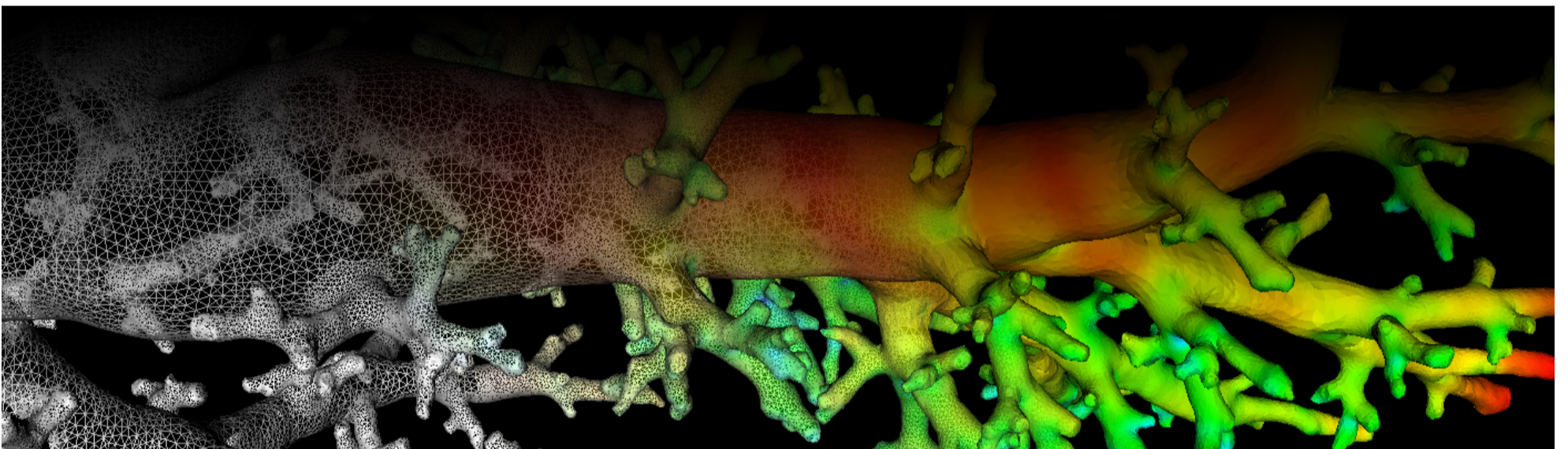


# Lung Anatomy + Particle Deposition (lapd) Mouse Archive for Modeling and Computational Toxicology



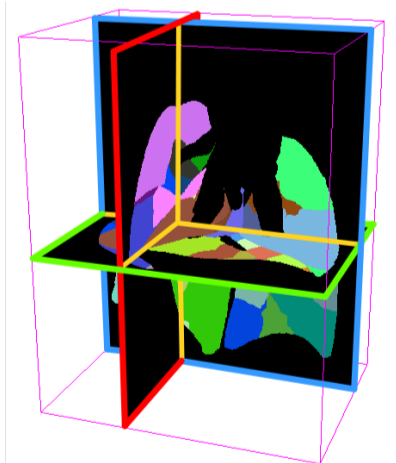
## Labelmap \*\_Sublobes.nrrd

Sublobar compartments labelmap.

The lung tissue is subdivided into sublobar compartments whose regions are stored in the volumetric labelmap \*\_Sublobes.nrrd.

The mouse lung has in each lobe one main airway branch supplying it ([Fig.1](#) and [\\*\\_AirwayTree.meta](#)). The airway segments branching off from this main branch in turn supply their own disjoint regions in the lobe. We call these regions sublobes and store the associated area in labelmap \*\_Sublobes.nrrd. The label of each sublobar compartments corresponds to the ID of the airway segment (stored in [\\*\\_AirwayTree.meta](#)) supplying the sublobe. Label 0 is used for the background.

The size and resolution of labelmap \*\_Sublobes.nrrd is identical to [\\*\\_AerosolNormalizedSub2.mha](#). Aerosol deposition measurements for each sublobe are available in [\\*\\_SublobesDeposition.csv](#).



