Daily Supplement Protocol

All Around daily for Adults and Children

6 Catalyn

3 Multi- Mins

3 Linum B6 or 3 Tuna Oil

1 Boswellia Complex

4 Catalyn

1 Multi- mins

2 Tuna Oil or Linum B6

½ Boswellia

Chiropractic and Alternative Health Services Web Page

www.wholehealthamerica.com/drkrygier

Web Page info:

- **Newsletter (Better Health News)**
- **Research**
- **Lecture topic**
- **New changes @ Office**
- **New Patient forms**

Office number: 248-735-2440

BLOOD WORK

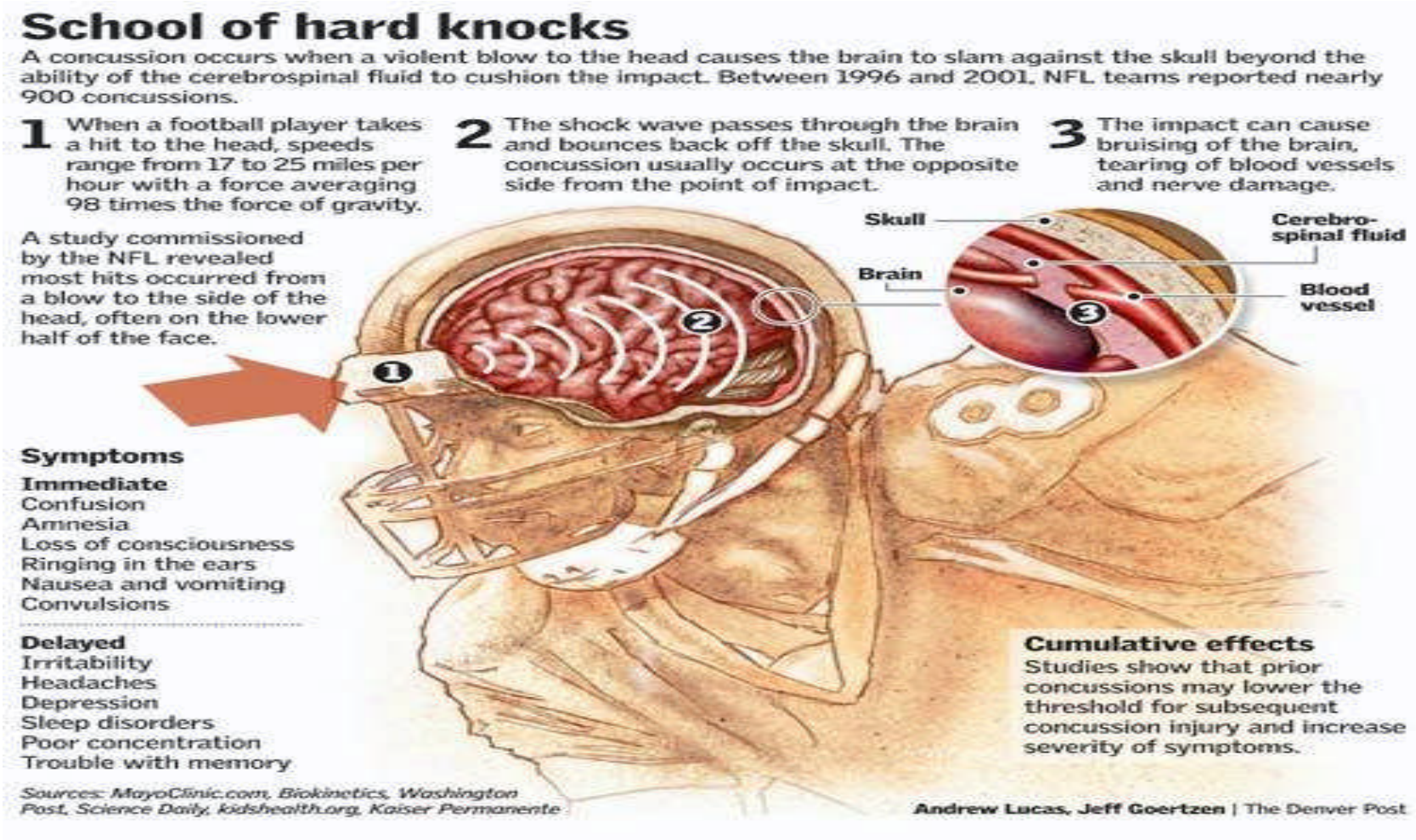
C&AHS is offering the opportunity to run blood tests for our patients.

Therma-Scan

Infrared Mammograph

Call the office for details.

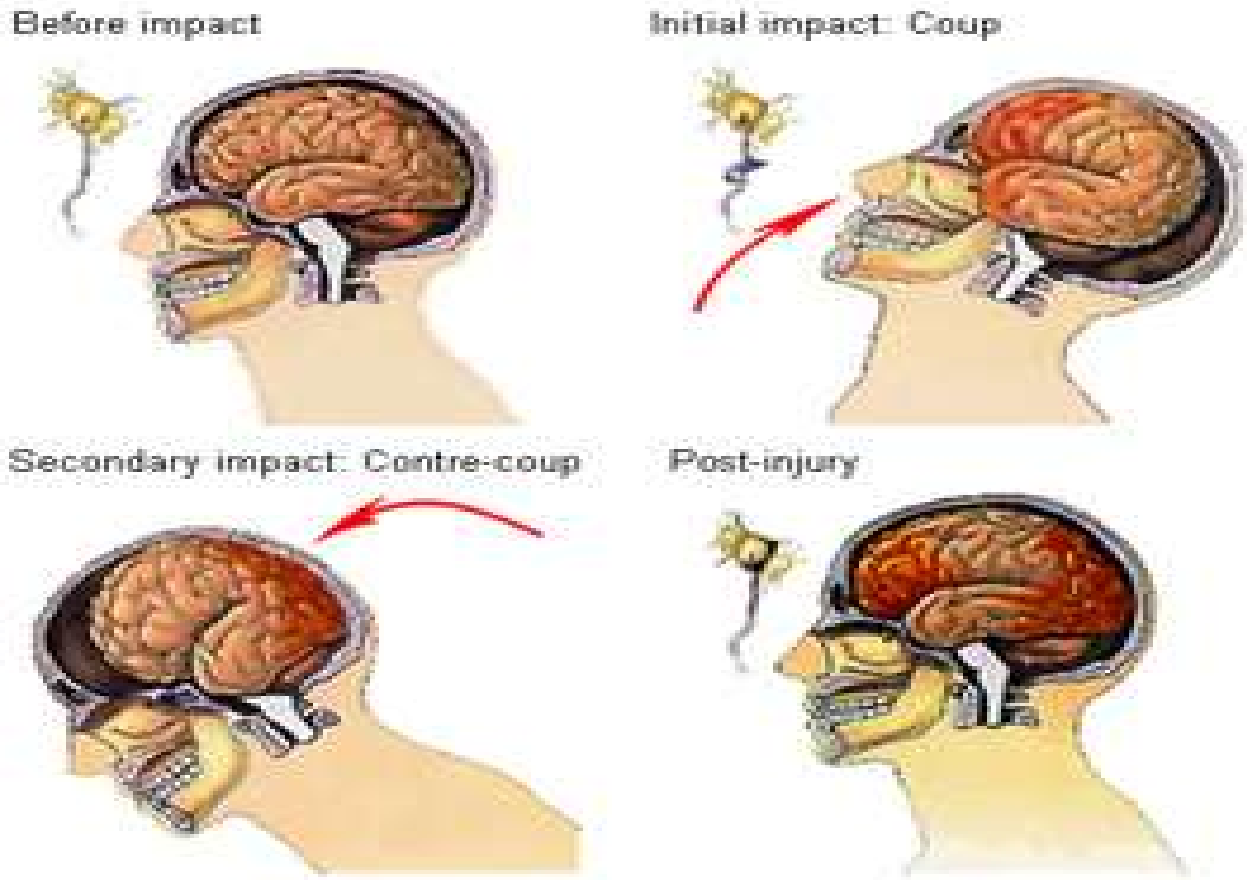
248-735-2440



Need to see Dr. Krygier for treatment and recovery time from a concussion due to sports or autoaccident etc.

Technique to measure pain and inflammation in the brain, that is not used but is a must for recovery and to judge the return to the game.

Check The Concussion Reflex to judge the seriousness of the problem.



Increase Human Growth Hormone With EGGS!

Posted: August 26, 2011 in Fitness & health

***Eggs: ANABOLIC Effects & Increased Human Growth Hormone!**

By: Ross Erstling

- The YOLK is the magic, however. The yolk contains the majority of the copper, nearly all of the calcium, iron, folate, and B6, and 100% of the vitamins A and E. As you can see from the data I have listed below (scroll down), the yolk contains 100% of the carotenoids, essential fatty acids, vitamins A, E, D, and K (6 items). **The white does not contain 100% of any nutrient.** The yolk contains more than 90% of the calcium, iron, phosphorus, zinc, thiamin, B6, folate, and b12, and 89% of the panthothenic acid (9 items). The white does not contain more than 90% of any nutrient, but contains over 80% of the magnesium, sodium, and niacin (3 items). The yolk contains between 50% and 80% of the copper, manganese, and selenium, while the white contains between 50% and 80% of the potassium, riboflavin, and protein.

- Egg Yolks also contain Essential Fatty Acids DHA and Arachidonic Acid, an important set of nutrients that should not be overlooked. Egg yolks contain the long-chain omega-3 fatty acid DHA, which is necessary for the brain and proper retinal function in the eye, and the long-chain omega-6 fatty acid arachidonic acid, which is required for the healthy skin, hair, libido, reproduction, growth and response to injury. While fatty fish and cod liver oil supply DHA in larger amounts, egg yolks have an advantage over these foods because they also contain arachidonic acid and because they do not contain EPA, which interferes with arachidonic acid metabolism. According to NutritionData.Com, one egg yolk contains 75 mg of arachidonic acid (AA), 20 mg of DHA, but no EPA.

- I recently stumbled upon a study that demonstrated egg YOLK protein has the ability to increase vertical height in children. **The Egg yolk protein as used in the clinical study showed a 25% or so increase in longitudinal growth verse whey and casein!** This egg protein used is a HIGHLY REFINED, SUPER-CONCENTRATED form of egg yolk protein. Egg yolk protein doesn't just contain amino acids, egg yolk contains all sorts of growth factors and peptide compounds that are necessary to the proper development of the embryo. The egg yolk is the starting point of life, and thus it must be a very special mixture of components to support that optimal development.

- SO, I have since been hypothesizing the precise mechanism of action, and I discovoered an interesting fact: Although Essential Amino Acids(which are contained in the yolk) by themselves will not cause growth hormone release, new studies have shown that the specific amino acids L-Lysine, L-Arginine and L-glutamine CAN IN FACT increase Human Growth Hormone levels significanly, if supplemental choline and B5 (calcium pantothenate) are taken at the same time. Well guess what? EGG YOLKS are an excellent source of choline AND Vitamin B5! One egg yolk has about 300 micrograms of choline! Doing some simple math, you can see that the amounts of Argnine, Lysine, glutamine, Choline, and Vitmain B5, all increase substantially with greater egg yolk consumption. Choline is also an important nutrient that helps regulate the brain, nervous system, and cardiovascular system, that will aid in recovery.

Arsenic Turns Stem Cells Cancerous, Spurring Tumor Growth

- Science Daily (Apr. 4, 2012) — Researchers at the National Institutes of Health have discovered how exposure to arsenic can turn normal stem cells into cancer stem cells and spur tumor growth. Inorganic arsenic, which affects the drinking water of millions of people worldwide, has been previously shown to be a human carcinogen. A growing body of evidence suggests that cancer is a stem-cell based disease. Normal stem cells are essential to normal tissue regeneration, and to the stability of organisms and processes. But cancer stem cells are thought to be the driving force for the formation, growth, and spread of tumors.
- Michael Walke's, Ph.D., and his team at the National Toxicology Program Laboratory, National Institute of Environmental Health Sciences, part of NIH, had shown previously that normal cells become cancerous when they are treated with inorganic arsenic. This new study shows that when these cancer cells are placed near, but not in contact with normal stem cells, the normal stem cells very rapidly acquire the characteristics of cancer stem cells. It demonstrates that malignant cells are able to send molecular signals through a semi-permeable membrane, where cells can't normally pass, and turn the normal stem cells into cancer stem cells.
- "This paper shows a different and unique way that cancers can expand by recruiting nearby normal stem cells and creating an overabundance of cancer stem cells," said Walke's. "The recruitment of normal stem cells into cancer stem cells could have broad implications for the carcinogenic process in general, including tumor growth and metastases."
- This reveals a potentially important aspect of arsenic carcinogenesis and may help explain observances by researchers working with arsenic that arsenic often causes multiple tumors of many types to form on the skin or inside the body. The paper is online in *Environmental Health Perspectives*.

Hair Analysis from Doctor's Data, a forensic tool, would determine arsenic levels in the body as well as Mercury, Lead, Cadmium and Aluminum.

