

Institute of Cellular Biology and Pathology "Nicolae Simionescu"

RESEARCH STRATEGY

Research career outlook at ICBP-NS

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Research methodology

The research presented is the result of a research design based on a quantitative component (questionnaire survey).

The research was conducted in two stages as follows: (1) quantitative data collection stage and (2) strategy and action plan deepening and refinement stage.

In the following sections, we present the objectives that guided the investigative approach and the methodological particularities of the two research components.

The purpose and objectives of the research

The purpose of the research was to investigate the opinions of the research staff regarding the current policies of the ICBP-NS to promote careers in the field of research. Correlatively, the following specific objectives were formulated:

- O1: Identifying the opinions of the respondents regarding the recruitment and selection process carried out in the institute
- O2: Assess staff perceptions of the working conditions offered within the ICBP-NS
- O3: Identify the views expressed in relation to the current training and professional development perspective that ICBP-NS offers to researchers, regardless of career level
- O4: Identifying the perspective of the respondents on the policies regarding the observance of ethical principles in the research activity

Quantitative component

Table 1. General methodological characteristics of the quantitative component

Questionnaire administration method	Self-administered online questionnaire
Method of disseminating the questionnaire	E-mail
Reference population	The selection universe was represented by the research staff working within the ICBP-NS.
Sampling procedure	Availability criteria

The investigated sample - selection and characteristics

To carry out this study, the reference population taken into account was represented by the research staff working in the Nicolae Simionescu Institute of Cellular Biology and Pathology. Regarding sample selection, our methodological option was to maximize the number of potential responses, correlative to the data collection modality. We opted for a sample selected based on availability criteria. The unit of selection was the employee. Data collection was carried out between the 5th and 8th of September, 2023.

The data in Figure 1 shows an unbalanced distribution of genders, with the highest share being represented by women at the institute level (approximately 85% women).

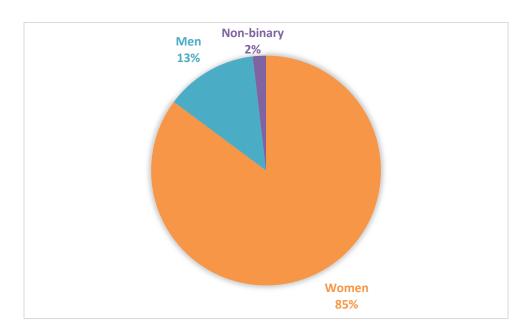


Figure 1. Gender distribution of the sample - % (N = 54)

The investigated sample reflects to a greater extent the opinions of the researchers within the institute (see Figure 2, 3 and 4). Among all those who answered the questionnaire, we can report the following:

- Most of the participants obtained their doctorate more than 10 years ago (42%)
- Most of the participants hold the scientific degree of CS III (28%)
- The dominant scientific fields at the institute level are biology (37%), biochemistry (28%) and physics (18%)

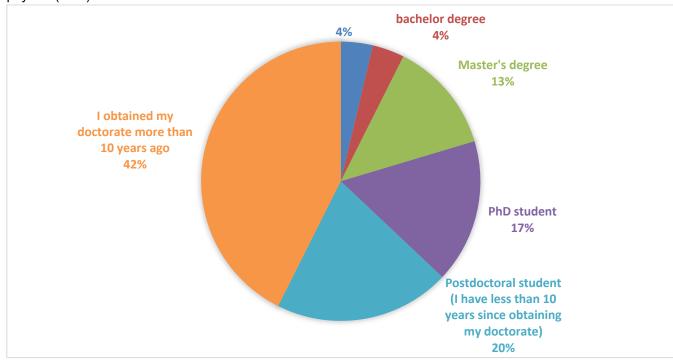


Figure 2. Distribution in relation to university degree - % (N = 54)

