

Department of Pharmaceutical Sciences

Appalachian College of Pharmacy

1060 Dragon Road, Room 232

Oakwood, VA 24631

Office: (276) 498-5235

Fax: (276) 498-5206

Cell: (860) 305 5217

E-mail: nounou@acp.edu

Website: www.acp.edu

I. SUMMARY: Highly innovative and tenacious professional pharmaceutical formulator. More than 10 years of experience in drug formulations, pharmaceutical bioconjugation, chemical synthesis, polymeric and peptidomimetic structures design, anti-cancer drug evaluation and targeted drug delivery. Profound knowledge of physical chemistry and practical expertise in developing various formulations. Demonstrates expertise in pharmaceutical polymer chemistry, non-viral gene delivery, topical and vesicular drug delivery systems and *in-vitro/in-vivo* formulations evaluation. Extensive experience in designing, characterizing and evaluating targeted drug and gene carrier systems. Known for versatility and effectiveness in stressful situations; demonstrates "big picture" vision and sensitivity to bottom-line in order to deliver high-quality projects and tasks. Responds quickly and properly to changing circumstances; assesses problems and formulates comprehensive decisions to achieve positive change. Highly motivated creative thinker with strong data interpretation and problem solving abilities. Effective oral and written communication skills.

II. SCIENTIFIC EXPERIENCE

- Extensive experience in various biochemical and molecular biology techniques including immunohistochemistry (IHC), immunofluorescence, protein and peptide labeling, gene expression, Western Blot (WB), DNA / RNA preparation, gel electrophoresis, cell culture and flow cytometry.
- Technical experience with histologic processing of tissues, cryopreservation & sectioning and working with mammalian, cancer and stem cell lines.
- Extensive experience with numerous imaging techniques including light, fluorescence, confocal, multiphoton, scanning electron and transmission electron microscopes using different software packages such as 3i SlideBook and others.
- Extensive experience with chemotherapy distribution in brain metastases of breast cancer.
- Extensive experience in mouse models to study the brain tumors and metastases and myocardial infarction at the cellular and functional levels.
- Strong grasp of the design and the characterization of specially tailored polymers for gene and drug delivery.
- Development of genetically modified animal models for brain metastases.
- Knowledgeable about developing targeting moieties-drug bioconjugates and applying appropriate biophysical and biochemical characterization methods of protein-drug conjugates.
- Knowledgeable about physico-chemical characterization of cationic polymer (polyplexes) delivery vehicles, along with their evaluation *in-vitro* and *in-vivo*.
- Well-versed in the design, the characterization and the *in-vitro/in-vivo* evaluation of polymeric and vesicular delivery systems such as stealth liposomes, ultradeformable vesicles, ethosomes, microspheres and nanoparticles.
- Extensive experience with polymer, lipids and dosage forms stability testing.
- Adept at developing topical formulations combined with in-depth knowledge of delivery vehicles based on liposomes, micelles and polymeric/protein particles for water insoluble drugs.
- Proficient at controlling release from semi-solid and suspension formulations and polymeric-drug matrices.
- Experience with various models of *in-vitro* drug release from different formulations and dosage forms.
- Extensive experience with establishing genetically modified stable cell lines to be used for *in-vitro* and *in-vivo* evaluation of drug and gene delivery systems.
- Experienced in physico-chemical properties of drugs and their interactions with formulation excipients.
- Solid knowledge of techniques and methods development for quantitative characterization of drugs, including peptide/proteins interactions with cells, along with their the sub-cellular trafficking
- Adept at evaluating anti-proliferative and cytotoxic activity of anti-cancer agents.
- Demonstrated strong leadership skills in managing research for drug formulation development.
- Experience with analytical techniques such as ¹H and ¹³C NMR, IR, column chromatography, HPLC and MALDI-TOF.
- Broad scope of knowledge of HPLC spectroscopy, GPC, UV and fluorescence spectroscopy, near infra-red spectroscopy, flow

cytometry and immunoassays.

- Extensive experience with radio labeling and radiopharmaceuticals handling and analysis.
- Strong grasp of the design, synthesis and the characterization of specially tailored polymers and peptidomimetic structures for gene and drug delivery.

III. ACADEMIC QUALIFICATIONS

Doctor of Philosophy (Pharmaceutics) (Jun 2007 - Dec 2011)	Department of Pharmacological & Pharmaceutical Sciences University of Houston, Houston, Texas Dissertation title: ' Novel lysine-based reducible copolymers for intracellular gene delivery '
Master of Science (Pharmaceutics) (Jan 2002 – Apr 2005)	Department of Pharmaceutics, Faculty of Pharmacy Alexandria University, Alexandria, Egypt Dissertation title: ' Pharmaceutical study of some topical drug delivery systems '
Bachelors in Pharmacy (1997 - 2001)	Department of Pharmaceutics, Faculty of Pharmacy Alexandria University, Alexandria, Egypt

IV. WORK EXPERIENCE

Assistant Professor (Jan 2016–Present)	Department of Pharmaceutical Sciences, Appalachian College of Pharmacy, Oakwood, VA 24631, USA. My current assistant professor job involves teaching different classes for PharmD, students. It also involves conducting research and supervising graduate students in my laboratory.
Assistant Professor (Apr 2013–Present)	Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Egypt My current assistant professor job involves teaching different classes for undergraduate bachelors of pharmacy and clinical pharmacy students and postgraduate PharmD, M.PSc. and Ph.D. students. It also involves conducting research and supervising M.PSc. and Ph.D. graduate students in my laboratory.
Visiting Assistant Professor (Sep 2014–Nov 2014)	Department of Pharmaceutical and Pharmacological Sciences (DSF), Università degli Studi de Padova, Italy
Research Associate (Jan 2012 – April 2013)	Texas Tech University, Health Sciences Center School of Pharmacy, Department of Pharmaceutical Sciences, Amarillo, TX Developing genetically modified stable cancer cell lines to study the mechanism of drug uptake in metastatic breast cancer cells in the brain.
Teaching Assistant (Aug 2007 - Dec 2011)	University of Houston Conducting problem-solving sessions and grading pharmaceutics and drug delivery examinations for PharmD students.
Lecturer Assistant (May 2005 - Jul 2007)	Department of pharmaceutics, Alexandria University, Egypt. Supervising problem-solving and practical sessions as well as grading pharmacokinetics, pharmaceutics and drug delivery examinations for PharmD and bachelors of pharmacy students. Preparation of lecture's materials for pharmaceutics, drug delivery and pharmacokinetics classes.
Teaching Assistant (Jul 2001 - Apr 2005)	Department of pharmaceutics, Alexandria University, Egypt. Conducting problem-solving and practical sessions as well as grading pharmacokinetics, pharmaceutics and drug delivery examinations for PharmD and bachelors of pharmacy students.

