

Date: October, 2015

Erlinda Maria de Guzman Gordon, M.D.
2811 Wilshire Blvd., Suite 414, Santa Monica CA 90403
Phone: 310-552-9999; Fax: 310-201-6685
Email: *egordon@sarcomaoncology.com*

Experienced U.S. Board Certified Pediatric Hematologist-Oncologist, cancer drug developer, biopharmaceutical founder and executive with a proven track record in translational biomedical research, patient care and cancer drug development, from Phase I-IV NIH-FDA and Industry-sponsored clinical trials.

A. PROFESSIONAL EXPERIENCE

Hematologist-Oncologist 8/3/2015-present
**Sarcoma Oncology Center/
Cancer Center of Southern California
2811 Wilshire Blvd., Suite 414
Santa Monica CA 90403**

In June, 2015, Dr. Gordon joined the medical staff at the Sarcoma Oncology Center/Cancer Center of Southern California in Santa Monica CA, a privately held medical group engaged in State-of-the-Art medical care as well as Industry-sponsored and Investigator-initiated Phase I-IV clinical trials for solid tumors and hematologic malignancies. At this institution, Dr. Gordon serves as **Director of Biological and Immunological Therapies and Chairman of the Institutional Biosafety Committee** that oversees gene therapy clinical trials for cancer.

Aveni Medical Clinic, Sole Proprietor
1900 Garden Road, Suite 130
Monterey CA 93940 2014-2015

Following her retirement from the USC Keck School of Medicine/Childrens Hospital Los Angeles, Dr. Gordon established a private medical practice in Monterey CA focusing on targeted medicines and personalized treatments for cancer and blood disorders.

Founder, Managing Partner, Chief Operating Officer
Counterpoint Biomedica LLC
33 Deer Forest Drive
Monterey CA 93940 2014-present

In June, 2014, Dr. Gordon, together with Drs. Frederick L. Hall and Sant P. Chawla, founded Counterpoint Biomedica LLC (www.counterpointbiomedica.com), an early stage biotech company whose mission is to improve cancer drug delivery via a proven tumor-targeting platform invented and reduced to practice at USC by Hall and Gordon. The company is currently in preclinical stage of drug development (animal studies) in collaboration with Anticancer Inc., San Diego CA.

**University of Southern California
Keck School of Medicine
Los Angeles CA 90089
Associate Professor of Pediatrics, Tenured**

1989-2013

During her tenure, Dr. Gordon held several key positions over the past 23 years, as **Medical Director of the Norris Comprehensive Cancer Center Vector Production Unit, Director of Molecular Therapeutics at the USC Gene Therapy Laboratories, and Director of the Comprehensive Hemophilia Center and Red Cell Defects Program at Childrens Hospital Los Angeles/USC.** Dr. Gordon is recognized for her original research and extensive publication history in the field of gene therapy and targeted genetic medicine. She was recipient of a **Research Career Development Award from the NIH**, and has extensive experience in Phase I through Phase IV NIH (**Pediatric Oncology Group**)- and industry-sponsored clinical trials for cancer and hemophilia.

Dr. Gordon, together with Dr. Frederick L. Hall (Associate Professor of Surgery and Molecular Pharmacology/Toxicology), **raised over \$7 million in academic research funding** needed to fully-develop the core biotechnologies of in vivo targeted gene delivery, represented by Rexin-G (the first, and so far only, tumor-targeted gene therapy vector and Reximmune-C, a tumor-targeted gene therapy vaccine for in situ autoimmunization.

**Childrens Hospital Los Angeles
4650 Sunset Blvd., Los Angeles CA 90027**

1989-2013

Attending Physician in the Division of Hematology/Oncology with clinical responsibilities for the hematology and oncology patients, and patients undergoing bone marrow transplantation.

Director, Red Cell Defects Program (Hemoglobinopathy Clinic)
Scientific Director, The Hemophilia Comprehensive Care Center

**Epeius Biotechnologies Corporation
Founder & Chairman of the Board
Chief Operating Officer, Chief Medical Officer**

2002- 2011

As Chief Medical Officer of Epeius, Dr. Gordon served as the Gene Therapy Sponsor Representative and FDA liaison for completed Phase I/II, Phase II and planned Phase II and pivotal Phase II/III trials in the USA for pancreatic cancer, osteosarcoma, soft tissue sarcoma and breast cancer. During her term, Rexin-G gained Fast Track status for pancreatic cancer in 2009, and Orphan Drug designation for pancreatic cancer in 2003, and osteosarcoma and soft tissue sarcoma in 2008. Dr. Gordon was also the medical liaison for the Philippine FDA where Rexin-G gained accelerated approval and product registration for all solid tumors refractory to standard chemotherapy in 2007.

Under the leadership of Dr. Gordon and her co-founder Dr. Frederick L. Hall, Epeius Biotechnologies raised \$65 million in investment capital with which they successfully guided the transition of Epeius Biotechnologies from an academic startup to a free standing, revenue-generating biopharmaceutical company. Leading the field of genetic medicine forward, Dr. Gordon and Dr. Hall have developed an extensive intellectual property portfolio (154 patents/patent applications) on targeted gene delivery for cancer and other proliferative disorders. Dr. Gordon has overseen the testing and validation of the company's lead product, Rexin-G, in formal Phase I through Phase II clinical trials, and has established the emergent field of Pathotropic (or disease-seeking) Medicine. The company was acquired by its major investors in November, 2010.

Case Western Reserve University School of Medicine 1980-1989
Associate Professor of Pediatrics
University Hospitals of Cleveland
/Rainbow Babies & Childrens Hospital

Medical Director, The Hemophilia Comprehensive Care Center
Member and Attending Physician, Childrens Cancer Study Group
Member, Bone Marrow Transplantation Program
NIH New Investigator Award, 1984-1987
NIH Research Career Investigator Award, 1987-1992
American Heart Association Awards, 1984-89
Investigator-initiated Studies in Hemophilia and AIDS patients, Baxter Healthcare Corp.

