Model of Organ Fibrosis

VCU Innovation Gateway
Office of the Vice President for Research and Innovation

Mouse Model with a global deletion in the Spag17 gene

Novel ROSA$^{mT/mG}$ Labeled Spag17 Knockout Mouse

Spag17 is a complex gene associated with cilia and microtubule cytoskeleton. Loss of Spag17 leads to developmental defects, primary cilia dyskinesia, accelerated aging, male infertility, and multi-organ fibrosis. Researchers at Virginia Commonwealth University (VCU) have developed a novel mouse model with a global deletion for the Spag17 gene using a CMV reporter and a ROSA$^{mT/mG}$ linage tracing system.

The technology

The novel knockout mouse model that was created has a global deletion in the Spag17 gene. Cells deficient in Spag17 express an EGFP fluorophore for *in vivo* tracking. The generated mouse model presents a significant avenue to study primary cilia dyskinesia, development, skeletal dysplasia, primary cilia disfunction, multi-organ fibrosis and neuronal cells differentiation after.

Organ Tissue Fibrosis

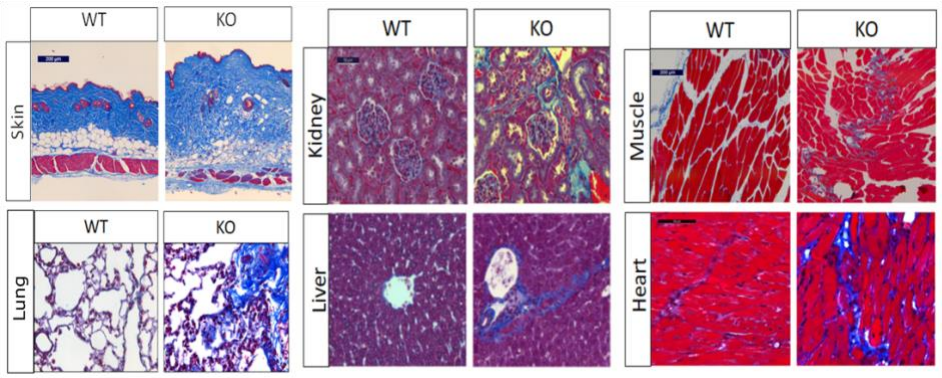

Figure 1. Multi-organ fibrosis is one of the phenotypes developed after conditional deletion of Spag17. *Shown above are representative histological sections from skin, lung, kidney, liver, muscle and heart tissue stained by Masson's Trichrome stain as a fibrotic marker. Increased collagen deposition (blue) is observed in Spag17 knockout mice compared to wild-type controls.*

Benefits

- ROSA$^{mT/mG}$ allows lineage tracking of Spag17 deficient cells
- Previously unidentified target gene and mouse model of fibrotic disease

Applications

- Evaluation and study of primary cilia dyskinesia
- Evaluation and study of skeletal dysplasia
- Evaluation and study of fibrotic disease
- Identification of novel therapeutics for treatment of fibrotic disease
- Identification of novel pathways and mechanisms related to Spag17 deficiency

Patent status:
Patent pending: U.S. and foreign rights are available.

License status:
This technology is available for licensing to industry for further development and commercialization.

Category:
Biomedical

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