

GIMP Tutorial

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Boo Virk, Simon Andrews, Jo Montgomery

Babraham.bioinformatics@babraham.ac.uk

What is GIMP

- GNU Image Manipulation Program
- Bitmap Graphics Editor
- Open Source
- Cross Platform

- Not for Vector editing



www.gimp.org

Vector vs Bitmap



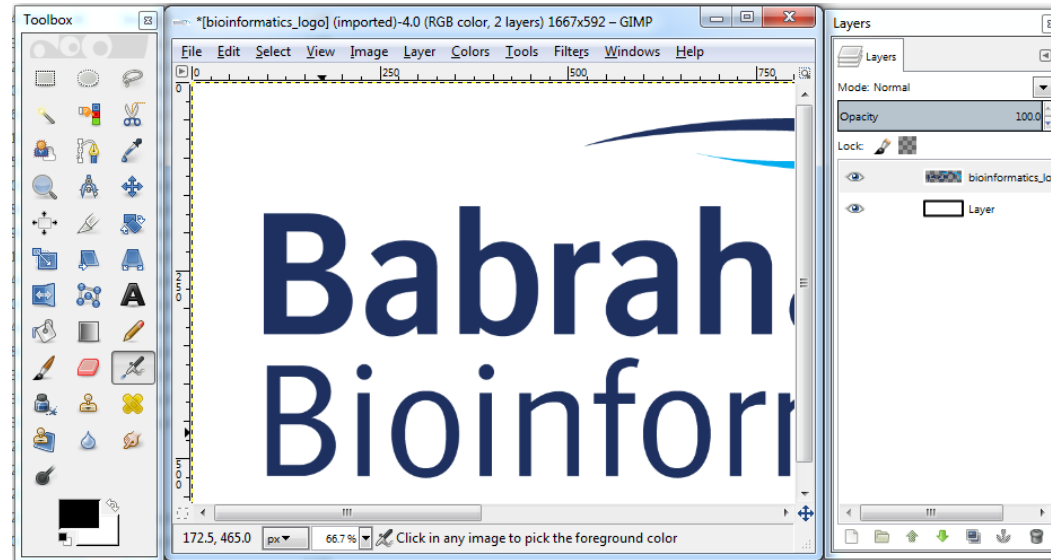
Getting GIMP



www.gimp.org

- Open Source
- Cross Platform

Basic Layout

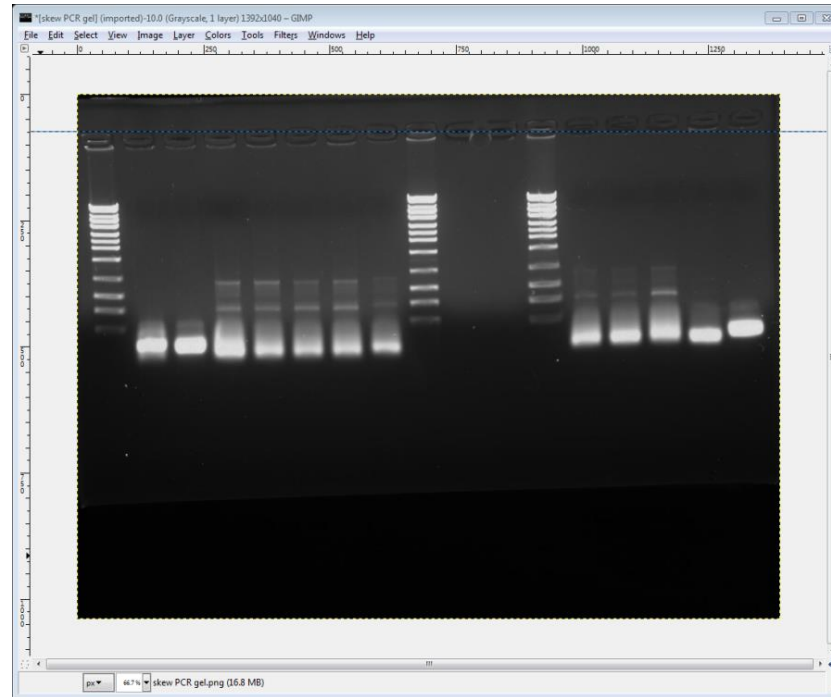



- View **Toolbox** – **Windows > New toolbox** or **(Ctrl + B)**
- View **Layers Dialogue box** – **Windows > Dockable Dialogs > Layers** or **(Ctrl + L)**
- GIMP can do a lot of things – will show you small selection of tools that are ethically acceptable to use for figure production

Opening Images

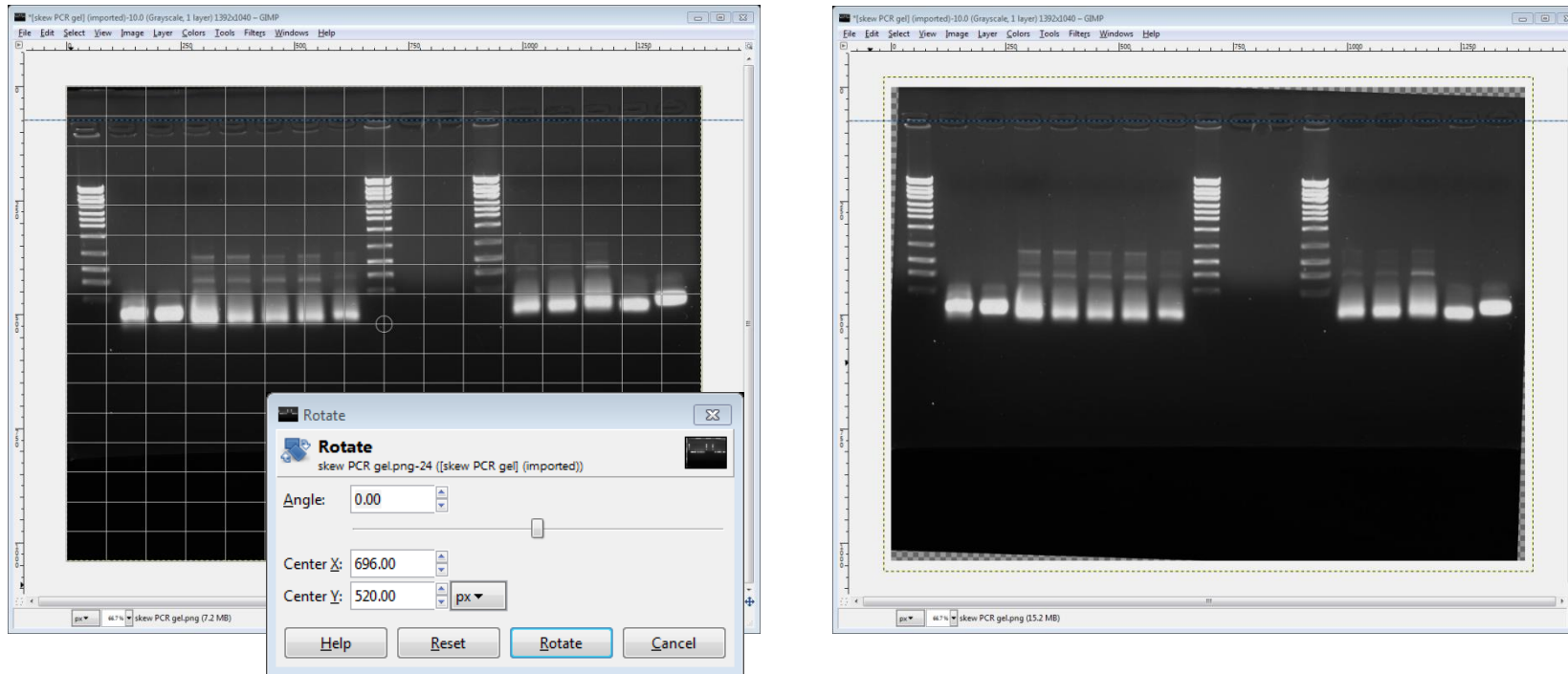
- To open an image for editing:
 - **Drag file** onto a new GIMP window
or
 - **File > Open** or **(Ctrl + O)**
- After opening, **save a working copy** of the file
- GIMP saves files as XCF files by default, but you can export files in other formats (e.g. PNG)

