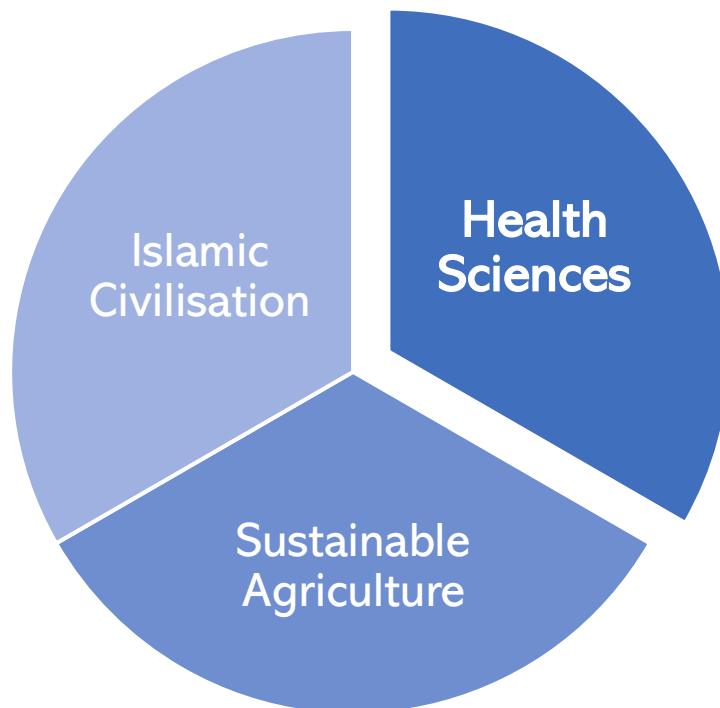


Research@FSK Portfolio

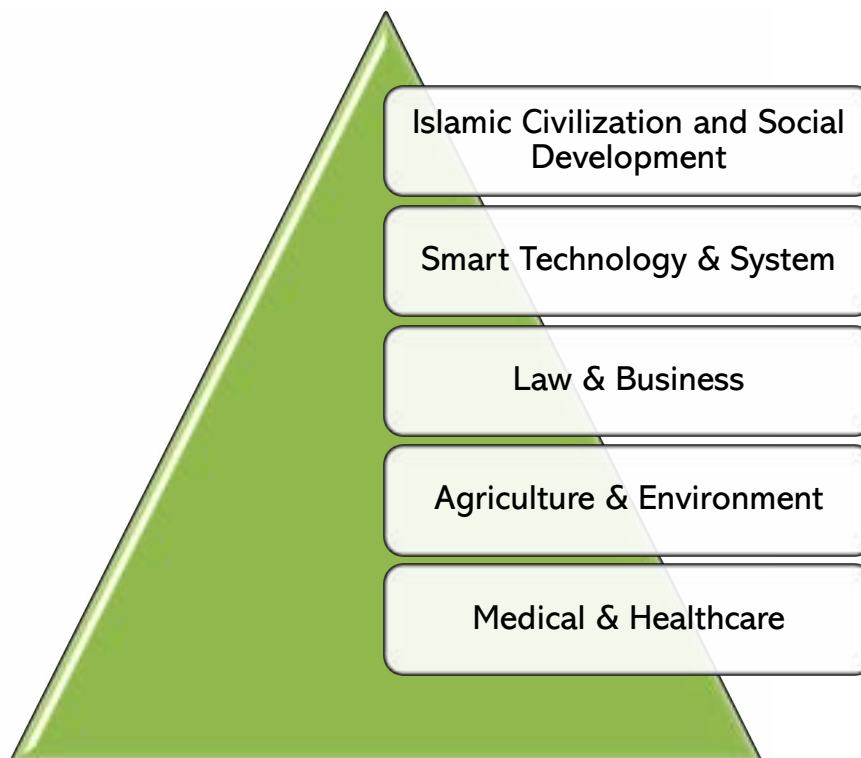


FACULTY OF HEALTH SCIENCES
UNIVERSITI SULTAN ZAINAL ABIDIN
2022

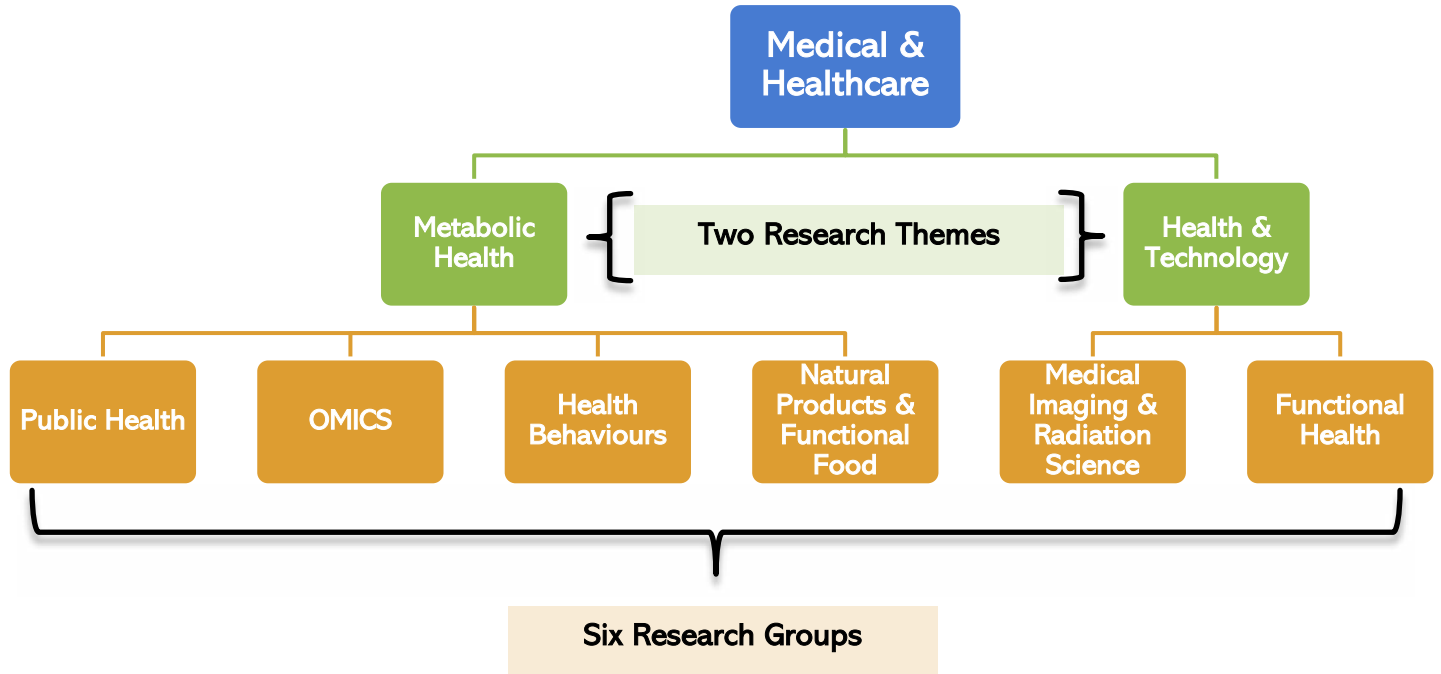
Research Niche at UniSZA



Research Clusters at UniSZA



Research@FSK



THEME 1: METABOLIC HEALTH

RESEARCH GROUP 1: PUBLIC HEALTH

A broad spectrum of areas such as disease prevention, nutrition and physical health, health promotion, and monitoring and surveillance of health from infancy until old ages.

| | |
|-----------------------------------|--|
| LEADER: DR WEE BEE SUAN | CO-LEADER: DR WAN ARFAH NADIAH WAN ABDUL JAMIL |
|-----------------------------------|--|

RESEARCH SUB-GROUPS

Children & Adolescents Health

Covers the studies among school children & adolescents aged 5 until 18 years old; utilises tools such as dietary assessments, anthropometric and body composition, obesity & metabolic syndrome, physical activity & sedentary behaviours, specifically for the nutrition and well-being and prevention of nutrition-related diseases.

| Name | Area of expertise | Contact |
|--|---|--|
| Leader | | |
| Dr Wee Bee Suan | Childhood Nutrition, Body Composition, Physical Activity and Metabolic Syndrome | Scopus ID:39962848600 ORCID: 0000-0003-3441-6816 Mobile: +012-2984895 Email: beesuan@unisza.edu.my |
| Members | | |
| AP Dr Aryati Ahmad | Childhood Obesity, Non-Communicable Diseases in Children | Scopus ID: 57189075947 ORCID: 0000-0003-2851-0339 Mobile: +6019-6448654 Email: aryatihmad@unisza.edu.my |
| AP Dr Sharifah Wajihah Wafa Syed Saadun Tarek Wafa | Childhood Obesity, Nutrition Promotion and Education | Scopus ID: 44361414000 ORCID: 0000-0002-1791-2714 Mobile: +60126911510 Email: sharifahwajihah@unisza.edu.my |

List of research projects:

1. The Influences Of Adiponectin On Metabolic Health, Body Adiposity And Other Factors Among Children And Adolescents: A Cross-Sectional Study – **Principal Investigator: Dr Wee Bee Suan**
2. Childhood Obesity In Terengganu: Determination Of Prevalence Risk Factors And Consequences Using A Health Status Surveillance Monitoring And Decision System – **Principal Investigator: AP Dr Aryati Ahmad**
3. Fat-To-Fat Free Mass Ratio: Prediction Of Adiponectin And Metabolic Syndrome Risk Among Adolescents By Deuterium Dilution Technique – **Principle Investigator: Dr Wee Bee Suan**

List of significant publications:

1. Lim JY, Wee BS, Mohamad M, Jalil AMM, Shahril MR, PL Lua. (2022) Fat-to-lean mass ratio as a new anthropometric indicator in predicting metabolic syndrome among Malay adolescents in Terengganu, Malaysia. *Proceedings of Singapore Healthcare* 31: 1-9.
2. Mohd Khair NA & Wee BS . (2021). Association Between Pubertal Status and Body Fat Percentage Among Malay Adolescents in Kuala Nerus, Terengganu. *Malaysian Applied Biology*, 50(2): 81-88. p. 81-88, ISSN: 01268643
3. Mohd Ayob R & Wee BS . (2021). Association Between Weight Status and Body Image Perception Among Female Adolescents in Terengganu. *Malaysian Applied Biology* 4(S1 1): 157-164.
4. Zulkifli NFA & Wee BS . (2021). Association Between Body Fat Percentage and Level of Physical Activity Among Adolescents in Kuala Nerus, Terengganu. *Asian Journal of Medicine & Biomedicine* 5(S2): 36-43.
5. Yusrizarni, Shahril MR & BS Wee. The Quality of Life and Body Mass Index Among Population in Aceh, Indonesia (2020), *Asian Journal of Medicine and Biomedicine*, 4(S1 1) p. 67-73.

