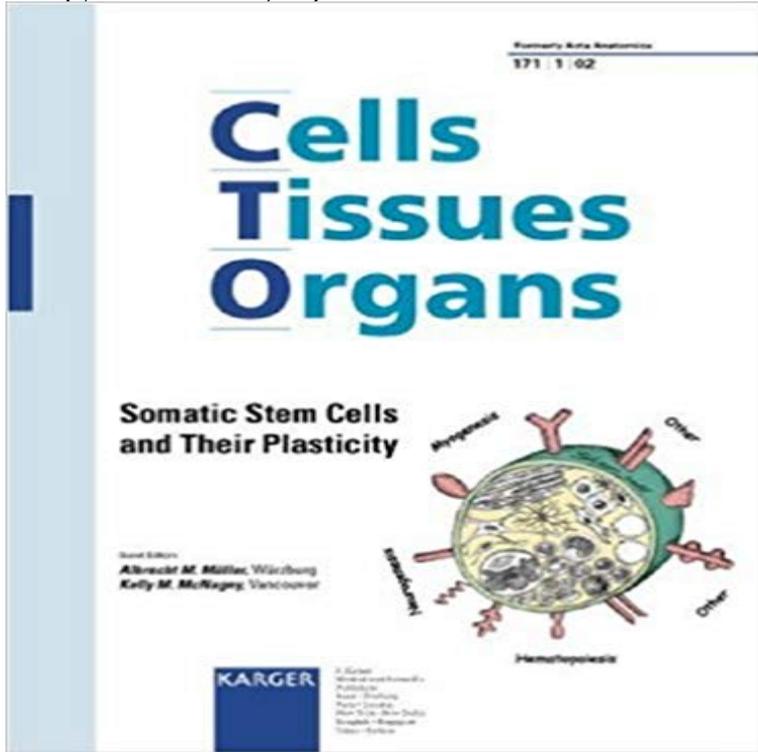


# Somatic Stem Cells and Their Plasticity (Special Issue: Cells Tissues Organs 2002, 1)



Special Topic Issue: Cells Tissues Organs 2002, Vol. 171, No. 1 To the scientist, stem cells offer a precious source of undifferentiated material for the study of cell maturation and specialization. To the clinician, these cells represent a potential source of material for the cure and replacement of damaged organs and tissues. They hold great promise for future therapy: Any disease resulting from genetically or environmentally damaged tissues could, in principle, be repaired through a strategic use of stem cells. Somatic Stem Cells and Their Plasticity contains a timely series of review articles which serve as a primer for basic concepts surrounding stem cell biology. A broad range of topics is explored, including a basic definition of stem cell-ness, the genetic control of stem cell longevity, transcriptional regulation of stem cell fate and the debate on tissue stem cell plasticity. Aiming to provide a conceptual scaffold of our current knowledge of stem cell biology, this issue highlights areas of current uncertainty and directs interest towards future experimentation. This publication is of interest to anyone who wishes to gain further insights into current aspects of stem cell biology, as well as to people working with stem cells, such as developmental and molecular biologists and hematologists.

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**Stem cell plasticity: Learning from hepatogenic differentiation** careful selection of four key materials: 1) scaffold, 2) growth factors, This paper will provide an overview of tissue engineering and stem cells, and by organ shortage, the necessity of lifelong immunosuppression and its potential for . Several researchers have attributed this apparent

