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WASHINGTON, DC 20010

The Good Food Institute's (GFI) Research Program  
Competitive Grants Program

## Clean Meat Priority Area

2018 Request for Proposals (RFP)

Proposals Due: Wednesday, November 21, 2018 by 5:00 pm EST

## Executive Summary

The Good Food Institute (GFI) is a nonprofit that serves as a think tank for the plant-based and clean meat industries. Our team of scientists, entrepreneurs, lawyers, and policy experts is focused on using food innovation and markets to answer the question: How can we feed the world's growing population with safe and healthy foods produced through systems that do not negatively impact people, animals, and the planet? We focus on accelerating research, development, and the path to competitive commercialization for two promising solutions to this question – namely, plant-based and clean meat.

GFI and its Science & Technology Team specifically work to catalyze and accelerate research and development to improve the quality, price, and accessibility of plant-based and clean meat. GFI's scientists are the global experts in this sector and work to ensure that roadmaps exist for plant-based meat and clean alternatives; that the best scientists are engaged in plant-based and clean meat R&D; and that significant funds are directed toward scientific endeavors to create a food system based on plant-based and clean meat that can deliver high-quality protein in ways that are good for human health, animal welfare, and the environment.

To that end, GFI has established a competitive research grants program funded through our GFI Research Program, made possible by the generous donations of supporters of the plant-based and clean meat industries. This competitive funding program will serve as a critical strategic step for advancing the fields of plant-based and clean meat by making possible essential research designed to solve many of the challenges facing these industries and create open and novel tools for the development of appetizing, affordable, and accessible plant-based and clean meat products.

**This specific request for proposals (RFP) is exclusively focused on clean meat research.** Please see the [plant-based meat RFP](#) for research projects focused on that priority area.

To provide feedback on this RFP or to clarify any of the information presented within, please contact GFI's grant management team at [research\\_grants@gfi.org](mailto:research_grants@gfi.org).

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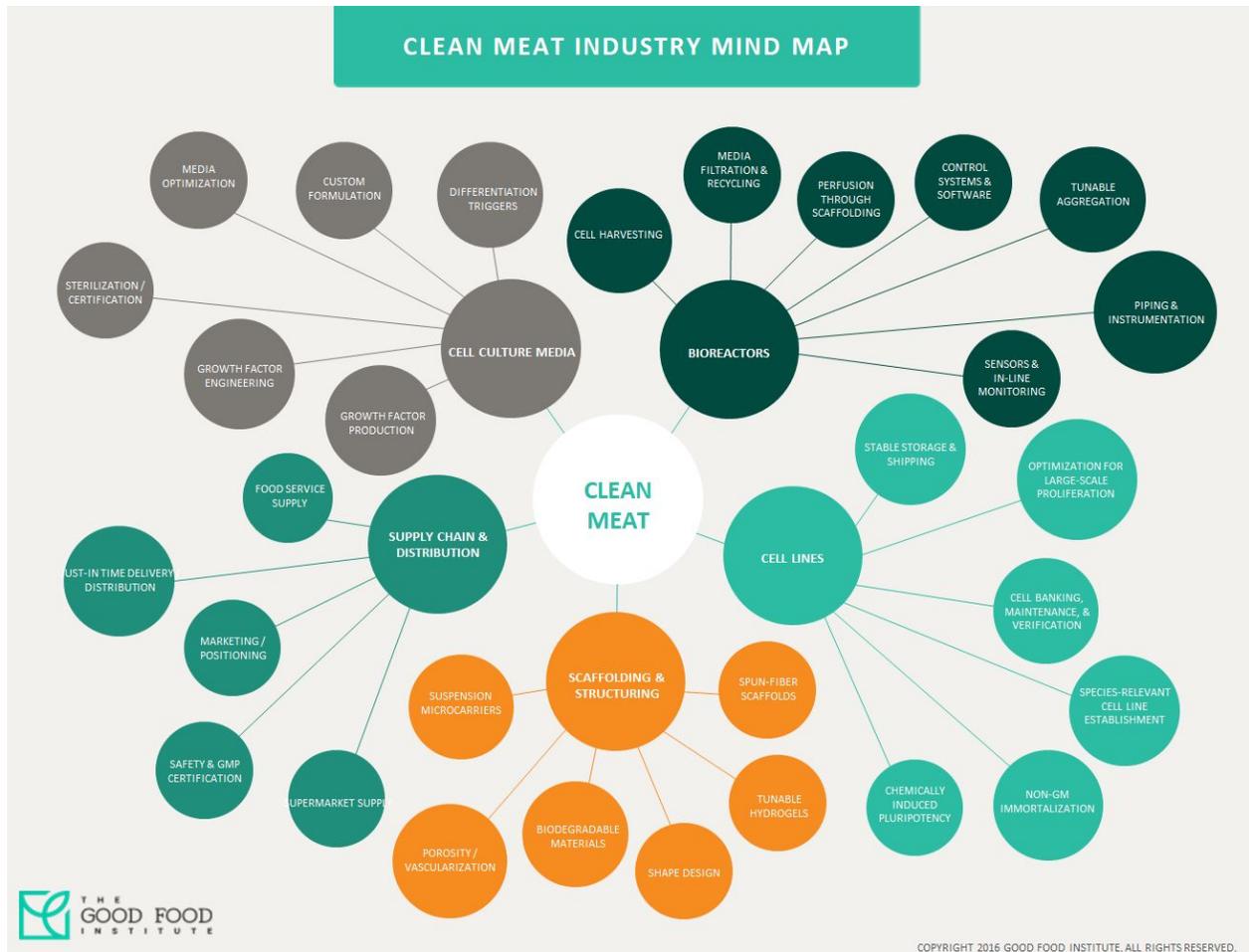
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## **Funding Opportunity Description**

