

PARTNERSHIP FOR
clean competition

2020 ANNUAL REPORT

1 Olympic Plaza
Colorado Springs, Co. 80909

  @PCCAntiDoping
cleancompetition.org



ABOUT THE PCC

Doping is a global problem.
We fund solutions.

THE PARTNERSHIP FOR CLEAN
COMPETITION IS A NONPROFIT,
501(C)(3) ORGANIZATION WORKING
TO PROTECT THE INTEGRITY OF
SPORT AND PUBLIC HEALTH BY
ENGAGING AND SUPPORTING THE
WORLD'S TOP SCIENTISTS AND
INNOVATORS IN HIGH-QUALITY
ANTI-DOPING RESEARCH AND
DEVELOPMENT.

**PROTECTING ATHLETES
THROUGH A COMMITMENT
TO FUNDING HIGH QUALITY
ANTI-DOPING SCIENCE.**

TABLE OF CONTENTS

4	LETTER FROM EXECUTIVE DIRECTOR
6	BOARD OF GOVERNORS
7	STAFF AND OFFICERS
8	SCIENTIFIC ADVISORY BOARD
12	A YEAR IN REVIEW
16	FINANCIAL OVERVIEW

A Letter from Executive Director Ryan Murphy



PCC Supporters,

In 2020, the whole world changed the way it conducts business. I got a first-hand view while working at the U.S. Department of State as a Program Officer for the Sports Diplomacy Division.

Grant administration suddenly had all new dimensions as people looked for ways to continue their efforts despite the headwinds. Remote work, lab closures, and supply chain constraints all became part of a new normal in the world of research.

So when I started at the Partnership for Clean Competition in November 2021, I kept my eyes open, looking for the disruptions that we have all come to expect.

I'm pleased to say I found an organization that has both pivoted itself and helped stakeholders cope with changing demands.

Even with the organization providing latitude for researchers to complete their work amidst shutdowns, the PCC still provided support for 40 publications and presentations over the course of 2020.

The PCC also selected 26 new research projects to support, allocating just under \$3 million in funding to anti-doping scientists.

We all have work to do adjusting alongside the world, but it's always easier to build on success. I'm pleased to join the PCC when we have a chance to do just that.

I look forward to working more with all of the stakeholders in the anti-doping community as we find the way forward through challenging circumstances.

Clean athletes deserve our best effort; we're proud to give it at the PCC.

Sincerely,

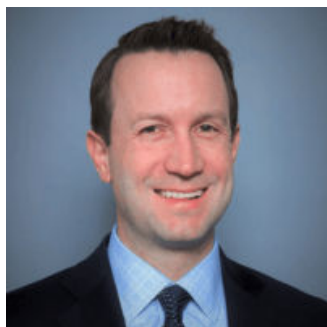
A handwritten signature in cursive script that reads "Ryan M. Murphy".

Ryan M. Murphy
Executive Director

A photograph of Alvin Matsumoto, an older man with grey hair and glasses, wearing a light blue button-down shirt and a dark suit jacket. He is seated in a light-colored armchair, gesturing with his right hand while speaking. He is wearing a blue lanyard with a badge that reads "Alvin Matsumoto", "University of Washington School of Medicine", and "PCC Scientific Advisory Board". The background is a plain, light blue wall. A dark blue horizontal band with the word "LEADERSHIP" in white capital letters is overlaid across the middle of the image.

LEADERSHIP

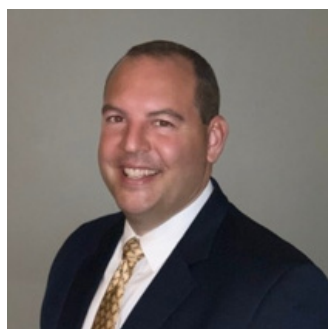
BOARD OF GOVERNORS



Board Chair

Jon Coyles
*Major League
Baseball*

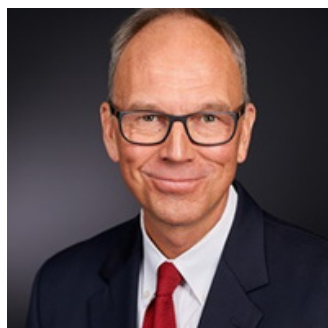
Jon Coyles serves as Vice President of Drug, Health and Safety Programs at the Office of the Commissioner of Baseball. In his current role, Coyles is responsible for overseeing all aspects of Major League Baseball's various drug prevention and treatment programs, including the management of the programs' scientific experts, medical consultants, specimen collection agents, and testing laboratories. Coyles also plays a key role in collective bargaining negotiations with the Major League Baseball Players Association, including the annual review and update of the Joint Drug Program. Before joining MLB, Coyles earned his Juris Doctor degree from the University at Buffalo School of Law and did his undergraduate work at the University of Rochester, where he graduated with degrees in Political Science and Psychology.



Kevin Manara
*National Football
League*

Kevin Manara served as Vice President of Labor Relations & Policy for the NFL. His responsibilities included the administration of the League's collective bargaining agreement with its players, as well as enforcement of the League's policies on performance-enhancing substances, personal conduct and substances of abuse. Kevin represented NFL clubs in grievances filed by players under the CBA, prosecuted appeals of discipline imposed under League policies and advised clubs on a variety of contractual, disciplinary and other labor-related matters. Prior to joining the NFL, Kevin was an associate in the Labor & Employment department at Proskauer. Kevin graduated from Johns Hopkins University, where he played varsity football, and earned his law degree with honors from New York Law School.

Kevin Manara served on the Board of Governors throughout 2020, the year this report represents. However, he departed in 2021.



Chris McCleary
*United States
Olympic &
Paralympic
Committee*

Chris McCleary has served as general counsel for the United States Olympic & Paralympic Committee since January 2015. In this role, he leads a team of legal professionals responsible for all USOPC legal, contract, intellectual property, and dispute resolution matters. Additionally, he leads a team of government relations and immigration experts serving Team USA. He also leads USOPC's governance work and serves as corporate secretary to the USOPC board of directors. McCleary oversees the USOPC's partnerships with the World Anti-doping Agency, U.S. Anti-doping Agency and Partnership for Clean Competition. He also serves as a member of the Association of National Olympic Committee's Legal Commission.



