Curriculum vitae

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SUMMARY

My Ph.D. work (Supervisors Profs. Karplus, Oliva and Avilés; 10/1994-01/1999), which focused on folding and unfolding of proteins using Molecular Dynamics simulations, opened the doors of Prof. Sali's Lab at The Rockefeller University (New York, USA). My stay at the Sali Lab, first as Postdoctoral fellow (02/1999-02/2002), then as Research Assistant (03/2002-02/2003) and finally as Assistant Adjunct Professor at UCSF in San Francisco (03/2003-06/2006), focused on using statistics and the rules of evolution to study proteins and their complexes. While there, I learned how methodological simplification and conceptual division of tasks is essential for developing accurate approaches in computational biology. I helped applying such principles to the development (from concept to program) of two major software packages: the MODELLER program and the Integrative Modeling Platform (IMP, http://integrativemodeling.org). During my time at the Sali Lab, I engaged in many diverse activities that shaped my leadership potential: (i) for many years I was the "right hand" of Prof. Sali, which helped me grasp a broader view of the field of structural computational biology and allowed me to contribute beyond my own personal projects; (ii) I was key personnel in three NIH research grants that had the goal of contributing to the birth of the Structural Genomics Initiatives, indeed very exciting times for a structural biologist; (iii) I actively participated in the conceptual building of the IMP program, which has already had ground-breaking impact in the structural determination of macromolecular complexes and genomes; and (iv) I co-initiated the Tropical Disease Initiative, an open-source drug discovery project that encourages collaboration against tropical diseases.

Since June 2006, I have led my own research group (http://marciuslab.org) first at the CIPF (Valencia, Spain) and later (January 2012) at the National Center for Genomic Analysis (CNAG, http://cnag.cat) - Centre for Genomic Regulation (CRG, http://crg.cat) where I am a Senior Group Leader. Since October 2013, I am ICREA research professor. The mission of our group is to develop and use experimental and computational approaches for characterizing the molecular regulation of cells by studying the structure of macromolecules and their complexes. In particular, we focus on regulatory molecules such as RNA and chromatin. Our research has resulted so far in more than 130 peer-reviewed articles including 16 book chapters or invited reviews, and over 150 oral presentations in national and international venues. Between 2012 and 2018, I was Associate Editor of PLOS Computational Biology and the BMC Structural Biology Journals. I have coordinated two international teams funded by the EU (Era-Net Pathogenomics Grant) and the HFSP (Research Grants Award). In 2011, I was one of the 55 finalists to the HHMI International Early Career Scientist Competition. Over the years, I have participated in many EU funded projects including the 4DGenome Grant funded by the ERC Synergy (2014-2020). Currently, I am co-PI on the ChromDesign ETN (https://www.chromdesign.eu), the PerMed Centre of Excellence (https://permedcoe.eu), and the 3D'Omics (https://www.3domics.eu) projects funded by the European Commission H2020 program. I also coordinate or participate in grants from private foundations such as "La Caixa" Foundation and "La Marató" of TV3, and the Lundbeck Foundation. Since 2021 I am co-PI of a Center of Excellence in Genomic Sciences, the Center for Genome Imaging (https://www.cegs-cgi.org) of the NHGRI of the NIH in the USA.

Over the recent years I have played a key role in Europe to promote the 4DNucleomics research as Chair (2020-2021) and Vice-Chair (2022-2023) of the INC COST Action, coordinator of the INC Spain Network, and co-coordinator of the EpiGene3Sys networks. Finally, I have been and active promoter of the 4DNucleome Initiative (http://www.4dnucleome.eu), which have recently joined forces with the single-cell and organoid communities to form the LifeTime Initiative (https://lifetime-fetflagship.eu) towards a large-scale initiative in Europe to which I am a Steering Committee Member and Work Package co-leader.

EDUCATION

1994 –1999	PhD, Molecular Biophysics	Universitat Autònoma de Barcelona, Spain.
1989 –1994	BSc, General Biology, Genetics	Universitat Autònoma de Barcelona, Spain.

