

ETH Zurich

Department of Chemistry and Applied Biosciences

Lactobreath: A pilot study to diagnose lactose intolerance based on the exhaled breath metabolome

Principal Investigator: Prof. Dr. Daniel Pohl, University Hospital Zurich

Participants wanted for a scientific study

For a scientific study, we seek to recruit healthy adult men and women aged between 18 and 60 with or without the ability to digest lactose. Participants should be able to understand and provide written informed consent in English and/or German.

Aim of the study: We would like to test whether we can identify molecules in the breath that can help to discriminate different symptoms of lactose intolerance.

Study schedule and duration: The study will involve three appointments (inclusion, intervention visit, and close-out visit) within a period of four weeks at the Department of Chemistry and Applied Biosciences at ETH Zurich. The inclusion and close-out visits will last approximately 1 hour each. The intervention visit will last approximately 8 hours. After the inclusion visit, you will complete a home screening that lasts approximately 2 hours to assess your ability to digest lactose. Your diet and gut microbiota will be monitored for 3 days. The study intervention is a carbohydrate challenge (lactose or glucose) with monitoring of changes in breath and urine after the consumption of the carbohydrate. You will be assigned to one of the two challenges randomly to ensure a balanced distribution of participants with different tolerances to lactose consumption. The glucose challenge will serve as a control and enable us to consider the specificity of the biomarkers for lactose metabolism. Both challenges involve ingesting the carbohydrate solution (25 g of lactose or equimolar amounts of glucose: 13 g glucose) dissolved in 150 ml water. You will be monitored by non-invasive sampling (breath and urine), and symptoms will be assessed for six hours after ingesting the assigned carbohydrate. Intestinal gases will be monitored during the challenge by a commercially available capsule that will be ingested within 5 minutes of ingesting the carbohydrate solution. All experiments will be conducted at the breath analysis laboratory at the Department of Chemistry and Applied Biosciences at ETH Zurich.

Remuneration: 300 CHF upon the completion of the entire study protocol and travel costs incurred for study visits.

All data will be treated **confidentially**. Participants **should not expect any medical benefit**.

If you are **interested** in taking part in the study and satisfy the above-mentioned criteria, please **contact** Kashish Mallick at +41 44 633 41 26, or Albin Vadakkechira at +41 44 633 48 34 or write at the following email: lactobreath@ethz.ch

If you would like **further information**, please also contact Dr. Kathryn Pimentel at +41 58 467 3187 or Dr. Stamatios Giannoukos at +41 44 632 61 12.