Straightening Images




- Drag a **horizontal guide line** onto your image (from top ruler) to intersect an area that should be perfectly horizontal
- Using the **'Rotate' tool**  (**Shift + R**) rotate the image so that it lines up with the guideline
- When you start to rotate the image, a dialogue box will appear

Straightening Images

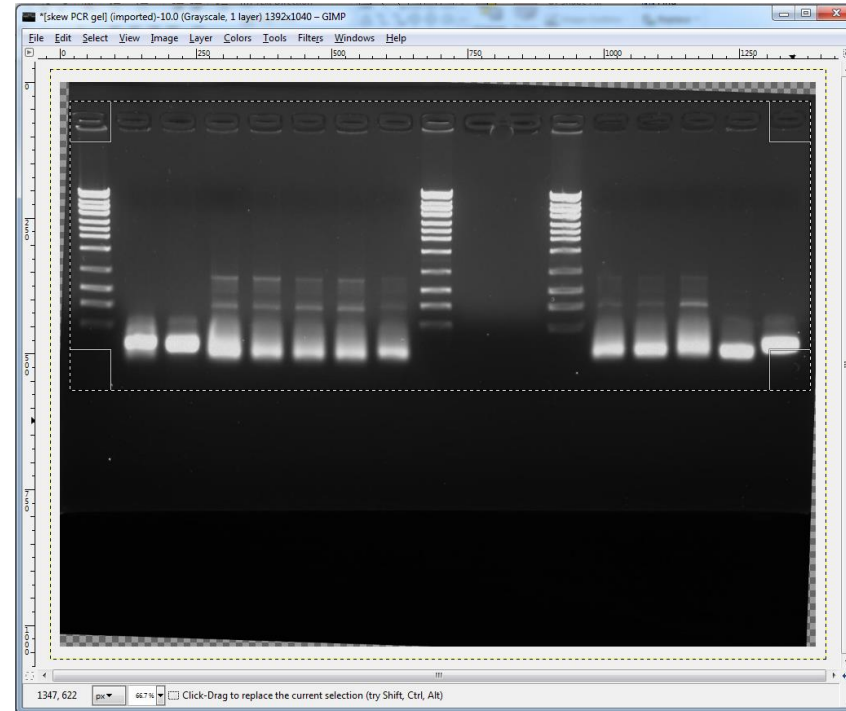


- When finished click the rotate button to apply
- To remove guideline: **Image > Guides > Remove all Guides**

Cropping Images

- Useful to crop unnecessary edges away
- Can reduce file size when bringing images into a vector file
- Use the **'Rectangle Select' tool**  **(R)** to draw a box around the area of the image you want to keep

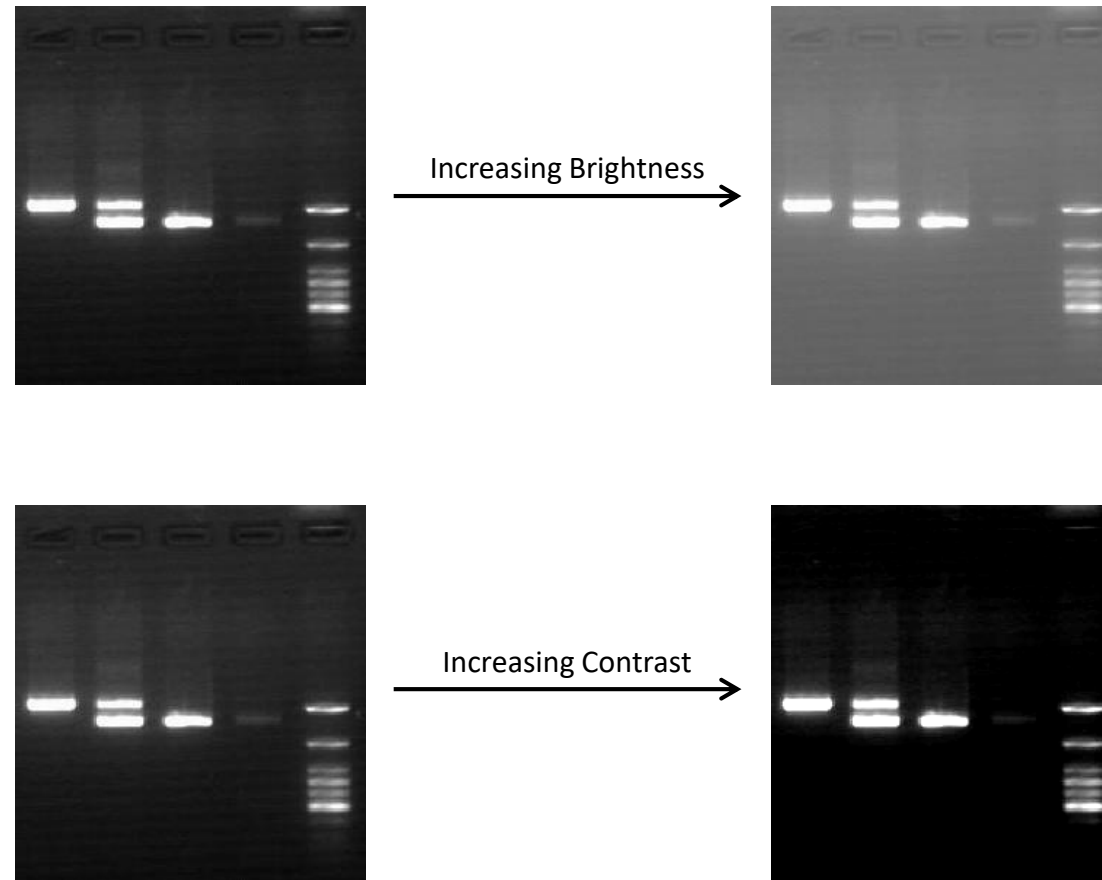
Cropping Images



Don't forget
about Ethics!

