



NAME Kristian Mark Caldo

COMPLETED ACADEMIC DEGREES

Degree Name	Subject Area	Institution	Date of Completion
PhD	Plant Science (Biochemistry)	University of Alberta	2017
MSc	Biochemistry	University of the Philippines	2010
BSc	Biochemistry	University of the Philippines	2006

ADVANCED STUDIES IN PROGRESS

Degree Name	Subject Area	Institution	Est. Completion Date
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ACADEMIC APPOINTMENT

Appointment Level	Institution	Dates (Yr to Yr)	Subject Area
Assistant Professor	Ambrose University	2023-present	Chemistry
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ADMINISTRATIVE APPOINTMENTS

Appointment Level	Institution	Dates (Yr to Yr)
Laboratory Manager	Ambrose University	2022-present
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TEACHING EXPERIENCE

Institution	Dates (Yr to Yr)	Courses Taught (Course # and Name)	Credit per course
Ambrose University	2022-2024	BCH 297 (Biochemistry) CHE 101 (General Chemistry I) CHE 101L (General Chemistry I) CHE 251 (Organic Chemistry I) CHE 251L (Organic Chemistry I)	3

		CHE 103 (General Chemistry II) CHE 103L (General Chemistry II) CHE 253L (Organic Chemistry II) CHE 493 (Independent Research Study in Chemistry) CHE 495 (Independent Research Study in Chemistry) CHE 497 (Independent Research Study in Chemistry)	
University of Alberta	2012-2013	CHEM 101 (Introductory University Chemistry I Lab) CHEM 105 (Introductory University Chemistry II Lab)	3 for lec & lab 3 for lec & lab
University of the Philippines Los Banos	2007-2012	CHEM 15 (Fundamentals of Chemistry) CHEM 15.1 (Fundamentals of Chem Lab) CHEM 17 (General Chemistry II) CHEM 17.1 (General Chemistry II Lab) CHEM 40.1 (Basic Organic Chem Lab) CHEM 160 (Introductory Biochemistry) CHEM160.1 (Introductory Biochem Lab) CHEM161 (General Biochemistry) CHEM161.1 (General Biochem Lab)	3 2 3 2 1 3 2 3 2
University of the Philippines Manila	2006-2007	CHEM 14 (General Chemistry) CHEM 31.1 (Elementary Organic Chemistry Lab) CHEM 156.1 (Physical Chemistry Lab)	3 2 2

SCHOLARLY PARTICIPATION

Books Authored or Edited

Dates (Yr to Yr)	Activity (Name of book, publisher etc)
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Refereed Publications

Dates	Activity (Name of article and journal)
2022	Alkaloid binding to opium poppy major latex proteins triggers structural modification and functional aggregation. <i>Nature Communications</i> 13, 6768
2021	<i>Physaria fendleri</i> and <i>Ricinus communis</i> lecithin:cholesterol acyltransferase-like phospholipases selectively cleave hydroxy acyl chains from phosphatidylcholine. <i>Plant Journal</i> 105 (1): 182-196.
2021	Transporter protein-guided genome mining for head-to-tail cyclized bacteriocins. <i>Molecules</i> 26 (23): 7218.
2021	PR10/Bet v1-like proteins as novel contributors to plant biochemical diversity. <i>ChemBioChem</i> 22(2): 264-287.

2020	Kinetic improvement of an algal diacylglycerol acyltransferase 1 via fusion with an acyl-CoA binding protein. <i>Plant Journal</i> 102 (4): 856-871.
2020	The evolution of phospholipid:diacylglycerol acyltransferase (PDAT) in photosynthetic organisms was marked by functional divergence and positive selection revealing they are essential to plants. <i>Plant Journal</i> 103 (6): 2025-2038.
2019	Natural fumigation protects reproductive organs in petunia flowers. <i>Nature Chemical Biology</i> 15: 583-588.
2019	Arabidopsis CTP:phosphocholine cytidyltransferase 1 is phosphorylated and inhibited by sucrose nonfermenting 1-related protein kinase 1 (SnRK1). (*equal contribution) <i>Journal of Biological Chemistry</i> 294: 15862-15874
2019	Castor patatin-like phospholipase A III β facilitates removal of hydroxy fatty acids from phosphatidylcholine in transgenic Arabidopsis seeds. <i>Plant Molecular Biology</i> 101: 521-536
2019	Engineering Arabidopsis long-chain acyl-CoA synthetase 9 variants with enhanced enzyme activity. <i>Biochemical Journal</i> 476: 151-164.
2019	A transferase interactome may facilitate channeling of polyunsaturated fatty acyl moieties from phosphatidylcholine into triacylglycerol in plants. <i>Journal of Biological Chemistry</i> 294: 14838-14844.
2018	Intrinsic disorder in the regulatory N-terminal domain of diacylglycerol acyltransferase 1 from <i>Brassica napus</i> . <i>Nature Scientific Reports</i> 8: 16665.
2018	Properties and biotechnological applications of enzymes catalyzing triacylglycerol formation in terrestrial plants and microalgae. <i>Lipids</i> 53: 663-688.
2018	Bioactivity and biotechnological production of punicic acid. <i>Applied Microbiology and Biotechnology</i> 102: 3537-3549.
2018	Diacylglycerol acyltransferase 1 is activated by phosphatidate and inhibited by SnRK1-catalyzed phosphorylation. <i>Plant Journal</i> 96: 287-299.
2017	Multiple mechanisms contribute to increased neutral lipid accumulation in yeast producing recombinant variants of plant diacylglycerol acyltransferase 1. <i>Journal of Biological Chemistry</i> 292: 17819-17831.
2017	Diacylglycerol acyltransferase 1 is regulated by its N-terminal domain in response to allosteric effectors. <i>Plant Physiology</i> 175: 667-680.
2017	High performance variants of plant diacylglycerol acyltransferase 1 generated by directed evolution provide insights into structure-function. <i>Plant Journal</i> 92: 167-177.
2015	Purification and properties of recombinant <i>Brassica napus</i> diacylglycerol acyltransferase 1. <i>Federation of European Biochemical Societies Letters</i> 589: 773-778.
2015	In vivo and in vitro evidence for biochemical coupling of reactions catalyzed by lysophosphatidylcholine acyltransferase and diacylglycerol acyltransferase. <i>Journal of Biological Chemistry</i> 290: 18068-18078.
2015	Biochemical and molecular characterization of two 11S globulin isoforms from coconut and their expression analysis during seed development. <i>International Journal of Philippines Science and Technology</i> 8: 1 46-51.
2010	Physicochemical and functional characterization of cocosin, the coconut (<i>Cocos nucifera</i> L.) 11S globulin. <i>Food Science and Technology Research</i> 16:

