Curriculum Vitae Tracy A. Brooks, Ph.D.

Contact Information

Department of BioMolecular Sciences
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Chronology of Education

Undergraduate and Graduate

B.S. **University of Rochester, Rochester, NY**
1999 Major: Microbiology and Immunology
Minor: Philosophy
Cum laude

Ph.D. **SUNY Buffalo, Roswell Cancer Institute Division, Buffalo, NY**
2003 Department of Molecular Pharmacology and Cancer Therapeutics
Advisor: Ralph J. Bernacki, Ph.D.
Thesis: Overcoming Multidrug Resistance with Non-cytotoxic Taxanes

Postgraduate

2003 – 2004 **Postdoctoral Fellow, Roswell Park Cancer Institute**
Department of Medicine
Adviser: Maria R. Baer, MD
Modulation of MDR and BCRP with taxane-based analogs, an SAR study

2004 – 2006 **Postdoctoral Fellow, University of Arizona**
Department of Medicine
Adviser: Thomas P. Davis, Ph.D.
The Brain in Pain, how peripheral pain globally and regionally alters the blood-brain barrier

Chronology of Employment

2011 – **Assistant Professor, College of Pharmacy**
University of Mississippi
BioMolecular Sciences Department
Pharmacology Division
G-quadruplex Laboratory

2011 –	**Associate Member, UMMC Cancer Center** University of Mississippi Medical Center
2009 – 2011	M**ember, Research Faculty, BIO5 Institute** Tucson, Arizona
2007 – 2011	**Member, Arizona Cancer Center** Tucson, Arizona
2007 – 2011	**Assistant Research Scientist, College of Pharmacy** University of Arizona G-quadruplex Laboratory Research Professor, mentor: Laurence H. Hurley, PhD
2004 – 2006	**Postdoctoral Fellow, University of Arizona** Blood-brain barrier Laboratory Advisor: Thomas P. Davis
2003	**Postdoctoral Fellow, Roswell Park Cancer Institute** Multidrug resistance in acute leukemias Advisor: Maria R. Baer, MD
2000 – 2001	**Statistical Intern, Gynecological Oncology Group** Analyzed clinical data using Ingres database Proposed new parameter values or validated current set Assisted in statistical interpretation of scientific standings
1999 – 2003	**Graduate Research Assistant, SUNY Buffalo** Roswell Park Graduate Division Molecular Therapeutics and Cancer Therapeutics Advisor: Ralph J. Bernacki, PhD
2000	**Volunteer Teacher, Buffalo, NY** Roswell Park Cancer Institute Summer Program for high school students

Honors and Awards

2014 – 2015	**Teacher of the Year** University of Mississippi, School of Pharmacy PY2 year
2014 – 2015	**Friend of the Students Award**, Oxford Campus University of Mississippi, School of Pharmacy Student Body
2014	**New Investigator of the Year** University of Mississippi, School of Pharmacy
2012 – 2013	**Teacher of the Year** University of Mississippi, School of Pharmacy PY2 year
2012 – 2013	**Mentor** University of Mississippi McNair Program
2011	**Competent Leader** Biosciences Toastmasters

2010 – 2011	**Mentor** NASA Space Grant Consortium
2010	**Scientific Reviewer** Department of Defense, Breast Cancer Research Program
2010	**Competent Communicator** (Women of) Biosciences Toastmasters
2009 – 2010	**Mentor** Arizona Assurance Program
2009	**Leader** Tucson's Top 40 Under 40
2009 – 2011	**Charter Member, VP Education and President** Women of Biosciences Toastmasters
2003	**Predoctoral Scholar Travel Award** MDR in Cancer Forum, 1st Annual Dublin, Ireland
2002	**Winner, 1st place** RPCI Dean Mirand Graduate Research Forum
2000 – 2004	**Woodburn Academic Fellow** Roswell Park Cancer Institute
1999 – 2000	**Bertha Scott Fellow** Roswell Park Cancer Institute
1996 – 1999	**Rush Rhees Scholar** University of Rochester
1996 – 1999	**Bausch & Lomb Scholar** University of Rochester

