

## **CURRICULUM VITAE ANDRES RUIZ-LINARES**

### **Education/Qualifications:**

- M.D., Colegio Mayor de Nuestra Senora del Rosario, Bogotá, Colombia. First Class 1984.
- M. Sc. (Biochemistry), Université de Paris VII, Paris, France. 1987.
- Ph. D. (Genetics), University of Cambridge, Cambridge, England. 1991.

### **Professional History**

- 1986-1988 Graduate Student. Laboratoire de Virologie Moleculaire, Institut Pasteur (Dr. Marc Girard), Paris, France.
- 1988-1991 Ph.D. Student. Department of Genetics, University of Cambridge (Dr. Gabriel Dover) Cambridge, UK.
- 1992-1994 Postdoctoral Fellow. Department of Genetics, Stanford University Medical School (Dr. Luca Cavalli-Sforza), Stanford, California, U.S.A.
- 1994-1998 Assistant Professor, Department of Biochemistry, Universidad de Antioquia Medical School, Medellín, Colombia.
- 1998-2000 Lecturer (non-clinical). Department of Medical and Community Genetics. Imperial College School of Medicine, London, UK.
- October 2000: Lecturer. Department of Biology (Galton Laboratory), University College London, Wolfson House, 4 Stephenson Way, London NW1 2HE. U.K.
- October 2004: Senior Lecturer. Department of Biology (Galton Laboratory), University College London, Wolfson House, 4 Stephenson Way, London NW1 2HE. U.K.
- October 2006- Current: Professor of Human Genetics Department of Biology (Galton Laboratory), University College London, Wolfson House, 4 Stephenson Way, London NW1 2HE. U.K.

### **Other appointments and affiliations**

- 1998-current. Honorary Professor. Universidad de Antioquia Medical School, Medellín, Colombia.

### **Prizes, awards and other markers of esteem**

- CESTA fellow of the French Ministry of Research (1986-1988).
- Overseas Research Student (ORS) Award from the Vice-Chancellors and Principals of the Universities of the United Kingdom (1988-1991).
- Genetics Society of America travel award 1993.
- Ciba (now Novartis) Foundation Fellow 1995.
- Young Investigator Award. The National Alliance for Research on Schizophrenia and Depression (USA) 2002.
- 2002-2005. Editorial board member. Annals of Human Genetics.
- 2005-2007. Senior Editor. Annals of Human Genetics.
- 2008-current. Editor in Chief. Annals of Human Genetics.

### **Research projects ongoing or completed during the last 3 Years:**

1. "A search for genetic loci involved in predisposition to Bipolar mood disorder in the population of Antioquia, Colombia: genetic analyses". (2001-2004) Agency: The Wellcome Trust (UK) - Principal Investigator: Andres Ruiz-Linares. This project aimed at performing linkage analyses on a large collection of Bipolar pedigrees collected in Antioquia, Colombia.

