

Aaron J. Kowalski, Ph.D.

Breakthrough T1D (formally known as JDRF)

Chief Executive Officer

April 2019-Present

Chief Mission Officer

January 2014-2019

- Leader of JDRF Research, Advocacy and Mission teams
- Member of JDRF's senior leadership team
- Oversee JDRF's strategic funding across portfolio of research to cure type 1 diabetes and to improve T1D lives
- Policy leader interfacing regularly with senior leaders in Congress, the U.S. Food and Drug Administration (FDA), Centers for Medicare & Medicaid Services (CMS), and with the diabetes clinical organizations
- Leadership giving partner focused upon driving increased support through large philanthropic gifts
- Go-to communications expert (across TV, print, and online) known for ability to translate complicated diabetes concepts into clear and understandable language
- Frequent public speaker at clinical/scientific conferences and to broad lay audiences on diabetes research/mission progress
- Relationship builder across the diabetes ecosystem stewarding partnerships with senior leadership across pharma, biotech, academia, and with the diabetes clinical and nonprofit organizations
- Skilled volunteer activator, increasing participation in JDRF mission-driving activities

Vice President, Artificial Pancreas

Vice President, Treatment Therapies

September 2010 –December 2012; January 2013-January 2014

- Led multi-disciplinary team of scientists focused on accelerating the delivery of treatments for people with diabetes that will improve glucose and metabolic control, reduce the burden of hypoglycemia, reduce the risk of diabetic complications, arrest developing diabetic complications, and reverse established complications
- Continued leadership of JDRF's Artificial Pancreas Project
- Responsible for \$50M+ Treatment Therapies research portfolio
- Supported efforts to improve regulatory pathway for the delivery of new diabetes therapies
- Partnered with fundraising team to support major giving to JDRF research programs
- Drove partnership with Industry, both device and drug makers, to accelerate delivery of life-improving treatments for people with diabetes

Assistant Vice President, Glucose Control

October 1, 2009 to January 2013

- Directed JDRF efforts in artificial pancreas, hypoglycemia, and drug-based approaches to improved glucose control
- Provided leadership to glucose control scientific team and multi-departmental artificial pancreas project team
- Guided and participated in JDRF regulatory and reimbursement efforts for diabetes devices and glucose-modifying drugs

Program Director, Metabolic Control

Research Director, JDRF Artificial Pancreas Project

February 2007 to September 2009

- Directed JDRF research efforts aimed at acceleration of the availability of technologies to improve glycemic control in people with diabetes
- Directed the implementation of Artificial Pancreas Project research programs
- Directed JDRF hypoglycemia portfolio
- Led the development of strategic research plan aimed at accelerating the utilization of non-device based approaches to restore metabolic control in people with diabetes
- JDRF 2007 Staff Person of the Year

Director, Strategic Research Projects

February 2006 to January 2007

JDRF Artificial Pancreas Initiative

- Directed JDRF research efforts aimed at acceleration of the availability of technologies to improve glycemic control in people with diabetes
- Worked closely with public agencies, including the FDA, CMS, and private healthcare plans to facilitate timely regulatory approval and reimbursement of validated technologies
- Worked closely with JDRF Government Relations to accelerate progress towards a closed-loop system and ensure access to new technologies
- Coordinated with JDRF departments, such as Communications, Information Technology, and Donor Relations to ensure clear dissemination of information from JDRF relating to the project
- Managed JDRF funding initiative to provide clinical validation of promising technologies and to test and optimize closed-loop systems

Scientific Program Manager – Complications

September 2004 to January 2006

JDRF Complications Portfolio

- Provided staff leadership to JDRF Goal 6 Committee, which presented a business plan to the JDRF Board of Directors detailing how the organization could accelerate progress towards an artificial pancreas
- Managed JDRF Complications Study Section
- Provided JDRF oversight to NIH DirecNet program, which tests new diabetes technologies in children
- Worked closely with JDRF Chief Scientific Officer Dr. Bob Goldstein and with JDRF Government Relations office to ensure re-authorization by Congress of support for the Technologies for Metabolic Monitoring Program (TMM), which focused on the development of novel technologies to monitor multiple metabolites, including glucose
- Appeared on dLife TV representing JDRF
- Appeared on WCBS-TV New York with brother Stephen to discuss living with diabetes and the potential for continuous glucose sensors to greatly help people manage their diabetes better

