Poietics™ Human Bone Marrow
Technical Sheet

Introduction
Lonza Walkersville, Inc. operates a Research Bone Marrow Donor Program to recruit, screen, test, evaluate and select donors for collection of bone marrow samples for research use. Donors participate in a two stage process: 1) evaluation at a screening appointment 2) marrow collection.

Donation informed consent to participate in the bone marrow donor program includes:
- Program explanation with questions and answers about the process
- Health assessment through medical and behavioral questionnaire
- Permission for blood sample collection and testing by certain infectious disease tests
- Confidentiality of identity and protection of health information
- Risks and discomfort of participation
- Benefits of participation do not include any direct benefits or ownership
- Donor may stop participation in the program at any time
- Donor’s options for continued program participation
- Reasonable compensation for participation
- Bone marrow will be sold to laboratories performing research

This Donor Program is currently approved, has been approved for over 10 years, and is submitted for annual approval by a commercial institutional review board.

Bone Marrow Source
Human bone marrow is withdrawn from bilateral punctures of the posterior iliac crests of normal volunteers.

Normal Donor Eligibility Criteria
- Healthy males and non-pregnant females between the ages of 18 and 45 years old
- Signed and witnessed informed consent forms
- Acceptable vital signs and hematology values
- All donors are screened for general health and negative medical history for heart disease, kidney disease, liver disease, cancer, epilepsy and blood or bleeding disorders
- Negative clinical laboratory tests for HIV-1, HIV-2, hepatitis B and hepatitis C

Bone Marrow Sample Collection
Every 100 ml of bone marrow is collected into syringes containing 10 ml of heparin (Porcine Intestinal Mucosa) Sodium Injection (~100 units heparin per ml bone marrow).
Scheduling
Fresh cells and unprocessed marrow need to be ordered two to four weeks in advance depending on donor and volume requirements.

Products
Available as unprocessed marrow, mononuclear cells, isolated hematopoietic progenitor cells (CD34⁺), mesenchymal stem cells, and stromal cells.

Product Uses
Researchers may use these for:
- Hematopoietic growth factor studies
- Clonogenic assays
- Long-term culture initiating-cell assays (LTC-IC)
- Progenitor cell proliferation
- Progenitor cell differentiation
- Stem cell expansion
- Hematopoietic microenvironment studies
- Gene therapy research
- Drug screening
- Lead optimization
- High-throughput screening
- Toxicology

Product Preparation/Description

Fresh, Unprocessed Human Bone Marrow (Single Donor):

Human Unprocessed Bone Marrow is supplied in tubes and shipped fresh overnight. It is also available in gas permeable bags, upon request.

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product Description</th>
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<tbody>
<tr>
<td>1M-105</td>
<td>Human Bone Marrow, 10 ml</td>
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<tr>
<td>1M-125</td>
<td>Human Bone Marrow, 25 ml</td>
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Up to 100 ml of bone marrow can be obtained from a single donor upon request.

Cryopreserved Bone Marrow Mononuclear Cells (Single Donor):

Bone marrow contains a population of rare progenitor cells known as Mesenchymal Stem Cells (MSC) capable of replication as undifferentiated cells or differentiating into bone, cartilage, fat, muscle, tendon and marrow stroma.

<table>
<thead>
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<th>Cat. No.</th>
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<tbody>
<tr>
<td>2S-101D</td>
<td>MNC ≥5 million</td>
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<tr>
<td>2M-125C</td>
<td>MNC ≥25 million</td>
</tr>
<tr>
<td>2M-125B</td>
<td>MNC Cell Panel</td>
</tr>
<tr>
<td>2M-125E</td>
<td>MNC ≥100 million</td>
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</tbody>
</table>

Cryopreserved Mesenchymal Stem Cells (Single Donor):

Bone marrow contains a population of rare progenitor cells known as Mesenchymal Stem Cells (MSC) capable of replication as undifferentiated cells or differentiating into bone, cartilage, fat, muscle, tendon and marrow stroma.