V. TEACHING EXPERIENCE

My academic work in the Department of Pharmaceutics (**Appalachian College of Pharmacy**; Virginia, VA, **Alexandria University**, Egypt, **University of Padova**, Italy and **University of Houston**; Houston, TX) as an assistant professor/teaching assistant included teaching various practical and theoretical courses in a variety of subjects in the field of pharmaceutical sciences and formulation aspects such as pharmaceutical calculations, solid dosage forms, semisolid dosage forms., liquid dosage forms, novel drug delivery systems, topical and transdermal drug delivery systems, kinetics and pharmacokinetics, biopharmaceutics., cosmeceutical formulations, controlled drug delivery systems, bioresponsive carrier systems., basic physical pharmacy, pharmaceutical stability testing, advanced topics in drug delivery, colloidal carrier systems, cosmeceutical formulations, drug design, history of pharmacy and

peptide-based and peptidomimetic structures in drug delivery. A summary of my teaching experience is tabulated as follows:

Course Title	Code	University	Department	Degree	Semester	Year	Role	% Load	Practical Sessions	Level
Capstone P2	PHA-0299	Appalachian College of Pharmacy, USA	Pharmacy Practice	Pharm.D.	Spring	'16	Teacher	20%	NA	Undergraduate
Capstone P3	PHA-0399							30%	Yes	
Diseases of the renal System and Fluid and Electrolyte Disorders	PHA-0222		5%					NA		
Pharmaceutical Compounding	PHA-0175		35%					Yes		
Brain Drug Delivery	PHA-4098		Pharmaceutical Sciences		Summer	'16	Course Coordinator	100%	No	
Advanced Pharmaceutics I	PP-401	Alexandria University, Egypt	Pharmaceutics	B.Pharm	Fall	'02	Teaching Assistant (TA)	40%	Yes	
Advanced Pharmaceutics II	PP-402				Spring	'02		25%		
Biopharmaceutics and pharmacokinetics	PP-301				Fall	'02-'06				
Pharmaceutical dosage forms III	PP-302				Spring	'02-'06				
Dosage Forms & Calculations	BSPH-3301	University of Houston, USA	Department of Pharmacologica I and Pharmaceutical Sciences	Pharm.D.	Fall	'08-'09	Teaching Assistant (TA)	40%	NA	
Dosage Forms II & Biopharmaceutics	PHPS-3303				Spring	'09-'10				
Advanced Pharmaceutics I	PCEU-6342				Fall	'07-'09				
Pharmaceutics I	PECU-4430				Fall	'07-'10				
Pharmaceutics II	PECU-4331				Spring	08-'11				
Controlled Drug Delivery Systems	DP-303	Damanhour University, Egypt	Pharmaceutics	B.Pharm	Spring	'14	Course coordinator & Teacher	40%	Yes	
Ethics and History of Pharmacy Practice	PHR-110	Pharos University, Egypt	Pharmaceutics		Spring	'15		70%	NA	
Physical Pharmaceutics II	PP-103	Alexandria University, Egypt	Pharmaceutics		Fall	'13	Course coordinator, Teacher & Practical sessions moderator	25%	Yes	
Cosmetic Formulations	PP-303				Spring	'14-'15		30%		
Retail Pharmacies Summer Training	PP-316				Summer	'15	Academic Supervisor	10%	NA	
Cosmeceutical Formulations in Clinical Practice	PTE-13				Pharmacologica I and Pharmaceutical Sciences	B. Clinical Pharm.	Fall	'13 & '16		Course coordinator & Teacher
Drug Information	PP-015		Spring				'13-'15	60%		
Hospital Summer Training	PP-703		Summer		'14	Academic Supervisor	33%			
Pharmaceutical Technology	FA02043794		University of Padua, Italy		Dipartimento Di Scienze Del Farmaco (DSF)	B.Pharm	Fall	'14	Teacher	40%
Seminar Sessions	901702	Alexandria University, Egypt	Pharmaceutics		M.PSc.	Fall	'13	Academic Supervisor	33%	NA
Scientific Writing	900706		Pharmaceutical Sciences	M.PSc.	Spring	'14-'15	Teacher	33%		
Biostatistics	PD-412		Pharmaceutical Sciences	Pharm.D.	Fall	'13	Course coordinator & Teacher	100%		
Peptide based and peptidomimetic structures in Drug Delivery	901703		Pharmaceutics	M.PSc.	Spring	'13-'15		60%		
Advanced Controlled Drug Delivery Systems II	901803		Ph.D.	Spring	'13-'15	33%				

VI. PROFESSIONAL ACTIVITIES

A. Professional Organizations Memberships

- American Chemical Society, **ACS** (2009-current).
- Controlled Release Society, **CRS** (2008-current).
- American Association of Pharmaceutical Scientists, **AAPS** (2007-current).
- Biomedical Engineering Society, **BMES** (2007-current).
- American Society for Cell and Gene Therapy, **ASCGT** (2007-current).
- American Association of Cancer Research, **AACR** (2012-current).
- American Pharmacist Association, **APhA** (2016-current).
- American College of Clinical Pharmacy association, **ACCP** (2016-current).
- Golden key international honor society (2009-2013).

B. Journal Editor

- Journal of Cancer Metastasis and Treatment (JCMT).
- Breast cancer: Clinics in Oncology.

