

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹	
Kód VTC/Code of the research/artistic/other output (RAOO): ¹	

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Mihálik
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniel
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	Prof. Mgr. PhD.
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/10269
OCA5. Oblasť posudzovania / Area of assessment ⁴	3. Biológia/ 3. Biology
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2020
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	214538
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crep.sk/?fn=detailBiblioFormChild1G9CA&sid=3CC7C8A2F9DA363A07D00D5FC5&seo=CREP%C4%8C-detail-%C4%8C%C3%A1nok
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷
	https://www.mdpi.com/2223-7747/9/5/667/htm
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs
	ADC Hančinský, R., Mihálik, D., Mrkvová, M., Candresse, T., Glasa, M.: Plant Viruses Infecting Solanaceae Family Members in the Cultivated and Wild Environments: A Review. Plants, 2020, 9(5), 667.
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>
	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.mdpi.com/2223-7747/9/5/667/htm</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[20%] Pôvodca koncepcie a hlavný realizátor experimentálnej časti./ The first author, the originator of the concept and the main implementer of the experimental part.</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>Plant viruses infecting crop species are causing long-lasting economic losses and are endangering food security worldwide. Ongoing events, such as climate change, changes in agricultural practices, globalization of markets or changes in plant virus vector populations, are affecting plant virus life cycles. Because farmer's fields are part of the larger environment, the role of wild plant species in plant virus life cycles can provide information about underlying processes during virus transmission and spread. This review focuses on the <i>Solanaceae</i> family, which contains thousands of species growing all around the world, including crop species, wild flora and model plants for genetic research. In a first part, we analyze various viruses infecting <i>Solanaceae</i> plants across the agro-ecological interface, emphasizing the important role of virus interactions between the cultivated and wild zones as global changes affect these environments on both local and global scales. To cope with these changes, it is necessary to adjust prophylactic protection measures and diagnostic methods. As illustrated in the second part, a complex virus research at the landscape level is necessary to obtain relevant data, which could be overwhelming. Based on evidence from previous studies we conclude that <i>Solanaceae</i> plant communities can be targeted to address complete life cycles of viruses with different life strategies within the agro-ecological interface. Data obtained from such research could then be used to improve plant protection methods by taking into consideration environmental factors that are impacting the life cycles of plant viruses.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<ol style="list-style-type: none"> 1. Yoon, Y.-J., Venkatesh, J., Lee, J.-H., Kim, J., Lee, H.-E., Kim, D.-S., Kang, B.-C.: FRONTIERS IN PLANT SCIENCE 2020, 11, 1098. 2. Abdelkhalik, A., Behiry, S.I., Al-Askar, A.A.: AGRONOMY 2020, 10 (9), agronomy10091312. 3. Jeger, M.J.: PLANTS 2020, 9 (12), 1768, 1-50. 4. Jeger, M.J.: PLANT PATHOLOGY 2021. 5. Altabella, T., Ramirez-Estrada, K., Ferrer, A.: PLANT CELL REPORTS 2021.
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Rastliny čeľade ľuľkovité sú naďalej veľmi zaujímavým modelom pre virologický výskum, pretože sú všestranné, všadeprítomné a majú k dispozícii veľké množstvo informácií pre virologické štúdie. Okrem toho, vzhľadom na ich vysokú citlivosť na širokú škálu rastlinných patogénnych vírusov, niekoľko známych modelových hostiteľov v rastlinnej virológii patrí do čeľade Solanaceae, napr. <i>Nicotiana tabacum</i> alebo <i>N. benthamiana</i></p> <p>Solanaceous plants continue to be a very interesting model for virology research because of their versatility, ubiquity and of the large amount of information available for virology studies. Moreover, due to their high susceptibility to a wide variety of plant-pathogenic viruses, several well-known model hosts in plant virology belongs to the <i>Solanaceae</i> family, e.g., <i>Nicotiana tabacum</i> or <i>N. benthamiana</i>.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je zameraný na rastlinné, potravinárske a priemyselné biotechnológie a je prepojený s výučbou biotechnologických a molekulárno-biologických predmetov v rámci študijného programu Biotechnológie a Aplikovaná biológia. Z tohto výstupu budú do vzdelávacieho procesu implementované poznatky, skúsenosti a výsledky z oblasti molekulárnej biotechnológie a genetickej transformácie rastlín. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým, biologickým, molekulárno-biologickým a molekulárno-biotechnologickým obsahom.</p> <p>The output is focused on plant, food and industrial biotechnology and is linked to the teaching of biotechnology and molecular-biological subjects within the study program Biotechnology and Applied Biology. From this output, knowledge,</p>

