

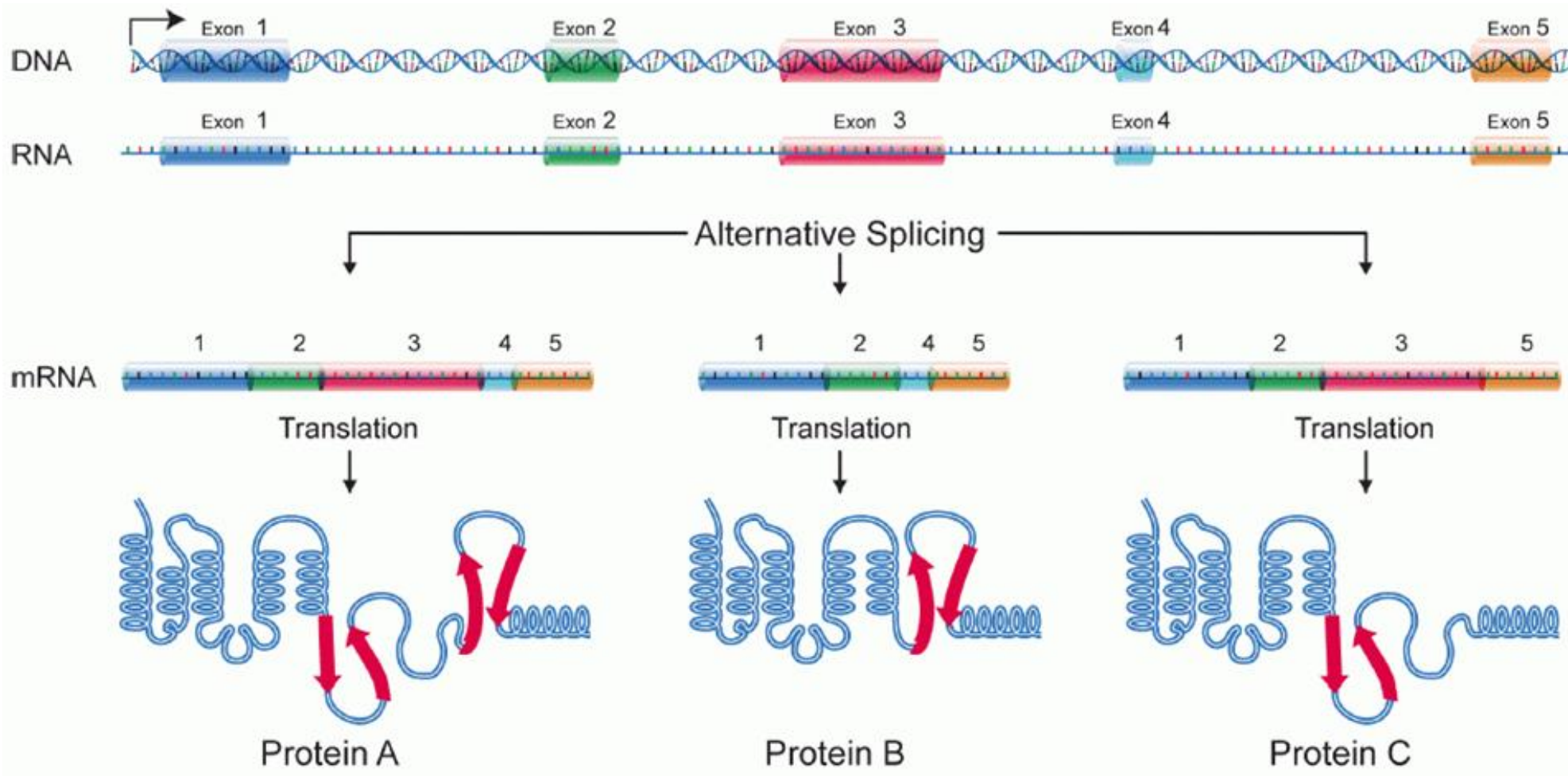


# Investigating Nab2's Interactions with the Spliceosomal Protein SmB

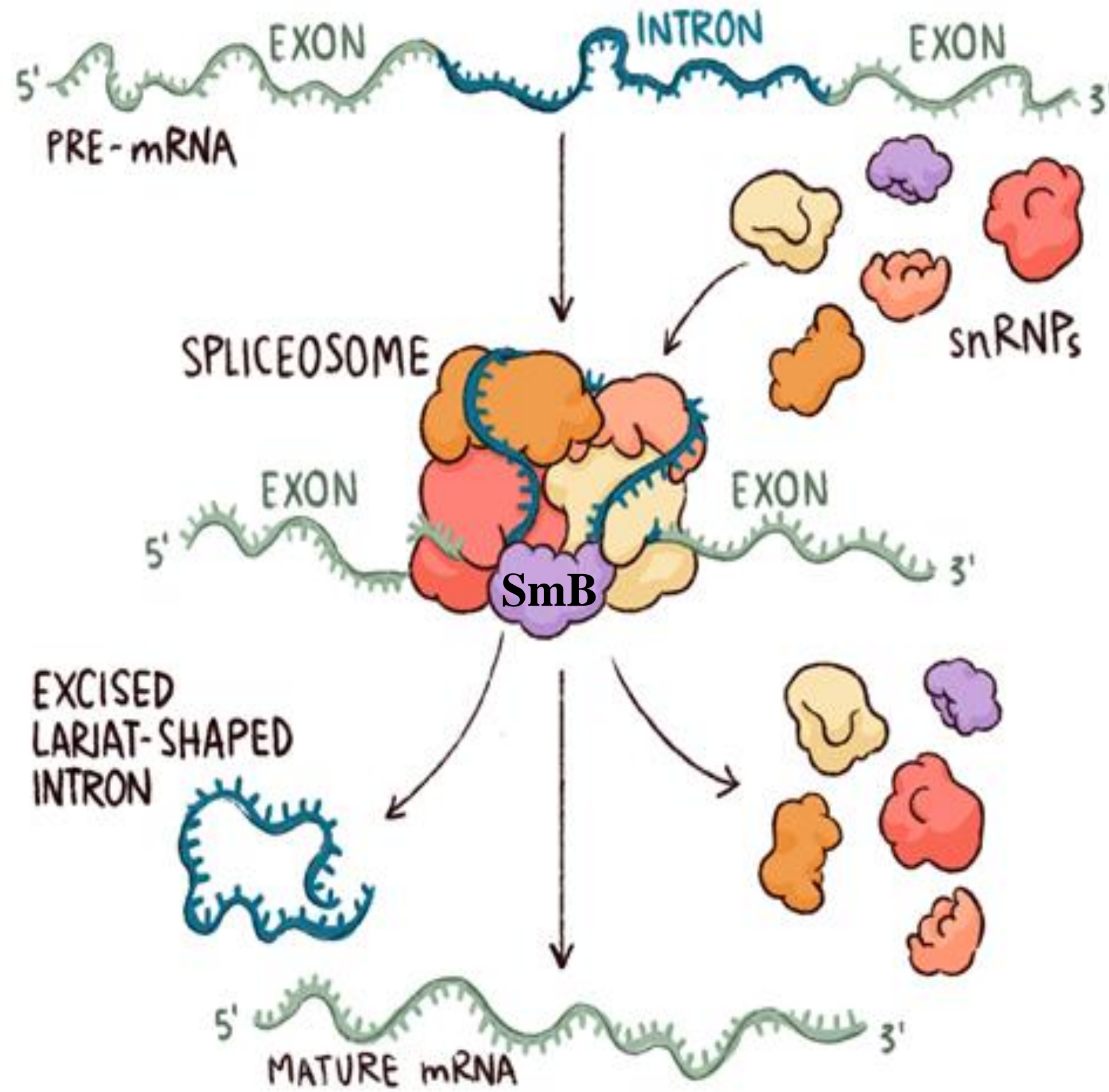
THE COLLEGE OF  
WOOSTER

By: Logan Fickes  