C. Journal Reviewer

- International Journal of Pharmaceutics (**IJP**).
- Journal of Controlled Release (**JCR**).
- Asian Journal of Pharmaceutics (**AJP**).
- Journal of Pharmacy and Bioallied Sciences (**JPBS**).
- Drug Delivery.
- Chronicles of Young Scientists.
- Pharmaceutical Patent Analyst.
- Therapeutic delivery.
- International Journal of Pharmaceutical Sciences and Developmental Research.
- Current Drug Safety (**CDS**).
- Journal of Andrology & Gynecology.
- International Journal of Immunopathology and Pharmacology.

D. General Activities

- Head of the Leadership and Governance file, Quality Assurance and Accreditation Program (QAAP), Faculty of Pharmacy, Alexandria University, Egypt (2014-Current).
- Information Technology Unit (IT Unit) and Drug Information Center (DIC) executive director, Faculty of Pharmacy, Alexandria University, Egypt (2013-Current).
- Awareness & Advertising Committee Coordinator, Faculty of Pharmacy, Alexandria University, Egypt (2014-Current).
- Coordinator of Student Activities, Faculty of Pharmacy, Alexandria University, Egypt (2013-Current).
- International Relations Office, Medical center branch, executive director, Alexandria University, Egypt (2014-Current)
- Quality Assurance, Curriculum and Accreditation committee, Faculty of Pharmacy, Arab Academy For Science and Technology (AAST), Alexandria, Egypt (2014-Current).

VII. Awards And Scholarships

- Erasmus Mundis Action 2 "Al Idrisi" Grant (2013-2401/001-001-EMA2) (2014)
- University of Houston, College of Pharmacy Scholarship (Fall 2010).
- Dr. Bhagavan Jandhyala Endowed Scholarship (Fall 2009).
- International polyolefin Conference and the Division of Polymer Additives and Modifier of the Society of Plastic Engineers Scholarship (Spring 2009).
- Dr. Bhagavan Jandhyala Endowed Scholarship (Fall 2008).
- Ph.D. Grant from the Egyptian government (2006).

VIII. PUBLICATIONS

A. Review Articles And Peer Reviewed Journal Publications

- 1- **Mohamed I. Nounou**, Chris E. Adkins, Evelina Rubinchik, Tori O. Torrell, Mohamed Afroz, Heidi Villalba, Wilfred A. Jefferies, Tim Vitalis, Reinhard Gabathuler and Paul R. Lockman, Anti-cancer antibody trastuzumab-melanotransferrin conjugate (BT2111) for the treatment of metastatic HER2+ breast cancer tumors in the brain: An *in-vivo* study, *Drug Delivery*, 2016; Submitted.
- 2- Kaci A. Bohn, Chris E. Adkins, **Mohamed I. Nounou**, Paul R. Lockman, Inhibition of VEGF and Angiopoietin-2 to Reduce Brain Metastases of Breast Cancer Burden, *Angiogenesis*, 2016, Submitted.
- 3- Kaci A. Bohn, Chris E. Adkins, Rajendar K. Mittapallia, Tori Terrell-Hall, **Mohamed I. Nounou**, and Paul R. Lockman, Semi-automated Rapid Quantification of Brain Vessel Density Utilizing Fluorescent Microscopy, *Journal of Neuroscience Methods*, 2016; Accepted.
- 4- **Mohamed I. Nounou**, Fatema El Amrawy, Ghada El-Haddad and Ahmed Eshra; "Safety And Efficacy Assessments of Male Enhancement Drugs and Nutraceuticals Via Tailored-Designed Novel Pentagon System."; *European Journal of Clinical Pharmacy*, 18-2 Mar-Apr 2016.
- 5- Fatema ELAmrawy, Amr A. Othman, Chris Adkins, Aliaa Helmy, **Mohamed I. Nounou**, Tailored nanocarriers and bioconjugates for combating glioblastoma and other brain tumors, *Journal of Cancer Metastasis and Treatment (JCMT)*, 2016;2:112-22.
- 6- Fatema El Amrawy, Ghada El-Haddad, Ola Elnoweam, Samar Aboelazayem, ElMohanad Farouk and **Mohamed I. Nounou**; "Adulterated and Counterfeit Male Enhancement Nutraceuticals and Dietary Supplements Poses a Real Threat to the Management of Erectile Dysfunction: A Global Perspective"; *Journal of Dietary Supplements*, 2016 Feb 25:1-34.
- 7- Fatema El Amrawy and **Mohamed I. Nounou**, Are Currently Available Wearable Devices for Activity Tracking and Heart Rate Monitoring Accurate, Precise, and Medically Beneficial?, *Health Informatics Research (HIR)*, 2015 October; 21(4):315-320.
- 8- **Mohamed I Nounou**, Chris E Adkins, Heidi Villalba, Tori B Terrell, and Paul R Lockman; "NKTR-102 in Breast Cancer Brain Metastasis Model."; *BMC Cancer*, (2015) 15:685 .
- 9- **Mohamed I Nounou**, Fatema Elamrawy, Nada Ahmed, Kamilia Abdelraouf, Satyanarayana Goda and Hussaini Syed-sha-Qhattal; "Breast Cancer: Conventional Diagnosis and Treatment Modalities and Recent Patents and Technologies ."; *Breast Cancer: Basic and Clinical research*, 2015:9 (s2) P. 17-34.
- 10- Ghada El-Haddad, Fatema El Amrawy, Ola ElGaddar, Ahmed ElYazbi, Ahmed Ashera and **Mohamed I. Nounou**; "Male enhancement Nutraceuticals in the Middle East market: Claim, pharmaceutical quality and safety assessments"; *International Journal of Pharmaceutics*, 492 (2015) 109–119.
- 11- Chris Adkins, **Mohamed I. Nounou**, Rajendar Kumar Mittapalli, Tori Terrell-Hall, Afroz Mohammad, Rajaganapathi Jagannathan, Paul Lockman. A novel preclinical method to quantitatively evaluate early-stage metastatic events at the murine blood-brain barrier, *Cancer Prev Res*. 2015 Jan;8(1):68-76. doi: 10.1158/1940-6207.CAPR-14-0225. Epub 2014 Oct 27.
- 12-**Mohamed I. Nounou**; "Predicting Perfect Drug Candidates: Molecular Docking 2.0"; *Journal of Pharmacy and Bioallied Sciences*, 2014 Jul-Sep; 6(3): 137–138.
- 13- Salma E. El-Habashy, Alaa M. Nazief, Chris E. Adkins, Ming Ming Wen, Amal H. El-Kamel, Ahmed M. Hamdan, Amira S. Hanafy, Tori O. Terrell, Afroz S. Mohammad, Paul R. Lockman and **Mohamed I. Nounou**; "Novel treatment strategies for brain tumors and metastases"; *Pharmaceutical Patent Analyst*, 2014 May;3(3):279-96.
- 14-Ute Hoch, **Mohamed I. Nounou**, Chris E Adkins, Tori B Terrell, Heidi Villalba, Michael E Eldon, Edith A Perez, Paul R Lockman; Etirinotecan Pegol Prolongs Survival in an Experimental Model of Brain Metastases of Human Triple Negative Breast Cancer; *European Journal of Cancer*; 29 (S420-S421); 2013.
- 15- Chris E Adkins, Rajendar Kumar Mittapalli, Vamshi Krishna Manda, **Mohamed I. Nounou**, Afroz Shareef Mohammad, Tori Breanne Terrell, Kaci Ann Bohn, Celik Yasemin, Tiffany Renee Grothe, Julie Ann Lockman, and Paul Richard Lockman; "P-glycoprotein Mediated Efflux Limits Substrate and Drug Uptake in a Preclinical Brain Metastases of Breast Cancer Model."; *Frontiers in Pharmacology of Anti-Cancer Drugs*, 2013 Nov 4;4:136.
- 16- Rajendar K Mittapalli, Xi Liu, Chris E Adkins, **Mohamed I Nounou**, Kaci A Bohn, Tori B Terrell, Syed Q Hussaini, Werner J Geldenhuys, Patricia S Steeg, Diane C Palmieri, Quentin R Smith, and Paul R Lockman; "Paclitaxel-hyaluronic nanoconjugates prolong overall survival in a preclinical brain metastases of breast cancer model."; *Molecular Cancer Therapeutics*, 2013 Nov;12(11):2389-99.
- 17- Vicky V. Mody, **Mohamed I. Nounou** and Bikram Malavosklish; "Novel Nanomedicine-Based MRI Imaging Systems for Gynecological Malignancies."; *Advanced Drug Delivery Reviews*, 61 (10), 2009, Pages 795-807.
- 18- **Mohamed I. Nounou**, Labiba K. El-Khordagui, Nawal A. Khalafallah and Said A. Khalil; "Liposomal Formulation for Dermal and Transdermal Drug Delivery: Past, Present and Future."; *Recent Patents on Drug Delivery & Formulation*, Volume 2, Number 1, January 2008 , pp. 9-18(10).
- 19- **Mohamed I. Nounou**, Kalyopy Emmanouil, Samuel Chung, Thu Pham, Zhuoyuan Lu and Malavosklish Bikram; "Novel Reducible