Education

Graduate

Rutgers, The State University of New Jersey and The Graduate School of Biomedical Sciences University of Medicine and Dentistry of New Jersey

Ph.D., January 2005

Microbiology and Molecular Genetics Program

Undergraduate

Rutgers College, Rutgers University, New Brunswick NJ

Bachelor of Arts, May 1994

Major: Biological Sciences

Minor: Physics

Research Experience

Graduate Research Project Description

Probing Osteopontin Structure and Function with Highly Specific Antibodies

- Created novel anti-osteopontin monoclonal antibodies utilizing osteopontin knock-out mice
- Identified epitopes on osteopontin molecule employing T7 phage gene fragment display
- Employed anti-osteopontin monoclonal antibody to inhibit gene expression
- Identified osteopontin O-glycosylation sites that may regulate receptor binding
- Developed technique for rapid mapping of protein epitopes
- Isolated differentially modified forms of osteopontin from mouse fibroblasts and osteoblasts

Advisor: David T Denhardt, Ph.D., Rutgers University, Department of Cell Biology and Neuroscience

Product Development

Company Confidential

- Development of capture ELISA for osteopontin quantification in human serum

Santa Cruz Biotechnology Inc.

- AKm2A1 monoclonal antibody licensed for immunodetection of osteopontin in human, mouse, and rat samples

Issued Patents

United States Patent 6,414,219

Osteopontin knock-out mouse and methods of use thereof

Denhardt; David T.; Rittling; Susan R.; Noda; Masaki; **Kowalski; Aaron J.**

Issued July 2, 2002

- Antibody AKm2A1 currently marketed by Santa Cruz Biotechnology, Inc. as OPN (AKm2A1) catalog number sc-21742

Undergraduate Senior Research Project

The Effect of Oxidation of HDL on Cholesterol Efflux from J774 Macrophages

- Isolated High Density Lipoprotein (HDL) from human blood samples
- Assayed affect of copper-mediated oxidation of HDL on tritiated cholesterol efflux from mouse macrophages

Advisor: Vincent Rifici, Ph.D., University of Medicine and Dentistry of New Jersey, Department of Medicine, Division of Endocrinology

Industrial Experience

National Starch and Chemical Company Bridgewater NJ

Laboratory Technician 1994-1996

- Assisted in the development and testing of improved pressure-sensitive adhesives for drug-delivery patches and related applications

Teaching Experience

Genetics

- Co-designed and administered computer-based research project to all students (175-325) which reinforces concepts in molecular genetics and introduces bioinformatics tools

- Collaborated with computer science department to develop and implement interactive web-based question and answer program for assisting genetics students with their research projects

The DNA Revolution

- Instructed Rutgers University non-science majors on the fundamentals of molecular biology

Research in Biology

- Supervised, trained, and mentored undergraduate researchers on a one-on-one basis on fundamental molecular, cellular, and biochemical techniques and concepts

Biomedical Careers Program Mentor

- Supervised Level III (Third-Year Student) research project for Rutgers Biomedical Careers Program Student
- This program's aim is to increase the underrepresented racial and ethnic groups in biomedical sciences

Rutgers University Masters Degree Program in Microbiology and Molecular Genetics

- Trained two Rutgers Masters Degree students in fundamental molecular biology techniques including cloning, cell culture, immunoassays, phage techniques, and recombinant and mammalian protein production and purification

Kean University Master of Science in Biotechnology Program

- Trained Kean University Masters in Biotechnology Student at Rutgers in hybridoma technology, phage display, immunotechniques, and recombinant protein production and purification
- Thesis Committee Member

Publications

Bergenstal RM, Beck RW, Close KL, Grunberger G, Sacks DB, **Kowalski A**, Brown AS, Heinemann L, Aleppo G, Ryan DB, Riddlesworth TD, Cefalu WT. Glucose Management Indicator (GMI): A New Term for Estimating A1C From Continuous Glucose Monitoring. *Diabetes Care*. 2018; 41: 2275-2280. Epub 2018 Sep 17.

