

Characteristics of the submitted research/ artistic/other output

Name and surname prof. MUDr. Kamil Biringer, PhD.

Document type: Characteristics of the submitted research/ artistic/other output

The name of the university Comenius University Bratislava

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OCA1. - Surname awarded to the assessed person	Biringer
OCA2. - Name awarded to the assessed person	Kamil
OCA3. - Degrees awarded to the assessed person	prof., M.D., Ph.D.
OCA4. - Hyperlink to the entry of the person in the Register of university staff	https://www.portalvs.sk/regzam/detail/3653

1st evaluated output

OCA5.1 - Area of assessment	Gynecology and Obstetrics
OCA6.1 - Category of the research/ artistic/other output	scientific output
OCA7.1 - Year of publication of the research/artistic/other output	2021
OCA8.1 - ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA)	439845
OCA9.1 - Hyperlink to the record in CRPA or CRAA	https://app.crepc.sk/?fn=detailBiblioForm&sid=DC042580FD4DFA897E7D71DD7C
Title of the publication to which the hyperlink points	Homocysteine metabolism as the target for predictive medical approach, disease prevention, prognosis, and treatments tailored to the person
RATP coefficient	A+
Justification of the RATP	Research in the relevant field with a Q1 quartile, highly cited.

OCA17.1 - List of maximum 5 most significant citations corresponding to the output

1. o1 Rapid triage for ischemic stroke: a machine learning-driven approach in the context of predictive, preventive and personalised medicine / Zheng, Yulu et al. – DOI 10.1007/s13167-022-00283-4. – SCIE ; WOS CC ; SCO ; CCC **In:** *EPMA Journal* [textový dokument (print)] [elektronický dokument] . – Cham (Švajčiarsko) : Springer Nature. Springer International Publishing AG. – ISSN 1878-5077. – ISSN (online) 1878-5085. – Roč. 13, č. 2 (2022), s. 285-298 [tlačaná forma] [online]; IF=6,0 (2023)
2. o1 Follicular homocysteine as a marker of oocyte quality in PCOS and the role of micronutrients / Kucuk, Tansu et al. – DOI 10.1007/s10815-023-02847-3. – SCIE ; WOS CC ; SCO ; CCC; **In:** *Journal of Assisted Reproduction and Genetics* [textový dokument (print)] [elektronický dokument] : an Official Journal of the American Society for Reproductive Medicine. – New York (USA) : Springer Nature. – ISSN 1058-0468. – ISSN (online) 1573-7330. – Roč. 40, č. 8 (2023), s. 1933-1941 [tlačaná forma] [online]; IF=3,2 (2023)
3. o1 Rhodiola rosea: a review in the context of PPPM approach / Xu, Wenqian et al. – DOI 10.1007/s13167-024-00367-3. – SCIE ; WOS CC ; SCO; **In:** *EPMA Journal* [textový dokument (print)] [elektronický dokument] . – Cham (Švajčiarsko) : Springer Nature. Springer International Publishing AG. – ISSN 1878-5077. – ISSN (online) 1878-5085. – Roč. 15, č. 2 (2024), s. 233-259 [tlačaná forma] [online]; IF=6,0 (2023)
4. o1 Immune-related gene methylation prognostic instrument for stratification and targeted treatment of ovarian cancer patients toward advanced 3PM approach / Jia, Wenshuang et al. – DOI 10.1007/s13167-024-00359-3. – SCIE ; WOS CC ; SCO ; CCC; **In:** *EPMA Journal* [textový dokument (print)] [elektronický dokument] . – Cham (Švajčiarsko) : Springer Nature. Springer International Publishing AG. – ISSN 1878-5077. – ISSN (online) 1878-5085. – Roč. 15, č. 2 (2024), s. 375-404 [tlačaná forma] [online]; IF=6,0 (2023)
5. o1 Perspectives on folate with special reference to epigenetics and neural tube defects / Gurugubelli, Krishna Rao a Ballambattu, Vishnu Bhat. – DOI 10.1016/j.reprotox.2024.108576. – SCIE ; WOS CC ; SCO ; CCC; **In:** *Reproductive toxicology* [textový dokument (print)] [elektronický dokument] . – [s.l.] : Elsevier. Pergamon Press, Elmsford (USA) : Reproductive Toxicology Center. – ISSN 0890-6238. – ISSN (online) 1873-1708. – č. 125 (2024), art. no. 108576 [tlačaná forma] [online]; IF=3,3 (2023)

OCA18.1 - Characteristics of the output's impact on socio-economic practice

This study focuses on homocysteine metabolism impairments relevant to various pathological conditions. Innovative strategies within the framework of predictive, preventive, and personalized (3P) medicine consider Hcy metabolic pathways as a specific target for in vitro diagnostics, predictive medical approaches, cost-effective preventive measures, and optimized treatment strategies tailored to individualized patient profiles in primary, secondary, and tertiary care. The study has received a high citation impact.

