

# Supplemental Material for:

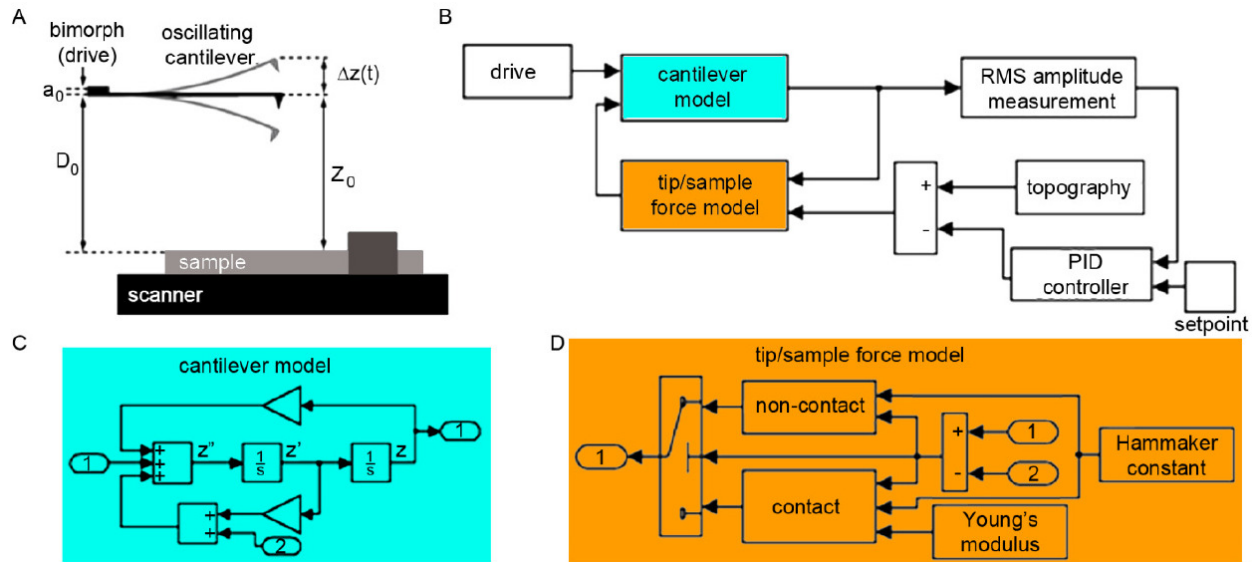
## Mapping the mechanical properties of cholesterol-containing supported lipid bilayers with nanoscale spatial resolution

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**TITLE RUNNING HEAD.** Mapping the mechanical properties of surfaces in solution.

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**Supplemental Figure 1. Numerical simulation of the entire process of obtaining an AFM image were performed.** (A) Schematic illustration of a tapping mode AFM experimental set-up illustrating several parameters used to model cantilever dynamics. (B) The SIMULINK model used for performing numerical simulations. Key features of the model include the cantilever drive, cantilever model (shown in further detail in (C)), the tip/sample force model which contains the ability to change the Young's modulus and the Hamaker constant (shown in further detail in (D)), the amplitude measurement, the topography model, feedback loop equipped with a PID controller, and the set point parameter.