



جامعة المنصورة
كلية الصيدلة
قسم الكيمياء الحيوية

Manual of Biochemistry Department

2022





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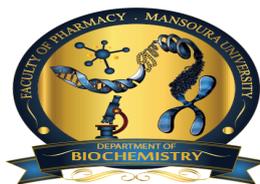
Faculty mission and vision

Faculty Mission

The Faculty of Pharmacy, Mansoura Univ. is committed to progression and continuous development of the educational process, post-graduate studies, research programs and community service; aiming to graduate distinct pharmacists who assemble the needs of local and regional market, and researchers of competitive level, in the framework of academic standards and community values.

Faculty Vision

To achieve leadership in education, research, and community service in all pharmaceutical domains, locally and regionally.



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Department message and vision

Message of Biochemistry Department

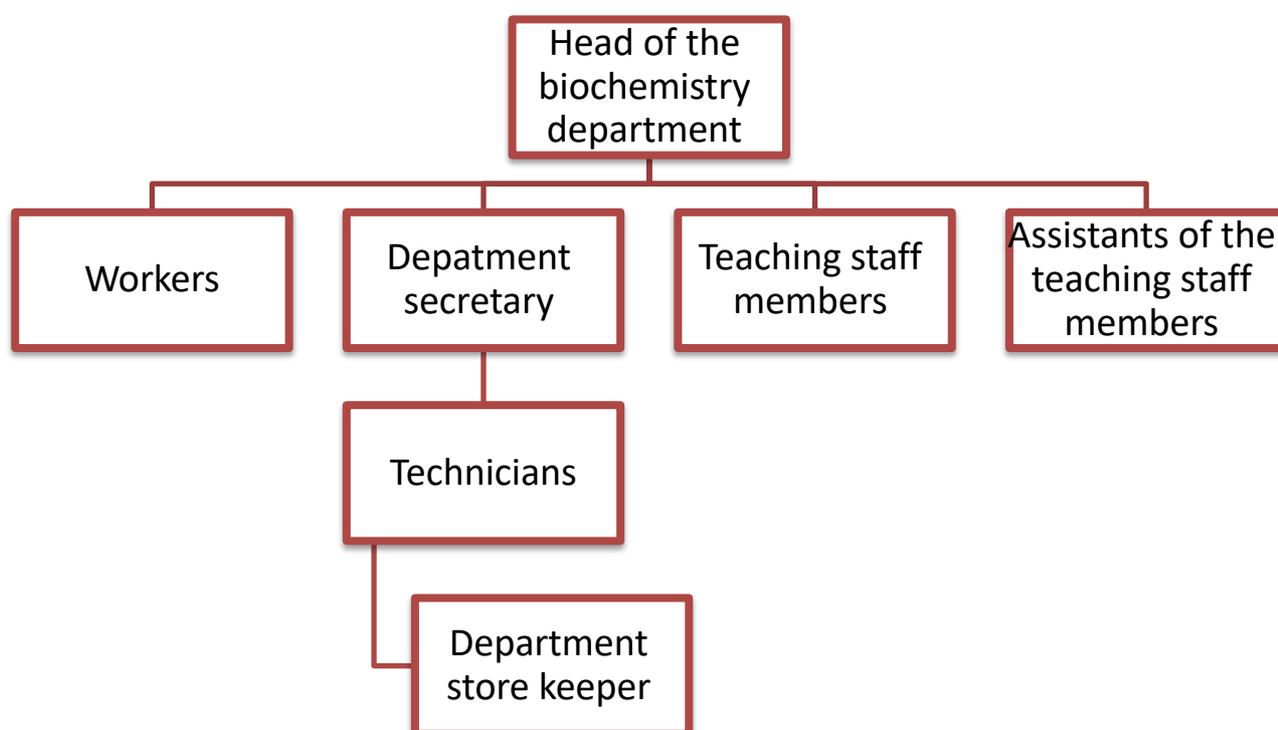
The Department of Biochemistry seeks to clarify and understand the biochemical basis of life. The department is distinguished by the academic excellence in the quality of educational and research programs and community service to earn regional, national and international recognition.

Vision of Biochemistry Department

The Department of Biochemistry will increase knowledge and develop our understanding of the basic biochemical mechanisms of life and thereby raise health standards and quality of life by:

- Advanced teaching programs that produce graduates equipped with world-class skills.
- Advanced teaching professional programs for postgraduate students.
- Intensive research programs that contribute to important discoveries and treatment of diseases.
- Work as a recognized source of knowledge and practical experience in the presence of a developed infrastructure to serve scientific research and participating in solving environmental health problems.
- Providing high quality special clinical programs for a better pharmaceutical education and community service.

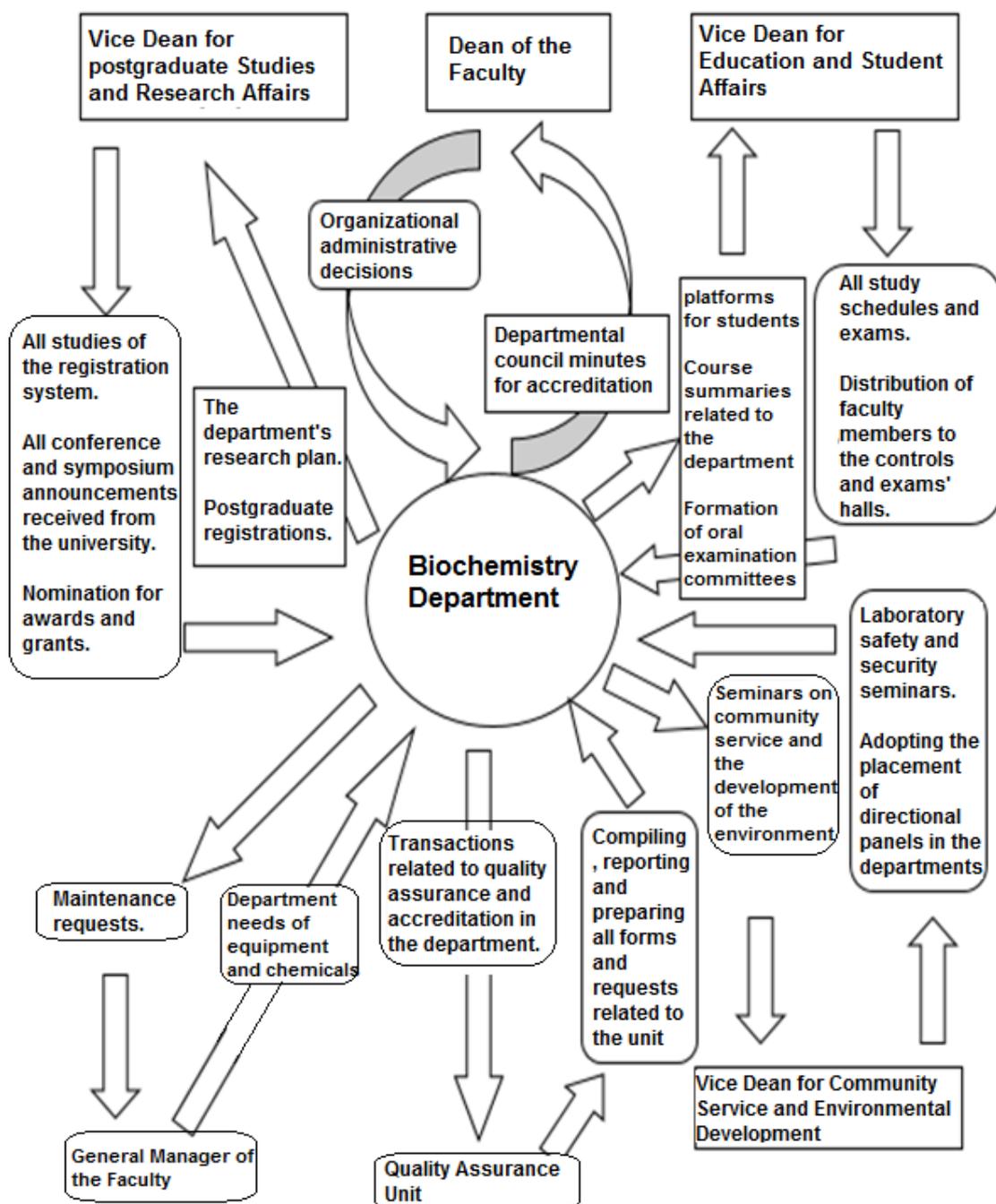
The department's organizational structure:



Department infrastructure

n	Infrastructure elements	Job/Purpose
1	1 Department head's room	Department head use
2	6 Teaching staff members rooms	Teaching staff members use
3	1 Assistants of the teaching staff members room	Assistants of the teaching staff members use
4	1 Technicians and workers rooms	Technicians and workers rooms use
5	2 Study laboratories	Practical lessons for students
6	2 Research laboratories	Scientific research in the department
7	1 Secretarial room	Secretary of the department use
8	1 Department storage room	Storage of chemicals, glassware and tools of the department
9	9 Teaching staff members offices	Teaching staff members use
10	7 Assistants of the teaching staff members offices	Assistants of the teaching staff members use
11	2 Secretary office	Secretary of the department use
12	1 Department storage office	Department storage use
13	6 Lab technician offices	Lab technician use

Interactions between the department and the faculty administration.

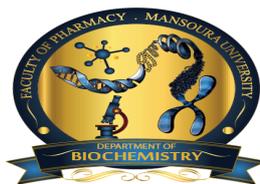




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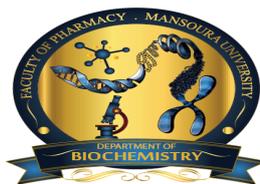
Interactions between biochemistry department and other departments and administrations.

