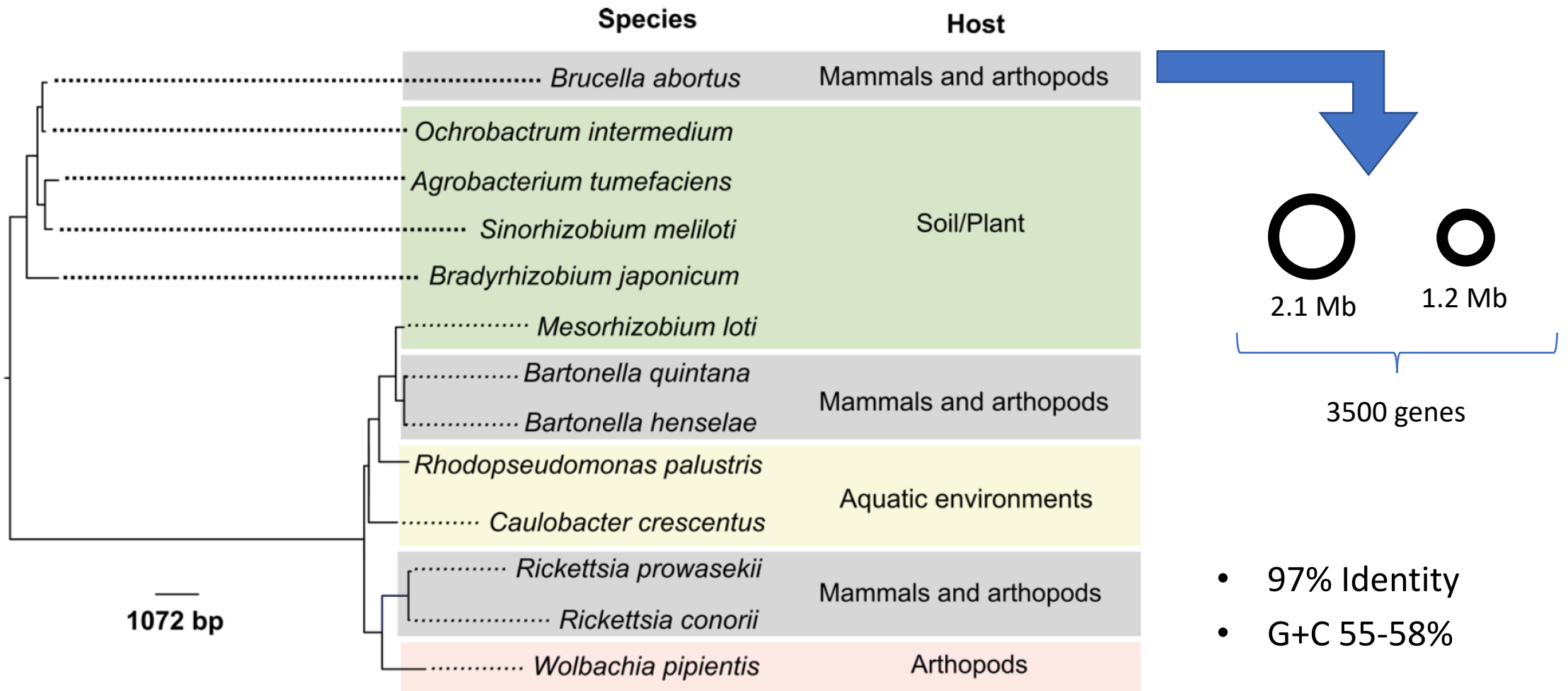
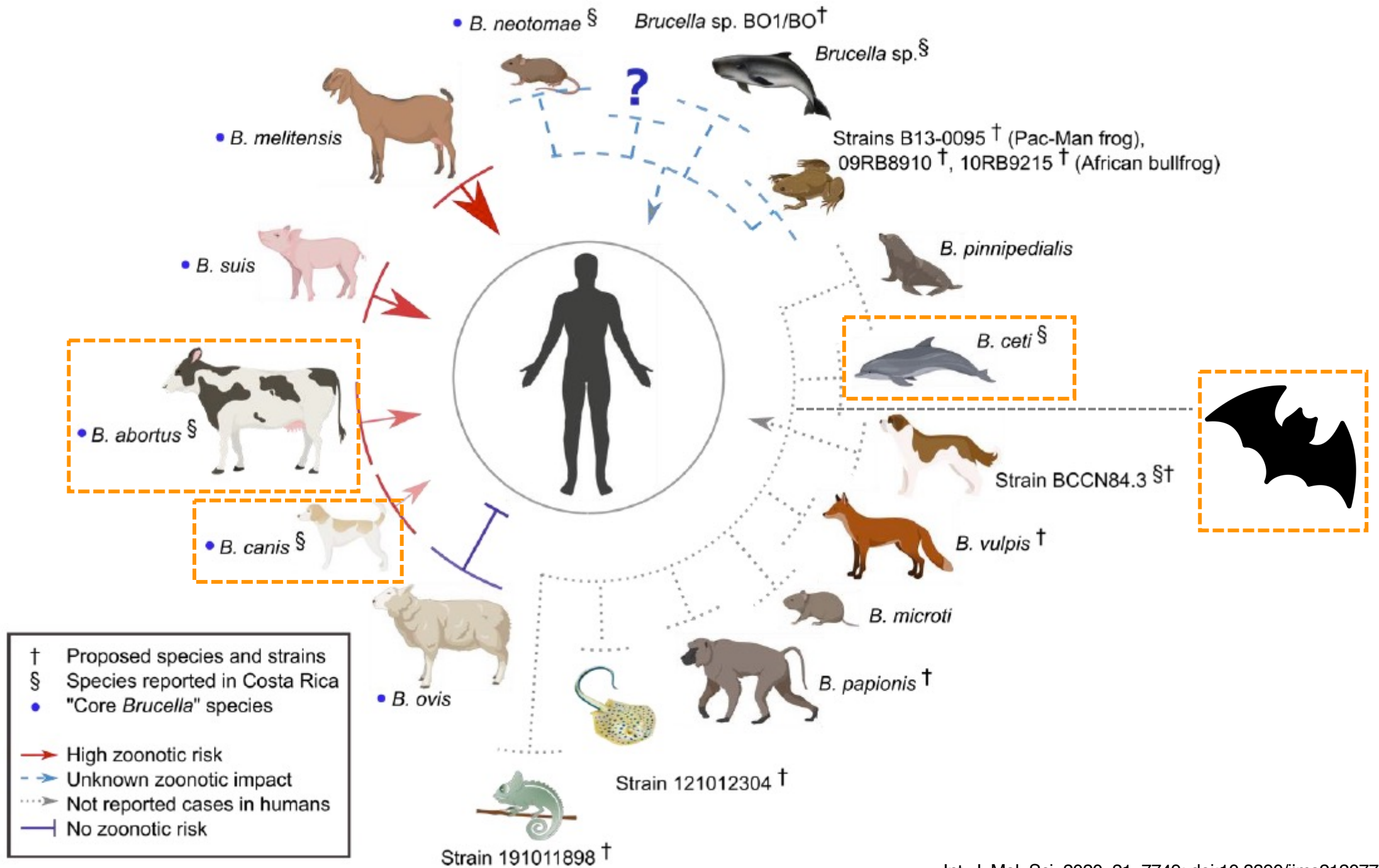


