

BRAHMASTRA MEGASAKTI

Email: brahmastra.megasakti@undp.org; Website: bmegasakti.github.io

SUMMARY

Brahm is currently a Data Analyst at the United Nations Development Programme (UNDP), supporting the Ministry of Health's Biomedical and Genomic Science Initiative (BGSi) in Indonesia. Assigned by the UNDP to the National Infectious Disease Center–Sulianti Saroso Hospital Jakarta as one of the BGSi infectious disease hub, he analyzes TB genomic sequencing data to strengthen drug-resistant TB diagnostics and enable precision treatment strategies that inform Indonesia's National TB Program.

He is physician by training and an applied public health practitioner and researcher, with a focus on TB, HIV, and genomic medicine. His work centers on the intersections between infectious disease diagnostics, precision medicine, laboratory quality assurance, and national health program implementation.

RESEARCH & WORK EXPERIENCE

2025 BIOMEDICAL AND GENOMIC SCIENCE INITIATIVE

TB Data Analyst (Jakarta, Jun 2025–present; full time)

Supervisor/principal investigator: *Ines Atmosukarto, PhD; Pompini Agustina, MD; Teguh Sarry Hartono, MD*

- Managed and curated TB genotypic sequencing datasets. Manuscript in progress.
- Investigated discrepancies between genotypic sequencing and reference diagnostics and conducted diagnostic performance (sensitivity and specificity) analysis.
- Analysed and graded major TB drug-resistance mutations according to the WHO catalogue.
- Conducted targeted-Next Generation Sequencing (tNGS) turn-around time analysis and compared them against testing quality parameters.
- Conducted epidemiological analysis and mapped drug-resistant TB (DR TB) prevalence from tNGS output across 38 provinces in Indonesia.
- Evaluated the performance of national sequencing laboratories and enforced quality-assurance measures to ensure high testing success rate.
- Collaborated with clinicians, bioinformaticians, laboratory teams, and national stakeholders (public health laboratory program, National Reference Lab, WHO Indonesia) to integrate sequencing and clinical findings into technical recommendations and policy for the Ministry of Health's National Tuberculosis Program (MoH NTP).
- Developed patient-recruitment projections that informed the MoH NTP's request for a Global Fund grant extension.
- Supported the design of research protocol, completed the approval request for research ethical clearance, and devised a case-report form for clinical implementation of tNGS across national referral hospitals in Jakarta, Banten, West Java and Central Java.

2024 TERBESAR FOUNDATION YOGYAKARTA

Curriculum and Training Module Contributor (Yogyakarta, Dec 2024–Mar 2025; freelance)

Collaborator: *Widyarta Mega Paramita, MSc*

- Developed a training module for peer supporters assisting DR TB patients treated with BPAL/M regimens.
- Strengthened peer supporters' understanding of TB drug-resistance, epidemiology, diagnostic cascades, and practical BPAL/M treatment support.

- Collaborated with the capacity-building team to integrate TB epidemiology, national policy frameworks, and the updated BPAL/M regimen guidance into the training curriculum.

MINISTRY OF HEALTH INDONESIA

General Practitioner (Yogyakarta, Feb 2024–Feb 2025; full time)

Supervisor: *Ratih Octaria, MD, MMR; Lidwina Tika, MD*

- Conducted DR-TB contact investigations for an index case, administered 61 tuberculin skin tests and initiated preventive treatment for latent TB patients using 6Lfx+E regimen.
- Ensured successful 6Lfx+E preventive treatment enrollments. Successfully managed patients' mild-to-moderate level side effects coming from the Lfx medication.
- Led an observational study comparing outcomes of the 6Lfx+E regimen versus the updated 6Lfx monotherapy for DR-TB contacts. Abstract and research presented.
- Delivered community-based primary care and public health services at Banguntapan II Public Health Center as medical doctor. Delivered emergency clinical care at Hardjolutito Army Air Forces Hospital as medical doctor.

