

# BIOINFORMATICS

Moscow Institute of Physics and Technology (National Research University)

Degree or qualification is awarded: **PhD (Candidate of Science)**

Language of study: **English**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **375 000 RUB**

Programme webpage at the university website: <https://eng.mipt.ru/programs/bioinformatics-alexey-stupnikov/>

Programme curator: **Denis Ustyuzhaninov**

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## **Research supervisor:**

[Alexey Stupnikov](#)

PhD

## **Supervisor's research interests:**

Our works involve, but not limited to studying and using the concept of Differential Gene Expression for RNA-seq data. We have earlier explored various aspects of RNA-seq based data properties, models performance and quality assessment. Currently we recruit this approach for inferring the problem of Chemical Reprogramming, which is a process of transforming cells from one tissue type to another with assistance of specific chemical agents.

## **Research highlights:**

The scope of our group's research is inference the process of chemical reprogramming with computational methods. The project will require to access generated data with machine learning techniques as well as design and implement new models and tools. The candidate is expected to get involved in collaborations with experimental groups both internationally in European research centers and locally. The results of the projects are intended to be published in high impact journals.

## **Supervisor's specific requirements:**

- MS in Bioinformatics, Computer Science or related quantitative field.
- Programming skills in Python/R and Unix shell scripting.
- Understanding general concepts of Molecular Biology.
- Profound writing and communication skills.

## **Main publications:**

- Imada EL, Sanchez DF, Collado-Torres L, Wilks C, Matam T, Dinalankara W, et al. Recounting the FANTOM CAGE-Associated Transcriptome. Genome Res 2020;30:1073-81. <https://doi.org/10.1101/gr.254656.119>
- Mazin PV, Shagimardanova E, Kozlova O, Cherkasov A, Sutormin R, Stepanova VV, et al. Cooption of heat shock regulatory system for anhydrobiosis in the sleeping chironomid Polypedilum vanderplanki. Proc Natl Acad Sci U S A 2018;115:E2477-86. <https://doi.org/10.1073/pnas.1719493115>

## **Specializations within this programme**