First transplanted human organ grown from adult stem cells

- In 2008 the first full transplant of a human organ grown from adult stem cells was carried out by Paolo Macchiarini, at the Hospital Clínic of Barcelona on Claudia Castillo, a Colombian female adult whose trachea had collapsed due to tuberculosis. Researchers from the University of Padua, the University of Bristol, and Politecnico di Milano harvested a section of trachea from a donor and stripped off the cells that could cause an immune reaction, leaving a grey trunk of cartilage. This section of trachea was then "seeded" with stem cells taken from Ms. Castillo's bone marrow and a new section of trachea was grown in the laboratory over four days. The new section of trachea was then transplanted into the left main bronchus of the patient.[63][64][65][66][67] Because the stem cells were harvested from the patient's own bone marrow Professor Macchiarini did not think it was necessary for her to be given anti-rejection (immunosuppressive) medication and when the procedure was reported four months later in *The Lancet*, the patient's immune system was showing no signs of rejecting the transplant.[68]

From Wikipedia.adult stem cells

Regenerative Medicine

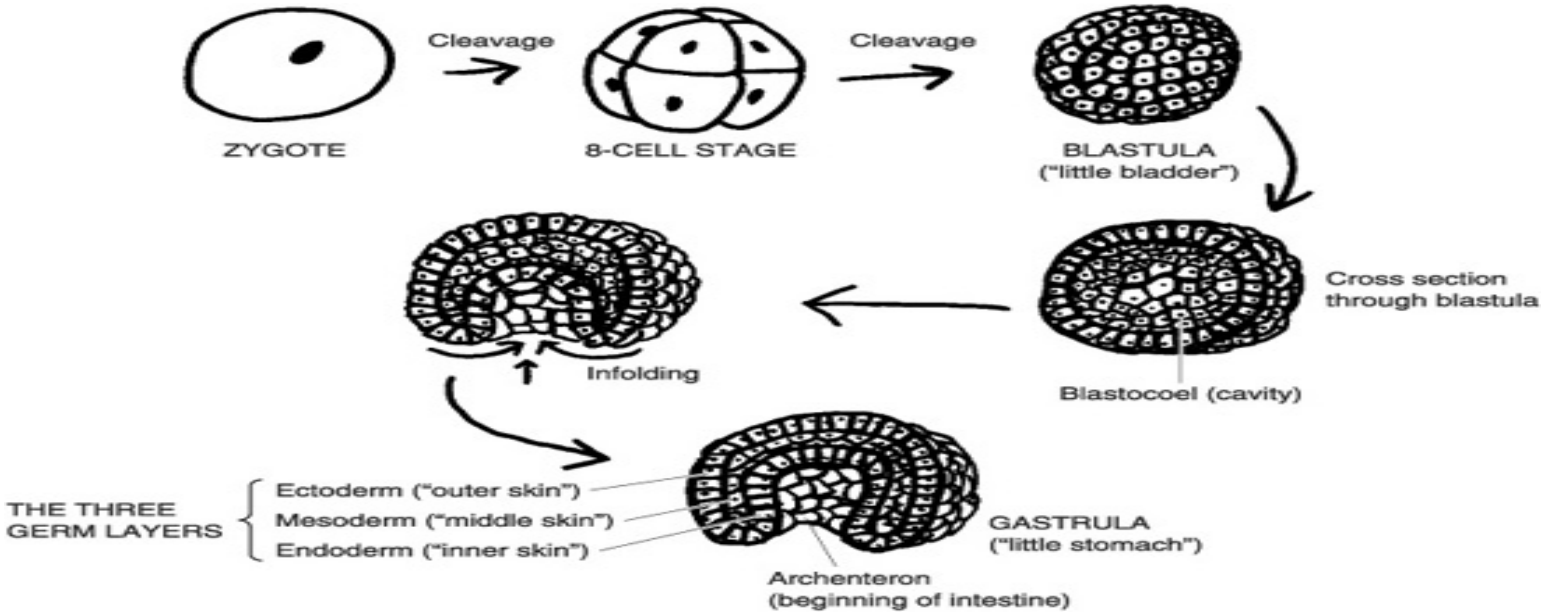
From Wikipedia

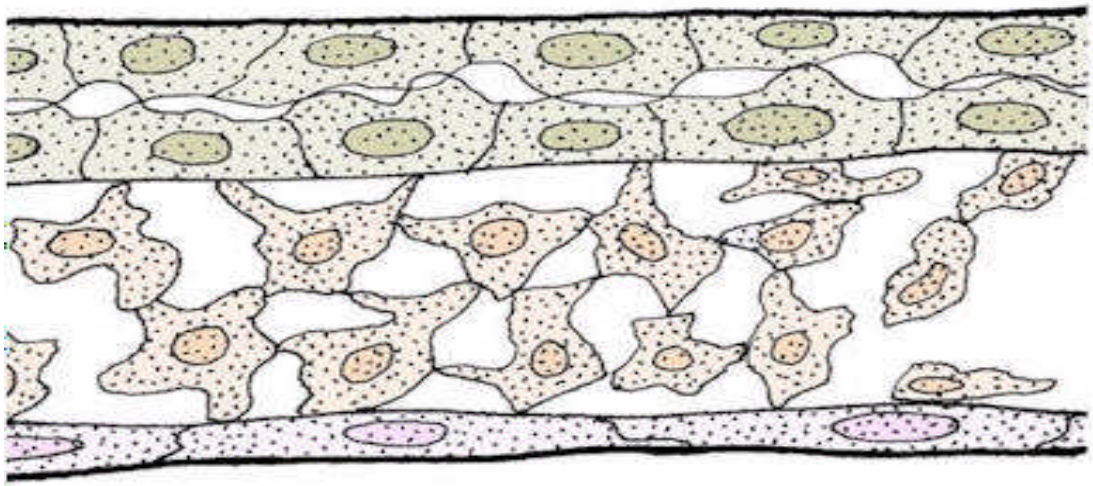
Regenerative medicine is the "process of replacing or regenerating human cells, tissues or organs to restore or establish normal function".[1] This field holds the promise of regenerating damaged tissues and organs in the body by replacing damaged tissue and/or by stimulating the body's own repair mechanisms to heal previously irreparable tissues or organs. Regenerative medicine also empowers scientists to grow tissues and organs in the laboratory and safely implant them when the body cannot heal itself. Importantly, regenerative medicine has the potential to solve the problem of the shortage of organs available for donation compared to the number of patients that require life-saving organ transplantation, as well as solve the problem of organ transplant rejection, since the organ's cells will match that of the patient.[2][3][4]

Widely attributed (incorrectly as it turns out) to having first been coined by William Haseltine (founder of Human Genome Sciences).[5] From the work of Michael Lysaght (Brown University), his team *"first found the term in a 1992 article on hospital administration by Leland Kaiser. Kaiser's paper closes with a series of short paragraphs on future technologies that will impact hospitals. One such paragraph had ''Regenerative Medicine'' as a bold print title and went on to state, ''A new branch of medicine will develop that attempts to change the course of chronic disease and in many instances will regenerate tired and failing organ systems.''*[6][7]

Regenerative Medicine refers to a group of biomedical approaches to clinical therapies that may involve the use of stem cells.[8] Examples include the injection of stem cells or progenitor cells (cell therapies); the induction of regeneration by biologically active molecules administered alone or as a secretion by infused cells (immunomodulation therapy); and transplantation of *in vitro* grown organs and tissues (Tissue engineering).[9][10]

A form of regenerative medicine that recently made it into clinical practice, is the use of heparan sulfate analogues on (chronic) wound healing. Heparan sulfate analogues replace degraded heparan sulfate at the wound site. They assist the damaged tissue to heal itself by repositioning growth factors and cytokines back into the damaged extracellular matrix.[11][12][13] For example, in abdominal wall reconstruction (like inguinal hernia repair), biologic meshes are being used with some success.





ectoderm

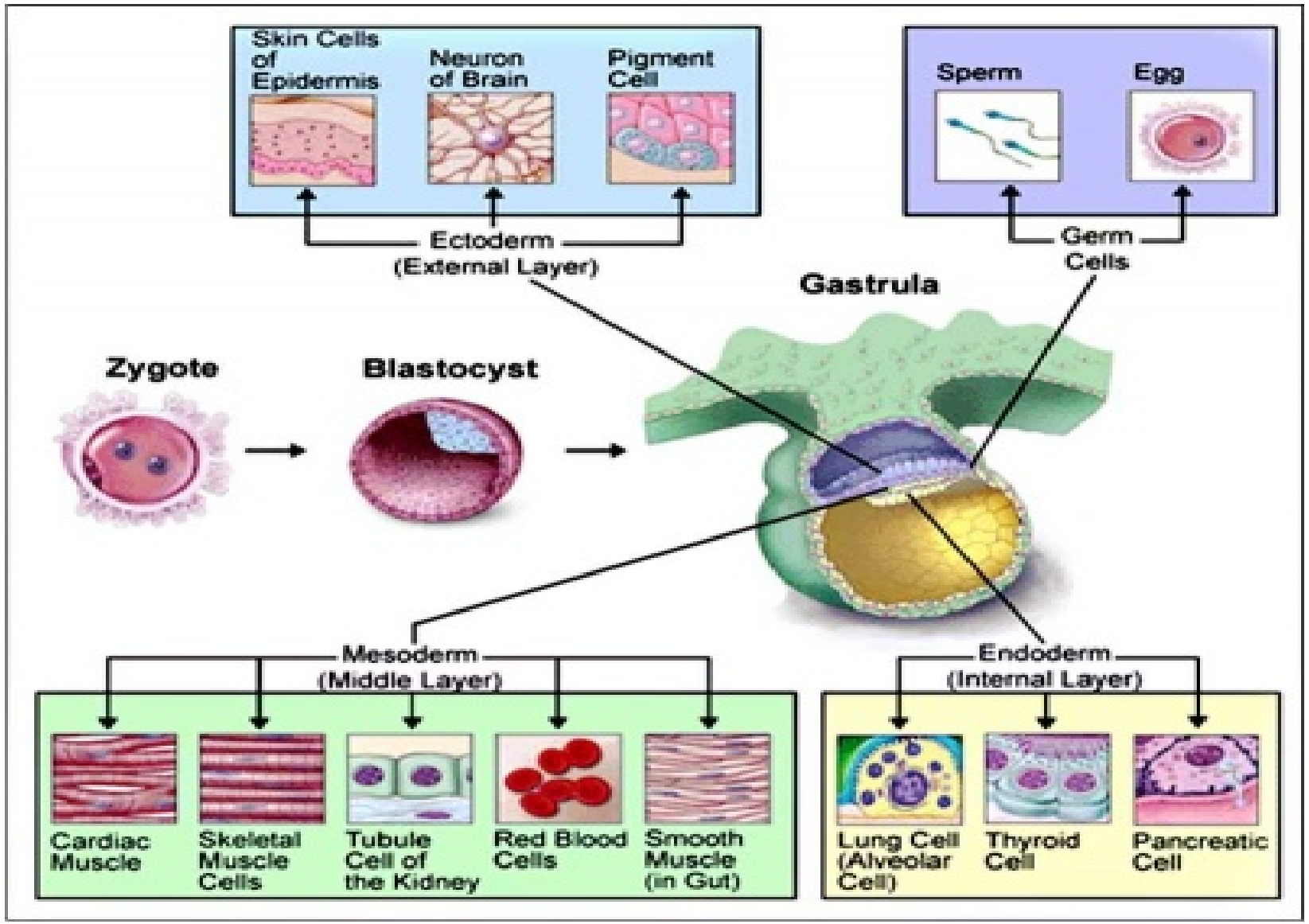
CNS and epidermis

mesoderm

muscles, bones
dermis, CVS, etc

endoderm

linings of gut
and airways


Skin Cells of Epidermis
Neuron of Brain
Pigment Cell
Ectoderm (External Layer)
Sperm
Egg
Germ Cells
Gastrula
Zygote
Blastocyst
Mesoderm (Middle Layer)
Endoderm (Internal Layer)
Cardiac Muscle
Skeletal Muscle Cells
Tubule Cell of the Kidney
Red Blood Cells
Smooth Muscle (in Gut)
Lung Cell (Alveolar Cell)
Thyroid Cell
Pancreatic Cell

ECTODERM	MESODERM	ENDODERM
• Epidermis of skin and its derivatives (including sweat glands, hair follicles) • Epithelial lining of mouth and rectum • Sense receptors in epidermis • Cornea and lens of eye • Nervous system • Adrenal medulla • Tooth enamel • Epithelium or pineal and pituitary glands	• Notochord • Skeletal system • Muscular system • Muscular layer of stomach, intestine, etc. • Excretory system • Circulatory and lymphatic systems • Reproductive system (except germ cells) • Dermis of skin • Lining of body cavity • Adrenal cortex	• Epithelial lining of digestive tract • Epithelial lining of respiratory system • Lining of urethra, urinary bladder, and reproductive system • Liver • Pancreas • Thymus • Thyroid and parathyroid glands

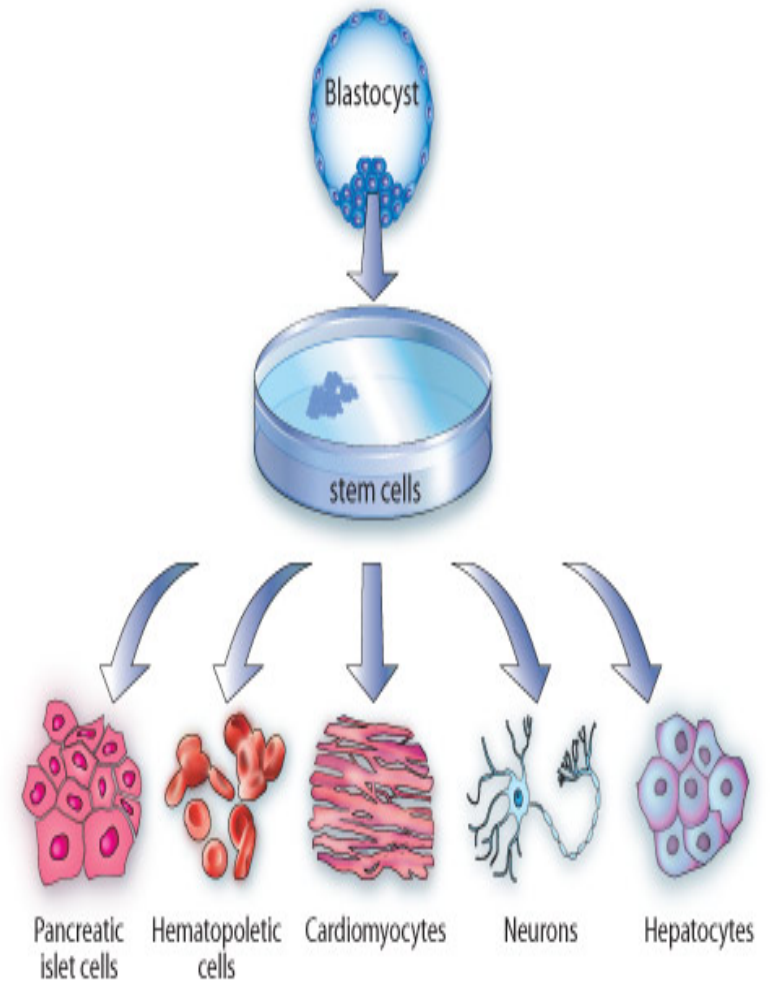


Illustration by Cell Imaging Core of the Center for Reproductive Sciences.

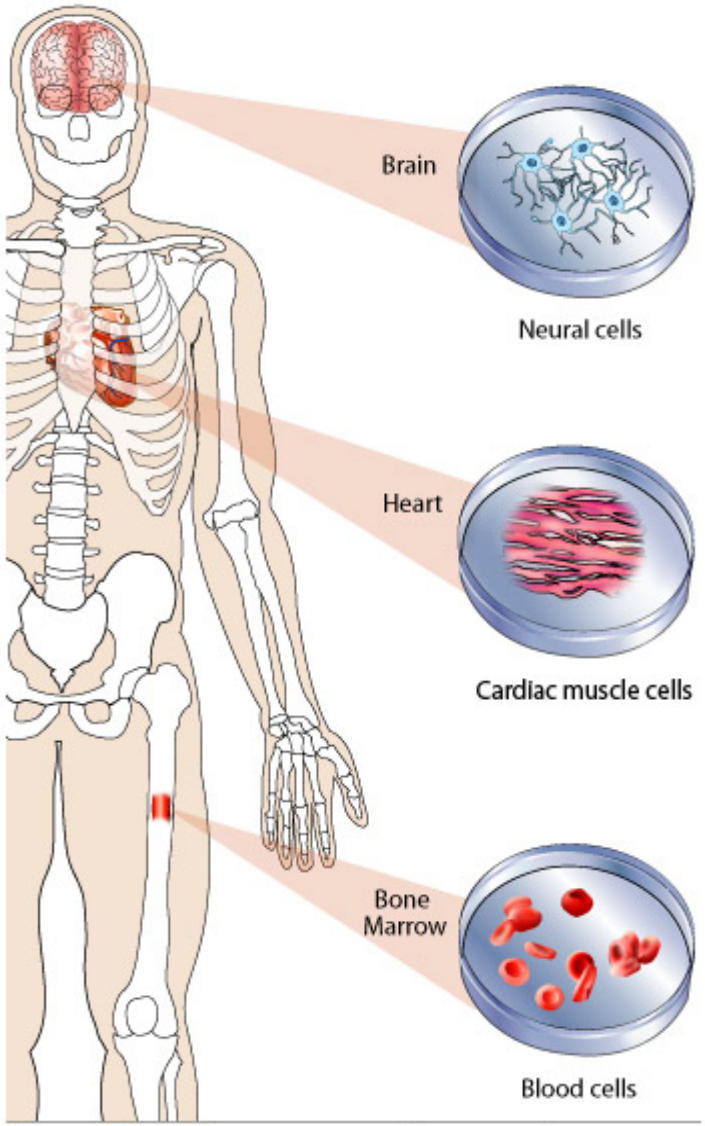


Illustration by Cell Imaging Core of the Center for Reproductive Sciences.