SARDJITO GENERAL HOSPITAL

Research Assistant (Yogyakarta, Feb 2024–Dec 2024; part time)

Supervisor/principal investigator: *Prof. Gunadi, MD, PhD*

- Assisted phenotype–genotype correlation analyses for individuals diagnosed with congenital and genetic rare diseases. Abstract and research presented.
- Assisted the analysis of the cholangitis Cytomegalovirus infection-induced cholangitis towards biliary atresia correction through Kasai procedure. Research published.
- Supported clinical data collection, diagnostic workflows, and biospecimen management for rare genetic diseases.
- Collaborated with health facilities, stakeholders and patient organizations to ensure high-quality pre- and post-analytical processes for pediatric biospecimens. Oversaw specimen quality control, transport, and consumables procurement. Manuscript published.

2022 KNCV FOUNDATION INDONESIA

HIV Technical Officer (Jakarta, Sep 2022–Jan 2024; full time)

Supervisor: *Jhon Sugiharto, MD, MPH*

- Supported the MoH's National AIDS Program (NAP) in expanding standardized HIV viral load (VL) testing coverage, strengthening monitoring of antiretroviral therapy (ARV) effectiveness among people living with HIV (PLHIV).
- Led the implementation of the molecular proficiency testing program across 193 HIV VL referral labs and initiated an external quality assessment (EQA) scheme collaborating with international partner, NRL Australia. Ensured the EQA participation through quality control of laboratory VL data collection, recording, reporting, and monitoring.
- Conducted analysis on VL EQA through multiple panel concentration of HIV RNA copies quantification. Translated EQA findings and technical recommendations to MoH-NAP.
- Investigated GeneXpert and Abbott PCR testing errors and conducted specimen quality control checks.
- Supported capacity-building in four national referral laboratories through the MoH Public Health Laboratory program on VL EQA provider capacity according to ISO 17043 workflows.
- Coordinated national logistics for specimen collection and cold-chain transport, linking peripheral health facilities to 193 referral laboratories across Indonesia.

- Monitored and improved diagnostic testing workflows by supervising networks of VL specimen collection.
- Coordinated with provincial and district health officers as well as referral laboratory staffs to ensure the timely distribution of HIV VL testing kits.

TB-HIV Consultant (Jakarta, May–Oct 2022; full time)

Supervisor: *Jhon Sugiharto, MD, MPH*

- Implemented the three months of weekly Isoniazid and Rifapentine (3HP) TB preventive treatment regimens for PLHIV and household contacts.
- Expanded the 3HP regimen coverage among healthcare workers and facilitated integration of clinical data into the NTP's *Sistem Informasi Tuberkulosis* (SITB).
- Coordinated with provincial/district health offices and local healthcare providers to ensure consistent reporting for 3HP coverage in SITB.
- Ensured field-level implementation aligned with the MoH's national guidelines on latent TB management through targeted capacity-building initiatives and health facility supervisory visits.

2021 **CENTER FOR TROPICAL MEDICINE, UNIVERSITAS GADJAH MADA**

Media and Communication Intern (Yogyakarta, Apr–Sept 2021; part time)

Supervisor: *Malida Magista, DMD, MPH*

- Supported the dissemination of clinical and infectious disease research through digital platforms. Produced research summaries and project descriptions to translate scientific findings into accessible formats for broader audiences.
- Managed and curated the “[Tropmed Talk](#)” podcast.

2019 **CENTER FOR TROPICAL AND INFECTIOUS DISEASE STUDIES, UNIVERSITAS KRISTEN DUTA WACANA**

Research Assistant (Yogyakarta, Feb–Dec 2019; part time)

Supervisor: *Maria Silvia Merry, MD, MSc*

- Investigated the relationship between CD4 levels, ARV adherence, patients' satisfaction levels, and dermatological manifestations in PLHIV.
- Initiated a peer-support group and delivered community support to children living with HIV and their caregivers.
- Contributed to data profiling and preliminary interpretation, supporting the analysis of whether dermatological symptoms correlated with immunological status or treatment effects. Abstract accepted and research poster presented.
- Contributed to the analysis of whether HIV pediatric populations' medication adherence correlated with their caregivers' satisfaction level towards their HIV care. Abstract accepted and research poster presented.

