



**1PM**

6PM in London (GMT), 3AM in Tokyo (GMT+9)

## **Multiscale Illustrations and Animations**

**Moderator:** Todd Theriault, *Indiana University*

**Presenters:**

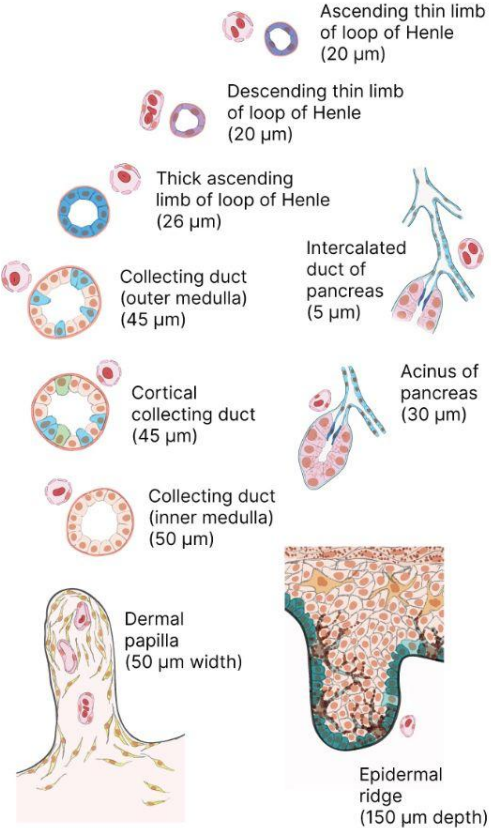
- Heidi Schlehlein, *Indiana University*
- Ushma Patel, *Indiana University*
- Rachel Bajema, *Indiana University*



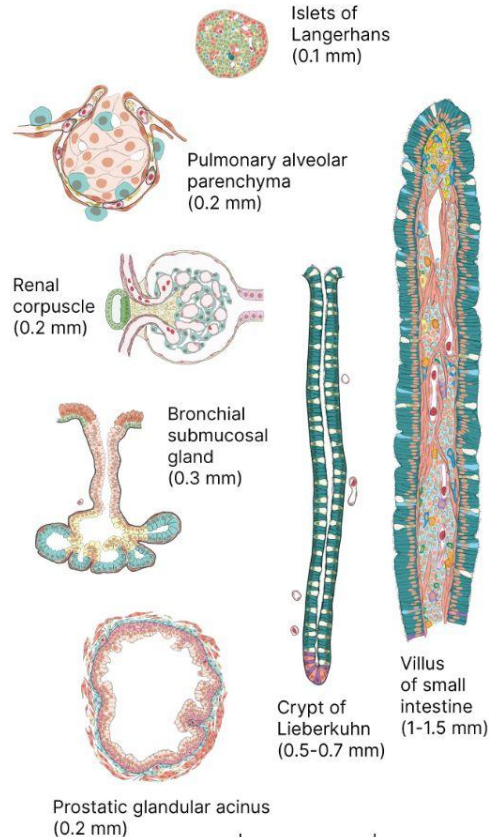
**Rachel Bajema, *Indiana University***

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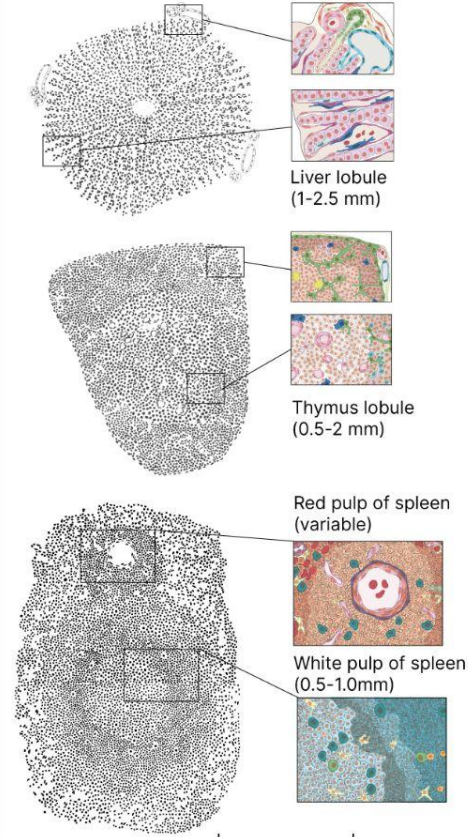
# Functional Tissue Unit Interactive Illustrations



