

TABLE OF CONTENTS

Foreword	13
A.M. Serdyuk	
<hr/>	
ACTIVITIES AND PROSPECTS	
State Institution “National Research Center for Radiation Medicine of the National Academy of Medical Sciences of Ukraine” – research activities and scientific advance in 2013	14
D. Bazyka, V. Sushko, A. Chumak, V. Buzunov, V. Talko, L. Yanovych	
<hr/>	
REVIEWS	
Regulation of the radionuclide content in commodities produced in areas affected by the Chornobyl accident	26
V. Berkovskyy, G. G. Ratia, S. V. Masiuk, Yu. V. Bonchuk, V. B. Gerasimenko, P. B. Aryasov, T. V. Treskunova, N. S. Zhadan, O. M. Ivanova, Z. N. Boyko	
Medical radiography examinations and carcinogenic effects	35
E. A. Domina	
Radiation-induced instability of human genome	48
N. Ryabchenko, E. Domina	
<hr/>	
EPIDEMIOLOGY AND DOSIMETRY	
Dose- and age-dependent cardiovascular mortality among inhabitants of the Chornobyl contaminated areas. 1988–2010 observation period.	59
V. O. Buzunov, K. Ye. Prikschikova, T. Ye. Domashevska, G. V. Kostiuk, I. G. Gubina, S. O. Tereschenko	
Role of radiation and non-radiation factors on the development of coronary heart disease in the Chornobyl clean-up workers: results from epidemiological study	67
L. I. Krasnikova, V. O. Buzunov	
Individualized internal exposure doses reconstruction for the persons of Ukraine State Register: Report 1. Locally-specific models and doses of persons living in Rokytne raion of Rivne oblast, Ovruch raion of Zhytomyr oblast and Ivankiv raion of Kyiv oblast	80
I. A. Likhtarov, L. N. Kovgan, S. V. Masiuk, O. N. Ivanova, M. I. Chepurny, Z. N. Boyko, V. B. Gerasimenko, S. A. Tereshchenko, I. G. Kravchenko, G. I. Kortushin, O. D. Marcenjyk	
Individualized internal exposure doses reconstruction for the persons of Ukraine State Register: Report 2. Locally-specific models and doses of persons living in Kozelets and Ripky raions of Chernihiv oblast	102
I. A. Likhtarov, L. N. Kovgan, S. V. Masiuk, O. N. Ivanova, M. I. Chepurny, Z. N. Boyko, V. B. Gerasimenko, S. A. Tereshchenko, I. G. Kravchenko, G. I. Kortushin, O. D. Marcenjyk	
Foodstuff contamination and pattern of consumption by population of foremost radioactively contaminated territories in Ukraine during the remote period of the Chornobyl disaster clean-up	126
M. Omelianets, N. Piven, N. Gunko, N. Korotkova, V. Sribna	

