2020 ANNUAL REPORT

Improving Patient Outcomes through Collaboration



BLOOD PROFILING 🍐 ATLAS IN CANCER

INTRODUCTION Our Story

The Blood Profiling Atlas in Cancer (BloodPAC) Consortium was launched on October 17, 2016 to accelerate the development, validation and clinical use of liquid biopsy assays to better inform medical decisions and improve patient care and outcomes. With input from regulatory, industry and academic institution members, the BloodPAC Consortium established that many of the challenges in the broader field of liquid biopsy resulted from a lack of collaboration, not any limitations of technology platforms or stalled science.

To address this challenge, BloodPAC established a collaborative infrastructure to develop standards and best practices, organize and coordinate research studies through its members and operate the BloodPAC Data Commons (BPDC) to support the exchange of raw and processed data generated by the liquid biopsy research community. Data from retrospective basic, clinical and regulatory member studies, as well as projects BloodPAC has prospectively organized since its inception, is aggregated and contributed to the BPDC to establish an open, publicly accessible data commons for the global liquid biopsy community.

Today, the BloodPAC is entirely member funded and member driven. In addition to developing standards and aggregating data, BloodPAC works collaboratively with all stakeholders in the field to broaden awareness and implementation of the suggested guidelines and establish a wider chain of feedback and discussion in the community. BloodPAC's unique approach to collaboration in the field has led to the organization's success and helps to guide our work into the future.

"BloodPAC's work is fueled not just by member dues, but also by the investment of data, time and expertise from our members. This "all in" mindset creates a powerful multiplier effect for our work and has allowed us to create the data infrastructure needed to accelerate the development of liquid biopsy technologies today and ensure that it exists in perpetuity to support opportunities for future advances. The commitment and collaboration demonstrated by BloodPAC members serves as a model for all health sector stakeholders working to improve patient care through innovation."

> — Lauren Leiman Executive Director, BloodPAC

MISSION

Our mission is to accelerate the development, validation and accessibility of liquid biopsy assays to improve the outcomes of patients with cancer.

To do so, we lead a collaborative infrastructure that enables sharing of information between stakeholders in public, industry, academia and regulatory agencies.



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- Phillip G. Febbo Senior Vice President and Chief Medical Officer, Illumina

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#### VISION

The BloodPAC consortium recognizes data sharing and evidence generation as two fundamental requirements for success and is pursuing them through dedicated workstreams:



#### **EVIDENCE GENERATION**

Align around a framework for evidence generation to bring liquid biopsy into routine clinical practice.



**BLOODPAC DATA COMMONS** 

Create a BloodPAC Data Commons to serve all stakeholders within the liquid biopsy community.



STAKEHOLDER ENGAGEMENT Accelerate approval through stakeholder engagement.

# How We Work

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"From the outset, our greatest risk was not achieving a deep level of collaboration within BloodPAC across competing organizations. However, we were able to attain this commitment to collaboration by building a transparent infrastructure, regular forums for dialogue and a culture of trust, all underpinned by a common desire for our industry to serve the needs of patients."

> — Jake Vinson Chief Executive Officer, Prostate Cancer Clinical Trials Consortium

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#### A COLLABORATIVE INFRASTRUCTURE

To drive progress, consortium members collaborate to address industry challenges through working groups. Each of BloodPAC's 50+ consortium members participate in working groups focused on generating evidence to further technology development, increasing stakeholder engagement and accelerating the approval process through regulatory agencies.

Each BloodPAC working group is co-chaired by dedicated leaders who work with their committee colleagues to define and achieve meaningful goals.

#### **STRATEGY**

BloodPAC takes an iterative and integrated approach to develop standards and guidance for the liquid biopsy community.



#### **COLLABORATION**

### Working Groups

BloodPAC working groups focus on projects related to specific areas of expertise to help accelerate progress.



"BloodPAC demonstrates the value of establishing open lines of collaboration among multiple stakeholders. This type of broad engagement allows for a better understanding of clinical, scientific and regulatory questions related to liquid biopsy that will ultimately drive the field forward and better serve the needs of patients."

