

Is it possible to reduce processing time for mamma core biopsies by using Pathos Delta 1 mm program

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INTRODUCTION:

In our laboratory we process mamma core biopsies on Tissue Tek® VIP® 5 (VIP) overnight for 13 hours, after a minimum of 4 hours fixation in 4% neutrally buffered formaldehyde (NBF). This is to ensure the most optimally processed tissue for downstream analysis.

This means that mamma core biopsies fixed after 1 pm is delayed 24 hours.

Aim: to test a shorter program for processing 1 mm core biopsies (1 hour and 27 minutes) after 30-60 minutes fixation in NBF on Pathos Delta, and compare all analysis routinely performed on mamma core biopsies after the standard VIP processing.

MATERIALS AND METHODS:

Samples: Breast cancer tissue from 11 tumors cut into 6-18 pieces measuring app. 1 x 0,2 x 0,2 cm.

1-2 pieces are fixed in NBF for a minimum of 4 hours and processed 13 hours on VIP and 5-15 fixed in NBF for 30-60 minutes and processed 1 hour and 27 minutes on Pathos Delta.

Stains: HE, ER, Ki67, HER2, HE-FISH and FISH-HER2.

DNA quantity and quality: Concentration measured by Qubit and fragment analysis with GeneScan™ 400HD ROX: Sizing DNA fragments. RNA quantity and quality: Concentration measured by Qubit and purity measured by Nanodrop.

RESULTS:

There is little to no difference in the results for morphology, immunohistochemistry and FISH between the two processing platforms, although some of the immunohistochemical stains could not be evaluated since the relevant tissue was not present.

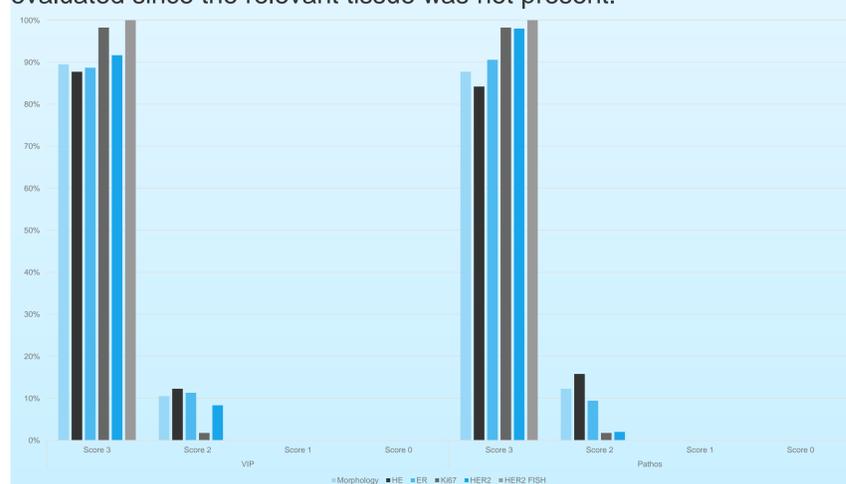


Figure 1: Results for morphology, HE and immunohistochemistry

Interobserver correlation coefficient is between 0,92 and 1 for morphology and immunohistochemistry. But only between 0,74 and 1 for the HE stain.

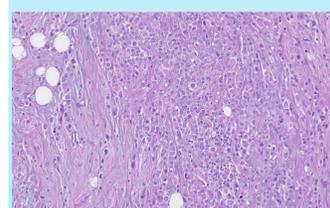


Figure 2: HE stain on VIP processed tissue

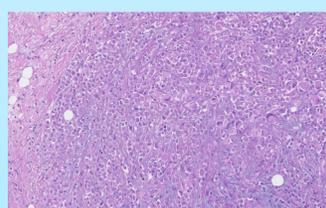


Figure 3: HE stain on Pathos Delta processed tissue

CONCLUSION:

In this limited study we found that it is possible to reduce processing time for mamma core biopsies by using Pathos Delta 1 mm program after 30-60 minutes fixation in NBF

RESULTS:

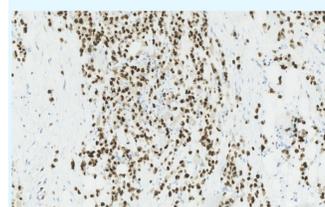


Figure 4: ER stain on VIP processed tissue

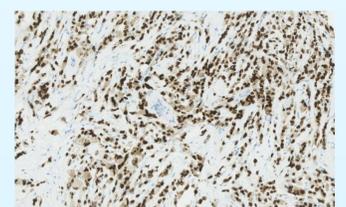


Figure 5: ER stain on Pathos Delta processed tissue



Figure 6: HER2 stain on VIP processed tissue



Figure 7: HER2 stain on Pathos Delta processed tissue

DNA and RNA quantity and quality give similar results with no discernible difference between the two processing platforms. Nanodrop purity is within the established range of 1,7-2,3, with measurements between 1,91 and 2,06 on Pathos Delta processed tissue.



Figure 8: DNA concentration

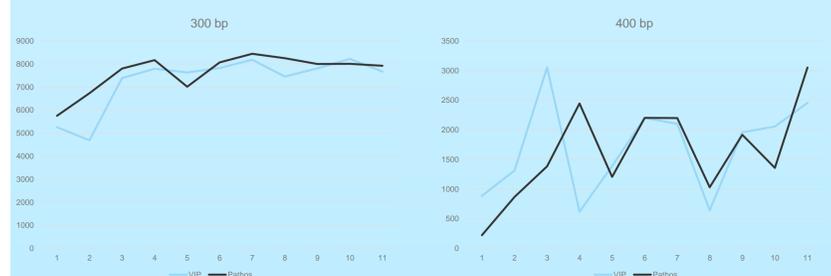


Figure 9: DNA fragments of 300 basepair and 400 basepair (bp)

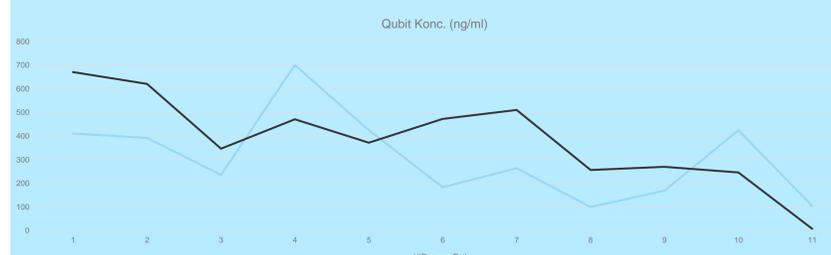


Figure 10: RNA concentration

REFERENCES: