

## **From synthetic cell systems towards novel biomaterials**

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Biomedical applications ranging from tissue engineering to drug delivery systems require the development of versatile biomaterials and model systems, which can facilitate cell adhesion.

We developed novel synthetic cell systems to study cell adhesion with reduced molecular complexity. Using lipid vesicles with reconstituted adhesion proteins we were able to mimic cell adhesion on different extracellular matrix proteins.

Further on, we introduced a novel extrusion approach to prepare biopolymer nanofibers, which mimic the extracellular environment. Ceramic alumina nanopores were used to extrude various biopolymers into nanofibrous scaffolds with reproducible fiber diameters. An important advantage of this method is the use of physiological buffers, which supports the biological functionality of our new nanofibrous biomaterials.