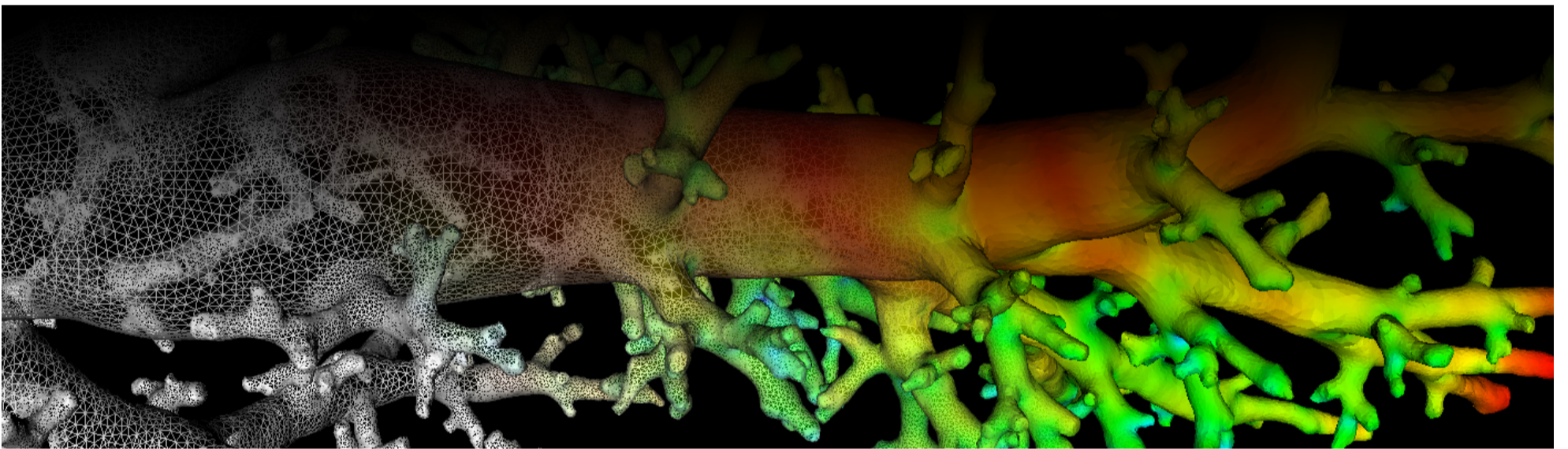
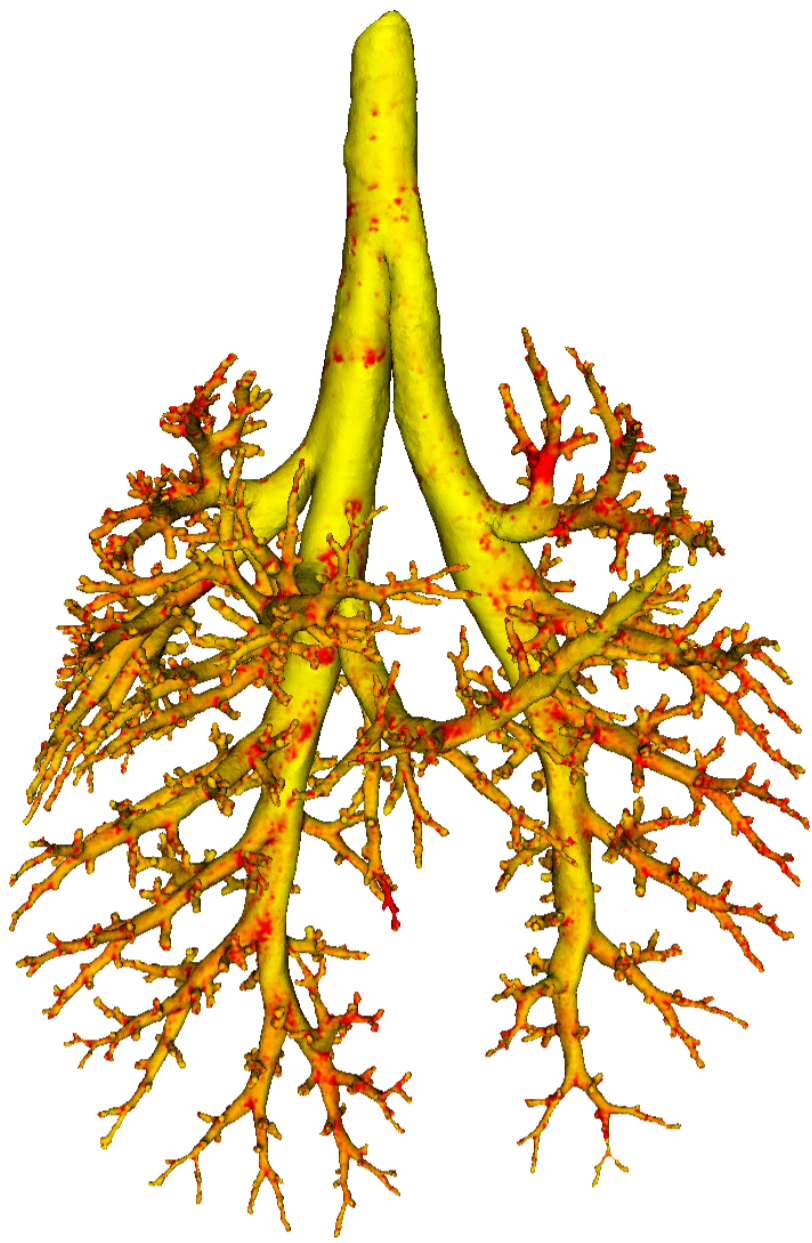


