

# Lorena Pantano, Ph.D.

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## Summary

Computational biologist expert in high-dimensional data, from sequencing data to microscope screening. 13 years of experience in biological data analysis using the most well-established tools and machine learning methods. Contributing to novel algorithms to improve the quantification, and visualization of genome-wide data. I approach scientific projects with passion and believe that a team and not an individual alone can successfully conquer them.

## Competences

Building Partnerships, Building Trust, Continuous Learning, Decision Making, Delivers Results, Interpersonal Skills, Planning and Organizing, Problem Analysis and Problem Solving, Pursues Excellence, Teamwork and Collaboration, Time Management, Valuing Diversity

## Data sources

RNAseq, small RNAseq, scRNAseq, exome-seq, WGSseq, ChIPseq, ATACseq, methyl-seq, proteomics(LC-MS-MS), metabolomics(CE-MS/LC-MS). Illumina, Nanopore.

## Education

<b>Coursera</b> <b>Certificate</b> in <i>Neural Networks and Deep Learning</i>	<b>2020.</b>
<b>Center for Genomic Regulation</b> , Barcelona, Spain <b>Ph.D.</b> in <i>Biomedicine</i> <i>Full characterization of the small RNA transcriptome using novel computational methods for high-throughput sequencing data: study of miRNA variability in eukaryote organisms</i>	<b>2011</b>
<b>University of Pompeu Fabra</b> , Barcelona, Spain <b>M.S.</b> in <i>Bioinformatics for health science</i>	<b>2008</b>
<b>University of Granada</b> , Granada, Spain <b>B.S</b> <i>Biochemistry</i>	<b>2005</b>

## Experience

<b>Axcella Health</b> , Cambridge, MA <b>Principal Scientist in Computational Biology</b>  Leading R&D pipelines with computational strategies Integrating genomic/metabolomic/transcriptomic data to understand gene regulation Leading visualization platform to boost biological interpretation Applying machine learning methods to understand population stratification in pre-clinical studies Developing bioinformatic infrastructure to ensure reproducibility and scalability in the cloud	<b>2020 - to date</b>
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Experience with CROs  
Senior Manager and Mentor

**eGenesis, Cambridge, MA**  
**Senior Computational Biologist**

**2019 - 2020**

Responsible of the internal next generation sequencing team with oxford nanopore and illumina sequencers  
Research of putative chromatin opening genomic elements to enforce expression of transgenes through machine learning methods  
Technical lead in the quality control of modified pigs from genomic data  
Develop small RNAseq, (Single Cell and bulk) RNA-seq, and ChIP-seq pipelines as part of the nf-core community  
System Architect for the computational infrastructure based on the cloud  
Help with manuscript materials  
Mentor junior researchers in the group

**Picower Institute of MIT, Cambridge, MA**  
**Research Scientist - Bioinformatics Core Supervisor**

**2019**

Organize and maintain bioinformatics pipelines for researchers  
Help with grant and manuscript materials  
Develop small RNAseq, (Single Cell and bulk) RNA-seq, and ChIP-seq pipelines as part of the nf-core community  
Develop variant calling pipeline as part of the bcbio-nextgen  
Develop supervised and unsupervised clustering, differential expression, and visualization analyses in python frameworks and the Bioconductor platform  
Mentor junior researchers in the group

**Boehringer Ingelheim,**  
**Computational Biologist - Fellowship, 80%**

**2016 - 2019**

Lead the bioinformatic analysis (at Harvard) in a international collaboration for the study of fibrosis across organs  
Design and analyze the RNAseq and smallRNAseq data in a pre-clinical NASH study  
Design, automatize and optimize the high-throughput screening pipeline of small molecules in three cell models  
Manage junior bioinformatician

**Harvard T.H. Chan School of Public Health, Boston, MA**  
**Research Scientist**

**2017 - 2019**

Organize the data science research in the small RNA-seq field inside the (**miRTOP**) group  
Lead the bioinformatic analysis in the cross organ fibrosis project collaboration between Harvard University and Boehringer Ingelheim  
Develop tools for NGS data analysis: small RNAseq, (Single Cell and bulk) RNA-seq, ChIP-seq, WholeGenome-seq as part of the bcbio-nextgen python framework and Bioconductor platform  
Mentor junior researchers in the group

