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Nicolae Testemitanu State University of Medicine and
Pharmacy of the Republic of Moldova**

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**The Research and Innovation
Reinforcement Strategy
of Nicolae Testemitanu State University
of Medicine and Pharmacy
from the Republic of Moldova,
2020-2030**

Chisinau, 2020



Public Institution
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Pharmacy of the Republic of Moldova

The 2020-2030 Research and Innovation Reinforcement Strategy of Nicolae Testemitanu State University of Medicine and Pharmacy from the Republic of Moldova aims to extend the electoral program of Mr. Emil Ceban, rector of Nicolae Testemitanu SUMPH, Dr. habil. med., MD, university professor.

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List of abbreviations

BBMRI	<i>European research infrastructure for biobanking</i>
MSL	<i>Medical Scientific Library</i>
CERIC	<i>Central European Research Infrastructure Consortium</i>
COST	<i>European Cooperation in Science and Technology</i>
PMD	<i>Procurement and Marketing Department</i>
IAD	<i>Internal Auditing Department</i>
PRCD	<i>Public Relations and Communication Department</i>
EAMD	<i>Education and Academic Management Department</i>
DEBF	<i>Department of Economics, Budget and Finance</i>
ARMD	<i>Accounting Records Management Department</i>
LD	<i>Legal Department</i>
EREID	<i>External Relations and European Integration Department</i>
HRD	<i>Human Resource Department</i>
DICT	<i>Department of Information and Communication Technologies</i>
ERIC	<i>European Research Infrastructure Consortium</i>
EURAXESS	<i>EU Research Access</i>
IF	<i>Impact Factor</i>
ICGEB	<i>International Center for Genetic Engineering and Biotechnology</i>
ISI	<i>Institute for Scientific Information</i>
JPI	<i>Joint Programming Initiative</i>
MJHS	<i>Moldovan Journal of Health Science</i>
MIP	<i>Management of Intellectual Property</i>
IPO	<i>Intellectual Property Object</i>
SOP	<i>Standard operating procedure</i>
RRC	<i>Regional Research Center</i>
SCOPUS	<i>the world's largest abstract and citation database</i>
DS	<i>PhD School in the field of medical sciences</i>
WoS	<i>Web of Science</i>

Work Team:

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Target situation analysis and argumentation on the need of Research and Innovation Reinforcement Strategy

1. The 2020-2023 National Research and Innovation program [based on the Government Decision no. 381/2019] states that “research and innovation development is the engine of economic growth and provide solution for overcoming the social challenges. The research and innovation progress directly influences both the economic competitiveness of a country and the ability of the population to adapt to both consequences and changes, it is currently going through”. The research and innovation funding is recommended to be categorized as *investment types* rather than *budget expenditures*.

2. The Research and Innovation Reinforcement Strategy for Nicolae Testemitanu SUMPh, aims at setting up both structural deficiencies and strong points, thus enabling to improve coordination of vertical and horizontal research in organizational studies. The modernization of the research structure, as well as its shifting towards an appropriate structure meant to coordinate healthcare research studies in the Republic of Moldova by providing education through research, scientific competitiveness, as well as national and international partnerships, is a key condition for strengthening the field of Research and Innovation studies within the University. Nicolae Testemitanu SUMPh is a nationally and internationally accredited higher establishment that encounters all the requirements for restructuring and achieving this specific purpose.

3. The current research infrastructure organization of Nicolae Testemitanu SUMPh, based on separate research units, is no longer efficient, leading to a variety of challenges regarding the management of the infrastructure as a whole, thus considerably decreasing its potential of ensuring a steady development of modern scientific research. Therefore, a reorganization of the research infrastructure is required in accordance with international good practices based on the CORES (Centralized Operation of Research Equipment and Support) principles, which pleads for the concentration of high performance equipment and qualified personnel within a unit, hence ensuring its higher functionality. The organization of a separate Biomedicine & Health Research Center will help in managing the research infrastructure as a whole; will provide quality conditions and unbiased access to high-performance research equipment for all preclinical and clinical subdivisions.

4. The university provides a continuous quality improvement for physicians involved in the research processes. Research training programs enable medical students to conduct healthcare research throughout all the study years, starting with the preclinical training course, by providing student participation in scientific circles and developing the undergraduate research work. Low functionality of the scientific circles for students from most subdivisions of Nicolae Testemitanu SUMPh, as well as the poor quality of undergraduate research theses, mostly suggest a reserve improvement.

A significantly increased motivation for scientific activity among young researchers from Nicolae Testemitanu SUMPh was registered during the years 2015-2019. Thus, in 2019, the number of PhD students was 319, that is 105 more than in 2015. Unfortunately, an uneven distribution of young researchers' interests regarding the scientific profiles and specialties has been recorded, which creates difficulties in developing medicine and healthcare – related strategic research directions for immunology, allergology, histology, etc. In 2017-2019, the number of PhD theses also decreased to 27 in 2017 and 17 in 2019. There were also no obvious advances recorded on defending Habilitation theses, hence 9 theses were defended in 2017, 8 - in 2018 and 10 - in 2019.

Under these conditions, an optimization of the training process of young researchers is required, by implementing the research training principle that will enable research revitalization by increasing the functionality of scientific circles, ensuring inter- and cross-disciplinary research studies among students and residents, and providing continuity of research activities throughout their medical training programs.

