Gregory J. Baker, PharmD, PhD

American Cancer Society Postdoctoral Fellow

Laboratory of Peter K. Sorger
Department of Systems Biology
Harvard Program in Therapeutic Science
Harvard Medical School, Boston, MA, USA

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EDUCATION:

Postdoctoral Training – Laboratory of Peter K. Sorger
Department of Systems Biology
Laboratory of Systems Pharmacology (LSP)
Harvard Program in Therapeutic Science (HiTS)
Harvard Medical School, Boston, MA 02115
Research Support: American Cancer Society (PF-16-197-01–LIB)
Title: *"Systems Biology Approaches to the Study of GBM-induced Immunosuppression"*
Term: 1 January 2017 – 31 December 2019
Role: PI

PhD – Laboratory of Pedro R. Lowenstein and Maria G. Castro
Department of Molecular and Medical Pharmacology
David Geffen School of Medicine
University of California – Los Angeles (UCLA), Los Angeles, CA 90095
Dissertation title: *"Invasion and Evasion: Investigations on Early Glioblastoma Growth Reveal Two Novel Mechanisms of Brain Tumor Progression"*
Date of completion: December 19, 2014
Cumulative GPA: **3.94 (on 4.0 scale)**

PharmD - College of Pharmacy
University of Rhode Island, Kingston, RI 02881
Concentration: Research
Date of completion: May 20, 2007
Honors: **Summa Cum Laude**
Cumulative GPA: **3.86 (on 4.0 scale)**

LICENSURE/CERTIFICATION:

Registered Pharmacist (RPH)
State of Rhode Island and Providence Plantations Department of Health
License number: RPH04665
Status: Active

Registered Pharmacist (RPH)
State of California Department of Health
License number: RPH62004
Status: Active

CPR Certified
American Red Cross, Rhode Island Chapter

First Aid Certified
American Red Cross, Rhode Island Chapter

PROFESSIONAL SUMMARY AND OBJECTIVE:
Self-motivated and goal-oriented cancer systems immunologist. Holds doctorates in pharmacy (PharmD) and philosophy (PhD). Thirteen-years' work experience in cell biology and chemistry labs. A creative thinker with strong verbal, listening, and written skills adept to multitasking, time-management, and hard-work. Committed to producing science of the highest caliber for the benefit of human health and knowledge.

Experimental proficiencies:

- Flow Cytometry
- RNA-seq (data collection/analysis)
- Genetic Cloning
- Virus-mediated Gene Transfer
- Tissue Culture
- Intracranial Stereotactic Surgery
- Microscopy (intravital multiphoton, confocal, epifluorescence, scanning electron)
- Stereology
- PCR/RT-PCR
- Western Blotting
- Immunofluorescence
- Experimental Use and Handling of Rodent Models

Computational proficiencies:

- Software development (languages: Python, Bash, R)
- Deep learning (convolutional neural networks)
- Biomedical image processing and semantic segmentation

RESEARCH EXPERIENCE:
Department of Systems Biology/Laboratory of Systems Pharmacology, Harvard Medical School, Boston, MA

September 2015 – Present

The department of Systems Biology at Harvard Medical School uses quantitative measurements of the behavior of groups of interacting components, systematic measurement technologies such as genomics, bioinformatics and proteomics, and mathematical and computational models to describe and predict complex dynamical behavior at the cell and molecular level.

Postdoctoral Fellow

- Attend weekly seminars
- Review current literature in applicable fields of study and write reviews/summaries
- Present experimental updates at weekly lab meetings

Departments of Neurosurgery and Cell and Developmental Biology at the University of Michigan, Ann Arbor, MI

August 2011 – September 2015

Part of the University of Michigan's Health System, the Department of Neurosurgery is devoted to training excellent neurosurgery residents and researchers of diverse neurological disorders, providing them with progressive responsibility that nurtures both clinical and research skills.

The Department of Cell and Developmental Biology at the University of Michigan Medical School educates and trains undergraduate, graduate, professional and post-graduate students in the areas of cell biology, embryology, neurobiology, organogenesis and developmental biology.

Postdoctoral Fellow (January 2015 – September 2015)

- Attend weekly seminars
- Review current literature in applicable fields of study and write reviews/summaries
- Present experimental updates at weekly lab meetings

PhD Candidate (August 2011 – December 2014)

- Complete all required graduate coursework
- Attend weekly seminars
- Review current literature in applicable fields of study and write reviews/summaries
- Write mock grant proposals to advance to candidacy
- Present experimental updates at weekly lab meetings
- Prepare PhD dissertation based on scientific investigation performed throughout graduate career

Department of Molecular and Medical Pharmacology at UCLA, Los Angeles, CA
September 2008 – December 2014

Housed at the David Geffen School of Medicine, the Department of Molecular and Medical Pharmacology is home to a diverse community of talented professors and investigators whom actively contribute to avant-garde research and technologies.

PhD Candidate

- Complete all required graduate coursework
- Attend weekly seminars
- Review current literature in applicable fields of study and write reviews/summaries
- Write mock grant proposals to advance to candidacy
- Present experimental updates at weekly lab meetings
- Prepare PhD dissertation based on scientific investigation performed throughout graduate career

Board of Governors Gene Therapeutics Research Institute, Cedars-Sinai Medical Center, Los Angeles, CA
December 2008 – August 2011

As the largest nonprofit hospital in the western United States and a leader in basic and clinical research, Cedars-Sinai brings advancements in medicine directly from the laboratory to the bedside earning the medical center the title of “One of America’s Best Hospitals” as ranked by the 2009 *U.S. News and World Report*.