6. BS Wee, Poh BK, Bulgiba AM, Ismail MN. (2019). Pedometer-determined Physical Activity Among Primary Schoolchildren in Kuala Lumpur. *Proceedings of Singapore Healthcare*, 28(2): 115-123.
7. BS Wee, Poh BK, Bulgiba AM, Ismail MN, Liu A & Deurenberg P. (2016). Adiposity and insulin resistance syndrome among young Malaysian adolescents (2016). *Obesity Review*, Vol 17: 132
8. BS Wee, Poh BK, Bulgiba AM, Ismail MN, Liu A & Deurenberg P. (2014). *Obesity Review*. Vol 15: 59-60. Use of Roc curves in identifying suitable obesity indices for prediction of metabolic syndrome risk clustering among young adolescents in Kuala Lumpur.
9. Ang YN, BS Wee, Poh BK & Ismail MN. (2013). Multifactorial Influences of Childhood Obesity (2013), *Current Obesity Reports*, pp. 10-22, ISSN: 2162-4968.
10. BS Wee, Poh BK, Awang Bulgiba AM, Ismail MN, Ruzita, AT & Andrew PH. (2011). Risk of metabolic syndrome among children living in metropolitan Kuala Lumpur: A case control study. *BMC Public Health*, 11:333.

Infant & Maternal Health

Focuses on the maternal and child well-being to improve their health and nutritional status, particularly on the preventable nutrition-related diseases. Research is within a variety of topic areas among under-five children and mothers, including antenatal and postnatal health and nutrition, maternal depression, child's nutritional status, breast-feeding and optimal feeding as well as health promotion and intervention studies.

| Name | Area of expertise | Contact |
|-----------------------|--|--|
| Leader | | |
| Dr Marhazlina Mohamad | Maternal and child nutrition, obesity, cohort study | Scopus ID: 41861998200 ORCID: 0000-0002-8817-6048 Mobile: +601-32026070 Email: marhazlina@uniswa.edu.my |
| Members | | |
| Dr Wong Chee Yen | Community nutrition - nutrition and health in children and adults (i.e., indigenous population and low income communities) | Scopus ID:56041042400 ORCID: 0000-0001-5530-0789 Mobile:+616-6167721 Email: cheeyenwong@uniswa.edu.my |

List of research projects:

1. The Practice Of Complementary And Alternative Therapies (CATs) For Depressive Symptoms Among Pregnant Women In Terengganu - **Principal Investigator: Dr Marhazlina Mohamad**
2. Development and Feasibility of Nutrition Education and Promotion Strategies Among Household with Children Under Two Years at Risk for Stunting in Terengganu - **Principal Investigator: Dr Marhazlina Mohamad**

List of significant publications:

1. Abdullah AW, Wee, B. S., Yahaya, R., Mohamad, M., Shahril, M. R., & Lua, P. L. (2021). Physical Activity and Depression during Pregnancy: A Scoping Review. *International Medical Journal*, 28(4), 377-382.
2. Mohamad, M., Loy, S. L., Lim, P. Y., Wang, Y., Soo, K. L., & Mohamed, H. J. J. (2018). Maternal serum and breast milk adiponectin: the association with infant adiposity development. *International journal of environmental research and public health*, 15(6), 1250.
3. Wong, C.Y., Zalilah, M.S., Siti Nur'Asyura, A., Norhasmah, S., & Chin, Y.S. (2018). Weight and height faltering in indigenous children (Orang Asli) of Peninsular Malaysia during the first 2 years of life. *Asia Pacific Journal of Clinical Nutrition*, 27(4), 886-892.
4. Zalilah, M.S., Norhasmah, S. Chin, Y.S., Sarina, S., Wong, C.Y., Roza, I., Yong, H.Y., & Mimi Izzaida, M.A. (2015). Modul Pengajaran Pemakanan dan Kesihatan Kanak-kanak Orang Asli. Selangor, Malaysia: Department of Nutrition & Dietetics, Faculty Medicine & Health Sciences, UPM. ISBN 978-983-43735-9-7.

Epidemiology & Biostatistics

This sub-theme focuses on the distribution and patterns of dietary intake, nutritional status as well as health and nutrition related illness conditions in a defined population (i.e. general population: adults and older groups; vulnerable groups: indigenous populations, rural and urban poor communities), and the evaluation and application of statistical methods to answer research questions in health sciences research as well as enabling the translation of reliable research findings to health care.

| Name | Area of Expertise | Contact |
|---|--|--|
| Leader | | |
| Dr Wong Chee Yen | Community nutrition - nutrition and health in children and adults (i.e., indigenous population and low income communities) | Scopus ID:56041042400 ORCID: 0000-0001-5530-0789 Mobile:+616-6167721 Email: cheeyenwong@unisza.edu.my |
| Members | | |
| Dr Wan Arfah Nadiyah Wan Abdul Jamil | Statistical modeling in health sciences research, Infectious diseases epidemiology, Clinical and community trials | Scopus ID:52564567700 ORCID: 0000-0002-4265-442X Mobile: +60126260508 Email: wanwaj@unisza.edu.my |

List of research projects:

1. Clinical and Parameters Toward The Prognosis of Patient with Melioidosis; Comparison of AFT Survival Data Analysis and Multinomial Logistic Regression - **Principle investigator: Dr Wan Arfah Nadiyah Wan Abdul Jamil**

List of significant publications:

1. K. Mardhiah, N. Wan-Arfah, N. N. Naing, M. R. Abu Hassan, H. K. Chan, and H. Hasan (2022). Comparison of Cox proportional hazards model, Cox proportional hazards with time-varying coefficients model, and lognormal accelerated failure time model: Application in time to event analysis of melioidosis patients. *Clinic Asian Pac. J. Trop. Med.*, 15(3), 138–134.
2. K. Mardhiah, N. Wan-Arfah, N. N. Naing, M. R. A. Hassan, and H. K. Chan. (2021). Predictors of in-hospital mortality by logistic regression analysis among melioidosis patients in Northern Malaysia: A retrospective study. *Asian Pac. J. Trop. Med.*, 14(8): 356–363. doi: 10.4103/1995-7645.321612.
3. K. Mardhiah, N. Wan-Arfah, N. N. Naing, M. Radzi, A. Hassan, and H. K. Chan. (2021). The Cox model of predicting mortality among melioidosis patients in Northern Malaysia. *Medicine*, 25, 2020.
4. K. Mardhiah, N. Wan-Arfah, N. N. Naing, M. R. Abu Hassan, H. K. Chan, and H. Hasan (2021). The Trend of Direct Medical Cost of Melioidosis Patients in Kedah : A Retrospective Study from 2014 to 2017. *Clinicoeconomics and outcomes research*, 155–162.
5. Wong, C.Y., Zalilah, M.S., Chua, E.Y., Norhasmah, S., Chin, Y.S., & Siti Nur'Asyura, A. (2015). Double-burden malnutrition among the indigenous peoples (Orang Asli) of Peninsular Malaysia. *BMC Public Health*, 15, 680.
6. Wong, C.Y., Zalilah, M.S., Mirnalini, K., & Mohd Nasir, M.T. (2014). Stages of change to increase fruit and vegetable intake and its relationships with fruit and vegetable intake and related psychosocial factors. *Nutrition Research and Practice*, 8(3), 297-303.
7. Nadiyah Wan-Arfah, W Ahmad Wan Muhamad Amir, Mustapha Muzaimi, Mamat Mustafa, Nyi Nyi Naing. (2015). Determinants of Mortality in First-Ever Stroke Patients in the Suburban Malaysia: A Retrospective Hospital-Based Study, 2005-2011. *Iranian Journal of Public Health*, 44(9), 1291-1293.
8. Nadiyah Wan-Arfah, W Ahmad Wan Muhamad Amir, Mustapha Muzaimi, Mamat Mustafa, Nyi Nyi Naing. (2015). Associated Factors of Mortality in First-Ever Stroke Patients. *ARPN Journal of Engineering and Applied Sciences*, 10(16), 7000-7004.

9. Zalilah, M.S., Norhasmah, S., Rohana, A.J., Wong, C.Y., Yong, H.Y., Mohd Nasir, M.T., Mirnalini, K., & Khor, G.L. (2014). Food insecurity and the metabolic syndrome among women from low income communities in Malaysia. *Asia Pacific Journal of Clinical Nutrition*, 23(1).
10. Nadiah Wan-Arfah, Bachok Norsahadah, Nyi Nyi Naing, Ismail Zaliha, Ab Rahman Azriani, Nik Hussin Nik-Rosmawati, Abdullah Mohamed-Rusli (2012). The effectiveness of health education package on knowledge, attitude and practice (KAP) of influenza A (H1N1) among school children in Malaysia. *International Medical Journal*, 19(2), 141-145
11. N Wan-Arfah, B Norsahadah, NN Naing, I Zaliha, AR Azriani, NH Nik-Rosmawati, A Mohamed-Rusli (2012). Knowledge, attitudes and practices on Influenza A (H1N1) among Kelantanese school children. *Southeast Asian J Trop Med Public Health*, 43 (6), 1489-1501

RESEARCH GROUP 2: OMICS

Collective characterization and quantification of pools of biological molecules that translate into the structure, function, and dynamics of an organism or organisms using OMICS technology.

LEADER:
DR KAN SU-YIN

RESEARCH SUB-GROUPS

Immunology & Infectious Diseases

The research covers all aspects of immunity and infectious diseases. The Infection and immunity group investigates these phenomena at the molecular level aiming to exploit our findings in the understanding and treatment of human diseases. Our research encompasses virology, bacteriology, immunology, and parasitology.

| Name | Area of expertise | Contact |
|------------------------|---|--|
| Leader | | |
| Dr Ahmad Syibli Othman | Molecular biology, Immunology, Malaria | Scopus ID:57194591645 ORCID: 0000-0002-2020-900X Mobile: +60129222400 Email: syibliothman@uniswa.edu.my |
| Members | | |
| Dr Chew Ching Hoong | Molecular Microbiology and Parasitology, Molecular Medicine | Scopus ID: 22233710700 ORCID: 0000-0002-1466-7389 Mobile: +60126942334 Email: chewch@uniswa.edu.my |
| Dr Norzawani Jaffar | Bacterial biofilm, probiotics, molecular microbiology. | Scopus ID:54779807700 ORCID: 0000-0003-4560-7116 Mobile:+60109021405 Email: zawanijaffar@uniswa.edu.my |
| Dr Nur Ayuni Kadir | Immunology, Vaccinology, Medical Microbiology | Scopus ID:57004713200 ORCID: 0000-0001-7797-4063 Mobile:019-9880693 Email: nurayuni@uniswa.edu.my |
| Dr Kan Su-Yin | Biochemistry, host-pathogen interaction | Scopus ID: 56699534900 ORCID: 0000-0003-0539-0792 Mobile: 011-12283886 Email: suyinkan@uniswa.edu.my |

List of research projects:

1. Elucidation of protection induced by virus-like particles expressing AMA1 of Plasmodium knowlesi against the chimeric rodent malaria parasite - **Principal Investigator: Dr Ahmad Syibli Othman.**
2. Autophagy and apoptotic mechanisms of human macrophage cells infected with recombinant Mycobacterium smegmatis expressing Ag85B T-cell epitopes of Mycobacterium tuberculosis - **Principal Investigator: Dr Nur Ayuni Kadir**
3. Biofilm degradation of periodontal pathogen by probiotic strains: Gene expression profiling of candidate virulence genes - **Principal Investigator: Dr Norzawani Jaffar**
4. Genomic and phenotypic characteristics of multidrug-resistant coagulase-negative staphylococci (CoNS) blood isolates from Terengganu, Malaysia. **Principal Investigator: Dr. Chew Ching Hoong.**
5. Molecular identification & characterization of the Plasmodium knowlesi apical membrane antigen 1 (PkAMA1). **Principal Investigator: Dr. Chew Ching Hoong**
6. Molecular characterization of the virulence genes and antibiotic resistance of the methicillin-resistant Staphylococcus aureus (MRSA) isolates in Terengganu. **Principal Investigator: Dr. Chew Ching Hoong**

