BIOGRAPHICAL SKETCH

NAME **Kris THIELEMANS, MD, Ph.D.**	POSITION TITLE **Professor**
BIRTHDAY **1954-07-20**	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Vrije Universiteit Brussel, Brussels, Belgium	Bachelor	1975	Medical Sciences
Vrije Universiteit Brussel, Brussels, Belgium	Master/MD	1979	Medical Sciences
Vrije Universiteit Brussel, Brussels, Belgium	Ph.D.	1988	Medical Sciences

Positions

1979-1981 Assistant-Internship, Internal Medicine Dept., University Hospital VUB, Brussels
1981-1984 Research Fellow, Oncology Dept., Stanford University, Stanford, CA
1984-1985 Assistant-Internship, Oncology Dept., University Hospital VUB, Brussels
1985-1988 Research Fellow – FWO (aangesteld navorser) Oncology Dept., Medical School VUB, Brussels
1988-1992 Research Associate -FWO (Bevoegdverklaard navorser) Oncology Dept., Medical School VUB, Brussels
1992-1994 Associate Professor (Hoofddocent) Physiology, Medical School VUB, Brussels
1995-2004 Professor Physiology, Medical School VUB, Brussels
2004- Professor Immunology, Medical School VUB, Brussels
1997- Consultant Internal Medicine Dept., University Hospital VUB, Brussels
2000-2004 Vice-Dean Medical School VUB, Brussels

Honors

1981 Price Alfred Solvay
1981 Fulbright Scholarship Award
1982 NATO research fellowship
1982 Young Investigators Program Finalist, Belgian National Foundation for Scientific and Medical Research
1984 King Boudewijn Foundation award
1986 Bekales Foundation award
1995 Dr De Ruyck Award of the Belgian Royal Academy of Medicine
2000 Belgian Royal Academy of Medicine
2005 Research Professorship of the Vrije Universiteit Brussel

Proximus of the honorary doctorate to Prof. Dr. Ralph L. STEINMAN (Rockefeller University, U.S.A.)
Proximus of the honorary doctorate to Prof. Dr. Ronald LEVY (Stanford University, U.S.A.)

Journal publications

ISI Web of Science
Results: 285
Sum of the times cited: 9,570
Average citations per item: 33.58
Average citations per year: 281.47
h-index: 50

Google Scholar
Citations: 11,444 since 2009: 4,582
h-index: 55 since 2009: 39
i10-index: 146 since 2009: 107

PubMed (Results: 210 - 56 x last author)

2009-2015

1. Maenhout SK, Thielemans K, Aerts JL. Location, location, location: functional and phenotypic heterogeneity between tumor-infiltrating and non-infiltrating myeloid-derived suppressor cells. OncoImmunology. 2014 Sept. 22

