MOHAMED AGHAR ELRAYESS (BSc & PhD in Genetics)

Academic qualifications

1998-2002: Ph.D. degree in Cardiovascular Genetics, Department of Medicine, University College London, University of London, London, UK.

1996-1998: First class honors BSc degree in Genetics from Queen Mary, University of London, London, UK.

Working experience

Sep2022-Current: Director of Basic Research at Qatar University Health, Doha, Qatar

Nov2021- Aug2022: Acting director of research and graduate studies at Qatar University health cluster, Doha, Qatar

Sep 2019-Current: Research associate professor and principle investigator, Biomedical Research Center, Doha, Qatar

- **Role of fat stem cells in insulin resistant lean individuals:** Our aims are to understand the role of preadipocytes in the etiology of insulin resistance; in particular, the molecular mechanisms marking impaired adipogenesis in the non-obese insulin resistant subjects and factors underlying the "protective phenotype" seen in their insulin sensitive counterparts. Of interest, we are studying the transcription factor GATA3 as a potential target for reversing insulin resistance. We have filed a patent with this regard and are currently conducting validation studies for potential commercialization. This project utilizes state of the art imaging, molecular, cellular and OMICS techniques.

- **Genetic predisposition and metabolomics profiling of elite athletes:** Our aims are to validate our novel genetic variants associated with elite athletic performance for potential screening of elite athletic candidates with commercial and general health implications. We are also profiling the inflammatory and oxidative stress markers of elite athletes from different sport disciplines and correlating findings with their telomere lengths.

May 2012-Aug 2019: Senior Scientist, Anti-Doping Lab, Doha, Qatar

- **Genetic predisposition and metabolomics profiling of elite athletes:** Our aims were to investigate genetic variants that can predispose athletes to elite physical performance and determine the metabolomic profile associated with these genotypes. This project utilized state of the art genomics and metabolomics techniques. Research outcome can be found in the publication record.

- **Role of fat stem cells in obesity-associated insulin resistance:** Our aims were to understand the role of preadipocytes in the etiology of obesity- induced insulin resistance; in particular the molecular mechanisms marking impaired adipogenesis in the pathologically obese subjects and factors underlying the "protective phenotype" seen in their metabolically healthy counterparts. This project utilized state of the art imaging, molecular, cellular and OMICS techniques. Research outcome can be found in the publication record.

- **Detection of doping substances using LC-MS-MS platform:** I participated in the detection of small peptides using LC-MS-MS platforms, including sample preparation, analysis and reporting.

April 2004- April 2012: Scientist, Eisai Ltd, London, UK.

- **Stem cell therapy in multiple sclerosis:** I led a high profile project with a team of four scientists through target validation and seed identification. The project aimed to identify targets for stem cell therapy for multiple sclerosis (MS).

Sep 2002- March 2004: Post-doctoral fellow at the Centre for Cardiovascular Biology and Medicine, Department of Medicine, University College London, London, UK.

- **Stem cell therapy in cardiovascular disease:** I carried out isolation and expansion of hematopoietic stem cells from umbilical cord and mobilized peripheral blood in preparation for transplantation into animal model of ischemic reperfusion injury.

Other activities

- Member of Qatar University's Institutional Review Board (IRB) committee since April 2019.
- Member of the Qatar University's ethics committee since Jan 2020.
- Member of Qatar University's institutional animal care and use committee (IACUC) from Sep 2017 until March 2019.

Awards

- Draper's Company Award for outstanding academic achievement, Queen Mary College 1998.
- President and CEO Award, Eisai Ltd in June 2011.
- Deadline Buster Award, ADLQ 2014
- Most Reliable Staff Award, ADLQ 2015
- QNRF Best Representative Image of an Outcome' (BRIO) competition award (third place) 2016.

