

Stepwise Culture of Human Adult Stem Cells

Editor: Pranela Rameshwar, Rutgers University, USA

The lack of standardized methods to culture specific stem cells is a major impediment in the progression of regenerative medicine. This book presents stepwise techniques to culture adult human stem cells and related methods to supplement stem cell culture. Documenting these methods with an eye toward standardization allows for scientific rigor and reproducibility to enhance efficient and safe translation of stem cells to patients.

The intent of this inaugural volume and those to follow is to provide for laboratories across scientific entities – academic and commercial – to adapt the described methods for similar methods with cells from other species. New standards will allow cross-the-board envision that these methods could be a starting platform for culturing stem cells even in laboratories that may not be familiar with these techniques.

TABLE OF CONTENTS

Adult Stem Cell

1. Isolation of Hematopoietic Stem Cells
2. Isolation Protocol for CD133+ and CD34+ Very Small Embryonic Like Cells (VSEL) from Human Umbilical Cord Blood
3. Isolation and Expansion of Mesenchymal Stem Cells from the Adult Bone Marrow Aspirate
4. Manual Isolation and Expansion of Adipose Derived Stem Cells from Adipose Tissue
5. Bone Stem Cells
6. Isolating Dental Pulp Stem Cells
7. A Murine System for Somatic Cellular Reprogramming into Induced Pluripotent Stem Cells

Fetal Stem Cell

1. Isolation and Expansion of Placenta Stem Cells (P-MSCs)
2. Isolation and Expansion of Umbilical Cord Stem Cells

Cancer Stem Cell

1. Laboratory Isolation of Leukemia Cancer Stem Cell
2. Isolation and Characterization of Cancer Stem cells from Glioblastoma Multiforme and Breast Cancer Cell Lines

Other Supporting Methods

1. Bone Marrow Aspiration
2. Stromal Cell Isolation
3. Isolating Mononuclear Cells by Ficoll-Hypaque Density Gradient
4. Phenotypic and Multipotent Characterization of Bone Marrow-derived Mesenchymal Stem Cells
5. Cryopreservation of Relatively Small Number of Stem Cells
6. Cryopreservation of Mobilized Peripheral Blood Stem Cells
7. Manual Cell Count



River Publishers Series in Biotechnology and Medical Research

ISBN: 9788770228541

e-ISBN: 9788770228893

Available From: March 2024

Price: € 108.50 \$ 58.99

KEYWORDS:

Stem cell, human, bone marrow, placenta, cord blood, pluripotency, adipose, dental pulp, mesenchymal stem cell



www.riverpublishers.com
marketing@riverpublishers.com