The STARS Paper

The Paper and the Process

S.T.A.R.S.

Your job while you are here:

1. Learn the process of doing scientific research
2. Compile your data in the form of a scientific research article
3. Make friends and have fun

How do you accomplish this:

1. Be in the lab, work, ask questions, think
2. Work with lab representative (Mentor, Post doc, or grad student) and STARS advisor
3. Interact with other STARS students as well as with the lab members

The Paper:

What it is...

- a clear, concise and focused communication of your STARS research
- of the general format –
  - Abstract
  - Introduction
  - Materials & Methods
  - Results
  - Discussion
  - References
- written such that others can reproduce your work

What it is not…

- an English paper with complex sentence structure or 'flowery' language
- something where one can wax and wane philosophically (except in discussion)

Use the PowerPoint presentations & the paper rubric as your guideline

Components of the Paper

Abstract:
The 'Spark Notes' component of the paper.
Typically 100-250 words.
Consists of purpose, method, results and conclusion.

Introduction:
Introduces topic and issue. Summarizes relevant literature.
States approach used and results obtained.

Materials & Methods:
Lists reagents used and where purchased.
Methods are specific and direct. Ex. 'Recombinant IL1β was used at a final concentration of 10 ng/ml in all cell based assays' rather than 'I added 10ul of IL1β stock to each well of cells'.
It is ok to use a previously published methods as long as they are referenced

Components of the Paper (continued)

Results:
The meat of the paper. Include all relevant data but be concise. Work with Mentor and/or lab representative in presentation /formatting of results.

Discussion:
Relate results to original question/issue. Interpretations encouraged. Discuss potential future experiments.

References:
Recommended format is to list references alphabetically. May change based on Mentor's request.

Acknowledgements:
Very important section of STARS paper....where you thank your Mentor and the lab members for sharing of their time and talents with you.

S.T.A.R.S.

The Process

Each STARS student is assigned a STARS advisor.

The STARS advisor and the Mentor (or lab representative) help the student with the paper.

Weekly updates on the paper required. All done electronically.

Send weekly updates to STARS advisor and Mentor/lab rep by noon on each Friday. Reviews/comments/edits will be back to you by noon on Monday.

Please use both your STARS advisor and Mentor/lab representative as resources... we are here to help.

Your paper will be the foundation for your STARS Research Project presentation the final day of the program.

S.T.A.R.S.

The Process

Schedule for Paper –

what needs to be sent to your STARS advisor and lab rep and when

Week 1: Due Friday of that week

Proposal – short and sweet

I will be studying ……. The approach I will be using is ……

Week 2: Due Friday of that week

Start of Introduction /References (not complete...just a start)

Week 3: Due Friday of that week

Add Materials and Methods (continue to work on Intro & References)

Week 4: Due Friday of that week

Add beginnings of Results and Discussion (continue working on other sections)

Week 5: Due Friday of that week

Add ABSTRACT – close to complete

Week 6: Due Friday of that week

Paper Complete. *MUST have mentor sign off on it!*

What you need to do now...

Take a look at the information provided for writing the paper. Ask questions if needed.

Ask your Mentor for papers published by the lab. Use as resources for your paper..sources of background info as well as methods.

Find out who the lab representative is who will help with your paper (your Mentor or a postdoc or grad student)

Turn in (e-mail) your 'Project Proposal and Approach' to your STARS advisor and Lab rep by noon on this Friday.

Turn in (e-mail) your work on your Introduction (work in progress) to your STARS advisor and Lab rep by noon on next Friday.

S.T.A.R.S.

General Outline for Scientific Paper

Abstract	*'Spark notes' version*
Introduction	*Tell them what you are going to tell them*
Materials and Methods	(the 'How to' section)
Results	*Tell them what you are telling them*
Discussion	*Tell them what you told them*

Use previously published papers from your mentor/lab as a guide

S.T.A.R.S.

The Introduction....

Why is this important

What is already known

The focus of this work

The approach being used

The results (simply stated)

Use previously published papers from your mentor/lab as a guide

S.T.A.R.S.

The Materials & Methods....

List of reagents – be specific

Use previously published papers as a guide

Keep it unambiguous (concentrations, g force etc)

It is OK to use a previously published method
Just be sure to provide the reference

Use previously published papers as a guide
(I just had to say it again)

S.T.A.R.S.

The Materials & Methods....

Kinase Activity Assay. A resin capture assay method was used to determine the phosphorylation of epidermal growth factor receptor peptide (EGFRP) or GST-c-Jun by p38 kinases or JNK2, respectively. **Reactions mixtures contained 25 mM HEPES, pH 7.5, 10 mM magnesium acetate, ATP (at the indicated concentration), 0.05 to 0.3 μCi of [γ-33P]ATP, 0.8 mM dithiothreitol, and either 200 μM EGFRP or 10 μMGST-c-Jun for p38α kinase or JNK2 reactions, respectively.** The reaction was initiated by the addition of either 25 nM p38 kinase or 100 nM JNK2 to give a final volume of 50 μl. The JNK2 and p38α kinase reactions were incubated at 25°C for either 20 or 30 min, respectively.

In well written methods there is no ambiguity as to what you did. Typically stating final concentrations is the clearest but do as your mentor prefers.

S.T.A.R.S.

The References.... By number in text or by alphabetical order

1. Jackman KA, Miller AA, Drummond GR, Sobey CG (2009) Importance of NOX1 for angiotensin II-induced cerebrovascular superoxide production and cortical infarct volume following ischemic stroke. Brain Res 1286: 215-220.

2. Baylis C (2008) Nitric oxide deficiency in chronic kidney disease. Am J Physiol Renal Physiol 294: F1-9.

3. Greenman IC, Gomez E, Moore CE, Herbert TP (2007) Distinct glucose-dependent stress responses revealed by translational profiling in pancreatic beta-cells. J Endocrinol 192: 179-187.

Or

Baylis C (2008) Nitric oxide deficiency in chronic kidney disease. Am J Physiol Renal Physiol 294: F1-9.

Greenman IC, Gomez E, Moore CE, Herbert TP (2007) Distinct glucose-dependent stress responses revealed by translational profiling in pancreatic beta-cells. J Endocrinol 192: 179-187.

Jackman KA, Miller AA, Drummond GR, Sobey CG (2009) Importance of NOX1 for angiotensin II-induced cerebrovascular superoxide production and cortical infarct volume following ischemic stroke. Brain Res 1286: 215-220.

NO WIKI or WEBSITES!!