- Linear L-Lysine Modified Copolymers as Efficient Nonviral Vectors"; Journal of Controlled Release, May 2010, 10;143(3):326-34.
- 20- Malavosklis Bikram, **Mohamed I. Nounou**, Dongling Li, Guilherme V. Silva, Bradley K. McConnell; "Development of nonviral Gene Delivery System for Ischemic Heart Disease"; Biophysical Journal, January 2010, 98(3): 407-408.
- 21- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Liposomal dibucaine delivery system: Development and characterization"; Journal article; Continental J. Applied Sciences, 2, 2007, P. 26-37.
- 22- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "In vitro drug release of hydrophilic and hydrophobic drug entities from liposomal dispersions and gels"; Journal article; Acta Pharmaceutica; 57(3) , 2006.
- 23- **Mohamed I. Nounou**, El-Kourdagui L. and Khallafallah, N.; "Release Stability of 5-fluorouracil liposomal concentrates, gels and lyophilized powder"; Journal article; Acta Poloniae Pharmaceutica-Drug Research; 62(5); P. 381-391; 2005.
- 24- **Mohamed I. Nounou**, El-Kourdagui L. and Khallafallah, N.; "Effect of various formulation variables on the encapsulation and stability of dibucaine base in multilamellar vesicles"; Journal article; Acta Poloniae Pharmaceutica-Drug Research; 62(5); P. 369-379; 2005.
- 25- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Influence of different sugar cryoprotectants on the stability and physico-chemical characteristics of freeze dried 5- fluorouracil plurilamellar vesicles"; Journal article; DARU; 13(4); P. 133-142; 2005.

