

Module 7.1: Learn - Biology

Contextualize Results

Now that you have completed the planned research for the course and written up your results, we would like to start thinking about how our results fit in with published findings. This will be how we will write the Introduction and Discussion sections of the final manuscript for this study.

When contextualizing the results we have to consider:

- **How do our results fit with results of other published studies on the same topic?** In our case, this can be other placenta differential gene expression studies or studies studying specific genes that we found to be differentially expressed.
- **How do our results fit with other conditions other groups have tried?** In our case, this can be other trimming software related results people have published. It can be results from different related tissues such as the decidua, the maternal uterine tissues that line the placenta during pregnancy, or placental sex differential gene expression in pregnancy complications like preeclampsia.

To answer these questions, we have to do a literature search. We have described ways to Google search coding solutions and other relevant information in previous modules, but here we are trying to contextualize results in the broader context of what has been done in previous studies. You want to identify key studies that are relevant to your findings and figure out whether your results are consistent (or not) and then state how these ideas are related.

Literature Search Strategy


Since it is super easy to go down rabbit holes, you will want to spend a few minutes devising a strategy for finding information to contextualize your results. The key points to a good search strategy are:

- **Defining your Keywords.** Think about your results in terms of simple concepts that you can search for—the names of the gene(s) that were differentially expressed (or the class of them if there are many that

were related such as integrins or receptor tyrosine kinases), the tissue and condition your results were in (such as pregnancy, full term), enriched pathways in your results (such as differentiation or transport)-- and use Boolean AND and OR to put the terms together in a logical way

- **Setting limits (ie: date of publication, language).** It might be beneficial to limit the results to narrow down to as limiting to those published in the last 5 or 10 years. If you look at the introduction section of recent papers look at older publications it references if it sounds relevant.
- **Recording your finds.** It is very helpful to use a citation manager as we have discussed in previous modules loading citations for papers you are interested in, it is good practice to take notes on papers of interest. This is to track of what ideas came from when you are ready to write up your results.

Pubmed

A key resource when doing scientific literature review is **Pubmed**  (<https://pubmed.ncbi.nlm.nih.gov/>), the biomedical database maintained by the National Library of Medicine. It contains millions of publications and is considered the go-to for looking for scientific results.

If you go to Pubmed, you will see that there is a search box at the top to put in the keywords you decided on. There is a feature to help you come up with customized searches if you need where you can specify things like what field (such as title or author) you want the term to be found in. The main search results can be easily filtered on how recent the publication timeline bar chart on the left. You can get a feeling for how much research has been on what you are searching for. The top results will come up and the best results will be listed first. You can scroll down and get an idea of if you want to modify your search for relevant results.

pubmed.ncbi.nlm.nih.gov/?term=placenta+sex+differences

NIH National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed.gov

placenta sex differences search box

Advanced Create alert Create RSS

create custom searches

Save Email Send to

Sorted by: Best match Display options

MY NCBI FILTERS

756 results

Page 1 of 76

RESULTS BY YEAR

1950 2022

TEXT AVAILABILITY

☐ Abstract

☐ Free full text

☐ Full text

☐ A cross-cohort analysis of autosomal DNA methylation **sex differences** in the term **placenta**.

1

Cite Inkster AM, Yuan V, Konwar C, Matthews AM, Brown CJ, Robinson WP. Biol Sex Differ. 2021 May 27;12(1):38. doi: 10.1186/s13293-021-00381-4. PMID: 34044884 **Free PMC article.**

Share Here, we present an analysis of **sex differences** in autosomal DNAm in the uncomplicated term **placenta** (n = 343) using the Illumina 450K array. ...Patterns of autosomal DNAm at these 162 CpGs were significantly associated with maternal age (in males) and newb ...

☐ **Sex differences** in the late first trimester human **placenta** transcriptome.

2

Cite Gonzalez TL, Sun T, Koepfel AF, Lee B, Wang ET, Farber CR, Rich SS, Sundheimer LW, Ruttle RA, Chen YI, Rotter JJ, Turner SD, Williams J 3rd, Goodarzi MO, Pisarska MD. Biol Sex Differ. 2018 Jan 15;9(1):4. doi: 10.1186/s13293-018-0165-y. PMID: 29335024 **Free PMC article.**

Share

Figure: Pubmed search

If you click on the title for one of the results, you will see a summary of the paper you selected that looks like this:

journal info > Biol Sex Differ. 2018 Jan 15;9(1):4. doi: 10.1186/s13293-018-0165-y.

title **Sex differences in the late first trimester human placenta transcriptome**

author list

Tania L Gonzalez¹, Tianyanxin Sun¹, Alexander F Koeppel², Bora Lee¹, Erica T Wang¹, Charles R Farber², Stephen S Rich², Lauren W Sundheimer^{1,3}, Rae A Buttle^{1,4}, Yii-Der Ida Chen⁵, Jerome I Rotter⁵, Stephen D Turner², John Williams 3rd^{1,4}, Mark O Goodarzi^{1,6}, Margareta D Pisarska^{7,8}

Affiliations + expand

PMID: 29335024 PMCID: PMC5769539 DOI: 10.1186/s13293-018-0165-y

Free PMC article

Paperpile

ID and buttons to help you cite this paper

Abstract


Abstract

Background: Development of the placenta during the late first trimester is critical to ensure normal growth and development of the fetus. Developmental differences in this window such as sex-specific variation are implicated in later placental disease states, yet gene expression at this time is poorly understood.

Methods: RNA-sequencing was performed to characterize the transcriptome of 39 first trimester human placentas using chorionic villi following genetic testing (17 females, 22 males). Gene enrichment analysis was performed to find enriched canonical pathways and gene ontologies in the first trimester. DESeq2 was used to find sexually dimorphic gene expression. Patient demographics were analyzed for sex differences in fetal weight at time of chorionic villus sampling and birth.

Results: RNA-sequencing analyses detected 14,250 expressed genes, with chromosome 19 contributing the greatest proportion (973/2852, 34.1% of chromosome 19 genes) and Y chromosome contributing the least (16/568, 2.8%). Several placenta-enriched genes as well as histone-coding genes were identified to be unique to the first trimester and common to both sexes. Further we

FULL-TEXT LINKS

Read free full text at  **BMC**
 FREE Full text  **PMC**

ACTIONS

“ Cite

☆ Favorites

SHARE



PAGE NAVIGATION

< Title & authors

Abstract

Conflict of interest statement

Figures


Similar articles

Cited by

Figure: Specific search result in Pubmed

The top line summarizes the citation information, usually an issue of a scientific journal with the date of publication, title and abstract of the publication to tell you what the key findings of the publication are. If this looks like a publication you want to read all the way through, you can see links on the right. Be sure to be logged into the ASU network VPN because access at many journals. Each entry on Pubmed has an ID (PMID) which can be used for easily searching for a publication on citation managers like Endnote, Paperpile, and Zotero. In some cases, there are buttons for automatic citations that show up if you have the browser plugin for a particular citation manager, such as the Paperpile import button above.

Module 7.1 Additional Resources

- Long list of guides on how to do successful literature searches 
(<https://libguides.swansea.ac.uk/geneticsbiochemistry/literaturesearching>).