Awarded Grants

Title	Funding body	Grant number	Awarded	Start	End	Role
The role of preadipocyte differentiation in site-specific adipocyte dysfunction and development of obesity- induced insulin resistance.	Qatar National Research Fund	NPRP6-235-1-048	$761,350.68	8-Dec13	8-Dec16	Lead PI
Super athletes: Genes and Sweat	Qatar National Research Fund	NPRP7-272-1-041	$878,834.50	15-Jan-15	6-Dec18	Lead PI
Determining the Function of SIRT1 in Preadipocyte Proliferation and Differentiation	Qatar National Research Fund	NPRP8-059-1-009	$808,739.00	15-Jan-16	15-Jan19	Co-PI
Investigating GATA3 as a potential therapeutic target for rescuing impaired adipogenesis and insulin resistance	Qatar National Research Fund	UREP26-038-3-015	$30,000.00	Sep 2020		Lead PI
Inflammatory biomarkers, oxidative stress and telomere length in elite athletes from different sport disciplines	Qatar National Research Fund	UREP26-043-3-018	$30,000.00	Sep 2020		Lead PI
Epidemiological investigation of the association of renin-angiotensin system	Qatar National Research Fund	QNRF – Rapid	100000.00 QAR	June 2020		Co-PI

blockade and Covid-19 outcomes: focus on ACE2 expression		Response Call To Address COVID-19				
Investigation of the role of fat stem cells in insulin resistance and type 2 diabetes in non-obese Qataris and validation of potentially novel therapeutic targets	Qatar National Research Fund	NPRP13S-1230-190008To Address COVID-19	$480000.00	March 2021		Lead PI
Determining the role of preadipocytes in the pathology of insulin resistance and type 2 diabetes in non-obese individuals and validation of GATA3 as a novel therapeutic target for restoring insulin sensitivity	Qatar University internal grants	QUCG-BRC-21/22-1	295000.00 QAR	March 2021		Lead P
Fabrication of novel high-strength biodegradable nanocrystalline magnesium alloys for orthopedic applications	Qatar University internal grants	IRCC-2021-008	400000.00 QAR	March 2021		Co-PI
Nanomedicine delivery via medical nebulizers for the prevention of virus-caused secondary pneumonia: COVID-19 as a case study	Qatar University internal grants	QUCG-CPH-20/21-2	295000.00 QAR	March 2021		Co-PI
In vivo validation of the effect of GATA-3 inhibitors on reversing insulin resistance and lowering the risk of type 2 diabetes	Qatar University H3P- High-Potential Projects Program	QPH3P-BRC-2021-604	244800 QAR	Sep 2021		LPI
The effect of exercise on modulating the molecular mediators of insulin resistance and type 2 diabetes mellitus	Qatar University IRCC-International research collaborative grant	IRCC-2022-467	$192440	Feb 2022		LPI
Exploring the Interplay of Pharmaco-genomics, Metabolomics, and Microbiomics: As a novel Precision Medicine Approach for SSRIs in Qatari with Depression.	Qatar Research, Development, and Innovation	PPM 06-0530-230047	$657,351	Jan 2024		PI
Pharmacometabolomics-informed pharmacogenomics in metformin therapy in Qatari type 2 diabetes patients	Qatar University internal grants	PDOC-1398	480000 QAR	Jan 2024		LPI
Investigating gut metabolite markers and potential protective probiotic intervention in	Qatar Research, Development, and Innovation	ARG01-0420-230007	$731,280	Jan 2024		LPI

non-obese, apparently healthy individuals with insulin resistance.						
Integrating metabolomics, microbiomics, and pharmacogenomics for personalized metformin treatment in Qatari type 2 diabetes patients.	Qatar Research, Development, and Innovation	PPM 06-0516-230030	$651,563	Jan 2024		LPI

Teaching experience

2008-2012: Teaching third year medical and biological science students at UCL on stem cell therapy in neurodegenerative diseases as part of Cellular and Developmental Neurobiology course (Anat3030). I have been involved in setting exam questions and marking. I have also given numerous presentations including progress reports and seminars both in the UK and abroad.

2013-2015: Teaching cell signaling (Kinases, Phosphatases and GPCRs) to MSc pharmacy students at Qatar University.

Summer 2020: Coordinating Biomedical Research Center summer internship program and teaching "gene expression studies" as part of the program. Also, teaching Barzan holdings' candidates "COVID19 epidemic".