5. The international and inter-institutional cooperation of Nicolae Testemitanu SUMPh showed an increase in terms of basic research performance and scientific productivity particularly over the last 2-3 years, though under relatively poor funding conditions. Thus, the total number of publications registered in SCOPUS during 2015-2019 increased as following: 25 (2015); 48 (2016); 43 (2017); 32 (2018); 55 (2019). Despite the increasing number of publications submitted to SCOPUS journal, which is an indicator of research performance, it is still relatively low. To improve the current situation, a framework for improving the quality of research within Nicolae Testemitanu SUMPh is required by enhancing the training programs of young researchers, increasing research internationalization processes, implementing the Open Science principles, and enhancing the researchers' responsibility for quality scientific findings.

6. In 2015-2019, there was a high rate of project submissions, as well as their acceptance, though being relatively lower in number (Table 1) compared to the human potential of the University, which includes 12 academicians and corresponding members of the ASM, 177 Dr. habil. in Medicine, Pharmacy and Biology, 558 PhDs, 308 researchers, 1268 scientific-teaching staff, 313 PhD students and 5763 students. The capitalization of human potential (scientific, teaching and academic), as well as its encouragement, support and development provides an opportunity for further research progress.

Table 1. The number of research projects and partnership agreements within Nicolae Testemitanu SUMPh, 2014-2019

	Years					
	2014	2015	2016	2017	2018	2019
National Projects	29	27	24	29	30	27
International Projects	18	25	21	30	23	7
Partnership agreements	2	5	7	4	2	7

In 2014-2019, a lower level of implementation of research findings was recorded within Nicolae Testemitanu SUMPh, as well as a decreasing tendency regarding innovation and technology transfer in most categories, except for copyright certificates (Table 2).

The strengthening of the technology transfers of the research results carried out within Nicolae Testemitanu SUMPh will contribute to a better capitalization and a more efficient development of this domain, particularly of its practical use.

Table 2. Innovation and technology transfer activity within Nicolae Testemitanu SUMPh, 2014-2019

	Years					
	2014	2015	2016	2017	2018	2019
Patents	38	30	21	18	20	11
Patent applications	21	27	36	13	18	17
Author certificates	0	3	5	18	24	23
Innovator certificates	118	80	21	45	63	57

7. Over the last years , the research result visibility within Nicolae Testemitanu SUMPh has increased due to a series of publication submissions in *peer-reviewed* journals, as well as in international databases, such as SCOPUS, Web of Science, Publons etc., there is an vital requirement for ongoing quality research improvement and enhancement of both the internationalization research process and the research visibility by promoting the image of Nicolae Testemitanu SUMPh at both national and international level.

Problem identification

The Research and Innovation fragmentation has been confirmed mostly by:

- (1) Inefficient coordination of vertical and horizontal research organization;
- (2) Potentially low research infrastructure, unable to provide modern requirements for advanced scientific research;
- (3) Reduced young researcher involvement within healthcare education;
- (4) Deficient interaction with national and international partnerships;
- (5) Reduced capitalization of the research findings conducted within Nicolae Testemitanu SUMPh;
- (6) Low national and international research result visibility of studies conducted within Nicolae Testemitanu SUMPh.

The Research and Innovation reinforcement strategy aims to implement a set of coordinated actions, in order to solve the identified deficiencies within Nicolae Testemitanu SUMPh. Subsequently, it will create a favourable environment for increasing the efficiency, relevance and national and international competitiveness of the research and innovation activity of Nicolae Testemitanu SUMPh.

Over the next ten years, the implementation of this strategy might result in generating high level of scientific and technological knowledge, as well as its dissemination and implementation into advanced medical technologies; coordinating healthcare and biomedical researches along with similar institutions within the country and abroad; the university integration into regional and international scientific value chain; providing paradigms for medical education research; preserving traditional practices of local science schools; enhancing the human and national values, as well as the spirit of free enquiry and expression; and applying the Open Science principles for both citizens and whole community welfare.

Legal framework

- Education Code of the Republic of Moldova no. 152 dated on 17/07/2014,
- Code on Science and Innovation of the Republic of Moldova no. 259-XV of 15/07/2004,
- Law on the amendment and completion of certain legislative acts no. 190 of 21/09/2017,
- Law on the approval of the Nomenclature of vocational training and professional training programs for academic staff in higher education institutions, cycle I, no. 142-XVL of 07/06./005,
- The 2007-2021 National Health Policy of the Republic of Moldova approved by Government Decision no. 886 of 06/09/2007,
- The 2008-2017 strategy for health service development, approved by Government Decision no. 1471 of 24/12/ 2007,
- The 2011-2020 program for the development of medical and pharmaceutical education in the Republic of Moldova, approved by the Government Decision of the Republic of Moldova no. 1006 of 27/10/ 2010,
- The 2020-2023 National Research and Innovation program, approved by Government Decision no. 381/2019,
- Nomenclature of vocational training programs and specialties in higher education, approved by Government Decision no. 482 of 28.06.2017,
- Nomenclature of professional training for academic staff in higher education institutions from the Republic of Moldova, approved by the Ministry of Economy on 20.04.2001,
- 1999 Bologna Declaration,
- Other normative acts, including international treaties and agreements, to which the Republic of Moldova takes part,
- The magna charter of Nicolae Testemitanu SUMPh from the Republic of Moldova

Nicolae Testemitanu SUMPh along with the National Institute of Research in Medicine and Health will coordinate activities according to the national healthcare interests and in agreement with the Ministry of Health, Labour and Social Protection, Ministry of Education, Culture and Research, Academy of Sciences of Moldova, and other international institutions and bodies.