2. Van der Jeught K, Bialkowski L, Daszkiewicz L, Broos K, Goyvaerts C, Renmans D, Van Lint S, Heirman C, Thielemans K, Breckpot K. Targeting the tumor microenvironment to enhance antitumor immune responses. Oncotarget. 2015 Jan 30;6(3):1359-81.
3. Wilgenhof S, Corthals J, Van Nuffel AM, Benteyn D, Heirman C, Bonehill A, Thielemans K, Neyns B. Long-term clinical outcome of melanoma patients treated with messenger RNA-electroporated dendritic cell therapy following complete resection of metastases. Cancer Immunol Immunother. 2014 Dec 30.
4. Van der Jeught K, Joe PT, Bialkowski L, Heirman C, Daszkiewicz L, Liechtenstein T, Escors D, Thielemans K, Breckpot K. Intratumoral administration of mRNA encoding a fusokine consisting of IFN-β and the ectodomain of the TGF-β receptor II potentiates antitumor immunity. Oncotarget. 2014 Oct 30;5(20):10100-13
5. Van Lint S, Renmans D, Broos K, Dewitte H, Lentacker I, Heirman C, Breckpot K, Thielemans K. The ReNAissanCe of mRNA-based Cancer Therapy. Expert Rev Vaccines. 2015 Feb;14(2):235-51.
6. Benteyn D, Heirman C, Bonehill A, Thielemans K, Breckpot K. mRNA-pulsed dendritic cell vaccines**.** Expert Rev Vaccines. 2015 Feb;14(2):161-76.
7. Dewitte H, Van Lint S, Heirman C, Thielemans K, De Smedt SC, Breckpot K, Lentacker I. The potential of antigen and TriMix sonoporation using mRNA-loaded microbubbles for ultrasound-triggered cancer immunotherapy. J Control Release. 2014 Nov 28;194:28-36.
8. Maenhout SK, Du Four S, Corthals J, Neyns B, Thielemans K, Aerts JL. AZD1480 delays tumor growth in a melanoma model while enhancing the suppressive activity of myeloid-derived suppressor cells. Oncotarget. 2014 Aug 30;5(16):6801-15.
9. De Keersmaecker B, Fostier K, Corthals J, Wilgenhof S, Heirman C, Aerts JL, Thielemans K, Schots R. Immunomodulatory drugs improve the immune environment for dendritic cell-based immunotherapy in multiple myeloma patients after autologous stem cell transplantation. Cancer Immunol Immunother. 2014 Oct;63(10):1023-36..
10. Van Lint S, Wilgenhof S, Heirman C, Corthals J, Breckpot K, Bonehill A, Neyns B, Thielemans K. Optimized dendritic cell-based immunotherapy for melanoma: the TriMix-formula. Cancer Immunol Immunother. 2014 Sep;63(9):959-67.
11. Demotte N, Bigirimana R, Wieërs G, Stroobant V, Squifflet JL, Carrasco J, Thielemans K, Baurain JF, Van Der Smissen P, Courtoy PJ, van der Bruggen P. A short treatment with galactomannan GM-CT-01 corrects the functions of freshly isolated human tumor-infiltrating lymphocytes. Clin Cancer Res. 2014 Apr 1;20(7):1823-33.
12. Goyvaerts C, Kurt DG, Van Lint S, Heirman C, Van Ginderachter JA, De Baetselier P, Raes G, Thielemans K, Breckpot K. Immunogenicity of targeted lentivectors. Oncotarget. 2014 Feb 15;5(3):704-15.
13. Pen JJ, Keersmaecker BD, Heirman C, Corthals J, Liechtenstein T, Escors D, Thielemans K, Breckpot K. Interference with PD-L1/PD-1 co-stimulation during antigen presentation enhances the multifunctionality of antigen-specific T cells. Gene Ther. 2014 Mar;21(3):262-71.
14. de Goede AL, van Deutekom HW, Vrancken B, Schutten M, Allard SD, van Baalen CA, Osterhaus AD, Thielemans K, Aerts JL, Keşmir C, Lemey P, Gruters RA. HIV-1 evolution in patients undergoing immunotherapy with Tat, Rev, and Nef expressing dendritic cells followed by treatment interruption. AIDS. 2013 Nov 13;27(17):2679-89.
