Ayman K. Hamouda, B.Pharm., Ph.D.

Fisch College of Pharmacy, University of Texas at Tyler. (903) 565-6578; <u>AHamouda@UTTyler.edu</u>

Education:

- 2023-2024: Certificate in Effective Teaching Practice Framework The Association of College and University Educators and the American Council of Education.
- 2007-2009: **Research Fellow in Neurobiology.** Harvard Medical School. Dr. Jonathan B. Cohen's laboratory, Department of Neurobiology
- 2003-2007: **Doctor of Philosophy in Pharmacology with Minor in Physiology (GPA=4.0)** Texas Tech University Health Sciences Center (TTUHSC), Lubbock, Texas, USA. Supervisor: Dr. Michael P. Blanton. Dissertation title: "Structural Studies with Affinity-Purified Muscle and Neuronal Nicotinic Acetylcholine Receptors".
- 1993-1998: Bachelor of Pharmacy (with honors). Al-Azhar University-Gaza, Gaza Strip.

Employment History:

2024 - Present Ben and Maytee Fisch Chair in Pharmacy (Endowed Position) Fisch College of Pharmacy (FCOP), University of Texas at Tyler (UT Tyler).

2023 - Present Professor (Tenured)

Department of Pharmaceutical Sciences and Health Outcomes, Fisch College of Pharmacy (FCOP), University of Texas at Tyler (UT Tyler).

2018 - 2023 Associate Professor

Department of Pharmaceutical Sciences and Health Outcomes, Fisch College of Pharmacy (FCOP), University of Texas at Tyler (UT Tyler).

- 2013 2018 Assistant Professor, Department of Pharmaceutical Sciences, Rangel College of Pharmacy (RCOP), Texas A&M Health Sciences Center (TAMHSC).
- 2014 2018 **Assistant Professor (joint appointment)**, Department of Neuroscience and Experimental Therapeutics, College of Medicine, TAMHSC.
- 2009 2013 **Instructor in Neurobiology,** Department of Neurobiology, Harvard Medical School, Boston, MA
- 2007 2009 **Research Fellow, Neurobiology,** Department of Neurobiology, Harvard Medical School, Boston, MA
- 2003 2007 **Graduate Research Assistant**, Department of pharmacology and Neuroscience Texas Tech University Health Sciences Center, Lubbock, TX
- 1998 2002 **Teaching Assistant and Laboratory Instructor,** Faculty of Pharmacy, Al-Azhar University-Gaza

Grants and Research Supports:

<u>A. Active:</u>

1- National Institute of Health-NIDA (1R01DA057085). "Selective Positive Allosteric Modulators of α4β2 Nicotinic Receptors."

Project Period: 08/01/2024 – 05/31/2029. Total Fund Requested: \$3,432,289; Role: PI (in MPI).

2- National Institute of Health-NINDS (1R16NS129676). "*In vitro* pharmacology and *In vivo* neuroprotective effects of CMPI analogues in an optimized Zebrafish model of Parkinson's disease." Project Period: 04/01/2022 to 03/31/2026. Total Fund Approved: \$588,000; Role: PI

3- The São Paulo Research Foundation (FAPESP) (Process: 2023/09694-7). "Evaluation of cholinergic receptors in A549 and BEAS-2b cells stimulated with IL13 and neutrophil elastase.".

Project Period: 11/01/2023 to 10/31/2024. Total Fund Approved: \$35,000. Role: Co-PI/Abroad Supervisor (Salary and expenses support for a visiting scholar Vitoria Caroline de Queiroz from University of Sao Paulo).

C. Completed:

1- UT Tyler-Fish College of Pharmacy-Research Pilot Award. "Use of artificial intelligence to detect and monitor behavioral patterns in zebrafish."

Project Period: 08/01/2023 - 08/31/2024. Total Fund Approved: \$13,000. Role: PI

2- UT Tyler-Office of Research and Scholarship-Faculty Research Support. "In vitro and in vivo characterization of novel nicotinic receptors positive allosteric modulators."

Project Period: 01/01/2022 - 08/31/2024. Fund Approved: \$65,000/year, postdoc salary with benefits (Role: PI).

3- Edna Walsh Research Funds. "Evaluation of Cannabidiol (CBD) Products and Their Use in the East Texas Community."

Project Period: 12/2021 - present. Total Fund Approved: \$50,000. Role: PI

4- The São Paulo Research Foundation (FAPESP) (Process: 2023/05460-1). "*In vitro* studies of the bidirectional interaction between renin angiotensin system and nicotinic receptors.". Project Period: 10/01/2023 to 01/31/2024. Total Fund Approved: \$18,000. Role: Co-PI/Abroad Supervisor (Salary and expenses support for a visiting scholar Dr. Carla Maximo Prado from University of Sao Paulo).

5- UT Tyler-Office of Research and Scholarship- FY23 Internal Awards. "Anti-Inflammatory Potential of Nicotinic Receptor Potentiators in Acute Lung Injury." Project Period: 06/01/2022 - 07/31/2023. Total Fund Approved: \$33,000. Role: PI

6- National Institute of Health -NIAID (1R21AI154189-01A1). "Mechanistic Insights into VraS Mutations Linked to Bacterial Resistance".

Project Period: 02/01/2021 to 01/31/2023. Total Fund Approved: \$380,750. Role: Consultant Principle Investigator: Dr. May H. Abdelaziz (University of Texas at Tyler)

7- The São Paulo Research Foundation (FAPESP) (Process: 2020/13480-4). "Virtual screening and *in vitro* and *in vivo* evaluation of nicotinic receptors as a therapeutic target for SARS-CoV-2: focus on interaction with ACE2".

Project Period: 04/01/2021 to 03/31/2023. Total Fund Approved: \$35,372. Role: Co-Investigator. Principle Investigator: Dr. Carla Maximo Prado (Universidade Federal de São Paulo)

8- UT Tyler-Fish College of Pharmacy-Interdisciplinary Research Grant. "Analysis of Cannabidiol (CBD) Products Preferred by UT Tyler Students" Project Period: 08/01/2020 – 07/31/2022. Total Fund Approved: \$22,500. Role: PI (in MPI)

9- UT Tyler Fisch College of Pharmacy- STARs award matching Fund. "Nicotinic acetylcholine receptors structure and pharmacology." Project Period: 03/18/2018-current. Total Fund Approved: \$75,000. Role: PI

10- The University of Texas System Rising STARs (T181053F). "Nicotinic acetylcholine receptors structure and pharmacology,"

Project Period: 03/18/2018 - 08/31/2021. Total Fund Approved: \$278,000. Role: PI

11- UT Tyler-Fish College of Pharmacy-Research Pilot Award. "Examining Piperidine and Flustrabromine Derivatives as TDL for Alzheimer's Disease." Project Period: 08/01/2019 – 07/31/2021. Total Fund Approved: \$15,000. Role: PI

12- The São Paulo Research Foundation (FAPESP) (Process: 2019/15665-4). "Function and expression of nicotinic receptors in lung tissue from animals with acute lung injury."

