

CURRICULUM VITAE

Updated: 03/07/2016

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PLACE OF BIRTH: Rotterdam, The Netherlands.
DATE OF BIRTH: June 30, 1954.
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EDUCATION:

1980 B.A. State University of Leiden, Leiden, The Netherlands.
1982 M.Sc. State University of Leiden, Leiden, The Netherlands.
1988 Ph.D. (Medicine) Erasmus University of Rotterdam, Rotterdam,
The Netherlands.

RESEARCH FELLOWSHIP:

1993-1995 Research Fellow in Medicine, Brigham and Women's
Hospital and Harvard Medical School, Boston, Massachusetts.

ACADEMIC APPOINTMENTS:

1995-1998 Instructor in Medicine, Brigham and Women's Hospital and
Harvard Medical School, Boston, Massachusetts.
1998-2002 Associate Member, Cancer Therapy and Research Center, Institute
for Drug Development, San Antonio, Texas.
1998-2002 Adjunct Assistant Professor, Department of Microbiology, The
University of Texas, Health Science Center, San Antonio, Texas.
2002-2005 Assistant Professor, Department of Cellular and Structural
Biology, The University of Texas Health Science Center, San
Antonio, Texas.
2006-2008 Scientist (comparable to Associate Professor), California Pacific
Medical Center Research Institute, San Francisco, California.
2008-present Associate Professor, Department of Microbiology and
Immunology, Albert Einstein College of Medicine, Bronx, New
York.

OTHER PROFESSIONAL POSITIONS:

1987-1993 Head, Department of Leptospirosis, Royal Tropical Institute,

Institutes for Scientific Research, Amsterdam, The Netherlands.

MEMBERSHIPS, OFFICES, AND COMMITTEE ASSIGNMENTS IN PROFESSIONAL SOCIETIES:

1985-1987	Vice President, Society for Medical Scientific Researchers, The Netherlands.
1992-1993	Member, Committee for National Veterinary Leptospirosis, The Netherlands.
1995-1999-2006	American Society for Microbiology. Member, Experimental Therapeutics Program, San Antonio Cancer Institute, San Antonio, TX.
1999-2006	Member, Nathan Shock Center of Excellence in Basic Biology of Aging, San Antonio, TX.
2002- 2006	Reviewer NIH Study Section ZRG1 ONC-P 10B, NIH/SBIR, Cancer Drugs and Therapeutics.
2002	Ad-hoc reviewer Italian Association for Cancer Research
2005-	Member of Editorial Board Mechanisms of Ageing and Development.
2007	Reviewer NIH Study Section NCCAM SEP ZAT1 SM, November 2007.
2008	Reviewer NIH Study Section NCCAM, March 2008.
2009	Reviewer NIH Study Section CII, Jan 2009.
2009	Reviewer NIH Study Section CII, Sept 2009.
2010	Reviewer NIH Study Section NCCAM, July 2010
2006-	Ad-hoc reviewer for various scientific journals (Cancer Immunology Immunotherapy, Clinical Cancer Research, Cellular Immunology, Transplantation Infectious Disease, Biogerontology, Experimental Gerontology), Science Translational Medicine
2009-	Faculty Senator Einstein
2012	Reviewer Provocative Questions 2012/05 ZCA1 SRLB-D (M1) R, March 2012.
2012	Reviewer NIH/NCI Study Section, CTDD, October 2012
2013	Reviewer SBIR -Topic 315 - Review Meeting, March 2013
2013	Reviewer RFA-CA-12-017 Research Answers to NCI's Provocative Questions – Group B (R01), October 2013
2013	American Academy of Microbiology, Member of Steering Committee, Colloquium “Bugs as Drugs”.
2014	Reviewer DOD Study section Immunology-2, March 12-14, 2014
2014	Reviewer study section MMTR/ZRG1 OTC-J 55, Oct 30-31, 2014
2015	Reviewer NIH study section PAR-14-142, June 5, 2015
2015	Reviewer NIH study section 2015/10 ZAT1 SM (37) L, July 1, 2015
2015	Reviewer study section MMTR/ZRG1 PAR14-240/241, Oct 9, 2015
2015	Reviewer MRC. Immunotherapy of pancreatic ductal adenocarcinoma.

2016 Reviewer NIH study section MMTR, January 28, 2016
2016 Reviewer NIH study section special emphasis panel on cancer and the immune system. July 18, 2016

MAJOR RESEARCH INTERESTS:

1. Cancer vaccines
2. Tumor Immunology and Aging
3. Listeria as delivery system of radioactivity and other anti-cancer agents
4. Agents that reduce immune suppression in the tumor microenvironment
4. Bacterial vaccines
5. Microbiology

