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Nota di contenuto	Cell Motility From molecules to organisms; Contents; Preface; List of Contributors; 1 Molecular Mechanisms Regulating Actin Filament Dynamics at the Leading Edge of Motile Cells; Inventory of components; The ground state of the system; Signalling pathways; Activation of the Arp2/3 complex; Growth of the branched actin filament network; Filament ageing, remodeling and disassembly; Recycling ADP-actin subunits; Reaction to a chemoattractant; Reaction to the withdrawal of a chemoattractant; Acknowledgements; References; 2 The Role of Talin and Myosin VII in Adhesion - A FERM Connection Adhesion receptors in Dictyostelium Links between the Dictyostelium cytoskeleton and adhesion; A link between M7 and talin?; The relationship of DdM7 to another FERM myosin, M10; Conclusions; Acknowledgements; References; 3 Do Class I Myosins exert their Functions through Regulation of Actin Dynamics?; Introduction; Structure function analysis of Class I myosins; Phenotypes resulting from manipulation of class I myosins; Class I myosins and the actin dynamics connection; Conclusions and outlook; Acknowledgements;

References; 4 Ephrin-regulated Contact Repulsion of Growth Cones; Introduction
Eph receptor and ephrin families Eph recepinductor/ephrin regulation of axon guidance; Eph receptor/ephrin mediated control of cell segregation; Eph receptor/ephrin signalling; Eph receptor activation by soluble ephrins rapidly stimulates the assembly of filamentous actin structures in fibroblast cells; EphB2 and EphA7 ed lamellipodial protrusion is mediated by the small GTPase Rac; Role of Rho GTPases in ephrin induced growth cone collapse; Conclusions; References; 5 Interplay between the Actin Cytoskeleton, Focal Adhesions and Microtubules; Introduction
Actin, microtubules and cell-matrix adhesions in crawling cell locomotion Mechanosensory function of focal adhesion's and its modulation by microtubules; mDia1 as a possible coordinator of actin, focal adhesion's and microtubule assembly; Conclusion and perspectives; References; 6 Initial Steps from Cell Migration to Cell-cell Adhesion; Introduction; Epithelial cell-cell adhesion complexes; Molecular interactions and functions of classical cadherins; Examining E-cadherin distribution during cell-cell adhesion in live cells; Mechanistic insights into E-cadherin function during cell-cell adhesion
The role of Rho family small GTPases and membrane dynamics in cell-cell adhesion Rac1-containing lamellipodia drive cell-cell contact formation between MDCK cells; Cell-cell contact induces changes in Rac1 complexes; Effects of Rac1 mutant expression on endogenous Rac 1 complexes and cell behaviour; Linking Rac1 complexes back to mechanisms of cell-cell adhesion; Acknowledgements; References; 7 Using Bioprobes to follow Protein Dynamics in Living Cells; Fluorescence resonance energy transfer (FRET); Fluorescence lifetime imaging microscopy (FLIM)
Total internal reflection fluorescence (TIRF)/evanescent wave microscopy

Sommario/riassunto

Recent advances in molecular and biophysical techniques, particularly fluorescence and live cell imaging, are revolutionizing the study of cell motility. New bioprobes not only reveal simple intracellular localization, but also contain details of post-translational modifications, conformational state and protein-protein interactions. Coupling these insights with complementary advances in genetic and biochemical methods is enabling scientists to understand the processes involved in cell motility - from molecular motors to cell movements in vivo in a range of organisms and cell types.