

## BIOGRAPHICAL SKETCH

NAME

Csilla Ari D'Agostino, Ph.D.

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INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Szent Istvan University, HU	M.S.	1997-2002	Zoology
Semmelweis University, HU	Ph.D.	2002-2008	Neurosciences
University of South Florida, Tampa, FL	Postdoctoral scholar	06/2010-09/2012	Molecular Medicine
University of South Florida, Tampa, FL	Postdoctoral scholar	09/2012-09/2013	Molecular Pharmacology and Physiology
University of South Florida, Tampa, FL	Research Associate	09/2013- 12/2016	Molecular Pharmacology and Physiology
University of South Florida, Tampa, FL	Research Assistant Professor	3/2017-1/2020	Psychology

### **A. Personal Statement**

I have a broad background in comparative neuroanatomy, molecular biology, microscopy, physiology, with numerous peer reviewed publications- mostly as first author-, a book and a book chapter, 7 provisional patents, as well as many national and international conference presentations.

I completed my PhD in 2008 on the cerebralization, astroglial architecture and blood-brain barrier composition of cartilaginous fishes using immunohistochemical markers on 12 shark and ray species.

After completing my PhD I moved to the United States of America and on June 1<sup>st</sup>, 2010 I joined Dr. Huntington Potter's laboratory at the Byrd Alzheimer's Institute. My project focused on studying the mechanism of neurotransmitter and neurotrophin receptor mislocalization in Alzheimer's disease and my work involved cell cultures, immunocytochemistry, flow cytometry, spectrophotometry, Atomic Force Microscopy (AFM), fluorescence and confocal microscopy, RT-PCR and recombinant DNA techniques. I also worked with fluorescence live cell imaging of mitochondria, cell cultures, and gene transfection.

After receiving a SIPIN grant together, a collaborative project started with Dr. Dominic D'Agostino in 2012 that focused on the effect of hyperbaric oxygen on the viability, ROS production and oxidative stress of aging central nervous system. Later I have joined Dr. D'Agostino's laboratory as a postdoctoral scholar and lead a project to test metabolic therapies on an ALS transgenic mouse model (SOD1G93A) using behavioral tests. I have also been involved in others project in Dr. D'Agostino's laboratory, such as testing the effects of ketone supplements on seizure disorders and dietary interventions of cancer which also included in vivo imaging of mice. In 2013 I became a Research Associate and lead several projects

independently, such as testing ketone supplements on GLUT1 deficiency syndrome mice, and serendipitously discovered further applications of the ketone supplements that I started to explore further which lead to 7 provisional patents.

In the meantime, I have developed several national and international collaborative projects that I contributed with work on the AFM, calcium imaging, histology and hyperbaric experiments.

In 2017 I established my laboratory at the Psychology Department at the University of South Florida, focusing on studying the behavioral affects of exogenous ketone supplements and the underlying mechanisms using mostly confocal microscopy. In the same year I became involved in psychological and physiological studies on Aquanauts through NASA Extreme Environment Mission Operations (NEEMO22) and the Institute of Human and Machine Cognition to study psychological and physiological effects of living in a saturation environment which serves as a space analog. Worked at the Mission Control Center as Research Cordinator and also as a support diver. In 2019 I was selected to be a crew member during NASA NEEMO 23 mission as part of the first all-female crew and also coordinated the research studies.

My passion is to study giant manta rays, their neurobiology, as well as their sensory, cognitive abilities, social behavior, morphology and physiology with evolutionary implications. The comparative physiology projects lead to several publications, a Research Recognition Award from the American Physiological Society, Comparative and Evolutionary Physiology Section, my discoveries on their rapid coloration changes were highlighted in the prestigious Nature magazine and allowed me to approach scientific problems from an evolutionary perspective.

## **B. Positions and Honors**

### **Positions and Employment**

2001 Volunteer, University of California, Scripps Institution of Oceanography, San Diego, USA

2002 Volunteer, University of California, Scripps Institution of Oceanography, San Diego, USA

2003-present Founder, Principal Investigator, Foundation for the Oceans of the Future, Hungary

2004-2005 Visiting scientist at CSIRO Marine Research Laboratories in Hobart, Tasmania, Australia

2007-2008 Cartilaginous fish and marine fish specialist, Hungarian Natural History Museum, Hungarian Academy of Sciences

2008 Supervisor, Museum of Anatomy, Semmelweis Medical University, Hungary

2009 Patient Safety Specialist, TATA Consultancy Services, AstraZeneca, Göteborg/ Sweden; Charnwood, Manchester/ UK; Budapest/ Hungary

2010-2012 Postdoctoral Scholar, USF Health Byrd Alzheimer's Center and Research Institute, University of South Florida, Department of Molecular Medicine, FL, USA

2012- Sept 2013 Postdoctoral Scholar, Hyperbaric Biomedical Research Laboratory, University of South Florida, Department of Molecular Pharmacology and Physiology, FL, USA

2013- Dec 2016 Research Associate Hyperbaric Biomedical Research Laboratory, University of South Florida, Department of Molecular Pharmacology and Physiology, FL, USA

