How to write a good publishable manuscript

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What is the good manuscript?

- A good manuscript leads readers to scientific significance immediately.
 - -Content is essential:
 - contain a scientific message that is clear, useful and exciting.
- Presentation is critical:
 - conveys the authors thoughts in a logical manner.
 - -Construct on a good format and written in an excellent style.

How to write a good manuscript

- · Preparations before starting:
 - Construction of the article.
 - -Technical details.
- Check the originality of your idea at the early beginning of your research.
 - -Have you done something new and interesting?
 - -Is there anything challenging in your work?
 - -Is the work is directly related to hot topic?
 - -Have you provided solutions to any different problems?

If all answers are yes, then start preparing your manuscript



1: Every paper tells a story

elevator pitch = summary that is short enough to give during an elevator ride

- □ the story is *not* what you did, but rather
 - what you show, new ideas, new insights
 - why interesting, important?
- □ why is the story of interest to others?
 - universal truths, hot topic, surprises or unexpected results?
- □ know your story!

You can write a world class paper

- From title to references
- From submission to revision and acceptance







Why write and publish respects papers?

- Ideally
 - to share research findings and discoveries with the hope of improving healthcare
 - Your goal:

to infect the mind of your reader with your idea, like a virus

- Practically
 - to get funding
 - to get promoted
 - to get a job
 - to keep your job!

A good scientist =



- · Good science
- · Good writing
- Publication in good journals







What constitutes good science?

- **Novel** new and not resembling something formerly known or used (can be novel but not important)
- Mechanistic testing a hypothesis
- **Descriptive** describes how are things are.

Writing papers is a skill

- Good writing is a skill you can learn
- It's a skill that is worth learning:

Increasing

- You will get more brownie points (more papers accepted etc)
- -Your ideas will have more impact
- -You will have better ideas

Organizing Analysis & Writing

- Use folders to organize your projects
 - One folder per manuscript
 - Data, notes, relevant articles, drafts of the paper, editorial correspondence, etc.



A Place for Writing



- Peaceful
 - Quiet, isolated, No noise
- No distractions
 - Clear your desk except for things relevant to your paper
 - Avoid shared
 offices if possible

- Don't try to write if you're really tired
 - Have a nap and then start again fresh
 - Be happy if you get in four good hours a day



Keep writing is Critical

- Work on just one thing at a time
- When working on a paper, do a little bit *every day* (even on weekends)
- If you don't feel like writing, just turn on your computer and write one sentence
 - If you don't want to continue then stop—but just getting started is often the hardest part
- Keep going until you finish the manuscript



Five Steps for Crafting your Paper

- 1) Do lots of analysis to explore your data thoroughly
- 2) As you work, create publicationquality figures and tables that display your key findings
- 3) Summarize your main results (including statistical tests) in the Results section as you go.

- 4) As you analyze the data, insert ideas within your paper outline.
- 5) Then write the manuscript, starting with the Introduction and progressing directly through the paper
 - Getting the first draft is the hardest part, so don't be perfectionistic: just write the paper and you can edit it later



Before you write a paper...chick the following:

- 1. Originality of your Idea
- 2. Type of Manuscript
- 3. Who is your audience
- 4. Choose the right journal
- 5. Author Guides

Decide the type of your manuscript

- Full articles/Original articles: the most important papers; often substantial, completed pieces of research that are of significance.
- Short communications: usually published for quick and early communication of significant and original advances; much shorter than full articles (usually strictly limited).
- Review papers: summarize recent developments on a specific topic; highlight important points that have been previously reported and introduce no new information; often submitted on invitation.

Paper formating:

- A standard format is used for scientific articles, in which the author presents the research in an orderly, logical manner.
- This doesn't necessarily reflect the order in which we did or thought about the work.
- <u>Title</u>I <u>Authors</u>I Abstract, <u>Introduction</u>I <u>Material and Methods</u>I <u>Results (with Tables and figures)</u>I <u>Discussion</u>I <u>Acknowledgement</u>I <u>References</u>

Manuscript preparation

• Article title

- -No more than 15 words
- No excessive punctuation: i.e. no colons, *commas*, "etc."
- -Informative, but not inflated relevance
- -Indicate species studied (human versus animal model)

Title

• The title of the paper is the most often encountered part of any paper and therefore has great importance in the success of the paper. Abstracting and indexing services will utilize the title, therefore, all words in the title should be chosen with great care and their association with other words in the title carefully manage

PubMed

Assignment 1

Suggest a title for each of the two provided abstracts.