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<td>PT-2501</td>
<td>hMSC</td>
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Fresh Bone Marrow CD34⁺ Progenitor Cells (Single Donor):

CD34⁺ progenitor cells are isolated from bone marrow mononuclear cells using positive immunomagnetic selection. Purity is ≥ 95%.
Cat. No. | Product | Description
--- | --- | ---
1M-101 | Fresh CD34+ Progenitors | Fresh Bone Marrow CD34+ Progenitor Cells, ≥100,000 cells
1M-101A | Fresh CD34+ Progenitors ≥300,000 | Fresh Bone Marrow CD34+ Progenitor Cells, ≥300,000 cells
1M-101B | Fresh CD34+ Progenitors ≥500,000 | Fresh Bone Marrow CD34+ Progenitor Cells, ≥500,000 cells
1M-101C | Fresh CD34+ Progenitors ≥1 million | Fresh Bone Marrow CD34+ Progenitor Cells, ≥1 million cells

Cryopreserved Bone Marrow CD34+ Progenitor Cells (Single Donor):

Cat. No. | Product | Description
--- | --- | ---
2M-101 | CD34+ Progenitors ≥100,000 | Bone Marrow CD34+ Progenitor Cells, ≥100,000 cells
2M-101A | CD34+ Progenitors ≥300,000 | Bone Marrow CD34+ Progenitor Cells, ≥300,000 cells
2M-101B | CD34+ Progenitors ≥500,000 | Bone Marrow CD34+ Progenitor Cells, ≥500,000 cells
2M-101C | CD34+ Progenitors ≥1 million | Bone Marrow CD34+ Progenitor Cells, ≥1 million cells
2M-101D | CD34+ Progenitors ≥2 million | Bone Marrow CD34+ Progenitor Cells, ≥2 million cells

Cryopreserved Bone Marrow Stromal Cells (Single Donor):

Bone marrow stromal cells function as a feeder layer for hematopoietic progenitors allowing proliferation and differentiation of progenitors to continue for weeks without the addition of exogenous cytokines. Bone marrow stromal cells are isolated by culturing fresh mononuclear cells in liquid culture for 3 to 4 weeks using StemCell Technologies’ MyeloCult® long term culture medium.

Cat. No. | Product | Description
--- | --- | ---
2M-302 | Bone Marrow Stromal Cells | Bone Marrow Stromal Cells Cells, ≥5 million cells

Product Warranty

Cultures have a finite lifespan in vitro.

Lonza guarantees the performance of its cells only if Poietics™ Media and Reagents, where applicable, are used exclusively, and the recommend protocols are followed. The performance of cells is not guaranteed if any modifications are made to the complete cell system. Cryopreserved human bone marrow cells are assured to be viable and functional when thawed and maintained properly.

When placing an order or for Scientific Support, please refer to the product numbers and descriptions listed above. For a complete listing of all Poietics™ Products, refer to the Lonza website or the current Lonza catalog. To obtain a catalog, additional information or want to speak with Scientific Support, you may contact Lonza by web, e-mail, telephone, fax or mail (See page 1 for details).

THESE PRODUCTS ARE FOR RESEARCH USE ONLY. Not approved for human or veterinary use, for application to humans or animals, or for use in clinical or in vitro procedures.

WARNING: CLONETICS™ AND POIETICS™ PRODUCTS CONTAIN HUMAN SOURCE MATERIAL, TREAT AS POTENTIALLY INFECTIOUS. Each donor is tested and found non-reactive by an FDA-approved method for the presence of HIV-1, hepatitis B virus and hepatitis C virus. Where donor testing is not possible, cell products are tested for the presence of viral nucleic acid from HIV, hepatitis B virus, and hepatitis C virus. Testing cannot offer complete assurance that HIV-1, hepatitis B virus, and hepatitis C virus are absent. All human-sourced products should be handled at the biological safety level 2 to minimize exposure of potentially infectious products, as recommended in the CDC-NIH manual, Biosafety in Microbiological and Biomedical Laboratories, 5th ed. If you require further information, please contact your site safety officer or Scientific Support.

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MyeloCult® is a registered trademark of StemCell Technologies.

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