B. EDUCATION

Doctor of Medicine & Surgery	University of Santo Tomas, Manila Philippines, M.D., 1971
Internship	St. Alexis Hospital, Cleveland OH, July 1972-June 1973, Rotating Intern
Residencies	Mount Sinai Medical Center, Cleveland OH, July 1973-June 1974, Pathology Mount Sinai Medical Center, Cleveland OH, July

1974-June 1976, Pediatrics

Fellowship

Post-doctoral Fellow, 1976-80, Case Western Reserve University, Rainbow Babies and Childrens Hospital, Cleveland OH, Pediatric Hematology-Oncology

Honors and Awards

M.D. Cum Laude, University of Santo Tomas, Manila, Philippines, 1971
Research Career Development Award, National Institutes of Health, 1985-90
New Investigator Research Award, National Institutes of Health, 1982-85
Grants-in-Aid, American Heart Association, National Center, 1988-91
Grants-in-Aid, American Heart Association, Northeast Ohio Affiliate, 1982, 1984, 1985
Grants-in-Aid, American Heart Association, Greater Los Angeles Affiliate, 1990
Grant-in-Aid, American Heart Association, Western States, 1998-2001
Proclamation and Award from City of Los Angeles Office of the Mayor for Excellence in Biotechnology, 2004
R01 Grant, U.S. Food and Drugs Administration, 2006-2008

C. Licensure

License, State of CA, #A48717, 1990-present
License, State of Ohio, #43408, 1979;
DEA #AG9096480

D. Diplomate

American Board of Pediatrics, 1989
American Board of Pediatric Hematology-Oncology, 1992; Recertification, 1999, 2008, 2014

E. PROFESSIONAL SERVICE

Editor-in-Chief, International Journal of Pediatric Hematology Oncology, Gordon and Breach Publishing Co., London UK, 1995-2001

Journal Reviewer, Journal of Laboratory and Clinical Medicine; Blood; Annals of Internal Medicine; American Journal of Obstetrics and Gynecology; American Journal of Hematology; Proceedings National Academy of Science; American Journal of Pediatric Hematology- Oncology; Human Gene Therapy
Grant Reviewer, American Heart Association, March of Dimes

F. SOCIETY MEMBERSHIPS

Central Society for Clinical Research, 1988-90
American Society of Hematology, 1984-
American Heart Association, Northeast Ohio Affiliate, 1984-89
American Heart Association, Greater Los Angeles Affiliate, 1990-95
American Academy for the Advancement of Science, 1984-present
Childrens Cancer Study Group, 1980-1993
World Federation for Hemophilia, 1990-1999
American Society of Clinical Oncology, 2010- present
Connective Tissue Oncology Society, 2010-

G. BIBLIOGRAPHY

PEER REVIEWED:

1. **Gordon (Ramos) EM**, Newman A, Gross S. Chronic thrombocytopenia in childhood. *J Pediatr* 98:584-586, 1978.
2. **Gordon EM**, Ratnoff OD, Goldsmith GH. Chloroform-induced fibrinolysis its dependence on Hageman factor, plasma prekallikrein and high molecular weight kininogen. *J Lab Clin Med* 95:507-514, 1980.
3. **Gordon EM**, Ratnoff OD, Saito H, Gross S, Jones PK. Studies on some coagulation factors (Hageman factor, plasma prekallikrein and high molecular weight kininogen) in the normal newborn. *Am J Ped Hematol Oncol* 2:213-216, 1980.
4. **Gordon EM**, Ratnoff OD, Donaldson VH, Pensky J, Jones PK. Rapid fibrinolysis, augmented Hageman factor (HF) titers, and decreased C1 esterase inhibitor (C1-INH) titers in women taking oral contraceptive agents. *J Lab Clin Med* 96:762-769, 1980.
5. **Gordon EM**, Donaldson VH, Saito H, Su J, Ratnoff OD. Reduced titers of Hageman factor (factor XII) in Orientals. *Ann Int Med* 95:697-700, 1981.
6. **Gordon EM**, Gross S. Adenosine deaminase positive E-rosette negative lymphoma. *Am J Ped Hematol Oncol* 4:135-139, 1982.
7. **Gordon EM**, Ratnoff OD, Jones, P.K. The role of augmented Hageman factor (factor XII) titer in the cold-promoted activation of factor VII and spontaneous shortening of the prothrombin time in women using oral contraceptives. *J Lab Clin Med* 99:363-369, 1982.
8. Herzig RH, Lazarus HM, Graham-Pole J, Gross S., Coccia P, **Gordon EM**, Strandjord S. Bone marrow transplantation with high-dose cytosine arabinoside. *Med Ped Onc (Suppl)* 1:235-238, 1982.

9. Berkowitz RJ, Crock J, Strickland D, **Gordon EM**, Strandjord SE, Coccia PF Oral complications associated with bone marrow transplantation in a pediatric population. *Am J Hematol Oncol* 5:53-57, 1983.
10. **Gordon EM**, Berkowitz RJ, Strandjord SE, Kurczynski EM, Goldberg JS, Coccia PF. Burkitt lymphoma in a patient with classic hemophilia receiving factor VIII concentrates. *J Pediatr* 103:75-77, 1983.
11. Lazarus HM, Herzig RH, Graham-Pole, Wolff SN, Phillips GL, Strandjord SE, Hurd D, Forman W, **Gordon EM** Intensive melphalan chemotherapy and cryopreserved autologous bone marrow transplantation for the treatment of refractory cancer. *J Clin Oncol* 1:359-367, 1983.
12. **Gordon EM**, Douglas J and Ratnoff OD. The influence of augmented Hageman factor (factor XII) titers on the cryoactivation of plasma prorenin in women using oral contraceptive agents. *J. Clin Invest* 72:1833-1838, 1983.
13. Lazarus HM, Gross S, Graham-Pole J, Coccia PF, Strandjord S, **Gordon EM**, Warm SE, Herzig RH. Incidence of acute graft- versus-host disease with and without methotrexate prophylaxis in allogeneic bone marrow transplant patients. *Blood* 64:215-220, 1984.
14. Odom LF, **Gordon EM**. Acute monoblastic leukemia in infancy and early childhood: successful treatment with epipodophyllotoxin as a single agent. *Blood* 64:875-882, 1984.
15. Schacter L, DelVillano BC, **Gordon EM**, Klein B. Red cell superoxide dismutase and sickle cell anemia symptom severity. *Am J. Hematol* 19:137-144, 1985.
16. **Gordon EM**, Klein BL, Berman BW, Strandjord SE, Simon JE, Coccia PF Reduction of contact factors in sickle cell disease. *J Pediatr* 106:427-430, 1985
17. Sorensen RU, Newman AJ, **Gordon EM**. Psychogenic purpura in adolescent patients. *Clin Ped* 24:700-704, 1985.
18. Berkowitz RJ, Rudnick M, **Gordon EM**, Strandjord SE, Cheung N- KV, Warkentin PI. Oropharyngeal candida prophylaxis in pediatric bone marrow transplant patients. *Am J Ped Hem/Onc* 7:82-85, 1985.
19. **Gordon EM**, Douglas JG, Ratnoff OD, Arafah BM. The influence of estrogen and prolactin on Hageman factor (factor XII) titer in ovariectomized and hypophysectomized rats. *Blood* 66:602-605, 1985.
20. Herzig RH, Coccia PF, Lazarus HM, Strandjord SE, Graham-Pole J, Cheung N-KV, **Gordon EM**, Gross S, Spitzer TR, Warkentin PI, Fay JW, Philips GL, Herzig GP Bone marrow transplantation for acute leukemia and lymphoma with high- dose cytosine arabinoside and total body irradiation. *Semin Oncol* 12:184-186, 1985.

