



Co-Funded by the European Union  
Horizon 2020 Framework Program (688207)

# DMC-MALVEC

## Diagnosis Management Communication-Malaria Vector Control

### Editorial

DMC-MALVEC is a multinational project entitled "Automated diagnostic platform, data management system and innovative communication tool, for improving the impact of malaria vector control interventions". It is financed by the European Commission's Horizon 2020 Framework under the specific programme: ICT-39-2015 - International partnership building in low and middle income countries (Contract No GA688207). The project aims to develop a fully integrated and automated (sample-to-answer) diagnostic platform (LabDisk) for monitoring the species ID, the infection status and the insecticide resistance profile of malaria vectors. The LabDisk will be interfaced with a Disease Data Management System (DDMS), which will collect and store data from routine entomological monitoring activities, and make them available in the form of stratified information based on "user queries". The "GAME", a modern ICT platform that employs interactive ways of communicating guidelines and exemplifying good practices of successful use of interventions will be also employed, to teach operational end users how to use the data to make informed decisions. The integrated system will be implemented in four sub-Saharan African countries, representative of malaria settings, to support informed decision making about vector control and disease management.

The DMC-MALVEC kick off meeting took place in Liverpool, UK, from the 23rd to the 24th of February 2016.

The main aim of the two-day meeting was to plan how this project will move forward and develop the structure in which all partners will work.



DMC-MALVEC Kick-off Meeting in Liverpool



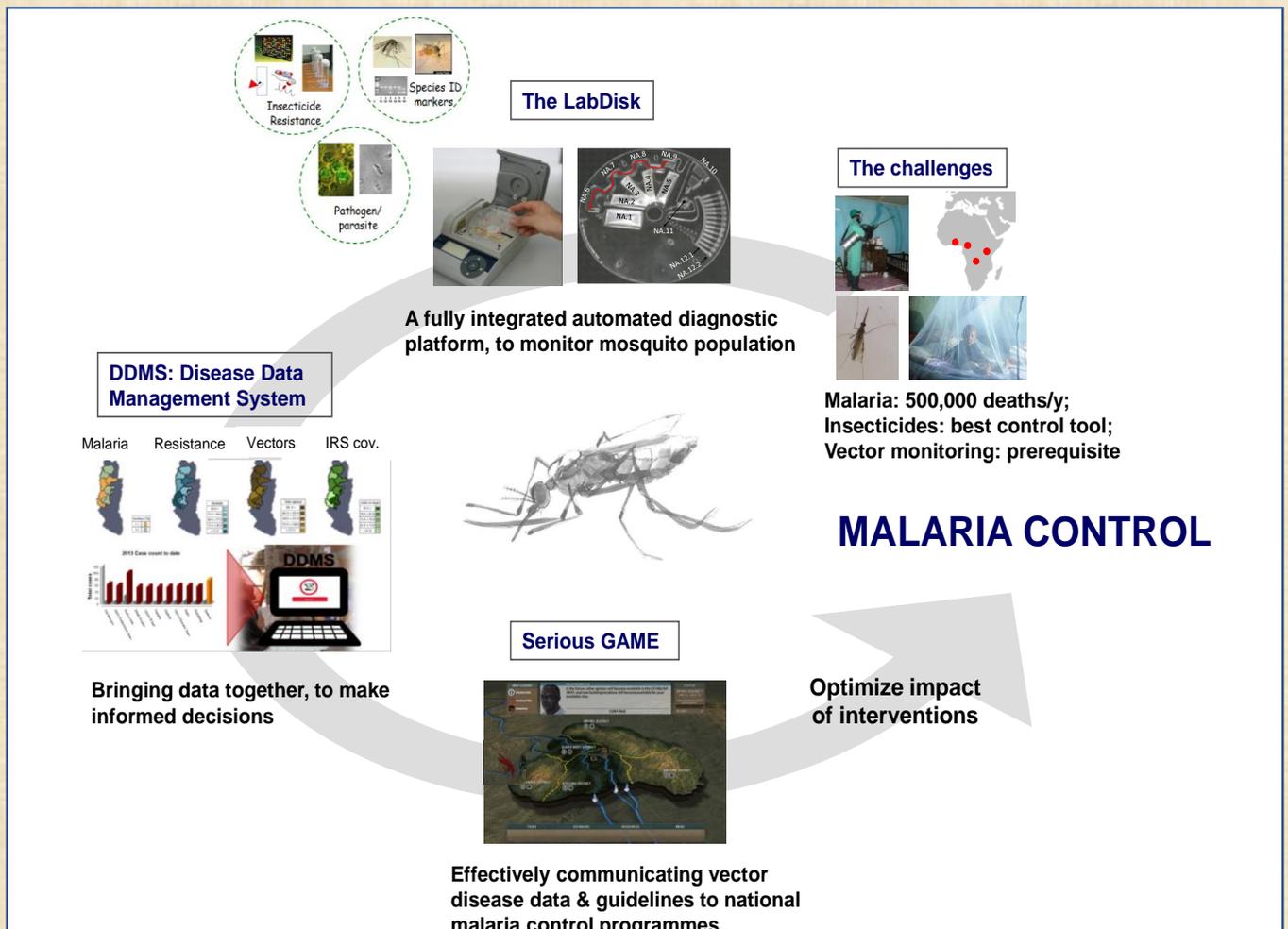
Co-Funded by the European Union  
Horizon 2020 Framework Program (688207)