Clean meat (also called cultured meat or cell-based meat) is genuine animal meat that can replicate the exact sensory and nutritional profile of conventionally produced meat. Clean meat is comprised of the same cell types arranged in the same three-dimensional structure as muscle tissue in animals, but clean meat is produced without the need to raise and slaughter whole animals. The process is inherently much more efficient than conventional production methods because resources and inputs are not being expended to grow parts of the animal that are not consumed. Furthermore, clean meat eliminates the need for massive amounts of crops to be grown and fed to livestock, only a small fraction of which are converted to meat as the vast majority are expended through the animal's metabolic processes.

The idea of clean meat has been contemplated for nearly a century, but only in recent years have tools been developed that enable the earnest pursuit of clean meat at commercial scale. Clean meat relies on advances in cell culture and tissue engineering — which have thus far been utilized for biomedical applications like cell therapy and organ implants — to directly grow the types of cells that comprise meat. All of the essential cell types that constitute meat — muscle cells, fat cells, and connective tissue cells — can be grown outside the body of an animal in controlled, enclosed environments. Clean meat production involves collecting a small number of animal cells from an agriculturally relevant species (cow, pig, chicken, turkey, fish, etc.) and proliferating them in a bioreactor where they are fed a nutrient medium to supply them with the ingredients they need to survive. The cells then undergo a differentiation process during which they mature into the muscle cells, fat cells, and connective tissue cells that make up meat.

Clean meat has yet to be commercialized. The first clean meat prototypes have been produced only in the past five years. The primary technological challenges currently facing the clean meat industry include developing and optimizing agriculturally relevant cell lines, cell culture media, scaffolding, and bioreactors. The clean meat industry mind map (Figure 1) illustrates these main areas for development. While they are displayed as discrete areas to facilitate visualization, each of these areas is closely intertwined. Thus, rapid advancement of the industry as a whole requires concerted communication among researchers and companies conducting development in different areas of this conceptual map.



**Figure 1. A conceptual mind map illustrating the primary elements for development and production of clean meat at large scale**

This funding opportunity will support research to address technical challenges in one or more of the areas depicted in the above mind map.

Specific areas of interest include but are not limited to:

- Development of simple and low-cost methods for generating stable cell lines for agriculturally-relevant species and maximizing the growth efficiency of these lines
- Optimization of cell culture media formulations and media monitoring and recycling systems
- Design of edible scaffolding materials to facilitate the production of thick cuts of meat
- Creation of scalable culturing platforms that enable growth and differentiation of multiple cell types (muscle, fat, etc.) simultaneously

All project proposals should be developed with an eye toward accelerating the commercialization of appetizing and affordable clean meat products using materials, processes, and technologies that require

minimal natural resource and energy utilization and that can be scaled to commercially relevant volumes.

For researchers who are working at the intersection of plant-based and clean meat research – for example, through the development of plant-based scaffolds that could be used in clean meat products – we invite you to email [research\\_grants@gfi.org](mailto:research_grants@gfi.org) so that we can discuss with you whether your proposal should be submitted to the plant-based meat RFP or the clean meat RFP.

The following types of projects will NOT be considered:

- Human research and/or clinical trials
- Consumer acceptance and/or market research studies
- Research that solely benefits one specific company or organization with no applicability to the overall clean meat industry
- Research leading to proprietary outcomes that cannot be openly shared

Proposals involving animals are not likely to receive funding. If animal use is absolutely essential for the research (for example, for initial cell harvest) and all alternatives have been thoroughly examined and exhausted, we will consider these proposals in strict adherence to the Three Rs (reduce, refine, replace).