Ed Merrens
M.D.

*United States
Anti-Doping Agency*

Dr. Ed Merrens is Chief Clinical Officer for Dartmouth-Hitchcock Health, Associate Professor of Medicine at the Geisel School of Medicine at Dartmouth, and Board Member of the U.S. Anti-Doping Agency (USADA). Dr. Merrens oversees all clinical operations, service lines, and care across the D-HH system. He has a long-standing involvement in international sports, serving as team physician and medical director for the U.S. Biathlon Association from 1998-2014. He has served as team physician with the U.S. Olympic & Paralympic Committee for the World University Games in Beijing, China (2001) and Olympic Winter Games in Salt Lake City, United States (2002), Torino, Italy (2006), Vancouver, Canada (2010), and Sochi, Russia (2014). Dr. Merrens is a 1988 graduate of Dartmouth College, a 1994 graduate of the Geisel School of Medicine at Dartmouth and holds a Masters in Health Care Delivery Science from the Tuck School of Business and Dartmouth College from 2013. He works clinically as a Hospitalist at Dartmouth-Hitchcock Medical Center.

STAFF & OFFICERS



Michael Pearlmuter
Executive Director

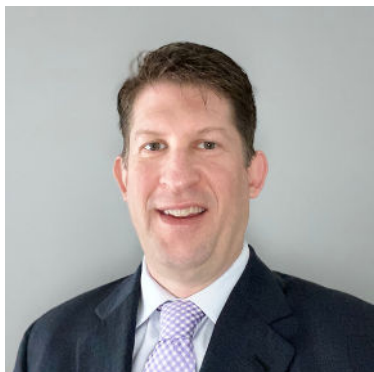
Michael Pearlmuter was named Executive Director for the Partnership for Clean Competition Research Collaborative in January 2014. In this role, Pearlmuter developed, directed, and drove organizational strategy and oversaw daily operations, including managing the organization's \$4M budget, fundraising, business development, grant administration, scientific outreach, and communication with the PCC Board of Governors and Scientific Advisory Board. Pearlmuter earned his Masters of Business Administration in Entrepreneurship from Babson College and served on the Alumni Association Board of Directors. He also has a BS degree in Quantitative Economics from United States Naval Academy.

Michael Pearlmuter headed the PCC throughout 2020, the year this report represents. However, he departed in 2021, replaced by Ryan Murphy.



David Kumbroch
Director of Communications

David Kumbroch started as the Director of Communications for the Partnership for Clean Competition in February 2020. In the role, he helps set the communications priorities and strategies for generating new grant applications, engaging stakeholders, and bringing in funders. He comes to Colorado Springs by way of Huntsville, Alabama, where he previously served as the Science Communications Specialist for the HudsonAlpha Institute for Biotechnology—a genetics research institute. His passion for communicating science started during his seven years as a journalist. Kumbroch graduated from the University of Alabama with a degree focused on broadcast journalism.



Eric Kerzner
National Football League

PCC Treasurer

Eric Kerzner works for the National Football League as Vice President, Labor Relations, supporting Club football and finance executives with the financial components of player contracts and the salary cap. Eric's primary responsibilities include negotiating, administering, and enforcing the League's Collective Bargaining Agreements with the NFL Players Association on financial-related labor matters, including player contracts, the salary cap, compliance, and strategic planning. Prior to joining the NFL, Eric worked in public accounting at McGladrey and Pullen, LLP. Eric graduated from the University of Connecticut in 1996, with a Bachelor of Science degree in Accounting.



Lindsey Ingraham
Major League Baseball

PCC Secretary

Lindsey Ingraham serves as the Director of MLB Drug, Health and Safety Programs, where she assists in the administration of all of Major League Baseball's drug prevention and treatment programs, including program updates, testing, results management, and disciplinary measures. She works closely with the labs and collectors to manage all aspects of the testing and results reporting processes. Additionally, in this role, Lindsey plays a key part in the development and delivery of various educational initiatives. Every year she delivers educational programming to Minor League players during Spring Training, to newly drafted players upon signing, and to Top Prospects during the Arizona Fall League. Lindsey was hired by the Office of the Commissioner of Baseball as Specialist, MLB Drug, Health and Safety Programs in January 2015. Lindsey graduated from Cornell University in 2005 and The George Washington University Law School in 2010.

SCIENTIFIC ADVISORY BOARD

Co-Chairs



James Dalton *Ph.D*

James T. Dalton, Ph.D. is Executive Vice President and Provost at the University of Alabama. He received his Bachelor of Science in Pharmacy from the University of Cincinnati (1986) and Doctor of Philosophy in pharmaceuticals and pharmaceutical chemistry from Ohio State University (1990). Dr. Dalton rose through the faculty ranks in the Department of Pharmaceutical

Sciences in the College of Pharmacy at the University of Tennessee (1992-2000) before returning to Ohio State where he served as Professor and Chair in the Division of Pharmaceutics (2000-2007). He began an entrepreneurial leave of absence from Ohio State in 2005 and finally left OSU in 2007 to devote his full time effort as Chief Scientific Officer at GTx, Inc. in Memphis, TN (2007-2014) where he oversaw the preclinical and clinical development of selective androgen receptor modulators and then served as Dean at the University of Michigan College of Pharmacy from 2014-2020.



Matthew Fedoruk *Ph.D*

Dr. Matthew Fedoruk currently works as the Chief Science Officer at the U.S. Anti-Doping Agency (USADA). With more than 14 years of experience in antidoping and a Ph.D. in Pathology and Laboratory Medicine, Dr. Fedoruk also serves as a standing member of the IWF Anti-Doping Committee, the WADA Health, Medicine and Research Committee (HMRC), the TDSSA

Expert Group Chair and Athlete Biological Passport (ABP) Ad-Hoc Working Group.

