



# *Pharmacology and Toxicology Department guide*

*Faculty of Pharmacy  
Mansoura University*

**2021 / 2022**

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# Faculty Administration



**Prof. Dr. Manal Mohmmmed  
Ibrahim Eid**

**Dean of Faculty of Pharmacy**



**Prof. Dr. Rasha Mohammed  
Fathy Barwa**

**Vice Dean for Education and  
Student Affairs**



**Prof. Dr. Khalid Beshir Shaaban**

**Selim**

**Vice Dean for Graduate Studies  
and Academic Research**



**Prof. Dr. Yasser Al Shabrawy**

**Vice Dean for Community Service  
and Environmental Development**

# Heads of scientific departments



**Prof. Mona Gouda Mohamed Zagloul**  
Head of the pharmacognosy  
department



**Prof. Osama Abdel Azim  
Suleiman**  
Head of pharmaceuticals  
Department



**Prof. Ghada M. Suddek**  
Head of Pharmacology and  
Toxicology Department



**Prof. Dr./ Jenny Jehan Mohamed  
Nasr**  
Head of Pharmaceutical Analytical  
Chemistry Department



**Prof. Dr./ Shahanda Metwally**  
Othman El-Mesiri  
Head of Pharmaceutical  
Organic Chemistry  
Department



**Prof. Dr./ El-Sayed El-  
Sherbiny Habib**  
Head of the Department of  
Microbiology and  
Immunology



**Prof. Muhammad Al-Hussaini Shams**

**Head of pharmacy practice  
department**



**Dr./ Mohamed Elmessiri**

**Acting Head of Biochemistry  
Department**



**Prof. Dr./ Mohamed Mostafa**

**Head of Pharmaceutical  
Chemistry Department**

## **Head of Department**



**Prof. Dr. / Ghada Mohamed Suddek**

Prof Dr. / Dean of the college, vice deans, my colleagues, faculty members, Academics and Teaching Assistants

Greetings

The profession of Pharmacy is one of the most important and noble professions witnessed in the history of mankind and throughout history many scientists contributed to the development of the profession of Pharmacy and cannot at all deny the role of the pharmacist as an effective individual in the medical care team.

The Department of Pharmacology and Toxicology is one of nine departments that together form the pillars of the great edifice – Faculty of Pharmacy – Mansoura University – and these departments are integrated together to graduate a distinguished pharmacist capable of performing the different roles of the pharmacist.

The department contains a distinguished elite of distinguished faculty members who are recognized for their competence and are committed to supporting the College in its continuous endeavor to develop and provide a distinguished scientific service through the

courses taught by the department that comply with the academic standards of Pharmaceutical Education, in addition to the distinguished scientific researches produced by the department within the framework of the research plan, which are published in international scientific journals, which in turn contribute to solving many problems in the surrounding environment.

And last but not least, say, "work, God will see your work, his messenger, and the believers".

Prof Dr./ Ghada Mohamed Suddek

Professor and head of the Department of Pharmacology and Toxicology

## **Faculty Mission**

"The Faculty of Pharmacy, Mansoura University is committed to achievement the progression and continued development of the educational process, post-graduate studies, research programs and community service, aims to graduate distinct pharmacists meeting the distinct needs of local and regional market and researchers at a competitive level, in the framework of academic standards and community values".

## **Faculty Vision**

"Achievement of leadership in education, research and community service in all domains of pharmacy practice, locally and regionally".

## **Department Mission**

"The department aims to provide the graduate with basic information needed to participate effectively in the medical care team. The graduate must have the ability and skills to determine the mechanisms of action and uses of the drug, dose as well as the knowledge of pharmacological interactions, pharmacokinetics, side effects and toxicity of drugs and chemicals, in addition to prevention of poisoning".

## **Department Vision**

"To be recognized as a distinct unit in the field of pharmacology and toxicology, at the national and regional levels, by providing the highest level of quality of education and practical training for students of pharmacy, as well as good planning for research excellence in the development of new drugs to treat different diseases".

## **Management and strategic objectives of the department**

### **A: Contribute to the development of the strategic plan of the faculty**

1-Participation of representatives of the department in the Strategic Plan Development Committee.

2 - Participation of representatives of the department in the environmental analysis committees of the institution ( SWOT analysis ).

3 - Participation of the head of the department Council and representatives of the department in the development of the mission and vision of the faculty.

### **B: Develop a plan to upgrade the section**

1-Semi-Annual and annual report on all activities of the Department.

2-identify the strengths of the department and work to strengthen them, as well as weaknesses and work to treat them.

3-documenting all activities carried out by the department through the department Council.

4-benefit from feedback from students.

5-develop an operational plan for activities within the Department.

6-meetings within the department to identify tasks and follow up implementation.

7-a plan to introduce the duties and responsibilities of academics and administrators.

8-develop a vision, mission and strategic objectives for the Department.

9-activating the internal audit system in the Department.

10-commitment to the ethics and ethics of the profession.

11- Providing the opportunity for all employees of the department to express their views freely through periodic meetings in the Department.

## History of the Department

The study began at the Faculty of Pharmacy by accepting the first batch in the academic year 1970/1971 and the number of 48 students , and issued the decision of the deputy prime minister for culture and media No. 134 of 1973 to separate the Departments of Pharmacy from medicine to become an independent college , the first batch of college graduated in the academic year 1975 and was 105 students . The department was established by the ministerial decision on 1/3/1976 under the name of "Pharmacopoeia and biochemistry" headed by Prof. Elsayed Mohamed Ammar . The number of scientific departments was increased by the issuance of ministerial decision no. (1573) on 10/11/2001 to become eight departments - the name of the department was modified to "pharmacology and toxicology in 2001 and recently modified to "drugs and toxicology"

## Department infrastructure

Currently the department is located on the ground floor and the first floor upstairs building (a) at the Faculty of Pharmacy, Mansoura University . The department has three laboratories students

1-laboratory (A) on the ground floor

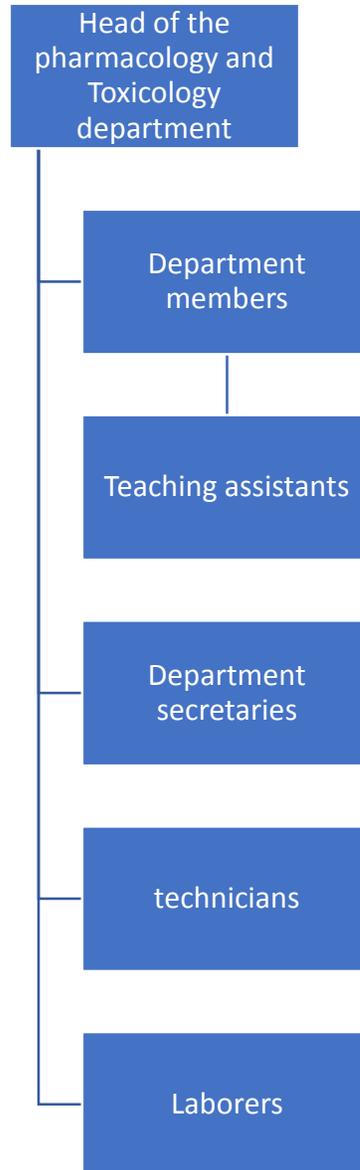
2-laboratory (B) on the ground floor b

3-laboratory (D) on the first floor ,Two research laboratories:

1 - laboratory (A) for research on the ground floor . 2 - laboratory (C) on the first floor

This is in addition to the rooms of the faculty members and their assistants and the staff of the department, as the department includes the Animal House " Building (D) contains experimental animals for the necessity of practical students and research.

## The organizational structure of the department



## Department Members

### Working professors

	<p><b>Prof. Ghada M.Suddek</b> Head of Pharmacology and Toxicology Department</p>
	<p><b>Prof. Manar Ahmed Nader Al-Sayed</b></p>
	<p><b>Prof. Mohammed Shaaban Hassan Al-Awadi</b> (loaned)</p>
	<p><b>Prof. Dina Saad Othman Al-Ajmi</b> (loaned)</p>
	<p><b>Prof. Mohamed Ahmed Awad Saleh</b> (loaned)</p>
	<p><b>Prof. George Samir Ghaly Shehto</b> (assigned)</p>
	<p><b>Prof. Nashwa Mohamed Abdel Fattah Abu Al Saad</b></p>

	<p><b>Prof. Mohamed El-Sayed Shaker Ahmed Mansour (loaned)</b></p>
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**Emeritus professors**

	<p><b>Prof. Tarek Mustafa Ibrahim</b></p>
	<p><b>Prof. Nariman Mohamed Jamil</b></p>
	<p><b>Prof. Hassan Ahmed Al-Kashef (assigned)</b></p>

## Assistant Professors

	<p><b>Dr. Eman Saeed Abdul Khaleq Ali</b> (loaned)</p>
	<p><b>Dr. Rania Ramadan Abdel Aziz Ibrahim</b></p>
	<p><b>Dr. Ahmed Abdel Razek Mohamed El Marakby</b> (wife escort leave)</p>
	<p><b>Dr. Asmaa El-Sayed Ahmed El-Kenawy</b> (spousal escort leave)</p>
	<p><b>Dr. Manar Gamal Abdel Hamid Hilal</b></p>
	<p><b>Dr. Ahmed Abdel Aziz Shaaban Saad</b> (loaned)</p>



**Dr. Rehab Sabri Abdel Rahman Mohamed**  
(loaned)



**Dr. Ahmed Ramadan Abdel Fattah Abdel Maqsoud**



**Dr. Ahmed Gamal Abdel Hamid Helal**  
(Deputy)



**Dr. Dalia Hassan Ahmed Al Kashef**



**Dr. Maha Hisham Abde I Qader Shaarawy**



**Dr. Mirhan Ahmed Nazmi Sadek**

## Lecturers

	<p><b>Dr. Nasra Hussein Hamed Al-Labban</b> (loaned)</p>
	<p><b>Dr. Hamdi Anwar Hamed Ghoneim</b></p>
	<p><b>Dr. Hoda Ezzat Mohamed Mohamed Kafel</b></p>
	<p><b>Dr. Noha Mohamed Shawky Ali El-Sayed</b> (spousal escort leave)</p>
	<p><b>Dr. Marwa Salah El Din Othman Zaghloul</b></p>
	<p><b>Dr. Marwa Saad Mohamed Ahmed Sariya</b> (Spouse escort leave)</p>



**Dr. Sally Lotfi El-Damrawi, El-Shaer**



**Dr. Sara Mohamed Hisham Hazem Ibrahim**



**Dr. Marwa El-Sayed Abdel-Majeed Mohamed Ismail**



**Dr. Mahmoud Ali Mahmoud Ali Al-Shall**



**Dr. Omneya Ahmed Abdel Moneim Nour**

## Assistant lecturers

	<b>L. A./ Hadeer Magdy Hamed Abu Al-Ezz</b>
	<b>L. A./ Yomna Ashraf Muhammad Al-Sunbati</b>
	<b>L. A./ Mahmoud Mohamed Mahmoud Samaha</b>
	<b>L. A./ Karim Mohamed Mustafa Saad</b>
	<b>L. A./ Fatema Muhammad Amin Mhenni</b>
	<b>L. A./ Ahmed Mohamed Awad Mohamed Shata</b>

## Demonstrators

	T. A./ Ahmed Hassan
	T. A./ Marina Raouf
	T. A./ Dina Essam Al-Saeed
	T. A./ Israa Jamal Al-Din
	T. A./ Amal Jamal Al-Din

	<p>T. A./ Mai Mustafa Abdel Hamid</p>
	<p>T.A. Menna Allah El-Borollosy</p>
	<p>T.A. Rana Gamal</p>
	<p>T.A. Doha Dagher</p>
	<p>T.A Hussein Omar Badreldin</p>
	<p>T.A. Nourhane El-Emam</p>
	<p>T.A. Kholoud Amir</p>

## Members of the Department Council for the academic year 2021/2022

<b>Total</b>	<b>vacations</b>	<b>delegated</b>	<b>loaned</b>	<b>On the job</b>	
<b>3</b>	-	<b>1</b>	-	<b>2</b>	<b>Emeritus professors</b>
<b>7</b>	-	-	<b>4</b>	<b>3</b>	<b>Working professors</b>
<b>12</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>Assistant Professors</b>
<b>12</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>Lecturers</b>
<b>35</b>	<b>5</b>	<b>3</b>	<b>9</b>	<b>18</b>	<b>Total</b>
<b>6</b>	-	-	-	<b>6</b>	<b>Assistant lecturer</b>
<b>12</b>	-	-	-	<b>12</b>	<b>Demonstrator</b>
<b>18</b>	-	-	-	<b>18</b>	<b>Total</b>
<b>53</b>	<b>5</b>	<b>3</b>	<b>9</b>	<b>36</b>	

## Department Board Formation on 1/3/2021

- Prof. Ghada Mohamed Suddek (Head of the Department Council)
- Prof. Tarek Mustafa Ibrahim
- Prof. Nariman Mohamed Jamil
- Prof. Manar Ahmed Nader
- Prof. Nashwa Mohamed Abdel-Fattah Abu Al-Saad
- Dr. Rania Ramadan Abdel Aziz
- Dr. Manar Gamal Abdel Hamid Hilal
- Dr. Ahmed Ramadan Abdel Fattah El-Sheikh
- Dr. Dalia Hassan Ahmed Al Kashef
- Dr. Maha Hisham Abdel Qader Shaarawy
- Dr. Mirhan Ahmed Nazmi Sadek
- Dr. Hamdi Anwar Hamed Ghoneim
- Hoda Ezzat Mohamed Mohamed Kafel
- Dr. Sara Mohamed Hisham Hazem Ibrahim
- Dr. Mahmoud Ali Mahmoud Ali Al-Shall
- Dr. Omneya Ahmed Abdel Moneim Nour (Secretary of the Council)

### **The names of the department members who held administrative positions**

- Prof. Dr./ Hassan Ahmed Al-Kashef, former Vice Dean for Education and Student Affairs at the college.
- Prof. Dr./ Hatem Abdel Rahman, former Vice Dean for Education and Student Affairs at the college.
- Dr. Eman Saeed Abdel-Khaleq, Director of the Clinical Pharmacy Program.
- Dr. Ahmed Ramadan Abdel Fattah, Director of the Professional Development Center, Branch of the Faculty of Commerce.

