



Deliverable 2.2: Manuscript preparation of joint research publications

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Basic information

Project title	Strategies to strengthen scientific excellence and innovation capacity for early diagnosis of gastrointestinal cancers
Project acronym	VISION
Call	H2020-WIDESPREAD-2018-2020
Topic	WIDESPREAD-03-2018
Project type	Coordination and Supporting Action (CSA)
Grant Agreement No.	857381
Nature	R (Document, report - excluding the periodic and final reports)
Dissemination level	PU (Public, fully open, e.g. web)



Executive summary

Several joint research publications were generated and submitted to peer-reviewed journals during the VISION project as a result of close collaboration among the consortium partners. In each publication, the authors acknowledged the VISION project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 857381. In all cases, the consortium opted for golden open-access journals, or those free of charge with online access for any user. In total, 26 publications have been published and several others are under revision or evaluation.

All publications are available at the VISION website - <http://vision.sav.sk/publications.html> The open access to these publications, as well as other project outputs, is also granted in the ZENODO repository, in the community "VISION H2020 Project" - <https://www.zenodo.org/communities/vision-h2020/?page=1&size=20> .

Table 1 Overview of publishing activities of the VISION consortium

Research articles	Review articles	Editorials	Special issue	Proceeding from the conference	Submitted articles	Total IF	Mean IF
14	10	2	1	1	2	143.94	5.536

1 Description of work & main achievements

The following publications were published or are in preparation in collaboration with the VISION consortium.

1.1 Research articles

Michal Selc, Filip Razga, Veronika Nemethova, Petra Mazancova, Monika Ursinyova, Marta Novotova, Kristina Kopecka, Alena Gabelova and Andrea Babelova. Surface coating determines the inflammatory potential of magnetite nanoparticles in murine renal podocytes and mesangial cells. RSC Adv. 2020,10,23916. <https://doi.org/10.1039/d0ra03133j>

Yvonne Kohl, Margit Biehl, Sarah Spring, Michelle Hesler, Vladimir Ogourtsov, Miomir Todorovic, Joshua Owen, Elisabeth Elje, Kristina Kopecka, Oscar Hernando Moriones, Neus G. Bastús, Peter Simon, Tibor Dubaj, Elise Rundén-Pran, Victor Puentes, Nicola William, Hagen von Briesen, Sylvia Wagner, Nikil Kapur, Espen Mariussen, Andrew Nelson, Alena Gabelova, Maria Dusinska, Thomas Velten, and Thorsten Knoll. Microfluidic In Vitro Platform for (Nano)Safety and (Nano) Drug Efficiency Screening. Small 2021, 2006012. <https://doi.org/10.1002/smll.202006012>

Julie Earl, Emma Barreto, María E. Castillo, Raquel Fuentes, Mercedes Rodríguez-Garrote, Reyes Ferreiro, Pablo Reguera, Gloria Muñoz, David Garcia-Seisdedos, Jorge Villalón López, Bruno Sainz, Jr., Nuria Malats and Alfredo Carrato. Somatic Mutation Profiling in the Liquid Biopsy and Clinical Analysis of Hereditary and Familial Pancreatic Cancer Cases



Reveals KRAS Negativity and a Longer Overall Survival. *Cancers* 2021;13,1612. <https://doi.org/10.3390/cancers13071612>

Silvia Tyciakova, Valeria Valova, Barbora Svitkova and Miroslava Matuskova. Overexpression of TNF α induces senescence, autophagy and mitochondrial dysfunctions in melanoma cells. *BMC Cancer* 2021,21,507. <https://doi.org/10.1186/s12885-021-08237-1>

Katarina Kozics, Monika Sramkova, Kristina Kopecka, Patricia Begerova, Alena Manova, Zora Krivosikova, Zuzana Sevcikova, Aurelia Liskova, Eva Rollerova, Tibor Dubaj, Victor Puntos, Ladislava Wsolova, Peter Simon, Jana Tulinska and Alena Gabelova. Pharmacokinetics, Biodistribution, and Biosafety of PEGylated Gold Nanoparticles In Vivo. *Nanomaterials* 2021, 11, 1702. <https://doi.org/10.3390/nano11071702>

