

**INDONESIA TORAY SCIENCE FOUNDATION  
SCIENCE TECHNOLOGY AWARD 2011**

NO	NAME	GENDER	UNIVERSITY	Summary	Field & Focus of Research	TITLE
1	<b>PROF. IR. I MADE SUDARMA, M. SC, PH. D</b> Mengwi, 06 June 1960	MALE	<b>University of Mataram</b> Jl. Majapahit NO. 62 Mataram - NTB 83125 Tel. (0370) 633007 Fax. (0370) 636041	<p>- <b>Key Technology:</b> The isolation &amp; chemical transformation technologies we have employed in this research allow us to develop new compounds from eugenol</p> <p>- <b>Purpose:</b> To develop new compounds with potential biological activity from readily accessed secondary metabolites, in particular eugenol</p> <p>- <b>Results:</b> Develop a simple route to novel antibiotics. All derivatives studied showed antibacterial properties against bacteria</p> <p>- <b>Impacts:</b> Health impacts of climate change are related to disease &amp; bacteria resistance to antibiotics. To solve this problem, novel antibiotics &amp; eugenol derivatives prepared from this research alternatively can be used as a one solution</p>	Natural Products Chemistry	Isolation & Transformation of Secondary Metabolite from Terrestrial Plants
2	<b>DR. VEINARDI SUENDO</b> Jakarta, 07 November 1975	MALE	<b>Institute of Technology Bandung</b> Jl. Ganesha No. 10 Bandung 40132 Tel. (022) 251-5032 Fax. (022) 250-2360	<p>- <b>Key technology:</b> Chemical &amp; structure modification of functional materials</p> <p>- <b>Purpose:</b> Synthesis of functional material for electronics &amp; renewable energy sources</p> <p>- <b>Results:</b></p> <ul style="list-style-type: none"> <li>- Proton conducting membranes based on natural polymers</li> <li>- Modified chlorophyll as photo sensitizer in dye-sensitized solar cell (DSSC) &amp; photodynamic therapy (PDT) applications</li> <li>- High temperature synthesized polyaniline nanorod as organic electronics materials</li> <li>- Chemically modified oxide surface for hybrid inorganic/organic optoelectronics</li> </ul> <p>- <b>Impact:</b> Encouraging the development of fuel cell, organic electronics &amp; photodynamic therapy researchers in Indonesia by providing new materials that locally available or easily to be synthesized.</p>	<ul style="list-style-type: none"> <li>- Membrane science</li> <li>- Thin film semiconductors</li> <li>- Nanomaterials</li> <li>- Organic electronics</li> </ul>	Chemical & Structure Modifications in the Development of Functionalized Materials as Renewable Energy Sources
3	<b>MUHAMMAD KUSBAN, ST, MT</b> Sukoharjo, 13 December 1967	MALE	<b>Muhammadiyah University</b> Jl. A. Yani Tromol Pos 1, Pabelan Surakarta - Jawa Tengah 57102 Tel. (0271) 717417 Fax. (0271) 715448	<p>- <b>Key Technology:</b> Digital Image Processing - Enhance Biomedical Image Processing</p> <p>- <b>Purpose:</b> Make an application in order to improve image quality in the medical field</p> <p>- <b>Result:</b> Software applications (Matlab-based), that used to improve image quality in the medical world with the morphology &amp; filtering methods</p> <p>- <b>Impact:</b> Help doctors diagnose the disease quickly take through various forms of oncreased image quality generated by this software applications, especially of the brain, heart, liver, kidneys, and spine</p>	Image Processing & Computer	Digital Signal Processing
4	<b>PROF. DR. IR. AGOES SOEGIANTO, DEA</b> Surabaya, 03 August 1962	MALE	<b>Airlangga University</b> Kampus C UNAIR Jl. Mulyorejo, Surabaya 60115 Tel. (031) 593-6501 Fax. (031) 593-6502	<p>- <b>Key Technology:</b> Environmental management in order to protect public health</p> <p>- <b>Purpose:</b> to review the level of metals in marine animals collected from East Java Coast &amp; Its implication on public health</p> <p>- <b>Result:</b> The concentrations of all metals in shrimp &amp; fish from Gresik coast were within the acceptable range for human consumption. The concentrations of Cd in shellfishes harvested from some locations of East Java coast were higher than the maximum acceptable limit for human consumption</p> <p>- <b>Impact:</b> can support the government to manage the environment from the pollution of industrial &amp; other anthropogenic activities</p>	Environmental Pollution & Biology	Bioaccumulation of Metals in Aquatic Animals Collected from East Java Coast and Its Implication on Public Health
