

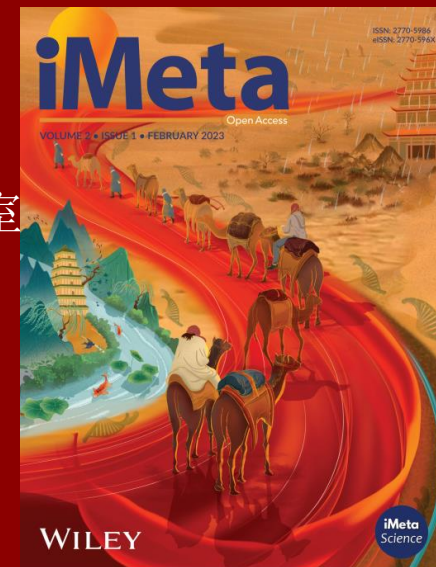


# 草食动物全组织转录组数据库(HTIRDB): 一个跨物种、跨组织的比较转录组在线分析平台

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Luoyang Ding, Yifan Wang, Linna Zhang, Chengfang Luo, Feifan Wu, Yiming Huang, et al. 2024. The HTIRDB: a resource containing a transcriptional atlas for 105 different tissues from each of seven species of domestic herbivore. *iMeta* 3: e267.

<https://doi.org/10.1002/imt2.267>



# 简介

105 different tissues from each of 7 species of domestic herbivore



Cattle



Horse



Deer



Donkey



Sheep



Goat



Rabbit



Corium  
Hypodermis  
Subcutaneous fat

Integumentary system  
(3 tissues)



Hypothalamus  
Cerebrum  
...  
Thalamus  
Midbrain  
Nervous system  
(10 tissues)



Thymus  
Lymph node  
Spleen  
Leukocyte

Immune system  
(8 tissues)



Ileum  
Colon  
...  
Liver  
Rumen  
Digestive system  
(26 tissues)



Heart  
Aorta  
...  
Vena cava  
Pulmonary vein

Circulatory system  
(10 tissues)

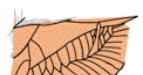


Laryngeal hose  
Trachea  
...  
Lung  
Auxiliary lobe  
Respiratory system  
(7 tissues)



Ovary  
Uterus  
...  
Cervix top  
Cervix bottom

Reproductive system  
(6 tissues)



Midriff  
Splenius  
...  
Longissimus dorsi  
Deltoid

Exercise system  
(30 tissues)

