

Sebastiaan Bol, PhD

Senior Research Scientist

Department of Microbiology, Immunology & Molecular Genetics

University of Texas Health Science Center

7703 Floyd Curl Drive

San Antonio, TX 78229, USA

bols@uthscsa.edu

+1 (210) 450-8232

EDUCATION

- 2007 – 2011 **Ph.D.**, University of Amsterdam, The Netherlands
- 2003 – 2007 **M.Sc.**, Wageningen University & Research, The Netherlands, *cum laude*
- 2002 Erasmus Program International Internship, University of Kuopio, Finland
- 1999 – 2003 **B.Sc.**, University of Amsterdam, The Netherlands, *cum laude*
- 1994 – 1997 A,A,S., Oosterborch College, Enschede, The Netherlands

PROFESSIONAL EXPERIENCE

- 2016 – present **Senior Research Scientist** – Bunnik lab, Department of Microbiology Immunology & Molecular Genetics, University of Texas Health Science Center, San Antonio, TX
Profiling naturally acquired protective immunity against malaria
- 2016 – present **Founder & Research Scientist** – Cowboy Cat Ranch, Mico, TX
Studying feline behavior in response to cat-attracting plants and their volatile compounds
- 2014 – 2016 **Research Assistant** – Rolshausen lab, Department of Botany & Plant Sciences, University of California Riverside, Riverside, CA
- 2011 – 2013 **Postdoctoral Fellow** – Le Roch lab, Department of Cell Biology & Neuroscience, University of California, Riverside, CA
A functional genomics approach to understand gene regulation in the Malaria-causing parasite, Plasmodium falciparum
- 2007 – 2011 **Graduate Student** – Department of Experimental Immunology, University of Amsterdam, The Netherlands. Mentors: Dr. Angélique van 't Wout & Prof. Dr. Hanneke Schuitemaker
Host genetic effects on HIV-1 replication in macrophages

HONORS & AWARDS

- 2022 WFAB (Weaving the Future of Animal Behavior) Travel Award for the 2022 Animal Behavior Society conference in San José, Costa Rica (covering \$ 2,488)
- 2017 My Green Lab – Green Labs Champion (June)
- 2016 Veterinary Record Evidence Award (shortlisted)
- 2016 Eco-Leader in the Rolshausen lab (achievement: first platinum certified green lab at the University of California Riverside)
- 2010 CROI Young Investigator Award
- 2007 MSc degree received *cum laude*
- 2004 Novartis Dietetics Award (€ 2,500) for best Nutrition & Dietetics thesis in The Netherlands
- 2003 BSc degree received *cum laude*
- 2002 Erasmus Mundus scholarship (€ 500)

PROFESSIONAL ORGANIZATIONS AND SERVICE

Membership

2022 – present Member, Animal Behavior Society

Reviewer

2021 – present Ad Hoc Reviewer, *iScience*, *BMC Biology*, *BMC Veterinary Research*, *Biomolecules*, *Animals*

- **iScience**: Assessing the safety and suitability of using silver vine as an olfactory enrichment stimulus for domestic cats (**2023**)
- **Animals**: Effects of music types on the spatial cognitive ability, productive performance, and stress level of sheep (**2023**)
- **Biomolecules**: Cysteine residues in the region 6 of the *Plasmodium yoelii* erythrocyte-binding like ligand 2 that are related to its localization and the course of infection (**2023**)
- **BMC Veterinary Research**: Essential nutrient intakes and plasma amino acid concentration in cats with obesity undergoing either complete or partial weight reduction (**2022**)
- **BMC Biology**: A gossypol derivative effectively protects against Zika and dengue virus infection without toxicity (**2021**)

Editor

2022 – present Member, BMC Veterinary Research Editorial Board
Manuscripts handled: 4

2022 Poster judge, Animal Behavior Society conference, San Jose, Costa Rica

- 2021 Plasmid deposit to Addgene: SARS CoV-2 RBD (bio-His) (requested 9 times), SARS CoV-2 HexaPro spike (bio-His) (requested 15 times)
- 2018 – 2019 Consulted for Hartz on the development of Cattraction® toys with silver vine. No compensation was received.

