MARIA JOSE CONTRERAS-ZARATE M.Sc Ph.D
Curriculum Vitae

CURRENT POSITION AND CONTACT

Research Instructor
Department of Pathology
University of Colorado at Denver Anschutz Medical Campus
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EDUCATION

1998-2003	Universidad de Carabobo, Valencia, Carabobo, VEN	BSc. 2003 Bachelor of Bioanalysis Dr. Luis Medina (Mentor)
2005-2006	Pontificia Universidad Javeriana, Bogotá, COL.	Specialization. 2006 Specialist in Clinical Biochemistry Dr. Luis Barrera M.Sc. Ph.D. (Mentor)
2006-2009	Pontificia Universidad Javeriana, Bogotá, COL	M.Sc. 2009 Biological Sciences Dr. Ludis Morales M.Sc, Ph.D (Mentor)
2010-2015	Universidad Nacional de Colombia, Bogotá, COL	Ph.D. 2016 Biomedical Sciences Dr. Gonzalo Arboleda, MD, M.Sc, Ph.D. (Mentor)
2016-2021	University of Colorado, AMC Department of Pathology Aurora, CO	Postdoctoral Fellow Dr. Diana Cittelly, M.Sc Ph.D. (Mentor)

ACADEMIC APPOINTMENTS

2009	Professor - Lecture of Computer Techniques Applied to the Clinical Laboratory	Pontificia Universidad Javeriana, Bogotá, Colombia.
2010	Professor - Lecture in Biology	Fundación Universitaria de Ciencias de la Salud, Bogotá, Colombia
2010-2016	Research Assistant	Instituto de Genética,Universidad Nacional de Colombia, Bogotá, Colombia.
2011	Teaching Assistant in Introduction to Physiology.	School of Medicine, Universidad Nacional, Bogotá, Colombia.
2011-2015	Teaching Assistant in Basic module of Molecular Biology for Neurosciences. Module: Proteins analysis methods.	Master in Neuroscience UNAL, Universidad Nacional de Colombia. Bogotá, Colombia.

03/2013-05/2013	Fellow in Research	University Medical Center Hamburg-Eppendorf, Hamburg. Hamburg, Germany.
07/2016- 06/2021	Postdoctoral fellow	Department of Pathology. University of Colorado Anschutz Medical Campus.
08/2021- Current	Research Instructor	Department of Pathology. University of Colorado Anschutz Medical Campus.

HONORS, SPECIAL RECOGNITIONS AND AWARDS

1999	Honorary mention for outstanding performance in Microscopy morphology and embryology subject. University of Carabobo. Venezuela
1999	Honorary mention for outstanding performance in Macroscopy Morphology subject. University of Carabobo. Venezuela
1999	Honorary mention for outstanding performance in Chemistry subject. University of Carabobo. Venezuela
1999	Honorary mention for outstanding performance in Research Methodology subject. University of Carabobo. Venezuela
1999	Honorary mention for outstanding performance in Language and communication I subject. University of Carabobo. Venezuela
2000	Honorary mention for outstanding performance in Computer Science subject. University of Carabobo. Venezuela
2002	Honorary mention for outstanding performance in Community heath II subject. University of Carabobo. Venezuela
2003	Honorary mention for outstanding performance in Project Research subject. University of Carabobo. Venezuela
2003	Honorary mention for outstanding performance in Specialty Professional Practice. University of Carabobo. Venezuela
2003	Honorary mention for outstanding performance in Professional Practice in Management. University of Carabobo. Venezuela
2003	Honorary mention for outstanding performance in Hospital Professional Practice. University of Carabobo. Venezuela
2004	Honor of merit for academic performance during 1998-2003. School of Health Care-Bioanalysis, University of Carabobo. Venezuela
2008	Scholarship in Theory and practice of modern electron microscopy: Applications for Biology and Medicine, Pontificia Universidad Javeriana
2008	Scholarship Seminar-Workshop on Craniofacial Development and Central Nervous System, Universidad Nacional de Colombia
2011	One-period scholarship for PhD studies granted by Universidad Nacional de Colombia.
2012	Travel award Small Brains, Big Ideas PLUS: Biomedical Insights from invertebrate Neuroscience Research Course, Universidad de Chile and CINV
2016	Summa Cum Laude PhD in Biomedical Science, Universidad Nacional de Colombia
2020	PostDoc Of The Month Award, University of Colorado. AMC

SPECIAL RESEARCH TRAINING

2006	Theoretical and practical course. Antioxidant Systems in the Central Nervous System. Universidad tecnológica de Pereira, Pereira, Risaralda. Colombia
2006	Theoretical and practical course: Introduction to Proteomics. Universidad Nacional de Colombia, Bogotá, Bogotá, Colombia.

