Collection of open protocols and methods on Protocols.io and Github

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1. Introduction

The discovAIR protocols regarding tissue acquisition and processing methods used within the discovAIR project are published via protocols.io and can be found in the workspace Human Cell Atlas Method Development Community. All protocols are tagged with discovAIR so that they can be found easily. Additional protocols can be found within the Human Cell Atlas development community. Newly developed protocols will be published at protocol.io over the course of the Human Lung Cell Atlas project.

Computational methods developed within and outside of the discovAIR project of use for the Lung Biological Network of the Human Cell Atlas are published on GitHub. Newly generated methods or repositories will be added over the course of the Human Lung Cell Atlas project.

2. List of protocols

The following discovAIR protocols are published in protocols.io:

- **Cell dissociation of fresh human lung tissue for single-cell RNA-seq**
  Ilias Angelidis, Maximilian Strunz, Herbert Schiller; x.doi.org/10.17504/protocols.io.zp2f5qe
- **Cell dissociation from nasal and bronchial brushings with cold-active protease for single-cell RNA-seq V.2**
  Laure-Emmanuelle Zaragosi, Pascal Barbry; dx.doi.org/10.17504/protocols.io.qubdwsn
- **Cell dissociation from airway biopsies with cold-active protease for single-cell RNA-seq**
  Laure-Emmanuelle Zaragosi, Pascal Barbry; dx.doi.org/10.17504/protocols.io.x3efqje
- **Single-cell suspension preparation from Human bronchial biopsies to perform scRNA-sequencing using 10x chromium**
  Martijn Nawijn, Leonie Apperloo; dx.doi.org/10.17504/protocols.io.btf2njqe
- **SCRINSHOT V.2**

Alexandros Sountoulidis, Andreas Liontos, Hong Phuong Nguyen, Alexandra Firsova, Athanasios Fysikopoulos, Xiaoyan Qian, Werner Seeger, Erik Sundström, Mats Nilsson, Christos Samakovlis; dx.doi.org/10.17504/protocols.io.bttrnnm6

- CGAP Human Lung Dissociation - Tissue Stability Study
  Anna Wilbrey-Clark, Adam Hunter; dx.doi.org/10.17504/protocols.io.qz9dx96
- HybISS: Hybridization-based In Situ Sequencing
  Daniel Gyllborg, Mats Nilsson; dx.doi.org/10.17504/protocols.io.xy4fpyw
- In situ sequencing for RNA analysis in tissue sections V.2
  Chika Yokota, Daniel Gyllborg, Mats Nilsson; x.doi.org/10.17504/protocols.io.bb2giqbw

Protocols which are still under development for the discovAIR project:

- Single-nucleus isolation from frozen human lung tissue for single-nucleus RNA-seq
  Nikita Joshi, Alexander Misharin; dx.doi.org/10.17504/protocols.io.zu8f6zw
  This protocol was already published by a collaborative group but is still under the development for use in the discovAIR project. When finalized the protocol will be published at protocols.io

3. List of GitHub repo's

The following repositories relevant to the Human Lung Cell Atlas have been deposited in GitHub, many more can be found that are of general interest for single-cell analyses or the Human Cell Atlas consortium:

- Lung Cell Atlas preprocessing pipeline
  Lisa Sikkema, Malte Luecken; https://github.com/LungCellAtlas/LCA_preprocessing
- Lung Cell Atlas scRNA-Seq analysis pipeline
  Lisa Sikkema, Malte Luecken; https://github.com/LungCellAtlas/scRNAseq_pipelines
- FastCAR ambient RNA correction
  Marijn Berg; https://github.com/LungCellAtlas/FastCAR
- scArches
  Mohammad Lotfollahiy; https://github.com/theislab/scarches/blob/master/docs/index.rst