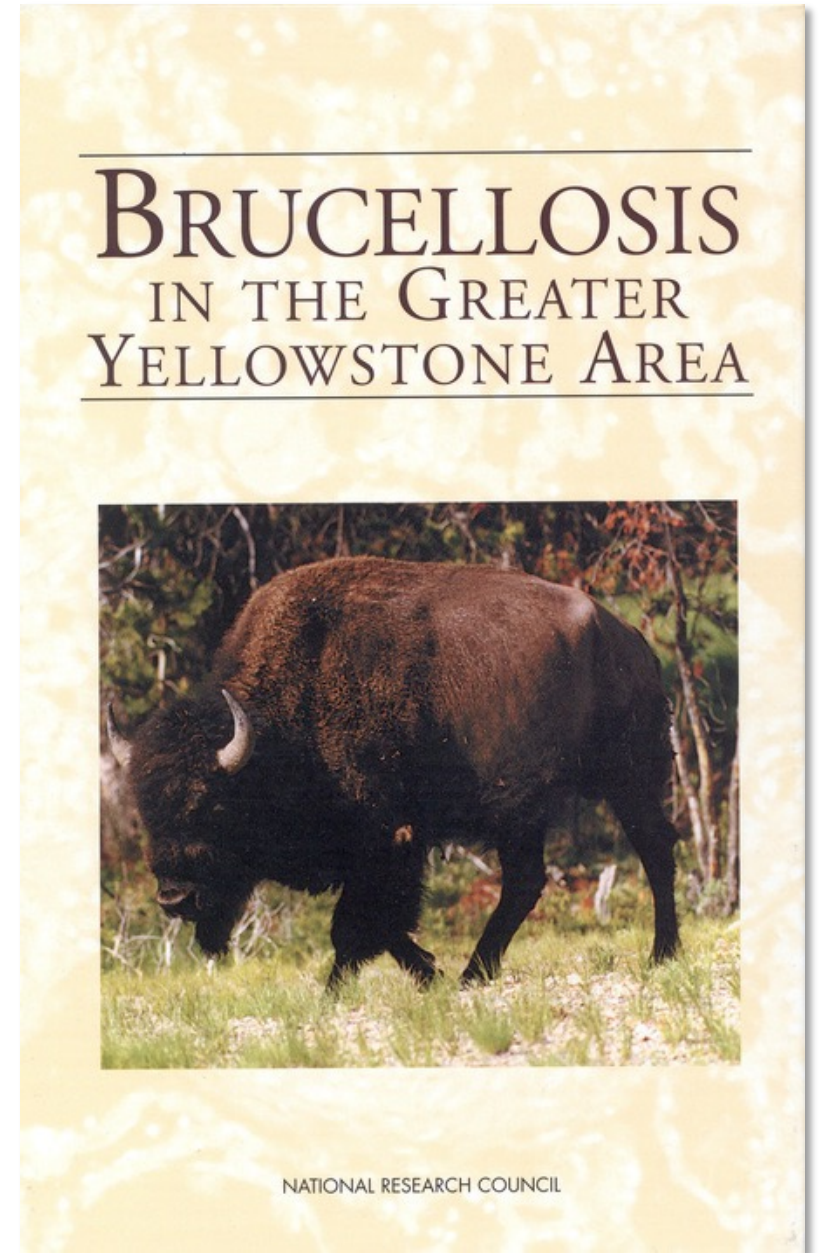
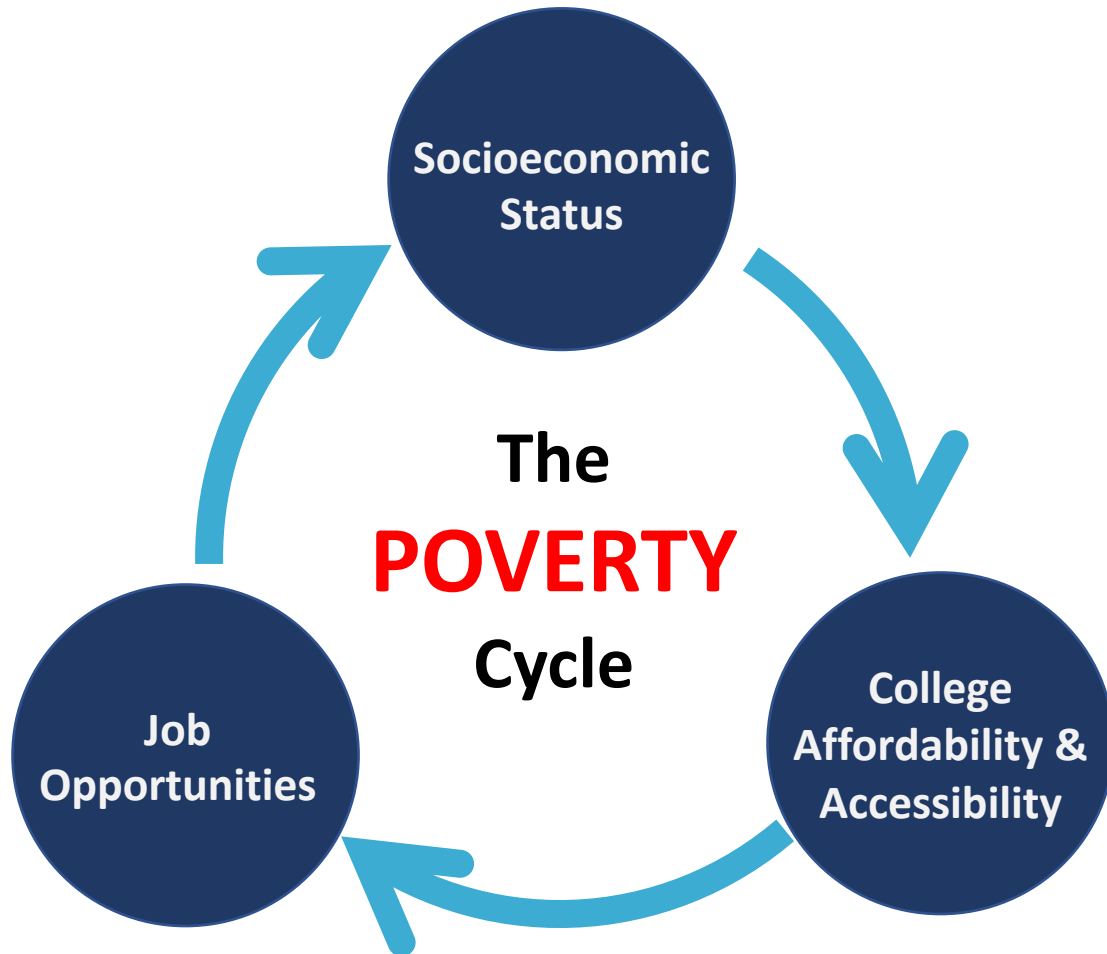
“Brucella genomics in Costa Rica: a path of learning from scratch to networking

