

NAZWA SAKHILA TARIGAN, S.T.

Biomedical Engineer | Research & Healthcare Technology Specialist

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PROFESSIONAL SUMMARY

Fresh Graduate Biomedical Engineer from Institut Teknologi Sumatera (ITERA) specializing in biomaterials, tissue engineering, Finite Element Analysis (FEA), bioinformatics, and clinical laboratory research. First Author in clinical cytological research with hands-on expertise in anatomical pathology, microbiology, computational modeling (ANSYS, Autodesk Fusion & Inventor), in silico target gene identification, and low-cost medical instrumentation. Certified in Good Clinical Practice (GCP, NIH/NIDA). Proven track record in student governance, academic publishing, and national biomedical innovation competitions.

EDUCATION

Institut Teknologi Sumatera (ITERA) **Bandar Lampung, Indonesia**
Bachelor of Engineering (S.T.) in Biomedical Engineering – GPA: 3.35/4.00 (Very Satisfactory) *Aug 2022 – Aug 2026*

- Undergraduate Thesis:** Fabrication of Sodium Alginate-Based Betel Leaf (Piper betle L.) Extract Granules as a Potential Larvicide: Characterization and Controlled-Release Profile.
- Core Coursework:** Biomaterials, Tissue Engineering, Biomechanics, Finite Element Analysis (FEA), Bioinformatics, Biomedical Instrumentation, Clinical Pathology, Biosignal Processing.

SMAN 8 Kota Tangerang **Tangerang, Indonesia**
High School Diploma - Natural Sciences (Admitted to ITERA via SBMPTN Selection) *Jul 2019 – May 2022*

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

- Good Clinical Practice (GCP) Certification** – NIDA CTN (NIH) | *Valid: Sep 2026 – Sep 2029*
ICH E6 guidelines, human subject ethics, IRB compliance, AE/SAE reporting & ALCOA+ data integrity.
- Introduction to Clinical Research** – Global Health Training Centre | *Valid: Sep 2026 – Sep 2029*
100% Score | Qualitative/quantitative design, CIOMS ethics & SOP frameworks. (ID: 8e2e8d60-c454-4408-6408-b7f292a281ae)
- The Study Protocol: Part One** – Global Health Training Centre | *Valid: Sep 2026 – Sep 2029*
100% Score | Research protocol formulation, sample size, risk assessment & governance. (ID: f9b3c5a2-482c-46e2-965e-464211cc6f47)

CLINICAL INTERNSHIP & LABORATORY EXPERIENCE

Poltekkes Kemenkes Banten (Parasitology Laboratory) **Tangerang, Indonesia**
Undergraduate Student Researcher - Final Thesis Project *May 2026 – Jul 2026*

- Formulated sodium alginate-based granules loaded with Piper betle leaf extract via ionic gelation for controlled-release larvicides.
- Evaluated phytochemical profile, morphology, physicochemical properties, FTIR spectra, and release kinetics using quantitative lab methods.

RSUP Dr. Sitanala (Anatomical Pathology Laboratory) **Tangerang, Indonesia**
Anatomical Pathology Laboratory Intern *Jul 2025 – Aug 2025*

- Executed anatomical pathology workflows: clinical specimen collection, gross examination, tissue processing, sectioning, and slide preparation.
- Performed Papanicolaou (Pap) and Modified May-Grünwald Giemsa (MDT) staining procedures for cytological evaluation.
- First Author Research:** Authored a comparative study of Pap and MDT cytological staining methods for journal publication.

RSUP Dr. Sitanala (Microbiology Laboratory) **Tangerang, Indonesia**
Microbiology Laboratory Intern *Jul 2025 – Aug 2025*

- Handled infectious clinical specimens and conducted pathogen identification for TB, leprosy, and respiratory pathogens under strict biosafety protocols.
- Performed DNA extraction and assisted in PCR-based molecular diagnostic testing for Mycobacterium tuberculosis.

