

hubmap-link

Visualizing Sample and Ontology linkages between **HuBMAP** and **SPARC**

Motivation

HuBMAP and SPARC have a rich reference system, both ontologically and spatially, tied to massive amounts of tissue sample data. Both systems are growing organically and are in danger of being incompatible. To enable future cross-pollination and compatibility, we have implemented a system to assist with mapping and visualization of the overlaps between the systems.

Ontologies (and Related Technologies)

SPARC

- SciCrunch
- UBERON
- Cell Ontology (CL)

HuBMAP

- CCF ASCT+B Tables
- UBERON
- Cell Ontology (CL)
- FMA

Spatial Reference Systems

SPARC (Human subset)

- Flatmaps
- Scaffolds

HuBMAP

- CCF Ontology - SRS
- CCF Reference Organs

Spatially Resolved Data

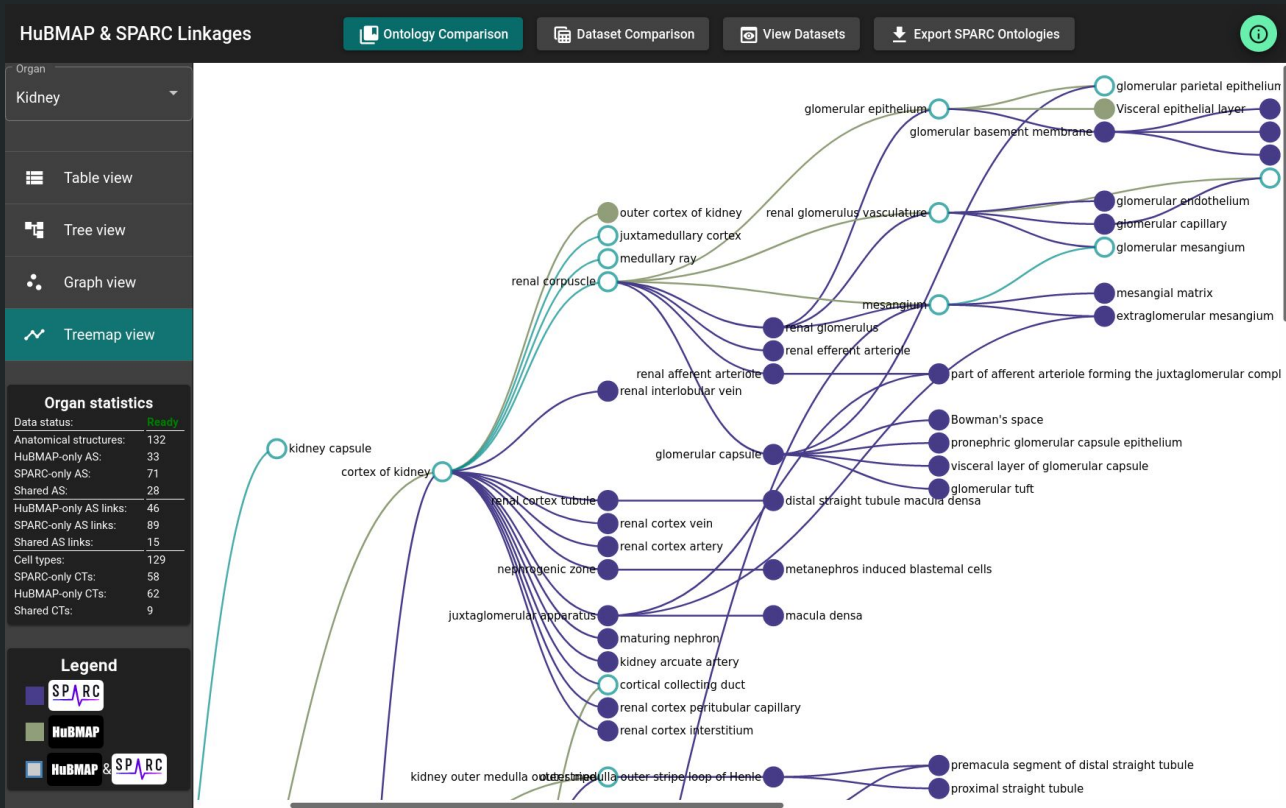
SPARC (Human subset)

