

A METHOD OF REMOVING THE RADIOACTIVE LABEL AND RECOATING HISTO AUTORADIOGRAPHIC PREPARATIONS WITH EMULSION

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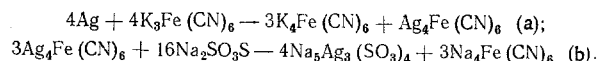
A method of removing the radioactive label without separating the gelatin layer is described.

For various reasons histautoradiographic preparations may be unsatisfactory: the emulsion may be of poor quality, or the preparations may not be properly dried before exposure in the refrigerator, so that a high background level is obtained. In such cases, and if it is impossible for the histautoradiographic preparations to be made afresh, recoating of the existing preparations by new emulsion after removal of the old label is the only possible way out of the difficulty.

Descriptions of an enzymatic method of removing old emulsion by means of trypsin [2, 3] and pepsin [4], followed by treatment of the preparations with potassium ferricyanide and thiosulfate, are given in the literature. An essential defect of both these methods is that the hardened emulsion is highly resistant to enzyme action and some of it remains on the slides, preventing a uniform covering of the new emulsion from being obtained.

Since the emulsion is used in a dilution of 1:4 and the thickness of its layer does not exceed $1\ \mu$ [5], it was decided that the gelatin layer need not be removed from the slides and that all that was needed was to remove the grains of reduced silver.

The grains of reduced silver are removed with potassium ferricyanide and sodium thiosulfate. The chemical reactions involved in this process are as follows:



Metallic silver is oxidized by potassium ferricyanide with the formation of the insoluble silver ferricyanide (a). The silver ferricyanide reacts with thiosulfate to form soluble complex salts (b). In this way the reduced silver is removed from the preparations.

If a large number of preparations are required to have their label removed and to be recoated with fresh emulsion, they are placed in special presses or stands [1] holding from 8-10 to 50 specimens. The press or stand, located with histautoradiographic preparations, is immersed initially in tap water at room temperature for 3-5 min to soften the emulsion. The preparations are then successively placed in 10% potassium ferricyanide solution for 30 min, rinsed in tap water for 1-2 min, and immersed in 25% thiosulfate solution for 20 min. The preparations are then carefully washed in running tapwater for 1.5-2 h, dipped in distilled water for 2-3 min, and well dried. The dry preparations are ready for recoating with fresh emulsion.

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Coating with fresh emulsion and all subsequent operations are carried out in the usual manner. Special tests showed that removal of the label and recoating with emulsion in the manner described above can also be carried out if the preparations have been covered with undiluted emulsion.

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