> — Julia Beaver Director, Division of Oncology 1, FDA

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#### **EVIDENCE GENERATION**

#### ANALYTICAL VALIDATION

#### Co-Charis: Jonathan Baden, BMS and Jim Godsey, Quest Diagnostics

The Analytical Validation working group has collaborated to generate the Generic Analytical Validation Protocols for Cell-Free Assay Performance Verification v1.0, designed to provide test developers/manufacturers with a baseline of standardized protocols with which to document the analytical performance of a cell-free DNA assay. The generic protocols are intended for use by developers and manufacturers of NGS-based ctDNA in vitro diagnostic tests for oncology, regulatory bodies and clinical laboratories. The protocols were formally reviewed by the FDA via the agency's Pre-Submission process and published in the September 2020 issue of Clinical Chemistry. Establishing this vital industry standard will enable test developers to streamline their efforts to align with the FDA during their proposed product's Pre-Submission phase and in turn, help minimize the time spent by FDA reviewers on guiding test developers through the process. As follow up deliverables, the working group is focusing on two additional protocol documents, including:

#### MRD PROTOCOL

BloodPAC formed the MRD Analytical Validation Working Group (BloodPAC MRD AV WG) to develop a set of generic analytical validation protocols for NGS, ctDNA-based Molecular Residual Disease (MRD) testing of solid tumors. The BloodPAC MRD AV WG recognizes that the end goal of MRD testing for oncology is to provide diagnostic information for the persistent presence of disease following a clinical intervention as well as recurrence, and for this information to help inform specific decisions as evidence supports over the course of the patient journey for improved outcomes and to reduce costs associated with treatment of disease recurrence.

#### **bTMB PROTOCOL**

BloodPAC formed the bTMB Analytical Validation Working Group (BloodPAC bTMB AV WG), at the request of Friends of Cancer Research, and charged to draft a supplement to the original v1.0 document such that the v1.1 document also contained the information and protocols required to perform analytical validation of bTMB tests, in addition to the original AV protocols. BloodPAC bTMB AV WG recognizes that there are numerous approaches for design of a Comprehensive Genomic Panel (CGP) to assess bTMB for solid tumors currently under development, and attention is focused on increasing standardization and advancing best practices. As every test is unique, it is suggested that the guidance developed by BloodPAC should serve as a generic foundation from which test-specific validation strategies can evolve.

#### **EARLY DETECTION & SCREENING**

#### Co-chairs: Christina Clarke Dur, GRAIL and Kathryn Lang, Guardant Health

The goals of the Early Cancer Detection and Screening Working Group are to identify needs for, develop and build consensus around common standards, definitions and frameworks relevant to novel blood-based technologies for early cancer detection. The field of early cancer detection lacks a common, agreed-upon lexicon, standards for evidence generation and thresholds of acceptability in areas such as clinical validation, demonstration of clinical utility, and regulatory guidance. By creating a forum for industry, academic, non-profit, government and regulatory leaders in this area, the Working Group will articulate and align upon key concepts, standards and lexicon for blood-based early detection tests targeting single or multiple cancers. The Working Group will disseminate their work as peer-reviewed publications further supporting the development of this space.

#### JUST DO IT!

#### Co-chairs: Kelli Bramlett, Thermo Fisher Scientific and Matthew Ryder, Sysmex Inostics

The JUST DO IT! working group aims to increase quality and consistency of ctDNA analysis through inter-laboratory testing of well-recognized analytical tools and reference materials. JFDI testing will include measurements of accuracy and precision, as well as other metrics fundamental to ctDNA analysis. The JFDI team includes ten independent laboratories (all BloodPAC members) with interest in improving standardization and reliability of ctDNA testing, an essential step as an increasing number of clinical decisions have the potential to be based on liquid biopsy. The working group is currently developing a report to share results of this analytical study.

#### **RECOMMENDED DATA ELEMENTS**

#### Co-Chair: Jake Vinson, PCCTC

The primary objective of the Recommended Data Elements (RDE) working group is to provide and communicate clear justification and validation for the minimal technical data elements (MTDEs) that have been developed by the BloodPAC Consortium, including established pre-analytical, patient context and clinical variables. The team is working to accomplish this by first reviewing variables used by a variety of industry organizations to understand the landscape. The team will then analyze new and historical data based on the consensus MTDEs to recommend which MTDEs are deemed valid and necessary. Ultimately, the team will communicate and promote the validated data elements through various routes including, but not limited to, a joint publication.

