

# Laura das Neves Patterson Rosa, DVM, Ph.D.

Assistant Professor – Animal and Equine Sciences, Sul Ross State University

📍 RAS 105, Department of Agriculture and Industry, Sul Ross State University - United States of America

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## 🎓 EDUCATION

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- Aug 2015      **Ph.D. University of Florida, Brooks Equine Genetics Laboratory**  
Aug 2020      Dissertation: "Leveraging 'Omics' to Unravel Complex Health Conditions in the Horse."  
Committee: Dr. Samantha A. Brooks (chair), Dr. Raluca Mateescu, Dr. Matias Kirst, Dr. Malgorzata Pozor
- Feb 2006      **DVM Universidade Federal da Bahia, Escola de Medicina Veterinária e Zootecnia.**  
Jan 2015      Thesis: "DMRT3 variant is correlated to type but does not determine gaitedness in Mangalarga Marchador Horses."  
Committee: Dr. Mel Fernandes (chair), Dr. Samantha A. Brooks (co-Advisor), Dr. Thereza Bitterncourt, Dr. Alberto Gusmão
- Jun – Aug      **Intern Cornell University, Veterinary Investigator Program (VIP)**  
2013          National Institute of Health Scholarship. One of the two international students selected for the Program  
PI: Dr. Samantha A. Brooks. Co-PI: Dr. E. Ann Staiger

## 🔬 RESEARCH EXPERIENCE

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- Aug 2016      **Equine Genetics Scientist**, Etalon Diagnostics  
June 2022      Field: Genetic Diseases, Coat Color Genetics, Variant Screening, Genetic testing development
- Identified genetic variants causing Dominant White (W30, W31, W32, W34) and Splashed White (SW5, SW7)
  - Developed genetic tests and practices for in-lab testing
  - Developed mass-array and sequencing targets for variant genotyping
  - Updated the laboratory database on scientific published variants for equine health, color and behavior.
- Aug 2020      **Postdoctoral Associate**, University of Florida, Advisor: Dr. Jamie Ellis  
May 2021      Field: Environmental DNA (eDNA) pathogen detection, species/subspecies Fragment Length Polymorphism (FLP) and Enzyme Restriction Assays, mitochondrial genome analysis
- Developed a standardized protocol for eDNA sampling, genotyping and analysis for arthropod, viral, fungal and bacterial pathogens of honey bees
  - Developed mitogenome-based genetic assays for species and subspecies screening of invasive/undesired Apis in the continental U.S.
  - Identified candidate genes for color and number of ovarioles in South African honey bees that can be related to undesired traits found in the Africanized Honey Bee.
  - Created a full lab database for samples and primers, as well as a web-based lab training for new interns and lab members.
- Aug 2015      **Ph.D. Student/Candidate**, University of Florida, Advisor: Dr. Samantha Brooks  
Aug 2020      Field: Phenomics, Genome Re-sequencing, Genomics of Thermoregulation, Pathogenomics, Transcriptomics of Drug-induced pathology, Metabogenomics, Machine Learning, Neurogenomics of Locomotion.
- Identified heritability, a causative candidate variant, and in-silico protein translation impacts for Chronic Idiopathic Anhidrosis in horses. This was the first ever genomics study conducted in this health condition that affects ~25% of the equine population
  - Defined genomic regions and genes involved in Equine Metabolic Syndrome, a pre-diabetic stage in horses, utilizing metabolotype assays.

- Compared transcriptome results of drug-induced anhidrosis in foals, defining candidate genes for further investigation as causatives of this deadly side-effect.
- Assisted in the development and analysis of genomics of idiopathic dermatitis in Beagle dogs.
- Assisted in the analysis and historical origin of a copy-number variant of a gene involved in sweating ability in equids.
- Developed the locomotion pattern analysis methodology for a machine learning software and assisted in phenotyping and sample collection.

Feb 2006 **Doctor of Veterinary Medicine**, Universidade Federal da Bahia, Advisor: Dr. Mel Fernandes,  
Jan 2015 Co-Advisor: Dr. Samantha Brooks

Field: Validation of a variant related to neurogenetics of locomotion patterns in horses.

- Reported allelic frequency of a genomic variant implicated in the neurobiology of four-beat locomotion patterns in Mangalarga Marchador horses.
- Defined the possible paleogenetic origins of four-beat locomotion patterns for the first time in Brazilian/Portuguese literature.

Jun – Aug **Veterinary Investigator Program Intern**, Cornell University, Sponsor: National Institute of  
2013 Health and Merit Scholarship.

Field: DNA extraction, PCR, research on variants related to behavior and locomotion pattern in horses.

- Analyzed the equine reference genome for candidate genes and variants on reported behavior and locomotion pattern traits in other species.
- Evaluated the allelic frequency of a *DMRT3* gene variant in the Tennessee Walking Horse and Mangalarga Marchador

