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INDONESIA
MAJU



BRIN
BADAN RISET
DAN INOVASI NASIONAL



lpdp



HAKTEKNAS
2024
Riset dan Inovasi untuk
Indonesia Maju



PANDUAN & PROFIL
PENGANUGERAHAN

SARWONO AWARD DAN SARWONO PRAWIROHARDJO MEMORIAL LECTURE

TAHUN 2024

Jakarta, 23 Agustus 2024

PANDUAN & PROFIL
PENGANUGERAHAN

**SARWONO AWARD DAN
SARWONO PRAWIROHARDJO
MEMORIAL LECTURE**

TAHUN 2024

Jakarta, 23 Agustus 2024

Diterbitkan pertama pada 2024 oleh Penerbit BRIN

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MAJU



BRIN
BADAN PENELITIAN
DAN INOVASI NASIONAL



lpdp



HAKTIKONAS
2024
HAKTIKONAS
2024

PANDUAN & PROFIL
PENGANUGERAHAN

**SARWONO AWARD DAN
SARWONO PRAWIROHARDJO
MEMORIAL LECTURE**

TAHUN 2024

Jakarta, 23 Agustus 2024

Penerbit BRIN

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Katalog dalam Terbitan (KDT)

Panduan dan Profil Penganugerahan Sarwono Award dan Sarwono Prawirohardjo
Memorial Lecture Tahun 2024. Jakarta: Penerbit BRIN, 2024.

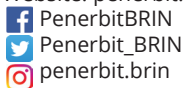
v + 123 hlm.; 14,8 x 21 cm

Penata Isi : Dhevi E.I.R. Mahelingga
Desainer Sampul : Dhevi E.I.R. Mahelingga

Cetakan : Agustus 2024



Diterbitkan oleh:
Penerbit BRIN, Anggota Ikapi
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KATA PENGANTAR

Badan Riset dan Inovasi Nasional bekerjasama dengan Lembaga Pengelola Dana Pendidikan (LPDP) merasa perlu untuk memberikan penghargaan tertinggi secara berkelanjutan kepada Perorangan yang berasal dari internal maupun dari eksternal BRIN. Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture yang sebelumnya dilaksanakan oleh LIPI sebagai rangkaian acara peringatan hari ulang tahun LIPI, yang selanjutnya dilaksanakan oleh BRIN sebagai lembaga keilmuan terbesar sudah seharusnya menyelenggarakan kegiatan keilmuan yang cerdas dan bergengsi. Perwujudannya dengan memberi anugerah dan juga tempat terhormat untuk orasi ilmiah bagi para sosok ilmuwan yang telah mempunyai reputasi nasional dan internasional, serta kontribusinya yang besar untuk pengembangan ilmu pengetahuan. Rekam jejak seorang ilmuwan/periset sangat berperan penting dalam penghargaan ini dan merupakan suatu *lifetime achievement* bagi ilmuwan/periset untuk menunjukkan kualitas dan entitas diri.

Kami mengucapkan terima kasih kepada seluruh pihak yang telah mendukung terselenggaranya kegiatan Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture Tahun 2024.

Jakarta, 23 Agustus 2024

Panitia



PENDAHULUAN

Ilmuwan adalah orang yang ahli atau memiliki banyak pengetahuan mengenai suatu ilmu. Dalam arti yang lain, ilmuwan adalah orang yang berkecimpung dalam ilmu pengetahuan. Para ilmuwan ini dalam pekerjaan menghasilkan suatu karya yang dapat digunakan dan diterapkan kepada masyarakat luas. Sumbangsih para ilmuwan ini dalam memberikan kontribusi kepada negara dan bangsa layak untuk diberikan suatu penghargaan.

Sarwono Award merupakan suatu kegiatan ilmiah dalam memberikan apresiasi yang bersifat “a lifetime achievement” kepada individu yang memiliki prestasi dan kontribusi luar biasa dalam bidang ilmu pengetahuan dan teknologi serta memiliki dampak penelitian yang dimanfaatkan oleh masyarakat, baik melalui Kekayaan Intelektual (KI) maupun bentuk penelitian lainnya melalui kolaborasi dengan mitra.

Sarwono Prawirohardjo Memorial Lecture merupakan kegiatan keilmuan dalam bentuk orasi ilmiah yang disampaikan oleh individu yang berjasa dalam penemuan, pengembangan, dan penyebarluasan di bidang ilmu pengetahuan dan teknologi, serta memiliki kontribusi bagi masyarakat dan bangsa Indonesia.

Penggunaan nama “Sarwono” dimaksudkan untuk mengenang jasa pengabdian Prof. Dr. Sarwono Prawirohardjo (Kepala LIPI pertama) dalam membangun ilmu pengetahuan Indonesia. Sejak 2001, kuliah ilmiah Sarwono Prawirohardjo Memorial Lecture telah dilaksanakan setiap tahun, dan sejak 2002 diberikan penghargaan Sarwono Memorial Award merupakan penghargaan kepada perorangan

yang telah menunjukkan prestasi luar biasa dalam ilmu pengetahuan, kebudayaan, dan kemanusiaan.

Badan Riset dan Inovasi Nasional bekerjasama dengan Lembaga Pengelola Dana Pendidikan (LPDP) merasa perlu untuk memberikan penghargaan tertinggi secara berkelanjutan kepada Perorangan yang berasal dari internal maupun dari eksternal BRIN. Sarwono Memorial Award dan Sarwono Prawirohardjo Memorial Lecture yang sebelumnya dilaksanakan oleh LIPI sebagai rangkaian acara peringatan hari ulang tahun LIPI, yang selanjutnya dilaksanakan oleh BRIN sebagai lembaga keilmuan terbesar sudah seharusnya menyelenggarakan kegiatan keilmuan yang cerdas dan bergengsi. Perwujudannya dengan memberi anugerah dan juga tempat terhormat untuk orasi ilmiah bagi para sosok ilmuwan yang telah mempunyai reputasi nasional dan internasional, serta kontribusinya yang besar untuk pengembangan ilmu pengetahuan.

Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture Tahun 2024 dilaksanakan pada 23 Agustus 2024, bertempat di Auditorium Sumitro Djohadikusumo, Gedung B.J. Habibie Lt. 3 Jln. M.H. Thamrin No. 8 Jakarta Pusat.

Acara Sarwono Prawirohardjo Memorial Lecture adalah kuliah ilmiah dari seorang ilmuwan, pakar, atau praktisi yang telah memberikan sumbangsih nyata dan bermanfaat bagi ilmu pengetahuan dan kemanusiaan. Berdasarkan hal tersebut, Kepala LIPI melalui Surat Keputusan Nomor 2257/ A/ 2001 tanggal 16 Agustus 2001 telah menetapkan bahwa salah satu kegiatan yang merupakan puncak acara dari rangkaian peringatan HUT LIPI setiap tahunnya adalah kegiatan Sarwono Prawirohardjo Memorial Lecture (SML). Sejak 2001, kuliah ilmiah Sarwono Prawirohardjo Memorial Lecture dilaksanakan setiap

tahun, dan pada 2024 akan menjadi kuliah ilmiah yang ke-24. Adapun nama-nama pemberi kuliah ilmiah sebelumnya adalah sebagai berikut:

- 1) Prof. Dr. Sangkot Marzuki, Ketua Lembaga Biologi Molekuler Eijkman, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture I (2001) dengan judul “Indonesia dan Revolusi Genom: Menyelusuri Sejarah Manusia Indonesia dan Masa Depan Bangsa”.
- 2) Prof. Dr. iur. Adnan Buyung Nasution, pendiri sekaligus anggota Dewan Penyantun LBH/ YLBHI dan anggota Internasional Commission of Jurist, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture II (2002) dengan judul “Konstitusi, Demokrasi, dan Makna Kemerdekaan”.
- 3) Prof. John A. Katili, D.Sc., Ph.D., Deputi Ketua LIPI Bidang Ilmu Pengetahuan Alam, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture III (2003) dengan judul “Dinamika Ilmu Pengetahuan dan Teknologi Rusia”.
- 4) Prof. Yohanes Surya, Ph.D., pendiri Surya University, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture IV (2004) dengan judul “Nanoteknologi Terkini Menyambut Masa Depan”.
- 5) Prof. Dr. Taufik Abdullah, Kepala LIPI periode 1999–2002, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture V (2005) dengan mengulas masalah kenangan mengenai penelusuran keutuhan negara dengan perlunya memedulikan cita-cita yang mendahului kelahiran negara dengan judul “Ketika Awal Dirayakan dan Keharusan Dipatrikan”.

- 6) Prof. Dr. Ir. Jan Sopaheluwakan, M.Sc., Deputi Bidang Ilmu Pengetahuan Kebumian LIPI periode 2001–2006, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture VI (2006) dengan orasi berjudul “Bencana Alam: Refleksi Pembelajaran di Antara Musibah dan Berkah”.
- 7) Dr. Sri Mulyani Indrawati, Menteri Keuangan Republik Indonesia pada Kabinet Indonesia Bersatu, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture VII (2007) dengan judul “Kebijakan Keuangan Pemerintah RI dalam Pengembangan Riset dan Ilmu Pengetahuan”.
- 8) Dr. dr. Siti Fadillah Supari, Sp.JP(K), Menteri Kesehatan Republik Indonesia dalam Kabinet Indonesia Bersatu, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture VIII (2008) tentang kebijakan kesehatan Pemerintah RI, utamanya dalam menjalin kerja sama pengembangan riset ilmu pengetahuan dengan pihak luar negeri, dengan judul orasi “LIPI dan Kebangkitan Nasional di Bidang Kesehatan”.
- 9) Prof. Dr. Dewi Fortuna Khaidir Anwar, M.A., Deputi Bidang Ilmu Pengetahuan Sosial dan Kemanusiaan LIPI periode 2001–2010, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture IX (2009) dengan orasi berjudul “Membebaskan Dunia dari Senjata Pemusnah Massal”.
- 10) Kuswata Kartawinata, Ph.D., peneliti senior LIPI terdahulu, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture X (2010) dengan orasi berjudul “Dua Abad Mengungkap Kekayaan Flora dan Ekosistem Indonesia”.
- 11) Prof. Dr. H. Ryaas Rasyid, M.A., anggota Dewan Pertimbangan Presiden, menyampaikan orasi

- ilmiah pada Sarwono Prawirohardjo Memorial Lecture XI (2011) dengan judul “Desentralisasi dan Demokratisasi: Evaluasi 10 Tahun Penyelenggaraan Otonomi Daerah”.
- 12) Prof. Dr. Soekarja Somadikarta, peneliti senior LIPI terdahulu, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XII (2012) dengan orasi berjudul “Pendidikan dan Perkembangan Ilmu di Indonesia”.
 - 13) Ir. Karen Agustiawan, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XIII (2013) dengan judul “Membangun Portofolio Energi Nasional Pertamina: Overview dalam Pengembangan R&D dan Energi Baru Terbarukan”.
 - 14) Prof. dr. Fasli Jalal, Ph.D, Sp.GK., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XIV (2014) dengan judul “Bonus Demografi: Tantangan Penelitian untuk Pengabdian dalam Pembangunan Negeri dan Bangsa”.
 - 15) Prof. Dr. Azyumardi Azra, M.A., C.B.E., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XV (2015) dengan judul “Toleransi Beragama dalam Meningkatkan Persatuan dan Kesatuan Bangsa”.
 - 16) Arif Havas Oegroseno, S.H., L.L.M., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XVI (2016) dengan judul “Pengelolaan Kawasan Maritim dan Perbatasan Indonesia dalam Kerangka Kerja Sama Regional Asia Tenggara”.
 - 17) Prof. Dr. Bambang S. Brodjonegoro, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XVII (2017) dengan judul “Arah Kebijakan Pembangunan Ilmu Pengetahuan dan Teknologi untuk Meningkatkan Daya Saing Bangsa”.

- 18) Ir. Mochamad Basoeki Hadimoeljono, Ph.D., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XVIII (2018) dengan judul “Pembangunan Infrastruktur Berbasis Lingkungan”.
- 19) Prof. Dr. Irwandi Jaswir, menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XIX (2019) dengan judul “Menjadi Periset Berkelas Dunia di Era Industri 4.0”.
- 20) Prof. Dr. Herawati Supolo-Sudoyo, Ph.D., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XX (2020) dengan judul “Peran Riset COVID-19 untuk Indonesia Maju”.
- 21) Prof. Dr. Arif Satria, SP, M.Si. (Rektor IPB), menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XXI (2021) dengan judul “Kekayaan Hayati dan Inovasi Bioekonomi untuk Masa Depan Bangsa”.
- 22) Prof. Dr. Ir. Bambang Prasetya, M.Sc., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XXII (2022) dengan judul “*Bioethic, Biosafety, Conformity Assessment* untuk Percepatan Pemanfaatan Bioteknologi dalam Mendukung Ketahanan Pangan”
- 23) Prof. Dr. Ir. Jamaluddin Jompa, M.Sc., menyampaikan orasi ilmiah pada Sarwono Prawirohardjo Memorial Lecture XXIII (2023) dengan judul “Pemberdayaan Sosial Untuk Jagad Nusantara”

Pemberian penghargaan kepada ilmuwan karena jasa dan pengabdian serta reputasinya, baik nasional maupun internasional, dalam bidang ilmu pengetahuan yang diberi nama Penghargaan Sarwono

Prawirohardjo. Adapun nama-nama penerima Penghargaan Sarwono Prawirohardjo (sekarang bernama Sarwono Award) adalah sebagai berikut:

- 1) Letjen (Pur.) Ali Sadikin, penerima Penghargaan Sarwono Prawirohardjo I (2002)
- 2) Prof. Dr. Anugerah Nontji, penerima Penghargaan Sarwono Prawirohardjo II (2003)
- 3) Prof. Dr. Apriliani Soegiarto, penerima Penghargaan Sarwono Prawirohardjo II (2003)
- 4) Prof. Dr. Taufik Abdullah, penerima Penghargaan Sarwono Prawirohardjo III (2004)
- 5) Prof. Dr. Syamsul Arifin Achmad, penerima Penghargaan Sarwono Prawirohardjo III (2004)
- 6) Dr. Setijati D. Sastrapradja, penerima Penghargaan Sarwono Prawirohardjo IV (2005)
- 7) Dr. Danny Hilman, penerima Penghargaan Sarwono Prawirohardjo IV (2005)
- 8) Prof. Dr. Mien A. Rifai, penerima Penghargaan Sarwono Prawirohardjo V (2006)
- 9) Dr. Amru Hydari Nazif, penerima Penghargaan Sarwono Prawirohardjo V (2006)
- 10) Prof. Dr. Emil Salim, penerima Penghargaan Sarwono Prawirohardjo VI (2007)
- 11) Prof. Dr.-Ing. Iskandar Alisjahbana, penerima Penghargaan Sarwono Prawirohardjo VI (2007)
- 12) Dr. Ninok Laksono, penerima Penghargaan Sarwono Prawirohardjo VII (2008)
- 13) Dr. Thee Kian Wie, penerima Penghargaan Sarwono Prawirohardjo VII (2008)
- 14) Prof. Dr. Indroyono Soesilo, M.Sc., penerima Penghargaan Sarwono Prawirohardjo VIII (2009)

- 15) Prof. Didin S. Sastrapradja, Ph.D., penerima Penghargaan Sarwono Prawirohardjo VIII (2009)
- 16) Prof. Dr. Umar Anggara Jenie, M.Sc., Apt., penerima Penghargaan Sarwono Prawirohardjo IX (2010)
- 17) Dr. B.R.A. Mooryati Soedibyo, S.S., M.Hum., penerima Penghargaan Sarwono Prawirohardjo IX (2010)
- 18) Dr. Mohammad Kasim Moosa, penerima Penghargaan Sarwono Prawirohardjo X (2011)
- 19) Prof. Dr. Haryono Suyono, penerima Penghargaan Sarwono Prawirohardjo X (2011)
- 20) Prof. Dr. Soekarja Somadikarta, penerima Penghargaan Sarwono Prawirohardjo XI (2012)
- 21) Prof. Dr. Thomas Djamaluddin, penerima Penghargaan Sarwono Prawirohardjo XII (2013)
- 22) Prof. Dr. Sri Widiyantoro, penerima Penghargaan Sarwono Prawirohardjo XIII (2014)
- 23) Prof. Dr. Harry Truman Simanjuntak, penerima Penghargaan LIPI Sarwono Award XIV (2015)
- 24) Prof. Dr. Tjia May On, penerima Penghargaan LIPI Sarwono Award XV (2016)
- 25) Prof. Dr. Azyumardi Azra, M.A., CBE. penerima Penghargaan LIPI Sarwono Award XVI (2017)
- 26) Prof. Dr. Daniel Mudiyarso, penerima Penghargaan LIPI Sarwono Award XVII (2018)
- 27) Prof. Dr. Terry Mart, penerima Penghargaan LIPI Sarwono Award XVIII (2019)
- 28) Prof. Dr. Endang Sukara, penerima Penghargaan LIPI Sarwono Award XIX (2021)
- 29) Prof. Dr. Dwi Listyo Rahayu, penerima Penghargaan LIPI Sarwono Award XIX (2021)

- 30) Prof. Dr. Christofora Hanny Wijaya, penerima Penghargaan BRIN Sarwono Award XX (2022)
- 31) Prof. Melani Budianta, Ph.D., Penerima Penghargaan BRIN Sarwono Award XXI (2023)

Tujuan

Tujuan diselenggarakannya Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture adalah untuk :

- 1) Memberi tempat terhormat bagi para tokoh, ilmuwan, atau pakar Indonesia yang telah banyak memberikan inspirasi dan pemikirannya dalam pengembangan ilmu pengetahuan, baik di tingkat nasional maupun internasional;
- 2) Mewujudkan sumber daya manusia Indonesia unggul yang mampu menguasai, mengembangkan dan menyebarluaskan ilmu pengetahuan dan teknologi untuk kesejahteraan bangsa Indonesia;
- 3) Mendorong masyarakat turut serta mengembangkan ilmu pengetahuan dan teknologi di berbagai bidang.

