Introduction

Currently, there are two materials used to coverslip slides: Film and glass. Film is a xylene-activated adhesive tape while glass is a thin piece of glass that adheres to the slide using mounting medium. The use of digital microscopy and Whole Slide Imaging (WSI) is accelerating rapidly. WSI scans the entire slide and creates a single high-resolution digital file, by taking a large number of small high-resolution images of the entire slide, then arranges the images into a picture of the slide. Digital images can be easily shared and analyzed quickly.

It is important to know if there is a difference in scanning speed and stain quality captured by imaging, when coverslipping slides with Film or glass.

Materials & Methods

This study included sixteen (16) microscopic slides prepared from archived formalin-fixed, paraffin-embedded, (FFPE), animal and human tissue blocks. The blocks retrieved have porcine tissues (skin, kidney, tissue blocks. Sections #1 and #6 were discarded to ensure that serial sections Plus slide (Thermo Fisher Scientific) and identified accordingly. Ribbons consisting of six (6) sections were collected from each block. Sections #2 through #5 were each placed on a Superfrost™ Plus slide (Thermo Fisher Scientific) and identified accordingly. The十四 (14) remaining slides from each block were kept for further reference. All of the samples were processed on the Tissue-Tek VIP® 6 AI (Sakura Finetek USA) and were manually embedded on the Tissue-Tek Prisma® Processing/Embedding Medium (Sakura Finetek USA). Twenty slides were prepared from each block using a new blade; number was used for both coverslippers. For all of the parameters assessed, the observed differences between Film and glass were small in magnitude and considered not relevant. Scan time varied with tissue type (p<0.001) to accommodate different tissue sizes and on average was 13 seconds per slide or 3.7% shorter for Film (p<0.001) (Figure 1A). Average staining intensities in nuclear (hematoxylin and eosin) and non-nuclear (eosin) tissue regions also varied with tissue type (p=0.001), reflective of tissue-specific staining patterns (Figure 1B-C). Average hematoxylin intensity did not vary between Film and glass (p=0.53) (Figure 1B), while minimal differences were detected in nuclear eosin intensity (0.58% lower for Film, p=0.01, Figure 1C) and non-nuclear eosin intensity (0.06% higher for Film, p=0.06, Figure 1D).

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Results

Conclusions

For all of the parameters assessed, the observed differences between Film and glass were small in magnitude and considered not relevant. However, though small, the shorter scan time with Film may bring a cumulative benefit in throughput for high volume settings.