OCA19.1 - Characteristics of the output and related activities' impact on the educational process	Evaluation of the antineoplastic effects of plant-based functional foods in mammary carcinogenesis, VEGA 1/0136/19; The role of microRNA in breast carcinoma: biological significance, targeted molecules, and signaling pathways, APVV APVV-16-0021; Integrative strategy in the development of personalized medicine for selected malignant tumors and its impact on quality of life, ITMS ITMS 2014+ 313011V446. Co-authors are PhD students who have successfully completed their PhD studies.
2nd evaluated output	
OCA5.2 - Area of assessment	Gynecology and Obstetrics
OCA6.2 - Category of the research/ artistic/other output	scientific output
OCA7.2 - Year of publication of the research/artistic/other output	2022
OCA8.2 - ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA)	488540
OCA9.2 - Hyperlink to the record in CRPA or CRAA	https://app.crepc.sk/?fn=detailBiblioForm&sid=42727544524542E07A01F70E7F
Title of the publication to which the hyperlink points	Anti-breast cancer effects of phytochemicals
RATP coefficient	A+
Justification of the RATP	Research in the relevant field with a Q1 quartile, highly cited.

OCA17.2 - List of maximum 5 most significant citations corresponding to the output

1. o1 miR-623 Targets Metalloproteinase-1 and Attenuates Extravasation of Brain Metastatic Triple-Negative Breast Cancer Cells / Hammash, Dua et al. – DOI 10.2147/BCTT.S372083. – SCIE ; WOS CC ; SCO ; CCC; **In:** *Breast Cancer: Targets and Therapy* [elektronický dokument] . – Albany (Nový Zéland) : Dovepress. – ISSN 1179-1314. – Roč. 14 (2022), s. 187-198 [online]; IF=3,3 (2023)
2. o1 Predictive and Prognostic Value of TRIM58 Protein Expression in Patients with Breast Cancer Receiving Neoadjuvant Chemotherapy / Zheng, Yi Zi et al. – DOI 10.2147/BCTT.S387209. – SCIE ; WOS CC ; SCO; **In:** *Breast Cancer: Targets and Therapy* [elektronický dokument] . – Albany (Nový Zéland) : Dovepress. – ISSN 1179-1314. – č. 14 (2022), s. 475-487 [online]; IF=3,3 (2023)
3. o1 Evidence-based capacity of natural cytochrome enzyme inhibitors to increase the effectivity of antineoplastic drugs / Manthalkar, Laxmiet al. – DOI 10.1007/s12672-022-00605-y. – SCIE ; WOS CC ; SCO; **In:** *Discover Oncology* [elektronický dokument] . – New York (USA) : Springer Nature. Springer. – ISSN (online) 2730-6011. – Roč. 13, č. 26 December (2022), art. no. 142 [online]; IF=2,8 (2023)
4. o1 Molecular Mechanisms Behind Vascular Mimicry as the Target for Improved Breast Cancer Management / Wei, Yali et al. – DOI 10.2147/IJWH.S406327. – SCIE ; WOS CC ; SCO ; CCC; **In:** *International journal of women's health* [elektronický dokument] . – Auckland (Austrália) : Dove Medical Press. – ISSN (online) 1179-1411. – Roč. 15 (2023), s. 1027-1038 [online]; IF=2,5 (2023)
5. o1 The Role of Different Types of microRNA in the Pathogenesis of Breast and Prostate Cancer / Sidorova, Ekaterina A. et al. – DOI 10.3390/ijms24031980. – SCIE ; WOS CC ; SCO ; CCC; **In:** *International journal of molecular sciences* [textový dokument (print)] [elektronický dokument] . – Bazilej (Švajčiarsko) : Multidisciplinary Digital Publishing Institute. – ISSN 1661-6596. – ISSN (online) 1422-0067. – Roč. 24, č. 3 (2023), art. no. 1980, s. [online] [tlačaná forma]; IF=4,9 (2023)