2013- 2016 Board of Director, Scientific Advisor for Manta Pacific Research Foundation

2016-present Vice President, Chair of Research Committee of Manta Pacific Research Foundation

2017 March-2020 Research Assistant Professor, University of South Florida, Department of Psychology, FL, USA

2017 April-present Co-Founder and CEO of Ketone Technologies LLC.

2019 June Crew member on NASA Extreme Environment Mission Operations 23.

**C. Contributions to Science, Professional activities:**

**Journal Referee:**

Brain, Behavior and Evolution  
PlosOne  
Brain Research Bulletin  
Journal of Neuroscience and Behavioral Health  
Journal of Medicine and Medical Sciences  
Turkish Journal of Fisheries and Aquatic Sciences  
Biological Journal of Linnean Society  
Journal of Fish Biology  
Journal of Physiology and Behavior

**Professional Memberships:**

Hungarian Academy of Sciences  
Hungarian Biological Society  
American Society for Neuroscience  
International Behavioral Neuroscience Society  
Society for Neuroscience

**Mentoring Graduates/Undergraduates:**

Julbert Caneus,	Craig Goldhagen	Adam Albadawi	John Wallas
Whitney Hethorn	Cem Murdun	Monique Zippert	Anthony Fuentes
Nicholas Mavromates	Andrew Koutnik	Collin Park	Raquel Sanford
Ashley Van Putin	Janine DeBlasi	Sahil Bharwani	Moriah Barnhart

**Honors and Awards**

Grant from the Capital of Hungary (1996-97)  
Grant from the Capital of Hungary (1997-98)  
Grant from the Hungarian Republic (2001-2002)  
Grant from the Portuguese Association for the Study and Conservation of Elasmobranchs (2004)  
American Elasmobranch Society Meeting, Travel Award (2005 and 2008)  
Richter Gedeon Grant for supporting Ph.D. studies (2006)  
Grant from the National Office for Research and Technology (2008)  
Grant from the Save Our Seas Foundation (2010)  
Grant from the Signature Interdisciplinary Program in Neuroscience, USF, USA (2011)  
Conference travel grant for postdoctoral scholars at USF, USA (2012)  
Travel award from International Society of Neurochemistry (2013) -could not accept the award because my visa situation could not be solved in time to be able to travel outside of the USA  
Grant from Manta Pacific Research Foundation (2013)  
Grant from Manta Pacific Research Foundation (2014)  
Grant from Manta Pacific Research Foundation (2015)  
Research Recognition Award, The American Physiological Society Comparative and Evolutionary Physiology Section, Boston, USA (2015)  
Grant from Manta Pacific Research Foundation (2016)

Grant from Quest Nutrition LLC. (2017)  
Florida High Tech Corridor Matching Fund (2017)  
NSF iCorps Regional (2017)  
NSF SBIR 0 (2018)

### **Scuba diving certificates**

CMAS *	1997
NAUI Advanced Diver	1998
NAUI Rescue Diver	1998
NAUI Master Diver	1999
NAUI Nitrox Diver	2001
NAUI Divemaster	2003
PADI Manta ray specialist	2012

### **D. Peer-Reviewed Publications**

#### **Book**

1. **Ari, C.** (2009). On the brain of cartilaginous fishes: Cerebralization, astroglial architecture and blood-brain barrier composition, Lambert Academic Publishing.

#### **Book chapter**

2. **Ari, C., Pilla, R., D'Agostino, D.P.** (2014) Nutritional/Metabolic therapies in animal models of ALS, Alzheimer's disease, and seizures, in: Bioactive Nutraceuticals and Food Supplements in Neurological and Brain Disease, <http://dx.doi.org/10.1016/B978-0-12-411462-3.00047-3>
3. Poff AM, Annis HA, Whelan HT, **Ari C**, D'Agostino DP. (2017) Ketogenic Diet and Ketogenic Supplementation for Central Nervous System Oxygen Toxicity, Hyperbaric Medicine Practice, ISBN: 978-1-947239-005

#### **Articles**

4. Kálmán, M., **Ari, C.** (2002). Distribution of GFAP immunoreactive structures in the rhombencephalon of sterlet (*Acipenser ruthenus*) and its evolutionary implication; *Journal of Experimental Zoology*, 2002, 293: 395-406.
5. Gál, J., Vincze, Z., Jakab, C., **Ari, C.**, Lefler, K.K. (2005). Multiplex shafted fibroma on the upper jaw of a sand-tiger shark (*Carcharias (Odontaspis)taurus*); *Hungarian Veterinary Journal*, 127:242-245.
6. **Ari, C., Kálmán, M.** (2008). Evolutionary changes of astroglia in Elasmobranchii comparing to Amniotes: a study based on three immunohistochemical markers (GFAP, S-100, and glutamine synthetase), *Brain, Behavior and Evolution*, 71:305-324.
7. **Ari, C., Kálmán, M.** (2008). Glial architecture of the ghost shark (*Callorinchus millii*, Holocephalii, Chondrichthyes) as revealed by different immunohistochemical markers, *Journal of Experimental Zoology Part B: Molecular and Developmental Evolution*, Vol 310B, 6: 504 – 519.
8. **Ari, C., Correia, J.P.** (2008). Role of sensory cues on the food searching behaviour of a captive *Manta birostris* (Myliobatiformes, Mobulidae), *Zoo Biology* Vol 27, 4: 294 – 304.