# The Challenge

Malaria is a life-threatening disease causing ~500,000 deaths every year in sub-Saharan Africa, mostly in children under five and pregnant women. Prevention of the disease is best achieved by vector control which, today in Africa, relies on the use of insecticides. Monitoring mosquito vector populations is an integral component of most vector control programmes and a prerequisite for effective interventions. Several individual methods are used for this task, however, in resource poor malaria endemic countries, there are many obstacles to the uptake of these protocols, as well as further challenges in organizing, interpreting and communicating vector control data.

# Our Contribution

A diagnostic platform to monitor mosquito populations coupled with a data management system and disseminated through a communication system of data and guidelines (Figure 1).



**Figure 1** Schematic description of the DMC-MALVEC concept and objectives



DMC-MALVEC LabDisk meeting in Heraklion

A LabDisk Meeting took place in Heraklion, Crete (Jul 18-19, 2016). Strategic decisions were reached regarding the final design, protocols and combination of assays that will be included in the DMC-MALVEC LabDisk (Figure 2).

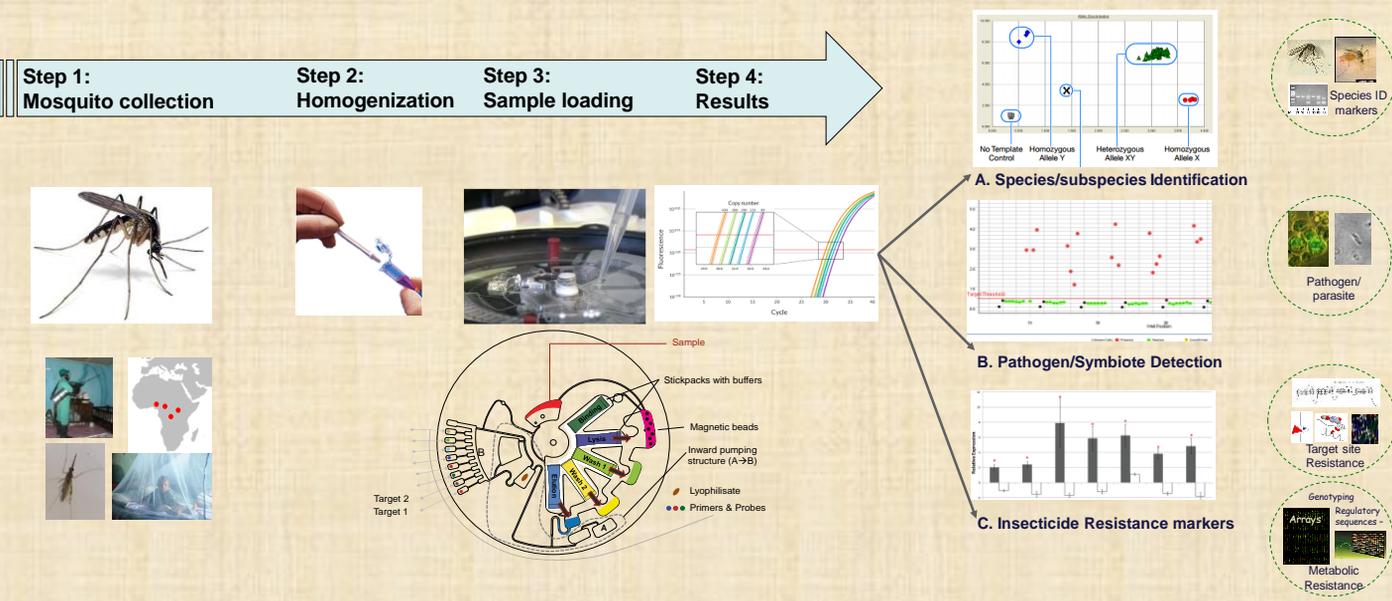


Figure 2 Sample-to-answer process of the DMC-MALVEC LabDisk



Co-Funded by the European Union  
Horizon 2020 Framework Program (688207)

