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Stardust Ontology, Protocell Epistemology & Astrobiologists as Artistic and Scientific Instruments of Exploration

As the 12th Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology, Exploration, and Scientific Innovation at The John W. Kluge Center of the Library of Congress, 2024 to 2025, Daniel Lappin will use the Library's collections and resources to examine the underlying philosophy and physiology of ontology and epistemology of astrobiology researchers that relate to the scientific and artistic expression 'We are Stardust'; and the question by NASA Administrator Bill Nelson and PI Dante Lauretta, during the October 11th, 2023, OSIRIS-REx Sample Release news conference, "how do these astromaterial samples help answer the question 'who are we?'.

As it has been established by scientific research (Merrill, Berkowitz, Sagan) and by poetic musical expression (Joni Mitchel) that 'We are stardust'. Consequently, based upon the principle of conservation, it follows that clues to the origin of life are contained within the human body.

The ontology and epistemology of humans arise from the internal composition, structures and mechanism of action of stardust and the protocell. We emerge from the Tree of Life. Therefore, in the present moment of time, we have a 'stardust ontology' – a state of stardust being. And expression of stardust intelligence. This is the foundation for human activity, exploration, and innovation. How well do astrobiologists access this as they search for 'life as we don't know it'?

It is proposed, from a scientific perspective, that this intelligence/information of inner star dust, can be accessed, assessed, and experienced. Then, translated to directly and indirectly to support human agency and exploration, increase science output, societal benefit, and economic impact.

Accessing this inner intelligence, resource is common for artists, performers, sports athletes, theater actors, musicians, poets, and more. It is a foundation of volition, agency and expression. We are stardust expressing itself, and exploring itself.

This research hypothesizes that a specific structure and mechanism of action of the protocell is a high value, biological force. It is seen across the arts and humanities. It is incorporated into engineering designs. Yet, this research concludes that it is poorly established in principles of the social sciences, medicine and healthcare, and education. This is an opportunity for astrobiology to cultivate and translate this body of research into societal benefit and economic value.

This research proposes that the underlying framework of the anatomy and physiology of exploration can be enhanced with the known elements of stardust and the protocell.

This research will formalize a set of principles that supports the transdisciplinary and outreach initiatives of NASA's astrobiology strategy; across research communities, across NASA divisions, to policy stakeholders, and with the public.

A central goal of this research is to validate and cultivate astrobiology as more than a conceptual, cerebral pursuit, but as a human, biological experience that supports human potential.

This research will format astrobiology principles into a briefing, presentation, and practical skills class that can be used by policy makers and the general public to, for example, enhance productivity in the face of stress, synthesize information in the face of information overload, navigate conflicting priorities, or pull answers out of thin air.

This research presents a historic, evolutionary, transdisciplinary opportunity to synthesize existing knowledge to advance astrobiology methods, contribute to policy debates (science and technology, healthcare, education, workforce development, economic productivity, innovation, arts & humanities, & more), and engage the public.

Current Risk to Science Return on Investment

This research will address a critical risk at the core of astrobiology research investments.

It is proposed that specific structures and mechanisms of action, observed within the protocell, and its pre-chemistry, are conserved across evolutionary scale and expressed in the anatomy and physiology of the modern human. Yet, they are poorly incorporated into the ontology and epistemology of the culture of science and astrobiology.

This increases the risk that discoveries will be missed due to a limited range of methods. This reduces the return on investment for astrobiology research.

Immediate benefits are proposed for the OSIRIS-REx, Mars Sample Return, and Artemis NASA missions.

Engaging the Collections of the Library of Congress

As a historic, global cross roads of the arts, sciences, policy and public engagement, the Library of Congress is an ideal institution to pursue this research and outreach initiative. The LoC and the John W. Kluge Center work to transform knowledge into action. That is the intent of this research - to ignite a living wisdom, in action, to support humanity.

The following library resources will be utilized:

1) Review the literature, symposia, and media resources of the prior eleven Blumberg Astrobiology Chairs held in the collections of the Library of Congress.
2) Invite the prior Blumberg Astrobiology Chairs, and other contributors to engage in dialogue and interviews using the research questions described in this application.
3) An exciting potential of this research is that it will integration with themes of the prior two Blumberg chairs in Astrobiology**,** Jacob Berkowitz, and Sherri Wells-Jenson:
    a. With Jacob Berkowitz, the 10th Blumberg Astrobiology Chair, his research into the work on a biography of Paul W. Merrill, credited as the discoverer of our 'stardust origins' will contribute to a foundation for the proposed stardust ontology and protocell epistemology proposed by the research.
    b. With Sheri Wells-Jenson, the 10th Blumberg Astrobiology Chair. How do visually and auditorily impaired people engage their sense of ontology, epistemology and exploration? How do they access their inner stardust

compass? How is this similar to or different than sighted and hearing people? Can these insights provide skills to astrobiologists studying astromaterial samples?

