CALL FOR APPLICATIONS FOR FAPESP POSTDOCTORAL FELLOWSHIPS LINKED TO A THEMATIC PROJECT

The University of Marilia (UNIMAR), located in Marilia, SP, Brazil, opens the selection process for a FAPESP-funded fellowship linked to the FAPESP Thematic Project – Functionalized Tissue Factory: Bioengineering Based on the Interactions of Extracellular Matrix with Biopolymers and Bioprinting, under the responsibility and supervision of Dr. Maria Angelica Miglino. One postdoctoral fellowship will be offered, to be initiated immediately after the selection process and FAPESP's approval.

1. OBJECTIVES

The purpose of the FAPESP Postdoctoral Fellowship is to provide opportunities for temporary integration into an active research group for promising scientists who have obtained their Ph.D. within the last seven years, contributing to the development of a specific project. The application for a Postdoctoral Fellowship (PD) can be submitted before the completion of the Ph.D.; however, the corresponding proof of completion must be provided at the time of acceptance of the fellowship.

Following the initial selection, the selected candidate must:

> Submit the fellowship proposal, explicitly requesting linkage by indicating the grant number in the "Linked Process" field when filling out the fellowship proposal in SAGe. A document signed by the Principal Investigator (PI) of the grant must be included, agreeing to the linkage and specifying how the proposed research contributes to the linked project. Information on submitting complementary requests is available at www.fapesp.br/1413.

The application for Postdoctoral Fellowships as a budget item in grants must follow the guidelines available at www.fapesp.br/15369. The research project to be developed by the postdoctoral fellow must be closely linked to the research project funded by FAPESP.

2. FELLOWSHIPS

Postdoctoral Fellowship linked to Research Grants in the modalities of Thematic Project, can be renewed for a period of up to 12 months, provided the total duration of the fellowship does not exceed 48 months for the same candidate.

3. CANDIDATES

- The candidate for the Postdoctoral Fellowship must have completed their Ph.D. within the last seven years, and must have an excellent academic record and a strong postgraduate transcript.
- Must present achievements in their Curriculum Vitae that demonstrate their potential as a researcher.
- Must be up-to-date with FAPESP commitments (such as issuing reviews and returning processes, submitting scientific reports, and providing financial accountability). Proposals where the Beneficiary or PI has outstanding issues with FAPESP for more than 60 days will not be considered for review.
- Must be aware of the rules, forms, and procedures for submitting the fellowship application, available at www.fapesp.br and www.fapesp.br/sage.
- For foreign applicants, it is their responsibility to obtain the necessary documentation for entry and residence in Brazil through the nearest Brazilian Consulate.
- Inform whether they are applying for or receiving funding or scholarships from other sources for the same research proposal.

4. CONDIÇÕES E OBRIGAÇÕES EXIGIDAS

During the term of the fellowship, the fellow must comply with the following conditions and obligations:

- Possess an individual Taxpayer Registry (CPF) to enable the issuance of the Fellowship Award Term.
- Be aware of the obligations specified in the Fellowship Award Term and Acceptance of Fellowships in Brazil, signed jointly with the Supervisor.
- Non-compliance with the rules and the specified terms in the Award Term may result in the cancellation of the fellowship and the obligation to return the payments already made by FAPESP, adjusted for inflation.
- Adhere to the development plan of the Postdoctoral program, submitted to FAPESP in the fellowship proposal, as well as to the research project.
- The fellowship requires exclusive dedication to the research project.
- The fellow cannot have employment ties nor receive, during the term of the fellowship, another fellowship, salary, or remuneration from any activities.
- At FAPESP's discretion, employment situations where the fellow has a leave of absence from their institution (with or without pay) that allows for exclusive dedication to research may be considered.
- Remain up to date with FAPESP's requirements (reviews, returning processes, submission of Scientific Reports and Financial Accountability) under penalty of funding blockage.
- Consult FAPESP before accepting financial support from other sources for the development of the research project related to the awarded fellowship.
- No modifications to the project (initial plan, dates, etc.) or to the Postdoctoral program's development plan are allowed without FAPESP's prior approval.
- Submit Scientific Reports, reports of completed stages of the Postdoctoral program, Technical Reserve utilization reports, and Financial Accountability within the deadlines specified in the Fellowship Award Term (TO), accompanied by the requested documentation.
- Demonstrate a high degree of academic interaction with the Supervisor and the academic

community at the Host Institution (located in São Paulo state), establishing a strong academic link with the institution.

- Do not leave the institution where the research project is being conducted without FAPESP's explicit approval through a justified request from the Supervisor.

