

INI-1 and All of Its Friends: The Analysis of the INI-1 Protein and Associated Proteins That Contribute to Cancer Formation

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Goal:

Identify INI-1 associated proteins and determine their role in tumor formation.

Introduction

One devastating type of cancer is a pediatric atypical teratoid/rhabdoid tumor, whose victims have a mean age of 3.5 years.¹ The protein INI-1 is known to contribute to this tumor's development. The current dogma states that only the loss of INI-1 from the SWI/SNF complex is what leads to the cancer development. However, what if it is not the loss of INI-1 from that complex SWI/SNF causing the cancer, but rather what if the cancer is caused by the unknown proteins that INI-1 associates with?

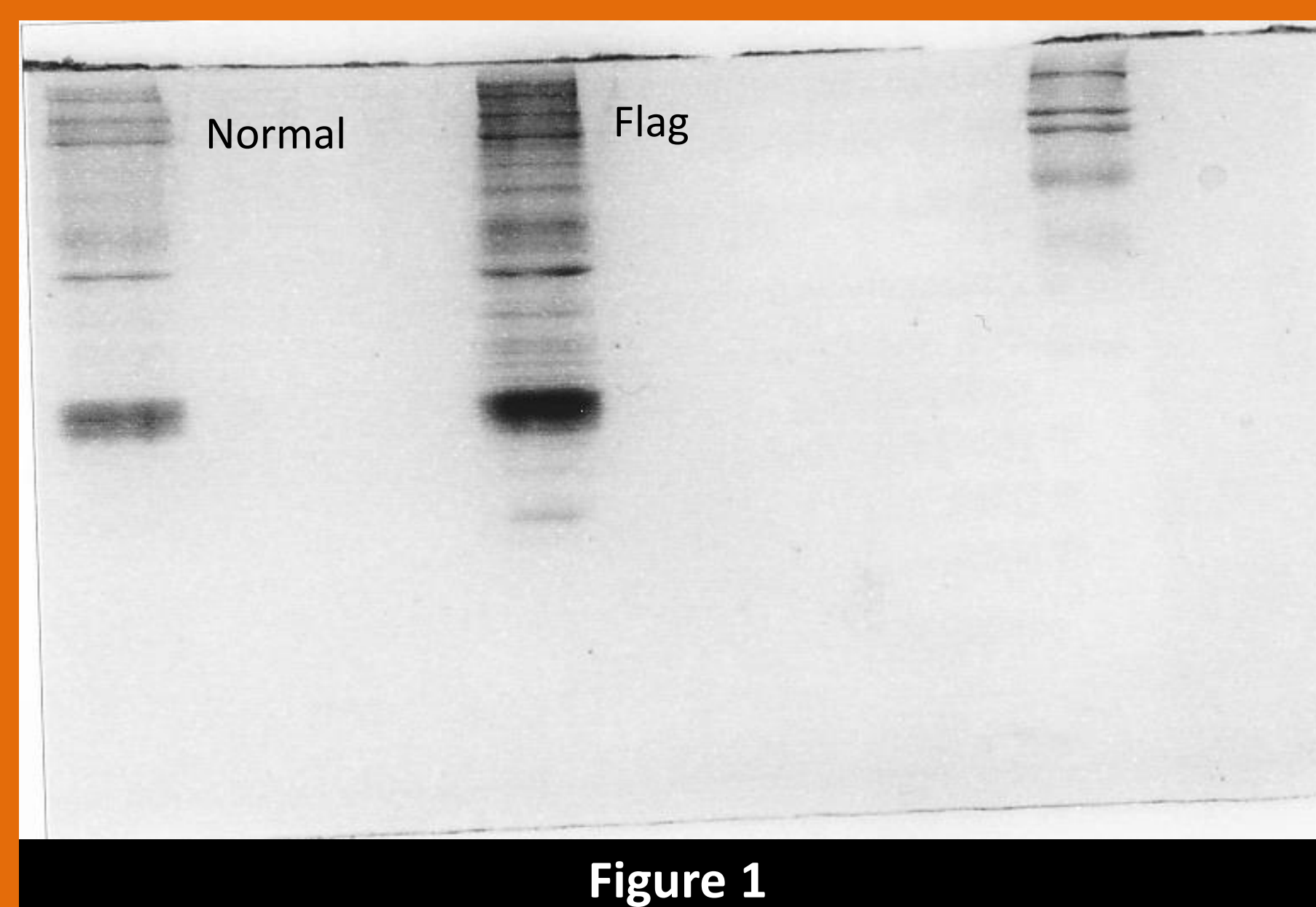


Figure 1

Purpose

- Establish a link between the loss of INI-1 from an unknown protein complex and tumor formation

