

# in vivo

International Journal of Experimental and Clinical Pathophysiology and Drug Research

Volume 34, Number 1, January-February 2020

## Contents

### Reviews

- Reasons to Reconsider Risk Associated With Power Morcellation of Uterine Fibroids. C. HOLZMANN, W. KUEPKER, B. ROMMEL, B. HELMKE, J. BULLERDIEK (*Rostock; Baden Baden-Buehl; Bremen; Stade, Germany*) ..... 1
- Three-dimensional Versus Two-dimensional Laparoscopic Surgery for Colorectal Cancer: Systematic Review and Meta-analysis. G. PANTALOS, D. PATSOURAS, E. SPARTALIS, D. DIMITROULIS, G. TSOUROUFLIS, N. NIKITEAS (*Athens, Greece*) ..... 11
- Intraoperative Indocyanine Green (ICG) Angiography for the Identification of the Parathyroid Glands: Current Evidence and Future Perspectives. E. SPARTALIS, G. NTOKOS, K. GEORGIU, G. ZOGRAFOS, G. TSOUROUFLIS, D. DIMITROULIS, N.I. NIKITEAS (*Athens, Greece*) ..... 23

### Experimental Studies

- Fanconi Anemia Mouse Genotype-specific Mitigation of Total Body Irradiation by GS-Nitroxide JP4-039. M.W. EPPERLY, R. FISHER, X. ZHANG, W. HOU, D. SHIELDS, P. WIPF, H. WANG, S. THERMOZIER, J.S. GREENBERGER (*Pittsburgh, PA, USA*)..... 33
- Second-generation Probiotics Producing IL-22 Increase Survival of Mice After Total Body Irradiation. X. ZHANG, R. FISHER, W. HOU, D. SHIELDS, M.W. EPPERLY, H. WANG, L. WEI, B.J. LEIBOWITZ, J. YU, L.M. ALEXANDER, J.-P. VAN PIJKEREN, S. WATKINS, P. WIPF, J.S. GREENBERGER (*Pittsburgh, PA; Madison, WI, USA*) ..... 39
- The Association of *MMP7* Genotype With Pterygium. P.-S. HU, Y.-C. WANG, C.-H. LIAO, N.-Y. HSIA, M.-F. WU, J.-S. YANG, C.-C. YU, W.-S. CHANG, D.-T. BAU, C.-W. TSAI (*Taichung; Changhua; Taipei, Taiwan, ROC*)..... 51