21. **Gordon EM**, Hellerstein HK, Ratnoff OD, Arafah BH. Augmented Hageman factor and prolactin titers, enhanced cold-activation of factor VII and shortening of prothrombin time in survivors of myocardial infarction. *J Lab Clin Med* 109:409-413, 1987.
22. Berkowitz R, Strandjord S, Jones P, Hughes C, Varsehi J, **Gordon EM**, Cheung N-K, Warkentin P, Coccia P. Stomatologic complications of BMT in the pediatric population. *Pediatr Dentistry* 9:105-110, 1987.
23. La Follette L, **Gordon EM**, Mazur CA, Ratnoff OD. Hyperprolactinemia and reduction in the plasma titers of Hageman factor, prekallikrein and high molecular weight kininogen in patients with myocardial infarction. *J Lab Clin Med*. 110:318-321, 1987.
24. **Gordon EM**, Williams S, Frencheck B, Mazur CA, Speroff L. Dose-dependent effects of postmenopausal estrogen and progestin on antithrombin III and factor XII. *J Lab Clin Med* 111:52-56, 1988.
25. Schacter L, Warth JA, **Gordon EM**, Prasad A, Klein BL. Altered amount and activity of superoxide dismutase in sickle cell anemia. *FASEB* 2:237-243, 1988.
26. Coccia PF, Strandjord SE, Warkentin PI, Cheung N-KV, **Gordon EM**, Novak LJ, Shina DC, Herzig RH. High-dose cytosine arabinoside and fractionated total body irradiation: An improved preparative regimen for bone marrow transplantation of children with acute lymphoblastic leukemia in remission. *Blood* 71:888-893, 1988.
27. Massouh M, Jatoi A, **Gordon EM**, Ratnoff OD. Heparin cofactor II activity in plasma during pregnancy and oral contraceptive use. *J Lab Clin Med* 114:697-699, 1989.
28. **Gordon EM**, Gallagher CA, Johnson TR, Blossey, BK, Ilan J. Hepatocytes express blood coagulation factor XII (Hageman factor). *J Lab Clin Med* 115:463-469, 1990.
29. **Gordon EM**, Johnson TR, Ramos LP, Schmeidler-Sapiro KT. Enhanced expression of factor XII (Hageman factor) in estrogen- and prolactin-treated ovariectomized rats. *J Lab Clin Med*, 117:353-358, 1991.
30. Schmeidler-Sapiro KT, Ratnoff, OD, **Gordon EM**. Mitogenic effects of factor XII and XIIa on HepG2 cells. *Proc Nat'l Acad Sci* 88:4382-4385, 1991.
31. **Gordon EM**, Mungo R, Goldsmith JC. Lingual hemorrhage in a patient with hemophilia A complicated by a high titer inhibitor: Management by continuous infusion of monoclonal antibody-purified factor VIII. *Amer J Pediatr Hematol Oncol* 15:107-110, 1993.
32. **Gordon EM**, Tang H, Salazar R, Kohn D. Expression of coagulation factor IX in human hepatoma (HepG2) cell cultures after retroviral vector-mediated transfer.

Amer J Pediatr Hematol Oncol 15:196-203, 1993.

33. Goldsmith JC, **Gordon EM**. Treatment of hemophilia B: serendipitous use of continuous infusion coagulation factor IX. *Thromb Res*, 70:265-267, 1993.
34. **Gordon EM**, Al-Batniji F, Goldsmith JC. Continuous infusion of monoclonal antibody-purified factor VIII: A rational approach to serious hemorrhage in patients with Allo-/Autoantibodies to Factor VIII. *Amer J Hematol, Am J Hematol* 45:142-145, 1994.
35. Bray GL, Gomperts ED, Courter S, Gruppo R, **Gordon EM**, Manco-Johnson M, Shapiro A, Scheibel E, White G III, Lee M, and the Recombinate Study Group. A multicenter study of recombinant factor VIII (Recombinate): Safety, efficacy, and inhibitor risk in previously untreated patients with hemophilia A. *Blood* 83:2428-2435, 1994.
36. **Gordon EM**, D'Alisa R, Tang H, Salazar R, Sabatino RD, Dorio R, Kohn DB, Holt J. Characterization of monoclonal antibody-purified recombinant factor IX produced in human hepatoma (HepG2) cell cultures after retroviral vector-mediated transfer. *Intl J Pediatr Hematol Oncol* 2:185-191, 1994.
37. Hao Q, Malik P, Salazar R, Tang H, **Gordon EM**, Kohn DB. Expression of biologically active human factor IX in human hematopoietic cells after retroviral vector-mediated gene transduction. *Hum Gene Ther*, 6:873-880, 1995.
38. Goodwin TM, Gazit G, **Gordon EM**. Heterozygous protein C deficiency and peripartum thrombosis. *J Obstet Gynecol*, 86: 622-624, 1995.
39. Sakamoto T, Kimura H, Scuric Z, Spee C, **Gordon EM**, Hinton DR, Anderson WF, Ryan SJ. Inhibition of experimental proliferative vitreoretinopathy by retroviral vector-mediated transfer of suicide gene. *Ophthalmology* 102: 1417-1424, 1995.
40. Skotzko MJ, Wu LT, Anderson WF, **Gordon EM**, Hall FL. Retroviral vector-mediated gene transfer of antisense cyclin G1 (*CYCG1*) inhibits proliferation of human osteogenic sarcoma cells. *Cancer Res* 55:5493-5498, 1995.
41. **Gordon, E.M.**, Venkatesan, V., Salazar, R., Tang, H., Schmedler-Sapiro, K., Buckley, S., Warburton, D., and Hall, FL. Factor XII-induced mitogenesis mediated via a distinct signal transduction pathway that activates a mitogen-activated protein kinase. *Proc Natl Acad Sci USA*, 93:2174-2179, 1996.
42. Kimura H, Sakamoto T, Spee C, Hinton DR, **Gordon EM**, Harris MS, Yoo JS, Cardillo JA, Anderson WF, Ryan SJ. Retrovirus-mediated suicide gene transduction in the vitreous cavity of the eye: Feasibility in Prevention of Proliferative Vitreoretinopathy. *Hum Gene Ther* 7:799-808, 1996.