#### **CLINICAL & PATIENT CONTEXT VARIABLES**

#### Co-Chairs: Jean-Francois Martini, Pfizer, Donald Johann, UAMS, Howard Scher, MSKCC,

The goal of the Clinical & Patient Context Variables working group is to identify, develop and build consensus around minimal and measurable Clinical Context and Patient Context Variable Data Elements recommended for collection and submission of data to the BPDC. The lists will focus on identifying patient and disease factors that may affect assay results at the time the biospecimen is acquired. These Minimal Technical Data Elements (MTDEs) ensure data submitted to the BPDC can be accurately evaluated and analyzed by BloodPAC participants and members of the broader liquid biopsy community.

#### PRE-ANALYTICAL VARIABLES

#### Co-Chairs: Howard Scher, MSKCC, Anne-Marie Martin, Novartis, Philip Febbo, Illumina

The Pre-Analytical Variable working group has developed a list of 11 Pre-analytical Minimal Technical Data Elements (MTDEs), attributes recommended for collection and submission of data to the BPDC. These MTDEs ensure data submitted to the BPDC can be accurately evaluated and analyzed across BloodPAC participants and members of the broader liquid biopsy community.

#### **BLOODPAC DATA COMMONS**

#### DATA EXPERIENCE

#### Co-chairs: Jeff Jensen, Fluxion Biosciences and Lea Salvatore, Open Commons Consortium

The Data Experience working group provides a secure and compliant data commons to store, harmonize and analyze liquid biopsy data submitted by member organizations with the goal of sharing this data with the larger liquid biopsy, translational and scientific communities. This working group maintains compliance with existing standards (FASTQ, BAM and VCF) and develops new standards and protocols for formatting and integrating data specific to liquid biopsy outputs.

#### DATA ROADMAP: PROJECT EXHALE

# Co-chairs: Robert L. Grossman, UChicago CTDS and Open Commons Consortium, Donald Johann, UAMS, and Jerry Lee, USC

The Data Roadmap working group focuses on establishing the BPDC as a hub of curated information on liquid biopsy within the cancer data ecosystem. It will interoperate as part of a broader cancer data ecosystem supporting: i) research and discovery, ii) analytic validity, iii) clinical validity and iv) clinical utility. The group has initially established Project Exhale to establish BPDC as a source of rigorous scientific evidence, recognized by the FDA, to support regulatory submissions.

This project initially builds upon lung cancer tissue and blood profiling work done by multiple BloodPAC members. The team collaborates with other BloodPAC working groups to define and address questions concerning: i) generic cancer, ii) organ specific cancer and iii) regulatory science. The working group's initial aim is to quantify the agreement and discordance between matched solid tumor and liquid biopsy samples from patients with malignancies. Importantly, the working group will assess whether these findings vary across different burdens of disease and organs of origin. All supporting data will be included within the BPDC, along with corresponding analyses.

#### STAKEHOLDER ENGAGEMENT

#### **REIMBURSEMENT & POLICY**

#### Co-chairs: Robert Dumanois, Thermo Fisher Scientific and Maude Champagne, Illumina

In 2020, the working group acquired a baseline understanding of payer perceptions of liquid biopsy's role in therapy selection and monitoring applications. In 2021, this baseline informs a roadmap to address coverage gaps for liquid biopsy through "above brand" evidence-based payer education. The working group speaks with one voice across all payer policymakers, and develops a new framework for them to assess quality of liquid biopsy assays and health economic value. Success is measured by improvements in patient access and outcome, made possible by accelerating and expanding payer coverage, coding, and payment for these medically necessary tests.

#### STRATEGIC PLANNING & SUSTAINABILITY

#### Co-Chairs: Hakan Sakul, Pfizer and Jerry Lee, USC

The focus of the Sustainability working group is on developing mid- and long-term strategies for the BloodPAC Consortium and BloodPAC Data Commons. Group members are working to better understand how to modify and evolve the organization's mission over time, create a nexus for liquid biopsy data, expand the organization's reach and relevance globally and clearly define the BloodPAC value proposition.

# Impact

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"When we set out, our goal was to make a decade of progress in five years. But in just three, we've translated that aspiration into tangible achievements, establishing an evidence-based, data science-driven environment for bringing new diagnostic technologies into clinical settings."

