

An assistant professor's guide to writing a scientific review paper



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My academic background

- Honours BSc, U of T, 1999-2003
 - Biology and Forensic Science
 - Minor in French Literature
- Medical lab technologist, 2003-2005
 - Diagnostic Cytology
 - The Michener Institute for Applied Health Sciences
- PhD, McGill, 2005-2010
 - IRCM, Dr. Andrew Makrigiannis
 - Molecular Immunology
 - Natural killer and dendritic cell biology
- Postdoctoral fellowship, OHRI, 2010-2016
 - Labs of Dr. Rebecca Auer and Dr. John Bell
 - Cancer Immunology and Immunotherapy
 - Immune response to cancer and viruses

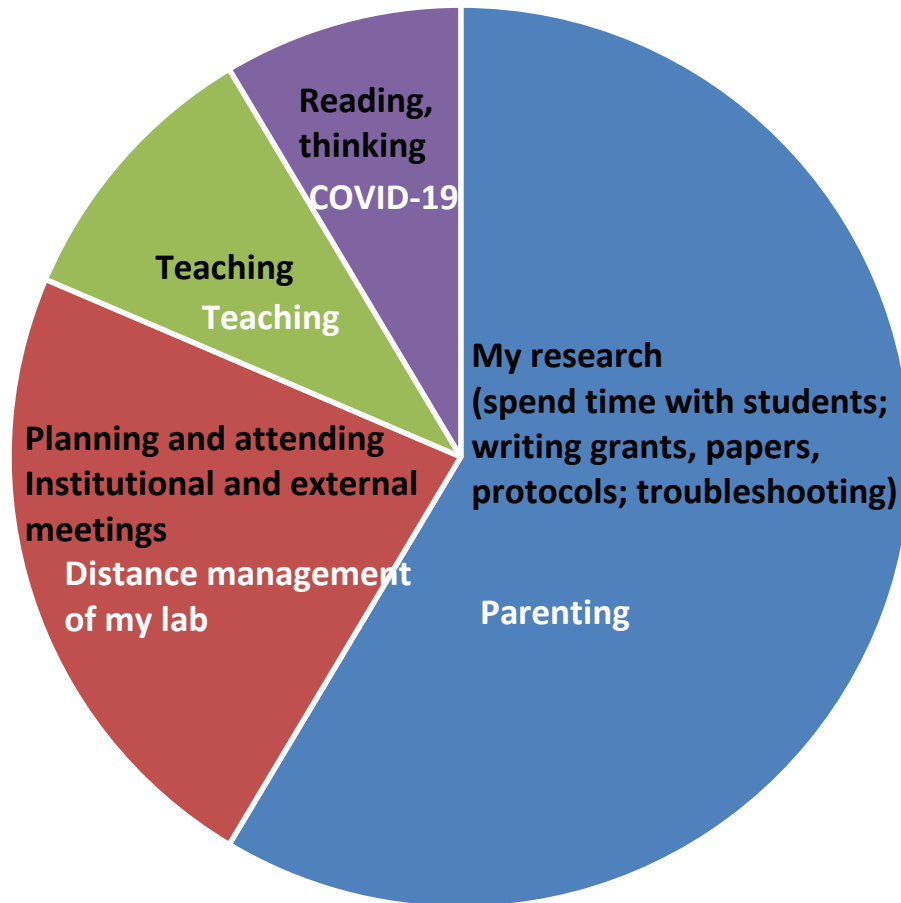


How did I become a PI?