The genus *Brucella*



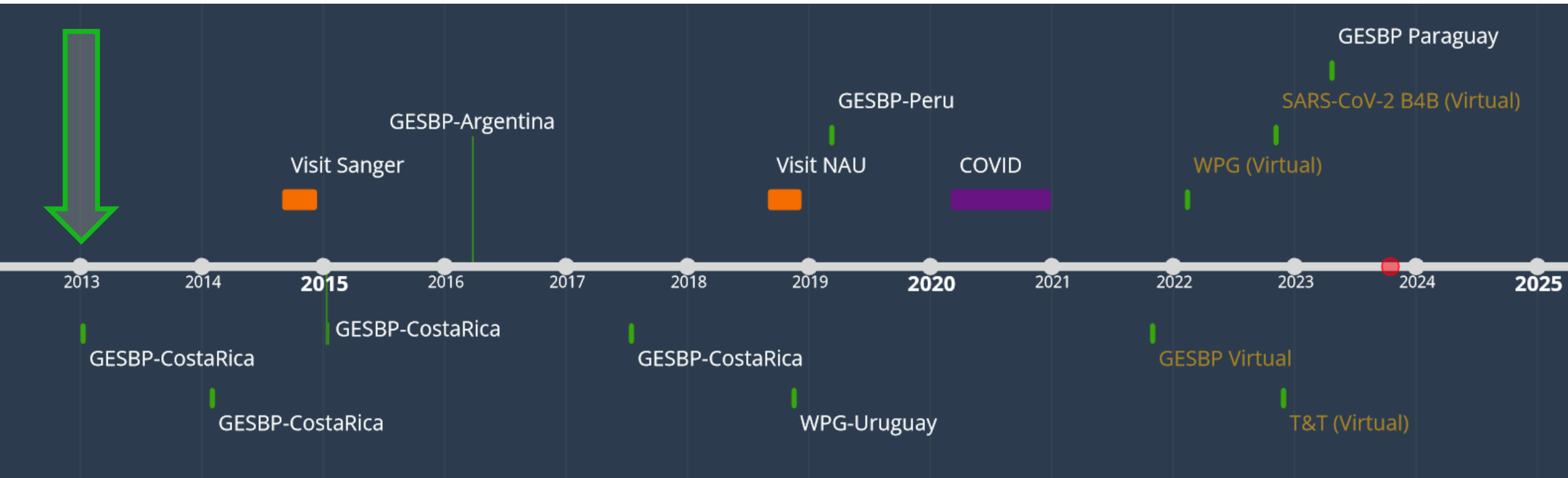


Brucellosis: Importance

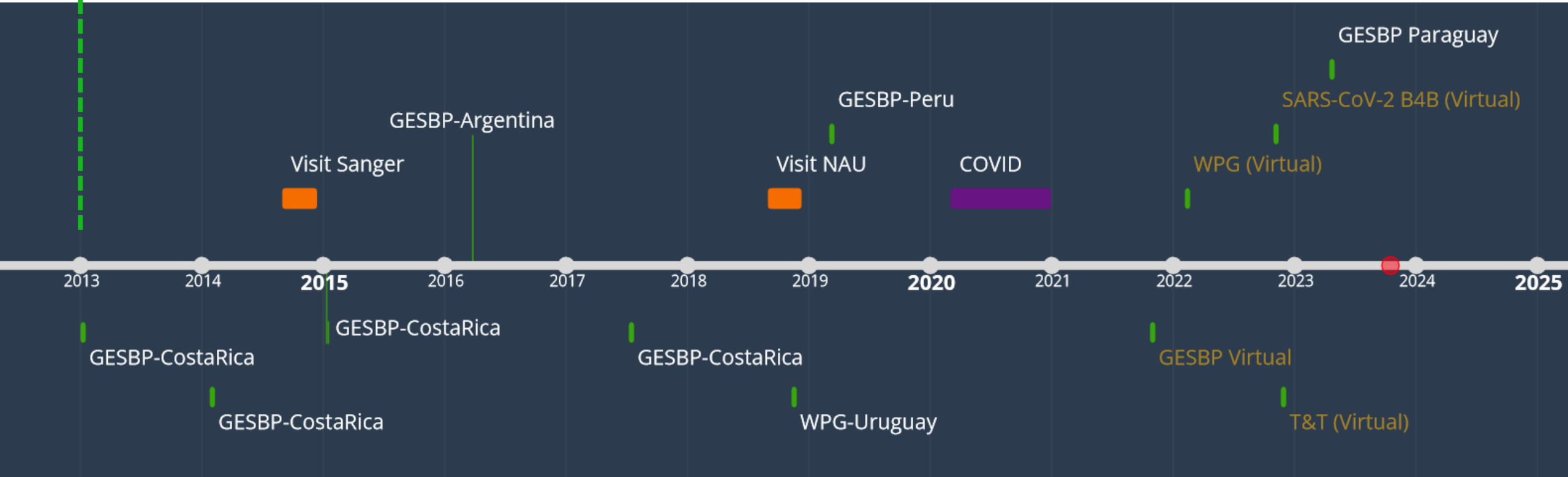
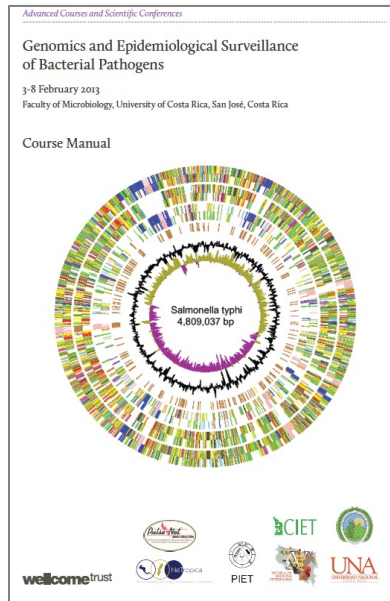