2019-present: Teaching "Introduction to metabolomics in clinical research, Statistical analysis using SPSS and Technological advances in genomics and molecular biology" as part of the MEDI 720/Phar720 course Clinical Translational Research. College of Medicine and College of Pharmacy, Qatar University. Problem-based learning, 3rd year medical students.

Post graduate students supervision

2015-2016: Two MSc students at Qatar University in collaboration with school of pharmacy (successfully completed).

2015-2016: One non-resident MRes student at Bristol University investigating the role of fat stem cells in obesity-associated insulin resistance and type 2 diabetes (successfully completed).

2015-2019: One non-resident PhD student at UCL investigating genetic predisposition to elite physical performance and metabolomics profiling associated with this predisposition (successfully completed).

2017-2020: One non-resident PhD student at Groningen University investigating biomarkers of insulin sensitivity and insulin resistance in obese patients (successfully completed).

2020-Present: One non-resident PhD student at Groningen University investigating the effect of exercise on modulating the molecular mediators of insulin resistance and type 2 diabetes mellitus (ongoing).

Editorials

2021-present: Editor in Frontiers in Molecular Biosciences.

2022-preesnt: Editor in Scientific Reports.

2022-present: Editor in Plosone.

Non-scientific publications

- Over 150 articles published in local newspaper under the title “Immigrant weeklies”.
- Over 50 articles published in AlShabab magazine under the title “Expatriate diary”.
- Super athletic performance: Inspiration or perspiration? Namat magazine, Aspire, Qatar. Human Brain ... Facts Beyond Fallacies. Namat magazine, Doha, Aspire Qatar.

Scientific outcome

Patents

M. Elrayess, S Neame, Y Nishizawa. A novel method of screening for agents for their ability to stimulate the differentiation of oligodendrocyte progenitor cells. 2010 (WO/2010/082009) SCREENING ASSAY.

M Elrayess, Asmaa Al-Thani, Hadi Yassine. Biomarkers for predicting intensive care unit stay duration for mechanically ventilated covid-19 patients. QU2020-026WO

M Elrayess, LAl-Mansoori. GATA-3 inhibitors for the treatment of type 2 diabetes and insulin resistance and promotion of subcutaneous fat deposition. QU2020-007US: U.S. Patent Application No. 16/909,755

M Elrayess, F Cyprian, H Yassine. Rapid antibody test for SARS-COV2 (RABT). Patent Application No. 63/349,924

M Elrayess, H Yassine. Metabolic signatures of type 2 diabetes mellitus and hypertension in covid-19 patients with different disease severity. Provisional patent 2022-018.

M Elrayess, F AlKhelaifi. Methods for screening elite endurance athletic candidates. Provisional patent 2020-030-01.

M Elrayess, LAl-Mansoori. GATA3 inhibitors for the treatment of type 2 diabetes and insulin resistance and promotion of subcutaneous fat deposition. Attorney Docket Number: 432743.10347