Project Period: 03/01/2020 - 2/28/2021. Total Fund Approved: \$58,678 (Salary and expenses support for a visiting scholar Dr. Nathalia Pinheiro Menegasso at UT Tyler). Role: Co-PI/Abroad Supervisor.

Associated to FAPESP Process: 2018/15738-9. "Effect of the anti-inflammatory cholinergic system and nicotinic receptors in the murine model of acute lung injury induced by LPS."

Project Period: 11/2018 - 10/2021. Total Fund Approved: \$37,000.

Principle Investigator: Dr. Carla Maximo Prado (Universidade Federal de São Paulo)

13- UT Tyler-Office of Research and Scholarship-Presidential Interdisciplinary Grant 2019. "Innovative Perfusion Simulator for *In Vitro* Testing." Project Period: 09/01/2019 - 06/30/2020. Total Fund Approved: \$20,000. Role: PI (in MPI)

14- National Institute of Health-NINDS (1R15NS093590-01 and 7R15NS093590-02). "Neuronal nicotinic acetylcholine receptors (nAChRs)"

Project Period #1: 07/2015 - 03/18/2018 (Texas A&M). Total Fund Approved: \$326,006; Role: PI Project Period #2: 03/18/2018 – 12/31/2019 (UT Tyler). Total Fund Approved: \$117,263. Role: PI

15- UT Tyler-Office of Research and Scholarship-Presidential Interdisciplinary Grant 2018. "Behavioral and Mathematical Models for Nicotine Intake and Withdrawal in Zebrafish." Project Period: 09/01/2018 - 06/30/2019. Total Fund Approved: \$17,000. Role: PI

16- Texas A&M Triads for Transformation (Project ID:791). "Smart Opiate-Withdrawal Symptoms (SOS) System."

Project Period: 04/2018 - 03/2019. Direct Cost: \$30,000. Role: PI (in MPI).

17- American Heart Association-15GRNT25890003. "Identification of positive allosteric modulator binding sites in $\alpha 4\beta 2$ nicotinic acetylcholine receptor." Project Period: 07/2015 - 06/2017 (relinquished in favor of NIH R15). Fund Approved: \$139,802. Role: PI.

18- Texas A&M Health Sciences Center Faculty Development Fund. "Nicotinic acetylcholine receptors structure and pharmacology."

Project Period: 10/2013 - 03/2018. Direct Cost: \$200,000. Role: PI

19- National Institute of Health-NIGMS (P01GM58448). "General Anesthetic Sites on Ligand Gated Ion Channels."

Project Period: 04/2007 - 10/2013. Annual Fund: \$1,958,260. Role: Investigator.

<u>Publications:</u> (* = Corresponding Author; #= Equal Contributions)

- Gaona J., Gadekar P., Thakur G. A., Hamouda, A. K.* Carbamate9M, a stereoselective positive allosteric modulator of the (α4)3(β2)2 and (α4)2(β2)3 nicotinic acetylcholine receptors. <u>Manuscript in preparation</u>.
- Thompson S., Alkarboly A., Parmentier B. L., Hamouda, A. K.* HPLC Analysis of CBD Products Reveals Variability in CBD Content Recovery Under Simulated Gastric and Intestinal Conditions. <u>Manuscript in</u> <u>preparation.</u>
- 3. Aly R., Sulthana S., Beaudoin R., **Hamouda A. K.***, Santosh Aryal*. Nanoformulation and characterization of positive allosteric modulator for enhanced cellular delivery. <u>Scientific Reports, Manuscript Under Review.</u>
- Romero, A., Sanchez, A., Jones J. D., Ledesma, K., El-Halawany, M. S., Hamouda, A. K., Bill, B. R. (2024) Optimization of Zebrafish Larvae 6-OHDA Exposure for Neurotoxin Induced Dopaminergic Marker Reduction. <u>Zebrafish. 2024 Apr 12. Online ahead of print.</u> PMID: 38608227 DOI: <u>10.1089/zeb.2023.0098</u>
- Alkhlaif Y., El-Halawany M., Toma W., Park A., Hamouda A. K., Damaj M. I. (2023) L-theanine attenuates nicotine reward and withdrawal signs in mice. <u>Neurosci Lett.</u> 807:137279. PMID: 37105354 DOI: <u>10.1016/j.neulet.2023.137279</u>
- Deba F., Munoz K., Peredia E., Akk G., Hamouda A. K.*, (2022) Assessing Potentiation of the (α4)3(β2)2 Nicotinic Acetylcholine Receptor by the Allosteric Agonist CMPI. *Journal of Biological Chemistry* 298:101455. PMID: 34861241 DOI: <u>10.1016/j.jbc.2021.101455</u>
- Appiani R., Pallavicini M., Hamouda A. K., Bolchi C*. (2022) Pyrrolidinyl Benzofurans and Benzodioxanes: Selective α4β2 Nicotinic Acetylcholine Receptor Ligands with Different Activity Profiles at the Two Receptor Stoichiometries. <u>Bioorganic Medicinal Chemistry Letters</u> 65:128701. PMID: 35346843 DOI: <u>10.1016/j.bmcl.2022.128701</u>
- Hamouda A. K.*, Bautista M. R., Akinola L.S., Alkhlaif Y., Jackson A., Carper M., Toma W. B., Garai S., Chen Y. C., Thakur G. A., Fowler C. D., Damaj M. I.* (2021) Potentiation of (α4)2(β2)3, but not (α4)3(β2)2, nicotinic acetylcholine receptors reduces nicotine self-administration and withdrawal symptoms. <u>Neuropharmacology</u> 190:108568.