- Click and drag the corners of the box after drawing to fine tune
- Crop: **Image > Crop to Selection**

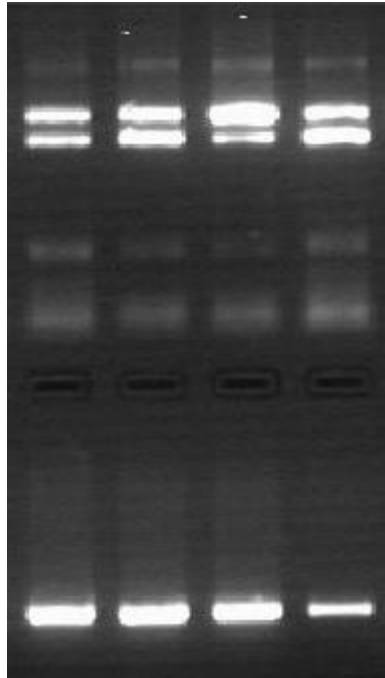
Brightness and Contrast



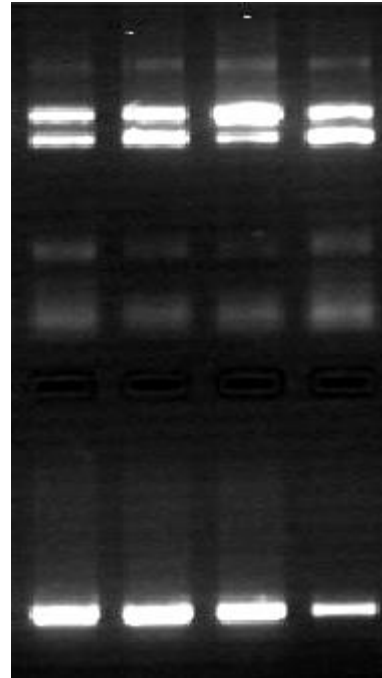
Brightness and Contrast

- Adjusting brightness and contrast can help the clarity of your image
- In GIMP,
 - **Colours > Brightness-Contrast**
- If a selection box is marked, brightness and contrast will be adjusted in selected area only

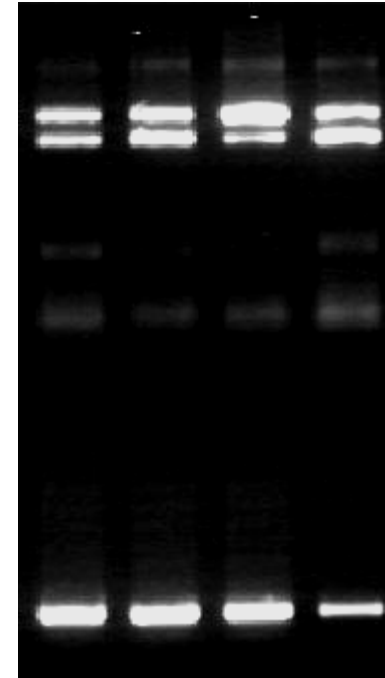
Brightness and Contrast



Original



Brightness and
Contrast adjusted

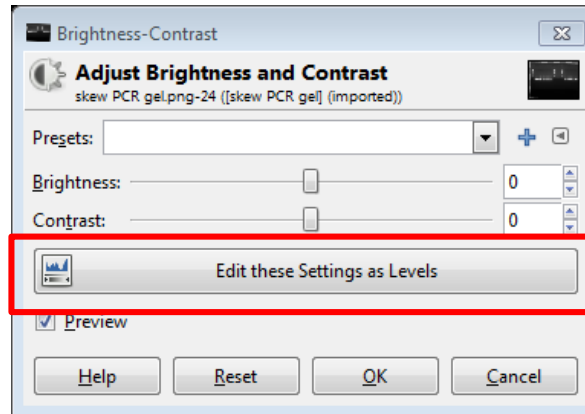


Unethical

Colour Levels

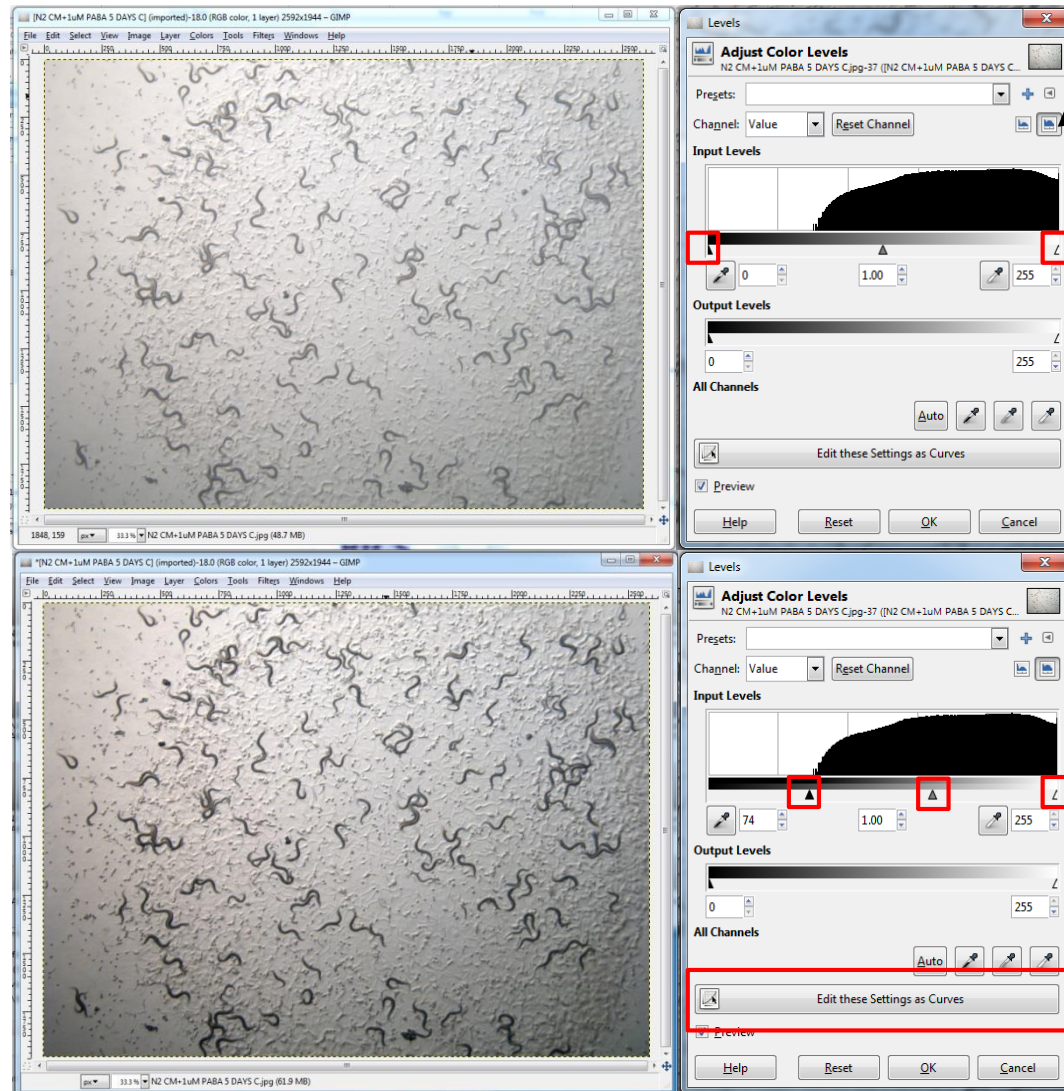
- Brightness and contrast should be edited by adjusting colour levels
 - **Colors > Levels**

Or:



- Dialogue box shows histogram of colour value usage
 - Useful to display a **Logarithmic histogram** so that values aren't hidden at the bottom of the graph