7. Characterization of Surface Proteins With Intramolecular Thioester Bonds in Multidrug-resistant Enterococci As Potential Therapeutic Targets, Geran Dalam Universiti, University (2017)-
Principal Investigator: Dr. Kan Su-Yin

List of significant publications:

1. Che Hamzah AM, Al-Trad E, Puah SM, A. Rahman NI, Ismail S, Yeo CC, Chew CH. Whole genome sequence analysis of methicillin-resistant *Staphylococcus aureus* indicates predominance of the EMRSA-15 (ST22-SCCmec IV[2b]) clone in Terengganu, Malaysia. *International Journal of Antimicrobial Agents*, 58 (Supplement 1): pp.60-61.
2. Al-Trad E, Che Hamzah AM, Kwong SM, Firth N, Chew CH, Yeo CC. Genomic characterisation of a multidrug-resistant *Staphylococcus hominis* ShoR14 clinical isolate from Terengganu, Malaysia. *International Journal of Antimicrobial Agents*, 58 (Supplement 1): pp.59-60.
3. Jones SU, Chua KH, Chew CH, Yeo CC, Abdullah FH, Othman N, Kee BP, Puah SM (2021). *spa* diversity of methicillin-resistant and -susceptible *Staphylococcus aureus* in clinical strains from Malaysia: a high prevalence of invasive European *spa*-type t032. *PeerJ*, 9, e11195.
4. Azazi A, Haron FN, Chua KH, Lim YAL, Lee PC, Chew CH (2021). Bioinformatics characterization of *Plasmodium knowlesi* apical membrane antigen 1 (PkAMA1) for multi-epitope vaccine design. *Tropical Biomedicine*. 38(3): 265-275.
5. Cleary DW, Morris DE, Anderson RA, Jones J, Alattraqchi AG, A. Rahman NI, Ismail S, Razali MS, Mohd Amin R, Abd Aziz A, Esa NK, Amiruddin S, Chew CH, Simin H, Abdullah R, Yeo CC, Clarke SC (2021). The upper respiratory tract microbiome of indigenous Orang Asli in north-eastern Peninsular Malaysia. *npj Biofilms Microbiomes* 7: 1.
6. Haron FN, Azazi A, Chua KH, Lim YAL, Lee PC, Chew CH (2020). Small-scale optimization of recombinant *Plasmodium knowlesi* apical membrane antigen 1 (rPkAMA1) expression in *Pichia pastoris*. *Asian Journal of Medicine and Biomedicine*, 4(SI 1): 79-90. DOI: 10.37231/ajmb.2020.4.SI%201.405.
7. Che Hamzah AM, Yeo CC, Puah SM, Chua KH, Chew CH (2019) *Staphylococcus aureus* infections in Malaysia: A review of antimicrobial resistance and characteristics of the clinical Isolates, 1990-2017. *Antibiotics*, 8(3): 128. DOI:10.3390/antibiotics8030128.
8. Che Hamzah AM, Yeo CC, Puah SM, Chua KH, Rahman NIA, Abdullah FH, Othman N, Chew CH (2019) Tigecycline and inducible clindamycin resistance in clinical isolates of methicillin-resistant *Staphylococcus aureus* from Terengganu, Malaysia. *Journal of Medical Microbiology*, 68 (9): 1299-1305.
9. Puah SM, Tan JAMA, Chew CH, Chua KH (2018) Diverse profiles of biofilm and adhesion genes in *Staphylococcus aureus* food strains isolated from sushi and sashimi. *Journal of Food Science*, 83(9): 2337-2342.
10. Suhaili Z, Yeo CC, Faizal GM, Chew CH, Zakaria ZA, Al-Obaidi MMJ, Amin NS, Mohd Desa MN (2018) Nasal colonization, antimicrobial susceptibility and genotypic pattern of *Staphylococcus aureus* among agricultural biotechnology students in Besut, Terengganu, east coast Malaysia. *Tropical Medicine and International Health*, 23(8): 905-913.
11. Chew CH, Lim YAL, Chua KH (2017) Heterologous expression of *Plasmodium vivax* apical membrane antigen 1 (PvAMA1) for binding peptide selection. *PeerJ*. e3794.
12. Lee PC, Chong ETJ, Anderios F, Lim YAL, Chew CH, Chua KH (2015) Molecular detection of human *Plasmodium* species in Sabah using PlasmoNex multiplex PCR and hydrolysis probes real-time PCR. *Malaria Journal*, 14: 28.
13. Goh XT, Lim YAL, Vythilingam I, Chew CH, Lee PC, Ngui R, Tan TC, Yap NJ, Nissapatorn V, Chua KH (2013) Increased detection of *Plasmodium knowlesi* in Sandakan division, Sabah as revealed by PlasmoNex. *Malaria Journal*, 12: 264.
14. Chew CH, Lim YAL, Lee PC, Mahmud R, Chua KH (2012) Hexaplex PCR detection system for identification of five human *Plasmodium* species with an internal control. *Journal of Clinical Microbiology*, 50(12): 4012-4019.
15. Chua KH, Puah SM, Chew CH, Wong CH, Goh KL (2011) Interaction between a novel intronic IVS3+172 variant and N29I mutation in PRSS1 gene is associated with pancreatitis in a Malaysian Chinese family. *Pancreatology*, 11(4): 441-444.
16. Lim YAL, Rohela M, Chew CH, Thiruventhiran T, Chua KH (2010) *Plasmodium ovale* infection in Malaysia-first imported case. *Malaria Journal*, 9: 272.
17. Chua KH, Puah SM, Chew CH, Tan SY, Lian LH (2010) Study of the CTLA-4 Gene polymorphisms in systemic lupus erythematosus (SLE) samples from Malaysia. *Annals Human Biology*, 37(2): 274-280.

18. Lau TP, Lian LH, Puah SM, Chew CH, Tan SY, Chua KH (2008) Lack of association between CD28/IVS3 +17T/C and the susceptibility to SLE in the Malaysian population. *Asia Pacific Journal of Molecular Biology and Biotechnology*, 16: 85-88
19. Chew CH, Chua KH, Lian LH, Puah SM, Tan SY (2008) PCR-RFLP Genotyping of C1q mutations and single nucleotide polymorphisms in Malaysian patients with systemic lupus erythematosus. *Human Biology*, 80: 83-93.
20. Puah SM, Lian LH, Chew CH, Chua KH, Tan SY (2007) A study of association of the complement C4 mutations with systemic lupus erythematosus in the Malaysian population. *Lupus*, 16: 750-754.

Translational Research

Our cutting-edge research focuses on a range of diseases and conditions with a main focus of our research lies in achieving a better understanding surrounding the pathophysiology of these conditions and their clinical outcomes, as well as novel diagnostic and therapeutic technologies for treating them.

| Name | Area of expertise | Contact |
|----------------------------|---------------------------------------|---|
| Leader | | |
| Dr Hamid Ali Nagi Al-Jamal | Molecular Biology and Cancer Research | Scopus ID:6507892808 ORCID: 0000-0001-6194-2729 Mobile:60174729012 Email: aljamalhamid@unisza.edu.my |
| Members | | |
| AP Dr Wan Rohani Wan Taib | Population Genetics | Scopus ID: 57188730501 ORCID: 0000-0001-9455-5768 Mobile: 016-9712549 Email: wanrohani@unisza.edu.my |
| Dr Azmahani Abdullah | Cell Biology and Cancer Research | Scopus ID:56346302200 ORCID: 0000-0002-7922-4255 Mobile:019-9002271 Email: azmahani@unisza.edu.my |
| Dr Imilia Ismail | Molecular Biology and Cancer Research | Scopus ID: 57201056146 ORCID: 0000-0002-3701-4006 Mobile: 013-3570909 Email: imilia@unisza.edu.my |
| Illyana Ismail | Biochemistry and Cancer Research | Scopus ID: - ORCID: 0000-0003-4361-2835 Mobile:012-9016070 Email: illyana@unisza.edu.my |

List of research projects:

1. Evaluation on Genetic Profiling on Breast Cancer Cell Lines With Rukyah Syar'iyah Treatment, Geran Dalaman Universiti, University (2018) - **Principal Investigator: AP Dr Wan Rohani Wan Taib**
2. Investigating The Mechanism in Cell Regulation of Brain Tumours Via Sex Genes in Malaysian Population, Skim Geran Penyelidikan Fundamental - FRGS, Government (2014) - **Principal Investigator: AP Dr Wan Rohani Wan Taib**
3. Deciphering the effect mechanism of thymoquinone on JAK/STAT signaling negative regulation in myeloid leukemia cell lines, (2019)-**Principal Investigator: Hamid Ali Nagi Al-Jamal**
4. Evaluation of iron metabolism in α and β -thalassemia with gene mutations in East Coast of Malaysia. DPU, University grant (2017) - **Principal Investigator: Hamid Ali Nagi Al-Jamal.**
5. Elucidating the mechanistic pathways of GFAT1 and CHK1 in colorectal carcinoma. FRGS, Government (2019) - **Principal Investigator: Azmahani Abdullah**
6. Comparison of Gene Expression Profiles in Acute and Chronic Myeloid Leukaemia Cell Lines by using the NanoString nCounter Analysis System. - **Principal Investigator: Imilia Ismail**
7. Elucidating the role of miR-100 and its potential to be a therapeutic target in acute promyelocytic leukaemia. - **Principal Investigator: Imilia Ismail**

8. Elucidating The Iron Status, Hcpidin Level and Weight Loss Effect Among Overweight and Obese Young Malay Women With Iron Deficiency Anaemia. - **Principal Investigator: Imilia Ismail**
9. Elucidating The Role of Distinctive MicroRNA (miRNA) Signatures As Early Molecular Biomarkers for High-Risk Human Papillomavirus (High-risk HPV) Related Cervical Cancer Towards Precision Medicine. FRGS,Government (2022)) - **Principal Investigator: Imilia Ismail**
10. Deciphering The Biological Mechanism of miRNA-mRNA Interactions for Gene Therapy in Cervical Cancer Patients. - **Principal Investigator: Imilia Ismail**

List of significant publications:

1. Almajali, B., Johan, M. F., Al-Wajeeh, A. S., Wan Taib, W. R., Ismail, I., Alhawamdeh, M., Al-Tawarah, N. M., Ibrahim, W. N., Al-Rawashde, F. A., & Al-Jamal*, H. A. N. (2022). Gene Expression Profiling and Protein Analysis Reveal Suppression of the C-Myc Oncogene and Inhibition JAK/STAT and PI3K/AKT/mTOR Signaling by Thymoquinone in Acute Myeloid Leukemia Cells. *Pharmaceuticals*, 15(3), 307.
2. Saad, H. K. M., Abd Rahman, A. A., binti Ab Ghani, A. S., Taib, W. R. W., Ismail, I., Johan, M. F., Al-Jamal*, H. A. N. (2022). Activation of STAT and SMAD Signaling Induces Hcpidin Re-Expression as a Therapeutic Target for β -Thalassemia Patients. *Biomedicines*, 10(1), 189.
3. Al-Kafaween, M. A., & Nagi Al-Jamal, H. A. (2022). A comparative study of antibacterial and antivirulence activities of four selected honeys to Manuka honey. *Iranian journal of microbiology*, 14(2), 238–251.
4. Al-Rawashde, F. A., Johan, M. F., Taib, W. R. W., Ismail, I., Johari, S. A. T. T., Almajali, B., ... Al-Jamal*, H. A. N. (2021). Thymoquinone Inhibits Growth of Acute Myeloid Leukemia Cells through Reversal SHP-1 and SOCS-3 Hypermethylation: In Vitro and In Silico Evaluation. *Pharmaceuticals*, 14(12), 1287
5. Al-Rawashde FA, Wan Taib WR, Ismail I, Johan MF, Al-Wajeeh AS, Al-Jamal* HAN. Thymoquinone Induces Downregulation of BCR-ABL/JAK/STAT Pathway and Apoptosis in K562 Leukemia Cells. *Asian Pac J Cancer Prev*. 2021 Dec 1;22(12):3959-3965.
6. Saad, H.K., Taib, W.R., Ismail, I., Johan, M.F., Al-Wajeeh, A.S., & Al-jamal*, H.A. (2021). Reduced hepcidin expression enhances iron overload in patients with HbE/ β -thalassemia: A comparative cross-sectional study. *Experimental and Therapeutic Medicine*, 22, 1402.
7. Alshwaiyat, N.M., Ahmad, A., Wan Hassan, W., & Al-Jamal*, H.A. (2021). Association between obesity and iron deficiency (Review). *Experimental and Therapeutic Medicine*, 22, 1268.
8. Almajali, B., Al-Jamal*, H., Taib, W., Ismail, I., Johan, M. F., Doolaanea, A. A., & Ibrahim, W. N. (2021). Thymoquinone, as a Novel Therapeutic Candidate of Cancers. *Pharmaceuticals*, 14(4), 369.

