



THE UNIVERSITY OF
TOLEDO

Abstract Thinking!!!

March 15, 2018

Role of Abstracts in Professional Development

Meeting Abstracts

- Developing a National / International presence
- Engaging early career professionals in the academic process
- You've got to survive the cut!
- Posters are OK, podium presentations are better, and getting selected for awards are best.

Manuscript Abstracts

- Peer-review success
- Increasing citations and other measures of success



Abstracts as Career Builders

- Self confidence
- Feedback
- Stick your neck out – if you have data
- Reach just beyond your fingertips – better journal, better conference
- Reframe rejections into learning opportunities



Participants: Grade 5 Abstracts



Structure and Content

Science

Abstracts of Research Articles and Reports should explain to the general reader why the research was done, what was found and why the results are important. They should start with some brief **BACKGROUND** information: a sentence giving a broad introduction to the field comprehensible to the general reader, and then a sentence of more detailed background specific to your study. This should be followed by an explanation of the **OBJECTIVES/METHODS** and then the **RESULTS**. The final sentence should outline the main **CONCLUSIONS** of the study, in terms that will be comprehensible to all our readers. The Abstract is distinct from the main body of the text, and thus should not be the only source of background information critical to understanding the manuscript. Please do not include citations or abbreviations in the Abstract. The abstract should be **125 words or less**.

Journal of Clinical Investigation

Structured abstract of no more than **250 words** providing trial information under the following sections:

Background. Provide context or background for the study and state the study's primary objective or hypothesis in 1–2 sentences.

Methods. Describe the basic procedures used during the study, including selection of study subjects and observational and analytical methods. Define the primary outcomes that were measured for each group of subjects.

Results. Summarize the main findings, including specific effect sizes and their statistical significance, if possible. Include (if relevant) the number of participants in each group, the primary outcome for each group, and any significant adverse events or side effects.

Conclusion. In 1–2 sentences, state the principal conclusions, emphasizing new and important aspects of the study or observations.

Trial registration. List the public registry and trial registration number, e.g., ClinicalTrials.gov NCT00950003.

Funding. List all sources.



Abstract: Structure and Content

Background

Motivation: What important scientific gap is your research addressing?

“Circular RNAs (circRNAs) have emerged as an important new class of genomic regulatory molecules contributing to the development of various diseases, but their relevance to the development and progression of hypertension remains largely unknown”.

Problem Statement: What problem are you trying to solve?

“A major impediment to begin studying circRNAs in rat models of inherited hypertension is that the rat as a valuable model of human diseases lags far behind the mouse and human in providing knowledge on circRNAs”.

Methods

What did you actually do to get your results?

“In this study, a genome-wide circRNA profiling was performed from four rat strains that are widely used in hypertension research: the Dahl salt-sensitive rat (S), the Dahl salt-resistant rat (R), the spontaneously hypertensive rat (SHR), and the Wistar Kyoto rat (WKY)”.

Results

What did you find out? Provide the results in numbers. Avoid vague words like ‘trend’, ‘small’, ‘large’ ‘significant’ without statistics

“Combined hybridization data obtained from these four strains allowed for the identification of 12,846 circRNAs as being expressed in the rat kidneys. Out of these, 318 and 110 circRNAs were differentially expressed with a fold change > 1.5 ($P < 0.05$) in S vs. R and SHR vs. WKY, respectively. Among these circRNAs, circRNA/microRNA interaction was predicted since circRNAs are known as microRNA sponges to sequester microRNAs. Several circRNAs were further validated by quantitative real-time PCR”.

Conclusions

What are the implications of your results? Are your results specific (addresses problem statement) and/or, general (addresses motivation)

“To our knowledge, our study is the primary report of profiling circRNAs in renal tissue and illustrates that circRNAs could be candidate genetic factors controlling blood pressure”.

Circular RNAs in rat models of cardiovascular and renal diseases.
[Physiol Genomics](#). 2017 Sep 1;49(9):484-490. [Cheng X](#), [Joe B](#).