- **Adult stem cells** are undifferentiated cells, found throughout the body after development, that multiply by cell division to replenish dying cells and regenerate damaged tissues. Also known as **somatic stem cells** (from Greek Σωματικός, meaning *of the body*), they can be found in juvenile as well as adult animals and human bodies.
- Scientific interest in adult stem cells is centered on their ability to divide or *self-renew* indefinitely, and generate all the cell types of the organ from which they originate, potentially regenerating the entire organ from a few cells. Unlike embryonic stem cells, the use of adult stem cells in research and therapy is not considered to be controversial, as they are derived from adult tissue samples rather than destroyed human embryos. They have mainly been studied in humans and model organisms such as mice and rats.

Adult type stem cells come from:

- **Umbilical Cords, Placentas and Amniotic Fluid—**Adult type stem cells can be derived from various pregnancy-related tissues.

- **Body Tissues—**In adults and children, from the moment we're born, stem cells are present within virtually all tissues and organ systems.

- **Cadavers—**Neural stem cells have been removed from specific areas in post-mortem human brains as late as 20 hours following death.
- Adult stem cells are a “natural” solution. They naturally exist in our bodies, and they provide a natural repair mechanism for many tissues of our bodies. They belong in the microenvironment of an adult body, while embryonic stem cells belong in the microenvironment of the early embryo, not in an adult body, where they tend to cause tumors and immune system reactions.
- Most importantly, *adult stem cells have already been successfully used in human therapies for many years.* New therapies using adult type stem cells are being developed all the time.

What are adult stem cells?

- Adult stem cells are cells capable of dividing and replacing damaged tissue.
- Exist in tissues such as the bone marrow, brain, muscle and liver, adipose etc.
- Unlike their neighbors, which are already differentiated into specialized cell types, adult stem cells remain immature.
- If you are a stem cell you are either an embryo or an adult – no in between

Stem Cells in the Bone Marrow and Blood

Three types of stem cell originate in bone marrow:

1. Hematopoietic Stem Cell
2. Stromal Cells
3. Endothelial Progenitor Cells

In Other Tissues

Endothelial Progenitor Cells

Skeletal Muscle Stem Cells

Epithelial Cell Precursors in the Skin and Digestive System

Stem Cells in the Pancreas and Liver

Types of Adult Stem Cells

- **Hematopoietic stem cells-** **are found in the bone marrow and give rise to all the blood cell types.**
- **Mammary stem cell-** **provide the source of cells for growth of the mammary gland during puberty and gestation**
- **Intestinal stem cells-** **produce the cells lining the surface of the small and large intestines.**
- **Mesenchymal stem cells-** **are of stromal origin and may differentiate into a variety of tissues. MSCs have been isolated from placenta, adipose tissue, lung, bone marrow and blood, Wharton's jelly from the umbilical cord, and teeth (perivascular niche of dental pulp and periodontal ligament)**
- **Endothelial stem cells-** **Endothelial Stem Cells are one of the three types of Multipotent stem cells found in the bone marrow**
- **Neural stem cells-** **strong support in the brain.**
- **Olfactory adult stem cells-** **have been successfully harvested from the human olfactory mucosa cells, which are found in the lining of the nose and are involved in the sense of smell** **If they are given the right chemical environment these cells have the same ability as embryonic stem cells to develop into many different cell types.**
- **Neural crest stem** **cells-Hair follicles contain two types of stem cells, one of which appears to represent a remnant of the stem cells of the embryonic neural crest. Similar cells have been found in the gastrointestinal tract, sciatic nerve, cardiac outflow tract and spinal and sympathetic ganglia. These cells can generate neurons, Schwann cells, myofibroblast, chondrocytes and melanocytes.[**
- **Testicular cells**

Hematopoietic stem cell Plasticity

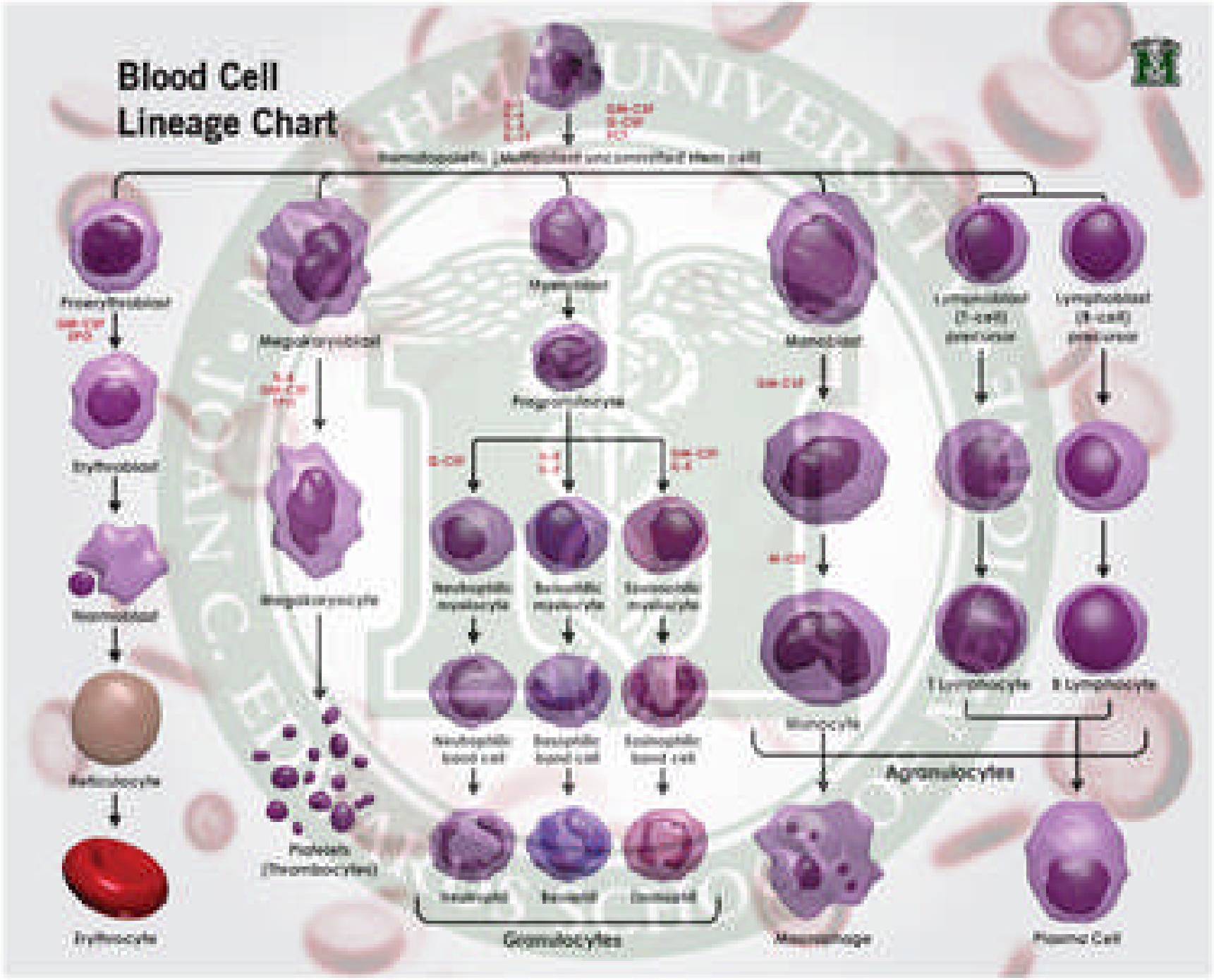
- Bone marrow contains various stem and progenitor cells with a differentiation capability exceeding hematopoiesis – plasticity
- Stem cells in bone marrow are, mesenchymal stem cells, and multipotent progenitor cells.
- Generation of neuronal tissue, cardiomyocytes and functional hepatocytes in injured tissue from bone marrow stem cells

Kronenwett R et al. Differentiation potential of stem cells from bone marrow : *Med Klin* (Munich). 2006 Mar 22;101 Suppl 1:182-5.

Adult human circulating CD34-Lin-CD45-CD133- cells can differentiate into hematopoietic and endothelial cells

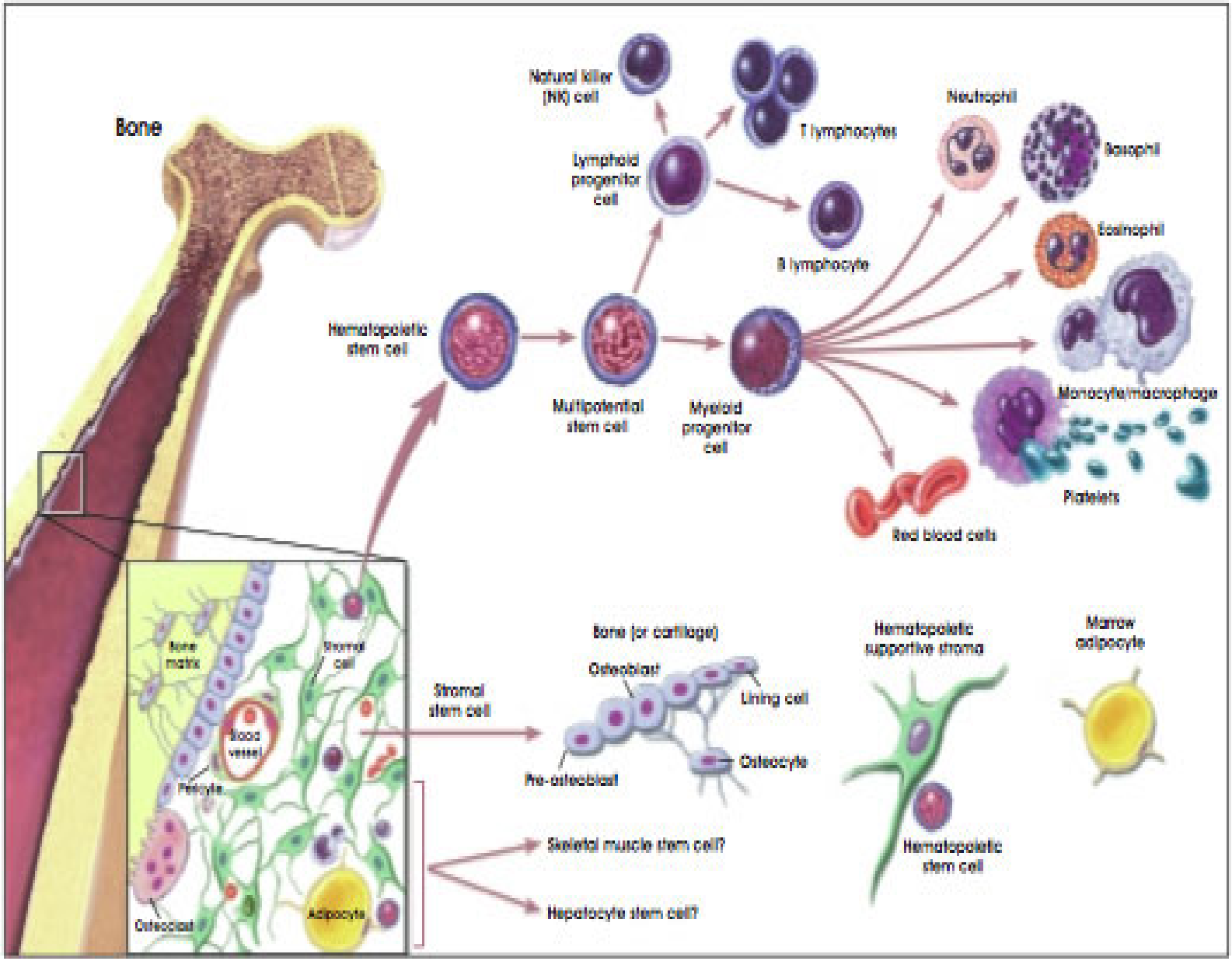
- A precise identification of adult human hemangioblast is still lacking. To identify circulating precursors having the developmental potential of the hemangioblast, we established a new ex-vivo long-term culture model supporting the differentiation of both hematopoietic and endothelial cell lineages. We identified from peripheral blood a population lacking the expression of CD34, lineage markers, CD45 and CD133 (CD34-Lin-CD45-CD133- cells), endowed with the ability to differentiate after a 6 week-culture into both hematopoietic and endothelial lineages. The bilineage potential of CD34-Lin-CD45-CD133- cells was determined at the single cell level *in vitro*, and confirmed by transplantation into NOD/SCID mice. *In-vivo*, CD34-Lin-CD45-CD133- cells showed the ability to reconstitute hematopoietic tissue and generate functional endothelial cells that contribute to new vessel formation during tumour angiogenesis. Molecular characterization of CD34-Lin-CD45-CD133- cells unveiled a stem cell profile compatible with both hematopoietic and endothelial potential, characterized by the expression of c-Kit and CXCR4 as well as EphB4, EphB2 and ephrinB2. Further molecular and functional characterization of CD34-Lin-CD45-CD133- cells will help dissect their physiologic role in blood and blood vessel maintenance and repair in adult life.