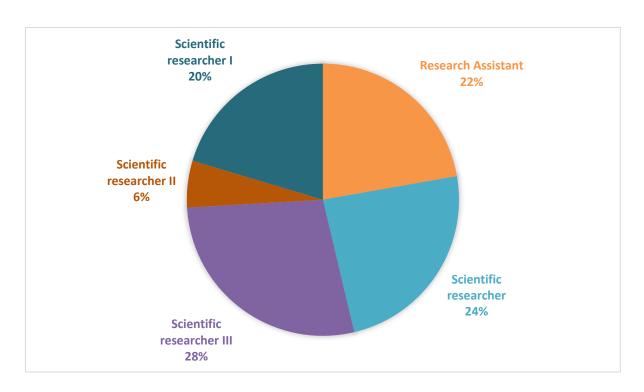


Figure 3. Distribution in relation to scientific degree held - % (N = 54)

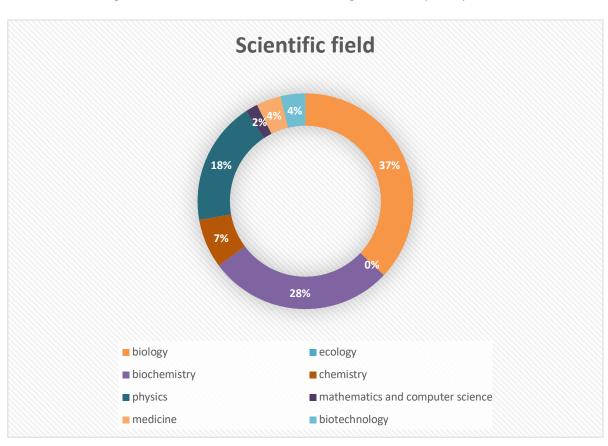


Figure 4. Distribution in relation to the scientific field - % (N = 54)

We underline the fact that approximately 17% of respondents participating in the study hold management positions at the institute level, as shown by the data summarized in Figure 5.



Figure 5. Distribution in relation to the nature of the position held - % (N = 54)

A distribution that reflects the weights at the institutional level is also the one made in relation to the age variable (see Figure 6). The segment best represented at the sample level is that of people aged up to 30 years, followed by the segment of respondents aged between 41-50 years (a fact that correlates with the career level at which the respondents are).

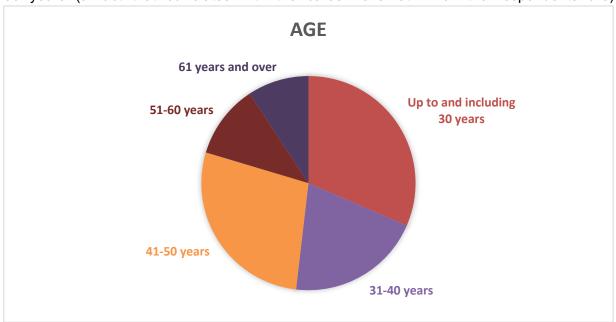


Figure 6. Distribution by age group - % (N = 54)

A distribution that reflects the weights at an institutional level is also the one made in relation to seniority at the workplace (see Figure 7). Most of the employees have more than 21 years of experience in the institution (35%).

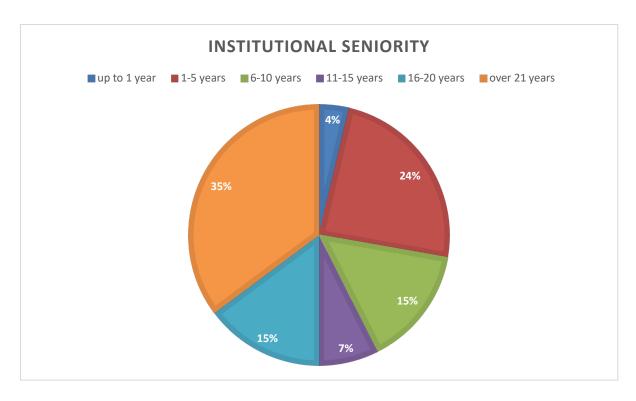


Figure 7. Distribution in relation to seniority in the institution - % (N = 54)

We also underline the fact that approximately 91% of the respondents participating in the study are employed for an indefinite period at the institution level, as shown by the data summarized in Figure 8.

