

## CURRICULUM VITAE RESUME



**NAME:** JOSE LUIS ARIAS (Born: August 11, 1946)

**MARRIED:** November 10, 1972, María Soledad Fernández.  
Occupation: Associate Professor, Department of Animal Biology,  
Faculty of Veterinary Sciences, University of Chile

**CHILDREN:** Jose Ignacio Arias, December 17, 1973  
Francisca Javiera Arias, March 16, 1978

### 2015 – Present

Corresponding Member of the Chilean Academy of Sciences

### 1999 – Present

Professor of Cell Biology, Department of Animal Biology, Faculty of Veterinary Sciences, University of Chile, Santiago, and Principal investigator of the Program Bio-related Materials at Center for Advanced Interdisciplinary Research in Materials (CIMAT).

### 1992 - 1998

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Director School of Graduate Studies, Faculty of Veterinary Sciences, University of Chile, Santiago.

### 1987 - 1989

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Chairman of Department of Animal Biology, Faculty of Veterinary Sciences, University of Chile, Santiago.

### 1992 - Present

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Professor of Cell Biology, Department of Animal Biology, Faculty of Veterinary Sciences, University of Chile, Santiago

### 1989 - Nov. 1991

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Visiting Professor, Skeletal Research Center, Director Arnold I. Caplan, Department of Biology, Case Western Reserve University, Cleveland, Ohio.

### 1987 - 1992

- Associate Professor of Cell Biology, ibid

**1980 - 1987**

- Assistant Professor of Cell Biology, ibid.

**1983 - 1984**

- Visiting Assistant Professor (Postdoctoral Fellowship). Laboratory of Polysaccharides, Prof. Benito Casu, Institute of Chemistry and Biochemistry, G. Ronzoni, Milan, Italy. October, 1983 - March 1984.

**1977 - 1980**

- Assistant Professor of Animal Digestive Physiology, Institute of Nutrition and Food Technology, University of Chile, Santiago.

**1974 - 1977**

- Instructor, Laboratory of Animal Digestive Physiology, ibid.

**1973 - 1974**

- Instructor, Laboratory of Physiology and Biochemistry, Department of Biomorphology, School of Medicine, South Branch, University of Chile, Santiago

**1973**

Degree in Veterinary Medicine and Animal Sciences (D.V.M.)  
University of Chile

**1966 - 1973**

- Undergraduate Student,  
School of Veterinary Sciences, University of Chile, Santiago.  
Thesis: Physiological studies of the omasum motility.

**PRESENT ADDRESS**

Faculty Veterinary and Animal Sciences  
Universidad de Chile  
Santa Rosa 11735, La Pintana  
Santiago, Chile  
Ph: 56-2-29785623  
Fax: 56-2-29785526  
E mail: [jarias@uchile.cl](mailto:jarias@uchile.cl)

**RESEARCH GRANTS OBTAINED UNDER COMPETITIVE BASIS**

(Principal Investigator or Co-investigator)

Project N° 3270. Regulation of ruminal microenvironment. Principal Investigator: R. Cabrera; Co-investigator: J.L. Arias. Funded by Servicio de Desarrollo Científico, Universidad de Chile, 1976.

Project N° 3277. Kinetics of the ruminal papillary development. Principal Investigator: J.L. Arias. Funded by Servicio de Desarrollo Científico, Universidad de Chile. 1976-79.

Project N° 1174. Effects of Chilean nitrate on the ruminal microenvironment in vitro. Principal Investigator: E. Gonzalez.; Co-investigator: J.L. Arias. Funded by Servicio de Desarrollo Científico, Universidad de Chile. 1976-1979.

Project N° A 318792. Characterization of the goat digestive model. Principal Investigator: R. Cabrera; Co-investigator: J.L. Arias. Funded by Servicio de Desarrollo Científico, Universidad de Chile. 1979.

Projects N° B-1024801, B-10248123, B-10248233. Morphogenesis of the ruminal papillae. Principal Investigator: J.L. Arias. Funded by Servicio de Desarrollo Científico, Universidad de Chile. 1980 - 82.