**Harvard T.H. Chan School of Public Health, Boston, MA**  
**Research Associate**

**2014-2017**

- Developed the visualization and integration of multi-omics data
- Developed pipelines for NGS data analysis (ATACseq, ChIPseq, RNAseq) inside the bcbio-nextgen python framework
- Developed co-correlation methods to detect transcriptional modules from transcriptome data

**Institute of Biotechnology and Biomedicine, Barcelona, Spain**  
**Post-doctoral fellow**

**2013 - 2014**

- Detected de-novo transcripts as effect of inversion in the HapMap population
- Expression quantitative trait loci analysis of inversion in the HapMap population
- Developed inversion database back-end

**ASCIDEA, Barcelona, Spain**  
**Co-founder and CTO**

**2011-2014**

- Led a group of 3 bioinformaticians
- Supervised cloud computing systems
- Developed computational pipelines

**Institute of Predictive and Personalized Medicine of Cancer, Barcelona, Spain**  
**Post-doctoral fellow**

**2011-2013**

- Determined small RNA characterization in human sperm samples

## **Bioinformatics tools**

- seqcluster**: python package for smallRNA detection and quantification
- seqclusterViz**: Web-app for smallRNAseq visualization
- isomiRs**: R/Bioconductor package for isomiR detection and quantification
- DEGreport**: R/Bioconductor package for Differential Expressed results analysis and visualization
- nf-core**: community driven pipelines
- bcbio-nextgen**: python framework for the analysis of sequencing data
- cloudbiolinux**: python framework for the installation of specific tools related to a given bioinformatic analysis
- bioconda**: package manager for the installation of bioinformatics tools
- multiqc**: python package for the generation of reports

## Instructor activities

Small RNAseq analysis, Harvard T.H. Chan School of Public Health, Boston, MA	2015-2018
Data visualization, PRBB, Spain	2013
Workshop of ChIP-Seq analysis, University of Vic, Spain	2013
Workshop of Metagenomic, University of Vic, Spain	2013
Workshop of small RNA analysis, CRG, Spain	2010

## Reviewer experience

Editor at JOSS	2019-todate
RNA journal	2018
NAR journal	2017-2018
Scientific Reports journal	2018
Bioinformatics journal	2018-2019
BMC Genomics journal	2017
BOSC program committee	2014-2018
Student Council Symposium program committee	2010-2012

## Leadership activities

Program committee, Bioconductor Conference	2019
Founder and Co-organizer of <a href="#">women in bioinformatics</a> MeetUp, Cambridge, MA	2014-to date
Program committee, Bioinformatics Open Source Conference	2014-to date
Co-founder of <a href="#">RSG Spain</a> , the Spanish student group of ISCB student council	2010
Former member of <a href="#">ISCB student council</a>	2010-2014

## Awards and Honors

Leadership Award (eGenesis)	2020
Research Scientist Award (Harvard Chan School)	2018
Travel Fellowship for Student Council Organization	2011
Travel Fellowship for ISMB participation	2010
Training University Lecturers fellowship	2008-2011
University Scholarship	2000-2005

## Work presented at International Conferences

Great Lakes Bioinformatics Consortium	2017-Chicago
Bioinformatics Open Source Conference	2018-Orlando, 2016-Florida
CodeFest Hacklathon	2016-Florida, 2010-Boston
Bioconductor Annual Conference	2015-Boston, 2017-Boston
Intelligent System for Molecular Biology Annual Conference	2011-Vienna, 2010-Boston

## Event Organization

Mind the Gap Barcelona, Co-Chair	2013
ISCB Student Council Symposium Long Beach, Travel fellowship chair	2012
Spain, Portugal and North Africa Student Symposium Barcelona, Program committee chair	2012
ISCB Student Council Symposium Vienna, Co-Chair	2012
Spain, Portugal and North Africa Student Symposium Malaga, Co-Chair	2011

## Computational skills

Programming languages: Python (bioconda packages), R (Bioconductor), Java, Bash, LaTeX

Visualization: HTML, CSS, javascript (D3, Charts, jquery)

