A Fast, Simple, and Safe Way to Prepare Paraformaldehyde Solutions

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Depolymerized paraformaldehyde solutions have been used in fixation of specimens for electron microscopy since Karnovsky [1] proposed the combination of glutaraldehyde and paraformaldehyde for improved specimen preservation. Preparation of depolymerized paraformaldehyde solutions requires the use of heat (approximately 60˚C) and raising the pH. Most labs place a heating stir plate in the hood and then heat to 60˚C followed by adding drops of concentrated sodium hydroxide solution until the solution of paraformaldehyde clears. A precise temperature of 60˚C is not required; raining the pH by adding sodium hydroxide is the most important action in achieving depolymerization and clearing of the paraformaldehyde solution.

The following time-saving and safe protocol has been used in my lab for a number of years:

1. Weigh out the required amount of paraformaldehyde, and put it into an appropriate size flask to hold the final solution of depolymerized paraformaldehyde. Add 1-2 pellets of sodium hydroxide. Place this flask in the hood.

2. Heat the required volume of deionized water for 1 minute on high in the microwave.

3. In the hood, add the heated water to the flask of paraformaldehyde and sodium hydroxide pellets. Swirl the flask until the solution clears, which usually takes 1-2 minutes.

4. The solution of depolymerized paraformaldehyde is now ready for use in preparing the fixative.

The total time for this preparation is no more than 5 minutes, a time savings of about 30 minutes. In addition, there is no need for a hot plate. MT

References

[1] MJ Karnovsky, J Cell Biol 27 (1965) 137A.

 doi: 10.1017/S1551929509991064

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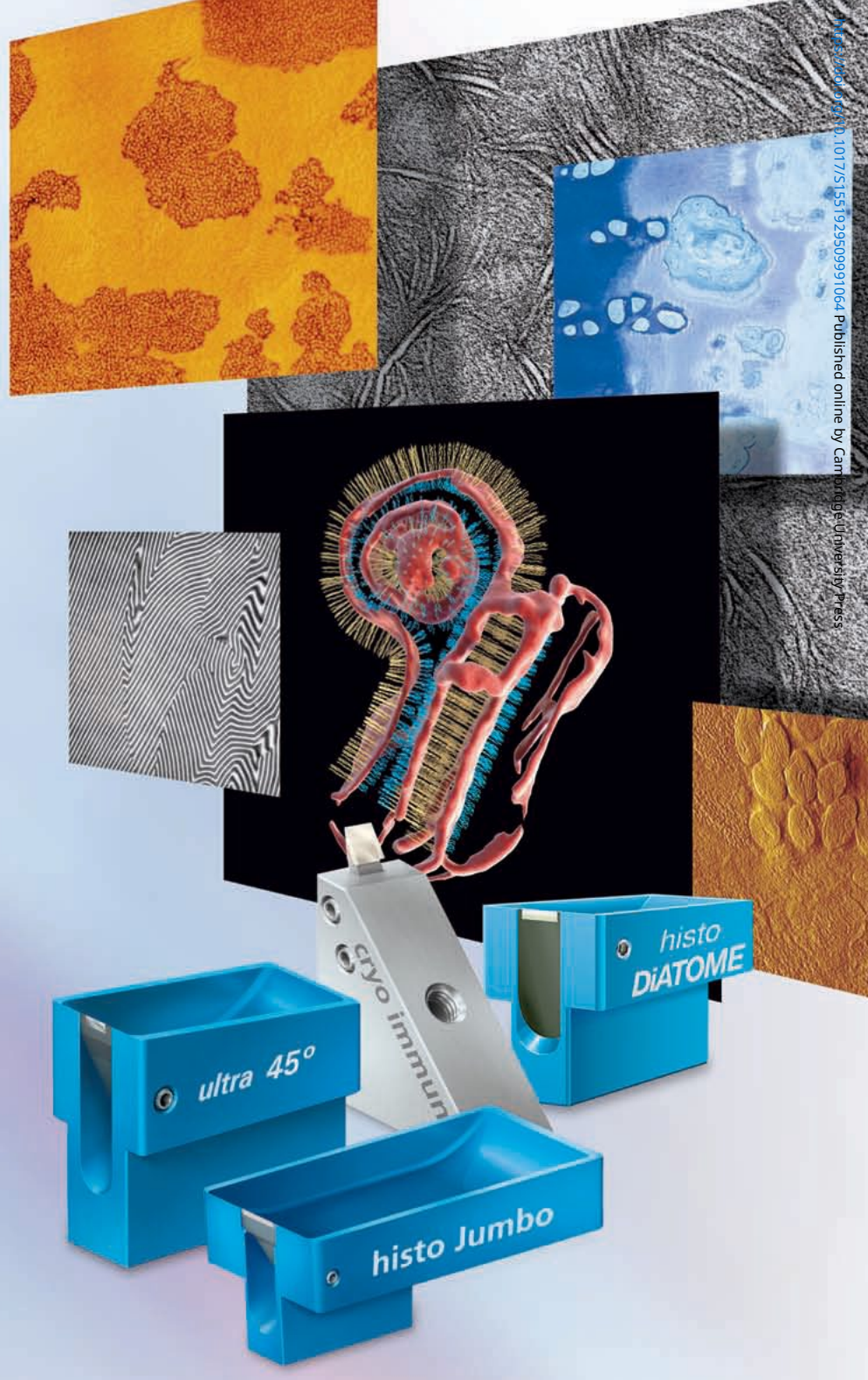

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