# Basic science abstract

Hello! Welcome to this “fill in the blank” approach to writing a basic science abstract. The first part is to define key terms to later place in the abstract. In the following bullet points, please define these key terms. Then, please plug your key terms in the correct spots in the abstract that follows.

* **BASIC/MOLECULAR THING OF INTEREST** – This is the specific, nitty-gritty thing you mechanistically study. Maybe it is a protein, ion, or channel.
	+ Your BASIC/MOLECULAR THING OF INTEREST is: BASIC/MOLECULAR THING OF INTEREST🡨Click to edit
* **BIOLOGICAL PHENOMENON** – This is the broad, perhaps conceptual, thing that your “basic/molecular thing of interest” plays some part in. Think 30,000-foot view; for example, your protein of interest might relate to learning and memory; your channel might be important functional hyperemia.
	+ Your BIOLOGICAL PHENOMENON is: BIOLOGICAL PHENOMENON
* **IMPORTANT GENERAL FUNCTION** – This is where you can define the tangible components of your conceptual “biological phenomenon” more. For example, functional hyperemia’s important general function may be described as delivering increased blood flow to an active area of tissue.
	+ Your IMPORTANT GENERAL FUNCTION is: IMPORTANT GENERAL FUNCTION
* **PROBLEM** – This is a disruption or disease that prevents your important general function or biological phenomenon from doing its job. Think pathology versus normal physiology. Because you are studying something new, this doesn’t have to be a proven interaction. For example, various kinds of dementia are associated with deficits in functional hyperemia.
	+ Your PROBLEM is: PROBLEM
* **PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE** – This is what you think deviates from normal physiology, relates your basic/molecular thing of interest to your “problem,” and what you will seek to approximate as a dependent variable. For example, you might be interested how your basic/molecular thing of interest affects smooth muscle relaxation in functional hyperemia and dementia.
	+ Your PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE is: PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE
* **MODEL/SYSTEM** – This is what you are using to manipulate/study your basic/molecular thing of interest. Maybe you are knocking out the gene for your protein of interest using Cre-Lox technology in mice or targeting an ion channel with pharmacology in HeLa cells. Your manipulations here would be your independent variable (ie; gene knockout or control, drug or vehicle).
	+ Your MODEL/SYSTEM is: MODEL/SYSTEM
	+ Your independent variables are: test and control manipulation related to BASIC/MOLECULAR THING OF INTEREST
* **TASKS/ASSAYS** – What are the readouts you are using and what do they specifically measure? For example, are you using western immunoblots on heart tissue to quantify a protein’s relative abundance, electrophysiology in isolated mouse smooth muscle cells to measure an ion channel’s activity?
	+ Your TASK/ASSAYS are: TASKS/ASSAYS

## Introduction:

***Describe the 30,000-foot view background of the biological phenomenon of interest***: BIOLOGICAL PHENOMENON linking term such as ‘causes’ or ‘is needed for’ name of IMPORTANT GENERAL FUNCTION.

***Describe the knowledge gap***: However, BIOLOGICAL PHENOMENON linking term such as ‘can lead to’ or ‘is associated with’ name of PROBLEM impairing IMPORTANT GENERAL FUNCTION. Can name a specific disease here, for example.. BASIC/MOLECULAR THING OF INTEREST does describe the basic/molecular thing that relates to BIOLOGICAL PHENOMONON. However, the mechanisms linking BASIC/MOLECULAR THING OF INTEREST to PROBLEM remain unclear.

## Objective and hypothesis:

***Set the precedent for what you want to study and what you expect to find:*** Because BASIC/MOLECULAR THING OF INTEREST [linking term such as ‘can lead to’ or ‘is associated with’ to [PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE, we sought to study its role in PROBLEM impairing IMPORTANT GENERAL FUNCTION. We hypothesized that hypothesis.

## Methods:

***Describe the model and controls used:*** Here, we used MODEL/SYSTEM treated with test and control manipulation related to BASIC/MOLECULAR THING OF INTEREST in description of model characteristics (e.g., N, sex, and age per group).

***Describe the assays used and what they test:*** We tested PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE using TASKS/ASSAYS.

## Results:

***Repeat the following structure to match the number of key results:*** We found that PROBLEM-SPECIFIC ROLE/DEPENDENT VARIABLE was direction change and measure of association and variability in MODEL/SYSTEM with P-values if applicable, e.g., ‘increase in mean (SD) heart rate of 10 (2) BPM in model A vs. B (P<0.01)’.

## Conclusions:

***Specific implications*:** Together, our data identify that BASIC/MOLECULAR THING OF INTEREST an overall finding related to normal or abnormal function of IMPORTANT GENERAL FUNCTION.

***Dial it back to a 30,000 foot view perspective*:** This result implicates overall finding of BIOLOGICAL PHENOMENON in IMPORTANT GENERAL FUNCTION.