OCA18.2 - Characteristics of the output's impact on socio-economic practice

Our study highlights that breast cancer currently has the highest incidence among all types of cancer. The overall management of this disease presents multiple challenges, including risk assessment and predictive diagnostics, targeted prevention of metastatic disease, selection of appropriate therapeutic options, and cost-effectiveness of applied approaches. Accumulated scientific evidence suggests promising anti-cancer effects of phytochemicals, which protect cells from malignant transformation, inhibit carcinogenesis and metastatic spread, support the immune system, and enhance the effectiveness of conventional anti-cancer therapies. Molecular and sub-/cellular mechanisms are highly complex and affect multiple pathways that are considered key targets for advanced diagnostics and cost-effective treatments. The demonstrated anti-cancer effects are therefore clinically relevant for improving individual outcomes and may be applicable in primary (protection against cancer development), secondary (protection against the progression of potentially metastatic disease), and tertiary (prevention of further complications) care. However, a detailed analysis of available data is essential to tailor therapeutic algorithms to the needs of individuals and patients. Advanced concepts of patient stratification, predictive diagnostics, targeted prevention, and treatment tailored to individualized patient profiles are therefore crucial for the cost-effective application of natural anti-cancer substances, ultimately improving the overall management of breast cancer for the benefit of affected individuals and society as a whole.

OCA19.2 - Characteristics of the output and related activities' impact on the educational process

Integrative strategy in the development of personalized medicine for selected malignant tumors and its impact on quality of life, ITMS ITMS 2014+ 313011V446. The study was conducted with the participation of PhD students who have successfully completed their PhD studies.

3rd evaluated output**OCA5.3 - Area of assessment**

Gynecology and Obstetrics

OCA6.3 - Category of the research/ artistic/other output

scientific output

OCA7.3 - Year of publication of the research/artistic/other output

2021

OCA8.3 - ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA)

255729

OCA9.3 - Hyperlink to the record in CRPA or CRAA

<https://app.crepc.sk/?fn=detailBiblioForm&sid=918F0144324B7C45708871E1CF>

Title of the publication to which the hyperlink points

Association of Circulating miRNA Expression with Preeclampsia, Its Onset, and Severity

RATP coefficient

A

Justification of the RATP

Original research in the relevant field with a Q2 quartile.

OCA17.3 - List of maximum 5 most significant citations corresponding to the output

1. Navarro A, Bariani MV, Park HS, Zota AR, Al-Hendy A. Report of Exosomes Isolated from a Human Uterine Leiomyoma Cell Line and Their Impact on Endometrial Vascular Endothelial Cells. *Pharmaceuticals (Basel)*. 2022;15(5):577. Published 2022 May 5. doi:10.3390/ph15050577
2. Bao S, Zhou T, Yan C, et al. A blood-based miRNA signature for early non-invasive diagnosis of preeclampsia. *BMC Med*. 2022;20(1):303. Published 2022 Sep 13. doi:10.1186/s12916-022-02495-x
3. Crovetti B, Maktabi MA, Erfani H, et al. Circulating trophoblast numbers as a potential marker for pregnancy complications. *Prenat Diagn*. 2022;42(9):1182-1189. doi:10.1002/pd.6202
4. He X, Ding D. High miR-200a-3p expression has high diagnostic values for hypertensive disorders complicating pregnancy and predicts adverse pregnancy outcomes. *BMC Pregnancy Childbirth*. 2022;22(1):490. Published 2022 Jun 15. doi:10.1186/s12884-022-04785-x
5. Mo W, Jin J, Wang X, Luan W, Yan J, Long X. MicroRNA-206 Contributes to the Progression of Preeclampsia by Suppressing the Viability and Mobility of Trophocytes via the Inhibition of AGTR1. *Physiol Res*. 2023;72(5):597-606. doi:10.33549/physiolres.935131

OCA18.3 - Characteristics of the output's impact on socio-economic practice

MicroRNAs (miRNAs) are one of the important regulators of cellular functions fundamental for healthy pregnancy processes, including angiogenesis and differentiation of trophoblast cells, and their deregulation could be implicated in the pathogenesis of pregnancy complications, including preeclampsia (PE). The aim of this study was to assess the association of miRNA expression in plasma samples with PE, its onset, and severity. Our study enrolled 59 pregnant women, 27 in the preeclamptic study group and 32 in the control group with physiological pregnancy. Relative expression of miR-21-5p, miR-155-5p, miR-210-5p, miR-16-5p, and miR-650 isolated from plasma samples was analysed by quantitative real-time PCR and normalised to experimentally established reference genes. Our results revealed upregulation of miR-21-5p (1.16-fold change, $p = 0.0015$), miR-155-5p (1.62-fold change, $p = 0.0005$) in preeclamptic pregnancies, compared to controls. Overexpression of these two miRNAs was observed, especially in subgroups of severe and late-onset PE compared to healthy pregnancies. Although we hypothesised that the expression level of studied miRNAs could vary between PE subtypes (mild vs. severe, early onset vs. late-onset), no obvious differences were detected. In conclusion, our study could contribute to the large-scale studies for the identification of non-invasive biomarkers for PE detection to improve outcomes for women and their newborns.