INVITED LECTURES/PRESENTATIONS

- 2002 International Conference on Immunology and Aging. "Humanized" mouse tumor models in pre-clinical testing of cancer vaccines for elderly, Washington DC, WA, June 14-16, 2002.
- 2003 20th Texas Regional Immunology Conference, Houston, Texas. Development and testing of a human GAGE-4 DNA vaccine in an immune competent mouse neuroblastoma model, November 15-17, 2003.
- 2004 Aging and Cancer Seminar. Moffitt Cancer Center, Tampa, Florida. Vaccine studies: Does the Age of the Mouse Matter? September, 2004.
- 2004 Seminar at The Buck Institute, San Francisco, California. Human-like mouse models to optimize DNA vaccines against metastatic breast cancer. February, 2004.
- 2004 NIH Workshop Aging and Immunity. Trudeau Institute, Saranac Lake, New York. Efficacy of cancer vaccines at young and old age, September 17-19, 2004.
- 2006 Mouse models of Cancer and Aging Workshop. Mouse tumor models for improving efficacy of cancer vaccines at old age. Seattle, Washington. June 27, 2006.
- 2006 Aging Research on Immunology (ARIG): The Impact of Genomics. Vaccine efficacy in old age. Paris, France. September 4-5, 2006.
- 2007 Senescence and Cancer (SENECA): The impact of aging on cancer immunotherapy. Warschau, Poland. October 4-6, 2007.
- 2007 Strategies for Engineered Negligible Senescence (SENS) 3: Efficacy of cancer vaccines to prevent cancer in the elderly. Cambridge, England. September 6-10, 2007.
- 2008 Understanding Aging: Biomedical and Bioengineering Approaches. Improvement of cancer vaccination at older age. UCLA, Los Angeles, USA. June 27-29, 2008.
- 2009 Gordon Research Conference. Mechanisms of Aging: Key effectors and rational targets. Are cancer vaccines effective at an older age? Ventura, CA. February 15-20, 2009.

- 2009 Progress in Vaccination Against Cancer (PIVAC)-9 Conference. The importance of the age factor in cancer vaccination. Sofia, Bulgaria, Oct 8-10, 2009.
- 2009 International Symposium on herbal medicines and vaccines for cancer therapy. Is cancer vaccination feasible at older age? Taipei, Taiwan, Dec 1-2, 2009.
- 2009 Queens College, Queens, NY. Is cancer vaccination an option at older age? Faculty seminar. Sept 9, 2009.
- 2010 Mayo Clinic Rochester. Killing tumor cells through Listeria. Faculty seminar April 5-6, 2010.
- 2011 ImVacs, Cambridge, MA. Vaccination with *Listeria monocytogenes* controls immune suppression by MDSC and metastatic behavior of breast and pancreatic cancer. August 16-18, 2011.
- 2011 12th international conference in vaccination against cancer (PIVAC-11), Copenhagen, Denmark. How to improve cancer vaccination at older age? October 10-13, 2011.
- 2011 Geriatric Oncology: Cancer in senior adults (SIOG), Paris, France. Ageing, and immune responses to cancer vaccines, November 3-5, 2011.
- 2012 Geriatric Oncology: Cancer in senior adults (SIOG), Manchester, UK. New approaches in cancer vaccination at old age. Oct 25-27, 2012.
- 2013 Satellite Meeting. Aging in the immune system. Milan, Italy. Cancer vaccines in old age. August 20-21, 2013
- 2014 American Academy of Microbiology, Member of Steering Committee, Colloquium "Bugs as Drugs", April 9-11, 2014
- 2014 PIVAC-14; Curing cancer by immunotherapy at older age. Rome. Sept 24-26, 2014
- 2014 Memorial Sloan Kettering Cancer Center. A Listeria-based platform for cancer therapies. Nov 15, 2014.
- 2016 Tata Memorial Center Platinum Jubilee. Attenuated bacterium *Listeria monocytogenes* as a new delivery platform for anticancer agents. Mumbai, India. February 26-29, 2016.

FUNDING COMPLETED:

- 1999-2000 *Barbara H. Bowman Award in Cancer Prevention Research* entitled "Development of an autologous mouse model to test cancer vaccines and to study tumor immunological parameters." \$20,000 (PI: Gravekamp)
- 1999-2000 *Nathan Shock Center/The Aging Research and Education Center Pilot Grant* entitled "Development of a conditional mouse tumor model to study the relationship between cancer and aging". \$15,000 (PI: Gravekamp)
- 2000-2001 *Children's Cancer Research Center San Antonio Grant* entitled "Generation of a syngeneic mouse tumor model for the