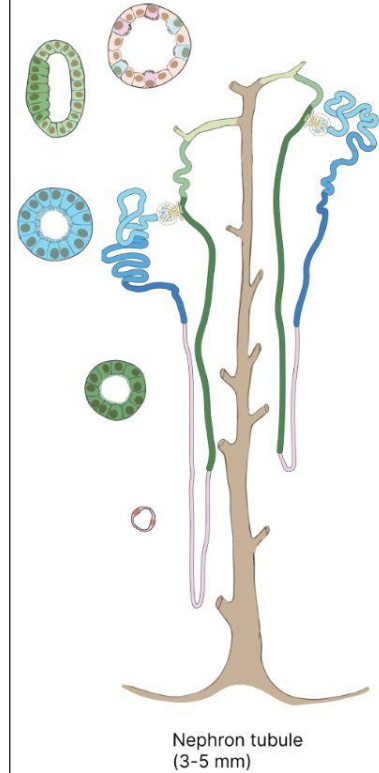
0.1 mm



0.2 mm



0.5 mm



1 mm

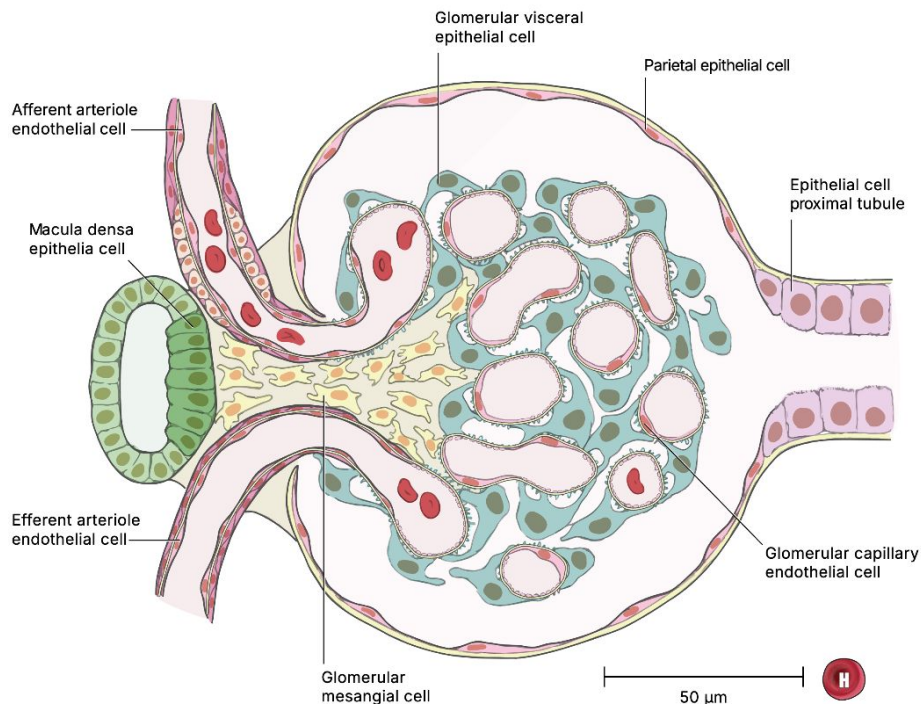


**Human Reference Atlas** Functional Tissue Unit Explorer

FTU Explorer

- FTU Library**
- Kidney
    - loop of Henle ascending limb thin segment
    - Cortical Collecting Duct
    - descending limb of loop of Henle
    - inner medullary collecting duct
    - nephron
    - outer medullary collecting duct
    - renal corpuscle**
    - thick ascending limb of loop of Henle
  - Large Intestine
    - crypt of Lieberkuhn of large intestine
  - Liver
    - liver lobule
  - Lung
    - bronchus submucosal gland
    - alveolus of lung
  - Pancreas
    - intercalated duct of pancreas
    - islet of Langerhans
    - pancreatic acinus
  - Prostate Gland
    - prostate glandular acinus
  - Skin
    - papillary layer of dermis
    - epidermal ridge of digit
  - Small Intestine
    - intestinal villus
  - Spleen
    - red pulp of spleen
    - white pulp of spleen
  - Thymus
    - thymus lobule

renal corpuscle



Embed illustration | Download illustration | Illustration Metadata

Cell Types by Gene Biomarkers | Cell Types by Protein Biomarkers | Cell Types by Lipid Biomarkers