DEPARTMENTAL & UNIVERSITY SERVICE ACTIVITY

- 2019 – present Manager, Common Equipment, Dept. Microbiology, Immunology & Molecular Genetics, UTHSCSA
- 2017 – 2018 Member, Green Initiatives Committee, UTHSCSA

TEACHING EXPERIENCE

- 2009 – 2010 Guest lecturer of the lab course Virus Detection, University of Amsterdam, The Netherlands

Student supervision and training

Ph.D. graduate students

- 2021 – present Rolando Garza
- 2018 – 2023 Raphael Reyes
- 2018 – 2022 Ashley Braddom
- 2017 – 2021 Jake Gonzales

Ph.D. graduate students, rotations

- 2021 Moawiz Saeed
- 2018 Raksha Parthasarathy

Master graduate students

- 2023 – present Caroline Torres
- 2022 – 2023 Rodriel Bautista
- 2021 – 2022 Elizabeth Martinez-Scholze
- 2020 – 2022 Katie Clarke
- 2018 – 2019 Melissa Nuñez
- 2018 Mawjuda Abdulrashid
- 2017 – 2018 Bayan Fallatah

Other students

2023 – present	Avani Nagaragere (high school student, Voelcker Biomedical Research Academy; co-mentor with Dr. Bunnik)
2023 – present	Bella Gonzalez (high school student, Voelcker Biomedical Research Academy; co-mentor with Dr. Bunnik)
2023 – present	Anakaren Garcia (undergraduate student, South Texas Undergraduate Research Opportunities Program; co-mentor with Dr. Bunnik)
2023	Gina Gonzalez (volunteer)
2023	Tobias Daney (high school student)
2022	Nirel Ayertey (high school student)
2022	Meagan Ybarra (post-baccalaureate student)
2019	Cambrey Gallardo (undergraduate student)
2017	Hannah Hall (undergraduate student)
2014 – 2016	Raphael Reyes (undergraduate student)
2014 – 2016	Vanessa Escolero (undergraduate student)
2011 – 2013	Manuel Torres (undergraduate student)
2010	Arian Malekzadeh (undergraduate student)
2009	Dieuwke de Haan (undergraduate student)

RESEARCH PUBLICATIONS

16. Reers AB, Bautista R, McLellan J, Morales B, Garza R, **Bol S**, Hanson KK & Bunnik EM, Histone modification analysis reveals common regulators of merozoite gene expression in liver and blood stages of *Plasmodium* parasites, **Epigenetics & Chromatin** – published by BioMed Central (**2023**)
15. **Bol S**, Scaffidi A, Bunnik EM & Flematti GR, Behavioral differences among domestic cats in the response to cat-attracting plants and their volatile compounds reveal a potential distinct mechanism of action for actinidine, **BMC Biology** (**2022**): 20:192
14. Gonzales SJ, Clarke K, Batugedara G, Garza R, Braddom AE, Reyes RA, Ssewanyana I, Garrison KC, Ippolito G, Greenhouse B, **Bol S** & Bunnik EM, A molecular analysis of memory B cell and antibody responses against *Plasmodium falciparum* merozoite surface protein 1 in children and adults from Uganda, **Frontiers in Immunology** (**2022**) 2;13:809264
13. Pouzoulet J, Yelle DJ, Theodory B, Nothnagel EA, **Bol S** & Rolshausen PE, Biochemical and Histological Insights into the Interaction Between the Canker Pathogen *Neofusicoccum parvum* and *Prunus dulcis*, **Phytopathology** (**2022**) 112(2):345-354
12. Reyes RA, Clarke K, Gonzales SJ, Cantwell AM, Garza R, Catano G, Tragus R, Patterson T, **Bol S** & Bunnik EM, SARS-CoV-2 spike-specific memory B cells express