OCA19.3 - Characteristics of the output and related activities' impact on the educational process

Our study could contribute to the large-scale studies for the identification of non-invasive biomarkers for PE detection to improve outcomes for women and their newborns. The use of circulating miRNA as potential biomarkers of pregnancy complications, VEGA 1/0272/19; Center of Excellence for Research in Personalized Therapy, ITMS 26220120053. The study was conducted with the participation of PhD students who have successfully completed their studies.

4th evaluated output

OCA5.4 - Area of assessment	Gynecology and Obstetrics
OCA6.4 - Category of the research/ artistic/other output	scientific output
OCA7.4 - Year of publication of the research/artistic/other output	2020
OCA8.4 - ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA)	194919
OCA9.4 - Hyperlink to the record in CRPA or CRAA	https://app.crepc.sk/?fn=detailBiblioForm&sid=6A29071DD710FDAC3C0EA6474E
Title of the publication to which the hyperlink points	Flavonoids in cancer metastasis
RATP coefficient	A+
Justification of the RATP	Research in the relevant field with a Q1 quartile, highly cited.

OCA17.4 - List of maximum 5 most significant citations corresponding to the output

1. o1 Harnessing the capacity of phytochemicals to enhance immune checkpoint inhibitor therapy of cancers: A focus on brain malignancies / Afshari, Amir R. et al. – DOI 10.1016/j.canlet.2024.216955. – SCO **In: Cancer Letters** [textový dokument (print)] [elektronický dokument] : an international journal providing a forum for original and pertinent contributions in cancer research. – Clare (Írsko) : Elsevier. – ISSN 0304-3835. – ISSN (online) 1872-7980. – č. 593 (2024), art. no. 216955 [tlačená forma] [online], IF=9,1 (2023)
2. o1 Flavonoids on the Frontline against Cancer Metastasis / Eltahir, Sarah a Ahmad, Aamir – DOI 10.3390/cancers15164139. – SCIE ; WOS CC ; SCO **In: Cancers** [elektronický dokument] . – Bazilej (Švajčiarsko) : Multidisciplinary Digital Publishing Institute. – ISSN (online) 2072-6694. – Roč. 15, č. 16 (2023), art. no. 4139 [online], IF=4,5 (2023)
3. o1 Phytochemicals in Cancer Treatment and Cancer Prevention—Review on Epidemiological Data and Clinical Trials / Rudzińska, Anna et al. – DOI 10.3390/nu15081896. – SCIE ; WOS CC ; SCO **In: Nutrients** [elektronický dokument] . – Bazilej (Švajčiarsko) : Multidisciplinary Digital Publishing Institute. – ISSN (online) 2072-6643. – Roč. 15, č. 8 (2023), art. no. 1896 [online], IF=4,8 (2023)
4. o1 The Potential Role of Fisetin, a Flavonoid in Cancer Prevention and Treatment / Rahmani, Arshad Husain et al. – DOI 10.3390/molecules27249009. – SCIE ; WOS CC ; SCO ; CCC **In: Molecules** [elektronický dokument] . – Bazilej (Švajčiarsko) : Multidisciplinary Digital Publishing Institute. – ISSN (online) 1420-3049. – Roč. 27, č. 24 (2022), art. no. 9009 [online], IF=4,2(2023)
5. o1 Flavonoids as regulators of TIMPs expression in cancer: Consequences, opportunities, and challenges / Cayetano-Salazar, Lorena et al. – DOI 10.1016/j.lfs.2022.120932. – SCIE ; WOS CC ; SCO ; CCC **In: Life sciences** [textový dokument (print)] [elektronický dokument] . – Oxford (Veľká Británia) : Elsevier. Pergamon Press. – ISSN 0024-3205. – ISSN (online) 1879-0631. – Roč. 308 (2022), art. no. 120932 [tlačená forma] [online] IF=5,2 (2023)

OCA18.4 - Characteristics of the output's impact on socio-economic practice

The study provides a detailed analysis of the anti-cancer effects of flavonoids, which are associated not only with the early stages of carcinogenesis but also with cancer progression and its spread to distant sites. Flavonoids have demonstrated strong anti-cancer effects against various cancer models both in vitro and in vivo by regulating key signaling pathways involved in cancer cell migration, invasion, and metastatic progression. These pathways include regulators of epithelial-mesenchymal transition and regulatory molecules such as MMPs, uPA/uPAR, TGF-beta, and other factors contributing to the complex process of metastatic spread. The study has received significant citation impact: 118 WOS.