Penerima Manfaat

Penerima manfaat Sarwono Award adalah periset yang memiliki prestasi dan kontribusi luar biasa dalam bidang ilmu pengetahuan dan teknologi serta memiliki dampak penelitian yang dapat dimanfaatkan oleh masyarakat, baik melalui Kekayaan Intelektual (KI) maupun bentuk penelitian lainnya melalui kolaborasi dengan mitra .Penerima manfaat Sarwono Prawirohardjo Memorial Lecture adalah individu/ tokoh yang berjasa dalam penemuan, pengembangan, dan penyebarluasan di bidang ilmu pengetahuan dan teknologi, serta memiliki kontribusi bagi masyarakat dan bangsa Indonesia.

Waktu dan Tempat

Kegiatan Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture Tahun 2024 diselenggarakan pada:

Hari/Tanggal : Jumat, 23 Agustus 2024

Waktu : 13.30 - 15.00 WIB

Bertempat : Auditorium Sumitro Djojohadikusumo
Gedung B.J. Habibie, Lantai 3
Jalan M.H. Thamrin No. 8, Jakarta Pusat.

Kriteria Pemilihan

Kriteria Pemilihan Sarwono Award dan Sarwono Prawirohardjo Memorial Lecture yaitu sebagai berikut:

- 1) Memiliki integritas yang tinggi kepada Negara Kesatuan Republik Indonesia;
- 2) Memberikan kontribusi yang berpengaruh terhadap perkembangan ilmu pengetahuan dan teknologi;
- 3) Aktif memberikan sosialisasi dan motivasi yang tinggi kepada masyarakat untuk menekuni bidang ilmu pengetahuan dan teknologi yang dikembangkannya;
- 4) Tokoh yang memberikan inspirasi dalam penyebarluasan ilmu pengetahuan dan teknologi, serta memiliki kontribusi bagi masyarakat dan bangsa Indonesia.

**SUSUNAN ACARA
PENGANUGERAHAN SARWONO AWARD
DAN SARWONO PRAWIROHARDJO
MEMORIAL LECTURE
TAHUN 2024**

No	Waktu	Agenda
1	12.00–13.30	Registrasi dan Makan Siang
2	13.30–13.35	Pembukaan/Selamat Datang oleh MC
3	13.35–13.40	Menyanyikan Lagu “Indonesia Raya” dan “Bagimu Negeri”
4	13.40–13.45	Pembacaan Do’a
5	13.45–13.50	Laporan Penyelenggaraan oleh Deputi Bidang SDM Iptek-BRIN
6	13.50–13.55	Sambutan Direktur Utama LPDP
7	13.55–14.00	Tayangan Film Profil Prof. Sarwono Prawirohardjo & Sejarah Penyelenggaraan Penganugerahan “Sarwono Award” dan “Sarwono Prawirohardjo Memorial Lecture”
8	14.00–14.05	Pembacaan Surat Keputusan Kepala BRIN tentang Penerima Sarwono Award dan Pemberi Kuliah Ilmiah “Sarwono Prawirohardjo Memorial Lecture” Tahun 2024
9	14.05–14.10	Tayangan Rekam Jejak Riset Penerima “Sarwono Award Tahun 2024”
10	14.10–14.15	Penyerahan Penghargaan “Sarwono Award Tahun 2024”
11	14.15–14.20	Sambutan Penerima “Sarwono Award Tahun 2024”
12	14.20–14.25	Tayangan Rekam Jejak Pemberi Kuliah Ilmiah “Sarwono Prawirohardjo Memorial Lecture Tahun 2024”
13	14.25–14.45	Kuliah Ilmiah “Sarwono Prawirohardjo Memorial Lecture Tahun 2024”
14	14.45–14.50	Penyerahan Penghargaan “Sarwono Prawirohardjo Memorial Lecture Tahun 2024”
15	14.50–15.00	Sambutan Kepala BRIN
16	15.00–15.05	Foto Bersama dan Pemberian Ucapan Selamat
17	15.05–15.10	Penutupan Acara oleh MC



PENERIMA SARWONO AWARD
TAHUN 2024
BENS PARDAMEAN



DATA PRIBADI

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B.Sc., M.Sc., Ph.D.

Tempat/Tanggal Lahir : Sibolga/20 Februari 1961

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Jabatan : Dosen/Kepala Pusat
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Google Scholar ID : [https://scholar.google.com/
citations?user=
iTQjWNkAAAAJ&hl=en](https://scholar.google.com/citations?user=iTQjWNkAAAAJ&hl=en)

ResearchGate : [https://www.researchgate.
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PENDIDIKAN

- Doktor (S3) : Informatics Research – 2007
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- Magister (S2) : Computer Education – 1994
California State University,
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Los Angeles

PENGALAMAN JABATAN

- 2022–Sekarang : Professor of Computer
Science
Head of Bioinformatics &
Data Science Research Center
and NVIDIA-BINUS AI R&D
Center
- Bina Nusantara University
Jakarta, Indonesia

- 2014–2022 : Associate Professor of
Computer Science
Head of Bioinformatics & Data
Science Research Center and
NVIDIA-BINUS AI R&D Center

Bina Nusantara University
Jakarta, Indonesia
- 2009–2013 : Assistant Professor of
Computer Science
Leader of Bioinformatics
Research Group

Bina Nusantara University
Jakarta, Indonesia
- 2004–2009 : Bioinformatics Consultant
Statistical Consultation and
Research Center

University of Southern
California
Los Angeles, California, USA
- 1995–2004 : Chief Consulting Officer and
Founder

The InterSys Consulting
USA & Indonesia
- 2000–2004 : Senior Lecturer and Program
Advisor

Informatics Computer School
(Singapore)/University
of Southern Queensland
(Australia) Sumatra Campus
Medan, Indonesia

- 1996–1999 : Lecturer and IT Advisor
Computer Science
Department
Faculty of Sciences and
Mathematics
St. Thomas Catholic University
Medan, Indonesia
- 1995–1996 : President and Co-Founder
InterSys Corp.
Long Beach, California, USA
- 1991–1995 : Systems Manager
Research and Evaluation
Department
Kaiser Permanente
Pasadena, California, USA
- 1990–1991 : Research Analyst and Systems
Specialist
Research and Evaluation
Division
Kaiser Permanente
Pasadena, California, USA
- 1989–1990 : Research Programmer and
Analyst
School of Medicine
University of Southern
California
Los Angeles, California, USA
- 1988–1989 : Graduate Teaching Assistant
School of Medicine
University of Southern
California
Los Angeles, California, USA

- 1983–1988 : Information Systems Specialist
School of Medicine
University of Southern
California
Los Angeles, California, USA
- 1982–1983 : Data Coordinator
School of Medicine
University of Southern
California
Los Angeles, California, USA

PENDIDIKAN DAN PELATIHAN

- AI for Analytic Purposes, BINUS Corporate Learning & Development, 28 March 2024, Jakarta, Indonesia
- Artificial Intelligence (AI) for Research Purpose, BINUS Corporate Learning & Development, 24 February 2024, Jakarta, Indonesia
- Applying Nvivo in Mixed-Methods Research, BINUS Corporate Learning & Development, 24 May 2023, Jakarta, Indonesia
- Becoming a Visionary Leader, BINUS Corporate Learning & Development, 23 March 2022, Jakarta, Indonesia
- Artificial Intelligence for Precision Agriculture, Industry Forum, International Conference on Biospheric Harmony Advanced Research, 24-25 June 2021, Jakarta, Indonesia
- Research Result Seminar, Policy Research Center, Ministry of Education and Culture, 2-4 December 2020, Jakarta, Indonesia
- Application of Artificial Intelligence (AI) in Education, Ministry of Education and Culture, 20 August 2019, Jakarta, Indonesia

- Workshop on Asian Pacific Research Platform (APRP) at Supercomputing Asia 2018, 27 March 2018, Singapore
- Deep Learning for Image Segmentation, DLI NVIDIA, 22 April 2017, Singapore
- Genome Wide Association Study, BioRealm, 18 July 2016, Culver City, USA
- Festival of Genomics, 27-29 June 2016, Boston, USA
- Bio-Asia & ICT-Asia Regional Workshop 2014, 4-6 June 2014, Jakarta, Indonesia
- ICT-EurAsia & AsiaARES 2013 International Conference, 25-29 March 2013, Yogyakarta, Indonesia
- Seminar on Geographic Information System: Applications in Agriculture, 7 June 2011, Jakarta, Indonesia
- Workshop on Textbook Writing & Publishing According to DIKTI Grant, 29 April 2011, Jakarta, Indonesia
- Seminar on IT Technopreneur: A Journey of Andal Software, 27 January 2011, Jakarta, Indonesia
- Workshop on Writing International Journal and How to Review Article, 6 January 2011, Jakarta, Indonesia
- ASEMUNDUS Contact Seminar, 7-8 October 2010, Jakarta, Indonesia
- Seminar on Technology Management and its Application in Agriculture, 30 September 2010, Jakarta, Indonesia
- Seminar on IT Software Industry in Indonesia-Current Opportunities and Challenges, 3 June 2010, Jakarta, Indonesia
- Sharing Knowledge: Creating Data Center Strategy that Your CFO will Love, 26 May 2010, Jakarta, Indonesia

- Sharing Knowledge: An Anatomy of a Vertical Search Engine Expert in Vertical Search Software, 24 May 2010, Jakarta, Indonesia
- Seminar on Producing World Class Research, presented by Queensland University, Australia, 6 May 2010, Jakarta, Indonesia
- Workshop on Publication Quality Improvement, 12 February 2010, Jakarta, Indonesia
- Workshop on Research Proposal Quality Improvement, 29 January 2010, Jakarta, Indonesia
- Seminar on Computer for Education, 21 January 2010, Jakarta, Indonesia
- Training on IT Services, 2-5 November 2009, Jakarta, Indonesia
- Problem-Based Learning (PBL) Facilitator, 2007, University of Southern California, Los Angeles, USA
- CNE (Certified NetWare Engineer), 1994, Novell, Inc., Provo, USA
- LAN Manager, Ungermann-Bass/3COM, Inc., 1991, Santa Clara, USA

KEGIATAN/ORGANISASI PROFESI

- Yayasan Jamu Tradisional Indonesia (JATI), Ketua Pengawas, 2021
- Masyarakat Ikan Gabus Indonesia (MIGI), Pengawas, 2020
- Institute for Operations Research and the Management Sciences (INFORMS), Anggota, 2011
- Association for Computing Machinery, Anggota, 2010
- Computer Society of Institute of Electrical and Electronics Engineers. Anggota, 2010
- American Alumni Association of Indonesia, Pengurus, 2009

- University of Southern California Alumni Association, Anggota, 2008
- Kappa Delta Pi International Honor Society in Education, University of Southern California, Anggota, 2005
- California State University at Los Angeles Alumni Association, Anggota, 1996
- Sigma Xi Scientific Research Society, University of Southern California, Anggota, 1990
- Alpha Gamma Sigma Honor Society, Pasadena City College, Anggota, 1985

TANDA KEHORMATAN/ PENGHARGAAN

- Anugerah Riset, Teknologi dan Pengabdian Kepada Masyarakat Kategori Dosen Berprestasi (SINTA Award)-Subkategori dosen berprestasi dengan usia diatas 40 Tahun dengan Sinta skor tertinggi periode tahun 2020-2022.
- Rector's Award for The Best Teaching Performance- Binus University 2014.

REVIEWER JOURNAL/PROCEEDING

- International Journal of Engineering Pedagogy
- Journal of Convergence Information Technology
- Journal of Dental Education
- European Journal of Dental Education
- Indonesian Journal of Cancer
- Jurnal Informatika Pertanian
- Journal of CommTech
- Jurnal of ComIT
- Proceeding of International Conference on Advances Science and Contemporary Engineering (ICASCE) 2012

- Proceeding of International Conference on Information Technology Interfaces (ITI) 2012
- ICT Conference 2011 at Bina Nusantara University
- Proceeding of International Conference on Advances in Computing, Control, and Telecommunication Technologies (ACT) 2010
- Proceeding of International Seminar on Integrating Technology into Education 2010

KARYA TULIS ILMIAH NASIONAL

1. Brilly Andro Makalew and **Bens Pardamean**, *Enhancing Computer Science Education Through Electronic Team-Based Learning: A Hybrid Approach to Collaborative Learning*, Engineering, Mathematics and Computer Science Journal (EMACS), vol. 6, no. 2, pp. 121-127, Mei 2024
2. Teddy Suparyanto and **Bens Pardamean**, *Panduan Pelaksanaan Pembelajaran Berbasis*
3. *Team Based Learning*, Yogyakarta: INSTIPER Press, April 2024. ISBN: 978-623-5979-24-3
4. Gregorius Natanael Elwirehardja, Teddy Suparyanto, and **Bens Pardamean**, *Pengenalan Konsep Machine Learning untuk Pemula*, Yogyakarta: INSTIPER Press, January 2023. ISBN: 978-623-5979-10-6
5. **Bens Pardamean**, Teddy Suparyanto, Andri Anugrahana, Indri Anugraheni, and Digdo Sudigyo, *Implementasi Team-Based Learning dalam Pengembangan Pembelajaran Online Berbasis Artificial Intelligence*, Scholaria: Jurnal Pendidikan dan Kebudayaan, vol. 12, no. 2, pp. 118-126, Mei 2022

