

**Raafat Abd El-Gawad El-Gharieb EL-Awady**

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Date of Birth: December 11, 1967

**PRESENT POSITION**

- Dean, College of Graduate Studies, University of Sharjah, UAE
- Professor of Pharmacology – College of Pharmacy - University of Sharjah – United Arab Emirates

**PROFESSIONAL EXPERIENCES:**

- Dean, College of Graduate Studies, University of Sharjah, UAE – 2017 to date
- Professor of Pharmacology, College of Pharmacy, University of Sharjah, UAE – July 2016 to date
- Acting Dean, College of Pharmacy, University of Sharjah, UAE - Sep 2016 – Feb 2017  
Sep 2020 – January 2021
- Chairman of the Department of Pharmacy Practice & Pharmacotherapeutics, College of Pharmacy, University of Sharjah, United Arab Emirates: Sep 2012 – Sep 2017
- Coordinator of the Drug Design & Discovery Research Group, College of Pharmacy, University of Sharjah: April 2015 – Sep 2017
- Associate Professor of Pharmacology, College of Pharmacy, University of Sharjah, United Arab Emirates - Sep 2008 – July 2016
- Associate Professor of Pharmacology, College of Pharmacy, King Khalid University, Kingdom Saudi Arabia - Aug 2006 – Aug 2008
- Coordinator of Pharmacology and Clinical Drug Monitoring Unit, National Cancer Institute, Cairo University, Cairo, Egypt - Oct 2005 – July 2006
- Postdoc fellow, Experimental Oncology Department, School of Medicine, Hamburg University, Germany - Sep 2002-Sep 2005
- Assistant Professor of Pharmacology and experimental Oncology, Cancer Biology Department, National Cancer Institute, Cairo University, Egypt - Jan 2000- Aug 2002
- Ph.D. fellow, Department of Experimental Oncology, School of Medicine, Hamburg University, Germany - Jun 1997-Oct. 1999
- Lecturer of pharmacology, Cancer Biology Department, National Cancer Institute, Cairo University - 1996-2000
- Demonstrator of pharmacology, Cairo University - 1992-1996
- Demonstrator of pharmacology, pharmacology and toxicology Department, Faculty of medicine, Assuit University, Egypt - 1991-1992

**EDUCATION**

- **Bachelor of Pharmaceutical Sciences (Mai 1990)**  
College of Pharmacy, Zagazig University, Egypt
  - **Master in Pharmaceutical Sciences/ Pharmacology (June 1996)**  
Subject: “Chemosensitivity of certain tumour cell lines to topoisomerase inhibitors as determined by graded-field gel electrophoresis “  
College of Pharmacy, Cairo University, Egypt
  - **PhD in Pharmacology (July 2000)**  
Subject: “Concept of DNA double-strand breaks induction and repair for radiosensitivity of human tumour cells”.
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Cairo/Hamburg University (channel system),

### LANGUAGES:

English, German, Arabic

### PROFESSIONAL INVOLVEMENT

- Cancer and Oncology Research, Editor-in-Chief
- International Scholarly research network Genetics Journal, Editor
- Frontiers Oncology, Editor
- International Journal of Medicine and medical sciences, Editor
- Journal of costal life medicine, Editor
- International Journal of Molecular Biology and Medicine, Editor
- Annals of breast cancer research, Editor/reviewer
- World Journal Surgical Oncology, reviewer
- Carcinogenesis Journal, reviewer
- International Journal of Oncology, reviewer
- Tumour Biology Journal, reviewer
- Saudi Medical Journal, reviewer

