# 2023 KTERMS

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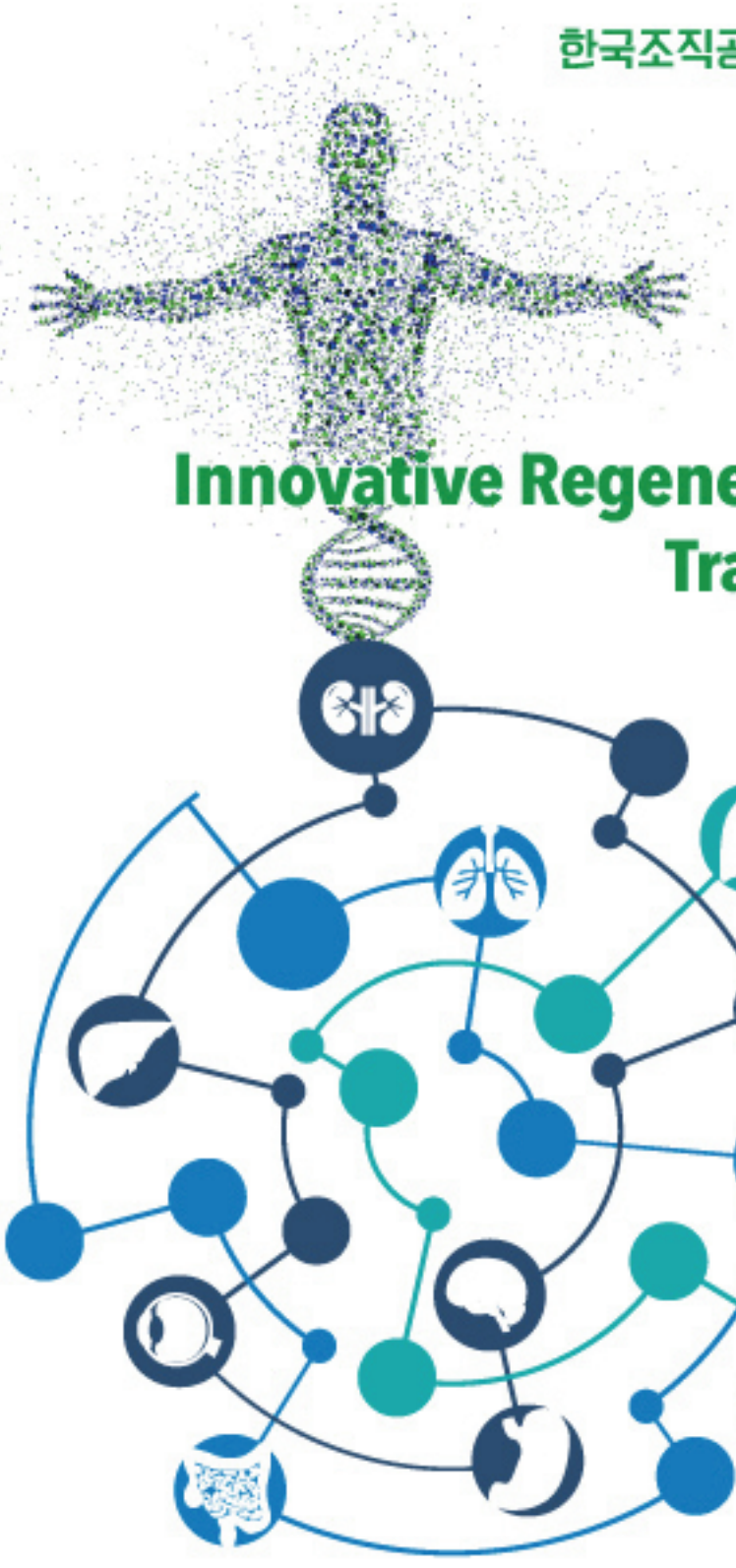

