



# The enhancer / promoter selector tools

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Slide 1



## Background

- What is a promoter?
  - What is an enhancer?
  - What is CAGE?
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- Enhancer / Promoter Selector tools:
    - <http://enhancer.binf.ku.dk/>
    - <http://promoter.binf.ku.dk/>
    - Focus more on enhancers



## Answering Robin Andersson's questions with selector tools

- In which cell type(s) is a certain gene expressed?
- Which promoters / enhancers are "specific" to a certain cell type?
- How do promoter / enhancer usage differ across cell types?
- Where do promoters / enhancers to a certain gene locate in the genome?
- Which enhancer(s) regulate a certain gene?
- In which cell type(s) might a certain genetic variant have an effect (SNP)?



## Gene-Enhancer Example

- Use Enhancer Selector tool to investigate enhancer-gene information;
  - Gene of interest: SOX2
  - What information get we obtain using the enhancer selector tool?



## What else can the tools do?

- View enhancers / promoters of interest in UCSC genome browser
- Download enhancer / promoters ad BED file tracks
- Download enhancer / promoter sequences
- Perform motif discovery on enhancers / promoters of interest using MEME
- View overlapping SNPs
- Download Predefined enhancer tracks
- View motif collections for enhancer / promoter sets



## Small Exercise

- Similar to the SOX2 gene, find out gene-enhancer related information using the enhancer selector tool for the gene: NEUROD1



Thank you!  
Questions?

