



Specialized Capital Formation and Deployment to Support Synthetic Biology

Denver Dale, Ph.D.
Founder, Chief Executive Officer
denver@onpointcapital.com

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OPC Bioventures: Helping to Support SynBio



Conviction

- That synbio-related technologies will drive enormous value creation in major industries and significantly improve the human condition in the years and decades ahead

Contribution

- Helping significant investors understand the SynBio opportunity
- Providing an expert investment platform through which various stakeholders can express their support for and participate in the economic potential of SynBio

Stakeholders

- Research Institutions, Translational Offices, Entrepreneurs, Governments, Endowments, Foundations, Family Offices, Corporations, NGOs, Investors

Message

- Sufficient, well-suited risk capital is essential if we are to fully exploit the promise of SynBio (and manage its risks)

Mandates

- Establish the leading investment platform dedicated to SynBio and related technologies
- Raise significant investment capital and support from stakeholders
- Work to extract the maximum human benefit from SynBio and related technologies

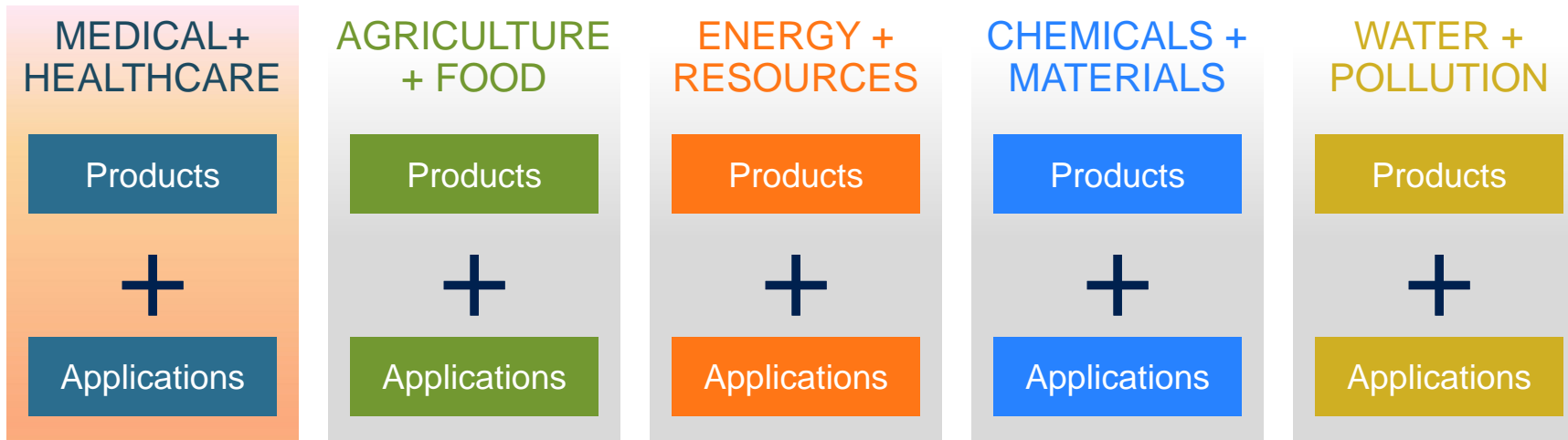
Questions

- ???

Comments

- !!!