Lung Anatomy + Particle Deposition (lapd) Mouse Archive for Modeling and Computational Toxicology



m34

[Go to data folder](#)



Mouse Physiologic Parameters

- Sex: Male
- Strain: BALB/c
- Weight (g): 25.3
- Vendor: Jackson Labs
- Physical abnormalities: None
- Protocol (<https://cebs-ext.niehs.nih.gov/cahs/file/lapd/pages/Core/Animal%20Model.pdf>)

Aerosol Dosing

- Particle size: 0.5 microns
- Exposure time: 10 minutes
- Exposure estimate: 9.18E+08 FMS

| Time | RR (bpm) | Vt (ml) | VE (ml/min) | I:E |
|--------------------|----------|---------|-------------|------|
| Pre Aerosol | 235 | 0.32 | 75.4 | 0.77 |
| Post 5min Aerosol | 168 | 0.22 | 36.1 | 0.45 |
| Post 10min Aerosol | 164 | 0.25 | 41.3 | 0.58 |

Slicing Info

- Approximate lung orientation: LAS
- Camera: D7100, 14-bit, 200mm Nikkor Macro lens, f/16
- Voxel size: 4.68 x 4.68 x 9.52 (microns)
- Image exposures (msec). ISO=160, all images.

| | mt | ol | fl | rd | Notes |
|------------|-------|-------|--------|--------|------------------------|
| excitation | UVND2 | UVND2 | 485/20 | 560/20 | center wavelength/fwhm |

| emission | MA | 470/30 | 535/30 | 635/30 | Notes |
|----------|---------------|--------|--------|--------|-------------------------|
| Image | Exp | Exp | Exp | Exp | Notes |
| white | 50 | 250 | 8000 | 250 | Rhodamine B in OCT |
| cal | 20 | 167 | 67 | 400 | |
| cal-2 | 40 | 250 | 100 | 500 | Increased all exposures |
| images | | 77 | 20000 | 3000 | |
| darks | | 77 | 20000 | 3000 | |

- Notes regarding slicing:
 - Tons of camera hours. One 4-hr down-time, but with just main bronchi showing.
 - Many shards in this sample.
 - Good aerosol signal, though some saturated "stars."
 - Overall, this looks ok.

Airway Segmentation

- Total centerline length: 622.585 mm
- Number of branches: 1714
- Number of terminal branches: 859
- Maximum generation number: 27
- Number of outlet areas: 2088

Compartment Sizes and Aerosol Deposition

- Lung volume: 1185.52 (mm³)

| Compartments | Count | Volume (mm ³) |
|--------------|-------|---------------------------|
| Lung | 1 | 1185.52 |
| Lobes | 5 | 237.10±109.75 |
| Sublobes | 55 | 21.19±20.22 |
| Near acini | 349 | 3.27±1.99 |

| Lobe | Volume (mm ³) | Average aerosol deposition |
|-----------|---------------------------|----------------------------|
| left | 404.20 | 1.16±2.63 |
| cranial | 221.55 | 1.38±1.42 |
| middle | 136.73 | 1.13±1.48 |
| caudal | 313.19 | 1.07±1.05 |
| accessory | 109.84 | 1.05±3.16 |

Additional Notes

- Overall quality: B
- Image data looks blurrier than usual