This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 857381

VISION

# Deliverable 3.1: Training activities


| | |
|---|---|
| Author(s): | Lead author: Yvonne Kohl (FhG)<br>Co-authors: Alena Gabelova (BMC SAV), Bozena Smolkova (BMC SAV), Tatiana Siposova (BMC SAV), Alfredo Carrato (SERMAS), Julie Earl (SERMAS), Agapi Kataki (NKUA), Maria Dusinska (NILU) |
| Workpackage: | 3 |
| Task: | 3.1 |
| Version: | 3.0 |
| Date: | 18. 11. 2020 |

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 857381

## Contents

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 857381

VISION

## 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

To develop and acquire scientific and technical skills, short-term staff exchanges of early stage scientists and training activities are performed within the task 3.1. This training contributes to strengthening their personal and professional development in the field of gastrointestinal cancer and nanobiotechnology. To promote the involvement of early stage researchers by enhancing the reputation, credibility, attractiveness and networking activities of BMC SAV at both international and national levels, short term staff exchanges are realized to acquire skills in various cellular, molecular and genetic techniques involved in basic and clinical research. Due to the coronavirus pandemic situation the start of this task is delayed. Various short trainings have been defined.

# 1 Description of work & main achievements

Various training activities were defined and already planned to be realized partially in 2020. Due to the coronavirus pandemic situation the start of this task is delayed and the training activities had to be postponed. The exact dates of the training activities in 2021 will be determined during the next consortium meeting in March 2021. During the teleconference in May 2020, it was decided to split the training in theoretical and practical parts. Some of the theoretical parts of the training activities are available on the VISION website (open for the public) in section „EDUCATION ACTIVITIES" - http://vision.sav.sk/education.html, long before the start of the practical training.

In the following section the list of the specific trainings can be found:

Trainings at BMC SAV:

| Topic of the training | Date | Number of applicants | E-lectures |
|---|---|---|---|
| 1. Training in advanced *in vitro* models | 5.10.2020 - 10.11.2020 | 8 | Advanced *in vitro* models |
| 2. Training in epigenetic analyses – DNA methylation | 5.10.2020 - 10.11.2020 | 3 | Pyrosequencing, from primer design to data analysis |
| 3. Training in qPCR and gene expression | 5.10.2020 - 10.11.2020 | 5 | Introduction to RT-PCR |
| 4. Training in cellular stress response | 5.10.2020 - 10.11.2020 | 4 | a. Antioxidant enzymes<br>b. Nanomaterials_Actin cytoskeleton remodelling<br>c. New Technologies for Toxicity Testing |

Trainings at FhG:

| Topic of the training | Date | Number of applicants | E-lectures |
|---|---|---|---|
| 5. Training in advanced co-culture intestine model | tbd | | Intestinal co-culture models |
| 6. Training in *in vitro* 3D cell cultivation and stem cell differentiation | tbd | | Stem cells: Background – cultivation – differentiation |

Trainings at SERMAS:

| Topic of the training | Date | Number of applicants | E-lectures |
|---|---|---|---|
| 7. Study of cellular biological processes using nanoparticle devices | tbd | | - |
| 8. The use of the liquid biopsy in precision medicine – a virtual course | 30.11.2020 – 01.12.2020 | | Liquid biopsy protocols |
| 9. Isolation and culture of tumor and stroma cells from primary tumors | tbd | | - |
| 10. The involvement of tumor microenvironment in cancer progression | tbd | | - |
| 11. The use of mouse models in oncology research | tbd | | - |
| 12. Flow cytometry analysis of tumor biomarkers | tbd | | - |

The virtual course on Liquid biopsy in oncology, organized by the Ramón y Cajal Health Research Institute, Madrid, Spain, will cover the following key topics:

- Liquid biopsy in precision medicine in oncology
- Identification of tumor cells and stem cells in blood
- Identification of serum circulating miRNAs useful in the clinical practice
- Circulating free DNA in plasma as a biomarker in oncology
- Study of exosomes in oncology
- Future perspectives of the liquid biopsy in Oncology

Trainings at NKUA:

| Topic of the training | Date | Number of applicants | E-lectures |
|---|---|---|---|
| 13. Training in treating patients with GI tumors | tbd | | - |
| 14. Training in enrolling patients with GI tumors in research protocols | tbd | | - |

| | | | |
|---|---|---|---|
| 15. Training in surgical operational procedures aiming to treat patients with GI tumors | tbd | | a. Right colectomy: new concepts on classic surgery<br>b. Robotic gastrectomy |
| 16. Initiation in Medical Genetics and Genetic Counselling | tbd | | c. Principles of Cancer Genetic Counseling<br>d. The role of Genetic Predisposition in the Diagnosis, Treatment and prognosis of gastrointestinal cancer |
| 17. Training in exosome isolation methodology | tbd | | - |
| 18. Training in circulating tumor cells isolation methodology | tbd | | - |
| 19. Training in protein expression analysis | tbd | | e. Frozen Tissue Preparation for Flow Cytometry Analysis (A step-by step Protocol)<br>f. Immunohistochemistry for Paraffin-Embedded Sections A step-by step |

Trainings at NILU:

| **Topic of the training** | **Date** | **Number of applicants** | **E-lectures** |
|---|---|---|---|
| 20. High throughput genotoxicity testing training | tbd | | a. Colony forming efficiency<br>b. Cytotoxicity - Alamar Blue<br>c. Enzyme-linked Comet assay + video link to hCOMET COST website |
| 21. Training in confocal microscopy (characterisation, uptake of nanomaterials and in situ oxidative stress on live cells) | tbd | | |

| | | | |
|---|---|---|---|
| 22. Course in Good Laboratory Practice (GLP) for in vitro nano and genotoxicology, best practices with nanomaterial handling and preparation for testing | tbd | | |

To apply for the training the early stage researcher needs to submit the following documents, which are evaluated and selected by the VISION Steering Committee, based on the gender balance, the scientific scope of the application and how it can support VISION in achieving its objectives: A motivation letter, a support letter from the Home Institution (with signature), a full CV and a written letter of invitation from a senior researcher affiliated to the Host institution (the mentor).

To date we received complete documents of 16 applicants for multiple trainings of different topics.

In addition several e-lectures, most of the tutorials and Standard Operation Procedure (SOPs) are available online on the VISION website (open for the public) in section „EDUCATION ACTIVITIES" - http://vision.sav.sk/education.html.

# 2 Deviation from the workplan

Due to the current coronavirus pandemic situation the task „training activities" is delayed. Some of the trainings will take place in October/November 2020. The next training activities will be planned at the next VISION project meeting in March 2021. On the VISION website many e-lectures, tutorials and SOPs are already available for public as theoretical part of the training.

# 3 Conclusion

Due to the current coronavirus pandemic situation, all planned training activities could not be realized within the planned time frame. Some trainings were organized in October/November 2020 and other trainings are planned to start in the second half of 2021. The exact dates of the trainings in 2021 will be determined during the next consortium meeting in March 2021. It was agreed to split the training into theoretical and practical parts. Most of the e-lectures, tutorials and SOPs are already available for public as theoretical part of the training.