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.
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).
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
Moving Forward: Milestones covered and next steps

LabDisk

**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

DDMS

**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**

GAME

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

A simple method for calculating kdr mutation frequencies in mosquito pools was established
A similar method is under development for the remaining assays
Dissemination events so far

Scientific (peer reviewed) publication:

Table 1 Meetings, conferences, public events and dedicated website

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

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

CONTACT

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fast-track DIAGNOSTICS
TRUE POSITIVES, TRUE NEGATIVES.

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