9. **Ari, C.** (2011). Encephalization and brain organization of mobulid rays (Myliobatiformes, Elasmobranchii) with ecological perspectives, *The Open Anatomy Journal* 3:1-13.
10. Kitchen-Wheeler, A-M., **Ari, C.**, Edwards, A.J. (2012) Population estimates of Alfred mantas (*Manta alfredi*) in central Maldives atolls: North Male, Ari and Baa, *Environmental Biology of Fishes*, 93:4, 557-575.
11. Kalman, M., Somiya, H., Lazarevic, L., **Ari, C.**, Majorossy, K. (2013) Absence of post-lesion glial reactivity in elasmobranchs and turtles and its bearing on the evolution of astroglia, *Journal of Experimental Zoology*, doi: 10.1002/jez.b.22505.
12. D'Agostino, D., Pilla, R., Held, H., Landon, C.S., **Ari, C.**, Puchowicz, M., Brunengraber, H., Arnold, P., Dean, J. (2013) Therapeutic ketosis with ketone ester delays central nervous system oxygen toxicity seizures in rats, *American Journal of Physiology* ;304(10): R829-36.
13. Poff, A., **Ari, C.**, Seyfried, T., D'Agostino P.D. (2013) The Ketogenic Diet and Hyperbaric Oxygen Therapy Act Synergistically to Prolong Survival in Mice with Systemic Metastatic Cancer, *PlosOne* 8(6): e65522. doi:10.1371/journal.pone.0065522.
14. **Ari, C.**, Borysov, S., Wu, J., Padmanabhan, J., Potter, H. (2014) Alzheimer amyloid beta inhibition of Eg5/kinesin 5 reduces neurotrophin and/or transmitter receptor function. *Neurobiol Aging*. 35 (8): 1839-49. pii: S0197-4580(14)00180-8doi:10.1016/j.neurobiolaging.2014.02.006.
15. Poff, A.M., **Ari, C.**, Arnold, P., Seyfried T.N., D'Agostino D.P. (2014) Ketone supplementation decreases tumor cell viability and prolongs survival of mice with metastatic cancer, *Int J Cancer*. Feb 26. doi: 10.1002/ijc.28809
16. **Ari, C.** (2014) Rapid coloration changes of manta rays (Mobulidae), *Biological Journal of Linnean Society*, 113: 180–193. doi: 10.1111/bij.12321
17. **Ari, C.**, Poff, A.M., Held, H., Fiorelli, T., Goldhagen, C., D'Agostino, D.P. (2014) Increased TCA cycle intermediates in response to diet with Deanna protocol in ALS mouse model *The FASEB Journal* vol. 28 no. 1 Supplement 578.3
18. **Ari, C.**, Poff, A.M., Held, H.E., Landon, C.S., Goldhagen, C.R., Mavromates, N., D'Agostino, D.P. (2014) Metabolic therapy with Deanna Protocol Supplementation Delays Disease Progression and Extends Survival in Amyotrophic Lateral Sclerosis (ALS) Mouse Model, *PLoS ONE* 9(7): e103526. doi:10.1371/journal.pone.0103526
19. Kesl SL, Poff AM, Ward NP, Fiorelli TN, **Ari C**, Van Putten AJ, Sherwood JW, Arnold P, D'Agostino DP. Effect of Sustaining Dietary Ketosis on the Hippocampal and Serum Metabolome of Sprague-Dawley Rats. March 2015, Boston, MA. *The FASEB Journal*, vol. 29 no. 1 Supplement 745.4.
20. **Ari, C.** (2015) Long-term body pigmentation changes on a manta ray (*Mobulidae*), *Biological Journal of the Linnean Society*, 114: 406–414. doi: 10.1111/bij.12416
21. **Ari, C.**, Decker, S., Ford, J., D'Agostino, D.P. (2015) What can we learn from deep-diving elasmobranchs to help humans adapt to extreme underwater environments? *The FASEB Journal*, Vol. 29: 1, Supplement 678.18.
22. **Ari, C.**, Poff, A., Landon, C., Goldhagen, C.R., Mavromates, N., Kesl, S., Ward N.P., Fiorelli T.N., Van Putten A.J., Sherwood J.W., Arnold P., D'Agostino, D.P. (2015) Metabolic therapies improve mitochondrial morphology and function, *The FASEB Journal*, Vol.. 29:1 Supplement 1036.10.
23. Kesl, S.L, Poff, A.M., Ward, N.P., Fiorelli, T.N., **Ari, C.**, Van Putten, A.J., Sherwood, J.W., Arnold, P., D'Agostino, D.P. (2016) Effects of exogenous ketone supplementation on

