

# FERNANDO ARIAS-MENDOZA, M.D., PH.D.

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US PERMANENT RESIDENCE APPLICATION USCIS No. 026-620-507 (PENDING)  
EMPLOYMENT AUTHORIZATION PERMIT NO. SRC 1490389231  
ORIGINAL CITIZENSHIP, MEXICAN  
FLUENT IN ENGLISH AND SPANISH

UPDATED: MARCH 2016

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## A. PERSONAL STATEMENT

I am an M.D. and Ph.D. in Chemical Sciences (Biochemistry). I also hold the specialty of Medical Genetics in Mexico, where I studied patients with Inborn Errors of Metabolism. Employed for more than 30 years as an investigator, I am highly proficient in Biomedical and Biochemistry research. I am highly knowledgeable in creating and managing research projects involving humans and experimental animals as subjects of research. My experience allows me to conceptualize and complete complex investigations including multi-institutional trials. My professional development also includes the following endeavors. (1) Teaching Biochemistry at the undergraduate and graduate levels. (2) Training of young professionals in research procedures. (3) Writing manuscripts reporting the results of my research in peer-reviewed scientific journals. (4) Writing applications for grant support and successfully obtained funding from federal and private sources. (5) Peer-reviewing research manuscripts for publication.

The main focus of my investigations is the assessment of metabolic parameters in cancer masses at their original place in the body. To achieve this assessment, I use noninvasive methods based on nuclear magnetic resonance. My research recently confirmed that some of these metabolic parameters have the ability to predict response to treatment in cancer.

## B. EDUCATION & TRAINING

- 1981 M.D., Doctor of Medicine, School of Medicine, National University of Mexico, Mexico.
- 1987 M.S., Master of Science (Biochemistry), School of Chemistry, National University of Mexico, Mexico.
- 1982-1986 Postdoctoral Research Scientist, Department of Molecular Biophysics & Biochemistry, Yale University, US.
- 1990 Ph.D., Doctor of Philosophy (Biochemistry), School of Chemistry, National University of Mexico, Mexico.
- 1990 Specialty in Genetics, National Counsel in Human Genetics, Mexico.

## C. POSITIONS AND HONORS

### Positions and Employment

- 1976-1979 Teaching Assistant in Biochemistry, Medicine School, National University of Mexico, Mexico.
- 1981-1982 Research Scientist, School of Medicine, National University of Mexico, Mexico.
- 1984-1985 Visiting Researcher, Chemistry Department, Weizmann Institute of Science, Israel.
- 1988-1989 Lecturer in Inborn Errors of Metabolism, National Institute of Pediatrics, Mexico City, Mexico.
- 1980-1990 Lecturer in Biochemistry, Medicine School, National University of Mexico, Mexico.
- 1986-1990 Head, Inborn Errors of Metabolism Service, Natl. Institute of Pediatrics, Mexico City, Mexico.
- 1990-1991 Head, Inborn Errors of Metabolism Service, General Hospital of Mexico City, Mexico.
- 1991-1997 Associate Research Scientist, NMR & Medical Spectroscopy, Fox Chase Cancer Center, USA.
- 1997-2001 Staff Scientist, NMR & Medical Spectroscopy, Fox Chase Cancer Center, USA.
- 2001-2010 Associate Research Scientist, Radiology Department, Columbia University, USA.
- 2004-2014 Lecturer in Principles of Magnetic Resonance, Columbia University, New York NY, USA.
- 2010-2014 Associate Professor of Radiology (Physics), Columbia University Medical Center, USA.
- 2011- Adjunct Associate Professor of Radiology, University of Pennsylvania Health System, USA.

### Other Experience and Professional Memberships

- 1980-1982 Coordinator, Undergraduate Examinations for the Undergraduate Biochemistry Course, National University of Mexico, Mexico.