Advised By: Dr. Kelly

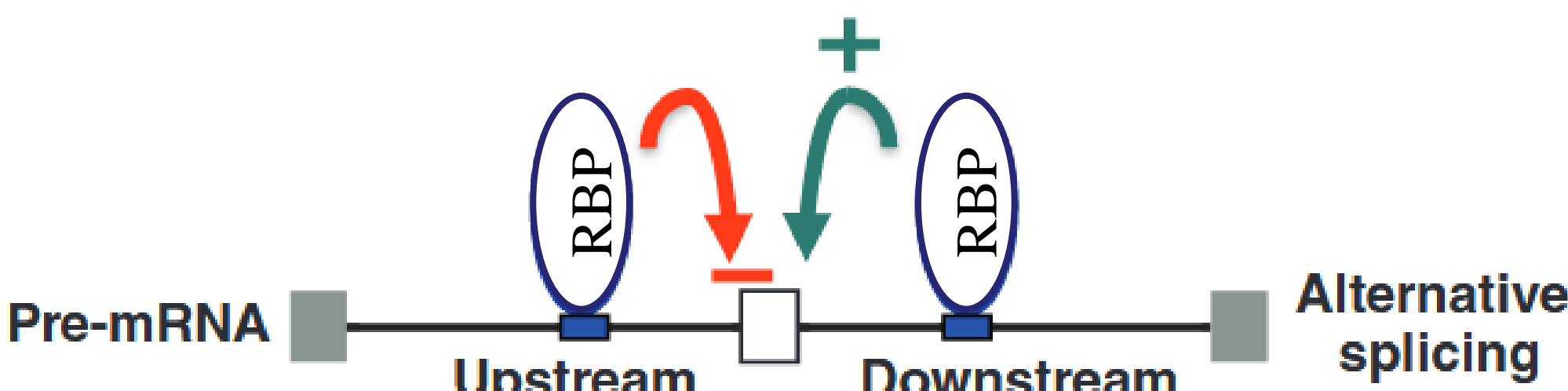
## Introduction



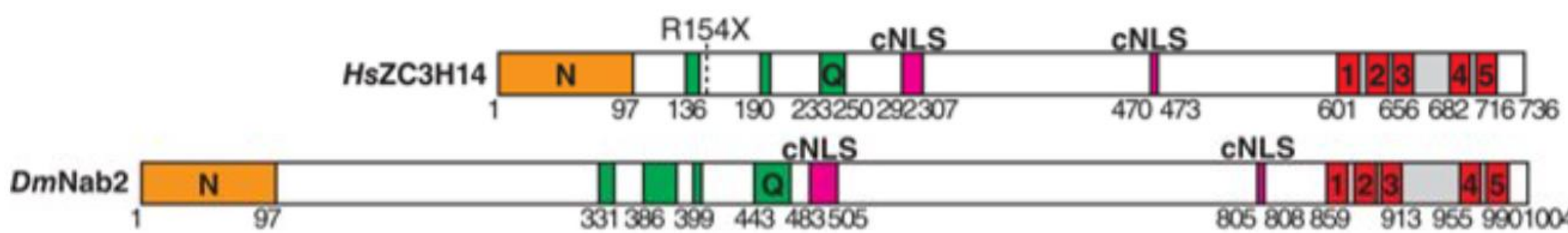
- DNA is transcribed into RNA which is processed into mRNA, then it translated into proteins
- Splicing turns RNA into mRNA



- The spliceosome carries out this process
- Removes introns and attaches exons
- The spliceosome is a large complex of proteins
- One essential protein is SmB



