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NARRATIVE CV

Over the past 15 years, my study of primates has been more than an academic pursuit; it has been a foundational journey towards understanding the complex biology of our species. Without delving into this particular order, we would miss a crucial piece in comprehending the intricate web of human biology. The genomic insights garnered from primates have been instrumental in unraveling the complexities of human biology, offering significant contributions to medical advancements, genetics, and our evolutionary journey.

My laboratory has been at the forefront of this exploration. Since founding my own lab, I have dedicated 15 years to this field, culminating in a significant milestone in 2023 with a **Special Issue published in Science, to our knowledge the first one led by a Spanish researcher**. This issue featured our international effort to sequence the complete genomes of 50% of the world's primate species in a single project. I took on co-corresponding and **senior authorship for three papers and contributed as a co-author on two additional papers**, covering a wide range of topics from biodiversity and human evolution to the molecular underpinnings of human diseases. This work underscores the critical insight that the human genome, as a primate genome, benefits from mutations accumulated in other primate lineages. By studying these, we can better predict and understand the functional consequences in the human genome. **Furthering our research, a co-led paper focused on the noncoding parts of the human genome was published in Nature in 2024.**

My journey in leveraging primate genomes to understand human species began well before these accomplishments. As a postdoctoral researcher, I discovered that the human lineage accumulated structural variations at a different rate compared to other great ape genomes (Marques-Bonet et al., *Nature*, 2009). During that period, I also contributed to several pivotal projects, including the bonobo (Pruefer et al., *Nature*, 2012), gorilla (Scally et al., *Nature*, 2012), orangutan (Locke et al., *Nature*, 2011), marmoset (Worley et al., *Nature*, 2014), and gibbon (Carbone et al., *Nature*, 2014) reference genomes. As an independent researcher supported by an **ERC Starting grant**, I published as corresponding author the first global study on great ape genome diversity, elucidating the genetic distinctions between humans and apes (**Prado-Martinez et al., *Nature*, 2013**). My work has not only focused on genomic diversity but also on the functional consequences of genetic intermixing, such as the introgression among chimps and bonobos with functional outcomes (**de Manuel et al., *Science*, 2016**). Additionally, my lab has also led the recovery of the oldest ape genetic material (**Walker et al., *Nature*, 2019**) and documenting the first known introgression into bonobos from a now-

extinct species of chimpanzee (Kuhlwilm et al., Nat. Ecol. Evol., 2019). In recent years, we have demonstrated the feasibility of retrieving nuclear DNA sequences from non-invasive chimpanzee samples, a breakthrough with significant implications for conservation and efforts to prevent illegal trafficking through the Revive&Restore project (Fontserè et al., Cell Genomics, 2022).

Beyond genomic diversity, my lab has been deeply involved in the functional characterization of the molecular differences between humans and great apes. We have described various genome regulation mechanisms, including DNA methylation and histone marks, and their roles in mRNA splicing and the translation into protein isoforms, pinpointing human-specific changes (Hernando-Herraez et al. Plos Genetics 2015; Garcia-Perez et al., Nature Communications, 2021; Fernandez et al., Genome Research, 2022). In collaboration with Dr. Nenad Sestan from Yale School of Medicine, our joint NIH R01 project has yielded the most comprehensive molecular-level comparison of human and chimpanzee brains to date (**Zhu et al., Science, 2018**; **Sousa et al., Science, 2017**).

Throughout my career, I have published **over 200 peer-reviewed articles**, with **nearly a quarter of these (~25%) appearing in journals such as Nature, Cell, and Science**. Additionally, I am the holder of a European patent (EP22382590, 2022).

My research has been supported by competitive grants on both national and international levels, including **two European Research Council (ERC) grants** (ERC Starting Grant 2010 and ERC Consolidator 2019) and two **National Institutes of Health (NIH) R01 grants as a co-Principal Investigator**. I have also garnered private funding for conservation efforts through Revive&Restore in 2023, for research purposes through La Caixa Research Grant in 2016 for studying epigenetic changes among humans and apes, and was honored with the Howard Hughes Medical Institute (HHMI) International Early Investigator award in 2015, as one of only two Spanish researchers to be awarded.

In terms of service to the scientific community, I have held leadership positions as the Deputy Director (2014-2016) and then **Director of the Institute of Evolutionary Biology (UPF-CSIC)** from 2016 to 2020. I participate in the Scientific Council for LABEX CeMEB in Montpellier and the Center for Human Evolution (CENIEH) in Spain. Additionally, I contribute to the External Scientific Panel for developmental GTEx projects designated by the NIH and founded the Cryozoo at the Barcelona Zoo in 2019, a project for banking animal cell lines in partnership with UPF, the Museum of Natural Science in Barcelona, and EMBL. Currently, I am a panelist for the European Research Council, evaluating Consolidator grants in the Life Sciences domain. I am also an advisor for companies like Colossal (USA) or Flomics (Spain). I am also part of the Scientific Advisory Board (SAB) of the ENSEMBL and was coordinator for the evaluation of the Catalan Research System (AGAUR) in Life Sciences from 2018-2021.

Recently, we have participated as finalist in the competitive XPrize Rainforest award (10 M \$: <https://www.xprize.org/prizes/rainforest>) combining drone sampling and environmental DNA in the Amazonas. Results to be announced in November.

My mentorship record includes training 23 PhD students and 9 postdoctoral researchers, many of whom have gone on to secure prestigious positions in academia and industry worldwide (Vienna, Barcelona, Madrid, Sant Petersburg and Montreal) and companies like Nestle and Illumina.

A notable highlight of my career is being the **only Spanish researcher to co-author two papers acknowledged by the Nobel Academy for Svante Pääbo's Nobel Prize in 2022**, related to the Neanderthal and Denisovan genomes (Green et al., *Science*, 2010; Reich et al., *Nature*, 2010). These contributions earned me the AAAS Newcomb Cleveland Award in 2010. I also got the AAAS Breakthrough of the Year Award (public opinion) in 2019 for our work on the Denisovan anatomical reconstruction (Gokhman et al., *Cell*, 2019).

In 2024, I received the **Premi Ciutat de Barcelona in the Life Sciences category**, recognizing my contributions to the field and was elected member of the Academia Europaea. Also in 2024, I was elected **member of the Royal Academy of Sciences** in Spain.