## PUBLICATIONS

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### Peer-Reviewed Journals

1. Staiger, E.A., Paschoal, V.R., Schelim, C.A., Toledo, A.P. and Patterson Rosa, L. (*in prep*) **Real time Gait Analysis on Four-beat gaited breeds using an Automated Locomotion Analysis software.**
2. William Timothy Treal Taylor, Pablo Librado, Mila Hunska Tašunke Icu (Chief Joseph American Horse), Carlton Shield Chief Gover, Jimmy Arterberry, Anpetu Luta Wiñ (Antonia Loretta Afraid of Bear-Cook), Akil Nujipi (Harold Left Heron), Tanka Omniya (Robert Milo Yellow Hair), Mario Gonzalez (Nantan Hinapan), Bill Means, Sam High Crane (Wapageya Mani), Mažasu (Wendell W. Yellow Bull), Barbara Dull Knife (Mapiya K'ó Yake' Wiñ), Wakinyala Wiñ (Anita Afraid of Bear), Cruz Tecumseh Collin (Wanka'tuya Kiya), (...), Beth Shapiro, John Southon, Joss Hibbs, Charlotte Faulkner, Alan Outram, Laura Patterson Rosa, Katelyn Palermo, Marina Solé, Alice William, Wayne McCrory, Gabriella Lindgren, Samantha Brooks, Camille Eché, Cécile Donnadieu, Olivier Bouchez, Patrick Wincker, Gregory Hodgins, Sarah Trabert, Brandi Bethke, Patrick Roberts, Emily Lena Jones, Yvette Running Horse Collin (Tašunke Iyanke Wiñ), and Ludovic Orlando. (*under review – Science*) **Early dispersal of domestic horses into the Great Plains and Northern Rockies.**
3. Todd, E.T., Tonasso-Calviere, L., Chauvey, L., Schiavinato, S., Fages, A., Seguin-Orlando, A., Clavel, P., Khan, N., Perez Pardal, L., Patterson Rosa, L. (... et al) and Orlando, L. (*accepted – Science*) **The genomic history and global expansion of domestic donkeys.**
4. Patterson Rosa, L., Whitaker, B., Allen, K., Peters, D., Buchanan, B., McClure, S., Honnas, C., Buchanan, C., Martin, K., Lundquist, E., Vierra, M., Foster, G., Brooks, S.A. and Lafayette, C. **Genomic loci associated with performance limiting equine overriding spinous processes (kissing spines).** *Research in Veterinary Science.* 2022 Dec 5;150:65-71.
5. Patterson Rosa, Martin, K., Vierra, M., Foster, G., Brooks, S.A. And Lafayette, C. (*under review – Journal of Heredity*) **A KIT Variant Associated with Increased White Spotting Epistatic to MC1R Genotype in Horses (Equus caballus).** *Animals.* 2022 Aug 2;12(15):1958.
6. Patterson Rosa L, Campos FA, Martin K, Vierra M, Foster G, Lundquist E, Brooks SA, Lafayette C. **Demystifying the Genetic Origins of the Mangalarga Horse Through the Influential Stallion**

**Turbante JO.** Journal of Equine Veterinary Science. 2022 Jun 1;113:103910.

7. Patterson Rosa, L., Troop, T., Martin, K., Vierra, M., Foster, G., Lundquist, E., Brooks, S. A., & Lafayette, C. (2022). **Astenia Dérmica Regional Hereditária Equina (HERDA) em um cavalo adulto Quarto de Milha de trabalho com sintomas brandos – Relato de Caso.** Revista Brasileira de Medicina Equina Ano XV, n. 96: 04-08, Julho / Agosto, 2021. ISSN: 1809-2063
8. Patterson Rosa L, Eimanifar A, Kimes AG, Brooks SA, Ellis JD (2021) **Attack of the dark clones the genetics of reproductive and color traits of South African honey bees (*Apis mellifera* spp.).** PLOS ONE 16(12): e0260833. <https://doi.org/10.1371/journal.pone.0260833>
9. Patterson Rosa, L., Mallicote, M.F., MacKay, R.J. and Brooks, S.A., (2021). **Ion Channel and Ubiquitin Differential Expression during Erythromycin-Induced Anhidrosis in Foals.** *Animals*, 11(12), p.3379. doi.org/10.3390/ani11123379
10. M.C. Gaspar, F. Araújo, E. A. Staiger, K. Martin, M. Vierra, G. Foster, E. Lundquist, S. A. Brooks, L. Patterson Rosa and C. Lafayette (2021). **Disciplinas esportivas de raças de trabalho são associadas ao alelo A no locus DMRT3 para padrões de locomoção dos cavalos.** Revista Brasileira de Medicina Equina Ano XV, n. 96: 04-08, Julho / Agosto, 2021. ISSN: 1809-2063
11. Patterson Rosa, L., Troop, T., Martin, K., Vierra, M., Foster, G., Lundquist, E., Brooks, S. A., & Lafayette, C. (2021). **Hereditary Equine Regional Dermal Asthenia homozygote adult working horse with mild signs - A Case Report.** Journal of Equine Veterinary Science, 103756, ISSN 0737-0806, <https://doi.org/10.1016/j.jevs.2021.103756>
12. Patterson Rosa, L., Staiger, E. A., Martin, K., Vierra, M., Foster, G., Lundquist, E., Brooks, S. A., & Lafayette, C. (2021). **Stock-type equine disciplines Hunter, Reining and Roping are associated with the A allele at the DMRT3 locus for gait phenotypes in the horse.** *Animal genetics*, 52: 773-774. <https://doi.org/10.1111/age.13110>
13. Patterson Rosa, L., Martin, K., Vierra, M., Foster, G., Brooks, S.A. And Lafayette, C. (2021) **Two Variants of KIT Causing White Patterning in Stock-Type Horses.** The Journal of heredity, esab033. Advance online publication. <https://doi.org/10.1093/jhered/esab033>
14. Patterson-Rosa, L., Walker, N., Mallicote, M., Mackay, R. and Brooks, S., (2021) **Genomic Association of Chronic Idiopathic Anhidrosis to a Potassium Channel Subunit in a Large Animal Model.** Journal of Investigative Dermatology, <https://doi.org/10.1016/j.jid.2021.05.014>
15. Patterson Rosa, L. (2021) **Atualizações na Genética da Pelagem Equina.** Revista Brasileira de Medicina Equina Ano XIV, n.92, ISSN: 1809-2063
16. Patterson Rosa, L. (2020) **O Diagnóstico Genético na Clínica de Equinos.** Revista Brasileira de Medicina Equina Ano XIV, n.90, p.10-18. ISSN: 1809-2063
17. Martin, K., Patterson Rosa, L., Vierra, M., Foster, G., Brooks, S.A. And Lafayette, C. (2020), **De novo mutation of KIT causes extensive coat white patterning in a family of Berber horses.** *Anim Genet.* <https://doi.org/10.1111/age.13017>
18. Patterson Rosa, L., Mallicote, M.F., Long, M.T. And Brooks, S.A., (2020). **Metabogenomics reveals four candidate regions involved in the pathophysiology of Equine Metabolic Syndrome.** *Molecular and Cellular Probes*, 53, p.101620.
19. Patterson-Rosa, L., Walker, N., Mallicote, M., Mackay, R. And Brooks, S., 2019. **Genetics of chronic idiopathic anhidrosis in the American Quarter Horse.** *Journal of Equine Veterinary Science*, 76, pp.61-62.
20. Patterson-Rosa, L., Wickens, C. And Brooks, S., 2019. **Bringing horse genetics to owners and industry professionals through online extension.** *Journal of Equine Veterinary Science*, 76, p.117.
21. Henkel J, Lafayette C, Brooks Sa, Martin K, Patterson-Rosa L, Cook D, Jagannathan V, Leeb T. **Whole-genome sequencing reveals a large deletion in the MIF gene in horses with white spotted coat colour and increased risk of deafness.** *Animal Genetics.* 2019 Jan 15.
22. Patterson, L.; Staiger, E. A.; Brooks, S. A. **DMRT3 is associated with gait type in Mangalarga Marchador horses but does not control gait ability.** *Animal Genetics*, 46: 213–215.

