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Mýtna 23, P.O.BOX 839 04, 839 04 Bratislava 32

Formulár ZK

Záverečná karta projektu

Názov projektu

Evidenčné číslo projektu **APVV-15-0376**

OCHRANA SRDCA V SITUÁCIÁCH ZVÝŠENEJ PRODUKCIE VOĽNÝCH KYSLÍKOVÝCH RADIKÁLOV: RADIAČNÉ A REPERFÚZNE POŠKODENIE

Zodpovedný riešiteľ **prof. MUDr. Ján Slezák, DrSc.**

Príjemca **Centrum experimentálnej medicíny SAV - Ústav pre výskum srdca**

Názov pracoviska, na ktorom bol projekt riešený

Ústav pre výskum srdca
Centrum Experimentálnej Medicíny SAV
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841 04 Bratislava

Názov a štát zahraničného pracoviska, ktoré spolupracovalo pri riešení

1. Prof Pawan K.Singal PhD,DSc
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2. Roberto Bolli, M.D.,DSc
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Louisville, KY 40292

Udelené patenty/podané patentové prihlášky, vynálezy alebo úžitkové vzory, ktoré sú výsledkami projektu

0

Najvýznamnejšie publikácie (knihy, články, prednášky, správy a pod.) zhrňujúce výsledky projektu – uveďte aj publikácie prijaté do tlače

Statistics publication category
ABC Chapters in scientific monographs published abroad 1
ADCA Scientific papers in foreign journals registered in Current Contents Connect with IF (impacted) 24
ADDA Scientific papers in domestic journals registered in Current Contents Connect with IF (impacted) 1
ADFB Scientific papers in other domestic journals not registered in Current Contents Connect without IF (non-impacted) 2
ADMA Scientific papers in foreign impacted journals registered in Web of Sciences or Scopus 4
ADMB Scientific papers in foreign non-impacted journals registered in Web of Sciences or Scopus 1

AEGA Abstracts of scientific papers published in foreign impacted journals registered in Current Contents Connect 7
AEMA Abstracts of scientific papers published in foreign impacted journals registered in Web of Science Core Collection or Scopus 3
AFE Abstracts of invited papers from foreign conferences 7
AFG Abstracts of papers from foreign conferences 4
AFH Abstracts of papers from domestic conferences 16
AFK Foreign conferences posters 15
AFL Domestic conferences posters 9
FAI Editorial work on book publications (bibliographies, encyclopedias, catalogues, dictionaries, collective publications/proceedings, atlases ...) 1
Count 95
Statistics citations
1.1 Citácie v zahraničných publikáciách registrované v citačných indexoch Web of Science Core Collection 103
1.2 Citácie v zahraničných publikáciách registrované v databáze Scopus 31
3.1 Citácie v zahraničných publikáciách neregistrované v citačných indexoch 7
Count 141
ADCA Scientific papers in foreign journals registered in Current Contents Connect with IF (impacted)
ADCA01 GVOZDJAKOVÁ, Anna - KUCHARSKÁ, Jarmila - KURA, Branislav - VANČOVÁ, Olga - RAUSOVÁ, Zuzana - SUMBALOVÁ, Zuzana - ULIČNÁ, Oľga - SLEZÁK, Ján**. A new insight into the molecular hydrogen effect on coenzyme Q and mitochondrial function of rats. In Canadian Journal of Physiology and Pharmacology, 2020, vol. 98, iss. 1, p. 29-34. (2019: 1.946 - IF, Q3 - JCR, 0.583 - SJR, Q2 - SJR). ISSN 0008-4212.
ADCA02 KURA, Branislav - SZEIFFOVÁ BAČOVÁ, Barbara - KALOČAYOVÁ, Barbora - SÝKORA, Matúš - SLEZÁK, Ján**. Oxidative Stress-Responsive MicroRNAs in Heart Injury. In International Journal of Molecular Sciences, 2020, vol. 21, no. 1, pii: E358. (2019: 4.556 - IF, Q1 - JCR, 1.317 - SJR, Q1 - SJR, Current Contents - CCC). (2020 - Current Contents, WOS, SCOPUS). ISSN 1422-0067.

