

Prof Director Ludovic ORLANDO, PhD, HDR

Publication List (226, Updated Sept 2023)

208 Peer-reviewed

2023– Peer-reviewed

- 1) Orlando L. 2023. A genetic window into the human social past. **PNAS** 120:e2312672120.
- 2) Todd ET, Fromentier A, Sutcliffe R, Running Horse Collin Y, Perdereau A, Aury JM, Èche C, Bouchez O, Donnadiou C, Wincker P, Kalbfleisch T, Petersen JL, **Orlando L.** 2023. Imputed genomes of historical horses provide insights into modern breeding. **iScience** 26:107104.
- 3) Bozlak E, Radovic L, Remer V, Rigler D, Allen L, Brem G, Stalder G, Castaneda C, Cothran G, Raudsepp T, Okuda Y, Moe KK, Moe HH, Kounnavongsa B, Keonouchanh S, Van NH, Vu VH, Shah MK, Nishibori M, Kazymbet P, Bakhtin M, Zhunushov A, Paul RC, Dashnyam B, Nozawa K, Almarzook S, Brockmann GA, Reissmann M, Antczak DF, Miller DC, Sadeghi R, von Butler-Wemken I, Kostaras N, Han H, Manglai D, Abdurasulov A, Sukhbaatar B, Ropka-Molik K, Stefaniuk-Szmukier M, Lopes MS, da Câmara Machado A, Kalashnikov VV, Kalinkova L, Zaitev AM, Novoa-Bravo M, Lindgren G, Brooks S, Rosa LP, **Orlando L**, Juras R, Kunieda T, Wallner B. 2023. Refining the evolutionary tree of the horse Y chromosome. **Sci Rep** 13:8954.
- 4) Clavel P, Louis L, Sarkissian C, Thèves C, Gillet C, Chauvey L, Tressières G, Schiavinato S, Calvière-Tonasso L, Telmon N, Clavel B, Jonvel R, Tzortzis S, Bouniol L, Fémolant JM, Klunk J, Poinar H, Signoli M, Costedoat C, Spyrou MA, Seguin-Orlando A, **Orlando L.** Improving the extraction of ancient *Yersinia pestis* genomes from the dental pulp. **iScience** 26:106787.
- 5) Taylor WTT, Librado P, American Horse CJ, Shield Chief Gover C, Arterberry J, Afraid of Bear-Cook AL, Left Heron H, Yellow Hair RM, Gonzalez M, Means B, High Crane S, Yellow Bull WW, Dull Knife B, Afraid of Bear A, Tecumseh Collin C, Ward C, Pasqual TA, Chauvey L, Tonasso-Calvière L, Schiavinato S, Seguin-Orlando A, Fages A, Khan N, Der Sarkissian C, Liu X, Wagner S, Leonard BG, Manzano BL, O'Malley N, Leonard JA, Bernáldez-Sánchez E, Barrey E, Charliouart L, Robbe E, Denoblet T, Gregersen K, Vershinina AO, Weinstock J, Rajić Šikanjić P, Mashkour M, Shingiray I, Aury JM, Perdereau A, Alquraishi S, Alfarhan AH, Al-Rasheid KAS, Trbojević Vukičević T, Buric M, Sauer E, Lucas M, Brenner-Coltrain J, Bozell JR, Thornhill CA, Monagle V, Perri A, Newton C, Hall WE, Conner JL, Le Roux P, Buckser SG, Gabe C, Belardi JB, Barrón-Ortiz CI, Hart IA, Ryder C, Sponheimer M, Shapiro B, Southon J, Hibbs J, Faulkner C, Outram A, Patterson Rosa L, Palermo K, Solé M, William A, McCrory W, Lindgren G, Brooks S, Eché C, Donnadiou C, Bouchez O, Wincker P, Hodgins G, Trabert S, Bethke B, Roberts P, Jones EL, Running Horse Collin Y, **Orlando L.** Early dispersal of domestic horses into the Great Plains and northern Rockies. **Science** 379:1316-1323.
- 6) **Orlando L.** 2023. The genomic history of ice-age Europeans. **Nature** 615:41-42.
- 7) Liu X, Seguin-Orlando A, Chauvey L, Tressières G, Schiavinato S, Tonasso-Calvière L, Aury JM, Perdereau A, Wagner S, Clavel P, Estrada O, Pan J, Ma Y, Enk J, Devault A, Klunk J, Lepetz S, Clavel B, Jiang L, Wincker P, Collin YRH, Sarkissian C, **Orlando L.** 2023. DNA methylation-based profiling of horse archaeological remains for age-at-death and castration. **iScience** 26:106144.
- 8) Wagner S, Seguin-Orlando A, Leplé JC, Leroy T, Lalanne C, Labadie K, Aury JM, Poirier S, Wincker P, Plomion C, Kremer A, **Orlando L.** 2023. Tracking population structure and phenology through time using ancient genomes from waterlogged white oak wood. **Mol Ecol** doi: 10.1111/mec.16859.