### **Department workers**

#### **Administrators**

	The name	Notes
1.	Mr. Hamdi Fayez	Department Secretary
2.	Mrs./ <sup>○</sup> Walaa Abdul Hamid	Department Secretary

#### **Technicians**

	The name	Notes
1.	Mr. Hany El-Sayed El-Derini.	Student lab technician
2.	Mrs. Sahar Muhammad Musa.	Student lab technician
3.	Mrs. Hind Mohamed Youssef.	Student lab technician
4.	Mr. Amr Fathy	Research lab technician
5.	Mrs/ Rawda Mahmoud Saleh	Research lab technician

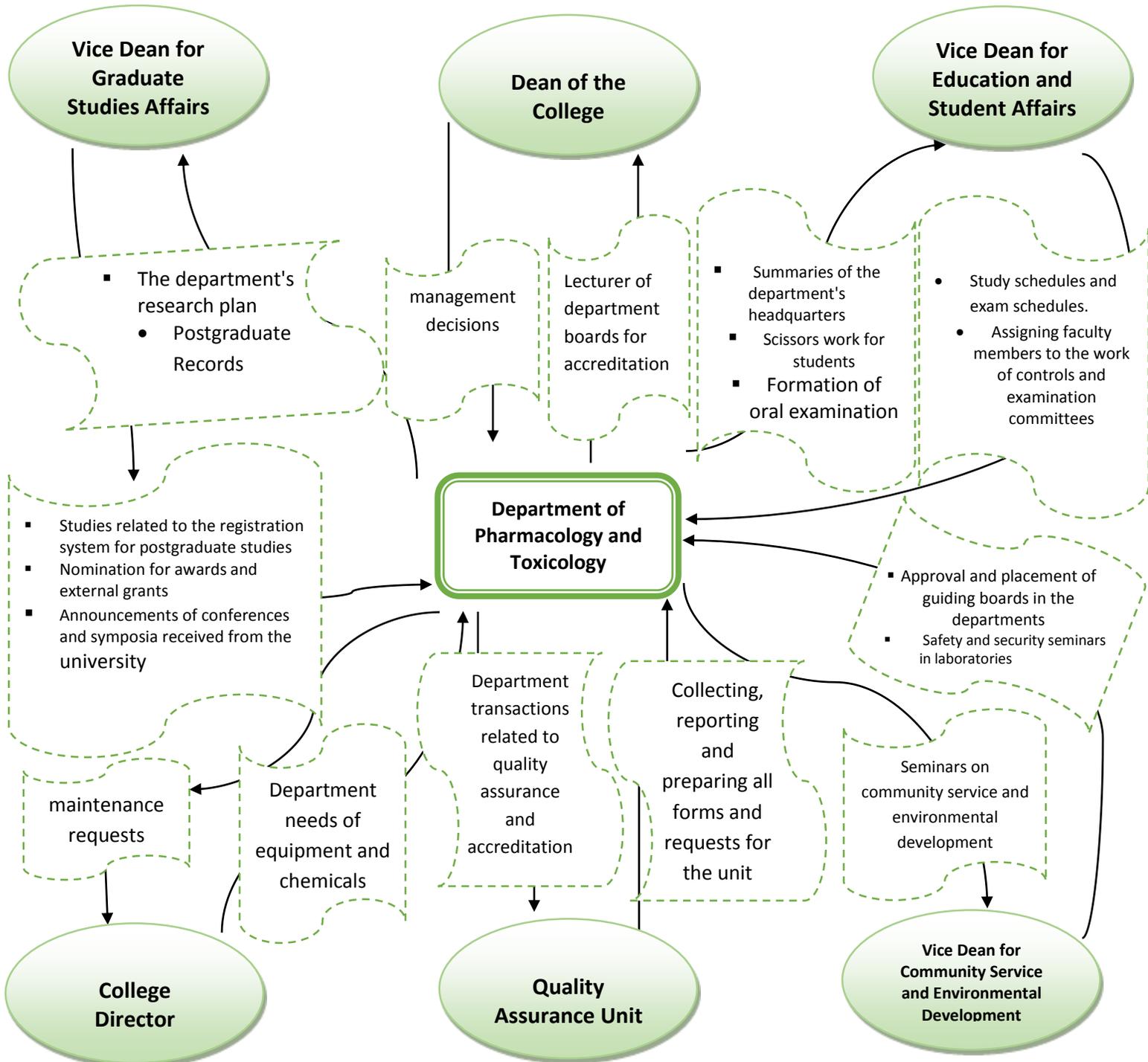
#### **Laborers**

	The name	Notes
1.	Mahmoud Abdel-Aziz	fixed laborer
2.	Souad Ashraf	day laborer
3.	Iman Ibrahim	day laborer
4.	Mohammed Abdel-Ghani	day laborer
5.	Nesma Muhammad Ali	fixed laborer
6.	Nermin Adel	day laborer

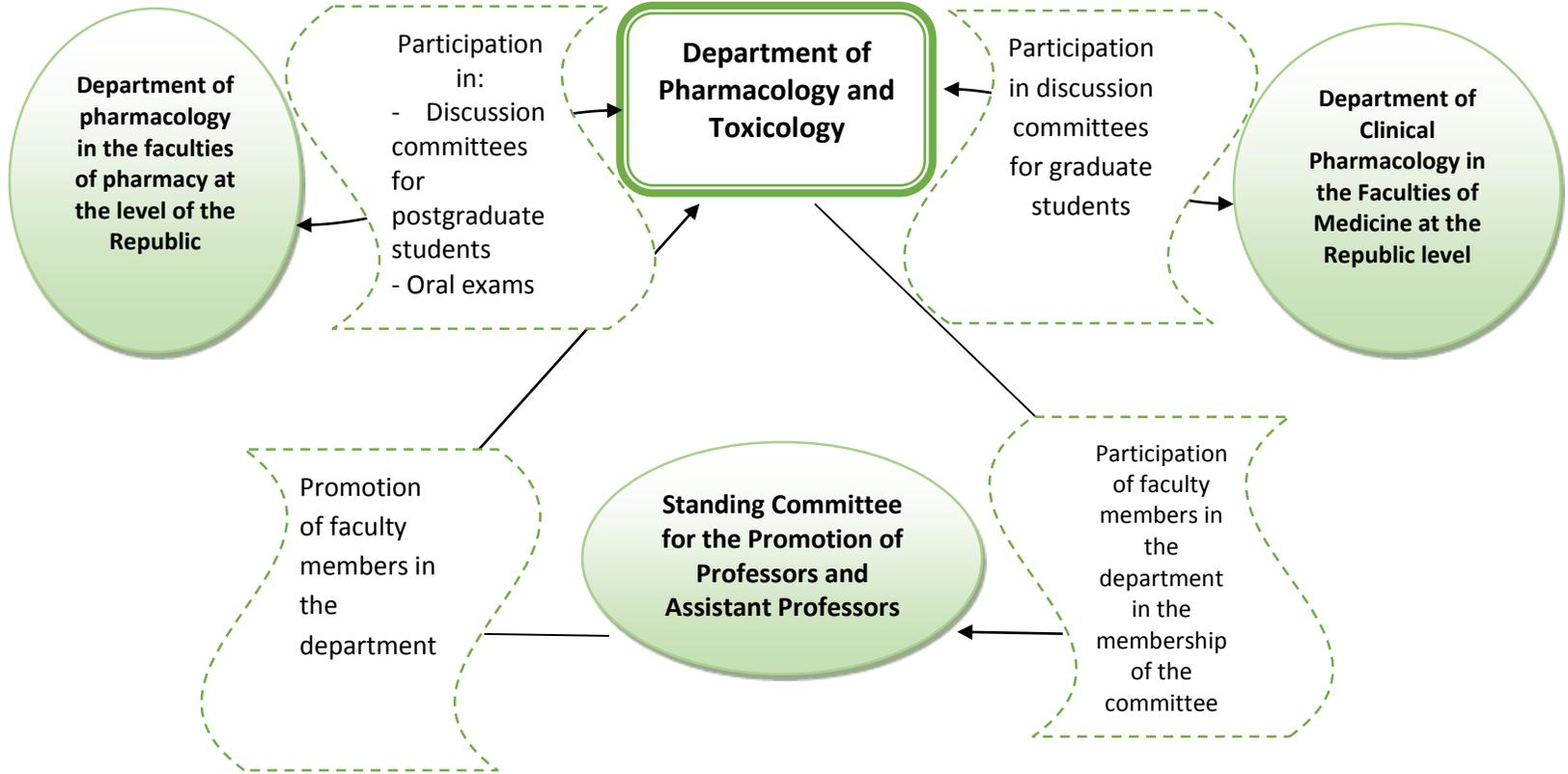
**Statistics of the department's employees**

	<b>On the job</b>	<b>vacations</b>	<b>Total</b>
<b>Administrators</b>	<b>2</b>	-	<b>2</b>
<b>technicians</b>	<b>5</b>	-	<b>5</b>
<b>Laborers</b>	<b>6</b>	-	<b>6</b>
<b>Total</b>	<b>13</b>	-	<b>13</b>

**For the exchange relations between the Department of Pharmacology and Toxicology and the faculty administration**



**Interactions between the Department of Pharmacology and Toxicology and other departments**



**Bachelor's degree in Pharm D system, credit hours**

Course	Code number	Credit hours		
		Total	Practical	Written
Physiology	PH 211	3	1	2
Biostatistics	PH 222	1	-	1
Pathophysiology	PH 223	2	1	1
Pharmacology 1	PH 314	3	1	2
Pharmacology 2	PH 325	3	1	2
Pharmacology 3	PH 416	3	1	2
Therapeutics	PH 427	2	1	1
Toxicology and forensic chemistry	PH 528	3	1	2
First aid	PH 529	1	-	1
		21	7	14

# Clinical pharmacy program

Total number of credit hours	Number of practical hours per week	Number of theoretical hours per week	Code	Course name	
2	1	1	MD-101	Biophysics (%50:%50 with biochemistry department )	<b>Clinical pharmacy program</b>
4	1	3	MD-305	Physiology	
2	-	2	EN-302	Medical terminology	
3	1	2	PO-501	Pharmacology 1	
2	-	2	MD-507	Pathophysiology	
3	1	2	PO-702	Pharmacology2	
3	1	2	PO-905	Therapeutics1	
3	1	2	PO-906	Clinical Pharmacology	
2	-	2	MS-101	Maths and Biostatistics (with participation of a professor from faculty of Engineering with percent of 60%to 40%)	
2	-	2	PO-803	Drug interaction	
3	1	2	PO-007	Therapeutics -2	
3	1	2	PO-904	Toxicology and forensic chemistry	
2	-	2	MD-609	First aids	
1	-	1	PP-015	Drug information	

	1	2	PM-E5	<b>Biological standardization</b>  (with the participation of microbiology department with a percentage of (2/3:1/3))	<u>Elective course</u>
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**Bachelor's degree with credit hours system (pharm D, clinical pharmacy program)**

Basic Pharmacology	PO 301	2	1	3	Registration	15	25	50	10	100	2
Pharmacology-I	PO 582	2	1	3	Basic Pharmacology	15	25	50	10	100	2
Pharmacology-II	PO 603	2	1	3	Pharmacology I	15	25	50	10	100	2
Pharmacology-III	PO 704	2	1	3	Pharmacology-II	15	25	50	10	100	2
Advanced Pharmacotherapy and Therapeutics	PO 885	2	1	3	Pharmacology III	15	25	50	10	100	2
Drug Information	PO 905	1	1	2	Pharmacology-III	15	25	50	—	100	1
Clinical Toxicology	PO 006	2	1	3	Pharmacology-III	15	25	50	10	100	2
<b>PO E14</b>	<b>Biological standardization</b>								<b>1</b>	<b>1</b>	<b>2</b>
<b>PO E15</b>	<b>Geriatric pharmacotherapy</b>								<b>1</b>	<b>1</b>	<b>2</b>
<b>PO E16</b>	<b>Pharmacogenetics of drug metabolism and transport</b>								<b>1</b>	<b>1</b>	<b>2</b>

**Bachelor's Degree with Semester System**

The Program	Course Name	Number of Theoretical Hours Per Week	Number of Practical Hours Per Week
Bachelor's Degree with Semester System	Pharmacopoeia ( Level 3)	3	2
	Biological Standards and Biostatistics	1	1
	Toxicology, Forensics and First Aid	1	1

## Bachelor's Degree with Credit Hours System

Program Name	Course Name		Number of theoretical hours per week	Number of practical hours per week	Total credit hours
Bachelor's degree with credit hour system	Physiology	PH 212	2	1	3
	Pharmacology 1	PH 314	2	1	3
	Pharmacology 3	PH 416	2	1	3
	Biostatistics	PH 417	1	-	1
	Toxicology and forensic medicine	PH 519	2	1	3
	Pathophysiology	PH 223	2	-	2
	Pharmacology 2	PH 325	2	1	3
	Therapeutics	PH 428	2	1	3
	First aid and emergency medicine	PH 5210	1	-	1
	Geriatrics	PHE 06	2	-	2

## **Scientific content of the courses**

### **PH 211 Physiology (2+1)**

Physiology: Introduction to body water, homeostasis, transport of materials, nervous systems, neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal, reproductive, and renal systems, endocrine glands and body temperature regulation.

### **PH 222 Biostatistics (1+0)**

This course provides basic concepts of biostatistics and data analysis. It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.

### **PH 223 Pathophysiology (1+1)**

Pathophysiology: Introduction to pathophysiology, cell injury, inflammation and immune response, autonomic nervous system in health and disease, endocrine disorders, pancreatic disorders, fluid and electrolyte imbalance, vascular and haematological disorders, disease of urinary, pulmonary and digestive systems.

### **PH 314 Pharmacology-I (2+1)**

The general principles of pharmacology are presented; such as pharmacokinetics, pharmacodynamics, receptor theory, drug interaction and principle of therapeutics. This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology to disease processes regarding the autonomic, neuromuscular and autacoids.

### **PH 325 Pharmacology-II (2+1)**

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on cardiovascular systems, gastrointestinal tract, pulmonary systems and hematologic disorders. Anti-hyperlipidemic drugs are also included. Chemotherapeutic drugs including antimicrobials & anticancer are also included.

**PH 416 Pharmacology-III (2+1)**

This course integrates principles of pharmacology with conceptual knowledge of physiology and pathophysiology disease processes regarding drugs acting on endocrine system and central nervous system. Immunosuppressant are within the scope of the course. Stem cell therapy is also included. The anti-inflammatory, analgesics as well as gout treatments are also included.

**PH 427 Therapeutics (1+1)**

The course provides the classification, symptoms, principles of therapy & treatment of certain common diseases: Cardiovascular diseases, gastro-intestinal tract disease, pulmonary disease & endocrine abnormalities.

**PH 528 Toxicology & Forensic Chemistry (2+1)**

This course provides basics and concepts of toxicology including the mechanism of toxicity, target organ and treatment of toxicity. Toxic groups including heavy metals, toxic gases, animal, plant and marine poisons, pesticides and radiation hazards are covered. Environmental, occupational, reproductive and genetic toxicology as well as drug abuse are included. Postmortem sampling for detection of poisons, methods of detection, interpretation of results and writing of a report are also covered.

**PH 529 First Aid (1+0)**

The course covers topics of basic life support and medical emergency of different situations including bleeding, shock, poisoning, bone fractures, soft tissue injuries, rescue and transportation. It includes: introduction to first aid ABCs, medical emergencies, effect of temperature, transportation of an injured casualty & first aid kit, respiratory emergencies, fractures and dislocations, bleeding and surgical emergencies, burns and scalds, animal bites or stings and poisoning.