- blood ketone, glucose, triglyceride, and lipoprotein levels in Sprague–Dawley rats, *Nutrition and Metabolism*, 13:9. DOI: 10.1186/s12986-016-0069-y
24. Sajan, M., Hansen, B., Ivey, III R., Sajan, J., Ari, C., Song, S., Braun, U., Leitges, M., Farese-Higgs, M., Farese, R. (2016) Brain Insulin Signaling is Increased in Insulin-Resistant States and Decreases in FoxOs and PGC-1 $\alpha$  and Increases in A $\beta$ 1-40.42 and Phospho-Tau May Abet Alzheimer Development. *Diabetes*. pii: db151428. PubMed PMID:26895791.
  25. Ari, C., D'Agostino D.P. (2016) Contingency checking and self-directed behaviors in giant manta rays: Do elasmobranchs have self-awareness? *Journal of Ethology*, May 2016, Volume 34, Issue 2, pp 167-174.
  26. Ari C, Laros K, Balcombe J, D'Agostino DP. (2016) Understanding the behavior of manta rays: response to a critique, *Journal of Ethology*, Volume 35, Issue 1, pp 149–152.
  27. Ari C, Kovacs Z, Juhasz G, Murdun C, Goldhagen CR, Koutnik A, Poff AM, Kesl SL, D'Agostino DP. (2017) Exogenous ketone supplements reduce anxiety-related behavior in Sprague-Dawley and Wistar Albino Glaxo/Rijswijk rats. *Front. Mol. Neurosci.* 9:137. doi: 10.3389/fnmol.2016.00137
  28. Ari C. Canfield CE; Copes N, Poff AM, Fiorelli TN, Landon CS, Goldhagen CR, Mavromates N, D'Agostino DP. (2017) The Deanna protocol supplement complex supports mitochondrial energy metabolism and prolongs lifespan in preclinical models of amyotrophic lateral sclerosis (ALS), *Metabolomics*, 13:55.
  29. Kovacs Z, D'Agostino PD, Dobolyi A, Ari C. (2017) Adenosine A1 receptor antagonism abolished the anti-seizure effects of exogenous ketone supplementation in Wistar Albino Glaxo Rijswijk rats, *Frontiers in Molecular Neuroscience*, doi: 10.3389/fnmol.2017.00235
  30. Kovács Z, D'Agostino DP, Ari C. (2018) Anxiolytic effect of exogenous ketone supplementation is abolished by adenosine A1 receptor inhibition in Wistar Albino Glaxo/Rijswijk rats, *Frontiers in Behavioral Neuroscience*, 12:29. doi: 10.3389/fnbeh.2018.00029
  31. Ari C, Kovács Z, Murdun C, Koutnik AP, Goldhagen CR, Rogers C, Diamond D, D'Agostino DP. (2018) Nutritional ketosis delays the onset of isoflurane induced anesthesia, *BMC Anesthesia*, 18:85.
  32. Ari C, D'Agostino DP, Diamond DM, Kindy M, Park C, Kovács Z. (2019) Elevated Plus Maze Test Combined with Video Tracking Software to Investigate the Anxiolytic Effect of Exogenous Ketogenic Supplements. *J Vis Exp.* (143). doi:10.3791/58396. PubMed PMID: 30663672.
  33. Ari C, Koutnik AP, DeBlasi J, Landon C, Rogers CQ, Vallas J, Bharwani S, Puchowicz M, Bederman I, Diamond DM, Kindy MS, Dean JB, D Agostino DP. (2019) Delaying latency to hyperbaric oxygen-induced CNS oxygen toxicity seizures by combinations of exogenous ketone supplements. *Physiol Rep.* 7(1):e13961. doi:10.14814/phy2.13961. PubMed PMID: 30604923; PubMed Central PMCID: PMC6317287.
  34. Kovács Z, D'Agostino DP, Diamond DM, Ari C. (2019) Exogenous Ketone Supplementation Decreased the Lipopolysaccharide-Induced Increase in Absence Epileptic Activity in Wistar Albino Glaxo Rijswijk Rats. *Front. Mol. Neurosci.* 12:45. Doi:10.3389/fnmol.2019.00045
  35. Kálmán M, Lorincz DL, Sebők OM, Ari C, Oszwald E, Somiya H, Jancsik V. (2019) Cerebrovascular  $\beta$ -dystroglycan immunoreactivity in vertebrates: not detected in anurans and in the teleosts *Ostariophysi* and *Euteleostei*. *Integr Zool.* doi: 10.1111/1749-4877.12384. [Epub ahead of print] PubMed PMID: 30811839.