Projects N° B-17938313, B-17938423, B-17938533. Tissue induction during ruminal morphogenesis. Principal Investigator: J.L. Arias. Funded by Departamento de Desarrollo de la Investigación (DIB), Universidad de Chile. 1983, 1984.

Project N° 0155/84. Alteration of the relative composition of glycosaminoglycans in domestic animal neoplasia. Principal Investigator: J.L. Arias. Funded by Chilean Research Council, FONDECYT. 1984-1986.

Project N° A-24238612 y A-24238722. Extracellular matrix and tumorigenesis. Principal Investigator: J.L. Arias. Funded by D.T.I., Universidad de Chile. 1986 and 1987.

Project N° A-29378813. Factors influencing the efficiency of the experimental transmission of canine venereal transmissible tumor (TVT). Principal Investigator: J.L. Arias. Funded by D.T.I., Universidad de Chile, 1988.

Project N° 12565. Ceramic Composite Synthesis Utilizing Biological Processes. Department of Energy, USA. Principal Investigator: Arnold I. Caplan; Co-investigator: J.L. Arias. 1988- 1991.

Project N° 1931136. Control of the biomineralization process. Role of the extracellular matrix. Principal Investigator: J. L. Arias. Financed by FONDECYT. 1993 - 1996.

Project N° SAN/984/64. The role of the organic matrix in the production of poor quality eggshells. The British Council/Conicyt. Academic Link Programme. 1994-1995. Universidad de Chile-University of Glasgow. Principal Investigators: J.L. Arias and S.E. Solomon

Project N°. Molecular control of the avian eggshell biomineralization. Program of Cooperation ECOS-CONICYT. 1995-1998. Universidad de Chile-I.N.R.A., Station Recherches Avicoles, Centre de Tours, Nouzilly, Francia. Principal Investigators: J.L. Arias and Y. Nys

Project Detección de Clenbuterol en carnes bovinas importadas. (Detection of clenbuterol in imported beef). Co-investigator: J.L.Arias. Funded by FIA. 1997

Project N° D96F1030. Reference Center for the Evaluation and Certification of the Quality of Animal-derived Products (CERPRAN). Principal Investigator and Director: J.L. Arias. Funded by FONDEF. 1997-1999.

Project PROSUL (Brazil-Chile-Colombia). Evaluación de Cementos Óseos de Fosfato de Calcio. (Evaluation of calcium phosphate-based bone cements). Principal Investigator Chilean counterpart: Maria Soledad Fernández; Co-investigator: José Luis Arias. Financed by Consejo Nacional de Investigación de Brazil (CNPq) 2004.

Project PSD-23. Fortalecimiento académico del Centro Biotecnológico Veterinario para el mejoramiento de la competitividad de los sistemas de producción animal y sus productos. Programa Bicentenario de Ciencia y Tecnología. Inserción de Investigadores Postdoctorales en la Academia. Principal Investigator: J.L. Arias. 2005-2008.

Project ECOS-CONICYT C07 B02. Estudio de las estructuras de reserva de calcio en crustáceos: análisis estructural, cristalográfico, molecular y filogenético. Investigador Principal Contraparte Chilena: Maria Soledad Fernández; Investigador Principal Contraparte Francesa: Gilles Luquet (University Bourgogne); Co-investigadores: José Luis Arias y Andrónico Neira. 2007-2010.

Project N° 11980002. Center for Advanced Interdisciplinary Research in Materials (CIMAT). FONDAF 1999-2010. Principal Investigator and Director of the Program Bioceramic and Bio-related Materials.

Project N° 1080185. Fondecyt Regular. Design, fabrication, characterization and evaluation of new composite biomaterials for modulating bone regeneration. Principal Investigator: M.S. Fernandez; Co-investigators: Jose Luis Arias y Andrónico Neira- Carrillo (FAVET); Mehrdad Yasdani-Pedram (Facultad de Química y Farmacia, U de Chile); J. Ignacio Arias (Particular).2008-2010.

Project N° 2009-112. Programa de Cooperación Científica Internacional (PCCI) CONICYT/MINCyT, Convocatoria 2009. Desarrollo de aplicaciones biotecnológicas de nanopartículas de polímeros conductores. Inv. Responsable: Marcelo Kogan (Facultad de Química y Farmacia, U de Chile), Co-investigadores: Andrónico Neira-Carrillo, José Luis Arias.2010-2012.