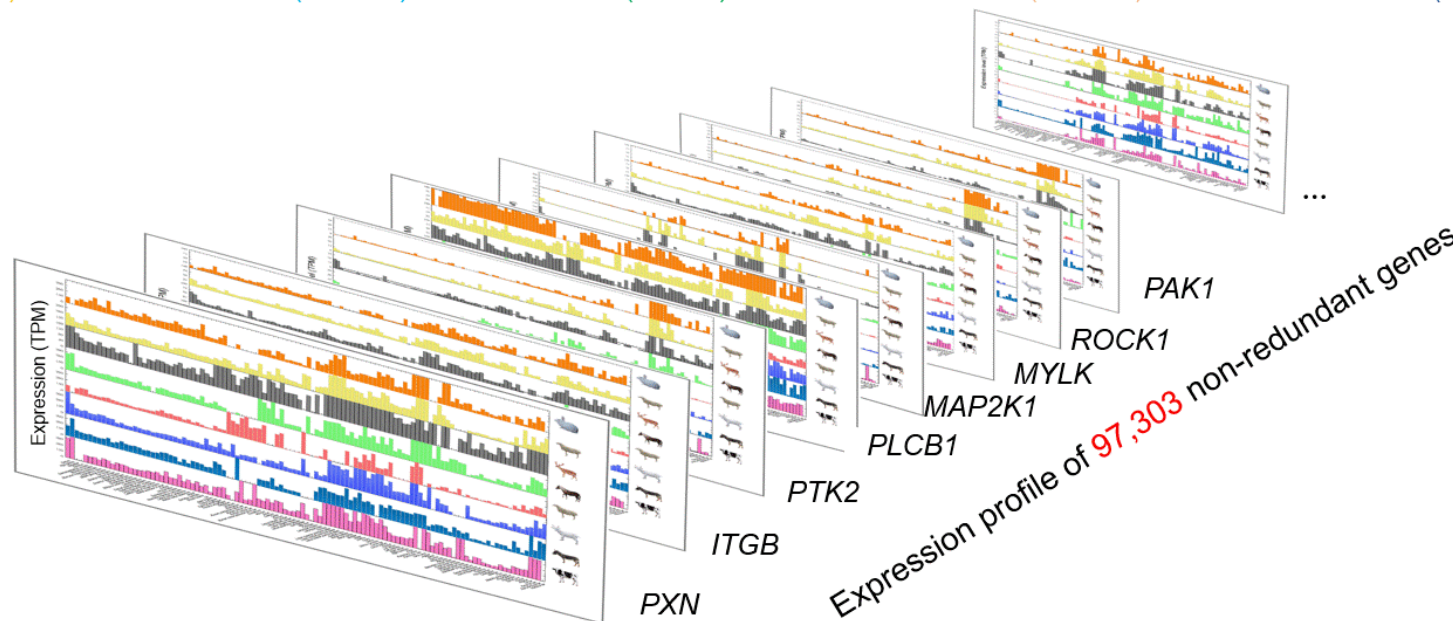


Renal medulla  
Ureter  
...  
Bladder  
Urethra

Urinary system  
(6 tissues)



Adrenal  
Thyroid  
...  
Hypophysis  
Pineal gland  
Endocrine system  
(4 tissues)





# 草食动物比较转录组数据库 (HTIRDB) 概述



## Herbivore Transcriptome Information Resource Database

A cross-species transcriptome atlas for study of gene expression and comparative transcriptome in herbivores

search search

e.g. PRKAA1 or MTOR

Home Species Tissue & Sample sFP Expression Comparative transcriptomics Co-expression Variation & AS Tools Download Help

107 datasets  
204 + 2,569 samples  
102 + 60 tissues

16 datasets  
202 + 322 samples  
101 + 14 tissues

486 datasets  
210 + 18,016 samples  
105 + 78 tissues

164 datasets  
208 + 2,601 samples  
104 + 41 tissues

258 datasets  
208 + 8,955 samples  
104 + 71 tissues

22 datasets  
210 + 175 samples  
105 + 15 tissues

- Gene index
- JBrowser
- Blast
- Seq fetch
- GO enrichment
- KEGG enrichment
- Pathway
- Data2heatmap
- Comparative transcriptomics(Online)

| Family    | Species                      | Image | Breed                            |
|-----------|------------------------------|-------|----------------------------------|
| Equidae   | <i>Equus caballus</i>        |       | Northeast draft horse            |
| Equidae   | <i>Equus asinus</i>          |       | Guanzhong donkey                 |
| Bovidae   | <i>Bos taurus</i>            |       | Chinese Holstein cattle          |
| Bovidae   | <i>Capra hircus</i>          |       | Haimen white goat                |
| Bovidae   | <i>Ovis aries</i>            |       | Hu sheep<br>Small-tail Han sheep |
| Cervidae  | <i>Cervus nippon</i>         |       | Sika deer                        |
| Leporidae | <i>Oryctolagus cuniculus</i> |       | New Zealand white rabbit         |

ARS-UCD1.2

ARS1

ARS-UI\_Ramb\_v2.0

mhl\_v1.0

OryCun2.0

**Sample information**

Query by Species & Tissue HTIR ID list Run list Bioproject list PubMed Unique Identifier (PMID) list

Species & Breed: Equus caballus & Northeast draft horse +7

Systems / Organs / Tissues / Sub-tissue: Integumentary system / skin / corium / corium +242

Integumentary system skin corium corium

exercise system mammary gland hypodermis

Integumentary system exercise system digestive system respiratory urinary system reproductive system circulatory system immune syst nervous system endocrine system cell

图1A. HTIRDB数据库首页 (<https://yanglab.hzau.edu.cn/HTIRDB/>)



