

# GERARD G. DUMANCAS, PhD

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## Summary

- I am a postdoctoral research scientist with a background in chemometrics (statistics and computer applications in analytical chemistry). I have strong interests in the utilization of various chemometric algorithms in analyzing genetic data. Specifically, my core interests involve in the applications of partial least squares in mining for genotype and phenotype relations and gene mapping, principal component-based regression techniques for genetic association of risk-factor diseases, and genetic algorithm for the simultaneous mapping of multiple interacting quantitative trait loci.

## Education

- **PhD in Analytical Chemistry** (4.0), Oklahoma State University, USA, May 2012.  
Areas of specialization: Chemometrics, bioanalytical chemistry, clinical chemistry, instrumentation  
*Dissertation:* Simultaneous spectrophotometric and chemometric determination of cholesterol and mono-/polyunsaturated fatty acids  
*Advisor:* **Dr. Neil Purdie**
- **Bachelor of Science in Chemistry, cum laude**, University of the Philippines, April 2005.  
*Thesis:* N-hexane extractable material in Iloilo River sediments  
Areas of specialization: Environmental chemistry, applied chemistry

## Employment

- **Postdoctoral Research Fellow**, June 2012-present, Oklahoma Medical Research Foundation, Oklahoma City, OK, USA  
*Mentor:* **Dr. Courtney Gray Montgomery**
  - Mentored a Fleming Scholar in a research project involving the identification of risk alleles for systemic lupus erythematosus
  - Utilized k-means clustering for the discrimination of genotype data
  - Utilized genetic algorithm feature selection and structural equation modeling of patient responses for classification of Sjögren's Syndrome outcomes
  - Performed genetic association analyses of single nucleotide polymorphisms (SNPs) of European American and African American samples for the systemic lupus erythematosus GWAS epitopes of GMR, Ro169, GrX4 phenotypes and viral GWAS of GRR, EBNA-1, EBNA-58, EBV-VCA, CMV, HSV-1, HSV-2 phenotypes
- **Research Assistant**, Summer 2007, Spring 2007-Spring 2008, Chemistry Department, Oklahoma State University
  - Optimized chemometric algorithms (multiple linear regression and soft modeling methods) for the molar quantitation of lipids in human serum and various biological media using UV-VIS, and consequent validation using GC-MS after human serum extraction.

- Research assistant for a research entitled “A convenient assay for the measurement of the omega-3 and omega-6 polyunsaturated acids and their ratios in human serum and in major lipids media.”
- Utilized HPLC for the characterization of fatty acids in vegetable oils after extraction.

- **Research Assistant** (Volunteer), Summer 2011-Spring 2012, Department of Horticulture and Food Science, Oklahoma State University
  - Utilized GC-FID for the quantitation of fatty acids in basil leaves samples after optimization of extraction procedures.
- **Teaching Assistant, Organic Chemistry**, Spring 2009, Spring 2010, Spring 2011, Summer 2011, Chemistry Department, Oklahoma State University
  - Conducted pre-lab lectures, graded papers, proctored, guided students in the course of the organic chemistry experiments, and maintained office hours for student consultations; assured safety of students by checking proper function of laboratory safety equipment.
- **Teaching Assistant, General Chemistry**, Fall 2007, Fall 2009, Fall 2010, Summer 2009, Fall 2011, Spring 2012, Chemistry Department, Oklahoma State University
  - Conducted pre-lab lectures, graded papers, proctored, guided students in the course of the general chemistry experiments, and maintained office hours for student consultations; assured safety of students by checking proper function of laboratory safety equipment.
  - Offered free review sessions to students in preparation for their exams.
- **Instructor, General Chemistry, Physical Chemistry, and Mathematics**, June 2006-December 2006, Iloilo American Memorial School, Philippines
  - Lecturer in general chemistry, physical chemistry, and high school mathematics to freshmen, sophomore, and junior high school students; prepared lesson plans, quizzes, midterm, and final exams; checked papers; selected and wrote laboratory experiments; prepared laboratory set up for students in chemistry; maintained office hours.
  - Lecturer in elementary mathematics to Grades 4 to 6 students; prepared lesson plans, quizzes, midterm, and final exams; checked papers.
- **Instructor, General Chemistry and Mathematics (part time)**, June 2006-August 2006, Excellent Minds Learning Center, Philippines
  - Gave private tutorial lectures to students in chemistry and mathematics in preparation for their collegiate entrance exams.
- **Research Consultant**, October-December 2006, University of the Philippines
  - Became an advisor to academically gifted high school students who won the best research prize for their research entitled: “Comparative study on the efficiency of *Salvinia auriculata* biomass, cotton chicken feather, dried hay, and coconut coir as sorbent medium for bunker fuel oil.”

