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CURRENT POSITION

Sept. 2021-present Post-doctoral Researcher
Weizmann Institute of Science, Rehovot, Israel.

EDUCATION

2021 Diploma in Management and Business Creation in Biological Sciences
European Center for Business and Innovation of Navarra (CEIN) and University of Navarre, Pamplona, Navarre

2019 International Ph.D. *cum laude*, Biomedical Research (December 2019)
University of Navarre, Pamplona, Navarre
Dissertation: Identification and Functional Analysis of Long Non-Coding RNAs in Hepatocellular Carcinoma.

2015 M.Sc. *honors*, Biomedical Research
University of Navarre, Pamplona, Navarre

2014 B.Sc. Microbiology and Clinical Chemistry
University of Costa Rica, San José, Costa Rica

GRANTS AND AWARDS

2021-2024 **Azrieli International Postdoctoral Fellowship**
Azrieli Foundation

2021-2023 **Excellence Fellowship Program for International Postdoctoral Researchers**
Council for Higher Education & Israel Academy of Sciences & Humanities

2021-2023 **EMBO Postdoctoral Fellowship**
European Molecular Biology Organization

2019 **International Ph.D. Travel Award**
Asociación de Amigos, University of Navarre

2015-2019 **ADA Pre-doctoral Fellowship**
Asociación de Amigos, University of Navarre

2014-2015 **Incentive Program for Dissertations in Science**
Faculty of Science, University of Navarre

RESEARCH EXPERIENCE

- 2019-2021 Postdoctoral Research; Supervisor: Dr. Puri Fortes
Center for Applied Medical Research, University of Navarre
Project: Study of the mechanism of action of a Long Non-coding RNA Induced in HCC with an Oncogenic role in Ligation Efficiency (NIHCOLE) (Unfried *et al.*; *Can Res.* 2021)
- Characterized the functional interaction of NIHCOLE in complex with components of the Non-Homologous End-joining (NHEJ) machinery of DNA damage repair.
 - Validated a novel function for a lncRNA in promoting the ligation efficiency of double-stranded breaks.
 - Worked with collaborators to study the cryo-EM structure of NHEJ components with NIHCOLE and validated its role in ligation efficiency using single-molecule analyses.
- April-August 2019 Predoctoral Visiting Student; Supervisors: Dr. Susan Lees-Miller and Dr. Gareth Williams
Arnie Charbonneau Cancer Institute, University of Calgary
Project: Characterization of the interaction of lncRNA NIHCOLE with the NHEJ machinery of DNA damage repair.
- Performed RNA-protein interaction analyses to determine the ability of NIHCOLE to support higher-order complexes with the main components of the NHEJ machinery.
 - Validated a defect in DNA repair of NIHCOLE-depleted HCC cells using γ H2AX immunofluorescence, the comet assay, and DNA damage reporter assays.
- 2014-2019 M.Sc. and Ph.D. student; Supervisor: Dr. Puri Fortes
Center for Applied Medical Research, University of Navarre
Project: Identification of novel lncRNAs deregulated in HCC and mechanistic interrogation of their oncogenic functions.
- Used big data analysis to extract cancer-deregulated lncRNAs and their normal tissue of preferential expression. We proposed to consider the "transcript donor-tissue" to anticipate adverse effects of lncRNA-based therapies (Unfried *et al.*; *Can Res.* 2019)
 - Generated a list of lncRNA candidates and performed gain- and loss-of-function analyses to select the most promising candidates for therapeutic targeting.
 - Characterized the phenotypical changes of lncRNA knockdown and performed transcriptomic and proteomic analyses to identify their functional targets.
- 2012-2014 Undergraduate Student; Supervisor: Dr. Eugenia Corrales-Aguilar
Research Center for Tropical Diseases, University of Costa Rica
Project: Development of a multiplex PCR to detect the circulating Dengue virus serotypes in serum samples during the 2013 outbreak in Costa Rica.

SUPERVISOR EXPERIENCE

- 2021-present Co-supervisor of Ph.D. student in Biomedical Research
- 2019-2020 Co-supervisor of M.Sc. student in Biomedical Research
- 2015-2019 Teaching assistant for Biochemistry and Medicine undergraduate students
- 2015-2019 Project supervisor of summer practice for Biochemistry undergraduate students
- 2010-2014 Teaching assistant to undergraduate students for the courses of Analytical and Quantitative Chemistry, and General and Clinical Virology.