Moving Beyond Medical: Exploiting Major Industrial Markets



BIOTECHNOLOGIES Driving Significant Value and Sustainability



**CAPITAL RICH,
TARGET POOR,
OVER-REGULATED**

**CAPITAL POOR, TARGET RICH,
LESS-REGULATED**

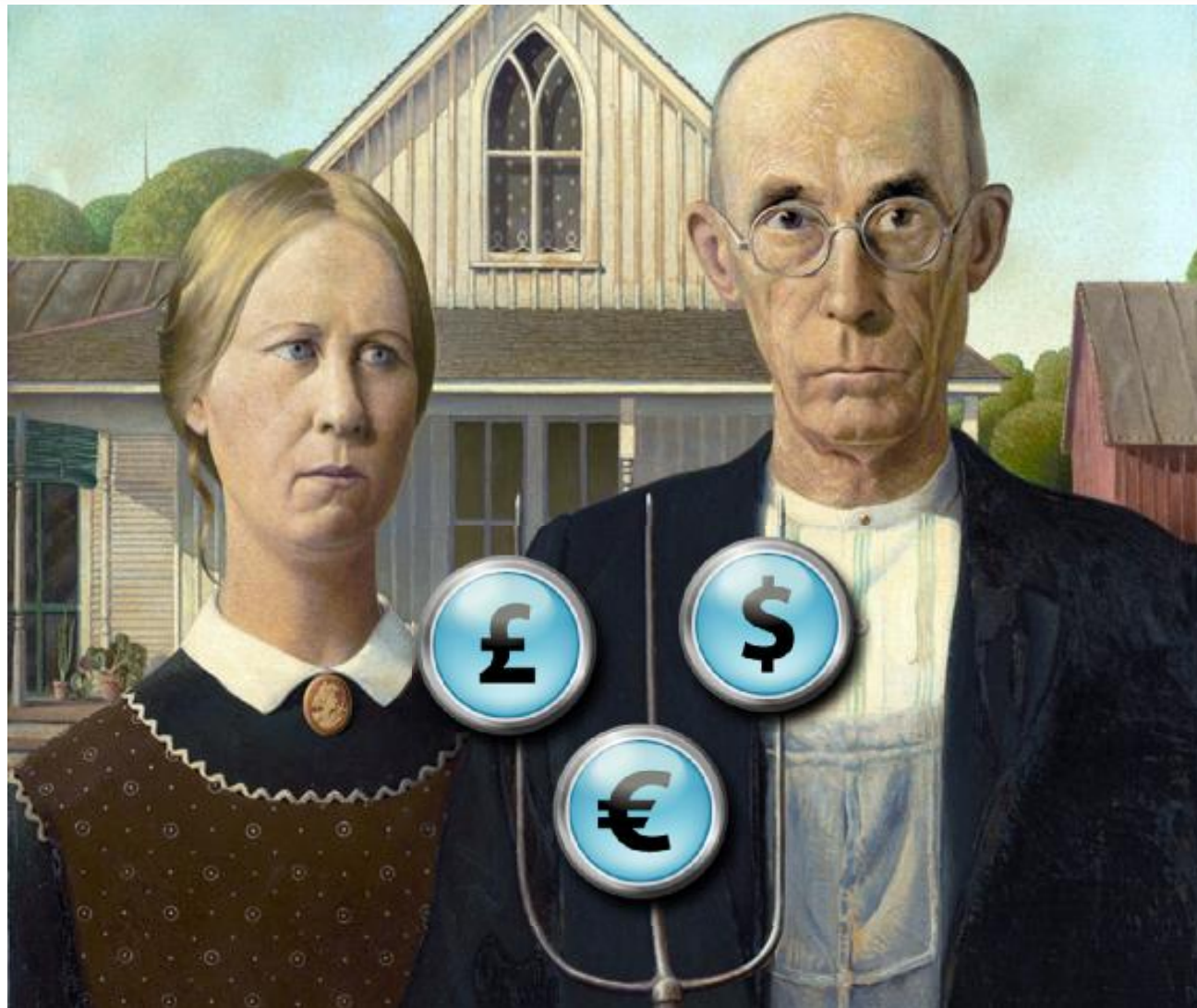
Fully Exploiting SynBio's Potential: Research-Stimulus Without Risk Capital can...



The image features a central 3D illustration of a conveyor belt with several cardboard boxes. One box is labeled 'agradis' and another 'EMERGENCE'. Some boxes are falling off the end of the belt. Above the belt are three large, glowing coins with the symbols £, €, and \$. The background is populated with logos of numerous organizations, including:

- Top Row:** Caltech, BOSTON UNIVERSITY, DSM (Bright Science. Brighter Living.), bp, BASF (The Chemical Company).
- Second Row:** Imperial College London, MIT (Massachusetts Institute of Technology), Fraunhofer, TOTAL, MONSANTO.
- Third Row:** KAIST, ETH (Eidgenössische Technische Hochschule Zürich), synberco.
- Below Conveyor Belt:** UNIVERSITY OF OXFORD, iGEM, NSF, UK TRADE & INVESTMENT, DARPA, NASA, BBSRC (BioScience for the Future), ASU, 华大基因 (BGI), UNIVERSITY OF CAMBRIDGE.
- Bottom Row:** THE NATIONAL ACADEMIES (Supporting the future of science, technology, and innovation), GORDON AND BETTY MOORE FOUNDATION, BILL & MELINDA GATES FOUNDATION, ALFRED P. SLOAN FOUNDATION, Bio (Biotechnology Industry Organization).

