

課題番号 : F-16-KT-0022
利用形態 : 技術補助
利用課題名(日本語) : AFMにより RNA とタンパク質の結合様式を可視化する
Program Title(English) : Single molecule imaging on binding mode of DNA and proteins
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1. 概要(Summary)

AFM NanoWizard3 instrument was tested experimentally on imaging at a single molecule level, in dry and liquid conditions.

In addition, dry condition, single molecule imaging was done. Data was not clear, plenty of drifting.

We tried imaging without success and we obtained no data at this point.

2. 実験(Experimental)

【利用した主な装置】

走査型プローブ顕微鏡システム NanoWizard 3

【実験方法】

Olympus cantilevers for liquid sample imaging are purchased and stored in the drawer of the desk at the NanoWizard3 in Nanohub, Kyoto University. Basic handling instructions were given by Mr. Takahashi Hideki.

4. その他・特記事項(Others)

参考文献

特になし。

5. 論文・学会発表(Publication/Presentation)

なし。

6. 関連特許(Patent)

なし。

3. 結果と考察(Results and Discussion)

We tested single molecule imaging of antiviral MDA5 protein on freshly cleaved mica sheet in dry condition (in presence or absence of double stranded RNA). It was difficult to get clear images without scan lines and/or drifting effects and impurities. No clear data were obtained.

In contact with JPK Instruments, Mr. Nobuhiro Saito kindly offered training course which was held on June 24, 2016. Lesson was given by Dr. Ikuo Obataya, senior application scientist at JPK Instruments, Tokyo. We tested imaging of Cos7 cells in PBS buffer with DirectOverlay mode to combine AFM with fluorescence. The imaging was successful, however data not obtained (irrelevant). Poor camera resolution, likely not suitable on a single molecule level.