B. Abstracts And Poster Presentations

- 1- **Mohamed I. Nounou**, Nehal A. Ahmed, Amira Abouelfetouh Eid, Taha I. Zaghloul and Labiba K. El- Khordagui; Bacillus subtilis alkaline protease as a potential biological skin permeation enhancer: *ex-vivo* and *in-vivo* studies; Poster Presentation, The American Association of Pharmaceutical Scientists National Biotechnology Conference (AAPS-NBC), Boston, MA, USA, 16-18 May, 2016.
- 2- **Mohamed I. Nounou**, Salama Soudi, Salah Sheweita, Doaa Ghareeb and Labiba K. El-Khordagui; *In-Vivo* toxicity of surface-modified Berberine loaded chitosan nanoparticles for brain delivery; Poster Presentation, The American Association of Pharmaceutical Scientists National Biotechnology Conference (AAPS-NBC), Boston, MA, USA, 16-18 May, 2016.
- 3- **Mohamed I. Nounou**, Nehal A. Ahmed, Amira Abouelfetouh Eid, Taha I. Zaghloul and Labiba K. El- Khordagui, Bacillus subtilis alkaline protease as a potential biological skin permeation enhancer, Controlled Release Society (CRS) annual meeting, 17-20 July 2016, Seattle, WA, USA.
- 4- **Mohamed I. Nounou**, Salama Soudi, Salah Sheweita, Doaa Ghareeb and Labiba K. El-Khordagui, Surface-modified Berberine loaded chitosan nanoparticles for brain delivery: Safety and efficacy evaluation, Controlled Release Society (CRS) annual meeting, 17-20 July 2016, Seattle, WA, USA.
- 5- Ola Elnoweam, Salma Soudi , D. Alian, Amal H. El-Kamel and **Mohamed I. Nounou**, Surfactant coated nanoparticles for Alzheimer: A brain uptake perspective, Controlled Release Society (CRS) annual meeting, 26-29 July 2015, Edinburg, Scotland.
- 6- Afroz Shareef Mohammad, Chris E. Adkins, Rajendar K. Mittapalli, Tori B. Terrell-Hall, **Mohamed I. Nounou**, Paul R. Lockman, Characterization of changes in passive permeability and drug uptake at the blood-tumor barrier in four preclinical models of brain metastases of breast cancer, AACR Annual Meeting, 2015, April 18 - 22, 2015, Philadelphia, Pennsylvania, USA (4528).
- 7- Kaci A. Bohn, Emily R. Sechrest, Chris E. Adkins, Rajendar K. Mittapalli, **Mohamed I. Nounou**, Tori B. Terrell-Hall, Afroz S. Mohammad, Paul R. Lockman, Inhibition of VEGF and angiopoietin-2 to reduce brain metastases of breast cancer burden, AACR Annual Meeting, 2015, April 18 - 22, 2015, Philadelphia, Pennsylvania, USA (1388).
- 8- Kaci A. Bohn, Tori B. Terrell-Hall, Chris E. Adkins, Rajendar K. Mittapalli, **Mohamed I. Nounou**, Afroz S. Mohammad, Paul R. Lockman, Vascular remodeling is associated with increased permeability of experimental brain metastases of breast cancer, AACR Annual Meeting, 2015, April 18 - 22, 2015, Philadelphia, Pennsylvania, USA (5207).
- 9- **Mohamed I. Nounou**, Chris E. Adkins, Tori O. Torrell, Mohamed Afroz, Tim Vitalis, Reinhard Gabathuler and Paul R. Lockman "Anti-cancer antibody trastuzumab-melanotransferrin conjugate (BT2111) for the treatment of metastatic HER2+ breast cancer tumors in the brain: An in vivo study"; Poster Presentation, The American Association of Cancer Research (AACR) annual meeting, San Diego, CA, USA, April 5-9, 2014.
- 10- **Mohamed Ismail Nounou**, Ute Hoch, Chris E. Adkins, Tori O. Torrell, Heidi Villalba, Michael E. Eldon and Paul R. Lockman "Etrintotecan pegol accumulates in breast cancer brain metastases and prolongs survival in an experimental model of brain metastases of human triple negative breast cancer"; Poster Presentation, The American Association of Cancer Research (AACR) annual meeting, San Diego, CA, USA, April 5-9, 2014.
- 11- Reinhard Gabathuler, Tim Vitalis, **Mohamed Ismail Nounou**, Chris E. Adkins, Paul R. Lockman and Wilfred A. Jefferies "Transcend, a protein vector for brain delivery, allows trastuzumab to reach the brain at effective concentration after incorporation to form BT2111"; Poster Presentation, The American Association of Cancer Research (AACR) annual meeting, San Diego, CA, USA, April 5-9, 2014.
- 12- **Mohamed I. Nounou**, Chris E. Adkins, Tori B. Terrell, Heidi Villalba, and Paul R. Lockman; "Characterization of changes in passive

permeability and drug uptake at the blood-tumor barrier in four preclinical models of brain metastases of breast cancer"; Poster Presentation, The American Association of Pharmaceutical Scientists (AAPS) annual meeting, San Antonio, TX, USA, November 10-14, 2013.

13- Ute Hoch, **Mohamed I. Nounou**, Chris E. Adkins, Tori B. Terrell, Heidi Villalba, Michael E. Eldon, Edith Perez, and Paul R. Lockman; "Etirinotecan pegol prolongs survival in an experimental model of brain metastasis of human triple negative breast cancer"; Poster Presentation, European Cancer Congress 2013 (ECCO-ESMO-ESTRO), Amsterdam, Netherlands, September 27th-October 1st 2013.

14- Reinhard Gabathuler, Timothy Z. Vitalis, **Mohamed I. Nounou**, Umar Iqbal, Maria Moreno, Chris E. Adkins, Tori O. Torrell, Quentin R. Smith, Wilfred A. Jefferies, and Paul R. Lockman; " BT2111, a New Anti-Cancer Agent composed of Trastuzumab and Transcend a Vector for Brain Delivery for the Treatment of Metastatic Her2+ Breast Cancer"; Poster Presentation, AACR-NCI-EORTC International Conference on Molecular Targets and Cancer Therapeutics, Boston, MA, USA, October 19-23, 2013.

15- Ute Hoch, **Mohamed I. Nounou**, Chris E. Adkins, Tori B. Terrell, Heidi Villalba, Michael E. Eldon, and Paul R. Lockman; "Etirinotecan pegol prolongs survival in an experimental model of brain metastasis of human triple negative breast cancer"; Poster Presentation, CTRC-AACR San Antonio Breast Cancer Symposium annual meeting, San Antonio, TX, USA, December 4-8, 2012.

16- **Mohamed I. Nounou**, Kaci A Bohn, Chris E Adkins, Tori B Terrell, Amit Bansal, Quentin R Smith and Paul R Lockman; " Effect of Bevacizumab on vascular permeability and drug uptake in a brain metastases of breast cancer"; Poster Presentation, The American Association of Pharmaceutical Scientists (AAPS) annual meeting, Chicago, IL, USA, October 14-18, 2012.

17- **Mohamed I. Nounou**, Cori Wijaya, Dongling Li, Sameer Saifuddin, Yi Zheng, Guilherme V. Silva, Bradley K. McConnell and Malavosklis Bikram; "Genetically Modified Stem Cells for the Treatment of Myocardial Infarction Using Novel Lysine-Based Nonviral Carrier System"; Poster Presentation, The 14th American Society of Gene & Cell Therapy (ASGCT) annual meeting, Seattle, WA, USA, May 18-21, 2011.

