Focal Points

Application Note FP-160

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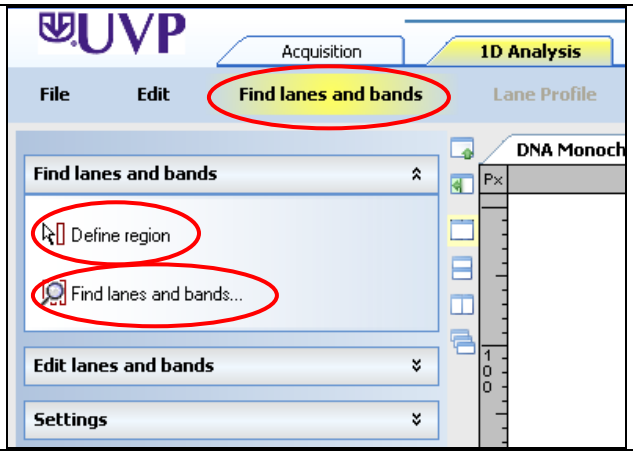
Quantitation of Lanes and Bands using 1D Analysis

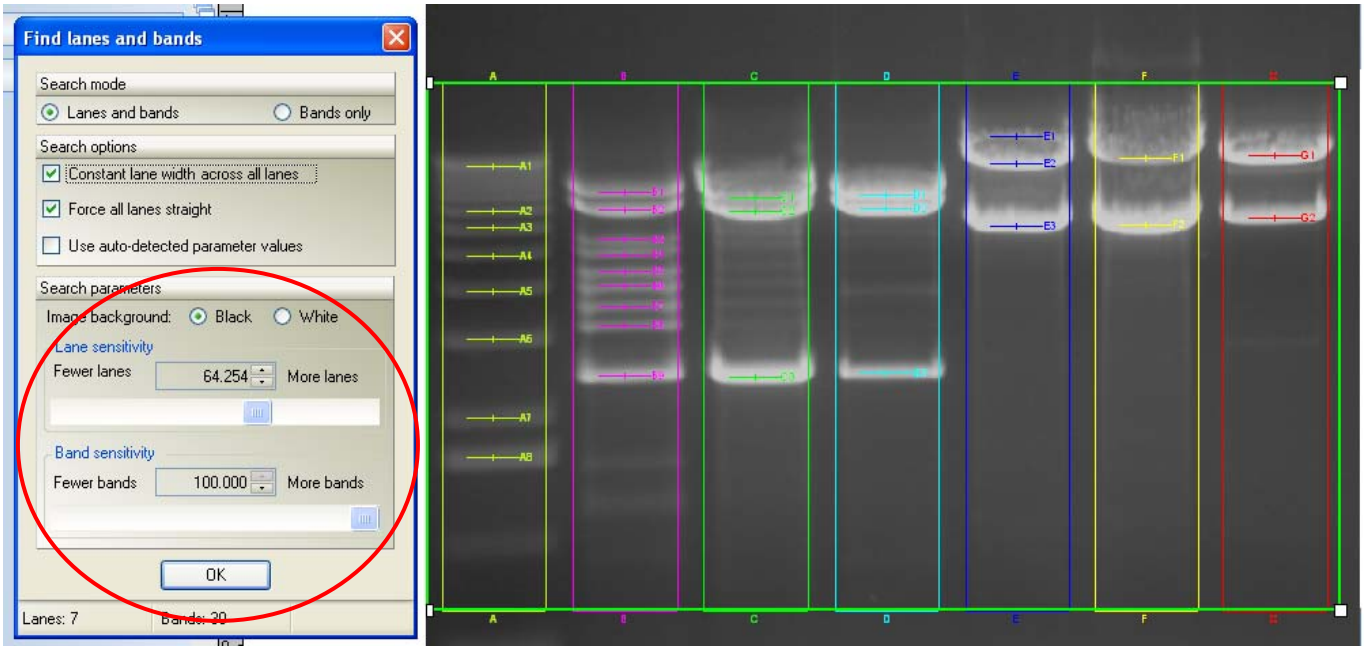
Introduction

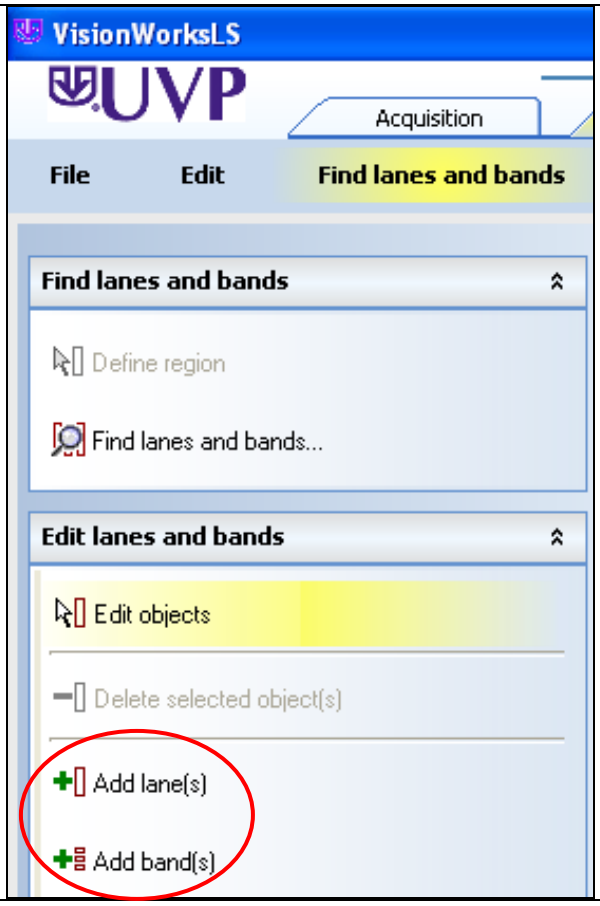
Analyzing images containing lanes and bands is accomplished simply and easily with VisionWorks®LS software. This document will discuss using the 1D Analysis method in VisionWorks to analyze lanes and bands for multiple applications (such as PCR, TLC, gels, and chemiluminescent blots).

