



**NEMOURS ACTIVE PATENTS  
JULY 20, 2010**

**United States Patent** **7,347,922**  
**Akins, Jr. Robert E. (Newark, DE)** **March 25, 2008**  
**Appl. No.:** **10/107,812**  
**Filed:** **March 28, 2002**

**Multi-dimensional proteomic analysis method**

**Abstract**

A multi-dimensional proteomic analysis method utilizing cationic electrophoresis is described. The method includes separating proteins in one direction using cationic electrophoresis and separating the proteins in a second orthogonal direction using other electrophoresis separation methods such as denaturing electrophoresis and electrophoresis subsequent to proteolytic cleavage or isofocusing. The two-dimensional array may be used to determine various protein-protein interactions in a sample.

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**United States Patent** **7,618,779**  
**November 17, 2009**

**Inventors:** **Devoto, Marcella (Philadelphia, PA)**  
**Sol-Church, Katia (Wilmington, DE); Spotila, Loretta D.**  
**(Haddonfield, NJ)**  
**Assignee:** **The Nemours Foundation (Wilmington, DE)**  
**Appl. No.:** **11/232,609**  
**Filed:** **September 22, 2005**

**Chromosome 1p36 polymorphisms and low bone mineral density**

**Abstract**

The invention provides methods and compositions for diagnosing risk of low BMD and risk of osteoporosis based on the detection of SNP identity for human chromosome 1p36 polymorphisms designated in the NCBI SNP database (dbSNP) as rs2794328, rs446529, rs397559 and rs1802353.

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**United States Patent**

**7,206,638**

Inventors: **Dodge, George R.** (Philadelphia, PA)  
**Bowen, J. Richard** (Wilmington, DE)

**April 17, 2007**

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **10/716,862**

Filed: **November 20, 2003**

**Electrical current induced inhibition of bone growth**

**Abstract**

A method and device is disclosed for inhibiting bone growth, including inducing epiphysiodesis or hemiepiphysiodesis, using electrical current. The device includes a power source and one or a series of electrodes for applying a current sufficient to reduce or stop the growth of a bone to selected regions of the bone. The method and device may be used to correct growth discrepancies in extremities such as the arms or legs, as well as correct the curvature of the spine in scoliosis patients.

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**United States Patent**

**7,574,261**

Inventors: **Dodge, George R.** (Philadelphia, PA)  
**Bowen, J. Richard** (Wilmington, DE)

**August 11, 2009**

Assignee: **Nemours Biomedical Research** (Wilmington, DE)

Appl. No.: **11/439,141**

Filed: **May 24, 2006**

**Electrical current induced inhibition of bone growth**

**Abstract**

This method and device may be employed for inhibiting bone growth, including inducing epiphysiodesis or hemiepiphysiodesis, by applying electrical current to a desired region. The device includes a power source and one or a series of electrodes for applying a current sufficient to reduce or stop the growth of a bone to selected regions of the bone. The method and device may be used to correct growth discrepancies in extremities such as the arms or legs, as well as correct the curvature of the spine in scoliosis patients.



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**United States Patent**

**5,882,868**

Inventors: **Funanage, Vicky L.** (Wilmington, DE),  
**Scavina, Mena** (Philadelphia, PA)

**March 16, 1999**

Assignee: **The Nemours Foundation** (Jacksonville, FL)

Appl. No.: **08/824,701**

Filed: **April 14, 1997**

**Method of diagnosing spinal muscular atrophy**

**Abstract**

A diagnostic method for determining whether an individual is affected with spinal muscular atrophy involves evaluating the relative amounts of exon 5 of neuronal apoptosis inhibitory protein (NAIP) and exon 7 of centromeric and telomeric survival motor neuron (SMN) genes in a genomic sample from the subject. A PCR analysis employing NAIP5F, NAIP5R, SMNX7DRA and SMNR111 primers is used to amplify the desired genes. The PCR product is digested with an enzyme that recognizes only the centromeric SMN sequence, and the digested product can be separated by electrophoresis. The novel method allows multiplex analysis for both NAIP and SMN genes in the same sample work up. The analytical procedure further permits the digestion to be carried out without prior purification of the PCR product. Very importantly, the analytical procedure provides for the ability to diagnose the heterozygous telomeric SMN phenotype and thus allows the non-affected carrier of spinal muscular atrophy to be identified.