18- **Mohamed I. Nounou**, Sameer Saifuddin, Cori Wijaya, Dongling Li, Yi Zheng, Guilherme V. Silva, Bradley McConnell and Malavosklis Bikram; "Novel reducible lysine-based copolymers for cardiac regeneration", 16th International Symposium on Recent Advances in Drug Delivery Systems, February 15-18, 2011, Salt Lake City, Utah, USA.

19- **Mohamed I. Nounou**, Kalyopy Emmanouil, Samuel Chung, Thu Pham, Zhuoyuan Lu and Malavosklis Bikram; "Novel L-lysine reducible copolymers for efficient nonviral gene delivery"; Poster Presentation, The 13th American Society of Gene & Cell Therapy (ASGCT) annual meeting, Washington, DC, USA, May 17-22, 2010.

20- **Mohamed I. Nounou**, Kalyopy Emmanouil, Samuel Chung, Thu Pham, Zhuoyuan Lu and Malavosklis Bikram; "Lysine based bio-reducible non-viral gene delivery systems"; Podium and Poster Presentation, American Association of Pharmaceutical Scientists National Biotechnology Conference (AAPS NBC), San Francisco, CA, USA, May 16-19, 2010.

21- **Mohamed I. Nounou**, Kalyopy Emmanouil, Samuel Chung, Thu Pham, Zhuoyuan Lu and Malavosklis Bikram; "Efficient DNA Delivery Using Novel Bio-reducible Linear L-Lysine Modified Copolymers (LLCs)"; Poster Presentation, Alliance for NanoHealth Investigators Meeting 2010, Houston, TX, 77030, USA, February 23rd, 2010.

22- Malavosklis Bikram, **Mohamed I. Nounou**, Lili Cui, Dana E. Gheorghe, Bernd Lorenz and Christof Karmonik; "Nanomaterials for biomedical applications"; Podium Presentation, Proceedings of ASME 2010 First Global Congress on NanoEngineering for Medicine and Biology (NEMB 2010), Houston, TX, 77030, USA, February 7-10, 2010.

23- Bradley McConnell, **Mohamed I. Nounou**, Dongling Li, Guilherme V Silva and Malavosklis Bikram; "Characterization of a Novel Non-Viral Cardiovascular Gene Delivery System for the Treatment of Heart Disease"; Poster Presentation, American Heart Association (AHA) Basic Cardiovascular Science (BCVS) 2010 meeting; Rancho Mirage, CA, July 19-22, 2010.

24- Malavosklis Bikram, **Mohamed I. Nounou**, Bradley McConnell and Guilherme V. Silva; "Development of non-viral gene delivery carriers for ischemic heart disease (IHD)"; Poster Presentation, American Heart Association Annual Scientific Sessions, Orlando, FL, November 14-18, 2009.

25- **Mohamed I. Nounou**, Vicky Mody, Kalyopy Emmanouil, Thu Pham, Zhuoyuan Lu and Malavosklis Bikram; "Design, synthesis and characterization of Novel lysine-Based bio-reducible nonviral gene delivery system"; Poster Presentation, Biomedical Engineering Society Annual Meeting, Pittsburg, PA, 2009.

26- Samuel Chung, **Mohamed I. Nounou**, Kim Ahnh Pham, Bradley K. McConnell and Bikram Malavosklis; "Novel Bio-reducible Polymeric Gene Delivery System for Ischemic Heart Disease"; Poster Presentation, SURF, Houston, TX, 2009.

27- **Mohamed I. Nounou**, Vicky Mody, Kalyopy Emmanouil, Thu Pham, Zhuoyuan Lu and Malavosklis Bikram "Efficient DNA delivery using novel bio-reducible linear L-lysine-modified copolymers (LLC)", 14th International Symposium on Recent Advances in Drug Delivery Systems, February 15-18, 2009, Salt Lake City, Utah, USA.

28- Ife Bamgbose, Vicky V. Mody, Stephen Potter, Rithu Johnson, **Mohamed I. Nounou** and Bikram Malavosklis; "Synthesis and characterization of a novel biodegradable ovarian cancer targeted MRI contrast agents"; Poster Presentation, SURF, Houston, TX, 2008.

29- Stephen Potter, Vicky V. Mody, Ife Bamgbose, Rithu Johnson, **Mohamed I. Nounou** and Bikram Malavosklis; "Novel doped iron

oxide MRI contrast agents for the early detection of ovarian cancer"; Poster Presentation, AGEP, Houston, TX, 2008.

30- Vicky V. Mody, Kamilia Abdelraouf, **Mohamed I. Nounou**, Christof Karmonik and Malavoskilsh Bikram; "Synthesis and characterization of bioresponsive ultrasmall paramagnetic ironoxide nanoparticles as MR contrast agents"; Selected for Podium Presentation at 25th Annual Meeting of HSEMB, Houston, TX, 2008.

31- Malavoskilsh Bikram, Vicky V. Mody, **Mohamed I. Nounou** and Christof Karmonik; "Tumor-specific MRI Contrast Agents for Ovarian Cancer"; Poster Presentation, Drug Carriers In Medicine & Biology (Gordon Research Conference), Big Sky, MT, August 24-29, 2008.

32- Vicky V. Mody, **Mohamed I. Nounou**, Christof Karmonik and Malavoskilsh Bikram; "Development of Tumor-Targeted MRI Contrast Agents for the Early Detection of Ovarian Cancer"; Poster Presentation 35th Annual Meeting of Controlled Release Society, New York, NY, 2008.

33- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Liposomal 5-fluorouracil for topical drug delivery"; Conference Proceeding (Poster Presentation); International Pharmaceutical Federation (FIP); Cairo; 3-8 September 2005.

34- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Development and validation of a drug release rate technique for hydrophilic and hydrophobic drug entities in liposomal dispersions and gels"; Conference Proceeding (Poster Presentation); International Pharmaceutical Federation (FIP); Cairo; 3-8 September 2005.

35- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Release Stability of 5-fluorouracil liposomal concentrates, gels and lyophilized powder"; Conference Proceeding (Poster Presentation); International Pharmaceutical Federation (FIP); Cairo; 3-8 September 2005.

36- **Mohamed I. Nounou**, El-Kourdagui L., Khallafallah, N and Khalil, S.; "Liposomal dibucaine delivery system: Development and characterization"; Conference Proceeding (Poster Presentation); International Pharmaceutical Federation (FIP); Cairo; 3-8 September 2005.

C. Oral Presentation

1- **Mohamed I. Nounou**, Nehal A. Ahmed, Amira Abouelfetouh Eid, Taha I. Zaghloul and Labiba K. El- Khordagui, Bacillus subtilis alkaline protease as a potential biological skin permeation enhancer, Controlled Release Society (CRS) annual meeting, 17-20 July 2016, Seattle, WA, USA.

2- **Mohamed Ismail Nounou**, Vicky Mody, Kalyopy Emmanouil, Thu Pham, Zhuoyuan Lu and Malavoskilsh Bikram, "Synthesis and characterization of novel bioreducible linear disulfide copolymers (LDC) for non-viral gene delivery", 26th Annual Meeting of HSEMB, Houston, TX, 2009.

D. Invited Speaker

1- **Mohamed I. Nounou**; "Confocal & Fluorescence Microscopy: Old Tips & New Tricks"; Invited speaker, Tissue Engineering & Regenerative Medicine Society, Bimonthly Seminar Series, Faculty of Dentistry, Alexandria University, May 26th 2015.

2- **Mohamed I. Nounou**; "Blood Brain Barrier: Beyond Targeting"; Invited speaker, Genetic Engineering and Biotechnology Research Institute (GEBRI), Sadat City University, Egypt, February 24th 2015.

3- **Mohamed I. Nounou**; "Research ethics and plagiarism"; Invited speaker, Faculty of Pharmacy Annual Research Day", Alexandria University, Alexandria 21521, Egypt, Feb 9th, 2015.

4- **Mohamed I. Nounou**; "Drug Delivery 2.0: Essential Experimental Toolbox"; Invited speaker, Electron Microscopy Applications in Nanotechnology Workshop, Electron Microscopy Unit, Faculty of Science, Alexandria 21521, Egypt, February 1st, 2015.

5- **Mohamed I. Nounou**; "Nutraceuticals, Cosmeceuticals adulteration and Counterfeiting: A Middle East toxicity threads spreading worldwide"; Invited speaker, Genetic Engineering and Biotechnology Research Institute (GEBRI), Sadat City University, Egypt, January 5th 2015.

6- **Mohamed I. Nounou**; "Smart Gene Carriers: Beyond Phase II Clinical trials"; Invited speaker, IGSR Biotech. Scientific Society (IBSS) Pharmaceutical Biotechnology Conference: "The Revolution of Sciences", Institute of Graduate Studies and Research (IGSR), Alexandria University, Egypt, December 25th 2014.

7- **Mohamed I. Nounou**; "Smart targeting of Brain Metastases Version 2.0: Overcoming natural resilient hurdles"; Invited speaker, Invited speaker,

8- **Mohamed I. Nounou**; "Research Trends: Medicinal Chemistry, Pharmacology, Pharmacognosy, Engineering and Pharmaceutics and everything in-between!"; Invited speaker, Department of Pharmaceutical and Pharmacological Sciences Monthly Seminar, University of Padua, Italy, October 10th 2014.

9- **Mohamed I. Nounou**; "Recoding Life: Animal Models 2.0!"; Invited speaker, Faculty of Pharmacy Scientific & Cultural Sessions, Alexandria University, May 5th, 2014.

10- **Mohamed I. Nounou**; "Usage Of BioStats: Are They a Double Edged Sword?"; Invited speaker, Step on the way: Alexandria

Scientific Conference 2014, Egyptian Pharmaceutical Student Federation (ESPF), Alexandria, Egypt, March 24-26, 2014.

11- **Mohamed I. Nounou**; "Drug delivery system to the CNS: Breaking the barrier"; Invited speaker, 1st Workshop on Molecular Therapeutics, Faculty of Science, Alexandria 21521, Egypt, March 3-6, 2014.

12- **Mohamed I. Nounou**; "Drug delivery system to the brain: Cracking the nut"; Invited speaker, Faculty of Pharmacy Annual Research Day", Alexandria University, Alexandria 21521, Egypt, Feb 22nd, 2014.

13- **Mohamed Ismail Nounou**; "Research Misconduct and Plagiarism"; Invited speaker, Faculty of Pharmacy Annual Research Day", Alexandria University, Alexandria 21521, Egypt, Feb 22nd, 2014.

14- **Mohamed Ismail Nounou**; "Novel design approach towards a safe and efficient bio-reducible lysine-based non-viral gene delivery system"; Invited speaker, Departmental Monthly Graduate Seminar Series, Department of Pharmacological and Pharmaceutical Sciences, College of Pharmacy, Texas Tech. University, Amarillo TX 79106 Feb. 20th 2013.

15- **Mohamed I. Nounou**, Kalyopy Emmanouil, Samuel Chung, Thu Pham, Zhuoyuan Lu and Malavosklish Bikram; "Lysine based bio-reducible non-viral gene delivery systems"; Invited speaker, American Association of Pharmaceutical Scientists National Biotechnology Conference (AAPS NBC), session #36 entitled "Biotechnology Innovations in Gene and Drug Delivery", San Francisco, CA, USA, May 16-19, 2010.

E. Book Chapters

1- **Mohamed I. Nounou**, Chris E Adkins, Tori B Terrell, Kaci A Bohn and Paul R Lockman; "Drug Delivery to the CNS: Breaking down the barrier"; in Book "Drug Delivery", edited by Ashim K Mitra, Jones & Bartlett Learning, ISBN-10: 1284025683, ISBN-13: 978-1284025682, 2014.

IX. GRANTS

1- **Mohamed I. Nounou**, Kamilia Abdelraouf, Maha Nasra, Dalia Hamdy, Ahmed El-Yazbi, Amr El-Hawiet, Layla Younis, and Amal El-Kamel; "Setting up a Cell Culture Laboratory For Alexandria University Medical Center"; Alexandria University Research Fund (AURF), Research Enhancement Program (Alex Rep), 2013-2014 round, Accepted.