- This restriction does not apply in cases of:

  - field research as outlined in the research project that underpins the fellowship,

  - research internships of less than one month,

  - participation in Scientific or Technological Meetings, with or without presenting work,

  - participation in courses related to the research project for less than one month.

- In all cases:
  - written endorsement from the Supervisor is required and must be kept on file by both the Supervisor and the Fellow to be submitted to FAPESP if requested.
  - absences must be informed and justified by the Supervisor in the following Scientific Report, so their relevance to the research project can be evaluated by FAPESP.
  - the possibility of absence does not imply automatic authorization for the use of Technical Reserve (RT) funds. Specific rules for RT fund use can be found at www.fapesp.br/4566.

- Acknowledge FAPESP's support in theses, articles, books, abstracts of works presented at conferences, and any other publications or dissemination activities that result from the fellowship, in accordance with Clause 7 of the Fellowship Award Term and as described at www.fapesp.br/11789.

- If the research project funded by the fellowship receives financial support from any other public or private funding source, the researcher is obligated to explicitly acknowledge this support in all dissemination materials mentioned above.

- Ensure the availability of complete texts of scientific articles or other communications resulting from the project funded by FAPESP in an institutional repository, following the open-access policy of the respective journals, no later than 12 months after publication. FAPESP's Open Access Policy is available at www.fapesp.br/12632.

- Notify FAPESP immediately of any employment contracts, appointments, or positions, changes of residence, or interruptions in research activities through the Supervisor.

- Ensure, in a timely manner, that the research project does not or will not produce results that require protection under Intellectual Property law (such as patents), according to FAPESP's Intellectual Property Policy (www.fapesp.br/pi).

- Provide expert reviews for FAPESP free of charge and within the specified timeframe when requested by the Foundation.

- Adhere to the guidelines of FAPESP's Code of Good Scientific Practices, available at www.fapesp.br/boaspraticas.

- Collaborate with the Supervisor to ensure proper data management according to the Data Management Plan associated with the fellowship project.

- Use the most current versions of the rules, forms, and procedures, available on the websites www.fapesp.br and www.fapesp.br/sage.

5. DA SELEÇÃO

- The selection process will consist of an evaluation of the Letter of Intent and an Interview. Selected candidates will be notified via the email address used for their application (projfabricadetecidos@gmail.com).
- Candidates must submit their Curriculum Vitae (Lattes or equivalent), demonstrating specific qualifications that meet the requirements of this call.
- Applications must be submitted via the email address of the thematic project.
- The application period will be from November 10, 2024, to December 10, 2024.
- The interview will be scheduled via email.
- The following will be considered as advantageous:

    - Previous experience in research, teaching assistantships, or scientific work (must be proven through a certificate or declaration during the interview);
    - Ability to work in a team.

Email: projfabricadetecidos@gmail.com

6. SELECTION PROCESS TIMELINE

Application period - projfabricadetecidos@gmail.com	**November 10 - December 10.**
Fellowship duration	**12 (twelve) months**

7. REQUIRED DOCUMENTS FOR THE SECOND PHASE WHEN THE SELECTED CANDIDATE HAS TO APPLY TO FAPESP/SAGE FAPESP

- **Research Project:** Original, well-presented, and demonstrating the scientific and technological contribution to the research development at the Host Institution.
- **Curriculum Summary** of the Supervisor (responsible party).
- **Curriculum Summary** of the Candidate (fellowship recipient).
- Complete Master's academic transcript, issued as an official document (with stamp and signature or authenticity code). The transcript must include: full course titles; any failures or course withdrawals; and the passing criteria (minimum grade) or, alternatively, a university declaration detailing the passing criteria.
- Complete Doctoral academic transcript, issued as an official document (with stamp and signature or authenticity code). The transcript must include: full course titles; any failures or course withdrawals; and the passing criteria (minimum grade) or, alternatively, a university declaration detailing the passing criteria.
- Doctoral completion certificate of the candidate (can be submitted later, until the fellowship is granted, if applicable).
- Proof of leave or resignation for candidates with employment ties (can be submitted later, until the fellowship is granted, if applicable).

8. REQUIRED EXPERIENCE

Skills in Tissue Engineering techniques, Cell Culture, and Bioprinting. In addition, proficiency in writing research articles and research proposals is required.