Metabolic Health Research

This research group aims to understand the underlying causes of and improving treatments for obesity, diabetes, metabolic syndrome, gout, cardiovascular disease and comorbidities.

| Name | Area of expertise | Contact |
|---------------------------|---|---|
| Leader | | |
| Dr Nizam Zahary | Human Genetics, Molecular Genetics | Scopus ID: 35081428700 ORCID: 0000-0001-7449-2501 Mobile: 012-9614333 Email: nizamzahary@unisza.edu.my |
| Members | | |
| AP Dr Wan Rohani Wan Taib | Population Genetics | Scopus ID: 57188730501 ORCID: 0000-0001-9455-5768 Mobile: 016-9712549 Email: wanrohani@unisza.edu.my |
| Dr. Kan Su-Yin | Biochemistry, Host-pathogen interaction | Scopus ID: 56699534900 ORCID: 0000-0003-0539-0792 Mobile: 011-12283886 Email: suyinkan@unisza.edu.my |
| En Mohd Khairi Zahri | Human Genetics, Molecular Genetics | Scopus ID: 24577967800 ORCID: 0000-0002-6582-6001 Mobile: 013-3876442 |

| | | |
|--------------------------------|---|---|
| | | Email: khairizahri@unisza.edu.my |
| Dr Holifa Saheera Binti Asmara | Biochemistry Health Sciences Molecular Medicine | Scopus ID: 57195288819 ORCID: 0000-0002-6982-7589 Mobile: +60192036935 Email: holifa@unisza.edu.my |
| Rohayu Izanwati Mohd Rawi | Genomic Medicine Stem Cell Molecular Genetics | Scopus ID:57191522058 ORCID: 0000-0003-4298-1284 Mobile:0192702648 Email: izanwati@unisza.edu.my |

List of research projects:

1. Elucidating The Epigenetic Mechanism of Differentially Expressed Mirna in Allopurinol Therapy for Gout in Personalized Medicine, Skim Geran Penyelidikan Fundamental - FRGS, Government (2021 - **Principal Investigator: AP Dr Wan Rohani Wan Taib**)
2. An investigation on the role of adiponectin and resistin in atypical antipsychotics-induced metabolic syndrome (MetS). - **Principal Investigator: Dr Mohd Nizam Zahary**
3. Integrated Metabolomics And Genomics of Coronary Heart Disease (chd): Elucidating Novel Biomarkers Associated With The Mechanism of Chd And Its Association With The Dietary Patterns of Terengganu Population. - **Principal Investigator: Dr Kan Su-Yin**

List of significant publications:

1. Wan Taib et al. 2018. Association of Solute Carrier Family 2, Member 9 (slc2a9) Genetic Variant Rs3733591 with Gout in a Malay Sample Set (2018), Medical Journal of Malaysia, pp. 307-310
2. Wan Taib et al. 2018 Haplotype Analysis of Leptin Gene Polymorphisms in Obesity Among Malays in Terengganu, Malaysia Population (2018), The Medical Journal of Malaysia, pp. 281-285.
3. Asmara et al. 2017. Tri-e® Prevents Cognitive Impairment And Deoxyribonucleic Acid Damage in Diabetes Mellitus (2017), Asian Journal of Pharmaceutical And Clinical Research, pp. 373-376.
4. Asmara et al. 2017. The Current Screening Technologies of Gene Expression Profile in Diabetes Mellitus (2017), Asian Journal of Pharmaceutical And Clinical Research, pp. 10-14.

RESEARCH GROUP 3: HEALTH BEHAVIOURS

Focuses on health behaviour patterns and lifestyles that relate to health maintenance, restoration, and improvement through advanced and sustainable primary healthcare intervention for a better quality of life.

LEADER:
ASSOC. PROF DR ARYATI AHMAD

RESEARCH SUB-GROUPS

Obesity & Cardiovascular Diseases

The group focuses on lifestyle intervention and behaviours for the prevention and treatment of obesity and cardiovascular disease risk factors.

| Name | Area of Expertise | Contact |
|----------------------------|---|--|
| Leader | | |
| Assoc Prof Dr Aryati Ahmad | Dietetics, Obesity, Cardiovascular Diseases, Non-Communicable Diseases | Scopus ID: 57189075947 ORCID: 0000-0003-2851-0339 Mobile: +6019-6448654 Email: aryatihmad@unisza.edu.my |
| Members | | |
| Dr Marhasiyah Rahim | Physiotherapy, Exercise, Rehabilitation, Physical Activity | Scopus ID: 57192266303 ORCID: 0000-0002-7930-4706 Mobile: +6019-3965648 Email: marhasiyah@unisza.edu.my |
| Dr Wee Bee Suan | Childhood Nutrition, Body Composition, Physical Activity and metabolic syndrome | Scopus ID:39962848600 ORCID: 0000-0003-3441-6816 Mobile: +012-2984895 Email: beesuan@unisza.edu.my |

List of research projects:

- Effects Of Three Different Weight Reducing Diets On Weight Management Cardiovascular Disease Risk Factors And Leptin Gene Polymorphisms - **Principal Investigator: Assoc. Prof Dr Aryati Ahmad**
- Prediction Of Coronary Heart Disease (CHD) Risk Using Dietary Risk Calculator: The Malaysian Diet And Chd Study (MyDiet-CHD Study) - **Principal Investigator: Assoc. Prof Dr Aryati Ahmad**
- Developing an early Health Intervention (eHI) Framework to Combat Obesity in Malaysia - **Principal Investigator: Assoc. Prof Dr Aryati Ahmad**

List of significant publications:

- Alagal, R.I., Alfaris, N.A., Altamimi, J.Z., Alshwaiyat, N.M., Ahmad, A., Alzaheb, R.A. & Alkehayez, N.M. (2022) Differences in overweight and obesity prevalence among young men from twelve Middle Eastern and Asian countries living in Saudi Arabia. *Healthcare*, 10(4).
- Altamimi, J.Z., Alshwaiyat, N.M., Alfaris, N.A., Ahmad, A. & Alagal, R.I. (2022). Differences in Overweight and Obesity Prevalence in Middle-Aged Men from Twelve Middle Eastern and Asian Countries Living in Saudi Arabia. *Inter J Gen Med*, 15: 3333-3343
- Wan Musa, W.Z., Abu Bakar, N.A.F., Ahmad, A., & Naing, N.N. (2021). Association between fatty acids and coronary heart disease: A scoping review. *Medical Journal Malaysia*, Vol 77.
- Shamsuddin, A. A., Ahmad, A.* & Taib, W. R. W. (2018). Haplotype Analysis of Leptin Gene Polymorphisms in Obesity Among Malays in Terengganu, Malaysia Population (2018). *Medical Journal of Malaysia*, pp. 281-285.
- Abu Bakar, N.F., Ahmad, A., Wan Musa, W.Z., Shahril, M.R., Wan-Arfah, N., Piernas, C., Ramli, A.W. & Naing, N.N. (2022). Association between dietary pattern high in saturated fatty acids, dietary energy density, and sodium with coronary heart disease. *Scientific Reports*;12:13049.
- Ahmad, A., Piernas, C., Little, M. & Jebb, S. (2022). Trend in weight loss attempts among children in England. *Arch Dis Child*;107:896-901.

7. Ahmad, A., Sharil, M.R., Wan-Arfah, N., Mohd Abu Bakar, W.A., Piernas, C., & Lua, P.L. (2022). Changes in health-related lifestyles and food insecurity and its association with quality of life during the COVID-19 lockdown in Malaysia. *BMC Public Health*, 22(1150).
8. Ahmad, A., Isherwood, C., Umpleby, M. & Griffin, B. (2020). Effects of high and low sugar diets on cardiovascular disease risk factors. *Annals of Nutrition and Metabolism*, 66(Supplement), S18-S24.
9. Abdul Manaf, N.U., Ahmad, A. & Mohd Yusoff, N.A. (2018) A Systematic Review on Long Term Effects of Weight Loss Diet on Body Weight and Lipid Profile: Findings from Randomized Controlled Trials, *Universal Journal of Public Health* 6(2): 40-48.
10. Umpleby, A.M.A, Shojae-Moradie, F.A, Fielding, B.A, Li, X.A, Marino, A.A, Alsini, N.A, Isherwood, C.A, Jackson, N.A, Ahmad, A, Stolinski, M.A, Lovegrove, J.A.C, Johnsen, S.A, Mendis, A.S.J.R.A, Wright, J.A, Wilinska, M.E.D, Hovorka, R.D, Bell, J.D.E, Louise Thomas, E.Ef, Frost, G.S.G, Griffin, B.A (2017). Impact of Liver Fat on The Differential Partitioning of Hepatic Triacylglycerol into VLDL Subclasses on High and Low Sugar Diets (2017), *Clinical Science*, pp. 2561-2573.