ACADEMIC & ENGINEERING PROJECTS

- Bone-Implant Interface FEA Simulation for Dental Implants** | ITERA | *Dec 2025*
Simulated titanium dental implant stress distribution using Autodesk Inventor FEA, proving structural safety under loading (Von Mises stress 6.636 MPa vs. 800 MPa yield strength) and minimal micro-motion risk (3.35×10^{-4} mm) to ensure optimal long-term osseointegration.
- 3D Scaffold Design for Tooth Bone Tissue Regeneration** | ITERA | *Dec 2025*
Designed 3D regenerative scaffolds and performed Static Stress FEA in Autodesk Fusion and ANSYS to evaluate Von Mises Stress and Total Displacement under masticatory loads.
- Comparative FEA of Mandibular Plate-Screw Implant System** | ITERA | *Nov 2025*
Evaluated stress distributions, Safety Factors, and mass optimization across Titanium 6Al-4V, Magnesium Alloy, and HDPE implants in Autodesk Inventor.

- **Bioinformatics Exploration of Leukemia Target Genes** | ITERA | *Dec 2025*
Executed in silico target gene exploration using bioactive compounds of Cymbopogon martini, designed custom PCR primers, and verified alignment via NCBI BLAST.
- **Biomedical Instrumentation System for EMG & ECG Signal Acquisition** | ITERA | *Sep 2026*
Engineered a low-cost biopotential acquisition system using Arduino Uno and IC AD620 instrumentation amplifier for biological signal monitoring.

PUBLICATIONS & COMPETITIVE ACHIEVEMENTS

- **First Author Publication:** Comparative Analysis of Papanicolaou (Pap) and Modified May-Grünwald Giemsa (MDT) Staining in Cytological Assessment (Clinical Study at RSUP Dr. Sitanala - Submitted / Manuscript in Prep).
- **People's Choice Award Winner:** BIONE 3.0 Innovation Competition – Sponge Scaffold from Gelatin, Salam Leaf, and Telang Flower Extract for Wound Healing.
- **Team Leader & Internal Winner:** PKM ITERA 2025 – Spin Wheel Edukatif Sebagai Media Interaktif Focus Therapy for Special Needs Students at SLBN PKK Lampung.
- **National Finalist:** National Scientific Writing Competition (KTI) – Aspen HYSYS V14 Low-Carbon Refinery Bypass Simulation Analysis.

LEADERSHIP & ORGANIZATIONAL GOVERNANCE

Senat KM ITERA (Central Student Senate)	Lampung, Indonesia
<i>Secretary (Feb 2025 – Apr 2026) Legislative Commission Staff (2024–2025)</i>	<i>2024 – 2026</i>
• Supervised administrative staff and managed central legislative governance, official correspondence, and operational compliance serving 39 student associations. • Enacted Senate Decrees (TAP Senat) establishing legal regulatory frameworks for campus-wide presidential elections.	
Himpunan Mahasiswa Teknik Biomedis Chetikrahayu ITERA	Lampung, Indonesia
<i>Senator (Feb 2025 – Jan 2026) Digital Marketing Staff - KOMINFO (2024–2025)</i>	<i>2024 – 2026</i>
• Represented 200+ Biomedical Engineering students in university governance; supervised 5 key departmental work programs.	
Humas Program Studi Teknik Biomedis ITERA	Lampung, Indonesia
<i>Head of Publication Division (Dec 2025 – Jan 2026) Publication Staff (Feb 2024 – Jan 2025)</i>	<i>2024 – 2026</i>
• Coordinated 6 work programs in direct collaboration with department faculty to enhance academic visibility and manage official digital publications.	

TECHNICAL SKILLS & COMPETENCIES

Clinical & Laboratory:	Cytological Staining (Pap, MDT), Histopathology, Pathogen Identification (TB, Leprosy), DNA Extraction, PCR, Phytochemical Analysis, Ionic Gelation, FTIR Spectroscopy, Controlled-Release Kinetics.
Clinical Regulations:	Good Clinical Practice (GCP - ICH E6), Human Subjects Ethics, Informed Consent, Study Protocol Design, IRB/IEC Compliance, AE/SAE Reporting, ALCOA+ Data Integrity.
Engineering & Software:	ANSYS (FEA), Autodesk Fusion, Autodesk Inventor, NCBI BLAST, Primer Design, Aspen HYSYS V14, Arduino IDE.
Biomedical Engineering:	Tissue Engineering, Biomaterial Scaffolds, Implant FEA Stress Analysis, Biosignal Acquisition (EMG/ECG), Medical Instrumentation.
Languages & Certs:	Indonesian (Native), English (Advanced – TOEFL ITP: 630/677), GCP Certified (NIH/NIDA).