

Solid phase synthesis of biopolymers for 3D intestinal ECM model

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Abstract:

The aim of the thesis project is the synthesis of hybrid materials that can be employed in the development and validation of bioprintable intestinal 3D model. With this purpose, bio-inks appropriately modified will be used in order to control the composition and rigidity of the microenvironment of interest.

One of the current limitations to obtain large libraries of biopolymers for 3D bioprinting methodologies is related to lack of fast production and purification methods available for natural polymers such as polysaccharides and proteins.

In this project alternative solid phase methodologies will be developed for the controlled modification of natural biopolymers such as collagen and hyaluronic acid. The obtained materials will be further studied and tested for the development of a bioprinted 3D model of colon cancer.