

Master's/ Semester Thesis

IEX-HPLC Based Separation and Analysis of Lipocalin Proteins with Solid Phase Extraction

Keywords: Lipocalin proteins, IEX-HPLC, SPE, 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 to separate and identify these lipocalin proteins from dust extracts from rural areas. 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 develop an efficient solid phase extraction process for concentrating samples (dust extracts) and achieving reliable separation of Lipocalin proteins using Ion Exchange High-Performance Liquid Chromatography (IEX-HPLC).

Profile

- 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. Development of a solid phase extraction (SPE) methodology
4. Using methods such as-
 - SDS-PAGE
 - Bradford assay
 - Chromatography
 - and others