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- 9) Wang Y, Prohaska A, Dong H, Alberti A, Alsos IG, Beilman DW, Bjørk AA, Cao J, Cherezova AA, Coissac E, De Sanctis B, Denoëud F, Dockter C, Durbin R, Edwards ME, Edwards NR, Esdale J, Fedorov GB, Fernandez-Guerra A, Froese DG, Gusarova G, Haile J, Holden PB, Kjeldsen KK, Kjær KH, Korneliusson TS, Lammers Y, Larsen NK, Macleod R, Mangerud J, McColl H, Merkel MKF, Money D, Möller P, Nogués-Bravo D, **Orlando L**, Owens HL, Pedersen MW, Racimo F, Rahbek C, Rasic JT, Rouillard A, Ruter AH, Skadhauge B, Svendsen JI, Tikhonov A, Vinner L, Wincker P, Xing Y, Zhang Y, Meltzer DJ, Willerslev E. 2022. Reply to: When did mammoths go extinct? **Nature** 612:E4-E6.
- 10) Todd ET, Tonasso-Calvière L, Chauvey L, Schiavinato S, Fages A, Seguin-Orlando A, Clavel P, Khan N, Pardal LP, Patterson Rosa L, Librado P, Ringbauer H, Verdugo M, Southon J, Aury JM, Perdereau A, Vila E, Marzullo M, PratoO, Tecchiati U, Bagnasco Gianni G, Tagliacozzo A, Tinè V, Alhaique F, Cardoso JL, Valente MJ, Antunes MT, Frantz L, Shapiro B, Bradley DG, Boubes N, Gardeisen A, Koska Horwitz L, Ötzan A, Arbuckle BS, Onar V, Clavel B, Lepetz S, Vahdati AA, Davoudi H, Mohaseb A, Mashjour M, Bouchez O, Donnadiou C, Wincker P, Brooks SA, Beja-Pereira A, Wu DD, **Orlando L.** 2022. The genomic history and global expansion of domestic donkeys. **Science** 377:1172-80.
- 11) Bergström A, Stanton DWG, Taron UH, Frantz L, Sinding MS, Ersmark E, Pfrengle S, Cassatt-Johnstone M, Lebrasseur O, Girdland-Flink L, Fernandes DM, Ollivier M, Speidel L, Gopalakrishnan S, Westbury MV, Ramos-

