

# iPathwayGuide

Expression Analysis with  
iPathwayGuide

# Agenda: 05. Mechanistic Differences between Patient Subgroups

- Objective
  - Now you will use iPG to gain insights
  - Dataset Background
- Research Questions
  - Identify putative mechanisms across any/ all modules
  - What targets (drugs, miRNAs, SNPs) are possible for further testing?
  - Identify potential biomarkers from meta-analysis
- Step-by-step
  - Accept Share
  - Request Feedback
  - Generate Meta-Analysis
  - Explore
  - Report Findings
- Discussion

# BACKGROUND: NPM-ALK in ALCL of Childhood

- Almost all Peds ALCL are ALK+ (adults 30%)
- Clustering found 2 gps: ALK-high & ALK-low
  - Proteins agree w/ mRNA expression
  - Similar clinical presentations
  - Better outcomes for ALK-low
- What is different in ALK-low?

Pomari, E., et al. "NPM-ALK expression levels identify two distinct subtypes of paediatric anaplastic large cell lymphoma." *Leukemia* (2016).

# RESEARCH QUESTION(S)

- Investigate the transcriptional characteristics of ALK+ ALCL
- Investigate differential expression patterns between ALK-high and ALK-low patients
- Propose follow-up experiments to test functional hypotheses

# GOAL

Use iPathwayGuide to investigate transcriptional characteristics of ALK-high and ALK-low groups

- Identify significantly impacted pathways, GO terms, etc.
- Use Meta-Analysis to hone in on differences between subgroups
- Generate specific, testable hypotheses based on findings
- Share report via email
- Download figures etc. for a presentation

# THINGS TO DO:

- ✓ ACCEPT SHARE
- ✓ SEND FEEDBACK
- ✓ PATHWAYS: IDENTIFY PUTATIVE MECHANISMS
- ✓ GO TERMS: WHICH FUNCTIONS, ETC. ARE IMPACTED?
- ✓ ANY RELEVANT MIRNAS? DISEASES?
- ✓ DOWNLOAD PRINTABLE REPORT
- ✓ SHARE REPORT VIA EMAIL
- ✓ META-ANALYSIS:
  - WHAT REGIONS TO CONSIDER? WHICH MODULES?
  - IDENTIFY PUTATIVE MECHANISMS/ BIOMARKERS
  - EXPORT FIGS & TABLES

# DISCUSSION QUESTIONS

- What are the main transcriptional hallmarks of pediatric ALCL (vs. normal LN)?
- How does this profile differ between ALK-high and ALK-low? how is it similar?
- How could you test this in the lab?
- Which modules of iPathwayGuide were most helpful for this analysis?

# Thanks for coming!



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