Geriatric Nutrition

The group research on nutritional management and healthcare for physiological, psychological and social changes towards healthy ageing.

| Name | Area of Expertise | Contact |
|------------------------|--|---|
| Leader | | |
| Prof Dr Sakinah Harith | Dietetics, Geriatric Nutrition, Clinical Nutrition | Scopus ID: 37107913600 ORCID: 0000-0002-4687-2651 Mobile: +6013-9313577 Email: sakinahharith@unisza.edu.my |
| Members | | |
| Chin Yi Ying | Dietetics, Rehabilitation Nutrition | Scopus ID: 57201792465 ORCID: 0000-0003-2624-1307 Mobile: +6012-9816800 Email: chinyyiying@unisza.edu.my |
| Dr Asheila AK Meramat | Cognitive Science, Metabolomic, Oxidative Damage Markers, Older Adults, Trace Elements | SCOPUS ID: 56344362200 ORCID: 0000-0002-9583-5224 Mobile: 016-6063981 Email: asheilameramat@unisza.edu.my |
| Dr Naresh Bhaskar Raj | Physiotherapy Musculoskeletal Physiotherapy, Exercise | Scopus ID:57200314354 ORCID: 0000-0003-3367-2914 Mobile: +60169088975 Email: bnaresh@unisza.edu.my |

List of research projects:

1. Factors Related with Mental Health, Nutritional Status and Quality of Life Among Elderly in Yogyakarta, Indonesia and Terengganu, Malaysia during the COVID-19 Pandemic - Principal Investigator: Prof Dr Sakinah Harith
2. Development, validation, implementation and evaluation of digital nutrition education by augmented reality (AR-Dysphagia Diet) among patients with dysphagia under rehabilitation - Principal Investigator: Chin Yi Ying

List of significant publications:

1. Siti Nur Amirah Sheikh Hishamuddin, Aliza Haslinda Hamirudin, Sakinah Harith, Mohd Aznan Md Aris, Karimah Hanim Abd Aziz, Nurul Syaileen A Rashid. (2022). Development and Feasibility Assessment of A Nutrition Screening Guideline In Older Patients For Use Amongst Healthcare Staff In Health Clinic Setting: An Action Research Study. *Malaysian Journal of Medicine and Health Sciences*. 17(4):21-29.
2. Siti Nur Amirah Sheikh Hishamuddin, Aliza Haslinda Hamirudin, Sakinah Harith, Mohd Aznan Md Aris, Karimah Hanim Abd Aziz, Iman Nabihah Noor Azam, Nurul Syaileen A Rashid. (2022). Development of Nutrition Screening Guideline Content for use by Healthcare staffs in older adults in Health Clinic Setting: A Scoping Review. *Malaysian Journal of Nutrition*. 28(1):119-148.

3. Nurul Aimi Hafizah & Sakinah Harith. Prevalence of sarcopenia and its connection with nutritional and functional status in Asian countries: a scoping review. *Asian Journal of Medicine and Biomedicine*. 6(1): 1-15.
4. Wong Hui Jie, Sakinah H., Lua Pei Lin & Khairul Azmi Ibrahim (2021). Health-related quality of life profiles and their dimension-specific associated factors among Malaysian stroke survivors: a cross sectional study. *Health and Quality of Life Outcomes*. 19(210):1-14.
5. Siti Nur Amirah Sheikh Hishamuddin, Aliza Haslinda Hamirudin, Sakinah Harith, Mohd Aznan Md Aris, Karimah Hanim Abd Aziz, Nurul Syaileen A Rashid. (2021). Barriers and Opportunities of Nutrition Screening in Elderly Patients in Health Clinic Settings in Kuantan, Pahang: A Qualitative Study. *Malaysian Journal of Medicine and Health Sciences*. 17(4):21-29.
6. Iman Nabihah Noor Azam, Aliza Haslinda Hamirudin, Sakinah Harith, Mohd Aznan Md Aris, Karimah Hanim Abd Aziz, Siti Nur Amirah Sheikh Hishamuddin & Nurul Syaileen A Rashid. (2021). Content identification for the development of a nutrition resource kit for malnourished and at-risk elderly: A review. *Malaysian Journal of Nutrition*. 27(3): 373-396.
7. Shun Qian Kang, Sakinah Harith, Ying Qian Ong and Barakatun-Nisak Mohd Yusof. (2021). Association between Hand Grip Strength and Health-Related Quality of Life among Malaysian Middle-Aged Adults. *International Journal of Academic Research in Business & Social Sciences*. 11(19):158-168.
8. Nur Aimi Asyrani Z., Sakinah H., Nurulhuda MH & Ong YQ. (2021). Nutritional Status And Health-Related Quality Of Life Among Knee And Hip Osteoarthritis Patients Under Rehabilitation Care In Kuala Nerus, Terengganu, Malaysia. *Malaysian Orthopaedic Journal*. 15(2): 77-88.

Pediatric Health & Nutrition

The research covers on nutrition and health issues including nutrigenomics, nutritional status and intervention for children with special health care needs to support optimal development and restore better health outcomes.

| Name | Area of Expertise | Contact |
|-----------------------------------|--|---|
| Leader | | |
| Karimah Fakhriah Ismail | Children with Special Needs, Nutrigenomics | Scopus ID: - ORCID: 0000-0002-7342-5515 Mobile: +60 19-933 6117 Email: karimahismail@unisza.edu.my |
| Members | | |
| Assoc Prof Dr Aryati Ahmad | Dietetics, Obesity, Cardiovascular Diseases, Non-Communicable Diseases | Scopus ID: 57189075947 ORCID: 0000-0003-2851-0339 Mobile: +6019-6448654 Email: aryatihmad@unisza.edu.my |
| Prof Dr Sakinah Harith | Dietetics, Geriatric Nutrition, Clinical Nutrition | Scopus ID: 37107913600 ORCID: 0000-0002-4687-2651 Mobile: +6013-9313577 Email: sakinahharith@unisza.edu.my |
| Assoc Prof Dr Wan Rohani Wan Taib | Genetics | Scopus ID: 57188730501 ORCID: 0000-0001-9455-5768 Mobile: 016-9712549 Email: wanrohani@unisza.edu.my |

List of research projects:

1. Development of a Nutritional Module Based on Genetic Profile for Children with Neurodevelopmental Disabilities (CWND) Attending Community-Based Rehabilitation Centres in Terengganu, Dana Penyelidikan Universiti (DPU) (2017) - **Principal Investigator: Karimah Fakhriah Ismail**
2. Effects of Three Weight Reducing Diets on Weight Loss, Resting Metabolic Rate, Attrition Rates and Quality of Life., Dana Penyelidikan Universiti (DPU) (2015) - **Principal Investigator: Karimah Fakhriah Ismail**

List of significant publications:

1. Abdul Halim, N. H., Farizah Azman, N. A., Binti Mohammed Sabri, N. N. B., Ahmad, A., Harith, S., Wan Taib, W. R., & Ismail, K. F. (2021). Prevalence of Child's Behavioural Feeding Problems, Body Mass Index and Mental Health Issues Among Parents and Children with Autism in Malaysia. *Asian Journal of Medicine and Biomedicine*, 5(S1), 39-46.
2. Nurhazrina Zahri, Ismail, K. F., Ahmad, A., Harith, S., Wan Taib, W. R., Pei Lin Lua, & Wan Ibrahim, W. P. (2020). Association Between Body Weight Status and Nutritional Problems Among Cerebral Palsy Children in Community-Based Rehabilitation Centres, Terengganu. *Asian Journal of Medicine and Biomedicine*, 4(SI 1), 104-113.
3. Yusoff NAM, Ganeson S, Ismail KF, Juahir H, Shahril MR, Lin LP, Ahmad A, Wafa SW, Harith S, Rajikan R. (2018). Physical activity level among undergraduate students in Terengganu, Malaysia using pedometer. *J. Fundam. Appl. Sci.*, 10(1S), 512-522.
4. Shafie N, Taha CSC, Zainuddin LRM, Halib H, Ismail KF, Lua PL. (2017) Association between serum 25-hydroxyvitamin D level and anthropometric indices among institutionalized elderly people in Kelantan, Malaysia. *J. Fundam. Appl. Sci.*, 9(2S), 121-136.
5. Wafa SW, Shahril MR, Ahmad AB, Zainuddin LR, Ismail KF, Aung MM, Mohd Yusoff NA (2016). Association between physical activity and health-related quality of life in children: a cross-sectional study. *Health Qual Life Outcomes*.14:71

Researchers

| Name | Area of Expertise | Contact |
|-------------------------|--|---|
| Dr Che Suhaili Che Taha | Vitamin D, nutrition, cognitive function | Scopus ID: 55409760100 ORCID: 0000-0001-7329-3834 Mobile: +60139414350 Email: chesuhaili@unisza.edu.my |

RESEARCH GROUP 4: NATURAL PRODUCTS & FUNCTIONAL FOOD

Investigates the bioactive compounds (eg. phytochemicals, dietary fibre) derived from natural products from plants and animals for the development of functional foods to improve health.

| | |
|--|--|
| LEADER: DR ABBE MALEYKI MHD. JALIL | CO-LEADER: DR NAPISAH HUSSIN |
|--|--|

RESEARCH SUB-GROUPS

Natural Products and Medicinal Plants

This group investigates the role of natural products (eg. honey, dietary fibre, phenolic compounds) as well as medicinal plants (eg. plant extracts) in health and diseases.

| Name | Area of expertise | Contact |
|-----------------------------------|---|--|
| Leader | | |
| Dr Wan Nurfarahin binti Wan Osman | Natural Products, Histopathology, Cell and Biology | Scopus ID: 57196123248 ORCID: 0000-0002-0186-9635 Mobile: +60129552940 Email: nurfarahinosman@uniswa.edu.my |
| Members | | |
| Dr. Nor Asiah Muhamad Noor | Natural Products, Animal Study, Biomedical Sciences | Scopus ID: 56102861000 ORCID: 0000-0002-6635-1327 Mobile: +60199348747 Email: norasiah@uniswa.edu.my |
| Dr. Noor Zarina Abd Wahab | Antimicrobial mechanism of action and biological activity of plant natural products | Scopus ID: 57209462660 ORCID: 0000-0002-7832-449X Mobile: +60193042205 Email: zarinawahab@uniswa.edu.my |
| Dr. Ts. Dr. Mohd Hilmi Abu Bakar | Animal Cell Physiology, Cell Culture Technology, Biomaterial, Natural Products, Radiation Biology, Tissue Engineering, Microbial Industry | Scopus ID: - ORCID: 0000-0002-3829-5428 Mobile: 09-6688548 Email: mhilmiab@uniswa.edu.my |
| Dr. Nurul Hikmah Binti Harun | Immunology, Cell and Biology, Natural Product, Biomedical Sciences. | Scopus ID: 57204923448 ORCID: 0000-0002-3215-6259 Mobile: +0149137502 Email: nurulhikmah@uniswa.edu.my |

List of research projects:

1. Elucidating The Anti Leukaemic Mechanisms of Chrysanthemum sp. In Human Leukaemic K562 and HL60 Cells. Lab Material (LabMat) Research Grant (2018-2023) - **Principal Investigator: Dr Wan Nurfarahin Wan**
2. Elucidating The Cell Cycle Arrest and Apoptosis in Human Adenocarcinoma Colon Cancer Cells by Extract Derived from Fragrant Rice MRQ74 & MRQ76 Varieties. Industry Grant (2022-2023). - **Principal Investigator: AP. Dr. Mohd Adzim Khalili Rohin**

3. Delineating The Effects of Polygonum Minus Leaves Extracts on HIF-1 Protein Levels Against Colon Cancer Cell : In-Vitro Study. Dana Penyelidikan Universiti (DPU) (2020-2023) - **Principal Investigator: AP. Dr. Mohd Adzim Khalili Rohin**
4. Evaluation of phytochemistry, cytotoxicity and antiviral activities of *Kyllinga nemoralis* plant extracts. Lab Material (LabMat) Research Grant (2020-2023) - **Principal Investigator: Dr. Noor Zarina Abd Wahab**
5. Regulation of dengue virus serotype 2 replication in BHK-21 cells by *Melaleuca cajuputi* essential oils: relationship to gene expression, protein synthesis and molecular interaction. Fundamental Research Grant Scheme (2022-2024) - **Principal Investigator: Dr. Noor Zarina Abd Wahab**
6. The effects of *Amaranthus tricolor* Linn in modulating the innate immune responses of macrophage cell lines. Graduate on Time Grant (GOT) (2021-2023) - **Principal investigator: Dr. Nurul Hikmah Harun.**