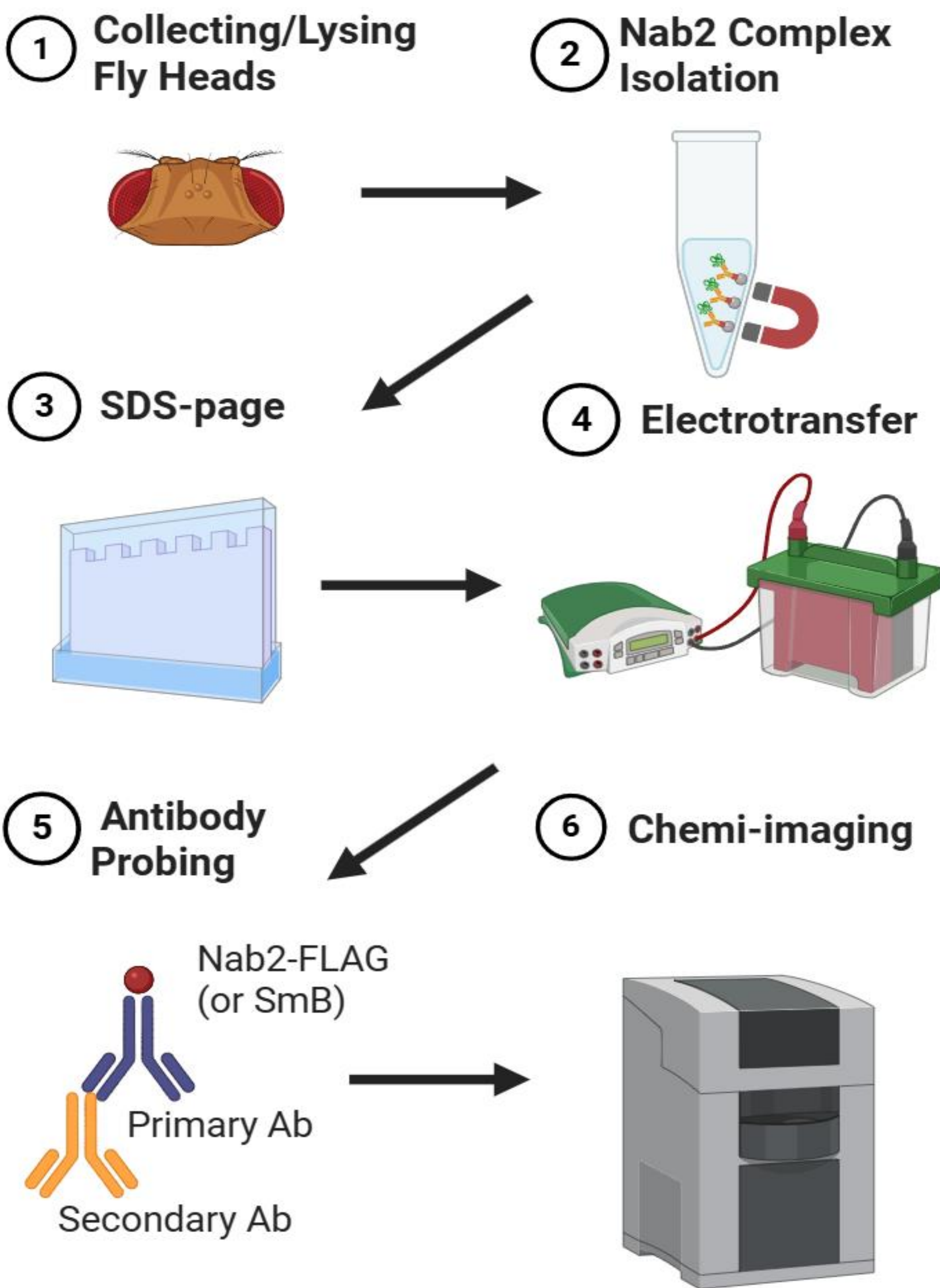
- RNA binding proteins can influence splicing



