

Pathology Expertise Achieved with Lumenera's Microscopy Camera

INFINITY2-2 offers complete imaging solution for the most challenging applications

About Balboa BioConsulting

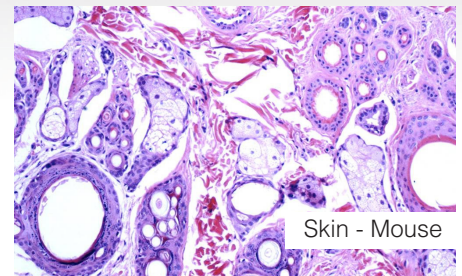
Balboa BioConsulting was established in 2008 by Dr. Gerald Kolaja, an ACVP board certified veterinary pathologist. The company provides histopathology and safety assessment expertise to biotechnology and pharmaceutical companies. Dr. Kolaja has over 30 years experience in pathology and pharmaceutical development. Moving compounds from discovery to development and assisting in strategies to study mechanisms of toxicity are strengths of the company. Histopathology of toxicology studies is provided in support of pre-clinical development programs.

With a Bachelors degree in Biology, a Doctor of Veterinary Medicine, Diplomate of the American College of Veterinary Pathologists, and a PhD in Pathology, Dr. Gerald Kolaja is no stranger to the field of pathology. Combined with Gerald's education, experience and expertise he founded Balboa BioConsulting to provide pathology services including histopathology, necropsy and mechanistic toxicology expertise. Dr. Kolaja needed an imaging solution that would capture microscopic images of tissue samples to document morphologic changes. The images collected for clients are a critical part of the review and evaluation process to become a permanent record of the results of their studies. The important factors in selecting a microscopy camera were precise color reproduction, megapixel resolution and high-speed preview.

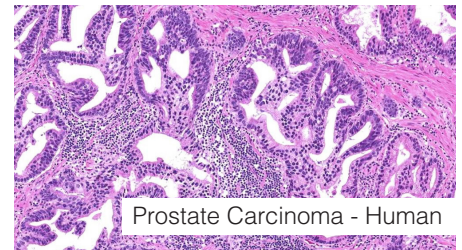
Precise Color with H&E Staining Method

Hematoxylin and Eosin (H&E) is a popular staining method employed by Gerald and is the most widely used stain in medical diagnosis. Hematoxylin stains cell nucleus a shade of purple, while eosin stains nearly everything that hematoxylin will not stain. Cytoplasm, connective tissue and other extra cellular substances acquire different shades of pink. In contrast, collagen becomes lighter pastel pink and smooth muscle stained bright pink. Eosin is strongly absorbed by red blood cells, coloring them dark reddish orange.

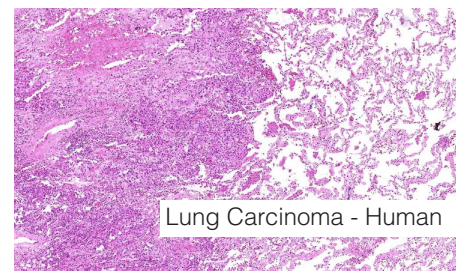
The H&E staining method is essential for recognizing various tissue types and the morphologic changes. It is critical that the colors observed through Dr. Kolaja's microscope eye piece correspond with those found in the images. Precise color is required to ensure proper identification and diagnosis. Dr. Kolja depends on Lumenera's INFINITY2-2 for the excellent color reproduction. The low noise characteristic of the INFINITY2-2 engineered with a 1.4 megapixel CCD image sensor results in crisp color. Difficult transition of pinks and reds is easily achieved with Lumenera's specialized color algorithms.



Skin - Mouse



Prostate Carcinoma - Human



Lung Carcinoma - Human

Highlights

- Lumenera's INFINITY2-2 offers critical imaging characteristics for pathologists; color fidelity, excellent sensitivity, high resolution and a wide dynamic range.
- Balboa BioConsulting relies on Lumenera's INFINITY digital microscopy camera for his pathology services.
- Difficult color transitions easily mastered with Lumenera's specialized color algorithms.