Graduate Student Researcher

- Worked on PhD dissertation entitled, *“The Cellular and Molecular Basis of Early Glioblastoma Growth and Invasion”*

  Methodologies implemented to achieve this goal:

  - Tissue culture of transformed and primary eukaryotic cells
  - Murine stereotactic neurosurgery
  - Western blot analysis
  - Immunohistochemistry on formalin-fixed coronal brain tissue sections
  - Epifluorescent, confocal, and *in-vivo* multiphoton microscopy
  - Three-dimensional reconstructions of the tumor microenvironment with the aid of *in-silico* modeling software

Jing Huang Laboratory, Department of Molecular and Medical Pharmacology, UCLA, Los Angeles, CA

September 2008 - November 2008

Research group focused on the development and application of molecular and "-omic" technologies in order to study molecular and higher-order functions in times of physiology as well as pathology.

Rotation Experience

- Helped develop an affinity-based method for drug target identification called Drug affinity responsive target stability (DARTS). This novel method has several advantages over current target identification methodologies. [Patent pending]

Department of Biomedical and Pharmaceutical Sciences, University of Rhode Island, College of Pharmacy, Kingston, RI

January 2007 - March 2007

A graduate level program which offers M.S. and PhD level degrees throughout many facets of science; all with drug discovery and development as a unifying cornerstone. The department has strong affiliations with the college of pharmacy and also houses the Rhode Island INBRE Research Facility; a state-of-the-art research laboratory with the goal of fostering the advancement of biomedical research within the state of Rhode Island.

Co-Investigator

- Undertook preliminary studies dealing with the identification of extra-articular areas of lubricin/PRG-4 gene expression in a rat model
- Techniques employed throughout sample isolation were dissection; tissue excision; and peritoneal, pleural and bronchoalveolar lavage
- Techniques employed throughout analysis were SDS-PAGE, western blotting, and quantitative real-time polymerase chain reaction (qRT-PCR)
- PI: Clinton O. Chichester, PhD

Office of Pharmaceutical Sciences, Center for Drug Evaluation and Research, Food and Drug Administration, Rockville, MD

September 2006 - October 2006

The office of pharmaceutical Sciences is a division of CDER within the FDA that engages in scientific research to support decision making for application review, standard setting, and technology development. This branch also establishes practices and policies for Chemistry Manufacturing and Controls (CMC) application review.

Research Assistant

- Mined for data within the FDA New- and Abbreviated- Drug Application archives to obtain longitudinal data from a number of pharmaceutical products and their manufactures whose content is proprietary
- Performed statistical and other data analysis on mined data
- Prepared tabulated data in spreadsheet fashion
- PI: Pradeep Sathe, PhD

Pfizer Global Manufacturing, Quality Operations, Pfizer Inc., Groton, CT

June 2006 - August 2006

A subdivision within Pfizer Global Manufacturing whose goal it is to maintain Good Manufacturing Procedures (GMPs) and the accuracy and precision of all intermediate and final compounds throughout the manufacturing of large-scale active pharmaceuticals.

Summer Intern

- Performed qualification testing, maintenance, and trouble shooting on both gas chromatographic (GC) and high-performance liquid chromatographic (HPLC) instrumentation
- Utilized GC and HPLC techniques to analyze both intermediate and active pharmaceutical ingredients to assure quality throughout the manufacturing process.
- Analyzed both inert and active intermediates throughout numerous synthetic processes in order to ensure tight control on water percentage, heavy metal content, and pH, using Karl-Fischer titrations, atomic absorption spectroscopy, and pH meters, respectively
- Dept. Head: Charles Cicchetti

Research Education for Undergraduates (REU), University of Kansas, Lawrence, KS
May 2005 - August 2005

A ten-week period of undergraduate research during the summer months designed to foster independent research under the supervision of one of twelve senior faculty members. Areas of research were intended to address problems using techniques drawing from the medicinal, organic, and biochemical chemistry paradigms. First-hand instruction on the use of spectrometers (NMR, IR, UV), in conjunction with gas and high-performance liquid chromatography provided the means to solve these diverse and challenging scientific problems. The program is designed to give students maximum independence and to provide a full-time research experience on which to base a career decision.

Summer Intern

- Utilized structure-activity forethought and synthetic organic chemistry techniques in order to design and synthesize a small library of novel compounds with anti-endotoxin activity in order to attenuate early *in-vivo* systemic inflammatory responses associated with septic shock and mortality in the ICU
- PI: Sunil David, M.D., PhD and Apurba Dutta, PhD

INBRE Research Core Facility-Summer Undergraduate Research Program (SURP), University of Rhode Island, Kingston, RI
June 2004 - August 2004

A ten-week research program that takes place at the munificent INBRE Core Facility that harbors over two million dollars worth of research instrumentation. The goals of the program are to expose undergraduate students to laboratory research and to familiarize them with the opportunities that exist for careers in biomedical research.

Summer Intern

- Utilized circular dichroism (CD) instrumentation to analyze aminofluorene modified DNA samples with various flanking base pair sequences in order to evaluate the affect of base pair sequence on this carcinogen's intercalation into right-handed DNA.
- PI: Bongsup P. Cho, PhD

OTHER PROFESSIONAL EXPERIENCE:
Walgreens Pharmacy, Warwick, RI

June 1999 - August 2008

One of the largest retail pharmacy chains in America, with locations spanning the continental U.S. and Puerto Rico. There are currently 5,800 stores in operation, of which, about 2,000 are open 24-hours.