Cell Type	Cell Count	ADM [ENSG000...]	ALSS [ENSG000...]	AMAP1 [ENSG000...]	AKT1 [ENSG000...]	ALPHA2 [ENS...]	ALSCCL [ENSG...]	ANKRD39 [ENS...]	ANKRD38 [ENS...]	ANKRD39C [EN...]
glomerular capillary endothelial ...	344	●	●	●	●	●	●	●	●	●
glomerular mesangial cell	99	●	●	●	●	●	●	●	●	●
glomerular visceral epithelial cell	341	●	●	●	●	●	●	●	●	●
parietal epithelial cell	266	●	●	●	●	●	●	●	●	●

Biomarker Expression Mean in FTU | 
  Percentage of Cells in FTU

0.0 — 1.0 | 0% 50% 100%

Source Data

<input checked="" type="checkbox"/>	Authors	Year	Paper Title	Paper DOI
<input checked="" type="checkbox"/>	Yoshiharu Muto, Parker C ...	2021	Single cell transcriptional ...	<a href="https://doi.org/10.103...">https://doi.org/10.103...</a>

The background of the slide features several abstract, overlapping shapes in shades of light blue and green. These shapes are filled with numerous small, multi-colored dots in red, green, and blue, giving them a textured, particle-like appearance. The shapes are arranged in a vertical, somewhat scattered pattern, with some appearing more prominent than others.

**Heidi Schlehle**, *Indiana University*

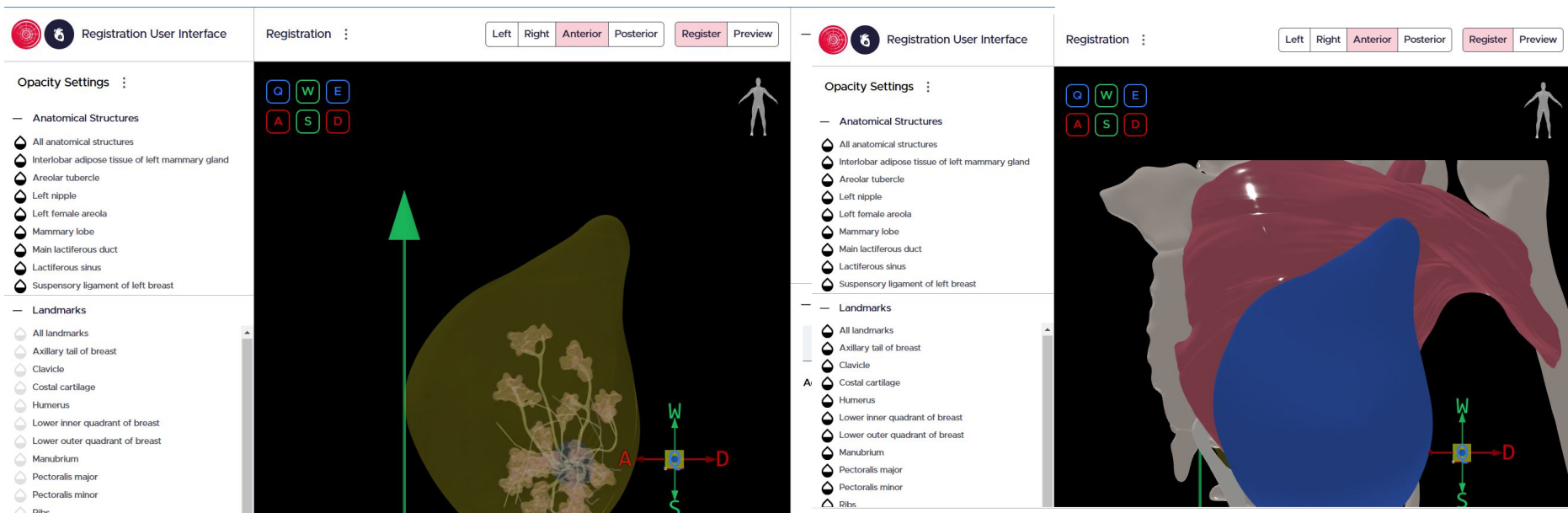
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# Other art