### **Toxicology and Forensic Chemical Analysis Diploma (PHD-100)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours
<b>Toxicology and Forensic Chemical Analysis Diploma (PHD-100)</b>	<b>Basic and Clinical Toxicology</b>	<b>PHD -101</b>	2	1	3
	<b>Molecular and Biochemical Toxicology I</b>	<b>PHD -102</b>	2	1	3
	<b>Forensic Toxicology</b>	<b>PHD -103</b>	2	1	3
	<b>Target Organ Toxicology</b>	<b>PHD -104</b>	2	1	3
	<b>Molecular and Biochemical Toxicology II</b>	<b>PHD -105</b>	2	1	3
	<b>Environmental and Occupational Toxicology</b>	<b>PHD -106</b>	2	1	3
	<b>Drugs of Abuse</b>	<b>PHD -107</b>	2	-	2
<b>Elective course (PAD -1EC)</b>	<b>Teratogenicity and Mutagenicity</b>	<b>PHD -108</b>	2	-	2
	<b>Toxicity Assessment</b>	<b>PHD -109</b>	2	-	2

### **Participating in teaching Biochemistry Diploma (PBD-100)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours
<b>Biochemistry Diploma (PBD-100)</b>	<b>Physiology and Pathology</b>	<b>PBD -102</b>	2	1	3

**Participating in teaching Clinical Pharmacy Diploma (PPD-100)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours
<b>Clinical Pharmacy Diploma (PPD-100)</b>	<b>Drug Interactions</b>	<b>PPD -101</b>	2	1	3
	<b>Clinical Pharmacy</b>	<b>PPD -105</b>	2	1	3

**Pharm D Courses (PP-PDP-200)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours
<b>Pharm D Courses (PP-PDP-200)</b>	<b>Adv. Pharmacotherapeutics I</b>	<b>PP -PDP-201</b>	5	-	5
	<b>Adv. Pharmacotherapeutics II</b>	<b>PP -PDP-208</b>	4	-	4
	<b>Clinical Toxicology</b>	<b>PP -PDP-211</b>	2	-	2

**MS. Degree (General Courses) (GCM-200)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours
<b>MS .Degree (General Courses) (GCM-200)</b>	<b>Statistics and biostatistics</b>	<b>GCM-202</b>	2	-	2

**MS. D. Courses (Pharmacology) (PHM- 200)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours	
<b>MS .D. Courses (Pharmacology) (PHM- 200)</b>	<b>Pathophysiology</b>	<b>PHM-201</b>	2	-	2	
	<b>Pharmacotherapeutics I</b>	<b>PHM-202</b>	2	-	2	
	<b>Drug Discovery and Evaluation</b>	<b>PHM-203</b>	2	-	2	
	<b>Elective Course (PHM-2EC)</b>	<b>Molecular Pharmacology</b>	<b>PHM-204</b>	2	-	2
		<b>Pharmacogeomics</b>	<b>PHM-205</b>	2	-	2

**Ph.D. Courses (Pharmacology) (PHP- 300)**

Program name	Course Title		Lect. Credit hours	Pract. Credit hours	Total Credit hours	
<b>Ph.D. Courses (Pharmacology) (PHP- 300)</b>	<b>Immunopharmacology</b>	<b>PHP-301</b>	2	-	2	
	<b>Pharmacotherapeutics II</b>	<b>PHP-302</b>	2	-	2	
	<b>New Trends in Pharmacology</b>	<b>PHP-303</b>	2	-	2	
	<b>Elective course (PHP-3EC)</b>	<b>Genotoxicity</b>	<b>PHP-304</b>	2	-	2
		<b>Iatrogenic Diseases</b>	<b>PHP-305</b>	2	-	2

## **Internal and external review of courses**

External reviewer	Internal reviewers
Prof. Dr. Hala Elashri Professor, Faculty of Medicine, Mansoura University	<ul style="list-style-type: none"><li>○ Prof. Dr. Ghada Mohamed Suddek</li><li>○ Prof. Dr. Manar Ahmed Nader</li><li>○ Dr. Rania Ramadan Abdel Aziz</li></ul>

## **Five-year plan for the department's research topics**

On February 10, 2021, the department council agreed that the department's five-year plan for the next five years would be in the following topics:

- ✓ Interventional drug interactions, side effects and toxicological studies.
- ✓ Contribute to solving health problems related to diseases: (liver - allergies and asthma - kidneys - heart and blood vessels - high cholesterol - diabetes - cancerous diseases).

### **The department is concerned with the following research areas:**

1. Allergy, Asthma & immunology
2. Cardiovascular research
3. Metabolic diseases (diabetes/hypercholesterolemia)
4. Hepatic disease research
5. Toxicological studies
6. Cancer Research
7. Immunopharmacology and immunomodulators

## Research published in local and international journals for years 2019, 2020, 2021 and 2022

Number	Authors	Research Article	Publication Year
1.	Abdelmageed ME, Shehatou GS, Abdelsalam RA, Suddek GM, Salem HA.	Cinnamaldehyde ameliorates STZ-induced rat diabetes through modulation of IRS1/PI3K/AKT2 pathway and AGEs/RAGE interaction. <b>Naunyn Schmiedebergs Arch Pharmacol.</b> 2019 Feb;392(2):243-258	2019
2.	Heikal MM1, Shaaban AA1,2, Elkashef WF3, Ibrahim TM1.	Effect of febuxostat on biochemical parameters of hyperlipidemia induced by a high-fat diet in rabbits. <b>Can J Physiol Pharmacol.</b> 2019 Jul;97(7):611-622. doi: 10.1139/cjpp-2018-0731	2019
3.	El-Sonbaty YA, Suddek GM, Megahed N, Gameil NM.	Protocatechuic acid exhibits hepatoprotective, vasculoprotective, antioxidant and insulin-like effects in dexamethasone-induced insulin-resistant rats. <b>Biochimie.</b> 2019 Sep 23. pii: S0300-9084(19)30269-X. doi: 10.1016/j.biochi.2019.09.011	2019
4.	Abdel-Dayem MA, Shaker ME, Gameil NM.	Impact of interferon $\beta$ -1b, interferon $\beta$ -1a and fingolimod therapies on serum interleukins-22, 32 $\alpha$ and 34 concentrations in patients with relapsing-remitting multiple sclerosis. <b>J Neuroimmunol.</b> 2019 Sep 6; 337:577062. doi: 10.1016/j.jneuroim.2019.577062	2019
5.	Shawky NM, Shehatou GSG, Suddek GM, Gameil NM.	Comparison of the effects of sulforaphane and pioglitazone on insulin resistance and associated dyslipidemia, hepatosteatosis, and endothelial dysfunction in fructose-fed rats. <b>Environ Toxicol Pharmacol.</b> 2019 Feb;66:43-54. doi: 10.1016/j.etap.2018.12.008.	2019
6.	Khodir AE, Said E, Atif H, ElKashef HA, Salem HA.	Targeting Nrf2/HO-1 signaling by crocin: Role in attenuation of AA-induced ulcerative colitis in rats. <b>Biomed Pharmacother.</b> 2019 Feb; 110:389-399. doi: 10.1016/j.biopha.2018.11.133. Epub 2018 Dec 5	2019
7.	Zaghloul MS, Said E, Suddek GM, Salem HA.	Crocinn attenuates lung inflammation and pulmonary vascular dysfunction in a rat model of bleomycin-induced pulmonary fibrosis. <b>Life Sci.</b> 2019 Aug 26; 235:116794. doi: 10.1016/j.lfs.2019.116794.	2019
8.	Nazmy EA, El-Khouly OA, Zaki MMA, Elsherbiny NM, Said E, Al-Gayyar MMH, Salem HA.	Targeting p53/TRAIL/caspase-8 signaling by adiponectin reverses thioacetamide-induced hepatocellular carcinoma in rats. <b>Environ Toxicol Pharmacol.</b> 2019 Aug 7;72:103240. doi: 10.1016/j.etap.2019.103240.	2019
9.	Samaha MM, Said E, Salem HA.	A comparative study of the role of crocin and sitagliptin in attenuation of STZ-induced diabetes mellitus and the associated inflammatory and apoptotic changes in pancreatic $\beta$ -islets.	2019

		<b>Environ Toxicol Pharmacol.</b> 2019 Jul 31;72:103238. doi: 10.1016/j.etap.2019.103238.	
10.	Samaha MM, Said E, Salem HA.	Nilotinib enhances $\beta$ -islets integrity and secretory functions in a rat model of STZ-induced diabetes mellitus. <b>Eur J Pharmacol.</b> 2019 Oct 5;860:172569. doi: 10.1016/j.ejphar.2019.172569. Epub 2019 Jul 24.	2019
11.	Mostafa ME, Shaaban AA, Salem HA.	Dimethylfumarate ameliorates hepatic injury and fibrosis induced by carbon tetrachloride. <b>Chem Biol Interact.</b> 2019 Apr 1; 302:53-60. doi: 10.1016/j.cbi.2019.01.029. Epub 2019 Jan 28.	2019
12.	El-Kashef DH, Shaaban AA, El-Agamy DS.	Protective role of pirfenidone against experimentally-induced pancreatitis. <b>Pharmacol Rep.</b> 2019 Apr 9;71(5):774-781. doi: 10.1016/j.pharep.2019.04.005. [Epub ahead of print]	2019
13.	Ibrahim SRM, Ahmed N, Almalki S, Alharbi N, El-Agamy DS, Alahmadi LA, Saubr MK, Elkablawy M, Elshafie RM, Mohamed GA, El-Kholy MA.	Vitex agnus-castus safeguards the lung against lipopolysaccharide-induced toxicity in mice. <b>J Food Biochem.</b> 2019 Mar;43(3):e12750. doi: 10.1111/jfbc.12750. Epub 2018 Dec 13	2019
14.	El-Agamy DS, Ibrahim SRM, Ahmed N, Khoshhal S, Abo-Haded HM, Elkablawy MA, Aljuhani N, Mohamed GA.	Aspernolide F, as a new cardioprotective butyrolactone against doxorubicin-induced cardiotoxicity. <b>Int Immunopharmacol.</b> 2019 Jul;72:429-436. doi: 10.1016/j.intimp.2019.04.045.	2019
15.	Abdel-Rahman N, Sharawy MH, Megahed N, El-Awady MS.	Vitamin D3 abates BDL-induced cholestasis and fibrosis in rats via regulating Hedgehog pathway. <b>Toxicol Appl Pharmacol.</b> 2019 Oct 1;380:114697. doi: 10.1016/j.taap.2019.114697.	2019
16.	Makled MN, Sharawy MH, El-Awady MS.	The dual PPAR- $\alpha/\gamma$ agonist saroglitazar ameliorates thioacetamide-induced liver fibrosis in rats through regulating leptin. <b>Naunyn Schmiedebergs Arch Pharmacol.</b> 2019 Jul 31. doi: 10.1007/s00210-019-01703-5.	2019
17.	Keefe JA, Hwang SJ, Huan T, Mendelson M, Yao C, Courchesne P, Saleh MA, Madhur MS, Levy D	Evidence for a Causal Role of the SH2B3- $\beta$ 2M Axis in Blood Pressure Regulation. <b>Hypertension.</b> 2019 Feb;73(2):497-503. doi: 10.1161/HYPERTENSIONAHA.118.12094.	2019

18.	Elmarakby AA, Ibrahim AS, Katary MA, Elsherbiny NM, El-Shafey M, Abd-Elrazik AM, Abdelsayed RA, Maddipati KR, Al-Shabrawey M.	A dual role of 12/15-lipoxygenase in LPS-induced acute renal inflammation and injury. <b>Biochim Biophys Acta Mol Cell Biol Lipids.</b> 2019 Nov;1864(11):1669-1680. doi: 10.1016/j.bbalip.2019.07.009. Epub 2019 Jul 23.	2019
19.	Elmarakby A, Faulkner J, Pati P, Rudic RD, Bergson C.	Increased arterial pressure in mice with overexpression of the ADHD candidate gene calcyon in forebrain. <b>PLoS One.</b> 2019 Feb 12;14(2):e0211903. doi: 10.1371/journal.pone.0211903. eCollection 2019.	2019
20.	Elshal M, Abu-Elsaad N, El-Karef A, Ibrahim T.	Retinoic acid modulates IL-4, IL-10 and MCP-1 pathways in immune mediated hepatitis and interrupts CD4+ T cells infiltration. <b>Int Immunopharmacol.</b> 2019 Oct;75:105808. doi: 10.1016/j.intimp.2019.105808. Epub 2019 Aug 13.	2019
21.	Abu-Elsaad N, El-Karef A.	Protection against nonalcoholic steatohepatitis through targeting IL-18 and IL-1alpha by luteolin. <b>Pharmacol Rep.</b> 2019 Aug;71(4):688-694. doi: 10.1016/j.pharep.2019.03.009. Epub 2019 Mar 15.	2019
22.	Shafeek F, Abu-Elsaad N, El-Karef A, Ibrahim T	Gum Acacia mitigates diclofenac nephrotoxicity by targeting monocyte chemoattractant protein-1, complement receptor-1 and pro-apoptotic pathways. <b>Food Chem Toxicol.</b> 2019 Jul;129:162-168. doi: 10.1016/j.fct.2019.04.050. Epub 2019 Apr 28.	2019
23.	Oraby MA, El-Yamany MF, Safar MM, Assaf N, Ghoneim HA.	Amelioration of Early Markers of Diabetic Nephropathy by Linagliptin in Fructose-Streptozotocin-Induced Type 2 Diabetic Rats. <b>Nephron.</b> 2019;141(4):273-286. doi: 10.1159/000495517. Epub 2019 Jan 30.	2019
24.	Oraby MA, El-Yamany MF, Safar MM, Assaf N, Ghoneim HA.	Dapagliflozin attenuates early markers of diabetic nephropathy in fructose-streptozotocin-induced diabetes in rats. <b>Biomed Pharmacother.</b> 2019 Jan;109:910-920. doi: 10.1016/j.biopha.2018.10.100. Epub 2018 Nov 5.	2019

25.	Helal MG, Said E.	Carvedilol attenuates experimentally induced silicosis in rats via modulation of P-AKT/mTOR/TGFβ1 signaling. <b>Int Immunopharmacol.</b> 2019 May;70:47-55. doi: 10.1016/j.intimp.2019.02.011. Epub 2019 Feb 20	2019
26.	Abdelrahman RS, Abdel-Rahman N	Dimethyl fumarate ameliorates acetaminophen-induced hepatic injury in mice dependent of Nrf-2/HO-1 pathway. <b>Life Sci.</b> 2019 Jan 15; 217:251-260. doi: 10.1016/j.lfs.2018.12.013. Epub 2018 Dec 11.	2019
27.	El-Kerdawy MM, Ghaly MA, Darwish SA, Abdel-Aziz HA, Elsheakh AR, Abdelrahman RS, Hassan GS.	New benzimidazothiazole derivatives as anti-inflammatory, antitumor active agents: Synthesis, in-vitro and in-vivo screening and molecular modeling studies. <b>Bioorg Chem.</b> 2019 Mar; 83:250-261. doi: 10.1016/j.bioorg.2018.10.048. Epub 2018	2019
28.	El-Sharief MAMS, Abbas SY, El-Sharief AMS, Sabry NM, Moussa Z, El-Messery SM, Elsheakh AR, Hassan GS, El Sayed MT.	5-Thioxoimidazolidine-2-one derivatives: Synthesis, anti-inflammatory activity, analgesic activity, COX inhibition assay and molecular modelling study. <b>Bioorg Chem.</b> 2019 Jun; 87:679-687. doi: 10.1016/j.bioorg.2019.03.075. Epub 2019 Apr 1.	2019
29.	El-Kashef DH, El-Sheakh AR	Hepatoprotective effect of celecoxib against tamoxifen-induced liver injury via inhibiting ASK-1/JNK pathway in female rats. <b>Life Sci.</b> 2019 Aug 15;231:116573. doi: 10.1016/j.lfs.2019.116573. Epub 2019 Jun 14.	2019
30.	El-Kashef DH, Serrya MS.	Sitagliptin ameliorates thioacetamide-induced acute liver injury via modulating TLR4/NF-KB signaling pathway in mice. <b>Life Sci.</b> 2019 Jul 1;228:266-273. doi: 10.1016/j.lfs.2019.05.019. Epub 2019 May 9.	2019
31.	Elshaer SL, Alwhaibi A, Mohamed R, Lemtalsi T, Coucha M, Longo FM, El-Remessy AB.	Modulation of the p75 neurotrophin receptor using LM11A-31 prevents diabetes-induced retinal vascular permeability in mice via inhibition of inflammation and the RhoA kinase pathway. <b>Diabetologia.</b> 2019 Aug;62(8):1488-1500. doi: 10.1007/s00125-019-4885-2. Epub 2019 May 9.	2019