PARTICIPATION IN R&D PROJECTS FUNDED THROUGH COMPETITIVE CALLS

- 2013 – 2015 Project: **Identification and characterization of non-coding RNAs for the treatment of liver diseases.**
Funding Agency: Ministry of Science and Technology. Spain.
P.I.: Dr. Puri Fortes.
- 2014 – 2016 Project: **Whole-genome analysis of the DNA (hydroxy)methylome and transcriptome in multiple myeloma.**
Funding Agency: La Marató de TV3 Foundation. Spain
P.I.: Dr. Ignacio Martín Subero
- 2015 – 2017 Project: **Development of therapeutic compounds to block long non-coding RNAs implicated in liver cirrhosis and hepatocarcinoma.**
Funding Agency: Government of Navarre 33/2015. Spain
P.I.: Dr. Victoriano Segura Ruiz
- 2017 – 2019 Project: **Therapeutic Development based on the identification, analysis, and inhibition of non-coding genes implicated in the progression of HCC.**
Funding Agency: Ministry of Science and Technology. Spain.
P.I.: Dr. Puri Fortes
- 2019 – 2021 Project: **Analysis of long non-coding RNAs related to survival that allow the growth of hepatocellular carcinoma (THOR).**
Funding Agency: Ministry of Economic Affairs and Digital Transformation. Spain
P.I.: Dr. Puri Fortes
- 2019 – 2021 Project: **COST DARTER. Delivery of antisense RNA Therapeutics.**
Funding Agency: European Union
P.I.: Dr. Virginia Arechavala
- 2019 – 2022 Project: **COSTINC. International nucleome consortium.**
Funding Agency: European Union
P.I.: Dr. Marc Martí
- 2020 – 2022 Project: **RNA Life.**
Funding Agency: Ministry of Science and Innovation. Research Networks. Spain
P.I.: Dr. Jose E. Perez Ortin
- 2020 – 2022 Project: **From donated testis transcripts to novel anticancer therapies.**
Funding Agency: Spanish Association Against Cancer (AECC). Spain
P.I.: Dr. Puri Fortes
- 2021 – 2025 Project: **BLANCA (Breast and Liver ANti-Cancer Antigens).**
Funding Agency: Government of Navarre
P.I.: Dr. Puri Fortes

PRESENTATIONS

Invited

1. Spanish National Cancer Research Center – CNIO, Madrid, Spain: **"NIHCOLE, a long non-coding RNA involved in ligation efficiency of NHEJ DNA damage repair"** February 2021.
2. Keystone Symposia. Non-Coding RNAs: Biology and Applications. **"LncRNA NIHCOLE promotes DNA damage repair in hepatocellular carcinoma cells"** May 2021.
3. Keystone Symposia. Hepatobiliary Cancers: Pathobiology and Translational Advances. **"LncRNA NIHCOLE is involved in DNA damage repair of liver cancer cells"** March 2021.
4. Spanish RNA Society Meeting, Seville, Spain: **"NIHCOLE, a long non-coding RNA involved in ligation efficiency of NHEJ DNA damage repair"** September 2020.
5. University of Calgary BMB Advance, Banff, Canada: **"LncRNAs with oncogenic potential in hepatocellular carcinoma identified by big data analysis"** May 2019.
6. International University of Andalusia, Baeza, Spain: **"LncRNAs as potential therapeutic targets for hepatocellular carcinoma"** October 2018.
7. Spanish RNA Society Meeting, Madrid, Spain: **"HCV infection upregulates EGOT, a PKR-induced lncRNA that favors viral replication by regulating the antiviral response"** June 2016.

Posters

1. Fusion Conference. Genome Regulation through RNA Conference. Cancún, México. **"LncRNA FOSIL regulates the induction dynamics of FOS"** J.P. Unfried & Ulitsky, I. 2024.
2. Gordon Conference. Genome Architecture in Cell Fate and Disease. California, USA. **"LncRNA FOSIL regulates the induction dynamics of FOS"** J.P. Unfried & Ulitsky, I. 2023.
3. RNA Society. 26th Annual Meeting of the RNA Society. Online. **"LncRNA NIHCOLE promotes DNA damage repair in hepatocellular carcinoma cells"** J.P. Unfried; *et al.* 2021.
4. International Liver Cancer Association – ILCA. ILCA virtual meeting 2020. **"Healthy testis expresses long non-coding RNAs upregulated in cancer"** J.P. Unfried; *et al.* 2020.
5. European Cooperation in Science and Technology – COST. Delivery of Antisense RNA Therapies, Bilbao, Spain: **"ASOs targeting lncRNA NICOS inhibit proliferation of hepatocellular carcinoma cells"** J.P. Unfried; *et al.* 2019.
6. Keystone Symposia. Long Non-coding RNAs: From Molecular Mechanism to Functional Genetics, Vancouver, Canada: **"Healthy testis expresses long non-coding RNAs upregulated in cancer"** J.P. Unfried; *et al.* 2019.
7. American Association for Cancer Research – AACR Annual Meeting. Chicago, USA: **"Big data analysis allows the identification of long non-coding RNAs with therapeutic potential against hepatocellular carcinoma"** J.P. Unfried; *et al.* 2018.
8. American Association for the Study of Liver Diseases – AASLD. AASLD The Liver Meeting. Washington, USA: **"Identification of long non-coding RNAs as therapeutic targets for hepatocellular carcinoma"** J.P. Unfried; *et al.* 2017.
9. Barcelona Conference on Epigenetics and Cancer 2016 - Beyond Cancer Genomes. Barcelona, Spain: **"Long non-coding RNAs induced in hepatocellular carcinoma are involved in the proliferation of HCC cell lines"** J.P. Unfried; *et al.* 2016.
10. Center for Genomic Regulation – CRG. RNA Biology in Cancer and other Diseases. Barcelona, Spain: **"Several long non-coding RNAs induced in hepatocellular carcinoma are upregulated in liver cirrhosis"** J.P. Unfried; *et al.* 2016.

