

Mr. Ian Pranandi

Aston Pluit Residences, Unit 11802
Penjaringan, North Jakarta, Indonesia, 14440
Mobile: +6281291409194
Email: pranandiian@gmail.com



Profile

A medical doctor, lecturer, and researcher with highly developed knowledge and skills in **Vaccinology** and **Biotechnology**. Having experiences in vaccination and educating people about the importance of illness prevention. Current lies and interest of research on **Application of Advanced Technology on Improving Public Health**. Aspired to be an excellent researcher and embodies a hardworking person and eager to learn personality.

Education

Master of Biotechnology (Biomedical) (Advanced) 02/2022 – 12/2023

The University of Adelaide

Passed with First-Class Honours. Created a thesis about the development of potency assays for a gamma-irradiated whole-cell pneumococcal vaccine.

Medical Doctor 08/2011 – 10/2017

Atma Jaya Catholic University of Indonesia

Passed with First-Class Honours. Achieved an award from Indonesian Medical Doctor Association for being active in medical skills training and from Alzheimer's Disease International Organization for helping people with Alzheimer's disease. Participated in the 'Breast Cancer Awareness Campaign: Recognize & Fight Breast Cancer Early' organized by Mitra Kemayoran Hospital and the Faculty of Medicine, Atma Jaya Catholic University of Indonesia.

Research Experience

Artificial Intelligence in Circadian Physiology: Predicting Biochemical and Hormonal Rhythms in Health and Disease 09/2025 – 11/2025

A review article exploring how artificial intelligence can model and predict circadian-driven biochemical and hormonal rhythms such as melatonin, cortisol, insulin, and glucose patterns. The paper synthesizes advances in machine learning and deep learning that enable non-invasive, real-time prediction of circadian phase and rhythm disruptions across metabolic, endocrine, neurological, and chronopharmacological contexts. This review highlights AI's potential to transform precision medicine by enabling circadian-aware diagnostics, treatment timing, and personalized physiological monitoring. As the corresponding author, the research has been published in Journal of Biomedical Advancement Scientific Research, an International Journal.

Bioinformatics Exploration of Biochemical Traits Associated with Culturally Distinct Populations: Between Genetics and Identity

09/2025 – 11/2025

This study integrates bioinformatics, biochemistry, and cultural analysis to investigate how culturally defined human populations differ in biochemical traits at the molecular level. Using multi-omics datasets, including 1000 Genomes, GTEx, and UK Biobank, the analysis identifies culturally stratified signatures such as ALDH2 variants in East Asians, LCT-linked lactase persistence in Northern Europeans, and xenobiotic metabolism pathways enriched in South Asians. The findings highlight that cultural identity shapes gene expression and metabolic function, underscoring the need for culturally informed approaches in precision medicine. As the single author, the research has been published in Journal of Biomedical Advancement Scientific Research, an International Journal.

Chronic Low Back Pain in a Young Female Farmer from a Remote Coastal Island in Indonesia:

A Case from a Community Health Charity Event

08/2025 – 11/2025

A case report describing chronic low back pain in a 30-year-old female farmer from a remote coastal island in East Flores, whose six-month history of persistent lumbar pain was aggravated by repetitive bending, heavy lifting, and uneven terrain, and was unresponsive to standard analgesics. Clinical assessment suggested mechanical low back pain complicated by nutritional anemia, emotional distress, and the absence of diagnostic imaging due to the rural outreach setting. This case highlights the importance of a biopsychosocial and context-sensitive approach when managing chronic musculoskeletal pain in women living in low-resource agricultural communities. As the corresponding author, the research has been published in Journal of Orthopedics and Physiotherapy, an International Journal.

Evidence-Based Pain Management Strategies in Post-Operative Patients: Advancing SDG 3

08/2025 – 10/2025

A review article discussing evidence-based strategies for post-operative pain management, highlighting pharmacological, non-pharmacological, and multimodal approaches essential for improving recovery outcomes. The paper emphasizes that multimodal analgesia and Enhanced Recovery After Surgery (ERAS) protocols offer the most effective balance of pain control, faster rehabilitation, and reduced opioid dependence. This review underscores the need for a holistic, multidisciplinary, and patient-centered framework to advance SDG 3 by optimizing post-operative care quality and accessibility. As the co-author, the research has been published in Vascular and Endovascular Review, a Scopus-indexed International Journal.