- development of vaccine and drug therapies against neuroblastomas.” \$41,250 (PI: Gravekamp)
- 2000-2002 *National Institute on Aging/R03 (1RO3018564-01)* entitled “A conditional mouse tumor model to study cancer and aging”. \$50,000 (PI: Gravekamp)
- 2000-2002 *American Federation for Aging Research (AFAR)* entitled “A syngeneic mouse model to develop cancer vaccines for the elderly.” \$50,000 (PI: Gravekamp)
- 2001-2003 *Children’s Cancer Research Center Grant* entitled “Immune competent mouse models for the development and optimization of vaccine and drug therapies: applications in childhood cancer.” \$150,000 (PI: Gravekamp)
- 2003-2005 *Helen Freeborn Kerr Charitable Foundation (Equipment Grant)* entitled “Development of cancer vaccines for the elderly”. \$19,244(PI: Gravekamp)
- 2002-2003 *Cancer Center Council Award* entitled “Humanized pre-clinical mouse tumor models to improve the predictive value of cancer vaccines for human application”. \$20,200 (PI: Gravekamp)
- 2009-2010 *AECC/ARRA supplement* entitled “Combined therapy with NKT cell activators and LM vectors for the treatment of breast cancer”(PI: Porcelli and Gravekamp)
- 2004-2012 RO1/NIA entitled “DNA vaccines for metastatic breast cancer at oldage” \$750,000 (PI: Gravekamp)
- 2008-2012 R21/NCI entitled “New approaches to prevent or treat breast cancer metastases” \$275,000 (PI:Gravekamp)
- 2012-2015 *Glenn Center support grant.* Entitled: “Preclinical development of vaccines against age-related disease”(PI: Barzilai/Project Leader subgrant: Gravekamp) (\$300,000)
- 2013-2015 *Nathan Shock Center Pilot Grant.* Entitled: “Curing spontaneous cancer by Listeria-based immunotherapy at older age” (PI:Gravekamp)(\$20,000)

FUNDING ACTIVE:

- 2015-2017 *NCI/R21* entitled “Treating pancreatic cancer with Listeria-32P (PI: Gravekamp) (\$275,000)

- 2015-2017 *NCI Spore in thyroid cancer*/Pilot project entitled “ Targeting advanced thyroid carcinoma with attenuated Listeria (PIs: DiCristofano and Gravekamp)(\$100,000)
- 2012-2020 *Anticancer Fund.* Entitled: “Development of anticancer Therapies”. Ongoing Support (PI: Gravekamp) (\$100,000 yearly)
- 2016 *Donation Janet and Murray Spatz.* Development of anticancer therapies for pancreatic cancer. (PI: Gravekamp) (\$60,000)
- 2014-2019 *NIA/PPG grant 2 P01AG031782-06A1.* Functional Consequences of Impaired Autophagy in Aging: Using the Listeria model to analyze autophagy in aging (PI: Cuervo)
- 2016-2018 *Pancreatic Cancer Action Network (PCAN)* Entitled: “Improving cancer immunotherapy and Gemcitabine sensitivity through Listeria”. (PI: Gravekamp, Co-PI: Chuy) (\$300,000)

PENDING SUPPORT

- 2015-2019 *ROI/NCI* entitled “Radioactive Listeria, a new approach against pancreatic cancer” \$2,330,000 (Gravekamp contact PI, Dadachova multi-PI, Libutti multi-PI)(**Score: 27%**)
- 2015-2017 *R21/NCI* entitled “Improving cancer immunotherapy through Listeria and childhood recall antigens” \$275,000 (PI: Gravekamp)(**Score: 10%**)
- 2015-2019 *ROI/NCI* Novel use of Listeria and gemcitabine to improve immunotherapy for pancreatic cancer \$2,350,000 (PIs: Gravekamp and Libutti). (**Score 44**)
- 2016-2020 *ROI/NCI.* Improving cancer immunotherapy against PDAC through Listeria and Gemcitabine. \$3,966,124.00 (PIs: Gravekamp and Libutti)(**Score 46%**).
- 2016-2021 *ROI/NCI.* Grant title: Light-controlled Listeria-based anticancer treatment. (PI: contact PI Gomelsky, multi-PI Gravekamp)

PATENTS:

Patent: 61/042,673. Filing date April 4, 2008. "Cancer Treatment and Methods and Vaccines"
Inventor: Claudia Gravekamp, Sun Hee Kim, Francisco Castro.

Patent: 11/727,889 CIP "Composition and methods comprising a Mage-b antigen" Filing date
March 28, 2007. Inventors: Claudia Gravekamp and Yvonne Paterson.

Patent: 96700/1673. Filing date: February 15, 2011. "Radiobacteria for therapy of cancer"
Inventors: Ekaterina Dadachova, Claudia Gravekamp, Arturo Casadevall.

Patent: 96700/2230 Filing date: April 29, 2015 "Treatment of cancer using recall antigens
delivered by attenuated bacteria". Inventors: Gravekamp.

Patent: 96700/2171. Filing date November 15, 2014. "Method for producing radiobacteria for
therapy of cancer" Inventors Gravekamp, Dadachova, Chandra.

