

## **CURRICULUM VITAE**

**Name:** RICHARD A. BOND

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### **Education:**

Post-doctoral fellow with Paul M. Vanhoutte, M.D., Ph.D., Director, Center for Experimental Therapeutics, Baylor College of Medicine, Houston, Texas, 1989-1992.

Ph.D. (Pharmacology), Advisor, David E. Clarke, Ph.D., University of Houston, Houston, Texas, 1983-1988.

B.S. (Pharmacy), University of Houston, Houston, Texas, 1978-1983.

B.A. (Science), St. Thomas of Villanova, Miami, Florida; 1972-1976.

### **Professional Experience:**

Professor of Pharmacology, Department of Pharmacological and Pharmaceutical Sciences, University of Houston, Houston, Texas, 2008-current

Associate Professor of Pharmacology, Department of Pharmacological and Pharmaceutical Sciences, University of Houston, Houston, Texas, 2001-2008.

Joint Faculty Appointment in the Department of Biology and Biochemistry, University of Houston, Houston, Texas, 2000-current.

Assistant Professor of Pharmacology, Department of Pharmacological and Pharmaceutical Sciences, University of Houston, Houston, Texas, 1995-2001.

Visiting Assistant Professor, Department of Pharmacological and Pharmaceutical Sciences, University of Houston, Houston, Texas, 1992-1995.

Registered Pharmacist, Doctor's Hospital, Houston, Texas, 1984-1992.

Research Assistant, University of Houston, Department of Pharmacology, Houston, Texas, 1984-1985.

Teaching Assistant, University of Houston, Department of Pharmacology, Houston, Texas 1983-1984.

### **Honors and Awards:**

2019 – Included on a list of the top 2% most cited scientists.

<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000384>

<https://www.egr.uh.edu/news/202011/papers-cullen-college-engineering-professors-make-grade-analysis-finds>

2019 – Faculty Excellence in Service Award for the College of Pharmacy, University of Houston.

2018 – University of Houston Provost Teaching Excellence Award for Group Teaching in Cardiovascular and Renal Pharmacology Graduate Course.

2018 - McMaster University Honours Biology & Pharmacology Program “11th Annual Biology & Pharmacology Lectureship” (first repeat invitation; see list of previous invitees at: <https://www.science.mcmaster.ca/biopharm/lectureship-posters.html> )

2017 – Appointed Honorary Fellow of the British Pharmacological Society (the Society's highest honor)

2016 – Appointed Fellow of the British Pharmacological Society (FBPhS)

2015 – University of Houston Provost's 'Certificate of Excellence' awarded for 'Extraordinary Achievements' by the Provost

2011 - Medical Futures Innovation Commendation Award. London, UK.

2010 - McMaster University Honours Biology & Pharmacology Program “3rd Annual Biology & Pharmacology Lectureship” (first 2 recipients were William A. Katterall and Michel Bouvier).

2003 – 2009 – Fellow of the American Asthma Foundation.

2000 - Faculty Excellence Award from Univ. of Houston, College of Pharmacy.

1999 - Established Investigator's Award from the American Heart Association.

1997 - Named one of the 100 Most Influential Hispanics by Hispanic Business magazine.

1997 - One of University of Houston, College of Pharmacy, 50 Outstanding Alumni celebrating the College's 50th Anniversary.

1996 - Faculty Excellence Award from Univ. of Houston, College of Pharmacy.

1995 - Teaching Award from Council of Campus Leaders, Univ. of Houston.

*Articles written by others about our research:*

R.A. Bond listed as a 'Major figures' in commissioned review about the history of pharmacology: Winqvist, R.J., Mullane, K. and Williams, M.: The Rise and Fall of Pharmacology – (Re-) defining the Discipline? *Biochem Pharmacol.* 87: 4 – 24, 2014.

Lipworth, B.J. and Williamson, P.A.: Think the impossible: beta-blockers for treating asthma. *Clinical Science*, **118**: 115–120, 2010.

Ray, L.B.: Inverse Agonist to the Rescue. *Sci. Signal.* (formerly *Science STKE*) **2**: ec76, 2009.

Penn, R.B.: Agonizing over agonism: Should asthmatics turn their  $\beta$ -receptors on or off? *Proc. Nat. Acad. Sci.* **106**: 2095-2096. 2009.

Lipworth, B.J. and Williamson, P.A.:  $\beta$ -blockers for asthma: a double-edged sword? *The Lancet* **3**: 104-105, 2009.

Chupp, G.L: Say what, beta-blockers for asthma? *Am J Respir Cell Mol Biol.* 38: 249-250, 2008.

Abbott, A.: Beta-blocker goes on trial as asthma therapy. *Nature.* **432**: 7, 2004.

Ellis, C.: Timing is everything. *Nature Reviews – Drug Discovery.* **3**: 387, 2004.

Martindale, D.: What doesn't kill you. *New Scientist.* p. 38-41 Oct. 25, 2003.

Black J.W. and Shankley N.P.: Drug receptors. Inverse agonists exposed. *Nature.* **374**: 214-5, 1995.

## **Funding:**

### **Current:**

Co-PI 1R01AI161296-01 April 15, 2021 to April 14, 2026 (NIH-NIAID).

'Novel Biased Beta2-AR Ligands as Asthma Therapeutics'

Total direct costs: ~\$2,320,000; Total Costs: \$3,160,000; Sub award direct costs: ~\$480,000; Sub award total costs: ~\$725,000.

### **Previous:**

Co-PI R01-AI110007 June 18, 2014 to June 17, 2019 (NIH-NIAID). 'Optimizing beta<sub>2</sub>-adrenoceptor signaling in asthma'. Total direct costs: ~\$2,170,000; Total Costs:\$3,070,000; Sub award direct costs: ~\$750,000; Sub award total costs: ~\$1,030,000.

No Cost Extension through 31 May 2020.

PI of Supplemental Award September 15, 2013 to August 31, 2014. 'Mechanisms of beta-blocker induced improvements in asthma'. Direct Costs: ~\$40,000; Total Costs: ~\$59,600.

Corresponding PI of multi-PI award: NIH-NIAID, April 15, 2012 – March 31, 2013. One year of bridge funding for resubmission of a competing renewal of 'Mechanisms of beta-blocker induced improvements in asthma'. No cost extension through September 30, 2013.

PI: NIH-NIAID, October 1, 2009 – September 30, 2011. Mechanisms of beta-blocker induced improvements in asthma. Direct Costs: ~\$560,000; Total Costs ~\$750,000.

PI: NIH-NIAID, ARRA Admin Supplement Award, June 28, 2010 – May 28, 2011. Mechanisms of beta-blocker induced improvements in asthma. Direct Costs: \$215,000; Total Costs \$353,000.

PI: Strategic Program for Asthma Research of the American Asthma Foundation, September 1, 2008 – Aug. 30, 2009. To finish experiments with  $\beta_2$ -AR null mice and for pilot study to feasibility of adoptive transfer experiments using beta<sub>2</sub>-adrenoceptor null and wild type mice. Direct Costs: \$50,000.