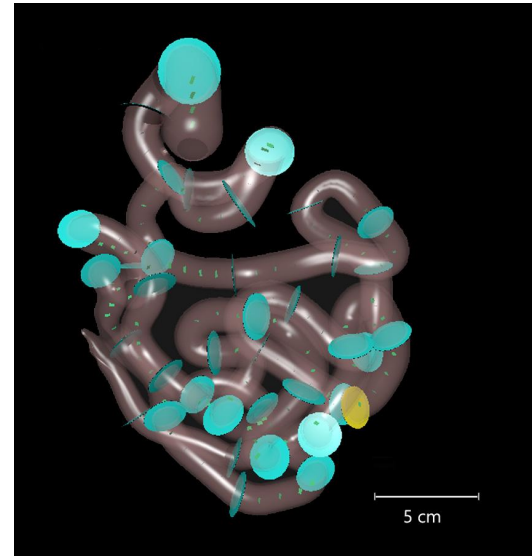
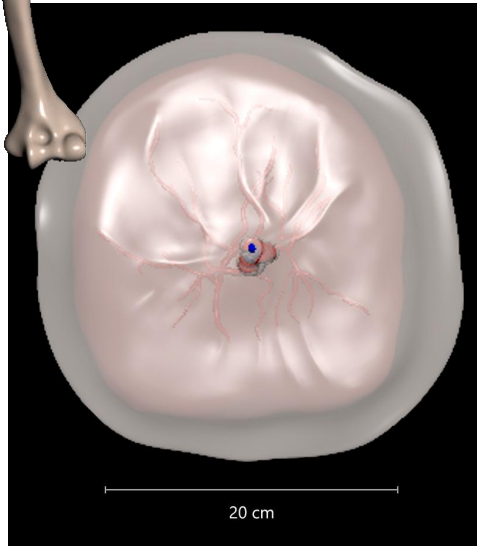
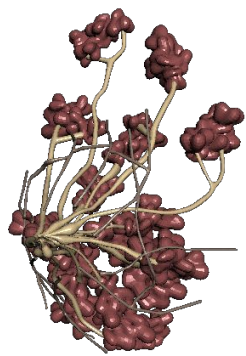
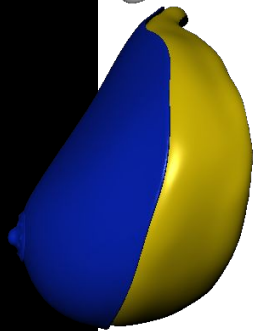
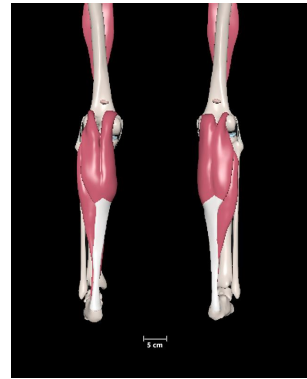
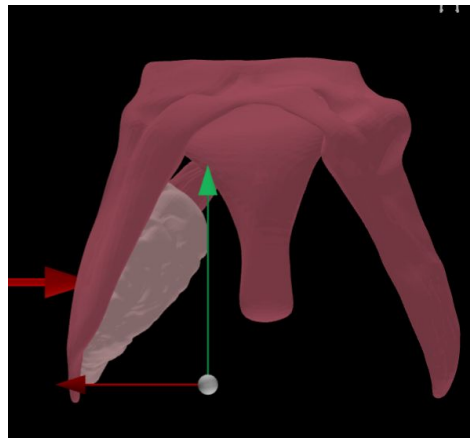
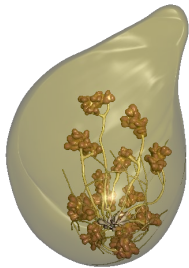
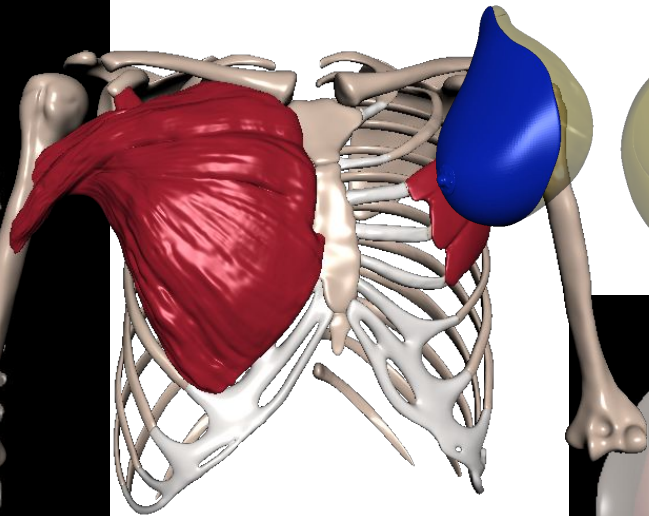
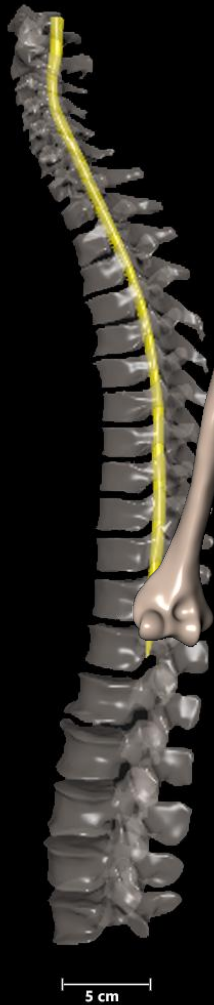