5	<b>I KETUT GEDE MULIARTHA, MD., PH. D, PATHOLOGIST</b> Denpasar, 17 June 1947	MALE	<b>Brawijaya University</b> Medical Faculty Jl. Veteran No. 1 Malang - Jatim 65145 Tel. (0341) 551611 Fax. (0341) 565420	<p>- <b>Key Technology:</b> Biology Molecular Technology</p> <p>- <b>Purpose:</b> to detect Acute Myocardial Infarction (AMI) by Biomaker monoclonal antibody fragmentasi collagen type IV. Rupture of atherosclerotic plaque initially occurred by degradation of collagen type IV. Infection Perphyromonas gingivalis one of important risk factors for AMI</p> <p>- <b>Result:</b> Found MMP-9 obtained band 92kDa &amp; fragmentation collagen type IV shown band 60-80 kDa. To test the reaction of monoclonal antibody fragmentasi collagen type IV on the 1st-12th blood sample AMI &amp; 4 health control show all blood sample AMI positive</p> <p>- <b>Impact:</b> Produce Biomaker Kita Diagnostic IMA</p>	<ul style="list-style-type: none"> <li>Basic Science of Cancer</li> <li>Basic Science of Cardio Vascular</li> </ul>	Novel Biomaker Monoclonal Antibody Fragmentation Collagen Type IV to Detect Acute Myocardial Infarction Related Infected Microorganism

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6	<b>MUSLIM MAHARDIKA, PH. D</b> Sragen. 30 July 1979	MALE	<b>Gadjah Mada University</b> Jl. Grafika No. 2 Yogyakarta 55281 Tel. (0274) 513665, 649-2190, 589659 Fax. (0274) 589659	<p><b>- Key Technology:</b> a. Development of new method for monitoring micro-machining process b. Nre approach (theory) on the determination of ease of machining in EDM process</p> <p><b>- Purpose:</b> a. To find out the characteristics of micro-EDM Processes b. To determinate the ease of machining in EDM Processes</p> <p><b>- Result:</b> a. A new online monitoring system, hence the characteristics of micro-EDM processed can be determined b. The ease of machining in EDM processes can be determined</p> <p><b>- Impact:</b> contribution to the understanding of micro-EDM processes, especially to the ease of machining in EDM processes &amp; this contribution will reduce the manufacturing cost for manufacturing industry</p>	Manufacturing, Advanced machining, Micro-machining, Non-conventional machining	1. A New Method for Monitoring the Micro-Electronic Discharge Machining (EDM) Processes 2. A New Approach (theory) on the Determination of Ease of Machining in Electrical Discharge Machining (EDM) Processes
7	<b>DR. DESSY NATALIA</b> Padang, 19 August 1967	FEMALE	<b>Institute of Technology Bandung</b> Jl. Ganesha No. 10 Bandung 40132 Tel. (022) 250-2103 Fax. (022) 250-4145	<p><b>- Key Technology:</b> Enzym Technology &amp; Genetic Engineering</p> <p><b>- Purpose:</b> <math>\alpha</math>-amylases degrade starch polymer into oligosaccharides with various length depending on its source. The resulting oligosaccharides have high economic value compared to that of original starches. There are two research aims, namely to produce recombinant <math>\alpha</math>-amylases with various different properties &amp; to discover a novel amylase from Indonesian marine microorganisms</p> <p><b>- Result:</b> Several recombinant <math>\alpha</math>-amylases with different properties in term of pH, temperature, substrate preference, product specificity have been generated. The most important finding of this research is a novel raw starch degrading <math>\alpha</math>-amylase from a soft coral associated <i>Bacillus aquamaris</i> MKSC 6.2 aquamaris</p> <p><b>- Impact:</b> Recombinant <math>\alpha</math>-amylases obtained from this research can be scaled up to meet the industrial needs in Indonesia. Unlike most of <math>\alpha</math>-amylases which degrade solubilized starches, our novel <math>\alpha</math>-amylase can degrade uncook starch, hence application of this <math>\alpha</math>-amylase will significantly reduce the starch processing cost. Furthermore, the novel raw starch degrading <math>\alpha</math>-amylase is of sci</p>	Biochemistry, Molecular Biology & Biotechnology	$\alpha$ -Amylases from Various Microorganisms: From Biochemical Studies to Their Potential Application