1998

WCS Training in Timeline Latin America



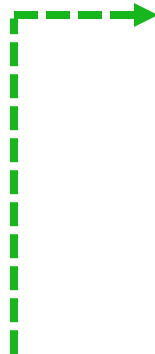
2013



2014-15



2016



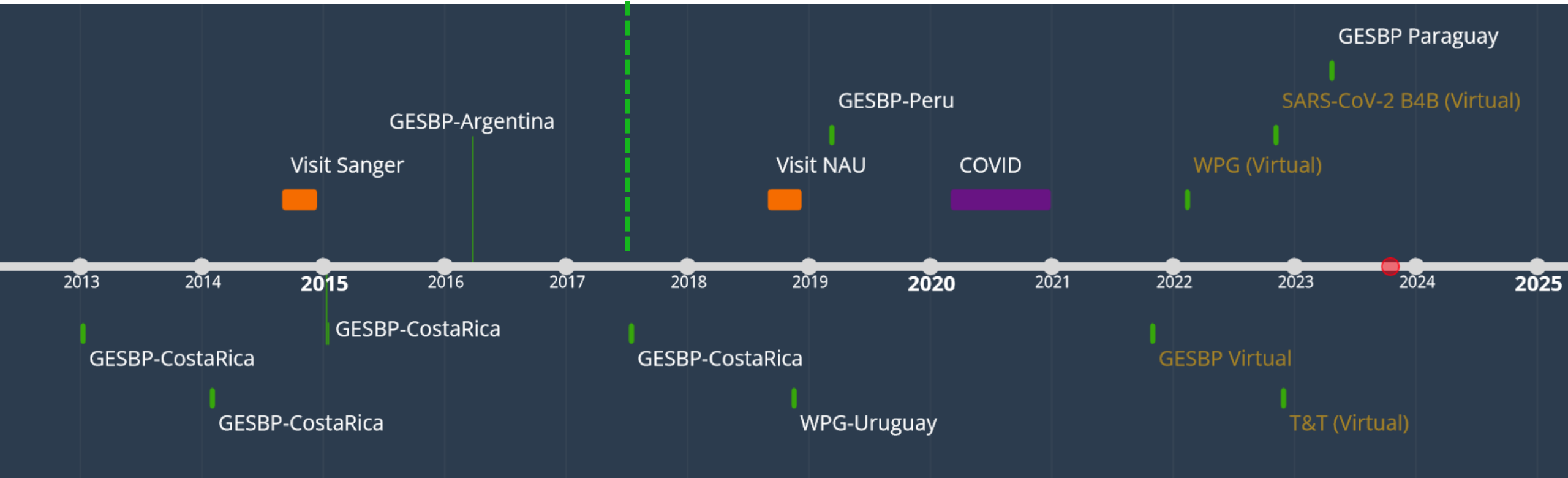
2017



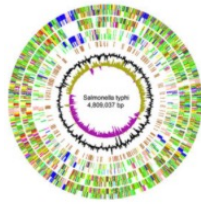
Genomics and Epidemiological Surveillance of Bacterial Pathogens (San Jose, Costa Rica)

9–14 July 2017

San Jose, Costa Rica



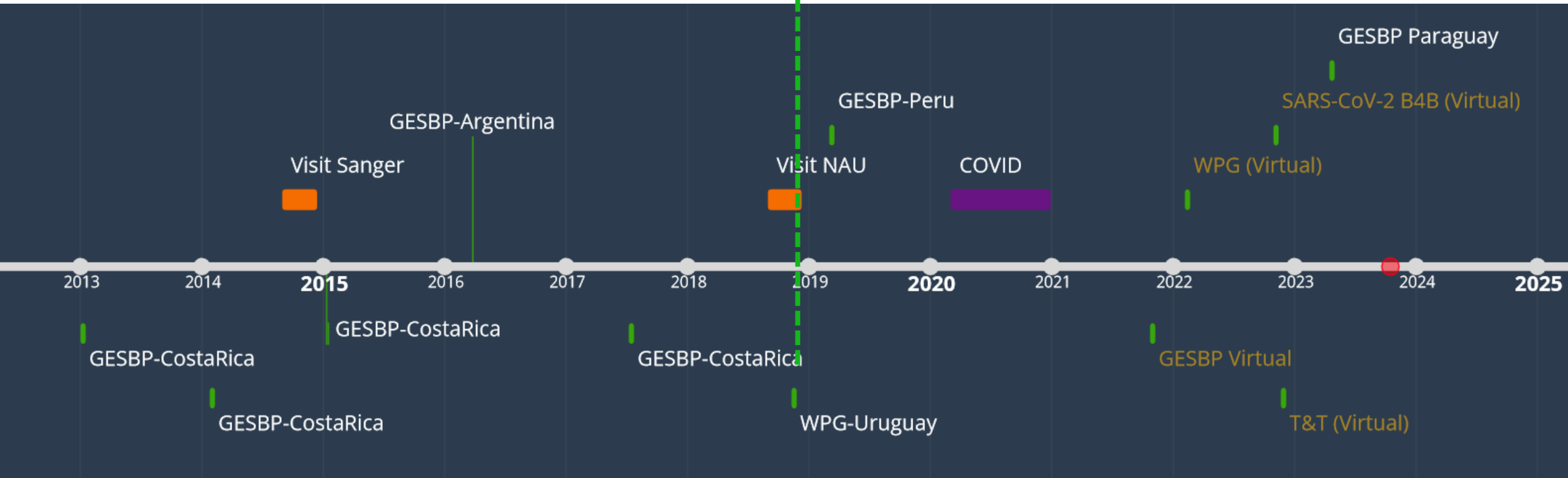
2018



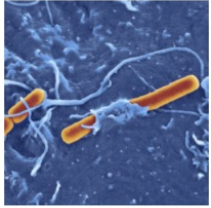
Working with Pathogen Genomes (Montevideo, Uruguay)

