

# Dynamic Monitoring of Cell Adhesion and Spreading

xCELLigence real-time cell analysis



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## Introduction

The cells that make up the various tissues and organs are held together by specific molecules that essentially serve as “biological glue”. These molecules confer shape, structure, rigidity, or plasticity to the cells. During embryogenesis, these biological molecules, referred to as extracellular matrix (ECM) proteins, serve as “tracks” that direct cells to the appropriate region within the embryo. This is so they can give rise to different tissues and organ systems. ECM proteins also play a prominent role during wound healing and also are involved in directing many important cellular processes such as proliferation, survival, and differentiation. Failure of cells to interact with the appropriate biological surface or molecule can be detrimental to the fate of the cells and can contribute to cancer cell metastases.

The various ECM components, such as fibronectin (FN), collagens (CL), laminins (LM), and vitronectin (VN), interact specifically with different cells through specialized cell surface receptors called integrins. Integrins recognize and bind to specific motifs within the ECM proteins, mediating the ability of cells to specifically adhere to and interact with the appropriate matrix proteins.<sup>1</sup> Integrin receptor interaction with ECM proteins also begins an intracellular signaling cascade that directs cellular processes, such as cell survival, proliferation, differentiation, and migration.<sup>1</sup>













