

Histochemical Study of Thyroid Colloid by Azan-Mallory Staining

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The Azan-Mallory staining method was applied to thyroid colloid in order to clarify the biological and chemical conditions of it. In experimental condition, the colloid is stained by anilin blue when TSH or Methylthryouacil was given for the animal. When desiccated thyroid or inorganic iodine solution was given, the colloid is stained by azocarmin G. These data suggest us that the released form of the colloid will show basophilic and the stored form will show acidophilic.

In human thyroid, Graves' disease show basophilic colloid in general. In adenoma the colloid is stained either acidophilic or basophilic depending upon the differentiation of follicular structure. In papillary adenocarcinoma the colloid show irregular staining of basophilic and acidophilic which suggest the complicated mechanism of colloid production.

On the Histochemical Significance of the Aldehyde-Fuchsin Staining Method as a Means of Differentiation Between Ceroid and Lipofuscin

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Since Gomori (1950) first described the aldehyde-fuchsin (AF) staining method for elastic fibres, the histochemical significance of this method has been subjected to much serious questioning. In the present investigation of pigments in formalin-fixed tissues, it was found that this AF staining procedure presents the merit of enabling a differentiation of AF stain-positive ceroid from lipofuscin which is AF stain-negative, as far as use is each time made of AF staining solution (excepting Gabe's reagent) having an ability to stain ceroid. Therefore, the present authors re-examined the problems connected with AF staining mechanism, and compared the results with the histochemical findings reported by others. Scott *et al.* (1953) expressed the opinion that the AF-staining method demonstrates, besides the sulfuric (SO_4H), sulfon (SO_3H) or sulfin (SO_2H) radicals, the aldehyde radical. However, Holzinger (1957) and Iison (1960) disagreed with this opinion, and our own experimental results have led us to do the same one. Furthermore, Lison (1960) and Ortman *et al.* (1966) described that this staining method shows a positive reaction with the carbonyl radical as well, a view which seems to contradict the fact that the AF stain never shows a positive reaction with lipofuscin which has been proved to have a carbonyl radical (Lillie, 1956).

Sometimes, some parts or kind of ceroid as well as lipofuscin do turn out to be positive after peracetic acid treatment, especially it is found that this kind of ceroid contains a disulfide radical; in this case, the most probable explanation would be that this radical is oxidized by peracetic acid and thus transformed into a SO_3H - or SO_2H -radical to yield a positive AF staining reaction.