Published Papers

1. Gomma AH, **Elrayess** MA, Knight CJ, Hawe E, Fox KM, Humphries SE. The endothelial nitric oxide synthase (Glu298Asp and -786T>C) gene polymorphisms are associated with coronary in- stent restenosis. Eur Heart J. 2002 Dec;23(24):1955-62.
2. Mohamed A. **Elrayess**, Karen E. Webb, David M. Flavell, Mikko Syvänne, Marja-Riitta Taskinen, M. Heikki Frick, Markku S. Nieminen, Y. Antero Kesäniemi, Amos Pasternack, J. Wouter Jukema, John JP. Kastelein, Aeilko H. Zwinderman, and Steve E. Humphries. A novel functional polymorphism in the PECAM-1 gene (53G>A) is associated with progression of atherosclerosis in the LOCAT and REGRESS studies. Atherosclerosis. 2003 May;168(1):131-8.
3. M A **Elrayess**, K E Webb, GJ Bellingan, M Syvänne, M R Taskinen, M H Frick, M S Nieminen, Y A Kesäniemi, A Pasternack, and S E Humphries. R670G polymorphism in the PECAM-1 gene alters PECAM-1 phosphorylation and is associated with coronary artery disease. Atherosclerosis. 2004 Nov;177(1):127-35.
4. **Elrayess** MA, Talmud PJ. Platelet endothelial cell adhesion molecule-1 (PECAM-1) & coronary heart disease. Indian J Med Res. 2005 Feb;121(2):77-9.
5. Li P, **Elrayess** MA, Gomma AH, Palmen J, Hawe E, Fox KM, Humphries SE. The microsatellite polymorphism of HO-1 is associated with baseline plasma IL-6 level but not with restenosis after coronary in-stenting. Chin Med J (Engl). 2005 Sep 20;118(18):1525-32.
6. Urquhart DS, Allen J, **Elrayess** M, Fidler K, Klein N, Jaffe A. Modifier effect of the Toll-like receptor 4 D299G polymorphism in children with cystic fibrosis. Arch Immunol Ther Exp (Warsz). 2006 Jul-Aug;54(4):271-6.
7. Diboun I., Mathew S., Al-Rayyashi M., **Elrayess** M., Torres M., Halama A, Méret M., Mohney R., Karoly E., Malek J., Suhre K. Metabolomics of dates (Phoenix dactylifera) reveals a highly dynamic