Registered Pharmacist (RPH) **July 2007 - August 2008**

- Work according to legal and ethical guidelines to ensure the correct and safe supply of medical products to the general public
- Assist and counsel patients regarding the safe and correct use of prescription, herbal, and over the counter medications
- Serve as liaison with doctors regarding prescription and non-prescription medications
- Enter, maintain and generate third party claims for prescription medications on an electronic database
- Advise patients regarding any adverse side-effects of medicines or potential interactions with other medicines or treatments
- Perform both prospective and retrospective drug utilization review
- Process and validate prescriptions for dispensing

Pharmacy Technician **June 2001 - July 2007**

- Enter prescription medication orders into an electronic database system
- Fill and re-fill prescriptions, make medication updates, maintain prescription inventory
- Generate third party claims
- Prepare prescription medication orders for validation by a registered pharmacist

Service Clerk **June 1999 - June 2001**

- Assist customers to select and purchase specified merchandise
- Answer customer's telephone, and in-person inquiries and direct customers to appropriate sales areas
- Resolve customer complaints and requests for refunds, exchanges, and adjustments
- Provide customers with catalogs and information concerning prices, shipping time, and costs

Cancer Prevention Research Center, University of Rhode Island, Kingston, RI

July 2001 - June 2004

A research organization dedicated to helping people change their behavior for living longer, healthier lives. The CPRC is revered as the innovator of the Transtheoretical model, which is now recognized internationally as one of the most promising approaches to health promotion.

Research Interviewer

- Conduct telephone surveys for various epidemiological research projects related to cancer prevention under grants provided by the National Institutes of Health

FIRST-AUTHOR PUBLICATIONS:

Baker GJ, Muhlich JL, Palaniappan SK, Moore JK, Davis SH, Santagata S, Sorger PK. *SYLARAS: A Platform for the Statistical Analysis and Visual Display of Systemic Immunoprofiling Data and Its Application to Glioblastoma*. Cell Syst. 2020 Sep 23;11(3):272-285.e9. doi: 10.1016/j.cels.2020.08.001. Epub 2020 Sep 7.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. *Natural killer cells require monocytic Gr-1(+)/CD11b(+) myeloid cells to eradicate orthotopically engrafted glioma* cells*.* Oncoimmunology. 2016 Mar 16;5(6):e1163461. doi: 10.1080/2162402X.2016.1163461.

Baker GJ, Castro MG, Lowenstein PR. *Isolation and Flow Cytometric Analysis of Glioma-infiltrating Peripheral Blood Mononuclear Cells*. J Vis Exp. 2015 Nov 28;(105). doi: 10.3791/53676.

Baker GJ, Chockley P, Yadav VN, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. *Natural Killer Cells Eradicate Galectin-1 Deficient Glioma in the Absence of Adaptive Immunity.* Cancer Res. 2014 Sep 15;74(18):5079-90.

Media coverage: University of Michigan Health System Website, ScienceDaily, Science-Business eXchange (*SciBX* **7**(34); doi:10.1038/scibx.2014.1006 . Published online Sep. 4 2014), OncologyCentral, TechTimes, NewsFiber, BioPortfolio.com, Veooz, Eurekalert, MedicalXpress.com, Reddit.com, KentuckyScience.com, ALN magazine,

Accelerate Brain Cancer Cure, Tumblr, ANI News, Oncology Nurse Adviser, Futurity Research News, R&D Magazine, Twitter, Daijiworld.com, Nutrition Review.org, Standard News, NewsMedical.net, HealthNews.com, BioQuickNews.com, Facebook, Science 2.0, eScienceNews, FOCUS TV, BioquickNEWS.

Baker GJ, Yadav VN, Motsch S, Koschmann C, Calinescu A, Mineharu Y, Camelo-Piragua SI, Orringer D, Bannykh S, Nichols WS, deCarvalho AC, Mikkelsen T, Castro MG, Lowenstein PR. *Mechanisms of Glioma Formation: Iterative Perivascular Glioma Growth and Invasion Leads to Tumor Progression, VEGF-independent Vascularization and Resistance to Anti-angiogenic Therapy*. Neoplasia. 2014 Jul;16(7):543-61. **COVER ARTICLE**.

Media coverage: Mecialnewstoday.com, University of Michigan Health System Website, Noozilla, MedMerits.com, Topix.com, Bio-Medicine.org, SciCasts.com, eCancer.org, telezkope.com, NewsWise.com, ScienceCodex.com, TheOncologyPharmacist, NEWS.nom.co, Twitter, HealthCanal.com, Reddit.com, HealthnExcercise.com, Tumblr, ScienceDaily, TechTimes, NewsFiber, BioPortfolio.com, Eurekalert, MedicalXpress.com, Facebook, KentuckyScience.com, NewsMedical.net, BioQuickNews.com.

BOOK CHAPTERS:

Kamran N, Candolfi M, **Baker GJ**, Ayala MM, Dzaman M, Lowenstein PR, Castro MG. *Gene Therapy for the Treatment of Neurological Disorders: Central Nervous System Neoplasms*. Methods Mol Biol. 2016;1382:467-82.

OTHER PUBLICATIONS:

Schapiro D, Sokolov A, Yapp C, Chen YA, Muhlich JL, Hess J, Creason AL, Nirmal AJ, **Baker GJ**, Nariya MK, Lin JR, Maliga Z, Jacobson CA, Hodgman MW, Ruokonen J, Farhi SL, Abbondanza D, McKinley ET, Persson D, Betts C, Sivagnanam S, Regev A, Goecks J, Coffey RJ, Coussens LM, Santagata S, Sorger PK. *MCMICRO: a scalable, modular image-processing pipeline for multiplexed tissue imaging*. Nat Methods. 2021 Nov 25. doi: 10.1038/s41592-021-01308-y. Online ahead of print.

Ringel AE, Drijvers JM, **Baker GJ**, Catozzi A, García-Cañaveras JC, Gassaway BM, Miller BC, Juneja VR, Nguyen TH, Joshi S, Yoon H, Sage PT, LaFleur MW, Trombley JD, Jacobson CA,

Maliga Z, Gygi SP, Sorger PK, Rabinowitz JD, Sharpe AH, and Haigis MC. *Obesity Shapes Metabolism in the Tumor Microenvironment to Suppress Anti-tumor Immunity*. Cell. 2020 Dec 23;183(7):1848-1866.e26. doi: 10.1016/j.cell.2020.11.009. Epub 2020 Dec 9.

