Sigma-Aldrich®
Lab & Production Materials

Academia

Anti-Ki-67 (MRQ-64) is a Reliable Rabbit Monoclonal IHC Marker for Grading Neoplasms

Brooke Bivens, B.S.; Qin Su, Ph.D., M.D.
Cell Marque™ Tissue Diagnostics, Rocklin, California

Background

The Ki-67 antigen is a nuclear, non-histone protein that is present in proliferating cells. Anti-Ki-67 labeling index is the WHO recommended method for grading neoplasms including: glioma, breast carcinoma, lymphoma, sarcoma, and others.[1-5]

In this experiment, MRQ-64, a novel rabbit monoclonal antibody, was compared to other commercially available clones. Using an autostainer, immunohistochemistry (IHC) was performed on a variety of tissues including carcinomas, melanomas, sarcomas, and gliomas.

Design

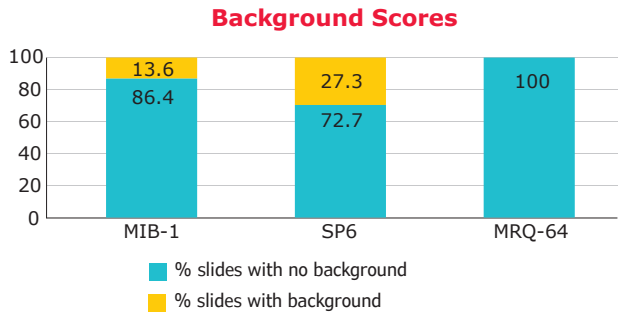
44 formalin-fixed paraffin-embedded tissues of various types were selected. All tissues were stained with anti-Ki-67 rabbit monoclonals MRQ-64 and SP6, and mouse monoclonal MIB-1 using an autostainer. Each sample was microscopically evaluated by a pathologist and given a staining score of both signal and background using the following 0-4 scale: 0 = negative, 0.5-2.5 = low intensity and 3-4 = moderate to high intensity.

Results

All three clones displayed similar sensitivity and intensity, however, it was noted that the background staining intensity with MRQ-64 was almost non-existent providing an excellent overall sensitivity. During this study, pathologist review indicated that the MIB-1 and SP6 clones produced non-specific staining in septic cells, whereas MRQ-64 did not. In total, 12/44 (27.3%) of tissues stained with SP6 and 6/44 (13.6%) of tissues stained with MIB-1 produced noticeable background staining. Furthermore, the MRQ-64 achieved similar scores to the other two clones with more intensity noted on the mitotic figures.

Conclusion

Overall, this study demonstrates that anti-Ki-67 (MRQ-64) has equivocal sensitivity and greater specificity when compared with clones SP6 and MIB-1.



References:

Mckeever P, et al. MIB-1 proliferation index predicts survival among patients with grade II astrocytoma. *J Neuropathol Exp Neurol*. 1998:57:931-6.

Coons SW, et al. The prognostic significance of Ki-67 labeling indices for oligodendrogliomas. *Neurosurgery*. 1997;41:878-84.

Allegra CJ, et al. Prognostic value of thymidylate synthase, Ki-67, and p53 in patients with Dukes' B and C colon cancer: a National Cancer Institute-national surgical adjuvant breast and bowel project collaborative study. *J Clin Oncol*. 2003;21:241-50.

Pathmanathan N, et al. Ki-67 and proliferation in breast cancer. *J Clin Pathol*. 2013; 66: 512-6.

Swerdlow S, et al. WHO clarifications of tumours of hematopoietic and lymphoid tissues. 4th edition, 2008. P 220.

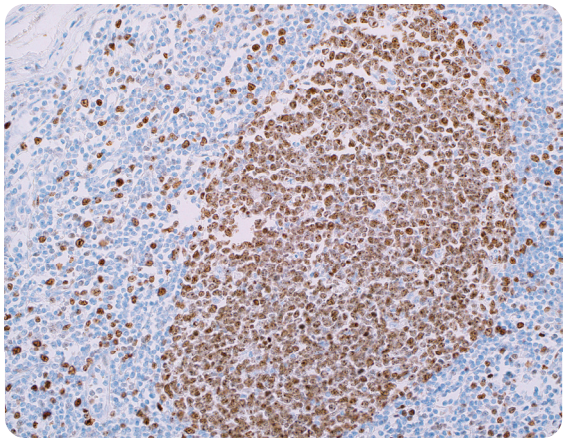


Figure 1A: Germinal center of tonsil tissue stained with anti-Ki-67 (MIB-1)

