

## CURRICULUM VITAE

**STEPHEN L. GORDON, Ph.D.**  
505 Garden View Way  
Rockville, MD 20850  
(P) 301 977-7137 (M) 240-602-8712  
SandMGordon@Verizon.net

### PROFESSIONAL EXPERIENCE

**2004-present Executive Vice President**

Healthonics, Inc.  
Bethesda, MD 20814

Provide biomedical and business leadership for early-stage biotech company possessing novel bioelectrical stimulation technology for applications in pain, wound healing and orthopaedics. Lead product research and development by establishing and managing collaborations and preparing protocols for in vitro, preclinical and clinical studies. Co-lead administrative, reimbursement, marketing and manufacturing efforts.

Key Accomplishments:

- prepared IRB-approved, clinical study protocol for wrist pain – completed, data under analysis
- prepared protocols for many additional pain clinical trials – IRBs obtained, studies in progress
- gathered in vitro pilot data via academic collaboration and co-authored two SBIR grant applications
- designed and implemented several in vitro and preclinical studies at collaborative academic sites
- authored successful pre-proposal for multi-center DARPA initiative – full proposal submitted
- prepared collaboration and consulting agreement documents
- established successful scientific, clinical/regulatory and marketing collaborations

**2002-2004 Vice President, Strategic Planning**

Cognate Therapeutics, Inc. / Toucan Capital Fund, LLC;  
Bethesda, MD 20814

Provide scientific and business guidance and leadership for portfolio companies of Toucan Capital. Review business plans and provide recommendations to Toucan Fund managing partners. Conduct due diligence review of potential investments and present business opportunities for subsequent funding. Lead efforts to obtain external grant funding and prepare business / strategic plans.

Key Accomplishments:

- led effort to completed term sheets to find and fund new musculoskeletal portfolio companies
- evaluated and procured appropriate insurance and benefits for portfolio companies and employees
- assisted in strategy and writing for funded SBIR grants
- prepared business plans, executive summaries and marketing documents for portfolio companies
- established collaboration to demonstrate first proof-of-principle in orthopaedic applications

## **1995-present Biomedical Consulting**

Provide business and scientific leadership and management for start-up companies, medical and surgery departments, and biotechnology companies. Serve in long-term, on-going and/or short-term roles.

(A) 1995-2002 **Vice President, Advanced Technology Development  
& Executive Technical Advisor**  
Osiris Therapeutics, Inc.; Baltimore, MD 21231

### Key Accomplishments:

- authored and/or organized grants: \$18 million in large Federal grants (NIH, NIST-ATP, DARPA)
- co-authored four consecutive \$2 million NIST-ATP grants, a record in that funding agency
- prepared pre-clinical sections for Phase I/II FDA-IND submissions for tissue regeneration
- served as principal investigator on NIST-ATP allogeneic/universal donor bone grant (\$2M)
- served as PI on DARPA grants on vaccine delivery and metabolic stasis of MSCs (\$8M)
- co-invented concept for stem cell regeneration of damaged heart tissue (USPTO #6,387,369)
- coordinated successful external collaborations with many academic investigators
- drafted foreign equivalent of S-1 document for IPO offering – withdrawn at last minute
- served on Osiris Senior Management Team

(B) 2000- present **President and Co-founder**  
Ergo2Business, Inc: Columbia, MD 21045

### Key Accomplishments:

- authored complete business plan that was finalist in Smith Business School competition
- invented computer-based ergonomic assessment system (patent pending)
- developed and Beta-tested working, prototype systems
- negotiated with lawyers, investors and corporate strategic partners

(C) 1995-2002 **General Consulting** with companies, organizations and universities

### Key Accomplishments:

- invented computer-based exercise systems (USPTO# 6,740,007) – business sold
- developed and implemented training to deliver post-medical exercise programs
- developed books and programs for training young, female athletes and their coaches/trainers
- assisted university and corporate scientists to revise grant applications that gained funding
- led strategic R&D and marketing sessions for corporate planning
- wrote Physician's Guide to Rehabilitation in Osteoporosis for NOF (2003)
- wrote, prosecuted and gained issuance of arm device patent - no IP lawyer (USPTO # 6,695,387)

**1995 Acting Director, Extramural Programs**  
NIAMS / NIH; Bethesda, MD 20892

### Key Accomplishments:

- led program of \$195 million and a staff of over 40 employees

- completed NIAMS reinvention in government plans
- led NIH-wide effort to redefine the role of extramural scientists

