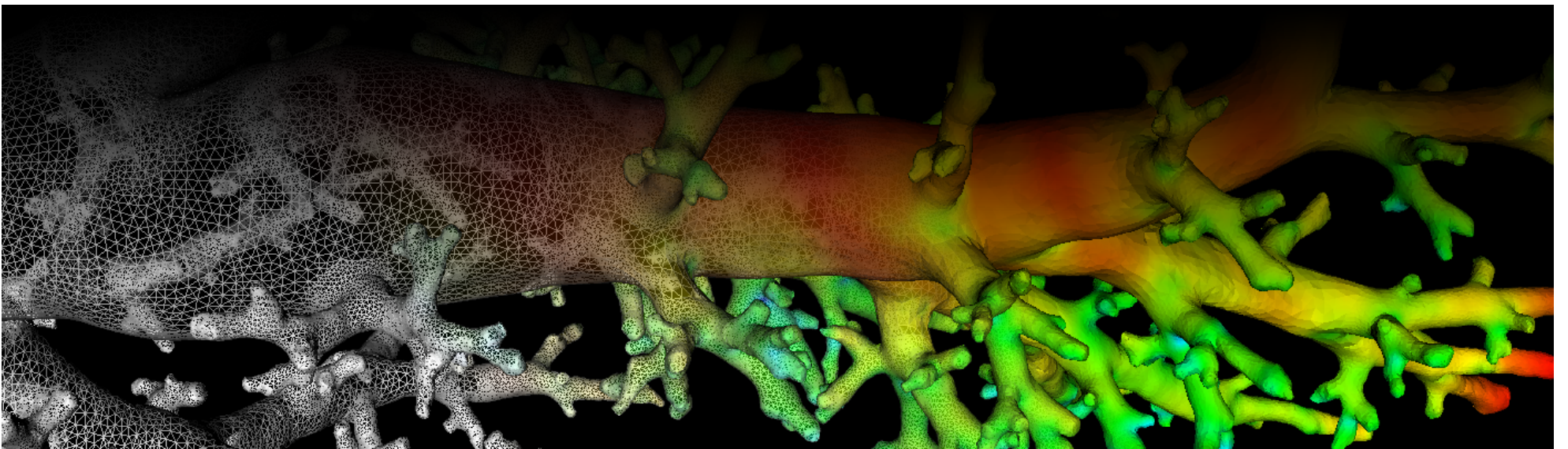
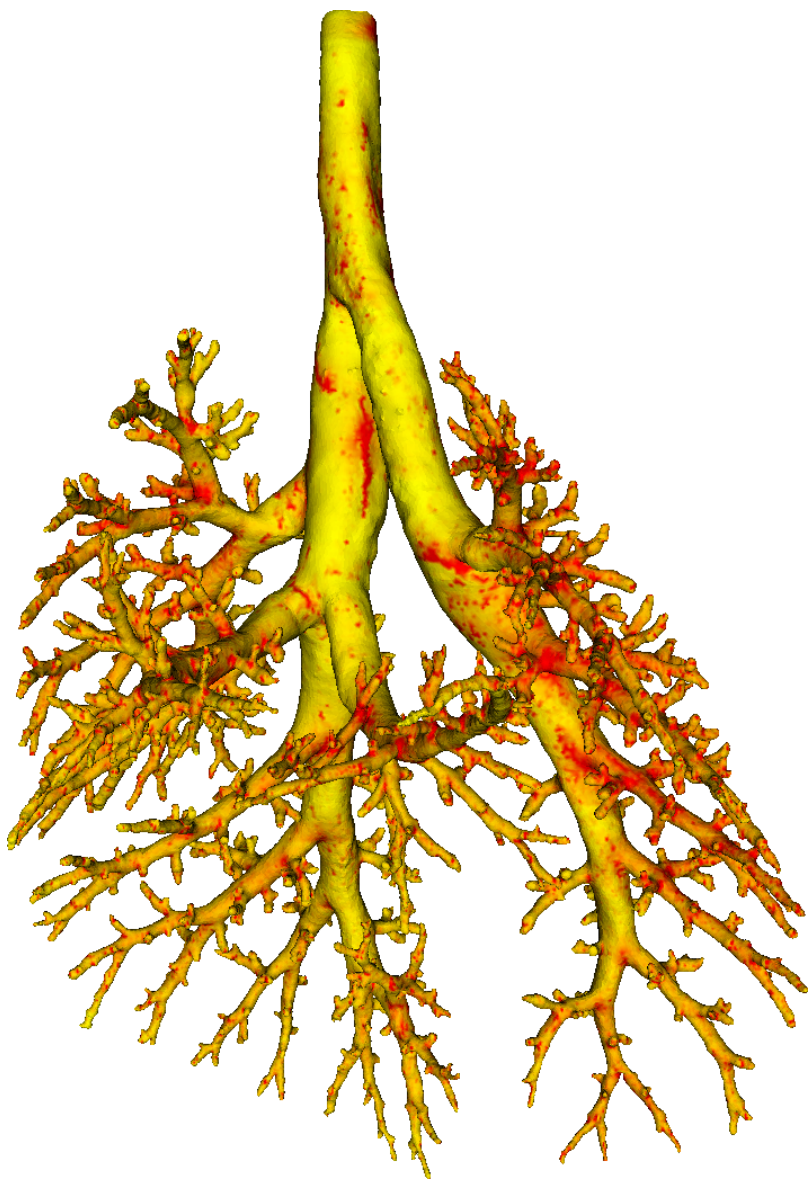