Contents continued on the back cover

Hypermethylation of Corticotropin Releasing Hormone Receptor-2 Gene in Ulcerative Colitis Associated Colorectal Cancer. M. KOBAYASHI, N. MATSUBARA, Y. NAKACHI, Y. OKAZAKI, M. UCHINO, H. IKEUCHI, J. SONG, K. KIMURA, M. YASUHARA, A. BABAYA, T. YAMANO, M. IKEDA, H. NISHIKAWA, I. MATSUDA, S. HIROTA, N. TOMITA ( <i>Nishinomiya; Hidaka, Japan</i> ).....	57
The Role of Efflux Pumps and Environmental pH in Bacterial Multidrug Resistance. M. NOVÉ, A. KINCSES, J. MOLNÁR, L. AMARAL, G. SPENGLER ( <i>Szeged, Hungary; Lisbon, Portugal</i> ).....	65
Efficiency of Gastrointestinal Cancer Detection by Nematode-NOSE (N-NOSE). H. KUSUMOTO, K. TASHIRO, S. SHIMAOKA, K. TSUKASA, Y. BABA, S. FURUKAWA, J. FURUKAWA, T. NIIHARA, T. HIROTSU, T. UOZUMI ( <i>Kagoshima; Tokyo; Fukuoka, Japan; Brisbane, Australia</i> ).....	73
Radical-scavenging and Pro-/anti-inflammatory Activity of Tetracycline and Related Phenolic Compounds With or Without Visible Light Irradiation. Y. MURAKAMI, A. KAWATA, S. SUZUKI, S. FUJISAWA ( <i>Sakado, Japan</i> ) .....	81
Repeated Live Imaging in the Temporomandibular Joint of an Anterior Crossbite Mouse Model Using a 7T Magnetic Resonance Device. K. ITO, F. YAMAZAKI, S. NOGAMI, K. TAKAHASHI, T. KONDOH, A. GOSS ( <i>Matsudo; Mibu; Sendai, Japan; Adelaide, Australia</i> ) .....	95
Low Expression of Single-stranded DNA Binding Protein 2 (SSBP2) Predicts Unfavourable Postoperative Outcomes in Patients With Clear Cell Renal Cell Carcinoma. H. KIM, Y. KIM, S. BANG, S. PARK, S. JEE, J. SIM, S.-J. SHIN, S.S. PAIK, K. JANG ( <i>Seoul, Republic of Korea</i> ) .....	101
Clinical Significance of Ubiquitin-associated Protein 2-like in Patients With Uterine Cervical Cancer. K. YOSHIDA, H. KAJIYAMA, E. INAMI, S. TAMAUCHI, Y. IKEDA, N. YOSHIKAWA, K. NISHINO, F. UTSUMI, K. NIIMI, S. SUZUKI, K. SHIBATA, A. NAWA, F. KIKKAWA ( <i>Nagoya, Japan</i> ).....	109
Detection of Serum miRNAs Affecting Liver Apoptosis in a Periodontitis Rat Model. Y. SUGIURA, T. YONEDA, K. FUJIMORI, T. MARUYAMA, H. MIYAI, T. KOBAYASHI, D. EKUNI, T. TOMOFUJI, M. MORITA ( <i>Okayama; Gifu, Japan</i> ).....	117
Loss of MTUS1 Expression Is Associated With Poor Prognosis in Patients With Gallbladder Carcinoma. J. SIM, Y. KIM, H. KIM, S. BANG, S. JEE, S. PARK, S.-J. SHIN, K. JANG ( <i>Seoul, Republic of Korea</i> ).....	125
Deletion of Peroxiredoxin II Inhibits the Growth of Mouse Primary Mesenchymal Stem Cells Through Induction of the G <sub>0</sub> /G <sub>1</sub> Cell-cycle Arrest and Activation of AKT/GSK3 $\beta$ /Catenin Signaling. Y.-H. HAN, M.-H. JIN, Y.-H. JIN, N.-N. YU, J. LIU, Y.-Q. ZHANG, Y.-D. CUI, A.-G. WANG, D.-S. LEE, S.-U. KIM, J.-S. KIM, T. KWON, H.-N. SUN ( <i>Heilongjiang; Dalian, PR China; Daegu; Cheongju-si; Jeonbuk, Republic of Korea</i> ) .....	133
Non-thermal Plasma-activated Medium Induces Apoptosis of Aspc1 Cells Through the ROS-dependent Autophagy Pathway. X. ZHEN, H.-N. SUN, R. LIU, H.S. CHOI, D.-S. LEE ( <i>Jeju, Republic of Korea; Daqing, PR China</i> ) .....	143
Presepsin Levels in Experimental Sepsis and Massive Bowel Resection Models in Rats. O. UNAY-DEMIREL, S. IGNAK, T. ORUG, M. YUKSEL ( <i>Istanbul, Turkey</i> ) .....	155
Serum Level of microRNA-375-3p Is Not a Reliable Biomarker of Teratoma. G. BELGE, F. GROBELNY, C. MATTHIES, A. RADTKE, K.-P. DIECKMANN ( <i>Bremen; Hamburg, Germany</i> ) .....	163

