Presenting Author Name
Jackie Wang

Presenting Author Category
Masters Student

Research Category
Basic Science

Abstract Title
Exploring the rat and human lung proteome to explain abnormal lung development in congenital diaphragmatic hernia

Background
Congenital diaphragmatic hernia (CDH) is a severe birth defect resulting in a diaphragmatic defect and lung hypoplasia. The pathogenesis of CDH is not fully understood. We will explore the proteome of lungs in the nitrofen rat model to study potential dysregulated pathways in lung development.

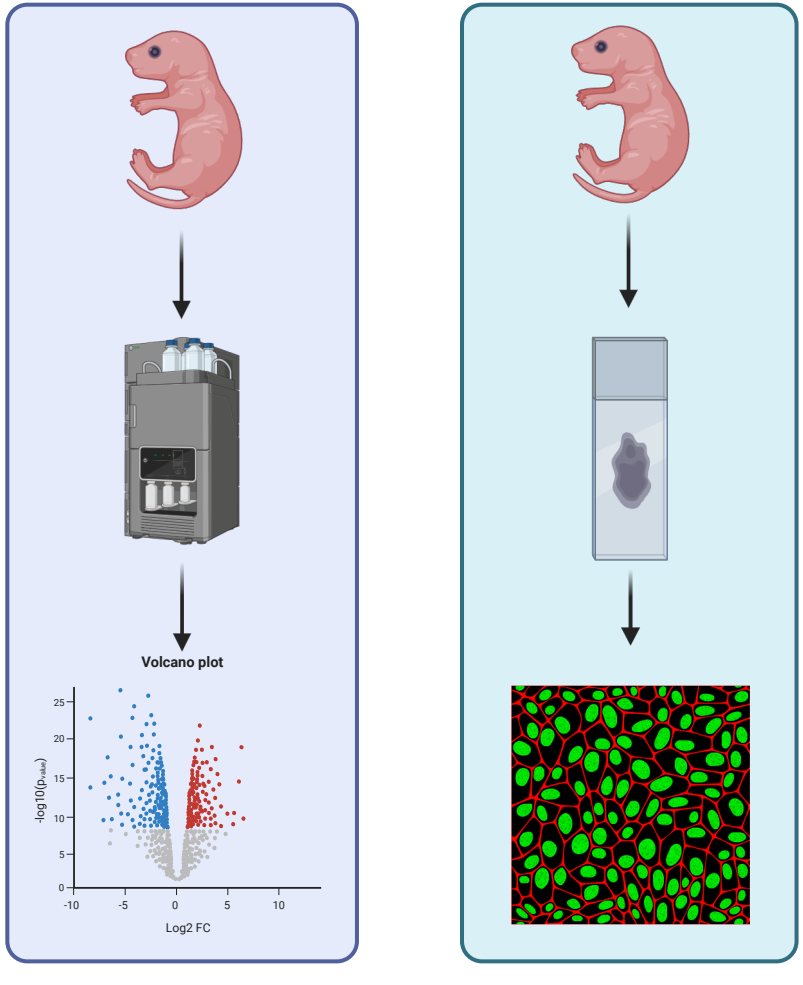
Objective
1. Identify differential protein abundances between control and nitrofen rats by using R to conduct biostatistical analysis.
2. Spatio-temporal validation of differential protein abundances in control and nitrofen rat lungs by doing immunofluorescence and conducting analysis.

Methods
Using the nitrofen rat model to stimulate the CDH phenotype, 4 males and 4 females were chosen per condition (control and nitrofen), where whole lungs were surgically removed at E15 (n=8) (before complete diaphragm development) while the left and right lungs were separated at E18 (n=8 per lung) and E21 (n=8 per lung) (after diaphragm development). The samples were processed via liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS) and peptides identified. The data will be analyzed for significant differences in protein abundance based on control/nitrofen, sex, and embryonic age.

Results
No results currently.

Conclusion
This exploratory project may identify potential dysfunctional pathways in abnormal lung development in CDH. Furthermore, we may be able to identify biomarkers, potential therapeutic targets, and advance our understanding of dysfunctional lung development in CDH.

Master's Project



Authors

Name	Role	Profession
Jackie (Jia Qi) Wang	Presenting Author	Master's Student
Arzu Ozturk Aptekmann	Co Author	Research Technician
Jodi Qiao	Co Author	Master's Student
Ying Lao	Co Author	Core Facility Manager at Manitoba Centre for Proteomics and Systems Biology
Rene Zahedi	Co Author	Full Professor
Richard LeDuc	Co Author	Director of Bioinformatics
Richard Keijzer	Co Author	Full Professor