Lung Anatomy + Particle Deposition (lapd) Mouse Archive for Modeling and Computational Toxicology



m03

[Go to data folder](#)



Mouse Physiologic Parameters

- Sex: Male
- Strain: BALB/c
- Weight (g): 23.8
- Vendor: Jackson Labs
- Physical abnormalities: some OCT on left lung after freezing
- Protocol (<https://cebs-ext.niehs.nih.gov/cahs/file/lapd/pages/Core/Animal%20Model.pdf>)

Aerosol Dosing

- Particle size: 1 micron
- Exposure time: 10 minutes
- Exposure estimate: unknown

Time	RR (bpm)	Vt (ml)	VE (ml/min)	I:E
Pre Aerosol	279	0.19	54.1	0.94
Post 5 Aerosol	305	0.19	57.6	0.94
Post 10 Aerosol	184	0.12	21.9	0.69

Slicing Info

- Approximate lung orientation: LAS
- Camera: D7100, 14-bit, 200mm Nikkor Macro lens, f/16
- Voxel size: 4.56 x 4.56 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

	mt	ol	fl	rd	Notes
emission	N/A	470/30	535/30	635/30	(nm)
Image	Exp	Exp	Exp	Exp	Notes
white	25	125	100	500	white paper, x=UVND2
white	25	25	4	4	white paper, m=EMPTY
cal	50	50	50	100	
images	N/A	50	20000	400	
darks		50	20000	400	

- Notes regarding slicing:
 - This lung looked good overall, though it was a bit rotated in the mold.
 - There was one long stoppage. I tried smearing the sample surface with OCT instead of a wet Kimwipe. This is not an optimal way to recover after the sample sits dormant for many hours.

Airway Segmentation

- Total centerline length: 556.905 mm
- Number of branches: 1309
- Number of terminal branches: 655
- Maximum generation number: 25
- Number of outlet areas: 1725

Compartment Sizes and Aerosol Deposition

- Lung volume: 1142.07 (mm³)

Compartments	Count	Volume (mm ³)
Lung	1	1142.07
Lobes	5	228.41±108.80
Sublobes	56	19.96±20.79
Near acini	303	3.60±2.57

Lobe	Volume (mm ³)	Average aerosol deposition
left	404.06	1.28±1.80
cranial	196.08	1.31±1.94
middle	147.44	1.09±1.19
caudal	294.17	0.92±1.12
accessory	100.33	1.12±1.59

Additional Notes

- Overall quality: B
- OCT leakage and lung lobe shapes caused some issues for segmentation of accessory and caudal lobe
- Imaging artifacts caused some missing peripheral airway subtrees and inaccuracies of airway wall surface segmentations