ripening process accounting for major variation in fruit composition. BMC Plant Biol. 2015 Dec 16;15(1):291.
8. Abdesselem H, Madani A, Hani A, Al-Noubi M, Goswami N, Ben Hamidane H, Billing AM, Pasquier J, Bonkowski MS, Halabi N, Dalloul R, Sheriff MZ, Mesaeli N, **Elrayess** M, Sinclair DA, Graumann J, Mazloum NA. SIRT1 Limits Adipocyte Hyperplasia through c-Myc Inhibition. J Biol Chem. 2016 Jan 29;291(5):2119-35.
9. Pitsiladis YP, Tanaka M, Eynon N, Bouchard C, North KN, Williams AG, Collins M, Moran CN, Britton SL, Fuku N, Ashley EA, Klissouras V, Lucia A, Ahmetov II, de Geus E, Alsayrafi M; Athlome Project Consortium (**Elrayess** MA). Athlome Project Consortium: a concerted effort to discover genomic and other "omic" markers of athletic performance. Physiol Genomics. 2016 Mar;48(3):183-90.
10. Almuraikhy, S., Kafienah, W., Bashah, M., Diboun, I., Jaganjac, M., Al-Khelaifi, F., Abdesselem, H., Mazloum, N. A., Alsayrafi, M., Mohamed-Ali, V., and **Elrayess**, M. Interleukin-6 induces impairment in human subcutaneous adipogenesis in obesity-associated insulin resistance. Diabetologia. 2016. doi:10.1007/s00125-016-4031-3.
11. Afnan Al-Menhali, Aishah A Latiff, Mohamed A **Elrayess**, Mohammed Alsayraf, Morana Jaganjac. Confirmation for Cistanche tubulosa induces reactive oxygen species-mediated apoptosis of primary and metastatic human colon cancer cells. Accepted in Archives of Pharmacal Research.
12. **Elrayess** MA, Almuraikhy S, Kafienah W, Al-Menhali A, Al-Khelaifi F, Bashah M, Zarkovic K, Zarkovic N, Waeg G, Alsayrafi M, Jaganjac M. 4-hydroxynonenal causes impairment of human subcutaneous adipogenesis and induction of adipocyte insulin resistance. Free Radic Biol Med. 2017 Jan 12;104:129-137.
13. Jaganjac M, Almuraikhy S, Al-Khelaifi F, Al-Jaber M, Bashah M, Mazloum NA, Zarkovic K, Zarkovic N, Waeg G, Kafienah W, **Elrayess** MA. Combined insulin- metformin treatment enhances sub-cutaneous and omental adipogenesis in type 2 diabetes Miletus patients. Redox Biol. 2017 Aug;12:483-490.
14. M. Jaganjac; K. Zarkovic; W. Kafienah; S. Almuraikhy; M. A. **Elrayess**; Neven Żarković. 4Hydroxynonenal as a biomarker of redox regulation in pathophysiology of metabolic stress: OP-32. Free Radical Biology and Medicine. 108():S12, JUL 2017
15. Ismail, H.M., Zamani, S., **Elrayess**, M.A., Kafienah, W., Younes, H.M. New three-dimensional poly(decanediol-co-tricarballylate) elastomeric fibrous mesh fabricated by photoreactive electrospinning for cardiac tissue engineering applications. Polymers 2018, 10(4), 455
16. Al-Khelaifi F, Diboun I, Donati F, Botrè F, Alsayrafi M, Georgakopoulos C, Suhre K, Yousri NA, **Elrayess** MA. A pilot study comparing the metabolic profiles of elite-level athletes from different sporting disciplines. Sports Med Open. 2018 Jan 5;4(1):2.
17. Helaleh M, Diboun I, Al-Tamimi N, Al-Sulaiti H, Al-Emadi M, Madani A, Mazloum NA, Latiff A, **Elrayess** MA. Association of polybrominated diphenyl ethers in two fat compartments with increased risk of insulin resistance in obese individuals. Chemosphere. 2018 Jun 18;209:268-276.
18. Al-Sulaiti H, Diboun I, Banu S, Harvey TM, Domling AS, Latiff A, **Elrayess** MA. Triglycerides profiling in adipose tissues from obese insulin sensitive, insulin resistant and type 2 diabetes mellitus individuals. J Transl Med. 2018 Jun 26;16(1):175.
19. Alemrayat B, **Elrayess** MA, Alany RG, Elhissi A, Younes HM. Preparation & Optimization of Monodisperse Polymeric Microparticles Using Modified Vibrating Orifice Aerosol Generator for Controlled Delivery of Letrozole in Breast Cancer Therapy. Drug Dev Ind Pharm. 2018 Jul 23:1-45.
20. Al-Khelaifi F, Diboun I, Donati F, Botrè F, Alsayrafi M, Georgakopoulos C, Suhre K, **Elrayess** MA. Profiling the prevalence of xenobiotics in elite athletes: Relevance to supplements consumption. Journal of the International Society of Sports Nutrition. J Int Soc Sports Nutr. 2018 Sep 27;15(1):48.
21. Mengtian Zhang, Qin Wang, Ka-Wai Wan, Waqar Ahmed, David A Phoenix, Zhirong Zhang, Mohamed A **Elrayess**, Abdelbary Elhissi, Xun Sun. Liposome Mediated-CYP1A1 Gene Silencing Nanomedicines Prepared Using Lipid Film-Coated Proliposomes as a Potential Treatment Strategy of Lung Cancer. International Journal of Pharmaceutics. DOI: 10.1016/j.ijpharm.2019.04.078.
22. Fatima Al-Khelaifi, Francesco Donati, Francesco Botrè, Aishah Latiff, David Abraham, Aroon Hingorani, Costas Georgakopoulos, Karsten Suhre, Noha A. Yousri, Mohamed A **Elrayess**. Metabolic profiling of elite athletes with different cardiovascular demand. Scandinavian Journal of Medicine & Science in Sports. Scand J Med Sci Sports. 2019 Mar 31. doi: 10.1111/sms.13425.
23. Fatima Al-Khelaifi, David Abraham, Ilhame Diboun, Mohamed A **Elrayess**. Sports, Exercise, and Nutritional Genomics: Current Status and Future Direction: Metabolomics and proteomics research