Project N° 1110194. Fondecyt Regular. Biomimetic approaches for obtaining hierarchical hybrid materials by using functionalized polysiloxane and chitosan as templates. Principal Investigator: A. Neira-Carrillo; Co-investigators: Jose Luis Arias y María S. Fernández (FAVET); Mehrdad Yasdani-Pedram (Facultad de Química y Farmacia, U de Chile).2011-2013.

Project N° 1120172. Fondecyt Regular. "Mineral-Matrix Relationships in the Developing of Biomineralized Structures". PI: J.L. Arias; Co-investigators: M.S. Fernandez, A. Neira. 2012-2014.

Project N° EQM 120153, Fondecyt (Fund for Scientific and Technological Equipment), "Development of a Unit of Advanced Microscopy (Confocal Microscopy) in the South

Campus.”. PI.: V. Cambiazo; Co-investigators: A. Reyes, C. Rojas, H. Silva, J. Romero, J. Martinez, J.L. Arias, L. Meisel, L. Valladares, M. González, M. Arredondo, O. Porras, P. Navarrete. 2012

Project PCCI12-039 CONICYT/DAAD, “Role of charged polysaccharides on calcium carbonate nanocrystalline nucleation and growth”, PI: J.L. Arias; Co-investigators: M.S. Fernandez, A. Neira (UCH) and H. Cölfen, Universität Konstanz, Germany. 2013-2014.

Project N° 5788 de 04/02/2013 Agreement University of Bologna-University of Chile, “Chimica della biomineralizzazione”, PI: J.L. Arias and G. Falini, University of Bologna, Italy. 2013-2014.

Project N° 2012-038 Ch/12/01, Preparación de materiales híbridos nanoestructurados con aplicaciones bionanotecnológicas y de encapsulación. Cooperación Científica Internacional CONICYT/MINCyT PI: A. Neira, UCH y D. Acevedo, U. Río Cuarto Córdoba; Co-investigators: M. Kogan, J.L. Arias, 2013-2014.

Project N° 1140660. Fondecyt Regular. "Hierarchical hybrid polymeric materials for understanding classical and non-classical crystallizations and their applications". PI: A. Neira; Co-investigators: J.L. Arias, M. Yazdani-Pedram, M.S. Fernandez. 2014-2016.

Project N° 1150681. Fondecyt Regular. "Avian Eggshell as a Natural Template for Bio-inspired Synthesis of New Materials" PI: J.L. Arias; Co-investigators: M.S. Fernandez, A. Neira. 2015-2017.

Project N° 1171520. Fondecyt Regular “Polymer-controlled biomineralization using electrospun fibers as template through electrospinning”. PI: A. Neira-Carrillo, Co-investigators: J.L. Arias, M. Yazdani-Pedram, M.S. Fernández. 2017-2020

Project N° 1180734 Fondecyt Regular 2018 “Chemically functionalized eggshell membranes as templates for designing biomaterials”. PI: J.L. Arias; Co-investigators: M.S. Fernández, A. Neira-Carrillo, E. Kessi, J.I. Arias. 2018-2020

## **PUBLICATIONS**

1. **Arias, J.L.** (1975). Aspects of the omasum physiology. Special reference to the motor activity. (in Spanish) Rev. Soc. Med. Vet.(Chile), 25:15-23.
2. **Arias, J.L.** (1976). Organization of the ruminal mucosa. Morphofunctional aspects. (in Spanish). Rev. Soc. Med. Vet. (Chile) 26(1/2):5-12.
3. **Arias, J.L.** (1978). A histological study of the myenteric plexus of ovine and bovine omasum. (in Spanish). Arch. Med. Vet. (Chile) 10:79-81.
4. **Arias, J.L.,** Cabrera, R., Valencia, A. (1978). Observations on the histological development of the bovine rumen papillae. Morphological changes due to age. Zbl.Vet. Med. C, Anat. Histol. Embryol. 7:140-151.
5. **Arias, J.L.,** Zurich, L., Pedreros, S. (1979). Cholinergic reactivity of the bovine

fetal ruminal wall in vitro. Vet. Sci. Commun. 3:141-145.

