

Michel's Transport Medium for Immunofluorescence

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To the Editor:

We read with interest the excellent review by Campos-Domínguez et al¹ of diagnostic methods for subepidermal blistering diseases in which brief mention was made of Michel's medium, and we would like to address the subject in more depth.

In 1973 Michel et al² developed a fixative solution that preserved immunoglobulins in biopsies and then compared the results for 13 skin biopsies. Half of each specimen was processed as usual for immunofluorescence using rapid freezing, whereas the other half was fixed in the medium for 24 hours to 10 days. The specimens were later washed and processed as usual for immunofluorescence. Three of the 13 biopsies were negative when assayed by both methods; the remaining 10 (which included biopsies of lupus erythematosus, pemphigus, and bullous pemphigoid) were positive for both methods, with comparable intensity.

Although Michel's medium is not marketed in Spain, it is easy to prepare. In our case, the anatomical pathology laboratory was able to prepare the solution without any problems. If this is not possible, any pharmacy should be able to do so. Moreover, the medium is exceptionally stable and requires no special conditions.

We had previously experienced a number of problems when processing biopsies for immunofluorescence: the frozen specimens were shipped in special-purpose coolers, but good results were not obtained because the biopsies arrived in poor conditions to the referral hospital. Another option was to send the patient to the referral hospital for in situ biopsy. However, in our case, this meant transferring the patient to another island for an appointment that,

in the best of cases, might include biopsy on the same day. From the moment we first started using Michel's medium, we have not had any difficulties or false negatives in the immunofluorescence studies. In fact, the nephrology department has also begun to use the procedure with excellent results. The specimens are even suitable for techniques which use separated skin. These factors make it an ideal medium for small hospitals with no immunofluorescence laboratory or for outpatient services, whether public or private.

The technique involves fixing the biopsy in the fixative solution (Table 1), in which it may be kept up to 10 days, perhaps longer, until processing. This is sufficient time for the specimen to be sent to any laboratory. Before freezing, the specimen must be washed 3 times for 10 minutes in a buffer (Table 2), but can then be frozen and processed as usual for immunofluorescence. Table 3 summarizes the procedure, and the figure shows an example of successful biopsy results obtained using this approach.

I hope that this letter will encourage small hospitals and physicians' offices that do not have an immunofluorescence laboratory to use this medium, thereby including immunofluorescence as a standard technique.

Table 1. Fixative Solution

Add 55 g of (NH ₄) ₂ SO ₄
to 2.5 mL of 1 M potassium citrate pH 7
5 mL of 0.1 M C.N-ethylmaleimide
5 mL of 0.1 M MgSO ₄
87.5 mL of distilled water
Adjust to pH 7 with 1 M KOH.

Table 2. Wash Buffer^a

2.5 mL of 1 M potassium citrate pH 7
5 mL of 0.1 M C.N-ethylmaleimide
5 mL of 0.1 M MgSO ₄
87.5 mL distilled water
Adjust to pH 7 with 1 M KOH.

^aNote that this is the same as the fixative solution, except for (NH₄)₂SO₄.

Table 3. Procedure

The biopsy specimen is fixed in the fixative solution.
Afterwards, it is sent to the core laboratory (effective for 10 days).
The specimen is washed 3 times for 10 minutes with the wash buffer.
It is then processed for immunofluorescence (at the immunofluorescence laboratory) using the standard procedure for biopsies.

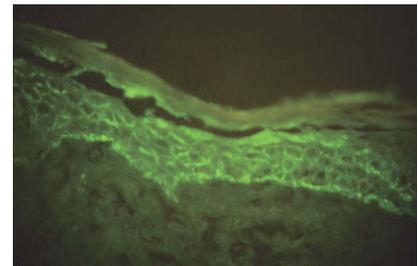


Figure. Immunofluorescence of pemphigus foliaceus biopsy sent to the referral hospital in Michel's medium.

References

1. Campos-Domínguez M, Suárez-Fernández R, Lazaro-Ochaita P. Métodos diagnósticos en las enfermedades ampollosas subepidérmicas. *Actas Dermosifiliogr.* 2006;97:485-502.
2. Michel B, Milner Y, David K. Preservation of tissue-fixed immunoglobulins in skin biopsies of patients with lupus erythematosus and bullous-diseases-preliminary report. *J Invest Dermatol.* 1973; 59:449-52.