PI: Sandler Program for Asthma Research (now Strategic Program for Asthma Research of the American Asthma Foundation), Oct. 1, 2006 – Sept. 30, 2008. Pilot study to diminish the adverse acute effect of  $\beta$ -adrenoceptor inverse agonist treatment in asthma. Direct Costs: \$236,954. Total Costs: \$250,000.

PI: Sandler Program for Asthma Research (Strategic Program for Asthma Research of the American Asthma Foundation), July 1, 2003 – June 30, 2006. Effects of chronic  $\beta$ -adrenoceptor inverse agonist treatment on asthma models. Direct Costs: \$337,500. Total Costs: \$375,000.

PI: Established Investigator's Award from the American Heart Association, January 1, 2000 - December 31, 2003. Are beta-adrenoceptor inverse agonists better than neutral antagonists in treating heart failure? Direct Costs: \$272,727. Total costs: \$300,000.

PI: FIRST Award (R29) from NIH September 30, 1997 - September 29, 2002. Revising receptor theory for G protein-coupled receptors. Direct Costs: \$350,000. Total costs: \$508,205.

PI: GlaxoWellcome Grant, 1 October 1999 - 30 September 2002. Are there therapeutic differences between treatment with antagonists and inverse agonists? Direct Costs: \$195,435. Total costs: \$288,866.

PI: American Heart Association (Texas Affilliate) July 1, 1996 - June 30, 1998. A proposed modification of receptor theory based upon demonstration of the constitutive activity of unliganded receptors. Direct Costs: \$76,364. Total costs \$84,000.

Co-author of a grant from the University of Houston to encourage interdisciplinary projects. Title: Basic Research and Academic Initiatives in Neuroscience (BRAIN). \$60,000 for 9-1-96 to 8-31-97.

Minor user (author): NSF, 1997. Acquisition of a Biosensor. \$225,810.

Co-PI: INSERM Fellowship for up to 6 months at INSERM, Toulouse, France, July 1-Dec. 31, 1996. \$19,155.

PI: American Heart Association (Texas Affilliate) July 1, 1994 - June 30, 1996. An evaluation of negative efficacy using transgenic mice as models. Direct Costs: \$76,364. Total costs \$84,000.

**Editorial Boards:**

**Current:**

*Naunyn-Schmiedeberg's Archives of Pharmacology*

*Journal of Receptors and Signal Transduction*

**Previous:**

Senior Editor *British Journal of Pharmacology*

Editor *British Journal of Pharmacology*

**Patents Issued (listed as inventor):**

2011 – Methods of treating airway disease with beta-adrenergic inverse agonists.  
US Patent Number: 7528175.

2017 – Steroid-sparing effects of beta-adrenergic inverse agonists and uses thereof.  
US Patent Number: 9730889

2018 – Use of beta-adrenergic inverse agonists for smoking cessation.  
US Patent Number: 9993444

**Memberships:**

American Association for the Advancement of Science  
American Society for Pharmacology and Experimental Therapeutics  
British Pharmacological Society  
New York Academy of Sciences  
American Association of Colleges of Pharmacy

**Reviewed grant proposals for:**

AHA (Western Consortium) 1999-2003.  
NIH, Emerging Technologies and Training in Neurosciences IRG, Fellowship Study  
Section, 2007 – 2009.  
NIH, Lung, Cellular, Molecular, Immunology Study Section, in person Ad-hoc  
reviewer Oct. 2010, February 2012.  
2011 NIH LCMI – Special Emphasis Panel, ZRG1 CVRS-F (90)  
2012 NIH K23/24/25 Study Section (February Meeting)  
2017, 2018 NIH LCMI – Special Emphasis Panel

**Publications: About 100 total publications; \*20 with >100 citations; Total ~8,400 citations; h-index = 40; G-index = 13; i10-index = 67**

<https://scholar.google.com/citations?user=b4HQ4H8AAAAJ&hl=en>

#### **Peer Reviewed Articles:**

1. **Bond R.A.** Charlton, K.G., and Clarke, D.E.: Responses to norepinephrine resistant to inhibition by alpha and beta adrenoceptor antagonist. *J. Pharmacol. Exp. Ther.*, 236: 408-415, 1986. PMID: 2868118
2. Charlton, K.G., **Bond R.A.**, and Clarke, D.E.: An inhibitory prejunctional 5-HT<sub>1</sub>-like receptor in the isolated perfused rat kidney: Apparent distinction from the 5-HT<sub>1A</sub>, 5-HT<sub>1B</sub> and 5-HT<sub>1C</sub> subtypes. *Naunyn-Schmiedeberg's Arch. Pharmacol.*, 332: 8-15, 1986. PMID: 3951568
3. **Bond R.A.**, Charlton, K.G., and Clarke, D.E.: Evidence for a receptor mediated action of norepinephrine distinct from alpha- and beta-adrenoceptors. *Naunyn-Schmiedeberg's Arch. Pharmacol.*, 334: 261-266, 1986. PMID: 2880303
4. **Bond R.A.** and Clarke, D.E.: A response to isoprenaline unrelated to alpha- and beta-adrenoceptor agonism. *Br. J. Pharmacol.*, 91: 683-686, 1987. PMID: 2886175
5. \***Bond R.A.** and Clarke, D.E.: Agonist and antagonist characterization of a putative adrenoceptor distinct from the alpha- and beta-subtypes. *Br. J. Pharmacol.*, 95: 723-734, 1988. PMID: 2905184
6. **Bond R.A.**, Ornstein, A.G., and Clarke, D.E.: Unsurmountable antagonism to 5-hydroxytryptamine in rat kidney results from pseudoirreversible inhibition rather than multiple receptors or allosteric receptor modulation. *J. Pharmacol. & Exp. Ther.*, 249: 401-410, 1989. PMID: 2724131
7. **Bond R.A.**, Craig, D.A., Charlton, K.G., Ornstein, A.G., and Clarke, D.E.: Partial agonistic activity of GR 43175 at the inhibitory prejunctional 5-HT<sub>1</sub>-like receptor in rat kidney. *J. Auton. Pharmacol.*, 9: 201-210, 1989. PMID: 2545718
8. Blue, D.R., **Bond R.A.**, Adham, N., Delmendo, R., Michel, A.D., Eglen, R.M., Whiting, R.L., and Clarke, D.E.: Antagonist characterization of 'atypical' beta-adrenoceptors in guinea-pig ileum; Blockade by alprenolol and dihydroalprenolol. *J. Pharmacol. & Exp. Ther.*, 252: 1034-1042, 1990. PMID: 1969469
9. \*Gao, Y., Nagao, T., **Bond R.A.**, Janssens, W.J., and Vanhoutte, P.M.: Nebivolol induces endothelium-dependent relaxations of canine coronary arteries. *J. Cardiovasc. Pharmacol.*, 17: 964-969, 1991. PMID: 1714022