Colour Levels



Display
Logarithmic
Histogram

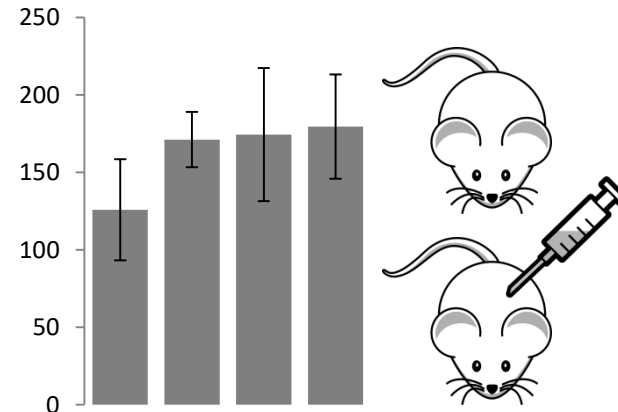
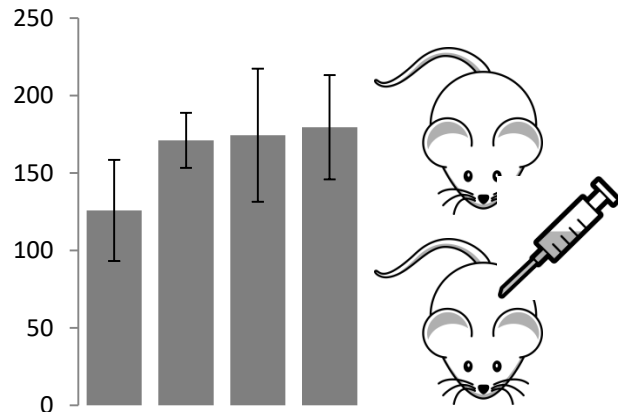
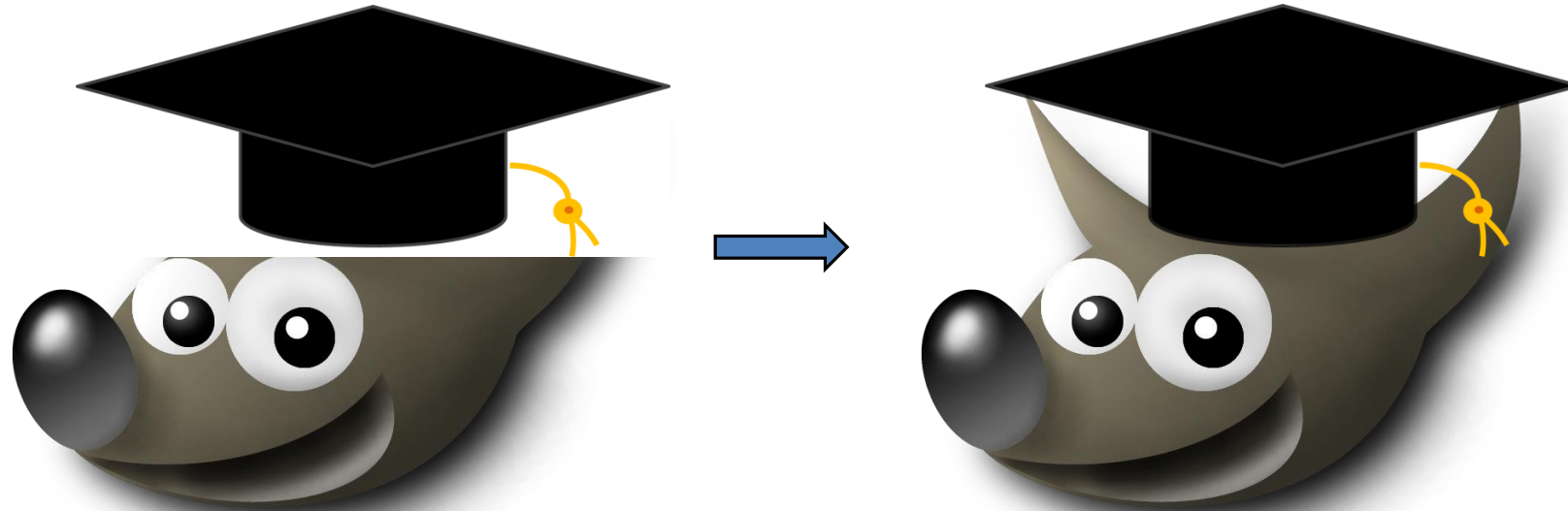
The middle handle will
adjust the midpoint of
the levels and
represents non-linear
editing of colours.

**This is not ethically
acceptable for
publication!**

Alpha channel

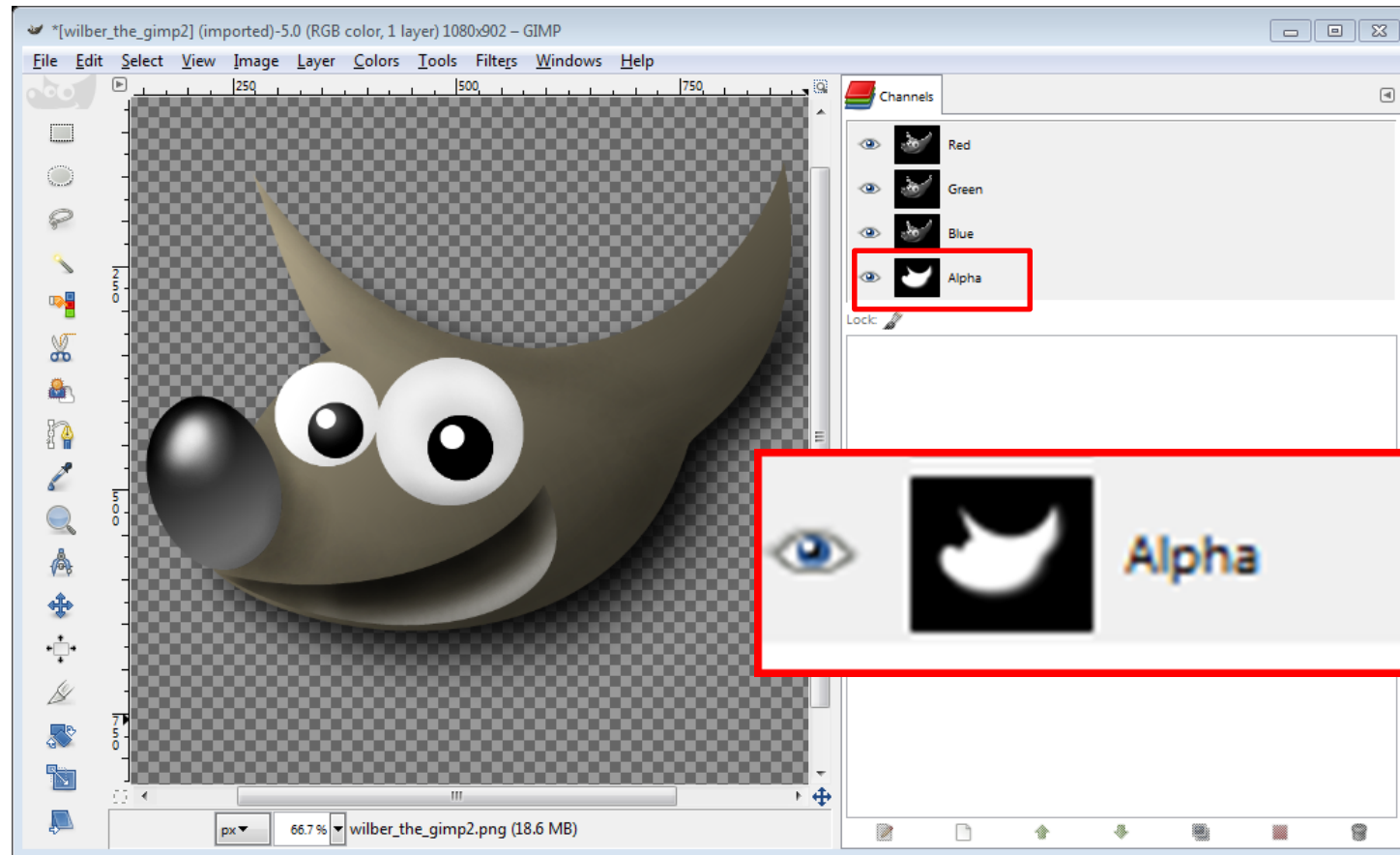
- Alpha channels are masks through which you can display images
- Within an alpha channel:
 - White acts as the visible area
 - Black acts as the transparent area
 - Level of gray in between determines the level of visibility.