Iorgulescu JB, Gokhale PC, Speranza MC, Eschle BK, Poitras MJ, Wilkens MK, Soroko KM, Chhoeu C, Knott A, Gao Y, Lim-Fat MJ, **Baker GJ**, Bonal DM, Nguyen QD, Grant GRL, Ligon KL, Sorger PK, Chiocca EA, Anderson AC, Kirschmeier PT, Sharpe AH, Freeman GJ, Reardon DA. *Concurrent Dexamethasone Limits the Clinical Benefit of Immune Checkpoint Blockade in Glioblastoma*. Clin Cancer Res. 2021 Jan 1;27(1):276-287. doi: 10.1158/1078-0432.CCR-20-2291. Epub 2020 Nov 25.

Gerosa L, Chidley C, Fröhlich F, Sanchez G, Lim SK, Muhlich J, Chen JY, Vallabhaneni S, **Baker GJ**, Schapiro D, Atanasova MI, Chylek LA, Shi T, Yi L, Nicora CD, Claas A, Ng TSC, Kohler RH, Lauffenburger DA, Weissleder R, Miller MA, Qian WJ, Wiley HS, Sorger PK. *Receptor-Driven ERK Pulses Reconfigure MAPK Signaling and Enable Persistence of Drug-Adapted BRAF-Mutant Melanoma Cells*. Cell Syst. 2020 Nov 18;11(5):478-494.e9. doi: 10.1016/j.cels.2020.10.002. Epub 2020 Oct 27.

Nalle SC, Zuo L, Ong L, Singh G, Worthylake A, Choi W, Manresa MC, Southworth A, Edelblum KL, **Baker GJ**, Joseph N, Savage P, Turner JR. *Graft-versus-host Disease Propagation Depends on Increased Intestinal Epithelial Tight Junction Permeability.* J Clin Invest. 2019 Feb 1;129(2):902-914. doi: 10.1172/JCI98554. Epub 2019 Jan 22.

Fallahi-Sichani M, Becker V, Izar B, **Baker GJ**, Lin JR, Boswell SA, Shah P, Rotem A, Garraway LA, Sorger PK. *Adaptive resistance of melanoma cells to RAF inhibition via reversible induction of a slowly dividing de-differentiated state.* Mol Syst Biol. 2017 Jan 9;13(1):905. doi: 10.15252/msb.20166796.

Yadav V, Zamler D, **Baker GJ**, Kadiyala P, Erdreich-Epstein A, Brown C, Castro MG, Lowenstein PR. *CXCR4 increases in-vivo glioma perivascular invasion, and reduces radiation induced apoptosis: A genetic knockdown study*. Oncotarget. 2016 Dec 13;7(50):83701-83719. doi: 10.18632/oncotarget.13295.

Calinescu AA, Kamran N, **Baker G**, Mineharu Y, Lowenstein PR, Castro MG. *Overview of Current Immunotherapeutic Strategies for Glioma.* Immunotherapy. 2015 Oct;7(10):1073-1104.

Lowenstein PR, **Baker GJ**, Castro MG. *Cracking the Glioma-NK Cell Inhibitory Code: Towards Successful Innate Immunotherapy*. Oncoimmunology. 2014 Dec 21;3(11):e965573.

Castro MG, **Baker GJ**, Lowenstein PR. *Blocking Immunosuppressive Checkpoints for Glioma Therapy: The More the Merrier!* Clin Cancer Res. 2014 May 30;20(20); 5147-9.30.

Lynes J, Wibowo M, Koschmann C, **Baker GJ**, Saxena V, Muhammad AK, Bondale N, Klein J, Assi H, Lieberman AP, Castro MG, Lowenstein PR. *Lentiviral induced high-grade gliomas in rats: the effects of PDGFB, HRAS-G12V, AKT and IDH1-R132H*. Neurotherapeutics. 2014 Jul;11(3):623-35.

Assi H, Candolfi M, **Baker G**, Mineharu Y, Lowenstein PR, Castro MG. *Gene therapy for brain tumors: Basic developments and clinical implementation*. Neurosci Lett. 2012 Oct 11;527(2):71-7.

Candolfi M, Kroeger KM, Xiong W, Liu C, Puntel M, Yagiz K, Muhammad AK, Mineharu Y, Foulad D, Wibowo M, Assi H, **Baker GJ**, Lowenstein PR, Castro MG. *Targeted Toxins For Glioblastoma Multiforme: Pre-Clinical Studies And Clinical Implementation.* Anticancer Agents Med Chem. 2011 Oct;11(8):729-38.

Kroeger KM, Muhammad AK, **Baker GJ**, Assi H, Wibowo MK, Xiong W, Yagiz K, Candolfi M, Lowenstein PR, Castro MG. *Gene therapy and virotherapy: novel therapeutic approaches for brain tumors.* Discov Med. 2010 Oct;10(53):293-304.

Muhammad AK, Puntel M, Candolfi M, Salem A, Yagiz K, Farrokhi C, Kroeger KM, Xiong W, Curtin JF, Liu C, Lawrence K, Bondale NS, Lerner J, **Baker GJ**, Foulad D, Pechnick RN, Palmer D, Ng P, Lowenstein PR, Castro MG. *Study of the Efficacy, Biodistribution, and Safety Profile of Therapeutic Gutless Adenovirus Vectors as a Prelude to a Phase I Clinical Trial for Glioblastoma.* Clin Pharmacol Ther. 2010 Aug;88(2):204-13.

Meneni SR, D'Mello R, Norigian G, **Baker G**, Gao L, Chiarelli MP, Cho BP. *Sequence effects of aminofluorene-modified DNA duplexes: thermodynamic and circular dichroism properties*. Nucleic Acids Res. 2006 Jan 30;34(2):755-63.

INVITED SPEAKER:
Charles Stark Draper Laboratory Headquarters, Cambridge, MA 02139.