Before joining USADA, Dr. Fedoruk worked at the Canadian Centre for Ethics in Sport (CCES) and served with the Vancouver 2010 Organizing Committee for the 2010 Olympic and Paralympic Winter Games in Canada. He currently lives in sunny Colorado Springs, Colorado, which is also known as 'Olympic Town USA' for being home to the U.S. Olympic Committee, the high-altitude Olympic Training Center, numerous national sport federations and USADA.



SCIENTIFIC ADVISORY BOARD



Gerhard Baumann

M.D.

Past Chief of Endocrinology and Metabolism at the Veterans Administration Lakeside Medical Center and the Associate Director of the Northwestern University General Clinical Research Center in Chicago, Dr. Baumann is a Professor of Medicine Emeritus at Northwestern University. Dr. Baumann discovered the growth hormone binding protein, the circulating ectodomain of the growth hormone receptor. He received his M.D. from the University of Basel, Basel, Switzerland in 1967.



Lori Bestervelt

Ph.D.

Dr. Lori Bestervelt is an Entrepreneurial Executive who brings the strong combination of technical and scientific expertise and business acumen, as well as deep P&L experience in product line expansion. She is proud of her high level of name recognition within the dietary supplements, U.S. professional sports nutrition and anti-doping industries. Lori completed Competition & Strategy through the Harvard Business School Executive Education and Corporate Innovation through MIT's Sloan Executive Education. She earned a Doctorate of Toxicology, a Master of Science in Nutritional Biochemistry and a Bachelor of Science in Microbiology & Immunology, all at the University of Michigan. She has been a Member of the Council For Responsible Nutrition and the American Herbal Products Association.



Larry Bowers

Ph.D.

As USADA'S Chief Science Officer from 2000 to 2016, Dr. Bowers provided leadership and scientific support for USADA's research sample collection planning, results management, arbitration, education programs, and the prestigious USADA Annual Symposium. Past Associate Editor (Drug Testing and Toxicology) for the journal, Clinical Chemistry, Dr. Bowers was the deputy director of the Athletic Drug Testing Laboratory for the 1996 Olympic Games, and has served on several scientific organizations Board of Directors.



Steve Elliot

Ph.D.

Recently retired from his Scientific Executive Director Position at Amgen, where he had worked since 1983, Dr. Elliott continues to work in conjunction with the antidoping movement. During his early years at the company, he performed structure-function studies on erythropoietin and the erythropoietin receptor and is the inventor of Aranesp, a re-engineered analog of rHuEpo with a longer serum half-life. He also played a key role when three cross country skiers who doped with Aranesp were caught and stripped of their gold medals and suspended from competition for two years following the 2002 Olympic Winter Games.

SCIENTIFIC ADVISORY BOARD



Gary Green
M.D.

Gary Green, MD, was appointed Medical Director for Major League Baseball in 2010. He also serves as research director for MLB. He is a fellow in the American College of Physicians and American College of Sports Medicine and a Clinical Professor in the UCLA School of Medicine in the Division of Sports Medicine. Dr. Green is the head team physician for Pepperdine University and serves on the California Interscholastic Federation Medical Advisory Committee. He is also on review boards for USADA for adverse analytical findings and therapeutic use exemptions. He is in private practice in Pacific Palisades, California at the Medical Doctors of St. John's.



John Lombardo
M.D.

Dr. John Lombardo serves as the Independent Administrator for the NFL Policy on Performance-Enhancing Substances. He also served as a member of the WADA Therapeutic Use Exemption Expert Group, a reviewer of therapeutic use exemptions for USADA and PGA and a member of the Board of Directors for Sports Medicine Research and Testing Laboratory. He earned a bachelor's degree from the University of Dayton, his medical degree from The Ohio State University and completed his Family Medicine residency at St. Elizabeth's Medical Center in Dayton, Ohio. He served as Medical Director of the Section of Sports Medicine at the Cleveland Clinic and the Medical Director of Sports Medicine at Ohio State University.



Tom Martin
Ph.D.

Dr. Tom Martin is the Independent Program Administrator for Major League Baseball's Joint Drug Prevention and Testing Program. A native of Forked River, New Jersey, Dr. Martin received his ROTC commission into the Army Medical Service Corps in 1990 and entered Active Service after obtaining a Ph.D. in Inorganic Chemistry from Clemson University in 1995. He retired from the Army in 2018 as a Colonel and started his current position with MLB/MLB Players Association.



Alvin Matsumoto
M.D.

Dr. Matsumoto is a Professor Emeritus in the Division of Gerontology & Geriatric Medicine, Department of Medicine at the University of Washington (UW) School of Medicine, and Clinical Investigator in the Geriatric Research, Education and Clinical Center (GRECC) at the Veteran Affairs Puget Sound Health Care System (VAPSHCS) in Seattle. He serves as a member of the Board of Directors of the United States Anti-Doping Agency (USADA); President of the Board of Directors of the Seattle Institute for Biomedical and Clinical Research; and co-chair of the Partnership for the Accurate Testing of Hormones. Previously, he was Director of the Clinical Research Unit, Associate Director of the GRECC, Chief of Gerontology, an Attending Physician at the VAPSHCS, and on the faculty at the UW for more than 40 years. His research expertise is in androgens and male reproductive endocrinology.

SCIENTIFIC ADVISORY BOARD



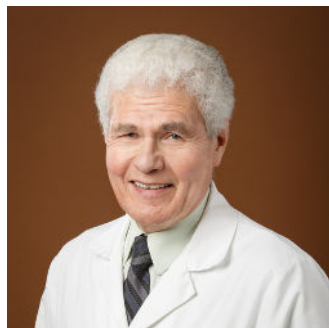
Annette Salmeen
D.Phil

Dr. Salmeen, D.Phil., was a 1996 Olympian and gold medalist. She served as an athlete's representative for the USA Swimming national governing body from 1996 to 2005. In 2005, she was elected as an athlete member of the U.S. Anti-Doping Agency Board of Directors and served until 2012. She was a member of the USADA board research committee and was also involved with efforts to support athlete education and the USADA True Sport initiative. She earned her doctoral degree in Biochemistry as a Rhodes Scholar at Oxford in 2001 and studied growth factor signaling pathways as a post-doctoral fellow in the Chemical and Systems Biology department at Stanford. She is currently a lecturer in the Human Biology Program at Stanford.