6. **Arias, J.L.**, Fernandez, M.S., Cabrera, R. (1979). Distribution and nature of desmosomes in the bovine developing ruminal epithelium. Acta Anat. 105:309-313.
7. **Arias, J.L.**, Zurich, L., Cox, F. (1980). Effect of catecholamines on bovine fetal rumen wall. (in Spanish) Arch. Med. Vet. 12:252-257.
8. **Arias, J.L.**, Vial, E., Cabrera, R. (1980). Observations on the histogenesis of bovine ruminal papillae. Amer. J. Vet. Res. 41:174-178.
9. **Arias, J.L.**, Fernandez, M.S., Cabrera, R. (1980). Glycogen in the epithelium of the bovine fetal rumen. Acta Anat. 106:216-222.
10. **Arias, J.L.**, Zurich, L., Bastias, J. (1980). Motor responses to 5-HT of the bovine rumen wall in vitro during fetal development. Pharmacol. Res. Commun. 12:975-985.
11. **Arias, J.L.**, Zurich, L., Gonzalez, C.M. (1981). Effect of prostaglandin F<sub>2</sub> alpha on the bovine fetal ruminal wall in vitro. Vet. Res. Commun. 5:151-153.
12. **Arias, J.L.** (1982). General aspects of the rumen biology. (in Spanish). Monograf. Med. Vet. 4:25-53.
13. Grudsky, R., **Arias, J.L.** (1983). General aspects of the rumen microbiology. (in Spanish). Monograf. Med. Vet. 5:63-89.
14. **Arias, J.L.**, Gonzalez, E. Vivanco, E. Molinas, J.M. (1983). Changes in conformation of collagen during development of bovine ruminal mucosa Zbl. Vet. Med. A 30:223-232.
15. **Arias, J.L.** (1984). Cell surface and immunological response. (in Spanish). In: Veterinary Immunology. (P. Berrios, ed.) Serimpres Santiago, pp 27-34.
16. **Arias, J.L.** (1985). Isolation and Characterization of Glycosaminoglycans (in Spanish). In: Laboratory Manual of Comparative Embryology. (M.A. Montenegro and M.A. Mena eds.). Department of Experimental Morphology, School of Medicine, University of Chile, pp 83-86.
18. **Arias, J.L.**, Gonzalez, E. Jimenez, J. (1986). Conformation of interstitial collagen of bovine rumen and skin. J. Vet. Med. A 33:66-72.
19. **Arias, J.L.**, Zurich, L., Cordova, E. (1988). Effects of histamine in the motility of the bovine fetal rumen ventral sac. (in Spanish). Avances Ciencias Vet. 3:43-47.
20. **Arias, J.L.**, Fernandez, M.S., Cerpa, C., Gonzalez, E. (1989). Biotechnology in Veterinary Medicine. (in Spanish). Monograf. Med. Vet. 11:3-12.