6. Hery Harjono Muljo, **Bens Pardamean, Anzaludin Samsinga Perbangsa, Yulius, and Kartika Purwandari**, *Aplikasi Pembelajaran Deteksi Dini Kanker Berbasis Teknologi Mobile Bagi Kader Kesehatan dan Tenaga Medis*, Jakarta: BINUS University, 2020. ISBN: 978-623-93893-1-4
7. Ika Nurlaila, Alam Ahmad Hidayat, Kartika Purwandari, Bharuno Mahesworo, Arif Budiarto, and **Bens Pardamean**, *Konsep Dasar Penelitian Genomik*, Jakarta: BINUS University, 2020. ISBN: 978-623-93893-3-8
8. Tjeng Wawan Cenggoro, Kartika Purwandari, and **Bens Pardamean**, *Artificial Intelligence Modern dengan Deep Learning: Sebuah pengantar untuk praktisi dan peneliti*, Jakarta: BINUS University, 2020. ISBN: 978-623-93893-2-1
9. Tjeng Wawan Cenggoro, Reza Rahutomo, Bharuno Mahesworo, Arif Budiarto, Anzaludin Samsinga Perbangsa, Haryono, **Bens Pardamean, Kartika Purwandari, and James Baurley**, *Penerapan Teknik Klasifikasi Kecerdasan Buatan dalam Agroindustri*, Jakarta: BINUS University, 2019. ISBN: 978-623-93893-5-2
10. Arif Budiarto, Bharuno Mahesworo, Alam Ahmad Hidayat, James Baurley, Haryono, and **Bens Pardamean**, *Penerapan Teknologi Wearable untuk Kesehatan*, Jakarta: BINUS University, 2019. ISBN: 978-623-93893-6-9
11. Tjeng Wawan Cenggoro, Reza Rahutomo, Kartika Purwandari, Hery Harjono Muljo, and **Bens Pardamean**, *Perancangan Aplikasi Penghitung Jumlah Orang untuk Manajemen Smart Building*, Jakarta: BINUS University, 2019. ISBN: 978-623-93893-4-5

12. **Bens Pardamean et al**, *Artificial Intelligence: The methods behind the machine*, Yogyakarta: Instiper Press, 2018. ISBN: 978-602-51151-5-8
13. **Bens Pardamean**, *Smokescreen Genotyping Array (GTA) Indonesia*, Jakarta: BINUS University, 2018. ISBN: 978-602-99817-9-7
14. **Bens Pardamean, Arif Budiarto, and Rezy Eko Caraka**, *Bioinformatika dengan R: Tingkat Lanjut*, Yogyakarta: Teknosain - Graha Ilmu, 2018. ISBN: 978-602-63248-9-4
15. Rezy Eko Caraka, Muhammad Tahmid, and **Bens Pardamean**, *Sensitifitas dan Peringatan Dini Demam Berdarah Menggunakan Zero Truncated Model*, Proceeding of Seminar Nasional Hari Meteorologi Dunia 2017, 2017
16. Hery Harjono Muljo, **Bens Pardamean**, and Anzaludin Samsinga Perbangsa, *Online Learning Deteksi Dini Kanker Leher Rahim bagi Kader Kesehatan dan Tenaga Medis*, Jakarta: BINUS University, 2017. ISBN: 978-602-99817-2-8
17. **Bens Pardamean**, Harjanto Prabowo, Hery Harjono Muljo, and Teddy Suparyanto, *Team-Based Learning as an Instructional Strategy: A comparative study between Indonesian and Australian students*, Jakarta: BINUS University, 2017. ISBN: 978-602-99817-3-5
18. **Bens Pardamean**, *Dasar Bioinformatika dengan R*, Yogyakarta: Teknosain - Graha Ilmu, 2017. ISBN: 978-602-63244-1-2
19. Jonathan Aditya Mulyono, **Bens Pardamean**, and Evlina Suzanna, *Model of CanReg5 Implementation for Indonesia*, Indonesian Journal of Cancer, vol. 6, no. 4, pp. 147-153, 2012

20. Djiauw Djunaidi Godjali, **Bens Pardamean**, and Evlina Suzanna, *Pengembangan Sistem Registrasi Kanker Indonesia*, Indonesian Journal of Cancer, vol. 6, no. 2, pp. 61-66, 2012
21. Dian Pratiwi, Diaz D. Santika, and **Bens Pardamean**, *Penerapan Metode Jaringan Syaraf Tiruan Backpropagation dalam Mengukur Tingkat Keparahan Penyakit Osteoarthritis*, Seminar on Intelligent Technology and Its Applications, vol. 12, 2011
22. **Bens Pardamean**, Anjela Greizaria Djoeang, and Nana Rosanna Br. L. Tobing, *IT Solution for Disease Management at PT. Panasonic Manufacturing Indonesia*, Jurnal ComTech, vol. 1, no. 2, 2010

KARYA TULIS ILMIAH INTERNASIONAL

1. **Bens Pardamean**, Rudi Nirwantono, Alam Ahmad Hidayat, Joko Pebrianto Trinugroho, Mahmud Isnani, Reza Rahutomo, Digdo Sudigyo, Faisal Asadi, Gregorius Natanael Elwireharja, Dedy Ariansyah, Ratna Sari, and Roma Dame Uli Pasaribu, *Monitoring and Evaluation of Childhood Stunting Reduction Program Based on Fish Supplement Product in North Sumatera, Indonesia*, Scientific Reports, vol. 14, no. 1, article no. 11674, 2024. DOI: 10.1038/s41598-024-61462-z
2. Ahmad Marzuqi, Rezzy Eko Caraka, Prana Ugiana Gio, Rung Ching Chen, Maengseok Noh, and **Bens Pardamean**, *Unlocking Insights from Ministry Of Marine Affairs and Fisheries Annual Reports Using LDA: A Deep Dive Into SDG 14*, Telkomnika (Telecommunication Computing Electronics and Control), vol. 22, no. 4, pp. 784-798, August 2024. DOI: 10.12928/TELKOMNIKA.v22i4.26063

3. Yu Tian, Yi Lin, Conghui Qu, Volker Arndt, James W. Baurley, Sonja I. Berndt, Stephanie A. Bien, D. Timothy Bishop, Hermann Brenner, Daniel D. Buchanan, Arif Budiarto, Peter T. Campbell, Robert Carreras-Torres, Graham Casey, Andrew T. Chan, Rui Chen, Xuechen Chen, David V. Conti, Virginia Díez-Obrero, Niki Dimou, David A. Drew, Jane C. Figueiredo, Steven Gallinger, Graham G. Giles, Stephen B. Gruber, Marc J. Gunter, Sophia Harlid, Tabitha A. Harrison, Akihisa Hidaka, Michael Hoffmeister, Jeroen R. Huyghe, Mark A. Jenkins, Kristina M. Jordahl, Amit D. Joshi, Temitope O. Keku, Eric Kawaguchi, Andre E. Kim, Anshul Kundaje, Susanna C. Larsson, Loic Le Marchand, Juan Pablo Lewinger, Li Li, Victor Moreno, John Morrison, Neil Murphy, Hongmei Nan, Rami Nassir, Polly A. Newcomb, Mireia Obón-Santacana, Shuji Ogino, Jennifer Ose, **Bens Pardamean**, Andrew J. Pellatt, Anita R. Peoples, Elizabeth A. Platz, John D. Potter, Ross L. Prentice, Gad Rennert, Edward A. Ruiz-Narvaez, Lori C. Sakoda, Robert E. Schoen, Anna Shcherbina, Mariana C. Stern, Yu-Ru Su, Stephen N. Thibodeau, Duncan C. Thomas, Konstantinos K. Tsilidis, Franzel J. B. van Duijnhoven, Bethany Van Guelpen, Kala Visvanathan, Emily White, Alicja Wolk, Michael O. Woods, Anna H. Wu, Ulrike Peters, W. James Gauderman, Li Hsu, and Jenny Chang-Claude, *Genetic Risk Impacts the Association of Menopausal Hormone Therapy with Colorectal Cancer Risk*, *British Journal of Cancer*, vol. 130, no. 10, pp. 1687-1696, June 2024. DOI: 10.1038/s41416-024-02638-2
4. David A. Drew, Andre E. Kim, Yi Lin, Conghui Qu, John Morrison, Juan Pablo Lewinger, Eric Kawaguchi, Jun Wang, Yubo Fu, Natalia Zemlianskaia, Virginia Díez-Obrero, Stephanie

- A. Bien, Niki Dimou, Demetrius Albanes, James W. Baurley, Anna H. Wu, Daniel D. Buchanan, John D. Potter, Ross L. Prentice, Sophia Harlid, Volker Arndt, Elizabeth L. Barry, Sonja I. Berndt, Emmanouil Bouras, Hermann Brenner, Arif Budiarto, Andrea Burnett-Hartman, Peter T. Campbell, Robert Carreras-Torres, Graham Casey, Jenny Chang-Claude, David V. Conti, Matthew A.M. Devall, Jane C. Figueiredo, Stephen B. Gruber, Andrea Gsur, Marc J. Gunter, Tabitha A. Harrison, Akihisa Hidaka, Michael Hoffmeister, Jeroen R. Huyghe, Mark A. Jenkins, Kristina M. Jordahl, Anshul Kundaje, Loic Le Marchand, Li Li, Brigid M. Lynch, Neil Murphy, Rami Nassir, Polly A. Newcomb, Christina C. Newton, Mireia Obón-Santacana, Shuji Ogino, Jennifer Ose, Rish K. Pai, Julie R. Palmer, Nikos Papadimitriou, **Bens Pardamean**, Andrew J. Pellatt, Anita R. Peoples, Elizabeth A. Platz, Gad Rennert, Edward Ruiz-Narvaez, Lori C. Sakoda, Peter C. Scacheri, Stephanie L. Schmit, Robert E. Schoen, Mariana C. Stern, Yu-Ru Su, Duncan C. Thomas, Yu Tian, Konstantinos K. Tsilidis, Cornelia M. Ulrich, Caroline Y. Um, Fränzel J.B. van Duijnhoven, Bethany Van Guelpen, Emily White, Li Hsu, Victor Moreno, Ulrike Peters, Andrew T. Chan, and W. James Gauderman, *Two Genome-Wide Interaction Loci Modify The Association of Nonsteroidal Anti-Inflammatory Drugs with Colorectal Cancer*, *Science Advances*, vol. 10, no. 22, article no. eadk3121, May 2024. DOI: 10.1126/sciadv.adk3121
5. Ngatirah Ngatirah, Kusumastuti Kusumastuti, Cakra W. Tarigan, Teddy Suparyanto, Joko P. Trinugroho, and **Bens Pardamean**, *Glycerolysis of Palm Kernel Oil Catalized by Mgo On Mono and Diglyceride Composition and Their Antibacterial Activity*, *BIO Web of Conferences*, vol. 94,

- article no. 02009, March 2024. DOI: 10.1051/bioconf/20249402009
6. Alam Ahmad Hidayat, Rudi Nirwantono, Joko Pebrianto Trinugroho, and **Bens Pardamean**, *A Quantitative Approach in Identifying Natural Selection Signals on Biallelic Single Nucleotide Polymorphisms of BRCA1 Gene in Diverse Populations*, BIO Web of Conferences, vol. 94, article no. 01006, March 2024. DOI: 10.1051/bioconf/20249401006
 7. Pauliz Budi Hastuti, Wiwin Dyah Uly Parwati, Heri Purwanto, Teddy Suparyanto, Rudi Nirwantono, and **Bens Pardamean**, *Seed Dormancy Breaking and Germination Rate Improvement in Mucuna (Mucuna bracteata) Seeds using Mechanical and Fungicide Treatments*, BIO Web of Conferences, vol. 94, article no. 06002, March 2024. DOI: 10.1051/bioconf/20249406002
 8. Joko Pebrianto Trinugroho, Faisal Asadi, and **Bens Pardamean**, *Genome Data Mining Approach to Identify Potential Protein in Crop Plants*, AIP Conference Proceedings, vol. 3026, no. 1, article no. 050004, March 2024. DOI: 10.1063/5.0199976
 9. Andreas Wahyu Krisdiarto, Irya Wisnubhadra, Anzaludin Samsinga Perbangsa, Teddy Suparyanto, and **Bens Pardamean**, *Applying Mobility Business Intelligence Concept in Analyzing Oil Palm Plantation Productivity*, AIP Conference Proceedings, vol. 3026, no. 1, article no. 050011, March 2024. DOI: 10.1063/5.0199801
 10. Joko Pebrianto Trinugroho, Alam Ahmad Hidayat, Reza Rahutomo, and **Bens Pardamean**, *Meteorological Parameters for PV Installations in Indonesia*, AIP Conference Proceedings, vol. 3026, no. 1, article no. 060002, March 2024. DOI: 10.1063/5.0199977

11. Pauliz Budi Hastuti, Gilang Tri, Wiwin Dyah Uly Parwati, Teddy Suparyanto, Digdo Sudigyo, and **Bens Pardamean**, *The By-Product of Oil Palm Dosage Application on Turnera Subulata Growth Supports Water Supply*, AIP Conference Proceedings, vol. 3026, no. 1, article no. 020003, March 2024. DOI: 10.1063/5.0199886
12. Nugraha, Nanda Satya, Dian Pratama Putra, Mohammad Prasanto Bimantio, Amallia Ferhat, Rama Zakaria, Rudi Nirwantono, Teddy Suparyanto, and **Bens Pardamean**, *Jejak.In as Digital Platform for Vegetation Analysis and Estimation of Carbon Stock in KEHATI Aqua Park*, AIP Conference Proceedings, vol. 3026, no. 1, article no. 050010, March 2024. DOI: 10.1063/5.0200530
13. Dedy Ariansyah, **Bens Pardamean**, Eddine Barbaro, and John Ahmet Erkoyuncu, *Augmented Reality Training for Improved Learnability*, CIRP Journal of Manufacturing Science and Technology, vol. 48, pp. 19-27, 2024. DOI: 10.1016/j.cirpj.2023.11.003
14. Arief Ika Uktoro, Hermantoro, Rengga Arnalis Renjani, Sandiaga Kusuma, Dwi Asmono, Ruli Wandri, Samsu Alam, Muchamad Nur Fanani Kramajaya, Angga Cahyo Riyanto, Teddy Suparyanto, and **Bens Pardamean**, *Detecting Nutrient Deficiency In Oil Palm Seedlings Using Multispectral Uav Images*, Communications in Mathematical Biology and Neuroscience, vol. 2024, article no. 56, 2024. DOI: 10.28919/cmbn/8520
15. Dinne Ratj, Tjeng Wawan Cenggoro, Namira Mufida Adien, Ni Putu Putri Ardhia Paramita, Nabila Putri Sina, Gregorius Natanael Elwirehardja, and **Bens Pardamean**, *A Comparison of Customer Churn Vector Embedding Models with Deep Learning*, AIUB Journal of Science and Engineering, vol. 23 no. 1, pp. 1-10, 2024. DOI: 10.53799/ajse.v23i1.612

16. Reza Rahutomo, Alam Ahmad Hidayat, Mahmud Isnain, and **Bens Pardamean**, *Air Temperature for Sustainable Airport Infrastructure and Environment*, IOP Conference Series: Earth and Environmental Science, vol. 1324, no. 1, article no. 012010, 2024. DOI: 10.1088/1755-1315/1324/1/012010
17. Rudi Nirwantono, David Herawan, Salsabila Firdausa, Issa Nuryana, Fina Amreta Laksmi, and **Bens Pardamean**, *Primer Design for Cloning Of L-Arabinose Isomerase Gene from Arthrobacter Psychrolactophilus into Plasmid pET28a(+)*, IOP Conference Series: Earth and Environmental Science, vol. 1324, no. 1, article no. 012134, 2024. DOI: 10.1088/1755-1315/1324/1/012134
18. Andrea Stevens Karnyoto, Mahmud Isnain, and **Bens Pardamean**, *A Hybrid CNN-SVM Approach for Malaria in Blood Cell Detection*, 2024 2nd International Conference on Software Engineering and Information Technology, ICoSEIT 2024, pp. 222-226, February 2024. DOI: 10.1109/ICoSEIT60086.2024.10497463
19. Michael Tantowen, Krisna Putra, Mahmud Isnain, and **Bens Pardamean**, *Principal Component Analysis Implementation on Machine Learning In Diabetes Classification*, Communications in Mathematical Biology and Neuroscience, vol. 2024, article no. 45, 2024. DOI: 10.28919/cmbn/8492
20. Jason Sebastian Sulistyawan, Kelvin Julian, Gregorius Natanael Elwirehardja, Kuncahyo Setyo Nugroho, and **Bens Pardamean**, *A Two-Step Feature Selection Approach for Identifying SNPs Associated with Colorectal Cancer*, Communications in Mathematical Biology and Neuroscience, vol. 2024, article no. 47, 2024. DOI: 10.28919/cmbn/8468