OCA19.4 - Characteristics of the output and related activities' impact on the educational process	Evaluation of the antineoplastic effects of plant-based functional foods in mammary carcinogenesis, VEGA 1/0136/19; The role of microRNA in breast carcinoma: biological significance, targeted molecules, and signaling pathways, APVV APVV-16-0021; National Priorities Research Program (NPRP), NPRP 11S-1214-170101; Center of Excellence for Research in Personalized Therapy, ITMS ITMS 26220120053; co-authors are PhD students who have successfully completed their PhD studies.
5th evaluated output	
OCA5.5 - Area of assessment	Gynecology and Obstetrics
OCA6.5 - Category of the research/ artistic/other output	scientific output
OCA7.5 - Year of publication of the research/artistic/other output	2024
OCA8.5 - ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA)	1220462
OCA9.5 - Hyperlink to the record in CRPA or CRAA	https://app.crepc.sk/?fn=detailBiblioForm&sid=889E7E0E7AB5801296F9C6B5A2B
Title of the publication to which the hyperlink points	Droplet digital PCR analysis of CDH13 methylation status in Slovak women with invasive ductal breast cancer
RATP coefficient	A
Justification of the RATP	Original research in the relevant field
OCA17.5 - List of maximum 5 most significant citations corresponding to the output	1. Alsarraf Z, Nori A, Oraibi A, Al-Hussaniy H, Jabbar A. BIBR1591 INDUCES APOPTOSIS IN BREAST CANCER CELL LINE AND INCREASES EXPRESSION OF DAPK1, AND NR4A3. <i>Georgian Med News</i> . 2024;(356):156-160.

OCA18.5 - Characteristics of the output's impact on socio-economic practice

Identifying novel epigenetic biomarkers is a promising way to improve the clinical management of patients with breast cancer. Our study aimed to determine the methylation pattern of 25 tumor suppressor genes (TSG) and select the best methylation biomarker associated with clinicopathological features in the cohort of Slovak patients diagnosed with invasive ductal carcinoma (IDC). Overall, 166 formalin-fixed, paraffin-embedded (FFPE) tissues obtained from patients with IDC were included in the study. The methylation status of the promoter regions of 25 TSG was analyzed using semiquantitative methylation-specific MLPA (MS-MLPA). We identified CDH13 as the most frequently methylated gene in our cohort of patients. Further analysis by ddPCR confirmed an increased level of methylation in the promoter region of CDH13. A significant difference in CDH13 methylation levels was observed between IDC molecular subtypes LUM A versus HER2 ($P = 0.0116$) and HER2 versus TNBC ($P = 0.0234$). In addition, significantly higher methylation was detected in HER2+ versus HER2- tumors ($P = 0.0004$) and PR- versus PR+ tumors ($P = 0.0421$). Our results provide evidence that alteration in CDH13 methylation is associated with clinicopathological features in the cohort of Slovak patients with IDC. In addition, using ddPCR as a methylation-sensitive method represents a promising approach characterized by higher precision and technical simplicity to measure the methylation of target CpGs in CDH13 compared to other conventional methods such as MS-MLPA.

OCA19.5 - Characteristics of the output and related activities' impact on the educational process

Our study focuses on elucidating the etiopathogenesis of mammary carcinogenesis to identify the best methylation biomarker associated with clinicopathological characteristics in a cohort of Slovak patients with invasive ductal carcinoma (IDC). Additionally, we highlight the importance of selecting an appropriate diagnostic method that enhances accuracy while reducing financial costs compared to conventional methods. Comprehensive profiling of hormone-dependent carcinomas in women determining early diagnosis, targeted personalized therapy, and disease recurrence prediction, VEGA 1/0286/22; The role of microRNA in breast carcinoma: biological significance, targeted molecules, and signaling pathways, APVV APVV-16-0021.

Date of last update

03.03.2025