- higher levels of T-bet and FcRL5 after non-severe COVID-19 as compared to severe disease, **PLOS ONE** (2021) 16(12): e0261656
11. Gonzales SJ, **Bol S**, Braddom AE, Sullivan RT, Reyes RA, Ssewanyana I, Eggers E, Greenhouse B & Bunnik EM, Longitudinal analysis of FcRL5 expression and clonal relationships in classical and atypical memory B cells following malaria, **Malaria Journal** (2021) 20(1): 435
 10. Braddom AE, **Bol S**, Gonzales SJ, Reyes RA, Musinguzi K, Nankya F, Ssewanyana I, Greenhouse B & Bunnik EM, B cell receptor repertoire analysis in malaria-naive and malaria-experienced individuals reveals unique characteristics of atypical memory B cells, **mSphere** (2021) 6(5):e00726-21
 9. Pouzoulet J, Rolshausen PE, Schiavon M, **Bol S**, Travadon R, Lawrence D, Baumgartner K, Ashworth VE, Comont G, Corio-Costet MF, Pierron RJG, Besson X & Jacques A, A method to detect and quantify *Eutypa lata* and *Diplodia seriata/intermedia* complex DNA in grapevine pruning wounds, **Plant Disease** (2017) 101(8):1470-1480
 8. **Bol S**, Caspers J, Buckingham L, Anderson-Shelton GD, Ridgway C, Buffington CAT, Schulz S & Bunnik EM, Responsiveness of cats (*Felidae*) to silver vine (*Actinidia polygama*), Tatarian honeysuckle (*Lonicera tatarica*), valerian (*Valeriana officinalis*) and catnip (*Nepeta cataria*), **BMC Veterinary Research** (2017) 13(1):70 [53,000 accesses as of July 2023]
 7. **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 [44,000 accesses as of July 2023]
 6. 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
 5. **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 & 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
 4. **Bol SM**, Booiman T, Bunnik EM, Moerland P, Van Dort K, Straus III, J, Sieberer M, Schuitemaker H, Kootstra NA & Van 't Wout AB, Polymorphism in HIV-1 dependency factor PDE8A affects gene expression and HIV-1 replication in primary macrophages, **Virology** (2011) 420(1):32-42
 3. Van Manen D, Delaneau O, Kootstra NA, Boeser-Nunnink BD, Limou S, **Bol SM**, Burger JA, Zwinderman AH, Moerland PD, Van 't Slot R, Zagury JF, Van 't Wout AB & Schuitemaker H, Genome-wide association scan in HIV-1-infected individuals identifying variants influencing disease course, **PLoS ONE** (2011) 6(7):e22208
 2. **Bol SM**, Moerland P, Limou S, Van Remmerden Y, Coulonges C, Van Manen D, Herbeck JT, Fellay J, Van 't Slot R, Schuitemaker H & Van 't Wout AB, Genome-wide

association study identifies single nucleotide polymorphism in DYRK1A associated with replication of HIV-1 in monocyte-derived macrophages, **PLoS ONE (2011)** 6(2):e17190

1. **Bol SM**, Van Remmerden Y, Sietzema JG, Kootstra NA, Schuitemaker H & Van 't Wout AB, Donor variation in in vitro HIV-1 susceptibility of monocyte-derived macrophages, **Virology (2009)** 390(2):205-11

REVIEWS & OTHER PEER-REVIEWED PUBLICATIONS

5. **Bol S**, Fuentes J, Garza R & Bunnik EM, How plants make cats happy, **Frontiers for Young Minds (2023)** – in print
4. Reyes RA, Garza R, **Bol S** & Bunnik EM, X marks the spot against malaria (Preview), **Immunity (2023)** 56(2):234-236
3. Gonzales SJ, Reyes RA, Braddom AE, Batugedara G, **Bol S** & Bunnik EM, Naturally acquired humoral immunity against *Plasmodium falciparum* malaria, **Frontiers in Immunology (2020)** 11:594653 (Review)
2. Braddom AE, Batugedara G, **Bol S** & Bunnik EM, Potential functions of atypical memory B cells in *Plasmodium*-exposed individuals, **International Journal for Parasitology (2020)** 50(13):1033-1042 (Review)
1. **Bol SM**, Cobos-Jiménez V, Kootstra NA & Van 't Wout AB, HIV-1 and the macrophage, **Future Virology (2011)** 6(2):187-208