Herpes zoster of the trigeminal nerve presenting as dental pain:

A diagnostic challenge in outpatient practice

08/2025 – 09/2025

A case report about trigeminal herpes zoster mimicking dental pain in a 52-year-old woman who initially presented with acute unilateral maxillary pain despite normal dental examination and radiography. Forty-eight hours later she developed vesicular lesions along the maxillary (V2) dermatome, confirming herpes zoster, and prompt antiviral therapy resulted in full recovery without post-herpetic neuralgia. This case highlights that in patients presenting with unexplained maxillary pain and no dental pathology, early trigeminal herpes zoster should be considered to avoid delayed diagnosis and treatment. As the single author, the research has been published in Journal of Clinical and Medical Images, Case Reports, an International Journal.

In Silico Prediction of Salivary Biomarkers Associated with Nicotine Metabolism

07/2025 – 09/2025

This study uses an in-silico bioinformatics pipeline to identify salivary proteins and miRNAs that reflect individual variability in nicotine metabolism. Through sequential gene mining, secretion prediction, salivary expression analysis, and network modeling, the study highlights GSTP1, FMO3, and UGT2B10 as high-confidence biomarker candidates. The results propose these proteins, together with regulatory miRNAs such as miR-155 and miR-27b, as potential non-invasive indicators for monitoring nicotine metabolism. As the single author, the research has been published in Journal of Carcinogenesis, a Scopus-indexed International Journal.

Computational Prediction of miRNA Targets in Cardiovascular

Disease Pathways: An in Silico Study

07/2025 – 09/2025

Using bioinformatics approaches to predict key miRNA-mRNA interactions involved in cardiovascular disease. The analysis identifies several high-confidence genes and pathways, such as PI3K-Akt, MAPK, and NF-κB signaling, that are regulated by CVD-associated miRNAs. The results highlight PTEN, FOXO1, and VEGFA as central regulatory hubs, suggesting their potential as diagnostic or therapeutic targets. As the first and corresponding author, the research has been published in Journal of Biomedical Advancement Scientific Research, an International Journal.

Development of a Low-Cost Kit for Microplastic Detection in

Household Tap Water: A Public Health Perspective

06/2025 – 09/2025

Using syringe-based manual filtration, selective staining with Nile Red dye, and fluorescence visualization under handheld UV light to develop a low-cost kit for microplastic detection in household tap water. The purpose is to develop and validate a low-cost, user-friendly microplastic detection kit that allows non-specialists to identify and semi-quantitatively assess microplastic contamination in tap water using simple laboratory materials and visual output. The result shows that the microplastic detection kit offers a practical, affordable solution for preliminary screening and public education. As the single author, the research has been published in Journal of Biomedical Advancement Scientific Research, an International Journal.

Chronic Posterior Ankle Pain in a Recreational Runner:

A Rare Case of Os Trigonum Syndrome Diagnosed in an Outpatient Setting

05/2025 – 09/2025

A case report about os trigonum syndrome in a recreational runner with chronic posterior ankle pain. The case is about a 32-year-old female recreational runner presented to the orthopedic outpatient clinic with a 6-month history of progressive posterior ankle pain, aggravated by running and activities involving forced plantarflexion, but the plain radiographs demonstrated the presence of an os trigonum, and magnetic resonance imaging confirmed posterior ankle impingement without associated tendon injury. This case shows that in runners presenting with persistent posterior ankle pain unresponsive to initial therapy, os trigonum syndrome should be considered. As the single author, the research has been published in Journal of Orthopedics and Physiotherapy, an International Journal.

Recurrent Elbow Pain in an Adolescent: An Atypical Presentation of

Missed Radial Head Subluxation in Outpatient Practice

04/2025 – 08/2025

A case report about missed radial head subluxation in an adolescent with recurrent elbow pain. The case is about a 13-year-old adolescent presented to an outpatient clinic with recurrent episodes of right elbow pain and functional limitation after minor traction injuries, but radiographs revealed no evidence of fracture or dislocation, thus showing a clinical diagnosis of radial head subluxation was considered despite the patient's atypical age. This case emphasizes that radial head subluxation, although rare in adolescents, should remain a differential diagnosis for recurrent elbow pain following minor traction injuries. As the single author, the research has been published in EAS Journal of Orthopaedic and Physiotherapy, an International Journal.

Chronic Urticaria as the Sole Clinical Manifestation of

Autoimmune Thyroid Disease: A Case Report

03/2025 – 08/2025

A case report about chronic urticaria as the sole clinical manifestation of autoimmune thyroid disease. The case is about a 32-year-old woman who attended an outpatient clinic with a 3-month history of daily itchy wheals without identifiable triggers, but the anti-thyroid peroxidase (anti-TPO) and anti-thyroglobulin antibodies were markedly elevated, confirming the presence of autoimmune thyroiditis. It underscores that chronic urticaria can be the first and only clinical clue to underlying autoimmune thyroid disease. As the single author, the research has been published in Journal of Clinical Case Reports, Medical Images and Health Sciences, an International Journal.