LIST OF PUBLICATIONS

Research articles

1. Unfried, J. P. et al. Long noncoding RNA NIHCOLE promotes ligation efficiency of DNA double-strand breaks in hepatocellular carcinoma. *Cancer Res.* 81(19):4910-4925 (2021).
2. Unfried, J. P. et al. Identification of coding and long noncoding RNAs differentially expressed in tumors and preferentially expressed in healthy tissues. *Cancer Res.* 79(20):5167-5180 (2019)

Collaborations

3. Recalde, M., Gárate-Rascón, M., Herranz, J. M., Elizalde, M., Azkona, M., Unfried, J. P. et al. DNA Methylation Regulates a Set of Long Non-Coding RNAs Compromising Hepatic Identity during Hepatocarcinogenesis. *Cancers (Basel).* 14(9):2048 (2022).
4. Barriocanal, M., Prats-Mari, L., Razquin, N., Prior, C., Unfried, J.P. et al. ISR8/IRF1-AS1 Is Relevant for IFN α and NF- κ B Responses. *Front. Immunol.* 13:829335. (2022).
5. Garitano-Trojaola, A., José-Enériz, E. S., Ezponda, T., Unfried, J. P. et al. Deregulation of linc-PINT in acute lymphoblastic leukemia is implicated in abnormal proliferation of leukemic cells. *Oncotarget* 9(16):12842-12852 (2018).
6. Carnero, E., Barriocanal, M., Prior, C., Unfried, J. P. et al. Long noncoding RNA EGOT negatively affects the antiviral response and favors HCV replication. *EMBO Rep.* 17, 1013–1028 (2016).
7. Weber, N. D. Goñi-Salaverri, A., Rodríguez, J. A., Unfried, J. P. et al. Large-scale silane bead-based SARS-CoV-2 testing of a nursing home in Spain identifies a viral reservoir during lockdown period. *medRxiv* 2021.02.08.21251358 (2021).

Commissioned publications

8. Unfried, J. P. & Ulitsky, I. Substoichiometric action of long noncoding RNAs. *Nat. Cell. Biol.* 24(5):608-615 (2022). PERSPECTIVE
9. Unfried, J. P., Sangro, P., Prats-Mari, L., Sangro, B. & Fortes, P. The Landscape of lncRNAs in Hepatocellular Carcinoma: A Translational Perspective. *Cancers.* 13, 2651 (2021). REVIEW
10. Suarez, B., Prats-Mari, L., Unfried, J. P. & Fortes, P. LncRNAs in the Type I Interferon Antiviral Response. *Int. J. Mol. Sci.* 21, 6447 (2020). REVIEW
11. Unfried, J. P. & Fortes, P. LncRNAs in HCV Infection and HCV-Related Liver Disease. *Int. J. Mol. Sci.* 21, 2255 (2020). REVIEW
12. Unfried, J. P. & Fortes, P. SMIM30, a tiny protein with a big role in liver cancer. *J. Hepatol.* 73(5):1010-1012 (2020). EDITORIAL
13. Unfried, J. P. & Fortes, P. Looking for hints to mark functional Lincs. *Non-coding RNA Investig.* 1, 17–17 (2017). EDITORIAL

PROFESSIONAL COLLABORATION AND AFFILIATIONS

- Reviewer for the journals: Nature Cell Biology, Nature Cardiovascular Research, Science Advances, Hepatology, Molecular Cell, Cell Reports, Nucleic Acids Research.
- Member of American Association for Cancer Research (AACR) 2018-present
- Member of RNA Society 2020-present

REFERENCES

Prof. Igor Ulitsky. Principal Investigator

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Dr. Puri Fortes. Principal Investigator.

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Dr. Oscar Llorca. Principal Investigator.

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Prof. Susan P. Lees-Miller. Principal Investigator.

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