

MSU-MDG Pilot Grants

Application Due Date: Friday, September 15, 2023 at 5:00 PM

The Michigan State University Molecular Discovery Grants (MSU-MDG) have been established through [MSU Drug Discovery](#) in the Department of Pharmacology & Toxicology to provide pilot funding¹ ***to accelerate the discovery and development of chemical technologies*** with applications for human health, animal health and agricultural use (max \$30,000; average: \$10,000-15,000). The primary aim of these funds is to advance projects toward extramural funding or to the creation or development of intellectual property, commercialization, and clinical application.

Specific goals include:

- Assisting investigators in advancing their programs in the early phases of the discovery process with long-term commercialization in mind.
- Supporting early activities (e.g. screening) not readily funded by other sources.
- Providing additional data to support extramural grant applications.
- Aiding in the discovery or development of intellectual property.
- Accelerating therapeutics or diagnostics development toward clinical implementation.

The funds come from the College of Osteopathic Medicine and the College of Human Medicine with matching support from the VPRI. In most cases, the funds (at least 90%) should be used to support work done in the MDG Core facilities (Assay Development and Drug Repurposing Core (ADDRC), Medicinal Chemistry Core, and/or In vivo Facility). ***Other activities that can substantially advance later stage progress in drug development will also be considered.***

1) Examples of the specific types of projects that are envisioned include grants for:

- high throughput assay development
- chemical tool/probe development for target validation
- the purchase of commercial compounds for early structure activity relations (SAR) analysis
- synthesis of analogs for more advanced SAR development*
- development of optimized linker chemistry for antibody-drug conjugates (ADCs) or theranostics
- re-synthesis/scale-up of small molecule hits and leads
- liver microsome drug stability and metabolism screening; *in vivo* pharmacokinetics studies
- exploratory, non-GLP tolerance/toxicity studies
- *in vivo* efficacy testing of novel therapeutics or diagnostics

* For the 2023 cycle of MDG grants, no new chemical synthesis work can be requested due to staff being overloaded in the Med Chem Core. Proposals for resynthesis or scale up may be considered. Please contact Dr. Edmund Ellsworth.

New opportunities

- screening with expanded compound libraries through the University of Michigan Center for Chemical Genomics
 - Dart collection of 85,000 compounds with enhanced CNS penetration
 - DNA encoded library screening (Chem-X > billion compounds) for biochemical target engagement
- External CRO assessment of later stage compounds for clinical candidate selection
 - CEREP/Safety47®-type target profiling and safety assessments
 - hERG, Ames, CYP inhibition/induction, etc.

Note: CRO studies should provide a substantial enhancement of the IP value and progress toward IND

The budget (max \$30,000) should be limited to that sufficient to accomplish a specific step needed to advance the project. At least 90% should be spent on core facility use or external contract labs. ***Investigators must obtain a formal quotation from the relevant core lab or external entity before preparing the budget.*** Allow sufficient time (2 weeks) for preparation of quotations. Special reagents or other materials needed within the PI's lab may be purchased but no salaries are allowed. Investigators should understand that additional experiments will not be added to MDG projects outside of what is quoted by the MSU DD director(s).

2. Eligibility

- All tenure-stream or fixed-term faculty members employed by Michigan State University are eligible to submit applications.
- A faculty member may be the PI on only one proposal per cycle.
- Co-investigators and collaborations are encouraged.

3. Evaluation Criteria

The primary goal of this pilot program is to advance toward commercial applications small molecule, biomolecule or conjugate discovery or development for specific biomedical, veterinary, or agricultural applications.

Successful applications will address the following points:

- Clearly outline the goal of the project.
- Describe how the proposed concepts, approaches, and/or methodologies are novel.
- Provide a compelling scientific rationale for the approach chosen.
- Describe how the strategy and methodology are appropriate to accomplish the specific aims of the project including IP development and projected product profile (commercial requirements and endpoints)
- Consider the liabilities/risks and how they can be mitigated.
- Explain how the project utilizes the MSU core laboratories.
- Describe how success in the project will lead to research funding, produce intellectual property (IP), or advance commercialization of existing IP.

4. Details of Proposal (5-page maximum - see application template document at <https://drugdiscovery.msu.edu/forfaculty/molecular-discovery-grants/> for details)

Include:

- Scientific background and significance
- Target project profile (a detailed description of the primary commercial application, if applicable – see template)
- Key work to be completed
- Plan for future funding or commercialization

5. Deadlines and submissions

- All applicants must make an initial contact with the appropriate facility director at least 4 weeks prior to submission (by August 18) with their intent to submit an application. You do not need to have your proposal completed by August 18 – just a notice of intent.
- **Application deadline Friday September 15, 2023, at 5:00 PM**
- Submit as a single PDF to RNeubig@msu.edu

6. Review Process and Awards

Proposals will be reviewed by a joint internal/external review panel representing expertise across multiple industries. All information in the proposal will be kept confidential. If a proposal is not accepted, the applicant(s) will receive feedback

and will have the opportunity to resubmit in the future. The review process is anticipated to be complete within four to six weeks. Funded proposals should expect funds to be available within weeks of award.

Contacts:

For budget quotations or information on the overall program, please contact the director (or staff) of the core that is most relevant to your project. If you are unsure, please contact Dr. Nichols.

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8. Reporting

- Mid-term progress report (one-page). Template for reporting will be sent to each awardee when the update is due. **(Note: all progress reports from previous awards must be submitted before applicants apply for another MDG grant).**
- Final report due 12 months after award date summarizing accomplishments, outcomes, publications, and any submitted grants. Any publications supported by these pilot grants should cite “Supported by MSU-Molecular Discovery Grant”
- Annual reports thereafter will be requested on outcomes including publications, grants, patents, etc.
- Reports submitted to DDProgram@list.msu.edu.