

Master's Thesis

Optimization and validation of an affinity based separation process for purification of Lipocalin proteins from natural sample

Keywords: Lipocalin proteins, Co-IP, Äkta, Antibodies, Method development, Protein separation

Project Description

Today, childhood asthma is still a major problem with few effective treatments. It is interesting to note that compared to children living in cities, those who live in rural areas, especially those close to cow farms, have a lower risk of acquiring asthma.

Two lipocalin proteins are among the biomolecules that have been identified by researchers as potentially contributing to this phenomena.

The goal of this study is to create affinity-based separation methods using ligands such as antibodies to separate and identify these lipocalin proteins from natural sample. By providing insight into the defense mechanism that exist in rural areas, this research could contribute to potential strategies for asthma prevention.

The aim of the study is to: 1. Develop an efficient affinity-based separation technique for lipocalin proteins from natural samples using the protein Co-IP method, either directly or indirectly. 2. Find an optimal elution method for Co-IP that preserves the proteins in their natural state. 3. Quantify the amount of protein that has been separated.

Profile

- Well-structured and independent
- Enjoy collaborating with a team
- Currently pursuing a Bachelor's or Master's degree in biotechnology, biochemistry, biology, or similar fields
- Lab experience (particularly with analytical techniques, is a plus but not obligatory)

Start date: as soon as possible

Tasks

1. Literature review
2. Documentation and presentation of the result
3. Using methods such as-
 - SDS-PAGE
 - Co-IP
 - BCA assay
 - Using Äkta (Affinity based chromatography)
 - DLS
 - FTIR