PMID: 33878302 DOI: 10.1016/j.neuropharm.2021.108568

- Pinheiro N. M., Banzato R., Tibério I., Prado M. A., Prado V. F., Hamouda A. K., Prado C. M.* (2021) Acute Lung Injury in Cholinergic-Deficient Mice Supports Anti-inflammatory Role of α7 Nicotinic Acetylcholine Receptors. <u>International Journal of Molecular Sciences</u> 22:7552. PMID: 34299169 DOI: 10.3390/ijms22147552
- Deba F., Ramos K., Vannoy M., Munoz K., Akinola L. S., Damaj M.I., Hamouda A. K.* (2020) Examining the Effects of (α4)3(β2)2 Nicotinic Acetylcholine Receptor-Selective Positive Allosteric Modulator on Acute Thermal Nociception in Rats. <u>Molecules</u> 25(12):E2923. PMID: 32630476 DOI: <u>10.3390/molecules25122923</u>
- Wilkerson J. L., Deba F., Morgan L. Crowley, Hamouda A. K.*, McMahon L. R.* (2020) Advances in the In vitro and In vivo Pharmacology of α4β2 Nicotinic Receptor Positive Allosteric Modulators. <u>Neuropharmacology</u> 168: 108008.
 PMID: 32113032 DOI: 10.1016/j.neuropharm.2020.108008
- Deba, F., Peterson, S.*, Hamouda A. K.* (2019) An Animal Model to Test Reversal of Cognitive Decline Associated with Beta Amyloid Pathologies. <u>Methods Mol. Biol.</u> 2019; 393-412.
 PMID: 31273712 DOI: <u>10.1007/978-1-4939-9554-7_23</u>

- 13. Deba F., Ali H.I., Tairu A., Ramos K., Ali J.H., Hamouda A. K.* (2018) LY2087101 and dFBr share transmembrane binding sites in the (α4)3(β2)2 Nicotinic Acetylcholine Receptor. *Nature Scientific Reports* 8: 1249.
 PMID: 29352227 DOI: 10.1038/s41598-018-19790-4
- Hamouda A. K.*, Jackson A., Bagdas D., Damaj M. I. (2018) Reversal of Nicotine Withdrawal Signs through Positive Allosteric Modulation of α4β2 Nicotinic Acetylcholine Receptors in mice. <u>Nicotine & Tobacco</u> <u>Research</u>, ntx183. PMID: 29059422 DOI: 10.1093/ntr/ntx183
- 15. Wang Z.J.[#], Deba F.[#], Mohamed T. S., Chiara D.C., Ramos K., Hamouda A. K.* (2017) Unraveling amino acid residues critical for allosteric potentiation of (α4)3(β2)2-type nicotinic acetylcholine receptor responses. *Journal of Biological Chemistry*, 292: 9988-10001. <u>Recommended in F1000Prime:</u> <u>https://f1000.com/prime/727558690</u>. Ranked in the top 5% of all research outputs scored by The Altmetric Attention Score <u>https://asbmb.altmetric.com/details/19828251</u>. PMID: 28446611 DOI: 10.1074/jbc.M116.771246
- Gazova Z., Soukup O., Sepsova V., Siposova K., Drtinova L., Jost P., Spilovska K., Korabecny J., Nepovimova E., Fedunova D., Horak M., Kaniakova M., Wang Z.J., Hamouda A. K., Kuca K. (2017) Multitarget-directed therapeutic potential of 7-methoxytacrine-adamantylamine heterodimers in the Alzheimer's disease treatment. <u>BBA Molecular Basis of Disease</u> 1863: 607-619. PMID: 27865910 DOI: <u>10.1016/j.bbadis.2016.11.020</u>
- Jayakar, S. S., Ang, G., Chiara, D. C., Hamouda A. K.* (2017) Photoaffinity Labeling of Pentameric Ligand-Gated Ion Channels to Identify: A Proteomic Approach to identify Allosteric Ligand Binding Sites. <u>Methods in</u> <u>Molecular Biology</u> 1598: 157-197.
 PMID: 28508361 DOI: 10.1007/978-1-4939-6952-4 7
- Hamouda A.K.*, Deba F., Wang Z.J., Cohen J. B. (2016) Photolabeling a Nicotinic Acetylcholine Receptor (nAChR) with an (α4)3(β2)2 nAChR-selective Positive Allosteric Modulator. <u>Molecular Pharmacology</u> 89: 575-584.
 PMID: 26976945 DOI: 10.1124/mol.116.103341
- Mohamed T. S., Jayakar S.S., Hamouda A. K.* (2015) Orthosteric and Allosteric Ligands of Nicotinic Acetylcholine Receptors for Smoking Cessation. *Frontiers in Molecular Neuroscience* 8: 71. PMID: 26635524 DOI: <u>10.3389/fnmol.2015.00071</u>
- Hamouda, A. K., Wang, Z.J., Stewart, D.A., Jain, A.D., Glennon, R.A., Cohen, J.B. (2015) Desformylflustrabromine (dFBr) and [³H]dFBr-labeled Binding Sites in a Nicotinic Acetylcholine Receptor. <u>Molecular Pharmacology</u> 88: 1-11. PMID: 25870334 DOI: <u>10.1124/mol.115.098913</u>
- 21. **Hamouda A.K.**, Al-Rousan R., Alkhateeb F.M. (2015) Pharmacy Education in the Palestinian Territories. <u>American Journal of Pharmaceutical Education</u> 79 (1) Article 03. <u>Education-related publication</u>.
- Hamouda, A. K.*, Cohen, J. B. (2014) Photoaffinity Labeling of Nicotinic Receptors: Diversity of Drug Binding Sites! <u>Journal of Molecular Neuroscience</u> 53: 480-486.
 PMID: 24158732 DOI: 10.1007/s12031-013-0150-1
- Hamouda A. K., Stewart D. S., Chiara D. C., Savechenkov P. Y., Bruzik K. S., Cohen J. B. (2014) Identifying Barbiturate Binding Sites in a Nicotinic Acetylcholine Receptor with [³H]Allyl-m- Trifluoromethyl-diazirine Mephobarbital, a Photoreactive Barbiturate. <u>Molecular Pharmacology</u> 85: 735-746. PMID: 24563544 DOI: <u>10.1124/mol.113.090985</u>