21. **Arias, J.L.**, Cerpa, C., Perez, L. Munoz, L., Pozo, V., Gonzalez, E. (1989). Relative composition of glycosaminoglycans in some canine neoplasms.(in Spanish). Avances Ciencias Vet. 4:49-56.
22. **Arias, J.L.**, Fernandez, M.S., (1989). The eggshell: an acellular compartment of mineralized extracellular matrix. (in Spanish). Monograf. Med. Vet. 11:43-52.
23. **Arias, J.L.**, Fernandez, M.S., Oreste, P., Baeza, S., Pavez, V. (1991). An ultrastructural and biochemical analysis of the epithelial-mesenchymal interface of the ruminal mucosa during development. Anat. Anz. 172:165-176.
24. **Arias, J.L.**, Fernandez, M.S., Dennis, J.E., Caplan, A.I. (1991). Collagens of the chicken eggshell membranes. Connect. Tissue Res. 26:37-45.
25. **Arias, J.L.**, Fernandez, M.S., Dennis, J.E., Caplan, A.I. (1991). The fabrication and collagenous substructure of the eggshell membrane in the isthmus of the hen oviduct. Matrix 11:313-320.
26. **Arias, J.L.**, Fernandez, M.S., Caplan, A.I. (1991). Absence from avian eggshell membranes of epitopes recognized by anti-keratan antibodies. Poultry Sci. 70:1647-1650.
27. **Arias, J.L.**, Fernandez, M.S., Laraia, V.J., Heuer, A.H., Janicki, J., Caplan, A.I. (1991). The avian eggshell as a model of biomineralization. In: *Materials Synthesis Based on Biological Processes.* (M. Alper, P.D. Calvert, R. Frankel, P.C. Rieke, D.A. Tirrell eds.). Material Research Society Symposium Proceedings, Pittsburgh, PA. Vol. 218, pp 193-201.
28. Carrino, D.A., **Arias, J.L.**, Caplan, A.I. (1991). A spectrophotometric modification of a sensitive densitometric Safranin O assay for glycosaminoglycans. Biochem Int. 24:485-495.
29. Heuer, A.H., Fink, D.J., Laraia, V.J., **Arias, J.L.**, Calvert, P.D., Kendall, K., Messing, G.L., Rieke, P.C., Thompson, D.H., Wheeler, A.P., Veis, A., Caplan, A.I. (1992). Innovative materials processing strategies: a biomimetic approach. Science 255:1098-1105.
30. Wu, T.-M., Fink, D., **Arias, J.L.**, Rodriguez, J.P., Heuer, A.H., Caplan, A.I. (1992). The Molecular Control of Avian Eggshell Mineralization. In: *Chemistry and Biology of Mineralized Tissues.* (Slavkin, H.C., Price, P. eds.). Elsevier Sci. Publ. pp. 133-141.
33. **Arias, J.L.**, Carrino, D.A., Fernandez, M.S., Rodriguez, J.P., Dennis, J.E., Caplan, A.I. (1992). Partial biochemical and immunohistochemical characterization of avian eggshell extracellular matrices. Arch. Biochem. Biophys. 298:293-302.
31. **Arias, J.L.**, Fink, D., Xiao, S.-Q., Heuer, A.H., Caplan, A.I. (1993). Biomineralization and eggshells: cell-mediated acellular compartments of

mineralized extracellular matrix. Int. Rev. Cytol. 145:217-250.

32. **Arias, J.L.**, Fernandez, M.S. (1993). Molecular control of avian eggshell biomineralization. In: Symposium Eggshell Formation. Proceedings of 5th Europ. Symp. Quality Eggs and Egg Products. Tours, France, 4-8 October, 1993, pp 116-126.
33. Fernandez, M.S., Kessi, E., **Arias, J.L.** (1994). Sequential deposition of particular macromolecules during eggshell formation. Procc. 9th Eur. Poultry Conf. , Glasgow, UK, August 7-12, pp 381-382.
34. **Arias, J.L.**, Fernandez, M.S., Hidalgo, H. (1994). Eggshell quality: A new approach to an old problem. Inform. Avic. (in Spanish) 194:12-25.
35. **Arias, J.L.**, Fernandez, M.S. (1995). Role of extracellular matrix on eggshell formation. Procc. 6th Europ. Symp. Quality Eggs and Egg Products. Zaragoza, Spain, 25-29 September, pp 89-96.
36. Carrino, D.A., Dennis, J.E., Wu, T.M., **Arias, J.L.**, Fernández, M.S., Rodríguez, J.P., Fink, D.J., Heuer, A.H., Caplan, A.I. (1996). The avian eggshell extracellular matrix as a model for biomineralization. Connect. Tissue Res. 34:379-383.
37. **Arias, J.L.** (1996) "Encefalopatías espongiiformes transmisibles: El caso de una proteína mortal". TecnoVet 2(2):10-15.
38. **Arias, J.L.**, Cataldo, M., Fernandez, M.S., Kessi, E. (1997). Effect of beta-aminopropionitrile on eggshell formation. British Poultry Sci. 38:351-356.
39. **Arias, J.L.**, Nakamura, O., Fernandez, M.S., Wu, J.J., Knigge, P., Eyre, D.R., Caplan, A.I. (1997). Role of type X collagen on experimental mineralization of eggshell membranes. Connect. Tissue Res. 36:21-33.
40. Fernandez, M.S., Araya, M., **Arias, J.L.** (1997). Eggshells are shaped by a precise spatio-temporal arrangement of sequentially deposited macromolecules. Matrix Biol. 16:13-20.
41. Panhéleux, M., Bain, M., Fernández, M.S., Gautron, J., **Arias, J.L.**, Solomon, S., Hincke, M., Nys, Y. (1997). Etude comparative de la structure et de la matrice organique de coquilles d'oeuf de différentes espèces d'oiseaux domestiques. Procc. 12th Journées Rech. Avic., Tours, France, 8-10 April, pp 267-270.
42. Fernández, M.S., Moya, A., **Arias, J.L.** (1997). Secretion pattern of extracellular matrix molecules in the oviduct during eggshell formation. Procc. 7th Europ. Symposium on the Quality of Eggs and Egg Products, Poznan, Poland, Sept. 21-26, pp 182-189.
43. Nys, Y., Hincke, M.T., **Arias, J.L.**, García-Ruiz, J.M., Solomon, S.E. (1997). Biochemical characterisation and in vitro functional properties of eggshell matrix extracts and of uterine fluid in hens. Procc. 7th Europ. Symposium on the Quality