Funding

Active

8/15/14 – 8/14/16	**Principal Investigator** Department of Defense PRCRP Career Development Award CA130229 "Novel molecular targets for kRAS downregulation: promoter G-quadruplexes" $333,878
7/1/2013 – 6/30/2016	**Principal Investigator (PI: Brooks;** co-I: Wadkins**)** National Institutes of Health R15 CA173667-01A1 "Deconvoluting G-quadruplex and i-Motif dynamics: the role of physiological stressors". $421,799

9/1/2011 – **Startup Funds**
University of Mississippi
School of Pharmacy
$125,000

Pending

American Cancer Society Brooks (PI)
Targeting the silencing kRAS promoter G-quadruplex: a new molecular target
$792,000

NCI R21CA201689-01 Brooks (PI)
Block copolymer based delivery of MYC G-quadruplex targeted clamps: a new lymphoma nano therapeutic
$383,676

Camille Dreyfus Scholar-Teacher Award Brooks (PI)
Noncanonical DNA formation and developmental regulation in zebrafish
$75,000

King's College, Pancreatic Cancer UK Rahmann (PI); Brooks (PI-subcontract)
Triaryl Benzofurans as chemical tools to study G4-mediated kRAS modulation in pancreatic cancer
$55,000

King's College, King's Health Partner Rahmann (PI); Brooks (PI-subcontract)
Triaryl Benzofurans as chemical tools to study G4-mediated kRAS modulation in pancreatic and lung cancer
$40,000

Previous

2010 – 2011 **Co-Investigator, PI: Laurence Hurley**
National Institutes of Health
"G-Quadruplex-Mediated Transcriptional Regulation of PDGF-β"
$3 million

2010 – 2011 **Principal Investigator**
National Institutes of Health
SPORE in Lymphoma, Scientific Development Award
"Developing PNA probes for G-quadruplex detection within the MYC promoter in vivo"
$50,000

2007 – 2010 **Co-Investigator, PI: Laurence Hurley**
Leukemia and Lymphoma Society Translational Award
"Novel molecular therapies for lymphoma targeting transcriptional regulation of c-Myc and Bcl-2"

2005 – 2007 **Principal Investigator**
Ruth L. Kirschstein NRSA Postdoctoral Award

"Chronic Inflammatory Pain's effect on the BBB"

2004 – 2005 **Postdoctoral Fellow**
Heart and Lung Training Grant

2000 – 2003 **Predoctoral Fellow**
Ruth L. Kirschstein Predoctoral Training Grant

Service

Local and Intramural Service, University of Mississippi

Service to the Department, School or College.

School of Pharmacy service:

2014 –	Pharmaceutics Faculty Search Committee
2014 – 2015	BioMolecular Sciences Faculty Search Committee
2014 –	Ad hoc Biomolecular Sciences Graduate Education Committee
2014	Scholastic Standards Committee Member
2013	NCNPR Translational Director Search Committee
2013 –	School of Pharmacy, PDAT advisor
2012 –	School of Pharmacy, Pre-Pharmacy advisor
2012	School of Pharmacy, PDAT Committee Member
2012 –	School of Pharmacy, Student Faculty Relations Committee, Secretary (2012-2014) and Chair (2014 –)
2012	Pharmacology Department Chair Search Committee

Service to the University.

2014 – 2015	Chemical Engineering Faculty Search Committee
Judge: 4/28/15:	GSC Annual Poster Symposium and Research Day
4/10/12:	2012 Mississippi EPSCoR Student Research Poster Competition
4/4/12:	GSC 2nd Annual Poster Symposium and Research Day

Service to External Constituencies of the University.

2012 –	Faculty Advisor, Ole Miss Relay for Life (Am. Cancer Society)
2015	Keynote Speaker, 1st annual MS PurpleLight Event, Pancreatic Cancer Action Network

Local and Intramural Service, University of Arizona

2009 – 2010	**Mentor**, Arizona Assurance Mentor
2009 – 2010	**Panelist**, Women in Science and Engineering
2005	**Judge**, Southern Arizona Regional Science and Engineering Fair

Extramural Service

2014	**Scientific Reviewer**, MRC SIR Grant Program

2013	**Scientific Reviewer**, AACP NIA Grant Program
2010, 2015	**Scientific Reviewer**, DoD BCRP Program
2004 –	**Journal Referee**, *Life Sciences, Journal of Pharmacology and Experimental Therapeutics, American Journal of Physiology, Brain Research, Journal of Cellular Physiology, Journal of Medicinal Chemistry, Biochemistry, Nature Communications, Journal of Natural Product, BMC Biochemistry, Chemistry and Biology, PLoS One, FEBS Letters*