- Hamouda, A. K., Kim, T., Cohen, J. B. (2013) Physostigmine and Galanthamine Bind in the Present of Agonist at the Canonical and Non-canonical Subunit Interfaces of Nicotinic Acetylcholine Receptors. <u>Journal</u> <u>of Neuroscience</u> 33: 485-494.
 PMID: 23303929 DOI: 10.1523/JNEUROSCI.3483-12.2013
- Pandhare, A., Hamouda, A. K., Staggs, B., Aggarwal, S., Duddempudi, P., Lever, J.R., Lapinsky, D.J., Jansen, M., Cohen, J. B. Blanton, M. P. (2012) Bupropion Binds at Two Sites in the Torpedo Nicotinic Acetylcholine Receptor Transmembrane Domain: A Photoaffinity Labeling Study with Bupropion Analogue [¹²⁵I]SADU3-72. <u>Biochemistry</u> 51: 2425-2435. PMID: 22394379 DOI: 10.1021/bi300101r
- 26. daCosta, C. J., Sturgeon, R. M., Hamouda A. K., Blanton M. P., Baenziger, J. E. (2011) Structural Characterization and Agonist Binding to Human α4β2 Nicotinic Receptors. *Biochemical and Biophysical Research Communications* 407: 456–460.
 PMID: 21396349 DOI: 10.1016/j.bbrc.2011.03.026
- Hamouda, A. K., Stewart, D., Husain, S. S., Cohen, J. B. (2011) Multiple Transmembrane Binding Sites for Trifluoromethyldiazirinyletomidate, a Photoreactive *Torpedo* Nicotinic Acetylcholine Receptor Allosteric Inhibitor. <u>Journal of Biological Chemistry</u> 286:20466-20477. <u>Recommended in F1000Prime:</u> <u>https://f1000.com/prime/10866956#recommendations-content.</u> PMID: 21498509 DOI: <u>10.1074/jbc.M111.219071</u>
- Husain, S. S., Stewart, D., Desai R., Hamouda, A. K., Li, S. G., Kelly, E., Dostolova, Z., Zhou, X., Cotton, J. F., Raines, D. A., Olsen, R.W., Cohen, J. B., Forman, S. A., Miller, K. W. (2010) *p*-Trifluoromethyldiazirinyl-Etomidate: A Potent Photoreactive General Anesthetic Derivative of Eomidate that is Selective for Ligand-Gated Cationic Ion Channels. *Journal of Medicinal Chemistry* 53: 6432-6444. PMID: 20704351 DOI: <u>10.1021/jm100498u</u>
- Chiara, D. C., Hamouda, A. K., Ziebell, M., Mejia, L., Garcia, G., Cohen, J. B. (2009) [³H]Chlorpromazine Photolabeling of the *Torpedo* Nicotinic Acetylcholine Receptor Identifies Two State-Dependent Binding Sites in the Ion Channel. <u>Biochemistry</u> 48: 10066-77. PMID: 19754159 DOI: 10.1021/bi901271w
- Sanghvi, M.[#], Hamouda, A. K. [#], Davis, M., Morton, R., Srivastava, S., Pandhare, A., Duddempudi, P. K., Machu, T. K., Lovinger, D., Cohen, J. B., Blanton, M. P. (2009) Hydrophobic Photolabeling Studies Identify the Lipid-Protein Interface of the 5-HT_{3A} Receptor. <u>*Biochemistry*</u> 48: 9278-9287. PMID: 19715355 DOI: <u>10.1021/bi901208j</u>
- Srivastava, S.[#], Hamouda, A. K.[#], Pandhare, A., Duddempudi, P. K., Sanghvi, M., Cohen, J. B., Blanton, M. P. (2009) [³H]Epibatidine Photolabels Non-equivalent Amino Acids in the Agonist Binding Sites of *Torpedo* and α4β2 Nicotinic Acetylcholine Receptors. *Journal of Biological Chemistry* 284: 24939-34947. PMID: 19620239 DOI: <u>10.1074/jbc.M109.019083</u>
- Hamouda, A. K., Jin, X., Sanghvi, M., Srivastava, S., Pandhare, A., Duddempudi, P., Steinbach, J. H., Blanton M. P. (2009) Photoaffinity Labeling the Agonist Binding Domain of α4β4 and α4β2 Neuronal Nicotinic Acetylcholine Receptors with [¹²⁵I]Epibatidine and 5[¹²⁵I]A-85380. <u>Biochimica et Biophyca Acta</u> 1788:1987-1995.

PMID: 19545536 DOI: <u>10.1016/j.bbamem.2009.06.012</u>

 Hamouda, A. K., Chiara, D. C., Blanton, M. P., Cohen, J. B. (2008) Probing the Structure of Affinity-Purified and Lipid-Reconstituted *Torpedo* Nicotinic Acetylcholine Receptor. *Biochemistry*, 47:12787-12794. PMID: 18991407 DOI: <u>10.1021/bi801476j</u>

- Sanghvi, M., Hamouda, A. K., Jozwiak, K., Blanton, M. P., Trudell, J. R., Arias, H. R (2008) Identifying the Binding Site(s) for Antidepressants on the *Torpedo* Nicotinic Acetylcholine Receptor: [³H]2-Azidoimipramine Photolabeling and Molecular Dynamics Studies. *Biochimica et Biophyca Acta* 1778: 2690-2699. PMID: 18817747 DOI: 10.1016/j.bbamem.2008.08.019
- Hamouda, A. K., Sanghvi, M., Chiara, D. C., Cohen, J. B., Blanton M. P. (2007) Identifying the Lipid-Protein Interface of the α4β2 Neuronal Nicotinic Acetylcholine Receptor: Hydrophobic Photolabeling Studies with 3-(trifluoromethyl)-3-(*m*-[¹²⁵I]iodophenyl)diazirine. *Biochemistry* 46, 13837-13846.
 PMID: 17994769 DOI: 10.1021/bi701705r
- Garcia, G., Chiara, D. C., Nirthanan, S., Hamouda, A. K., Stewart, D. S., Cohen, J. B. (2007) [³H[Benzophenone Photolabeling Identifies State-Dependent Changes in Nicotinic Acetylcholine Receptor Structure. <u>Biochemistry</u> 46, 10296-07. PMID: 17685589 DOI: 10.1021/bi7008163
- Hamouda, A. K., Sanghvi, M., Sauls, D., Machu, T. K., Blanton, M. P. (2006) Assessing the Lipid Requirements of the *Torpedo Californica* Nicotinic Acetylcholine Receptor. *Biochemistry* 45, 4327-4337. PMID: 16566607 DOI: <u>10.1021/bi052281z</u>
- Hamouda, A. K., Chiara, D. C., Sauls, D., Cohen, J. B., Blanton, M. P. (2006) Cholesterol Interacts with Transmembrane α-helices M1, M3, and M4 of the *Torpedo* Nicotinic Acetylcholine Receptor: Photolabeling Studies using [³H]Azicholesterol. *Biochemistry* 45, 976-986.
 PMID: 16411773 DOI: <u>10.1021/bi051978h</u>

