External Presentations
Main Submitted Theses and Oral Presentations
April 1, 2025 - March 31, 2026

The papers posted here have been published in English - language journals and in Japanese - language journals with English titles. Conference presentations have been given at international conferences and at Japanese conferences with English titles.

Catalyst Design

GHG Reduction through low-temperature decomposition of ammonia and nitrous oxide

J. Rodriguez-Castanon, N. Watanabe, N. Kuwasaki, H. Takahashi*, T. Yonemoto, K. Seki (Essential & Green Materials Research Laboratory, *Planning & Coordination Office, Essential & Green Materials Sector)
EuropaCat 2025 (Norway), August 31 - September 5, 2025

Organic & Polymer Material Function Design

Controlled-release systems for agrochemicals using biodegradable block copolymers with low-temperature formability

H. Tada*1,2, N. Sharma*2, T. Okazaki*2, I. Taniguchi*2 (*1Agro & Life Solutions Research Laboratory, *2Kyoto Institute of Technology)
Polymer, 330, 128507 (2025)

Revisiting solvent-free cationic polymer design for enhanced ionic conductivity

D. Kim*, D. Oh, I. Yamada*, J. Hwang*, K. Matsumoto* (ICT & Mobility Solutions Research Laboratory, *Kyoto University)
Journal of Power Sources 670 (2026) 239470

Advanced TPE materials for airbag cover applications

K. Kida (Essential & Green Materials Research Laboratory)
TPO Global Automotive conference 2025 (U.S.A.), September 29 - October 1, 2025

Solvent-Free Cationic Polymer Electrolytes for All-Solid-State Lithium-Ion Batteries

D. Kim*, D. Oh, H. Nakajima*, I. Yamada*, J. Hwang*, K. Matsumoto* (ICT & Mobility Solutions Research Laboratory, *Kyoto University)
MRS 2025 Fall Meeting & Exhibit (U.S.A), November 30 - December 5, 2025

All-Solid-State Lithium-Ion Battery using Polymer Electrolyte without Solvent

D. Kim*, D. Oh, H. Nakajima*, I. Yamada*, J. Hwang*, K. Matsumoto* (ICT & Mobility Solutions Research Laboratory, *Kyoto University)
Pacifichem 2025 (U.S.A.), December 15 - 20, 2025

Biological Mechanism Analysis

Identification and characterization of a circular bacteriocin, garvicin SC, a novel garvicin ML variant, produced by Lactococcus garvieae ABG0038

Y. Komori, N. Ozawa, H. Kuwahara, T. Zendo*, M. Aoki (Bioscience Research Laboratory, *Kyushu University)
Journal of Bioscience and Bioengineering, 139(2), 95 (2025)

Freeze-dried *lactiplantibacillus plantarum* regulates formation of extracellular traps in *penaeus vannamei* ex vivo

J. P. M. D. Guzman*, C. Gargano*, M. Aoki, H. Kuwahara, K. Koiwai*, H. Kondo*, I. Hirono* (Bioscience Research Laboratory, *Tokyo University of Marine Science and Technology)
Journal of Fish Diseases, 49(5), e70092 (2025)

Identification of mosquito olfactory receptors capable of detecting nitro compounds

Y. Kodama, A. Ozoe, M. Hashimoto, T. Ishikawa, Y. Takahashi, S.Kitamoto (Environmental Health Science Laboratory)
Insect Science, 33(3), 885 (2025)

Structural and functional insights into lactobacin A: a novel non-pediocin-like bacteriocin from a *Liquorilactobacillus* strain related to *L. mali*
Y. Komori, N. Ozawa, H. Kuwahara, M. Aoki (Bioscience Research Laboratory)
Microbiology Spectrum, 14(4), e0138225 (2026)

Analysis of chemical and physical properties

Quartz-free hydride vapor phase epitaxy for production of large size GaN-on-GaN epitaxial wafers
S. Kaneki, T. Konno, H. Mori, H. Fujikura (ICT & Mobility Solutions Research Laboratory)
Applied Physics Express, 18(5), 055502 (2025)