2007 Neuroproteomic: Basic Principles and Applications. Universidad Pontificia Bolivariana, Medellín, Antioquia. Colombia.

2008 Theory and practice of modern electron microscopy: Applications for Biology and Medicine. Pontificia Universidad Javeriana, Bogotá, Bogotá, Colombia.

2008 Seminar-Workshop on Craniofacial Development and Central Nervous System. Universidad Nacional de Colombia, Bogotá, Bogotá, Colombia.

2012 "Small Brains, Big Ideas" PLUS: Biomedical Insights from invertebrate Neuroscience Research Course. Universidad de Chile (Santiago de Chile) and Centro Interdisciplinario de Neurociencia (Valparaíso), Santiago de Chile and Valparaíso. Chile

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

2016-present	Member of American Association for Cancer Research-USA	National

MAJOR COMMITTEES AND SERVICE RESPONSIBILITIES

Departmental

2018-current Lead efforts for training users of MVX100 Olympus Departmental equipment ($90K).

2022-current Lead efforts for training users of Curiox HT200 laminar wash system

2022-current Lead efforts for training users of Nikon Ti fluorescent microscope

Institutional/ National

2017 Poster Judge, Gates Center Summer Internship Program Poster Presentations. University of Colorado- AMC

2021 Judge of oral presentations of Graduate Experience for Multicultural Students. University of Colorado- AMC

2022 Judge of oral presentations of Graduate Experience for Multicultural Students. University of Colorado- AMC

International

2019 Judges committee, PhD Thesis "Estudio de la capacidad antiproliferativa en modelos celulares de cáncer de mama de un extracto de hoja de olivo enriquecido en polifenoles" thesis presented by the student María Losada Echeberría, October 10th in the "Instituto de Biología Molecular y Celular (IBMC)" at the University Miguel Hernández de Elche-Spain.

INVITED LECTURES AND PRESENTATIONS

National

2009 "II Conference in Cancer Research. Knowledge for Cancer Control". Instituto Nacional de Cancerología. Bogotá. Colombia. Conference: Effect of two synthetic peptides on the role of Platelet Derived Growth Factor in PI3k/AKT signaling pathway in Ht1080 cells

2012 2012 "Latin American Neuroscience Conference." Universidad del Tolima. Colombia. Conference: Autophagy-mediated ceramide and CCCP is dependent on PINK1

2012 "Second Conference on Research" Facultad de Medicina. Universidad Nacional de Colombia. Bogotá. Colombia Conference: The Silencing of the PINK1 gene modulates mitochondrial dynamics and autophagy.

2012 "VIII National Meeting of Neuroscience / Neurosciences IX International Seminar". Bogotá. Colombia Conference: PINK1 regulates autophagy mediated by c2-ceramide.

2012 "Neurodegeneration: from lab to clinic" Conference: Molecular aspects of Parkinson's disease. Bogotá. Colombia.

2012 “First course of diagnosis and comprehensive management of Parkinson's disease" Novartis. Bogotá Colombia. Conference: Genetics of Parkinson's Disease

International

2019 “Jornadas académicas de Patología UN 2019”, August 9th, conducted by the Department of Pathology of the Faculty of Medicine of the National University of Colombia.

Talk:“Hormonal influence on the development of brain metastases”

2019 Seminar series of the Doctorate in Molecular and Cellular Biology, October 11th. Spain

Talk: “Estradiol and brain metastases. Mechanisms of brain edema induced by radiation and T-DM1 in the treatment of brain metastases”

2019 9th Annual Brain Mets Congress in Marseille, France.

Talk: “Radiation-induced brain edema alone and in combination with T-DM1 in Her2+ brain metastases”

2022 “Health update seminar: challenges in public Health”, October 28th. San José de Cúcuta. Colombia. Universidad Nacional Abierta y a Distancia.

Talk: Challenges in breast cancer research after the COVID-19 pandemic"

TEACHING RECORD

Trainees:

Pontificia Universidad Javeriana

2006-2007 Karla Tatiana Romero Campos. BSc Student, Supervisor (Jairo Tovar, Mentor).

