Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.


**Supplemental Table 1: Partial application list of cultured cell-derived decellularized matrices for stem cells**

| Stem cell functions | Target stem cells | Cell source of decellularized matrices | Outcomes | References |
|---|---|---|---|---|
| Maintenance of stemness | Embryonic stem (ES) cells | Fibroblasts | Establishment of ES cells<br>Maintenance of their stemness | [1, 2] |
| | ES/induced pluripotent stem (iPS) cells | Choriocarcinoma, JAR cells | Maintenance of ES/iPS cells stemness | [3] |
| | Mesenchymal stem cells (MSCs) | Undifferentiated MSCs | Expansion culture with the maintenance of their stemness | [4] |
| | | | Suppression of spontaneous differentiation | [5] |
| | | | Suppression of osteogenic and adipogenic differentiation | [6, 7] |
| | | Undifferentiated MSCs from young mice | Rejuvenation of MSCs isolated from old mice | [8] |
| | Non-hematopoietic stem cells from umbilical cord blood | Undifferentiated MSCs | Maintenance of their stemness | [9] |
| | Hematopoietic stem and progenitor cells (HSPCs) | Undifferentiated MSCs | Maintenance of their stemness | [10] |
| | | MS-5 stromal cell line | Maintenance of their stemness | [11] |
| | | Osteogenically differentiated MSCs in collagen microcapsules. | Supporting cell adhesion and proliferation with MSCs | [12] |
| Stem cell differentiation | ES cells | Spontaneously formed embryoid body (EB) | Promotion of proliferation and early differentiation | [13] |
| | | Differentiating EB | Support of ES cell proliferation and differentiation | [14] |
| | | Laminin511-expressing HEK293 | Pancreatic linage differentiation | [15] |
| | | 804G bladder carcinoma | Pancreatic linage differentiation | [16] |
| | | RIN5F Pancreatic beta cells | Insulin-secreting beta cells differentiation | [17] |
| | MSCs | Osteoblasts | Promotion of osteogenesis | [18-20] |
| | | The cells at early osteogenic stage | Promotion of osteogenesis | [6] |
| | | The cells at early adipogenic stage | Promotion of adipogenesis | [7] |

| | | | | |
|---|---|---|---|---|
| | | The cells at early chondrogenic stage | Promotion of chondrogenesis | [21, 22] |
| | | Chondrocytes | Promotion of chondrogenesis | [23] |
| | | Chondrocytes | Promotion of chondrogenesis<br>Suppression of hypertrophy | [24] |
| | | Fibroblasts with ascorbic acid | Promotion of differentiation into smooth muscle cells or myofibroblastic cells | [25] |
| | | MSCs | Promotion of hepatic differentiation | [26] |
| | ES cells-derived neural stem cells | Undifferentiated and spontaneously differentiated EBs | Promotion of neural differentiation | [27] |
| | Neural stem cells | Glioma cells | Promotion of neural differentiation | [28] |

**Supplemental Table 2: Partial list of cultured cell-derived decellularized matrices for somatic cell culture**

| Target cells | Cell source of decellularized matrices | Outcomes | References |
|---|---|---|---|
| Primary hepatocytes | Type II alveolar epithelial cells | Promotion of hepatocyte survival and maintenance of hepatocyte-specific functions | [29] |
| Tracheal epithelial cells | Type II alveolar epithelial cells | Differentiation into Clara and mucos cells and ciliated cells. | [30] |
| Chondrocytes | Primary chondrocytes | Maintenance of cartilaginous gene expression during in vitro subculture. | [31, 32] |
| | Chondrocytes | Promotion of cartilage formation in vivo<br>Cartilage tissue formation in vitro | [33, 34] |
| | Synovium-derived stem cells | Suppression of chondrocyte dedifferentiation and promotion of redifferentiation | [35] |
| Schwann cell | Schwann cell | Support of Schwann cell proliferation<br>Differentiation and myelination of Schwann cells | [36] |
| Periodontal ligament cells | Periodontal ligament cells | Support of cell proliferation | [37] |
| Osteoblasts | Osteoblast-like SAOS-2 cells | Support of cell adhesion and proliferation | [38] |
| Endothelial cells | Adipose-derived MSCs | Promotion of cell migration and the expression of angiogenic factors | [39] |
| | Fibroblasts | Support of cell adhesion | [40] |
| Keratinocytes | Adipose-derived MSCs | Promotion of cell migration | [39] |
| Dermal fibroblasts | Adipose-derived MSCs | Promotion of cell migration | [39] |

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