Artificial Intelligence and Machine Learning in Biochemical and Molecular Diagnostics:

A Transformative Review of Current Applications and Future Prospects 02/2025 – 06/2025

Using systematic review analysis to study the current applications and future prospects of artificial intelligence (AI) and machine learning (ML) in biochemical and molecular diagnostics. The purpose is to provide a comprehensive overview of current AI/ML applications in biochemical and molecular diagnostics, highlighting their integration in laboratory test interpretation, metabolomic profiling, genomic variant annotation, and transcriptomic analysis. The result underscores the transformative potential of AI and ML in advancing precision diagnostics and personalized medicine. As the first and corresponding author, the research has been published in International Journal of Computational and Experimental Science and Engineering, a Scopus-indexed International Journal.

Fetal-Maternal Cell-Free DNA and RNA in Plasma:

Biochemical Insights into Non-Invasive Prenatal Testing (NIPT) 02/2025 – 05/2025

Using systematic review analysis to study the biochemical insights into non-invasive prenatal testing (NIPT). The purpose is to explore the biochemical properties, origins, and clinical significance of fetal-maternal cell-free DNA (cfDNA) and RNA (cfRNA), emphasizing their pivotal roles in the success and advancement of NIPT. The result shows that the advent of NIPT using cfDNA and cfRNA has redefined prenatal care, offering a safe, accurate, and early screening tool for chromosomal abnormalities and select genetic disorders. As the single author, the research has been published in International Journal of Environmental Sciences, a Scopus-indexed International Journal.

Identification of Mir-103a/PLEKHA1 Pair as Candidate Biomarkers and Therapeutic Targets for Skin Aging by Bioinformatics Analysis

01/2025 – 05/2025

Using bioinformatics analysis to identify Mir-103a/PLEKHA1 pair as candidate biomarkers and therapeutic targets for skin aging. The purpose is to identify gene molecular links related to skin aging using an in-silico approach. The result shows that miR-103a expression was downregulated and PLEKHA1 expression was upregulated in individuals with aging skin. As the corresponding author, the research has been published in Frontiers in Health Informatics, a Scopus-indexed International Journal.

AI-Assisted Design and Biochemical Optimization of Protein Structures for Enhanced Drug Delivery in Chemotherapy

01/2025 – 04/2025

Using AI-assisted design and biochemical optimization of protein structures for enhanced drug delivery in chemotherapy. The purpose is to confirm protein engineering could be the answer to chemotherapy problems by designing proteins capable of specific targeting of cancer cells, reducing unwanted drug toxicity, or carrying out controlled drug release. The result shows AI-based protein engineering is a breakthrough to overcome the limits imposed by classical chemotherapies. As the co-author, the research has been published in Journal of Neonatal Surgery, a Scopus-indexed International Journal.

Biochemical Pathways in Neonatal Intestinal Atresia: Vascular and Genetic Perspectives

12/2024 – 03/2025

Using systematic review analysis to study the vascular and genetic perspectives of biochemical pathways in neonatal intestinal atresia (NIA). The purpose is to analyze and review about comprehensive understanding of NIA biochemical pathways. The result explores the vascular and genetic mechanisms implicated in NIA, with an emphasis on their molecular underpinnings and clinical implications. As the single author, the research has been published in Journal of Neonatal Surgery, a Scopus-indexed International Journal.

Harnessing Big Data Analytics and Deep Learning for Predictive Bug Finding and Test Automation in Complex Embedded Software Systems

10/2024 – 02/2025

Using big data analytics and deep learning to predict bug finding and test automation in complex embedded software systems. The purpose is to confirm that such approaches can achieve good accuracy and efficiency in comparison with conventional methods. The result is combined deep learning and big data analytics build a robust framework of prediction of bugs with automatic testing in the complex embedded systems. As the co-author, the research has been published in Journal of Information Systems Engineering and Management, a Scopus-indexed International Journal.

Snail (*Achatina fulica*) Slime Effectively Increases the Speed of Incised Wound Healing Process

06/2024 – 01/2025

Using slime extract from snail (*Achatina fulica*) to treat skin wound. The purpose is to find an alternative way to treat skin wounds beside placenta extract. The result is snail slime can effectively accelerate the process of skin wound healing. As the first and corresponding author, the research has been published in Frontiers in Health Informatics, a Scopus-indexed International Journal.