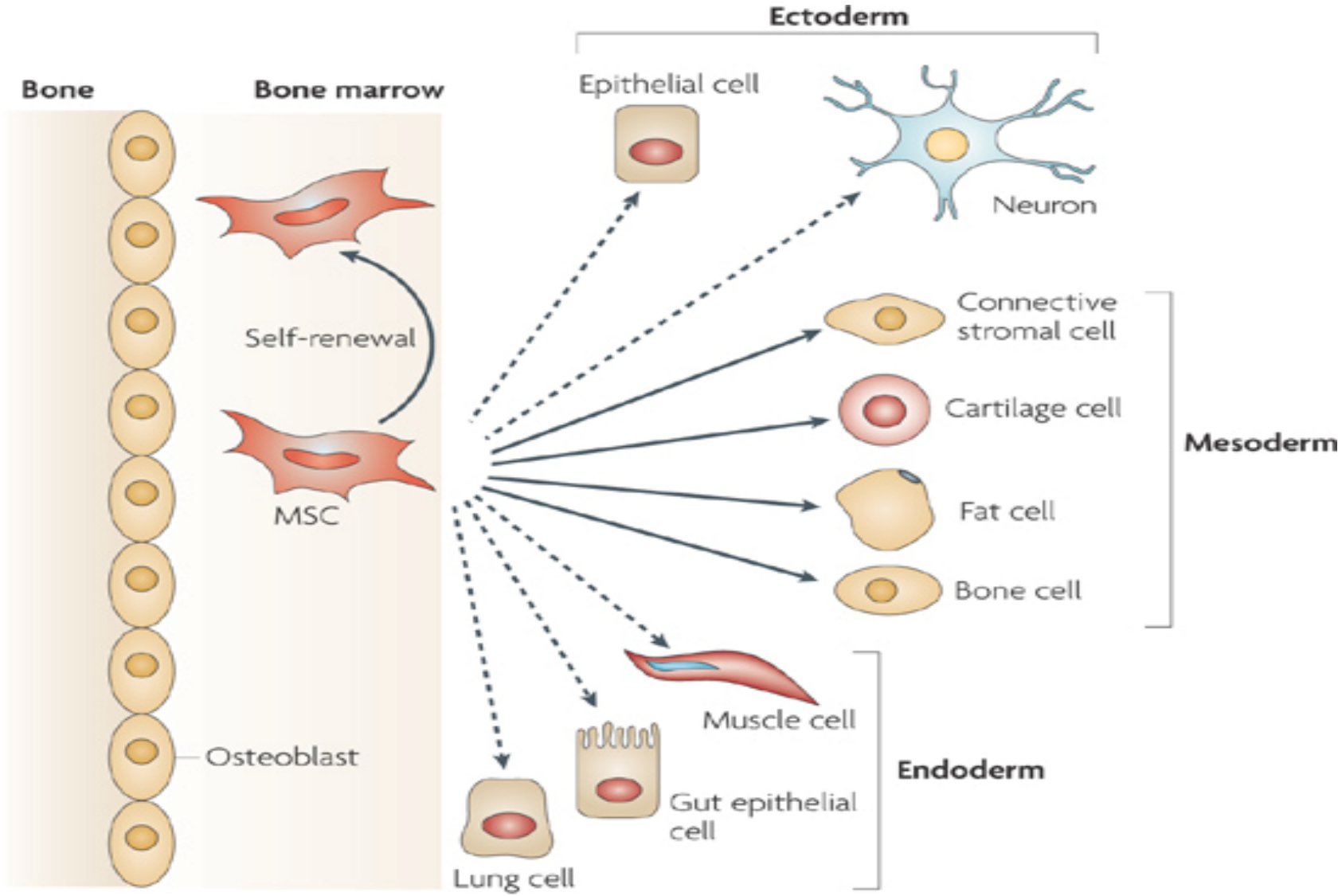
- Submitted October 29, 2010.
- Accepted June 12, 2011.


Blood Cell
Lineage Chart
Megakaryoblast
Myeloblast
Monoblast
Lymphoblast
(T-cell)
Lymphoblast
(B-cell)
Erythroblast
Reticulocyte
Erythrocyte
Platelets
(Thrombocytes)
Promyelocyte
Granulocytes
Monocyte
Agranulocytes
Macrophage
Plasma Cell

Specific Gene Expression in Stem Cells

- • Human hematopoietic stem cells--CD34, Thy-1
- • Epidermal stem cells--β1integrin (α2β1, α3β1)
- • Small intestinal stem cells--β-catenin
- • Hair follicle stem cells--cytokeratin-15
- • Retinal stem cells--CHX10, Nestin
- • Neural crest stem cells--p75
- • Liver stem cells--AFP,GGT


Bone
Natural killer (NK) cell
T lymphocytes
Lymphoid progenitor cell
B lymphocyte
Neutrophil
Basophil
Eosinophil
Hematopoietic stem cell
Multipotential stem cell
Myeloid progenitor cell
Monocyte/macrophage
Platelets
Red blood cells
Bone matrix
Stromal cell
Blood vessel
Pericyte
Osteoclast
Adipocyte
Stromal stem cell
Bone (or cartilage)
Osteoblast
Lining cell
Osteocyte
Pre-osteoblast
Skeletal muscle stem cell?
Hepatocyte stem cell?
Hematopoietic supportive stroma
Hematopoietic stem cell
Marrow adipocyte



Nature Reviews | Immunology

Stem cells are undifferentiated cells with the capacity for unlimited or prolonged self-renewal and the ability to give rise to differentiated cells.

New Excitement About Stem Cells

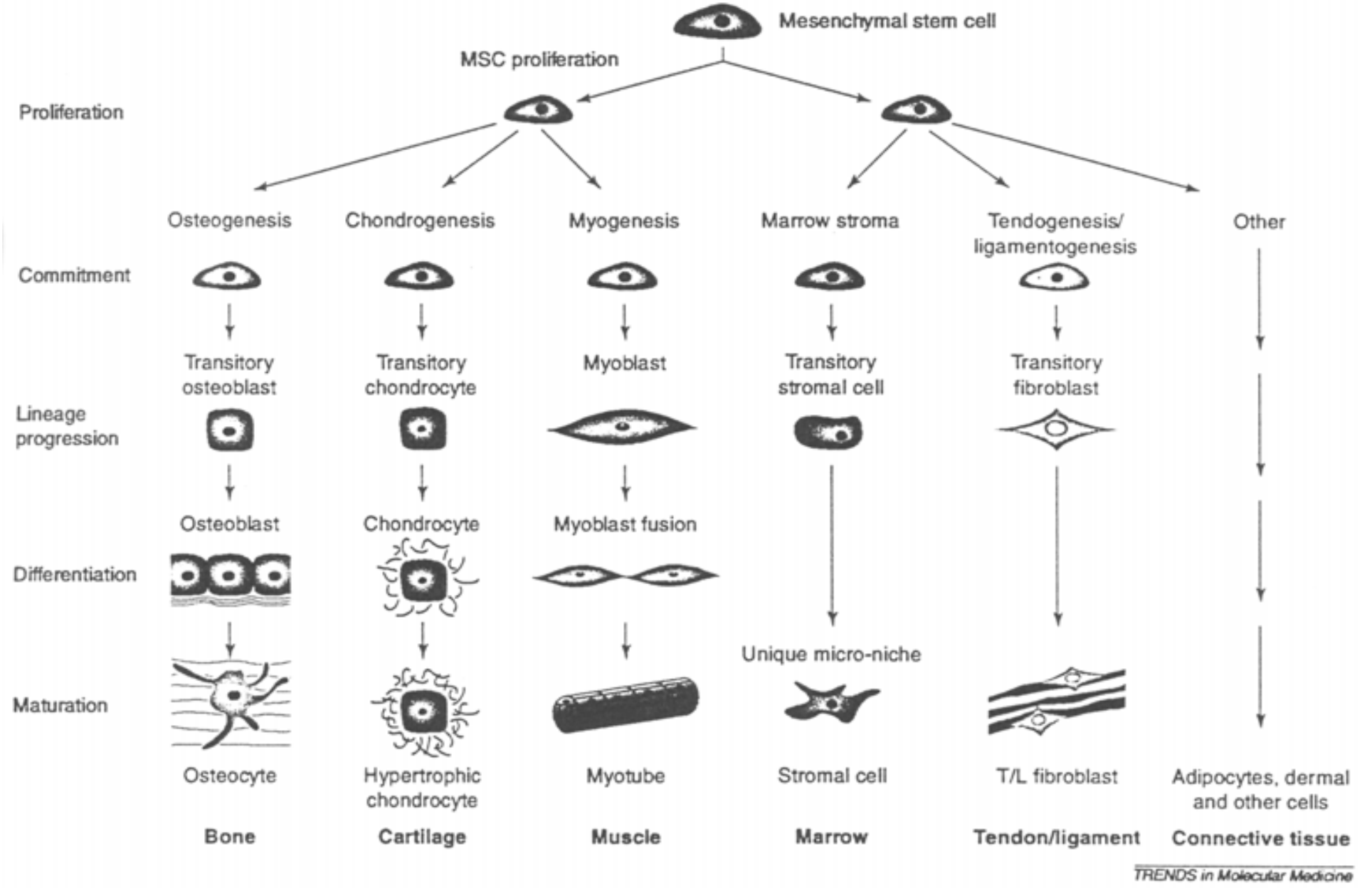
- Successful cultivation of Human embryonic stem cell lines.
- Adult stem cells can differentiate into developmentally **unrelated cell types**.

Adult Stem Cells Can Differentiate into Developmentally Unrelated Cell Types

1. Neural stem cells produced myeloid and lymphoid cells as
   well as early hematopoietic cells.
2. Stem cells from mouse muscle could repopulate the blood
   stream and rescue lethally irradiated mice.
3. Bone marrow stem cells can become brain cells and liver
   cell precursors, plus heart skeletal and smooth muscle.

Location of Adult Stem Cells

- Hematopoietic— yolk sac blood island, fetal liver
- and spleen, bone marrow, circulating umbilical cord
- Blood
- Liver —portal zone near bile duct
- Intestine —crypt
- Epidermal —basal layer
- Retinal —pigmented cilliary margin
- Breast epithelial —end buds (Cap cells) and basal layer of mammary gland
- Pancreas —pancreatic islets and ducts
- Mesenchymal—bone marrow stroma, adipose tissue



Caplan , A.I . And Bruder,S.P. Trends in Mol. Medicine 7 : 259~264, 2001

How to Boost and Improve the Growth of Stem Cells

Pharmaceutical Industry has made strides in developing some chemicals that can effect stem cell stimulation but once again despite the positive effects these medicines produce unwanted side effects (fever, body pain, loss of appetite, rash, breathing difficulty and stroke) which has brought huge headaches for doctors and scientists. The effectiveness of these drugs are only short term and long term outcomes have not been conclusive yet.

However herbal extracts derived from plants have had only slight/no side effects and have showed strong scientific validity in the same arena as the drugs they use now for these stem cell function.

Endothelial Progenitor cells (EPCs)

- Stem cells that reside in the adult bone marrow or circulate in the blood
- Differentiate and mature into endothelial cells.
- Identified by stem-cell markers (CD34, CD133)
- EPCs decrease with age and are a measurement of vascular senescence and a biomarker of aging

Chen JF, et al. Relationship between aging and the number and function of bone marrow-derived endothelial progenitor cells in rats. *Zhonghua Xin Xue Guan Bing Za Zhi*. 2006 Nov;34(11):1026-8.

Thum T, et al. Age-dependent impairment of endothelial progenitor cells is corrected by growth hormone mediated increase of insulin-like growth factor-1. *Circ Res*. 2007 Feb 16;100(3):434-43.

Increased EPC's = Protective health

- Exercise- Strength Training
- Hormone Balance Estrogen/Progesterone (Phyto -B)
- Vitamin D Levels (Bio-D Mulsion Forte)
- Melatonin
- Astragalus- Telomere Inhibition (Astragalus Complex)
- Growth Hormone Stimulation
- Insulin Growth Factor-1 (7- Ketozyme)
- Testosterone (Zorex TomKat)

INSULIN RESISTANCE

Cardiovascular risk factors	Effect on EPC number and function	EPC category	References
Hypercholesterolemia	Reduced EPC number, impaired EPC migratory capacity	Circulating EPCs (CD133, 34, 45) CFU-ECs	[9,23]
Diabetes Mellitus	Reduced EPC number, impaired EPC migratory capacity	Circulating EPCs (CD31, 34, KDR) CFU-ECs	[26,27,29,30]
Hypertension	Inverse relationship of EPC number with systolic blood pressure	Circulating EPCs (CD133, 34, KDR	[9,34]
Smoking	Affects EPC number in a dose-dependent manner	Circulating EPCs (CD133, 34, KDR) CFU-ECs	[35,36]
Ageing	Reduced migration and proliferation	Circulating EPCs (CD133, 34, 45) CFU-ECs	[10-14,113]
Exercise	Increased EPC number and function	Circulating EPCs (CD133, 34, 45) CFU-ECs	[15,17-20]

EPC - endothelial progenitor cells

J Angiogenes Res. 2010; 2: 6.

High Endothelial Progenitor Cells

- Means 70 % less death from Cardio Vascular causes.

Werner N et al. Circulating Endothelial Progenitor Cells and Cardiovascular Outcomes. *N Engl J Med* 353:999, September 8, 2005

Nutrients that activate stem cell proliferation.

- Blueberry
- Green tea
- Vitamin D3
- Carnosine

Bickford PC et al. Neutraceuticals synergistically promote proliferation of human stem cells. *Stem Cells Dev*. 2006 Feb;15(1):118-23.

Neutraceuticals augment circulating EPC's

- Green tea (Vitanox Complex)
- Astragalus (Astragalus Complex)
- Gogi berries (Bilberry Complex)
- Lactobacillus fermentum
- Ellagic acid
- Beta 1,3 glucan (Ganoderma Shitake Mushroom)
- Vitamin D3 (Bio D Forte)

Mikirova N et al. Nutraceutical augmentation of circulating endothelial progenitor cells and hematopoietic stem cells in human subjects *J Transl Med*. 2010 Apr 8;8:34.

Reduction in Economic Burden

Disease	Cost ($Billion)	Vit. D Reduction	Cost Savings
Fractures	25	0.25	6
Cancers	219	0.20	44
Influenza	87	0.20	17
Other Resp.	40	0.20	8
Septicemia	25	0.25	6
MS	11	0.30	3
CVD	432	0.20	86
Diabetes	146	0.15	22
CHF	33	0.20	7
Totals	1018	0.20	199

- Combinations of nutrients produce a synergistic effect to promote proliferation of human hematopoietic progenitors.
- Nutrients can act to promote healing via an interaction with stem cell populations.

Stem Cell Researchers Map New Knowledge About Insulin Production

- Science Daily (Apr. 26, 2012) — Scientists from The Danish Stem Cell Center (DanStem) at the University of Copenhagen and Hagedorn Research Institute have gained new insight into the signaling paths that control the body's insulin production. This is important knowledge with respect to their final goal: the conversion of stem cells into insulin-producing beta cells that can be implanted into patients who need them.
- “In order to get stem cells to develop into insulin-producing beta cells, it is necessary to know what signaling mechanisms normally control the creation of beta cells during fetal development. This is what our new research results can contribute,” explains Professor Palle Serup from Dan Stem.

  “When we know the signaling paths, we can copy them in test tubes and thus in time convert stem cells to beta cells,” says Professor Serup.

  The new research results were obtained in a cooperative effort between DanStem, the Danish Hagedorn Research Institute, and international partners in Japan, Germany, Korea, and the USA.