### TEACHING EXPERIENCES

- **Cancer Biology Department – Cairo University-Egypt (4 years)**  
Cancer Biology, Cancer Chemotherapy and Radiation Biology courses for postgraduate medical and pharmacy students
- **Experimental Oncology Department – School of Medicine- Hamburg University – Germany (3 years)**  
Tissue Culture and Radiation Oncology lectures  
Genetics, Molecular Biology, General Oncology, and Lab skills
- **College of Pharmacy – King Khalid University-Saudi Arabia (two years)**  
Teaching the following courses for pharmacy, dentistry and medical students:  
Pharmacokinetics and Pharmacodynamics,  
Pharmacology of autonomic Nervous System  
Pharmacology of Antimicrobials and anti-cancer agents  
Pharmacology of drugs acting on the CNS  
Toxicology
- **Medical campus – University of Sharjah – United Arab Emirates (8 years)**  
Teaching the following courses for pharmacy and medical students:  
Pharmacology of drugs acting on cardiovascular, heamatological and respiratory systems  
Pharmacology of drugs acting on the CNS  
Pharmacology of drugs acting on the renal system  
Pharmacokinetics and Pharmacodynamics,  
Pharmacology of autonomic Nervous System  
Pharmacology of Antimicrobials and anti-cancer agents  
Toxicology  
Selected topics in cancer biology (for master students in Molecular Medicine and Translational research program)

### TEACHING STRATEGIES:

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I am following a student-centered strategies as follows:

- Problem-Based Learning (PBL)
- Team-based Learning (TBL)
- Flipped class

### TEACHING PHILOSOPHY

Over the past 20 years I have had the opportunity to construct, coordinate and sustain numerous basic and clinical pharmacology syllabi in different universities at both under- and postgraduate levels. It is from this history that I have drawn my own teaching philosophy.

My teaching philosophy is that teaching is a two-way process. Both students and teacher should come to the classroom with high expectations of each other and put in their best efforts. This means that students should be engaged in the lecture and the teacher's role is to guide, providing access to information rather than acting as the primary source of information. I see the instructor, students, and the selected course material all playing pivotal roles in the success of any class.

In all programs, I focus on three issues; communication, critical thinking and application of evidence-based pharmacotherapy. I facilitate oral communication through presentations, topic discussions, and pharmacotherapeutic care plan discussions- and written communication through journal clubs, and formal drug information questions. I model and ask learners to think about their thought processes regarding common occurrences in practice

I always try to make my students to realize their full potential and expect a lot from themselves. This can be achieved through creating a stimulating atmosphere allowing the student's natural curiosity to direct their learning. Another side that I strongly believe in as a very important part of the teacher's job is to promote the learner's respect for all things and all people.

To assist the learners keeping their passion and motivation at the top, I must keep my knowledge always updated, growing and developed. I always seek out educational and research opportunities that directly apply to my areas of practice: both educational and administrative

Finally, I view research as an extension of my teaching. It serves to educate students and to reinforce my personal commitment to learning. Likewise, I am deeply dedicated to increasing my own understanding of the subject matter I teach. I design my research projects to have particular relevance to my courses, and I continually look for ways to push my own knowledge base, which is essential for teaching such an evolving discipline. I will absolutely continue my habit of gaining and incorporating research experience into my pharmacology courses, which I value equally to information acquired from published reports and scholarly articles.

### COURSES COORDINATION:

- Coordinator for different pharmacology courses in college of Pharmacy, King Khalid University, Saudi Kingdom
- Coordinator for toxicology course in college of Pharmacy, King Khalid University, Saudi Kingdom
- Coordinator for clinical Pharmacology course for M.D and Ph.D students in National Cancer Institute, Cairo University, Egypt.
- Coordinator for different pharmacology & toxicology courses in colleges of Pharmacy, and Medicine, Medical campus, Sharjah University, UAE

### PATENTS

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1. Taleb Al Tal, Vunnam Srinivasulu, Farah Al-Marzooq, Rafat El-Awady  
NOVEL HETEROCYCLIC SYSTEMS AND PHARMACEUTICAL COMPOSITIONS THEREOF:  
US-Patent Application Number: 15935120: March 2018.
2. Taleb Al-Tel, Rafat El-Awady, Vunnam Srinivasulu, Cijo George Vazhappilly, Hany Omar. NOVEL  
HETEROCYCLIC SYSTEMS AND PHARMACEUTICAL APPLICATIONS THEREOF: US-Patent  
Application Number: 15935155: March 2018.