	<p>experience and results from molecular biotechnology and genetic transformation of plants will be implemented into the educational process. Impacts will be reflected in the teaching of subjects with biotechnological, biological, molecular-biological and molecular-biotechnological content.</p>
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Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹

Kód VTC/Code of the research/artistic/other output (RAOO):¹

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Mihálik	
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniel	
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	Prof. Mgr. PhD.	
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/10269	
OCA5. Oblasť posudzovania / Area of assessment ⁴	3. Biológia/ 3. Biology	
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/scientific output	
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2003	
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	PC025618	
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://ucm.dawinci.sk/openURL?sid=PC025618	
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA or CRAA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷	https://www.jbc.org/article/S0021-9258(19)75155-2/fulltext
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs	ADC Biglycan, a nitric oxide-regulated gene, affects adhesion, growth, and survival of mesangial cells / Liliana Schaefer ... [et al.], 2003. In: THE JOURNAL OF BIOLOGICAL CHEMISTRY. - ISSN 0021-9258, Vol. 278, iss. 28 (2003), pp. 26227-26237.
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.jbc.org/article/S0021-9258(19)75155-2/fulltext</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[10%] Tvorca myšlienky, hlavný realizátor experimentálnej práce / Donor of the idea, the main implementer of the experimental work</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>During glomerular inflammation mesangial cells are the major source and target of nitric oxide that pro-foundly influences proliferation, adhesion, and death of mesangial cells. The effect of nitric oxide on the mRNA expression pattern of cultured rat mesangial cells was therefore investigated by RNAarbitrarily-primed polymerase chain reaction. Employing this approach, biglycan expression turned out to be down-regulated time- and dose-dependently either by interleukin-1β-stimulated endogenous nitric oxide production or by direct application of the exogenous nitric oxide donor, diethylenetriamine nitric oxide. There was a corresponding decline in the rate of biglycan biosynthesis and in the steady state level of this proteoglycan. In vivo, in a model of mesangioproliferative glomerulonephritis up-regulation of inducible nitric-oxide synthase mRNA was associated with reduced expression of biglycan in isolated glomeruli. Biglycan expression could be normalized, both in vitro and in vivo, by using a specific inhibitor of the inducible nitric-oxide synthase, l-N -(l-iminoethyl)-l-lysine dihydrochloride. Further studies showed that biglycan inhibited cell adhesion on type I collagen and fibronectin because of its binding to these substrates. More importantly, biglycan protected mesangial cells from apoptosis by decreasing caspase-3 activity, and it counteracted the proliferative effects of platelet-derived growth factor-BB. These findings indicate a signaling role of biglycan and describe a novel pathomechanism by which nitric oxide modulates the course of renal glomerular disease through regulation of biglycan expression.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output Rozsah do 200 slov / Range up to 200 words</p>	<ol style="list-style-type: none"> 1. Shimizu-Hirota, R., Sasamura, H., Kuroda, M., Kobayashi, E., Hayashi, M., Saruta, T.: CIRCULATION RESEARCH 2004, 94 (8), 1067-1074. 2. Kinsella, M.G., Bressler, S.L., Wight, T.N.: CRITICAL REVIEWS IN EUKARYOTIC GENE EXPRESSION 2004, 14 (3), 203-234. 3. Qiu, L.-Q., Sinniah, R., Hsu, S.I.-H.: JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY 2004, 15 (8), 2066-2078. 4. World, C.J., Merrilees, M.J., Beaumont, B., Campbell, J.H., Campbell, G.R., Rolfe, B.E.: BIOMEDICAL RESEARCH 2004, 15 (2), 169-175. 5. Wadhwa, S., Embree, M.C., Bi, Y., Young, M.F.: CRITICAL REVIEWS IN EUKARYOTIC GENE EXPRESSION 2004, 14 (4), 301-315.
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	<p>V práci bola popísaná participácia proteoglykánu biglykan pri renálnych ochoreniach./ The paper describes the participation of the proteoglycan biglycan in renal diseases.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	<p>V práci boli použité moderné biotechnologické a molekulárno - biologické postupy, ktorých obsah je súčasťou edukačného a experimentálneho procesu./ The work used modern biotechnological and molecular biological procedures, the content of which is part of the educational and experimental process.</p>

