

COLOMBIAN RESULTS OF THE INTERLABORATORY QUALITY CONTROL EXERCISE 2009-2010

Builes, J.J.^{1,2}, Aguirre, D.¹, Manrique, A.^{1,2}, Puerto, Y.¹, Bravo, M.L.¹, Gaviria, A.³, Gutierrez, A.⁴, Muñoz, M.⁵, Fonseca, D.⁶, Usaquen, W.⁷, Castillo, A.⁸, Pineda, C.⁹, Ugalde, N.¹⁰, Barretto, R.M.¹¹, Ibarra, A.¹², Trejos, D.M.¹³, Hudy, L.D.¹⁴, De Castro, M.¹⁵, Díaz, L.F.¹⁶, Quiceno, D.¹⁷, Pinzón, A.¹⁸, Gavilan, M.¹⁹, Sánchez, D.²⁰, Roa, M.²¹, Ossa, H.²², Iannacone, G.²³, Mendoza, L.^{1,24}, Ruiz, M.²⁵, Solis, L.²⁶, Pareja, L.²⁷, Guevara, A.²⁸, Carracedo, A.²⁹, Gusmão, L.³⁰

¹ Laboratorios Genes Ltda, Medellín, Colombia

² Instituto de Biología, Universidad de Antioquia, Medellín, Colombia

³ Laboratorio de Genética Molecular, Cruz Roja Ecuatoriana, Quito, Ecuador

⁴ Laboratorio de Biología Molecular, Fundación Arthur Stanley Gillow, Bogotá, Colombia

⁵ Laboratorio de Biología y Genética, Instituto Nacional de Medicina Legal y Ciencias Forenses, Regional Noroccidente, Medellín, Colombia

⁶ Laboratorio Genética Molecular de Colombia Ltda, Bogotá, Colombia

⁷ Grupo de Genética de Poblaciones e Identificación, Universidad Nacional de Colombia, Bogotá, Colombia

⁸ Laboratorio de Genética, Universidad Industrial de Santander, Bucaramanga, Colombia

⁹ Laboratorio de Identificación Humana, Universidad Manuela Beltrán Bogotá, Colombia

¹⁰ Laboratorio Biomolecular, Cuenca, Ecuador

¹¹ Laboratório de Investigaçã de Paternidade, Universidade Paulista, São Paulo, Brasil

¹² Laboratorio IdentiGen, Universidad de Antioquia, Medellín, Colombia

¹³ Unidad de Análisis Biomolecular, Instituto de Medicina Legal, Ciudad de Panamá, Panamá

¹⁴ Laboratorio BioGen, Ciudad de Panamá, Panamá

¹⁵ Referencia Laboratorio Clínico, Santo Domingo, República Dominicana

¹⁶ Grupo de Genética Forense, Criminalística Dirección Regional Bogotá, Instituto Nacional de Medicina Legal y Ciencias Forenses, Bogotá, Colombia

¹⁷ Grupo de Genética Forense, Convenio ICBF-IML, Instituto Nacional de Medicina Legal y Ciencias Forenses, Bogotá, Colombia

¹⁸ Grupo de Genética Forense, Dirección Regional Suroccidente, Instituto Nacional de Medicina Legal y Ciencias Forenses, Cali, Colombia

¹⁹ Laboratorio BIOLINKS S.A., Lima, Perú

²⁰ Laboratorio DIAGEN Diagnóstico e Identificación Genética, Hospital Metropolitano, Quito, Ecuador

²¹ Laboratorio Grupo de Genética, División Criminalística, Nivel Central, Cuerpo Técnico de Investigaciones, Fiscalía General de la Nación, Bogotá, Colombia

²² Laboratorio de Genética y Biología Molecular, Bogotá, Colombia

²³ Laboratorio de Biología Molecular y Genética, Instituto de Medicina Legal y Ciencias Forenses, Ministerio Público, Lima, Perú

²⁴ EMCAR, Policía Nacional de Colombia, Valle del Cauca, Colombia

²⁵ Grupo de Genética, C.T.I., Seccional Barranquilla, Cuerpo Técnico de Investigación, Fiscalía General de la Nación

²⁶ Laboratorio Clínico Genetix, S.A., Ciudad de Panamá, Panamá

²⁷ Laboratorio de Biología Molecular y de Genética, Ministerio Público, Instituto de Medicina Legal, División Médico Legal III, Chiclayo, Perú

²⁸ Laboratorio de ADN, Fiscalía General del Estado, Quito, Ecuador

²⁹ Instituto de Medicina Legal, Universidad de Santiago de Compostela, A Coruña, España

³⁰ Institute of Molecular Pathology and Immunology of the University of Porto, Porto, Portugal

Colombian Reference National Laboratory, *GENES LTDA*, have organized and coordinated for the past two years (2009 and 2010) the Quality Control Exercise for laboratories undertaking paternity, maternity and forensic tests with DNA markers.

There have been some similarities in the two controls: A practical exercise including 3 blood samples on FTA cards, and theoretical exercises including optional and obligatory cases. For the theoretical exercises, the participating laboratories should calculate the partial and final BRI (Biological Relationship Index). Twenty-two laboratories have participated in 2009, increasing the number to 27 in 2010. From the 1909 genetic profiles reported in 2009, forty-nine markers were under consensus and distributed in autosomal, Y and X chromosomes STR. In 2010, 52 markers were under consensus on similar distribution the past year, two thousand thirty-two genetics profiles were reported; only two laboratories analyze mitochondrial DNA. The rate of reporting error was 2.9% in 2009 while in 2010, 4.7% error was reported. In 2009 all the 22 laboratories reported results for the obligatory exercise: 14 the optional # 1 and 16 the optional # 2. In 2010 from the 27 participating laboratories, 25 reported results for the obligatory exercise and 12 the optional exercise.

The Proficiency Test conducted through the Colombian National Reference Laboratory has become a useful tool for quality assurance of all Colombian laboratories and some of Latin America that do DNA testing to establish biological relationships and an excellent opportunity for ongoing training of experts from the region.