43. Yang Li, Hwang R, Cuiwei A, Hung G, Skotzko M, Misawa T, **Gordon EM**, Anderson WF, Parekh D. Gene therapy of metastatic pancreas cancer with intraperitoneal injections of concentrated retroviral herpes simplex thymidine kinase vector supernatant and ganciclovir. *Ann Surg* 224: 405-417, 1996.
44. Douer D, Levine A, Anderson WF, **Gordon M**, Groshen S., Khan A, Mohrbacher A, Muggia F, Shibata D. High dose chemotherapy and autologous bone marrow plus peripheral blood stem cell transplantation for patients with lymphoma or metastatic breast cancer: use of marker genes to investigate hematopoietic reconstitution in adults. *Hum Gene Ther* 20: 669-684, 1996.
45. **Gordon EM**, Skotzko MJ, Kundu RK, Han B, Nimni M, Anderson WF, Hall FL. Capture and expansion of bone marrow-derived mesenchymal progenitor cells with a transforming growth factor b1-von Willebrand=s factor fusion protein for retrovirus-mediated delivery of coagulation factor IX. *Hum Gene Ther* 8:1385-1394, 1997.
46. Zhu NL, Wu, L, Liu PX, **Gordon EM**, Anderson WF, Starnes VA, Hall FL. Down-regulation of cyclin G1 expression by retrovirus-mediated antisense gene transfer inhibits vascular smooth muscle cell proliferation and neointima formation. *Circulation* 96: 628-635, 1997.
47. Chen DS, Zhu NL, Hung G, Skotzko MJ, Hinton D, Tolo V, Hall FL, Anderson WF, **Gordon, EM**. Retroviral vector-mediated transfer of an antisense cyclin G1 construct inhibits osteosarcoma tumor growth in nude mice. *Hum Gene Ther* 8:1679,1686, 1997.
48. Hung G, Skotzko MJ, Chang M, Zhu NL, Parekh D, Hall FL, **Gordon EM**, Anderson WF. Intratumoral injection of an antisense cyclin G1 retroviral vector inhibits growth of undifferentiated carcinoma xenografts in nude mice. *Intl J Pediatr Hematol Oncol* 4: 317-325, 1997.
49. Yang L, Skotzko M, Stain S, Hallenbeck P, Chiang Y, Anderson WF, **Gordon EM**. Adenoviral vector transduction of quiescent primary human hepatocytes. *Int'l J Pediatr Hematol Oncol* 4:307-315, 1997.
50. Shubert CA, Kimura, H, Spee, Hinton DR, **Gordon EM**, Anderson WF, Ryan SJ. Retrovirus-mediated transfer of the suicide gene into retinal pigment epithelial cells *in vitro*. *Curr Eye Res* 16:656-662, 1997.
51. Hall FL, **Gordon EM**, Wu L, Zhu NL, Skotzko MJ, Starnes VA, Anderson WF. Targeting retroviral vectors to vascular lesions by genetic engineering of the MoMuLV gp70 envelope protein. *Hum Gene Ther* 8: 2183-2192, 1997.
52. Misawa T, Chiang M, Skotzko M, Pandit, L, Kwon H, **Gordon EM**, Anderson WF, Parekh D. Development of systemic immunologic responses against hepatic

metastases during gene therapy for peritoneal carcinomatosis with HS-tk and ganciclovir. *J Gastrointestinal Surg* 1:527-533, 1997.