of Eggs and Egg Products, Poznan, Poland, Sept. 21-26, pp 107-126.

44. Panhéleux, M., Bain, M., Fernández, M.S., Gautron, J., **Arias, J.L.**, Solomon, S.E., Hincke, M.T., Nys, Y. (1997). Comparative analysis of organic matrix and of eggshell ultrastructure in various domestic birds. Procc. 7th Europ. Symposium on the Quality of Eggs and Egg Products, Poznan, Poland, Sept. 21-26, pp 162-171.
45. **Arias, J.L.** (1998). Egg quality: a scientific-practical approach. Part I. Inform. Avicol. & Porc. (in Spanish) 218:8-15.
46. **Arias, J.L.** (1998). Egg quality: a scientific-practical approach. Part II. Inform. Avicol. & Porc. (in Spanish) 219:6-11.
47. **Arias, J.L.**, Fernández, M.S., Nys, Y. (1998). What a fresh egg means?. TecnoVet. (in Spanish) 4(3):12-16.
48. Dasso, G., Fernández, M.S., **Arias, J.L.** (1998). Allogenic bone grafts treated with different conservation methods for bone repair in rabbits. Arch. Med. Vet.(Chile) 30:57-66.
49. Díaz, I., **Arias, J.L.** (1999). Pig meat quality, a challenge of competitiveness: the case of PSE. TecnoVet. (in Spanish) 5(1):26-29.
50. Panhéleux, M., Bain, M., Fernández, M.S., Morales, I., Gautron, J., **Arias, J.L.**, Solomon, S., Hincke, M., Nys, Y. (1999). Organic matrix composition and ultrastructure of eggshells: a comparative study. Br. Poultry Sci. 40:240-252.
51. Fernández, M.S., **Arias, J.L.** (1999). Ultrastructural localisation of molecules involved in eggshell formation in the avian oviduct. Proc. 8<sup>th</sup> Europ. Symp. Quality Eggs & Egg Prod., Bologna, Italia, pp. 81-86.
52. Nys, Y., Hincke, M., **Arias, J.L.**, García-Ruiz, J.M., Solomon, S. (1999). Avian eggshell mineralization. Poultry & Avian Biol. Rev. 10(3):142-166.
53. **Arias, J.L.** (1999). Urgency of changes: Chile needs true Universities. Ciencia Abierta 8 (<http://tamarugo.cec.uchile.cl/~cabierta/revista/8/cambios.html>)
54. Fernández, M.S., **Arias, J.L.** (2000). La cáscara del huevo: Un modelo de biomineralización (The eggshell: A model of biomineralization). Monograf. Med. Vet. (Chile) 20:50-60.
55. **Arias, J.L.**, Fernández, M.S. (2000). Extracellular matrix molecules on shell formation and structure. Proc. XXI World's Poultry Congress, Montréal, Canada, August 20-25.
56. Fernández, M.S., Moya, A., López, L., **Arias, J.L.** (2001). Secretion pattern, ultrastructural localization and function of extracellular matrix molecules involved in eggshell formation. Matrix Biol. 19(8):793-803.