Author listing

- ONLY include those who have made an intellectual contribution to the research
- OR those who will publicly defend the data and conclusions, and who have approved the final version

Authors' contributions

- AE designed the study and drafted the manuscript.
- **ABB** helped to draft the manuscript and performed the statistical analysis.
- LA provided samples and participated in the design of the study. All authors have read and approved the final manuscript.

Authorship ordering:

- Most of the journals assume an order based on each author's importance to the study.
- The first author is primarily responsible for collecting and analyzing data, and writing.
- The last one, an established investigator, assumes the overall responsibility for the study.
- The middle authors are listed according to their order of importance to the study.

The abstract:

- The single most important thing about an abstract is that it is a short document that is intended to capture the interest of a potential reader of your paper.
- Thus in a very important sense it is a marketing document for your full paper.
- If the Abstract is poorly written or if it is boring then it will not encourage a potential reader to spend the time reading your work.

Length of the abstract

 Thus the first rule of Abstract writing is that it should engage the reader by telling him or her what your paper is about and why they should read it.





• The marketing of your proposed paper needs to be done within the word limit of 300 to 500 words. It is poor practice not to use the 300 words and it is considered a bad tactic to go over the limit of 500.

The Abstract

- An abstract is a brief, comprehensive summary of the contents of the article;
- It allows readers to survey the content of an article.
- Like the title, is used by abstracting and information services to index the article.



Key words

- Key words are used to find the paper, especially during computerised searches.
- Somewhere between 5 and 10 Key Words are normally required and they should be the words which most closely reflect the content of the paper.



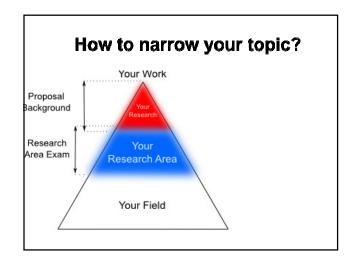
Introduction

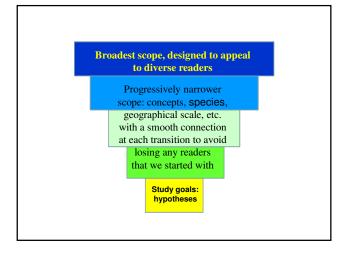
- Broad information on topic
- Previous research
- Narrower background information
- Need for study
- Focus of paper
 - Hypothesis
- Summary of problem (selling point)

Why narrow your topic?

- You're only writing a paper, not a book.
- Your time for reading is limited. The broader the topic the more you must read in order to cover all aspects of that topic.
- You want to study a narrow area deeply, not a broad area superficially.







Introduction

- if reader not excited by intro, paper is lost
- recipe:
 - para. 1: motivation: broadly, what is problem area, why important?
 - para. 2: narrow down: what is problem you specifically consider
 - para. 3: "In the paper, we": most crucial paragraph, tell your elevator pitch
 - para. 4: how different/better/relates to other work
 - para. 5: "The remainder of this paper is structured as follows"

Know the basics of organized writing

- paragraph = ordered set of topically-related sentences
- lead sentence might tie to previous paragraph
- sentences in paragraph should have logical narrative flow, relating to to topic
- don't mix tenses in descriptive text
- one sentence paragraph is unacceptable.

Study the art of writing

- writing well gives you an advantage
- writing well helps in getting your work published in top venues
- highly recommended:
- who do *you* think are the best writers in your area: *study their style*

Common mistakes in writing the introduction

- -Too much or not enough information i.e:
- -Unnecessary Length
- Unclear structure and organisation
- -Lack of purpose and direction
- -Too many irrelevant details
- -Not enough background context
- -Too much background context





Put yourself in place of the reader

- · less is more:
 - take the time to write less
- · readers shouldn't have to work
 - won't "dig" to get story, understand context, results
- what does reader know/not know, want/not want?
 - write for reader, not for yourself

- Put enough information for reader to understand what you write?
 - no one has as much background/content as you
 - no one can read your mind
 - all terms/notation defined?