## Extension Articles

1. Patterson Rosa, L. (2022) **Cromados e Campeoes (Chromed Champions)**. Revista Redeas.
2. Patterson Rosa, L. (2022) **O Passado, Presente e Futuro da Genética dos Cavalos (The Past, Present and Future of Horse Genetics)** Revista Horse Brazil.
3. Patterson Rosa, L. (2022) **Você já ouviu falar da Síndrome do Potro Frágil? (Have you heard of the Fragile Foal Syndrome?)** (Submitted, for publication in Brazil)
4. Patterson Rosa, L. (2022) **O pulo do pampa (The Tobiano's Jump)**. Revista Hipismo, January 2022.
5. Patterson Rosa, L. (2022) **O Gene da Marcha: Desmistificando a genética dos andamentos (The Gait Gene: Demystifying the genetics of gaits)** Revista Mangalarga Brazil, January 2022.
6. Patterson Rosa, L. (2021) **Desvendando a genética de um campeão. (Unraveling the genetics of a champion)** Revista Redeas, ano IV, n18, 2021.
7. Patterson Rosa, L. (2021) **"Pseudo-albino": O fim do preconceito ("Pseudo-albino": ending the prejudice)** Revista Horse Brazil, October 2021.
8. Patterson Rosa, L. (2021) **Desmistificando os Olhos Azuis (Demystifying Blue Eyes)** Revista Mangalarga Brazil, October/November 2021.
9. Patterson Rosa, L., Mallicote, M.F., Mackay, R.J., Brooks, S. (2020). **Anhidrosis in the Horse (Non-Sweaters)—What Do We Know?** EDIS - Electronic Data Information Source - UF/IFAS Extension. <https://edis.ifas.ufl.edu/an362>
10. Patterson Rosa, Laura (2020) **Horse Anhidrosis or Non-Sweaters – from chronic to resolved?** Select Breeder Services (<https://www.selectbreeders.com/articles/horse-anhidrosis-or-non-sweaters-from-chronic-to-resolved>) (online)
11. Patterson Rosa, L. (2019-2020). **Pelagens: desvendando o código genético** (publication in 3 parts). Revista Mangalarga: 110-113, December 2019. Brazil  
[https://issuu.com/osvaldovruffino/docs/revista\\_mangalarga\\_dez\\_2019\\_site-bx](https://issuu.com/osvaldovruffino/docs/revista_mangalarga_dez_2019_site-bx)  
[https://issuu.com/osvaldovruffino/docs/revista\\_mangalarga\\_maio\\_de\\_2020\\_digital](https://issuu.com/osvaldovruffino/docs/revista_mangalarga_maio_de_2020_digital)
12. Patterson Rosa, L., Holl, H., Mallicote, M., MacKay, R. and Brooks, S. (2019) **Chronic Anhidrosis in the horse (non-sweaters)**. Southern Equine Consortium, vol 4, no 1, April 2019.  
[https://animal.ifas.ufl.edu/media/animalifasufledu/docs/equine-extension/sec-newsletter/2019\\_apr\\_sec\\_newsletter.pdf](https://animal.ifas.ufl.edu/media/animalifasufledu/docs/equine-extension/sec-newsletter/2019_apr_sec_newsletter.pdf)
13. Patterson Rosa, L., Wickens, C., Brooks, S. (2017). **Genetic selection for Gaits in the Horse**. EDIS - Electronic Data Information Source - UF/IFAS Extension. <http://edis.ifas.ufl.edu/an332>
14. Patterson Rosa, L., Wickens, C., Brooks, S. (2017). **Galloping into the Future: Genetic Tips and Tools for the Horse Owner**. EDIS - Electronic Data Information Source - UF/IFAS Extension. <http://edis.ifas.ufl.edu/an333>
15. Saffran, Patricia; Patterson Rosa, L. **Tracking Down the Tobiano Legend**. <http://www.equineinfoexchange.com/index.php/health-education/546-tracking-down-the-tobiano-legend> (April, 2017)
16. Selected Breeder Services: Brooks, S., Patterson Rosa, L. **Breeding for Color**. <http://info.selectbreeders.com/blog/breeding-for-color> (October, 2016) (online)
17. Selected Breeder Services: Brooks, S., Patterson Rosa, L. **Can Genetics Turn the Art of Stallion Selection into a Science?** <http://info.selectbreeders.com/blog/can-genetics-turn-the-art-of-stallion-selection-into-a-science> (February, 2016) (online)
18. Staiger, E.A., Patterson, L. **A genética por trás da marcha**. Mangalarga Marchador, Oficial ABCCMM Magazine: 172-176, July 2012. Brazil.
19. Patterson, L. **Especial Potros Pelagens**. Revista Horse: 50-52, June 2011. Brazil.

20. Patterson, L. **Ela vale ouro**. Revista Horse, April 2012. Brazil.
21. Patterson, L. **A Pedra Filosofal equina**. Força Campolina: 39-41, April 2012. Brazil.
22. Patterson, L. **A matemática das cores**. Revista Horse: 52-54, December 2010. Brazil.
23. Patterson, L. **A 'cor do jumento quando foge'**. Revista Horse: 40-42, July 2010. Brazil.