21. Rezy Eko Caraka, Khairunnisa Supardi, Puspita Angraini Kaban, Robert Kurniawan, Prana Ugiana Gio, Yunho Kim, Syihabuddin Ahmad Mufti, Rung-Ching Chen, Muhammad Khahfi Zuhanda, Avia Enggar Tyasti, Noor Ell Goldameir, and **Bens Pardamean**, *Understanding Pediatric Health Trends in Papua: Insights from SUSENAS, RISKESDAS, Remote Sensing, and Its Relevance to Prabowo and Gibran's Free Lunch and Milk Program*, IEEE Access, vol. 12, pp. 51536-51555, 2024. DOI: 10.1109/ACCESS.2024.3380018
22. **Bens Pardamean**, Arif Budiarto, Alam Ahmad Hidayat, Nur Adhianti Heryanto, Carissa Ikka Pardamean, and James William Baurley, *Indonesian Colorectal Cancer Consortium Data Science System*, Communications in Mathematical Biology and Neuroscience, vol. 2024, article no. 38, 2024. DOI: 10.28919/cmbn/8462
23. Rezy Eko Caraka, Khairunnisa Supardi, Robert Kurniawan, Yunho Kim, Prana Ugiana Gio, Budi Yuniarto, Faiq Zakki Mubarok, and **Bens Pardamean**, *Empowering Deaf Communication: A Novel LSTM Model for Recognizing Indonesian Sign Language*, Universal Access in the Information Society, 2024. DOI: 10.1007/s10209-024-01095-1
24. Anita Rizky Lubis, Nelva Meyriani Br Ginting, Sri Fajar Ayu, Rezy Eko Caraka, Yunho Kim, Prana Ugiana Gio, and **Bens Pardamean**, *Business Predictive Analytics of Smallholder Indonesian Maize using Vector Error Correction*, Engineering Letters, vol. 32, no. 2, pp. 429-435, 2024.
25. Tafia Hasna Putri, Rezy Eko Caraka, Toni Toharudin, Yunho Kim, Rung-Ching Chen, Prana Ugiana Gio, Anjar Dimara Sakti, Resa Septiani Pontoh, Indah Reski Pratiwi, Farid Azhar Lutfi Nugraha, Thalita Safa Azzahra, Jessica Jesslyn

- Cerelia, Gumgum Darmawan, Defi Yusti Faidah, and **Bens Pardamean**, Fine-Tuning of Predictive Models CNN-LSTM and CONV-LSTM for Nowcasting $PM_{2.5}$ Level, IEEE Access, vol. 12, pp. 28988-29003, 2024. DOI: 10.1109/ACCESS.2024.3368034
26. Joko P. Trinugroho, Faisal Asadi, Alam Ahmad Hidayat, Rudi Nirwantono, and **Bens Pardamean**, DNA Marker Utilization for The Sustainable Production of Trehalose, IOP Conference Series: Earth and Environmental Science, vol. 1297 no. 1, article no. 012079, 2024. DOI: 10.1088/1755-1315/1297/1/012079
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 29. Hery Harjono Muljo, Teddy Suparyanto, Arif Budiarto, Yulius Lie, and **Bens Pardamean**, *Assessment of Team-Based Learning in Computerized Accounting Course*, Journal of Higher Education Theory and Practice, vol. 23, no. 20, pp. 129-138, December 2023. DOI: 10.33423/jhetp.v23i20.6690

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4. Gregorius Natanael Elwirehardja, **Bens Pardamean**, and Teddy Suparyanto, *Pengenalan Konsep Machine Learning Untuk Pemula, Granted, 000518910, 2023*
5. **Bens Pardamean**, Reza Rahutomo, Gregorius Natanael Elwirehardja, Faisal Asadi, and Faiz Ayyas Munawwar, Anzaludin Samsinga P., Joko Pebrianto Trinugroho, Dedy Ariansyah, Digdo Sudigyo, Faisal Asadi, and Faiz Ayyas Munawwar, *StuntingDB: Sistem Manajemen Basis Data untuk Profil dan Pengukuran Balita Stunting Berbasis Website, Granted, 000467614, 2023*
6. **Bens Pardamean**, Reza Rahutomo, Gregorius Natanael Elwirehardja, Faisal Asadi, and Faiz Ayyas Munawwar, *Enhancing the Use of Digital Model with Team-Based Learning Approach in Science Teaching, Granted, 000352876, 2022*

7. **Bens Pardamean**, Joko Pebrianto Trinugroho, Alam Ahmad Hidayat, Digdo Sudigyo, and Faiz Ayyas Munawwar, *Development and Implementation of Indonesian Cancer Registry, Granted, 000352123, 2022*
8. **Bens Pardamean**, Hery Harjono Muljo, Reza Rahutomo, and Wawan Cenggoro, *Sistem Cerdas Deteksi Tingkat Aktivitas Dalam Ruang Melalui Video CCTV, Granted, 000331884, 2022*
9. Fergyanto E. Gunawan, Arief Budiman, **Bens Pardamean**, Tjhwa Endang Djuana, Sugiarto Romeli, Wawan Cenggoro, Kartika Purwandari, Alam Ahmad Hidayat, Anak Agung Ngurah Perwira Redi, and Muhammad Asrol, *Multivariate Time-Series Deep Learning for Joint Prediction of Temperature and Relative Humidity in A Closed Space, Granted, 000331883, 2021*
10. **Bens Pardamean**, Arif Budiarto, Bharuno Mahesworo, Alam Ahmad Hidayat, and Digdo Sudigyo, *Aplikasi Visualisasi dan Analisa Data Wearable, Granted, 000305371, 2021*
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19. **Bens Pardamean**, Hery Harjono Muljo, Wawan Cenggoro, and Reza Rahutomo, *Sistem Basis Data untuk Melatih Kecerdasan Buatan Pendeteksi Tingkat Aktivitas dalam Ruang*, *Granted*, 000233277, 2020
20. **Bens Pardamean**, Arif Budiarto, Reza Rahutomo, and Wawan Cenggoro, *Basis Data Artikel Berita Online*, *Granted*, 000225874, 2020
21. Wawan Cenggoro, Reza Rahutomo, Kartika Purwandari, Hery Harjono Mulyo, and **Bens Pardamean**, *Perancangan Aplikasi Penghitung Jumlah Orang untuk Manajemen Smart Building*, *Granted*, 000172364, 2019

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25. **Bens Pardamean**, Hery Harjono Muljo, and Anzaludin Samsinga P., *Aplikasi Mobile Learning for Early Detection Cancer*, *Granted*, 000133343, 2019
26. **Bens Pardamean**, *Aplikasi Web Online Learning Deteksi Dini Kanker Leher Rahim bagi Kader Kesehatan dan Tenaga Medis*, *Granted*, 086750, 2017
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28. **Bens Pardamean**, *Aplikasi Online Learning Deteksi Dini Kanker Version 1.0*, *Granted*, 085584, 2016
29. **Bens Pardamean**, *Learning Management System Pembelajaran Daring untuk Deteksi Dini Kanker*, *Granted*, 078588, 2016
30. **Bens Pardamean**, *Sistem Informasi Penelitian Kanker Kolorektal*, *Granted*, 078557, 2016

31. **Bens Pardamean**, *Implementasi CANREG 5 di Indonesia, Granted, 073526, 2015*
32. **Bens Pardamean**, *Panduan Implementasi Team Based Learning, Granted, 072811, 2015*
33. **Bens Pardamean**, *Development of Indonesian Cancer Registry System (CANREG 5), Granted, 068143, 2014*



PEMBERI SARWONO PRAWIROHARDJO
MEMORIAL LECTURE TAHUN 2024
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Prof. Dr. Trina Ekawati Tallei, merupakan dosen tetap di Departemen Biologi di Fakultas Matematika dan Ilmu Pengetahuan Alam dan kepala bagian Biologi di Fakultas Kedokteran Universitas Sam Ratulangi. Saat ini sebagai koordinator kelompok keahlian Genetika dan Bioteknologi di Departemen Biologi FMIPA. Selain itu, menjabat sebagai Manajer Mutu di Laboratorium BioMolekuler di Universitas Sam Ratulangi.

Prof. Trina menyelesaikan studi S1 di bidang Biologi di FMIPA Institut Teknologi Bandung pada tahun 1989. Pada tahun 1990 mendapatkan beasiswa dari Pemerintah Australia untuk melanjutkan studi di University of Melbourne untuk Postgraduate diploma dalam bidang Bioteknologi. Pada akhir masa studinya, bertemu dengan Prof. Pratiwi Sudarmono dan Prof. Sangkot Marzuki, kemudian diajak untuk bekerja sebagai asisten peneliti di Proyek Persiapan Pusat Penelitian Bioteknologi Kedokteran Nasional tahun 1991-1993.

Setelah itu, melanjutkan menjadi asisten peneliti di Kimia LIPI Bandung. Pada tahun 1995 diterima sebagai calon pegawai negeri untuk menjadi dosen di Fakultas Kedokteran Universitas Padjadjaran Bandung. Pada tahun 1996 menerima beasiswa DAAD, Dinas Pertukaran Akademis Jerman, untuk melanjutkan studi di Ludwig Maximillian University. Akan tetapi, pada saat tersebut mulai menderita anxiety disorder dan panic attack yang sangat parah, sehingga sempat vakum dari dunia akademik cukup lama.

Pada tahun 1998, meski dalam kondisi sakit, memaksakan untuk melanjutkan studi di Jurusan Bologi FMIPA ITB, dan pada tahun 2020 mengikuti sandwich program di Universitas Kanazawa Jepang untuk penelitian magister dengan beasiswa JSPS dari Pemerintah Jepang. Lulus dari ITB tahun 2001.

Karena kondisi kesehatan mental yang tidak baik, maka Prof. Trina memutuskan kembali ke Manado, kota kelahirannya dan memulai bekerja sebagai dosen di Jurusan Biologi FMIPA Universitas Sam Ratulangi, sejak tahun 2004. Passion untuk melanjutkan studi sangat menggebu-gebu. Akhirnya pada tahun 2006 mengikut program doctoral di prodi Entomologi Pascasarjana Unsrat.

Pada tahun 2007 menerima beasiswa Fullbright untuk melanjutkan studi di University of California, Davis. Akan tetapi, karena dana beasiswa dikurangi oleh senat pemerintahan George W. Bush, maka keberangkatan dibatalkan. Karena masih terdaftar sebagai mahasiswa pascasarjana Unsrat, Prof. Trina memutuskan melamar sekali lagi beasiswa DAAD untuk melakukan penelitian sandwich di Universitas Goettingen Jerman dalam bidang Entomologi Molekuler. Program doctor diselesaikan di Unsrat pada tahun 2010.

Pada tahun 2012, berkat kegiatannya di Pulau Bunaken untuk pengelolaan sampah berbasis partisipasi Masyarakat, maka Prof. Trina dan kawan-kawan yang tergabung dalam the GrEEen Foundation Sulawesi Utara mendapatkan Penghargaan Indonesia MDGs Awards 2012 (IMA 2012) oleh Kantor Utusan Khusus Presiden Republik Indonesia (KUK-PRI). Penghargaan diserahkan langsung Presiden Susilo Bambang Yudhoyono, di Nusa Dua, Bali.

Pada tahun 2017, Prof. Trina dikukuhkan sebagai Guru Besar dalam bidang Biologi dan Bioteknologi Umum di Universitas Sam Ratulangi.

Prof. Trina juga menjadi pembimbing dan penguji mahasiswa S1 eksternal di Insitut Teknologi Bandung dan Universitas Pendidikan Indonesia. Selain itu juga menjadi promotor dan penguji eksternal mahasiswa doctoral di Universitas Syiah Kuala Banda Aceh. Saat ini menjadi fellow researcher di INTI International University Malaysia, serta kolaborator riset di beberapa PT di dalam dan luar negeri.

Dalam negeri dengan peneliti dan dosen dari:

- Institut Teknologi Bandung, Bandung
- IPB University, Bogor
- Universitas Gadjah Mada
- Universitas Padjajaran Bandung
- Universitas Syiah Kuala, Banda Aceh
- Universitas Pendidikan Indonesia
- Universitas Hassanuddin, Makassar
- UIN Sunan Kalijaga, Yogyakarta
- Universitas Binawan, Jakarta
- Universitas Airlangga, Surabaya
- Universitas Al Azhar, Jakarta
- Universitas Sumatera Utara

Dengan luar negeri peneliti dan dosen dari:

- Johns Hopkins Aramco Healthcare (JHAH), Saudi Arabia
- Prince Sattam bin Abdulaziz University, Saudi Arabia
- Brown University, USA
- University of Chittagong, Bangladesh
- Erciyes University, Turkiye
- Kyung Hee University, Korea
- University of Dhaka, Bangladesh
- University of Vigo, Spain
- University of Naples Federico II, Italy

Banyak sekali kontribusi ilmiah yang telah didedikasikannya. Di antaranya, lebih dari dari 300 artikel ilmiah yang diterbitkan oleh jurnal nasional maupun internasional, di mana sampai sekarang ini terdapat 158 artikel yang dipublikasikan di jurnal terindeks scopus. Selain itu, Prof Trina juga merupakan editor di berbagai jurnal internasional top tiers, antara lain *Frontiers in Plant Sciences*, *Frontiers in Pharmacology*, *Frontiers in Public Health*, serta reviewer di berbagai jurnal internasional top tiers seperti *Journal of Medical Virology*, *Reviews in Medical Virology*, *Molecules*, *Vaccines*, *Pharmaceuticals*, *Biology*, *Biomedicine & Pharmacotherapy*, *Food Science and Human Wellness*, *Journal of Infection and Public Health*, *Journal of Molecular Liquids*, *Phytomedicine*, *LWT*, *Bioengineering*, *Tropical Medicine and Infectious Disease*.

RIWAYAT PENDIDIKAN

- 1984–1989 : Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Institut Teknologi Bandung
- 1990–1991 : Postgraduate Diploma in Biotechnology, Melbourne University, Australia
- 1998–2001 : Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam (sandwich di Faculty of Sciences, Kanazawa University, Japan)
- 2006–2010 : Program Studi Entomologi, Program Pascasarjana, Universitas Sam Ratulangi (sandwich di Departemen Biologi Perkembangan, Institut Zoologi dan Antropologi Johann Friedrich Blumenbach, Georg-August-Universität Göttingen).

PENGALAMAN JABATAN

- Kepala Laboratorium Bioteknologi, FMIPA UNSRAT (2008-2012)
- Asisten Direktur Administrasi, Proyek 7in1 IDB (Islamic Development Bank) Universitas Sam Ratulangi (2015-2016).
- Guru Besar dalam bidang Biologi dan Bioteknologi Umum di FMIPA Universitas Sam Ratulangi (2017-sekarang)
- Anggota Senat FMIPA (2017-sekarang)
- Kepala Bagian Biologi, Fakultas Kedokteran, UNSRAT (2023-sekarang)
- Panelis IISMA (Indonesian International Student Mobility Awards) 2024

PENGHARGAAN/TANDA KEHORMATAN

- Top 100 Scientists in Indonesia 2024 berdasarkan AD Scientific Index untuk Natural Sciences, 2024
- The World Top 2% Most-cited Scientists pada tahun 2023
- Penghargaan Indonesia MDGs Awards 2012 (IMA 2012) oleh Kantor Utusan Khusus Presiden Republik Indonesia (KUK-PRI)

JEJARING DAN KOLABORASI

Dalam negeri

- Institut Teknologi Bandung, Bandung
- IPB University, Bogor
- Universitas Gadjah Mada
- Universitas Padjajaran Bandung
- Universitas Syiah Kuala, Banda Aceh
- Universitas Pendidikan Indonesia
- Universitas Hassanuddin, Makassar
- UIN Sunan Kalijaga, Yogyakarta
- Universitas Binawan, Jakarta
- Universitas Airlangga, Surabaya
- Universitas Al Azhar, Jakarta
- Universitas Sumatera Utara

Luar negeri

- Johns Hopkins Aramco Healthcare (JHAH), Saudi Arabia
- Prince Sattam bin Abdulaziz University, Saudi Arabia
- Brown University, USA
- University of Chittagong, Bangladesh
- Erciyes University, Turkiye

- Kyung Hee University, Korea
- University of Dhaka, Bangladesh
- University of Vigo, Spain
- University of Naples Federico II, Italy
- INTI International University

PENDIDIKAN DAN PELATIHAN

- Pembimbingan Hasil Audit Mutu Internal dan Tinjauan Manajemen SNI ISO/IEC 17025:2017 (Juli 2024)
- Penerapan Sistem Manajemen SNI ISO/IEC 17025:2017 dan Audit Internal Laboratorium Pengujian SNI ISO/IEC 19011:2018 (Juni 2024)
- Sustainable Nutrition and Public Health (10-15 February 2021, Heidelberg, Germany)
- Introduction to R (August, 2019, Queensland Cyber Infrastructure Foundation, Australia)
- Water, Energy and Sanitation in Urban and Decentralised Regions, The Carl von Ossietzky University Oldenburg, Germany 2-12 April 2014
- From Research to Practice: The role of Education for Sustainable Development in Natural Resource Management in Research, Education and International Cooperation' at Isle of Vilm (22-30 March, 2009) in conjunction with UNESCO World Conference on Education for Sustainable Development in Bonn 1 - 4th Apr 2009
- University Staff Development program (UNISTAFF) at Institute for Socio-cultural Studies (ISOS), University of Kassel, Witzenhausen, Germany, May-July 2007.