11–16 November 2018

Institute of Hygiene, Montevideo, Uruguay



2019



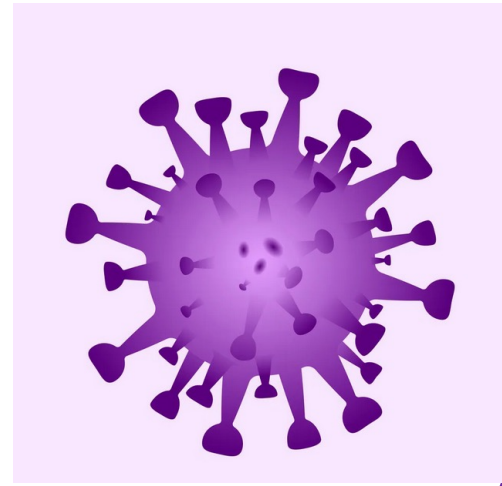
Genomics and Epidemiological Surveillance of Bacterial Pathogens (Lima, Peru)

3–8 March 2019

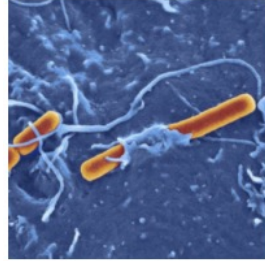
Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru



2020



2021



Genomics and Epidemiological Surveillance of Bacterial Pathogens (Latin America) (Virtual)

25–29 October 2021

Virtual Course



2022



SARS-CoV-2 Bioinformatics for Beginners

31 October–2 December 2022

Distributed Classrooms across Asia, Latin America, and Africa

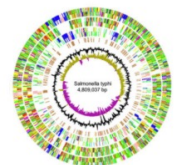


Train-the-Trainer: Course design and delivery for bioinformatics trainers (virtual)

22 November–8 December 2022

Tuesdays & Thursdays, 12:00 - 15:00 GMT (14:00 - 17:00 CAT)

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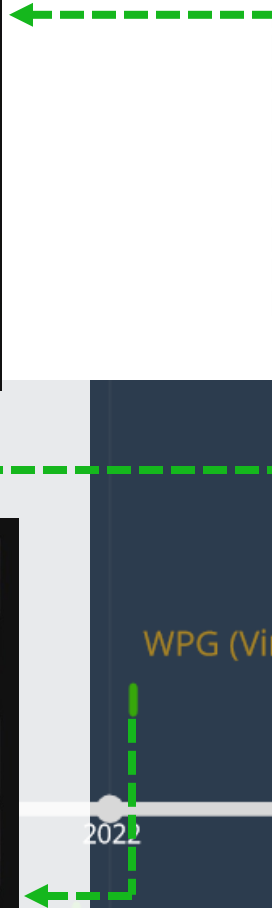
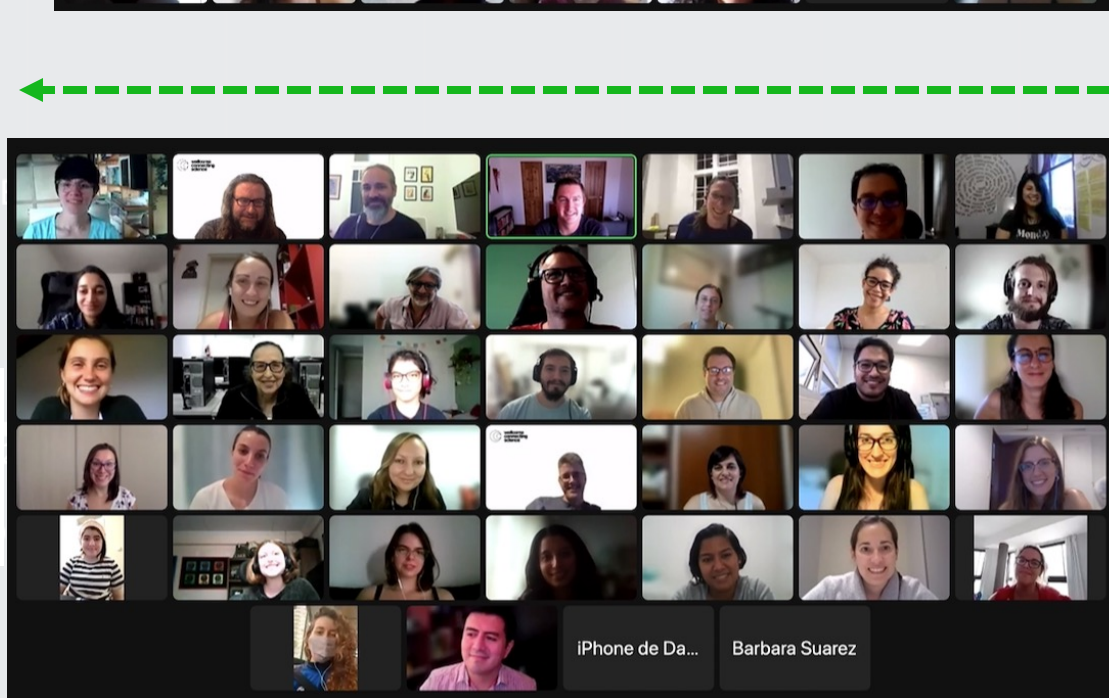
Working with Pathogen Genomes (Latin America) (Virtual)

7–11 February 2022

Virtual Course

GESBP-CostaRica

GESBP-CostaRica



GESBP Paraguay

SARS-CoV-2 B4B (Virtual)

WPG (Virtual)

GESBP Virtual

T&T (Virtual)