Alumni Panelist, Dept. of Molecular and Medical Pharmacology Retreat, Nov. 2020 (virtual)

2nd International Conference on Cell and Experimental Biology (CEB) 2021, Jul. 12-14, Houston, TX (virtual)

CONFERENCE PRESENATIONS:
Baker GJ, Vallius T, Davis JA, Lin JR, Guerriero JL, Mittendorf EA, Sorger PK. "*CyLinter: An Interactive Segmentation Filter for Multiplex Microscopy", 11/21*

- Presented at the Human Tumor Atlas Network (HTAN) Fall F2F Meeting 2021 (virtual).

Baker GJ, Vallius T, Davis JA, Lin JR, Guerriero JL, Mittendorf EA, Sorger PK. "*CyLinter: An Interactive Segmentation Filter for Multiplex Microscopy", 08/21*

- Presented at the 2021 CSBC/PS-ON/BD-STEP Junior Investigator Meeting (virtual).
- **Poster Award Winner**

Baker GJ, Vallius T, Davis JA, Lin JR, Yapp C, Guerriero JL, Mittendorf EA, Sorger PK. "*CyLinter: Interactive software for cleaning microscopy-derived, single-cell data", 05/21*

- Presented at the Human Tumor Atlas Network (HTAN) Spring F2F Meeting (virtual).

Baker GJ, Vallius T, Davis JA, Lin JR, Yapp C, Guerriero JL, Mittendorf EA, Sorger PK. "*CyLinter: Interactive software for cleaning microscopy-derived, single-cell data", 04/21*

- Presented at the Cold Spring Harbor Laboratory Conference on Systems Immunology (virtual).

Baker GJ, Muhlich JL, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*SYLARAS: A Platform for the Acquisition, Statistical Analysis, and Graphical Display of Systemic Immunoprofiling Data and its Application to Glioblastoma", 09/20*

- Presented at the 2020 CSBC Annual Investigators Meeting (virtual).

Baker GJ, Muhlich JL, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*Systemic immune response profiling with SYLARAS implicates a role for CD45R/B220$^+$ CD8$^+$ T cells in glioblastoma immunology", 11/19*

- Presented at the 2019 AACR Tumor Immunology and Immunotherapy Conference hosted at the Marriott Copley Place, Boston, MA.

Baker GJ, Muhlich JL, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*Systemic immune response profiling with SYLARAS implicates a role for CD45R/B220$^+$ CD8$^+$ T cells in glioblastoma immunology", 10/19*

- Presented at the 2019 Harvard Program in Therapeutic Sciences (HiTS) Symposium hosted at the Courtyard by Marriott, Boston, MA.

Baker GJ, Iorgulescu JB, Reardon DA, Sorger PK. "*Investigating Mechanisms of Anti-PD1 Checkpoint Immunotherapy in Two Syngeneic Mouse Models of Glioma by Cyclic Immunofluorescence (CyCIF)", 10/19*

- Presented at the 2019 CyCIF Retreat hosted at 313 Congress Street, Boston, MA.

Baker GJ, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*A Computational Tool for Discovery-based Immunophenotyping Identifies a Novel Cytotoxic T Cell State in Glioblastoma", 12/18*

- Presented at the 2018 Harvard Program in Therapeutic Sciences (HiTS) Symposium hosted at Harvard Business School's Spangler Center, Boston, MA.
- **Selected as 1st Place Poster**

Baker GJ, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*A Computational Tool for Discovery-based Immunophenotyping Identifies a Novel Cytotoxic T Cell State in Glioblastoma", 11/18*

- Presented at the 2018 Ludwig Center at Harvard Symposium in New Research Building (NRB), Harvard Medical School, Boston, MA.

Baker GJ, Palaniappan SK, Moore JK, Davis SH, Sorger PK. "*Systemic lymphoid architecture response assessment (SYLARAS): Application to system-wide immunophenotyping of glioblastoma", 4/18*

- Presented at the 2018 AACR Annual Meeting at McCormick Place North/South, Chicago, IL.

Baker GJ, Berriz G, Palaniappan SK, Thiagarajan PS, Davis SH, Moore JK, Sorger PK. "*Systemic Lymphoid Architecture Response Assessment (SYLARAS): an approach to discovery-based, system-wide immunophenotyping", 12/17*

- Presented at the 2017 Harvard Program in Therapeutic Sciences (HiTS) Symposium hosted by Novartis Institutes for Biomedical Research (NIBR), Cambridge, MA.
- **Selected as 2nd Place Poster**

Baker GJ, Berriz G, Thiagarajan PS, Palaniappan SK, Davis SH, Moore JK, Sorger PK. "*Systemic Lymphoid Architecture Response Assessment: Application to Cellular Immune Organization in Experimental Glioblastoma", 10/17*

- Presented at the Cancer Biology and Therapeutics Program Sorger Lab Site Tour at Harvard Medical School, Boston, MA.

Baker GJ. On-camera interview for the Facebook Live broadcast at the 2017 American Cancer Society Cancer Action Network New England Research Breakfast, The State Room, 60 State Street, Boston, MA, *06/17*

Baker GJ, Lin JR, Sorger PK. "*Multiparametric Immunophenotyping of Liquid Biopsies by Cyclic Immunofluorescence", 05/17*

- Presented at the Ludwig Center at Harvard Weekly Meeting in the Yawkey Building at Dana-Farber Cancer Institute, Boston, MA.

Baker GJ, Thiagarajan PS, Palaniappan SK, Davis SH, Moore JK, Sorger PK. "*A flow-based immunoprofiling strategy for interrogating system-wide leukocyte composition in response to glioblastoma", 04/17*

- Presented at the 2017 AACR Annual Meeting at the Walter E. Washington Convention Center, Washington, DC.

