

Evelien M. Bunnik, Ph.D.

Assistant Professor
Department of Microbiology, Immunology and Molecular Genetics
University of Texas Health Science Center
7703 Floyd Curl Drive
San Antonio, TX 78229, USA
bunnik@uthscsa.edu
+1 (210) 450-8146

EDUCATION

2004 – 2010 **Ph.D.**, University of Amsterdam, The Netherlands, *cum laude*
1998 – 2002 **M.S.**, University of Leiden, The Netherlands, *cum laude*

PROFESSIONAL EXPERIENCE

08/2016 – present **Assistant Professor** – Department of Microbiology and Immunology, University of Texas Health Science Center, San Antonio, TX
Profiling humoral immunity against malaria

07/2011 – 08/2016 **Postdoctoral Fellow** – Department of Cell Biology and Neuroscience, University of California, Riverside, USA. Advisor: Dr. Karine Le Roch
A functional genomics approach to understand gene regulation in the human malaria parasite, Plasmodium falciparum

11/2010 – 06/2011 **Scientist** – Crucell, Leiden, The Netherlands
Design of a preventative and therapeutic HPV vaccine

01/2010 – 12/2010 **Postdoctoral Fellow** – Department of Experimental Immunology, Academic Medical Center, Amsterdam, The Netherlands. Advisor: Prof. Dr. Hanneke Schuitemaker
Evolution of HIV co-receptor usage during natural infection

11/2004 – 12/2009 **Graduate Student** – Department of Experimental Immunology, University of Amsterdam, The Netherlands. Advisor: Prof. Dr. Hanneke Schuitemaker
HIV envelope evolution in response to neutralizing antibodies during natural infection

10/2002 – 09/2003 **Research Technician** – OctoPlus Technologies, Leiden, The Netherlands
Development of a nanoparticle drug delivery system

FELLOWSHIPS, HONORS AND AWARDS

2014 Best presentation award, Inaugural Riverside Postdoctoral Association Symposium, University of California, Riverside, CA, USA

2014 Best presentation award, Center for Plant Cell Biology Postdoc Symposium, University of California, Riverside, CA, USA

2013 Poster award, Molecular Parasitology Meeting, Woods Hole, MA, USA

2011 1st prize Academic Medical Center Amsterdam Ph.D. Thesis Award 2010

- 2010 HFSP long-term post-doctoral fellowship (3 year salary and travel support)
- 2010 EMBO long-term post-doctoral fellowship (2 year salary support)
- 2010 Ph.D. degree received *cum laude*
- 2010 Scholarship award for the Keystone meeting HIV Vaccines, Banff, AB, Canada
- 2008 Travel grant from the Dutch Society of Immunology (NVVI) for the AIDS Vaccine meeting, Cape Town, South Africa
- 2006 Registration award for the AIDS Vaccine meeting, Amsterdam, The Netherlands
- 2006 Scholarship award for the Keystone meeting HIV Pathogenesis, Keystone, CO, USA
- 2002 M.S. degree received *cum laude*
- 1999 Propaedeutic diploma (first year of University studies) received *summa cum laude*
- 1998 Finalist Dutch National Chemistry Olympiad (chemistry competition for high school students)

