Access to the BioPACIFIC MIP platform is open to all researchers through a peer-reviewed, competitive proposal process.

- User proposals originate from researchers outside of UCSB and UCLA
- In-House research proposals originate from UCSB and UCLA researchers working on the In-House research program
- Local proposals originate from UCSB and UCLA researchers not involved with the In-House research program

All proposals will be reviewed for feasibility by the BioPACIFIC MIP technical team

User proposals, local proposals, and sample requests will be reviewed for merit by a rotating committee of BioPACIFIC MIP users from the broader community

In-House Proposals will be reviewed by the BioPACIFIC MIP leadership

BioPACIFIC MIP Proposal Content Guidelines

BioPACIFIC MIP Proposals should be uploaded as multiple PDFs, covering the items below:

(1) Project Description, including references, addressing the items below if relevant (up to two-pages):

Intellectual Merit and Synergies

1. Motivation
2. Project Description or Sample Request Description
3. Desired outcomes and relevance, including products
4. What work will be performed at your home institution(s) to support the proposed project?
5. Description of quarterly technical milestones
6. Material needs and characteristics (*Only required for Sample Requests*)
7. Adherence to the MGI Approach (*Only required for In-House Team proposals*)

Broader Impacts and Synergies

1. Knowledge to be contributed to the BioPACIFIC MIP community
2. Materials to be added to the BioPACIFIC MIP libraries (if any)
3. Data to be added to BioPACIFIC MIP databases
4. Collaborations with BioPACIFIC MIP Faculty/Staff/other (if any)
5. Collaborations with groups outside of BioPACIFIC MIP that may leverage the results of this work
6. Team, qualifications, and contribution to NSF/BioPACIFIC MIP diversity goals

(2) Two-Page NSF-style CVs for the Lead PI and Co-PIs.

External user proposals, UCSB/UCLA proposals, and Sample Request forms should be uploaded at https://biopacificmip.org/users/new.

Proposals should not include confidential information.

Merit Review

User and local proposals will be reviewed by an external committee via the form below. ***This form will be returned to the proposer without modification.***

☐ I certify that I have **NO** Conflict of Interest with this proposal
☐ I have a Conflict of Interest with this proposal. *Contact BioPACIFIC MIP immediately; do not complete review*

Conflict of Interest situations, per NSF guidelines. *1) Present or past Ph.D. Student or Advisor, 2) collaboration within the last 48 months, 3) co-editor within the last 24 months, 4) Any other circumstance where impartiality could be questioned. Reviewers are expected to self-disclose conflict of interest situations, and furthermore are expected to not disclose and benefit from non-public information.*

Intellectual Merit (IM) (potential to advance knowledge within the field or across different fields)
Does the proposal contain creative, original, or potentially transformative work, such as the development of new tools or methods?

Broader Impacts (BI) (potential to benefit society or advance desired societal outcomes)
Does the proposed work align with BioPACIFIC MIP and NSF program priorities for broader impacts including diversity goals?

Reviewer Score IM (1-5, 5 highest)	**Reviewer Score BI (1-5, 5 highest)**

Comments on IM and BI (required):

Synergistic Factors
1. Alignment of project scope with BioPACIFIC MIP focus.
2. BioPACIFIC MIP capabilities are critical to the success of the user project.
3. Level of user participation and commitment ensures project success.

Overall Synergies Rating: ☐ **Strongly Synergistic** ☐ **Synergistic** ☐ **Not Clearly Synergistic**

Explanation of Synergies Rating (required):

Scoring
5 Proposal is of high quality and must be pursued
4 Proposal is of good quality and access should be granted
3 Proposal is acceptable, and access should be granted at BioPACIFIC MIP's discretion
2 Proposal has minimal merit and access should be low priority; marginal scope; marginal equipment match
1 Proposal has little merit and access should not be granted; out of scope; not suitable for available resource

BioPACIFIC MIP Scope
Scalable production of bio-derived building blocks and polymers from yeast, fungi, and bacteria. Automated high-throughput synthesis and characterization of bio-derived polymers for accelerated discovery and development of new high-performance materials.

Research Plan and Feasibility

In order to assess the project scope and feasibility, applicants will complete a short-answer webform addressing the following questions. This information will only be reviewed by the BioPACIFIC MIP staff and is not part of the material provided to the external review committee.