2. “Linkage Disequilibrium Mapping of Bipolar Disorder in Antioquia, Colombia”. (2002-2004) Agency: The National Alliance for Research on Schizophrenia and Depression (NARSAD). Principal Investigator: Andres Ruiz-Linares. This project aimed at examining the genetic demography of two Hispanic population isolates (Antioquia and the Central Valley of Costa Rica), compare linkage disequilibrium in these two populations and initiating the application of population methods to the identification of gene regions involved in susceptibility to Bipolar Disorder in Antioquian patients.
3. “A population genetic study of autism in a founder population” (2004-2005) Principal Investigator: Andres Ruiz-Linares. Cure Autism Now Foundation (USA). This project initiates a research program focused on the use of population approaches to the identification of genes involved in susceptibility to autism. Patients will be ascertained in the genetically isolated population of Antioquia and clinically characterized using state-of-the-art clinical procedures. Cell lines from the patients (and their parents) are being established in view of subsequent family-based genetic association studies.
4. “Centre for Comparative Genomics” (2004-2007) Agency: Natural Environment Research Council (UK) Co-Principal Investigator: Andres Ruiz-Linares. This is an infrastructure grant for the establishment and maintenance of a high-throughput sequencing/genotyping facility in the Department of Biology at UCL.
5. “Structure of genetic diversity in Native Americans and Hispanics.”(2005) Agency: Marshfield Foundation (USA) Principal Investigator: Andres Ruiz-Linares. Here we aim at analyzing patterns of genetic diversity within and between Native and Admixed populations across the Americas. The primary data to be collected consist of whole genome scans of microsatellites (800) and insertion-deletion polymorphisms (800), to be obtained in 20 admixed and 20 Native populations from Mexico to Patagonia.
6. “Finding genetic risk factors for Parkinson’s disease in genetically isolated populations” (2005-2007) Michael J. Fox Foundation for Parkinson’s Research. Co-Principal Investigator: Andres Ruiz-Linares This project aims at the follow-up in PD patient samples from several population isolates (in Holland, Turkey and Colombia) of candidate regions previously identified through whole genome scans.
7. “Mapping Tourette Syndrome in a population isolate” (2005-2009) Agency: NINDS/NIH (USA). Principal Investigator: Andres Ruiz-Linares This project will establish a research program on the genetic analysis of Tourette Syndrome employing family and population approaches. Cases will be recruited in the recently founded population of Antioquia (Colombia). Clinical diagnosis and assessment of disease severity will employ the approach used by the TSA international consortium for genetics. Genetic analyses will focus on the follow-up of results from other studies, including the TSA-ICG and a parallel study carried out in the Costa Rica Central Valley by collaborators from UCLA.
8. “Building a Latino admixture map & pilot study to find Type 2 diabetes risk” National Institutes of Health (USA). (2006-2007) Co-investigator, Dr. David Reich, Harvard, PI). This project aims at developing a marker map useful for admixture mapping in Latino populations and to perform an initial application of this map to the identification of genes involved in susceptibility to type 2 diabetes. The patients and controls (2000 each) will be ascertained in the population of Antioquia, Colombia.
9. “Bipolar endophenotypes in population isolates” Agency: NINDS/NIH (USA). (2006-2011) Co-investigator, Dr. Nelson Freimer, UCLA, PI). This project aims at identifying endophenotypes associated with bipolar disorder in the families from the populations of Antioquia (Colombia) and the Costa Rican Central Valley. We will obtain structural MRI scans and a variety of neurocognitive measures in members of extended pedigrees that have been previously extensively studied, including by whole genome marker scans. Endophenotypes that demonstrate familial aggregation will be used for QTL linkage analysis.

10. “Detecting signatures of natural selection in the human genome with geographically explicit models” (2010-2013) Co-Investigator. Francois Balloux PI. Agency: BBSRC.

## Publications

### A. Book chapters

1. Dover, G.A., Ruiz Linares, A., Bowen, T. and Hancock, J.M. Detection and quantification of concerted evolution and molecular drive. (1993) In Methods in Enzymology vol. 224, Molecular Evolution: Producing the Biochemical Data (Eds. E.A. Zimmer, T.J. White, R.L. Cann and A.C. Wilson) Academic Press, San Diego.
2. Ruiz Linares, A., Minch, E., Meyer, D., and Cavalli-Sforza, L.L. (1995) Analysis of classical and DNA markers for reconstructing human population history. in The origin and past of Homo sapiens sapiens as viewed from DNA pp. 123-148 (S. Brenner and K. Hanihara eds., World Scientific Publishing Co., Singapore).
3. Langaney A., Cohen D., Ruiz Linares A. (1997) Genetic Polymorphism. In Encyclopedia of Human Biology 2<sup>nd</sup> Edition. pp 269-275 (R. Dulbecco Ed.) Academic Press, San Diego.
4. Ruiz Linares A. (1999) Microsatellites and the reconstruction of the history of human populations. In Microsatellites: Evolution and Applications. pp 183-197 (D. Goldstein and C. Schlotterer Eds.) Oxford University Press, Oxford.
5. Ruiz Linares A. (2001) Y-chromosomes and Evolution. In International Encyclopedia of the Social and Behavioral Sciences pp 16653-16657 (N. J. Smelser and P. B. Baltes Eds.) Pergamon Press, Oxford.