53. Sakamoto T, Spee C, Scuric Z, **Gordon EM**, Hinton DR, Anderson WF, Ryan SJ. Ability of retroviral transduction to modify the angiogenic characteristics of RPE cells. *Graefes Arch Clin Exp Ophthalmol* 236:220-229, 1998.
54. Yang L, Hwang R, **Gordon EM**, Anderson WF, Parekh D. Mechanisms of ganciclovir resistance in gastrointestinal tumor cells transduced with a retroviral vector containing the Herpes simplex thymidylating kinase gene. *Clin Canc Res* 4: 731-741, 1998.
55. Seitz B, Baktanian E, Lee RF, Kimura H, Gray B, **Gordon EM**, Anderson WF, McDonnell PJ. Retroviral vector-mediated gene transfer into keratocytes *in vitro* and *in vivo*. *Am J Ophthalmol* 126:630-639, 1998.
56. Hwang R, **Gordon EM**, Anderson WF, Parekh D. Gene therapy of primary and metastatic pancreas cancer with intraperitoneal retroviral vector bearing wild-type p53 gene. *Surgery* 124:143-150, 1998.
57. Wu BW, Cannon PM, **Gordon EM**, Hall FL, Anderson WF. Characterization of the proline-rich region of murine leukemia virus envelope protein. *J Virol* 72: 5383-5391, 1998.
58. Kundu RK, Sangiorgi F, Kurachi K, Anderson WF, Maxson R, **Gordon EM**. Targeted inactivation of the coagulation factor IX gene causes hemophilia B in mice. *Blood* 92: 168-174, 1998.
59. Yang L, Chiang Y, Lenz HJ, Danenberg KD, Spears CP, **Gordon EM**, Anderson WF, Parekh D. Intercellular communication mediates bystander effect during herpes simplex thymidine kinase/ganciclovir-based gene therapy of human gastrointestinal tumor cells. *Hum Gene Ther* 9:719-728, 1998.
60. Seitz B, Baktanian E, **Gordon EM**, Anderson WF, LaBree L, McDonnell PJ. Retroviral vector-mediated gene transfer into keratocytes: *in vitro* effects of polybrene and protamine sulfate. *Graefes Arch Clin Exp Ophthalmol* 236:602-612, 1998.
61. Murata T, Hoffmann S, Ishibashi T, Spee C, **Gordon EM**, Anderson WF, Hinton DR, Ryan SJ. Retrovirus-mediated gene transfer targeted to retinal photocoagulation sites. *Diabetologia* 41:500-506, 1998.
62. Murata T, Hangai M, Ishibashi T, Spee C, **Gordon EM**, Anderson WF, Hinton DR, Ryan SJ. Retrovirus-mediated gene transfer to photocoagulation-induced choroidal neovascular membranes. *Invest Ophthalmol Vis Sci* 39:2474-2478, 1998.
63. LeMay DR, Kittaka M, **Gordon EM**, Gray B, Stins MF, McComb JG, Jovanovic S,

Tabrizi P, Weiss MH, Bartus R, Anderson WF, Zlokovic BV. Intravenous RMP-7 increases delivery of ganciclovir into rat brain tumors and enhances the effects of herpes simplex virus thymidine kinase gene therapy. *Hum Gene Ther* 9:989-995, 1998.

64. Alauddin MM, Shahinian A, Kundu RK, **Gordon EM**, Conti PS. Evaluation of 9-[(3-18-fluoro-1-hydroxy-2-propoxy) methyl] guanine ([18F-FHPG) in vitro and in vivo as a probe for PET imaging of gene incorporation and expression in tumors. *Nucl Med Biol* 26:371-376, 1999.
65. Kampmeier J, Behrens A, Wang Y, Yee A, Anderson WF, Hall FL, **Gordon EM**, McDonnell PJ. Inhibition of rabbit keratocyte and human fetal lens epithelial cell proliferation by retroviral-mediated transfer of antisense cyclin G1 and antisense MAT1 constructs. *Hum Gene Ther* 11:1-8, 2000.
66. Hall FL, Liu L, Zhu NL, Stapfer M, Anderson WF, Beart RW, **Gordon, EM**. Molecular engineering of matrix-targeted retroviral vectors incorporating a surveillance function inherent in von Willebrand factor. *Hum Gene Ther* 11:983-993, 2000.
67. Liu L, Liu L, Anderson WF, **Gordon EM**, Hall FL. Incorporation of tumor vasculature targeting motifs (TVTMs) into MLV env escort proteins enhances retroviral binding and transduction of human endothelial cells. *J Virol*, 74:5320-5328, 2000.
68. **Gordon EM**, Liu PX, Chen ZH, Liu L, Whitley MD, Gee C, Groshen S, Hinton DR, Beart RW, Hall FL. Inhibition of metastatic tumor growth in nude mice by portal vein infusions of matrix-targeted retroviral vectors bearing a cytotoxic cyclin G1 construct. *Cancer Res.* 60:3343-3347, 2000.
69. Wu K, Yee A, Zhu NL, **Gordon EM**, Hall FL. Characterization of differential gene expression in monkey arterial neointima following balloon catheter injury. *Intl J Mol Med* 6:433-440, 2000.
70. Hall FL, Liu L, Chen ZH, Hu J, Nimni ME, Beart RW, **Gordon EM**. Design, Expression, and Renaturation of a Lesion-targeted Recombinant Epidermal Growth Factor (EGF)-von Willebrand Factor Fusion Protein: Efficacy in an Animal Model of Experimental Colitis. *Intl J Mol Med* 6:635-643, 2000.
71. **Gordon EM**, Liu PX, Chen ZH, Liu L, Whitley M, Liu L, Wei D, Groshen S, Hinton DR, Anderson WF, Beart RW, Hall FL. Systemic administration of a matrix-targeted retroviral vector is efficacious for cancer gene therapy in mice. *Hum Gene Ther* 12:193-204, 2001.
72. Hall FL, Han B, Kundu RK, Yee A, Nimni ME, **Gordon EM**. Phenotypic differentiation of TGF- β 1-responsive pluripotent premesenchymal prehematopoietic

progenitor (P4 Stem) cells from murine bone marrow. *J Hematother Stem Cell Res* 10:261-271, 2001