8	<b>AYI MUHAMMAD IQBAL NASUHA</b> Majalengka, 10 December 1989	MALE	<b>Indonesia University of Education (UPI)</b> Faculty of Mathematics & Science Education Jl. Setiabudi No. 229 Bandung 40154 Tel. (022) 201-3161/4 Fax. (022) 201-3651	<p><b>- Key Technology:</b> e-learning, warning management system</p> <p><b>- Purpose:</b> e-learning using artificial intelligence methods to optimizing learning</p> <p><b>- Result:</b> the new skills with intelligence tutoring system</p> <p><b>- Impact:</b> oprimizing learning process by using e-learning media</p>	Technology & Learning Management System Development	Development e-Learning Base on the Unit Level of Education Curriculum by Using Intelligence Tutoring System
9	<b>AFLIZAR, PH. D</b> Air Bangis, 06 July 1974	MALE	<b>Payakumbuh Agricultural State Polytechnic</b> Jl. Raya Negara Km. 7, Kec. Harau, Kab. Limapuluh Kota Sumatera Barat Tel. (0752) 775-4192 Fax. (0752) 775-0220	<p><b>- Key Technology:</b> Recommended Land Use, Soil Erosion, USLE, Surfer</p> <p><b>- Purpose:</b> for land conservation &amp; agroecological production for Sumaniwatershed in West Sumatera, Indonesia</p> <p><b>- Result:</b> the recommended land use planning resulted in a 16.1% change distribution as follow: vegetable garden with terracing (10%), vegetable gardens with contour cropping (1.8%) &amp; sawah (4.3%)</p> <p><b>- Impact:</b> the changes made in the recommended land use plans could reduce soil erosion rate by 88%, a reduction from 58.9% to 7.1 Mg/ha/y, with a total profit loss in agricultural production of only 3.9% in the Sumawi watershed</p>	Soil erosion status & sustainable land management in an agricultural watershed	A Land use Planning Recommendation for Sumani Watershed, West Sumatera, Indonesia
10	<b>DR. BRIAN WASITA, PH. D</b> Karanganyar, 22 July 1979	MALE	<b>Sebelas Maret University</b> Medical Faculty Jl. Ir. Sutarmi No. 36A Kentingan Jebres, Surakarta, Jateng 57126 Tel/Fax. (0271) 664178	<p><b>- Key Technology:</b> experimental brain tumor; glioblastoma multiforme; intracarotid injection; leptomenigeal gliomatosis; rat C6 glioma cell</p> <p><b>- Purpose:</b> to establish an animal model of leptomenigeal gliomatosis (disseminated glioma) as preclinical model which can be used to test the efficiency of new treatment modalities before conducting clinical trial</p> <p><b>- Result:</b> successfully established a leptomenigeal gliomatosis model that mimick clinical sign of patient, and showed typical feature of glioblastoma with high proliferation, invasion &amp; new blood formation capacity</p> <p><b>- Impact:</b> this model can be used to test efficacy of new treatment modalities before bring them to the clinical trial</p>	Brain Tumor	A Rat Glioblastoma Model with Diffuse Leptomenigeal Gliomatosis induced by Intracarotid Injection of C6 Glioma Cells