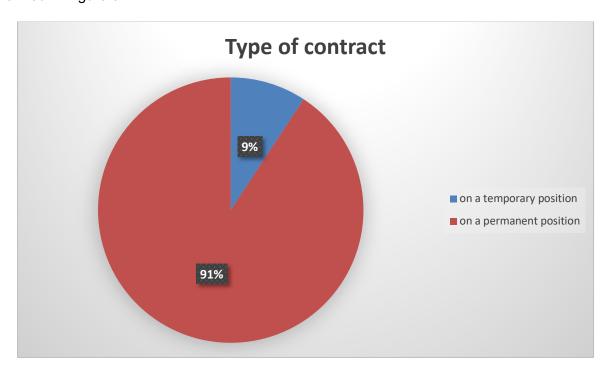


Figure 8. Distribution in relation to employment period - % (N = 54)

Data collection tools

The design of the questionnaire was based on the operationalization of the four categories of principles that the Charter and the European Code of Researchers mention and promote as recommendations in the strategic approach to the research career. Thus, for each dimension, specific items were developed that operationalize the 40 principles integrated in the Charter and Code.

The resulting questionnaire includes 34 opinion and socio-demographic items. The questionnaire was self-administered online on the Google Forms® platform.

10) How much do you agree with the statement below?

You can rate from 1 to 5, where 1 = completely disagree and 5 = completely agree.

Vacant research positions are adequately communicated ...

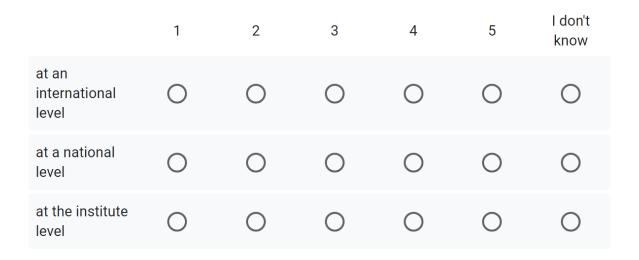


Figure 9. Screenshot – presentation of a questionnaire item in the Google Forms® platform

Applying this method involves calling a specialized platform, on which the questionnaire is programmed and sent for completion via a link or e-mail. The total volume of the resulting sample is 54 respondents (N = 54).

Research results

Opinions on the recruitment and selection process

One of the four sets of principles referred to in the Charter and Code concerns the recruitment and selection process of researchers. In this section we will refer to the recruitment and selection of teaching and research staff, given the fact that at the national level the teaching norm also includes research activity.

The openness and transparency of the recruitment and selection process were rated positively by approximately 70% of respondents. In addition, 52% of respondents stated that the recruitment process is effective.

Transparency and broad addressability (openness) are the main attributes that characterize this process at the ICBP-NS level, with approximately 78% of respondents being satisfied with these characteristics.

Significantly lower, but still high, scores were also calculated for the **efficiency of recruitment** and **selection**, respectively the **suitability** of these to the type of vacancy.

Regarding these attributes, differences between the opinions expressed by women and men are not statistically significant, supporting the fact that ICBP-NS respects equal opportunities in relation to access to teaching and research positions.



Figure 10. Descriptive statistics regarding the recruitment and selection process in ICBP-NS

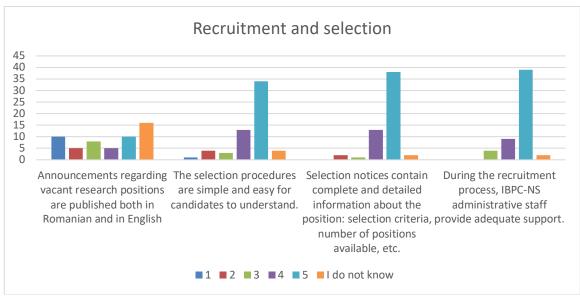


Figure 11. Opinions regarding the recruitment and selection process in ICBP-NS - % (N=54)

The communication of vacancies is another aspect that was investigated in the context of this research. The results suggest the need for an improvement in the promotion of available positions (18% of responses qualify the communication of open positions as "adequate") - see Figure 11.