- ✓ **Joint supervision of postgraduate students (Master's and Ph.D. theses) between the Department of Biochemistry and all of the following:**
 - **Department of Biochemistry, Faculty of Medicine, Mansoura University Hospitals, and Kidney Center, Mansoura University.**
 - **Department of Pharmaceutical Practice and Department of Pharmacology, Faculty of Pharmacy, Mansoura University.**
 - **Research laboratories of Zewail University.**
 - **Faculty of Science, Damietta University.**
 - **Faculty of Pharmacy, Tanta University and Kafr El-Sheikh University.**
 - **Horus University Faculty of Pharmacy.**
 - **Faculty of Physical Education at Mansoura University.**



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- ✓ **Joint research projects between the Department of Biochemistry and the Department of Organic, Microbiological and Pharmacological Chemistry at Mansoura University.**
- ✓ **Participation of the faculty staff members of the department in the membership of the permanent committee for the promotion of professors and assistant professors for the promotion of faculty staff members of the department.**
- ✓ **Oral exams with the Department of Biochemistry in faculties of pharmacy and medical faculties at the level of the Republic.**



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First: Faculty Staff Members Affairs:

Head of Department

n	Name	Position
1	Prof.Dr. Amal Mohamm ed Abdo El-Gayar	<p>✓ Head of the Department of Pharmacology and Biochemistry from 11-1-1994 to 9/16-1995</p> <p>✓ Head of the Department of Biochemistry from 5-12-2001 to 15-6-2011</p> <p>✓ Head of the Department of Biochemistry from 8-12-2011 to 31-7-2014</p>
2	Prof.Dr. Mamdou h Mohamm ed El- Shishtaw y	<p>✓ Head of the Department of Biochemistry from 20-9-2011 to 30-10-2011</p> <p>✓ Supervising the Department of Pharmacology and Toxicology in the period from 13-9-2012 to 31-7-2013</p>
3	Prof.Dr. Laila Ahmed Eissa	<p>✓ Head of the Department of Biochemistry from 2014 to 2017</p>

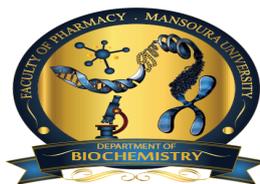


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4	Assistant. Prof. Mohamed Elsayed El- Mesery	✓ Acting Head of the Department from 01-23-2020 till present
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The faculty staff members who held administrative positions:

n	Name	Position
1	Prof.Dr. Mamdouh Mohammed El-Shishtawy	✓ Vice Dean for Post graduate Studies and Research Affairs from 31/10/2011 to 14/2/2012 ✓ Dean of the Faculty of Pharmacy from 15-2-2012 to 31-7-2013
2	Prof.Dr. Amal Mohammed Abdo El-Gayar	✓ Acting Head of the Department of Pharmacology and Biochemistry from 11-1-1994 to 16-9-1995 ✓ Head of the Department of Biochemistry from 12-5-2001 to 15-6-2011 ✓ Head of the Department of Biochemistry from 12-8-



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		2011 to 31-7-2014
3	Prof.Dr. Mamdouh Mohammed El-Shishtawy	<p>✓ Head of the Department of Biochemistry from 20-9-2011 to 30-10-2011</p> <p>✓ Supervising the Department of Pharmacology and Toxicology from 13-9-2012 to 31-7-2013</p>
4	Prof.Dr. Laila Ahmed Eissa	<p>✓ Head of the Department of Biochemistry from 2014 to 2017</p>
5	Assistant. Prof. Mohamed Elsayed El-Mesery	<p>✓ Acting Head of the Department from 01-23-2020 until present</p>
6	Dr. Yousra Mohamed El-Far	<p>✓ Director of the E-Learning Unit from 5-1-2020 until present</p>



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7	Dr.Nada F. Abo El-Magd	✓ Vice director of quality assurance unit from 12-12-2021 till present
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1. Teaching Staff Members :

n	Name	Job
1	Amal Mohammed Abdo Al-Gayyar	full time professor
2	Mamdouh Mohammed El-Shishtawy	full time professor
3	Laila Ahmed farag Eissa	full time professor
4	Mohamed Mohamed Helmy Abdel Rahman Al-Gayyar	professor - in secondment
5	Hala Aboul Fotouh Attia Salem	assistant professor - in secondment
6	Ahmed Salah El-Din Ibrahim Mohamed Ibrahim	Assistant Professor - Spouse Accompaniment
7	Nihal Mohsen Ahmed El-Sherbiny	assistant professor - in secondment
8	Mohamed Elsayed Ahmed Mohammed El-Mesery	assistant professor
9	Noha Mansour Hassan Abdel Rahman	assistant professor
10	Laila Farouk Youssef Abdel Latif	Lecturer - Spouse accompaniment
11	Yousra Mohamed Abdel Hafez Mohamed Al-Far	Lecturer
12	Yara Adel Rashad Al-Sayed Samra	Lecturer
13	Mohamed Nasr El Din Amin Ibrahim El Hanouty	Lecturer
14	Randa Ahmed Mohamed Mohamed Zaghloul	Lecturer - child care leave
15	Nada Fawzy Ibrahim Abo Al-Magd	Lecturer
16	Salma Massad Eraqi Nasr	Lecturer
17	Nada Hassan Mohamed Eisa	Lecturer
18	Sahar Abdel-Gawad Helmy Abdel-Gawad	Lecturer



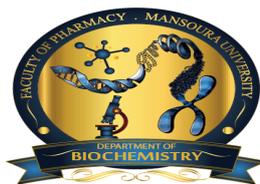
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2. Teaching Assistant Staff Members :

n	Name	Job
1	Lamis Salah El Din Ahmed Gad	Assistant teacher / Spouse accompaniment
2	Kholoud Aladdin Ibrahim Al-Mihi	Assistant teacher/ scholarship
3	Shaima Jamal Abdul Salam Abdul Salam	Assistant teacher
4	Nesma Adel Abdel Razek Al Metwally Habala	Assistant teacher
5	Mirna Jihad Massad Mustafa	Assistant teacher
6	Mennat Allah Mr. Muhammad Ziada	Assistant teacher
7	Iman Reda Badir Abdel Moneim	Teaching Assistant
8	Amira Mahmoud Mustafa Othman	Teaching Assistant
9	Fatima Abdullah Abdul Hamid Muhammad	Teaching Assistant
10	Younna Suleiman Muhammad Suleiman Tolba	Teaching Assistant - Spouse accompaniment
11	Younna Abdullah Al-Ethi	Teaching Assistant
12	Nadine Mohamed El-Saeed Abdel-Baqi	Teaching Assistant
13	Salwa Reda Mohamed Abo El-Ela	Teaching Assistant
14	Shereen Elnabawy Ahmed mohammed	Teaching Assistant
15	Aya Abdel Aziz Farouq	Teaching Assistant
16	Nermin Ahmed Saad	Teaching Assistant
17	Asmaa Ibrahim Abdalla Arafa Abdeldayem	Teaching Assistant
18	Iman Manar El-Islam El-Zehery	Teaching Assistant
19	Omar Alfarouq Eldessouky Elsayed	Teaching Assistant

3- Statistics of The Teaching and Teaching Assistant Staff members and of

		On the job	leave	Total
Professor	Full time	3	-	3
	Working	-	1	1
Assistant Professor		2	3	5
Lecturer		7	2	9
Total Teaching Staff members		12	6	18
Assistants of The Teaching Staff Members	Assistant teacher	4	2	6
	Teaching Assistant	12	1	13
Total Assistants of The Teaching Staff Members		16	3	19
Total (Teaching Staff members+ Assistants of The Teaching Staff Members)		28	9	37



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4-Department Employees:

a- Technicians

n	Name	Notes
1	Mohamed Mahmoud Darwish	Lab. Technician
2	Hana Abdel Halim	Lab technician - Spouse accompaniment
3	Fatima Ragab Al-Baz	Lab. Technician
4	Iman Mustafa Ali	Lab. Technician
5	Mona Al-Sayed Al-Juyoushi	Lab. Technician

b- Administrators:

n	Name	Notes
1	Vivian Abdel Aziz Mohamed Ghanem	Secretary
2	Mahmoud Ahmed El-Sayed Ali	store keeper

c- Workers:

n	Name	Notes
1	Houda Abdel Wahab	Worker

d- Daily Labor:

n	Name	Notes
1	Hamada Abdel Qader	Worker
2	Mohammed Abdulhameed	Worker
3	kammar gomaa	Worker

5- Statistics of the department's employees:

	On the job	leave	Total
Administrators	2	-	2
technicians	4	1	5
Laborers	4	-	4
Total	10	1	11

Second: Education and Student Affairs:

- ✓ Biochemistry is one of the branches of natural sciences that is concerned with the study of everything related to the life of living organisms, whether they are minute (bacteria, fungi) or multicellular , such as humans, animals and plants.
- ✓ Scientists in this field have focused on researching the chemistry of living organisms of all kinds by studying the cellular components of these organisms in terms of the chemical structures of these components, their areas of presence and their vital functions, as well as studying the various vital interactions that occur within these living cells in terms of construction and synthesis. , or in terms of demolition and energy production.
- ✓ Biochemistry also includes the study of the chemical structure and function of cellular components, such as proteins, carbohydrates, lipids, DNA and other biomolecules. Recently biochemistry has focused more specifically on the chemistry of enzymes that catalyze many chemical processes and biological reactions and on the properties of proteins.



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1-Subjects taught and supervised by the department:

A- Basic Program (List of Credit Hours) :

n	Subject	Level	Code
1	Biochemistry-1	Level Two	PB 221
2	Biochemistry-2	Level Three	PB 312
3	Nutrition	Level Four	PB 423
4	Nutrition in disease prevention and cure (Elective course)	Level Five	PBE 13
5	Clinical biochemistry	Level Five	PB 524

B- List of Pharm D :

n	Subject	Level	Code
1	Cell biology	Level One	PB 121
2	Biochemistry-1	Level Two	PB 222
3	Biochemistry-2	Level Two	PB 313
4	Clinical biochemistry	Level Four	PB 414
5	Cancer biology (Elective course)	Level Five	PBE 08
6	Clinical Nutrition (Elective course)	Level Five	PBE 07



Scientific Content

PB 121 Cell Biology (1+1)

The cell theory and cell structure (membranous and non-membranous organelles – cell inclusions and the nucleus). Macromolecules of the cell – DNA and RNA structure and genetic code – From gene to protein (Central dogma) – Cell cycle and control of cell number – Transport of biomolecules across membranes – Ions and voltages – Intercellular communication – cell signaling.

PB 222 Biochemistry I (2+1)

Proteins (structure, biologically important peptides – fate of proteins – folding of peptides) – Amino acids as precursors for biosynthesis of biomolecules (e.g. neurotransmitters, nucleotides,...) – Carbohydrates (glycoproteins and proteoglycans – glucose transporters) – Lipids (physiologically important lipid molecules – cholesterol and steroids – lipoprotein metabolism) – Enzymology (enzyme kinetics – regulation – enzyme inhibitors as drugs) – Hemoglobin and porphyrins (Hb derivatives and types) – Vitamins – Oxidative Stress – Porphyrins.

