LONOMIA OBLIQUA BRISTLE EXTRACT MODULATES ACTIN AND ADHESION DYNAMICS

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INTRODUCTION

Lonomia obliqua is a medically important caterpillar endemic in South Brazil which venom is able to modulate the leukocyte migratory behavior. Cell migration consists of membrane projections driven by actin polymerization that is followed by the formation of adhesions to the substrate, which are regulated by Rho GTPases.

OBJECTS

The object of this study was to analyze the effects of *Lonomia obliqua* bristle extract (LOBE) on actin dynamics, adhesion assembly and signaling.

METHODS

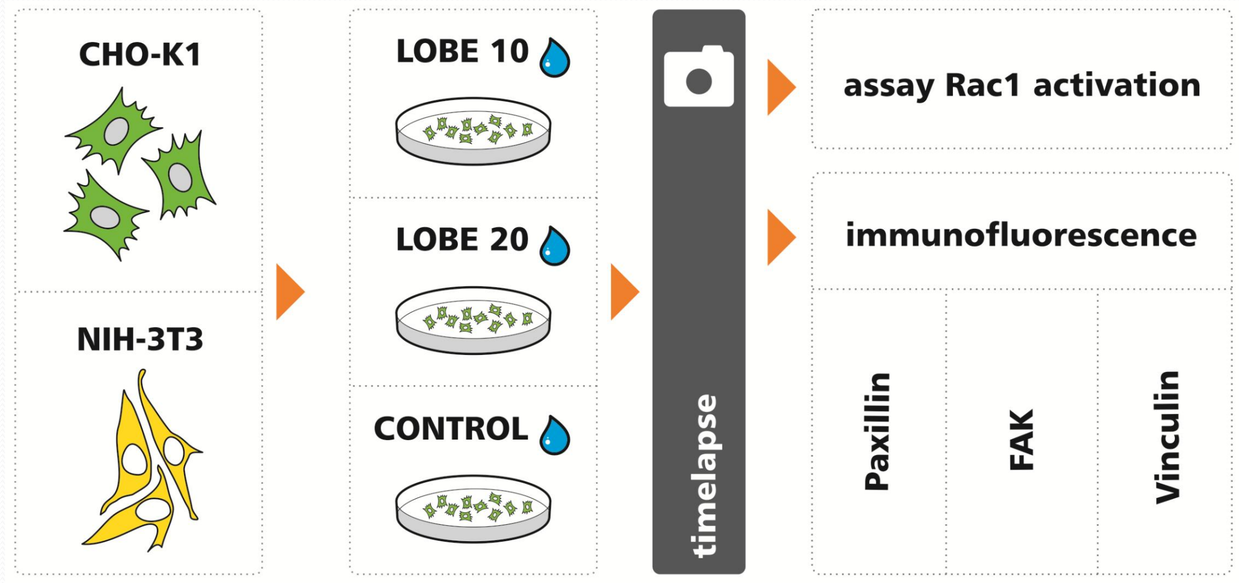

Fig. 1 CHO-K1 and NIH-3T3 cells were platted on fibronectin coated dishes (2μg/ml) for 1h and it was performed time-lapse movies to analyze protrusion dynamics in the presence of LOBE. Adhesion size was analyzed by immunofluorescence (vinculin, Focal Adhesion Kinase and paxillin) while Rac1 activity was measured by pull down assay.