> — Peter Kuhn, Professor, University of Southern California



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"Pathologists serve as a critical link to timely diagnosis and optimal treatment decisions for patients and their work depends on having a toolbox of reliable, validated diagnostic technologies. BloodPAC offers a critically important forum for identifying the best practices and guideposts that must be embedded into the framework for development, validation and regulatory review."

> - Carolyn Compton Professor Life Sciences, Arizona State University

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#### **SCIENTIFIC STUDIES**



The BloodPAC Consortium has conceptualized and initiated two liquid biopsy clinical studies for cross-platform validation, multi-modal high-content and longitudinal monitoring. Complete datasets from both studies will be submitted to the BloodPAC Data Commons and analyzed. The studies have successfully incorporated the frameworks established by the BloodPAC Consortium around pre-analytical minimum technical data elements and patient context data elements.

#### **PUBLICATIONS & FRAMEWORKS**



FRAMEWORKS



Minimum Technical Data Elements for Liquid Biopsy Data Submitted to Public Databases

MTDEs defined as required for all projects submitted to the Data Commons.



#### Generic Protocols for the Analytical Validation of Next-Generation Sequencing-Based ctDNA Assays

A core set of generic protocols to serve as the starting point for analytical validation studies.

FDA SUPPORTED



#### Collaborating to Compete

Pre-Analytic Minimal Technical Data Elements (MTDEs) was established and validated through a working group with FDA and CAP.



#### BloodPAC Data Commons for Liquid Biopsy Data

The BloodPAC Data Commons has laid the foundation to advance the field of liquid biopsies and its applications to improving cancer outcomes with FDA and CAP.



of market access, health economics and regulatory staff. In order to improve patient outcomes, the RWG has mobilized resources to support the growth of ctDNA testing in a public and immediate manner through positive changes to payer coverage policies. We are working collectively, above brand, to demonstrate the value of liquid biopsy-based applications.

#### THE RWG'S INITIATIVES FOCUS ON:







EDUCATION

#### FOCUS GROUPS

#### Communications | Ingrid Marino, Foundation Medicine

The focus of the subgroup is to facilitate relevant comment letters on topics related to the use of liquid biopsy in the clinical setting. This includes public comments on CMS topics, including NCDs and LCDs, broad commercial payer medical policy issues, professional guidelines (e.g., ASCO, CAP, AMP), and other ad hoc topics identified by the reimbursement working group.

#### Payer Access & Education | Maude Champagne, Illumina

This subgroup aims to educate payers and laboratory benefit managers on the evidence-based clinical utility, economic value, patient benefit and healthcare professional satisfaction that this innovative technology contributes to the health care system as a standard clinical tool.

#### Quality Assessment | Suzanne Belinson, Tempus

The focus of the subgroup is to facilitate conversations with relevant commercial and government entities to gain insight into and create a process for updating the framework for assessing the quality of liquid biopsy tests.

#### Advocacy | Trish Brown, Illumina

The Advocacy sub-committee highlights payer and reimbursement regulatory issues and educates the BloodPAC membership on diagnostic reimbursement. Each quarter, the team facilitates a presentation from a payer to provide BloodPAC with this unique perspective, providing opportunities to innovate and align.



The BloodPAC Data Commons (BPDC) is the leading repository for liquid biopsy data. Scientific and clinical data is contributed by members and non-members. This provides the scientific evidence to support the frameworks and standard protocols being developed by the BloodPAC Consortium. Our overarching theme is to establish a standardized and secure repository that will speed scientific and clinical advances leading to improved patient outcomes involving liquid biopsies and their clinical applications.

The BloodPAC Data Commons utilizes a cloud-based software platform for managing, analyzing, harmonizing and sharing large liquid biopsy datasets allowing users to:

- · Accelerate the process of scientific discovery, especially over large or complex datasets
- Standardize data submission to develop common approaches for data harmonization
- Provide the infrastructure and necessary frameworks to do analysis securely in place

Today, the BloodPAC Data Commons serves as a source of valid scientific evidence to support submissions to regulatory agencies, supply data for agencies and organizations making decisions about reimbursement and provide a rich data source for researchers.



#### PARTNERSHIP

### Our Community

"Every time a patient is diagnosed with cancer, it elicits an array of questions that clinicians strive to answer to achieve the best outcome. These large, shared databases and protocols for validation are exactly the infrastructure needed to put answers within reach of clinicians – answers that ultimately improve patient care."