Book Chapters:

- 1. Deba, F., Peterson, S., **Hamouda A. K.*** (2019) "An Animal Model to Test Reversal of Cognitive Decline Associated with Beta Amyloid Pathologies". Psychiatric Disorders pp 393-412. ISBN:978-1493995530.
- Selwyn S. Jayakar, Gordon Ang, David C. Chiara, Ayman K. Hamouda*. (2017) "Photoaffinity Labeling of Pentameric Ligand-Gated Ion Channels to Identify: A Proteomic Approach to identify Allosteric Ligand Binding Sites". Neuroproteomics pp 157-197. ISBN 978-1493969524.

Abstract for meeting presentations and Conference Proceedings: (Selected Recent)

- Gadekar P., Gaona J., Seth S., Beauzile H., Felix W., Damaj M.I., Fowler C. D., Thakur G., Hamouda A. K.* (2024) "Optimizing Positive Allosteric Modulators to Selectively Target the High Sensitivity (α4)2(β2)3 Nicotinic Acetylcholine Receptor". Poster presentation; American Society for Pharmacology and Experimental Therapeutics (ASPET) annual meeting, Arlington, VA. <u>Journal of Pharmacology and Experimental Therapeutics (JPET)</u> June 2024, 389 (S3) 486. DOI: https://doi.org/10.1124/jpet.486.987320
- Gaona J., Bermudez M., Felix W., Rolling A., Thakur G., Hamouda A. K.* (2023) "Assessing the Potentiation of (α4)3(β2)2 Nicotinic Acetylcholine Receptor by Analogs of the Allosteric Agonist CMPI." Poster Presentation, The Society for Neuroscience annual meeting, Washington, DC.
- Beaudoin R., Pineda M., El-Halawany M., Prado C., Hamouda A. K.* (2023) "The Effect of Nicotinic Receptor Potentiators on Human Lung Cell Viability". Poster presentation, The 39thannual Meeting of the Southern Biomedical Engineering Conference, New Orleans, LA.

Robert Beaudoin (Pharmacy student) won the second place in this poster presentation competition. he also presented as oral talk entitles "Lesson Learned from Using Human Lung Cell Lines to Study Inflammation, Infection, and Drug Effects" at same conference.

- Gaona J., Mohiuddin M., Hamouda A. K.* (2023) "Examining the effect of a substituted carbamate positive allosteric modulator on the (α4)3(β2)2 and (α4)2(β2)3 nicotinic acetylcholine receptors". Poster presentation; Biophysical Society 67th Annual Meeting, San Diego, CA. *Biophysical Journal 122*, 395a. DOI: https://doi.org/10.1016/j.bpj.2022.11.2157
- Aly R., Beaudoin R., Sulthana S., Hamouda A. K.*, Aryal S.* (2022) "Synthesis and characterization of nicotinic acetylcholine receptors positive allosteric modulator loaded polymeric nanoparticle to maximize brain bioavailability". Poster presentation, The 38th Annual Southern Biomedical Engineering Conference, New Orleans, LA.

Rahma Aly (Graduate student) also presented this poster at the 8th Annual UTT Lyceum Student Research Showcase and won the second place in poster presentation competition.

- Seth S., Deba F., Cheeks S., Garai S., Beauzile H., Gaona J., Damaj M. I., Fowler C. D., Ganesh A Thakur G. A., Hamouda A. K.* (2002) "Synthesis and Pharmacological Characterization of Novel (α4)2(β2)3 Nicotinic Acetylcholine Receptor Positive Allosteric Modulators." Poster presentation; The American Association of Colleges of Pharmacy Annual Conference, Grapevine, TX.
- Romero A., Hunt J., Bill B. R., Hamouda A. K.* (2022) "Optimizing 6-Hydroxydopamine Concentrations for induction of Parkinson's Disease Like Behavior in Zebrafish". Poster presentation; American Society for Pharmacology and Experimental Therapeutic Annual Meeting at Experimental Biology, Philadelphia, PA. <u>The FASEB Journal</u> 36, S1. DOI: <u>https://doi.org/10.1096/fasebj.2022.36.S1.R5750</u>

<u>Adrian Romero (undergraduate student)</u> also presented as a poster at 125th Annual Meeting of the Texas Academy of Sciences (TAS), Houston, TX and <u>won the first place in poster presentation</u>.

- Pinheiro N. M., Banzato R., Tibério I., Prado M.A.M., Prado V. F., Prado C. M., Hamouda A. K.* (2021) "Anti-Inflammatory Cholinergic System Modulates LPS-Induced Acute Lung Injury". American Society for Pharmacology and Experimental Therapeutic Annual Meeting, Virtual Experimental Biology Platform. <u>The FASEB Journal</u>, 35, S1. DOI: <u>https://doi.org/10.1096/fasebj.2021.35.S1.00250</u>
- Thompson S., Alkarboly A., Parmentier B. L., Hamouda A. K.* (2021) "HPLC Analysis of CBD Products Reveals Variability in CBD Content Recovery Under Simulated Gastric and Intestinal Conditions". Poster presentation; American Association of Pharmaceutical Scientists (AAPS) PharmSci 360 Annual Meeting, Philadelphia, PA.