Databases: MySQL, sqlite3

AWS cloud: EC2, S3, RDS, dynamoDB, SQS, Batch

Control version system: git, svn

High performance computing: Slurm, LSF, SGE

## Courses

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization @ Coursera 2020

Neural Networks and Deep Learning @ Coursera 2020

Structuring Machine Learning Projects @ Coursera 2020

Neural Networks and Deep Learning @ Coursera 2020

Materials Characterization and Analysis for Scientists and Engineers @ Harvard Extension School 2018

Initiating and Planning Projects @ Coursera 2018

Fundamentals and Applications of Microfluidics @ Harvard Extension School 2018

Tissue Engineering for Clinical Applications @ Harvard Extension School 2017

Principles of fMRI 1 @ Coursera 2016

Practical Machine Learning @ Coursera 2016  
Calculus One @ Coursera 2015  
Regression Model @ Coursera 2014  
Analysis of high-throughput sequencing data @ EMBL-EBI 2012  
Web applications @ Udacity (CS253) 2012  
Machine learning @ Coursera 2012  
Introduction to Artificial Intelligence ([www.ai-class.org](http://www.ai-class.org)) 2011  
Advance R @ CRG 2008

## Languages skills

Language	Speech	Writing	Reading
Spanish	Native	Native	Native
English	Proficient	Proficient	Proficient
Catalan	Conversant	Good	Conversant

# Selected Publications

5. Podnar, J. W., **Pantano, L.**, Zeller, M. J., Kolling, F. W., Zhang, Y., Alekseyev, Y. O., Niece, J., Deiderick, H., Fan, J., Xuei, X., *et al.* Cross-Site Evaluation of Commercial Sanger Sequencing Chemistries. *Journal of Biomolecular Techniques: JBT* **31**, 88 (2020).
6. Santos, D. M., **Pantano, L.**, Pronzati, G., Grasberger, P., Probst, C. K., Black, K. E., Spinney, J. J., Hariri, L. P., Nichols, R., Lin, Y., *et al.* Screening for YAP Inhibitors Identifies Statins as Modulators of Fibrosis. *American Journal of Respiratory Cell and Molecular Biology* (2020).
7. Desvignes, T., Loher, P., Eilbeck, K., Ma, J., Urgese, G., Fromm, B., Sydes, J., Aparicio-Puerta, E., Barrera, V., Espin, R., *et al.* Unification of miRNA and isomiR research: the mirGFF3 format and the mirtop API. *Bioinformatics* (2019).
13. Pavkovic, M., **Pantano, L.**, Gerlach, C. V., Brutus, S., Boswell, S. A., Everley, R. A., Shah, J. V., Sui, S. H. & Vaidya, V. S. Multi omics analysis of fibrotic kidneys in two mouse models. *Scientific data* **6**, 92 (June 2019).
18. Steinhauser, M. L., Olenchock, B. A., OKeefe, J., Lun, M., Pierce, K. A., Lee, H., **Pantano, L.**, Klibanski, A., Shulman, G. I., Clish, C. B. & Fazeli, P. K. The circulating metabolome of human starvation. *JCI Insight* **3** (Aug. 2018).
20. Carmona, J. J., Accomando, W. P., Binder, A. M., Hutchinson, J. N., **Pantano, L.**, Izzi, B., Just, A. C., Lin, X., Schwartz, J., Vokonas, P. S., Amr, S. S., Baccarelli, A. A. & Michels, K. B. Empirical comparison of reduced representation bisulfite sequencing and Infinium BeadChip reproducibility and coverage of DNA methylation in humans. *npj Genomic Medicine* **2** (2017).
30. **Pantano, L.**, Friedlander, M. R., Escaramis, G., Lizano, E., Pallares-Albanell, J., Ferrer, I., Estivill, X. & Martí, E. Specific small-RNA signatures in the amygdala at premotor and motor stages of Parkinson's disease revealed by deep sequencing analysis. *Bioinformatics (Oxford, England)* (Nov. 2015).
31. **Pantano, L.**, Jodar, M., Bak, M., Ballesca, J. L., Tommerup, N., Oliva, R. & Vavouri, T. The small RNA content of human sperm reveals pseudogene-derived piRNAs complementary to protein-coding genes. *RNA (New York, N.Y.)* **21**, 1085–95 (June 2015).
39. **Pantano, L.**, Estivill, X. & Martí, E. A non-biased framework for the annotation and classification of the non-miRNA small RNA transcriptome. *Bioinformatics (Oxford, England)* **27**, 3202–3 (Nov. 2011).
40. Martí, E., **Pantano, L.**, Bañez-Coronel, M., Llorens, F., Miñones-Moyano, E., Porta, S., Sumoy, L., Ferrer, I. & Estivill, X. A myriad of miRNA variants in control and Huntington's disease brain regions detected by massively parallel sequencing. *Nucleic Acids Research* **38**, 7219–7235 (2010).
41. **Pantano, L.**, Estivill, X. & Martí, E. SeqBuster, a bioinformatic tool for the processing and analysis of small RNAs datasets, reveals ubiquitous miRNA modifications in human embryonic cells. *Nucleic Acids Research* **38**, e34 (2010).