32.	Periasamy R, Elshaer SL, Gangaraju R	CD140b (PDGFR $\beta$ ) signaling in adipose-derived stem cells mediates angiogenic behavior of retinal endothelial cells. <b>Regen Eng Transl Med.</b> 2019 Mar;5(1):1-9. doi: 10.1007/s40883-018-0068-9. Epub 2018 Jun 29.	2019
33.	Marwa S. Zaghoul, Rehab S. Abdelrahman	Nilotinib ameliorates folic acid-induced acute kidney injury through modulation of TWEAK and HSP-70 pathways. <b>Toxicology.</b> 2019 Nov 1;427:152303. doi: 10.1016/j.tox.2019.	2019
34.	Katary, M.A., Abdelsayed, R., Alhashim, A., Abdelhasib, M., Elmarakby, A.A.	Salvianolic acid B slows the progression of breast cancer cell growth via enhancement of apoptosis and reduction of oxidative stress, inflammation, and angiogenesis. <b>Int J Mol Sci.</b> 2019 Nov 12;20(22). pii: E5653.	2019
35.	Jeong JH, Lee N, Tucker MA, Rodriguez-Miguel P, Looney J, Thomas J, Derella CC, El-Marakby A, Musall JB, Sullivan JC, McKie KT, Forseen C, Davison GW, Harris RA.	Tetrahydrobiopterin improves endothelial function in patients with cystic fibrosis. <b>J Appl Physiol</b> (1985). 2019 Jan 1;126(1):60-66.	2019
36.	Helal MG, Megahed NA, Abd Elhameed AG.	Saxagliptin mitigates airway inflammation in a mouse model of acute asthma via modulation of NF-kB and TLR4. <b>Life Sci.</b> 2019 Dec 15;239:117017. doi: 10.1016/j.lfs.2019.117017.	2019
37.	Maha Saber-Ayad, Mohamed A Saleh , Eman Abu-Gharbieh	The Rationale for Potential Pharmacotherapy of COVID-19. <b>Pharmaceuticals (Basel).</b> 2020 May 14;13(5):96. doi: 10.3390/ph13050096.	2020
38.	Ahmed E Khodir , Yara A Samra, Eman Said	A novel role of nifuroxazide in attenuation of sepsis-associated acute lung and myocardial injuries; role of TLR4/NLPR3/IL-1 $\beta$ signaling interruption. <b>Life Sci.</b> 2020 Sep 1;256:117907. doi: 10.1016/j.lfs.2020.117907. Epub 2020 Jun 3.	2020
39.	Kareem M Saad , Rehab S Abdelrahman , Eman Said	Mechanistic perspective of protective effects of nilotinib against cisplatin-induced testicular injury in rats: Role of JNK/caspase-3 signaling inhibition. <b>Environ Toxicol Pharmacol.</b> 2020 May;76:103334. doi: 10.1016/j.etap.2020.103334. Epub 2020 Feb 3.	2020

40.	Mohamed E Shaker , Hesham A M Gomaa , Khalid S Alharbi , Mohammad M Al-Sanea , Mohamed E El-Mesery , Sara H Hazem	Inhibition of Bruton tyrosine kinase by acalabrutinib dampens lipopolysaccharide/galactosamine-induced hepatic damage. <i>Biomed Pharmacother.</i> 2020 Nov;131:110736. doi: 10.1016/j.biopha.2020.110736. Epub 2020 Sep 17.	2020
41.	Kareem M Saad , Mohamed E Shaker , Ahmed A Shaaban , Rehab S Abdelrahman , Eman Said	The c-Met inhibitor capmatinib alleviates acetaminophen-induced hepatotoxicity. <i>Int Immunopharmacol.</i> 2020 Apr;81:106292. doi: 10.1016/j.intimp.2020.106292. Epub 2020 Feb 14.	2020
42.	Fatma M Amin , Rania R Abdelaziz , Mohamed F Hamed , Manar A Nader , George S G Shehatou	Dimethyl fumarate ameliorates diabetes-associated vascular complications through ROS-TXNIP-NLRP3 inflammasome pathway. <i>Life Sci.</i> 2020 Sep 1;256:117887. doi: 10.1016/j.lfs.2020.117887. Epub 2020 Jun 1.	2020
43.	Nehal M Elsherbiny , Nada H Eisa , Mohamed El-Sherbiny , Eman Said	Chemo-preventive effect of crocin against experimentally-induced hepatocarcinogenesis via regulation of apoptotic and Nrf2 signaling pathways. <i>Environ Toxicol Pharmacol.</i> 2020 Nov;80:103494. doi: 10.1016/j.etap.2020.103494. Epub 2020 Sep 14.	2020
44.	Yara A Samra , Mohamed F Hamed , Ahmed R El-Sheakh	Hepatoprotective effect of allicin against acetaminophen-induced liver injury: Role of inflammasome pathway, apoptosis, and liver regeneration. <i>J Biochem Mol Toxicol.</i> 2020 May;34(5):e22470. doi: 10.1002/jbt.22470. Epub 2020 Feb 10.	2020
45.	Sharifa Alzahrani , Sadeem M Ajwah , Sumayyah Yasser Alsharif , Eman Said , Mohamed El-Sherbiny , Sawsan A Zaitone , Mohamed Al-Shabrawey , Nehal M Elsherbiny	Isoliquiritigenin downregulates miR-195 and attenuates oxidative stress and inflammation in STZ-induced retinal injury. <i>Naunyn Schmiedebergs Arch Pharmacol.</i> 2020 Dec;393(12):2375-2385. doi: 10.1007/s00210-020-01948-5. Epub 2020 Jul 22.	2020
46.	Amir Mohamed Abdelhamid , Ahmed Ramadan Elsheakh , Rania Ramadan Abdelaziz , Ghada Mohamed Suddek	Empagliflozin ameliorates ethanol-induced liver injury by modulating NF- $\kappa$ B/Nrf-2/PPAR- $\gamma$ interplay in mice. <i>Life Sci.</i> 2020 Sep 1;256:117908. doi: 10.1016/j.lfs.2020.117908. Epub 2020 Jun 5.	2020
47.	Ahmed E Amer , Ahmed R El-Sheakh , Mohamed F Hamed , Hassan A El-Kashef , Manar A Nader , George S G Shehatou	Febuxostat attenuates vascular calcification induced by vitamin D3 plus nicotine in rats. <i>Eur J Pharm Sci.</i> 2021 Jan 1;156:105580. doi: 10.1016/j.ejps.2020.105580. Epub 2020 Sep 30.	2020

48.	Mohamed E Shaker , Ahmed A Shaaban , Mohamed M El-Shafey , Mohamed E El-Mesery	The selective c-Met inhibitor capmatinib offsets cisplatin-nephrotoxicity and doxorubicin-cardiotoxicity and improves their anticancer efficacies. <i>Toxicol Appl Pharmacol.</i> 2020 Jul 1;398:115018. doi: 10.1016/j.taap.2020.115018. Epub 2020 Apr 22.	2020
49.	Manar Gamal Helal , Eman Said	Tranilast attenuates methotrexate-induced renal and hepatic toxicities: Role of apoptosis-induced tissue proliferation. <i>J Biochem Mol Toxicol.</i> 2020 May;34(5):e22466. doi: 10.1002/jbt.22466. Epub 2020 Feb 11.	2020
50.	Yousra M El-Far , Nehal M Elsherbiny , Mohamed El-Shafey , Eman Said	The interplay of the inhibitory effect of nifuroxazide on NF- $\kappa$ B/STAT3 signaling attenuates acetic acid-induced ulcerative colitis in rats. <i>Environ Toxicol Pharmacol.</i> 2020 Oct;79:103433. doi: 10.1016/j.etap.2020.103433. Epub 2020 Jun 9.	2020
51.	Mohammed O Kseibati , George S G Shehatou , Maha H Sharawy , Ahmed E Eladl , Hatem A Salem	Nicorandil ameliorates bleomycin-induced pulmonary fibrosis in rats through modulating eNOS, iNOS, TXNIP and HIF-1 $\alpha$ levels. <i>Life Sci.</i> 2020 Apr 1;246:117423. doi: 10.1016/j.lfs.2020.117423. Epub 2020 Feb 11.	2020
52.	Sally A Habib , Rehab S Abdelrahman , Mona Abdel Rahim , Ghada M Suddek	Anti-apoptotic effect of vincocetine on cisplatin-induced hepatotoxicity in mice: The role of Annexin-V, Caspase-3, and Bax. <i>J Biochem Mol Toxicol.</i> 2020 Oct;34(10):e22555. doi: 10.1002/jbt.22555. Epub 2020 Jun 24.	2020
53.	Sharifa Alzahrani , Sawsan A Zaitone , Eman Said , Mohamed El-Sherbiny , Sadeem Ajwah , Sumayyah Yasser Alsharif , Nehal M Elsherbiny	Protective effect of isoliquiritigenin on experimental diabetic nephropathy in rats: Impact on Sirt-1/NF $\kappa$ B balance and NLRP3 expression. <i>Int Immunopharmacol.</i> 2020 Oct;87:106813. doi: 10.1016/j.intimp.2020.106813. Epub 2020 Jul 21.	2020
54.	Mohamed El-Mesery , Mohamed A Anany , Sara H Hazem , Mohamed E Shaker	The NEDD8-activating enzyme inhibition with MLN4924 sensitizes human cancer cells of different origins to apoptosis and necroptosis. <i>Arch Biochem Biophys.</i> 2020 Sep 30;691:108513. doi: 10.1016/j.abb.2020.108513. Epub 2020 Jul 25.	2020
55.	Mirhan N Makled , Dalia H El-Kashef	Saroglitazar attenuates renal fibrosis induced by unilateral ureteral obstruction via inhibiting TGF- $\beta$ /Smad signaling pathway. <i>Life Sci.</i> 2020 Jul 15;253:117729. doi: 10.1016/j.lfs.2020.117729. Epub 2020 Apr 27.	2020

56.	Mahmoud M Samaha , Eman Said , Hatem A Salem	Modulatory role of imatinib mesylate on pancreatic $\beta$ -cells' secretory functions in an STZ rat model of diabetes mellitus. <i>Chem Biol Interact.</i> 2020 Sep 1;328:109197. doi: 10.1016/j.cbi.2020.109197. Epub 2020 Jul 22.	2020
57.	Mohammed Kh ElMahdy , Manar G Helal , Tarek M Ebrahim	Potential anti-inflammatory effect of dapagliflozin in HCHF diet- induced fatty liver degeneration through inhibition of TNF- $\alpha$ , IL-1 $\beta$ , and IL-18 in rat liver. <i>Int Immunopharmacol.</i> 2020 Sep;86:106730. doi: 10.1016/j.intimp.2020.106730. Epub 2020 Jun 26.	2020
58.	Shrook A Mohamed , Dalia H El-Kashef , Manar A Nader	Tiron alleviates MPTP-induced Parkinsonism in mice via activation of Keap-1/Nrf2 pathway. <i>J Biochem Mol Toxicol.</i> 2020 Dec 28;e22685. doi: 10.1002/jbt.22685. Online ahead of print.	2020
59.	Ahmed E Khodir , Eman Said	Nifuroxazide attenuates experimentally-induced hepatic encephalopathy and the associated hyperammonemia and cJNK/caspase-8/TRAIL activation in rats. <i>Life Sci.</i> 2020 Jul 1;252:117610. doi: 10.1016/j.lfs.2020.117610. Epub 2020 Apr 4.	2020
60.	Manar G Helal , Yara A Samra	Irbesartan mitigates acute liver injury, oxidative stress, and apoptosis induced by acetaminophen in mice. <i>J Biochem Mol Toxicol.</i> 2020 Dec;34(12):e22447. doi: 10.1002/jbt.22447. Epub 2020 Jan 22.	2020
61.	Mohammed O Kseibati , Maha H Sharawy , Hatem A Salem	Chrysin mitigates bleomycin-induced pulmonary fibrosis in rats through regulating inflammation, oxidative stress, and hypoxia. <i>Int Immunopharmacol.</i> 2020 Dec;89(Pt A):107011. doi: 10.1016/j.intimp.2020.107011. Epub 2020 Oct 9.	2020
62.	Marwa E Abdelmageed , George S G Shehatou , Ghada M Suddek , Hatem A Salem	Protocatechuic acid improves hepatic insulin resistance and restores vascular oxidative status in type-2 diabetic rats. <i>Environ Toxicol Pharmacol.</i> 2020 Dec 28;83:103577. doi: 10.1016/j.etap.2020.103577. Online ahead of print.	2020
63.	Mohamed A Saleh , Ahmed M Awad , Tarek M Ibrahim , Nashwa M Abu-Elsaad	Small-Dose Sunitinib Modulates p53, Bcl-2, STAT3, and ERK1/2 Pathways and Protects against Adenine-Induced Nephrotoxicity. <i>Pharmaceuticals (Basel).</i> 2020 Nov 17;13(11):397. doi: 10.3390/ph13110397.	2020

64.	Ahmed M Awad , Mohamed A Saleh , Nashwa M Abu-Elsaad , Tarek M Ibrahim	Erlotinib can halt adenine induced nephrotoxicity in mice through modulating ERK1/2, STAT3, p53 and apoptotic pathways. <i>Sci Rep.</i> 2020 Jul 13;10(1):11524. doi: 10.1038/s41598-020-68480-7.	2020
65.	Shimaa Khaled, Mirhan N Makled , Manar A Nader	Tiron protects against nicotine-induced lung and liver injury through antioxidant and anti-inflammatory actions in rats in vivo. <i>Life Sci.</i> 2020 Nov 1;260:118426. doi: 10.1016/j.lfs.2020.118426. Epub 2020 Sep 13.	2020
66.	Mohammed M Maresh , Rania R Abdelaziz , Tarek M Ibrahim	Febuxostat mitigates concanavalin A-induced acute liver injury via modulation of MCP-1, IL-1 $\beta$ , TNF- $\alpha$ , neutrophil infiltration, and apoptosis in mice. <i>Life Sci.</i> 2020 Nov 1;260:118307. doi: 10.1016/j.lfs.2020.118307. Epub 2020 Aug 22.	2020
67.	Marwa S Serrya , Marwa S Zagloul	Mycophenolate mofetil attenuates concanavalin A-induced acute liver injury through modulation of TLR4/NF- $\kappa$ B and Nrf2/HO-1 pathways. <i>Pharmacol Rep.</i> 2020 Aug;72(4):945-955. doi: 10.1007/s43440-019-00055-4. Epub 2020 Jan 14.	2020
68.	Nermeen A Qandeel , Ashraf K El-Damasy , Maha H Sharawy , Said M Bayomi , Nadia S El-Gohary	Synthesis, in vivo anti-inflammatory, COX-1/COX-2 and 5-LOX inhibitory activities of new 2,3,4-trisubstituted thiophene derivatives. <i>Bioorg Chem.</i> 2020 Sep;102:103890. doi: 10.1016/j.bioorg.2020.103890. Epub 2020 May 4.	2020
69.	Dalia H El-Kashef , Rehab S Abdelrahman	Montelukast ameliorates Concanavalin A-induced autoimmune hepatitis in mice via inhibiting TNF- $\alpha$ /JNK signaling pathway. <i>Toxicol Appl Pharmacol.</i> 2020 Apr 15;393:114931. doi: 10.1016/j.taap.2020.114931. Epub 2020 Feb 25.	2020
70.	Maha H Sharawy , Marwa S Serrya	Pirfenidone attenuates gentamicin-induced acute kidney injury by inhibiting inflammasome-dependent NLRP3 pathway in rats. <i>Life Sci.</i> 2020 Nov 1;260:118454. doi: 10.1016/j.lfs.2020.118454. Epub 2020 Sep 18.	2020
71.	Nora A Ashry , Rania R Abdelaziz , Ghada M Suddek	The potential effect of imatinib against hypercholesterolemia induced atherosclerosis, endothelial dysfunction and hepatic injury in rabbits. <i>Life Sci.</i> 2020 Feb 15;243:117275. doi: 10.1016/j.lfs.2020.117275. Epub 2020 Jan 8.	2020