Excellent Sensitivity for Histopathology Stains

Tartrate-resistant Acidic Phosphate (TRAP) staining techniques is used by Dr. Gerald Kolaja to produce images of bone-resorbing cells for clients that are looking for a compound with the least adverse effect. The technique allows him to produce a series of compounds that can help him compare results for future studies. To view specific areas of interest in the compounds Dr. Kolaja needs the ability to enlarge the images. A potential issue he could face is pixilation that may occur when an image is magnified to such a degree that individual pixels become visible. It is possible to use anti-aliasing techniques in imaging software packages to smooth this effect, however, this can produce blurriness in the image and does not completely remove the pixilation. Upon magnification he required the image to retain its consistency. Enlarged images demonstrate clear edges without pixilation effects.

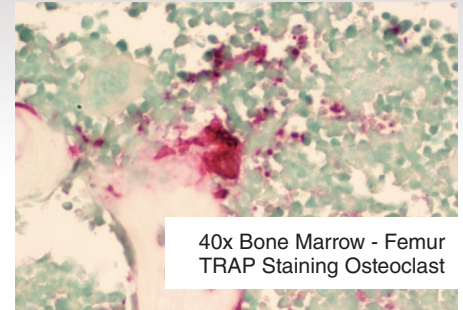
Dr. Kolaja utilizes the INFINITY2-2 to produce clear, well-contrasted images for his clients. Gerald has no concerns of extremely low light signals being produced by the samples. Typically, images tend to be noisy and preview frame rates are reduced to a point where noticeable lag occurs. Lumenera's INFINITY2-2 microscopy camera offer a higher dynamic range resulting in smooth clear images and fast preview speeds. Live video preview allows for real-time focus of his samples while the auto exposure and white balance efficiently capture his optimal image. With 12 fps at full 1616 x 1216 resolution, and higher frame rates through binning and ROI, the INFINITY2-2 delivers outstanding image quality. A Sony ICX274 progressive scan CCD sensor provides excellent sensitivity with a selectable 8 or 12-bit digital output.

Ease of Use

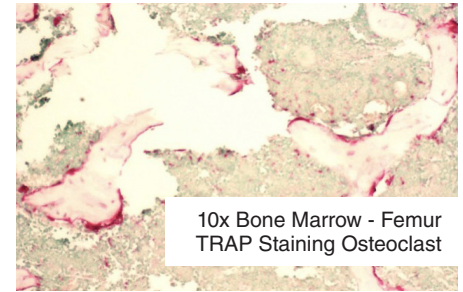
As with the entire line of Lumenera cameras, no framegrabber is required. The USB 2.0 digital interface ensures a simple plug-and-play installation with a proven stable set of USB camera drivers to provide reliability, long-term operation, and no down time combined with a Mac environment, leaving Gerald to focus on his pathology services.

“The INFINITY2-2 camera produces the high quality images needed for histopathology. The ease of use and reliability of the camera makes it ideal for my needs. The technical support provided by Lumenera has been outstanding.”

Veterinary Pathology
Gerald J. Kolaja, DVM, PhD, DACVP
President, Balboa BioConsulting



40x Bone Marrow - Femur
TRAP Staining Osteoclast



10x Bone Marrow - Femur
TRAP Staining Osteoclast



Canine Mast Cell Tumor
Toluidine Blue Staining

About Lumenera

Lumenera Corporation, a division of Roper Technologies, headquartered in Ottawa, Canada, is a leading developer and manufacturer of high performance digital cameras and custom imaging solutions. Lumenera cameras are used worldwide in a diverse range of industrial, scientific and security applications.

Lumenera solutions provide unique combinations of speed, resolution and sensitivity in order to satisfy the most demanding digital imaging requirements. Lumenera customers achieve the benefit of superior price to performance ratios and faster time to market with the company's commitment to high quality, cost effective product solutions.

For further information about Lumenera, please visit www.lumenera.com or call 613-736-4077. To receive Lumenera press releases as they are issued, contact us at marketing@lumenera.com.