73. **Gordon EM**, Zhu NL, Prescott M Forney, Chen ZH, Yu H, Anderson WF, Hall FL. Lesion-targeted injectable vectors for vascular restenosis. *Hum Gene Ther* 12:1277-1287, 2001.
74. Xu F, Prescott MF, Liu PX, Chen ZH, Liau G, **Gordon EM**, Hall FL. Long Term Inhibition of Neointima Formation In Balloon-injured Rat Arteries by Intraluminal Instillation of a Matrix-Targeted Retroviral Vector Bearing an Improved Cytocidal Cyclin G1 Construct. *Intl J Mol Med*. 8: 19-30, 2001.
75. Masood R, **Gordon EM**, Whitley M, Liu L, Wu BW, Cannon P, Evans L, Anderson WF, Gill P, and Hall FL. Targeting vascular endothelial growth factor receptors using a FLK-1/KDR antibody in conjunction with retroviral vectors bearing protein A constructs. *Int J Mol Med*. 8:335-343, 2001.
76. Alauddin MM, Shahinian A, **Gordon EM**, Bading JR, Conti PS. Preclinical evaluation of the penciclovir analog 9-[4 – [¹⁸F] – Fluoro-3-hydroxy-methyl – butyl] guanine ([¹⁸F] – FHBG) for in vivo measurement of suicide gene expression with PET. *Nuclear Med* 42: 1682-1690, 2001.
77. Zhu NL, **Gordon EM**, Liu L, Terramani T, Anderson WF, Hall FL. Collagen-targeted retroviral vectors displaying domain D2 of von Willebrand factor (vWF-D2) enhance gene transfer to human tissue explants. *Int'l J Pediatr Hematol Oncol* 7:325-335, 2001
78. Behrens A, **Gordon EM**, Liu P, Li L, Chen Z, Peng H, La Bree L, Anderson WF, Hall FL, and McDonnell PJ. Retroviral Gene Therapy Vectors for Prevention of Excimer Laser-induced Corneal Haze. *Invest Ophthalmol Vis Sci* 43:968-977, 2002.
79. Lenz HJ, Anderson WF, Hall FL, **Gordon EM**. Tumor Site Specific Phase I/II Evaluation of Safety and Efficacy of Hepatic Arterial Infusion of a Matrix-Targeted Retroviral Vector Bearing a Dominant Negative Cyclin G1 (dnG1) Construct as Treatment for Colorectal Carcinoma Metastatic to Liver. *Hum Gene Ther* 13:1515-1537, 2002.
80. Alauddin MM, Shahinian A, **Gordon EM**, Conti PS. Evaluation of 2'-deoxy-2'-fluoro-5-methyl-1-beta-D-arabinofuranosyluracil as a potential gene imaging agent for HSV-tk expression in vivo. *Mol Imaging* 1:74-81, 2002.
81. Song JC, McDonnell PJ, **Gordon EM**, Hall FL, Anderson WF. Phase I/II evaluation of safety and efficacy and a matrix-targeted retroviral vector bearing a dominant negative cyclin G1 construct (Mx-dnG1) as adjunctive intervention for superficial corneal opacity/corneal scarring. *Hum Gene Ther* 14:306-309, 2003.

82. **Gordon EM**, Cornelio GH, Lorenzo CC, Levy JP, Reed RA, Liu L, Hall FL. First Clinical Experience Using a “Pathotropic” Injectable Retroviral Vector (Rexin-G) as Intervention for Stage IV Pancreatic Cancer. *Int’l J Oncol* 24: 177-185, 2004.
83. Pahre JN, Fuchs M, Levy J, **Gordon EM**, Hall FL. Molecular Engineering of Pathotropic Vectors for Cancer Gene Therapy. *Bioproc J* 2: 1-6, 2004.
84. Guibinga GH, Hall FL, **Gordon EM**, Ruoslahti E, Friedmann T. Ligand-modified vesicular stomatitis virus glycoprotein displays a temperature- sensitive intracellular trafficking and virus assembly phenotype. *Mol Ther* 9:76-84, 2004.
85. Dong D, Bading J, Nguyen K, Luna M, Yu H, **Gordon EM**, Gomer C, Hall, FL, Gambhir S, Lee AS. The stress-inducible Grp78 promoter preferentially directs high level suicide gene expression at the chemoresistant peri-necrotic tumor regions resulting in eradication of sizable human tumors. *Hum Gene Ther*, 2004.
86. **Gordon EM**, Hall FL. Nanotechnology blooms at last (Review). *Oncol Rep* 13:1003-1007, 2005
87. **Gordon EM**, Lopez FF, Cornelio GH, Lorenzo CC, Levy JP, Reed RA, Liu L, Bruckner HW, Hall FL. Pathotropic nanoparticles for cancer gene therapy. Rexin-G™ IV: Three-year clinical experience, *Int’l J Oncol* 29: 1053-1064, 2006.
88. **Gordon EM**, Chan MT, Geraldino N, Lopez FF, Cornelio GH, Lorenzo CC, Levy JP, Reed RA, Liu L, Hall FL. Le Morte du Tumeur: Histological features of tumor destruction in chemo-resistant cancers following intravenous infusions of pathotropic nanoparticles bearing therapeutic genes. *Int’l J Oncol* 30: 1297-1307, 2007.
89. **Gordon EM** and Hall FL: A primer on pathotropic medicine. In “One Hundred Years of the FDA and the Future of Global Health. Brooklands New Media, Shopshire UK: 84, 2007.
90. **Gordon EM**, Levy JP, Reed RA, et al: Targeting metastatic cancer from the inside: a new generation of gene delivery vectors enables personalized vaccination in situ. *Int’l J Oncol* 33: 665-675, 2008.
91. **Gordon EM**, Hall FL. The ‘timely’ development of Rexin-G: First targeted Injectable gene vector (Review). *Int J Oncol* 2009;35:229-38
92. Chawla SP, Chua VS, Fernandez L, Saralou A, Quon D, Blackwelder WB, Hall FL, **Gordon EM**. Phase I/II and and Phase II studies of targeted gene delivery in vivo: intravenous Rexin-G for chemotherapy-resistant osteosarcoma and other sarcomas. *Mol Ther* 2009; 17(9):1651-7.
93. Chawla SP, Chua VS, Fernandez L, Saralou A, Quon D, Blackwelder WB, **Gordon EM**, Hall FL. Advanced Phase I/II studies of targeted gene delivery *in vivo*: Intravenous Rexin-G for gemcitabine-resistant metastatic pancreatic cancer. *Mol Ther* 2010; 18:435-441; ;doi:10.1038/mt2009.228.

94. **Gordon EM** and Hall FL. Rixin-G: A Targeted Genetic Medicine for Cancer. *Expert Opin Biol Ther* 10:819-832, 2010.
95. **Gordon EM** and Hall FL. Noteworthy clinical case studies in cancer gene therapy: Tumor-targeted Rixin-G advances as an efficacious anti-cancer agent. *Int'l J Oncol* 36:1341-1353, 2010.
96. Hall FL, Levy JP, Reed RA, Petchpud WN, Chua VS, Chawla SP and **Gordon EM**. Pathotropic targeting advances clinical oncology: Tumor-targeted localization of therapeutic gene delivery. *Oncol Rep* 24:829-833, 2010.
97. **Gordon EM**, Chawla NS, Hall FL, and Chawla SP. New cancer therapies for the 21st century: A two decade review of approved drugs and drugs in development in the United States. *J Int Med*, in press, 2015.