72.	Asmaa El-Kenawi , Chandler Gatenbee , Mark Robertson-Tessi , Rafael Bravo , Jasreman Dhillon , Yoganand Balagurunathan , Anders Berglund , Naveen Vishvakarma , Arig Ibrahim-Hashim , Jung Choi , Kimberly Luddy , Robert Gatenby , Shari Pilon-Thomas , Alexander Anderson , Brian Ruffell , Robert Gillies	Correction: Acidity promotes tumour progression by altering macrophage phenotype in prostate cancer. Br J Cancer. 2020 Mar;122(7):1118. doi: 10.1038/s41416-019-0710-4.	2020
73.	Mohammad M Al-Sanea , Ahmad J Obaidullah , Mohamed E Shaker, Garri Chilingaryan , Mohammed M Alanazi , Nawaf A Alsaif , Hamad M Alkahtani , Sultan A Alsubaie , Mohamed A Abdelgawad	A New CDK2 Inhibitor with 3-Hydrazonoindolin-2-One Scaffold Endowed with Anti-Breast Cancer Activity: Design, Synthesis, Biological Evaluation, and In Silico Insights. Molecules. 2021 Jan 14;26(2):412. doi: 10.3390/molecules26020412.	2021
74.	Yara A Samra , Mohamed N Amin , Eman Said	Cardio-protective impact of gabapentin against doxorubicin-induced myocardial toxicity in rats; emphasis on modulation of inflammatory-apoptotic signaling Int Immunopharmacol. 2021 Jan;90:107125. doi: 10.1016/j.intimp.2020.107125. Epub 2020 Nov 13.	2021
75.	Eslam K Fahmy , Mohamed El-Sherbiny , Eman Said , Hany A Elkattawy , Mona Qushawy , Nehal Elsherbiny	Tranilast ameliorated subchronic silver nanoparticles-induced cerebral toxicity in rats: Effect on TLR4/NLRP3 and Nrf-2. Neurotoxicology. 2021 Jan;82:167-176. doi: 10.1016/j.neuro.2020.12.008. Epub 2020 Dec 23.	2021
76.	Dalia M Ezzat, Asmaa M Soliman, Dalia H El-Kashef	Nicorandil mitigates folic acid-induced nephrotoxicity in mice: Role of iNOS and eNOS. J Biochem Mol Toxicol. 2021 Jan 6;e22692. doi: 10.1002/jbt.22692. Online ahead of print.	2021
77.	Sally L Elshaer , Hang-Soo Park , Laura Pearson , William D Hill , Frank M Longo , Azza B El-Remessy	Modulation of p75 NTR on Mesenchymal Stem Cells Increases Their Vascular Protection in Retinal Ischemia-Reperfusion Mouse Model. Int J Mol Sci. 2021 Jan 15;22(2):829.doi: 10.3390/ijms22020829.	2021

78.	Makled, M.N., El-Awady, M.S., Abdel-Aziz, R.R., .Ammar, E.M., Gameil, N.M.	Pomegranate extract ameliorates renal ischemia/reperfusion injury in rats via suppressing NF-κB pathway. <i>Human and Experimental Toxicology</i> , 2021, 40(12_suppl), pp. S573–S582. <a href="https://doi.org/10.1177/09603271211041998">https://doi.org/10.1177/09603271211041998</a>	2021
79.	Elsayed, M.S., Abu-Elsaad, N.M., Nader, M.A.	The NLRP3 inhibitor dapansutrile attenuates folic acid induced nephrotoxicity via inhibiting inflammasome/caspase-1/IL axis and regulating autophagy/proliferation. <i>Life Sciences</i> , 2021, 285, 119974. <a href="https://doi.org/10.1016/j.lfs.2021.119974">https://doi.org/10.1016/j.lfs.2021.119974</a>	2021
80.	Ibrahim, S.R.M., Altyar, A.E., Sindi, I.A., ...Mohamed, S.G.A., Mohamed, G.A.	Kireinol: A promising bioactive metabolite from siegesbeckia species: A detailed review. <i>Journal of Ethnopharmacology</i> , 2021, 281, 114552. <a href="https://doi.org/10.1016/j.jep.2021.114552">https://doi.org/10.1016/j.jep.2021.114552</a>	2021
81.	Mohamed, G.A., Ibrahim, S.R.M., El-Agamy, D.S., ...Koshak, A.E., Elhady, S.S.	Terretonin as a new protective agent against sepsis-induced acute lung injury: Impact on SIRT1/Nrf2/NF-κBp65/NLRP3 signaling. <i>Biology</i> , 2021, 10(11), 1219. <a href="https://doi.org/10.3390/biology10111219">https://doi.org/10.3390/biology10111219</a>	2021
82.	Shaker, M.E., Eisa, N.H., Elgaml, A., ...El-Mowafy, M., El-Mesery, M.	Ingestion of mannose ameliorates thioacetamide-induced intrahepatic oxidative stress, inflammation and fibrosis in rats. <i>Life Sciences</i> , 2021, 286, 120040. <a href="https://doi.org/10.1016/j.lfs.2021.120040">https://doi.org/10.1016/j.lfs.2021.120040</a>	2021
83.	El-Sherbiny, M., Fahmy, E.K., Eisa, N.H., ...Elsherbiny, N.M., Ghoneim, F.M.	Nanogold particles suppresses 5-flurouracil-induced renal injury: An insight into the modulation of nrf-2 and its downstream targets, ho-1 and γ-gcs. <i>Molecules</i> , 2021, 26(24),768. <a href="https://dx.doi.org/10.3390%2Fmolecules26247684">https://dx.doi.org/10.3390%2Fmolecules26247684</a>	2021
84.	El-Sherbiny, M., Eisa, N.H., Abo El-Magd, N.F., ...Said, E., Khodir, A.E.	Anti-inflammatory/anti-apoptotic impact of betulin attenuates experimentally induced ulcerative colitis: An insight into TLR4/NF-κB/caspase signalling modulation. <i>Environmental Toxicology and Pharmacology</i> , 2021, 88, 103750. <a href="https://doi.org/10.1016/j.etap.2021.103750">https://doi.org/10.1016/j.etap.2021.103750</a>	2021
85.	Sharawy, M.H., El-Kashef, D.H., Shaaban, A.A., El-Agamy, D.S.	Anti-fibrotic activity of sitagliptin against concanavalin A-induced hepatic fibrosis. Role of Nrf2 activation/NF-κB inhibition. <i>International Immunopharmacology</i> , 2021, 100, 108088. <a href="https://doi.org/10.1016/j.intimp.2021.108088">https://doi.org/10.1016/j.intimp.2021.108088</a>	2021

86.	Abd Elhameed, A.G., Helal, M.G., Said, E., Salem, H.A.	Saxagliptin defers thioacetamide-induced hepatocarcinogenesis in rats: A novel suppressive impact on Wnt/Hedgehog/Notch1 signaling. <i>Environmental Toxicology and Pharmacology</i> , <b>2021</b> , 86, 103668. <a href="https://doi.org/10.1016/j.etap.2021.103668">https://doi.org/10.1016/j.etap.2021.103668</a>	<b>2021</b>
87.	Abdelmageed, M.E. Shehatou, G.S.G., Suddek, G.M., Salem, H.A.	Protocatechuic acid improves hepatic insulin resistance and restores vascular oxidative status in type-2 diabetic rats. <i>Environmental Toxicology and Pharmacology</i> , <b>2021</b> , 83, 103577. <a href="https://doi.org/10.1016/j.etap.2020.103577">https://doi.org/10.1016/j.etap.2020.103577</a>	<b>2021</b>
88.	Amer, A.E., Shehatou, G.S.G., El-Kashef, H.A., Nader, M.A., El-Sheakh, A.R.	Flavocoxid Ameliorates Aortic Calcification Induced by Hypervitaminosis D3 and Nicotine in Rats Via Targeting TNF- $\alpha$ , IL-1 $\beta$ , iNOS, and Osteogenic Runx2. <i>Cardiovascular Drugs and Therapy</i> , <b>2021</b> . <a href="https://doi.org/10.1007/s10557-021-07227-6">https://doi.org/10.1007/s10557-021-07227-6</a>	<b>2021</b>
89.	Amer, A.E., El-Sheakh, A.R., Hamed, M.F., Nader, M.A., Shehatou, G.S.G.	Febuxostat attenuates vascular calcification induced by vitamin D3 plus nicotine in rats. <i>European Journal of Pharmaceutical Sciences</i> , <b>2021</b> , 156, 105580. <a href="https://doi.org/10.1016/j.ejps.2020.105580">https://doi.org/10.1016/j.ejps.2020.105580</a>	<b>2021</b>
90.	Elshal, M., Abu-Elsaad, N., El-Karef, A., Ibrahim, T.M.	Etanercept attenuates immune-mediated hepatitis induced by concanavalin A via differential regulation of the key effector cytokines of CD4+ T cells. <i>Life Sciences</i> , <b>2021</b> , 277, 119618. <a href="https://doi.org/10.1016/j.lfs.2021.119618">https://doi.org/10.1016/j.lfs.2021.119618</a>	<b>2021</b>
91.	Mohamed, N.I., Suddek, G.M., El-Kashef, D.H.	Molsidomine alleviates acetic acid-induced colitis in rats by reducing oxidative stress, inflammation and apoptosis. <i>International Immunopharmacology</i> , <b>2021</b> , 99, 108005. <a href="https://doi.org/10.1016/j.intimp.2021.108005">https://doi.org/10.1016/j.intimp.2021.108005</a>	<b>2021</b>
92.	Abdelhamid, A.M., Elsheakh, A.R., Suddek, G.M. Abdelaziz, R.R.	Telmisartan alleviates alcohol-induced liver injury by activation of PPAR- $\gamma$ / Nrf-2 crosstalk in mice. <i>International Immunopharmacology</i> , <b>2021</b> , 99, 107963. <a href="https://doi.org/10.1016/j.intimp.2021.107963">https://doi.org/10.1016/j.intimp.2021.107963</a>	<b>2021</b>
93.	Nour, O.A., Ghoniem, H.A., Nader, M.A., Suddek, G.M.	Impact of protocatechuic acid on high fat diet-induced metabolic syndrome sequelae in rats. <i>European Journal of Pharmacology</i> , <b>2021</b> , 907, 174257. <a href="https://doi.org/10.1016/j.ejphar.2021.174257">https://doi.org/10.1016/j.ejphar.2021.174257</a>	<b>2021</b>

94.	Habib, S.A., Suddek, G.M., Abdel Rahim, M., Abdelrahman, R.S.	The protective effect of protocatechuic acid on hepatotoxicity induced by cisplatin in mice. <i>Life Sciences</i> , <b>2021</b> , 277, 119485. <a href="https://doi.org/10.1016/j.lfs.2021.119485">https://doi.org/10.1016/j.lfs.2021.119485</a>	<b>2021</b>
95.	Mohamed, N.I., El-Kashef, D.H., Suddek, G.M.	Flavocoxid halts both intestinal and extraintestinal alterations in acetic acid-induced colitis in rats. <i>Environmental Science and Pollution Research</i> , <b>2021</b> , 29(4):5945-5959. <a href="https://doi.org/10.1007/s11356-021-16092-7">https://doi.org/10.1007/s11356-021-16092-7</a>	<b>2021</b>
96.	Sherif, D.A., Makled, M.N., Suddek, G.M.	The HIV reverse transcriptase Tenofovir suppressed DMH/HFD-induced colorectal cancer in Wistar rats. <i>Fundamental and Clinical Pharmacology</i> , <b>2021</b> , 35(6):940-954. <a href="https://doi.org/10.1111/fcp.12679">https://doi.org/10.1111/fcp.12679</a>	<b>2021</b>
97.	Abdelmageed, M.E., Nader, M.A., Zaghloul, M.S.	Targeting HMGB1/TLR4/NF- $\kappa$ B signaling pathway by protocatechuic acid protects against l-arginine induced acute pancreatitis and multiple organs injury in rats. <i>European Journal of Pharmacology</i> , <b>2021</b> , 906, 174279. <a href="https://doi.org/10.1016/j.ejphar.2021.174279">https://doi.org/10.1016/j.ejphar.2021.174279</a>	<b>2021</b>
98.	Serrya, M.S., Nader, M.A., Abdelmageed, M.E.	Hepatoprotective effect of the tyrosine kinase inhibitor nilotinib against cyclosporine-A induced liver injury in rats through blocking the Bax/Cytochrome C/caspase-3 apoptotic signaling pathway. <i>Journal of Biochemical and Molecular Toxicology</i> , <b>2021</b> , 35(6), pp. 1–13. <a href="https://doi.org/10.1002/JBT.22764">https://doi.org/10.1002/JBT.22764</a>	<b>2021</b>
99.	Mohamed, S.A., El-Kashef, D.H., Nader, M.A.	Tiron alleviates MPTP-induced Parkinsonism in mice via activation of Keap-1/Nrf2 pathway. <i>Journal of Biochemical and Molecular Toxicology</i> , <b>2021</b> , 35(3), e22685. <a href="https://doi.org/10.1002/jbt.22685">https://doi.org/10.1002/jbt.22685</a>	<b>2021</b>
100.	MH Sharawy, MS El-Awady, MN Makled.	Protective effects of paclitaxel on thioacetamide-induced liver fibrosis in a rat model. <i>Journal of Biochemical and Molecular Toxicology</i> , <b>2021</b> , e22745. <a href="https://doi.org/10.1002/jbt.22745">https://doi.org/10.1002/jbt.22745</a>	<b>2021</b>
101.	NME Hassan, GSG Shehatou, HI Kenawy, E Said.	Dasatinib mitigates renal fibrosis in a rat model of UUO via inhibition of Src/STAT-3/NF- $\kappa$ B signaling. <i>Environmental Toxicology and Pharmacology</i> , <b>2021</b> , 84, 103625. <a href="https://doi.org/10.1016/j.etap.2021.103625">https://doi.org/10.1016/j.etap.2021.103625</a>	<b>2021</b>