4) Access LoC documents relating to medical, health, and biological sciences, Osteopathy, Abraham Flexner and Medical Education, historical; Scientific Revolution, philosophy.
5) Consultation with LoC librarians; which disciplines describe the human body, as a library, with information, memory, and intelligence that can be internally accessed? An inner space, stardust library.

Disciplines outside of space sciences hold the idea that deep wisdom that can be accessed internally. These individuals will be invited to engage in this dialogue:

1. Dr. James D. Polk, Doctor of Osteopathy, NASA, Chief Health and Medical Officer.

2. Helene Langevin, MD, Director, The National Center for Complementary and Integrative Health.

3. Matt Doll, PHD, Director of Outpatient Behavioral Health, The Treffert Center and Autism Services. The Treffert Center is an international resource for the phenomena of the Classical and Acquired Savant Syndrome (i.e., the movie *The Rain Man*).

A Philosophy & Physiology, Arts & Science Bridge

This stardust-protocell approach is proposed as a valuable bridge between philosophy and physiology, and scientific and arts and humanities approaches in astrobiology; an explanatory construct to support a transdisciplinary astrobiology strategy to support human potential and benefits to humanity.

This is a frontier multiple intelligences approach.

Drawing strongly from anatomy and physiology principles within the arts and humanities this research intends to design a simple, universal anatomy and physiology framework and human factors of volition, expression and agency. This concepts sit near the core of philosophical discourse.

This will be translated into a set of principles and skills, and described in a manner appropriate for specialized researchers, policy makers, and the general public – making astrobiology practical.

The structure and mechanisms of action of the protocell are a significant primordial foundation for a broad array of subsequent principles within the transdisciplinary spectrum of academia, arts and sciences, including, measurement, communication,

information, work output, and more. These principles are also involved in policy making and decision making for the general public.

Research Questions

1. What do astrobiologist think and feel about the concept of a stardust ontology? That we arise from stardust, that stardust intelligence is conserved within the human body? Therefore, clues to the origin of life exist within us? How is 'inner space' organized as a concept within astrobiology? Does every person have a whisper, a sense, a vision of stardust within them? If so, how do we help them explore it and express it?
2. How do astrobiologist wonder, ponder, dream, reflect, imagine, contemplate, inquire, consider, become curious, examine, assess, meditate, and dream to integrate with and guide their direct observation research and inform their actions? How do astrobiologists access their inner stardust domain of insight, wisdom and guidance?
3. How is their inner space integrated with their outer space? What artistic, sports, spiritual and religious, or mind-body practices do they use?
4. Is the whole body an instrument of measurement and perception? How does our whole body inter-relate to our technology instruments to support research efforts?
5. How does the astrobiologist hold concepts of 'separation' from concepts of interconnected whole systems? What is the nature and role of the intelligent biological membrane (the skin and dermal layers) that separate an external infinity of outer space, from the internal infinity of inner space – as in the protocell?
6. Are origin of life clues conserved in the arts and humanities differently than within the sciences? Are there principles and practices from the arts and humanities that can support astrobiology to increase science output?

Outreach and Engagement Initiative

Daniel Lappin BA, CMP

This outreach initiative supports the Kluge Center's mission to transform thought into action and connect scholarship with policy making.

This outreach will present the science facts and public relations message of astrobiology as a source of immediate, practical contributions to society.

This outreach is interwoven with the theme of NASA's OSIRIS-REx Asteroid Sample Return Mission, sample analysis phase; specifically, the Origin of Life Working Group.

Current Momentum

The initiative will set the foundation for a 5-10 year systemic productivity initiative. This vision was initially discussed in the late 1990's, with Nancy Goodman, Co-Chair of the Sub-committee on Public information, at the Board of Governors of the Federal Reserve Bank. She expressed interest in the ideas. Since 2010, this framework has been discussed with James Heckman, Professor of Economics and Law, The University of Chicago, Nobel Laureate in Economics Sciences, 2000. Professor Heckman has been impressed with this scholarship and has offered to be a reference when this initiative is presented to Janet Yellen, Chair of the United States Treasury.

