Calcium ions are required for gliding motility in *Peranema trichophorum*

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SUMMARY

Peranema trichophorum is a euglenoid flagellate that shows the highest speed of gliding locomotion among all microorganisms. Free Ca^{2+} concentrations higher than 10^{-7} M in the external medium was required for gliding cell locomotion, and its speed reached the highest when the free Ca^{2+} concentration was 10^{-4} M. Cell gliding was inhibited by Gd^{3+} and La^{3+}, suggesting a possible involvement of stretch-activated Ca^{2+} channels for cell gliding and/or its regulation. Further, effect of calcium ionophore A23187 demonstrated that cell gliding requires $>10^{-7}$ M intracellular Ca^{2+}.