CURRICULUM VITAE

Personal Details

- **Name:** Salah Abdelrazig
- **E-mail:** Salah.abdelrazig@NYU.edu

Motto: "Cogito ergo sum"(1).

Research interests

Untargeted metabolomics, quantitative analysis, high-resolution mass spectrometry, LC-MS, LC-MS/MS, ambient surface MS, direct nanoESI/ESI-MS, multivariate data and pathway analysis.

Qualifications

1. **PhD Pharmacy, School of Pharmacy, University of Nottingham, UK (Feb 2012- Dec 2015)**
   Thesis title: Mass Spectrometry for High-Throughput Metabolomics Analysis of Urine.
2. **M.Sc. Analytical & Pharmaceutical Science, Loughborough University, UK (September 2007- December 2008)**
   Degree Mark: Distinction 80.8%.
   Rank: Top of the class. University Merit Prize
3. **Master of Pharmacy, University of Khartoum, Sudan (June 2006- August 2007)**
   Thesis title: Spectrophotometric estimation of captopril in bulk and dosage form.
   (Awarded May 2008)
4. **Bachelor of Pharmacy (Hons.), University of Khartoum, Sudan (July 1997- December 2003)**
   Degree Mark: First Class (80% and above).
   Rank: Top of the class. University Prize

Awards and Prizes

1. Best staff performance (Rating 1), University of Nottingham, UK **(Aug 2018 – July 2019)**
2. MSc Chemical Sciences Merit Prize (Top student, Loughborough University, UK) **(Dec 2008)**
3. Pharmacy Prize (Top student, University of Khartoum, Sudan) **(Dec 2003)**
4. Pharmacology & Ph. Chemistry Prize (Amipharma Lab., Sudan) **(Sep 2002 – Dec 2003)**
5. Pharmacology and Ph. Chemistry Prize (Sigma Tau Lab, Sudan) **(Sep 2002 – Dec 2003)**
6. Pharmaceutical Chemistry Merit Prize (University of Khartoum, Sudan) **(Sep 2002 – Dec 2003)**
7. Pharmaceutics Merit Prize (University of Khartoum, Sudan) **(Dec 2003)**
8. Pharmacognosy Merit Prize (University of Khartoum, Sudan) **(December 2003)**
9. Pharmacy Prize (4th year, University of Khartoum, Sudan) **(September 2001 – August 2002)**
10. Mohammed E. Hamid Prize (4th year, University of Khartoum, Sudan) **(August 2002)**
11. Pharmacy Prize (2nd year, University of Khartoum, Sudan) (**1999) (August 2000)**

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(1) Classical Latin dictum coined by René Descartes referred in English as "I think, therefore, I'm"

Skills and Expertise

I. Instrumentation:

1. **High-resolution MS (quantitative and untargeted analysis):**
   - **Quadrupole-orbital trap MS (UHPLC-Q-Exactive Plus Orbitrap MS)**:
     - 6+ years of practical experience in operating, troubleshooting, maintenance and executing analysis **(December 2015- October 2022)**.
     - 6+ years as the official trainer, +100 trainings and hands-on sessions for undergraduates, postgraduates and postdoctoral staff **(December 2015- April 2022)**.
   - **Orbital trap MS (UHPLC-Exactive Orbitrap MS):**
     - 10+ years of practical experience in operating, troubleshooting and executing analysis **(February 2012- April 2022)**.
     - 6+ years as the official trainer, +50 trainings and hands-on sessions for undergraduates, postgraduates and postdoctoral staff **(December 2015- April 2022)**.
   - **Quadrupole time-of-flight MS (Q-ToF MS Premier):**
     - 2 years of practical experience **(February 2012- February 2014)**.
2. **LC-MS/MS:**
   - **Triple quadrupole MS (HPLC-QTrap 4000)**.
     - Working knowledge in operating and executing analysis.
   - **Triple quadrupole MS (UHPLC-QTrap 6500+)**: **(December 2015- April 2022)**
     - 3+ year of practical experience in operating and executing analysis.
     - 2+ years as the official trainer, +100 trainings and hands-on sessions for undergraduates, postgraduates and postdoctoral staff.
   - **Ion trap MS (UHPLC-Velos LTQ MS):**
     - 2 years of practical experience in operating and executing analysis for MS/MS identification **(February 2012- February 2014).**
3. **Packard TopCount NXT Scintillation Counter (Perkin Elmer)/Fraction collector:**
   - Few months experience in operating, troubleshooting and executing analysis for Met ID using radioactive tracer (August 2022- present).
   - Few months experience in operating, troubleshooting and preparing TopCount plates using PAL fraction collector for Met ID using radioactive tracer (August 2022- present).
4. **Ambient surface MS: LESA-MS and Chip-based infusion (NanoMate):**
   - 9+ years of practical experience in operating, troubleshooting and executing analysis for targeted/untargeted metabolomics (January 2013- April 2022).
   - 6+ years' as the official trainer: trainings and hands-on sessions for undergraduates, postgraduates and postdoctoral staff **(December 2015- April 2022)**.
5. **Ultra-high performance liquid chromatography (UHPLC):**
   - Thermo Dionex UltiMate 3000 UHPLC system.
   - Thermo Accela UHPLC system.
6. **High-performance liquid chromatography (HPLC):**
   - Shimadzu HPLC and UHPLC systems.
   - Agilent 1290 Infinity HPLC system with UV/MS detector.