Michael Sawka
Ph.D

Chief Scientific Officer of Environmental Physiology and Hydration Associates, Adjunct Professor of Biological Sciences at Georgia Institute of Technology, past Department of Army Science and Technology Senior Scientist appointee, and Chief of Thermal and Mountain Medicine Division at the US Army Research Institute of Environmental Medicine. Dr. Sawka is an expert in environmental physiology (heat, cold, high-altitude), blood volume control, fluid/ electrolyte balance, temperature regulation, and exercise physiology. Dr. Sawka is a Fellow of the American Physiological Society and the American College of Sports Medicine.



Lawrence Silverman
Ph.D

Emeritus Professor of Pathology at the University of Virginia, Dr. Silverman also served as Director of the Molecular Diagnostics, Clinical Genomics, and Immunology Laboratories at the University of Virginia, as well as Director of the Division of Molecular Pathology, and Director of the Immunochemistry/Molecular Genetics Laboratory at the University of North Carolina Hospitals. Dr. Silverman is a diplomate of the American Board of Clinical Chemistry and a Fellow of the American College of Medical Genetics.



John Yates III
Ph.D

The Ernest W. Hahn Professor in the Department of Chemical Physiology and Molecular & Cellular Neurobiology at The Scripps Research Institute, Dr. Yates is the lead inventor of the SEQUEST software for correlating tandem mass spectrometry data to sequences in the database and developer of the shotgun proteomics technique for analysis of protein mixtures. Dr. Yates was ranked by Citation Impact, Science Watch as one of the Top 100 Chemists for the decade, 2000-2010. Dr. Yates is the Editor in Chief at the Journal of Proteome Research.



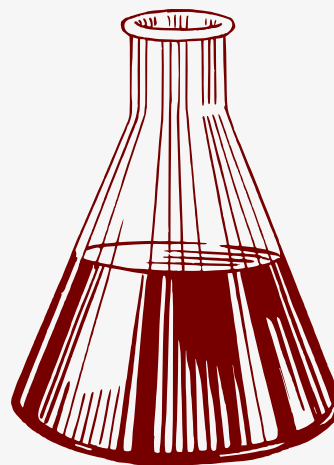
2020 IN REVIEW

IN 2020

COVID-19 CHANGED THE WORLD AS WE KNOW IT.

SO THE PCC ADAPTED.

WE OFFERED FLEXIBILITY TO
OUR FUNDED RESEARCHERS,
PROMOTING THEIR SAFETY
AND ENCOURAGING
RESPONSIBLE TIMELINES
FOR NEW SCIENTIFIC
RESEARCH.



IN THE MIDST OF THE PANDEMIC

THE PARTNERSHIP FOR CLEAN COMPETITION

**FUNDED \$2,996,399
IN NEW RESEARCH**

**SELECTED NEW
PROJECTS FROM 14
DIFFERENT COUNTRIES**

**FACILITATED 40
PUBLICATIONS AND
PRESENTATIONS FROM OUR
FUNDED RESEARCH**

**SUPPORTED 26
NEW PROJECTS**



APPROVED GRANTS



**\$2.99 MILLION USD
AWARDED TO SCIENTISTS**

GRANTS

- **DR. AVIV AMIRAV**, TEL AVIV UNIVERSITY. *MASS SPECTROMETRY INSTRUMENT FOR REAL-TIME BANNED SUBSTANCE ANALYSIS ATHLETES.*
- **DR. JEN-TSAN CHI**, DUKE UNIVERSITY. *SINGLE CELL RNA-SEQ OF STORED RBC TO DETECT AUTOLOGOUS BLOOD TRANSFUSION.*
- **DR. CHRIS CHOUINARD**, FLORIDA INSTITUTE OF TECHNOLOGY. *ESTABLISHING A PREDICTIVE DATABASE FOR MS-BASED DETECTION OF AAS.*
- **DR. JEAN-FRANÇOIS NAUD**, INSTITUT NATIONAL DE LA RECHERCHE SCIENTIFIQUE. *NEW METHOD FOR THE DETECTION OF TGF-BETA SUPERFAMILY LIGAND TRAP MOLECULES IN BLOOD.*
- **DR. MICHAEL PFAFFL**, TECHNICAL UNIVERSITY MUNICH. *IN VIVO DETECTION OF AUTOLOGOUS BLOOD DOPING BY URINARY VESICLE-DERIVED MICRORNAS.*
- **DR. CHRISTIAN REICHEL**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *DETECTION CHARACTERISTICS OF EPOETIN THETA AFTER SC AND IV ADMINISTRATION TO HUMANS.*
- **DR. MARIO THEVIS**, SPORT UNIVERSITY OF COLOGNE. *ELIMINATION PROFILES OF MICRODOSED SARMS LGD-4033 (LIGANDROL) AND RAD140 AND S-4 (ANDARINE).*
- **DR. HERB TOBIAS**, DELL PEDIATRIC INSTITUTE. *LIQUID CHROMATOGRAPHY COUPLED TO IRMS EXPANDED TO INCLUDE ORGANIC MOBILE PHASES.*
- **DR. MICHAEL ZIMMERMANN**, EUROPEAN MOLECULAR BIOLOGY LABORATORY. *IDENTIFICATION OF NOVEL PERFORMANCE-ENHANCING STEROIDS BY LC-MSMS AND MACHINE LEARNING.*

TRF AWARDS

- **SPORTS MEDICINE RESEARCH AND TESTING LABORATORY**, COVID-19 TRIAL.
- **SPORTS MEDICINE RESEARCH AND TESTING LABORATORY**, DETECTING GROWTH HORMONE ABUSE IN DRIED CAPILLARY BLOOD SPOTS - A SINGLE-DOSE STUDY.
- **UNITED STATES OLYMPIC AND PARALYMPIC COMMITTEE**, THE IMPACT OF COVID19 ON THE OLYMPIC AND PARALYMPIC POPULATION.