ADCA03 SLEZÁK, Ján - KURA, Branislav - LE BARON, Tyler W. - SINGAL, Pawan K. - BUDAY, Jozef - BARANČÍK, Miroslav. Oxidative Stress and Pathways of Molecular Hydrogen Effects in Medicine. In Current Pharmaceutical Design, 2020, vol., no., p. Online ahead of print. (2019: 2.208 - IF, Q3 - JCR, 0.606 - SJR, Q2 - SJR). ISSN 1381-6128.
ADCA04 MALIK, Akshi - BAGCHI, Ashim K. - VINAYAK, Kartik - AKOLKAR, Gauri - SLEZÁK, Ján - BELLÓ-KLEIN, Adriane - JASSAL, Davinder S. - SINGAL, Pawan K. Vitamin C: historical perspectives and heart failure. In Heart Failure Reviews, 2020, doi: 10.1007/s10741-020-10036-y. Online ahead of print. (2019: 3.538 - IF, Q2 - JCR, 1.454 - SJR, Q1 - SJR). ISSN 1382-4147.
ADCA05 GUO, Yiru - NONG, Yibing - LI, Qianhong - TOMLIN, Alex - KAHLON, Arunpreet - GUMPERT, Anna - SLEZÁK, Ján - ZHU, Xiaoping - BOLLI, Roberto**. Comparison of One and Three Intraventricular Injections of Cardiac Progenitor Cells in a Murine Model of Chronic Ischemic Cardiomyopathy. In Stem Cell Reviews and Reports, 2020, oct 28. doi: 10.1007/s12015-020-10063-0. Online ahead of print. (2019: 5.316 - IF, Q1 - JCR, 1.408 - SJR, Q2 - SJR). ISSN 1550-8943.
ADCA06 KURA, Branislav - BAGCHI, Ashim K. - SINGAL, Pawan K. - BARANČÍK, Miroslav - LE BARON, Tyler W. - VALACHOVÁ, Katarína - ŠOLTÉS, Ladislav - SLEZÁK, Ján**. Molecular hydrogen: potential in mitigating oxidative-stress-induced radiation injury. In Canadian Journal of Physiology and Pharmacology, 2019, vol. 97, no. 4, p. 287-292. (2018: 2.041 - IF, Q3 - JCR, 0.651 - SJR, Q2 - SJR, Current Contents - CCC). (2019 - Current Contents). ISSN 0008-4212.

ADCA07 KURA, Branislav - KALOČAYOVÁ, Barbora - LE BARON, Tyler W. - FRIMMEL, Karel - BUDAY, J - SUROVY, J - SLEZÁK, Ján**. Regulation of microRNAs by molecular hydrogen contributes to the prevention of radiation-induced damage in the rat myocardium. In Molecular and Cellular Biochemistry : an international journal for chemical biology in health and disease, 2019, vol. 457, iss. 1-2, p. 61-72. (2018: 2.884 - IF, Q3 - JCR, 0.909 - SJR, Q1 - SJR, Current Contents - CCC). (2019 - Current Contents). ISSN 0300-8177.

ADCA08 LE BARON, Tyler W.** - LAHER, I. - KURA, Branislav - SLEZÁK, Ján. Hydrogen gas: from clinical medicine to an emerging ergogenic molecule for sports athletes. In Canadian Journal of Physiology and Pharmacology, 2019, vol. 97, no. 9, p. 797-807. (2018: 2.041 - IF, Q3 - JCR, 0.651 - SJR, Q2 - SJR, Current Contents - CCC). (2019 - Current Contents). ISSN 0008-4212.
ADCA09 KURA, Branislav - PARIKH, Mihir - SLEZÁK, Ján - PIERCE, Grant N.**. The Influence of Diet on MicroRNAs that Impact Cardiovascular Disease. In Molecules, 2019, vol. 24, no. 8, art. no. UNSP 1509. (2018: 3.060 - IF, Q2 - JCR, 0.757 - SJR, Q1 - SJR, Current Contents - CCC). (2019 - Current Contents, WOS, SCOPUS). ISSN 1420-3049.