> – Howard Scher Physician and Head, Biomarker Development Initiative at Memorial Sloan Kettering Cancer Center

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#### **MEMBERS**

American Cancer Society Arkansas Bioinformatics Consortium Association for Molecular Pathology AstraZeneca **Bio-Rad Laboratories** Breast Cancer Research Foundation Bristol Myers Squibb C2i Genomics Center for Translational Data Science at the University of Chicago Center for Genetic Medicine Research at Children's National Medical Center Ceres Nanosciences Chan Soon-Shiong Institute of Molecular Medicine at Windber **Delfi Diagnostics** Eli Lilly and Company **Epic Sciences** Fluxion Biosciences Focused Ultrasound Foundation Foundation Medicine, Inc. Freenome Friends of Cancer Research

GlaxoSmithKline Guardant Health Horizon Discovery Ltd. Illumina, Inc. Inivata Invitae Corporation LGC/SeraCare LUNGgevity Foundation Memorial Sloan Kettering Cancer Center Movember Foundation Natera National Cancer Institute at the National Institutes of Health Novartis OncoRNALab Ghent University Open Commons Consortium Personal Genome Diagnostics Pfizer, Inc. The Prostate Cancer Clinical Trials Consortium Prostate Cancer Foundation Quest Diagnostics SiO2 Materials Science SolveBio

Streck Sysmex Corporation Tempus Labs Thermo Fisher Scientific Thrive Earlier Detection University of Southern California U.S. Department of Veterans Affairs Windber Research Institute

#### COLLABORATORS

AACR Center for Medical Technology Policy College of American Pathologist / Arizona State University FNIH U.S. Department of Defense U.S. Food & Drug Administration

#### **EXTERNAL DATA CONTRIBUTOR**

University of California, Los Angeles Henry Ford Health System

38% Academic / Non Profit

> 10% Pharmaceutical



MEMBERSHIP BREAKDOWN

44% Diagnostic / Industry

7% Government Agencies

# Leadership & Financials

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"Data opens countless doors to discovery. The vision we established for BloodPAC is to build and operate a data ecosystem so that liquid biopsy innovators and researchers can explore the most promising doorways to discovery that will lead to improved patient outcomes."

Robert Grossman,
Professor, University of Chicago CTDS
and Founder/Director, Open Commons Consortium

#### **OUR TEAM**

# Leadership & Executive Committee



LAUREN LEIMAN Executive Director, BloodPAC Consortium



PHILLIP G. FEBBO, MD Senior Vice President and Chief Medical Officer, Illumina



ROBERT L. GROSSMAN, PH.D. Professor, University of Chicago CTDS and Founder/Director, Open Commons Consortium



PETER KUHN, PH.D. Professor, University of Southern California



ANNE-MARIE MARTIN, PH.D. Senior Vice President, Global Head, Experimental Medicine Unit, GSK



JAKE VINSON Chief Executive Officer, Prostate Cancer Clinical Trials Consortium

#### SCIENTIFIC CO-CHAIR COMMITTEE

KELLI BRAMLETT Director of R&D, Thermo Fisher Scientific

DARYA CHUDOVA, PH.D. Senior Vice President, Technology, Guardant Health

JIM GODSEY, PH.D. Vice President, Advanced DX, Quest Diagnostics

JERRY LEE, PH.D. Associate Professor, USC

HAKAN SAKUL, PH.D. Vice President and Head of Diagnostics, Pfizer

HOWARD SCHER, M.D. Physician and Head, Biomarker Development Initiative at Memorial Sloan Kettering Cancer Center

JENNIFER DICKEY, PH.D. Vice President, Regulatory and Quality, Personal Genome Diagnostics

#### **BLOODPAC DATA COMMONS TEAM**

**ROBERT L. GROSSMAN, PH.D.** Professor, University of Chicago CTDS and Founder/Director, Open Commons Consortium

PLAMEN MARTINOV Chief Information Security Officer, Open Commons Consortium

GINGER RIESSEN, CPA Accountant, BloodPAC

LEA SALVATORE Director of Operations, Open Commons Consortium and Project Manager, BloodPAC

LAURA TRAMONTOZZI Brand and Design, BloodPAC

### Financials

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"BloodPAC has demonstrated great leadership by bringing together multiple stakeholders around a common cause and delivering many achievements in such a short time. Our success has also become our motivation to expand our collaboration model to more organizations around the world for sustainable global impact in clinical diagnosis and care."