<u>Sarah Thompson (Pharmacy student) and Abdallah Alkarboly (Nursing student)</u> also presented this poster at the 6th UT Tyler Annual Lyceum Student Research Showcase and featured in the Tyler Loop <u>https://thetylerloop.com/ut-tylers-lyceum-showcases-impressive-student-research-projects/</u>

- Deba F., Akk G., Hamouda A. K.* (2020) Assessing CMPI Potentiation of (α4)3(β2)2 Nicotinic Acetylcholine Receptor Using the Monod-Wyman-Changeux Allosteric Model. <u>The FASEB Journal</u>, 34 S1. DOI: <u>https://doi.org/10.1096/fasebj.2020.34.s1.03706</u>
- Peredia E., Sheraz A., El-Kishky O., Sawyer G., Deba F., Hamouda A. K. (2019) "The Use of Concatemer Subunit Constructs to Study the Pharmacology of α4- 3and α6-Containing Neuronal Nicotinic Acetylcholine Receptor". *Poster presentation, American Association of Pharmaceutical Scientists PharmSci* 360 *Conference, San Antonio, TX. AAPS ePoster Library;* 283319; W1230-13-87

<u>Eloisa Peredia (undergraduate student)</u> also presented this poster at The University of Texas at Tyler Annual Research Lyceum and <u>won 2nd place in a university-wide undergraduate poster competition</u>.

<u>Anna Sheraz (PharmD student)</u> also presented a talk at 124th Annual Meeting of the Texas Academy of Sciences (TAS), Virtual Meeting and won the Best Oral Presentation in the Neuroscience section.

Awards and Scholarly Activities

A. Awards and Recognition:

2024	Endowed Ben and Maytee Fisch Chair in Pharmacy
2024	Class of 2027 Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2023	Graduating Class Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2023	Class of 2026 Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2022	Class of 2025 Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2022	Universidade Federal de São Paulo Institutional Internationalization Project-CAPES-PRINT Program, Sao Paulo, Brazil.
2021	Class of 2024 Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2021	UT Tyler nominee for The University of Texas System Kenneth I. Shine, M.D., Academy of Health Science Education.
2020	Class of 2023 Teacher of the Year, Fisch College of Pharmacy – UT Tyler.
2019	Crystal Quill Award, The University of Texas at Tyler.
2007	Alexander D. Kenny Outstanding Graduate Student Award, Texas Tech University HSC.
2007	GSBS Outstanding Graduate Student Award, Graduate School of Biomedical Sciences, Texas Tech University HSC
2007	Convocation speaker, Graduate School of Biomedical Science, Texas Tech University HSC.
2006	1st Place (Doctoral Category) in Research Poster Competition Annual Student Research Day, Texas Tech University HSC.
2006	Society for Neuroscience Graduate Student Travel Award
2006	Chancellor's Scholarship, Texas Tech University
2005	2nd Place (Doctoral Category) in Research Poster Competition Annual Student Research Day, Texas Tech University HSC
2003-2004	Fulbright Foreign Student Scholarship, United State Department of State.

B. Invited Talks and Seminars:

2022	The Center for Biomedical Research, UT Tyler School of Medicine, Tyler, TX.
2022	Department of Bioscience, Federal University of Sao Paulo, Santos, Brazil.
2022	International Union for Pure and Applied Biophysics (IUPAB) Focused Meeting the Biophysics of Ligand-Gated Ion Channels: From Structure to Drug Target. Ottawa, Canada.
2022	East Texas Research Conference 2022. Tyler, TX.
2018	The University of Texas HSC at Tyler - School of Medical Biological Sciences, Tyler, TX.
2018	Coastal Bend Health Education: Opioid & Pain Management Conference. Corpus Christi, TX.
2018	International Brain Research Organization (IBRO) - MENA School and Conference, Cairo, Egypt.
2018	The Society for Arab Neuroscientists - Career Development Panel. San Diego, CA.
2017	Texas Tech University HSC - Department of Pharmacology and Neuroscience, Lubbock, TX.
2015	Texas A&M University - Department of Biology Nona Symposium, College Station, TX.

2015	The University of Puerto Rico - Research Initiative for Scientific Enhancement (RISE) Program, San Juan, PR.
2014	International Brain Research Organization (IBRO)-MENA School & Conference, Al Doha, Qatar.
2013	The XIV International Symposium on Cholinergic Mechanisms, Hangzhou, China.
2011	Texas Tech University HSC – Dept. of Cell Physiology and Molecular Biophysics, Lubbock, TX.
2011	Texas Tech University HSC - Center for Membrane Protein Research Workshop. Lubbock, TX.
2011	Harvard Medical School - Department of Neurobiology, Boston, MA
2010	Harvard Medical School - Department of Neurobiology, Boston, MA
2009	Harvard Medical School - Department of Neurobiology, Boston, MA

C. Grant Reviewer:

2017-Present	American Heart Association (AHA): Cell Transport Basic Science 2. Study Section Member.
2016-Present	American Association of Colleges of Pharmacy (AACP): New Investigator Award.
2019-Present	NIH-NIGMS-Sponsored University of Puerto Rico COBRE Phase 2 Pilot Project Program.
2021	Oak Ridge Associated Universities.
2020	The Royal National Institute - United Kingdom: Discovery Research Grant.
2020	The University of Texas System and Mexico's National Council of Science and Technology (ConTex): Collaborative Research Grants.
2019	California Northstate University College of Pharmacy: Seed Grant Program
2018-2020	NIH-Center for Scientific Review (CSR): Early Career Reviewer (ECR) Program
2016	The American University of Beirut: University Research Board Fund

D. Graduate Student Thesis Committees:

2023-Present	NeuroGRAD's NIH fellowship Mentoring Team Member Mallerie Carrasquillo-Rivera (graduate student, University of Puerto Rico)
2023-Present	External committee member, Project Collaborator Yaning Li (Master of Pharmaceutical Sciences; Northeastern University)
2023-Present	<i>Faculty Advisor and Committee Co-Chair</i> Marcos Bermudez (Master of Biology; UT Tyler)
2023-2024	<i>Committee member, Project Collaborator</i> Rahma Aly (Master of Chemistry; UT Tyler)
2022-2023	Faculty Advisor and Committee Co-Chair Adrian Romero (Master of Biology; UT Tyler)
2021-Present	External committee member, Project Collaborator Wilder Felix (Ph.D. of Pharmaceutical Sciences; Northeastern University)
2021-2022	External committee member, Project Collaborator Rebecca Appiani (PhD of Pharmaceutical Sciences, University of Milan, Italy)
2018-2019	External committee member, Project Collaborator Sahil Seth (Master of Pharmaceutical Sciences, Northeastern University)
2018-2019	<i>Master Thesis committee member,</i> Michelle Veronin (Master of Health and Kinesiology, UT Tyler)