PB 313 Biochemistry II (2+1)

Energy production from dietary fuels (carbohydrates, lipids and proteins) – Integration of metabolism (Feed/fast cycle) – Nitrogen metabolism and nitrogen balance – Hormonal regulation of metabolism – Inborn errors of metabolism – Biological oxidation.

PB 414 Clinical Biochemistry (2+1)

Biochemical/pathophysiological changes and laboratory diagnostic markers for disorders of (Endocrine glands – Diabetes Mellitus – renal function – hepatic function – gastric function – bone and mineral metabolism – plasma proteins and lipoproteins) – Clinical enzymology and myocardial infarction – Electrolytes, blood gases and acid-base balance – Handling, preservation, storage and analysis of biological samples – Homeostasis and biochemical aspects of hematology and blood analysis – Urine analysis – Tumor markers – Recent diagnostic biomarkers.

PBE 07 Clinical Nutrition (1+1)

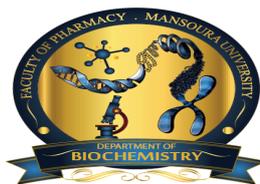
Macronutrients – Micronutrients – Energy Balance – Obesity & Management of Obesity – Nutrition in pregnancy - Nutrition in pediatrics & geriatrics – Nutrition in liver disease – Nutrition in kidney disease – Nutrition in G.I.T disorders – Nutrition in Respiratory disorders – Food Allergy.



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PBE 08 Cancer Biology (1+1)

DNA replication and its repair – Transcription and post-transcriptional modifications
– Translation – Oncogenes & Proto-oncogenes -Normal cell vs. Cancer cell – Cell
Cycle & check points – Apoptosis & Necrosis – Tumor Markers – Autophagy-
Angiogenesis.



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C-Clinical Pharmacy Program:

✓ New panel :

n	Subject	Level	Code
1	Cell biology	Level One	MD 102
2	Biochemistry-1	Level Two	PB 401
3	Biochemistry-2	Level Three	PB 502
4	Clinical biochemistry	Level Four	PB 803
5	Clinical nutrition	Level Five	PP 909

✓ Pharm D Panel :

n	Subject	Level	Code
1	Cell biology	Level One	PB 201
2	Biochemistry-1	Level Two	PB 302
3	Biochemistry-2	Level Two	PB 403
4	Clinical biochemistry	Level Four	PB 804
5	Clinical nutrition	Level Five	PB 905



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Scientific Content

PB 201 Cell Biology (1+1)

The course aims at studying the structure of prokaryotic and eukaryotic cells.

In this course study will include many, different areas of cellular biology involving: the synthesis and function of macromolecules such as DNA, RNA and proteins; control of gene expression; membrane and organelle function; bioenergetics; and cellular communication, transformation; transport, receptors, and cell signaling; the cytoskeleton, the extracellular matrix, and cell movements.

PB 302 Biochemistry I (2+1)

Structure of proteins – Biologically active peptides – Proteins turnover – Amino acids as precursors for biosynthesis of biomolecules (e.g. neurotransmitters, nucleotides,...) – Structurally and physiologically important lipids – Lipoprotein metabolism – Carbohydrates and connective tissue – Enzymes (theories of enzyme action – enzyme kinetics – inhibition and regulation of enzyme inhibitors activity – clinical correlations) , Oxidative Stress and body defense mechanisms.

PB 403 Biochemistry II (2+1)

Mobilization of body stores of glycogen and fats – Metabolism and tissue utilization of glucose, amino acids, and fatty acids – Regulation of blood glucose level and clinical correlations – Feed/fast cycle - Nitrogen metabolism and nitrogen balance - Inborn errors of metabolism – Second messengers and signal transduction – Biochemistry of cancer – Biochemistry of aging – Food biochemistry (milk – probiotics) – ATP synthesis from reduced metabolites (electron transport chain – inhibitors – uncouplers) – Hemoglobin and myoglobin (structure – synthesis and metabolism).

PB 804 Clinical Biochemistry (2+1)

Organ function and laboratory diagnostic tests (liver- kidney –heart –pancreas –bone)- Plasma proteins and albumin/globulin ratio –Types and lab differentiation of hyperlipidemia-Examples of different diseases (case study –interpretation of analytical data)- Handling, preservation , storage and analysis of biological sample – Abnormalities of urine analysis –blood analysis and complete blood count –Tumor markers- Endocrinology (classification of hormones-mechanism of action – dysfunction) –Electrolytes ,blood gases and acid -base balance –Recent diagnostic biomarkers.



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PB 905 Clinical Nutrition (1+1)

Measures of healthy life style –macroneutrients and calculation of calories –basal metabolic rate (BMR) –recommended daily allowance (RDA)- nutritional requirement for pediatrics and geriatrics –vitamins and minerals(role in metabolism-clinical significance)- gut microbiota and human health – enteral and parenteral nutrition –dietary care for patientsand obesity, diabetes mellitus,cardiovascular ,renal and hepatic disorders –dietary care for cancer patients- dietary care for sports` men- dietary care for pregnant and lactating women



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Third::Postgraduate Studies, Research and Cultural Relations Affairs

1. Post-graduate Programs (Diploma- Ms.D. -Ph.D.)

1-Diploma Courses (Biochemistry) (PBD-100)

	Course	Code
1	Biochemistry-1	PBD-101
2	Biochemistry Laboratory Techniques	PBD-103
3	Clinical biochemistry-1	PBD-104
4	Chemistry and diseases of blood	PBD-105
5	Biochemistry-2	PBD-106
6	Clinical biochemistry-2	PBD-107
7	Oncology and tumor markers	PBD-108
8	Biotechnology	PBD-109

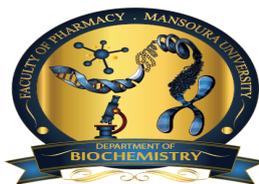
2-MS .D.

1. First term Courses (General Courses) (GCM-200)

	Course	Code
1	Bioinformatics	GCM-204

2. Second term

	Course	Code
1	Advanced biochemistry	PBM-201
2	Clinical biochemistry	PBM-202
3	Advanced molecular biology	PBM-203
4	Oncology and tumor markers	PBM-204
5	Biochemistry Laboratory Techniques	PBM-205



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3-Ph.D. Courses (Biochemistry) (PBP- 300)

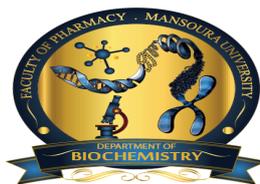
	Course	Code
1	Metabolism of individual tissues	PBP-301
2	Clinical endocrinology	PBP-302
3	Biochemical bases of diseases	PBP-303
4	Applied Biochemistry	PBP-304
5	Gene therapy	PBP-305

4-Diploma Courses (Nutrition) (PPND-100)

	Course	Code
1	Basics of Nutrition and Metabolism	PPND-101
2	Nutrition Care for Pediatrics and Geriatrics	PPND-105

5-Diploma Courses (Clinical Pharmacy) (PBD-110)

	Course	Code
1	Clinical Laboratory Tests	PBD-110



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Scientific Content

Diploma Courses (Biochemistry) (PBD-100)

First Semester

PBD-101 Biochemistry (I)	Credit Hours (2 + 1)
Biochemical functions of sub-cellular organelles and biomembranes. Chemistry of lipids. Chemistry of carbohydrates. Chemistry of amino acids and proteins. Enzymes. Vitamins. Minerals. Nucleotides and nucleic acids. Body fluids: blood, breast milk, cerebrospinal fluid, semen, urine.	
PBD-102 Physiology and Pathology	Credit Hours (2 + 1)
Kidney: Nephron, Glomerular filtration rate, Tubular reabsorption and secretion, Plasma clearance, Homeostatic function of kidney in regulation of H ⁺ concentration. Liver: General function, Bile pigment metabolism, Bile salts. Endocrinology: Mechanism of hormone action, Assessment of hormone function. Pancreas (function and disorders) and Reproduction. Introduction to pathology; recent advances. Inflammation: mechanisms and effects. Cell adaptation, injury, and cellular aging. Genetic disorders. Neoplasia: carcinogenesis and lab. Diagnosis. Liver disease. Major endocrine disorders; diabetes. Renal diseases: nephritis, renal failure.	
PBD-103 Biochemistry Laboratory Techniques	Credit Hours (2 + 1)
Introduction to Molecular Biology Laboratory, Using the Computer and Internet for Research in Biochemistry, General Laboratory Procedures: accurate measurements, pH meter and sample storage, Centrifugation Techniques in Biochemistry /Molecular Biology, Purification and Analysis of Biomolecules by Chromatography, Characterization of Proteins and Nucleic Acids by Electrophoresis, Spectroscopic Analysis of Biomolecules, Immuno-techniques: ELISA, Immunohistochemistry, Molecular Biology I: Structures and Analysis of Nucleic Acids, Molecular Biology II: Recombinant DNA, Molecular Cloning and Enzymology Protein Production, Purification, and Characterization	
PBD-104 Clinical Biochemistry (I)	Credit Hours (2 + 1)
Interpreting and using laboratory data. Disturbances of Water. Sodium and potassium balance. Acid-base balance. Oxygen transport. Respiratory disorders. Diagnostic enzymology. Disorders of minerals, trace elements and vitamins metabolism. Cancer associated biochemical abnormalities. Porphyrins, hemoproteins, bile pigments and jaundice. Hepatobiliary disorders.	