> — Hakan Sakul, Vice President and Head of Diagnostics, Pfizer

#### STATEMENT OF FINANCIAL POSITION

#### STATEMENT OF ACTIVITIES

| ¢1 E01042   |                                                                                                                                                                        |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| \$1,564,965 | \$694,464                                                                                                                                                              | Membership dues                                                                                                                                                                                                                                                  | \$811,250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$707,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| \$12,000    | \$75,000                                                                                                                                                               | TOTAL REVENUES                                                                                                                                                                                                                                                   | \$811,250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$707,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| -           | \$38,735                                                                                                                                                               |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| \$1,596,963 | \$808,199                                                                                                                                                              | EXPENSES                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             |                                                                                                                                                                        | Program Services                                                                                                                                                                                                                                                 | \$413,163                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$318,610                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|             |                                                                                                                                                                        | Management & General                                                                                                                                                                                                                                             | \$104,716                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$91,755                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| \$586,000   | \$150,000                                                                                                                                                              | TOTAL EXPENSES                                                                                                                                                                                                                                                   | \$517.879                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$410.365                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| \$59,393    | -                                                                                                                                                                      | CHANGE IN NET ASSETS                                                                                                                                                                                                                                             | \$293 371                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$296.635                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| \$645,393   | \$150,000                                                                                                                                                              |                                                                                                                                                                                                                                                                  | <i>\\\</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4270,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|             |                                                                                                                                                                        | NET ASSETS                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             |                                                                                                                                                                        | Begining of year                                                                                                                                                                                                                                                 | \$658,199                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$361,564                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| \$951,570   | \$658,199                                                                                                                                                              | 0 0 7                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| \$951,570   | \$658,199                                                                                                                                                              | END OF YEAR                                                                                                                                                                                                                                                      | \$951,570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | \$658,199                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| \$1,596,963 | \$808,199                                                                                                                                                              |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | \$1,584,963<br>\$12,000<br>\$ <b>\$1,596,963</b><br>\$586,000<br>\$59,393<br><b>\$645,393</b><br>\$951,570<br><b>\$951,570</b><br><b>\$951,570</b><br><b>\$951,570</b> | \$1,584,963 \$694,464<br>\$12,000 \$75,000<br>- \$38,735<br>\$1,596,963 \$808,199<br>\$586,000 \$150,000<br>\$59,393 -<br>\$645,393 \$150,000<br>\$951,570 \$658,199<br>\$951,570 \$658,199<br>\$951,570 \$658,199<br>\$951,570 \$658,199<br>\$951,570 \$658,199 | \$1,584,963   \$694,464   Membership dues     \$12,000   \$75,000   TOTAL REVENUES     -   \$38,735   EXPENSES     \$1,596,963   \$808,199   EXPENSES     \$1,596,963   \$808,199   Program Services     \$586,000   \$150,000   Management & General     \$59,393   -   Membership dues     \$645,393   \$150,000   Management & General     \$951,570   \$658,199   Membership dues     \$951,570   \$658,199   Begining of year     \$951,570   \$658,199   END OF YEAR     \$1,596,963   \$808,199   END OF YEAR | \$1,584,963   \$694,464   Membership dues   \$811,250     \$12,000   \$75,000   TOTAL REVENUES   \$811,250     -   \$38,735 <b>EXPENSES</b> \$811,250     \$1,596,963   \$808,199   EXPENSES   \$413,163     \$586,000   \$150,000   \$150,000   \$59,393   -     \$59,393   -   -   \$104,716     TOTAL EXPENSES   \$517,879   \$517,879     \$645,393   \$150,000   TOTAL EXPENSES   \$517,879     \$645,393   \$150,000   NET ASSETS   \$293,371     \$645,393   \$150,000   NET ASSETS   \$293,371     \$951,570   \$658,199   Begining of year   \$658,199     \$951,570   \$658,199   END OF YEAR   \$951,570     \$1,596,963   \$808,199   \$808,199   \$951,570 |

Supplemental information from the 2019 and 2020 Center for Computational Science Research, Inc. audited financial statements.