7. **UV/VIS Spectrophotometers:**
    - Perkin Elmer spectrophotometer.
    - Jasco UV/VIS spectrophotometer.

II. MS techniques (February 2012- present):

Extensive experience (+10 years) in LC-MS method development and analysis using HILIC and RP-LC for untargeted metabolomics, Met ID and quantitative analysis, this includes:

1. **Isotope dilution mass spectrometry (IDMS):** use of multiple U ^{13}C labelled IS extracted from bacteria for quantitative analysis using UHPLC-HRMS
2. **Method development and validation:** LC-MS and direct ESI-MS including flow injection ESI-MS (FIE-MS), chip-based infusion MS and LESA-MS.
3. **Met ID using $^{14}C/^{3}H$ radioactive tracers.**
4. **LC-MS quantitative analysis.**
5. **Untargeted clinical/bacterial metabolomics.**
6. **Ambient surface mass spectrometry.**

III. Software (February 2012- present): more than 10 years of experience in using the following software:

1. **TraceFinder:** MS quantitative data processing software, Thermo Scientific, USA (5+ years' experience).
2. **Xcalibur and ToxID:** Vender-specific (Thermo) MS qualitative and quantitative data processing and extraction software, Thermo Scientific, USA.
3. **IDEOM:** untargeted metabolomics data analysis software, R-environment.
4. **Compound discoverer:** Mass Spectrometric metabolomics data analysis software, Thermo Scientific, USA (more than 5 years of experience).
5. **Simca P+13-16:** multivariate analysis software, Umetrics, Sweden.
6. **Laura:** construction and validation of radiochromatograms.
7. **Progenesis QI:** MS metabolomics data analysis software, Waters, USA.
8. **Progenesis CoMet:** MS metabolomics data analysis software, Waters, USA.
9. **Sieve:** metabolomics data analysis software, Thermo Scientific, USA.
10. **MassLynx, QuanLynx & MarkerLynx:** Vender-specific (Waters) MS qualitative, quantitative and metabolomics data processing software, Waters, USA.
11. **ChipSoft & LESA point:** TriVersa Nanomate control software, Advion, USA.
12. **SpecAlign:** Pre-processing and visualisation software for spectral and chromatographic datasets. It is frequently used for the alignment and processing of metabolomics type data, Dr Jason Wong, University of Oxford, UK.
13. **MetaboAnalyst 2.0-5.0:** a web-based pipeline for metabolomics data processing, statistical analysis and functional interpretation.
14. **Spectra Manager:** Jasco corporation software for UV/VIS data processing.
15. **Analyst and MultiQuant:** Sciex quantitative data processing software, Thermo Scientific, USA (working knowledge).

IV. Medical Equipment: OLYMPUS KeyMed UK Medical instruments range**:**

1. **Surgical Endoscopy:** Laparoscopy, Gynaecology, Urology, ENT & Arthroscopy.
2. **Gastroenterology:** Gastroscopy, Colonoscopy & Endo-therapy.