10. **Bond R.A.** and Vanhoutte, P.M.: Interaction of tertatolol at the "atypical" or beta<sub>3</sub>-adrenoceptor in guinea pig ileum. *Gen. Pharmac.*, 23: 171-176, 1992. PMID: 1353468
11. Boulanger, C.M., Hughes, H., **Bond R.A.**, Rafla, E., and Vanhoutte, P.M.: Effects of S9977 on adrenergic neurotransmission. *Gen. Pharmac.*, 24: 429-434, 1993. PMID: 8387054
12. Schini, V.B., **Bond R.A.**, Gao, Y., Illiano, S., Junquero, D.C., Mombouli, J.V., Nagao, T., Smart, F. and Vanhoutte, P.M.: The sydnonimine C87-3754 evokes endothelium-independent relaxations and prevents endothelium-dependent contractions in blood vessels of the dog. *J. Cardiovasc. Pharmacol.*, 22: S10-16, 1993.
13. \*Milano, C.A., Allen, L.F., Dolber, P., Rockman, H., Chien, K.R., Johnson, T.D., **Bond R.A.**, Lefkowitz, R.J.: Enhanced myocardial function in transgenic mice with cardiac overexpression of the human  $\beta_2$ -adrenergic receptor. *Science*, 264: 582-586, 1994. PMID: 8160017
14. \*Milano, C.A., Dolber, P.C., **Bond R.A.**, Venable, M., Allen, L.F. and Lefkowitz, R.J.: Myocardial expression of a constitutively active alpha<sub>1B</sub>-adrenergic receptors in transgenic mice induces cardiac hypertrophy. *Proc. Nat. Acad. Sci. (USA)*, 91: 10109-10113, 1994. PMID: 7937846
15. Milano, C.A., Allen, L.F., Dolber, P., Johnson, T.D., Rockman, H., **Bond R.A.**, Lefkowitz, R.J.: Marked enhancement in myocardial function resulting from overexpression of a human beta-adrenergic receptor gene. *J. Thoracic and Cardiovasc. Surg.*, 109: 236-241, 1995. PMID: 7853876
16. \*Milligan, G., **Bond R.A.**, and Lee, M.: Inverse agonism: Pharmacological curiosity or potential therapeutic strategy? *Trends Pharmacol Sci.*, 16: 10-13, 1995. PMID: 7732597
17. \***Bond R.A.**, Johnson, T.D., Milano, C.A., Leff, P., Rockman, H.A., McMinn, T., Apparsundaram, S., Hyek, M.F., Kenakin, T.P., Allen, L.F. and Lefkowitz, R.J.: Physiologic effects of inverse agonists in transgenic mice with myocardial overexpression of the beta<sub>2</sub>-adrenoceptor. *Nature*, 374:272-276, 1995. PMID: 7885448
18. \*Koch, W.J., Rockman, H.R., Samama, P., **Bond R.A.**, Milano, C.A. and Lefkowitz, R.J.: Cardiac function in mice overexpressing the  $\beta$ -adrenergic receptor kinase or a  $\beta$ ARK inhibitor. *Science*, 268: 1350-1353, 1995. PMID: 7761854
19. Nagao, T., Nakashima, T., Smart, F., **Bond R.A.**, Morrison, K. and Vanhoutte, P.M.: Potentiation of endothelium-dependent hyperpolarization to serotonin by NC 020 in



- the porcine coronary artery. *J. Cardiovas. Pharmacol.*, 26: 679-681, 1995. PMID: 8637179
20. \*Jaber, M., Koch, W.J., Rockman, H.A., Smith, B., **Bond R.A.**, Sulik, K., Ross Jr., J., Lefkowitz, R.J., Caron M.G. and Giros, B.: Essential role of  $\beta$ -adrenergic receptor kinase 1 in cardiac development and function. *Proc. Nat. Acad. Sci. (USA)*, 93: 12974-12979, 1996. PMID: 8917529
  21. \*Samama, P., **Bond R.A.**, Rockman, H.A., Milano, C.A. and Lefkowitz, R.J.: Ligand-induced overexpression of a constitutively active  $\beta_2$ -adrenoceptor: pharmacological creation of a phenotype in transgenic mice. *Proc. Nat. Acad. Sci. (USA)*, 94: 137-141, 1997. PMID: 8990174
  22. Gurdal, H., **Bond R.A.**, Johnson, M. and Onaran, H.O.: An efficacy-dependent effect of cardiac overexpression of  $\beta_2$ -adrenoceptor on ligand affinity in transgenic mice. *Mol. Pharmacol.*, 52: 187-194, 1997. PMID: 9271340
  23. \*Milligan, G. and **Bond R.A.**: Inverse agonism and the regulation of receptor number. *Trends Pharmacol. Sci.*, 18: 468-474, 1997. PMID: 9458695
  24. \*Clarke, W.P. and **Bond R.A.**: The elusive nature of intrinsic efficacy. *Trends Pharmacol. Sci.*, 19: 270-276, 1998. PMID: 9703760
  25. Nagaraja, N., Iyer, S., Liu, X., Eichberg, J. and **Bond R.A.**: Enhanced  $\beta_2$ -Adrenoceptor Response To Isoprenaline After Chronic Treatment With  $\beta_2$ Adrenoceptor Inverse Agonists. *Br. J. Pharmacol.*, 127: 1099-1104, 1999. PMID: 10455254
  26. Franceshini, D., Orr-Urtreger, A., Yu, W. Mackey, L.Y., **Bond R.A.**, Armstrong, D., Patrick, J.W., Beaudet, A.L., and De Bisai, M.: Altered baroreceptor reflex in a7 deficient mice. *Behav. Brain Res.* 113: 3-10, 2000. PMID: 10942027
  27. **Bond R.A.** Is Paradoxical Pharmacology a strategy worth pursuing? *Trends Pharmacol. Sci.* 22: 273-276, 2001. PMID: 11395153
  28. Liu, X., Callaerts-Vegh, Zs., Evans, K. and **Bond R.A.**: Chronic Infusions of Antagonists and Inverse Agonists Produces Heterologous Sensitization in Transgenic Mice with Cardiac-Specific Overexpression of the Human  $\beta_2$ -adrenoceptor *J. Cardiovasc. Pharmacol.* 40: 448-455, 2002. PMID: 12198331
  29. **Bond R.A.**: Can intellectualism stifle scientific discovery? *Nature Rev. Drug Discovery.* 10: 825-829, 2002. PMID: 12360260
  30. Evans, K.J., **Bond R.A.**, Corry, D., and Shardonofsky, F.: Frequency dependence of respiratory system mechanics during induced constriction in a murine model of asthma. *J. Applied Physiol.* 94: 245-252, 2003. PMID: 12486022
  31. Callaerts-Vegh, Zs., Evans, K.J., Shipley, G.L., Davies, P.J.A., Cuba, D.L., Gurji, H.A., Giles, H. and **Bond R.A.**: Effects of different beta-adrenoceptor ligands in