The average scores in Figure 12 indicate the presence of positive opinions, but also suggest the possibility of improving the way of promotion at the international level, given that most respondents are satisfied with the promotion of research positions at the national level.

The differences between the average scores calculated in relation to the variable **nature of the position** occupied are not statistically significant for the communication of vacancies at the national and international level. However, statistically significant differences are noted regarding the communication of these positions at the institute level. Thus, the tendency is for staff with management and execution functions to appreciate significantly more the way in which vacancies are communicated at the institutional level.

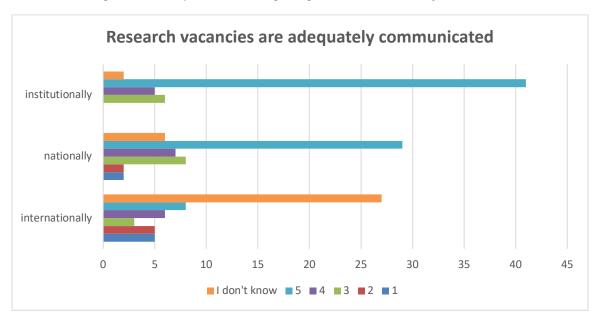


Figure 12. Descriptive statistics regarding the communication of job vacancies

A particularly important aspect in all recruitment and selection procedures and practices is represented by the criteria based on which candidates are evaluated (see Figure 13). The collected data indicate a dominance of quantitative criteria (number of scientific publications), seconded by the quality of scientific publications and general performance in research activity. Research performance is a criterion that scores significantly lower.

According to the interviewed subjects, it is important that the evaluation of candidates also takes into account qualitative criteria, not just quantitative ones. International mobility internships and candidates' creativity are also criteria that are given a significantly lower importance compared to the number of scientific publications. (see Figure 14)

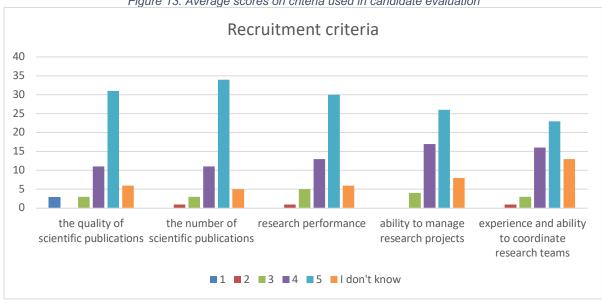


Figure 13. Average scores on criteria used in candidate evaluation

Candidate evaluation criteria 30 25 20 **2** 15 \mathbf{M} 3 10 **4 V** 5 ■ I don't know international the creativity of the ability to the ability to experience and professional mobility the candidates work work in a team ability to experience strategies coordinate autonomously research teams

Figure 14. Average scores on criteria used in candidate evaluation

The value of saturations (Figure 13) shows that the main indicators underlying the research performance variable are represented by the quality of publications, respectively by the general research activity.

Regarding the variable called "omnibus criteria", the most important aspects are autonomy and

the ability to work in a team. (see Figure 14)

Another aspect investigated in relation to the cluster of principles of staff recruitment and selection concerned the evaluation committees (Figure 15). The main attribute highlighted by the scores concerns gender balance at the level of evaluation committees. The differences expressed by women and men are not statistically significant.

An element that can become problematic is represented by the criteria based on which the evaluation commissions are established. Regarding this aspect, statistically significant differences are found between the respondents with management functions, respectively those with execution functions. (see Figure 5)

Thus, the personnel with management functions may show a stronger tendency to appreciate that **the selection of the members of the evaluation commissions** is carried out on the basis of clear criteria, compared to the opinions expressed by the employees with execution functions.

