

**Recruitment for the Poznań Doctoral School of the Institutes of the Polish Academy of Sciences  
at the Institute of Bioorganic Chemistry, PAS in Poznań  
Procedure no. 4/2020/IBCH/PAS**

INSTITUTION: Institute of Bioorganic Chemistry, PAS  
CITY: Poznań  
POSITION: PhD student  
POSITIONS AVAILABLE: 1  
SCIENTIFIC DISCIPLINE: biological or chemical sciences  
PUBLICATION DATE: May 15<sup>th</sup>, 2020  
APPLICATION DEADLINE: June 14<sup>th</sup>, 2020  
IBCH PAS WEBSITE: <http://www.ibch.poznan.pl>  
PDS IPAS WEBSITE: <http://www.psd-ipan.ibch.poznan.pl/>

**KEY WORDS:** RNA, RNA thermodynamics, RNA structure and RNA mapping

**Research topic:** Thermodynamic parameters and rules towards the determination of RNA folding in *in vivo*-like conditions. RNA folding predictions for a better understanding of their structure and function in mammalian cells.

**Principal Investigator:** Prof. Ryszard Kierzek

### I. Project description

To change biological functions of RNAs, including human pathogenic RNAs, determination structure of the native RNAs is fundamental. Determination of the *in vitro* secondary structure of RNA is based on chemical, enzymatic and microarrays mappings as well as on thermodynamic rules folding of RNA. Folding of RNA is originated on nearest-neighbor model and applies the thermodynamic parameters for duplexes and no-helical structural motives determinate in 1 M sodium chloride buffer. Determination of RNA structure but in cellular condition (*in vivo*, *in cellulo*) is more difficult and long-lasting process and at present time it is mostly based on chemical mapping in the cells and analysis of mapping with Next-Generation Sequencing (NGS).

In this project we propose:

(1) determinate thermodynamic parameters concerning principles of folding of RNA in *in vivo-like* conditions to predict folding of any RNA in cellular conditions. To achieve this goal, we will conduct RNA thermodynamic studies in cellular buffer.

(2) implement cellular thermodynamic parameters into RNAstructure program (so call cRNAstructure). That will allow compare thermodynamic stability and folding of the same RNAs in *in vitro* and *in cellular* conditions,

(3) compare folding of the same RNAs determinate by cRNAstructure and structures solved base on NGS mapping of RNAs in the cells. For that group of studies we will particularly focus on segment 8 of influenza virus vRNA (vRNA8)

### Duties:

Range of duties includes studies of the thermodynamic stability of RNA helical and not helical RNA in cellular condition and comparison *in vitro* and *in vivo-like* structure of model RNA.

### Additional information:

1. Research and doctoral theses shall be carried out within the **OPUS 17** project no. **2019/33/B/ST4/01422**, entitled "*Thermodynamic parameters and rules towards the determination of RNA folding in in vivo-like*

*conditions. RNA folding predictions for a better understanding of their structure and function in mammalian cells.*”, funded by the National Science Centre.

2. PhD students shall receive a stipend in the gross amount of 4 200 zloty, for the period of 31 months with possible extension.
3. PhD students shall be subject to social insurance, pursuant to article. 6 section 1 passage 7b of the act of October 13th, 1998 on the social insurance system (Journal of Laws of 2019, item 300, 303 and 730).

## II. Requirements for the candidates:

1. MSc degree in molecular biology, chemistry, biotechnology or related sciences or fulfilling the conditions stipulated in article 186, section 2 of the act of July 20<sup>th</sup>, 2018 Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended); BSc degree holders can also apply but will need to obtain their MSc title before they start working in the project.;
2. Very good command of English
3. Basic knowledge in the topics related with project.
4. Very high motivation for further development and ability to work in a team