BIBLIOGRAPHY:

Peer-reviewed publications

1. **Gravekamp C**, Koerten HK, Verwoerd NP, de Bruijn WC, and Daems WT. Automated image analysis applied to electromicrographs. *Cell Biol* 1982; 6: 565.
2. Van de Griend RJ, Ronteltap CPM, **Gravekamp C**, Monnikendam D, and Bolhuis RLH. Interferon-beta and recombinant IL-2 can both enhance, but by different pathways, the nonspecific cytolytic potential of CD3⁻ natural killer cell-derived clones rather than that of CD3⁺ clones. *J Immunol* 1986; 136: 1700-1707.
3. **Gravekamp C**, Santoli D, Vreugdenhil R, Collard JG, and Bolhuis RLH. Efforts to produce human cytotoxic T cell hybridomas by electrofusion and by PEG fusion. *Hybridoma* 1987; 6: 121-133.
4. **Gravekamp C**, van den Bulck LP, Vijg J, van de Griend RJ, and Bolhuis RLH. C-myc gene expression and interleukin-2 receptor levels in cloned human CD2⁺, CD3⁺ and CD2⁺, CD3⁻ lymphocytes. *Nat Immun Cell Growth Regul* 1987; 6: 28-36.
5. van de Griend RJ, **Gravekamp C**, and Bolhuis RLH. Human CD3⁺4⁻ TCR/alpha⁺beta⁺gamma⁻ blood T cells, their lytic potential against tumor cells and their recognition using WT31 monoclonal antibody. *Transplant Proc* 1988; 20: 323-335.
6. **Gravekamp C**, Vreugdenhil R, and Bolhuis RLH. OK-432 and IL-2 augmented cytotoxicity of human natural killer cells and cytotoxic T lymphocytes at the clonal level. *FEMS Microbiol Immunol* 1988; 47: 1-40.
7. Van Eys GJJM, **Gravekamp C**, Gerritsen M, Quint W, Cornelissen MTE, Ter Schegget T, Terpstra WJ. Detection of leptospires in urine by polymerase chain reaction. *J Clin Microbiol* 1989; 27: 2258-2262.
8. Terpstra WJ, Korver H, Schonemann C, and **Gravekamp C**. Ziekte van Weil, Melkerskoorts and andere leptospirosen, 1981-1987. *Ned Tijdschr Geneesk* 1989; 133: 1322-1326.

9. Lahaije JJM, Lustermaans FATHWB, **Gravekamp C**, Groen J, and Osterhaus ADME. Wederom een geval van Hantavirusinfectie in Nederland. *Ned Tijdschr Geneesk* 1989; 133: 1990-92.
10. Van Eys GJJM, **Gravekamp C**, Gerritsen M, and Terpstra WJ. Het aantonen van leptospiren (serotype *hardjo*) in runder urine met probes en primers (PCR). *Ned Tijdschr Geneesk* 1989; 133: 2471-2472.
11. **Gravekamp C**, Bontebal M, Ronteltap CPM, van Duyvenbode D, and Bolhuis RLH. In vitro and in vivo activation of CD4⁺ lymphocytes by autologous tumor cells. *Int J Cancer* 1990; 46: 151-152.
12. Everard COR, Carrington DG, Korver H, Burke R, Everard JD, and **Gravekamp C**. Leptospire in whistling frogs (*Eleutherodactylus johnstoni*) on Barbados. *J Trop Med Hyg* 1990; 93: 140-145.
13. **Gravekamp C**, van de Kemp H, Franzen M, Carrington D, Schoone GJ, van Eys GJJM, Everard COR, Hartskeerl RA, and Terpstra WJ. Detection of seven species of pathogenic leptospire by PCR using two sets of primers. *J Gen Microbiol* 1993; 139: 1691-1700.
14. Bal EA, **Gravekamp C**, Hartskeerl RA, De Meza-Brewster J, Korver H, and Terpstra WJ. Detection of leptospire in urine by PCR for early diagnosis of leptospirosis. *J Clin Microbiol* 1994; 32: 1894-1898.
15. Crevel van R, Speelman P, **Gravekamp C**, and Terpstra WJ. Leptospirosis in travelers. *Clin Infect Dis* 1994; 19: 132-134.
16. Brown PD, **Gravekamp C**, Carrington DG, Kemp van de H, Hartskeerl RA, Edwards CN, Everard COR, Terpstra WJ, Levett PN. Evaluation of the polymerase chain reaction for early diagnosis of leptospirosis. *J Med Microbiol* 1995; 43: 110-114.
17. **Gravekamp C**. Horensky DS, Michel JL, and Madoff LC. Variation in repeat number within the alpha C protein of group B Streptococci alters antigenicity and protective epitopes. *Inf Immun* 1996; 64: 3576-3583.
18. Kling DE, **Gravekamp C**, Madoff LC, and Michel JL. Characterization of two distinct opsonic protective epitopes within the alpha C protein of the group B *Streptococcus*. *Inf Immun* 1997; 65: 1462-1467.
19. **Gravekamp C**, Kasper DL, Michel JL, Kling DE, Carey V, and Madoff LC. Immunogenicity and protective efficacy of the alpha C protein of Group streptococci are inversely related to the number of repeats. *Inf Immun* 1997; 65: 5216-5221.
20. **Gravekamp C**, Rosner B, and Madoff LC. Deletion of repeats in the alpha C protein enhances the pathogenicity of group B *Streptococcus* in immune mice. *Inf Immun* 1998; 66: 4347-4354
21. **Gravekamp C**, Dennis L. Kasper, Lawrence C. Paoletti, and Lawrence C. Madoff. Alpha C protein as carrier for type III capsular polysaccharide and as a protective protein in GBS vaccines. *Inf Immun* 1999; 67: 2491-2496.
22. **Gravekamp C**. Tailoring cancer vaccines to the elderly: The importance of suitable mouse models. *Mechanisms of Ageing and Development* 2001; 122: 1087-1105.