Teaching

1. Formal Course Instruction

a. University of Mississippi (instructor grades out of 5)

i. PHCL 444, Spring 2012, 4 cr. lecture, Basic and Clinical Pharmacology II for PY2 Pharmacy Students, 15 lectures; overall grade of instructor: 4.9, enrollment = 54

ii. PHCL 443, Fall 2012, 4 cr. lecture, Basic and Clinical Pharmacology I for PY2 Pharmacy Students, 18 lectures; overall grade of instructor: NA, enrollment = 78

iii. PHCL 382, Fall 2012, 2 cr. lecture, Fundamentals of Cancer, elective for PY2 Pharmacy Students, 32 lectures (course director); overall grade of instructor: 4.9, enrollment = 14

iv. PHCL 444, Spring 2013, 4 cr. lecture, Basic and Clinical Pharmacology II for PY2 Pharmacy Students, 23 lectures (course director); overall grade of instructor: 4.4, enrollment = 74

v. PHCL 444r, Summer II 2012, 4 cr. lecture, Basic and Clinical Pharmacology II remediation for PY2 Pharmacy Students, 9 lectures (course director); Overall grade of instructor: 5, enrollment = 6

vi. PHCL 382, Fall 2013, 2 cr. lecture, Fundamentals of Cancer, elective for PY2 Pharmacy Students, 32 lectures (course director); overall grade of instructor: 4.9, enrollment = 37

vii. PHCL 444, Spring 2014, 4 cr. lecture, Basic and Clinical Pharmacology II for PY2 Pharmacy Students, 32 lectures (course director); overall grade of instructor: 4.9, enrollment = 107

viii. PHCL 564, Spring 2014, 4 cr. lecture, Introductory Pharmacology II for graduate students in the Pharmaceutical Sciences, 32 lectures (course director); overall grade of instructor: 4, enrollment = 7

ix. PHCL 643, Spring 2014, 1 cr. seminar, Seminar: Current Topics in Pharmacology and Toxicology for Pharmacology graduate students, 16 meetings (course director); overall grade of instructor: 3.6, enrollment = 12

x. PHCL 443, Fall 2014, 4 cr. lecture, Basic and Clinical Pharmacology I for PY2 Pharmacy Students, 38 lectures (course director); overall grade of instructor: 4.7, enrollment = 120

xi. PHCL 563, Fall 2014, 4 cr. lecture, Basic and Clinical Pharmacology I for PY2 Pharmacy Students, 38 lectures (course director); overall grade of instructor: NA, enrollment = 3

xii. PHCL 444, Spring 2015, 4 cr. lecture, Basic and Clinical Pharmacology II for PY2 Pharmacy Students, 35 lectures (course director); overall grade of instructor: ongoing, enrollment = 113

xiii. PHCL 541, Spring 2015, 3 cr. lecture, Fundamentals of Cancer for graduate students, elective for graduate students in the Pharmaceutical Sciences, 32 lectures (course director); overall grade of instructor: ongoing, enrollment = 7

b. University of Arizona
   i. PCOL 837b, 2008 – 2010, Medicinal Chemistry for P2 Pharmacy students. Taught lectures in Neuroregulation, Gonadal Hormones, and Targeted Cancer Therapeutics
   ii. PCOL 820 and 821, 2008 – 2010, Case Studies in Pharmacology, Facilitator
   iii. PhPr822, 2009 – 2010, Case discussions in Pharmacology and Pharmaceutical Chemistry, Facilitator

c. Pima Community College (all as course instructor)
   i. BIO 181IN, 2005, General Biology I for undergraduate science majors
   ii. BIO 201IN, 2007 – 2011, Anatomy and Physiology I for nursing majors; taught in entirely didactic and in hydrid online formats
   iii. BIO 202IN, 2010 – 2011, Anatomy and Physiology I for nursing majors; taught in entirely didactic and in hydrid online formats
   iv. BIO 160IN, 2011, Anatomy and Physiology for non-majors

d. Cochise College (all as course instructor)
   i. CHM130IN, 2005, Fundamental Chemistry for undergraduate science majors
   ii. BIO101, 2006 – 2011, Introductory Biology for non-Majors, online-format