- 1982-1990 Member, Editorial Committee for the Objectives of the Undergraduate Biochemistry Course, National University of Mexico, Mexico.
- 1984- Member, International Society of Magnetic Resonance in Medicine, US.
- 1986- Member, Mexican Biochemical Society, Mexico.
- 1987- Member, Mexican Association of Physiological Sciences, Mexico.
- 1988- Member, Mexican Association of Human Genetics, Mexico.
- 2003-2014 Member, Herbert Irving Comprehensive Cancer Center, Columbia University, US.
- 2014- Member, American Association for Cancer Research, US.

#### Roles in Scientific Societies

- 1990-1991 Secretary, Administrative Board of the Mexican Association of Human Genetics, Mexico.
- 2003- Abstract Reviewer, International Society of Magnetic Resonance in Medicine, US.
- 1994 Scientific Session Chair, Annual Meeting of the Society of Magnetic Resonance, US.
- 2010- Scientific Manuscript Reviewer, NMR in Biomedicine, UK/US.

#### Honors (Awards, Fellowships)

- 1980 Honors Diploma, Exceptional Internship Performance, General Hospital of Mexico City, Mexico.
- 1986 Repatriation Award, Mexican Foundation for Health, Mexico.
- 1990 Annual Scientific Award, Mexican Association of Human Genetics, Mexico.
- 2000 First Place Award, Poster Presentation during Annual Meeting (Paris, France), European Society of Magnetic Resonance in Medicine and Biology, Austria.
- 2007 Clinical and Translational Scientific Pilot Award, Herbert Irving Cancer Center, Columbia University, US.
- 2008 Clinical and Translational Scientific Pilot Award, Herbert Irving Cancer Center, Columbia University, US.
- 2010 Travel Stipend Award, Radiological Society of North America, US.
- 2014 Herbert M. Stauffer Award, Association of University Radiologists, US.

#### D. SELECTED PUBLICATIONS

- Ochs MF, Stoyanova RS, Arias-Mendoza F, *et al.*: A new method for spectral decomposition using a bilinear Bayesian approach. *J Magn Reson* 137:161-76, 1999 (PMID 10053145).
- Franks S, Smith M, Arias-Mendoza F, *et al.*: Phosphomonoester concentrations differ between chronic lymphocytic leukemia cells and normal human lymphocytes. *Leuk Res* 26:919, 2002 (12163053)
- Shukla-Dave A, Poptani H, Loevner LA, *et al.*: Prediction of treatment response of head and neck cancers with P-31 MR spectroscopy from pretreatment relative phosphomonoester levels. *Acad Radiol* 9:688-94, 2002 (12061743).
- Arias-Mendoza F, Brown TR: In vivo measurement of phosphorous markers of disease. *Dis Markers* 19:49-68, 2003-2004 (PMID 15096705).
- Arias-Mendoza F: In vivo magnetic resonance spectroscopy in the evaluation of mitochondrial disorders. *Mitochondrion* 4:491-501, 2004 (PMID 16120408).
- Arias-Mendoza F, Smith MR, Brown TR: Predicting treatment response in non-Hodgkin's lymphoma from the pretreatment tumor content of phosphoethanolamine plus phosphocholine. *Acad Radiol* 11:368-76, 2004 (PMID 15109009).
- Arias-Mendoza F, Zakian K, Schwartz A, *et al.*: Methodological standardization for a multi-institutional in vivo trial of localized (31)P-MR spectroscopy in human cancer research. In vitro and normal volunteer studies. *NMR Biomed* 17:382, 2004 (PMID 15386624)
- Robinson JN, Cleary-Goldman J, Arias-Mendoza F, *et al.*: Detection of fetal lactate with two-dimensional-localized proton magnetic resonance spectroscopy. *Obstet Gynecol* 104:1208-10, 2004 (PMID 15516455).
- Arias-Mendoza F, Payne GS, Zakian KL, *et al.*: In vivo <sup>31</sup>P MR spectral patterns and reproducibility in cancer patients studied in a multi-institutional trial. *NMR Biomed* 19:504-12, 2006 (PMID 16763965).
- Coon AL, Arias-Mendoza F, Colby GP, *et al.*: Correlation of cerebral metabolites with functional outcome in experimental primate stroke using in vivo <sup>1</sup>H-magnetic resonance spectroscopy. *AJNR Am J Neuroradiol* 27:1053-8, 2006 (PMID 16687542).
- Freda PU, Shen W, Reyes-Vidal CM, *et al.*: Skeletal muscle mass in acromegaly assessed by magnetic resonance imaging and dual-photon x-ray absorptiometry. *J Clin Endocrinol Metab* 94:2880-6, 2009 (PMID 19491226).