Extremely small trap concentrations in high-purity n-type GaN grown by quartz-free hydride vapor phase epitaxy
Y. Hirayama*, M. Horita*, S. Kaneki, H. Fujikura, J. Suda* (ICT & Mobility Solutions Research Laboratory, *Nagoya University)
Applied Physics Express, 19, 021012 (2026)

Effects of 850℃ annealing on near-surface defects in Mg-ion-implanted GaN examined using MOS structures
G. Shindo*, Y. Hatakeyama*, H. Fujikura, S. Kaneki, M. Yokoyama, F. Horikiri, M. Akazawa* (ICT & Mobility Solutions Research Laboratory, *Hokkaido University)
AIP Advanced, 15, 085007 (2025)

Gas chromatographic determination of ppm-Level carbon tetrachloride in wastewater using a flame ionization detector and nitrogen carrier gas for manufacturing process control
T. Tokunaga, M. Mukumoto (Agro & Life Solutions Research Laboratory)
CHROMATOGRAPHY, 46(3), 153 (2025)

Measurement of Hansen solubility parameters of poly (ether ether ketone) using inverse gas chromatography
S. Nakamoto*1,2, H. Yamamoto*2 (*1ICT & Mobility Solutions Research Laboratory, *2Kansai University)
Industrial & Engineering Chemistry Research, 64(33), 16244 (2025)

Extremely small electron and hole trap concentrations in quartz-free hydride-vapor-phase epitaxy-grown Si-doped n-type GaN confirmed by capacitance transient spectroscopy
Y. Hirayama*, M. Horita*, S. Kaneki, H. Fujikura, J. Suda* (ICT & Mobility Solutions Research Laboratory, *Nagoya University)
The 15th International Conference on Nitride Semiconductors (ICNS-15) (Sweden), July 6 - 11, 2025

Production-ready, high-quality GaN on GaN epitaxy by QF-HVPE up to 6”
S. Kaneki, T. Konno, H. Mori, H. Fujikura (ICT & Mobility Solutions Research Laboratory)
The 15th International Conference on Nitride Semiconductors (ICNS-15) (Sweden), July 6 - 11, 2025

Hydride vapor phase epitaxy for 6-inch GaN-on-GaN wafer production
S. Kaneki, T. Konno, H. Mori, T. Sato, T. Fujimoto, D. Iwata, H. Fujikura (ICT & Mobility Solutions Research Laboratory)
SPIE Photonics West 2026 (U.S.A.), January 17 - 22, 2026

Effect of impurities on carrier dynamics in GaN revealed by Bayesian TRPL fitting
K. Ikebe*1, O. Ito*2, S. Kaneki, H. Fujikura, K. Iwamitsu*1, Z. Akase*1, A. Yamaguchi*2, S. Tomiya*1 (ICT & Mobility Solutions Research Laboratory, *1Nara Institute of Science and Technology, *2Kanazawa Institute of Technology)
The 44th Electronic Materials Symposium (EMS-44) (Nara, Japan), October 15 - 17, 2025

HVPE as a dark horse for GaN on GaN epitaxy
H. Fujikura, S. Kaneki, T. Konno (ICT & Mobility Solutions Research Laboratory)
REWIRE UK-Japan Workshop on Next-Generation Wide Band Gap Electronics (Aichi, Japan), March 9 - 10, 2026

Toxicological safety assessment

An evaluation of the human relevance of the hepatocellular tumors observed in mice treated with synthetic fungicide, pyridachlometyl, based on mode of action
K. Kawamoto, Y. Shimotsuma, K. Maeda, K. Matsunaga, H. Asano, S. M. Cohen*, T. Yamada (Environmental Health Science Laboratory, *University of Nebraska Medical Center)

Archives of Toxicology, 99, 3803 (2025)

An evaluation of the human relevance of the thyroid follicular cell tumors observed in rats treated with the synthetic fungicide, pyridachlometyl, based on mode of action
K. Kawamoto, J. Yano, Y. Shimotsuma, K. Maeda, K. Yamaguchi, K. Matsunaga, S. Fukunaga, S. M. Cohen*, H. Asano (Environmental Health Science Laboratory, *University of Nebraska Medical Center)
Archives of Toxicology, 99, 4677 (2025)

