**BDK11: Identifiers Everywhere - Reconciling one’s differences**

**Objective**

The goal of this exercise is to gain a better understanding of the diversity of metadata about a common element across data sources.

Each group will choose two or three genes from the following list:

SHH

PBM1

WNT4

PGAP2

FOXG1

TP63

OR4H6P

AAA1

OR5D2P

BEX1

OR choose a gene related to your project or interests.

Visit the following sources to answer the following questions:

NCBI EntrezGene: <http://www.ncbi.nlm.nih.gov/gene/>

HGNC <http://www.genenames.org/>

OMIM <http://omim.org/>

KEGG <http://www.genome.jp/kegg/>

Ensembl <http://www.ensembl.org/index.html>

PubMed [www.pubmed.com](http://www.pubmed.com)

MGI (mouse) <http://www.informatics.jax.org/>

ZFIN (zebrafish) <http://zfin.org/>

RGD (rat) <http://rgd.mcw.edu/wg/home>

**Answer the following questions (it is suggested to use a spreadsheet to collect this information):**

1. What is the full name of this gene?
2. What are the identifiers of this gene?
3. What are the symbols for this gene?
4. What are the synonyms for this gene?
5. If the gene name changed, can you determine when that happened and what the name was changed from?
6. Are there any orthologs in other species, and if so, can you find one? (e.g. a very similar gene derived from the same ancestral gene)? Record their name, symbol, and identifiers too (hint, try mouse and zebrafish databases above).
7. Are there any diseases associated with any of these genes? If so, indicate which source you determined this from.

**After you have collected the data from the various sources, answer the following questions:**

1. Which sources use the same identifier and which source is the authoritative one?
2. Which sources vary the most in their synonyms?
3. Which sources provide information about diseases or phenotypes?
4. Which sources provide information about related genes in the same species or orthologous genes in other species? Extra Credit: What are the species identifiers?
5. Can you find any of these genes on this microarray, and if so, what labels and identifiers are used? <http://www.chem.agilent.com/cag/bsp/oligoGL/014850_D_GeneList_20070207.txt.zip>
6. What happens when you search a gene in PubMed? What is the best way to find papers related to a gene?