2008-2009 Maria Juliana Salamanca. BS Student, Supervisor (Jairo Tovar, Mentor).

Universidad Nacional de Colombia

2011-2012 Andrea Niño, BS Student Supervisor (G. Arboleda, Mentor)

2013-2015 Andrea Niño, MSc Student Supervisor (G. Arboleda, Mentor)

2011-2013 Liliana Alexandra Rojas Charry, MSc Student Supervisor (G. Arboleda, Mentor)

2011-2012 Claudia Corredor, BS Student Supervisor (G. Arboleda, Mentor)

2011-2012 Jorge Arturo Amórtegui BS Student (G. Arboleda, Mentor)

2013-2015 Cindy Tatiana Báez Becerra, MsC Student Supervisor (G. Arboleda, Mentor)

2014-2016 Cesar Hernández, MSc Student Supervisor (G. Arboleda, Mentor)

University of Colorado-AMC

2017 Lauren Jillson, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2017 Steven Lai, Medical Student. Mentored Scholarly Research project (supervised in D. Cittelly Lab)

2017 Ashley Ward, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2018 Alexandra McMellen, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2018 Maria Losada-Echeverria, Program on Molecular and Cell Biology, Universidad Miguel Hernandez de Elche (Spain). (supervised in D. Cittelly Lab)

2019 Pauline Hoosepian-Mer. Mentored Scholarly Research project (supervised in D. Cittelly Lab)

2020 Parsa Haque, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2021 Li-Wei Kuo, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2021 Morgan Fox, PhD Cancer Biology Program. Rotation (supervised in D. Cittelly Lab)

2021 Pauline Hoosepian-Mer. Mentored Scholarly Research project (supervised in D. Cittelly Lab)

RESEARCH EXPERIENCE

2004-2005

Project: Homocysteinemia in Venezuelan adults infected by the human immunodeficiency virus.
PI: Arturo Martí-Carvajal, MD, M.Sc, Ph.D
Institution: Universidad de Carabobo, Venezuela
Role: Bioanalyst.
Responsibilities: Recruiting and interviewing of participants, blood specimen collection and processing, ELISA test.

2006-2008

Project: Adaptation of human primary cells derived from brain tumors to suspension cultures in bioreactors.
PI: Jairo Alfonso Tovar Franco, M.Sc. Ph.D.
Institution: Pontificia Universidad Javeriana
Role: Master Student
Responsibilities: Primary cell culture from brain tumor samples, proliferation assays, western blot, protein and DNA quantification.

2007-2009

Project: Development and purification of synthetic peptides and their effect on cancer-associated signaling pathways.
PI: Ludis Morales M.Sc. Ph.D.
Institution: Pontificia Universidad Javeriana
Role: Master Student
Responsibilities: Reversed-phase high-performance liquid chromatography, cell culture, proliferation assays, western blot.

2009-2010

Project: Phase II: analysis of PINK1 downregulation gene on fusion fission and mitophagy.
Sponsor: DIB 201010013652-Año2009
PI: Humberto Arboleda Granados MD, M.Sc.
Institution: Universidad Nacional de Colombia
Role: Research assistant
Responsibilities: Cell culture, viability and apoptosis analysis, western blot, mitochondrial and autophagy analysis by confocal microscopy, RT-PCR, bacteria transformation, cellular transfection.

2011-2013

Project: Effect of downregulation of the pink1 and parkin genes on fusion-fission and mitochondrial autophagy in a model of dopaminergic neurons.
Sponsor: Colciencias 202010016543-2011
PI: Gonzalo Arboleda Bustos, MD, M.Sc, Ph.D
Institution: Universidad Nacional de Colombia
Role: Ph.D student
Responsibilities: Project development, execution of experiments, analysis of results, writing of scientific paper.

2014-2016

Project: Alzheimer's Disease research strengthening at the Institute of Genetics of National University of Colombia.
Sponsor: Colciencias 201010020917
PI: Humberto Arboleda Granados MD, M.Sc.
Institution: Universidad Nacional de Colombia
Role: Research assistant

Responsibilities: Execution of experiments, analysis of results, writing of technical report.

2016-2017 Project: Role of TrkB/BDNF axis in brain metastatic breast cancer.
Sponsor: Cancer League of Colorado. AWD-163207
PI: Diana Cittelly
Institution: University of Colorado
Role: Postdoc
Responsibilities: Project development, execution of experiments, analysis of results, writing of scientific paper.