#### Strengths and skills

- Skilled in the analysis of genotype data using *PLINK* software (quality control, pruning, population stratification, logistic regression), *Locus Zoom*, *Haploview*, *Encode Genome Browser*, *Impute2/gtool* for imputation, and *R Program*, HIBAG imputation of HLA allele types, genetic power calculations

- Skilled in using *Mplus Program* under Windows and Unix platforms for classification of Sjögren's Syndrome outcomes based on patient responses; knowledgeable in using *GALGO R* software for genetic algorithm feature selection.
- Skilled in bioanalytical chemistry involving the use of MATLAB software for least squares estimation of spectrophotometric data: Direct calibration, indirect calibration, inverse model, generalized standard addition method, ridge regression, partial least squares, principal component regression using *Chemometric Toolbox*; artificial neural network using JMP; JMP Software in pattern recognition (cluster analysis) and mixture designs.
- Spectrophotometric, principal component analysis and hierarchical clustering (2D and 3D), and chemometric concentration measurements of biological samples involving: chicken liver, chicken gizzard, beef, milk, butter, eggs, salmon, turkey, veal, tuna, cerebrospinal fluids, vegetable oils, and human serum using the patented reagent system developed by the Purdie laboratory.
- Genetic algorithm for wavelength selection of spectrophotometric data
- Instrumentation: FTIR, AAS, UV-VIS, GC-MS, GC-FID, HPLC
- GC-FID for the quantitation of fatty acids in basil leaves and GC-MS for the characterization of fatty acids in serum after extraction
- Environmental analytical analysis to determine N-hexane extractable material (oil and grease) in sediments by soxhlet extraction and FTIR

#### Workshop/short courses completed

- **2<sup>nd</sup> Short Course on Statistical Genetics**, University of Alabama at Birmingham, AL, July 2012.
- **Introduction to XML for the Laboratory**, San Diego, CA, February 5, 2012, Society for Laboratory Automation and Screening, San Diego, CA (*SLAS Travel Grant Award*).
- **Molecular Diagnostic Automation (Short course)**, Automation of nucleic acid extraction, PCR assays, detection technologies, home brew molecular testing, January 30, 2011, LabAutomation 2011, Palm Springs, CA (*LabAutomation Travel Academic Award*).
- **MALDI-TOF Mass Spectrometry and Introduction to Proteomics Workshop**, Department of Biochemistry, Oklahoma State University, August 10-14, 2009.
- **Computational Chemistry for Chemistry Educators**, Oklahoma State University (OSU), Physical chemistry workshop to expand the educational experience of students enrolled in undergraduate chemistry curriculum using free computational chemistry softwares for simulation and molecular modeling, July 2011.
- **Training on A-Z of Effective Teaching**, University of the Philippines in the Visayas, Iloilo City, Philippines, December 11-12, 2006.
- **10<sup>th</sup> Workshop on the DOE Advanced Computational Software (ACTS) Collection**, *Leveraging the Development of Computational Science and Engineering Software Through Sustainable High*

*Performance Tools*, Lawrence Berkeley National Laboratory, University of California Berkeley, August 18-21, 2009 (Chosen as one of the participants among strong and large pool of applicants for a DOE-funded trip and workshop in Berkeley, CA).