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

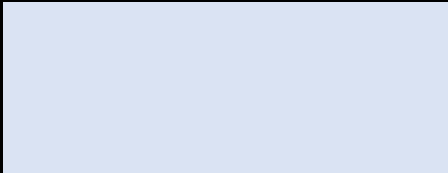
Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

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OCA5. Oblasť posudzovania / Area of assessment ⁴	3. Biológia/ 3. Biology	
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OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2022	
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	509453	
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://ucm.dawinci.sk/openURL?sid=CREPC509453	
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA or CRAA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷	
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs	V3 Evaluation of New Polyclonal Antibody Developed for Serological Diagnostics of Tomato Mosaic Virus [electronic] / Michaela Mrkvová, Richard Hančinský, Simona Grešíková, Šarlota Kaňuková, Ján Barilla, Miroslav Glasa, Pavol Hauptvogel, Ján Kraic, Daniel Mihálik, 2022. - Kategória do roku 2021 ADM. Dostupnosť: SCOPUS (ID: 2-s2.0-85132723007) ; Web of Science Core Collection (ID: WOS:000817679800001). DOI DOI 10.3390/v14061331. In: Viruses. - ISSN 1999-4915 (online), Roč. 14, č. 6 (2022), s. [1-15] [online].
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://ucm.dawinci.sk/openURL?sid=CREPC509453</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[15%] Pôvodca koncepcie a hlavný realizátor experimentálnej časti./ The originator of the concept and the main implementer of the experimental part.</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁸Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>Plant viruses threaten agricultural production by reducing the yield, quality, and economical benefits. Tomato mosaic virus (ToMV) from the genus Tobamovirus causes serious losses in the quantity and quality of tomato production. The management of plant protection is very difficult, mainly due to the vector-less transmission of ToMV. Resistant breeding generally has low effectiveness. The most practical approach is the use of a rapid diagnostic assay of the virus' presence before the symptoms occur in plants, followed by the eradication of virus-infected plants. Such approaches also include serological detection methods (ELISA and Western immunoblotting), where antibodies need to be developed for an immunochemical reaction. The development and characterization of polyclonal antibodies for the detection of ToMV with appropriate parameters (sensitivity, specificity, and crossreactivity) were the subjects of this study. A new polyclonal antibody, AB-1, was developed in immunized rabbits using the modified oligopeptides with antigenic potential (sequences are revealed) derived from the coat protein of ToMV SL-1. the developed polyclonal antibody. AB-1, showed higher sensitivity when compared with commercially available analogs. It also detected ToMV in infected pepper and eggplant plants, and detected another two tobamoviruses (TMV and PMMoV) and ToMV in soil rhizosphere samples and root residues, even two years after the cultivation of the infected tomato plant.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<ol style="list-style-type: none"> 1. A Colorimetric RT-LAMP Assay for Rapid Detection of Soybean mosaic Virus SC15, Li, C., Guo, S., Sun, M., ... Liu, D., Yue, A., ACS Omega, 2024, 9(27), pp. 29765–29775 2. Kirasi, P.M., Ateka, E.M., Avedi, E.K., (2024) PLoS ONE 3. Akhmadaliev, B., Abduvaliev, B., Adilov, B., (...), Ruzmetov, D., Eshchanov, B., 2024, Journal of Plant Biotechnology 51(1), pp. 265-272 4. AlHattali, Y., AlMaskri, A., AlBusaidi, W., Khan, M.M., Akram, M.T., 2024, Journal of Global Innovations in Agricultural Sciences 12(2), pp. 307-313 5. Khalid, M., Zaidi, N.U.S.S., Rashid, N., Tahir, M., 2024, Asian Journal of Agriculture and Biology 2024(1), 2023127
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Práca je zameraná na diagnostiku tobamovírusov, ako jedna z foriem boja proti rastlinným vírusom./ The work is focused on the diagnosis of tobamoviruses as one of the forms of combating plant viruses.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je zameraný na rastlinné, potravinárske a priemyselné biotechnológie a je prepojený s výučbou biotechnologických a molekulárno-biologických predmetov v rámci študijného programu Biotechnológie a Aplikovaná biológia. Z tohto výstupu budú do vzdelávacieho procesu implementované poznatky, skúsenosti a výsledky z oblasti molekulárnej biotechnológie a genetickej transformácie rastlín. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým, biologickým, molekulárno-biologickým a molekulárno-biotechnologickým obsahom. The output is focused on plant, food and industrial biotechnology and is linked to the teaching of biotechnology and molecular-biological subjects within the study program Biotechnology and Applied Biology. From this output, knowledge, experience and results from molecular biotechnology and genetic transformation of plants will be implemented into the educational process. Impacts will be reflected in</p>