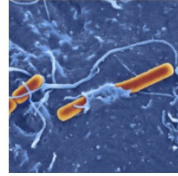
2022

2023

2024

2025

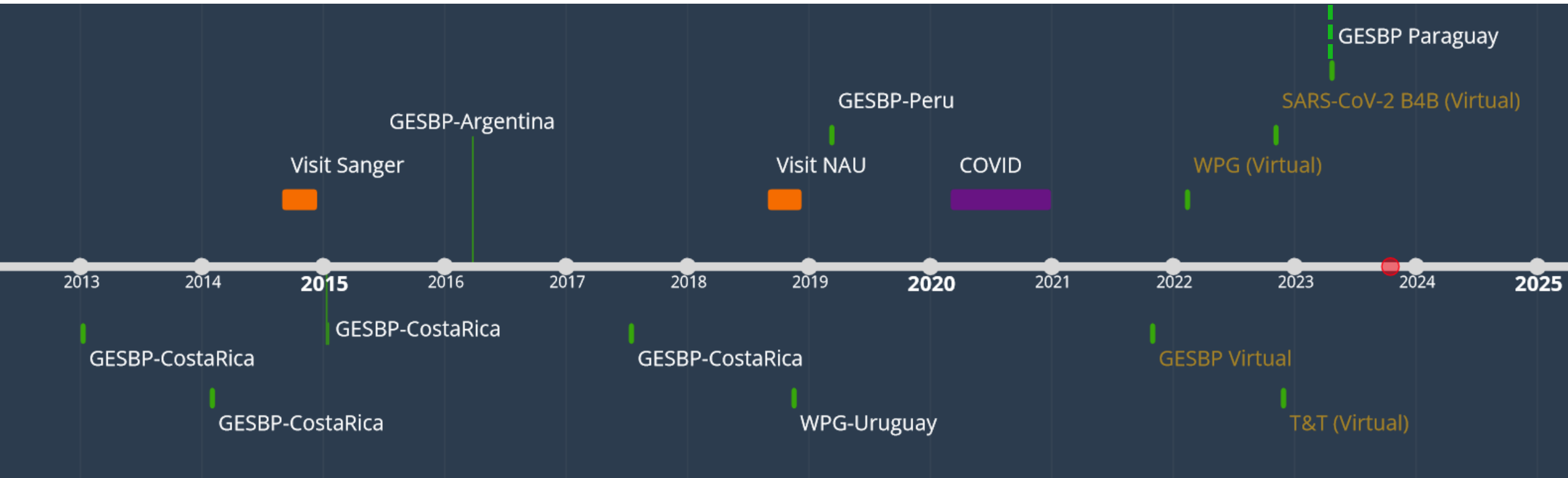
10 years anniversary!!!



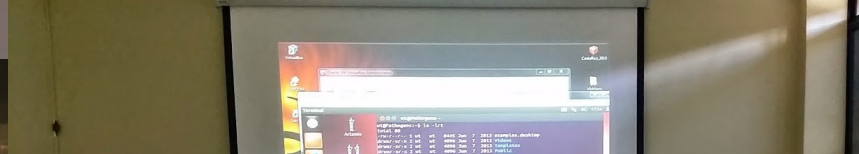
Genomics and Epidemiological Surveillance of Bacterial Pathogens - Latin America and the Caribbean

16–21 April 2023

Asunción, Paraguay









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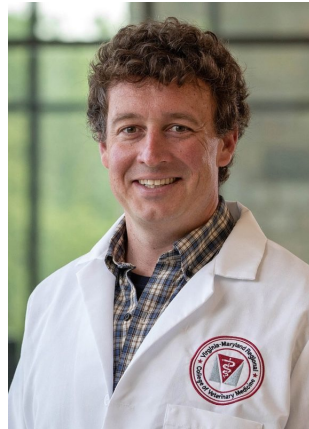
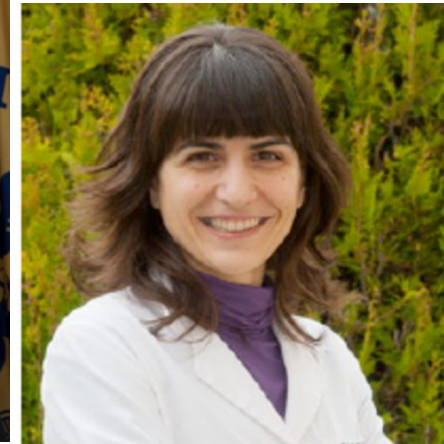


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SERVICIO NACIONAL DE SANIDAD Y CALIDAD AGROALIMENTARIA



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ARIZONA** 
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Years	Project
2021-2023	SIA 0576-20 "Understanding <i>Brucella</i> phylogeography: a road to specific diagnostic tools" "Comprendiendo la filogeografía de <i>Brucella</i> : un camino para herramientas de diagnóstico específicas".
2020-2021	SIA 0652-19 "Desarrollo de herramientas hechas a la medida para el combate de la brucelosis en Costa Rica". FEES CONARE.
2020-2022	SIA 0648-19 "Diversidad genómica de <i>Salmonella enterica</i> y genes de resistencia a los antimicrobianos en poblaciones humanas, animales y alimentos en Costa Rica". FEES CONARE.
2018-2019	SIA 0045-17 "Implementación de la secuenciación de genoma completo de <i>Brucella abortus</i> como un modelo para el estudio de las enfermedades infecciosas en Costa Rica". Fondo Institucional para el Desarrollo Académico de la UNA (FIDA).
2018-2019	SIA 0607-17 "Descifrando la especificidad de hospedero: el caso de las bacterias intracelulares del género <i>Brucella</i> ". FEES CONARE.
2017-2019	SIA 0260-14 "Fortalecimiento de la Actividad Científica en la Región Latinoamericana".
2016-2017	SIA 0545-15 "Regulación transcripcional de la virulencia de <i>Brucella abortus</i> ". FEES CONARE.
2015-2017	SIA 0391-14 "Cerrando la brecha entre el diagnóstico convencional de enfermedades infecciosas y el diagnóstico de nueva generación". FEES CONARE.
2014-2015	SIA 0075-14 Epidemiología molecular a nivel genómico de un patógeno bacteriano re emergente con potencial zoonótico y de un patógeno bacteriano emergente de importancia nosocomial. FEES-CONARE



International Centre for Genetic
Engineering and Biotechnology



***Brucella abortus* Strain 2308 Wisconsin Genome: Importance of the Definition of Reference Strains**

Marcela Suárez-Esquivel¹, Nazareth Ruiz-Villalobos¹, Amanda Castillo-Zeledón¹, César Jiménez-Rojas¹, R. Martín Roop II², Diego J. Comerci³, Elías Barquero-Calvo⁴, Carlos Chacón-Díaz^{1,4}, Clayton C. Caswell⁵, Kate S. Baker^{6,7}, Esteban Chaves-Olarte⁴, Nicholas R. Thomson^{6,8}, Edgardo Moreno^{1,9}, Jean J. Letesson¹⁰, Xavier De Bolle¹⁰ and Caterina Guzmán-Verri^{1,4*}