36. Kovács, Z., D'Agostino, D. P., Diamond, D., Kindy, M. S., Rogers, C., **Ari, C.** (2019). Therapeutic Potential of Exogenous Ketone Supplement Induced Ketosis in the Treatment of Psychiatric Disorders: Review of Current Literature. *Frontiers in psychiatry*, 10, 363. doi:10.3389/fpsyt.2019.00363
37. **Ari C**, Cem Murdun, Andrew P. Koutnik, Craig R. Goldhagen, Christopher Rogers, Collin Park, Sahil Bharwani, David M. Diamond, Mark S. Kindy, Dominic P. D'Agostino, Zsolt Kovács (2019) Exogenous ketones lower blood glucose levels in rested and exercised rodent models. *Nutrients*, 11, 2330.
38. Kovács, Z., Brunner, B., D'Agostino, D.P., **Ari, C.** (2020) Inhibition of adenosine A1 receptors abolished the nutritional ketosis-evoked delay in the onset of isoflurane-induced anesthesia in Wistar Albino Glaxo Rijswijk rats. *BMC Anesthesiol* 20, 30 <https://doi.org/10.1186/s12871-020-0943-z>

### **Presented posters**

1. **Ari, C.**, Kálmán, M. (2001) Search for astroglia in the GFAP-free areas of the brains of cartilaginous and bony fishes applying immunohistochemical staining of glutamine synthetase and S-100 protein; Conference of the Hungarian Neurobiological Society, Szeged, Hungary
2. Kálmán, M., **Ari, C.** (2001) Comparative study of astroglial markers, GFAP, glutamine synthetase and S-100 in skate brain; 96. Versammlung in Münster, Germany
3. **Ari, C.**, Kálmán, M. (2003) Supposed sexual dimorphism on the cerebellum of the ray *Mobula japonica* (order Myliobatiformes); Joint Meeting of Ichthyologists and Herpetologists and the American Elasmobranch Society, Manaus, Brazil
4. Kálmán, M., **Ari, C.**, Gould, R.M. (2003) Similar tendencies in the evolution of astroglia in elasmobranchs and amniotes. Joint Meeting of Ichthyologists and Herpetologists and the American Elasmobranch Society, Manaus, Brazil
5. **Ari, C.**, Kálmán, M. (2003) Morphometrical studies on the cerebellum of a ray species (*Mobula japonica*) of the order Myliobatiformes- sexual dimorphism?; Conference of the Hungarian Neurobiological Society, Balatonfüred, Hungary
6. **Ari, C.**, Stuber, I. (2004) Three-dimensional movements of captive Mobulids (*Manta birostris* and *Mobula mobular*); European Elasmobranch Society meeting, London, England
7. **Ari, C.**, Kálmán, M., Correia, J.P., Stuber, I. (2004) Analysis of movements by computerised tridimensional video reconstruction; Neuroscience Meeting, San Diego, USA
8. **Ari, C.**, Correia, J.P. (2005) A study on the sensory and learning capabilities of a captive *Manta birostris* (Mobulidae); Joint Meeting of Ichthyologists and Herpetologists and the American Elasmobranch Society Meeting, Tampa, USA
9. Kálmán, M., **Ari, C.** (2007) Evolutionary correlations of brain structure and glial architecture in Chondrichthyes: forebrain and hindbrain. 5th European Conference of Comparative Neurobiology, Paris, France
10. **Ari, C.** (2008) The brain of *Mobula japonica* (Myliobatiformes, Elasmobranchii) in gross morphological and ecological perspectives, Joint Meeting of Ichthyologists and Herpetologists and the American Elasmobranch Society Meeting, Montreal, Canada
11. **Ari, C.**, Borysov, S.I., Wu, J., Padmanabhan, J., Potter, H. (2011) A $\beta$  inhibits specific kinesin motors involved in both mitosis and neuronal function; potential implications for

neurogenesis and neuroplasticity in Alzheimer's Disease and Down Syndrome, International Conference on Alzheimer's Disease, Paris, France