the teaching of subjects with biotechnological, biological, molecular-biological and molecular-biotechnological content.

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹

Kód VTC/Code of the research/artistic/other output (RAOO):¹

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Mihálik	
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniel	
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	Prof. Mgr. PhD.	
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/10269	
OCA5. Oblasť posudzovania / Area of assessment ⁴	3. Biológia/Biology	
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output	
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2005	
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵		
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=51&SID=D6hABnZlWsddefdnjJWr&page=1&doc=2	
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷	https://www.jci.org/articles/view/23755/pdf
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs	ADC Schaefer, L., Babelova, A. et al., Mihalik, D., Goote, M., Malle, E., Schaefer, M.R., Gröne, H.-J.: The matrix component biglycan is proinflammatory and signals through Toll-like receptors 4 and 2 in macrophages. <i>J Clin Invest.</i> 2005;115(8):2223-2233.
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>	článok/ article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.jci.org/articles/view/23755/pdf</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[10%] Významný podiel na experimentálnej časti práce v medzinárodnom tíme a na špičkovom zahraničnom pracovisku. Autor bol nositeľom hlavnej myšlienky a realizátorom podstatnej časti experimentov. Práca je priekopníckou prácou v oblasti štúdia molekulárneho mechanizmu septických stavov, čo dokazuje skutočnosť, že bola zaradená do databázy WoS medzi vysoko citované práce/ A significant share in the experimental part of the work in an international team and in a top foreign workplace. The author was the bearer of the main idea and the implementer of a substantial part of the experiments. The work is a pioneering work in the study of the molecular mechanism of septic conditions, which proves the fact that it was included in the WoS database among highly cited works.</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. <i>⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English <i>⁹Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Biglycan, a small leucine-rich proteoglycan, is a ubiquitous component of the extracellular matrix (ECM). However, its biological role has not been elucidated in detail. In this work, biglycan was shown to act in macrophages as an endogenous ligand of TLR4 and TLR2, which mediate innate immunity, leading to rapid activation of p38, ERK and NF-kappa B, thereby stimulating the expression of TNF-alpha and macrophage inflammatory protein-2. (MIP-2). The stimulatory effects of biglycan are significantly reduced in macrophages with mutant TLR 4 receptors and completely eliminated in macrophages with a combination of mutations TLR2 (- / -) / TLR4-M, MyD88 - / -, where the effects of biglycan have a significant benefit for the survival of LPS-induced sepsis or zymosan, due to lower levels of circulating TNF-alpha and reduced mononuclear cell infiltration in the lungs, causing less end organ damage. Importantly, when macrophages are stimulated by LPS-induced pro-inflammatory factors, then the macrophages themselves are able to synthesize biglycan. Thus, when released from the ECM or macrophages, the biglycan can enhance inflammation by TLR4 and TLR2 signaling, thereby increasing TNF-alpha and MIP-2 synthesis.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Record 1 of 5 Title: The role of pattern-recognition receptors in innate immunity: update on Toll-like receptors Author(s): Kawai, T (Kawai, Taro); Akira, S (Akira, Shizuo) Source: NATURE IMMUNOLOGY Volume: 11 Issue: 5 Pages: 373-384 DOI: 10.1038/ni.1863 Published: MAY 2010 Times Cited in Web of Science Core Collection: 4691 Total Times Cited: 4967 Accession Number: WOS:000276852200006 PubMed ID: 20404851 ISSN: 1529-2908 eISSN: 1529-2916</p> <hr/> <p>Record 2 of 5 Title: Sterile inflammation: sensing and reacting to damage Author(s): Chen, GY (Chen, Grace Y.); Nunez, G (Nunez, Gabriel) Source: NATURE REVIEWS IMMUNOLOGY Volume: 10 Issue: 12 Pages: 826-837 DOI: 10.1038/nri2873 Published: DEC 2010 Times Cited in Web of Science Core Collection: 1522 Total Times Cited: 1564 Accession Number: WOS:000284601100009 PubMed ID: 21088683 ISSN: 1474-1733 eISSN: 1474-1741</p>