2018	<i>External committee member,</i> James M. Fowler (Master of Biotechnology, UT-HSC at Tyler)
2015-2018	Research Advisory Committee Member and Dissertation Committee member Ahmed Mahmoud (Ph.D. in Environmental engineering, Texas A&M at Kingsville)

E. Research Training:

Postdoctoral Fellows	Khaldoun Abdelwahed, PhD (2024-present); Medhat El-Halawany, Ph.D. (2022-2024); Nathalia Menegasso Pinheiro, Ph.D. (2020-2021); Farah Deba, Ph.D. (2015-2019); Ze-Jun Wang, Ph.D. (2014-2015).
Graduate Students	(Note: There is no graduate program at FCOP; Students trained in my lab as part of their thesis projects at different programs or for additional research experience). Vitoria Caroline de Queiroz (Visiting PhD student from Brazil; 2023-Present); Rebecca Appiani (Visiting PhD student from Italy; 2021); Marcus Bermudez (Thesis co-chair; 2023-present); Adrian Romero (Thesis co-chair; 2022-2023); Md Sharif Ahmed (2022-2023); Musharaf Mohiuddin (2022); Justin Hunt (2021); Walaa Abbas (2017); Ahmed Mahmoud (2015-2018); Tasnim Mohamed (2014-2015).
PharmD Students	Robert Beaudoin (2021-Present); Firas Yonis (2023-Present); Alanna Kologey (2022-2023); Michal Stout (2022-2023); Melvin Anthony II (2021-2022); Tulsiben Patel (2021-2022); Nadine Natsheh (2020-2021); Viyaleta Manastyrskaya (2020-2021); Amy Hendrix (2020-2021); Lazaro Chavez (2020-2021); Ryan Mattison (2019-2020); Sarah Thompson (2019-2022); Delight Onyejegbu (2019-2020); Anna Sheraz (2019-2021); Nada Qazait (2019-2020); Alyssa Torres (2019); Layla Kassem (2019-2021); Gubeom Nam (2017), Abisola Tairu (2016-2018); Gordon Ang (2015-2017); Ken Mizuno (2015).
Undergraduate Students	Adiam Michale (2024-present); Nolawit Tilahun (2024-present); Brisa Cia (2024- Present); Amaya Rolling (2023-Present); Nataly Sanchez (2023-Present); Dante Glover (2023-Present); Jocelyn Jones (2023-present); Armando Sanchez (2022-2023); Josue Gaona (2021-2023); Mariana Lopez Pineda (2022-2023); Kristel Ledesma (2022-2023); Precious Henry (2023); Bao Ngoc Nguyen (2022); Kasey Anderson (2022); Noriac Dathis (2022); Masna Junaid (2021-2022); Adrian Romero (2021-2022); Omar Barakat (2019-2020); Sagar Sah (2019); Eloisa Peredia (2019-2021); Maria Alejandra Rivero (2018-2020); Norma Perez-Garcia (2018-2020); Ahmira Jade Manalac (2019-2020); Amanda Solorza (2018-2019); Suvam Pokharel (2019-2020); Karan Venaik (2019-2020); Kemburli Munoz (2017-2018), Savannah Lozano (2017), Kara Ramos (2015-2017), Jihad Ali (2014-2016), Paul Dunnand (2016), Matthew Vannoy (2016-2018), Joshua Nuyttens (2016), Manuel Salina (2015), Almuntaser Alaskari (2014-2015), Tiffany Trevino (2014-2016).
Nursing Student	Abdullah Alkarboly (2020-2022).
Medical Student	Josue Gaona (2023-Present);
High-School Student	Omar El-Kishky (2018-2019)

F. Affiliations and Other Scholarly Services:

- 2022 and 2023 *Organizing Committee Member*, Chair of "Advanced Biomedical Applications" session, The 38th and the 39th Southern Biomedical Engineering Conference, New Orleans, LA.
- 2021 *Member*, American Society for Pharmacology and Experimental Therapeutics Focus Group.

- 2020 *External Reviewer,* Faculty tenure and promotion, Faculty of Pharmacy & Pharmaceutical Sciences, University of Alberta, Canada.
- 2020 *Programming Committee Member,* American Association of Colleges of Pharmacy (AACP) annual meeting: Biological Sciences section.
- 2018 External Reviewer, Faculty tenure and promotion, American University of Beirut, Lebanon.
- 2017-2019 Councilor, Texas A&M Chapter of the Society for Neuroscience
- 2015-2016 Organizing Committee Co-Chair, Texas A&M College of Pharmacy Research Colloquium:
- 2014-2018 Member, Texas A&M Institute of Neuroscience (TAMIN), Texas A&M University.
- 2014-2020 *Review editor* : Frontiers in Neuroscience and Frontiers in Physiology.
- 2013-Present Research abstract reviewer and poster competition judge: American Association of Pharmaceutical Scientists, Nicotine and Tobacco Research, American Association of Colleges of Pharmacy, American Society for Pharmacology and Experimental Therapeutics and others.
- 2010-Present Ad hoc peer reviewer: Journal of Biological Chemistry (JBC), Neuropharmacology, Biochemistry, The Biophysical Journal, Journal of Neuroscience Research, Nature Scientific Reports, PLOS ONE, Biomarker Insight, ACS Journal Analytical Chemistry, Journal of Analytical Biochemistry, Journal of Membrane Biology, Inflammation, Frontiers in Neuroscience, Frontiers in Physiology, and others.
- 2005-Present Member in Scientific Societies: The Biophysical Society (2005-present); American Society for Pharmacology and Experimental Therapeutics (2006-present); Society for Neuroscience (2006-present), American Association of Colleges of Pharmacy (2013-present); American Association of Pharmaceutical Scientists (2018-present); Team-Based Learning Collaborative (2019), and others

Teaching Experience:

- 2020-Present University of Texas at Tyler Fisch College of Pharmacy
 - PHAR 7290 (Principle of Drug development; course coordinator & instructor)
 - PHAR 7299 (Neuropharmacology Research; course coordinator & instructor)
- 2018-Present University of Texas at Tyler Fisch College of Pharmacy
 - PHAR 7301 (Principle of Physiology, Pharmacology, and Pharmacogenomics; coordinator & Instructor)
 - PHAR 7613 (Integrated Pathophysiology and Pharmacology; instructor)
 - PHAR 7586 (Integrated Pharmacotherapy-6, instructor)
 - Objective Structured Clinical Examination (OSCE): (case writing, faculty grader)
- 2023-Present University of Texas at Tyler The Honors College
 - HNRS 3000 (Honor Contract Research; supervisor/instructor); Fall 2023; Spring 2024
- 2019-Present University of Texas at Tyler Department of Biochemistry
 - CHEM 4195 (Undergraduate Research; supervisor/instructor); Spring 2024
 - CHEM 4395 (Undergraduate Research; supervisor/instructor); Spring 2019