- **Mathematical Biology and Numerical Analysis Workshop**, University of Georgia, Athens, GA, USA, August 1-2, 2009 (Selected as one of the participants among a very competitive pool of applicants for an NSF-funded trip and workshop in Athens, GA).
- **Practicum/Training Course on Soil & Fertilizer Analysis**, Department of Agriculture Region VI, Philippines, April-May 2004.
- **Training Course on Food and Fat Chemical Analysis**, Department of Science and Technology Region VI, Philippines, April-May 2004.

Awards and scholarships garnered (*international awards)
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1. **2012 Sigma Xi, Full Membership**, elected to join the society as a full member for noteworthy achievements in research as an original investigator in the field of pure/applied science.
2. **2012 Outstanding Teaching Assistant (TA) Award Finalist (One of the final three university-wide)**, Graduate and Professional Student Government Association (GPSGA), Oklahoma State University (OSU).
3. **\*2012 American Chemical Society/Agricultural and Food Chemistry Division Withycombe Charalambous Award Finalist (One of the final six worldwide)**, San Diego, CA.
4. **\*2012 Tony B. Academic Travel Award**, LabAutomation 2012, one of the 39 up-and-coming scientists in the world, San Diego, CA.
5. **2011 Editor-in-chief**, Arachidonic acid: dietary sources and general functions, Nova Science Publishers, New York, (*Chosen as an editor worldwide*), 2011-2012.
6. **2011 Outstanding TA Award Finalist (2<sup>nd</sup> place university wide)**, recognized for excellence in teaching efforts and career goals, GPSGA OSU.
7. **\*2011 Tony B. Award**, LabAutomation 2011, one of the 51 up-and-coming scientists and engineers in the world, Palm Springs, CA.
8. **2011 OG&E Positive Energy Award Finalist (one of the final three state-wide)**, For HydroSolutions company using Dr. Kalkan's technology of *Hydrogen Fuel Production from Photosynthesis*, OKC, OK.
9. **\*2010 American Oil Chemists' Society Honored Student Award (AOCS)**, for excellence in research, academics, publications, and leadership involvement, Phoenix, AZ.
10. **\*2010 AOCS Analytical Division Student Award for Excellence in Research**, Phoenix, AZ.
11. **2010 AOCS Hans Kaunitz Award (US national winner)** for outstanding graduate research in the area of chemometric algorithms for the direct determination of lipids in human serum, Phoenix, AZ.

12. **2010 Creativity, Innovation, and Entrepreneurship Scholarship**, *Ambassador for the Spears School of Business*, OSU, (One of the Top 5 Non-business graduate students at OSU engaged in entrepreneurial activities).
13. **\*2009 AOCS Analytical Division Student Award for Excellence in Research**, Orlando, FL.
14. **2009 A & S Doctoral Student Excellence Award (Exceptionally qualified PhD student)**, OSU.
15. **2009 Phi Kappa Phi Honors Society**, OSU.
16. **2009 Canadian American Oil Chemists' Society Student Travel Award**, 23<sup>rd</sup> American Oil Chemists Society Canadian Section Meeting, Toronto, Canada.
17. **2009 Dermer Award in Chemistry *nominee***, OSU.
18. **2009 Phi Beta Delta International Scholars Honors Society Scholarship**, OSU.
19. **2009 North America Scholar Consortium Honor Society, *Member with the Highest Honor***.
20. **2008 A & S Doctoral Student Excellence Award (Exceptionally qualified PhD student)**, OSU.
21. **2008 Graduate Student Research Spotlight**, The Daily O'Collegian, OSU.
22. **2008 Associate Member of the Royal Society of Chemistry (AMRSC)**, Royal Society of Chemistry, United Kingdom.
23. **2008 Phi Beta Delta International Scholars Honor Society**, OSU.
24. **2008 National Scholars Honors Society *Lifetime Membership***.
25. **2008 Golden Key International Honour Society (*Top 15% of Class*)**, OSU.
26. **2007 Alpha Kappa Alpha Educational Advancement Foundation, Inc. Graduate Merit Scholarship Award**, Chicago, Illinois 60637.
27. **2007 A & S Doctoral Student Excellence Award (Top Entering Graduate Student at OSU)**.
28. **\*2005 International Eco-Minds Pathfinder Award in Asia-Pacific**, won 1<sup>st</sup> Place in the International Eco-Minds with the workable solution of **Utilization of Waste Cottonseed Oil as Diesel Replacement Fuel** participated by eight countries in Asia-Pacific organized by Bayer and the United Nations Environment Programme (UNEP), Legenda Suites, Subic Bay Freeport Zone, Philippines.
29. **2005 Eco-Minds Forum Representative of the Philippines in Asia-Pacific**, Bayer in partnership with the United Nations Environment Programme (UNEP), Intercontinental Hotel, Makati City, Philippines.