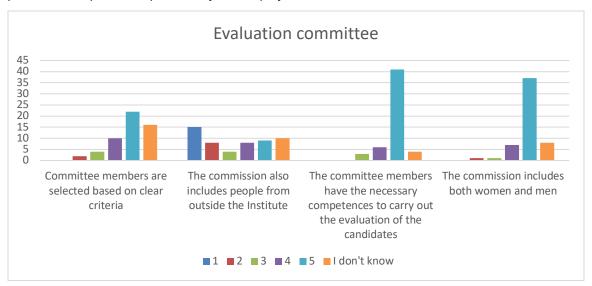


Figure 15. Average scores of opinions regarding evaluation commissions

The eligibility criteria favor the enrollment of as many candidates as possible.

0% 4%

1
20%

9%

21%

3
4
46%

1 I don't know

Figure 16. Average scores of opinions on attracting candidates

From Figure 16, it can be seen how 67% of the respondents, positively appreciated the way in which the eligibility criteria of employees and future employees for research positions within the ICBP-NS, favours the enrolment of future candidates in as many numbers as possible without being discriminated against or limited in expressing or exhibiting the acquired qualities.

Perspective on the working conditions offered by ICBP-NS

In relation to the category of principles related to working conditions, three aspects were investigated (see Figure 17): knowledge and respect for social rights; equity in granting rights and benefits regardless of career level; the quality of interactions with administrative staff.

Most of the surveyed researchers state that they know their basic social security rights and that they benefit from them. About half rate working conditions as adequate for all career levels.

The highest score is found in relation to the respect of social rights.

A significantly lower score was calculated for the other two investigated variables. Thus, the respondents opine that there is a variability in relation to the career level in terms of working conditions. The differences are statistically significant in relation to the career level at which the respondents are.

Research scientists II, research scientists and research assistants tend to identify an uneven distribution of resources and access to research infrastructures, suggesting the presence of a gap.

Even though ICBP-NS has an outstanding research infrastructure, very few respondents indicated that all researchers know about its existence and can use it.

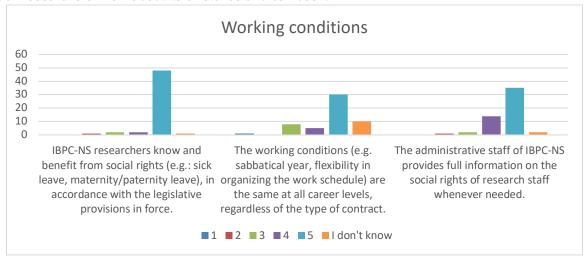


Figure 17. Descriptive statistics regarding the working conditions offered to staff

Among the study participants (mostly research scientists II and I) claim that their departments provide them with a stimulating work environment, adequate equipment and opportunities for cooperation through research networks.

To provide free access to the research infrastructure it is necessary to have:

- a) more auxiliary (support) staff to be permanently present in the laboratory to offer specialized help in using the equipment;
 - b) adequate and periodic training of this support staff;
 - c) a procedure to regulate the methods of access to the research infrastructure;
 - d) budget for maintenance and consumables;
 - e) spaces dedicated to research activity.

Some of the participants suggest the need to improve communication and information dissemination processes within the institute.

The initiative of a unitary project/programme management mechanism is necessary and welcome, leading to the elimination of some administrative difficulties.

For the implementation of the actions related to the policy of Open Science and Open Access, the respondents suggest that there is a need for information sessions in advance regarding what these initiatives involve and what benefits they can bring. In the absence of a community-wide belief that Open Data, Open Science initiatives can be beneficial in the long term, creating the necessary infrastructure for Open Data could be of little interest to researchers. Training in the use of these tools is also essential.

Training and professional development

The career plan is seen as a very important tool for career planning and development. Participants in the consultations supported the idea that it should be developed together with the head of department and monitored accordingly.

The proposal to organize mentoring activities for young researchers is widely accepted, and research assistants, research scientists and research scientists III, identify a real need to benefit from such activities. The involvement of department heads and other specialized institutional structures is necessary to ensure the efficiency of these activities. Complementarily, the revision of the job descriptions was also suggested.

36% of researchers stated that ICBP-NS provides staff with training and continuing education opportunities appropriate to research activities, emphasizing that there is room for improvement. All the respondents considered the training courses useful, in any of their variants (participation in

workshops, lectures or e-learning activities).