# RUI landmark models

RUI before and after landmarks



# HRA models





# Nature cover

Swag on Redbubble! <https://www.redbubble.com/people/Hschle/shop>



iPhone Magsafe Tough Case

\$37.61

\$50.15 (25% off)



pack

.79

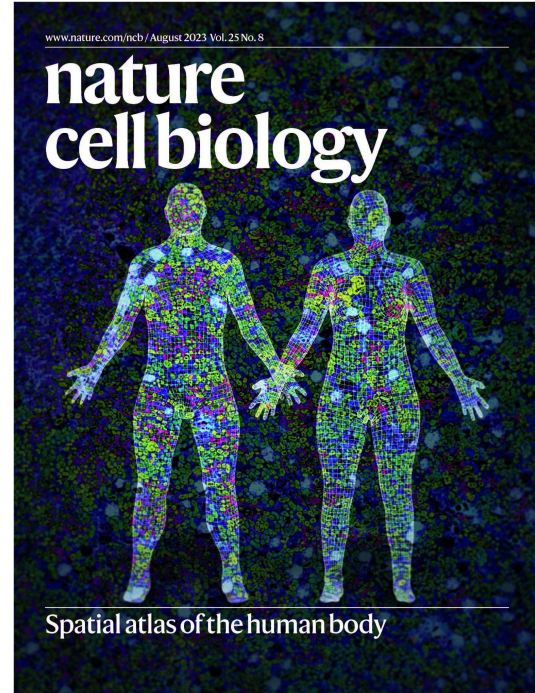
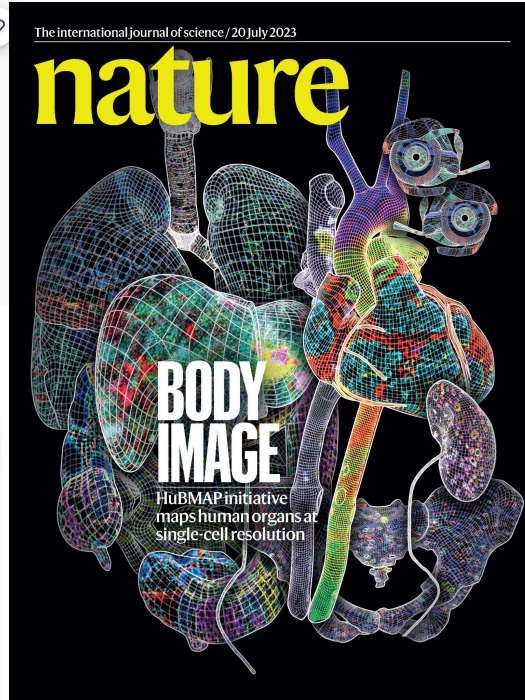
20 (20% off)



Graphic T-Shirt

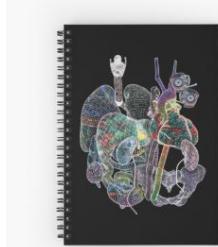
\$25.58

33 (25% off)



magnet

\$6.00



Spiral Notebook

\$11.41

\$15.22 (25% off)