ADCA10 LE BARON, Tyler W. - KURA, Branislav - KALOČAYOVÁ, Barbora - TRIBULOVÁ, Narcisa - SLEZÁK, Ján**. A New Approach for the Prevention and Treatment of Cardiovascular Disorders. Molecular Hydrogen Significantly Reduces the Effects of Oxidative Stress. In Molecules, 2019, vol. 24, no. 11, art. no. 2076. (2018: 3.060 - IF, Q2 - JCR, 0.757 - SJR, Q1 - SJR, Current Contents - CCC). (2019 - Current Contents, WOS, SCOPUS). ISSN 1420-3049.

ADCA11 SÝKORA, Matúš - SZEIFFOVÁ BAČOVÁ, Barbara - EGAN BEŇOVÁ, Tamara - BARANČÍK, Miroslav - ŽURMANOVÁ, Jitka - RAUCHOVÁ, H. - WEISMANN, Peter - PAVELKA, Stanislav - KURAHARA, Lin Hai - SLEZÁK, Ján - SOUKUP, Tomáš - TRIBULOVÁ, Narcisa**. Cardiac Cx43 and ECM Responses to Altered Thyroid Status Are Blunted in Spontaneously Hypertensive versus Normotensive Rats. In International Journal of Molecular Sciences, 2019, vol. 20, no. 15, pii: E3758. (2018: 4.183 - IF, Q2 - JCR, 1.312 - SJR, Q1 - SJR, Current Contents - CCC). (2019 - Current Contents). ISSN 1422-0067.
ADCA12 KALOČAYOVÁ, Barbora - KOVAČIČOVÁ, Ivona - RADOŠINSKÁ, Jana - TÓTHOVÁ, Ľubomíra - FULOP, M. - SLEZÁK, Ján - VRBJAR, Norbert**. Localization dependent sensitivity of cerebral Na,K-ATPase to irradiation induced oxidative imbalance in rats. In Journal of Physiology and Pharmacology : formerly Acta Physiologica Polonica, 2019, vol. 70, no. 4, p. 573-584. (2018: 2.544 - IF, Q2 - JCR, 0.791 - SJR, Q2 - SJR, Current Contents - CCC). (2019 - Current Contents). ISSN 0867-5910.
ADCA13 VICZENCZOVÁ, Csilla - KURA, Branislav - EGAN BEŇOVÁ, Tamara - YIN, Ch. - KUKREJA, R. C. - SLEZÁK, Ján - TRIBULOVÁ, Narcisa - SZEIFFOVÁ BAČOVÁ, Barbara**. Irradiation-Induced Cardiac Connexin-43 and miR-21 Responses Are Hampered by Treatment with Atorvastatin and Aspirin. In International Journal of Molecular Sciences, 2018, vol. 19, iss.4, p. E1128. (2017: 3.687 - IF, Q2 - JCR, 1.260 - SJR, Q1 - SJR, Current Contents - CCC). (2018 - Current Contents). ISSN 1422-0067.

ADCA14 OKRUHLICOVÁ, Ľudmila** - CICÁKOVÁ, Z. - FRIMMEL, Karel - WEISMANN, Peter - KRIŽÁK, Jakub - SOTNÍKOVÁ, Ružena - KNEZL, Vladimír - SLEZÁK, Ján. Lipopolysaccharide-induced redistribution of myocardial connexin43 is associated with increased macrophage infiltration in both normotensive and spontaneously hypertensive rats. In Journal of Physiology and Pharmacology : formerly Acta Physiologica Polonica, 2018, vol. 69, no. 5, p. 709-717. (2017: 2.478 - IF, Q3 - JCR, 0.952 - SJR, Q1 - SJR, Current Contents - CCC). (2018 - Current Contents). ISSN 0867-5910.

ADCA15 ZÁLEŠÁK, Marek - KURA, Branislav - GRABAN, J. - LEDVÉNYIOVÁ-FARKAŠOVÁ, Veronika - SLEZÁK, Ján - RAVINGEROVÁ, Táňa. Molecular hydrogen potentiates beneficial anti-infarct effect of hypoxic postconditioning in isolated rat hearts: Novel cardioprotective intervention. In Canadian Journal of Physiology and Pharmacology, 2017, vol. 95, no. 8, pp. 888-893. (2016: 1.822 - IF, Q3 - JCR, 0.560 - SJR, Q2 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 0008-4212.