List of significant publications:

1. Rohin MAK, Jumli MN, Ridzwan N, Baig AA, Abdul Latif AZ, Abd Hadi N: 2018. Effect of *Gynura Procumbens* Extracts on Anti-Proliferative Activity and Its Associated Morphological Changes of Human Glioblastoma Multiforme Cell Line (U-87), *Pharmacognosy Journal*, p. 492-496, ISSN: 0975-3575
2. Ridzwan N, Jumli MN, Baig AA, Rohin MAK. 2018. Quantitative and Optimization of Anthocyanin Extracted from Pomegranate (*Punica Granatum*) Extract by High-Performance Liquid Chromatography (Hplc)(2018), *Pharmacognosy Journal*, p. 650-653, ISSN: 9753575.
3. Rohin MAK, Jumli MN, Ridzwan N, Abd Hadi N, Baig AA, Arshad R, A. Latif AZ. 2017. Cytotoxicity Effect and Morphological Study of Different *Duku*(*Lansium Domesticum* Corr.) Extract Toward Human Colorectal Adenocarcinoma Cells Line (Ht-29)(2017), *Pharmacognosy Journal*, p. 757-761, ISSN: 0975-3575
4. Muhamad Nor NA, Azmi NA, Noordin L, Abu Bakar NH & Wan Ahmad WAN. 2021, Aqueous Extract Of *Etlingera Elatior* Flowers Improved Blood Glucose Control, Kidney Function And Histology Of Streptozotocin-Induced Diabetic Rat. *Journal Of Sustainability Science And Management* 14(3):80-91
5. Muhamad Nor NA, Noordin L, Abu Bakar NH, Wan Ahmad WAN. (2020). Evaluation of antidiabetic activities of *Etlingera elatior* flower aqueous extract in vitro and in vivo *Journal of Applied Pharmaceutical Science* Vol. 10 (08), pp 043-051.
6. Nurul Hikmah. Immunostimulatory Effects of Asiatic Acid and Madecassoside on The Phagocytosis Activities of Macrophages Cell Line (J774a.1)(2021), *Journal of Applied Pharmaceutical Science*, p. 104 - 111, ISSN: 22313354 [
7. Nurul Hikmah. Immunomodulatory Effects and Structure-Activity Relationship of Botanical Pentacyclic Triterpenes: a Review(2020), *Chinese Herbal Medicines*, p. 118-124, ISSN: 1674-6384.
8. Nurul Hikmah. The Potential of *Centella Asiatica* (Linn.) Urban as an Anti-Microbial and Immunomodulator Agent: a Review(2019), *Natural Product Sciences*, p. 92-102, ISSN: 12263907.
9. Nurul Hikmah. The Effects of Individual and Combination of Asiatic Acid and Madecassoside Derived from *Centella Asiatica* (Linn.) on The Viability Percentage and Morphological Changes of Mouse Macrophage Cell Lines (J774a.1)(2018), *Journal of Applied Pharmaceutical Science*, p. 109-115, ISSN: 2231-3354
10. Nurul Hikmah. . Immunomodulatory Effects of Selected Malaysian Plants on The Cd18/11a Expression and Phagocytosis Activities of Leukocytes(2015), *Asian Pacific Journal of Tropical Biomedicine*, p. 48-53, ISSN: 22211691.

Functional Food for Health

This group investigates the role functional foods in health and disease using in vitro, animal models and human intervention.

| Name | Area of Expertise | Contact |
|----------------------------------|---|--|
| Leader | | |
| Dr Abbe Maleyki Mhd Jalil | Dietary fibre, (poly)phenols, food matrix, functional foods, appetite regulations and sports nutrition | Scopus ID: 57214230135 ORCID: 0000-0002-0051-4533 Mobile: +6011-11788551 Email: abbemaleyki@uniswa.edu.my |
| Members | | |
| Dr. Napisah Hussin | Functional Food Product Food Analysis Food Microbiology • Fermentation Technology Food Safety | Scopus ID: 57200317206 ORCID: 0000-0002-2889-024X Mobile: 019-93941223 Email: napisah@uniswa.edu.my |
| Hasmiza Halib | Nutritional Biochemistry | Scopus ID: 57194154576 ORCID: 0000-0003-0589-5002 Mobile: Email: hasmizahalib@uniswa.edu.my |
| AP. Dr. Mohd Adzim Khalili Rohin | Functional Food, Food Chemistry, Nutraceuticals Food Safety, Halal Products, Hazard Analysis and Risk Assessment | Scopus ID: 55946379800 ORCID: 0000-0001-7036-5345 Mobile: Email: mohdadzim@uniswa.edu.my |
| Dr. Norhayati Abd. Hadi | Functional Food, Nutraceuticals, Food Science, Food Analysis, Food Safety | Scopus ID: 54891732900 ORCID: 0000-0003-2226-2290 Mobile: 0139627339 Email: norhayatihadi@uniswa.edu.my |

List of research projects:

1. Gut-Host Interactions of Dark Chocolate Prepared with Polyphenols-Rich Cocoa and Soluble Guar Gum in Diet-Induced Metabolic Syndrome Rats - Fundamental Research Grant Scheme (FRGS) (2021-2024) - **Principal Investigator: Dr. Napisah Binti Hussin**
2. Value-Adding of Goat's Feeding to Increase Quantity and Quality of Goat's Milk. Ministry of Higher Education (2018-2019) - **Principal Investigator: Dr. Napisah Binti Hussin**
3. Production and Evaluation of Resistant Starch from The Breadfruit (Artocarpus Altilis). Dana Pembudayaan Penyelidikan (RAGS) (2015-2018) - **Principal Investigator: Dr. Napisah Binti Hussin**
4. Propiogenic Effects of Functional Breads Prepared With Underutilised Durian (Durio Zibethinus Murr.) and Beta Glucan on Glucose, Insulin, C-peptide And Appetite Regulations. Fundamental Research Grant Scheme (FRGS) (2017-2022) - **Principal Investigator: Dr. Abbe Maleyki Mhd Jalil**

List of significant publications:

1. Napisah H, Nuriah MNSiti, Zarinah Z, Deli RNRaja Arief. 2022. Fermentation Properties and Potential Prebiotic Activity of Hcl-Breadfruit Resistant Starch Type III by Lactobacillus Plantarum Atcc 13649 and L. Brevis Atcc 8287, International Food Research Journal, p. 210 - 222, ISSN: 19854668.
2. Ramli NNS, Alkhalidy AA, Mhd Jalil AM. 2021. Effects of Caffeinated and Decaffeinated Coffee Consumption on Metabolic Syndrome (MeTS) Parameters: A Systematic Review and Meta-Analysis of Randomized Controlled Trials (2021), Medicina, pp 957

3. Khairudin MAS, Mhd Jalil AM, Hussin N. 2021. Effects of Polyphenols in Tea (*Camellia Sinensis* sp.) on Modulation of Gut Microbiota in Human Trials and Animal Studies, *Gastroenterology Insights*, pp. 202-216
4. Amiruddin NEN, Zahary MN, Bhaskar R, Mhd Jalil AM. 2020. Glycaemic Index, Palatability and Acceptability of Energy Drinks Prepared with β -glucan and Whey Protein , *Food Research*, pp. 421-430, ISSN: 2550-2166
5. Mhd Jalil AM, Combet E, Edwards CA & Garcia AL. 2019. Effect of β -glucan And Black Tea in A Functional Bread on Short Chain Fatty Acid Production By The Gut Microbiota in A Gut Digestion/fermentation Mode, *International Journal of Environmental Research And Public Health*, pp. 1-14, ISSN: 16617827
6. Aziz NAA & Mhd Jalil AM. 2019. Bioactive Compounds, Nutritional Value, And Potential Health Benefits of Indigenous Durian (*Durio Zibethinus* Murr.): A Review, *Foods*, pp. 1-18, ISSN: 2304-8158 \
7. Salleh SN, Fairus AAH, Zahary MN, Bashkar Raj N, Mhd Jalil AM. 20219. Unravelling The Effects of Soluble Dietary Fibre Supplementation on Energy Intake And Perceived Satiety in Healthy Adults: Evidence from Systematic Review And Meta-analysis of Randomised-controlled Trials, *Foods*, pp. 1-22, ISSN: 2304-8158 \
8. Halib H, Ismail A, Mohd Yusof B-N, Osakabe N, Mat Daud ZA. 2020. Effects of Cocoa Polyphenols and Dark Chocolate on Obese Adults: a Scoping Review, *Nutrients*, p. 1-19, ISNN: 20726643

THEME 2: HEALTH & TECHNOLOGY

RESEARCH GROUP 5: MEDICAL IMAGING & RADIATION SCIENCE

Focusing on various disciplines of research in medical imaging and radiation sciences including medical imaging technology and application.

| | |
|--|---|
| LEADER: DR SUFFIAN MOHAMAD TAJUDIN | CO-LEADER: DR NUR HAYATI JASMIN |
|--|---|

RESEARCH SUB-GROUPS

Cancer Molecular and Functional Imaging Research (CaMFIRe)

A major focus of this research group includes imaging in cancer, neuroscience, and cardiovascular health using multimodal imaging modalities such as magnetic resonance imaging (MRI), computed tomography (CT), ultrasound, digital mammography, and nuclear medicine. Research works will evolve around medical imaging technology and application, as well as image processing and analysis in medical imaging.

Vision : To be recognised as the world-class imaging expert research group.

Mission: Promotes cutting edge imaging technology across interdisciplinary fields and strengthens research culture through collaborative research.