**1978- 1995** Chief, Musculoskeletal Diseases Branch,  
NIAMS / NIH, Bethesda, MD 20892

**Key Accomplishments:**

- managed and monitored over 200 grants and contracts with a budget in excess of \$60 million
- conducted over 25 national and international scientific workshops and conferences on musculoskeletal disorders: osteoporosis, low back pain, hip joint replacement, osteoarthritis, and sports-related injuries
- published and presented information to assist applicants in the grant writing process
- authored and/or co-authored six orthopaedic text books
- led three NIH Consensus Development Conferences
- acknowledged international leader in planning and directing musculoskeletal research
- served as national public spokesperson on broad topics such as musculoskeletal diseases, osteoporosis, and fluoride in drinking water

**1995-2000** Adjunct Associate Professor  
Department of Orthopaedic Surgery  
Georgetown University Medical School: Washington, DC

**1973-1978** Chief, Biomedical Engineering Group  
Safety Research Laboratory National Highway Traffic Safety Administration

**EDUCATION**

Drexel University	Ph.D.	Biomedical Engineering	1973
Drexel University	M.S.	Biomedical Engineering	1970
Drexel University	B.S.	Mechanical Engineering	1967

**PROFESSIONAL AWARDS AND HONORS**

Medical Advisory Board – St. Francis Medical Technologies, Inc.	2002-present
Scientific Advisory Board – Temporomandibular Joint Association	1996-present
Scientific Advisory Board – Center for VDT and Health Research	1996-
2001	
Reviewer for journal <u>Spine</u>	1997-present
Special Recognition Award - NIAMS/NIH	1995
Special Recognition Award - Temporomandibular Joint Association	1995
Special Recognition Award - Academic Orthopaedic Society	1994
Board of Directors - American Running and Fitness Association	1994-1997
Special Recognition Award - American Society for Bone and Mineral Research	1992
Special Recognition Award - National Osteoporosis Foundation	1992
Founding Fellow - American Institute of Medical and Biological Engineering	1992
Special Recognition Award - Public Health Service	1992
NIH Director's Award (Highest NIH Award)	1991

Recognition Award - Coalition for Heritable Connective Tissue Disorders	1990
NIH Special Achievement Award	1982
NIH Outstanding Performance Rating	1981 through 1995

### **COLLEGE SCHOLARSHIPS AND HONOR SOCIETIES**

National Institutes of Health Pre-Doctoral Fellowship  
Chrysler Corporation Scholarship  
Drexel University Board of Trustees Scholarship  
Pi Tau Sigma - National Mechanical Engineering Honor Society  
Tau Beta Pi - National Engineering Honor Society  
Phi Kappa Phi - National Honor Society

### **PROFESSIONAL MEMBERSHIPS**

Society of the Sigma XI  
Orthopedic Research Society  
American Society of Bone and Mineral Research  
American Institute for Medical and Biological Engineering  
(Founding Fellow of the preeminent bioengineering national organization)

## PUBLICATIONS

Gordon S, Pittenger M, McIntosh K, Peter, Archambault M, and Young R: Mesenchymal Stem Cell Regeneration in Tendon Injury. In Tendon Injuries: Basic Science and Clinical Medicine, ed Maffulli N, Renstrom P, and Leadbetter WB, Springer, London, 2005.

Livingston, TL, Gordon, S, Archambault, M, McIntosh, K, Kadiyala, S, Smith, A, Peter, S Mesenchymal stem cells and biphasic calcium phosphate ceramics. *Journal of Materials Science - Materials in Medicine*. 14(3): 211-218, 2003.

Bonner FJ, Sinaki M, Grabois M, Shipp KM, Lane JM, Lindsay R, Gold DT, Cosman F, Boussein ML, Weinstein JN, Gallagher RM, Melton LJ, Salcido RS, Gordon SL. Health professional's guide to rehabilitation of the patient with osteoporosis. *Osteoporosis Int*, 14 Suppl 2:S1-22, 2003.

Arinzech TL, Peter SJ, Archambault MP, van den Bos C, Gordon S, Kraus K, Smith A, Kadayala S: Allogeneic mesenchymal stem cells regenerate bone in a critical-sized canine segmental defect. *J Bone Joint Surg Am*, 85-A (10):1927-35, 2003.

Gordon S, Oppenheimer S, Mackay A, Brunneband J, Puhlev I, and Levin F: Recovery of Dehydrated and Rehydrated Mesenchymal Stem Cells. *Cryobiology*, 43:182-187, 2001.

Young RG, Butler DL, Weber W, Caplan AI, Gordon SL, and Fink DJ: The Use of Mesenchymal Stem Cells in Achilles Tendon Repair. *J Orth Res*, 16 (4):406-413, 1998.

Gordon SL and Weinstein JN: A Review of Basic Science Issues in Low Back Pain. In Physical Medicine and Rehabilitation Clinics of North America, ed Kraft GH and Swezey RL, W. B. Saunders, Philadelphia, PA, 1998.

