



SOX9 gain and loss of function models

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Is SOX9 an identifier of Biliary Epithelial cell populations?

- The liver is composed of two main cell types; hepatocytes and biliary epithelial cells (BEC)
- SOX9 is a protein found in BECs, but not in hepatocytes
- There are a variety of cell types within BEC, that have different functions.
- These cell types remain poorly characterized.
- In order to characterize these cell types, we can manipulate their SOX9 expression using biliary epithelial organoids.
 - Organoids are in vitro, three-dimensional models of primary tissue.
- Understanding the role SOX9 plays in BEC types will also determine the role it plays in cell proliferation, which is necessary for liver regeneration.

Results



I HARVESTED AND CULTIVATED BACTERIAL CELLS AND USED INFUSION CLONING TO CREATE TWO PLASMIDS TO OVEREXPRESS AND KNOCKDOWN SOX9.



USING FLUORESCENCE MICROSCOPY, I DEFINED THE OPTIMAL CONDITION FOR ELECTROPORATING BILIARY ORGANOID. THESE CONDITIONS CAN BE USED BY OTHER SCIENTISTS TO INSERT ANY GENETIC MATERIAL INTO BECS.



IN THE FUTURE, DEFINING THE ROLE OF SOX9 IN BECS WILL CHARACTERIZE THE CELLS WITHIN THE LIVER AND CAN BE USED FOR LIVER DAMAGE MODELS.