### B. Refereed articles

1. Cuartas Arias JM, Palacio Acosta CA, Valencia JG, Montoya GJ, Arango Viana JC, Nieto OC, Flórez AF, Camarena Medellín BE, Montoya WR, Lopez Jaramillo CA, Achury JG, Fuentes CC, Berrio GB, Ruiz-Linares A. Exploring epistasis in candidate genes for antisocial personality disorder. *Psychiatr Genet*. 2011 3:115-24.
2. Amorim CE, Wang S, Marrero AR, Salzano FM, Ruiz-Linares A, Bortolini MC. X-chromosomal genetic diversity and linkage disequilibrium patterns in Amerindians and non-Amerindian populations. *Am J Hum Biol*. 2011 3:299-304.
3. Ning Ning Yang, Stephane Mazières; Claudio Bravi; Nicolas Ray; Sijia Wang, Mari-Wyn Burley; Gabriel Bedoya, Winston Rojas, Maria V. Parra, Julio A. Molina, Carla Gallo, Giovanni Poletti, Kim Hill, Ana M. Hurtado, Maria L. Petzl-Erler, Luiza T. Tsuneto, William Klitz, Ramiro Barrantes, Elena Llop, Francisco Rothhammer, Damian Labuda, Francisco M. Salzano; Maria-Cátira Bortolini, Laurent Excoffier, Jean Michel Dugoujon, and Andrés Ruiz-Linares (2010) Contrasting patterns of nuclear and mtDNA diversity in Native American populations. *Annals of Human Genetics* (in press).
4. Tábita Hünemeier, Andres Ruiz-Linares, Álvaro Silveira, Vanessa Rodrigues Paixão-Cortes, Francisco M. Salzano, and Maria Cátira Bortolini (2010) Population Data Support the Adaptive Nature of *HACNS1 Sapiens/Neandertal*- Chimpanzee Differences in a Limb Expression Domain *Am J Phys Anthropol*. (in press)
5. Winston Rojas, María Victoria Parra, Omer Campo, María Antonieta Caro, Juan Guillermo Lopera, William Arias, Constanza Duque, Andrés Naranjo, Jharley García, Candelaria Vergara, Jaime Lopera, Erick Hernandez, Ana Valencia, Yuri Caicedo, Mauricio Cuartas, Javier Gutiérrez, Sergio López, Andrés Ruiz-Linares, Gabriel Bedoya (2010) Admixture and genetic structure of Colombian populations *Am J Phys Anthropol*. (in press)
6. Herzberg I, Valencia-Duarte AV, Kay VA, White DJ, Müller H, Rivas IC, Mesa SC, Cuartas M, García J, Bedoya G, Cornejo W, Ruiz-Linares A, Kremeyer B. (2010) Association of *DRD2*