15. Benteyn D, Anguille S, Van Lint S, Heirman C, Van Nuffel AM, Corthals J, Ochsenreither S, Waelput W, Van Beneden K, Breckpot K, Van Tendeloo V, Thielemans K, Bonehill A. Design of an Optimized Wilms' Tumor 1 (WT1) mRNA Construct for Enhanced WT1 Expression and Improved Immunogenicity In Vitro and In Vivo. Mol Ther Nucleic Acids. 2013 Nov 19;2:e134.
16. Snauwaert S, Verstichel G, Bonte S, Goetgeluk G, Vanhee S, Van Caeneghem Y, De Mulder K, Heirman C, Stauss H, Heemskerk MH, Taghon T, Leclercq G, Plum J, Langerak AW, Thielemans K, Kerre T, Vandekerckhove B. In vitro generation of mature, naive antigen-specific CD8(+) T cells with single T cell receptor by agonist selection. Leukemia 2014 Apr;28(4):830-41.
17. Maenhout SK, Van Lint S, Emeagi PU, Thielemans K, Aerts JL. Enhanced suppressive capacity of tumor-infiltrating myeloid-derived suppressor cells compared to their peripheral counterparts. Int J Cancer. 2014 Mar 1;134(5):1077-90.
18. Pen JJ, De Keersmaecker B, Maenhout SK, Van Nuffel AM, Heirman C, Corthals J, Escors D, Bonehill A, Thielemans K, Breckpot K, Aerts JL. Modulation of Regulatory T Cell Function by Monocyte-Derived Dendritic Cells Matured through Electroporation with mRNA Encoding CD40 Ligand, Constitutively Active TLR4, and CD70. J Immunol. 2013; 191:1976-83.
19. Goyvaerts C, Dingemans J, De Groeve K, Heirman C, Van Gulck E, Vanham G, De Baetselier P, Thielemans K, Raes G, Breckpot K. Targeting of human antigen-presenting cell subsets. J Virol. 2013, 87(20):11304-8.
20. Emeagi PU, Maenhout S, Dang N, Heirman C, Thielemans K, Breckpot K. Downregulation of Stat3 in melanoma: reprogramming the immune microenvironment as an anticancer therapeutic strategy. Gene Ther. 2013 Nov;20(11):1085-92.
21. Wilgenhof S, Van Nuffel AM, Benteyn D, Corthals J, Aerts C, Heirman C, Van Riet I, Bonehill A, Thielemans K, Neyns B. Phase IB study on intravenous synthetic mRNA electroporated dendritic cell immunotherapy in pretreated advanced melanoma patients. Annals Oncology 2013, Oct;24(10):2686-93.
22. Van Lint S, Heirman C, Thielemans K, Breckpot K. mRNA: From a chemical blueprint for protein production to an off-the-shelf therapeutic. Hum Vaccin Immunother. 2013 Feb;9(2):265-74.
23. Benteyn D, Van Nuffel AM, Wilgenhof S, Corthals J, Heirman C, Neyns B, Thielemans K, Bonehill A. Characterization of CD$\mathbf{8}^{+}$ T-Cell Responses in the Peripheral Blood and Skin Injection Sites of Melanoma Patients Treated with mRNA Electroporated Autologous Dendritic Cells (TriMixDC-MEL). BioMed Research International Volume 2013, Article ID 976383, 8 pages
24. Van Nuffel AM, Wilgenhof S, Thielemans K, Bonehill A. Overcoming HLA restriction in clinical trials: Immune monitoring of mRNA-loaded DC therapy. Oncoimmunology. 2012 Nov 1;1(8):1392-1394.
25. Emeagi PU, Thielemans K, Breckpot K. The role of SMAC mimetics in regulation, of tumor cell death and immunity. Oncoimmunology. 2012 Sep 1;1(6):965-967.
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T, Leclercq G, Thielemans K, Kerre T, Vandekerckhove B. RHAMM/HMMR (CD168) is not an ideal target antigen for immunotherapy of acute myeloid leukemia. Haematologica. 2012 Oct;97(10):1539-47.
29. De Keersmaecker B, Allard SD, Lacor P, Schots R, Thielemans K, Aerts JL. Expansion of polyfunctional HIV-specific T cells upon stimulation with mRNA electroporated dendritic cells in the presence of immunomodulatory drugs. J Virol. 2012 Sep;86(17):9351-60.
