Applications Data Sheet
Low Voltage STEM Holder
for Hitachi's S-4000 Series FE-SEMs

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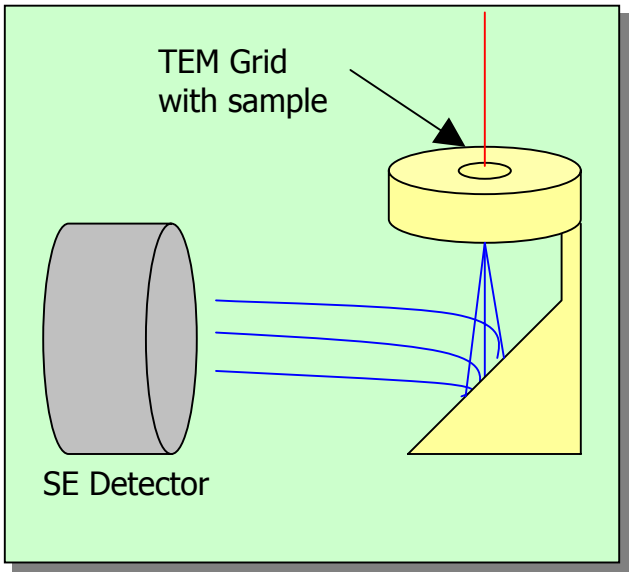
LOW MAGNIFICATION STEM IMAGING IS MADE EASY WITH A STEM HOLDER AND LOWER SE DETECTOR.

Scanning Transmission Electron Microscopy(STEM) has traditionally been performed with dedicated TEM or STEM instrumentation. More recently the application has been prscticed on low voltage (30kV) SEMs with a conventional S.E. detector and a specially designed, inexpensive TEM grid holder. Excellent images can be obtained on thin section material or tissue using the FESEM. Stained sections show excellent contrast and superior resolution in STEM mode because of its small beam interaction volume. For low magnification assessments and routine TEM work the S-4000 series equipped with a STEM holder can produce quick results.

The following results are STEM images taken with the Hitachi S-4700 of rat muscle tissue using a conventional E.T. SE detector (lower detector) and a TEM grid holder mechanism. The electron beam passes through the grid and transmitted electrons are deflected off of a polished surface into the E.T. SE detector.