Fully Exploiting SynBio's Potential: ...Lead to Loss of Public Investment (and ROI)



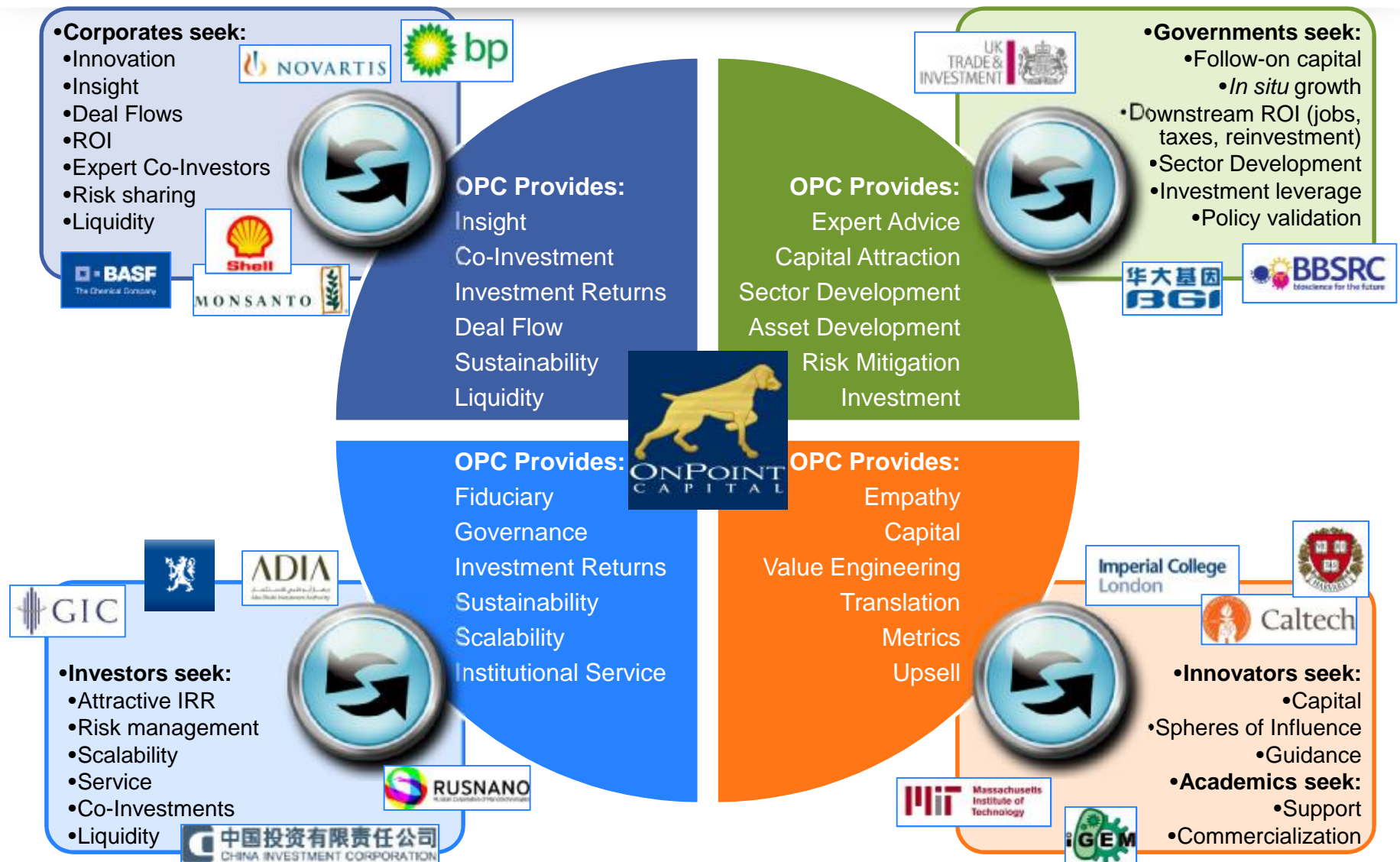
Fully Exploiting SynBio's Potential: Helping to Set the Conditions for Strong ROI



- **Funded**
- **Independent**
- **In Situ**

Logos on the conveyor belt pillars include: Caltech, Imperial College London, KAIST, ETH Zurich, Fraunhofer, BOSTON UNIVERSITY, Massachusetts Institute of Technology, UNIVERSITY OF OXFORD, iGEM, ASU, 华大基因 BGI, UNIVERSITY OF CAMBRIDGE, NSF, UK TRADE & INVESTMENT, DARPA, NASA, BBSRC, ExxonMobil, Microsoft, Wilmar, BASF, IFF International Flavors & Fragrances Inc., Unilever, MONSANTO, NOVARTIS, Cargill, Statoil, SYNTHETIC GENOMICS, Shell, bp, THE NATIONAL ACADEMIES, GORDON AND BETTY MOORE FOUNDATION, BELL & MELINDA GATES FOUNDATION, ALFRED P. SLOAN FOUNDATION, Bio Industry Organization, DSM BRIGHT SCIENCE. BRIGHTER LIVING, MERCK, TOTAL, INTREXON.