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11	<b>DR. RER. NAT. HERU SUSANTO</b> Semarang, 29 May 1975	MALE	<b>Diponegoro University</b> Fac of Engineering Dept of Chemical Engineering Jl. Prof. Sudarto, Tembalang Semarang - Jateng 50275 Tel. (024) 746-0058 Fax. (024) 748-0675	<p>- <b>Key Technology:</b> Compact desalination using a combination of ultrafiltration &amp; reverse osmosis</p> <p>- <b>Purpose:</b> the unit is designed for solving problem of fresh water supply on military/expedition ship</p> <p>- <b>Result:</b> compact &amp; robust desalination system with lower energy consumption compared to conventional desalination, easily placed on a military ship/expedition. The unit can also be applied on the outer islands of Indonesia, where the availability water source is salt water. This configuration can be operated for longer time</p> <p>- <b>Impact:</b> patrol military ship/expedition can run more efficiently as the needs of sanitation &amp; drinking water can be supplied along their journey</p>	Membrane Science & Technology	Compact Desalination using Integrated Membrane Processes for Water Supply in Military/expedition Ship
12	<b>DR. IR. INGRID S SURONO, M. SC</b> Tegal, 07 February 1957	FEMALE	<b>University of Indonesia</b> SEAMEO RECFON Jl. Salemba Raya No. 6 Jakarta 10430 Tel. (021) 3193-0205 Fax. (021) 391-3933	<p>- <b>Key Technology:</b> functional food</p> <p>- <b>Purpose:</b> probiotik for human health</p> <p>- <b>Result:</b> a. novel probiotic <i>E.faecium</i> IS-27526 at <math>10^9</math> cfu/day has significant positive effect on humoral immune response, salivary sIgA, in underweight pre-school children &amp; on weight gain of pre-school children b. a combination of probiotic <i>L.plantarum</i> IS-10506 at <math>10^{10}</math> cfu/day &amp; 8 mg zinc supplementation showed significant increase of Fecal StgA &amp; potential ability in improving zinc status of 12-24 months children</p> <p>- <b>Impact:</b> novel indigenous probiotics, either <i>E.faecium</i> IS-27526 or <i>L. plantarum</i> IS-10506 together with Zinc is a potential functional foods ingredient to improve nutritional status as well as in enhancing humoral immune response &amp; reducing diarrhea incidence of young children &amp; it is challenging to develop functional to develop functional food probiotic based for the children</p>	Functional Foods & Human Health	Probiotic for Human Health Promotion
13	<b>RITMALENI, PH. D</b> Padang, 26 July 1973	FEMALE	<b>Gadjah Mada University</b> Faculty of Pharmacy Sekip Utara - DI Yogyakarta 55281 Tel. (0274) 649-2565 Fax. (0274) 543120	<p>- <b>Key Technology:</b> synthesis, drug design, tetrahydrocurcumin (THC) analog, biological activity</p> <p>- <b>Purpose:</b> to synthesis some new tetrahydrocurcumin analogs &amp; to evaluate their biological activities</p> <p>- <b>Result:</b> two new analogs of THC are successfully synthesised which named as Tetrahydropentagamavunon-0 (THPGV-0) and tetrahydropentagamavunon-1 (THPGV-1) in moderate yield. The biological activity of those also have been evaluated as anticancer, antioxidant, antiinflammatory, antibacterial &amp; antifungi agents</p> <p>- <b>Impact:</b> THPGV-0 &amp; THPGV-1 are analog of THC &amp; derivatives of PGV-0 &amp; PGV-1 which are patent compounds belong to Faculty of Pharmacy UGM. By having these two molecules, the pharmacokinetic profile of PGV-0 &amp; PGV-1 in the body can be followed &amp; can be proposed whether as drug or prodrug</p>	Organic Chemistry, speciality in Synthesis Organic Chemistry	Synthesis of Analog of Tetrahydrocurcumins and Their Biological Activities
14	<b>DRA. ZAHROTUL JANNAH AR., MM</b> Malang, 17 January 1959	FEMALE	<b>Malang Polytechnic</b> Dept of Mechanical Engineering Jl. Veteran PO BOX 04 Malang - Jawa Timur 65145 Tel. (0341) 551340 Fax. (0341) 550180	<p>- <b>Key Technology:</b> recycle material technology</p> <p>- <b>Purpose:</b> raw material grinding stone</p> <p>- <b>Result:</b> increase foreign exchange</p> <p>- <b>Impact:</b> addressing the environmental impact</p>	Material Physics	Utilization of Waste Catalyst Sent Fuel Processing Pertamina B3 from Being Raw Materials File Resistant and Grinding Stone