Baker GJ, Berriz G, Thiagarajan PS, Lin JR, Palaniappan SK, Davis SH, Moore JK, Sorger PK. "*A Systems Biology Approach to the Study of Glioblastoma-induced Immune Suppression", 02/17*

- Presented at the QSP-SB Industry and Academia Symposium sponsored by Applied BioMath at Harvard Medical School, Boston, MA.

Baker GJ, Berriz G, Thiagarajan PS, Lin JR, Palaniappan SK, Davis SH, Moore JK, Schapiro, D, Sorger PK. "*Temporal Characterization of System-wide Immune Alterations in Response to Orthotopic Glioblastoma", 12/16*

- Presented at the 2016 HiTS Symposium at the Cambridge Innovation Center, Boston, MA.

Baker GJ, Berriz G, Thiagarajan PS, Lin JR, Palaniappan SK, Davis SH, Moore JK, Schapiro, D, Sorger PK. "*Temporal Characterization of System-wide Immune Alterations in Response to Orthotopic Glioblastoma", 11/16*

- Presented at the 2016 Ludwig Center at Harvard Symposium in New Research Building (NRB), Harvard Medical School, Boston, MA.

Baker GJ, Berriz G, Thiagarajan PS, Lin JR, Palaniappan SK, Davis SH, Moore JK, Schapiro, D, Sorger PK. "*Investigating Brain Tumor Infiltrating Leukocytes with Cyclic Immunofluorescence, CyteFinder, and Quantitative Single-cell Analysis", 10/16*

- Presented at RareCyte Headquarters Seattle, WA.

Baker GJ, Berriz G, Thiagarajan PS, Lin JR, Palaniappan SK, Davis SH, Moore JK, Schapiro, D, Sorger PK. "*Investigating Brain Tumor Immune Infiltration with Cyclic Immunofluorescence and Quantitative Single-cell Analysis", 10/16*

- Presented at the Microscopy Affinity Group Meeting at Harvard Medical School, Boston, MA.

Baker GJ, Berriz G, Thiagarajan PS, Palaniappan SK, Davis SH, Moore JK, Gerosa L, Sorger PK. "*A Flow-based Immunoprofiling Strategy for Interrogating System-wide Leukocyte Composition in Response to Glioblastoma", 06/16*

- Presented at the Annual Department of Systems Biology Retreat at Sebasco Harbor Resort, Sebasco Estates, ME.

Baker GJ, Davis SH, Moore JK, Sorger PK. "*A Flow-based Immunoprofiling Strategy for Interrogating Systemic GBM-induced Immunosuppression", 05/16*

- Presented at Merck Research Laboratories, Boston, MA.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Gr-1$^+$/CD11b$^+$ Myeloid Cells are Required for Natural Killer Cell-mediated Eradication of Galectin-1- deficient Glioma", 11/15*

- Presented at the 20th Annual Scientific Meeting of the Society for Neuro-Oncology at the Marriott
  Rivercenter, San Antonio, TX.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Natural Killer Cells Require Monocytic Gr-1$^+$/CD11b$^+$ Myeloid Cells to Eradicate Galectin-1-deficient Glioma", 09/15*

- Presented at the 2015 Cancer Center Fall Research Symposium sponsored by the Cancer Center Research Committee at the University of Michigan Health System, Ann Arbor, MI.
- **Selected as 1st Place Abstract**

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 Blocks Natural Killer Cell Immune Surveillance through a Tripartite Mechanism", 05/15*

- Presented at the 14th Annual Immunology Retreat at the Campus Inn at the University of Michigan in Ann Arbor, MI.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 Blocks Natural Killer Cell Immune Surveillance through a Tripartite Mechanism", 04/15*

- Presented at the American Association for Cancer Research (AACR) Annual Meeting 2015 at the Philadelphia Convention Center in Philadelphia, PA.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Innate Immune Escape Mechanisms Mediated by Glioma-derived Galectin-1", 04/15*

- Guest speaker at the Tumor Immunology & Host Response Program sponsored by at the University of Michigan Health System in Ann Arbor, MI.

Lowenstein PR, Motsch S, **Baker GJ**, Castro MG. "*Mechanisms of Glioma Formation: Exploring Glioma Growth through Dialectic Biological-computational Approaches*", 04/15

- Presented at the 9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory at the Georgia Center for Continuing Education, University of Georgia, Athens, GA.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Innate Immune Escape Mechanisms Mediated by Glioma-derived Galectin-1", 03/15*

- Guest speaker at the 2nd Annual Immuno-Hematology Symposium sponsored by the Immuno-Hematology Comprehensive Program at the University of Michigan Health System in Ann Arbor, MI.

Baker GJ, Chockley P, Zamler D, Castro MG, Lowenstein PR. "*Invasion and Evasion: Investigations on Early Glioblastoma Growth Reveal Two Novel Mechanisms of Brain Tumor Progression", 02/15*

- Invited speaker at the Department of Systems Biology at Harvard Medical School in Boston, MA.

Baker GJ, Yadav VN, Motsch S, Koschmann CJ, Calinescu A, Mineharu Y, Camelo-Piragua S, Orringer D, Bannykh SI, Nichols WS, deCarvalho AC, Mikkelsen T, Castro MG, Lowenstein PR. "*Mechanisms of Glioma Formation: Perivascular Glioma Invasion is a VEGF-independent Mechanism of Tumor Vascularization", 11/14*

- Presented at the 19th Annual Scientific Meeting of the Society for Neuro-Oncology at Loews Hotel South Beach, Miami, FL.
- **Selected as a "Top 10" Poster**

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 is a Potent Suppressor of NK Immunosurveillance", 11/14*

- Presented at the 19th Annual Scientific Meeting of the Society for Neuro-Oncology at Loews Hotel South Beach, Miami, FL.