- mice with permanent occlusion of a coronary artery. *Br. J Pharmacol.* 138: 1505-16, 2003. PMID: 12721106
32. \*Flesch, M., Hoper, A., Evans, K.J., **Bond R.A.**, Peshock, R., Diwan, A., Brinsa, T.A.,n Wei, C-C., Sivasubramanian, N., Spinale, F.G. and Mann, D.: Activation and functional significance of the renin angiotensin system in mice with cardiac restricted overexpression of tumor necrosis factor. *Circulation.* 108: 598-604, 2003. PMID: 12874189
  33. \*Xiao, R-P, Zhang, S-J., Chakir, K., Avdonin, P., Weizhong, Z., **Bond R.A.**, Balke, W.C., Lakatta, E.G. and Cheng, H.: Enhanced G<sub>i</sub> signaling selectively negates  $\beta_2$ -AR, but not  $\beta_1$ -AR, mediated positive inotropic effect in myocytes from failing rat hearts. *Circulation*, 108:1633-1639, 2003. PMID: 12975249
  34. \*Callaerts-Végh Zs, Evans KLJ, Dudekula N, Cuba D, Knoll BJ, Callaerts P, Giles H, Shardonofsky FR, **Bond RA.**: Effects of acute and chronic administration of  $\beta$ -adrenoceptor ligands on airway function in a murine model of asthma. *Proc. Nat. Acad. Sci.* 101: 4948-4953, 2004. PMID: 15069206
  35. \*Xiao, R-P., Zhu, W., Zheng, M., Chakir, K., **Bond R.A.**, Lakatta, E.G. and Cheng, H.: Subtype-specific  $\beta$ -adrenergic signaling pathways in the heart and their potential clinical implications. *Trends Pharmacol. Sci.* 25: 358-365, 2004. PMID: 15219978
  36. Dudekula, N., Arora, V., Callaerts-Vegh, Zs. And **Bond R.A.**: The temporal hormesis of drug therapies. *Dose-Response*, 3: 414-424, 2006. PMID: 18648614
  37. \***Bond R.A.** and IJzerman, A.P.: Recent developments in constitutive receptor activity and inverse agonism and their potential for drug discovery. *Trends Pharmacol. Sci.*, 2: 92 – 96, 2006. PMID: 18648614
  38. **Bond R.A.**: A proposal for a national program reporting beneficial drug responses, analogous to the existing program to detect adverse drug responses. *Med. Hypoth.* 66: 10-13, 2006. PMID: 16198061
  39. Parra, S. and **Bond R.A.**: Inverse agonism: from curiosity to accepted dogma, but is it clinically relevant? *Current Opinions Pharmacol.* 7: 146-150, 2007. PMID: 17284360
  40. **Bond R.A.**, Spina, D., Parra, S. and Clive, C.P. (2007). Getting to the heart of asthma; can 'beta-blockers' be used to treat asthma? *Pharmacol & Ther.* 115: 360-374, 2007. PMID: 17681610
  41. Lin, R., Peng, H., Nguyen, L., Dudekula, N.B., Shardonofsky, F., Knoll, B., Parra, S. and **Bond R.A.**: Changes in  $\beta_2$ -adrenoceptors and other signaling proteins produced by chronic administration of ' $\beta$ -blockers' in a murine asthma model. *Pulmonary Pharmacol. & Ther.* 21: 115–124, 2008. PMID: 17689122
  42. \*Hanania, N.A, Singh, S., Eli-Wali, R., Flashner, M., Franklin, A.E., Garner, W.J., Parra, S., Dickey, B.F., Ruoss, S.J., Shardonofsky, F., O'Connor, B.J., Page, C.

- and **Bond R.A.**: The safety and effects of the beta-blocker, nadolol, for the chronic treatment of asthma; an open-label pilot study. *Pulmonary Pharmacol. & Ther.* 21: 134–141, 2008. PMID: 17703976
43. \*Nguyen, L., Omoluabi, Parra, S., Frieska, J.M, Clement, C., Ammar-Aouchiche, Z., Ho, S.B., Ehre, C., Kessimer, M., Knoll, K.J., Tuvim, M., Dickey, B.F. and **Bond R.A.**: Chronic exposure to beta-blockers attenuates inflammation and mucin content in a murine asthma model. *Am J Respir Cell Mol Biol.* 38: 256-262, 2008. PMID: 18096872
  44. \*Nguyen, L., Lin, R., Omoluabi, O., Hanania, N., Tuvim, M., Knoll, B., Dickey, B.F., **Bond R.A.**:  $\beta_2$ -adrenoceptor signaling is required for the development of the asthma phenotype in a murine model. *Proc. Nat. Acad. Sci.* 101: 4948 – 4953, 2009. PMID: 19171883
  45. Hanania, N.A., Dickey, B.F. and **Bond R.A.**: 'Clinical Implications of the Intrinsic Efficacy of Beta-Adrenoceptor Drugs in Asthma: Full, Partial and Inverse Agonism. *Current Opinion in Pulm Med.* 16: 1-5, 2010. PMID: 19887938
  46. Dickey, B.F., Walker, J.K.L., Hanania, N.A. and **Bond R.A.**: Beta-adrenoceptor inverse agonists in asthma. *Current Opinions Pharmacol.* 10: 254 – 259, 2010. PMID: 20399707.
  47. Hanania, N.A., Mannava, M., Franklin, A.E., Lipworth, B.J., Williamson, P.A., Garner, W.G., Dickey, B.F. and **Bond R.A.**: Response to salbutamol in patients with mild asthma treated with nadolol. *Eur Respir J.* 36: 963-5, 2010. PMID: 20889466.
  47. Walker, J.K., Penn, R.B, Hanania, N.A., Dickey, B.F. and **Bond R.A.**: New perspectives regarding  $\beta_2$ -adrenoceptor ligands in the treatment of asthma. *Br J Pharmacol.* 163: 18-28, 2011. PMID: 21470199.
  48. Peng, H., **Bond R.A.** and Knoll, B.K.: The effects of acute and chronic nadolol treatment on  $\beta_2$ AR signaling in HEK293 cells. *Naunyn-Schmiedeberg's Arch Pharmacol* 383: 209 – 216, 2011. PMID: 21964666.
  49. Nguyen LP, Singh B, Okulate AA, Alfaro VY, Tuvim MJ, Dickey BF, **Bond R.A.**: Complementary anti-inflammatory effects of a beta-blocker and a corticosteroid in an asthma model. *Naunyn Schmiedebergs Arch Pharmacol.* 385: 203-10, 2012. PMID 21964666
  50. Vollert C, Forkuo GS, **Bond RA**, Eriksen JL: Chronic treatment with DCPCX, adenosine A(1) antagonist, worsens long-term memory. *Neurosci. Lett.* 548: 296-300, 2013. PMID: 23748072
  51. Thanawala VJ, Forkuo GS, Al-Sawalha N, Azzegagh Z, Nguyen LP, Eriksen JL, Tuvim MJ, Lowder TW, Dickey BF, Knoll BJ, Walker JK, **Bond R.A.**:  $\beta_2$ -Adrenoceptor Agonists Are Required for Development of the Asthma Phenotype in a Murine Model. *Am J Respir Cell Mol Biol.* 48: 220 - 229, 2013. PMID: 23204390