#### SCHOLERSHIPS, AWARDS AND HONORS

- Annual Incentive Award of University of Sharjah for outstanding faculty in the field of research  
2013/2014
- Annual Incentive award of University Of Sharjah for the best research group  
2011/2012
- Annual Incentive Award of University of Sharjah for outstanding faculty in the field of research  
2010/2011
- Sharjah Islamic Bank award for the best research paper 2009/2010
- Post-doc scholarship in School of Medicine, Hamburg University 2002-2005
- Cairo University Award for the best PhD thesis 2001
- DAAD PhD scholarship (Hamburg University/Germany) 1996 - 1999

#### ONGOING PROJECTS AND POSTGRADUATE SUPERVISION

1. **Raafat El-Awady**, Amr Amin, Aya Al-Azzawi and Hamadah Tarazi, Targeting Tyrosyl-DNA phosphodiesterase I enzyme with natural products as a potential method for improving efficacy of topoisomerase I inhibitors in cancer therapy. University of Sharjah, 2021 – 2023 (200,000 AED)
2. **Raafat El-Awady**, Timo Gemoll, Iman Talaat, Semrein Ahmed and Wafaa Ramadan. Investigating the role of the histone acetyltransferase CBP in orchestrating cellular response to genotoxic stress involved in breast tumorigenesis and response to chemotherapy. University of Sharjah, 2020 – 2022 (80,000 AED)
3. **Raafat El-Awady**, Iman Talaat, Riyadh Bendardf, Wael Mansour and Abdel Hady A. Abdel Wahab. Histone Deacetylase 4& 6 as prognostic markers and therapeutic targets in Triple negative breast cancer. Collaborative research project University of Sharjah/Sharjah Research Academy. 2021 – 2023 (374, 000 AED)
4. New inhibitors of protein tyrosine phosphatase (SHP2) as potential anti-cancer compounds. University of Sharjah, 2018 – 2020 (80,000 AED)
5. Discovery of first-In-Class lead drug candidates for the treatment of multidrug resistant bacteria. Islamic Development Bank, 2018 – 2020 (1,182,000\$US)
6. **Raafat El-Awady**, Abdullah Hajjaj and Rifat Hamoudi. 5-Aminosalsylate-4-thiazolinone hybrid derivatives as novel anticancer agents: molecular mechanisms and in-vivo safety and activity. Al-Jalila foundation, 2017-2019 (300,000AED)
7. **Raafat El-Awady**, Mohammed H.Semreen, Ahmed Al-Serafi, Abdel-Hady A. Abdel Wahab. MicroRNA and epigenetics as predictive markers and novel targets for breast cancer therapy. University of Sharjah (Research Funding Department), 2017-2019 (200,000 AED)
8. **Raafat El-Awady**, Zimmermann A, Farmann Matloob, Taleb Al-Tel. entitled “Effect of Tumor microRNA Secretome before and after cancer chemotherapy on Heart and Skeletal muscle Morphology and Function”. Al-Jalila foundation, 2015-2017 (290,000AED)

9. Taleb Al-Tel, **Raafat El-Awady**, Mohammed H. Semreen and Maha M. Saber. Novel Approaches Toward the Discovery of Drugs for the Treatment of Diabetes, Obesity, Cancer and Alzheimer's Disease. NRF, three years. (250,000AED).
10. **Raafat El-Awady**, Amer Al-Homssi, Mohammed Taysser, Mousa Sohail. Breast cancer epigenetics and pharmacotherapy. Boehringer Ingelheim Pharmaceutical company, One year(18,000AED)..
11. **Raafat El-Awady**, Zainab Al-Rubayi, Ward Saidaawi, Ahmed Monther. Leptin as target for cancer chemotherapy. Boehringer Ingelheim Pharmaceutical company, One year (18,000AED).
12. Taleb Al-Tel, **Raafat El-Awady**, Basel Al-Ramadi Targeted Salem Chouib. Cancer Drug Design: Selective Targeting of HDACs Using Diversity Oriented Organic Synthesis and In Silico Aided Drug Design Strategies. TerryFox foundation, three years (190,000 AED)

