Characteristics of Ergothioneine Treated Naphthale

Ergothioneine (ET) is a thiol-thione found highly expressed in mushrooms. Obtained predominantly through diet, scientists have found that ET contains cytoprotective abilities that react to mammalian tissues under oxidative stress, e.g., brain, lung, spleen, liver, etc. However, the full extent of ET’s protective abilities is still unknown, especially in the lungs. I am interested in examining the efficacy of ET when used as a treatment prior to naphthalene (NA) toxicity exposure in juvenile, adult, and old mice. By comparing ET treated mice of various ages to sham, I plan to create a baseline examining the levels of ET and Ergothioneine Transporters (ETT) in the lung, using RT-PCR and mass spectrometry. Once baseline is established, I plan to challenge ET treated adult mice with NA i.p. and NA by inhalation, thus providing evidence of ET’s cytoprotective abilities regardless of route of exposure. Lastly, I plan to examine the efficacy of ET in various ages when exposed to NA. I believe that ET will have a greater cytoprotective effect in the lungs of the adult and old mice compared to the juvenile mice post NA exposure. My findings will help improve our knowledge of the cytoprotective effects of ET in the lungs.