EMERGING INFECTIOUS DISEASES®

Brucella neotomae Infection in Humans, Costa Rica

Marcela Suárez-Esquivel, Nazareth Ruiz-Villalobos, César Jiménez-Rojas, Elías Barquero-Calvo, Carlos Chacón-Díaz, Eunice Viquez-Ruiz, Norman Rojas-Campos, Kate S. Baker¹, Gerardo Oviedo-Sánchez, Ernesto Amuy, Esteban Chaves-Olarte, Nicholas R. Thomson, Edgardo Moreno, and Caterina Guzmán-Verri✉

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 23, No. 6, June 2017



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Meeting Report | Open Access

***Brucella* sequence Type 27 isolated from Dwarf Sperm Whale (*Kogia sima*) stranded in the Costa Rican Pacific Coast**

Marcela Suárez-Esquivel¹, Nazareth Ruiz-Villalobos¹, Gabriela Hernández-Mora², Rocío González-Barrientos², Jose David Palacios-Alfaro³, Elías Barquero-Calvo^{1,4}, Esteban Chaves-Olarte⁴, Nicholas Thomson⁵, Edgardo Moreno^{1,4}, Caterina Guzmán-Verri^{1,4}

***Brucella* Genetic Variability in Wildlife Marine Mammals Populations Relates to Host Preference and Ocean Distribution**

Marcela Suárez-Esquivel¹, Kate S. Baker^{2,3}, Nazareth Ruiz-Villalobos¹, Gabriela Hernández-Mora⁴, Elías Barquero-Calvo^{1,5}, Rocío González-Barrientos⁴, Amanda Castillo-Zeledón¹, César Jiménez-Rojas¹, Carlos Chacón-Díaz⁵, Axel Cloeckert⁶, Esteban Chaves-Olarte⁵, Nicholas R. Thomson², Edgardo Moreno¹, and Caterina Guzmán-Verri^{1,5,*}

Genome Biol. Evol. 9(7):1901–1912. doi:10.1093/gbe/evx137 Advance Access publication July 20, 2017

1901



Genetic and Phenotypic Characterization of the Etiological Agent of Canine Orchiepididymitis Smooth *Brucella* sp. BCCN84.3

Caterina Guzmán-Verri^{1,2}, Marcela Suárez-Esquivel¹, Nazareth Ruiz-Villalobos¹, Michel S. Zygmunt³, Mathieu Gonnet³, Elena Campos⁴, Eunice Viquez-Ruiz¹, Carlos Chacón-Díaz², Beatriz Aragón-Aranda⁵, Raquel Conde-Álvarez⁵, Ignacio Moriyón⁵, José María Blasco⁶, Pilar M. Muñoz⁶, Kate S. Baker^{7,8}, Nicholas R. Thomson⁷, Axel Cloeckert³ and Edgardo Moreno^{1*}

PLOS NEGLECTED TROPICAL DISEASES

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RESEARCH ARTICLE

Persistence of *Brucella abortus* lineages revealed by genomic characterization and phylodynamic analysis

Marcela Suárez-Esquivel, Gabriela Hernández-Mora, Nazareth Ruiz-Villalobos, Elías Barquero-Calvo, Carlos Chacón-Díaz, Jason T. Ladner, Gerardo Oviedo-Sánchez, Jeffrey T. Foster, Norman Rojas-Campos, Esteban Chaves-Olarte, Nicholas R. Thomson, Edgardo Moreno, Caterina Guzmán-Verri ✉

Version 2

Published: April 14, 2020 • <https://doi.org/10.1371/journal.pntd.0008235>

Brucella Genomics: Macro and Micro Evolution



by  Marcela Suárez-Esquivel¹   Esteban Chaves-Olarte²   Edgardo Moreno¹   and
 Caterina Guzmán-Verri^{1,2,*} 

¹ Programa de Investigación en Enfermedades Tropicales, Escuela de Medicina Veterinaria, Universidad Nacional, Heredia 3000, Costa Rica

² Centro de Investigación en Enfermedades Tropicales, Facultad de Microbiología, Universidad de Costa Rica, San José 1180, Costa Rica

* Author to whom correspondence should be addressed.

Int. J. Mol. Sci. **2020**, *21*(20), 7749; <https://doi.org/10.3390/ijms21207749>

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RESEARCH ARTICLE



The regulon of *Brucella abortus* two-component system BvrR/BvrS reveals the coordination of metabolic pathways required for intracellular life

Olga Rivas-Solano, Mathilde Van der Henst, Amanda Castillo-Zeledón, Marcela Suárez-Esquivel, Lohendy Muñoz-Vargas, Zeuz Capitan-Barrios, Nicholas R. Thomson, Esteban Chaves-Olarte, Edgardo Moreno, Xavier De Bolle, Caterina Guzmán-Verri 

Published: September 21, 2022 • <https://doi.org/10.1371/journal.pone.0274397>



Canine brucellosis in Costa Rica reveals widespread *Brucella canis* infection and the recent introduction of foreign strains

Marcela Suárez-Esquivel^a, Nazareth Ruiz-Villalobos^a, Warren Hidalgo-Jara^a, Carlos Chacón-Díaz^b, Ana Mariel Zúñiga-Pereira^b, Mario Masís-Mora^c, Ericka Fernández-Fernández^c, Gabriela Hernández-Mora^d, Elías Barquero-Calvo^a, Esteban Chaves-Olarte^b, Nicholas R. Thomson^e, Jeffrey T. Foster^f, Edgardo Moreno^a  
Caterina Guzmán-Verri^a

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Molecular characterization of *Brucella ovis* in Argentina

Lucía P. Alvarez^a  , Nazaret Ruiz-Villalobos^b, Marcela Suárez-Esquivel^b, Nicholas R. Thomson^c, Romanela Marcellino^d, Eunice Viquez-Ruiz^b, Carlos A. Robles^d, Caterina Guzmán-Verri^b

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<https://doi.org/10.1016/j.vetmic.2020.108703>

European Journal of Wildlife Research (2021) 67:63

<https://doi.org/10.1007/s10344-021-01502-5>

SHORT COMMUNICATION

Brucella sp. sequence-type 27 associated with abortion in dwarf sperm whale *Kogia sima*

Gabriela Hernández-Mora¹ · Rocío González-Barrilentos¹ · Eunice Viquez-Ruiz² · José David Palacios-Alfaro³ · Gianmarco Bettoni-Rodríguez⁴ · Marlène Gendre⁵ · Charline Vincent⁵ · Karol Roca-Monge⁶ · Nazareth Ruiz-Villalobos² · Marcela Suárez-Esquivel² · Minor Cordero-Chavarría¹ · Esteban Chaves-Olarte⁷ · Nicholas R. Thomson⁸ · Elías Barquero-Calvo² · Edgardo Moreno²  · Caterina Guzmán-Verri²