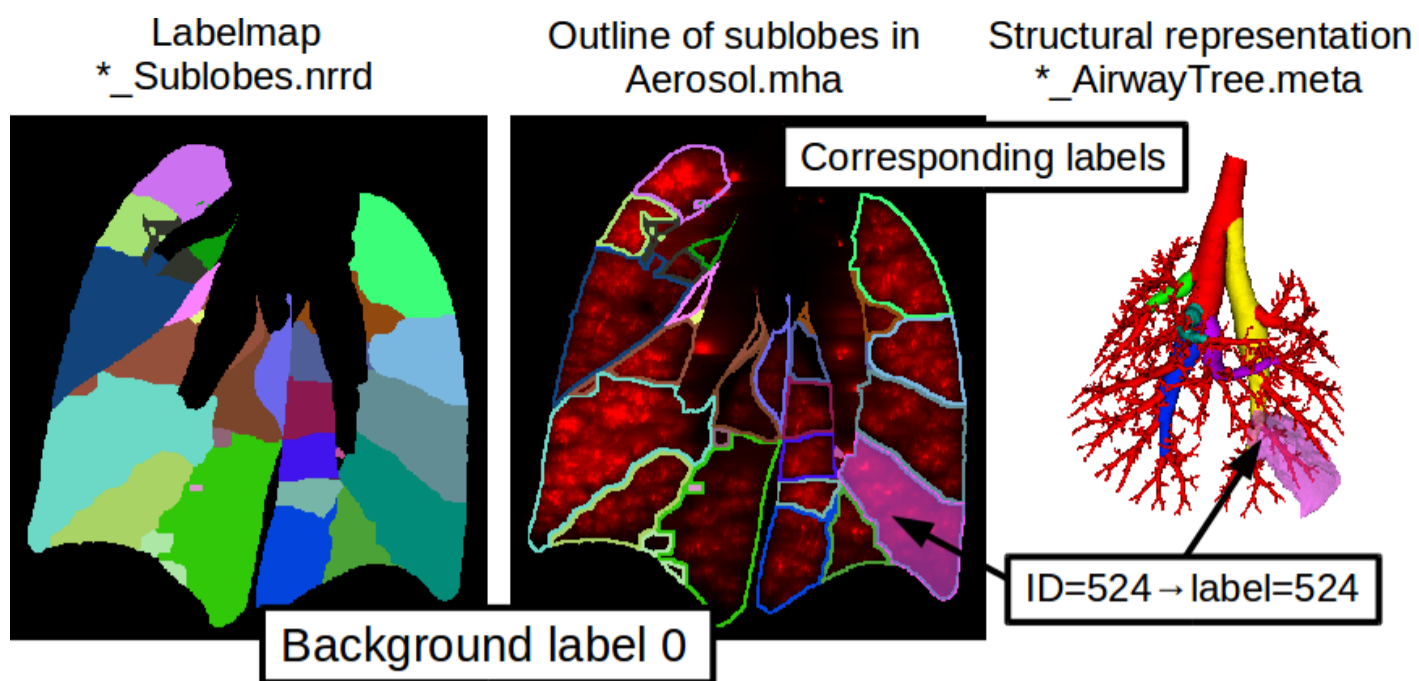


Fig. 1: Coronal image slice of sublobar compartment labelmap volume. The compartments have labels corresponding to the ID of the airway segment supplying the sublobe.

## Code Example

This examples shows how to read and write a volumetric labelmap such as `*_Sublobes.nrrd` using C++ and ITK.

[readWriteLabelmap.cpp](#) hosted with ❤ by [GitHub](#)

[view raw](#)

```

/*
Example how to read and write labelmaps used in lapdMouse project using ITK.

```bash
./readWriteLabelmap m01_NearAcini.nrrd out.nrrd
```
*/

// ITK includes
#include <itkImage.h>
#include <itkImageFileReader.h>
#include <itkImageFileWriter.h>

int main(int argc, char**argv)
{
    if (argc!=3)
    {
        std::cerr << "Usage: " << argv[0] << " input output" << std::endl;
        return -1;
    }

    // typedef for volumetric labelmaps used in lapdMouse project
    typedef itk::Image< unsigned short, 3 > LabelmapType;

```

## Related Data Structures

[\\*\\_SublobesDeposition.csv](#) | [\\*\\_AirwayTree.meta](#) | [\\*\\_AerosolNormalized\\*.mha](#)

## Related Code Examples

[readWriteLabelmap.cpp](#) | [imageLabelStatistics.cpp](#)