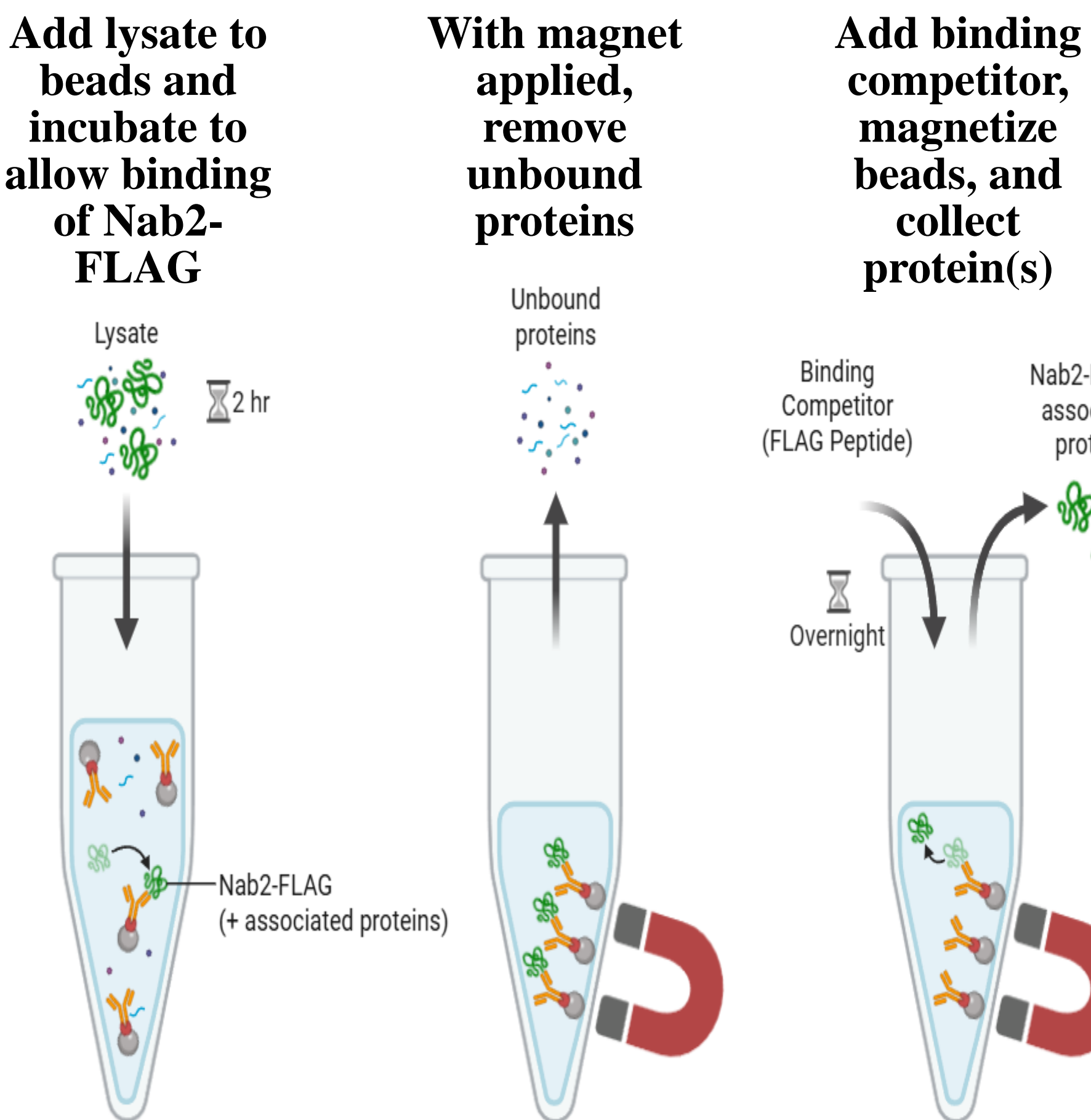
- ZC3H14 is a RBP that effects splicing in humans
- Mutations in this cause a variety of diseases
- Flies have a similar protein called Nab2
- Does Nab2 have the same function as ZC3H14?