The modes of action for rodent liver tumor formation by activators of the constitutive androstane receptor (CAR) and the peroxisome proliferator-activated receptor alpha (PPARα) are not relevant to human cancer risk an updated critical evaluation
T. Yamada, S. M. Cohen*1, B. G. Lake*2 (Environmental Health Science Laboratory, *1University of Nebraska Medical Center, *2University of Surrey)
Critical Reviews in Toxicology, 55(5), 549 (2025)

Development of a novel in vitro micronucleus test using human induced pluripotent stem cell-derived T lymphocytes
R. Kobayashi, K. Sasaki, R. Matsuyama, K. Saito, A. Kumagai*, S. Kitayama*, Y. Kawai*, S. Kaneko* (Environmental Health Science Laboratory, *Kyoto University)
Genes and Environment, 47(24), (2025)

Degradation of the anilide fungicide inpyrfluxam in illuminated water-sediment systems
T. Adachi, T. Sugano, K. Okuda, Y. Suzuki, T. Fujisawa (Environmental Health Science Laboratory)
Journal of Pesticide Science, 50(4), 132 (2025)

Indoor behavior prediction and risk assessment of an active substance in an aerosol for controlling flies and mosquitoes under various conditions
S. Tanaka, Y. Matoba, H. kondo*1, T. Ihara*2 (Environmental Health Science Laboratory, *1National Institute of Advanced Industrial Science and Technology, *2The University of Tokyo)
Journal of Pesticide Science, 51(1), 44 (2026)

Mode of action analysis for rat thyroid gland follicular cell tumor formation by MGK-264 and human relevance
J. Yano, K. Kawamoto, Y. Shimotsuma, K. Matsunaga, J. Abe, S. Fukunaga, T. G. Osimitz*1, B. G. Lake*2, H. Asano (Environmental Health Science Laboratory, *1Science Strategies, *2University of Surrey)
Regulatory Toxicology and Pharmacology, 160, 105834 (2025)

Mode of action analysis for mouse liver tumor formation by MGK-264 and human relevance
J. Yano, K. Kawamoto, Y. Shimotsuma, K. Ogata, K. Matsunaga, J. Abe, S. Fukunaga, T. G. Osimitz*1, B. G. Lake*2, H. Asano (Environmental Health Science Laboratory, *1Science Strategies, *2University of Surrey)
Regulatory Toxicology and Pharmacology, 163, 105929 (2025)

Mode of action analysis for induction of mouse lung tumors by permethrin involvement of CYP2F2 enzyme and human relevancy
D. Hasegawa, K. Kawamoto, K. Ogata, S. Fukunaga, S. M. Cohen*, H. Asano (Environmental Health Science Laboratory, *University of Nebraska Medical Center)
Regulatory Toxicology and Pharmacology, 164, 105958 (2026)

Prediction of human pharmacokinetics of procymidone and its major phase I and II metabolites using a PBPK model with enterohepatic circulation
K. Hirasawa*1,2, T. Adachi*1, H. Takeuchi*1, T. Kuroda*1, J. Abe*1, M. Nakajima*2 (*1Environmental Health Science Laboratory, *2Kanazawa University)
Toxicology and Applied Pharmacology, 504, 117525 (2025)

Multistep continuous flow synthesis of 14C-labelled chrysanthemic acid
S. Hashino, T. Kobayashi, M. Kurosawa, T. Fujisawa (Environmental Health Science Laboratory)
15th International Symposium on the Synthesis and Applications of Isotopically Labelled Compounds (Sweden), June 23 - 27, 2025

Hepatic enzyme induction and its potential effect on thyroid hormone metabolism in the metamorphosing tadpole of *Xenopus laevis* (African clawed frog)
K. Wada, T. Yamaguchi, H. Tanaka, T. Fujisawa (Environmental Health Science Laboratory)
SETAC North America 46th Annual Meeting (U.S.A.), November 16 - 20, 2025

Simulation of chemical transfer in the human airway following aerosol deposition using a fugacity model incorporating CFD
K. Yokoo, S. Tanaka, Y. Matoba, K. Kuga*, I. Ito* (Environmental Health Science Laboratory, *Kyushu University)
SETAC North America 46th Annual Meeting (U.S.A.), November 16 - 20, 2025

