

光音響顕微法の組織切片中の 生体成分分析への適用

和田 克哉*, 升島 努*, 吉田 久信*,
村上 照夫*, 矢田 登*, 今井 日出夫

Chem. Pharm. Bull., 34, 1688-1693 (1986).

Application of Photoacoustic Microscopy to Analysis of Biological Components in Tissue Sections

Katsuya WADA*, Tsutomu MASUJIMA*, Hisanobu YOSHIDA*,
Teruo MURAKAMI*, Noboru YATA* and Hideo IMAI

ABSTRACT: Photoacoustic microscopy was applied to the determination of dye (alcian blue 8GS) spotted on a mucin layer. The determination range in a 40 μm diameter area was 40-1200pg. The total dye quantity in the spot (ca. 2mm diameter) was determined by integrating the quantities in the 40 μm diameter area within 15% error, irrespective of the uniformity of the distribution. This method was applied to the analysis of acidic mucopoly-saccharide in the rat rectum and rat eyeball sections stained with alcian blue 8GS. The dye quantity was estimated to be 40-640 pg in the microregion of 40 μm diameter area and 1.5-1.8 μg in the whole region in ca. 8 μm thick sections. These quantities corresponded to 1.6-2.6 ng and 60-72 μg of mucin, respectively, based on the weight binding ratio of 40 of mucin to the dye in solution.

抄録 ムチン層上に点滴したアルシアンブルー-8GSの定量に光音響顕微法を適用した。直径40 μm の面積での定量範囲は40-1200pgであった。約2mm径のスポット中の全色素量は40 μm 径中の量を積分して15%誤差内で定量できた。本法をラット直腸及び眼球の薄片中のムコ多糖の定量に適用した。40 μm 径中の色素量は40-60pg, 8 μm 厚さの全領域中の定量値は1.5-1.8 μg であり, これをムチン対色素結合比40:1に基いて評価すると, ムチン量としてそれぞれ1.6-2.6ng及び60-72 μg となった。

* Hiroshima University School of Medicine 広島大学医学部