30. **2005 Elite Young Mind Awardee**, Discovery Hills in Celebration of the ASEAN Week, Lahug, Cebu City, Philippines.
31. **2005 Bayer Young Environmental Envoy and Member of the Elite Young Environmental Envoy Club**, Bayer in partnership with UNEP, Intercontinental Hotel, Makati City, Philippines.
32. **2005 Winner, Regional Finals—Visayas in the Search for Bayer Young Environmental Envoys for 2005 and Representative to the Eco-Minds Forum**, Marriot Hotel, Cebu City, Philippines.
33. **2005 One of the Top 3 Outstanding Students of the University of the Philippines in the Visayas**, College of Arts and Sciences, University of the Philippines.
34. **University Scholar, 2<sup>nd</sup> Semester 2002-2003**, University of the Philippines.
35. **College Scholar, 1<sup>st</sup> Semester 2004-2005, 2<sup>nd</sup> Semester 2003-2004, 1<sup>st</sup> Semester 2003-2004, 1<sup>st</sup> Semester 2002-2003**, University of the Philippines.
36. **Dean's List with High Honors, 2<sup>nd</sup> Semester 2002-2003**, University of the Philippines.
37. **Dean's List with Honors, 1<sup>st</sup> Semester 2004-2005, 2<sup>nd</sup> Semester 2003-2004, 1<sup>st</sup> Semester 2003-2004, 1<sup>st</sup> Semester 2002-2003**, University of the Philippines.

#### Collegiate scholarships garnered

1. **University of the Philippines Presidential Leadership Scholarship**, Academic Year 2002-2005, Philippines.
2. **Crisologo Cabacungan Scholarship Sponsored by the University of the Philippines Alumni Association of Central California**, Academic Year 2004-2005, Philippines.
3. **Tiu Cho Teg Memorial Foundation Scholarship**, 2<sup>nd</sup> Semester, 2002-2003, Philippines.
4. **Benigno S. Aquino Foundation Scholarship**, BSAF Foundation, August 14, 2001, Philippines.
5. **Congressman Raul Gonzalez, Sr. Scholarship**, House of Representatives, 2004, Quezon City, Metro Manila, Philippines.

#### Peer-reviewed publications, book chapters, intellectual property

1. **Gerard G. Dumancas**, Applications of supercomputers in sequence analysis and genome annotation under *Research and applications in global supercomputing*, (book chapter proposal accepted), IGI Global, 2014.
2. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Elmer-Rico Mojica, Befrika Murdianti, Patrisha Pham, Chemistry and advances in methods of detection of omega-3 fatty acids (book chapter invited, in preparation) under Omega-3 fatty acids: chemistry, dietary sources, and health effects, NY, Nova Science Publishers, 2012.

3. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Elmer-Rico Mojica, Befrika Murdianti, Patrisha Pham, Sulfuryl fluoride (Vikane) under *Encyclopedia of Toxicology*, 3<sup>rd</sup> edition (*book chapter invited*), Elsevier, 2014.
4. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Elmer-Rico Mojica, Befrika Murdianti, Patrisha Pham, Thiabendazole under *Encyclopedia of Toxicology*, 3<sup>rd</sup> edition (*book chapter invited*), Elsevier, 2014.
5. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Elmer-Rico Mojica, Befrika Murdianti, Patrisha Pham, Pyridine under *Encyclopedia of Toxicology*, 3<sup>rd</sup> edition (*book chapter invited*), Elsevier, 2014.
6. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Elmer-Rico Mojica, Befrika Murdianti, Patrisha Pham, Penicillin under *Encyclopedia of Toxicology*, 3<sup>rd</sup> edition (*book chapter invited*), Elsevier, 2014.
7. **Gerard G. Dumancas**, Neil Purdie, Mary Muriuki, Code for various chemometric algorithms for the simultaneous determination of cholesterol and mono-/polyunsaturated fatty acids concentrations in synthetic mixtures, human serum, and biological media, *Oklahoma State University intellectual property copyright disclosure no. 2012.36*, 2012.
8. **Gerard G. Dumancas**, Picloram under *Encyclopedia of Toxicology*, 3<sup>rd</sup> edition (*invited*) (*book chapter accepted*), Elsevier, 2014.
9. **Gerard G. Dumancas**, Mary Muriuki, Neil Purdie, A novel chromophoric test for quantifying cholesterol and the major polyunsaturated fatty acids in food and biological samples (*invited*) (*book chapter in press*) under *New developments in chromophore research*, NY, Nova Science Publishers, 2013.
10. **Gerard G. Dumancas**, Rangika Hikkaduwa Koralege, Patrisha Pham, Elmer-Rico Mojica, Eicosapentaenoic acid and bone metabolism (*invited*) (*book chapter*) under *Eicosapentaenoic acid: sources, health effects, and role in disease prevention*, NY, Nova Science Publishers, 2012, 47-74.
11. **Gerard G. Dumancas**, Raluca Mateescu, Elmer-Rico Mojica, Rachel Murphy, Linoleic acid and cancer (*invited*) (*book chapter*) under *Linoleic acid: sources, biochemical properties, and health effects*, NY, Nova Science Publishers, 2012, 165-190.
12. **Gerard G. Dumancas**, Befrika Murdianti, Edralin Lucas (Editors), Arachidonic acid: Dietary sources and general functions (book) (*invited*), Nova Science Publishers, NY, 2012.
13. **Gerard G. Dumancas**, Befrika Murdianti, Edralin Lucas (Editors), Arachidonic acid and renal function (*invited*) (*book chapter*) under *Arachidonic acid: Dietary sources and general functions*, NY, Nova Science Publishers, 2012, 223-236.
14. **Gerard G. Dumancas**, Replacing animal fats with vegetable oils in meat products (*invited*), *INFORM American Oil Chemists' Society International Magazine*, 2012, Vol. 23(3), 168-171.

15. Mary Muriuki, Neil Purdie, **Gerard G. Dumancas** Quantification of the major omega-3, omega-6 PUFA, and their ratio in different cholesterol type using the Purdie assay and the effect of gender and cholesterol types on PUFA levels, *Trends in Analytical Chemistry, Elsevier*, 2011, Vol. 31, 157-164.
16. **Gerard G. Dumancas**, Neil Purdie, Mary Kimani, and Lisa Reilly, Simultaneous spectrophotometric and chemometric determination of oleic, linoleic, and linolenic fatty acids in vegetable oils, *Lecture Notes in Engineering and Computer Science*, 2011, Vol. 3, 1849-1854.
17. **Gerard G. Dumancas**, Lisa Reilly, Neil Purdie, and Mary Muriuki, Pattern recognition for discrimination of dyslipidemic states, *Lecture Notes in Engineering and Computer Science*, 2011, Vol. 2, 985-990.
18. Mary Muriuki, **Gerard G. Dumancas**, Neil Purdie, and Lisa Reilly, Comparison of quantification of total  $\omega$ -6, total  $\omega$ -3 and  $\omega$ -6/ $\omega$ -3 ratio in human serum using GC/MS and Purdie Assay, *Journal of Validation Technology*, 2011, Vol. 17 (3), 69-81.
19. Mary Muriuki, **Gerard G. Dumancas**, Neil Purdie, and Lisa Reilly, Quantification of total omega-6, total omega-3 and omega-6/omega-3 ratio in human serum using GC/MS, *LCGC North America*, 2011, Vol. 29 (1), 60-67.
20. **Gerard G. Dumancas**, Mary Kimani, Neil Purdie, and Lisa Reilly, Partial least squares (PLS1) algorithm for quantitating cholesterol and polyunsaturated fatty acids in human serum, *Journal of Biotech Research*, 2010, Vol. 2, 121-130.
21. **Gerard G. Dumancas**, Mary Muriuki, Neil Purdie, and Lisa Reilly, Chemometric algorithms for the direct determination of lipids in synthetic mixtures and human serum, *Journal of Biotech Research*, 2010, Vol. 2, 21-30.
22. Edralin A. Lucas, **Gerard Dumancas**, Brenda J. Smith, and Bahram H. Arjmandi, (Ronald Watson and Victor R. Preedy, editors), Health benefits of Momordica Charantia in *Bioactive foods in promoting health: Fruits and vegetables*, book chapter, *Elsevier*, 2010, 525-549.
23. **Gerard G. Dumancas**, Mary Muriuki, Neil Purdie, and Lisa Reilly, Simultaneous spectrophotometric and chemometric determination of lipids in synthetic mixtures and human serum, *Lipid Technology*, WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim, 2009, Vol. 21, No. 5/6, 127-130.