Improved assessment of soil nonextractable residues of the pyrethroid insecticide cyphenothrin
K. Okuda, D. Ando, Y. Suzuki, T. Fujisawa (Environmental Health Science Laboratory)
SETAC North America 46th Annual Meeting (U.S.A.), November 16 - 20, 2025

The delay in the completion of vaginal opening induced by epyrifenacil is a secondary effect caused by prepubertal anemia
M. Izumi, Y. Hosokawa, M. Shimada, M. Matsumoto, S. Sugaya, K. Ogata, K. Iwashita, R. Matsuyama, S. Fukunaga, H. Asano (Environmental Health Science Laboratory)
Society of Toxicology 65th Annual Meeting and ToxExpo (U.S.A.), March 22 - 25, 2026

Safety engineering

Hazard analysis for accumulated organic solvent peroxides using computational chemistry
K. Sasahara, W. Hirayama, I. Eto, M. Kumasaki* (Production & Safety Fundamental Technology Center, *Yokohama National University)
The Chemical Industry and Engineering Society of China (CIESC) (China), July 13 - 18, 2025

Study on accumulation behavior thermal decomposition hazards of organic peroxides
W. Hirayama, K. Sasahara, G. Kawano, I. Eto (Production & Safety Fundamental Technology Center)
Asia Pacific Symposium on Safety 2025 (Korea), November 9 - 12, 2025

Computer simulation

Accurate and robust numerical schemes for three dimensional surface tension-driven flow
Y. Yaegashi, H. Muramatsu, N. Shimada (Production & Safety Fundamental Technology Center)
5th International Symposium on Multiscale Multiphase Process Engineering (Shimane, Japan), September 8 - 11, 2025

Friction effects on viscous Kelvin-Helmholtz instability in a channel
M. Sato, T. T. Le*, T. Koch* (Production & Safety Fundamental Technology Center, *Zuse Institute Berlin)
5th International Symposium on Multiscale Multiphase Process Engineering (Shimane, Japan), September 8 - 11, 2025

An application of modified S-CLSVOF method to Kelvin-Helmholtz instability and comparison with theoretical result
N. Shimada, M. Sato, Y. Yaegashi, T. Koch*, T. T. Le* (Production & Safety Fundamental Technology Center, *Zuse Institute Berlin)
5th International Symposium on Multiscale Multiphase Process Engineering (Shimane, Japan), September 8 - 11, 2025

Control of surface and interface

Influence of frictional drag on Kelvin-Helmholtz instability in viscous fluids
M. Sato, L. T. Thai*, T. Koch* (Production & Safety Fundamental Technology Center, *Zuse Institute Berlin)
Physics of Fluids, 38(1), 014119 (2026)

Omics technology

Time-course analysis of the effect of paraprobiotics ABG0050 on the intestinal immune system of broilers
H. Kondo*1,2, S. Iino*1, T. Fukuda*1, M. Aoki*1, Y. Yoshimura*2,3, N. Isobe*2, T. Nii*2 (*1Bioscience Research Laboratory, *2Hiroshima University, *3The Open University of Japan)
Poultry Science, 104(7), 105174 (2025)

Omics analysis of the effects of paraprobiotics *Lactiplantibacillus plantarum* ABG0016 on gastrointestinal function in broiler chickens
H. Kondo, D. Matsui*1, C. Hofacre*2, M. Jones*2, H. Sueoka, S. Iino, M. Haneta, T. Fukuda, I. Taketani*3, T. Tonoue*3, I. Shinzato*3, J. Kouroki, T. Nii*4 (Bioscience Research Laboratory, *1Valent BioSciences LLC, *2Southern Poultry Research Group, Inc., *3AgroSolutions Division – International, *4Hiroshima University)
International Poultry Scientific Forum (IPSF) (U.S.A.), January 26 - 27, 2026