Agapi Kataki, Vassilis G. Giannakoulis, Anastasia Derventzi, Konstantinos Papis, Eythimios Koniaris, Manousos Konstadoulakis. Membranous CD44v6 is upregulated as an early event in colorectal cancer: Downregulation is associated with circulating tumor cells and poor prognosis. *Oncol Lett* 22: 820, 2021. <https://doi.org/10.3892/ol.2021.13081>

Solysova, A., Begerova, P., Jakic, K. *et al.* Genome-wide DNA methylome and transcriptome changes induced by inorganic nanoparticles in human kidney cells after chronic exposure. *Cell Biol Toxicol* (2022). <https://doi.org/10.1007/s10565-021-09680-3>

Barbora Svitkova, Vlasta Zavisova, Veronika Nemethova, Martina Koneracka, Miroslava Kretova, Filip Razga, Monika Ursinyova and Alena Gabelova. Differences in surface chemistry of iron oxide nanoparticles result in different routes of internalization. *Beilstein J. Nanotechnol.* 2021, 12, 270–281. <https://doi.org/10.3762/bjnano.12.22>

Urbanova M, Buocikova V, Trnkova L, Strapcova S, Kajabova VH, Melian EB, Novisedlakova M, Tomas M, Dubovan P, Earl J, Bizik J, Svastova E, Ciernikova S, Smolkova B. DNA Methylation Mediates EMT Gene Expression in Human Pancreatic Ductal Adenocarcinoma Cell Lines. *Int J Mol Sci.* 2022 Feb 14;23(4):2117. <https://doi.org/10.3390/ijms23042117>

Dubaj T, Kozics K, Sramkova M, Manova A, Bastús NG, Moriones OH, Kohl Y, Dusinska M, Runden-Pran E, Puntos V, Nelson A, Gabelova A, Simon P. Pharmacokinetics of PEGylated Gold Nanoparticles: In Vitro-In Vivo Correlation. *Nanomaterials (Basel).* 2022 Feb 1;12(3):511. <https://doi.org/10.3390/nano12030511>

Lucia Bálintová, Miroslava Matúšková, Alena Gábelová. The evaluation of the efficacy and potential genotoxic hazard of combined SAHA and 5-FU treatment in the chemoresistant colorectal cancer cell lines. *Mutation Research/Genetic Toxicology and Environmental Mutagenesis* 2022;874-875,503445. <https://doi.org/10.1016/j.mrgentox.2022.503445>

Marcello Ceppi, Bozena Smolkova, Marta Staruchova, Alena Kazimirova, Magdalena Barancokova, Katarina Volkovova, Andrew Collins, Anton Kocan, Zuzana Dzapinkova, Alexandra Horska, Verona Buocikova, Jana Tulinska, Aurelia Liskova, Miroslava Lehotska Mikusova, Zora Krivosikova, Ladislava Wsolova, Daniel Kuba, Elise Rund'en-Pran, Naouale El Yamani, Eleonora Martha Longhin, Erika Halasova, Soterios Kyrtopoulos, Stefano Bonassi, Maria Dusinska. Genotoxic effects of occupational exposure to glass fibres - A human biomonitoring study. *Mutation Research - Genetic Toxicology and Environmental Mutagenesis* 885 (2023) 503572. <https://doi.org/10.1016/j.mrgentox.2022.503572>



Kohl Y., William N., Elje E. et al. Rapid identification of in vitro cell toxicity using an electrochemical membrane screening platform. *Bioelectrochemistry* 153,(2023),108467. <https://doi.org/10.1016/j.bioelechem.2023.108467>

Jesús Frutos Díaz-Alejo, Simon April-Monn, Marina Cihova, Verona Buocikova, Jorge Villalón López, Maria Urbanova, Carmen G Lechuga, Miroslav Tomas, Peter Dubovan, Bárbara Luna Sánchez, Sonia Camaño Páez, Alfonso Sanjuanbenito, Eduardo Lobo, Estefanía Romio de la Heras, Carmen Guerra, Carolina de la Pinta, Emma Barreto Melian, Mercedes Rodríguez Garrote, Alfredo Carrato, Laura Ruiz-Cañas, Bruno Sainz Jr, Ana Torres, Bozena Smolkova, Julie Earl. Establishment of Pancreatic Cancer-Derived Tumor Organoids and Fibroblasts From Fresh Tissue. *J Vis Exp.* 2023 May 26;(195). <https://dx.doi.org/10.3791/65229>