57. **Arias, J.L.**, Fernandez, M.S. (2001). Role of extracellular matrix molecules in shell formation and structure. World's Poultry Sci. J. 57(3):1-9.
58. Arias, J.L., Jure, C., Wiff, J.P., Fernandez, M.S., Fuenzalida, V., **Arias, J.L.** (2002). Effect of sulfate content of biomacromolecules on the crystallization of calcium carbonate. *In: Advanced Biomaterials – Characterization, Tissue Engineering and Complexity*, (S.C. Moss ed.), Mat. Res. Soc. Symp. Proc. 711:243-248.
59. Fernandez, M.S., Vergara, I., Oyarzun, A., Arias, J.L., Rodriguez, R., Wiff, J.P., Fuenzalida, V., **Arias, J.L.** (2002). Extracellular matrix molecules involved in barnacle's shell mineralization. *In: Biological and Biomimetic Materials – Properties to Function*, (J. Aizenberg, J. McKittrick, C. Orme, eds.), Mat. Res. Soc. Symp. Proc. 724:1-9.
60. **Arias, J.L.**, Fernandez, M.S. (2003). Biomimetic processes through the study of mineralized shells. Materials Characterization 50:189-195.
61. **Arias, J.L.**, Wiff, J.P., Fuenzalida, V., Fernandez, M.S. (2003). Molecular regulation of avian eggshell biomineralization. *In: Biomineralization: formation, diversity, evolution and application*. (Kobayashi, I. and Ozawa, H. Eds.), pp 221-225, Tokai Univ. Press., Tokyo, Japan
62. Fernandez, M.S., Escobar, C., Lavelin, I., Pines, M., **Arias, J.L.** (2003). Localization of osteopontin in oviduct tissue and eggshell during different stages of the avian egg laying cycle. J. Struct. Biol. 143:171-180.
63. Yazdani-Pedram, M., Tapia, C., Retuert, J., **Arias, J.L.** (2003). Synthesis and unusual swelling behavior of combined cationic/non-ionic hydrogels based on chitosan. Macromol. Biosci. 3:577-581.
64. **Arias, J.L.**, Fernandez, M.S. (2003). Extracellular matrix and biomineralization. Microsc. Microanal. 9(Suppl. 2):1516-1517.
65. Wiff, J.P., Fuenzalida, V.M., Zarate, R.A., **Arias, J.L.**, Fernandez, M.S. (2004). Characterization of hydrothermal-electrochemical calcium titanate coatings on titanium and biomedical titanium alloy. J. Phys. Condens. Matter 16:S1345-S1350.
66. Fernandez, M.S., Passalacqua, K., Arias, J.L., **Arias, J.L.** (2004). Partial biomimetic reconstitution of avian eggshell formation. J. Struct. Biol. 148(1):1-10.
67. Neira, A.C., Fernandez, M.S., Retuert, J., **Arias, J.L.** (2004). Effect of the crystallization chamber design on the polymorphs of calcium carbonate using the sitting-drop method. *In: Architecture and Application of Biomaterials and Biomolecular Materials*, (Barron, A.E., Klok, H-A., Deming, T.J. eds.), Mat. Res. Soc. Symp. Proc. EXS-1:321-326.

68. **Arias, J.L.**, Neira, A.C., Arias, J.I., Escobar, C., Boderó, M., David, M., Fernández, M.S. (2004). Sulfated polymers in biological mineralization: a plausible source of bio-inspired engineering. *J. Mater. Chem.* 14:2154-2160.
69. Neira-Carrillo, A., Yazdani-Pedram, M., Retuert, J., Díaz-Dosque, M., Gallois, S., **Arias, J.L.** (2005). Selective crystallization of calcium salts by poly(acrylate)-grafted chitosan. *J. Colloid Interf. Sci.* 286:131-141.
70. Fernández, M.S., Arias, J.I., **Arias, J.L.** (2005). Goats spinning spiderwebs? (in Spanish). *TecnoVet* 11(1):24-25.
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