23. Lachenauer CS, Baker CJ, Baron MJ, Kasper DL, **Gravekamp C**, and Madoff LC. Quantitative determination of IgG to the GBS beta protein in human maternal sera. *Journal of Infectious Diseases* 2001; 185: 368-374.
24. Bolduc GR, Baron MJ, **Gravekamp C**, Lachenauer CS, and Madoff LC. The alpha C protein mediates internalization of Group B Streptococcus within human cervical epithelial cells. *Cell Microbiol* 2002 11: 751-758.
25. Sypniewska RK, Hoflack L., Bearss DJ, and **Gravekamp C**. Potential mouse tumor model for pre-clinical testing of Mage-specific breast cancer vaccines. *Breast Cancer Research and Treatment* 2002; 74: 221-233.
26. Brown PD, Carrington DG, **Gravekamp C**, van de Kemp H, Edwards CN, Jones SR, Prussia PR, Garriques S, Terpstra WJ, Levett PN. Direct detection of leptospiral material in human postmortem samples. *Res Microbiol* 2003; 154: 581-586.
27. **Gravekamp C**, Sypniewska R, Tarango M, Gauntt, S, Price P, and Reddick R. Behavior of metastatic and non-metastatic breast tumors at old age in the mouse. *Experimental Biology in Medicine* 2004; 229: 665-675.
28. **Gravekamp C**, Sypniewska R, Hoflack L. The usefulness of mouse breast tumor models for testing and optimization of breast cancer vaccines at old age. *Mech Ageing Dev* 2004; 125: 125-127.
29. Sypniewska R, Hoflack L, Tarango M, Gauntt S, Reddick R, and **Gravekamp C**. Prevention of metastases with a Mage-b DNA vaccine in a mouse breast tumor model: potential for breast cancer therapy. *Breast Cancer Research and Treatment* 2005; 91: 19-28.
30. Yang B, O'Herrin SM, Wu J, Reagan-Shaw S, Ma Y, Bhat KMR, **Gravekamp C**, Ivanoc AV, Rauscher III FJ, Simpson AJG, and Longley BJ. MAGE-A, mMAGE-b, and MAGE-C proteins form complexes with Kap1 and suppress p53-dependent apoptosis in MAGE positive cell lines. *Cancer Res* 2007; 67: 9954-9962.
31. **Gravekamp C**. Cancer vaccines in old age. *Experimental Gerontology* 2007; 42: 441-450.
32. **Gravekamp C**, Leal B, Denny A, Bahar R, Lampkin S, Castro F, Moore D, and Reddick R. In vivo responses to vaccination with Mage-b, GM-CSF and thioglycollate in a highly metastatic mouse breast tumor model, 4T1. *Cancer Immunology and Immunotherapy* 2008; 57: 1067-1077.
33. Kim SH, Castro F, Gonzalez D, Maciag P, Paterson Y, and **Gravekamp C**. Mage-b delivered by recombinant *Listeria monocytogenes* is highly effective against breast cancer metastases. *British Journal of Cancer* 2008; 99: 741-749.
34. **Gravekamp C**, Kim SH, and Castro F. Cancer vaccination: manipulation of immune responses at old age. *Mechanisms of Ageing and Development*. 2009; 130(1-2): 67-75.
35. Kim SH, Castro F, Paterson Y, **Gravekamp C**. High efficacy of a *Listeria*-based vaccine against metastatic breast cancer reveals a dual mode of action. *Cancer Res* 2009; 69(14): 5860-5866.