- variants and Gilles de la Tourette syndrome in a family-based sample from a South American population isolate. *Psychiatr Genet.* (in press)
7. Kremeyer B, Lopera F, Cox JJ, Momin A, Rugiero F, Marsh S, Woods CG, Jones NG, Paterson KJ, Fricker FR, Villegas A, Acosta N, Pineda-Trujillo NG, Ramírez JD, Zea J, Burley MW, Bedoya G, Bennett DL, Wood JN, Ruiz-Linares A. (2010) A gain-of-function mutation in TRPA1 causes familial episodic pain syndrome. *Neuron.* 66:671-80.
  8. Sijia Wang, Gabriel Bedoya, Damian Labuda, Andres Ruiz-Linares *Am J Phys Anthropol.* (2010) Patterns of linkage disequilibrium and haplotype diversity at Xq13 in six Native American populations *Am J Phys Anthropol.* 142:476-80.
  9. Ray N, Wegmann D, Fagundes NJ, Wang S, Ruiz-Linares A, Excoffier L. (2010) A statistical evaluation of models for the initial settlement of the American continent emphasizes the importance of gene flow with Asia. *Mol Biol Evol.* 27:337-45.
  10. A.J. Jasinska, S. Service, D. Jawaheer, J. DeYoung, M. Levinson, Z. Zhang, B. Kremeyer, H. Muller, I. Aldana, J. Garcia, G. Restrepo, C. Lopez, C. Palacio, C. Duque, M. Parra, J. Vega, D. Ortiz, G. Bedoya, C. Mathews, P. Davanzo, E. Fournier, J. Bejarano, M. Ramirez, C. Araya Ortiz, X. Araya, J. Molina, C. Sabatti, V. Reus, J. Ospina, G. Macaya, A. Ruiz-Linares and N.B. Freimer (2009) Narrow and Highly Significant Linkage Signal for Severe Bipolar Disorder in the Chromosome 5q33 Region in Latin American Pedigrees. *Am. J. Med. Genet. B Neuropsychiatr. Genet.* 150:998-1006.
  11. J. C. Florez, A. L. Price, D. Campbell, L. Riba, M. V. Parra, F. Yu, C. Duque, R. Saxena, N. Gallego, M. Tello-Ruiz, L. Franco, M. Rodríguez-Torres, A. Villegas, G. Bedoya, C. A. Aguilar-Salinas, M. T. Tusié-Luna, A. Ruiz-Linares, D. Reich (2009) Strong association of socioeconomic status with genetic ancestry in Latinos: implications for admixture studies of type 2 diabetes. *52: 1528-1536.* 2009.
  12. Bourgeois S, Yotova V, Wang S, Bourtoumieu S, Moreau C, Michalski R, Moisan JP, Hill K, Hurtado AM, Ruiz-Linares A, Labuda D. (2009) X-chromosome lineages and the settlement of the Americas. *Am J Phys Anthropol.* 140: 417-28.
  13. Vergara C, Caraballo L, Mercado D, Jimenez S, Rojas W, Rafaels N, Hand T, Campbell M, Tsai YJ, Gao L, Duque C, Lopez S, Bedoya G, Ruiz-Linares A, Barnes KC. (2009) African ancestry is associated with risk of asthma and high total serum IgE in a population from the Caribbean Coast of Colombia. *Hum. Genet* 125: 565-579.
  14. Kremeyer, B., García, J., Kymäläinen, H., Wratten, N., Restrepo, G., Palacio, C., Miranda, A-L., López, C., Restrepo, M., Bedoya, G., Brzustowicz, L. M., Ospina-Duque, J., Arbeláez, P., and Ruiz-Linares, A., (2009). 'Evidence for a Role of the NOS1AP(CAPON) Gene in Schizophrenia and its Clinical Dimensions: an Association Study in a South American Population Isolate' *Hum. Heredity* 67: 163-173.
  15. Nikali, K., Vanegas, J. J., Burley, M-W., Martinez, J., Lopez, L. M., Bedoya, G., Wrong, O. M., Povey, S., Unwin, R. J., and Ruiz-Linares, A., (2008). 'Extensive Founder Effect for Distal Renal Tubular Acidosis (dRTA) with Sensorineural Deafness in an Isolated South American Population' *Am. J. Med.Genet. Part A* 146A:2709–2712 (2008).
  16. Sijia Wang, Nicolas Ray, Winston Rojas, Maria V. Parra, Gabriel Bedoya, Carla Gallo, Giovanni Poletti, Guido Mazzotti, Kim Hill, Ana M. Hurtado, Beatriz Camrena, Humberto Nicolini, William Klitz, Ramiro Barrantes, Julio A. Molina, Nelson Freimer, Maria Cátira Bortolini, Francisco M. Salzano, Maria L. Petzl-Erler, Luiza T. Tsuneto, José E. Dipierri, Emma L. Alfaro, Graciela Bailliet, Nestor O. Bianchi, Elena Llop, Francisco Rothhammer, Laurent Excoffier and Andrés Ruiz-Linares (2008) Geographic patterns of genome admixture in Latin American Mestizos *PLoS Genet* 4: e1000037
  17. Price AL, Butler J, Patterson N, Capelli C, Pascali VL, Scarnicci F, Ruiz-Linares A, Groop L,