An Editor's Perspective

- **View your Abstract as a Marketing Strategy**

- **'Clients'**- Pre-review: Editor and Reviewers

- **Post-review: Readers;**

- Note: Editors often recommend articles for media publicity (Catchy titles help).*

- **On-line search databases typically contain ONLY abstracts.**

- **Published abstracts are 'immortal'.**



Abstract Grading



An Editor's Perspective

- **View your Abstract as a Marketing Strategy**

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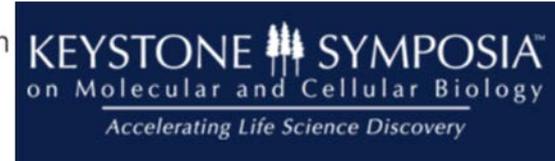
- **On-line search databases typically contain ONLY abstracts**

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Making the Grade :

Reviewer Criteria for Scientific Meetings



Relevance to the meeting topic

Significance of the scientific question and results

Clear question - **Hypothesis driven**

Sufficient background

Clear experimental **approach** and **rationale**

Results are clearly presented

Interpretation and **conclusions** are **reasonable** and **logical**

Making the Grade :

Reviewer Criteria for Scientific Meetings



Scientific Merit - direction toward the development of a new or improved diagnostic procedure or idea

Organization - well organized, easy to follow and understand

Practicality - should be available, logical, and feasible.

Presentation - should be clear, brief, show understanding of the subject matter

Technical quality - the idea must stand up to scrutiny.

Facts and data have scientific backing.

Making the Grade :

If Case Reports are permitted...

Must contribute something **clinically unique**

- Not a small variation from previously presented cases
- Illustrates classic conditions in new or unusual ways
- Illuminates/expands knowledge concerning physiology, biology, genetics, or molecular mechanisms
- Reflects an understanding of the relevant science

Consider such factors as **novelty** or **uniqueness** of:

- the **case**
- **clinical findings** presented
- **outcomes** documented
- “**take-away**” lessons or **teaching points**



Making the Grade :

Scoring Criteria for Scientific Meetings

SCORE	DESCRIPTION
10	Outstanding – Exceptional investigation; clearly of very high quality.
9	Excellent – Investigation based on original concepts and provides important data or new techniques.
8	Very Good – Similar to above but less outstanding.
7	Good – Reasonable quality, but some limitations.
6, 5	Average – Contains adequate data and information.
4, 3, 2	Below Average – Repetitious investigation that does not add to existing knowledge; poor data.
1	Reject - Will not be accepted.

- **Excellent (10)** – candidate for **oral presentation**
- **Very Good (9)** – candidate for **top poster** presentation
- **Good (5-8)** – candidate for **poster** presentation
- **Fair (2-4)** – candidate for **publication only**
- **Reject (1)**



Making the Grade: Beyond the Score, Reviewers Assess...

Increasing visibility and reputation via:

- **Oral Presentation/Oral Awards**
- **Travel Awards**
- **Specific Society or other Sponsored Awards**



Making the Grade: Beyond the Score, Reviewers Assess...

Increasing visibility and reputation via:

Newsworthy Abstracts

Scientifically valid, clinically significant or **breakthrough science** that is of **interest** to the **public** or professional audience.

- Is it new information?
- Is it intriguing to the public (e.g. mummies had heart disease)?
- Is it a scientific breakthrough - even at the animal stage?
- Is it long-awaited or much-anticipated?
- Will it change the way patients are treated?



Abstracts: the good and the bad...



How to Write a Compelling Abstract!!!

- **Title** has to have “sex appeal”
 - Must grab the attention of the reviewer
- **Conclusion** needs to be compelling
 - Short, definitive, important.
- **Content** must support conclusion and title
 - At most, 1-2 sentence introduction to the problem
 - Include critical methods
 - Key results should generally include data and p values



Cd40 May Cause Renal Fibrosis in a Hypertensive Model

Objective: Cd40 plays a crucial role in immunity and inflammation, and has been implicated in the development of renal fibrosis in some injury models. The Dahl S rat is highly susceptible to the development of renal disease, and provides a suitable background to investigate the relationship between Cd40 and renal disease. We sought to create a Cd40 mutant with the genetic background of the S rat to determine if Cd40 may be involved in renal disease.

Design and Methods: A novel Cd40 mutant, with targeted disruption of *Cd40*, was created in the S rat. Male Cd40 mutant rats weighing between 350-400 g were used. Western blot analysis was performed on kidney tissue and renal function was determined by urinary protein excretion. Eight Dahl S rats were used as age-matched controls.

Results: Western blot analysis confirmed that the S rats showed cross-reactivity to the Cd40 antibody, whereas the *Cd40* mutants did not. There was no difference in systolic blood pressure between the S rats and *Cd40* mutants. Kidney tissue derived from the *Cd40* mutants showed a significant decrease in collagen type-I expression compared to the kidney tissue of S rat controls ($p < 0.01$, Figure 1). The *Cd40* mutants also exhibited a significant decrease in UPE compared to the S rats ($p < 0.01$).