Social living environment of population in the surveillance area of Rivne nuclear power plant	136
V. A. Prilipko, Iu. Iu. Ozerova, M. M. Morozova, K. K. Shevchenko	
Quarter of century since the Chornobyl accident: cancer risks in affected groups of population	147
A. Ye. Prysyazhnyuk, D. A. Bazyka, A. Yu. Romanenko, N. A. Gudzenko, M. M. Fuzik, N. K. Trotsyuk, Z. P. Fedorenko, L. O. Gulak, K. M. Slipenyuk, N. G. Babkina, O. M. Khukhriantska, Ye. L. Goroh, Zh. M. Berestyania	
<hr/>	
CLINICAL RESEARCH	
TERF1 and TERF2 downregulate telomere length in cognitive deficit at the late period after low-dose exposure	170
D. A. Bazyka, I. M. Ilyenko, K. N. Loganovsky, M. A. Benotmane, S. A. Chumak	
Expression of γ-H2AX histone in lymphocytes of the Chornobyl "Shelter" object staff exposed to ionizing radiation in occupational limits	186
D. A. Bazyka, K. D. Muzalevska, O. L. Maznichenko, O. A. Belyaev	
Rationale treatment and preventive measures for correction of bone structure in children with acute leukemia, exposed to ionizing radiation due to the Chornobyl accident	192
V. G. Bebeshko, K. M. Bruslova, N. M. Tsvietkova, T. T. Volodina, O. V. Kopylova, T. O. Belingio, S. A. Berezovski, M. P. Petrunko, V. G. Boyarskiy, V. M. Polianska, T.I.Pushkareva, L.P. Mishchenko	
Cytogenetic indices in blood lymphocytes of individuals from the staff working on new confinement building in Chornobyl NPP zone	203
L. K. Bezdrobna, L. V. Tarasenko, T. V. Tsyanok, T. V. Melnyk, Yu. O. Nosach, V. O. Sushko, S. Yu. Nechayev, L. I. Shvayko	
Radiation and non-radiation factors and their impact on the natural history of coronary heart disease in Chornobyl accident clean-up workers	213
D. O. Bilyi, O. M. Nastina, Zh. M. Gabulavichene, G. V. Sydorenko, O. D. Bazyka, V. V. Bilaya, O. S. Kovalyov	
Gene polymorphisms of p53-mediated apoptosis in chronic lymphocytic leukemia patients: features of distribution depending on radiation factor in anamnesis	223
N. I. Bilous, I. V. Abramenko, A. A. Chumak, I. S. Dyagil, Z. V. Martina	
Structure of comorbid diseases in patients with non-alcoholic fatty liver disease, exposed to ionizing radiation as a result of the Chornobyl NPP accident	231
O. V. Gasanova, E. O. Sarkisova, L. M. Ovsyannikova, A. A. Chumak, O. V. Nosach, G. A. Nezgovorova, V. M. Gromadska	
The efficiency of tyrosine kinase inhibitor therapy in patients with chronic myeloid leukemia exposed to ionizing radiation due to the Chornobyl nuclear power plant accident	241
I. V. Dmytrenko, V. G. Fedorenko, T. Y. Shlyakhtychenko, V. V. Sholoyko, T. F. Lyubarets, T. V. Malinkina, O. O. Dmytrenko, V. V. Balan, S. M. Kravchenko, Z. V. Martina, A. O. Tovstogan, J. M. Minchenko, I. S. Dyagil	
Peculiarities of non-malignant endocrine disease in the Chornobyl NPP accident survivors, and hormonal interaction role	256
O. V. Kaminskiy	



TABLE OF CONTENTS

ISSN 2304-8336. Проблеми радіаційної медицини та радіобіології = Problems of radiation medicine and radiobiology. 2014. Вип. 19.

Morbidity pattern of non-cancer endocrine disease in ChNPP accident emergency workers (1992–2013 Clinical/Epidemiological Registry data) O. V. Kaminskiy, O. V. Pronin, D. E. Afanasyev	267
Gut microbiota among children living in areas contaminated by radiation and having the cardiac connective tissue dysplasia syndrome V. G. Kondrashova, V. Yu. Vdovenko, I. E. Kolpakov, A. S. Popova, L. P. Mishchenko, T. V. Gritsenko, E. I. Stepanova	277
Peculiarities of gastrointestinal disease concomitant to heart connective tissue dysplasia in children born from persons exposed to ionizing radiation in childhood after the ChNPP accident V. G. Kondrashova, I. Ye. Kolpakov, V. Yu. Vdovenko, V. M. Gromadska, V. G. Boyarskiy, T. V. Grytsenko, O. Ya. Pleskach, Ye. I. Stepanova	287
Balance of autonomic nervous system in children having signs of endothelial dysfunction, that were born and are domiciled in contaminated territories V. G. Kondrashova, I. E. Kolpakov, V. Yu. Vdovenko, O. S. Leonovych, O. M. Lytvynets, E. I. Stepanova	298
MYC gene rearrangements detected by interphase fluorescence in situ hybridization in diffuse large B-cell lymphomas J. A. Misharina, V. V. Sitko, S. V. Klymenko, J. A. Minchenko, A. I. Kurchenko, Y. O. Silaev, L. O. Lyashenko, V. M. Polyanska, V. G. Bebeshko	310
Peculiarities of induction and persistence of hidden chromosome instability in peripheral blood lymphocytes of persons occupationally exposed to ionizing radiation M. A. Pilinska, S. S. Dybsky, O. B. Dybska, L. I. Shvayko, V. O. Sushko	321
Changes in stable metabolites of nitric oxide in children-residents of radioactively contaminated territories Ye. I. Stepanova, I. Ye. Kolpakov, V. V. Vasylenko, V. H. Kondrashova, O. M. Litvinets, V. M. Zyhalo	334
Analysis of risk factors for chronic obstructive pulmonary disease in clean-up workers of the Chornobyl accident V. O. Sushko, L. I. Shvaiko, K. D. Bazyka	345
Late effects of ionizing radiation on functional status of bronchopulmonary system in COPD patients among the clean-up workers of the Chornobyl NPP accident V. O. Sushko, L. I. Shvaiko, K. D. Bazyka	352
Peculiarities of viruses Herpesviridae family persistence in patients with nonalcoholic fatty liver disease who had been exposed to the factors of Chornobyl NPP accident A. A. Chumak, O. V. Nosach, L. M. Ovsyannikova, S. M. Alekhina, O. Ya. Pleskach, E. O. Sarkisova, O. V. Gasanova, T. O. Shyiko, L. P. Tyupa	361
Investigation of modification X-ray induced bystander effect in vitro O. V. Shemetun, O. O. Talan	371
Allelic polymorphism of DNA repair gene XRCC1 in patients with thyroid cancer who were exposed to ionizing radiation as a result of the Chornobyl accident V. M. Shkarupa, S. O. Henyk-Berezovska, L. V. Neumerzhystska, S. V. Klymenko	377