# HTIRDB构建流程

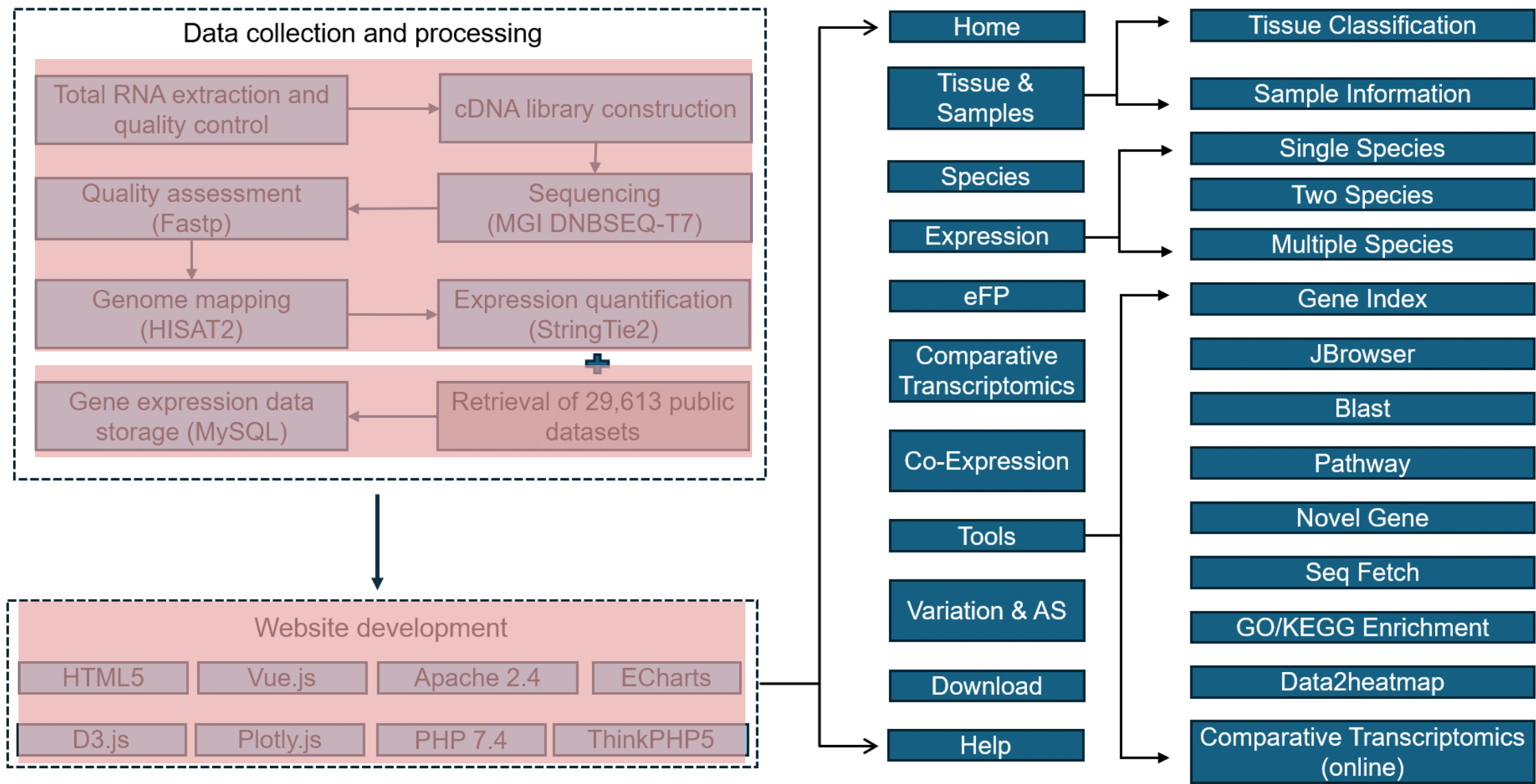


图1B. HTIRDB数据收集和构建过程概述



# 电子荧光图 (eFP)

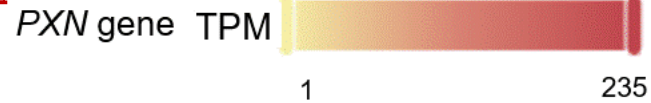