2018-2019	University of Texas at Tyler - Fisch College of Pharmacy
	 PHAR 7511 (Integrated Pharmacy 11; instructor) PHAR 7202 (Principles of Microbiology and Immunology; course coordinator)
2019	Team-Based Learning Collaborative (TBLC) Fundamentals Track Certificate.
2013-2018	Texas A&M University - Rangel College of Pharmacy
	 PHAR 713 (Integrated Pharmacotherapy: Neurobiology and Pain Management; coordinator & instructor) PHAR 810 (Integrated Pharmacotherapy: Psychiatry and Addiction; instructor) PHAR 785 (Independent study: Research and Seminar elective; course coordinator & instructor) Objective Structured Clinical Examination (OSCE): (Faculty Grader) Research Project in Biology (TAMUK BIOL 4304): (Supervisor)
2012-2013	Harvard Medical School
	Principles of Pharmacology (IN757): Instructor for minicases tutorial
2006-2007	Texas Tech University HSC - Department of Cell Physiology and Molecular Biophysics
	 Medical Physiology (GPHY-5803): Instructor for small group conferences
1998 –2002	Al-Azhar University-Gaza - Faculty of Pharmacy
	 Teaching Assistant and Laboratory Instructor: Medicinal chemistry; Medical physiology; Pharmacology

Institutional Services:

A. The University of Texas at Tyler:

2023-Present	FCOP Curriculum Committee: Chair
2018-Present	FCOP Research and Scholarship Committee: Member (2018-2020 and 2021-2022); Chair (2020-2021 and 2023-present)
2024-Present	FCOP Search Committee for Associate Dean of Academic Affairs: Member.
2023-Present	Department of Pharmaceutical Sciences-Promotion and Tenure Committee, member.
2019-Present	Department of Pharmaceutical Sciences-FCOP Faculty Search Committee: Member (2019-2021); Chair (2021-2023); Member (2024-present);
2023-Present	Department of Clinical Science-FCOP, Faculty Search Committee: Member.
2022-present	Research Enterprise Council, UT Tyler School of Medicine: Member
2023	College of Engineering, Promotion and Tenure Committee, member.
2022	UT Tyler Search Committee for Dean for the Fisch College of Pharmacy: Member.
2022-2025	UT Tyler Faculty Senate: Faculty Senator (<i>elected position</i>). UT Tyler Faculty Senate Fellowship Advisory Committee: Member (2023)
2021-2024	UT Tyler Research Council: Member UT Tyler Faculty Development Leave applications review team: Member (2022)
2019-Present	UT Tyler Radiation Safety Officer (RSO): Texas State License L06999.

2021-Present	UT Tyler and UT Health Consolidated Radiation Safety Committee: Member
2019	UT Tyler Search Committee for Associate Vice-Provost for Research and Scholarship. Member.
2018-2021	UT Tyler Institutional Animal Care and Use Committee (IACUC): Member (2018-2019) Committee for the establishment of a UT Tyler Vivarium: (2020-2021).
2021-Present	FCOP Strategic Planning Committee: Member
2021-2022	FCOP Faculty Council: Member (elected position)
2018-Present	 FCOP Assessment Committee: Member (2018-2020); Vice-Chair (2020-2021); Chair (2021-present) FCOP joined curriculum and assessment workgroup for post-course reviews: Chair (2021-2022) FCOP Remediation and Academic Standing Policies workgroup: Member (2021)
2020-2021	FCOP committee for the development of Pharmacy Graduate Program: Member
2018-Present	Faculty Mentor: Dr. Brittany Parmentier; Assistant Professor of Clinical Sciences (2020-2022). Dr. Farah Deba; Assistant Professor of Pharmaceutical Sciences (2019-Present). Dr. May Abdelaziz; Assistant Professor of Pharmaceutical Sciences (2018-Present).
2018-Present	 FCOP Committee for Accreditation Council for Pharmacy Education (ACPE): ACPE 2023 report: Steering Committee Member, Standards 24 and 25 Co-Chair. ACPE Focused Site Visit 2021: Steering Committee Member, Standards 8 and 9 Co-Chair. ACPE Full Accreditation Site Visit 2019: Self-Study 2019 Standards 5 and 8 Subcommittee.
2019-2020	FCOP representative for American Association of Colleges of Pharmacy (AACP) AACP House of Delegates: FCOP Faculty Delegate for 2019 and 2020. AACP Leadership Institute: Member in FCOP team for 2019
2018-Present	FCOP PharmD Student Academic Advising: 21 student advisees
2018-Present	FCOP Recruitments: Admission Interviews (Multiple Mini Interviews); JumpStart program for incoming PharmD classes, and Orientation for P1 PharmD students.
B. Texas A&M University:	
2014 - 2017	Member, RCOP Faculty and staff search committees: Director of Assessment/Pharmaceutical Science faculty position (2017) Physiology faculty position (2016) Internal Affairs and Communications Director (2016) Vet Tech for RCOP vivarium (2016) Pharmaceutics faculty position (2015) Pharmaceutical Chemistry faculty position (2015)

- 2014-2017 *Faculty Senator*, TAMU Faculty Senate and *Member*, TAMHSC Faculty Senate Caucus *Member*, TAMU Faculty Senate Research Committee
- 2015-2016 Member, Texas A&M University Selection Committee for College-Level Teaching Award
- 2014-2018 *Member*, RCOP standing and ad hoc committees. Credentialing committee (2014-2018) Research Advisory committee (2014-2018) Faculty Development committee (2014-2016) Subcommittee for ACPE accreditation Self-Study (2015-2016)

2015-2016 *Member*, Graduate program Committees Graduate admission, Texas A&M Institute of Neuroscience (2016) Graduate Program (PhD/MS Pharmaceutical Sciences) Committee (2016-2018) TAMUK/RCOP MS in Pharmaceutical Sciences program committee (2015-2016)