DNA Methylation in Human Breast Cancer Cell Lines Adapted to High Nitric Oxide. B. DEMIRCAN, B. YUCEL, J.A. RADOSEVICH ( <i>Istanbul, Turkey; Chicago, IL, USA</i> ).....	169
Overexpression of Annexin A1 Is an Independent Predictor of Longer Overall Survival in Epithelial Ovarian Cancer. M. MANAI, R. DOGHRI, P. FINETTI, K. MRAD, R. BOUABSA, M. MANAI, D. BIRNBAUM, F. BERTUCCI, L. CHARFI, M. DRISS ( <i>Tunis, Tunisia; Marseille, France</i> ) .....	177
Sodium Selenite Enhanced the Anti-proliferative Effect of MEK-ERK Inhibitor in Thyroid Cancer Cells. J.B. KIM, E.Y. YANG, J. WOO, H. KWON, W. LIM, B.-I. MOON ( <i>Seoul, Republic of Korea</i> ).....	185
Differential Expression of Vascular Endothelial Growth Factor in the Cortex and Hippocampus upon Cerebral Hypoperfusion. Y.H. JUN, G.S. JU, Y.Y. CHUNG, H.-K. SHIN, D.-J. KIM, M.S. CHOI, S.T. KIM, K.M. SON ( <i>Gwang-ju, Republic of Korea</i> ).....	191
Transcriptomic Profiling of 3D Glioblastoma Tumoroids for the Identification of Mechanisms Involved in Anticancer Drug Resistance. N. CHAICHAROENAUDOMRUNG, P. KUNHORM, W. PROMJANTUEK, N. RUJANAPUN, N. HEEBKAEW, N. SORAKSA, P. NOISA ( <i>Nakhon Ratchasima, Thailand</i> ) .....	199
Expression of Podoplanin in Mammary Cancers in Female Dogs. P. BORECKA, R. CIAPUTA, I. JANUS, A. PIOTROWSKA, K. RATAJCZAK-WIELGOMAS, A. KMIĘCIK, M. PODHORSKA-OKOŁEW, P. DZIĘGIEL, M. NOWAK ( <i>Wroclaw, Poland</i> ).....	213
Testosterone Reduces Tight Junction Complexity and Downregulates Expression of Claudin-4 and Occludin in the Endometrium in Ovariectomized, Sex-steroid Replacement Rats. M.H. MOKHTAR, N. GIRIBABU, N. SALLEH ( <i>Kuala Lumpur, Malaysia</i> ).....	225
<i>Clinical Studies</i>	
Wireless Breast Localization Using Radio-frequency Identification Tags: The First Reported European Experience in Breast Cancer. U. WAZIR, S. TAYEH, N. PERRY, M. MICHELL, A. MALHOTRA, K. MOKBEL ( <i>London, UK; Peshawar, Pakistan</i> ) .....	233
Low-grade Fibromyxoid Sarcoma: Treatment Outcomes and Efficacy of Chemotherapy. F. CHAMBERLAIN, B. ENGELMANN, O. AL-MUDERIS, C. MESSIOU, K. THWAY, A. MIAH, S. ZAIDI, A. CONSTANTINIDOU, C. BENSON, S. GENNATAS, R.L. JONES ( <i>London, UK; Strovolos, Cyprus</i> ).....	239
Adverse Events of Concurrent Radiotherapy and ALK Inhibitors for Brain Metastases of ALK-Rearranged Lung Adenocarcinoma. T. NAKASHIMA, T. NONOSHITA, H. HIRATA, K. INOUE, A. NAGASHIMA, T. YOSHITAKE, K. ASAI, Y. SHIOYAMA ( <i>Fukuoka; Kitakyushu, Japan</i> ) .....	247
Laryngeal Diffuse Large B-Cell Lymphoma Presenting as Laryngeal Stenosis. Y. TANG, P. LI, D. CUA, J. LAI ( <i>Gainesville, FL; Salt Lake City, UT; Sacramento, CA, USA; Changsha, PR China</i> ) .....	255
Clinical Features of Head and Neck Solitary Extramedullary Plasmacytoma in Taiwan. C.-Y. LAI, H.-H. HSIEH, H.-K. CHEN, C.-Y. CHAO, C.-H. HUA, C.-J. TAI, D.-T. BAU, M.-H. TSAI, L.-C. SHIH ( <i>Taichung, Taiwan, ROC</i> ).....	261
Matrix Metalloproteinases (MMP-2,-3,-9) Gene Polymorphisms in Cases of Benign Vocal Fold Lesions and Laryngeal Carcinoma. V. LIUTKEVICIUS, V. LESAUSKAITE, R. LIUTKEVICIENE, P. VAICIULIS, V. ULOZA ( <i>Kaunas, Lithuania</i> ) .....	267
Hepatic Arterial Infusion Chemotherapy for Metastatic Breast Cancer Patients With Resistance to Standard Systemic Chemotherapies. M. FURUTA, J. WATANABE, T. ARAMAKI, A. NOTSU, H. YASUI ( <i>Shizuoka, Japan</i> ).....	275