#### GRADUATE STUDENTS SUPERVISION

- Supervision of 5 M.Sc thesis in pharmacology (Cairo, Ain Shams and El- Azhr Universities - Egypt) – 2000- 2002 and 2005 - 2008
- Supervision of 3 M.D thesis in school of medicine-Hamburg University (2002-2005)
- Supervision of one PhD in Pharmacology, College of Pharmacy – Cairo University (2012 – 2017)
- Supervision of different pharmacy students graduation projects (2008 – 2017)
- Supervision of twelve master thesis, Molecular Medicine & Translational research program, College of Medicine, University of Sharjah, UAE (2012 – 2020)
- Supervision of three PhD thesis, Molecular Medicine & Translational research program, College of Medicine, University of Sharjah, UAE (2017 – current)

#### MEMBERSHIP:

- Member of the German DNA Repair Network.
- Member in the Emirates Medical Association

#### ADMINISTRATIVE WORK:

- Dean, College of Graduate Studies, University of Sharjah – United Aarab Emirates
  - Acting Dean, College of Pharmacy, University of Sharjah– United Aarab Emirates
  - Head of the Department of Pharmacy Practice & Pharmacotherapeutics, College of Pharmacy, University of Sharjah
  - Coordinator of the Pharmacology Unit, college of Pharmacy, University of Sharjah
  - Member of the University Academic Advisory Board, University of Sharjah
  - Member of the University curriculum committee, University of Sharjah
  - Member of the scientific committee for university annual research forum, University of Sharjah
  - Member of the University Schedules and examinations committee, University of Sharjah
  
  - Member in the accreditation committee for preparation of the first accreditation of the B.sc program, college of Pharmacy, university of Sharjah
  - Head of the accreditation committee for preparation of the first accreditation of the Master of Pharm Sci program, college of Pharmacy, university of Sharjah
  - Member of the accreditation committee for the initial accreditation of the Master and PhD programs in the Biomedical Research Institute, University of Sharjah
  - Member of the students advising committee, college of Pharmacy university of Sharjah
  - Head of the examination committee, college of Pharmacy, University of Sharjah
  - Supervisor of the Clinical drug monitoring and clinical pharmacy units, National Cancer Institute, Cairo University
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**RESEARCH INTERESTS:**

- Pharmacogenomics and individualized cancer therapy
- Epigenetics and response of cancer cells to chemotherapy
- Regulation of Cell cycle checkpoints and DNA repair
- Induction and repair of DNA damage in mammalian cells
- The regulation of homologous DNA recombination and non-homologous-end joining during the repair of DNA double-strand breaks