Mission Statement

The Mission of Nicolae Testemitanu SUMPh from the Republic of Moldova is to provide community welfare services by:

- Generating the highest scientific and technological knowledge level that will be disseminated and transferred into advanced healthcare and preventive technologies
- Coordinating healthcare and biomedical research at national level as being the leading organization responsible for healthcare-related studies
- Providing professional training for physicians, dentists and pharmacists within the healthcare system according to international standards, based on research and scientific evidence
- Maintaining the highest professional qualifications among healthcare workers due to the ongoing professional development, based on modern educational technology and strong scientific evidence
- Developing medical and biomedical scientific research according to international standards via various collaborations with similar institutions in the country and abroad, thus becoming part of the regional and international scientific value chain

- Preserving the traditional practices of local science schools, promoting human and national values, and enhancing the spirit of critical thinking, openness and cooperation
- Applying the Open Science principles for the welfare of both citizens and whole community

Vision Statement

Nicolae Testemitanu State University of Medicine and Pharmacy is a modern, high-performance and internationally competitive institution, which provides professional education based on high quality scientific research, excellence, open access and multilateral collaboration.

Values

- Quality and quality culture within all activity domains
- Institutional performance by adhering to international standards
- Creativity and innovation in professional training, scientific research and management
- Individual and institutional responsibility
- Employee and beneficiaries' satisfaction
- Motivation and development of the academic community
- Teamwork, as well as intra- and inter-institutional communication
- Proactive partnership with academic institutions, as well as governmental, public and non-governmental organizations within the country and abroad

Guiding Principles¹

- Research freedom
- General ethical principles
- Professional responsibility
- Professional attitude
- Compliance with contractual obligations and law
- Employees' responsibility
- Dissemination of research findings and their exploitation
- Good research practices
- Public engagement
- Right mentoring relationships
- Continuous professional development
- Professional recognition of the researcher practice
- Non-discrimination
- Favourable environment for research
- Adequate working conditions
- Employment stability
- Decent wages and adequate social protection coverage
- Gender equity
- Career advancement opportunity

¹ The European Charter for Researchers. <https://euraxess.ec.europa.eu/jobs/charter/european-charter> (d. o. a. 11.02.2020)

- Academic mobility
- Access to educational research and ongoing professional development
- Access to career guidance and counselling
- Intellectual property rights
- Co-authorship
- Supervision
- Training
- Performance scoring systems
- Complaint and proposal management systems and procedures
- Participation within decision-making bodies
- Compliance with the Code of Conduct for the recruitment of researchers

Goal

The major goal of the Research and Innovation Reinforcement Strategy of Nicolae Testemitanu SUMPh is to comply this target domain with modern requirements in terms of organization, infrastructure, research management processes and research itself, as well as to enhance the University competitiveness regarding these issues at national and international level. Moreover, it involves strengthening of the institution by providing professional education that will be carried out via health-related scientific research in accordance to European requirements, whereas the research subdivisions will become a part of regional and international networks of scientific values and technology transfer.

General objective 1. Modernize the research structure and reshape it into an adequate structure aimed at coordinating health-related research studies within the Republic of Moldova, as well as providing research training, scientific competitiveness, and both national and international partnerships

Specific objectives

1. Re-plan the organizational research structure of Nicolae Testemitanu SUMPh by involving all the university departments, subdivisions, deanships in the management of research processes and to found the National Institute of Research in Medicine and Health based on the scientific potential of the University.
2. Reorganize the Science Department and adjust its functional structure according to the organizational chart in order to ensure training through research.
3. Organize the functional network activity of student scientific circles within the departments and research subdivisions of Nicolae Testemitanu SUMPh.

Actions

1. Developing the concept of National Institute of Research in Medicine and Health, including the organizational chart and the University Senate Approval
2. Developing functioning regulations of the National Institute of Research in Medicine and Health, being approved correspondingly

3. Planning of the necessary staff amount for the newly created structures within the National Institute of Research in Medicine and Health
4. Providing a procedure for changing the name of Science Department subdivision into the Research Department
5. Ensuring the Research Department with proper working conditions
6. Developing the research organizational structure chart of the students (a constituent part of the university research structure) responsible for the activity of the scientific circles, as well as providing annual planning meeting agenda
7. Organizing the Student's Research Society, as well as elaborating and approving its operating regulations
8. Organizing the functional activity of scientific circles within the University subdivisions
9. Encouraging students and residents' application to various scientific projects within national and international programs and projects
10. Providing coordination for the research activities within each faculty

Progress and key performance indicators

1. The concept of the National Institute of Research in Medicine and Health, elaborated and submitted for approval to the University Senate
2. The functioning Regulation of the National Institute of Research in Medicine and Health, elaborated and submitted for approval correspondingly
3. The staff lists of the newly created structures of the National Institute of Research in Medicine and Health approved
4. The subdivision named Research Department approved
5. Adequate working conditions within the Research Department
6. The research organizational structure chart of the students (a constituent part of the university research structure) responsible for the activity of the scientific circles, as well as the approved annual planning meeting agenda
7. The operating regulations of the Student's Research Society, developed and approved accordingly
8. The documented number of University subdivisions with functional scientific circles
9. The annual number of students and residents involved in scientific projects within national and international programs and projects
10. The number of research deputy deans appointed to each faculty
11. The 2020-2021 Research Activity Plan, developed and approved within each faculty

General objective 2. Modify the current research infrastructure into a modern infrastructure, thus providing advanced scientific research studies, research training and technology transfer within the international research networks and infrastructures

Specific objectives

1. Reorganize the structural-functional activity of the Central Scientific Laboratory into a Biomedicine & Health Research Center that will become a modern structure of fundamental and translational research studies, provided with subunits according to the new organizational chart

