



# Physical properties of gastrointestinal stromal tumors based on atomic force microscope analysis

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**ABSTRACT.** This study was designed to detect the stiffness of single living gastrointestinal stromal tumor (GIST) cells *in vitro* using an atomic force microscope as a probe tool. We determined that the stiffness of living GIST cells was 3913 Pa, the stiffness of the membrane was 642 Pa, and the stiffness of the cytoplasm was 17,550 Pa. For comparison, we also determined the stiffness of a normal stomach cell, which was 7374 Pa, and that of *in vitro* GIST cells after 2 h of exposure, which was 10,680 Pa. Measuring the mechanical properties of individual GIST cells might provide more complementary information for the diagnosis and treatment of GISTs from the perspective of physical characteristics.

**Key word:** Physical properties; Gastrointestinal stromal tumors; Atomic force microscope