Development of Potency Assays for a Gamma-Irradiated Whole-Cell Pneumococcal Vaccine

02/2023 – 12/2023

Using TLR2 stimulation assay and surface antigen quality assay to be developed as potency assays. The purpose is to develop appropriate potency assays for a gamma-irradiated whole-cell pneumococcal vaccine. The result is TLR2 stimulation assay and surface antigen quality assay are successfully developed as potency assays for a gamma-irradiated whole-cell pneumococcal vaccine. The research has been published in Adelaide University School of Biological Sciences Journal.

Work Experience

Lecturer & Researcher

06/2024 – Present

Atma Jaya Catholic University of Indonesia

Working as a lecturer and researcher in the department of medical biochemistry. Taught more than 600 medical students about general medicine, especially in the field of biochemistry and vaccination. Currently working on research about development of new drugs for degenerative diseases.

Medical Doctor

08/2020 – 12/2021 & 01/2024 – Present

Imuni

Working as a professional home-care vaccinator for babies until elderlies. Have done more than 15,000 vaccinations in 7 months. Saved many families from specific infectious diseases. Learned many skills and knowledge about vaccinology.

Medical Doctor

01/2024 – Present

Merial Health Clinic

Working as a medical doctor in a clinic. Saved many people from common diseases. Learned many skills and knowledge about family medicine.

Medical Doctor

11/2018 – 12/2021

St. Stefanus Clinic & Dental Care

Worked as a medical doctor in a clinic. Saved many people from common diseases. Learned many skills and knowledge about family medicine.

Medical Doctor

02/2018 – 02/2020

Koja District General Hospital

Worked as a medical doctor inside emergency room. Saved many people lives from deadly diseases. Learned many skills and knowledge about emergency medicine and various disease treatments.

Padi

Taught medical students from many universities in Indonesia for medical licensing examination. Have created more than 100 new medical doctors in Indonesia.

Organizational and Volunteer Activities

Indonesian Biochemistry and Molecular Biology Alliance

07/2024 – Present

Representative Member from Atma Jaya Catholic University of Indonesia

Research scholars in Indonesia who have same interest in biochemistry and molecular biology create the national organization to connect domestic researchers to stay attached and the potential of developing notable projects together related to biochemistry and molecular biology. Learned many skills and knowledge about how to be professional in organizational social participation, as well as the perspectives of various national researchers related to biochemistry and molecular biology.

International Biotechnology Alliance

11/2023 – Present

Representative Member from University of Adelaide

Research scholars worldwide who have same interest in biotechnology create the international organization to connect overseas researchers to stay attached and the potential of developing notable projects together related to biotechnology. Learned many skills and knowledge about how to be professional in organizational social participation, as well as the perspectives of various global researchers related to biotechnology.

East Nusa Tenggara Community Service

04/2025

Medical Doctor and Committee Volunteer

A 1-week social and community service, mainly for healthcare was organized by School of Medicine and Health Sciences, Atma Jaya Catholic University in Indonesia. The chosen location is East Nusa Tenggara Province due to its frontier, outermost, and underdeveloped area. Learned many skills and knowledge about humanity and the importance to provide healthcare services to the less unfortunate.

Covid-19 Massive Vaccination

06/2021 – 12/2021

Medical Doctor Volunteer

Indonesian government encourage massive Covid-19 vaccination to stop the pandemic. Have been volunteering as a vaccinator and done hundreds of Covid-19 vaccinations in a day. Learned many skills and knowledge about Covid-19 vaccination.

Lombok Earthquake Charity

08/2018

Medical Doctor Volunteer

A social organization encourage health workers from Jakarta to be involved in volunteering at 2018 Lombok Island earthquake disaster. Have helped many victims to evacuate from their destroyed houses. Brought them medicines, foods, drinks, and other logistics. Learned many skills and knowledge about humanity and rescuing disaster victims.

Alzheimer's Disease Charity

06/2015

Medical Volunteer

A medical college lecturer has a program to prevent elderlies from Alzheimer's disease. Was one of the special students that chosen to be involved. Have helped in improving hundreds of elderlies cognitive and memory function. Learned many skills and knowledge about preventing Alzheimer's disease.

Optimizing ELISA for Reliable and Reproducible Immunoassays in Research

04/2025

GeneCraft Labs

Learned comprehensive knowledge about optimizing ELISA in immunoassays research. The training was organized offline by GeneCraft Labs, one of the largest Indonesian life science, analytical chemistry, and general laboratory instruments distributors. Around 30 Indonesian healthcare workers who are interested in biomedical science joined this training. Studied about immunoassays research related to biomedical science, especially in the field of ELISA application.