## Hypothesis / Methods

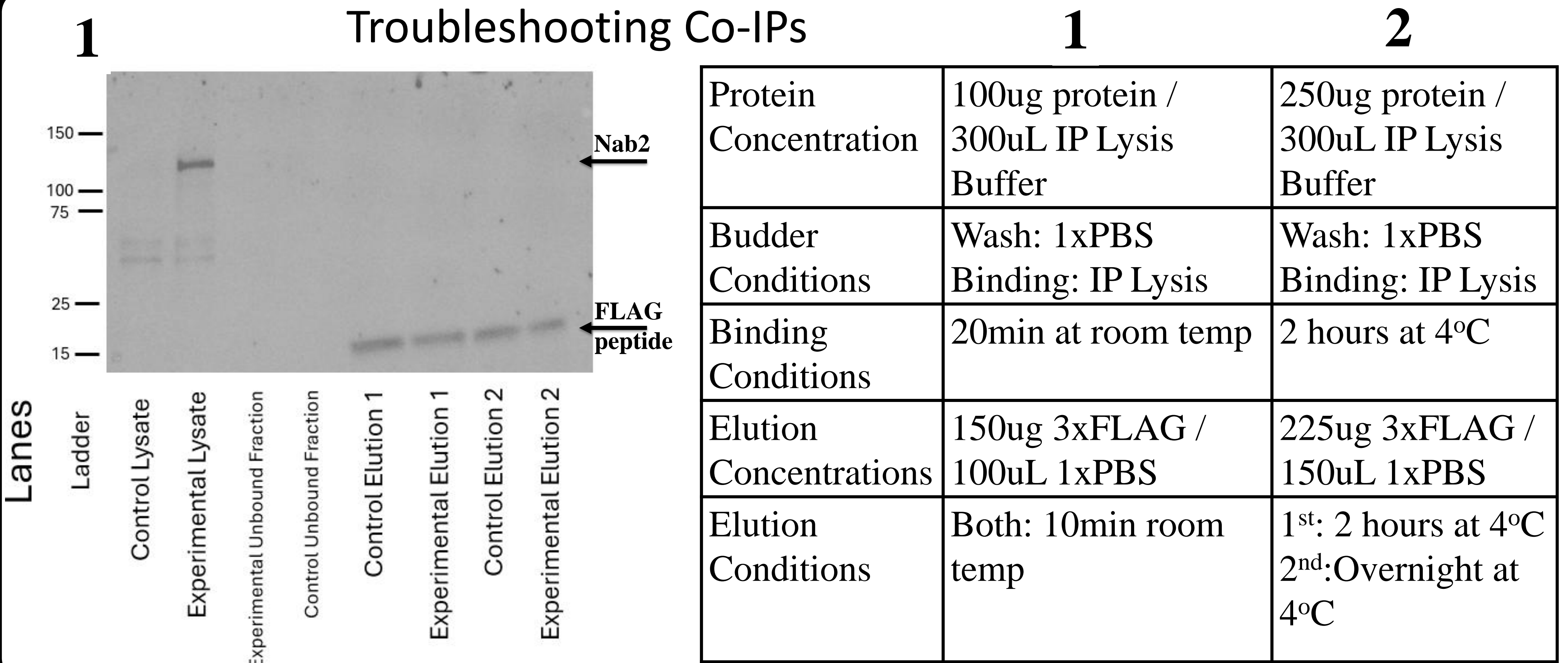
- **Hypothesis:** Nab2 physically interacts with the spliceosomal protein SmB