RESEARCH PUBLICATIONS

Google Scholar – Citations: 1146, h-index: 16, <http://tinyurl.com/km75eqs>

Research Gate – RG score: 32.98, www.researchgate.net/profile/Evelien_Bunnik

1. **Bunnik EM**, Batugedara G, Saraf A, Prudhomme J, Florens L, Le Roch KG. The mRNA-bound proteome of the human malaria parasite *Plasmodium falciparum*. **Genome Biology (2016)**, 17(1):147.
2. Saraf A, Cervantes S, **Bunnik EM**, Ponts N, Sardu ME, Chung DWD, Prudhomme J, Varberg JM, Wen Z, Washburn MP, Florens L, Le Roch KG. Dynamic and combinatorial landscape of histone modifications during the intra-erythrocytic developmental cycle of the malaria parasite. **Journal of Proteome Research (2016)**, in press.
3. **Bunnik EM***, Lu M*, Pokhriyal N, Nasser S, Lonardi S, Le Roch KG. Analysis of nucleosome positioning landscapes enables gene discovery in the human malaria parasite *Plasmodium falciparum*. **BMC Genomics (2015)**, 16(1):1005. (*contributed equally)
4. Bol S, **Bunnik EM**. Lysine supplementation is not effective for the prevention or treatment of feline herpesvirus 1 infection in cats: a systematic review. **BMC Veterinary Research (2015)**, 11:284. (systematic review)
5. **Bunnik EM***, Ay F*, Varoquaux N*, Bol SM, Prudhomme J, Vert JP, Noble WS, Le Roch KG. Three-dimensional modelling of the *P. falciparum* genome during the erythrocytic cycle reveals a strong connection between genome architecture and gene expression. **Genome Research (2014)**, 24:974-988. (*contributed equally)
6. Polishko A, **Bunnik EM**, Le Roch K, Lonardi S. PuFFIN – a parameter-free method to build nucleosome maps from paired-end reads. **BMC Bioinformatics (2014)**, 15(Suppl 9):S11.
7. **Bunnik EM**, Polishko A, Prudhomme J, Ponts N, Gill SS, Lonardi S, Le Roch KG. DNA-encoded nucleosome occupancy is associated with transcriptional levels in the human malaria parasite *Plasmodium falciparum*. **BMC Genomics (2014)**, 15:347.
8. Cervantes S, **Bunnik EM**, Saraf A, Connor C, Escalante A, Sardu M, Ponts N, Prudhomme J, Florens L, Le Roch K. The multifunctional autophagy pathway in the human malaria parasite, *Plasmodium falciparum*. **Autophagy (2014)**, 10(1):80-92.
9. **Bunnik EM**, Chung DWD, Hamilton M, Ponts N, Saraf A, Prudhomme J, Florens L, Le Roch KG. Polysome profiling reveals translational control of gene expression in the

- human malaria parasite *Plasmodium falciparum*. **Genome Biology (2013)**, 14(11):R128.
10. Ponts N, Fu L, Harris EY, Zhang J, Chung DWD, Cervantes MC, Prudhomme J, Atanasova-Penichon V, Zehraoui E, **Bunnik EM**, Rodrigues EM, Lonardi S, Hicks GR, Wang Y, Le Roch KG. Genome-wide mapping of DNA methylations in the human malaria parasite *Plasmodium falciparum*. **Cell Host & Microbe (2013)**, 14(6): 696-706.
 11. Poon AFY, Swenson LC, **Bunnik EM**, Edo-Matas D, Schuitemaker H, van 't Wout AB, Harrigan PR. Reconstructing the Dynamics of HIV Evolution within hosts from serial deep sequence data. **PLoS Computational Biology (2012)**, 8(11): e1002753.
 12. Wang Y, Whittall T, Rahman D, **Bunnik EM**, Vaughan R, Schøller J, Bergmeier LA, Montefiori D, Singh M, Schuitemaker H, Lehner T. The role of innate APOBEC3G and adaptive AID immune responses in HLA-HIV/SIV immunized SHIV infected macaques. **PLoS One (2012)**, 7(4):e34433.
 13. Yang GB, Wang Y, Babaahmady K, Schøller J, Rahman D, **Bunnik E**, Spallek R, Zong CM, Duan JZ, Qin C, Jiang H, Singh M, Vaughan R, Bergmeier L, Schuitemaker H, Shao Y, Lehner T. Immunization with recombinant macaque MHC class I and II, HIVgp140 and SIVp27 complex inhibits SHIV infection in macaques. **Journal of General Virology (2012)**, 93(7):1506-1518.
 14. Bol SM, Booiman T, Van Manen D, **Bunnik EM**, Van Sighem AI, Sieberer M, Boeser-Nunnink B, De Wolf F, Schuitemaker H, Portegies P, Koostra NA and Van 't Wout AB. Single nucleotide polymorphism in gene encoding transcription factor Prep1 is associated with HIV-1-associated dementia. **PLoS ONE (2012)**, 7(2):e30990.
 15. Bol SM, Booiman T*, **Bunnik EM***, Moerland PD, van Dort K, Strauss JF 3rd, Sieberer M, Schuitemaker H, Kootstra NA, van 't Wout AB. Polymorphism in HIV-1 dependency factor PDE8A affects mRNA level and HIV-1 replication in primary macrophages. **Virology (2011)**, 420(1):32-42. (*contributed equally)
 16. **Bunnik EM**, Swenson LC, Edo-Matas D, Huang W, Dong W, Frantzell A, Petropoulos CJ, Coakley E, Schuitemaker H, Harrigan PR, van 't Wout AB. Detection of inferred CCR5- and CXCR4-using HIV-1 variants and evolutionary intermediates using ultra-deep pyrosequencing. **PLoS Pathogens (2011)**, 7(6):e1002106.
 17. van Gils MJ, **Bunnik EM**, Boeser-Nunnink BD, Burger JA, Terlouw-Klein M, Verwer N, Schuitemaker H. Longer V1V2 region with increased number of potential N-linked glycosylation sites in the HIV-1 envelope glycoprotein protects against HIV-specific neutralizing antibodies. **Journal of Virology (2011)**, 85(14):6986-95.
 18. **Bunnik EM***, Euler Z*, Burger JA, Boeser-Nunnink BD, Grijzen ML, Prins JM, Schuitemaker H. Activity of broadly neutralizing antibodies, including PG9, PG16, and VRC01, against recently transmitted subtype B HIV-1 variants from early and late in the epidemic. **Journal of Virology (2011)**, 85(14):7236-45. (*contributed equally)
 19. Mörner A, Jansson M, **Bunnik EM**, Schøller J, Vaughan R, Wang Y, Montefiori DC, Otting N, Bontrop R, Bergmeier LA, Singh M, Wyatt RT, Schuitemaker H, Biberfeld G, Thorstensson R, Lehner T. Immunization with recombinant HLA classes I and II, HIV-1 gp140, and SIV p27 elicits protection against heterologous SHIV infection in rhesus macaques. **Journal of Virology (2011)**, 85(13):6442-52.
 20. **Bunnik EM**, Euler Z, Welkers MRA, Boeser-Nunnink BDM, Grijzen ML, Prins JM, Schuitemaker H. Adaptation of HIV-1 envelope gp120 to humoral immunity at a population level. **Nature Medicine (2010)**, 16(9):995-997.