WORKING GROUPS

- **AJINOMOTO CO.** *15N LABELED IGF-1 REFERENCE MATERIALS.*
- **DR. JACOB BEJDER**, UNIVERSITY OF COPENHAGEN. *VALIDATING THE CD71 ANTIBODY.*
- **DR. JACOB BEJDER**, UNIVERSITY OF COPENHAGEN. *VALIDATING ANTIBODIES OF HBA1C AND OTHER INTRACELLULAR PROTEINS.*
- **DR. JACOB BEJDER**, UNIVERSITY OF COPENHAGEN. *VALIDATING SURFACE PROTEIN ANTIBODIES WITH RELEVANCE FOR RHEPO DETECTION.*
- **DR. ANDREW HOOFNAGLE**, UNIVERSITY OF WASHINGTON. *A NOVEL METHOD FOR MEASURING TYPE III COLLAGEN TURNOVER.*
- **DR. DANIELLE MONCRIEFFE**, KING'S COLLEGE LONDON. *DEVELOPMENT AND VALIDATION OF A LC MS METHOD FOR PIINP ANALYSIS IN BLOOD.*

MICRO-GRANTS

- **FRANCESCO BOTRÈ**, FEDERAZIONE MEDICO SPORTIVA ITALIANA. *REFINING MULTI-TARGETED URINARY STERIODOMICS - TOWARDS THE EXPANDED STEROID PROFILE.*
- **DR. GUSTAVO CAVALCANTI**, LBCE FEDERAL UNIVERSITY OF RIO DE JANEIRO. *APPLICATION OF ION MOBILITY MASS SPECTROMETRY FOR THE IDENTIFICATION OF PHASE 2 STEROID METABOLITES.*
- **DR. SIRI DORUM**, NORWAY ANTI-DOPING LABORATORY. *EVALUATION OF NEW PILOT KIT FOR DETECTION OF AUTOLOGOUS BLOOD TRANSFUSION.*
- **DR. GÜNTHER GMEINER**, SEIBERSDORF LABOR GMBH DOPING CONTROL LABORATORY. *SYNTHESIS AND CHARACTERIZATION OF EPISTANZOLOL-N-GLUCURONIDE.*
- **DR. JAMES HOPKER**, UNIVERSITY OF KENT. *PERFORMANCE MONITORING IN ANTI-DOPING - DEVELOPMENT OF AN ATHLETE PERFORMANCE PASSPORT.*
- **DR. OLE JENSEN**, UNIVERSITY OF SOUTHERN DENMARK. *PRECISION PROFILING OF EPO GLYCOSYLATION USING A NOVEL PROTEASE BASED METHOD (BIG-O-PEP).*
- **DR. JANUSZ PAWLISZYN**, UNIVERSITY OF WATERLOO. *THE USE OF SPME ON THE RAPID-SCREENING OF PERFORMANCE-ENHANCING DRUGS IN SALIVA.*
- **DR. DILSHADBEK USMANOV**, UZBEKISTAN ANTI-DOPING LABORATORY. *DEVELOPMENT OF SURFACE IONIZATION METHOD FOR RAPID DETECTION OF STIMULANTS IN BIOFLUIDS.*

PUBLICATIONS



ALBERTSDÓTTIR AD, VAN GANSBEKE W, COPPIETERS G, BALGIMBEKOVA K, VAN EENOO P, POLET M. **SEARCHING FOR NEW LONG-TERM URINARY METABOLITES OF METENOLONE AND DROSTANOLONE USING GAS CHROMATOGRAPHY-MASS SPECTROMETRY WITH A FOCUS ON NON-HYDROLYSED SULFATES.** DRUG TEST ANAL. 2020 AUG;12(8):1041-1053. DOI: 10.1002/DTA.2818. EPUB 2020 JUL 13. PMID: 32386339.

BEJDER J, ROBACH P, LUNDBY AK, CORNU C, SALLET P, CAIRO G, LUNDBY C. **LOW DOSES OF RECOMBINANT HUMAN ERYTHROPOIETIN DOES NOT AFFECT C-TERMINAL FGF23 IN HEALTHY MEN.** DRUG TEST ANAL. 2020 JUL;12(7):975-979. DOI: 10.1002/DTA.2795. EPUB 2020 APR 6. PMID: 32216032.

DAVIS DE JR, LEAPTROT KL, KOOMEN DC, MAY JC, CAVALCANTI GA, PADILHA MC, PEREIRA HMG, MCLEAN JA. **MULTIDIMENSIONAL SEPARATIONS OF INTACT PHASE II STEROID METABOLITES UTILIZING LC-ION MOBILITY-HRMS.** ANAL CHEM. 2021 AUG 10;93(31):10990-10998. DOI: 10.1021/ACS.ANALCHEM.1C02163. EPUB 2021 JUL 28. PMID: 34319704.

DE WILDE L, VAN RENTERGHEM P, VAN EENOO P, POLET M. **DEVELOPMENT AND VALIDATION OF A FAST GAS CHROMATOGRAPHY COMBUSTION ISOTOPE RATIO MASS SPECTROMETRY METHOD FOR THE DETECTION OF EPIANDROSTERONE SULFATE IN URINE.** DRUG TEST ANAL. 2020 AUG;12(8):1006-1018. DOI: 10.1002/DTA.2801. EPUB 2020 APR 28. PMID: 32267625.

HAND RA, PILETSKA E, BASSINDALE T, MORGAN G, TURNER N. **APPLICATION OF MOLECULARLY IMPRINTED POLYMERS IN THE ANTI-DOPING FIELD: SAMPLE PURIFICATION AND COMPOUND ANALYSIS.** ANALYST. 2020 JUL 13;145(14):4716-4736. DOI: 10.1039/D0AN00682C. PMID: 32500888.