Why use an alpha channel?



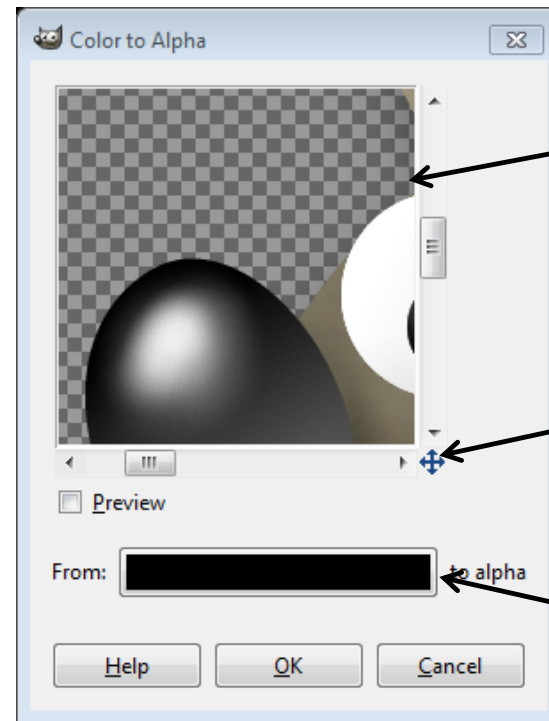
In GIMP

– Layer > Transparency > Add Alpha Channel



Colour to Alpha Channel

- You can assign a colour to the alpha channel, which will make all pixels in your image with the assigned colour transparent
- In GIMP
 - **Colors > Color to Alpha**



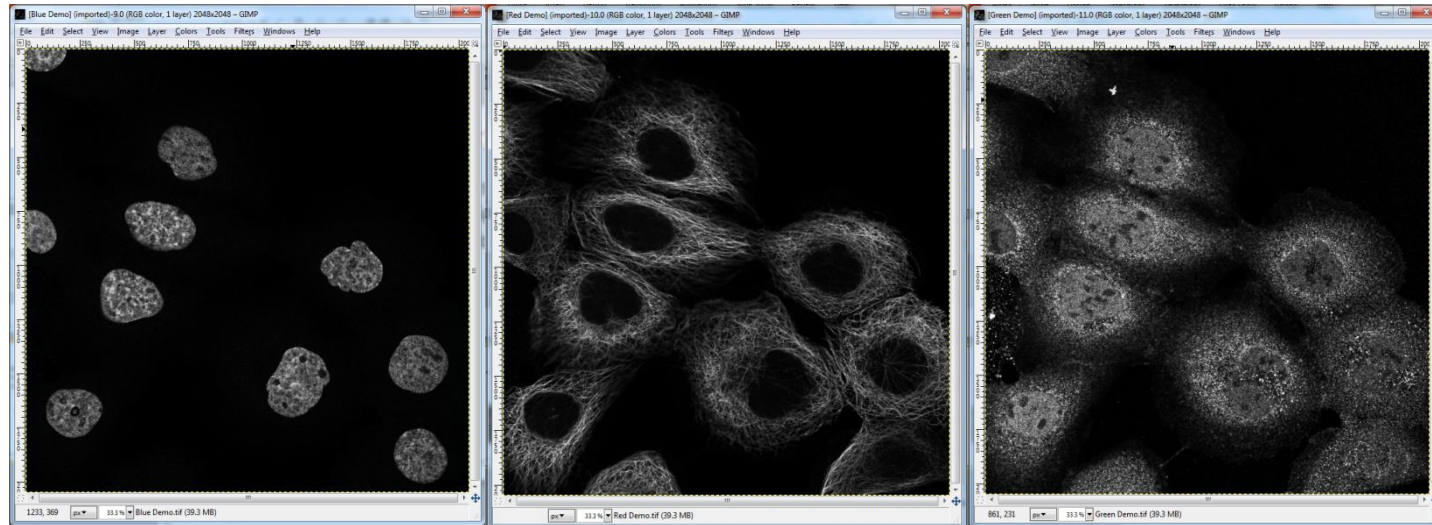
Preview, indicating which areas are to be transparent

Use this tool to pan around the preview

Colour swatch – for selecting colour to become transparent

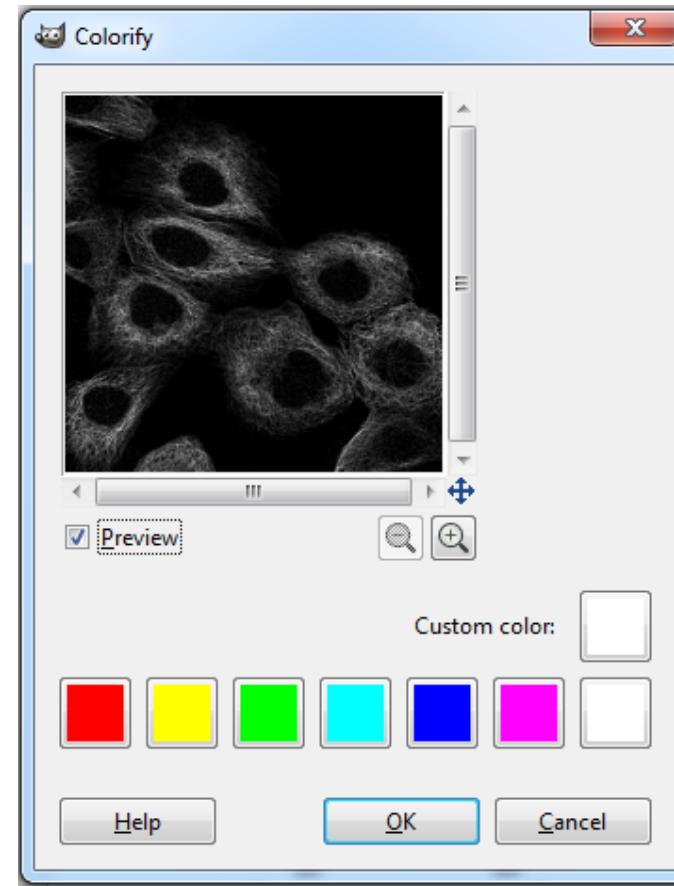
Pseudo-colour Overlays

Some experiments such as FISH microscopy may generate multiple greyscale images which can be overlaid to form a pseudo-colour image