21. **Bunnik EM**, van Gils MJ, Lobbrecht MSD, Pisas L, Nanlohy NM, van Baarle D, van Nuenen AC, Hessel AJ, Schuitemaker H. Emergence of b12 neutralization resistant HIV-1 variants during natural infection in the absence of humoral or cellular immune pressure. **Journal of General Virology (2010)**, 91(5): 1354-1364.
22. Euler Z, **Bunnik EM***, van Gils MJ*, Phung P, Schweighardt B, Wrin T, Schuitemaker H. Cross-reactive neutralizing humoral immunity does not protect from HIV-1 disease progression. **Journal of Infectious Diseases (2010)**, 201(7): 1045-1053. (**contributed equally*)
23. van Gils MJ, **Bunnik EM**, Burger JA, Jacob Y, Schweighardt B, Wrin T, Schuitemaker H. Rapid escape from preserved cross-reactive neutralizing humoral immunity without loss of viral fitness in HIV-1-infected progressors and long-term non-progressors. **Journal of Virology (2010)**, 84(7): 3576-3585.
24. **Bunnik EM**, Lobbrecht MSD, van Nuenen AC, Schuitemaker H. Escape from autologous humoral immunity of HIV-1 is not associated with a decrease in replicative capacity. **Virology (2010)**, 397(1):224-230.
25. **Bunnik EM**, van Gils MJ, Lobbrecht MSD, Pisas L, van Nuenen AC, Schuitemaker H. Changing sensitivity to broadly neutralizing antibodies b12, 2G12, 2F5, and 4E10 of primary subtype B HIV-1 variants in the natural course of infection. **Virology (2009)**, 390(2):348-355.
26. **Bunnik EM**, Pisas L, van Nuenen AC, Schuitemaker H. Autologous neutralizing humoral immunity and evolution of the viral envelope in the course of subtype B human immunodeficiency virus type 1 infection. **Journal of Virology (2008)**, 82(16):7932-7941.
27. Vermeulen JN, Prins JM, **Bunnik E**, Hack EC, Jurriaans S, Miedema F, Lange JMA, Schuitemaker H. Intravenous Immunoglobulin (IVIG) treatment of human immunodeficiency virus type 1 infected therapy-naïve individuals. **AIDS Research and Human Retroviruses (2007)**, 23(11):1348-1353.
28. **Bunnik EM***, Quakkelaar ED*, van Alphen FPJ, Boeser-Nunnink BDM, van Nuenen AC, Schuitemaker H. Escape of human immunodeficiency virus type 1 from broadly neutralizing antibodies is not associated with a reduction of viral replicative capacity in vitro. **Virology (2007)**, 363(2):447-453. (**contributed equally*)
29. **Bunnik EM**, Quakkelaar ED, van Nuenen AC, Boeser-Nunnink B, Schuitemaker H. Increased neutralization sensitivity of recently emerged CXCR4-using human immunodeficiency virus type 1 strains compared to coexisting CCR5-using variants from the same patient. **Journal of Virology (2007)**, 81(2):525-531.
30. Vader LW, Stepniak DT, **Bunnik EM**, Kooy YM, de Haan W, Drijfhout JW, van Veelen PA, Koning F. Characterization of cereal toxicity for celiac disease patients based on protein homology in grains. **Gastroenterology (2003)**, 125(4):1105-1113.