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 is a Potent Suppressor of NK Immunosurveillance", 09/14*

- Presented at the 2014 Cancer Biology Graduate Program Retreat in the Towsley Lobby at the University of Michigan, Ann Arbor, MI.
- **Awarded "1st Place Poster"**

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 is a Potent Suppressor of NK Immunosurveillance", 09/14*

- Presented at the 10th Annual Cell and Developmental Biology Retreat at the Kellogg Biological Station in Hickory Corners, MI.
- **Awarded "Best Graduate Student Presentation"**

Baker GJ. "*Invasion and Evasion: Investigations on Early Glioblastoma Growth Reveal Two Novel Mechanisms of Tumor Progression", 07/14*

- Presented at the Department of Neurology's Neuro-oncology Conference in the DeJong Library (1912 Taubman), University of Michigan Health System, Ann Arbor, MI.

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Natural Killer Cells Eradicate Galectin-1 Deficient Glioma in the Absence of Adaptive Immunity", 05/14*

- Presented at the Department of Neurology's Neuroscience Day 2014 in the Towsley Center, University of Michigan Health System in Ann Arbor, MI.

Baker GJ, Yadav VN, Motsch S, Koschmann CJ, Calinescu A, Mineharu Y, Camelo-Piragua S, Orringer D, Bannykh SI, Nichols WS, deCarvalho AC, Mikkelsen T, Castro MG, Lowenstein PR. "*Investigating the neoangiogenic consequences of the perivascular growth pattern in malignant brain tumors", 05/14*

- Presented at the 50th Annual Meeting of the American Society of Clinical Oncology (ASCO), Cormick Place, Chicago, IL.

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Natural Killer Cells Eradicate Galectin-1 Deficient Glioma in the Absence of Adaptive Immunity", 04/14*

- Presented at the American Association for Cancer Research (AACR) Annual Meeting 2014 at the San Diego Convention Center in San Diego, CA.

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*A New Strategy to Heighten Innate Immunity Against Malignant Brain Cancers", 04/14*

- Presented at the 20th Neuro-tumor Club Dinner Meeting at the American Association for Cancer Research (AACR) Annual Meeting 2014, Hotel Solamar, San Diego, CA.

Baker GJ, Chockley P, Yadav VW, Doherty R, Ritt M, Sivaramakrishnan S, Castro MG, Lowenstein PR. "*Glioma-derived Galectin-1 is a Potent Suppressor of NK Immunosurveillance", 02/14*

- Guest speaker at the Inaugural Immuno-Hematology Symposium sponsored by the Department of Pediatrics at the University of Michigan in Ann Arbor, MI
- **Awarded "Best Abstract"**
- **Link to full presentation**: https://www.youtube.com/watch?v=7Br8AMxnKvE

Baker GJ, Xiong W, Bannykh S, Kroeger KM, Mikkelsen T, Nichols WS, Castro MG, Lowenstein PR. "*Galectin-1 Silencing Blocks Perivascular Tumor Growth and Prohibits Tumor Formation in a Model of Glioblastoma Multiforme", 09/12*

- Presented at the 8th Annual Cell and Developmental Biology Departmental Retreat at the Kellogg Biological Station in Kalamazoo MI.

Baker GJ, Xiong W, Bannykh S, Kroeger KM, Mikkelsen T, Nichols WS, Castro MG, Lowenstein PR. "*Galectin-1 Silencing Prohibits a Form of Exclusively Perivascular Tumor Growth and Blocks Lethal Tumor Formation in a Model of Glioblastoma Multiforme", 05/12*

- Presented at the American Society of Gene and Cell Therapy (ASGCT) 15th Annual Meeting in Philadelphia PA.

Baker GJ, Bannykh S, Kroger KM, Castro MG, Lowenstein PR. *"A Pericapillary Mode of Invasion for Early Malignant Glioma"*, 10/10

- Presented at the Annual UCLA Molecular and Medical Pharmacology Retreat at the Hyatt Regency Huntington Beach Resort and Spa and at the Nanomedicine and Drug Delivery Research Conference at Cedars-Sinai Medical Center, Los Angeles, CA.

Baker GJ, Castro MG, and Lowenstein PR. *"Early Time Points in Murine Glioma Development"*, 1/10

- Presented at the Molecular and Medical Pharmacology Departmental Research Day at UCLA and at the Nanomedicine and Drug Delivery Research Conference at Cedars-Sinai Medical Center, Los Angeles, CA.

Baker GJ. *"Elucidating Extra-articular Areas of Lubricin Expression in a Rat Model: Preliminary Studies"*, 3/07

- Presented to Gregory Jay, M.D., PhD and colleagues in the Coro Research Building at Rhode Island Hospital. This research group is affiliated with Brown University and is a group we have recently collaborated with.

Baker GJ, Norigian G. *"Sequence Effect on the Thermodynamics and Structures of Aminofluorene-Modified DNA"*, 10/04

- Presented at the 26th Annual Pharmacy Student Research Conference – Eastern States, in West Virginia. Sponsored by The Merck Company Foundation and West Virginia University School of Pharmacy.

OTHER ACADEMIC PARTICIPATION:

Data Viz + Cancer Innovation Lab 2021: Visualizing Data in Context for Novel Insights (virtual) 11/21

- National Cancer Institute (NCI)-sponsored, 5-day Innovation Lab to generate creative data visualization strategies for cancer research.

American Cancer Society (ACS) Cancer Action Network (ACS CAN) New England Research Breakfast 2019 at 60 State St., Boston, MA. 6/19

- Networking evening.

American Cancer Society (ACS) Research and Collaboration Event at Blue Print Medicines in Cambridge, MA. 11/18

- Networking evening.

American Cancer Society (ACS) Cancer Action Network (ACS CAN) New England Research Breakfast 2018 at 60 State St., Boston, MA. 6/18

- Networking evening.

American Cancer Society (ACS) Research and Collaboration Dinner at the Harvard Club of Boston, MA. 10/17

- Networking evening.

