

Reinhard Kirnbauer MD

NAME	POSITION TITLE		
EDUCATION/TRAINING			
Kirnbauer, Reinhard ORCID: 0000-0002-5588-4179	Associate Professor of Dermatology, Chief Laboratory of Viral Oncology, Department of Dermatology, Medical University of Vienna, Waeringer Guertel 18-20, Vienna, Austria		
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Vienna Medical School	M.D.	1983	Medicine
Residency in General Medicine, Hospital Baden	General Practitioner.	1983-1986	General Medicine
Residency in Dermatology, Medical University of Vienna (MUV)	Board Certified	1994	Dermatology
Researcher NIH/NCI/Lab. Cell. Oncol.	Univ.Do.	1991-1993	Papillomaviruses
Assoc. Prof. of Dermatology, MUV		Since 1995	Dermatology
Laboratory of Viral Oncology, Department of Dermatology (MUV)	Chief	Since 1994	Papillomaviruses

Personal Statement

Dr. Kirnbauer acts as chief of the Laboratory of Viral Oncology, and has an appointment as a Professor at the Department of Dermatology. He has a strong interest in translational research and the pathobiology of papillomaviruses. He is recognized for over 25 years of pioneering work on the development of prophylactic human papillomavirus (HPV) vaccines, seroepidemiology, and basic aspects of papillomavirus infection. As co-inventor of HPV16 virus-like particles (VLP) technology with Drs Schiller and Lowy, in 1992 he was the first to describe the assembly from L1 into morphologically correct VLP and the induction of high-level neutralizing antisera. In preclinical animal models he then demonstrated VLP vaccine efficacy in rabbits and cows, which formed the basis of clinical HPV vaccine development. His inventions were licensed by MSD and GSK to permit them to develop and produce the current HPV vaccines, Gardasil and Cervarix. He also developed a VLP-based ELISA that has been widely used in seroepidemiology and vaccination trials. He then moved back to the MUV in Austria and established his own laboratory. Besides basic work on the cellular papillomavirus receptor, he started to develop a vaccine platform based on papillomavirus VLP that carry foreign peptides on their surface, to combat diseases like Alzheimer disease or Prion-related diseases. He also collaborates with the Veterinary Med. Univ. Vienna developing vaccines against papillomavirus-induced neoplasms in horses. He recognizes the need to expand the coverage of prophylactic HPV vaccines to cover all oncogenic and cutaneous types and joined efforts with Richard Roden at Johns Hopkins Univ. to develop broadly protective HPV vaccines by combining L1 VLP with the conserved protective epitope of L2 defined by the RG-1 monoclonal antibody. His long-standing experience in HPV vaccine development and leadership skills enable him to serve as co-PI in this project.

Positions and Honors

Positions and Employment

1988-1994	Resident, Department of Dermatology, Medical University Vienna (MUV), Austria
1991-1993	Researcher at DCBDC (Chief: Doug Lowy), National Cancer Institute, National Institutes of Health (NIH), Bethesda, MD
1994-1995	Assistant Professor, Department of Dermatology, MUV
1995-present	Associate Professor, Department of Dermatology, MUV

Other Experience and Professional Memberships

1988	Austrian Society of Dermatology (ÖGDV)
1988	Society for Dermatological Research (ADF)

1988	Austrian Society of Allergology and Immunology (ÖGAI)
1989	Society for Investigative Dermatology (SID)
1997–1999	Member of the 'group of experts' for the ADF
1999–2003	Board of directors for the ADF (Arbeitsgemeinschaft dermatologische Forschung)
2007-present	Board member Working group for sexually transmitted infections (AG-STD) for the Austrian Society of Dermatology and Venerology
2009	Scientific Committee 25th International Papillomavirus Conference 2009, Malmö, Sweden
2009 – 2017	Associate Editor Journal of Investigative Dermatology (JID)
2017 - 2021	Editorial Consultant Journal of Investigative Dermatology (JID)

Honors

1990	AESCA prize - Austrian Society of Dermatology
1993	UNILEVER prize - Austrian Society of Dermatology
1994	AESCA prize - Austrian Society of Dermatology
1996	Theodor-BILLROTH-prize 'Ärztchamber für Wien'
2006	Ferdinand von HEBRA prize - Austrian Society of Dermatology
2007	Excellence in Technology Transfer by the Federal Laboratory Consortium (FLC, USA) - Gardasil: A New Era in Cancer Prevention
2015	Inventor of the Year 2014, Medical University Vienna
2016	International League of Dermatological Societies (ILDS) Certificate of Appreciation
2016	Certificate of Appreciation for Science and Research (Baden, Austria)

10 most important publications. Share your bibliography with this URL:

<https://www.ncbi.nlm.nih.gov/myncbi/10kEU8BN-qmky/bibliography/public/>

- Schellenbacher C, Huber B, Skoll M, Shafti-Keramat S, Roden RBS, Kirnbauer R. Incorporation of RG1 epitope into HPV16L1-VLP does not compromise L1-specific immunity. *Vaccine*. 2019 Jun 12;37(27):3529-3534. PMID: 31147274
- Huber B, Schellenbacher C, Shafti-Keramat S, Jindra C, Christensen N, Kirnbauer R. Chimeric L2-Based Virus-Like Particle (VLP) Vaccines Targeting Cutaneous Human Papillomaviruses (HPV). *PLoS One*. 2017 Jan 5; PMID: 28056100
- Schellenbacher C, Kwak K, Fink D, Shafti-Keramat S, Huber B, Jindra C, Faust H, Dillner J, Roden RB, Kirnbauer R. Efficacy of RG1-VLP Vaccination against Infections with Genital and Cutaneous Human Papillomaviruses. *J Invest Dermatol*, 2013 Dec;133(12):2706-13. PMID: 23752042
- Wideroff L, Schiffman MH, Haderer P, Armstrong A, Greer CE, Manos MM, Burk RD, Scott DR, Sherman ME, Schiller J, Hoover R, Tarone RE, Kirnbauer R. Seroreactivity to HPV16, 18, 31, and 45 virus-like particles in a case-control study of cervical squamous intraepithelial lesions. *J Infect Dis* 180:1424-1428(1999) PMID: 10515799
- Roden R, Armstrong A, Haderer P, Christensen N, Lowy D, Schiller J, Kirnbauer R. Characterization of a human papillomavirus type 16 variant-dependent neutralizing epitope. *J. Virol.*71(8):6247-52 (1997) PMID: 9223527
- Kirnbauer R, Chandrachud LM, O'Neil BW, Wagner ER, Grindlay GJ, Armstrong A, McGarvie GM, Schiller JT, Lowy DR and Campo MS: Virus-like Particles of Bovine Papillomavirus Type 4 in Prophylactic and Therapeutic Immunization. *Virology* 219(1):37-44(1996) PMID: 8623552
- Breitburd F, Kirnbauer R, Hubbert NL, Nonnenmacher B, Trin-Dinh-Desmarquet C, Orth G, Schiller JT, Lowy DR: Immunization with virus-like particles from cottontail rabbit papillomavirus (CRPV) can protect against experimental CRPV infection. *J. Virol.*69(6):3959-3963(1995) PMID: 7745754

8. Kirnbauer R, Hubbert NL, Wheeler CM, Becker TM, Lowy DR, Schiller JT: A virus-like particle ELISA detects serum antibodies in a majority of women infected with human papillomavirus type 16. *J. Natl. Cancer Inst.* 86(7): 494-499(1994) PMID: 8133532
9. Kirnbauer R, Taub J, Greenstone H, Roden R, Dürst M, Gissmann L, Lowy DR, Schiller JT: Efficient Self-Assembly of Human Papillomavirus Type 16 L1 and L1 plus L2 into Virus-Like Particles. *J. Virol.*67(12): 6929-6936(1993) PMID 8230414
10. Kirnbauer R, Booy F, Cheng N, Lowy DR, Schiller JT: Papillomavirus L1 major capsid proteins self-assembles into virus-like particles that are highly immunogenic. *Proc. Natl. Acad. Sci. USA* 89: 12180-12184 (1992) PMID: 1334560

Research Support

Austrian Science Foundation (FWF; KLI 987-B) PI	2022-2025
Austrian Science Foundation (FWF; I 5123-B) PI	2022-2025
SPORE in Cervical Cancer (NCI/NIH) (co-PI)	2019 – 2023
PREVENT Cancer (NCI/NIH) Kirnbauer (co-PI)	2016 – 2024
cGMP production of an RG1-VLP HPV Vaccine and first-in-human phase I trial	

Patents

- Six patents on Papillomavirus-like Particles (VLP) vaccine technology (issued 1998-1999)

Title: Self-assembling recombinant HPV16 papillomavirus capsid proteins

US Patent No. 5,985,610; US Patent No. 5,871,998; US Patent No. 5,744,142, US Patent No. 5,756,284; US Patent No. 5,716,620; US Patent No. 5,709,996

- Three patents on chimeric RG1-VLP HPV vaccine technology

Title: Papillomavirus-like particles (VLP) as broad spectrum human papillomavirus (HPV) vaccines. Inventors: Roden R.B., Kirnbauer R. and Schellenbacher C.

United States Patent 9,149,503, issued October 6, 2015

EU Patent No. 10762572.5, issued September 20, 2017

India Patent No. 317827, issued August 7, 2019