CHAPTERS

1. **Gordon EM** and Anderson WF
Gene Therapy Clinical Trials for ADA-SCID:A Critical Evaluation.
In *Clinical Trials in Genetic Therapy Using Sense and Antisense DNA*.
Erik Wickstrom, Ed., 1998.
2. **Gordon EM**, Hall FL, Beart RW, Anderson WF. Genetic engineering of targeted retroviral vectors. Chapter 14. *In Vector Targeting Strategies for Therapeutic Gene Delivery*. DT Curiel & JT Douglas, eds. Wiley-Liss, Inc., New York, NY: 293-320, 2002.
3. **Gordon EM** and Hall FL. Critical stages in the development of the first targeted injectable molecular genetic medicine for cancer. *In Chapter 26. Gene Therapy Applications*. Intech Publishing, Zagreb, Croatia: 461-462, 2011.

I. Patents and Inventions (Co-Inventor of 154 patents/ patent applications) including:

Biotech/ Biomedical Field	Patent No. (Publication No.)	Filing Date	Issue Date (Pub Date)	Title
Targeted Vector Systems	(US 2004-0253215)	04/21/2004	(12/16/2004)	Methods And Compositions For Treating Metastatic Cancer
	(US 2007-0178066)	11/03/2006	(08/02/2007)	Pathotropic Targeted Gene Delivery System For Cancer And Other Disorders
	(US 2009-0123428)	09/22/2008	(05/14/2009)	Pathotropic Targeted Gene Delivery System For Cancer And Other Disorders
	(US 2010-0016413)	10/05/2009	(01/21/2010)	Pathotropic Targeted Gene Delivery System For Cancer And Other Disorders
	AU 2004232328	04/21/2004	02/05/2009	Methods and Compositions for Treating Disorders
	(AU 2007314300)	11/05/2007	(05/08/2008)	Methods and Compositions for Treating Disorders
	(CA 2,522,359)	04/21/2004	(11/04/2004)	Methods and Compositions for Treating Disorders
	(CA 2,668,285)	11/05/2007	(05/08/2008)	Methods and Compositions for Treating Disorders
	(CN 101495156A)	11/05/2007	(07/15/2009)	Methods and Compositions for Treating Disorders
	(EP 1619951)	04/21/2004	(11/04/2004)	Methods and Compositions For Treating Disorders
	(EP 2077862)	11/05/2007	(05/08/2008)	Methods and Compositions for Treating Disorders
	IL 198492	11/05/2007	02/17/2010	Methods and Compositions for Treating Disorders
	(IN 4431/DELNP/08)	11/05/2007	(05/28/2009)	Methods and Compositions for Treating Disorders
	(JP 2009-112314)	04/21/2004	(03/25/2010)	Methods and Compositions for Treating Disorders
	KR 2008-7025948	11/05/2007	(05/08/2008)	Methods and Compositions for Treating Disorders
	(NZ 576367)	11/05/2007	(05/08/2008)	Methods and Compositions for Treating Disorders
	PH 1-2004-500715	11/05/2007	06/09/2005	Methods and Compositions for Treating Disorders
	US 6,864,082	07/13/2001	03/25/2008	Modified Proteins Which Bind to Extracellular Matrix Components
	US 7,347,998	12/15/2004	(10/02/2008)	Modified Proteins Which Bind to Extracellular Matrix Components
	(US 2008-0241905)	01/18/2008	12/13/2001	Transgene Delivering Retrovirus Targeting Collagen Exposed at Site of Tissue Injury
AU 737727	04/08/1998	03/12/2008	Modified Proteins Which Bind to Extracellular Matrix Components	
(CA 2,285,937)	04/08/1998	(10/15/1998)	Modified Proteins Which Bind to Extracellular Matrix Components	

Biotech/ Biomedical Field	Patent No. (Publication No.)	Filing Date	Issue Date (Pub Date)	Title
	EP 0973538*	04/08/998	(03/12/2008)	Modified Proteins Which Bind to Extracellular Matrix Components * Granted in BE CH DE ES FR GB IT NL
	(EP 2008664)	04/08/1998	(04/21/2008)	Modified Proteins Which Bind to Extracellular Matrix Components
	IL 132087	04/08/1998	03/19/2009	Modified Proteins Which Bind to Extracellular Matrix Components
	(JP 2001/52308)	04/08/1998	(11/20/2001)	Modified Proteins Which Bind to Extracellular Matrix Components
	(JP 2008-31178)	04/08/1998	(02/14/2008)	Modified Proteins Which Bind to Extracellular Matrix Components
	NZ 500006	04/08/1998	(01/10/2001)	Modified Proteins Which Bind to Extracellular Matrix Components
	AU 2004226933	10/27/2000	01/04/1008	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature
	(CA 2,390,081)	10/27/2000	(05/03/2001)	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature
	EP 1224302*	10/27/2000	03/14/2007	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature *Granted in DE FR GB
	EP1854892*	10/27/2000	03/03/2010	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature * Granted in DE FR GB
	(IL 149144)	10/27/2000	(11/10/2002)	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature
	(JP 2003-512074)	10/27/2000	(04/03/2000)	Modified Viral Surface Proteins Which Bind to Cells of Tumor Vasculature
	US 7,078,483	08/19/2002	07/18/2006	Retroviral Vectors Including Modified Envelope Escort Proteins
	AU 2003200255	04/28/1999	01/18/2007	Retroviral Vectors Including Modified Envelope Escort Proteins
	(CA 2,326,407)	04/28/1999	(11/04/1999)	Retroviral Vectors Including Modified Envelope Escort Proteins
	(IL 139016)	04/28/1999	(11/25/2001)	Retroviral Vectors Including Modified Envelope Escort Proteins
	(JP 2002-51438)	04/28/1999	(05/21/2002)	Retroviral Vectors Including Modified Envelope Escort Proteins
	NZ 507,645	04/28/1999	06/25/2004	Retroviral Vectors Including Modified Envelope Escort Proteins
	NZ 532,894	04/28/1999	02/09/2006	Retroviral Vectors Including Modified Envelope Escort Proteins
	US 6,004,798	05/14/1997	12/21/1999	Retroviral Envelopes Having Modified Hypervariable Polyproline Regions
	US 5,723,287	05/03/1995	03/03/1998	Recombinant Viruses Displaying a Nonviral Polypeptide on Their External Surface
	US 6,297,004	02/27/1998	10/02/2001	Recombinant Viruses Displaying a Nonviral Polypeptide on Their External Surface
	US 7,708,986	07/07/2006	05/04/2010	Targeted Vectors for Cancer Immunotherapy