Victor Dzau, President, the National Academy of Medicine, has expressed interest in this scholarship and asked to be kept informed.

Dante Lauretta, Principle Investigator for the NASA OSIRIS-REx Mission, has expressed interest since 2022 and has asked to be kept informed of this initiative.

Outreach & Engagement

1. Specialized audiences workshops
2. Briefings
    a. To infrastructure science community
    b. To Congressional policy community
3. Public Engagement
    a. An Astrobiology Experience Salon
    b. Astrobiology, arts, sciences and exploration
4. Symposium Fall 2025

The outreach initiative will invite collaboration with stakeholders in the community to co-create a symposium, early fall of 2025, to initiative a 5-10 year systemic productivity initiative centered around the societal benefits and economic value of astrobiology.

Specialized Workshops

November 2024, January 2025, Summer 2025

Audiences:
NASA OSIRIS-REx Origin of Life Working Group
NASA Mars Sample Return team
Early career astrobiologists
NASA Astrobiology Research Coordination Network

Titles:

1. Measurement and Communication, Anatomy and Physiology, Arts and Sciences in Astromaterial Sample Analysis.
2. The Descending Ladder of Exploration in Origin of Life Research.
3. Follow the Water 2.0.

Previously discussed with Dante Lauretta, PI for NASA's OSIRIS-Rex mission. He expressed interest.

Briefings Overview

These briefing will be from 45 to 60 minutes long.

Working title:

Astrobiology, Imagination & Human Performance

The briefing will include:

1. A brief overview of astrobiology.
2. How principles emerging from origin of life research (stardust and protocells) translate to principles and skills that contribute to current policy issues. And, help solve real problems of the everyday person and society. Specifically, related to all issues that involve human anatomy and physiology, biology, healthcare, and the environment.

3. A skill building, experiential portion which describes, demonstrates, and engages the principles and anatomy and physiology of inner space versus outer space exploration.
4. How these skills can be utilized to for a wide range of societal issues, such as: human performance, decision making, stress-resilience, systems thinking, conflict resolution, ideation, imagination and creativity, relationship building, information synthesis, facing the unknown.
5. Discussion of implications for these policy areas: science and technology, healthcare, education, workforce development, economic productivity, innovation, arts & humanities, & more.

Science Infrastructure Community Briefings

Briefings will be offered to organizations such as:

- The National Academies of Science, Engineering, and Medicine
    - Intent: invite Victor Dzau, President of the National Academies of Medicine, to host a briefing, as he previously expressed interest in this research.

- The National Institute of Health
    - Office of The Surgeon General
    - National Center for Complementary and Integrative health
- National Science Foundation
- The Federal Reserve Bank, Office of Public Information
- American Bar Foundation, American Bar Association, The Supreme Court Professor James Heckman, of the University of Chicago, is a Senior Research Fellow at the American Bar Foundation. He has expressed interest in the underlying anatomy and physiology principles of this research as it relates to law and economics.
- American Philosophical Association

Congressional Briefings

Briefings will be offered to Congressional entities in the areas of:

science and technology, healthcare, education, workforce development, economic productivity, innovation, arts & humanities, and other interested congressional entities..

Public Outreach & Engagement

Fall & Winter 2024, Spring & Summer 2025

1. The interviews with prior Blumberg Chairs in Astrology, and other notable astrobiologists described in the research portion of this application will be held online (or in person) and available to the general public.
2. An Astrobiology Experience Salon: On a monthly occurrence, a public live event will be offered at the LoC/Kluge Center that presents a public version of the briefing offered to the science infrastructure community and the Congressional policy community. The public version will include presentation and a guided experiential components. And, speak to the application of the core astrobiology, stardust and protocell principles, to everyday life.
3. Astrobiology, arts, sciences and exploration
    a. Astrobiologist who have a strong arts practice that support their science research will be invited to have their research featured, to discuss how the arts inspire their science, and to share their art.
    b. Invited astrobiologist will include: Dante Lauretta, PI for the OSIRIS-REX Mission (Rock &. Roll guitar), Brain May, lead guitarist for the world famous Band *Queen* (an astrophysicist and collaborator on the OSIRIS-REx Mission)
    c. Popular musicians whose lyrics reflect principles of cosmology will be invited to share their inspiration.
    d. An inner space art discussion and exhibit

Symposium

Late Summer 2025

Working Title: Astrobiology, Imagination, and Human Performance

This symposium will propose and promote a 5-10 year translational science, systemic productivity initiative across the domains of science and technology, healthcare, education, workforce development, economic productivity, innovation, arts & humanities.