15	<b>IRAWAN WIJAYA KUSUMA, PH. D</b> Tanah Grogot, 12 April 1973	MALE	<b>Mulawarman University</b> Faculty of Forestry Jl. Ki Hajar Dewantara Gunung Kelua, Samarinda - Kaltim 75116 Tel/Fax. (0541) 737081	<p>- <b>Key Technology:</b> biological activity, Dayak, herbal products, tropical medicinal plants</p> <p>- <b>Purpose:</b> enhance the benefit of tropical medicinal plants as a source of accessible drugs &amp; herbal products</p> <p>- <b>Result:</b> potential plant extract &amp; their active compounds to be developed as herbal products &amp; natural drugs</p> <p>- <b>Impact:</b> optimization of natural product utilization from Indonesian plant resources to reduce consumption of pure synthetic products, scientific information for people about potential of the plant to be developed as important herbal products, scientific basis for development of local herbal products; supporting government efforts to serve the people with effective, cheap &amp; reachable health cares treatment</p>	Natural Products Chemistry	Search for Biological Activities from Tropical Medicinal Plants Implemented by the Dayak Tribes in East Kalimantan

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16	<b>BUDI HIDAYAT, S. KM., MMPM., PH. D</b> Purbalingga, 07 February 1972	MALE	<b>University of Indonesia</b> Faculty of Public Health Kampus FKM UI Depok Building F, 1st Floor Depok - Jabar 16424 Tel. (021) 787-2977, 727-0169 Fax. (021) 786-4974	<p><b>- Key Technology:</b></p> <p><b>- Purpose:</b></p> <p><b>- Result:</b></p> <p><b>- Impact:</b></p> <p>All description in each item above were written in his proposal</p>	Health Policy; Applied Econometrics in Health	<ol style="list-style-type: none"> <li>1. Indonesian Conditional Cash Transfer, PKH, Program: effect &amp; ethics</li> <li>2. The Demand for Cigarettes in Indonesia</li> <li>3. Health Insurance &amp; the Demand for Outpatient Care in Indonesia</li> </ol>
17	<b>dr. AHMAD FARIED, PH. D</b> Jakarta, 20 November 1975  <b>NO PHOTO ATTACHED!</b>	MALE	<b>Padjajaran University</b> Faculty of Medicine Hasan Sadikin Hospital Jl. Eijkman No. 38 Bandung 40161 Tel/Fax. (022) 203-8218	<p><b>- Key Technology:</b> novel anti-cancer agent invention, microchip array technology in cell signaling, animal model of malihnant disease</p> <p><b>- Purpose:</b> to evaluate sugar-cholestanols as an anticancer agent &amp; elucidated the molecular basis of these compounds to induce cell death</p> <p><b>- Result:</b> treated with sugar-cholestanol showed significant anti-tumor effect on suppression of tumor growth &amp; prolonged survival</p> <p><b>- Impact:</b> this novel feature of glycoconjugates with cholestanol should have clinical application as a promising anticancer agent for prevention &amp; treatment of cancer in the future</p>	Cancer Research Mechanism of cell death Novel anti-cancer agent invention Microchip array technology in cell signaling	Mechanism of Cell Death Induced by Novel Anti Cancer Agent in Malignancy
18	<b>DR. BAMBANG KUSWANDI</b> 01 February 1969	MALE	<b>Jember University</b> Faculty of Pharmacy Jl. Kalimantan III/25 Jember 68121 Tel. (0331) 330920 / Fax. -	<p><b>- Key Technology:</b></p> <p><b>- Purpose:</b> development of optode membranes containing new colorimetric tripodal receptors for heavy metal ions, particularly for Hg(II) inos in macro &amp; micro devices</p> <p><b>- Result:</b> development of optode membranes containing new colorimetric tripodal receptors for heavy meatl ions, particularly for Hg(II) ions in micro &amp; micro devices have been achieved successfully</p> <p><b>- Impact:</b> this novel tripodal receptor has the advantage that the transduction scheme is not intrinsically pH dependent, therefore, suitable for various applications. The analytical performance has been performed in the macro-fluidic devices &amp; microfluidic device. So that the sensor performance is enhanced, since sensor size &amp; shape will profoundly affect the sensor response towards the analyte compared to macrofluidic devices</p>	Development & application of chemical sensors & biosensors for environmental food, pharmacy, clinical & industrial application	Novel Tripodal Receptors for Optical Heavy Metal Ions Sensing: Macro-and Microdevices