KEGIATAN SEBAGAI INVITED SPEAKER DAN KEYNOTE SPEAKER BAIK NASIONAL DAN INTERNASIONAL

- 2023: Keynote speaker – International Conference on Humanity, Entrepreneurship, Renewable Energy, Innovation, Engineering, and Sustainability. Penyelenggara: Pusat Energi Terbarukan, LPPM UNSRAT, 26 November 2023
- 2023: Keynote speaker – 2nd International Conference on Biological and Life Science. Penyelenggara: UIN Alaudin Makassar, 25 Oktober 2023.
- 2023: Invited Speaker – DAAD Alumni Meet Up. Penyelenggara: Universitas Diponegoro dan DAAD, 14 Juni 2023
- 2022: Invited Speaker – Seminar Nasional Biologi 7: Eksplorasi dan Inovasi Pemanfaatan Biodiversitas Indonesia untuk Menanggulangi Dampak Pandemi COVID-19. Penyelenggara: UIN Sunan Gunung Djati Bandung, 19 Mei 2022
- 2022: Invited Speaker - 1st Nusa Tenggara International Conference of Chemistry-2022. Penyelenggara: Himpunan Kimia Indonesia cabang Nusa Tenggara, 28-29 Juli 2022.
- 2022 : Keynote Speaker - 3rd Bioinformatics And Biodiversity Conference x the 6th International Symposium on Bioinformatics (InSyB) in conjunction with the 2nd Synthetic Biology and Biotechnology Conference (SBB), 5-6 November 2022
- 2021: Invited Speaker - DAAD Alumni eSpecial Project in the framework of BIOFACH 2021 eSpecial. Penyelenggara: Heidelberg Institute of Global Health (HIGH) at University Hospital Heidelberg dan DAAD, February 8th - 12th, 2021

KEGIATAN/ORGANISASI PROFESI

- Anggota American Society for Nutrition (2024-sekarang)
- Presidium Indostaff (2023-2025)
- Pengurus Ikatan Cendekiawan Muslim Indonesia cabang Sulawesi Utara (2020-sekarang)
- Pengurus Perhimpunan Biokimia dan Biologi Molekuler Indonesia cabang Manado (2018-sekarang)
- Pengurus Perhimpunan Mikrobiologi Indonesia cabang Sulawesi Utara (2010-2018)

BUKU

- 2023: Biologi Molekuler (E-book). Penerbit CV. Patra Media Grafindo, Bandung
- 2021: Biologi Sel dan Molekuler untuk Farmasi dan Kedokteran. Penerbit DeePublish, Yogyakarta
- 2018: DNA Barcoding dalam Genetika Konservasi. Penerbit RajaGrafindo Persada, Depok
- 2017: Biologi Sel. Penerbit CV. Patra Media Grafindo, Bandung
- 2016: Mekanisme Detoksikasi Molekuler *Tribolium castaneum*. Penerbit UNSRAT Press
- 2015: Epigenetika, Penerbit UNSRAT Press
- 2016: Biodiversitas Gunung Tumpa, Penerbit UNSRAT Press
- 2013: Seni Berpikir, Penerbit STAIN Manado Press
- 2011: Mengenal Anxiety. Penerbit PusPA, Bogor.

BAB DALAM BUKU

- 2024: In silico studies of established antivirals targeting the SARS-CoV-2 RNA-dependent RNA polymerase, dalam Features, Transmission, Detection, and Case Studies in COVID-19, Penerbit Academic Press by Elsevier, pp 475-487,

- 2017: Thanksgiving in Minahasa (North Sulawesi), dalam *Food Culture of Southeast Asia: Perspectives of Social Sciences and Food Science*, pp 65-81. Penerbit Kassel University Press (Germany)
- 2012: Local Wisdom of Danowudu Community in Preserving Forest Water Source for the City of Bitung, dalam *Climate Change and the Sustainable Use of Water Resource*, pp 773-778. Penerbit Springer-Verlag (Germany)
- 2010: Establishment of Biotechnology Center at Faculty of Mathematics and Natural Sciences Sam Ratulangi University, dalam *Towards a Shared Vision for Higher Education Cross-Cultural Insights & Projects*, Vol. V. Penerbit Kassel University Press (Germany)
- 2009: Dancing with Changes: A Tango to a Successful Outcome, dalam *Emerging Transformation in Higher Education: Concepts-Projects-Networking*. Penerbit Kassel University Press (Germany)

KARYA TULIS ILMIAH

- <https://sinta.kemdikbud.go.id/authors/profile/45517>
- https://scholar.google.co.id/citations?hl=id&user=o4FzGUwAAAAJ&view_op=list_works&sortby=pubdate
- <https://www.scopus.com/authid/detail.uri?authorId=57193317686>

INTERNASIONAL

1. Dwivany FM, Utami RLW, Yuswindia CZ, Wargadipura FH, Zainuddin IM, **Tallei TE**, Hessel SS, Esyanti RR, Suhandono S. 2024. Fruit ripening and chitosan coating impacts on the expression profile of Banana Lectin (BanLec) genes. *Scientia Horticulturae*, 335, 113293

2. Djanas VB, Suoth EJ, Kepel BJ, **Tallei TE**, Antasionasti I, Fatimawali F. 2024. Utilization of FTIR spectroscopy and chemometrics to obtain fingerprint analysis of betel fruit (*Piper betle* L.) collected from several regions in North Sulawesi. *AIP Conference Proceedings*, 3132
3. *Kurniawan R, Taslim NA, Hardinsyah H, Syauki AY, Idris I, Aman AM, Permatasari HK, Wiyarta E, Surya R, Mayulu N, Putra PP, Tjandrawinata RR, Tallei TE, Kim B, Tsopmo A, Nurkolis F.* 2024. Pharmacoinformatics and cellular studies of algal peptides as functional molecules to modulate type-2 diabetes markers. *Future Foods*, 9, 100354
4. Nurkolis F, Taslim NA, Lee D, Park MN, Moon S, Hardinsyah H, Tjandrawinata RR, Mayulu N, Astawan M, **Tallei TE**, Kim B. 2024. Mechanism of Action of Isoflavone Derived from Soy-Based Tempeh as an Antioxidant and Breast Cancer Inhibitor via Potential Upregulation of miR-7-5p: A Multimodal Analysis Integrating Pharmacoinformatics and Cellular Studies. *Antioxidants*, 13(6), 632
5. Permatasari HK, Abshori NF, Syahputra RA, Harahap U, Amalia N, Kumalawati DA, Mayulu N, Taslim NA, **Tallei TE**, Tjandrawinata RR, Wiyarta E, Pramono A, Kim B, Tsopmo A, Serra-Majem L, Nurkolis F. 2024. *Nutrients*, 16(10), 1441
6. Niode NJ, Raranta H, Purwanto DS, Mamuaja EH, **Tallei TE**. 2024. The prevalence and risk factors of sexually transmitted infections among correctional institution inmates in Manado, Indonesia. *J. Pakistan Assc. Dermatologists*, 24(2), 445-452
7. Nurkolis F, Visnu J, Sabrina N, Hardinsyah H, Taslim NA, Gunawan WB, Tanner MJ, Mayulu N, Khumaidi

- MA, Syahputra RA, Rizal M, Tjandrawinata RR, **Tallei TE**, Basrowi RW, Sundjaya T, Serra-Majem L. 2024. The Importance of Philanthropy Foundation for the Future Sustainability of Agriculture and Nutrition: An Opinion Study on Practical Applications, Policies, and Strategies. *Nutrients*, 16(8), 1119
8. Maulydia NB, Khairan K, **Tallei TE**, Salaswati S, Musdalifah A, Nabila FF, Idroes R. 2024. Exploring the Medicinal Potential of *Blumea balsamifera*: Insights from Molecular Docking and Molecular Dynamics Simulations Analyses. *Malacca Pharmaceutics*, 2(1):33-40
 9. Pendong CHA, Suoth EJ, Fatimawali F, **Tallei TE**. 2024. Network Pharmacology Approach to Understanding the Antidiabetic Effects of Pineapple Peel Hexane Extract. *Malacca Pharmaceutics*, 2(1):24-32
 10. Kusumawaty D, Faridah N, Fibriani A, Priyandoko D, Dzikrina H, Puspitasari D, **Tallei TE**, Aryani A. 2024. Successful Primer Picking and Pooling for the Design of Multiplex PCR Primers Specific to Pork, Beef, Chicken, and Rat DNA. *Hayati J. Biosci.*, 31(4), 678-686
 11. Kemala P, Idroes R, Khairan K, Ramli M, **Tallei TE**, Helwani Z, Rahman SA. 2024. The Potent Antimicrobial Spectrum of Patchouli: Systematic Review of Its Antifungal, Antibacterial, and Antiviral Properties. *Malacca Pharmaceutics*, 2(1):10-17
 12. Nurkolis F, Kurniawan R, Wiyarta E, Syahputra RA, Surya R, Taslim NA, **Tallei TE**, Tjandrawinata RR, Adashi EY, Kim B. 2024. Unraveling Light-Activated Insulin Action in Regulating Blood Glucose: New Photoactivatable Insight as a Novel Modality in Diabetes Management. *Molecules*, 29(8), 1294

13. Prajoko YW, Qhabibi FR, Gerardo TS, Kizzandy K, Tanjaya K, Willyanto SE, Permatasari HK, Surya R, Mayulu N, Taslim NA, Tjandrawinata RR, Syahputra RA, **Tallei TE**, Tsopmo A, Kim B, Kurniawan R, Nurkolis F. 2024. Revealing Novel Source of Breast Cancer Inhibitors from Seagrass *Enhalus acoroides*: In Silico and In Vitro Studies. *Molecules*, 29(5), 1082
14. Wimbari S, Kairupan BHR, **Tallei TE**. 2024. Critical review of self-diagnosis of mental health conditions using artificial intelligence. *Int. J. Mental Health Nursing*, 33(2), 344-358
15. Permatasari HK, Taslim NA, Al Mahira MFN, Amalia N, Farradisya SF, Putri RRA, Arnamalia A, Faradis MAW, Yusuf M, Gunawan WB, Surya R, Mayulu N, **Tallei TE**, Tjandrawinata RR, Kurniawan R, Nurkolis F. 2024. Molecular Docking Approaches in the Discovery and Development of Natural-based Functional Foods: An Opinion Study. *Nutrición Clínica y Dietética Hospitalaria*, 44(1)
16. Niode NJ, Kepel BJ, Hessel SS, Kairupan TS, **Tallei TE**. 2024. *Rhynchophorus ferrugineus* larvae: A novel source for combating broad-spectrum bacterial and fungal infections. *Veterinary World*, 7(1)
17. Maulana A, Idroes GM, Kemala P, Maulydia NB, Sasmita NR, Tallei TE, Sofyan H, Rusyana A. 2023. Leveraging Artificial Intelligence to Predict Student Performance: A Comparative Machine Learning Approach. *J. Edu. Management Learning*, 1(2), 64-70
18. Ratte TA, Fatimawali F, **Tallei TE**, Suoth EJ, Antasionasti I, Yamlean P. 2023. Evaluation of Antibacterial Properties from Endophytic Fungi of *Chrysanthemum indicum* (L.) Flowers against *Escherichia coli* and *Staphylococcus aureus*. *Grimsa J. Sci. Eng. Tech.*, 1(2), 71-77

19. Windah ALL, **Tallei TE**, AlShehail BM, Suoth EJ, Alhashem YN, Halwani MA, AlShakhal MM, Aljeldah M, Alissa M, Alsuwat MA, Almanaa TN, Alshehri AA, Rabaan AA. 2023. Immunoinformatics-driven Strategies for Advancing Epitope-Based Vaccine Design for West Nile Virus. *J. Pharm. Sci.* 113(4), 906-917
20. Hessel SS, Dwivany FM, Zainuddin IM, Wikantika K, Celik I, Emran TBE, **Tallei TE**. 2023. *J. Genetic Eng. Biotech.* 21(1), 148
21. Fatimawali, **Tallei TE**, Kepel BJ, Bodhi W, Manampiring AE, Nainu F. 2023. Molecular Insight into the Pharmacological Potential of *Clerodendrum minahassae* Leaf Extract for Type-2 Diabetes Management Using the Network Pharmacology Approach. *Medicina*, 59(11), 1899
22. Bernadus JBB, Pelealu J, Kandou GD, Pinaria AG, Mamahit JME, **Tallei TE**. 2023. Metagenomic Insight into the Microbiome and Virome Associated with *Aedes aegypti* Mosquitoes in Manado (North Sulawesi, Indonesia). *Inf. Dis. Reports.* 15(5), 549-563
23. Niode NJ, Kepel BJ, Phoanda TC, Lukita S, **Tallei TE**. 2023. Antimicrobial Potential of Rhynchophorus Beetle Larval Haemolymph Against Methicillin-Resistant *Staphylococcus aureus* and *Neisseria gonorrhoeae*. *Pakistan J. Biol. Sci.* 26(10):543-548
24. Handayani D, Aminah IA, Putra PP, Putra AEP, Arbain D, Satriawan H, Efdi M, Celik I, **Tallei TE**. 2023. The depsidones from marine sponge-derived fungus *Aspergillus unguis* IB151 as an anti-MRSA agent: Molecular docking, pharmacokinetics analysis, and molecular dynamic simulation studies. *Saudi Pharmaceutical J.* 31(9), 101744

25. Wahid M, Saqib F, Akhtar S, Ali A, **Tallei TE**, Simal-Gandara J. 2023. Mechanistic insights of Cucumis melo L. seeds for gastrointestinal muscle spasms through calcium signaling pathway-related gene regulation networks in WGCNA and in vitro, in vivo studies. *Computers in Biology and Medicine*, 155.
26. **Tallei TE**, Fatimawali F, Adam AA, Ekatanti D, Celik I, Fatriani R, Nainu F, Kusuma WA, Rabaan AA, Idroes R. 2023. Molecular insights into the anti-inflammatory activity of fermented pineapple juice using multimodal computational studies. *Archiv der Pharmazie*, e2300422
27. Rabaan AA, Abas AH, **Tallei TE**, Al-Zaher MA, Al-Sheef NM, Al-Nass EZ, Al-Ebrahim EA, Effendi Y, Idroes R, Alhabib MF, Al-Fheid HA, Adam AA, Emran TB. 2023. Monkeypox outbreak 2022: What we know so far and its potential drug targets and management strategies. *J. Medical Virology*, 95(1), e28306
28. **Tallei TE**, Alhumaid S, AlMusa Z, Kusumawaty D, Alynbawi A, Alshukairi AN, Rabaan AA. 2023. Update on the omicron sub-variants BA. 4 and BA. 5. *Reviews in Medical Virology*, 33(1), e2391
29. Celik I, Khan A, Dwivany FM, Wei DQ, **Tallei TE**. 2022. Computational prediction of the effect of mutations in the receptor-binding domain on the interaction between SARS-CoV-2 and human ACE2. *Molecular Diversity*, 26(6), 3309-3324
30. Celik I, Abdellatif MH, **Tallei TE**. 2022. An Insight Based on Computational Analysis of the Interaction between the Receptor-Binding Domain of the Omicron Variants and Human Angiotensin-Converting Enzyme 2. *Biology*, 11(5), 797.