9. THEMATIC PROJECT

FUNCTIONALIZED TISSUE FACTORY: BIOENGINEERING BASED ON ECM INTERACTIONS WITH BIOPOLYMERS AND BIOPRINTING

Principal Investigator: Prof. Dr. Maria Angélica Miglino
http://lattes.cnpq.br/0806064137922471

Host Institution: University of Marília, Unimar, SP, Brazil

Abstract: Tissue Engineering employs tissue decellularization, recellularization and 3D bioprinting for production of functionalized biomaterials for transplants. Organs decellularization yields acellular biomaterials/scaffolds in which the composition and 3D structure of the extracelular matrix (ECM) are preserved. This biomaterial, when recellularized and directly applied in vivo, can provide local stimuli arise at the implantation site for stem and progenitor cell migration and proliferation, as well as cell differentiation and/or modulation of the innate imune response. 3D bioprinting may be employed to optimize the bioactivity of the decellularized scaffold both by structural customization and by association to other molecules and materials, thereby amplifying its potential applications. This Project is based on the hypothesis that decellularization, recellularization, 3D bioprinting and implantation of functionalized tissue may be utilized to better understand in vivo chemotaxis of endogenous cells towards biofunctionalized tissues to validate them for application in Veterinary Regenerative Medicine. To test this hypothesis, in vitro and in vivo models will be used. One of the wide variety of biomaterials to be employed is placental tissue, which shares with tumors several mechanisms associated with oncogenesis, such as: invasion, angiogenesis, and modulation of the ECM. Therefore, the Objectives of this Project are: to optimize the protocol for decellularization of several tissues, aiming at the generation of scaffolds which may be associated to different cell types (recellularization) and biopolymers, yielding functionalized tissues to be utilized for organ and tissue repair and for transplant in animal models. A multidisciplinary team involving anatomists, cell biologists, surgeons, immunologists and pathologists and access to state-of-the-art technologies and facilities warrant the viability of this proposal. The results obtained should contribute to better understanding not only of the cell and molecular interactions occurring at the tissue, but, also, allow designing novel therapeutic strategies for tissue repair.

Keywords: bioengineering, biomaterials, stem and progenitor cells, decellularization, extracellular matrix, biological scaffolds, recellularization.

FABRICA DE TECIDOS FUNCIONALIZADOS: BIOENGENHARIA BASEADA NAS INTERAÇÕES DA MATRIZ EXTRACELULAR COM BIOPOLÍMEROS E BIOIMPRESSÃO

Pesquisador Responsável: Profa. Dra. Maria Angélica Miglino
http://lattes.cnpq.br/0806064137922471

Instituição Sede: Universidade de Marília, Unimar, SP, Brasil

Resumo: A Bioengenharia Tecidual utiliza técnicas de descelularização, recelularização e bioimpressão 3D para permitir a produção de biomateriais funcionalizados para transplantes. A descelularização de órgãos produz biomateriais acelulares com preservação da composição e estrutura 3D da matriz extracelular (MEC). Esses biomateriais, quando recelularizados e aplicados in vivo, podem proporcionar estímulo local para migração e proliferação de células-tronco e/ou progenitoras, bem como diferenciação celular e/ou modulação da resposta imune inata no sítio de implantação. A bioimpressão 3D pode ser utilizada para otimizar a bioatividade do scaffold descelularizado, tanto pela customização estrutural, quanto por sua associação com outras moléculas e materiais, permitindo, assim, ampliar seu leque de aplicações. Este projeto baseia-se na hipótese de que as estratégias de descelularização, recelularização, bioimpressão 3D e implantação do tecido funcionalizado podem ser utilizadas para entender a quimiotaxia in vivo de células endógenas para estes biomateriais funcionalizados e validá-los para uso na Medicina Regenerativa Veterinária. Para testar esta hipótese, modelos de injúria tecidual in vivo e in vitro serão utilizados. Uma das fontes de diversos biomateriais são os tecidos placentários, que compartilham com tumores diversos mecanismos associados à oncogênese da MEC. Portanto, os Objetivos deste projeto são: otimizar o protocolo de descelularização de diferentes tecidos, visando à geração de scaffolds que possam ser associados a diferentes tipos celulares (recelularização) e biopolímeros, dando origem a tecidos funcionalizados a serem utilizados para o reparo de tecidos e órgãos e para o transplante em modelos animais; investigar os efeitos de biomateriais placentários na gênese, progressão tumoral. Uma equipe multidisciplinar envolvendo anatomistas, biologistas celulares, cirurgiões e imunologistas e o acesso a tecnologias e facilidades no estado da arte garantem a viabilidade desta proposta. Os resultados obtidos deverão contribuir para melhor compreender não só as interações celulares e moleculares que ocorrem no sítio de injúria tecidual e de tumores, mas, também, permitir o desenho de novas estratégias terapêuticas para o reparo tecidual

Palavras-chave: bioengenharia, biomateriais, células-tronco e progenitoras, decelularização, MEC, scaffolds biológicos, recelularização.