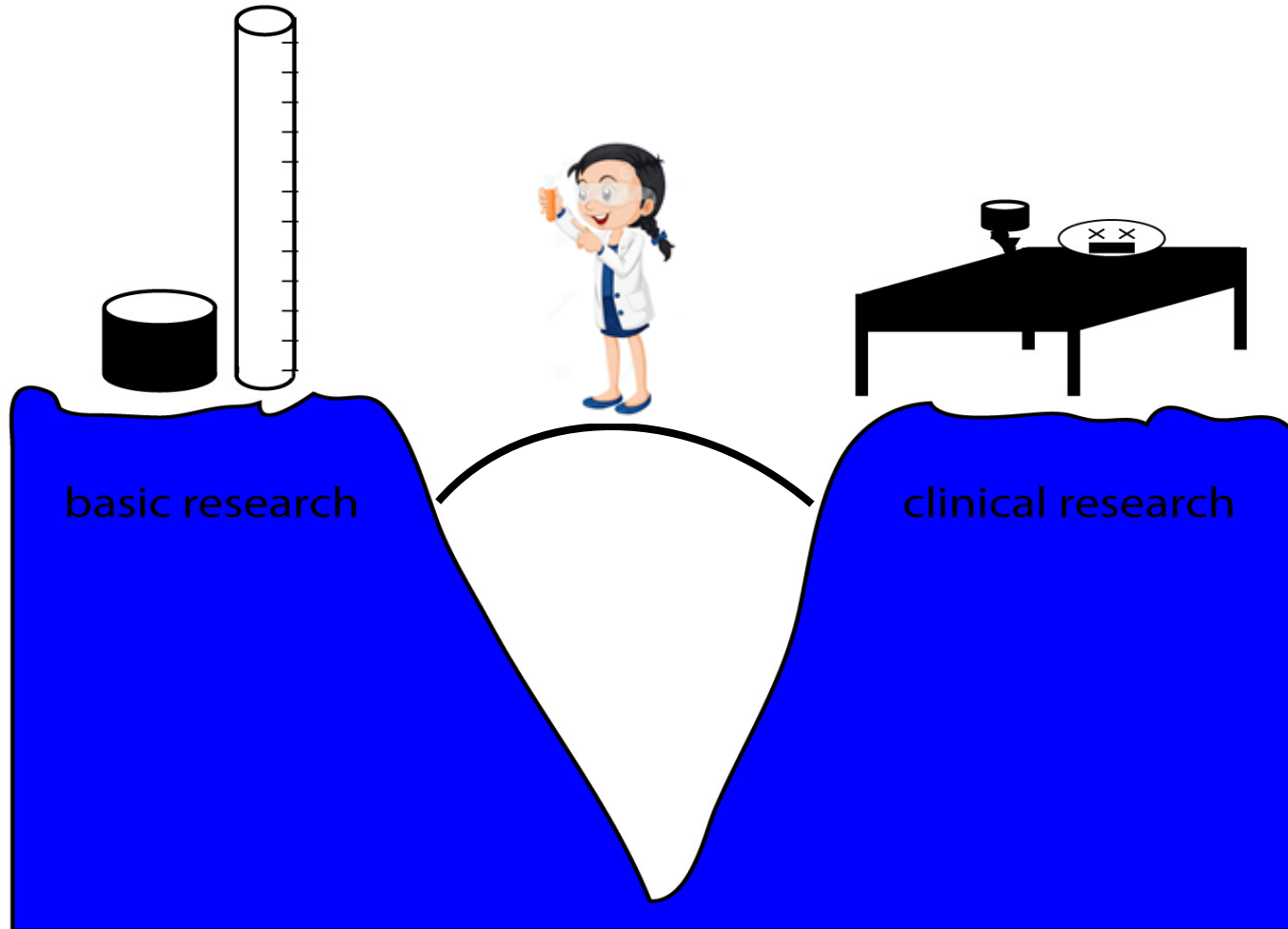
- Applied to 5 academic universities and other institutes in science
 - UdeS, McGill, UofT, Brock, UofO
 - NRC, RCMP, research associate
- 2 academic interviews
 - Job talk, chalk talk, individual meetings, meetings with students
- 1 offer from UdeS
 - Grants!!!!
 - FRQS, CIHR, CRS, NSERC, CIHR, CFI, institutional....
- Hire personnel, hire and mentor students
- Teach, meetings/committees (internal, external)
- *****Necessary work skills:**
 - Management, communication (writing: manuscripts/grants/ethical protocols + oral: teaching, presenting), technical (troubleshooting, data analysis, grant reviews)

What does my typical work day look like?

Daily activities



Translational Research

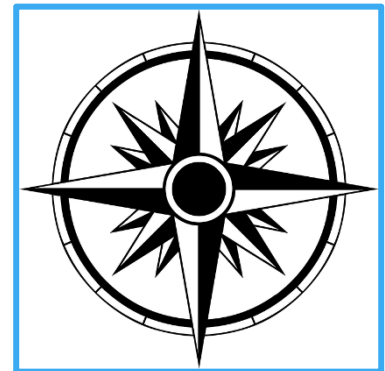


My review writing credentials since 2018

- Invited review
 - Treatment of metastatic disease through natural killer cell modulation by infected cell vaccines. Niavarani SR, Lawson C, Tai LH. *Viruses* 2019 May 11;11(5). pii:E434. F1000 recommendation.
- Solicited review
 - Combining surgery and immunotherapy: turning an immunosuppressive effect into a therapeutic opportunity. Bakos O, Lawson C, Rouleau S, Tai LH. *J Immunother Cancer*. 2018 Sep 3;6(1);86.