Second Semester

PBD-105 Chemistry and Diseases of Blood	Credit Hours (2 + 1)
Introduction to blood Blood groups, Blood cells, Hematopoiesis, Disorders of Erythrocytes, Disorders of Leukocytes, Hemostasis, Disorders of Platelets, Bleeding disorders, Thrombosis, Some blood diseases	
PBD-106 Biochemistry (II)	Credit Hours (2 + 1)
Oxidative stress and antioxidants. Digestion and absorption of food. Respiration and Biological oxidation Protein metabolism. Inter-. Lipid metabolism. Carbohydrate metabolism. components and biotransformation relationship between carbohydrate, lipid and protein metabolism	
PBD-107 Clinical Biochemistry (II)	Credit Hours (2 + 0)
Liver diseases and liver function tests. Renal diseases and kidney function tests. Disorders of carbohydrate metabolism. Disorders of amino acids and protein metabolism. Disorders of lipid metabolism. Cardiovascular disorders. Gastrointestinal and pancreatic disorders. Disorders of nucleic acids, purine and pyrimidine metabolism.	
PBD-108 Oncology and Tumor Markers	Credit Hours (2 + 0)
Cancer biology. The ideal tumor marker and its purpose. Types of tumor markers: Oncofetal proteins, Hormones, Enzymes, Tumor-associated antigens, Special proteins, Tissue-bound receptors, Genes and Miscellaneous markers. Biological factors that affect serum concentrations of tumor markers., Tumor markers use and relation with tumors.	
PBD-109 Biotechnology	Credit Hours (2 + 0)
Introduction and historical review of biotechnology, Nucleic acids (DNA & RNA): Chemical structure, Gene expression (Replication, transcription and their regulation) and Protein synthesis and regulation, Biophysical and biochemical techniques for analysis and identification of nucleic acids and proteins: electrophoresis (nucleic acids and proteins), blotting techniques (Western, Eastern and Northern blotting), immunoassays, ELISA, ... etc.), Recombinant DNA technology, Applications of recombinant DNA in pharmaceutical industry and medicine. Current FDA approved biotechnology drugs such as human	



insulin, growth hormones and interferons.

MS .D. Courses (General Courses) (GCM-200)

First Semester

GCM-204 Bioinformatics Credit Hours (1 + 0)

The course covers an in-depth knowledge of the bioinformatics with particular emphasis on database, Information Retrieval from Biological Databases, Protein Family Databases, Protein Structure Basics, Determination of Protein Three-Dimensional Structure Genome Mapping, Assembly, and Comparison, Microarray-Based Approach. The course covers an in-depth knowledge of the bioinformatics with particular emphasis on database, Information Retrieval.

Second Semester

PBM-201 Advanced Biochemistry Credit Hours (2 + 0)

Enzymes. Vitamins. Biological oxidation. Oxidative stress and antioxidants. Metabolism of Carbohydrate and Lipids. Amino acids and proteins metabolism. Inflammation mediators. Body fluids: blood, breast milk, cerebrospinal fluid, semen, urine.

PBM-202 Clinical Biochemistry Credit Hours (2 + 0)

Water, electrolytes and hydrogen ion disorders, Respiratory disorders, Disorders of kidney and urinary tract. Cardiovascular disorders. Porphyrins, bile pigments and jaundice. Hepatobiliary disorders. Gastrointestinal and pancreatic disorders. Disorders of carbohydrate metabolism. Disorders of amino acids and protein metabolism. Disorders of lipid metabolism. Disorders of nucleic acids. Disorders of minerals and trace elements.

PBM-203 Advanced Molecular Biology Credit Hours (2 + 0)

Nucleic acid-protein interaction, Gene expression: methodology, microarrays. Regulation of gene expression. Gene silencing. Genomic biology. Positional cloning. Gene mutation. Molecular biology techniques: Recombinant DNA, Cloning of DNA molecules and Application of DNA cloning. Phenotyping.

PBM-204 Oncology and Tumor Markers Credit Hours (2 + 0)

Tumor. Cancer biology. Cell cycle. The ideal tumor marker and its purpose, Classification of tumor markers: Oncofetal proteins, Hormones, Enzymes, Tumor-associated antigens, Special proteins. Tissue-bound receptors. Cytokines and chemokines. Genes and Miscellaneous markers. Biological factors that affect serum concentrations of tumor markers. Tumor markers use and relation with tumors.

PBM-205 Biochemistry Laboratory Techniques Credit Hours (2 + 0)

Introduction to the Biochemistry/Molecular Biology Laboratory. Using the Computer and Internet for Research in Biochemistry. General Laboratory Procedures: accurate measurements, pH meter and sample storage. Centrifugation Techniques in Biochemistry/Molecular Biology. HPLC. Purification and Analysis of Biomolecules by Chromatography. Characterization of Proteins and Nucleic Acids by Electrophoresis. Flow cytometry. Spectroscopic Analysis of Biomolecules, Immuno-techniques: ELISA, Immunohistochemistry, Tissue culture technique. Spectroscopic Analysis of Biomolecules. Immuno-techniques: ELISA, Immunohistochemistry. Molecular Biology I: Structures and Analysis of Nucleic Acids, Molecular Biology II: Recombinant DNA, Molecular Cloning and Enzymology, Protein Production, Purification, and Characterization.

Ph.D. Courses (Biochemistry) (PBP- 300)

First Semester

PBP-301 Metabolism of Individual Tissues Credit Hours (2 + 0)

Introduction to different metabolic pathways in some tissues. Clinical correlations. Regulation and integration of Metabolism. Muscular dystrophy. Low serum potassium. Essential fructosuria. Diabetic ketoacidosis. Neonatal hyaline membrane disease (HMD). Hemolytic anemia. Disorders of platelet. Vessel wall interaction. Hemorrhagic disease. Fasting cycles. Synthesis of different compounds. Heat production.

PBP -302 Clinical Endocrinology Credit Hours (2 + 0)

Pituitary Disease and Neuroendocrinology. Diabetes Mellitus and Carbohydrate Metabolism. Endocrinology of Male Reproductive system Endocrinology of Female Reproductive system. Thyroid Disease. Adrenal Disease and Function.



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Diseases of Bone and Mineral Metabolism. Diffuse Hormonal Systems and Endocrine Tumor Syndromes. Pediatric Endocrinology. Obesity, Endocrine Disease and Pregnancy, Endocrine Testing Protocols, Endocrinology of Aging

Second Semester

PBP-303 Biochemical Bases of Diseases Credit Hours (2 + 0)

The genetics of simple and complex traits. Analysis and positional cloning. Genetic diagnosis. The Roles of oncogenes and tumor suppressors in tumor initiation, progression, and treatment. The interaction between genetics and environment. Animal models of human disease. Infectious diseases including bacterial, viral and eukaryotic pathogens. Cancer. Metabolic diseases like diabetes: bases, biochemical diagnosis and treatment. Liver disease: bases, biochemical diagnosis and treatment

PBP -304 Applied Biochemistry Credit Hours (2 + 0)

Transgenic animals: genetic basis, disease models and clinical application. Monoclonal antibodies. Isoenzymes: Biochemistry, Expression, Distribution, Affinities and Role in health and disease. Cytokines and their receptors: Signaling, Receptors and ligands. Transporters. Clearance of signaling molecules. Receptors and ligands. Transporters. Clearance of signaling molecules. Biotechnological preparations and Role in disease management. Inherited human diseases: Molecular basis and Ways of therapeutic interventions

PBP -305 Gene Therapy Credit Hours (2 + 0)

History of gene therapy. Gene transfer in vitro and in vivo. Therapeutic genes and marker genes. Vectors: Plasmid vectors: construction and application and Viral vectors (retroviral, adenoviral, adeno-associated viral vectors, helper-dependent vectors). Inhibition of gene expression by nucleic acids: antisense oligonucleotides, DNA decoys, ribozymes, RNA interference. Gene therapy of immunodeficiency diseases. Gene therapy of other monogenic diseases (cystic fibrosis, Duchenne muscular dystrophy, hemophilia A and B). Gene therapy of cardiovascular diseases: atherosclerosis, hypertension, myocardial infarction, stroke. Pro-angiogenic gene therapy. Gene therapy of cancer: immune gene therapy, suicide gene therapy, anti-angiogenic gene therapy. Cell-based gene therapy: therapeutic potentials of stem cells. Gene therapy and cloning. Ethical aspects of gene therapy (Ethical and political issues related to stem cell research).

Diploma Courses (Nutrition) (PPND-100)

Basics of Nutrition and Metabolism PPND-101

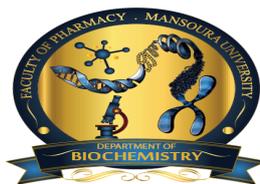
Demonstrate a knowledge of basic nutrients and how these main nutrients are metabolized in the body.

Mechanics of nutrient intake- Gross digestion principles: Gastric Grinding
Gastrointestinal Motility energy- Carbohydrates: Changes with development- Fat- Protein digestion, absorption and metabolism- minerals- water soluble essential micronutrients- fat soluble vitamins- fluids and electrolytes and acid base balance- probiotics and prebiotics.

Nutrition Care for Pediatrics and Geriatrics PPND-105

Demonstrate a knowledge of pediatrics and geriatrics nutritional disorders and how to prevent and treat these disorders.

Assessment of nutrition status by age and determining nutrient needs- determining the best way to feed- implementation of the plan- evaluation and monitoring of pediatric patient & Developmental delay- food allergies- Human milk- infant formulas and complementary feeding – growth assessment and monitoring- use of fad and popular diets.



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Diploma Courses (Clinical Pharmacy) (PBD-110)

Clinical Laboratory Tests PBD-110

Common laboratory tests as a common check-up, Liver function tests, Jaundice, Kidney function tests, Myocardial Infarction, Urine analysis, Hormones, Microbial Sample collection and Sensitivity tests.

nThe department's research pla2.

Hepatitis C and Hepatitis B viral infections

Liver fibrosis

Diabetes mellitus and its complications

Cardiac and vascular disorders

Cancers such as breast, liver and blood cancers

Using modern nanotechnology in detecting, tracking and treating diseases

Some nervous system disorders

Using cell culture and stem cells in research projects

The proposed plan for improvement for the academic year3. 2020/2021

First: The development of the educational process:

**1. undergraduate and Continuous development of the department's scientific curricula for1.
.postgraduate students**

**2. Making educational videos for lectures and laboratories, and continuing to develop and 2.
.prepare electronic courses**

3. Activate the question ban3.

4 (seminars).Holding periodic scientific meetings.

5. the necessary steps towards repairing and developing laboratories ingTak5.

