

Downregulating PRL-3 inhibit migration and invasion of lung cancer cell via RhoA and mDia1

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ABSTRACT

Aims and background. The overexpression of phosphatase of regenerating liver-3 (PRL-3) affects the migration and invasion of epithelial cells. Little is known about the substrates or pathways that PRL-3 interacts with.

Methods. We studied the action and the mechanism of PRL-3 in migration and invasion of lung cancer. We detected the expression of PRL-3 in lung cancer cell lines and normal human bronchial epithelial cell.

Results. We found that PRL-3 expression was high in lung cancer cells. Knockdown of PRL-3 by siRNA inhibited cell migration and invasion and reorganized the cytoskeleton. Furthermore, blocking PRL-3 decreased RhoA activity and mDia1 expression. Blocking RhoA or mDia1 showed the similar changes of cytoskeleton and suppression of migration and invasion as inhibiting PRL-3 expression. Blocking RhoA inhibited the expression of mDia1.

Conclusions. These data indicate that downregulating PRL-3 inhibit cell migration and invasion by inactivating RhoA to downregulate mDia1 to reorganize cytoskeleton of lung cancer cells.

Key words: PRL-3, RhoA, mDia1, migration, invasion.

Acknowledgments: We thank Dr Cecile Rouleau and Dr Beverly Teicher from Genzyme Corp for the kind help in giving us the specific siRNA of PRL-3 and siRNA Negative-1 (Ambion).

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Received August 28, 2011;
accepted December 29, 2011.