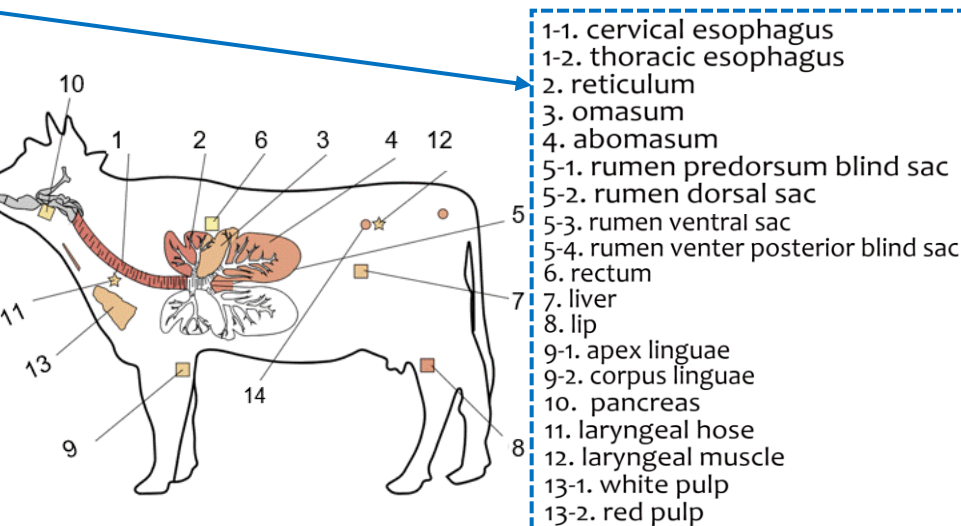
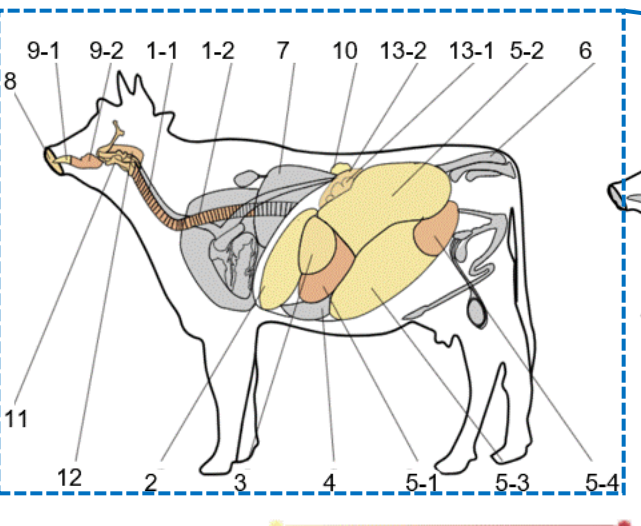
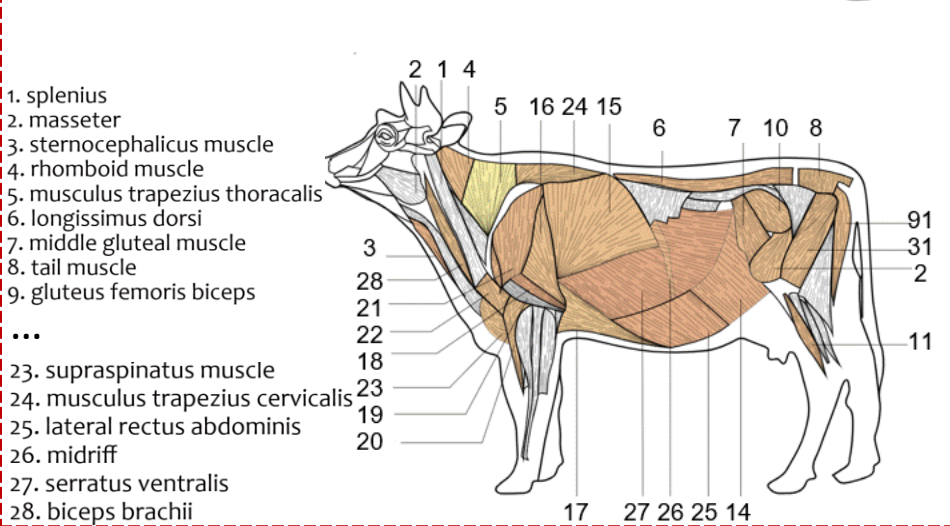
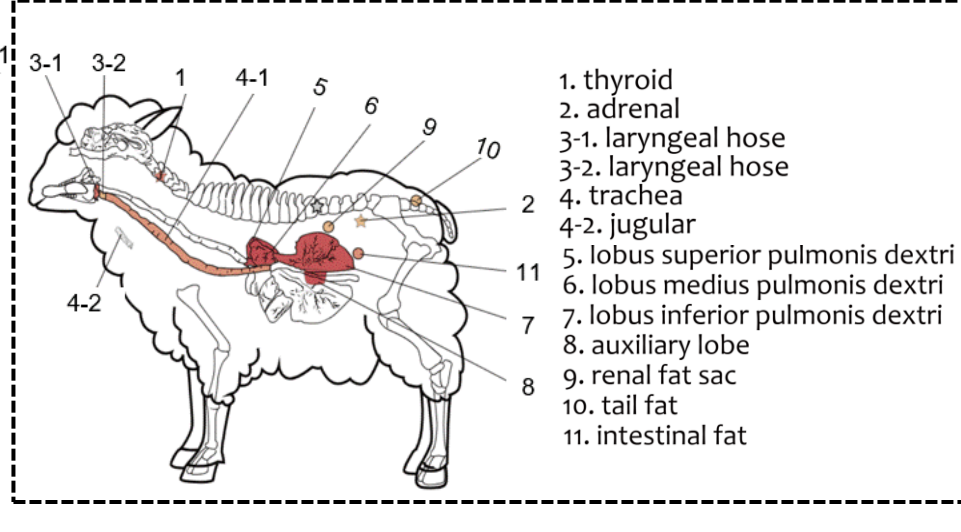
