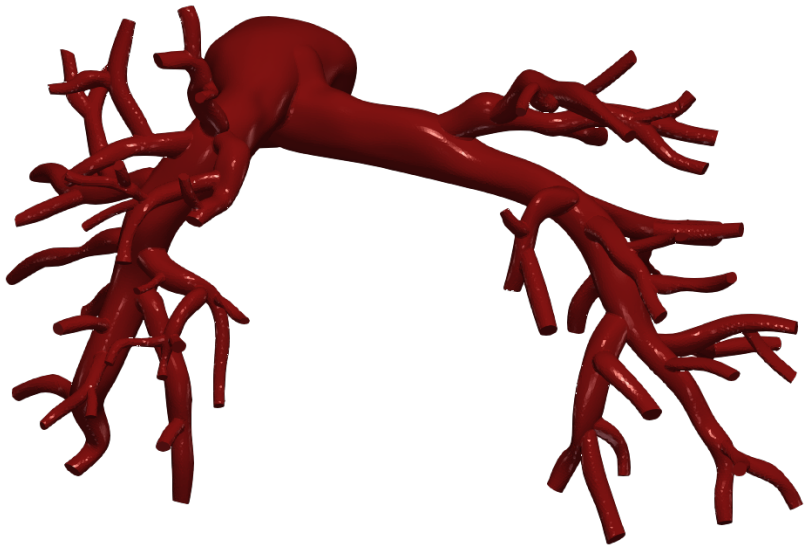
Vascular Model Repository Specifications Document



SU0241

Species	Human
Anatomy	Pulmonary
Disease	Healthy
Procedure	-

Clinical Significance and Background

Pulmonary

The pulmonary arteries are blood vessels that carry systemic venous blood returning to the right side of the heart through to the microcirculation of the lungs. Unlike in other organs where arteries supply oxygenated blood, the blood carried by the pulmonary arteries is deoxygenated, as it is venous blood returning to the heart. The main pulmonary arteries emerge from the right side of the heart, and then split into smaller arteries that progressively divide and become arterioles, eventually narrowing into the capillary microcirculation of the lungs where gas exchange occurs.

Clinical Data

General Patient Data

Age (yrs)	7
Sex	Male

Specific Patient Data

Weight (kg)	24
Height (cm)	125
Qp (L/min)	1.9
RVEDV (ml)	63
RVESV (ml)	34

Notes

See below for information on the image data and boundary conditions associated with the model.

Image Modality: MRA

Image Type: DICOM

Image Source: Lucille Packard Children's Hospital

Publications

See the following publications which include the featured model for more details:

Yang, W., Dong, M., Rabinovitch, M., Chan, F. P., Marsden, A. L., & Feinstein, J. A. (2019). Evolution of hemodynamic forces in the pulmonary tree with progressively worsening pulmonary arterial hypertension in pediatric patients. Biomechanics and modeling in mechanobiology, 18(3), 779-796. http://www.doi.org/10.1007/s10237-018-01114-0

Dong, M., Yang, W., Tamaresis, J. S., Chan, F. P., Zucker, E. J., Kumar, S., ... & Feinstein, J. A. (2020). Integrative Cardiovascular Physiology and Pathophysiology: Image-based scaling laws for somatic growth and pulmonary artery morphometry from infancy to adulthood. American Journal of Physiology-Heart and Circulatory Physiology, 319(2), H432. http://www.doi.org/10.1152/ajpheart.00123.2020

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