The development of a professional training program in the field of protection and exploitation of intellectual property for research staff is considered a natural, necessary and beneficial approach in the context where most of the information is unstructured and where some of the teaching staff are asked, in mandatory, a patent for advancement. The suggested frequency for participation in training and continuous development activities varies between 6 months and 2 years.

International mobility also has an important contribution to career development. 67% of researchers mentioned that the ICBP-NS adequately supports international mobility and scientific exchanges. It is suggested to promote other types of mobilities, with an emphasis on mobilities between institute and industry. The purpose of these mobilities can be documentation (short-term mobilities for writing an article or a project proposal) or training and research.

An aspect on which the opinions of the respondents converge to an exceptionally large extent is represented by the systematic realization of the **evaluation of the research activity**. Most of the respondents considered that research performance evaluation is carried out effectively and agreed that it is a constant and periodic activity.

The saturation coefficients from the factor analysis indicate that the main indicators of training and **professional development are continuous training**, mobility internships and research infrastructure (see Figure 18), aspects considered to be more important than the research norm.



Figure 18. Descriptive statistics on training and professional development opportunities

Elements of ethics and professional responsibility

The ethics committee of the institute deals adequately with the notifications received, as stated by 67% of the researchers.

72% of study participants agreed that **ICBP-NS** provides researchers with clear policies and procedures regarding good research practices (including issues related to research ethics and academic integrity).

Importance must be given to the **dissemination of the Code of Ethics**, either through information actions at the departmental level, or through direct transmission by electronic means to all employees. This document should be easily accessible on the ICBP-NS website.

An important role of the ethics committee is to provide recommendations regarding research ethics. For this purpose, it is recommended to establish a procedure for contacting the ethics committee, and its contact details must be visible.

We note the confirmation of ICBP-NS policies supporting **gender equality and opportunity**. The differences in relation to the gender variable are not statistically significant, suggesting that there is no difference in perception regarding this aspect. A similar situation is found in relation to the age variable.

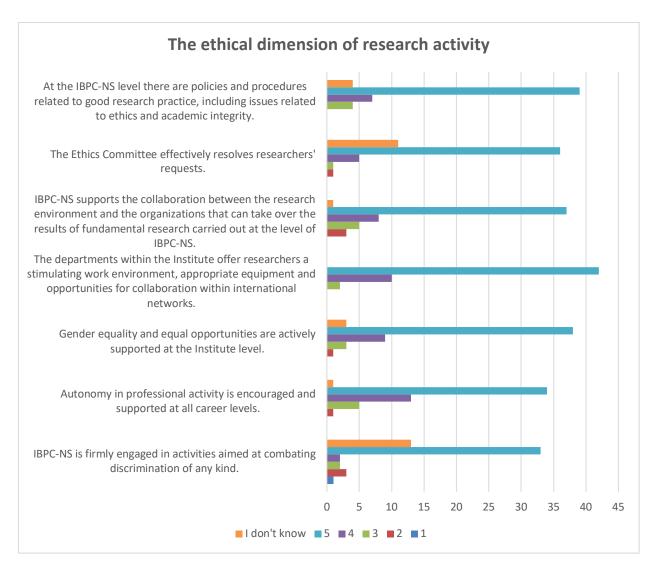


Table 14. Average scores on elements of ethics and professional responsibility

Conclusions and areas of intervention

The results of the consultations indicated the following areas of intervention to increase convergence with C&C principles.

Thus, ICBP-NS must:

- promote vacant research positions at an international level;
- · improve internal communication and information dissemination processes;
- ensure that all researchers benefit from adequate research infrastructures to support their research activity;
- strengthen the support offered to researchers, for the development of better relations between academia and industry;
- stimulate support services, especially for early career researchers;
- create institutional mechanisms and strategies to encourage effective training activities and to support the development of teaching and research careers;
- encourage international mobility as a means of career development.

Questionnaire regarding the perspective on research career at IBPC-NS

Dear colleagues,

The Institute of Cellular Biology and Pathology Nicolae Simionescu has initiated the implementation procedure of the Human Resources Strategy for Researchers, aiming to obtain the Excellence in Research Human Resource Award, by fully supporting the 40 principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers.