2. Course Development

a. PHCL 382, Fundamentals of Cancer for pre-pharmacy and graduate students, University of Mississippi, School of Pharmacy, 2011 –
b. PHCL 643, Seminar: Topics in Pharmacology and Toxicology. Fall 2013 - Spring 2014 was revised to provide student development with public speaking, including impromptu speeches, consideration of "um's", and idiosyncrasies for individual students

3. Efforts to Improve Teaching

a. University of Mississippi
   i. "Simple Steps Towards Transformative Teaching", 2013
   ii. "Record Lectures at Your Desk", 2013
   iii. "Make your PowerPoint Sizzle, not Fizzle", 2013
   iv. "Evidenced Based Strategies to Promote Student Learning and Academic Success", 2015
b. American Association for Colleges of Pharmacy
   i. Teaching Institute, 2013
c. CAE/CATS
   i. Tier 1 Teaching Excellence Workshop, 2012

4. Awards and Recognition for Teaching

a. Mentor, Arizona Assurance Program, 2009 – 2010
b. Mentor, University of Arizona NASA Space Grant Consortium, 2010 – 2011
c. Mentor, University of Mississippi McNair Program for underrepresented minority students, 2012 – 2013
d. Teacher of the Year, University of Mississippi, School of Pharmacy, PY2, 2012 – 2013
e. Teacher of the Year, University of Mississippi, School of Pharmacy, PY2, 2014 – 2015
f. Friend of the Student, University of Mississippi, School of Pharmacy Student Body

5. Service for Teaching and Learning

a. Member, PDAT organization committee, University of Mississippi, School of Pharmacy, 2012
b. Advisor, Pre-Pharmacy program, University of Mississippi, School of Pharmacy, 2012 –

c. Advisor, PDAT professional student program, University of Mississippi, School of Pharmacy, 2012 –
d. Secretary (2012 – 2014) and Chair (2014 –), Student Faculty Relations Committee, University of Mississippi, School of Pharmacy 2012 –
e. Member, Scholastic Standards Committee, University of Mississippi, School of Pharmacy 2014
f. Member, Honors and Awards Committee, University of Mississippi, School of Pharmacy 2014 –
g. Member, BioMolecular Sciences Graduate Education Realignment Committee, University of Mississippi, School of Pharmacy, Department of BioMolecular Sciences, 2014 –

6. Advising and Mentoring

a. Graduate Research Supervision

Year	Name	Program of Study
2008 – 2010	Jessica Fortin	Co-Advisor, Drug Discovery and Development
2009	Xi Chen	Laboratory Rotation, Drug Discovery and Development
2009 – 2011	Robert Brown	Laboratory Rotation and thesis work, Drug Discovery and Development
2010	Angela Davis	Laboratory Rotation, Drug Discovery and Development
2010	Cory Burgess	Laboratory Rotation, Drug Discovery and Development
2010 – 2011	Christine Kaiser	Laboratory Rotation and thesis work, Drug Discovery and Development
2010 – 2011	Caleb Sutherland	Laboratory Rotation and thesis work, Cancer Biology
2012	Heather Lewis	Laboratory Rotation, PharmD student
2012 – 2013	Jennifer (Chi-Fan) Hockings, Ph.D.	Laboratory Rotation and Pathways Project Co-advisor, PharmD student
2012 – 2013	Joseph Lee	Laboratory Rotation and Pathways Project Supervisor, PharmD student
2012 –	Tierra Gaillard	Laboratory Rotation and Pathways Project Supervisor, PharmD student
2013 –	Keshia Dykes	Thesis rotation, Chemistry and Biochemistry, M.S.
2013 –	Rhianna Morgan	Thesis advisor, Pharmacology, Ph.D.
2014 –	Kandis Backus	Thesis advisor, Pharmacology, Ph.D.
2014 –	Harshul Batra	Thesis advisor, Pharmacology, Ph.D.
2014 –	Taisen Hao	Thesis advisor, Pharmacology, Ph.D.
2014	Maria Laura Greco	Ph.D. Candidate Intern from Italy, 3 months summer 2014

b. Undergraduate Student Research Supervision

Year	Name	Program of Study	Outcome
2004	Caroline Quigley	Undergraduate Independent Research	Graduated with B.S., Completed M.D.
2004 – 2006	Rachel Charles	Undergraduate Independent Research	Graduated with B.S., currently in medical school at UA
2004 – 2006	Nikki Nametz	Undergraduate Independent Research	Graduated with B.S., Completed M.D.
2007 –	Ravi Goyal	Undergraduate Independent	Graduated with B.S.