Gymnema regulated blood sugar levels in normal rats but a significant reduction for rats hyperglycemic made by various means, Shanmugasundaram, ER et al: J of Ethnopharmacol 7, 205 **(1983)**

Gymnema corrected the hyperglycemia in mild alloxan diabetic rats and prolonged life span in sever alloxan diabetic rats. Srivastava, Y et al: Int J Crude Drug Res 24, 171 **(1986)**

In a Japanese Study on mildly diabetic rats 28 days of Gymnema use reduced post- prandial serum glucose and improved glucose tolerance. Okabayashi, Y et al: Diabetes Res Clin Pract 9, 143 **(1990)**

Indian study found that Gymnema extract returned fasting blood glucose levels in diabetic rats after twenty days of oral administration. Therapy increased insulin levels and pancreatic islet regeneration occurred to some extent. Baskaran, K et al: J Ethnopharmacol 30, 265 **(1990)**

There was some suggestion of enhancement of endogenous insulin production, possibly by pancreatic regeneration. Shanmugasundaram, ER et al: J Ethnopharmacol 30, 281 and 295 **(1990)**

S.R. Sharma, S.K. Dwivedi, D. Swarup. Ind. J. Exp. Biol. **34**, 372 **(1996).**

ANTI-DIABETIC EFFECTS OF *GYMNEMA SYLVESTER* EXTRACT ON STREPTOZOTOCIN INDUCED DIABETIC RATS AND POSSIBLE β-CELL PROTECTIVE AND REGENERATIVE EVALUATIONS Digest Journal of Nanomaterials and Biostructures, Vol. 7, No 1, January - March 2012, p. 135 - 142

Table 1: Experimental design.

Group Animal

- (I) Normal rats+ saline
- (II) Normal rats+(400mg/kg) GS
- (III) Diabetic rats (STZ (50mg/Kg)
- (IV) Diabetic rat+(200mg/kg) GS
- (V) Diabetic rat+(400mg/kg) GS
- (VI) Diabetic rat+ insulin (3IU/kg)

Digest Journal of Nanomaterials and Biostructures,
Vol. 7, No 1, January - March 2012, p. 135 - 142

Table 2: Effect of G. sylvestre extract on blood glucose levels in normal and STZ-induced diabetic rats.

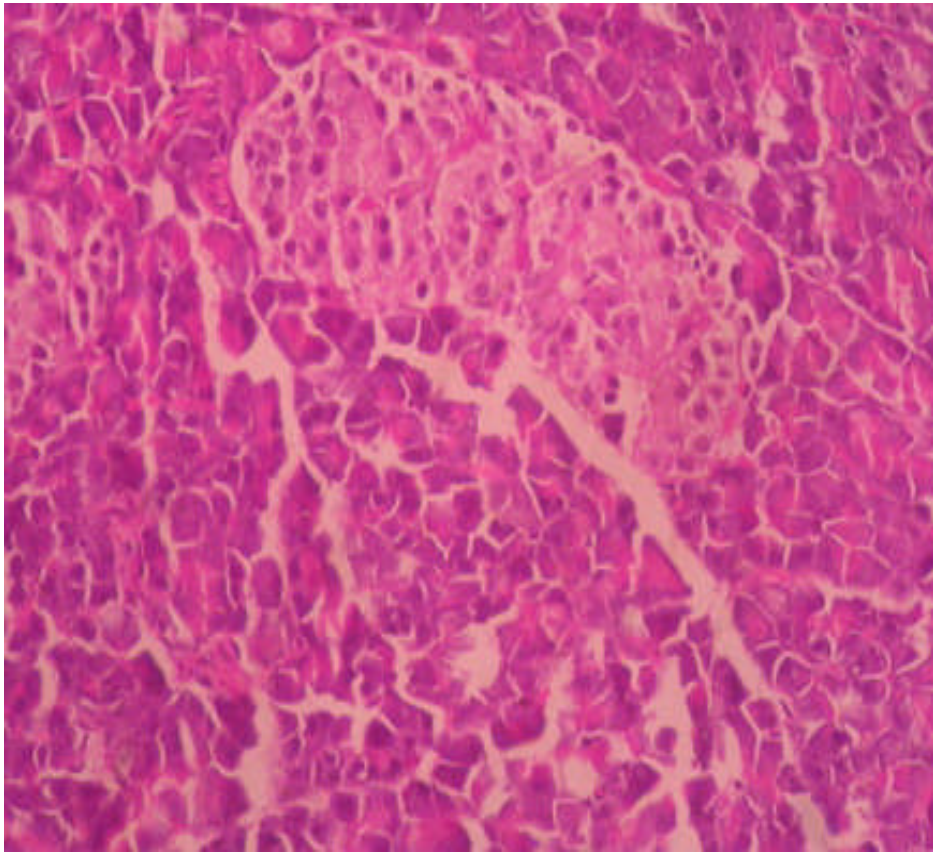
Groups Blood Glucose level in mg/dl

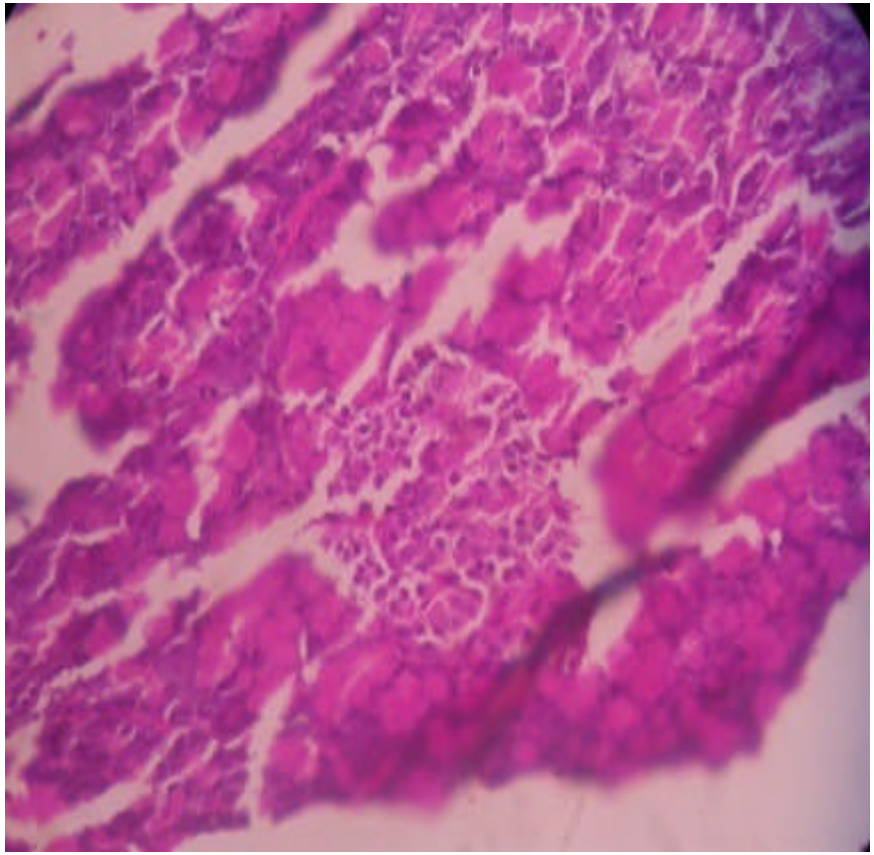
	0 day	10 day	20 day	40 day
I	82.1 ± 6.2	83.3 ± 5.1	79.2 ± 6.3	82.5 ± 6.6
II	83.3 ± 6.5	85.32 ± 4.5	88.6 ± 5.50	89.9 ± 6.36
III	341.42 ± 25.32	369.06 ± 15.25a	390.07 ± 20.36a	410.05 ± 18.56a
IV	339.25 ± 22.10	310.26 ± 18.23a	225.32 ± 12.45a,b	185.52 ± 20.06a,b
V	**345.25 ± 20.55**	292.12 ± 12.54a	212.16 ± 15.55a,b	**112.85 ±13.68b**
VI	325.16 ± 15	95.42 ± 12.54b	85.56 ± 9.56b	88.95 ± 12.5b

a. p < 0.05 by comparison with normal rats.
b. p < 0.05 by comparison with streptozotocin diabetic rats.

Normal pancreatic acini and islets of langherhans with normal cellularity.

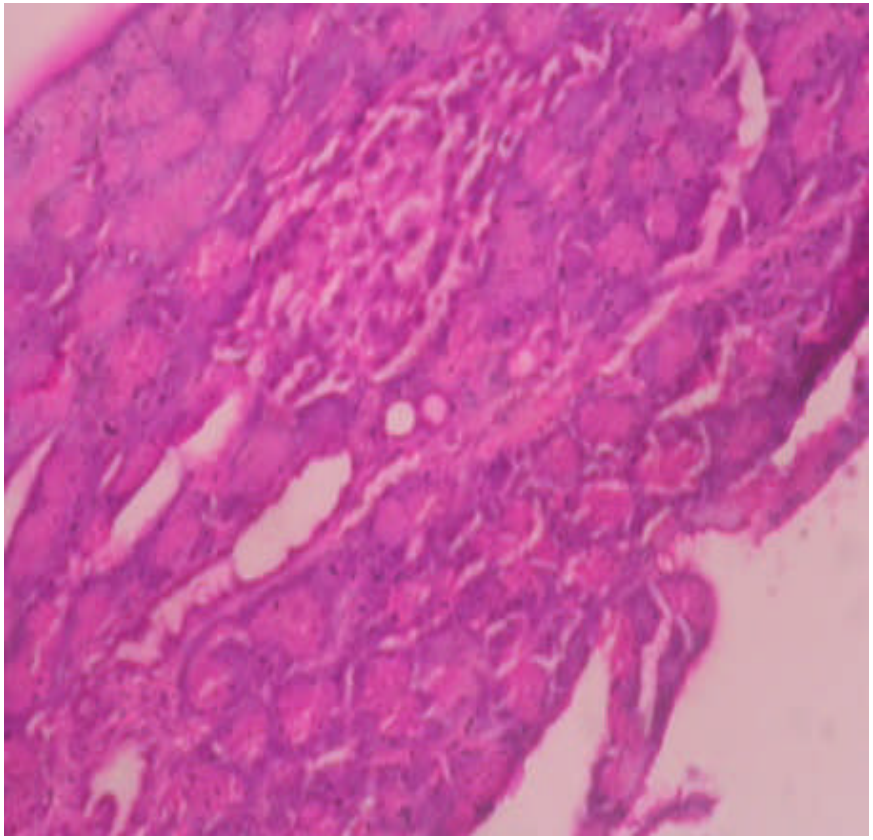
STZ induced damaged pancreas

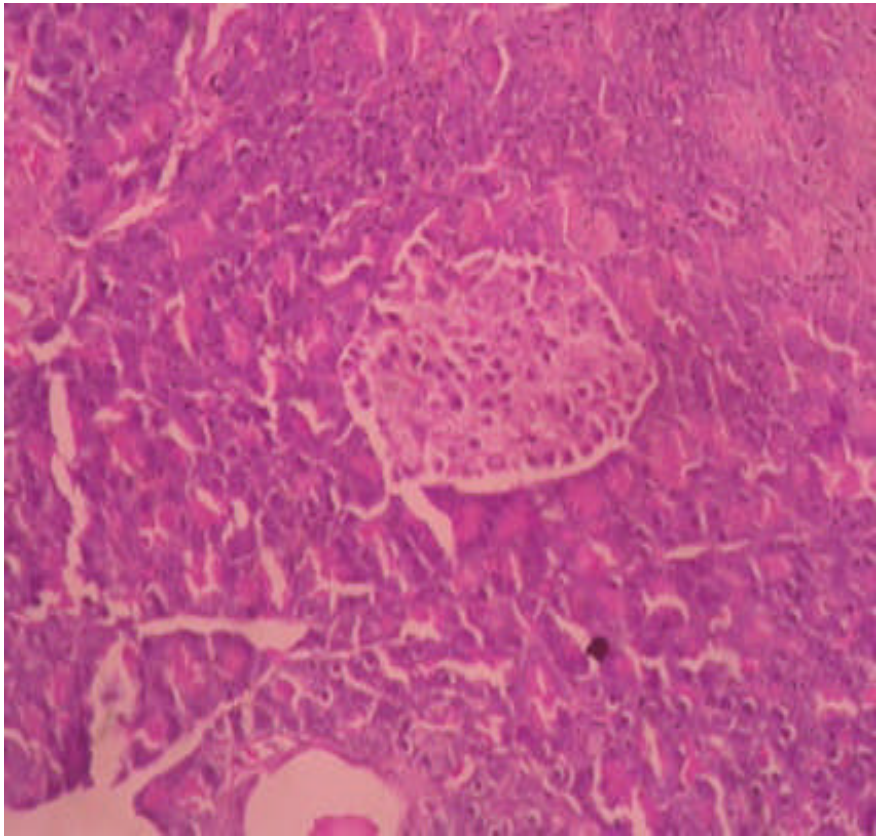




Digest Journal of Nanomaterials and Biostructures,
Vol. 7, No 1, January - March 2012, p. 135 - 142

Pancreas treated by GS at a dose 400 mg/kg.





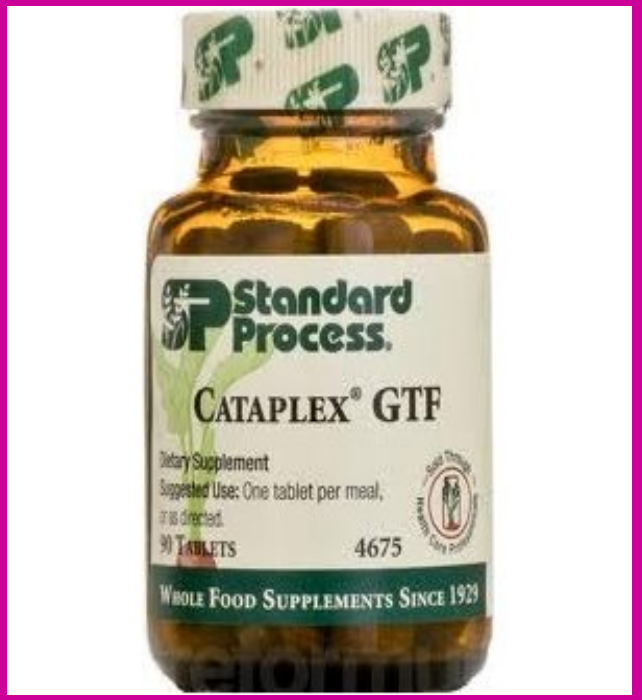
These results indicate that *Gymnema sylvestre* extract shows significant change in the all above said biochemical parameters when compared to control group. The histopathological study shows the significant recovery of damaged β-cells in diabetic *Gymnema sylvestre* treated rats, when compared to diabetic control ones. In conclusion these results indicate that *Gymnema sylvestre* extract, possessed hypoglycemic and hypolipidemic activity in long-term treatment and is also capable of regenerating β-cells and hence it could be used as a drug for treating diabetes mellitus. Because it has regenerating ability of β-cells, at least the people in the earliest stages of the disease could be treated to delay or prevent full-blown clinical diabetes.