12. **Ari, C.**, Borysov, S., Wu, J., Padmanabhan, J., Potter, H. (2011) Impairment of neurotransmitter and neurotrophin receptor localization and function associated with Alzheimer's disease is caused by A $\beta$  inhibition of mitotic/neuronal kinesin Eg5, 41th Society for Neuroscience Conference, Washington, USA
13. D'Agostino DP, Pilla R, Dean JB, **Ari C**, Bennett A, Kesl S, Diamond D. (2011) Ketogenesis as a Therapeutic Strategy for CNS Oxygen Toxicity and Other Neurological Disorders. Society for Neuroscience Journal; San Diego, CA
14. Bennett, A., **Ari, C.**, Kesl, S., Luke, J., Diamond, D., Dean, J., D'Agostino, D. (2012) Effect of ketone treatment and glycolysis inhibition in brain cancer cells (U87MG) and rat primary cultured neurons exposed to hyperbaric oxygen and amyloid beta, Experimental Biology, San Diego, USA
15. D'Agostino, D., Pilla, R., Held, H., Landon, C., **Ari, C.**, Arnold, P., Dean, J.B. (2012) Development, testing and therapeutic applications of ketone esters (KE) for CNS oxygen toxicity (CNS-OT); i.e., hyperbaric oxygen (HBO2)-induced seizures, Experimental Biology, San Diego, USA
16. Bennett AM, **Ari C**, Kesl S, Luke J, Diamond D, Dean JB, D'Agostino DP. (2012) Effect of ketone treatment and glycolysis inhibition in brain cancer cells (U87MG cultures) and primary cultured neurons exposed to hyperbaric oxygen and amyloid beta (Ab). Federation of American Societies for Experimental Biology Journal, San Diego, CA, USA
17. D'Agostino DP, Bennett A, Pilla R, Held, HE, **Ari C**, and Dean J.B. (2012) Neuroprotective effects of ketone esters for CNS oxygen toxicity and other neurological disorders. 8<sup>th</sup> Federation of European Neuroscience Societies Forum; Barcelona, Spain. FENS Abstr. 2902, Present. Code 104.13
18. D'Agostino DP, Pilla R, Dean JB, **Ari C**, Bennett A, Kesl S, Diamond D. (2011) Ketogenesis as a Therapeutic Strategy for CNS Oxygen Toxicity and Other Neurological Disorders. Society for Neuroscience Journal; San Diego, CA, USA
19. **Ari, C.** (2012) Visual Abilities and Social Interaction of Manta Rays with the Largest Brain of Fishes and the Possible Underlying Neurological Structures, international Behavioral Neuroscience Society, Kona, HI, USA
20. Poff AM, **Ari C**, Goldhagen C, Seyfried T, D'Agostino D. (2013) Supplemental ketone metabolic therapy slows tumor growth and increases survival time in mice with metastatic cancer. Federation of American Societies for Experimental Biology Journal; Boston, MA.
21. Poff AM, **Ari C**, Goldhagen C, Seyfried TN, D'Agostino D. (2013) The ketogenic diet and hyperbaric oxygen therapy work synergistically to slow tumor growth and increase survival time in mice with systemic metastatic cancer. Federation of American Societies for Experimental Biology Journal; Boston, MA.
22. **Ari, C.**, Poff, A., Held, H., Landon, C., Goldhagen, C.R., Mavromates, N., D'Agostino, D.P. (2013) Effect of alternative metabolic fuels as a potential ALS therapy in mice and humans, Ancestral Health Symposium, Atlanta, USA
23. **Ari, C.**, Poff, A., Held, H., Landon, C., Goldhagen, C.R., Mavromates, N., D'Agostino, D.P. (2013) Metabolic therapy with arginine alpha-ketoglutarate extends survival in Amyotrophic Lateral Sclerosis (ALS) mouse model, Society for Neuroscience, San Diego, USA



24. Poff, A., **Ari, C.**, Goldhagen, C.R., Seyfried, T.N., D'Agostino, D.P. (2013) Effects of the ketogenic diet, supplemental ketone administration, and hyperbaric oxygen therapy on the VM-M3 mouse model of metastatic cancer, Society for Neuroscience, San Diego, USA
25. Bennett AM, **Ari C**, Kesl S, Luke J, Diamond D, Dean JB, D'Agostino DP. (2012) Effect of ketone treatment and glycolysis inhibition in brain cancer cells (U87MG cultures) and primary cultured neurons exposed to hyperbaric oxygen and amyloid beta (Ab). Federation of American Societies for Experimental Biology Journal; San Diego, CA, USA
26. **Ari, C.**, D'Agostino, D.P. (2014) Neuroprotection of A $\beta$  treated hippocampal neurons during hyperbaric treatment with ketone supplementation, Alzheimer's Disease International Conference, San Juan, Puerto Rico
27. Kesl SL, Poff AM, Ward NP, Fiorelli TN, **Ari C**, D'Agostino DP. (2014) Methods of sustaining dietary ketosis in Sprague-Dawley rats. Federation of American Societies for Experimental Biology Journal, San Diego, CA
28. **Ari, C.**, D'Agostino, D.P. (2014) Contingency Checking and Self-Directed Behaviors in Giant Manta Rays: Do Fish Have Self-Awareness?, American Elasmobranch Society Meeting, Chattanooga, USA
29. **Ari, C.**, Poff, A., Held, H., Landon, C., Goldhagen, C.R., Mavromates, N., Kesl, S., Ward N.P., Fiorelli T.N., Van Putten A.J., Sherwood J.W., Arnold P., D'Agostino, D.P. (2014) Improving mitochondrial morphology and function by metabolic therapies, Ketogenic diet therapies, Liverpool, UK
30. **Ari, C.**, Decker, S., Ford, J., D'Agostino, D.P. (2015) What can we learn from deep-diving elasmobranchs to help humans adapt to extreme underwater environments? Experimental Biology, Boston, USA
31. **Ari, C.**, Poff, A., Landon, C., Goldhagen, C.R., Mavromates, N., Kesl, S., Ward N.P., Fiorelli T.N., Van Putten A.J., Sherwood J.W., Arnold P., D'Agostino, D.P. (2015) Metabolic therapies improve mitochondrial morphology and function, Experimental Biology, Boston, USA
32. Kesl SL, Poff AM, Ward NP, Fiorelli TN, **Ari C**, D'Agostino DP; Effect of Sustaining Dietary Ketosis on the Hippocampal and Serum Metabolome of Sprague-Dawley Rats. Federation of American Societies for Experimental Biology Journal, March 2015, Boston, MA
33. Poff AM, Kesl SL, **Ari C**, Ward NP, Fiorelli TN, Rogers CQ, Van Putten AJ, Sherwood JW, D'Agostino DP. (2015) Development and characterization of exogenous ketone supplements – novel methods of inducing therapeutic ketosis; Glut1 Deficiency Foundation Conference, Orlando, FL, USA
34. **Ari C**, Poff A.M., Kesl S.L, Goldhagen C.R., Murdun C, D'Agostino D.P. (2015) Chronic administration of exogenous ketone supplements reduces anxiety in Sprague-Dawley rats, Glut1 Deficiency Foundation Conference, Orlando, FL, USA
35. **Ari C**, Murdun C, Goldhagen C, Rogers C, D'Agostino D.P. (2015) Elevated blood ketone levels increase the latency of anaesthetic induction in GLUT1 mouse model, Glut1 Deficiency Foundation Conference, Orlando, FL, USA
36. **Ari C**, Murdun C, Goldhagen C, Rogers C, D'Agostino D.P. (2015) The effect of ketogenic diet and ketone supplementation on the motor function of `GLUT1 deficiency mouse model, Glut1 Deficiency Foundation Conference, Orlando, FL, USA