#### Presentations

1. **Gerard G. Dumancas**<sup>1</sup>, Mary Muriuki, Neil Purdie, and Lisa Reilly, Novel, fast, and cheap assay to simultaneously determine the concentrations of lipids in food products using partial least squares and genetic algorithm partial least squares regressions, American Chemical Society Agricultural and Food Chemistry Division, San Diego, California, March 25, 2012 (<sup>1</sup>Withycombe Charalambous Award Finalist) (oral).
2. **Gerard G. Dumancas**<sup>2</sup>, Mary Muriuki, Neil Purdie, and Lisa Reilly, Genetic algorithm partial least squares regression for the simultaneous quantitation of mono-/polyunsaturated fatty



- acids, Society for Laboratory Automation and Screening, San Diego, California, February 6, 2012 (<sup>2</sup>Tony B. Academic Travel Award Winner) (poster).
3. **Gerard G. Dumancas**, Lisa Reilly, Neil Purdie, Lisa Reilly, and Mary Muriuki, Pattern recognition for discrimination of dyslipidemic states, World Congress on Engineering, Imperial College London, UK, July 6-8, 2011 (poster).
  4. **Gerard G. Dumancas**, Neil Purdie, Mary Kimani, and Lisa Reilly, Simultaneous spectrophotometric and chemometric determination of oleic, linoleic, and linolenic fatty acids in vegetable oils, World Congress on Engineering, Imperial College London, UK, July 6-8, 2011 (poster).
  5. Mary W. Muriuki, **Gerard G. Dumancas**, Neil Purdie, Lisa Reilly, Comparison of quantification of total  $\omega$ -6, total  $\omega$ -3 and  $\omega$ -6/ $\omega$ -3 ratio in human serum using GC/MS and Purdie Assay, 38<sup>th</sup> Annual conference NOBBChE Houston Texas, Hilton Americas-Houston 20<sup>th</sup> April 2011 (oral).
  6. Mary W. Muriuki, **Gerard G. Dumancas**, Neil Purdie, Lisa Reilly, Quantification of total  $\omega$ -6, total  $\omega$ -3 and  $\omega$ -6/ $\omega$ -3 ratio in human serum using GC/MS, 38<sup>th</sup> Annual conference NOBBChE Houston Texas, Hilton Americas-Houston 19<sup>th</sup> April 2011 (oral).
  7. Mary Kimani, **Gerard Dumancas**, Neil Purdie, and Lisa Reilly, Quantification of total  $\omega$ -6, total  $\omega$ -3 and  $\omega$ -6/ $\omega$ -3 ratio in human serum using GC/MS, 22<sup>nd</sup> Annual Research Symposium, Oklahoma State University, February 2011 (oral).
  8. **Gerard G. Dumancas**<sup>3</sup>, Mary Kimani, Neil Purdie, and Lisa Reilly, Partial least squares (PLS1) algorithm in obtaining meaningful concentrations of cholesterol and polyunsaturated fatty acids in human serum, LabAutomation 2011, Palm Springs, California, January 31, 2011 (<sup>3</sup>Tony B. Academic Travel Award Winner) (poster).
  9. **Gerard G. Dumancas**, Lisa Reilly, Neil Purdie, and Mary Kimani, Pattern recognition for discrimination of dyslipidemic states, 102<sup>nd</sup> AOCS Meeting and Expo in Cincinnati, Ohio, May 2011 (oral).
  10. **Gerard G. Dumancas**, Neil Purdie, Mary Kimani, and Lisa Reilly, Simultaneous spectrophotometric and chemometric determination of oleic, linoleic, and linolenic fatty acids in vegetable oils, 102<sup>nd</sup> AOCS Meeting and Expo in Cincinnati, Ohio, May 2011 (oral).
  11. **Gerard G. Dumancas**<sup>4</sup>, Mary Muriuki, Lisa Reilly, and Neil Purdie, Chemometric algorithms for the direct determination of lipids in human serum, 101<sup>st</sup> AOCS Annual Meeting and Expo, Phoenix, Arizona, May 16-19, 2010 (<sup>4</sup>Analytical Division Student Award, Honored Student Award, and Hans Kaunitz Award Winner) (oral).
  12. **Gerard G. Dumancas**, Mary Muriuki, Lisa Reilly, and Neil Purdie, Effect of wavelet Daubechies Denoising on K-matrix chemometric algorithm for the direct determination of lipids in synthetic mixtures and human serum, 101<sup>st</sup> AOCS Annual Meeting and Expo, Phoenix, Arizona, May 16-19, 2010 (oral).