6. Increasing interest in student activities in order to increase the student's connection with 6.

.the subjects taught in the department and not to rely on external lessons



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Second: Scientific research:

1. **aiming at solving chronic disease problems facing society in the Egyptian Delta, such as (cancer - liver - diabetes and its complications)**

2. **Increasing the partnership with international research laboratories in countries such as (America, Germany, England and Canada) through grants and scholarships to obtain a doctorate and scientific missions (post-doctoral)**

3. **Participation with other scientific departments in joint research, which shows its impact on the quality of fruitful scientific cooperation in the college**

4. **Participation with other faculties inside and outside the university in conducting joint research and joint supervision of scientific theses**

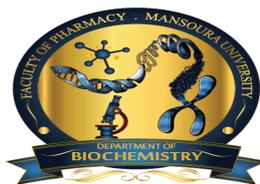
5. **Developing the tissue culture lab in order to increase the field of scientific research performance**

6. **Providing the equipment required to raise the level of scientific research for faculty members and their assistants**

7. **Conducting training courses for the development of research skills for faculty members and their assistants, such as tissue culture**

4. Department Laboratories' guide (Available equipment at the department)

Devices and equipment	Model/Country of Origin
UV/Vis Spectrophotometer	Jenway, UK, model 6850 spectrophotometer
Applied biosystems stepOne plus real time PCR	Thermo Fisher Scientific, Singapore, model EN61326/Class B/Group 1
Dry block heater	Taiwan, model DB-006
Waterbath	Egypt, model PS.3A
Waterbath	Thermo Fisher, USA, model Versa bath
ELISA shaker	VRN-210 Associated with Cannic, Inc, Taiwan, model
Oven	Advanced technology, Egypt, model PS.3A
Oven	Fisher, USA, model 215G
Electronic Balance	Citizen, USA, model CY204
Electronic Balance	Citizen, USA, model FR-H600



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Spectrophotometer	USA, model S1200 و Unico	
Spectrophotometer	USA, model SV1600 و ABBOT	
Spectrophotometer	Labomed, USA, model UVD2950	
Centrifuge	Sigma, Germany, model 2-16P	
Centrifuge	Jiangsu Zhengji, China, model 80-2	
Cooling centrifuge	Sigma, Germany, model 3-30K	
Biocular microscope	Jiangsu Zhengji, China, model XSZ-107BN	
ELISA reader	Biotek, USA, model SN211227	
Vortex	Biotech, Egypt, model PTC	
Kinetic colorimeter	ROBonik, USA, model Prietest ECO	
Hot stirrer	Lab. Companion, model TSEY2806-21	
-20 freezer	Keriazi, Egypt, model E250N	
-80 freezer	IngCLIMAS, USA	
Binder CO2 incubator	Binder, Germany, model III-18836	
Laminar flow	Unilab Instruments. Co., Ltd, China, model Vertical Clean Bench	
Microscope	Italy, model Optika S2M	
Computer	LG, Korea, model LG	
Western Blot	USA	
Cooling centrifuge	Germany	“Modulation of versican availability in extracellular matrix as a new therapeutic target in hepatocellular Carcinoma.” Mu-phra-2018-8 Code:
Electric Homogenizer	USA	
Electronic Balance	Germany	



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		<p>Funded by the University's Research Fund PI: Dr. Yousra Mohamed El Far-lecturer of biochemistry faculty of Pharmacy Co-PI: Dr. Ziad Emarah Lecturer of internal medicine – oncology -Faculty of Medicine</p>
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5. Supervision of Theses

Our department supervises a number of master's and doctoral students (internal and external) and their data is as follows:

Master's students:

No.	Student Name	Thesis Title
1	Ahmed Abd Elnaser Mohamed Yonis Ahmed	Study of the anticancer effect of selenium and quercetin in experimentally induced hepatocellular carcinoma
2	Salwa Reda Mohamed Abo El-Ela Almetwally	The Study of Potential Effect of Some Natural Compounds on Cardiotoxicity Induced in Experimental Animal
3	Fatma Abdallah Abd Alhamid Mohamed	Protective Effect of Some Natural Compounds in hepatocellular carcinoma induced in rats
4	Yomna Abdallah Abd Alhakim Abd Alhafiz Alleithy	Study of the effect of autophagy modulating compounds on acquired resistance during treatment of hepatocellular carcinoma in rats
5	Amira Mahmoud Mostafa Aothman Soliman	Biochemical Study of Some Biomarkers in patients with chronic lymphoma
6	Mohamed Fadel Amin Mostafa	The effect of Genestin on P53-MDM2 pathway in liver cancer in rat

Doctoral Students :



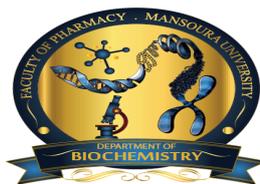
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1	Nesma Adel Abdel Razek Al-Metwally Habala	Study the effect of some natural compounds on lysophosphatidic acid receptors and their potential effects in liver fibrosis model in rat
2	Alshyimaa Gamal Abd Alsalam Abd Alsalam	Evaluation of the beneficial effect of some nanonatural compounds in liver cancer
3	Samar Mohamed Ahmed Mohamed Altantawy	Potential effect of gold nanoparticles and silastero on diabetic nephropathy in rats
4	Shyimaa Ramadan Ahmed Ibrahiem Alkhatib	The effect of some natural compounds on the properties of stem cells extracted from adipose tissue in diabetic mice

6. Awarded Theses in our department:

Detailed statement of awarded master's theses - faculty of Pharmacy / Biochemistry

No.	Student name	Thesis title	Date of registration	Date of discussion	Date of degree
1	Emad Aldeen Mashhor Zabbad	The effect of vanillin in diabetic nephropathy in experimental animals	2018/07/05	2020/3/9	2020/03/29
2	Omar Mashhor Zabbad	Biochemical study of the effect of p-coumaric acid in diabetic nephropathy	2018/05/20	2020/4/13	2020/04/27
3	Eman Hamdy Mohamed Yossef	The effect of PLK1 enzyme in liver cancer	2016/05/08	2020/8/22	2020/09/24
4	Aya Osama Besheer Abd Alhaliem	Biochemical study of the effect of some natural compounds on miRNA compounds in liver	2016/05/08	2020/11/8	2020/12/15



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5	Abeer Albasiouny Mohamed Awad	cancer Clinical significance of DKK1 protein as a biomarker of hepatocellular carcinoma in Egyptian patients	2014/04/30	2019/12/19	2020/01/26
6	Mohamed Mostafa Esmael Alsaeed Salama	Evaluation of the oxidative stress and MFAP4 in liver cancer patients	2016/03/08	2018/12/27	2019/01/20
7	Mona Hassan Hassan Zohney	Effect of taurine on modulating hormone therapy in Ehrlich carcinoma in letrozole-treated mice	2017/05/29	2020/02/02	2020/02/25
8	Mirna Jihad Mosad Abu Ismail	Effect of some natural compounds on the Fas/FasL pathway on programmed cell death in induced hepatocellular carcinoma in rats	2015/08/04	2020/03/19	2020/4/22
9	Nesma Adel Abdel Razek Al-Metwally Habala	Evaluation of the antitumor effect of some natural compounds on death receptors in a rat Ehrlich's ascitic tumor model	2014/4/29	2019/12/28	2020/01/27
10	Yasmine Ahmed Mohamed Hamed Salameh	Targeting Notch signaling in the treatment of hepatocellular carcinoma in rats	2017/02/09	2020/02/10	2020/02/25



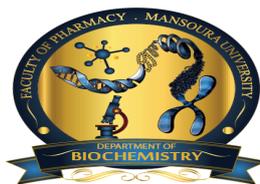
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Detailed statement of awarded PhD thesis - faculty of Pharmacy / Biochemistry

Student name	Thesis title	Date of registration	Date of Discussion	Date of degree
Abdul Karim Omar	Targeting Hedgehog signaling in renal fibrosis in rats	2016/12/28	2020/01/04	2020/1/22

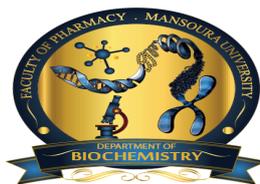
7. Scientific researches published in local and international conferences and Journals during the period from 2018 until now:

Publisher	Authors	Research Title
Toxicology and Applied Pharmacology, 2019	ABDEL-RAHMAN, N., SHARAWY, M. H., MEGAHEH, N. & EL-AWADY, M. S.	Vitamin D3 abates BDL-induced cholestasis and fibrosis in rats via regulating Hedgehog pathway
Life Sci, 2019	ABDELRAHMAN, R. S. & ABDEL-RAHMAN, N.	Dimethyl fumarate ameliorates acetaminophen-induced hepatic injury in mice dependent of Nrf2/HO-1 pathway.
Biol Trace Elem Res, 2019	AL-DOSSARI, M. H., FADDA, L. M., ATTIA, H. A., HASAN, I. H. & MAHMOUD, A. M.	Curcumin and Selenium Prevent Lipopolysaccharide/Diclofenac-Induced Liver Injury by Suppressing Inflammation and Oxidative Stress.
Biomed Pharmacother, 2019	AL-GAYYAR, M. M. H., BAGALAGEL, A., NOOR, A. O., ALMASRI, D. M. & DIRI, R.	The therapeutic effects of nicotinamide in hepatocellular carcinoma through blocking IGF-1 and effecting the balance between Nrf2 and PKB.
International journal of hematology-oncology and stem cell research, 2019	AWAD, A. E., EBRAHIM, M. A., EISSA, L. A. & EL-SHISHTAWY, M. M	Dickkopf-1 and Amphiregulin as Novel Biomarkers and Potential Therapeutic Targets in Hepatocellular Carcinoma.



