



Lung Cancer Research

Custom Tissue Microarray Development and Database Model

Subiksha Sankar



Internship Details



Organization

UT Southwestern Medical Center



Lab Focus

- Bioinformatics
- Cancer Metabolism
- Lung Neoplasm



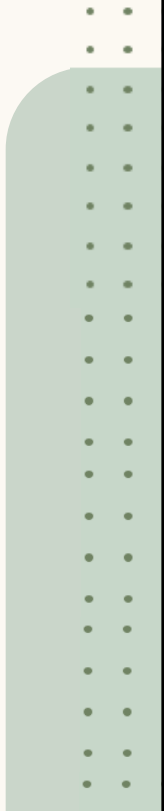
Supervisor

Dr. Ling Cai
Assistant Professor
Peter O'Donnell School of Public Health



Location

Dallas, Texas



LCAMGDB Model

The Lung Cancer Autochthonous Model Gene Expression Database Enables Cross-Study Comparisons of the Transcriptomic Landscapes Across Mouse Models

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Affiliations + expand

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Publication



Lung Cancer Autochthonous Model Gene Expression Database

Data Analysis

Overview

Tutorial

Studies

Samples

GEMMs

Download

Collaborator

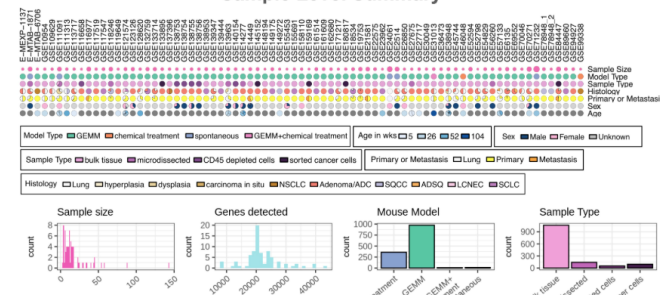
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About

Citation

Welcome to Lung Cancer Autochthonous Mouse Model Gene Expression Database (LCAMGEDB), an integrated repository of 1,354 samples from 77 transcriptomic datasets characterizing autochthonous lung cancer mouse models. If you utilize data from our database in your research, please cite our funding R01CA285336 and paper: [PubMed: 40298430](#)

Sample Level Summary



Model



LCAMGDB Model



Lung Cancer Autochthonous Model
Gene Expression Database
Overview Tutorial



Lung Cancer Autochthonous Model
Gene Expression Database
Studies Tab Tutorial



[Youtube Playlist](#)



Custom TMA Development



A **Tissue Microarray (TMA)** is a paraffin block that contains many small samples of tissue arranged in a grid so multiple samples can be tested at once. TMAs help researchers compare many patients' tissue samples efficiently using the same lab tests. In lung cancer research, this is especially important because tumors can vary greatly.

Limitations of Standard TMA

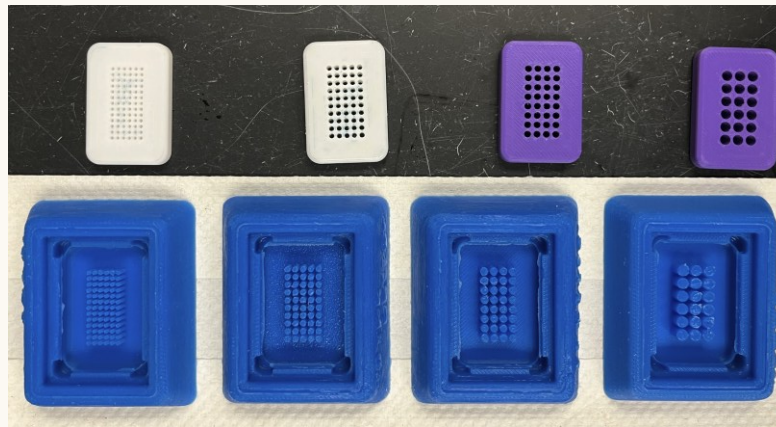
- Hold fewer samples per block
- Can lose or distort tissue during slicing
- Stability and consistency issues



Custom TMA Development

Custom TMA

- Hold more samples
- Reduced spacing between cores
- Harder paraffin wax



Our redesigned molds **increased the capture area by 33-40%**, while producing cleaner, stronger tissue slices with fewer defects. This simple, low-cost improvement makes lung cancer research faster, more efficient, and more reliable.



Reflection

Personal Growth

- Confidence
- Curiosity
- Adaptability
- Patience
- Resilience

Professional Changes

- Technical Expertise
- Problem Solving
- Communication
- Collaboration
- Capacity to Learn

Future

Researching lung cancer taught me to approach its diagnosis and treatment from a scientific perspective, helping me see how research can bridge the gap between lab discoveries and clinical care as a future physician.



Acknowledgments

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Thank you!

Any Questions?