in sport and exercise. Book Chapter, Elsevier publishing group. DOI: 10.1016/B978-0-12-816193-7.00023-3.
24. Haya Al-Sulaiti, Alexander S. Dömling and Mohamed A. **Elrayess**. Adipose Tissue: Mediators of Impaired Adipogenesis in Obesity-Associated Insulin Resistance and T2DM. Book Chapter, DOI: 10.5772/intechopen.88746.
25. Haya Al-Sulaiti, Ilhame Diboun, Mohamed Al Emadi, Alex S Dömling, Stephen Atkins, Mohamed A **Elrayess**. Metabolomic signature of obesity-associated insulin resistance and type 2 diabetes. J Transl Med. 2019 Oct 22;17(1):348.
26. Sohail MU, **Elrayess** MA, Al Thani AA, Al-Asmakh M, Yassine HM. Profiling the Oral Microbiome and Plasma Biochemistry of Obese Hyperglycemic Subjects in Qatar. Microorganisms. 2019 Dec 3;7(12):645.
27. Fatima Al-Khelaifi, David Abraham, Mohamed A **Elrayess**. Chapter Twenty-Three - Proteomics and metabolomics research in exercise and sport. Sports, Exercise, and Nutritional Genomics. Current Status and Future Directions. 2019, Pages 539-566.DOI: 10.1016/B978-0-12-816193-7.00023-3
28. Fatima Al-Khelaifi, Ilhame Diboun, Francesco Donati, Francesco Botrè, David Abraham, Aroon Hingorani, Omar AlBagha, Costas Georgakopoulos, Karsten Suhre, Noha A. Yousri, Mohamed A **Elrayess**. Metabolic GWAS of elite athletes reveals novel genetically-influenced metabolites associated with athletic performance. Sci Rep. 2019 Dec 27;9(1):19889.
29. Semenova EA, Miyamoto-Mikami E, Akimov EB, Al-Khelaifi F, Murakami H, Zempo H, Kostryukova ES, Kulemin NA, Larin AK, Borisov OV, Miyachi M, Popov DV, Boulygina EA, Takaragawa M, Kumagai H, Naito H, Pushkarev VP, Dyatlov DA, Lekontsev EV, Pushkareva YE, Andryushchenko LB, **Elrayess** MA, Generozov EV, Fuku N, Ahmetov II. The association of HFE gene H63D polymorphism with endurance athlete status and aerobic capacity: novel findings and a meta-analysis. Eur J Appl Physiol. 2020 Mar;120(3):665-673.
30. Nada Khudair, Abdelali Agouni, Mohamed A. **Elrayess**, Mohammad Najlah, Husam M. Younes, Abdelbary Elhissi. Letrozole-loaded nonionic surfactant vesicles prepared via a slurry-based proniosome technology: Formulation development and characterization. Journal of Drug Delivery Science and Technology. Journal of Drug Delivery Science and Technology. Volume 58, August 2020, 101721.
31. Botrè F, Georgakopoulos C, **Elrayess** MA. Metabolomics and doping analysis: promises and pitfalls. Bioanalysis. 2020 Jun;12(11):719-722.
32. Al-Khelaifi F, Yousri NA, Diboun I, Semenova EA, Kostryukova ES, Kulemin NA, Borisov OV, Andryushchenko LB, Larin AK, Generozov EV, Miyamoto-Mikami E, Murakami H, Zempo H, Miyachi M, Takaragawa M, Kumagai H, Naito H, Fuku N, Abraham D, Hingorani A, Donati F, Botrè F, Georgakopoulos C, Suhre K, Ahmetov II, Albagha O, **Elrayess** MA. Genome-wide association study reveals a novel association between single nucleotide polymorphism in MYBPC3 gene and endurance athlete status. Front Genet. 2020; 11: 595.
33. Al-Jaber H, Al-Mansoori L, **Elrayess** MA. GATA-3 as a potential therapeutic target for insulin resistance and type 2 diabetes mellitus. Curr Diabetes Rev. 2020 Jul 5.
34. **Elrayess** MA, Rizk NM, Fadel AS, Kerkadi A. Prevalence and predictors of insulin resistance in non-obese healthy young females in Qatar. Int J Environ Res Public Health 2020 Jul 15;17(14):E5088.
35. Layla Al-Mansoori, Hend Al-Jaber, Aisha Y. Madani, Nayef A. Mazloum, Abdelali Agouni, Manjunath Ramanjaneya, Abdul-Badi Abou-Samra, Mohamed A **Elrayess**. Suppression of GATA-3 increases adipogenesis, reduces inflammation and improves insulin sensitivity in 3T3L-1 preadipocytes. Cell Signal. 2020 Aug 11;75:109735.
36. Ilhame Diboun, Manjunath Ramanjaneya, Lina Ahmed, Mohammed Bashir, Alexandra Butler, Frank Schmidt, Stephen Atkin, Nayef A Mazloum, Mohamed A **Elrayess**. Metabolic profiling of pre-gestational and gestational diabetes mellitus identifies novel predictors of pre-term delivery. J Transl Med. 2020 Sep 24;18(1):366.
37. Muhammad U Sohail, Layla Al-Mansoori, Hend Al-Jaber, Costas Georgakopoulos, Francesco Donati, Francesco Botrè, Maha Sellami, Mohamed A **Elrayess**. Assessment of serum cytokines and oxidative stress markers in elite athletes reveals unique profiles associated with different sport disciplines. Front Physio. 2020.
38. Ilhame Diboun, Layla Al-Mansoori, Hend Al-Jaber, Omar Albagha, Mohamed A **Elrayess**. Metabolomics of lean/overweight insulin resistant females reveals alterations in steroids and fatty acids. J Clin Endocrinol Metab. 2021 Jan 23;106(2):e638-e649.
39. Madani AY, Majeed Y, Abdesselem HB, Agha MV, Vakayil M, Sukhun NKA, Halabi NM, Kumar P, Hayat S, **Elrayess** MA, Rafii A, Suhre K, Mazloum NA. Signal Transducer and Activator of