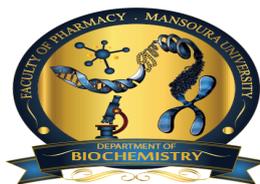
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J Biol Chem,2019	EISA, N. H., JILANI, Y., KAINTH, K., REDD, P., LU, S., BOUGRINE, O., ABDUL SATER, H., PATWARDHAN, C. A., SHULL, A., SHI, H., LIU, K., ELSHERBINY, N. M., EISSA, L. A., EL-SHISHTAWY, M. M., HORUZSKO, A., BOLLAG, R., MAIHLE, N., ROIG, J., KORKAYA, H., COWELL, J. K. & CHADLI, A.	The co-chaperone UNC45A is essential for the expression of mitotic kinase NEK7 and tumorigenesis
Marine drugs,2019	EL-HAWARY, S. S., SAYED, A. M., MOHAMMED, R., HASSAN, H. M., RATEB, M. E., AMIN, E., MOHAMMED, T. A., EL-MESERY, M., BIN MUHSINAH, A., ALSAYARI, A., WAJANT, H., ANANY, M. A. & ABDELMOHSEN, U. R.	Bioactive Brominated Oxindole Alkaloids from the Red Sea Sponge Callyspongia siphonella.
Cell death & disease,2019	EL-MESERY, M., ROSENTHAL, T., RAUERT-WUNDERLICH, H., SCHREDER, M., STUHMER, T., LEICH, E., SCHLOSSER, A., EHRENSCHWENDER, M., WAJANT, H. & SIEGMUND, D.	The NEDD8-activating enzyme inhibitor MLN4924 sensitizes a TNFR1(+) subgroup of multiple myeloma cells for TNF-induced cell death.
Br J Pharmacol, 2019	ELMASRY, K., IBRAHIM, A. S., ABDULMONEIM, S. & AL-SHABRAWAY, M.	Bioactive lipids and pathological retinal angiogenesis
Life Sci,2019	ELSHAER, R. E., TAWFIK, M. K., NOSSEIR, N., EL-GHAIESH, S. H.,	Leflunomide-induced liver injury in mice: Involvement of TLR4 mediated activation of PI3K/mTOR/NFkappaB pathway



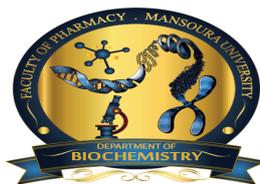
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	TORAIH, E. A., ELSHARBINY, N. M. & ZAITONE, S. A	
Front Neurosci,2019	ELSHARBINY, N. M., ABDEL-MOTTALEB, Y., ELKAZAZ, A. Y., ATEF, H., LASHINE, R. M., YOUSSEF, A. M., EZZAT, W., EL- GHAIESH, S. H., ELSHAER, R. E., EL- SHAFEY, M. & ZAITONE, S. A.	Carbamazepine Alleviates Retinal and Optic Nerve Neural Degeneration in Diabetic Mice via Nerve Growth Factor-Induced PI3K/Akt/mTOR Activation
Toxicol Res (Camb),2019	FOUAD, D., BADR, A. & ATTIA, H. A.	Hepatoprotective activity of raspberry ketone is mediated via inhibition of the NF-kappaB/TNF- alpha/caspase axis and mitochondrial apoptosis in chemically induced acute liver injury
Sci Rep,2019	HAMDAN, A. M., AL- GAYYAR, M. M., SHAMS, M. E. E., ALSHAMAN, U. S., PRABAHAR, K., BAGALAGEL, A., DIRI, R., NOOR, A. O. & ALMASRI, D.	Author Correction: Thymoquinone therapy remediates elevated brain tissue inflammatory mediators induced by chronic administration of food preservatives.
Life Sciences,2019	HELMY, S. A., EL- MESERY, M., EL- KAREF, A., EISSA, L. A. & EL GAYAR, A. M.	Thymoquinone upregulates TRAIL/TRAILR2 expression and attenuates hepatocellular carcinoma in vivo model.
Brain sciences,2019	HUSSEIN, A. M., ELDOSOKY, M., EL- SHAFEY, M., EL- MESERY, M., ABBAS, K. M., ALI, A. N., HELAL, G. M. & ABULSEOUD, O. A.	Effects of GLP-1 Receptor Activation on a Pentylentetrazole-Kindling Rat Model.
Can J Physiol Pharmacol, 2019	HUSSEIN, A. M., ELDOSOKY, M., EL- SHAFEY, M., EL- MESERY, M., ALI, A. N., ABBAS, K. M. & ABULSEOUD, O. A.	Effects of metformin on apoptosis and alpha- synuclein in a rat model of pentylentetrazole- induced epilepsy.
Pediatr Hematol	MOSAAD, Y. M.,	ARID5B rs10821936 and rs10994982 gene



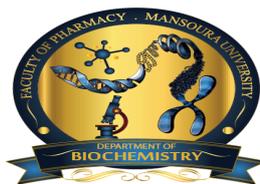
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Oncol,2019	KHASHABA, M., DARWISH, A., DARWISH, M., ELWASSEFY, M., ABDELMABOOD, S., FAWZY, I. M., YOUSSEF, L. F. & ELBASIOUNY, R. A.	polymorphisms and acute lymphoblastic leukemia: relation to disease susceptibility and outcome.
Anticancer Agents Med Chem,2019	MOSTAFA, A. S., BAYOUMI, W. A., EL- MESERY, M. & ELGAML, A	Molecular Design and Synthesis of New 3,4-Dihydropyrimidin-2(1H)-Ones as Potential Anticancer Agents with VEGFR-2 Inhibiting Activity
Chemistry–A European Journal,2019	PINKERTON, D. M., CHOW, S., EISA, N. H., KAINTH, K., VANDEN BERG, T. J., BURNS, J. M., GUDDAT, L. W., SAVAGE, G. P., CHADLI, A. & WILLIAMS, C.	Synthesis of the seco-Limonoid BCD Ring System Identifies a Hsp90 Chaperon Machinery (p23) Inhibitor.
Life Sciences,2019	SALAMA, Y. A., EL- KAREF, A., EL GAYYAR, A. M. & ABDEL-RAHMAN, N.	Beyond its antioxidant properties: Quercetin targets multiple signalling pathways in hepatocellular carcinoma in rats.
International journal of molecular sciences,2019	SCHEURER, M. J. J., BRANDS, R. C., EL- MESERY, M., HARTMANN, S., MULLER-RICHTER, U. D. A., KUBLER, A. C. & SEHER, A	The Selection of NFκB Inhibitors to Block Inflammation and Induce Sensitisation to FasL-Induced Apoptosis in HNSCC Cell Lines Is Critical for Their Use as a Prospective Cancer Therapy.
Journal of clinical medicine,2019	TAWFIK, A., MOHAMED, R., ELSHARBINY, N. M., DEANGELIS, M. M., BARTOLI, M. & AL- SHABRAWAY, M.	Homocysteine: A Potential Biomarker for Diabetic Retinopathy.
Exp Eye Res, 2019	VALLE, M. L., DWORSHAK, J., SHARMA, A., IBRAHIM, A. S., AL-SHABRAWAY, M. & SHARMA, S.	Inhibition of interleukin-6 trans-signaling prevents inflammation and endothelial barrier disruption in retinal endothelial cells.



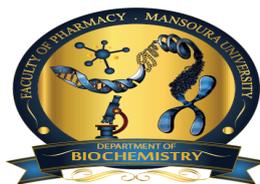
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Life Sci,2019	ZABAD, I. E. M., AMIN, M. N. & EL-SHISHTAWY, M. M.	Protective effect of vanillin on diabetic nephropathy by decreasing advanced glycation end products in rats.
Life Sciences,2019	ZABAD, O. M., SAMRA, Y. A. & EIISA, L. A.	. P-Coumaric acid alleviates experimental diabetic nephropathy through modulation of Toll like receptor-4 in rats.
European Journal of Medicinal Chemistry,2019	ZEIDAN, M. A., MOSTAFA, A. S., GOMAA, R. M., ABOU-ZEID, L. A., EL-MESERY, M., EL-SAYED, M. A. A. & SELIM, K. B.	Design, synthesis and docking study of novel picolinamide derivatives as anticancer agents and VEGFR-2 inhibitors.
Pharmacol Ther., 2019	Hill WD, Elmansi AM, Awad ME, Eisa NH, Kondrikov D, Hussein KA, Aguilar-Pérez A, Herberg S, Periyasamy-Thandavan S, Fulzele S, Hamrick MW, McGee-Lawrence ME, Isales CM, Volkman BF	What doesn't kill you makes you stranger: Dipeptidyl peptidase-4 (CD26) proteolysis differentially modulates the activity of many peptide hormones and cytokines generating novel cryptic bioactive ligands
. Egyptian Journal of Basic and Applied Sciences , 2019	Abo El-Magd NF, El-Karef A, El-Shishtawy MM, Eissa LA	Glycyrrhizin and Omega-3 fatty acids have hepatoprotective roles through toll-like receptor
Bone Rep,2020	ELMANSI, A. M., HUSSEIN, K. A., HERRERO, S. M., PERIYASAMY-THANDAVAN, S., AGUILAR-PEREZ, A., KONDRIKOVA, G., KONDRIKOV, D., EISA, N. H., PIERCE, J. L., KAISER, H., DING, K. H., WALKER, A. L., JIANG, X., BOLLAG, W. B., ELSALANTY, M., ZHONG, Q., SHI, X. M., SU, Y., JOHNSON, M.,	Age-related increase of kynurenine enhances miR29b-1-5p to decrease both CXCL12 signaling and the epigenetic enzyme Hdac3 in bone marrow stromal cells.



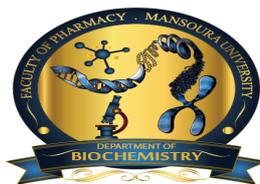
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	HUNTER, M., REITMAN, C., VOLKMAN, B. F., HAMRICK, M. W., ISALES, C. M., FULZELE, S., MCGEE-LAWRENCE, M. E. & HILL, W. D.	
Biomolecules, 2020	ELSHERBINY, N. M., SHARMA, I., KIRA, D., ALHUSBAN, S., SAMRA, Y. A., JADEJA, R., MARTIN, P., AL-SHABRAWAY, M. & TAWFIK, A	Homocysteine Induces Inflammation in Retina and Brain.
Arch Biochem Biophys, 2020	ERAKY, S. M. & ABO EL-MAGD, N. F.	Omega-3 fatty acids protect against acetaminophen-induced hepatic and renal toxicity in rats through HO-1-Nrf2-BACH1 pathway.
Exp Gerontol, 2020	KONDRIKOV, D., ELMANSI, A., BRAGG, R. T., MOBLEY, T., BARRETT, T., EISA, N., KONDRIKOVA, G., SCHOEINLEIN, P., AGUILAR-PEREZ, A., SHI, X. M., FULZELE, S., LAWRENCE, M. M., HAMRICK, M., ISALES, C. & HILL, W.	Kynurenine inhibits autophagy and promotes senescence in aged bone marrow mesenchymal stem cells through the aryl hydrocarbon receptor pathway.
Toxicol Appl Pharmacol, 2020	SHAKER, M. E., SHAABAN, A. A., EL-SHAFFEY, M. M. & EL-MESERY, M. E.	The selective c-Met inhibitor capmatinib offsets cisplatin-nephrotoxicity and doxorubicin-cardiotoxicity and improves their anticancer efficacies.
Chem Biol Interact, 2020	Elsherbiny NM, Said E, Atef H, Zaitone SA.	Renoprotective effect of calycosin in high fat diet-fed/STZ injected rats: Effect on IL-33/ST2 signaling, oxidative stress and fibrosis suppression.
Sci Rep, 2020	Badr AM, Attia HA, Al-Rasheed N.	Oleuropein Reverses Repeated Corticosterone-Induced Depressive-Like Behavior in Mice: Evidence of Modulating Effect on Biogenic Amines