36. Castro F, Leal B, Denny A, Bahar R, Lampkin S, Reddick R, Lu S, and **Gravekamp C**. Vaccination with Mage-b DNA induces CD8 T cell responses at young but not at old age in mice with metastatic breast cancer. *British Journal of Cancer* 2009; 101: 1329-1337.
37. **Gravekamp C**. The importance of the age factor in cancer vaccination at older age. *Cancer Immunology and Immunotherapy* 2009; 58(12): 1969-1977.
38. Pawelec G, Lustgarten J, Ruby C, **Gravekamp C**. Impact of aging on cancer immunity and immunotherapy. *Cancer Immunol Immunother* 2009; 58(11): 1723-1724.
39. **Gravekamp C**. The impact on aging on cancer vaccination. *Current Opinion in Immunology* 2011; 23: 555-560.
40. Abadi YM, Jeon H, Ohaegbulam KC, Scandiuizzi L, Ghosh K, Hofmeyer KA, Lee JS, Ray A, **Gravekamp C**, Zang X. Host B7x Promotes Pulmonary Metastasis of Breast Cancer. *J Immunol* 2013; 190(7):3806-14. PMID 23455497.
41. Chandra D, Quispe-Tintaya W, Jahangir A*, Singh M, and **Gravekamp C**. Myeloid-derived suppressor cells have a central role in attenuated *Listeria monocytogenes*-based immunotherapy against metastatic breast cancer in young and old mice. *Brit J Cancer* 108(11):2281-90, 2013. *shared first authorship
42. Quispe-Tintaya W, Chandra D, Jahangir A, Singh M, Harris M, Casadevall A, Dadachova E, and **Gravekamp C**. Nontoxic radioactive *Listeria*^{at} is a highly effective therapy against metastatic pancreatic cancer. *Proc. Nat Acad. Sci, USA*, 110(21):8668-73, 2013. [Discussed as a commentary in PNAS by Stritzker and Szaly in 2013; First time that live attenuated bacteria are used for selective delivery of anticancer agents to the tumor microenvironment.](#)
43. Singh M, Ramos Y, Asafu-Adjei D, Quispe-Tintaya W, Chandra D, Jahangir A, Aggarwal B, and **Gravekamp C**. Curcumin Improves the Therapeutic Efficacy of *Listeria*^{at}-Mage-b Vaccine in Correlation with Improved T Cell Responses in Blood of a Triple Negative Breast Cancer model 4T1. *Cancer Medicine* 2(4): 571-582, 2013.
44. Singh M, Quispe-Tintaya, W, Chandra D, Jahangir A, Venkataswamy MM, Ng TW, Sharma S, Carreno LJ, Porcelli SA, and **Gravekamp C**. Direct incorporation of the NKT cell activator α -galactosylceramide into a recombinant *Listeria monocytogenes* improves breast cancer vaccine efficacy. *British Journal of Cancer* 2014; (doi: 10.1038/bjc.2014.486). PMID: 25314062. [Highlighted as an exciting new approach to improve cancer immunotherapy in BJC 2016.](#) http://www.nature.com/bjc/collections/cancer_immunotherapy/index.html
45. Chandra D, Quispe-Tintaya W, Jahangir A, Asafu-Adjei D, Ramos I, Sintim, HO, Zhou J, Hayakawa, Y, Karaolis D, and **Gravekamp C**. STING ligand c-di-GMP improves cancer vaccination against metastatic breast cancer. *Cancer Immunology Research*, 2014; 2(9): 901-910. (DOI: 10.1158/2326-6066.CIR-13-0123). PMID: 24913717
46. **Gravekamp C** and Chandra C. Targeting STING pathways for the treatment of cancer. *OncImmunity*, 2015. In press. doi: 10.4161/2162402X.2014.988463.

47. Chandra D, Jahangir A, Cornelis F, Rombauts K, Meheaus L, Jorcyk CL, and **Gravekamp C**. Cryoablation and Meriva has strong therapeutic effect on triple negative breast cancer. *OncoImmunology*. 2015. In Press. Doi: 10.1080/2162402X.2015.1049802.
48. Rosen J, Landiscina A, Adler BL, Krauz A, Doerner J, Navati M, Musaev T, Gravekamp C, Nosanchuk J, and Friedman AJ. Characterization and assessment of nanoencapsulated sanguinarine chloride as a potential treatment for melanoma. *J Drugs Dermatol* 14: 453-458, 2015.
49. Valdor R, Mocholi E, Botbol Y, Guerrero-Ros I, Chandra D, Koga H, **Gravekamp C**, Cuervo AM, Macian F. Chaperone-mediated autophagy regulates T cell responses through targeted degradation of negative regulators of T cell activation. *Nat Immunol*. 2014 Nov;15(11):1046-54. doi: 10.1038/ni.3003. PMID: 25263126
50. Shah M, Da Silva R, **Gravekamp C**, Libutti SH, Abraham T, Dadachova E. Targeted radionuclide therapies for pancreatic cancer. *Cancer Gene Ther* 2015, 22: 375-379. PMID 26227823.
51. Capistrano I R, Wouters A, Lardon F, **Gravekamp C**, Apers S, Pieters L. In vitro and in vivo investigations on the antitumour activity of Chelidonium majus. *Phytomedicine* 22(14):1279-87, 2015. PMID 26626193.
52. Chandra D, Yuan Z, Libutti SK, Koba W, Beck A, Dadachova E, and **Gravekamp C**. Listeria-³²P, a new treatment for pancreatic cancer (Submitted).
53. Jahangir A, Chandra M, Quispe-Tintaya W, Singh M, **Gravekamp C**. Listeria-based vaccination overcomes immune senescence and immune suppression in tumor-bearing mice at young and old age (Prepared for submission).

