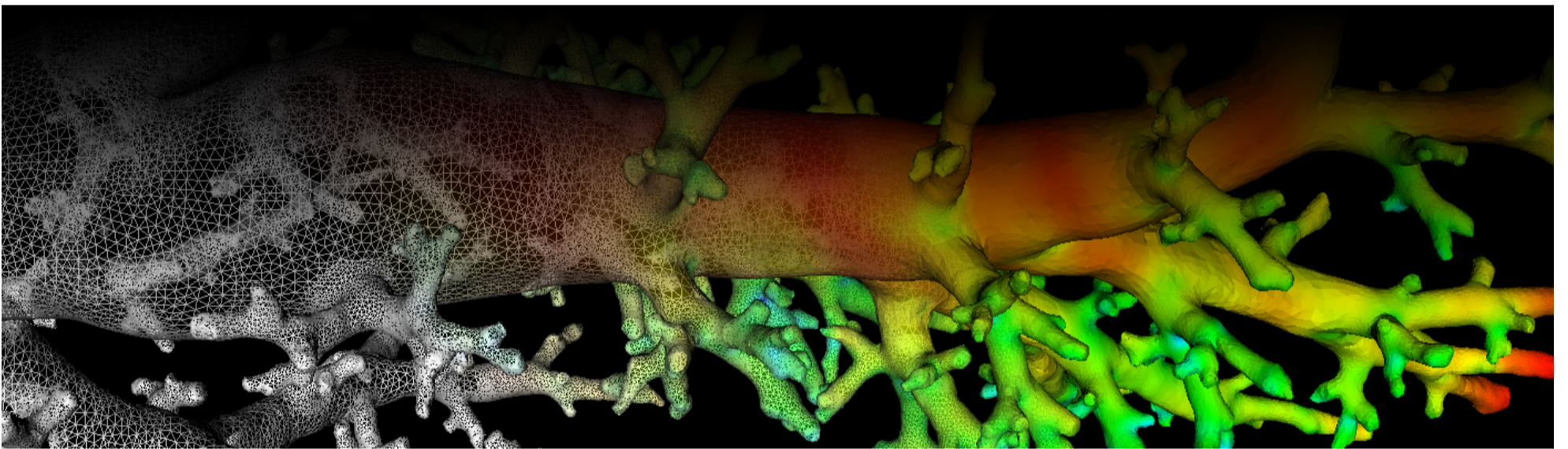
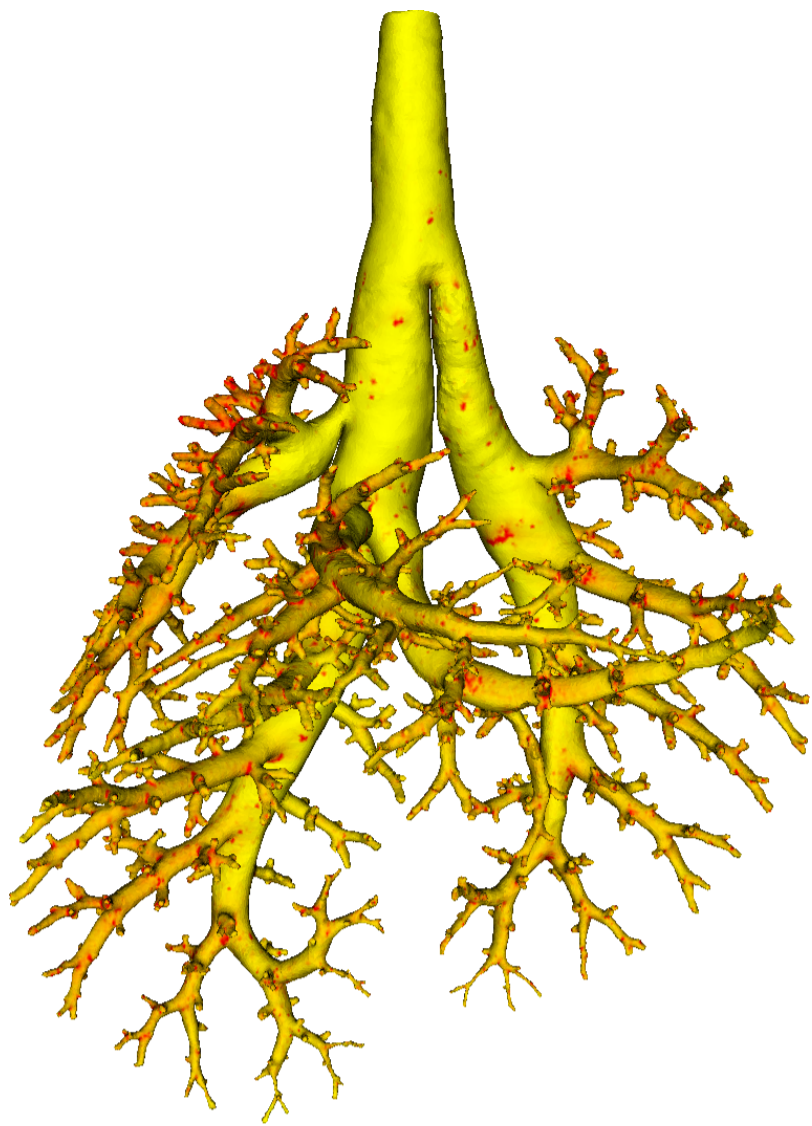