PROFESSIONAL POSITIONS

2013 – to date	ICREA Research Professor. Barcelona, Spain.
2012 – to date	Structural Genomics Group Leader. National Center for Genomic Analysis - Centre for Genomic Regulation (CNAG-CRG). Barcelona, Spain.
2011 – 2012	Senior Head of the Structural Genomics Laboratory. Centro de Investigación Príncipe Felipe, Valencia. Spain.
2006 – 2011	Head of the Structural Genomics Unit at the Bioinformatics and Genomics Department. Centro de Investigación Príncipe Felipe, Valencia. Spain.
2003 – 2006	Assistant Adjunct Professor at the Department of Biopharmaceutical Sciences. University of California at San Francisco. San Francisco, California USA
2002 – 2003	Research Associate at the Laboratory of Biophysics, The Rockefeller University, New York, US. Mentor: Prof. Andrej Sali.
1999 – 2002	Research Postdoctoral Fellow at the Laboratory of Biophysics, The Rockefeller University, New York, USA. Mentor: Prof. Andrej Sali.
1994 – 1999	PhD student at the IBB, Universitat Autònoma de Barcelona, Spain. Mentors: Profs. Martin Karplus, Frances Xavier Avilés and Baldomero Oliva.

PERSONAL AWARDS & FELLOWSHIPS

2011	One of the 55 finalists to the 2011 HHMI International Early Career Competition. *This grant was awarded by the HHMI to 28 researchers worldwide.*
2011	Life Sciences IDEA Award by the City of Arts and Sciences Foundation. *This prize is considered the most important for young (under 40 years old) researchers in the Valencia region of Spain.*
2006 –2009	Positively evaluated by the Spanish I3 program. *The Spanish government provides financial support to the hiring institution of individuals with outstanding research trajectories.*
2002 –2003	The Rockefeller University Presidential Fellowship. *Awarded twice a year to postdoctoral applicants by a committee of professors at The Rockefeller University.*
1999 –2001	Burroughs Wellcome Fund fellowship. *The Burroughs Wellcome Fund encourages the interdisciplinary training of graduate and postdoctoral students from the physical, chemical, and computational.*
1994 –1998	Universitat Autònoma de Barcelona graduate fellowship. *The Universitat Autònoma de Barcelona awards a limited number of students with a fellowship to carry out their Doctoral studies. In 1994 the university awarded ~50 students.*
1994 –1998	Three-time recipient of Universitat Autònoma de Barcelona travel fellowship. *The Universitat Autònoma de Barcelona financially helps students on their expenses for traveling.*

RESEARCH AWARDS AND GRANTS. Amounts are for entire consortium when applicable.

Active:

2022-2023 An omnigenic view of genetic susceptibility to severe COVID19.
La Marató de TV3. Catalan Private Foundation.
PI-Coordinator: M.A. Marti-Renom. ***391,250€***

2022-2022 Deciphering the role of host genome structural variation in modulating the gut microbiome.
Lundbeck Fund. Denmark.
PI-Coordinator: Tom Gilbert, Co-PI: M.A. Marti-Renom. ***370,000DDK***

2021-2026 Center for Genome Imaging.
NIH. USA
PI-Coordinator: Ting Wu, Co-PI: M.A. Marti-Renom. ***US$14,210,23***

2021-2025 3D'Omics. Three-dimensional holo'omic landscapes to unveil host-microbiota interactions shaping animal production.
H2020 Program. European Commission.
PI-Coordinator: Antton Alberdi, Co-PI: M.A. Marti-Renom. ***9,994,415€***

2021-2024 vPDX. Virtual patient derived xenografts for tumor treatment.
La Caixa Health Research 2020.
PI-Coordinator: Luciano Di Croce, Co-PI: M.A. Marti-Renom. ***980,000€***

2021-2024 Tissue Aware GWAS to study genetic cancer predisposition (TAGWAS).
Ministerio de Ciencia e Innovación. Spain.
PI: M.A. Marti-Renom. ***302,500€***

2020-2023 PerMed CoE.
H2020 Center of Excellence. European Commission.
PI-Coordinator: Alfonso Valencia, Co-PI: M.A. Marti-Renom. ***4,577,992€***

2020-2023 ITN-ChromDesign.
H2020 Program. European Commission.
PI-Coordinator: Luciano Di Croce, Co-PI: M.A. Marti-Renom. ***3,430,220€***

2020-2023 INC Spain.
Ministerio de Economia y Competitvidad. Spain.
PI-Coordinator: M.A. Marti-Renom. ***25,000€***

