Mechanisms of invadopodia assembly and positioning in melanoma

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Résumé

Cell invasion is an extremely complex process that requires polarized cell migration and directional degradation of the extracellular matrix. In melanoma cells, as in many highly invasive cancer types, these processes are governed by the controlled assembly of adhesive structures and invasive protrusions known as invadopodia. However, how migration and matrix degradation are coordinated to produce efficient cell invasion remains poorly described and a clear understanding of the mechanisms of invadopodia positioning and formation is still lacking. In this study, we examined the mechanisms of invadopodia assembly in melanoma using high-end imaging techniques. We show that melanoma are polarized cells thereby enabling directional migration. Our results indicate that melanoma cell polarity impacts invadopodia positioning as nascent invadopodia assemble in the vicinity of the Golgi apparatus/centrosome ahead of the nucleus and stabilize upon Tks5 arrival. Finally, we found that cytoplasmic dynein controls the localisation of the Golgi/centrosome and the formation of polarized invadopodia in melanoma cells.

Mots-Clés: Melanoma, Cancer, Invadopodia, Cell migration, Invasion, Cell polarity

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