Assignment II:

• Suggest the points to be covered in order to write a perfect introduction related to any of the titles below or any suggested point related to your interest.

Oral carnosine supplementation prevents vascular damage in experimental diabetic retinopathy.

Materials and Methods

what did I do to answer my resarch question?



Materials and Methods

- Provides instruction on exactly how to repeat experiment
- -Subjects
- -Sample preparation techniques
- -Sample origins
- -Field site description
- -Data collection protocol
- -Any computer programs used
- -Data analysis techniques
- -Description of equipment and its use

How to write the Materials and Methods section

- Provide full details so that the experiments are reproducible.
- If the peer reviewer has doubts that the experiments could be repeated, the manuscript will be rejected.





How to write the Materials and Methods section

• Organize the methods under subheadings, with related methods described together (e.g. subjects, experimental design, Measurement of..., Hormonal assays etc...).

How to write the discussion section







Now you have to start thinking in order to write a perfect discussion



Before you put pen to paper:

- -Make a list of what you put in the results on scrap paper
- -Think about what these results tell you about your hypothesis
- -Plan a way to discuss them in a logical order
- -Consult your team authors.

The Discussion depends on the nature the work

• If you apply or use new technique you must evaluate the experimental method used.

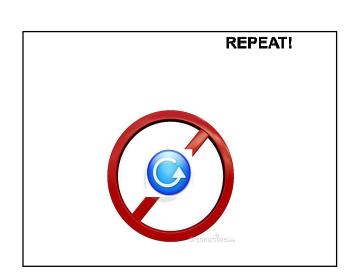




First paragraph

- -State major findings
- Paraphrase abstract





Middle paragraph

- •Base each on a major result
- Always focus on your results
- Never discuss prior work without reference to <u>your</u> work
- Refer Tables and Figures

Reference to your hypothesis where these supported

- AND whether your findings are realistic
- Should include references that support and/or challenge your results and ideas

Last paragraph

- "In summary..." (2-3 sentences)
- Avoid speculation, avoid "need more work"



- End with a concluding paragraph that sums up:
- -what you did
- -what you found
- -your main conclusions

Citing References in Scientific Research Papers

Why do Researchers Publish?

- To register a discovery as made by them on a certain date
 - priority, who was first, I. P. registration
- To get their research (and by implication themselves) quality stamped by publication in a journal of known quality
 - you are what you publish
- To let their peers know what they have done
 - attract recognition, reward and collaboration
- To leave a permanent record of research

- Check the originality of your idea at the very beginning of your research.
- Have you done something new and interesting?
- Is there anything challenging in your work?
- Is the work directly related to a current hot topic?
- Have you provided solutions to any difficult problems?



There are many variables influencing the choice of journal for manuscript submission:

- Factors involved include:
- The visibility of the journal,
- The focus of the journal and how well it matches the topic of the manuscript,
- The impact factor of the journal,
- The timeliness of the editorial office process and whether feedback is constructive,
- Journal accessibility,
- · Author costs,

ISI Journal Citation Reports (JCR)

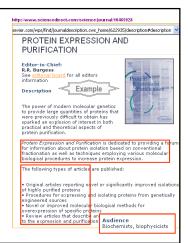
MPACT FACTOR

number of citations received in current year by papers published in the journal in the previous two (or five) years divided by

number of papers published in the journal in the previous two (or five) years

Choose the right journal

- Investigate all candidate journals to find out:
 - Aims and scope
 - Types of articles
 - Readership
 - Current hot topics (go through



Read the 'Guide for Authors'! Again and again!

- Apply the Guide for Authors to your manuscript, even to the first draft (text layout, paper citation, nomenclature, figures and table, etc.). It will save your time, and the editor's.
- · All editors hate wasting time on poorly



Cover letter

- 2-3 paragraphs MAXIMUM
- Should introduce the study and the authors
- Declare conflicts of interest
- Indicate that the findings are as yet unpublished

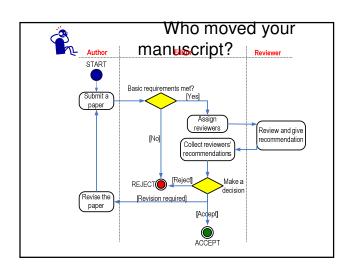
Suggest referees and list exclusions
 Explain why your paper is important
 and novel but only in a precise
 manner.