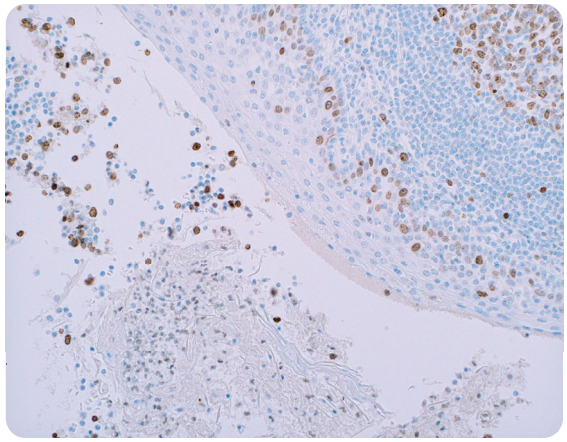


Figure 1B: Inflammatory cells of tonsil tissue stained with anti-Ki-67 (MIB-1)

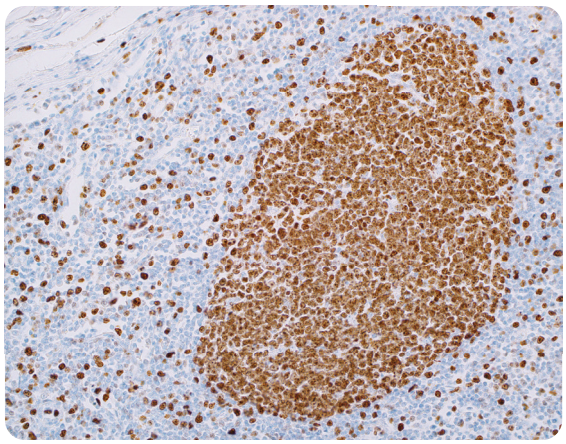


Figure 2A: Germinal center of tonsil tissue stained with anti-Ki-67 (SP6)

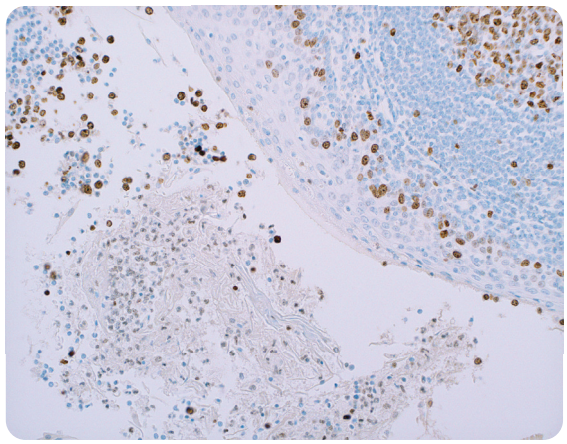


Figure 2B: Inflammatory cells of tonsil tissue stained with anti-Ki-67 (SP6)

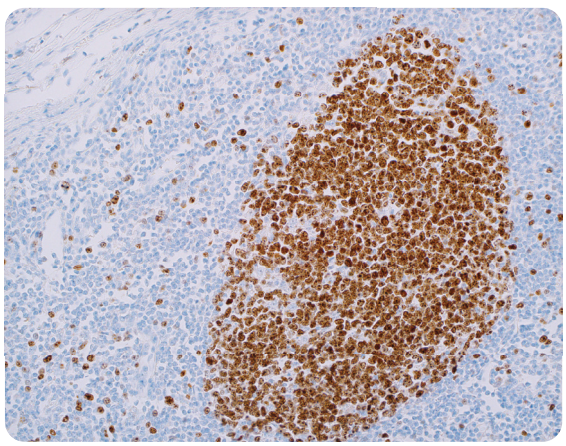


Figure 3A: Germinal center of tonsil tissue stained with anti-Ki-67 (MRQ-64)

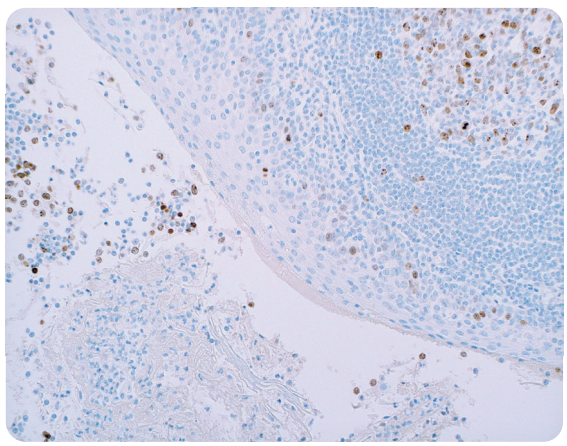


Figure 3B: Inflammatory cells of tonsil tissue produced no stain with anti-Ki-67 (MRQ-64)

USA
Toll Free: **800.665.7284**
Phone: **916.746.8900**
Fax: **916.746.8900**
Email: **service@cellmarque.com**
www.cellmarque.com

CANADA
Direct: **+1 916-746-8900**
Fax: **+1 916-746-8989**
Email: **international@millioresigma.com**
www.cellmarque.com

MilliporeSigma
400 Summit Drive
Burlington, MA 01803

www.sigmaaldrich.com

MS_AN6910EN
33428
10/2020