## Innovative Regenerative Medicine for Translation to Human

한국조직공학·재생의학회

Korean Tissue Engineering and Regenerative Medicine Society

**PS01-10**
**Aging of the blood-brain barrier (BBB) via reactive oxygen species (ROS) stimulation**
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**PS01-11**
**Establishment of Optimal Three-Dimensional Endometrium System Using Alginate**
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**PS01-12**
**Sprayable CIP-loaded Ti3C2 MXene/SA Hydrogel for Antibacterial and Wound Healing Drug Release System**
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**PS01-13**
**Optimally dosed nanoceria attenuates osteoarthritic degeneration of joint cartilage and subchondral bone**
Trang Thanh Thien Tran, Khandmaa Dashnyam, Jung-Hwan Lee, Rajenda K Singh, Ji-Young Yoon, Jun-Hee Lee, Guang-Zhen Jin, Hae-Won Kim
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**PS01-14**
**Stem Cell Transplantation via Endoscopically Injectable Hydrogel for Reducing Esophageal Stricture Post-endoscopic Submucosal Dissection**
Seung Yeop Han[1], Hyunsoo Chung[2], Soohwan An[1], Jihoon Jeon[1], Young Seok Song[1], Yong Chan Lee[3], Seung-Woo Cho[1,*]
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**PS01-15**
**Evaluation of the Impact of Inherent Electrostatic Fields Observed in Cell Culture on Cellular Proliferation**
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**PS01-16**
**Proteome of Decellularized Human Colorectal Tissues Reveals a Hallmark of the Cancer-associated Extracellular Matrix**
Hyun Jin Lee[1], Sang Woo Park[2], Jun Hyeong Lee[1], Shin Young Chang[3], Sang Mi Oh[3], Siwon Mun[1], Jung Kyoon Choi[1*], Tae Il Kim[3*], Jin Young Kim[2*], Pilnam Kim[1,4*]
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PS01-15 Tissue Engineering

## Evaluation of the Impact of Inherent Electrostatic Fields Observed in Cell Culture on Cellular Proliferation

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The natural electrostatic fields that surround us, resulting from the accumulation of electrostatic charges in materials with different electron affinities due to accidental friction, also affect cells in culture. Despite the well-known influence of man-made electrical stimulation on cells, the effects of the electrical biases arising from natural electrostatic fields on cell culture have been largely neglected. To establish a more consistent and controlled culturing environment, it is imperative to investigate the distribution of electrostatic fields around culture dishes and analyze their impact on cells. This study aims to examine the factors that contain abundant electrostatic charges and their influence on cells by measuring the electrostatic field around culture dishes. Additionally, we analyze the effects of a neutral electrostatic environment achieved by blocking the electrostatic field on cell culture results and compare the electrical biases with those obtained under ordinary laboratory conditions. The impact of the electric field environment on cell proliferation rate and viability was analyzed for cells cultured in normal culture, electric field, and anti-static environments. The expression pattern of Ki-67, an essential marker of proliferation, was also confirmed, revealing that the electric field can significantly harm cell culture. The findings of this research have the potential to advance the quantification of the effect of electrostatic fields on cell culture, devise measures to prevent their impact, and propose an improved protocol for more efficient and stable cell culture.
**Keywords :** Electrostatic fields, Cell culture, Electric bias, Cellular Proliferation

PS01-16 Tissue Engineering

## Proteome of Decellularized Human Colorectal Tissues Reveals a Hallmark of the Cancer-associated Extracellular Matrix

Hyun Jin Lee[1], Sang Woo Park[2], Jun Hyeong Lee[1], Shin Young Chang[3], Sang Mi Oh[3], Siwon Mun[1], Jung Kyoon Choi[1*], Tae Il Kim[3*], Jin Young Kim[2*], Pilnam Kim[1,4*]

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Stromal heterogeneity influences the efficiency of adjuvant therapy in colorectal cancer (CRC). Few studies have examined the relationship between stromal remodeling and extracellular matrix (ECM) changes in CRC. Using multiplexed isobaric tandem mass tag (TMT) tagging, we characterized the ECM composition of decellularized ECM of native tissues from human CRC. By merging single-cell transcriptome data from CRC patients, we uncovered the biological origin leading to cancer-related ECM change. 18 tumor-enriched proteins are mainly produced by tumor fibroblasts, whereas 20 tumor-depleted proteins are produced by normal fibroblasts. Considering the consensus molecular subtype (CMS) of CRC, using public TCGA transcriptomic data, we could demonstrate that the genes encoding tumor-enriched proteins were upregulated in both CMS1 and CMS4, while only CMS4 showed the enriched expression of genes encoding tumor-depleted proteins. Our ECM-focused profiling of tumor stroma may reveal new insights into cellular mechanisms governing matrix-based cancer development and could serve as indicators for biological processes and clinical endpoints.
**Keywords :** Extracellular matrix, Decellularization, Colorectal cancer, Tumor microenvironment, Proteomics