PROOFREAD IT BEFORE SUBMITTING

-correct journal, date, grammar

Assignment III:

• Write a short covering letter to editor.



Role of the editor-in-chief

- Decides on acceptance of each paper (may overrule reviewers)
- Decides on board members (together with the publisher)
- Decides on journal policy (together with board and publisher): aims & scope, article types, reader- and authorship
- Public face of the journal
- Active member of the research community (visits conferences, solicits papers from best labs)
- Not an employee of the publisher!

Role of the editorial board

- Board members are chosen for their large network and experience in important subjects within a research field
- Advise the chief editor on specialized areas
- Arrange for review of papers
- Occasionally review papers
- Act as ambassadors for the journal

What are editors looking for?

- The authors appears to know the journal
- The authors appears to know who will be reading the paper
- -Is the level of the paper suitable for the readers?
- –What is to be learned from the paper?

Peer Review

- A methodological check
 - soundness of argument
 - supporting data and cited references
- Done by at least two professional academics
 - ("the reviewers")
- Reviewers peer review without payment
 - costs of administering the selection of reviewers, postage and document costs are borne by the journal

Review process

- Reviewers are normally given several weeks to review the paper.
- They are asked to comment on its accuracy, the validity of the comments made and the conclusions reached by the authors and then categorise the paper under the headings of:

What are reviewers looking for?

- Does the paper match the journals aims and scopes and instructions for authors
- Is of sufficient quality to be published
- -Look closely at literature and meaning
- Context for research in area
- Reviewers chosen because of familiarity with subject area

What about their decisions?

- Reject
- Accept, this might include a judgement on the priority/importance of the paper
- Make suitable revisions; these could be minor changes in text to more major changes, e.g. repeated or additional experiments
- The reviewers are also asked to give specific feedback to the authors of the paper. Peer reviewers normally remain anonymous.

Responding to Reviewers



• After submitting paper you will often get comments from

reviewers

Do not respond immediately



lead the comments



Take a break

Then address the comments



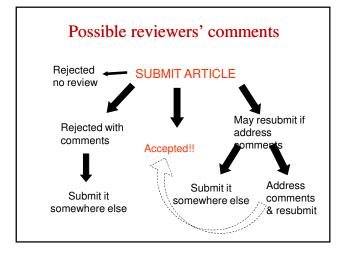
Responding to reviewers and editors comments (1 of 2)

- · What are the major comments?
 - Content questions, Perhaps a lack of literature
 - Unclear aims unsubstantiated conclusions,
 - Theoretically flawed
- · What are the minor comments?
 - lay out, referencing, rewrite abstract, shorten, lengthen etc, further develop conclusion

Responding to reviewers and editors comments (2 of 2)

- 1. Make all the changes you can.
- 2. Write a covering letter highlighting your response to the reviewers comments
 - 1. Note where you have responded positively
 - 2. Note where and why you have chosen not to respond to some comments. You cannot make all the changes, or may not feel it is appropriate to do so.
- 3. If in doubt talk to the editor but be polite!

Example of reviewers and editors comments



Types of comments

- 1. Valid criticisms that are easy to address
- 2. Valid criticisms that are hard to address
- 3. Invalid criticisms that you can show are invalid (respectfully!)
- 4. Matters of opinion (not valid)

Valid criticisms that are hard to address

Reviewer's Comment:

Hepatitis A virus was detected by PCR but it has been shown that the primers used in this study have homology with the pol gene of the Hepatitis C virus. Thus, these results may not be specific for Hepatitis A virus.

Try to address the limitation

Valid criticisms that are easy to address

Reviewer's Comment:

When discussing the prevalence of dengue virus, there was no mention of the prevalence of dengue virus by age group. I think this would be useful information.

Find the information and include it!!!!

Invalid criticisms that you can show are invalid

- Sometimes the reviewer has obviously misunderstood something
 - but make sure YOU didn't misunderstand the reviewer!
- Tactfully answer:
 "We have further clarified this statement."

Have a good attitude

- Be thankful to receive comments
 Comments = Improvements of you manuscript
- **Graciously** recognize the importance of a comment and address it

Do you need to do more experiments?

- If the reviewers' requests are valid:
 Do the additional experiments as soon as possible!
 Resubmit
- BUT
 - You can try to persuade the editor that the current collection of data is sufficient.
 - One paper can't answer every question.