## III. Required documents:

1. Application for admission to PDS IPAS along with the consent for processing personal data upon the recruitment procedure and a statement on having acknowledged the regulations of recruitment for PDS IPAS, using form downloaded from [https://www.ibch.poznan.pl/uploads/studium%20doktoranckie/2019/ICHB%20-%20Application%20for%20admission%20\(2019-09\).docx](https://www.ibch.poznan.pl/uploads/studium%20doktoranckie/2019/ICHB%20-%20Application%20for%20admission%20(2019-09).docx)
2. Certified copy of the diploma confirming graduation or a certificate confirming graduation (in the case of diplomas issued by foreign higher education schools, diploma stipulated in article 326, section 2, passage 2 or article 327, passage 2 of the act of July 20<sup>th</sup>, 2018 – Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended), entitling to apply for conferment of a doctoral degree in the state in where such a certificate was issued by the relevant higher education school. In the event when the candidate is not in possession of the aforementioned documents, he/she is obliged to submit them prior to admission to PDS IPAS. Additional information on foreign school diplomas are available at: <https://nawa.gov.pl/en/recognition/recognition-for-academic-purposes/applying-for-admission-to-doctoral-studies>.
3. Scientific CV encompassing track record of previous education and employment, list of publications (if applicable), information on involvement in scientific activities (participation in student research groups, attendance at scientific conferences, accomplished internships and training, awarded prizes and distinction).
4. Cover letter might be attached featuring a short description of research interests, scientific accomplishments, a list of publications, information on involvement in scientific activity (membership of student scientific groups, participation in scientific conferences, completed internships and training courses, prizes and distinctions received) and reasons for wishing to study at the doctoral school.
5. Certificates or other documents confirming the degree of proficiency in English, if the candidate is in possession of such materials.
6. Contact details of at least one, previous scientific supervisor or another researcher who is entitled to issue an opinion on the candidate.

## IV. Applications should be submitted via the eRecruiter portal at:

<https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=e2be6476a04c4af2abd55f6be3f74245>

## V. Submission deadline is **June 14<sup>th</sup>, 2020** .

## VI. Criteria for evaluation of candidates:

1. Knowledge in biology or chemistry related to the project
2. Candidate's research achievements, pursuant to the grades obtained in the course of studies, scientific publications, awarded scholarships and distinctions resulting from conducting scientific research or student activities or other achievements.
3. Candidate's scientific and professional experience, pursuant to participation in conferences, workshops, training sessions and internships, implementation of research and commercial projects, involvement in scientific trusts and societies, international and professional mobility, experience in other sectors, including industry.
4. Knowledge of the subject matter described in the recruitment advertisement.

**VII.** The recruitment procedure shall be concluded until **July 5<sup>th</sup>, 2020**.

**VIII.** The description of the recruitment process is stipulated in the Regulations of Recruitment for PDS IPAS. Following the recruitment procedure, the unadmitted candidates shall be informed on the strong and weak sides of their applications.

For additional information please contact the Principal Investigator:

**Prof Ryszard Kierzek, Department Structural Chemistry and Biology of Nucleic Acids**

e-mail: [rkierzek@ibch.poznan.pl](mailto:rkierzek@ibch.poznan.pl)

### **Information clause:**

*According to the content of art. 13 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 / EC (General Data Protection Regulation ), hereinafter referred to as GDPR, we inform that:*

1. *The administrator of the collected personal data is the Institute of Bioorganic Chemistry of the Polish Academy of Sciences, Noskowskiego 12/14, 61-704 Poznan, Poland, VAT No. PL 777-00-02-062 (hereinafter referred to as the Institute).*
  2. *The administrator has appointed a Data Protection Inspector who can be contacted in writing, by traditional mail, writing to the Institute's address: Data Protection Inspector, Institute of Bioorganic Chemistry of the Polish Academy of Sciences, Noskowskiego 12/14, 61-704 Poznan, Poland or by sending an e-mail to: [dpo@ibch.poznan.pl](mailto:dpo@ibch.poznan.pl).*
  3. *Personal data are processed in order to implement the administrator's tasks related to the recruitment to the Poznań Doctoral School of the Institutes of the Polish Academy of Sciences.*
  4. *The legal basis for data processing is the Act of 26 June 1974 - Labor Code, the Act of 30 April 2010 on the Polish Academy of Sciences, the Act of 20 July 2018 Law on Higher Education and Science and consent of the data subject.*
  5. *Personal data collected in the current recruitment process will be stored for 3 months from the moment the recruitment process is resolved. After this period, personal data will be effectively destroyed.*
  6. *Personal data will not be conveyed to a third country.*
  7. *Personal data of the candidate selected in the competition may be made available to third parties authorized under the law.*
  8. *The person whose data is processed has the right to:*
    - *access to the content of your personal data, demand their correction or deletion, on the terms set out in art. 15-17 GDPR;*
    - *set restrictions on data processing, in cases specified in art. 18 GDPR;*
    - *data transfer, on the principles set out in art. 20 GDPR;*
    - *withdrawal of consent at any time without affecting the lawfulness of the processing that was carried out on the basis of consent before its withdrawal;*
    - *lodging a complaint to the President of the Office for Personal Data Protection.*
- Providing personal data in the scope resulting from art. 22 (1) of the Act of 26 June 1974 - Labor Code, is mandatory, providing data in a broader scope is voluntary and requires consent to their processing. Refusal to provide personal data prevents the application from being considered.*