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33. Allard SD, de Goede AL, De Keersmaecker B, Heirman C, Lacor P, Osterhaus AD, Demanet C, Thielemans K, Gruters RA, Aerts JL. Sequence evolution and escape from specific immune pressure of an HIV-1 Rev epitope with extensive sequence similarity to human nucleolar protein 6. Tissue Antigens. 2012 Mar;79(3):174-185.
34. Van Nuffel AM, Tuyaerts S, Benteyn D, Wilgenhof S, Corthals J, Heirman C, Neyns B, Thielemans K, Bonehill A. Epitope and HLA-type independent monitoring of antigen-specific T-cells after treatment with dendritic cells presenting full-length tumor antigens. J Immunol Methods. 2012 Mar 30;377(1-2):23-36.
35. Goyvaerts C, De Groeve K, Dingemans J, Van Lint S, Robays L, Heirman C, Reiser J, Zhang XY, Thielemans K, De Baetselier P, Raes G, Breckpot K. Development of the Nanobody display technology to target lentiviral vectors to antigen-presenting cells. Gene Ther. 2012 Dec;19(12):1133-40.
36. Allard SD, De Keersmaecker B, de Goede AL, Verschuren EJ, Koetsveld J, Reedijk ML, Wylock C, De Bel AV, Vandeloo J, Pistoor F, Heirman C, Beyer WE, Eilers PH, Corthals J, Padmos I, Thielemans K, Osterhaus AD, Lacor P, der Ende ME, Aerts JL, van Baalen CA, Gruters RA. A phase I/IIa immunotherapy trial of HIV-1-infected patients with Tat, Rev and Nef expressing dendritic cells followed by treatment interruption. Clin Immunol. 2012 Mar;142(3):252-68.
37. Van Nuffel AM, Benteyn D, Wilgenhof S, Corthals J, Heirman C, Neyns B, Thielemans K, Bonehill A. Intravenous and intradermal TriMix-dendritic cell therapy results in a broad T-cell response and durable tumor response in a chemorefractory stage IV-M1c melanoma patient. Cancer Immunol Immunother. 2012 Jul;61(7):1033-43.
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46. Wilgenhof S, Van Nuffel AM, Corthals J, , Heirman C, Tuyaerst S, Benteyn D, De Coninck A, Van Riet I, Verfaillie G, Vandeloo J, Bonehill A, Thielemans K, Neyns B. Therapeutic vaccination with an autologous mRNA electroporated dendritic cell vaccine in patients with advanced melanoma. J.of Immunotherapy 2011 June: 34 (5): 448-456
47. Wilgenhof S, Pierret L, Corthals J, Van Nuffel AM, Heirman C, Roelandt T, De Coninck A, Verfaillie G, Vandenbroucke F, Van Riet I, Bonehill A, Thielemans K, Neyns B. Restoration of tumor equilibrium after immunotherapy for advanced melanoma: three illustrative cases. Melanoma Res. 2011 Feb 11.
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51. Van Nuffel AM, Corthals J, Neyns B, Heirman C, Thielemans K, Bonehill A. Immunotherapy of cancer with dendritic cells loaded with tumor antigens and activated through mRNA electroporation. Methods Mol Biol. 2010;629:405-52.
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55. François V, Ottaviani S, Renkvist N, Stockis J, Schuler G, Thielemans K, Colau D, Marchand M, Boon T, Lucas S, van der Bruggen P. The CD4(+) T-cell response of melanoma patients to a MAGE-A3 peptide vaccine involves potential regulatory T cells. Cancer Res. 2009 May 15;69(10):4335-45.
56. Bonehill A, Van Nuffel AM, Corthals J, Tuyaerts S, Heirman C, François V, Colau D, van der Bruggen P, Neyns B, Thielemans K. Single-step antigen loading and activation of dendritic cells by mRNA electroporation for the purpose of therapeutic vaccination in melanoma patients. Clin Cancer Res. 2009 May 15;15(10):3366-75.
57. Breckpot K, Aerts-Toegaert C, Heirman C, Peeters U, Beyaert R, Aerts JL, Thielemans K. Attenuated expression of A20 markedly increases the efficacy of double-stranded RNA-activated dendritic cells as an anti-cancer vaccine. J Immunol. 2009 Jan 15;182(2):860-70.