ADCA16 VICZENCZOVÁ, Csilla - KURA, Branislav - CHAUDAGAR, Kiranj - BAČOVÁ, Barbara - BEŇOVÁ, Tamara - BARANČÍK, Miroslav - KNEZL, Vladimír - RAVINGEROVÁ, Táňa - TRIBULOVÁ, Narcisa - SLEZÁK, Ján. Myocardial connexin-43 is upregulated in response to acute cardiac injury in rats. In Canadian Journal of Physiology and Pharmacology, 2017, vol. 95, no. 8, pp. 911-919. (2016: 1.822 - IF, Q3 - JCR, 0.560 - SJR, Q2 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 0008-4212.

ADCA17 RAVINGEROVÁ, Táňa - FARKAŠOVÁ, Veronika - KINDERNAY, Lucia - MURÁRIKOVÁ, Martina - ČARNICKÁ, Slávka - LONEK, Ľubomír - FERKO, Miroslav - SLEZÁK, Ján - ZÁLEŠÁK, Marek - ADAMEOVÁ, Adriana - KHANDELWAL, V. K. M. - LAZOU, Antigone - KOLÁŘ, František. Non-invasive approach to mend the broken heart: is "remote conditioning" a promising strategy for application in humans? In Canadian Journal of Physiology and Pharmacology, 2017, vol. 95, no. 10, pp. 1204-1212. (2016: 1.822 - IF, Q3 - JCR, 0.560 - SJR, Q2 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 0008-4212.
ADCA18 SLEZÁK, Ján - KURA, Branislav - BABÁL, Pavel - BARANČÍK, Miroslav - FERKO, Miroslav - FRIMMEL, Karel - KALOČAYOVÁ, Barbora - KUKREJA, R. C. - LAZOU, Antigone - MÉZEŠOVÁ, Lucia - OKRUHLICOVÁ, Ľudmila - RAVINGEROVÁ, Táňa - SINGAL, Pawan K. - SZEIFFOVÁ BAČOVÁ, Barbara - VICZENCZOVÁ, Csilla - VRBJAR, Norbert - TRIBULOVÁ, Narcisa. Potential markers and metabolic processes involved in mechanism of radiation-induced heart injury. In Canadian Journal of Physiology and Pharmacology, 2017, vol. 95, no. 10, pp. 1190-1203. (2016: 1.822 - IF, Q3 - JCR, 0.560 - SJR, Q2 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 0008-4212.

ADCA19 KURA, Branislav - BABÁL, Pavel - SLEZÁK, Ján. Implication of microRNAs in the development and potential treatment of radiation-induced heart disease. In Canadian Journal of Physiology and Pharmacology, 2017, vol. 95, no. 10, pp. 1236-1244. (2016: 1.822 - IF, Q3 - JCR, 0.560 - SJR, Q2 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 0008-4212.

ADCA20 RAVINGEROVÁ, Táňa - FARKAŠOVÁ, Veronika - KINDERNAY, Lucia - ČARNICKÁ, Slávka - MURÁRIKOVÁ, Martina - BARLAKA, Eleftheria - KOLÁŘ, František - BARTEKOVÁ, Monika - LONEK, Ľubomír - SLEZÁK, Ján - LAZOU, Antigone. Remote preconditioning as a novel „conditioning“ approach to repair the broken heart: Potential mechanisms and clinical applications. In Physiological Research, 2016, vol. 65, suppl. 1, p. S55-S64. (2015: 1.643 - IF, Q3 - JCR, 0.749 - SJR, Q2 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 0862-8408.

ADCA21 FRIMMEL, Karel - SOTNÍKOVÁ, Ružena - NAVAROVÁ, Jana - BERNÁTOVÁ, Iveta - KRIŽÁK, Jakub - HAVIAROVÁ, Z. - KURA, Branislav - SLEZÁK, Ján - OKRUHLICOVÁ, Ľudmila. Omega-3 fatty acids reduce lipopolysaccharide-induced abnormalities in expression of connexin-40 in aorta of hereditary hypertriglyceridemic rats. In Physiological Research, 2016, vol. 65, suppl. 1, p. S65-S76. (2015: 1.643 - IF, Q3 - JCR, 0.749 - SJR, Q2 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 0862-8408.