2. Reconstruct the Central Scientific Laboratory according to up-to-date technical / technological requirements for basic research infrastructures
3. Organize the Center of Advanced Biomedical Technologies (Core Research Facility)
4. Reorganize the Animal House Facility
5. Provide a Technology Transfer Section with Innovational Incubator within the Biomedicine & Health Research Center
6. Organize the population-based Biobank within thematic subdivisions within the Biomedicine & Health Research Center
7. Provide modern research equipment and instruments for subdivisions
8. Create an information system of the research field within Nicolae Testemitanu SUMPh, including the PhD School in the field of medical sciences subdivision

Actions

1. Exploring the feasibility study on the reconstruction (new construction) of the Central Laboratory
2. Developing the reconstruction project (new construction) of the Central Laboratory
3. Developing the management plan of the Center for Advanced Biomedical Technologies
4. Providing feasibility study and designing the reconstruction project (new construction) of the Animal House Facility according to the international requirements
5. Developing functional Regulations of the Biomedicine & Health Research Center and its subunits
6. Implementing the recommendations on the feasibility study for the foundation of the population-based Biobank
7. Developing the general management plan for the research infrastructure of Nicolae Testemitanu SUMPh, including the task and calendar planning agenda
8. Developing the task and calendar planning agenda for elaboration / testing / implementation of the research database of Nicolae Testemitanu SUMPh

Progress and key performance indicators

1. Documented feasibility study for the reconstruction of the Central Laboratory building
2. The developed and submitted for approval Reconstruction project (new construction) of the Central Laboratory building
3. The approved management plan for the Center for Advanced Biomedical Technologies
4. The completed and documented feasibility study for the reconstruction of the Animal House Facility
5. The developed and submitted for approval Reconstruction project (new construction) of the Animal House Facility according to international requirements.
6. The functioning regulation of the Biomedicine & Health Research Center, as well as of its subunits, developed and submitted for approval to University Senate.
7. The implemented recommendations on the feasibility study for the foundation of the population-based Biobank within the Biomedicine & Health Research Center
8. The general management plan of the research infrastructure of Nicolae Testemitanu SUMPh, developed and submitted for approval
9. The task and calendar planning agenda for the General Research Infrastructure Management Plan, developed and submitted for approval

10. The task and calendar planning agenda for elaboration / testing / implementation of the research database system of Nicolae Testemitanu SUMPh, developed and submitted for approval

General objective 3. Implement practical research training principles

Specific objectives

1. Effectively implement the research training disciplines (Biostatistics and scientific research methodology) within the curriculum
2. Revitalize the student research activities by ensuring proper functioning of student scientific circles within the university subdivisions, as well as of various interdisciplinary clubs
3. Provide inter- and cross-disciplinary research practices among students and residents
4. Ensure ongoing research activities throughout the study cycles (university, residency and doctorate training), being extended to postdoctoral programs
5. Promote the choice / approval of scientific research topics among 2nd-3rd year residents
6. Provide students and residents with necessary research skills for developing doctoral studies
7. Choose the research topic for undergraduate research thesis during the 2nd-4th study years. To encourage student participation in preclinical stage researches of university training (integrated studies)

Actions

1. Submitting a proposal to EAMD of Nicolae Testemitanu SUMPh on introducing “Biostatistics and methodology of scientific research” as an *optional* discipline for students from 1st-3rd study years and *mandatory* for the 4th year students, who start preparing for undergraduate thesis defence
2. Elaborating and implementing the functional regulations of the student scientific circles within the University subdivisions
3. Encouraging student and resident involvement in research activities conducted within various departments, laboratories and other University subdivisions
4. Developing the doctoral promotion system based on the research findings obtained at the university graduate and postgraduate stages within the residency study program
5. Developing, agreeing and implementing the policy and mechanisms for the selection of postdoctoral candidates
6. Promoting cross-disciplinary studies and international cooperation for post-doctoral studies
7. Developing, approving and implementing the research database system of students and residents
8. Developing, approving and implementing the research scoring system for students and residents
9. Submitting a proposal to EAMD of Nicolae Testemitanu SUMPh regarding the modification of the defending procedure for the undergraduate research works, including the topic selection by the 2nd-4th year students of integrated studies

Progress and key performance indicators

1. Proposal submitted to EAMD of Nicolae Testemitanu SUMPh on introducing “Biostatistics and methodology of scientific research” as an optional discipline for the 1st-3rd year students and mandatory for the 4th year ones.
2. The developed, approved and implemented regulation on student scientific circle activity within the University subdivisions
3. The number of students and residents involved in research activities within the University subdivisions
4. Regulation for doctoral promotion based on the research findings obtained at university graduate and postgraduate training within the residency program, developed and submitted for approval
5. The correspondingly developed, approved and implemented policy and mechanisms for the selection of postdoctoral candidates
6. The annual number of cross-disciplinary studies and international cooperation for post-doctoral studies
7. The developed, approved and functional student and resident’s research database system
8. The developed, approved and applied research scoring system for students and residents
9. Proposal submitted to EAMD of Nicolae Testemitanu SUMPh regarding the modification of the defending procedure for the undergraduate research thesis, including the topic selection by the 2nd-4th year students of integrated studies

General objective 4. Facilitate international research strategies within Nicolae Testemitanu SUMPh by adhering to Open Science principles