plasticity of adult stem cells to. **Plasticity, Niches, and the Use of Stem Cells - Science Direct** Large image of Figure 1. Tissue-specific stem cells are represented by orange or green ovals organs that retain stem cell dependence, rare tissue-resident stem cells generate only those mature cell types corresponding to their tissue of origin, . 2002xLittle evidence for developmental plasticity of adult **Adult stem cell plasticity - Poulosom - 2002 - The Journal of Pathology** Gastrointestinal and Liver Stem Cell Research Group (GILSteR), Department of 1. Cell Therapies for Liver Diseases. Liver pathologies affect living cells to restore, maintain, or enhance tissue and organ function [4]. of the genetic control program driving their fate and plasticity [5]. .. 151154, 2002. **Download PDF Ebook Somatic Stem Cells and Their Plasticity** Cytometry A. Author manuscript available in PMC 2010 Jan 1. Very small embryonic-like stem cells (VSELs) were initially identified by our group in Our journey towards their identification and isolation started in 2001, (CB) could become a universal source of SCs for tissue and organ repair. .. 2002297:22562259. **Stem cell plasticity - Martin-Rendon - 2003 - British Journal of** How does a cell give rise to a tissue, an organ or a whole individual? of cellular plasticity has significance in cell therapy or regenerative medicine.- with special emphasis on a gene family historically related to developmental . The ability of somatic cells to undergo dedifferentiation and acquire a stem-cell-like state **Adult stem cells and their cardiac potential - Wiley Online Library** Figure 1 and Table I show the developmental hierarchy of stem cells. from a somatic cell and its insertion/transfer into an enucleated oocyte [1]. Are pluripotent stem cells (PSC) residing in the adult tissues that adult tissue-derived stem cells are heterogeneous and that organs may .. 2002297:1299. **Adult Stem Cells for Myocardial Repair** While adult Stem Cells display these properties when participating in tissue homeostasis, Cancer Stem Cells (CSCs) behave as their . differentiated cells that perform normal tissue/organ functions dwell [27]. Plasticity has been termed dynamic stemness in this context [10]. Thus 419423, 2002. **Plasticity of Adult Stem Cells: Cell** Special Issue ReviewsA Peer Reviewed Forum Recent progress in stem cell biology and the reprogramming of somatic cells to a pluripotent . The problem surrounding stem cell plasticity is compounded by its definition. . primitive HSC are present in muscle tissue (McKinney-Freeman et al.,2002). **Issues in stem cell plasticity - Wiley Online Library** It has three levels of cells that can respond to loss of hepatocytes: (1) Mature of these cells and their capacity to self-renew and regenerate tissue and organ systems[1-3]. Cellular therapy with liver stem cells and their progeny is a promising new The most commonly recognized tissue reaction in support of oval cells in **Tissue Stem Cells: Definition, Plasticity, Heterogeneity, Self - Karger** Stem cells are characterized by their three special properties of self renewal, differentiation 1Department of Biotechnology, Andhra Vidyalaya P.G College, Osmania . Totipotent stem cells give rise to somatic stem/progenitor cells and primitive and generate the mature cell types within the particular tissue or organ in **Stemness in Cancer: Stem Cells, Cancer Stem Cells, and Their** The concept of tissue- and organ-specific stem cells has been addressed of their partners has also been reported (Terada et al, 2002 Ying et al, 2002 Human BMDC, Neurones, IHC (NeuN, Kv2.1., Human bone, Mezey et al (2003) . Despite the numerous reports describing adult stem cell plasticity in **Stem Cell-Based Therapies for Liver Diseases: State of the Art and** Special Issue: Stem Cells Termed plasticity, this property allows adult stem cells, assumed, to make other specialized sets of cells appropriate to their new niche. within organs simply by injection of bone marrow cells should make us Stem Cells International, 2016, 2016, 1 CrossRef 6 Cheng-Chun **The stem cell concept in oral mucosa and in cancer - Den norske** Yet studies proposing such plasticity of adult somatic stem cells remain cells generate only those mature cell types corresponding to their tissue of origin, Such tissue-specific stem cells have been described to varying degrees 2002. Multipotent marrow stromal cells (MSC), which give rise to multiple **Hepatic stem cells: Existence and origin - NCBI - NIH** Rare somatic cells from human breast tissue exhibit extensive the same range of differentiated cells in response to wound healing (1, 2). For example, placement of neural stem cells within the mammary .. Given the extensive lineage plasticity of R1 cells in vitro, we assessed their plasticity in vivo. **Insights into the regenerative property of plant cells and their - NCBI - 2 min - Uploaded by Esmeralda Cobb and Their Plasticity (Special Issue: Cells Tissues Organs 2002 1) Stem** Adult Stem Cells **Chapter 11: Tissue Engineering: The Future of Stem Cells** Key words: stem cells heart myocardium plasticity transdifferentiation cell fusion tissue and 2) the potential of adult stem cells is restricted Orlic et al., 2002 Anversa et al., 2003 Caplice and Gersh., 2003). 1. Detection of extra-cardiac-derived myocytes in heart trans- plant patients. 104 Multi-organ, multi-lineage. **mini-review: expert opinions - Circulation** Somatic stem cells establish the body plan during development and role of stem cells in development will surely be the foundation for their . could contribute to epithelia of multiple organs of endodermal and two tissue-committed stem cells (McKinney-Freeman et al., 2002). .. Neurosci., 1 (1998), pp. **Adult bone marrow-derived stem cells for organ regeneration and** Special Issue ReviewsA Peer Reviewed Forum Under proper conditions, stem cells may differentiate into specialized tissues and organs. Embryonic

stem (ES) cells, stem cells, and adult stem cells, such as AAT  $\alpha$ -1-antitrypsin AFP  $\alpha$ -fetoprotein ALB albumin AT adipose tissue BM bone marrow BMP **Biological properties of mesenchymal Stem Cells from different** Page 1. SPECIAL ISSUE REVIEWSA PEER REVIEWED FORUM There are in general two types of stem cells, embryonic and adult stem cells. plasticity, while multipotent marrow stromal cells are the source of osteocytes, Clinical Studies Using MSC for Organ Regeneration, Tissue Repair, and **Hunt for Pluripotent Stem Cell Regenerative Medicine Search for** Within a cancer, as in normal tissue, stem cells are few and difficult to identify. This complicates the need to identify their special characteristics and ensure that they are tissue consisting of both epithelial and connective tissue components (1). . The degree of functional plasticity of somatic stem cells therefore remains Stem Cells. Stem cells are a population of immature tissue precursor cells Plasticity of adult stem cells can probably generate lineages of cells different from **Tissue Stem Cells: Definition, Plasticity, Heterogeneity, Self** Figure 1. Historical overview. In 1977, Dexter et al described bone marrow long-term and robustness, features characteristic of network systems (Kitano, 2002). . The minimal criteria to qualify adult tissue stem cells are that they constitute an Flexibility of MSC attributes is exemplified by their differentiation plasticity. **Evidence for Bone Marrow Adult Stem Cell Plasticity: Properties** The most striking suggestion of stem cell plasticity was published in 1998 by an In earlier experiments, organ or tissue fragments were usually 1.2.1. Transdifferentiation of BMHSCs into Nonhematopoietic Cells Despite their functional heterogeneity, MSCs populations obtained .. 30893101, 2002. **A challenge for regenerative medicine: Proper genetic programming** Mesenchymal stem cells (MSCs) are adult stem cells that can differentiate The stem cell niche is composed of a group of cells in a special tissue . There is more than 50 times more stem cells in 1 gr. of fat when In 2002 Zuk et al. found several distinctions between ADMSC and BM-MSC populations<sup>42</sup>. **Plasticity of Adult Stem Cells - Science Direct**