EXPERIMENTAL RESEARCH

Fractionate effect of ionizing radiation and nitric oxide on tumor growth in rats	389
O. B. Ganzha, M. O. Druzhyna, L. I. Makovetska, O. O. Glavin, L. F. Klepets, V. M. Mikhailenko	
Features of biological effects in cell culture in the combined exposure to ionizing radiation and copper ions	398
D. D. Hapeienko, H. I. Lavrenchuk, V. S. Asmolkova, V. N. Oksamytyny	
Analysis of the antioxidantive qualities of sperm after total body X-irradiation of animals	407
A. V. Klepko, O. A. Motrina, V. M. Bulavytska, Yu. A. Kondratova, O. S. Vatlitsova, A. V. Chernyshov, S. V. Andreychenko	
Impact of gadolinium-157 containing nanoscale magnetosensitive composites on morofunctional properties of cells in vitro	419
H. Y. Lavrenchuk, Y. B. Shevchenko, A. L. Petranovska, V. S. Asmolkova, V. M. Oksamytyny, I. V. Kozlovska, O. H. Yavorska	
The assessment of maize plants (<i>Zea mays L.</i>) adaptation to the cadmium chloride influence using the radiocapacity factor	431
S. A. Pchelovska	
Peculiarity of changes of peripheral blood hematological indices in rats under N-stearoil-ethanolamine administration conditioned by combined effects of ionizing radiation and stress	441
N. K. Rodionova, N. P. Atamaniuk, L. P. Derev'yanko, V. V. Tal'ko, A. M. Yanina, M. V. Shelkovskiy, G. V. Kosyakova, O. Ph. Mehed', A. G. Berdyshev, N. M. Gula, A. A. Chumak	
Radiation-induced chromosomal instability of human lymphocytes as a marker of breast cancer risk	450
N. Ryabchenko	
Application of photo-magnetic therapy for treatment of skin radiation damage in rats	458
L. I. Simonova-Pushkar, V. Z. Gertman, L. V. Bilogurova	
Radiation-induced changes in connective tissue matrix of rat organs at total body X-ray exposure	471
N. E. Uzlenkova	
Oxidative phosphorylation in mitochondria of small-intestinal enterocytes at chronic and single exposure to low power ionizing radiation	482
S. V. Khyzhnyak, L. K. Bezdrobna, L. I. Stepanova, V. S. Morozova, V. M. Voitsitskiy	
Cytogenetic analysis of radioprotective properties of sodium lignogumate after γ-exposure in <i>Allium-test</i>	490
V. M. Shkarupa, S. V. Klymenko, V. V. Talko	

INFORMATION ABOUT AUTHORS

510

INSTRUCTIONS FOR AUTHORS

522