GUIDELINES TO THE FIGURES

Figures are sometimes considered to be the most important part of a scientific paper. They contain and relay all the evidence reported in the research. Since that is the case, all figures and tables must be self-standing, which means that the reader should be able to understand the figure just by reading the legend. The reason for this is simple, most scientist are either efficient (*or lazy*) when it comes to reading journal articles.

Most scientists read a scientific paper by:
1) Breezing through the abstract (we do not have an abstract because our lab reports are small)
2) Reading the last paragraph of the introduction
3) Looking and reading the figures
4) Then conclude by reading the discussion

Sometimes they may take two additional steps:
5) They may read the results, if it is hard to understand the authors line of reasoning behind the experiments
6) Sometimes the materials and methods are read, if one of the techniques described in the figure legend seems confusing, or you may want to try the technique yourself in your own lab

Why does a scientist read this way?
- The abstract lets them know what the paper is about
- The last paragraph of the introduction lets them know exactly what the researchers did
- Since the figures are self standing, the results are additional and are sometimes even skipped
- The discussion allows them to see how the researcher perceived the data (then the reader either agrees or disagrees with their interpretation)

So how do you write a figure legend?
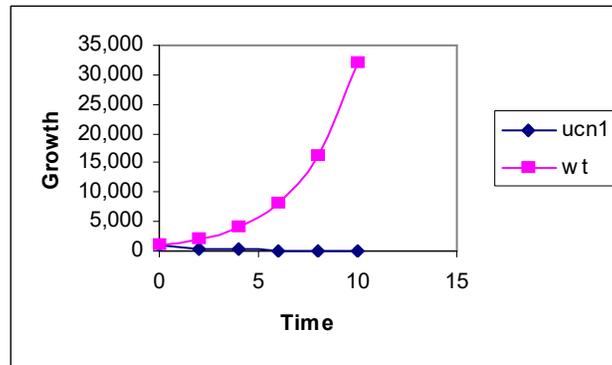
Every figure legend should be written to answer the What-Why-What questions.

What is it?
Why did you do it?
What were the results?

Lets now walk through an example of how to write a figure legend:

Without a legend you have no idea:
What is growing: *ucn1*, wt what are they? organisms? What the time intervals are? Why was this done? Is this normal? To answer these basic questions a solid figure legend needs to be created. To start off with a title needs to be made. It is unfair to expect you to create a title when you didn't perform the experiment so lets just say the title for this figure is: **Comparison of the ucn1 mutant to wild-type cells in 2% LiCl.** Notice how the title is not really a complete sentence, and only contains the most important information. The rest of the information will be expanded upon in the actual legend. So lets now work on the legend.

If the experiment was performed on human neuron cells grown in culture and *ucn1* is a mutation in a gene that is necessary for growth in high lithium concentrations the legend would read.

See the next page…
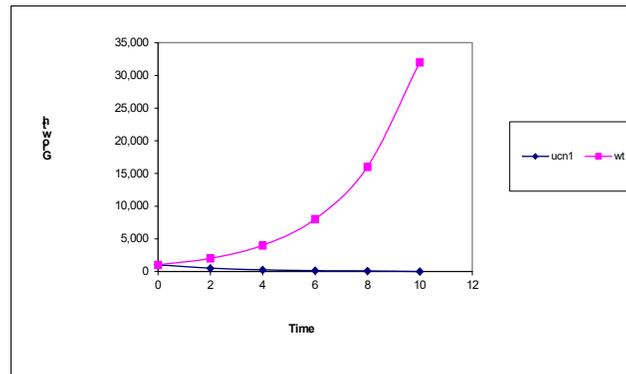
Figure 1: Comparison of the *ucn1* mutant to wild-type cells in 2% LiCl. To determine the effect lithium has on *ucn1* mutant cells, human neuron cells were cultivated in growth media amended with 2% LiCl. Both the wild-type control cells and the *ucn1* mutant cells were inoculated at concentration of 1,000cells/ml. Under normal growth conditions, Wild-type cells double every 2hrs; from $1x10^3$/ml to $3.2x10^4$/ml after 10 hours of growth. In comparison ucn1 mutants decreased by ½ every 2 hours; $1x10^3$/ml to 0/ml in 10 hours.

Now lets examine this figure with the What-Why-What questions:
What is it?
        It is a comparison of the ucn1 mutant to wild-type cells in 2% LiCl.
Why did you do it?
        To determine the effect lithium has on the growth of ucn1 mutant cells.
What were the results?
            When growth should double, it was in fact halved in the mutant
        (Notice how in this part you gave actual numbers to show your answer)