	<p>Record 3 of 5 Title: Regulation of Adaptive Immunity by the Innate Immune System Author(s): Iwasaki, A (Iwasaki, Akiko); Medzhitov, R (Medzhitov, Ruslan) Source: SCIENCE Volume: 327 Issue: 5963 Pages: 291-295 DOI: 10.1126/science.1183021 Published: JAN 15 2010 Times Cited in Web of Science Core Collection: 1175 Total Times Cited: 1232 Accession Number: WOS:000273629700031 PubMed ID: 20075244 Author Identifiers:</p> <p>ISSN: 0036-8075 eISSN: 1095-9203</p> <hr/> <p>Record 4 of 5 Title: Carcinoma-produced factors activate myeloid cells through TLR2 to stimulate metastasis Author(s): Kim, S (Kim, Sunhwa); Takahashi, H (Takahashi, Hiroyuki); Lin, WW (Lin, Wan-Wan); Descargues, P (Descargues, Pascal); Grivennikov, S (Grivennikov, Sergei); Kim, Y (Kim, Youngjun); Luo, JL (Luo, Jun-Li); Karin, M (Karin, Michael) Source: NATURE Volume: 457 Issue: 7225 Pages: 102-U108 DOI: 10.1038/nature07623 Published: JAN 1 2009 Times Cited in Web of Science Core Collection: 729 Total Times Cited: 774 Accession Number: WOS:000262104900039 PubMed ID: 19122641 Author Identifiers:</p> <p>ISSN: 0028-0836 eISSN: 1476-4687</p> <hr/> <p>Record 5 of 5 Title: TLR4 activation mediates kidney ischemia/reperfusion injury Author(s): Wu, HL (Wu, Huiling); Chen, G (Chen, Gang); Wyburn, KR (Wyburn, Kate R.); Yin, JL (Yin, Jianlin); Bertolino, P (Bertolino, Patrick); Eris, JM (Eris, Josette M.); Alexander, SI (Alexander, Stephen I.); Sharland, AF (Sharland, Alexandra F.); Chadban, SJ (Chadban, Steven J.) Source: JOURNAL OF CLINICAL INVESTIGATION Volume: 117 Issue: 10 Pages: 2847-2859 DOI: 10.1172/JCI31008 Published: OCT 2007 Times Cited in Web of Science Core Collection: 571 Total Times Cited: 602 Accession Number: WOS:000249894400016 PubMed ID: 17853945 Author Identifiers:</p> <p>ISSN: 001-9738</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Naše výsledky poskytli dôkaz o novej úlohe biglykánovej zložky matrix ako signálnej molekuly a kritického prozápalového faktora. Tieto zistenia sú potenciálne dôležité pre vývoj nových stratégií v liečbe sepsy. Our results provided evidence of the new role of the biglycan matrix component as a signaling molecule and a critical pro-inflammatory factor. These findings are potentially relevant for the development of new strategies in the treatment of sepsis.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je zameraný na rastlinné, potravinárske a priemyselné biotechnológie a je prepojený s výučbou biotechnologických a molekulárno-biologických predmetov v rámci študijného programu Biotechnológie a Aplikovaná biológia. Z tohto výstupu budú do vzdelávacieho procesu implementované poznatky, skúsenosti a výsledky z oblasti molekulárnej biotechnológie a genetickej transformácie rastlín. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým, biologickým, molekulárno-biologickým a molekulárno-biotechnologickým obsahom. The output is focused on plant, food and industrial biotechnology and is linked to the teaching of biotechnology and molecular-biological subjects within the study program Biotechnology and Applied Biology. From this output, knowledge, experience and results from molecular biotechnology and genetic transformation of plants will be implemented into the educational process. Impacts will be reflected in the teaching of subjects with biotechnological, biological, molecular-biological and molecular-biotechnological content.</p>