Supervision, teaching & training

1. **Supervision:** undergraduate, MPharm, PhD students and post-doctoral researchers (The centre of Analytical Bioscience, University of Nottingham) (**Feb 2012 – May 2022)**
2. **Mass Spectrometry and Software Training:** undergraduate, MPharm, PhD students and post-doctoral researchers (The centre of Analytical Bioscience, University of Nottingham) **(Feb 2014 – May 2022) [100+ students and postdoctoral researchers]**
3. **Undergraduate teaching:** physical chemistry, organic chemistry (practical), analytical chemistry (practical) and pharmaceutical analysis (practical), University of Khartoum, Sudan (**April 2004 - Feb 2012)**

Professional & Academic Posts Held

- **Research Associate:** New York University – Abu Dhabi, UAE (**March 2023 - present**)
- **Met-ID Technical Specialist:** Pharmaron UK Ltd., Rushden, UK (**Aug 2022-Feb 2023**)
- **Mass Spectrometry Facility Manager:** The Centre for Analytical Bioscience, School of Pharmacy, University of Nottingham, UK **(Informal: July 2020- April 2022, official: Jan 2022 – May 2022)**
- **Mass Spectrometry Facility Manager:** Green Chemicals, Beacon of Excellence, University of Nottingham, University Park, Nottingham, NG7 2RD, UK **(July 2019- April 2022)**
- **Mass Spectrometry Research Officer:** The Centre for Analytical Bioscience, School of Pharmacy, University of Nottingham, UK (**Informal: Sep 2017- June 2020, official: Sep 2017- Dec 2021)**
- **Postdoctoral BBSRC Research Fellow:** Centre for Analytical Bioscience, School of Pharmacy, University of Nottingham, UK (**Dec 2015- Aug 2017)**
- **Assistant Professor:** Dept. of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Khartoum, Sudan **(Jan 2016 – Dec 2022)**
- **Mass spectrometry Research Assistant:** Centre for Analytical Biosciences (CAB), School of Pharmacy, University of Nottingham, UK (**May 2015- July 2015)**
- **PhD researcher:** Centre for Analytical Biosciences (CAB), School of Pharmacy, University of Nottingham, UK **(Feb 2012 – Dec 2015)**
- **Lecturer:** Dept. of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Khartoum, Sudan **(May 2008 – Feb 2012)**
- **Surgical product specialist:** OLYMPUS UK surgical endoscopy products specialist, Atlas Medical Co., Khartoum, Sudan **(Oct 2009- Feb 2012)**
- **FIGO project co-ordinator:** The International Federation of Gynaecology and Obstetrics (FIGO) & Olympus Surgical Technologies Europe minimally invasive surgery training centre, Soba University Hospital, Sudan **(May 2011- Feb 2012)**
- **OLYMPUS sales and product specialist:** Surgical and gastroenterology endoscopy, Atlas Medical Co., Khartoum, Sudan **(April 2005- Sep 2007)**
- **Medical representative**: Alkanar Drugs & Chemicals Co., Sudan **(Aug 2004- April 2005)**
- **Medical representative**: United Pharmaceutical Co., Sudan **(April 2004- Aug 2004)**
- **Teaching assistant:** Dept. of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Khartoum **(Aug 2004 – May 2008)**

Scholarships and Grants

1. The Gordon Memorial College Trust Fund, UK, PhD bursary **(April 2015)**
2. Merit Scholarship Programme for High Technology, IDB), Jeddah, KSA, PhD full scholarship **(Feb 2012)**
3. School of Chemistry Scholarship, University of Manchester, UK, Declined **(Sep 2008)**
4. Novartis Pharmaceuticals, Horsham, UK, PhD scholarship, Declined **(Sep 2008)**
5. Loughborough University Africa Trust Scholarship, Loughborough, UK **(Sep 2007)**
6. Japanese Government (Monbukagakusho) Scholarship, Japan **(April 2007)**
7. Ministry of Higher Education and Scientific Research, Khartoum, Sudan **(Aug 2005)**