Method

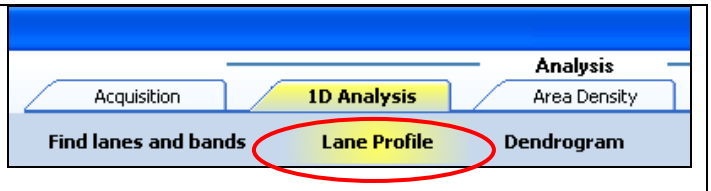
- Capture an image of the sample. (VisionWorks software controls UVP's systems to acquire images but images can be imported from other sources as well.)
- Open the image in VisionWorks.

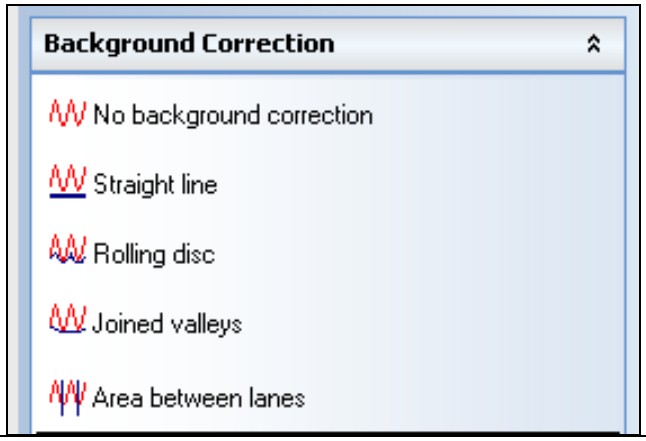
▪ Click onto the **1D Analysis** Action Tab.	
▪ Click onto **Find lanes and bands** then click on **Define region**. ▪ Use the cursor to identify the region of interest for analysis in the image. The area will be enclosed by a green rectangle. ▪ Click onto **Find lanes and bands**.	