Effects of paraprobiotics *Lactiplantibacillus plantarum* strain ABG0016 on growth performance, immune response and intestinal parameters in broilers under a mild necrotic enteritis challenge
D. Matsui*1, H. Kondo, C. Hofacre*2, M. Jones*2, T. Nii*3, S. Iino, M. Haneta, T. Fukuda, I. Taketani*4, T. Tonoue*4, I. Shinzato*4, J. Kouroki (Bioscience Research Laboratory, *1Valent BioSciences LLC, *2Southern Poultry Research Group, Inc., *3Hiroshima University, *4AgroSolutions Division – International)
International Poultry Scientific Forum (IPSF) (U.S.A.), January 26 - 27, 2026

Environmental Field

Ozone water sensors with boron doped diamond electrodes for measuring dissolved ozone concentration
M. Yokoyama*1, S. Yamanaka*1, K. Nakamura, K. Shiina*1, N. Nishikawa*2, K. Akai*3, N. Tsukahara*3, M. Murata*3, Y. Einaga*3 (Ibaraki Works, *1Advanced Materials Development Laboratory, *2Corporate Research Division, *3Keio University)
AIP Advances, 15(7), 075224 (2025)

Food supply Field

Direct and indirect influence of amino acid substitution in acetyl-coenzyme A carboxylase on binding affinity of cyclohexanedione oxime herbicides
Y. Jin, K. Tsuge*1, T. Harada, S. Yamato*2 (Agro & Life Solutions Research Laboratory, *1Gifu Works, *2Sumika Chemical Analysis Service Co., Ltd.)
Journal of Agricultural and Food Chemistry, 73(45), 28700 (2025)

Novel herbicidal pyridazinone cyclic keto-enol compounds inhibit Acetyl-CoA carboxylase and homogentisate solanesyltransferase
Y. Jin, A. Iida, F. Iwahashi, F. Mukumoto, M. Fukushima*1, Y. Sada, H. Inui*2, S. Yamato*3 (Agro & Life Solutions Research Laboratory, *1Environmental Health Science Laboratory, *2Kobe University, *3Sumika Chemical Analysis Service Co., Ltd.)
Journal of Agricultural and Food Chemistry, 73(49), 31130 (2025)

Development of the insecticide oxazosulfyl
M. Ito, Y. Nokura, M. Takahashi, M. Kamezaki, E. Sakamoto, S. Nishimura (Agro & Life Solutions Research Laboratory)
Journal of Pesticide Science, 50(3), 96 (2025)

Discovery and biological profile of pyridachlometyl
Y. Matsuzaki, M. Kurahashi, S. Watanabe, S. Kiguchi, T. Harada, F. Iwahashi (Health & Crop Sciences Research Laboratory)
Pest Management Science, 81(5), 2442 (2025)

Epyrifenacil, a new systemic PPO-inhibiting herbicide for broad-spectrum weed control
Y. Sada, Y. Jin, M. Hikosaka, K. Ido (Health & Crop Sciences Research Laboratory)
Pest Management Science, 81(5), 2463 (2025)

Discovery of novel herbicidal cyclic keto-enol derivatives containing a pyridazinone moiety and their structure-activity relationship studies on weeds
Y. Jin, T. Kiji*1, S. Yamato*2 (Agro & Life Solutions Research Laboratory, *1Gifu Works, *2Sumika Chemical Analysis Service Co., Ltd.)
Pest Management Science, 81(9), 5727 (2025)

Quantitative resistance to quinone outside inhibitor (QoI) fungicides in *Puccinia horiana* through the combination of seven distinct substitutions in cytochrome *b*
Y. Matsuzaki, S. Watanabe, T. Harada, F. Iwahashi (Agro & Life Solutions Research Laboratory)
Plant Pathology, 75(1), e70087 (2025)

Microwave pre-stimulation methodology for plant growth promotion
N. Suzuki*, Y. Hasegawa*, K. Kadomatsu*, K. Yamakawa*, M. Sameshima*, A. Ando, S. Horikoshi* (Agro & Life Solutions Research Laboratory, *Sophia University)
Scientific Reports, 15, 13903 (2025)

Development of a novel herbicide epyrifenacil and its biological efficacy
Y. Tohyama, M. Sanemitsu, N. Mito, Y. Sada (Agro & Life Solutions Research Laboratory)
Japanese Journal of Pesticide Science, 51(1),1 (2026)

