



GECO EVOLUTIONARY AND COMPUTATIONAL GENOMICS

BIOINFORMATICS, PHYLOGENY AND EVOLUTIONARY GENOMICS GROUP

LERAT Emmanuelle

CHARGÉE DE RECHERCHE

CNRS

📍 69622 VILLEURBANNE cedex
69622 VILLEURBANNE cedex (<http://maps.google.com/maps?q=69622%20VILLEURBANNE%20cedex+69622+%20VILLEURBANNE%20cedex>)
📞 04 72 43 13 44

@ [Email](#)

My research concerns the study of the role of transposable elements (TEs) in the evolution of eukaryotic genomes using comparative genomics and bioinformatics approaches in different organisms. Since several years, I have developed expertise in the identification of TEs in sequenced genomes, the study of their effects on neighboring genes, but also in the evolutionary analysis of TE sequences.

Projects

- Detection of TE copies in whole genome sequences to analyze their dynamics and evolution. For this, we have developed several programs:

- Genome-wide statistic method to detect horizontally transferred sequences without any *a priori* (

[Modolo et al. 2014](#) 

) available

[here](#) 

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- Tool to parse RepeatMasker output file in order to obtain detailed information concerning the TE content in a genome at the family level (

[Bailly-Bechet et al. 2014](#) 

) available at

[One-code-to-find-them-all](#) 

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- Tool to perform transcriptomic analysis of TEs (

[Lerat et al. 2017](#) 

) available

[here](#) 

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- In development: tool to simulate a distribution of polymorphic TE insertions.

- Study of the link between TE insertions, epigenetic modifications and gene expression under various conditions (for example: normal cells vs tumor) in mammals and *Drosophila*.

- Influence of TEs on the evolution of duplicated genes .

- Participation in the development of a reference for the annotation of TEs in genomes with several international researchers (

[Hoen et al. 2015](#) 

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Short CV

- 2005-present : CNRS researcher
- 2010 : Accreditation to conduct research (HDR)
- 2004-2005 : Post-doc at the LBBE (FRM funding)
- 2002-2004 : Post-doc at the University of Arizona (Tucson, USA)
- 2001-2002 : ATER at University Lyon 1
- 1998-2001 : PhD at University Lyon 1

Membership and expertise

› Member of the "Society for Molecular Biology and Evolution" (

[SMBE](#) 

)

› Member of the French Society of Bioinformatics (

[SFB](#) 

)

› Associate editor for "Genome Biology and Evolution" (

[GBE](#) 

)(2008-2023)

› Recommender for

[PCI Genomics](#) 

since 2020

› [ResearchGate](#) 

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Collaborations (present and past)



- Carène Rizzon (lab. Statistics and Genome, Université d'Evry, France)
- Jocelyn Turpin and Caroline Leroux (UMR 754, INRAe, Univ Lyon)
- Sandra Duharcourt (Institut Jacques Monod, Paris, France), Linda Sperling (I2BC, Gif sur Yvette, France), Eric Meyer (IBENS, Paris, France)
- Anne Mey (CarMeN lab, France) et Jacques Samarut (IGFL, ENS Lyon, France)
- Eric Peyretailade, Nicolas Parisot, et Pierre Peyret (EA CIDAM, Université d'Auvergne, France)
- Marc Bailly-Béchet (Institut Sophia Agrobiotech, Univ. Nice Sophia Antipolis)
- Marie-Pierre Chapuis (Centre de Biologie et de Gestion des Populations, Montpellier)
- Franck Picard (Lab. Biologie et Modélisation de la Cellule, ENS, Lyon)
- Claudia Carareto (UNESP, Brazil)
- Antoine Perasso (Lab. « Chrono-environnement », Université de Franche-Comté, France)
- Christophe Guyeux (FEMTO-ST institute, Université de France-Comté, France)
- Josefa Gonzalez (Institut de Biologie Evolutive (CSIC-Universitat Pompeu Fabra) Barcelone, Espagne)
- Mohamed Makni (Lab. de Génomique des insectes ravageurs de cultures d'intérêt agronomique, Univ Tunis El Manar, Tunisie)
- Gabriel da Luz Wallau (Department of Entomology, Aggeu Magalhães Institute (IAM), Recife, Brésil)

- L3: A. Mula (2006), E. Ohanyan (2016 ; co-supervision M Bailly-Béchet)
- M1: F. Giordano (2006), R. Kahoul (2007), C. Déchaud (2016), A. Benmehdia (2022; co-supervision C. Rizzon), C. Bompard (2022; co-supervision C. Rizzon),
- M2: B. Cheaib (2007), H. Mortada (2008), L. Modolo (2011), L. Grégoire (2013 ; co-supervision A. Haudry), E. Saulnier (2013 ; co-supervision C. Rizzon), N. Bargues (2015), R. Lannes (2016), C. Déchaud (2017), V. A. Le (2019), M. Le Guet (2019 ; co-supervision G. da Luz Wallau), G. Pozo (2020; co-supervision C. Rizzon), T. Tesseraud (2021 ; co-supervision C. Rizzon), A. Benmehdia (2023; co-supervision C. Rizzon).
- PhD: M. Deloger (2006-2009 ; co-direction C. Vieira et MF Sagot), A. Granzotto (2007-2011 ; co-direction C. Vieira et C. Carrareto), H. Mortada (2008-2011 ; co-direction C. Vieira), L. Modolo (2011-2014), S. Sedghiani (2016), M. Verneret (2022-2025; co-direction J. Turpin).