ANTI-DIABETIC EFFECTS OF *GYMNEMA SYLVESTER* EXTRACT ON STREPTOZOTOCIN INDUCED DIABETIC RATS AND POSSIBLE β-CELL PROTECTIVE AND REGENERATIVE EVALUATIONS Digest Journal of Nanomaterials and Biostructures, Vol. 7, No 1, January - March 2012, p. 135 - 142

Regenerate Beta-cells and Balance Sugar Levels

Two tablets 2x/day for 1 month then One tablet 2x/day there after until desired results.

Three tablets 2x/day for 3 months Then two tablets 2x/day there after until desired results.



Botanical characteristics, pharmacological effects and medicinal components of Korean Panax ginseng C A Meyer.

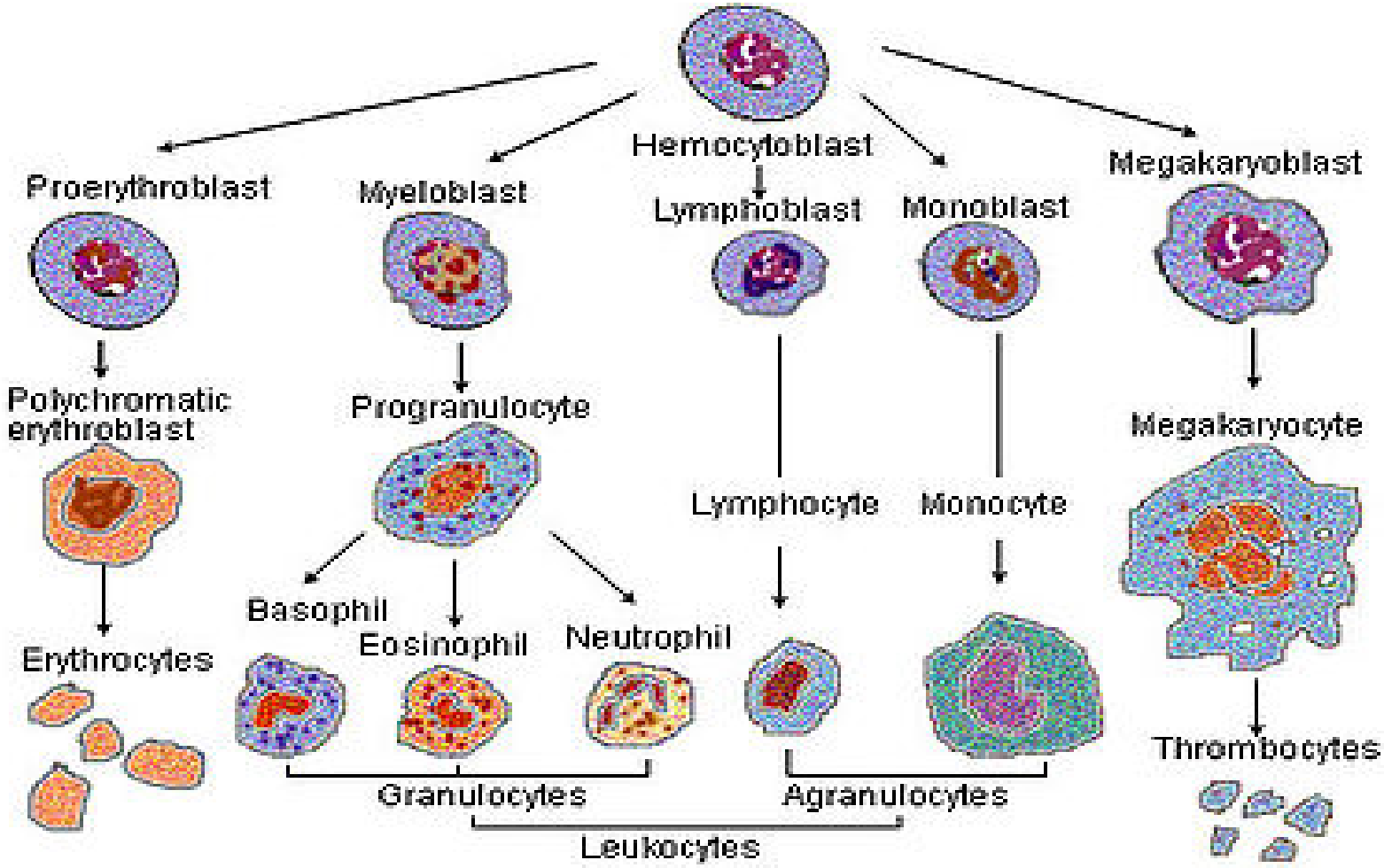
- Korean Panax ginseng C A Meyer is mainly used to maintain the homeostasis of the body, and the pharmacological efficacy of Korean ginseng identified by modern science includes improved brain function, pain-relieving effects, preventive effects against tumors as well as anti-tumor activity, enhanced immune system function, anti-diabetic effects, enhanced liver function, adjusted blood pressure, anti-fatigue and anti-stress effects, improved climacteric disorder and sexual functions, as well as anti-oxidative and anti-aging effects. Further clinical studies of these pharmacological efficacies will continue to be carried out. Korean ginseng is found to have such main properties as ginsenoside, ployacetylene, acid polysaccharide, anti-oxidative aromatic compound, and insulin-like acid peptides. The number of ginsenoside types contained in Korean ginseng (38 ginsenosides) is substantially more than that of ginsenoside types contained in American ginseng (19 ginsenosides). Furthermore, Korean ginseng has been identified to contain more main non-saponin compounds, phenol compounds, acid polysaccharides and polyethylene compounds than American ginseng and Sanchi ginseng.

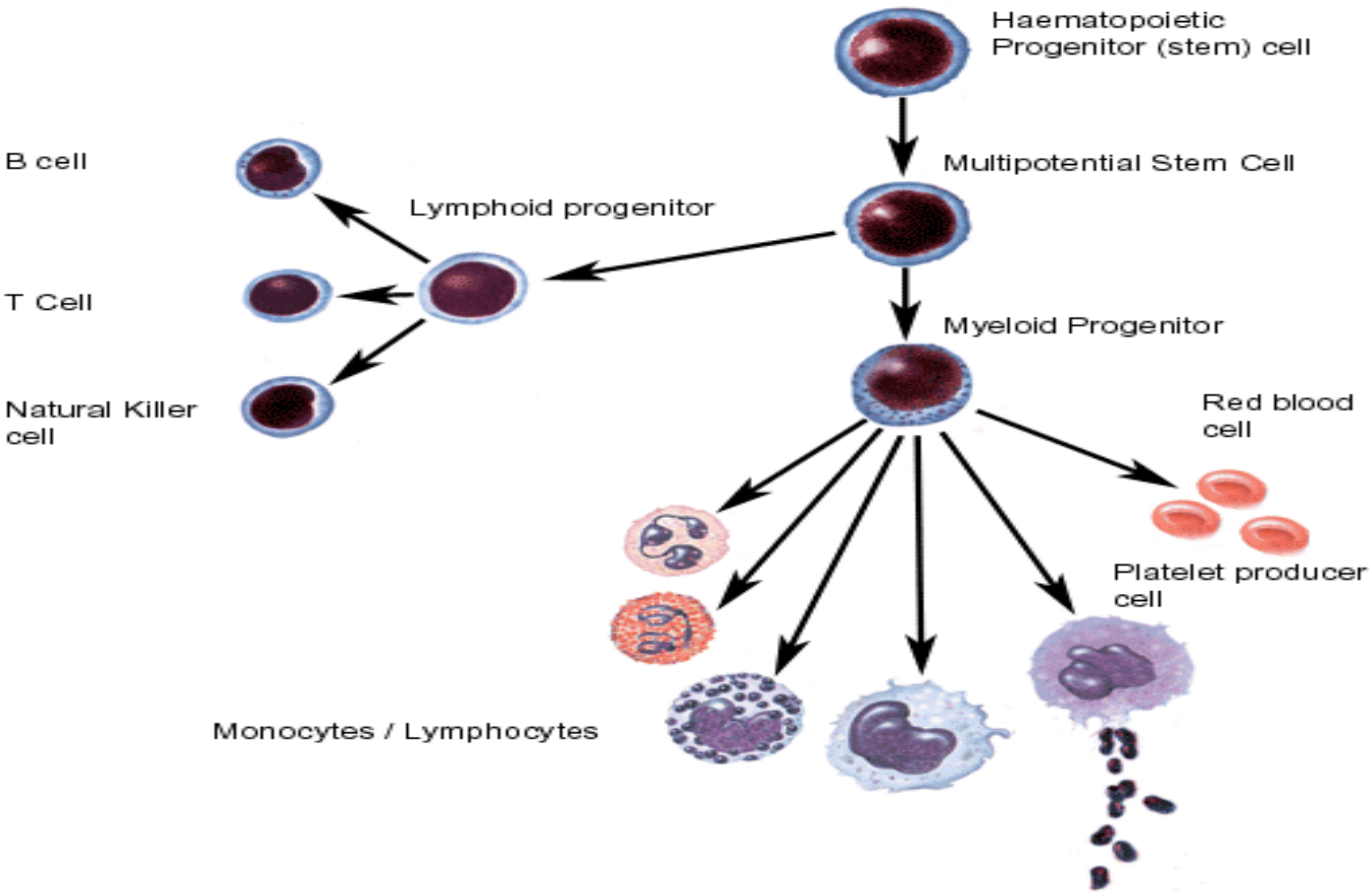
Acta Pharmacol Sin. 2008 Sep;29(9):1109-18.

Ginseng's Beneficial Properties

- **Dammarane Sapogenins can stimulate fibroblasts (partially differentiated stem cells) and synthesize collagen.**
- **Dammarane Sapogenins can enhance the skin ability to resist the abuse of notorious substances like oxygen radicals and ultraviolet rays and retard the degeneration of fibroblasts.**
- **Dammarane Sapogenins from Ginseng Stimulate endothelial progenitor cells to prevent endothelial dysfunction.**
- **Scientists in Japan have found that mesenchymal stem cells can be differentiated by Dammarane Sapogenins into contractile cardiomyocytes, indicating that Dammarane Sapogenins can have a significant role in the treatment of myocardial injury due to acute myocardial infarction or inflammation, greatly improve the prognosis of patients afflicted by these diseases.**
- **Dammarane Sapogenins deliver a stimulatory impact on hematopoietic stem cells. For example, the number of granulocytes, lymphocytes, erythrocytes, and megakaryocytes differentiated from hematopoietic stem cells is markedly increased under the treatment of Dammarane Sapogenins Besides, the effect of Dammarane Sapogenins is also in part mediated by the up regulation of GM-CSF and its receptor.**
- **Dammarane Sapogenins from Ginseng Improve the Growth of Neuronal stem cell**.

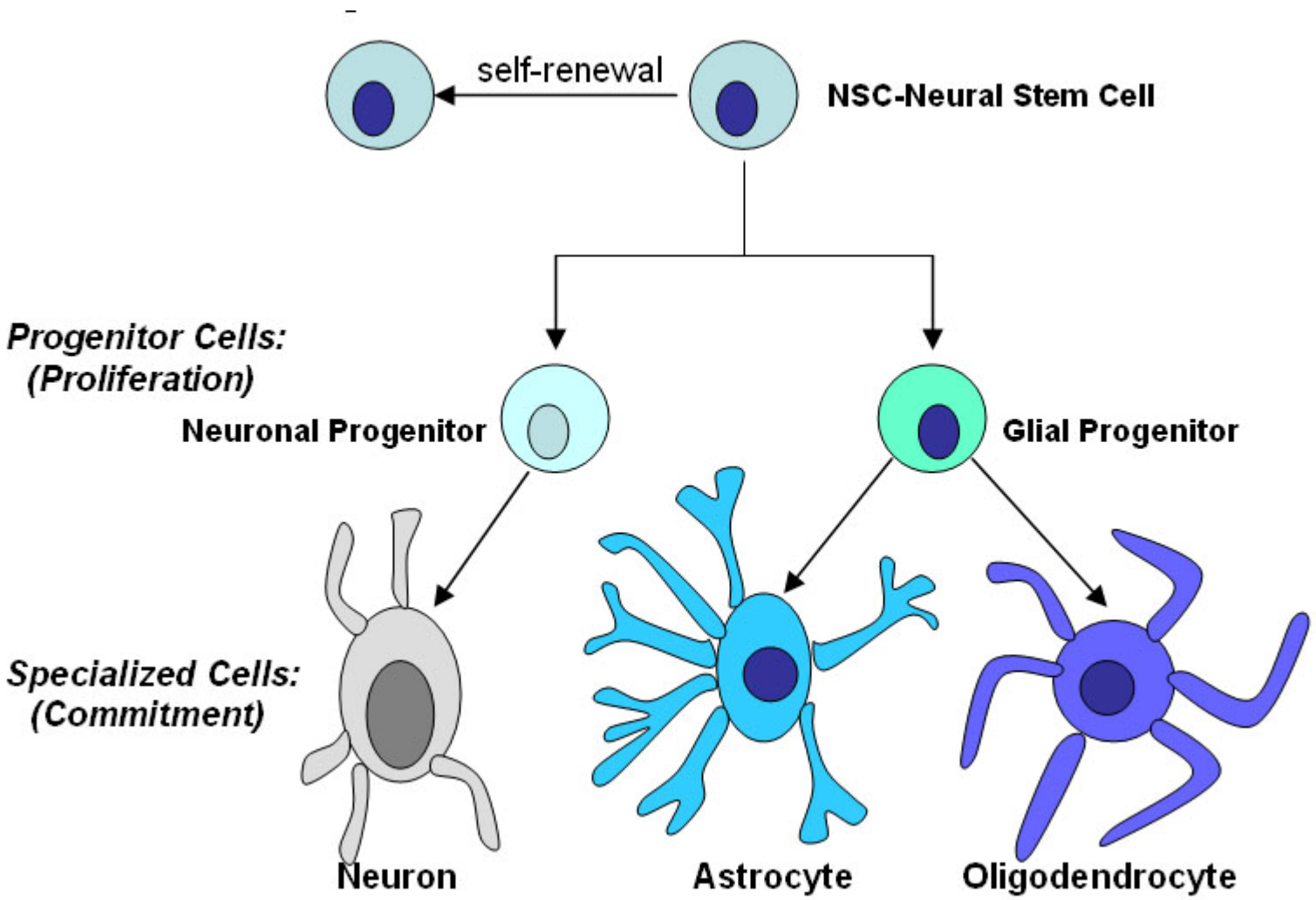
Hematopoitic Stem Cells




Haematopoietic
Progenitor (stem) cell
Multipotential Stem Cell
Lymphoid progenitor
B cell
T Cell
Natural Killer
cell
Myeloid Progenitor
Red blood
cell
Platelet producer
cell
Monocytes / Lymphocytes

Dammarane Sapogenins from Ginseng Improve the Growth of Neuronal stem cell.