2- **Mohamed I. Nounou**, "Cracking the obesity crisis via novel pharmaceuticals and integrated clinical nutrition system exploiting software and hardware mobile technologies", SmartCi Center of Research Excellence with VT-MENA (Virginia Tech- Middle East and North Africa), Alexandria University, 2015, Accepted.

X. GRADUATE STUDENTS

Student Name	Degree	Thesis Title	Starting date
Ghada El-Haddad	M.PSc.	Characterization of the pharmaceutical and pharmacological properties of the over-the-counter (OTC) and teleadvertized impotency pills in the Egyptian market	Fall 2013- Fall 2015 (Graduated)
Nehal Khaled	M.Sc.	A study of the effect of recombinant <i>Bacillus subtilis</i> alkaline protease enzyme on skin permeability	
Salma Soudi		Development of a nano-carrier for brain drug delivery.	
Dalia Alian		Development of a drug delivery system to the central nervous system.	
Ahmed Ragab	M.PSc.	Novel biodegradable stents for vascular disorders.	Spring 2014
Nada Helal		Pharmaceutical evaluation of some over-the-counter (OTC) weight loss products available in the Egyptian market	
Ola Yousri		Formulation and characterization of nanocarrier system(s) for brain delivery	
Marwa ElSayed		Development, characterization and evaluation of some pediatric pharmaceutical formulations	
Ibrahium ElSayed	M.Sc.	Effect of raw material variability on the quality of some modified-release tablets	Fall 2015
Rehab Naiem		The dehydrating effect of alkaline protease enzyme derived from recombinant <i>Bacillus subtilis</i> cells	
Haidy Haggag	M.A.	The use of information services through smart phones and tablets by the students of the public and private universities in Alexandria: A comparative field study	Fall 2015

Student Name	Degree	Thesis Title	Starting date
Bassant Abo-Talab	Ph.D.	A Pharmaceutical and Biopharmaceutical Study of Multisource Brand Products of narrow therapeutic index drugs.	Fall 2013

XI. REFERENCES

A. Professional Peer References

- **Professor Randy Mullins**, Associate Professor of Pharmacy Practice, Department Chair of Pharmaceutical Sciences, Department of Pharmaceutical Sciences, Appalachian College of Pharmacy, Oakwood, VA 24631, USA. (rmullins@acp.edu)
- **Professor Shamly Abdelfattah**, Associate Professor of Pharmacy Practice, Appalachian College of Pharmacy, Oakwood, VA 24631, USA. (sabdelfattah@acp.edu)
- **Assistant Professor Ingo Engels**, Assistant Professor of Pharmaceutical Sciences, Department of Pharmaceutical Sciences, Appalachian College of Pharmacy, Oakwood, VA 24631, USA. (iengels@acp.edu)
- **Professor Paul Lockman**, Chair for Basic Pharmaceutical Sciences, Department of Basic Pharmaceutical Sciences, West Virginia University, P.O. Box 9530, Morgantown, WV-9530, USA. (prlockman@hsc.wvu.edu)
- **Professor Vishnu Gupta**, Department of Pharmacological and Pharmaceutical Sciences, College of Pharmacy, University of Houston, Houston, TX, 77030, USA. (vgupta@uh.edu)
- **Professor Paolo Caliceti**, Department of Pharmaceutical and Pharmacological Sciences (DSF), Università degli Studi de Padova, Italy (paolo.caliceti@unipd.it)
- **Professor Stefano Salmaso**, Department of Pharmaceutical and Pharmacological Sciences (DSF), Università degli Studi de Padova, Italy (stefano.salmaso@unipd.it)
- **Professor Nawal Khalafallah**, Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (nawalkhalaf@dataxprs.com.eg)
- **Professor Michael L. Johnson**, Department of Pharmaceutical Health Outcomes and Policy, College of Pharmacy, University of Houston, Houston, TX, 77030, USA. (MikeJohnson@uh.edu)
- **Associate Professor Vicky Mody**, Philadelphia College of Osteopathic Medicine, Department of Pharmaceutical Sciences, Suwanee GA 30024, USA. (vickymo@pcom.edu)
- **Professor Labiba K. El-Khordagui**, Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (lakhail@gmail.com)
- **Professor Evan Saad Ibrahim**, Dean, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (eisaad@yahoo.com)

B. Graduate Students References

- **Haidy Haggag**, Department of Library and Information Science, Faculty of Arts, Alexandria University, Alexandria, Egypt. (haidy.haggag@alexu.edu.eg)
- **Ghada El-Haddad M.PSc.**, Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (ghadaelhadad2014@gmail.com)
- **Nada Helal**, Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (nada.helal@alexu.edu.eg)
- **Ola Yousri**, Department of Pharmaceutics, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (olayousri@gmail.com, ola.elnoweam@alexu.edu.eg)
- **Dalia Alian**, Biotechnology Department, Institute of Graduate Studies and Research, Alexandria University, Alexandria, Egypt. (daliaalian@yahoo.com)

C. Undergraduate Students References

- **Kalyopy Emmanouil**, School of Dentistry, The University of Texas Health Science Center at Houston, Houston, TX, USA. (k_emmanouil@yahoo.com)
- **Hassnaa El-Zahar**, Fifth year clinical pharmacy student, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (hassnaa910026@pharmacy.alexu.edu.eg)
- **Arwa Nemir**, Fifth year clinical pharmacy student, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (arwa_taher91@hotmail.com)
- **Amr Othman**, Fifth year clinical pharmacy student, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (amrsolayman@gmail.com)

- **Sameer Saifuddin**, School of Pharmacy, Texas Tech. University Amarillo, TX, USA. (sameer0890@gmail.com)
 - **Fatema ElAmrawey**, Fifth year clinical pharmacy student, Faculty of Pharmacy, Alexandria University, Alexandria 21521, Egypt. (fatema.el.amrawy@gmail.com, fatema.elamrawy@alexu.edu.eg)
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