- Elasticsearch API

HuBMAP

- Elasticsearch API

Ontology Comparison



Ontology Comparison via ASCT+B Reporter

HuBMAP & SPARC Linkages

Ontology Comparison

Dataset Comparison

View Datasets

Export SPARC Ontologies



ASCT+B Table Export

HuBMAP Anatomical Structures, Cell Types, and Biomarkers (ASCT+B) tables express the hierarchy of the anatomical human body structures, resident cell types, and identification biomarkers. This module facilitates exporting SPARC partonomy data into the interoperable ASCT+B format which is compatible with HuBMAP consortium infrastructure, such as the [ASCT+B Reporter](#).

ASCT+B Reporter Usage

The Export URL below can be copied into the Reporter's [playground feature](#) by pressing the playground button ([direct link](#)) and selecting the Upload Tab. Copy the Export URL from below to the input box and press "Link". This will load the data and allow usage of the Reporter's features.

A second feature is the [compare feature](#) which allows you to compare the data from the Export URL below with an official ASCT+B Table.

☒ Choose organ from list

Select an organ *

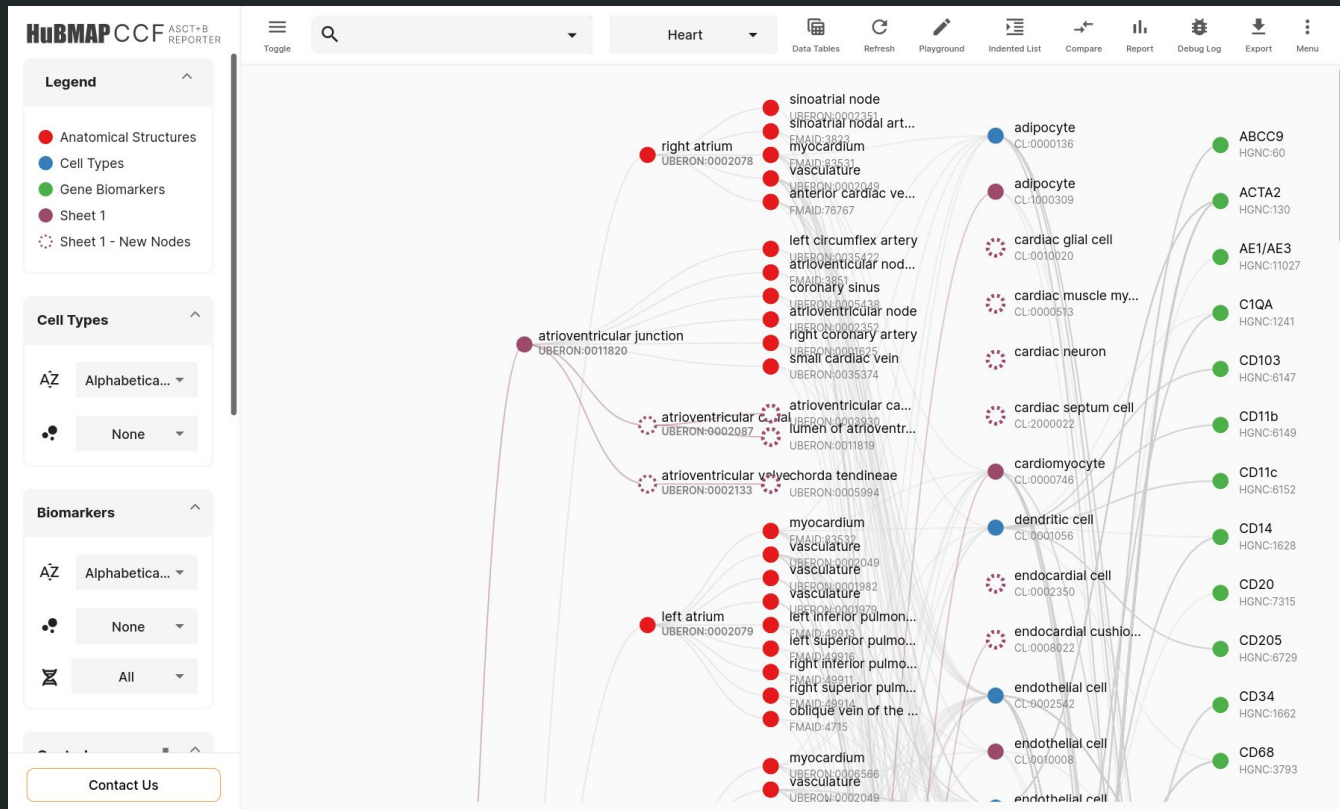
Heart

Export

Hosted URL

<https://hubmap-link-api.herokuapp.com>

Ontology Comparison via ASCT+B Reporter



Dataset Comparison

HuBMAP & SPARC Linkages

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Table view	Name	Description	Anatomical Structure ID	Anatomical Structure Name	Data Type	Publication Status	Group Name	Consortium
Dataset statistics Data status: Ready Datasets: 63 SPARC datasets: 10 HuBMAP datasets: 53	Human Vagus Nerve Claudin1 Quantified Morphology	This dataset provides histological cross sections of human vagus nerves that underwent immunohistochemistry (IHC) to label claudin-1 proteins, as well...	UBERON:0001759	vagus nerve, left cervical vagus nerve, 40 mm from carotid bifurcation...	Dataset	revision	SPARC Consortium	
	Test case for physiological data visualisation	A dataset for testing file requirements for physiological data visualisation on portal		descending colon, sigmoid colon	Dataset	publication	SPARC Consortium	