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Biol Trace Elem Res. 2020	Al-Dossari MH, Fadda LM, Attia HA, Hasan IH, Mahmoud AM.	Curcumin and Selenium Prevent Lipopolysaccharide/Diclofenac-Induced Liver Injury by Suppressing Inflammation and Oxidative Stress.
Life Sci. 2020	Abo El-Magd NF, Eraky SM.	The molecular mechanism underlining the preventive effect of vitamin D against hepatic and renal acute toxicity through the Nrf2/BACH1/ HO-1 pathway.
Naunyn Schmiedebergs Arch Pharmacol. 2020	Attia H, Fadda L, Al-Rasheed N, Al-Rasheed N, Maysarah N.	Carnosine and L-arginine attenuate the downregulation of brain monoamines and gamma aminobutyric acid; reverse apoptosis and upregulate the expression of angiogenic factors in a model of hemic hypoxia in rats.
Environ Toxicol Pharmacol. 2020	El-Far YM, Elsherbiny NM, El-Shafey M, Said E.	The interplay of the inhibitory effect of nifuroxazide on NF-κB/STAT3 signaling attenuates acetic acid-induced ulcerative colitis in rats.
Environ Toxicol Pharmacol. 2020	NM Elsherbiny, NH Eisa, M El-Sherbiny, E Said	Chemo-preventive effect of crocin against experimentally-induced hepatocarcinogenesis via regulation of apoptotic and Nrf2 signaling pathways
J Biochem Mol Toxicol. 2020	Samra YA, Hamed MF, El-Sheakh AR.	Hepatoprotective effect of allicin against acetaminophen-induced liver injury: Role of inflammasome pathway, apoptosis, and liver regeneration.
Life Sci. 2020	Bashir AO, El-Mesery ME, Anwer R, Eissa LA.	Thymoquinone potentiates miR-16 and miR-375 expressions in hepatocellular carcinoma.
Tumour Biol. 2020	Yousef EH, El-Mesery ME, Habeeb MR, Eissa LA.	Polo-like kinase 1 as a promising diagnostic biomarker and potential therapeutic target for hepatocellular carcinoma.
Naunyn Schmiedebergs Arch Pharmacol. 2020	Maghmomeh AO, El-Gayar AM, El-Karef A, Abdel-Rahman N.	Arsenic trioxide and curcumin attenuate cisplatin-induced renal fibrosis in rats through targeting Hedgehog signaling.
J Biochem Mol Toxicol. 2020	Attia H, Albuhayri S, Alaraidh S, Alotaibi A, Yacoub H, Mohamad R,	Biotin, coenzyme Q10, and their combination ameliorate aluminium chloride-induced Alzheimer's disease via attenuating



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	Al-Amin M.	neuroinflammation and improving brain insulin signaling
PLoS One. 2020	Elshazli RM, Toraih EA, Elgaml A, El-Mowafy M, El-Mesery M, Amin MN, Hussein MH, Killackey MT, Fawzy MS, Kandil E.	Diagnostic and prognostic value of hematological and immunological markers in COVID-19 infection: A meta-analysis of 6320 patients.
Biotechnol Appl Biochem. 2020	El-Mesery M, Seher A, El-Shafey M, El-Dosoky M, Badria FA.	Repurposing of quinoline alkaloids identifies their ability to enhance doxorubicin-induced sub-G0/G1 phase cell cycle arrest and apoptosis in cervical and hepatocellular carcinoma cells.
Arch Biochem Biophys. 2020	El-Mesery M, Anany MA, Hazem SH, Shaker ME.	The NEDD8-activating enzyme inhibition with MLN4924 sensitizes human cancer cells of different origins to apoptosis and necroptosis.
Cancer Biol Med. 2018	Sana Amhimmid Badr, Maryan Waheeb Fahmi, Manal Mahmoud Nomir, Mamdouh Mohammad El-Shishtawy.	Calcium channel $\alpha 2\delta 1$ subunit as a novel biomarker for diagnosis of hepatocellular carcinoma.
Life Sciences (2018)	Nada F. Abo El-Magd, Mohamed El-Mesery, Amro El-Karef, Mamdouh M. El-Shishtawy.	Glycyrrhizin ameliorates high fat diet-induced obesity in rats by activating Nrf2 pathway.
Egyptian Journal of Basic and Applied Sciences (2018)	Al Shaima G. Abd El Salam, Mohamed A. Ebrahim, Laila A. Eissa, Mamdouh M. El-Shishtawy	Thioredoxin-1 and MMP-9 as biomarkers in breast cancer metastasis in Egyptian female patients.
Biomedicine & Pharmacotherapy, (2018)	Shimaa A. Abass, Nabil M. Abdel El-Hamid, Tarek K. Abouzed, Mamdouh Mohammad El-Shishtawy.	Chemosensitizing effect of Alpinia officinarum rhizome extract in cisplatin treated rats with hepatocellular carcinoma.
Iranian Journal of Pharmaceutical Research (2018)	Nada H. Eisa, Heba S. Said, Nehal M. ElSherbiny, Laila A. Eissa and Mamdouh M. El-Shishtawy.	Phenethyl isothiocyanate Triggers Apoptosis, Combats Oxidative Stress and Inhibits Growth of Ehrlich Ascites Carcinoma Mouse Model.
Archives of Biochemistry and Biophysics, Arch Biochem	Heba A. Metwaly, Amal M. El-Gayar, Mamdouh M. El-Shishtawy.	Inhibition of the signaling pathway of syndecan-1 by synstatin: A promising anti-integrin inhibitor of angiogenesis and proliferation in HCC in rats.



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Biophys. (2018)		
Scientia Pharmaceutica (2018)	Mohamed M. Salama, Manal M. Nomir, Maryan W. Fahmi, Amal M. El-Gayar and Mamdouh M. El-Shishtawy.	Potential Role of Microfibrillar-Associated Protein 4, Fibrotic Indices and Oxidative Stress in Hepatocellular Carcinoma.
Pathophysiology (2018)	Nabil M. Abdel-Hamid, Tarek K. Mahmoud, Shima A. Abass, Mamdouh M. El-Shishtawy.	Expression of thioredoxin and glutaredoxin in experimental hepatocellular carcinoma—Relevance for prognostic and diagnostic evaluation.
Acta Scientific Women's Health(2019)	Mona H Zohny, Rania M Khalil and Mamdouh M El-Shishtawy	Modulatory Effects of Taurine Combined with Letrozole on Ehrlich Ascites Carcinoma in Mice.
Egyptian Journal of Basic and Applied Sciences (2020)	Merna G. Aboismaiel, Mohamed El-Mesery, Amro El-Karef & Mamdouh M. El-Shishtawy.	Hesperetin upregulates Fas/FasL expression and potentiates the antitumor effect of 5-fluorouracil in rat model of hepatocellular carcinoma.
Current Molecular Pharmacology.	Sherin Zakaria, Abeer Ansary, Nabil M. Abdel-Hamid, Mamdouh M. El-Shishtawy	Dantrolene Potentiates the Antineoplastic Effect of Sorafenib in Hepatocellular Carcinoma via Targeting Ca ²⁺ /PI3K Signaling Pathway.
Journal of Food Biochemistr.(2021)	Nada F. Abo El-Magd, Mohamed El-Mesery, Mamdouh Amro El-Karef, M. El-Shishtawy.	Amelioration effect of black seed oil against high-fat diet-induced obesity in rats through Nrf2/HO-1 pathway.
Nutrition and Cancer(2020)	YM El-Far, AE Khodir, ZA Emarah, MA Ebrahim, MMH Al-Gayyar	Fucoidan Ameliorates Hepatocellular Carcinoma Induced in Rats: Effect on miR143 and Inflammation
Biomedicine and pharmacotherapy(2020)	Mustafa M.El-Zayat and Doaa A.Ali Mohamed E.Abraboh, Zaidoon Shaker Essa, Abdelrazek B.Abdelrazzak, Yousra M.El-Far, Yasser Elsherbini	Radio-sensitizing effect of a cocktail of phytochemicals on HepG2 cell proliferation, motility and survival
Redox Report(2020)	Yousra M El-Far, Ahmed E Khodir, Ahmad O Noor, Deina M Almasri, Alaa A Bagalagel, Reem M Diri,	Selective cytotoxic activity and protective effects of sodium ascorbate against hepatocellular carcinoma through its effect on oxidative stress and apoptosis in vivo and in vitro



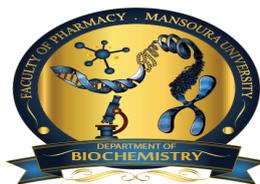
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	Hussam I Kutbi, Mohammed MH Al- Gayyar	
International journal of molecular sciences,2020	Nada H Eisa, Sakamuri V Reddy, Ahmed M Elmansi, Galina Kondrikova, Dmitry Kondrikov, Xing-Ming Shi, Chad M Novince, Mark W Hamrick, Meghan E McGee-Lawrence, Carlos M Isales, SadanandFulzele, William D Hill	Kynurenine Promotes RANKL–Induced Osteoclastogenesis In Vitro by Activating the Aryl Hydrocarbon Receptor Pathway
J Biochem Mol Toxicol,2020	HELAL, M. G. & SAMRA, Y. A.	Irbesartan mitigates acute liver injury, oxidative stress, and apoptosis induced by acetaminophen in mice
J Med Virol,2020	Toraih EA, Elshazli RM, Hussein MH, Elgaml A, Amin MN, El-Mowafy M, El-Mesery M, Ellythy A, Duchesne J, Killackey MT, Ferdinand KC, Kandil E, Fawzy MS.	Association of Cardiac Biomarkers and Comorbidities With Increased Mortality, Severity, and Cardiac Injury in COVID-19 Patients: A Meta-Regression and Decision Tree Analysis
Int J Mol Sci(2021)	Werner Schmitz, Corinna Koderer, Mohamed El-Mesery, Sebastian Gubik, Rene Sampers, Anton Straub, Alexander Christian Kübler and Axel Seher.	Metabolic Fingerprinting of Murine L929 Fibroblasts as a Cell-Based Tumour Suppressor Model System for Methionine Restriction.
J Interferon Cytokine Res. (2021)	Mohamed El-Mesery, Mohammed El-Mowafy, Laila F Youssef, Ahmed El-Mesery, Sally Yussef Abed, Abdelaziz Elgaml.	Serum Soluble Fibrinogen-Like Protein 2 Represents a Novel Biomarker for Differentiation Between Acute and Chronic Egyptian Hepatitis B Virus-Infected Patients
Biology (Basel). 2021	Mohammed El-Mowafy, Abdelaziz Elgaml, Mohamed El-Mesery, Salma Sultan, Tamer A E Ahmed, Ahmed I Gomaa, Mahmoud Aly, Walid Mottawea.	Changes of Gut-Microbiota-Liver Axis in Hepatitis C Virus Infection.
Nutr Cancer.	Nesma A Abd	Sesamol Upregulates Death Receptors and Acts as