Why are scientific review papers useful?

- They organize, evaluate and distill information
- They educate scientists, trainees and others (patients, policy makers, etc.)
- They provide a bridge between disciplines
- They direct and shape future research



Why write a scientific review?

- Not very good reasons
 - You want to learn about a new subfield
 - It seems like an easy way to get another publication line on your CV
- Practical reasons
 - It's an opportunity to demonstrate expertise in your subfield
 - On average, reviews are cited and downloaded more than primary research articles
 - It's an opportunity to think deeply about the state of your subfield
- Good reasons
 - Distill info, education, bridge fields, shape the future of research
- An excellent reason
 - You can provide an insight that cannot be directly obtained from reading the primary empirical literature

Do I need to be invited to write a review?

- Understand the journal's model
 - Direct submissions
 - By invitation only
 - Contact the editor
- Presubmission inquiry, i.e., soliciting a journal
 - Should I bother to submit this to your journal?
 - Suitability of your subfield/topic for this journal

Preparing a short proposal

- Understand what the journal wants
- The journal doesn't want you to waste your time on something that is out of scope or format
- The editor's job is to make sure the content and tone are a good fit

The content of the review paper

- What is the central thesis?
- Why does this matter?
- Why does this matter now?
- What is the tone?
- Who is the audience?
- Is it positioned distinctly from other reviews?

What to include in a proposal

- Format (review, short review, opinion, etc.)
- Authors and affiliations
- Summary of the scientific content
 - Abstract and/or outline
- Key references on the topic
- Could also include figures, approx. word count, your publication history to showcase your expertise

What if the editor rejects you?

- Doesn't mean your proposal was bad
 - Other reviews forthcoming
 - The field is emerging
 - Out of scope
 - Pipeline too full to add anything new

What if the editor rejects you?

- Not necessarily the end of the line
 - Revise the aim of the review to add novelty or adjust scope
 - Change format (e.g., to a short article)
 - Come back in a few months
 - Invite another co-author(s), add some expertise
 - Pitch to another journal

Consistency and accessibility

- Avoid jargon
 - The broader the journal's scope, the harder this is
 - Include a glossary if you can
 - Make sure definitions conform with accepted meanings
 - Make sure terms are used consistently throughout
- You're the expert
 - this is why you're writing this review
 - but don't assume every reader knows as much as you do

Review organization

- Start with an outline
- Introduction and concluding sections
- 4-6 main sections
 - 2-3 subsections under the main sections
- Use structured headings
 - Helps with organization of information
 - Ensures adequate and balanced attention to all aspects of the review
- Use a reference management program

What is novel about your review?

- A review is not a collection of results
- Readers should learning something new
 - Comparison, critique, assessment – including your own work
 - Synthesis of divergent ideas
 - Actual ideas for future experiments – not just “future work is needed”
 - Path to clinical translation, market, industrial scale-up, etc.

What is novel about your review?

- Manage readers' expectations
 - Tell readers why this is timely and why it is important now
 - Acknowledge that this review is not exhaustive
 - Acknowledge other reviews and explain why this is different
- The concluding section

Does it meet journal requirements?

- There might be flexibility in word limits and number of references
 - If you are over 50% the word count, do cut down
 - There may be different standards for initial submissions and revised versions
- Minor formatting requirements could be addressed later
- Just start writing!!

Review your review!

- It will take many drafts!
- Read from start to finish
 - Especially if there are multiple authors involved who each wrote their respective sections
 - Do transitions make sense?
 - Take the perspective of the reader
- Are you missing something?
 - Acronyms spelled out
 - Figure call-outs
 - Other required sections, etc.

Revising the review

- The editor is here to help your review succeed
 - Thought it was a good idea to start with
 - Substantial time and energy invested
 - May offer suggestions for how to respond to reviewers concerns
- Engage with reviewers' comments
 - Don't just superficially do what they say
 - Rewrite this section: doesn't mean clean up a few sentences
- Review manuscripts may or may not be sent back to reviewers

Take home message

- A review is not a list of results
- Only write a review if you feel you have something to say
- If possible, submit a proposal/outline before writing the manuscript
- Be clear on why the topic is important, why it is important now, and why you should write it

Take home message

- Manage readers' expectations from the beginning
- Expect to write many drafts
- Follow the journal's formatting guidelines
- Remember, if you've been invited to submit a review, the editor wants you to succeed.

Just start writing!



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