2008		Research Thesis project – Biochemistry and Molecular Biophysics (BMB)	
2008 – 2009	Vanessa Gaerig	Undergraduate Independent Research Thesis project – BMB	Graduated with B.S. Completed Pharm.D. at UA
2008 – 2009	Misha Pangasa	Undergraduate Biology Research Program	Graduated with B.S., Completed M.D.
2008 – 2009	Matthew Karolak	Undergraduate Independent Research – Molecular and Cellular Biology (MCB)	Graduated with B.S., obtaining Ph.D. at Vanderbilt University
2008 – 2010	Jessica Kashian	Undergraduate Independent Research Thesis project – BMB	Graduated with B.S. Works as industry technician in CA
2008 – 2009	Jessica Shelton	Undergraduate Independent Research - Physiology	Graduated with B.S.
2009 – 2011	Forest Danford	Undergraduate Independent Research – Biomedical Engineering, NASA Space Grant Consortium Fellow	Graduated with B.S.
2009	Claudia Meece	Summer Minority Health Disparities Program	Completed Pharm.D. at UA
2009 – 2010	Ravi Ram	Undergraduate Independent Research - Physiology	Graduated with dual B.S.
2009 – 2011	Alexa Williamson	Undergraduate Independent Research - MCB	Completed B.S.
2010 – 2011	Edward Bastidas	Undergraduate Independent Research - MCB	Completed B.S. and R.N.
2010	Kaity Kepler	CapStone Project, Vail School District, AZ	Current University of Arizona Student
2010	Megan Wittenberg	KEYS program, University of Arizona	Graduated with B.S. from ASU
2012	Taesha Simmons	McNair Fellow, University of Mississippi	Completed B.S. in Biology at Rust College
2012 –	Kristen Greer	Undergraduate Independent Research – Pre-Pharmacy	Graduated with BSPS, Current PY2 in UM Pharm.D. program
2012 –	Rachel Jenkins	Undergraduate Independent Research – Pre-Pharmacy	Graduated with BSPS, advanding PY2 in UM Pharm.D. program
2013	Ashley King	McNair Fellow, University of Mississippi	Completed B.S. in Biology at Tougaloo College
2013 –	Neal Ainsworth	Undergraduate Independent Research – Pre-Pharmacy	Graduated with BSPS, Current PY2 in UM Pharm.D. program
2013 – 2014	Robert Ricks	Undergraduate Independent Research – Pre-Pharmacy	Graduated with BSPS, Current PY2 in UM Pharm.D. program
2014	Kelly Powell	Undergraduate Independent	Honors student, graduated with

		Research	B.S., pursuing Dental School at UMMC
2014	Quinea Lassiter	Undergraduate Independent Research – Summer 2014	Completed B.S. at UA
2014 –	Melissa Holy	Undergraduate Independent Research – Pre-Pharmacy	Early Entry Pharmacy/Honors student
2014 –	Abraham Kim	Undergraduate Independent Research – Pre-Pharmacy	Early Entry Pharmacy/Honors student
2014 –	Kelsey Raymer	Undergraduate Independent Research – Pre-Pharmacy	Early Entry Pharmacy

c. *Graduate Student Committee Service:*
   i. Krishna Nagalla, Ph.D. Pharmaceutical Sciences – Pharmacology, completed 2013
   ii. Pranapda Aumsuwan, Ph.D. Pharmaceutical Sciences – Pharmacology, completed 2014
   iii. Eric Bow, Ph.D. Pharmaceutical Sciences – Medicinal Chemistry, expected 2016
   iv. Annie McClellan, M.S. Chemical Engineering, expected 2016