12. Sonabend AM, Stuart RM, Yun J, *et al.*: Prolonged intracerebral convection-enhanced delivery of topotecan with a subcutaneously implantable infusion pump. *Neuro-Oncology* 13:886-93, 2011 (PMID 21750007).
13. Lee S-C, Arias-Mendoza F, Poptani H, *et al.*: Prediction and early detection of a response by NMR spectroscopy and imaging. *PET Clin* 7:119-126, 2012 (PMID 22737093).
14. Arias-Mendoza F, Payne GS, Zakian K, *et al.*: Noninvasive Phosphorus Magnetic Resonance Spectroscopic Imaging Predicts Outcome to First-line Chemotherapy in Newly Diagnosed Patients with Diffuse Large B-Cell Lymphoma. *Acad Radiol* 20:1122-9, 2013 (PMID 23931426).
15. Garcia-Diaz B, Garone C, Barca E, *et al.*: Deoxynucleoside stress exacerbates the phenotype of a mouse model of mitochondrial neuro gastrointestinal encephalopathy. *Brain* 137:1337-49, 2014 (PMID 24727567).
16. Reyes-Vidal CM, Mojahed H, Shen W, Jin Z, Arias-Mendoza F, *et al.*: Adipose tissue redistribution and ectopic lipid deposition in active acromegaly and effects of surgical treatment. *J Clin Endocrinol Metab* 100:2946-55, 2015 (PMID 26037515).

#### E. URL FOR A FULL LIST OF PUBLISHED WORKS

<http://www.ncbi.nlm.nih.gov/sites/myncbi/fernando.arias-mendoza.1/bibliography/43729601/public/?sort=date&direction=descending>

#### F. FUNDING SUPPORT FOR RESEARCH

##### PAST GRANT SUPPORT

##### IN VIVO MURINE LIVER METABOLISM STUDIES WITH NMR AT 9.4 TESLA

*PUIC-02* (PI: Arias-Mendoza, F) 09/01/82-08/30/85 Role: PI  
 Source: National University of Mexico, Mexico International Training Federal Grant

##### IN VIVO MURINE LIVER METABOLISM STUDIES WITH NMR IN A LARGE BORE MAGNET AT 2.0 TESLA

*1F05TW03346* (PI: Arias-Mendoza, F) 09/01/83-08/30/85 Role: PI  
 Source: Fogarty International Center, NIH International Research Fellow Training

##### CLINICAL STUDIES ON INBORN ERRORS OF METABOLISM

*NSR-AIMF570214* (PI: Arias-Mendoza, F) 06/01/88-05/31/90 Role: PI  
 Source: National System of Researchers, Mexico Federal Grant

##### PREDICTING HUMAN TUMOR RESPONSE BY <sup>31</sup>P MR SPECTROSCOPY

*U01CA0062556* (PI: Brown, TR) 05/18/95-05/31/06 Role: Co-PI from 1999  
 Source: National Cancer Institute, NIH Cooperative U01

##### NMR STUDIES OF HUMAN CANCER

*5P01CA41078* (PI: Brown, TR) 07/01/97-03/31/05 Role: PI of Project II  
 Source: National Cancer Institute, NIH Program Project P01