STEM Holder



Schematic of STEM Holder

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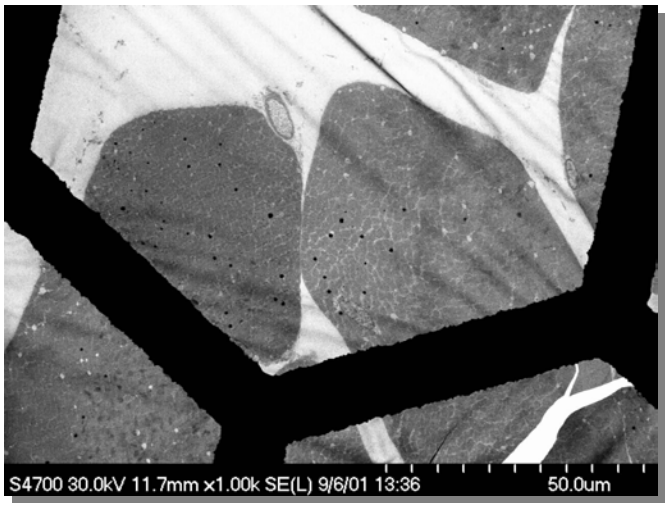
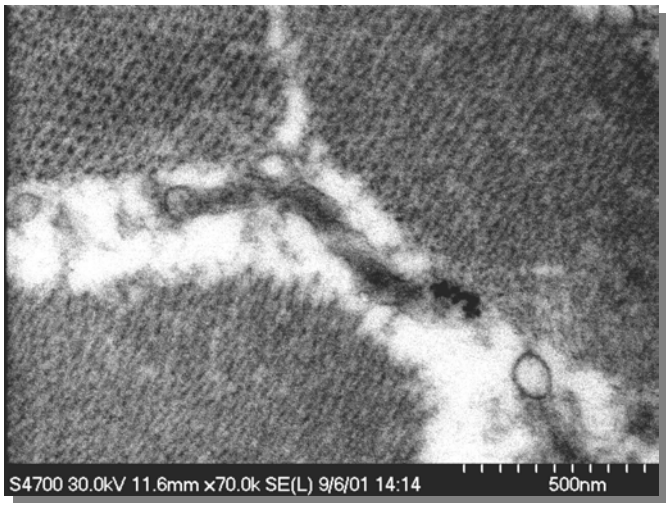
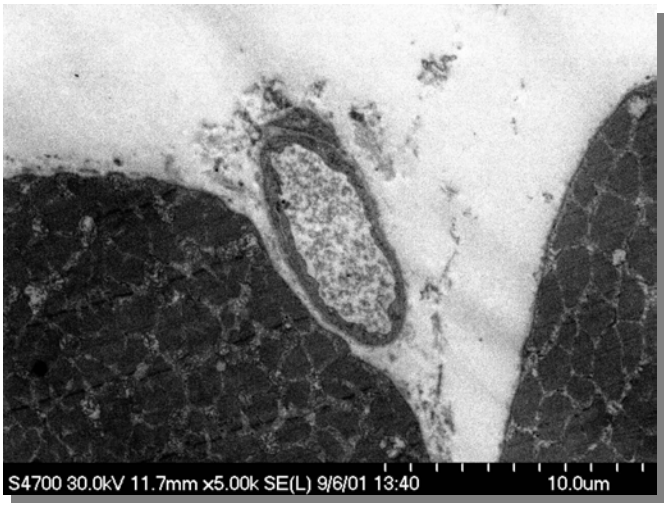
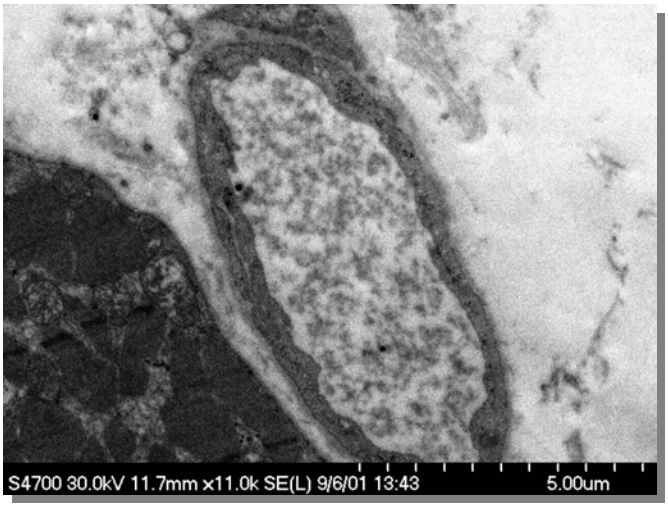


Low magnification Image showing grid

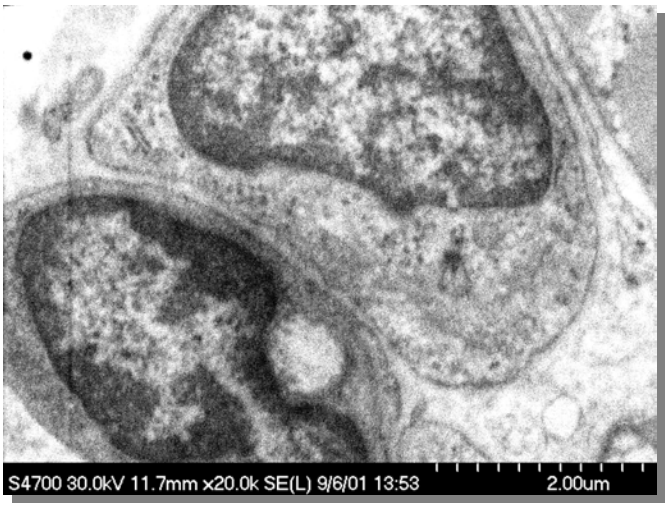


Cellular pattern visible





Muscle Bundles visible on left and right with euchromatin and heterochromatin in Nucleus



Heterochromatin (dark regions) Euchromatin (light regions) in nuclei

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