Conclusions: Cd40 is an important mediator of immunity and has been implicated in the development of renal fibrosis. A novel Cd40 mutant, using a genetic background susceptible to renal disease, effects renal fibrosis and renal function independent of blood pressure. Our results indicate that Cd40 may play a crucial role in the development of hypertensive renal disease.

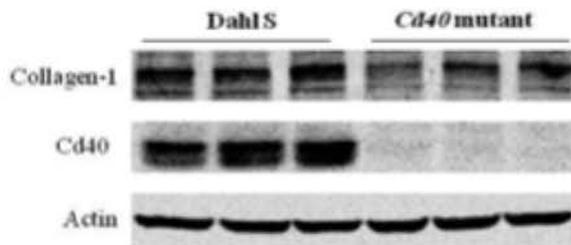


Figure 1. Representative Western blot derived from kidney tissue from S rat controls and Cd40 mutant animals.

Haller, Steven
Be definitive

Haller, Steven
What kind of hypertensive model?

Haller, Steven
Spelling error!

Haller, Steven
What kind of model is it?

Haller, Steven
Is this referring to Dahl S?
Define at first mention and DO NOT expect the reviewer to know what you mean.

Haller, Steven
Make a definitive statement

Haller, Steven
What kind of renal disease?

Haller, Steven
How was it created?

Haller, Steven
How many were used?

Haller, Steven
What is collagen a marker of?

Haller, Steven
Use a figure if you can.

Haller, Steven
Define UPE at first mention above.

Haller, Steven
List the actual data.

Haller, Steven
This is a background statement and does not belong in the conclusion.

Haller, Steven
How??

Cd40 Mediates Renal Fibrosis in the Dahl Genetically Hypertensive Rat

Objective: Cd40 plays a crucial role in immunity and inflammation, and has been implicated in the development of renal fibrosis in some injury models. The genetically hypertensive Dahl S rat (S rat) is highly susceptible to the development of renal disease, and provides a suitable background to investigate the relationship between Cd40 and renal disease. We sought to create a Cd40 mutant with the genetic background of the S rat to determine the role of Cd40 in the development of hypertensive renal disease.

Design and Methods: A novel Cd40 mutant, with targeted disruption of *Cd40*, was created in the S rat using the zinc-finger nuclease method. Male Cd40 mutant rats weighing between 350-400 g were used (n=8). Western blot analysis was performed on kidney tissue and renal function was determined by urinary protein excretion (UPE). Eight Dahl S rats were used as age-matched controls.

Results: Western blot analysis confirmed that the S rats showed cross-reactivity to the Cd40 antibody, whereas the *Cd40* mutants did not. There was no difference in systolic blood pressure between the S rats and *Cd40* mutants. Kidney tissue derived from the *Cd40* mutants showed a significant decrease in collagen type-1 expression, a primary marker of fibrosis, compared to the kidney tissue of S rat controls (p<0.01, Figure 1). The *Cd40* mutants also exhibited a significant decrease in UPE compared to the S rats (115.2 ± 12.4 vs. 189.3 ± 12.6 mg/24hrs, p<0.01).

Conclusions: A novel Cd40 mutant, using a genetic background susceptible to renal disease, decreases renal fibrosis and improves renal function independent of blood pressure. Our results indicate that Cd40 may play a crucial role in the development of hypertensive renal disease.

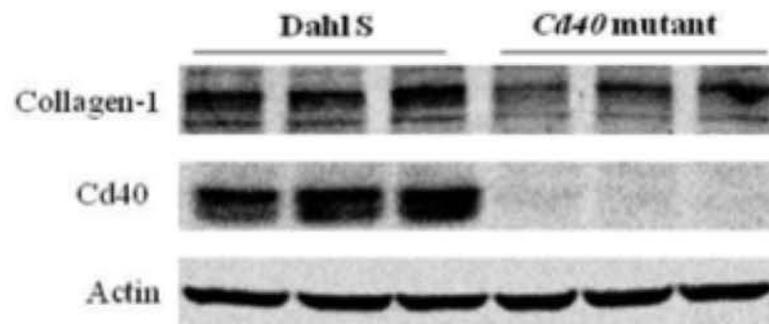


Figure 1. Representative Western blot derived from kidney tissue from S rat controls and *Cd40* mutant animals.

Rewrite Your Abstract

1. Form groups of 4-5 people
2. Rewrite your abstract
3. Discuss with group members ideas for improvements



Course Evaluation