52. Michel, M.C., Seifert, R. and **Bond R.A.**: Dynamic bias and its implications for drug discovery. *Nature Rev – Drug Discovery*, 11: 988-990, 2014. PMID: 25323926
53. Al-Sawalha, N., Pokkunuri, I., Omoluabi, O., Kim, H., Thanawala, V.J., Hernandez, A., **Bond R.A.**, and Knoll, B.J.: Epinephrine activation of the  $\beta$ 2-adrenoceptor is required for IL-13-induced mucin production in human bronchial epithelial cells. *PLoS One*. 2015 Jul 10:10, 2015. PMID:26161982
54. Thanawala, V.J., Valdez, D., Radhika, J., Forkuo, G.S., Parra, S., Knoll, B.J., Bouvier, M., Leff, P., and **Bond, R.A.**: Beta-blockers have differential effects on the murine asthma phenotype. *Br J Pharmacol*. 172:4833-46. 2015. PMID: 26211486
55. J. Morgan Knight, Ph.D., Garbo Mak, M.D., Joanne Shaw, Ph.D., Catherine McDermott, B.S., Luz Roberts, B.S., Ran You, B.S., Xiaoyi Yuan, B.S., Alexander B. Seryshev, B.S., Valentine O. Millien, Ph.D., Yuping Qian, B.S., Li-Zhen Song, M.D., Vincent Frazier, B.S., Julia K. Walker, Ph.D., **Richard A Bond, Ph.D.**, Pijus K. Mandal, Ph.D., Pietro Morlacchi, Ph.D., Amber Luong, M.D., Ph.D., Farrah Kheradmand, M.D. John S. McMurray, Ph.D.\* and David B. Corry, M.D. \*: Long-Acting  $\beta$ -Agonists Enhance Allergic Lung Disease. *PLoS One*. 25:10 (11), 2015. PMID: 26605551.
56. \*Curtis MJ, **Bond RA**, Spina D, Ahluwalia A, Alexander SP, Giembycz MA, Gilchrist A, Hoyer D, Insel P, Izzo AA, Lawrence AJ, MacEwan DJ, Moon LD, Wonnacott S, Weston AH, McGrath JC: Experimental design and analysis and their reporting: new guidance for publication in BJP. *Br J Pharmacol*. 172: 3461 – 3471, 2015. PMID: 26114403
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50. **R.A. Bond**, Zs. Callaerts-Vegh, K.J. Evans, N.B. Dudekula, H. Giles and F.R Shardonofsky (2003). Temporal Differences in Effects of Agonist and Inverse Agonist in a Murine Model of Asthma. American Heart Association Research Symposium, Orlando FL
51. **R. A. Bond**, Zs. Callaerts-Vegh, K.L.J. Evans, N.B. Dudekula, H. Giles and F.R. Shardonofsky Effects of chronic treatment with  $\beta$ -adrenoceptor Ligands on a murine model of asthma. (2003) BPS winter meeting, London UK
52. Zs. Callaerts-Vegh, **R.A. Bond**, K.L.J. Evans, N.B. Dudekula, and F.R Shardonofsky.  $\beta_2$ -adrenoceptor ligands in a murine model of asthma: time changes everything? (2004) Keystone Symposium GPCR signalling, Taos NM
53. **Bond RA**, Callaerts-Vegh Zs, Dudekula N. Shardonofsky FR. Paradoxical pharmacology-the way forward? (2004) ISHR meeting Brisbane Australia
54. **RA. Bond**, Zs Callaerts-Vegh. Temporal hormesis associated with heart failure and animal asthma model (2004) Non Linearity Conference BELLE Amherst MA
55. NB. Dudekula, Zs Callaerts-Vegh and **RA. Bond**. Chronic treatment with the Beta-2-adrenoceptor ( $\beta_2$ AR) inverse agonists produces receptor upregulation in a murine model of asthma. (2004) ASPET Washington DC
56. Hui Peng, <sup>1,2</sup>Brian Knoll, <sup>1,2</sup>Richard A. Bond Novel effects of nadolol on desensitization and heterologous sensitization systems. IUPHAR (2006) Beijing, China.
57. Rui Lin, Sergio Parra, Vikas Arora, Becky Chan, Joanna Frieske, Brian Knoll, Richard A. Bond. Potential mechanisms of the beneficial effect of chronic nadolol treatment in a murine model of asthma. IUPHAR (2006) Beijing, China.
58. Sergio Parra, Carlos Rodriguez, Rui Lin, Zoma Omoluabi, Joanna Frieske, Felix Shardonofsky, Brian Knoll, Richard A. Bond. Muscarinic M<sub>2</sub> receptors modulate airway responses to methacholine in a murine model of asthma. IUPHAR (2006) Beijing, China.

Numerous other abstracts since 2006.

#### Invited Lectures:

1. The definition of pharmacologic receptors. IUPHAR Congress, Amsterdam, the Netherlands, 1990.
2. Theoretical and practical advantages and limitations of techniques used in functional pharmacologic classification of drug receptors. 8th Camerino-Noordwijkerhout Symposium-Trends in Receptor Research, Camerino, Italy, 1991.
3. Inverse agonists and G protein coupled receptors. Receptor Pharmacology - Achievements and Objectives. A Satellite Symposium of the IUPHAR Congress to Honour Sir James Black. Montreal, Canada, 1994.
4. Myocardial overexpression of the  $\beta_2$ -adrenoceptor in transgenic mice: a model for demonstration of inverse agonism. Merck, West Point, PA, U.S.A., 1994.
5. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Syntex, Palo Alto, CA, U.S.A., 1995.
6. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Duke University Medical College and Howard Hughes Medical Institute, Durham, NC, U.S.A., 1995.
7. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. INSERM, Toulouse, France, 1995.
8. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Servier, Suresnes, France, 1995.
9. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Pfizer Limited, Sandwich, U.K., 1995.
10. Do Recent Operational Studies Indicate that a Single State Model is no Longer Applicable to G protein-coupled Receptors? Receptor Classification and Characterization Meeting, Verona, Italy, 1995.
11. Operational Evidence for Constitutively Active G protein-coupled Receptors. Structure and function of G protein receptors and opportunities for commercial development. Philadelphia, PA, U.S.A., 1995.
12. Implications of the two-state receptor model in drug discovery: inverse agonists versus antagonists. Drug discovery strategies & targets conference. La Jolla, CA, U.S.A., 1996.
13. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Institute for Molecular Design and Keck Center, Rice University, Houston, TX, U.S.A., 1996.

14. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. Rhone-Poulenc-Rorer, Paris, France, 1996.
15. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice Models. NIA, Baltimore, MD, U.S.A., 1996.
16. Evidence for "Inverse Agonism" at G protein-coupled Receptors Using Transgenic Mice as Models. BRAIN Seminar Series, Univ. of Houston, Houston, TX, U.S.A., 1996.
17. A proposed modification of the definition of ligand efficacy based upon the spontaneous signaling of unliganded G protein-coupled receptors. UTMB-Galveston, TX, U.S.A., 1997.
18. Effect of  $\beta$ -adrenoceptor ligands on transgenic mice with overexpression of the human  $\beta_2$ -adrenoceptor. SmithKline Beecham, King of Prussia, PA, U.S.A., 1997.
19. Effect of  $\beta$ -adrenoceptor ligands on transgenic mice with overexpression of the human  $\beta_2$ -adrenoceptor. Baylor College of Medicine, Houston, TX, U.S.A., 1997.
20. Effect of  $\beta$ -adrenoceptor ligands on transgenic mice with overexpression of the human  $\beta_2$ -adrenoceptor. UTHSC-San Antonio, San Antonio, TX, U.S.A., 1997.
21. Effect of  $\beta$ -adrenoceptor ligands on transgenic mice with overexpression of the human  $\beta_2$ -adrenoceptor. UTHSC-Houston, Houston, TX, U.S.A., 1997.
22. Effect of  $\beta$ -adrenoceptor ligands on transgenic mice with overexpression of the human  $\beta_2$ -adrenoceptor. University of Florida, Gainesville, FL, U.S.A., 1998.
23. G protein-receptor coupling in the absence of agonists: the R\* state. International Society for Heart Research, 16th World Congress, Rhodes, Greece, 1998.
24. Inverse agonists and antagonists; are there relevant differences beyond receptor theory? 7th EMBL-GPCR Meeting, Heidelberg, Germany, 1999.
25. Has receptor theory created new opportunities for the industrial pharmacologist? SmithKline Beecham, King of Prussia, PA, U.S.A., 1999.
26. Does the difference between an antagonist and an inverse agonist response really matter? Baylor College of Medicine, Houston, TX, U.S.A., 2000.
27. Should the Industrial Pharmacologist care about inverse agonism at GPCRs? GlaxoWellcome, Stevenage, U.K., 2000.



28. A mouse myocardial infarct model of heart failure; treatment with antagonists and inverse agonists. Inverse Agonist Meeting, Barcelona, Spain, 2000.
29. Accomplishments of the IUPHAR Committee on Receptor Nomenclature and Drug Classification. Jubilee Symposium in honor of Prof. Paul M. Vanhoutte, Paris, France, 2000.
30. The theory of inverse agonism. INSERM, Toulouse, France, 2000.
31. What biologists and biochemists need to know about recent advances in GPCR receptor theory. Biol. and Biochem Dept., University of Houston, Houston, TX, U.S.A., 2000.
32. Should the Industrial Pharmacologist care about inverse agonism at GPCRs? Sepracor, Boston, MA, U.S.A., 2000.
33. Does the difference between an antagonist and an inverse agonist response really matter? UTMB-Galveston, TX, U.S.A., 2001.
34. Does the difference between an antagonist and an inverse agonist response really matter? PRI (Johnson & Johnson), San Diego, CA, U.S.A., 2001
35. Is Paradoxical Pharmacology a strategy worth pursuing? Servier, Paris, France, 2001.
36. Are there lessons from heart failure for asthma therapy? James Black Foundation, London, England, 2002.
37. Are there lessons from heart failure for asthma therapy? King's College London, London, England, 2002.
38. Paradoxical Pharmacology or Temporal Changes in Efficacy? Efficacy symposium, Pfizer, Sandwich, England, 2002.
39. Is Paradoxical Pharmacology a strategy worth pursuing? INSERM, Toulouse, France, 2002.
40. Are there lessons from heart failure for asthma therapy? Imperial College London, England, 2002.
41. Two examples of paradoxical pharmacology using in vivo animal models of disease. Non-linear dose-response relationships in biology, toxicology and medicine. International Conference, Univ. of Massachusetts, Amherst, MA, U.S.A., 2002.
42. Are there lessons from heart failure for asthma therapy? Heart and Kidney Institute Symposium, Houston, TX, U.S.A., 2002.

43. Are there lessons from the use of beta-blockers in heart failure for asthma therapy? Stanford Univ., Palo Alto, CA, U.S.A., 2002.
44. Are there lessons from the use of beta-blockers in heart failure for asthma therapy? Duke Univ. Medical Center, Durham, NC, U.S.A., 2002.
45. From inverse agonism to paradoxical pharmacology. Inverse agonism symposium – Esteve Foundation, S'Agaro, Spain, 2002.
46. From inverse agonism to paradoxical pharmacology...and back? UTMB-Galveston, Galveston, TX, U.S.A., 2003.
47. Is inverse agonism the answer to paradoxical pharmacology? PRI (Johnson & Johnson), San Diego, CA, U.S.A., 2003.
48. Heart failure, asthma, and paradoxical pharmacology. Novartis, Horsham, England,
49. Heart failure, asthma, and paradoxical pharmacology. Novartis, Basel, Switzerland, 2003.
50. Heart failure, asthma, and paradoxical pharmacology. King's College London, London, England, 2003.
51. Temporal hormesis in asthma and heart failure. BELLE International Conference, U. Mass, Amherst, MA, 2004.
52. Paradoxical Pharmacology: The way forward? XVIIIth World Congress of the International Society for Heart Research, Brisbane, Australia, 2004.
53. Paradoxical Pharmacology: The way forward? Satellite Symposium of the XVIIIth World Congress of the International Society for Heart Research, Hong Kong, 2004.
54. Paradoxical Pharmacology: The way forward? 5<sup>th</sup> Melbourne International GPCR Forum, Melbourne, Australia, 2004.
55. How intellect can stifle scientific discovery; an example using a non-mechanistic approach. James Black Foundation, London, England, 2004.
56. Asthma and heart failure, different diseases; but similar drugs, receptors and outcomes? Winter Meeting of the British Pharmacological Society, Newcastle, UK, 2004.
57. Asthma and heart failure, different diseases; but similar drugs, receptors and outcomes? Guy's Hospital King's College London, England, 2004.

58. Asthma and heart failure, different diseases; but similar drugs, receptors and outcomes? Western Pharmacological Society, San Diego, CA, U.S.A., 2005.
59. Asthma and heart failure, different diseases; but similar drugs, receptors and outcomes? 3<sup>rd</sup> European Conference on GPCRs in Drug Discovery, Amsterdam, The Netherlands, 2005.
60. Asthma and heart failure are different diseases, but similar drugs, receptors and outcomes?" Dept. Pharmacology & Pharmacotherapy, AMC, University of Amsterdam, Netherlands 2005.
61. Chronic beta-adrenoceptor therapy in asthma; long-acting agonists or inverse agonists? Theravance, So San Francisco, CA, USA, 2005.
62. Can asthma be treated with 'beta-blockers'? Duke University Medical College, Durham, NC, USA, 2005.
63. Can asthma be treated with 'beta-blockers'? Center for Hypertension and Vascular Research, Wake Forest Medical School, Winston-Salem, NC, USA, 2005.
64. Getting to the heart of asthma; can beta-blockers be used to treat asthma? GlaxoSmithKline, RTP, NC, USA, 2006
65. Inverse Agonists as signaling enhancers. CHI-organized GPCR Symposium, La Jolla, CA, USA, 2006.
66. Beta-blockers as possible asthma therapy. Kansas City, MO, USA, 2006.
67. Getting to the heart of asthma; can beta-blockers be used to treat asthma? Australia's Medicines Research Conference, Melbourne, Australia, 2006.
68. Paradoxical Pharmacology. 6<sup>th</sup> Melbourne International GPCR Forum, Melbourne, Australia, 2006.
69. Getting to the heart of asthma; can beta-blockers be used to treat asthma? Special Symposium of the British Pharmacological Society's 75<sup>th</sup> Anniversary Celebration, Oxford, UK, 2006.
70. 'Paradoxical Pharmacology'; A way forward in asthma therapy? University of Amsterdam (AMC) Department of Experimental & Clinical Experimental Anesthesiology. Amsterdam, The Netherlands, 2007.
71. Use of beta-blockers in chronic heart failure and asthma bronchiale. German Congress of Anaesthesiology, Hamburg, Germany, 2007.