- Saetta AA, Korkolopoulou P, Seligsohn U, Waliszewska A, Schirmer C, Ardlie K, Ramos A, Nemesh J, Arbeitman L, Goldstein DB, Reich D, Hirschhorn JN. (2008) Discerning the Ancestry of European Americans in Genetic Association Studies. *PLoS Genet.* 2008 4:e236.
18. Sijia Wang, Cecil M. Lewis Jr., Mattias Jakobsson, Sohini Ramachandran, Nicolas Ray, Gabriel Bedoya, Winston Rojas, Maria V. Parra, Julio A. Molina, Carla Gallo, Guido Mazzotti, Giovanni Poletti, Kim Hill, Ana M. Hurtado, Damian Labuda, William Klitz., Ramiro Barrantes, Maria Catira Bortolini, Francisco M. Salzano, Maria Luiza Petzl-Erler, Luiza T. Tsuneto, Elena Llop, Francisco Rothhammer., Laurent Excoffier, Marcus W. Feldman, Noah A. Rosenberg, and Andres Ruiz-Linares (2007) Genetic variation and population structure in Native Americans. *PLoS Genetics* 3:185.
  19. Marrero, A. R., Bravi, C., Stuart, S., Long, J. C., Pereira das Neves, L. F., Kommers, T., Carvalho, C. M., Pena, S. D., Ruiz-Linares, A., Salzano, F. M., & Catira, B. M. (2007) Pre- and post-Columbian gene and cultural continuity: the case of the Gaucho from southern Brazil. *Hum.Hered.* 64, 160-171.
  20. Price AL, Patterson N, Yu F, Cox DR, Waliszewska A, McDonald GJ, Tandon A, Schirmer C, Neubauer J, Bedoya G, Duque C, Villegas A, Bortolini MC, Salzano FM, Gallo C, Mazzotti G, Tello-Ruiz M, Riba L, Aguilar-Salinas CA, Canizales-Quinteros S, Menjivar M, Klitz W, Henderson B, Haiman CA, Winkler C, Tusie-Luna T, Ruiz-Linares A, Reich D. (2007) A genomewide admixture map for latino populations. *Am.J.Hum.Genet.* 80, 1024-1036.
  21. Service, S., Sabatti, C., International Collaborative Group on Isolated Populations, & Freimer, N. B. (2007) Tag SNPs chosen from HapMap perform well in several population isolates. *Genet.Epidemiol.* 31, 189-194.
  22. Wang, H., Lin, C. H., Service, S., Chen, Y., Freimer, N., International Collaborative Group on Isolated Populations, & Sabatti, C. (2006) Linkage disequilibrium and haplotype homozygosity in population samples genotyped at a high marker density. *Hum.Hered.* 62, 175-189.
  23. Marrero, A. R., Silva-Junior, W. A., Bravi, C. M., Hutz, M. H., Petzl-Erler, M. L., Ruiz-Linares, A., Salzano, F. M., & Bortolini, M. C. (2007) Demographic and evolutionary trajectories of the Guarani and Kaingang natives of Brazil. *Am J.Phys.Anthropol.* 132, 301-310.
  24. Bedoya, G., Garcia, J., Montoya, P., Rojas, W., Amezquita, M. E., Soto, I., Lopez, M. C., Ospina-Duque, J., & Ruiz-Linares, A. (2006) [Isonymy analysis between 2 populations in northwestern Colombia]. *Biomedica.* 26, 538-545.
  25. Herzberg I, Jasinska A, Garcia J, Jawaheer D, Service S, Kremeyer B, Duque C, Parra MV, Vega J, Ortiz D, Carvajal L, Polanco G, Restrepo GJ, Lopez C, Palacio C, Levinson M, Aldana I, Mathews C, Davanzo P, Molina J, Fournier E, Bejarano J, Ramirez M, Ortiz CA, Araya X, Sabatti C, Reus V, Macaya G, Bedoya G, Ospina J, Freimer N, Ruiz-Linares A. (2006) Convergent linkage evidence from two Latin-American population isolates supports the presence of a susceptibility locus for bipolar disorder in 5q31-34. *Hum.Mol.Genet.* 15, 3146-3153.

