WHITEPAPER

Performing IHC Staining Procedures in the Mohs Surgery Lab: Why the 'Kit' Approach May Not Be the Best Approach

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Mohs surgery is a quick and highly effective procedure designed to treat skin cancer. This surgical procedure can be used to treat basal cell carcinoma, squamous cell carcinoma, and melanoma and has success rates as high as 99 percent.[1] During a Mohs surgery, thin layers of skin are gradually removed from the skin cancer site until margins are clear and the cancer is removed. While some practices utilize a slow-Mohs procedure, which can take several days and processing of the specimen is performed off site, more Mohs micrographic surgery facilities are now offering same day results. Since the dermatologic surgeon acts as both the surgeon and the pathologist, immunohistochemistry (IHC) may be requested to aid in diagnosis. While 'rapid-staining' IHC kits are available for Mohs specimen, these kits may not ensure the highest-possible results or help contain operating costs. Alternatively, one can employ the necessary 'individual' reagents acquired from a vendor like Biocare Medical.

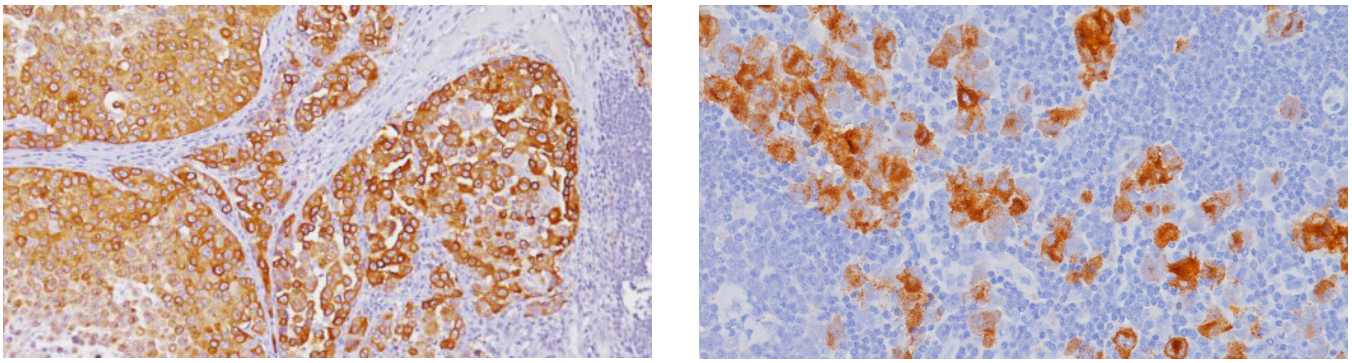
There are several important issues to consider when comparing the standard protocol approach utilizing 'a la carte' reagents to the use of a rapid 'all-inclusive' kit. "Rapid-staining" kits often utilize a reagent that combines the primary antibody with the enzyme-labeled polymer-secondary antibody. While this combination offers convenience and helps reduce overall procedural time, it also adds the unpredictable possibility of deterioration of this reagent. When that occurs, not only is troubleshooting difficult, but your lab may need to replace the product. Purchasing separate antibodies and detection reagents ensures better control over the protocol and helps with troubleshooting, should such problems arise.

Then there is the matter of protocol flexibility; using 'rapid' kits requires the manufacturer's validated protocol to be followed without deviation. Changing the incubation time for one reagent by just two or three minutes could alter staining, causing a misinterpretation, which may result in a false-positive or false-negative report.

Additionally, since employing concentrated antibodies has been shown to reduce the cost by six to eight times, every lab should consider use of concentrated antibodies to help reduce overall procedural cost. Biocare Medical is one vendor that offers nearly all if its antibodies in both prediluted and concentrated formats. Depending on antibody dispense volume, prediluted antibodies can cost over $20 per slide, whereas concentrated antibodies can be less than $5 per slide.

Primary antibody clone selection should also be taking into consideration. Some clones perform better on frozen sections (FS) than on formalin-fixed, paraffin-embedded (FFPE) sections as they were specifically characterized for use with unfixed material. Typically, antibodies characterized for use on FFPE almost always require heat-induced epitope retrieval (HIER), which is not necessary with FS.

Finally, there is the matter of reducing the need for 'repeats', which may arise when manually staining and unintentionally-varying volumes of reagents onto slides. Although manually performing IHC procedures is perfectly acceptable, some labs have found more consistent results using a slide-staining platform like Biocare's IQ Kinetic system, as this system reduces individual slide handling and prevents cross contamination.



L to R: Mart 1 Cocktail (M2-7C10 + M2-9E3) and Melan A (A103) are IHC antibodies commonly utilized on Mohs specimens. These antibodies can be visualized with HRP chromogens (such as DAB, shown above) and AP chromogens (such as Fast Red) to offer ultimate flexibility.

If your Mohs lab is considering bringing in IHC staining or looking to expand your antibody menu and would like to learn more about Biocare antibody clones and reagents, please call 800-799-9499 or visit our website at www.biocare.net.

www.biocare.net

1. "Mohs surgery: The Most Effective Technique for Treating Common Skin Cancers." Skin Cancer Foundation, https://www.skincancer.org/treatment-resources/mohs-surgery/

2. Al Tal, AR et al. Immunostaining in Mohs micrographic surgery: A review. Dermatol Surg 2010; (36):275–290.

3. Cherpelis B, et al. Innovative 19-minute rapid Cytokeratin Immunostaining of Nonmelanoma Skin Cancer in Mohs Micrographic Surgery. Dermatol Surg 2009; 35(7):1050–1056.

4. Cherpelis B, et al. Comparison of MART-1 frozen sections to permanent sections using a rapid 19-minute protocol. Dermatol Surg 2009; 35(2):207–21.

WP_0052