## AWARDS

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- 2020.** **USDA-NRSP8 Student Travel Award** – Granted in support of the presentation of a poster at The Plant And Animal Genome Conference in San Diego, January 11-15, 2020.
- 2019.** **Susan Meg Weinstein Animal Sciences Graduate Scholarship** – Granted for the 2019 academic year to students that are representative and one of the best in the field at the Animal Sciences Department.
- 2019.** **USDA-NRSP8 Student Travel Award** – Granted in support of the presentation of a poster at the Plant and Animal Genome Conference in San Diego, January 12-16, 2019.
- 2018-2019.** **William C. and Bertha M. Cornett Fellowship**. College of Agricultural and Life Sciences Graduate Scholarship Award.
- 2018.** **USDA-NRSP8 Student Travel Award** – Granted in support of the presentation of a poster at the Plant and Animal Genome Conference in San Diego, January 13-17, 2018.
- 2017-2018.** **William C. and Bertha M. Cornett Fellowship**. College of Agricultural and Life Sciences Graduate Scholarship Award.
- 2017.** **USDA-NRSP8 Student Travel Award** – Granted in support of the presentation of a poster at the Plant and Animal Genome Conference in San Diego, January 14-18, 2017.
- 2013.** **Veterinary Investigator Program – Cornell University/Merial Veterinary Scholars Program Award** – Stipend support for the 10-week summer program.

## MEMBERSHIPS AND PEER-REVIEW

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- 2017-present.** **Reviewer, Reproduction in Domestic Animals.**  
(<https://onlinelibrary.wiley.com/journal/14390531>) Online ISSN:1439-0531
- 2017-present.** **Reviewer, Approaches in Poultry, Dairy & Veterinary Sciences.**  
(<http://crimsonpublishers.com/apdv/>) ISSN: 2576-9162
- 2019-present.** **Reviewer, Animal Genetics.**  
(<https://onlinelibrary.wiley.com/journal/13652052>) ISSN:1365-2052
- 2021-present.** **Reviewer, Frontiers in Animal Science.**  
(<https://www.frontiersin.org/journals/animal-science>)
- 2021-present.** **Editorial Board, Frontiers in Genetics.**  
(<https://www.frontiersin.org/journals/genetics>)
- 2021- present.** Member - International Society for Animal Genetics (ISAG).
- 2019- present.** Member - Equine Sciences Society (ESS)

**2019- present.** Member - American Genetic Association (AGA)

**2018- present.** Member - Dorothy Russell Havemeyer International Horse Genome Workshop.

## CONFERENCES AND SYMPOSIUMS ATTENDED

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- 2022. International Plant and Animal Genomes XXIX Conference.** (Online)
- 2021. Dorothy Russell Havemeyer International Horse Genome Workshop.** (Online series)
- 2021. International Society for Animal Genetics (ISAG) meeting.** (Online)
- 2020. International Plant and Animal Genomes XXVIII Conference.** San Diego, CA
- 2019. Florida Genetics Symposium 2019.** Gainesville, FL.
- 2019. First International Collaborative Mini-Symposium UF/Alltech.** Gainesville, FL.
- 2019. International Plant and Animal Genomes XXVII Conference.** San Diego, CA.
- 2018. 12 International Dorothy Russell Havemeyer Horse Genome Workshop.** Pavia, Italy.
- 2018. 16<sup>th</sup> Animal Molecular and Cellular Biology Symposium.** Crystal Springs, FL.
- 2018. 5<sup>th</sup> Annual Statewide Graduate Student Research Symposium.** Gainesville, FL.
- 2018. International Plant and Animal Genomes XXVI Conference.** San Diego, CA.
- 2017. 3<sup>rd</sup> Animal Sciences Symposium.** St. Augustine, FL
- 2017. 4<sup>th</sup> Annual Statewide Graduate Student Research Symposium.** Gainesville, FL.
- 2017. 15<sup>th</sup> Animal Molecular and Cellular Biology Symposium.** Safety Harbor, FL.
- 2017. International Plant and Animal Genomes XXV Conference.** San Diego, CA.
- 2016. 2<sup>nd</sup> Animal Sciences Symposium.** St. Augustine, FL.
- 2016. 14<sup>th</sup> Animal Molecular and Cellular Biology Symposium.** Chisengut Hill, FL.
- 2016. 3<sup>rd</sup> Annual Statewide Graduate Student Research Symposium.** Gainesville, FL.
- 2015. Animal Sciences Symposium.** Live Oak, FL.
- 2015. Florida Genetics Symposium.** Gainesville, FL.
- 2013. 2<sup>nd</sup> Meril-NIH Veterinary Scholars Symposium.** Michigan State University, MI.
- 2006. VII ABRAVEQ Annual Convention and II International Congress of Medicine Veterinary FEI / CBH.** São Paulo – Brazil.

## SCIENTIFIC POSTERS

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1. Patterson Rosa, L. Araujo, F., Vierra, M., Brooks, S.A. and Lafayette, C. (2021) **Debunking the genetic origins of the Mangalarga through Turbante J.O.** 38th International Society for Animal genetics Conference (virtual).
2. Patterson-Rosa, L., Mallicote, M. F., Long, M. T. and Brooks, S.A. (2020). **Metabo-genomics of Equine Metabolic Syndrome – an analogous condition to human metabolic syndrome.** San Diego, CA: International Plant and Animal Genome XXVIII Conference.
3. Patterson-Rosa, L., Mallicote, M. F., Long, M. T. and Brooks, S.A. (2019). **Metabo-genomics of Equine Metabolic Syndrome – an analogous condition to human metabolic syndrome.** Gainesville, FL: Florida Genetics Symposium 2019.
4. Patterson-Rosa, L., Sanchez, L. C., Mallicote, M. F., MacKay, R. J. and Brooks, S.A. (2019). **Differential Gene Expression in Skin from Foals with Macrolide Induced Anhidrosis.** San Diego, CA: International Plant and Animal Genome XXVII Conference.