Teaching philosophy available upon request

Publications

Peer-Reviewed Articles

1. Reilly, SM; Morgan, RK; **Brooks, TA**; Wadkins, RM. "Effect of Loop Length on the Thermal Stability and pK_a of i-Motif DNA", *Biochemistry*, 2015 Feb 17; 54(6): 1364-1370.
2. Bhavsar-Jog, Y; Dornshuld, E; **Brooks, TA**; Tschumper, G; Wadkins, RM. "Epigenetic modification, dehydration, and molecular crowding effects on the thermodynamics of i-motif structure formation from C-rich DNA". *Biochemistry*, 2014 Feb 24; 53(10): 1586-1594.
3. Brown, RV; Gaerig, VC; Simmons, T; and **Brooks, TA**. "Helping Eve Overcome ADAM: G-quadruplexes in the ADAM-15 Promoter as New Molecular Targets for Breast Cancer Therapeutics". *Molecules*, 2013 Dec 5; 18(12):15019-34.
4. Boddupally PV, Hahn S, Beman C, De B, **Brooks TA**, Gokhale V, Hurley LH. "Anticancer Activity and Cellular Repression of c-MYC by the G-Quadruplex-Stabilizing 11-Piperazinylquindline Is Not Dependent on Direct Targeting of the G-Quadruplex in the c-MYC Promoter". *JMC*. 2012, July 12; 55(13): 6076-86.
5. Brown, RV; Danford, FL; Gokhale, V; Hurley, LH; and **Brooks, TA**. "Demonstration that Drug-Targeted Downregulation of MYC in Non-Hodgkins Lymphoma is directly mediated through the promoter G-quadruplex". *JBC*, 2011 Nov 25; 286(47):41018-27.
6. **Brooks TA;** Hurley LH. Targeting MYC expression through G-quadruplexes. *Genes and Cancer*. Invited Review, 2010 June; 1(6):641-649.
7. **Brooks TA;** Kendrick SL; Hurley LH. Making sense of G-quadruplex and i-motif functions in oncogene promoters. *FEBS Journal*. 2010, September; 277(17): 3459-3469. **Chosen for cover art.**

8. **Brooks TA**; Hurley LH. The role of supercoiling in transcriptional control of c-myc and its importance in molecular therapeutics. *Nature Reviews Cancer*. 2009 Dec; 9(12):849-61.

9. Qin Y; Tye D, Gleason-Guzman M; Fortin JS; **Brooks TA**; Hurley LH. Molecular cloning of the human PDGFR-β promoter and drug targeting of the G-quadruplex-forming region to repress PDGFR-β expression. *Biochemistry*. 2010 May; 49(19):4208-4219.

10. Stasik CJ, Nitta H, Zhang W, Mosher CH, Cook JR, Tubbs RR, Unger JM, **Brooks TA**, Persky DO, Wilkinson ST, Grogan TM, Rimsza LM. Increased MYC gene copy number correlates with increased mRNA levels in diffuse large B-cell lymphoma. *Haematologica*. 2010 Apr; 95(4):597-603.

11. McCaffrey G, Seelbach MJ, Staatz WD, Nametz N, Quigley C, Campos CR, **Brooks TA**, Davis TP. Occludin oligomeric assembly at tight junctions of the blood-brain barrier is disrupted by peripheral inflammatory hyperalgesia. *J Neurochem*. 2008 Sep; 106(6):2395-409.

12. Willis, CL; **Brooks, TA**; Davis, TP. Chronic inflammatory pain and the neurovascular unit: a central role for glia in maintaining BBB integrity? *Curr Pharm Des.* 2008; 14(16): 1625-43. Author erratum, 2010. **Chosen for cover art.**

13. **Brooks, TA**; Nametz, N; Charles, RA; Seelbach, MJ; Campos, CR; Davis, TP. Diclofenac attenuates the regional effect of λ-carrageenan on BBB function and cytoarchitecture. *JPET,* 2008 May;325(2):655-73.

14. McCaffrey G, Staatz WD, Quigley CA, Nametz N, Seelbach MJ, Campos CR, **Brooks TA**, Egleton RD, Davis TP. Tight junctions contain oligomeric protein assembly critical for maintaining blood-brain barrier integrity in vivo. *J. Neurochemistry*, 2007 Oct; 103(6) 2540-2555.