- When cultured in the medium containing Dammarane Sapogenins, neuronal stem cells are active in proliferation; and co-administration of Dammarane Sapogenins and fibroblast growth factor or basic fibroblast growth factor shows synergistic effect on neuronal stem cell growth; and these proliferating neuronal stem cells can be differentiated into dopaminergic neurons and cortical neuron (Journal of TCM. 2007; 32(13):1310-3 Yao Xue Xue Bao. 2003; 38(10):735-8). Moreover, Dammarane Sapogenins can stimulate neuronal stem cells to replace the dying neurons in hippocampal gyrus of normal or ischemic cerebrum (Neurol Res. 2007;29(3):270-3; Neurol Res. 2004; 26(4):422-8). In addition, diol-type Dammarane Sapogenins also exhibit stimulatory effect on neurosphere stem cells and induce the latter to differentiate into neurons, astrocytes and glial cells, and the cerebral function can be therefore restored (J Nat Prod. 2007 Aug;70(8):1329-34*). The stimulatory effect of Dammarane Sapogenins on neuronal stem cells is regarded to have significance in the prevention and treatment of Pakinson's disease and Alzheimer's disease, and also plays a role in memory improvement and aging retardation (*Acta Pharmacol Sin. 2005; 26(2):143-9).


self-renewal
NSC-Neural Stem Cell
Progenitor Cells:
(Proliferation)
Neuronal Progenitor
Glial Progenitor
Specialized Cells:
(Commitment)
Neuron
Astrocyte
Oligodendrocyte

Ginseng- RB1(ginsenoside) on Brain development and recovery.

Panax ginseng used in Chinese medicine, contains a group of triterpenoid saponins known collectively as ginsenosides. One of the ginsenosides called RB1, was important in brain cell repair and regeneration due to the fact this RB1 increases Brain derived neurotrophic factor (BDNF) The growth factor BDNF is responsible for the recovery and growth of brain cells according to the Journal of Ethnopharmacology November 2010.

Ginseng total saponins enhance neurogenesis after focal cerebral ischemia.

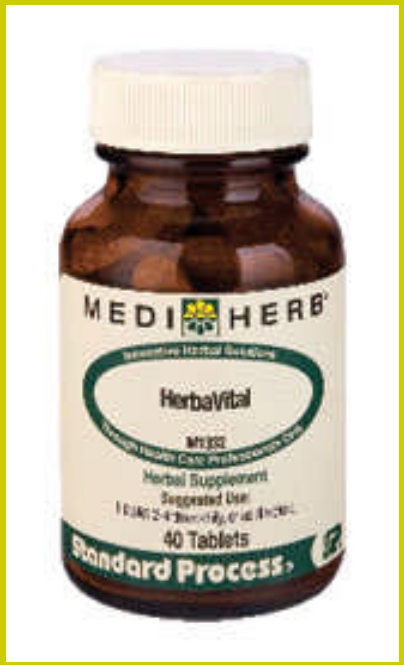
- **RESULTS:**

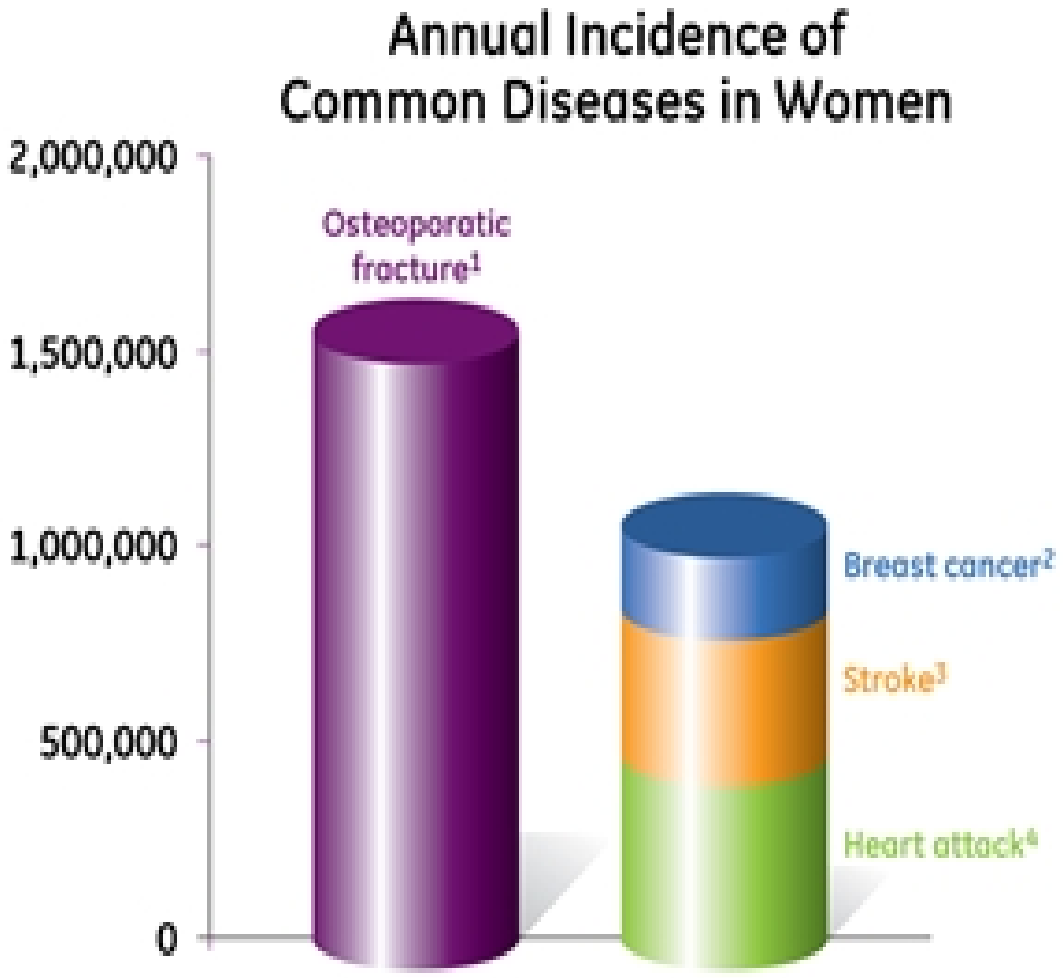
  (A) GTS-treated rats have better neurological scores compared with those in NS group at 14d time point ($p<0.05$); (B) the number of BrdU(+) cells and BrdU(+)/NeuN(+) cells in GTS group were significantly higher than those in NS group in the ipsilateral subventricular zone and in the ipsilateral infarct area after MCAO, respectively ($p<0.05$ or $p<0.01$); (C) the increase of the number of BrdU(+)/NeuN(+) cells highly correlated with the decrease of neurological scores. Coefficient correlation $r=-0.828$ ($p<0.01$).
- **CONCLUSION:**

  GTS can improve neurological deficits after focal cerebral ischemia by inducing endogenous neural stem cells activation and thereby enhance adult central nervous system regeneration.

J Ethnopharmacol. 2011 Jan 27;133(2):724-8. Epub 2010 Nov 10.

Korean Ginseng contains a complex mixture of steroidal saponins called ginsenosides and other compounds. Korean Ginseng 1:2 is standardized to contain 10.5 mg/ mL of ginsenosides (calculated as Rg1 and Rb1) to ensure optimal strength and quality. Korean Ginseng can:
promote vitality and stamina in people of any age,
work as a tonic to benefit the entire body,
ease the effects of heavy exercise,
support the body as it ages,
restore and strengthen immune function,
support and maintain cellular health,
support the body's natural defenses against emotional and environmental stressor



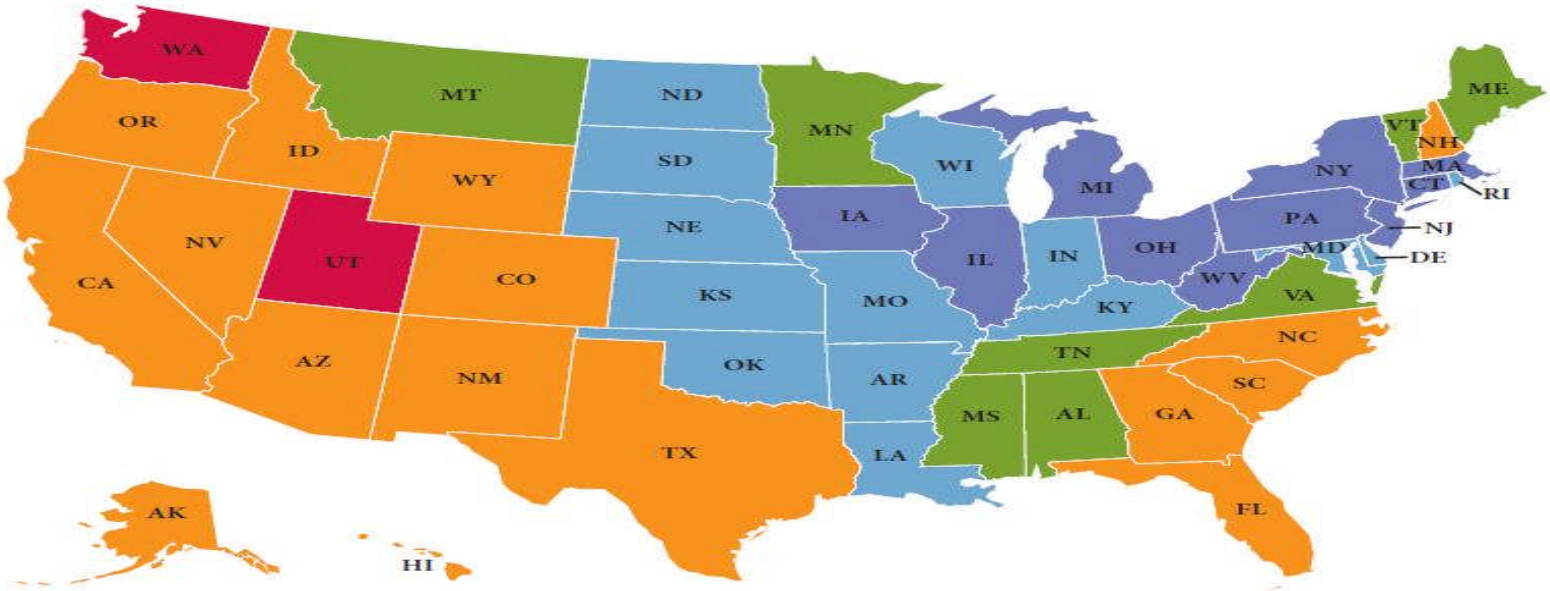

Annual Incidence of
Common Diseases in Women
2,000,000
1,500,000
1,000,000
500,000
0
Osteoporatic fracture[1]
Breast cancer[2]
Stroke[3]
Heart attack[4]

NATIONAL OSTEOPOROSIS FOUNDATION

STRONG VOICES *for* STRONG BONES

Osteoporosis and Low Bone Density in the United States

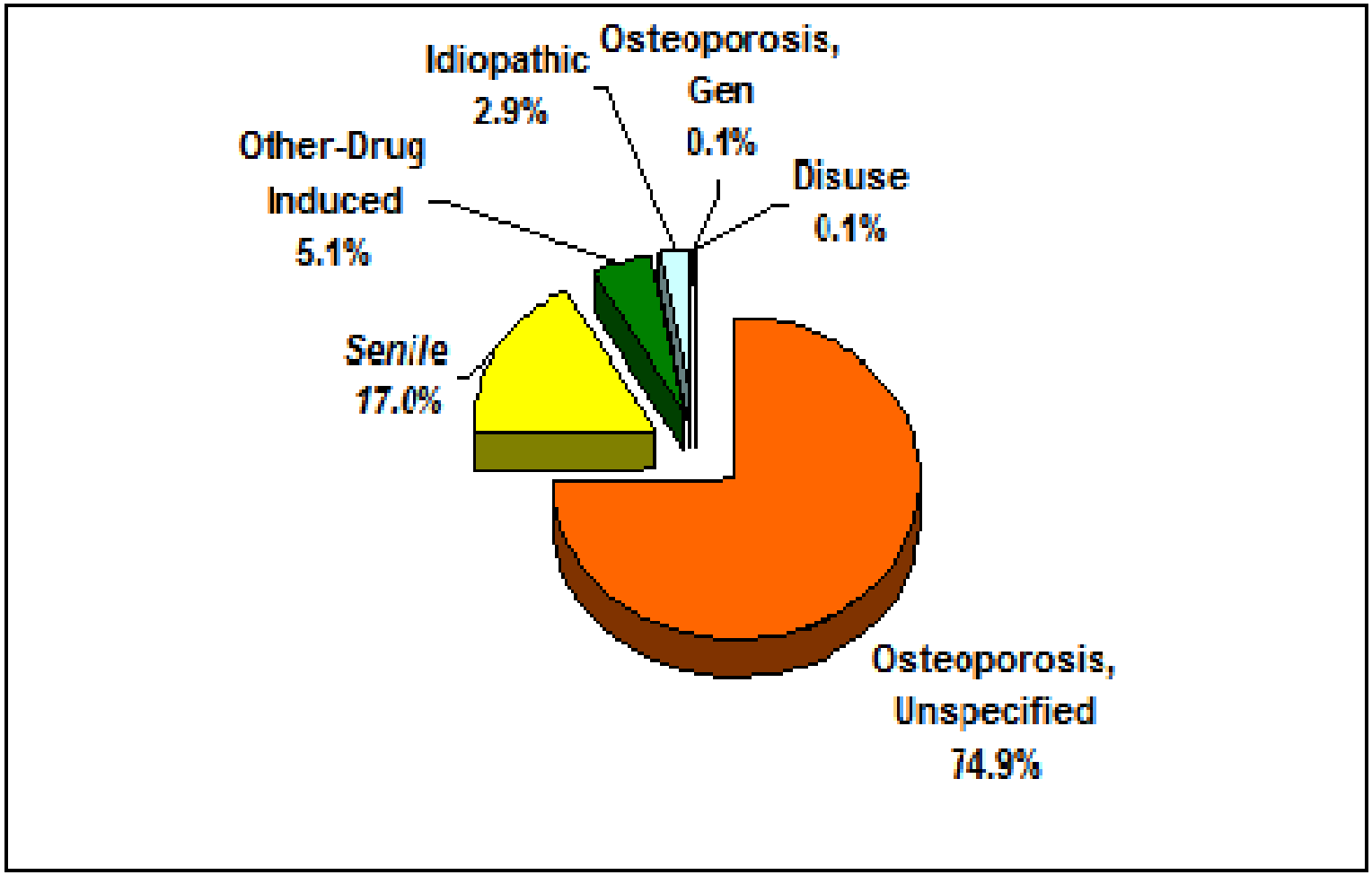
Projected Increase in Prevalence of Osteoporosis and Low Bone Density 2002 to 2020



Source: America's Bone Health: *The State of Osteoporosis and Low Bone Mass in Our Nation*, National Osteoporosis Foundation. 2002.

