



What is the scale on my histological drawings? A blood tip at la Reunion Island University

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To cite: Tarnus E, Vidot JB, Dorsemans AC, Bourdon E. What is the scale on my histological drawings? A blood tip at la Reunion Island University. *Arch Med Biomed Res.* 2017;3(2):112-113. doi: 10.4314/ambr.v3i2.7

Publication history

Received: April 04, 2016

Revised: May 12, 2016

Accepted: June 01, 2016

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CrossRef Link

<http://dx.doi.org/10.4314/ambr.v3i2.7>

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Several of our laboratories in Animal Physiology consist of having undergraduate students observe and draw histological preparations¹. Students are asked to view the slide, observe and locate the features that they will draw. Representations of the tissue in the physiology lessons and in the pre-laboratory settings help students identify structures.

On their answer sheet, students should include above the drawing, a title and magnification under which they observed the slide. Actually students specify only the microscope magnification without taking into account the magnification factor of their drawing. In other words, we noticed that students drawing from identical slides wrote the same magnification (for example X100) despite very different drawings in size by students.

In our laboratories in Physiology when students have to perform histological drawings, they are taught the importance of including a scale and a “blood tip” to do so is provided.

WHY IS IT IMPORTANT TO INCLUDE A SCALE ON YOUR DRAWING?

La Reunion is a pretty small Island, a French overseas department located in the Indian Ocean close to Madagascar². We use the example of the Island, of which dimensions the students are well aware (**Figure 1**). Then, we asked “if you just arrived at Saint Denis airport and you want to go to Saint Pierre and if on your map only magnification is specified, is it easy for you to know the distance from Saint Denis to Saint Pierre? Students generally answer “no! we need the scale !”. Indeed the scale of a map is defined as the ratio of a distance on the map to the corresponding distance on the ground. It is very important when you want to go from point A to point B to know the exact distance in order to decide whether you (at point A) will choose to go to point B, on foot, by bicycle or by car...Then if a scale is included on the map, one can measure the distance between the two points and convert it to the corresponding distance on the ground.



Figure 1: Map of La Reunion Island

A BLOOD TIP TO GET THE SCALE?

Even if they understand the utility of a scale, students fail to find ways to add it to their drawings.

Actually the scale should be the last thing the students need to include on their paper at the end of the laboratory. Teachers insist the students base their drawings on what they observe under the microscope in laboratory. It is of major importance that students do not make copies of slides and fail to understand what they are observing. They are asked to place labels besides the drawing and connect them to the appropriate feature. At the end of the lab, they include the specimen name as written on the slide label and the magnification.

We give students a “blood tip” for them not to forget the scale on their drawings: in most of the slides we study, there appears a capillary with some red blood cells. This is the case for the following slides students are expected to draw in our histology lab:

- Ovarian follicle from rabbit
- Seminiferous tubules and Leydig cells of rat testicle (**Figure 2**)
- Giemsa-stained blood smear
- Rat pancreatic ducts

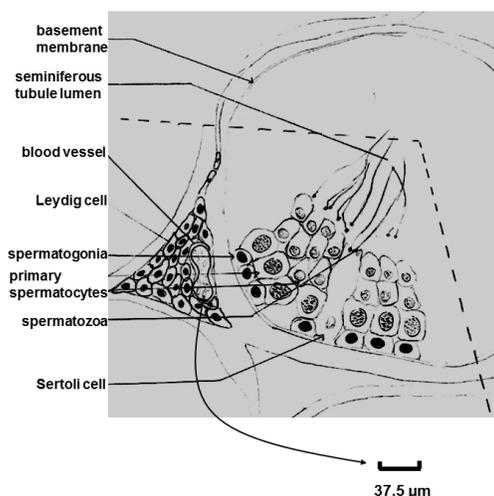


Figure 2: An example of the ‘blood tip’

We say to the students “the red blood cell diameter is $7\ \mu\text{m}$ ” so you can measure the red blood cell size in your drawing and convert the measurement to what 1 cm corresponds to in reality. With that you will have the scale!

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