My work has only been possible given my background in zoology but a strong research in molecular biomedicine which has facilitated alliances among disciplines many times not aligned. This journey is underscored by a profound belief in excellence, effort, collaborations and a vision to harness what primates can teach us about our own biology. It's a long road ahead, but one that is rich with the promise of discovery and understanding.

RESEARCH INTEREST

Human and non-human primate genome variation and next-generation sequencing technologies; What make us humans? Evolutionary biomedicine. Evolutionary Methylation differences in human and non-human primates. Conservation genomics.

Most relevant publications (leading author)

- Kuderna et al. "Identification of constrained sequence elements across 239 primate genomes" *Nature* 2024
- Gao et al. "The landscape of tolerated genetic variation in humans and primates" *Science* 2023
- Kuderna et al. "A global catalog of whole-genome diversity from 233 primate species" *Science* 2023
- Sorensen et al. "Genome-wide coancestry reveals details of ancient and recent male-driven reticulation in baboons" *Science* 2023
- Juan et al. "Current advances in primate genomics: novel approaches for understanding evolution and disease" *Nature Reviews Genetics*, 2023
- Pawar et al. "Ghost admixture in eastern gorillas" *Nature ecology & evolution* 2023
- Luis Ferrández-Peral et al. "Transcriptome innovations in primates revealed by single-molecule long-read sequencing" *Genome Research* 2022
- Fontseré et al. "Population dynamics and genetic connectivity in recent chimpanzee history" *Cell Genomics* 2022
- Sinding et al. "Arctic-Adapted Dogs Emerged at the Pleistocene-Holocene Transition" *Science* 2020
- deManuel et al. "The evolutionary history of extinct and living lions" *PNAS* 2020.
- Walker et al. Tomas Marques-Bonet*, Enrico Capellini* "Dental enamel proteome sequencing reveals Gigantopithecus as an early diverging pongine" *Nature* 2019.
- M Kuhlwilm, et al. "Ancient admixture from an extinct ape lineage into bonobos". *Nature ecology & evolution*, 2019
- Lukas FK Kuderna et al. "Selective single molecule sequencing and assembly of a human Y chromosome of African origin" *Nature Communications* 2019
- Manuel Solis-Moruno et al. "Potential damaging mutation in LRP5 from genome sequencing of the first reported chimpanzee with the Chiari malformation" *Scientific Reports*, 2018
- Lukas F. K. Kuderna; et al. "A 3-way hybrid approach to generate a new high quality chimpanzee reference genome (Pan_tro_3.0)" *GigaScience* 2017
- Aitor Serres-Armero, et al. "Similar genomic proportions of copy number variation within gray wolves and modern dog breeds inferred from whole genome sequencing" *BMC genomics* 2017
- deManuel, et al. "Chimpanzee diversity reveals ancestral admixture with bonobos" *Science* 2016.
- Irene Hernando-Herraez, et al. "Comparative epigenetics: Patterns of CpG methylation in recent human evolution" *Plos Genetics* 2015
- Tugce Bilgin Sonay et al. "Human and great ape variation in tandem repeats population variation and its correspondence impact to on gene expression divergence" *Genome Research* 2015
- Irene Hernando-Herraez et al. "A genome-wide comparative study of the DNA methylation landscape in great apes" *Nucleic Acid Research* 2015.
- Yali Xue, et al. "Population sequencing of Mountain gorillas reveal the genomic impact of long-term population decline and inbreeding". *Science* 2015
- Javier Prado-Martinez et al. (2013). "Great ape genetic diversity and population history". *Nature* 2013.
- Irene Hernando-Herraez, et al. "Dynamics of DNA Methylation in Recent Human and Great Apes Evolution". *PLOS Genetics* 2013.
- Belen Lorente-Galdos et al. "Fast exon evolution in duplicated regions in hominids". *Genome Biology*, 2013.
- Javier Prado-Martinez, et al. "The genome sequencing of an albino Western lowland gorilla reveals inbreeding in the wild. " *BMC Genomics* 2013.
- Tomas Marques-Bonet et al. "A Burst of Segmental Duplications in the African Great Ape Genome Ancestor" *Nature*. 2009.

QUALIFICATIONS

- B. Sc. Biology, Faculty of Biology, University of Barcelona, Spain. February 2000.
- DEA. February of 2005.
- PhD in Biology. Universitat Pompeu Fabra. November 2006. Dissertation Topic: "On the association between chromosomal rearrangements and genic evolution in mammals "

RESEARCH POSITIONS HELD AND EXPERIENCE

1999-2001 Internal Student at the Zoology Vertebrate Department, Faculty of Biology, University of Barcelona, Spain.

09/2002-11/2006 PhD at Dept. of Experimental Health Sciences, Universitat Pompeu Fabra. Barcelona, Spain under supervision of Dr. Arcadi Navarro.

03/2007- 12/2010 PostDoctoral Fellow in Evan Eichler's Lab (University of Washington, Seattle, USA) under supervision of Dr. Evan Eichler.

12/2010-2011 Ramon y Cajal researcher at IBE (Institut de Biología evolutiva), Universitat Pompeu Fabra/CSIC.

10/2011- ICREA Research professor at IBE (Institut de Biología evolutiva), Universitat Pompeu Fabra/CSIC.

10/2011- Assistant professor at Universitat Pompeu Fabra.

12/2014- Group leader of comparative genomics at Centro Nacional de Análisis Genómico (CNAG-CRG).

01/2017-01/2020 Director of Institute of Evolutionary Biology (UPF/CSIC).

12/2019- Full Professor at Universitat Pompeu Fabra.