RESULTS

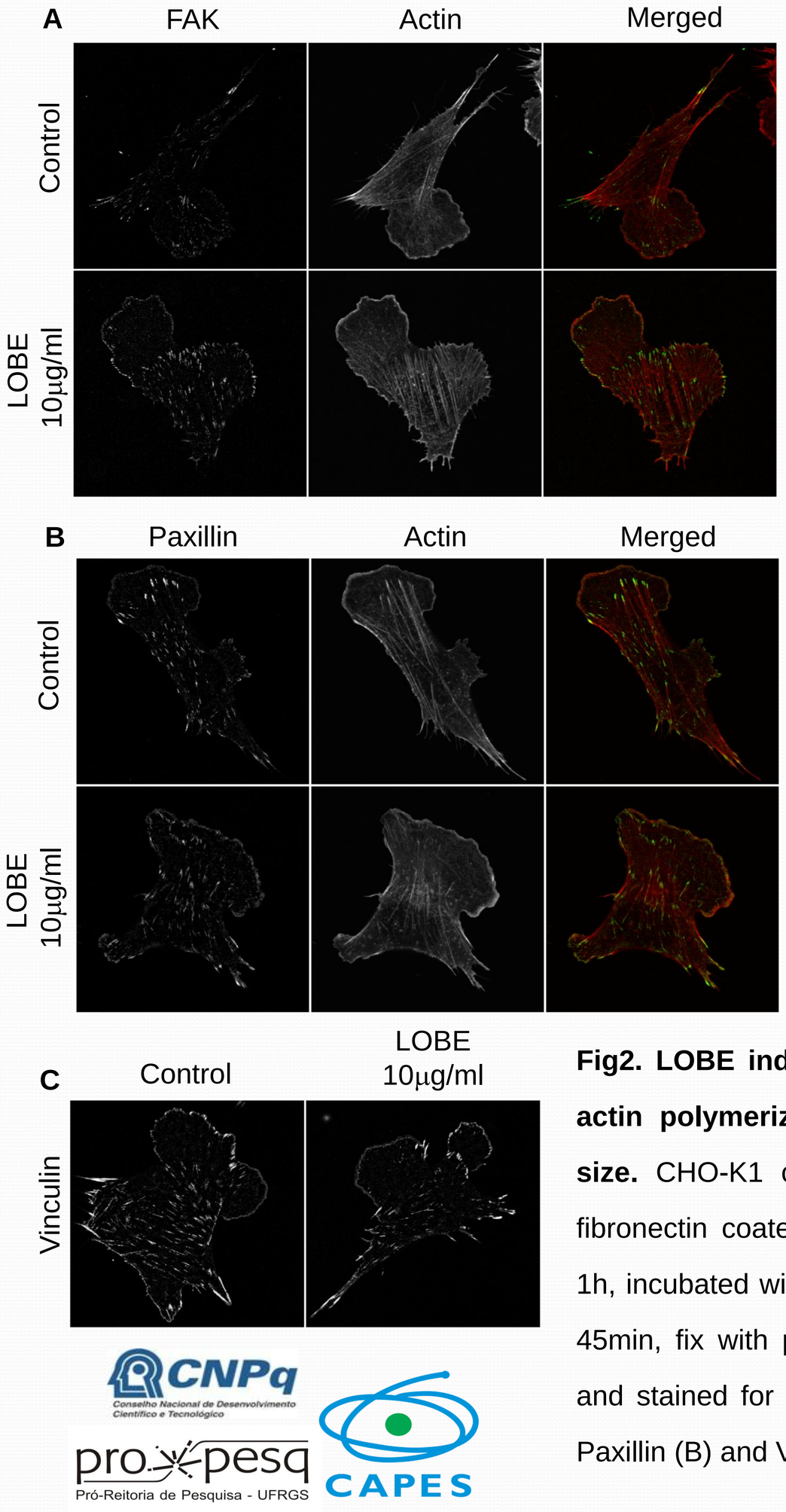

Fig2. LOBE induces modulation on actin polymerization and adhesion size. CHO-K1 cells were platted on fibronectin coated dishes (2μg/ml) for 1h, incubated with LOBE (10μg/ml) for 45min, fix with paraformaldeyde (4%) and stained for actin (A, B), FAK (A), Paxillin (B) and Vinculin (C).

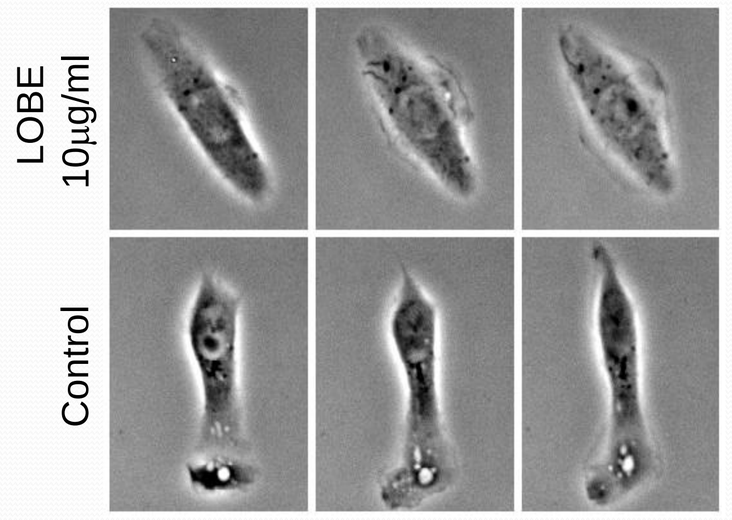

Fig3. LOBE induces changes on cell polarity. Cells were plated on fibronectin (1h) and exposed to LOBE (10μg/ml, 45) and anlyzed on time lapse.

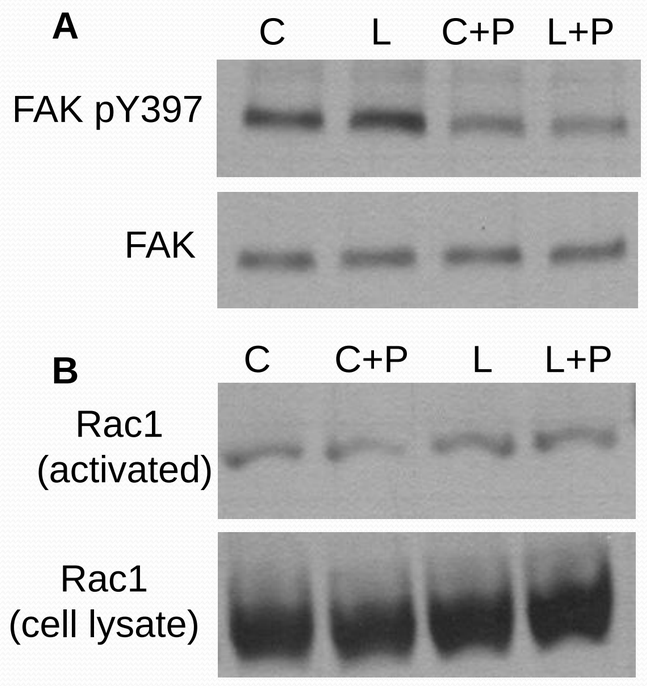

Fig4. LOBE induces changes on FAK-y397 and Rac1 activation. CHO-K1 cells plated on fibronectin (2μg/ml, 1h) and then treated (1h) with: PBS (C); LOBE (20μg/ml, L); PBS and phenantroline 10mM (C+P); LOBE 20μg/ml and phenantroline 10mM (L+P).

CONCLUSION

In this study we demonstrate that the L. obliqua bristle extract is able to induce changes in the dynamics of cell migration, which still requires the characterization and isolation of peptides responsible for this phenotype.