REVIEWS AND BOOK CHAPTERS

31. **Bunnik EM**, Le Roch KG. Epigenetics of malaria parasites. Epigenetics and infectious diseases. (2016) Springer, edited by J Casadesus, W Doerfler, P Boehm and M Noyer-Weidner. (*book chapter*)
32. **Bunnik EM**, Le Roch KG. Mechanisms regulating transcription in *Plasmodium falciparum* as targets for novel antimalarial drugs. Analysis of parasite biology – from

- metabolism to drug discovery. **(2016)** Wiley, edited by S Muller, R Cerdan, E Guca and O Radulescu. (*book chapter*)
33. **Bunnik EM**, Le Roch KG. PfAlba1: master regulator of translation in the malaria parasite. **Genome Biology (2015)**, 16(1):221. (*Research Highlight*)
34. **Bunnik EM***, Ay F*, Varoquaux N, Vert J-P, Noble WS, Le Roch KG. Multiple dimensions of gene regulation in the malaria parasite *Plasmodium falciparum*. **BioEssays (2015)**, 37(2):182-194. (**contributed equally; invited review*)
35. **Bunnik EM**, Le Roch KG. *Plasmodium* »Nucleosome«. Encyclopedia of Malaria. Springer, edited by M Hommel and PG Kremsner. ISBN 978-1-4614-8325-0. **Due July 2018**. (*book chapter*)
36. **Bunnik EM**, Le Roch KG. An introduction to functional genomics and systems biology. **Advances in Wound Care (2013)**, 2(9): 490-498. (*review*)
37. Polonis VR, Schuitemaker H, **Bunnik EM**, Brown BK, Scarlatti G. Impact of host cell variation on the neutralization of HIV-1 in vitro. **Current Opinions in HIV and AIDS (2009)**, 4:400-407. (*review*)

MANUSCRIPTS SUBMITTED FOR PUBLICATION

38. Khan S, Oosterhuis K, Wunderlich K, **Bunnik EM**, Bhaggoe M, Boedhoe S, Karia S, Steenbergen R, Bosch L, Serroyen J, Janssen S, Vellinga J, Scheper G, Zahn R, Custers J. Development of a replication-deficient adenoviral vector-based vaccine candidate for the interception of HPV16- and HPV18-induced infections and disease.