Barnard KD, Ziegler R, Klonoff DC, Braune K, Petersen B, Rendschmidt T, Finan D, **Kowalski A**, Heinemann L. Open Source Closed-Loop Insulin Delivery Systems: A Clash of Cultures or Merging of Diverse Approaches? *J Diabetes Sci Technol*. 2018;12: 1223-1226. Epub 2018 Aug 6.

Danne T, Nimri R, Battelino T, Bergenstal RM, Close KL, DeVries JH, Garg S, Heinemann L, Hirsch I, Amiel SA, Beck R, Bosi E, Buckingham B, Cobelli C, Dassau E, Doyle FJ 3rd, Heller S, Hovorka R, Jia W, Jones T, Kordonouri O, Kovatchev B, **Kowalski A**, Laffel L, Maahs D, Murphy HR, Nørgaard K, Parkin CG, Renard E, Saboo B, Scharf M, Tamborlane WV, Weinzimer SA, Phillip M. International Consensus on Use of Continuous Glucose Monitoring. *Diabetes Care*. 2017; 40:1631-1640. Review.

Agiostatridou G, Anhalt H, Ball D, Blonde L, Gourgari E, Harriman KN, **Kowalski AJ**, Madden P, McAuliffe-Fogarty AH, McElwee-Malloy M, Peters A, Raman S, Reifschneider K, Rubin K, Weinzimer SA. Standardizing Clinically Meaningful Outcome Measures Beyond HbA1c for Type 1 Diabetes: A Consensus Report of the American Association of Clinical Endocrinologists, the American Association of Diabetes Educators, the American Diabetes Association, the Endocrine Society, JDRF International, The Leona M. and Harry B. Helmsley Charitable Trust, the Pediatric Endocrine Society, and the T1D Exchange. *Diabetes Care*. 2017; 40: 1622-1630. Review.

Klonoff DC, Lias C, Beck S, Parkes JL, Kovatchev B, Vigersky RA, Arreaza-Rubin G, Burk RD, **Kowalski A**, Little R, Nichols J, Petersen M, Rawlings K, Sacks DB, Sampson E, Scott S, Seley JJ, Slingerland R, Vesper HW. Development of the Diabetes Technology Society Blood Glucose Monitor System Surveillance Protocol. *J Diabetes Sci Technol*. 2015 Oct 18.

Barnard KD, Venkat MV, Close K, Heinemann L, Weissberg-Benchell J, Hood KK, Kubiak T, **Kowalski AJ**, Laffel L. PsychDT Working Group: Report Psychosocial Aspects of Artificial Pancreas Systems. *J Diabetes Sci Technol*. 2015; 9: 925-8.

Riddell MC, Gallen IW, Smart CE, Taplin CE, Adolfsson P, Lumb AN, **Kowalski A**, Rabasa-Lhoret R, McCrimmon RJ, Hume C, Annan F, Fournier PA, Graham C, Bode B, Galassetti P, Jones TW, Millán IS, Heise T, Peters AL, Petz A, Laffel LM. Exercise management in type 1 diabetes: a consensus statement. *Lancet Diabetes Endocrinol.* 2017; 5: 377-390. Epub 2017 Jan 24. Review. Erratum in: *Lancet Diabetes Endocrinol.* 2017 May;5(5):e3.

Weissberg-Benchell J, Hood K, Laffel L, Heinemann L, Ball D, **Kowalski A**, Peters A, Damiano E, Schiller M, Davis A, Beck S, Barnard K. Toward Development of Psychosocial Measures for Automated Insulin Delivery. *J Diabetes Sci Technol.* 2016;10: 799-801. Print 2016 May.

Klonoff DC, Lias C, Beck S, Parkes JL, Kovatchev B, Vigersky RA, Arreaza-Rubin G, Burk RD, **Kowalski A**, Little R, Nichols J, Petersen M, Rawlings K, Sacks DB, Sampson E, Scott S, Seley JJ, Slingerland R, Vesper HW. Development of the Diabetes Technology Society Blood Glucose Monitor System Surveillance Protocol. *J Diabetes Sci Technol.* 2016; 10: 697-707. Print 2016 May.

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Kowalski AJ, Crabtree VP. Accuracy of CGM During Closed-Loop Home Studies. *Diabetes Technol Ther.* 2015; 17:770-2.

Kowalski A. Pathway to artificial pancreas systems revisited: moving downstream. *Diabetes Care.* 2015 Jun; 38:1036-43.

