Technical Data Sheet

Tannic Acid (LMGG)

#21700

Tannic acid was introduced as a secondary fixative mixture with aldehydes for biological tissues, and also as a stain. Specimens treated with Tannic acid show increased contrast and more delineation of cell membranes.

A low molecular weight, Tannic acid (LMGG) galloylglucose $(C_{14}H_{10}0_9)_n$, provides and overcomes the previous problems of unsatisfactory penetration, extraction, and precipitation when high molecular weight Tannic acid ($C_{76}H_{52}O_{46}$) was utilized.

It works primarily as a mordant between osmicated structures and Lead citrate of the post-staining, revealing additional ultra-cellular structures and details better delineated.

Procedure:

The procedure reported by Simionescu (1976) involves the following steps: (Sodium Cacodylate buffer is preferred.)

- Fix tissue in Glutaraldehyde and Osmium tetroxide.
- Rinse in 0.1M buffer (pH 7.2) 3 times for five minutes each time at room temperature.
- Treat with 1% LMGG in 0.05M buffer for 30 minutes.
- Rinse in the same buffer containing 1% Sodium sulfate for 5 - 10 minutes.
- Dehydrate in ethanol followed by Propylene oxide: leave over night in a 1:1 EMbed 812 and Propylene Oxide mixture at room temperature; embed the next day.
- Stain thin sections in Lead citrate for 3 - 5 minutes.

Solution:

1% LMGG Tannic acid ($C_{14}H_{10}0_9$) in 0.05M Sodium Cacodylate buffer, freshly prepared.

Concentration of LMGG can be adjusted in a range of 0.25% to 2.0% according to the nature of the tissue and section thickness.

Reference:

N. Simionescu and M. Simionescu, J. Cell Biology (1976-70), 608-621.