Professional Training & Courses

Laura/TopCount NTX training	09/2022
Introduction to Data Integrity (DI) in metabolism	09/2022
Radiolabelled Clinical studies	08/2022
LTQ operation and LC-MS analysis	08/2022
Good laboratory practice (GLP) and Good Clinical Practice (GCP) training	08/2022
LC & GC Orbitrap Omics	07/2020
OPLS analysis of Omics data with few samples, Umetrics, Sartorius Stedim, UK	06/2020
Using the Content Management System to create and publish on the web, UK	11/2019
Agresso Business World: Finance Matters, UK	08/2019
QTrap 6500+ mass spectrometer training and operation (Sciex official training), UK	11/2018
Metabolomics Data Analysis, Glasgow, UK	10/2018
Using the Content Management System to create and publish on the web, UK	08/2018
Finance Matters: Agresso (University of Nottingham Finance System), UK	06/2018
Introduction to MATLAB, UK	11/2017
Microsoft Project, UK	11/2017
Working with Microsoft Office 365, UK	11/2017
Preparing for Your PDPR Meeting, UK	03/2016
Q-Exactive training (Thermo official training), UK	07/2016
Software training: FreeStyle 1.1, *mz*cloud and Lipid Search (Thermo official training), UK	07/2016
Software training: Compound Discoverer (Thermo official training), UK	07/2016
Software training: TraceFinder (Thermo official training), UK	07/2016
Marking and Assessment for Scientists, UK	10/2014
Demonstrating in laboratory practicals – Pharmacy, UK	09/2014

Microscopy: Optical & Electron Course (Prof Phil Williams), UK	12/2013
Microsoft Access: Introduction, UK	06/2013
Identifying and managing intellectual property issues in research, UK	05/2013
Introduction to quantitative research, UK	04/2013
Rational Drug Design Course (Prof Peter Fischer), UK	03/2013
Nanoparticles: Production, Characterisation & Applications course (Dr. S. Stolnik), UK	02/2013
Introduction to Unix (Dr Ian Withers), UK	01/2013
Cancer Biology and Current Chemotherapy Course (Dr Tracey Bradshaw), UK	01/2013
Solid-Phase Peptide Synthesis (Dr Weng Chan), UK	12/2012
Intellectual property inc copyright: for new Science, Eng & M&HS researchers, UK	11/2012
Targeted Therapeutics (Prof Cameron Alexander), UK	10/2012
Understanding your research degree, UK	10/2012
Microsoft PowerPoint: Advanced, UK	07/2012
Practical Techniques in Molecular Biology, UK	06/2012
How to be an effective researcher, UK	06/2012
Introduction to Bioinformatics, UK	06/2012
Creating and Managing Long Documents in Microsoft Word, UK	06/2012
Creating a Poster in PowerPoint, UK	05/2012
More Functions in Excel, UK	05/2012
Referencing and citing using Endnote, UK	05/2012
Practical Techniques in Gene Regulation, UK	05/2012
Introduction to Gene Regulation Course (Prof David Heery), UK	05/2012
Introduction to High Throughput Screening (Dr Lodewijk Dekker), UK	04/2012
Report Writing (Prof Morgan Alexander), UK	03/2012
Research ethics and the ethics review process for doctoral research, UK	03/2012
Advanced Surgical training, Dubai, UAE	01/2010
SME surgical training, Cairo, Egypt	11/2010
Pharmacist pre-registration training: hospital/community pharmacies and pharmaceutical industry, Directorate of Pharmacy, MoH, Sudan	08/2004-12/2005
Gastroenterology, Respiratory and Surgical Products, Olympus, UK	07/2005
Industrial Pharmacy Training Course: practical and training work in quality control and production lines in five different pharmaceutical manufacturers, Drug Holding Company, Egypt	09/2002