15. Seelbach, MJ; **Brooks, TA**; Egleton, RD; Davis, TP. Peripheral inflammatory hyperalgesia modulates morphine delivery to the brain: a role for P-glycoprotein. *J. Neurochemistry,* 2007 Sept; 102(5): 1677-1690.

16. **Brooks, TA;** O'Loughlin, KL; Minderman, H; Bundy, BN; Ford, LA; Priebe, W; Bernacki, RJ; Baer, MR. The 4'-O-Benzylated Doxorubicin Analog WP744 Overcomes Resistance Mediated by P-Glycoprotein, Multidrug Resistance Protein and Breast Cancer Resistance Protein in Cell Lines and Acute Myeloid Leukemia Cells. *Invest New Drugs*, 2007 Apr;25(2):115-22.

17. **Brooks, TA**; Ocheltree, SM; Seelbach, MJ; Charles, RA; Nametz, N; Egleton, RD; Davis, TP. Biphasic cytoarchitecture and functional changes in the BBB induced by chronic inflammatory pain. *Brain Research*, 2006 Nov; 1120(1):172-82.

18. **Brooks, TA;** Hawkins, BT; Huber, JD; Egleton, RD; Davis, TP. Chronic Inflammatory Pain Leads to upregulation of Claudin-3 and Claudin-5 at the Blood-Brain Barrier. Chronic inflammatory pain leads to increased blood-brain barrier permeability with tight junction protein alterations. *American Journal of Physiology-Heart and Circulatory Physiology,* 2005 Aug; 289(2):H738-43.

19. Ojima, I; Borella, CP; Wu, X; Bounaud, PY; Oderda, CF; Sturm, M; Miller, ML; Chakravarty, S; Chen, J; Huang, O; Pera, P; **Brooks, TA**; Baer, MR; Bernacki, RJ. Design, synthesis and structure activity relationships of novel taxane-based multidrug resistance reversal agents. *J Med Chem*. 2005 Mar 24; 48(6):2218-28.

20. **Brooks, TA**; Kennedy, D; Ojima, I; Baer, MR; Bernacki, RJ 2002. Structure-Activity Analysis of taxane-based Multidrug Resistance Modulators. *Anticancer Research, 24(2A):409-15, 2004.*

21. Minderman, H; **Brooks, TA**; O'Loughlin, K; Ojima, I; Bernacki, RJ; Baer, MR. Modulation of ATP Binding- Cassette Binding Proteins by the Taxane Derivatives BAY 59-8862 and tRA96023. *Cancer Chemotherapy and Pharmacology 53(5): 363-369, 2004.*

22. **Brooks, TA**; Minderman, H; O'Loughlin, K; Ojima, I; Baer, MR; Bernacki, RJ. Taxane-based Reversal Agent Modulation of Drug Transport Mediated by P-glycoprotein, Multidrug Resistance Protein-1, and Breast Cancer Resistance Protein. *Molecular Cancer Therapeutics 2: 1195-1205, 2003.*

Patents and Book Chapters

1. **Provisional Patent** (12.5% royalty rights), US 09-374, "G-quadruplex binding ligands and methods for their use". 2009.

2. **Brooks, TA.** Modification of chemotherapeutic drugs to obtain potential MDR modulating agents. *Multi-drug resistance: biological and pharmaceutical advance in antitumour treatment. Research Signpost,* Ed. Nicola Colabufo, 2009.

Manuscripts Submitted and in Preparation

1. Morgan, RK; Hockings, J; Gaerig, VC; Greer, KM; Kothalawala, N; Dass, A; **Brooks, TA**. "New transcriptionally silencing G-quadruplex formations within the kRAS promoter" 2014, Submited to *BBA-Gene Regulatory Mechanisms*. In revision

2. Garcia-Huidobro, J; Dominguez, C; **Brooks, TA**; Gerner, EW. "Functional Consequence of Genetic Variability in a G-Quadruplex Structure in the Ornithine DeCarboxylase (ODC1) Gene". 2014, Submitted to *NAR*. In revision.

3. Hao, T; Gaerig, VC; **Brooks, TA**. "Nucleic Acid clamps engineered to detect and stabilize the MYC G-quadruplex: a new therapeutic approach". 2015, for submission to *Nucleic Acids Research*.