Specific objectives

1. Comply the strategic research directions of Nicolae Testemitanu SUMPh with the international strategic research directions
2. Comply the doctoral and postdoctoral projects with the international priorities and projects, by encouraging the doctoral / postdoctoral students to participate within international projects
3. Promote doctoral and postdoctoral research studies via international collaborations and co-supervision
4. Provide research staff training via international programs (master and doctoral programs)
5. Create international clusters for priority research directions
6. Promote the participation of researchers from Nicolae Testemitanu SUMPh as experts in European programs (Horizon Europe Framework Programme, COST, JPI etc.)
7. Implement the Open Science principles within Nicolae Testemitanu SUMPh
8. Introduce Nicolae Testemitanu SUMPh within the international infrastructure systems regarding the research-innovation domain (CERIC, ERIC, BBMRI, ICGEB)
9. Apply the European and world research infrastructures in conducting and initiating scientific studies at Nicolae Testemitanu SUMPh
10. Provide the university international expert registration and encourage the employees of Nicolae Testemitanu SUMPh to participate as experts

11. Involve the scientific diaspora in the development of the research domain within Nicolae Testemitanu SUMPh, by developing strong relationships with the diaspora and scientists with University honorary titles
12. Optimize the contractual relationships with international partner institutions for developing and performing solid projects / strategies

Actions

1. Modification / adjustment of the procedures / internal criteria for the selection of doctoral topics submitted to PhD thesis contest according to the strategic directions, clusters and the normative framework
2. Extending partnerships with other universities / research centres within the Erasmus + program, etc.
3. Promoting short and long-term doctoral and postdoctoral research fellowships provided by international structures
4. Creating conditions for the training of young researchers through international programs (master and doctorate programs)
5. Continuous training of researchers within academic mobility policy
6. Hosting the RRC of ICGEB at Nicolae Testemitanu SUMPh
7. Notifying the scientific staff about the current opportunities on working as international experts
8. Systematic review and adjustment of the University's policy regarding the employment, scientific staff promotion, free access to information and research findings supported by public funds, and preserving the obtained logo HR EXCELLENCE IN RESEARCH
9. Introducing the international and national projects within the Medical Sciences Repository of the Medical Scientific Library at Nicolae Testemitanu SUMPh
10. Providing conditions / premises for foreign researchers, who have successfully submitted projects for placing their laboratories / research groups within Nicolae Testemitanu SUMPh
11. Providing premises for the researchers from Nicolae Testemitanu SUMPh to carry out projects based on European and global research infrastructures
12. Notifying the scientific staff about the current opportunities on working as international experts
13. Development of the scientific diaspora register and its further use to optimize research activities
14. Encouraging the University staff to participate as guest speakers at international conferences, as well as being guest lecturers for teaching abroad

Progress and key performance indicators

1. Modified and approved internal procedures / criteria for selection of PhD subjects
2. Number of annual partnership agreements
3. Annual number of researchers who have won short and long-term doctoral and postdoctoral research fellowships offered by international structures
4. The number of Master's students trained within international programs
5. The number of PhD students trained within international programs
6. The number of research internships carried out over 1 month of academic mobility

7. RRC of ICGEB hosted at Nicolae Testemitanu SUMPh
8. The amount of information seminars documented via minutes
9. The maintenance of HR EXCELLENCE IN RESEARCH logo. The systematically updated University's policy on engagement of researchers according to international requirements
10. The amount of international and national projects introduced in Medical Sciences Repository of the Medical Scientific Library at Nicolae Testemitanu SUMPh
11. The number of foreign researchers that have won projects to be conducted within the laboratories / research groups of Nicolae Testemitanu SUMPh
12. The number of contract research activities
13. The number of links placed on the University website on the current opportunities for working as international experts
14. The number of researchers and employees of Nicolae Testemitanu SUMPh, who work as international experts
15. The development and approval of scientific diaspora register
16. The number of Nicolae Testemitanu SUMPh staff, invited as speakers at international conferences and as lecturers teaching abroad

General objective 5. Enhance the technology transfer effectiveness for research findings conducted within Nicolae Testemitanu SUMPh

Specific objectives

1. Implement the European policies for intellectual property management within Nicolae Testemitanu SUMPh
2. Establish the Technology Transfer Section with Innovational Incubator, equipped with innovative incubator at Nicolae Testemitanu SUMPh
3. Direct the research studies towards potential smart specialization niches, identified within the entrepreneurial activity and smart specialization strategy for the Republic of Moldova
4. Implement the assessment procedure for technological, economic and financial effect of the research projects, including the doctoral and postdoctoral studies
5. Provide University's support for the international patenting of intellectual property objects (IPOs) showing economic potential
6. Adjust the scientific doctoral and postdoctoral projects, as well as other research projects towards their practical implementation

Actions

1. Training the Research Department and Legal Department staff regarding the European Intellectual Property Management (IPM) policies and procedures
2. Development and approval of internal IMP procedures
3. Development and approval of the operating regulation of the Technology Transfer Section with Innovational Incubator, equipped with innovative incubator
4. Developing standard operational procedures (SOP) and the capitalization guidelines for the research findings
5. Technical endowment of the Technology Transfer Section with Innovational Incubator with an innovative incubator

6. Active participation of the University in entrepreneurial discovery process regarding Biomedicine, Biopharmaceuticals, and Bioinformatics within the S3 development for the Republic of Moldova
7. Developing and disseminating the assessment approach of the technological and economic impact of the research findings
8. Submitting proposals towards the University Senate in order to support the international IPOs patenting that show an economic potential
9. Submitting the proposal to the PhD School in the field of medical sciences on the mandatory practical implementation (teaching, clinical and research process) and approval of the doctoral and postdoctoral scientific projects, as well as other research projects as intellectual property

