

Application Note

ColMA Kit

Kit Components

The ColMA Kit includes one vial of 100 mg freeze dried ColMA powder. If chosen, the Kit also comes with 100 mg photoinitiator (LAP or Irgacure 2959). The ColMA powder is sterile, but the photoinitiator needs to be sterile filtered prior to mixing with the ColMA solution.

Description

The ColMA Kit consists of methacrylated type I collagen for use as a 3D tissue construct biomaterial or as a component in bioinks. The ColMA incorporates the excellent biocompatibility of type I collagen with the enhanced mechanical properties associated with methacrylate groups. This material both self-assembles under thermal heating and photocrosslinks to enhance mechanical characteristics. The ColMA Kit is sterile lyophilized powder that you dissolve at your target concentration to prepare as a 3D cell culture biomaterial.

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Application

The ColMA Kit consists of sterile ColMA powder along with an addition of photoinitiator necessary to blend your own bioink composition. Easy to use and to get started making and customizing your own ColMA biomaterial for 3D cell culture. The ColMA bioink has been optimized for use with the BIO X system and temperature controlled printhead with thermal nozzle cover and the use of a heated printbed. It is not recommended to use these bioinks with the INKREDIBLE or INKREDIBLE+ system due to its lack of cooling, the bioink will not perform as expected and resulting filament characteristics may be inconsistent.

Storage

The ColMA Kit should be stored at -20 to four degrees Celsius. The shelf life of ColMA Kit is six months. The valid expiration date is stated on the package. Keep photoinitiator powder and reconstituted solution protected from light.

Mixing with Cells

After the ColMA powder has been reconstituted, it is recommended that the blend is cooled to ten degrees Celsius prior to mixing with cells to make sure it remains in the liquid state. We suggest you mix ColMA blend with media or PBS containing a high concentration of

cells to minimize bioink dilution. Then print or cast the ColMA solution for cell embedding or post-seeding of cells while the solution is cool.

Crosslinking

After the ColMA powder has been reconstituted, the photoinitiator has been mixed in and the ColMA blend has been printed or casted, the construct can self-assemble under thermal heating and also photocrosslink with UV exposure. For thermal gelation, warm the construct to 37 degrees Celsius until gelation occurs.