- Madrigal J, Feuerborn TR, Reiter E, Gretzinger J, Münzel SC, Swali P, Conard NJ, Carøe C, Haile J, Linderholm A, Androsov S, Barnes I, Baumann C, Benecke N, Bocherens H, Brace S, Carden RF, Drucker DG, Fedorov S, Gasparik M, Germonpré M, Grigoriev S, Groves P, Hertwig ST, Ivanova VV, Janssens L, Jennings RP, Kasparov AK, Kirillova IV, Kurmaniyazov I, Kuzmin YV, Kosintsev PA, Lázničková-Galetová M, Leduc C, Nikolskiy P, Nussbaumer M, O'Drisceoil C, **Orlando L**, Outram A, Pavlova EY, Perri AR, Pilot M, Pitulko VV, Plotnikov VV, Protopopov AV, Rehazek A, Sablin M, Seguin-Orlando A, Storå J, Verjux C, Zaubert VF, Zazula G, Crombé P, Hansen AJ, Willerslev E, Leonard JA, Götherström A, Pinhasi R, Schuenemann VJ, Hofreiter M, Gilbert MTP, Shapiro B, Larson G, Krause J, Dalén L, Skoglund P. 2022. Grey wolf genomic history reveals a dual ancestry of dogs. **Nature** 607:313-320.
- 12) Suchan T, Chauvey L, Pouillet M, Tonasso-Calvière L, Schiavinato S, Clavel P, Clavel B, Lepetz S, Seguin-Orlando A, **Orlando L**. 2022. Assessing the impact of USER-treatment on hyRAD capture applied to ancient DNA. **Mol Ecol Resour** 22:2262-64.
- 13) Cai D, Zhu S, Gong M, Zhanh N, Wen J, Liang Q, Sun W, Shao X, Guo Y, Cai Y, Zheng Z, Zhang W, Hu S, Wang X, Tian H, Li Y, Liu W, Yang M, Yang J, Wu D, **Orlando L**, Jiang Y. 2022. Radiocarbon and genomic evidence for the survival of *Equus Sussemionus* until the late Holocene. **Elife** 11:e73346.
- 14) Slimak L, Zanolli C, Higham T, Frouin M, Schwenninger JL, Arnold LJ, Demuro M, Douka K, Mercier N, Guérin G, Valladas H, Yvorra P, Giraud Y, Seguin-Orlando A, **Orlando L**, Lewis JE, Muth X, Camus H, Vandevelde S, Buckley M, Mallol C, Stringer C, Metz L. 2022. Modern human incursion into Neanderthal territories 54,000 years ago at Mandrin, France. **Sci Adv** 8:eabj9496.
- 15) Sharif M, Mohaseb AF, Zimmermann MI, Trixl S, Saliari K, Kunst GK, Cucchi T, Czeika S, Mashkour M, **Orlando L**, Schaefer K, Peters J, Mohandesan E. 2022. The mules that are not mules - metrics, morphology, archaeogenomics and mtDNA d-loop diversity in equids from Roman Switzerland. **J Arc Sci** 143:105624.
- 16) Liu X, **Orlando L**. 2022. mapDATAge: a ShinyRpackage to chart ancient DNA data through space and time. **Bioinformatics** 38:3992-4.
- 17) Librado P, **Orlando L**. 2022. Struct-f4: a Rccp package for ancestry profile and population structure inference from f4 statistics. **Bioinformatics** 38:2070-1.
- 18) Clavel B, Lepetz S, Chauvey L, Schiavinato S, Tonasso-Calvière L, Liu X, Fages A, Khan N, Seguin-Orlando A, Der Sarkissian C, Clavel P, Estrada O, Alioglu D, Gaunitz C, Aury JM, Barme M, Bodu P, Olive M, Bignon-Lau O, Castel JC, Boudadi-Maligne M, Boulbes N, Bourgois A, Decanter F, Foucras S, Frère S, Gardeisen A, Jouanin G, Méla C, Morand N, Nieto Espinet A, Perdereau A, Putelat O, Rivière J, Robin O, Salin M, Valenzuela-Lamas S, Vallet C, Yvinec JH, Wincker P, **Orlando L**. 2022. Sex in the city: Uncovering sex-specific management of equine resources from prehistoric times to the Modern Period in France. **J Arc Sci Rep** 41:103341.
- 19) Liu X, Zhang Y, Liu W, Li Y, Pan J, Pu Y, Han J, **Orlando L**, Ma Y, Jiang L. 2022. A single-nucleotide mutation within the TBX3 enhancer increased body size in Chinese horses. **Curr Biol** 32:480-7.
- 20) Suchan T, Kusliy MA, Khan N, Chauvey L, Tonasso-Calvière L, Schiavinato S, Southon J, Keller M, Kitagawa K, Krause J, Bessudnov AN, Bessudnov AA, Graphodatsky AS, Valenzuela-Lamas S, Wilczyński J, Pospuła S, Tunia K, Nowak M, Moskal-delHoyo M, Tishkin AA, Pryor AJE, Outram AK, **Orlando L**. 2022. Performance and automation of ancient DNA capture with RNA hyRAD probes. **Mol Ecol Resour** 22:891-907.