## **Eligibility Information**

Applications submitted from any sector (academia, government, industry, nonprofits, etc.) and from around the world will be considered. Based on GFI's foundational mission to support the entire clean meat industry, the purpose of this program is to support research that will be made available and accessible to benefit the clean meat industry and global society as a whole. Therefore, all findings, protocols, and tangible materials generated through research supported by this program will be published under the Creative Commons Attribution 4.0 Generic License (CC BY 4.0, <https://creativecommons.org/licenses/by/4.0/>) or similar license. Whenever possible, materials and protocols will be deposited into existing databases or collections (cell culture collections, plasmid databanks, public data sets, etc.) for ease of accessibility. Exceptions to this standard approach will be limited and accepted only in special cases where alternative terms are negotiated and agreed upon by GFI and the applicant in writing prior to release of any grant funds. GFI reserves the right to withdraw acceptance of a proposal if the potential grantee insists on intellectual property rights in the research that are not acceptable to GFI.

Students at the undergraduate, graduate, or postdoctoral levels may serve as the lead investigator on a project proposal, provided that the project proposal is accompanied by a brief letter of support signed by a faculty member at the student's higher education institution stating his or her commitment to serve as a project collaborator and advisor and allowing the proposed research to be carried out in his or her laboratory.

## Award Information

Proposals should include research goals that can be achieved in two years or less from the funding start date. The earliest anticipated start date for projects funded through this RFP is January 21, 2019. Ideally, projects will begin no later than March 2019, although in special circumstances researchers may obtain approval to begin projects at a later date. The latest acceptable start date is May 31, 2019. Total budgets (including indirect costs) should be less than or equal to \$250,000. Indirect costs can be no more than 10% of the requested direct costs for projects submitted by researchers at academic institutions, government labs, and nonprofit organizations. No indirect costs may be included in project budgets from researchers at for-profit companies.

In special cases, GFI may permit project durations longer than two years and/or budgets greater than \$250,000. Applicants who want to propose a project requiring an extended timeframe and/or increased budget must contact GFI's grant management team at [research\\_grants@gfi.org](mailto:research_grants@gfi.org) *before* submitting their proposal to discuss the need for additional time and/or funding. GFI will then decide whether or not to allow an exception to the 2-year, \$250,000 limits and will inform the applicant in writing of the decision.

## Proposal Requirements

Format: Times New Roman 12 pt. font, single-spaced, 1-inch margins

Language: All proposals must be written in English.

Part 1 (**1-page limit**) should include:

- Project title
- Lead researcher name, title, affiliation, and contact information
- Other project collaborators' names, titles, affiliations, and contact information
- Project summary (max 250 words) that describes the purpose of project and what will be accomplished

Part 2 (**5-page limit** for text, tables, and figures) should include:

- Brief background for the project, including its significance and relevance to the clean meat industry (i.e., direct commercial relevance) and why the proposed research is novel and innovative
- Specific aims, objectives, or hypotheses
- General methodology and techniques to be used to achieve the aims
- Expected results and outcomes, including potential next steps resulting from the proposed research
- Plan for sharing project protocols, data, results, and/or research tools and materials with the larger scientific community

Part 3 (**2-page limit**) should include:

- Bibliography of works cited in Part 2

Part 4 (**2-page limit**) should include:

- Anticipated project budget, listed as direct costs, indirect costs, and total amount requested
- Budget justification by expense categories (laboratory supplies, stipends, subcontracted work, facility usage fees, etc.)
- Project timeline including anticipated start and completion dates for main project activities with significant milestones and deliverables throughout the project

Part 5 (**2-page limit**) should include:

- Description of study team members' areas of expertise, qualifications for carrying out the proposed research, and estimated percent effort that will be contributed to the project
- Summary of any equipment and core facilities to be used
- For projects with a student or postdoc as the lead investigator, a signed statement of support from the faculty advisor should be included as an additional attachment to Part 5

All five parts should be combined into a single PDF for submission. The final combined file should be a maximum of 12 pages (13 pages for student- or postdoc-led proposals).

### **Submission and Award Notification Timeline**

All applicants with eligible proposals are invited to submit a proposal by 5:00 pm EST on Wednesday, November 21, 2018. No proposals will be accepted after this time for any reason. Additional details about the content and format requirements for proposals can be found below. All proposals should be submitted via email as a single PDF to [research\\_grants@gfi.org](mailto:research_grants@gfi.org). All applicants will be notified of a funding decision no later than December 31, 2018.

