

TheScientificWorldJournal, 2010, vol.10, pages 894-900

---

## **Atomic force microscopy analysis of DNA extracted from the vegetative cells and the viable, but nonculturable, cells of two mycoplasmas (*Acholeplasma laidlawii* PG8 and *Mycoplasma hominis* PG37)**

Trushin M., Chernov V., Gorshkov O., Baranova N., Chernova O.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### **Abstract**

This article reports on a study of some characteristics of DNA extracted from the vegetative and viable, but nonculturable (VBNC), cells of two mycoplasma species (*Acholeplasma laidlawii* PG8 and *Mycoplasma hominis* PG37) using atomic force microscopy (AFM). DNA images were obtained by operating the AFM microscope in the tapping mode. It was found that DNA from the VBNC forms of *M. hominis* PG37 has decreased sizes (height:  $0.177 \pm 0.026$  nm vs.  $0.391 \pm 0.041$  nm for the vegetative forms, and width:  $1.92 \pm 0.099$  vs.  $2.17 \pm 0.156$  nm for the vegetative forms) in comparison to DNA from the vegetative forms of the mycoplasma. In the case of DNA from the *A. laidlawii* PG8 VBNC forms, we detected a decrease in width ( $1.506 \pm 0.076$  nm vs.  $1.898 \pm 0.117$  nm for the vegetative forms), but an increase in height ( $0.641 \pm 0.068$  nm vs.  $0.255 \pm 0.010$  nm for the vegetative forms) of the molecule. Analyzing the obtained results, one can speculate on some similarities in the physical-chemical properties of DNA from *M. hominis* PG37 and *M. gallisepticum* S6. In turn, this implies some general mechanisms of adaptation to a severe environment. ©2010 with author. Published by TheScientificWorld.

<http://dx.doi.org/10.1100/tsw.2010.78>

---

### **Keywords**

*Acholeplasma laidlawii* PG8, Atomic force microscopy, DNA, Mycoplasma, *Mycoplasma hominis* PG37