2019-2023 INC COST Action.
COST. H2020. EU
PI-Coordinator: M.A. Marti-Renom. ***400,000€***

Expired:

2017-2020 Analyzing the structure of genomes and genomic domains.
Ministerio de Economia y Competitvidad. Spain.
PI: M.A. Marti-Renom. ***170,000€***

2017-2019 Hybrid Methods for Structural Determination of Genomes and Genomic Domains.
SGR-2017 AGAUR. Generalitat de Catalunya. Spain.
PI: M.A. Marti-Renom. ***42,000€***

2017-2018 Hybrid Methods for Structural Determination of Genomes and Genomic Domains.
Ministerio de Economia y Competitvidad. Spain.
PI: M.A. Marti-Renom. ***24,000€***

2017-2019 Modeling three-dimensional chromosomal structure in beta cells to identify genetic mechanisms underlying type 2 diabetes.
La Marató de TV3. Catalan Private Foundation.
PI-Coordinator: Jorge Ferrer, Co-PI: M.A. Marti-Renom. ***340,000€***

2015-2018 *Multi-Scale Complex Genomics – MuG.*
H2020 Program. European Commission.
PI-Coordinator: Modesto Orozco, Co-PI: M.A. Marti-Renom. ***2,961,163€***

2015-2018	*Modeling SNPs in cancer resistance.* *Maradiaga Grant for traveling. Ministerio de Educación. Spain.* *PI: M.A. Marti-Renom.*	***12,000€***
2014-2016	Structure determination of genomes and genomic domains. *Ministerio de Economia y Competitvidad. Spain.* *PI: M.A. Marti-Renom.*	***204,000€***
2014-2019	4DGenome. Dynamics of human genome architecture in stable and transient gene expression changes. *European Research Council Synergy Grant.* *PI-Coordinator: M. Beato. Co-PI: M.A. Marti-Renom.*	***12,272,645€***
2011-2014	Chromosome structural changes during cell cycle. *Human Frontiers Science Program Grant.* *PI-Coordinator: M.A. Marti-Renom.*	***US$1,050,000***
2011	Complementary grant to Plan Nacional. *Generalitat Valenciana.* *PI: M.A. Marti-Renom.*	***12,000€***
2011-2013	Genome-wide approach for characterizing the mode of action of novel compounds against Tuberculosis. *Era-Net Pathogenomics. European Union.* *PI-Coordinator: M.A. Marti-Renom.*	***916,000€***
2011-2013	Comparative docking of small molecules. *Ministerio de Ciencia e Innovación. Spain.* *PI: M.A. Marti-Renom.*	***90,000€***
2010	Geronimo Forteza Grant. *Generalitat Valenciana.* *PI: M.A. Marti-Renom.*	***9,000€***
2010	Integrated grant with Italy. *Ministerio de Ciencia e Innovación. Spain.* *PI: M.A. Marti-Renom.*	***9,000€***
2009	Complementary grant to Plan Nacional. *Generalitat Valenciana.* *PI: M.A. Marti-Renom.*	***8,000€***
2007-2009	Comparative docking of small molecules. *Ministerio de Educación y Ciencia. Spain.* *PI: M.A. Marti-Renom.*	***104,000€***
2007-2008	RNA structural space characterization. *Generalitat Valenciana.* *PI: M.A. Marti-Renom.*	***24,000€***
2006-2009	Chemical Genomics by Activity Monitoring Proteases (CAMP). *FP6-2004-LIFESCIHEALTH-1 European Union.* *PI: Prof. F.X. Avilés. co-PI: M.A. Marti-Renom.*	***2,708,275€***
2006-2008	RNA comparative structure prediction. *Marie Curie Reintegration Grant. European Union.* *PI: M.A. Marti-Renom.*	***80,000€***

PROFESSIONAL ACTIVITIES

- President of the Catalan Society for Biology.
- Grant review panels:
  - 2022 DGF German Funding Agency Expert for 4DNucleome program.
  - 2021 AGAUR Expert for FI program.
  - 2019 DGF German Funding Agency Expert for 4DNucleome program.
  - 2016 MINECO Expert for the BFU-BMC panel program.
  - 2015 ANEP panel member of the Ramon y Cajal program.