LEADERSHIP AND MENTORSHIP

Previous Grants

- ERC Starting grant 2010 (ERC-2010-StG_20091118). “*Identification and characterization of primate structural variation and an assessment of intra-specific patterns of selection and copy-number variation.*” 1.6 M euros/4 years.
- MICINN Plan nacional 2011- BFU2011-28549. “*Caracterización de inversiones y cambios en la expresión génica en la evolución de los grandes simios*” 190 K euros/3 years
- MICINN Excelencia MINECO-BFU2015-7116-ERC. “*Structural variation and impact on gene expression of the human y chromosome*” 60 K euros/1 year.
- MICINN Excelencia MINECO-BFU2015-7116-ERC. “*Structural variation and impact on gene expression of the human y chromosome*”. 60 K euros/1 year.
- MICINN Plan nacional 2014- BFU2014-55090-P. “*Evolución de la diversidad estructural del cromosoma y humano*” 180 K euros/3 years.
- PRIC Grant. Fundació Zoo Barcelona “Population genomics from chimpanzee non-invasive samples”. 16 K /1 year.
- EMBO Small Grant. EMBO “Ebola genomics from gorilla survivors”. 10 K /1 year.
- La Caixa Research grant. 350 K euros/3 years.
- NIHMH U01. PAR-14-174. This grant focuses on somatic mutations in autism spectrum disorders (ASD): single neuron analyses. 250 K euros/5 years as a PI subcontracted to Yale University (Nenad Sestan).
- HHMI International Award. 750 K dollars / 5 years.

- MICINN Plan nacional 2017- BFU2017-86471-P “*Geo-estratificacion de la diversidad genómica en grandes simios basado en muestras no invasivas*” 250 K euros/4 years.
- 861389- EC-H2020-MSCA-ITN-2019 PUSHH T.MARQUES. Palaeoproteomics to Unleash Studies on Human History. EUROPEAN COMMISSION. MARQUES BONET, TOMAS (IP). 01/03/2020 - 31/08/2024. 204.104,88 €. Investigador principal.
- - 2021 SGR 00177. Grup de Recerca en Biodiversitat i Genòmica Comparada. AGÈNCIA GESTIÓ AJUTS UNIVERSITARIS I RECERCA. MARQUES BONET, TOMAS (IP). 01/01/2022 - 31/12/2024. 60.000,00 €. Investigador principal.

Active Grants

- 2023-2024 “Genetic Identification for Consultancy in Africa through a novel genetic tool” **Total Energies**.
- 2024 PROD 00032 “Revolutionizing Genetic Identification for Consultancy in Africa through a novel genetic tool” Codi de tràmit (ID) 77CV8S6B6 Número de register 9015-2725961/2024. **Generalitat Catalunya**. Ajuts a la transferencia.
- - 864203. APEDIVERSITY- Identification and characterization of primate structural variation and an assessment of intra-specific patterns of selection and copy-number variation. **ERC Consolidator**. THE COMISSION OF THE EUROPEAN COMMUNITY. MARQUES BONET, TOMAS (IP). 01/08/2020 - 31/07/2025. 1.999.999 €. Investigador principal.
- NIH R01 1R01HG10898-01A1 (2021-2024). GR110800 (CON-80002780). Identification of Genetic and Molecular Bases of Derived Phenotypes in Primate Brain Development. **NATIONAL INSTITUTES OF HEALTH**. MARQUES BONET, TOMAS (IP). 08/09/2020 - 30/06/2023. 173.918,80 €. Investigador principal.
- **Revive & Restore**. “A novel tool to fight Illegal trafficking in great Apes” (2023-2025). 350.000\$ /2 years
- - 101082004. INTEGRATED OBSERVATION, MONITORING AND PREDICTION ARCHITECTURE FOR FUNCTIONAL BIODIVERSITY OF COASTAL SEAS. **EUROPEAN COMMISSION**. MARQUES BONET, TOMAS (IP). 01/09/2023 - 31/08/2027. 558.916,66 €. Investigador principal.
- - PID2021-126004NB-I00. The interplay between epigenomics and nucleotide divergence in recent primate and mammalian evolution. **AGENCIA ESTATAL DE INVESTIGACIÓN**. MARQUES BONET, TOMAS (IP). 01/09/2022 - 31/08/2026. 278.300,00 €. Investigador principal.

Doctoral students and training

Active PhD students:

- Irune Ruiz (Beca FPI). 2021-
- Maria Torralvo (Beca FI). 2022-
- Nuria Hermosilla (Beca FI). 2022-
- Mar Crego. 2022-
- Guillermo Carrillo (Beca FI). 2024-

Postdocs

- Esther Lizano 2016-
- Sebastian Cuadros 2022-

- Javier Prado 2022-
- Lucas Wienge 2022-

Former PhD students:

- M Belen Lorente. “Positive selection in gene families”. 2008-2011. Date: 9/11/2011
- Javier Prado. “Characterization of genomic diversity and population history in primates”. 2010-2014. Date:22/12/2014
- Irene Hernando. “Methylation differences in great-ape evolution”. 2011-2015. Date:24/7/2015
- Tiago Carvalho. “Impact and origin of tandem repeats in human evolution” 2012-2016.
- Guillem Valles (Co-directed with Dr. Ferran Casals). “Evolutionary study on the loss of function mutations” 2012-2016
- Jessica Hernandez (FPI Fellowship). 2014-2018. “Improving the recovery of genomic information from complex samples”,
- Marc de Manuel (FI Fellowship). 2014-2018. “Genetic introgression in chimpanzees and bonobos”
- Raquel Garcia-Perez (FPU Fellowship). 2013-2019. “Evolutionary interplay between epigenetic regulation and gene expression dynamics in human and other primates”
- Sojung Han (Co-directed with Dr. Aida Andres). 2015 – 2019 “Bonobo evolution: from the perspective of genomes”
- Irene Lobon (Co-directed with Dr. Eduardo Soriano (IRB)). 2014-2019 “The impact of somatic mutations in neurologica diseases”.
- Lukas Kuderna 2015-2020
- Aitor Serres. 2015-2020
- Manuel Solis (Maria deMaetzu). 2017-2021
- Claudia Fontserè (Beca La Caixa) . 2015- 2020
- Luis Fernandez (Beca La Caixa). 2016-2021
- Marina Alvarez (Beca FI). 2019-2022
- Paula Esteller (Beca FI). 2018-2022
- Marc Palmada (Beca La Caixa). 2020-2023
- Harvinder Pawandar (Beca FI). 2020-2024
- Johanna Kruegger (ITN Marie Curie) 2021-2024

Former Postdocs:

- Javier Quilez. Postdoc. 2012-2013
- Marta Mele. Postdoc. 2010-2012.
- Belen Lorente. Postdoc 2012-2014
- Inna Povolotskaya. Postdoc Juan de la Cierva. 2014-2016
- Martin Kuhlim (DFG Fellowship/La Caixa Junior Group Leader) 2015 - 2021
- Joseph Orkin (Beatriu de Pinos) 2017 – 2021
- Aitor Serres. 2020 - 2021
- Lukas Kudern 2020 – 2022
- David deJuan 2017 – 2023

>200 papers published: 45 as a senior author, 49 published in Nature, Science or Cell (1 as first author, 8 as last author and 1 with lab member as co-first author).