General Information

Kris Thielemans is professor of Immunology at the Medical School of the Vrije Universiteit Brussel, chairman of the department of Immunology and Physiology, head of the Laboratory of Molecular and Cellular Therapy (LMCT) and medical director of the Dendritic Cell Bank (DCB) of the University Hospital.

The main focus of his research is the development of innovative immunotherapeutic strategies. This interest goes back to the early 80's when KT was trained in the laboratory of Dr. R. Levy at the Department of Oncology at the Stanford University Medical School. Since its inception, the LMCT has been the central facility for the coordination and the vaccine production for uni- and multicentre studies on the immunotherapy of non-Hodgkin lymphoma and multiple myeloma (using the idiotype-protein as tumor-specific antigen) and more recently for phase I/II trials of immunotherapy of melanoma, prostate cancer and multiple myeloma using dendritic cell based vaccines. A therapeutic DC-vaccination trial in HIV infected individuals has recently been conducted as well. The main goal of the ongoing research is to develop an integrated partnership between immunotherapy and conventional cancer treatment.
The LMCT has developed a 'closed culture system' to generate large numbers of 'clinical grade' DCs and has developed and refined the methodology to genetically modify these DCs with *in vitro* synthesized mRNA or with lentiviral vectors. Several strategies to manipulate and to optimize the expression level, the processing and the duration of the presentation of antigenic epitopes by the modified DCs, have been developed. Research activities to further improve the potency of the DCs, their migration and their survival *in vivo* and to understand the immunobiology of these cells are actively pursued. Direct *in vivo* targeting of DCs either via intranodal or intratumoral injection of mRNA or via lentiviral vectors pseudotyped with DC-specific nanobodies are actively investigated. Clinical trials using the direct administration of mRNA have recently been initiated.
The translational research activities are further supported by the use of preclinical animal models. Several tumor models are used to optimize the DC-/mRNA-based immunotherapy strategies. The generation and genetic modification of murine DCs with retro-, lentiviral vectors and with mRNA has been developed in parallel with the use of human DCs. Thus, a continuous exchange of information is taking place between pre- and clinical research or between bench and bedside and vice versa.

The LMCT is located on the Life Science Campus of the VUB and is associated with the Medical School and the University Hospital of the VUB. KT has a dual appointment in both the Medical School and in the Department of Oncology and Hematology of the University Hospital. To optimize the transfer of the translational research activities, a "HIV-Cell Therapy Unit" and a "Cancer-Cell Therapy Unit" have been established with the clinical scientists of the Department of Infectious Diseases and the Department of Medical Oncology & Hematology, respectively.

Within the LMCT, subgroups are headed by post-doctoral fellows (Summer 2013: 6) who are responsible for the development of their own research line within the major interest of the lab. As a whole, the LMCT actively fosters collaborations with other research units on and off Campus. These efforts should contribute to the creation of a more comprehensive 'cancer research center' on Campus.

The LMCT team has published about 200 articles in peer-reviewed scientific journals. KT is partner of two funded EU 7th framework programs. At the national level, the LMCT coordinated a FWO-V funded scientific network on the Immunobiology of Dendritic cells. Several research projects are conducted in close collaboration with intra- and extra-muros colleagues (e.g. Interuniversity Attraction Pole, IWT-funded programs in collaboration with the University of Ghent, IWT program in collaboration with University of Antwerp, National Cancer Plan, etc.).

Over the years, continuous efforts to search for external funding have resulted in a laboratory that is fully equipped for cellular and molecular biological studies, including 2 BL-2 and one BL-3 laboratory, a 'flow cytometry unit' (with a FACS Canto and a recently acquired FACS Aria III and LSR Fortessa), a 'recombinant protein unit' for the production of several cytokines and soluble HLA class I and II tetramers and a 'clean room facility' (Dendritic Cell Bank) for the manufacturing of the cellular vaccines for the clinical trials. A 'GMP mRNA manufacturing facility' has recently been established. GMP-certification of the mRNA production process by the Belgian Health Authorities has been obtained.
Kris Thielemans was co-founder of BruCell NV/SA. A new SME, eThe*RNA*, focusing on the manufacturing of GMP compliant mRNA and the development of immunization strategies based on this mRNA has recently been created.

Signature:

Kris Thielemans Summer 2014