In order to align the Institute's human resources practices with the principles of the Charter and the Code, and to use the "HR Excellence in Research Award" logo, it is necessary to develop the following documents: analysis of the current situation, identification of deficiencies and ways to address them, including the development of an action plan.

Therefore, to improve the career development conditions of researchers at IBPC-NS and to ensure that the proposals and directions resulting from this effort reflect the reality of the IBPC-NS organizational environment, we aim to conduct a questionnaire-based survey.

We kindly request your support in collecting data by completing this questionnaire. It is addressed to research staff, regardless of their career level.

The questionnaire will be open until **September 8, 2023**. The estimated completion time is approximately 10 minutes.

Thank you for your involvement!

1) What is your current title?

- 1. I have a bachelor's degree.
- 2. I am a master's degree student.
- 3. I hold a Master's degree.
- 4. I am a doctoral student.
- 5. I am a postdoctoral researcher (less than 10 years since obtaining my doctorate).
- 6. I obtained my doctorate more than 10 years ago.

2. Scientific Researcher R1
3. Scientific Researcher R2
4. Scientific Researcher R3
5. Scientific Researcher R4
3) Current position:
1. Executive position
2. Execution position
4) You are employed:
1. on a temporary position
2. on a permanent position

2) Scientific rank:

1. Research assistant

3)	what is the semonty (in completed years) you have at your current job?
1.	Up to 1 year
2.	1-5 years
3.	6-10 years
4.	11-15 years
5.	16-20 years
6.	over 21 years
6)	You are:
1.	woman
2.	man
3.	non-binary
7)	In which of the following ranges does your age (in completed years) fall?
1.	Up to and including 30 years
2.	31-40 years
3.	41-50 years
4.	51-60 years
5.	61 years and over

8) University studies are in the field of:

What is the scientific field in which your studies fall?

Only one answer is possible.	

- 1. biology
- 2. ecology
- 3. biochemistry
- 4. chemistry
- 5. physics
- 6. mathematics and computer science
- 7. medicine
- 8. biotechnology

The recruitment and selection process

9) Please rate the extent to which you agree with the statements below.

You can give a score from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

	1	2	3	4	5	I don't know
Recruitment and selection procedures are open to all individuals who are interested and meet the criteria.	0	0	0	0	0	0
Recruitment and selection procedures are transparent	0	0	0	0	0	0
The way in which research personnel are recruited and selected is appropriate to the level of the position (in terms of access conditions, selection criteria, etc.)	0	0	0	0	0	0
Procesul de recrutare și selecție în IBPC-NS este eficient	0	0	0	0	0	0
The recruitment process is hampered by the specific labor legislation for public institutions	0	0	0	0	0	0

10) How much do you agree with the statement below?

You can rate from 1 to 5, where 1 = completely disagree and 5 = completely agree.

Vacant research positions are adequately communicated ...

	1	2	3	4	5	I don't know
at an international level	0	0	0	0	0	0
at a national level	0	0	0	0	0	0
at the institute level	0	0	0	0	0	0

11) Please rate the extent to which you agree with the statements below.

You can give a score from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

	1	2	3	4	5	l don't know
Announcements regarding vacant research positions are published both in Romanian and in English	0	0	0	0	0	0
The selection procedures are simple and easy for candidates to understand.	0	0	0	0	0	0
Selection notices contain complete and detailed information about the position: selection criteria, number of positions available, etc.	0	0	0	0	0	0
During the recruitment process, IBPC-NS administrative staff provide adequate support.	0	0	0	0	0	0

12) Please rate to what extent the performance evaluation in the recruitment and selection process includes the following aspects.

You can give a score from 1 to 5, where 1 = totally disagree and 5 = totally agree.

	1	2	3	4	5	I don't know
the quality of scientific publications	0	0	0	0	0	0
the number of scientific publications	0	0	0	0	0	0
research performance	0	0	0	0	0	0
ability to manage research projects	0	0	0	0	0	0
experience and ability to coordinate research teams	0	0	0	0	0	0

13) To what extent do you agree with the statement below?