GONZÁLEZ-RUBIO S, BALLESTEROS-GÓMEZ A, CARRERAS D, MUÑOZ G, RUBIO S. **A COMPREHENSIVE STUDY ON THE PERFORMANCE OF DIFFERENT RETENTION MECHANISMS IN SPORT DRUG TESTING BY LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRY.** J CHROMATOGR B ANALYT TECHNOL BIOMED LIFE SCI. 2021 JUL 15;1178:122821. DOI: 10.1016/J.JCHROMB.2021.122821. EPUB 2021 JUN 3. PMID: 34229166.

MADDOX SW, FRASER CARIS RH, BAKER KL, BURKUS-MATESEVAC A, PEVERATI R, CHOUINARD CD. **OZONE-INDUCED CLEAVAGE OF ENDOCYCLIC C—C DOUBLE BONDS WITHIN STEROID EPIMERS PRODUCES UNIQUE GAS-PHASE CONFORMATIONS.** J AM SOC MASS SPECTROM. 2020 FEB 5;31(2):411-417. DOI: 10.1021/JASMS.9B00058. EPUB 2019 DEC 26. PMID: 32031388.

MADDOX SW, OLSEN SSH, VELOSA DC, BURKUS-MATESEVAC A, PEVERATI R, CHOUINARD CD. **IMPROVED IDENTIFICATION OF ISOMERIC STEROIDS USING THE PATERNÒ-BÜCHI REACTION WITH ION MOBILITY-MASS SPECTROMETRY.** J AM SOC MASS SPECTROM. 2020 OCT 7;31(10):2086-2092. DOI: 10.1021/JASMS.0C00215. EPUB 2020 SEP 10. PMID: 32870679.

MONCRIEFFE D. **PROTEIN QUANTIFICATION RELEVANT TO ANTIDOPING.** BIOANALYSIS. 2020 JUN;12(11):711-714. DOI: 10.4155/BIO-2020-0042. EPUB 2020 MAR 25. PMID: 32209021.

MONCRIEFFE D, COX HD, CARLETTA S, BECKER JO, THOMAS A, EICHNER D, AHRENS B, THEVIS M, BOWERS LD, COWAN DA, HOOFNAGLE AN. **INTER-LABORATORY AGREEMENT OF INSULIN-LIKE GROWTH FACTOR 1 CONCENTRATIONS MEASURED INTACT BY MASS SPECTROMETRY.** CLIN CHEM. 2020 APR 1;66(4):579-586. DOI: 10.1093/CLINCHEM/HVAA043. PMID: 32232452.

OLESTI E, PASCUAL JA, VENTURA M, ET AL. **LC-MS/MS METHOD FOR THE QUANTIFICATION OF NEW PSYCHOACTIVE SUBSTANCES AND EVALUATION OF THEIR URINARY DETECTION IN HUMANS FOR DOPING CONTROL ANALYSIS.** DRUG TEST ANAL. 2020;12(6):785-797. DOI:10.1002/DTA.2768

REICHEL C, ERCEG D, LORENC B, ET AL. **DATA FROM A MICRODOSED RECOMBINANT HUMAN ERYTHROPOIETIN ADMINISTRATION STUDY APPLYING THE NEW BIOTINYLATED CLONE AE7A5 ANTIBODY AND A FURTHER OPTIMIZED SARCOsyl POLYACRYLAMIDE GEL ELECTROPHORESIS PROTOCOL** [PUBLISHED ONLINE AHEAD OF PRINT, 2021 JAN 15]. DRUG TEST ANAL. 2021;10.1002/DTA.2989. DOI:10.1002/DTA.2989

SOLHEIM SA, JESSEN S, MØRKEBERG J, THEVIS M, DEHNES Y, EIBYE K, HØSTRUP M, NORDSBORG NB. **SINGLE-DOSE ADMINISTRATION OF CLENBUTEROL IS DETECTABLE IN DRIED BLOOD SPOTS.** DRUG TEST ANAL. 2020 SEP;12(9):1366-1372. DOI: 10.1002/DTA.2872. EPUB 2020 JUN 20. PMID: 32495983.

USMANOV DT, AKHUNOV S, KHASANOV U, ROTSHEYN VM, KASIMOV B. **DIRECT DETECTION OF MORPHINE IN HUMAN URINE BY SURFACE-IONIZATION MASS SPECTROMETRY.** EUR J MASS SPECTROM (CHICHESTER). 2020 APR;26(2):153-157. DOI: 10.1177/1469066719875655. EPUB 2019 SEP 11. PMID: 31510802.

WALPURGIS K, RUBIO A, WAGENER F, KRUG O, KNOOP A, GÖRGENS C, GUDDAT S, THEVIS M. **ELIMINATION PROFILES OF MICRODOSED OSTARINE MIMICKING CONTAMINATED PRODUCTS INGESTION.** DRUG TEST ANAL. 2020 NOV;12(11-12):1570-1580. DOI: 10.1002/DTA.2933. EPUB 2020 OCT 12. PMID: 32959982.

PRESENTATIONS



ALBERTSDÓTTIR AD, VAN GANSBEKE W, COPPIETERS G, BALGIMBEKOVA K, POLET M, VAN EENOO P. **"SEARCHING FOR NEW LONG TERM METABOLITES OF METENOLONE AND DROSTANOLONE BY GAS CHROMATOGRAPHY MASS SPECTROMETRY WITH A FOCUS ON NON-HYDROLYSED SULPHATES"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

BAKER KL, MADDOX SW, FRASER CARIS RH, CHOUINARD CD. **"ION MOBILITY-MASS SPECTROMETRY AND OZONE-INDUCED CLEAVAGE OF ENDOCYCLIC C=C BONDS TO SEPARATE ISOMERIC PROSTAGLANDINS"**. 68TH ASMS CONFERENCE ON MASS SPECTROMETRY AND ALLIED TOPICS. HOUSTON, UNITED STATES. JUNE 2020.

COX HD. **"ANEMIA, ALTITUDE, AND AUTOLOGOUS BLOOD TRANSFUSIONS"**. MASS SPECTROMETRY APPLICATIONS IN THE CLINICAL LABORATORY (MSACL). VIRTUAL. JULY 2020.

