2023 ACS GCI Pharmaceutical Roundtable Ignition Grant Program for Green Chemistry and Engineering Research

The need for green and sustainable chemistry for use in the pharmaceutical and allied chemical industries is increasingly critical as we face the environmental challenges of the twenty-first century. Unfortunately, available funding to support research for the kind of innovative and sustainable solutions required has not kept pace with this need. In addition, it is often very difficult to receive funding for ideas without preliminary results, while obtaining preliminary results will indeed require funding. The ACS Green Chemistry Institute Pharmaceutical Roundtable (GCIPR) is seeking to provide 'ignition' funding for novel and innovative ideas that have the potential to provide sustainable solutions to chemistry and engineering problems relevant to the pharmaceutical industry from discovery to manufacturing. The goal is to provide researchers with initial funding to obtain preliminary results that may then be used by the researchers to help apply for funding from traditional funding agencies.

The ACS GCIPR will provide $40,000 in 'ignition' funding for accepted proposals. Proposals on any chemistry or engineering topic relevant to green and sustainable discovery and manufacture of pharmaceutical products will be considered; however, a list of key green chemistry and engineering research areas has been previously published by the ACS GCIPR and represents areas of particular interest.[i] Proposals must be limited to three pages, one of which is a title page. The proposal should focus on the objectives, specific aims, investigations planned and brief discussion of why the proposed chemistry will be more sustainable than the current state of the art. A very brief description of the budget and timelines should also be included. The following sections should **not** be included in the proposal: abstract, background, references, current funding, facilities description, collaborations/IP considerations. Once a proposal is selected to receive funding, more details on some of the above items may be requested. The proposed research must not be currently funded by any private or public grants.

Deadline for receipt of proposals is May 15, 2023, at 5 p.m. EDT (GMT-4). Proposals not received by the deadline will not be considered. Submissions must be a single PDF file submitted to gcipr@acs.org. We will notify the PI by **September 1, 2023** of the decision**.** We expect research to commence in the principal investigator's lab upon transfer of funds (**October 2023**) and for the work to be completed within 6 months of that date.

Requirements for Submission:

Proposals will only be accepted from public and private institutions of higher education. The grant is not limited to institutions in the United States. Proposals must be submitted in our application portal https://gci.acs.org through the appropriate institutional office for external funding. For international submissions, if there is no comparable office, submit a PDF of a letter signed by an appropriate university official recognizing the terms of the grant.

Project Goal:

Discovery of new sustainable and green chemistry and engineering that has the potential to impact the pharmaceutical industry. Proposals should be highly ambitious and novel, with high risk of failure but high reward if successful.

Project Timeline:

It is expected that research will be completed within 6 months of the award.

Proposal Format:

Please be prepared to provide the following information in the application portal:

1. Name and email of grant officer
2. Name, title, phone, email and address of the Principal Investigator
3. Project Title
4. Research Group website
5. PDF of Proposed Plan of Work (2 pages, 12 pt font, 1-inch margins)
   - Objectives: Briefly state the project objectives
   - Project Approach: Include specific aims and investigations planned
   - Proposed milestone deliveries with brief description of the manner in which the researcher intends to achieve them
   - Brief description of the PI's research facilities and summary of the student's (undergraduate, graduate student and /or postdoc) capabilities to perform the proposed work
   - References (does not count toward your page limit)

   Note: The PI should list any existing background intellectual property and/or collaborations they are aware of that might limit the freedom to operate any of the results arising from any research funded by ACS GCIPR. The priority of the Roundtable is to encourage research utilizing reaction conditions that are commercially available with the freedom to use.

6. PDF of Detailed Estimated Budget: The total amount requested would include all direct costs, student assistantships, etc. The total award is limited to $40,000 for a grant period of up to 12 months.
   - Institutional overhead costs (indirect costs) are prohibited.
   - Post-doctoral associate salary and benefits are supported.
   - Student stipend and benefits are supported. Proposals for support of advanced graduate students are highly favored.
   - PI salary supplements will not be supported.
   - Laboratory supplies and instrument use charges are supported.
   - No funds may be allocated for travel, equipment purchase or repair, or administrative support.

7. Curriculum Vitae of Project Team Members: Please submit a curriculum vitae of each project team member (up to two pages per team member, combined into one document). This does not count toward your page limit.