You can give a score from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

The selection committee evaluates, in addition to the scientific production, the general experience of the candidates, taking into account...

	1	2	3	4	5	l don't know
international mobility strategies	0	0	0	0	0	0
the creativity of the candidates	0	0	0	0	0	0
the ability to work autonomously	0	0	0	0	0	0
the ability to work in a team	0	0	0	0	0	0
experience and ability to coordinate research teams	0	0	0	0	0	0
professional experience (including the relationship with organizations that can take over the results of fundamental research carried out at the Institute level and knowledge transfer activities to the general public)	0	0	0	0	0	0

14) To what extent do you agree with the statement below?								
You can give a score from 1 to 5, where 1 = strongly disagree and 5 = strongly agree and 6 is "Don't know"								
		1	2 :	3 4	5	6		
The eligibility criteri enrollment of as candidates as po	s many	0	0 (0	0	0		
15) To what extent do you agree with the following statements regarding the selection and evaluation committee? You can give a score from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.								
	1	2	3	4	5	I don't know		
Committee members are selected based on clear criteria	0	0	0	0	0	0		
The commission also includes people from outside the Institute	0	0	0	0	0	0		
The committee members have the necessary competences to carry out the evaluation of the candidates	0	0	0	0	0	0		
The commission includes both women and men	0	0	0	0	0	0		

Working conditions

The following section will address aspects related to the working conditions provided to researchers at ICBP-NS.

16) To what extent do you agree with these statements?

Please rate from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

	1	2	3	4	5	Nu știu
Researchers at ICBP-NS are aware of and benefit from social rights (e.g., sick leave, maternity/paternity leave), in accordance with current legislation.	0	0	0	0	0	0
The working conditions (e.g. sabbatical year, flexibility in organizing the work schedule) are the same at all career levels, regardless of the type of contract.	0	0	0	0	0	0
The ICBP-NS administrative staff provides full information on the social rights of research staff whenever needed.	0	0	0	0	0	0

Training and professional development

In the following, aspects related to the training and professional development benefiting ICBP-NS researchers will be displayed.

17) To what extent do you agree with these statements?

Please rate from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

	1	2	3	4	5	I don't know
The evaluation of research activities is conducted periodically at ICBP-NS.	0	0	0	0	0	0
The institute provides adequate professional training for carrying out research activity.	0	0	0	0	0	0
The institute actively promotes and supports mobility internships held at institutions abroad.	0	0	0	0	0	0
The institute operates with clear procedures regarding research career advancement.	0	0	0	0	0	0
ICBP-NS creates learning contexts where researchers can form and develop their professional skills by participating in workshops, lectures or e- learning activities.	0	0	0	0	0	0
ICBP-NS researchers are adequately informed about funding opportunities.	0	0	0	0	0	0
ICBP-NS offers researchers the necessary infrastructure to carry out their work regardless of their career level.	0	0	0	0	0	0

The ethical dimension of research activity

Next, aspects related to the ethical dimension of the research activity will be displayed.

18) To what extent do you agree with these statements?

Please rate from 1 to 5, where 1 = strongly disagree and 5 = strongly agree.

	1	2	3	4	5	I don't know
ICBP-NS is firmly engaged in activities aimed at combating discrimination of any kind.	0	0	0	0	0	0
Autonomy in professional activity is encouraged and supported at all career levels.	0	0	0	0	0	0
Gender equality and equal opportunities are actively supported at the Institute level.	0	0	0	0	0	0
The departments within the Institute offer researchers a stimulating work environment, appropriate equipment and opportunities for collaboration within international networks.	0	0	0	0	0	0
ICBP-NS supports the collaboration between the research environment and the organizations that can take over the results of fundamental research carried out at the level of ICBP-NS.	0	0	0	0	0	0
The Ethics and Integrity Commission effectively resolves researchers' requests.	0	0	0	0	0	0
At the ICBP-NS level there are policies and procedures related to good research practice, including issues related to ethics and academic integrity.	0	0	0	0	0	0