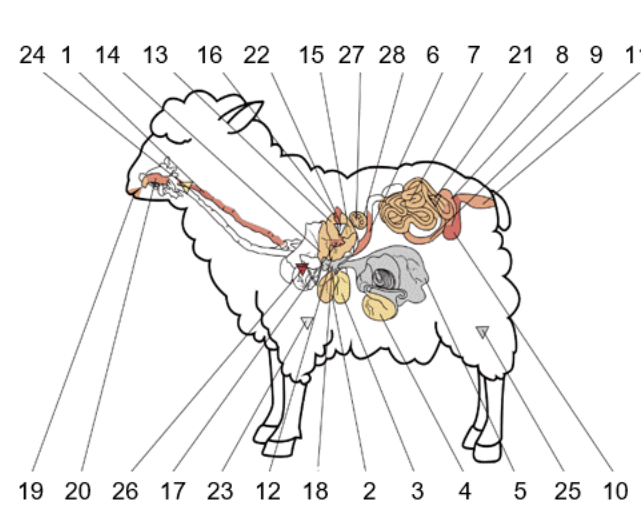
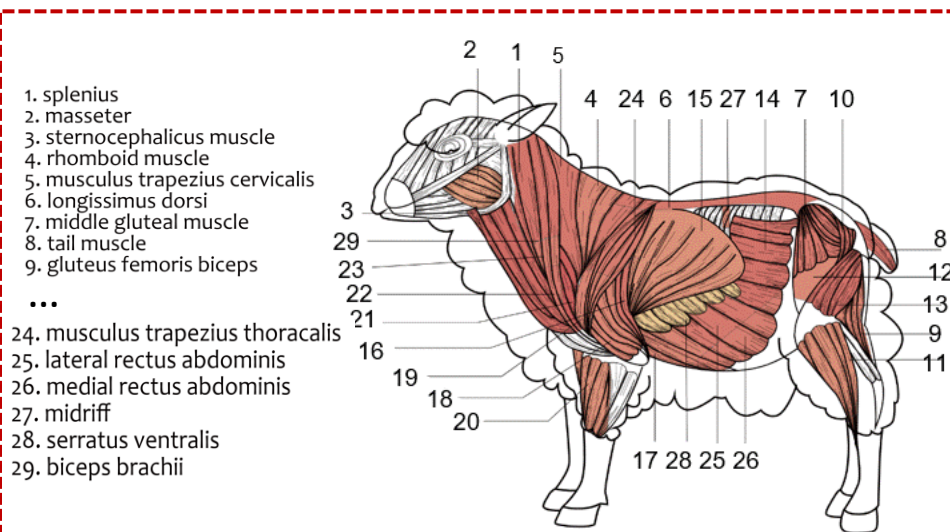
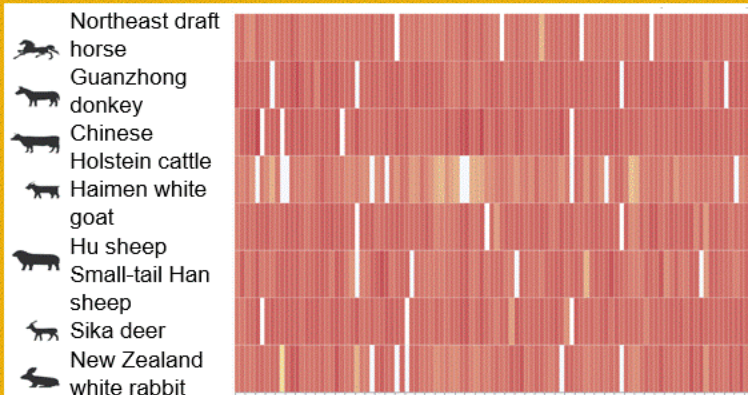