Progress and key performance indicators

1. The Research Department and Legal Department staff, trained and certified in European Intellectual Property Management (MPI) policies and procedures
2. Internal MPI procedures, developed and approved accordingly
3. The developed and approved operating regulations of the Technology Transfer Section with Innovational Incubator, equipped with innovative incubator
4. The developed Standard Operating Procedures (SOPs)
5. The developed capitalization guidelines for the research findings
6. The functional Technology Transfer Section with Innovational Incubator, technically equipped with innovative incubator
7. The amount of applications submitted to AGEPI
8. The number of the obtained patents
9. The developed and disseminated methodological approach for assessing the technological and economic impact of the research findings
10. The University Senate decision on supporting the international patenting of IPOs having economic potential
11. PhD School in the field of medical sciences' decision on the mandatory practical implementation (teaching, clinical and research process) and approval of the doctoral and postdoctoral scientific projects, as well as other research projects as intellectual property

General Objective 6. Increase the research results visibility of Nicolae Testemitanu SUMPh at national and international level. Provide international performance and research visibility by promoting the University image worldwide.

Specific objectives

1. Shift from sporadic publications in international database journals to publications based on clear publication criteria, which aim to increase the University visibility and enhance research studies conducted at / or with the participation of Nicolae Testemitanu SUMPh
2. Improve the Research subdivision of the University web page according to the new research structure, having a more simplified navigation capacity and being connected to the research database system of Nicolae Testemitanu SUMPh

3. Enhance the Moldovan Journal of Health Sciences (MJHS) potential in promoting research visibility of studies conducted at Nicolae Testemitanu SUMPh
4. Encourage employee participation in national and international scientific forums (regional, continental, global)
5. Promote publications to be submitted to international journals, particularly to Impact Factor (IF) Journals
6. Encourage the University researchers to apply for international exhibitions (regional, continental and global)
7. Mediate the University employees' participations within international events
8. Facilitate the communication of both scientific-teaching staff and students with representatives from other universities
9. Provide regular information sessions and active involvement of the Student's Research Society for keeping students informed

Actions

1. The development and approval of the Institutional Strategy for scientific publications conducted at Nicolae Testemitanu SUMPh or those involving the University employees
2. Developing the task agenda for the Research subdivision of the main University web page; providing a tender for emerging the task agenda; its further testing / implementation
3. The ongoing improvement of Research subdivision content
4. Creating optimal conditions for the editorial board activity and reviewers of MJHS magazine
5. Designing and implementing the web version of the magazine; including MJHS within international databases and exploring possibilities of applying documents for getting National Register-based category A
6. Developing regulations on promoting / supporting the employee participation within international scientific forums (regional, continental, and global), as well as submitting publications to international journals, particularly to Impact Factor (IF) journals; encouraging the participation of researchers from Nicolae Testemitanu SUMPh to various international exhibitions (regional, continental, and global), based on clear criteria of scientific excellence according to international requirements; approval of the present regulation by the Nicolae Testemitanu SUMPh Senate
7. Creating the Congress web page, dedicated to the 75th anniversary since Nicolae Testemitanu SUMPh was founded, within the University website <https://usmf.md>
8. Including a new budget chapter within the research project budget regarding the total coverage of the publication costs for IF articles > 1.5 within complete, anonymous or partial peer-reviewed, and open-access journals
9. Increasing the number of articles published in ISI and / or WoS and SCOPUS journals with at least 2 submitted articles annually from each scientific-teaching subdivision
10. Encouraging and supporting by all means the research teams that submitted publications to impact factor journals greater than 3
11. Including a new budget chapter within the research project budget regarding the financial support for publication fee for researchers, who took part in international scientific events across the Europe and North America or as a guest lecturer (having an official invitation)
12. Appointing a PRCD employee responsible for the media coverage of participation in scientific events of Nicolae Testemitanu SUMPh

13. Promoting collaboration and academic mobility of Nicolae Testemitanu SUMPh researchers to prestigious universities abroad for conducting research activities
14. Improving the competitive research grants for 1st year PhD students if related to national priorities / international cooperation potential / potential competition for financing
15. Providing good logistics to increase the number of projects submitted to national and international competitions

Progress and key performance indicators

1. The institutional strategy for publishing research studies conducted at Nicolae Testemitanu SUMPh or with the University employees' participation, elaborated and submitted for approval
2. The developed and approved task agenda for the Research subdivision of the University web page, according to the new research structure and having a simplified navigation capacity, being connected to the research database system of Nicolae Testemitanu SUMPh
3. The systematically assessed and updated "Research" subdivision within the Nicolae Testemitanu SUMPh web page
4. Web version of the functional MJHS magazine
5. MJHS journal included in international databases (the number of databases it has been included in)
6. The developed and submitted to approval regulations on promoting / supporting employee participation at international scientific forums (regional, continental, and global), publications in international journals, particularly to impact factor journals and participation of the University researchers in international exhibitions (regional, continental, and global)
7. The designed and functional *Congress* page included within the University website <https://usmf.md>
8. Number of articles with IF > 1.5 in full and anonymous peer-reviewed journals with total financial support for the publication
9. Number of partially funded open-access publications
10. Number of publications included in ISI and / or WoS, SCOPUS journals (being increased by at least 2 articles per year and submitted from each scientific-teaching subdivision)
11. Number of articles submitted to impact factor journals greater than 3
12. Financial support for the University staff, participating as guest lecturers (having an official invitation) within international scientific events across Europe and North America
13. A PRCD employee appointed for mediating the scientific events occurring with participation of Nicolae Testemitanu SUMPh
14. Number of collaborations and work trips of Nicolae Testemitanu SUMPh researchers to prestigious universities abroad for conducting research activities
15. Evaluation of the competitive research grants for 1st -year PhD students if related to national priorities / international cooperation potential / potential competition for financing
16. Number of projects obtained by Nicolae Testemitanu SUMPh researchers