Biotech/ Biomedical Field	Patent No. (Publication No.)	Filing Date	Issue Date (Pub Date)	Title
	US 7,347,998	12/15/2004	03/25,2008	Method of Delivering Therapeutic Agents to Site of Tissue Injury (In Vivo Gene Delivery)
Genes / DNA Constructs	US 6,825,033 AU 2001234025 AU 20052.02730 (CA 2,401,545) EP 1259605*	02/28/2001 03/01/2001 03/01/2001 03/01/2001 03/01/2001	11/30/2004 07/07/2005 07/24/2008 (09/07/2001) 05/16/2007	Mutated Cyclin G1 Protein Mutated Cyclin G1 Protein Mutated Cyclin G1 Protein Mutated Cyclin G1 Protein Mutated Cyclin G1 Protein * Granted in BE CH DE ES FR GB IE IT
	(JP 2003-525607) NZ 521070 US 7,605,142 AU 724439 CA 2,236,482 EP 0858346*	03/01/2001 03/01/2001 10/26/2006 10/31/1996 10/31/1996 10/31/1996	(09/02/2003) 11/11/2004 10/20/2009 01/11/2001 04/24/2007 06/06/2007	Mutated Cyclin G1 Protein Mutated Cyclin G1 Protein Expression of Cyclin G1 in Tumors Expression of Cyclin G1 in Tumors Expression of Cyclin G1 in Tumors Expression of Cyclin G1 in Tumors * Granted in BE CH DE ES FR GB IE IT
	JP 4117367 NZ 538525	10/31/1996 10/31/1996	05/02/2008 11/08/2007	Expression of Cyclin G1 in Tumors Expression of Cyclin G1 in Tumors
Targeting of Growth Factors & Biomolecules	US 6,387,663 US 6,955,898 AU 758483 (CA 2,337,979) EP 1100535* IL 141141 (IL 190793) (JP 2002-521044) NZ 509804	07/31/1998 04/17/2002 07/30/1999 07/30/1999 07/30/1999 07/30/1999 07/30/1999 07/30/1999 07/30/1999	05/14/2002 10/18/2005 03/20/2003 (02/10/2000) 05/12/2010 09/10/2008 (11/03/2008) (07/16/2002) 11/03/2003	Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues *Granted in CH DE ES FR GB IT Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues Targeting Pharmaceutical Agents to Injured Tissues
Cell & Tissue Engineering / Gene Therapy	US 7,459,541 (US 2009-0093407)	12/10/2003 09/09/2008	12/02/2008 (04/09/2009)	Matrix-Targeted Fusion Polypeptides for Tissue Regeneration and Wound Healing Matrix-Targeted Fusion Polypeptides for Tissue Regeneration and Wound Healing

Biotech/ Biomedical Field	Patent No. (Publication No.)	Filing Date	Issue Date (Pub Date)	Title
	AU 764520	07/21/2000	12/04/2003	Matrix-Targeted Fusion Polypeptides for Tissue Regeneration and Wound Healing
	CA 2,378,925	07/21/2000	04/16/2010	Matrix-Targeted Fusion Polypeptides for Tissue Regeneration and Wound Healing
	EP 1223953*	07/21/2000	02/01/2008	Matrix-Targeted Fusion Polypeptides for Tissue Regeneration and Wound Healing
	(US 2003-0157078)	03/31/2003	(08/21/2003)	* Granted in DE GB Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	AU 759643	07/20/2000	07/31/2003	Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	(CA 2,379,683)	07/20/2000	(01/25/2001)	Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	EP 1200555*	07/20/2000	09/17/2008	Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	IL 147722	07/20/2000	04/07/2008	*Granted in DE FR GB Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	NZ 516738	07/20/2000	05/10/2004	Identification of a Pluripotent Pre-Mesenchymal, Pre-Hematopoietic Progenitor Cell
	US 5,800,811	06/06/1995	09/01/1998	Artificial Skin Prepared from Collagen Matrix Containing Transforming Growth Factor-Beta Having a Collagen Binding Site
	US 6,063,593	11/12/1996	05/16/2000	TGF-beta Responsive Bone Marrow-Derived Cells to Express a Recombinant Protein
	US 6,277,369	03/17/2000	08/21/2001	Factor IX Delivery Method Using Bone Marrow-Derived Cells
	US 6,410,015	05/11/2000	06/25/2002	Gene Therapy Methods Using Bone Marrow-Derived Cells Expressing Blood Clotting Factors
	US 6,844,191	02/15/2002	01/18/2005	Osteogenic Cell Growth Using a TGF-Beta 1-Von Willebrand's Factor Fusion Protein
	AU 2005200383	11/12/1997	10/11/2007	TGF-beta 1 Responsive Cells from Bone Marrow
	(CA 2,271,734)	11/12/1997	(05/22/1998)	TGF-beta 1 Responsive Cells from Bone Marrow
	EP 946199*	11/12/1997	05/13/2009	TGF-beta 1 Responsive Cells from Bone Marrow
				* Granted in AT BE CH DK ES FI FR GB GR IE IT MC NL PT SE

Biotech/ Biomedical Field	Patent No. (Publication No.)	Filing Date	Issue Date (Pub Date)	Title
	(JP 2001-503989)	11/12/1997	(03/27/2001)	TGF-beta 1 Responsive Cells from Bone Marrow
	(JP-2008-206520)	11/12/1997	(09/11/2008)	TGF-beta 1 Responsive Cells from Bone Marrow
	NZ 335753	11/12/1997	06/06/2001	TGF-beta 1 Responsive Cells from Bone Marrow