# Publications

1. Creus-Muncunill, J., Guisado-Corcoll, A., Venturi, V., **Pantano, L.**, Escarams, G., de Herreros, M. G., Solaguren-Beascoa, M., Gomez-Valero, A., Navarrete, C., Masana, M., *et al.* Huntington's disease brain-derived small RNAs recapitulate associated neuropathology in mice. *Acta Neuropathologica*, 1–20 (2021).
2. Gupta, H., Rubio, M., Siteo, A., Varo, R., Cistero, P., Madrid, L., Cuamba, I., Jimenez, A., Martinez-Vendrell, X., Barrios, D., *et al.* Plasma MicroRNA Profiling of Plasmodium falciparum Biomass and Association with Severity of Malaria Disease. *Emerging Infectious Diseases* **27**, 430 (2021).
3. Alsamman, S., Christenson, S. A., Yu, A., Ayad, N. M., Mooring, M. S., Segal, J. M., Hu, J. K.-H., Schaub, J. R., Ho, S. S., Rao, V., *et al.* Targeting acid ceramidase inhibits YAP/TAZ signaling to reduce fibrosis in mice. *Science Translational Medicine* **12** (2020).
4. Pao, P.-C., Patnaik, D., Watson, L. A., Gao, F., Pan, L., Wang, J., Adaikkan, C., Penney, J., Cam, H. P., Huang, W.-C., *et al.* HDAC1 modulates OGG1-initiated oxidative DNA damage repair in the aging brain and Alzheimer's disease. *Nature communications* **11**, 1–17 (2020).
5. Podnar, J. W., **Pantano, L.**, Zeller, M. J., Kolling, F. W., Zhang, Y., Alekseyev, Y. O., Niece, J., Deiderick, H., Fan, J., Xuei, X., *et al.* Cross-Site Evaluation of Commercial Sanger Sequencing Chemistries. *Journal of Biomolecular Techniques: JBT* **31**, 88 (2020).
6. Santos, D. M., **Pantano, L.**, Pronzati, G., Grasberger, P., Probst, C. K., Black, K. E., Spinney, J. J., Hariri, L. P., Nichols, R., Lin, Y., *et al.* Screening for YAP Inhibitors Identifies Statins as Modulators of Fibrosis. *American Journal of Respiratory Cell and Molecular Biology* (2020).
7. Desvignes, T., Loher, P., Eilbeck, K., Ma, J., Urgese, G., Fromm, B., Sydes, J., Aparicio-Puerta, E., Barrera, V., Espin, R., *et al.* Unification of miRNA and isomiR research: the mirGFF3 format and the mirtop API. *Bioinformatics* (2019).
8. Engeland, W. C., Massman, L., Miller, L., Leng, S., Pignatti, E., **Pantano, L.**, Carlone, D. L., Kofuji, P. & Breault, D. T. Sex Differences in Adrenal Bmal1 Deletion-Induced Augmentation of Glucocorticoid Responses to Stress and ACTH in Mice. *Endocrinology* **160**, 2215–2229 (2019).
9. Giner-Delgado, C., Villatoro, S., Lerga-Jaso, J., Gayà-Vidal, M., Oliva, M., Castellano, D., **Pantano, L.**, Bitarello, B. D., Izquierdo, D., Noguera, I., *et al.* Evolutionary and functional impact of common polymorphic inversions in the human genome. *Nature communications* **10**, 1–14 (2019).
10. Hanlon, K., Thompson, A., **Pantano, L.**, Hutchinson, J. N., Al-Obeidi, A., Wang, S., Bliss-Moreau, M., Helble, J., Alexe, G., Stegmaier, K., *et al.* Single-cell cloning of human T-cell lines reveals clonal variation in cell death responses to chemotherapeutics. *Cancer genetics* **237**, 69–77 (2019).
11. Mavrikaki, M., **Pantano, L.**, Potter, D. N., Rogers-Grazado, M. A., Anastasiadou, E., Amr, S., Slack, F. J., Ressler, K. J., Daskalakis, N. P. & Chartoff, E. Sex-dependent changes in miRNA expression in the bed nucleus of the stria terminalis following stress. *Frontiers in molecular neuroscience* **12**, 236 (2019).
12. **Pantano, L.**, Pantano, F., Marti, E. & Sui, S. H. Visualization of the small RNA transcriptome using seqclusterViz. *F1000Research* **8** (2019).