Locations:
1. Regional locations based upon Federal Reserve Bank branches
2. Johnson Space Center, Houston

Host: NASA's Astromaterials Research and Exploration Science Division

Proposed co-sponsors
NASA Astrobiology
National Science Foundation
The Board of Governors of the Federal Reserve Bank
The National Center for Complementary and Integrative health
The National Academies of Science, Engineering and Medicine

Curriculum Vitae

At the Frontier of Exploration

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Mill Valley, CA 94941
415-936-9981

Introduction

This Curriculum Vitae will present the credentials of Daniel Lappin in a manner to:

- Demonstrate the leading edge thinking and vision of this application,

- Support the goals of NASA Astrobiology, The Library of Congress, and The John W. Kluge Center,
- Fulfill the roles, responsibilities, and honor of the Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology, Exploration, and Scientific Innovation

This Curriculum Vitae is presented In a manner that will be different than the norm, and it is proposed that this unique CV is an asset to this application.

The content of this application is presented as a vision and solution from the frontier of inquiry that bridges astrobiology/origin of life research with practical solutions for the everyday person to ignite immediate benefits of astrobiology to society.

This frontier proposition has arisen from a frontier, transdisciplinary exploration, that in some ways is similar to the pioneering, transdisciplinary research and career of Dr. Baruch Blumberg.

As Dr. Blumberg was a healthcare professional and a philosopher, this CV presents a similar profile – with similar potential contributions.

As Dr. Blumberg explored fundamental questions using unconventional thinking this novel CV will present a parallel journey.

A Novel, Frontier Medical Exploration
An Artistic Proof

Astrobiology is an extreme, frontier science. It is an extension of human and earth biology. This application proposes that the credentials of Daniel Lappin, a physiologist, create a unique bridge between astrobiology's frontier vista and the practical, real-world needs of humanity.

More than a CV, Daniel's journey, personally and professionally, is a basic medical science research initiative that led to completely unexpected discoveries and applications; starting with novel insights in the underlying

anatomy and physiology of economic concepts, to a gap in basic science concepts of work, measurement and communication, to the potential to apply astrobiology, origin of life and protocell structure and mechanism of action to a systemic productivity, public health initiative.

This is a story of how a basic quest for medical understanding and stability led to unexpected results, proposed discovery, and potential benefit for many.

Daniel's story and life pursuit began as a complicated childhood medical condition that arose from a genetic polymorphism at birth that developed into a complicated, life-long, chronic, life altering disease. The disease was not known within medical science at the time of his birth. It was established as a disease in the International Classification of Diseases (ICD Code) in 2016 – forty years after Daniel experienced the first symptoms. Out of profound necessity, this childhood disease threw Daniel into the frontier of exploration with few references in medicine or science. From this, Daniel explored and innovated. This is the foundation of this CV and application.

Exploration at the frontier can be messy – and that is sometimes how discoveries arise.
Daniel's application is more of an Artistic Proof than an intellectual scholarly collection of research and writing. This is proposed as an innovative asset of this application.

In an unexpected twist, NASA funded research in the origin of life, and the protocell, provided a unique explanatory framework to explain the gaps in medicine, healthcare and science which Daniel identified in his journey.

This unexpected insight and twist is a central theme of the proposed research and outreach of this application.

See, My Story:
https://www.daniellappin.com/05.html

Independent Scholarship -Informal Scoping Review

Over the course of decades, Daniel gathered what is presented as an informal scoping review. This informal scoping review suggests that this body of independent scholarship contains both precision innovation and systemic integration beyond known formal institutional academic studies.

1. A primary innovation that is proposed is a contribution to the fundamental anatomy and physiology of exploration and inquiry.
2. It presents a historic arc from prebiotic chemistry, to the protocell, to the tree of life, to the modern human.
3. It presents a transdisciplinary synthesis across physical, biological, and social sciences and the arts and humanities.

As much a search for health and medical solutions to recover from a life changing, intermittently disabling medical condition, this has been a search for the essence of being, ontology, and knowing, epistemology – a profound philosophical quest.

In his role as a health professional, Daniel utilizes his experience and skills for the benefit of humanity, one person at a time.

Please note: this proposed scoping review and its conclusions are not the result of a well-funded graduate student or an established academic scholar. This is insight and innovation at the raw frontier. Therefore, it is a work in progress.

