Active resistance of living cells against extra-cellular matrix deformation

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In vivo, living cells are continually deformed by their surroundings. We have developed a method to measure the mechanical response of isolated cells to extra-cellular matrix deformation. We measure the change of traction forces within seconds of deformation. This approach enables us to simultaneously probe cells' passive elastic and active contractile responses. Interestingly, we find that the cells' resistance to deformation is dominated by their contractility, not their elasticity.