Transcription 3 (STAT3) Suppresses STAT1/Interferon Signaling Pathway and Inflammation in Senescent Preadipocytes. Antioxidants (Basel). 2021 Feb 23;10(2):334.

40. Ramanjaneya M, Butler AE, Bashir M, Bettahi I, Moin ASM, Ahmed L, **Elrayess** MA, Hunt SC, Atkin SL, Abou-Samra AB. apoA2 correlates to gestational age with decreased apolipoproteins A2, C1, C3 and E in gestational diabetes. BMJ Open Diabetes Res Care. 2021 Mar;9(1):e001925. doi: 10.1136/bmjdrc-2020-001925. PMID:33674281.
41. Moin ASM, Sathyapalan T, Diboun I, **Elrayess** MA, Butler AE, Atkin SL. Metabolic consequences of obesity on the hypercoagulable state of polycystic ovary syndrome. Sci Rep. 2021 Mar 5;11(1):5320. doi: 10.1038/s41598-021-84586-y.
42. Abu-El-Ruz R, Abdel-Rahman ME, Atkin SL, **Elrayess** MA. Comparing levels of metabolic predictors of coronary heart disease between healthy lean and overweight females. Metabolites. 2021 Mar 15;11(3):169.
43. Rasha Abu-El-Ruz, Asmaa Ali JF Althani, Rana Mahmoud Kurdi, Naiema Hashem Almeer, Farooq Omar Maan Al-Ajli, Mashael Al-Shafai, Abdelrahman Elgamal, Mariem Sirine Latrous, Tameem Ali Qaid Hadwan, Taghreed HA Abunada, Zeina Jamal, Ovelia Anan MJ Masoud, Sawsan Awada, Manal Rashid GA Alkubaisi, Amal Abdulsalam Ibrahim, Mishael Khalid M Alhathal, Shahd Khalifa SR Alrumaihi, Souheila Boussalia, Nancy Milan, Sumbul Bushra, Jaafar Naser Pakari, AbdelHakim Yosef Bishawi, Mohamed A **Elrayess**, Hashim Abdelrahman Abdalla Alhussain, Sawsan Sudqi Said, Reem Omar Mohamed Salih. Empower Generations: Longitudinal Study For National Capacities In Life Sciences and Healthcare. Front. Educ., 15 April 2021
44. Taleb SA, Al-Ansari K, Nasrallah GK, **Elrayess** MA, Al-Thani AA, Derrien-Colemyn A, Ruckwardt TJ, Graham BS, Yassine HM. Level of maternal respiratory syncytial virus (RSV) F antibodies in hospitalized children and correlates of protection. Int J Infect Dis. 2021 Aug;109:56-62.
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