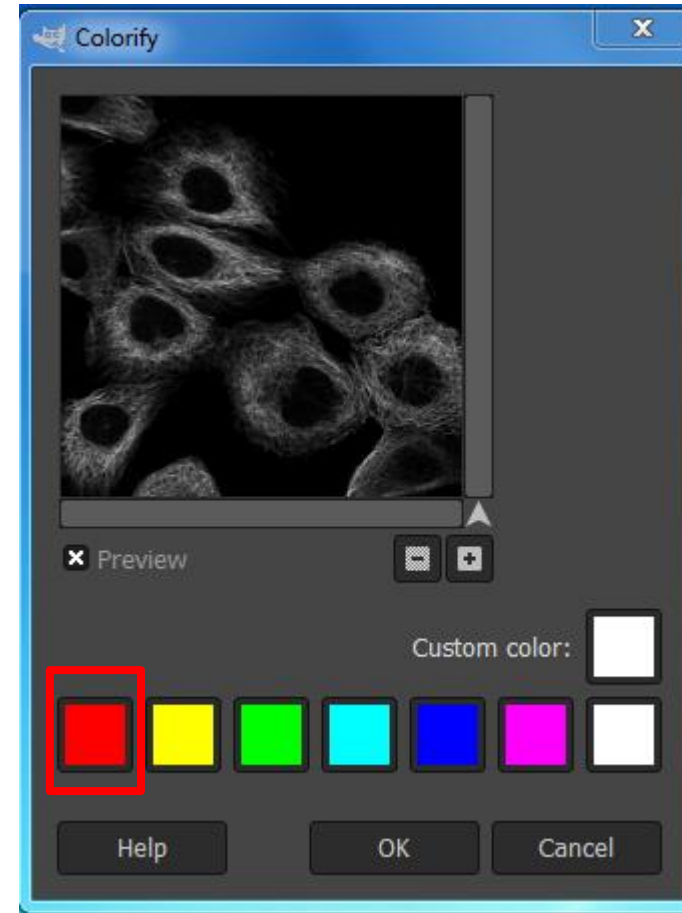
Pseudo-colour Overlays

- Ensure image is in RGB mode
 - **Image > Mode > RGB**
- Assign a single colour to each image (v2.8)
 - **Color > Colorify**

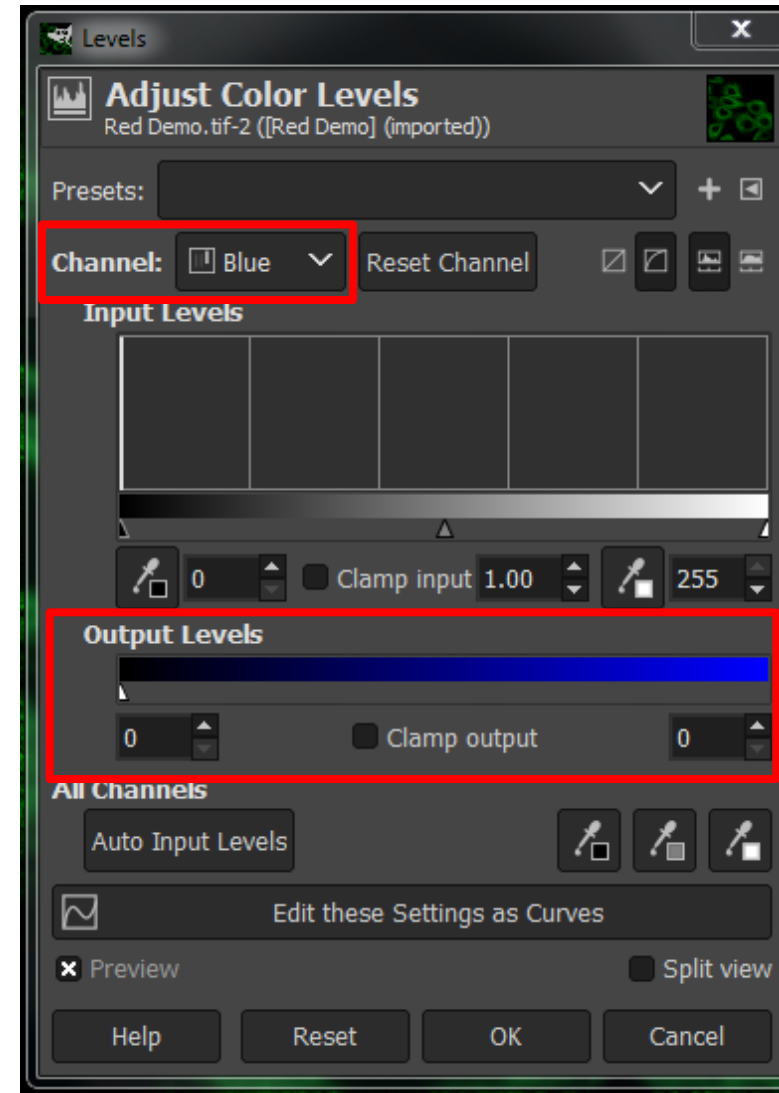
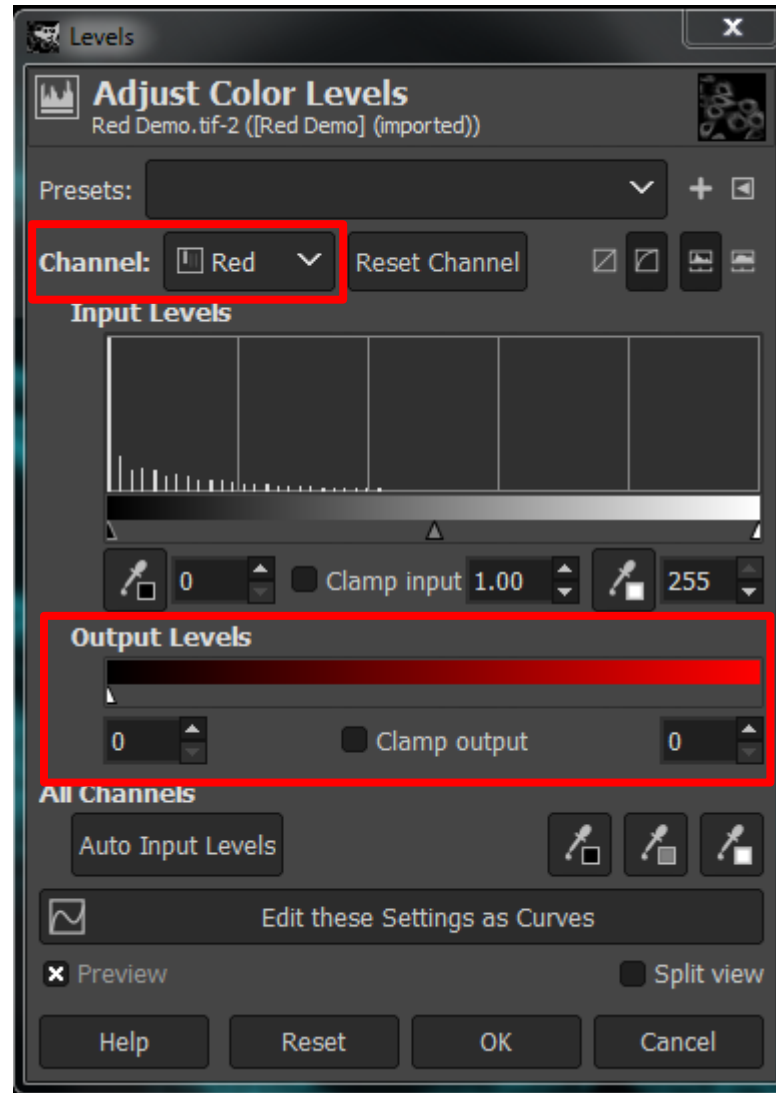