Classic Mug

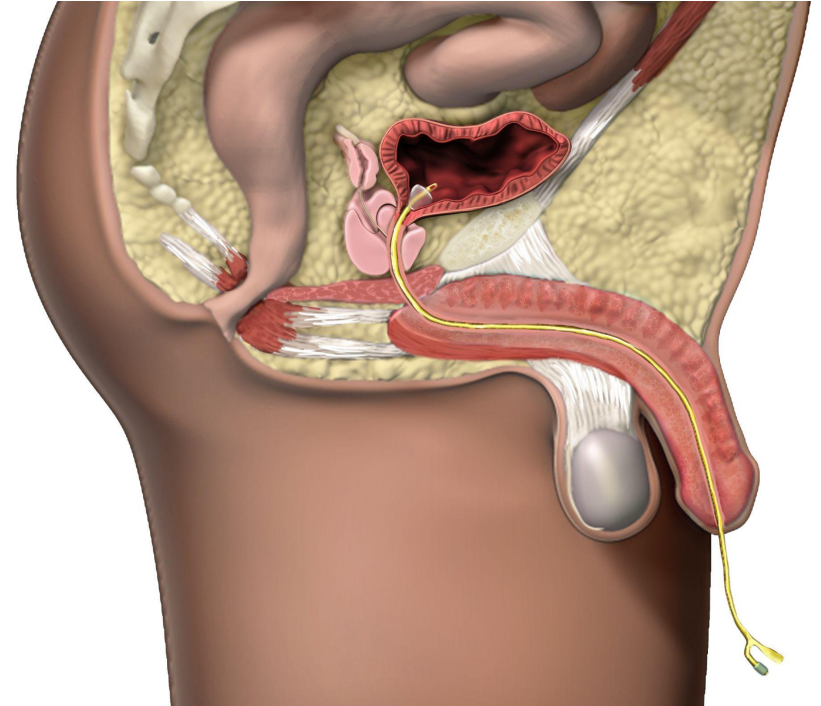
\$14.17

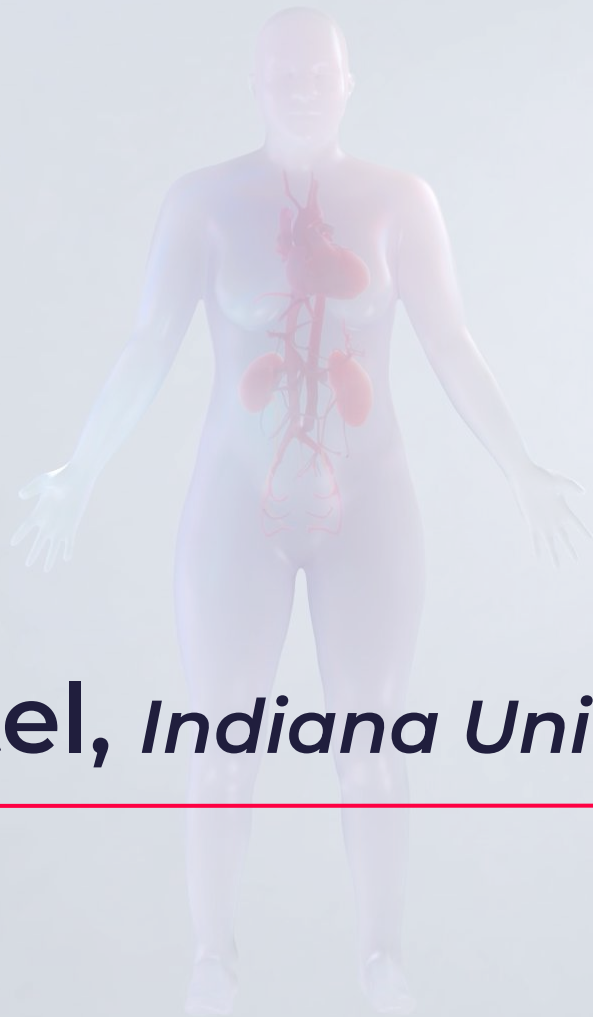
# Other art made with HRA models

Colostomy with Hartmann's pouch



Foley catheter insertion

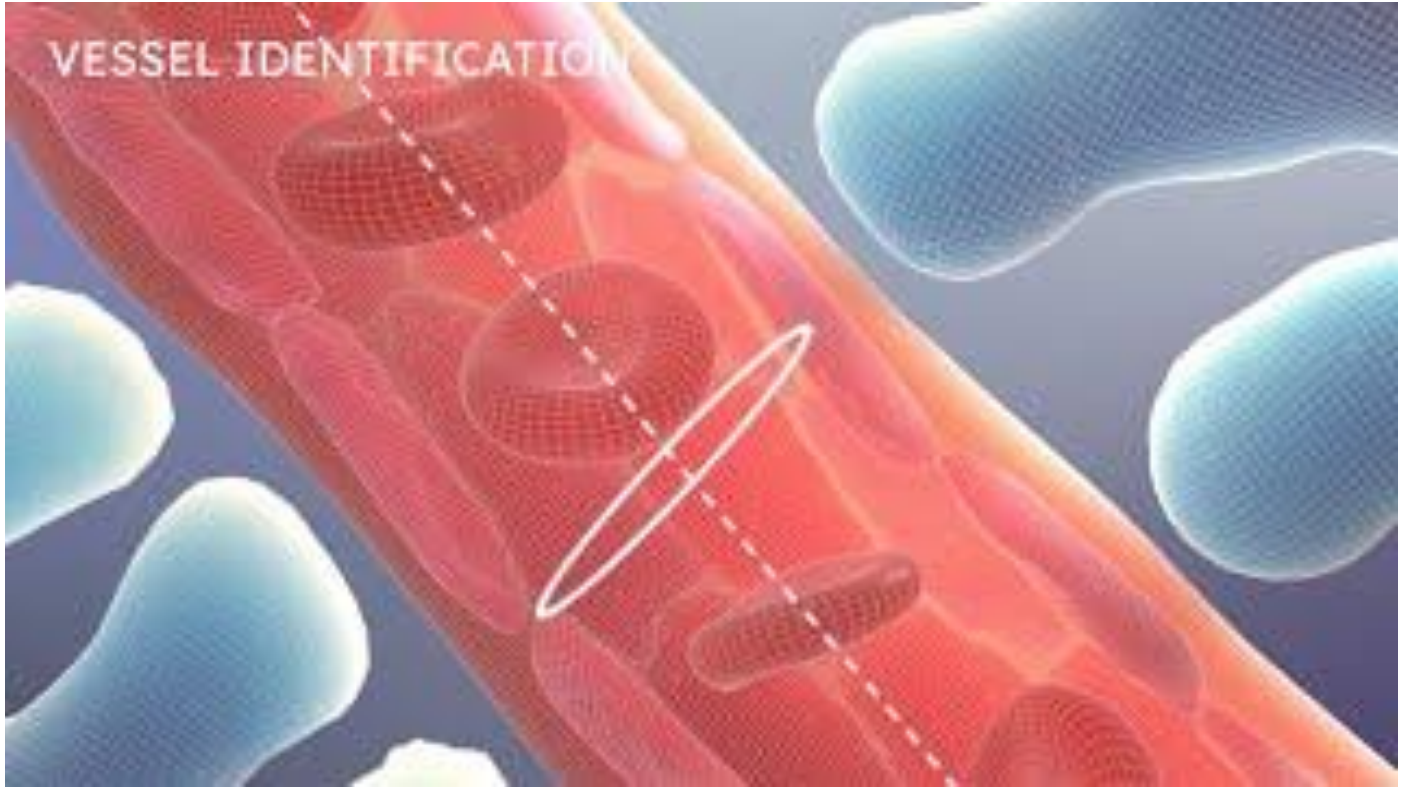




**Ushma Patel, *Indiana University***

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# Human Reference Atlas: Vasculature Common Coordinate Framework (VCCF)



Producer (Initial Story / Guidance / Resources): Griffin Weber (Harvard Medical School), Katherine Gustilo (University of Colorado Anschutz Medical Campus), Katy Börner (Indiana University)  
Director (Animation / Art / Design / Editing): Ushma Patel (Indiana University) Voice: Yaël Ksander (Indiana University) Sound Track: "Inspirational Sentimental Romantic" by Aleksey Chistilin

# Q&A

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<https://humanatlas.io/events/2024-24h>