Conferences, Workshops, Meeting & Exhibitions Attended

European RFMF MetaboMeeting 2020, Toulouse, France	01/2020
22nd International Mass Spectrometry Conference (IMSC 2018), Florence, Italy	08/2018
65th ASMS Conference on Mass Spectrometry and Allied Topics, Indianapolis, USA	06/2017
36th BMSS annual meeting 2015, Birmingham, UK	09/2015
Gas and liquid chromatography workshop, Thermo Scientific, Leeds Metropolitan University, Leeds, UK	06/2014
Life Sciences conference, IDB, Cambridge, UK	05/2014
IDB scholars third annual meeting, Cambridge, UK	05/2014
IDBSA in the United Kingdom annual meeting, Birmingham, UK	06/2013
Mass Spectrometry in Omics (Metabolomics, Proteomics, Lipidomics and Beyond) workshop, Hemel Hempstead, UK	11/2012
Nuclear Magnetic Resonance workshop, University of Nottingham, UK	11/2012
HPLC/UHPLC Method Development Tips and Tricks (seminar), UK	10/2012
IDB Scholars workshop, Nottingham, UK	04/2012
Obstetrical & Gynaecological Society of the Sudan (OGSS) meeting, FIGO project, Khartoum, Sudan	12/2011
The International Federation of Gynaecology and Obstetrics (FIGO) project meeting, Khartoum, Sudan	12/2011
The International Federation of Gynaecology and Obstetrics (FIGO) minimally invasive surgery training centre in Sudan (meeting), Soba University Hospital (SUH), Khartoum, Sudan	10/2011
Minimal invasive surgery: Advanced surgical workshop for consultants, Soba University Hospital, Khartoum, Sudan (Coordinator)	05/2011
Laparoscopic Gynaecology workshop: basic and intermediate, Soba University Hospital, Khartoum, Sudan (Coordinator)	05/2011
Arab Health Exhibition 2011, Dubai, UAE	01/2011
Endourology workshop, Ibn Sina Hospital, Khartoum, Sudan	04/2010
Gastroenterology meeting, Crown Plaza Hotel, Dubai, UAE	01/2010
Arab Health Exhibition 2010, Dubai, UAE	01/2010
Advanced Urology workshop, Mansoura, Egypt	12/2009
Advanced GMP workshop: Quality control, Quality assurance and special GMP, GLP and GSP manufacturing and regulating requirements	10/2003

Academic/Professional activities and memberships

(IN CHRONOLOGICAL ORDER)

- **Executive member** of the Scientific Pharmacy Students' Association (SPSA), Khartoum, Sudan **(Sep 1999- Aug 2001)**.
- **Contact Person and student exchange programme co-ordinator** of the international Pharmacy Students' Federation (IPSF) in Sudan **(Sep 1999- Aug 2001)**.
- **Member** of African Pharmacy Students' Federation (APSF) (2000-2001) **(Sep 1999- Aug 2001)**.
- **Member** of Sudan Medical Council **(Jan 2004- Jan 2012)**.
- **Member** of the Royal Chemistry Society (RCS) of the United Kingdom **(Sep 2007- Aug 2008)**.
- **Member** of IDB Scholars Association (IDBSA) in the UK **(February 2012- December 2015)**.
- **Member** of the Examination and Prizes Committee, Faculty of Pharmacy, University of Khartoum **(May 2008- December 2015)**.
- **Contributed** to a major revision of the curriculum of pharmaceutical chemistry, Faculty of Pharmacy, University of Khartoum **(Sep 2013- Aug 2014)**.
- **Member** of the British Mass Spectrometry Society (BMSS), UK **(Sep 2015- Aug 2016)**.
- **Member** of the American Society for Mass Spectrometry (ASMS), Santa Fe, USA **(June 2017- May 2018)**.
- **Member** of the organising committee of MetaboMeeting 2018 conference, Nottingham, UK **(Jan 2018- Dec 2018)**
- **Member** of the organising committee of European School of Metabolomics (EuSM) March 2022 conference, France **(May 2020- March 2022)**: URL: https://www.first-eusm.com/
- **Academic/Research staff Member** of the Advanced Materials & Healthcare Technologies Division, School of Pharmacy, Faculty of Science, University of Nottingham **(Jan 2022-April 2022)**

Publications

A. Journal articles

1. Jaber Malak, de Falco Bruna, **Abdelrazig Salah,** Ortori Catharine, Barrett David, Kim Dong-Hyun. Advantages of using biologically generated 13C-labelled multiple internal standards for stable isotope-assisted LC-MS-based lipidomics, ***Analytical Methods,* 2023,** *in peer-review*.