**PUBLICATIONS:****Peer-reviewed**

1. Mouffak S., Shubbar Q., Saleh E., **El-Awady R.** Recent advances in management of COVID-19: A review. *Biomedicine and Pharmacotherapy* Volume 143 November 2021 Article number 112107. DOI 10.1016/j.biopha.2021.112107
  2. Ramadan WS, Talaat IM, Hachim MY, Lischka A, Gemoll T, **El-Awady R.** The impact of CBP expression in estrogen receptor-positive breast cancer. *Clin Epigenetics.* 2021 Apr 7;13(1):72. doi: 10.1186/s13148-021-01060-2.PMID: 33827682
  3. **El-Awady, R.**, Saleh, E., Hamoudi, R., ...Menon, V., Al-Tel, T.H. Discovery of novel class of histone deacetylase inhibitors as potential anticancer agents *Bioorganic and Medicinal Chemistry*, 2021, 42, 116251
  4. Zaher, D.M., Ramadan, W.S., **El-Awady, R.**, ...Ibrahim, S.M., Al-Tel, T.H. A novel benzopyrane derivative targeting cancer cell metabolic and survival pathways *Cancers*, 2021, 13(11), 2840
  5. Schilf, P., Srinivasulu, V., Bolognesi, M.L., ...**El-Awady, R.**, Al-Tel, T.H. Design and synthesis of nature-inspired chromenopyrroles as potential modulators of mitochondrial metabolism *Medicinal Chemistry Research*, 2021, 30(3), pp. 635–646
  6. Menon, V., Elgharib, M., **El-awady, R.**, Saleh, E. Ginger: From serving table to salient therapy. *Food Bioscience*, 2021, 41, 100934
  7. Vazhappilly CG, Hodeify R, Siddiqui SS, Laham AJ, Menon V, **El-Awady R**, Matar R, Merheb M, Marton J, Al Zouabi HAK, Radhakrishnan R. Natural compound catechol induces DNA damage, apoptosis, and G1 cell cycle arrest in breast cancer cells. *Phytother Res.* 2021 Apr;35(4):2185-2199. doi: 10.1002/ptr.6970. Epub 2020 Dec 7.PMID: 33289235
  8. Murali C, Mudgil P, Gan CY, Tarazi H, **El-Awady R**, Abdalla Y, Amin A, Maqsood S. Camel whey protein hydrolysates induced G2/M cellcycle arrest in human colorectal carcinoma. *Sci Rep.* 2021 Mar 29;11(1):7062. doi: 10.1038/s41598-021-86391-z.PMID: 33782460
  9. El-Gamal MI, Zaraei SO, Foster PA, Anbar HS, El-Gamal R, **El-Awady R**, Potter BVL. A new series of aryl sulfamate derivatives: Design, synthesis, and biological evaluation. *Bioorg Med Chem.* 2020 Apr 15;28(8):115406. doi: 10.1016/j.bmc.2020.115406. Epub 2020 Mar 3. PMID: 32173116
  10. Abdu-Allah HHM, Abdelmoez AAB, Tarazi H, El-Shorbagi AA, **El-Awady R** Conjugation of 4-aminosalicylate with thiazolinones afforded non-cytotoxic potent in vitro and in vivo anti-inflammatory hybrids. *Bioorg Chem.* 2020 Jan;94:103378. doi: 10.1016/j.bioorg.2019.103378. Epub 2019 Oct 24.PMID: 31677858
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11. Laham AJ, Saber-Ayad M, **El-Awady R** DYRK1A: a down syndrome-related dual protein kinase with a versatile role in tumorigenesis. *Cell Mol Life Sci.* 2020 Sep 1. doi: 10.1007/s00018-020-03626-4. Online ahead of print.PMID: 32870330 Review.
12. Elseginy SA, Hamdy R, Menon V, Almehti AM, **El-Awady R**, Soliman SSM Design, synthesis, and computational validation of novel compounds selectively targeting HER2-expressing breast cancer. *Bioorg Med Chem Lett.* 2020 Oct 29;30(24):127658. doi: 10.1016/j.bmcl.2020.127658. Online ahead of print.PMID: 33130288
