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## **Retinoblastoma**

The Relationship of Proliferating Cells to Blood Vessels

**Miguel N. Burnier, Ian W. McLean,  
Lorenz E. Zimmerman and Saul H. Rosenberg**

In 150 retinoblastomas the authors found a uniform thickness of the cuff of viable retinoblastoma cells that surrounds blood vessels. The mean thickness was 98,7  $\mu\text{m}$  with a standard deviation of 11.9  $\mu\text{m}$ . The cross-sectional area of the cuff was negatively correlated with the mitotic activity in the cuff and positively correlated with the diameter of the central vessel. The mitotic activity in the cuff of cells was inversely related to the distance from the central blood vessel. When the cuff

was divided into three concentric rings, the inner ring contained a mean of 6.2 mitotic figures, the middle ring contained a mean of 2.9 mitotic figures, and the outer ring contained a mean of 0.6 mitotic figures. This pattern of growth is similar to that observed in other rapidly growing neoplasms in humans and experimental animals. In these tumors this pattern results from reduction in oxygen tension with increased distance from the central blood vessel.

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## **Immunohistochemical Evaluation of Uveal Melanocytic Tumors**

Expression of HMB-45, S-100 Protein, and Neuron-Specific Enolase

**Miguel N. Burnier Jr, MD; Ian W. McLean, MD;  
and John W. Gamel, MD**

The authors compared the immunohistochemical reactivity of 13 uveal nevi and 20 uveal melanomas for HMB-45, S-100 protein, and neuron-specific enolase (NSE) in formalin-fixed, paraffin-embedded sections. All 33 of the lesions were positive for HMB-45. The false-negative rates for S-100 protein and NSE were 21% and 18%, respectively. If only strongly positive reactions were considered, more than 50% of the tumors would be interpreted as negative for S-100 protein and NSE. Nevi stained with less intensity than melanomas

using all three antibodies. The expression of HMB-45 appeared to be greater in active nevi than in inactive nevi. There was a weak association between S-100 protein reactivity and the ability of the uveal melanomas to metastasize ( $P = 0.1$ ); however, the standard deviation of nucleolar area was a much better predictor ( $P = 0.02$ ). These results indicate that pathologists will find HMB-45 to be a useful tool in differentiating uveal melanoma from nonmelanocytic tumors.