• **Published with senior authorship:**

- 1) Núria Hermosilla-Albala, Felipe Ennes Silva, Sebastián Cuadros-Espinoza, Claudia Fontsere, Alejandro Valenzuela-Seba, Harvinder Pawar, Marta Gut, Joanna L Kelley, Sandra Ruibal-Puertas, Pol Alentorn-Moron, Armida Faella, Esther Lizano, Izeni Farias, Tomas Hrbek, Joao Valsecchi, Ivo G Gut, Jeffrey Rogers, Kyle Kai-How Farh, Lukas FK Kuderna, **Tomas Marques-Bonet***, Jean P Boubli* "Whole genomes of Amazonian uakari monkeys reveal complex connectivity and fast differentiation driven by high environmental dynamism" **Communications Biology** 2024 7 (1), 1283
- 2) Toni de-Dios, Claudia Fontsere, Pere Renom, Josefina Stiller, Laia Llovera, Marcela Uliano-Silva, Alejandro Sánchez-Gracia, Charlotte Wright, Esther Lizano, Berta Caballero, Arcadi Navarro, Sergi Civit, Robert K Robbins, Mark Blaxter, **Tomas Marques-Bonet***, Roger Vila*, Carles Lalueza-Fox* "Whole genomes from the extinct Xerces Blue butterfly can help identify declining insect species" **Elife** 2024 12, RP87928
- 3) Adrián Talavera, Marc Palmada-Flores, Bernat Burriel-Carranza, Emilio Valbuena-Ureña, Gabriel Mochales-Riaño, Dean C Adams, Héctor Tejero-Cicuéndez, Anna Soler-Membrives, Fèlix Amat, Daniel Guinart, Francesc Carbonell, Elena Obón, , **Tomas Marques-Bonet***, Salvador Carranza "Genomic insights into the Montseny brook newt (Calotriton arnoldi), a Critically Endangered glacial relict" **Iscience** 2024 27 (1), 108665
- 4) Lukas FK Kuderna, Jacob C Ulirsch, Sabrina Rashid, Mohamed Ameen, Laksshman Sundaram, Glenn Hickey, Anthony J Cox, Hong Gao, Arvind Kumar, Francois Aguet, Matthew J Christmas, Hiram Clawson, Maximilian Haeussler, Mareike C Janiak, Martin Kuhlwilm, Joseph D Orkin, Thomas Bataillon, Shivakumara Manu, Alejandro Valenzuela, Juraj Bergman, Marjolaine Rouselle, Felipe Ennes Silva, Lidia Agueda, Julie Blanc, Marta Gut, Dorien de Vries, Ian Goodhead, R Alan Harris, Muthuswamy Raveendran, Axel Jensen, Idriss S Chuma, Julie E Horvath, Christina Hvilsom, David Juan, Peter Frandsen, Joshua G Schraiber, Fabiano R de Melo, Fabrício Bertuol, Hazel Byrne, Iracilda Sampaio, Izeni Farias, João Valsecchi, Malu Messias, Maria NF da Silva, Mihir Trivedi, Rogerio Rossi, Tomas Hrbek, Nicole Andriaholinirina, Clément J Rabarivola, Alphonse Zaramody, Clifford J Jolly, Jane Phillips-Conroy, Gregory Wilkerson, Christian Abebe, Joe H Simmons, Eduardo Fernandez-Duque, Sree Kanthaswamy, Fekadu Shiferaw, Dongdong Wu, Long Zhou, Yong Shao, Guojie Zhang, Julius D Keyyu, Sascha Knauf, Minh D Le, Esther Lizano, Stefan Merker, Arcadi Navarro, Tilo Nadler, Chiea Chuen Khor, Jessica Lee, Patrick Tan, Weng Khong Lim, Andrew C Kitchener, Dietmar Zinner, Ivo Gut, Amanda D Melin, Katerina Guschanski, Mikkel Heide Schierup, Robin MD Beck, Ioannis Karakikes, Kevin C Wang, Govindhaswamy Umapathy, Christian Roos, Jean P Boubli, Adam Siepel, Anshul Kundaje, Benedict Paten, Kerstin Lindblad-Toh, Jeffrey Rogers+, **Tomas Marques-Bonet***, Kyle Kai-How Farh+ "Identification of constrained sequence elements across 239 primate genomes" **Nature** 2024 volume 625, pages735–742 (2024)
- 5) Hong Gao, Tobias Hamp, Jeffrey Ede, Joshua G Schraiber, Jeremy McRae, Moriel Singer-Berk, Yanshen Yang, Anastasia SD Dietrich, Petko P Fiziev, Lukas FK Kuderna, Laksshman Sundaram, Yibing Wu, Aashish Adhikari, Yair Field, Chen Chen, Serafim Batzoglou, Francois Aguet, Gabrielle Lemire, Rebecca Reimers, Daniel Balick, Mareike C Janiak, Martin Kuhlwilm, Joseph D Orkin, Shivakumara Manu, Alejandro Valenzuela, Juraj Bergman, Marjolaine Rouselle, Felipe Ennes Silva, Lidia Agueda, Julie Blanc, Marta Gut, Dorien de Vries, Ian Goodhead, R Alan Harris, Muthuswamy Raveendran, Axel Jensen, Idriss S Chuma, Julie E Horvath, Christina Hvilsom, David Juan, Peter Frandsen, Fabiano R de Melo, Fabrício Bertuol, Hazel Byrne, Iracilda Sampaio, Izeni Farias, João Valsecchi do Amaral, Mariluce Messias, Maria NF da Silva, Mihir Trivedi, Rogerio Rossi, Tomas Hrbek, Nicole Andriaholinirina, Clément J Rabarivola, Alphonse Zaramody, Clifford J Jolly, Jane Phillips-Conroy, Gregory Wilkerson, Christian Abebe, Joe H Simmons, Eduardo Fernandez-Duque, Sree Kanthaswamy, Fekadu Shiferaw, Dongdong Wu, Long Zhou, Yong Shao, Guojie Zhang, Julius D Keyyu, Sascha Knauf, Minh D Le, Esther Lizano, Stefan Merker, Arcadi Navarro, Thomas Bataillon, Tilo Nadler, Chiea Chuen Khor, Jessica Lee, Patrick Tan, Weng Khong Lim, Andrew C Kitchener, Dietmar Zinner, Ivo Gut, Amanda Melin, Katerina Guschanski, Mikkel Heide Schierup, Robin MD Beck, Govindhaswamy Umapathy, Christian Roos, Jean P Boubli, Monkol Lek, Shamil Sunyaev, Anne O'Donnell-Luria, Heidi L Rehm, Jinbo Xu, Jeffrey Rogers+, **Tomas Marques-Bonet***, Kyle Kai-How Farh+ "The landscape of tolerated genetic variation in humans and primates" **Science** 380 (6648), eabn8153
- 6) Lukas FK Kuderna, Hong Gao, Mareike C Janiak, Martin Kuhlwilm, Joseph D Orkin, Thomas Bataillon, Shivakumara Manu, Alejandro Valenzuela, Juraj Bergman, Marjolaine Rouselle, Felipe Ennes Silva, Lidia Agueda, Julie Blanc, Marta Gut, Dorien de Vries, Ian Goodhead, R Alan Harris, Muthuswamy Raveendran, Axel Jensen, Idrissa S Chuma, Julie E Horvath, Christina Hvilsom, David Juan, Peter Frandsen, Joshua G Schraiber, Fabiano R de Melo, Fabrício Bertuol, Hazel Byrne, Iracilda Sampaio, Izeni Farias, João Valsecchi, Malu Messias, Maria NF da Silva, Mihir Trivedi, Rogerio Rossi, Tomas Hrbek, Nicole