Kowalski AJ and Dutta S. It's time to move from the A1c to better metrics for diabetes control. *Diabetes Technol Ther.* 2013;15: 194-6. Epub 2013 Mar 1.

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Lee JM, Rhee K, O'grady MJ, Basu A, Winn A, John P, Meltzer DO, Kollman C, Laffel LM, Lawrence JM, Tamborlane WV, Wysocki T, Xing D, Huang ES; **JDRF Continuous Glucose Monitoring Study Group**. Health utilities for children and adults with type 1 diabetes. *Med Care.* 201; 49(10):924-31.

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Juvenile Diabetes Research Foundation Continuous Glucose Monitoring Study Group, Wilson DM, Xing D, Beck RW, Block J, Bode B, Fox LA, Hirsch I, Kollman C, Laffel L, Ruedy KJ, Steffes M, Tamborlane WV. Hemoglobin A1c and mean glucose in patients with type 1 diabetes: analysis of data from the Juvenile Diabetes Research Foundation continuous glucose monitoring randomized trial. *Diabetes Care.* 2011; 34(3):540-4. Epub 2011 Jan 25.

Juvenile Diabetes Research Foundation Continuous Glucose Monitoring Study Group, Fiallo-Scharer R, Cheng J, Beck RW, Buckingham BA, Chase HP, Kollman C, Laffel L, Lawrence JM, Mauras N, Tamborlane WV, Wilson DM, Wolpert H. Factors predictive of severe hypoglycemia in type 1 diabetes: analysis from the Juvenile Diabetes Research Foundation continuous glucose monitoring randomized control trial dataset. *Diabetes Care.* 2011; 34(3):586-90. Epub 2011 Jan 25.

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Laffel L. and **AJ Kowalski.** State of the Art: Continuous Glucose Monitoring. *American Academy of Pediatric, Section on Endocrinology Newsletter.* Volume 16. Summer/Fall 2007.

Kowalski AJ. New Technology and Diabetes Management. Continuous glucose monitors and the promise of an artificial pancreas. *American Journal of Nursing.* State of the Science on Diabetes Self-Management: Strategies for Nursing. June 2007. Supplement: 16-17.

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Wung JK, Perry G, **Kowalski A,** Harris PL, Bishop GM, Trivedi MA, Johnson SC, Smith

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Attur MG, Dave MN, Stuchin S, **Kowalski AJ**, Steiner G, Abramson SB, Denhardt DT, Amin AR. Osteopontin: an intrinsic inhibitor of inflammation in cartilage. *Arthritis and Rheumatism.* 2001; 44: 578-84.

Rittling SR, Matsumoto HN, McKee MD, Nanci A, An X-R, Novick KW, **Kowalski AJ**, Noda M, and DT Denhardt. Mice lacking osteopontin show normal development and bone structure but display altered osteoclast formation in vitro. *J Bone Mineral Res* 1998; 13: 1101-1111.

Hoerrner LA, **Kowalski AJ**, Diamond JR, Wilson PD, and DT Denhardt. Homeostatic and Pathological Actions of Nitric Oxide in the Kidney. In: Molecular and Cellular Biology of Nitric Oxide. 1999. Edited by JD and DL Laskin. Marcel Dekker, Inc. New York.

Abstracts

Mouse Anti-Mouse and Anti-Human Osteopontin Antibodies: Creation, Characterization, and Application

Aaron J. Kowalski, Susan R. Rittling, and David T. Denhardt

Presented at the Third International Conference on Osteopontin, San Antonio Texas, May 10-12, 2002

Osteopontin Traffic in Stressed Renal Epithelial Cells

Dierk J. Hampel, Christine Sansome, Victor I. Romanov, **Aaron J. Kowalski**, David T. Denhardt, Michael S. Goligorsky

Presented at the Third International Conference on Osteopontin, San Antonio Texas, May 10-12, 2002

Regulation of Osteopontin: The Inside Story

Jaro Sodek, Baoqian Zhu, Keiko Suzuki, Harvey A. Goldberg, Susan R. Rittling, David T. Denhardt, **Aaron J. Kowalski**, Christopher A.G. McCulloch, and Maurice Ringuette

Presented at the Third International Conference on Osteopontin, San Antonio Texas, May 10-12, 2002