1.2 Review articles

Ciernikova S., Earl J., Bermejo M.L.G., Stevurkova V., Carrato A., Smolkova B. Epigenetic Landscape in Pancreatic Ductal Adenocarcinoma: On the Way to Overcoming Drug Resistance? *Int J Mol Scie* 2020;21,4091. <http://dx.doi.org/10.3390/ijms21114091>

Kohl Y., Runden-Pran E., Mariussen E., Hesler M., El Yamani N., Longhin E. M., Dusinska M. Genotoxicity of Nanomaterials: Advanced In Vitro Models and High Throughput Methods for Human Hazard Assessment—A Review. *Nanomaterials* 2020; 10, 1911. <http://dx.doi.org/10.3390/nano10101911>

Mária Urbanová, Peter Dubovan, Miroslav Tomáš, Marína Cihová, Soňa Čierniková, Božena Smolková. Teoretický prehľad epigenetických zmien a ich možné využitie pri liečbe duktálneho adenokarcinómu pankreasu. *Onkológia (Bratisl.)*, 2020;15(5):324-328.

Verona Buocikova, Ivan Rios-Mondragon, Eleftherios Pilalis, Aristotelis Chatziioannou, Svetlana Miklikova, Michal Mego, Karlis Pajuste, Martins Rucins, Naouale El Yamani, Eleonora Marta Longhin, Arkadij Sobolev, Muriel Freixanet, Victor Puentes, Aiva Plotniece, Maria Dusinska, Mihaela Roxana Cimpan, Alena Gabelova and Bozena Smolkova. Epigenetics in Breast Cancer Therapy—New Strategies and Future Nanomedicine Perspectives. *Cancers* 2020, 12, 3622. <http://doi.org/10.3390/cancers12123622>

Martina Poturnajova, Tatiana Furielova, Sona Balintova, Silvia Schmidtova, Lucia Kucerova and Miroslava Matuskova. Molecular features and gene expression signature of metastatic colorectal cancer (Review). *ONCOLOGY REPORTS* 45: 10, 2021. <https://doi.org/10.3892/or.2021.7961>

Athanasios Patsalias, Zuzana Kozovska. Personalized medicine: Stem cells in colorectal cancer treatment. *Biomedicine & Pharmacotherapy* 141 (2021) 111821. <https://doi.org/10.1016/j.biopha.2021.111821>

Vassilis G. Giannakoulis, Peter Dubovan, Eleni Papoutsis, Agapi Katakis and John Koskinas. Senescence in HBV-, HCV- and NAFLD- Mediated Hepatocellular Carcinoma and Senotherapeutics: Current Evidence and Future Perspective. *Cancers* 2021;13,4732. <https://doi.org/10.3390/cancers13184732>



Poturnajova M, Kozovska Z, Matuskova M. Aldehyde dehydrogenase 1A1 and 1A3 isoforms – mechanism of activation and regulation in cancer. *Cellular Signalling* 2021;87:110120. <https://doi.org/10.1016/j.cellsig.2021.110120>

Bozena Smolkova, Agapi Katakaki, Julie Earl, Ignacio Ruz-Caracuel, Marina Cihova, Maria Urbanova, Verona Buocikova, Sandra Tamargo, Vita Rovite, Helvijs Niedra, Joerg Schrader, Yvonne Kohl. Liquid biopsy and preclinical tools for advancing diagnosis and treatment of patients with pancreatic neuroendocrine neoplasms. *Critical Reviews in Oncology / Hematology* 180 (2022) 103865. <https://doi.org/10.1016/j.critrevonc.2022.103865>

Iveta Mikolaskova, Tatjana Crnogorac-Jurcevic, Bozena Smolkova and Luba Hunakova. Nutraceuticals as Supportive Therapeutic Agents in Diabetes and Pancreatic Ductal Adenocarcinoma: A Systematic Review. *Biology* 2023, 12(2), 158. <https://doi.org/10.3390/biology12020158>

1.3 Editorials / Special issues

Bozena Smolkova, Julie Earl and Agapi Katakaki. The Metastatic Process through the Eyes of Epigenetic Regulation: A Promising Horizon for Cancer Therapy. *Int. J. Mol. Sci.* 2022, 23, 15446. <https://doi.org/10.3390/ijms232415446>