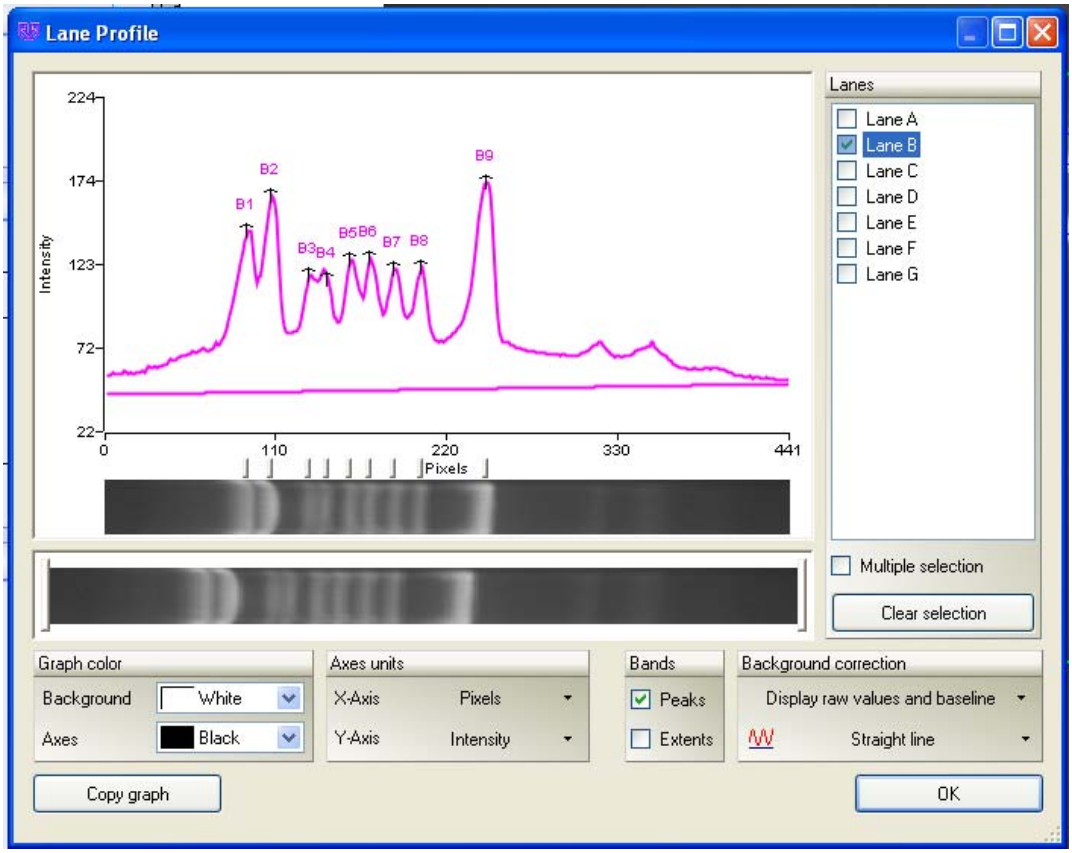


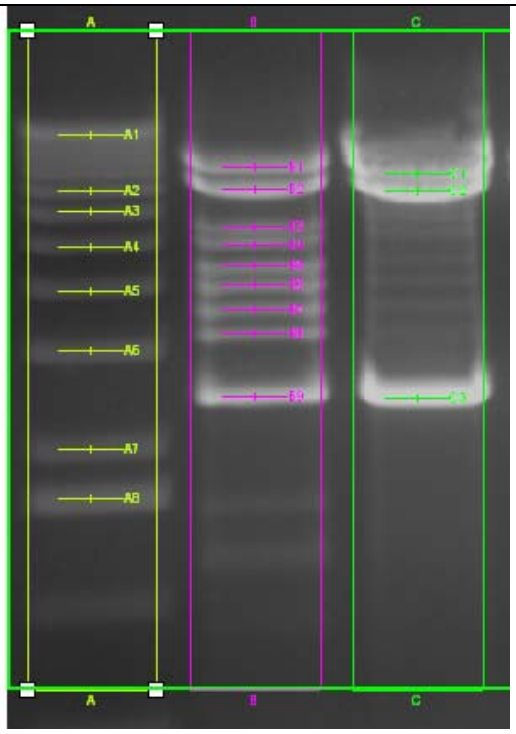
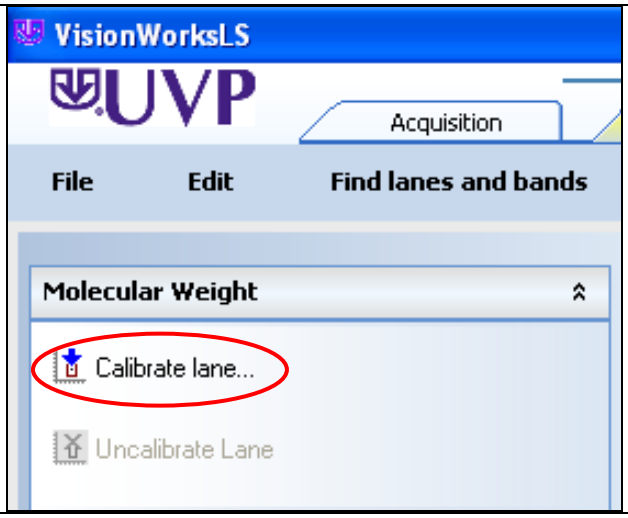
▪ Use the slider bars in the Find lanes and bands window to increase the number of lanes and bands found.	
▪ If desired, change the width of a lane by clicking on the lane and dragging it to increase or decrease the size. ▪ Continue to add lanes and bands as necessary with the **Add lane(s)** and **Add band(s) tools**.	

