

# Microwave-assisted sample preparation for TEM

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Ziru Li

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1. Set up microwave: Find out the cold spot in the microwave with a neon bulb array (if available). Place two large beakers of water on opposite corners of the microwave and place a tube rack between the two heat loads of water (presumably the cold spot if unknown). Place the temperature probe into a vial containing ~2ml (or a volume comparable to the fixative in which samples are placed) of water in the tube rack.

2. Fixation: Place sample in 2.5% glutaraldehyde/formaldehyde in 0.1M cacodylate buffer. Microwave at 15% power (~ 130W) at 30C for 2 mins.

3. Post-fixation with 1%/2% OsO<sub>4</sub> in 0.1M cacodylate buffer: Microwave at 15% power at 30C for 2 mins.

4. Dehydration: Microwave at 15% power at 30C in 50%, 70%, 80%, 90% and 100% acetone for 2 mins each.

5. Infiltration: Microwave at 15% power at 45C in 1:1 resin:acetone, 3:1 resin, acetone, 100% resin x2 for 20 mins each.

6. Embed the samples and polymerize in oven.

Note:

1. Length of time in this protocol refers to "total time", not "time at". The total time includes the time it takes to ramp up temperature to the target temperature.
2. Vacuum enhances infiltration but it is also okay to not have it.