NON-PEER-REVIEWED PUBLICATIONS

- **Sebastiaan Bol** & Denise van Lent, “Het stressverlagende effect van verticale ruimte” (The stress-reducing effects of vertical space), **Voor de Poes Magazine** (Dutch cat magazine), #6 April-June 2018
- **Sebastiaan Bol** & Nathalie Leeuwis, “Onbekend maar zeker niet onbemind; alternatieven voor kattenkruid” (Unknown, but certainly not unloved; alternatives for catnip), **Voor de Poes Magazine** (Dutch cat magazine), #4 October-December 2017

PRESENTATIONS

Oral presentations

- 10/27/2022 American Association of Feline Practitioners 2022 conference: Enriching Feline Care & the Veterinary Experience – “How plants make cats happy” (oral, virtual) (viewed 170 times in 2022)
- 07/02/2022 Invited seminar speaker at the Department of Life Sciences at Texas A&M San Antonio – “How plants make cats happy” (oral, in person)

07/20/2022 Animal Behavior Society conference, San Jose, Costa Rica – “How plants make cats happy” (oral, in person)

Poster presentations

04/01/2023 Viva Science SA, Witte Museum, San Antonio, TX – “A vaccine to prevent malaria” (poster, in person)

04/09/2022 Viva Science SA, Witte Museum, San Antonio TX – “How plants make cats happy” (poster, in person)

02/16/2010 Conference on retroviruses and opportunistic infections (CROI), San Francisco, CA – Discovery of common genetic variants associated with *in vitro* HIV-1 replication in monocyte-derived macrophages” (poster, in person)

05/18/2009 Retroviruses, Cold Spring Harbor, NY – “Donor variation in *in vitro* HIV-1 susceptibility of monocytes-derived macrophages” (poster, in person)

04/19/2009 International workshop on HIV, cells of macrophage/dendritic lineage and other reservoirs, Colombaro di Corte Franca, Italy – “Donor variation in *in vitro* HIV-1 susceptibility of monocytes-derived macrophages” (poster, in person)

COMMUNITY OUTREACH

- Believe it or not, I have never... podcast (episode 10, April 2023)
- Viva Science SA, Witte Museum, San Antonio, TX, 1 April 2023, “A vaccine to prevent malaria” poster
- Article “How plants make cats happy” in *Frontiers for Young Minds* (publishes STEM articles for kids) – in print
- Guest at SciChat, live interview and Q&A on Twitter Spaces and other social media, hosted by Bunsen and BEAKER (@bunsenbernerbmd, 180K+ followers on Twitter in 2022), 25 October 2022
- Cattitude podcast (episode 185, September 2022)
- The Science Pawdcast (season 4, episode 28, September 2022)
- Guest host of @IAmSciComm rotating Twitter account (40K+ followers in 2022), 15-20 August 2022
- @CowboyCatRanch Twitter (~6.5K followers, June 2023), YouTube (~60 subscribers), Mastodon (~1K followers, June 2023) and BlueSky (~200 followers, June 2023)
- Outreach fair at Animal Behavior Society conference, San Jose, Costa Rica, 23 July 2022
- Viva Science SA, Witte Museum, San Antonio TX, 6 April 2022, “How plants make cats happy” poster
- Article in San Antonio Magazine: “Sebastiaan Bol: Herding Cats. Microbiologist’s love of cats leads to new discoveries”, November 2017

- News article in San Antonio Express-News newspaper: “San Antonio-area scientist finds catnip alternatives to get your cat high and happy”, September 2017

PROFESSIONAL CERTIFICATES

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| 2005 | Radiation expert 5B – Safe handling with radioactive materials and sources, Larenstein, University of Professional Education |
| 1997 | Associate certificate Business Economics, Stichting Nederlandse Associatie voor Praktijkexamens |
| 1995 | Typing certificate (2023: >80 words per minute with >95% accuracy), Nederlandse Unie voor Examens in Stenografie en Machineschrijven |