102.	NME Hassan, E Said, GSG Shehatou	- Nifuroxazide suppresses UO-induced renal fibrosis in rats via inhibiting STAT-3/NF-κB signaling, oxidative stress and inflammation. <i>Life Sciences</i> , <b>2021</b> , 272, 119241. <a href="https://doi.org/10.1016/j.lfs.2021.119241">https://doi.org/10.1016/j.lfs.2021.119241</a>	2021
103.	HMH Ali A El-Emam, George Shehatou, Lamy H Al-Wahaibi	Adamantane-linked isothioureia derivatives suppress the growth of experimental hepatocellular carcinoma via inhibition of TLR4-MyD88-NF-κB signaling. <i>American Journal of Cancer Research</i> , <b>2021</b> , 11 (2), 350-369. <a href="https://www.ncbi.nlm.nih.gov/pubmed/33575076">https://www.ncbi.nlm.nih.gov/pubmed/33575076</a>	2021
104.	Al-Sanea, M.M., Obaidullah, A.J., Shaker, M.E., ...Alsubaie, S.A., Abdelgawad, M.A.	A new CDK2 inhibitor with 3-hydrazonoindolin-2-one scaffold endowed with anti-breast cancer activity: Design, synthesis, biological evaluation, and in silico insights. <i>Molecules</i> , <b>2021</b> , 26(2), 412. <a href="https://doi.org/10.3390/molecules26020412">https://doi.org/10.3390/molecules26020412</a>	2021
105.	EA Nazmy, MG Helal, E Said.	Nifuroxazide mitigates cholestatic liver injury by synergistic inhibition of Il-6/B-catenin signaling and enhancement of BSEP and MDRP2 expression. <i>International Immunopharmacology</i> , <b>2021</b> , 99, 107931. <a href="https://doi.org/10.1016/j.intimp.2021.107931">https://doi.org/10.1016/j.intimp.2021.107931</a>	2021
106.	M Helal, M Shawky, S Elhousseiny, A Abd Elhameed.	Lactoferrin Ameliorates Azithromycin-induced Cardiac Injury: Insight into Oxidative Stress/TLR4/NF-κB Pathway. <i>Journal of Advanced Pharmacy Research</i> , <b>2021</b> , 5 (2), 285-296. <a href="https://dx.doi.org/10.21608/aprh.2021.62735.1122">https://dx.doi.org/10.21608/aprh.2021.62735.1122</a>	2021
107.	MG Helal, AG Abd Elhameed	Graviola mitigates acetic acid-induced ulcerative colitis in rats: insight on apoptosis and Wnt/Hh signaling crosstalk. <i>Environmental Science and Pollution Research</i> , <b>2021</b> , 1-14. <a href="https://doi.org/10.1007/s11356-021-12716-0">https://doi.org/10.1007/s11356-021-12716-0</a>	2021
108.	MS Serrya, AR El-Sheakh, MN Makled	Evaluation of the therapeutic effects of mycophenolate mofetil targeting Nrf-2 and NLRP3 inflammasome in acetic acid induced ulcerative colitis in rats. <i>Life Sciences</i> , <b>2021</b> , 271, 119154. <a href="https://doi.org/10.1016/j.lfs.2021.119154">https://doi.org/10.1016/j.lfs.2021.119154</a>	2021
109.	Eisa, N.H., Khodir, A.E., El-Sherbiny, M., Elsherbiny, N.M., Said, E.	- Phenethyl isothiocyanate attenuates diabetic nephropathy via modulation of glycativ/oxidative/inflammatory signaling in diabetic rats. <i>Biomedicine and Pharmacotherapy</i> , <b>2021</b> , 142, 111666. <a href="https://doi.org/10.1016/j.biopha.2021.111666">https://doi.org/10.1016/j.biopha.2021.111666</a>	2021

110.	Makled, M.N., Said, E.	Tranilast abrogates cisplatin-induced testicular and epididymal injuries: An insight into its modulatory impact on apoptosis/proliferation. <i>Journal of Biochemical and Molecular Toxicology</i> , <b>2021</b> , 35(8), e22817. <a href="https://doi.org/10.1002/jbt.22817">https://doi.org/10.1002/jbt.22817</a>	2021
111.	Alzahrani, S., Said, E., Ajwah, S.M., Qushawy, M., Elsherbiny, N.M.	- Isoliquiritigenin attenuates inflammation and modulates Nrf2/caspase-3 signalling in STZ-induced aortic injury. <i>The Journal of pharmacy and pharmacology</i> , <b>2021</b> , 73(2), pp. 193–205. <a href="https://doi.org/10.1093/jpp/rgaa056">https://doi.org/10.1093/jpp/rgaa056</a>	2021
112.	Ezzat, D.M., Soliman, A.M., El-Kashef, D.H.	Nicorandil mitigates folic acid-induced nephrotoxicity in mice: Role of iNOS and eNOS. <i>Journal of Biochemical and Molecular Toxicology</i> , <b>2021</b> , 35(4), e22692. <a href="https://doi.org/10.1002/jbt.22692">https://doi.org/10.1002/jbt.22692</a>	2021
113.	Zuchowski, Y., Dalmaso, C., Shawky, N.M., Reckelhoff, J.F.	Cardiometabolic consequences of maternal hyperandrogenemia in male offspring. <i>Physiological Reports</i> , <b>2021</b> , 9(14), e14941. <a href="https://dx.doi.org/10.14814%2Fphy2.14941">https://dx.doi.org/10.14814%2Fphy2.14941</a>	2021
114.	Pichavaram, P., Shawky, N.M., Hartney, T.J., Jun, J.Y., Segar, L.	Imatinib improves insulin resistance and inhibits injury-induced neointimal hyperplasia in high fat diet-fed mice. <i>European Journal of Pharmacology</i> , <b>2021</b> , 890, 173666. <a href="https://doi.org/10.1016/j.ejphar.2020.173666">https://doi.org/10.1016/j.ejphar.2020.173666</a>	2021
115.	Elfarawy, A.A., Nashy, A.E., Abozaid, A.M., ...Elweshahy, R.H., Abdelrahman, R.S.	Vinpocetine attenuates thioacetamide-induced liver fibrosis in rats. <i>Human and Experimental Toxicology</i> , <b>2021</b> , 40(2), pp. 355–368. <a href="https://doi.org/10.1177/0960327120947453">https://doi.org/10.1177/0960327120947453</a>	2021
116.	Abd Elhameed, A.G.	- Krill oil and low-dose aspirin combination mitigates experimentally induced silicosis in rats: role of NF- $\kappa$ B/TGF- $\beta$ 1/MMP-9 pathway. <i>Environmental Science and Pollution Research</i> , <b>2021</b> , 28(15), pp. 19272–19284. <a href="https://doi.org/10.1007/s11356-020-11921-7">https://doi.org/10.1007/s11356-020-11921-7</a>	2021
117.	Mazyed, E.A., Helal, D.A., Elkhoudary, M.M., Abd Elhameed, A.G., Yasser, M.	Formulation and optimization of nanospanlastics for improving the bioavailability of green tea epigallocatechin gallate. <i>Pharmaceuticals</i> , <b>2021</b> , 14(1), pp. 1–30, 68. <a href="https://doi.org/10.3390/ph14010068">https://doi.org/10.3390/ph14010068</a>	2021

118.	Fahmy, E.K., El-Sherbiny, M., Said, E., ...Qushawy, M., Elsherbiny, N.	Tranilast ameliorated subchronic silver nanoparticles-induced cerebral toxicity in rats: Effect on TLR4/NLRP3 and Nrf-2. <i>NeuroToxicology</i> , <b>2021</b> , 82, pp. 167–176. <a href="https://doi.org/10.1016/j.neuro.2020.12.008">https://doi.org/10.1016/j.neuro.2020.12.008</a>	2021
119.	Samra, Y.A., Amin, M.N., Said, E.	Cardio-protective impact of gabapentin against doxorubicin-induced myocardial toxicity in rats; emphasis on modulation of inflammatory-apoptotic signaling. <i>International Immunopharmacology</i> , <b>2021</b> , 90, 107125. <a href="https://doi.org/10.1016/j.intimp.2020.107125">https://doi.org/10.1016/j.intimp.2020.107125</a>	2021
120.	<b>Sally L. Elshaer</b> , Hang-soo Park, Laura Pearson, William D. Hill, Frank M. Longo, and Azza B. El-Remessy.	Modulation of p75 <sup>NTR</sup> on mesenchymal stem cells increases their vascular protection in retinal ischemia-reperfusion mouse model. <i>Int. J. Mol. Sci.</i> , <b>2021</b> , Jan 15 <sup>th</sup> , <b>22</b> , 829. <a href="https://doi.org/10.3390/ijms22020829">https://doi.org/10.3390/ijms22020829</a>	2021
121.	Sally L Elshaer, Salma H Bahram, Pranav Rajashekar, Rajashekhar Gangaraju, Azza B El-Remessy.	Modulation of Mesenchymal Stem Cells for Enhanced Therapeutic Utility in Ischemic Vascular Diseases. <i>Int. J. Mol. Sci.</i> , <b>2021 Dec 27</b> ; 23(1):249. doi: 10.3390/ijms23010249 <b>(Review article)</b>	2021
122.	Samaha, M.M., Helal, M.G., El-Sherbiny, M., Said, E., Salem, H.A.	Diacerein versus adipoRon as adiponectin modulators in experimentally-induced end-stage type 2 diabetes mellitus in rats. <i>Environmental Toxicology and Pharmacology</i> , 2022, 90, 103806. <a href="https://doi.org/10.1016/j.etap.2021.103806">https://doi.org/10.1016/j.etap.2021.103806</a>	2022
123.	Mohamed, N.I., El-Kashef, D.H., Suddek, G.M.	Flavocoxid halts both intestinal and extraintestinal alterations in acetic acid-induced colitis in rats. <i>Environmental Science and Pollution Research</i> , 2022, 29(4), pp. 5945–5959 <a href="https://doi.org/10.1007/s11356-021-16092-7">https://doi.org/10.1007/s11356-021-16092-7</a>	2022
124.	Mohamed, N.I., Suddek, G.M., El-Kashef, D.H.	Corrigendum: “Molsidomine alleviates acetic acid-induced colitis in rats by reducing oxidative stress, inflammation and apoptosis”. <i>International Immunopharmacology</i> , 2022, 108575. <a href="https://doi.org/10.1016/j.intimp.2022.108575">https://doi.org/10.1016/j.intimp.2022.108575</a>	2022

125.	Khaled, S., Makled, M.N., Nader, M.A.	Protective effects of propolis extract against nicotine-evoked pulmonary and hepatic damage. <i>Environmental Science and Pollution Research</i> , 2022, 29(4), pp. 5812–5826. <a href="https://doi.org/10.1007/s11356-021-16093-6">https://doi.org/10.1007/s11356-021-16093-6</a>	2022
126.	Gomaa, H.A.M., Shaker, M.E., Alzarea, S.I., ...Trembleau, L., Youssif, B.G.M.	Optimization and SAR investigation of novel 2,3-dihydropyrazino[1,2-a]indole-1,4-dione derivatives as EGFR and BRAFV600E dual inhibitors with potent antiproliferative and antioxidant activities. <i>Bioorganic Chemistry</i> , 2022, 120, 105616. <a href="http://dx.doi.org/10.1016/j.bioorg.2022.105616">http://dx.doi.org/10.1016/j.bioorg.2022.105616</a>	2022
127.	Shaker, M.E., Hendawy, O.M., El-Mesery, M., Hazem, S.H.	The JAK inhibitor ruxolitinib abrogates immune hepatitis instigated by concanavalin A in mice. <i>International Immunopharmacology</i> , 2022, 103, 108463. <a href="https://doi.org/10.1016/j.intimp.2021.108463">https://doi.org/10.1016/j.intimp.2021.108463</a>	2022
128.	Shaker, M.E., Hamed, M.F., Shaaban, A.A.	Digoxin mitigates diethylnitrosamine-induced acute liver injury in mice via limiting production of inflammatory mediators. <i>Saudi Pharmaceutical Journal</i> , 2022. <a href="https://doi.org/10.1016/j.jsps.2022.01.007">https://doi.org/10.1016/j.jsps.2022.01.007</a>	2022
129.	Darwish, S.A., El-Kerdawy, M.M., Elsheakh, A.R., ...Hassan, G.S., Ghaly, M.A	New tilomisole-based benzimidazothiazole derivatives as anti-inflammatory agents: Synthesis, in vivo, in vitro evaluation, and in silico studies. <i>Bioorganic Chemistry</i> , 2022, 120, 105644. <a href="https://doi.org/10.1016/j.bioorg.2022.105644">https://doi.org/10.1016/j.bioorg.2022.105644</a>	2022
130.	Waly, O.M., Saad, K.M., El-Subbagh, H.I., Bayomi, S.M., Ghaly, M.A.	Synthesis, biological evaluation, and molecular modeling simulations of new heterocyclic hybrids as multi-targeted anti-Alzheimer's agents. <i>European Journal of Medicinal Chemistry</i> , 2022, 231, 114152. <a href="https://doi.org/10.1016/j.ejmech.2022.114152">https://doi.org/10.1016/j.ejmech.2022.114152</a>	2022

# Department Achievements during last five years

- 1- Developing an internal regulation that organizes the participation of students with faculty members in conducting scientific research
- 2- Application of some faculty members for STDF projects.
- 3- Converting most of the department's courses into online courses
- 4- **Contributions made by the Department of Medicines and Toxicology to student and community activities**

A- The members of the department participated in supporting students scientifically to qualify them to participate in scientific conferences and won places in the eighth student conference on March 7, 2020.

B- The faculty members in the department also participate in scientific research with the students. In addition, the conference organizing committees also include faculty members of the department and their assistants.

- 5- Publishing many researches in international highly-impacted journals for example:

- ✓ *Environmental Toxicology and Pharmacology*
- ✓ *Int Immunopharmacology*
- ✓ *Chemico-Biological Interaction*
- ✓ *BMC Pharmacol Toxicol*
- ✓ *J Biochem Mol Toxicol*
- ✓ *Human & experimental toxicology*
- ✓ *Hypertension*
- ✓ *The Journal of Clinical Investigation*
- ✓ *Circulation Research*
- ✓ *Diabetologia*
- ✓ *Toxicology and applied pharmacology*
- ✓ *Life sciences*
- ✓ *Journal of the American College of Cardiology (JACC): Basic to Translational Science.*
- ✓ *Canadian journal of Physiology & Pharmacology*
- ✓ *Physiological Reports*
- ✓ *Pharmacological Reports*
- ✓ *European Journal of Pharmacology*
- ✓ *Food and Chemical Toxicology*
- ✓ *Journal of nutritional Biochemistry*
- ✓ *Pharmacological Research*
- ✓ *Exp Biol Med*
- ✓ *Toxicol Lett.*
- ✓ *Biochemical Pharmacology*
- ✓ *Onco. Lett.*
- ✓ *Antiinflamm. Antiallergy Agents Med Chem.*
- ✓ *Naunyn-Schmiedebergs Arch Pharmacology*

**The department's research projects:**

	<b>Project's Name</b>	<b>Research Team</b>	<b>Funding Amount</b>	<b>Date of First Payment</b>
<b>1.</b>	<b>Reassignment of hepatotoxicity dipeptidyl peptidase inhibitors and inhibitors of sodium and glucose diglycerides as potential influences on hepatocellular carcinoma.</b>	Principal Investigator: Prof. Dr./ Hatem Abdel Rahman Dr. Eman Saeed Abdel-Khaleq Dr. Manar Gamal Abdel Hamid Hilal Dr. Ahmed Gamal Abdel Hamid Helal	<b>100000</b>	<b>2018/5/14</b>
<b>2.</b>	<b>Control decomposition of (Heparan sulfate Proteoglcans)</b>	Principal Investigator: Dr. Eman Saeed Abdul Khaleq Scientific advisor Prof. Dr./ Hatem Abdel Rahman, Dr. Nehal M Elsherbiny Student/ Intisar nazmy Student / Omar Al-Khouli	<b>150000</b>	<b>2016/5/11</b>
<b>3.</b>	<b>Improve ischemia associated with cardiovascular disease by preventing degenerative signaling of receptor of programmed cell death p75 NTR also known as CD271 Using a compound LM11A-31</b>	Principal Investigator Dr. Sally Lotfi El-Damrawi Al Shaer Prof. Dr. Ghada Mohamed Suddek Dr. Azza B El-Remessy Dr. Maha Hisham Abdel Qader Shaarawy Dr. Mirhan Ahmed Nazmi Sadek	<b>276400</b>	

### Names of the Department's Members and Assistants Who Received Awards

Name	Award	Date
Prof. Dr. Elsayed Mohamed Ammar	University Appreciation Award	2000/2001
Prof. Dr. Hassan Ahmed El-Kashef	State Prize in Medical Sciences	1993/1994
Prof. Dr. Hassan Ahmed El-Kashef	University Appreciation Award	2008
Prof. Dr. Shehta Abdullah Saeed	University Award for Academic Excellence	2006
Dr. Ahmed Abdulrazek El-Marakby	University Award for Best Thesis (Masters)	2002/2003
Dr. Mohamed Shaaban Hassan El-Awady	University Award for Best Thesis (Masters)	2002/2003
Prof. Dr. Ghada Mohamed Suddek	University Encouragement Award	2014/2015
Dr. Rehab Sabry Abdulrahman	University Award for Best PhD Thesis	2016/2017
Dr. Marwa El-Sayed Abdulmegeed	University Award for Best Master's Thesis	2017/2018
Ass. Prof. Mohamed Ahmed Awad Saleh	Award for the highest research impact factor Scientific Creativity Award Prof. Dr. Ikram Abdel Salam Award in the field of Medical Genetics	2015 2016 2017
Dr. Sally Lotfy Elshaer	University Encouragement Award	2020-2019
Dr. Dalia Hassan El-Kashef	Best Research Award for Young Researchers Under the Age of Forty	2020-2019

### Various Activities of the Department

- Monthly boards.
- Periodic meetings of the assistant staff, technicians and workers.
- Holding the department's annual conference.
- Holding seminars for master's and doctoral students before registering their theses (Masters/PhD).