PUBLICATIONS

2026 Lucas A, Novebri NA, Heros PAI, Nurhidayah SS, Pramono NA, Muttaqin SS, **Megasakti B**, Makhmudi A, Rinonce HT, Gunadi. Lack of association between cytomegalovirus infection and liver fibrosis in patients with biliary atresia after the Kasai procedure. *Indian J Gastroenterol* (2026). <https://doi.org/10.1007/s12664-025-01910-4>

Gunadi, Adhityo P, Kalim AS, Abidin AZ, Tonda KC, Maisaroh S, Rezza AI, Purwosatrio PG, **Megasakti B**, Nugrahaningsih DAA. The Impact of GATA2 Expression and Methylation on

Patients with Hirschsprung's Disease. *Curr Pediatr Rev*. Published online January 5, 2026.
<https://doi.org/10.2174/0115733963385500251030072437>. PMID: 41503903

- 2025 Yudhananto BA, Munandhar MA, Nurhidayah SS, Purwosatrio PG, **Megasakti B**, Maisaroh S, Tonda KC, Adhityo P, Purnomo E, Gunadi. Cytomegalovirus infection impact on cholangitis in patients with biliary atresia following the Kasai procedure. *Med J Malaysia*. 2025;80(Suppl 7):14-20. PMID: 41451716

CONFERENCE ATTENDANCE & PRESENTATIONS

- 2025 **Gajah Mada International Conference on Tropical Medicine**. Yogyakarta, Indonesia.
Research presented: "Managing Latent Tuberculosis Infection (LTBI) in Rifampicin-Resistant TB Contacts: A Review of 6Lfx+E Efficacy and Side Effect Management"; see credential [here](#).
- 2024 **The Union World Conference on Lung Health**. Bali, Indonesia.
Volunteer and delegate at The Union World Conference on Lung Health. Delivered talk about TB-HIV services during volunteer voice session; see credential [here](#).
Indonesian Society of Human Genetics Conference. Malang, Indonesia.
Research presented: "Aberrant Endothelin Receptor Type B (EDNRB) and Endothelin-3 (EDN3) expressions in multifactorial Hirschsprung disease"; [first place oral presentation winner](#).
- 2019 **Australasian HIV and AIDS Conference**. Perth, Australia.
Research presented: "The Association Between Child's Caregiver Satisfaction Level on Pediatric HIV/AIDS Care and Child's Antiretroviral Medication Adherence"

EDUCATION

- 2019–2021 **Faculty of Medicine, Universitas Kristen Duta Wacana**
Doctor of Medicine (M.D.); GPA 3.8/4.0
- 2015–2019 **FACULTY OF MEDICINE, UNIVERSITAS KRISTEN DUTA WACANA**
Bachelor of Medicine (B. Med.); GPA 3.34/4.0
Thesis titled: "[The Association Between Child's Caregiver Satisfaction Level on Pediatric HIV/AIDS Care and Child's Antiretroviral Medication Adherence](#)"

WORKSHOP, COURSE, & CERTIFICATIONS

- 2025 TOEFL iBT, Educational Testing Service; see credential [here](#).
Illumina MiSeq System Instrument Training, Pandu Biosains; see credential [here](#).
ICH Good Clinical Practice E6 (R2), The Global Health Network; see credential [here](#).
- 2024 Harnessing Long Read Sequencing for Answering Priority Health Concerns, Genomika Indonesia–BB Binomika; see credential [here](#).
Basic Molecular Biology Module 1: Basic Science Course, Centers for Disease Control and Prevention; see credential [here](#).
- 2023 HIV VL EQAS Practical Training, MoH Indonesia–NRL Australia; see credential [here](#).
- 2022 HIV VL Workshop for Healthcare Workers, MoH Indonesia; see credential [here](#).
Tuberculosis Preventive Treatment Course, Open WHO