2016-Current Project: Role of IL13RA2 as a functional biomarker in breast cancer brain metastasis.
Sponsor: Department of Defense, Breast Cancer Research Program, Breakthrough Award level 1. W81XWH-15-1-0352
PI: Diana Cittelly
Institution: University of Colorado
Role: Postdoc
Responsibilities: Execution of experiments, analysis of results, writing of scientific paper.

2018-Current Project: Mechanisms underlying pro-metastatic effects of estrogen in the brain niche.
Sponsor: National Institutes of Health/National Cancer Institute 5R01CA227984-03
PI: Diana Cittelly
Institution: University of Colorado
Role: Postdoc
Responsibilities: Execution of experiments, analysis of results, writing of scientific paper.

2018 Project: Mechanisms of TDM1/Radiation-induced toxicity in brain metastasis.
Sponsor: Cancer league of Colorado/183425-MC
PI: Maria Jose Contreras Zarate
Institution: University of Colorado
Role: PI
Responsibilities: Execution of *in vivo* and *in vitro* experiments, analysis of results, writing of scientific paper and technical report.

2018-2021 Project: Targeting BDNF/TRKB in brain metastasis in young women with TNBC
Sponsor: Metavivor. AWD-175237
PI: Diana Cittelly
Institution: University of Colorado
Role: Postdoc
Responsibilities: Execution of experiments, analysis of results, writing of scientific paper.

2019-current Project: Mechanisms of TDM1/Radiation-induced toxicity in brain metastasis.
Sponsor: Department of Defense. W81XWH1910033
PI: Maria Jose Contreras Zarate
Institution: University of Colorado
Role: PI
Responsibilities: Execution of in vivo and in vitro experiments, electronic microscopy, confocal microscopy, analysis of results, writing animal protocol, writing IRB protocol, writing of scientific paper and technical reports.

2021-current Project: Targeting Trkb In Lung-To-Brain Metastatic Progression
Sponsor: The Thoracic Oncology Research Initiative (TORI) – University of Colorado
PI: Diana Cittelly
Institution: University of Colorado
Role: Research
Responsibilities: Execution of in vivo and in vitro experiments, writing technical report.

GRANT SUPPORT

Active

As PI:

Sponsor: DOD BCRP Program. W81XWH1910033
Title: Mechanism of T-.DM1/radiation-induced toxicity in brain metastases
Role: Principal Investigator, 100% effort
Period: 1 February 2019 – 31 January 2023
Amount: $299,999

Completed

As PI

Sponsor: Cancer league of Colorado/183425-MC
Title: Mechanism of T-.DM1/radiation-induced toxicity in brain metastases
Role: Principal Investigator, 20% effort
Period: 1 July 2018 – 30 June 2019
Amount: $30,000

Pending

None

BIBLIOGRAPHY

Citations 158 Index 6 i10-index 5

Peer-reviewed publications:

1. **María J. Contreras-Zárate**, Andrea Niño, Liliana Rojas, Humberto Arboleda & Gonzalo Arboleda. Silencing of PINK1 Inhibits Insulin-Like Growth Factor-1-Mediated Receptor Activation and Neuronal Survival. Journal of Molecular Neuroscience. 56, pages188–197**(2015)** DOI: 10.1007/s12031-014-0479-0
2. Adrián Sandoval-Hernández, **María José Contreras**, Jenny Jaramillo, Gonzalo Arboleda. Regulation of Oligodendrocyte Differentiation and Myelination by Nuclear Receptors: Role in Neurodegenerative Disorders. Adv Exp Med Biol. **2016**;949:287-310. DOI: 10.1007/978-3-319-40764-7_14
3. **Contreras-Zárate MJ,** Ormond DR, Gillen AE, Hanna C, Day NL, Serkova NJ, Jacobsen BM, Edgerton SM, Thor AD, Borges VF, Lillehei KO, Graner MW, Kabos P, Cittelly DM. Development of Novel Patient-Derived Xenografts from breast cancer Brain metastases. *Front Oncol. 2017 Nov 2; 7:252. doi: 10.3389/fonc.2017.00252*. eCollection **2017**. PMCID: PMC5673842