Richardson JK and Gordon SL: Physical Agents and Exercise in Low Back Pain. In Low Back Pain: A Scientific and Clinical Overview, ed Weinstein JN and Gordon SL, American Academy Orthopaedic Surgeon, Rosemont, IL, 423-438, 1996.

Sakai LY, Burgeson RE, Olsen BR, Rowe DW, Gordon SL: Current Knowledge and Research Directions in Heritable Disorders of Connective Tissue. *Matrix Biology*, 15: 211-229, 1996.

Buckwalter JA, Lane NE, Gordon SL: Exercise as a Cause of Osteoarthritis. In Osteoarthritic Disorders, ed Goldberg VM and Kuettner KE, Amer Acad Orth Surg, Rosemont, IL, Chapter 28, 1995.

Mulholland MB, Gordon SL: Osteoarthritis: Exercise and Other Factors. In Sports and Exercise in Midlife, ed Gordon SL, Gonzalez-Mestre X, Garrett WE, Amer Acad Orth Surg, Rosemont, IL, 489-498, 1994.

Gordon SL, Premen, AJ: Structure and Function of Cartilage: Adult and Age-related Changes. In Sports and Exercise in Midlife, ed Gordon SL, Gonzalez-Mestre X, Garrett WE, Amer Acad Orth Surg, Rosemont, IL, 155-176, 1994.

Rabin R, Gordon SL, Lynn RW, Todd PW, Frey MA, Sulzman FM: Effects of Spaceflight on the Musculoskeletal System: NIH and NASA Future Directions. *FASEB*, 7: 396-398, 1993.

## PUBLICATIONS

Corbin SB and Gordon SL: Knowledge of the Purpose of Community Water Fluoridation - United States, 1990. *Morbidity and Mortality Weekly Reports*, 41, (49): 919-927, 1992.

Lynn RW, Gordon SL, Sulzman FD: The Effects of Space Travel on the Musculoskeletal System. NIH Publication No 93-3484, 1-53, 1992.

Gordon SL: Federal Policies Regarding Scientific Integrity in Biomedical Research. *Journal Society of Research Admin*, Spring, 43-46, 1992.

Gordon SL and Corbin SB: Summary of Workshop on Drinking Water Fluoride Influence on Hip Fracture. *Osteoporosis Intl*, 2 (3): 109-117, 1992.

Gordon SL: Support for Spine Research. In Clinical Efficacy and Outcome in the Diagnosis and Treatment of Low Back Pain, edited by Weinstein JN, Raven Press, NY, NY, 9-11, 1992.

Gordon SL and Watson DM: Use and Importance of the NIH Noncompeting Continuing Application. *FASEB Journal* 4:2438-2440, 1990.

Frymoyer JW and Gordon SL: Research Perspectives in Low Back Pain: Report of a 1988 Workshop. *SPINE*, 14 (12): 1384-1390, 1989.

Gordon SL: Ingredients of a Successful Grant Application to the National Institutes of Health. *Journal of Orthopedic Research*, 7 (1): 138-141, 1989.

Gordon SL: Grant Applications for Clinical Research, Preparation and Assessment. *American Journal of Sports Medicine*, 16 (Suppl. 1): 516-521, 1988.

Gordon SL: Obtaining Grant Funding for Clinical Research, Chapter 41 in Non-Cemented Total Hip Arthroplasty, edited by Fitzgerald R. Raven Press, NY, NY, 1988.

Peck WA, Riggs BL, Bell NH, Wallace RB, Johnston CC, Gordon SL, Shulman LE: Research Directions in Osteoporosis. *American Journal of Medicine*, 84: 275-282, 1988.

Peck WA, Reddi AH, Gordon SL: Local Mechanisms that Regulate Bone Formation: The Subject of Recent NIH Sponsored Workshop. *Calcified Tissue International*, 36: 1-3, 1984.

Wilson PD, Jr., Gordon SL (editors): Proceedings of the NIH Consensus Development Conference on Total Hip Joint Replacement. *Journal of Orthopedic Research*, 1(2): 189-234, 1983.

White AA and Gordon SL: Synopsis: Workshop on Idiopathic Low Back Pain. *Spine*, 7 (2): 141-149, 1982.

Gordon SL, McMeekin RR, Prince JL, Orticke PN: Dynamic Characteristics of Human Leg Joints. *Proc. of 21st Stapp Car Crash Conference*, 419-441, 1977.

Gordon SL, Ringle MA, Hillbury BM, Moskowitz, GD: Kinematics of Knee Motion During a Simulated Car Crash. *Proc. of Society for Photo-optical Instrumentation Engineering*, 57: 47-52, 1974.

## **PUBLICATIONS**

Gordon SL, Moskowitz GD, Byers R: Analysis of a Multi-Layered Spherical Head Impact Model. Trans. of ASME, Paper No. 73-DET-113, 534-540, 1974.

