

Instructions for Use

HumaMatrix- Native Human-Derived Extracellular Matrix, Lyophilized

For 2D-3D tissue engineering research, hydrogels and cell culture applications

SKU: HML

Tissue Source: Human



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Product Description

HumaMatrix is one of the first commercially available native, human-derived extracellular matrix (ECM) products. It is designed to mimic the native extracellular environment for many different applications. Due to its human origin and minimal processing, HumaMatrix retains the native matrix proteins and growth factors found in human tissue including collagen, elastin, laminin, glycosaminoglycans and many other matrix proteins.

HumaMatrix is ideal for many applications including coating tissue culture surfaces to support cell attachment and growth or for making hydrogels.

Source Tissue

HumaMatrix is isolated from human tissue sourced strictly from American Association of Tissue Banks (AATB) accredited and FDA registered tissue banks and organ procurement organizations (OPOs). Humabiologics strives to meet research needs by providing high quality biomaterials obtained from tissue partners who comply with requirements for transplantable human tissues under 21 CFR 1271 of the Food and Drug Administration (FDA).

Precautions and Disclaimer

HumaMatrix is obtained from human tissue that has been tested and found negative for HIV-1, HIV-2, hepatitis B, and hepatitis C, as well as other infectious agents. Please review the Safety Data Sheet (SDS) for information regarding hazards and safe handling practices. ***HumaMatrix is for research use only and is not intended for human use, diagnosis, screening, household, food or other uses.***

Storage/Reconstitution

HumaMatrix should be stored at -20 °C upon receipt. The expiration date is 1 year from receipt of the bottle. **HumaMatrix** is composed of stable proteins if it is stored frozen until use while minimizing freeze-thaw cycles.

HumaMatrix can be reconstituted in HCl. **HumaMatrix** is soluble in 10-20 mM HCl with a final pH of 1.9-2.1. Reconstitution may take 3 hours at ambient temperature with vigorous shaking/vortexing or overnight at 4°C. Solution can be briefly centrifuged to remove bubbles. Do not let the temperature exceed 30 °C during reconstitution. After reconstitution, solution should be used immediately or aliquoted and frozen at -20 °C.

HumaMatrix-Coated Tissue Cultureware

Note: The following are general recommendations. Researcher should optimize parameters based on their specific applications and cell types.

1. Reconstitute **HumaMatrix** to 0.1 mg/ml in 10-20 mM HCl with a pH of 1.9-2.1. It is recommended to use ultrapure sterile water.
NOTE: Different concentrations may need to be tested to determine the optimal concentration for each culture system, typical coating concentrations range between 10 – 100 µg/ml.
2. Mix by shaking or vortexing until the solution is homogeneous.
3. Add the desired volume of diluted ECM solution to surface of cultureware and spread the solution to cover the entire surface. Typically, plates are coated at 125 µl/cm².

4. Store aliquots at -20 °C if not used immediately.
5. Cover the coated cultureware and incubate at 37 °C for at least 2 hours.
6. Aspirate excess solution on coated surface. Avoid scratching the coated surface.
7. Leave coated culture surface to dry overnight in a cell culture hood with the lid off. UV light exposure for 30 minutes may be used to sterilize the wells.
8. Rinse the coated culture surface with sterile PBS or culture medium to remove residual acid.
9. Use coated cultureware immediately or keep sterile and store at 2-10 °C.

Making 3D Hydrogels

Note: All procedures should be performed in a cold room or on ice. All reagents should be cooled for 30 minutes prior to making the hydrogel.

1. Reconstitute **HumaMatrix** in 10-20 mM HCl with a pH of 1.9-2.1. It is recommended to use ultrapure sterile water.
NOTE: Concentrations will need to be tested to determine the optimal gel concentration for each application. HumaMatrix has been tested and found to form a gel at ≥ 3 mg/ml final concentration.
2. Prepare 10x culture medium or 10x PBS with antibiotic and antimycotic.
3. Combine 9 volumes of chilled ECM solution with 1 volume of chilled 10x concentrated medium or PBS.
4. Gently swirl or pipette the mixture repeatedly.
NOTE: To prevent premature gelation, keep combined solution between 2-10 °C
5. Adjust the pH to 7.0-8.0, preferably around 7.4. Concentration and pH will affect the speed and strength of the gel.
6. Incubate at 37 °C for 30-120 minutes for gel formation depending on final concentration.