Lung Anatomy + Particle Deposition (lapd) Mouse Archive for Modeling and Computational Toxicology



m12

[Go to data folder](#)



Mouse Physiologic Parameters

- Sex: Female
- Strain: CD-1
- Weight (g): 24.5
- Vendor: Charles Rivers
- Physical abnormalities: none
- 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: 6.24E+08 FMS

Time	RR (bpm)	Vt (ml)	VE (ml/min)	I:E
Pre Aerosol	219	0.36	77.8	0.95
Post 5 Aerosol	241	0.38	91.1	1.07
Post 10 Aerosol	189	0.34	64.8	0.78

Slicing Info

- Approximate lung orientation: LAS
- Camera: D7100, 14-bit, 200mm Nikkor Macro lens, f/16
- Voxel size: 4.64 x 4.64 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	N/A	470/30	535/30	635/30	(nm)

	mt	ol	fl	rd	Notes
Image	Exp	Exp	Exp	Exp	Notes
white	25	125	6000	167	1 drop rhodamine B/10mL OCT
cal	20	50	40	200	
images	N/A	50	15000	333	
darks		50	15000	333	

- Notes regarding slicing:
 - One long stoppage during slicing (at 763/764)
 - I accidentally scraped the sample surface (slice 1050)

Airway Segmentation

- Total centerline length: 582.052 mm
- Number of branches: 1512
- Number of terminal branches: 758
- Maximum generation number: 28
- Number of outlet areas: 1855

Compartment Sizes and Aerosol Deposition

- Lung volume: 1197.04 (mm³)

Compartments	Count	Volume (mm ³)
Lung	1	1197.04
Lobes	5	239.41±105.52
Sublobes	56	20.80±20.45
Near acini	421	2.69±1.57

Lobe	Volume (mm ³)	Average aerosol deposition
left	370.61	1.13±1.06
cranial	228.63	1.61±1.21
middle	151.02	1.11±0.89
caudal	345.90	1.05±0.82
accessory	100.88	1.03±0.81

Additional Notes

- Overall quality: B
- Long cryomicrotome stoppage caused imaging artifacts affecting segmentations.
- Some medium diameter airway branches close to the top of the sampe are missing.
- Left main bronchus, after trachea, has unusual shape and some segmentation issues.
- In some parts between cranial and caucal lobe no fissure was visible which made lobe segmentation difficult.