13. Pavkovic, M., **Pantano, L.**, Gerlach, C. V., Brutus, S., Boswell, S. A., Everley, R. A., Shah, J. V., Sui, S. H. & Vaidya, V. S. Multi omics analysis of fibrotic kidneys in two mouse models. *Scientific data* **6**, 92 (June 2019).
14. Podnar, J. W., Kolling, F. W., Zeller, M. J., Zhang, Y., Thimmapuram, J., Alekseyev, Y. O., Deulio, A., Niece, J., Deiderick, H., Fan, J., *et al.* Cross Site Evaluation of Sanger Sequencing Dye Chemistries. *Journal of biomolecular techniques: JBT* **30**, S46 (2019).
15. Sui, S. H., Kirchner, R., Steinbaugh, M., Boswell, S., Piper, M., Barrera, V., **Pantano, L.**, Khetani, R., Mistry, M., Rutherford, K., *et al.* Supporting Single Cell RNA-seq Analysis at Harvard-A Community Approach. *Journal of Biomolecular Techniques: JBT* **30**, S39 (2019).
16. Rubio, M., Bustamante, M., Hernandez-Ferrer, C., Fernandez-Orth, D., **Pantano, L.**, Sarria, Y., Pique-Borras, M., Vellve, K., Agramunt, S., Carreras, R., Estivill, X., Gonzalez, J. R. & Mayor, A. Circulating miRNAs, isomiRs and small RNA clusters in human plasma and breast milk. *PLoS ONE* **13** (2018).
17. Rubio Martinez, M., Bustamante Pineda, M., Hernandez-Ferrer, C., Fernandez-Orth, D., **Pantano, L.**, Sarria-Trujillo, Y., Pique-Borras, M., Vellve del Amo, K., Agramunt, S., Carreras Collado, R., *et al.* Circulating miRNAs, isomiRs and small RNA clusters in human plasma and breast milk (2018).
18. Steinhäuser, M. L., Olenchock, B. A., O'Keefe, J., Lun, M., Pierce, K. A., Lee, H., **Pantano, L.**, Klibanski, A., Shulman, G. I., Clish, C. B. & Fazeli, P. K. The circulating metabolome of human starvation. *JCI Insight* **3** (Aug. 2018).
19. Busby, B., Weitz, E., **Pantano, L.**, Zhu, J. & Upton, B. Viewing RNA-seq data on the entire human genome. *F1000Research* **6** (2017).
20. Carmona, J. J., Accomando, W. P., Binder, A. M., Hutchinson, J. N., **Pantano, L.**, Izzi, B., Just, A. C., Lin, X., Schwartz, J., Vokonas, P. S., Amr, S. S., Baccarelli, A. A. & Michels, K. B. Empirical comparison of reduced representation bisulfite sequencing and Infinium BeadChip reproducibility and coverage of DNA methylation in humans. *npj Genomic Medicine* **2** (2017).
21. Daily, K., Ho Sui, S. J., Schriml, L. M., Dexheimer, P. J., Salomonis, N., Schroll, R., Bush, S., Keddache, M., Mayhew, C., Lotia, S., Perumal, T. M., Dang, K., **Pantano, L.**, Pico, A. R., Grassman, E., Nordling, D., Hide, W., Hatzopoulos, A. K., Malik, P., Cancelas, J. A., Lutzko, C., Aronow, B. J. & Omberg, L. Molecular, phenotypic, and sample-associated data to describe pluripotent stem cell lines and derivatives. *Scientific Data* **4**, 170030 (Mar. 2017).
22. Daily, K., Sui, S. J. H., Schriml, L. M., Dexheimer, P. J., Salomonis, N., Schroll, R., Bush, S., Keddache, M., Mayhew, C., Lotia, S., *et al.* Molecular, phenotypic, and sample-associated data to describe pluripotent stem cell lines and derivatives. *Scientific data* **4**, 1–10 (2017).
23. Mehta, S., Cronkite, D. A., Basavappa, M., Saunders, T. L., Adiliaghdam, F., Amatullah, H., Morrison, S. A., Pagan, J. D., Anthony, R. M., Tonnerre, P., *et al.* Maintenance of macrophage transcriptional programs and intestinal homeostasis by epigenetic reader SP140. *Science immunology* **2** (2017).
24. Mehta, S., Cronkite, D. A., Basavappa, M., Saunders, T. L., Adiliaghdam, F., Amatullah, H., Morrison, S. A., Pagan, J. D., Anthony, R. M., Tonnerre, P., Lauer, G. M., Lee, J. C., Digumarthi, S., **Pantano, L.**, Ho Sui, S. J., Ji, F., Sadreyev, R., Zhou, C., Mullen, A. C., Kumar, V., Li, Y., Wijmenga, C., Xavier, R. J., Means, T. K. & Jeffrey, K. L. Maintenance of macrophage transcriptional programs and intestinal homeostasis by epigenetic reader SP140. *Science Immunology* **2**, eaag3160 (Mar. 2017).
25. Ransey, E., Björkbohm, A., Lelyveld, V., Biecek, P., **Pantano, L.**, Szostak, J. & Sliz, P. Comparative analysis of LIN28-RNA binding sites identified at single nucleotide resolution. *RNA Biology* (2017).
26. Ransey, E., Björkbohm, A., Lelyveld, V. S., Biecek, P., **Pantano, L.**, Szostak, J. W. & Sliz, P. Comparative analysis of LIN28-RNA binding sites identified at single nucleotide resolution. *RNA biology* **14**, 1756–1765 (2017).