- Click onto **Lane Profile** to start the process of subtracting a background to the image.
- Apply a background to the lanes and bands by clicking on a background option. (The image below is showing a Lane Profile graph of Lane B with a **Straight line** background correction chosen.)

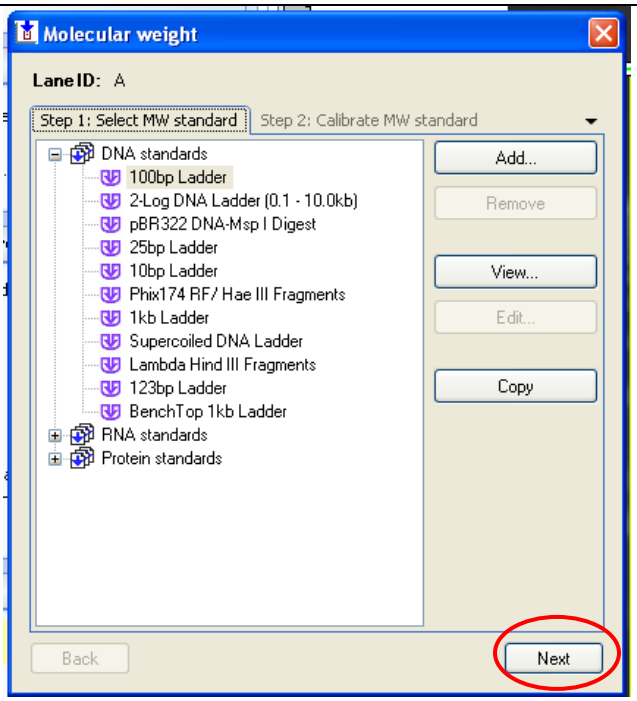




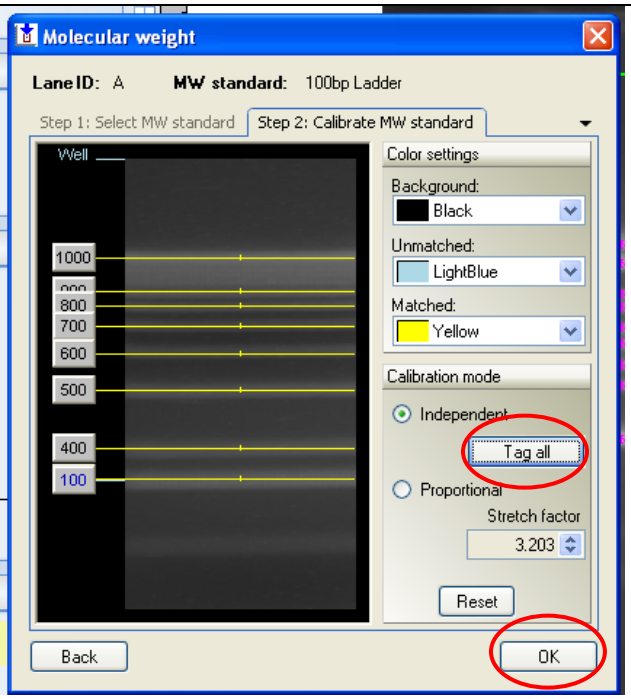


▪ To calculate the molecular weight of the bands, click on the standard (or reference) lane with known amounts. (Notice how the four white squares appear at the four corners of the lane. The four squares indicate that the lane is selected.)	
▪ Click onto **Calibrate lane…**	

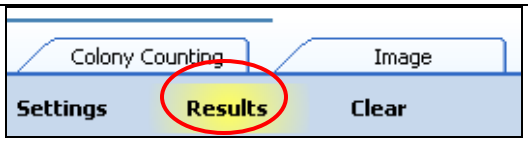
- Find the standard that applies to the image under study or add a new library if the standard is not listed.
- Click **Next.**

