

Create context specific network

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2018. november 26.

1. Download the files from the webpage of the Genetics Department and open the integrated (merged) network you created last week (if you don't have that network, download it from the webpage) affymetrix_U133_plus_2_uniprot.tsv
2. Downloading expression data:
 - 2.1. Open the GEO2R webservice (<https://www.ncbi.nlm.nih.gov/geo/geo2r/>)
 - 2.2. Load the dataset with GSE21510 GEO accession ID
 - 2.3. Create two groups: stage1 és stage2
 - 2.4. Assign each sample to the corresponding group based on the Stage és Tissue columns (Tissue column must contain "cancer")
 - 2.5. Run the analysis with the Save all results button and save the file being opened in a new window
 - 2.6. Repeat the previous steps with samples from stage 3 and 4.
3. Affymetrix - Uniprot mapping table:
 - 3.1. Open the Ensemble BioMart webpage (<http://www.ensembl.org/biomart/martview/>)
 - 3.2. Choose the newest version of the gene database CHOOSE DATABASE -> Ensemble Genes 94
 - 3.3. Choose the human dataset CHOOSE DATASET -> Human genes (GRCh38.p12)
 - 3.4. From the options at *Attributes* remove the *Gene stable ID* and the *Transcript stable ID* selection Left side -> Attributes -> GENE
 - 3.5. From the options at *Attributes* select the *UniProtKB/Swiss-Prot ID* and the *Affy HG U133 PLUS 2 probeset* Left side -> Attributes -> EXTERNAL
 - 3.6. Download the result table Results -> Export all results to -> File -> TSV -> GO
4. Integration of expression data with Cytoscape:
 - 4.1. Open the Cytoscape session file and import the `affymetrix_U133_plus_2_uniprot.tsv` which contains the Affymetrix IDs to the Uniprot ACs
 - 4.2. Import the expression datasets that you downloaded from GEO2R, pay attention to the headers!
5. Install the CyAnimator into Cytoscape: In case it's not installed yet!
 - 5.1. Open the *App Manager* in Cytoscape Apps -> App Manager ...
 - 5.2. Search for the *CyAnimator* app Search -> CyAnimator
 - 5.3. Select and install the *CyAnimator* app Select it in the list and click on Install
6. Animated network visualisation:

- 6.1. Open the CyAnimator
- 6.2. Set the color of the nodes so that it shows the differential expression between stage 1 and stage 2
- 6.3. Create a pic with CyAnimator by clicking the + button
- 6.4. Set the color of the nodes so that it shows the differential expression between stage 3 and stage 4
- 6.5. Create an other pic with CyAnimator by clicking the + button again
- 6.6. Export the created animation in GIF format with the red dot button

Apps -> CyAnimator

Record Animation, Video Type: Animated GIF