

## ATOMIC FORCE MICROSCOPY AS A TOOL TO VISUALIZE *Dengue virus*

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The invention of Atomic Force Microscopy (AFM), in the mid-1980s, followed by continuous progress in instrumentation, sample preparation and recording conditions, has revolutionized the way in which microscopists explore biological structures. A number of these studies involved the observation of purified samples of biomolecules including large viruses as Tobacco mosaic virus, Poxvirus, West Nile virus and Human immunodeficiency virus. The AFM requires that the sample is well-adhered to a substrate so that it does not move around when the AFM probe engages it. Supernatants with *Dengue virus* were deposited directly onto freshly cleaved mica substrates. Viral particles were visualized with a Multimode-Nanoscope IIIa Atomic Force Microscope (Digital Instruments, Santa Barbara, Calif.). The objective was to determine the efficacy of the AFM as a tool to study the *Dengue virus* morphology and to evaluate if the images obtained can reveal more information than those observed in conventional ultra-structural studies. We could observe the presence of viral particles without impurities and with intact viral morphology in the analyzed samples. The images of the samples, visualized by horizontal measures of *Dengue virus* describe viral particles with 40 to 60 nm of diameter. It was shown that AFM is a powerful addition to the range of techniques that are available to investigate the structures, properties and functions of microbial surfaces, particularly the *Dengue virus*.

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