27. Steinbaugh, M. J., **Pantano, L.**, Kirchner, R. D., Barrera, V., Chapman, B. A., Piper, M. E., Mistry, M., Khetani, R. S., Rutherford, K. D., Hofmann, O., Hutchinson, J. N. & Ho Sui, S. bcbioRNASeq: R package for bcbio RNA-seq analysis. *F1000Research* **6**, 1976 (Nov. 2017).
28. Bailey, P., Chang, D. K., Nones, K., *et al.* Genomic analyses identify molecular subtypes of pancreatic cancer. *Nature* **531**, 47–52 (2016).
29. Bailey, P., Chang, D. K., Nones, K., Johns, A. L., Patch, A.-M., Gingras, M.-C., Miller, D. K., Christ, A. N., Bruxner, T. J., Quinn, M. C., *et al.* Genomic analyses identify molecular subtypes of pancreatic cancer. *Nature* **531**, 47–52 (2016).
30. **Pantano, L.**, Friedlander, M. R., Escaramis, G., Lizano, E., Pallares-Albanell, J., Ferrer, I., Estivill, X. & Martí, E. Specific small-RNA signatures in the amygdala at premotor and motor stages of Parkinson's disease revealed by deep sequencing analysis. *Bioinformatics (Oxford, England)* (Nov. 2015).
31. **Pantano, L.**, Jodar, M., Bak, M., Balleca, J. L., Tommerup, N., Oliva, R. & Vavouri, T. The small RNA content of human sperm reveals pseudogene-derived piRNAs complementary to protein-coding genes. *RNA (New York, N.Y.)* **21**, 1085–95 (June 2015).
32. Puig, M., Castellano, D., **Pantano, L.**, Giner-Delgado, C., Izquierdo, D., Gayà-Vidal, M., Lucas-Lledó, J. I., Esko, T., Terao, C., Matsuda, F. & Cáceres, M. Functional Impact and Evolution of a Novel Human Polymorphic Inversion That Disrupts a Gene and Creates a Fusion Transcript. *PLoS Genetics* **11** (2015).
33. Martínez-Fundichely, A., Casillas, S., Egea, R., Ràmia, M., Barbadilla, A., **Pantano, L.**, Puig, M. & Cáceres, M. InvFEST, a database integrating information of polymorphic inversions in the human genome. *Nucleic Acids Research* **42** (2014).
34. Meijer, H. A., Smith, E. M., Bushell, M., *et al.* Regulation of miRNA strand selection: follow the leader? *Biochemical Society transactions* **42**, 1135–40 (2014).
35. Öst, A., Lempradl, A., Casas, E., Weigert, M., Tiko, T., Deniz, M., **Pantano, L.**, Boenisch, U., Itskov, P. M., Stoeckius, M., Ruf, M., Rajewsky, N., Reuter, G., Iovino, N., Ribeiro, C., Alenius, M., Heyne, S., Vavouri, T. & Pospisilik, J. A. Paternal Diet Defines Offspring Chromatin State and Intergenerational Obesity. *Cell* **159**, 1352–1364 (Dec. 2014).