13. Semreen MH, Alniss H, Cacciatore S, **El-Awady R**, Mousa M, Almehti AM, El-Huneidi W, Zerbini L, Soares NC.GC-MS based comparative metabolomic analysis of MCF-7 and MDA-MB-231 cancer cells treated with Tamoxifen and/or Paclitaxel. *J Proteomics.* 2020 Aug 15;225:103875. doi: 10.1016/j.jprot.2020.103875. Epub 2020 Jun 10.PMID: 32534214
14. Ramadan W, Saleh EM, Menon V, Vazhappilly CG, Abdu-Allah HHM, El-Shorbagi AA, Mansour W, **El-Awady R**. Induction of DNA damage, apoptosis and cell cycle perturbation mediate cytotoxic activity of new 5-aminosalicylate-4-thiazolinone hybrid derivatives. *Biomed Pharmacother.* 2020 Nov;131:110571. doi: 10.1016/j.biopha.2020.110571. Epub 2020 Aug 28.PMID: 32861966
15. Harati R, Mohammad MG, Tlili A, **El-Awady RA**, Hamoudi R Loss of miR-101-3p Promotes Transmigration of Metastatic Breast Cancer Cells through the Brain Endothelium by Inducing COX-2/MMP1 Signaling. *Pharmaceuticals (Basel).* 2020 Jul 7;13(7):144. doi: 10.3390/ph13070144.PMID: 32645833
16. Semreen MH, Alniss HY, Grgic SR, **El-Awady RA**, Almehti AH, Mousa MK, Hamoudi RA.Comparative metabolomics of MCF-7 breast cancer cells using different extraction solvents assessed by mass spectroscopy. *Sci Rep.* 2019 Sep 11;9(1):13126. doi: 10.1038/s41598-019-49509-y.
17. Vazhappilly CG, Saleh E, Ramadan W, Menon V, Al-Azawi AM, Tarazi H, Abdu-Allah H, El-Shorbagi AN, **El-Awady R**. Inhibition of SHP2 by new compounds induces differential effects on RAS/RAF/ERK and PI3K/AKT pathways in different cancer cell types. *Invest New Drugs* 2019. 37(2), 252-261. DOI 10.1007/s10637-018-0626-5
18. Wafaa S Ramadan, Cijo George Vazhappilly, Ekram M Saleh, Varsha Menon, Aya M. AlAzawi, Ahmed T. El-Serafi, Wael Mansour and **Raafat El-Awady**. Interplay between Epigenetics, Expression of Estrogen Receptor-  $\alpha$ , HER2/ERBB2 and Sensitivity of Triple Negative Breast Cancer Cells to Hormonal Therapy. *Cancers* 2019, 11, 13; doi:10.3390/cancers11010013
19. Srinivasulu, V., Khanfar, M.,Omar, H.A., **Elawady, R.**,Sieburth, S.M.,Sebastian, A.,Zaher, D.M.,Al-Marzooq, F.,Hersi, F.,Al-Tel, T.H. Sequencing [4 + 1]-Cycloaddition and Aza-Michael Addition Reactions: A Diastereoselective Cascade for the Rapid Access of Pyrido[2',1':2,3]/Thiazolo[2',3':2,3]imidazo[1,5- a]quinolone Scaffolds as Potential Antibacterial and Anticancer Motifs. *Journal of Organic Chemistry* Volume 84, Issue 22, 15 November 2019, Pages 14476-14486
20. George, V.C., Ansari, S.A., Chelakkot, V.S., Chelakkot, A.L., Chelakkot, C., Menon, V., Ramadan, W., Ethiraj, K.R., **El-Awady, R.**, Mantso, T., Mitsiogianni, M., Panagiotidis, M.I., Dellaire, G.,Vasantha Rupasinghe, H.P. DNA-dependent protein kinase: Epigenetic alterations and the role in genomic stability of cancer. *Mutation research-reviews in Mutation Research* 2019 Apr - Jun;780:92-105. doi: 10.1016/j.mrrev.2018.06.001.
21. Ala'aAl-Hrout, AmphunChaiboonchoe , Basel Khraiwesh, Chandraprabha Murali1, Badriya Baig, **Raafat El-Awady**, HamadehTarazi, AmnahAlzahmi, David R. Nelson2, Yaser E.Greish, Wafaa Ramadan, Kourosh Salehi-Ashtiani & AmrAmin. Safranal induces DNA doublestrand breakage and ER stress-mediated cell death in hepatocellular carcinoma cells. *Sci Rep.* 2018 (8):16951 | DOI:10.1038/s41598-018-34855-0