31. **Tallei TE**, Fatimawali F, Yelnetty A, Kusumawaty D, Effendi Y, Park MN, Alhumaydhi FA, Emran TB, Kim B. 2022. Predictive microbial community and functional gene expression profiles in pineapple peel fermentation using 16S rRNA gene sequences. *Fermentation*, 8(5), 194
32. Celik I, **Tallei TE**. 2022. A computational comparative analysis of the binding mechanism of molnupiravir's active metabolite to RNA-dependent RNA polymerase of wild-type and Delta subvariant AY.4 of SARS-CoV-2. *J. Cellular Biochemistry*, 123(4), 807-818
33. **Tallei TE**, Fatimawali F, Adam AA, Elseehy MM, El-Shehawi AM, Mahmoud EA, Tania AD, Niode NJ, Kusumawaty D, Rahimah S, Effendi Y, Idroes R, Celik I, Hossain MJ, Emran TB. 2023. Fruit Bromelain-Derived Peptide Potentially Restrains the Attachment of SARS-CoV-2 Variants to hACE2: A Pharmacoinformatics Approach. 27(1), 260
34. **Tallei TE**, Fatimawali Y, Idroes R, Kusumawaty D, Emran TB, Yesiloglu TZ, Sippl W, Mahmud S, Alqahtani T, Alqahtani AM, Asiri S, Rahmatullah M, Jahan R, Khan MA, Celik I. 2021. An Analysis Based on Molecular Docking and Molecular Dynamics Simulation Study of Bromelain as Anti-SARS-CoV-2 Variants. *Front. Pharmacol.* 12: 717757.
35. **Tallei TE**, PelealuJJ, Kolondam BJ, Lubis L, Mahmud S, Emran TB. 2021. A molecular phylogeny of Taeniophyllum THRJ inferred from DNA barcode regions. *JABET*, 4(2), 171-177
36. **Tallei TE**, Tumilaar SG, Niode NJ, Kepel BJ, Fatimawali, Emran TB, Idroes R, Effendi Y, Sakib SA. 2020. Potential of Plant Bioactive Compounds as SARS-CoV-2 Main Protease (Mpro) and Spike (S) Glycoprotein Inhibitors: A Molecular Docking Study. *Scientifica*, 2020

NASIONAL

1. Suwignya IA, Pelealu JJ, Tallei TE. 2023. Pengaruh Penambahan Pupuk Organik dan Mikoriza Terhadap Kadar Klorofil dan Antosianin Daun Ubi Jalar Ungu (*Ipomoea batatas* var. *Ayamurasaki*). *Bios Logos*, 13(3), 150-157

KEKAYAAN INTELEKTUAL

1. 2023. Proses Pengeringan Mikrohijauan Brokoli (*Brassica oleracea* var. *italica*) untuk Meningkatkan Kadar Antioksidan (Paten sederhana: dalam proses) - Ketua
2. 2023: Formulasi teh Celup Bunga Krisan (*Chrysanthemum indicum* L.) sebagai Minuman Herbal (Paten sederhana: dalam proses) – Anggota
3. 2022: Proses Pembuatan Minuman Fungsional Jus Nanas Terfermentasi Probiotik (Paten sederhana: Granted) – Ketua
4. 2021: Nanokitosan Piper betle Linn dan Penggunaannya sebagai Imunomodulator (Paten sederhana: dalam proses) – Anggota
5. 2021: Komposisi teh Celup Daun Sirih (*Piper betle* Linn.) dan Kulit Buah Jeruk Purut (*Citrus hystrix* D.) (Paten sederhana: dalam proses) – Anggota
6. 2021: Formula Mikrokapsul Probiotik Potensial *Enterococcus faecium* Tersalut Nanokitosan (Paten sederhana: Granted) – Ketua
7. 2021: Proses Laktofermentasi Buah dengan Menggunakan Air Tajin (Paten sederhana: Granted) – Ketua



BRIN Sarwono Prawirohardjo *Memorial Lecture* 2024



Pemanfaatan Teknologi *Omics* dan *Bioinformatics* untuk Optimalisasi Manfaat Kesehatan *Microgreens* sebagai Pangan Fungsional

Prof. Dr. Trina Ekawati Tallei
Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam
Bagian Biologi, Fakultas Kedokteran
Universitas Sam Ratulangi

Jakarta, 23 Agustus 2024

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04

OMICS & BIOINFORMATICS
UNTUK PENINGKATAN NILAI
GIZI *MICROGREENS*

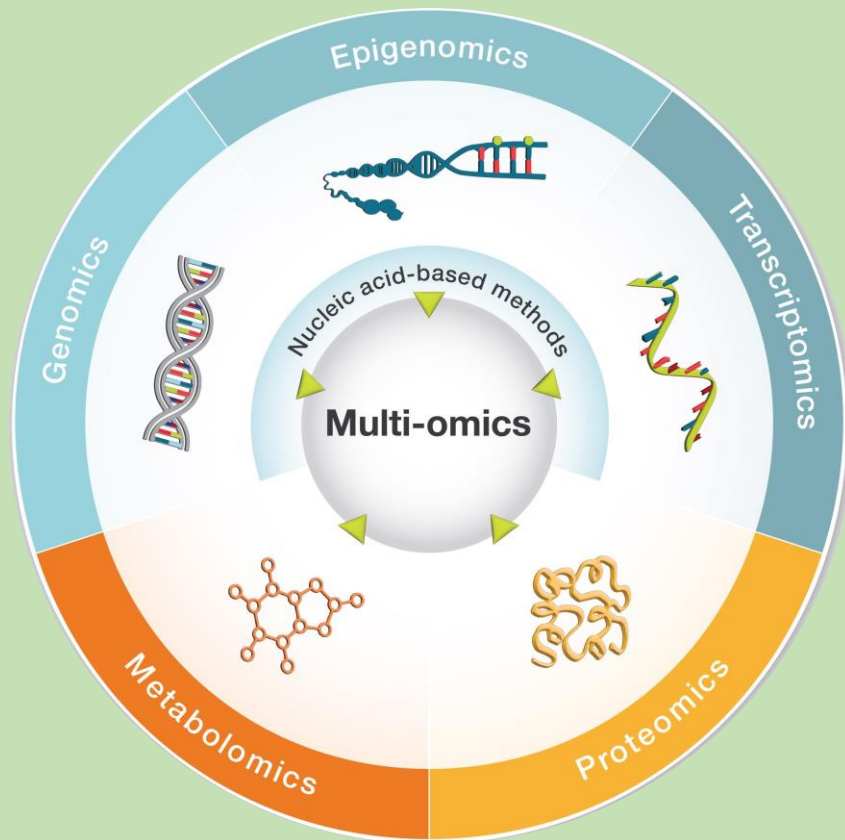
05

MEKANISME
MOLEKULER MANFAAT
MICROGREENS

06

PENUTUP





01

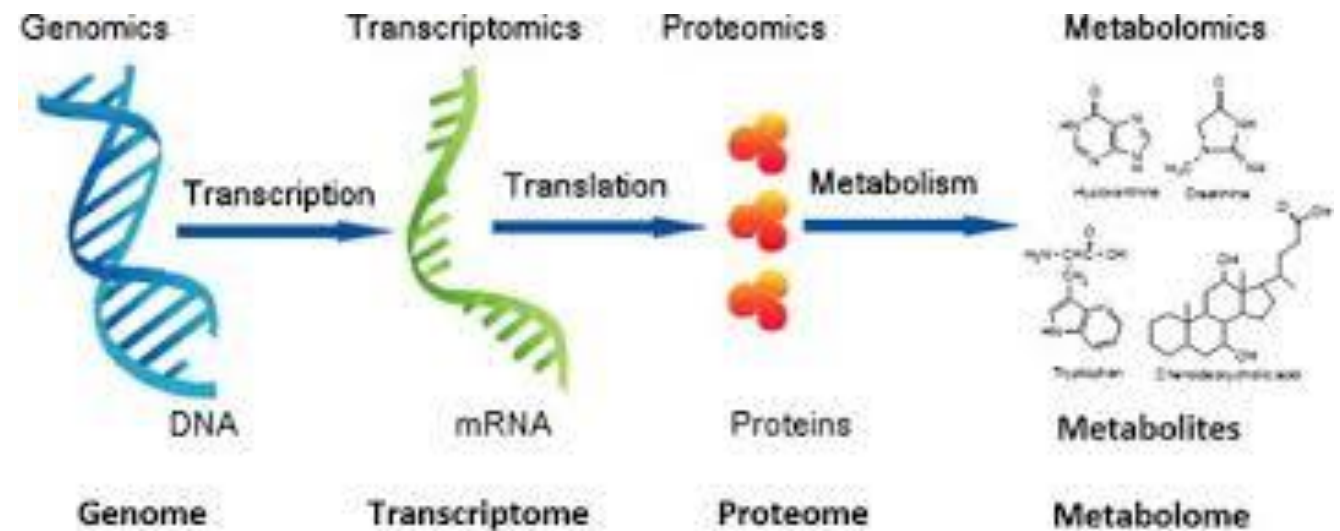
PENDAHULUAN

*Omics, Bioinformatics,
Microgreens*



OMICS

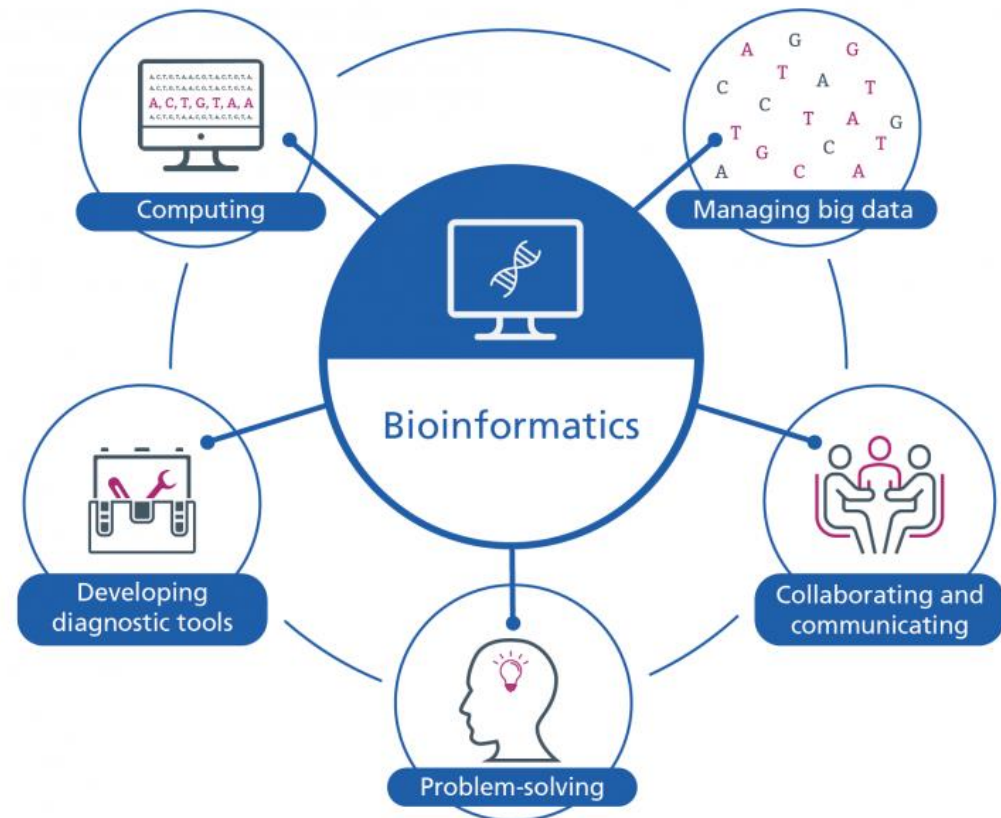
- Studi komprehensif tentang kumpulan molekul biologis tertentu dalam suatu organisme, seperti *genome* (semua materi genetik), *transcriptome* (semua molekul RNA), *proteome* (semua protein), *metabolome* (semua metabolit), dan *interactome* (semua interaksi antara biomolekul).
- Data *omics* biasanya kompleks, berdimensi tinggi, dan *noisy*, sehingga memerlukan BIOINFORMATIKA untuk analisis dan interpretasi.
- Aplikasi *omics*:
Discovery, diagnosis, decisions



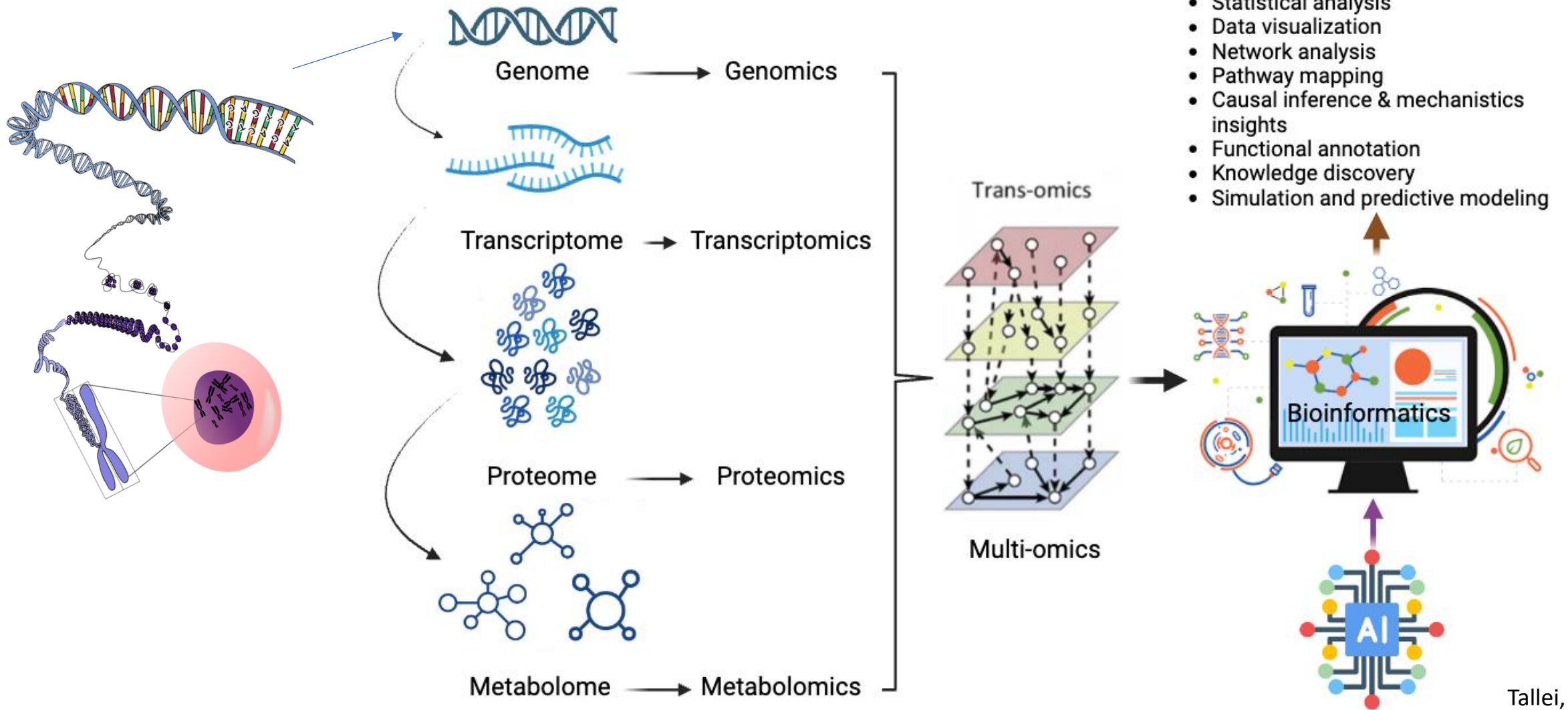
Frueh & Burczynski, 2021



- Bidang ilmu yang menggabungkan biologi, ilmu komputer, matematika, dan statistik untuk menganalisis untuk menginterpretasikan data biologis yang kompleks.
- Pemanfaatan teknik komputasional untuk mengelola dan menganalisis data omics.
- Pengolahan, penyimpanan, manajemen data, analisis statistik dan komputasi, pemodelan dan simulasi, visualisasi data-data biologis.



