



DESTINATION STARTUP

New Iridium, LLC

One-Sentence Summary of What You Do: New Iridium's platform of organic photoredox catalysts is the key enabler of next generation chemical manufacturing with photoredox catalysis that accelerates pharma drug development, reduces drug manufacturing costs and provides similar time and cost savings for chemical processing across many industries including plastics, agrochemical, energy and more.

Affiliated Institution: University of Colorado Boulder and Colorado State University

Have you formed a company yet? Yes

Funding/Financing: Grant Funding, Angel Funding (including Self or Friends/Family)

Please describe your company and the problem you are trying to solve: New Iridium designs and manufactures a scalable, high- performance platform of metal- free (organic) photoredox catalysts (PCs) to empower the next generation of chemical manufacturing. Photoredox catalysis is an emerging technology promising significant advances over conventional heat- driven chemistry. But today this powerful technology is constrained by PCs that cannot scale beyond R&D applications. Precious metal PCs perform well but are expensive and scarce. Other organic PCs require high catalyst loading resulting in reduced yields. In either case they are not feasible for industrial use. Existing PCs also have narrow reactive ranges further limiting application scope.

Our patent- protected platform of metal- free PCs can be produced economically from abundant elements enabling photoredox technology to scale to industrial applications far beyond limited R&D usage today. In addition, the platform's broad redox reactivity supports an expanding repertoire of new chemical reactivity largely inaccessible via conventional methods. These dynamics will lead the disruption of conventional chemistry by photoredox catalysis empowered by our PC platform. Product/market fit has been validated via market testing with a leading distributor of R&D chemicals.

Pharmaceuticals have been selected as the beachhead customer due to pain points including prolonged development cycles and high development costs, and because they are early adopters of photoredox technology. They are keenly interested in accelerating drug development and shrinking time-to-market to achieve competitive advantage, reduce development costs, and maximizing ROI. Our innovation delivers these results. Market penetration will naturally proceed from drug development to manufacturing as our solution scales to deliver massive cost reductions in drug production.



DESTINATION STARTUP

What is/was your go-to-market strategy? Catalysts for chemical processing represent a third of the \$20.4B global market for industrial catalysts, yielding a TAM of \$7B with 7% CAGR. The pharma beachhead accounts for 10% or \$700M SAM.

Our initial market focus is to accelerate pharma drug development. Pharma is under continual pressure to create new blockbuster drugs, yet lead times exceed ten years and costs \$3B/drug. Pharma has made significant investments in photoredox with some having over 100 scientists actively working with it. Our platform of metal-free PCs provides broad redox reactivity enabling unprecedented new reactions, which shortens time-to-market and reduces costs by cutting down synthesis steps. Because precious metal PCs do not scale beyond R&D usage, pharma is actively searching for alternatives to achieve significant cost reductions in drug manufacturing. Market penetration will proceed to drug manufacturing as our patented high-performance metal-free PCs provide the only scalable solution. A central component of our GTM strategy is ensuring early customer success by providing expert assistance and knowledge transfer on catalysts, chemistry and reactors for joint development and pilot programs.

We market tested our MVP organic PCs through distribution with MilliporeSigma (formerly Sigma-Aldrich), a leading distributor of R&D chemicals. Product uptake and pricing has been validated by purchases from pharmaceuticals and universities across the globe. Pharma customers have commented that our organic PCs can “access new reactivities” and “worked better than precious metals.” Key differentiators of the New Iridium PC platform compared to precious metals include scalability, broad redox reactivity, cost-effective, sustainable and environment friendly.

How will/do you generate revenue? The basic business model is to license the IP from CU Boulder, manufacture and sell the organic PCs to enable photoredox catalysis on an industrial scale. Revenue generation is straightforward as this is a traditional manufacturing model. Products will be marketed to pharmaceutical customers at substantial discounts to the benchmark umbrella prices set by precious metals, but with healthy margins commensurate with costs at a given production level, plus royalties for patent licensing, overheads and ROI. R&D quantities (under 100g) will be handled exclusively by our channel partner, while we will focus on large industrial scale sales (multiple kgs).

As an example, our exclusive channel partner lists iridium PC at about \$1,200/g for R&D quantities. Our organic PCs are priced at \$1,050/g reflecting the costs to produce organic PCs at small quantities (e.g. 20g). With improved synthetic routes (process chemistry) and scaled production (chemical engineering), our organic PCs can ultimately be offered at \$50/g or less for industrial scale demand while keeping healthy profit margins. This price for industrial quantities has been validated via customer discovery.



DESTINATION STARTUP

How will this showcase benefit your company or technology?

We are seeking VC seed funding of \$2M to execute our go-to-market strategy. Funds will be used for business development and marketing, establishing an Innovation Center that will be the centerpiece of our joint development and pilot initiatives, building out our metal-free PC platform, executing our IP strategy for domestic and international patent and/or license protection on internal or outside discoveries.

We are probably too early for strategic partners, but it never hurts to start establishing relationships as it does with any capital provider. We are always on the lookout for top talent, but it will not be a primary focus for us at this event. Our team is growing in line with available funding.

Who are the members of your team and why is this the right team to get the job done?

- Chern-Hooi Lim (Ph.D. ChemEng, CU) Founder and CEO — Chern is co-inventor of this technology and a former NIH F32 Postdoctoral Fellow at CSU. He is a passionate entrepreneur winning his first pitch contest as an undergraduate and participating in several university startup accelerator programs prior to starting New Iridium.
- Brent Cutcliffe (MBA) Co-Founder and COO — Brent has 10 years' experience in C- suite and high- growth startup roles with a background shaped by leading business consulting firms. As co-founder and CIO of his prior startup he helped secure seed funding, reach \$10M revenue and achieve designation on Denver Business Journal's 'fastest growing' list.
- Garret Miyake (Ph.D. Chemistry, CSU) Co- Founder and Science Advisor — As a tenured professor Garret leads a research team at CSU (formerly CU). He has fostered the commercial success of several scientific technologies.
- David Boston (Ph.D. Chemistry, UTA) Lead Scientist — David's dissertation topic was focused on photochemistry and he has more than six years of post- graduate degree experience in analytical, inorganic, organic, and photo- chemistry.
- Mei Khoon Foo (B.Sc. Business) Fractional CFO — Mei is a Senior Consultant with Deloitte with over seven years implementing financial solutions for Fortune 500 companies.
- MilliporeSigma will act as our exclusive channel partner for co-marketing and distribution for R&D quantities. We are not planning to sublicense, and we will develop local production capacity. We have retained Berg Hill Greenleaf Ruscitti for IP and corporate matters.
- This team has the necessary scientific, startup, and management skills to make this venture a success.