Aligning Interests: Unifying SynBio's Stakeholders Through Capital



OPC's Expert Platform: Innovation Relationships (partial list)



RESEARCH & COMMERCIALIZATION



CORPORATE INNOVATION



GOVERNMENT, INDUSTRY, REGULATORY, NON-PROFIT



OPC's Expert Platform: Founders



Scientific
Leadership

Financial
Leadership

Entrepreneurial
Experience

Sector
Presence

LEADERSHIP

EXPERIENCE / AFFILIATIONS

EDUCATION / PROFILE



Dr. Denver Dale

- Founder and CEO, On-Point Capital, LLC
- Investment Management, Goldman, Sachs & Co.
- Tutor, Biomedical Sciences, Oxford University



Ph.D. (Oxford)
B.Sc. (Hons) (Queensland)
Profile: [LINK](#)



Prof. Jim Collins

- Distinguished Professor, Boston University
- Founding Faculty, Wyss Institute, Harvard University
- Investigator, Howard Hughes Med. Research Institute



Ph.D. (Oxford)
B.A. (Holy Cross)
Profile (BU): [LINK](#)
Profile (Harvard): [LINK](#)

Appendix 2: OPC Bioventures Founders



Denver Dale, Ph.D. is the Founder and CEO of On-Point Capital LLC, an investment management firm that provides specialized investment services to a select group of significant investors. In this capacity, Denver sets overall strategy for the firm and leads investment platform design, development and execution. In addition, Denver leads the investor relations- and business development teams.

OPC is in the process of launching a series of expert venture capital funds focused on investing at the intersection of Synthetic Biology and major industries such as Energy-Resources, Agriculture-Food, Industrial Chemicals-Materials, Water-Environment and Medicine-Healthcare. OPC's venture investment platform has been carefully designed to provide investors with an expert vehicle through which to both support and participate in the enormous human- and economic potential of Synthetic Biology.

Prior to forming OPC, Denver founded and led an elite investment unit within Goldman Sachs & Co. directly managing more than US\$4 billion on behalf of a number of significant investors. In addition, Denver has been the founder, CFO and director of several technology-enabled businesses where he designed/managed global operations, investor relations, client services and business development.

Denver has a Ph.D. in biomedical sciences from Oxford University and a B.Sc. (Hons) in medical, marine and evolutionary biology from the University of Queensland, Australia. His detailed profile can be found at <http://www.linkedin.com/in/denverdale>



Professor Jim Collins is a founding Core Faculty Member and Platform Lead, Anticipatory Medical and Cellular Devices at the Wyss Institute, Harvard University. Jim is developing innovative ways to reprogram organisms, particularly bacteria, to perform desired tasks, such as attacking tumors and guiding development of stem cells. These programmed bacteria could lead to cheaper drugs, greener fuels, and more effective treatments for antibiotic-resistant infections and diseases. The work is part of the new field of synthetic biology, which Jim founded by combining science and engineering to construct biological circuits that can program organisms, much like we program computers now. He is also a pioneer in systems biology, stochastic resonance, biological dynamics, and neurostimulation, with the goal of improving the function of physiological and biological systems. His research has led to a new class of medical devices, such as vibrating insoles that provide sensory enhancement stimulation to the feet of the user. His team at the Wyss is developing these insoles for a variety of purposes, such as improving balance among elderly users.

At Boston University, Jim is a William F. Warren Distinguished Professor, a University Professor, Professor of Biomedical Engineering, Professor of Medicine, and Co-Director and Co-Founder of the Center of Synthetic Biology. In 2008, he became the first Boston University faculty member to become a Howard Hughes Medical Institute Investigator. His many awards include a MacArthur "Genius Award," a National Institutes of Health Director's Pioneer Award, as well as numerous teaching awards. He has been named to the Technology Review list of top 100 young innovators and the Scientific American list of top 50 outstanding leaders in science and technology. Jim is also an elected member of the National Academy of Engineering, the American Academy of Arts & Sciences, the Institute of Medicine of the National Academies, and the National Academy of Inventors. He chairs the Scientific Advisory Board (SAB) of Sample6 Technologies and EnBiotix, and serves on the SAB of Joule Unlimited, Selventa, Seres Healthcare, LifeWave Ltd, Ensof, and Synreca Pharmaceuticals.