General objective 7. Improve responsible research practices and the quality of research findings. Promote research excellence, academic integrity and research ethics

Specific objectives

1. Establish an inter-university Center for checking similarities between scientific papers
2. Evaluate all the scientific works conducted at Nicolae Testemitanu SUMPH or written with the participation of University employees by checking similarities and combating the plagiarism phenomenon
3. Initiate checking of the undergraduate research papers by applying the anti-plagiarism tool
4. Extend and strengthen the Open Science principles, including the requirements for excellence in EURAXESS research
5. Promote and implement the principle of autonomy, including the financial one, of university units by increasing their own responsibility for the efficient use of research and innovation resources
6. Develop and apply the University research scoring system based on objective criteria
7. Implement the motivation system (including financial rewarding), based on the research excellence scoring system
8. Implement a competitive strategy for appointing management positions within the research units
9. Provide competitions, coordination and funding resources for internal research projects among students, residents, doctoral and postdoctoral students
10. Organize and implement the internal auditing of the Research area

Actions

1. Developing and approving the Anti-Plagiarism Center status
2. Elaborating and agreeing on the Anti-Plagiarism Center regulations
3. Developing and approving the fee and costs regulations of plagiarism detection services for internal and external users
4. Providing adequate technical capacities for the Anti-Plagiarism Center
5. Training employees to correctly use the anti-plagiarism system
6. Providing effectiveness of the plagiarism detection services by promoting/informing the students, employees of other institutions
7. Applying the undergraduate research theses to plagiarism detection regulation (amendment of the internal regulations)
8. Development and approval of checking undergraduate research papers by applying the anti-plagiarism tool
9. Promoting open access publications to the employee of Nicolae Testemitanu SUMPH
10. Promoting open access publications of primary data (in strict compliance with ethical requirements) of the research studies conducted in or with the participation of Nicolae Testemitanu SUMPH
11. Completing the standard regulations on the autonomous activity of the research and innovation subdivisions, including the financial autonomy, as well as the leadership responsibilities provided by autonomy

12. Elaborating and approving the scientific rating criteria for Nicolae Testemitanu SUMPh
13. Implementing the financial incentive system based on the researchers' performance results
14. Submitting a proposal to the University Administrative Board regarding a competitive appointment of management positions within the research units
15. Developing the Regulation on awarding the "Nicolae Testemitanu" scholarship
16. Developing the Regulation on giving special awards within the Congress dedicated to the 75th anniversary since the foundation of Nicolae Testemitanu State University of Medicine and Pharmacy
17. Founding an internal audit unit responsible for the research conducted within Nicolae Testemitanu SUMPh, as well as developing its operating regulations

Progress and key performance indicators

1. The developed and approved status of Anti-Plagiarism Center
2. The developed and approved Regulations of the Anti-Plagiarism Center
3. The developed and approved fees and costs regulations on plagiarism detection services for internal and external users
4. Functional Anti-Plagiarism Inter-university Center
5. Number of employees trained to properly use the anti-plagiarism system
6. Cost-effective plagiarism detection services
7. The internal regulation modified by including a separate chapter on plagiarism detection of undergraduate research papers
8. The concept of applying a developed anti-plagiarism tool for checking undergraduate research papers
9. Number of open-access publications submitted by Nicolae Testemitanu SUMPh employees
10. Number of research studies related to open-access primary data conducted in or with the participation of Nicolae Testemitanu SUMPh
11. Standard regulations for research and innovation subdivisions regarding their autonomous activity, including financial autonomy, as well as the leadership responsibilities provided by their autonomy
12. The developed and approved scientific rating criteria for Nicolae Testemitanu SUMPh
13. Financial stimulation of the researchers based on their practical result performance
14. Proposal on the competitive appointment of management positions within the research units, submitted to the University Administrative Board
15. Regulation on the awarding of the "Nicolae Testemitanu" scholarship, elaborated and approved
16. The developed and approved Regulation on providing awards within the Congress, dedicated to the 75th anniversary since the foundation of the Nicolae Testemitanu State University of Medicine and Pharmacy
17. The developed and approved Regulation on founding an internal audit unit responsible for the research conducted within Nicolae Testemitanu SUMPh

General objective 8. Protect the intellectual property

Specific objectives

1. Provide legal protection for intellectual property objects (IPOs) created or acquired by University employees, as well as keeping them valid
2. Develop procedures for obtaining property rights, providing protection and marketing (if necessary) of the intellectual property objects (IPO) by the University
3. Capitalize the IPOs owned by Nicolae Testemitanu SUMPh
4. Facilitate the registration, monitoring and maintenance of the intellectual property portfolio of Nicolae Testemitanu SUMPh
5. Promote, encourage and participate in the development and production of national means of diagnosis, treatment, and prophylaxis, including technologies, methods of obtaining and development of medicines made from local raw material, etc.
6. Develop and provide optimal means of sharing between the University and its employees of the obtained benefits resulting from IPOs implementation and marketing
7. Encourage the researchers and inventors (including financial rewarding) from Nicolae Testemitanu SUMPh to apply their IPOs and scientific products for various International Research and Innovation Salons
8. Involve students, residents, PhD students, and young researchers in the development and registration of intellectual property objects