GARZINSKY A, THOMAS A, KRUG O, THEVIS M. **"EXHALED BREATH IN DOPING CONTROLS: CHARACTERIZATION OF SENSABUES® SAMPLING DEVICES USING AN AEROSOL TEST GENERATOR"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

HAND RA. **"WORKING TOWARDS COMPREHENSIVE STEROID DETECTION IN URINE VIA TARGETED MIPS CLEAN-UP AND FULLY AUTOMATED GCXGC-MS ANALYSIS"**. WOMEN IN CHEMISTRY. UNIVERSITY OF NOTTINGHAM, UNITED KINGDOM. MARCH 2020.

HAND RA. **"WORKING TOWARDS COMPREHENSIVE STEROID DETECTION IN URINE VIA TARGETED MIPS CLEAN-UP AND FULLY AUTOMATED GCXGC-MS ANALYSIS"**. MACROGROUP UK YOUNG RESEARCHERS' MEETING. VIRTUAL. JUNE 2020.

HAND RA. **"WORKING TOWARDS COMPREHENSIVE STEROID DETECTION IN URINE VIA TARGETED MIPS CLEAN-UP AND FULLY AUTOMATED GCXGC-MS ANALYSIS"**. MIDLANDS POLYMER CONFERENCE. VIRTUAL. AUGUST 2020.

HAND RA. **"WORKING TOWARDS COMPREHENSIVE STEROID DETECTION IN URINE VIA TARGETED MIPS CLEAN-UP AND FULLY AUTOMATED GCXGC-MS ANALYSIS"**. RECENT APPOINTEES IN POLYMER SCIENCE. VIRTUAL. SEPTEMBER 2020.

MADDOX SW, OLSEN SSH, VELOSA DC, BURKUS-MATESEVAC A, CHOUINARD CD. **"CHEMICAL REACTIONS AND IM-MS TO DIFFERENTIATE ISOMERIC CONTROLLED SUBSTANCES"**. SCIX 2020. SPARKS, UNITED STATES. OCTOBER 2020.

MADDOX SW, OLSEN SSH, CHOUINARD CD. **"SHINING LIGHT ON STERIODOMICS: UV-CATALYZED REACTIONS TO AUGMENT STRUCTURAL DIFFERENCES USING ION MOBILITY-MASS SPECTROMETRY"**. 68TH ASMS CONFERENCE ON MASS SPECTROMETRY AND ALLIED TOPICS. HOUSTON, UNITED STATES. JUNE 2020.

MILLER G. **"DETECTING GROWTH HORMONE ABUSE IN DRIED CAPILLARY BLOOD SPOTS"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

MILLER G. **"DETECTING GROWTH HORMONE ISOFORMS IN DRIED BLOOD SPOTS FOLLOWING SINGLE AND MULTI-DOSE ADMINISTRATIONS"**. UNITED STATES ANTI-DOPING AGENCY (USADA) SCIENCE SYMPOSIUM. VIRTUAL. OCTOBER 2020.

OLSEN SSH, MADDOX SW, VELOSA DC, BURKUS-MATESEVAC A, CHOUINARD CD. **"THE PATERNÒ-BÜCHI REACTION AS A METHOD FOR IMPROVED ION MOBILITY SEPARATION OF ISOMERIC STEROIDS"**. 68TH ASMS CONFERENCE ON MASS SPECTROMETRY AND ALLIED TOPICS. HOUSTON, UNITED STATES. JUNE 2020.

POLET M, DE WILDE L, VAN RENTERGHEM P, VAN EENOO P. **"A FAST GC-C-IRMS METHOD FOR THE DETECTION OF EPIANDROSTERONE SULFATE IN URINE"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

REICHEL C, ERCEG D, LORENC B, SCHEIBLHOFFER V, FARMER L, ZANITZER K, GEISENDORFER T, GMEINER G. **"DATA FROM A LOW-DOSED REPO ADMINISTRATION STUDY"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

REIHLEN P, WEISS P, BLOBEL M, WALPURGIS K, THEVIS M. **"EVALUATION OF PEGYLATED EPO-CONJUGATES AS INTERNAL STANDARDS FOR EPO ANALYSIS IN DOPING CONTROLS"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

RUBIO A, GUDDAT S, GÖRGENS C, KRUG O, WALPURGIS K, WAGENER G, THEVIS M. **"ELIMINATION PROFILES OF MICRODOSED OSTARINE MIMICKING CONTAMINATED PRODUCTS INGESTION"**. MANFRED DONIKE WORKSHOP - PROCEEDINGS OF THE 38TH COLOGNE WORKSHOP ON DOPE ANALYSIS. COLOGNE, GERMANY. FEBRUARY 2020.

USMANOV DT. **"DEVELOPMENT OF THE SURFACE IONIZATION MASS SPECTROMETRY METHOD FOR THE DIRECT DETECTION OF NARCOTIC STIMULANTS IN BIOFLUIDS"**. 49TH INTERNATIONAL TULIN ONLINE CONFERENCE ON PHYSICS OF INTERACTION OF CHARGED PARTICLES WITH CRYSTALS. MOSCOW, RUSSIA. SEPTEMBER 2020.



FINANCIALS



PARTNERSHIP FOR **clean competition**

**INDEPENDENT AUDITOR'S REPORT AND FINANCIAL STATEMENTS
DECEMBER 31, 2020**

The following documents are excerpts from an independent audit of the
Partnership for Clean Competition's finances.