# Moving Forward: Milestones covered and next steps



## NA extraction protocols in-tube developed

Currently the short-list of selected protocols is being tested on-disk

## Assays designed for *An. gambiae* disk

Currently assays are designed for the *An. funestus* disk

## Detox gene expression assays standardized in-tube

Currently assays are integrated for testing in the LabDisk

## A simple method for calculating *kdr* mutation frequencies in mosquito pools was established

A similar method is under development for the remaining assays



Specifications document with requirements and baseline information for the DDMS and Game has been completed

DDMS adapted to cater for gene expression data and analysis of pools of mosquito data

GAME was adapted and expanded





Co-Funded by the European Union  
Horizon 2020 Framework Program (688207)

# Dissemination events so far

## Scientific (peer reviewed) publication:

Automated innovative diagnostic, data management and communication tool, for improving malaria vector control in endemic settings. *Stud Health Technol Inform*;224:54-60, 2016.

## Table 1 Meetings, conferences, public events and dedicated website

No	Type of activities	Main leader	Title	Date	Place	Type of audience
1	Project website	J.Vontas	<a href="http://www.dmc-malvec.eu/">http://www.dmc-malvec.eu/</a>	30 March 2016	N/A	Open access
2	Conference Oral Presentation	K. Mitsakakis and S. Hin	Molecular Diagnostics Europe	05-07 April 2016	Lisbon, Portugal	Scientific community
3	Meeting Oral Presentation	J.Vontas	International Zika Summit, 2016	25-26 April 2016	Paris, France	Scientific community
4	Meeting Oral Presentation	J.Vontas	The Worldwide Insecticide Resistance Network (WHO-TDR)	22 May 2016	Montpellier, France	Scientific community
5	Conference Oral Presentation	J. Vontas	pHealth 2016. 13th International Conference on Wearable, Micro & Nano Technologies for Personalized Health	29-31 May 2016	Heraklion, Greece	Scientific community/Clinicians/Industry
6	Meeting Poster	K. Mavridis	IVCC stakeholder meeting and AvecNet open day	06 June 2016	Manchester, UK	Scientific community
7	Workshop Oral presentation	K. Mitsakakis and S. Hin	10th Annual Concertation and Consultation Workshop on Micro-Nano-Bio Convergence Systems (MNBS)	27 June 2016	Otranto, Italy	Scientific community
8	Public Event Poster	K. Mavridis	European Researcher's night FORTH	30 September 2016	Heraklion, Greece	Public
9	Conference Poster	S. Hin	Micro TAS International Conference on Miniaturized Systems for Chemistry and Life Sciences	09-13 October 2016	Dublin, Ireland	Scientific community
10	Meeting Oral	J. Etang	ANVR (African Network on Vector Resistance to insecticides) annual meeting	08-11 November 2016	Brazzaville, Congo	Scientific community
11	Meeting Oral Presentation	J.Vontas	MediLabSecure regional meeting & technical workshop on public health	15-16 November 2016	Belgrade, Serbia	Scientific community
12	Workshop Poster and Oral presentation	J. Vontas	International Workshop on "Insecticide resistance on emerging arboviruses: Challenge and prospects"	05-08 December 2016	Rio de Janeiro, Brasil	Scientific community
13	Meeting Poster and Oral presentation	J.Vontas	Roll Back Malaria- WHO VCWG Meeting	08-10 February 2017	Geneva, Switzerland	Scientific community
14	Meeting Oral presentation	E. Thomsen	International Society for Neglected Tropical Diseases Festival	22-23 February 2017	London, UK	Scientific community, industry, media



Co-Funded by the European Union  
Horizon 2020 Framework Program (688207)

## UPCOMING EVENTS

**DMC-MALVEC 1st Year Consortium Meeting: Freiburg, March 20-21 2017**

## CONTACT

**John Vontas** IMBB-FORTH, Heraklion, Crete, Greece,  
vontas@imbb.forth.gr +30 281039407

## DMC-MALVEC PARTNERS



ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ  
AGRICULTURAL UNIVERSITY OF ATHENS

