



DESTINATION STARTUP

PurCell Bio, Inc.

One-Sentence Summary of What You Do: PurCell Bio is developing a line of chemically defined, complete serum replacements specifically designed for individual cell types. These supplements minimize variability of results and eliminate contamination potential associated with serum and animal derived protein use. They support cells as well or better than serum and are similar in price.

Affiliated Institution: Montana State University

Have you formed a company yet? Yes

Funding/Financing: Grant Funding, Direct/Indirect University Support, Venture Capital, Other

Please describe your company and the problem you are trying to solve: Application of fats and other insoluble (hydrophobic) nutrients to cultured cells has traditionally been accomplished using animal or human sera. Nutrient contents of serum, and its carrier protein serum albumin, are variable by donor, and largely unknown. More importantly, animal derived products like serum and serum albumin are known carriers of viruses, prions, toxins, and bioactive molecules that can profoundly affect cells in culture. Alternatives to serum are expensive, and most contain serum albumin, which introduces the same issues, necessitating costly testing, and disqualifying many promising therapies from clinical trial or FDA approval. A practical and complete replacement that contains all of the hydrophobic nutrients necessary to support specific cell types in culture, without unknown contents and contaminants, has remained elusive. PurCell Bio, Inc. (formerly OptimaLabs, Inc) is a new venture, developing research conducted by Dr. Elizabeth Corbin. The research has yielded chemically defined, non-toxic methods of solubilizing fats and hydrophobic nutrients for media supplementation, and has returned data indicating that different cell types react very differently to specific hydrophobic nutrients. Through experimentation with specific cell lines, PurCell Bio has developed chemically defined, cell-type specific lipid supplement mixes that rival and exceed cell proliferation results using serum. U.S. Provisional Patent Application No. 62/943,361 is currently being converted to protect these compositions, and solubilizing methods remain a trade secret. Supplements are similar in cost, and support cells better than serum. Optimization and further development will supplements for all major cell types, eliminating the need for serum, a \$1.8B industry.

What is/was your go-to-market strategy? The 1.8B serum market is expanding slowly (CAGE 6%). It is plagued by increasing contamination and prion disease in cattle, inflating prices. Shortages are anticipated, and no amount of purification can insure the absence of animal-borne disease. Substitutes have not sdequately addressed the complete and diverse needs of individual cell types, resulting in “one size fits all” serum alternatives that are expensive, incomplete, and do not support



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cell growth as well as serum. PurCell Bio supplements (Pur supplements) are complete, chemically defined, and grow cells up to 60% better than serum. As the advantages of these supplements are discovered, Pur supplements will quickly replace serum use entirely - one cell type at a time. Initially, prototype supplements will be dispersed to current research colleagues in academia, who will provide valuable feedback and publish their results, producing excellent, free, targeted exposure to a wide audience (see letters of support). We aim to exhibit at the next in-person biotechnology conference, with samples and MTA's in hand. This will provide broader exposure, initiate sales, and facilitate additional market research. This will support commercialization efforts and development of the next generation of supplements. As Pur Supplements enable new technologies, like stem cell and exosome therapies, to reach the market, the market itself will grow rapidly. PurCell Bio will maintain academic research collaborations providing chemically defined nutrients for research, applying supplements to diverse cell experiments, and continually improving our products. In this way, PurCell Bio will continue to facilitate the dynamic field of biotechnology.

How will/do you generate revenue? Revenue will come from sales. Currently researchers and cell based manufacturers must develop chemically defined media themselves, or purchase expensive alternatives and add growth factors and other expensive components. These do not support the proliferation of cells as well as serum, and often require constant replenishment of cell populations because "serum free" supplements do not support cells well over time due to lack of essential nutrients or presence of inappropriate nutrients. As each manufacturer or research organization uses different means of production, more variability is introduced. Typically, "serum free", "xeno'free", and other substitutes for serum cost 2-5 times what serum costs per liter of media supplemented. Many still require serum, at lower concentration (e.g. 2% instead of 10%). Most substitutes are not chemically defined, and so do not offer elimination of contamination issues. PurCell Bio's Pur supplements provide exactly what each cell type needs for optimum performance, without potential contamination, and with greatly reduced experimental results. These supplements can be produced and sold for a price comparable to serum, and eliminate downstream costs of contamination, contamination testing, and unreliable results. They improve results of other treatments such as reprogramming somatic cells to pluripotency (making stem cells), by eliminating competing signalling molecules not necessary for the specific cell type. As results and improvements in cell culture, vaccine production, drug testing, and biotechnology are realized, Pur supplements will become the gold standard for cell culture. Serum use will be a thing of the past, and sales will match our ability to produce.

How will this showcase benefit your company or technology? As a very small venture, PurCell Bio does not have the resources to hire professional grant writers, travel widely, or spend a lot of time reaching potential partners. This showcase bring a larger audience than those we have successfully done before. We anticipate needing about \$200,000.00 to finish the development and automation stage, and move into commercialization. Additionally, legal and accounting expertise, or resources for startups who cannot afford these fees, and must accomplish tasks in these areas



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would be very helpful. Stock or other equity options for payment are possible. PurCell Bio is a creative problem solving entity, and exposure of our capabilities may also bring partners from industry and academia who are interested in contracting with us to optimize supplements to solve their specific manufacturing and research problems. Collaboration will be an essential aspect of our continuing viability and competitive edge, and every interaction is the seed of a potential breakthrough.

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

- Dr Elizabeth Corbin, CEO — Dr Corbin is the inventor of the supplements, and founder of PurCell Bio. Pur supplements began as an effort to enhance stem cell methods and quality. As she discerned the issues of serum for cells that may be used by humans, development of the processes and protocols used in production of resulting in Pur supplements became her primary objective. Dr Corbin has extensive business education and experience, as well as a PhD. in biochemistry.
- Dr Renee Reijo-Pera, advisor — Dr Reijo-Pera Dr Corbin's graduate mentor at Montana State University, where she recognized the potential for application of individual lipids to neural stem cell differentiation. Currently Vice President of Research at California Polytechnical Institute, Dr. Reijo-Pera brings world-class knowledge of stem cells, cell development, and the world of academia and publishing to PurCell Bio. She is also a collaborator, ready to receive supplements for use in her lab.
- Dr Edward Dratz, advisor — Dr Dratz was co-mentor during Dr. Corbin's work at MSU. Dr Dratz is an expert in cellular metabolism and bioanalytics. He advises PurCell Bio methods and analysis of results of supplements on cells including chromatographic analysis and mass spectrometry, and is a liaison between PurCell Bio and MSU.
- Mr David Walters, board member, collaborator. Mr Walters is a seasoned financial and entrepreneurial expert, and provides PurCell Bio with reliable guidance in financial and contract matters.
- Next Frontier Capital, investor collaborators from Montana to Puerto Rico are excited about Pur supplements, and the list grows.