13. Mary Muriuki, **Gerard G. Dumancas**, Neil Purdie, and Lisa Reilly, Quantification of total omega-6, total omega-3, and omega-6/omega-3 ratios and Validation of Purdie Assay using GC-MS, 55<sup>th</sup> Annual Pentasectional Meeting of the ACS, April 10, 2010, Norman, Oklahoma (oral).
14. **Gerard G. Dumancas**, Mary Muriuki, Neil Purdie, and Lisa Reilly, Screening for high risk among plasma lipids, PITTCON 2010 Conference, Orlando, Florida, Association for Laboratory Automation Poster, February 28-March 5, 2010 (poster).
15. **Gerard G. Dumancas**, Mary Muriuki, Neil Purdie, and Lisa Reilly, Comparing chemometric algorithms for the direct determination of lipids, PITTCON 2010 Conference, Orlando, Florida, (ACS-Analytical Poster), February 28-March 5, 2010 (poster).
16. **Gerard G. Dumancas**<sup>5</sup>, Mary Muriuki, Neil Purdie, and Lisa Reilly, Coupling ridge regression spectrophotometry with K-Matrix chemometric technique for the direct determination of lipids, (abstract accepted for oral to the 23rd Meeting of the Canadian Section of the AOCS), June 2009, (<sup>5</sup>CAOCS Student Travel Award Winner).
17. **Gerard G. Dumancas**, Neil Purdie, Mary Muriuki, Lisa Reilly, and Betsy Alberty, Chemometric techniques for the direct determination of cholesterol and omega-3/omega-6 fatty acids in synthetic mixtures and human serum, 20<sup>th</sup> Annual OSU Research Symposium, Oklahoma OSU, Stillwater, Oklahoma, February 19, 2009 (poster).
18. Lisa Reilly, Neil Purdie, **Gerard G. Dumancas**, Novel diagnostic tool for quantitating cholesterol, omega-3, and omega-6 polyunsaturated fatty acids to support maternal/infant health, cardiovascular status, and obesity-related diseases, & LipidX Technologies, 100<sup>th</sup> AOCS Annual Meeting and Expo, Orlando, Florida, May 6, 2009 (oral).
19. Lisa Reilly, Neil Purdie, **Gerard G. Dumancas**<sup>6</sup>, & LipidX Technologies, Direct calibration for the direct determination of lipids, 100<sup>th</sup> AOCS Annual Meeting and Expo, Orlando, Florida, May 6, 2009 (<sup>6</sup>AOCS Analytical Division Student Award Winner) (oral).
20. Neil Purdie, Lisa Reilly, **Gerard G. Dumancas**, & LipidX Technologies, New diagnostic tool for quantitating cholesterol, omega-3, and omega-6 fatty acids to support maternal/infant health, cardiovascular status & obesity, Venturewest Bricktown Capital Conference, Oklahoma City, September 6, 2007. (poster)
21. Jay Martizano, **Gerard G. Dumancas**, Hilario Taberna, Ida Pahila, Mae Nillos, Qualitative determination of n-hexane extractable materials in Iloilo River estuary sediments using diffuse reflectance - fast fourier infrared spectroscopy (DRIFTS), 2006. Japan Society for the Promotion of Science-University of the Philippines in the Visayas (JSPS-UPV), International Forum on Coastal Environment and Utilization of Fisheries Resources, Iloilo City, Philippines, Sept 13-14, 2006. (poster)