- Andriaholinirina, Clément J Rabarivola, Alphonse Zaramody, Clifford J Jolly, Jane Phillips-Conroy, Gregory Wilkerson, Christian Abee, Joe H Simmons, Eduardo Fernandez-Duque, Sree Kanthaswamy, Fekadu Shiferaw, Dongdong Wu, Long Zhou, Yong Shao, Guojie Zhang, Julius D Keyyu, Sascha Knauf, Minh D Le, Esther Lizano, Stefan Merker, Arcadi Navarro, Tilo Nadler, Chiea Chuen Khor, Jessica Lee, Patrick Tan, Weng Khong Lim, Andrew C Kitchener, Dietmar Zinner, Ivo Gut, Amanda D Melin, Katerina Guschanski, Mikkel Heide Schierup, Robin MD Beck, Govindhaswamy Umapathy, Christian Roos, Jean P Boubli, Jeffrey Rogers+, Kyle Kai-How Farh+, , Tomas Marques-Bonet*, "A global catalog of whole-genome diversity from 233 primate species" **Science** 2023 380 (6648), eab01131
- 7) Erik F Sørensen, R Alan Harris, Liye Zhang, Muthuswamy Raveendran, Lukas FK Kuderna, Jerilyn A Walker, Jessica M Storer, Martin Kuhlwilm, Claudia Fontseré, Lakshmi Seshadri, Christina M Bergey, Andrew S Burrell, Juraj Bergman, Jane E Phillips-Conroy, Fekadu Shiferaw, Kenneth L Chiou, Idrissa S Chuma, Julius D Keyyu, Julia Fischer, Marie-Claude Gingras, Sejal Salvi, Harshavardhan Doddapaneni, Mikkel H Schierup, Mark A Batzer, Clifford J Jolly, Sascha Knauf, Dietmar Zinner, Kyle K-H Farh, , Tomas Marques-Bonet*, Kasper Munch+, Christian Roos+, Jeffrey Rogers+ "Genome-wide coancestry reveals details of ancient and recent male-driven reticulation in baboons" **Science** 2023 380 (6648), eabn8153
- 8) Harvinder Pawar, Aigerim Rymbekova, Sebastian Cuadros-Espinoza, Xin Huang, Marc De Manuel, Tom Van der Valk, Irene Lobon, Marina Alvarez-Estaño, Marc Haber, Olga Dolgova, Sojung Han, Paula Esteller-Cucala, David Juan, Qasim Ayub, Ruben Bautista, Joanna L Kelley, Omar E Cornejo, Oscar Lao, Aida M Andrés, Katerina Guschanski, Benard Ssebide, Mike Cranfield, Chris Tyler-Smith, Yali Xue, Javier Prado-Martinez+, Tomas Marques-Bonet*, Martin Kuhlwilm+ "Ghost admixture in eastern gorillas" **Nature ecology & evolution** 2023 7 (9), 1503-1514
- 9) Marina Alvarez-Estaño, Harvinder Pawar, Claudia Fontseré, Amber E Trujillo, Jessica L Gunson, Richard A Bergl, Magdalena Bermejo, Joshua M Linder, Kelley McFarland, John F Oates, Jacqueline L Sunderland-Groves, Joseph Orkin, James P Higham, Karine A Viaud-Martinez, Esther Lizano*, Tomas Marques-Bonet*, "Past Connectivity but Recent Inbreeding in Cross River Gorillas Determined Using Whole Genomes from Single Hairs" **Genes** 2023 14 (3), 743
- 10) D Juan, G Santpere, JL Kelley, OE Cornejo+, Tomas Marques-Bonet+ "Current advances in primate genomics: novel approaches for understanding evolution and disease" **Nature Reviews Genetics**, 2023 1-18
- 11) Luis Ferrández-Peral, Xiaoyu Zhan, Marina Alvarez-Estaño, Cristina Chiva, Paula Esteller-Cucala, Raquel García-Pérez, Eva Julià, Esther Lizano, Òscar Fornas, Eduard Sabidó, Qiye Li, Tomas Marques-Bonet*, David Juan*, Guojie Zhang* "Transcriptome innovations in primates revealed by single-molecule long-read sequencing" **Genome Research** 2022 2022/7/15
- 12) Claudia Fontseré, et al. Tomas Marques-Bonet "Population dynamics and genetic connectivity in recent chimpanzee history" **Cell Genomics** 2022 , 100133
- 13) Marc Palmada-Flores, Joseph D Orkin, Bettina Haase, Jacquelyn Mountcastle, Mads F Bertelsen, Olivier Fedrigo, Lukas FK Kuderna, Erich D Jarvis, Tomas Marques-Bonet "A high-quality, long-read genome assembly of the endangered ring-tailed lemur (*Lemur catta*)" **GigaScience** 2022 11
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139. Aylwyn Scally, Julien Y. Dutheil, LaDeana W. Hillier, Greg E. Jordan, Ian Goodhead, Javier Herrero, Asger Hobolth, Tuuli Lappalainen, Thomas Mailund, **Tomas Marques-Bonet**, Shane McCarthy, Stephen H. Montgomery, Petra C. Schwalie, Y. Amy Tang, Michelle C. Ward, Yali Xue, Bryndis Yngvadottir, Can Alkan, Lars N. Andersen, Qasim Ayub, Edward V. Ball, Kathryn Beal, Brenda J. Bradley, Yuan Chen, Chris M. Clee, Stephen Fitzgerald, Tina A. Graves, Yong Gu, Paul Heath, Andreas Heger, Emre Karakoc, Anja Kolb-Kokocinski, Gavin K. Laird, Gerton Lunter, Stephen Meader, Matthew Mort, James C. Mullikin, Kasper Munch, Timothy D. O'Connor, Andrew D. Phillips, Javier Prado-Martinez, Anthony S. Rogers, Saba Sajadian, Dominic Schmidt, Katy Shaw, Jared T. Simpson, Peter D. Stenson, Daniel J. Turner, Linda Vigilant, Albert J. Vilella, Weldon Whitener, Baoli Zhu, David N. Cooper, Pieter de Jong, Emmanuel T. Dermitzakis, Evan E. Eichler, Paul Flicek, Nick Goldman, Nick I. Mundy, Zemin Ning, Duncan T. Odom, Chris P. Ponting, Michael A. Quail, Oliver A. Ryder, Stephen M. Searle, Wesley C. Warren, Richard K. Wilson, Mikkel H. Schierup, Jane Rogers, Chris Tyler-Smith, Richard M. Durbin." Insights into hominid evolution from the gorilla genome sequence" **Nature** 2012 483,169–175 (08 March 2012).
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Puente, Gonzalo R. Ordóñez, Carlos Lo'pez-Oti'n, Tomas Vinar, Brona Brejova, Aakrosh Ratan, Robert S. Harris, Webb Miller, Carolin Kosiol, Heather A. Lawson, Vikas Taliwal, Andre' L. Martins, Adam Siepel, Arindam RoyChoudhury, XinMa, Jeremiah Degenhardt, Carlos D. Bustamante, Ryan N. Gutenkunst, Thomas Mailund, Julien Y. Dutheil, Asger Hobolth, Mikkel H. Schierup, Oliver A. Ryder, Yuko Yoshinaga, Pieter J. de Jong, George M. Weinstock, Jeffrey Rogers, Elaine R. Mardis, Richard A. Gibbs & Richard K. Wilson. "Comparative and demographic analysis of orang-utan genomes" **Nature** 2011 Volume:469, Pages:529–533 Date published:(27 January 2011) DOI:doi:10.1038/nature09687 (Cover)