Objectives :

- Cultivate research activities at national and international
- Provide consultancy, expert services and contract research
- Establish joint-research, development and collaboration with industries

| Name | Area of Expertise | Contact |
|---|---|---|
| Leader | | |
| Ts Dr Kamarul Amin bin Abdullah@Abu Bakar | Medical Imaging, Digital Image Processing, Health Sciences, Computed Tomography | Scopus ID: 57189661898 ORCID: 0000-0002-3568-9579 Mobile: +6012-3508637 Email: kamarulaminab@unisza.edu.my |
| Members | | |
| Dr Nur Hayati bt Jasmin | Cardiovascular Imaging, MRI | Scopus ID: 57219696135 ORCID: 0000-0003-1353-0804 Mobile: +6019-6373767 Email: nurhayatijasmin@unisza.edu.my |
| Dr Nurul Fadhlina bt Ismail | Medical Imaging, MRI | Scopus ID: - ORCID: - Mobile: +601159892199 Email: fadhlinaismail@unisza.edu.my |
| Dr Elza Azri bin Othman | Neuroimaging, Functional MRI | Scopus ID: 57209414489 ORCID: 0000-0002-9940-339X Mobile: +60189004345 Email: elzaazriothman@unisza.edu.my |
| Dr Azlinawati binti Ali | Medical Imaging, Medical Imaging Instrument | Scopus ID: - ORCID: - Mobile: +60193690750 Email: azlinawatiali@unisza.edu.my |

List of research projects:

1. Investigating Radiation Dose in Computed Tomography Examinations: Optimization Practices and Diagnostic Reference Levels in Terengganu, Skim Geran Penyelidikan Fundamental Bagi Penyelidik Baharu - *Principal Investigator: Ts Dr Kamarul Amin Abdullah @ Abu Bakar*
2. Development of Myocardial Tissue Characterization of Cardiac Fibrosis as an Early Imaging Marker of Heart Failure in Diabetic Patients Without Coronary Artery Disease - *Principal Investigator: Dr Nur Hayati Jasmin*
3. Subjective Craving and Brain Response to Drug-related Cues in Former Drug Addicts (FRGS) (2022) - *Principal Investigator: Dr. Elza Azri bin Othman*

List of significant publications:

1. Abdul Wahab NS, Yahya N, Yusoff AN, Zakaria R, Thanabalan J, Othman E, Bee Hong S, Athi Kumar RK, & Manan HA (2022). Effects of different scan duration on brain effective connectivity among default mode network nodes. *Diagnostics*, 12(5), 1277. <https://doi.org/10.3390/diagnostics12051277>
2. Suradi SH, Abdullah KA, & Mat Isa NA (2021). Improvement of image enhancement for mammogram images using fuzzy anisotropic diffusion histogram equalisation contrast Adaptive Limited (FADHECAL). *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, 1(1), 67–75. <https://doi.org/10.1080/21681163.2021.1972344>
3. Suradi S, Abdullah K, & Isa N (2021). Automated classification of breast cancer lesions for digitised mammograms via computer-aided diagnosis system. *Journal of Applied Science & Process Engineering*, 2(2), 892–902. <https://doi.org/10.33736/jaspe.3517.2021>
4. Suradi SH, & Abdullah KA (2021). Digital mammograms with image enhancement techniques for breast cancer detection: A systematic review. *Current Medical Imaging Formerly Current Medical Imaging Reviews*, 17(9), 1078–1084. <https://doi.org/10.2174/1573405617666210127101101>
5. Jasmin NH, Thin MZ, Johnson RD, Jackson LH, Roberts TA, David AL, Lythgoe MF, Yang PC, Davidson SM, Camelliti P, & Stuckey DJ (2021). Myocardial viability imaging using manganese-enhanced MRI in the first hours after myocardial infarction. *Advanced Science*, 8(11), 2003987. <https://doi.org/10.1002/adv.202003987>
6. George MJ, Jasmin NH, Cummings VT, Richard-Loendt, A, Launchbury F, Woollard K, Turner-Stokes T, Garcia Diaz A I, Lythgoe M, Stuckey DJ, Hingorani AD, & Gilroy DW (2021). Selective interleukin-6 trans-signaling blockade is more effective than Panantagonism in reperfused myocardial infarction. *JACC: Basic to Translational Science*, 6(5), 431–443. <https://doi.org/10.1016/j.jacbts.2021.01.013>
7. Othman EA (2021). Editorial for “progressive deterioration of dynamic functional network connectivity in patients with hbv-related cirrhosis.” *Journal of Magnetic Resonance Imaging*, 54(6), 1841–1842. <https://doi.org/10.1002/jmri.27742>
8. Othman EA, Mohamad EA, Abdul Manan H, Yusoff AN (2021). Effects of Stochastic Facilitation in Healthy Subjects with Different Auditory Working Memory Capacity. *Physics and Technology in Medicine*, 1(2), 27-31. ISSN 2710-723X
9. Abdullah K, McEntee M, Reed W, & Kench P (2020). Evaluation of an integrated 3d-printed phantom for coronary CT angiography using iterative reconstruction algorithm. *Journal of Medical Radiation Sciences*, 67(3), 170–176. <https://doi.org/10.1002/jmrs.387>
10. Abdullah KA, McEntee MF, Reed WM, & Kench PL (2020). Increasing iterative reconstruction strength at low tube voltage in coronary CT angiography protocols using 3d-printed and Catphan®500 phantoms. *Journal of Applied Clinical Medical Physics*, 21(9), 209–214. <https://doi.org/10.1002/acm2.12977>

Medical Physics

This research covers many areas of medical physics, radiation sciences and radiation safety in diagnostic imaging and radiation treatment that incorporated multiple imaging and also treatment modalities.

| Name | Area of Expertise | Contact |
|------------------------------|--|--|
| Leader | | |
| Dr Suffian Mohamad Tajudin | Radiation Dosimetry, Radiation Protection | Scopus ID: 56267289100 ORCID: 0000-0002-7698-2659 Mobile: +60162906700 Email: suffian@unisza.edu.my |
| Members | | |
| Dr Nazifah Abdullah | Nuclear Imaging, Radiation Physics, Non-Ionising Radiations | Scopus ID: - ORCID: - Mobile: +60199555507 Email: nazifah@unisza.edu.my |
| Dr Fairuz Mohd Nasir | Medical Physics, Biophysics | Scopus ID: - ORCID: - Mobile: +60125452254 Email: fairuznasir@unisza.edu.my |
| Dr Nurul Syazwina Mohamed | Medical Physics, Radiation Physics, Semiconductor Materials and Devices | Scopus ID: - ORCID: - Mobile: +60129379473 Email: nurulsyazwina@unisza.edu.my |
| Dr Juliana Mohd Radzi | Medical Physics, Radiation Physics | Scopus ID: - ORCID: - Mobile: +60179599578 Email: julianamradzi@unisza.edu.my |
| Dr Nur Hamizah Mohd Zainudin | Medical Physics, Nanoparticles, Radiation Biology | Scopus ID: 57213157612 ORCID: - Mobile: +60179380335 Email: nurhamizahmz@unisza.edu.my |

List of research projects:

1. Shielding Evaluation of a Brachytherapy Room for Higher Energy Gamma Sources by using Monte Carlo Method and Modified Shadow-Shield Measurement - **Principal Investigator: Dr Suffian Mohamad Tajudin**
2. Complementary Malay Medical Practices Among Rural Terengganu Residents - **Principal Investigator: Dr Suffian Mohamad Tajudin**
3. The Assessment and Profiling of Radiofrequency Electromagnetic Radiation Exposure at Selected Schools in Terengganu, Skim Geran Penyelidikan Fundamental Bagi Penyelidik Baharu - **Principal Investigator: Dr Nazifah Abdullah**
4. Evaluation of The Fading Effect of LiF:mg,ti and LiF:mg,cu,p Due to Delay Reading and Method to Minimize The Effect Using Pre-Heat Technique - **Principal Investigator: Dr Fairuz Mohd Nasir**
5. Novel Nanocomposite-based Ceramic Tile as Non-Toxic Radiation Shielding Materials for Radiation Safety (FRGS) (2022) - **Principal Investigator: Dr Suffian Mohamad Tajudin**

List of significant publications:

1. Zolkepli AS, Mohamad Tajudin S, Aminordin Sabri AH, Mohd Noor AF, & Abdul Aziz MZ (2022). Monte Carlo simulation of multilayer radiation shielding. *Journal of Nuclear And Related Technologies*, 19(01), 1-7
2. Abdul Aziz MZ, Yani S, Haryanto F, Ya Ali NK, Tajudin SM, Iwase H, & Musarudin M(2020). Monte Carlo simulation of X-ray room shielding in diagnostic radiology using PHITS Code. *Journal of Radiation Research and Applied Sciences*, 13(1), 704–713. <https://doi.org/10.1080/16878507.2020.1828020>

3. Mat Jusoh N, Mohd Noor A, Mohamad Tajudin S, Din M, Aziz M, & Kamil W (2021). Magnetic remanence of stainless steel and titanium alloy orthopaedic implants. *Malaysian Journal of Fundamental and Applied Sciences*, 17(5), 504–513. <https://doi.org/10.11113/mjfas.v17n5.2122>
4. Olukotun SF, Gbenu ST, Oladejo OF, Sayyed MI, Tajudin SM, Amosun AA, Fadodun OG, & Fasasi MK (2020). Investigation of gamma ray shielding capability of fabricated clay-polyethylene composites using EGS5, XCOM and Phy-X/PSD. *Radiation Physics and Chemistry*, 177, 109079. <https://doi.org/10.1016/j.radphyschem.2020.109079>
5. Tajudin SM, Namito Y, Sanami T, & Hirayama H (2020). Photon field of ~100–200 keV for environmental dosimeter calibration. *Radiation Protection Dosimetry*, 188(4), 486–492. <https://doi.org/10.1093/rpd/ncz308>
6. Tajudin SM, Namito Y, Sanami T, & Hirayama H (2020). Response of plastic scintillator to gamma sources. *Applied Radiation and Isotopes*, 159, 109086. <https://doi.org/10.1016/j.apradiso.2020.109086>
7. Talik Sisin NN, Abdul Razak K, Che Mat N F, Abdullah R, Ab Rashid R, Mohd Zainudin NH, Khairil Anuar MA, Jamil A, Geso M, & Rahman WN (2022). The effects of bismuth oxide nanoparticles and Cisplatin on MCF-7 breast cancer cells irradiated with IR-192 high dose rate brachytherapy. *Journal of Radiation Research and Applied Sciences*, 15(1), 159–171. <https://doi.org/10.1016/j.jrras.2022.01.017>
8. Mohd Zainudin NH, Rahman WN, & Abdullah R (2020). Bystander effect induced in breast cancer (MCF-7) and Human Osteoblast Cell Lines (hFOB 1.19) with HDR-Brachytherapy. *Journal of Biomedical Physics and Engineering*, 10(3), 319–328. <https://doi.org/10.31661/jbpe.v0i0.1135>
9. Mohd Zainudin N, Razak K, Abidin S, Abdullah R, & Rahman W (2020). Influence of bismuth oxide nanoparticles on bystander effects in MCF-7 and hFOB 1.19 cells under 10 MV photon beam irradiation. *Radiation Physics and Chemistry*, 177, 109143. <https://doi.org/10.1016/j.radphyschem.2020.109143>
10. Mohamed NS, Wright NG, & Horsfall AB (2017). Dose rate linearity in 4H-SiC Schottky diode-based detectors at elevated temperatures. *IEEE Transactions on Nuclear Science*, 64(7), 1912–1919. <https://doi.org/10.1109/tns.2017.2705519>

RESEARCH GROUP 6: FUNCTIONAL HEALTH

Basic and applied research that helps an individual to perform activities of daily living required to meet basic needs, fulfill usual roles, and maintain their health and well-being.