	Human Vagus Nerve Massons Trichrome	This dataset provides histological images of cross sections of human vagus nerves. These morphological data provide neural anatomical information, as ...	UBERON:0001759	vagus nerve, left cervical vagus nerve, right cervical vagus nerve...	Dataset	revision	SPARC Consortium	
	High resolution manometry	Colonic high-resolution manometry (HRM) has been used to reveal discrete, propagating colonic motor patterns in vivo. To help determine mechanisms und...	UBERON:0001155	colon, descending colon, sigmoid colon	Dataset	publication	SPARC Consortium	
	MGH Concha Stimulation fMRI Processed Data	This is 7T fMRI data of response to Respiratory-gated Auricular Vagal Afferent Nerve Stimulation in the area of the auricular concha	UBERON:0001759	vagus nerve	Dataset	revision	SPARC Consortium	
	Human Islet Microvasculature Analysis in Optically Cleared Pancreas using Vesselucida360 Analysis	This study was performed to establish 3D image analysis for optically cleared human pancreas samples with a focus on islet microvasculature. Three pro...	UBERON:0001264	pancreas, vasculature of the the pancreas	Dataset	publication	SPARC Consortium	
	Characterization of projections of	Background: The enteric nervous system contains inhibitory and excitatory						

3D Dataset Comparison via CCF EUI

HuBMAP CCF EXPLORATION

BACK

LOGIN

Sex: Both Age: 1-110 BMI: 13-83

Skin

10

Large Intestine

4

Heart

0

Kidney, L

17

Kidney, R

12

Spleen

20

Q Search ontology terms ...

body

63

skin

10

large intestine

4

heart

0

kidney

29

spleen

20

brain

0

lung

0

lymph node

0

pelvis

0

thymus

0

vasculature

0

Body

4 Tissue Data Providers

41 Donors

63 Tissue Blocks

120 Tissue Sections

268 Tissue Datasets

☐ Human, colon, prime adult stage

Entered 2021-05-14, Mabelle Lin, SPARC Con...

☐ Human, pancreas

Entered 2019-01-15, Martha Campbell-Thom...

☐ Human, vagus nerve, prime adult stage

Entered 2019-02-25, Karl Helmer, SPARC Con...

☐ Human, colon

Entered 2020-11-27, Mabelle Lin, SPARC Con...

☐ Human, vagus nerve, Adult

Entered 2019-08-12, Nicole Pelot, SPARC Co...

☐ Human, colon

Entered 2019-01-07, Robert Heuckeroth, SPA...

☐ Human, stomach

Entered 2021-05-10, Mabelle Lin, SPARC Con...