American Cancer Society (ACS) Cancer Action Network (ACS CAN) New England Research Breakfast 2017 at 60 State St., Boston, MA. 6/17

- Networking evening.

American Society of Gene and Cell Therapy (ASGTC) 15th Annual Meeting in Philadelphia, PA. 05/12

- National meeting.

American Pharmacists Association 2006 Annual Meeting and Exposition in San Francisco, CA.
04/06

- National meeting of America's pharmacists and pharmacy students to discuss various health-related topics and their relevance to the practice of pharmacy.
- Voted on potential legislature affecting the face of pharmacy that would subsequently be presented on both the state and federal level.

21st Annual Seminar by the Sea Northeast Regional Conference in Newport, RI.
03/06

- Regional meeting of the northeast's pharmacists and pharmacy students to learn more about a number of current interest topics pertaining to the practice of pharmacy such as

the significant events that have characterized the introduction of the Medicare Part D benefit, the key elements that constitute a robust medication therapy management (MTM) program, and the origins and epidemiology of pandemic influenza.

43rd Annual Medicinal Chemistry Meeting-in-Miniature (MIKI) Meeting, hosted by the University of Minnesota in Minneapolis, MN.
07/05

- Provided graduate students experience in presenting their research at a scientific meeting.
- Provided a catalyst for the sharing and exchanging of ideas between students and faculty of the different universities in attendance.

American Pharmacists Association 2005 Annual Meeting and Exposition in Orlando, FL.
04/05

- National meeting of America's pharmacists and pharmacy students to discuss various health-related topics and their relevance to the practice of pharmacy.
- Voted on potential legislature affecting the face of pharmacy that would subsequently be presented on both the state and federal level.

Academy of Student Pharmacists Mid-year Regional Meeting in Worchester, MA.
11/04

- Regional meeting to discuss various issues related to legislation on the state and federal level as it pertains to the practice of pharmacy.

PEER-REVIEWER:
Clinical Cancer Research

Public Library of Science (PLOS) ONE

- (2015) PLOS ONE 2014 Reviewer Thank You. PLoS ONE 10(2): e0121093. doi: 10.1371/journal.pone.0121093

MENTORSHIP:
Lowenstein laboratory:

- Robert Doherty, B.Sc.
  - Laboratory technician
- Julian Bahr, B.Sc.
  - Rotating first-year graduate student from the Program in Biomedical Sciences at the University of Michigan
- Peter Chockley, B.Sc.
  - Rotating first-year graduate student from the Graduate Program in Immunology at the University of Michigan.
- Padma Kadiyala, B.Sc.
  - Laboratory technician

Sorger laboratory:

- Stephanie Davis, B.Sc.
    - Research Assistant IV/Animal Coordinator

TEACHING:

- 2-day, intensive Python training workshop at Harvard Medical School, Boston, MA — October, 2019.

HONORS/AWARDS:

- Award-winning Poster 2021 CSBC/PS-ON/BD-STEP Junior Investigator Meeting (virtual conference)
- Selected as 1st place poster 2018 Harvard Program in Therapeutic Sciences (HiTS) Symposium hosted at Harvard Business School's Spangler Center, Boston, MA
- American Cancer Society (ACS) Postdoctoral Fellowship Awardee – 2017-Present
- Prize-winning poster 2017 Harvard Program in Therapeutic Sciences (HiTS) Symposium hosted by Novartis Institutes for Biomedical Research (NIBR), Cambridge, MA
- Selected as 1st place abstract at the 2015 Cancer Center Fall Research Symposium sponsored by the University of Michigan Comprehensive Cancer Center – 2015
- Selected as a "Top 10" Poster at the 19th Annual Scientific Meeting of the Society for Neuro-Oncology – 2014
- Recipient of the "Best Abstract" award at the Inaugural Immuno-Hematology Symposium sponsored by the Department of Pediatrics at the University of Michigan, Ann Arbor, MI – 2014
- Recipient of the "Best Graduate Student Presentation Award" at the Cell and Developmental Biology Retreat – 2014
- Awarded "1st Place Poster" at the Cancer Biology Graduate Program Retreat – 2014
- Recipient of the Department of Molecular and Medical Pharmacology's travel award, American Society of Gene & Cell Therapy 15th Annual Meeting, Philadelphia, PA – 2012
- Recipient of the "Certificate of Outstanding Achievement in the Area of Biomedical and Pharmaceutical Sciences Research" awarded by the College of Pharmacy at the University of Rhode Island, presented by the Dept. Chair, Clinton O. Chichester, PhD – 2007
- University of Rhode Island Dean's List – 2001-2007
- PharmD, summa cum laude, University of Rhode Island – 2007

PATENTS:

- "Ligand Binding Stabilization Method for Drug Target Identification"
  U.S. Patent No.: 8,703,438
  Date of Patent: Apr. 22, 2014

- "A Novel Cell Target for Cancer Immunotherapy"
  Provisional Patent Filed: Jan. 18, 2019

PROFESSIONAL AFFILIATIONS:

- Trainee of the Ludwig Center at Harvard Medical School – 2015-Present
- American Association for Cancer Research (AACR)-Associate Member – 2013-Present
- American Cancer Society (ACS) Postdoctoral Research Fellow – 2017-2020

- American Society of Gene and Cell Therapy (ASGCT)-Associate Member – 2012-2014
- Rhode Island Pharmacists Association (RIPA) – 2007-2009
- Executive Board Treasure, Rho Chi Society, Beta Pi Chapter, URI – 2005-2006
- American Pharmacists Association (APhA) – 2004-2009
- The Golden Key National Honor Society – 2004-2007
- Academy of Student Pharmacists (ASP) – 2004-2007
- The National Society of Collegiate Scholars – 2003-2007
- The Honor Society of Phi Kappa Phi – 2003-2007