

**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. 7/2020/IBCH/PAS**

INSTITUTION: Institute of Bioorganic Chemistry, PAS  
CITY: Poznań  
POSITION: PhD student  
POSITIONS AVAILABLE: 1  
SCIENTIFIC DISCIPLINE: chemical sciences  
PUBLICATION DATE: June 10<sup>th</sup>, 2020  
APPLICATION DEADLINE: July 9<sup>th</sup>, 2020  
IBCH PAS WEBSITE: <http://www.ibch.poznan.pl>  
PDS IPAS WEBSITE: <http://www.psd-ipan.ibch.poznan.pl/>

**KEY WORDS:** nucleosides, fluorinated nucleosides, *click chemistry*, cancer research

**Research topic:** Chemical architecture of fluorinated nucleoside dimers containing 1,2,3-triazole linker of potential use in molecular biology and medicine

**Principal Investigator:** dr Dagmara Baraniak

### **I. Project description**

The synthesis of biologically active substances, potential medicines, is an important research area in the medicinal chemistry. Among drugs used in the treatment of cancer the modified nucleosides and nucleotides occupy the leading position.

The presented research project concerns the coupling of naturally occurring nucleosides and modified derivatives using the "click" reaction, i.e. a copper(I) or ruthenium(II)-catalyzed 1,3-dipolar Huisgen cycloaddition. Using the "click" chemistry it is possible to obtain nucleoside conjugates which can exhibit interesting biological activity, so it is planned to carry out the synthesis of analogues of dimers of natural nucleosides and especially their fluorinated derivatives of known pharmacological activity (e.g. floxuridine, gemcitabine, clofarabine). A 1,2,3-triazole subunit, which does not occur in nature and replaces the phosphodiester bond, is formed as a result of the catalyzed Huisgen reaction. In addition, it constitutes an additional pharmacophore with attractive properties being resistant to hydrolysis and other reactions at physiological pH, and also it exhibits great biological activity (i.e. antitumor and antiviral properties). Such modifications of internucleotide linkages are also designed to increase the hybridization binding affinity toward native DNA/RNA, to enhance resistance to nucleases, to improve ability to penetrate cell membranes of masked nucleoside drugs.

The innovation of this project lies in the possibility in exploitation of the "click" approach in nucleoside chemistry, which allows for additional modifications of nucleosides and which rapidly develops the fluorinated nucleoside chemistry, both in the synthesis and the use of. Presented examples comply with the current concept of designing new drugs that contain more than one active fragment. Thus, their potential use as nucleoside drugs, which are inhibitors of enzymes involved in the DNA biosynthesis or terminators of the biosynthesis due to the lack of the 3'-hydroxyl group.

### **Duties:**

Range of duties includes the chemical synthesis of organic compounds (nucleoside analogues) and their spectral analysis (MS, NMR). The PhD student is obligated to write the PhD dissertation.

### **Additional information:**

1. Research and doctoral theses shall be carried out within the **SONATA 15** project no. **2019/35/D/NZ7/03637**, entitled “*Chemical architecture of fluorinated nucleoside dimers containing 1,2,3-triazole linker of potential use in molecular biology and medicine*”, funded by the National Science Centre.
2. PhD students shall receive a monthly stipend in the gross amount of 4 200 zloty, for the period of 36 months with possible extension. The net amount will be ca. 3 700 PLN.
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 chemistry 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. Application should be submitted via the eRecruiter portal at:**

<https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=1bbebd658d0b4e9189fed82c953aaf1>

V. Submission deadline is **July 9<sup>th</sup>, 2020**.

**VI. Criteria for evaluation of candidates:**

1. Knowledge in 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 28<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:

**dr Dagmara Baraniak, Department of Chemistry of Nucleic Acids Components**

e-mail: [baraniak@ibch.poznan.pl](mailto:baraniak@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.*