The expanse of this scoping review can be explored here:

https://interogenesis.com/blumberg-astrobiology-chair.html

Daniel's unique vantage point sees a 'low hanging fruit opportunity' within existing NASA funded origin of life research, and the OSIRIS-REx Sample analysis phase, to increase the Value of NASA initiative and to elevate the Value of Astrobiology. This is proposed as a foundation for the policy and outreach initiatives of this application.

As many agencies are intrigued by 'high risk, high reward' propositions, this application may fall into that category. Yet, it is presented as a 'low risk, high reward' proposition.

Curriculum Vitae

Academic Degree

Bachelor of Arts, Economics,
The College of the University of Chicago, 1981

Science Papers and Submissions

1. Townhall Proposal, Astrobiology Science Conference 2024 (AbSciCon)

Title: The Astrobiology Narrative and Strategy: Integrating Scientific Principles and Relevance, Societal Benefits, and Economic Impact. How are we doing? What is next?

2. Submitted Comments: National Center for Complementary and Integrative Health Strategic Plan for Fiscal Years 2021-2025

Request for Information (RFI): Inviting Comments on the National Center for Complementary and Integrative Health Strategic Plan for Fiscal Years 2021-2025

3. National Academies of Sciences White Paper Submission, Decadal Survey on Biological and Physical Sciences Research in Space 2023-2032:

Title: A Systemic Solution: Translating Origin of Life Protocell Mechanisms into a Novel Research Method for Microgravity, Space Science, Technology, & Earth.

4. International Space Station Annual Conference 2020 Abstract Submission:

Title: Interogenesis-Interoception: Astronaut Inner Space tactic for Autonomous Healthcare, ISS Collaboration for Covid-19 Vaccine, R&D.

Full list:

Testimonials, References & Science Papers

https://interogenesis.com/references-testimonials.html

Health Professional Certifications

A) California State Certification as a Massage Practitioner
B) Certificates in Somatic Mind-Body Therapies
C) Certificate in Pediatric Massage
D) Certificate in Neuro-linguistic Programming
E) Hospice Volunteer training with Sutter Visiting Nurse Association and Hospice, San Francisco.

Pro-bono Health Industry Volunteer

Prior to the Covid-19 pandemic, for over 10 years, Daniel was a regular guest lecturer, workshop presenter, and keynote presenter at the Integrative Medicine Network at the University of California San Francisco Medical Center. Attendees to these programs were the students in the Graduate schools of Medicine, Nursing, Pharmacology, Physical Therapy and Dentistry, and the general public.

Qualitative, Healthcare Case Studies

As a Federally recognized Integrative Health professional, Daniel has over 20 years of direct, hands-on experience supporting health care clients. He has conducted over 6000 client sessions.

See healthcare website: daniellappin.com

During this time he has conducted informal case studies of complicated stress and trauma conditions, and complicated health and medical conditions. These have informed his insights into anatomy and physiology principles, the potential for a public health initiative, and the potential for a systemic productivity initiative based upon these innovations.

Theses insights have been and continue to be encoded into an arts and science informed curriculum format that contribute to the Briefing and Outreach activities of this application.

Professional Resume

Natural Arts Wellness Center /River of Light Massage & Healing Arts,
Owner – 1997 - Present

Conduct wellness, massage and bodywork for clients with a range of conditions, from general stress to difficult and complex health conditions, often including trauma.

Integrated Event Promotion - 1995 to 2000

Assisted sales and marketing a variety of business communication seminars nationally. Currently involved with event promotion for Integrated Health, Psychology and related wellness events. Clients include UCLA Extension, California Institute of Integral Studies, Sensory Motor Psychotherapy Institute.

LGE Performance Systems, Sales & Marketing representative 1995-1996

Sales and marketing representative for business training programs for this internationally recognized performance training company that specialized in training Olympic and professional athletes. Advised LGE on transforming sports focused curriculum to business focused curriculum. LGE principle included Dr. Jim Loehr, author, *Stress for Success*.

The Anthony Robbins Companies. - 1989-93

Telemarketing sales support for a range of sales, communication, and personal development seminars and workshops. Supervised a team of eight covering three simultaneous national events.

California Software, Inc. , Sales representative, 1987-1989.

Sold state-of-the-art data center management software systems.

Boole & Babbage, Sales representative. – 1983 – 1985

Sold Strategic Planning, and Capacity and performance management Systems Software to Management Information Executives and Technicians at Large companies in The USA and Canada. Received 'Hero' award for educational sales.

Computer Associates, Inc, 1982-83, Sales representative.
Sold System Utility tools to Mainframe sites.