   Views: 6,157 Citations:18
4. Hernández CJ, Báez-Becerra CT, **Contreras-Zárate MJ,** Arboleda H, Arboleda G. PINK1 Silencing Modifies Dendritic Spine Dynamics of Mouse Hippocampal Neurons. Journal of Molecular Neuroscience. **2019** 69(4): 570-579. PMID: 31486971 DOI: 10.1007/s12031-019-01385-x
5. **Contreras-Zarate MJ**, Day NL, Ormond DR, Borges VF, Tobet S, Gril B, Steeg P, Cittelly DM. Estradiol induces BDNF/TrkB signaling in triple-negative breast cancer to promote brain metastases. *Oncogene. **2019**, 38(24): 4685–4699*.* PMID: 30796353

   ** Position #4 of Articles from 2019 which top the list of the journal's most cited and most shared*
6. Stumpf PK, Cittelly DM, Robin TP, Carlson JA, Sthr KA, **Contreras-Zarate MJ**, Lai S, Ormond DR, Rusthoven CG, Gaspar LE, Rabinovithc R, Kavanagh B, Liu A, Diamond JR, Kabos PK, Fisher CM.

Combination of trastuzumab emtansine and stereotactic radiosurgery results in high rates of clinically significant radionecrosis and dysregulation of Aquaporin-4. *Clin. Can Res.* **2019** *Jul 1;25(13):3946-3953* PMID: 30940654

7. **Contreras-Zárate MJ** and Cittelly DM. Sex steroid hormone function in the brain niche: Implications for brain metastatic colonization and progression Cancer Rep. **2020** Mar 3;e1241. PMID: 33350105 https://doi.org/10.1002/cnr2.1241
8. Ricaurte Alejandro Marquez-Ortiz, **Maria J. Contreras-Zarate**, Vesna Tesic, Karen LF. A;varez-Eraso, Gina kwak, Zachary Littrell, James Costello, Varsha Sreekanth, D. Ryan Ormond, Sana Karam, Peter Kabos, Diana M. Cittelly. IL13Rα2 Promotes Proliferation and Outgrowth of Breast Cancer Brain Metastases. Clinical Cancer Research. https://doi.org/10.1158/1078-0432.ccr-21-0361

Scientific Abstracts (Peer Reviewed)

1. 2012 **Contreras-Zarate MJ,** et al. Silencing of PINK1 inhibits growth factor-mediated AKT phosphorylation. "42nd Annual Meeting of the Society for Neuroscience" New Orleans. United States.
2. 2015 **Contreras-Zarate MJ**, Gonzalo Arboleda. Differential molecular regulation of mitochondrial fusion/fission between pink1, parkin and c2-ceramide. "6th World Congress on Targeting Mitochondria 2015". Berlín. Alemania. Journal World Mitochondria Society. Vol 1 (2015) DOI: http://dx.doi.org/10.18143/v6i1
3. 2017 **Contreras-Zárate MJ**, Hanna CT, Ormond DR, Borges V, Cittelly DM. A TrkB/BDNF Paracrine loop promotes brain colonization of triple negative breast cancer. Keystone Symposia on Cellular Plasticity within the tumor microenvironment. Big Sky Montana, January 2017.
4. 2017 Hanna CT, **Contreras-Zárate MJ**, Wellberg E, Ormond DR, Jones K, Borges V, Guise T, Harada N, Cittelly DM. Aromatase expression in brain metastases-associated gliosis: a novel role for estrogen in brain metastatic colonization. Keystone Symposia on Cellular Plasticity within the tumor microenvironment. Big Sky Montana, January 2017.
5. 2018 **Contreras-Zárate MJ**, Lai S, Stumpf P, Fischer C, Kabos P and Cittelly DM. Radiation in combination with Trastuzumab-emtansine (T-DM1) in HER2+ brain metastasis induce brain edema through modulation of AQP4 in reactive astrocytes. Immunobiology of primary and metastatic CNS Cancer: multidisciplinary science to advance Cancer Immunotherapy AACR special conference. San Diego, Feb 12-15th 2018.
6. 2018 **María J. Contreras-Zárate**, Nicole Day, D. Ryan Ormond, Virginia F. Borges, Stuart Tobet, Brunilde Gril, Patricia S. Steeg, Diana M. Cittelly. ESTRADIOL INDUCES BDNF/TRKB SIGNALING IN TRIPLE NEGATIVE BREAST CANCER CELLS TO PROMOTE BRAIN METASTASES XI Congreso Nacional / XII Seminario Internacional de Neurociencias. 2018
7. 2018 **Contreras-Zárate MJ**, Day N, Wellberg E and Cittelly DM. Estradiol modulates early immune-surveillance in the brain metastatic niche to promote brain metastasis. Immunobiology of primary and metastatic CNS Cancer: multidisciplinary science to advance Cancer Immunotherapy AACR special conference. San Diego, Feb 12-15th 2018.
8. 2018 Day N*, **Contreras-Zárate M*,** Hanna C, Ormond R, Cittelly DM. *Ligand dependent and independent function of IL13Rα2 in breast cancer brain metastasis.* Poster presentation at the Metastasis Research Society Biannual Meeting, Princeton, NJ, August 1-5, 2018.
9. 2018 **Contreras-Zarate MJ,** Day N, Wellberg E and Cittelly DM. Estradiol modulates early immune-surveillance in the brain metastatic niche to promote brain metastasis. Poster presentation at Cancer Biology graduate program Retreat 2018, November 2, 2018
10. 2019 **Contreras- Zárate MJ**, Marquez-Ortiz RA, Day NL, Nagle B, Ormond RD, Borges VF, Kabos P, Cittelly DM. Estrogen-depletion therapies prevent and delay progression of brain metastases. Abstract submitted to San Antonio Breast Cancer Research Symposium, December 2019
11. 2019 **Contreras-Zárate MJ,** Lai S, Stumpf P, Fischer C, Karam SD, Kabos P and Cittelly DM. Mechanisms of radiation-induced edema alone and in combination with Trastuzumab-