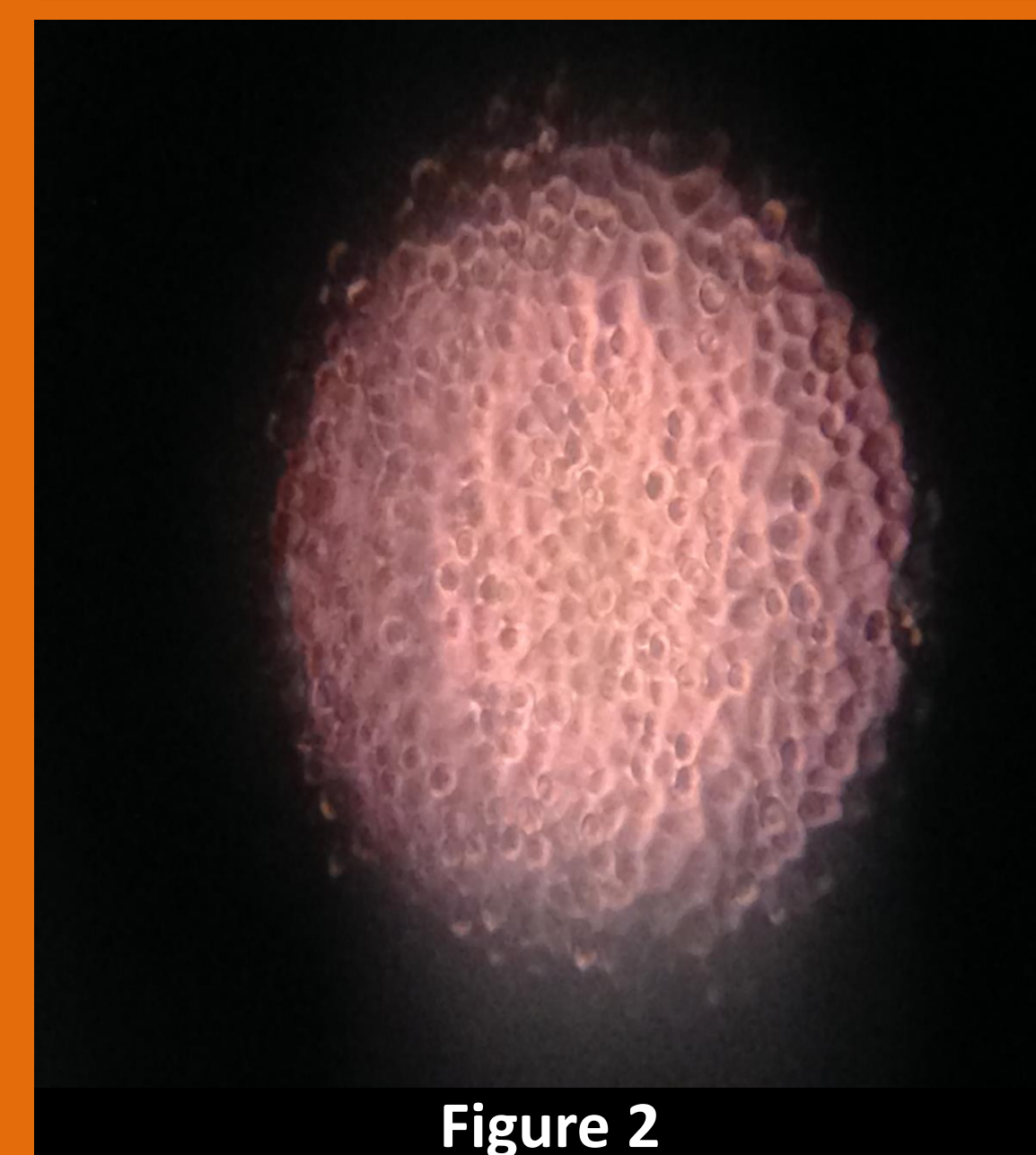


Figure 2

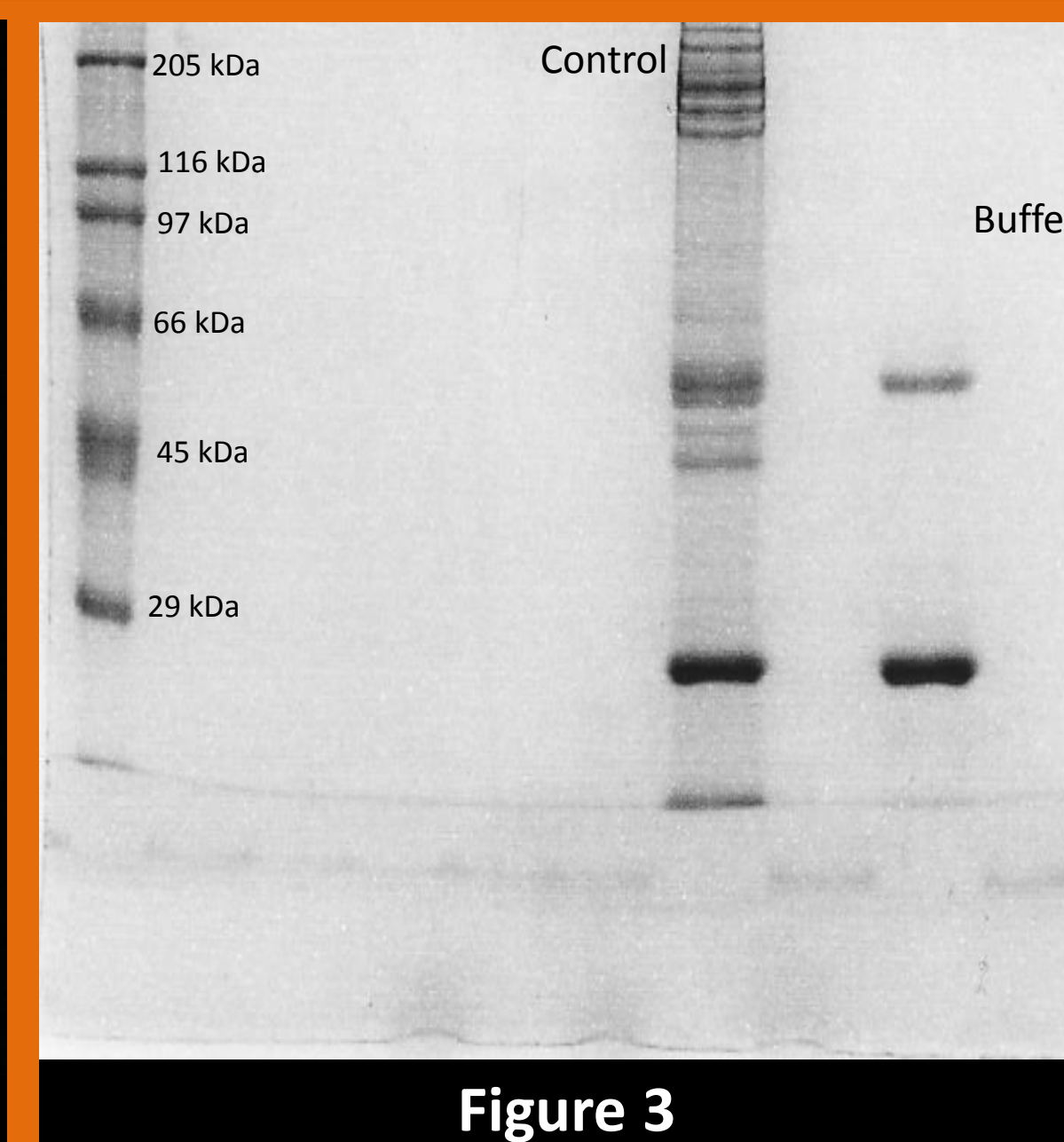


Figure 3

Anticipated Results

- Since INI-1 attaches to the SWI/SNF complex, it is expected that some of the identified proteins will be members of the SWI/SNF complex.
- The result that I expect from the experiment is that I will identify a new protein associated with INI-1. This is expected because INI-1's role in tumor formation is not necessarily associated with the SWI/SNF complex.

Methods

Read several articles to gain knowledge about the INI-1 protein and cell culture.

Grow HeLa cells with a flagged version of INI-1 in petri dishes utilizing sterile techniques and begin growing HeLa cells without flagged INI-1 to use as control.

Save cells by removing them from plates, centrifuging them, and freezing them at -80°C.

Immunoprecipitation of INI-1 and its associated proteins.

Proteomic evaluation of INI-1 containing complexes.

Future Directions

Flagged

Control

Mass Spectrum Analysis

IP-Western Blot to Confirm Results

- During Mass Spectrum Analysis, my control will allow me to exclude non-INI-1 associated proteins from my findings.

Figure Legend

Figure1- SDS PAGE Gel Cells

Figure 2- Flagged HeLa Cells on plate

Figure 3- SDS PAGE Gel Nuclear Extract

References

- <http://www.ncbi.nlm.nih.gov> [1]