26. Pineda-Trujillo, N., Apergi, M., Moreno, S., Arias, W., Lesage, S., Franco, A., Sepulveda-Falla, D., Cano, D., Buritica, O., Pineda, D., Uribe, C. S., de Yebenes, J. G., Lees, A. J., Brice, A., Bedoya, G., Lopera, F., & Ruiz-Linares, A. (2006) A genetic cluster of early onset Parkinson's disease in a Colombian population. *Am J.Med.Genet.B Neuropsychiatr.Genet.* 141, 885-889.
27. Kremeyer, B., Herzberg, I., Garcia, J., Kerr, E., Duque, C., Parra, V., Vega, J., Lopez, C., Palacio, C., Bedoya, G., Ospina, J., & Ruiz-Linares, A. (2006) Transmission distortion of BDNF variants to bipolar disorder type I patients from a South American population isolate. *Am J.Med.Genet.B Neuropsychiatr.Genet.* 141, 435-439.
28. Bedoya, G., Montoya, P., Garcia, J., Soto, I., Bourgeois, S., Carvajal, L., Labuda, D., Alvarez, V., Ospina, J., Hedrick, P. W., & Ruiz-Linares, A. (2006) Admixture dynamics in Hispanics: a shift in the nuclear genetic ancestry of a South American population isolate. *Proc Natl.Acad.Sci.U.S.A* 103, 7234-7239.
29. Pereira, T. V., Salzano, F. M., Mostowska, A., Trzeciak, W. H., Ruiz-Linares, A., Chies, J. A., Saavedra, C., Nagamachi, C., Hurtado, A. M., Hill, K., Castro-de-Guerra, D., Silva-Junior, W. A., & Bortolini, M. C. (2006) Natural selection and molecular evolution in primate PAX9 gene, a major determinant of tooth development. *Proc Natl.Acad.Sci.U.S.A* 103, 5676-5681.
30. Service, S., DeYoung, J., Karayiorgou, M., Roos, J. L., Pretorius, H., Bedoya, G., Ospina, J. et al. (2006) Magnitude and distribution of linkage disequilibrium in population isolates and implications for genome-wide association studies. *Nat.Genet.* 38, 556-560.
31. Garcia-Ceren, J. J., Valencia-Duarte, A. V., Cornejo, J. W., Carrizosa, J., Cuartas, J. M., Zuluaga-Espinosa, N. A., Bedoya, G., & Ruiz-Linares, A. (2006) [Genetic linkage analysis of Gilles de la Tourette Syndrome in a Colombian family]. *Rev.Neurol.* 42, 211-216.
32. Torres, M. M., Bravi, C. M., Bortolini, M. C., Duque, C., Callegari-Jacques, S., Ortiz, D., Bedoya, G., Groot, d. R., & Ruiz-Linares, A. (2006) A revertant of the major founder Native American haplogroup C common in populations from northern South America. *Am J.Hum.Biol.* 18, 59-65.
33. Miranda, A., Garcia, J., Lopez, C., Gordon, D., Palacio, C., Restrepo, G., Ortiz, J., Montoya, G., Cardeno, C., Calle, J., Lopez, M., Campo, O., Bedoya, G., Ruiz-Linares, A., & Ospina-Duque, J. (2006) Putative association of the carboxy-terminal PDZ ligand of neuronal nitric oxide synthase gene (CAPON) with schizophrenia in a Colombian population. *Schizophr.Res.* 82, 283-285.
34. Glatt, C. E., Wahner, A. D., White, D. J., Ruiz-Linares, A., & Ritz, B. (2006) Gain-of-function haplotypes in the vesicular monoamine transporter promoter are protective for Parkinson disease in women. *Hum.Mol.Genet.* 15, 299-305.
35. Choo, K. E., Nicoli, T. K., Bruce, L. J., Tanner, M. J., Ruiz-Linares, A., & Wrong, O. M. (2006) Recessive distal renal tubular acidosis in Sarawak caused by AE1 mutations. *Pediatr.Nephrol.* 21, 212-217.
36. Marrero, A. R., Das Neves Leite, F. P., De Almeida, C. B., Peres, L. M., Kommers, T. C., Da Cruz, I. M., Salzano, F. M., Ruiz-Linares, A., Silva Junior, W. A., & Bortolini, M. C. (2005)

Heterogeneity of the genome ancestry of individuals classified as White in the state of Rio Grande do Sul, Brazil. *Am J.Hum.Biol.* 17, 496-506.