Actions

1. Developing a unique policy for the application of the intellectual property objects owned by Nicolae Testemitanu SUMPh: innovations, inventions, utility models, trademarks, and copyright objects (monographs, books, scientific articles, methodological and scientific works, computer programs, databases, etc.), know-hows, scientific research findings, particularly of scientific research reports (projects), etc.
2. Developing the Regulation on Intellectual Property within Nicolae Testemitanu SUMPh
3. Market researching and providing proposals for the protection of intellectual property objects created within the University, country and abroad
4. Providing the individual employment contract with specific clauses, stated by the legislation in force, regarding the intellectual property objects created by the employees within the University (according to the employee work duties)
5. Training / improvement of the personnel responsible for intellectual property in order to promote the innovation process
6. Maintaining the current IPOs portfolio within the national databases and providing free access to the University employees to these particular databases, as well as to databases outside the Republic of Moldova
7. Providing methodical assistance to University employees in conducting documentary research in patent literature and other available sources
8. Examining the obtained scientific results, jointly with the University research subdivisions (including the research project leaders), on the potential identification and selection of intellectual property objects produced within Nicolae Testemitanu SUMPh

9. Developing certain proposals, if necessary, in agreement with the relevant services, on the protection of scientific results or any other findings by providing protection of trade secrets (know-how), including confidentiality agreements
10. Registering, jointly with the authors, the applications for issuing protection titles for the intellectual property objects created in the University and keeping track of the procedural terms
11. Recording applications for registering intellectual property objects and protection titles obtained by the University, as well as tracking their validity
12. Increasing the relevance and applicability of PhD theses and Habilitation theses in Medical / Pharmaceutical sciences by implementing the research findings in medical practice or teaching activity based on intellectual property objects (innovation applications, copyright, inventions, etc.) confirmed by implementing acts
13. Promoting the most valuable inventions (one or more inventions selected by competition / assessment) produced within Nicolae Testemitanu SUMPh to participate at International Invention Salons funded by AGEPI
14. Evaluating the economic and social relevance of the scientific research findings conducted within Nicolae Testemitanu SUMPh
15. Research training of residents and 4th-6th year students by promoting innovative research studies, which might be further applied for innovations / inventions and thus obtaining the innovator certificate or patent

Progress and key performance indicators

1. The developed and approved unique policy for application of the intellectual property objects produced at Nicolae Testemitanu SUMPh
2. Nicolae Testemitanu SUMPh Regulation on intellectual property, developed and approved
3. Documented results of systematic IPO market researching and the number of documented proposals regarding the protection of intellectual property objects produced within the University, in country or abroad
4. An individual employment agreement providing clauses regarding the production of intellectual property objects within the University
5. Number of trainings / refresher courses related to intellectual property and the number of trainees involved
6. Number of intellectual property objects owned by employees from national / international databases
7. Number of accesses to national / international IPO databases performed by University employees
8. Number of University employees, who received methodical assistance in exploring IPO databases, patent literature and other available sources
9. Number of intellectual property objects produced within Nicolae Testemitanu SUMPh based on the obtained scientific results
10. Number of confidentiality agreements developed on the protection of scientific or other results in order to provide trade secret protection (know-how)
11. Number of applications that seek protection titles for intellectual property objects produced within the University with respect to procedural terms

12. Number of applications for registering intellectual property objects and protection titles obtained by the University based on their validity evidence
13. Number of IPOs obtained from PhD theses and Habilitation theses (applications for innovation, copyright, inventions, etc.), implemented in medical practice or in teaching activity confirmed by implementing acts
14. Number of valuable inventions, selected by competition / evaluation within Nicolae Testemitanu SUMPh, for being exhibited at International Invention Salons, funded by AGEPI
15. Annual number of products showing economic and social relevance to scientific research findings conducted within Nicolae Testemitanu SUMPh (PhD and Habilitation theses, research projects)
16. Number of residents and 4th-6th year students involved in innovative research studies that can be further submitted as innovations / inventions and thus obtaining the innovator certificate or patent

Implementation stages and timelines

The activities of Research and Innovation Reinforcement Strategy are going to be implemented within two stages:

Stage I (2020-2025) is aimed at creating the necessary conditions for accomplishing the general objectives provided by the Research and Innovation Reinforcement Strategy, as well as for the specific ones, via: (1) provide legal framework; (2) inform and train the academic community and those responsible for organizing and performing the activities provided for implementation of the Research and Innovation Reinforcement Strategy; (3) modify the structure and functionality of the subdivisions according to the strategic development directions; (4) create financial premises for its development; (5) provide favourable environment and perform specific activities necessary for implementing the Research and Innovation Reinforcement Strategy.

Stage II (2026-2030) refers to a complete implementation of the planned activities regarding the Research and Innovation Reinforcement Strategy via: (1) analysing the results obtained in Stage I of the Research and Innovation Reinforcement Strategy in order to adjust the action plan to final implementation; (2) providing a constant development of the implemented actions.

Monitoring, evaluation and reporting framework

A systematic assessment of the Research and Innovation Reinforcement Strategy will be carried out during the implementation and elaboration period, based on progress and performance indicators, as well as on the implementation progress reports.

The intermediate stage of evaluation aims to adjust the implementation process to specific conditions influenced by a variety of external and environmental changes, as well as other factors.

The activities of the Research and Innovation Reinforcement Strategy will be introduced within the annual activity plans of the Nicolae Testemitanu SUMPh subdivisions. An approval procedure for monitoring, evaluation and reporting the Research and Innovation Reinforcement Strategy will be established. Responsible persons will be appointed for each of the strategic priority directions. The appointed representatives will present annual progress reports to the University Administrative Board and then included within the Annual University Report.

Coordination of the entire monitoring and evaluation process will be carried out by a separate structure designated by the University Administrative Board.