Virulent *Brucella nosferati* infecting *Desmodus rotundus* has emerging potential due to the broad foraging range of its bat host for humans and wild and domestic animals

Authors: Gabriela Hernández-Mora, Carlos Chacón-Díaz , Andres Moreira-Soto, Osvaldo Barrantes-Granados, Marcela Suárez-Esquivel, Eunice Viquez-Ruiz, Elías Barquero-Calvo, [SHOW ALL \(19 AUTHORS\)](#), Edgardo Moreno  ✉ | [AUTHORS INFO & AFFILIATIONS](#)

DOI: <https://doi.org/10.1128/msphere.00061-23> •  Check for updates



Article

Age and Sexual Maturity Estimation of Stranded Striped Dolphins, *Stenella coeruleoalba*, Infected with *Brucella ceti*

Karol Roca-Monge ¹, Rocío González-Barrientos ², Marcela Suárez-Esquivel ¹, José David Palacios-Alfaro ³, Laura Castro-Ramírez ¹, Mauricio Jiménez-Soto ¹, Minor Cordero-Chavarría ⁴, Daniel García-Párraga ⁵, Ashley Barratclough ⁶, Edgardo Moreno ¹ and Gabriela Hernández-Mora ^{4*}

Oceans 2022, 3, 494–508. <https://doi.org/10.3390/oceans3040033>

www.mdpi.com/journal/oceans



PROTOCOL

ASGARD+: A New Modular Platform for Bacterial Antibiotic-Resistant Analysis

Maripaz Montero-Vargas ✉, Alex Saenz-Rojas, Marcela Suárez-Esquivel, Lizbeth Ramirez-Carvajal

First published: 09 March 2023 | <https://doi.org/10.1002/cpz1.680>

Published in the Microbiology section



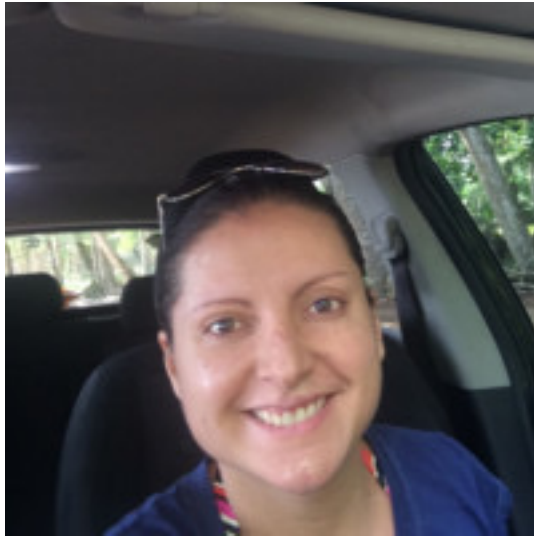
Article

Pathological Studies and Postmortem Computed Tomography of Dolphins with Meningoencephalomyelitis and Osteoarthritis Caused by *Brucella ceti*

Andrés Granados-Zapata ¹, María José Robles-Malagamba ², Rocío González-Barrientos ³, Brian Chin-Wing Kot ^{2,4}, Elías Barquero-Calvo ⁵, Minor Cordero-Chavarría ⁶, Marcela Suárez-Esquivel ⁵, Caterina Guzmán-Verri ⁵, José David Palacios-Alfaro ⁷, Connie Tien-Sung ⁸, Edgardo Moreno ^{5*} and Gabriela Hernández-Mora ^{5*}

Oceans 2022, 3, 189–203. <https://doi.org/10.3390/oceans3020014>

www.mdpi.com/journal/oceans



Gabriela Hernández-Mora



PLOS ONE

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RESEARCH ARTICLE

Brucellosis in mammals of Costa Rica: An epidemiological survey

Gabriela Hernández-Mora, Roberto Bonilla-Montoya, Osvaldo Barrantes-Granados, Andrea Esquivel-Suárez, Danilo Montero-Caballero, Rocío González-Barrientos, Zeanne Fallas-Monge, José David Palacios-Alfaro, Mario Baldi, Elena Campos, Grettel Chanto, Elías Barquero-Calvo, Carlos Chacón-Díaz, [...], Edgardo Moreno [view all]

Published: August 9, 2017 • <https://doi.org/10.1371/journal.pone.0182644>

PLOS ONE

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RESEARCH ARTICLE

Epidemiology of bovine brucellosis in Costa Rica: Lessons learned from failures in the control of the disease

Gabriela Hernández-Mora, Nazareth Ruiz-Villalobos, Roberto Bonilla-Montoya, Juan-José Romero-Zúniga, Julio Jiménez-Arias, Rocío González-Barrientos, Elías Barquero-Calvo, Carlos Chacón-Díaz, Norman Rojas, Esteban Chaves-Olarte, Caterina Guzmán-Verri, Edgardo Moreno [view all]

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PLOS NEGLECTED TROPICAL DISEASES

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RESEARCH ARTICLE

Persistence of *Brucella abortus* lineages revealed by genomic characterization and phylodynamic analysis

Marcela Suárez-Esquivel, Gabriela Hernández-Mora, Nazareth Ruiz-Villalobos, Elías Barquero-Calvo, Carlos Chacón-Díaz, Jason T. Ladner, Gerardo Oviedo-Sánchez, Jeffrey T. Foster, Norman Rojas-Campos, Esteban Chaves-Olarte, Nicholas R. Thomson, Edgardo Moreno, Caterina Guzmán-Verri [view all]

Version 2 Published: April 14, 2020 • <https://doi.org/10.1371/journal.pntd.0008235>

Main Scientific Conclusions

- Our results establish basis for future analysis of *Brucella* genomes
- We reported for the first time the zoonotic infection by *B. neotomae*
- We reported a new *Brucella* strain and a new species: *B. nosferati*
- There is greater variability among *Brucella* isolates from wildlife than among *B. abortus* and *B. canis* isolates, given by the pattern and number of SNPs, *IS711* distribution and number, and by the GI / SARs order.
- The variability is associated with of geographic distribution patterns and host preference range.
- We described how the TCS BvrR/BvrS contributes to the dynamics and complex gene regulatory functions during host-microbe interactions

Other Important Conclusions

- Networking potentiate the power of results and the broadening of the research impact.
- Networking not only improves your work, but also the way you work.
- We are social beings, and "being part" is more important than we might think.

