

# 7.18 Day 19 Agenda

- abstract: scientific & non-scientific

# Abstract

## Scientific abstract:

- Summarizes paper
- Gives main results & conclusion
- Written concisely & precisely

## Non-scientific abstract:

- For the lay person, e.g. your mom
- Gives background, motivation for the study
- Ends with the goal or main finding of the study

Scientific abstract: details given in the paper

- does not give too many details
- Can be written in 4-5 sentences

Non-scientific abstract:

- written for someone who doesn't understand the problem.
- Therefore, explain context before the experiment
- For example, New York Times or New Scientist

Example Abstract section from following article removed due to copyright reasons. Please see

Lin, H, et al. “Amyloid  $\beta$  protein forms ion channels: implications for Alzheimer’s disease pathophysiology.” *FASEB J* 15 (2001): 2433.

# 5-sentence scientific abstract

Amyloid  $\beta$  protein ( $A\beta P$ ) is the major constituent of senile plaques associated with Alzheimer's disease (AD), but its mechanistic role in AD pathogenesis is poorly understood. Using atomic force microscopy and electrical recording, we show that monomeric  $A\beta P_{1-42}$  forms multimeric channel-like structures after incorporation into a planar lipid bilayer. At the cellular level,  $A\beta P_{1-42}$  allows calcium uptake and induces neuronal degeneration and death in a dose- and time-dependent fashion. These effects are prevented by zinc (an  $A\beta P$  channel blocker) and by the removal of extracellular calcium, but are not prevented by antagonists of putative  $A\beta P$  cell surface receptors. Thus,  $A\beta P$  channels may provide a direct pathway for calcium-dependent  $A\beta P$  toxicity in AD.

Example Abstract section from following article removed due to copyright reasons. Please see

Takyar, S., R. P. Hickerson, and H. F. Noller. “mRNA helicase activity of the ribosome.” *Cell* 120 (2005): 49-58.

# Non-scientific abstract

The genetic information of a cell is stored in DNA, but much of the information processing of a cell is carried out by DNA's chemical cousin, RNA. Like a tape, RNA copies the information in DNA and uses it to direct the synthesis of proteins. The process of converting the information of RNA to a protein is called translation, and is performed by a molecule called a ribosome. Translation can slow down when RNA sticks to itself like a zipper. In this study, scientists find that the ribosome itself unzips the RNA as it translates the RNA.

# Group exercise:

## Writing a non-scientific abstract

Example Abstract section from following article removed due to copyright reasons. Please see

Chatelain, F, et al. “The Pore Helix Dipole Has a Minor Role in Inward Rectifier Channel Function.” *Neuron* 47 (2005): 833-843.

# Upcoming assignments

*Due Thursday, 17 November:*

- Submit scientific and non-scientific abstracts of your work.
- Submit critiques of Erica's & Jennifer's journal club articles.

*Due Tuesday, 22 November:*

- Submit peer review of scientific & non-scientific abstracts. Peer is the person listed BEFORE you on roster.
- Leslie: Polishing your writing.
- Paul: Journal Club from 7 Nov 2005 issue of *Journal of Cell Biology*. Choose a number from 437-568. NO critiques necessary.

*Due Tuesday, 29 November:*

- Submit first draft of research paper or grant proposal.
- Group meeting (optional): Dress rehearsal or Latest results.