- Seminars are also held periodically on general research topics, "The Magazine Club", in which all members of the faculty and the assistant staff participate.
- Supervising the training of students in the virtual pharmacy.
- The participation of faculty members and the assistant staff in the various committees of the college.
- Members of the department participate in supporting students scientifically to qualify them to participate in scientific conferences, and the largest number of participations is scientific research belonging to the pharmacology specialty.

## Conference Committee



Prof. Dr/ Manar Nader



Dr. Ahmed Ramadan



Dr. Marwa El Sayed



S.TA/ Omnia Nour



S.TA/ Kareem M. Saad



TA/ Ahmed Hassan



TA/ Marina Raouf

## Under supervision of Faculty administration



Prof. Dr/ Manal M. Eid

Dean of Faculty of Pharmacy  
Acting Vice Dean for Graduate students and Research



Prof. Dr/ Yasser El-Shabrawy

Vice Dean for community service and Environment development



Prof. Dr/ Rasha Barwa

Vice Dean for Education and Students Affairs



Prof. Dr/ Ghada M. Sudek

Head of Pharmacology & Toxicology Department  
President of the Conference



Mu Pharmacy  
**1<sup>st</sup> Virtual**  
Pharmacology Department  
Scientific Conference



Mu Pharmacy  
**1<sup>st</sup> Virtual**

Pharmacology Department  
Scientific Conference

To be held on

3<sup>rd</sup>- 4<sup>th</sup> September, 2020

on Zoom meetings through the

following link:

[https://us02web.zoom.us/](https://us02web.zoom.us/meeting/register/)

[meeting/register/](https://us02web.zoom.us/meeting/register/)

[tZwtdeGtqzgpGdVm OsuYyk](https://us02web.zoom.us/j/81111111111)

[1YCTTqDRjCAfq](https://us02web.zoom.us/j/81111111111)

Or [via scanning the QR code](#)





### Historical hint about the department

- Faculty of Pharmacy, Mansoura University was founded in 1970. Only 45 students was admitted during this first year. First group of students to be graduated from Faculty of Pharmacy in 1975 composed of 105 students.
- Afterwards, under decree 134 for year 1973, Faculty of Pharmacy was separated from Faculty of medicine to stand as an independent entity.
- The department was then established by the decree of 3/1/1976 under supervision of professor Sayed Amar with the title (pharmacology and biochemistry department).
- In 2001 under decree number 1573, number of departments in faculty of Pharmacy was increased to 8 departments, and department name was changed to (Pharmacology and Toxicology)
- The departments stands currently in the ground and 1st floor in building A and it has 3 different students' laboratories

### Mission of the department

The department aims to provide the graduate with basic information needed to participate effectively in the medical care team. The graduate must have the ability and skills to determine the mechanisms of action and uses of the drug, dose as well as the knowledge of pharmacological interactions, pharmacokinetics, side effects and toxicity of drugs and chemicals, in addition to prevention of poisoning".



### Vision of the department

"To be recognized as a distinct unit in the field of pharmacology and toxicology, at the national and regional levels, by providing the highest level of quality of education and practical training for students of pharmacy, as well as good planning for research excellence in the development of new drugs to treat different diseases"



### Pharmacology Conference

We welcome you to join us and share your knowledge and views on the theme of

*"New trends in Pharmacology"*

Pharmacology virtual department Scientific conference is a scientific congregation which brings scientists, researchers, and key decision makers into the same virtual space for a brief yet intense period of discussion, collaboration and addressing related problems in research. We believe this conference is a highly rewarding educational and networking space for all.



The **3<sup>rd</sup>** International  
hybrid  
Conference of Pharmacology & Toxicology



Pharmacology and Toxicology department family is cordially inviting you to attend

**The 3<sup>rd</sup> International (hybrid) Conference of Pharmacology & Toxicology**

on **4<sup>th</sup> & 5<sup>th</sup> October, 2021** At **Conference Hall - Building B**  
under supervision of



**Prof. Dr/ Ashraf Abd El Baset**  
President of Mansoura University



**Prof. Dr/ Manal Eid**  
Dean of Faculty of Pharmacy, Mansoura University



**Prof. Dr/ Ashraf Tarek Hafez**  
Vice President of Post-Graduate Studies and Academic Research



**Prof. Dr/ Khaled Beshir**  
Vice Dean of Post-Graduate Studies and Academic Research



**Prof. Dr/ Mohamed Attia Bayoumi**  
Vice President for Education And Student Affairs



**Prof. Dr/ Rasha Barwa**  
Vice President for Education And Student Affairs



**Prof. Dr/ Mahmoud Ibrahim El Meligy**  
Vice President for Community Service and Environmental Affairs



**Prof. Dr/ Yasser El Shabrawy**  
Vice Dean for Community Service and Environmental Affairs



**Conference Head**

**Prof. Dr/ Ghada M. Suddek**  
Professor and Head of Pharmacology Department



**Conference Rapporteur**

**Dr/ Ahmed Ramadan**  
Associate professor of Pharmacology & Head of CDC

**Organizers  
Hall of Fame**



Dr. Ahmed Ramadan



Dr. Marwa El Seyed



S. TA/ Kareem Saad



TA/ Hussein Badreldin



TA/ Rana Gamal



TA/ Menna El Boroloy



TA/ Doha Dagher



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# Mu Pharmacy

## 1<sup>st</sup> Virtual



# Pharmacology

## Scientific Conference

### Meet our Speakers



**Prof. Dr. Mohy El Mazar**  
Prof. of Pharmacology  
British University in Cairo



**Prof. Dr. Manar Nader**  
Prof. of Pharmacology  
Mansoura University



**Prof. Dr. Ahmed Shaaban El-Awady**  
Prof. of pharmacology, Teibah University



**Dr. Ahmed El-Marakby**  
Assistant Prof. Pharmacology,  
University of Augusta

**Dr. George Shehattou**  
Assistant Prof. Pharmacology,  
Delta University



**Dr. Raja Shekhar Gangaraju**  
Assistant Prof. Ophthalmology anatomy and neurobiology,  
University of Tennessee Health Science Center



**Dr. Sally El Shaer**  
Lecturer of Pharmacology,  
Mansoura University



**Dr. Noha Shawky**  
Lecturer of Pharmacology,  
University of Mississippi

Join us on Zoom Meetings  
QR Code



**September**  
3<sup>rd</sup> & 4<sup>th</sup>

## **The proposed plan for the development of the department for the academic year 2020 / 2021**

- Suggesting a set of skills that need development in order to raise the professional level of faculty members, such as teaching skills, human interaction, personal and leadership skills.
- Holding specialized courses for teachers to refine their research skills.
- Working on issuing specialized publications, supporting scientific literature and researchers, and inviting scientific and supportive institutions to participate in the scientific research process.
- Working to find opportunities to connect research projects for students and faculty members.
- Participation with other scientific departments at the college, university or other university level in major research projects whose primary objective is to serve the community and the environment around us.
- Establishing a breeding unit for experimental animals to achieve self-sufficiency in the animals that the department needs in the educational and research process and the possibility of making it a production unit that serves other colleges and universities and generates a financial return on the department.
- Participation in the implementation of the college's plan for the development of scientific departments.
- Working to develop mechanisms for e-learning (hybrid learning) in the department's curricula for undergraduate programs and scientific studies, and to train faculty members and the supporting staff on this.

## Google scholar

Hatem Salem

<https://scholar.google.com.eg/citations?user=l3evOFcAAAAJ&hl=en>

Dr. Nariman Gamiel

<http://scholar.google.com.eg/citations?user=LMYh34wAAAAJ&hl=en>

Tarek Ibrahim

[https://scholar.google.com.eg/citationsuser=2y1\\_XMAAAAJ&hl=en&authuser=1](https://scholar.google.com.eg/citationsuser=2y1_XMAAAAJ&hl=en&authuser=1)

Ghada Suddek

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Dr. Manar A.Nader

<http://scholar.google.com/citationsuser=UkJvEPMAAAAJ&hl=en>

Mohammed Shaaban El-Awady

<https://scholar.google.com.eg/citationsuser=uV5DpFkAAAAJ&hl=en&oi=ao>

Mohamed Saleh

<https://scholar.google.com/citations?user=cKFU2kUAAAAJ>

George Shehatou

<https://scholar.google.com.eg/citations?user=STnqxCcAAAAJ&hl=ar&oi=ao>

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Eman Said

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Ahmed Esheakh

[https://scholar.google.com/citations?view\\_op=list\\_works&hl=en&user](https://scholar.google.com/citations?view_op=list_works&hl=en&user)

Dalia H. El-Kashef

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Rania Ramadan

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

## Scopus

<b>Name</b>	<b>URL</b>
Hatem Salem	<a href="https://www.scopus.com/authid/detail.uri?authorId=9250812900">https://www.scopus.com/authid/detail.uri?authorId=9250812900</a>
Nariman Gameil	<a href="https://www.scopus.com/authid/detail.uri?authorId=53983934800">https://www.scopus.com/authid/detail.uri?authorId=53983934800</a>
Hassan El-Kashef	<a href="https://www.scopus.com/authid/detail.uri?authorId=7005354067">https://www.scopus.com/authid/detail.uri?authorId=7005354067</a>
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Mohamed Saleh	<a href="https://www.scopus.com/authid/detail.uri?authorId=7201797507">https://www.scopus.com/authid/detail.uri?authorId=7201797507</a>
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Noha Shawky	<a href="https://www.scopus.com/authid/detail.uri?authorId=53164840000">https://www.scopus.com/authid/detail.uri?authorId=53164840000</a>
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Dr. Marwa Elsayed	<a href="https://www.scopus.com/authid/detail.uri?authorId=56997553200">https://www.scopus.com/authid/detail.uri?authorId=56997553200</a>

## List of the Devices in the Department's Laboratories

Equipment name	Physiograph
Number of units	3
Model	Thermoregulator: FTE10AD Force transducer: Type 372 Data acquisition (DAQ) device: PowerLab/400
Manufacturing Year	2013
Manufacturing Country	Thermoregulator: UK Force transducer: Germany PowerLab/400: Germany
Manufacturer	Force transducer: HUGO SACHS ELEKTRONIK-HARVARD APPARATUS GmbH PowerLab/400: ADInstruments
Usages	Measuring sensitivity of isolated organs towards chemical agents
	
Manufacturer Website	Force transducer: <a href="http://WWW.hugo-sachs.de">WWW.hugo-sachs.de</a>

<b>Centrifuge equipment</b>	
Equipment Name	Compact Centrifuge model Z 206 A
Number of units	1
Model	Z 206 A
Manufacturing Year	2008
Manufacturing Country	Hermle labortechnik GmbH
Manufacturer	Germany
Usages	Centrifugation



Centrifuge equipment	
Equipment Name	Centrifuge model 800
Number of units	1
Model	800
Manufacturing Country	China
Manufacturer	Centrifugation



Centrifuge equipment	
Equipment Name	CRU 5000 Centrifuge
Number of units	1
Model	ICE
Manufacturing Country	India
Manufacturer	International equipment company
Usages	Centrifugation



Centrifuge equipment	
Equipment Name	Centrifuge 52 jungning future 4 longreter 127 1*15 all speed
Number of units	1
Model	MSE
Manufacturing Country	England
Manufacturer	MSE
Usages	Centrifugation



Centrifuge equipment	
Equipment Name	Refrigerated Centrifuge
Number of units	1

Model	3k30
Manufacturing Country	Germany
Manufacturer	Sigma
Usages	Centrifugation
	

Deep freezer -80°C – Upright Ultra low temperature freezer	
Equipment Name	Thermo fisher- lab freezer -80°C
Number of units	1
Model	EXF24086V
Manufacturing Year	2015
Manufacturing Country	USA
Manufacturer	Thermo fisher scientific
Usages	Freezer



# Pharmacology and Toxicology Department

## Laboratories Manual

### First - general precautions:

1. The lab should be clean, neat, orderly, and free of any obstacles that might hinder its smooth movement.
  - 2 Not eat, drink, and smoke in laboratories and labs.
  - 3 - A coat is not a flux of the time.
  - 4- Do not use glasses with damaged edges and dispose of all broken glasses in special containers.
  - 5- Not using peas.
  - 6- Putting injections, delivery, etc., in special containers, then getting rid of us safely
  7. Guidance and checks should be recorded on chemical containers and the degree of its toxicity and the extent of hazard
  - 8- Do not spill chemicals or mortuary animal residues in washing tanks but place in special disposal containers SAFELY
  9. Personal protective equipment (gloves, masks, glasses, etc.) should be worn when explaining experimental animals.
  10. All test tables, sample containers, plates and demonstration kits should be arranged after the practice sessions have been completed
- It would prevent animals from returning unused beards to the Animal House and not leaving the laboratory to me the next day
- 12- Safely disposing of morgue and dead animals after the practical sessions are safely completed.
  - 13- Avoid crowding of the work area, to move quickly in case of emergency
  - 14-Common bend instructions should be used in all LABS

## Second - Safety precautions in the laboratories of the Department of Pharmacology and Toxicology

### A) Places for breeding and handling experimental animals:

- 1 - It must be clean and equipped with the various supplies used for this purpose.
- 2 - It must have amenities for animals so that these animals live clean and have ease of movement, and that their food is clean and their health is good.
- 3- It should be taken into account that the experimental animals are not crowded or crowded in these places, and the temperature and relative humidity therein must be appropriate.
- 4 - For healthy animals free from diseases, animal cages must be comfortable and made in a way that facilitates their cleaning and changing their contents to avoid contamination.
- 5- It should be taken into account that the animal cages are free of fractures or pieces to protect the animals from wounds and to avoid the spread of infection.
- 6 - The ventilation and lighting in these places should be sufficient.