SELECTED ORAL PRESENTATIONS

- 09/2014 Molecular Parasitology Meeting, Woods Hole, MA, USA. *The association between chromatin structure and gene regulation in the human malaria parasite Plasmodium falciparum*
- 09/2014 Inaugural Riverside Postdoctoral Association Symposium, Riverside, CA, USA. *Gene regulation in the human malaria parasite Plasmodium falciparum (Best presentation award)*
- 06/2014 1st Annual UCR CEPCEB Postdoc Symposium, Riverside, CA, USA. *The role of chromatin structure in gene regulation in the human malaria parasite Plasmodium falciparum (Best presentation award)*
- 10/2013 3rd Annual Southern California Eukaryotic Pathogen Symposium, Riverside, CA, USA. *The three-dimensional architecture of the Plasmodium genome throughout the asexual cell cycle*
- 09/2013 Molecular Parasitology Meeting, Woods Hole, MA, USA. *Polysome profiling reveals translational control of gene expression in the human malaria parasite Plasmodium falciparum*
- 11/2012 2nd Annual Southern California Eukaryotic Pathogen Symposium, Riverside, CA, USA. *Polysome profiling in Plasmodium falciparum: evidence for regulation of gene expression at the translational level*
- 04/2011 Dutch Society for Medical Microbiology, Papendal, The Netherlands. *Adaptation of HIV-1 envelope glycoprotein to humoral immunity at a population level*

- 11/2009 Dutch HIV conference, Amsterdam, The Netherlands. *Adaptation of HIV-1 envelope glycoprotein to humoral immunity at a population level*
- 11/2007 EUROPRISE network meeting, Siena, Italy. *Antibody neutralization and Env evolution over the course of HIV-1 infection*

POSTER PRESENTATIONS

- 02/2016 Molecular Approaches to Malaria, Lorne, VIC, Australia. *A catalog of RNA-binding proteins in Plasmodium falciparum.*
- 03/2014 Systems Biology: Global Regulation of Gene Expression, Cold Spring Harbor, NY, USA. *Three-dimensional modelling of the P. falciparum genome during the erythrocytic cycle reveals a strong connection between genome architecture and gene expression*
- 03/2014 Systems Biology: Global Regulation of Gene Expression, Cold Spring Harbor, NY, USA. *DNA-encoded nucleosome occupancy regulates transcription levels in the human malaria parasite Plasmodium falciparum*
- 02/2014 Keystone conference Transcriptional Regulation and Cancer Epigenetics (joint meeting), Santa Fe, NM, USA. *The dynamic 3D model of the P. falciparum genome reveals the role of genome architecture in regulating gene expression.*
- 09/2013 Molecular Parasitology Meeting, Woods Hole, MA, USA. *The three-dimensional architecture of the Plasmodium genome throughout the asexual cell cycle.*
(Best poster award)
- 09/2013 Molecular Parasitology Meeting, Woods Hole, MA, USA. *DNA-encoded nucleosome occupancy regulates transcription levels in the asexual and sexual stages of the human malaria parasite, Plasmodium falciparum*
- 01/2013 Keystone conference Malaria, New Orleans, LA, USA. *Analysis of nucleosome positioning in Plasmodium falciparum using a combined MAINE/FAIRE and Chip-Seq approach*
- 03/2010 Keystone conference HIV Vaccines and Viral Immunology (joint meeting), Banff, AB, Canada. *Adaptation of HIV-1 envelope glycoprotein to humoral immunity*
- 11/2009 Europrise network meeting, Budapest, Hungary. *Adaptation of HIV-1 envelope glycoprotein to humoral immunity*
- 10/2009 AIDS Vaccine, Paris, France. *Adaptation of HIV-1 envelope glycoprotein to humoral immunity at a population level*
- 11/2008 Europrise network meeting, Malta. *Susceptibility of primary HIV-1 for broadly reactive neutralizing antibodies during natural infection*
- 10/2008 AIDS Vaccine, Cape Town, South Africa. *Autologous Neutralizing Humoral Immunity and Evolution of the Viral Envelope in the Course of Subtype B HIV-1 Infection*
- 09/2007 International BioInformatics Workshop on Virus Evolution and Molecular Epidemiology, Lisbon, Portugal. *Longitudinal analysis of HIV-1 Env evolution and humoral immune response*

- 03/2007 Keystone conference HIV Pathogenesis and HIV Vaccine (joint meeting), Whistlar, BC, Canada. *Escape of HIV-1 from broadly neutralizing antibodies is not associated with a reduction of viral replicative capacity in vitro*
- 08/2006 AIDS Vaccine, Amsterdam, The Netherlands. *Increased neutralization sensitivity of CXCR4-using HIV-1 variants as compared to CCR5-using variants from the same patient*
- 03/2006 Keystone conference HIV Pathogenesis and HIV Vaccine (joint meeting), Keystone, CO, USA. *In vivo evolution of CXCR4-using HIV-1 variants: neutralization sensitivity is not related to sensitivity for coreceptor antagonists*