Any questions related to the RFP or submission of proposals should be submitted to [research\\_grants@gfi.org](mailto:research_grants@gfi.org).

### **Review Process**

All submitted proposals will first undergo review to determine whether formatting guidelines and page limit requirements have been met. Each proposal that passes this initial review will undergo scientific review to determine its suitability for the scope and purpose of this RFP. All proposals at this stage will be evaluated by at least three reviewers. A review committee comprised of GFI scientists and external reviewers (scientists not employed by GFI) will participate in the evaluation of proposals and determination of awards based upon the evaluation criteria noted below.

GFI reserves the right to negotiate with project leaders regarding any of the content within their proposal including project aims and scope, budget, and timeline prior to making any final funding decisions. All decisions made related to funding, project duration extensions, and budget increases shall be made in the GFI review committee's sole discretion and may not be appealed.

## **Evaluation Criteria**

Proposals will be evaluated using the following criteria:

- Likelihood of advancing or accelerating the clean meat industry
- Uniqueness of idea
- Feasibility of project goals
- Plan for sharing project protocols, data, results, and/or research tools and materials with the larger scientific community
- Suitability of project team to successfully carry out project goals
- Realistic timeline and budget for proposed project goals
- Clarity, soundness, and logic of written proposal
- Total funding available within the GFI clean meat competitive grant program

We recognize that our requirement for proposals to be written in English means that many researchers may be writing in a non-native language. This will be taken into consideration when we are evaluating the clarity of the written proposal and will not penalize researchers who may be writing in a second or third language.

## **Award Administration**

Prior to disbursement of any funding, the lead researcher, faculty advisor (if lead researcher is a student or postdoc), and university official (if required) must sign a memorandum of understanding with GFI to ensure that both parties are in agreement regarding the use of the grant award. The memorandum will detail the award specifics as well as the requirements for award recipients (see below).

For projects that will be completed in 12 months or less, the entire project budget will be disbursed prior to the project start date. For projects that will be completed in more than 12 months, the budget required for the first 12 months will be disbursed prior to the project start date. The remaining budget will be disbursed once the awardee has successfully completed any midterm reporting requirements (see below).

Proposals that are accepted by GFI and that result in the granting of funds will have the following information made public: the project title; project summary; project team members' names, titles, and affiliations; as well as other information deemed relevant by GFI, such as a description of the proposed project scope, purpose, and grant amount. Information within a proposal that applicants wish to remain confidential must be clearly marked as confidential, privileged, or proprietary within the proposal. GFI will hold this information in confidence to the extent permitted by U.S. law, but reserves the right to require removal of such confidentiality requirements as part of accepting the proposal and awarding funds if the proposal is otherwise accepted. For proposals that do not receive funding, GFI will release no details about the researchers involved or the content within the proposals. We may release anonymized aggregated statistics regarding the number of proposals received, the types of institutions they came from (i.e., public vs. private), and the countries of the researchers' home institutions, but no

identifying information will be included in these statistics. Applicants have the right to withdraw applications at any time by sending a request indicating their desire to do so to [research\\_grants@gfi.org](mailto:research_grants@gfi.org).

## **Requirements for Award Recipients**

Expectations of and specific requirements for award recipients will be explained in the award letter and separate memorandum of understanding that must be signed by authorized officials from both GFI and the grantee's organization prior to receipt of any funding.

The basic requirements include but are not limited to:

- Consent to be featured on GFI's website, blog, and social media with a short description of your project goal(s).
- Timely response to a phone call or email from a GFI scientist every 3 months to provide brief information regarding project progress, results, and any technical challenges that have arisen.
- A brief written update (no more than 2 pages) on project progress at least every six months for projects that are 12 months or longer. For projects that are less than 12 months, a brief written update will be required at least halfway through the project's duration.
- A written summary (no more than 4 pages) outlining the project outcomes, potential next steps, and final expense report for how funds were utilized must be submitted within 30 days of the conclusion of the project. This summary should also include instructions for accessing data or obtaining research materials generated from the project. For example, if the project resulted in a newly created cell line, where was that cell line banked and how can it be accessed by other researchers? If a new protocol was developed, where can be accessed (or have the researchers shared it directly with GFI)? If a new technology or research tool was created, how can other researchers find and utilize it?

Thank you for your interest in the GFI Research Program's Competitive Grants Program. Please email any questions related to the Program or this RFP to [research\\_grants@gfi.org](mailto:research_grants@gfi.org).