OMICS and BIOINFORMATICS



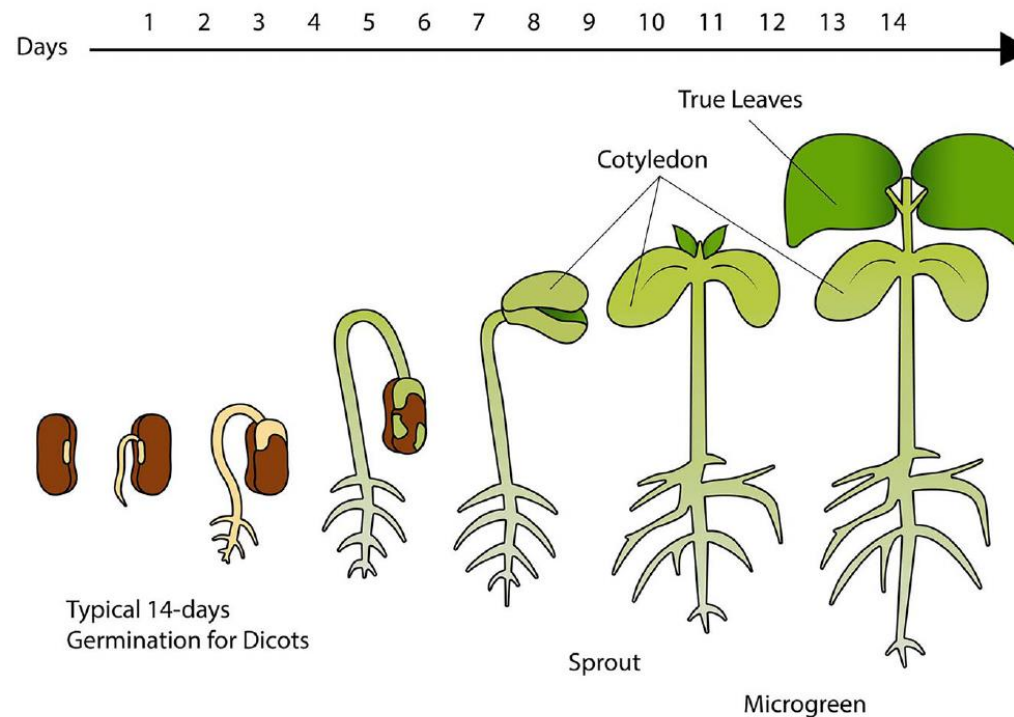
Tallej, 2024





MICROGREENS

Microgreens atau **microhijauan** merupakan tanaman kecil yang dipanen pada tahap awal pertumbuhannya, tepat setelah daun sejati pertama mulai muncul; biasanya dipanen sekitar 7 hingga 21 hari setelah berkecambah, tergantung pada jenis tanaman.



Tallei et al, 2023

Global Microgreens Market Research Report



North America



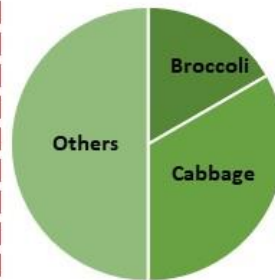
Market Size:
US\$ 1.77 Bn
(2022)

**CAGR
(2023-2031)**

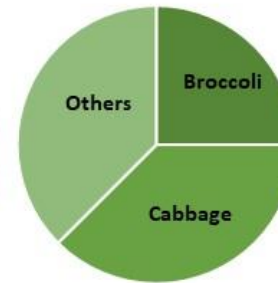
14.31%



By Type:

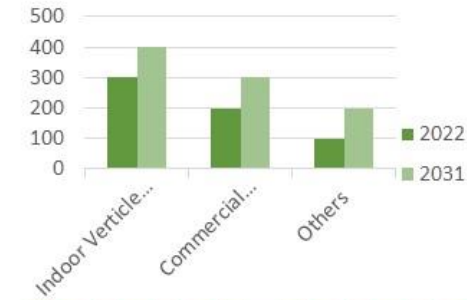


2022

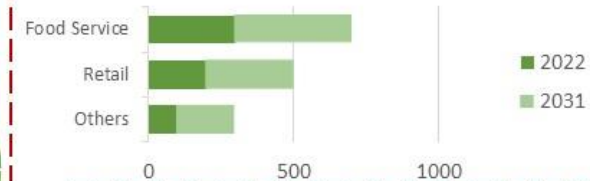


2031

By Farming:



By End-User:



Key Players:

AEROFARMS

GOTHAM GREENS

FRESH ORIGINS
MicroGreens

2B Fresh

FARMBOX GREENS

BOWERY

Pasar *microgreens* bernilai 1,77 miliar pada tahun 2022 dan diprediksi akan mencapai 5,82 miliar pada tahun 2031 dengan laju pertumbuhan tahunan gabungan 14,31% selama periode 2023-2031 (InsightAce Analytics)

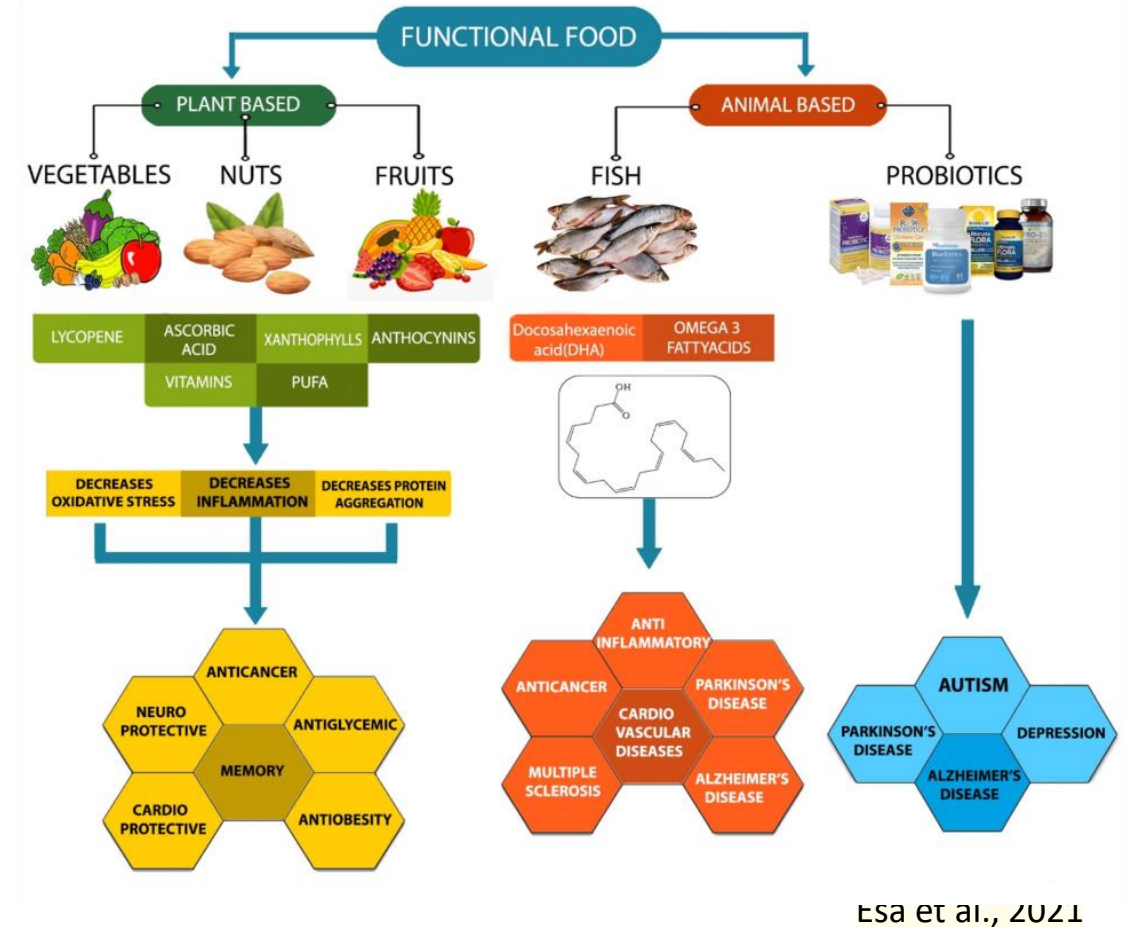


02

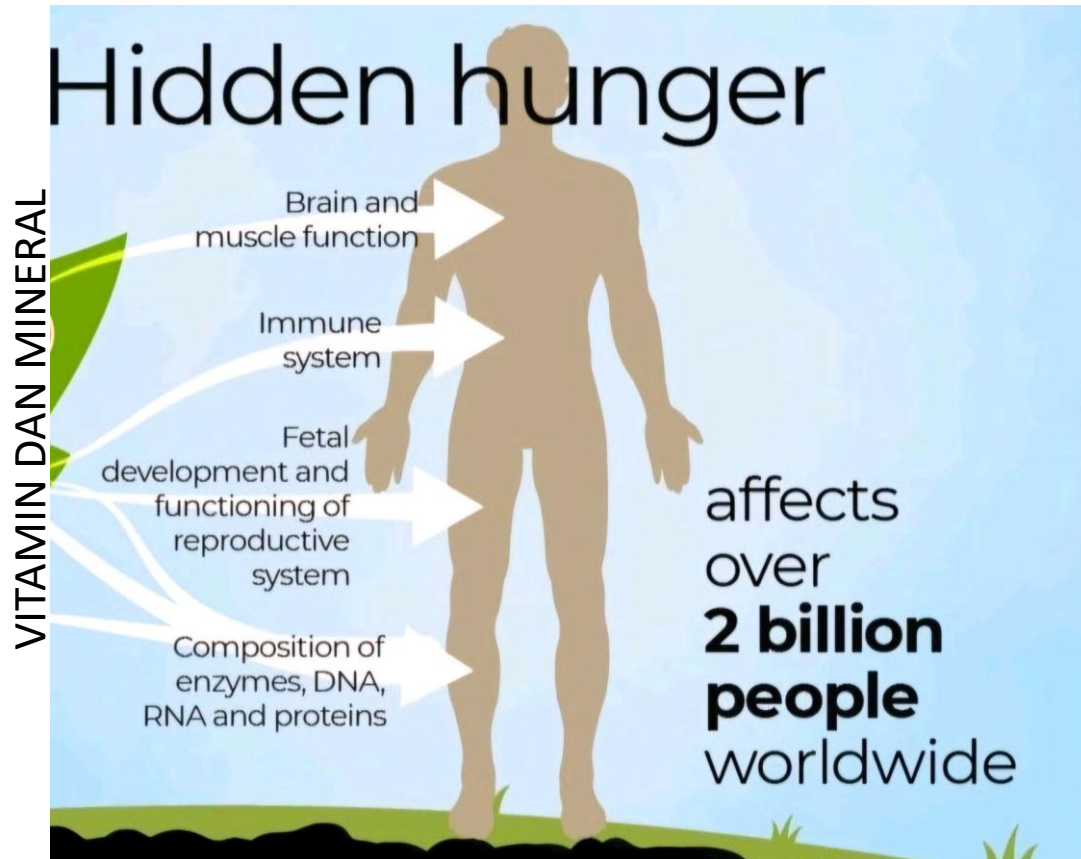
PANGAN FUNGSIONAL

PANGAN FUNGSIONAL

- Pangan yang memberikan manfaat kesehatan melebihi nilai gizi dasarnya.
- Dapat berupa pangan alami kaya akan nutrisi penting, atau pangan yang telah dimodifikasi dengan penambahan vitamin, mineral, probiotik, atau serat untuk meningkatkan manfaat kesehatannya dan bahkan mengurangi risiko penyakit kronis (Arshad et al., 2021; Cencic & Chingwaru, 2010; Chhikara & Panghal, 2022; Essa et al., 2023).



HIDDEN HUNGER



<https://sustainableagriworld.com/the-concept-of-hidden-hunger-in-agriculture/>

- **Hidden hunger** atau **kelaparan tersembunyi**:

Kondisi kekurangan mikronutrien (vitamin dan mineral) dalam tubuh, meskipun cukup kalori dan kenyang; Bentuk malnutrisi yang tidak selalu terlihat secara fisik

- Sebanyak 56% anak prasekolah di dunia kekurangan mineral dan/atau vitamin (Weffort & Lamounier, 2024).