72. Special 'Hot Topic' Session: Further explanation of the worldwide increase in morbidity and mortality from asthma. European Respiratory Society Conference, Stockholm, Sweden, 2007.
73. Debate: Beta-2 adrenoceptor agonists and corticosteroids are all we need for asthma. Presenting the 'Against' position. 5<sup>th</sup> James Black Conference – Cutting Edge Concepts in Lung Pharmacology, Crieff Hydro, Perthshire, Scotland, 2007.
74. Paradoxical pharmacology; Can 'beta-blockers' be used to treat asthma? William Harvey Research Institute Seminar Series, London, UK, 2008.
75. Beta-blockers and beta-agonists in asthma: unraveling a paradox. Respiratory Drug Delivery (RDD), Lisbon, Portugal, 2009.
76. Getting to the heart of asthma – can beta-blockers be used as chronic asthma therapy? Systems Biology of Human Disease Conference, Boston, MA, USA, 2009.
77. Beta-blockers and beta-agonists in asthma: unraveling a paradox. McMaster University Honours Biology & Pharmacology Program "3rd Annual Biology & Pharmacology Lectureship". Hamilton, Canada, 2010.
78. Taking a lesson from heart failure. Can  $\beta$ -blockers be used in the treatment of asthma? University of Texas Medical School – Houston. Biochemistry and Molecular Biology Seminar Series, Houston, TX, 2011.
79. Think the impossible: beta-blockers for treating asthma. Pro and Con debate at EAACI, Istanbul, Turkey, 2011.
80. New GPCR and cAMP (or are they cAMP?) paradigms: pathophysiological and therapeutic relevance. BPS focused symposium "Novel cAMP signaling paradigms: New insights into the development and progression of chronic inflammatory disease. London, UK, 2011.
81. Short presentation and panelist invitee for 'Evolutionary Medicine Conference' Stanford Medical School, Palo Alto, CA, USA, 2012.
82.  $\beta$ 2-adrenoceptor agonists are required for development of the asthma phenotype. Lung Research Day, Houston, TX, USA, 2012.
83. Time, the forgotten variable in drug response. Pasteur Institute, Paris, France, 2012.
84. Time, the forgotten variable in drug response; Lessons from heart failure and asthma. Texas Heart Institute, Houston, TX, USA, 2012.

85. Biased signaling by beta-blockers; the good, the bad, and the neutral. University of Melbourne, Dept. of Pharmacology, Melbourne, Australia, 2014.
86. Biased signaling by beta-blockers; the good, the bad, and the neutral. The Prince Charles Hospital, Thoracic Grand Rounds, Brisbane, Australia, 2014.
87.  $\beta$ 2-adrenoceptor signaling in asthma; which way is up? GPCR satellite symposium, Kruger National Park, South Africa, 2014.
88.  $\beta$ 2-adrenoceptor signaling in asthma; which way is up? Center for Translational Medicine and Department of Pharmacology Seminar Series, Temple University, Philadelphia, PA, USA, 2015.
89. Biased signaling by beta-blockers; the good, the bad, and the neutral. Respiratory Department Seminar Series, Cleveland Clinic, Cleveland, OH, USA, 2015.
90. Biased signaling by beta-blockers; the good, the bad, and the neutral. Keynote speaker, Young Investigators' Meeting on Airway Smooth Muscle Physiology, King's College London, London, UK, 2015.
91.  $\beta$ 2-adrenoceptor signaling in asthma – pushing Occam's Razor? Hammersmith Medicines Research Institute, London, UK, 2017.
92. The  $\beta$ -blockers in asthma story: the roles of persistence, naiveté, Occam's razor, and Popper's falsification. McMaster University Honours Biology & Pharmacology Program "11th Annual Biology & Pharmacology Lectureship". Hamilton, Canada, 2018.
93. Using beta-blockers to treat asthma...Really? Escuela Superior de Medicina, Instituto Politecnico Nacional, Mexico City, Mexico, 2019.

## **TEACHING:**

Lectured in Pharmacology for Pharmacy Students (Anti-hypertensive drugs, Diuretics, Angina, Anti-anginal drugs, Congestive Heart Failure, Anti-coagulants, and Anti-thrombotic drugs). Spring 1994 and 1995, Fall of 2008 – 2016 (As of Fall 2010 topics were Anti-hypertensive drugs, Angina, Anti-anginal drugs, and Congestive Heart Failure).

Coordinated and Lectured in Pharmacokinetics for Pharmacy Students (Multiple Dosing, Drug Absorption Kinetics, Membrane Properties, Metabolite and Prodrug Kinetics, Pharmacodynamics, Protein Binding, Bioavailability and Bioequivalence). Fall 1993 and 1994.

Lectured in Biopharmaceutics for Pharmacy Students (Physico-chemical Considerations, Oral Dosage Forms, Controlled Release Products). Spring 1994 and 1995.

Lectured in Cardiovascular Pharmacology to Graduate Students (Receptor Theory).  
Spring 1995, 2004, 2006, 2008, 2010, 2012, 2014.

Lectured in Basic Neuroscience (Receptors and Neurotransmission). Spring 1996, Fall 1996.

Developed course and Coordinated and Lectured in Cellular Pharmacology for Graduate Students. (Receptor Theory, Alternative Models, Behavior of 7 TM Receptors) Fall 1996.

Lectured in Toxicology to Pharm.D. Students (Alcohols, Anticholinergics, Antidepressants and Antipsychotics). Spring 1998.

Developed course and Co-coordinated and lectured in Advanced Pharmacology for Graduate Students (Receptor Theory and Signal Transduction) Fall 1998.

Skills Lab for Pharmacodynamics, Fall 1997, 1998, 1999.

Lectured in Pharmacodynamics for Pharmacy Students (Anti-hypertensive drugs, Diuretics, Angina and Anti-anginal drugs, Anti-coagulants and Anti-thrombotic drugs). Fall, Spring 1997-2007.

Organized Seminar Series, Fall 1997, Spring and Fall 1998, 1999, 2000, 2010 - 2015.

Lectured in Neuropharmacology (Substance Abuse) Spring 2000, 2007, 2010, 2012, 2015, 2017, 2019, 2021.

Coordinated Drug Literature Review for Pharmacology and Med Chem Graduate Students, Fall 2001, Spring 2002, Spring and Fall 2003 - 2021.

Lectured in Advanced Pharmacology, Receptor Theory, and Congestive Heart Failure. Fall 1997, 1999-2007, 2009-2015. Lectured 2015 - 2021

### **Mentored students and post-doctoral fellows:**

#### **Graduate Students:**

**Current:** Emilio Lucero 2018 – (Co-mentor with Brad McConnell)

#### **Previous:**

Radhika Joshi, PhD Student, 2014 – 2017. Post-Doctoral Fellow at University of British Columbia.