# Questions to discuss

- So our viewers can get to know you a bit better, you could talk about how/why you entered the field of biomedical visualization. What drew you to this profession? Who were your heroes/influences? What were some noteworthy aspects of your training in the field? What are some of the stylistic elements that characterize your work?
- What was the initial goal of the work you were commissioned to do for the HRA? Did that goal modify or deepen over the development period?
- What was the process like? Did you work in a team? If so, how were areas of the project divided amongst the group? What strategies kept everyone on the same page over the length of the project?
- What challenges arose over the course of the project? What strategies did you use to address them?
- Are there any other behind-the-scenes stories that you can share?
- What are you most proud of about the work you did for HRA? How was it received?
- How does the work you did for the HRA fit into the context of your other work? This could be a time where you share other things you've done. It would be cool if viewers came away with both a sense of the HRA-related work you've done and a sense of who you are as an artist.
- What is the effect of different stylistic choices on different audiences?
- What is the effect of AI on the field?
- What are the pros and cons of new publishing models on medical illustrators, particularly, the precarious place of artistic rights/copyright in open-source publications. But also the way that images might be taken from the original context and repurposed.
- What are the ethical/professional issues raised by new technologies (e.g., we employ new tech/methodologies because they're exciting and available, but are there unwanted compromises made in terms of a commitment to accuracy and reality?).

**Thank you**

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