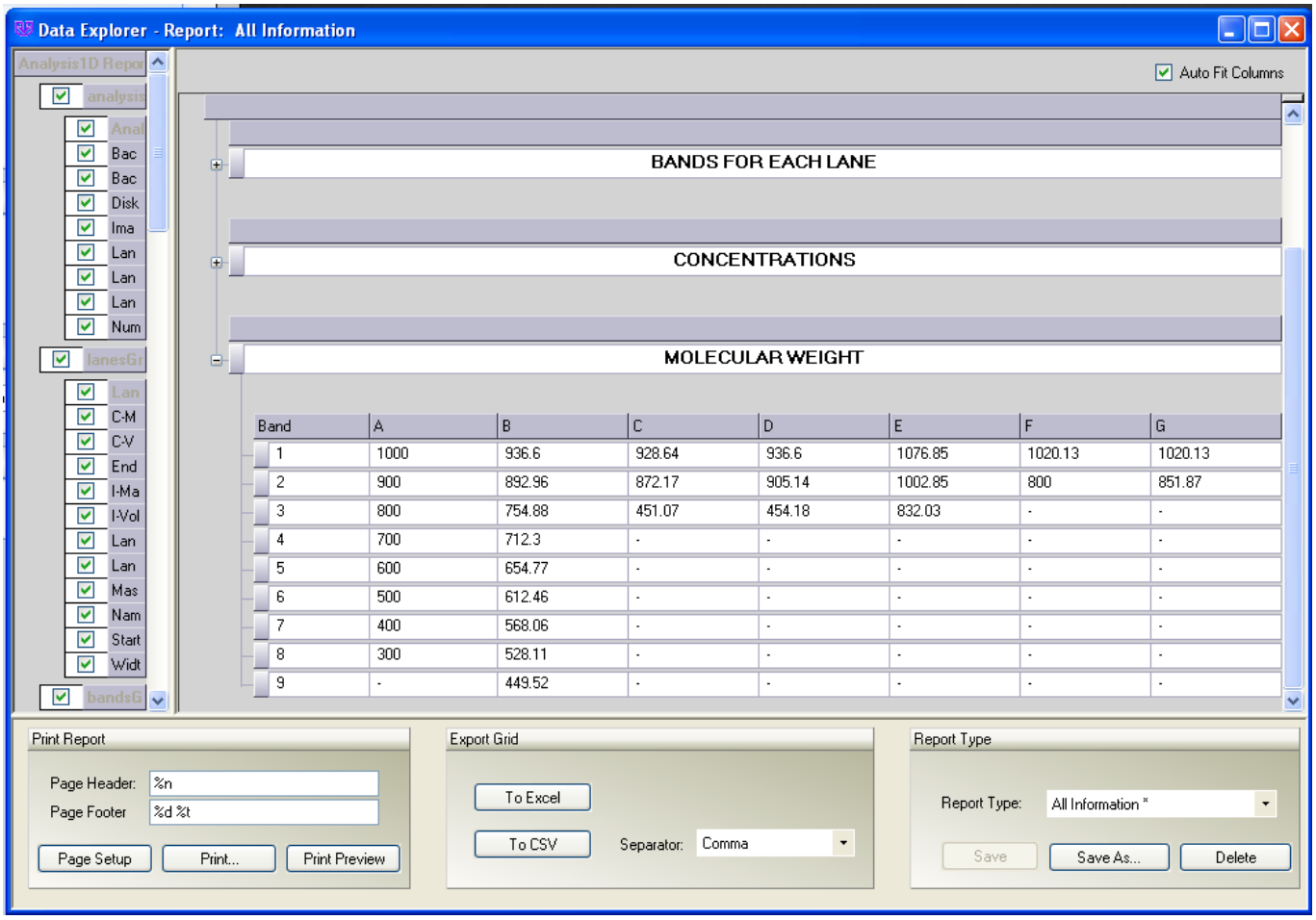


- Click onto **Tag all** to assign a weight in the library to a band in the standard (reference) lane in the captured image.
- Click **OK.**



- Click onto **Results** to obtain all the Molecular Weights in the image. (Once Results is selected a new window appears with information related to the image.)
- Open the Molecular Weight section in the table to view the molecular weights of the bands in the image. (Table below showing the molecular weights)





Conclusion

Visionworks software provides an easy method for analyzing lanes and bands in multiple applications. Simply use the 1D Analysis tool to provide all the molecular weights in the image quickly.