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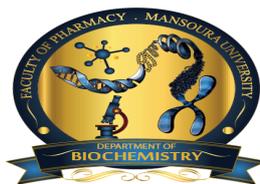
2021	Elrazik, Mohamed El-Mesery, Amro El-Karef , Laila A Eissa, Amal M El Gayar.	a Chemosensitizer in Solid Ehrlich Carcinoma Model in Mice.
ACS Infect Dis. 2020	Salma Sultan, Mohammed El-Mowafy, Abdelaziz Elgaml , Mohamed El-Mesery, Ahmed El Shabrawi, Mohamed Elegezy, Riadh Hammami, Walid Mottawea.	Alterations of the Treatment-Naive Gut Microbiome in Newly Diagnosed Hepatitis C Virus Infection.
Biomedicine & Pharmacotherapy. 2020.	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.
Egyptian Journal of Basic and Applied Sciences(2019)	Nesma Adel, Mohamed E.El-Mesery, Amr El-Karef, Laila Ahmed Eissa, El Gayar AM.	Chlorogenic acid potentiates antitumor effect of doxorubicin through upregulation of death receptors in solid Ehrlich carcinoma model in mice.
Life sciences(2020)	Menna zeyada,Noha abdelrahman,Amr El-Karef,Laila Ahmed Eissa.	Niclosamide-loaded polymeric micelles ameliorate hepatocellular carcinoma in vivo through targeting Wnt and Notch pathways.
Egyptian Journal of Basic and Applied Science.2020	Ahmed Abdelgawad, Ahmed Mosbah,Laila A Eissa.	Expression of microRNA-155 and human telomerase reverse transcriptase in patients with bladder cancer.
Canadian Journal of Physiology and Pharmacology.2018	Amal R Ebrahim, Mohamed El- messery, Amer El- karef, Laila A. Eissa.	Vitamin D potentiates anti-tumor activity of 5-fluorouracil via modulating caspase-3 and TGF- β 1 expression in hepatocellular carcinoma-induced in rats.



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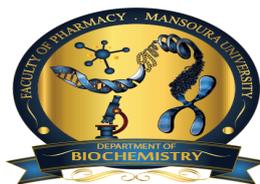
8. Group of conferences and training courses:

Name	Conference/training course Title/ date	Organizing body / venue
Prof. Laila Ahmed Eissa	<ul style="list-style-type: none"> • 18th Annual World Congress on Insulin Resistance, Diabetes & Cardiovascular Disease December 3,6 -2020 • The 8th scientific conference for pharmacy students (7/3/2020) Member of judging committee. • International conference of Pediatric, 29-30 March, 2021 • Breast cancer Virtual Club 11 march 2021 • Singapor hepatology webinar,30 December 2020. • Nutrition webinar Diabetes& Ramadan. 2021. 	<ul style="list-style-type: none"> • Online • Faculty of Pharmacy Mansoura University • Aswan, Online • Online • Online • Online
Dr. Mohamed El Messery	<p>-Excellence Program in Pharmaceutical Education (04/2020-07/2020)</p> <p>-How to strengthen the Employability of Egyptian graduates (07/2020)</p>	<p>-Egyptian Knowledge Bank (online)</p> <p>-German Academic Exchange Service (Online)</p>
Dr. Yousra El-Far	<ul style="list-style-type: none"> • 1st international conference of stem cells :future applications (17/12/2018-19/12/2018) • The 7th scientific conference for pharmacy students (9/3/2019- 	<ul style="list-style-type: none"> • Mansoura university • Faculty of Pharmacy/ Mansoura



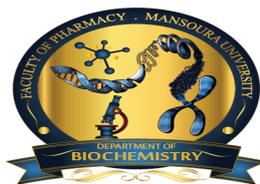
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	<p>10/3/2019)</p> <ul style="list-style-type: none"> • Internationalization of higher education conference (18 to 20/3/2019) • 2nd international conference of pharmaceutical sciences Mu-pharm (9to12/4/2019) • The 19th Egyptian –french seminar of immunology and histocompatibility (MARC-CSC)19-20/12/2019 <ul style="list-style-type: none"> • The Eighth Scientific Conference for Colleges of Pharmacy Students (2020/3/7) • The 1st virtual pharmacology department scientific conference (3-4/9/2020)zoom meeting • 2nd international conference of stem cells :a step for clinical trials (16-17/12/2020) • Elsevier –NRC guide course for reviewers Elsevier resourcesand training for reviewers (2021/3/25) <ul style="list-style-type: none"> • Research team management course(2020/8/16-15) • Design and production of electronic courses-24 (2020/8/25) • Exam systems and student assessment course-29 (2020/8/30) • Digital Transformation Cycle (2020/9/8-7) 	<p>university</p> <ul style="list-style-type: none"> • Mansoura university • Faculty of Pharmacy/ Mansoura university cooperation with Delta university • Faculty of Pharmacy/ Mansoura university • Mansoura university • Egyptian Knowledge Bank • University performance development center
Dr. Yara Adel	International conference Cisco	United States of



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	Live2019 (2019/6/15-7)	America
Dr. Nada Fawzy Abo Almagd	<ul style="list-style-type: none"> • 2nd international conference of stem cells 2020 • PDDS Pharma Webinar 16-17/11/2020 • PDDS Pharma Webinar 15-16/06/2020 • Organizing and speaker participation in the fifth conference of biochemistry(9/2019) • Organizing and poster participation in the fourth conference of biochemistry (5/5/2018) 	<ul style="list-style-type: none"> • Faculty of Medicine/ Mansoura university • Virtual • Virtual • Faculty of Pharmacy/ Mansoura university • Faculty of Pharmacy/ Mansoura university
	<ul style="list-style-type: none"> • The 1st virtual pharmacology department scientific conference (3-4/9/2020). • Attendance and poster participation in the second international conference of pharmaceutical science Mu Pharm 2019: Mansoura University, Egypt: 9/04/2019-12/04/2019. • Organizing and speaker participation in the fifth conference of the Biochemistry department, Faculty of Pharmacy, Mansoura University: 9/2019. 	<ul style="list-style-type: none"> • Virtual • Faculty of Pharmacy Mansoura University • Faculty of Pharmacy Mansoura University
Dr. Nada Hassan Eisa	<ul style="list-style-type: none"> • AACR Annual Meeting from 	<ul style="list-style-type: none"> • United States

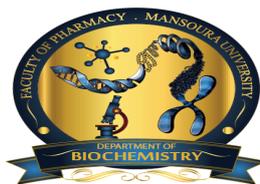


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	<p>29-3-2019 to 3-4-2019</p> <ul style="list-style-type: none"> • ASBMR 2019 Annual Meeting from 20-9-2019 to 23-09-2019 • GSA 2019 Annual Meeting from 13-11-2019 to 17-11-2019 • ASBMR 2020 Annual Meeting from 11-09-2020 to 15-09-2020 • 2nd international conference of stem cells 2020 	<p>of America</p> <ul style="list-style-type: none"> • United States of America • United States of America • Virtual Event United States of America • Faculty of Medicine/ Mansoura university
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9- External scholarships, channels, internal scholarships and post-doctoral missions

	Name	Job
1	Dr. Yara Adel Samra	Lecturer/ post-doctoral mission
2	Dr. Nada F. Abo El-Magd	Lecturer/ post-doctoral mission
3	Kholoud Alaa El-Mihi	Assistant lecturer/ scholarship
4	Eman R. Abdelmonem	Teaching Assistant - Practical Training Leave
5	Yomna Soliman	Teaching Assistant - Practical Training Leave



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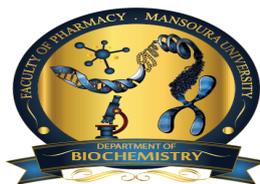
10. Partial assignments for staff members

	Name	Scientific degree	Entity assigned to
1	Prof.Dr. Mamdouh El-Shishtawy	Full-time Professor	Faculty of Pharmacy - Ahram Canadian University Faculty of Pharmacy - Kafr El Sheikh University
2	Prof.Dr. Laila A. Eissa	Full-time Professor	Faculty of Pharmacy - Ahram Canadian University Faculty of Pharmacy - Kafr El Sheikh University
3	Assistant.Prof. Mohamed El-Mesery	Assistant Professor	Faculty of Engineering - Mansoura University
4	Assistant.Prof. Noha Mansour Abdel-Rahman	Assistant Professor	Faculty of Pharmacy - University of New Giza
5	Dr. Yousra Mohamed El-Far	Lecturer	Faculty of Pharmacy - Horus University - New Damietta
6	Dr. Mohamed Nasreldien Amin	Lecturer	Faculty of Pharmacy - Horus University - New Damietta

11-The Annual department conference

The department's annual conference is held to present the department's achievements, can be applied they and see the extent to which ,esdiscuss the latest scientific research them.on the ground and benefit from

Place	Conference title / date
Faculty of pharmacy Mansoura university	6th Scientific Conference of Biochemistry Department (25/09/2021)



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12- Awards received by staff members

	Name	Award
1	Assistant.Prof. Nehal Mohsen El-Sherbiny	State Incentive Award in Science and Advanced Technology
1	Assistant.Prof. Mohamed El-Mesery	2020 University Incentive Award
2	Dr. Yousra Mohamed El-Far	2014 Best Master's Thesis Award
3	Dr. Nada H. Eisa	<ul style="list-style-type: none">• ASBMR Family Care Grant 2020• IFMRS Travel Grant 2019
4	Dr. Sahar Abd El Gawad Helmy	Best Master's Thesis Award 2020