LEADER:
DR NARESH BHASKAR RAJ

RESEARCH SUB-GROUPS

Therapeutic Exercise & Physical Activity

The therapeutic exercise and physical activity group focuses on the research involving exercises for individuals with normal function and diseases to assist them to perform their daily activities.

| Name | Area of Expertise | Contact |
|---------------------------------|---|--|
| Leader | | |
| Dr Naresh Bhaskar Raj | Physiotherapy Musculoskeletal Physiotherapy, Exercise | Scopus ID:57200314354 ORCID: 0000-0003-3367-2914 Mobile: +60169088975 Email: bnaresh@uniswa.edu.my |
| Members | | |
| Dr Marhasiyah binti Rahim | Physiotherapy, Exercise, Rehabilitation, Physical Activity | Scopus ID: 57192266303 ORCID: 0000-0002-7930-4706 Mobile: +6019-3965648 Email: marhasiyah@uniswa.edu.my |
| Lee Wan Zhen | Physiotherapy, Rehabilitation, exercise and physical activity | Scopus ID:57217852932 ORCID: 0000-0003-0931-0964 Mobile:+6017-9687699 Email: leewanzhen@uniswa.edu.my |
| Dr. Vijayamurugan Eswaramoorthi | Physiotherapy, Cardio-respiratory Physiotherapy, Exercise, Rehabilitation. | Scopus ID:57190877991 ORCID: 0000-0001-9677-6265 Mobile:+6016-6557365 Email: vijayeswar@uniswa.edu.my |

List of research projects:

1. Effect of Pelvic Floor Muscle Training With Biofeedback On Stress Urinary Incontinence In Malaysia Females.- **Principal Investigator: Dr Naresh Bhaskar Raj**
2. A 12-week multimodal balance enhancing programme improves balance and stability for older adults. - **Principal Investigator: Dr Naresh Bhaskar Raj**
3. Comparison Of Electromyographic Activities In The Quadriceps And Hamstring Muscles During Common Strengthening Exercises.- **Principal Investigator: Dr Naresh Bhaskar Raj**
4. Effect of Diaphragm-Pelvic Parallel Breathing Exercise on Pulmonary Function in Competitive Male Athletes. - **Principal Investigator: Dr.Vijayamurugan Eswaramoorthi**

List of significant publications:

1. Othman, N. Y. H. B., **Raj*, N. B.**, Naing, N. N., Rao, U. S., Akhtar, E., Zhen, L. W., & Zain, A. M. (2022). Effect of pelvic floor muscle training with biofeedback on stress urinary incontinence in females, Kelantan, Malaysia: A pilot study. *Research Journal of Pharmacy and Technology*, 15(4), 1831-1836.
2. Razali, H., **Raj*, N. B.**, Wan-Arfah, N., Yusoff, Z., & Ramalingam, V.(2022).Effectiveness of Physiotherapy Interventions on Symptom Severity and Hand Function in Patients with Idiopathic CTS, *International Journal of Medical and Exercise Science*, 8(2),1287-1301.
3. Alzeer, A. M., **Raj*, N. B.**, Shahine, E. M., & Nadiah, W. A. (2022). Impacts of Microprocessor-Controlled Versus Non-microprocessor-Controlled Prosthetic Knee Joints Among Transfemoral Amputees on Functional Outcomes: A Comparative Study. *Cureus*, 14(4).
4. Ashqar, M. M., **Raj*, N. B.**, Misbach, S., Amro, A., & Nadiah, W. A. (2021). Reduction in Spasticity Following Postural Management Using Proper Wheelchairs in Children with Spastic

- Cerebral Palsy in Saudi Arabia. *Annals of the Romanian Society for Cell Biology*,25(2), 4316-4326.
5. Rao, M. U., Siddharthan, S., Sowmya, R., **Raj*, N. B.**, Syazana, O., Ain, R. N., ... & Luqman, Z. M. (2021). Study on excessive daytime sleepiness among undergraduate medical students: Cross sectional survey to study the risk factors. *Research Journal of Pharmacy and Technology*, 14(3), 1828-1833.
 6. Ashqar, M. M., **Raj*, N. B.**, Misbach, S., Amrod, A., & Arfah, W. Postural Management And Quality Of Life In Children With Spastic Cerebral Palsy (2021). *Turkish Journal of Physiotherapy and Rehabilitation*, 32(3), 7164-7180.
 7. **Raj*, N. B.**, Lee, W. Z., Eswaramoorthi, V., Razali, H., Othman, N. Y. H., & Rao, U. S. (2020). Exercise programmes for reducing the risk of falls in elderly: A review. *Res J Pharm Technol*, 13(6), 2961-2968.
 8. **Eswaramoorthi*, V.**, Kuan, G., Abdullah, M. R., Abdul Majeed, A. P., Suppiah, P. K., & Musa, R. M. (2022). Design and Validation of a Virtual Physical Education and Sport Science–Related Course: A Learner’s Engagement Approach. *International Journal of Environmental Research and Public Health*, 19(13), 7636.
 9. **Eswaramoorthi*, V.**, Suhaimi, M. Z., Abdullah, M. R., Sanip, Z., Abdul Majeed, A. P., Suhaimi, M. Z., ... & Musa, R. M. (2022). Association of Physical Activity with Anthropometrics Variables and Health-Related Risks in Healthy Male Smokers. *International Journal of Environmental Research and Public Health*, 19(12), 6993.
 10. **Eswaramoorthi*, V.**, Abdullah, M. R., Raj, N. B., Musa, R. M., & Maliki, A. B. H. M. (2021). Synchronized Breathing with Pelvic Floor Contractions Expands Maximum Voluntary Ventilation in Young Soccer Players,*International Journal of Human Movement and Sports Sciences*,9(2),163-170.

Biokinetic & Robotic

The research group focuses on the mechanics of movement of normal and diseased individuals aided by robotics and other systems to enhance the kinetics and kinematics of the body.

| Name | Area of Expertise | Contact |
|---------------------------------|---|--|
| Leader | | |
| Mohd Khairuddin Mohd Safee | Biomechanics Body Motion Analysis | Scopus ID:57200320510 ORCID: 0000-0003-4655-8352 Mobile:019-2690323 Email: mohdkhairuddin@unisza.edu.my |
| Members | | |
| Dr Naresh Bhaskar Raj | Physiotherapy Musculoskeletal Physiotherapy, Exercise | Scopus ID:57200314354 ORCID: 0000-0003-3367-2914 Mobile: +60169088975 Email: bnaresh@unisza.edu.my |
| Dr. Vijayamurugan Eswaramoorthi | Physiotherapy, Cardio-respiratory Physiotherapy, Exercise, Rehabilitation. | Scopus ID:57190877991 ORCID: 0000-0001-9677-6265 Mobile:+6016-6557365 Email: vijayeswar@unisza.edu.my |
| Lee Wan Zhen | Physiotherapy, Rehabilitation, exercise and Physical Activity | Scopus ID:57217852932 ORCID: 0000-0003-0931-0964 Mobile:+6017-9687699 Email: leewanzhen@unisza.edu.my |
| Dr Marhasiyah binti Rahim | Physiotherapy, Exercise, Rehabilitation, Physical Activity | Scopus ID: 57192266303 ORCID: 0000-0002-7930-4706 Mobile: +6019-3965648 Email: marhasiyah@unisza.edu.my |

List of research projects:

1. Effects of Close Kinetic Chain Exercise (CKCE) and Open Kinetic Chain Exercise (OCKE) on Muscles Strength and Proprioception in Healthy Adults, **Principal Investigator: Mohd Khairuddin Mohd Safee**

List of significant publications:

1. **Rahim, M.**, Ooi, F. K., Shihabudin, M. T., Chen, C. K., & Musa, A. T. (2022). The Effects of Three and Six Sessions of Low Energy Extracorporeal Shockwave Therapy on Graft Incorporation and Knee Functions Post Anterior Cruciate Ligament Reconstruction. *Malaysian Orthopaedic Journal*, 16(1), 28.
2. **Rahim, M.**, Ooi, F. K., Shihabudin, T. M. T. M., & Chen, C. K. (2021). Bone Metabolism Markers In Response To Three And Six Sessions Of Low Energy Extracorporeal Shockwave Therapy In Individuals With Post Anterior Cruciate Ligament Reconstruction. *Malaysian Applied Biology*, 50(2), 89-97.
3. **Rahim, M.**, Ooi, F. K., Shihabudin, T. M. T. M., & Keong, C. (2021). A Review of the Effects and Mechanisms of Shockwave Therapy on Enthesopathy. group, *Malaysian Journal of Medicine and Health Sciences*, 35, 7-4.
4. **Mohd Safee, M. K.**, & Abu Osman, N. A. (2021). Effect of lower limb muscle fatigue on fall risk for transfemoral amputee: a pilot study. *Occupational therapy international*.vol. 2021, Article ID 4357473, 6 pages.

Nutrition & Cognitive Function

This research group focuses on how nutrients and/ or nutrition benefit cognitive function across human lifespan. Other effects of nutrition on other outcomes such as quality of life and sleep were also investigated.

| Name | Area of Expertise | Contact |
|-------------------------------|---|--|
| Leader | | |
| Dr Che Suhaili binti Che Taha | Nutrition Vitamin D Fasting Cognitive Function | Scopus ID: 55409760100 ORCID: 0000-0001-7329-3834 Mobile: +60139414350 Email: chesuhaili@unisza.edu.my |
| Members | | |
| Dr Mohd Ibrahim bin Abdullah | Critical Care nutrition Cognitive Function | Scopus ID: 57424189800 ORCID: 0000-0002-2089-3788 Mobile: +60189085251 Email: ibrahimabdullah@unisza.edu.my |

List of research projects:

1. Calorie adequacy for optimal cognitive recovery among traumatic brain injury patients. - completed.
2. Determination of cognitive function by using visual oddball paradigm among traumatic brain injury patients.
3. Nutritional Status in Association with The Cognitive Function and Quality of Life Among The Elderly in Rumah Ehsan Dungun Terengganu.
4. Factors Related with Mental Health, Nutritional Status and Quality of Life Among Elderly in Yogyakarta, Indonesia and Terengganu, Malaysia During The Covid-19 Pandemic.
5. Elucidation of The Characteristics and Potential Determinants of Food Neophobia Among Preschool Children in Terengganu.

List of significant publications:

1. **Abdullah, M. I.**, Ahmad, A., Wafa, S. W. W. S. S. T., Latif, A. Z. A., Yusoff, N. A. M., Jasmiad, M. K., ... & Karim, K. A. (2020). Determination of calorie and protein intake among acute and sub-acute traumatic brain injury patients. *Chinese Journal of Traumatology*, 23(05), 290-294.

2. **Abdullah, M. I.**, Ahmad, A., Yusoff, N. A. M., Wafa, S. W. W. S. S. T., Latif, A. Z. A., Udin, N., & Karim, K. A. (2020). Effect of calorie on cognitive function among traumatic brain injury (tbi) patients: a pilot study. *Research Journal of Pharmacy and Technology*, 13(10), 4545-4549.
3. Fauzi, N. F. M., Wafa, S. W., **Ibrahim, A. M.**, Raj, N. B., & Nurulhuda, M. H. (2022). Translation and Validation of American Diabetes Association Diabetes Risk Test: The Malay Version. *The Malaysian Journal of Medical Sciences: MJMS*, 29(1), 113.
4. Fauzi, N. F. M., Wafa, S. W., **Abdullah, M. I.**, Raj, N. B., Yusof, B. N. M., Rawi, N. A., & Hassan, N. M. (2021). Evaluation Of Usability Of Malaysia Diabetes Prevention Program (MyDiPP) Mobile App—A Pilot Study. *Malaysian Applied Biology*, 50(2), 135-144.
5. Guo, J., Jackson, K. G., **Che Taha, C. S. B.**, Li, Y., Givens, D. I., & Lovegrove, J. A. (2017). A 25-hydroxycholecalciferol–fortified dairy drink is more effective at raising a marker of postprandial vitamin D status than cholecalciferol in men with suboptimal vitamin D status. *The Journal of Nutrition*, 147(11), 2076-2082.
6. Zainuddin, L. R. M., **Taha, C. S. C.**, & Shahril, M. R. Design and Validation of Web-Based or Online Food Frequency Questionnaire for Adults: A Scoping Review. *Mal J Med Health Sci* 17(4): 320-331.
7. Ahmad, N. H. N., **Taha, C. S. C.**, & Harith, S. (2020). Sodium intake and its association with knowledge, attitudes and practices among health sciences students in Universiti Sultan Zainal Abidin (Unisza). *Asian journal of medicine and biomedicine*, 4(SI 1), 91-103.



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