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The activational state of mast cells in the dove brain

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Mast cells (MC) are able to leave capillaries and enter the brain in normal physiological conditions. In doves MC are localized in the thalamic medial habenula. Since their cytoplasmic granules contain proteoglicans they can be stained with acidic toluidine blue. If MC are active, they exocytose some of this proteoglican content, so the color of the cell correlates with its activational state. One of the many bioactive molecules which are syntesized by MC is GnRH; the level of the sexual steroids will modify the activatonal state of brain MC. The aim of our study was to find out if (i) in isolated birds with low steroid level are actively secreting and if (ii) the receptors of the Ca-signaling system (IP3R and Ryanodine Receptor) will show any differences in their staining pattern between inactive and active MC? Double-label immunocytochemistry (serotonin+IP3R, and serotonin+RyR antibodies) was carried out, results were viewed in a confocal microscope. Among the IP3R-pozitive MC 64-97% was lightly stained, while in 7-10% of the stained MC some granules were srongly immunoreactive, and only 1-2% of the cells were strongly labelled with the IP3R-antibody. After IP3R-labeling 29% of MC did not show any immunostaining. 44-73% of MC did not show any RyR-positivity. Light staining appeared in 27-52% of the brain MC, fiew granules were strongly labeled in 4-19%. Strong RyR-labeling in MC was found only in one animal (22% of MC).