5. Patterson-Rosa, L., Sanchez, L. C., Mallicote, M. F., MacKay, R. J. and Brooks, S.A. (2018). **Differential Gene Expression in Skin from Foals with Macrolide Induced Anhidrosis**. Pavia, Italy: 12 International Dorothy Russell Havemeyer Horse Genome Workshop.
6. Patterson Rosa, L., Holl, H.M., Walker, N.L., Mallicote, M.F., Mackay, R.J., Brooks, S.A. (2018). **Chronic Idiopathic Anhidrosis in the American Quarter Horse - Don't Sweat Over It**. Gainesville, FL: 5<sup>th</sup> Annual Statewide Graduate Student Research Symposium.
7. Patterson Rosa, L., Holl, H.M., Walker, N.L., Mallicote, M.F., Mackay, R.J., Brooks, S.A. (2018). **Chronic Idiopathic Anhidrosis in the American Quarter Horse - Don't Sweat over It**. San Diego, CA: International Plant and Animal Genome XXVI Conference.
8. Patterson Rosa, L., Al Abri, M., Staiger, E.A., Brooks, S. (2017). **Investigation of Computationally Predicted Structural Polymorphisms in Gaited Horses**. Gainesville, FL: Graduate Student Research Day.
9. Patterson Rosa, L., Al Abri, M., Staiger, E.A., Brooks, S. (2017). **Investigation of Computationally Predicted Structural Polymorphisms in Gaited Horses**. San Diego, CA: International Plant and Animal Genome XXV Conference.
10. Patterson Rosa, L., Brooks, S. (2016) **Identification of genetic components for gait-type in the Mangalarga Marchador horse**. Gainesville, FL: 3rd Annual Statewide Graduate Student Research Symposium.
11. Patterson Rosa, L., Brooks, S. (2015) **Identification of genetic components for gait-type in the Mangalarga Marchador horse**. Live Oak, FL: Animal Sciences Symposium.
12. Patterson Rosa, L., Brooks, S. (2015) **Identification of genetic components for gait-type in the Mangalarga Marchador horse**. Gainesville, FL: Florida Genetics Symposium.
13. Patterson, L., Staiger, E.A., Brooks, S. (2013) **DMRT3 is associated with gait type in Mangalarga Marchador horses, but does not control gait ability**. Michigan State University, MI: Merial-NIH Veterinary Scholars Program Symposium.



## TALKS AND PRESENTATIONS

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1. Patterson Rosa, L. (2022) **Clinical and Performance applications for equine genetic testing**. Featured Speaker at the Oklahoma Veterinary Conference, Oklahoma City, OK. January 28, 2022.
2. Patterson Rosa, L. (2021) **Updates on Anhidrosis and Kissing Spines – What does genetics tells us**. 2021 Equine Institute and Allied Trade Show at Ocala, FL. September 29, 2021.
3. Patterson-Rosa, L. and Brooks, S.A. (2019) **The 5 W's of Genetic Testing and How Can it Help You**. UFVH Veterinary Technician Continuing Education Conference. Gainesville, FL. October 19, 2019.
4. Patterson Rosa, L., Wickens, C. and Brooks, S.A. (2019). **Bringing horse genetics to owners and industry professionals through online extension**. 26th Symposium of the Equine Science Society Asheville, North Carolina. June 3–6, 2019.
5. Staiger, E.A., Patterson-Rosa, L., Brooks, S.A. (2019) **Four-beat Gaits in the Horse: Unlocking the Genetics**. First International Collaborative Mini-Symposium UF/Alltech. Gainesville, FL. May 14-16, 2019.
6. Patterson-Rosa, L., Lafayette, C. and Brooks, S.A. (2019) **Etalon Diagnostics and Genetics: Better information, better breeding**. Springhill Equine Veterinary Clinic Seminar Series. Newberry, FL. January 10, 2019.
7. Patterson-Rosa, L., Sanchez, L. C., Mallicote, M. F., MacKay, R. J. and Brooks, S.A. (2019). **Differential**

**Gene Expression in Skin from Foals with Macrolide Induced Anhidrosis.** San Diego, CA: International Plant and Animal Genome XXVII Conference.

8. Patterson Rosa, L., Brooks, S. (2018). **Genetics of Chronic Anhidrosis: Should you sweat over it?** 2018 Equine Institute and Allied Trade Show at Ocala, FL. September 20, 2018.
9. Patterson Rosa, L., Brooks, S. (2018). **Genetics of Chronic Anhidrosis: Should you sweat over it?** Healthy Horses Conference, University of Florida College of Veterinary Medicine. July 13<sup>th</sup>, 2018.
10. Patterson Rosa, L., Brooks, S. (2018). **Chronic Idiopathic Anhidrosis in the American Quarter Horse – don't sweat over it.** 16<sup>th</sup> Annual Research Symposium of the University of Florida Graduate Program in Animal Molecular and Cell Biology. April 7, 2018.
11. Patterson Rosa, L., Palermo, K., Brooks, S. (2017). **Education Breakout Sessions – Equine Genetics and Health.** 2017 Equine Institute and Allied Trade Show at Ocala, FL. September 17, 2017.
12. Patterson Rosa, L., Brooks, S. (2017). **Chronic Idiopathic Anhidrosis in the American Quarter Horse – don't sweat over it.** 3<sup>rd</sup> Animal Sciences Symposium. October 21, 2016.
13. Patterson Rosa, L., Al Abri, M., Staiger, E.A., Brooks, S. (2017). **Investigation of Computationally Predicted Structural Polymorphisms in Gaited Horses.** Safety Harbor, FL: Fifteenth Annual Research Symposium of the University of Florida Graduate Program in Animal Molecular and Cell Biology. April 7-8, 2017.
14. Patterson Rosa, L., Brooks, S. (2016). **Chronic Idiopathic Anhidrosis in the American Quarter Horse.** 2<sup>nd</sup> Animal Sciences Symposium. October 21, 2016.
15. Patterson Rosa, L. (2016). **Updates on the Equine Genetics Lab – University of Florida.** 2016 Equine Institute and Allied Trade Show at Ocala, FL. September 15, 2016.
16. Patterson Rosa, L., Brooks, S. (2016). **Inversion on STXBP5L possible affecting intermediate speed locomotion patterns in the Mangalarga Marchador horse.** Brooksville, FL: Fourteenth Annual Research Symposium of the University of Florida Graduate Program in Animal Molecular and Cell Biology. April 15, 2016.
17. Patterson, L., Staiger, E.A., Brooks, S. (2012). **Estudo Genético da Marcha (Gait Genetics).** Núcleo Baiano dos Criadores do Cavalo Mangalarga Marchador. Salvador – Bahia, Brazil. April 11, 2012.
18. Patterson, Laura das Neves. (2008) **Equine Protozoal Myeloencephalitis: Pathology, diagnostic and effective treatments.** Salvador: Universidade Federal da Bahia (UFBA).

