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## Invsetigation of the role of collagen fiber orientation on cancer cell invasion

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### Abstract

Collagen fibers can both inhibit and promote cellular migration, based on their orientation. Physical models such as Random walk can regenerate cellular migration. As such, we propose a model based on (biased) random walk to study the migration on collagen fibers. We take the mean squared displacement as the determinant factor for metastatic risk, showing that the direction of fibers, spatial correlations and migration mode together regulate the risk; then we propose an approach to quantify an existing prognostic approach.

**Keywords:** cellular migration, random walk, collagen fiber, invasion, metastasis

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For full article, refer to the Persian section