Pseudo-colour Overlays

- Ensure image is in RGB mode
 - **Image > Mode > RGB**
 - Assign a single colour to each image (v2.10)
 - **Help > Search and Run a command**
 - **“Colorify”**
- Colorify**
Replace all colors with shades of a specified color

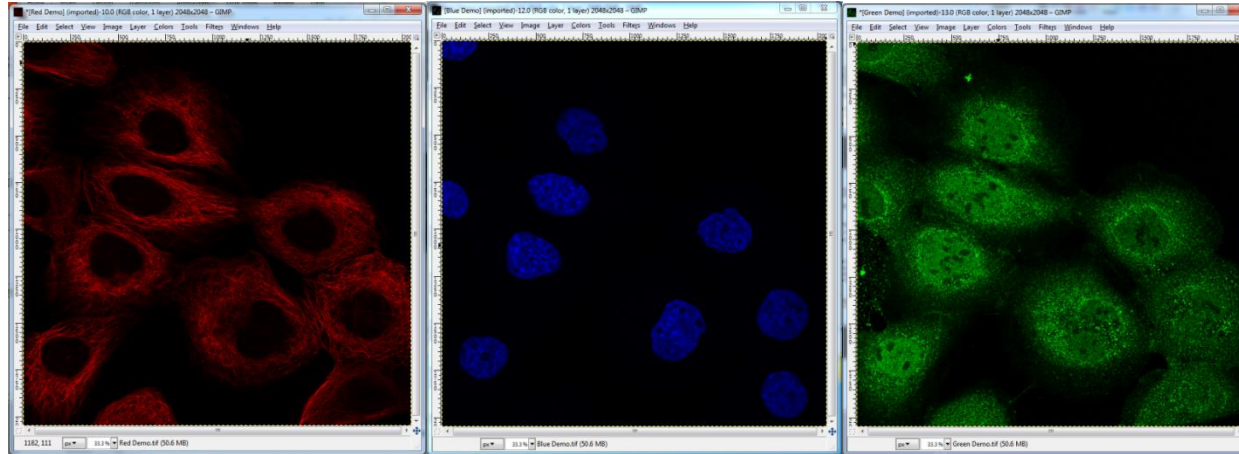


Or ... Colors > Levels



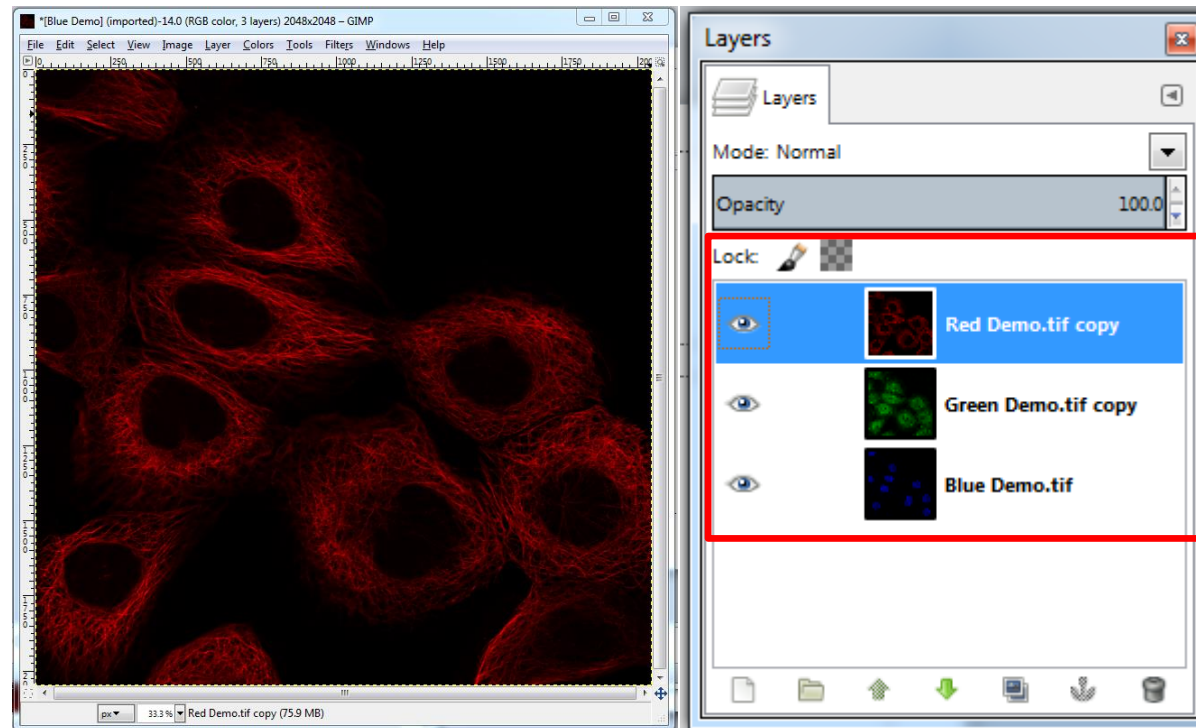
- Dial down the colours you **don't** want