ADCA22 SLEZÁK, Ján - KURA, Branislav - FRIMMEL, Karel - ZÁLEŠÁK, Marek - RAVINGEROVÁ, Táňa - VICZENCZOVÁ, Csilla - OKRUHLICOVÁ, Ľudmila - TRIBULOVÁ, Narcisa. Preventive and Therapeutic Application of Molecular Hydrogen in Situations With Excessive Production of Free Radicals. In Physiological Research, 2016, vol. 65, suppl. 1, p. S11-S28. (2015: 1.643 - IF, Q3 - JCR, 0.749 - SJR, Q2 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 0862-8408.

ADCA23 KURA, Branislav - YIN, Ch. - FRIMMEL, Karel - KRIŽÁK, Jakub - OKRUHLICOVÁ, Ľudmila - KUKREJA, R. C. - SLEZÁK, Ján. Changes of MicroRNA-1, -15b and -21 Levels in Irradiated Rat Hearts After Treatment With Potentially Radioprotective Drugs. In Physiological Research, 2016, vol. 65, suppl. 1, p. S129-S137. (2015: 1.643 - IF, Q3 - JCR, 0.749 - SJR, Q2 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 0862-8408.

ADCA24 TRIBULOVÁ, Narcisa - KNEZL, Vladimír - SZEIFFOVÁ BAČOVÁ, Barbara - EGAN BEŇOVÁ, Tamara - VICZENCZOVÁ, Csilla - GONCALVESOVÁ, Eva - SLEZÁK, Ján. Disordered Myocardial Ca2+ Homeostasis Results in Substructural Alterations That May Promote Occurrence of Malignant Arrhythmias. In Physiological Research, 2016, vol. 65, suppl. 1, p. S139-S148. (2015: 1.643 - IF, Q3 - JCR, 0.749 - SJR, Q2 - SJR, Current

Contents - CCC). (2016 - Current Contents). ISSN 0862-8408.
ABC Chapters in scientific monographs published abroad
ABC01 KURA, Branislav - BAGCHI, Ashim K. - AKOLKAR, Gauri - SINGAL, Pawan K. - SLEZÁK, Ján. Myocardial Changes after Mediastinal Irradiation in Rats: Molecular Mechanisms and Potential Targets to Minimize the Adverse Effects. In Adaptation Biology and Medicine. Volume 8.Current Trends. - New Delhi : Narosa Publishing House, 2017, p. 93-122. ISBN 978-81-8487-567-6.
ADDA Scientific papers in domestic journals registered in Current Contents Connect with IF (impacted)
ADDA01 VICZENCZOVÁ, Csilla - SZEIFFOVÁ BAČOVÁ, Barbara - EGAN BEŇOVÁ, Tamara - KURA, Branislav - YIN, Ch. - WEISMANN, Peter - KUKREJA, R. C. - SLEZÁK, Ján - TRIBULOVÁ, Narcisa. Myocardial connexin-43 and PKC signalling are involved in adaptation of the heart to irradiation-induced injury: Implication of miR-1 and miR-21. In General Physiology and Biophysics, 2016, vol. 35, no. 2, pp. 215-222. (2015: 0.892 - IF, Q4 - JCR, 0.387 - SJR, Q3 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 0231-5882. VEGA 2/0076/16; 2/00167/15; 2/0021/15; APVV 0241/11.