2. Laura V. Randall, Dong-Hyun Kim, **Salah Abdelrazig**, Nicola Bollard, Ana S. Cardoso, Heather Hemingway-Arnold, Robert Hyde, Jake Thompson, Martin Green. Predicting lameness in dairy cattle using untargeted LC-MS-based metabolomics and machine learning, ***Journal of Dairy Science***, **2023,** *in press*.

3. Andrea-Lorena Garduño-Jiménez, Juan-Carlos Durán-Álvarez, Catharine A Ortori, **Salah Abdelrazig**, David A Barrett, Rachel L Gomes. Delivering on sustainable development goals in wastewater reuse for agriculture: initial prioritization of emerging pollutants in the Tula Valley, Mexico, ***Water Research*, 2023**, 238, 119903.

4. Duaa M Hijazi, Lina A Dahabiyeh, **Salah Abdelrazig,** Dana A Alqudah, Amal G Al-Bakri. Micafungin effect on Pseudomonas aeruginosa metabolome, virulence and biofilm: potential quorum sensing inhibitor, ***AMB Express***, **2023**, 1, 13.

5. Bayan A Al-Saafin, Amal G Al-Bakri, **Salah Abdelrazig**, Lina A Dahabiyeh. Investigating the effect of the probiotic Lactobacillus plantarum and the prebiotic fructooligosaccharides on Pseudomonas aeruginosa metabolome, virulence factors and biofilm formation as potential quorum sensing inhibitors, ***Microbial Pathogenesis***, **2023**, 177, 106057.

6. Malak A Jaber, Bayan Y Ghanim, Mohammad Al-Natour, Duaa Abu Arqoub, Qasem Abdallah, **Salah Abdelrazig**, Jamal Alyousse Alkrad, Dong-Hyun Kim, Nidal A Qinna. Potential biomarkers and metabolomics of acetaminophen-induced liver injury during alcohol consumption: A preclinical investigation on C57/BL6 mice, ***Toxicology and Applied Pharmacology***, **2023**, 465, 116451.

7. James Wood, **Salah Abdelrazig**, Sergey Evseev, Catherine Ortori, Marcos Castellanos-Uribe, Sean T. May, David A. Barrett, Mohammed Diksin, Sajib Chakraborty, Dong-Hyun Kim, Richard G. Grundy, Ruman Rahman. Lipoprotein Deprivation Reveals a Cholesterol-Dependent Therapeutic Vulnerability in Diffuse Glioma Metabolism, ***Cancers, 2022***, 14, 3873.

8. Abuzaid, Haneen, **Abdelrazig, Salah**, Ferreira, Lenny, Collins, Hilary M., Kim, Dong-Hyun, Lim, Kuan-Hon, Kam, Toh-Seok, Turyanska, Lyudmila, Bradshaw, Tracey D. Apoferri-

tin-Encapsulated Jerantinine A for Transferrin Receptor Targeting and Enhanced Selectivity in Breast Cancer Therapy, ***ACS Omega, 2022***, 7, 25, 21473–21482.

9. Feng, Wanshan, Qin, Chaolong, **Abdelrazig, Salah**, Bai, Ziyu, Raji, Mekha, Darwish, Randa, Chu, YenJu, Ji, Liuhang, Gray, David A., Stocks, Michael J., Constantinescu, Cris S., Barrett, David A., Fischer, Peter M., Gershkovich, Pavel. Vegetable oils composition affects the intestinal lymphatic transport and systemic bioavailability of co-administered lipophilic drug cannabidiol, ***International Journal of Pharmaceutics*, 2022**, 624, 121947.