  - 2015 Member of the Scientific Advisory Board for the SysMo ERA-NET.
- Editorial membership
  - 2014-2018 Editorial Member. BMC Structural Biology.
  - 2012-2018 Associate Editor. PLOS Computational Biology.
- Other memberships
  - 2004 Funding member of the TDI (www.tropicaldisease.org).
  - 2005 Member and SA of The Synaptic Leap (www.thesynapticleap.org).
- Meeting organizer:
  - July 2019 LifeTime UnConference. Barcelona, Spain.
  - May 2018 3DGenomics. Barcelona, Spain.
  - Nov. 2017 3D/4D Genome. Barcelona, Spain.
  - Sept. 2016 The dynamics of the genome. Barcelona, Spain.
  - Dec. 2014 II Jornades de Bioinformàtica of the SCB-BiB. Barcelona, Spain.
  - Sept. 2012 Modeling 3D-Structure of Chromosomes. Barcelona, Spain.
  - Sept. 2012 Chromosomes, Stem Cells and Disease. Barcelona, Spain.
  - Jul 2012 Special Session. 3D Genomics. ISMB12. Long Beach, USA.
  - Jan. 2012 XI Jornadas de Bioinformática. Barcelona, Spain.
- Reviewer for Amino Acids, BioEssays, Bioinformatics, Biophysics Journal, BMC bioinformatics, BMC Genomics, BMC MCF, BMC Structural Biology, **Cell**, Current Bioinformatics, FEBS Journal, FEBS Letters, Gene, **Genome Biology**, **Genome Research**, Human Mutation, In Silicon Biology, Journal of Functional and Structural Genetics, Journal of Molecular Biology, **Nature**, Nature Communications, **Nature Genetics, Nature Methods, Nature Neurobiology, Nature NSMB, Nucleic Acids Research**, PLOS Computational Biology, **PLOS Genetics**, PLOS ONE, **PNAS**, Protein Science, Proteins, **Science**, and Structure.
- *Ad hoc* reviewer for NIH (USA), DoE (USA), EC (Europe), ANEP (Spain), ANR (France), German, Danish and Argentinean agencies.
- Consulting for Acuity Spatial Genomics Inc (USA).
- Scientific collaborations:
  - 2021-to date Dr. Eduard Batlle (IRB). Colorectal cancer.
  - 2021-to date Prof. Pablo Lapunzina (H. La Paz). COVID19 and 3D genome.
  - 2021-to date Prof. Angel Carracedo (USC). COVID19 and 3D genome.
  - 2021-to date Dr. Antton Alberdi (U. Copenhagen). Gut bacterial organization.
  - 2020-to date Dr. Ralph Stadhouders (MC Utrech). Asthma and 3D genome.
  - 2019-to date Dr. Jaume Mora (HSJD). DIGP paediatric cancer.
  - 2019-to date Dr. Albert Jordan (IBMB). H1 histone and 3D genome.
  - 2019-to date Dr. Pere Roca-Causach, (IBEC). Nuclear forces and 3D genome.
  - 2019-to date Dr. Brian Dynlacht (NYU) pcHiC and 3D genome.
  - 2019-to date Prof. Tom Gilbert, (U Copenhagen). 3D genome of ancient DNA.
  - 2018-to date Dr. Paco Real & Dr. Núria Malats, (CNIO). 3D genome of cancer.
  - 2017-to date Prof. Jorge Ferrer, (UCL). 3D genome of diabetes.
  - 2017-to date Prof. Ting Wu, (Harvard). 3D genome and imaging.
  - 2016-2018 Prof. Peter Fraser, (UF). 3D genome.
  - 2016-2019 Dr. Ana Losada, (CNIO). 3D genome.
  - 2016-2019 Prof. Marcelo Nollmann, (CNRS/INSERM). 3D genome.
  - 2016-2019 Prof. Sandra Peiró (VIHO). Genome organization.
  - 2015-to date Prof. Luciano di Croce (CRG). Genome organization.
  - 2014-to date Prof. Thomas Graf (CRG). Genome organization.
  - 2011-to date Prof. Giacomo Cavalli (IGH). 3D fly genome.
  - 2011-2018 Dr. Manuel Mendoza (CRG). 3D yeast genome.
  - 2011-2018 Prof. Luís Serrano (CRG). 3D Mycoplasma genome.
  - 2011-2016 Prof. Mark Groudine (FHCRC). 3D b-globin domain.
  - 2011-2020 Dr. Kerstin Bystricky (IPBS). 3D determination of genomes.