Prognostic Significance of Neoadjuvant Rectal Score and Indication for Postoperative Adjuvant Therapy in Rectal Cancer Patients After Neoadjuvant Chemoradiotherapy. K. MAEDA, M. SHIBUTANI, A. TACHIMORI, T. NISHII, N. AOMATSU, T. FUKUOKA, H. NAGAHARA, H. OTANI, T. INOUE, M. OHIRA ( <i>Osaka, Japan</i> ) .....	283
Clostridial Infection After Open Fractures of the Lower Extremity – Report of Two Cases and Discussion of Pathomechanism and Treatment. M. TREMP, C.M. ORANGES, M. MAJEWSKI, D.J. SCHAEFER, D.F. KALBERMATTEN, C. BLOCH-INFANGER, P.E. OCHSNER ( <i>Basel, Switzerland</i> ) .....	291
Combination of C-reactive Protein and Monocyte Count Is a Useful Prognostic Indicator for Patients With Colorectal Cancer. M. YAMAMOTO, H. SAITO, K. HARA, K. SUGEZAWA, C. UEJIMA, A. TANIO, Y. TADA, K. KIHARA, T. SAKAMOTO, S. HONJO, Y. FUJIWARA ( <i>Yonago, Japan</i> ).....	299
Outcome of Radiation Therapy for Locally Advanced Vulvar Carcinoma: Analysis of Inguinal Lymph Node. Y. MUKAI, I. KOIKE, T. MATSUNAGA, N.R. YOKOTA, H. KAIZU, S. TAKANO, M. SUGIURA, E. ITO, E. MIYAGI, M. HATA ( <i>Yokohama, Japan</i> ).....	307
Osimertinib in Pulmonary Manifestations: Two Case Reports and Review of the Literature. H. LU, J. DOWELL ( <i>Dallas, TX, USA</i> ) .....	315
A Clinicopathological Analysis of S100A14 Expression in Colorectal Cancer. A. DIAMANTOPOULOU, D. MANTAS, I.D. KOSTAKIS, G. AGROGIANNIS, Z. GAROUFALIA, N. KAVANTZAS, G. KOURAKLIS ( <i>Athens, Greece</i> ) .....	321
Oesophageal Cancer: Conformal Radiotherapy vs. Hybrid-VMAT Technique With Two Different Treatment Planning Systems. M. MIYAZAKI, S. OHIRA, Y. UEDA, M. ISONO, M. FUJIWARA, M. TANOOKA, W. OKADA, R. NAKAHARA, M. SUEOKA, H. SUZUKI, T. TESHIMA, K. YAMAKADO ( <i>Hyogo; Osaka; Suita, Japan</i> ) .....	331
Advanced Age Is a Risk Factor for Recurrence After Resection in Stage II Colorectal Cancer. K. MIMA, J. KURASHIGE, N. MIYANARI, A. MORITO, S. YUMOTO, T. MATSUMOTO, K. KOSUMI, M. INOUE, T. MIZUMOTO, T. KUBOTA, H. BABA ( <i>Kumamoto, Japan</i> ).....	339
Clinical Implication of Pre-operative C-reactive Protein-Albumin Ratio as a Prognostic Factor of Patients With Pancreatic Ductal Adenocarcinoma: A Single-institutional Retrospective Study. M. MURAKAWA, N. YAMAMOTO, Y. KAMIOKA, M. KAMIYA, S. KOBAYASHI, M. UENO, M. MORIMOTO, Y. ATSUMI, T. AOYAMA, H. TAMAGAWA, N. YUKAWA, Y. RINO, M. MASUDA, S. MORINAGA ( <i>Yokohama, Japan</i> ).....	347
The Role of Sentinel Lymph Node Biopsy in Patients With B5c Breast Cancer Diagnosis. P. FREGATTI, M. GIPPONI, R. DIAZ, R. DE ROSA, F. MURELLI, F. DEPAOLI, F. PITTO, I. BALDELLI, G. ZOPPOLI, M. CEPPI, D. FRIEDMAN ( <i>Genoa, Italy</i> ).....	355
Genome-wide DNA Methylation Profiling of Blood from Monozygotic Twins Discordant for Myocardial Infarction. A. KOSELER, F. MA, I.D. KILIC, M. MORSELLI, O. KILIC, M. PELLEGRINI ( <i>Denizli, Turkey; Los Angeles, CA, USA</i> ) .....	361
Non-small Cell Lung Cancer as a Chronic Disease – A Prospective Study from the Czech TULUNG Registry. M. BRATOVA, B. KARLINOVA, J. SKRICKOVA, M. PESEK, V. KOLEK, L. KOUBKOVA, M. HRNCIARIK, J. KREJCI, M. BARINOVA, L. HAVEL, I. GRYGARKOVA, K. BRAT ( <i>Brno; Pilsen; Olomouc; Prague; Prostějov, Czech Republic</i> ).....	369

