



Congratulations & Thanks

Congratulations to all of us on the successful renewal of the SWEHSC grant. Thanks to everyone for their participation and hard work (especially Suzie & Serrine). A very big thanks to BIO5 for their financial support of the center over the last twelve months while we re-applied for our NIEHS funding.

Mandatory meetings for users of the ARL Zeiss confocal

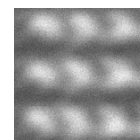
Users of the ARL Zeiss confocal microscope (LSN 410) are required to attend one of the upcoming user's meetings in May/June 2006. Failure to attend one of the meetings or to schedule a private meeting with the facility manager (Barb Carolus) will result in loss of access to the instrument. Users of the instrument who have Doug Cromey as their principal operator do not need to attend. Notices of the meeting times will be sent out via email.

Brightness & Contrast can be over-used

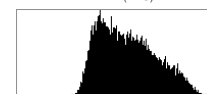
Digital images are graphical representations of what is essentially numerical data. The data is derived from a sampling process using the information presented by the instrument (e.g., microscope) to the sensor (e.g., CCD camera). One way to look at the distribution of grayscales in your data is with a histogram tool (found in all image manipulation programs).

In this example image the histogram shows that most of the data is in the middle and there are no true black pixels. To improve the presentation of an image like this, users often try to adjust the brightness and contrast of the image. Small adjustments of these tools are appropriate, but users need to be aware of the potential pitfalls of using these tools. Also, it bears saying that images in the same publication figure should be adjusted in an identical manner.

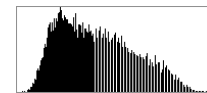
Increasing the contrast causes the grayscale histogram to expand, decreasing the contrast causes the histogram to contract. Increasing the brightness causes the whole histogram to shift to the right and decreasing the brightness shifts everything to the left. To appropriately adjust this particular image for maximum use of the entire grayscale range, a brightness of -30 and a contrast of +20 would work nicely. The gaps that are introduced in the histogram are usually a clear sign that an image has been "adjusted", however, they are the way the software expands the histogram. Adjusting brightness and contrast too aggressively can cause the histogram to truncate at either the white or black end of the scale. This results in a loss of information in the image and should be avoided.



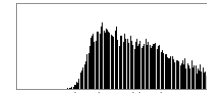
Diatom (DIC)



Histogram of the image showing the distribution of grayscales from black (L) to white (R).



Correctly adjusted brightness & contrast, using the entire grayscale range.



Incorrectly adjusted brightness & contrast, a portion of the data has saturated and is lost.

Awards

Senior Research Specialist Andrea Grantham, of the CBA Histology Service Lab, was the winner of the 2006 College of Medicine Award of Excellence for research staff.

Articles of interest

These articles are worth a look. They cover the selected topics well and are not overly technical.

Seeing is believing? A beginners' guide to practical pitfalls in image acquisition, Alison J. North, Journal of Cell Biology 172(1): 9-18 (January 2006) Available on-line at: <http://www.jcb.org/cgi/content/abstract/172/1/9>

Seeing the Scientific Image (parts 1-3), John C. Russ, Proceedings Royal Microscopy Society 39(2), 39(3), 39(4) (2004) Available on-line at: <http://www.drjohnruss.com/downloads/seeing.pdf>

Mountants and Antifades, compiled by T. Collins from the Microscopy, Confocal and Histo-Net listservers, Wright Cell Imaging Facility, Toronto Western Research Institute. Microscopy Today 14(1):34-39 (2006) Available on-line at: <http://www.uhnresearch.ca/facilities/wcif/PDF/Mountants.pdf>

Autofluorescence: Causes and Cures, compiled by T. Collins from the Microscopy, Confocal and Histo-Net listservers, Wright Cell Imaging Facility, Toronto Western Research Institute. Available on-line at: <http://www.uhnresearch.ca/facilities/wcif/PDF/Autofluorescence.pdf>

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