Autoradiographic Grain Counting

*Northern Eclipse Software*, from Empix Imaging Systems provides a unique solution to high speed analysis of grains in autoradiography applications. Tools are available to account for the energetics of the incorporated isotopes, and analysis can be performed on liquid emulsion coated specimens or on applied film specimens.

Autoradiography typically is used to detect the amount and location of radioactive precursor substances that have been incorporated into the biologically active systems. After the isotope is incorporated into the specimen, the preparation is then coated with a liquid photographic emulsion, or a sheet of film, closely applied. Decay of the radioactive compound releases particles which expose the overlying emulsion or film, and the number of particles released is documented by the amount of exposure. After a suitable interval, the film or emulsion is developed, and the resulting image is then analyzed.

The example 24-bit color image shown was captured using *Northern Eclipse Software* at an image resolution of 640x480, and represents a tissue section which has had a radioactive compound incorporated, as would be the case for in-situ hybridization experiments. In this application the grains are counted over the entire image, the outline of the tissue section area is truncated, and grain coverage assessed. Plug in operator variables enable final measurement to be corrected for both overlapping grains and background concentrations. *Northern Eclipse* provides a powerful solution to monitor activity of the incorporated isotope. Measurements are exported directly to MS Excel, rapidly recording all the data in real time, without interruption of the imaging routine.