Introduction to CRISPR/Cas9 as Genome Editing Tools and Its Application for Beginners and Students

04/2025

Atma Jaya Biomedical Science

Learned comprehensive knowledge about application of CRISPR/Cas9 as genome editing tools. The training was organized offline by Atma Jaya Biomedical Science, one of the study programs in School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia. Around 35 Indonesian healthcare workers who are interested in biomedical science joined this training. Studied about research related to biomedical science, especially in the field of CRISPR/Cas9 Application.

Infection Prevention and Control Training for Healthcare Workers at Primary Health Care Facilities

10/2024 – 11/2024

Jakarta Center for Health Training

Gained comprehensive knowledge and skills on infection prevention and control practices essential for healthcare settings. The training was organized online by Training and Education Division of the School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, collaborated with Jakarta Center for Health Training. 25 Indonesian healthcare workers who are interested in infection control science joined this training. Developed practical expertise to implement infection control measures effectively in diverse healthcare environments.

Mesenchymal Stem Cell: from Isolation to Clinical Approach

07/2024

Indonesian National Research and Innovation Agency

Learned comprehensive knowledge about isolation and clinical approach of mesenchymal stem cell. The training was organized online by Indonesian National Research and Innovation Agency, a cabinet-level agency of the Indonesian government. Around 25 Indonesian healthcare workers who are interested in biomedical science joined this training. Studied about research related to biomedical science, especially in the field of mesenchymal stem cell.

Anti Aging for Healthy Life

06/2024

Atma Jaya Biomedical Science

Learned much knowledge about anti aging for healthy life. The training was organized offline by Atma Jaya Biomedical Science, one of the study programs in School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia. Around 30 Indonesian healthcare workers who are interested in biomedical science joined this training. Studied about research related to biomedical science, especially in the field of anti aging medicine.

Understanding Neurodegenerative Disease: In Vitro and In Vivo Perspective

04/2024

Avida Bioscience

Learned comprehensive knowledge about in vitro and in vivo perspective of understanding neurodegenerative disease. The training was organized offline by Avida Bioscience, one of the largest biotechnology products distributor intended for research-use-only and in-vitro-diagnostic uses. Around 20 Indonesian healthcare workers who are interested in biotechnology research joined this training. Studied about research related to biotechnology, especially in the field of neurodegenerative diseases.

Update on Influenza Vaccination and QIV Development

11/2020

Sanofi Pasteur

Learned much knowledge about influenza vaccination and development. The training was organized online by one of the largest French pharmacy industries in the world called Sanofi. Around 50 medical doctors from different countries who are interested in vaccination joined this workshop. Studied about the importance, schedule, developing process, and health impacts of quadrivalent influenza vaccination.

Vaccinology Course for Children and Adult

08/2020

Imuni

Learned many skills and knowledge about vaccinology for children and adult. The course was organized offline by the pioneer of home-service vaccination clinic in Indonesia called Imuni. 10 Indonesian general practitioners who are interested in vaccinology joined this training. Studied theoretical and technical skills about definition, importance, schedule, communication, management, and health impacts of all types of vaccines that are available in Indonesia.

Medical Cosmetology Course

08/2019

Indonesian Medical Aesthetic Institution

Learned many skills and knowledge about basic to advance medical cosmetology. The course was organized offline by one of the largest aesthetic medicine educational institutions in Indonesia. 15 Indonesian general practitioners who are interested in aesthetic medicine joined this training. Studied theoretical and technical skills about the importance of aesthetic medicine, especially in the field of medical cosmetology.

Awards

1st Winner in Scientific Poster Competition

07/2024

Indonesian Ministry of Health Internal Medicine Scientific Competition

A representative researcher from Atma Jaya Catholic University of Indonesia. Performed presentation about mitochondrial diseases.

2nd Winner in Chemistry National Science Olympic

09/2010

Indonesian National Science Olympic Competition for Senior High School Students

A representative student from Senior High School to join the Olympic.

Professional / Technical Skills

Medicine : General Medicine, Vaccinology, Public Health, Emergency Medicine
Medical Skill : Intracutaneous, Subcutaneous, Intramuscular, and Intravenous Injections, Endotracheal Tube Insertion, Basic Surgical Skills
Biotechnology : Biomedical Science, Biochemistry, Bioinformatics, Drug Discovery, Molecular Microbiology, Protein Purification, Cell and Tissue Culture, Immunoassay

Languages

Indonesian : Native Proficiency
English : C1, proved by IELTS 7.0