Report Requirements/Additional Grants:

- A final comprehensive report including research outcomes and final budget is due one month after the end of the grant period.
    - The report must be submitted as a PDF file to gcipr@acs.org. The report will be shared with the member companies of the Roundtable.
    - If the research program is successful, the PI will be strongly encouraged to use the preliminary results to apply for larger research grants from traditional institutions. The PI may also apply for future funding from the ACS GCIPR but there is no guarantee of follow-on funding. The ACS GCIPR should be notified of any funding obtained by the PI based upon the preliminary results obtained through this ignition grant program.

Report Requirements

- Progress reports are due at one-month intervals from initiation of research and discussed in arranged monthly teleconferences.
- Reports are to include research milestones/significant outcomes, summary of progress to date noting any deviations from the proposal, and research plans for upcoming months.
- A final comprehensive report is due one month after the end of the grant period.
- Reports must be submitted as a PDF document electronically to gcipr@acs.org. Reports will be shared with the member companies of the Roundtable. In addition, the content of the report will be targeted for publication in a peer-reviewed technical journal. The paper will be co-authored by the principal investigator and student (s) performing the work with the guidance of member companies of the ACS GCIPR.

Intellectual Property, Publication Acknowledgement, and Terms of the Grant:

- The primary purpose of this grant is to publish research results and make information publicly available.
- Every patent, United States or foreign, that results from research funded (in part or in its entirety) by the ACS GCIPR Research Grant shall be immediately dedicated to the public, royalty free.
- Each publication prepared in connection with an ACS GCIPR Grant shall make acknowledgement in the following manner: "This manuscript was developed with the support of the American Chemical Society Green Chemistry Institute Pharmaceutical Roundtable (https://www.acsgcipr.org). The ACS GCI is a not-for-profit organization whose mission is to catalyze and enable the implementation of green and sustainable chemistry and engineering throughout the global chemistry enterprise and across the Society. The ACS GCI Pharmaceutical Roundtable is composed of pharmaceutical and biotechnology companies and was established to encourage innovation while catalyzing the integration of green chemistry and green engineering in the pharmaceutical industry. The activities of the Roundtable reflect its members' shared belief that the pursuit of green chemistry and engineering is imperative for business and environmental sustainability."

- Acceptance of an ACS GCIPR Research Grant will be conditional upon agreement by the grantee institution that in the event the PI is unable for any reason to conduct the research proposed, the funds, if previously paid by the Roundtable, will, upon demand, be returned in full to the Roundtable. Further, in the event the PI is unable for any reason to continue with the research after it has commenced, this grant will be terminated forthwith and the unexpended and unencumbered balance of any funds theretofore advanced shall be returned to the Roundtable.
- The grantee institution, by acceptance of this grant, provides assurance that support normally provided by the institution for research of the faculty member will not be diminished.

For additional information:
Website: www.acsgcipr.org Email: gcipr@acs.org

[i] Bryan, M. C.; Dunn, P. J.; Entwistle, D.; Gallou, F.; Koenig, S. G.; Hayler, J. D.; Hickey, M. R.; Hughes, S., Kopach, M. E.; Moine, G.; Richardson, P.; Roschangar, F.; Steven, A.; Weiberth, F. J. Key Green Chemistry research areas from a pharmaceutical manufacturers' perspective revisited. *Green Chem.*, **2018**, *20*, 5082-5103. **DOI:** 10.1039/C8GC01276H

Constable, D.J.C.; Dunn, P. J.; Hayler, J. D.; Humphrey, G. R.; Leazer, Jr., J. L.; Linderman, R. J.; Lorenz, K.; Manley, J.; Pearlman, B. A.; Wells, A.; et al. Key green chemistry research areas—a perspective from pharmaceutical manufacturers, *Green Chem.*, **2007**, *9*, 411-420. **DOI:** 10.1039/B703488C

Jimenez-Gonzalez, C.; Poechlauer, P.; Broxterman, Q. B.; Yang, B-S., am Ende, D.; Baird, J.; Bertsch, C.; Hannah, R. E.; Dell'Orco, P.; Noorman, H.; et al. Key Green Engineering Research Areas for Sustainable Manufacturing: A Perspective from Pharmaceutical and Fine Chemicals Manufacturers, *Org Proc. Res. & Dev.*, **2011**, *15*(4):900-911. **DOI:** 10.1021/op100327d