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22. Al-Dabbagh, B., Elhady, I.A., Al Hrouf, A., Al Sakkaf, R., **El-Awady, R.**, Ashraf, S.S., Amin, A. Antioxidant and anticancer activities of *Trigonella foenum-graecum*, *Cassia acutifolia* and *Rhazya stricta*. 2018 *BMC Complementary and Alternative Medicine* 18(1), 24
  23. Mohammad H. Semreen, Hasan Y. Alniss, Muath K. Mousa, **Rafaat El-Awady**, Farman Khan, Khalid Abu Al-Rub. Quantitative determination of doxorubicin in the exosomes of A549/MCF-7 cancer cells and human plasma using ultra performance liquid chromatography-tandem mass spectrometry. *Saudi Pharmaceutical Journal* 26 (2018) 1027–1034
  24. Srinivasulu V, Sieburth SM, **El-Awady R**, Kariem NM, Tarazi H, O'Connor MJ, Al-Tel TH. Post-Ugi Cascade Transformations for Accessing Diverse Chromenopyrrole Collections. *Org Lett.* 2018 Feb 2;20(3):836-839. doi: 10.1021/acs.orglett.7b03986. Epub 2018 Jan 12.
  25. Hamza AA, Heeba GH, Elwy HM, Murali C, **El-Awady R**, Amin A. Molecular characterization of the grape seeds extract's effect against chemically induced liver cancer: In vivo and in vitro analyses. *Sci Rep.* 2018 Jan 19;8(1):1270. doi: 10.1038/s41598-018-19492-x
  26. Sayour, M.E., Basheer, I., El Salam, R.A., (...), Al-Sadek, A.F., **El-Awady, R.** Potential mechanistic profiling of an OTC analgesic as a cytotoxic agent in the treatment of hepatocellular carcinoma. *Acta Pharmaceutica Scientia.* 2018; 56(1):95-112
  27. Farman Matloob Khan, Ekram Saleh, Hussain Alawadhi, Rania Harati, Wolfram-Hubertus Zimmermann, and **Rafaat El-Awady**. Inhibition of exosome release by ketotifen enhances sensitivity of cancer cells to doxorubicin. *CANCER BIOLOGY & THERAPY* 2018, VOL. 19, NO. 1, 25–33. <https://doi.org/10.1080/15384047.2017.1394544>
  28. **Rafaat El-Awady**, Ekram Saleh, Amna Hashim, Nehal Soliman, Alaa Dallah, Azza Elrasheed and Ghada Elakraa. The Role of Eukaryotic and Prokaryotic ABC Transporter Family in Failure of Chemotherapy. *Front Pharmacol.* 2017 Jan 10;7:535.
  29. Marwa E. Sayour , Rania M. Abd El Salam , Mohamed F. Elyamany, Abeer M. El Sayed , **Rafaat A. El-Awady**. Combination of paracetamol and the glutathione depleting agent buthionine sulfoximine show differential effect on liver cancer cells and normal hepatocytes. *Pharmacology & Pharmacy* (2016) 7, 443-458
  30. Hamadeh Tarazi, Ekram Saleh, **Rafaat El-Awady**. In-silico screening for DNA-dependent protein kinase (DNA-PK) inhibitors: Combined homology modeling, docking, molecular dynamic study followed by biological investigation. *Biomedicine & Pharmacotherapy* 83 (2016) 693–703
  31. Hajjaj H Abdu-Allah, Abdel-Nasser A El-Shorbegi, Samia G Abdel-Moty, **Rafaat El-Awady** and Abdel-Alim M Abdel-Alim. 5-Aminosalicylic acid (5-ASA): A unique anti-inflammatory salicylate. *Med chem (Los Angeles)* 2016, 6(5): 306-315
  32. Abdu-Allah HH, Abdel-Moty SG , **El-Awady R**, El-Shorbegi AA. Design and synthesis of novel 5-aminosalicylate (5-ASA)–4-thiazolinone hybrid derivatives with promising antiproliferative activity. *Bioorganic & Medicinal Chemistry Letters* 26 (2016) 1647–1650