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- 21) Lepetz S, Clavel B, Alioglu D, Chauvey L, Schiavinato S, Tonasso-Calvière L, Liu X, Fages A, Khan N, Seguin-Orlando A, Der Sarkissian C, Clavel P, Estrada O, Gaunitz C, Aury JM, Barme M, Boulbes N, Bourgois A, Decanter F, Foucras S, Frère S, Gardeisen A, Jouanin G, Méla C, Morand N, Nieto Espinet A, Perdereau A, Putelat O, Rivière J, Robin O, Salin M, Valenzuela-Lamas S, Vallet C, Yvinec JH, Wincker P, **Orlando L**. 2021. Historical management of equine resources in France from the Iron Age to the Modern Period. **J Arc Sci Rep** 40:103250.
- 22) Librado P, **Orlando L**. 2021. Genomics and the evolutionary history of equids. *Ann Rev Anim Biosci* 9:81-101.
- 23) Clavel P, Dumoncel J, Der Sarkissian C, Seguin-Orlando A, Calvière-Tonasso L, Schiavinato S, Chauvey L, Perdereau A, Aury JM, Wincker P, Onar V, Clavel B, Lepetz S, Braga J, **Orlando L**. 2021. Assessing the predictive taxonomic power of the bony labyrinth 3D shape in horses, donkeys and their F1-hybrids. **J Arc Sci** 131:105383.
- 24) **Orlando L**, Allaby R, Skoglund P, Der Sarkissian C, Stockhammer PW, Avila-Arcos MC, Fu Q, Krause J, Willerslev E, Stone AC, Warinner C. 2021. Ancient DNA analysis. **Nat Rev Methods Primers** 1:14.
- 25) Seguin-Orlando A, Donat R, Der Sarkissian C, Southon J, Thèves C, Manen C, Tchéremisnoff Y, Crubézy E, Shapiro B, Deleuze JF, Dalén L, Guilaine J, **Orlando L**. 2021. Heterogeneous Hunter-Gatherer and Steppe-Related Ancestries in Late Neolithic and Bell Beaker Genomes from Present-Day France. **Curr Biol** 31:1072-1083.e10.
- 26) Librado P, Khan N, Fages A, Kusliy MA, Suchan T, Tonasso-Calvière L, Schiavinato S, Alioglu D, Fromentier A, Perdereau A, Aury JM, Gaunitz C, Chauvey L, Seguin-Orlando A, Der Sarkissian C, Southon J, Shapiro B, Tishkin AA, Kovalev AA, Alquraishi S, Alfarhan AH, Al-Rasheid KAS, Seregély T, Klassen L, Iversen R, Bignon-Lau O, Bodu P, Olive M, Castel JC, Boudadi-Maligne M, Alvarez N, Germonpré M, Moskal-Del Hoyo M, Wilczyński J, Pospuła S, Lasota-Kuś A, Tunia K, Nowak M, Rannamäe E, Saarma U, Boeskorov G, Lõugas L, Kyselý R, Peške L, Bălăşescu A, Dumitraşcu V, Dobrescu R, Gerber D, Kiss V, Szécsényi-Nagy A, Mende BG, Gallina Z, Somogyi K, Kulcsár G, Gál E,

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- 27) Wang Y, Pedersen MW, Alsos IG, De Sanctis B, Racimo F, Prohaska A, Coissac E, Owens HL, Merkel MKF, Fernandez-Guerra A, Rouillard A, Lammers Y, Alberti A, DENOUD F, Money D, Ruter AH, McColl H, Larsen NK, Cherezova AA, Edwards ME, Fedorov GB, Haile J, **Orlando L**, Vinner L, Korneliusen TS, Beilman DW, Bjørk AA, Cao J, Dockter C, Esdale J, Gusarova G, Kjeldsen KK, Mangerud J, Rasic JT, Skadhauge B, Svendsen JI, Tikhonov A, Wincker P, Xing Y, Zhang Y, Froese DG, Rahbek C, Nogues DB, Holden PB, Edwards NR, Durbin R, Meltzer DJ, Kjær KH, Möller P, Willerslev E. 2021. Late Quaternary dynamics of Arctic biota from ancient environmental genomics. *Nature* 600:86-92. Errata in: *Nature* 610:E5 and *Nature* 603:E31.
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- 31) Taylor WTT, Pruvost M, Posth C, Rendu W, Krajcarz MT, Abdykanova A, Brancaloni G, Spengler R, Hermes T, Schiavinato S, Hodgins G, Stahl R, Min J, Alisher Kyzy S, Fedorowicz S, **Orlando L**, Douka K, Krivoshapkin A, Jeong C, Warinner C, Shnaider S. 2021. Evidence for early dispersal of domestic sheep into Central Asia. *Nat Hum Behav* 5:1169-1179.