ADFB Scientific papers in other domestic journals not registered in Current Contents Connect without IF (non-impacted)
ADFB01 KURA, Branislav - SLEZÁK, Ján. Účinok vybraných liečiv na expresiu miRNA v srdci poškodenom ionizujúcim žiarením. In Cardiology Letters, 2017, vol. 26, no. 3, p. 187-188. (2016: 0.118 - SJR, Q4 - SJR). ISSN 1338-3655.
ADFB02 SLEZÁK, Ján - KURA, Branislav. Protection of the heart in situations of increased production of oxygen free radicals: molecular hydrogen as a novel therapeutic tool? In Cardiology Letters, 2017, vol. 26, no. 3, p. 205-206. (2016: 0.118 - SJR, Q4 - SJR). ISSN 1338-3655.
ADMA Scientific papers in foreign impacted journals registered in Web of Sciences or Scopus
ADMA01 LE BARON, Tyler W. - SINGH, R. B - FATIMA, Ghizal - KARTIKEY, Kumar - SHARMA, Jagdish P. - OSTOJIC, Sergej M. - GVOZDJAKOVÁ, Anna - KURA, Branislav - NODA, Mami - MOJTO, Viliam - NIAZ, Mohammad Arif - SLEZÁK, Ján**. The Effects of 24-Week, High-Concentration Hydrogen-Rich Water on Body Composition, Blood Lipid Profiles and Inflammation Biomarkers in Men and Women With Metabolic Syndrome: A Randomized Controlled Trial. In Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, 2020, vol. 13, p. 889-896. (2019: 2.842 - IF, Q3 - JCR, 0.862 - SJR, Q2 - SJR). ISSN 1178-7007.

ADMA02 SZEIFFOVÁ BAČOVÁ, Barbara - VICZENCZOVÁ, Csilla - ANDELOVÁ, Katarína - SÝKORA, Matúš - CHAUDAGAR, Kiranj - BARANČÍK, Miroslav - ADAMCOVÁ, Michaela - KNEZL, Vladimír - EGAN BEŇOVÁ, Tamara - WEISMANN, Peter - SLEZÁK, Ján - TRIBULOVÁ, Narcisa**. Antiarrhythmic Effects of Melatonin and Omega-3 Are Linked With Protection of Myocardial Cx43 Topology and Suppression of Fibrosis in Catecholamine Stressed Normotensive and Hypertensive Rats. In Antioxidants, 2020, vol. 9, iss. 6, p. E546. (2019: 5.014 - IF, Q1 - JCR, 1.100 - SJR, Q1 - SJR). ISSN 2076-3921.
ADMA03 PARIKH, Mihir - KURA, Branislav - O'HARA, Kimberley A. - DIBROV, Elena - NETTICADAN, Thomas - SLEZÁK, Ján - PIERCE, Grant N. Cardioprotective Effects of Dietary Flaxseed Post-Infarction Are Associated with Changes in MicroRNA Expression. In Biomolecules : Open Access Journal, 2020, vol. 10, no 9, art. no. E1297. (2019: 4.082 - IF, Q2 - JCR, 1.614 - SJR, Q1 - SJR). ISSN 2218-273X.
ADMA04 TRIBULOVÁ, Narcisa - SZEIFFOVÁ BAČOVÁ, Barbara - EGAN BEŇOVÁ, Tamara - KNEZL, Vladimír - BARANČÍK, Miroslav - SLEZÁK, Ján. Omega-3 Index and Anti-Arrhythmic Potential of Omega-3 PUFAs. In Nutrients, 2017, vol. 9, no. 11, art. no. E1191. (2016: 3.550 - IF, Q2 - JCR, 1.543 - SJR, Q1 - SJR). ISSN 2072-6643.

ADMB Scientific papers in foreign non-impacted journals registered in Web of Sciences or Scopus
ADMB01 KALOČAYOVÁ, Barbora - KOVAČIČOVÁ, Ivona - RADOŠINSKÁ, Jana - TÓTHOVÁ, Ľubomíra - JAGMAŠEVIČ-MÉZEŠOVÁ, Lucia - FULOP, M. - SLEZÁK, Ján - BABÁL, P. - JANEGA, Pavol - VRBJAR, Norbert**. Alteration of renal Na,K-ATPase in rats following the mediastinal γ-irradiation. In Physiological Reports, 2019, vol. 7, no. 3, p. e