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148. Richard E. Green, Johannes Krause, Adrian W. Briggs, Tomislav Maricic, Udo Stenzel, Martin Kircher, Nick Patterson, Heng Li, Weiwei Zhai, Markus Hsi-Yang Fritz, Nancy F. Hansen, Eric Y. Durand, Anna-Sapfo Malaspina, Jeffrey D. Jensen, **Tomas Marques-Bonet**, Can Alkan, Kay Prüfer, Matthias Meyer, Hernán A. Burbano, Jeffrey M. Good, Rigo Schultz, Ayinuer Aximu-Petri, Anne Butthof, Barbara Höber, Barbara Höffner, Madlen Siegemund, Antje Weihmann, Chad Nusbaum, Eric S. Lander, Carsten Russ, Nathaniel Novod, Jason Affourtit, Michael Egholm, Christine Verna, Pavao Rudan, Dejana Brajkovic, Željko Kucan, Ivan Gušić, Vladimir B. Doronichev, Liubov V. Golovanova, Carles Lalueza-Fox, Marco de la Rasilla, Javier Fortea, Antonio Rosas, Ralf W. Schmitz, Philip L. F. Johnson, Evan E. Eichler, Daniel Falush, Ewan Birney, James C. Mullikin, Montgomery Slatkin, Rasmus Nielsen, Janet Kelso, Michael Lachmann, David Reich, Svante Pääbo. "A draft sequence and preliminary analysis of the Neandertal genome" **Science** 7 May 2010: Vol. 328 no. 5979 pp. 710-722
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151. **Tomas Marques-Bonet** and Evan Eichler. "The Evolution of Human Segmental Duplications and the Core Duplication Hypothesis." **Cold Spring Harb Symp Quant Biol.** 2009;74:355-62. Epub 2009 Aug 28.
152. Andres Moreno-Estrada, Ku Tang, Martin Sikora, **Tomàs Marquès-Bonet**, Ferran Casals, Arcadi Navarro, Francesc Calafell, Jaume Bertranpetti, Marc Stoneking, Elena Bosch. "Interrogating eleven fast-evolving genes for signatures of recent positive selection in worldwide human populations" " **Mol Biol Evol.** 2009 Oct;26(10):2285-97. Epub 2009 Jul 3.
153. Francesca Antonacci, Jeffrey M. Kidd, **Tomas Marques-Bonet**, Mario Ventura, Priscillia Siswara, Zhaoshi Jiang and Evan E Eichler. "Characterization of six human disease-associated inversion polymorphisms" **Human Molecular Genetics** 2009 18(14):2555-2566
154. Can Alkan, Jeffrey M. Kidd, **Tomas Marques-Bonet**, Gözde Aksay, Fereydoun Hormozdiari, Francesca Antonacci, Carl Baker, Onur Mutlu, S. Cenk Sahinalp, Richard A. Gibbs, Evan E. Eichler. "Personalized Copy-Number and Segmental Duplication Maps using Next-Gen Sequencing Technology." **Nature Genet.** 2009 Oct;41(10):1061-7. Epub 2009 Aug 30.
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165. Kohji Okamura, Lars Feuk, **Tomàs Marquès-Bonet**, Arcadi Navarro, and Stephen W. Scherer. "Frequent appearance of novel protein-coding sequences by frameshift translation". **Genomics**, 2006, Dec;88(6):690-7. Epub 2006 Aug 4.
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167. Carles Lalueza-Fox, Jose Castresana, Lourdes Sampietro, **Marques-Bonet T**, Josep Antoni Alcover and Jaume Bertranpetti. "Molecular dating of caprines using ancient DNA sequences of *Myotragus balearicus*, an extinct endemic Balearic mammal." **BMC Evolutionary Biology** 2005, 5:70 (6 December 2005).
168. Lluís Armengol, **Marques-Bonet T**, Joseph Cheung, Stephen W. Scherer, Arcadi Navarro, Xavier Estivill. "Murine segmental duplications are hot spots for chromosome and gene evolution". **Genomics**, Volume 86, Issue 6, 2005, Pages 692-700.
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BOOKS