Earl, J.; Katakaki, A.; Smolkova, B. Liquid Biopsy in Gastrointestinal Cancers: How Close Are We to Reaching the Clinic? *Cancers* 2023, 15, 2831. <https://doi.org/10.3390/cancers15102831>

Bozena Smolkova, Julie Earl and Agapi Katakaki. Genetic and Epigenetic Regulations of Tumor Progression and Metastasis. *International Journal of Molecular Sciences* 2023. <https://doi.org/10.3390/books978-3-0365-7184-3>

1.4 Articles submitted / under revision

Maria Urbanova, Marina Cihova, Verona Buocikova, Jan Slopovsky, Peter Dubovan, Daniel Pindak, Miroslav Tomas, Laura García-Bermejo, Mercedes Rodríguez Garrote, Julie Earl, Yvonne Kohl, Agapi Katakaki, Maria Dusinska, Bruno Sainz, Jr., Bozena Smolkova, Alena Gabelova. “Nanomedicine and Epigenetics: new alliances to increase the odds in pancreatic cancer survival” was submitted to *Biomedicine and Pharmacotherapy*, IF 7.419, Manuscript Number: BIOPHA-D-23-03244. The reviewers’ comments have been received and we are now working on a revised version, which need to be sent by July 10th 2023 and we hope that the article will be accepted shortly.

Andrea Soltysova, Nicole Ludwig, Caroline Diener, Monika Sramkova, Katarina Kozics, Kristina Jakic, Neus G. Bastus, Oscar Hernando Moriones, Aurelia Liskova, Zora Krivosikova, Eva Rollerova, Alena Manova, Tibor Dubaj, Victor Punttes, Peter Simon, Ladislava Wsolova, Jana Tulinska, Bozena Smolkova, Eckart Meese and Alena Gabelova. “Residual metal nanoparticles accumulated in the body induce late toxic effects and alterations in transcriptional and miRNA landscape” was submitted to *Environmental Science: Nano*, IF 9.473, Manuscript Number: EN-ART-01-2023-000055. The reviewers’ comments have been received, and we are now working on a revised version.



1.5 Articles in preparation

Olesja Rogoza, Rihards Saksis, Anzela Halilova, Helvijs Niedra, Aija Gerina-Berzina, Sofija Vilisova, Ignacio Ruz Caracuel, Julie Earl, Georgina Kolnikova, Peter Dubovan, Miroslav Tomas, Peter Makovick, Maria Urbanova, Bozena Smolkova, Eythimios Koniaris, Ioanna Aggelioudaki, Agapi Katakis, Vita Rovite. Transcriptomic landscape of pancreatic neuroendocrine tumour tissue. Was submitted to and rejected by The Molecular Oncology journal. We are currently working on a revised version that will be resubmitted by the end of June 2023.

A common article will be prepared based on the VISION Final Report, describing the results/data produced by ESR students during their academic stays in partners' laboratories. This article will be sent to the Special Issue "Exocrine Pancreatic Pathology: Clinical and Molecular Updates". There is no publication fee, the deadline for submission is October 15, 2023.

1.6 Proceeding from the VISION conference

The organizers prepared the Proceedings of the Joint International Scientific Conference and International Network of Young Scientists VISION Conference with ISBN 978-80-972247-7-6. The Proceedings is available at - http://vision.sav.sk/jisc_inysc_vision_conference.html.

More information on the conference can be found in the deliverable D4.6 JISC & INYSC VISION Conference.

2 Deviation from the workplan

There was no deviation from the workplan. On the opposite, in addition to original articles of collaborative research efforts of the consortium, several review and editorial articles were published. Moreover, several other manuscripts are under revision or preparation.

3 Conclusion

During the project, 26 articles were published, and several others are under revision or preparation. Half of these articles are joint publications; at least two partners from the consortium are co-authors. One publication, a review (under revision), is a joint manuscript with contributions from all consortium partners. Furthermore, another two original research articles that stem from the close collaboration of consortium partners are planned. One manuscript will describe the outcome, achievements, and adaptive measures taken by the consortium in the face of the COVID crisis, and another will be based on transcriptomic analysis of pancreatic neuroendocrine tumors that was generated as part of another collaborative TRANSCAN II project where several members of the VISION consortium also collaborate.