13969. (2018: 0.963 - SJR, Q2 - SJR). ISSN 2051-817X.
AEGA Abstracts of scientific papers published in foreign impacted journals registered in Current Contents Connect
AEGA01 TRIBULOVÁ, Narcisa - VICZENCZOVÁ, Csilla - KURA, Branislav - CHAUDAGAR, Kiranj - SZEIFFOVÁ BAČOVÁ, Barbara - EGAN BEŇOVÁ, Tamara - KNEZL, Vladimír - BARANČÍK, Miroslav - RAVINGEROVÁ, Táňa - SLEZÁK, Ján. Up-regulation of myocardial connexin-43 is involved in compensatory response of the heart to acute injury. In Cardiovascular Research, 2018, vol. 114, suppl. 1, p. S67. (2017: 6.290 - IF, Q1 - JCR, 3.002 - SJR, Q1 - SJR, Current Contents - CCC). (2018 - Current Contents). ISSN 0008-6363.
AEGA02 TRIBULOVÁ, Narcisa - VICZENCZOVÁ, Csilla - SZEIFFOVÁ BAČOVÁ, Barbara - KURA, Branislav - EGAN BEŇOVÁ, Tamara - YIN, Ch. - KUKREJA, R. C. - SLEZÁK, Ján. Radiation-induced myocardial connexin-43 and miR-1 alterations are partially prevented by concomitant treatment with Aspirin and Atorvastatin. In European Journal of Preventive Cardiology, 2017, vol. 24, suppl. 1, p. 167. (2016: 3.606 - IF, Q2 - JCR, 1.634 - SJR, Q1 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 2047-4873.
AEGA03 TRIBULOVÁ, Narcisa - EGAN BEŇOVÁ, Tamara - SZEIFFOVÁ BAČOVÁ, Barbara - VICZENCZOVÁ, Csilla - KURAHARA, Lin Hai - KNEZL, Vladimír - NAGIBIN, Vasyl - SLEZÁK, Ján. Cardiac connexin-43 modulates susceptibility of the heart to life-threatening arrhythmias in various experimental models. In Europace, 2017, vol. 19, suppl. 3, p. iii9, abstract 111. (2016: 4.521 - IF, Q1 - JCR, 2.674 - SJR, Q1 - SJR, Current Contents - CCC). (2017 - Current Contents). ISSN 1099-5129.
AEGA04 SLEZÁK, Ján - BARANČÍK, Miroslav - RAVINGEROVÁ, Táňa - TRIBULOVÁ, Narcisa - KURA, Branislav - LAZOU, Antigone - KUKREJA, R. C. - SINGAL, Pawan K. - FULOP, M. - VICZENCZOVÁ, Csilla - OKRUHLICOVÁ, Ľudmila. Radiation induced heart disease. Molecular mechanisms of radiation injury and selected substances with potencial to ameliorate its toxic effect. In Acta Physiologica : official journal of the Federation of European Physiological Societies, 2016, vol. 217, suppl. 708, p. 52-53. (2015: 4.066 - IF, Q1 - JCR, 1.654 - SJR, Q1 - SJR, Current Contents - CCC). (2016 - Current Contents). ISSN 1748-1708. FEPS 2016, Joint meeting of the Federation of European Physiological Societes and the French Physiological Society, Paris, June 29 - July 1, 2016. (2015: 4.066 - IF, Q1 - JCR, 1.654 - SJR, Q1 - SJR, Current Contents - CCC).
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Uplatnenie výsledkov projektu

Výsledky projektu obohacujú poznanie (najmä tie vo forme publikácií), a sú dobre citované. Výsledky je možné využiť najmä v zdravotníctve pri prevencii a liečbe civilizačných

ochorení.

Súhrn výsledkov riešenia projektu a naplnenia cieľov projektu v slovenskom jazyku (max. 20 riadkov)

Riešením projektu sa dosiahla mitigácia negatívnych následkov ožiarenia a bezpečnejšia reperfúzia ischemického myokardu, vypracovala sa stratégia na podávanie H2 pre klinické použitie. Pri zavedení vypracovaných techník do praxe výsledky prispejú k zlepšeniu kvality života onkologických a kardiologických pacientov. Všetky stanovené ciele projektu boli splnené.