## SELECTED GRANTS

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### **Externally Funded**

<b>Proposal Title</b>	<b>Sponsor</b>	<b>Dates</b>	<b>Total Budget</b>
Genetics analysis of an established colony of laboratory beagles with atopic dermatitis.	ACVD	2/1/2019- 2/1/2020	\$15,070
Genomics of Anhidrosis in the American Quarter Horse	AMER QUARTER HORSE ASSO	10/1/2016- 9/30/2017	\$56,247
Associação Genômica Ampla em características morfométricas de equinos da raça Campolina	CNPQ - Brazil	01/2016	\$9,786

### **In Preparation**



Allelic Frequency of <i>ACAN</i> dwarfism variants	Etalon Diagnostics	
Validation of the Chronic Idiopathic Anhidrosis variant	Etalon Diagnostics	
Allelic frequency and function of <i>DMRT3</i> variant in diverse equine breeds/disciplines	Etalon Diagnostics	
Intrinsic and income-related gender bias in the US and Brazil equine industry	University of Florida, USA and Universidade Federal de Goias, Brazil	
<b>Submitted</b>		
Genomics of Anhidrosis	Morris Animal Found.	\$128,718
Pesquisa Genética em cavalos da raça Mangalarga Marchador	Cnpq - Brazil	\$126,012
Genomics of Anhidrosis in the Thoroughbred	Grayson Jockey Club Res Fou	\$89,139
Genomics of Polymorphic Gait	National Science Found.	---
Ongoing work: Anhidrosis Genomics	Amer Quarter Horse Asso	\$47,280
Identification of Genetic Loci Contributing to Equine Anhidrosis	Morris Animal Found.	\$104,620
Metabogenomic Approaches to Dissect Equine Metabolic Syndrome	Morris Animal Found.	\$136,532
Genetic Tools for Development and Standardization of a horse breed.	Private	\$64,548



## INTERNET AND TV EXTENSION

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### Internet

1. Interview – São Paulo Sport Horse Federation “Você acredita em cavalo perfeito? E se você pudesse construir um do jeitinho que quisesse?” <https://www.youtube.com/watch?v=PwqNTpmQzdg>
2. **Bee Appearance And Behavior May Be Related, Genetic Study Reveals**  
<https://phys.org/news/2022-01-bee-behavior-genetic-reveals.html>  
<https://floridanewstimes.com/bee-appearance-and-behavior-may-be-related-genetic-studies-reveal/411116/>  
<https://newsconcerns.com/bee-appearance-and-behavior-may-be-related-genetic-study-reveals/>
3. **Scientists Discover Genetic Markers Tied to Loss of Ability to Sweat in Horses**  
<http://www.equinechronicle.com/uf-scientists-discover-genetic-markers-tied-to-loss-of-ability-to-sweat-in-horses/>
4. LIVE Revista Horse – What do we know about horse color genetics in Brazil?  
[https://www.youtube.com/watch?v=\\_VU\\_mL9F\\_GI](https://www.youtube.com/watch?v=_VU_mL9F_GI)
5. LIVE Genetics of Coat Color and Health – Unraveling the Etalon Genetic Panel Plus Results – Haras Lagoinha (4/20/2021)
6. LIVE Etalon Diagnostic Ancestry Panel of Turbante J.O. – Canal A Cavalo (4/6/2021) 865 views  
[https://youtu.be/muze0\\_AJbHg](https://youtu.be/muze0_AJbHg)
7. LIVE Everything you ever wanted to know about horse genetics – Q&A session Canal A Cavalo (3/31/2021) 247 views <https://www.youtube.com/watch?v=bRImZ2IMudU>

8. LIVE Unraveling the Etalon Diagnostics Genetic Testing Panel on Turbante JO – Canal A Cavalo (3/12/2021) 608 views [https://www.youtube.com/watch?v=uI\\_AD5xFDGk](https://www.youtube.com/watch?v=uI_AD5xFDGk)
9. LIVE Prosa Mangalarga: Equine Genetics (03/11/2021) - 1,079 views <https://www.youtube.com/watch?v=8MZfUDW8mPw>
10. LIVE The Educated Horseman Virtual Classroom: Anhidrosis. PATTERSON ROSA, L. (April 2020). Louisiana State University Master Horseman Program. <https://www.facebook.com/neely.heidorn/videos/10156650832326612>
11. Mangalarga Marchador TV: Brooks, S., Patterson Rosa, L. **Interview about the Gait Genetics Study.** Bahia, Brazil. (November, 2016) <https://www.youtube.com/watch?v=bSIY2yX-88I&feature=share>
12. DigaBahia / DigaSalvador: <http://digabahia.com.br/especialistas-da-universidade-da-florida-visitam-fenagro/> (November, 2016)
13. Juci Ribeiro: <http://www.juciribeiro.com/2016/11/renomadas-especialistas-da-universidade.html> (November, 2016)
14. Notícia Capital: <http://noticiacapital.com.br/noticias1.asp?cod=26125> (November, 2016)
15. ABCCMM news: <http://www.abccmm.org.br/nucleos/associacao-dos-criadores-do-cmm-da-bahia/noticias/pesquisadoras-americanas-no-cbm-de-marcha-picada> (November, 2016)
16. Griffin, Justine. **My Horse Stopped Sweating. Now What?** <https://heelsdownmag.com/my-horse-stopped-sweating-now-what/> (July, 2018)

### **TV interviews**

1. Horse Magazine TV: Interview on the Mangalarga Marchador breed in the USA. Minas Gerais, Brazil. (July 2017) <https://www.youtube.com/watch?v=dsblb2ovo3e>
2. Mangalarga Marchador TV: **Interview about the Gait Genetics Study.** Bahia, Brazil. (November, 2016) <https://www.youtube.com/watch?v=bSIY2yX-88I&feature=share>
3. Mangalarga Marchador TV: **Gait Genetics Study.** Bahia, Brazil. (July, 2012) <https://www.youtube.com/watch?v=dhdbsbtufhs>
4. Horse TV: **Campolina exportation to Mexico.** Minas Gerais, Brazil. (June, 2010) <https://www.youtube.com/watch?v=b-1hdca8tnm>