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**United States Patent**

**6,884,777**

Inventors: **Funanage, Vicky L.** (Wilmington, DE)  
**Hassink, Sandra G.** (Wilmington, DE)  
**Kirwin, Susan M.** (Thornton, PA)  
**O'Connor, Darlise** (Newark, DE)

**April 26, 2005**

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **09/711,295**

Filed: **November 14, 2000**

**Method for treating respiratory distress syndrome**



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### **Abstract**

The invention provides a method for treating infants, children or adults suffering from pulmonary distress caused by low or insufficient production of surfactant. It is particularly suitable for treating premature infants suffering from respiratory distress syndrome. The method includes administering a leptin compound to an individual with impaired surfactant production for a time and in an amount sufficient to enhance surfactant production. The method may be used for treatment of any mammal with impaired lung surfactant production.

#### **United States Patent**

**6,440,065**

Inventors: **Hered, Robert W.** (Atlantic Beach, FL)

**August 27, 2002**

Assignee: **The Nemours Foundation** (Jacksonville, FL)

Appl. No.: **09/968,158**

Filed: **October 1, 2001**

#### **Single-use disposable eyelid speculum, eye examination kit, and method for examining a patient's eye**

### **Abstract**

The present invention relates to a single-use disposable eyelid speculum and scleral depressor. The eyelid speculum includes an elongated curved arm formed from an elastic single piece element. The elongated curved arm terminates in integrally formed spoons, with each spoon being configured to engage an eyelid. The eyelid speculum and scleral depressor may be provided as a kit with either separate or combined packing in a sterilized condition. The kit is intended to be disposable after a single use.

#### **United States Patent Application**

**10/444,632**

Inventors: **Hered, Robert W.** (Atlantic Beach, FL)

**August 27, 2002**

Assignee: **The Nemours Foundation** (Jacksonville, FL)

Appl. No.: **10/444,632**

Filed: **05/23/2003**

Surgical site stamp

Property sold to Glen Rothman, M.D., Mesa, Arizona (09/2005).

### **Abstract**



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Specifically designed stamp to clearly mark limbs and other body parts before surgery.

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**United States Patent**

Inventors: **Kirwin, Susan M.** (Thornton, PA),  
**Funanage, Vicky L.** (Wilmington, DE)  
Assignee: **The Nemours Foundation** (Wilmington, DE)  
Appl. No.: **09/302,117**  
Filed: **April 29, 1999**

**6,475,984  
November 5, 2002**

**Administration of leptin**

**Abstract**

A method and composition for administering leptin. The invention includes suspending isolated native leptin-containing milk fat globules in a suitable medium for administering to a subject. The suspended milk fat globules may be administered orally as well as by intravenous, intramuscular, intraperitoneal, other enteral routes of administration, and other parenteral routes of administration. The invention includes a method for treating growth or maturational-related disorders in newborns as well as subjects with conditions that can be treated by the administration of leptin.

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**United States Patent**

Inventors: **Kirwin, Susan M.** (Thornton, PA),

**7,354,896  
April 8, 2008**



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**Funanage, Vicky L.** (Wilmington, DE)

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **10/286,947**

Filed: **November 4, 2002**

**Administration of leptin**

**Abstract**

A method and composition for administering leptin. The invention includes suspending isolated native leptin-containing milk fat globules in a suitable medium for administering to a subject. The suspended milk fat globules may be administered orally as well as by intravenous, intramuscular, intraperitoneal, other enteral routes of administration, and other parenteral routes of administration.

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**United States Patent**

**6,821,259**

Inventors: **Rahman, Tariq** (Wilmington, DE)

**November 23, 2004**

**Sample, Whitney** (Wilmington, DE)

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **10/024,133**

Filed: **December 21, 2001**

**Orthosis device**

Licensed to JAECO Orthopedics, Inc., Hot Springs, Arkansas

**Abstract**

An orthosis device generally includes two limb sections pivotably attached to each other in at least one degree of freedom and adapted for insertion of or attachment to adjacent portions of a limb of a user. Each limb section further includes a four-bar linkage and a spring member adapted to provide an equilibrium-inducing force corresponding to a combined weight of the limb section, and the limb is then inserted or attached. The equilibrium-inducing force allows every point in three-dimensional space to be a balanced position, such that a user with muscular abnormalities can move his or her limbs and hold them in place. A pivotable shoulder bracket for attaching the orthosis device to a wheelchair may also be provided. Furthermore, the orthosis device can be adapted to accommodate individuals of varying weight or with varying levels of disability by adjusting the spring member or providing powered actuators and force sensors.