Rose JL, Gordon SL, Moskowitz GD: Dynamic Photoelastic Model Analysis of the Human Skull. Journal of Biomechanics, 7: 193-199, 1974.

## **BOOK EDITOR**

Weinstein JN, Gordon SL. Low Back Pain: A Scientific and Clinical Overview. American Academy of Orthopaedic Surgeons, 1996.

Gordon SL, Blair SJ, Fine LJ: Repetitive Motion Disorders of the Upper Extremity. American Academy of Orthopaedic Surgeons, 1995.

Gordon SL, Gonzalez-Mestre X, Garrett WE: Sports and Exercise in Midlife. American Academy of Orthopaedic Surgeons, 1994.

Leadbetter W, Buckwalter J, Gordon SL: Sports-Induced Inflammation. American Academy of Orthopaedic Surgeons, 1990.

Frymoyer JW, Gordon SL: New Perspectives on Low Back Pain. American Academy of Orthopaedic Surgeons, 1989.

White AA, Gordon SL: Idiopathic Low Back Pain. The C. V. Mosby Company, 1982.

## **SELECTED LIST OF INVITED PRESENTATIONS**

Starting a Biotech Company, Smith Business School, Univ Maryland	2004
Managing Awards and Sponsored Research, BioTech Bootcamp, ASMR	2003
Cell Therapies for Heart and Meniscus, Case Western Course	2002
Rehabilitation Guidelines in Osteoporosis, NOF Conference	2002
Research Funding and Design of Research Projects, Syracuse Univ	2001
Research Strategies in Orthopaedics – University of Washington	2000
Design of Clinical Research and NIH Grant Writing – UC Davis	1999
Improved Grant Applications and Designing Clinical Research – Washington University	1998
New Therapies in Osteoarthritis – Amer Acad Orofacial Pain	1998
Understanding the NIH and Preparing a Better Grant Application - Rush Medical College	1997
Designing Improved Clinical Trials - Pittsburgh Medical School	1997
A Guide to Conducting Clinical Research- Univ Vermont	1996
Orthopaedic Outcome Studies: Tissue Engineered Cartilage and Bone	1996
Instructional Course on Grant Writing - Orthopaedic Research Society	1996
Instructional Course on Repetitive Motion Disorders - Orth Res Society	1996

## **RECENT ABSTRACTS**

Livingston, T, Kadiyala, S, ElKalay, M, Young, R, Kraus, K, Gordon, S, Peter, S: Repair of Canine Segmental Bone Defects Using Allogeneic Mesenchymal Stem Cells. Orthopedic Research Society, February 2001.

Peter SJ, Livingston T, Gordon S, Yagami M, Klyushnenkova E, McIntosh K, Wagner J, Young RG, ELKalay M and Kadiyala S: Bone formation via allogeneic mesenchymal stem cell implanatation. Transactions of the Sixth World Biomaterials Congress, p 104, 2000.

Peter, SJ, Livingston, T, Gordon, S, Hebert, G, ElKalay, M, Kadiyala, S: Predifferentiation of Human MSCs *In Vitro* Leads to Osteogenesis *In Vivo*. ASAIO Conference, July 2000.

**PRIMARY COORDINATOR AND ORGANIZER**  
**SELECTED SCIENTIFIC WORKSHOPS AND CONFERENCES**

First Annual Scientific Mtg of the TMJ Assoc ... moving TMJ research into 21<sup>st</sup> Century, 2000

New Horizons in Low Back Pain, November, 1995.

New Directions in Heritable Disorders of Connective Tissue, June, 1995.

NIH Consensus Conference on Total Hip Replacements, September, 1994.

Workshop on Repetitive Motion Disorders of the Upper Extremity, June, 1994.

Workshop on Sports and Exercise in the Midlife, July, 1992.

Workshop on Drinking Water Fluoride Influence on Hip Fracture and Bone Health, April 1991.

Workshop on the Effect of Space Travel on the Musculoskeletal System, October 1990.

Symposium on Inflammation and Healing of Sports Induced Soft Tissue Injury, May 1989.

Workshop on Paget's Disease of Bone, September 1985.

Workshop on Osteoarthritis, July 1985.

NIH Consensus Conference on Osteoporosis, April 1984

**PATENTS**

6,740,007 Gordon SL, Filer B, Potash WJ, Pink MM  
Method and system for generating an exercise program.

6,695,387 Gordon SL  
Adjustable, appendant vehicle door panel armrest.

6,378,369 Pitteneger MF, Gordon SL, Mackay AM  
Cardiac muscle regeneration using mesenchymal stem cells.

pending Gordon SL  
Computer implemented interactive ergonomics resource system.