- 2010-2020 Prof. Miguel Beato (CRG). 3D human genome.
- 2010-to-date Prof. George Church (Harvard). 3D Caulobacter genome.
- 2008-2020 Prof. Job Dekker (UMASS). 3D determination of genomes.
- 2008-2015 Prof. Ana Tramontano (U. Roma). Ligand-Protein space.
- 2007-2014 Prof. Hernán Dopazo (CIPF). SNP analysis.
- 2007-2014 Prof. Mathias Wilmanns (EMBL), comparative modeling and analysis of *Mycobacterium* proteins.
- 2004-2005 Prof. Partho Gosh (UC), fold assignment of C-type Lectin proteins
- 2003-2015 Prof. F. Melo (UPC). Statistical potentials for model assessment.
- 2002-2017 Prof. B. Oliva (UPF). Remote homology detection, protein interaction networks analysis.
- 2001-2002 Prof. A. Ortiz (CBM). Implementation of the MAMMOTH program in DBAli.
- 2001-2009 Prof. S. Krilis (UA). Modeling of the ß(2)-Glycoprotein I protein.
- 2001 Profs. J. Friedman and J. Hudsped (UR). Characterization of a new osmotic receptor in mouse.
- 2000-2009 Profs. B. Rost (UC) and A. Valencia (CNIO). Automatic evaluation of protein structure predictions.
- 1994-2002 Prof. M. Karplus (Harvard). Protein Folding.

PUBLICATIONS

Total publications 121. Current H-index of 53 with ~20K total citations (Google Scholar). A star "" indicates MAM-R was corresponding or co-corresponding author of the article. Next, I list of only those peer-reviewed publications over the last 5 years (2017-2021)*

1. Farabella, I., Di Stefano, M., Soler-Vila, P., Marti-Marimon, M. and **Marti-Renom, M.A.*** "Three-dimensional genome organization via triplex forming RNAs " Nature Structural and Molecular Biology (2021) **28(11)** 945-954
2. Gines, L.R., Lapi, E., Pancaldi, V., Cuenca, M., Castillo de Santa Pau, E., Madrid, M., Neyret-Kahn, H., Radvanyi, F., Rodriguez, J.A., Cuartero, Y., Serra, F., Le Dily, F., Valencia, A., **Marti-Renom, M.A.*** and Real, F.X. "STAG2 loss-of-function affects short-range genomic contacts and modulates urothelial differentiation in bladder cancer cells" Nucleic Acids Research (2021) **49(19)** 11005–11021
3. Di Stefano, M., Paulsen, J., Jost, D. and **Marti-Renom, M.A.*** "4D nucleome modeling" Current Opinion in Genetics & Development (2021) **67** 25-32
4. Vilarrasa-Blasi, R., Verdaguer-Dot, N., Belver, L., Soler-Vila, P., Beekman, R., Chapaprieta, V., Kulis, M., Queirós, A.C., Parra, M., Calasanz, M.J., Agirre, X., Prosper, F., Beà, S., Colomer, D., **Marti-Renom, M.A.**, Ferrando, A., Campo, E. and Martin-Subero, J.I. "Insights into the mechanisms underlying aberrant SOX11 oncogene expression in mantle cell lymphoma" Leukemia (2021) 10.1038/s41375-021-0
5. Mendieta-Esteban, J., Di Stefano, M., Castillo, D., Farabella, I. and **Marti-Renom, M.A.*** "3D reconstruction of genomic regions from sparse interaction data" NAR Genomics and Bioinformatics (2021) **3(1)** lqab017
6. Di Stefano, M., Nuetzmann, H-W., **Marti-Renom, M.A.** and Jost, D. "Polymer modelling unveils the roles of heterochromatin and nucleolar organizing regions in shaping 3D genome organization in Arabidopsis thaliana" Nucleic Acids Research (2021) **4** 1840–1858

7. Di Stefano, M., Castillo, D., Serra, F., Farabella, I., Goodstadt, M. and **Marti-Renom, M.A.*** "Analysis, Modeling, and Visualization of Chromosome Conformation Capture Experiments." Methods Mol Biol (2021) **2157** 35-63

8. **Marti-Renom, M.A.*** "Benchmarking experiments with polymer modeling." Nature Methods (2021) **18** 456-457