## **SPECIALIZATION COURSES**

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- 2019.** **Bioinformatics 101 for Cancer Researchers.** Certification by the University of Florida Health Cancer Center and Interdisciplinary Center for Biotechnology Research. Gainesville, FL.
- 2018.** **Teaching Assistant Development Workshop.** Certification by the University of Florida Graduate School/Teaching Center in Teaching with Technology. Gainesville, FL.
- 2017.** **Teaching Assistant Development Workshop.** Certification by the University of Florida Graduate School/Teaching Center in Teaching with Technology. Gainesville, FL.
- 2014.** **Theoretical and Practical Course of Reproduction and Obstetrics in Small Animals.** UFBA, Bahia – Brazil.
- 2013.** **“Brazil on Focus”** 2<sup>nd</sup> International Photography Workshop. Bahia – Brazil.
- 2012.** **“Brazil on Focus”** 1<sup>st</sup> International Photography Workshop; coordinated the Haras Campanario Farm. Minas Gerais – Brazil.
- 2011.** **International Clinic of Equine Podiatry and Shoeing, and Laminitis Workshop** – held by the National School of Training and Development for Farriers, University of Horse and Simon Curtis (UK). Certified as listener. Universidade do Cavalo. São Paulo – Brazil.
- 2009.** **Horsemanship and Foal Management,** Universidade do Cavalo. São Paulo – Brazil.

## TEACHING

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### **Mentor/Committee**

- 2021-Present Marina Cardim Gaspar, Veterinary Medicine Student, Faculdade Anhanguera - SP, Brazil
- 2020-Present Fellipe Araujo, Veterinary Medicine Student, Faculdade UNINOVE – SP, Brazil
- 2021 Marina Monteiro, Ms. (Animal Science) “Análise Fenotípica das Pelagens e Particularidades dos Equídeos”. Universidade Federal Rural do Rio de Janeiro (UFRRJ) – RJ, Brazil
- 2021 Mariana Sellani, DVM. “Análise de componentes principais de medidas lineares de cavalos jovens campeões nacionais da raça mangalarga marchador” Universidade Federal de Goiânia (UFG) – GO, Brazil
- 2019 Juliana Fonseca dos Santos, DVM. Co-Advisor of DVM thesis “Avaliação do Padrão Da Marcha Associado ao Estudo Genômico do Gene *DMRT3* Na Raça Mangalarga Marchador: Revisão De Literatura”. Research and Teaching Foundation of Itajubá (FEPI) – MG, Brazil

### **Professor**

- 2022, Fall ANSC 2303 – Horsemanship I. Sul Ross State University.
- 2022, Fall ANSC 3313 – Equine Lameness and Rehabilitation. Sul Ross State University.
- 2022, Fall ANSC 4303 – Reproductive Physiology. Sul Ross State University.
- 2022, Fall B ANSC 4307 – Ultrasound Technology. Sul Ross State University.

### **Co-Instructor**

- 2021, Spring ENY2090-339C – Insect Research. 16 students. University of Florida.

### **Teaching Assistant**

- 2018, Fall ANS 3217c, Equine Health Management. 44 students. University of Florida.
- 2018, Summer B ANS 4382, Equine Genetics, Online. 18 students. University of Florida
- 2017, Fall ANS 3217c, Equine Health Management. 34 students. University of Florida.
- 2016, Fall ANS 3217c, Equine Health Management. 39 students. University of Florida.
- 2016, Summer B ANS 4382, Equine Genetics, Online. 17 students. University of Florida.

### **Guest Lecturer**

- 2021, Fall Equine Sciences, “Equine Coat Colors, from genes to phenotypes.” Instituto Federal de Minas Gerais, Brazil.
- 2021, Summer Equine Sciences, “Updates on Equine Genetics for Vet Students”. Universidade Federal de Minas Gerais (UFMG).
- 2020, Fall Exterior e Julgamento Animal. “Genética das Pelagens dos Equinos”. Universidade Estadual do Oeste do Paraná.
- 2020, Fall MEVC73 Bases em Equideocultura, “Genética das Pelagens dos Equinos”. Universidade Federal da Bahia, Brazil.
- 2019, Spring ANS 6932 Animal Genetics & Genomics. “Differential gene expression in skin from foals with macrolide-induced anhidrosis”.
- 2016, Fall ANS 3239L, Techniques in Equine Science. Introduced the Mangalarga Marchador horse breed and Mounted Archery as an equestrian sport.

- 2015, Fall                   ANS 3239L, Techniques in Equine Science. Introduced the Mangalarga Marchador horse breed and talked about four-beat gaited horses.
- 2013–2014                   Guest Lecturer: Animal Sciences courses at Universidade Federal da Bahia. Lectures given to “Equine Science” and “Domestic Animals Conformation and Function” classes. Topics: Conformation and Gait, Equine Sexual Behavior, Equine Coat Color Genetics and Horse Breeds.

### Extension

- 2021                         “ANATEM Updates” – Four classes in Genetics of Coat Color, Cloning, Eye and Conformation diseases given to the veterinarians and breed association technicians/inspectors.
- 2020                         “O futuro da genética equina” – Lecture given to the Brazilian Campolina Breeder Association, talking about genetic testing for horses on November 24<sup>th</sup>, 2020, during the Breed’s National Show (transmitted online due to COVID travel restrictions).
- 2018                         “Equine Clinical Genetics: What do Veterinarians need to know?” Lecture given for the USCVM SCAAEP on October 9<sup>th</sup>, 2018, at the UF Veterinary Academic Building Auditorium, from 5pm to 7pm to around 40 UF Vet students.
- 2018                         “Equine Clinical Genetics: What do Veterinarians need to know?”, 2-part extension class covering genetic mechanisms of diseases in horses, current and future applications of DNA based diagnostic tools and guidelines for veterinarian clinicians on best practices to make use of current knowledge in genetics.
- 2018                         Specialist Consultant, EQUUS magazine column on a unilateral sweating neurological case (Horner's Syndrome) in a horse.
- 2018                         “DNA Day” – University of Florida (<http://dna.ufgi.ufl.edu/>). Two extension lectures on Forensic use of DNA to grade 12 students at Belleview High School, Belleview – FL. April 24<sup>th</sup>, 2018. DNA Ambassador/guest lecturer.
- 2016 and 2017             “Horse Genetics Online” Extension Program, 53 English-speaking students, from four countries – Teaching Assistant. 30 Brazilian students in a Portuguese version – Teaching Assistant and Translator.
- 2017                         “Genetics of horses; coat colors, diseases and ‘build your dream horse using genetics’ Florida 4-H Equine – Gainesville, FL.