☐ Human, vagus nerve, Adult

Entered 2019-01-23, Nicole Pelot, SPARC Co...

☐ Human, colon, Adult

Entered 2019-12-13, Simon Brookes, SPARC ...

☐ Human, colon, prime adult stage

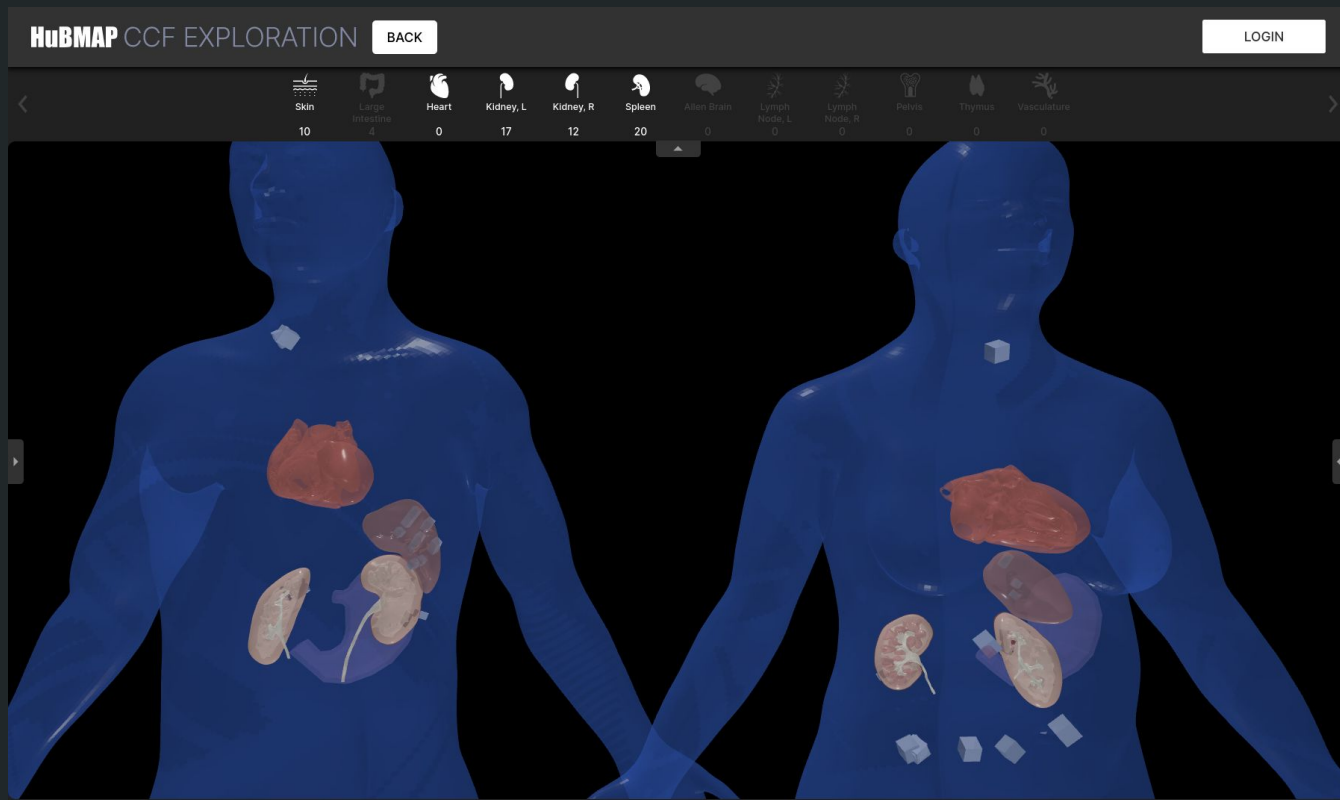
Entered 2019-01-09, Phil Dinning, SPARC Co...

☐ Female, Age 66, BMI 32.2

Entered 12/26/2019, Jamie Allen, TMC-Vande...

☐ Male, Age 18, BMI 27.1

3D Dataset Comparison via CCF EUI



Visit the site at: <https://git.io/hubmap-link>