##### DUAL-TUNED PROBE FOR MRI/MRS OF THE HUMAN BRAIN

*1R43NS037273/1R44NS037273* (PI: Srinivasan, R) 06/01/98-05/30/02 Role: Consultant  
 Source: Natl. Inst. of Neurological Disorders & Stroke, NIH R43 & R44

##### IN VIVO 31P & 1H MR SPECTROSCOPY STUDIES OF NON-HODGKIN'S LYMPHOMAS

*5R01CA118559* (PI: Brown, TR/Arias-Mendoza, F) 05/01/07-02/28/14 Role: PI from 2010  
 Source: National Cancer Institute, NIH R01 (cooperative)

##### LEPTIN IN HUMAN ENERGY & NEUROENDOCRINE HOMEOSTASIS

*5R01DK64773* (PI: Liebel, R) 06/01/03-09/30/13 Role: Co-Investigator  
 Natl. Inst. of Diabetes & Digestive & Kidney Diseases, NIH R01

##### PREDICTING OUTCOME OF EXPERIMENTAL THERAPY IN LYMPHOMAS BY 31P & 1H MR SPECTROSCOPY

*5R21CA152858* (PI: Arias-Mendoza, F) 07/01/10-05/31/13 Role: PI  
 Source: National Cancer Institute, NIH R21

##### MITOCHONDRIAL ENCEPHALOMYOPATHIES & MENTAL RETARDATION

*5P01HD032062* (PI: DiMauro, S/De Vivo D) 12/01/04-02/28/15 Role: Co-Investigator  
 Natl. Inst. of Child Disorders and Human Development, NIH P01

##### NEW APPROACHES TO THE EVALUATION AND TREATMENT OF ACROMEGALY

*R01DK064720* (PI: Freda, PU) 07/01/09-06/30/14 Role: Co-Investigator  
 Natl. Inst. of Diabetes, Digestive, & Kidney Diseases, NIH R01

MOLECULAR PATHOGENESIS AND TREATMENT OF MNGIE

5R01HD056103 (PI: Hirano, M) 04/01/10-01/31/15 Role: Co-Investigator  
Natl. Inst. of Child Disorders and Human Development, NIH P01

MAGNETIC RESONANCE SPECTROSCOPY (MRS) TO ASSESS PROGRESSION OF ALZHEIMER DISEASE

PG004259 (PI: Honing, S) 06/01/12-11/30/14 Role: Co-Investigator  
Source: Alzheimer's Drug Discovery Fund Private

CHRONIC CONVECTION-ENHANCED DELIVERY (CED) OF TOPOTECAN FOR GLIOBLASTOMA

1R01CA161404 (PI: Bruce, J) 07/01/12-04/30/17 Role: Co-Investigator  
Source: National Cancer Institute, NIH R01

SARC SARCOMA SPORE, QUANTITATIVE IMAGING BIOMARKERS FOR ASSESSING RESPONSE TO THERAPY

1U54CA168512 (PI: Pollock R/Schwartz JH) 07/01/12-06/30/17 Role: Co-Investigator  
Source: National Cancer Institute, NIH P50/U54

PHASE II CLINICAL TRIAL OF PERIFOSINE PLUS TEMSIROLIMUS FOR RECURRENT GLIOBLASTOMA

JMDF (PI: Lassman, A) 01/01/13-12/31/15 Role: Co-Investigator  
Source: The James S. McDonell Foundation Private

PENDING GRANT SUPPORT

MULTIPLATFORM MULTIVARIATE MODELS TO PREDICT TREATMENT OUTCOME IN DLBCL

1R21CA191778 (PI: Arias-Mendoza, F) 01/01/16-12/31/20 Role: PI  
Source: National Cancer Institute, NIH R01

INTERIM MR SPECTROSCOPIC IMAGING & POSITRON EMISSION TOMOGRAPHY TO NORM TREATMENT IN DLBCL

1R21CA185801 (PI: Arias-Mendoza, F) 01/01/16-12/31/18 Role: PI  
Source: National Cancer Institute, NIH R21