Examining the effect of low vs high doses of TCDD and Mercury both alone and in combination on *Microgadus tomcod*

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Why is my project important/interesting ?

- Diamond Alkali
  - TCDD
    - Not an intended product
    - Effects AHR pathway
    -
- Effects
- Hackensack River
  - Mercury
- Effects in human are well known
- How does it affect organisms in waterways?

What is the experimental question and what I am hoping to discover from my analysis ?

- How do certain chemicals affect organisms differently at low doses versus high doses and therefore this should also be taken into account.
  - TCDD
  - Mercury
- Look at difference in expression particularly for genes associated with the

  Atlantic tomcod heart

What is the experimental design (how many factors, how many levels , how many replicates) ?

- Organism: Microgadus tomcod
  - Why?
    - Resistance
- Chemicals:
  - TCDD
  - Mercury
  - Low vs. High doses
  - In combination
- Control
  - Acetone
  - Water
- Averaging each group

What am I planning to use?

- Salmon
- EdgeR & DESeq2

- Visulization
  - Java TreeView 3.0

- Clustering
  - ClustVis

Are there any obstacles?

- Setting a cut off for fold change
  - Suggested: 1.5
    - Arbitrary
    - Initially useful
- Lack of high quality reference genome
  - Perhaps, another fish genome can be used as reference.

- Limitation
  - Not like a waterway

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