### B) Cleanliness

- 1- It is necessary to maintain the cleanliness of the places and the faces of the animals and to clean them periodically by washing and disinfecting them.
- 2 - The floor mats of cages (mulch) and boxes must be clean and free from sharp solids, and kept away from contamination with the feces of other animals, and sterilized in tightly closed containers.
- 3- Cages, shelves and auxiliary tools (eating and drinking utensils) should be cleaned periodically with a disinfectant that is not harmful to animals, and kept clean and free of pollution. It is recommended to wash them at least once or twice a week.
- 4 - A number of redundant cages and shelves must be kept to be used in spare parts or when needed.
- 5- The carcasses of dead and mortuated animals should be placed in special bags before being handed over to the specialists.
- 6 - No sick or dead animal should be carried and passed near healthy animals.

## C) Waste containers:

- 1 - It must be made of plastic or galvanized iron.
- 2 - It should be free from openings and have tight-fitting lids
- 3- Attention must be paid to the prompt removal of animal waste in order to preserve the safety of other animals and workers.

## D) Workers with experimental animals:

- 1 - Their health must be maintained constantly, with the precaution that they do not transmit infection from them to experimental animals, a vice versa, and this is achieved by the following:
  - a) They should always maintain a high level of personal hygiene.
  - b) They must wear protective gear at all times (such as a coat, gloves, masks, etc.).
  - c) Their treatment of animals should be compassionate and compassionate when changing animals, moving them from one place to another, or handling them.
  - d) Not to eat, drink or smoke in the places where experimental animals are kept or the areas where they are handled
- 2- All workers working with experimental animals should be inspected periodically, in a regular manner, and this includes chest x-rays for chest diseases, skin diseases and eyes.
- 3- Blood, urine and stool samples of those working with animals should be checked periodically to avoid Ensure that they are free of any diseases, and they must be immunized with the appropriate vaccines and serums available
- 4- Washing their hands with disinfectant after carrying any sick or dead animal.

## E) Dealing with experimental animals:

The technician or research assistant must adhere to the following:

- 1 - He should be aware of the correct methods of controlling the animals used.
- 2- He should be aware of the correct methods for anesthetizing experimental animals.

3 - He should be aware of the correct ways to dispose of the waste resulting from the use of experimental animals, and this includes the carcasses of dead and dissected animals, their droppings, and the materials used in the practical sessions.

4 - To be familiar with the methods of disposal (culling) of experimental animals by humane and compassionate methods at the end of scientific sessions.

5- He should be familiar with the standard climatic conditions for experimental animals such as temperature, humidity, etc., and work to prepare the place used to match the conditions.

6- Wearing laboratory clothes and tools all the time when dealing with these animals.

7- Always wash hands after handling experimental animals.

8- Always use clean dishes and autopsy tools

9 - Using cages and clean sawdust that provide these animals with their natural and behavioral needs.

10 - Keeping animals clean and dry.

11 - Achieving the safety and security of experimental animals and not exposing them to injuries.

12 - Adopting humane means in the treatment of experimental animals during scientific sessions or during research.

13 - Supervising the cleaning of experimental animal anatomy dishes and tools after the completion of the scientific sessions and placing them in the places designated for them

## Precautions to be taken to prevent the spread of diseases among experimental animals:

Hygiene is the main factor in preventing the spread of diseases among experimental animals, and therefore the following should be taken into account:

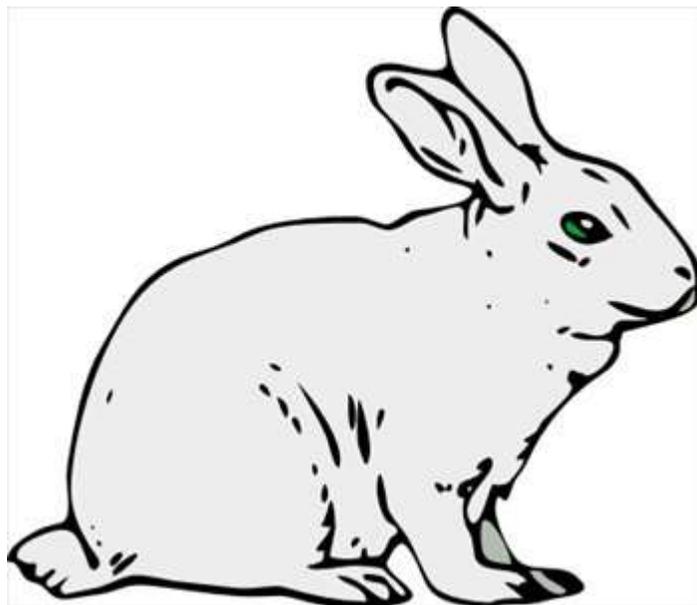
a) Routinely changing, cleaning and disinfecting the cages of experimental animals at least twice a week.

b) Preventing the accumulation of substances related to urine, feces, hair and other excrement of experimental animals.

c) Pay close attention to personal hygiene in the body, hands, and clothing used in handling animals.

d) Rapid and safe disposal of mortuated, dead or sick animals and their waste.

**Guidelines for use of Laboratory Animals in  
Pharmacology and Toxicology department,  
Faculty of Pharmacy, Mansoura University,  
Egypt**



## **PREFACE**

*Laboratory animals play a vital role in teaching / research as well as developing skills for diagnosis. Here the animal is almost exclusively used as a substitute or model for man as most laboratory animals have the same set of organs heart, lungs, liver and so on which work in the same way as they do in humans.*

*Knowledge gained from animal experiments enhances the understanding of the subjects like Physiology, Microbiology, Pharmacology,*

*Biochemistry etc. Animal experiments give an insight to the students about the etiology, diagnosis, progression and methods of prevention of various diseases.*

*Commonly used animals are frogs, rats, mice, rabbits and guinea pigs. Use of defined animals in appropriate conditions will reduce the stress on the animals and will result in generating reproducible and reliable results.*

*It is obligatory on the part of Investigators/students to handle the animals gently, following the guidelines of ethical consideration for animal use. These guidelines provide the basic minimum provisions for animal care using animals for teaching / research purposes and those where breeding of such animals is also undertaken.*

### **Procurement of animals**

It will be economical to procure animals from reliable sources rather than breeding them if the requirement of animals is minimal. The various species of animals required should be procured from recognized sources. The following aspects have to be taken care of:-

- Healthy animals should be obtained from a recognized source.
- Acceptable methods of transportation should be followed, considering the distance, seasonal and climatic conditions and the species of animals.
- The animals should be given a reasonable period for physiological, psychological and nutritional stabilization before their use.

### **Food and Water**

- Animals should be fed palatable, non-contaminated, and nutritionally adequate food.
- Food should be procured from reliable source.
- Good quality Food and water should be provided ad libitum.
- Areas in which feed are processed or stored should be kept clean and enclosed to prevent entry of insects and wild rodents.
- Watering devices, such as drinking tubes should be examined routinely to ensure their proper operation.
- Feeders should allow easy access to food and watery while minimizing contaminating by urine and faeces.

### **Sanitation and cleanliness**

- Animal rooms, corridors, storage spaces, and other areas should be cleaned with appropriate detergents and disinfectants.
- Animals should be kept dry except for those species whose natural habitation needs water.

- Cages should be cleaned each time before animals are placed in them. Animal cages, racks and accessory equipment, such as feeders and watering devices, should be washed and cleaned frequently to keep them free from contamination.
- Cages, water bottles and other watering equipment should be washed and disinfected regularly.
- Deodorizers or chemical agents other than germicides should not be used to mask animal odors.

### **Veterinary care:**

- Animals should be observed regularly and problems of animal health and behavior, recorded and addressed.
- For animals kept for experiments of longer duration, the following steps should be adopted:
  - All animals should be observed for signs of illness, injury or abnormal behavior by the animal house staff and reported to a veterinarian.
  - Diseased animals should be isolated from healthy ones.

### **Personnel hygiene and Training of staff**

- Initial training should be imparted to the staff associated with animal's facility.
- Appropriate and protective gears (gloves, masks, head cover. Coat, shoes, etc.) should be used by the personnel in the animal facility.
- Personnel should have periodic medical check ups to ensure their health status.

## **Restrainer**

- Devices, wherever required, suitable in size and design for holding animals for examination and collection of samples should be made available to minimize stress and avoid injury to the animals and handlers.

## **Anesthesia and Euthanasia**

The scientists should ensure that the procedures which are considered painful are conducted under appropriate anesthesia as recommended for each species of animals. It must also be ensured that the anesthesia is administered to sustain for the full duration of experiment and at no stage the animal is conscious to perceive pain during the experiment. If at any stage during the experiment the investigator feels that he has to abandon the experiment or he has inflicted irreparable injury, the animal should be euthanized by accepted methods.

In the event of a decision to euthanize an animal on termination of an experiment or otherwise, an approved method of euthanasia should be adopted and the investigator must ensure that the animal is clinically dead before it is sent for disposal.

## **Anesthesia**

Sedatives, analgesics and anesthetics should be used to control pain or distress of the animal under experimentation. Species characteristics and biological variation must be kept in mind while using an anesthetic. Side-effects such as excessive salivation, convulsions, excitement and disorientation should be suitably prevented and controlled.

The animal should remain under the care of an appropriately experienced person till it completely recovers from anesthesia and post operative stress. Animals during post recovery period should be housed individually till they recover fully from the surgical stress.

## **Euthanasia**

The procedure should be carried out quickly and painlessly in an atmosphere free from fear or anxiety. The choice of a method will depend on the nature of study, the species of animal and number of animals to be sacrificed. The method should in all cases meet the following requirements:

- Death, without causing anxiety, pain or distress with minimum time lag phase.
- Minimum physiological and psychological disturbances.
- Compatibility with the purpose of study and minimum emotional effect on the operator.
- Location should be separate from animal rooms, method should be reliable, safe to the personnel and simple and economical.

## **Animal Houses**

- Animal houses should be made of durable and preferably moisture – proof material and should have adequate space to facilitate free movement of personnel as well as equipment.
- Rodent barriers should be provided at all entry points of animal houses.
- Walls and ceilings should be free of cracks.

- Floors should be smooth and non – absorbent.
- Temperature and humidity in animal facilities should be controlled for the comfort of the laboratory animals. As far as possible the usage of smaller animal during the extreme weather conditions should be avoided.
- Proper lighting system with adequate illumination at cage level should be maintained in the animal room.
- The animal cages should provide adequate space to permit freedom of movement and normal postural adjustments; have easy access to food and water; provide adequate ventilation; keep the animals dry and clean, be consistent with species requirements. However, aquatic animals like frogs and toads need to be kept in clean water free from chlorine and copper, preferably in containers attached to running tap water to prevent the accumulation of waste products.
- Physical separation of animals by species, wherever possible, is recommended to prevent inter-species disease transmission and to eliminate anxiety and possible physiological and behavioral changes due to inter-species conflict.
- Population density and group composition should be maintained as stable as possible.
- Animal facilities should be maintained free from pests and vermins.

## **BOOKS SUGGESTED FOR MORE INFORMATION**

1. Canadian Council on Animal Care Guide to the Care and Use of Experimental Animals Vol I and II, 1984 Canadian Council on Animal Care, 1105-151 , Slater Street, Ottawa, Ontario

2. Gay, WI Methods in Animal Experimentation Voll- 1965, Vol II- 1965, Vol III- 1968, VollIV -1973, Vol V 1974, Vol VI 1981, Vol VII Part A & B -1986, Part C -1989, Academic Press, New York
3. Guide for the Care and use of laboratory Animals, 1996 ILAR, NRC, National Academy Press, Washington, DC
4. Trevor Pool (ed) The UPAW Handbook on the Care and Management of Laboratory Animals 8th Edition, 1997 Churchill Livingstone
5. UFAW (Universities Federation for Animal Welfare) Guidelines on the Care of Laboratory Animals and their use for Scientific Purposes III Surgical Procedures, Herts, UK.

# Guidance panels located in the laboratories of the Department of Pharmacology and Toxicology

## **Laboratory Safety Rules**

### **Read carefully:**

- 1- Laboratory work is only permitted during scheduled periods.
- 2- Laboratory coats are to be worn in the laboratory and avoid loose clothes.
- 3- Coats, hats and other articles not required during practical work must not be brought into laboratories or left in corridors.
- 4- Gloves and safety spectacles should be used when needed.
- 5- Eating, drinking or smoking is NOT permitted in the laboratory.
- 6- Windows may only be opened with the poles provided. It is forbidden to stand on the benches.
- 7- Do not leave water taps running unattended. Ensure that the sink waste is not restricted by waste material, filter paper, etc.
  
- 8- Solid matter or water-immiscible solvents must not be poured down sinks.
- 9- Waste material, solid or paper, should be placed in the bins provided.
- 10- All unwanted biological tissue should be placed in the bucket which will be found on the side bench in the pharmacology laboratory (inside yellow bags). Biological tissue must not be placed in any other waste bins.
- 11- Disposal of chemicals: ask the technician in charge.
  
- 12- You are responsible for the apparatus and equipment that you use and may be charged for breakage or damage.
- 13- Know the location of the fire extinguishers in the laboratory where you are working and how to operate them in an emergency.
  
- 14- Know the location of the first aid boxes and eye wash points.
- 15- Move quietly inside the lab. Avoid joking or fighting.
- 16- Do not leave the laboratory unattended without first consulting your supervisor.
- 17- Students are responsible for the cleanliness of their work benches, which should be left clean, dry and free from apparatus at the end of the practical period.
  
- 18- Always wash your hands after working in the laboratory.

# Safety and security rules in the department's laboratories

- 1 - Attend the laboratories according to the announced schedules.
- 2 - It is necessary to wear a white robe made of cotton inside the lab, and it is strictly forbidden to wear loose clothes
- 3 - For girls: the necessity of wearing a tuxedo in a veil or scarf, as well as wearing hair, in order to avoid the dangers of fire.
- 4 - Use leather gloves and safety glasses when necessary.
- 5- It is forbidden to eat, drink or smoke inside the laboratories.
- 6 - The windows are opened from the designated handles only, and it is forbidden to stand on the benches.
- 7 - Do not leave the water tap open and make sure that the drains and basins are not clogged with waste, filter paper, etc.
- 8- Do not throw solvents that are not mixed with water and solid materials in basins.
- 9 - Put solid or paper waste in the designated boxes.
- 10 - The rest of the tissues and animals used in the experiments should be disposed of by placing them in the designated place inside the laboratory (inside the yellow bags).
- 11- Disposal of chemicals is the responsibility of the laboratory technician
- 12 - You are responsible for the devices and equipment you use, and in the event that one of them is broken or damaged, you will be responsible for compensation.
- 13 - Ensure the location of the fire extinguishers in the laboratory and how they are operated.
- 14 - Check the location of the first aid boxes and eye wash points.
- 15 - Move calmly inside the lab and focus on scientific experiments. It is forbidden to joke or quarrel inside the lab.
- 16 - Do not leave the lab without permission from the lab supervisor.
- 17 - Make sure the benches are clean after the experiments are over.

## **Instructions for use of laboratory animals**

- 1- It is obligatory to handle the animals gently.
- 2- An animal observed to be experiencing severe, unrelievable pain or discomfort should immediately be humanely killed, using a method providing initial rapid unconsciousness.
- 3- If pain or distress is a necessary concomitant to the study, it must be minimized both in intensity and duration.
- 4- Use heavy gloves when handling animals.
- 5- Rats, rabbits, and mice are best picked up by the scruff of the neck, with the hand placed under the body for support.
- 6- Avoid hand-to-mouth contact when handling animals.
- 7- Wash hands and exposed areas of the body with hot water and soap immediately after handling animals.

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