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**United States Patent**

**6,890,285**

Inventors: **Rahman, Tariq** (Wilmington, DE)  
**Bowen, J. Richard** (Wilmington, DE)

**May 10, 2005**

Appl. No.: **10/260,526**

Filed: **October 1, 2002**

**Brace compliance monitor**

Licensed to Boston Brace, Avon, Massachusetts

**Abstract**

This brace compliance monitor includes a compliance sensor, a signal processor, and a display. Compliance data are shown on the display to provide the patient or subject with immediate compliance information about whether they have been wearing the brace for the specified period and in the specified manner. The brace compliance monitor may also include secondary sensors such as a tilt sensor, a pressure sensor, a force sensor, an acceleration sensor, or a velocity sensor. The secondary sensors may provide additional compliance data to the patient and health car provider.

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**United States Patent**

**7,166,063**

Inventors: **Rahman, Tariq** (Wilmington, DE)  
**Bowen, J. Richard** (Wilmington, DE)

**January 23, 2007**

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **11/025,783**

Filed: **December 30, 2004**

**Brace compliance monitor**

Licensed to Boston Brace, Avon, Massachusetts.

**Abstract**

A brace compliance monitor is disclosed that includes a compliance sensor, a signal processor, and a display. Compliance data are shown on the display to provide the patient or subject with immediate compliance information about whether they have been wearing the brace for the specified period and in the specified manner. The brace compliance monitor may also include secondary sensors such as a tilt sensor, a pressure sensor, a force sensor, an acceleration sensor, or a velocity sensor. The secondary sensors may provide additional compliance data to the patient and health car provider.



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**United States Patent**

**5,972,887**

Inventors: **Schwartz, Marshall Z.** (Bryn Mawr, PA)

**October 26, 1999**

Assignee: **The Nemours Foundation** (Wilmington, DE)

Appl. No.: **08/932,391**

Filed: **September 17, 1997**

**Treatment of intestinal epithelial cell malfunctions with hepatocyte growth factor**

**Abstract**

Administration of low doses of exogenous hepatocyte growth factor (HGF) either systemically or intraluminally to reverse reduced intestinal mucosal mass and absorptive function in patients.

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**United States Patent**

**6,319,899**

Inventors: **Schwartz, Marshall Z.** (Bryn Mawr, PA)

**November 20, 2001**

Assignee: **The Nemours Foundation** (Jacksonville, FL)

Appl. No.: **09/395,129**

Filed: **September 14, 1999**

**Method and composition for the treatment of inflammatory bowel disease**

**Abstract**

The present invention relates to a method and composition for treating a patient with inflammatory bowel disease with an effective dose of (hepatocyte growth factor) HGF. Mucosal damage and histologic lesions are reduced by administering HGF. HGF may be administered to the patient lumenally or systemically.



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**United States Patent**

**7,074,764**

**Inventors: Schwartz, Marshall Z. (Bryn Mawr, PA)**

**July 11, 2006**

**Assignee: The Nemours Foundation (Wilmington, DE)**

**Appl. No.: 09/931,112**

**Filed: August 17, 2001**

**Treatment of intestinal epithelial cell malfunction, inflammation or damage with hepatocyte growth factor**

**Abstract**

The present invention relates to a method and composition for treating a patient with inflammatory bowel disease with an effective dose of (hepatocyte growth factor) HGF. Inflammatory bowel disease as defined by the present invention includes chronic ulcerative colitis, Crohn's disease, necrotizing enterocolitis, severe acute gastroenteritis, chronic gastroenteritis, cholera, chronic infections of the bowel, immunologic disorders affecting the intestine, immunodeficiency syndromes affecting the intestine, and HIV. Mucosal damage and histologic lesions are reduced by administering an effective dose of HGF to patients. Specifically, the effective dose of HGF is in a range of about 30 .mu.g/kg body weight/day to about 300 .mu.g/kg body weight/day. HGF may be administered to the patient lumenally or systemically.

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**United States Patent**

**6,630,444**

**Inventors: Schwartz, Marshall (Bryn Mawr, PA),  
O'Connor, Darlise (Newark, DE)**

**October 7, 2003**

**Assignee: The Nemours Foundation (Wilmington, DE)**

**Appl. No.: 09/693,864**

**Filed: October 23, 2000**

**Intestinal function using leptin**

**Abstract**



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A method for treating a patient that has inadequate intestinal function is described. Administering leptin to a subject increases the intestinal function beyond that for a normal intestine and beyond that of a normal adaptive response. Further, administering leptin results in an increase in amino acid absorption, sugar absorption, mucosal mass, transport mechanisms for amino acids, and transport mechanisms for sugars. The method may be used for treating subjects with conditions such as short bowel syndrome, inflammation of the bowel, necrotizing enterocolitis, intestinal atresia, midgut volvulus, severe acute gastroenteritis, chronic gastroenteritis, cholera, chronic infections of the bowel, immunologic disorders affecting the small intestine, and inflammatory bowel disease, such as chronic ulcerative colitis and Crohn's disease.