**Call for pre-proposals.**

# Leveraging the PSIFAS infrastructure for targeted prospective genomic medicine projects

(Due on October 16th, 2023)

## Executive summary

- **What is Psifas?** A national initiative building a platform providing clinical data, genomic sequences and a patient engagement engine for running clinical/genomics and post genomic prospective studies.
- **What are we offering?** For a few ambitious projects we offer a heavily subsidized use of the new platform in order to develop prospective studies on a disease of interest.
- **Who can approach this opportunity?** The call is open for start-ups, industry or academic groups **based in Israel**, who wish to access a large cohort, of a few hundreds or more, of Israeli patients with a specific clinical characterization. Applicants should demonstrate availability of funds for running the proposed project. This call only provides a subsidy for usage of Psifas resources and not funding for any direct costs.
- **When?** Psifas would like to run these trail-blazing projects during 2024 through 2025.
- **How?** Pre proposals should be emailed to research_proposal@psifas.org.il until October 16th, 2023. Early submissions are possible and may receive early decision notice.

## Background

Psifas, the Israeli National Genomic Medicine Initiative (www.psifas.org.il), is developing a unique infrastructure for facilitating prospective studies based on advanced integration of clinical data from community and hospital care. The infrastructure involves genomes, a cloud platform for data storage and analysis and patient recall capability for follow up studies. All recruited individuals undergo full Whole Genome Sequencing (WGS). Patient recruitment has started in Q1 2023. As of July 2023, 7,000 volunteers were recruited. By the end of 2024 around 100,000 volunteers are expected to be recruited. Currently, Psifas recruits individuals of 18 years or older, vast majority of which selected randomly, and smaller subsets with specific indications in the fields of oncology, cardiology, rare skin diseases, age-related macular degeneration, rheumatology/autoimmune diseases, chronic renal failure, and liver diseases. This is a partial and initial list that can be modified or prioritized based on the submitted applications. Applications focused on existing recruited populations and applications focused on additional populations will be considered.

Psifas is planning to support a few strategic prospective studies to enable the use of powerful modern genomics and post-genomics technologies for the investigation of specific maladies which is expected to yield high medical impact. The present call is for submission of proposals focused on patient recruitment using the Psifas platform with its access to patients' data including electronic medical records (EMR) data and WGS for clinical-genomic based research projects.

## What does the project include?

Proposals for targeted, prospective genomic medicine projects must be based on existing or new patient recruitment, and collection of full clinical and genomic data by Psifas. Prospective projects may also include collection of additional data, including further omics and medical information, as specified by the applicant. Such data will be analyzed initially by the applicant and will become public after an appropriate embargo period.

**What will be provided by Psifas?**
1. Access to the PSIFAS volunteer population data through a cloud research environment for selection and recruitment of prospective populations based on their EHR and genomics (WGS) data.
2. Mobilization of the Psifas recruitment platform to specific clinically-targeted populations of interest as requested in the proposal.
3. Assistance in processing of ethical approvals (MOH IRB).
4. A platform for recalling patients for complementary analyses with and at the partnering healthcare facilities. Partnering healthcare organizations are currently Clalit health services and many tertiary medical centers.
5. Psifas took responsibility to return to patients in whom Actionable Genes (as defined by the ACMG) were identified, via the recruiting medical organizations. Same will hold true for any data created or collected in a prospective follow-up study.
6. Subsidized sequencing for the generation of additional Omics data in case the study involves production of such data. Note that the program will not provide direct funds to awardees.

**Genomic data**
All individuals recruited to the Psifas initiative undergo 30X PCR-free Whole Genome Sequencing from blood samples (germline) using Illumina NovaseqX.

**Deidentified / coded clinical data available via Psifas**
- Patient's demographics
- Medical measures including height, weight and blood pressure.
- Medical treatments, hospitalizations and procedures
- Medication prescriptions filled (at ATC level 4 detail) and dosage
- HMO records of visits to clinics including physical exams
- Lab tests - type and results
- Risk factors including smoking.