 The next paper will address further questions.

Itemized response to reviewers

Reviewer #1

to Comment #4 "...sample volume. The current trend is to use smaller sample volumes."
We have sought to maintain the volume that would be more consistent with using existing ELISA reagents and clinical serum samples. We currently use a sample volume of 150 ul but have tested smaller sample volumes (e.g., 50 ul) with some success. Our experimental results indicate that the 150 ul volume works best for magnetic washing and serum sample dilutions as well as

Itemized response to reviewers and <u>Be</u> specific

Reviewer #2,

As magnetic washing is a crucial step in this manuscript, it needs to be further described in the introduction.

Comment

We agree that we should have been more specific about the references for magnetic washing. We have <u>added the references</u> that we believe are the first references to magnetic washing using magnetic particles on a integrated circuit sensor to the text (<u>Page 4, line 6</u>).

Itemized response to reviewers Examples in methods section

Reviewer #1

Page 11, lines 241-244:

The percentage of the de novo synthesis and inhibitory effects should be indicated, including range of deviation (indicate whether SD or SEM is presented).

Comment

The percentage of both de novo synthesis and the inhibitory effect of Puromycin are now indicated in Figure 2a. The error bars are representing SD, which is now specified in text (page 11, line 243) and in legend of figure 2.

Itemized response to reviewers

- List each reviewer's comments
- Point out the page and section of the manuscript that is being discussed.
- Address **each point**. If you made a change:
 - Show it
 - Include the new text in your response
- If you didn't make a change, say why not.

How to write point by point response to reviewer comment.

• Start with a positive statement.

e.g: Thank you for taking the time to review this paper. We have addressed all of your **comments**, as described in the dialogue below. In summary, we have performed a ...

A point by point answers to reviewers' comments

 Thank you for taking the time to review this paper. We have addressed all of your comments, as described in the dialogue below. In summary, we have performed all mistakes and suggestions as recommended by the reviewers and marked in red.

Resubmissions

Make sure you include:

- · Cover letter
 - Clarify it is a resubmission
 - Point out that the reviewers' comments were addressed
- Itemized response to reviewers
- · New version of the manuscript
 - paper/disc format (read instructions!)
- Include the same items that you included in the first submission

Ref: K. LaMarco & R. Ward

Reviewer #2:

All results are summarized in Tables 1 and 2; duplicating the presentation in the form of Figs. 1-4 does not surve any additional purpose. Thus all Figs. should be deleted. Either keep t the Figs. Or Tables. Not both.

Tables have been removed from the manuscript as recommended by the reviewer

• For such small number of observations the introduction is too lengthy. This should be concise and short.

The introduction section has been shortened as suggested

Continued:

- better presentation combine Results and Discussion and present a concise version.
 - We agree perfectly with the reviewer, the results and discussion sections have been shortened and combined as one section as suggested.
- No need to describe methods in details. A brief description with appropriate reference will suffice.

Methods description has been shortened

• There are still a few kinks in English. Get these straightened out.

Written English has been improved along the

manuscript.

 The statistical analysis should include "Student's t-test".

Student's t-test is already used for the statistical analysis together with ROC and Pearson correlations. Please see page 7.

Resubmissions

- Make sure you include:
- Cover letter
 - Clarify it is a resubmission
 - Point out that the reviewers' comments were addressed
- Itemized response to reviewers
 - New version of the manuscript
 - paper/disc format (read instructions!)
- Include the same items that you included in the

Resubmit and wait

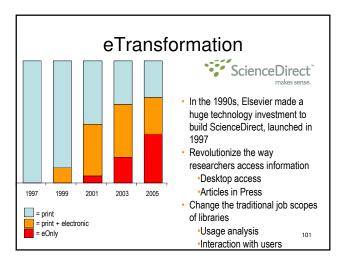


- If it is rejected after you have addressed the reviewers' comments:
 - DON'T GIVE UP! Maybe you need to do a few more experiments. Maybe not!
 - Try another journal
 - Learn from the reviewers' comments
- Don't give up until you successfully publish your paper!
 - It's important to share your results with the scientific community
 - Have patience and confidence

Role of the Publisher

- Editorial management
 - acquisition of content
 - monitor research trends
 - monitor editorial office efficien
 - monitor key success indicato
 - editorial renewal
- Business management
- Production and online hosting
- · Sales and marketing