图2A. 电子荧光图 (eFP) 示例

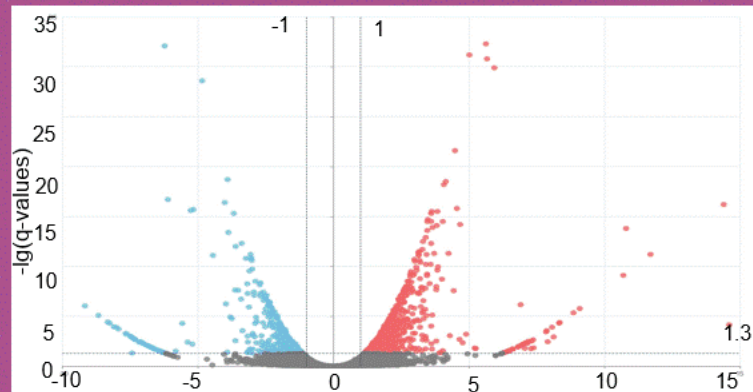


# 常用生信分析工具

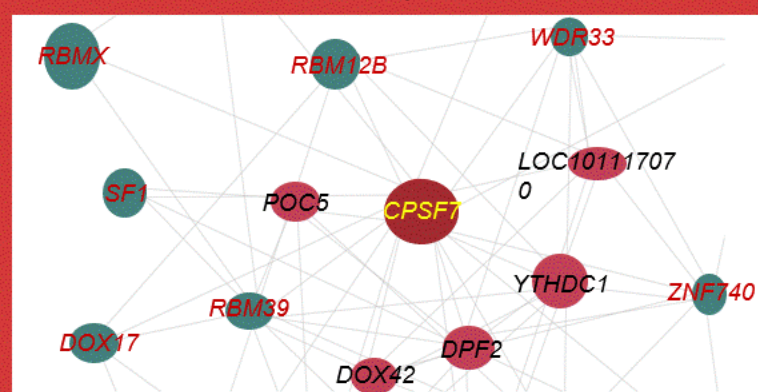
## Gene expression



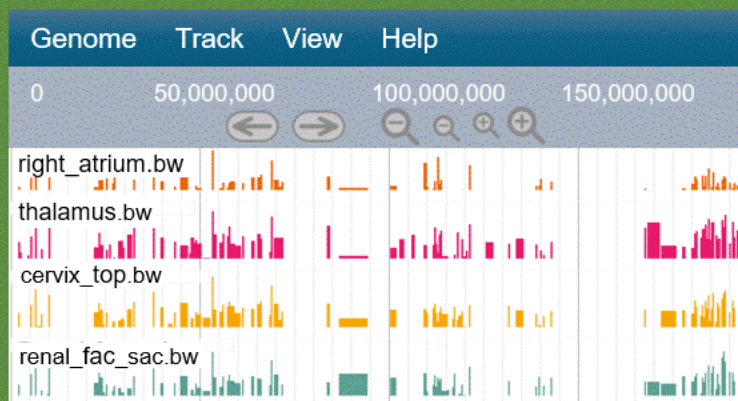
## Comparative transcriptomics



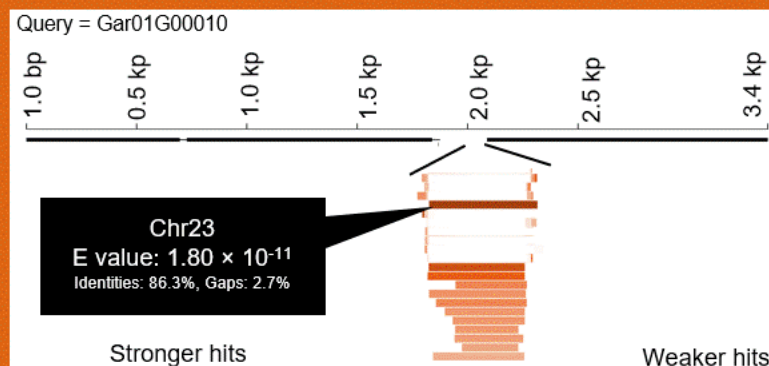
## Gene co-expression



## JBrowse



## Blast



## Functional enrichment

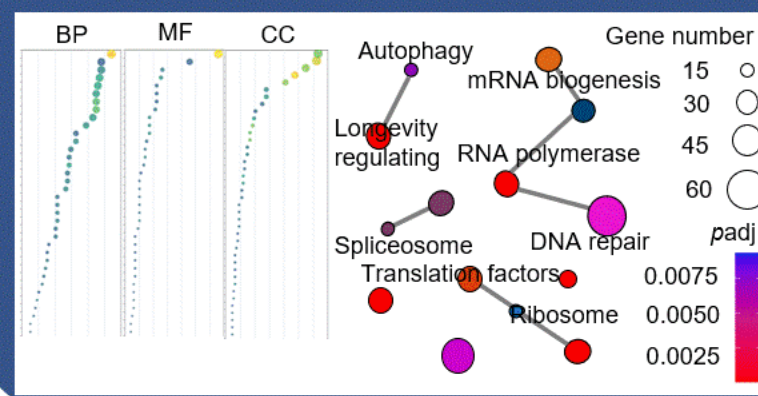


图2B-2G. 草食动物全组织转录组（HTIRDB）提供的资源和工具使用示例

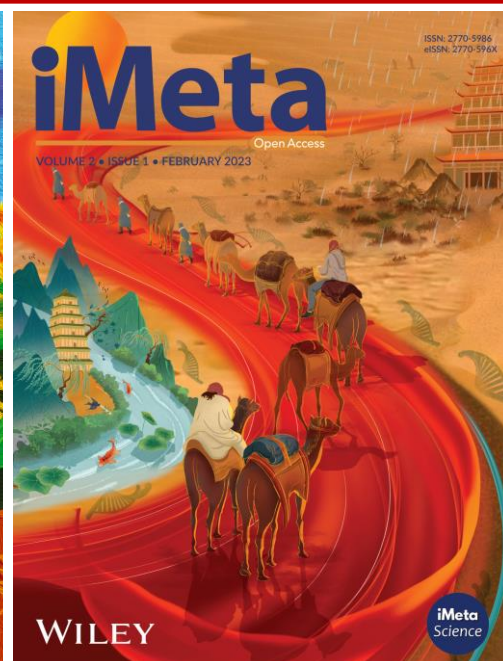


# 总结

- HTIRDB 是截至目前物种最多（7个物种）、组织覆盖最广（105个不同组织），数据量最大（6380亿条原始测序序列）的草食全组织转录组数据库；
- 统一化、标准化的采样流程降低了自测序数据的异质性，保障了数据质量和后期比较转录组数据分析结果的准确性；
- 数据库配备了一系列转录组数据分析和可视化工具，以及九种常用的生信分析工具；
- 平台网址：<https://yanglab.hzau.edu.cn/HTIRDB#/>

Luoyang Ding, Yifan Wang, Linna Zhang, Chengfang Luo, Feifan Wu, Yiming Huang, et al. 2024. The HTIRDB: a resource containing a transcriptional atlas for 105 different tissues from each of seven species of domestic herbivore. *iMeta* 3: e267.

<https://doi.org/10.1002/imt2.267>



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