Evaluation of mandestrobin efficacy against *Sclerotiniaceae* pathogens in Europe
R. Sakai, S. Kiguchi, Y. Matsuzaki (Agro & Life Solutions Research Laboratory)
BotryScleroMoni 2025 (Greece), May 25 - 30, 2025

Effect of dietary S-abscisic acid (S-ABA) supplementation on the growth performance and antioxidant status of nursery pigs
R. A. S. Navales*1, J. Faccin*1, M. D. Tokach*1, I. Shinzato, J. M. DeRouchey*1, K. N. Gaffield*1, J. T. Gebhardt*1, R. D. Goodband*1, T. Rathbun*1, J. C. Woodworth*1, T. Tonoue, D. Matsui, T. Hiraoka*2 (AgroSolutions Division – International, *1Kansas State University, *2Valent BioSciences LLC)
2025 ASAS-CSAS Annual Meeting (U.S.A.), July 6 - 10, 2025

The effect of feeding a supplemental sodium gluconate on growth performance of commercial male
C. Allensworth*2, D. Matsui*3, H. Kondo*1, T. Tonoue, I. Shinzato, J. L. Snow*4, H. O. Pavlidis*4, G. S. Archer*2 (AgroSolutions Division – International, *1Bioscience Research Laboratory, *2Texas A&M University, *3Valent BioSciences LLC, *4CSA Animal Nutrition)
International Poultry Scientific Forum (IPSF) (U.S.A.), January 26 - 27, 2026

Health care Field

Effect of capsaicin on voltage-gated sodium channels with *kdr* mutation from German cockroaches (*Blattella germanica*)
M. Kamezaki, H. Nishiwaki* (Agro & Life Solutions Research Laboratory, *Ehime University)
Journal of Pesticide Science, 50(3), 74 (2025)

Demonstration of practical direct chemical synthesis of RNA with 250 nucleotides
S. Hirashima, T. Miyagawa, Y. Ichikawa, T. Kano, M. Shibata, H. Ihara, J. Yasuoka (Advanced Medical Solutions Research Laboratory)
TIDES USA: Oligonucleotide and Peptide Therapeutics (U.S.A.), May 19 - 22, 2025

Providing a wide variety of high-purity gRNAs for cutting-edge CRISPR gene editing technology
T. Miyagawa (Advanced Medical Solutions Research Laboratory)
TIDES USA: Oligonucleotide and Peptide Therapeutics (U.S.A.), May 19 - 22, 2025

ICT related Field

GaN substrates & GaN on GaN product poster
H, Fujikura*, K, Matsuda*, T, Sairai (Advanced Inorganic Products Division, *ICT & Mobility Solutions Research Laboratory)
The PCIM Expo & Conference 2025 (Germany), May 6 - 8, 2025

Investigation of electrochemical etching properties of heavily oxygen doped n-type GaN
S. Yokoi*1, S. Usami*1, M. Imanishi*1, T. Sumi*2, J. Takino*2, Y. Okayama*2, M. Yokoyama, M. Hata*3, A. Tanaka*4, Y. Honda*4, H. Amano*4, M. Maruyama*1, M. Yoshimura*1, Y. Mori*1 (ICT & Mobility Solutions Research Laboratory, *1The University of Osaka, *2Panasonic Holdings Corporation, *3Itochu Plastics Inc., *4Nagoya University)
The 15th International Conference on Nitride Semiconductors (ICNS-15) (Sweden), July 6 - 11, 2025

Reversibility of forward current stress degradation in GaN p-n diodes
D. Iwata, H. Ohta*, Y. Narita, T. Sato, F. Horikiri*, T. Mishima*, T. Tanaka, K. Imura, H. Fujikura (ICT & Mobility Solutions Research Laboratory, *Hosei University)
The 15th International Conference on Nitride Semiconductors (ICNS-15) (Sweden), July 6 - 11, 2025

Carbon Neutrality

Development and dissemination of CFP-TOMO, a carbon footprint calculation tool for chemical products
M. Toma (Research Planning and Coordination Dept.)
29th Annual Green Chemical & Engineering Conference (ACS Green Chemistry Institute) (U.S.A.), June 23 - 26, 2025