  33. **El-Awady RA**, Semreen MH, Saber-Ayad MM, Cyprian F, Menon V, Al-Tel TH. Modulation of DNA damage response and induction of apoptosis mediates synergism between doxorubicin and a new imidazopyridine derivative in breast and lung cancer cells. *DNA repair (Amst)* 37(2016):1-11 DOI:10.1016/j.dnarep.2015.10.004
  34. **El-Awady RA**, Herzi F, Al-Tunaiji H, Saleh EM, Abdel-Wahab AH, Al Homssi A, Suhail M, El-Serafi A, Al-Tel T. Epigenetics and miRNA as predictive markers and targets for lung cancer chemotherapy. *Cancer Biol Ther.* 2015, 16(7): 1056 - 1070
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35. **El-Awady R**, Herzi F, Al-Tunaiji H, Saleh E, Abd El-Wahab AE, Homssi AA, Suhail M, El-Sairafi A, Al-Tel T. P6.11 Epigenetics and miRNA expression as mediators of A549 lung cancer cells resistance to DNA damaging anticancer drugs. *Ann Oncol*. 2015 Mar;26 Suppl 2:ii30. doi: 10.1093/annonc/mdv095.8.
  36. Semreen MH, **El-Awady R**, Abu-Odeh R, Saber M, Al-Qawasmeh RA, Chouaib S, Al-Tel TH, Voelter W. Tandem Multicomponent Reactions Toward the Design and Synthesis of Novel Antibacterial and Cytotoxic Motifs. *Curr Med Chem*. 2013;20(11):1445-59.
  37. E. M. Saleh\*, **R. A. El-awady\***, N. Anis. Predictive markers for the outcome of 5-fluorouracil in cancer cells: Constant field gel electrophoresis as a tool for prediction of response to 5-fluorouracil-based chemotherapy. *Oncol Lett*. 2013 Jan;5(1):321-327
  38. Saleh EM, **El-Awady RA**, Anis N, El-Sharkawy N. Induction and repair of DNA double-strand breaks using constant-field gel electrophoresis and apoptosis as predictive markers for sensitivity of cancer cells to cisplatin. *Biomed Pharmacother*. 2012 Oct;66(7):554-62.
  39. Ekram M. Saleh\*, **Raafat A. El-awady\***, Nadia A. Eissa, Wael M. Abdel-Rahman. Antagonism between curcumin and the topoisomerase II inhibitor etoposide: a study of DNA damage, death pathways and cell cycle regulation. *Cancer Biol Ther*. 2012 Sep 1;13(11):1058-71.
  40. Al-Tel TH, Semreen MH, Al-Qawasmeh RA, Schmidt MF, **El-Awadi R**, Ardah M, Zaarour R, Rao SN, El-Agnaf O. Design, Synthesis, and Qualitative Structure-Activity Evaluations of Novel  $\beta$ -Secretase Inhibitors as Potential Alzheimer's Drug Leads. *J Med Chem*. 2011 Dec 22;54(24):8373-85. Epub 2011 Nov 16.
  41. **El-Awady RA**, Saleh EM, Ezz M, Elsayed AM. Interaction of celecoxib with different anti-cancer drugs is antagonistic in breast but not in other cancer cells. *Toxicol Appl Pharmacol*. 2011 Sep 15;255(3):271-86
  42. Saleh EM and **El-Awady RA**. Expression of RAD51, BRCA1 and p53 does not correlate with cellular radiosensitivity of normal human fibroblasts. *Ir J Med Sci*. 2011 Sep;180(3):715-20
  43. **Raafat A. El-Awady**, Ekram M. Saleh and Jochen Dahm-Daphi. Targeting DNA double-strand breaks repair: is it the right way for sensitizing cells to 5-FU. *Anticancer Drugs* 2010 Mar; 21(3):277-87.
  44. Saleh EM, **El-Awady RA**, Abdel Alim MA, Abdel Wahab AH. Altered expression of proliferation-inducing and proliferation-inhibiting genes might contribute to acquired doxorubicin resistance in breast cancer cells. *Cell Biochem Biophys*. 2009;55(2):95-105.
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