AVATAR: Analysis for Visual Acuity Prediction After Eye Interventional Radiotherapy. M.M. PAGLIARA, L. TAGLIAFERRI, J. LENKOWICZ, L. AZARIO, D. GIATTINI, B. FIONDA, M.G. SAMMARCO, V. LANCELLOTTA, M.A. GAMBACORTA, M.A. BLASI ( <i>Rome; Chieti, Italy</i> ).....	381
Combined Atezolizumab and Chemotherapy for a Patient With Double Primary Cancers. S. OKAUCHI, Y. SASATANI, G. OHARA, K. KAGOHASHI, H. SATOH ( <i>Mito, Japan</i> ).....	389
Multiparametric MRI Versus SelectMDx Accuracy in the Diagnosis of Clinically Significant PCa in Men Enrolled in Active Surveillance. P. PEPE, G. DIBENEDETTO, L. PEPE, M. PENNISI ( <i>Catania, Italy</i> ).....	393
Extended Pelvic Resections as Part of Secondary Cytoreduction for Relapsed Ovarian Adenocarcinoma. N. BACALBASA, I. BAILESCU, S. DIMA, M. VILCU, I. BREZEAN ( <i>Bucharest, Romania</i> ).....	397
Pancreatoduodenectomy After Neoadjuvant Chemotherapy for Locally Advanced Pancreatic Cancer in the Presence of an Aberrant Right Hepatic Artery. N. BACALBASA, I. BAILESCU, M. VILCU, A. CROITORU, S. DIMA, V. BRASOVEANU, I. BREZEAN, I. POPESCU ( <i>Bucharest, Romania</i> ).....	401
Upper Abdominal Resections as Part of Tertiary Cytoreduction for Relapsed Ovarian Cancer. N. BACALBASA, I. BAILESCU, M. VILCU, S. DIMA, I. BREZEAN ( <i>Bucharest, Romania</i> ) .....	407
Reducing Radiation Dermatitis Using a Film-forming Silicone Gel During Breast Radiotherapy: A Pilot Randomized-controlled Trial. S. AHN, K. SUNG, H.J. KIM, Y.E. CHOI, Y.K. LEE, J.S. KIM, S.K. LEE, J.-Y. ROH ( <i>Incheon, Republic of Korea</i> ).....	413
Total Dietary Fats, Fatty Acids, and Omega-3/Omega-6 Ratio as Risk Factors of Breast Cancer in the Polish Population – a Case-Control Study. D. DYDJOW-BENDEK, P. ZAGOŹDŹON ( <i>Gdansk, Poland</i> ).....	423
Lesion Revascularisation Subsequent to Femoropopliteal Spot Stenting Using the Multi-LOC Stent Delivery System. M. SIGL, K. AMENDT, M. WALISZEWSKI, N. RATHMANN ( <i>Mannheim; Berlin, Germany</i> ).....	433
Eruptive Melanocytic Nevi Secondary to Encorafenib for BRAF Mutant Metastatic Colorectal Cancer. A. MENEGUZZO, A. LAZZAROTTO, M. ALAIBAC ( <i>Padua, Italy</i> ).....	441
Risk Factors for Postoperative Complications After Vulvar Surgery. N. BACALBASA, I. BAILESCU, M. VILCU, S. DIMA, I. BREZEAN ( <i>Bucharest, Romania</i> ).....	447
E-Cadherin and Syndecan-1 Expression in Patients With Advanced Non-small Cell Lung Cancer Treated With Chemoradiotherapy. P. GKOGKOU, E. PEPONI, D. NTASKAGIANNIS, S. MURRAY, A. DEMOU, I. SAINIS, E. IOAKEIM, E. BRIASOULIS, P. TSEKERIS ( <i>Norwich, UK; Ioannina; Athens, Greece</i> ).....	453
Impact of the <i>ESM-1</i> Gene Expression on Outcomes in Stage II/III Gastric Cancer Patients Who Received Adjuvant S-1 Chemotherapy. K. KANO, K. SAKAMAKI, N. OUE, Y. KIMURA, I. HASHIMOTO, K. HARA, Y. MAEZAWA, T. AOYAMA, H. FUJIKAWA, Y. HIROSHIMA, T. YAMADA, H. TAMAGAWA, N. YAMAMOTO, T. OGATA, H. CHO, H. ITO, M. SHIOZAWA, N. YUKAWA, T. YOSHIKAWA, S. MORINAGA, Y. RINO, W. YASUI, M. MASUDA, Y. MIYAGI, T. OSHIMA ( <i>Yokohama; Tokyo; Hiroshima, Japan</i> ) .....	461
Comparison of FDG-PET/CT for Cancer Detection in Populations With Different Risks of Underlying Malignancy. H.-P. CHAN, W.-S. LIU, W.-S. LIOU, C. HU, Y.-L. CHIU, N.-J. PENG ( <i>Kaohsiung; Taipei, Taiwan, ROC</i> ).....	469