Ionizujúce žiarenie má rozsiahle využitie v lekárskej diagnostike a liečbe nádorov. Pri ožiarení dochádza v bunkách k mnohým neželaným účinkom. Naše publikované výsledky ukazujú, že väčšinu poškodení, ktoré vyvoláva ionizujúce žiarenie, spôsobujú hydroxylové radikály z rádiolýzy vody. Nadmerná produkcia kyslíkových radikálov sa považuje za spoločného pôvodcu mnohých patologických procesov. Vychytávanie voľných radikálov pôsobí preventívne alebo terapeuticky. Molekulárny vodík (H2) sa javí ako jeden z najefektívnejších scavangerov. H2 vzhľadom na jeho veľkosť, rýchlo difunduje do tkanív a buniek bez ovplyvnenia reaktívnych druhov kyslíka, ktoré majú dôležitú signalizačnú funkciu. Naše výsledky ukazujú, že H2 tiež redukuje oxidačný stres reguláciou génovej expresie a pôsobí protizápalovo a antiapoptoticky.

Akútny oxidačný stres vzniká z rôznych situácií, vrátane ischémie. Ischemicko-reperfúzne poškodenie vzniká, keď sa krv po ischemickej perióde vráti do tkaniva. Obnovenie obehu krvi vedie k celej škále metabolických zmien, zápalu a poškodeniu oxidačným stresom. H2 selektívne zachytáva · OH a ONOO- a tak zabraňuje bunkovému poškodeniu a poškodeniu DNA. Naše výsledky ukazujú, že H2 tiež reguluje expresiu prozápalových a zápalových cytokínov, ako sú IL-1β, IL-6, TNF-a, ICAM-1 a HMGB-1, a pro-apoptotických faktorov, ako je kaspáza. -3, kaspáza-12, kaspáza-8 a Bax. H2 zvyšuje reguláciu expresie antiapoptotických faktorov, ako sú Bcl-2 a Bcl-xL a cez Nrf2 transcripciu vrodených antioxidačných enzýmov. Lepšie pochopenie farmakokinetiky H2 a biologických mechanizmov účinku nepochybne posunie túto dôležitú molekulu do klinických aplikácií. (pozri naše posledné publikácie)

Súhrn výsledkov riešenia projektu a naplnenia cieľov projektu v anglickom jazyku (max. 20 riadkov)

The solution of the project achieved mitigation of the negative consequences of irradiation and safer reperfusion of the ischemic myocardium. Moreover, an H2 administration strategy for clinical use has been developed. The introduction of the developed techniques into practice will contribute to improving the quality of life of cancer and cardiac patients. All the stated objectives of the project were met.

Ionizing radiation has extensive applications in medical diagnostics and tumor therapy. Many adverse effects are decisively linked to radiation exposure. Our published results show that most of the ionizing radiation-induced damage is caused by hydroxyl radicals from radiolysis of water. Excessive production of oxygen radicals has been regarded as a causative common denominator of many pathological processes. Scavenging of free radicals acts preventively or therapeutically. Molecular hydrogen (H2) appears to be one of the most effective scavengers. H2 rapidly diffuses into tissues and cells without affecting signaling reactive species. Our results show that H2 also reduces oxidative stress by regulating gene expression and functions as an anti-inflammatory and anti-apoptotic agent.

Acute oxidative stress arises from a variety of situations, including ischemia. Ischemia-reperfusion injury, is caused when blood supply returns to tissue after a period of ischemia creating a condition in which the restoration of circulation results in inflammation and oxidative damage through the induction of oxidative stress. H2 selectively scavenges ·OH and ONOO- and thus prevents cellular injury and DNA damage. Our results show that H2 also downregulates the expression of pro-inflammatory and inflammatory cytokines, such as IL-1β, IL-6, TNF-α, ICAM-1, and HMGB-1, and of pro-apoptotic factors, such as caspase-3, caspase-12, caspase-8 and Bax. H2 upregulates the expression of anti-apoptotic factors, such as Bcl-2 and Bcl-xL and via Nrf2 transcription of innate antioxidant enzymes. A better understanding of H2 pharmacokinetics and biological mechanisms of action will no doubt advance this important molecule in clinical applications. (see our recent publications)