**Intracellular signaling in mature leukocytes as biomarkers in human health**

There is a need for accurate tools to determine potential health effects caused by exposure to different inhalable chemicals or particles. This was especially evident after the accident in Sløvåg in 2007 where individuals working or living in the area probably were exposed to a mixture of hydrocarbons and sulphuric chemicals. Others have linked these chemicals to cancer risk and other illnesses in many publications. This project hypothesize that these chemicals can induce aberrations in intracellular signaling detectable in readily available peripheral blood mononuclear cells. We therefore aim to evaluate signaling related patterns in leukocytes as biomarkers for environmental stress exerted on the healthy population (in particular benzene and hydrogen sulfide exposure). Several phospho proteins have been evaluated through the use of phospho specific flow cytometry, both in a cross sectional population study (Gulen study) and in experiments carried out in vitro in the lab. The project may increase the understanding of the etiology of diseases linked to chemical exposure.