### Other Teaching Experience

- 2017.                   Instructor: Mangalarga Marchador Judging Gait and Conformation Clinic.**  
Taught a 2-day clinic focused on the Mangalarga Marchador judging at the Summerwind Marchadors. Scottsdale, AZ.
- 2015.                   Instructor: Mangalarga Marchador Functional Test Clinic.**  
Taught a 2-day riding clinic focused on the Mangalarga Marchador Functional Test at the Summerwind Marchadors. Scottsdale, AZ.
- 2013-2014.          Riding Instructor**  
Worked at Chuin Equestrian Center as the riding school main instructor, teaching horseback riding and showjumping to over 40 students and training five young horses, while managing the riding school. Bahia, Brazil.
- 2014.                   Instructor: Mangalarga Marchador Riding Clinic.**  
Taught a 3-day riding clinic at the Summerwind Marchadors, Pagosa Springs, CO.
- 2013.                   Instructor: Mangalarga Marchador Riding Clinic.**  
Taught a 3-day riding clinic at the Summerwind Marchadors. Pagosa Springs, CO.

**2009-10. Riding instructor**

Worked for the Vanguarda equestrian center and private horse farms. Bahia, Brazil.

 **ADDITIONAL WORK EXPERIENCE**

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**2016-2021. Genetics and Genomics independent consultant – Etalon Diagnostics. (etalondx.com).**

Consulting for a genetics and genomics testing company on Equine genetics, providing expert knowledge in genomics, especially in health traits. Service provided in English, Portuguese and Spanish.

**2015-2020. Social media and marketing of the Brooks Equine Genetics Lab at UF.** Management of social media (FaceBook Page, website), design of marketing material (flyers, research pamphlets, post cards) and creation/development of the Brooks Lab shop and respective designs to increase funds for research in the laboratory. <https://www.cafepress.com/horsegenetics>

**2019. First International Collaborative Mini-symposium UF/Alltech.**

Organization of the program and talks as well as farm visits and catering, welcome committee, live translation of scientific lectures. Gainesville, FL.

**2018. Falconer's Assistant: Birds of The Gauntlet.**

Master Falconer's assistant during the two-weekend presentations "Birds of The Gauntlet" at the Hoggetowne Medieval Faire. Taught the public about conservation, importance of birds-of-prey in the wild and help with management, handling and feeding the falconry birds. Gainesville, FL.

**2017. Falconer's Assistant: Birds of The Gauntlet.**

Master Falconer's assistant during the two-weekend presentations "Birds of The Gauntlet" at the Hoggetowne Medieval Faire. Taught the public about conservation, importance of birds-of-prey in the wild and help with management, handling and feeding the falconry birds. Gainesville, FL

**2015. Photographer and translator.**

Assisted the development and marketing of the Bola Oval Project – a football-based social project that utilizes American football in Brazil as a social development tool.

**2014-2015. Marketing Director: Grupo Animais/EuAmoAnimais**

Management of social media (Instagram and FaceBook Page), creation of marketing material and director of the marketing department of a pet/veterinary supply distributor in Bahia/Brazil, and of the sister company, pet shop "EuAmoAnimais".

**2014. Marketing Director**

Marketing Director of Vitória All Saints, semi-professional American football team of Esporte Clube Vitória da Bahia. Bahia, Brazil.

**2013. Photographer**

Official photographer of Vitória All Saints, semi-professional American football team of Esporte Clube Vitória da Bahia. Bahia, Brazil.

**2013. Translator**

Translated Karen Scholl's clinic "Horsemanship for Woman" (Parelli Method) during the 33<sup>rd</sup> Campolina Horse National Competition. Minas Gerais, Brazil.

**2013. Translator and Researcher**

Translation of the lecture "Gait Genetics", given by the researcher Ann Staiger, Ph.D. candidate from Cornell University during the 33<sup>th</sup> Campolina Horse National Competition. Helped with sample collection for the research. Minas Gerais, Brazil.

**2011–13. Judge Assistant/Trainee:** Gait and conformation of Mangalarga Marchador, Campolina and Pampa horse breeds. Brazil.

**2010–11. Equine training, selection and marketing consultant.**

Analyzed and selected Campolina horses fit for exportation to Mexico. Trained Haras Bandarra horses and

developed their marketing campaigns. Competed at the largest Regional Fair winning two Reserved Grand Championships. Bahia, Brazil/Michoacán, Mexico.

**2012. Translator and Researcher**

Translation of the lecture "Gait Genetics", given by the researcher Ann Staiger, Ph.D. candidate from Cornell University during the 31th Mangalarga Marchador National Competition. Helped with sample collection for the gait research. Minas Gerais, Brazil.

**2008. Veterinary Assistant.** Worked with several local equine veterinarians as technician and assistant, helping with routine procedures and reproductive assistance. Bahia, Brazil.

**2007. Administration and Maintenance Assistant at Exporural Salvador**

Management of the Equine, Cattle and Livestock pavilions, as well as assistance to the public and exhibitors, management of stalls and inspecting animal welfare during the fair. Bahia, Brazil.



**OTHER SKILLS**

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**Computer:** Microsoft Office package, Adobe Photoshop, CorelDRAW, Adobe Lightroom, SAS JMP, MATLAB/AGATHA toolkit, PYTHON, DeepLabCut, PLINK, GCTA, KING, Genome Wide Association Analysis computational skills.

**Languages:** Fluent in Portuguese (Native), English and Spanish / Beginner in French.

**Sports:** Professional Level Equestrian Show Jumper – State Champion, Ranking Champion, Regional Champion, 9th place at Nationals. Horse trainer and specialist in gaited horses – State Champion and Regional Champion at the Women’s Class. Expertise in equine behavior.

**Interests:** Falconry – Apprentice. Mounted Archery beginner. Amateur photographer. Social Media and marketing/publicity interest.