2020– Peer-reviewed

- 32) Gauthier J, Pajkovic M, Neuenschwander S, Kaila L, Schmid S, **Orlando L**, Alvarez N. 2020. Museomics identifies genetic erosion in two butterfly species across the 20th century in Finland. *Mol Ecol Resour* 20:1191-1205.
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- 34) **Orlando L**. 2020. The evolutionary and historical foundation of the modern horse: lessons from ancient genomics. *Ann Rev Genet* 54:563-81.
- 35) Klumplerova M, Splichalova P, Oppelt J, Futas J, Kohutova A, Musilova P, Kubickova S, Vodicka R, **Orlando L**, Horin P. 2020. Genetic diversity, evolution and selection in the major histocompatibility complex DRB and DQB loci in the family Equidae. *BMC Genomics* 21:677.
- 36) Margaryan A, Lawson D, Sikora M, Racimo F, Rasmussen S, Moltke I, Cassidy L, Jørsboe E, Ingason A, Pedersen M, Korneliusen T, Wilhelmson H, Buś MM, de Barros Damgaard P, Martiniano R, Renaud G, Bhérer C, Moreno-Mayar JV, Fotakis A, Allen M, Allmæ R, Molak M, Cappellini E, Scorrano G, Buzhilova A, Fox A, Albrechtsen A, Schütz B, Skar B, Arcini C, Falys C, Hedenstierna Jonson C, Błaszczyc D, Pezhemsky D, Turner-Walker G, Gestsdóttir H, Lundstrøm I, Gustin I, Mainland I, Potekhina I, Muntoni IM, Cheng J, Stenderup J, Ma J, Gibson J, Peets J, Gustafsson J, Iversen KH, Simpson L, Strand L, Loe L, Sikora M, Florek M, Vretemark M, Redknap M, Bajka M, Pushkina T, Søvsø M, Grigoreva N, Christensen T, Kastholm O, Uldum O, Favia P, Holck P, Sten S, Arge SV, Ellingvåg S, Moiseyev V, Bogdanowicz W, Magnusson Y, **Orlando L**, Pentz P, Dingsø Jessen M, Pedersen A, Collard M, Bradley DG, Jørkov ML, Arneborg J, Lynnerup N, Price N, Gilbert MT, Allentoft M, Bill J, Sindbæk SM, Hedeager L, Kristiansen K, Nielsen R, Werge T, Willerslev E. 2020. Population genomics of the Viking World. *Nature* 585:390-6. Erratum in: *Nature* 591:E29.

- 37) Fages A, Seguin-Orlando A, Germonpré M, **Orlando L.** 2020. Horse males became over-represented in archaeological assemblages during the Bronze Age. **J Arc Sci Rep** 31:102364.
- 38) Granado JD, Dill N, Gaunitz C, Fages A, Khan N, Schernig Mrza M, Deschler-Erb S, **Orlando L.** Schlumbaum A. 2020. The mules that are not mules - metrics, morphology, archaeogenomics and mtDNA d-loop diversity in equids from Roman Switzerland. **J Arc Sci** 123:105253.
- 39) **Orlando L.** 2020. Filling Important Gaps in the Genomic History of Southwest Asia. **Cell** 181:966-8.
- 40) Frantz L, Bradley D, Larson G, **Orlando L.** 2020. Animal domestication in the era of ancient genomics. **Nat Rev Genet** 21:449-60.
- 41) Dolle D, Fages A, Mata X, Schiavinato S, Tonasso-Calvière L, Chauvey L, Wagner S, Der Sarkissia C, Fromentier A, Seguin-Orlando A, **Orlando L.** 2020. CASCADE: a Custom-made Archiving System for the Conservation of Ancient DNA Experimental Data. **Frontiers Ecol Evol** 8:185.
- 42) Pouillet M, **Orlando L.** 2020. Assessing DNA Sequence Alignment Methods for Characterizing Ancient Genomes and Methylomes. **Front Ecol Evol** 8:105.
- 43) Der Sarkissian C, Möller P, Hofman C, Ilsøe P, Rick T, Schiøtte T, Vinther Sørensen M, Dalén L, **Orlando L.** 2020. Unveiling the Ecological Applications of Ancient DNA From Mollusk Shells. **Front Ecol Evol** 8:37.
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- 46) **Orlando L.** 2020. Ancient Genomes Reveal Unexpected Horse Domestication and Management Dynamics. **Bioessays** 42:e1900164.

2019– Peer-reviewed

- 47) Cappellini E, Welker F, Pandolfi L, Ramos-Madrigal J, Samodova D, Rütther PL, Fotakis AK, Lyon D, Moreno-Mayar JV, Bukhsianidze M, Rakownikow Jersie-Christensen R, Mackie M, Ginolhac A, Ferring R, Tappen M, Palkopoulou E, Dickinson MR, Stafford TW Jr, Chan YL, Götherström A, Nathan SKSS, Heintzman PD, Kapp JD, Kirillova I, Moodley Y, Agustí J, Kahlke RD, Kiladze G, Martínez-Navarro B, Liu S, Sandoval Velasco M, Sinding MS, Kelstrup CD, Allentoft ME, **Orlando L.** Penkman K, Shapiro B, Rook L, Dalén L, Gilbert MTP, Olsen JV, Lordkipanidze D, Willerslev E. 2019. Early Pleistocene enamel proteome from Dmanisi resolves Stephanorhinus phylogeny. **Nature** 574:103-107.
- 48) **Orlando L.** Librado P. 2019. Origin and Evolution of Deleterious Mutations in Horses. **Genes (Basel)** 10(9) pii: E649.
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