Three Quick Hints for Working with LR White Resin

The following "hints" are based on my experience using a Ted Pella 3450 microwave tissue processor:

1) Vent your microwave tissue processor to the outside. We have noticed that if samples of LR White are not covered during polymerization, the media does seem to sublimate, then recondenses and polymerizes on all surfaces. This is our experience during the polymerization of LR White in a nitrogen rich chamber heated to 60°C. Using the microwave, consider submersing BEEM capsules, sealed with Parafilms under the cap, in water. This will insure that LR white fumes do not enter the microwave during polymerization. Use the temperature limiting probe to limit the temperature of the water to 70°C and polymerize for 60 minutes, or set to 80°C and polymerize for 45 minutes. A 500 mL beaker with recirculated water at 10 to 20°C should also be included in the microwave during polymerization.

2) We use formvar coated Nickel grids. We prefer slot grids, but use whatever you prefer. You may want to use uncoated nickel grids if you wish to label both sides for a double labeling protocol.

3) A progressively lower temperature scheme is best for alcohol dehydration:

- Start with 30% EtOH at 0°C for 10 minutes, then
- Lower to -10°C for another 10 minutes
- Add 50% EtOH at 10°C, then
- Lower to -20°C

All subsequent steps to 1:3 90% EtOH:LRW should be at -20°C

We also leave the samples overnight in 100% LR White at -20°C, then raise the temperature to ambient for another hour or so prior to thermal polymerization. We might be too careful. Work could be done in whatever you prefer. You may want to use uncoated nickel grids if you wish to label both sides for a double labeling protocol.

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We appreciate the response to this publication feature - and welcome all contributions. Contributions may be sent to Phil Oshel, our Technical Editor at:

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A Note On Fixing And Embedding Vertebrate Eyes

I have had experience from mice to whales, and a lot in between. I would recommend Davidson’s as a fix. It will keep your retina from going for a walk. Secondly, paraplast is a problem for eyes. A higher melting point wax is needed, without all of the fancy extras. I use Percol Wax with a melting point of 58°C to 65°C.

The eyes can be processed using another paraffin on the processor, then transferred into Percol Wax for the last change in a warming oven for about an hour.

I have processed using both Xylene and Propar, and both worked fine, although you need to adjust the time for Propar.

When I cut, I place my ribbons on to a room temperature distilled water bath, then pick up the sections onto a slide and float them out in a 52°C to 54°C water bath.

Place the optic nerve at the label end so it isn’t blown out with the heat, it will be evident if the water is too hot, too quickly! I routinely cut at 4 μm,