03

MICROGREENS
SEBAGAI
PANGAN FUNGSIONAL

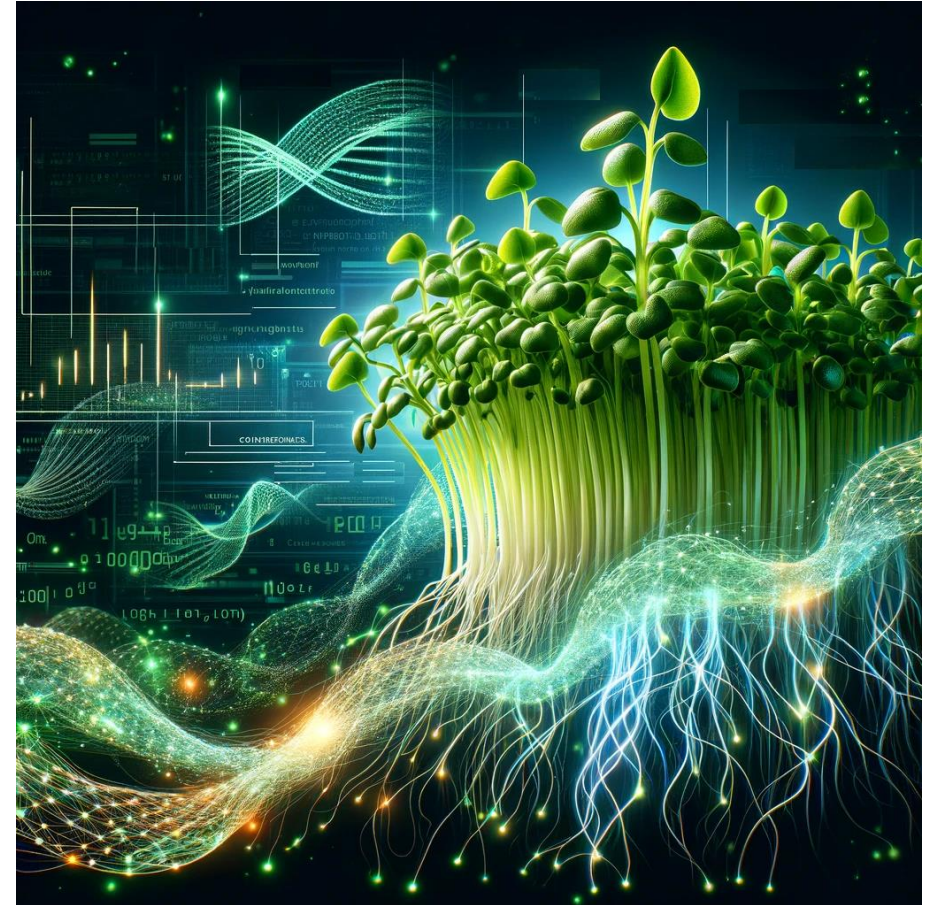




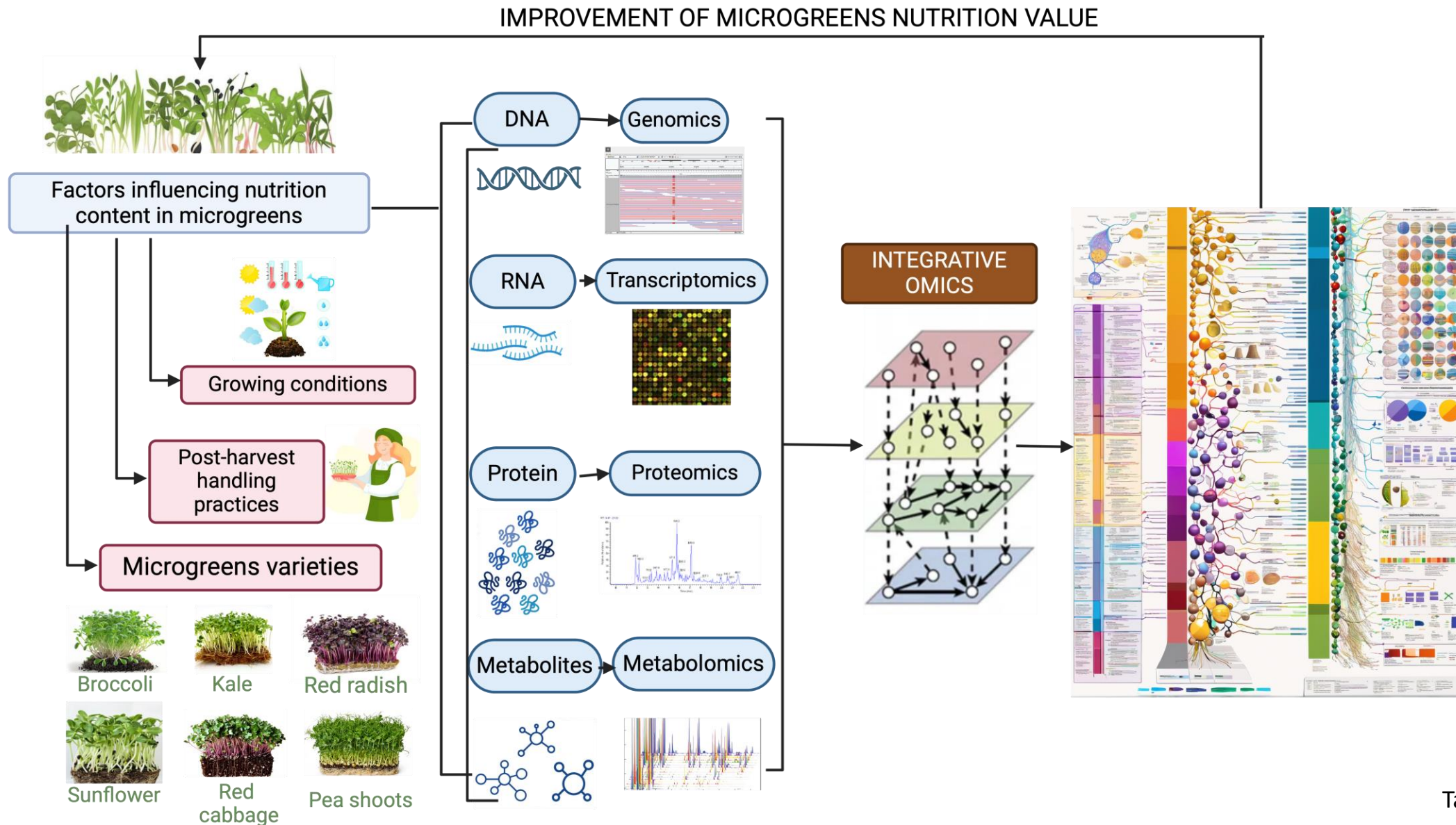
***Microgreens* sebagai Pangan Fungsional:**

- Kandungan Mineral (Fe, Mn, Mg, K, Ca) dan fitokimia (asam amino, asam organik, asam oleat, asam linoleat, polifenol, flavonoid, karotenoid), menjadikannya alternatif pangan fungsional yang potensial.
- Kaya akan antioksidan yang memproteksi sel dari stres oksidatif, dan memiliki potensi untuk melawan penyakit kronis seperti kardiovaskular, kanker, dan gangguan neurodegeneratif (Nayernia et al., 2014; Sharifi-Rad et al., 2020).
- *Microgreens* kubis merah, ketumbar, bayam merah, dan lobak hijau memiliki konsentrasi nutrisi esensial dan senyawa bioaktif yang 4-40% lebih tinggi dibandingkan dengan tanaman dewasa (Partap et al., 2023).
- Rekomendasi asupan harian: 100 gram *microgreens* segar dari keluarga Brassicaceae dapat memenuhi 20-50% dari rekomendasi harian mineral, asam lemak, dan antioksidan (Bhaswant et al., 2023; Pant et al., 2023; Partap et al., 2023).
- Solusi menjanjikan untuk mengatasi masalah keamanan nutrisi dan dapat disajikan secara praktis dan berkelanjutan (Renna & Paradiso, 2020).

04 *Omics dan Bioinformatics* untuk Peningkatan Nilai Gizi *Microgreens*



Peran Teknologi *Omics* dan Bioinformatika dalam Meningkatkan Nilai Gizi *Microgreens*



Tallei et al, 2024

Peran Teknologi Omics dan Bioinformatika dalam Meningkatkan Nilai Gizi Microgreens

1. Pemetaan genom untuk mengidentifikasi gen-gen kunci terkait nutrisi:
 - Identifikasi gen-gen yang bertanggungjawab untuk menghasilkan senyawa bioaktif;
 - Mempelajari bagaimana gen-gen tersebut diekspresikan dalam berbagai kondisi;
 - Pengembangan varietas microgreens dengan sifat unggul.
2. Analisis transkriptomik untuk memahami ekspresi gen:
 - Pemahaman gen-gen yang aktif dalam kondisi pertumbuhan atau intervensi pertumbuhan tertentu;
 - Optimasi kondisi pertumbuhan untuk meningkatkan senyawa bioaktif;
3. Proteomik
 - Mengidentifikasi protein-protein yang terlibat dalam biosintesis dan regulasi senyawa bioaktif;
 - Protein sebagai biomarker kualitas nutrisi.

Peran Teknologi Omics dan Bioinformatika dalam Meningkatkan Nilai Gizi Microgreens

4. Metabolomik

- Profil metabolit untuk pengembangan produk dengan aktivitas spesifik, misalnya antioksidan, antikanker, antiinflamasi

5. Bioinformatika untuk integrasi data omik

- Analisis big data omics;
- Pemodelan metabolisme dan biosintesis senyawa aktif;
- Pengembangan budidaya *microgreens* berkelanjutan.

Future perspective

- Pengembangan *microgreens* sebagai pangan fungsional kaya nutrisi penting;
- Pengembangan varietas baru kualitas nutrisi yang diperkaya;
- Pengembangan budidaya *microgreens* berkelanjutan.
- Integrasi OMICS, Bioinformatics, dan AI

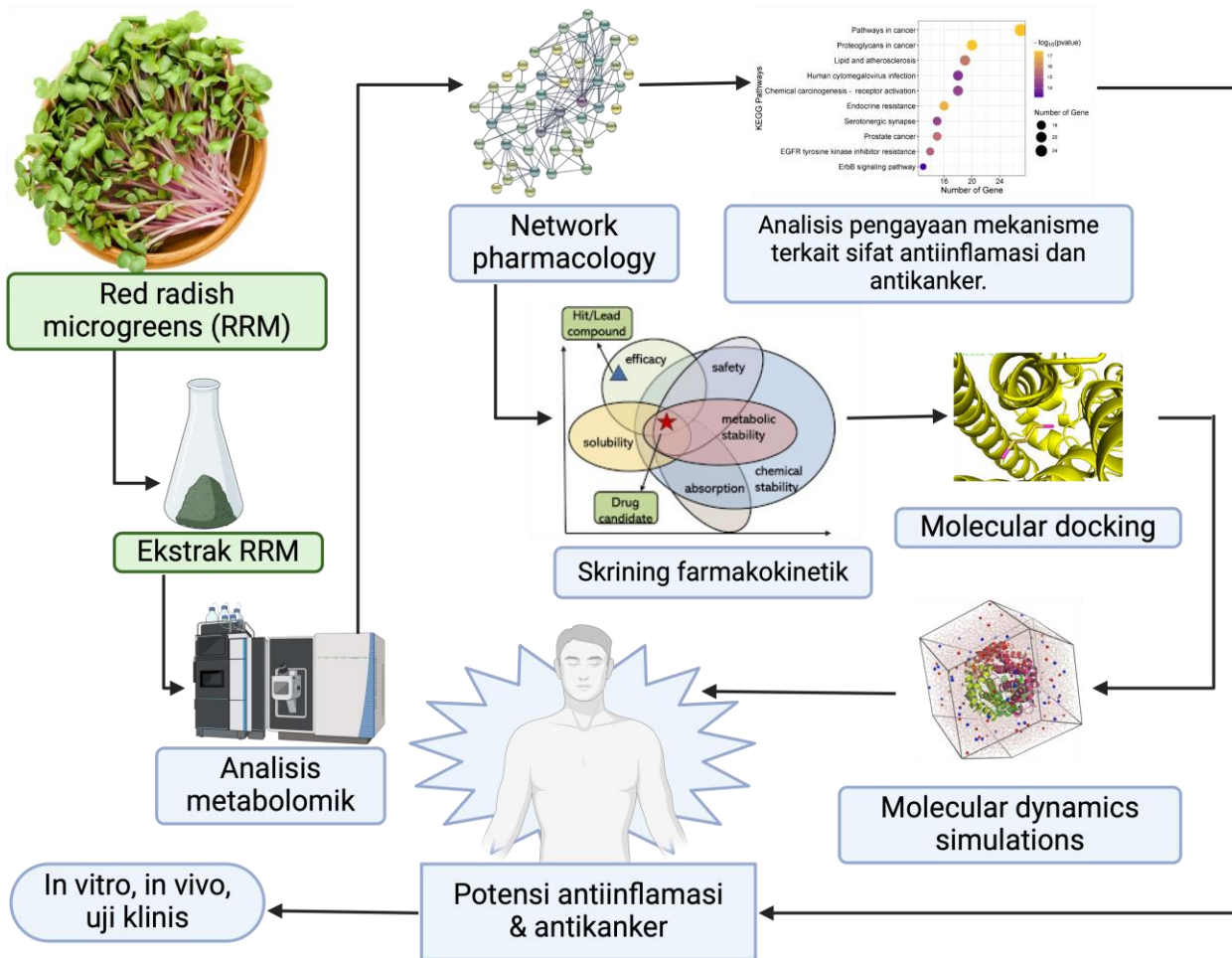




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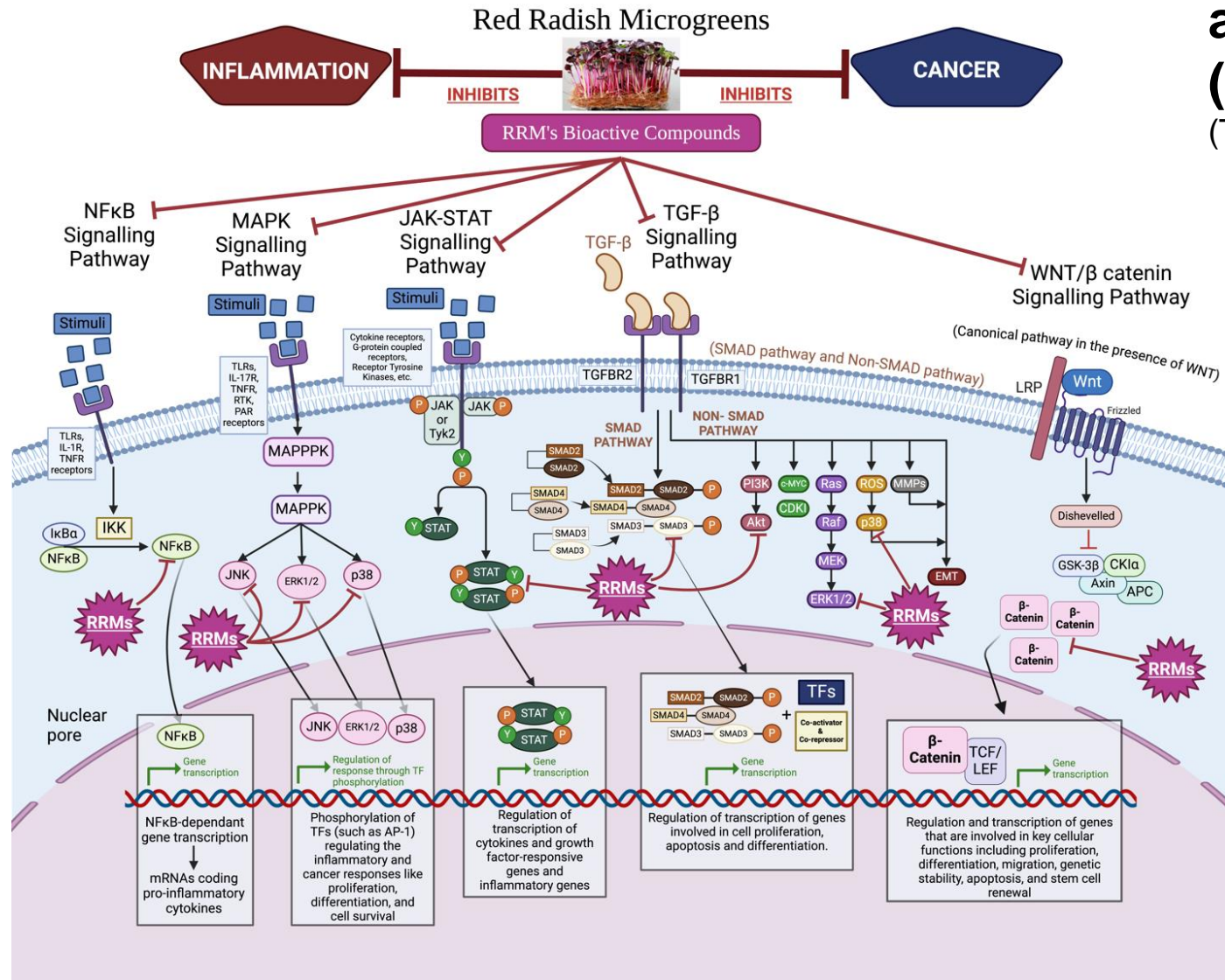
MEKANISME MOLEKULER DI BALIK MANFAAT KESEHATAN *MICROGREENS*

Peran OMICS dan Bioinformatics dalam Memahami Mekanisme Molekuler di Balik Manfaat Kesehatan Microgreens



Tallei et al, 2024

- *Metabolomic profiling* untuk menentukan metabolit pada RRM.
- Analisis bioinformatika yang meliputi:
 - *Network pharmacology* mempelajari interaksi kompleks antara senyawa, protein target, dan jejaring biologis.
 - *Enrichment analysis* untuk mengidentifikasi kelompok gen atau protein yang terkait dengan kondisi atau fenomena tertentu.
 - *ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) analysis* untuk memprediksi sifat farmakokinetik dan toksisitas suatu senyawa.
 - *Molecular docking* untuk memprediksi orientasi dan konformasi yang paling stabil dari satu senyawa ketika terikat pada protein.
 - *Molecular dynamic simulation* merupakan simulasi pergerakan atom dan molekul dalam sistem biologis.



Aktivitas anti-inflamasi dan antikanker *red radish microgreens* (RRM)

(Tallei et al., 2024 – unpublished).

- *Microgreens* lobak merah kaya akan senyawa bioaktif seperti vitamin, mineral, fenolik, flavonoid, antosianin, glukosinolat, isothiocyanates, klorofil, karotenoid.
- Senyawa-senyawa ini meredakan inflamasi dan menghambat kanker.
- Glukosinolat dikonversi menjadi isothiocyanates: efek anti-kanker dengan menghambat proliferasi sel kanker dan memodulasi jalur sinyal inflamasi.
- Jalur sinyal yang terlibat yaitu NFκB, MAPK, dan JAK-STAT, yang mengatur ekspresi gen pro-inflamasi, sitokin, dan faktor pertumbuhan.



06 PENUTUP



OMICS dan Bioinformatics untuk Pengembangan *Microgreens* sebagai Pangan Fungsional

➤ *Integrative omics* dan *bioinformatics*

- pemahaman mendalam tentang manfaat kesehatan *microgreens*;
- mengidentifikasi dan meningkatkan kandungan nutrisi *microgreens*;
- pengoptimalan kondisi pertumbuhan dan kualitas pascapanen *microgreens*;
- penemuan senyawa bioaktif *microgreens* dengan potensi kesehatan.

➤ Peran penting kolaborasi dalam penelitian *omics* dan *bioinformatics* untuk memaksimalkan potensi *microgreens* sebagai pangan fungsional.





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