10. Mohammad A. Al-natour[§], **Salah Abdelrazig**[§], Amir M. Ghaemmaghami, Cameron Alexander, Dong-Hyun Kim. Metabolic Signatures of Surface-Modified Poly(lactic-co-glycolic acid) Nanoparticles in Differentiated THP-1 Cells Derived with Liquid Chromatography-Mass Spectrometry-based Metabolomics, ***ACS Omega*, 2022**, 7, 33, 28806–28819.
[§] **Mohammad A. Al-natour and Salah Abdelrazig are joint first authors.**

11. Sophie Vaud, Nicole Pearcy, Marko Hanževački, Alexander M.W. Van Hagen, **Salah Abdelrazig**, Laudina Safo, Muhammad Ehsaan, Magdalene Jonczyk, Thomas Millat, Sean Craig, Edward Spence, James Fothergill, Rajesh Reddy Bommareddy, Pierre-Yves Colin, Jamie Twycross, Paul A. Dalby, Nigel P. Minton, Christof M. Jäger, Dong-Hyun Kim, Jianping Yu, Pin-Ching Maness, Sean Lynch, Carrie A. Eckert, Alex Conradie, Samantha J. Bryan. Engineering improved ethylene production: Leveraging systems biology and adaptive laboratory evolution, ***Metabolic Engineering***, **2021,** 67, 308-320.

12. **Salah Abdelrazig**, Catharine A. Ortori, Michael Doherty, Ana M. Valdes, Victoria Chapman, David A. Barrett. Metabolic signatures of osteoarthritis in urine using liquid chromatography-high resolution tandem mass spectrometry, ***Metabolomics***, **2021**, 17, 29.

13. Alfardus H, de Los Angeles Estevez-Cebrero M, Rowlinson J, Aboalmaaly A, Lourdusamy A, **Abdelrazig S**, Ortori C, Grundy R, Kim DH, McIntyre A, Smith S. Intratumour heterogeneity in microRNAs expression regulates glioblastoma metabolism, ***Scientific Reports*, 2021,** 5;11(1):15908.

14. Alison Woodward, Alina Pandele, **Salah Abdelrazig**, Catherine A Ortori, Iqbal Khan, Marcos Castellanos Uribe, Sean May, David A. Barrett, Richard G Grundy, Dong-Hyun Kim, Ruman Rahman. Integrated metabolomics and transcriptomics using an optimised dual extraction process to study human brain cancer cells and tissues, ***Metabolites***, **2021**, 11, 240.

15. Laudina Safo[§], **Salah Abdelrazig**[§,] Alexander Grosse-Honebrink, Thomas Millat, Anne M. Henstra, Rupert Norman, Neil R. Thomas, Klaus Winzer, Nigel P. Minton, Dong-Hyun

Kim, David A. Barrett. Quantitative Bioreactor Monitoring of Intracellular Bacterial Metabolites in Clostridium autoethanogenum using Liquid Chromatography-Isotope Dilution Mass Spectrometry, ***ACS Omega*, 2021**, DOI: 10.1021/acsomega.0c05588.
[§]Laudina Safo and Salah Abdelrazig are joint first authors.

16. Mahetab H. Amer, Marta Alvarez-Paino, Jane Mclaren, Francesco Pappalardo, Sara Trujillo, Jing Qian Wong, Sumana Shrestha, **Salah Abdelrazig**, Lee A. Stevens, Jong Bong Lee, Dong-Hyun Kim, Cristina González-García, David Needham, Manuel Salmerón-Sánchez, Kevin M. Shakesheff, Morgan R. Alexander, Cameron Alexander, Felicity Raj Rose. Designing topographically textured microparticles for induction and modulation of osteogenesis in mesenchymal stem cell engineering, ***Biomaterials***, **2021**, 266, 120450.

17. **Abdelrazig, Salah**, Safo, Laudina, Rance, Graham A., Fay, Michael W., Theodosiou, Eirini, Top-ham, Paul D., Kim, Dong-Hyun, Fernández-Castané, Alfred. Metabolic characterisation of *Magnetospirillum gryphiswaldense* MSR-1 using LC-MS-based metabolite profiling, ***RSC Advances***, **2020**, 10, 32548-32560.

18. Sarah Schatschneider[§], **Salah Abdelrazig**[§], Laudina Safo, Anne M. Henstra, Thomas Millat, Dong-Hyun Kim, Klaus Winzer, Nigel P. Minton, David A. Barrett. Quantitative isotope dilution high-resolution mass spectrometry analysis of multiple intracellular metabolites in *Clostridium autoethanogenum* using uniformly ^{13}C-labelled standards derived from Spirulina, ***Analytical Chemistry*, 2018**, 90 (7), pp 4470–4477.
[§]Sarah Schatschneider and Salah Abdelrazig are joint first authors.

