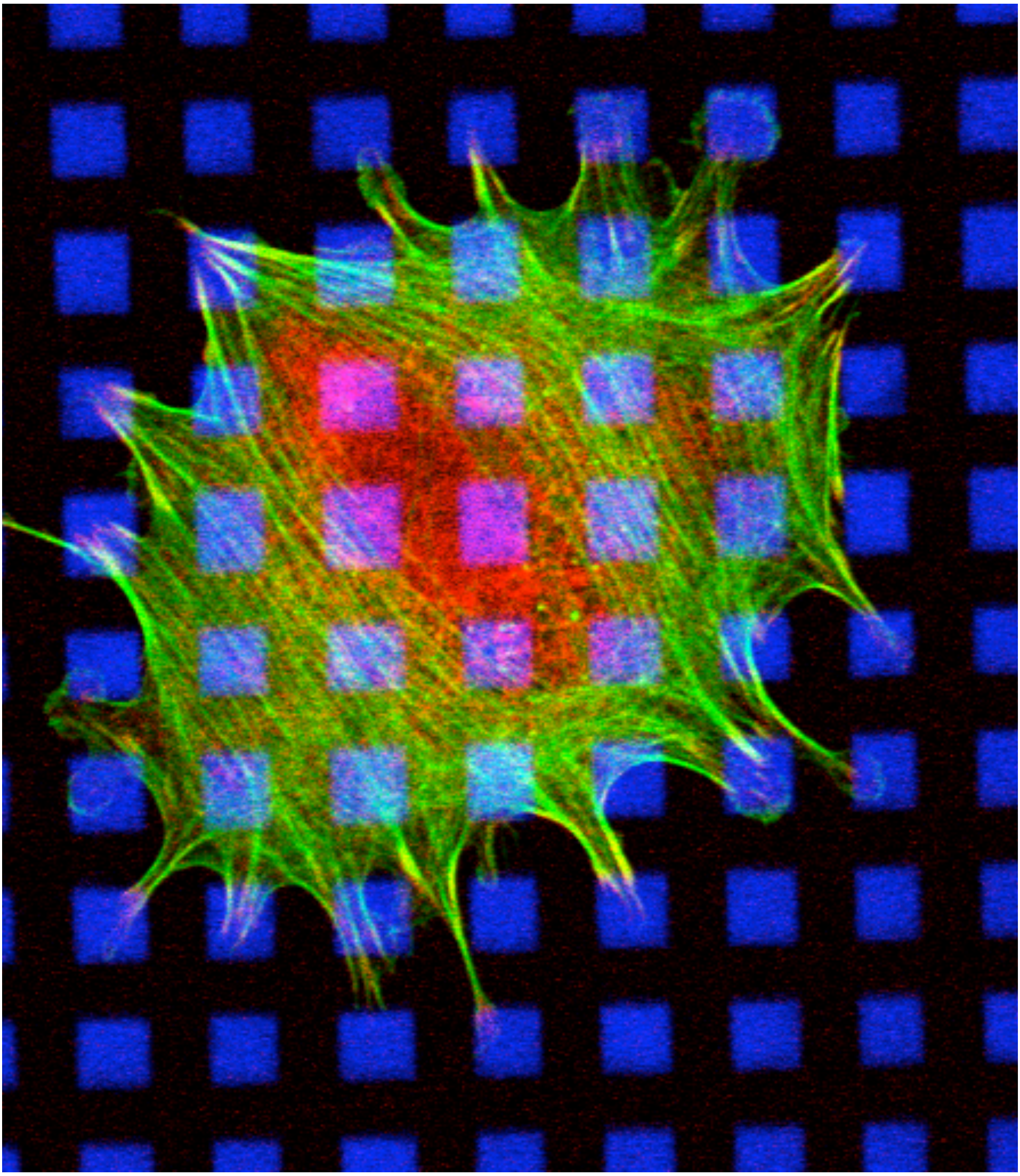

INTELLIGENT SUBSTRATES™

Focal adhesions

Intelligent Substrates
3500 Boston St.
Suite 414, MS-71
Baltimore, MD 21224

www.IntelligentSubstrates.com

Focal adhesions *are multi-protein complexes that couple the cytoskeleton to the extracellular matrix (ECM). They perform a number of important functions including sensing and generating mechanical forces, transducing signals, and regulating the cell cycle and cell motility.*

The focal adhesion complex contains scores of proteins. In the case of fibroblasts like the Swiss-3T3 cell above, the focal adhesions contain cell-surface integrin molecules that bind to fibronectin in the ECM. Inside the cell, the protein vinculin couples the cytosolic portion of the integrin moelcules to the actin cytoskeleton.

In this image, fibronectin is blue, actin is green, and vinculin is red. There is some cytosolic vinculin, but the protein is localized to the 5 µm squares of fibronectin. The Swiss-3T3 cell was plated on a BioWrite™ fibronectin substrate, available from Intelligent Substrates.