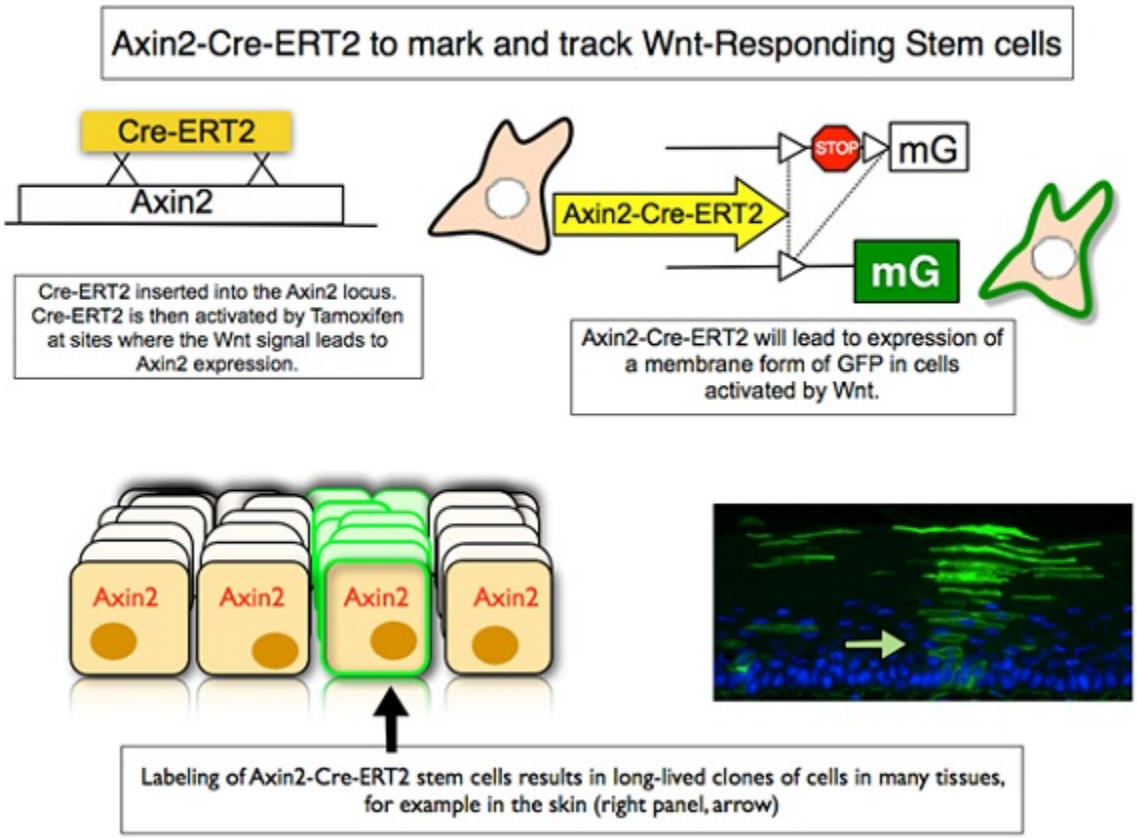
Docket #: S12-110

Mouse strain for identifying and mapping stem cells - B6.129(Cg)-Axin2 - Jackson Labs strain 018867

Researchers in Dr. Roeland Nusse's laboratory have generated an Axin2CreERT2 knock-in mouse strain that can be used to identify and map stem cells in any tissue. The Wnt/β-catenin signaling pathway is instrumental for stem cell maintenance in multiple tissues. Axin2 is an established direct target of this pathway and thus serves as a functional stem cell marker. The Axin2CreERT mouse marks Wnt/β-catenin responsive cells at distinct developmental time points in situ and traces their contribution to growth and differentiation in a variety of tissues. This mouse strain will benefit the stem cell research community as it enables stem cells to be traced in situ and thus provide true insight into stem cell origin and function in a normal developmental context.



Stage of research
Wnt/β-catenin responsive stem cells have been tracked and analyzed at different time points and developmental stages in a variety of tissues including the mammary gland, brain and inner ear.

Ongoing research
The Nusse lab continues to use this mouse strain to identify and investigate stem cells in additional tissues.

This mouse has been deposited at Jackson Labs, stock number: 018867

Applications

- Basic and preclinical research tool:
  - Perform lineage-tracing analysis.
  - Identify, isolate and/or characterize stem cells in any tissue.
  - Study influence of various drugs/therapeutics on stem cells.

Advantages

- Unique- only mouse strain with universal stem cell marker.
- Enables in situ analysis of stem cell physiological behavior and cell fate.

Publications

- van Amerongen R, Bowman AN, Nusse R. "Developmental Stage and Time Dictate the Fate of Wnt/?-Catenin-Responsive Stem Cells in the Mammary Gland". Cell stem cell. 2012;11(3):387-400.

Innovators

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