- "L'estrucció del genoma". Marques-bonet, T & Armengol, LL. "Cent cinquanta anys després de L'origen de les espècies, de Darwin". Societat Catalana de Biologia 2008.

- “Una década d’aportacions catalanes a la Ciència actual” Marques-Bonet Ed. 2019.

NON ISI ARTICLES

- “Diversitat”. Comas, D & Marques-bonet, T. Omnis Cellula 2010.
- “Tribuna”. Marques-bonet, T. Talencia 2010.
- “El Floquet de neu com a model per entendre Albinisme”. Revista Zoo Barcelona. 2013.
- “Planning for the Apes”. ZooAquaria (Eaza journal). Winter 2013. Issue 84.
- “Què ens fa humans?”. La Maleta de Portbou. 2016
- “Què és nou?”. La Maleta de Portbou. 2017
- “Biomedicina”. La Maleta de Portbou. 2018
- > 60 interventions in general communication media (Press, Radio and TV).
- “Que ens depara la propera dècada?” Diari Ara 2019
- “Que es la realitat?” La Maleta de Portbou. 2020
- “Incertesa” La Maleta de Portvou

PRIZES, AWARDS AND FELLOWSHIPS

Fellowships

- Marie Curie International Outgoing Fellowship (IOF). Postdoctoral fellowship (3 years) given by the European Union. 2008-2011.
- Postdoctoral Fellowship from the “Ministerio de Ciencia e Innovacion” (2007). Renounced for personal reasons.
- “Beatriu de Pinos” fellowship. Postdoctoral fellowship (2 years) given by the “Generalitat de Catalunya” (Catalan Government) 2007-2008.
- Phd Fellowship of UPF (Beca de tercer cicle) from September of 2002 to September of 2006.
- Fellowship “BE 2005” from the “Generalitat de Catalunya” (Catalan Government) for a total amount of 1600€, to visit University of Washington under the supervision of Dr. Eichler. 2005.
- Fellowship of University Pompeu Fabra to attend to the meeting from “Societat Espanola de Genetica”. 2003.

Awards

- Member of the Royal Academy of Sciences 2024.
- Premi Ciutat de Barcelona 2023.
- AAAS Breakthrough of the Year (public opinion) 2019
- Howard Hugues International Award 2017
- 125è Aniversari del Zoo de Barcelona. Best Research Project. 2016
- EMBO Young Investigator Award. 2013
- Premi Ciutat De Barcelona. 2nd position 2013. Special Mention.
- Premi Josep M Sala i Trepat. Societat Catalana de Biologia. 2010.
- AAAS Newcomb Cleveland Award (most outstanding paper published in Science 2010) which was later the foundation of the Nobel Prize to Svante Paabo (Neandertal Genome, 2022).
- Best poster at “The Biology of the genomes” CSH, 2011.
- 2nd best poster Award in the meeting *Primate genomics and Human Disease*. Seattle, April 2008.
- 1st “Antoni Prevosti Award”. An award to a Catalan investigator for a talk given at Cold Spring Harbor “The Biology of the genomes” 2008.

- “Alan Wade Parker Travel Award” for the best poster at University of Washington *Genome Sciences Department Retreat* 2008.
- Selected as 1 of the 10 Young leaders for the future of Spanish Research. Revista Economica Capital (Madrid, Spain).

SERVICE ACTIVITIES

MEETING COMMITTEE

- Member of the organizing committee for the 2011 international meeting Primate genetics and genomics (Boston, 2011).
- Organizing of a symposium for the 2013 American Society of Human Genetics (Boston, 2013).
- Organizer of EMBO Young Investigator meeting in Barcelona (2015).
- Organizing of a symposium for the 2016 International Primate Genomics (Chicago, 2013).
- Organizing of a symposium for the 2017 Biogenomic meeting (Washington DC, 2017).

SCIENTIFIC COUNCILS and EVALUATION

- LABEX CeMEB Scientific Council - Montpellier, France
- Vertebrate Genome Project (VGP/G10K)
- Tenure Track evaluation of Ida Moltke (U Copenhagen). 2019
- Member of the Scientific Advisory Board of CENIEH (National Center of Human Evolution). 2023
- Member of the Scientific Advisory Board of Flomics (Startup). 2021
- Member of the Scientific Advisory Board of Colossal Laboratories and Biosciences (National Center of Human Evolution). 2023
- Member of the Scientific Advisory Board for the developmental GTEX project (NIH).

PHD COMMITTEES

- PhD committee defense of Dr. Marta Puig Font (Universitat Autònoma de Barcelona). “Functional analysis of position effects of inversion 2j in Drosophila buzzatii : gene CG13617 silencing and its adaptive significance” December 2010.
- PhD committee defense of Dr. Olga Fernando (Universida de Nova de Lisboa (UNL)). “Intron evolution in non-human primates”. January 2012.
- PhD committee defense of Dr. Macarena Toll (Universitat Autònoma de Barcelona) “Mechanisms of evolutionary innovation in mammals”. March 2012
- PhD committee defense of Dr. Marta Ferre (Universitat Autònoma de Barcelona) “Evolució cormosòmica en mamífers: cariotips ancestrals i punts de trencament evolutiu”. Maig 2012
- PhD committee defense of Dr. Javier Quilez (Universitat Autònoma de Barcelona) “Application of genome-wide single-nucleotide polymorphism arrays to understanding dog disease and evolution”. 2012. October 2012
- PhD committee defense of Dr. Alexander Martinez (Universitat Pompeu Fabra) “Bionformatic characterization of human polymorphic inversions”. December 2013
- PhD committee defense of Dr. Federico Sanchez Quinto (Universitat Pompeu Fabra) “Addressing Neandertal evolutionary genetics at three different resolution levels: admixture with modern humans, demography and social structure”. November 2014
- PhD committee defense of Dr. Paola Mujica (Universidad de Chile) “Caracterización genética poblacional de la raza canina terrier chileno utilizando datos de pedigrí información genómica”. November 2014
- PhD committee defense of Dr. Inna Povolotskaya (Universitat Pompeu Fabra) “Context-dependent selection in molecular evolution”. February 2015
- PhD committee defense of Dr. Diego HartaSanchez (Universitat Pompeu Fabra) “Modeling and Simulation of gene conversion”. September 2016
- PhD committee defense of Dr. Maria Asplund (Universitat Copenhagen) “high throughput sequencing in Cancer”. November 2017