Why Papers get Early Rejection (Part 1)

Aims and scope

- Paper is of limited interest or covers local issues only (sample type, geography, specific product, etc.).
- Paper is a routine application of well-known methods
- Paper presents an incremental advance or is limited in scope
- Novelty and significance are not immediately evident or sufficiently well-

Why Papers get Early Rejection (Part 2)

Preparation

- Failure to meet submission requirements
- · Incomplete coverage of literature
- · Unacceptably poor English

Rejection: not the end of the world

- Everyone has papers rejected do not take it personally.
- Try to understand why the paper was rejected.
- Note that you have received the benefit of the editors and reviewers' time; take their advice seriously
- Re-evaluate your work and decide whether it is appropriate to submit the paper elsewhere.

• Never treat publication as a lottery by resubmitting a rejected manuscript directly to another journal without any significant revision!!! It won't save any of your time and energy...

- The original reviewers (even editors) may eventually find it, which can lead to towards the author.
- · A suggested strategy
 - In your cover letter, declare that the paper was rejected and name the journal.
 - Include the referees' reports and a detailed letter of response, showing how each comment has been addressed.
 - Explain why you are resubmitting the paper to this journal, e.g., this journal is a more appropriate journal; the manuscript has been improved as a result of its previous review; etc.

What gets you accepted?

- Attention to details
- Check and double check your wot
- Consider the reviews
- English must be as good as possible
- Presentation is important
- Take your time with revision
- Acknowledge those who have helped
- New, original and previously unpublished
- Critically evaluate your own manuscript
- Ethical rules must be obeyed

...and my publishing advice is as follows:



- Submit to the right journal (scope and prestige)
- Submit to one journal only
- · Do not submit "salami" article
- Pay attention to journal requirements
- · Pay attention to structure
- Check the English



Ethical Issues

Unethical behavior could lead to rejection of your manuscript

Unethical behavior includes:

- •Multiple submissions
- •Plagiarism
- •Data fabrication and falsification
- •Improper use of human subjects and animals in research
- •Improper author contribution

Multiple submissions

Multiple submissions save your time but waste editors'

The editorial process of your manuscripts will be completely stopped if the duplicated submissions are

discovered

"It is considered to be unethical...We have thrown out a paper when an author was caught doing this. I believe that the other journal did the same thing"

James C. Hower, Editor, International Journal of Coal

Plagiarism

"Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit, including those obtained through confidential review of

others' research proposals and manuscripts"

Plagiarism

"Presenting the data or interpretations of others without crediting them, and thereby gaining for yourself the rewards earned by others.

Bruce Railsback, Professor, Department of Geology, University of Georgia

Paraphrasing

• Original (Gratz, 1982):

Bilateral vagotomy resulted in an increase in tidal volume but a depression in respiratory frequency such that total ventilation did not change.

· Restatement 1:

Gratz (1982) showed that bilateral vagotomy resulted in an increase in tidal volume but a depression in respiratory frequency such that total ventilation did not change.

Ronald K. Gratz. *Using Other's Words and Ideas*.

Department of Biological Sciences, Michigan Technological University

Paraphrasing

· Original (Buchanan, 1996):

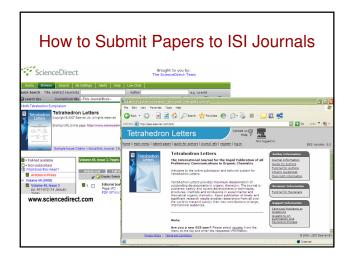
What makes intentionally killing a human being a moral wrong for which the killer is to be condemned is that the killer did this morally bad thing not inadvertently or even negligently, but with a conscious purpose – with eyes open and a will directed toward that very object.

· Restatement 2:

Buchanan (1996) states that we condemn a person who intentionally kills a human being because he did a "morally bad thing" not through negligence or accident but with open eyes and a direct will to take that life.

Unethical research

- Experiments on human subjects or animals should follow related ethical standards, namely, the Helsinki Declaration of 1975, as revised in 2000 (5).
- If doubt exists concerning the compliance of the research with the Helsinki Declaration, authors must explain the rationale for their approach and demonstrate approval from the institutional



Online submission of your manuscript