FUNDING

Pending

- 2016 NIH (R21) proposal submitted in 02/2016
 Role: P.I.
 Discovery of antibodies against the blood stage of the malaria parasite

Completed Research Support

- 01/2012 – 12/2014 Human Frontier Science Program long-term fellowship
 LT000507/2011-L
 Role: Postdoctoral Fellow
 Role of DNA methylation in regulation of gene transcription in *Plasmodium falciparum*
- 07/2011 – 12/2011 European Molecular Biology Organization long-term fellowship
 ALTF 842-2010
 Role: Postdoctoral Fellow
 Role of DNA methylation in regulation of gene transcription in *Plasmodium falciparum*

PROFESSIONAL SERVICES

- 2015 Co-chair, 5th Annual Southern California Eukaryotic Pathogen Symposium, Riverside, CA, USA
- 2014 – present Ad Hoc Reviewer for *Advances in Wound Care*, *EBioMedicine*, *BMC Research Notes*
- 2012 – 2013 Grant Funding Reviewer for Dutch AIDS Foundation
- 2007 – 2011 Member, Dutch Society of Immunology (NVVI)

TEACHING EXPERIENCE

- 2015 **Instructor** – Upper division undergraduate course “Immunology”, Dept. of Cell Biology and Neuroscience, University of California, Riverside
Two 1.5-hour lectures per week for 80 students during Fall quarter; writing and grading exams (as part of a team of two instructors)
- 2010 **Guest lecturer** – In-service training for internists (M.D.) treating HIV-infected patients
- 2010 **Guest lecturer** – Master in Molecular Life Sciences course “Infectious Diseases”, College of Arnhem and Nijmegen, The Netherlands
- 2010 **Guest lecturer** – Ignatius Gymnasium (preparatory school, 12th grade)
- 2010 **Instructor** – EUROPRISE PhD wet lab training course “B cell immunity”, San Raffaele Scientific Institute, Milan, Italy
- 2009, 2010 **Guest lecturer** – undergraduate course “Virology”, Department of Experimental Immunology, University of Amsterdam, The Netherlands
Instructed the module “HIV specific adaptive immune response: Neutralizing antibodies”
Instructed the hands-on laboratory module “Virus detection”

Mentorship responsibilities

2015 – present	Raphael Reyes	Undergraduate Student
2013 – present	Xueqing (Maggie) Lu	Graduate Student
2010 – 2011	Santusha Karia	Research Technician
2008 – 2009	Marilie Lobbrecht	Research Technician
2006 – 2007	Linaida Pisas	Research Technician
01/2007 – 07/2007	Mischa Huson	Master’s Student
01/2006 – 06/2006	Sander Zeeman	Master’s Student
09/2005 – 03/2006	Evelien Burks	Master’s Student

REFERENCES

Prof. Karine Le Roch, Ph.D.

Department of Cell Biology and Neuroscience, University of California, Riverside
900 University Ave, Genomics 2121B, Riverside, CA 92521, USA
Phone: +1 (951) 827-5422; email: karine.leroch@ucr.edu

Prof. Hanneke Schuitemaker, Ph.D.

Janssen Infectious Diseases and Vaccines
Archimedesweg 4-6, 2333 CN, Leiden, The Netherlands
Phone: +31-71-519 9186; cell: +31-6-46270638; email: hschuite@its.jnj.com

Prof. William S. Noble, Ph.D.

Departments of Genome Science and Computer Science and Engineering, University of Washington
3720 15th Ave NE, Foege Building S220B, Seattle, WA 98195, USA
Phone: +1 (206) 221-4973; email: wnoble@uw.edu

Ilhem Messaoudi, Ph.D.

School of Medicine, University of California, Riverside
900 University Ave, School of Medicine Research Building 311, Riverside, CA 92521, USA
Phone: +1 (951) 827-7774; email: ilhem.messaoudi@ucr.edu

Ferhat Ay, Ph.D.

La Jolla Institute for Allergy & Immunology
9420 Athena Circle, La Jolla, CA 92037, USA
Phone: +1 (858) 752-6612; email: ferhatay@lji.org