REVIEWER

- Ad-hoc reviewer for ERC (Europe), NSF (USA), NIH (USA), ANR (France), National Science Fundation (NFS) grant review process, Templeton Foundation (USA), Kazhahstan grant review process, Israel Science Foundation grant review process, Nature, Science, Nature Genetics, Genome research, PNAS, Plos Genetics among others.
- Reviewer for ANECA (National Evaluation and Foresight Agency). I evaluate science/technology proposals on request from the State Secretary for Universities and Research in the area of Fundamental biology and systems.

- 4 times panelist for the Ramon y Cajal Fellowships.
- 2 times panelist for the La Caixa Fellowships.
- Panelist for the ANR (French National Research Agency). 2023.
- ERC Panelist. Consolidator. >2023

EDITOR

Associate Editor for BMC Genomics (2014-2019)

INVITED TALKS, CONFERENCES AND WORKSHOPS

Workshops

- “**Que ens fa humans**”. **Josep Ramoneda and Tomas Marques**. Obra Social la Caixa. March 2017.
- **Teacher Assistant** at the workshop “**Advance Bioinformatics**” Lincoln Stein, Simon Prochnik. Cold Spring Harbor Laboratory (**New York**). 2005/2006/2007/2011/2012/2013/2014/2015/2016
- **Teacher at** WORKSHOP in Programming for Evolutionary Biology. LEIPZIG. Invited talk. 2012/2013/2014/2015/2016/2017. Invited by Katja Nowich.

Invited Talks:

More than 70 invited talks in the last 7 years including invitations from Dr. Richard Durbin. Dr. Svante Paabo. Dr. Lars Feuk. Dr. Gomez Skarmeta. Dr Chris Pontig, Dr Caramelli, Dr Michael Krutzen, Dr. O Brien and Dr Yoav Gilad. Relevant conferences in the last 5 years:

- **Kunming and Beijing Universities, invited by Chinese Academy of Sciences 2024**
- **European Primatology 2023**
- **SMBE 2024**
- **IPS 2022**
- **Bern 2023**
- **ISDB 2022 Algarve**
- **Copenhagen Biodiversity 2022**
- **HHMI Deconstructing the Human Genome 2022**
- **Stockholm University 2021**
- **Viena 2021**
- **SMBE 2021**
- **NY ONT day 2019**
- **Zurich 2019**
- **EMBO keynote 2019**
- **Chile 2019 Atacama.**

Other conferences as invited speaker:

- Welcome Trust: Epigenetics of common diseases
- Welcome Trust: Fossils, bones and genomes. Human evolution
- Basel EMBO: life Sciences
- Smithsonian Museum: Conservation genomics
- Hugo Meeting.
- SMBE.

MEDIA APPEARANCES AND SOCIAL COMMUNICATION:

- Regular organizer and speaker with Josep Ramoneda (philosopher) and “La Caixa” to look for bridges across science and phylosohy <https://escolaeuropedhumanitats.com/es/ponent/tomas-marques-bonet/>
- Regular contributions to “La Maleta de Portbou” (<https://lamaletadeportbou.com/>)
- 2 interventions at “Festival de Denia de Humanitats”
- “La Contra” de la Vanguardia.
- Dedicated Interview to BigBang, La Vanguardia
- 2 Semaforos verds a La Vanguardia.
- Dedicated interview to Fundacio Catalana de Recerca i Innovacio (<https://www.youtube.com/watch?v=N60MurbXS10>)
- Diaria Ara, Debate about human modifications with Daniel Gamper, Tomàs Marquès i Antoni Bassas.
- Dedicated promotion of Catalonia for Diplocat (<https://www.youtube.com/watch?v=Nlqq6FV6x9A>)
- Speaker at Biennal Ciutat I Ciencia (Ajuntament Barcelona 2021).
- Dozens of interventions in radio and television at National and international level (see sample ZIP file). TV3, Catalunya Radio, Rac1, RTVE, El Mundo, El Pais, ...
- Regular participant en Dia de la Ciencia (Fundacio Catalana de Recerca i Innovacio) and regular invited in other schools (even to Benicarló <https://www.vinarosnews.net/xerrada-a-lies-ramon-cid-de-tomas-marques-director-de-linstitut-de-biologia-evolutiva/>)
-

CONTRIBUTIONS TO SCIENTIFIC MEETINGS

Organizer of symposiums at the American Society of Human genetics (Boston, 2013), SMBE (Houston, 2012), International Primate Genomics (Chicago, 2016), Biogenomics (Smithsonian 2017) and Chair organizer of the EMBO Young Investigator meeting in 2015, Comparative Genomics RECOMB 2017 in Barcelona.

ACADEMIC EXPERIENCE

- **Coordinator** of the course Genomes & Systems (20 hours/year) at the Masters of Biomedical Research at the Facultat de Ciencies de la Salud i de la Vida, Universidad Pompeu Fabra. Year 2010-present.
- **Teaching assistant** (25 hours/year) at Anthropology in the Biology degree at the Facultat de Ciencies de la Salud i de la Vida, Universidad Pompeu Fabra. Year 2002-03, and 2003-04.
- **Teaching assistant** (70 hours/year, both theory and practical lessons) at Zoology, Evolution and Ecology in the Biology degree at the Facultat de Ciencies de la Salud i de la Vida, Universidad Pompeu Fabra. Year 2002-03, 2003-04, 2004-05, 2005-2006 and 2006-07, 2011-12, 2012-13.