9. Lopez de Maturana, E., Rodriguez, J.A., .../..., **Marti-Renom, M.A.,** Real, F.X. and Malats, N. "A multilayered post-GWAS assessment on genetic susceptibility to pancreatic cancer" Genome Medicine (2021) **13(1)** 15

10. Vilarrasa-Blasi, R., Soler-Vila, P., Verdaguer-Dot, N., Russinol, N., Di Stefano, M., Chapaprieta, V., Clot, G., Farabella, I., Cusco, P., Agirre, X., Prosper, F., Beekman, R., Bea, S., Colomer, D., Gut, I., Stunnenberg, H., Campo, E., **Marti-Renom, M.A.*** and Martin-Subero, J.I. "Dynamics of genome architecture and chromatin function during human B cell differentiation and neoplastic transformation" Nature Communications (2021) **12(1)** 651-667

11. Vara,C., Paytuví-Gallart, A., Cuartero, Y,, Álvarez-González, A., Garcia, F., Florit-Sabater, B., Marín-Gual, L., Capilla, L., Albert-Lizandra, A., Sanchéz-Guillén, R.A., Sarrate, Z., Cigliano, R.A., Sanseverino, W., Ventura, J., **Marti-Renom, M.A.,** Le Dily, F. and Ruiz-Herrera, A. "The Impact of Chromosomal Fusions on 3D Genome Folding and Recombination in the Germ Line" Nature Communications (2021) **12** 2981

12. Zhang, N., Mendieta-Esteban, J., Magli, A., Lilja, K.C., Perlingeiro, R.C.R., **Marti-Renom, M.A.**, Tsirigos, A. and Dynlacht, B.D. " Muscle progenitor specification and myogenic differentiation are associated with changes in chromatin topology" Nature Communications (2020) **11** 6222

13. Galan, S., Machnik, N., Kruse, K., Díaz, N., **Marti-Renom, M.A.** and Vaquerizas, J.M. "Quantitative comparison and feature extraction for chromatin contact data using structural similarity" Nature Genetics (2020) doi:10.1038/s41588-020-00712-y

14. Nguyen, H.Q., Chattoraj, S., Castillo, D., Nguyen, S.C., Nir, G., Martins, N.M.C., Reginato, P.R., Hannan, M., Church, G.M., Daugharthy, E.R., **Marti-Renom, M.A.*** and Wu, C.T. "3D mapping and accelerated super-resolution imaging of the human genome using in situ sequencing" Nature Methods (2020) **17** 822–832

15. Rajewsky, N., Almouzni, G., Gorski, S., .../..., **Marti-Renom, M.A.,** .../... and LifeTime Community "LifeTime and improving European healthcare through cell-based interceptive medicine" Nature (2020) doi:/10.1038/s41586

16. Farabella, I. and **Marti-Renom, M.A.*** "TADs without borders" Nature Genetics (2020) 52 752–753

17. Sandoval-Velasco, M., Rodriguez, J.A., Perez-Estrada, C., Zhang, G., Lieberman-Aiden, E., **Marti-Renom, M.A.,** Gilbert, M.T.P and Smith, O "Hi-C chromosome conformation capture sequencing of avian genomes using the BGISEQ-500 platform" GigaScience (2020) 9(8) giaa087

18. Di Stefano, M., Stadhouders, R., Farabella, I., Castillo, D., Serra, F., Graf, T. and **Marti-Renom, M.A.*** "Dynamic simulations of transcriptional control during cell reprogramming reveal spatial chromatin caging." Nature Communications (2020) **11** 2564

19. Serna-Pujol, N., Salinas-Pena, M., Mugianesi, F., Lopez-Anguita, N., Torrent-Llagostera, F., Izquierdo-Bouldstridge, A., **Marti-Renom, M.A.** and Jordan, A. "TADs enriched in histone H1.2 strongly overlap with the B compartment,

inaccessible chromatin and AT-rich Giemsa bands" FEBS Journal (2020) 10.1111/febs.15549

20. Stik, G., Vidal, V., Barrero, M., Cuartero, S., Vila-Casadesús, M., Mendieta-Esteban, J., Tian, T.V., Choi, J., Berenguer, C., le Dily, F., Cramer, P., **Marti-Renom, M.A.**, Stadhouders, R. and Graf, R. "CTCF is dispensable for cell fate conversion but facilitates acute cellular responses" Nature Genetics (2020) **52** 655-661

