**St. Petersburg State University - Huazhong University of Science and Technology**

**Strategic Partnership Research Funding**

**Final Report**

**This report form should be completed by SPBU and HUST colleagues who had won the** **SPBU – HUST Joint Research Funding running in 2024.**

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| **Project Title: Identification and validation of Claudins in cancers, the clinical significance and impact on drug resistance.** | |
| **SPBU**  **Applicant’s Name:** **Bekusova Viktoriia Vitalievna**  **Faculty/School/Institute: Faculty of Medicine/ Medical Institute of St. Petersburg State University**  **Email: v.bekusova@spbu.ru**  **Phone: +7911 722-7837**  **Total Amount Rewarded: 500 000 ₽**  **Amount Spent: 499 900 ₽**  **Remaining Balance: 0 ₽** | **HUST**  **Applicant’s Name: Hongbo Wang**  **Faculty/School/Institute:**  **Tongji Medical College, Huazhong University of Science and Technology**  **Email: drwanghb69@hust.edu.cn**  **Phone: +86-13720228749**  **Total Amount Rewarded: 60 000¥**  **Amount Spent: 59 999.2 ¥**  **Remaining Balance: 0.8¥** |
| **Activities Overview**  *Please describe the activities that were performed using the SPBU – HUST Joint Research Funding award, including the major goals of the project, what was accomplished toward these goals, major activities, significant results, major findings, developments, conclusions, and key outcomes or other achievements.*  1**.** The localization of claudin-3, -4, -7 in human colon cancer was studied using Western blot and PCR analysis. The materials are being prepared for publication. Tentative title: "Localization and role of claudin-3, -4, -7 in the development of colon cancer." Original article. Proposed journal for publication: "Frontiers in Bioscience-Landmark" (Scopus, Q2), https://www.imrpress.com/journal/FBL.  2. The localization and associated intracellular signaling pathways of claudins in carcinogenesis, in particular, CRC, and in drug-resistant cell lines were studied. The materials are being prepared for publication. Tentative title: "The role of claudins in the development of colon cancer." Review. Proposed journal for publication: “Advances in Molecular Oncology” (Scopus, Q4), https://umo.abvpress.ru/jour?locale=ru\_RU.  3**.** All financial resources allocated for the implementation of the project (500,000 rubles) were spent on purchasing consumables for the experimental study.  *For the Chinese side:*  4. The expression of claudin-1, -3, -4, -7, -12 in human endometrial cancer cell line (Ishikawa cell) and progesterone-resistance human endometrial cancer cell (Ishikawa-PR cell) was detected by PCR. And a computer model was built for studying the important status of claudins family in progesterone resistance. We found that claudin-7 influenced progesterone resistance of endometrial cancer most than other claudins. More in-depth research is underway.  5. The relationship between Claudin-7 and the progression and prognosis of various tumours has been studied. The relevant materials are being prepared for publication. Tentative title: "Claudin-7 as a Therapeutic target in cancers." Review. Proposed journal for publication: "INTERNATIONAL JOURNAL OF ONCOLOGY" (JCR, Q1), https://www.spandidos-publications.com/ijo.  6. In the research process, progesterone-resistant cell lines for endometrial cancer were established, with a related patent currently being drafted.  7. The vast majority of the funds allocated for the implementation of this project (59,999.2 RMB) were used to purchase experimental consumables and reagents. | |
| **Events & Student Engagement**  *Please detail any related events and student engagement activities including workshops, seminars, colloquia, conferences that were held during this funding period (date & time, people involved, summary of the event or news links).*  The results of the study can be included in the training courses “Biology of Aging”, “Evolutionary Physiology” for 3rd and 4th year undergraduate students at St. Petersburg State University (Associate Professor V.V. Bekusova) in the spring semester of 2025 for the first time.  *For the Chinese side:*  On 27 June 2024, Hongbo Wang's group at Huazhong University of Science and Technology (HUST) had an online meeting with Prof. Bekusova Viktoriia of St. Petersburg, in which both sides reported each other's research progress, discussed research plans and had friendly conversations, deepening the emotional bond and cultural resonance between the two countries.  In addition to this, Prof Wang has invited Prof Bekusova Viktoriia to Wuhan, China, to participate in two offline conferences in June and October 2025, respectively, to give presentations.  In the process of research, Professor Wang's group established progesterone resistant cell lines for endometrial cancer, and related patent is being written.  In this international collaboration, Professor Wang's team comprised 6 doctoral students, and has successfully mentored 2 doctoral students and 2 master's students. | |
| **Impact**  *Please detail the impact of the project beyond the immediate research outputs.*  Cooperation with the Medical College of Huazhong University of Science and Technology, due to mutual interest and focus on solving common problems, will contribute to the intensification of scientific work, increasing the international visibility of our university, as well as scientific progress, cultural exchange and mutual learning.  *For the Chinese side:*  In our collaboration with St. Petersburg University, the project is anticipated to have a far-reaching impact that transcends immediate research outcomes. This partnership, founded on shared interests and a commitment to addressing key issues, will deepen scientific inquiry and enhance our university's global profile. It will also foster scientific advancement, cultural exchange, and mutual learning, strengthening international cooperation and understanding on multiple levels. Through joint research and educational initiatives, we will not only share knowledge but also explore new scientific frontiers, cultivate future scientific talents, and disseminate our academic achievements worldwide, thereby amplifying our academic influence and visibility on the global stage. | |
| **Additional Funding**  *Do you have plans for or have you secured any external funding? If so, please specify your plans, or the source and amount of the external funding that have been secured.*  In accordance with the grant obligations, based on the cooperation results, both sides will apply the NSCF Funding for international cooperation and the International Cooperation Fund of the Ministry of Science and Technology. | |
| **Lessons Learned & Suggestions**  *Have you encountered any barriers along the way? Do you have any suggestions for us on the similar schemes in the future?*  In fact, from the moment funding began, the project was open for six months. This is a very short period of time to order and receive the necessary consumables through the SPbU contract service under sanctions, and even more so to conduct research and publish a joint article. Suggestions: 1. Increase the project implementation period and the deadline for fulfilling grant obligations to 1.5-2 years. 2. Extend the project funding for this entire time. 3. Extend the opportunity to pay for publications for the time of fulfilling project obligations. At present, despite the fact that the opportunity to pay for publications was included in the project funding, it turned out to be impossible to implement for two reasons: 1. all the money had to be used by the end of the calendar year, 2. payment for publications for authors from SPbU is made only as compensation for funds already spent by the author. But the cost of publication in journals with a high impact factor (as specified in the grant obligations) is too high (about 2800 euros) for the authors can take on this financial burden.  *For the Chinese side:*  For the entire collaborative project, the duration from initiation to completion is only half a year, which is far too brief for a comprehensive scientific research endeavor. This timeframe is merely sufficient to get started, while in-depth research requires a much longer period to unfold. The greater significance of this collaboration may lie in enhancing international communication, fostering discussions and mutual assistance between the parties, expanding global influence, and deepening international friendships. Here is our suggestion: extend the project duration to two years. | |

**Signatures** *(electronic signatures are acceptable)*

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| **Date: 23.12.2024** | **Date: 25.12.2024** |