19. Tim J. Sloan, Jonna Jalanka, Giles A.D. Major, Shanthi Krishnasamy, Sue Pritchard, **Salah Abdelrazig**, Katri Korpela, Gulzar Singh, Claire Mulvenna, Caroline L. Hoad, Luca Marciani, David Barrett, Miranda C.E. Lomer, Willem M. de Vos, Penny A. Gowland, Robin C. Spiller. A low FODMAP diet is associated with changes in the microbiota and reduction in breath hydrogen but not colonic volume in healthy subjects, ***PLOS ONE*, 2018**, 13(7), e0201410.

20. **Salah Abdelrazig**, Catharine A. Ortori, Gail Davey, Wakgari Deressa, Dhaba Mulleta, David A. Barrett, Alemayehu Amberbir, Andrew W. Fogarty. A metabolomic analytical approach permits identification of urinary biomarkers for *Plasmodium falciparum* infection, ***Malaria Journal*, 2017**, 16:229. **(Main contributor)**

21. Gad Kariem, E.A., **Abdelrazig, S.M.A.,** Ibrahim, K.E.E. Spectrophotometric estimation of captopril in bulk and dosage form, ***O. J. of Pharma. Sciences***, **2008**, 1(4), 397-408. **(Main contributor)**

B. Conferences

A.S. Cardoso, H. Hemingway-Arnold, B. de Falco, **S. Abdelrazig**, R.M. Hyde, M.J. Green, D-H. Kim, L.V. Randall. Evaluating differences in the metabolic profiles of lame and non-lame dairy cows using liquid chromatography-mass spectrometry and machine learning, **Animal-Science Proceedings**, **2023**, 14, 283–430, Birmingham, UK.

Ana S. Cardoso, H. Hemingway-Arnold, B. de Falco, **Salah Abdelrazig**, Robert M. Hyde, Martin J. Green, Dong-Hyun Kim, and Laura V. Randall. Evaluating differences in the metabolic profiles of lame and non-lame dairy cows using liquid chromatography mass spectrometry and machine learning, **Total Dairy, 2022,** Stratford-upon-Avon, UK.

Salah Abdelrazig, Bruna De Falco, Laudina Safo, Dong-Hyun Kim. Evaluation of U-^{13}C Spirulina (*Arthrospira platensis*) for stable isotope assisted untargeted metabolomics and liquid chromatography-isotope dilution mass spectrometry (LC-IDMS), **European RFMF MetaboMeeting**, **2020**, Toulouse, France.

Alison Woodward, Alina Pandele, **Salah Abdelrazig**, Catharine Ortori, David Barrett, Richard Grundy, Dong-Hyun Kim, Ruman Rahman. Integrated metabolomics and transcriptomics analysis of intra-tumour heterogeneity in paediatric brain tumours, **European RFMF MetaboMeeting**, **2020**, Toulouse, France.

Abelha, T., Monteiro, P., **Abdelrazig, S.**, Kim, D.-H., Alexander, C. Redox responsive nanoparticles loaded with docetaxel promote increased cytotoxicity against triple negative or basal-like breast cancer (TNBC) via a distinct metabolic pathway compared to the free drug, **47th World Chemistry Congress of IUPAC**, **2019**, Paris, France.

Woodward, A., **Abdelrazig, S.**, Ortori, C., Barrett, D., Grundy, R., Kim, D.-H., Rahman, R. Characterisation of the metabolomes of epigenetically distinct subgroups of paediatric ependymoma, **British Neuro-Oncology Society**, **2019**, London, UK.

Wood, J., **Abdelrazig, S.**, Barrett, D., Grundy, R., Rahman, R., Kim, D.-H. Metabolites: Small size but big impact on human life, **45th Korean Scientists and Engineers Association Annual Meeting**, **2019**, Bristol, UK.

Salah Abdelrazig, Catherine Ortori and David A. Barrett. Direct Electrospray Ionisation-Mass Spectrometry for Untargeted Urinary Metabolomics Applied to Osteoarthritis, **11th MetaboMeeting**, **2018**, Nottingham, UK.

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