37. **Ari, C.**, D'Agostino, D.P. (2015) Melanosome aggregations might cause giant manta ray skin change color, American Elasmobranch Society Meeting, Reno, USA
38. **Ari C**, Poff A.M., Kesl S.L, Goldhagen C.R., Murdun C, D'Agostino D.P. (2016) Chronic administration of exogenous ketone supplements reduces anxiety in Sprague-Dawley rats, 1<sup>st</sup> Annual Conference on Nutritional ketosis and Metabolic Therapeutics, Tampa, FL, USA
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42. **Ari, C**; Murdun, C; Goldhagen, C; Rogers, C; D'Agostino, D.P. (2016) Elevated blood ketone levels increase the latency of anesthetic induction in GLUT1 mouse model, International Behavioral Neuroscience Society Meeting, Budapest, Hungary
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47. Arszovszki, A; D'Agostino, D.P; Kovacs, Z; Murdun, C; Goldhagen, C; Koutnik, A; **Ari, C.** (2017) Exogenous ketone supplementation improved motor function in rodent models Federation of European Neuroscience Societies, Pecs, Hungary
48. Kovács, Z; D'Agostino, P.D; Dobolyi, A; **Ari, C.** (2017) Beneficial effect of ketone supplements on absence-like epileptic activity and anxiety-like behavior in Wag/Rij rats, Federation of European Neuroscience Societies, Pecs, Hungary
49. **Ari C**, Kovács Z, Murdun C, Koutnik A.P., Goldhagen C.R., Rogers R, Park C, Bharwani S, Diamond D.M., D'Agostino D.P. (2018) Exogenous ketones lower blood glucose level, Experimental Biology Conference, San Diego, USA
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52. **Csilla Ari**, Cem Murdun, Andrew P. Koutnik, Craig R. Goldhagen, Christopher Rogers, Collin Park, Sahil Bharwani, David M. Diamond, Mark S. Kindy, Dominic P. D'Agostino, Zsolt Kovács (2019) Exogenous Ketones Lower Blood Glucose Level in Rested and Exercised Rodent Models, Metabolic Health Summit, Los Angeles, USA
53. **Csilla Ari**, Cem Murdun, Craig Goldhagen, Andrew Koutnik, Sahil Bharwani, David Diamond, Mark Kindy, Dominic P. D'Agostino, Zsolt Kovacs (2019) Exogenous Ketones Improved Motor Function in Pre-Clinical Rodent Models, Metabolic Health Summit, Los Angeles, USA
54. **Csilla Ari**, Dominic P. D'Agostino (2019) Neuroregeneration Improved by Ketone Supplementation in Primary Neuronal Cultures, Metabolic Health Summit, Los Angeles, USA
55. Collin Park, John Vallas, Raquel Sanford, Moriah Bernhart, Sahil Bharwani, David M. Diamond, Mark S. Kindy, Dominic P. D'Agostino, **Csilla Ari** (2019) Changes on the Density and Localization of GLUT1 and MCT1 Transporters of Cancer Cells Induced by Ketones, Metabolic Health Summit, Los Angeles, USA
56. **Csilla Ari**, Sahil Bharwani, Anand Rehsi, Sara Moss, Sonja Schmer-Galunder, Stephen Fiore, Dominic P. D'Agostino (2020) Changes in Sensory Functions in Response to Living in an Extreme Underwater Saturation Environment, Metabolic Health Summit, Los Angeles, USA, Metabolic Health Summit, Los Angeles, USA
57. **Csilla Ari**, Dominic P. D'Agostino, Sahil Bharwani, Anand Rehsi, Sara Moss, Sonja Schmer-Galunder, Stephen M. Fiore (2020) Changes in Individual and Team Cognition in High Stress Extreme Underwater Saturation Environment Under Intense Workload, Metabolic Health Summit, Los Angeles, USA, Metabolic Health Summit, Los Angeles, USA
58. **Csilla Ari**, Dominic P. D'Agostino, Sahil Bharwani, Anand Rehsi, Sara Moss, Sonja Schmer-Galunder, Stephen M. Fiore (2020) Changes in Motor Function in Response to Living in an Extreme Underwater Saturation Environment under High Stress and Increased Workload, Metabolic Health Summit, Los Angeles, USA, Metabolic Health Summit, Los Angeles, USA
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#### **Presentations:**