Hosu Kim, PhD Student, 2014 – 2017

Vaidehi Thanawala, PhD: graduated August 2014. Scientist at Vapogenix, Inc. Houston, TX

Gloria Serwaa Forkuo, PhD: Graduated December 2014. As of 2017 doing a post-doctoral fellowship at Medical College of Wisconsin

Long Nguyen: graduated with PhD in Fall 2009. As of 2017 Scientist at Vertex Pharmaceuticals, Los Angeles, CA

Ozozoma Omoluabi, graduated with PhD in 2009. As of 2012 doing a post-doctoral fellowship with Liz Bikram.

Rui Lin, graduated with PhD in 2008. As of 2017 research fellowship at Florida State University, Tallahassee, FL.

Peng Hui, graduated with PhD in 2008. As of 2011 working as a bio-statistician on clinical trials at UT-PHS

Noornabi B. Dudekula, graduated with MS in 2007. As of 2009 Pursuing PhD.

Savitha Nagaraja, graduated with MS in 2001. As of 2014 employed as a registered pharmacist in Texas.

Xiushi Liu, graduated with MS in 2002. As of 2005 employed as a post-doctoral fellow at Yale.

Eyad Quainibi, graduated with PhD in 2003. As of 2009 employed as a faculty member at the University of Jordan.

Vikas Arora, graduated MS with in 2004. As of 2009 employed as a registered pharmacist in Florida.

### **Post-Doctoral Fellows:**

#### **Current:**

Arfaxad (Aram) Reyes Alcaraz, PhD (Co-mentor on projects with Brad McConnell)

#### **Previous:**

Bhupinder Singh PhD, as of 2017 working as a post-doctoral fellow II at University of Oklahoma.

Indira Pokkunuri, PhD, as of 2017 working as a post-doctoral fellow II at University of Houston.

Kenda J. Evans, PhD, as of 2015 employed at Perkin-Elmer

Zsuzsanna Callaerts-Vegh, PhD, as of 2017 working as a Research Scientist/faculty at Leuven University, Belgium.

Sergio Parra, MD, as of 2017 Medical Director at Vapogenix, Inc. Houston, TX

Juan Carlos Rios, MD, as of 2016 working as ship's physician for Carnival Cruise Lines.

### **Other Students:**

Outside graduate committee member for:

Vikram Kansra (Musti Lokhandwala), Carolina Kechmer (Greg Cahil), Tracy Blevins (Roger Barber), Jacob Sawyer (Dan Wells), Tasneem Bawa (Kelly Standifer), Amer Hakam (Tahir Hussain) Oliver Raswadesh (Greg Cahill), Abdul Bari Mohammad (Musti Lokhandwala) Claudia Alvarez-Baron (Stuart Dryer), Valbona Huxley (Bridgitte Dauwalder), Yuan Li (Bridgitte Dauwalder), Emiliano (Gregg Roman), Jie He (Ming Hu), Rania Dababne (Diana Chow), Valbona Huxley (Brigitte Dauwalder), Sonal Singh (Bradley McConnell), Santosh (Bradley McConnell), Mahshid Zera (Jokubas Ziburkas), Nashid Farhan (Diana Chow), Cameron Love (Bridgitte Dauwalder).

### **SERVICE:**

#### **Service Committees to the University, College and Department**

#### **University:**

Animal Care Committee, 1996-1999

Secretary of the University of Houston Chapter of Sigma Xi, 1997-1999

University Research Council, 1998-2004

University Research Council ad-hoc Committee to review internal programs, 1999

Vice-Chair, University Research Council, 2001-2002



Chair, Committee for Internal Grants, 2001-2002

Chair, University Research Council, 2002-2003

Radiation Safety Committee, 2004-2015

University Promotion and Tenure Committee 2010 – 2014

University Research and Scholarship Committee (Faculty Senate) 2014 – 2017

University of Houston Task Force to rewrite Promotion and Tenure Guidelines, 2015

Chair, Animal Users Committee, 2015

Committee to investigate a charge of scientific misconduct, 2015

University of Houston Faculty Grievance Committee (Faculty Senate) 2014 – 2016

Competitive Salary Adjustment Committee, 2016 – 2018

IACUC online module champions group, 2017.

Chair/coordinator for Faculty Mentoring Forum to assist in faculty mentoring, 2017 – 2020

Internal Advisory Board for TIMES (Texas Institute for Measurement, Evaluation, and Statistics), 2017 –

Selection Committee for Moores Chairs, 2017 - 2022

University Ombudsperson, 2017 – 2022

Faculty Handbook Revision Committee, 2016, 2021

Intellectual Property Committee, 2021 – 2024

**College:**

Pharmacodynamics Working Committee, 1997

Chair, Faculty Advisory Committee, 1996-1999

Ex-officio member of Executive Council Committee, 1996-1999  
Search Committee for Assistant Dean for Research, 1996  
Department Missions and Goals Committee, 1997-1998  
Faculty Advisory Committee, 1996-1999  
Chair, Research Modeling Group, 1998-1999  
Chair, College Research Committee, 2000-2004, 2013, 2014  
College Education Committee, 1996-1999; 2001, 2002, 2004  
Search Committee for Dean, College of Pharmacy, 2008-2009  
College Research Council, 2010 - 2012  
College Self-study Reading Committee Meeting, 2010-11  
UHBS-2 Building Design Committee 2014 – 2016  
College Promotion and Tenure Committee, 2004-2007, 2010 – 2011, 2020 – 2022.  
College Budget Advisory Committee, 2010 – 2012, 2021 – 2024  
College Faculty Grievance Committee, 2019 – 2024

**Department:**

Search Committee for Neuroscientist in Biology Department, 1996  
Faculty Search Committee PPS, 1999-2001, 2004-2006  
Search Committee for PPS Department Chair, 2010 -2011  
Search Committee for Cardiovascular Faculty, 2015  
Pharmaceutics Faculty Search Committee, 2016, 2017, 2018, 2019.  
Search Committee for Chair for PPS, 2018 – 2019  
Search Committee for Cardiovascular Faculty, 2019 – 2020

**Service to the Profession:**

**Editor of Themed issues of Journals:**

1. Co-Editor for "A Special Issue Celebrating the Life and Work of James Whyte Black", *Br. J. Pharmacol.* Vol. 160, Supplement 1, 2010.
2. Co-Editor for Special Issue on Respiratory Pharmacology. *Br. J. Pharmacol.* 2011.

**Meetings and Symposia Organized:**

ASPET Sponsored colloquium on GPCRs (co-organized with Graeme Milligan) Orlando, FL., U.S.A. March 2000.

Symposium, "Antagonists as signaling enhancers", Western Pharmacological Society Meeting, San Diego, CA, U.S.A., February 2005.

Adrenoceptor Satellite (co-organizer) to the World Congress of Pharmacology, Cape Town, South Africa, July 2014.

Adrenoceptor Satellite (co-organizer) to the World Congress of Pharmacology, Kyoto, Japan, 2018.