Non-peer reviewed, invited papers

1. **Gravekamp C**, Bol SJL, Hagemeyer A, Bolhuis RLH. Production of human T-cell hybridomas by electrofusion. In: Engleman EG, Foug SHK, Larrick J, Raubitschek A, eds. *Human hybridomas and monoclonal antibodies*. New York and London: Plenum Press, 1985: 323-339.
2. **Gravekamp C**, van de Griend RJ, Vreugdenhil R, Bolhuis RLH. The cytolytic response of cloned T3⁺T11⁺ cells and T3-T11⁺ natural killer cells to the biological response modifiers OK-432, interferon and T-cell growth factor. In: Ishida N, Klein G, eds. *Host defence mechanisms and immunopotentiators*. Tokyo:University of Tokyo Press, 1986: 41-50.
3. **Gravekamp C**, van de Kemp H, Carrington DJ, van Eys GJJM, Everard COR, Terpstra WJ. Detection of leptospiral DNA in serum from patients with *copenhageni*-infections. In: Kobayshi Y ed. *Leptospirosis, proceedings of the leptospirosis research conference 1990*, Tokyo: Hokusen-sha, 1991: 151-164.
4. **Gravekamp C**, Korver H, Montgomery J, Everard COR, Ellis WA, Terpstra WJ. Leptospire isolated from toads and frogs on the Island of Barbados. *Zbl Bakt* 1991; 275: 403-411.

5. Steinen ACM, Schuurman JL, **Gravekamp C**, Korver H, Terpstra WJ. Muskrats as carriers of pathogenic leptospires in The Netherlands. *Ant Leeuwenhoek* 1992; 61: 43-50.
6. **Gravekamp C**. Cancer Immunotherapy and aging: Lessons from the mouse. In: *Handbook on Immunosenescence: basic understanding and clinical applications*, 2009 Eds Fulop T, Pawelec G, Franceschi C, and Hirokawa K. Springer. Pp1217-1243.
7. **Gravekamp C**. The importance of the age factor in cancer vaccination at older age. *Cancer Immunology and Immunotherapy* 2009; 58(12): 1969-1977. PMID 19259666.
8. **Gravekamp C**, and Paterson Y. Harnessing *Listeria monocytogenes* to target tumors. *Cancer Biol and Ther* 2010; 9: 1-9.
9. **Gravekamp C**. The impact of aging on cancer vaccination. *COII* 2011; 23: 555-560. PMID: 21763118.
10. **Gravekamp C**. Cancer vaccination at older age. *Interdiscipl Top Gerontol* 2013; 38:28-37.
11. Chandra D and **Gravekamp C**. Myeloid-derived suppressor cells: Cellular missiles to target tumors *Oncoimmunology*, 2013 Nov 1;2(11):e26967. Epub 2013. PMID: 24427545
12. **Gravekamp C** and Chandra D. Aging and cancer vaccines. *Crit Rev Oncog*. 2013;18(6):585-95. PMID: 24579737
13. **Gravekamp C** and Jahangir A. Is cancer vaccination feasible at older age? *Experimental Gerontology* 2014 Jun;54:138-44. doi: 10.1016/j.exger.2014.01.025. PMID: 24509231
14. **Gravekamp C** and Chandra C. Targeting STING pathways for the treatment of cancer. *OncoImmunology*, 2015. In press. doi: 10.4161/2162402X.2014.988463.7;4(12):e988463 PMID 26587334
15. Shah M, Da Silva R, **Gravekamp C**, **Libutti SK**, Abraham T, and Dadachova E. Targeted radionuclide therapies for pancreatic cancer – a mini-review. *Cancer Gene Ther* 22(8): 375-379, 2015. PMID 26227823

RESEARCH IMPACT

Commentary on paper about Radioactive *Listeria* by Quipe-Tintaya et al. in PNAS. Stritzker J, and Szalay AA. Single-agent combinatorial cancer therapy. PNAS 2013.
www.pnas.org/cgi/doi/10.1073/pnas.1305832110.

Websites of Journals and magazines that discussed the impact of the radioactive *Listeria* for therapeutic treatment of pancreatic cancer:

<http://www.nature.com/nrgastro/journal/vaop/ncurrent/full/nrgastro.2013.81.html>

<http://news.sciencemag.org/sciencenow/2013/04/radioactive-microbes-nuke-tumor-.html>

<http://txchnologist.com/post/48768770496/radioactive-metal-hitches-ride-on-bacteria-to-fight>

<http://www.economist.com/news/science-and-technology/21576628-surprising-new-way-kill-tumours-three-wrongs-make-right>

TEACHING ACTIVITIES

My educational philosophy

My research is focused on the development and testing of cancer vaccines, with the emphasis of bringing our vaccines to the clinic. This includes designing and generating the vaccines, analyzing their mechanistic mode of action in vitro and in preclinical models, and how to use the results for improvement and new type of therapies with greater promise. One of my main interests in teaching is to bridge basic research with clinical applications. Building this bridge will lead to more effective and more novel therapies with greater speed into clinical trials. Therefore, lecturing Medical Students about Tumor Immunology, new development in cancer therapies, and how to translate research into human application, is what I believe will build that bridge.

Currently, the one-on-one interaction involved in training students and post-doctoral fellows occupies most of my time. My goal is to make them excited about research, to make them think objective, critically, and independently, and how to dissolve problems by creative thinking.

