We aim to study the uptake and localisation of cisplatin conjugated to fluorescein isothiocyanate (FITC) in colorectal cancer cells (Caco-2), using multidimensional correlative live-cell fluorescence microscopy and transmission electron microscopy (TEM) [1]. Caco-2 cells were cultured on glass bottom dishes that had been pre-coated with finder grids patterns using either carbon or gold (~15-45 nm thickness, respectively). Caco-2 cells were then incubated with 25 µM cisplatin-FITC for 24 hours and subsequently labelled with LysoTracker Red before imaging on the Olympus CellR live cell microscope equipped with a fully enclosed incubator maintaining temperature at 37°C and 5% CO2. Differential interference contrast (DIC) and fluorescence images of cisplatin-FITC and LysoTracker red using filters sets FITC (Ex 492/18, Em 510 - 550) and TXRED (Ex 572/23, Em 595 - 700) were collected for multiple positions every 5 minutes for up to 150 minutes (Fig. 1A). Cells were immediately fixed in gluteraldehyde and prepared for TEM using conventional methods. Areas of interest as determined by live cell imaging were relocated with the aid of the finder grid pattern and epon embedded cells were trimmed and sectioned for viewing on the TEM using the JEOL 1400 (Fig. 1B). In this contribution we will report on our latest advances made, including notes and tricks, to achieve high-resolution correlative data of fluorescent labelled analytes and proteins [2].

**Figure 1.** High-throughput correlative microscopy. (A) Live cell data set on Caco-2 cells that were exposed to fluorescent-labelled cisplatin and lysotracker; And (B) corresponding re-location on semi-thin toluidine blue stained sections (for full comparison, see areas 3 & 4 in both image sets).
