# OFERTA PRACY

## Instytut Biochemii i Biofizyki Polskiej Akademii Nauk w Warszawie poszukuje stażysty do realizacji projektu badawczego SONATA pt. „Badanie odpowiedzi komórkowych na utlenianie białek rybosomalnych podczas starzenia" finansowanego przez Narodowe Centrum Nauki.

**(for English version see below)**

**Słowa kluczowe:** starzenie, translacja, rybosom, utlenianie, cysteina, S. cerevisiae

**Instytucja:** Instytut Biochemii i Biofizyki Polskiej Akademii Nauk; Pracownia Molekularnych Podstaw Starzenia i Odmładzania

**Nazwa stanowiska Wykonawcy:** pracownik laboratorium

**Dziedzina:** biologia

**Sposób wynagradzania:** umowa zlecenie

**Liczba ofert pracy:** 1

**Kwota wynagrodzenia:** ~1200 – 1500 PLN brutto

**Okres zatrudnienia**: 6 miesięcy

**Data rozpoczęcia pracy:** najszybciej jak to możliwe po terminie ogłoszenia wyników

**Imię i nazwisko kierownika projektu:** dr inż. Katarzyna Jonak

**Tytuł projektu:** Badanie odpowiedzi komórkowych na utlenianie białek rybosomalnych podczas starzenia

**Opis projektu oraz zadania pracownika:**

Many health conditions associated with aging, such as cancer or Alzheimer's disease, are linked to changes in the redox status of aged cells. In an older cell, the level of oxidation increases and global protein production slows down, which correlates with its damage, destruction, and eventually death. However, the exact link between oxidation, protein synthesis, and age-dependent deterioration remains unknown. Recently, it has been observed that defects in protein production caused by elevated oxidation can be reversed as soon as the physiological conditions are restored. This fact indicates the existence of a mechanism, called a translational redox switch, that rapidly responds to changes to adjust protein synthesis rates in cells of various eukaryotes. We hypothesize that elevated oxidation may serve as a messenger to modulate stress defense at the early stage of aging until concentrations of reactive oxygen species (ROS) become too high in the aged cell leading to its death. Modulation of translation may safeguard the protein homeostasis and health of the aging cell. The project explores the relevance of the novel concept of the

evolutionary conserved oxidation-dependent regulation of protein synthesis in aged organisms and its impact on the prolongation of lifespan and health span.

Recently, we identified several proteins involved in global protein synthesis that are oxidized at an early stage of ageing. Within the project, we analyze mutant versions of these proteins to assess mechanisms involved in the regulation of global translation as a response to age-dependent stress, with possible implications for health span and lifespan prolongation. We implement multidisciplinary approaches and studies on two fundamental models in aging research: yeast *Saccharomyces cerevisiae* and nematode *Caenorhabditis elegans*. Using unbiased large-scale approaches, such as mass-spectrometry and ribosome profiling, in combination with advanced biochemistry and bioinformatics, we test the hypothesis of ribosomes serving as early detectors of age-related stress that control the health of the cell through modulation of global protein synthesis.

The internship focuses on working with the yeast *S. cerevisiae*. The intern's responsibilities will include generating mutant versions of specific yeast genes and evaluating them using growth assays and basic biochemical techniques.

**Oczekiwania formalne wobec kandydatów**:

**1.** Podstawowa wiedza z zakresu biologii molekularnej i biochemii.

**2.** Podstawowe umiejętności laboratoryjne.

**3.** Umiejętność komunikowania się w języku angielskim.

**4.** Umiejętności interpersonalne i komunikacyjne.

**Lista wymaganych dokumentów**

1. CV

2. List motywacyjny

3. Kontakt lub list polecający od poprzedniego pracodawcy lub promotora

**Adres przesyłania zapytań formalnych i nieformalnych:** k.jonak@ibb.waw.pl

**Aplikacje należy przesyłać za pośrednictwem platformy rekrutacyjnej:**

https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=09a7e22cc3f0441ca8a744906eb087ff

**W przypadku jakichkolwiek trudności prosimy o kontakt**: recruitment@ibb.waw.pl

**Termin nadsyłania zgłoszeń:** 24.03.2025

Wybrani kandydaci zostaną zaproszeni na rozmowę kwalifikacyjną z kierownikiem projektu.

**Prosimy o zamieszczenie następującej klauzuli:**

„Wyrażam zgodę na przetwarzanie moich danych osobowych dla potrzeb niezbędnych do realizacji procesu rekrutacji zgodnie z Ustawą z dnia 29 sierpnia 1997 r. o ochronie danych osobowych ( Dz. U. z 2016 r. poz. 922 z późń. zm.)”

**JOB OFFER**

**The Institute of Biochemistry and Biophysics of the Polish Academy of Sciences in Warsaw is looking for a post to implement the SONATA research project entitled "Investigation of cellular responses to ribosomal protein oxidation during aging" funded by the National Science Center.**

**Keywords:** aging, translation, ribosome, oxidation, cysteine, S. cerevisiae

**Institution:** Institute of Biochemistry and Biophysics of the Polish Academy of Sciences; Laboratory of Molecular Basis of Aging and Rejuvenation

**Type of post:** intern – laboratory worker

**Domain:** biology

**Type of contract:** mandate contract

**Number of job offers:** 1

**Remuneration:** ~1200 – 1500 PLN gross

**Employment period:** 6 months

**Date of commencement of work:** Directly after recruitment

**Name and surname of the project head:** Katarzyna Jonak, PhD

**Project title:** Investigation of cellular responses to ribosomal protein oxidation during aging

**Project description/candidate tasks:**

Many health conditions associated with aging, such as cancer or Alzheimer’s disease, are linked to changes in the redox status of aged cells. In an older cell, the level of oxidation increases and global protein production slows down, which correlates with its damage, destruction, and eventually death. However, the exact link between oxidation, protein synthesis, and age-dependent deterioration remains unknown. Recently, it has been observed that defects in protein production caused by elevated oxidation can be reversed as soon as the physiological conditions are restored. This fact indicates the existence of a mechanism, called a translational redox switch, that rapidly responds to changes to adjust protein synthesis rates in cells of various eukaryotes. We hypothesize that elevated oxidation may serve as a messenger to modulate stress defense at the early stage of aging until concentrations of reactive oxygen species (ROS) become too high in the aged cell leading to its death. Modulation of translation may safeguard the protein homeostasis and health of the aging cell. The project explores the relevance of the novel concept of the

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**Expectations towards candidates:**

**1.** Basic knowledge of molecular biology and biochemistry.

**2.** Basic laboratory skills.

**3.** Ability to communicate in English.

**4.** Interpersonal and communication skills.

**List of documents:**

1. CV

2. Cover letter

3. Contact or letter of recommendation from the previous employer or doctorate supervisor

**Contact for formal and informal inquiries:** k.jonak@ibb.waw.pl

**Applications should be sent via recruitment platform:**

https://system.erecruiter.pl/FormTemplates/RecruitmentForm.aspx?WebID=09a7e22cc3f0441ca8a744906eb087ff

**In case of any difficulties please contact:** recruitment@ibb.waw.pl

**Deadline for submitting applications:** 24.03.2025

**Please include the following consent to process personal data (applications not including this statement will not be processed for legal reasons):**

„Wyrażam zgodę na przetwarzanie moich danych osobowych dla potrzeb niezbędnych do realizacji procesu rekrutacji zgodnie z Ustawą z dnia 29 sierpnia 1997 r. o ochronie danych osobowych ( Dz. U. z 2016 r. poz. 922 z późń. zm.)”