Answers should not include any confidential information. This is not required for Sample / Data Requests.

Research Plan

- Portion of the BioPACIFIC MIP Platform to be used; specifying which resource is required for each project goal detailed in the Project Description
    - Equipment – including contextual questions for certain instrumentation (see below)
    - Materials/Data
    - Staff Engagement
- Requested access to shared facilities outside of BioPACIFIC MIP, if any
- What resources will be supplied by the applicant in support of this project, if any
- Safety Checklist (see below) including a brief description of any hazards
- BioPACIFIC MIP visit logistics
    - Personnel traveling to BioPACIFIC MIP
    - Desired timing for visit(s)
    - Desired duration for stay(s)

Safety Checklist

- Chemicals (MSDS rating of 4 in any category)
- Biological Hazards (biosafety level 2 or higher)
    - Recombinant DNA
    - Infectious agents
    - Select agents (listed on HHS select agent list)
    - Human or primate tissue or fluids
    - Other
- Radiological Hazards
- Nanomaterial Hazards
- Acute and/or Reproductive Toxins
- Controlled substances
- None
- Other

International Traffic in Arms Regulations (ITAR) or Export Administration Regulations (EAR)

- Does any of the work you plan on conducting at BioPACIFIC MIP have a defense related application or involve military inputs or outputs? More information at https://www.research.ucsb.edu/export-control/about

BioPACIFIC MIP Equipment Checklist and Scoping Questions

- Living Biofoundry (UCLA)
    - What is the projected scale or throughput of the project at a validation stage and the final stage? Please provide information relevant for estimating the required reagents and consumables.
    - After considering the proposed scale, is each step (measurement or manipulation) in the proposed workflow sufficient to avoid bottlenecks? Please consider all steps from input materials through to the final product or data.

    - Have sources or preparation methods been identified for all input reagents and materials consistent with the scale and form-factor required for automation?
- Robotic Synthesis Platform (UCSB)
- Flow Chemistry Suite (UCSB)
    - Provide an overall estimate of the amount of tool time you will need to accomplish the goals of your proposed experimental program.
    - Briefly describe the proposed experiments, including procedures.
    - Indicate the variables that will be explored with the flow chemistry suite. Explain the basis of your estimated tool time needs.
- Peptide Synthesizer (UCSB)
    - Describe samples that need to be prepared in order to complete this work. Indicate (i) the targeted mass yield and (ii) sequence length for each targeted product.
    - Briefly describe the proposed experiments for the synthesized materials, including procedures. What is the purpose of each targeted compound?
    - If predetermined, describe the coupling chemistry that will be employed.
- MicroED (UCLA)
    - Do you have data (electron microscopy or x-ray) showing your sample has crystallinity?
    - Have you previously acquired/processed microED data for these samples?
    - Are you trying to solve for one structure or a series of structures?
    - Has your structure been solved using x-ray or NMR techniques?
- Micro-rheology (UCSB)
    - What is the volume of your material?
    - What is the modulus range for your material, if known?
    - Are you interested in time dependent studies? Will you need to run time-lapses on the microscope?
    - Do you expect local variations in your samples, requiring need multipoint sampling?
    - Do you need any environmental control (temperature, relative humidity, or pH)?
- Xray (UCSB)
    - What is the length scale (size) range to be measured, i.e., qmin - qmax (SAXS and WAXS limit, respectively)?
    - What is the sample type (solid, liquid, powder, thin film, etc.) and the amount of sample available?
    - What is the geometry: normal transmission or grazing incidence?
    - Are there any environmental conditions required (temperature, atmosphere, flow, etc.) during measurement (for in-situ)?
- HPLC (UCSB)
    - For preparatory work, describe the samples, their quantity, and the overall scale of the purification.
    - Describe typical LC conditions including flow rates, column type, and eluent to be employed.
- Resin Printing (UCSB)
    - What volume of material is available for printing (mL)?
    - At what wavelength does your resin polymerize?
    - Do you need PDMS or FEP film substrates for the resin tank?
- Extrusion Printing (UCSB)
    - Is it possible to synthesize more than 0.1 mL of your starting material?
    - Does your object require a custom G-code (needed for delicate materials)?
    - Is your material difficult to clean (new nozzles will be needed for every print)?
    - What is the glass transition temperature (Tg) of your material?