In specific cases, additional data may include:
- Pathological digital slides (where available)
- MRI, CT, X-ray; where available. Currently, we collect and record an inventory of all imaging studies our patient volunteers performed.

**Cloud research environment**
- Long and short-term data storage.
- Enables data analysis on the Psifas`s cloud with common tools or custom code.
- Allows cohort browsing, visualization, statistical analysis and cohort selection.

**Example for a conceptual proposal**
A proposal aiming to understand the genetic or epigenetic basis of a specific disease, may ask for:
a) Identification of existing Psifas volunteers or targeted recruitment of new volunteers with a specific disease and appropriate controls, based on genomic and/or clinical data.
b) Prioritization in recruitment of additional patients to the Psifas cohorts by partnering with healthcare providers including Clalit members, in Clalit hospitals as well as in the Sheba, Ichilov, Hadassah, and Shaarei Zedek medical centers.
c) Assistance in preparation and clearance of the required IRB approvals.
d) National "one-stop-shop" for recalling the consented study patients
e) Genomic and post-genomics sequencing. WGS will be performed by Psifas and other Omics will be performed by the awardee.

**Who can apply?**
Psifas will consider applications from industry, biotech companies, academia and healthcare organizations based in Israel.

**Obligatory requirements**

a) A target disease presenting a clear unmet need, with estimated prevalence that is compatible with completed recruitment within two years. Recruited population size should be a few hundreds at a minimum and a few thousands at a maximum.
b) Defined analysis plan and means to carry it out.
c) A research team and Principal Investigator.
d) The team has to have an MD as a member.
e) The team has to be based in Israel.
f) Availability of funds, external to Psifas, for obtaining Psifas services as detailed below under *Costs*.

**Preferred requirements**

a) Consortia involving more than one partner are encouraged.
b) Availability of funds, external to Psifas, for running advanced omics on at least a few hundreds individuals. Omics in that respect can be any biomaterial analysis modality that goes beyond germline WGS, such as somatic DNA sequencing, single cell genomics approaches, microbiome profiling, metabolomics, epigenomics and proteomics.

**Subsidized Psifas services available through this program to Israeli-based startups, academia and healthcare organizations**

For pioneering prospective studies using the Psifas platform, the following services will be provided to successful applicants at a highly subsidized cost of 1500 NIS per patient.

1. Patient recruitment.
2. WGS.
3. Clinical data processing.
4. Full data storage.
5. Access to the Psifas cloud-based analysis platform.

Psifas can also provide additional services (specific cost will be determined per project):

1. Clinical-domain-specific enriched future recruitment outside of the existing Psifas cohort (in those cases when such process is initiated and endorsed by the recruiting medical center through its clinics)
2. Assistance with IRB approvals processing.
3. Subsidized sequencing costs of patients' advanced profiling (post-genomics).
4. CRO-like administration.
5. Clinical follow-up, if required.

**Pre-proposal format**

The pre-proposal should not be longer than 2 pages, 1000 words single spaced.
Text should include:
PI information
Company details/academic institute/ hospital.
Background:
Literature synopsis justifying requested research with not more than three references.
Study rational specifying the clinical need and opportunity.
Team structure
Research partners, focusing on existing expertise.
Role played by each partner.
Proposed study population
Including prevalence estimations and statistical power estimates.
Technology

Type of analyses that will be performed on the study population.
Budget
Requested number of patients recruited by Psifas.
Additional funds for advanced patient profiling (e.g. Omics).
The type and amount of secured funding sources.

**Application processing**
Deadline for submission of pre-proposals is October 16th, 2023 at 1PM Israel time. Answers will be sent to applicants within six weeks. Psifas may request additional clarifications towards a full research proposal. Pre-proposals not shortlisted for full submission will only receive a decision notice without any detailed feedback.
Review of pre-proposals and full proposals will be based on the scientific quality of suggested research, the potential of successful recruitment, and alignment with Psifas` strategic goals. Evaluation will be performed by an ad-hoc committee including local and international experts in genomics.

**Contact Psifas**
For further information please contact - research_proposal@psifas.org.il