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹

Kód VTC/Code of the research/artistic/other output (RAOO):¹

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Mihálik	
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniel	
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	Prof. Mgr. PhD.	
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/10269	
OCA5. Oblasť posudzovania / Area of assessment ⁴	3.Biologia/ 3.Biology	
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output	
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2004	
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	PC025617	
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://ucm.dawinci.sk/openURL?sid=PC025617	
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA or CRAA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷	https://pmc.ncbi.nlm.nih.gov/articles/PMC1618577/
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs	ADC Vedecké práce v zahraničných karentovaných časopisoch Regulation of fibrillin-1 by biglycan and decorin is important for tissue preservation in the kidney during pressure-induced injury / Liliana Schaefer, Daniel Mihálik, Andrea Babelova ... [et al.], 2004. In: The American journal of pathology . - ISSN 0002-9440, Vol. 165, no. 2 (2004), pp. 383-396.
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://pmc.ncbi.nlm.nih.gov/articles/PMC1618577/</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[20%] Významný podiel na experimentálnej časti práce v medzinárodnom tíme a na špičkovom zahraničnom pracovisku. Autor bol donátorom hlavnej myšlienky a realizátorom experimentov/ A significant share in the experimental part of the work in an international team and in a top foreign workplace. The author was the donor of the main idea and the implementer of the experiments.</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>There is growing evidence that the two small leucine-rich proteoglycans biglycan and decorin regulate the assembly of connective tissues and alter cell behavior during development and pathological processes. In this study, we have used an experimental animal model of unilateral ureteral ligation and mice deficient in either biglycan or decorin. We discovered that pressure-induced injury to the wild-type kidneys led to overexpression of decorin, biglycan, fibrillin-1, and fibrillin-2. In contrast, in biglycandeficient kidneys the overexpression of fibrillin-1 was markedly attenuated and this was associated with cystic dilatation of Bowman's capsule and proximal tubules. Notably, we found that in ligated kidneys from decorin-null mice, fibrillin-1 expression was initially enhanced to the same extent as in wild-type animals. However, long-term obstruction resulted in down-regulation of fibrillin-1 and concurrent cystic dilatation of Bowman's capsule in 33% of kidneys at 5 months after obstruction. In all of the genotypes, no differences in fibrillin-2 expression were observed. These in vivo data correlated with a significant induction of fibrillin-1 expression in renal fibroblasts and mesangial cells by recombinant biglycan and decorin. Our results indicate a novel role for decorin and biglycan during pressure-induced renal injury by stimulating fibrillin-1 expression.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<ol style="list-style-type: none"> 1. Chung, H., Hong, D.-P., Kim, H.-J., Jang, K.-S., Shin, D.-M., Ahn, J.-I., Lee, Y.-S., Kong, G.: TOXICOLOGY AND APPLIED PHARMACOLOGY 2005, 208 (3), 242-254. 2. Yamate, J., Kuribayashi, M., Kuwamura, M., Kotani, T., Ogihara, K.: Experimental and Toxicologic Pathology 2005, 57 (2), 135-147. 3. Porst, M., Daniel, C., Plank, C., Schocklmann, H.O., Reinhardt, D.P., Hartner, A.: NEPHRON - EXPERIMENTAL NEPHROLOGY 2006, 102 (3-4), e99-e104. 4. Opperman, L.A., Rawlins, J.T.: CELLS TISSUES ORGANS 2006, 181 (3-4), 127-135. 5. Hartner, A., Schaefer, L., Porst, M., Cordasic, N., Gabriel, A., Klanke, B., Reinhardt, D.P., Hilgers, K.F.: AMERICAN JOURNAL OF PHYSIOLOGY - RENAL PHYSIOLOGY 2006, 290 (6), F1329-F1336.
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>V práci bola popísaná participácia proteoglykánov pri renálnych ochoreniach./ The paper describes the participation of proteoglycans in renal diseases.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>V práci boli použité moderné biotechnologické a molekulárno - biologické postupy, ktorých obsah je súčasťou edukačného a experimentálneho procesu./ The work used modern biotechnological and molecular biological procedures, the content of which is part of the educational and experimental process.</p>