	225-232.
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Non-Refereed Publications

Dates	Activity (Name of article and journal)
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Conference Presentations [as presenting author (*), co-author (**), and as supervisor (***)]

Dates	Activity (Name of article and Conference)
2024***	Analyzing Total Phenolic Content in Native Albertan Berries: A Folin – Ciocalteu Spectrophotometric Study. Ambrose Research Conference 2024.
2023***	Total Phenolics and Flavonoid Quantification in Albertan Berries. Undergraduate Research in Science Conference of Alberta 2023.
2023***	Total Phenolics and Flavonoid Quantification in Edible Albertan Berries. Ambrose Research Conference 2023.
2023***	Determination of Total Phenolics and Flavonoid Content in Edible Native Berries. Ambrose Research Conference 2023.
2022**	Effects of phosphorylation on the dynamics and activity of Arabidopsis CTP: phosphocholine cytidyltransferase 1. International Symposium on Plant Lipids. Grenoble, France.
2020**	Kinetic improvement of an algal diacylglycerol acyltransferase 1 via fusion with an acyl-CoA binding protein. American Oil Chemist Society Annual Meeting. Montreal, QC, Canada
2019**	Natural fumigation protects reproductive organs in petunia flowers. 2019 Annual Meeting Midwestern Section American Society of Plant Biologists. Morgantown, West Virginia, USA
2017**	Arabidopsis CTP:phosphocholine cytidyltransferase is phosphorylated and inactivated by SnRK1. Plant Canada 2019. Guelph, ON, Canada
2017*	Allosteric regulation of <i>Brassica napus</i> diacylglycerol acyltransferase 1. Canadian Society of Plant Biology Meeting. Vancouver, BC, Canada.
2016*	Biochemical regulation of <i>Brassica napus</i> diacylglycerol acyltransferase 1. 22 nd International Symposium on Plant Lipids. Goettinggen, Germany
2015*	Biochemical characterization of <i>Brassica napus</i> diacylglycerol acyltransferase 1 and its regulatory domain. 29th Protein Society Conference, Barcelona, Spain,
2015*	Biochemical properties of <i>Brassica napus</i> diacylglycerol acyltransferase 1. 14th International Rapeseed Congress. Saskatoon, Saskatchewan, Canada
2014*	Solubilization and purification of recombinant <i>Brassica napus</i> diacylglycerol acyltransferase 1. 105th American Oil Chemist's Society Annual Meeting and Expo, San Antonio, Texas, United States of America
2011*	Cloning, characterization and developmental expression of the coconut (<i>Cocos nucifera</i> L.) 11S globulin cDNA isoforms. 16th Biological Sciences Graduate Congress, National University of Singapore, Singapore
2010*	Coconut 11S globulin exhibits gene sequence and structural homologies with

	known legumins. 32nd Annual Scientific Meeting, National Academy of Science and Technology, Manila, Philippines
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Research Grants

Dates	Activity (Name of grant and research)
2023	MilliporeSigma Green Chemistry Education Challenge Award
2021	NSERC Postdoctoral Fellowship
2016	Andrew Stewart Memorial Prize
2015	Alberta Innovates Future Technologies Graduate Scholarship

ACADEMIC AND PROFESSIONAL PRESENTATIONS

Dates	Name of Presentation to Name of Organization
2020	Biosynthesis of glucosinolates, University of Calgary Med Plant Biochem Class
2018	Genetic engineering of lipids, Purdue University, Metabolic Plant Physio Class
2015	Oilseed Biotechnology, University of Alberta, Plant for Bioproducts class

PROFESSIONAL MEMBERSHIPS, QUALIFICATIONS and EXPERIENCE

Professional Memberships
Canadian Society for Plant Biology
Protein Society
American Oil Chemists' Society

Professional Qualifications
Licensed Chemist, Professional Regulation Commission, Philippines (2006)
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Professional Experience (Any employment prior to Ambrose University)			
Appointment Level	Institution	Dates (Yr to Yr)	Subject Area
Postdoctoral Fellow	University of Calgary	2019-2021	Plant Biochemistry
Associate Scientist II	Intertek , Illinois, USA	2019	Analytical Chemistry
Postdoctoral Fellow	Purdue University	2018	Plant Biochemistry
Assistant Professor 1	University of the Philippines	2010-2012	Chemistry and Biochemistry
Instructor 2	University of the Philippines	2006-2010	Chemistry and Biochemistry