Teaching

- | | |
|-----------|---|
| 1991-1993 | Continuing Medical Education of Leptospirosis, Academic Medical Centre, Amsterdam, The Netherlands. |
| 1992-1993 | Training courses in Leptospirosis for laboratory personnel in the tropics (8 weeks): Queen Elizabeth Hospital, Barbados, and Caribbean Epidemiology Center (CAREC), Trinidad. |
| 1991-1993 | International Course on laboratory methods for the diagnosis of Leptospirosis (15 days), Royal Tropical Institute, Amsterdam, The Netherlands. |
| 2009 | Lecture for undergraduate students “Is cancer vaccination feasible at older age?” Queens College, New York |
| 2010 | Lecture for undergraduate students “Responsible Conduct of Research” to graduate students, Einstein. |
| 2011 | Lecture for Medical Research Fellows “The promises and problems in cancer vaccination”, Montefiore Medical Center |

2012 Chairing Immunology Graduate students presenting seminal papers from immunological literature, Einstein.

Chair Committee on Appointments and Promotions

2013 David D'Alessandro
2015 Naum Shaparin
2016 Andreas Kaubisch

PhD Advisory Committees (Einstein)

2009-2012 Yael S Barach (Microbiology and Immunology)
2009-2011 Patrice Cohen (Microbiology and Immunology)

Thesis Defense Committees (Einstein)

2010 Andres Baena (Microbiology and Immunology)
2015 Kieran Seay (Microbiology and Immunology)

Admission Interviews (Einstein)

2009-present PhD students (22 students)
2009-present MSTP students (44 students)

Qualifying Exam Steering Committee (Einstein)

Chair meetings of qualifying exam committee for PhD and MD/PhD students

2012 Kieran Seay
2012 Eric Jung
2012 Jing Wen
2013 Jordan Chinai
2013 Melinda Ng
2013 Jorge Aguilar
2015 Mengyan Li
2015 Ariola Bardhi
2016 Daniel Pique
2016 Natalie Ramsey

FACULTY/MENTOR ADVISOR

Graduate/Medical Students

1993-1994 Reinout van Crevel (degree received: MD in Medical Microbiology, AMC, Amsterdam)
2009-present Arthee Jahangir (PhD student, Einstein)(PhD degree May 28, 2014)
2009-2011 Patrice Cohen (PhD in Tumor Immunology, Einstein, 2011)
2010-2013 Manisha Singh (degree received May 7, 2013, Erasmus University, Rotterdam, The Netherlands)

Postdoctoral Fellows

- 1999-2002 Roza Sypniewska (current position: Senior Scientist Brooke Army Medical Center, San Antonio).
- 2000-2002 Lieve Hoflack (current position: Senior Scientist University of Ghent Industrial Biotech, Belgium); Received Barbara Bowman Award, 2001.
- 2006-2008 Sun Hee Kim (current position: Scientist VA Hospital, San Francisco, CA)
- 2008-2013 Wilber Quispe (Einstein); Received Dennis Shield Travel Award 2012;
- 2009-2016 Dinesh Chandra (Einstein); Received Dennis Shield Travel Award 2010;
Oral invitation: "Listeria takes Control over MDSC in the Tumor Microenvironment and Improves Anti-tumor Immunity. Santa Fe, New Mexico (USA) February 12 February 17, 2011";
Oral invitation and Travel Award: "STING ligand c-di-GMP improves vaccine efficacy in a metastatic breast cancer model". Immunology (AAI) 2013, Honolulu, Hawaii, May 3-7, 2013. Current position: Senior Scientists at Eisai, Boston.
- 2016-2017 Kun Zhu. First Affiliated Hospital of Xi'an Jiaotong University, Shaanxi, China. Development and testing of RNA-aptamer incorporation into Listeria (training at Einstein)

Laboratory Rotation Graduate Students (Einstein)

- 2009 Arthee Jahangir
- 2009 Jackie Coley (PhD student)
- 2011 Marika Osterbur (MD/PhD student)
- 2011 Karin Skalina (MD/PhD student)

Summer Research Students

- 2001 Craig Nolde, undergraduate student Texas A and M University (CTRC)
- 2003 Ashley Denney, undergraduate student Trinity University, San Antonio, TX (CTRC)
- 2004 Paul Price, undergraduate student Brigham Young University, Provo, UT (CTRC)
- 2009-2010 Swathi Krishnan, Rye Country Day High School student, Rye, NY (Einstein). Received following Awards: (1) 2nd place from the Connecticut Junior Science and Humanities Symposium (This means she is qualifies to compete at the national level); (2) 1st place CT Science Fair (This means she will compete at the all-expense paid trip to the Intel International Science and Engineering Fair (ISEF) in Los Angeles, CA); (3) Special Award United States Navy; (4) Fondazione Bruno Kessler, Award to travel Trento, Italy to participate in summer school WebValley.
- 2011 Lukman Solola, undergraduate student Brooklyn College (Einstein). Received NSF funding.
- 2013 Alice Kwon, undergraduate student Wesleyan College, Middletown, Connecticut (Einstein)
- 2014 James Gibson. High School student Eastchester High School (Einstein)

2015 Rodrigo Alves da Silva. Undergraduate student. Brazil Scientific Mobility Program Student. (Einstein)
2015 Marianna Vitiello. PhD student. University of Pisa, Italy. Received EMBO award
2015 Geevanesam Devakanmalai. Bronx High School of Science.