Strategies for Manuscript Publishing

Organizing Data and Beginning the Writing Process
What Constitutes a Publishable Paper?

• A written report describing original research data that must allow readers to
  – Assess results; repeat experiments; understand the scientific process
• Peer-reviewed
• Meets the criteria of first-disclosure
  – Results never published before, except in the form of abstracts or meeting presentations (oral or poster)
• Must be available to the scientific community without restrictions
Gathering Thoughts and Data

- How do I know that I have enough data for a manuscript?
- How do my data advance knowledge?
- Which audience do I want to target?
How do I know that I have enough data for a manuscript?

- Do the results tell a complete story?
- Do I have all the supporting data?
- Do I have all the appropriate controls?
- Go beyond the “minimal publishable unit”
- One high quality paper in high profile journal has more impact of a few lower quality papers
How Do My Data Advance Knowledge?

- Do my data:
  - Identify a new biologic mechanism?
  - Describe a new biologic model?
  - Discover a new function of a gene/protein?
  - Define new mechanism of disease?
  - Identify a new approach to treatment?
  - Challenge current dogmas?

- Lack of novelty is the leading reason for most rejection decisions
How Do My Data Advance Knowledge?

• Little advance of knowledge when
  – Results extend known notions/mechanisms to
    • A different cell or tissue system
    • A different organism
    • A different patient population
  – Results are confirmatory of previous reports
    • Not always accepted for publication
• Research and study the literature in depth!
What if My Results Are Against My Original Hypothesis?

- Hypotheses may be disproved
- Strength of paper is based on solidity of data, not on a priori assumptions
- Interpret data as they are
  - Most innovative observations are unexpected
  - Articles do not always follow chronological order of experiments
Which Audience Should I Target?

• Write for an audience, not for yourself
• Consider who would be most interested in your new data
  – Unexpected results may take you into a new field/research area
• Critical considerations
  – General audience vs. specialty areas
  – Journal rating and likelihood of success
Structuring the Manuscript

- Type of article
- Authorship
- Assembling the parts
  - where do I start from?
Type of Article

• Original Publications
  – Original Research Article
  – Short / Rapid Communication

• Invited Publications
  – Review
  – Book chapter / Books
  – Editorials
  – Meeting proceedings
Type of Article: Original Articles

- **Original Research Article**
  - Most common, report of original research
  - A.k.a. full-length article
  - Fully peer-reviewed

- **Short/Rapid Communication**
  - Not all journals accept them
  - Small paper of very high relevance
  - Fully peer-reviewed
Type of Article: Invited Papers

- Review
- Book Chapters / Books
  - Overview of the literature on a specific topic
  - Usually by invitation
  - Should be written by authors with some experience in the field
  - Good reviews are highly cited
    - skew journal ratings towards the upper end
Type of Article: Invited Papers

• Editorials
  – Written by editors or editorial board member, or appointed expert
  – Short commentary of an article published in the same issue
  – May serve as a vehicle for a different point of view

• Meeting proceedings
  – Short papers on papers presented at meetings
  – Limited scientific value, usually published in low impact journals
  – Danger of duplication of publication
Authorship

• Should be resolved at the outset
• Author should have contributed to the design, execution of experiments, data analysis or writing of manuscript
• Journals have specific guidelines
  – AMA journals request details on role of each author at submission
• Ethical and legal issues to be discussed in another session
Assembling the parts

• Start from the data
  – Gather data in figures, tables, and other illustrations and look at the whole picture
  – Identify a leitmotif, a logical sequence of experiments from start to end
  – Identify gaps in the sequence, need of additional experiments or controls
  – Delete redundant or non-pertinent data (can be published in a different report)
Assemble the Data in Figures

• Figure 1

• Figure 2

• Figure 3
Write Manuscript Outline

• Follow the logical thread of the figures and tables sequence
  – Write the “header” of the results obtained in each set of experiments
  – Describe the “message” each illustration (or set of illustrations) offers

• Example:
  – Cadherin gene deletion results in low bone mass
  – Cadherin deficient mice have decreased osteoprogenitor numbers
  – Altered Wnt signaling in cadherin deficient cells
Assembling the parts

• Write the Results section first
  – Number the figures and tables
  – Write an outline, then a narrative of the results following a logical thread

• Write the other sections after you are confident with the results
  – Methods
  – Introduction
  – Discussion
  – Abstract
Things to avoid

- Use figures (even part of) already published elsewhere
- Repeat statements already included in published papers, even if they are your own words
- Verbatim quotations from others’ work (plagiarism)
  - Can use quotation marks, if necessary, but always cite and acknowledge original work
- Submit the same paper or parts of it to another journal at the same time
- Embellish, falsify or fabricate data
Importance of Title and Abstract

- Articles are listed by title in databases
- Title should attract the interest of the reader
- Should give the “punch-line”
- Most readers will read only the abstract
- Abstract should provide complete information and further attract readers towards the paper
Formulating an Effective Title

• A concise statement written in active form, when possible
• Brief, simple and unambiguous
• A working title should be written at the outset
• Final title should be revised when the manuscript is almost final
Formulating an Effective Title

• Indicative titles
  – Tell what the study is about
    • *Comparison of two drug regimens in prevention of cardiovascular mortality*
    • *Morphological characterization of skeletal cells in Cbfa1-deficient mice*
  – More effective for review papers or oral presentations
Formulating an Effective Title

• Informative titles
  – Tell the results of the study
  – Should include a verb and read as a newspaper headline

• Estrogen reduces the risk of hip fractures in postmenopausal women
• Osteoprotegerin ligand is a cytokine that regulates osteoclast differentiation
Formulating an Effective Title

- Things to avoid in a title
  - Too many words
  - Too many acronyms
  - Inconclusive or ambiguous statements
  - Passive verb form
  - Questions
Examples of Ineffective Titles

- Changes in C-reactive protein and erythrocyte sedimentation rate during treatment of rheumatoid arthritis and their value for prediction of response to therapy
  - Wordy, indicative not informative, ambiguous

- Alternative: Changes in C-reactive protein and erythrocyte sedimentation rate predict response to immunosuppressive therapy in rheumatoid arthritis
Examples of Ineffective Titles

• A comparative study of the metastable equilibrium solubility behavior of high-crystallinity and low-crystallinity carbonated apatites using pH and solution strontium as independent variables
  – Overlong, indicative not informative, tells about methods not results
Examples of Effective Titles

- *Pharmacologic targeting of a stem/progenitor population in vivo is associated with enhanced bone regeneration in mice*
  - Informative, directly states the results, while telling about methods and context
- *Cell surface expression of stem cell antigen-1 (Sca-1) distinguishes osteo-, chondro-, and adipoprogenitors in fetal mouse calvaria*
  - Simple, informative, clear statement of findings
The Title: Summary

- A concise statement written in active form, when possible
- Brief, simple and unambiguous
- Should read as a newspaper headline
- Informative titles for original articles
- Indicative titles for reviews
Questions?