NATIONAL OSTEOPOROSIS FOUNDATION

1150 17th Street, N.W.
Suite 850
Washington, D.C. 20036
202.223.2226
Fax: 202.223.2237
www.nof.org


Idiopathic
2.9%
Osteoporosis,
Gen
0.1%
Other-Drug
Induced
5.1%
Disuse
0.1%
Senile
17.0%
Osteoporosis,
Unspecified
74.9%

Flavonoids of Herba Epimedii regulate osteogenesis of human mesenchymal stem cells through BMP and Wnt/beta-catenin signaling pathway.

- Herba Epimedii is one of the most commonly used Chinese herbs for treating osteoporosis. In the present study, the flavonoids of Herba Epimedii (HEF) have shown to promote the osteogenic differentiation of human bone marrow-derived mesenchymal stem cells. They were noted to enhance the mRNA expression of BMP-2, BMP-4, Runx2, beta- catenin and cyclinD1, all of which are BMP or Wnt-signaling pathway related regulators. The osteogenic effect was inhibited by the introduction of noggin and DKK-1, which is classical inhibitor of BMP and Wnt/beta-catenin signaling, respectively. These results suggest that HEF exerts promoting effect on osteogenic differentiation, which plausibly functions via the BMP and Wnt/beta-catenin signaling pathways. Considering the therapeutic efficiency and economical issues, HEF may be a potential candidate for promoting bone regeneration. On the other hand, osteogenic differentiation of MSCs may also be a promising and attractive tool to apply in bone repair.

Molecular and Cellular Endocrinology (2010)
Volume: 314, Issue: 1, Pages: 70-74

Epimedium brevicorum: Icariin flavonoid

Epimedium brevicornum maxim, a non leguminous medicinal plant, has been found to be rich in phytoestrogen flavonoids. Results from a 24-month randomized double-blind placebo-controlled clinical trial showed that ***Epimedium*** **-derived phytoestrogen flavonoids were able to exert beneficial effects on preventing bone loss in late postmenopausal women, without resulting in a detectable hyperplasia effect on the endometrium.**

Furthermore, neither serum estradiol nor endometrial thickness was found to be changed in either groups during the clinical trial.

Conclusions: EPFs exert a beneficial effect on preventing bone loss in late postmenopausal women without resulting in a detectable hyperplasia effect on the endometrium.

Journal of Bone and Mineral Research (*G. Zhang, L Qin, Y. Shi – 2007*).

Bone Complex

Supplement Facts
Serving Size: 1 tablet
Servings per Container: 40Amount per Serving %DVCalories3

Calcium 40 mg

4% Epimedium herb top 12:1 extract from *Epimedium sagittatum* herb top 2.4 g Containing icariin 20 mg

200 mg† Daily Value (DV) not established

Other Ingredients: Cellulose, calcium acid phosphate, sodium starch glycollate, maltodextrin, hypromellose and magnesium stearate.

Issue 15 VOLUME 1 ISSUE 15

Boomers boosting joint replacement statistics

When faced with joint-replacement surgery, most people want to know how painful it will be, how long recovery time will be or if they will need long-term rehabilitation. Baby boomers, on the other hand, want to know if they will be able to continue their normal activities which often include high-impact sports and running.

Boomers tend to be much more active than their parents and therefore are requiring hip and knee replacements (the most common joint replacements) much earlier. With the first of the baby boomers reaching 60 this year, the number of hip and joint replacements is expected to increase dramatically.

The American Academy of Orthopedic Surgeons (AAOS) projects a 673 percent spike in total-knee replacements and a 174 percent increase in first-time total-hip replacements by 2030.

Insulin-like Growth Factor (IGF-1)

- **Insulin-like growth factor 1** (**IGF-1**), also called **somatomedin C**, is a protein that in humans is encoded by the *IGF1* gene.[1][2] IGF-1 has also been referred to as a "sulfation factor"[3] and its effects were termed "nonsuppressible insulin-like activity" (NSILA) in the 1970s.
- IGF-1 is a hormone similar in molecular structure to insulin. It plays an important role in childhood growth and continues to have anabolic effects in adults. A synthetic analog of IGF-1, mecasermin is used for the treatment of growth failure.[4]
- IGF-1 consists of 70 amino acids in a single chain with three intramolecular disulfide bridges. IGF-1 has a molecular weight of 7649 daltons.

The primary purpose of IGF-1 is to stimulate cell growth. Every cell in the human body can be affected by IGF-1, but cells in muscle, cartilage, bone, liver, kidney, skin tissue, lungs, and nerves tend to be most positively affected.

Several scientific tests have been conducted to determine the benefits of IGF-1 and thus have prompted companies to seek approval from the Federal Drug and Administration for substances that can increase the body's IGF-1 levels. **Taken responsibly over time, products that increase IGF-1 can help improve muscularity and healing and recovery times.** IGF-1 can also stimulate a decrease in body fat, an increase in lean muscle mass, improved skin tone and restful sleep. IGF-1 has also been documented to increase the rate and extent of muscle repair after injuries or strains. Not only do muscles recover more quickly, they also tend to return stronger and healthier than ever when levels of IGF-1 in the bloodstream are at their highest.

IGF-1 also has a positive affect in the aging process. **It can prevent age-related degeneration of muscles, skin tissue and bones. Because IGF-1 levels tend to level off and fall rapidly when the liver is not stimulated by HGH production, these benefits are greatest when consistently high HGH levels are maintained.**

7-Ketozyme Deficiency

- Heavy alcohol consumption
- Birth Control Pills
- Stress (Cortisol)
- Lack of Exercise
- Hypothyroidism
- Obesity

Over 2,500 published papers reveal the benefits of 7-Ketozyme :

Supports the immune system
Limits platelets from stacking
Decreases LDL and cholesterol
Increases serotonin
Improves glucose levels
Increases muscularity and healing
Regenerative ability

After 6 months of supplementing 7-Ketozyme, the subjects benefited from enhanced cell regeneration and increased growth factors by 10%.

7- Ketozyme Supplement

Take 3 tablets 2x/day for:

- Joint regeneration
- Sex Drive
- Stress
- Sleep/ Wake Cycles
- Well being
- More energy
- Weight Loss

Men taking more than 50 milligrams of Ketozyme should have there estrogen levels checked.

Hypochlorhydria (Low HCL)

- Addison’s Disease
- Dermatitis
- Biliary Dysfunction
- Hepatitis
- **Osteoporosis**
- Thyroid Dysfunction
- Asthma
- Diabetes
- Grave’s Disease
- Acne Rosacea
- Myopia
- Lupus
- Pernicious anemia
- Pituitary Dysfunction
- Celiac disease
- ECZEMA
- Auto-immune disorder
- Myasthenia Gravis
- **Osteoarthritis**
- **Rheumatoid arthritis**
- Psoriasis
- Vitiligo

Examples of Degeneration

Hyaline Cartilage

Where in the body is hyaline cartilage tissue ?

Hyaline cartilage is the most abundant of the three types of cartilage. It is found in many locations in the body, including:

Bronchi; **Bronchial Tubes**; **Costal Cartilages**; **Larynx** (voice-box); **Nose**; **Trachea**

Covering the surface of bones at joints - especially in areas where damage due to wear may lead to osteoarthritis incl. e.g. the **ends of the long bones**, and also the **anterior ends of the ribs**.

Embryonic skeleton (i.e. in the fetus).

The Structure of hyaline cartilage tissue

Hyaline cartilage consists of a bluish-white, shiny ground elastic material with a matrix of chondroitin sulphate into which many fine collagen fibrils are embedded. It contains numerous **chondrocytes**.

The Functions of hyaline cartilage tissue

Hyaline cartilage tissue provides smooth surfaces, enabling tissues to move/slide easily over each other, e.g. facilitating smooth movements at joints. It is also provides flexibility and support.

- **Cartilage** (adjectival form: "cartilaginous" is a flexible connective tissue found in many areas in the bodies of humans and other animals, including the joints between bones, the rib cage, the ear, the nose, the bronchial tubes and the intervertebral discs. It is not as hard and rigid as bone but is stiffer and less flexible than muscle.
- Cartilage is composed of specialized cells called chondroblasts that produce a large amount of extracellular matrix composed of collagen fibers, abundant ground substance rich in proteoglycan, and elastin fibers. Cartilage is classified in three types, *elastic cartilage*, *hyaline cartilage* and *fibrocartilage*, which differ in the relative amounts of these three main components. Chondroblasts that get caught in the matrix are called chondrocytes. They lie in spaces called lacunae with up to eight chondrocytes per lacuna.
- Unlike other connective tissues, cartilage does not contain blood vessels. The chondrocytes are supplied by diffusion, helped by the pumping action generated by compression of the articular cartilage or flexion of the elastic cartilage. Thus, compared to other connective tissues, cartilage grows and repairs more slowly.

Hyaline cartilage showing chondrocytes and organelles, lacunae and matrix.

Glandular Therapy is that by ingesting glandular material from a certain animal gland, the corresponding human gland will work better. Glandulars also refer to other organ parts of the body that are taken as supplements, including extract from the heart, spleen, pancreas and liver.

- **Glandular Therapy** has a history that goes back as far as the Ancient Greeks and the still forms part of traditional Chinese medicine. It was widely used until research stopped with the race in finding antibiotics to fight bacteria. Dr. Keuttner introduced cell therapy in 1912 whereby glands are either surgically implanted, or chopped and dissolved in a saline solution that is injected in the patient. It was years later before his recommendation was put in action. Dr. Niehan had a patient in 1931 that could not receive a surgical implant so he made a saline solution of the parathyroid gland from an ox, which he injected into the patient. He discovered that the injection worked better than an implant would have.
- He continued to inject live cells into thousands of patients. During the 1980's a process developed whereby a pre-treatment with vitamins, minerals, enzymes and amino acids are combined with live cell injection.

There are several glandulars that are used in Glandular Therapy:

- Heart tissue extract helps to regenerate damaged heart tissue.
- Liver concentrate provides strength and endurance. It also helps to fight diseases.
- Prostrate extract stimulates better sexual performance.
- Pancreatic concentrate aids in food digestion and to help the pancreas to produce enzymes.
- Stomach concentrate stimulates healing in the stomach and helps to absorb Vitamin B12.
- Thymus extract restores and enhances the immune system.
- Lung concentrate restores damage lung tissue.
- Adrenal extract aids in coping with stress, better sexual performance and handling infections.
- Thyroid extract prevents waste and speeds up restoration.
- Spleen extract improves white the blood cell count and is an immune enhancing agent.

The main benefit of Glandular Therapy includes:

- The supply of nutrients
- Supply of raw materials for regeneration

Soft tissue Regeneration

Raw Materials

Somatomedian C

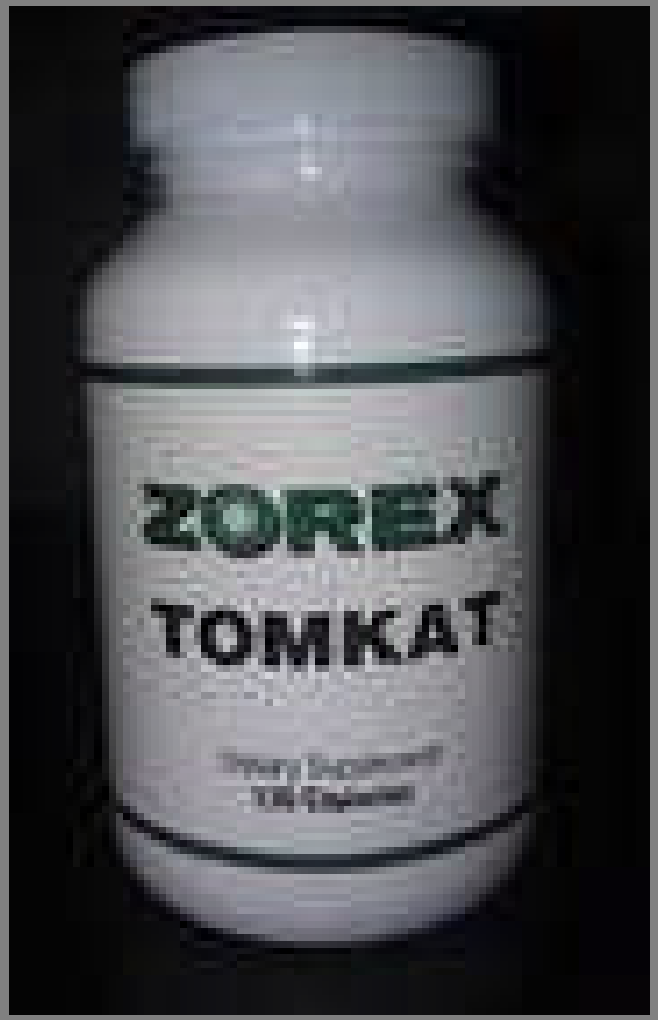
HGH, Testosterone

Icariin-mediated expression of cardiac genes and modulation of nitric oxide signaling pathway during differentiation of mouse embryonic stem cells into cardiomyocytes in vitro.

- Icariin significantly elevated mRNA levels of cardiac transcription factors GATA4 and Nkx2.5, and cardiac-specific alpha-MHC, MLC-2v and beta-AR genes in a concentration- and time-dependent manner ($P<0.05$). Cardiomyocytes derived from embryoid body (EB) treated with icariin were more sensitive to isoprenaline ($P<0.01$). Treatment of ES cells with icariin resulted in a continued elevation in the cAMP/cGMP ratio before a shift to the cardiomyocyte phenotype ($P<0.05$). AG decreased the NO level, and delayed and decreased the incidence of contracting EB to only approximately 35% on d 5+11, an effect that could be rescued by icariin. When cells were cocultured with icariin and AG, the percentage of beating EB reached a peak level of 73% on d 5+11 ($P<0.05$).

Acta Pharmacol Sin. 2006 Mar;27(3):311-20.

Powerful Stem Cell Stimulator in Different Tissues.



Take 3 capsules 2x day or directed by your doctor.

Heart Disease, Arteriole Disease, Bone Density, Assists with Regeneration of Joints, Increase Muscle Mass, Stimulate Growth

The natural products parthenolide and andrographolide exhibit anti-cancer stem cell activity in multiple myeloma.

Abstract:

Multiple myeloma (MM) is an incurable plasma cell malignancy where nearly all patients succumb to a relapse. The current preclinical models of MM target the plasma cells, constituting the bulk of the tumor, leaving the cancer stem cells to trigger a relapse. Utilizing a three-dimensional tissue culture system where cells were grown in extracellular matrix designed to reconstruct human bone marrow, we tested the anti-multiple myeloma cancer stem cell (MM-CSC) potential of two natural product inhibitors of nuclear factor κ B (NFκB). Here we show that parthenolide and andrographolide are potent anti-MM-CSC agents. Both natural products demonstrated preferential toxicity toward MM-CSCs over non- tumorigenic MM cells. Addition of the bone marrow stromal compartment abrogated andrographolide activity while having no effect on parthenolide cytoxicity. This is the first report of a natural product with anti-CSC activity in myeloma, suggesting that it has the potential to improve the survival of patients with MM by eliminating the relapse-causing MM-CSCs.

Leukemia Lymphoma. 2011 Jun;52(6):1085-97. Epub 2011 Mar 21.