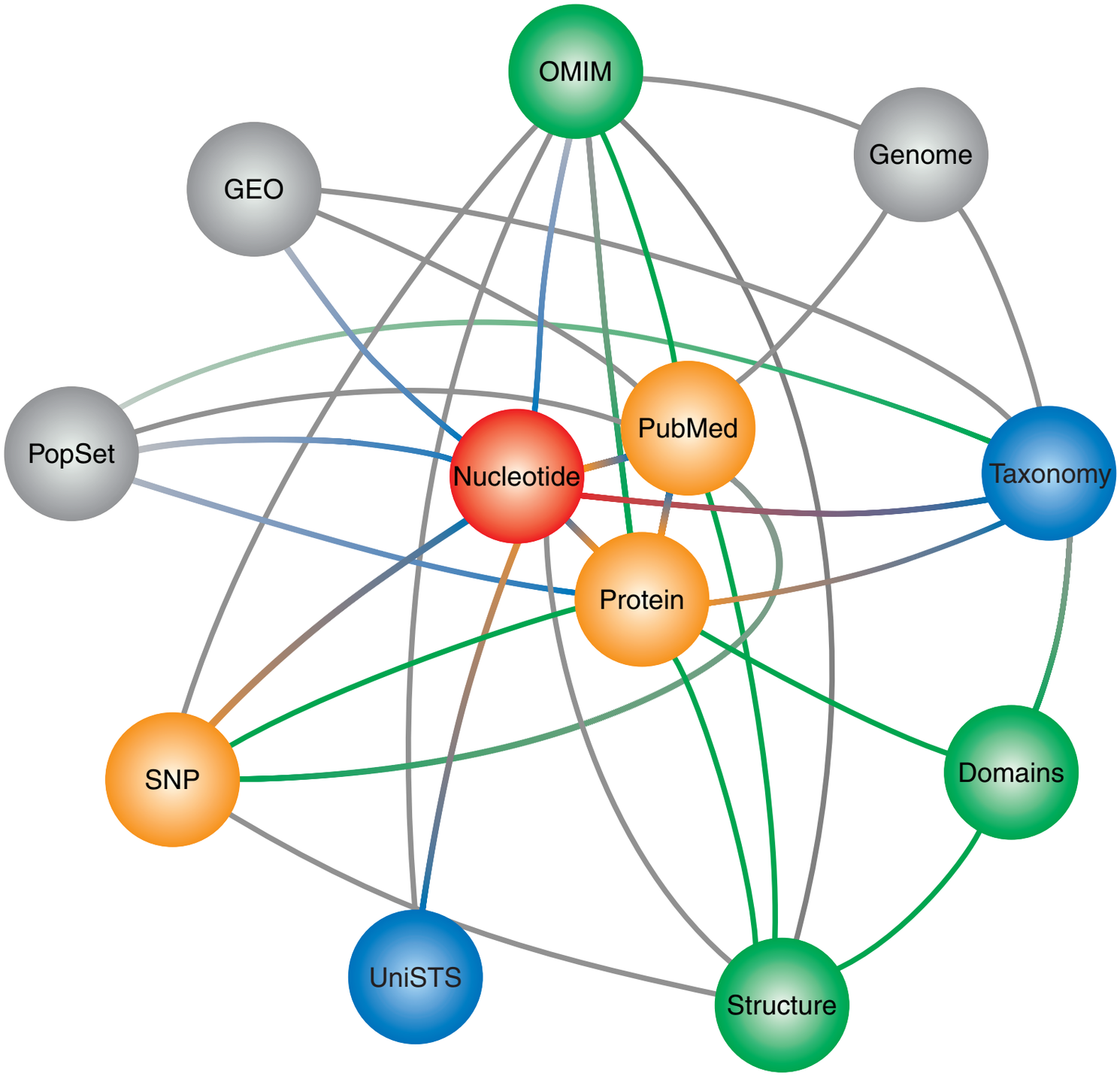
Entrez


OMIM
GEO
Genome
PopSet
Nucleotide
PubMed
Taxonomy
Protein
SNP
Domains
UniSTS
Structure

Bio344 Molecular Biology
Dr. Nigel Atkinson

Important resources

- Pubmed
  http://www.ncbi.nlm.nih.gov/entrez/query.fcgi
- Electronic Journal via UT.
  http://www.lib.utexas.edu:9003/sfx_local/azlist

How to design an experiment #1 of 4

- Step 1. Clearly decide what you are trying to discover/determine/measure. Ask it as a question.
- Step 2. Now rewrite the question as a ONE SENTENCE QUESTION. This forces you clearly understand what it is that you want to know.

How to design an experiment #2 of 4

- Step 3. First, let yourself think of anything. Don't be limited by what is possible. Take time with this.
- Step 4. Keeping your question in mind, go and read the scientific literature (journal articles) or relevant scientific books. This will give you new ideas.

How to design an experiment #3 of 4

- Step 5. Design the ideal experiment regardless of what is possible or practical.
- Step 6. Now examine your design and impose the limitations of reality. This may mean throwing out the experiment because it is impossible, or it might mean making a modification.

How to design an experiment #4 of 4

- Step 7. Ask yourself if the experiment answers the original question. If it does not, then discard and go back to step 1.
- Step 8. Study your proposed experiment and add as many controls as possible (see next section for tips on designing controls).
- Step 9. Determine if, in light of the controls, the experiment still answers the original question. If it does not, then discard and go back to step 1.

WHAT IS A CONTROL? #1

- What are controls? A control is slang for a control experiment. It is used as a noun.
- OK, but what are control experiments?
- A control is an experiment performed to rule out doubt, to answer the annoying "Yea, but what if ....blah, blah, blah ..... happens." To non-scientists, the person saying this is being annoying. The purpose of controls are to make your experimental conclusions "air-tight'.

WHAT IS A CONTROL?

- Textbooks rarely include control experiments. Your text is better than most, in this regard, but it is not perfect.

How to design controls

- 1. Ask yourself, how can my conclusion possibly be wron?.
- 2. Ask yourself, what other alternative explanations are there?
- 3. Imagine giving a seminar in public. Ask yourself: Could someone in my audience suggest an alternative explanation for my data?

HOW TO DESIGN CONTROLS

- 4. Try to disprove your own theories.

Things you are expected to know

- What is a plasmid?
- What are restriction enzymes?
- Look in your book or check out the definitions section on the website.