Pseudo-colour Overlays

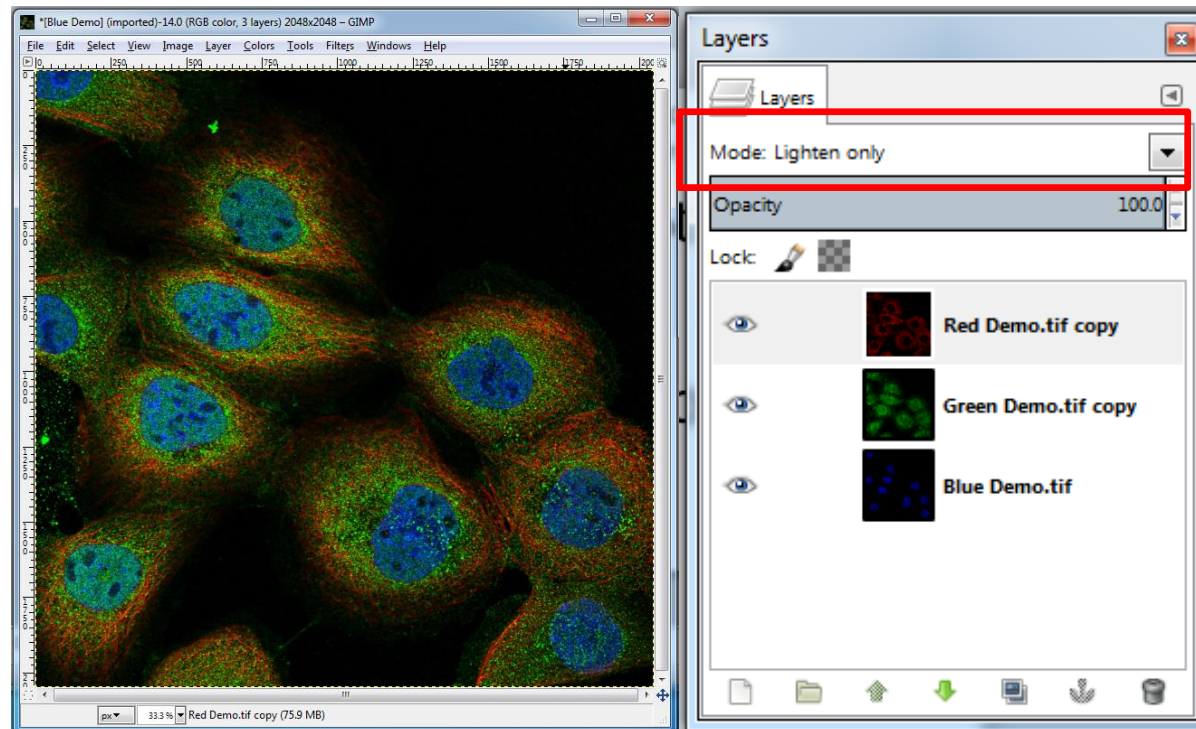


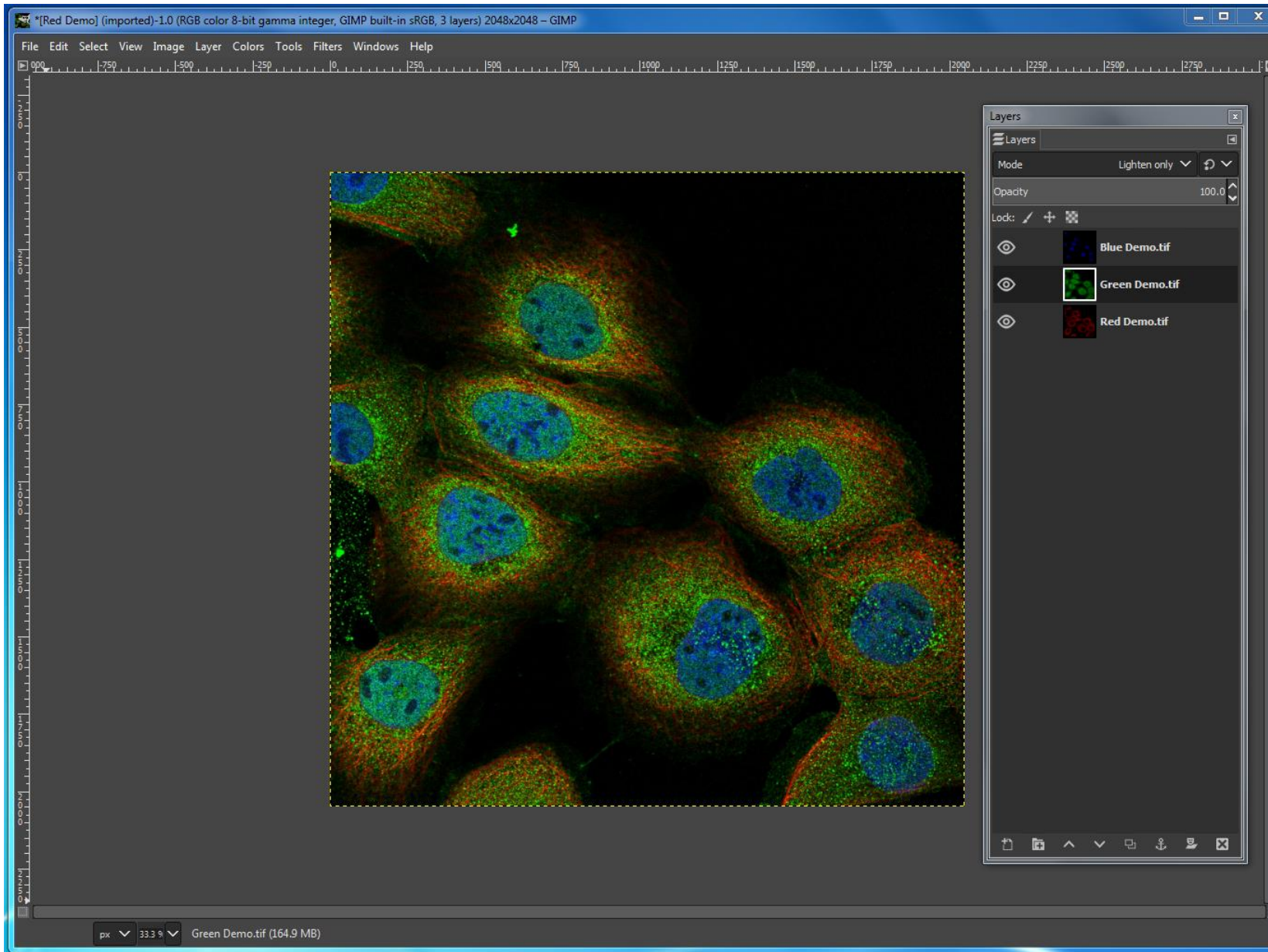
- Once images are correct colours, we need to overlay them
- Open Layers dialogue box (if not already open)
 - **Windows > Dockable Dialogues > Layers**
 - **(Ctrl+L)**

- Click and drag image layer in to the working window of another image
- Repeat this until one image has all of the desired layers



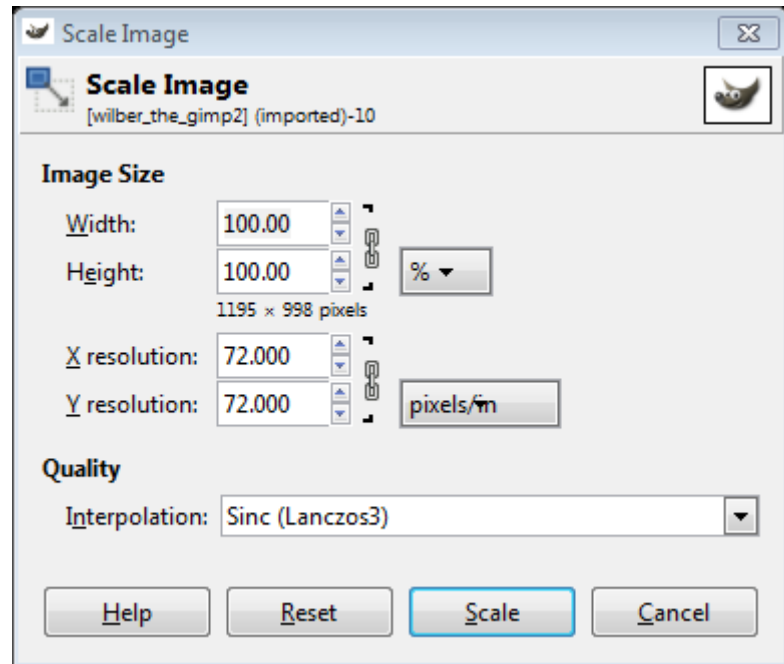
- Finally, make each layer (except the bottom layer) show only its colour, making the underlying layers visible
 - Layer Dialogue Box -> **Mode > 'Lighten Only'**





Scaling Images

- GIMP can be used to scale the size of your image
 - **Image > Scale Image**



Avoid making your images bigger than original size, bitmaps do not scale up well!

Exporting Images

- Once editing is done, and the working XCF file is saved, you need to export the image
- **File > Export As...**
- Specify file format e.g. PNG
- **Always save your image as a PNG file**, maintains transparency (alpha channel) and is lossless

