

142c Adhesion and Viability of Liver Cells on Potential Bioreactor Materials

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The influence of materials on the adhesion and viability of a liver cell line, HepG2, was determined in order to facilitate the development of a liver-based bioreactor as a toxin sensor. Liver cells have the potential to be used as a sensor because their inherent metabolic properties are affected when exposed to toxins. Selection of biocompatible or non-biocompatible substrate materials is important for the design of a bioreactor sensor because HepG2 cells in adverse conditions easily de-attach, de-differentiate, and lose expression of certain metabolic products of interest.

To facilitate the design of the sensor, HepG2 compatibility with polystyrene, plexiglass, glass, silicon, and 316L stainless steel were investigated. Cell adhesion, viability, proliferation, and morphology were used as metrics to assess potential sensor materials.