4. Brown, RV; Gaerig, VC; **Brooks, TA**. "Characterizing the formation and biological role of G-quadruplexes formed within the VEGFR2/KDR core promoter". 2015, for submission to *BBA-GRM*.

5. Brown, RV; Danford, FL; Rimsza, LM; Hurley, LH; **Brooks, TA**. "Optimizing molecular targeted therapies for Mantle Cell Lymphoma: targeting the c-MYC promoter." 2015, for submission to *Blood*.

Invited National and International Talks

1. **SERMACS, 2013.** "Identification of new, biologically relevant, G-quadruplexes formed within the critical promoter of kRAS as promising molecular targets"

2. **ACS Pacifichem, 2010**. "Transcriptional downregulation of c-Myc via G-quadruplex stabilization as novel therapy for non-Hodgkin lymphoma"

3. **Barriers of the CNS Gordon Conference, 2006**.

4. **Neuroscience, 2005.** "Chronic inflammatory pain alters BBB cytoarchitecture leading to disruption of paracellular permeability"
5. **Multidrug Resistance, Biotechnology and Cancer Symposium, Dublin, Ireland**, **2003** "Overcoming Multidrug Resistance with Non-cytotoxic Taxanes"
6. **Pharmacodynamics: From the Molecular to the Mathematical", 2002** "Non-cytotoxic taxanes which overcome multiple mechanisms of multidrug resistance: Pgp, MRP-1 and BCRP"
7. **Pharmacological Sciences Day, University of Buffalo, 2002** "Modulatory Ability of Taxane based Reversal Agents (tRA's) against P-glycoprotein (Pgp)-, Multidrug Resistance Protein (MRP-1)-, and Breast Cancer Resistance Protein (BCRP)- mediated Mitoxantrone transport"

Conference Presentations (truncated at most recent 20)

1. Morgan, R; Rahman, KM; **Brooks, TA**. Structure Elucidation of G-Quadruplex within the mid-region of the kRAS Promoter and Identification of Stabilizing Small Molecules as Promising Transcriptional Silencers. Proceedings of the American Association of Cancer Research (AACR), April 2015. Abstract 1245.
2. Batra, H; **Brooks, TA**. The Effect of the transcription factor MAZ on kRAS transcription: a role for the G-quadruplex. Proceedings of the American Association of Cancer Research (AACR), April 2015. Abstract 2137.
3. Hao, T; **Brooks, TA**. Modulating nRAS mRNA translation by nucleic acid clamp-mediated stabilization of the 5'-UTR G-quadruplex. Proceedings of the American Association of Cancer Research (AACR), April 2015. Abstract 2110.
4. Morgan, R; Summerford, B; Bhavsar-Jog Y; Wadkins, RM; **Brooks, TA**. Effects of 5-hydroxymethylcytosine epigenetic modification on G-quadruplex and i-Motif structure and stability within the VEGF promoter. Proceedings of the American Association of Cancer Research (AACR), April 2015. Abstract 6641.
5. Morgan, R*; Rahman, KM; **Brooks, TA**. Structure elucidation of G-quadruplex within the mid-region of the kRAS promoter and identification of stabilizing small molecules as promising transcriptional silencers. Mississippi Academy of Sciences Annual Meeting, Hattiesburg, MS. February 2015. *1st place poster winner*
6. Morgan, R; **Brooks, TA**. G-Quadruplex Formation in kRAS Mid Promoter Region: A Potential Therapeutic Target for Pancreatic Cancer. ACS Drug Discovery and Development Colloqium, Little Rock, AR. June 2014.
7. Hao, T; **Brooks, TA**. Developing Linked Nucleic Acid Probes as Novel Non-Small Molecule Cancer Therapeutics by Targeting G-Quadruplex in the Promoter Region of c-MYC Proto-Oncogene. ACS Drug Discovery and Development Colloqium, Little Rock, AR. June 2014.
8. Batra, H; **Brooks, TA**. The Effect of the Transcription Factor MAZ on kRAS Expression: A Role in Pancreatic Cancer. ACS Drug Discovery and Development Colloqium, Little Rock, AR. June 2014.
9. Backus, K; **Brooks, TA**. A Novel Role for p53 in kRAS Binding in Pancreatic Cells. ACS Drug Discovery and Development Colloqium, Little Rock, AR. June, 2014.

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