

**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. 36/2022/ICHB/PSD**

INSTITUTION: Institute of Bioorganic Chemistry, PAS  
CITY: Poznań  
POSITION: PhD student  
POSITIONS AVAILABLE: 1  
SCIENTIFIC DISCIPLINE: biological sciences  
PUBLICATION DATE: **3.08.2022**  
APPLICATION DEADLINE: **15.09.2022**  
IBCH PAS WEBSITE: <https://portal.ibch.poznan.pl/homepage/>  
PDS IPAS WEBSITE: <https://psd-ipan.ichb.pl/index.php/en/home/>

**KEY WORDS:** MFT protein, *Medicago truncatula*, seed germination, abscisic acid, protein-protein interaction

Principal Investigator: dr Joanna Banasiak

Research topic: Role of MFT protein in hormonal signal integration during *Medicago truncatula* seed germination.

### **I. Project description**

The transition from seed to seedling is a crucial developmental switch in the life cycle of plant. Thus, it is tightly regulated by a complex of hormonal networks. One of the components of hormonal signalling pathways recruited to control seed germination is MOTHER OF FT AND TFL1 (MFT). The MFT from *Arabidopsis* was found to promote germination of after-ripened seeds under unfavorable conditions by tuning seed sensitivity to ABA and regulating the expression of germination-related genes. MFT protein was also proposed to be an important factor in dormancy promotion in freshly matured dormant seeds. However, this issue was not fully addressed and still requires clarification. Thus further studies are necessary to recognize an exact MFT mode of action to explain this phenomenon. Given the economic importance of legumes, we propose to perform a comprehensive functional analysis of MFT in model legume *Medicago truncatula* (barrel medic), which has great potential for translational biology.

Of note, MFT-like protein is a member of the phosphatidylethanolamine-binding protein (PEBP) family and is recognized as ancestral to well-explored FLOWERING LOCUS T (FT)-like, and TERMINAL FLOWER1 (TFL1)-like proteins. The latter control flowering timing and function as transcription regulators that interact with other proteins. MFT proteins similarly to FT and TFL1 do not contain any typical DNA binding domain, and possibly require interactions with transcription factors (TFs) to modulate the expression of target genes, during seed germination. Although the potential interactions of MFT with other proteins were suggested, its partners have not yet been identified. Therefore, we are going to use several complementary methods to determine interactor(s) of MtMFT in two biological scenarios (dormant and non-dormant seeds).

To summarize, in this project, we would like to answer the question of whether MtMFT can interact with different TFs/regulatory proteins depending on seed status (freshly-matured, after-ripened), and as such modulates the expression of different target genes in dormant and nondormant seeds, therefore changing their sensitivity to ABA. This could be a milestone for a better understanding of the MFT-mediated sensitivity to ABA and its altering during the after-ripening process.

### Additional information:

1. Research and doctoral theses shall be carried out within the OPUS-22 (2021/43/B/NZ3/00672), entitled “New mechanisms determining MFT-mediated sensitivity to abscisic acid during the germination of *Medicago truncatula* seeds”, funded by National Science Center.
2. PhD students shall receive a stipend in the gross amount of ca. 4300 PLN (3800 PLN net), for the period of 34 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 biology or a related field, or fulfilling the conditions stipulated in article 186, section 2 of the act of July 20th, 2018 Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended).
2. Basic experience in laboratory work, encompassing molecular biology and biochemistry. Experience in research on protein-protein interaction and/or microscopy will be an additional advantage.
3. Fluency in spoken and written English.
4. Very high motivation for further development and ability to work in a team.

### III. Duties in project:

1. Planning and conducting experiments within the project:
  - functional analysis of MFT protein (expression profile/pattern, protein localization, phenotypic characterization of the mutant)
  - protein-protein interaction study (pull-down assay, yeast two-hybrid (Y2H) assay, bimolecular fluorescence complementation (BiFC)).
2. Involvement in the preparation of scientific publications.
3. Review and analysis of scientific articles on topics important for the project development.
4. Presentation of the results at seminars and conferences.

### IV. 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 [http://www.psd-ipan.ibch.poznan.pl/wp-content/uploads/2021/10/ICHBApplication\\_for\\_admission\\_202110.docx](http://www.psd-ipan.ibch.poznan.pl/wp-content/uploads/2021/10/ICHBApplication_for_admission_202110.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 20th, 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, information on involvement in scientific activities (participation in student research groups, attendance at scientific conferences, accomplished internships and training, awarded prizes and distinction) and list of publications.

4. Cover letter featuring a short description of research interests, achievements and justification for the intention to commence education 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.

V. Applications should be submitted via the eRecruiter portal at

<https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=e1a03dbe6f8c4828979813b2705fa07b>

VI. Submission deadline is **15.09.2022**

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

1. 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.
2. 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.
3. Candidate's knowledge on the following discipline: biological sciences.
4. Knowledge of the subject matter described in the recruitment advertisement.

VIII. The recruitment procedure shall be concluded no later than **10.10.2022**

IX. 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 number of points obtained at both stages.

Incomplete applications will not be considered.

For additional information please contact the Principal Investigator:

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**Information clause:**

*Pursuant to the stipulations of the regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons 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), further referred to as GDPR, we hereby inform that:*

- *The Institute of Bioorganic Chemistry, Polish Academy of Sciences, seated in Noskowskiego St. 12/14, 61-704 Poznan; REGON 000849327, NIP 777-00-02-062 is the administrator of the collected personal data (further referred to as the Institute).*
- *The Administrator appointed a Data Protection Officer, who can be contacted in writing, via traditional mail, by sending a letter to the following address: Z. Noskowskiego St. 12/14, 61-704 Poznan, or by sending an e-mail to: [dpo@ibch.poznan.pl](mailto:dpo@ibch.poznan.pl).*
- *The personal data of the candidates is processed for the purposes of fulfilling the tasks of the administrator, associated with conducting the recruitment procedure for a vacant position.*

- *The legal basis for processing personal data is the Act of 26 June 1974 – The Labor Code, Act of 30 April 2010 on the Polish Academy of Sciences or the consent of the person whose data shall be subjected to processing.*
- *Your personal data shall be subjected to processing for period of 3 months upon the date of decision of the recruitment committee. Following this period, the data will be irretrievably and effectively destroyed.*
- *The personal data of the candidates shall not be transferred to any third country.*
- *The person whose data shall be subjected to processing has the right to:*
  - *request access to his/her personal data, and to amend it or delete it, pursuant to articles 15-17 of GDPR;*
  - *limit data processing, in the events stipulated in article 18 of GDPR;*
  - *data transferring, pursuant to article 20 of GDPR;*
  - *withdraw consent at any moment, without influencing compliance with the law of the processing that was executed prior to consent withdrawal;*
  - *file a complaint to the Inspector General for Personal Data Protection.*

*Providing personal data in the scope stipulated in article 22 (1) of the Act of 26 June 1974 – The Labor Code is mandatory, whereas providing data in a broader scope is voluntary and requires consent for its processing.*