Summary

Cell migration plays a key role in a wide diversity of biological processes. Migration enables phagocytic cells to localize into the site of inflammation and to lymph nodes, thereby leading to initiation of innate and adaptive immune responses, respectively. The signal transduction that coordinates phagocyte migration consist of diverse signaling proteins, being often under control of 3'-5'-cyclic adenosine monophosphate (cAMP) and its two effectors, protein kinase A (PKA) and Epac (exchange protein activated by cAMP). Small GTPase Rap is activated by Epac and controls phagocyte migration via activation of RAPL and RIAM proteins. On the other hand, PKA regulates cell migration via modulation of activity of other proteins, which comprise actin, integrins, small GTPases Rho, Rac, Cdc42 as well as protein VASP. A prominent feature of cAMP signalization is its spatio-temporal organization. Therefore, besides description of cAMP-regulated signaling cascades in cell migration, this bachelor thesis also depicts how changes of activity of cAMP effectors in time and place are involved in regulation of cell movement.