21. Soler-Vila, P., Cusco Pons, P., Farabella, I., Di Stefano, M. and **Marti-Renom, M.A.*** "Hierarchical chromatin organization detected by TADpole." Nucleic Acids Research (2020) **48 (7)** e39

22. Sati, S., Bonev, B., Szabo, Q., Jost, D., Bensadoun, P., Serra, F., Loubiere, V., Papadopoulos, G.L., Rivera-Mulia, J.C., Fritsch, L., Bouret, P., Castillo, D., Gelpi, J.LL., Orozco, M., Vaillant, C., Pellestor, F., Bantignies, F., **Marti-Renom, M.A.,** Gilbert, D., Lemaitre, J.L. and Cavalli, G. "4D genome rewiring during oncogene induced and replicative senescence" Molecular Cell (2020) **78** 1–17

23. Di Stefano, M., Di Giovanni, F., Pozharskaia, V., Gomar-Alba, M., Baù, D., Carey, L.B., **Marti-Renom, M.A.*** and Mendoza, M. "Impact of chromosome fusions on 3D genome organization and gene expression in budding yeast." Genetics (2020) **214 (3)** 651-667

24. Vara, C., Paytuví-Gallart, A., Cuartero, Y., Le Dily, F., Garcia, F., Salvà-Castro, J., Gómez-H, L., Julià, E., Moutinho, C., Aiese-Cigliano, R., Sanseverino, W., Fornas, O., Pendàs, A.M., Heyn, H., Waters, P.D., **Marti-Renom, M.A.*** and Ruiz-Herrera, A. "Three-dimensional genomic structure and cohesin occupancy correlates with transcriptional activity during spermatogenesis." Cell Reports (2019) **28(2)**:352-367

25. Miguel-Escalada, I., Bonàs-Guarch, S., Cebola, I., Ponsa-Cobas, J., Mendieta-Esteban, J. , Rolando, D., Javierre, B.M., Atla, G., Farabella, I., Morgan, C.C., García-Hurtado, J., Beucher, A., Morán, I., Pasquali, L., Ramos, M., Appel, E.V.R., Linneberg, L., Gjesing, A.P., Witte, D.R., Pedersen, O., Grarup, N., Ravassard, P., Mercader, J.M., Torrents, D., Piemonti, L., Berney, T., de Koning E., Kerr-Conte, J., Pattou, F., Hansen, T., **Marti-Renom, M.A.,** Fraser, P. and Ferrer, J. "Human pancreatic islet 3D chromatin architecture provides insights into the genetics of type 2 diabetes" Nature Genetics (2019) **51** 1137–1148

26. Morf, J., Wingett, S.W., Farabella, I., Cairns, J., Furlan-Magaril, M., Jiménez-García, L.F., Liu, X., Craig, F.F., Walker, S., Segons-Pichon, A., Andrews, S., **Marti-Renom, M.A.** and Fraser, P. "RNA proximity sequencing reveals properties of spatial transcriptome organization in the nucleus." Nature Biotechnology (2019) **37** 793–802

This article has been highlighted in Nature Methods (https://doi.org/10.1038/s41592-019-0555-z).

27. Cuadrado, A., Giménez-Llorente, D., Kojic, A., Rodríguez-Corsino, M., Cuartero, Y., Martín-Serrano, G., Gómez-López, G., **Marti-Renom, M.A.** and Losada, A. "Specific contributions of cohesin-SA1 and cohesin-SA2 to TADs and Polycomb domains in embryonic stem cells." Cell Reports (2019) **27** 3500–3510

28. Spill, Y.G., Castillo, D., Vidal, E. and **Marti-Renom, M.A.*** "Binless normalization of Hi-C data provides significant interaction and difference detection independently of resolution." Nature Communications (2019) **10(1)** 1938

29. Nir, G., Farabella, I., Pérez Estrada, C., Ebeling, C.G., Beliveau, B.J., Sasaki, H.M., Lee, S.H., Nguyen, S.C., McCole, R.B., Chattoraj, S., Erceg, J., Abed, J.A., Martins, N.M.C., Nguyen, H.Q., Hannan, M.A., Russell, S., Durand, N.C., Rao,

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