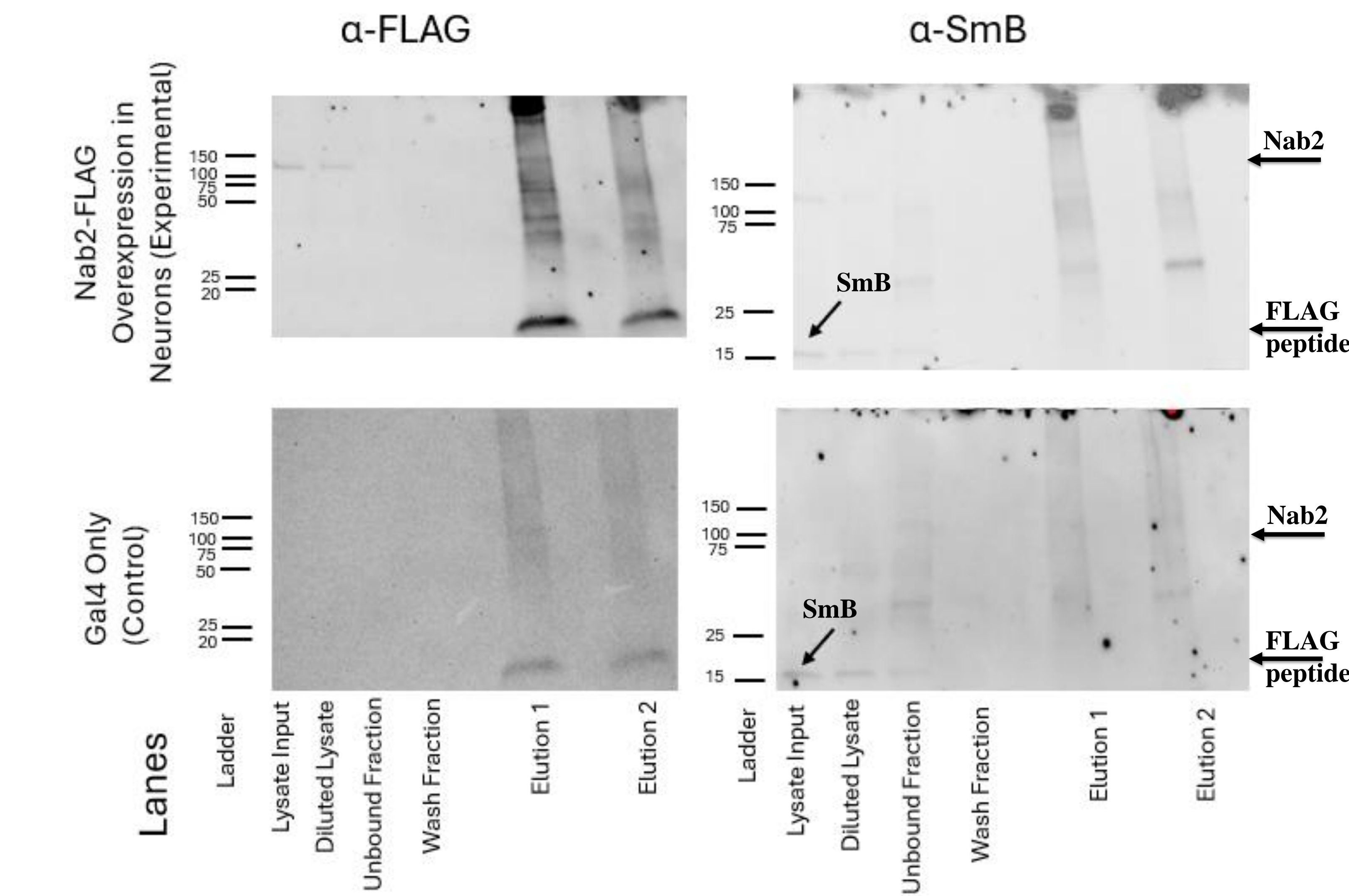
## Co-IP



## Troubleshooting Co-IPs



## Nab2 does not Associate with SmB



## Discussion / Future Work

- Findings **contradict current literature** which shows RNA-dependent interactions between Nab2 and the spliceosome
- Shows the need for **optimization** of Co-IP protocol
- Nab2 possibly influences splicing through **downstream effects** of its known functions
  - Interactions with other RBPs (e.g. Rbfox1)
  - mRNA quality control / export
  - RNA Poly(A) tail regulation
- A *Drosophila* model is **advantageous** for studying intellectual disabilities
- ZC3H14 mutations linked to **intellectual disabilities** in humans

Simple Genome	Rapid Life Cycle	Cost Effectiveness
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