37. Pineda-Trujillo, N., Cornejo, W., Carrizosa, J., Wheeler, R. B., Munera, S., Valencia, A., Agudelo-Arango, J., Cogollo, A., Anderson, G., Bedoya, G., Mole, S. E., & Ruiz-Linares, A. (2005) A CLN5 mutation causing an atypical neuronal ceroid lipofuscinosis of juvenile onset. *Neurology* 64, 740-742.
38. Pineda-Trujillo, N., Carrizosa, J., Cornejo, W., Arias, W., Franco, C., Cabrera, D., Bedoya, G., & Ruiz-Linares, A. (2005) A novel SCN1A mutation associated with severe GEFS+ in a large South American pedigree. *Seizure.* 14, 123-128.
39. Palacio, C. A., Garcia, J., Arbelaez, M. P., Sanchez, R., Aguirre, B., Garces, I. C., Montoya, G. J., Gomez, J., Agudelo, A., Lopez, C. A., Calle, J. J., Cardeno, C. A., Cano, J. F., Lopez, M. C., Montoya, P., Herrera, C. P., Gonzalez, N., Gonzalez, A., Bedoya, G., Ruiz, A., & Ospina, J. (2004) [Validation of the Diagnostic Interview for Genetic Studies (DIGS) in Colombia]. *Biomedica.* 24, 56-62.
40. Rana NA, Ebenezer ND, Webster AR, Linares AR, Whitehouse DB, Povey S, Hardcastle AJ. (2004 ) Recombination hotspots and block structure of linkage disequilibrium in the human genome exemplified by detailed analysis of PGM1 on 1p31. *Hum Mol Genet.* 13(24):3089-102
41. Ruiz-Linares, A. (2004) Juvenile Parkinson disease and the C212Y mutation of parkin. *Arch.Neurol.* 61, 444.
42. Cornejo, W., Cuartas, M., Gomez-Uribe, L. F., Carrizosa, J., Rivas, I., Castillo, H., Bedoya, G., & Ruiz, A. (2004) [Clinical characterisation and power simulations to detect genetic linkage in attention deficit hyperactivity disorder in Antioquian families]. *Rev.Neurol.* 38, 319-322.
43. Carvajal-Carmona, L. G., Bermudez, N., Olivera-Angel, M., Estrada, L., Ossa, J., Bedoya, G., & Ruiz-Linares, A. (2003) Abundant mtDNA diversity and ancestral admixture in Colombian criollo cattle (*Bos taurus*). *Genetics* 165, 1457-1463.
44. Bortolini, M. C., Salzano, F. M., Thomas, M. G., Stuart, S., Nasanen, S. P., Bau, C. H., Hutz, M. H., Layrisse, Z., Petzl-Erler, M. L., Tsuneto, L. T., Hill, K., Hurtado, A. M., Castro-de-Guerra, D., Torres, M. M., Groot, H., Michalski, R., Nymadawa, P., Bedoya, G., Bradman, N., Labuda, D., & Ruiz-Linares, A. (2003) Y-chromosome evidence for differing ancient demographic histories in the Americas. *Am J.Hum.Genet.* 73, 524-539.
45. Carvajal-Carmona, L. G., Ophoff, R., Service, S., Hartiala, J., Molina, J., Leon, P., Ospina, J., Bedoya, G., Freimer, N., & Ruiz-Linares, A. (2003) Genetic demography of Antioquia (Colombia) and the Central Valley of Costa Rica. *Hum.Genet.* 112, 534-541.
46. Bortolini, M. C., Salzano, F. M., Bau, C. H., Layrisse, Z., Petzl-Erler, M. L., Tsuneto, L. T., Hill, K., Hurtado, A. M., Castro-de-Guerra, D., Bedoya, G., & Ruiz-Linares, A. (2002) Y-chromosome biallelic polymorphisms and Native American population structure. *Ann.Hum.Genet.* 66, 255-259.
47. Ramirez-Castro, J. L., Pineda-Trujillo, N., Valencia, A. V., Muneton, C. M., Botero, O., Trujillo, O., Vasquez, G., Mora, B. E., Durango, N., Bedoya, G., & Ruiz-Linares, A. (2002)

- Mutations in FOXL2 underlying BPES (types 1 and 2) in Colombian families. *Am J.Med.Genet.* 113, 47-51.
48. Pineda-Trujillo, N., Carvajal-Carmona, L. G., Buritica, O., Moreno, S., Uribe, C., Pineda, D., Toro, M., Garcia, F., Arias, W., Bedoya, G., Lopera, F., & Ruiz-Linares, A. (2001) A novel Cys212Tyr founder mutation in parkin and allelic heterogeneity of juvenile Parkinsonism in a population from North West Colombia. *Neurosci.Lett.* 298, 87-90.
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