Short Sketch to assess suitability to the Exist funding programs

1. Project Title (max. 100 characters)

Provide a concise and descriptive title for your startup project.

Answer: PhageMatch – AI-Driven Precision Phage Therapy Platform

2. Team/ Applicants (max. 300 characters / 2-3 sentences)

List the names of the founders and their institutional affiliation.

Answer: Abdullah Hanif (Saarland University, Bioinformatics), Dr. Oliver Köhn (AI/Data Science), and Zahra Asgharzada (Microbiology). Our interdisciplinary team combines expertise in machine learning, high-performance computing, and microbiology to revolutionize phage therapy.

3. Idea and Innovation (max. 1,000 characters / 6-8 sentences)

- Describe your business idea and highlight its innovative aspects.
- Explain the current state of technology and how your project differentiates itself from existing solutions.

Answer:
PhageMatch is a next-generation AI platform that predicts optimal bacteriophage-host interactions using multi-omics data integration. Unlike existing alignment-based or single-feature models (e.g., PhARIS, HostPhinder), PhageMatch employs Graph Neural Networks (GNNs) and Self-Supervised Learning (SSL) to capture complex phage-bacteria relationships, achieving higher accuracy and generalizability. Our innovation lies in dynamic data augmentation, hybrid multi-modal models, and real-time analysis, addressing critical gaps in current phage therapy methods.

4. Market and Target Group (max. 1,000 characters / 6-8 sentences)

- Analyze the target market and potential customer base.
- Estimate the market potential and competitive landscape.

Answer: Target markets include hospitals combating multidrug-resistant infections, agricultural sectors managing bacterial outbreaks, and phage therapy research labs. The global antibiotic resistance crisis (1M+ deaths/year) underscores a urgent need, with phage therapy projected to grow at 4.5% CAGR. Competitors lack AI-driven multi-omics integration, giving PhageMatch a unique edge.

5. Implementation Plan (max. 1,000 characters / 6-8 sentences)

- Outline the key steps required to implement the project.
- Provide a rough timeline for execution.

Answer:

- **Phase 1 (0–3 months):** Secure data partnerships (Phagen Biotechnology Lab and Eliava Institute) and build HPC infrastructure.
- **Phase 2 (4–9 months):** Develop AI models (GNNs, SSL) and validate with lab data.
- **Phase 3 (10–12 months):** Pilot testing in clinical/lab settings (University Hospital Frankfurt collaboration).
- **Phase 4 (12+ months):** Commercialize SaaS platform and pursue regulatory approvals.

6. Resources and Funding (max. 1,000 characters / 6-8 sentences)

- List the necessary resources (e.g., personnel, infrastructure).
- Specify the funding requirements and planned allocation of funds.

Answer:
Requested funds will cover cloud computing (20k),datalicensing(20k),datalicensing(15k), and salaries for the core team ($120k). Additional support includes lab access via Dr. Silvia Würstle (University Hospital Frankfurt) and Triathlon's startup mentorship.

7. Contact Person (max. 300 characters / 2-3 sentences)

Provide the name and contact details of a person for inquiries.

Answer: Abdullah Hanif a master's Student in Bioinformatics at Saarland University.

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Please also use the Exist checklist provided by Triathlon