# Main functions from overrepresentation analysis plotted by tissue

#### Spleen lymphocyte activation $1 \times 10^{-65}$ $3 \times 10^{-56}$ T cell activation $4 \times 10^{-53}$ adaptive immune response $5 \times 10^{-50}$ immune effector process $8 \times 10^{-50}$ positive regulation of immune response $3 \times 10^{-49}$ regulation of cell activation regulation of leukocyte activation $4 \times 10^{-49}$ $8 \times 10^{-48}$ regulation of lymphocyte activation leukocyte cell-cell adhesion $2 \times 10^{-42}$ $1 \times 10^{-41}$ immune response-regulating signaling pathway

## Α

Heart	
FUNCTION	ADJ_P_VALUE
muscle cell development	$3 \times 10^{-27}$
muscle structure development	1 × 10 <sup>-26</sup>
myofibril assembly	$2 \times 10^{-24}$
striated muscle cell development	$2 \times 10^{-24}$
muscle tissue development	$3 \times 10^{-24}$
cardiac muscle tissue development	$3 \times 10^{-24}$
muscle system process	$3 \times 10^{-24}$
striated muscle tissue development	$2 \times 10^{-23}$
muscle cell differentiation	$5 \times 10^{-23}$
heart contraction	1 × 10 <sup>-22</sup>

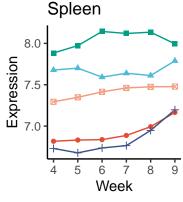
# Muscle - Skeletal

C

FUNCTION	ADJ_P_VALUE
muscle structure development	7 × 10 <sup>-29</sup>
muscle system process	$8 \times 10^{-27}$
muscle organ development	5 × 10 <sup>-25</sup>
muscle cell development	$1 \times 10^{-21}$
muscle contraction	$1 \times 10^{-21}$
muscle cell differentiation	$4 \times 10^{-20}$
striated muscle cell differentiation	$4 \times 10^{-19}$
myofibril assembly	$3 \times 10^{-18}$
striated muscle cell development	$3 \times 10^{-18}$
striated muscle contraction	$1 \times 10^{-16}$
E	

### Stomach

FUNCTION	ADJ_P_VALUE
digestion	1 × 10 <sup>-4</sup>
regulation of hormone levels	$6 \times 10^{-4}$
gastric acid secretion	$2 \times 10^{-3}$
peptide hormone secretion	$2 \times 10^{-3}$
peptide transport	$2 \times 10^{-3}$
peptide secretion	$3 \times 10^{-3}$
digestive system process	$6 \times 10^{-3}$
amide transport	$6 \times 10^{-3}$
hormone transport	$6 \times 10^{-3}$
hormone secretion	6 × 10 <sup>-3</sup>



#### **Function**

- adaptive immune response
- immune effector process
- lymphocyte activation
- + positive regulation of immune response

Week

muscle cell development

muscle structure development

muscle tissue development

Muscle - Skeletal

Week

muscle cell development muscle contraction

muscle system process

muscle structure development

striated muscle cell differentiation

Week

peptide hormone secretion

- regulation of hormone levels

8

T cell activation

Heart

Function

7.75

7.50

7.00

8.50

8.25 8.00 8.7.75

7.50

**Function** 

Stomach

**Function** 

digestion

Expression

heart contraction

myofibril assembly

Expression

#### Brain FUNCTION ADJ\_P\_VALUE $9 \times 10^{-43}$ synaptic signaling 9 × 10<sup>-43</sup> trans-synaptic signaling $9 \times 10^{-43}$ chemical synaptic transmission anterograde trans-synaptic signaling $9 \times 10^{-43}$ $9 \times 10^{-25}$ modulation of chemical synaptic transmission regulation of trans-synaptic signaling $9 \times 10^{-25}$ neuron projection morphogenesis $2 \times 10^{-18}$ $8 \times 10^{-18}$ cell projection morphogenesis $2 \times 10^{-17}$ plasma membrane bounded cell projection morphogenesis $2 \times 10^{-17}$ cell part morphogenesis

# В

# Liver

FUNCTION	ADJ_P_VALUE
monocarboxylic acid metabolic process	$7 \times 10^{-51}$
small molecule catabolic process	$7 \times 10^{-39}$
organic acid catabolic process	$4 \times 10^{-36}$
carboxylic acid catabolic process	$2 \times 10^{-35}$
steroid metabolic process	$7 \times 10^{-33}$
small molecule biosynthetic process	$4 \times 10^{-31}$
cellular amino acid metabolic process	$1 \times 10^{-28}$
fatty acid metabolic process	$6 \times 10^{-28}$
organic hydroxy compound metabolic process	$9 \times 10^{-28}$
alpha-amino acid metabolic process	$3 \times 10^{-27}$

D

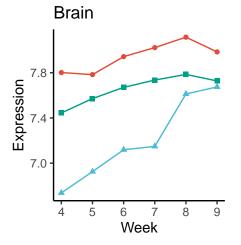
## **Testis**

FUNCTION	ADJ_P_VALUE
male gamete generation	1 × 10 <sup>-35</sup>
spermatogenesis	$3 \times 10^{-34}$
microtubule-based movement	$2 \times 10^{-26}$
cilium organization	$2 \times 10^{-26}$
cilium assembly	$2 \times 10^{-23}$
microtubule cytoskeleton organization	$2 \times 10^{-23}$
meiotic cell cycle	$2 \times 10^{-23}$
cilium movement	$3 \times 10^{-20}$
nuclear division	$1 \times 10^{-18}$
meiotic cell cycle process	$2 \times 10^{-18}$

F

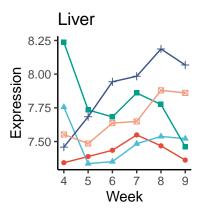
# Skin

FUNCTION	ADJ_P_VALUE
epidermis development	2 × 10 <sup>-2</sup>
skin development	9 × 10 <sup>-2</sup>
keratinization	6 × 10 <sup>-17</sup>
keratinocyte differentiation	2 × 10 <sup>-14</sup>
epidermal cell differentiation	$1 \times 10^{-10}$
intermediate filament cytoskeleton organization	9 × 10 <sup>-10</sup>
intermediate filament-based process	1 × 10 <sup>-9</sup>
intermediate filament organization	6 × 10 <sup>-9</sup>
regulation of water loss via skin	2 × 10 <sup>-8</sup>
establishment of skin barrier	1 × 10 <sup>-7</sup>



#### Function

- modulation of chemical synaptic transmission
- neuron projection morphogenesis
- synaptic signaling



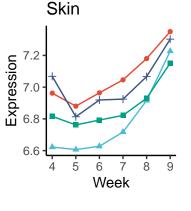
#### **Function**

- cellular amino acid metabolic process
- monocarboxylic acid metabolic process
- organic acid catabolic process
- organic hydroxy compound metabolic process
- steroid metabolic process

# **Testis** 8.1 Expression 7.8 Week

## **Function**

- cilium assembly
- cilium organization
- male gamete generation



#### Function

- epidermis development
- keratinization
- keratinocyte differentiation + skin development

# Н