Independent Auditor's Report

Board of Governors
Partnership for Clean Competition
Research Collaborative
Colorado Springs, Colorado

We have audited the accompanying financial statements of Partnership for Clean Competition Research Collaborative (the Organization), which comprise the statements of financial position as of December 31, 2020 and 2019, and the related statements of activities, functional expenses and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Board of Governors
Partnership for Clean Competition
Research Collaborative

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Partnership for Clean Competition Research Collaborative as of December 31, 2020 and 2019, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

BKD, LLP

Colorado Springs, Colorado
May 11, 2021

Partnership for Clean Competition Research Collaborative

Statements of Financial Position

December 31, 2020 and 2019

Assets

	2020	2019
Cash and cash equivalents	\$ 2,057,868	\$ 3,303,868
Restricted cash	1,113,044	1,570,198
Contributions receivable	232,942	1,450,000
Prepaid expenses	24,359	16,566
Prepaid fellowship	91,156	127,100
Software, net	-	13,624
Total assets	<u>\$ 3,519,369</u>	<u>\$ 6,481,356</u>

Liabilities and Net Assets

Liabilities

Accounts payable and accrued liabilities	<u>\$ 87,146</u>	<u>\$ 69,921</u>
Total liabilities	<u>87,146</u>	<u>69,921</u>

Net Assets

Without donor restrictions	3,407,223	6,091,237
With donor restrictions	<u>25,000</u>	<u>320,198</u>
Total net assets	<u>3,432,223</u>	<u>6,411,435</u>
Total liabilities and net assets	<u>\$ 3,519,369</u>	<u>\$ 6,481,356</u>

Partnership for Clean Competition Research Collaborative

Statements of Activities

Years Ended December 31, 2020 and 2019

	2020			2019		
	Without Donor Restrictions	With Donor Restrictions	Total	Without Donor Restrictions	With Donor Restrictions	Total
Revenues, Gains and Other Support						
Contributions	\$ 1,750,000	\$ -	\$ 1,750,000	\$ 2,206,545	\$ 100,000	\$ 2,306,545
Conference registration	-	-	-	122,298	-	122,298
Other income	19,581	-	19,581	171,084	-	171,084
Net assets released from restrictions	295,198	(295,198)	-	621,682	(621,682)	-
Total revenues, gains and other support	2,064,779	(295,198)	1,769,581	3,121,609	(521,682)	2,599,927
Expenses and Losses						
Anti-doping research	4,501,155	-	4,501,155	3,565,066	-	3,565,066
Management and general	213,791	-	213,791	172,181	-	172,181
Fundraising	33,847	-	33,847	30,103	-	30,103
Total expenses and losses	4,748,793	-	4,748,793	3,767,350	-	3,767,350
Change in Net Assets	(2,684,014)	(295,198)	(2,979,212)	(645,741)	(521,682)	(1,167,423)
Net Assets, Beginning of Year	6,091,237	320,198	6,411,435	6,736,978	841,880	7,578,858
Net Assets, End of Year	\$ 3,407,223	\$ 25,000	\$ 3,432,223	\$ 6,091,237	\$ 320,198	\$ 6,411,435

Partnership for Clean Competition Research Collaborative
Statement of Functional Expenses
Year Ended December 31, 2020

	2020				
	Program Services	Support Services			
	Anti-Doping Research	Management and General	Fundraising	Total Support Services	Total
Research	\$ 3,897,824	\$ -	\$ -	\$ -	\$ 3,897,824
Fellowships and consultants	342,211	-	-	-	342,211
Salaries	181,909	51,974	25,987	77,961	259,870
Benefits	-	67,058	7,451	74,509	74,509
Travel	7,274	-	-	-	7,274
Supplies and office expenses	-	6,025	-	6,025	6,025
Amortization	13,215	-	409	409	13,624
Website expenses	13,233	-	-	-	13,233
Insurance	-	18,207	-	18,207	18,207
Advertising	22,830	-	-	-	22,830
Intellectual Property	13,971	-	-	-	13,971
Professional services and dues	8,688	70,527	-	70,527	79,215
Total	<u>\$ 4,501,155</u>	<u>\$ 213,791</u>	<u>\$ 33,847</u>	<u>\$ 247,638</u>	<u>\$ 4,748,793</u>

Partnership for Clean Competition Research Collaborative
Statement of Functional Expenses
Year Ended December 31, 2019

	2019				
	Program Services	Support Services			
	Anti-Doping Research	Management and General	Fundraising	Total Support Services	Total
Research	\$ 2,854,460	\$ -	\$ -	\$ -	\$ 2,854,460
Fellowships and consultants	234,045	-	-	-	234,045
Conferences	206,357	-	-	-	206,357
Salaries	152,877	43,679	21,840	65,519	218,396
Benefits	-	48,440	5,382	53,822	53,822
Travel	20,029	4,378	-	4,378	24,407
Supplies and office expenses	-	6,981	-	6,981	6,981
Amortization	43,267	-	1,338	1,338	44,605
Website expenses	10,837	-	335	335	11,172
Fundraising	-	-	1,208	1,208	1,208
Insurance	-	17,379	-	17,379	17,379
Advertising	33,594	-	-	-	33,594
Professional services and dues	9,600	51,324	-	51,324	60,924
Total	<u>\$ 3,565,066</u>	<u>\$ 172,181</u>	<u>\$ 30,103</u>	<u>\$ 202,284</u>	<u>\$ 3,767,350</u>

Partnership for Clean Competition Research Collaborative

Statements of Cash Flows

Year Ended December 31, 2020 and 2019

	<u>2020</u>	<u>2019</u>
Operating Activities		
Change in net assets	\$ (2,979,212)	\$ (1,167,423)
Items not requiring (providing) cash		
Amortization	13,624	44,605
Changes in		
Contributions receivable	1,217,058	(197,732)
Prepaid expenses	(7,793)	(9,490)
Prepaid fellowship	35,944	54,150
Accounts payable and accrued liabilities	17,225	(472,509)
	<u>(1,703,154)</u>	<u>(1,748,399)</u>
Change in Cash, Cash Equivalents and Restricted Cash	(1,703,154)	(1,748,399)
Cash, Cash Equivalents and Restricted Cash, Beginning of Year	<u>4,874,066</u>	<u>6,622,465</u>
Cash, Cash Equivalents and Restricted Cash, End of Year	<u><u>\$ 3,170,912</u></u>	<u><u>\$ 4,874,066</u></u>
Reconciliation of Cash, Cash Equivalents and Restricted Cash on the Statements of Financial Position		
Cash and cash equivalents	\$ 2,057,868	\$ 3,303,868
Restricted cash	<u>1,113,044</u>	<u>1,570,198</u>
	<u><u>\$ 3,170,912</u></u>	<u><u>\$ 4,874,066</u></u>