#### Features in media

1. "How AOCS inspired one student toward research and academic excellence," American Oil Chemists' Society INFORM International Magazine, March 2012, Vol. 23 (3), 174, 192.
2. <http://www.thenewstoday.info/2010/06/07/ilonggo.wins.hans.kaunitz.award.in.usa.html>
3. <http://www.thenewstoday.info/2005/12/02/dumancas.of.arevalo.iloiilo.wins.2005.eco.minds.pathfinde>

[r.award.html](#)

4. <http://www.selectscience.com/industry-news/society-for-laboratory-automation-and-screening/51-recipients-to-receive-slas-academic-travel-awards/?artID=21336>
5. <http://entrepreneurship.okstate.edu/cie/scholars>
6. <http://www.flickr.com/photos/aocs/3525898185/>
7. <http://www.aocs.org/Membership/content.cfm?ItemNumber=774>
8. <http://angyshere.com/tag/oklahoma>
9. <http://www.up.edu.ph/~oarmain/conline/archives/conline-news-010606.htm>
10. <http://www.aocs.org/Membership/content.cfm?ItemNumber=4779>
11. [http://www.upv.edu.ph/upviews/may2005/upviewsmay2005\\_p1.pdf](http://www.upv.edu.ph/upviews/may2005/upviewsmay2005_p1.pdf)
12. <http://www.unep.bayer.com/downloads/7161/7167/Shaping-the-future-together.pdf>
13. <http://www.flickr.com/photos/ostatenews/5643548654/in/photostream>
14. <http://www.i2e.org/uncategorized/18-teams-advance-to-oral-round-in-governors-cup-competition/>
15. <http://gpsga.okstate.edu/outstanding-graduate-teaching-assistant-award>
16. <http://www.selectscience.net/industry-news/society-for-laboratory-automation-and-screening/slas-announces-39-recipients-of-its-tony-b-academic-travel-awards-program/?artID=23751>
17. <http://digital.ipcprints.com/publication/?i=102879&p=48>
18. <http://www.upv.edu.ph/upv/index.php/administration/96-news-and-features/688-chem-alumnus-shines-in-the-us>
19. "Eco-Minds makes successful debut in the Philippines," *Philippine Star*, 2005.
20. <http://www.up.edu.ph/index.php/more-on-up/21-newsletter/458-chem-alumnus-shines-in-the-us>

#### Service

- Reviewer, *Advances and Applications in Bioinformatics and Chemistry*, *Dove Medical Press*, 2013-present
- Reviewer, *Advances in Medical Education and Practice*, *Dove Medical Press*, 2013-present
- Reviewer, *Open Access Bioinformatics*, *Dove Medical Press*, 2013-present
- Reviewer, *Open Access Medical Statistics*, *Dove Medical Press*, 2013-present
- Editor, "Arachidonic acids: dietary sources and general functions," *Nova Science Publishers*, 2012
- Editorial Advisory Board Member, *AOCS Inform International Magazine*, 2011-present.
- Reviewer, *Journal of Laboratory Automation*, *Sage*, 2011
- Leadership Team Member, AOCS USA Section, 2010-present.

#### Professional affiliations

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