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1 Preparation of Mica Substrate

In 1 collection

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ABSTRACT

This is part 1 of the "Atomic Force Microscopy of DNA and DNA-Protein Interactions" collection of protocols.

Collection Abstract: Atomic force microscopy (AFM) is a microscopy technique that uses a sharp probe to trace a sample surface at nanometre resolution. For biological applications, one of its key advantages is its ability to visualize substructure of single molecules and molecular complexes in an aqueous environment. Here, we describe the application of AFM to determine the secondary and tertiary structure of surface-bound DNA, and its interactions with proteins.

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COLLECTIONS ①

**Atomic Force Microscopy of DNA and DNA-Protein Interactions**

KEYWORDS

Atomic force microscopy, AFM, DNA, Supercoiling, Double helix, DNA-protein binding

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SAFETY WARNINGS

For hazard information and safety warnings, please refer to the SDS (Safety Data Sheet).

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Preparation of Mica Substrate

- 1 Cut the adhesive PTFE into circles of the same size as the steel sample discs (15 mm), using either a punch or scalpel (*see* **Note 7**).
- 2 Peel off the backing of the PTFE cut-out and adhere to the steel disc.
- 3 Mix the Araldite® 2-part epoxy resin 50:50 on a disposable surface e.g. weighing boat. Using a pipette tip transfer a small amount of the mixed epoxy to the centre of the teflon (use tip as a capillary to help bring up the glue).
- 4 Cleave the 6 mm mica disc on one side with scotch tape. With the cleaved mica disc facing down, immediately place on top of the epoxy droplet and press flat.
- 5 Leave the glue to dry and cure 🕒 **Overnight** .
- 6 Once cured, cleave the mica using Scotch tape to reveal an atomically flat clean substrate (*see* **Note 8**).