36. Llorens, F., Bañez-Coronel, M., **Pantano, L.**, del Río, J. A., Ferrer, I., Estivill, X. & Martí, E. A highly expressed miR-101 isomiR is a functional silencing small RNA. *BMC genomics* **14**, 104 (Jan. 2013).
37. Llorens, F., Hummel, M., **Pantano, L.**, Pastor, X., Vivancos, A., Castillo, E., Mattlin, H., Ferrer, A., Ingham, M., Noguera, M., Kofler, R., Dohm, J. C., Pluvinet, R., Bayés, M., Himmelbauer, H., del Río, J. A., Martí, E. & Sumoy, L. Microarray and deep sequencing cross-platform analysis of the mirRNome and isomiR variation in response to epidermal growth factor. *BMC genomics* **14**, 371 (Jan. 2013).
38. Bañez-Coronel, M., Porta, S., Kagerbauer, B., Mateu-Huertas, E., **Pantano, L.**, Ferrer, I., Guzmán, M., Estivill, X. & Martí, E. A Pathogenic Mechanism in Huntington's Disease Involves Small CAG-Repeated RNAs with Neurotoxic Activity. *PLoS genetics* **8** (ed Pearson, C. E.) e1002481 (Feb. 2012).
39. **Pantano, L.**, Estivill, X. & Martí, E. A non-biased framework for the annotation and classification of the non-miRNA small RNA transcriptome. *Bioinformatics (Oxford, England)* **27**, 3202–3 (Nov. 2011).
40. Martí, E., **Pantano, L.**, Bañez-Coronel, M., Llorens, F., Miñones-Moyano, E., Porta, S., Sumoy, L., Ferrer, I. & Estivill, X. A myriad of miRNA variants in control and Huntington's disease brain regions detected by massively parallel sequencing. *Nucleic Acids Research* **38**, 7219–7235 (2010).
41. **Pantano, L.**, Estivill, X. & Martí, E. SeqBuster, a bioinformatic tool for the processing and analysis of small RNAs datasets, reveals ubiquitous miRNA modifications in human embryonic cells. *Nucleic Acids Research* **38**, e34 (2010).
42. Armengol, L., Villatoro, S., González, J. R., **Pantano, L.**, García-Aragónés, M., Rabionet, R., Cáceres, M. & Estivill, X. Identification of Copy Number Variants Defining Genomic Differences among Major Human Groups. *PLoS ONE* **4** (ed Bauchet, M.) 13 (2009).

43. Varas, F., Stadtfeld, M., De Andres-Aguayo, L., Maherali, N., di Tullio, A., **Pantano, L.**, Notredame, C., Hochedlinger, K. & Graf, T. Fibroblast-derived induced pluripotent stem cells show no common retroviral vector insertions. *Stem cells (Dayton, Ohio)* **27**, 300–6 (Feb. 2009).
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