1. **Ari, C.** (2013) Past, present and future of manta rays, Keynote talk at the Oceanography-2013 Conference, Manta Ray Symposium, Orlando, FL, USA
2. **Ari, C.** (2013) First evidence of long term and rapid coloration changes of giant Manta rays (genus *Manta*) with implications on reliability of photo identification techniques, Manta Ray Symposium, Orlando, FL, USA
3. **Ari, C.** (2013) Coloration changes of manta rays, Oceania Chondrichthyan Society Meeting, Brisbane, AU
4. **Ari, C.** (2013) Researching manta ray brains, TedXTampaBay  
<http://www.youtube.com/watch?v=SCfswelsqdA>

5. **Ari, C.** (2014) Rapid and long-term coloration changes of manta rays, American Elasmobranch Society Meeting, Chattanooga, USA
6. **Ari, C.** (2014) Manta ray research and conservation projects, DEMA show, Las Vegas, USA
7. **Ari, C.** (2015) Neuroprotective metabolic therapies by the ketogenic enhancement of the Szentgyorgyi-Krebs cycle: studies in animal models, 3<sup>rd</sup> International Congress of Deuterium Depletion, Budapest, Hungary
8. **Ari, C., D'Agostino, D.P.** (2015) Sensory and cognitive experiments on giant manta rays, American Elasmobranch Society Meeting, Reno, USA
9. **Ari, C.** (2017) Delaying Latency to Hyperbaric Oxygen Induced CNS Oxygen Toxicity Seizures by Combinations of Exogenous Ketone Supplements, International Hyperbaric Medical Society, New Orleans, USA

**Patents:**

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Exogenous Ketone Supplements for Reducing Anxiety-Related Behavior" USF Ref. No. 16A007

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Elevated Blood Ketone Levels by Ketogenic Diet or Exogenous Ketone Supplements Induced Increased Latency of Anesthetic Induction" USF Ref. No. 16A018PR

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Exogenous Ketone Supplementation Improved Motor Function in Sprague-Dawley Rats." USF Ref. No: 16A019

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Lowering of Blood Glucose in Exercising and Non-Exercising Rats Following Administration of Exogenous Ketones and Ketone Formulas." USF Ref. No: 16A049

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Ketone Supplementation Elevates Blood Ketone Level and Improves Motor Function in GLUT1 Deficiency Syndrome Mice." USF Ref. No: 16B116 (provisional patent)

**Ari, C., Arnold P., D'Agostino, D.P.** Technology Title: "Neuroregeneration improved by ketone." USF Ref. No: 16B128 (provisional patent)

**Ari, C., D'Agostino, D.P. Dean, J.B.** Technology Title: "Delaying latency to seizure by combinations of ketone supplements." USF Ref. No: 16B138PR (provisional patent)

**Websites:**

[www.csillaari.com](http://www.csillaari.com)

[www.mantamissions.org](http://www.mantamissions.org)

[www.mantapacific.org](http://www.mantapacific.org)

[www.futureoceans.hu](http://www.futureoceans.hu)

[www.mantamemories.org](http://www.mantamemories.org)

**Conference Organizer:**

Organizer of Manta Ray Symposium as part of the Oceanography-2013 Conference, Orlando, USA

**Collaborations with:**

1. Leonid Breydo, USF (atomic force microscopy) [lbreydo@health.usf.edu](mailto:lbreydo@health.usf.edu)

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3. Zsolt Kovács, PhD; University of West Hungary; [zskovacs@ttk.nyime.hu](mailto:zskovacs@ttk.nyime.hu) (epilepsy/ketone supplements)
4. Prof. László G. Boros, M.D. UCLA School of Medicine Los Angeles; (310) 222-1886;  
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5. Helen McNally, Ph.D. Purdue University (hyperbaric experiments) [mcnallyh@purdue.edu](mailto:mcnallyh@purdue.edu)  
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(hyperbaric experiments)

**Media appearance highlighted:**

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2016 My work on manta rays was profiled as part of the Shark MOOC (Massive Open Online Course) offered jointly by Cornell University and University of Queensland and hosted by edX.org. My research was part of the Neurobiology and Behavior course. The program had 19,000 enrollees.

**Other activities:**

2003 Divemaster on liveboard boats on the Red Sea in Egypt

2005-2008 Teaching and performing Latin American and Brazilian dances in Hungary

2006-2008 Teaching marine biology courses at dive clubs in Hungary