Abstract

Throughout the last few years cancer research has focused on studying the origin of secondary tumors, i.e. metastases, which are a direct outcome of the ability of cancer cells to disseminate from the primary tumor and invade the adjacent tissue. Generally, cancer cells migrate by two distinct mechanisms- amoeboid or mesenchymal. Whereas the mesenchymal migration mode can be described as "path generating", the amoeboid mode resembles a "path finding" way of migration. Both types of invasion are regulated by divergent signaling pathways that are closely related to cell polarity and cytoskeleton reorganization. Responsible for cell polarization are not only the polarity complexes Par, Scribble and Crumbs, but also phosphoinositides and Rho GTPases Rac, Rho and Cdc42, which, additionally, regulate the dynamics of the cytoskeleton. By a mutual interplay they regulate cell motility. It cannot come as a surprise that their deregulation commonly results in tumorigenesis. A more thorough comprehension of the signaling pathways leading to cancer cell invasiveness is a necessary step towards understanding the complex problem of metastasis.

Key words:

invasiveness, amoeboid, mesenchymal, cell polarity, motility, Rho GTPases, polarity complexes