emtansine (T-DM1) in HER2+ brain metastasis. Abstract submitted to San Antonio Breast Cancer Research Symposium, December 2019

12. 2019 Marquez-Ortiz RA, **Contreras-Zárate MJ,** Day NL, Ormond RD, Borges VF, Cittelly DM. Ligand dependent and independent roles of interleukin-13 receptor alpha 2 in breast cancer brain metastasis. Abstract submitted to San Antonio Breast Cancer Research Symposium, December 2019
13. 2020 **María José Contreras-Zárate,** Steven Lai, Sana D. Karam, D. Ryan Ormond, Peter Kabos, and Diana M. Cittelly. Astrocytic Swelling Contributes to Radiation-Induced Cytotoxic Brain Edema Following Brain Metastasis Treatment: Role of AQP4. Metastatic Breast Cancer Research Conference. Park City, Utah.
14. 2022 Karen Alvarez, **Maria J. Contreras-Zarate**, Paola Ortiz, D. Ryan Ormond, Peter Kabos and Diana M. Cittelly. Estradiol represses IRF3-7 signaling pathways in ER+ astrocytes to suppress immune surveillance during early brain metastatic colonization. Metastatic Breast Cancer Research Conference. Park City, Utah.
15. 2022 **Maria J. Contreras-Zarate,** Karen Alvarez-Eraso, Zachary Littrell, Nikki Tsuji, Sana Karam, D. Ryan Ormond, Peter Kabos and Diana M. Cittelly. Estrogen-depletion decreases progression of ER^{-} brain metastases by promoting an anti-tumoral local immune response. Society for NeuroOncology annual meeting. Toronto. Canada.
16. 2022 **Maria J. Contreras-Zarate,** Vesna Tesic, Paola Ortiz, Karen Alvarez-Eraso, D. Ryan Ormond, Peter Kabos and Diana M. Cittelly. Estrogen-depletion decreases progression of ER^{-} brain metastases by promoting an anti-tumoral local immune response. Nuclear receptor meeting. Cancun, Mexico
17. 2022 **María J. Contreras-Zárate,** Karen Alvarez-Eraso, Nicole Tsuji, Peter Kabos, D. Ryan Ormond, Sana D. Karam and Diana M. Cittelly. AQP4 inhibition prevents cytotoxic edema of AQP4+ astrocytes but promotes tumor growth of AQP4+ breast cancer brain metastasis. San Antonio Breast Cancer Research Symposium.San Antonio, Texas
18. 2022 **Maria J. Contreras-Zarate,** Karen Alvarez-Eraso, Vesna Tesic, Ryan Ormond, Peter Kabos and Diana M. Cittelly. Anti-estrogens promote an anti-tumoral immune response to decrease progression of ER^{-} brain metastases. San Antonio Breast Cancer Research Symposium.San Antonio, Texas